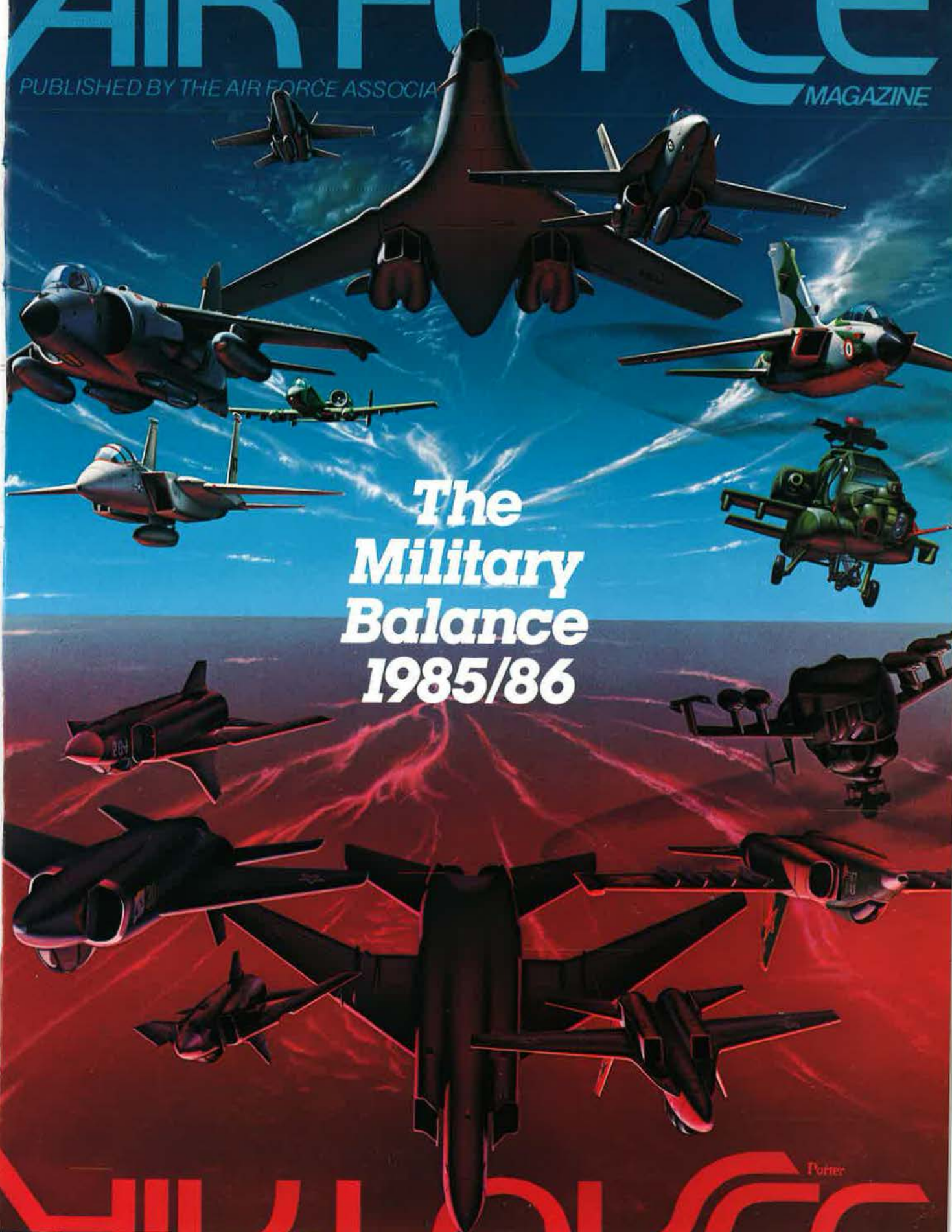


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MAGAZINE



The Military Balance 1985/86

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About the cover: This issue features the exclusive US presentation of "The Military Balance 1985/86," as compiled by the London-based International Institute for Strategic Studies. The cover is an airbrush rendering by artist John Porter. See box on p. 28 for identification of the various aircraft portrayed.

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AN EDITORIAL

Imperfect Options

By John T. Correll, EDITOR IN CHIEF

AIR FORCE Magazine began publishing *The Military Balance*, the standard international reference on military forces of the world, in 1971. As we do so again this month, it is appropriate to consider the developments over those fifteen years as a backdrop to interpreting the latest set of facts and figures.

All responsible analysts agree that the strategic position of the United States has declined in relation to that of the Soviet Union. There is substantial disagreement, however, about the consequences of that decline and about the proper course of action as a result of it. The question cannot be resolved by simple comparison of force and weapon numbers. A number of factors, especially the great differences in political objectives, geography, and defense requirements of the two nations, makes direct comparison almost meaningless. The only valid test of adequacy for US military power is the degree to which it could fulfill US defense strategy if called upon to do so.

That strategy is, first of all, a defensive one, the United States having, in effect, renounced the option of firing the first shot. This is of major military consequence, since it concedes advantages of surprise and initiative and would allow an adversary to determine when, where, and how a conflict would begin. US strategy must provide not only for defense of the United States but also for the protection of its allies. This requirement to guarantee extended protection is, in many ways, a more difficult proposition than defense of the American homeland.

The objective of US strategy is to deter war at all levels, denying any perception of possible victory to the adversary. If deterrence fails, the United States will seek to limit the scope and intensity of the conflict and to end it on terms as favorable as possible. A great deal has been made about whether or not this strategy obliges the United States to field a nuclear *warfighting* capability as opposed to a purely *deterrent* one. The distinction is interesting as an academic exercise, but in practice, credible deterrence requires a force that can conduct full strategic military operations and that is resolved to carry out the ultimate mission if ordered to do so. Otherwise, deterrence is only a bluff and will not work. The strategy clearly calls for a range of measured options for responses other than reflexive, all-out reprisal.

A more significant issue, then, is whether—despite force improvements of the past four years—our capabilities match the aspirations of our strategy. The answer is not comforting. Our general-purpose forces stand at levels below what their taskings would prescribe. But the first priority and the overriding concern is our central strategic capability. That is what our survival as a free nation depends on. All conflict today occurs in the nuclear shadow. Conventional forces of the major powers operate with the implicit backup of nuclear

forces. Local conflict, even among minor powers, can escalate and draw in the nuclear-armed nations.

Nearly all strategic force trends over the past decade and a half have run strongly in favor of the Soviet Union. It is too much to ascribe a first-strike capability, as the term is generally understood, to the Soviets, but they certainly have the advantage of what the Scowcroft Commission called “a one-sided strategic condition.” They can attack our ICBM force using only a portion of their own, whereas our ability to threaten their ICBMs in superhardened silos has declined dangerously.

We need a convincing hard-target capability to hold Soviet military power, the command and control machinery, and the political continuity of the Soviet state at risk. Our stated strategy requires that, and without it, we are positioned poorly to deter either Soviet aggression or Soviet attempts to intimidate the rest of the world into accommodation. The objectives and ideology of the Soviet Union are opposed, fundamentally, to those of the free world. Unless we are willing to redefine our national interests substantially—which is unlikely—or to think that the Soviets will redefine theirs—which is even less likely—we must find some means of addressing the strategic imbalance.

We might, to paraphrase Eugene Rostow, seek to restore stable deterrence in three ways: by building our deterrent force capability, by developing highly effective defenses, or by means of an arms-control agreement that provides for Soviet-American deterrent retaliatory equality.

These are three imperfect families of options. Our nation has demonstrated a limited will to provide for its armed defense. It is improbable that we will regain the strategic superiority we once enjoyed. James Schlesinger is right: We will hereafter live with a higher level of risk than we did in the past. Arms control, so far, has been a relatively dry well, but we must keep digging and hoping. Defensive capabilities would be a good addition and sound strategy—provided we do not expect defenses alone to do the job.

Our best hope, emerging from these three families of imperfect options, is a mixed approach. We should pursue the best parts of all three, and it appears that this is what the current Administration is doing, despite some colorful rhetoric that might suggest otherwise from time to time. Part of its program should be to keep pressing for a full complement of MX missiles as the most sensible way to improve our hard-target capability and to build on our deterrent force posture from there.

A Soviet Union secure in its strategic advantage has little motivation to bargain seriously on arms control. We, meanwhile, are precariously situated to deter exploitation of that advantage. When following a mixed approach, it's important that nothing essential be left out of the mix. ■

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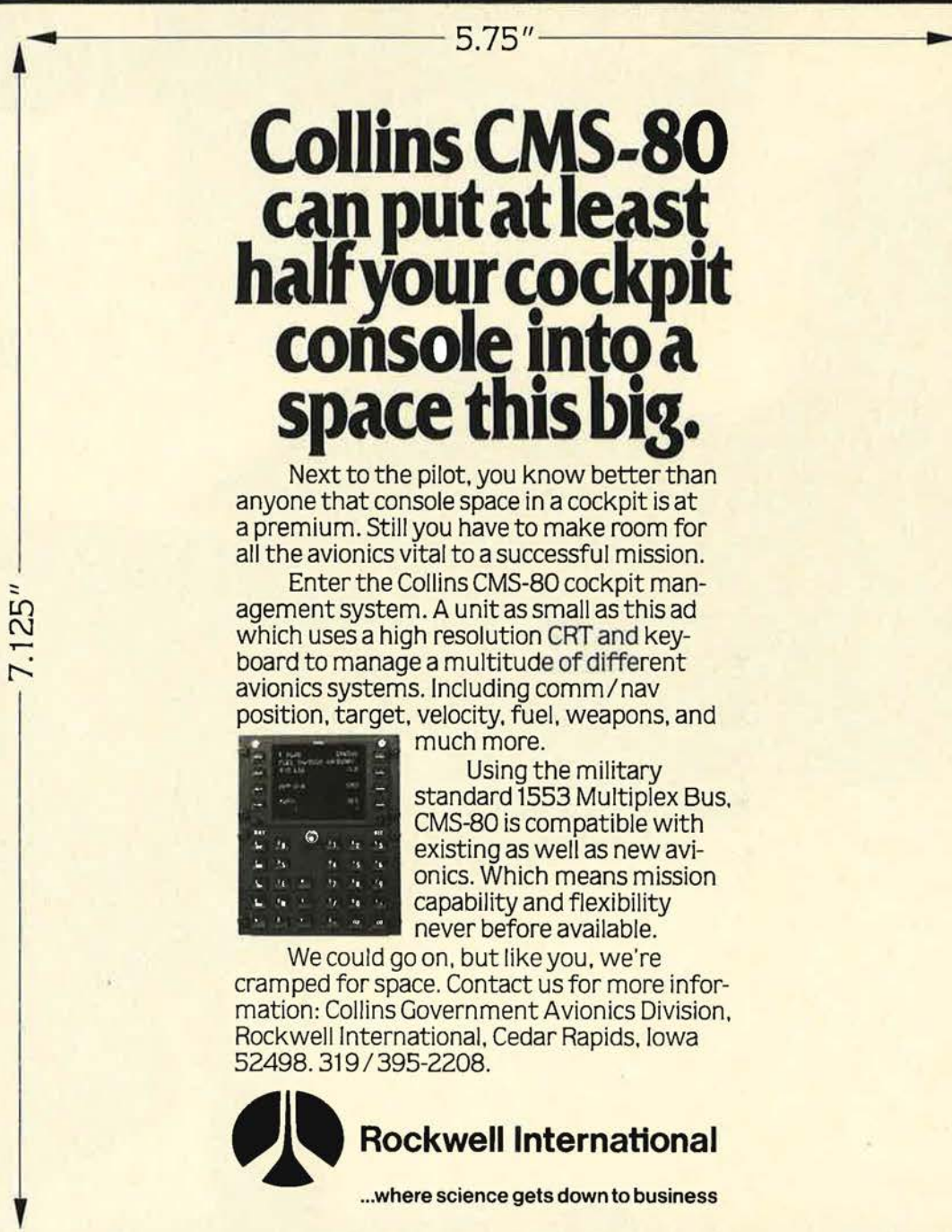
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U.S. Air Force F-4G Wild Weasel squadrons in Europe will be more effective after being equipped with imaging infrared Maverick missiles. The air-to-surface weapon sees through darkness, smoke, and haze by sensing heat radiated by objects. It is thus better suited to Europe's low-visibility weather than TV-guided missiles. IR Maverick creates a TV-like image of a target area on a cockpit display. The pilot locks the missile on the target, such as a radar site or an anti-aircraft gun, and launches it. The weapon guides itself to impact. Hughes Aircraft Company builds the AGM-65D Maverick for the U.S. Air Force.

Although already advanced, North America's air defense system will be improved in the next few years to become even more vigilant in protecting U.S. and Canadian skies. The Joint Surveillance System, developed by Hughes for the U.S. Air Force, spans the continent from Alaska to Florida and Labrador to Hawaii. Already Hughes is developing a new computer, called the 5118MX, which has 3 million words of memory and will be at least three times faster than the current computer. Eventually, too, radar information from E-3A AWACS (Airborne Warning and Control System) aircraft will be fully integrated with JSS to expand coverage more than 200 miles beyond U.S. and Canadian borders.

Battle management will get sophisticated new automated support when NATO's northern region installs a new system containing what may be the most complex large data base ever built. The system, known as NEC CCIS (Northern European Command, Command and Control Information System), will provide a secure network of computers and displays to support the commanders and staffs at 18 operations centers throughout Norway and Denmark. It will span echelons of command from squadron operations rooms and NATO air defense control centers to regional command headquarters. The system will gather, store, process, and display data to support the range of operational disciplines involved in multiservice battle management. Included are detailed status data on friendly units and intelligence on enemy forces. The system will help commanders use resources effectively and issue orders to tactical units. Hughes heads a team of Norwegian and Danish companies developing NEC CCIS, which is scheduled to go into operation by the end of the decade.

Lasers soon will be inspecting solder joints of fighter aircraft radars, thanks to new manufacturing technology being set in place at Hughes. Solder joints will be examined by a computerized technique using lasers and fiber optics, the glass threads that carry laser light transmissions. The process will free manufacturing personnel from tedious and time-consuming inspections of more than 36 million solder joints created in a single year's production. The project is part of an Industrial Modernization Incentive Program (IMIP) awarded by the U.S. Navy and Air Force. IMIP is a share-the-savings concept that will reduce costs of the F-14, F-15, and F/A-18 Hornet Strike Fighter radar programs by more than \$10 million, while improving the quality and reliability of the systems.

Complex microelectronics will be produced faster and better in a "paperless" factory in which computers instantly collect data and process work instructions. A new 71,000-square-foot facility at Hughes in Tucson, Arizona, will make complex custom hybrids—historically a major manufacturing challenge—for advanced missiles. The heart of the facility is a computer that ties into business and CAD/CAM (computer-aided design/computer-aided manufacturing) computers and scores of terminals at work stations. Labor requirements will be cut by up to 60%.

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AIRMAIL

Military and Media

Your incisive editorial, "In Search of the News" (December '85 issue, p. 8), hit the nail right on the head. It should be required reading for anyone who wants to stake out a position on the military and the media issue.

There are misperceptions and lack of understanding on both sides of the fence. Fuller appreciation of the four points cited in your editorial—by journalists and military leaders alike—will go a long way toward at least lowering the height of the fence. It's a false and potentially dangerous barrier that, in most cases, shouldn't exist.

Thanks for bringing a dispassionate, level-headed viewpoint to the forefront. We must stop the military-media wars and lower the polemics if we are to increase public trust in both government and journalism. You've made an excellent start.

Lt. Col. Lawrence L. McCracken,
USAF
Washington, D. C.

Your editorial "In Search of the News" in the December '85 issue of AIR FORCE Magazine was right on target. In this editorial, you have captured the essence of the problems that we see before us not only in the Air Force but in the corporate world and the professional world.

Having spent almost twenty years in the public affairs aspects of the Air Force and now with the Olympic program, I have seen the arrogance of some of the media—never willing to admit weaknesses, never willing to say that people do like to know what's going on (that's good news), ascribing to the need for professionalism, balance, objectivity, and integrity, but failing to fulfill the words with actions. There are some like that—and really too many, when you consider the influence of the media.

I am privileged to know some truly professional people in the media whom I consider not only friends but colleagues. Too often, they are the ones who get put down as being conservative rather than being professional.

I applaud you for printing an out-

standing article and a great magazine.

Richard F. Abel
Colorado Springs, Colo.

Your editorial "In Search of the News" in the December '85 issue amazes me. You sound like a man with a forked tongue—speaking out of both sides of your mouth at the same time. You speak very critically of newspaper reporting and accuse reporters of not reporting both sides of any issue.

Tell me when in heaven's name AIR FORCE Magazine will report both sides of an issue. Do you print articles from groups or persons who vehemently reject the nuclear arms race? The overspending on national defense? The continual drumming up for the industrial war machine? Of course you don't. . . .

As an old World War II person, probably an original member of the Air Force Association, and a current employee of the Air Force, I challenge you to print open and unbiased articles in AIR FORCE Magazine. Let's see how gutsy you are.

Irving Besser
Palo Alto, Calif.

Official News?

Editor in Chief John T. Correll is to be commended for his December '85 article "The Military-Media Wars" (p. 89). As an author and political writer long familiar with "media mediaocrity," I can assure you that "media mediaocrity" is something that is extensive, that is damaging to American national security interests, and that needs much more attention

Do you have a comment about a current issue? Write to "Airmail," AIR FORCE Magazine, 1501 Lee Highway, Arlington, Va. 22209-1198. Letters should be concise, timely, and legible (preferably typed). We reserve the right to condense letters as necessary. Unsigned letters are not acceptable, and photographs cannot be used or returned.

from both the military and the media.

Years ago, the American media professionals took some degree of pride in balancing national security interests with the news stories they were writing. Much of that reporting responsibility has given way today to a new philosophy that first showed up disturbingly during the Vietnam War: " 'Tain't the news that counts; it's tainting the news that's fun."

When the statements of the President of the United States are so often treated with skepticism and outright hostility by the American media while, on the other hand, statements coming from the Soviet leadership are so often regarded by the American media as "commandments worthy of being chiseled into stone," then it is no wonder why those Americans upon whom our national security interests fall most heavily are so often outraged by the lack of responsibility of the American media.

What is needed now to correct these excesses is an official governmental news agency. . . . Just as *Izvestia* and *Pravda* speak for the Soviet government, an official governmental news agency is now needed for the American people. Call it US Official Governmental News Agency or whatever—the name is not important, but the concept is.

Such a news agency, with extensive radio and TV outlets, would enable the American people to get official governmental news without it being "laundered" by the private media, without it being ridiculed by the private media, and without it being distorted by the private media.

Creating such an official governmental news agency would in no way interfere with the private media's First Amendment rights, nor would it leave the reporting of the news in the exclusive hands of those private interests that are wielding their own little private hatchets in reckless disregard of American national security interests.

An official government news agency—something worth thinking about, something whose time has come.

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AIRMAIL

Grand Old Gooney

No doubt thousands of your readers experienced warm feelings, as I did, while reading C. V. Glines's article on the fabulous Gooney (see "The Grand Old Gooney Bird," December '85 issue, p. 94). I also chuckled a "how true, how true," over Bob Stevens's cartoon recollections (see "There I Was . . ." December '85 issue, p. 136).

I never transported an elephant, but I did transport a sedated camel named "Figo" on an intercontinental flight that almost caused a major international incident. A base commander was certainly upset when the cargo was delivered to the wrong air base!

Having read elsewhere that Douglas engineers produced the DC design in just ten days, I feel that that probably explains the "luxurious" cockpit and the "remarkably simple" hydraulic control panel.

I'm sure that any of us who spent time in and loved the old bird could add numerous stories to Colonel Glines's collection.

'Tis a pity that USAF did not keep a few around so that the current generation of jocks (three of which are sons of mine) could experience the real thrill of flying—such as listening to the machine-gun sound of prop ice hitting the fuselage or enjoying the eerie quiet when the wrong prop is feathered over water in weather at night.

Thanks for a good magazine, a good organization, and the support our military justly deserves.

Lt. Col. William D. Neal, Jr.,
USAF (Ret.)
Jackson, Miss.

Your article "The Grand Old Gooney Bird" in the December '85 issue brought back many nostalgic and emotional memories. Never have I been more proud of the 1,500 hours that I put in in that bird. There are better instrument planes, better formation planes, planes that are easier to land—but the Gooney Bird ranks supreme among all aircraft! I flew the B-25, B-45, B-57, and B-47. Stepping aboard the C-47 was like going home.

It was probably the most forgiving aircraft that ever flew (like hitting a tree and later flying back to the States with about eight feet of the leading

edge of the left wing flat). Or a squadron buddy hitting a barrage balloon in the fog over England—the cable slipped between the left engine and the fuselage, cutting a gash of about fifteen inches in the wing. The shearing action cut the cable, and he returned to base no worse for wear. I'm sure that every Gooney Bird pilot has a thousand "there I was" tales.

I fell in love with the bird in 1941 as a commercial passenger between Mobile and Birmingham, Ala. I told my friend that I was going into the Air Corps to be a pilot and fly this plane.

She was and still is the queen of the skies.

Capt. Roy L. McNeal,
USAF (Ret.)
Virginia Beach, Va.

C. V. Glines's article on the Gooney Bird in the December '85 issue of AIR FORCE Magazine surely dusted off a lot of stories and memories.

I flew the Gooney Bird from 1953 to 1961, including participation in a project in Greenland in 1956 when we used skis and JATO bottles to fly to support sites on the ice cap.

On a fine autumn morning last month, Ed Ferber (who started flying more than fifty-five years ago) and I were standing in front of his house when a Gooney trundled overhead on its morning freight run. Just as Colonel Glines had speculated in his article, we too were discussing how the Gooney Bird seemed likely to fly forever.

We came up with an idea that seems appropriate. Let's put the Gooney Bird in orbit with the Shuttle. Then long will she fly!

While it was an idea made in jest, I'll bet thousands of old pilots (and young ones, too) would contribute to such a monument in the sky.

Col. J. A. Muehlenweg,
USAF (Ret.)
Midwest City, Okla.

As a qualified DC-3 pilot, I enjoyed "The Grand Old Gooney Bird" in the December '85 issue. However, there were several notes that I would like to make.

The MacRobertson Trophy Race in 1934 was won by a de Havilland Comet, a small twin-engine plane powered by two six-cylinder engines of 250 hp, and not a "souped-up" fighter as noted.

The Super DC-3 was a major modification of the "Three," with completely redesigned outer wing panels and tail surfaces that were enlarged to accommodate the much more powerful Wright Cyclone engines of 1,475 hp. Capital Airlines purchased five of this

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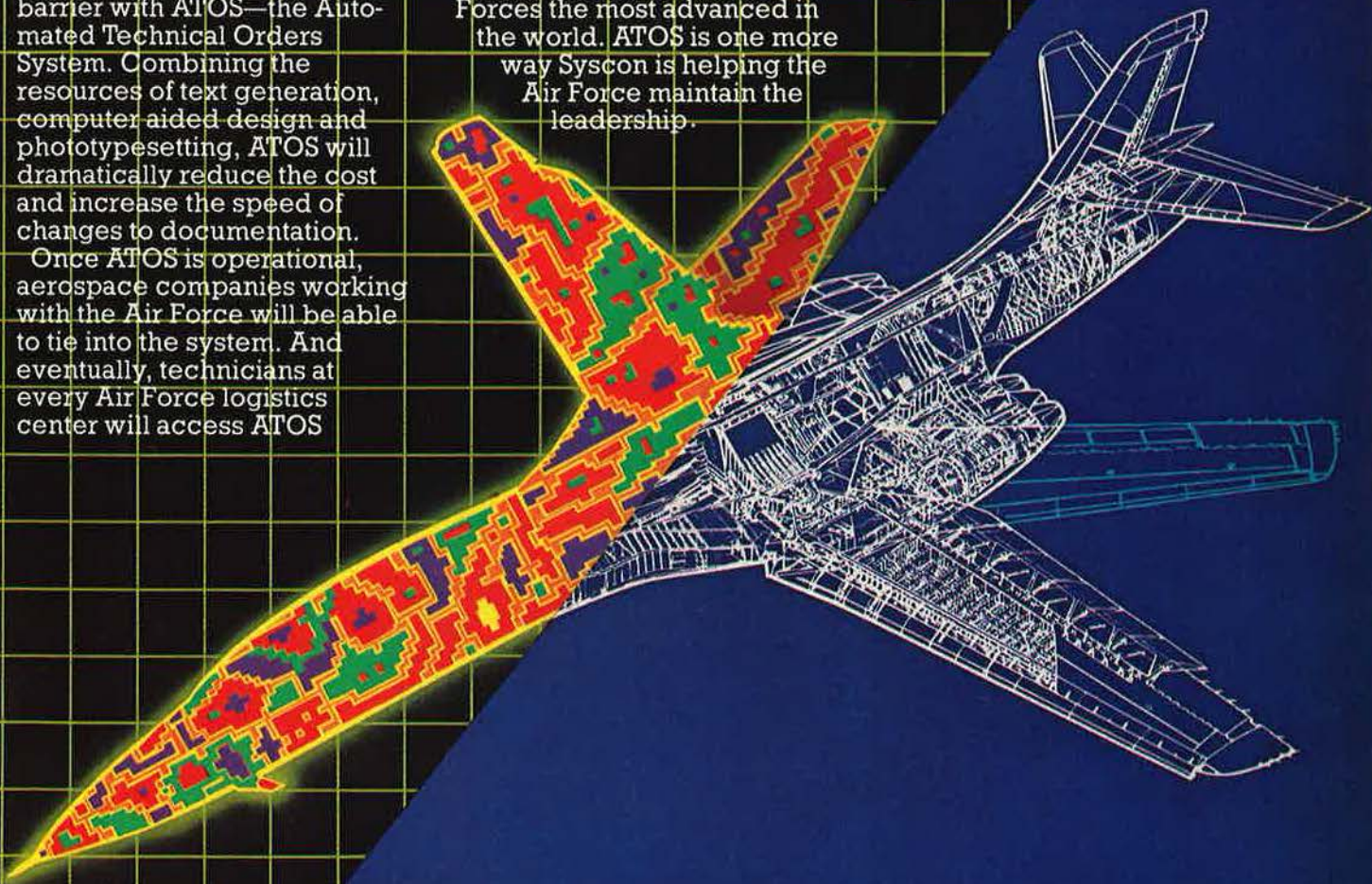
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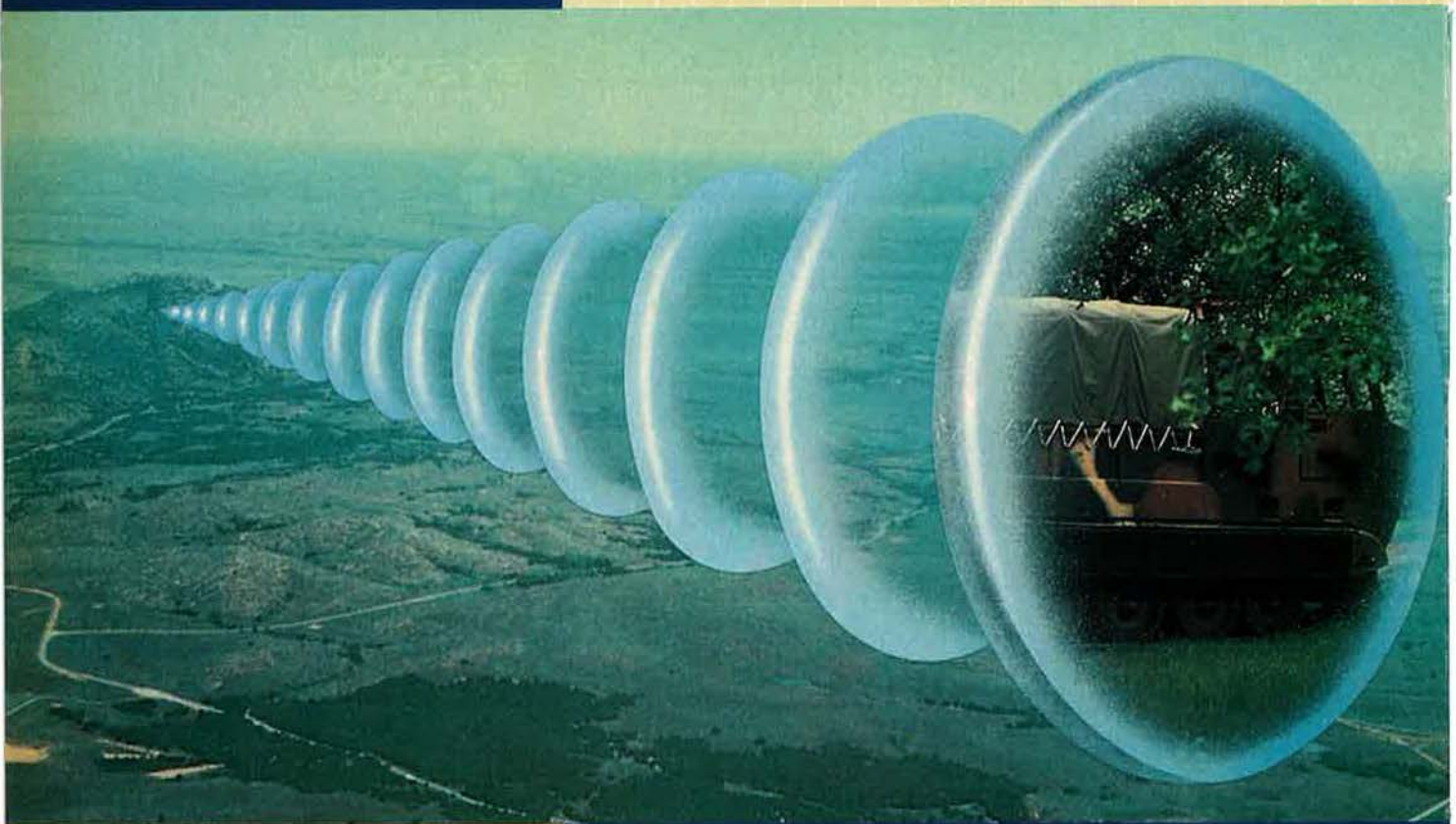
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D. T. Capasso
Haddonfield, N. J.

Academy Chapel

James Patterson's December '85 article, "The Chapel That Nearly Wasn't," was an interesting historical look at the early chapel design controversy.

Rep. Errett P. Scrivner, whom Mr. Patterson cites in the design dispute, was an uncle of mine. I had many talks with him about his concerns over the extreme design of the chapel. Based upon those talks, I would like to correct any misconceptions regarding Mr. Scrivner's opposition to the chapel design that Mr. Patterson's article might have left with your readers.

At no time did Mr. Scrivner want the Air Force Academy to be without a chapel. He, personally, was a devout, churchgoing Christian, the son of a minister of the Christian church (who married my mother and father). He understood the military well, having served in France in World War I, where he was awarded the Silver Star for gallantry in action under a gas attack.

Mr. Scrivner believed, perhaps more firmly than many do today, that a career military man can worship and love God without duplicity. He felt strongly that those new cadets needed to worship God. Moreover, he wanted them to have a dignified, traditional house of worship to accentuate the historical closeness of religion and the military.

When, after a long day on the Hill, he expressed to me his reservations about the then-radical chapel design, he was very sincere, and he had many congressional and religious leaders behind him. At no time did he want to prevent the building of a chapel at the Academy. If the cadets were to be required to attend chapel, and they were for many years, then he wanted the location of that worship to be inspiring and not what appeared to be cheap and tawdry. Later outvoted, as Mr. Patterson points out, he was not bitter. In a letter to me, he forecast that the building would leak (and it did!) and that it would become a tourist attraction out of all proportion to its mission at the Academy (and it has!).

My uncle never did see the finished chapel, to his great regret. After long service in Congress, he became a Deputy Assistant Secretary of Defense. He left Washington in 1961, retiring to Cocoa Beach, Fla., where he

AIRMAIL

died a few years ago. Mrs. Scrivner lives today in Orlando.

That the chapel, despite his opposition to the design, has come to serve the Cadet Wing (and the surrounding community, thanks to Academy officials) so well would make Mr. Scrivner very happy. He—and I—felt the irony when, in the summer of 1963, I was assigned to the Department of History at the Academy. My family and I were privileged to attend the dedication of the building he so strongly opposed. Added irony was the happy day in 1980 when I escorted our daughter, Anne, down the chapel aisle for her marriage to a former cadet, now Capt. Douglas M. Newlin.

I suspect that Mr. Scrivner would have joined, that day and now, with the current Superintendent, Lt. Gen. W. W. Scott, Jr., in his "pride" in the cadet chapel. He might, however, still frown a bit at the fact that his predictions of the 1950s all came true!

Lt. Col. John H. Scrivner, Jr.,
USAF (Ret.)
Colorado Springs, Colo.

Evolving Arms

With regard to the evolution of armament that you covered in your December '85 issue, I was intrigued by the piece about the testing of the imaging infrared Maverick at Nellis AFB, Nev. (see "Aerospace World," December '85 issue, p. 37).

While assigned to the Directorate of Studies and Analyses at Hq. USAF in 1966-68, I was given the task of preparing staff briefings for the Maverick A model.

Considering the years required to reach the current level of sophistication with the Maverick, I wonder how long it will take to achieve the requisite capability with the Strategic Defense Initiative.

Col. Peter Boyes,
USAF (Ret.)
Sacramento, Calif.

Photo Opportunity

This is in reference to my previous letter and the editor's response that was published in the December 1985 issue of AIR FORCE Magazine (see "Airmail," December '85 issue, p. 17).

While it is true that Angel Flight members do not have to adhere to AFR 35-10 standards, Lorrie Hall was identified only as a cadet in the pic-

ture in the September '85 issue. The AFROTC detachment at the University of Pittsburgh did not know why she was not identified as an Angel Flight member, but rather as a cadet.

I believe that the error was yours in failing to identify Lorrie Hall properly and that your response in the December '85 issue fails to note your error. Instead, it makes it appear that I have no idea about what I am speaking.

I trust that, in the future, you will be more careful in writing the captions that accompany photos and more honest in responding to letters from readers.

Marybeth H. Coffey
Del Rio, Tex.

I am always somewhat amused by readers' letters to the editor that chastise a newspaper or magazine editor for publishing pictures of AFR 35-10 violators. You printed two such letters in the December '85 issue—one concerned a uniform not properly ribboned, the other criticized an Angel Flight cadet's hair.

I am reminded of similar letters many years ago and the responses that my Dad gave, who at the time was the editor of *Air Force Times* (and who later contributed articles to AIR FORCE Magazine). He essentially felt that a publication is primarily interested in presenting newsworthy articles. If a picture of an individual happens to show a 35-10 violation, it is not the fault of the publication, and they should certainly feel no obligation to closely scrutinize or censor such photographs.

Pictures that show 35-10 discrepancies often times pretty accurately depict the real Air Force—most comply with standards, but some do not. If criticism is due, readers should direct it to the individual's supervisor or commander. Leave the newspaper and magazine editors alone.

Lt. Col. David N. Gates,
USAF
Mililani, Hawaii

Moore on the F-4

As an F-4 crew member, I read Capt. William M. Clifford's letter in the January '86 issue (p. 9) with interest, and I agree with his basic premise—he shouldn't stick his nose in something he demonstrably knows little about. While there are reasonable arguments against upgrading the F-4, they weren't in his letter.

This lack of knowledge is glaringly obvious in a number of Captain Clifford's comments. Seeking to illustrate the considerable difficulty of flying the F-4, he states, "[A]ccident reports . . . indicate that the pilot can-

AIRMAIL

not do it alone under all conditions." As most readers know, the F-4 has two crew members, so there are very few conditions in which the pilot has to "do it alone." "Loss of situation awareness" is not restricted to the F-4. It is the cause of accidents in a variety of aircraft and is also, apparently, a factor in Captain Clifford's letter.

Captain Clifford comments further, "The F-4 taxes the pilot to the extent that he is always concentrating on flying in order to survive." Well, sir, I don't know which "former F-4 pilots" you surveyed, but as an F-4 WSO, I can tell you firsthand that there are F-4 pilots capable of doing more than just "concentrating on flying in order to survive." In fact, there are quite a few who can employ the F-4 effectively as a tactical weapon.

As long as the F-4 is in the inventory, the feasibility of upgrading the aircraft will no doubt be discussed, but I'll bet Captain Clifford's arguments aren't used with much success.

(P.S.: Speaking of museum pieces, Captain Clifford, I'll also bet that you embarrassed more than a couple of your fellow heavy drivers who know that the F-4 has been in the fighter inventory just two years longer than the C-141 has been in the target inventory.)

Mark K. Moore
Stevensville, Md.

The Flying Wing

I believe you incorrectly gave credit to Alexander Martin Lippisch for developing the flying wing design (see "Aerospace World," December '85 issue, p. 45).

I believe that credit should rightfully go to the father of the flying wing, Jack Northrop.

Michael F. Brennan
Huntington Beach, Calif.

● *Tailless "flying wing" designs date as far back as Alphonse Penaud's 1871 rubber-band-driven model. According to the International Aerospace Hall of Fame, Alexander Lippisch "worked on airplane design in the years between the wars and developed a tailless aircraft sometimes called 'the flying wing.' " His interwar work on delta-wing designs is generally credited by aviation historians as foreshadowing the development of Northrop's Flying Wings and other modern supersonic aircraft. Few, however, would dispute the characterization of Jack Northrop as the "father" of the flying wing.—THE EDITORS*

Antisubmarine Command

I am in the process of writing my

doctoral dissertation on the overseas operations of the Army Air Forces Antisubmarine Command during World War II. My study will concentrate on the 479th Antisubmarine Group (Col. Howard Morre commanding), which operated from England in 1943, and the 480th Antisubmarine Group (Col. Jack Roberts commanding), which operated from England and later French Morocco in 1942-43.

Using B-24s, these groups had the primary mission of carrying out anti-submarine patrols in the Bay of Biscay (both groups) and the Mediterranean approaches (480th only). They also covered convoys and engaged numerous enemy aircraft in combat.

I would be most interested in hearing from any veterans of the 479th and 480th or their families who might have information that would aid my dissertation. I need your reminiscences, historical documents, and especially photographs so that my study will be as complete as possible. All materials will be handled very carefully, copied, and returned.

If you can help, please contact me at the address below.

Philip L. Driskill
3561 Skipstone Pl.
Columbus, Ohio 43220

Phone: (614) 771-0528

CAP Museum

During World War II, pilots of the Civil Air Patrol flew reconnaissance flights along the coastal waters of the US and were credited with sinking several German U-boats. For those pilots who were forced to ditch for whatever reasons, the "Duck" pin was awarded in recognition of their stint in the water.

The Civil Air Patrol is planning its national museum. We would like to request a donation of a "Duck" pin or any other CAP awards, insignia, uniform items, old publications, photos, or other CAP-related materials from World War II. All donations will be exhibited with the name of the donor.

If any CAP/USAF members would like to contribute, please contact the address below.

Capt. John B. Sparling, CAP
1325 N. W. 16 St.
Boca Raton, Fla. 33432-1208

Enlisted Heritage

The Enlisted Heritage Hall at the

USAF Senior NCO Academy is growing rapidly, and we need a distinctive symbol to represent the contributions of the enlisted force to the growth of airpower. This symbol will become a permanent part of the Heritage Hall to honor all enlisted members from the earliest days of flight up to the space age.

Designs for such a logo are being solicited from all current or former enlisted members who have served the cause of US airpower. Please send your design to the address below by February 15, 1986.

The winning entry will be chosen by the Heritage Hall Executive Committee, based on how well the design symbolizes the enlisted heritage. The winner will receive a \$200 US savings bond and the satisfaction of making a lasting contribution to the proud heritage of enlisted men and women.

Support your enlisted heritage by submitting an entry today!

USAF Senior NCO Academy
Enlisted Heritage Hall
Gunter AFS, Ala. 36114-5732

P-47s in Latin America

Recently, I completed a book for the Aerofax series entitled *The P-51 Mustang in Latin America*. Anticipating that this title will be popular, I've started work on a logical follow-on entitled *The P-47 Thunderbolt in Latin America*.

Naturally, I am interested in contacting pilots and technicians who may have served with the various US missions in Latin America where P-47s were delivered. Specifically, I'd like to contact those who had an association with the P-47 in Cuba, the Dominican Republic, Mexico, Nicaragua, Guatemala, Venezuela, Colombia, Ecuador, Peru, Brazil, Chile, or Bolivia.

Photos and anecdotal information would be gratefully received, and all letters will be answered and postage paid. Thank you for your assistance in this effort.

Daniel P. Hagedorn
912 Davie Lee
Copperas Cove, Tex.
76522-4211

Texas Towers

No historical report written about the Air Force's early warning radar stations, the Texas Towers, which operated in the mid 1950s and early 1960s, would be complete without gathering information from the Towers' support troops.

So, in conjunction with the Texas Towers project, I'd like to get in contact with any personnel who were assigned to the 551st AEW&C Opera-

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tions Squadron, particularly the pilots and crews of the H-21 helicopters that flew to the Towers, and any personnel assigned to the Towers' supply ships (or any other "Tower Troopers"). Also, I need either a photograph or a manual for the TA-277/GTA-6 tactical telephones that were used on the Towers.

Any material lent to me will be reviewed, and pertinent data will be carefully copied and promptly returned. Credit will be given for material used.

Charles P. Zimmaro
1111 Glenview St.
Philadelphia, Pa. 19111

Phone: (215) 745-4511

89th TMS

The 89th Tactical Missile Squadron has recently been activated in Europe. As the unit historian, I would like to contact any readers formerly associated with or having any information about any of the following:

The 89th Bomb Squadron (1941-49), the 89th Tactical Missile Squadron (1962-66), the 10th Reconnaissance Squadron (1940-42), the 3d Bomb Group (1941-45), the 38th Bomb Group (1945-49), A-20 and A-26 aircraft, and the TM-76 (later MGM-13) Mace tactical missile.

I need any photographs, notes, histories, memorabilia, etc., with which we can share in the pride of past accomplishments. Any loaned items will be returned, and I will share what I already have with those who are interested.

Your help is urgently requested and will be greatly appreciated.

1st Lt. Thomas Randall, USAF
89th TMS, Box 5971
APO New York 09109-5429

KC-97 218-53

F2G Corp. has purchased a KC-97 tanker (218-53). We are restoring the aircraft, to include detailing the cockpit. This aircraft will be on display at the McMinnville Airport in McMinnville, Ore.

A two-story building will house a restaurant facility next to the aircraft, with a connecting entrance to the plane for dining.

We are in need of the history of this plane, which was assigned to the 384th Air Refueling Squadron at one time. We are also looking for any in-flight refueling operations photos or any other suitable photos that we could put on display.

F2G Corp.
Ralph Matson
P. O. Box 97
McMinnville, Ore. 97128

Phone: (503) 472-4663

AIRMAIL

5th Photo Group

The 26th Tactical Reconnaissance Wing at Zweibrücken AB, Germany, traces its lineage back to the 5th Photo Group of World War II fame. As historian for the wing, I am trying to put together photos, papers, and other memorabilia from the 5th Photo Group for permanent display.

Additionally, as part of a USAFE effort, I am seeking photos of 5th Photo Group nose art from one of its aircraft. We will select one of these examples of WW II nose art to copy onto one of the 26th TRW's RF-4Cs.

Any material sent will be copied and returned to its owner expeditiously.

SSgt. Richard L. Barrett, USAF
26th TRW/HO
APO New York 09860-5000

Atlas Missile Bases

I am working on a historical paper on the Atlas missile bases placed just outside of Roswell, N. M., in the 1960s. My primary concern will be the impact of the base structures on the agricultural and economic life of the farmers and ranchers of the area.

I would appreciate correspondence from any officers and enlisted men who served missile base duty at Roswell in the late 1950s and the 1960s. You can contact me at the address below.

Terry Isaacs
History Dept.
South Plains College
Levelland, Tex. 79336

Seabees on Tinian

I am researching information on the 135th United States Naval Construction Battalion that built North Field on Tinian, October 1944 to June 1945. This information will be used for a doctoral dissertation on the Seabees during this time period.

I would like to hear from former members of the 135th USNCB about their experiences on Tinian during World War II. Any information, letters, diaries, journals, etc., would be appreciated. I will be extremely careful with any personal material and will make copies and return the originals to the sender.

Please contact the address below.
Maj. George A. Larson, USAF
727 14th Ave.
Coralville, Iowa 52241

AAS Display

The Arnold Air Society of AFROTC Detachment 017, Troy State University, is conducting a search for complete uniforms, uniform items, mementos, and other memorabilia that can be used as display material in the detachment's Air Force museum.

We already have some material covering the period from World War I through Vietnam, but we are looking for more depth. Our display cases can display complete uniforms on mannequins. Detail and backdrop items, such as patches, wings, badges, and photographs, would be greatly appreciated as well.

Please include your name, grade, unit, year of use, and present or retired grade with your donation so that a suitable display plaque can be made to accompany your donation.

Please contact the address below.
Capt. John Sistrunk, USAF
AAS Advisor
Dept. of Aerospace Studies
Troy State University
Troy, Ala. 36082

Phone: (205) 566-5115

AFROTC Det. 157

Embry-Riddle Aeronautical University's AFROTC Detachment 157 is currently conducting research on its alumni.

We would like any alumni of this detachment to send us a picture, a short biography, and a patch, if they are on flying status. These items would be used for an alumni board to help motivate our cadets. We hope to demonstrate that goals can be reached if you "aim high."

If you are interested in helping us out, please contact the address below.

Alumni Board
AFROTC Det. 157
Embry-Riddle Aeronautical
University
Daytona Beach, Fla. 32015

AFROTC Det. 255

The cadets of AFROTC Detachment 255 at the University of Iowa are currently searching for alumni of the detachment. A recent increase in the number of cadets enrolled in the program has sparked interest in finding our alumni and learning about their careers.

Any alumnus of this detachment is invited to contact us at the address below.

AFROTC Det. 255
Armory, University of Iowa
Iowa City, Iowa 52242

AAS/AFROTC Det. 772

The John A. Lang, Jr., Squadron of

the Arnold Air Society (AFROTC Detachment 772, Baptist College at Charleston, S. C.) is setting up a computer data base to keep track of its alumni and members. We would like to ask each of our alumni to send us a short biography that includes current address, career, present rank, and hometown.

Please send the information to the following address.

AAS Alumni
Attn: DC
AFROTC Det. 772
Baptist College
Charleston, S. C. 29411

Phone: (803) 797-4113

Roll Call

I am trying to locate a friend of mine whom I last saw when we were stationed together at Davis-Monthan AFB in Arizona. This was during the mid 1970s—1975-76. His name is M. Keith Miller. He was a staff sergeant and hailed from a Pennsylvania town by the name of Dillsburg.

Should anyone have any knowledge as to his present whereabouts, would they kindly contact me at the following address?

Dave Abel
713 June St.
York, Pa. 17404

I'm the only surviving member of the family of engineer-gunner Sgt. Forest Phibbs of Burlington, N. C. Per a chaplain's letter, I learned that he was a crew member of a Lieutenant Lucey's B-24 Liberator that exploded over Manila in the Philippines on January 8, 1945. Three of the crew parachuted to safety, one landing near Nichols Field. Seven bodies were later recovered that March, but my father was not among them. He was later declared dead.

I need to contact anyone who served with him. Is forty years too late?

Forest R. Phibbs, Jr.
111 Ole Hickory Trail, N.
Carrollton, Ga. 30117

Do any readers know of a Robert Costello who flew with the Army Air Forces during World War II?

I am seeking information about this man. He was a native of Pittsburgh and flew B-24s in Italy during the war. After the war, he returned to the service and subsequently made it his career.

Anyone with any knowledge of this person is asked to contact me at the address below.

Phil Berardelli
7022 Alicent Court
McLean, Va. 22101



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 - in both cases less than 10 min is required to load the bombs on the aircraft.
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LORAL

The Promise of Antimatter

By Edgar Ulsamer, SENIOR EDITOR (POLICY & TECHNOLOGY)

Revolutionary propulsion concepts could put Mars only a few weeks away, with spacecraft accelerating constantly rather than coasting for most of the flight.



Washington, D. C., Jan. 3

Project Forecast II, the Air Force's panoramic window on technologies that could revolutionize defense concepts in the next century, has locked on antiprotons, a form of antimatter, as a highly promising means to advance space propulsion even beyond the energy levels of nuclear fission or fusion.

The daring scheme received significant impetus from the collective European CERN high-energy physics facility in Switzerland that is producing infinitesimal quantities of two types of hydrogen particles, one positively charged—and hence identified as a proton—and the other negatively charged—and therefore called an antiproton. The practical consequence of this arcane high-energy physics experiment might well be the discovery—and future exploitation—of one of the most energetic reactions in the universe. When the hydrogen proton is caused to hit its twin—which weighs in at the identical atomic weight but with an equivalent opposite charge—they annihilate one another totally and transform themselves into pure energy.

The process of separating hydrogen molecules into protons and antiprotons is enormously difficult, costly, and tedious. At this time, the CERN accelerator is ahead of US facilities in performing this extremely demanding task. World production of hydrogen protons and antiprotons proceeds at a snail's pace—totaling about 10^{13} such particles a year.

Initial US research—carried out under the aegis of Forecast II—points

toward the feasibility of stepping up the production rate to about 10^{22} particles per year in the future through modification of existing and planned accelerators in this country. The reaction of matter and antimatter of this type leads to energy production without any by-products whatsoever, releasing much more energy than either nuclear fission or fusion. At this time, the scientific community prefers to hedge forecasts about just how much energy is released when protons and antiprotons annihilate one another. But according to some tentative calculations, it appears that one gram of this matter and antimatter—which equates to about 10^{22} particles, or about one year's worth of the envisioned US production—might be able to take a large orbital transfer vehicle from low earth orbit to geosynchronous (22,500 statute miles up) orbit and back between 500 and 1,000 times. This assumption is strictly theoretical, because it takes into account only the generation of energy and not the translation of that energy into spacecraft thrust.

The initial notion is to use the energy released by the mutual annihilation of matter and antimatter to heat and expel at high velocity some substance to generate propulsive thrust. Translated into specifics, the initial findings from Forecast II suggest that if it is possible to take about one milligram of hydrogen protons and antiprotons into space and to use this superenergetic propellant in a reasonably efficient propulsion system, then manned Mars missions become a distinct possibility. A spacecraft using this kind of propellant could probably accelerate all the way to and from Mars and thereby cut the transit time from about two years to several weeks—perhaps less than one month.

Even the best space propulsion systems that could be built with current technologies entail travel times to and from Mars measured in years, since the underlying concept is to accelerate just once each way and then coast. A proton/antiproton-based propulsion system, on the other

hand, ought to be able to accelerate throughout the flight. The payoff from matter/antimatter propulsion in future air-breathing vehicles might exceed that of space propulsion, because heated air could be used to provide propulsive thrust. Nevertheless, at this inchoate state of the concept, it appears that hydrogen proton/antiproton propulsion makes more sense in the case of space applications. Both the vacuum and essential absence of magnetic and gravitational fields in space make it easier to hit protons with antiprotons in that medium than in the terrestrial environment.

The Forecast II team may soon formulate plans for the tentative validation of this concept. It appears that a relatively low-cost research effort—on the order of several million dollars—might come up with proximate answers to such questions as whether or not these particles can be produced in useful quantities at affordable costs, what it would take to store them, and what the mechanism needed to translate them into energy might look like. If after a \$5 million to \$10 million investigation the fundamental viability of the concept is confirmed, the US, of course, would have to develop its own CERN-like capabilities.

The Forecast II investigators harbor no illusions about the price tag involved. It would represent a significant investment. While the US has developed accelerators that are in some ways bigger and more powerful than CERN, they lack the latter's ability to bombard hydrogen particles with one another with sufficient force to produce significant quantities of matter and antimatter. The possibility of acquiring samples of hydrogen protons/antiprotons from the European scientists running the CERN accelerator is being examined to enable US researchers to conduct basic scientific experiments with antimatter relatively soon.

Storage of these volatile particles poses a major problem and will probably involve a stringent cryogenic (supercooled) environment and contain-

ment by means of strong electromagnetic fields. While the development of proton/antiproton systems for propulsive or other promising applications is probably many years away, the available information pooled by Forecast II suggests that this revolutionary technology could be brought to fruition over time.

The hydrogen proton/antiproton propulsion concept is one of three space motors under examination by Forecast II. Although less spectacular, the other two, nevertheless, could also lead to significant breakthroughs.

One of them involves a revisit—after a decade-long hiatus—of nuclear-powered space propulsion. The proposed approach is a giant step up from the technologies associated with NASA's defunct NERVA project and the so-called "Ion Engine." The scheme under investigation by the Forecast II team is known as "safe compact nuclear propulsion" and centers on sophisticated ceramic-clad pellets that contain nuclear fuel and that look like grains of sand. This approach seems to make it possible to control the nuclear reaction process in a precise, safe fashion as well as to keep the resultant fission products inside these ceramic capsules. Because these tiny pellets have relatively large surface areas, they can release large amounts of thermal energy. None of the fission products of this type of nuclear reaction is released into the exhaust of such an engine. Once the nuclear fuel of such a propulsion system is exhausted, it is possible to dispose of the nuclear residue. The easiest, safest way is to "shoot" the spent fission by-products into outer space by means of small boosters.

Initial calculations suggest that an engine "burning" these ceramic pellets could produce some 10,000 pounds of constant thrust, yet be no larger than a standard oil drum. As in the case of the proton/antiproton engine, the nuclear space motor appears well suited to shunting payloads between low earth orbits and geosynchronous altitudes. In addition, the small nuclear engine could be used to enhance the maneuverability—and hence the flexibility and survivability—of future military spacecraft. This engine lends itself readily to safety measures that can prevent nuclear explosions or the release of nuclear radiation in case of accidents at the launchpad.

The third space propulsion technique under investigation by Forecast II involves an aspect of quantum physics that holds that matter can be

IN FOCUS...

"pumped" from an unelevated to an elevated state of energy and the other way around. There are indications that it might be possible to keep matter in a stable, elevated state and to release vast amounts of energy at will by coaxing it to an unelevated state. The potential feasibility of creating "stable" elevated chemicals is thought to be of great promise to propulsion systems of future aerospace planes or other advanced aerospace vehicles. The latter represent another technology considered of vast military potential by Forecast II.

Other advanced schemes of potentially dramatic importance to the Air Force unearthed by Forecast II include ground-based antennas that can feed microwave power to space-based "collectors" or "space mirrors" in the ionosphere. Ground-based phased-array lasers could also be developed to transmit energy to such devices. The potential utility of ground-based microwave antennas might be their ability to beam up large quantities of power to collectors in space that in turn can be used to provide energy for large space complexes. This would eliminate the need to generate power in space, which is both costly and difficult.

Microwave power transmission into space might also make it possible to "smooth out" the ionosphere during periods of auroral disturbance (Northern Lights). Initial indications are that microwaves can be bounced from "space mirrors" in the ionosphere, which in turn would permit the creation of high-resolution over-the-horizon backscatter (OTH-B) radars. Radars of this type bounce their signals back and forth between the ground and the ionosphere and thereby can see "over the horizon." By using powerful microwave transmissions from the ground, it appears possible to control and optimize the location and nature of such high-quality space mirrors to enhance the performance of OTH-B radars. It is axiomatic that the finer the quality of the mirror, the higher the resolution of the radar and the greater its ability to detect and track low-cross-section targets over long distances.

While most of the details are classified surrounding the prospects for phased arrays on the ground that radiate laser energy into space, it is ob-

vious that the ability to do so would be of significant military value. The ability to demonstrate this technology—involving either conventional chemical or excimer (rare-gas) lasers—might be attainable in relatively short order and without exorbitant investments.

A number of recent advances seems to make such approaches feasible. In the main, they involve new design concepts for phased-array laser systems and "nonlinear optics" involving special materials. These advanced optics make it possible to deliver laser energy through the atmosphere to space essentially unhindered by prevailing weather conditions as well as to improve radically the laser's ability to point and to track.

Moscow Continues to Violate Arms Accords

While the Administration continues to comply with the terms of SALT II on a *de facto* basis even though the accord expired formally at the end of 1985, the White House informed Congress of a series of Soviet violations of that and other arms-control agreements ratified by the USSR. The Presidential report on Soviet "noncompliance" was mandated by public law and linked to earlier assertions by the Administration that the US would continue to comply with the terms of SALT II as long as the USSR did likewise.

The findings of the report consist in the main of reaffirmations of Soviet treaty violations reported by the Administration to Congress on previous occasions in either public or classified form as well as of the disclosure of new Soviet breaches of current arms agreements. The tenor of the report does not square readily with the Administration's intent to honor the expired SALT II accord.

In an apparent attempt to assuage anticipated congressional concerns, the President pointed out that he directed the Defense Department earlier in 1985 to "conduct a comprehensive assessment aimed at identifying specific actions that the US could take to augment, as necessary, the US strategic modernization program as a proportionate response to, and as a hedge against, the military consequences of those Soviet violations of existing arms-control agreements which the Soviets fail to correct." The President took pains to stress in his report to Congress that "we will carefully study this report as soon as it has been completed." He also reiterated that while the US is willing to go "the extra mile" by continuing compliance

OSHKOSH TECHNICAL REPORT



Improved Performance With Articulated Design

The Oshkosh Model DA series crash truck represents a revolutionary engineering achievement in aircraft rescue and firefighting design. The advancements the DA series offers over conventional vehicles are the result of four major design innovations:

- AN ARTICULATION JOINT AT THE VEHICLE'S CENTER WITH YAW AND ROLL CAPABILITY
- SYNCHRONIZED YAW AND FRONT AXLE STEERING
- FRONT AND REAR TANDEM DRIVE AXLES WITH LOW PRESSURE TIRES
- BALANCED SIX-ROD SUSPENSION SYSTEM

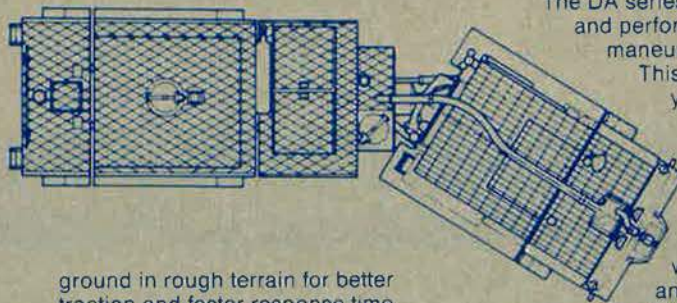
These design features provide the benefits of faster speeds off-runway, better obstacle avoidance and greater mobility.

FASTER SPEEDS OFF-RUNWAY

A balanced six-rod suspension on tandem front and rear axles reduces frame rise by 50% when traveling over bumps and uneven terrain. This provides a far superior ride, allowing a faster response time than a vehicle with single axles, or a vehicle with tandem axles independently suspended.

Because the DA series has eight driving wheels, 24R21 tires can be used at a low inflation pressure of 25 psi (1.72 bar). Tires operating at this low pressure act as shock absorbers, further improving the ride quality and permitting faster speeds off-runway.

The combined yaw and roll action of the articulation joint, along with the superior wheel travel of the suspension system, keeps all driving wheels on the



ground in rough terrain for better traction and faster response time.

BETTER OBSTACLE AVOIDANCE

Maneuvering around obstructions with the center articulated DA series is a key factor in the higher performance of this vehicle. The articulation joint provides yaw steering which is synchronized with a steering front axle. This combination provides a 26% tighter wall-to-wall clearance circle when turning than a straight-frame vehicle with the same wheelbase. It also results in 38% less tire wear.

The balanced six-rod suspension provides sufficient wheel travel to climb obstacles up to 24 inches (610 mm) saving the time of going around them.

GREATER MOBILITY

In soft ground conditions, where a conventional vehicle would be immobilized, the DA series can "duck walk" its way to the crash scene with articulated steering.

The low tire inflation pressure of 25 psi (1.72 bar) reduces ground contact pressure and optimizes the self-cleaning action of the tire tread. Three different tire tread patterns are available that can be matched to soil conditions for maximum performance.

The DA series can turn out of deep ruts and perform complex turning maneuvers in poor soil conditions.

This is made possible by the yaw and roll capability of the articulation joint, and the 50% reduction in the steering axle cramp angle, which reduces cornering forces.

A conventional vehicle with full steering cramp angle may not be capable of turning out of its ruts.

The ability of any vehicle that is used in a hostile environment to self-recover is its single most important feature. In most situations, the DA series has the ability to self-recover in seasonally poor soil conditions. When temporarily immobilized in soft ground, it self-recovers by "duck walking," allowing the wheels to seek firmer ground and better traction.

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with SALT II, "appropriate and proportionate responses to Soviet noncompliance are called for to ensure our security, to provide incentives to the Soviets to correct their noncompliance, and to make it clear to Moscow that violations of arms-control obligations entail real costs."

Among the new disclosures of Soviet treaty violations are Soviet breakouts from the SALT II-imposed ceiling of 2,504 strategic nuclear delivery vehicles (SNDVs), annual production rates of Backfire bombers in excess of the agreed-to ceiling, use of former SS-7 ICBM facilities "in support of the deployment and operation of the SS-25 mobile ICBMs," probable deployment of the SS-16 ICBM, and breaches of both the Threshold Test Ban Treaty and the Limited Test Ban Treaty. These breaches and the continuation of violations reported to Congress on previous occasions have been brought to the Soviets' attention in the Standing Consultative Commission, through appropriate diplomatic channels, and, as the President disclosed, in his discussions with Soviet Party leader Mikhail Gorbachev "in my recent meeting with him in Geneva." The US, however, has abstained from raising "certain sensitive issues" involving arms-accord

IN FOCUS...

violations, presumably in the interest of protecting US intelligence sources and methods.

In all cases where complaints have been raised by the US, the USSR "has thus far not provided explanations sufficient to alleviate our concerns ... nor has the Soviet Union taken actions needed to correct existing violations. Instead, they have continued to assert that they are in complete compliance with their arms-control obligations and commitments."

In elaborating on past US findings of Soviet treaty violations, the White House report pointed out that the development and deployment of the SS-25, a brand-new, mobile ICBM similar in size to Minuteman, violates SALT II in three ways. For one, the accord permits the fielding of only one new type of ICBM, yet the Soviets have already announced that their MX-sized SS-24 ICBM is their authorized "new type." Also, in order to reduce the opportunity for placing

more and more MIRVs on ICBMs—known as fractionation—the accord proscribes the testing of single-warhead ICBMs with new reentry vehicles that don't weigh at least fifty percent of the total throw-weight. Yet the RVs tested on the SS-25, the President's report underscores, represent less than fifty percent of the new missile's throw-weight. Lastly, the encryption of telemetry data and concealment of launch sites associated with SS-25 tests also violate SALT II. The accord specifies that verification of compliance by one signatory with the terms of the treaty must not be impeded by the other by means of data encryption.

The new report points out that "despite US requests for explanations and corrective actions with regard to the SS-25 ICBM-related activities, Soviet actions continue unchanged, and the Soviet Union has proceeded to deployment of this missile." Explaining that the use of former SS-7 ICBM facilities in support of the mobile SS-25 violates the SALT I Interim Agreement, the report adds that "should the Soviets use 'remaining facilities' in the future at other former SS-7 sites where the SS-25 is now in the process of being deployed, such use will also constitute Soviet viola-

The AS 30 Laser cuts through 2 meters of concrete



tion of its political commitment under the SALT I Interim Agreement."

Overall, the new Presidential report charges the Soviets with nine major and continuing infractions of various arms-control accords, including at least six types of breaches of the ABM Treaty (SALT I). In the aggregate, the violations of the ABM Treaty support the conclusion that the USSR "may be preparing an ABM defense of its national territory." Among the violations are tests of mobile, land-based ABM systems, the concurrent testing of ballistic missile defenses and air defenses, the testing of advanced air defenses in an ABM mode, rapid re-loading of ABM launchers, and the development at Krasnoyarsk of a large phased-array radar optimized to provide early warning of ballistic missile attacks.

The bottom line of the Presidential report is diplomatically vague and seems designed to provoke neither congressional hawks nor doves: "As we press for corrective Soviet actions—and while keeping open all programmatic options for handling future milestones as new US strategic systems are deployed—we will continue to assess the overall situation in light of Soviet actions correcting their noncompliance, reversing their mili-

tary buildup, and promoting progress in Geneva."

Washington Observations

★ The joint statement issued by President Reagan and General Secretary of the Communist Party of the Soviet Union Mikhail Gorbachev following their meeting in Geneva on November 19–21, 1985, called for early progress in arms-control measures that would commit both countries to cut in half their strategic nuclear arsenals. Early indications are that this could lead to a US strategic bomber ceiling of between 280 and 350 aircraft and an air-launched cruise missile (ALCM) inventory of 1,500 missiles. Curtailments of this magnitude would entail major and possibly painful adjustments in the currently planned force structure.

In cutting the ALCM force from an originally proposed level of 4,200 weapons to 1,500, it will become necessary to replace the ALCM-B force—which numbers more than 1,500 missiles, not all of which have as yet reached the inventory—with the far more capable, longer-range, low-radar-cross-section advanced cruise missiles (ACMs) by the end of this decade. In addition, it might become necessary to maximize the effective-

ness of the curtailed bomber force by increasing the ATB ("Stealth" bomber) buy from the presently programmed 138 units to a significantly higher number and to phase out the B-52 force earlier than planned. Holding the number of air-launched cruise missiles to 1,500 might force the US to rely more on gravity bombs and aging SRAMs than is recommended by the Air Force.

★ The Pentagon is broadening the original "Stealth" concept for strategic as well as conventional warfare applications to one called LPI, or "low probability of intercept." Driving this change is the recognition that anything that flies or generates energy can be detected not just in terms of radar returns but through contrails, electro-optically, or in the infrared regime.

While total concealment, therefore, probably won't be possible across the board, measures to reduce the probability of interception make good operational sense. The notion of carrying vital battlefield sensors aboard unmanned vehicles optimized for low probability of intercept in order to meet the crucial need for remote targeting of mobile enemy assets is therefore gaining in acceptance. ■

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CAPITOL HILL

By Brian Green, AFA DIRECTOR OF LEGISLATIVE RESEARCH

Washington, D. C., Jan. 3 DoD Funded—For Now

The long and often fractious budget process for Fiscal Year 1986 finally wound down with the belated passage of an omnibus continuing resolution (CR) that contains appropriations for the Department of Defense.

The CR includes \$281.2 billion in new budget authority for defense, much closer to the Senate's \$282.5 billion than the \$268 billion in new authority approved by the House. The CR is consistent with a total defense budget of \$297.4 billion, a real decrease of about two percent from last year's DoD budget.

In addition to the new budget authority, a \$6.3 billion fund, derived from lower-than-expected inflation and program savings in prior years, is available to the Defense Department. The CR mandates that the fund be used only to augment military pay and retirement and provide additional money for readiness, operations and maintenance accounts, and a strategic sealift program. Use of the fund to offset probable budget cuts resulting from passage of the Gramm-Rudman-Hollings balanced budget bill (named for its sponsors, Sens. Phil Gramm, R-Tex.; Warren Rudman, R-N. H.; and Ernest Hollings, D-S. C.) is specifically prohibited.

The defense appropriations include:

- \$2.75 billion for the Strategic Defense Initiative. The House had approved \$2.5 billion and the Senate nearly \$3 billion. The Administration had requested \$3.7 billion.
- \$624 million for the Small ICBM, or Midgetman.
- \$150 million for Advanced Medium-Range Air-to-Air Missile (AMRAAM) procurement, \$60 million for advance procurement, and \$101 million for AMRAAM R&D.
- Funding for twelve MX ICBMs.
- \$170 million for the Advanced Tactical Fighter (ATF), the amount recommended by the House. The Senate had provided only \$140 million of the \$243 million Administration request.

- \$200 million for the air defense fighter competition between the F-16, F-20, and "any other candidate deemed suitable by the Air Force." Multiyear procurement of the F-16 was approved to follow the competition, due to be completed by July 1986.

- \$126 million for the production of new binary chemical weapons, provided the President certifies that the modernization is necessary and that the certification has been submitted to NATO and formally adopted by the North Atlantic Alliance.

One major disappointment in the funding measure was the prohibition of any further antisatellite weapon (ASAT) tests against objects in space, at least until October 1986, or unless and until the Soviets resume such tests of their own fully deployed and tested ASAT system. A total of \$165 million was approved for continued ASAT R&D.

The Pentagon objected strenuously to the ban, arguing that it would undercut arms-control negotiations and provide a Soviet "veto" over continued US ASAT testing. The ban would also waste the \$20 million already spent to launch two instrumented test vehicles (ITVs). The ITVs were to be the targets for the next ASAT tests, but they may not last until next October.

Congress finished its work on FY '86 appropriations just in time to start work on its money bills for the next fiscal year. President Reagan will submit his FY '87 defense budget in early February.

Balanced Budget Bill Passes

After a lengthy conference, the Senate and House passed a compromise version of the Gramm-Rudman-Hollings balanced budget bill that mandates a balanced budget by Fiscal Year 1991. The deficit will be reduced to \$171.9 billion in FY '86, to \$144 billion in FY '87, and by \$36 billion a year thereafter.

If projected deficits exceed the target at all in FY '86 and FY '91, or by \$10 billion or more in the interim

years, automatic budget cuts are triggered. Following passage of money bills for the next fiscal year, deficit estimates by the Congressional Budget Office and the executive Office of Management and Budget will be submitted to the General Accounting Office (GAO, an agency of Congress) in August (in January for 1986 only, to cover the second half of FY '86). GAO then makes a binding estimate of the deficit and calculates, if necessary, the rate at which programs must be reduced. If further budget action fails to achieve the target, the automatic cuts are triggered.

Half of the cuts will be absorbed by defense, the other half by domestic programs. DoD will have only limited flexibility in how those cuts are made. For FY '86 only, the cuts can be made in equal percentages in broad accounts (such as "Aircraft Procurement"). The President can also exempt all or any part of the military personnel accounts from the automatic cuts, but any shortfall in outlay savings must be made up by reducing procurement and R&D accounts by a larger percentage. Thereafter, the equal percentage cuts will fall across the board at the "program, project, and activity" level.

Current FY '86 deficit projections indicate that estimated outlays will have to be trimmed another \$12 billion or so. Defense cuts will amount to about \$6 billion, of which from \$2 billion to \$2.5 billion will come from the Air Force. The defense outlay cut equals about \$15 billion in budget authority. These cuts would be in addition to those already imposed by Congress for FY '86.

If the deficit projections are correct, defense funding, in inflation-adjusted dollars, will be about seven percent lower than last year. The longer-term effects of the measure are more difficult to predict, but Rep. Les Aspin (D-Wis.), Chairman of the House Armed Services Committee, has predicted that defense budgets, if taxes are not increased, could decrease by as much as ten percent per year for each of the next several years. ■

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AEROSPACE WORLD

Including Bulletin Board

Compiled by Jeffrey P. Rhodes, STAFF EDITOR

Washington, D. C., Jan. 3

★ The current, favorable climate for the US aviation and space industry to undertake a technological revolution is a "temporary opportunity, not a permanent option," says Dr. Karl G. Harr, Jr., President of the Aerospace Industries of America.

Dr. Harr, in his annual address before the Aviation/Space Writers Association last December, cited a White House Office of Science and Technology Policy report that describes three areas of future technological expansion. These areas, if taken advantage of fully, would give US civil and military aircraft clear-cut technical superiority in the 1990s.

The areas are:

- Technology for an entirely new generation of affordable, highly efficient subsonic aircraft that would advance US military capabilities and capture immense civil market benefits.

- Technology for an airplane capable of sustained supersonic flight. This would further military aircraft performance and permit development of a second-generation commercial supersonic transport.

- Technology for an aerospace plane that would take off and land conventionally and that could routinely cruise and maneuver in and out of the atmosphere.

"Such a transatmospheric vehicle would afford large-scale economic and operational benefits. . . . The cost of delivering payloads to orbit would drop from several thousand dollars a pound to tens of dollars a pound. The implications for future space operations, particularly commercial development of space, are . . . stunning," Dr. Harr noted.

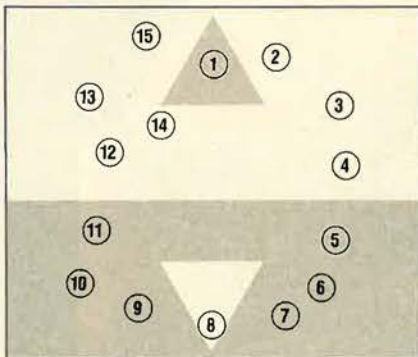
Dr. Harr also reported that the aerospace industry had a banner year in 1985. The industry recorded an international trade surplus of \$12.1 billion; sales totaled \$96.2 billion, representing a gain of nearly ten percent after inflation. Employment in the industry rose to 1,337,000.

Dr. Harr predicted a moderate two percent real growth in sales for 1986,



In late November, Rep. Beverly B. Byron (D-Md.) became the first woman ever to fly in the world's fastest operational aircraft, the Lockheed SR-71 Blackbird. The aircraft, stationed at Beale AFB, Calif., was piloted by Maj. Jim Jiggins on this notable flight. (USAF photo by MSgt. Ronald W. Morgan)

and with a backlog of \$127 billion, industry activity should stay at a relatively high level for the next few years.



The air armada on our front cover this month includes (clockwise from the top): (1) USAF B-1; (2) an Australian F/A-18 Hornet; (3) an Italian Tornado; (4) US Army AH-64 Apache; (5) Soviet Mi-24 Hind; (6) Soviet Su-25 Frogfoot; (7) Su-27 Flanker; (8) Tu-26 Backfire; (9) and (11) MiG-23 Flogger; (10) Yak-38 Forger; (12) USAF F-15 Eagle; (13) Royal Navy Sea Harrier FRS-1; (14) USAF A-10 Thunderbolt II; and (15) US Navy F/A-18 Hornet.

★ First Air Force, one of the original four air forces created as the United States was preparing for World War II, has been reactivated after fifteen years of inactive status, Gen. Robert D. Russ, Commander of Tactical Air Command (TAC), has announced.

The reactivation is a manifestation of the modernization of US air defense forces that has been under way since TAC took over the strategic air defense of the United States from the old Air Defense Command in 1979.

First Air Force, under the command of Maj. Gen. Buford D. Lary, directs all Air Force atmospheric strategic air defense resources formerly administered, trained, and equipped by Air Defense, Tactical Air Command (AD-TAC). Included are more than 10,000 active-duty Air Force people. In the command are four air division region operations control centers, forty-seven Joint Surveillance System (JSS) radar sites, thirty-one Distant Early Warning (DEW) Line sites, and five active-duty fighter-interceptor squadrons. Also included are Air Force forces in Iceland, which have

nearly completed conversion from F-4s to F-15s, and the USAF Air Defense Weapons Center at Tyndall AFB, Fla.

Augmenting the active-duty forces are 11,000 Air National Guard people assigned to fighter-interceptor wings and groups. Air defense component forces are based throughout the continental United States, Alaska, Canada, Greenland, and Iceland.

At Langley AFB, Va., where the command is headquartered, General Russ said, "In recent years, we've begun the job of rebuilding our air defense forces. . . . Our homeland is our number-one priority. Hand in hand with our Canadian partners, we have and will continue to field a North American defense team that is second to none and first in maintaining the peace."

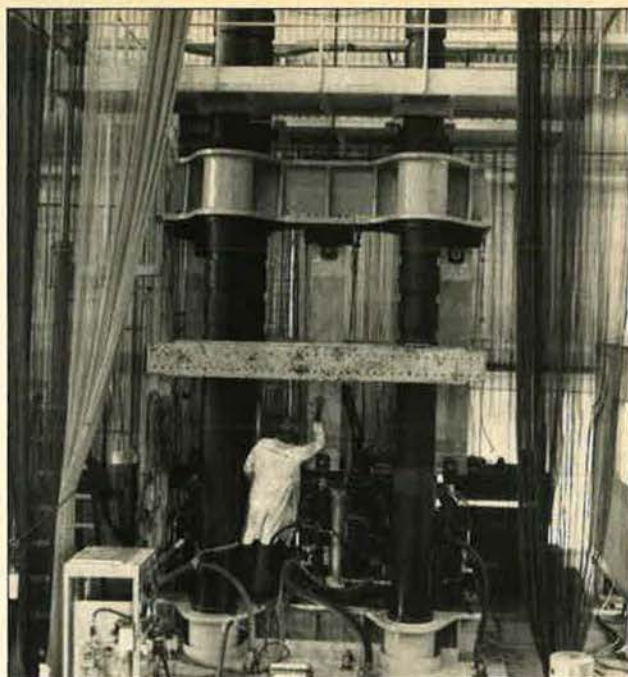
The command was originally activated on December 18, 1940, at Mitchel Field, N. Y., as the Northeast Air District and began air defense operations for the eastern United States. In April 1941, it was designated First Air Force. Since then, in addition to continental air defense, the command has flown antisubmarine operations with B-17 Flying Fortresses out of Langley, trained combat units for World War II, and trained Air National Guard and Air Reserve units after the war.

★ Work is ahead of schedule on a fuel-saving, advanced propeller called a propfan. Flight tests of the new design will begin late this year on



Lockheed-Georgia engineer Jerry Jenness (left) and Caltech model technician Scott McAfee prepare to adjust the configuration of the one-ninth-scale model of the Propfan Technology Assessment test-bed aircraft in the Transonic Dynamics Tunnel at NASA's Langley Research Center in Virginia. The full-scale version of the propfan and the Gulfstream II aircraft will begin testing later this year.

One of twelve specimens of the wing center line joint of McDonnell Douglas's C-17 airlifter is undergoing stress tests in the company's Long Beach, Calif., facility. The test rig is capable of exerting more than 1,500,000 pounds of pressure on the eight-foot-long and six-inch-wide samples. The tests are part of a full-scale development program that will lead to the C-17's first flight in 1990.



a modified Gulfstream Aerospace Corp. Gulfstream II business jet.

Flutter and high- and low-speed wind-tunnel tests were recently completed on a one-ninth-scale test-bed model at NASA's Langley Research Center in Hampton, Va. This series of tests, managed by the Lockheed-Georgia Co., is called the Propfan Technology Assessment (PTA) program, a part of the Advanced Turbo-prop Program managed by NASA's Lewis Research Center in Cleveland, Ohio.

Once other scheduled tests are

completed on both the model and Hamilton Standard's actual nine-foot-diameter propfan, the complete propulsion system will be fitted to the left wing of the twin-engine Gulfstream II jet. A 2,500-pound balance boom will be fitted to the right wing to compensate for the added weight. Ground testing of the system will take place at the Rohr Industries Propulsion Test Facility at Brown Field, Calif. Rohr Industries manufactures the nacelle for the propfan, while the Allison Gas Turbine Div. of General Motors supplies the engine.

During the flight-test phase of the program, which will take place at Lockheed-Georgia's Marietta, Ga., facility, the propfan will not actually power the plane, but will be running to provide the necessary performance and acoustic data. Flight testing will include speeds of up to Mach 0.8 at 35,000 feet.

By having eight thin blades with highly swept tips, the propfan design allows the blades to absorb more power at a reduced diameter. Without sacrificing the speed of today's jets, the propfan offers up to a fifty percent fuel savings over current aircraft.

★ Maj. Gen. Winfield S. Harpe, Air Force Director of Personnel Programs, recently told Congress that "specific adjustments to the [new GI Bill] program would yield a greater participation."

A requirement that new recruits sign up for the program within the first two weeks of basic training "is working against us," General Harpe observed. He asked the lawmakers to consider extending the sign-up peri-

od to the first thirty days of service.

Another proposed adjustment is that the present contribution be pared from the \$100 per month for twelve months to \$60 per month for twenty months. This stretch-out would recognize that many potential enrollees are either married or supporting family members back home. The \$100 looms as a large portion of the take-home pay for an Airman Basic.

Other suggested changes include allowing a one-time change for those enrolled to opt out of the program with a refund. Currently, the election to join the program precludes any chance to quit and get money back. It is believed that few people would use the feature, but the fact that it was available would enhance the offer. Also, a survivorship provision, or returning the members' contribution to his or her estate, would be a welcome feature.

AEROSPACE WORLD

the Aérospatiale HH-65A Dolphin, is now operational and is proving to be a valuable asset at three bases in the Caribbean area.

The HH-65A, an improved version of the company's commercially available SA 365N, has a range of 400 miles, and endurance time of 3.8 hours, and a top speed of 125 knots, forty-five knots higher than its predecessor, the Sikorsky HH-52A. The Dolphin, which meets the "Made in America" act by having more than fifty-one percent of its components made in the US, features a computerized flight management system that can auto-



Lt. Col. Andrea Shaifer has been named the Air Force Reserve's Individual Mobilization Augmentee Nurse of the Year for 1985. She serves at the Keesler AFB Medical Center in Mississippi.



The Aérospatiale HH-65A Dolphin is the newest addition to the Coast Guard's aerial search and rescue fleet. The helicopter makes extensive use of composite materials, features advanced avionics, and has a top speed of 125 knots.

The final proposed change is a transferability clause that would allow entitlement to pass to dependents. However, the Air Force believes that such a provision should be funded by the Veterans Administration and should be contingent on a heavy service commitment.

General Harpe concluded by saying this new program will have "a positive effect on the national good," and with the recommended changes, he averred, the bill "can be an even larger enhancement for the recruitment and retention of high-quality young people for the US Air Force."

★ The US Coast Guard's new short-range search and rescue helicopter,

atically fly selected search patterns and, on command, bring the aircraft to a stable hover at fifty feet.

The HH-65's structures employ composite materials extensively, and it has a rotor system that contains eighty percent fewer parts and that is stronger, safer, and easier to maintain than conventional rotor systems. The rotor also requires no lubricants. The shrouded tail rotor, known as a fenestron, was enlarged for the Coast Guard version because of its heavier weight.

The first operational squadron of HH-65s, based at Coast Guard Air Station New Orleans, was activated in September. In the type's first rescue, an HH-65 pulled a man showing signs

of a heart attack off a fishing boat 125 nautical miles southwest of New Orleans. The second rescue was more dramatic, as a Dolphin picked up a fisherman who had nearly severed his foot in a winch. The aircraft took him to the hospital in twelve minutes, about half the time it would have taken an HH-52. The sailor's foot was successfully reattached.

The Coast Guard now has operational squadrons of HH-65s at CGAS New Orleans, CGAS Borinquen in Puerto Rico, and CGAS Miami in Florida. A training unit is based at the Coast Guard Air Training Center in Mobile, Ala. The Coast Guard will buy ninety-six Dolphins by 1988.

★ Secretary of the Air Force Russell A. Rourke was introduced to the nation almost as soon as he took office last December 10, courtesy of a first-ever "video news release" produced by USAF Public Affairs.

An interview that AIR FORCE Magazine Senior Editor James W. Canan conducted with Secretary Rourke on the day of his swearing-in was beamed to all commercial TV stations in the continental US, Alaska, and Hawaii.

In the interview, Mr. Rourke said that his "main challenge" as the sixteenth Secretary of the Air Force lies in "getting the job done with fewer dollars than before."

"It is an enormous challenge, but we can get it done," Secretary Rourke declared.

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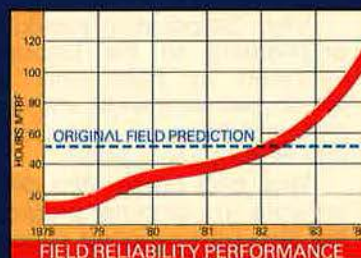


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The APG-66. More time where it counts. In the air. Ask the pilots who fly them.



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The interview was one segment of an eight-minute telecast via a Westar 4 communications satellite. Other segments featured Mr. Rourke's swearing-in ceremony at the Pentagon and his official welcoming ceremony at Fort McNair in Washington.

The program was produced by the Pictorial Broadcast Branch, Media Relations Division, Secretary of the Air Force Office of Public Affairs.

★ February marks the forty-fifth anniversary of the USO—the United Services Organization. The USO is the only nongovernment voluntary organization whose sole purpose is to enhance the general well-being of military personnel and their families. The USO serves in some 160 locations worldwide. The organization has a paid staff of only 500, but is assisted by more than 40,000 volunteers.

Some of the USO services include airport centers, mobile fleet and family outreach programs, information and referral services, and sponsorship of recreational events. The most visible programs, however, are the many troupes of professional entertainers and sports figures that the USO sends each year to overseas locations.

Last year, when the USO moved its world headquarters to Washington,

AEROSPACE WORLD

D. C., the organization named its new office the Bob Hope USO Building in honor of the many years of service that the veteran entertainer has given to the USO.

★ After performing yeoman-like service for the past twenty-five years, the Lockheed F-104 Starfighters that NASA has used as chase planes are being retired in favor of eight new McDonnell Douglas F/A-18 Hornets. The new planes provide much greater acceleration and better performance than the F-104s. The new Hornets, on loan from the Navy, will be painted in the familiar NASA blue-and-white paint scheme as time permits.

Chase aircraft are used at NASA's



Wearing the markings of both the military and of NASA, this McDonnell Douglas F/A-18 Hornet is the first of eight aircraft to be loaned to the space agency for chase duties at the Ames-Dryden Flight Research Facility in California.

SENIOR STAFF CHANGES

PROMOTIONS: To be **Lieutenant General:** Richard A. Burpee. To be **Brigadier General:** Robert M. Alexander; James S. Allen; John R. Allen, Jr.; Edgar R. Anderson, Jr.; James G. Andrus; Malcolm B. Armstrong; Lester P. Brown, Jr.; Robert A. Buethe, Jr.; Gerald A. Daniel; Thomas E. Eggers; James W. Evatt; Frederick A. Fiedler; Paul D. Gleason; Joel T. Hall; William P. Hallin; Floyd E. Hargrove; George B. Harrison; John R. Hart; Richard E. Hawley; Harald G. Hermes; Thomas W. Honeywill; John R. Hullender; Grover E. Jackson; John E. Jackson, Jr.

Arlen D. Jameson; Jeffery D. Kahla; Donald L. Kaufman; Vernon J. Kondra; Paul E. Landers, Jr.; James J. Lecleir; Orthus K. Lewis, Jr.; Nathan J. Lindsay; John D. Logeman, Jr.; Charles F. Luigs; Billy G. McCoy; Michael P. McRaney; Philip L. Metzler, Jr.; Kenneth V. Meyer; John M. Nowak; Carl G. O'Berry; Richard J. O'Leary; David C. Reed; Jon A. Reynolds; Paul L. Roberson; Alan V. Rogers; Richard M. Scofield; John F. Sievertson; Victor S. Stachelczyk; Kenneth E. Staten; Robert F. Swarts; Dale W. Thompson, Jr.; Denis L. Walsh; Sam W. Westbrook III; Robert V. Woods.

CHANGES: Col. (B/G selectee) Edgar R. Anderson, Jr., from Command Surgeon, Hq. PACAF, Hickam AFB, Hawaii, to Command Surgeon, Hq. SAC, Offutt AFB, Neb., replacing retired M/G John W. Ord. . . . B/G Joseph W. Ashy, from Cmdr., 57th FWW, TAC, Nellis AFB, Nev., to Special Ass't to Cmdr. for Exercise Ocean Venture, Hq. TAC, Langley AFB, Va. . . . M/G William P. Bowden, from C/S, Hq. AFLC, Wright-Patterson AFB, Ohio, to Cmdr., Oklahoma City ALC, AFLC, Tinker AFB, Okla., replacing M/G (L/G selectee) Richard A. Burpee.

B/G Edward R. Bracken, from DCS/Maintenance, Hq. AFLC, Wright-Patterson AFB, Ohio, to DCS/Plans & Prgms., Hq. AFLC, Wright-Patterson AFB, Ohio, replacing M/G Charles C. McDonald. . . . M/G Thomas C. Brandt, from Dir., Joint Planning Staff for Space, OJCS, Washington, D. C., to Vice Cmdr., ESD, AFSC, Hanscom AFB, Mass. . . . M/G (L/G selectee) Richard A. Burpee, from Cmdr., Oklahoma City ALC, AFLC, Tinker AFB, Okla., to Dir., J-3, OJCS, Washington, D. C.

Col. (B/G selectee) James W. Evatt, from Dep. Dir., Operational Requirements, Dep. for Strat. Forces, DCS/RD&A, Hq. USAF, Washington, D. C., to Special Ass't for Low Observables Tech., DCS/RD&A, Hq. USAF, Washington, D. C. . . . Col. (B/G selectee) Frederick A. Fiedler, from Cmdr., 2d Bombardment Wing, SAC, Barksdale AFB, La., to Cmdr., 57th AD, SAC, Minot AFB, N. D., replacing M/G Samuel H. Swart, Jr. . . . Col. (B/G selectee) Joel T. Hall, from Cmdr., 354th TFW, TAC, Myrtle Beach AFB, S. C., to Cmdr., 57th FWW, TAC, Nellis AFB, Nev., replacing B/G Joseph W. Ashy.

M/G Charles C. McDonald, from DCS/Plans & Prgms., Hq. AFLC, Wright-Patterson AFB, Ohio, to C/S, Hq. AFLC, Wright-Patterson AFB, Ohio, replacing M/G William P. Bowden. . . . Col. (B/G selectee) John M. Nowak, from Dir. of Maintenance, Ogden ALC, AFLC, Hill AFB, Utah, to DCS/Maintenance, Hq. AFLC, Wright-Patterson AFB, Ohio, replacing B/G Edward R. Bracken. . . . B/G William T. Williams IV, from Mil. Ass't to SAF, OSAF, Washington, D. C., to Special Ass't to DCS/L&E, Hq. USAF, Washington, D. C.

SENIOR ENLISTED ADVISOR CHANGE: CMSgt. John F. Tobey, to SEA, Hq. AAC, Elmendorf AFB, Alaska, replacing CMSgt. Herman F. Thompson.

Ames-Dryden Flight Research Facility in California to observe conditions on and around research airplanes.

★ Under a program called Pacer Six, the Air Force will convert nearly 200 Convair F-106 Delta Darts into high-performance drones to be redesignated QF-106. The drones will be used as aerial targets by the Air Force at Tyndall AFB, Fla., and at Holloman AFB, N. M., and will also be used by the US Army.

The F-106 had been the principal interceptor for the North American Aerospace Defense Command (NORAD) until the Air Force began replacing the F-106 with the F-15 in 1984. The National Guard will phase out the F-106 by 1988. There are currently 105 of the thirty-year-old F-106s in active service with ADTAC and Guard units and ninety-seven in storage at Davis-Monthan AFB, Ariz.

Each drone is scheduled to fly forty manned test flights and then ten more flights by remote control. Armed missiles will be fired at the drones during the remote-control flights.

★ The first launch of the Space Shuttle *Discovery* from Space Launch Complex Six (SLC-6) at Vandenberg AFB, Calif., has been postponed until at least July of this year. Originally scheduled for liftoff on March 20, the delay will allow time for facility modifications and for evaluation of operational systems tests at the Vandenberg facility, according to Under Secretary of the Air Force Edward C. Aldridge, Jr.

★ The Air Force had planned to be well into its enhanced physical fitness program by now, but the start has been delayed until later this year because of manpower funding shortfalls.

Anxious to get under way with the program that has been in testing since 1983, the Air Force is looking at alternative means of funding the slots. This program is believed to be a superior method of building fitness in the force, thus increasing readiness. It stresses personal fitness regimens built around walking, bicycling, jogging, or swimming. Sit-ups have been added to the program to encourage members to include a variety of muscle-building exercises.

★ After winning the Mathis Trophy, which is awarded to the victor of the High and Low Bombing Category, the 97th Bomb Wing, Blytheville AFB, Ark., went on to claim the Muir S. Fairchild Trophy for Highest Competition Effectiveness at Strategic Air Command's (SAC) recent Bombing and

AEROSPACE WORLD

Navigation Competition held at Barksdale AFB, La. Thirty-two units, including two groups from the Royal Air Force, took part in the competition.

Other winners, with trophy name and category, included **Gen. James H. Doolittle Trophy**—Fifteenth Air Force, Best Overall Results (Low-Level Bombing and SRAM); **McDonnell Douglas Trophy**—Eighth Air Force, Best in KC-10s; **Saunders and Navigation Trophies**—452d Air Re-

fueling Wing, March AFB, Calif., Tanker Operations, and separately, Tanker Navigation; **John D. Ryan and Maj. James F. Bartsch Trophies**—7th Bomb Wing, Carswell AFB, Tex., Low-Altitude Bombing, and separately, Electronic Warfare; **John C. Meyer Trophy**—RAF Team Two from RAF Marham, near King's Lynn, England, Best Tornado, F-111, or FB-111 Unit (Low-Level and Electronic Warfare); **Gen. Russell E. Dougherty Trophy**—319th Bomb Wing, Grand Forks AFB, N. D., Short-Range Attack Missile; **William J. Crumm Trophy**—416th Bomb Wing, Griffiss AFB, N. Y., Best B-52 Unit in High-Altitude Bombing; and the **Gen. Curtis LeMay Trophy**—RAF Team One from RAF Marham, High- and Low-Level Bombing.

★ The AGM-88A high-speed anti-

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radiation missile (HARM) recently went operational with the 52d Tactical Fighter Wing based at Spangdahlem AB, West Germany.

Through the use of programmable digital processors in both the F-4G's avionics and in the missile, HARM can lock on to enemy ground-based SAM missile radars much sooner than the AGM-88's predecessor, the AGM-78 Standard ARM. Other F-4G Wild Weasel units that are receiving HARM include the 37th TFW at George AFB, Calif., and the 3d TFW at Clark AB, the Philippines.

In addition to the F-4G, HARM is suitable for adaptation to the Air Force's F-4E, B-52, F-15, and F-16 aircraft. The Navy will deploy HARM with several A-7E and F/A-18 carrier-based squadrons.

★ On December 16, 1965, the Pioneer-6 satellite was launched to relay scientific information from the sun back to earth. The thirty-five-inch-high and thirty-seven-inch-diameter drum-shaped spacecraft had an expected life of six months.

Twenty years later, however, Pioneer-6 is still sending back telemetry, thus becoming the longest operating spacecraft in history. The 140-pound satellite has been used to measure the sun's corona, return data on the solar system from the far side of the sun, and has measured the tail of the comet Kohoutek. Pioneer-6 has circled the sun twenty-three and one-half times and has traveled just over 12,000,000,000 miles. The spacecraft has sent back nearly 9,000,000,000 bits of information to the satellite's many users.

Pioneer-6 provides its own data handling, temperature control, communications, and power system. It has more than 56,000 parts and is expected to have about five more years of useful life. Two of the spacecraft's sister ships, Pioneer-7 and Pioneer-8, are also still functioning.

★ Early in December, Air Force Systems Command's Armament Division successfully drop-tested an inert AGM-130A, a rocket-powered and advanced avionics-equipped version of the GBU-15 glide bomb. An F-4E from the 3246th Test Wing released the weapon from 16,000 feet while traveling at 345 mph. This initial trial was to test the compatibility of the missile with the aircraft and also to make sure the weapon separated safely. Powered flight tests will begin later this year.

The AGM-130A will employ a Mk 84 2,000-pound general-purpose bomb, the B version will make use of an SUU-54 airfield attack submunitions

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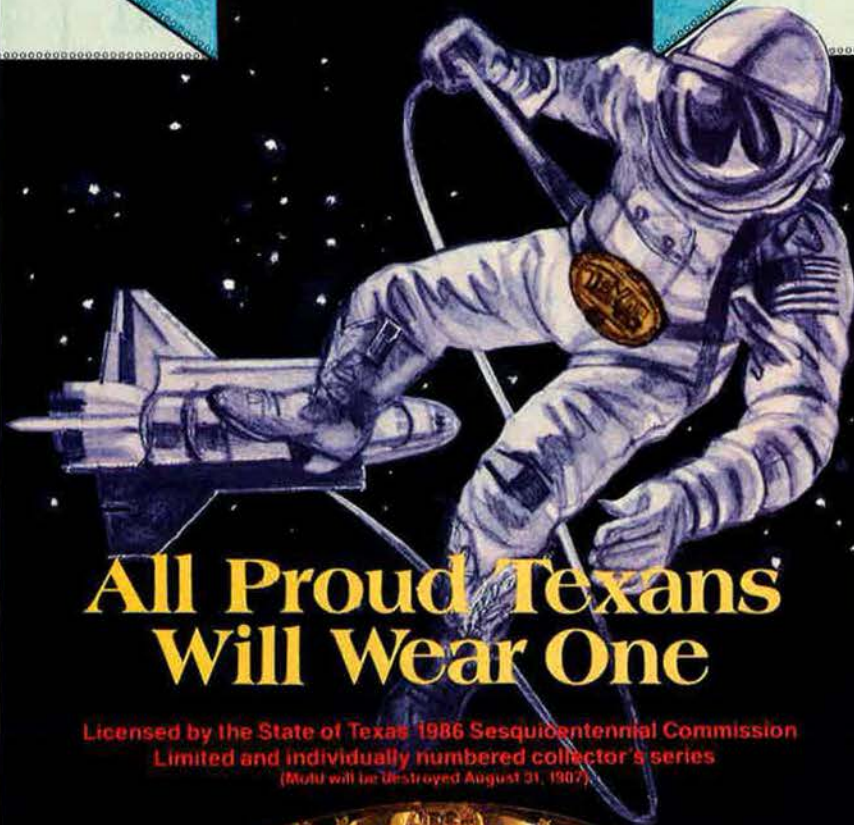
dispenser, and the C is to be developed around a 2,000-pound penetrating warhead.

★ In late November, the House and Senate agreed to increase Serviceman's Government Life Insurance (SGLI) from \$35,000 to \$50,000. This increase became effective on January 1, 1986, for military members on active duty and will cover all participating Guardsmen and Reservists. Personnel who do not desire the increase

must decline in writing. Initial estimates indicate the costs will be 8¢ per thousand per month, or \$1.20 per month for the additional \$15,000.

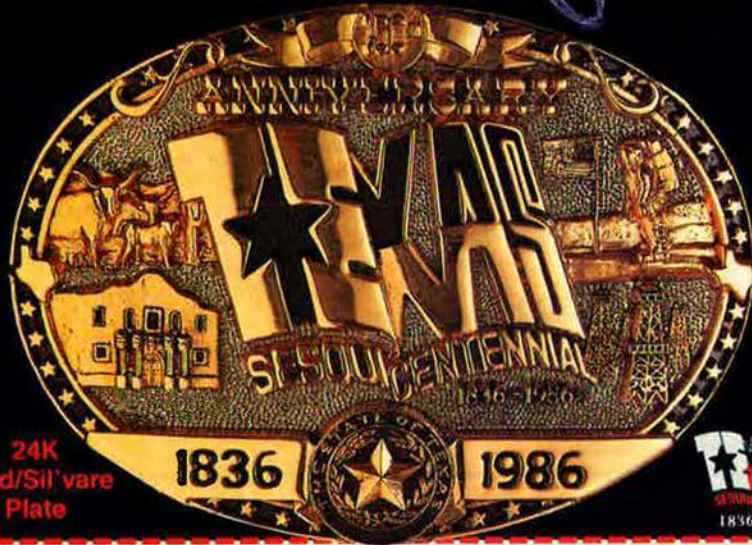
★ The Fire Protection Research Center at the Air Force Engineering and Services Center at Tyndall AFB, Fla., is currently testing a new firefighting ensemble that is lighter, wears longer, provides more oxygen, and offers better chemical protection than current fire suits. The new outfit features a

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AEROSPACE WORLD

chemical warfare undergarment, a heat-reflective outer garment, a breathing apparatus, and a helmet with a voice-activated communication system.

The new suits will be available by late 1987.

★ The Veterans Administration will construct a veterans' cemetery on Guam in late 1986. The planned 7,000-plot site is the first to be built on a US territory under the VA's Cemetery Grants Program.

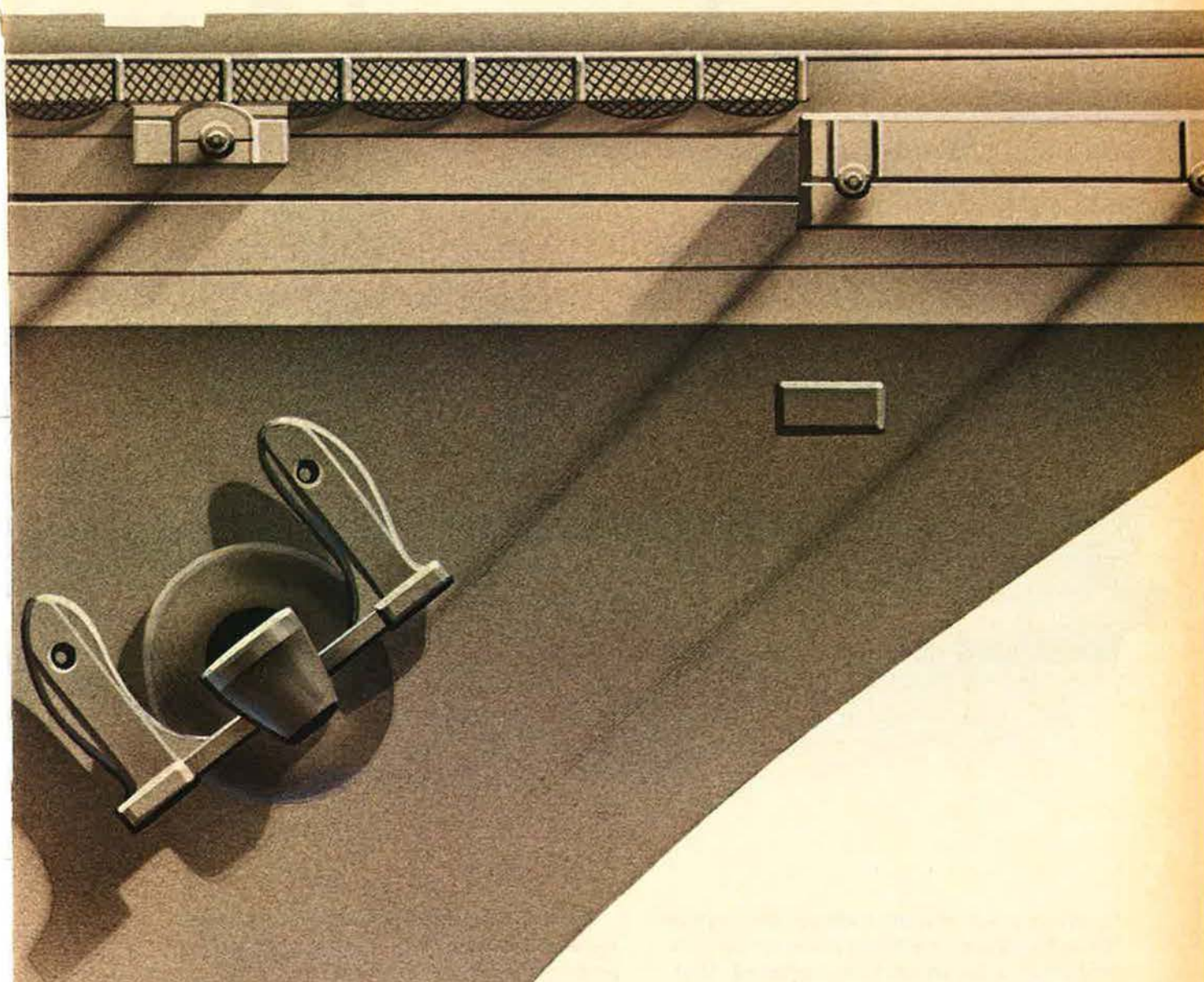
★ The eighteenth and final Short Brothers Ltd. C-23A Sherpa was delivered to the Air Force last December 6 and was turned over to Military Airlift Command (MAC) the next day. The C-23A, a military version of the commercial 330 Sherpa, was assigned to the 10th Military Airlift Squadron based at Zweibrücken AB, West Germany.

The Sherpas form the backbone of the European Distribution System (EDS), which delivers spare parts to USAFE units.

★ The Veterans Administration dropped its home loan interest rate in late 1985 to ten and one-half percent, the lowest rate in more than six years. Some veterans who are currently paying as much as seventeen percent may be able to renegotiate their loans, and the VA urges those people to contact their local mortgage lenders.

★ Effective this month, Blue Cross/Blue Shield of South Carolina will take over claims processing for CHAMPUS claims from California, Nevada, Arizona, and New Mexico. Send the paperwork to P. O. Box 100502, Florence, S. C. 29501-0502. The toll-free number is 1-800-334-0308.

★ The Air Force has selected thirty-two high schools in twelve states to host AFJROTC units should vacancies occur during the 1986-87 academic year. Air Force participation in the Junior ROTC program is authorized at 286 units. The Air Force has little trouble maintaining this number, but does like to keep a varied geographical distribution among the host schools. ■



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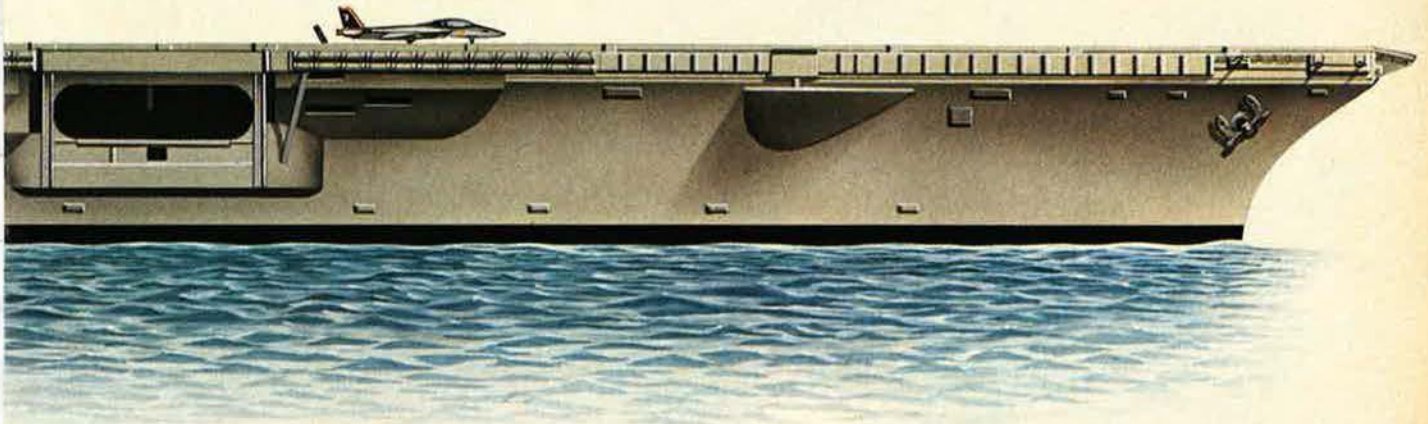
In a Nimitz-class carrier Motors diesels react.

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ing on any gauge track. More recently, we developed portable generator sets for rugged duty in Southeast Asia. That they are still in the Army's inventory is a tribute to their flexibility and durability.

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The services lean into tougher testing regimes for new weapon systems, components, and software.

TESTING

From Chips to Chocks



BY JAMES W. CANAN
SENIOR EDITOR

LAST October, John E. (Jack) Krings went from the Pentagon to Edwards AFB, Calif., to fly an F-16 equipped with the navigation pod and the head-up display of the Air Force's much-coveted Low-Altitude Navigation and Targeting Infrared for Night (LANTIRN) system.

USAF test pilots and tactical pilots had already put LANTIRN navpods through exhaustive developmental and operational test flights at night, in high humidity that challenged their FLIR sensors, at speeds approaching supersonic, and at altitudes as low as 100 feet above flat terrain and 200 feet above hilly landscapes.

The navpods performed so well that USAF had no qualms about ordering them into low-rate initial production.

Even so, Mr. Krings wanted to





An F-16C struts its stuff at the 1985 Paris Air Show. Testing new fighters is becoming more and more difficult as their avionics become more sophisticated and more highly integrated. Thus, USAF's Advanced Tactical Fighter (ATF) is shaping up as an unprecedented challenge for developmental and operational testers.

see for himself how well a LANTIRN navpod worked. He had a special reason for flying the F-16/navpod system, and he was well qualified to do so.

Mr. Krings had been a fighter pilot and a test pilot almost all of his adult life, back to his service with USAF in Korea and Japan in the early to mid 1950s.

More to the point, he had only recently set up shop at the Pentagon as the Defense Department's very first Director of Operational Test and Evaluation (DOT&E).

To USAF's gratification, Mr. Krings came away from his flight "very favorably impressed" with the LANTIRN navpod. Now he is looking forward to a comparable experience, at some point, with the LANTIRN targeting pod.

Having surmounted developmental difficulties that kept it from staying in stride with the less-complex navpod, the targeting pod was scheduled for initial operational test and evaluation (IOT&E) last month through next month.

If it passes, USAF will have moved a big step toward production of a full-up, two-pod LANTIRN system that should enable its attack aircraft to take away the sanctuaries of night and of overcast weather from the enemy—a capability that USAF urgently needs.

USAF will test the targeting pod as thoroughly as possible in conditions that are as close to combat as it can make them. Mr. Krings's OT&E office is responsible for making sure that USAF does just that.

Staffed by eight military officers who are experts in testing and by eight civilian test analysts, the OT&E shop is the lightning rod in the continuing squalls over the services' operational testing of new weapon systems.

Critics of such testing claim that it all too often does not catch problems in time to keep faulty weapons from going into full-scale production and that, in the extreme, it is fudged for the purpose of not exposing problems.

The Army's Sergeant York division air defense (DIVAD) gun is a prime case in point.

The Army put that gun through operational testing, said it was satisfied with the results, and ordered it into production. Congress, how-

ever, claimed that the testing had been inadequate.

So Secretary of Defense Caspar W. Weinberger ordered up a round of tough operational testing for the DIVAD gun. He killed the program after the OT&E office reported to him that the testing showed operational shortcomings, the Army's claims to the contrary notwithstanding.

The DIVAD program's sorry outcome is more the exception than the rule.

On the whole, OSD and military officials claim that critics of weapons testing tend to overstate the problems, overlook the historical evidence that nearly all new, major weapons need at least some adjusting once they are in production, and strain naïvely for preproduction perfection at a time when the weapons acquisition process urgently needs to be expedited and not impeded by too much testing.

Allegations and Counterclaims

Military officials also claim that operational testing is more realistic than the critics realize or will acknowledge.

Col. James H. Manly, Air Force Systems Command's Deputy Chief of Staff for Testing and Evaluation, puts it this way:

"The operational test and evaluation community has done a marvelous job—at reasonable costs and under difficult time constraints—of getting weapons tested and out into the field. It has been unduly criticized. There is a limit to which the OT&E people can duplicate World War III in their testing."

Allegations that the services rig their tests to make weapons look good or that they ignore problems that the tests expose make test and acquisition officials see red.

Those officials point out that from 1980 through 1984, DoD itself slowed down or stayed the production of twenty-six weapon systems upon discovering deficiencies during operational testing. Those systems accounted for two-thirds of all systems in the OT&E/initial production phase during that period.

DoD officials contend, moreover, that whatever its faults, the US development-testing-production process usually manages to come up with superb weapons—for exam-

ple, USAF's F-15 and F-16 fighters—that almost always surmount early technical difficulties and just keep getting better. USAF's Imaging Infrared (IR) Maverick, which scored sensationally in recent operational testing, is cited as another example.

A key question in all this, one that has to be resolved on a weapon-by-weapon basis, is when to let a weapon proceed into full-scale production from low-rate initial production (LRIP), which DoD defines as “the production of a system in limited quantity to be used in OT&E for verification of production engineering and design maturity and to establish a production base.”

Satisfying that question can be very sticky. Operational testing does have built-in problems that sometimes keep the services from being dead certain that weapons are indeed ready for full-scale production.

Realistic simulation of combat conditions and of threats is high among those problems.

The services presently lack such aerial targets as sea-skimming missiles. They also lack drone aircraft with appropriate radar and infrared signatures and electronic warfare capabilities to match against their own new aircraft, missiles, and guns.

They also are hard-pressed to keep abreast of, and to simulate, electronic warfare systems that their new (and old) weapon systems may well encounter.

There is another problem too. The more technologically sophisticated the weapon, the more technologically sophisticated its testing must be. Testing technology has had a hard time keeping up with systems technology. This is especially pertinent to avionics.

For example, USAF's Advanced Tactical Fighter (ATF) will be a major challenge to the avionics testing community. Its avionics will be intricately integrated and will feature very-high-speed integrated circuit (VHSIC) chips that pose formidable testing difficulties.

“Our biggest challenge in the ATF will lie in testing the integration of its systems, such as its fire controls and flight controls,” AFSC's Colonel Manly explains.

“In the ATF,” he says, “we're

talking integration of systems far beyond anything we've ever tried before, mostly in avionics. We're planning to start ATF development testing in the 1989 time frame, but we're already into a lot of its pieces and parts—the engines, for example—and we'll be more heavily into preparations for subsystem testing in the months to come.”

Testing Software

Developing testing hardware and software to evaluate the VHSIC chips is the responsibility of the Rome Air Development Center (RADC), an arm of AFSC's Electronic Systems Division at Hanscom AFB, Mass.

RADC has worked hard to keep abreast of technologies that will make it capable of such testing.

Six years ago, for instance, it came up with a way of coating microcircuits with liquid crystals, thus slowing their internal operation and enabling testers to track the electrical signals.

RADC knew, however, that it would have to come up with very special equipment for testing the highly advanced VHSIC chips. It is now developing such gear.

Last September, Genrad Corp. of California, under a \$4.5 million contract, delivered computerized equipment that will be the heart of RADC's microelectronics test facility and that will be used to test all chips developed under DoD's triservice VHSIC program.

The new system, scheduled for its first preplanned upgrading last month, should enable RADC to test not only the 1.25-micrometer VHSIC circuits now being produced for military systems but also the 0.5-micrometer VHSIC circuits (practically invisible to the naked eye) now being designed by the semiconductor industry.

Scheduled for operation in January 1987, the new equipment will not necessarily diagnose the faults in the VHSIC chips. But it will find out if the chips are faulty, and their builders will be able to take it from there.

Development of advanced software for the VHSIC chips testing has also come a long way at RADC.

Under a \$12.5 million contract, Harris Corp. of Florida will build the Tester Independent Support



Veteran test pilot John E. (Jack) Krings is the Pentagon's first Director of Operational Test and Evaluation.

Software System (TISSS) to make RADC's testing of microcircuits for government and industry a whole lot easier.

Expected to be operational in about two years, TISSS “will give us a computer-based environment plus software that will automate our development of software test specifications and test programs,” explains Jack Haberer, RADC's group leader for microelectronics testing.

Software is becoming the order of the day in military systems. The ATF's avionics will incorporate considerable software, just as do the avionics of the B-1B bomber and the F-15E dual-role fighter, for example, only more so.

Software can also be very tough to test.

AFSC has charge of all USAF developmental testing, which is done in tightly controlled environments and which is aimed at finding out whether components, subsystems, and systems live up to engineering specifications and requirements.

In OSD, the Director of Defense Test and Evaluation (DDT&E) supervises that same developmental testing arena for the Under Secretary of Defense for Research and Engineering (USDR&E).

Under Combat Conditions

When it comes to operational testing, however, the Air Force Operational Test and Evaluation Center (AFOTEC) at Kirtland AFB,

N. M., is in charge for USAF, just as the relatively new OT&E shop is for the Secretary of Defense.

By definition if not in actual practice, operational testing picks up where developmental testing leaves off. It wrings out the weapons in simulated combat conditions.

Pilots who fly new aircraft in developmental testing come from AFSC test units and from the companies that build the aircraft. Pilots taking part in operational testing come from USAF's operational commands and operationally are under AFOTEC's control.

It is no longer possible, however, to draw a clear-cut distinction be-

cost, which is largely at the mercy of that schedule, under control.

In the weapons development-production process, time is money. Too much testing or redundant testing takes too much time, the Pentagon insists.

This is why OSD and the services stoutly resisted congressional creation of the DOT&E slot in the Pentagon hierarchy in August 1983. They saw it as a superfluous and potentially dilatory bureaucratic layer.

Secretary Weinberger took his time in tapping a civilian, Mr. Krings, for the DOT&E job. Mr. Krings manned the post last April.

he is also the classic man in the middle.

The DOT&E provides reports to Congress, which created the job in order to get its hooks into weapons testing, and is also accountable to Mr. Weinberger, who didn't like the idea but who is said to be high on Mr. Krings, whose credentials seem superb.

At the time of his Pentagon appointment, Mr. Krings was McDonnell Douglas Corp.'s Washington-based director of Navy and Marine Corps programs, having spent seven years as the company's director of flight operations and chief test pilot.



Loaded for bear, an F-20 fighter traverses a mountain range. Air Force Operational Test and Evaluation Center (AFOTEC) at Kirtland AFB, N. M., will have the tricky job of testing the F-20 against the F-16 for selection as USAF's air defense fighter.

tween developmental testing and operational testing in all their often overlapping phases.

New weapons would take forever to get into production (they take too long as it is, defense officials claim) without some concurrency of development and production.

Such concurrency is increasingly common. Consequently, developmental testing and operational testing are also more and more concurrent. They are carried out as a continuum and not in the stringently serial fashion of years ago.

For example, the B-1B bomber is in production even while undergoing mission-oriented operational testing and advanced developmental testing of its offensive and defensive avionics all at the same time.

This arrangement is necessary, USAF claims, to keep the B-1B program on schedule and to keep its

Prior to that, the shop had been organized and run by Air Force Brig. Gen. Michael D. Hall, who had been deputy director, defense test and evaluation (DT&E), and deputy director, tactical air and land warfare systems, for USDR&E.

General Hall worked with Mr. Krings for four months and then took charge of Air Force OT&E as the commander of AFOTEC (formerly called AFTEC, for Air Force Test and Evaluation Center) at Kirtland. He was promoted to major general in December 1985.

As DOT&E, Mr. Krings has the rank of Assistant Secretary of Defense. He is a member of the Defense Resources Board (DRB) and of the Defense Systems Acquisition Review Council (DSARC).

Clout in the Middle

Mr. Krings's clout is obvious, but

Mr. Krings took part in all phases of the company's F-4 testing and was an F-15 test pilot from the start. His spin tests of the F-15 at Edwards AFB won him the Society of Experimental Test Pilots' 1975 Iven C. Kincheloe Award, given annually to the group's test pilot of the year.

Mr. Krings says his background prepared him well for his Pentagon role as "independent evaluator of operational testing."

"The test pilot is the conscience of the company," he says. "He's the guy who gets paid to find out what's wrong with an airplane and tell the company about it, whether they like it or not. And that's what I'm paid to do here.

"Our goal is to do enough testing—not too much, not too little. Combining developmental and operational testing is the only way to go these days. Technology is mov-

ing so fast that the developmental testing has to take the operational scenario into account.

"The same technology that enables you to produce a weapon should also be applied to enable you to test it adequately," Mr. Krings declares. "There's no other alternative, particularly with electronics."

Mr. Krings's office has already weighed in heavily at the Pentagon. Its reports have been decisive in OSD's DIVAD decision, in OSD's approval of funds to upgrade enough helicopters for one mission but not enough for all three missions that the Army wanted them to do, and in the Navy's production go-ahead of AV-8B VTOL aircraft for the Marines.

Mr. Krings was once McDonnell Douglas's Washington executive in charge of AV-8B program. At the time of his Pentagon appointment, some officials speculated that this might lead to questions about his objectivity vis-à-vis AV-8B testing. It did not.

Mr. Krings emphasizes that his shop not only assesses the performance of weapons but also the services' planning, structuring, and ex-

ecution of their operational testing of those weapons.

"Most of our weapons work well," Mr. Krings declares. "Our adversaries would love to have them."

Next Up For Testing

The next major program to be judged by the OT&E office will be USAF's operational testing, early next spring, of the Global Positioning System (GPS) navigational satellites.

Later on, the OT&E office will become involved in USAF's operational testing of the Advanced Medium-Range Air-to-Air Missile (AMRAAM) and in the Army's OT&E of a remotely piloted vehicle that has had some problems.

Because of its political and force-structure ramifications, one future USAF operational testing program may well rank above all others as a challenge for the Air Force, for OSD, and for Mr. Krings's OT&E office.

That program will have a great deal to do with the choice of an aircraft to perform the air defense mission. Right now, the General Dynamics F-16 and the Northrop F-20 are the leading candidates, and their head-to-head testing will be touchy indeed.

Both fighters have ardent champions in USAF, OSD, and Congress. All will keep a beady eye on the USAF testing for any signs that it may be structured to give either fighter (or any other that may enter the air defense sweepstakes) a built-in advantage.

Whichever way the testing comes out, Mr. Krings will probably take some heat, right along with General Hall, his former Pentagon colleague who now commands AFOTEC.

General Hall was in charge of the Pentagon OT&E office as its deputy director at the tag end of a major study of weapons testing by the General Accounting Office, a congressional watchdog agency.

GAO's spate of mostly negative reports on military acquisition and testing programs in recent years sparked much of the congressional furor over such programs. Indeed, those reports had a lot to do with the lawmakers' creation of the DOT&E slot at the Pentagon.

GAO's most recent study culmi-

nated in a report, released last June, with the title "Production of Some Major Weapon Systems Began With Only Limited Operational Test and Evaluation Results."

GAO's List of Nine

The report dealt with nine such systems—USAF's B-1B bomber, Air-Launched Cruise Missile (ALCM), and Imaging Infrared (IR) Maverick missile; the Navy's F/A-18 aircraft, High-Speed Anti-radiation Missile (HARM), Tomahawk cruise missile, and Aegis fleet air defense system; and the Army's AH-64 Apache attack helicopter and DIVAD gun.

According to GAO, all those programs had been plagued by too much concurrency. GAO claimed that the weapons testing had either been inadequate or had failed to produce enough conclusive data (as in the case of the IR Maverick) to prove its adequacy.

The GAO report came down especially hard on the F/A-18. It charged that "expensive retrofits were required on F/A-18 production models to correct problems identified during operational testing that was performed after the production decision was made."

The DIVAD gun also took heavy fire from GAO. The B-1B, ALCM, and HARM programs were criticized only somewhat less harshly.

The Defense Department "partially concurred" with GAO's findings. But in its responses, which GAO published as an appendix, DoD also strongly maintained that things were nowhere near as bad as GAO had portrayed them.

With respect to the B-1B, for example, DoD said that "the risks of concurrency were weighed against the overriding need, expressed by the President and directed by Congress, to immediately embark upon the nation's strategic modernization program."

Moreover, DoD claimed that it had taken into account "all factors, including OT&E adequacy," and had decided that "the risks of concurrency were acceptable" in the B-1B program.

DoD said pretty much the same in its defense of the ALCM program. It also noted that GAO's study of the ALCM testing had been subsequently overtaken by positive events.



Artist's rendering of a Navstar Global Positioning System (GPS) satellite. GPS is scheduled to be tested this year as one of several major operational tests in store.



Maj. Gen. Michael D. Hall commands AFOTEC. He is shown here as a brigadier general formerly at the Pentagon.

All deficiencies discovered in the initial series of ten combined DT&E/OT&E flights of ALCM were shown to have been corrected by the time twenty additional DT&E/FOT&E (Follow-on Test and Evaluation) flights were completed, DoD claimed.

In any case, said DoD, ALCM had been ordered into production prior to the completion of its operational testing because "fixes to identified deficiencies were in hand, and the risk of production was acceptable."

The IR Maverick now speaks for itself. Only a few months after the GAO report came out, the IR Maverick racked up a very impressive record in test flights on a variety of USAF tactical and operational test aircraft at Nellis AFB and over Wisconsin in conditions that approximated those it would encounter in Europe.

GAO had sent a draft of its report to the Pentagon's new OT&E office then being run by USAF's General Hall.

The General wrote GAO last February that weapons acquisition programs with much concurrency of development and production did indeed merit "special attention" to their operational testing and evaluation, as GAO claimed.

General Hall also noted that his shop fully intended to pay such special attention.

He also made the point, however,

that "in almost all" of the programs GAO had analyzed, "the production rate was limited until OT&E was completed, and test results [were] considered before authorizing full production."

General Hall's letter made the additional, salient point that all weapons cited in the GAO report were urgently needed by the troops and that DoD had been intent on getting them into production as quickly as it deemed prudent.

Now, as the commander of AFOTEC, General Hall is USAF's main man for ensuring that operational test results are available to support full-scale production decisions.

Plans for LANTIRN and AMRAAM

AFOTEC has some big ones coming up, notably the LANTIRN targeting pod and AMRAAM.

It is determined to make the targeting-pod testing at least as realistic as it did the testing of the LANTIRN navpod and the IR Maverick, both of which were tested in "very credible" fashion, says General Hall.

AFOTEC plans to pull all the stops in its AMRAAM testing.

"Without a doubt, AMRAAM will be the most extensive operational test of an air-to-air missile ever accomplished," General Hall declares.

He knows a thing or two about testing air-to-air missiles. He was once USAF's technical manager for development of the excellent AIM-9L Sidewinder IR missile, and he subsequently directed AIM-9L operational testing at AFOTEC (then called AFTEC) in 1983.

"The realism of our testing is increasing," General Hall says. "We are acquiring aerial targets with more realistic performance characteristics, and we're also better able to replicate the threats by putting jammers on our target aircraft, for example."

Such improvements "will enable us to test AMRAAM fully," General Hall declares.

AFOTEC is all the more prepared to put AMRAAM through its paces, because its people worked with AFSC's people during developmental testing.

In the same vein, AFOTEC is

even now sizing up the Advanced Tactical Fighter development program and AFSC's preparations for ATF developmental testing.

Developmental testing gives the operational testers clues to the technologies they themselves can employ.

Realism—and Imagination

General Hall is upbeat about the condition and progress of USAF's OT&E.

"We're ahead of the game now," he asserts. "The realism of our testing is increasing, and we can make a greater contribution to the delivery of combat-capable systems to the operational commands."

The GPS navigational satellites will be a boon to operational testing. Highly accurate time, space, and position data from GPS receivers aboard aircraft being tested "will provide parameters previously available only on highly instrumented ranges," General Hall explains.

This will greatly enhance the geographical flexibility of aircraft OT&E and will enable AFOTEC to judge crew/machine performance in a much wider variety of environments.

Moreover, General Hall notes that "new aircraft avionics now enable us to extract postflight, system-performance data that was previously available only through modification and installation of special instrumentation" in the aircraft.

"The bottom line is that our test locations are opening up dramatically and our ability to define systems performance without encumbering the test with nonoperational instrumentation is greatly improved," General Hall declares. "The results are more operational realism and better test documentation."

General Hall believes that OSD and all the services will pay ever greater attention to improving operational testing capabilities, with accent on technology enhancements, "now that Mr. Krings is in" as DOT&E.

All along the military testing front, commanders and planners are being exhorted to use their imaginations in improving their techniques and the technologies at their disposal. ■

The superpowers take different paths to the same goals: assured access to space and long-term survivability of space assets.

HERRES: Even subtle trends are important.

What's Up in SPACE



BY EDGAR ULSAMER
SENIOR EDITOR (POLICY & TECHNOLOGY)

THIS nation's operational military space systems are essential for strategic deterrence as well as to the conduct of modern military operations because they help dispel "the fog of war," Gen. Robert T. Herres, the Commander in Chief of the new US Space Command, told AFA's national symposium on "The Military Uses of Space" held at Vandenberg AFB, Calif., on November 14-15, 1985.

In the event's keynote speech, General Herres pointed out that "space systems provide support without which no modern military force can operate successfully if engaging an enemy that does use space-based systems." This axiom, he argued, mandates that those responsible for national security must closely monitor even the most subtle trends in the USSR's military space program and neither deflate nor inflate Soviet space capabilities. Unfortunately, US assessments of Soviet military space operations lean toward extremes, according to General Herres: "Either they minimize the threat, citing short-lived, technically unsophisticated payloads, or they tend to maximize the threat based on a Soviet spacelaunch rate that is about four times our own."

Looked at in isolation, either the high Soviet launch rate or the short orbital life span of Soviet spacecraft leads to superficial conclusions: "The facts are that while their launch rate is largely driven by the fact of their shorter-lived systems, it is also true that the number of on-orbit systems—which for years was roughly equal to our own at about 125—has now grown to an inventory of about 150 working satellites on orbit. And whereas in the past they primarily used near-earth, or highly elliptical, Molniya-type orbits, their presence at geosynchronous altitudes is growing."

The Soviet launch rate, the CINC SPACECMD pointed out, is made possible by a formidable rocket booster

production and technology base: "Not only is that production base clearly capable of producing large numbers of boosters, but the Soviet space boosters have a demonstrated aggregate reliability rate of ninety-nine percent. Moreover, we must acknowledge that the Soviet launch rate implies a very strong launch and support infrastructure" as well as an experience base that "greatly exceeds our own."

The Air Force had to overcome considerable congressional resistance before it could acquire a limited number of expendable launch vehicles to hedge against unforeseen technical or operational problems with NASA's Space Shuttle. These vehicles will ensure that "we will have two types of boosters available to launch critical military payloads," General Herres pointed out. By contrast, the Soviet space launcher inventory "employs eight different kinds of boosters today [and] has two [others] under development, and [the Soviets are] building [their] own shuttle orbiter."

Expanding Soviet Space Capabilities

Building on this multiplicity of military launch systems, the Soviets have developed a significant "launch surge capability that has great military implications" because it guarantees assured Soviet access to space even under adverse circumstances. At the same time, the ability to surge enables the USSR to augment its orbital assets "with extra satellites as warranted by changing situations." Further, this unambiguous capacity for replenishing military space assets under surge conditions "clearly offers them opportunities to ensure continuity [of operations], even if individual satellites prove vulnerable."

Backing up the survivability of the functions the Soviets perform from space is a "robust" ground support

network. All Soviet tracking stations, for instance, are located within the USSR's borders, which pays off in a high degree of physical security. The head of the new US Space Command emphasized that "while we debate the merits of improving the survivability of our space control network by building [mobile ground terminals], the Soviets have deployed a fleet of ocean-going vessels capable of supporting their space program from the world's oceans." This sea-based support capability is being bolstered with the introduction of a new type of vessel, the Nedelin class.

The often-voiced contention that the Soviet ASAT antisatellite system is "crude" when compared to emerging US space weapons is "true, [but not] very meaningful." The military experts responsible for defending US satellites against Soviet ASATs—including himself—are "deeply and profoundly concerned" by the threat these systems pose. Countering the optimistic claim that the Soviet ASAT can only engage near-earth payloads whose orbits fall within certain inclinations, he said, "I find that virtually all our near-earth payloads fall within those ranges of inclination."

The contention that the Soviet ASAT weapon has only a modest single-shot kill probability against its targets is likewise misleading. "The Soviets," he said, "could launch multiple ASATs against critically important US satellite systems, resulting in high probability of success and severe damage to our military capabilities."

Lastly, some US critics of the Soviet ASAT belittle the threat this weapon poses on grounds that the target, in its orbital plane, must pass over the launch site to be engaged by the system. "Yet I find myself unable to repeal Newton's laws of physics, which dictate that our satellites must pass over that launch site several times per day," General Herres said.

The design philosophy that governed the builders of the Soviet space weapon, General Herres suggested, is that "the best is the enemy of good enough." The result is a "crude, technically unsophisticated, and relatively inflexible [yet] militarily effective weapon [that] provides the Soviets with considerable potential to deprive our nation, and our military forces, of vital support from certain key space systems."

The Soviets, General Herres told the AFA meeting, are correcting potential weaknesses in their terrestrial force structure through the innovative use of space-based platforms in direct support of combat commanders: "If one closely observes launch rates during major field exercises, one can easily draw sobering conclusions about the degree to which operational commanders can influence management of the Soviet space program." This, he pointed out, is in contrast with the US policy that traditionally has tied the orbital forces to the needs at the national, strategic level.

A case in point, he suggested, is the Soviets' development of ocean surveillance satellites, a "combination of radar and electronic surveillance systems manifested in their RORSATs and EORSATs . . . to detect, locate, and identify US and allied surface forces and pass targeting data on them to Soviet forces at sea." These satellites, he added, "represent a formidable military capability" that is without US counterpart. As a result, Soviet military space capabilities, although less sophisticated in technological terms than those of the US,

PIOTROWSKI: Space assets will be coordinated.



achieve precisely what this country's National Space Policy of 1984 sets as its principal goals—namely, "maintaining assured access to space and pursuing a long-term survivability program."

The New US Space Command

Turning to the formation last fall of the command he heads, General Herres explained that the US Space Command is not a component but a supporting element of the binational North American Aerospace Defense Command (NORAD). The new command will gradually absorb the functions and responsibilities of the disestablished Aerospace Defense Command. US SPACE-CMD, he said, is composed of the Air Force and Naval Space Commands as well as of a new Army element and is in business to support unified and specified commands by means of space, air, and ballistic missile defenses.

The subordination of Air Force Space Command to the new US Space Command eliminates all direct ties with Air Force Systems Command's Space Division. In the past, the Commander of AFSC's Space Division served also as the Air Force Space Command's Vice Commander: "We decided to normalize the relationship with AFSC's Space Division [even though the retention of this organization in the new command had been advocated by some]. I think this would have been wrong." He added that it is in the "interest of the Air Force to prove that we are pretty 'purple' [with regard to the other services], which is not too hard to do. The Air Force is as 'purple' and nonparochial a service as there is, and we can prove that point by where we put our money." In line with this decision, Vice Adm. William E. Ramsey was named the Deputy Commander in Chief of the US Space Command. The service affiliation of

SKANTZE: Force structure tradeoffs may be necessary.



future CINCs and Deputy CINCs theoretically might not match the present arrangement.

The three main functions assigned the new command are air defense, missile warning, and space surveillance and defense. The staff of the new command will consist of about fifty percent Air Force, thirty percent Navy/Marine Corps, and twenty percent Army personnel, according to General Herres. The force level of the US Space Command is programmed to reach about 10,000 slots. The command will operate about 325 computer systems and seventeen radar and six optical sensors around the world and make about 30,000 space observations every day. For the time being, there are no plans to assign responsibility for manned and unmanned space-launch operations to Air Force Space Command, SPACECMD's key element: "This is a heavily contractor-oriented activity—and R&D intensive—so that transfer of [this function] to the smallest Air Force command—which itself is not yet mature—is not practical."

Gen. John L. Piotrowski, USAF's Vice Chief of Staff, told the AFA symposium that the pivotal importance of the new unified space command is that under war conditions it will ensure that "all US space assets will be coordinated and will support national objectives in concert with other military forces." Toward this end, General Piotrowski said, the Air Force has formed an organization known as the Aerospace Forum: "This important . . . group is chaired by the Assistant Vice Chief of Staff, [Lt. Gen. Robert H.] Reed, and [will] determine how the Air Force should prepare for the impact of space operations on the roles and missions of an aerospace force." The Aerospace Forum's objective is "to provide the operational bridge that will help our emerging technological capabilities in space find their most effective use."

The *ad hoc* panel's work involves a three-phased approach—consisting of the formulation of mission statements, concepts of operations, and a game plan—and is to be completed early in 1986. The findings of the Forum will be folded into the Air Force's central planning. "The prospect of better integrating space capabilities in day-to-day use in the operational commands is very exciting, and we expect this effort to pay big dividends," General Piotrowski said.

US Surveillance Needs

One of the main long-term concerns of both NORAD and the US Space Command, General Herres pointed out, is the detection of air-breathing strategic threats, in the main Soviet bombers and cruise missiles. The coastal over-the-horizon backscatter (OTH-B) radars, he suggested, are only "gapfillers" until space-based radars come on line. The advent of space-based radars is not a "question of if but when we will be ready to make the capital investment." Such radar systems are going to be "extremely expensive," but at the same time the operational payoffs promise to be worth the price. General Herres said he felt that space-based radars will be needed somewhat "sooner" than is the corporate Air Force view, mainly because the cruise missile threat seems to be maturing faster than originally assumed. Also, he added, "The Navy needs space-based surveillance badly. [The Air Force needs] it initially to keep track of where the Bear Hs and then where the Blackjacks are flying."

Gen. Lawrence A. Skantze, Commander of Air Force Systems Command, struck a similar chord when he told the AFA symposium that the decision on a space-based radar might involve "whole force structure tradeoffs," including AWACS, OTH-B, and the size of the fighter force. After space-based radars (SBR) provide warning about impending strategic bomber and cruise missile attacks, that "information could be passed through AWACS to our fighters. We could then more selectively scramble our fighters to splash incoming targets." It follows that "we could get the job done with fewer fighters," raising the difficult question, "'Would we be willing to trade some of our interceptors for an SBR?' If the radar coverage would mean more effective intercepts, to trade a portion of our fighter force . . . might be justifiable." At the same time, the AFSC Commander acknowledged, "in the future we might need even more fighters to set up a credible cruise missile defense—even with the SBR." As a consequence, the tradeoff might involve "fewer AWACS [aircraft], depending on the SBR's capability."

In line with General Herres, the AFSC Commander suggested that it has become necessary to come to grips with the SBR requirement, "especially since the Soviets have reinvigorated their long-range strategic bomber force. An entirely new [variant] of the Bear bomber—the Bear H—now operates with the AS-15 long-range cruise missile." A completely new Soviet long-range bomber capable of carrying 3,000-kilometer-range AS-15s, the Blackjack, is being readied for operational deployment. Blackjack, General Skantze said, appears to be "larger than our B-1 bomber, probably faster, and may have about the same combat radius."

Driving up the Soviet air-breathing threat further is

RANDOLPH: Lasercom superior in almost all aspects.



the fact that there are four more long-range cruise missiles in development—"two of them [without] US equivalent [that] could eventually be accurate enough to carry conventional as well as nuclear warheads." The resultant threat to US and NATO forces, he added, is disturbing.

Space-based radars—in addition to potentially neutralizing all elements of the strategic air-breathing threat—could markedly enhance the effectiveness and survivability of naval battle groups. At present, General Skantze pointed out, these units "can provide their own radar coverage only within a limited range." An SBR would extend that range "well beyond 1,000 miles." By the same token, he suggested that the Navy ought to "make resource tradeoffs to afford an SBR. Any system that would slice several billion dollars out of the defense budget demands exchanges that cut across mission areas and services." The AFSC Commander called attention to the fact that "the Soviets have already made their decision. They have a space-based radar capable of tracking American fleets and [of] over-the-horizon targeting."

In seconding the requirements for a space-based radar system, General Herres suggested that the mere ability of "seeing" Soviet bombers is of sufficient value to the deterrence of nuclear war that it might justify the high costs associated with SBR: "We soon will reach the point where we will have to make a decision to move out."

Approaches to SBR

USAF's Deputy Chief of Staff for Research, Development, and Acquisition, Lt. Gen. B. P. Randolph, in discussing technical aspects of SBR, told the AFA meeting that the Air Force is pursuing four major design

approaches, each of which could meet the operational requirements for wide-area surveillance. Included are bistatic, phased-array, and reflector-based designs. The basic attributes of these design approaches are global coverage, the flexibility to tailor antenna footprints to missions requiring "unique coverage," and the ability to locate and track various types of targets.

Beyond the primary challenge behind SBR—affordability—a number of technological hurdles need to be cleared. He suggested that "structural control and exotic materials need to be further developed, since a space-based radar will require an antenna structure estimated up to seventy meters in length. Signal processing devices and algorithms will need to be developed to identify targets among ground clutter in a high jamming environment." Also, "Transmit and receive modules will have to be developed to support the operational needs of a space-based radar that have high reliability and are economical to produce." In addition, more work needs to be done in terms of spacecraft hardening and protection of communication links.

Lastly, there appears to be an essentially inevitable link between SBR and space-based nuclear power generators. Air Force Under Secretary Edward C. Aldridge, Jr., dealing with the same topic, told the AFA meeting that the Department of Energy's SP-100 space-based power generator project is technically feasible, but "politically tough to do." He added, however, that the Soviets have had such power generators in operation for years. He added that he would be prepared to "defend the need [for such an orbital nuclear power system] in Congress."

Another advanced technology space project that promises major payoffs is an optical space communications link known as the Lasercom Package, according to General Randolph. Identifying himself as a "raving advocate" of this approach, which was developed by MIT's Lincoln Laboratory under Air Force contract, General Randolph said it was based on heterodyne (frequency-mixing) techniques that promise to be "superior to the conventional direct detection technology in almost all aspects: higher data rates, smaller apertures, lower power requirements, lighter weight, and more sensitivity."

The project, he explained, involves the integration of the Lasercom Package developed by Lincoln Laboratory into NASA's Advanced Communications Technology Satellite (ACTS), which is scheduled for launch in 1989. Because the heterodyne detection receiver is vastly more sensitive than any direct detection counterpart, it becomes possible to operate with smaller aperture sizes. This in turn helps spacecraft integration. Also, "The intermediate frequency which results from the heterodyne technique is filterable and, therefore, permits operation with the sun in the receiver field of view," General Randolph pointed out. The package promises to be highly jam-resistant and will involve the use of "highly efficient gallium-aluminum-arsenide semiconductor lasers."

The Air Force plans to tackle the project in three phases, he said: "Phase I will demonstrate the space-ground link; that is, communication between the ACTS package and a ground site. Phase II would demonstrate a space-to-space link. The ground terminal used during

Phase I testing would serve as the prototype for a terminal that would be placed into a low-earth orbiting spacecraft. Phase III involves the technology transfer from Lincoln to industry for operational crosslink purposes." There is also the option for operational tests, because the package will be designed to permit crosslinking with other satellites in geosynchronous orbit.

The SSBS Program

General Randolph, along with other symposium speakers, discussed transfer of certain Air Force programs to the Strategic Defense Initiative (SDI) organization. Among them is SSBS, the space-based surveillance program that had been originated by the Air Force but that was subsequently transferred to SDI, he said. The purpose of the program is to find the means for "meeting not only space-surveillance needs but also midcourse detection, tracking, and discrimination of reentry vehicles from active and passive decoys."

The SSBS project centers on such space-based sensor concepts as focal plane arrays, lightweight optics, and advanced signal processors. At present, General Randolph pointed out, the SSBS project is being carried out by the Air Force, the Army, and DARPA under the central management of SDIO. From the Air Force's point of view, space-based infrared sensors are needed to detect and track potentially hostile satellites and anti-satellite weapons. In turn, General Randolph explained, these capabilities are essential for the defense of US satellites and the ability to target and negate enemy spacecraft.

Both Secretary Aldridge and General Herres hinted at the possibility of "problems" in connection with transferring responsibility for developing a follow-on system to the Defense Support, or "early warning," satellites to SDIO. General Herres admitted to being troubled by this transfer and suggested that there may be problems in terms of "who pays" for the development of a follow-on system to the Defense Support Program. Secretary Aldridge remarked that "we are looking over SDI's shoulder to see if the Air Force needs are met." This also obtains in the case of the high-energy laser program that was folded into SDI.

In the case of the follow-on satellites to DSP, he added, "That is beginning to look more like our original system, [with the result] that it might come back to the Air Force for implementation." The surveillance and tracking function, which is "more demanding," may stay with SDI. While there is close coordination with SDIO on these programs, "the concern we have is that budget pressures from Congress put a certain element of instability into SDI." Pointing out that the original funding request for SDI has been trimmed by Congress—resulting in a drop from \$3.7 billion to a figure around \$2.7 billion—Secretary Aldridge said that this cut "has a big impact on the Air Force."

Second-Generation Launch Systems

The national space transportation system, the Space Shuttle, will only be used during the initial startup phase of SDI in a limited way for technology demonstration flights—on the order of two half-days a year, Secretary Aldridge predicted. But as SDI comes closer to the hardware stage, the demand for Shuttle time may rise

ALDRIDGE: Technically feasible, politically tough.



steeply and ultimately culminate in the need for a heavy lift vehicle, he said.

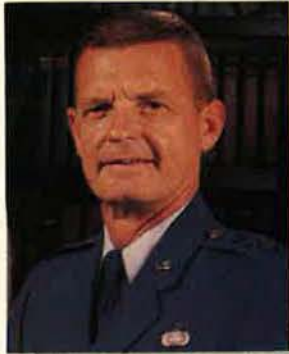
A recently issued Presidential Directive mandates a comprehensive analysis of the need for a second-generation space transportation system that could consist of both manned and unmanned elements. Secretary Aldridge, who represents the national security community on a high-level panel that is analyzing this need, pointed out that the purpose of the directive is far broader than the widely publicized notion of a second-generation Shuttle: "We are looking at manned [or] unmanned, large [or] small aerospace plane-type approaches along with ways for covering the interim period."

The Commander of AFSC's Space Division, Lt. Gen. Forrest S. McCartney, predicted that such a second-generation launch capability won't be needed before the mid 1990s. He added, however, that if SDI reaches operational status, new types of launch vehicles will have to take over from the Shuttle.

Secretary Aldridge saw only limited merit in expanding the present Shuttle fleet by building a fifth operational Orbiter. It would take until 1992 before the fifth working Orbiter could achieve operational status.

At present, the Defense Department plans to use eight out of the twenty-four programmed Shuttle flights per year. This figure might well go up to nine or ten per year before too long, according to Secretary Aldridge. The result might be the need to continue the Air Force's complementary expendable launch vehicles (CELVs) program that now is scheduled for termination in 1993. The possibility of buying additional quantities of CELVs to provide a stopgap capability until the second-generation launch systems enter the inventory is being exam-

McCARTNEY: Second-generation launch systems in 1990s.



ined. These CELVs could be used either in combination with or as a substitute for a fifth Orbiter, he said.

The Air Force's interest in CELVs—Titan 34D-7s and similar approaches—transcends pure capacity concerns. CELVs, Secretary Aldridge pointed out, "are very capable of launch on demand [in circumstances] when we can't afford the inflexibility of the Shuttle." Two of the Defense Department's "most critical payloads" each year will be flown on CELVs, he disclosed: "The booster [will be] sitting there ready to go in a relatively short time whenever the satellite is ready for launch." General McCartney pointed out that "we will need four to six months" between the first and second Shuttle flights from Vandenberg AFB to refurbish Space Launch Complex Six (SLC-6). In the case of CELVs, the refurbishing time is cut to two months, he said.

While the Defense Department remains "fully committed" to use of the Shuttle for the majority of its payloads, General Randolph pointed out that "total reliance on any single system for access to space represents an unacceptable national security risk and would be inconsistent with the strategy represented by . . . the strategic triad."

Following a three-way source selection, the Air Force, therefore, contracted with Martin Marietta Corp. to build ten Titan 34D-7s that will be launched, beginning October 1988, at the rate of two a year. The unmanned CELVs are clearly more suitable for conflict situations than the Shuttle, provide for alternate launch options, and reduce the need to invoke DoD "bumping rights" concerning Shuttle flights.

Also, as General Randolph put it, "They help maintain a critical industrial base for the production of ex-

pendable launch vehicles and provide competition to foreign launch vehicles." Secretary Aldridge added that President Reagan was personally concerned about the issue of foreign governments subsidizing commercial spacelaunch vehicles to the detriment of the US. He added that thought was being given to removing some of the "barriers" to commercial space operations in this country. The springboard for the development of a commercial US spacelaunch capability is the Air Force's CELV program, he said. There are obvious opportunities to capitalize on the "sunk costs" of these launchers as well as the fact that the government is already paying the "overhead" costs at Kennedy Space Center.

Spares vs. Reconstitution

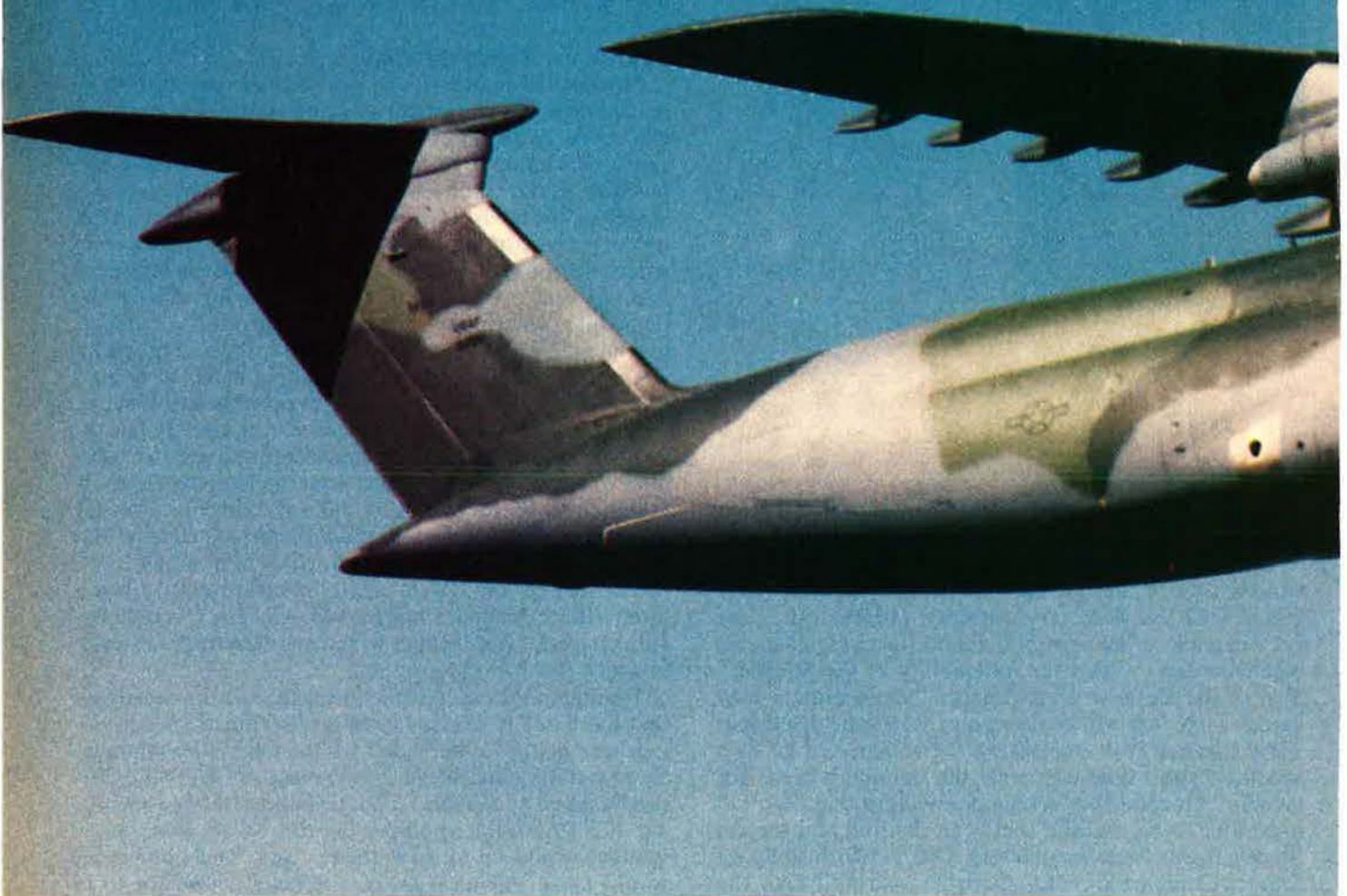
Current US policy to rely on "orbital spares" rather than to launch replacement systems in case of attacks on US space assets makes both military and economic sense, according to Secretary Aldridge. Expressing opposition to the traditional concept of "reconstituting" satellites lost to an attacker, he said, "We have not given up on reconstituting our space forces. The question is where do you constitute from." The choice is between systems that "you operate every single day in orbit or [launching whole new constellations] after a nuclear [exchange]." The US, at times, had a "reconstitutable enduring systems concept, but people failed to recognize that [every military satellite in orbit] has to survive up until the [outbreak] of nuclear war. It already has to be able to survive ASAT attacks, electronic warfare, and attacks on its ground stations until nuclear war starts." It makes sense, therefore, to "take systems that already can survive an ASAT and make [them] survivable" in terms of nuclear war and other hostile environments. At the same time, the US, in case of nuclear war, would go after Soviet ground stations and ASATs. Overall, he emphasized, "It's cheaper to reconstitute from systems in space than on the ground."

Turning to the Navy's role in space, he acknowledged that the Navy is worried because its Transit space system was being "superseded by the Global Positioning System [GPS] and [because] the place of FLTSATCOM will be taken by Milstar." The Air Force has been acquiring FLTSATCOM satellites for the Navy. But "their interest would be to do it themselves. That, however, would mean paying a lot of overhead compared to a system that is in being," he suggested.

The Air Force, therefore, has proposed—and the OSD staff agrees—that a memorandum of agreement be entered into with the Navy to maintain the *status quo*, according to Secretary Aldridge. "FLTSATCOM by the Navy would [lead to] a battle. Right now FLTSATCOM is a Hughes satellite—Hughes operates it and the Navy leases circuits off it, so it really is not a Navy satellite. But if the Navy wants a follow-on UHF satellite, we [the Air Force] are proposing that we do it and launch it for them."

Secretary Aldridge climaxed his presentation to the AFA symposium with the recommendation that steps be taken in Congress and by the public at large to name the Vandenberg AFB spacelaunch complex the "Ronald Reagan Space Center." He cited the President's commitment to and support of US military and civilian space programs as the basis for the recommendation. ■

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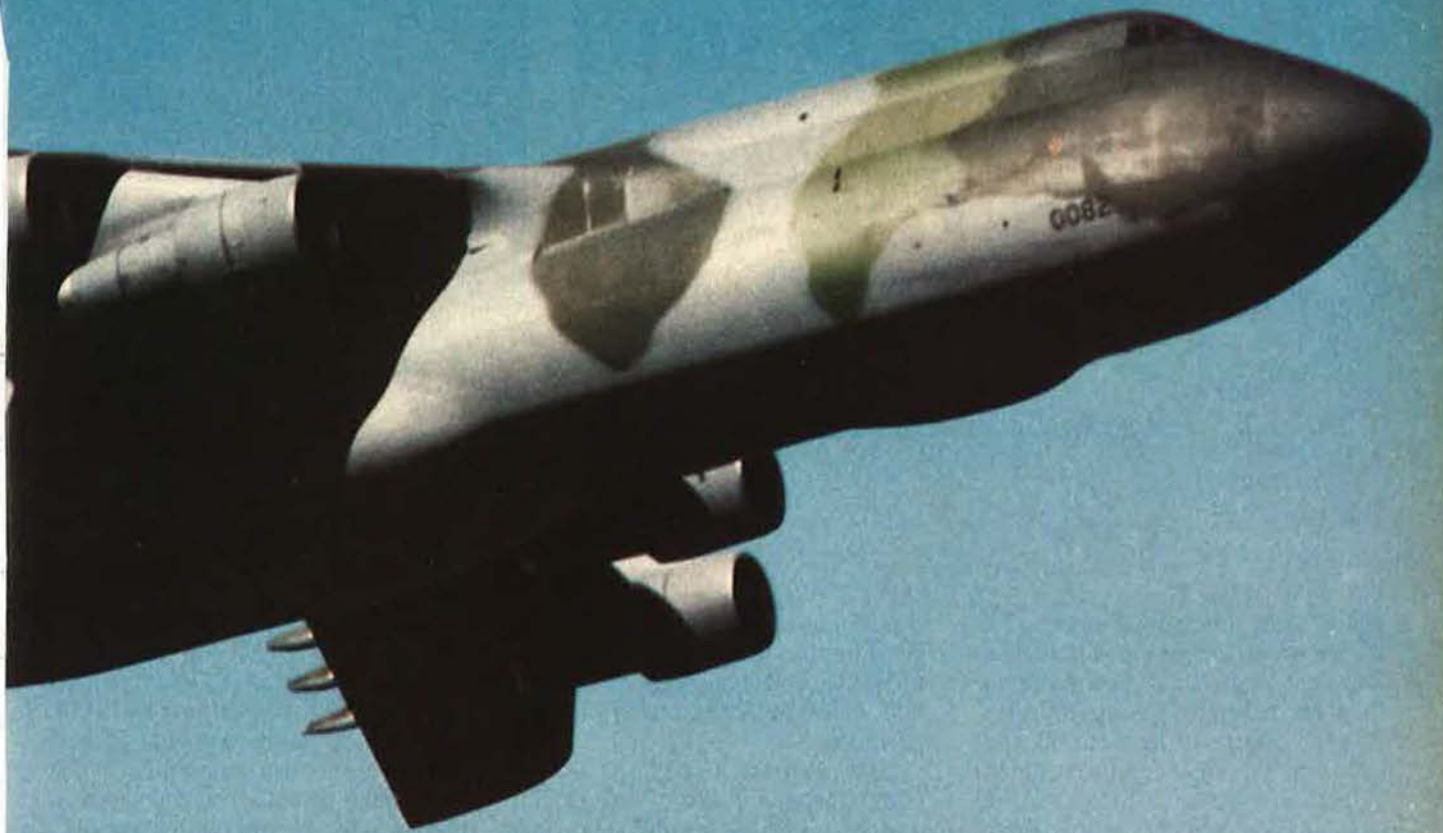
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Sometimes competition in defense procurement is a good thing. Other times, it's akin to leaping chasms in two bounds.

The PROS and CONS of Competition

BY JOHN T. CORRELL, EDITOR IN CHIEF



Panelists included (left to right): Brig. Gen. Gerald C. Schwankl, Norman R. Augustine, Dr. James P. Wade, Moderator Gen. Robert T. Marsh, Rep. Jim Courter, and Tim T. Carrington.

FOR some time now, Congress has been fairly erupting with legislation designed to increase competition in defense procurements. There is general agreement that goods and services tend to cost less when competing contractors bid against each other to supply them. Indeed, the statistics do indicate that costs go down as competition goes up.

But there is also broad concern that Congress, in its enthusiasm for competition, may not have left enough room for the services to apply common sense in procurement and that the lock-step competition drill may lead to new problems. (See editorial, "Legislating Competition," August 1985 issue.)

Amid these concerns, the armed forces are busily implementing the competition initiatives imposed by Congress, plus others they thought up themselves. The Air Force, for example, began appointing competition advocates three years ago. It now has about 1,500 of them working full time, mostly in Systems Command, which spends sixty percent of USAF's procurement dollars, and in Logistics Command, which spends thirty percent.

Panelists at an Aerospace Educa-

tion Foundation Roundtable held in Washington on November 21 examined the consequences, good and bad, of this heavy emphasis on competition.

Gen. Robert T. Marsh, USAF (Ret.), former AFSC Commander and Roundtable moderator, said that in the vigorous movement for procurement reform, "no one subject has received so much of the reformists' attention as competition." The belief is widely held, he said, that the military can achieve significant cost reductions while increasing quality and performance if it will take advantage of the opportunities for more competition. He and his fellow panelists then set about exploring the validity of that assumption.

"My own studies of defense programs have shown that when used properly, competition produces on the average a twenty-eight percent reduction in gross price," said Norman R. Augustine, Senior Vice President, Martin Marietta Corp., and author of the incisive book *Augustine's Laws*. The circumstances, however, are not always appropriate for competition. Mr. Augustine cited one such example that he had witnessed: a decision that two con-

tractors were needed for competition's sake when there wasn't enough production to keep a single factory employed efficiently. That, he said, is "akin to trying to leap deep chasms in two bounds."

"Competition is just one strategy that we use to achieve both quality and affordability within our defense programs," said Dr. James P. Wade, Jr., Assistant Secretary of Defense for Acquisition and Logistics. "There are others—for example, multiyear procurement, preplanned product improvement, cooperation in an arms sense with our allies, and the important aspect of having joint service programs development." He said that it is Pentagon policy to use competition "to the maximum extent practical" and to encourage prime contractors to generate competition among subcontractors. At the same time, he acknowledged that defense acquisition is an exercise in balancing cost, schedule, and performance and that too much emphasis on any one of these can play hob with the other two.

"Our acquisition strategies might be good, they might be fast, and they might be cheap, but I think we can say that they can't be all three at the same time," Dr. Wade said.

Mr. Augustine observed that "technical leveling" often occurs as the government interchanges technical ideas among contending contractors, leaving the low bid as the sole means of deciding who gets the job. As a result, he said, some companies are cutting back on innovation in favor of strategies to become the low-cost producer.

"We recognize that competition doesn't solve all problems, but generally we believe that there has been too little of it, and we want more of it," said Rep. Jim Courter (R-N. J.). Congressman Courter rejected the idea that cost alone must be the objective of competition. "I think you can compete other things besides cost," he said. "I think you can compete reliability and survivability and maintainability and quality and speed," adding that "no one should suggest that competition means you forget those other necessary qualities in that which you're trying to get."

Brig. Gen. Gerald C. Schwankl, USAF's Competition Advocate General, said that the Air Force obligates more than \$45 billion in some 4,000,000 contract actions a year. In FY '85, eighty-two percent of the contract actions (representing 39.2 percent of the money) were the result of competition. This was a twenty-five percent improvement over the previous year, and the Air Force expects to do even better in FY '86. About half the total procurement dollars are spent in the "follow-on to competition" category. The portion awarded on a non-competitive basis was sixteen percent in FY '84 and 12.8 percent in FY '85.

Fielding a question from the audience—How much money has been saved, really, compared to what it takes to maintain 1,500 bureaucrats in the competition advocate program?—General Schwankl said that competition and spare parts procurement reform had saved \$525 million in FY '84 in Logistics Command alone. "In the first nine months of FY '85, we saved \$518 million," he said. "These are auditable, documented figures. So yes, they [the competition advocates] are paying their way."

Panelist Tim T. Carrington, Pentagon correspondent for the *Wall Street Journal*, recalled how the se-

curities business struggled with the question of competition in the 1970s. "Wall Street, although it's at the core of the United States capitalist system, was quite a protected industry and resisted competition until ten years ago, when it was forced on them by Congress, which decided that the fixed commission rate—sort of a cartel system that had been maintained over the years—should be dismantled and that the forces of competition should be brought to the securities business," he said. "It was something that was generally resisted by the industry. It was highly disruptive after rates were unfixed, and a lot of companies went out of business. But I think it has been concluded that, in the end, the surviving companies were considerably stronger than any of the companies were five years before."

He recognized the enormous differences between defense and the securities industry, but said, "I think that what they have in common is that disruptions are to be expected." Mr. Carrington added, "Probably, in the end, if it is handled wisely, it's going to yield a stronger industry with stronger components after it shakes down."

One of the potentially most harmful side effects of excessive competition is that it discourages industry from making capital investments because it cannot depend on sufficiently long production runs over which to amortize expenses. "If one wins a contract for a new airplane and the contractor knows it's only going to build 100 of those airplanes before a competition takes place, one can afford to tool in a very different fashion than if you think you're going to get to build the whole 1,000 of them," Mr. Augustine said. "If you know you're going to build the 1,000, you can spend the money to build a more efficient factory."

There is also an effect on general research activity, because under the complex acquisition rules, the amount that industry can bill for independent research and development (IR&D) and bid-and-proposal preparation is limited by a common ceiling, expressed as a percentage of current contracts. Emphasis on competition naturally stimulates bids and proposals.

"An increasing share of industry's discretionary money that used to go to advancing the state of the art, to doing research, today is going to proposal writing—a very significant increase," Mr. Augustine said.

Expanding on that in response to a question from General Marsh, he added, "Day-to-day pressures of staying in business are such that if you have a choice between writing a proposal to bring in business tomorrow and doing research on something that will pay off ten years from now, it's very difficult to look your shareholders in the eye and not respond to a request for proposals."

Congressman Courter said that he has begun to worry about a "military-congressional complex" that works at cross-purposes with the objective. "Congress is becoming much too involved in the procurement process," he said. "We have to allow it to breathe."

"Congress, of course, wants small business set-asides; we want minority set-asides; we want to make sure that New Jersey, a state like mine, receives its 'fair share' of contracts. We're interested in a jobs program. Basically, the Department of Defense is a jobs program for various members of Congress. We're interested in social engineering as well. I'm a little concerned that Congress has taken its job and its responsibilities so seriously that we are getting in the way of true competition."

As uncertainty, pressure, and bureaucratic requirements grow in defense contracting, many small vendors are dealing themselves out. Mr. Augustine said that he had recently heard from a small firm that had long supplied about ten very special washers a year for a low-production defense program:

"We received a box of washers from the president of this company, and it was accompanied by a letter that said, 'Our firm is made up of good Americans. We want to do our share for the defense effort. Therefore, we're providing you with a ten-year supply of washers, courtesy of ourselves. Now please go find somebody else, and leave us alone.'

"Competition in the broad sense is a superb mechanism, but as with many other things, one can have too much of a good thing." ■

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The Military Balance 1985/86

As Compiled by The International Institute for
Strategic Studies, London

ONCE again, AIR FORCE Magazine presents to its readers the exclusive US presentation of the annual international standard reference, "The Military Balance 1985/86." "The Military Balance" has appeared periodically in AIR FORCE Magazine since 1971.

This comprehensive reference provides a detailed, unclassified, quantitative assessment of the elements of military power and defense expenditures worldwide. As such, it is a handy and authoritative unclassified reference accepted as the leader in the field.

It examines the facts of military power as they existed on July 1, 1985, and no projections of force levels or weapons beyond that date have been included, except where specifically stated. It also does not reflect facts of geography, doctrine, or efficiency, except where these are explicitly touched upon. It makes no attempt to compare one country's military capacity against others. Material is reviewed each year, and differences between years may be due as much to reevaluation of evidence as to new information. Therefore, "The Military Balance" may have limitations for those attempting to construct time-series comparisons.

In the reporting of national income, both GNP and GDP figures are used. Where possible, GDP has been preferred. GDP is equal to GNP minus net income from abroad. Where figures are not currently available from published sources, estimates have been made.

Unless otherwise stated, the manpower figures given are those of active forces, regular and conscript. An indication of the size of the militia, reserve, and paramilitary forces is also included where appropriate. Reserve figures are generally estimates based on a five-year postconscription period, although some national definitions are used.

The equipment figures in the entries show total holdings. Nonoperational and reserve total holdings are given where known. The term "combat aircraft" com-

prises aircraft normally equipped and configured to deliver ordnance, reconnaissance aircraft, those in operational conversion units (OCU), and armed helicopters when clearly identified as such.

The Director and staff of The International Institute for Strategic Studies assume full responsibility for the facts and judgments that this study contains. The cooperation of governments has been sought and, in many cases, received. Not all countries have been equally cooperative, and some figures have necessarily been estimated. Inevitably, these estimates change as new information becomes available.

For this publication, AIR FORCE Magazine has rearranged some of the IISS material so that our presentation is organized in major sections consisting of the US forces plus the NATO nations, the USSR forces plus the Warsaw Pact nations, and China, followed by all the other nations of the world in alphabetical order. We have also added photos and captions, and we assume responsibility for them. As in the past, some tabular and text material has been excluded from this reprint because of space limitations. Readers wishing the complete volume may order it from The International Institute for Strategic Studies, Sales Department, 23 Tavistock St., London WC2E 7NQ, England.

In the material that appears on the following pages, AIR FORCE Magazine has retained the IISS's system of abbreviating military units and weapons and its British spelling and usage (as in "programme"). A list of the various abbreviations used in the text appears on the following page.

Where a \$ sign is used, it refers to US dollars, unless otherwise stated. Defense expenditures are expressed in US dollars. For the USSR and China, defense expenditures are estimates. Explanatory notes are provided in the sections on those countries.

—THE EDITORS

ABBREVIATIONS

<	under 100 tons	FRG	Federal Republic of Germany	msl	missile
-	part of unit is detached	flr	fighter (aircraft)	MT	megaton (1 million tons TNT equivalent)
+	unit reinforced	FY	fiscal year	n.a.	not available
AA	anti-aircraft	GDP	gross domestic product	Neth	Netherlands
AAM	air-to-air missile(s)	GDR	German Democratic Republic	NMP	net material product
AB	airborne	GLCM	ground-launched cruise missile(s)	nuc	nuclear
ABM	anti-ballistic missile(s)	GNP	gross national product	OCU	operational conversion unit(s)
ac	aircraft	GP	general-purpose	off.	official
AD	air defence	GP	group	org	organized/organization
adj.	adjusted	GW	guided weapon(s)	para	parachute
AEW	airborne early warning	hel	helicopter(s)	pdr	pounder
AFV	armoured fighting vehicle(s)	how	howitzer(s)	Pol	Polish
ALCM	air-launched cruise missile(s)	hy	heavy	Port	Portuguese
amph	amphibious	ICBM	inter-continental ballistic missile(s)	RCL	recoilless launcher(s)
APC	armoured personnel carrier(s)	incl	includes/including	recce	reconnaissance
Arg	Argentinian	indep	independent	regt	regiment
armd	armoured	inf	infantry	RL	rocket launcher(s)
arty	artillery	IRBM	intermediate-range ballistic missile(s)	RV	re-entry vehicle(s)
ASM	air-to-surface missile(s)	km	kilometres	SAM	surface-to-air missile(s)
ASW	anti-submarine warfare	KT	kiloton (1,000 tons TNT equivalent)	SAR	search and rescue signals
ATGW	anti-tank guided weapon(s)	LCA	landing craft, assault	sigs	signals
ATK	anti-tank	LCAC	landing craft, air cushion	SLBM	submarine-launched ballistic missile(s)
Aus	Australian	LCG	landing craft, gun	SLCM	sea-launched cruise missile(s)
avn	aviation	LCM	landing craft, medium/mechanized	Sov	Soviet
AWACS	airborne warning and control system	LCT	landing craft, tank	SP	self-propelled
bbr	bomber	LCU	landing craft, utility	spt	support
bde	brigade	LCVP	landing craft, vehicles and personnel	sqn	squadron
bn	battalion or billion(s)	LHA	amphibious general assault ship(s)	SRAM	short-range attack missile(s)
Br	British	log	logistic	SRBM	short-range ballistic missile(s)
bty	battery	LPD	landing platform, dock	SS	diesel submarine(s)
Cdn	Canadian	LPH	landing platform, hel	SSBN	ballistic-missile nuclear submarine(s)
cav	cavalry	LSD	landing ship, dock	SSM	surface-to-surface missile(s)
cdo	commando	LSM	landing ship, medium	SSN	submarine(s), nuclear
Ch	Chinese (PRC)	LST	landing ship, tank	sub	submarine
comd	command	lt	light	TA	Territorial Army
COIN	counter-insurgency	m	million(s)	tac	tactical
comms	communications	MBT	main battle tank	tk	tank
coy	company	MCMV	mine counter-measures vessel(s)	tp	troop
CW	chemical warfare	mech	mechanized	tpt	transport
CY	current year	med	medium	trg	training
def	defence	MICV	mechanized infantry combat vehicle(s)	UN	United Nations
defn	definition	MIRV	multiple independently-targetable re-entry vehicle(s)	UNDOF	UN Disengagement Observation Force
det	detachment	misc	miscellaneous	UNFICYP	UN Force in Cyprus
div	division	Mk	mark (model number)	UNIFIL	UN Interim Force in Lebanon
ECM	electronic counter-measures	mod	modified/modification	UNTSO	UN Truce Supervisory Organization
ELINT	electronic intelligence	mor	mortar(s)	veh	vehicle(s)
elm(s)	element(s)	mot	motorized	VIP	very important person
engr	engineer	MR	maritime reconnaissance	V(S)TOL	vertical (/short) take-off and landing
eqpt	equipment	MRBM	medium-range ballistic missile(s)	WP	Warsaw Pact
est	estimate(d)	MRL	multiple rocket launcher(s)	Yug	Yugoslav
EW	electronic warfare	MRV	multiple re-entry vehicle(s)		
EWng	early warning				
excl	excludes/excluding				
exp	expenditure				
FAC	fast attack craft (gun)				
FAC(G)	fast attack craft (missile)				
FAC(P)	fast attack craft (patrol)				
FAC(T)	fast attack craft (torpedo)				
fd	field				
FGA	fighter(s), ground-attack				
flt	flight				
FMA	foreign military assistance				
Fr	French				

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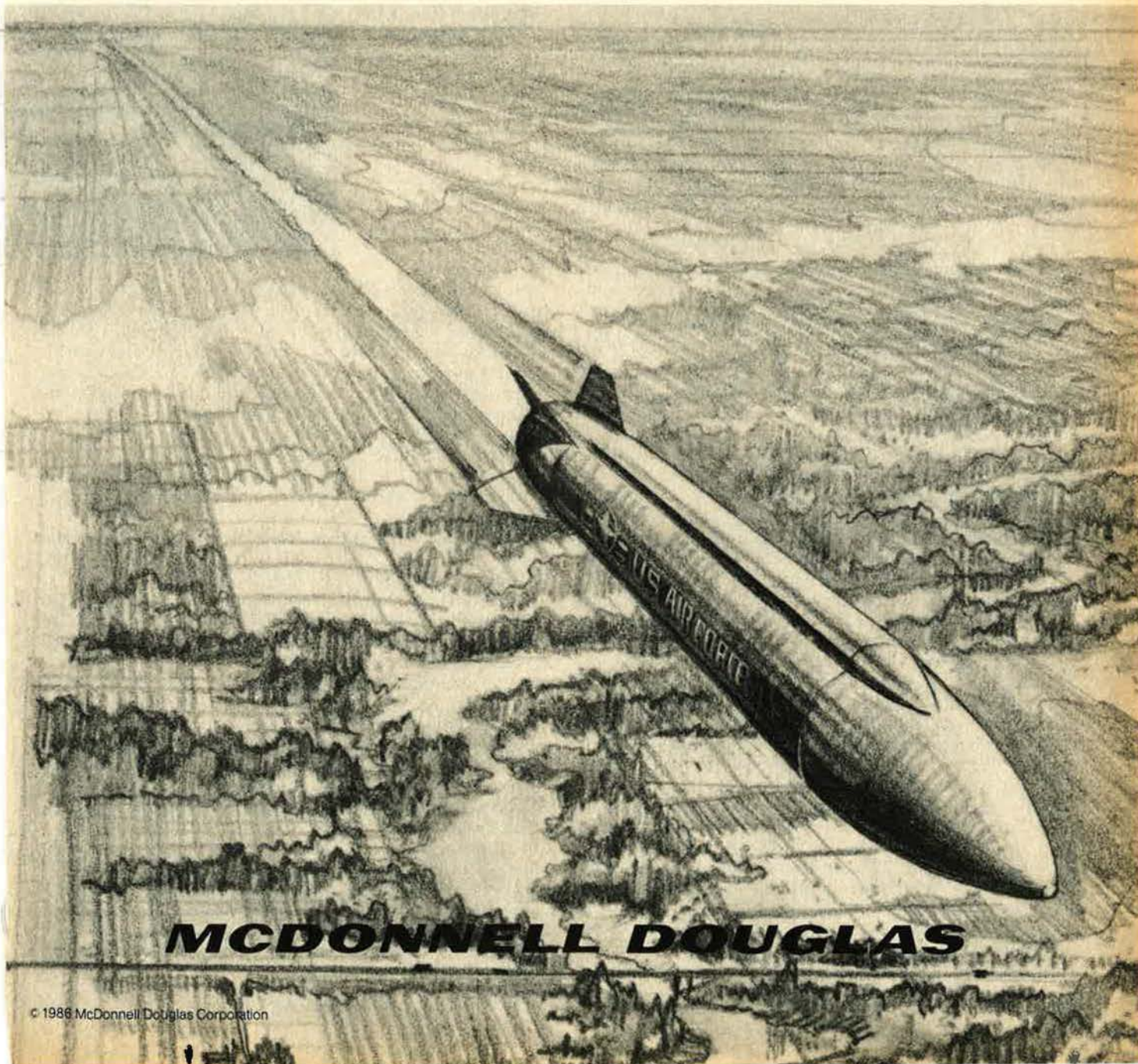
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trating bomber force and of the strategic triad itself. It's a step we're ready to take. For more information, contact: McDonnell Douglas, SRAM II, P.O. Box 516, St. Louis, MO 63166.



The United States

During the past twelve months the United States retired 11 *Titan II* ICBM (3 more will retire by November 1985). This has reduced the ICBM total weapons yield by 99 MT. While there is still great uncertainty over the number of the MX ICBM to be deployed, its development is proceeding, with a planned Initial Operating Capability (IOC) of December 1986. The *Midgetman* ICBM is still in the very early concept stage and could not be deployed before the 1990s.

SLBM, however, have increased by 24 with the introduction of the sixth *Ohio*-class SSBN. A seventh is due to be delivered in October 1985, and this delivery would have put the US over the SALT II MIRVed missile ceiling. A *Poseidon* boat will be taken out of service to prevent this. The figure as of 1 July, however, is 640 missiles in 37 SSBN, an increase over the twelve months of 48 missiles. The normal *Poseidon* warhead payload is 10 MIRV, of 40 to 50 KT each. The *Trident C-4* carries 8 warheads of 100 KT. The present increase over the 1984 total is therefore 384 warheads, with a maximum of 38.4 MT. The intended replacement of the *Poseidon* boat with the seventh *Ohio/C-4* will mean a further net increase of 8 missiles, an increase in the number of MIRV of 32, and an increase in submarine-launched total weapons yield of 11.2 MT. The *Trident D-5* (or *Trident II*) SLBM is in development, with a planned IOC of 1989.

There is no significant change in the B-52 or FB-111 fleets. However, the first of the new generation of strategic bombers, the B-1B, has been delivered. At present the first squadron of 16 aircraft is planned to be operational in late 1986. Three other squadrons and a training element will follow, to a total of 100 aircraft; 51 remain on order, and deliveries are expected to be at a rate of 4 per month from September 1986. This aircraft can carry three internal single or mixed nuclear loads of free-fall bombs, AGM-69A SRAM and AGM-86B ALCM, plus eight loads externally. Maximum single loads would be 22 ALCM (with the W-80-1 warhead—estimated yield: 200 KT), 38 SRAM, 20 B-28, 36 B-43/-61/-83 nuclear bombs, 128 500-lb Mk 82 or 36 2,000-lb Mk 84 conventional bombs. The B-52 will carry up to 20 ALCM.

The modernization of US strategic warning and control systems (land- and space-based) is proceeding.

The US Army is undergoing a period of reorganization. The armoured and mechanized divisions are being modernized; some of the infantry divisions are being converted to light divisions, and an experimental high-technology motorized division is being formed. The reorganization is affecting the Army Reserve structure, with a number of units being selected to form part of the existing Active structure when required. A parallel review of the weapons and communications components intended to replace older systems is also in progress. It is intended that there will be six distinct types of Army division, each with a somewhat different role and capability.

Deliveries continue to enhance and modernize US maritime and air capabilities. Three more *Los Angeles*-class SSN bring the 1 July total holdings to 29. A second *Ticonderoga*-class conventionally-powered guided-missile cruiser has joined the fleet; a third is expected later in 1985. Series production of the *Perry*-class guided missile frigate continues, with seven more entering service. A new class of destroyer (the DDG-51, *Arleigh Burke*) has been ordered.

Procurement scheduled over the longer term and funded

An F-15 and an element of F-16s taxi out at Nellis AFB, Nev. These two aircraft form the backbone of the Air Force's tactical forces and are used to perform air-to-air, interception, and ground attack missions. Also shown is a pair of F-5s. (Photo by William A. Ford)



also includes 6 more SSBN, 11 attack submarines, three carriers, 14 *Ticonderoga*-class cruisers, and a number of amphibious warfare and support vessels. Of particular note is a revival of interest over the past few years in surface-based mine counter-measures vessels. The use of helicopters in this role is still important, as shown by purchases of additional aircraft for this purpose, but each has its own peculiar capabilities, and the two need to be used together as a team for optimum effect.

Naval air continues to see the replacement of the F-4 by the F-14 and the A-7 by the F-18. Greater range and enhanced weapons loads improve the combat capability of the carrier-based squadrons.

The Marine Corps will complete the upgrading of both the quality and quantity of its main amphibious vehicles, of its artillery support, and of its support aircraft.

The Air Force continues to modernize, introducing F-15 and F-16 to replace older types. Some of the displaced aircraft are being passed on to the Reserves, but the latter are also getting a few of the newer types.

All the Services are aware that there is a danger that an all-volunteer force will be less capable of sustaining a long war than a nation which has a pool of former conscripts from which to draw. All have made considerable efforts to enhance their Reserve structures and continue to do so. Expanded training and administrative support programmes are helping to upgrade the numbers and capabilities of all Reserve components. There is still a shortfall, but it is less than it was.

US interest in the Strategic Defense Initiative (SDI) continues, but this undertaking is still at the research stage.

For the first time, both Houses of Congress have authorized funds for the manufacture of a new generation of chemical weapons, but with some qualifications. It remains to be seen whether the Administration will eventually produce binary chemical munitions.

US Defence Budget

The level of American defence expenditures is confusing to many, because several separate budgeting indices are used and because other agencies, apart from the Defense Department, administer parts of the defence programme. The budgetary or fiscal year begins on 1 October. Spending accounts have three denominations: *Outlays* are the actual expenditures (i.e., the cheques written during a given fiscal year); *Budget Authority* (BA) is the amount which may be committed to current and future outlays in a fiscal year; *Total Obligational Authority* (TOA) includes budget authority, obligations from previous fiscal years, and other receipts (such as earned income, inter-



est, etc). Less than 60% of outlays in any one year is obligated by the current year's budget authority. For example, \$6 bn in budget authority was committed to build an aircraft carrier two years ago, but actual outlays will be made over a period of six years as the carrier is built. Hence the level of budget authority will indicate the level of both present and future outlays. Federal budget deficit calculations, however, are based on actual outlays.

The National Defense budgeting function includes spending administered by several departments and independent agencies. Total National Defense function outlays in 1984 (\$227.413 bn) included the following spending categories: Department of Defense (DoD) (\$220.84 bn), Department of Energy Atomic Energy Defense Activities (\$6.120 bn), General Services Administration (\$88 m), Central Intelligence Agency military activities (\$86 m), Federal Emergency Management Agency (\$240 m), Intelligence Community Staff (\$16 m), and Selective Service System (\$22 m). This does not include outlays on several other major programmes related to national security: International Security Assistance (\$7.924 bn—administered by the Office of the President, the Treasury Department, and the State Department), Veterans Administration Benefits (\$25.614 bn), Foreign Economic and Financial Assistance (\$4.478 bn), the National Aeronautics and Space Administration (\$7.048 bn), and the Coast Guard (\$2.518 bn). The specific budgets of the Central Intelligence Agency, the Defense Intelligence Agency, the National Security Agency, and other intelligence activities are classified and are hidden within the National Defense budget function. It has been suggested that the intelligence budget is \$16.5 bn.

The American defence budgetary process has three distinct parts: the Administration, or Executive Branch, develops a budget proposal and sends it to Congress; Congress reviews and amends the budget as well as introducing legislation for levying taxes; the defence agencies spend their appropriations during the fiscal year.

Selected Budgets 1977–86 (\$ bn)^a

Fiscal year	National Defense Function ^b		Defense Dept		Atomic Energy Defense Activities (outlay)	International Security Assistance (outlay)	Veterans Administration (outlay)	Total govt Exp (outlay)	Budget deficit (outlay)
	(BA)	(outlay)	(BA)	(outlay)					
1977	110.150	97.241	108.057	95.298	1.936	3.075	18.038	409.203	44.945
1978	117.227	104.495	114.620	102.348	2.070	3.926	18.978	458.729	48.630
1979	126.467	116.342	123.659	113.672	2.541	3.655	19.931	503.464	27.694
1980	143.859	133.995	140.711	130.976	2.878	4.723	21.185	590.920	59.563
1981	180.001	157.513	175.977	153.838	3.398	5.095	22.991	678.209	57.932
1982	216.547	185.309	211.594	180.741	4.309	5.416	23.958	745.706	110.609
1983	245.043	209.903	238.682	204.430	5.171	6.613	24.846	808.327	195.407
1984	265.160	227.413	258.152	220.840	6.120	7.924	25.614	851.781	175.358
1985 (est)	292.553	253.830	284.735	246.305	6.991	10.177	26.850	959.085	209.767
1986 (Administration request)	322.205	285.669	313.705	277.505	7.700	9.213	26.769	973.725	178.495
1986 (Budget Resolution) ^c	302.5	267.1						967.6	171.9

^a Data is from *Historical Tables, Budget of the United States Government Fiscal Year 1986* (Washington DC: USGPO, 1985). House-Senate Budget Resolution No. 153 and House Report 99-249 (1985). All categories include off-budget spending.

^b The National Defense budget function includes DoD Military Activities, Department of Energy Atomic Energy Defense Activities, and smaller support agencies such as the Federal Emergency Management Agency, the Selective Service System and the General Services Administration Stockpile of Strategic Materials. International Security Assistance and the Veterans Administrations are not part of the National Defense function. Spending by NASA (1984: BA \$7.316 bn, outlays \$7.048 bn; 1985: BA \$7.511 bn, outlays \$7.317 bn) and the Coast Guard (1984: BA \$2.767 bn, outlays \$2.518 bn; 1985: BA \$2.518 bn, outlays \$2.640 bn) have military significance but are not included in the table.

^c At the time of going to press Congress had not made firm decisions on the FY 1986 budget. Congressional estimates in the first Budget Resolution (July 1985) suggested a FY 1985 National Defense Function BA of \$292.6 bn and outlays of \$249.4 bn.

The DoD operates a five-year planning cycle. The Secretary of Defense issues the classified *Defense Guidance*, which outlines overall US military strategy, gives guidance to the military services for their programmes, and, in its 'Fiscal Guidance', establishes the overall level of defence spending. The Services present their recommended programme and, with the Secretary of Defense and the Office of Management and Budget acting on behalf of the President, will prepare an overall programme and budget. The final Administration proposal for the forthcoming fiscal year is then submitted, usually eight months before the next fiscal year is due to begin. The proposal is outlined in the *Annual Report of the Secretary of Defense* and several other classified and unclassified supporting documents.

By statute, Congress must reconcile the entire federal budget in two budget resolutions which are debated in the House and Senate Budget Committees. Defence budgets must be written into law in an Authorization bill which originates in the Armed Services Committees, and funds to carry out the authorized programmes are granted in an Appropriations bill. Both the House and Senate must pass identical budget resolutions, authorizations, and appropriations. The President may sign or veto either the Authorization or Appropriation bill (Congress can overrule a Presidential veto by a two-thirds majority of

both Houses). But sometimes the process is amended. On occasion, the Congress has passed the Appropriations bill without an Authorization bill. Sometimes the Defense Authorization is provided by a continuing resolution.

Congress has increasingly tended to make reductions in the President's original submission. Budget authority and actual expenditure are obligated by the Department of Defense in the subsequent fiscal year. For FY 1984, Congress approved \$231.0 bn in outlays for the Department. Actual DoD expenditures in that year in fact totalled \$220.860 bn, due to changes in price estimates and contracts. For the current FY 1985, Congress approved \$246.286 bn in outlays, but, if the spending patterns of the first eight months continue, actual FY 1985 outlays are likely to be \$5-8 bn less.

The Reagan Administration came to office with a commitment to increase defence spending substantially after a period of little or negative growth immediately following the Vietnam war—although about 3% of real growth was achieved during the Carter Presidency. Spending plans contained in the FY 1986 Budget project a 5% or higher real increase in both outlays and budget authority until 1990. In subsequent agreements between Administration and Congress, the defence budget has been set to show zero growth in FY 1986, and 3% real growth will be hard to maintain towards the end of the decade.

THE UNITED STATES

GDP 1983: \$3,256.5 bn. 1984: \$3,619.2 bn.
GDP growth 1983: 3.7%. 1984: 6.8%.
Inflation 1983: 3.2%. 1984: 4.3%.
Debt 1984: \$340.0 bn.
Def budget 1984: \$258.2 bn; NATO defn \$250.011 bn.
Population: 239,600,000.
Men: 18-30: 27,300,000; 31-45: 25,740,000.
Women: 18-30: 26,800,000; 31-45: 26,300,000.

TOTAL ARMED FORCES:

Regular: 2,151,568 (200,400).
Terms of service: voluntary.
Active Reserves: 1,212,255 (?121,300 women).
Army National Guard 443,255; Navy 256,800; Marines 43,900; Air National Guard 107,900.
Army Reserve 285,600; Air Force Reserve 74,800.
Individual Ready Reserves: 440,900.
Army 276,700; Navy 66,000; Marines 48,000; Air 40,700; Coast Guard 9,500.
Other (Stand by/Retired): 678,984.
Army 2,000; Navy 11,484; Marines 43,600; Air 618,800; Coast Guard 3,100. A proportion of these (?120,000) have duties assigned on mobilization, and others would be suitable for duty.

STRATEGIC NUCLEAR FORCES:¹

Offensive:

(a) Navy: 640 SLBM in 37 SSBN.
SSBN:
5 Ohio with 24 Trident I/C-4: (144 msls)
(1 more to be delivered late 1985).
19 Lafayette, 12 Franklin:
12 x 16 Trident I/C-4 (192 msls)
19 x 16 UGM-73A Poseidon C-3 (304 msls)
(1 out of service in late 1985).
(On order: 6 Ohio SSBN; 168 Trident I/C-4 msls.)
(b) Strategic Air Command (SAC): 2 Air Forces. 12 divs (1 trg/spt).
ICBM: 1,026 (to be 1,023 by Oct 1985). 9 strategic msl wings (24 sqns), each 5 launch control centres, each controlling 10 msls.
3 wings (9 sqns) with 450 Minuteman II (LGM-30F).
3 wings (11 sqns) with 550 Minuteman III (LGM-30G) (3 MIRV).
3 wings (4 sqns) with 26 Titan II (LGM-25C) (planned 23 by Oct 1985; out by Nov 1987).
(On order: 48 MX (10 MIRV); (10 to be deployed from late 1986).)
Aircraft: some 348 combat ac (eqpt: see p. 64); 18 bomb wings (1 trg).
Bbrs: 297.
LONG-RANGE: 241.
4 wings (4 sqns) with 90 B-52H (1 wing with B-1B (1) from mid-1985).
7 wings (8 sqns) with 151 B-52G: 5 sqns (90 ac) with ALCM; 3 sqns (61 ac) with Harpoon (non-nuc).
MEDIUM-RANGE: 56.
2 wings (5 sqns, 1 trg) with FB-111A.

Recce: 24.

3 wings: 4 sqns: 1 with 9 SR-71A/B, T-38A; 1 with 7 U-2C/TR; 2 with 6 TR-1A (mainly tac role), 2 TR-1B (trg).

Comd: 41.

6 sqns: 1 with 4 E-4A/B (converting to E-4B); 5 with 21 EC-135A/C/G/L, 16 RC-135.

Tanker: 646.

2 Regular gps, 5 wings, 34 sqns (1 trg): 32 sqns with 487 KC-135, 2 with 31 KC-10A. 13 Air National Guard (104 ac); 3 Air Force Reserve (24 ac).

Defensive:

Space Command: HQ, Colorado Springs; comds incl North American Aerospace Defense Command (NORAD), a joint US-Cdn org (HQ: Cheyenne Mountain, USA).

Warning Systems:

1. ICBM, SLBM, satellites:

(a) Space Detection and Tracking System (SPADATS):
(i) Space Defense Operations Center (SPADOC). NORAD Combat Operation HQ, Cheyenne Mountain. Tracking, identification, cataloguing of all space objects; command, control and communications to all space-associated commands and agencies; surveillance, protection, countering of satellites. (Replacement facility nearing completion.)

(ii) Satellites. Satellite Early Warning System (SEWS): Defense Meteorological Satellites (Defense Support Program). TRW Block 647: 1 each over Indian, Atlantic and Pacific Oceans; infra-red surveillance and warning system. Control and tracking stations at Guam, Pine Gap and Nurrungar (Australia) (to get 6 mobile ground terminals).

(iii) Ballistic Missile Early Warning System (BMEWS). USAF 474N system with 3 stations: Clear, Alaska (AN/FPS-50, AN/FPS-92); Thule, Greenland (AN/FPS-50, AN/FPS-49A); Fylingdales Moor, England (AN/FPS-50, -49, being upgraded). 12 radars detect and track satellites, ICBM and IRBM. 4,800-km range.
(iv) Spacetrack. USAF 496L system. FPS-17 detection, FPS-79 tracking radars at Piriinlik (Turkey); Cobra Dane, Shemya; FPS-85, BMEWS at Clear, Thule and Fylingdales; optical tracking systems in New Mexico, California, at St Margarets (NB, Canada), Pulmosan (S. Korea), San Vito (Italy), Maui (Hawaii), Mount John (New Zealand).

(v) Cobra Dane. Phased-array radar system at Shemya, Aleutians: 120° arc, range to 46,000 km, augments BMEWS in Alaska. (Cobra Judy, a Pacific-based, shipborne phased-array radar (SPQ-11), supplements Shemya and research programmes, but is not part of SPADATS and has no early-warning function. Cobra Ball, a RC-135 airborne system, supports both.)

(vi) Pacific Radar Barrier (PACBAR). Detection and tracking radars: 1 site at San Miguel, Philippines, 1 at Kwajalein Atoll, third to be determined.

(vii) Alternate Space Defense Center. 1 FPS-85 and 1 AN/FSS-7 station in Florida. Linked to Spacetrack and NAVSPASUR (see below) through NORAD HQ; also to identify and track fractional-orbit bombardment systems (FOBS). (To be retired when Pave Paws completed.)

(b) USN Space Surveillance System (NAVSPASUR). 9 field stations in south-east US (3 transmitting, 6 receiving sites and civilian agencies).

(c) Perimeter Acquisition Radar Attack Characterization System (PARCS). 1 north-facing phased-array system (130° arc, 2,800-km range) at Grand Forks ND. Identifies and tracks individual re-entry vehicles, incl SLBM, in Central US, Arctic Ocean areas. (Was Army Safeguard system support; to be enhanced.)

(d) Miscellaneous radars. US Army: Kwajalein Atoll (Pacific). USAF: Ascension Island (Atlantic), Antigua (Caribbean), Kaena Point (Hawaii); MIT Lincoln Laboratory, Westford, Mass.

(e) Under development: Ground-based Electro-Optical Deep Space Surveillance system (GEODSS): White Sands NM, Taegu (S. Korea) and Maui (Hawaii); 2 more planned, 1 in Portugal, and 1 in Indian Ocean (Diego Garcia).

(f) Integrated Operational Nuclear Detonation Detection System (IONDS). Detects and assesses nuclear detonations; linked to 18 NAVSTAR global positioning system satellites (8 now in service; 18 by 1988). Nuclear test ban monitoring and intelligence collection, potential damage assessment.

2. SLBM:

Pave Paws system. 1 phased-array radar (AN/FPS-115) each in Massachusetts and California; 5,500-km range. 1 building in Georgia, 1 more planned in Texas.
3. Intermittent programmed recce and ELINT satellites incl:

(a) USAF: KH-8, KH-9 low-altitude, film return.

(b) Big Bird, Hitch Hiker medium-altitude.

(c) USN: Ocean Surveillance (OSUS), 4 satellites to detect ships by infra-red and radar.

(d) CIA: KH-11 digital imagery.

(e) Rhyolite/Chalet (?ELINT).

4. Anti-air (aircraft, cruise missile):

(a) Over-the-horizon-backscatter (OTH-B) radar system. Range 900 km (min) to 3,800 km; all-altitude capability planned. One chain (3 sites: transmit, receive, control) in Maine, arc of cover under evaluation (to be operational 1987); 1 planned for Oregon/N. California, another under consideration for southern US.

(b) Distant Early Warning (DEW) Line (under comd TAC). 31 AN/FPS-19/-30 radars (21 in Canada, 4 in Greenland, 1 in Scotland; 2 in Iceland being reopened) roughly along the 70°N parallel from Point Lay, Alaska to Greenland, then to Iceland and Scotland; range to 320 km at 12,000 m. To be replaced (with Pinetree Line) by end-1985 by 'North Warning System': 52 ground radar stations with 13 Seek Igloo FPS-117 automated (minimally attended radar (MAR)) systems (11 in Canada) and 39 unmanned short-range radar in Canada.

(c) CADINI/Pinetree Line: 24 stations in southern Canada (to close).

(d) Tactical Air Command (TAC):

(i) US-Cdn Joint Surveillance System (JSS). 7 Region Operations Control Centers (ROCC): 5 in US (1 in Alaska), 2 in Canada. 5 E-3A AWACS ac assigned (1 to each US ROCC).

(ii) Radars. 60 in US (14 in Alaska), 24 in Canada: for co-ordination/control with Federal Aviation Authority facilities of military and civil air traffic, surveil-

¹See p. 65 for footnotes.

lance and tracking of objects in high- and medium-altitude trans-polar flight.

(iii) **Aircraft:** 252 (not incl Cdn CF-101).

(a) Regular: 90 (AO only); 4 air divs: 5 sqns: 4 with 72 F-15 (8 AAM); 1 with 18 F-106.

(b) Air National Guard (ANG): 162: 11 sqns (1 forming); 7 with 126 F-4C/D (8 AAM); 1 with F-15; 3 with 36 F-106, T-33 (trg) (to get 144 F-15).

(c) Tactical Air Force augmentation: ac on call from naval, marine and air forces.

(d) Iceland: 1 sqn (see Forces Abroad).

AAM: Super Falcon, Sidewinder, Sparrow.

ARMY: 780,648 (75,500 women).

6 Army HO, 6 Corps HO (1 AB).

4 armd divs (6 tk, 5 mech inf bns).

6 mech divs (4 tk, 6 mech inf, 4 arty, 1 hel, 1 SAM, 1 armd cav bns, spt units).²

2 inf divs² (to be lt divs; 1 new div to form by 1986-87).²

2 lt inf divs (1 forming; 10,220 men, 3 regular bdes), (1 high-technology motor inf div forming.)

1 air assault div (3 bdes each 3 bns; 3 arty bns, avn gp: 4 bns, 1 attack, 3 tpt).

1 AB div: 3 bdes (each 3 para bns); 4 arty, 1 armed hel bns, 1 armd cav sqn.

9 arty bdes.

5 AA arty bdes.

1 indep armd bde.

4 indep inf bdes.

1 indep air cav combat bde (hel-borne ATK).

3 armd cav regts.

Special Operations Command (9,100):

4 Special Forces gps (8 bns: 4 Regular, 2 National Guard, 2 Reserve).

Delta Force, attach hel and tpt gp.

1 Ranger inf regt (3 bns).

1 Psychological Warfare gp (3 bns).

1 Civil Affairs bn.

4 Pershing (III) ssm bns (1 trg).

8 Lance ssm bns (in corps arty).

3 Patriot SAM bns to be 6 btyes each 8 launchers, 4 msls; planned total 13½ bns (81 btyes, 103 fire units, 6,200 msls).

Army Avn:

1 Gp (4 bns; 60 attack, 200 tpt and utility hel).

1 air assault bde, indep bns and dets, mixed types of eqpt, assigned to HO for tac, tpt and medical duties.

Tks: 13,423: 1,703 M-48A5, 1,535 M-60, 7,352 M-60A3, 2,833 M-1 Abrams.

AFV: some 21,650: MICV: some 2,150 M-2/-3 Bradley;

APC: some 19,500, incl 3,100 M-577, 2,150 M-901 with TOW, 12,300 M-113 (some with mor, TOW).

Arty: how: 5,250: some 1,100 M-102 105mm and M-114 155mm, 900 M-198 155mm towed, 3,250 M-109 155mm and M-110A1/A2 203mm sp; **MRL:** 177 MLRS 227mm;

MOR: 7,400: 3,200 81mm, 4,200 107mm; **SSM:** 222: some 50 Pershing IA, some 100-II, 72 Lance launchers.

ATK: **rcl:** 1,000 90mm and 106mm; **ATGW:** some 600 Hellfire, 6,000 TOW, 10,000 Dragon launchers.

AD: **GUNS:** 220 M-167 Vulcan towed, 380 M-163 20mm, 86 DIVAD 40mm sp; **SAM:** Redeye, FIM-92A Stinger, 400 M-54 and M-48 sp Chaparral, 31 Roland sr, Nike Hercules, Improved HAWK, 33 Patriot (9 launchers), 8 Rapier.

Amph: combat spt craft: 268.

Avn: ac: some 522 incl 98 OV-10, 9 RU-21, 19 C-7, 114 C-12D, 37 U-3, 50 U-8, 10 UV-18A (DHC-6), 129 U-21A, 2 T-41, 54 T-42; **HEL:** some 8,800 incl some 900 AH-1G/Q, 900 AH-1S, some 11 AH-64A Apache 3,600 UH-1 (being replaced), 594 UH-60A (40 to be EH-60A ECM on conversion), 392 CH-47A/B/C, 61 -D, 63 CH-54, 369 OH-6A, 1,784 OH-58A/D.

AAM: MIM-92A Stinger.

Trg: ac: incl about 50 T-42; **HEL:** 250 TH-55A.

(On order: 1,635 M-1 Abrams MBT; 750 M-2/-3 Bradley MICV (total 6,882 planned); 120 M-109A2/A3 155mm, M-110A2 203mm sp how; 860 M-252 81mm mor; 39 MLRS MRL; 20,000 TOW, some 50 Pershing II ssm; Stinger, Rapier, 113 Roland, 300 Chaparral, 12 Patriot SAM launchers, 440 msls; 6 RC-12D ac; 11 AH-1S, 11 CH/MH-53, some 148 AH-64A, 248 UH-60A, 11 EH-60D Quickfix, 16 OH-58D hel; 3,971 Hellfire ATGW (ASM); 282 assault boats.)

Deployment: Continental United States (CONUS) (incl Alaska, Hawaii and Canal Zone);

Strategic Reserve:

(i) US Readiness Command (REDCOM): 2 corps HO, all CONUS-based active units.

(ii) Initial reinforcement, Europe: 1 corps HO, 2 armd, 3 mech, 2 inf divs, 1 inf bde, 1 armd cav regt.³

(iii) US Central Command (USCENTCOM): (1,100): forces, incl naval and air, apportioned for planning purposes. Full deployment could involve 290,600 assigned from existing units and support elements on mobilization.

HQ: 1 army; 1 corps (131,000); 1 mech (-), 1 AB, 1 air assault divs, 1 air cav bde, special forces, Rangers.

Naval Force: 1: (112,300 incl 70,000 Marines); 3 carrier battle gps; 1 surface action gp; 3 amph ready

gps (3-5 amph ships); 5 asw patrol sqns, 13 (to be 17) prepositioned spt ships.

Marine Force: 1½ Amph Forces (MAF) (1 div, 1 air wing, 1 Force service spt gp), 1 Marine Amph Bde (MAB: 1 regt landing team, 1 air gp, 1 bde service spt gp).

Air Force: 1: (33,000): 1 div: 2 bbr wings (4 sqns) B-52H; 9 wings and 2 gps tac fighters; 3 wings and 1 gp strat and 1 tac recce; 1 airborne warning and control div, strategic and SAR, tac airlift, 1 refueling sqn (KC-135A/KC-10A).

(iv) Alaska: (7,650): 1 inf bde (plus 1 res inf gp (5 bns: to become lt div)).

(v) Panama: (9,330): 1 inf bde (6,600); Naval sqn (490): patrol boats; Marines (155); 1 air div (2,100): A-7, C-130 ac.

(vi) Hawaii: (18,900): WESTCOM: 1 inf div less 1 bde (plus 1 res bde). (See also Forces Abroad, below.)

RESERVES:

(i) Army National Guard: 443,255 (22,500 women); 3,285 units; capable after mobilization of manning 10 divs: 2 armd, 2 mech, 5 hy inf (1 lt inf div: 2 inf bdes forming); 17 indep bdes (3 armd, 6 mech, 8 inf), 5 "Roundout" bdes to complete regular army divs; 4 armd cav regts, 1 inf gp (Arctic recce, 5 scout/mech bns); 20 fd arty bde, HQ: 2 Special Forces gps (6 bns: 2 with Regulars). **Indep bns:** 5 tk, 2 mech, 50 arty, 4 ATK (TOW), 9 AD (1 Roland SAM, 8 M-42 40mm sp AA arty, 62 engr, 23 sigs, 141 other spt bns, 760 minor units to fill regular formations, 105 air units, 150 sections, 2,580 ac.

(ii) Army Reserve: 285,600 (46,500 women); 3,410 units: 12 trg divs, 3 trg bdes (1 cav, 1 fd arty, 1 police), 1 indep combat bde: 1 mech, 2 inf; 67 indep bns, incl 1 tk, 2 inf, 15 arty, 33 engr, 2 Special Forces gps (6 bns: 2 with Regulars); 3,225 coys and dets; 130 indep air units and sections with 566 ac.

NAVY: 568,781 (48,200 women): 4 Fleets: 4 cruise-missile, 95 attack subs, 213 principal surface combatants. A further 35 major surface combat ships are in active reserve and storage.

Subs, cruise-missile (SSGN): 4.

3 Los Angeles with Harpoon SSM; 1 Sturgeon. All have 8 Tomahawk SSM.

Subs, Attack: 95:

NUCLEAR (SSN): 91 (79 with SUBROC, to be fitted with Harpoon and Tomahawk); 29 Los Angeles with Harpoon; 1 Lipscomb; 1 Narwhal; 37 Sturgeon (2 deep SAR spt); 13 Thresher; 2 Allen; 5 Skipjack; 3 Skate.

DIESEL (SS): 4: 3 Barbel, 1 Tang.

Subs, Other roles: 2: 1 Tullibee, 1 Seawolf.

Aircraft carriers: 14: (1 trg).

NUCLEAR (CVN): 4: 3 Nimitz (91,400 tons) (1 on refit); 1 Enterprise (89,600 tons).

CONVENTIONAL (CV): 10 (1 trg): 3 Kitty Hawk (78/80,800 tons); 1 Kennedy (82,000 tons); 4 Forrestal (76/79,000 tons) (incl 1 on refit); 2 Midway (51/62,000 tons); 1 (Lexington) trg. no ac assigned.

13 normally carry 1 air wing (70-95 ac) of 2 fr sqns (with 24 F-14A, incl 3 RF-14 recce, or (2 Midway-class only) 24 F-4N/S), 3 attack (2 lt with F/A-18 or 24 A-7E, 1 med with 10 A-6E), 2 ASW (1 with 10 S-3A ac, 1 with 6 SH-3H hel), 1 ECM with 4 EA-6B, 1 AEW with 4 E-2C; 4 KA-6B tankers, 1 lt tpt ac.

Principal Surface Combatants: 200.

Battleships (BBG): 2 Iowa with 4 x 4 Harpoon, 4 x 2 Tomahawk SSM.

Cruisers: 29:

NUCLEAR-POWERED GW (CGN): 9 with 2 x 4 Harpoon SSM: 4 Virginia with 2 x 2 Standard/ASROC SAM/ASW, 1 SH-2F hel (SH-60B Seahawk to replace); 2 California with 2 x 1 Standard SAM, 1 x 8 ASROC ASW, 1 Truxtun with 1 x 2 Standard/ASROC, 1 SH-2F hel; 1 Long Beach with 2 x 2 Standard/Tartar SAM, 1 x 8 ASROC; 1 Bainbridge with 2 x 2 Standard, 1 x 8 ASROC.

GW (CG): 20 with 2 x 4 Harpoon SSM: 2 Ticonderoga (CG-47) (1 more in 1985) (to get Tomahawk SSM), 2 x 2 Standard/ASROC, 2 SH-2F hel; 9 Belknap with 1 x 2 Standard/Tartar, 1 SH-2D LAMPS hel; 9 Leahy with 2 x 2 Standard/Tartar.

Destroyers: 68:

GW (DDG): 37: 4 Kidd with 2 x 4 Harpoon, 2 x 2 Standard, 2 x 8 ASROC, 2 SH-2F hel; 21 with 2 x 4 Harpoon, 1 x 8 ASROC (8 Coontz with 1 x 10 Standard, 13 Adams with 1 x 2 or 1 Tartar SAM); 12 with ASROC (2 Coontz with 1 x 2 Standard, 10 Adams with 1 x 2 or 1 Tartar SAM).

GUN/ASW (DD): 31 Spruance (DD-963) with 2 x 4 Harpoon, 1 x 8 Sea Sparrow, 1 x 8 ASROC, 1 SH-3 or 2 SH-2F hel (to get Tomahawk SSM).

Frigates: 101:

GW (FFG): 48: 42 Perry with 1 Harpoon/Standard, 2 SH-2/-60 hel; 6 Brooke with 1 Tartar/Standard, 1 x 8 ASROC, 1 SH-2F hel.

GUN (FF): 53 with 1 x 8 ASROC: 40 Knox (FF-1052) with 2 x 4 Harpoon SSM (30 with Sea Sparrow Mk 5 BPDMS, 1 with Sea Sparrow Mk 29 SAM, 2 SH-2F hel);

10 Garcia; 1 Glover; 2 Bronstein.

Minor Surface Combatants: some 89.

Patrol craft: GW HYDROFOILS: 6 Pegasus with 2 x 4 Harpoon; INSHORE/RIVER: some 80 (most in reserve).

CMV: 3 Aggressive ocean minesweepers; 7 inshore (boats).

Amph Forces: 61 ships, 54 craft.

Ships: 61: COMD (LC): 2 Blue Ridge; LHA: 5 Tarawa with 4 LCU and mix of AV-8A ac (4 only) or 12 CH-46, 4 CH-53, 3 UH-1N, 4 AH-1T hel; LPH: 7 Iwo Jima (mix of 6 AV-8A, 4 OV-10 ac or 2 CH-46, 10 CH-53, 1 UH-1N hel); LPD: 11 Austin, 2 Raleigh; LST: 11 Whidbey, 5 Anchorage, 5 Thomaston (retiring); LST: 18 Newport; LKA (amph cargo ships): 5 Charleston.

Craft: 54: 51 Type 1610, 3 Type 1466; many smaller (LCM-5/-6, LCVP incl 2 landing craft air cushion (LCAC)); others with US Army.

Special Warfare Groups: 2: 6 sea/land/air teams, 2 special boat sqns; 62 boats/patrol craft.

Principal auxiliary ships: 80: 12 ammunition, 7 stores, 4 fast sealift, 14 oilers, 9 destroyer tenders, 12 sub tenders, 4 repair, 15 salvage/rescue, 2 comd, 1 hospital.

Military Sealift Command: 68: 1 ammunition ship, 19 stores, 22 oil, 3 gasoline, 2 ocean surveillance, 7 oceanographic, 5 missile instrumentation, 9 survey. Chartered: 14 cargo (being replaced by 13 Maritime Prepositioning Ships), 6 tanker, 4 research, 1 fleet service.

Ships in active reserve and storage: incl 5 SSN, 4 CV, 2 battleships to be reactivated, 3 cruisers, 3 DDG, 9 DD, 2 LSD, 3 LST, 5 log spt, 10 troopships. National Defense Reserve Fleet (NRF): 1 DD, 1 FFG, 6 FF, 2 LST. Ready Reserve Force: 4 dry cargo ships, 8 other vessels (579 govt-owned cargo ships and tankers could be used for auxiliary sea-lift).

Ships on refit (incl Service Life Extension Program (SLEP)): incl 6 SSBN (5 more planned to 1987), 11 SSN (3 Los Angeles, 4 Sturgeon, 2 Thresher, 2 Allen), 2 CV, 3 CGN, 5 DDG, 5 DD, 1 FFG, 8 FF, 1 LPH, 1 LPD, 3 LST.

Missiles:

ASW, nuclear: RUR-5 ASROC, UUM-44 SUBROC, SSM: Standard (SM-1), RGM-84 Harpoon, BGM-109B Tomahawk SLCM.

SAM: Standard, RIM-7 Sea Sparrow, RIM-24 Tartar, RIM-2 Terrier, RIM-66 (SM-1), -C (SM-2, -2MR), -67 (SM-1), -67B (SM-2ER).

(Authorized and funded): 5 SSBN, 18 SSN, 3 CVN, 1 BBG, 14 Ticonderoga CG-47, 1 DDG-51, 7 FFG, 10 MCMV, 1 landing helicopter dock ship (LHD), 5 LSD, 14 landing craft (3 standard, 10 LCAC, Seahawk special warfare craft), 7 fleet oilers, 24 supply, 4 salvage ships; 124 BGM-109 Tomahawk, 315 Harpoon SSM, 1,100 Standard SAM, 37 Phalanx, 321 Sea Sparrow AD systems.)

NAVAL AVIATION: 13 attack carrier air wings.

Fr: 23 sqns: 22 with F-14A; 2 with F-4A/N/S.

FGA: 37 sqns: 13 med with A-6E, KA-6D (tanker); 22 lt with A-7E; 2 with F-18A (2 more to form 1985).

ECM: 2 ELINT sqns with EA-3, 2 E-3; 9 EW sqns with EA-6B.

MR: 26 land-based sqns with P-3B, P-3C, P-3CIII.

ASW: 11 sqns with S-3A.

AEW: 12 sqns with E-2C.

Comd: 2 sqns with C-130Q (TACAMO).

Misc: 17 spt sqns with C-130F, LC-130F/R, EC-130G/Q, C-1A, C-2A, CT-39, C-131, C-117, UC-12B ac; and hel (see below).

Trg: 2 aggressor sqns with F-5E/F, A-4, T-38; 1 trg sqn with TF-18A; 16 with T-2B/C, T-28, T-34C, T-39D, T-44 ac; and hel (see below).

OCU: 18: 5 fr/strike (2 with F-14, 1 with TA-4F/J, 1 with F-18, 1 with F-4); 6 attack with TA-7C, A-7E, A-6; 2 EWing with EA-3; 2 MR with P-3B/C; 2 AEW with E-2B/C; 1 ASW with S-3A.

(Other ac incl 35 F/A-18.)

Hel:

ASW: 17 sqns: 2 with SH-60B (LAMPS Mk 3); 6 with SH-2F (LAMPS Mk 1); 9 with SH-3D/H.

MCM: 2 sqns with RH-53D, MH-53E.

OCU: 4 with SH-2/3.

Misc: spt sqns with SH-3, UH-46.

Trg: sqns with TH-57A, THUH-1E.

Equipment: some 1,350 combat ac, some 160 combat hel.

F-14A: 300 (210 fr, 30 recce, 60 ocu).

F-4A/N/S: 68 (48 fr, 20 ocu).

F/A-18: 84: (44 FGA (12 with Navy Reserve), 25 ocu, 15 TF-18A trg).

F-5A: 25 (trg).

T-38: 25 (trg).

A-4/TA-4F/J (18 ocu; trg).

A-6: 166: 120 -E (FGA, ocu); 35 EA-6B (ECM); 11 KA-6D (tanker).

A-7E: 288 (FGA); TA-7C (ocu).

E-2C: 82: 48 (AEW); 34 -B/C (ocu).

EA-3: 11 (ECM).

P-3: 270: 45 B (MR); 40 B/C (ocu); 173 -C/CIII (MR); 12 EP-3 (ECM) (30 to convert to CP-3A tpt.)

S-3A: 110 (ASW, ocu).

F-21A: 3 (trg).

C-130: 34: 7 -Q (comd); 13 -F/LC-130F/R (misc); 14 EC-130G (misc).

C-1: 44: 34 -A (misc); 10 C-1A/C-2 (misc).
CT-39: 9 (misc), C-117 (C-47): 4 (misc), C-9B (DC-9): 88 (tpt), UC-12A: 39 (misc), T-2B/C (trg), US-3 (tpt), T-28 (trg), T-34C: 210 (trg), T-39 (trg), T-44 (trg).

Hel:
RH-53D: 23 (MCM),
SH-60B: 29 (ASW),
SH-2F: 63 (ASW, OCU),
SH-3D/H: 66 (ASW, OCU: to be replaced by SH-60F),
TH-57A: 112 (trg), T/UH-1L (trg).

Msls:
AAM: Sparrow, AIM-54A/C Phoenix, Sidewinder.
ASM: Standard ARM, Shrike, AGM-88A HARM (anti-radiation), Walleye, Harpoon.

(On order: 24 F-14C/N ftrs, 38 A-6E attack, 6 E-2C AEW, 6 P-3C MR, 8 EA-6B ECM, 38 C-2A tpt, 15 Citation T-47A, 18 F-21A (Kfir) trf/trg, 12 Hawk trg, 8 KA-6D tanker conversion; 2 C-130Q comd ac; 44 SH-2F, some 8 MH-53 MCM, some 13 SH-60B, 108 TH-57C trg hel; 108 AIM-54C AAM, 190 AGM-65F Maverick, 350 HARM ASM, 108 Harpoon ssm.)

DEPLOYMENT AND BASES (average strengths of major combat ships, incl ships on refit):

Atlantic (Second Fleet): 34 SSBN, 50 attack subs, 4 carriers, 93 principal surface combatants, 24 amphib. Bases: Norfolk (HO), Mayport, Roosevelt Roads (Puerto Rico), Charleston, New London, Newport, New York (Staten Island), Boston, New Orleans, Bangor, Kings Bay.

Eastern Pacific (Third Fleet): 3 SSBN, some 25 SSN, 4 carriers, 72 principal surface combatants, 26 amphib, 32 spt. Bases: Pearl Harbor (HO), San Francisco, Alameda, San Diego, Long Beach, Adak (Alaska).
(See also Forces Abroad, below.)

RESERVES: (assigned from active fleet):

Trg ships: 37
1 DD, 5 Perry FFG-7, 6 Knox FF-1052, 17 ocean MCMV, 2 LST, 4 fleet tugs, 2 salvage ships, 10 more FFG, 2 FF authorized.

Avn: 23,000; 400+ ac,
2 carrier wings: 18 sqns: 6 attack (5 with 60 A-7B (converting to E-); 1 with 12 F/A-18 (active force ac)); 4 ftr (2 with F-14; 2 with 36 F-4S); 2 AEW with 12 E-2C; 2 ECM with EA-6A; 2 tanker with KA-3B,
2 MR wings: 13 sqns with 110 P-3A/B,
1 tac spt wing: 13 sqns: 2 composite with TA-4J, A-4E, -F; 11 spt with C-9B.

1 hel wing, 7 sqns: 4 ASW (2 with 14 SH-3D; 2 with 14 -F); 2 It attack with 16 AH-1J, 1 SAR with SH-3.
(To form: aircrew augmentation units: 2 for 18 F-14, 2 for 18 A-6E, 2 for 12 E-2C, 1 for 2 SA-3, 2 for 10 SH-3H.)

Misc units:
Naval Construction: 2 bdes: 9 regts, 17 bns.
2 construction spt, 2 maintenance units; 6 cargo handling bns and 2,100 other units.

MARINE CORPS: 198,241 (9,200 women).
3 divs, each of 9 inf, 1 recce, 1 tk, 1 engr, 1 amph bns, 1 arty regt.

3 Force Service gps (each 7 bns).
TKs: 716 M-60A1. AFV: APC: 984 LVT-7/7A1, some 230 It arm vehicles (LAV); AMPH: 4 LCAC. ARTY: GUNS: 175mm SP (to be replaced); HOW: 50 105mm (being replaced), 160 M-198/M-114 155mm towed, 100 155mm, 203mm SP; MOR: 216 81mm. ATK: ATGW: TOW, Dragon. AD: SAM: Redeye, Stinger.

AVIATION: 3 air wings (27,000) (each wing 8 combat sqns, 15-17 spt elm sqns, 338-370 ac).

Ftr: 12 sqns: 8 with F-4 (being replaced); 4 with F-18 (2 more forming 1985).
FGA: 13 sqns: 8 (3 with AV-8A; 1 with AV-8B; 4 with A-4); 5 med with A-6.

Recce: 1 sqn with RF-4.
ECM: 1 sqn with EA-6.
Forward air control: 2 sqns with OV-10.

Comd: 2 sqns with OA-4/TA-4.
Tanker: 3 sqns with KC-130.
Trg: 7 sqns.

Hel: 28 sqns.
Attack hel: 53 sqns with AH-1.
Tpt hel: 25 sqns: 3 It with UH-1; 14 med with CH-46; 8 hy with CH-53.

Equipment: some 605 combat ac, some 110 combat hel.
F-4: 141: 120 -N/S (ftr, 96 Regular); 21 RF-4B (recce).
F/A-18: 92 (67 ftr, 25 misc).
AV-8A/C: 52 (44 FGA, 8 trg).
A-4: 197: 167 -E/M (FGA, 95 Regular); 30 OA-4M/TA-4F (comd).

A-6: 69: 50 -E (FGA); 19 EA-6A/B (ECM, 15 Regular).
OV-10A: 54 (forward air control, 36 Regular).
C-130/KC-130F/R: 47 (tanker, 36 Regular).

Hel:
AH-1J/T: 110 (80 attack (72 Regular), 30 misc).
UH-1E/N (Bell 204, 212): 112 (tpt). CH-46C/D: 204 (tpt).
CH-53: 51 -A/D (tpt, 35 Regular); 33 -E (tpt).

Msls:
SAM: 22 bns with Improved HAWK.
AAM: Sparrow, Sidewinder.
ASM: Maverick.

(On order: Some 330 LVT-7A1, some 556 LAV-25 Piranha APC; M-198 towed, M-109 SP 155mm how; 180 Mk-19 40mm grenade launchers; SMAW 83mm RL; Stinger SAM, 75 F/A-18, 33 AV-8B ftr, 3 KC-130T tanker ac, 22 AH-1T, 11 CH-53E hel; 263 AGM-65E Maverick, Side-arm ASM.)

DEPLOYMENT:
Continental US: 2 Marine Amphibious Forces (MAF) (1 East, 1 West coast) each with 1 div, 1 air wing, 1 spt gp, 1 amph bde (MAB) (12,000).

Hawaii: 1 bde, service spt gp, ac gp (from MAF in Okinawa).
(See also Forces Abroad, below.)

RESERVES: 43,900 (1,446 women). Eqpt listed with Regular units.

1 Marine div: 3 inf, 1 arty regts; 21 combat and spt bns.
1 Fleet Marine Force; 1 Force Service gp (7 bns).
1 air wing: 100 combat ac, 8 combat hel.

Ftr: 2 sqns with F-4.
FGA: 6 sqns with A-4.
EWing: 1 sqn with EA-6A.
Forward air control: 1 sqn with OV-10.
Tanker: 1 lkr/tpt sqn with KC-130.
Spt: 32 units.

Hel:
Attack: 1 sqn with AH-1.
Tpt: 7 sqns: 4 It with UH-1; 2 med with CH-46; 1 hy with CH-53.
SAM: 1 bn with HAWK.
Spt: 32 units.

AIR FORCE: 603,898 (67,500 women); some 3,700 combat ac.
Strategic: (organization: see p. 62).

Tactical: 26 active combat wings, comprising 109 sqns (sqn may be 12, 18 or 24 ac).
Ftr: 36 sqns: 17 with F-15; 19 with F-16.
FGA: 48 sqns: 19 with F-4; 10 with F-111; 14 with A-10; 5 Wild Weasel (1 trg) with F-4.

Recce: 8 sqns with RF-4C.
EWing: 1 Airborne Warning and Control Wing; 7 sqns: 4 AWACS (1 trg) with E-3; 3 ewng with EC-130, EC-135, EF-111.

Forward air control: 12 tac air control sqns: 9 with OV-10/O-2; 3 with CH-3 hel.

Special: 1 air div: 1 wing; 6 special ops sqns: 3 with MC-130; 1 with AC-130; 1 with CH-3; 1 with HH-53/UH-1 hel; 1 det with UH-1H hel.

OCU: 18: 1 with F-111; 1 with F-16; 7 with F-4; 1 with F-5; 2 with F-15; 2 with F-106; 3 with A-10; 1 with RF-4.

Trg: 4 aggressor sqns with F-5E/T-38; 30 trg sqns with F-16, T-33, T-37, T-38, T-39, T-41, T-43, UV-18, Schweizer Z-37, C-5, C-12, C-130, C-141 ac and UH-60, HH-3, HH-53, U/TH-1 hel.

Tpt: 17 strategic tpt sqns: 4 with C-5; 13 with C-141, 14 tac airlift sqns with C-130. Units with C-135, C-137, C-140, C-6, C-12, C-20, C-21, C-23, CT-39, C-35.

SAR: 8 sqns (incl sac msl spt) with C-130 ac, HH-3, HH-53, H/T/UH-1, UH-60 hel.
Medical: 3 medical evacuation sqns with C-9.
Weather recce: 3 sqns with WC-130, WC-135.
Trials/weapons trg units with F-16, C-141.

Equipment:
Strategic: some 348 combat ac (Regular (incl strategic), Air National Guard, Reserve).
B-52: 263: 167 -G (90 with ALCM, 61 with non-nuclear Harpoon, 16 reserve); 96 -H (90 strike (getting ALCM), 6 reserve).

B-1B: 1 (strike).
FB-111A: 61 (56 strike, trg; 5 reserve).
SR-71A/B: 9 (recce).
U-2CT/R: 7 (recce).

TR-1: 8: 6 -A (tac recce); 2 -B (trg).
E-4 (Boeing 747): 4: 1 -A, 3 -B (comd/control).
C-135 (Boeing 707): 652: 16 RC-135 (comd/control); 21 EC-135A/C/G/L (comd/control); 615 KC-135R (tankers); 487 Regular, 104 Air National Guard, 24 Air Force Reserve).

KC-10A: 31 (tanker).
Tactical: some 4,000 combat ac, 17 combat helicopters.
F-4: 1,212: 741 (FGA), 150 ocu; 72 -G (Wild Weasel), 249 RF-4C (233 recce, F-16R to replace; 16 ocu).
F-15: 766 (incl 383 ftr, 40 ocu, 72 ad).
F-16: 584 (481 ftr, 29 ocu, 65 trials, 9 -B/D trg).
F-111: 286: 230 -A/D/E/F (FGA); 20 -A (ocu); 36 EF-111 (ECM).

F-5T-38E: 94 (74 trg, 20 ocu).
F-106: 40 (36 ad, 4 trg).
A-7D/K: 360 (FGA).
A-10A: 555 (495 FGA, 60 ocu).
E-3A: 34 (AEW, 24 to convert to -3B).
OA-37B: 75 (forward air control).
OV-10/O-2A: 96 (forward air control).

C-9A/C (DC-9): 23 (medical).
C-141B: 270 (235 strategic tpt, 19 tpt, 12 trg, 4 -A trials).
C-5A: 70 (66 strategic tpt, 5 trg; 8 reserve).
C-130: 681: 534 (tpt), 28 (ocu); 20 AC-130H (special); 15 EC-130E/H (ECM); 50 HC-130H/N/P (45 SAR, 5 trg); 14 MC-130E (special); 20 WC-130E/H (weather recce).

C-135 (Boeing 707): 153: 8 (tpt); 129 KC-135A/Q (tanker); 11 EC-135K (ECM); 5 WC-135B (weather recce).
C-137 (Boeing 707): 5: 3 -B (707-153, vip tpt); 2 -C (707-320B, vip tpt).

Other ac: C-6A: 1 (tpt), C-12: 42 (2 trg, 40 -F tpt), C-18 (Boeing 707-323C): 8 (advanced range instrumentation ac (ARIA)). C-20A: 3 (tpt), C-21A (Learjet): 66, C-22 (Boeing 727): 1 (tpt), C-23A (Sherpa): 8 (tpt), C-35A: 35 (tpt), T-33A: 161 (trg), T-37B: 619 (trg), CT-39 (Sabreliner): 46 (tpt), T-39: 4 (trg), T-38: 620 (trg), T-41A/C: 50 (trg), T-43A: 4 (trg), Boeing 737A: 15 (trg), UV-18A (Twin Otter): 2 (trg), Schweizer Z-37: 8 (trg).

Hel:
HH-3: 59 (51 SAR, 8 trg).
HH-53: 45: 8 -B (SAR), 29 -C (SAR, trg), 8 -H (special).
UH-1 (Bell 212): 105: 9 -N (special); 96 H/T/UH-1 (86 SAR, 10 trg).
UH-60A: 10 (SAR).

Msls:
AAM: Sidewinder, Sparrow.
ASM: perhaps 1,170 AGM-69A SRAM, 1,380 AGM-86B ALCM, Maverick, Standard ARM, Shrike, HARM, GBU-15 glide bomb.
GLCM: 4 sqns, 1 trg unit.

(On order (all branches): MX ICBM, 51 B-1B bbrs (100 planned), 1 E-4B comd, 5 E-3A AWACS, 5 TR-1A recce ac (2 -1B trg), 30 KC-10A tankers, 4 EC-18B ARIA msl test ac; 240 AGM-86B ALCM, 192 F-16 (incl 60 -D), 48 F-15 ftrs, 5 F-5 FGA, 7 E-3C, 6 EF-111A, 13 C-5B, 6 C-12F Ute liaison, 3 C-17 hy tpt, 21 C-130 (10 -H), some 14 C-21A LearJet, 8 C-20A Gulfstream, some 12 C-23 Sherpa It tpt; AT-46A/T-46A, 40 C-12F Super King Air 200C trg ac; 22 Bell AH-1T Super Cobra, 90 HH-60A Night Hawk hel; 108 launchers, 400 BGM-109 GLCM; 40 ALCM, HARM, 200 AGM-65D Maverick ASM, Stinger, 12 Rapier SAM.)

DEPLOYMENT:

(i) Continental United States (CONUS):
(a) Tactical Air Command (TAC; incl NORAD- and Iceland-assigned AD ac): (104,412):
2 Air Forces; 12 air divs: 28 wings (15 combat); 36 combat sqns (30 ftr, 3 tac recce (converting to ftr/recce), 3 tac air control); 6 tac trg sqns.

(b) Alaskan Air Command: (10,830):
1 ftr wing (AD: 1 sqn with F-15, 1 with T-33), 1 composite wing (1 sqn with A-10, 1 with O-2A), 1 control (warning) gp, 13 radars (being modernized), 2 combat spt gps, 1 strategic recce wing; 1 air base gp, 2 sqns.

(c) Military Airlift Command (MAC): (78,055):
3 Air Forces; 3 Airlift divs, 27 wings.
4 tac, 8 strategic, 1 military airlift spt, 3 air base, 1 SAR, 1 SAR/weather recce, 1 medical, 1 special ops, 6 weather, 1 trg; 19 gps (2 tac, 3 strategic, 3 military airlift, 1 spt, 9 air base, 1 airlift/trg). Ac deployed as required, world-wide.

(d) Spt elm Comds: (171,500). Comms, Log, Systems, Trg, Electronic Security.

(ii) Pacific Air Forces (26,926): 2 Air Force HQ: 3 air divs; 4 tac ftr wings and 2 indep ftr sqns; 1 tac control gp; 3 air base wings and 1 indep sqn. 1 weather wing (attached from MAC), Hawaii ANG: 1 div: 2 ad sqns with F-4 (8 AAM).
(See also Forces Abroad, below.)

RESERVES:
(i) Air National Guard (ANG): 107,900:
24 wings, 67 gps, 91 sqns (56 tac); some 1,020 combat ac.

Ftr: 10 ad interceptor sqns (1 to form); 162 ac (NORAD-assigned) (see Strategic AD).
FGA: 36 sqns: 1 with 15 F-16 (1 more forming); 15 with 188 F-4D (1 ocu with 20 -C); 1 Wild Weasel/with 12; 14 with 360 A-7D/K (1 ocu, 10 replacing with F-16); 5 with 107 A-10A.

Recce: 7 sqns with 105 RF-4C.
ECM: 1 sqn with 8 EC-130.
Forward air control: 3 sqns with 75 OA-37B.
Tpt: 20 sqns: 19 tac (MAC) with 177 C-130A/B/D/E/H; 1 strategic with 12 C-5.

Tanker: 13 sqns with 104 KC-135.
SAR: 2 sqns with 8 HC-130 ac, 11 HH-3E hel.
Trg: 51: 4 T-39, 43 T-39A, 4 T-43A.

(ii) Air Force Reserve: 74,800:
17 wings, 56 sqns (36 with ac); some 233 combat ac.
FGA: 12 sqns (TAC): 2 with 10 F-16; 5 with 113 F-4C/D; 5 with 100 A-10.

Tpt: 15 sqns (MAC): 14 tac with 142 C-130A/B/D/E/H; 1 strategic with 8 C-141.
Tanker: 3 sqns (SAC) with 24 KC-135.
Special: 1 sqn (MAC) with 10 AC-130 ac.
Weather: 1 recce sqn with 7 WC-130.

SAR: 4 sqns with 15 HC-130 ac, 8 HH-3E, 110 UH-1N hel.

Associate: 20 sqns (personnel only):

MAC: 4 sqns for C-5, 13 for C-141, 1 aeromedical for C-9.

SAC: 2 sqns for KC-10.

Non-flying spt units: 137.

(iii) Civil Reserve Air Fleet (CRAF): 321 long-range commercial ac (numbers fluctuate): 200 passenger (Boeing 747, L-1011, DC-8/10), 121 cargo (80 Boeing 707, 30 747, DC-8/10); 16 short-range commercial (Boeing 727, DC-9).

Forces Abroad (520,000 incl 64,850 afloat).

GENERAL:

Europe 353,100 (27,250 afloat).

Pacific/Far East 143,800 (33,600 afloat).

Caribbean/Latin America: 15,700: incl Bermuda, 1,600; Cuba (Guantánamo Bay) 2,500; Honduras garrison 120; Puerto Rico 3,900; Panama 9,300 (1,000 afloat). Other areas 7,400 (3,000 afloat).

ARMY: (257,800)

Europe: 217,100.

(i) Germany: 204,700. 1 army, 2 corps HQ; 2 armd, 2 mech divs; 1 armd, 1 mech, 1 cav bdes; 2 armd cav regts; 4 ssm bns with 54 *Pershing* IA, 54 *Pershing* II; 30 ad btys with *HAWK*; 1 bn (4 btys) *Nike Hercules* (being replaced by *Patriot*); 2 bns with *Patriot* (1 with 6 btys each 8 x 4 msils, 1 to be 6 btys late 1985); 5,000 MBT.⁵

(ii) West Berlin: 4,300. HQ elms, 1 inf bde.

(iii) Greece: 470.

(iv) Italy: 3,950.

(v) Netherlands: 930.

(vi) Turkey: 1,200.

(vii) Belgium: 1,160.

(viii) Other: 390.

Pacific: 32,300.

(i) South Korea: 29,750. 1 army HQ; 1 inf div (13,900).

(ii) Japan: 2,400. 1 corps HQ; base and spt personnel.

Middle East: Egypt: 1,200.

Caribbean/Latin America: 6,730.

NAVY: (90,900) (56,150 afloat).

Atlantic (Second Fleet): Cuba (Guantánamo Bay) 2,100, Bermuda 1,500, Iceland (Keflavik) 1,900, Britain (Holy Loch and other) 2,300. NATO-assigned 14,850.

Mediterranean (27,200). Sixth Fleet: typically up to 6 SSN, 2 carriers, 12 surface combatants, 11 spt ships; 1 Amph Ready Gp (3-5 ships, Bn landing team or MAU). Mid-Term Prepositioning Force: 3 stores ships, Italy (Gaeta (HQ), Naples, Sigonella, La Maddalena) 5,250, Spain (Rota) 3,600.

Western Pacific (41,400). Seventh Fleet: some 20 SSN and ss: 3 carriers (1 hel), 23 surface combatants, 6 amph, 8 spt ships. Japan (Yokosuka; HQ) 7,400. Philippines (Subic Bay) 5,300; Guam (Midway) 4,900 incl Marine det.

Indian Ocean. Dets from Seventh Fleet 11,000; 1 carrier battle gp (some 6 surface combatants). Near Term Pre-

positioning Force (Diego Garcia) 1,300; 3 ammunition, 7 cargo ships, 3 barges, 3 oilers, 1 water tanker. Middle East Force (Persian Gulf-Bahrain): 1 comd ship, 4 destroyers/frigates.

MARINES: (38,150).

Caribbean: Cuba (Guantánamo Bay) 435; 1 reinforced marine coy.

Europe: 1,300.

Middle East (afloat: Mediterranean 1,900; 1 MAU⁶).

Pacific:

(i) Japan/Okinawa: 26,000; 1 MAF (1 div (-), 1 air wing, 1 log spt gp).

(ii) Philippines: 660; MAU, 1 bn landing team⁶. Indian Ocean: 660; 1 MAU deployed intermittently.

AIR FORCE: (133,200).

Europe: 92,700: US Air Force, Europe (USAFE); some 725 combat ac, 64 GLCM.

(i) Belgium: 1,500; 1 tactical msl wing, 16 GLCM.

(ii) Britain: 27,500; 309 combat ac, 32 GLCM. 1 Air Force HQ: 4 wings, 14 sqns (7 with 150 F-111E/F, 1 with 12 EF-111 *Raven*, 6 with 108 A-10); 1 tac recce wing, 3 sqns (1 with 18 RF-4C, 1 with 19 F-5E, 1 with 2 TR-1A (SAC)); 1 tpt wing with 16 C-130 (MAC); 29 KC-135, 4 EC-135H (SAC); 1 SAR sqn with 5 HC-130, 5 HH-53. 1 tactical missile wing, 32 GLCM. 2 Air Base Gps.

(iii) Germany: 41,100; 324 combat ac, 7 armed hel. 1 Air Force HQ: 4 wings, 12 sqns (3 with 72 F-16A/B, 4 with 96 F-4E (2 to get F-16), 1 with 24 F-4G; 3 with 72 F-15C/D); 1 recce wing, 1 sqn with 18 RF-4C; 1 air control wing and 1 gp of 3 sqns (2 with 42 OV-10A ac, 1 with 7 CH-53C hel); 1 tpt wing (MAC) of 4 sqns (incl C-23A *Sherpa*, 16 C-130E); 1 special operations sqn (MAC) with 4 MC-130E. 2 Air Base Gps.

(iv) Netherlands: 2,000; 1 sqn with 24 F-15C/D.

(v) Spain: 5,300; 1 Air Force HQ: 1 tac wing of 3 sqns with 72 F-16A/B, 1 fr trg wing (no ac assigned). 1 Air Base Gp, 1 SAR det (MAC), 3 UH-1N hel. (1 tac fighter wing (F-4E) in US on call as reinforcements.)

Italy: 5,800; 1 tac, 2 air base gps, 1 tac msl wing (16 GLCM).

Greece: 2,700; 2 air base gps.

Turkey: 3,800; HQ, 1 tac, 2 air base gps.

(vi) Other areas: 1,700.

Iceland: (TAC, 1,300); 1 ad sqn with 24 F-4E (12 being replaced with 18 F-15, 1985), 4 T-33, 1-3 E-3A AWACS. 1 SAR det (MAC) with 3 HH-3.

Pacific: Pacific Air Forces (PACAF): 37,500.

(i) Guam: 4,200; dets from SAC: 1 strategic bbr wing with 1 B-52 sqn; 1 refuelling wing with KC-135.

(ii) Japan: 16,800; 1 Air Force HQ: 1 div; 1 wing (3 sqns) with 72 F-15C/D, 2 F-16 (sqn complete Aug 85), 18 RF-4C, T-39A ac, UH-1E/F hel; det (TAC) with 3 E-3A AWACS ac. 1 tac tpt gp with 16 C-130 ac, 1 SAR sqn (MAC) with 4 HC-130 ac, 5 HH-53 hel. See Korea below.

(iii) Korea: 11,200; 1 div: 2 wings: 5 sqns (2 with 36 F-4E, 2 with 48 F-16, 1 with 18 A-10), 1 tac control gp with 18 OA-37; 1 SAR sqn (MAC) with 6 HH-3.

(iv) Philippines: 9,400; 1 Air Force HQ: 1 wing, 2 fr sqns

(1 with F-4E, 1 with F-4E/G); 1 special operations sqn (MAC) with 4 MC-130E; 1 tac airlift wing (MAC) with 16 C-130 ac, 1 SAR sqn (MAC) with 5 C/HH-3 hel, 1 trg gp with 15 F-5E, T-33, T-39A).

(v) Australia: 250.

Middle East (all services): Sinai (MFO) 1,100; Egypt 1,300; Saudi Arabia 390 (USAF: 4 E-3A, 3 KC-135, 1 KC-10, spt staff).

PARA-MILITARY:

Coast Guard (by law a branch of the Armed Forces; in peacetime under the Department of Transportation): Budget 1984: BA \$2,767 bn, outlay \$2,518 bn, 1985: BA \$2,518 bn, outlay \$2,640 bn. Strength: 38,753 (2,287 women).

243 cutters (incl 17 high-endurance (2,600-3,000 tons), 31 med-endurance (1,000+ tons; 9 more ordered)), 6 ocean icebreakers, 6 icebreaking tugs, 76 patrol craft (16 ordered), 3 hovercraft, 28 ocean buoy tenders, 93 other vessels; some 2,250 small craft; 560 shore installations; 63 ac (41 HU-25A, 20 HC-130H, 1 VC-4A, 1 VC-11A); 108 hel (8 HH-65A, 37 HH-3F, 69 HH-52A (to be replaced by 96 HH-65A (SA-365N *Dolphin* 2))), (In reserve/storage: 2 C-130.)

Coast Guard Reserve: 24,400. Selected: 11,800; Ready 9,500; Standby 1,100; Retired 2,000. 167 port security units in 40 ports, 59 general spt units, 63 reserve gps, 1 cutter, 150 small vessels.

Coast Guard Auxiliary: 36,000 civilian volunteer force; augment regular force in emergencies.

Civil Air Patrol (CAP): 68,021 (26,215 cadets); HQ, 8 geographical regions, 52 wings, 1,936 units, 553 CAP ac plus 8,890 private ac. Roles: (a) emergency services, SAR, disaster relief, civil defence and communications (b) aerospace education, (c) cadet trg, motivation.

State Militias: 11,500: volunteer groups org as cadre military units, lightly armed and equipped, active in nine States (California, Indiana, New Mexico, New York, Ohio, Oregon, Texas, Utah and Washington) and in Puerto Rico. 19 of the remaining 41 States report varying degrees of interest and support. Intended to provide personnel for Home Guard, internal security, and disaster relief assistance in support of or as replacement for Army National Guard or Civil police forces.

¹ Manpower incl in Army, Navy, Air Force totals.

² 1 National Guard bde is incorporated in each of 1 armd, 2 mech, and 2 inf divs.

³ 1 armd, 2 mech divs, 1 armd cav regt have by eqpt stockpiled in FRG. Storage facilities for 3 more divs being built.

⁴ LAMPS = Light Airborne Multi-Purpose System.

⁵ Incl those stockpiled for the Strategic Reserve formations. The armd and mech bdes are from the divs in the US earmarked to reinforce 7th Army.

⁶ Marine Amphibious Units (MAU) are earmarked in Amphibious Ready Gps (ARG) comprising 4-7 amph ships with a reinforced inf bn gp, incl lks, arty, composite air sqn (incl hel) and log gp (1,800). Only 1 in Mediterranean and 1 in Pacific are regularly constituted. 1 Bn Landing Team (MAU less hel) also deployed in Pacific; 1 occasionally formed for the Atlantic. A Marine Amphibious Force may have up to 50,000 men incl air support.

The North Atlantic Treaty

The need to strengthen the Alliance's conventional forces, and to make better use of the increasingly constrained economic resources, through more co-ordinated production and greater internal efficiency, dominated defence discussions during 1984 and 1985. Though President Reagan made his Strategic Defense Initiative (SDI) proposal on 23 March 1983, discussions not only about its impact on arms-control negotiations but also about the possible effect that such a programme might have on spending on conventional weapons did not really surface in public until early in 1985. European participation in the SDI programme has been sought, and the whole question of European developments in high technology in the weapons field is receiving greater prominence. The Warsaw Pact has a considerable variety of missile types which can be used against

Europe, while European nations have no means to protect European territory against them. Thus one of the issues for the Alliance is whether, and to what extent, the SDI should apply to Europe. This has by no means been resolved.

Joint procurement programmes that have been successful include that for the NATO Standard E-3A Airborne Warning and Control Aircraft, 18 of which are now in service or are being fitted out for completion by mid-1986. Unfortunately, Britain's intended contribution to this effort, the AEW *Nimrod*, is well behind schedule and much over cost. The joint Anglo-German-Italian *Tornado* programme continues, with Britain now receiving her Air Defence versions. A five-nation agreement to co-operate in the design and manufacture of a standard medium troop transport or anti-submarine warfare helicopter for

the 1990s, EH-101, has been signed by Britain, France, Germany, Italy and the Netherlands. Contacts between Britain, France, Germany, Italy and Spain over a similar programme for a European fighter failed to generate agreement over the basic concept of its role and size and over work-sharing agreements, and a smaller consortium without France is to form.

Individual programmes include the continuing F-16 purchases by Belgium, Denmark, the Netherlands and Turkey. Canada will bring her new F/A-18s (CF-18) into service to replace her elderly CF-104 *Starfighters* in Germany from July 1985. Denmark will also retire her F-104s when her final order of 12 F-16s is delivered. Germany's procurement of tanks and self-propelled anti-tank systems continues to enhance her ground forces' defensive capabilities. The Italian navy has received its eighth *Maestrale* guided-weapons frigate, although the future role, and therefore equipment, of its new carrier continues to be a matter of controversy. The Netherlands has increased the size of her ground forces by about 4%,

to look to high technology to solve its problems. The enhancement of command, control, communications and intelligence (C³I), air defence and anti-tank defence, together with other force improvements, are all under study. While NATO's aim remains that of deterring any attack, an improved ability to contain an attack if deterrence fails and the raising of the nuclear threshold are at the forefront of its needs—and it is hard to see how either of these can be achieved without substantial additional resources. Although Ministers have given rhetorical support to the commitment to maintain a 3% growth of defence spending in real terms over the forthcoming years, very few governments seem likely to meet this target.

Official NATO and IMF data suggest that the 3% goal has been met only by the US, Britain, Canada and France. Canada is certainly attempting to rebuild her conventional forces, but the others (especially France and the US) devote a significant proportion of their defence budgets to their nuclear forces. If spending on these nuclear forces is excluded, the national

A British Aerospace Sea Harrier FRS-1 from 800 Squadron levitates over the 1985 Paris Air Show. Proven by combat in the Falklands conflict, Harriers are the state of the art in VTOL technology and are used by several nations. (Photo by John Amrhein)



has more than doubled her holdings of *Leopard II* MBT and is upgrading her artillery holdings. She has increased her order for F-16s. Norway is reorganizing her ground forces to make more efficient use of her mobilizable reserves and national resources, especially for the defence of northern Norway. The Portuguese Army has acquired 30 *Saladin* armoured cars which, though not new, have permitted the retirement of even older Panhards. The country is faced with an extensive modernization programme which is quite beyond its economic resources. Turkey, too has a very large modernization task ahead. Her ageing F-104 aircraft, many obtained as other NATO members retire theirs, are showing signs of coming to the end of their service life. A programme to licence-build F-16s will help to improve her air combat capability. Greece has ordered 40 *Mirage 2000* from France, but a question mark remains over the order for a similar number of F-16 from the US.

The British *Polaris* upgrading programme involving the *Chevaline* penetrating aids is now virtually complete, and the missiles are being re-engined; the modified missiles are being introduced as the *Resolution*-class boats are given their routine refits. Long-lead items for their *Trident* replacements have been ordered.

France has now brought into service her sixth SSBN, in which is deployed the new M-4 missile with 6 MIRV. Her programme of modifying the elderly *Mirage IV* to take the ASMP nuclear air-to-surface missile is in hand, with 18 conversions expected by the end of 1986.

There has been considerable discussion in NATO about the technologies for long-range interdiction, particularly in the context of the AirLand Battle 2000 and Follow-on Forces Attack debate. Financial constraints and impending manpower shortages would seem to be forcing the Alliance increasingly

average growth rates are some 6.5% for the US, about 4.0% for Britain and perhaps 2.0% for France. In Belgium, Denmark and the Netherlands, real defence spending actually decreased in 1983 and 1984. Data from other official sources such as Central Banks, which use different accounting procedures, suggest that in almost all NATO countries actual defence expenditures may indeed be lower than Defence Ministries have claimed.

The relative positions of the US and her European allies must be viewed, in part, in the light of their respective economic climates. In 1983 the US economy was characterized by strong growth, low inflation, declining unemployment and a rising dollar. This growth continued in 1984, albeit at a slower rate, and has slowed further throughout the first half of 1985. The economic recovery of the NATO Allies continues to lag behind that of the United States. Their economic performance has been characterized by rising unemployment, mixed economic growth, declining exchange rates—which have a significant effect upon a country's ability to buy military equipment from the United States—severe capital flight to the higher interest rates paid in North America, mixed success against domestic inflation, and social pressures on the budget. Virtually all West European states have, with varying degrees of success, introduced measures to control inflation and to cut their respective budget deficits, but must meet rather ambitious social welfare programmes and high unemployment levels which place heavy demands on welfare budgets. Nor is there the same perception of imminent threat as in the US, although there is no intention of compromising freedom. In the light of these circumstances, most West European governments believe that they are spending all they can afford on their defence establishments.

West Europeans are also sceptical of what they tend to regard as simplistic comparisons based on 'standard' criteria for defence expenditures. European nations argue that they bear other defence burdens, less clearly identified. These include indirect economic and social costs, such as those stemming from conscription (applicable to most European armed forces), while military use of public facilities and land, especially in West Germany, have no equivalent in the US. Because of their nature it is difficult to assess the true costs of these additional burdens, but they are politically relevant.

Nor is it easy to forecast when this situation is likely to ease. Operation, maintenance and capital costs are demonstrably higher in the military sector and are therefore subject to different inflationary pressures, usually higher than in the general economy. The OECD predicts that the US recovery will encourage economic growth in Europe and Canada through 1984 and 1985, but, as the OECD has said, 'with tight policies—dictated by concerns over budget deficits and inflation fears—the recovery outside North America seems likely to be weak and hesitant by past standards'.

The 3% real growth target was intended to upgrade conventional defences, to develop NATO infrastructure, to re-distribute NATO's costs more broadly across the Alliance, to facilitate US reinforcement of Europe and, overall, to reduce NATO's reliance on nuclear weapons. Though that figure is unlikely to be met, it must be stated that most West European countries managed to increase their outlays and improve their

military posture during the 1970s, when real defence spending in the US was decreasing. Some of the cushion from that investment still remains, although replacement of existing equipment by the more sophisticated equipment of the next generation will be costly. If it is true that little additional real investment can be achieved, there may be increasingly strong initiatives to ensure more effective political and fiscal control of defence expenditure and military resources.

Economic pressures continue to have a significant impact on all national defence procurement. There is some evidence of closer attention to priorities, although budgetary constraints often impose delays in production schedules which result in overall increases in the unit costs of individual items. Cooperation in arms procurement, long a goal of NATO planners, continues to take place, but at a rather desultory pace. However, agreement has been reached to begin a programme for the procurement of a NATO Standard Frigate. Initial US hesitation was overcome, but how many will be ordered still remains to be seen.

There seems little doubt that the incorporation of advanced technology is going to add yet more inflationary pressure to defence procurement. In 1984 this was estimated by the US Congressional Budget Office to be 6.4% annually in real terms. Others suggest that real annual increases of the order of 8% are not unlikely. At the same time, the cost of munitions, spare parts and support facilities is likely to rise, as NATO attempts to raise stocks to sustain a longer period of conventional conflict.

BELGIUM

GDP 1983: B fr 4,190 bn (\$81.945 bn). 1984: 4,513.0 bn (\$78.101 bn).

GDP growth 1983: 0.5%. 1984: 1.5%.

Inflation 1983: 7.7%. 1984: 6.3%.

Debt 1984: \$31.8 bn.

Def exp 1984: B fr 100,336 bn (\$1,736 bn); NATO defn \$2,553 bn. 1985: 106,655 bn (\$1,702 bn); NATO defn \$2.50 bn.

\$1 = francs 51.132 (1983), 57.784 (1984), 62.668 (1985).

Population: 9,890,000.

Men: 18-30: 1,040,000; 31-45: 1,023,000.

Women: 18-30: 1,000,000; 31-45: 980,000.

TOTAL ARMED FORCES:

Regular: 91,570 (3,580 women, 30,500 conscripts)

Terms of service: 8 or 10 months.¹

Reserves: 178,500. Army 120,000 (Medical Service 40,000), to age 45; Navy 4,500; Air 14,000.

ARMY: 67,200 (incl Medical Service; 25,300 conscripts).

1 Corps HQ, 2 Div HQ.

1 armd bde (2 tk, 2 mech inf, 1 sp arty bns, spt units), 3 mech inf bdes each with 1 tk, 2 mech inf, 1 sp arty bns, spt units.

1 para-cdo regt.

3 recce bns.

1 tk bn.

2 mot inf bns.

4 arty bns (2 sp).

1 SSM bn with 4 *Lance*.

4 AD bns: 2 SAM with 36 *Improved HAWK*; 2 AA each with 24 *Gepard*.

5 engr bns (3 fd, 1 bridge, 1 eqpt).

Reserves: some on immediate recall status; 1 mech, 1 mot inf bdes; combat, combat spt, log spt tps. Territorial defence: 11 mot inf regts, 4 mot inf bns.

4 Lt aviation sqns.

Tks: 334 *Leopard 1*; LT: 116 *Scorpion*. **AFV:** RECCE: 154 *Scimitar*; MICV: 10 FMC AIFV-B; APC: 1,425 incl 333 M-113, 262 *Spartan*, AMX-VCI (to Reserves), M-75 (with Reserves). **Arty:** HOW: 90 M-108 sp 105mm (to retire October 1985); 25 M-44 sp (to be retired), 39 M-109 towed (to be upgraded to A3); 168 M-109A2 sp 155mm; 15 M-115 (M-2A1) 8-in., 10 M-110 sp (being upgraded to A2) 203mm; **SSM:** 5 *Lance*. **ATK:** GUNS: 80 JPK-90mm SP; **ATGW:** *Milan*, 40 *Striker* AFV with *Swingfire*. **AD:** GUNS: 36 20mm, 54 *Gepard* 35mm SP; **SAM:** 39 *Improved HAWK*. **Avn:** AC: *Islander*; **HEL:** 61 *Alouette II* (to be replaced by 76 multi-role hel).

(On order: 504 micv, 272 M-113A2 APC, 150 *Mistral* SAM launchers, 1,000 msils.)

NAVY: 4,550 (1,160 conscripts).

Bases: Killo, Ostend, Zeebrugge.

Frigates: 4 E-71 with 4 *Exocet* MM-38 SSM, 1 × 8 *Sea Sparrow* SAM.

MCMV: 3 US *Aggressive* ocean, 6 US *Adjutant* coastal, 14 *Herstal* inshore; 2 log spt/comd ships.

Patrol craft, river: 6.

Auxiliaries: 10.

Hel: 3 *Alouette III*.

(On order: 10 *Flower* (tripartite) MCMV.)

AIR FORCE: 19,820 (4,040 conscripts).

FGA: 5 sqns with *Mirage* 5BA/BD; 2 getting F-16A/B.

AD: 2 ac sqns with F-16A/B; 4 SAM sqns with *Nike Hercules* (modernized); 1 NADGE command reporting centre, associated radar.

Recce: 1 sqn with *Mirage* 5BR.

Tpt: 2 sqns with C-130H, Boeing 727QC, HS-748, *Merlin IIIA*, *Mystère-Falcon* 20.

Liaison: 1 flt with CM-170 *Magister*.

Trg: 3 sqns: 1 with SF-260MB, 2 with *AlphaJet*.

SAR hel: 1 sqn with HSS-1 (S-58), S-61 *Sea King*.

Equipment: 181 combat ac.

Mirage: 72: 54 5BA/BD (FGA); 18 5BR (recce).

F-16: 109: 56-A (22 FGA, 34 AD); 18-B (13 FGA, 5 AD); 35 in store.

C-130: 12 (tpt).

Boeing 727: 2 (tpt), HS-748: 3 (tpt), *Merlin IIIA*: 5 (tpt).

Mystère-Falcon 20: 2 (tpt), Fougou CM-170: 21 (liaison).

SF-260: 31 (trg), *AlphaJet*: 31 (trg).

Hel: *Sea King*: 5 (SAR), HSS-1: 3 (SAR).

Msls:

SAM: 36 *Nike Hercules*.

AAM: AIM-9 *Sidewinder*.

(On order: 44 F-16A fr ac.)

Forces Abroad: Germany: 28,900 (to be reduced by some 800); 1 corps HQ, 1 div HQ, 1 armd, 1 mech inf bdes; 3 recce, 1 tk, 3 arty, 1 SSM, 2 *Gepard* AA, 2 SAM, 3 engr bns, 240 MBT; 3 aviation sqns, 4 *Nike* SAM sqns.

PARA-MILITARY: *Gendarmerie* 15,900; 62 FN, 4 RM/62F armd cars, 5 *Alouette II*, 3 *Puma* hel.

BRITAIN

GDP 1983: £300.81 bn (\$448.970 bn). 1984: £318.39 bn (\$400.038 bn).

GDP growth 1983: 3.4%. 1984: 2.5%.

Inflation 1983: 4.6%. 1984: 5.0%.

Debt 1984: \$62.0 bn.

Def exp 1984/5: £17,033 bn (\$21,401 bn); NATO defn \$21,995 bn. 1985/6: £18,056 bn (\$22,559 bn); NATO defn \$23,072 bn.

\$1 = £0.67 (1983/4), 0.7959 (1984/5), 0.8004 (1985).

Population: 56,020,000.

Men: 18-30: 5,726,000; 31-45: 5,585,000.

Women: 18-30: 5,500,000; 31-45: 5,520,000.

TOTAL ARMED FORCES:

Regular: 327,100 incl 16,400 women and some 9,800 enlisted outside Britain.

Terms of service: voluntary.

Reserves: 294,449.

Army: 227,484. Regular 148,500; Territorial Army (TA) 72,200 (to be 86,000 by 1990); Ulster Defence Regt (UDR) 6,469 (3,778 part-time); Home Service Force some 2,500 (to be 4,700).

Navy: 30,880. Regular 22,900; Volunteer 5,300 (to be 7,800); Auxiliary Service 2,680 (to be 3,242).

Marines: 3,300. Regular 2,300; Volunteer 1,000.

Air Force: 30,600. Regular 29,600; Volunteer: 1,000.

STRATEGIC FORCES: (2,300):

SLBM: 4 *Resolution* SSBN, each with 16 *Polaris* A3TK msls.

Ballistic Missile Early Warning System (BMEWS) station at Fylingdales (to be upgraded).

ARMY: 163,000 (incl 6,700 women and 9,430 enlisted outside Britain, of which 8,074 are Gurkhas).

1 corps, 3 armd, 1 inf divs, 25 bdes, 1 Field Force HQ.

14 armd regts (2 trg).

5 armd recce regts.

53 inf bns (6 Gurkha).

3 para bns (1 in inf, 2 in para role).

1 Special Air Service (SAS) regt.

1 SSM regt with *Lance* (4 blys, each 3 msls).

18 arty regts: 1 hy (203mm), 2 'depth of fire' (175mm), 8 sp, 6 fd (1 cdo), 1 locating; 4 indep SAM blys: 2 *Blowpipe*, 2 *Javelin*.

3 SAM regts with *Rapier*: 2 of 3 blys (36 launchers), 1 of 4 blys, 2 sp (48 launchers).

13 engr regts: 11 fd (1 Gurkha), 1 armd, 1 amph.

4 army aviation regts: 16 sqns (1 cdo), 5 indep flts; 2 trg sqns, 6 flts.

Tks: some 130 *Challenger*, 900 *Chieftain* (150 in reserve); LT: 271 FV 101 *Scorpion*.

AFV: RECCE: 290 FV 107 *Scimitar*, 1,070 *Ferret*, some 200 *Fox*; APC: 2,338 FV 432, some 60 FV 603 *Saracen*, 500 FV 103 *Spartan*, some 150 AT-105 *Saxon*, some 48 MCV-80.

Arty: GUNS: 100 towed, 120 FV 433 *Abbot* 105mm sp, 4 5.5-in. (140mm) trg, 36 M-107 175mm sp; **HOW:** 95 FH-70 towed, 101 M-109A2/A3 155mm sp, 16 M-110 203mm sp; **MRL:** 4 MLRS 227mm (trials); **SSM:** 12 *Lance*.

ATK: RCL: *Carl Gustav* 84mm, 120mm; **ATGW:** *Milan*, *Swingfire* (incl FV 102 *Striker*, FV 438 sp).

SAM: *Blowpipe*, *Javelin*; 120 *Rapier* (some 48 sp).

Avn: AC: 9 *Beaver* AL-1; **HEL:** 40 *Scout*; 9 *Alouette II*C, 155 *Gazelle* AH-1, 110 *Lynx* AH-1 (some with *TOW*), 4 *Agusta* A-109.

Landing craft: 14: 2 log, 2 LCT, 9 small, 1 munitions.

Misc vessels: 25.

¹See p. 74 for footnotes.

Misc vessels: 25.

(On order: some 195 *Challenger* mvt; some 1,000 MCV-80 mcv; some 247 AT-105 *Saxon* APC; LAW-80 RL, *Milan*, *TOW* ATGW; some 150 *Rapier* (some 80 sp), 48 *Blowpipe* SAM; 5 *Gazelle*, 2 *Lynx* AH-5 hel (6 with *TOW*), 3 LCM, 3 patrol craft, 12 combat spt craft.)

DEPLOYMENT (see also Forces Abroad, below):

United Kingdom Land Forces (UKLF): 42,100: Reinforcements for 1 Br Corps, Germany: 1 inf div HQ, 4 inf bdes. (2 Regular, 2 TA): **United Kingdom Mobile Force** (UKMf): 1 air portable inf bde and log spt gp. **Allied Command Europe Mobile Force (LAND)** (AML(L)): 1 inf bn, 1 armd recce, 1 sigs sqn, 1 arty bty, 1 log bn; 1 avn flt. Home Defence: 10 inf, 1 AB bdes.

HQ Northern Ireland (some 9,000): 2 inf bde HQ, 8 major units in inf role (6 resident, 2 temporary inf bns), 1 SAS, 1 engr sqn, 1 army aviation regt of 2 sqns.

RESERVES:

2 armd, 3 lt recce regts, 35 inf bns (6 more forming, 1986), 2 SAS, 2 fd, 1 arty recce, 3 AD, 7 engr regts (4 airfield repair sqns forming), Ulster Defence Regiment: 9 bns (internal security role in Northern Ireland only in peacetime). Home Service Force: some 33 coys (to be 47).

NAVY: 70,600 (incl Air, Marines, 3,800 women and 375 enlisted outside Britain); 60 major surface combat vessels (incl 2 LPD).

Bases: Devonport, Faslane, Portland, Portsmouth, Rosyth.

Subs (attack): 28: ssn: 13 (2 *Trafalgar*, 6 *Swiftsure*, 2 *Valiant*, 3 *Churchill*); ss: 15 (13 *Oberon*, 2 *Porpoise*).

Carriers: 4 ASW with 5 *Sea Harrier* vstol ac, 9 *Sea King* hel: 3 *Invincible* with 1 *X* *Sea Dart* SAM, 20mm *Phalanx* ad system; 1 *Hermes* (for disposal) with 2 *X* 4 *Seacat* SAM.

Destroyers: 15 gw: 2 *County* with 1 *X* 2 *Seaslug*, 2 *X* 4 *Seacat* SAM, 4 *Exocet* SSM, 1 *Lynx* HAS-2 hel; 1 *Bristol* with 1 *X* 2 *Sea Dart* SAM, 1 *kara* ASW; 12 *Sheffield* (Type-42) with 1 *X* 2 *Sea Dart*, 1 *Lynx* hel.

Frigates: 39: 6 *Broadsword* (Type-22) with 4 *Exocet* SSM, 2 *X* 6 *Sea Wolf* SAM, 2 *Lynx* hel; 6 *Amazon* (Type-21) with 4 *X* 1 *Exocet* SSM, 1 *X* 4 *Seacat* SAM, 1 *Lynx* hel; 23 *Leander* (1 trg) with 1 *Wasp*/1 *Lynx* (9 with *kara* ASW, 2 *X* 4 *Seacat*; 12 with 4 *Exocet*, 5 with 1 *X* 4, 4 with 2 *X* 4, 3 with 3 *X* 4 *Seacat*; 5 with 1 *X* 6 *Sea Wolf*); 4 *Rothsay* with 1 *X* 4 *Seacat*, 1 *Wasp* hel (1 to trg Sept. 1985).

MCMV: 39: 10 *Hunt*, 24 *Ton* (5 reserves, 6 fishery patrol), 5 *River* (reserves); 1 *Abdiel* spt ship.

Patrol vessels: 32: 1 *Endurance*, 5 *Peacock*, 7 *Island*, 2 *Castle*, 2 mod *Ton*, 4 *Bird* (2 trg), 2 *Loyal*, 3 *Protector*, 4 *Fleet tenders* (trg); 2 32-metre.

Amph: LPD: 2: each 4 LCM, 4 LCVP, 4 *X* 4 *Seacat* SAM; **LANDING SHIPS:** 7: 2 leased commercial (in Royal Fleet Auxiliary (RFA)); LCM: 13; LCVP: 29. See also Army.

Misc: 1 sub tender, 9 survey vessels, 1 seabed ops vessel, 1 Royal Yacht (hospital ship), 2 hel spt ships (RFA), 1 forward repair ship, 1 salvage ship, 5 *Tracker* trg. See also Air Force.

Incl in above refitting or in reserve are: 1 ssn, 2 ssn, 5 diesel subs, 1 Type-82 dd, 6 frigates, 4 mcm, 1 patrol vessel, 1 LPD, 1 landing ship (RFA), 1 sub tender, 1 survey ship.

ROYAL FLEET AUXILIARY (RFA): (2,600); naval vessels, civilian crews.

Tankers: 14: 4 large, 5 small, 5 spt. Fleet replenishment ships: 4.

ROYAL MARITIME AUXILIARY:

10 service vessels, 3 coastal tankers, 7 munitions, 70 water tenders, 59 tugs, 4 trials, 4 docks, 20 other. (Reserves): 4 Regional divisions: 9 mcm, 8 patrol, 72 Auxiliary Service units.

ROYAL NAVAL AIR SERVICE (RNAS):

AD/attack ac: 3 sqns with *Sea Harrier* FRS-1, 1 T-4N. **ASW hel:** 8 sqns: 7 with *Sea King* HAS-2/5, 3 with *Wasp* HAS-1 (in indep flts).

ASW/attack hel: 2 sqns with *Lynx* HAS-2/3 (in indep flts). **AEW hel:** 1 sqn with *Sea King* AEW-2 forming.

Cdo/assault tpt hel: 3 sqns: 1 with *Sea King* HC-4; 1 with *Wessex* HU-5; 1 with *Wessex* CC-4.

Spt/SAR hel: 2 sqns with *Wessex* HU-5.

Trg: 2 sqns: 1 with *Jetstream* ac; 1 with *Gazelle* HT-2 hel.

Fleet spt: *Canberra* T-18/22, *Hunter* T-7/8, GA-1. Equipment: 32 combat ac, 121 med hel.

Sea Harrier: 32: 29 FRS-1 (21 fr, 8 trg); 3 T-4N (trg). **Canberra:** 12 (spt); **Hunter:** 25 (spt); HS-125: 2 (vip tpt). Hel:

Sea King: 104: 86 HAS-2/5 (64 ASW, 22 trg); 14 HC-4 (cdo); 4 AEW-2.

Lynx: 46 (35 ASW, 11 trg). **Wasp:** 32 (22 ASW, 10 trg).

Wessex: 41: 21 HU-5/CC-4 (cdo); 20 HU-5 (7 SAR, 3 spt, 10 trg).

Gazelle: 19 (trg). MsIs:

ASM: *Sea Skua*, AAM: AIM-9 *Sidewinder*.

ROYAL MARINES: (7,800).

1 cdo bde: 3 cdo gps; 1 cdo arty regt, 1 bty (Army); 2 cdo engr sqns (1 Regular, 1 Reserve), 1 log regt (with army); 1 lt hel sqn, spt units.

1 Special Boat, 3 assault sqns. (Reserve): 1 assault sqn.

Arty: guns: 18 105mm; **mor:** 18 81mm. **ATGW:** *Milan*. **SAM:** *Javelin*, *Blowpipe*. **Hel:** 12 *Gazelle* AH-1, 4 *Lynx* AH-1.

(On order: RN: 4 *Trafalgar* ssn, 1 *Upholder* (Type-2400) ss; 2 Type-42 destroyers, 1 *Duke* (Type-23), 8 Type-22 frigates (1 in late 1985), 3 *Hunt*, 7 *River* MCMV (1985); 10 trg patrol craft; 1 landing ship (logistic), 1 hel carrier trg auxiliary ship, 1 coastal survey vessel; 3 salvage ships; 72 *Trident* II SLBM, 10 *Phalanx* 20mm, *Goalkeeper* 30mm ad systems, *Harpoon* SSM, *Javelin*, *Sea Wolf*, *Lightweight Seawolf* SAM. **RNAS:** 23 *Sea Harrier* FRS-1, 4 *Jetstream* Mk 3 ac; 19 *Sea King* (6 HAS-5, 13 HC-4), 3 *Lynx* HAS-3 hel; *Sea Eagle* ASM. **MARINES:** 18 Mk 4 LCVP, 3 LCU.)

AIR FORCE: 93,500 (incl 5,900 women).

Strike: 11 sqns: 8 with *Tornado* GR-1 (2 more to form); 2 with *Buccaneer* S-2A/B (assigned maritime, with *Sea Eagle* ASM); 1 with *Jaguar* GR-1/T-2.

FGA: 5 sqns: 3 with *Harrier* GR-3/T-4; 2 with *Jaguar*. **AD:** 9 sqns: 2 with *Lightning* F-6/F-3/T-5; 7 with *Phantom*.

Recco: 2 sqns with *Jaguar* GR-1; 1 flt with *Canberra* PR-9.

MR: 4 sqns with *Nimrod* MR-11-1A/2 (*Harpoon* ASM, *Sidewinder* AAM being fitted).

AEW: 1 sqn with *Shackleton* AEW-2.

Tanker: 3 sqns: 2 with *Victor* K-2; 1 with VC-10 K-2/3 (being phased in).

Tpt: 5 sqns: 1 strategic with VC-10C1/*Tristar*-1-500; 4 tac with C-130H/HCS.

Llison: 2 comms sqns with HS-125 *Dominie*, *Andover*, *Pembroke*, BAe-146-100. Queen's Flt: *Andover*.

ECM: 3 ECM/target facility/calibration sqns with *Canberra*, *Nimrod* MR-1, *Andover* E-3/C-1.

Trg: 12 ocu: *Tornado* GR-1/F-2, *Buccaneer* Mk 2, *Phantom* FGR-2, *Jaguar* GR-1/T-2, *Harrier* GR-3/T-4, *Nimrod*, *Canberra* B-2/T-4, C-130H, *Victor* K-2.

2 tac weapons units: *Hunter* F-6/GA-9/T-7, *Hawk* T-1, *Jet Provost*.

Trg units: *Hawk* T-1, *Jet Provost*, *Jetstream* T-1, *Bulldog* T-1, *Chipmunk* T-10, *Dominie* T-1, *Husky* T-1.

Tac hel: 5 sqns: 1 with *Wessex*; 2 with *Puma* HC-1; 2 with *Chinook* HC-1.

SAR hel: 9 flts; 5 with *Wessex* HC-2; 4 with *Sea King* HAR-3.

Trg hel: *Wessex*, *Whirlwind*, *Gazelle*.

AD: 2 SAM sqns with *Bloodhound* 2, 1 Royal Auxiliary AF sqn with 12 *X* 2 35mm Oerlikon AA guns with *Skyguard* (see also RAF Regt).

Equipment: some 599 combat ac. **Tornado:** 123: 121 GR-1 (79 strike, 20 in trinational trg sqn (Cottesmore), 22 weapons conversion unit); 2 F-2 (ocu).

Buccaneer: 52 (25 attack, 9 ocu, 18 reserve).

Jaguar: 120 (53 strike, 24 close spt, 24 recce, 19 ocu).

Harrier: 53 (33 close spt, 20 ocu).

Phantom: 150: 36 FG-1; 12 F-3 (F-4J) (ftr); 102 FGR-2 (48 ftr, 18 ocu, 36 reserve).

Lightning: 22 (ftr).

Hunter: 5 (tac weapons unit).

Hawk: 117 (72 tac weapons unit (*Sidewinder*-capable), 45 trg).

Canberra: 38: 31 (ECM/target facility/calibration); 3 PR-9 (recce); 4 B-2/T-4 (ocu).

Nimrod: 34: 3 (ECM); 3 (ocu); 28 MR-11-1A/2 (MR).

Shackleton: 10 (5 AEW, 5 reserve).

Victor: 23 (18 tanker, 7 ocu).

Tristar: 9: 2 (tanker/cargo, to be 6), 7 (strategic tpt, to be 3).

VC-10: 20: 11 C-1 (strategic tpt); 5 K-2 (tanker); 4 K-3 (tanker, to be 5).

C-130: 46 (41 tac tpt, 5 ocu).

Andover: 12 (5 ECM/target facility/calibration, 3 Queens Flt, 4 comms). **Dominie:** 25: 19 T-1 (trg); 6 CC-1/2 (comms). **Pembroke:** 6 (comms). BAe-146: 1 (comms).

Jet Provost: 147 (2 tac weapons unit, 145 trg). **Jetstream:** 11 (trg). **Bulldog:** 11 (trg). **Chipmunk:** 60 (trg).

Husky: 1 (trg).

Hel:

Wessex: 56 (20 tac tpt, 18 SAR, 4 ocu, 14 trg).

Chinook: 30 (25 tac tpt, 5 ocu).

Puma: 31 (26 tac tpt, 5 ocu).

Sea King: 14 (SAR). **Gazelle:** 22 (trg). **Whirlwind:** 5 (trg).

MsIs: AAM: *Sidewinder*, *Sparrow*, *Red Top*, *Firestreak*, *Sky Flash*. ASM: *Martel*, *Harpoon*, *Sea Eagle*. SAM: 84 *Bloodhound*. Marine Craft: 23 (21).

(On order: *Harrier* GR-3/T-4, 62 *Harrier* II (AV-8B = GR-5), *Tornado* (some 264 GR-1, 164 F-2), 11 *Nimrod* AEW-3, HS-125-700, BAe-146-100 (vip), 3 VC-10 K-2/3, 130

Tucano trg; 3 *Chinook*, *Sea King* HAR hel; AIM-9L *Sidewinder*, *Rapier* SAM, *Sky Flash* AAM, 750 ALARM, *Sea Eagle* ASM, AR-3D AD radar.)

ROYAL AIR FORCE REGIMENT:

4 wing HQ.

5 lt armd sqns.

7 SAM sqns (*Rapier*).

36 *Scorpion* lt tks; 90 *Spartan* APC; 72 *Rapier* SAM.

(Reserves (Royal Auxiliary Air Force): 1 air movements sqn; 6 fd def sqns; 1 lt AA gun sqn with 12 *X* 2 35mm Oerlikon and *Skyguard*.)

DEPLOYMENT:

Strike Command: 3 Gps; operational home command responsible for the UK Air Defence Region and Near and Far East; overseas command (RAF Germany, Belize and Falklands).

Support Command: training, supply and maintenance support of other commands.

Forces Abroad: 96,141. Army 70,682. Navy/Marines 8,117. Air Force 17,342.

Antarctica: Navy: 1 ice patrol ship. **Ascension Island:** Navy: Det 3 *Wessex* HU-5 hel. RAF: *Hercules* C-1P tanker dets.

Belize: 1,500. Army: some 1,200; 1 inf bn, 1 armd recce tp, 1 fd arty bty, 1 lt ad (*Blowpipe*) det, 1 engr sqn, 1 hel flt (4 *Gazelle* AH-1). Navy: 1 destroyer/frigate (guard ship), 1 spt ship. RAF: (200); 1 flt (4 *Harrier* GR-3 FGA, 4 *Puma* hel), 1 *Rapier* ad det (4 units) RAF Regt.

Brunel: Army: 1 Gurkha inf bn, hel flt (3).

Canada: Army: training and liaison unit.

Cyprus: Army: 3,250; UNFICYP (750); 1 inf bn less 2 coys, 1 armd recce sqn, 1 hel flt, engr and log spt. Garrison: 1 inf bn plus 2 inf coys, 1 armd recce, 1 engr spt sqn, 1 hel flt. RAF: 1.347; 1 hel sqn (task incl spt for UNFICYP), periodic dets of other ac, 1 fd sqn RAF Regt. Navy/ Marines: 23.

Egypt (Sinai MFO): 38 technical and admin personnel.

Ethiopia: RAF: air despatch units: 3 *Hercules*.

Falkland Islands: 2,400. Army: 1 inf bn gp, armd recce sqn, 1 arty, 1 engrd sqn, 1 sqn army air. Navy (varies): 1 ssn/ss, 2 escorts, 3 patrol, spt and auxiliary ships. RAF: 1 *Phantom* sqn (9), 6 *Hercules* K-1, 3 *Sea King* HAR-3, 6 *Chinook* hel, 1 *Rapier* SAM sqn. (Detail's may vary through the year.)

Germany (88,728): British Army of the Rhine (BAOR): 55,288; 1 corps HQ; 3 armd divs incl 8 armd, 1 air mobile (trials) inf bdes; 11 armd, 2 recce, 12 arty (1 msl), 2 ad, 7 engr, 3 army air (10 air sqns, 2 indep flts) regts; 13 inf bns. Berlin Inf Bde: 3,000; 3 inf bns, 1 armd sqn. RAF: 10,440; 12 ac, 2 hel sqns; 2 *Phantom* FGR-2, 5 *Tornado*, 2 *Jaguar* (1 recce) (3 sqns *Tornado* to replace), 2 *Harrier*, 1 *Pembroke* (comms); 1 *Puma*, 1 *Chinook* (tpt); (RAF Regt) 4 *Rapier* SAM, 1 fd sqns.

Gibraltar: 1,969. Army: 793; 1 inf bn, 1 engr team, 1 arty surveillance tp. Navy/Marines: 720; 1 escort, 1 spt ship; Marine dets. Base unit. RAF: 456; periodic *Jaguar* ac dets.

Hong Kong: 8,741: Army: 7,662; (British 1,976, Gurkha 4,446, Hong Kong Regt 1,240); Gurkha Field Force with 1 Br, 4 Gurkha inf bns, 1 each Gurkha engr, sigs, tpt regts, 1 hel sqn (-) with 10 *Scout* AH-1, spt units, 3 small landing craft, 3 other vessels. Navy: 811 (375 locally enlisted); 5 *Peacock* patrol craft, (12 patrol boats in local service), 1 Marine Raiding sqn. RAF: 268; 1 *Wessex* hel sqn (10 HC-2).

Indian Ocean: 2 destroyers/frigates, 1 spt ship; Diego Garcia, 1 naval, 1 Marine dets.

Military Advisers: 667 in 30 countries.

CANADA

GDP 1983: \$C 402.58 bn (\$US 324.792 bn). Est 1984: \$C 437.20 bn (\$US 331.31 bn).

GDP growth 1983: 3.2%. 1984: 4.2%.

Inflation 1983: 5.8%. 1984: 4.4%.

Debt 1983: \$US 105.0 bn. 1984: \$US 110.0 bn.

Def exp 1984/5: \$C 8,767 bn (\$US 6,644 bn); NATO defn \$US 7,027 bn. 1985/6: \$C 9,385 bn (\$US 6,822 bn); NATO defn n.a.

\$US 1 = \$C 1.2395 (1983/4), 1.3196 (1984/5), 1.3757 (1985).

Population: 25,150,000. Men: 18-30: 3,075,000; 31-45: 2,800,000. Women: 18-30: 2,980,000; 31-45: 2,757,000.

TOTAL ARMED FORCES: Regular: 83,000 (to be 90,000 by 1989).²

Terms of service: voluntary.

Reserves: 24,700. Army (Militia) 19,000; Comms 1,500; Navy 3,200; Air 1,000. (Total to increase to 40,000 by 1989.)

ARMY (Land Forces): 21,000.² **Mobile Command** (about 18,000 land and air).³

AIR FORCE *Magazine* / February 1986

2 bde gps: each 1 armcd regt, 3 inf bns, 1 arty (2 close spt, 1 ad btys), 1 engr regts, spt units.
1 special service force (4,000): 1 armcd regt, 1 inf bn, 1 ab, 1 arty, 1 engr regts, 1 spt unit.
1 mech bde gp (see Forces Abroad, Europe, below): 1 armcd regt, 2 mech inf bns, 1 arty, 1 engr regts, spt units. (Reserves): 131 combat arms and spt units.
TKs: 114 *Leopard C-1*. **AFV**: **RECCE**: 174 *Lynx*, 195 *Cougar*; **APC**: 961 M-113, 269 *Grizzly*. **Arty**: **HOW**: 12 model 44 (L-5) pack, 190 towed 105mm; 55 M-114, 50 M-109 SP 155mm.
ATK: **RCL**: 787 *Carl Gustav* 84mm; **ATGW**: 149 *TOW*. **AD**: **GUNS**: 57 L-40/60 40mm; **SAM**: 111 *Blowpipe*.

NAVY (Maritime Forces): 5,500.²
Maritime Command (MARCOM; about 9,000).³
Subs: 3 *Oberon*.
Destroyers: 4 DDH-280 ASW, each with 2 CH-124 *Sea King* hel, 2 x 4 *Sea Sparrow* SAM.
Frigates: 19 ASW: 2 *Annapolis*, 6 *St Laurent* with 1 *Sea King* hel (to be retired from 1989); 4 *Improved Restigouche* with ASROC; 4 *Mackenzie*; 3 *Restigouche*.
Replenishment spt ships: 3 (one in refit), each with 3 *Sea King* hel.
Auxiliaries (civilian-manned): 11: 3 oceanographic research, 1 diving spt, 7 tugs (2 ocean, 5 coastal).
Trg: 2: 6 coastal, 5 gate, 1 yacht(, 10 small.
(On order: 6 ASW frigates (1990), 36 AGM-84D *Harpoon* ASM, *Sea Sparrow* SAM, radar.)

DEPLOYMENT AND BASES:
Atlantic: 3 subs, 4 ASW destroyers, 9 ASW frigates (1 in reserve), 2 replenishment spt ships. Halifax.
Pacific: 10 ASW frigates (2 in reserve), 1 replenishment spt ship. Esquimalt.

AIR FORCE: 15,300.²
Air Command (23,000)³
Canadian Air Group (Germany) (CAG):
Fr: 2 sqns with CF-104/-104D *Starfighter* (converting to CF-18 (F/A-18) July 1985 to 1988).
Fighter Group:
FGA: 3 sqns (1 trg) with CF-116/-116D (F-5A/D) (2 NATO-assigned); to get CF-18 from 1987. 1 trg sqn with CF-18D *Hornet*.
AD: 2 sqns with CF-18 (trg sqn to augment).
ECM: 1 trg sqn with CC-117 (*Mystère-Falcon* 20), CT-133 (T-33), CF-101 *Voodoo*.
EWng: 4 main, 17 auxiliary sites of Distant Early Warning (DEW) Line; region operational control centre (ROCC).
24 long-range radar sites (CADIN/Pine Tree Line; 17 to be phased out 1986-8).
1 space tracking and identification site.

Maritime Air Group:
MR: 6 sqns: 4 (1 trg) with CP-140 *Aurora*; 2 (1 reserve) with CP-121 *Tracker*.
ASW: 3 hel sqns (1 trg) with CH-124 *Sea King*, afloat.
Liaison: 2 utility sqns with T-33, CP-121 ac; CH-135 (Bell 212) hel.
Air Transport Group:
Tpt: 6 sqns: 4 with CC-130E/H *Hercules*; 1 with CC-137 (Boeing 707); 1 with CC-109 *Cosmopolitan*, CC-117, CC-132 (DHC-7R) *Ranger*, CC-144 *Challenger*.
SAR: 4 tpt/SAR sqns with CC-115 (DHC-5) *Buffalo*, CC-138 (DHC-6) *Twin Otter*; CH-113 (BV-107) *Labrador*, CH-135 hel.

Training Group:
Trg: 3 flying schools with CT-133, CT-134 *Musketeer*, CT-114 (CL-41) *Tutor*, CC-129 (C-47) ac; CH-139 (Bell 206) hel.
1 demonstration unit with CT-114.
Tactical Air Group (TAG):
Tac hel: 6 sqns with CH-135, CH-136 *Kiowa*, CH-147 *Chinook*.
Air Transport Group:
SAR hel: 4 tpt/SAR sqns (see SAR above) with CH-113, CH-135. 2 of these sqns MARCOM-assigned.
Liaison hel: 4 base flights with CH-118 (Bell 205), CH-135.

Equipment: 181 combat ac; 32 armed hel.
CF-104/-104D: 42 (frt).
CF 116 (F-5A): 49 (24 FGA); 25 -D (F-5D) (FGA).
CF-18D (F/A-18): 52 (46 FGA, 6 trg).
CF-101: 2 (1 ECM, 1 trg).
CP-140: 18 (MR).
CP-121: 22 (15 MR, 3 liaison, 4 reserve).
CC-130E/H: 28 (tpt). CC-137: 5 (tpt). CC-109: 7 (tpt).
CC-117: 7 (2 tpt, 5 trg). CC-144: 5 (tpt). CC-132: 2 (tpt).
CC-138: 8 (tpt). CC-115: 11 (tpt). T-33: 9 (liaison).
CT-133: 17 (trg). CT-114: 11 (trg). CT-134: 20 (trg).
CC-129: 2 (trg).
Hel:
CH-124: 32 (ASW afloat).
CH-135: 38 (31 tac, 5 tpt, 2 liaison). CH-136: 36 (tac).
CH-147: 7 (tac). CH-113: 13 (tpt). CH-118: 9 (tpt).
CH-139: 14 (trg).
(On order: some 80 CF-18 (77 F-18A, 3 -B) frts, 4 CC-144 (CL-601) tpts, 6 CC-142 (DHC-8); 4 tpt, 2 trg); *Sidewinder*, *Sparrow* AAM.)

Forces Abroad:

Europe:
1 mech bde gp (4,056; being increased by 1,200 in 1985/6): 1 armcd, 2 inf, 1 arty bns, engr regt, hel sqn: 59 *Leopard* 1 MBT, 363 M-113 APC/recce, 59 *Lynx* comd/recce, 24 M-109 155mm SP how, 40 *TOW* ATGW, 50 40mm AA guns, 18 *Blowpipe* SAM, 12 CH-136 *Kiowa* hel, 1,729 reinforcements in Canada.
1 Air Group: (760): 3 fr sqns with 42 CF-104/-104D (54 CF-18 to replace from July 1985); 1 det: 2 CC-132 and 4 CT-133 liaison ac.
Cyprus (UNFICYP): 515.
Syria/Israel (UNDOF): 226.
Other Middle East (UNTSO): 20.
PARA-MILITARY:
Coast Guard: 6,561 (civilian-manned); 1 large, 7 med, 3 lt icebreakers, 38 SAR vessels, 25 tenders, 2 DHC-7R ac, 37 hel, 5 hovercraft.
Canadian Rangers: 1,300 (component of Militia).

DENMARK

GDP 1983: Kr 515.4 bn (\$56.359 bn). 1984: 568.4 bn (\$54.883 bn).
GDP growth 1983: 2.0%. 1984: 4.2%.
Inflation 1983: 5.8%. 1984: 4.1%.
Debt 1983: \$34.0 bn, 1984: \$36.8 bn.
Def exp 1983: Kr 10,314 bn (\$1,128 bn); NATO defn \$1,214 bn. 1984: 12,508 bn (\$1,208 bn); NATO defn \$1,31 bn.
Budget 1985: 4 11,262 bn (\$1,007 bn).
\$1 = 9.145 (1983), 10.3566 (1984), 11.184 (1985).

Population: 5,150,000.
Men: 18-30: 512,000; 31-45: 583,000.
Women: 18-30: 490,000; 31-45: 560,000.

TOTAL ARMED FORCES:

Regular: 29,600 (9,900 conscripts).
Terms of service: 9 months (to be 12 in combat arms).
Reserves: 162,200; 84,200; Home Guard 78,000 (11,700 women) (to age 50).
ARMY: 129,900.
Augmentation Force (immediate recall): 4,500 (to 'covering force').
Mobilization Forces: Field Army Reserve (FAR) 41,000—comprising Covering Force Reserve (12,000); 5 mech inf bns (1 per bde), men (to bring units to war strength); Other: (29,000); 5 mot inf bns, men for regimental combat teams, combat and log spt. Regional Defence Force: 7 Regions; 24,000. *Hjemmevaernet* (Home Guard): 60,400 (8,400 women).
NAVY: 9,900; 4,700; Home Guard: 5,200 (1,500 women).
Air: 22,400; 10,000; Home Guard: 12,400 (1,800 women).

ARMY: 17,000 (8,100 conscripts); Standing Force (8,500); ('Covering Force' in wartime) HO, schools, administration (7,250) (trg force 5,750, UN 500).

2 div HQ.
5 mech inf bdes, each with 1 tk, 2 mech, 1 arty bns, spt units.
6 regimental combat teams, each with 2-3 inf, 1 arty bns, spt units.
8 indep inf bns.
1 Army avn unit, some 8 platoons (being re-org).
(Reserves): 10 inf (5 mech, 5 mot), 4 arty bns, ATK sqns, spt units.

TKs: 120 *Leopard* 1, 88 *Centurion*; LT: 48 M-41. **APC**: 650 M-113, 68 M-106 mor-armed. **Arty**: **GUNS**: 24 155mm; **HOW**: 144 105mm, 96 155mm, 12 M-115 203mm towed, 72 M-109 155mm SP; **MOR**: 81mm, 120mm. **ATK**: **RCL**: 400 *Carl Gustav* 84mm, 252 106mm; **RL**: **LAW**: **ATGW**: **TOW**. **AD**: **GUNS**: 36 L/60 40mm; **SAM**: *Hamlet* (*Redeye*).
Avn: **AC**: 16 *Saab T-17* II; **HEL**: 12 *Hughes* 500M.
(On order: *Carl Gustav* Mk 3 84mm RCL.)

NAVY: 5,700 (1,100 conscripts).
Bases: Copenhagen, Korsør, Frederikshavn.
Subs: 4: 2 *Narwhalen*, 2 *Delfinen*.
Frigates: 10: 5 with 2 x 4 *Harpoon* SSM, *Sea Sparrow* SAM (2 *Peder Skram*, 3 *Niels Juel*); 5 *Hvidbjørnen* fishery-protection with 1 *Lynx* hel.
FAC: (g): 10 *Willemoes* with 8 *Harpoon* SSM; (t): 6 *Søløven* (2 in active reserve).
Patrol craft: 27: 22 large (8 *Daphne*, 3 *Agdlek*, 2 *Maagen*, 9 *Barso*), 5 coastal (*Bolvet*).
MCMV: 13: **MINELAYERS**: 7 (4 *Falster*, 2 *Lindormen*, 1 *Langeland*); **MINESWEEPERS**: 6 *Sund* (US Type 60) coastal.
Coast defence unit: 2 coastal fortresses; 150mm guns.
Hel: 8 *Lynx* (4 embarked).
(Reserves (Home Guard)): 37 coastal patrol craft.
(On order: 7 Standard Flox 300 multi-role patrol boats, Type 617 torpedoes, *Harpoon* SSM, *Sea Sparrow* SAM.)

AIR FORCE: 6,900 (700 conscripts).

Tactical Air Command:
FGA: 3 sqns with F-16A/B.
FGA/AD: 1 sqn with F-35X *Draken*.
FGA/recce: 1 sqn with RF-35X *Draken*.
Ftr: 1 sqn with F-104G (to replace with F-16).
Air Defence Group:
AD: 1 SAM bn: 6 batteries with *Improved HAWK* (2 more to be formed).
Air Materiel Command:
Tpt: 1 sqn, 3 comms flts with C-130H, *Gulfstream* III, *Saab T-17*.
SAR: 1 sqn with S-61A hel.
Trg: 1 flying school with T-17.
Equipment: 102 combat ac.
F-16A/B: 55 (48 FGA, 7 reserve).
F-35: 32: 16 F-35XD (FGA/AD); 16 RF-35XD (recce).
F-104G: 15 (ftr).
C-130: 3 (tpt), *Gulfstream* III: 3 (tpt), *Saab T-17*: 22 (7 tpt, 15 trg).
Hel:
S-61: 8 (SAR).
Msls:
AAM: *Sidewinder*.
SAM: 36 *Improved HAWK*.
(On order: 12 F-16A/B; AIM-9L *Sidewinder* AAM.)

Forces Abroad:
Cyprus (UNFICYP): 1 bn: 341. Other: 159.

FRANCE

GDP 1983: F fr 3,934.9 bn (\$516.303 bn). 1984: 4,302.0 bn (\$492.270 bn).
GDP growth 1983: 1.0%. 1984: 1.3%.
Inflation 1983: 7.7%. 1984: 5.7%.
Debt 1983: \$102 bn. 1984: \$94 bn.
Def exp 1984: F fr 142,962 bn (\$16.359 bn); NATO defn \$20,113 bn. **Budget** 1985: 150.20 bn (\$15.859 bn).
\$1 = francs 7.6213 (1983), 8.7391 (1984), 9.4707 (1985).

Population: 55,170,000.
Men: 18-30: 5,575,000; 31-45: 5,920,000.
Women: 18-30: 5,400,000; 31-45: 5,640,000.

TOTAL ARMED FORCES:

Regular: 476,560 (13,135 women, 245,560 conscripts).
To be reduced by 37,500 by 1988.
Terms of service: 12 months plus post-conscription voluntary system of 16-24 months.
Reserves: 393,000; **Army** 305,000, **Navy** 30,000, **Air** 58,000.

STRATEGIC NUCLEAR FORCES: (18,700; some 2,800 **Army**, 4,900 **Navy**, 10,200 **Air Force**, 800 *Gendarmerie*), **SLBM**: 5 **SSBN**:

1 with 16 M-4, 4 with 16 M-20 **mssls** (2 on long refit),
1 experimental/trials sse with 2 **SLBM** tubes.
IRBM: 18 **SSBS** S-3 **mssls** in 2 sqns.

Aircraft:
Bbr: 2 wings: 4 sqns with 21 *Mirage* IVA (AN-22 nuclear bombs), 1 *Mirage* IVP (ASMP nuclear ASM); (10 more *Mirage* IVA being converted; total 18 by end-1986).
Trg: 12 *Mirage* IIIB, 4 *Noratlant* N-2501/SNB.
Tankers: 1 wing: 3 sqns with 11 KC-135F.
(Reserve): 6 *Mirage* IVA recce.
(On order: 1 **SSBN** (1994), 16 M-4 **SLBM**, ASMP nuclear ASM, 4 *Transall Astarte* ac.)

ARMY: 300,000 incl **Army Aviation**, 6,250 women (189,000 conscripts).

1 **army HQ**, 3 **corps HQ**.
6 **armd divs**,
2 **lt armd divs**,
2 **motor rifle (APC) divs**,
Army corps regts: 3 recce, 2 drone, 2 arty, 5 **SSM** with *Pluton*, 8 **SAM** (3 (11 blys) with 66 *HAWK*, 5 (each of 4 blys) with 56 *Roland* I/II and twin 30mm AA guns), 3 **combat hel**, 5 **engr**, 6 **sig**, 4 **tpt**, 3 **log bdes**.

Rapid Action Force (RAF):
1 para div (13,500): 6 para inf, 1 lt armd, 1 arty, 1 engr, 1 comd spt regts, 1 spt bn.
1 air portable marine div (8,500): 4 inf, 1 lt armd, 1 arty, 1 AA, 1 engr, 1 comd/spt regts.
1 lt armd div (7,400): 2 lt armd, 2 APC inf, 1 arty, 1 engr, 1 comd/spt regts.
1 alpine div (9,100): 6 mountain inf regts, 1 lt armd, 1 arty, 1 comd/spt regts; 1 engr bn.
1 air mobile div (5,100): 1 inf, 3 **combat hel**, 1 comd/spt regts (incl 1 tpt hel bn).
1 **sig** regt.

Foreign Legion (8,500): 1 **armd**, 1 para, 4 inf (trg), 2 engr regts.
1 **log bde** (spt units incl 1 tpt regt).
Indep regts: 1 **ew**, 2 para, 4 **engr**, 5 **tpt**.
(Reserves): 8 inf divs, 1 **formed** from military schools; 6 'Home' bdes: 23 territorial defence regts.

ARMY AVIATION (ALAT): (7,000); 177 combat hel.

Combat hel regts: 6. 7 lt gps, 2 schools.
6 sqns: 3 attack with *Gazelle* (AS-11/*HOT*), 2 lt with *Gazelle*, 1 manoeuvre with *Puma*,
1 utility bn; 5 sqns with *Alouette*: 1 with *Gazelle*,
1,260 AMX-30 (169-B2); LT: 342 AMX-13.
AFV: **RECCE:** 194 AMX-10RC, 48 ERC-90F4 *Sagaie*, 600
AML-60/90; **MICV:** 780 AMX-10P/PC/*Milan*; **APC:** 1,100
AMX-13 VTT, 1,900 VAB, 24 VAB (*HOT*).
Arty: 699: **GUNS:** 76 AU-F-1 155mm sp; **HOW:** 165 HM-2,
208 BF-50, 6 TR-F-1 155mm towed, 30 AU-50 105mm;
214 F-3 SP 155mm; **SSM:** 44 *Pluton*; **MOR:** 596 120mm.
ATK: **RL:** 12,000 89mm, *Apilas* 112mm; **ATGW:** 158
AMX-13/SS-11, 1,400 *Milan*.
AD: **GUNS:** 817: 100 76T1, 270 53T2 20mm, 390 30mm and
40mm towed, 57 AMX-30 DCA twin 30mm SP; **SAM:**
225: 69 *HAWK*, 138 *Roland* I/II, 18 *Mistral*.
AVN: **HEL:** 187 *Alouette* II, 68 III (AS-11 *Atgw*); 130 SA-330
Puma, 162 SA-341F and 109 SA-342M *Gazelle* hel with
HOT; **AC:** 17 *Broussard*, 14 L-19 lt; 4 CL-89 drones.
(On order: 800 AMX-30B2 MBT; 600 Panhard M-11 VBL,
90 AMX-10RC, 130 ERC-90F4 armd cars; AMX-10P
MICV; 294 VAB APC; 200 AU-F-1 155mm SP guns; 175
TR-F-1 155mm how; 3 227mm MLRS; 23 120mm mor;
12,500 *Apilas* RL; 907 *HOT* (VAB and *Gazelle*) ATGW; 407
20mm AA guns; 50 *Roland*, 297 *Mistral* SAM; 15
SA-341L, 45 SA-342M (*HOT*) hel.)

NAVY: 67,710 incl Naval Air, (1,185 women; 17,970 conscripts); 47 major surface combat vessels, 2 home (CECLANT, CECMED), 2 overseas comds, Bases: Cherbourg, Brest, Lorient, Toulon.

Subs (attack): 18: **SSN:** 2 *Rubis*; **SS:** 16 (4 *Agosta*, 9 *Daphne*, 3 *Narval*).

Carriers: 3: 2 *Clemenceau*, 1 *Jeanne d'Arc*.
2 attack: 39 ac (3 flts with 20 *Super Etendard*, 1 with 7 F-8E, 1 with 6 *Alizé*, 1 det with 4 *Etendard* IVP, 4 hel).
1 ASW (LPH) (capacity 8 *Lynx* hel) with 6 *Exocet* SSM (trg).

Cruiser: 1 command with 4 *Exocet* SSM, 1 × 2 *Masurca* SAM.

Destroyers: 19:
ASW: 15: 4 *Leygues* with 4 *Exocet*, 1 × 8 *Crotale* SAM, 2 *Lynx* hel; 3 *Tourville* with 6 *Exocet*, 1 × 8 *Crotale*, 1 *Malafon*, 2 *Lynx*; 1 T-56 with 1 *Malafon*, 1 hel; 1 T-53 with 4 *Exocet*, 1 *Lynx*; 5 T-47 with 1 *Malafon*; 1 C-65 with 4 *Exocet*, 1 *Malafon*.
AA: 4: 2 *Suffren* with 4 *Exocet*, 1 *Malafon* ASW/SSM, 1 × 2 *Masurca* SAM, 2 T-47 with 1 *Tartar* SAM.

Frigates: 25: 8 *Rivière* (4 with *Exocet*); 17 Type A-69 (4 with 2 *Exocet*, 5 with 4, 1 more in 1985).

FAC(G): 7: 4 *Patra* with 6 × SS-12; 3 P-400 with 2 *Exocet* MM-38 SSM (3 more in 1985).

Patrol craft: 3 large: 1 *Mercurie*, 1 *Sterne*, 1 P-681 *Albatros*.

MCMV: **OCEAN:** 13: 5 *Cantho*, 3 *Eridan*, 5 *Circe*; **COASTAL:** 10: 5 *Berlaimont*, 5 Type D.

Amph: **ASSAULT SHIPS:** 6: 2 *Ouragan* (4 *Super Frelon* or 6 *Gazelle/Alouette* hel, 9 LCM or 2 LCT), 4 *Batral*; **LST:** 4; **LCT:** 9; **LCM:** 6.

Tankers: 6 ocean, 6 maintenance/log/supply.

MIs: **SSM:** *Exocet* MM-38, MM-40 (SM-39 sub-launched being introduced); **ASW:** *Malafon*; **SAM:** *Crotale*, *Masurca*, *Tartar*.

NAVAL AIR FORCE: (12,300).

Strike: 3 sqns with *Super Etendard* (AN-52 nuclear weapons; 20 to be mod for ASMP).

Ftr: 1 sqn with F-8E (FN) *Crusader*.

ASW: 2 sqns with *Alizé* (mod).

MR: 6 sqns with *Atlantic*, *Gardian*.

Recce: 1 sqn with *Etendard* IVP.

OCU: *Etendard* IVM; *Fouga Zephir*; *Alizé*.

Trg: 5 units with Nord 262 *Frégate*, *Navajo*, EMB-121 *Xingu*, *Rallye*-100S, CAP-10.

Misc: comms/liaison/SAR units (1 VIP) with *Navajo*, Nord 262, Nord N-2504, *Xingu*, *Alizé*, *Rallye*-880, *Gardian*, MS-760 *Paris*, *Mystère-Falcon* 10MER.

ASW hel: 3 sqns with *Lynx*.

Cdo hel: 2 assault sqns with *Super Frelon*.

Trg hel: *Alouette*.

Misc hel: comms/liaison/SAR units with *Alouette* II/III, *Lynx*, *Super Frelon*.

Equipment: 104 combat ac, 23 combat hel.

Super Etendard: 36 (strike).

Etendard: 20: 8 IVP (recce); 12 IVM (trg).

F-8E *Crusader*: 12 (ftr).

Alizé: 23 (16 ASW, 5 trg, 2 misc).

Atlantic: 27 (MR).

Gardian: 5 (MR).

Zephir: 12 (trg), Nord 262: 22 (12 trg, 10 misc), *Navajo*: 10 (2 trg, 8 misc), *Xingu*: 13 (9 trg, 4 misc), *Rallye*: 16 (13 -100S trg, 3 -800 misc), CAP-10: 6 (trg), MS-760: 6 (misc), *Mystère-Falcon* 10MER: 5 (misc), Nord N-2504: 1 (misc).

Hel:

Lynx: 26 (23 ASW, 3 misc).

Super Frelon: 15 (12 cdo, 3 misc), *Alouette*: 38 (10 trg, 28 misc).

MIs:

ASM: *Exocet* AM-39, AS-12I-30, *Martel* AS-37.

AAM: R-530, *Sidewinder*, R-550 *Magic*.

COMMANDOS: (590): 4 assault units (1 reserve), 1 sub spt unit.

NAVAL BASE DEFENCE FORCE: (2,400).

(On order: 4 SSN; 7 C-70 (*Cassaret*) destroyers (3 ASW, 4 AA), 7 A-69 frigates, 8 P-400 FAC(G) (delivery by end-1986), 7 minehunters; 1 TCD-90 LSD, 2 LCT; 1 ocean tanker, 33 *Exocet* SM-39 sub-launched SSM; 14 *Crotale* 8B SAM; 36 *Atlantic* II ASW ac.)

DEPLOYMENT:

Atlantic Fleet: 5 SSN, 9 other subs, 1 hel carrier, 20 escorts, 11 MCM, 8 amph.

Channel Flotilla: 3 frigates, 7 MCM.

Mediterranean Fleet: 2 SSN, 9 subs, 2 carriers, 14 escorts, 5 MCM, 5 amph.

See also Forces Abroad below.

PUBLIC SERVICE FORCE (MHPSP): Naval personnel, general coastguard duties; 1 *Sterne*, 1 *Mercurie* patrol craft, 1 ex-trawler, 1 *Albatros* fishery protection vessel, 3 ac.

AIR FORCE: 96,550 (5,700 women, 36,450 conscripts). Air Defence Command (CAFDA): 7,600.

Ftr: 11 sqns: 1 with *Mirage* III C (1 in Djibouti); 8 with *Mirage* F-1C; 2 with *Mirage* 2000C/B.

Trg: 1 ocu with *Mirage* F-1B; 4 trg flts with CM-170 *Magister*, *Broussard*.

AD system: automatic *STRIDA* II, 10 radar stations.

SAM: 12 sqns (1 trg) with 24 *Crotale* btys (48 fire, 24 radar units).

AA: 240 btys (20mm guns).

AAM: R-530, *Super* 530F, R-550 *Magic* III, *Sidewinder*. Tactical Air Force (FATAC): (19,500).

Strike: 5 sqns: 3 with *Jaguar*; 2 with *Mirage* III E (AN-52 nuclear bombs).

FGA: 10 sqns: 3 with *Mirage* III E; 2 with *Mirage* 5F; 5 with *Jaguar* A.

Recce: 3 sqns: 2 with *Mirage* III R/IIIRD (F-1 replacing); 1 with *Mirage* F-1CR.

Trg: 2 ocu: 1 with *Mirage* III B/E; 1 with *Jaguar* A/E, 8 trg flts with *Magister*, *Broussard*.

AAM: *Sidewinder*, R-550 *Magic*, R-530.

ASM: AS-30I-30L, *Martel* AS-37.

(Attached to COTAM):

AEW: 2 sqns: 1 with *Noratlant*; 1 with DC-8 (EE-51) ELINT.

Liaison: 3 sqns with *Magister*, *Broussard*.
Hel: 1 sqn with *Alouette* II/III.

Air Transport Command (COTAM): (4,200).

Tpt: 21 sqns: 1 hy with DC-8F; 5 tac with Transall C-160/160NG, 1 with *Noratlant*; 14 lt tpt/trg/SAR with *Frégate*, *Mystère-Falcon* 50, *Paris*, *Broussard*, DHC-6 *Twin Otter*, *Caravelle*, *Xingu*.

Trg: 1 ocu with *Noratlant*, Transall C-160.

Hel: 5 sqns with *Alouette* II/III, *Puma*, *Dauphin*, *Ecureuil*.

Trg hel: 1 ocu with *Alouette* II/III, *Puma*, *Ecureuil*.
Training Command (CEAA): (6,300).

Trg: *AlphaJet*, *Magister*, *Noratlant*, *Xingu* 1, *Epsilon*, CAP-10B/20.

Misc (trials units): 1 sqn with *Mirage* F-1, *Mirage* 2000, *Jaguar*; 1 sqn with DHC-6, *Frégate*.

Equipment: 475 combat ac.

Mirage: 342: 14 F-1B (trg); 120 F-1C (ftr); 15 F-1CR (recce); 10 IIIC (ftr); 90 III E (30 strike, 45 FGA, 15 ftr); 19 IIIR (recce); 11 IIIRD (recce); 30-5F (FGA); 30-2000 (ftr); (also 1 F-1, 2-2000 in trials sqn).

Jaguar: 135+ (45 strike, 75 FGA, 15 trg + trials sqn ac).

AlphaJet: 113 (trg).

DC-8: 6 (5 tpt, 1 EE-51 AEW), Transall C-160: 69 (42 tac tpt, 7 ocu, 20-NG tac tpt), *Noratlant*: 24 (10 tac tpt, 5 AEW, 3 ocu, 6 trg), Nord 262: 20 (19 misc, 1 trials), *Mystère-Falcon*: 15: 14 -20 (misc), 1 -50 (misc), MS-760: 39 (misc), *Broussard*: 23 (trg, misc), DHC-6: 10 (9 misc, 1 trials), *Caravelle*: 4 (misc), *Xingu*: 22 (16 trg, 6 misc), *Magister*: 155+ (trg), *Epsilon*: 45 (trg), CAP-10B/20: 57 (trg).

Hel:

Alouette: 72 (9 II ocu, 55 II/III lt tpt, 8 III ocu).

Puma: 27 (24 tpt, 3 ocu).

Dauphin: 15 (tpt).

(On order: some 32 *Mirage* 2000C/B, 47 -2000N, 30 F-1CR ftrs; 107 *Epsilon* trg ac; 18 AS-355 *Ecureuil*-2 hel, 40 20mm AA guns.)

INTER-SERVICE CENTRAL STAFF: 3,588.

SERVICE DE SANTÉ: 8,712 (2,140 conscripts).

Forces Abroad:

Europe: *Germany*: 48,500; 3 armd divs (400 MBT; to be increased), Berlin: 2,700; 1 armd regt, 1 inf regt.

Overseas Dependencies: 18,800; Army 11,500, Navy 3,700, Air 1,200, *Gendarmerie* 2,400.

Four inter-service overseas commands:
Antilles-Guyana (7,500; 1 marine inf regt, 1 marine inf

bn, 2 ships, 1 *Atlantic* MR ac).
South Indian Ocean (Mayotte, La Reunion) (2,200; 1 marine inf regt, 2 inf coys, 1 air tpt unit).
New Caledonia (2,400; 1 marine inf regt, 1 inf coy, C-160 tpt ac, *Puma* hel).
Polynesia (5,300, incl ALPACI; 1 marine regt).
Two naval commands:

Indian Ocean (ALINDIEN): 1,400, 5 frigates, 3 minor combatants, 1 amph, 3 spt ships.

Pacific (ALPACI): 3 frigates, 5 minor combatants, 7 amph, 12 spt ships, 5 *Gardian* MR ac.

Other Overseas: some 9,220 from all services (numbers vary according to local circumstances). Eqpt incl 120 AFV, spt vessels, 25 combat and 25 tpt ac, 43 hel.

Central African Republic (CAR) (1,650). 1 armd car sqn and 1 tp (AML), 3 inf coys, 1 arty bty (105mm), 1 ALAT det (3 L-19 ac; 3 attack, 6 med tpt hel); air elms with *Jaguar*, L-19 observation, C-160 tpt ac; SA-330 *Puma*, *Gazelle* (*HOT*) hel, Garrison: 1 bn gp incl 2 motor coys; 1 platoon AML armd cars (6); spt coy with L-19 lt ac, 120mm mor, *Milan* ATGW.

Djibouti (3,800). 2 regts: 2 lt tk (AMX-13/AMX-SS-11), 1 mixed armd sqns; 2 motor inf coys; 1 arty bty (105mm); 1 AA arty bty; 1 Pioneer coy; 1 ALAT det (5 attack, 5 med tpt hel); 1 sqn with 10 *Mirage* III C, 1 C-160 tpt ac, 3 *Alouette* II hel; naval elms incl 1 *Atlantic* MR ac.

Gabon (600). 1 marine inf bn; *Jaguar*, 1 C-160, *Atlantic* ac, 1 *Alouette* III hel.

Ivory Coast (500). 1 marine inf bn, 1 *Alouette* III hel, Senagal (1,250). 1 marine inf regt, 2 *Jaguar* FGA, 1 *Atlantic* MR, 1 C-160 tpt ac, 2 *Alouette* III hel.

Middle East, Lebanon (UNIFIL) (1,380). 1 inf bn, log bn, Sinai MFO (40): incl 2 *Twin Otter*, 1 C-160 tpt ac.

PARA-MILITARY:

Gendarmerie 89,505 (incl 1,068 women, 8,961 conscripts, 975 civilians); 3,675 territorial squads, 130 intervention units; 93 general traffic units, 25 highway sqns, 3 platoons, 25 squads; 130 mobile sqns; 240 overseas units. 121 AML, 28 VBC-90 armd cars; 37 AMX-13, 33 AMX-VTT, 155 VBRG-170 APC; 288 81mm mor; 66 patrol boats; 6 Cessna 206C ac; 23 *Alouette* II, 8 AS-350B *Ecureuil*, 12 *Alouette* III hel.

GERMANY: FEDERAL REPUBLIC

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GDP 1983: DM 1,669.6 bn (\$653.899 bn), 1984: 1,745 bn (\$613.163 bn).

GDP growth 1983: 1.3%. 1984: 2.6%.

Inflation 1983: 3.0%. 1984: 2.4%.

Debt 1983: \$115 bn, 1984: \$109 bn.

Def budget 1984: DM 47,752 bn (\$16,779 bn); NATO defn \$20.430 bn, 1985: 49,014 bn (\$15,740 bn); NATO defn \$19.184 bn.

\$1 = 2.5533 (1983), 2.8459 (1984), 3.1139 (1985).

Population: 61,200,000.

Men: 18-30: 6,534,000; 31-45: 6,490,000.

Women: 18-30: 6,180,000; 31-45: 6,160,000.

TOTAL ARMED FORCES:

Regular: 478,000 (228,400 conscripts).
Terms of service: 15 months (to be 18 months from 1989).

Reserves: 770,000 (men to age 45, officers/NCOs to 60); Army 645,000, Navy 22,000, Air 95,000, Others 5,000.

ARMY: 335,600 (180,300 conscripts).
HQ Support Elements: 25,400; General Army (10 tactical subordinate echelon and spt tps).

Field Army: 266,000.

3 corps: 12 divs (6 armd, 4 armd inf, 1 mountain, 1 AB); 36 bdes: 17 armd (each with 3 tk, 1 armd inf, 1 armd arty bns), 15 armd inf (each with 1 lk, 3 armd inf, 1 armd arty bns), 1 mountain, 3 AB.

Total: 66 tk, 62 armd inf, 4 mountain, 12 para, 32 armd arty, 1 mountain arty bns.

11 armd recce bns.

Corps arty: 6 bns (each 18 203mm sp how), 4 ssm bns with *Lance*.

Div arty: 11 regts (each 3 btys: 18 FH-70, 6 203mm, 16 MRL).

3 AD regts, 1 AD bn with *Roland* II SAM.

11 AA regts with *Gepard* 35mm SP guns.

3 army aviation comds, each with 1 lt, 1 med tpt hel regt; 1 indep ATGW hel regt.

1 mixed aviation regt.

Engr units.

Territorial Army: 44,200.

3 Territorial Commands, 5 Military District Commands, 29 Military Region Commands, 80 Sub-region Commands (county/town level): 12 Home Defence bdes (each with 2 tk, 2 lt inf, 1 arty bns): 1 at 85%, 3 at 65%, 2 at 52% manning levels, 6 eqpt holding units only in peacetime.

4 Territorial Service spt comds.

Security tps: 15 Home Defence Regts (with 45 mot inf bns only), 150 coys, 291 security platoons; defensive, comms, military police and service units on mobilization.

Tks: 4,662; 295 M-48A2/A2C, 650 M-48A2G (Territorial bns), 2,437 Leopard 1A1, 1,280 Leopard 2.

AFV: micv: 408 SPz-2 *Luchs*, 2,136 *Marder*; **APC:** 797 TPz-1, 2,560 M-113.

Arty: **how:** 1,293; 257 105mm, 216 FH-70, 594 M-109 155mm, 226 M-110A2 203mm SP; **MRL:** 209 LARS 110mm; 2 MLRS 227mm; **mor:** 987 120mm (535 SP (M-113)); **SSM:** 26 *Lance*.

ATK: **guns:** 284 JPz-4-5 90mm SP; **RCL:** 105 106mm; **atgw:** 1,975 *Milan* systems, 346 *TOW* systems, 316 RJPz-(HOT) *Jaguar* 1, 162 RJPz-(TOW) SP; (PAH-1 hel with HOT).

AD: **guns:** 2,389; 1,712 20mm towed, 426 *Gepard* 35mm SP, 251 L-70 40mm; **SAM:** 723 *Redeye*, 143 *Marder* *Roland* SP.

Avn: **HEL:** 187 UH-1D, 148 *Alouette III*, 211 PAH-1 (BO-105P with HOT), 96 BO-105M, 105 CH-53G. (On order: 520 *Leopard 2* MBT; 312 *Wiesel* AB recce/micv; 193 TPz-1 APC (79 in 1985); 198 227mm MLRS MRL; 81 (40 in 1985) RJPz-(TOW) *Jaguar* 2 atgw veh (rebuilt JPz-4-5).)

NAVY: 36,200, incl naval air (10,000 conscripts).⁸

Bases: Borkum, Cuxhaven, Eckernförde, Emden, Flensburg, Kiel, Olpenitz, Wilhelmshaven.

Subs: 24; 18 *Type 206*, 6 *Type 205*.

Destroyers: 7; 3 *Lütjens* (1 *Type 103A* with 1 *Tartar* SAM, 8 ASROC; 2 103B with 2 x 4 *Harpoon* SSM, 2 RAM-ASMD SAM); 4 *Hamburg* (*Type 101A*) with 2 x 2 *Exocet* MM-38 SSM.

Frigates: 9; 6 *Bremen* (*Type 122*) with 2 x 4 *Harpoon*, 1 x 8 *Sea Sparrow*, RAM-ASMD, 2 *Lynx* hel; 3 *Köln* (*Type 120*).

Corvettes: 6; 5 *Thetis* (*Type 420*); 1 *Bärker* utility trials.

FAC(G): 40 with 4 *Exocet* MM-38 SSM; 10 *Type 143*, 10 *Type 143A*, 20 *Type 148*.

MCMV: 57; 18 *Lindau* (12 *Type 331* (2 A, 10 B) coastal minehunters (MC), 6 *Type 351 Troika* drone control minesweepers (MSCD), 18 F-1 drone vessels (MCD)); 8 *Type-393/393B* inshore, 21 *Schütze* (7 *Type-340*, 14 *Type-341*), 10 *Type-394/394A* coastal minesweepers.

Misc: 10 *Rhein* depot, 4 *Lüneburg* (*Type 701A*), 4 *Coburg* (*Type 701C*) spt ships, 4 tpts, 9 tankers, 3 *Type-422A/B* AGI.

Amph: LCU: 22 *Type-520*; LCM: 28 *Type-521*. (On order: 20 *Type-323*, 10 *Type-343* MCMV, 2 *Type-423* AGI, 110 SM-1 *Standard*, 126 RIM-7M *Sea Sparrow* SAM.)

NAVAL AIR ARM:
FGA: 3 sqns: 2 with *Tornado*; 1 with F/TF-104G (to convert 1986).

Rece: 1 sqn with RF-104G.

MR/ELINT: 2 sqns with *Atlantic*.

Liaison: 1 sqn with Do-28-2 *Skyservant*.

ASW hel: 1 sqn with *Sea Lynx* Mk 88.

SAR hel: 1 sqn with *Sea King* Mk 41.

Equipment: 122 combat ac, 12 combat hel.

F-104: 56; 29 F/TF-104G (FGA); 27 RF-104G (rece).

Tornado: 47 (FGA).

Atlantic: 19 (14 MR, 5 ELINT).

Do-28: 19 (liaison).

Hel:
Sea Lynx: 12 (ASW).

Sea King: 22 (SAR).

MsIs:
ASM: AS-30, *Mormoran*.

(On order: 63 *Tornado*, 3 *Sea Lynx* (1986)).

AIR FORCE: 106,000 (38,100 conscripts).⁸

Tactical Command (GAFTAC).

4 divs: 2 tac, 2 ad.

FGA: 20 sqns: 3 with F-104G; 4 with F-4F; 6 with *Tornado*; 7 with *AlphaJet*.

Ftr: 4 sqns with F-4F.

Rece: 4 sqns with RF-4E.

ECM: 1 trg sqn with HFB-320 *Hansa Jet*.

SSM: 8 sqns with *Pershing 1A*.

SAM: 3 regts (each 2 bns of 4 btys) with *Nike Hercules*; 3 regts (each 3 bns of 4 btys) with *Improved HAWK*.

Radar: 4 aircraft control and warning regts; 9 sites; 1 US Control Report Centre (CRC) and 3 remote radars.

AAM: *Sidewinder*.

Transport Command (GAFTC).

Tpt: 4 sqns with Transall C-160.

Special operations: 1 special air mission wing with Boeing 707-320C, C-140 *Jetstar*, *Hansa Jet*, VFW-614, Do-28 ac, UH-1D hel.

Hel: 5 sqns with UH-1D (liaison).

Training Command:

FGA: 1 det (Cottesmore, UK) with *Tornado*.

Ftr: ocu (George AFB, US) with F-4E.

Trg: NATO joint pilot trg (Sheppard AFB, US) with T-37B, T-38A; primary trg unit with P-149D.

Liaison: liaison, range and base flts with Do-28D.

Equipment: 586 combat ac.

F-104G: 90 (FGA).

F-4: 186; 120-F (60 FGA, 60 ftr); 8-E (OCU); 58 RF-4E (rece).

Tornado: 137 (75 FGA, 22 OCU, 20 in tri-national trg sqn, 20 reserve).

AlphaJet: 173 (126 FGA, 47 reserve).

Transall C-160: 75 (tpt).

Boeing 707: 4 (special), *Jetstar*: 3 (special), *Hansa Jet*: 13 (6 special, 7 ECM trg), VFW-614: 3 (special), Do-28: 71 (6 special, 65 liaison), T-37B: 35 (trg), T-38A: 41 (trg), P-149D: 34 (trg).

Hel:
UH-1D: 96 (92 liaison, 4 special).

MsIs:
SSM: 72 *Pershing 1A*.

SAM launchers: 216 *Nike Hercules*, 216 *HAWK*.

(On order: 58 *Tornado* FGA, 7 CL-601 *Challenger* tpt ac; AIM-9L *Shorad* (Sidewinder), 14 *Patriot* (779 msls), 95 *Roland* SAM, AGM-65 *Maverick* ASM, 866 AGM-86A *HARM* msls.)

PARA-MILITARY:
Border Police (Ministry of Interior): 20,000; FV-601(D) (*Saladin*) armd cars, MOWAG SW-1/-2 APC; 2 P-149D, 1 Do-27A-3 ac, BO-105M, 32 *Alouette II*, 13 UH-1D, 10 Bell 212, 22 *Puma* hel.

GREECE

GDP 1983: dr 3,040.7 bn (\$34,530 bn). Est 1984: 3,708.5 bn (\$32.90 bn).

GDP growth 1983: -0.3%, 1984: 2.3%.

Inflation 1983: 20.2%, 1984: 18.5%.

Debt 1983: \$11.5 bn. 1984: \$14.0 bn.

Est def exp 1984: dr 247,722 bn (\$2,198 bn); NATO defn \$2,204 bn. 1985: 281,713 bn (\$2,053 bn); NATO defn n.a.

FMA 1983: \$310.0 m. 1984: \$530.0 m.

\$1 = drachmas 88.054 (1983), 112.72 (1984), 137.23 (1985).

Population: 10,300,000.

Men: 18-30: 954,000; 31-45: 898,000.

Women: 18-30: 904,000; 31-45: 944,000.

TOTAL ARMED FORCES:
Regular: 201,500 (132,000 conscripts, 1,800 women).

Terms of service: Army 22, Navy 26, Air Force 24 months.

Reserves: some 404,000 (to age 50). Army some 350,000 (Field Army 227,000; Territorial Army 23,000; National Guard 100,000 (incl 5,000 reservists on 4-week trg)); Navy about 24,000, Air about 30,000.

ARMY: 158,000 (105,000 conscripts incl 1,400 women).

Field Army:
3 Military Regions, 4 corps, 1 special comd no.

1 armd div (1 armd bde, 1 arty bn).

1 mech div.

11 inf divs.

1 para-cdo div (1 para, 1 cdo, 1 marine bdes, 3 cdo bns).

5 armd bdes.

2 mech bdes.

4 armd rece bns.

12 id arty bns.

8 AA arty bns.

2 ssm bns with 8 *Honest John*.

2 SAM bns with *Improved HAWK*.

3 army aviation bns.

1 indep aviation coy.

Tks: 320 M-47, 900 M-48 (incl 250 -A3, 265 -A5), 285 AMX-30, 106 *Leopard 1A3*; LT: 190 M-24.

AFV: **Rece:** 180 M-8, 60 M-20 armd cars; micv: 240 AMX-10P; **APC:** 160 *Leonidas*, 220 M-3 half-track, 430 M-59, 1,000 M-113.

Arty: 1,124 **guns:** 36 M-59 155mm, 36 M-107 175mm SP; **how:** 108 M-56 pack, 216 M-101, 108 M-102, 72 M-52 SP, 54 M-108 SP 105mm, 54 M-44 SP, 240 M-114, 108 M-109 SP 155mm, 72 M-115, 20 M-110 SP 203mm; **mor:** M-1, EBO, M-125A1 SP 81mm, M-2, M-30, M-106A1 SP 107mm, M-120RT-61 120mm; **SSM:** 8 *Honest John*.

ATK: **rcl:** M-18 57mm, 75mm, some 350 EM-67 90mm, 700 106mm; **atgw:** 82 M-113A2 SP *TOW*, 14 M-901 *Improved TOW*, SS-11, *Cobra*, *TOW*, *Milan*.

AD: **guns:** RH-202 twin 20mm, 40mm, incl M-42 twin SP, M-51 75mm, M-117/118 90mm; **SAM:** 36 MIM-23B *Improved HAWK* (216 msls), 37 M-48 *Chaparral*, *Redeye*.

Avn: ac: 2 *Super King Air*, 2 *Aero Commander*, 1 DHC-2 *Beaver*, 50 U-17A; **HEL:** 8 AH-1 with *TOW*, 10 CH-47C, 5 Bell 47G, 22 UH-1D, 50 AB-204B/-205, 10 AB-206A.

(On order: 36 M-901 *Improved TOW* SP atgw (108 msls); 58 M-198 155mm how; *Artemis* 30 twin 30mm AA guns; 20 AH-1S attack hel (160 *TOW*), 20 NH-300C trg hel.)

Territorial Army: 23,000 (incl 10,000 conscripts, 5,000 reservists on refresher trg).

3 Territorial, 17 Sub-Commands.

12 indep inf bdes.

4 armd bns.

National Guard: 100,000.

100 bns (mainly coastal defence).

Tks: 30 M-47, 106 M-26; LT: 80 M-41A3. **AFV:** **Rece:** 60 M-20; **APC:** 100 M-2, 160 M-3. **Arty:** **gun/how:** 468 25-pdr (88mm); **how:** 108 M-116 75mm pack; **mor:** 60mm, 81mm. **ATK:** **rcl:** M-18 57mm, 200 M-20 75mm, 106mm. **AD:** **guns:** M-1 40mm.

NAVY: 19,500 (12,000 conscripts incl 200 women); 23 combat hel.

Bases: Salamis, Patras, Mitilini, Thessaloniki, Suda Bay.

Subs: 10: 4 *Giavkos*, 4 *Poseidon* (Types 1100 and 1200), 2 US *Guppy* (trg).

Destroyers: 14; 7 *Gearing* (6 with 1 x 8 ASROC, 1 with 1 *Alouette III* hel), 1 *Sumner* (facilities for 1 *Alouette* hel), 6 *Fletcher*.

Frigates: 7; 2 *Kortenaer* (8 *Harpoon* SSM, *Sea Sparrow* SAM, 2 AB-212 hel), 4 US *Cannon*, 1 FRG *Rhein*.

FAC: (g): 16; 14 *La Combattante III/III* (8 with 4 *Exocet*, 6 with 6 *Penguin* SSM), 2 L'*Esterel* with 4 SS-12; (r): 15; 5 *Ger Zobel*, 5 *Jaguar*, 5 *Nasty*.

Patrol craft: 9 coastal.

MCMV: 17 coastal (2 LSM-1, 10 MSC-294, 5 US *Adjutant*).

Amph: LST: 1, LST: 7, LSM: 5, LCT: 2, LCU: 6.

ASW: 1 hel div (3 sqns: 2 with 18 AB-212, 1 with 5 *Alouette III*).

(On order: 2 *Poseidon* (Type 1200) SS, 2 *Phalanx* 20mm AD, *Artemis* 30 twin 30mm gun systems.)

AIR FORCE: 24,000 (16,500 conscripts incl 200 women).

Tactical Air Force: 7 combat wings: 1 tpt wing.

FGA: 8 sqns: 3 with A-7H; 3 with F-104G; 2 with F-5A.

Ftr: 6 sqns: 3 with F-4E; 1 with F-5A/B; 2 with *Mirage* F-1CG.

Rece: 2 sqns: 1 with RF-84F, RF-4E; 1 with RF-5A.

MR: 1 sqn with HU-16B *Albatross*.

Tpt: 3 sqns with C-130H, YS-11, C-47, Do-28 *Skyservant*, *Gulfstream*.

Liaison: T-33A.

Tpt hel: 3 sqns with AB-205A, AB-206A, Bell 47G, UH-1D, AB-212, CH-47C.

SAM: 1 wing: 1 gp with *Nike Ajax*.

Air Training Command:

Trg: 4 sqns: 1 with T-41A; 1 with T-37B/C; 2 with T-2E/ F-104G.

Equipment: 314 combat ac.

A-7H: 53; 48 (FGA); 5 TA-7H (FGA).

F-104: 74; 72 F/TF-104G (FGA); 2 RF-104 (rece).

F-5: 72; 54-A (36 FGA, 18 ftr); 8-B (6 FGA, 2 ftr); 10 RF-5A (rece).

F-4E: 54 (47 ftr; 7 RF-4E rece).

Mirage F-1CG: 33 (ftr).

RF-84F: 16 (rece).

HU-16B: 12 (MR).

C-130H: 12 (tpt), YS-11-200: 6 (tpt), C-47: 9 (tpt), *Noratlus*: 20 (tpt), *Gulfstream* I: 1 (vip tpt), T-33A: 59 (liaison).

T-41: 20 (trg), T-37: 25 (trg), T-2: 36 (trg).

Hel:
AB-205A: 12 (tpt), AB-206A: 3 (tpt), Bell 47G: 5 (tpt), AB-212: 4 (tpt), CH-47C: 7 (tpt).

MsIs:
AAM: *Sparrow*, *Sidewinder*, *Falcon*.

ASM: *Maverick*, *Bullpup*.

SAM: 36 *Nike Ajax*.

(On order: 40 F-16G (F-16A), 40 *Mirage* 2000 ac; AIM-7 *Sparrow* AAM; *Artemis* 2 x 30mm AA guns.)

Forces Abroad: Cyprus: 1,750; 1 inf bn (950), cdos (350); officers/ncos seconded to Greek-Cypriot forces (450).

PARA-MILITARY: Gendarmerie: 25,000; MOWAG *Roland*, 15 UR-416 APC, Coastguard and Customs: 4,000; some 100 patrol craft, 2 *Cessna* *Cutlass* ac.

ITALY

GDP 1983: L 538,998 bn (\$354,884 bn). 1984: 612,112 bn (\$348,385 bn).

GDP growth 1983: -1.2%, 1984: 2.8%.

Inflation 1983: 14.7%, 1984: 10.8%.

Debt 1983: \$66.0 bn. 1984: \$67.5 bn.

Def exp 1984: L 13,820 bn (\$7,866 bn); NATO defn \$9,929 bn. 1985: 16,380 bn (\$8,248 bn); NATO defn \$10,365 bn.

\$1 = lire 1,518.8 (1983), 1,757 (1984), 1,986 (1985).

Population: 57,150,000.

Men: 18-30: 5,650,000; 31-45: 5,647,000.

Women: 18-30: 5,442,400; 31-45: 5,631,000.

TOTAL ARMED FORCES:
Regular: 385,100 (257,890 conscripts).

Terms of service: Army and Air Force 12, Navy 18 months.

Reserves: 799,000. Army 550,000 (obligation to age 45), immediate mobilization 250,000. Navy 221,000 (to age

38 for men, variable for officers to 73). Air 28,000 (to age 25 or 45 (specialists)).

ARMY: 270,000 (205,000 conscripts).
3 corps HQ.
1 arm'd div (2 arm'd, 1 mech bdes).
2 mech divs (each of 1 arm'd, 2 mech bdes).
2 indep mech bdes.
4 indep mot bdes.
5 alpine bdes.
1 AB bde.
2 amph bns.
1 hy spt bde (1 Lance ssm, 3 hy arty gps; 3 Improved HAWK SAM bns).

Aviation:
4 wings (10 sqns, 29 flts); 10 indep sqns (21 flts). (Flt usually has 6 ac/hel.)
9 lt ac sqns with SM-1019/O-1E; 11 hel sqns (9 with AB-206, 2 with AB-205A).
Recce: 10 sqns with AB-206 hel.
Target acquisition: 2 sqns: 1 with SM-1019 ac: 1 with AB-206 hel.
Multi-role: 17 hel sqns: 1 with AB-204B; 15 with AB-205A; 1 with AB-205B.
Med tpt: 4 sqns with CH-47 hel.
Other: 1 trg, 1 repair units.

Tks: 1,770: 500 M-47, 300 M-60A1, 970 Leopard 1.
APC: 4,110 M-106, M-113, M-548 and M-577, AMX-VCI.
Arty: GUNS: 1,110: 18 M-107 175mm sp; HOW: 320 Model 56 105mm pack, 724 155mm (incl 150 FH-70 towed, 220 M-109E sp), 36 M-115, 12 M-110 sp 203mm; MOR: 81mm, 120mm; SSM: 6 Lance.

ATK: RCL: 57mm, 106mm; ATGW: Cobra, SS-11, TOW, Milan.
AD: GUNS: 20mm, 230 40mm; SAM: 60 Improved HAWK, Stinger.

Avn: AC: SM-1019, 30 Cessna O-1E (tgt acquisition/utility); HEL: AB-47G/J, 5 AB-109 Hirundo, 18 AB-204B, 100 AB-205A, 140 AB-206A/A1, 14 AB-212, 24 CH-47C Chinook.

(On order: 130 FH-70, SP-70, M-109 155mm how; 20 FIROS 6 51mm MRLS; 850 TOW, Milan ATGW; FIM-92A Stinger SAM + msls; 60 A-129 Mangusta hel.)

NAVY: 44,500, incl 1,500 air arm, 750 marines (24,590 conscripts).

Bases: La Spezia, Taranto, Ancona, Brindisi, Augusta, Messina, La Maddalena, Cagliari, Naples, Venice.
Subs: 10: 4 Sauro, 4 Toti, 2 US Tang (1 to retire).

Carrier (hel): 1 Vittorio Veneto with 9 AB-212 ASW hel, 4 Teseo (Otomat Mk 2) SSM, 1 × 2 Terrier SAM.

Cruisers: 2 Andrea Doria with 4 AB-212 ASW hel, 1 × 2 Terrier SAM.

Destroyers: 4 cw: 2 Audace with 2 AB-212 ASW hel, 1 Standard SAM; 2 Impavido with 1 Standard.

Frigates: 16: 8 Maestrale with 4 Teseo SSM, 1 × 4 Albatros/Aspide SAM, 2 AB-212 hel; 4 Lupo with 4 Teseo SSM, 1 × 8 Sea Sparrow SAM, 1 AB-212 hel; 2 Alpino with 2 AB-212 hel; 2 Bergamini with 1 AB-212 hel.

Corvettes: 8: 4 De Cristofaro, 4 Albatros.
Hydrofoils: 7 Sparviero with 2 Teseo SSM.

FAc: 2 Freccia (can carry 1 × 5 Sea Killer SSM; to retire 1985).

MCMV: 22: 2 Lerici, 4 Sturione (US Aggressive) ocean; 9 Agave coastal (retiring), 7 Mandorlo (US Adjutant) minehunters.

Amph: LST: 2: US De Soto County; LCM: 19 US; 2 Stromboli replenishment tankers.

Marine: 1 inf gp: 30 VCC-1, 10 LVTP-7 APC, 16 81mm mor, 8 106mm RCL, 6 Milan ATGW.

NAVAL AIR ARM: (1,500); 83 combat hel.

ASW: 5 hel sqns with 30 SH-3D Sea King, 53 AB-212.
ASM: Marte Mk 2.

(On order: 2 Sauro subs, 1 hel carrier (delivery 1985), 2 Audace destroyers, 4 Minerva corvettes with Albatros multi-role weapon system, 2 Lerici minehunters, 2 LPD; 6 SH-3D, 9 AB-212, 6 AB-412 Griffon hel.)

AIR FORCE: 70,600 (28,300 conscripts).

FGA: 6 FGA/recce sqns: 3 with Tornado; 1 with F-104S; 2 with G-91Y.

Tac: 3 sqns: 1 lt attack with MB-339; 2 lt attack/recce with G-91R/R1/R1A (await replacement).

Ftr: 7 sqns with F-104S.

Recce: 2 sqns with F/RF-104G.

MR: 2 sqns with Atlantic (Navy-assigned; being increased).

ECM: 1 ECM/recce sqn with G-222VS and PD-808.

Calibration: 1 navigation-aid calibration sqn with G-222, PD-808, C-47, MB-339.

Tpt: 3 sqns: 2 with G-222; 1 with C-130H.

Comms: sqns with P-166M Albatross, SIAI-208M, PD-808, MB-326, DC-9 ac; SH-3D Sea King hel.

Trg: 1 ocu with TF-104G; 1 det (Cottesmore, UK) with Tornado; 6 sqns with G-91, MB-326/339A, SF-260M ac; AB-204B, AB-47 hel.

SAR: hel: 4 sqns and 6 dets with AB-204, AB-212, Sikorsky HH-3M.

AD: 8 SAM groups with Nike Hercules, Spada.

Equipment: 315 combat ac.

Tornado: 64 (54 FGA, 10 in tri-national trg sqn).

F-104: 150: 102-S (18 FGA, 84 ftr); 30 F/RF-104G (recce): 18 TF-104G (ocu).

G-91: 122: 36-Y (FGA); 36-R (lt attack/recce); 50-T (trg).

MB-339: 80 (15 tac, 65 calibration, trg).

MB-326: 30 (15 liaison, 15 trg).

Atlantic: 14 MR.

C-130: 10 (tpt). **G-222:** 38 (32 tpt, 4 calibration); 2-VS ECM. **DC-9:** 2 (liaison). **C-47:** 4 (calibration). **P-166:** 16 (liaison). **PD-808:** 14 (6 ECM, calibration, 8 liaison). **SF-260:** 30 (trg). **SIAI-208:** 32 (liaison).

Hel:

CH-3: 20 (SAR). **SH-3D:** 2 (liaison). **AB-204:** 23 (20 SAR; 3 -B trg). **AB-212:** 18 (SAR). **AB-47:** 20 (trg).

Msls:

AAM: AIM-7E Sparrow, AIM-9B/L Sidewinder.

ASM: Kormoran.

SAM: 96 Nike Hercules, 4 Spada.

(On order: 20 Tornado, 187 AMX FGA; 20 MB-339 lt attack, G-222 tpt, SF-260M trg ac; 18 AB-212, 10 HH-3F hel; AGM-65 Maverick ASM; Spada SAM systems; Aspide AAM.)

Forces Abroad:

Egypt (Sinai MFO) (90); 3 minesweepers, Lebanon (UNIFIL) (48).

PARA-MILITARY:

Carabinieri 90,000: 1 mech bde: 13 bns, 1 AB bn, 2 cav sqns; 37 M-47 M&T; Fiat 6616, 80 M-6, M-8 arm'd cars; 470 Fiat 242/18AD, 240 M-113 APC; 23 AB-47, 2 A-109, 5 AB-205, 23 AB-206 hel.

Ministry of Interior: Public Security Guard 67,927: 11 mobile units; 40 Fiat 6614 APC, 3 P-64B ac; 1 AB-47Y3B-1, 6 A-109A, 12 AB-206A1, 4 AB-212 hel.
Treasury Department: Finance Guards 48,691; 6 AB-47J, 69 NH-500M hel, 350 patrol craft.
(On order: 3 AB-212, 1 A-109A hel.)

LUXEMBOURG

GDP 1983: fr 172.50 bn (\$3.374 bn). 1984: 186.90 bn (\$3.324 bn).

GDP growth 1983: 2.0%. 1984: 2.2%.

Inflation 1983: 7.7%. 1984: 6.0%.

Def budget 1984: fr 1,367 bn (\$23.657 m); NATO defn \$39.728 m. 1985: 1,393 bn (\$22.228 m); NATO defn \$36.970 m.

\$1 = francs 51.132 (1983), 57.784 (1984), 62.668 (1985).

Population: 367,000.

Men: 18-30: 27,311; 31-45: 26,083.

Women: 18-30: 25,922; 31-45: 24,994.

TOTAL ARMED FORCES:

Regular: 720.

Terms of service: voluntary, minimum 3 years.

ARMY: 720.

1 lt inf bn.

1 indep coy.

APC: 5 Commando. **ATK:** RL: LAW; ATGW: TOW. Misc: 1 river cruiser (ceremonial).

AIR: (Luxembourg had no air force of her own, but for legal purposes NATO's E-3A AEW ac have Luxembourg registration.)
1 sqn with 18 E-3A NATO Standard.

PARA-MILITARY: Gendarmerie 470.

NETHERLANDS

GDP 1983: gld 376.72 bn (\$131.993 bn). 1984: 393.10 bn (\$122.511 bn).

GDP growth 1983: 0.6%. 1984: 2.2%.

Inflation 1983: 2.8%. 1984: 3.3%.

Debt 1983: \$16.5 bn. 1984: \$16.5 bn.

Est def exp 1984: gld 12,757 bn (\$3,976 bn); NATO defn \$3,976 bn. **Budget** 1985: 13,420 bn (\$3,816 bn); NATO defn n.a.

\$1 = guilders 2.8541 (1983), 3.2087 (1984), 3.5164 (1985).

Population: 14,500,000.

Men: 18-30: 1,624,000; 31-45: 1,674,000.

Women: 18-30: 1,555,000; 31-45: 1,570,000.

TOTAL ARMED FORCES:

Regular: 105,975 (incl 4,400 Royal Military Constabulary); 1,450 women; 48,773 conscripts.

Terms of service: Army 14-16, Navy and Air Force 14-17 months.

Reserves: 176,300 (men to age 35, ncos to 40, officers to 45). Army 150,300 (many on short leave, immediate

recall), Home Guard (4,300), Navy some 20,000 (7,500 on immediate recall), Air 6,000 (immediate recall).

ARMY: 67,000 (43,250 conscripts), though see Reserves, 1 Corps HQ, 3 mech div HQ.

2 arm'd bdes,

4 mech inf bdes.

1 ssm bn with Lance.

3 hel sqns (Air Force manned).

(Reserves): 1 arm'd, 2 mech inf bdes, corps troops and 1 indep inf bde would be completed by call-up of reservists; some inf bdes could be mobilized for territorial defence. Home Guard: 3 sectors; inf weapons.

Tks: 1,146: 468 Leopard 1 (some mod to 1A4), 335 Leopard 2, 343 Centurion (some 250 may be in reserve).

APC: 744 M-113, 734 YP-408 (to retire), 1,301 YPR-765.

Arty: HOW: 467: 42 M-101 105mm, 140 M-114 155mm (some to be modernized), 222 M-109 155mm, 63 M-110A2 203mm sp; MOR: 333 81mm, 194 107mm, 152 120mm; SSM: 6 Lance.

ATK: RCL: Carl Gustav 84mm, 175 106mm; ATGW: 360 Dragon, 320 TOW.

AD: GUNS: 54 L-70 40mm towed, 100 Gepard 35mm sp. Avn: 64 Alouette III, 29 BO-105 hel.
(On order: 110 Leopard 2 MBT; 841 YPR-765 APC; 386 Stinger SAM.)

NAVY: 16,694, incl naval air arm and marines (1,187 conscripts).

Bases: Den Helder, Flushing, Curacao.

Subs: 5: 2 Zwaardvis, 2 Potvis, 1 Dolfin.

Destroyers, gw: 2 Tromp (flagships) with 8 Harpoon SSM, 1 Standard, 8 Sea Sparrow SAM, 1 Lynx hel.

Frigates, ASW: 16 with 8 Harpoon SSM; 10 Kortenaer with Sea Sparrow SAM, 1-2 Lynx hel; 6 Van Speijk with 2 × 4 Seacat SAM, 1 Lynx hel.

Patrol craft: large: 3 Balder.

MCMV: 17: 8 Dokkum coastal, 9 Alkmaar.

Misc: 2 Poolster combat spt, 3 survey, 2 Buyskes North Sea, 1 oceanographic.

Amph: LCA/LCVP: 10/.

NAVAL AIR ARM: (1,682);

MR: 3 sqns (1 trg) with P-3C Orion II.

ASW: hel: 1 sqn with Lynx SH-14B/C.

SAR: hel: 1 sqn with Lynx UH-14A.

Equipment: 15 combat ac, 17 combat hel.

P-3: 13 (MR).

F-27: 2 (MR) with Air Force crews.

Hel:

Lynx: 22: 17 SH-14B/C (ASW), 5 UH-14A (SAR).

MARINES: (2,800).

2 amph cdo gps.

1 mountain/arctic warfare coy.

(Reserve): 1 amph cdo gp.

(On order: 4 Walrus ss; 4 M-class multi-role, 2 Heemskerck AD frigates; 6 Alkmaar MCMV; 2 LCVP; Harpoon SSM.)

AIR FORCE: 16,810 (3,565 conscripts).

FGA: 5 sqns: 2 with F-16; 3 with NF-5A (to convert from 1986).

Ftr: 2 FGA/ftr sqns with F-16A/B.

Recce: 1 sqn with F-16.

Tpt: 1 sqn with F-27.

OCU: 2 sqns: 1 with NF-5B; 1 with F-16B.

SAR: hel: 1 flt with Alouette III.

SAM: 14 sqns: 12 with Improved HAWK (8 in Germany); 2 with Nike Hercules.

AD: 25 Shorad/Flycatcher, 40 L-70 systems.

Equipment: 218 combat ac.

NF-5: 72: 54 -A (FGA), 18 -B (OCU).

F-16: 146 (40 FGA, 58 FGA/ftr, 18 recce, 12 OCU, 18 reserve).

F-27: 12 (tpt).

Hel:

Alouette: 4 (SAR).

Msls:

SAM: 36 Improved HAWK, 23 Nike Hercules.

AD:

Shorad/Flycatcher: 25. L-70 AA guns: 40.

(On order: 57 F-16A/B FGA ac; 100 Stinger, 20 Patriot SAM launchers, 160 msls.)

INTER-SERVICE ORGANIZATION: 1,071 (271 conscripts).

Forces Abroad:

Germany: 5,500; 1 arm'd bde, 1 recce, 1 engr bns, spt elements.

Lebanon (UNIFIL): 162: 1 inf coy.

Egypt (Sinai MFO): 105: 1 det.

Netherlands Antilles: 1 frigate, 1 amph combat det, 1 MR det with 2 F-27MPA ac.

PARA-MILITARY: 8,700;

Royal Military Constabulary (Koninklijke Marechaussee): 4,400 (500 conscripts); 3 divs comprising nine districts with 87 'bdes', Home Guard: 3 sectors, inf weapons.

Civil Defence: (*Corps Mobiles Colonnnes*): 22,000 on mobilization; disaster relief under Army command.

NORWAY

GDP 1983: N kr 401.34 bn (\$55,005 bn). 1984: 446.62 bn (\$54,723 bn).
GDP growth 1983: 3.2%, 1984: 4.3%.
Inflation 1983: 8.4%, 1984: 6.2%.
Debt 1983: \$30.5 bn. 1984: \$29.5 bn.
Def exp 1984: N kr 12,921 bn (\$1,583 bn); NATO defn \$1,555 bn. Budget 1985: 14,327 bn (\$1,598 bn); NATO defn \$1,665 bn.
\$1 = 7,2964 (1983), 8,1615 (1984), 8,9641 (1985).

Population: 4,150,000.
Men: 18-30: 420,000; 31-45: 440,000.
Women: 18-30: 400,000; 31-45: 420,000.

TOTAL ARMED FORCES:

Regular: 37,000 (23,200 conscripts).
Terms of service: Army, Navy Coast arty, Air ad elms, Home Guard 12; Navy, Air Force 15 months.
Reserves: 201,000; total war strength incl Home Guard 320,000; total national mobilization strength some 495,000. Army 138,000; 21 days refresher training each 3rd/4th year to age 44, may volunteer for extension. Navy 22,400. Air 30,600. Home Guard 10,000. Civilian resource mobilization: up to 25,000 hy veh, private ac, hel, 220 vessels.

ARMY: 20,000 (13,000 conscripts).
2 Operational, 5 regional, 16 operational territorial commands.
1 bde: 3 inf bns, 1 tk coy, 1 sp fd arty bn, 1 AA bty, spt units (North Norway).
1 all-arms gp: 1 inf bn, 1 tk coy, fd arty, AA btys (South Norway).
2 border garrison bns.
1 inf bn (Royal Guard).
Indep arm'd sqns, inf bns and arty regts.
(Reserves): 42 cadre units to form on mobilization 13 bdes (each some 5,000 men), plus separate field and territorial inf, cav, arty, engr, sigs, def and spt units.
Tks: 70 *Leopard* 1, 30 M-48A5; LT: 70 NM-116 (M-24/90); micv: NM-135 (M-113/20mm); APC: M-113.
Arty: 380: how: 250 105mm and 155mm towed, 130 M-109 155mm SP; MOR: 81mm, 107mm.
ATK: RCL: M-18 57mm, M-20 75mm, *Carl Gustav* 84mm, M-40A1 106mm; RL: M-72 66mm; ATGW: *TOW*.
AD: GUNS: FK20-2 20mm, 40mm; SAM: RBS-70.
Avn: LT AC: 23 O-1E, 8 L-18.
(On order: M-113 APC, 108 RBS-70 SAM (delivering from July 1985).)

NAVY: 7,600, incl 1,000 coast artillery (5,000 conscripts).
Bases: Horten, Haakonsværn (Bergen), Ramsund, Olavsvern (Tromsø).
Subs: 14 *Kobben* (Type 207).
Frigates: 5 *Oslo* with 6 *Penguin* ssm, 1 × 8 *Sea Sparrow* SAM, 1 × 6 *Terne* ASW.
Corvettes: 2 *Sleipner* with 1 × 6 *Terne* ASW.
FAC(G) with *Penguin* ssm: 38: 18 *Storm* (6 × 1), 14 *Hauk* (6 × 1), 6 *Snögg* (4 × 1).
MCMV: 2 *Vidar*, 1 *Borgen* minelayers; 9 *Sauda* (US MSC-60), 1 *Tana*; 2 driving tenders.
Amph: 5 *Reinøysund* LCT.
Spt: 1 *Horten* depot/lrg ship, 7 coastal tpts, 2 trg, 1 patrol vessels, 12 harbour tpt.
Coast defence: some 30 fortresses: 50 arty, mine and torpedo btys: 75mm, 105mm, 127mm, 150mm guns.
SAR/rece: 1 hel sqn with 6 *Lynx* (coastguard).
(On order: 6 *Ula* (Type 210) ss; 8 120mm coast defence guns.)

AIR FORCE: 9,400 (5,200 conscripts).
FGA: 5 sqns: 4 with F-16; 1 (ocu) with F-5A.
MR: 1 sqn with P-3B *Orion* (2 may be assigned to coast-guard).
Tpt: 2 sqns: 1 with C-130, *Mystère-Falcon* 20; 1 with *Twin Otter* ac, UH-1B hel.
Trg: Saab MFI-17 *Safari*.
SAR hel: 1 sqn with *Sea King* Mk 43.
Liaison hel: 2 utility sqns with UH-1B.
AD: 4 lt arty bns; 1 SAM bn (4 btys).
Equipment: 92 combat ac.
F-5A: 16 (ocu).
F-16A/B: 69 (FGA).
P-3B: 7 (MR).
C-130H: 6 (tpt). *Mystère-Falcon* 20S: 3 (tpt), DHC-6: 4 (tpt). *Safari*: 15 (trg).
Hel: *Sea King*: 10 (SAR), UH-1: 28 (2 tpt, 26 utility).
Msls:
AAM: *Sidewinder*.
ASM: CVR (AGM-12B *Bullpup*).
AD:
32 L-60, 64 L-70 40mm guns; 128 MIM-14B *Nike Hercules* SAM.

(On order: (lease) 54 *HAWK* launchers and 162 msls (4 btys).)

JOINT SERVICES ORGS: 300.

Forces Abroad: Lebanon (UNIFIL): 861; 1 inf bn, 1 service coy, plus HQ personnel.

PARA-MILITARY:

Home Guard: 80,000 (incl 10,000 reservists). Land: 71,400; districts, areas (500-1,500 men), sub-areas (100-300 men). Sea: 6,000; 8 *Tjeld* FAC(T), 2 *Kralsund* LCT, 400 fishing vessels. Air: 2,600; 2 bns (7 btys), 2 indep btys. Lt AA; 72 L-60 40mm guns.
Civil Defence: 112,500: Regional: 54 Districts, 14 mobile columns. 108 local units. Permanent staff some 500; total mobilization strength 80,000. Industrial: 32,500. Coastguard: (220: 130 Navy, 90 Air Force, incl 55 civilians): 13 (7 chartered) patrol vessels incl 3 *Nordkapp* fitted for 6 × 1 *Penguin* II ssm, 6 *Lynx* hel (Air Force manned), 7 armed fishery protection vessels.

PORTUGAL

GDP 1983: esc 2,289.6 bn (\$20,668 bn). Est 1984: 2,846.7 bn (\$19,446 bn).
GDP growth 1983: -0.1%, 1984: -2.1%.
Inflation 1983: 25.5%, 1984: 29.5%.
Debt 1983: \$19.5 bn. 1984: \$20.5 bn.
Def exp 1984: esc 92,009 bn (\$628,520 m); NATO defn \$628,520 m. Budget 1985: 114,659 bn (\$655,269 m); NATO defn \$655,269 m.
FMA 1983: \$55.0 m. 1984: \$71.0 m.
\$1 = escudos 110.78 (1983), 146.39 (1984), 174.98 (1985).

Population: 10,280,000.
Men: 18-30: 1,095,000; 31-45: 863,000.
Women: 18-30: 1,072,000; 31-45: 997,000.

TOTAL ARMED FORCES:

Regular: 73,040 (48,900 conscripts); see Army.
Terms of service: Army 16, Navy 24, Air Force 21-24 months.
Reserves: 173,000 (all services) (obligation: men to age 45; officers to 70).
ARMY: 45,740 (40,000 conscripts, 3 intakes a year, 4 months alternating service).
6 Geographical Commands (4 military region, 2 island).
1 mixed bde.
2 cav regts.
1 arm'd regt.
11 inf regts, 3 indep inf bns.
1 special forces bde: 1 cdo regt, 4 spt bns.
2 fd, 1 AA, 1 coast arty regts.
2 engr regts.
1 sigs regt.
1 military police regt.
Tks: 66 M-48A5. **AFV:** **RECE:** 30 *Saladin*, 63 AML-60/1-90 lt arm'd, 32 *Ferret* Mk 4; **APC:** 132 M-113 (incl A2 *TOW*), 9 M-577A2 (81mm mor), 81 *Chaimite*. **Arty:** GUNS: 24 5.5-in. (140mm); **HOW:** 20 M-101A1 105mm towed, 6 M-109A2 155mm SP; **COAST:** 35 150mm, 152mm, 234mm; **MOR:** 20 107mm. **ATK:** RCL: 15 90mm, 25 106mm; **ATGW:** 35 *TOW*. **AD:** GUNS: 18 Rh-202 20mm, 20 Bofors L-60 40mm; **SAM:** 16 *Blowpipe*.
DEPLOYMENT: 3 inf regts, 2 fd arty btys in Azores and Madeira.

NAVY: 13,936 incl marines (4,400 conscripts).
Bases: Lisbon (Alfeite), Faro.
Subs: 3 *Albacora* (Fr *Daphne*).
Frigates: 17: 3 *Silva* (2 fishery protection), 4 *Belo*, 4 *Andrade*, 6 *Coutinho*.
Patrol craft: 19: 10 *Cacine*, 2 *Aleixo*, 5 *Albatroz*, 2 *Bonança*.
Amph: LCT: 2; LCM: 10; LCA: 1.
Spt: 1 tanker.

MARINES: (2,000) (1,000 conscripts).
3 bns (2 inf, 1 police), spt units.
Chaimite APC, mor, amph craft.

AIR FORCE: 13,364 incl 2,000 para (4,500 conscripts).
1 combat command, 5 administrative wings.
FGA: 4 sqns: 2 with A-7P *Corsair*; 1 with G-91R3/T3; 1 with G-91R4/T3.
Rece: 1 sqn with CASA C-212B.
Tpt: 2 sqns: 1 with C-130; 1 with C-212.
SAR: 3 sqns: 1 with C-212 ac; 2 with SA-330 *Puma* hel.
Liaison: 2 ac sqns with Reims-Cessna FTB-337G, 2 utility hel sqns with *Alouette* II.
OCU: 1 with Northrop T-38 *Talon*.
Trg: 3 sqns: 1 with C-212 ac, *Alouette* III hel; 1 with Cessna T-37C; 1 with *Chipmunk*.
Para: 1 para gp (1 bn, 2 coys).
Equipment: 116 combat ac.

A-7: 50 (44 FGA, 6 trg).
G-91: 50: 20 -R3 (FGA); 10 -T3 (FGA).
T-38: 12 (ocu).
C-212: 24 (12 tpt, 6 SAR; 2 -A trg; 4 -B rece).
C-130: 5 (tpt). T-37: 20 (trg). Cessna 337: 32 (liaison).
Chipmunk: 30 (trg).
Hel:
Puma: 12 (SAR), *Alouette* II/III: 40 (37 liaison, 3 trg).
(On order: 3 C-130 tpt ac; 12 A-109A hel (4 with *TOW*)).

PARA-MILITARY: National Republican Guard 14,600; *Commando* Mk III APC, Public Security Police 15,291. Fiscal Guard 7,385.

SPAIN

GDP 1983: pts 22,778 bn (\$158,566 bn), 1984: 25,935 bn (\$161,327 bn).
GDP growth 1983: 2.2%, 1984: 2.5%.
Inflation 1983: 12.2%, 1984: 11.3%.
Debt 1983: \$37.0 bn. 1984: \$37.0 bn.
Est def exp 1983: pts 535.30 bn (\$3,726 bn); NATO defn n.a. 1984: 620.90 bn (\$3,862 bn); NATO defn n.a.
FMA 1983: \$400.0 m. 1984: \$400.0 m.
\$1 = pesetas 143.65 (1983), 160.76 (1984).

Population: 39,500,000.
Men: 18-30: 4,057,000; 31-45: 3,532,000.
Women: 18-30: 3,940,000; 31-45: 3,591,000.

TOTAL ARMED FORCES:

Regular: 320,000 (214,000 conscripts) (to be reduced).
Terms of service: 15 months (Army to reduce to 12 months by 1987).
Reserves: 1,085,000 (all services) (to age 38 (men)).

ARMY: 230,000 (170,000 conscripts); to reduce to 195,000 1985-8.

Immediate Intervention Force:
1 arm'd div (1 arm'd, 1 mech bde).
1 mech div (1 mech, 2 mot bdes).
1 mot div (2 mot bdes).
1 arm'd cav bde.
1 para bde (3 bns).
1 air-portable bde (3 bns).
1 arty bde.
1 locating, 1 fd rocket, 1 lt AA regts.
1 engr, 1 sigs regts.
1 chemical/nuclear defence regt.
Territorial Defence Force: (to disband 1985-8).
8 Military Regions (to be 6, incl Ceuta and Melilla), 2 overseas comds (see Deployment).
2 mountain divs (each 2 bdes; to Immediate Intervention Force).
Legion: HQ, 3 regts, spt units (overseas forces), 1 depot regt, 1 special operations gp.
8 inf bdes (to be disbanded).

Region Command:
1 arty bde (incl 1 *HAWK* SAM gp, 1 *Nike Hercules* bty).
2 hy arty regts.
7 coast/AA arty regts.
General Reserve Force:
1 ATK inf regt.
1 engr, 2 railway engr regts.
1 sigs regt.

Independent Units:
Army HQ inf gp.
Royal Guard Regt (incl inf, naval, air force coys and escort cav sqn).
Army Aviation (FAMET): 40 armed hel.
HQ with 1 hel, 1 spt, 1 trg sqns.
1 attack bn.
1 tpt bn (1 med, 1 hy coys).
3 utility units.

Tks: 319 AMX-30, 350 M-47E, 110 M-48 (105mm); LT: 180 M-41.
AFV: micv: 250 BMR-600; **RECE:** 60 AML-60, 80 AML-90; **APC:** BLR, 500 M-113.

Arty: 1,179: **GUNS:** 168 122/46 122mm towed, 12 M-107 175mm SP; **COAST:** 200 88mm (?reserve), 200 6-in. (152.4mm), 24 203mm, some 12 12-in. (305mm), some 12 15-in. (381mm); **HOW:** 911 105mm M-26 and M-56 pack, 84 M-114 155mm, 12 M-115 8-in. (203mm) towed, 48 M-108 105mm, 24 M-44, 96 M-109A 155mm, 4 M-55 203mm SP; **MOR:** 1,200 81mm, 107mm, 400 120mm; **MRL:** R-2B 105mm, *Teruel* 140mm, L-21 216mm, L-10 300mm, L-8 381mm.

ATK: RCL: 350 106mm; RL: 42 M-65 88.9mm, C-90C 90mm; **ATGW:** 50 *Milan*, 50 *Cobra*, 18 *Dragon*, *HOT*, 12 *TOW*.

AD: GUNS: 20mm, 64 35/90, 280 40/90, 120 90mm; **SAM:** 10 *Nike Hercules*, 24 *Improved HAWK*.
Avn: HEL: 56 HU-8/10B (UH-1B/H), 3 HA-16 (*Alouette* III), 70 HA-15 (BO-105; 12 with 20mm guns, 28 with *HOT*), 5 AB-206A, 4 AB-212, 12 HR-12B (OH-58A), 12 HT-17 (CH-47C).
(On order: VEC 3562 rece, 250 BMR-600 micv, 176 M-113 APC; 1,100 C-90C 90mm RL, 540 *TOW*, 250 *Milan*,

150 HOT ATGW; 6 CH-47C, 28 AB-412, 18 OH-58A hel; 96 Chaparral SAM (1,760 msls); 18 Roland SAM launchers (1985), (500 msls); 28 Skyguard AD systems.)

DEPLOYMENT:

Ceuta and Melilla: 19,000; 2 armd cav, 2 Foreign Legion, 2 coast/AA arty, 2 engr regts, 3 Regulares inf gps, 2 special sea coys.

Overseas Forces comds: 2:

Balearic Islands: 5,800; 3 inf, 2 coast/AA regts, 1 engr bn, 1 lt cav gp, 1 cdo coy.
Canary Islands: 10,000; 3 inf regts (1 cadre), 1 Foreign Legion (2 bns, 1 lt cav gp), 2 coast/AA arty regts, 1 engr gp (2 bns), 1 lt cav gp, 1 sea coy.

NAVY: 57,000, incl marines (44,000 conscripts).

Bases: Ferrol (Galicia), Cadiz (San Fernando)/Rota, Cartagena.

9 Commands (Fleet, Naval Air, Submarine, Mine Warfare, Marines, 4 Naval Region HQ).

Subs: 7: 3 Agosta (4th 1985), 4 Daphne.

Carrier: 1 US Independence (9 AV-8A, 24 hel).

Destroyers: 11: 6 with 1 Hughes 500 hel (1 de Lauria; 5 US Gearing with 1 ASROC); 5 US Fletcher (3 to retire).

Frigates: 11: 5 Baleares (F-70) with 2 × 4 Harpoon ssm, 16 Standard SAM, 1 × 8 ASROC; 6 Descubierta (F-30) with 2 × 4 Harpoon ssm, 1 × 8 Sea Sparrow/Aspide SAM.

Corvettes: 4 Atrevida (1 to retire).

FAC(P): 12: 6 Lazaga, 6 Barcelo.

Patrol craft: 87: 14 large (3 ex-minesweepers), 40 coastal, 33 inshore.

MCMV: 12: 4 US Aggressive ocean, 8 Jucar coastal.

Tpts: 2.

Amph: LSD: 1, LST: 3, LCT: 7 (3 to retire), LCU: 2, LCM: 20.

NAVAL AIR:

FGA: 1 sqn with AV-8A Matador (Harrier II), TAV-8A.

Liaison: 1 sqn with Comanche, Citation.

ASW hel: 2 sqns: 1 with Hughes 500; 1 with SH-3D/G Sea King.

Tac hel: 2 sqn with AH-1G.

Comd/recce hel: 1 sqn with AB-212.

Liaison hel: 1 sqn with Bell 47G.

Equipment: 10 combat ac, 40 hel.

AV-8: 10 (8 AV-8A FGA; 2 TAV-8A FGA).

Comanche: 2 (liaison), Citation II: 2 (liaison).

Hel:

AB-212: 14 (comd/recce).

Sea King: 14 (ASW).

Hughes 500: 11 (ASW).

AH-1G: 4 (tac).

Bell 47G: 10 (liaison).

MARINES: (12,196).

1 marine regt (2 inf, 1 spt, 1 log bns).

5 marine garrison regts.

Tks: 18 M-48S. AFV: LVT-7 amph. Arty: how: 8 OT0 Melara, 8 M-52A1 sp 105mm; mor: 81mm. ATK: rcl: 72 106mm; RL: M-72 66mm; atgw: TOW, Dragon.

(On order: 1 Agosta ss (delivery 1985), 1 carrier, 4 FFG-7 frigates (1 in 1985), 4 32.2-metre patrol craft, 20 15.9-metre patrol vessels; 12 Bravo (AV-8B) ac, 6 Model 414 (SH-60B) hel; 25 RGM-84A Harpoon ssm, SM-1, Standard SAM; 17 Scorpion It tks.)

On order: 1 Agosta ss (delivery 1985), 1 carrier, 4 FFG-7 frigates (1 in 1985), 4 32.2-metre patrol craft, 20 15.9-metre patrol vessels; 12 Bravo (AV-8B) ac, 6 Model 414 (SH-60B) hel; 25 RGM-84A Harpoon ssm, SM-1, Standard SAM; 17 Scorpion It tks.)

AIR FORCE: 33,000 (to be reduced).

Air Combat Command (MACOM):

3 wings.

Ftr: 6 sqns: 2 with F-4C Phantom; 2 with Mirage IIIIE/EB; 2 with Mirage F-1CE, F-1CE/BE.

Liaison: 1 flt with Do-27.

Tactical Command (MATAC):

2 wings.

FGA: 2 sqns with F-5A, F-5B, RF-5A.

MR: 1 sqn with P-3B Orion.

Liaison: 2 flts with O-1E, Do-27, Do-28.

AAM: Sparrow, Sidewinder, R-550 Magic.

Air Command, Canary Islands (MACAN):

FGA: 1 sqn with Mirage F-1C.

Tpt: 1 sqn with C-212 Aviocar, Do-27.

SAR: 1 sqn with F-27 ac, AB-205 hel.

Transport Command (MATRA):

3 wings:

Tpt: 5 sqns with C-130, KC-130, T-7 (CASA 207 Azor), CASA C-212 Aviocar, 12 DHC-4 Caribou, Do-27.

Training Command (MAPER):

OCU: 2 sqns with F-5A/B, Do-27.

Trg: 14 sqns with Aztec, Navajo, Bonanza, Baron, King Air, C-101 Aviojet, C-212 Aviocar, CASA I-131 (Bucker 131A Jungmann), T-6 Texan.

Trg hel: 2 sqns with AB-205, Hughes 300C, UH-1H.

Air Force HQ Group (ACGA):

Tpt: 2 sqns with DC-8, Mystère-Falcon 20, Navajo, C-212.

Spt: 3 sqns with Canadair CL-215, Do-27, C-212, DHC-4A, T-7.

SAR: 2 sqns with C-212, Do-27 ac, Super Puma, AB-205, AB-206, AB-47, Alouette III hel.

Liaison: 1 hel sqn with Puma.

Trg: 1 sqn with C-101, C-212.

Equipment: 177 combat ac.

F-5: 33: 14 -A (FGA); 6 -B (FGA); 13 RF-5A (recce).

Mirage: 97: 23 F-1C (FGA); 44 F-1CE (ftr); 3 F-1CE/BE (ftr); 21 IIIIE (ftr); 6 IIIIEB (ftr).

F-4C: 39 (35 ftr, 4 RF-4C recce).

P-3B: 6 (MR).

DC-8-52: 2 (tpt).

C-130H: 11 (5 tpt, 6 KC-130H tanker).

CASA 207: 14 (6 tpt, 8 spt).

C-212: 82 (55 tpt, 4 SAR, 5 spt, 2 trg; 14 -E trg; 2 TR-12D ew).

C-101: 85 (trg).

CL-215: 12 (spt), DHC-4: 32 (30 tpt, 2 -A spt), Mystère-Falcon 20: 4 (tpt), F-27: 3 (SAR), Do-27/-28: 58: 34 -27 (10 tpt, 4 SAR, 20 spt); 24 -27/-28 (liaison), T-33: 49 (trg).

T-6: 45 (trg), O-1: 6 (liaison). Other: 46 (Aztec, 2 Navajo, 29 Bonanza, 6 King Air, 3 Baron).

Hel:

AB-205: 20 (SAR), AB-206: 4 (SAR), Alouette III: 3 (SAR).

Puma: 5 (liaison), Super Puma: 12 (SAR), Hughes 300C: 18 (trg), Bell 47: 25 (trg).

(On order 72 F-18 Hornet ftr, 2 P-3C Orion MR, 40 T-35C Tamiz (Pillán) ac; 6 CH-47 Chinook hel; Super Sidewinder AAM.)

Hel: AB-205: 20 (SAR), AB-206: 4 (SAR), Alouette III: 3 (SAR), Puma: 5 (liaison), Super Puma: 12 (SAR), Hughes 300C: 18 (trg), Bell 47: 25 (trg).

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(On order: TOW, 2,500 Milan atgw, 26 AH-1S (Improved TOW) attack, 40 UH-1H hel, some 32 Rapier SAM.)

NAVY: 55,000, incl marines (42,000 conscripts).

Bases: Gölcük, Istanbul, Izmir, Ereğli, Iskenderun, Akas (Marmaris) under construction.

Sub: 16: 5 Type 1200, 9 US Guppy (2 in reserve), 2 Tang (on loan).

Destroyers: 12: 8 Gearing (5 with 1 × 8 ASROC), 2 Carpenter, 1 Sumner, 1 Smith.

Frigates: 6: 1 Meko 200 with 1 × 4 Harpoon ssm, (21 × 4) Sea Sparrow, Aspide SAM; 2 Berk each with 1 hel; 3 Köln.

FAC (G): 9: 5 Dogan (Lürssen FPB-57) with 2 × 4 Harpoon; 4 Kartal (Jaguar-type) with 4 Penguin 2 ssm; (7): 4 S-141 Jaguar, 5 mod Kartal, 7 Zobel-type.

Patrol craft: 29: 25 large (1 Girne, 2 US Asheville, 12 AB-25, 6 PC-1638, 4 PGM-71); 4 coastal 83-III.

MCMV: 33: MINELAYERS: 7: 1 Nusret, 6 coastal; MINE-SWEEPERS: 26: 12 US Adjutant, 4 Cdn mine clearance boats, 6 FRG Vegesack coastal, 4 US Cape inshore.

Amph: LST: 6 (3 are dual-purpose minelayers); LCT: 29; LCU: 13; LCM: 20.

Auxiliary ships: 56: incl 1 US destroyer tender, 2 FRG depot ships (trg), 9 tankers (5 fleet).

(On order: 1 Type 1200 ss, 3 Meko-200 frigates, 12 LCT, 1 tanker.)

NAVAL AVIATION: 20 combat ac; 7 combat hel.

ASW: 1 sqn with 20 S-2E ac; 3 AB-204B, 4 AB-212 ASW hel.

MARINES: 1 bde: (4,000): HQ, 3 bns, 1 arty bn (18 guns), spt units.

AIR FORCE: 55,000 (35,000 conscripts).

2 tac, 1 ftr, 1 air trg commands.

FGA: 17 sqns: 2 with F-5A/B; 3 with F-100D; 5 with F-4E; 7 with F-104G/TF-104.

Ftr: 2 sqns with F-104S/TF-104G.

Recce: 2 sqns: 1 with RF-5A, 1 with RF-4E.

Tpt: 5 sqns: 1 with C-130; 1 with Transall C-160; 3 with C-47, Beech 18, Viscount-794 (VIP) ac, UH-1H hel.

VIP: 1 flt with C-47.

Liaison: 3 flts: C-47, AT-11, T-33 ac, UH-1H hel: 10 base flts with C-47, T-33, AT-11 ac, UH-1H, UH-19B (S-55) hel.

OCU: 5 sqns: 2 with F-5A/B, F-104G; 2 with T-33, T-38; 1 with T-37C.

Trg: 3 sqns with T-33, T-34, T-41; trg schools with C-47 ac, UH-1H hel.

SAM: 8 sqns with Nike Hercules; 2 Rapier sqns forming.

Equipment: 368 combat ac.

F-5: 91: 30 -A (FGA); 16 -B (FGA); 24 -A/B (OCU); 18 RF-5A (recce); 3 RF-5B (recce).

F-100D: 72 (FGA).

F-4E: 67 (60 FGA, 7 RF-4E recce).

F-104: 138 (80 FGA, 17 OCU; 9 TF-104 FGA; 28 F-104S ftr; 4 TF-104G ftr).

C-130: 7 (tpt), Transall C-160D: 20 (tpt), Viscount: 3 (VIP).

C-47: 44 + (40 tpt, 2 VIP, 2 base flt + comms flt, trg school ac). Beech 18: 2 (tpt), T-33: 82 (48 trg/OCU, 34 -A liaison/OCU), T-37: 35 (OCU), T-34: 15 (trg), T-41: 30 (trg).

Hel: UH-1H: 15+ (15 tpt, others in liaison, base flts, trg schools).

UH-19B: 5 (base flts, trg schools).

Msls: SAM: 72 Nike Hercules.

(On order: 160 F-16 ftr, 2 Citation II trg ac; 15 AH-1S Cobra hel, Super Sidewinder, Sparrow AAM; AGM-65 Maverick; 24 Rapier SAM.)

Forces Abroad:

Cyprus: 1 corps of 2 inf divs (17,000); 150 M-47/48 MBT; M-113 APC; 212 105mm, 155mm, 203mm guns/how; 40mm AA guns.

PARA-MILITARY: Gendarmerie 125,000 (incl 3 mobile bdes with V-150, UR-416 APC). Coastguard 1,100: 35 large, 10 coastal patrol craft.

(On order: 5 SAR-33 FAC.)

¹ Conscripts serve 8 months if posted to Germany, 10 months if serving in Belgium.

² The Canadian Armed Forces were unified in 1968. Of the total strength, some 41,200 are not identified by service.

³ Mobile Command commands land combat forces, and Maritime Command all naval forces. Air Command commands all air forces, but Maritime Command has operational control of maritime air forces. Mobile Command has operational control of IAG, HQ 4 ATF in Europe has operational control of CASG. There is also Communication Command and a Canadian Forces Training System.

⁴ Jan 1, 1984 price levels.

⁵ A 5-year military development plan for 1984/8 totalling Ir 850 bn is being implemented.

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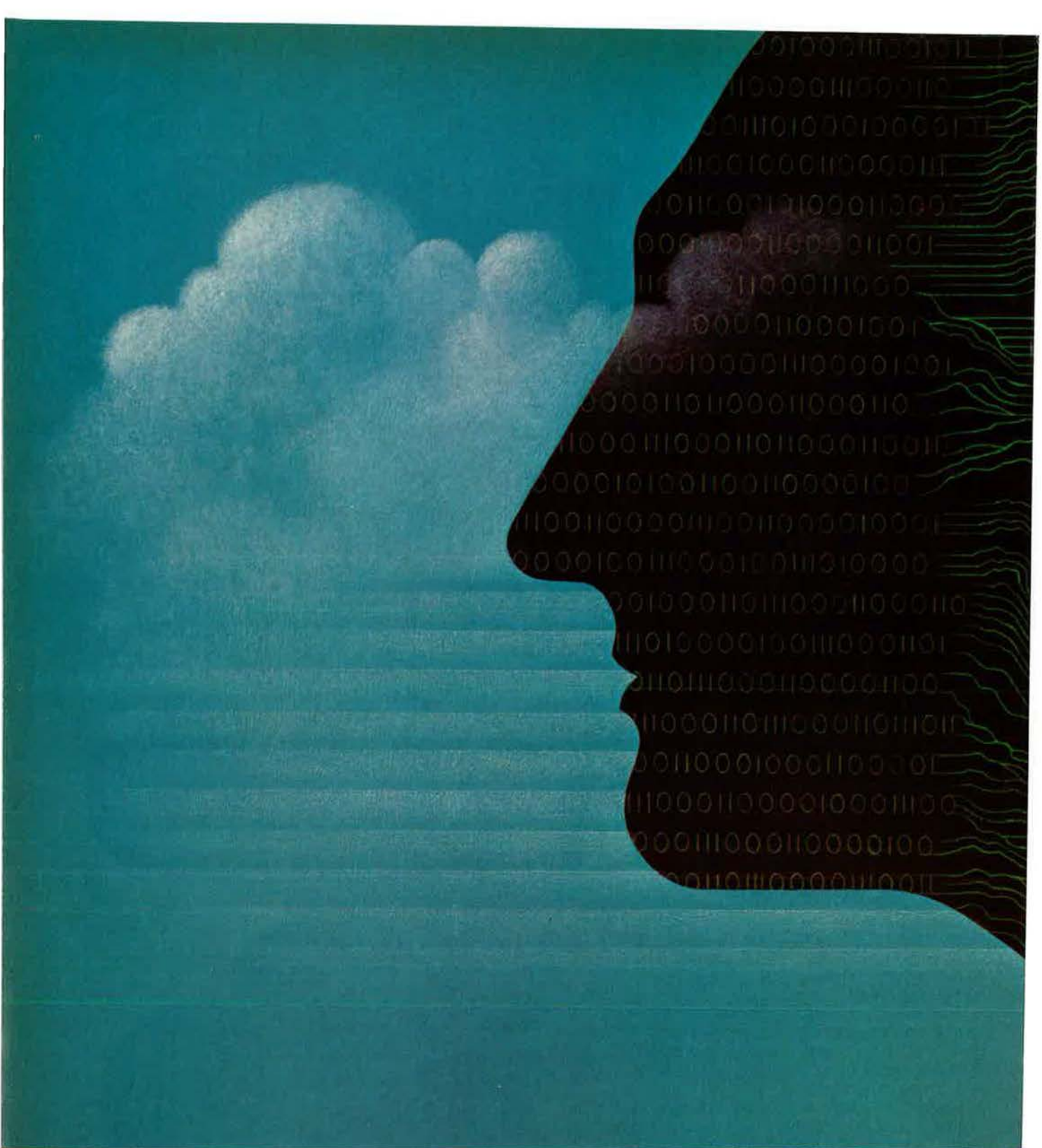
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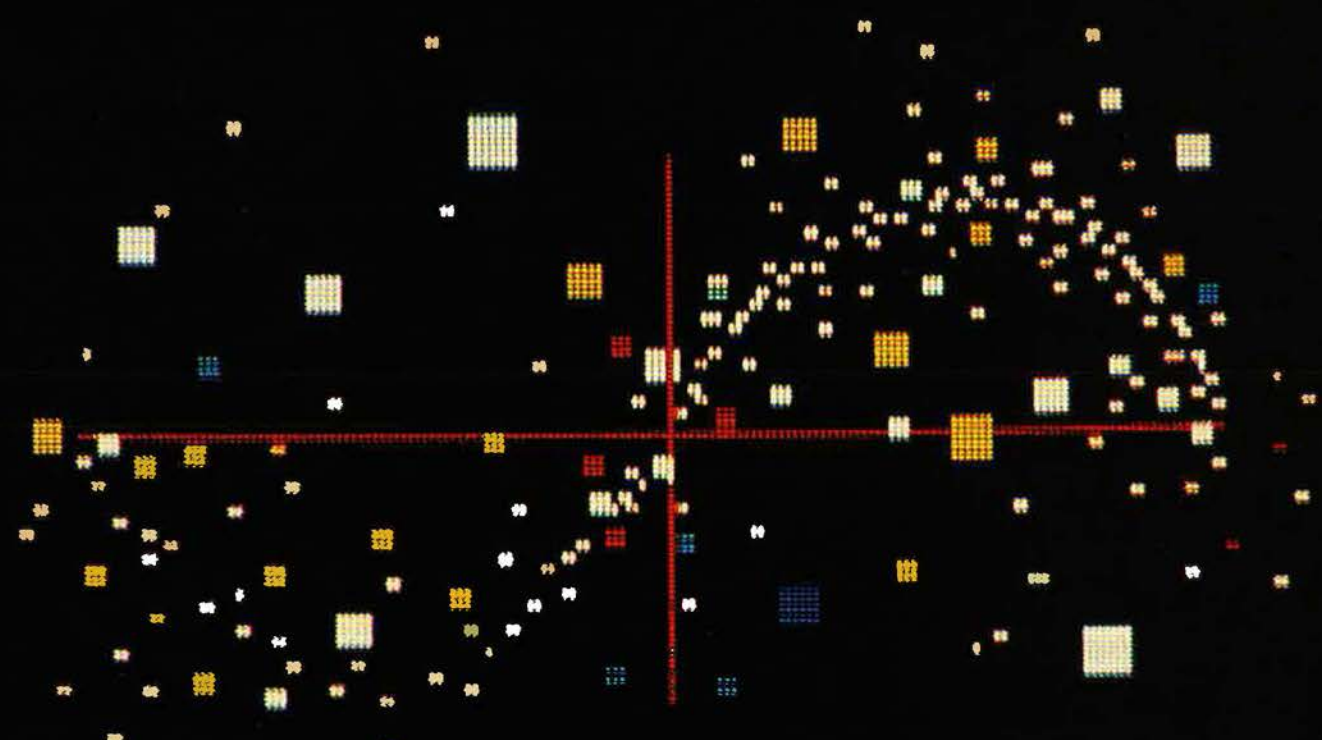
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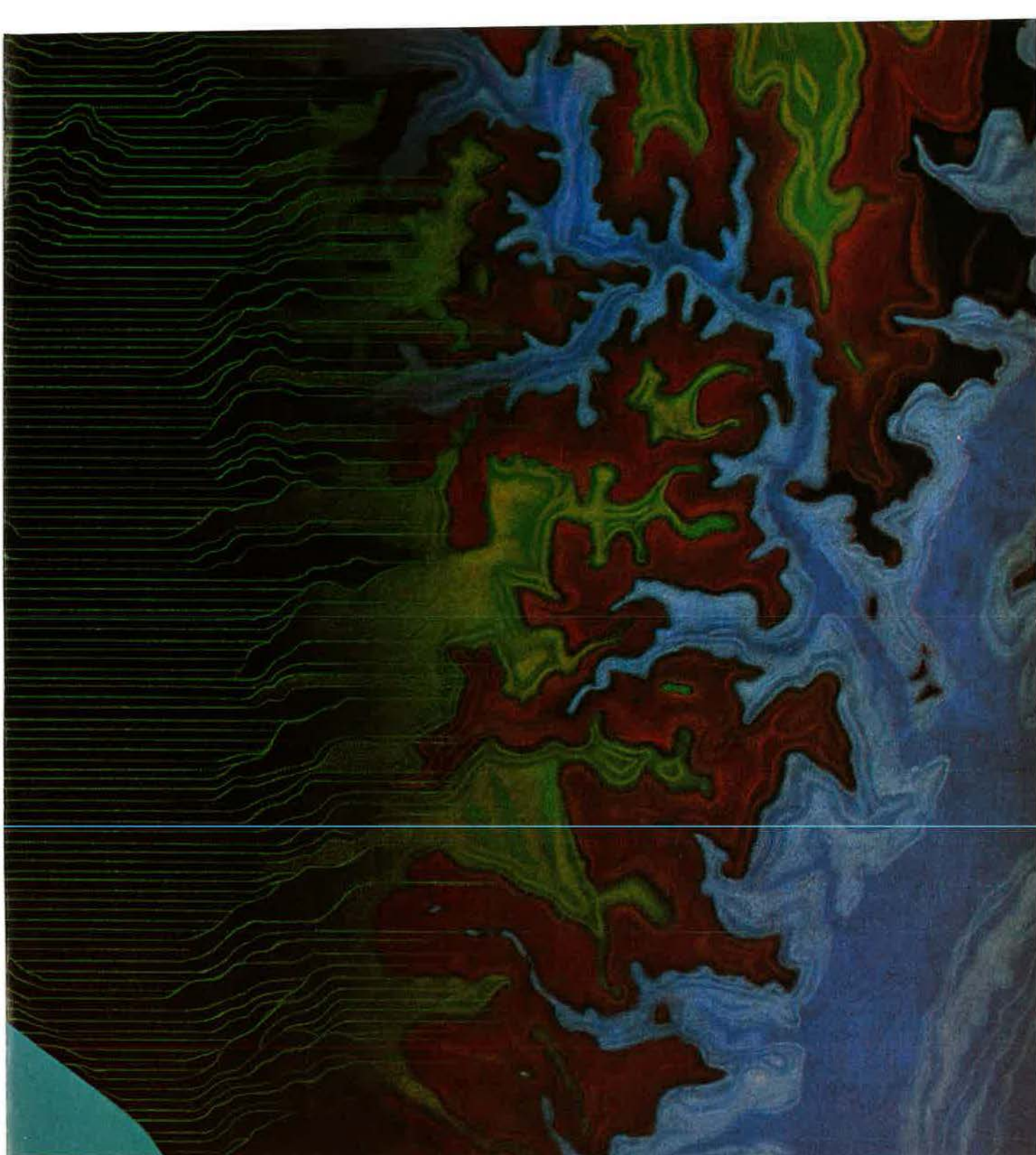
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The Soviet Union

Strategic Forces

While there are numerous reports attesting the continuing modernization of the Soviet strategic inventory, there have been no significant changes in total numbers. The ICBM total continues to remain at 1,398, and there are no changes in the totals of the individual components of that inventory, although warhead numbers are increasing. There are indications that the older SS-11 and SS-13 missiles are to be replaced by a mobile missile now under test, the SS-X-25. A second new missile, the SS-X-24, is also close to deployment, first in silos and later possibly on rail-mobile launchers. There have been suggestions during the year that the warheads on the deployed missiles are being modernized, with different mixes of yield, penetration aids and guidance. It is not possible to verify these statements.

The strategic submarine force is following a similar pattern. There are now three *Typhoon*-class SSBN in service, one more than in 1984. Each boat has 20 SS-N-20 missiles, each with 9 200-KT MIRV. A new D-IV-class boat is reported. This carries 16 SS-N-23. Details of this missile are not yet available. At the same time 2 Y-1 submarines and the last two of the H-II class have been retired. This reduces the number of SS-N-6 SLBM by 32, and retires the last of the strategic SS-N-5. Thirty-nine of these remain in a theatre role outside SALT. The net effect of these changes is to reduce the overall number of ballistic missiles by two in each category, increase the number of Soviet submarines under the SALT Agreement by one, and reduce the number of boats outside that Agreement by two.

The only change in the strategic bomber inventory has come about through the re-opening of the production line of the

Tu-95 *Bear*. Some 25 of the Tu-95H model have been produced as a vehicle for the new AS-15 ALCM. This missile has a range of some 3,000 km; details of its warhead are unknown. The *Blackjack* strategic bomber, widely reported to be similar to the US B-1B, is still under development.

Modernization of the Moscow ABM system continues with the deployment of new ground-based interceptor missiles (SH-04/08). The USSR is on the verge of deploying the SA-X-12 SAM, which may have some ABM capability.

The SS-20 IRBM continues to be deployed, and there is evidence that some of the missiles previously sited in Central Asia have been re-deployed to locations from which they can support the Western Operational Theatres. Information suggests that, of the total of 423 now in service, 216 are deployed facing Western Europe, 162 are in the Far East, and the 45 remaining in Central Asia are in the process of re-deployment. The SS-4 total has now been reduced to 120, just over half the figure for last year. There have been reports that a follow-on to the SS-20, identified as the SS-X-28, began flight tests in 1984; it also carries three warheads.

General-Purpose Forces

A number of details concerning the Soviet forces have emerged during the past months, requiring changes in the form of our country entry compared with previous years. In summary, its sequence has been changed to reflect the division of Soviet forces into five arms—Strategic Rocket Forces, Ground Troops, Air Defence, Air Force and Navy—and the order of precedence that the Soviet authorities attach to them. We have accordingly separated the Air Defence component,

In a typical modern-day Soviet-US confrontation, an Alaskan Air Command F-15 air-superiority fighter, equipped for long-range cruising with three external fuel tanks and air-to-air missiles, intercepts a Tupolev Bear reconnaissance aircraft patrolling the edge of US airspace.



placing it in an appropriate Air Defence section. The division between Air Defence interceptors and air superiority fighters has still not been satisfactorily clarified, and some measure of speculation is inevitable when trying to identify types and inventories. In this regard, there are a number of cases where previous estimates may have included a measure of double counting. Insofar as the 'regular' Ground and Naval Forces are concerned, comparisons with our presentation in previous years should present little difficulty.

The Army's armoured force shows a slight increase, but precise figures identifying the specific models have been impossible to provide. We are also aware of the difficulties in reconciling a total based on the organizational structure of the Ground Forces with the numbers reported as a gross total inventory. In all categories of equipment, both new and obsolescent equipment is known to be stored for mobilization purposes. The exact status for the reserve stocks in terms of types and numbers is unknown. Again, more modern AFV are coming into service; older types continue to be used for day-to-day purposes.

One possible exception to the general comment on the Ground Forces is the formation of what appears to be a separate air component directly under Army control. Heretofore the Frontal Aviation has been considered an adjunct of the Army commanders' resources; the term 'flying artillery' described one such function. As in the armies of other nations, however, it is apparent that such control was not considered sufficiently tight or responsive. The new force comprises a mix of assault and transport helicopters; no fixed-wing aircraft have been identified within it.

The Soviet Navy has introduced three classes of diesel submarines. The M and S classes were reported on trials last year; they have been joined by a new class, the *Akula*. One Y-class submarine formerly in the strategic fleet is now being converted to a cruise-missile submarine with as many as 24 SS-N-24 SLCM. Though the total of attack submarines is up only slightly from that of 1984, newer boats are replacing some older models. The fourth *Kiev*-class aircraft carrier is now in service, and deployments and exercises suggest that these ships are now being operated as carrier battle groups, much along US lines. The second *Slava*-class cruiser is now in service, although final

trials may still be continuing. *Sovremennyy*- and *Udaloy*-class destroyers continue in series production. There are a number of minor changes in the categories of minor combatants. The numbers of *Osa* missile attack craft are being reduced.

The re-organization of the Soviet forces under their Operational Theatre concept is intended to provide a system of tight control over all the forces, and so permit a theatre commander to use all the forces at his disposal in as efficient and controlled a manner as possible. The Soviet Union has divided her forces into three major Strategic Theatres (GTVD)—Western, Southern and Far Eastern—with the Strategic Forces and Strategic Reserves controlled centrally (although elements of them are physically located in the Theatres). The major Strategic Theatres are further sub-divided into regional theatre (TVD) commands, including those forces operating at sea. The Military Districts remain, assigned to the regional TVD as doctrine and geography dictate. Their roles embrace mobilization and administrative support; formations located within them would form fronts and armies on mobilization. We show the deployment of the several Soviet force components within this framework. We must warn that much of the presentation is speculative and would welcome comment and suggestions for its improvement.

Defence Expenditure

On 27 September 1984, Soviet Finance Minister Vasily Garbuzov announced an 11.8% increase in official defence spending to 19.063 bn roubles (\$22.257 bn) for 1985, after it had been frozen at 17.054 bn roubles (\$23.015 bn) since 1981. Official government defence spending held steady or slightly decreased in the 1970s. Although the purpose of the USSR's largest peace-time military budget is, in Garbuzov's words, 'to increase the combat readiness of our Armed Forces which are capable of giving a crushing rebuff to any aggressor', the Soviet leadership did not reveal which military programmes required additional funds. The largest spending increase in 25 years was portrayed as a measured response to recent increases in American defence expenditure.

Nearly all competent Western observers believe that the one-line official Soviet defence figures underestimate actual

		Soviet Defence Expenditure				
Source	Price base	1976	1981	1983	1984	1985
<i>Billions of Roubles</i>						
USSR ^a	Current	17.43	17.054	17.054	17.054	19.063
CIA ^b	1970	—	70-75	—	—	—
Britain ^c	Current	—	84-92	—	—	—
Rosefielde ^d	1970	70.3	—	—	—	—
<i>Billions of Dollars</i>						
USSR ^e	Current	23.2	24.4	21.3	—	23.4
CIA ^f	1983	208	225	235	—	—
DoD ^g	1984	245	270	—	—	—
JCS ^h	1984	—	—	—	295	—

^a Official declared budget.

^b Joint Economic Committee, *Allocation of Resources in the Soviet Union and China—1982* (Washington DC: USGPO 1983), p. 79. Post-1981 rouble estimates using the new CIA methodology were classified and unavailable through the Joint Economic Committee at the time of going to press.

^c *Statement of Defence Estimates 1984* (London: HMSO, Cmnd. 9227-1).

^d Steven Rosefielde, *False Science, Under-estimating the Soviet Arms Build-up* (New Brunswick NJ: Transnational, 1982), pp. 186-8.

^e Official defence budget divided by official exchange rate.

^f Central Intelligence Agency, *Press Release: Soviet Defense Spending*, 22 February 1985. Data calculated from released graph. The analysis was co-ordinated with the DoD.

^g Department of Defense, *FY 1984 DoD Program for Research, Development, and Acquisition* (Washington DC: USGPO 1983), pp. 1-7. Figures taken from graph.

^h Organization of Joint Chiefs of Staff, *Military Posture for FY 1986* (Washington DC: USGPO 1985).

expenditure by a factor of ten or more, and that the USSR has consistently outspent the US for the last decade. Some unclassified defence expenditure estimates are listed in the accompanying Table.

Most observers believe that actual military spending represents 12–17% of the Soviet GDP. The majority of time-series studies assume stable, persistent growth in total defence expenditure in the range of 2–4% since the mid-1970s. Recent American and British estimates suggest that total annual defence expenditure grew by 4–5% before 1976, decelerated to a 2% annual rate in 1976–82 and rose at a rate of 3–4% in 1982–84.

There is widespread disagreement over what programmes should be included in the definition of defence expenditure. Many Western observers believe that the USSR includes the civilian space programme, internal security forces, military construction troops and civil defence as part of her concept of national defence. Consequently, estimates based on that wider definition (which are not included in the Table) will tend to overstate Soviet defence expenditure if compared to traditional Western defence allocations. Western estimates are separately calculated in roubles, which may indicate the defence burden on the Soviet economy, and dollars, which may facilitate a comparison with American programmes. Western Sovietologists use two basic methodologies to calculate Soviet defence outlays. Some non-government analysts examine the published budget documents and infer additional militarily-related expenditures in non-defence line items. Most analysts—including those of the US CIA, the US DIA and the British MoD—individually estimate procurement, RDT&E, O&M, personnel costs, rouble/dollar conversion rates and other micro-aggregates although the details are rarely part of the public record. Both the CIA and DIA spend considerable effort collecting raw data and developing indirect economic analyses in order to calculate independent dollar and rouble baselines. Procurement is based on estimated production runs multiplied by the adjusted cost of a similar weapon in the West. Sample unit price and production estimates include: T-80 tank \$1.2–1.6 m (1982: 400 units); T-72 tank \$1.0–1.3 m (1982: 1,000 units); and BMP-2 MICV \$300–450,000 (1982: 4,000 units). Production statistics based on photographic reconnaissance and other intelligence appear to be reliable, but intelligence gaps, imprecise economic analyses, unverifiable data, and the lack of precise information concerning weapons exports and the structure of reserve stocks makes this analysis inexact. Production cost estimates cannot accurately reflect true procurement spending patterns, because resource costs and dollar/rouble conversions are difficult to quantify and, more importantly, Soviet procurement objectives are set in real unit terms without a strict requirement for money prices to coincide with the real costs of goods and services. Manpower costs are derived from known military salary rates, rank structure and ration scales, which appear to be fairly reliable; manpower costs have reportedly grown at 2% per year for the last ten years. It is difficult to estimate manpower support costs or the cost of conscription and other policies in terms of economic production forgone. The indirect drain on the Soviet economy is not inconsiderable, although direct manpower costs are much less than in the West. The published data base for the RDT&E and O&M accounts is minimal. Soviet R&D accounts are, in the CIA's words, 'the least reliable' and appear to be roughly derived from Soviet budgetary allocations to science, with classified sources providing some basis of micro-analysis. The Academy of Sciences administers—and presumably funds—military R&D, with planning, development and production steered by complex interdepartmental communication between the Ministry of Defence, GOSPLAN, the Academy of Sciences, the Council of Ministers and the production ministries. RDT&E programmes are thought to be on the scale of American efforts, including space-based defence and ground-based ABM technology. O&M accounts are usually estimated as

a function of procurement and manpower estimates; precise fuel and maintenance costs are unavailable. Estimated O&M costs have grown 3–4% annually since 1976. It is believed that operations in Afghanistan have not substantially strained O&M or total defence expenditure. Difficulties surrounding exchange rates were examined in previous editions of *The Military Balance*. Most observers believe that current methodologies are tainted by an element of institutional bias, a tendency to assume mirroring micro-economic phenomena, limited understanding of the Soviet budgeting process and Soviet military-industrial policy, and the limited number of Soviet studies programmes outside the intelligence community.

The lack of hard, openly verifiable data and the political implications of higher or lower spending estimates have caused considerable controversy and preclude a precise consensus concerning Soviet spending patterns—particularly with respect to procurement. The Soviet Government does not publish defence micro-aggregates. In 1976 the DIA and CIA revised their defence investment estimates upwards as a result of new analysis which showed that the Soviet defence industry was somewhat less efficient than previously believed. In 1983 the CIA lowered its estimates of Soviet military procurement. Transitions in the production cycle do not wholly account for the 1976–82 slowdown. Military and civilian observers argue that economic constraints, coupled with rising technological costs, have limited production. Technical delays, transportation difficulties and industrial bottlenecks spilling over into the defence sector are other major factors. Bottlenecks in the procurement cycle are often managed by stretch-outs and the application of additional R&D funds. The Soviet Union continues to narrow the technological gap, but it is difficult to insert rapidly expanding technology into the planned production cycle. Compliance with the SALT I and II Accords may have had a marginal effect. In 1984 the CIA and DIA openly disagreed on Soviet procurement spending, with the CIA reporting relatively slow growth of 2% annually from 1976–83, and the DIA a slightly faster rate which surged to 5–10% in 1982–83. Both agencies now appear to agree that the procurement accounts were stagnant in 1976–83 due to lower-than-expected production in the face of resource constraints. Preliminary reports suggest the upturn beginning in 1982 is of the order of 3–6%. It is believed that the latest CIA and DIA procurement estimates are based on the same production figures but differ in pricing estimates. Procurement costs have been affected by the nuclear programmes of the 1970s, steady tank acquisitions, a major ship-building programme in 1983 and aircraft purchases in 1984. Investment priorities—in terms of expenditure—have apparently shifted from strategic programmes to theatre nuclear and conventional forces.

At the present time it is impossible to develop estimates of Soviet defence expenditure which could be used for precise comparison with the American defence effort. Nor can we demonstrate the real economics of the defence sector. Numerous methodological problems have not been overcome:

- Most raw data is classified;
- Most researchers and agencies do not publish defence micro-aggregates, and a consensus baseline has not been developed;
- Internal Soviet budgeting policies are only roughly understood;
- The rouble/dollar exchange rate series do not reflect true market rates nor actual pricing mechanisms;
- The relation of defence expenditure and defence industries to the general economy is not well understood;
- There is no consensus on a precise general economic data base—such as GDP and national income; and
- The very nature of a command-based economy may nullify any comparison with Western economic and defence spending practices. Data on the American defence budget is easily accessible and verifiable; similar Soviet data is not.

Soviet military activities can be judged to be at least equal to those of the United States. Growth in military spending, having slowed between 1976 and 1982, has now apparently accelerated, despite the fact that expansion in the economy has been only in the 1-4% range for the last five years. There is no indication that defence production is being converted to civilian use. The burden of defence spending on the general economy remains great. The DIA believes the defence outlays in current roubles represented 12-14% of estimated GNP in 1970, 14-16% in 1980, and 15-17% in the mid-1980s.

The degree of Soviet military and civilian economic integration is far greater than in the West. Nine defence production ministries, the energy and machinery industries and the transportation sector are all involved in military production. Military production is believed to be allocated the best manpower, machinery and resources. Soviet industry bears heavy investment costs on behalf of the military, but military production is not immune to problems facing the general economy. Capital investment was not shifted to the industrial sector as planned in 1980-85 because of capital investment problems in all sectors of the economy. Statements by civilian and military officials concerned at lagging industrial technology and sluggish heavy industry performance, affecting both defence and consumer output, suggest that industry should receive more capital investment. Industrial capital investment has shifted from ferrous metals, light industry and consumer production to energy and (to a lesser degree) machinery during the last five years. The liberal economist Abel Aganbeyan and many mili-

tary officials are calling for a larger shift to the machinery industry; the 1985 economic plan allocates a 14% increase in capital investment for that industry. The nine defence ministries are not part of the widely publicised economic experiments, although some related ministries are affected. Western reports suggest that there are no radical economic changes taking place in the defence industries. The economic experiments and the main thrusts of economic planning appear to be carefully controlled, suggesting that the Soviet leadership is following a conservative course in improving performance of the military-industrial complex and the general economy. Some Western observers believe that current economic and investment policies are a symptom of an overburdened economy; others perceive more aggressive intentions. Nevertheless, the high priority accorded to defence-related industries suggests that the Soviet economy continues to be capable of supporting large-scale military production. Although the command-based Soviet economy has several bottlenecks, technological inferiorities, inefficiencies and under-utilized industrial capacity, it is judged capable of sustaining or even expanding its defence effort should the Soviet leadership decide to make the sacrifice.

Although estimates of Soviet defence spending may provide some indication of the burden of defence on the economy and a rough comparison with the American effort, they are only estimates. Until more extensive data are published, current estimates are too imprecise to provide more than a trend line of Soviet activities.

THE SOVIET UNION

NMP 1983: r 548.1 bn. 1984: 564.5 bn.
Est GNP range 1983: \$1,608-1,850 bn. 1984: \$1,672-1,920 bn.
NMP growth 1983: 4.0%. 1984: 3.0%.
Inflation 1983: 2.0%. 1984: -3.4%.
Debt 1983: \$27 bn. 1984: \$28 bn.
Est def exp and exchange rate: see text above.

Population: 276,500,000.
Men: 18-30: 31,077,000; 31-45: 25,295,000.
Women: 18-30: 29,994,000; 31-45: 25,630,000.

TOTAL ARMED FORCES:

Regular: 5,300,000.¹
Soviet forces comprise, in order of seniority, Strategic Rocket Forces (SRF); Ground Troops (Army); Air Defence (AD), Air Force and Navy.
Terms of service: SRF/Army/AD/Air Force 2 years; Navy/Border Guards 3 years.
Reserves: 5,400,000 (service within last 5 years); SRF 520,000; Army 3,500,000; Air Defence 520,000; Air Force 400,000; Navy 460,000. Males have a Reserve obligation to age 50; total: some 25,000,000.

STRATEGIC FORCES:

(a) **Sea-launched:** (Navy: 20,000).
SLBM: 979 in 77 subs (940 SLBM and 62 subs come under SALT; 39 SLBM, 15 subs are outside It).
SSBN: 63:
3 *Typhoon* with 20 SS-N-20 (60 msls).
1 *D-IV* with 16 SS-N-23 (16 msls).
14 *D-III* with 16 SS-N-18 (224 msls).
4 *D-II* with 16 SS-N-8 (64 msls).
18 *D-I* with 12 SS-N-8 (216 msls).
1 *Y-II* with 12 SS-N-17 (12 msls).
21 *Y-I* with 16 SS-N-6 (336 msls).
1 *H-III* with 6 SS-N-8 (6 msls) } msls (12) but not subs within SALT
SSB: 14:
1 *G-III* with 6 SXS-N-8 (6 msls)
13 *G-II* with 3 SS-N-5 (39 non-SALT theatre msls).
(b) **Ground-launched:** (SRF: 300,000).
6 rocket armies, org in divs, regts, bns and btys of 1 msl launcher; 300 launch control HQ, 3 msl test centres.
ICBM: 1,398.²
SS-11 *Sego*: 520 (at 8 fields, SS-X-25 will replace).
SS-13 *Savage*: 60 (at 1 field, SS-X-25 will replace).
SS-17: 150 (at 2 fields; mod 1; mod 3, 4 MIRV).
SS-18: 308 (at 6 fields; upgrading to mod 4, 10 MIRV, in progress).
SS-19: 360 (at 4 fields; mostly mod 3, 6 MIRV).
SS-X-24 being introduced at two locations, each 50 msls.

SS-X-25: some 400 may replace SS-11 and SS-13 from late 1985; 20 bases, each for 10 msls, reported under conversion.³

IRBM/MRBM: 543 (336 in western, rest in central and eastern USSR).

SS-20: 423 mobile IRBM (3 MIRV) (216 west of Urals, 162 in Far East; 45 launchers in Central Asia are being relocated to sites in Western USSR already being built; further sites are reported under construction).⁴

SS-4 *Sandal*: 120 MRBM in western USSR (being retired).

(c) **Air-launched:** (100,000).

STRATEGIC AVIATION (under Supreme High Command): 5 Armies; about 1,680 combat ac, some in western USSR. 1 Army may be for intercontinental roles, 4 for Theatre spt.

Bbbs: 1,120.

LONG-RANGE: 170: 125 Tu-95 *Bear* A/B/C/G/H, (some 80 *Bear* B/C/G have AS-3/-4 ASM, 25 -H have AS-15 (ALCM)); 45 *Mya-4 Bison*.

(*Blackjack* strategic bomber under development.)

MEDIUM-RANGE: 500: 130 Tu-22M *Backfire* B/C (AS-4 ASM); 240 Tu-16 *Badger* G (in regts each with 2 sqns, 36-48 Tu-16, plus 1 composite sqn: 2-4 *Badger* H, 1-2 -J, 3-6 Tu-16A tankers; 130 Tu-22 *Blinder* A/B.

SHORT-RANGE: some 450 Su-24 *Fencer*.

Recces: 100: 4 Tu-95 *Bear* E, 15 Tu-16 *Badger* F, 15 Tu-22 *Blinder* C, 25 MiG-25 *Foxbat* B/D, 42 Yak-28 *Brewer* D.

Ftrs (base defence): some 300 MiG-23 *Flogger* B/G, MiG-21 *Fishbed* J/K/L/N.

ECM: 160: 100 Tu-16 *Badger* H/J/K, 60 Yak-28 *Brewer* E.

Tankers: 50: 30 *Mya-4 Bison* A, 20 Tu-16 *Badger*.

ASM: AS-3 *Kangaroo*, AS-4 *Kitchen*, AS-5 *Kelt*, AS-6 *Kingfish*.

ALCM: AS-15.

(On order: *Blackjack*, Tu-22M *Backfire* bbbs, Tu-95 *Bear* H (ALCM mod), AS-15 ALCM.)

DEPLOYMENT: see composite entry, below.

GROUND FORCES: 1,995,000 (perhaps 1,400,000 conscripts).

3 GTVD, 3 TVD HQ.

51 tk divs (Type: 3 tk, 1 motor rifle, 1 arty, 1 SAM AA regts, 1 SSM, 1 MRL bns, spt units).

141 motor rifle divs (Type: 3 motor rifle, 1 tk, 1 arty, 1 SAM regts, 1 SSM, 1 ATK, 1 MRL bns, spt units).

7 AB divs (each 3 para, 1 arty regts, 1 AA bn).

Some 8 air assault bdes (each 4 rifle bns, arty, SAM, ATK, spt tps).

Front and Army tps:

16 arty divs (Type (Front): 3-4 bdes (11 bns): 3 bns each 24 152mm guns, 3 each 24 152mm gun/how, 3 each 24 200mm MRL, 1 of 12 203mm how and 1 of 12 240mm mor (nuc)).

Arty bdes (Type (Army): 4 bns: 1 of 24 152mm guns, 1 of

24 152mm gun/how, 2 each of 24 152mm SP guns).

Tk, arty, SSM, ATK, AD (SAM and arty), engr bdes, sigs, electronic warfare, hy tk tpt regts, nbc defence, cw bns, spt services.

Special forces (*Spetsnaz*): 16 bdes, 3 regts.

Army Avn: regts and sqns assigned to division and above; some 20 are assigned as 'attack' regts with 60+ Mi-8 and Mi-24 armed hel (see also Air Force below).

Ministry of Defence tps:

Rear Services.

Troops of Civil Defence: (150,000 permanent staff, 16,000,000+ on mobilization). Nationwide programme down to city/rural/industrial level incl some 75 comd posts within 120 km of Moscow, 1,500 hardened deep shelters, accommodation for at least 175,000 officials, and local urban hardened shelters for essential workforce and some of the general population.

Tks: some 52,600; some 33,500 T-54/-55/-62, some 9,300 T-64, 9,800 T-72/-80 (most fitted for deep fording); LT: PT-76.

AFV: some 70,000; **RECCE:** 7,500; incl BRDM-2, GT-S, BMP variants, many with ATGW; ACRV-1/-2/-3 comd/recce; **MICV:** 27,000; 24,000 BMP-1/-2/-3 with 30mm gun, some 3,000 BMD (AB); **APC:** 35,500 BTR-50P/-60P/-70/-152 (-70, BMP-2 replacing -50/-60), GTT, MT-LB (with SA-13/-19 SAM).

Arty: some 33,000 (some 4,700 spt); **GUNS:** incl M-1966 76mm, D-74 122mm, M-46 130mm, M-1976 152mm, S-23 180mm towed, 2-S5 152mm SP; **gun/how:** M-1937/D-20 towed, 3,500+ M-1973 (2-S3) 152mm SP; **how:** M-1938/D-30 122mm, M-1938/D-1 152mm towed, M-1974 (2-S1) 122mm, M-1975 203mm SP; **MOR:** 11,000 120mm, 160mm and M-1975 240mm SP; **MRL:** 6,200 M-1964 (BM-21)/M-1972 (RM-70) 40 tube, M-1975 12-tube, M-1976 36-tube 122mm, BM-14/-16/-17 16/17-tube, RPU-14 16-tube 140mm, M-1977 (BM-27) 16-tube 220mm, BM-24 12-tube 240mm.

ATK: **RU/ACL:** RPG-16/-18 73mm, RPG-7 82mm; **SPG-9** 73mm; **GUNS:** 7,000 76mm, D-44/SD-44 85mm, T-12/-12A/M-55 100mm towed and ASU-57/-85 SP; **ATGW:** AT-2 *Swatter*, AT-3 *Sagger*, AT-4 *Spigot*, AT-5 *Spandrel*, AT-6 *Spiral*.

SSM (nuclear-capable): some 1,500 launchers (units organic to formations), incl some 750 *FROG/SS-21*, 600 *Scud/SS-23*, 125 SS-12/SS-22.

GLCM: SS-X-4 reported under development.

AD: **GUNS:** 21,000: ZU-23 23mm, 37mm, S-60 57mm, 85mm, KS-19 100mm, 130mm towed, ZSU-23-4 23mm, 30mm (incl ZSU-30-6 trials), ZSU-57-2 57mm SP.

SAM: 4,300 crew-served field mobile systems; (some 440 units):

SA-4 *Ganef* (twin): 1,400 (Army/Front weapon).

SA-6 *Gainful* (triple): 900 (div level).

SA-7 *Grail* (man-portable): perhaps 25,000 (unit weapon).

SA-8 *Gecko* (2 x 2 or 2 x 3): 700 (at div).

¹See p. 85 for footnotes.

SA-9 Gaskin (2 x 2): 575 (at regt).
 SA-11: 50 (at div, being introduced).
 SA-13 Gopher (2 x 2): 675 (replacing SA-9).
 SA-X-12 (to replace SA-4 from 1986).
 SA-X-14 (unit weapon) reported under development.

RADAR:

(i) Surveillance: *Long Track* (SA-4/6), P-50 *Bar Lock*.
 (ii) Height-finder: *Thin Skin*.
 (iii) Missile control: *Pat Hand* (SA-4), *Straight Flush* (SA-6), *Land Roll* (SA-8).
 (iv) AA arty fire control: *Gun Dish* (ZSU-23-4), *Fire Can* (57mm, 85mm), *Whiff*, *Fire Wheel* (57mm, 130mm).

Avn: some 4,300 hel (see also Air Forces of MOS and Gps of Forces).

ARMED: 1,250; 150 Mi-17 *Hip E*, 1,100 Mi-24 *Hind*. Mi-28 reported under development.

TPT: some 2,300; some 1,500 Mi-8 *Hip C*, 250 Mi-17 *Hip H* (assault); 450 Mi-6 *Hook*; ?12 Mi-26 *Halo A* (hy).

ECM: 10 Mi-17 *Hip J*.

LR RECC/ATK/UTILITY: 740 Mi-2 *Hoplite*, 20 Mi-4 *Hound*; Mi-17 *Hip D/G* (comms).

DEPLOYMENT: see composite entry below.
 Soviet divs have 3 categories of combat readiness: Category 1, full strength on 24 hours notice, eqpt complete. Category 2, 50-75% strength, complete with fighting vehicles, full manning planned to take 3 days. Category 3, cadre (some 20% strength), combat eqpt possibly complete, older models, planned to be fully manned in some 8-9 weeks. The system may now be changing, with some units in a formation being at full strength, others at cadre only. 'Second Generation' divs using key personnel from the active divs and older reservists and equipment could be mobilized and retrained in some months. Some 13 of these are reported to exist. The 30 divs and 1 arty div in Eastern Europe, AB divs and air assault bdes are Category 1. About 20% of the divs in European USSR are in Category 1 or 2. Most in Far Eastern, Central and Southern USSR are likely to be Category 3. Tk divs in Eastern Europe have up to 325 mt, motor rifle divs up to 271; holdings elsewhere may be lower.

NATIONAL AIR DEFENCE TROOPS (Aviation of Air Defence—APVO): 635,000.

5 Air Defence District Commands: Air regts and indep sqns; ad regts; 14 specialist schools.

ABM:

ABM-1B *Galosh*: 32: range 320+ km, warheads nuclear, presumably mt range. 8 sites in 4 complexes around Moscow.

New ABM (SH-04 exoatmospheric, SH-08 supersonic endoatmospheric) being emplaced.

Aircraft:

Interceptors: 1,200+: some 430 MiG-23 *Flogger B/G* (6 AAM); 300 MiG-25 *Foxbat E* (4 AAM); 1 regt, some 36 MiG-29 *Fulcrum* (6 AA-10); (75 bns), 75 MiG-31 *Foxhound A* (8 AA-9); 200 Su-15 *Flagon E/F* (2 AAM); 90 Yak-28P *Firebar* (2 AA-5); 90 Tu-28P *Fiddler B* (4 AA-5).

Airborne Warning and Control: 9 Tu-126 mod *Moss*; 4 Il-76 *Mainstay* (replacing *Moss*).

AAM: AA-2 *Atoll*, AA-3 *Anab*, AA-5 *Ash*, AA-6 *Acrid*, AA-7 *Apex*, AA-8 *Aphid*, AA-9, AA-10.

SAM: strategic role; some 9,600 launchers (some 14,000 launcher rails) in some 1,200 sites:

SA-1 *Guilid*: 2,875 (being replaced by SA-10).
 SA-2 *Guideline*: 2,900 (SA-10 may be replacing).
 SA-3 *Goo*: 1,250 (2 or 4 launcher rails, over 300 sites, low to med-altitude intercept).

SA-5 *Gammon*: 2,000+ launchers (100+ complexes, long-range intercept).

SA-10: some 520 (quad, some 60 complexes; 30 with a strategic role).

Warning Systems:

Some 7,000, incl satellites and ewng and ground control intercept radars.

(a) Satellites: 9 with highly elliptical semi-synchronous orbits (anti-ICBM/SLBM launch detection capability). Others incl 9 EWng, 6 ELINT, 2-4 recce, 1 launch detection.

(b) Over-the-horizon (backscatter) radars: 3: 2 near Minsk and Nikolayev (Caucasus), targeted on the US and polar areas; 1 near Nikolayev-na-Amur, on China.

(c) Long-range early-warning radars:

(i) **ABM-associated:**
 (a) 5 phased-array systems at Lyaki, Krasnoyarsk (under construction), Sary-shagan, Pechora, Mischelevka. 2 other sites reported.

(b) 11 *House (Hen)*-series; range 6,000 km, 6 locations covering approaches from the west and south-west, north-east and south-east (and partially) south. Linked to intermediate-range *Dog House* (range 2,800 km) and *Cat House* and *Try Add* msl control radar.

(c) *Flat Twin*; *Pawn Shop* (ABM-3/SH-04/08).

(ii) **AD-associated:**
Tall King, range 600 km (SA-5); P-12 *Spoon Rest*, 275 km (SA-2).

(d) Search, surveillance/target-acquisition radars: (7,000; 1,200 sites):

Back Trap; P-50 *Flat Face/Squat Eye*, 200 km (SA-3); P-50 *Bar Lock*; P-50 *Back Net*, 320 km (SA-5).

(e) Height Finder radars: *Cake-series* (e.g., *Rock Cake*), 200 km; *Side Net*, 180 km; *Odd Pair*; *Odd Group*.

(f) Missile control radars: *Yo-Yo* (SA-1); *Fan Song A* to *E* (SA-2); *Low Blow* (SA-3); *Square Pair* (SA-5); *Flap Lid* (SA-10).

(g) Civilian air control equipment.

AIR FORCE: 570,000.

Air Forces of the Soviet Union: (315,000). 17 MD and Groups of Forces. Air Forces, Military Transport Aviation (VTA—see below), Strategic (p. 82) and Air Defence. In wartime will control all strategic, theatre, tactical and transport air.

Combat: some 5,900 ac, 2,830 hel; strengths vary, mostly org in divs of 3 regts of 3 sqns, total 135 ac; the regts roles incl ad, interdiction, recce, tac air spt. Div may have a mix of roles.

FGA: some 2,350; 135 MiG-21 *Fishbed L*, 760 MiG-27 *Flogger D/J*, 130 Su-7 *Fitter A*, 1,000 Su-17 *Fitter D/H/K*, 250 Su-24 *Fencer* (450 more with Strategic), 75 Su-26 *Frogfoot*.

Frs: 2,360; 530 MiG-21 J/K/L/N, 1,700 MiG-23 *Flogger B/G*, 130 MiG-25 *Foxbat A/E* (Su-27 *Flanker* may be about to enter service).

Attack assault hel: 2,650: Mi-8 *Hip C/E*; Mi-24 *Hind D/E*.

Recc: 560: 170 MiG-25 *Foxbat B/D*, 50 MiG-21 *Fishbed H*, 150 Yak-28 *Brewer D*, 190 Su-17 *Fitter H/K*.

ECM: AC: 30 Yak-28 *Brewer E*; HEL: 180 Mi-8 *Hip J/K*.

Trg: some 1,000 ac, 700 hel; perhaps 600 combat capable (OCUS).

AAM: AA-2 *Atoll*, AA-7 *Apex*, AA-8 *Aphid*, AA-9. **ASM:** AS-7 *Kerry*, AS-10; HEL-BORNE: AT-2 *Swatter*, AT-6 *Spiral*.

MILITARY TRANSPORT AVIATION (VTA): (65,000); some 600 ac.

Org in 5 divs, each 3 regts, each 30 ac. Some indep regts. 270 An-12 *Cub*, 270 Il-76M/MD *Candid B* (replacing *Cub*), 55 An-22 *Cock*, 3 An-124 *Condor* (in production), (Il-76 med tanker under development.)

Assigned to Air Comds in regts and sqns (not VTA): 1,250: 265 An-2 *Colt*, An-24 *Coke*, An-26 *Curl*, Il-14 *Crate*.

In addition, 1,400 med- and long-range passenger ac, incl some 200 *Cub* and *Candid* of the civilian Aeroflot fleet and the 1,250 tpts of the other Services, could augment VTA airlift.

DEPLOYMENT: see composite entry below.

NAVY: 480,000 (20,000 in Strategic), (some 75% conscripts), incl Naval Air Force, Naval Infantry, Coastal Artillery and Rocket Troops.

Subs: 371 (381—see Attack, below):

Cruise missile: 66:
Nuclear (SSGN): 49.

1 Y-class with perhaps 24 SS-N-24 SLCM.
 2 O-class with 24 SS-N-19.
 1 P-class (10 msls); ?SS-N-9 *Siren*.

17 C-class: 11 C-1 with 8 SS-N-7; 6 C-11 with 8 SS-N-9.
 28 E-12: some 20 with 8 SS-N-3a; some 8 with 8 SS-N-12.

Diesel (SSG): 17:
 16 J-class with 4 SS-N-3a.
 1 W-Long *Bin* with 4 SS-N-3.

Attack: 203 (213 if all Y-1 and H-2 converting from SSBN were incl):

Nuclear (SSN): 72: 6 A, 12 N, 1 Akula, 1 M, 1 S, 16 V-1, V-11, 20 V-11, 5 E-1, 1 Y, 2 H.
Diesel (SS): 131: 7 K, 19 T, 50 F, 15 R, 50 W.

Other roles: 102:
 Comd conversion: 3 G-1; trg: 4 B; rescue: 2 I; research: 3: 1 U and 1 X SSN, 1 L; SLBM research: 1 G-V; reserve: 10 F, 4 Z, 75 W.

(10 Y) SSBN are being converted to other roles incl SSN. Apart from the older N and E, most SSN probably carry SS-N-16 and/or SS-N-15 nuclear ASW weapons.)

A new land target naval cruise msl, SS-NX-21, is being developed which could be carried in some of the modern SSN.

Principal surface combatants: 289. (For KGB units see p. 85.)

Carriers: 6:
 4 *Kiev* (37,000 tons) (1 on trials) with 4 x 2 SS-N-12 *Sandbox* ssm, 2 x 2 SA-N-3 and 2 x 2 SA-N-4 SAM, 1 x 2 SUW-N-1 ASW, 14 Yak-38 *Forger A/B* v/stol ac, 16 Ka-27 *Helix A*, 3 Ka-25 *Hormone B* hel.

2 *Moskva* (17,000 tons) with 2 x 2 SA-N-3 SAM, 1 x 2 SUW-N-1 (FRAS-1) ASW, 18 *Hormone A* hel.

Cruisers: 39:
 CGN: 2 *Kirov* with 20 SS-N-19 ssm, 12 SA-N-6, 2 x 2 SA-N-4 SAM, 1 x 2 SS-N-14 *Silex* ASW (1 ship only), 3 Ka-25 *Hormone B* hel.

CG/ASW: 27: 2 *Slava* (1 on trials) with 8 x 2 SS-N-12 *Sandbox* ssm, 8 SA-N-6, 2 x 2 SA-N-4 SAM, 1 Ka-27 hel; 7 *Kara* with 2 x 4 SS-N-14 ASW, 2 x 2 SA-N-3, 2

x 2 SA-N-4 SAM (1 trials with 1 x 6 SA-N-6 replacing twin SA-N-3); 1 Ka-25 *Hormone A* hel; 10 *Kresta-II* with 2 x 4 SS-N-14, 2 x 2 SA-N-3, 1 Ka-25 *Hormone A* hel; 4 *Kresta-I* with 2 x 2 SS-N-3b ssm, 2 x 2 SA-N-1 SAM, 1 Ka-25 *Hormone B* hel; 4 *Kynda* with 2 x 4 SS-N-3b, 1 x 2 SA-N-1.

Lr: 10 *Sverdlov* (2 command with 1 x 2 SA-N-4, 1 Ka-25 hel).

Destroyers: 69:
Dbo: 13: 4 *Sovremenny* with 2 x 4 SS-N-22 ssm, 2 SA-N-7 SAM, 1 *Hormone B* hel; 6 mod *Kashin* with 4 SS-N-2c, 2 x 2 SA-N-1; 3 mod *Kildin* with 4 SS-N-2c.

Asw: 34: 5 *Udaloy* with 2 x 4 SS-N-14 2 Ka-27 hel; 13 *Kashin* (12 with 2 x 2 SA-N-1, 1 with SA-N-7 (trials)); 8 *Kanin* with 1 x 2 SA-N-1; 8 *Sam Kotlin* with 1 x 2 SA-N-1.

Do: 22: 12 *Kotlin*, 9 *Skory*, 1 *Kildin*.

Frigates: 175:
Frg: 32: 21 *Krivak-I*, 11 *-II* with 1 x 4 SS-N-14, 2 x 2 SA-N-4.

Fr: 35: 1 *Koni*, 34 *Riga*.
FFL (corvette): 108: 50 *Grisha-II-III* with 1 x 2 SA-N-4 SAM; 18 *Mirka-II-II*; 40 *Petya*.

Minor surface combatants: 700:
GW patrol boats (FLG): 37: 1 *Tarantul II* with 2 x 2 SS-N-22 (trials); 2 *Tarantul I*, 10 *-II* all with 2 x 2 SS-N-2c; 24 *Nanuchka-II-III* with 2 x 3 SS-N-9 (*Siren*), 1 x 2 SA-N-4.

FAC: (g): 109: 60 *Osa-I*, 32 *Osa-II*, all with 4 SS-N-2; 17 hydrofoil (1 *Sarancha* with 2 x 2 SS-N-9, 1 x 2 SA-N-4; 16 *Matka* with 2 SS-N-2c); (tr): 113: 15 *Pauk* with 1 x 4 SA-N-5; 58 *Poti*, 10 *Shershen*, 30 *Turya* torpedo hydrofoils; **RESEARCH:** 2: 1 *Slepen*, 1 *Babochka*.

Patrol craft: 81: 20 SO-1 (some KGB), 5 T-58; 2 T-58, 9 T-43/PFR radar pickets; **RIVER:** 45 *Shmel*.

Mine warfare: 358:
MINELAYERS: 3 *Alesha*.
MCMV (OCEAN): 115: 35 *Natya-II-II*, 45 *Yurka*, 35 T-43; (COASTAL): 175: 2 *Andryusha*, 50 *Sonya*, 3 *Zhenya*; 5 *Sasha*, 70 *Vanya*, 45 *Evgenya*; (INSHORE): 65: 10 *Ilyusha*, 5 *Olya*, 20 TR-40, 30 K-8.

Amph forces: 178: 79 ships, 99 craft.
LPD: 2 *Ivan Rogov* with 1 x 2 SA-N-4, 4 x 4 SA-N-5, 2-3 Ka-27 hel.

LST: 32: 18 *Ropucha*, some with 4 x 4 SA-N-5; 14 *Aligator* (some with 3 x 2, 1 with 2 x 2 SA-N-5).

LSM: 45: 41 *Polnocny*, some with 2 or 4 x 4 SA-N-5; 4 MP-4.

Amph craft: 99:
LCU: 30: 5 *Vydra*, 5 *SMB-1*, 20 *Onadata*.

HOVERCRAFT: 69: 17 *Aist*, 18 *Lebed*, 30 *Gus*, 2 *Utenok*, 1 *Tsaplya*, 1 *Ekranoplan* experimental.

Principal auxiliary ships: 305:
Tankers: 71: 28 replenishment, 30 spt, 13 special liquid.

Spt: 234: 12 msl, 10 supply, 80 cargo, 20 submarine tenders, 36 repair, 2 hospital, 22 submarine rescue, 25 salvage/rescue, 10 trg, 7 msl range ships, 10 ice-breakers.

Mechant fleet (auxiliary/augmentation): 1,900 ocean-going, incl 17 ramp-fitted roll-on/roll-off (RO/RO) (10 Arctic service); 700 river ships (in deep sea service).

Intelligence collection vessels (AGI): 60.
Research: 495: 40 naval, 105 survey; 350 civilian oceanographic, fishery, survey, space-associated and hydrographic vessels.

Additional in reserve:
 2 *Sverdlov* cc (1 with 1 x 2 SA-N-2 SAM); 6 *Kotlin*, 5 *Skory* DD; 10 *Riga* FL; 35 *Shmel*; 10 T-43, 5 *Sasha* MCMV; amph vessels.

(On order: 3-4 *Typhoon*, D-IV SSBN; 0 SSGN; *Akula*, M, S SSN; KSS; 1 65-75,000-ton, 1 *Kirov* CGN; 1 *Slava* CG; 4 + *Sovremenny*, 4 *Udaloy* DCG; *Krivak-II* FFG, *Grisha-III* FFL; *Tarantul*, *Nanuchka* FLG; *Muravey*, *Glenka*, *Pauk* FAC(T); *Sonya* coastal MCMV; *Ropucha* LST; *Aist*, *Lebed* hovercraft; *Balzan* AGI.)

NAVAL AIR FORCE: (70,000); some 875 combat ac, some 310 combat hel.

Four Fleet Air Forces; org in air divs, each with 2-3 regts of HQ elements and 2 bns of 9-10 ac each; recce, ASW, tp/utility org in indep regts or sqns.

Bhrs: some 345 ac; 5 regts of some 100 Tu-22M *Backfire B* (AS-4 ASM); 7 regts of some 160 Tu-16 *Badger C*, 50 G/G-mod (AS-5 ASM); 2 regts of some 35 Tu-22 *Blinder B*.

FGA: 135: 70 Yak-38 *Forger A/B* v/stol (in carriers), 65 Su-17 *Fitter C*.

ASW: ac: some 195: 55 Tu-142 *Bear F*, 50 Il-38 *May*, 90 Be-12 *Mail*; HEL: some 250: 90 Mi-14 *Haze*, 120 Ka-25 *Hormone A*, 50 Ka-27 *Helix A*.

MR/ECM: ac: 170: 40 Tu-16 *Badger D/E/F/K* (MR), 40 H/J (ECM), 20 Tu-22 *Blinder C*, 45 Tu-95 *Bear D*, 25 An-12 *Cub C/D*; HEL: 25 Ka-25 *Hormone B* hel.

MCM: some 10 Mi-14 *Haze B* hel.
Tankers: 75 Tu-16 *Badger*.

Tp/trg: ac: 400: incl An-12 *Cub A*, An-26 *Curl*, Il-14 *Crate*, Il-18 *Coot*, An-4 *Coke*, Il-76 *Classic*; HEL: Mi-6/8 *Hook/Hip*.

ASM: AS-2 *Kipper*, AS-4 *Kitchen*, AS-5 *Kelt*, AS-6 *Kingfish*, AS-7 *Kerry*.

NAVAL INFANTRY (Marines): (16,000).
Div HQ: 1:
Bdes/regts: 5 inf: (Type: 3,000; 3 inf, 1 tk, arty bns; 31 mbt, 10 lt tk/MICV, 30 122mm SP how, 6 MRL, 6 ATK MICV, 4 SP AA guns, 4 SP SAM).
4 naval Special Forces (*Spetsnaz*) bdes (one in each Fleet).
Indep units: 20:
Tks: 155 T-54/-55; LT: 50 PT-76. **AFV:** RECCE: 30 BRDM-2 with Sagger ATGW; APC: BTR-60P/PA/PB. **Arty:** HOW: 251 122mm SP; MOR: 82mm, 30 120mm; MRL: 30 BM-14 17-tube 140mm or BM-21 40-tube 122mm; ATGW: AT-3/-5. **AD:** GUNS: 20 ZSU-23-4 SP; SAM: SA-7, 20 SA-9, MTB-LB/SA-13 SP. **Hel:** Mi-8 *Hip* E.

COASTAL ARTILLERY AND ROCKET TROOPS: (14,000), 1 coastal arty div.
Eqpt: incl SM-4-1 130mm; ssm: perhaps 100 SS-C-1b *Sepal* (similar to SS-N-3). Protect approaches to naval bases and major ports.

DEPLOYMENT AND BASES (all Services):
(Soviet strategic planning envisages three major Strategic Theatres (GTV) which may be further subdivided into regional Theatres (TV), perhaps four associated Oceanic Theatres (OTVD), and a Central Reserve. Forces within these Theatres are centrally controlled and co-ordinated, integrating all the elements assigned to accomplish the operational mission. The deployments shown for SLBM and ICBM and for AB divs reflect their physical location, but control of them is exercised centrally.)

A possible assignment, of necessity speculative, of known forces may be as follows (average strengths, excl units in reserve; eqpt strengths based on typical organizational establishments):

WESTERN STRATEGIC THEATRE (GTVD):
(HQ: Kiev): 3 subordinate continental, 2 associated oceanic theatres (OTVD).
NORTH-WESTERN TVD (with Arctic OTVD): (HQ: Petrozavodsk):
Strategic Forces (SLBM under central control):
SLBM: 576: Northern Fleet: 3 *Typhoon* subs (60), 21 D (300), 13 *Y-II-II* (24); 1 *H-III* (6), 1 *G-III* (6).
ICBM: Plesetsk test site only.
Bbrs: nil.

Air Defence Forces:
EWng systems: major site near Kovdov, W. Kola, detail deployments unknown.
AD: 1 district: Arkhangel (incl Kola Peninsula).
Ftrs: 270 (some dual role FGA): perhaps 9 regts MiG-23 *Flogger*, MiG-25 *Foxbat*, MiG-29 *Fulcrum*, MiG-31 *Foxhound*; Su-15 *Flagon*; Yak-28P *Brewer*.
AEW: 6 Tu-126 *Moss* (some 4 Il-76 *Candid* replacing).
SAM: over 50 complexes: SA-2/-3/-5/-10.

Ground Forces: Leningrad MD (HQ Leningrad): 9 motor rifle, 1 AB divs, plus 1 arty div and 1 air assault bde. Mobilization could field 1 Front, 2 all-arms armies with 2,400 mbt; 2,100 arty, MRL, hy mor; 36 *FROG/SS-21*, 50 *SCUD/SS-23* and 12 *SS-12/22* ssm; 300 attack and tpt hel.

Tactical Aviation: Leningrad MD Air Force (HQ: Leningrad): combat: 175 ac, some 75 hel.
FGA: 3 regts (145 ac) MiG-21 *Fishbed*, MiG-27 *Flogger*, Su-17 *Fitter* C/D.
Recce: 3 sqns (30 ac) MiG-21/25; Su-17 *Fitter* H.
Hel: 115: **ATTACK:** 35 Mi-24 *Hind*; **ASSAULT:** 70 Mi-8 *Hip* C; **ECM:** 10 *Hip* J.
Trp: ac: 30; **HEL:** 90 Mi-8 *Hip*, Mi-6 *Hook*, Mi-2 *Hoplite*.

Navy: Northern Fleet (HQ Severomorsk): Bases: Kola Inlet, Motovskiy Gulf, Gremikha, Polyarny.
Subs: 116: ssgn/ssg: 35; ssn/ss, 81. (8-10 normally deployed to Mediterranean.)
Principal combatants: 81: 1 carrier, 13 cruisers, 20 destroyers, 17 frigates, 30 corvettes; detos to Mediterranean Sq. (See South-Western TVD below.)
Minor combatants: 110.
Amph: 13.
Auxiliaries: 87 principal.

Naval Aviation: combat: 305 ac, 70 hel.
Bbrs: 50 Tu-16 *Badger* C.
Ftr/FGA: 20 Yak-38 *Forger*.
ASW: 150: ac: Tu-142 *Bear* F, Il-38 *May*, Be-12 *Mail*; **HEL (AFLOAT):** Ka-25 *Hormone*; **(ASHORE):** Ka-25, Mi-14 *Haze*, Ka-27 *Helix*.
Recce: 85: Tu-16 *Badger*, Tu-95 *Bear*, Tu-22 *Blinder* MR, ECM.
Tankers/tpt: 40 ac incl Tu-16 tankers, perhaps 60 hel.

Naval Infantry:
Bde: 3,000; 5 bns.

WESTERN TVD (with Atlantic OTVD): (HQ: Legnica):
Strategic Forces (msls and ac under central control):

SLBM: 18: Baltic Fleet: 6 *G-II* ssa (18).
ICBM: (?50): SS-17 (1 field). (Could have theatre role.)
IRBM: (?162): SS-20 (6 fields).
MRBM: 120: SS-4 (2 fields).
Bbrs: 1 Air Army (HQ: Legnica): some 150 incl Su-24.

Air Defence Forces:
EWng Systems: 2 OTH(B) near Minsk, 1 major complex near Tallinn; deployment details unknown.
Ftrs: See Tactical Aviation (MDS).
SAM: 6,500 SA-2/-3/-5/-10; more than 150 sites.

Ground Forces: (HQ: Legnica): 3 Groups of Soviet Forces, Baltic, Byelorussian, Carpathian mds; 62 divs (31 tk, 29 motor rifle, 2 AB), plus 6 arty divs.
East Germany (GSRG): (HQ: Zossen-Wünsdorf): (380,000): 1 Gp, 5 Army HQ; 10 tk, 9 motor rifle plus 1 arty divs; 1 air assault, 1 SS-12/22, 2 *Scud/SS-23*, 5 arty bdes; 5 attack hel regts.
Poland (NGP): (HQ: Legnica): (40,000): 1 Gp, 1 Army HQ; 2 tk divs; 1 *Scud/SS-23* bn; 1 attack hel regt.
Czechoslovakia (CGF): (HQ: Tabor): (80,000): 1 Gp, 2 Army HQ; 2 tk, 3 motor rifle divs; 1 air assault bn; 1 SS-12/22, 2 *Scud/SS-23*, 1 arty bdes; 2 attack hel regts.
Baltic MD: (HQ: Kaliningrad): 3 tk, 6 motor rifle, 2 AB plus 2 arty divs.
Belorussian MD: (HQ: Minsk): 10 tk, 4 motor rifle, plus 1 arty divs.
Carpathian MD: (HQ: Lvov): 3 Army, 4 tk, 7 motor rifle, plus 2 arty divs.
The 26 divs in Central Europe, the 2 AB and perhaps 11 of the 34 line divs all in the Soviet Union are Cat. 1 or 2. Mobilization of these divs in the TVD could produce five Fronts, 13-14 Armies (which would also command the non-Soviet Warsaw Pact formations) and up to 13,000 mbt; 7,900 arty, MRL, mor larger than 120mm; 150 *FROG*, (?48) SS-21, 250 *Scud/SS-23*, 65 SS-12/22 ssm; 2,220 SAM.

Tactical Aviation: combat: some 1,860 ac, 1,160 hel.
East Germany: Air Forces of the Group of Soviet forces Germany (HQ: Zossen-Wünsdorf): combat: some 690 aircraft; 560 helicopters.
FGA: 320 Su-17 *Fitter* D/H/K, MiG-27 *Flogger* D/J, Su-24 *Fencer*.
Ftrs: 300: MiG-21 *Fishbed* L/N, MiG-27 *Flogger* B/G.
Hel: 550: Mi-8 *Hip* C/E; Mi-24 *Hind* D/E.
Recce: 50 Su-17 *Fitter* H, MiG-25 *Foxbat* B/D.
ECM: 20 Yak-28 *Brewer* ac; Mi-8 *Hip* J/K hel.
Tpt: 60 ac and hel.

Czechoslovakia: Air Forces of the Central Group of Forces (HQ: Lvov): combat: 105 ac; 100 hel.
FGA: 45 MiG-27 *Flogger* D/J.
Ftrs: 45 MiG-27 *Flogger* B.
Hel: 100: Mi-8 *Hip* D/E, Mi-24 *Hind* D/E.
Recce: 15 Su-17 *Fitter* H.
Tpt: 5 ac and hel.

Poland: Air Forces of the Northern Group of Forces (HQ: Legnica): combat: no ac; 120 hel.
Hel: 120 Mi-8 *Hip* C/E, Mi-24 *Hind* D/E.
Tpt: 10 ac and hel.
Baltic MD Air Force (HQ: Kaliningrad): combat: some 360 ac; 80 hel.
FGA: 90: 2 regts: Su-17, MiG-27 *Flogger* B/J.
Ftrs: 250: Hel: 80 Mi-8/-24.
Recce: 1 bn (?12) MiG-25.
ECM: 15.
Tpt: 5.

Belorussian MD Air Force (HQ: Minsk): combat: 365 ac; 150 hel.
FGA: 135: Su-17, MiG-27 *Flogger* D/J.
Ftrs: 200 MiG-21 *Fishbed* J/K/L; MiG-23 *Flogger* B/G.
Hel: 150 Mi-8/-24.
Recce: 30 MiG-21 *Fishbed* H, MiG-25 *Foxbat* B/D.
Tpt: n/a.
Carpathian MD Air Force (HQ: Vinnitsa): combat: 330 ac; 150 hel.
FGA: 180: 4 regts with MiG-17, MiG-27, Su-7, Su-17.
Ftrs: 120: 3 regts MiG-21/23.
Hel: 50 Mi-8 *Hip* E, 10 Mi-24.
Recce: 10: 1 sqn.
ECM: 20.

Navy: Baltic Fleet (HQ: Kaliningrad): Bases: Kronshtadt, Paldiski, Liepaya, Baltiysk, Riga. (Probably has dual role: to support Soviet operations in Central Europe by sea control and amph operations against the German coast, and to support a North-Western TVD operation against Scandinavia.)
Subs: 26: 4 ssa, 22 ss.
Principal combatants: 45: 3 cruisers; 11 destroyers; 14 frigates; 17 corvettes.
Minor combatants: 230.
Amph: 25.
Auxiliaries: 50 principal.

Naval Aviation: Combat: 99 ac; 30 hel.
Bbrs: 2 regts: 35 Tu-22M.

FGA: 1 regt: 30 Su-17.
ASW: 50: 10 Il-38, 10 Be-12G ac; 30 Ka-25, Ka-27, Mi-4 hel.
Recce: 14 ac.
Utility: 45 ac and hel.

Naval Infantry:
Bde: 1; 5 bns; 3,000.
Coast Defence:
SSM: 1 div: 6 bns: some 100 SS-C-1b *Sepal*.
Arty: 11 bns: some 72 130mm guns.

SOUTH-WESTERN TVD (HQ: Vinnitsa).
Strategic Forces:
SLBM: nil.
ICBM: (?180) SS-19 (2 fields).
IRBM: (?54) SS-20 (2 fields).
Bbrs: 1 Air Army (HQ: Vinnitsa): some 140 incl Su-24.

Ground Forces (HQ: Vinnitsa): 1 Group of Forces, 2 mds; 26 divs (9 tk, 16 motor rifle, 1 AB), plus 3 arty. Hungary (SGF): (HQ: Budapest) (65,000): 1 Army HQ: 2 tk, 2 motor rifle divs.
Odessa MD (HQ: Odessa): 8 motor rifle, 1 AB, plus 1 arty divs.
The 4 divs in Hungary, plus perhaps 4 of the divs in the Kiev MD are Cat. 1 or 2. Mobilization of these forces (and those of Hungary, Bulgaria and Romania) could produce 4 Fronts plus perhaps 5 all-arms Armies. The Soviet equipment total would comprise up to 2,400 mbt; 3,260 arty, MRL, mor larger than 120mm; 85 *FROG/SS-21*, 100 *Scud* ssm; 500 SAM.

Tactical Aviation: (HQ: Vinnitsa): combat: 525 ac, 185 hel. Hungary: Air Forces of the Southern Group of Forces (HQ: Budapest): combat: 210 ac, 65 hel.
FGA: 60: 2 regts: Su-17 *Fitter* D, Su-24.
Ftrs: 135: 3 regts: MiG-21 *Fishbed* K/L.
Hel: 60: 1 regt: 50 Mi-8, 10 Mi-24.
Recce: 10: 1 sqn: Su-17 *Fitter* K.
ECM: 10 ac/hel.
Tpt: 20 ac/hel.

Kiev MD Air Force (HQ: Kiev): combat: some 110 ac, some 40 hel.
FGA: 45 MiG-27 *Flogger* D/J.
Ftrs: 45 MiG-23 *Flogger* G.
Hel: 30 Mi-8 *Hip* E.
Recce: 20.
Tpt: 5.

Odessa MD Air Force (HQ: Odessa): combat: 200 ac, 80 hel.
FGA: 40: 1 regt MiG-27 *Flogger* D/J.
Ftrs: 150: MiG-21, MiG-23 *Flogger* B/G.
Hel: 80 Mi-8, Mi-24.
Recce: 10: 1 sqn: Su-17 *Fitter* H.
Tpt: ac/hel.

Navy: Black Sea Fleet (HQ: Sevastopol): Bases: Sevastopol, Balacava, Poli, Odessa. (Fleet primary mission probably to support operations in Thrace with Mediterranean Sq; secondary role, sea control off Turkish coast.)
Subs: 30: 2 ssa, 28 ss.
Principal combatants: 78: 1 carrier, 2 ASW hel carriers, 9 cruisers, 21 destroyers, 15 frigates, 30 corvettes (5 in Caspian).
Minor combatants: 160.
Amph: 21.
Auxiliaries: 53 principal (7 in Caspian).

Naval Aviation:
Bbrs: 100: 1 regt Tu-22M *Backfire*; 2 regts Tu-16 *Badger* C/G.
FGA: (?65): AFLOAT: Yak-38; ASHORE: 35 Su-17.
Recce/EWng: 1 regt, some 35 Tu-22; 1 regt, 1 bn Tu-16, Il-38, Be-12, An-12 *Cub*.
ASW: (?50): 2 regts: Tu-142 *Bear*, Il-38.
ASW hel: 40: AFLOAT: 1 bn *Hormone* A; ASHORE: 1 bn *Hormone* A.

Naval Inf: 3,000; bde: 5 bns.

(Mediterranean Squadron) (HQ: Afloat): elms of Northern and Black Sea Fleets; average composition:
Subs: 8-10.
Principal combatants: 8.
Amph: 2.
MCMV: 1.
Auxiliaries: 17-25; AGI: 2-3.

CENTRAL RESERVE:
HQ: Moscow:
Strategic Forces (under central control):
SLBM: nil.
ICBM: ?858: SS-11 (4 fields, (?260) msls), SS-13 (1 field, 60 msls), SS-17 (1 field, ?100 msls), SS-18 (3 fields, ?158 msls), SS-19 (2 fields, 180 msls).
IRBM: ?27: SS-20 (1 field).
Bbrs: 360: 2 Air Armies: (HQ: Moscow): 160: 4 divs: Mya-4 *Bison*, Tu-95 *Bear*.

(HQ: Smolensk): 460: 60 Tu-22M *Backfire*, Tu-22 *Blinder*, Tu-16 *Badger*.

Recce/ECM: 150.
Tpt: 90.

Air Defence Forces:

EWng Systems: major sites near Pechora, Pushkino; detailed deployments unknown.

AD: 1 Area: (HQ: Moscow).

Ftrs: some 450: 10 regts: MiG-25, MiG-31, MiG-23, Su-15.

ABM: Moscow complexes: 2 *Galosh*; 7 new missile sites reported under construction.

SAM: 1 complex (Moscow area).

Ground Forces: 3 MDS; 18 divs (3 tk, 14 motor rifle, 1 AB). Roles would be to protect Moscow and provide first-line reinforcement. All 7 AB divs are centrally controlled, though deployed as shown.

Moscow MD (HQ: Moscow): 2 tk, 6 motor rifle, 1 AB divs.

Ural MD (HQ: Sverdlovsk): 1 tk, 4 motor rifle divs.

Volga MD (HQ: Kuybyshev): 4 motor rifle divs.

Div readiness: perhaps 2, plus the AB, Cat. 1; rest Cat. 2 or cadre. On mobilization could field 4,500 MBT; 2,630 arty, MRL, mor larger than 120mm; 75 *FROG*, 30 *Scud*, 10 SS-12 SSM.

Tactical Aviation (HQ: Moscow MD Air Force (HQ: Moscow): combat: some 150 ac, 50 hel.

FGA: 45: 1 regt Su-17.

Ftrs: 90: 2 regts MiG-23/27, (?12) MiG-29.

Hel: 60: Mi-8, Mi-24 (some 50 armed).

Recce: 20 ac.

Southern Strategic Theatre (GTVD) (also may be referred to as 'Near Eastern').

(HQ: Tashkent): incl North Caucasus, Trans-Caucasus, Turkestan MDS, Afghanistan.

Strategic Forces (ac under central control):

Bbrrs: 1 div: some 60 med bbrrs, (?1 bn) Su-24 *Fencer*; 2 bns of spt ac.

Air Defence Forces:

EWng System: 1 site: Lyaki (Trans-Caucasus).

AD: 1 area (see MD Air Forces, below).

Ground Forces: 3 MDS; 30 divs (1 tk, 28 motor rifle, 1 AB) plus 2 arty.

North Caucasus MD (HQ: Rostov): 1 tk, 7 motor rifle, plus 1 arty divs.

Trans-Caucasus MD (HQ: Tbilisi): 12 motor rifle, plus 1 arty divs.

Turkestan MD (HQ: Tashkent): 6 motor rifle divs.

Afghanistan (HQ: Kabul): 1 Army HQ, 3 motor rifle, 1 AB divs; 2 motor rifle, 1 air assault indep bdes.

Perhaps 1 or 2 divs Cat. 1, 2 or 3 Cat. 2, rest Cat. 3—except in Afghanistan, where units will be Cat. 1 but divs may lack such eqpt as SAM. Mobilization could put 2-3 Fronts, perhaps 9 all-arms armies, in the field. This org could have: 5,500 MBT; 6,300 arty, MRL, mor larger than 120mm; 100 *FROG*, 70 *Scud* SSM; 1,600 SAM.

Tactical Aviation (HQ: Tashkent): combat: 680 ac, 405 hel.

Trans-Caucasus MD Air Force (HQ: Tbilisi): combat: 420 ac, 160 hel.

FGA: 180: 4 regts: Su-17, MiG-27 *Flogger* D/J.

Ftrs: 200: 5 regts: MiG-21, MiG-23 *Flogger* B/G, MiG-25 *Foxbat* A.

Hel: 160: Mi-8, Mi-24.

Recce: 40: 1 regt: Su-17 *Fitter* H.

Tpt: 18.

Afghanistan: 1 Air Army (HQ: Kabul (Bagram)): combat: 257 ac, 245 hel.

FGA: 4 regts: 80 MiG-21, 40 MiG-23, 80 Su-17, 30 Su-25 *Frogfoot*.

Recce: 2 bns: 15 MiG-21 *Fishbed* R, 12 MiG-25.

Hel: 4 regts: some indep bns, 140 Mi-24 attack, 105 Mi-8, 40 Mi-6, 40 Mi-2.

Tpt: incl An-22 *Cock*, vTA and *Aeroflot* ac from USSR in spt.

Navy: (Caspian Flotilla) (HQ: Baku):

Principal combatants: 5 corvettes.

Minor combatants: 30.

Auxiliaries: 7 principal.

FAR EASTERN STRATEGIC THEATRE (GTVD): (with Pacific, Indian Ocean otvds):

(HQ: Irkutsk) Central Asian, Siberian, Transbaykal, Far Eastern MDS, Mongolia.

Strategic Forces (under central control):

SLBM: 395: 16 D- (220), 9 Y- (144), 5 G-II (15) subs; Bases: Vladivostok, Petropavlovsk.

ICBM: (?380): SS-11 (4 fields, ?260 msls), SS-18 (3 fields, ?120 msls). (SS-11 could have theatre role.)

IRBM: 207: SS-20 (7 fields, 20 sites).

Bbrrs: some 150: 1 Air Army (HQ: Irkutsk): 5 regts: 2 with Tu-22M *Backfire*, 3 with Tu-22 *Blinder*, T-16 *Badger*.

Spt: perhaps 30 recce: (2) Tu-95 *Bear* E, (6) *Badger* F, (4) *Blinder* C, (18) *Badger* H/J/K.

Tkrs: some 9 Tu-16A.

Air Defence Forces:

EWng systems: 40 in areas: Kamchatka, Nikolayev-na-Amur, Mischelevka, Abalakova, Sary-shagan.

AD: 3 areas: 1 in Transbaykal, 2 in Far East MDS (see MD Air Forces, below).

SAM: SA-5, SA-10.

Ground Forces: 4 MDS: 53 divs (7 tk, 45 motor rifle, 1 AB) plus 4 arty.

Central Asian MD (HQ: Alma Ata): 1 tk, 6 motor rifle, plus 1 arty divs.

Siberian MD (HQ: Novosibirsk): 6 motor rifle plus 1 arty divs.

Transbaykal MD (HQ: Chita): 2 tk, 8 motor rifle, plus 1 arty divs.

Far Eastern MD (HQ: Khabarovsk): 2 tk, 22 motor rifle, 1 AB, plus 1 arty divs.

Mongolia (HQ: Ulan Bator): 1 Army HQ, 2 tk, 3 motor rifle divs. (See also Forces Abroad, below.)

Div readiness: 35% at Cat. 1 or 2. Mobilization could put 4 Fronts, perhaps 12 Armies (4 tk), into the field. This org could have: 14,500 MBT; 10,300 arty, MRL, mor larger than 120mm; 225 *FROG*, 100 *Scud*, 38 SS-12 SSM; 1,100 SAM.

Tactical Aviation (HQ: Irkutsk): (150,000): combat: some 1,460 ac, 500 hel.

Central Asian MD, incl Siberian MD Air Force (HQ: Novosibirsk): combat: 280 ac, 70 hel.

FGA: 90 MiG-27 *Flogger* D/J.

Ftrs: 150 MiG-21 *Fishbed*, MiG-27 *Flogger*.

Hel: 70: Mi-8 *Hip*, Mi-24 *Hind*.

Recce: 40 MiG-25 *Foxbat* B/D.

Transbaykal MD Air Force (HQ: Chita, incl Mongolia): combat: 395 ac, some 180 hel.

FGA: 200: 3 divs: MiG-27 *Flogger* D/J.

Ftrs: 150: 3 regts: 90 MiG-21 *Fishbed* J/K, MiG-21 *Fishbed* L/N, MiG-25 *Foxbat* A/E, MiG-27 *Flogger* B/G.

Hel: 180: Mi-8, Mi-24.

Recce: 3 bns: 45 Yak-28.

Tpt: Mi-6.

Far-Eastern MD Air Force (HQ: Khabarovsk): Control centres: Petropavlovsk, Yuzhno-Sakhalinsk; combat: some 785 ac, 250 hel.

FGA: 250: 2 divs: MiG-21 *Fishbed* L, MiG-27 *Flogger* D/J, Su-7 *Fitter* A, Su-17 *Fitter* D/H/K.

Ftrs: 450: MiG-23, MiG-25 *Foxbat* A, MiG-31 *Fox-*

hound.

Hel: 250 Mi-8 *Hip*, Mi-24 *Hind*.

Recce: 80: Yak-28 *Brewer* D, MiG-21 *Fishbed* H, MiG-25 *Foxbat* B/D.

ECM: 5 Yak-28 *Brewer* E.

Tpt: incl some 100 Mi-6 *Hook* hel.

Navy (Pacific Fleet): (HQ: Vladivostok): Bases: Vladivostok, Petropavlovsk, Soyetskaya Gavan.

Subs: 88: 26 SSGN/SSG, 62 SSN/SS.

Principal combatants: 85: 2 carriers, 14 cruisers, 17 destroyers, 22 frigates, 30 corvettes.

Minor combatants: 200.

Amph: 19 (incl 1 *Rogov* LPD).

Auxiliaries: 98 principal.

Detachments (average 2-3 subs, 8 principal combatants, 2 amph, 12 spt ships) are normally deployed in the Indian Ocean and South China Sea; facilities also in Vietnam (Cam Ranh Bay), South Yemen (Aden, Socotra) and Ethiopia (Dahlak Is.).

Naval Air (Pacific Fleet Air Force): (HQ: Sovetskaya Gavan): combat: some 290 ac, 85 hel.

Bbrrs: 160: 1 regt Tu-22M, 4 regts Tu-16 *Badger* G/C.

FGA: 26: (a/float): 2 bns Yak-38 *Forger* A/B.

ASW: 68: 1 regt 20 Tu-142, 1 18 Il-38; 1 bn 30 Be-12.

ASW hel: some 83: AFLOAT: 2 bns, 38 Ka-25 *Hormone* A; ASHORE: 1 bn, some 10 Ka-27 *Helix*, 2 bns 35 Mi-14.

MR/EWng: some 35 ac.

Tpt: perhaps 150 ac and hel.

Naval Infantry: 2 regts, each 1 tk, 3 inf, 1 arty bns.

FORCES ABROAD:

Afghanistan: 115,000 (some 10,000 MVD, KGB). See Deployment, Southern GTVD.

Mongolia: 75,000. See Deployment, Far Eastern GTVD.

Vietnam: (?7,000); averages 25-35 vessels (incl subs, 5-10 combat vessels, 15-20 auxiliaries), 16 Tu-16, 8 Tu-95, 14 Tu-10P/K MR or ASW, 1 sqn with 14 MiG-23 fr ac, AA, SAM, electronic monitoring station.

Other: Algeria 1,000; Angola 500, plus 6 ships, MR ac; Congo 100; Cuba some 8,700 (1 bde (2,800), advisers (?2,800) plus some 3,100 technicians); Ethiopia 1,500 plus MCMV, drydock, Il-38 ac, naval inf det; India 200; Iraq 600; Kampuchea 200; Laos 500; Libya 1,400; Mali 200; Mozambique 300; Nicaragua 50; Peru 160; Syria 2,500; Vietnam 2,500; N. Yemen 500; S. Yemen 1,000; Africa (remainder) 900.

PARA-MILITARY: 675,000.

KGB: 250,000: border tps, with tks, SP guns, AFV, ac and ships (1 *Krivak-III*, 8 *Grisha-II*, 1 *Purga* frigates; 95 *Stenka* FAC(P); 4 *Muravey*, 8 *Pchela* hydrofoils; 30 *Zhuk*, some SO-1, 10 T-58, 14 T-43 patrol craft; 8 *Susanin* icebreakers (6 armed); Kremlin Guard; Special Guard; Special Sigs unit (40,000 tps).

MVD: 350,000: security tps; some 30 divs with tks and AFV. By law part of armed forces of USSR.

DOSAAF (part-time military training organization). (5 million are instructors/activists); 330,000+ units: flight training, shooting, parachuting and pre-military training of those aged 15 and over in schools, colleges and workers' centres. Young Pioneer (ages 8-15), some trg.

1 Excl KGB, MVD (600,000), but incl 615,000 railroad construction and labour troops and some 705,000 comd and general spt tps not otherwise listed.

2 Figures may fluctuate slightly during conversion.

3 SS-11, SS-17, SS-19, and perhaps SS-X-25 have variable range capability, enabling them to be used for theatre support.

4 Usually in some 46 complexes with an average of 9 launchers (1 regt). Reload capacity has been reported.

The Warsaw Pact

We have seen no significant changes in the manpower or equipment inventories of the ground forces of the European countries. There have, however, been a number of increases in

both personnel strengths and equipment holdings of their navies and air forces.

Bulgaria may have increased her Air Force personnel by

some 1,200, a rise of about 3.5% which would accord with the changes seen in the inventory. She has almost trebled her holdings of MiG-23BM FGA; there is some evidence that, despite our earlier assessment, some MiG-17s continue to be employed in the interceptor role. Czechoslovakia now has the Su-25 *Frogfoot* close support aircraft—the first non-Soviet Pact member to receive this type. Nevertheless, her elderly MiG-15s are believed still to be in service in this role. The East German navy is increasing its holdings of *Parchim* missile

corvettes and may have phased out six elderly *Hai*-class large patrol craft; air force holdings of MiG-23BM have doubled, and some Su-22 have been received, enhancing the close air support fleet. Hungary has also received Su-22s but appears to have the reconnaissance version; our earlier assessment of her attack helicopter inventory was apparently over-generous. Poland and Romania do not appear to have made significant changes over the past twelve months, perhaps partly at least as a result of economic stringencies.

BULGARIA

NMP 1983: leva 23.5 bn. Est 1984: 24.6 bn.
Est GNP range 1983: \$26.0–36.0 bn. 1984: \$27.0–37.1 bn.
NMP growth 1983: 3.0%. Est 1984: 4.6%.
Inflation 1983: 1.2%. 1984: 1.0%.
Debt 1983: \$2.70 bn. 1984: \$1.40 bn.
Est def exp 1984: leva 969 m (\$1.491 bn). 1985: 1.010 bn (\$1.856 bn).
\$1 = 1983: leva 0.97 (official), 0.71 (adjusted); 1984: 1.007 (off.), 0.65 (adj.); 1985: 1.05 (off.), 0.61 (adj.).

Population: 8,970,000.
Men: 18–30: 832,000; 31–45: 927,000.
Women: 18–30: 795,000; 31–45: 924,000.

TOTAL ARMED FORCES:

Regular: 148,500 (94,000 conscripts).
Terms of service: Army and Air Force 2 years, Navy 3 years.
Reserves: 195,000. Army 150,000 (600,000 more have a reserve liability); Navy (to age 55, officers 60 or 65) 25,000; Air (to age 60) 20,000 (AD 15,000).

ARMY: 105,000 (73,000 conscripts).

3 Military Districts:
8 motor rifle divs (3 at Cat. 3=cadre).
5 tk bdes.
3 ssm bdes with *Scud*.
4 arty regts.
3 AA arty regts.
2 SAM regts.
1 para regt.
Special commando coys.

Tks: 400 T-34, 1,400 T-54/55, some 60 T-72. **AFV:** RECCE: 250 BRDM-1/2; MICV: some 60 BMP-1; APC: 1,000 BTR-50/60, 35 OT-62, MT-LB. **Arty:** GUNS: 25 M-1942 76mm, 25 D-44 and SD-44 sp 85mm, M-1944 100mm, 700 M-1931 122mm, M-46 130mm; GUN/HOW: M-1937, D-20 152mm; HOW: 100 M-1938 (M-30), D-30 122mm; MRL: 100 BM-21 122mm, some M-51 130mm; ssm: 39 FROG-7, 27 *Scud*; MOR: 82mm, 350 120mm and 160mm. **ATK:** RCL: 150 SPG-9 73mm; GUNS: 90 M-1942 76mm; ATGW: AT-1 *Snapper*, AT-3 *Sagger* (incl BRDM-2 sp). **AD:** GUNS: 500 ZU-23 23mm, M-1939 37mm, S-60 57mm, KS-12 85mm and KS-19 100mm towed, ZSU-23-4 sp; SAM: SA-4/6/7.

NAVY: 8,500 (3,000 conscripts); 3 combat hel.

Bases: Varna, Burgas, Sozopol, Atiya.
Subs: 2 R-class.
Frigates: 2 *Riga*.
Corvettes: 3 *Potl*.
FAC: (g): 6 with *Styx* ssm; 3 *Osa-I*, 3 *Osa-II*; (t): 6 *Sher-shen*.
Patrol craft: 13: 6 SO-1 large, 7 *Zhuk* coastal.
MCMV: 31: 2 T-43 ocean; 2 *Sonya*, 5 *Vanya* coastal; 4 *Yevgenya*, 18 PO-2 inshore.
Amph: LCU: 22 *Vydra*; LCA: 4 MFP D-3.
Spt: 1 underway replenishment ship.
Hel: 2 sqns: 1 ASW with 3 Mi-14 *Haze*; 1 SAR with 2 Mi-2, 6 Mi-4.
Coastal arty: 2,100: 2 regts: 20 btys; 100mm, SM-4-1 130mm, 150mm guns.
Naval Guard: 3 coys.

AIR FORCE: 35,000 (18,000 conscripts); some 226 combat ac, some 20 armed hel.

1 air division: 7 combat regts.
FGA: 2 regts (6 sqns) with 60 MiG-17, 40 MiG-23BM.
Interceptor/ptr: 4 regts (78 sqns): some 20 MiG-23M *Flogger* B; 60 MiG-21PFM, 10 MiG-17.
Recce: 1 regt with 36 MiG-17-21.
Tpt: 1 regt with 10 Il-14, 4 An-24, 2 Tu-134, 9 An-2.
Hel: 1 regt with 10 Mi-2, 40 Mi-4/8 (perhaps 10 armed), 12 Mi-24 (attack), 12 Ka-26 *Hoodlum*.
Trg: incl 80 L-29, Yak-11/18, L-39, 30 MiG-15UTL.
AAM: AA-1 *Alkali*, AA-2 *Atoll*, AA-7 *Apex*.

1 para regt.
1 ad div: (?4,500); 3 zones: 30 SAM sites; 280 SA-2/3.

PARA-MILITARY: Ministry of Interior border guards 15,000; 16 regts. Security police: 7,500. People's Territorial Militia 150,000. 'Voluntary Organization for Cooperation in National Defence'.

CZECHOSLOVAKIA

NMP 1982: Kcs 508.10 bn.
Est GNP range 1983: \$73.0–150.0 bn. 1984: \$75.5–155.0 bn.
NMP growth 1983: 2.4%. Est 1984: 3.2%.
Inflation 1983: 1.0%. 1984: 1.0%.
Debt 1983: \$3.90 bn. 1984: \$3.60 bn.
Est def exp 1984: Kcs 26.9 bn (\$5.052 bn). 1985: 27.5 bn (\$5.189 bn).
\$1 = 1983: koruny 6.45 (off.), 5.788 (adj.); 1984: 6.7 (off.), 5.325 (adj.); 1985: 6.95 (off.), 5.30 (adj.).

Population: 15,600,000.
Men: 18–30: 1,531,000; 31–45: 1,626,000.
Women: 18–30: 1,472,000; 31–45: 1,609,000.

TOTAL ARMED FORCES:

Regular: 203,300 (118,000 conscripts).
Terms of service: Army 2 years, Air Force 3 years.
Reserves: 280,000. Army 250,000 (295,000 more with liability to age 50 (men) or 60 (officers)), Air 30,000.

ARMY: 145,000 (100,000 conscripts).

2 Military Districts:
5 arm'd divs (1 at Cat. 1, 2 each Cats. 2 and 3).
5 motor rifle divs (Cat. 1).
1 arty div: 2 arty, 3 *Scud* ssm bdes, 2 ATK regts (6 bns).
1 AB regt.
6 engr bdes.
Civil Defence Troops (10,000); 5 regts.
Tks: 3,500 T-54/55/72. **AFV:** RECCE: 1,250 OT-65 and BRDM; MICV: 1,100 BMP; APC: 2,700 OT-62/64/810. **Arty:** GUNS: M-52 85mm, 250 M-53 100mm, 100 M-1931/37 122mm, 75 M-46 130mm; GUN/HOW: 90 M-1937, D-20 152mm; HOW: 250 D-30, M-18/49 105mm, M-30 towed and M-1974 sp 122mm, 250 M-18/46 and DANA (Tatra 813 truck-mounted) sp 152mm; MRL: 200 RM-70 122mm, 120 M-51 130mm; ssm: 40 FROG, 27 *Scud*. **ATK:** RL: P-27 112mm; RCL: 100 82mm; ATGW: 400 AT-3 *Sagger* and AT-4 *Spigot*. **AD:** GUNS: 600 S-60 57mm towed, M-53/59 30mm sp; SAM: SA-4/6/7/9.

AIR FORCE: 58,000 (18,000 conscripts); 474 combat ac, some 24 armed hel.

2 air armies: 5 air divs: 15 combat regts:
FGA: 11 sqns: 3 with 60 Su-7BM/U; 3 with 36 MiG-23M; 3 with 42 MiG-21/21U; 1 with 12 MiG-15; 1 with (?12) Su-25 *Frogfoot* (may be replacing MiG-15).
Interceptor: 18 sqns: 275 MiG-21/21U/23 (about half ad, half with battlefield sp).
Recce: 3 sqns: 2 with 25 MiG-21RF; 1 with 12 L-29.
Tpt: 2 regts: 2 An-12, 6 An-24, 40 Il-14 (replacing with An-26), 1 Tu-134, 2 LET L-410M.
Hel: 1 regt: 3 indep sqns: **attack:** 24 Mi-24; **tpt:** MED: 10 Mi-8, 100 Mi-4; LT: 20 Mi-2, 40 Mi-1.
Trg: L-29, 24 L-39, Zlin 526.
Liaison ac incl Zlin Z-43.
AAM: AA-2 *Atoll*.
AD: Comd HQ: 3 divs: 6 SAM regts: some 40 sites; 250 SA-2/3.

PARA-MILITARY: Border Troops 11,000; 7 bdes, AFV, ATK weapons. Militia 120,000, 'Association for Co-operation with the Army'.

1 See p. 89 for footnotes.

GERMAN DEMOCRATIC REPUBLIC

NMP 1983: DMO 210.1 bn. Est 1984: 221.66 bn. Est GNP range 1983: \$85.5–172.0 bn. 1984: \$90.0–180.0 bn.
NMP growth 1983: 4.4%. 1984: 5.5%.
Debt 1983: \$12.20 bn. 1984: \$11.30 bn.
Def budget 1984: DMO 16.961 bn (\$7.710 bn). 1985: 18.069 bn (\$7.856 bn).
\$1 = 1983: ostmarks 2.5533 (off.), 2.555 (adj.); 1984: 2.8459 (off.), 2.2 (adj.); 1985: 3.213 (off.), 2.30 (adj.).

Population: 16,800,000.
Men: 18–30: 1,780,000; 31–45: 1,680,000.
Women: 18–30: 1,695,000; 31–45: 1,635,000.

TOTAL ARMED FORCES:

Regular: 174,000 (94,500 conscripts).
Terms of service: Army, Air Force 18 months; Navy (sea-going) 36 months.
Reserves: 400,000. Army 330,000, up to 3 months call-up per year to total 24 months (250,000 more have Reserve commitment to 50 (other ranks) or 60 (officers)); Navy 40,000; Air 30,000.

ARMY: 120,000 (71,500 conscripts).

2 Military Districts, 2 Army Ho:
2 tk divs (each 3 tk, 1 motor rifle regt).
4 motor rifle divs (each 1 tk, 3 motor rifle regts).
2 ssm bdes with *Scud*.
2 arty, 1 AA arty regts.
8 ad regts: 2 with SA-4; 6 with SA-6 SAM.
3 sigs regts.
3 engr regts.
1 railway construction regt.
2 ATK bns.
1 AB bn.
Tks: About 1,500 T-54/55/72 (1,600 more (incl T-34) in storage). **AFV:** RECCE: 1,000 BRDM-1/2; MICV: 1,000 BMP; APC: 1,500 BTR-50P/60P/152, 200 BTR-70 (M-1978), MT-LB. **Arty:** GUNS: 400 D-44, SD-44 sp 85mm; M-1931/37 122mm, 72 M-46 130mm; GUN/HOW: 108 M-1937; 54 M-1973 sp, D-20 152mm; HOW: D-30, M-1938 (M-30), M-1974 sp 122mm; M-1943 sp 152mm; MRL: 108 BM-21, Cz RM-70 122mm, BM-24 240mm; ssm: 24 FROG-7, 18 *Scud* B; MOR: 250 120mm. **ATK:** GUNS: 120 T-12 100mm; ATGW: AT-3 *Sagger* (incl BRDM-2 sp), AT-4 *Spigot*. **AD:** GUNS: 96 ZSU-23-4 sp; SAM: SA-4/6/9.

NAVY: 15,000 (8,000 conscripts) incl Frontier Bde; 18 combat hel.

Bases: Peenemünde, Warnemünde, Dransk-Bug, Sassnitz, Wolgast, Tarnewitz, Barhöft, Stralsund.
Frigates: 2 *Rostock (Koni)* with 1 × 2 SA-N-4 SAM.
Corvettes: 16 *Parchim* with 2 × 4 SA-N-5 SAM.
FAC: (g): 15 *Osa-I* with 4 *Styx* ssm (3 in reserve (trg)); to be replaced; 1 *Tarantul I* (4 SS-N-8). (t): 49: 18 *Sher-shen*, 31 *Libelle* (1 unarmed, trials).
Patrol craft: 6 *Hai* III large (may now be in reserve, replaced by *Parchim*).
MCMV: 27 *Kondor-II* coastal (2 trg).
Amph: LST: 12 *Frosch* I.
Intelligence vessels (AGI): 2 mod *Kondor-I*.
Spt: 6 supply ships, 5 tankers, 2 *Frosch* II lt tpts.
Hel: 1 sqn with 13 Mi-8 (3 SAR), 8 Mi-14 *Haze* ASW.

COASTAL FRONTIER BDE (GBK; 2,750): (administered by Frontier Tps) 5 beach patrol bns, 3 afloat 'divs', 1 boat gp (recce); (34 vessels incl 10 *Bremse*, 19 *Kondor-I*; 152mm guns; *Samlet* ssm).

AIR FORCE: 39,000 (15,000 conscripts); some 380 combat ac, some 70 armed hel.

2 air divs.
FGA: 2 regts, (?6 sqns): 3 with 35 MiG-17; 2 with 24 MiG-23MF, some Su-22.



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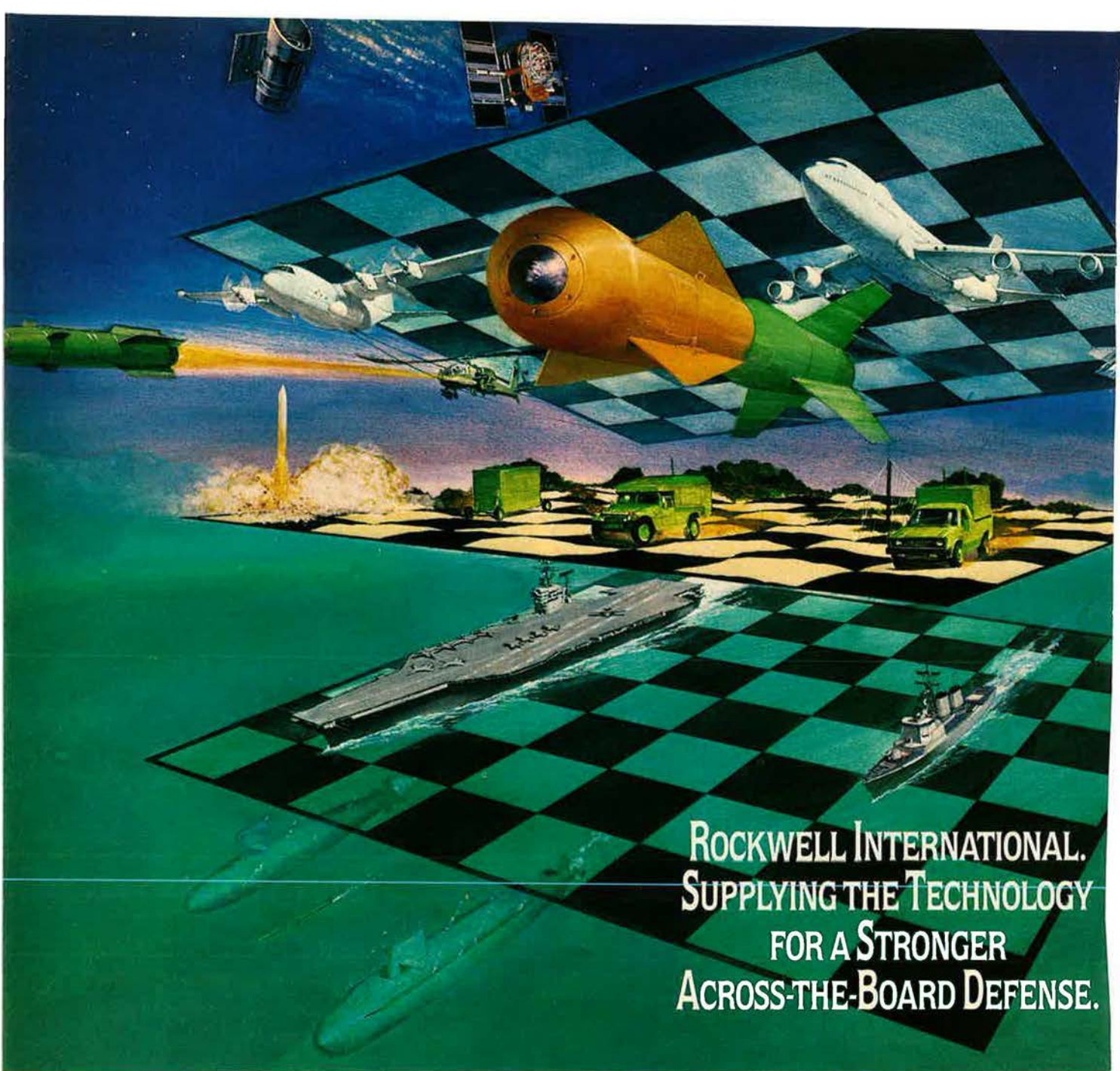
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Recce: 1 sqn with 18 MiG-21.
Tpt: 1 regt: 3 sqns: 18 An-26, 15 Tu-134, An-2/14-26B, some 6 L-410UVP.
Hel: 3 regts: 9 sqns: 3 attack with 30 Mi-24; 3 assault/tpt with 36 armed Mi-8; 3 tpt with some 45 Mi-8.
AD Command: (26,000); 2 AD districts:
Air: 6 regts: 6 sqns with 100 MiG-21F/MF/PF/U; 12 sqns with 200 MiG-23.
SAM: 7 regts: some 30 sites with 200 SA-2/3.
Radar: 2 regts.
Trg: incl Yak-11, L-39, Zlin 226, MiG-15UTI, MiG-21U.
Liaison: ac incl Zlin Z-43.
AAM: AA-2 Atoll.
ASM: AT-3 Sagger ATGW.

Forces Abroad: Algeria 250, Angola 500, Ethiopia 550, Guinea 125, Iraq 160, Libya 400, Mozambique 100, S. Yemen 75, Syria 210.

PARA-MILITARY: 77,500 Regulars, perhaps 1 million in an emergency.
Ministry of Defence: Frontier Troops (47,000): 18 border, 2 indep, 1 special, 6 trg regts (?66 bns), 1 boat section; 24 patrol craft.
Ministry for State Security: 1 Guard regt (Berlin) (7,000); 6 motor rifle, 1 arty, 1 trg bns; PSZH-IV APC, 120mm mor, 85mm, 100mm ATK, ZU-23 AA guns, hel.
Ministry of Interior: People's Police Alert Units (12,000): 21 bns: BTR-40/152 APC, 82mm mor, Transport Police (8,500): 16 coys; small arms, RPG-7 RL.
Workers' Militia: 3,000 Regulars, 500,000 potential; 15,000 combat groups; AFV incl SK-1 APC, 82mm mor, 76mm ATK, 23mm, 37mm AA guns.
Society for Sport and Technology (youth aged 16-18): 450,000, 75% active: 1 central, 14 regional subordinate district gps, some 15,000 units; small arms; trg ac (civil).

HUNGARY

NMP 1982: forint 730 bn. 1983: 763.5 bn. Est GDP range 1983: \$21.0-65.2 bn. 1984: \$23.2-67.2 bn.
NMP growth 1983: -0.5%. 1984: 3.0%.
Inflation 1983: 7.2%. 1984: 8.5%.
Debt 1983: \$8.30 bn. 1984: \$9.10 bn.
Def budget 1983: forint 33.4 bn (\$1.942 bn). 1984: 34.6 bn (\$2.136 bn). 1985: 37.228 bn (\$2.402 bn).
\$1 = 1983: forint 42.666 (off.), 17.2 (adj.); 1984: 48.042 (off.), 16.2 (adj.); 1985: 51.078 (off.), 15.5 (adj.).

Population: 10,800,000.
Men: 18-30: 965,000; 31-45: 1,162,000.
Women: 18-30: 922,000; 31-45: 1,158,000.

TOTAL ARMED FORCES:

Regular: 106,000 (58,000 conscripts).
Terms of service: Army (incl Border Guard) 18 months; Air Force 24 months.
Reserves: 135,000 (Army and Navy); Air: 8,000 (to age 60).

ARMY: 84,000 (50,000 conscripts) incl Danube Flotilla, 1 tk div (at Cat. 2), 5 motor rifle divs (2 at Cat. 2, 3 at 3), 1 arty bde, 1 ssm bde with Scud, 1 AA arty, 4 SAM regts (1 indep with SA-4, 3 div with SA-6), 1 AB bn.

Tks: some 1,200 T-54/-55, 30 T-72; LT: 100 PT-76. **AFV:** **RECCE:** some 750 BRDM-2/FUG (OT-65); **micv:** 200 BMP-1; **APC:** 1,000 PSZH-IV and MT-LB. **Arty:** **GUNS:** D-44 85mm; M-1931/37 122mm; **GUN/HOW:** M-1937, 40 D-20, 20 M-1973 sp 152mm; **HOW:** 225 M-1938, D-30, 50 M-1974 sp 122mm; 100 M-1943 152mm; **MRL:** 50 BM-21 122mm, BM-24 240mm; **SSM:** 24 FROG-7, 9 Scud; **MOR:** 300 82mm, 100 M-43 120mm. **ATK:** **RCL:** 125 SPG-9 73mm; **GUNS:** 125 85mm and T-12 100mm; **ATGW:** 100 AT-3 Sagger (incl BRDM-2 sp), 100 AT-4 Spigot. **AD:** **GUNS:** 75 ZSU-23-4 sp 23mm, 100 S-60, ZSU-57-2 sp 57mm, KS-19 100mm; **SAM:** 30 SA-4, 60 SA-6, 500 SA-7, 50 SA-9.

Danube Flotilla (700): 10 100-ton patrol craft, 5 *Nestin* river MCMV, 5 small LCU, small tp tpts, river icebreakers.

AIR FORCE: 22,000 (8,000 conscripts); some 155 combat ac, 12 armed hel.

AD: 3 fr regts: 9 interceptor sqns with 120 MiG-21F/PF/bis/U, 25 MiG-23M.
Recce: 1 sqn with (?12) Su-22.

Tpt: 1 regt: 2 tpt sqns: 24 An-24/-26, 2 Il-14.
Hel: 1 regt: 3 hel sqns: 12 Mi-24, 30 Mi-8, 25 Ka-26 *Hoodlum* (trg/civil duties).

Trg: incl L-29, MiG-15UTI.
AAM: AA-2 Atoll.
AD: 1 div: 3 SAM regts, some 20 sites; 120 SA-2/3.

PARA-MILITARY: Border guards 15,000 (11,000 conscripts); 11 districts. Part-time Worker's Militia 60,000. 'Sports Association for National Defence'.

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POLAND

Est NMP 1983: zlotys 5,038 bn. 1984: 5,290 bn, Est GDP range 1983: \$92.2-178.0 bn. 1984: \$95.0-181.0 bn.
NMP growth 1983: 6.0%. 1984: 5.0%.
Inflation 1983: 22.0%. 1984: 13.0%.
Debt 1983: \$27.5 bn. 1984: \$29.4 bn.
Def budget 1984: zlotys 218.7 bn (\$5.911 bn), 1985: 288.7 bn (\$6.874 bn).
\$1 = 1983: zlotys 90 (off.), 30 (adj.); 1984: 115 (off.), 37 (adj.); 1985: 159 (off.), 42 (adj.).

Population: 37,500,000.
Men: 18-30: 3,951,000; 31-45: 3,860,000.
Women: 18-30: 3,819,000; 31-45: 3,829,000.

TOTAL ARMED FORCES:

Regular: 319,000 (189,000 conscripts).
Terms of service: Army, internal security forces, Air Force 2 years; Navy, special services, afloat 3 years, ashore 2 years.
Reserves: 501,000. Army some 415,000; Navy some 55,000 (to age 50); Air some 31,000 (to age 60).

ARMY: 210,000 (153,000 conscripts).

3 Military Districts:
 5 armd divs (all at Cat. 1).
 8 mech divs (3 at Cat. 1, 2 at 2, 3 at 3).
 1 AB div (Cat. 1).
 1 amph assault div (Cat. 1).
 3 arty bdes, 1 arty regt.
 3 ATK regts.
 4 ssm bdes with Scud.
 1 ad bde with SA-4; 9 ad regts: 7 with SA-6, 2 with SA-8 SAM.

Tks: 3,400 T-54/-55, 50 T-72; LT: 110 PT-76. **AFV:** **RECCE:** 800 FUG/BRDM-2; **APC:** 800 BMP-1, 2,500 SKOT/SKOT-2AP and TOPAS/TOPAS-2AP. **Arty:** **GUNS:** some 300 D-44 and SD-44 sp 85mm, 120 M-1931/37 122mm; M-46 130mm; **GUN/HOW:** 150 M-1937 152mm; **HOW:** 520 M-1938, D-30 towed and M-1974 sp 122mm, 120 M-1943 152mm; **MRL:** 250 BM-21 122mm, BM-14 140mm, BM-24 240mm; **SSM:** 51 FROG-3/-5/-7, 36 Scud B; **MOR:** 750 82mm, 120mm. **ATK:** **GUNS:** some 300 T-12 100mm; **RCL:** 73mm; **ATGW:** AT-1 Snapper, AT-3 Sagger (incl BRDM-2 sp), AT-4 Spigot. **AD:** **GUNS:** 750 ZU-23 23mm and S-60 57mm towed, 130 ZSU-23-4 sp; **SAM:** SA-4/-6/-7/-8/-9.

NAVY: 19,000 (6,000 conscripts).

Bases: Gdynia, Hel, Swinoujscie, Kolobrzeg, Ustka.
Subs: 3 W-class.
Destroyer: 1 SAM *Kotlin* with 1 x 2 SA-N-1 Goa.
Corvettes (c): 3 *Tarantul* with 4 x SS-N-2c ssm, 1 x 4 SA-N-5 SAM.
FAC: (c): 13 *Osa-I* with 4 SS-N-2 ssm; (t): 18: 13 *Pilica*, 5 *Wisla*.

Patrol craft: 8 mod *Obluze* large.
MCMV: 51: 12 *Krogulec*, 11 T-43 ocean, 3 *Notec*, 2 *Leniwka* coastal, 23 K-8.

Amph: Lcr: 23 *Polnocny*; LCM: 3 *Marabut*; LCA: 15 *Eichstaden*.
Intelligence vessels (AGI): 2 B-10 (mod *Moma*), 1 T-43 radar picket.

NAVAL AVIATION: 1 div (2,000); 44 combat ac:

Attack: 1 regt: 3 sqns with 34 MiG-17.
Recce: 1 sqn with 5 Il-28, 5 MiG-17.
Hel: 1 regt: 2 sqns: 10 Mi-2, 20 Mi-4, 5 Mi-8.

AIR FORCE: 90,000 (30,000 conscripts); 675 combat ac, some 12 armed hel.

6 air divs (incl ad).
FGA: 3 divs; 6 regts; 18 sqns: 3 with 35 Su-7/-7U; 3 with 35 Su-20; 12 with 150 MiG-17.

Interceptors: 11 regts; 3 divs; 33 sqns with some 400 MiG-21U/-23.

Recce: 6 sqns: 35 MiG-21RF, 5 Il-28, 15 LIM-6.
Tpt: 2 regts: 9 An-2, An-12, 12 An-26, 12 Il-14.

Comms/Liaison: 1 sqn with 2 Tu-134A, 6 Yak-40, Il-18.
Hel: 3 regts: 100 Mi-2, 12 Mi-4, 25 Mi-8 (some may be armed), 12 Mi-24 (attack).

Trg: 300 ac: TS-8/-11, MiG-15/-21UTI, Su-7U, PZL-130 *Orlik*.

AAM: AA-1 *Alkali*, AA-2 *Atoll*.
Air Defence Command: (48,000).
SAM: 9 regts: some 50 sites; 400 SA-2/3.

(On order: PZL-130 *Orlik* trg ac.)

Forces Abroad: Syria (UNDOF): 153.

PARA-MILITARY: 218,000. Ministry of Interior border troops (160,000): 8 bdes; some 42 patrol craft incl 5 *Obluze*, 5 *Pilica*, 3 KP-131, 1 *Oksywie*, 12 *Wisloka*, 21 K-8, 9 *Gdansk*. Internal defence troops (58,000): tks, AFV, ATK guns. Citizen's Militia 350,000. 'League for National Defence' (some 200,000 active).

ROMANIA

NMP 1983: lei 654.5 bn. Est 1984: 704.9 bn.
Est GNP range 1983: \$80.0-115.0 bn. 1984: \$84.0-119.0 bn.
NMP growth 1983: 3.7%. 1984: 7.7%.
Inflation 1983: 5.2%. 1984: 0.2%.
Debt 1983: \$8.9 bn. 1984: \$8.0 bn.
Def budget 1984: lei 11.70 bn (\$1.345 bn); 1985: 12.278 bn (\$1.395 bn).
\$1 = 1983: lei 4.47 (off.), 8.3 (adj.); 1984: 4.75 (off.), 8.7 (adj.); 1985: 4.47 (off.), 8.8 (adj.).

Population: 23,500,000.
Men: 18-30: 2,196,000; 31-45: 2,230,000.
Women: 18-30: 2,113,000; 31-45: 2,190,000.

TOTAL ARMED FORCES:

Regular: 189,500 (108,500 conscripts).
Terms of service: Army, Air Force 16 months; Navy 24 months.
Reserves: 565,000; Army 500,000 + (300,000 with service in last 5 years); Navy 20,000 (to age 50); Air 45,000 (to age 60).

ARMY: 150,000 (95,000 conscripts).

4 Army Areas:
 2 tk divs (1 at Cat. 1, 1 at 2).
 8 motor rifle divs (1 Cat. 1, 3 at 2, 4 at 3).
 3 mountain bdes/regts.
 2 arty, 2 AA bdes, 4 arty, 2 AA arty, 5 ATK regts.
 2 Scud ssm bdes.
 2 AB regts.

Tks: 200 T-34, 1,000 T-54/-55, some M-77, 30 T-72. **AFV:** **RECCE:** 400 BRDM-1/-2; **APC:** 2,600 BTR-50/-60 and B-72 (BTR-60). **Arty:** **GUNS:** 50 M-1942, 75 SU-76 sp 76mm, 50 D-44 85mm, M-1944, 175 SU-100 100mm, M-1931/37 122mm; **GUN/HOW:** 150 M-1937 and D-20 152mm; **HOW:** 600 M-1938, D-30 122mm and M-1938 152mm; **MRL:** 175 BM-21/RO 122mm, 150 M-51 (ZIL) 130mm; **SSM:** 30 FROG, 15 Scud; **MOR:** 700 82mm, 200 120mm. **ATK:** **RCL:** 73mm, 260 76mm and 82mm; **GUNS:** M-1943 57mm; **ATGW:** 120 AT-1 *Snapper* and AT-3 *Sagger*. **AD:** **GUNS:** 300 30mm, 37mm, 250 57mm, 85mm, 100mm; **SAM:** SA-6/-7.

NAVY: 7,500 (3,500 conscripts).

Bases: Mangalia, Constanta; Danube: Braila, Giurgiu, Sulina, Tulcea.

Black Sea Fleet, Danube Sqn, Coastal Defence.
Frigates: 3 *Tetel*.

Corvettes: 3 *Poti*.

FAC: (c): 6 *Osa-I* with 4 SS-N-2 ssm; (P/ASW): 19 Ch *Shanghai*; (t): 40 *Epitrop*, 22 Ch *Huchwan* hydrofoils, 6 Sov P-4.

Patrol craft: 3 *Kronstadt* large, 46 river incl 18 VB-76 monitors.

MCMV: 16 minesweepers (4 GDR M-40 coastal, 12 Sov T-301 inshore); 20 VD-141 minesweeping boats; 2 MCM spt ships.

SAR hel: 4 Mi-4.
 (On order: 1 destroyer.)

COASTAL DEFENCE: (2,000).

no Constanta.
 4 sectors, 10 coastal arty btys with some 110 130mm, 150mm and 152mm guns, observer post tps, naval engineers.

Some 8 btys of AA arty reported; eqpt unknown.
 Would get 2 regts of naval inf on mobilization.

AIR FORCE: 32,000 (10,000 conscripts); 378 combat ac. 3 air divs (incl ad): 4 combat regts.

FGA: 6 sqns: 70 MiG-17, some 20 IAR-93A, 40 IAR-93B.
Interceptor: 12 sqns: 1 with 30 MiG-23; 11 with 200 MiG-21F/PF/U.

Recce: 1 sqn with 18 Il-28.
Tpt: 1 regt with 4 Il-14, 3 Il-18, 2 Il-62, 11 An-24, 8 An-26, 4 Li-2, 1 Boeing 707.

Hel: 1 regt with 10 Mi-4, 25 Mi-8, 45 IAR-316B (*Alouette III*), 30 IAR-330 (*Puma*).

Trg: 40 L-29, 20 MiG-15UTI, (?10) L-39ZA, 10 IAR-28MA.
AAM: AA-2 *Atoll*.

AD: 1 div: 18 SAM sites with 108 SA-2.
 (On order: some 125 IAR-93B FGA/trg ac.)

PARA-MILITARY: 37,000. Border guards (17,000); 12 bdes. Ministry of Defence security troops (20,000); AFV, ATK guns. Local Defence: some 900,000 Patriotic Guard (perhaps 12,000 full time). Youth Homeland Defence: 650,000. 'Voluntary Sports Association'.

1 Incl police and security budget.
 2 Incl DMO 4,739 bn (1984), 5,028 bn (1985) for internal and border security.
 3 All divs Category 1.

China

Chinese defence policy has long maintained a balance, at times uneasy, between two concepts: nuclear force to deter strategic attack and People's War—mass mobilization of the population to deter or repel conventional invasion. Despite changes in the political leadership, there remain many supporters of the strategic concept that mass manpower is still the primary deterrent. The need to modernize the forces has been recognized. Attempts are being made to retire older officers, and programmes to re-equip and reorganize the forces are slowly being implemented.

The conventional arms inventory of the People's Liberation Army (PLA), technically much less advanced than that of wealthier nations, is being gradually updated by replacing Soviet and Soviet-type equipment with indigenous designs and some Western technology. China has obtained computers and radars and is negotiating the purchase from various countries of a wide range of military equipment. Britain has sold aircraft engines, artillery and fire control equipment and radar. France has sold helicopters and radar. The United States has agreed to sell helicopters. Despite the period of economic readjustment which led to a succession of cuts in the defence budget since 1980, this year's budget shows a small increase (which will certainly be swallowed by inflation). Thus the pace of modernization will continue to be quite slow, although much is being done to make the forces more professional and efficient—through reorganization, better training and scrapping of civil production quotas. The PLA is also benefiting from the general modernization of Chinese industry.

Nuclear Weapons

The research programme continues. Two nuclear tests were recorded in 1984, and the total number of tests since 1964 is now 29.

Two types of ICBM are deployed, one (DF-5) with a range of some 13,000 km, the other some 7,000 km. No indication has been received of the deployment of multiple warheads, but a missile has been successfully used (and thus tested) as a launcher for three space research satellites. Estimates of the ranges of the IRBM and MRBM have been revised downward to 2,700 km and 1,100 km respectively. China's first SSBN is the *Xia* class with 12 CSS-NX-4 SLBM—a variant of the DF-3 IRBM—the range of which is reported to be of the order of 2,200–3,000 km (probably the lower figure). Four more SSBN are said to be under construction, some—perhaps the *Da-qingyu* class—being reported to have 16 launch tubes. Some 3 *Han*-class nuclear-powered submarines with six missile tubes are now in service; the cruise missile they are said to carry has been tested to a reported range of 1,600 km. So far all ballistic missiles have been liquid-fuelled. Solid propellants, being developed, are reported to have powered the 1980 ICBM test vehicle and may power the DF-5 ICBM. The Strategic Rocket Units are manned by the Second Artillery, which is directly controlled by the Ministry of Defence. There are unconfirmed reports of tactical nuclear munitions (artillery, rockets, mines). If such munitions are available, fighter aircraft could be used for tactical delivery, and for longer ranges some of the 120 H-6

medium bombers, with a combat radius of up to 3,000 km, may be nuclear-capable.

Conventional Forces

The PLA embraces all arms and services, including naval and air elements. Essentially a defensive force, the PLA continues to lack facilities and logistic support for protracted large-scale operations at any significant distance outside Chinese borders. China has been organized in 11 Military Regions (MR) with 28 Military Districts (MD). These will be reduced to 7 by combining Lanzhou and Ürümqi (West and North-West areas), Chengdu and Kunming (South and South-West), Wuhan and Jinan, and Nanjing and Fuzhou (Centre and East). Some internal reorganization will also occur. The field army's Main Force (MF) divisions are commanded by the Ministry of National Defence, although command is being transferred to the MR in which they are stationed and which are already responsible for their administration. They are available for operations in any region. Extensive reorganization of the Local Forces (LF), Border and Internal Defence forces and para-military units intended to defend their own Provinces continues to take place. An overall strength reduction is planned. The field army strength is already declining as transfers to the regional forces continue. Artillery, engineer and railway units are controlled by the Ministry of National Defence. Infantry units account for most of the ground-force manpower and 118 of the some 138 MF line divisions; there are only 13 armoured divisions.

The naval and air elements of the PLA have only about one-fifth of the total manpower, compared with about a quarter for their counterparts in the Soviet Union, but naval strength is increasing. The naval force is organized in three fleets, two of them controlled by the Northern Naval Region. The naval air arm is shore-based, and there is an independent Coast Defence Force. The naval component remains essentially a coastal defence force, incapable of long-range force projection. The air component is organized into 8 Regions and 3 minor geographic commands; combat organization is similar to the Soviet system, with air armies of divisions of three regiments each with some 45 aircraft. It, too, remains essentially a force with limited defence capabilities.

Major weapons systems include Type-59 MBT, Type-60/-63 amphibious and Type-62 light tanks and Type-531 APC; modified R- and W-class medium-range diesel submarines, SSM destroyers, frigates, fast patrol boats, amphibious transports and landing craft; J-6/-7 and Q-5 fighters, SA-2-type SAM. Production rates for this equipment are, at best, broad estimates only. Actual rates may be considerably lower than many such estimates suggest.

Bilateral Agreements

There is a mutual defence agreement with North Korea, dating from 1961, and an agreement to provide free military aid. There are friendship and non-aggression pacts with Afghanistan, Burma, Nepal (1960) and Kampuchea (*Khmer Rouge*). Chinese military equipment and logistic support have

been offered to a number of countries. Major recipients include Albania, Egypt, Iraq, Pakistan and Tanzania.

Gross National Product and Defence Expenditure

Official Chinese sources claim a GNP figure of 989.4 bn yuan for 1982 and 1,105.2 bn for 1983, an increase of 11.7%. National income is reported by the IMF to be 467.3 bn yuan for 1983 and an estimated 523.4 bn for 1984. (GNP figures include the service and other sectors.) Western estimates of GNP have varied greatly, from 309 bn to 362 bn yuan (and even to over 600 bn yuan) for 1984, and it is difficult to choose from a range of figures, variously defined and calculated.

Since 1981 the Chinese government has released official

defence budget figures. In 1984 the defence budget amounted to 17.870 bn yuan (but actual expenditures were subsequently reported as 18.073 bn yuan), while the budget for 1985 amounts to 18.670 bn yuan. Using the official current exchange rate for 1984, the defence outlays would amount to \$7.790 bn, which according to western accounting principles is unrealistic. China, like all socialist economies, excludes a number of items, notably pay and allowances for the troops, as well as RD&E costs. Moreover, the Chinese defence forces are undergoing considerable technological modernization, especially in hardware, much of which is being obtained from western countries at high costs. As Chinese budgetary practices are not known in detail, the official budget figures must be considered as an indicator of proportion, rather than a measurement of actual costs.

CHINA

GNP: see note above.

Debt 1983: \$4.7 bn, 1984: \$8.7 bn.

Def budget: see note above.

\$1 = yuan 1.8925 (1982), 1.9757 (1983), 2.320 (1984).

Population: 1,055,000,000.

Men: 18-30: 131,600,000; 31-45: 101,950,000.

Women: 18-30: 125,250,000; 31-45: 192,600,000.

TOTAL ARMED FORCES:

Regular: some 3,900,000 (perhaps 2,345,000 conscripts) (being reduced).

Terms of service: selective conscription; Army, Marines 3 years; Naval/Air 4 years. Technical volunteers can serve 8-12 more years to maximum age 35. Reserve obligation to age 45.

Reserves: 75,377,000. Army 75,000,000; Navy 144,000; Marines (33,000); Air (Ad) 200,000; See also Paramilitary.

STRATEGIC FORCES:

Offensive (Strategic Rocket Units):

(a) Missiles: org in 6 (perhaps 7) divs, regts and bns; org varies by msl type.

ICBM: 6: 2 DF-5 (*Dong Feng = East Wind*) (CSS-3), range 12,900 km, 5-mt warhead; 4 DF-4 (CSS-3), range 7,000 km, 3 Mt.

IRBM: 60 DF-3 (CSS-2), range 2,700 km, 2 Mt.

MRBM: 50 DF-2 (CSS-1), range 1,100 km, 20 kt. (2-Mt warhead reported, probably shorter range.)

(b) Subs:

2 *Xia* (*Daqingyu*) SSBN with 12 HY-2 (CSS-NX-4; mod DF-3, range est in 2,200-3,000 km range—possibly 1 × 2 Mt warhead; in development, may be two types). (On order: 74 SSBN; some may have 16 launch tubes.)

Defensive:

(a) Tracking stations: Xinjiang (covers central Asia) and Shanxi (northern border) and a limited shipborne anti-surface capability.

(b) Phased-array radar complex. Ballistic missile early warning.

(c) Air Force AD system: over 4,000 naval and air force fighters, about 100 *Hongqi-2* HQ-2 (*Red Flag*; SA-2-type) SAM units and over 16,000 AA guns; capable of limited defence of key urban and industrial areas, military installations and weapons complexes.

(d) A civil defence shelter/evacuation/local defence system in Beijing and other key cities.

ARMY:¹ 2,973,000 (perhaps 2,040,000 conscripts) (25% reduction now under way).

Main Forces (Field Army):

11 Military Regions (will be 7), 27 Military Districts, 1 indep MD, 3 Garrison Comds.

Some 35 Armies (46,300 men), each normally of 3 divs, 1 arty regt and spt tps (some have 1 indep tk regt, some have 1 arty, 1 AA regts), comprising:

13 armd divs.

118 inf divs (some being mech).

Some 17 field arty divs.

16 AA arty divs.

Some indep arty, AA regts.

Some 21 sigs, CW regts; 20 indep recce, engr, sigs, chemical bns (Army tps).

50 indep engr regts.

Local Forces (29 provinces; being reorganized, may be into Reserve).

73 divs (70 LF (border/internal defence), 3 garrison district).

140 indep regts.

Tks: 11,450: Sov IS-2 hy (trg), T-34 (trg), T-54, Ch Type-59,

T-69 (mod Type-59), T-69 II; LT: Type-62, Type-60/-63 amph.

APC: Type 501 (Sov BMP-1), 2,800 Type 531, Type-55/-56 (BTR-40/-152)-63, Type 77-1/-2 (Sov BTR-50PK amph); wheeled type reported.

Arty: 12,800: GUNS: Type-56 85mm, Type-73 100mm (fd/ATK); Type-60 122mm, Type-59/-59-1 130mm towed, ISU-122/-152 SP (trg?), Type-66 152mm towed; HOW: Type-54 122mm, Type-54 152mm towed, Type-54-1 122mm SP (Type-31 chassis); MRL: 4,500 Type-63 12 × 107mm (being replaced by 122mm), Type-81 40 × 122mm, Type-81 24 × 122mm minelay; Type-63 19 × 130mm (incl Type-81 SP), BM-13-16 16 × 132mm, BM-416 16 × 140mm, 10 × 180mm, Type-74/-79 10 × 305mm minelayers, and 10 × 320mm; MOR: 14,000 Type-53/-67 82mm, Type-71 100mm, Type-55 120mm and Type-56 160mm.

ATK: GRENADE LAUNCHERS: Type-56, -69 40mm, Type-69-1, -70-1 62mm; RCL: Type-36 57mm, Type-52 75mm, Type-65 82mm, Type-75 105mm SP; RL: Type-51 90mm; GUNS: Type-55 57mm, Type-54 76mm; ATGW: *Hongqiang 73* (*Red Arrow*; *Sagger*-type), *Saclos* (*Milan*-type).

AD: GUNS: 15,000: Type-54, -77 12.7mm; Types-75, 75-1 towed, Types-56, -58, -80 SP 14.5mm; Type-55, Type-63 twin SP 37mm; Type-59 57mm, Type-56 85mm, Type-59 100mm; SAM: SA-7 type. (On order: TOW ATGW, Improved HAWK SAM.)

DEPLOYMENT:

Excl arty and engr, MF and LF divs may be:

North-East: Shenyang MR (Heilongjiang, Jilin, Liaoning MD): (1 msl), 4 armd, 19 inf; 13 LF.²

North: Beijing MR (Beijing, Tianjiang Garrison District Comds; Hebei, Nei Monggol, Shanxi MD): (1 msl +), 4 armd, 25 inf; 1 AB (Air Force); 13 LF.

West: Ürümqi MR (Gansu, Ningxia, Qinghai, Shaanxi, (North and South Xinjiang MD): (2 msl +), 1 armd, 13 inf; 9 LF² (absorbing Lanzhou MR).

South-West: Kunming MR (Sichuan, Xizang): (1 msl), 8 inf; 4 LF (Guizhou, Yunnan MD): (1 msl), 15 inf; 4 LF² (absorbing Chengdu MR).

South: Guangzhou MR (Guangdong, Hunan, Guanxi, Hubei (73 inf; 2 LF), Hainan (MO-equivalent)) Saxia MD to form (714 inf; 10 LF²).

Centre: Jinan MR (Henan, Shandong MD): 2 armd, 10 inf, 3 AB (Air Force); 6 LF.

East: Nanjing MR (Shanghai District; Anhui, Jiangsu, Zhejiang MD): 1 armd, 16 inf; 14 LF (absorbing Fuzhou MR).

NAVY:³ 350,000 incl Naval Air and Coast Defence (some 115,000 conscripts); 3 SSN, 107 diesel attack subs, 44 major surface combat ships.

Bases: see Deployment and Bases below.

Subs: SSN: 3 *Han*; DIESEL: 107: 1 Type-200 (Sov G-class SSG; trials), 84 Type-033 (Sov R-class), 20 W-class IV/V (5 in reserve), 2 *Ming* (mod R-class) trg.

Destroyers: GW: 16: 12 O-51 *Lüda* (*Kotlin*-type) with 2 × 3 HY-2 (*Hai Ying = Sea Eagle*; *Styx*-type) SSM; 4 *Anshan* (ex-Sov *Gordy*) with 2 × 2 HY-2.

Frigates: 28: 23 GW (17 O-37 *Jianghu* with 2 × 2 HY-2, 2 *Jiangdong*, 1 with 2 × 2 SAM; 4 *Chengdu* (ex-Sov *Riga*) with 1 × 2 HY-2); 5 *Jiangnan* (*Riga*-type).

Patrol: ESCORTS: 14: 9 ex-Jap, 1 ex-Br, 1 ex-Aus, 3 Ch; CRAFT: 60 large (40 *Hainan*, 20 *Kronstadt*), some 145 coastal/river (30 *Beihai*, 40 *Huangpu*, 40 *Yulin*, some *Yingkou* (with Millilla); *Haiju* coastal ASW vessel coming into service.

FAC: 350: 315 *Shanghai* VIII/III/IV, 3 *Haikou*, 30 *Shantou*, 2 *Shandong* (hydrofoils).

FAC(G): 232 with HY-2: 120 *Osai/Huangfeng* (4 msls), 1 *Hola*, 110 *Hegu*, 1 *Homa* hydrofoil (2 msls).

FAC(T): 250: 140 *Huchuan* VIII hydrofoils, 60 P-6, 50 P-4 (Reserve).

MCMV: 23 T-43 ocean, 2 coastal minesweepers.

* Amph: ASSAULT TPT: 1 *Qiong Sha*; LST: 21: 7 *Yukan/Zoushan*, 13 *Shan* (ex-US 1-511, -542) (*Chang-Ming*

reported); LSM: 32: 14 *Hua* (ex-US LSM-1), 14 *Yuling*, 4 *Yudao*; LSI: 6 *Min* (ex-US LSI-2); LCU: 309: 300 *Yunnan*, 9 LCT (5/6 ex-Br/US); LCM: 140 (ex-Br/US); HOVERCRAFT (LCAC): *Dagu*, *Payi*, Type-722 *Jingsah* types.

Spt: 10 sub (incl 1 repair), 6 other spt, 10 supply ships, 23 tankers.

(On order (tentative): 3 *Han* SSN; 9 R-class SS; 4 *Lüda* DDG; 6 *Jianghu* (4 mod), 2 *Jiangdong* FFG; *Huangfeng*, *Hegu* FAC; 2 *Qiongsha* assault tpts, 2 *Yukan* LST.)

COASTAL DEFENCE FORCES:

(38,000): Indep arty regts deployed near naval bases, offshore islands, and other vulnerable points.

GUNS: 85mm, 100mm, 130mm.

SSM: HY-2 ('CSS-N-2') land-based SSM.

MARINES (Naval Infantry): 86,500 (30,000 conscripts). 9 regts (3 cadre divs):

4 inf, 3 tk, 3 arty bns; spt elms.

Special recc units.

Reserves: On mobilization to total 8 divs (24 inf, 8 tk, 8 arty regts), 2 indep tk regts; 120,000 men.

3 ground force divs are also assigned for amph duties.

Tks: 600 T-59; LT: T-60/-63, PT-76. APC: K-63. LVT. Arty: HOW: Type-54 122mm; MRL: Type-63.

DEPLOYMENT AND BASES:

Northern Naval Region:

North Fleet: about 500 vessels (over half), incl 1 sub flotilla (2 sqns); from the Yalu River to south of Lianyungang. Qingdao (HQ), Lüda, Lüshun, Huludao, Weihai, Chengshan. Marines: 1 cadre div.

East Fleet: about 750 vessels (about 400) with air, AD and coastal missile units; from south of Lianyungang to Dongshan. Ningbo (HQ), Zhoushan, Taohua Dao, Heimen, Wenzhou, Fuzhou. Marines: 1 cadre div.

South Sea Fleet: about 600 vessels (some half), incl 2 sub flotillas (25 subs), 200 FAC, amph; from Dongshan to Vietnamese frontier. Zhanjiang (HQ), Shantou, Guangzhou, Haikou, Yulin, Beihai. Marines: 1 cadre div.

Some 800 ocean-going vessels, fishing trawlers and several thousand junks; some are mod and could augment existing limited sealift capacity.

NAVAL AIR FORCE: (34,000); about 800 shore-based combat ac, org in 3 bbr, 6 fr divs, incl some 50 H (*Hong = bbr*)-6, about 130 H-5 and H-18 torpedo-carrying and 11 bbrs; some 600 ftrs. Incl J (*Jian = fr*)-2 (MiG-15/-5/-6/-7; H-5 recce, 8 ex-Sov Be-6 *Madge* MR/ASW ac; 50 Z (*Zhi = hel*)-5, 12 SA-321 *Super Frelon* MR hel; some 60 lt tpt ac; JJ-5/-6 trg ac. Naval fighters are integrated into the national AD system.

AIR FORCE:⁴ 490,000, incl strategic forces and 220,000 AD personnel (160,000 conscripts); some 5,300 combat ac.³

8 Military Air Regions, 3 minor regional comds, HQ Beijing; combat elms org in Armies of varying numbers of air divs (each with 3 regts of 3 sqns of 3 flts of 4-5 ac, 1 maintenance unit, some tpt and trg ac). Tpt ac in regts only.

Med bbrs: 120 H-6 (some may be nuclear capable), some reported with 2 × S-60 antiship msls.

Lt bbrs: some 500 H-5.

FGA: some 500 J-4 and Q (*Qiang = attack*)-5.

Ftrs: some 4,000, incl 400 J-5, some 60 regts with about 3,000 J-6B/D/E, 200 J-7, 30 J-8.

Recce: some 190: 60 J-2/-4/-5, 90 JZ-6, 40 HZ-5 ac.

Tpts: some 550 incl some 300 Y (*Yun = tpt*)-5/An-2, some 10 Y-7 (An-24), Y-8 (An-12), some 75 ex-Sov Li-2, Il-14, Il-18 (to be retired), 18 *Trident*. (These could be supplemented by some 400 ac, incl some 150 hy tpts, from Civil Aviation Administration.)

Hel: 400: incl Z-5/-6, Z-9 (SA-365N *Dauphin*), *Alouette* III, SA-321 *Super Frelon*, 4 Bell 214-ST, 1 Sikorsky S-70 (being delivered).

¹ See p. 92 for footnotes.

Trainers: 1,500 (some ocu) incl CJ-5/-6, MiG-15UTI, JJ-4/-5/-6, HJ-5.
AAM: PL-2 *Atoll*-type.
AB tps: 1 corps of 3 divs, 1 indep div; 82mm, 120mm mor, 82mm RCL, 37mm AA guns.
AA arty: 20 divs; 16,000 57mm, 85mm and 100mm guns; 28 indep ad regts (100 SAM units with HQ-2, -2J (CSA-1) SAM).
 (On order: 23 Sikorsky S-70, 4 S-76, 6 *Super Puma* hel.)

PARA-MILITARY: some 12,000,000.
Militia (Ministry of Defence). Basic Militia: some 4.3 mil-

lion; men and women aged 18-28 who have had, or will have, military service, grouped in the Armed Militia; serve with the Regulars for 30-40 days per year; org into about 75 cadre divisions and 2,000 regts, a Naval (Maritime) Militia with armed trawlers and a major AD component.

Ordinary Militia: up to 6 million (ages 18-35), incl the Urban Militia, receive some basic training but are generally unarmed. Some play a local AD role; all support the security forces.

People's Armed Police Force (Ministry of Security): ex-soldiers and personnel transferred from some 4 LF

divs; Internal Defence divs and 30 indep regts; border security, patrol and Internal security duties; small arms; *Shanghai II* FAC, *Hainan* patrol craft.

1 The term 'People's Liberation Army' comprises all services; the Ground, Naval and Air components of the PLA are listed separately for purposes of comparison.

2 There are 2-3 divs worth of border tps in these MR.
 3 Many Chinese aircraft designs stem from Soviet types. Using Chinese terms: H-5 = Il-28, H-6 = Tu-16, J-5 = MiG-17, J-6 = MiG-19, O-5 = MiG-19, J-7 = MiG-21, J-8 = MiG-23, Y-5 = An-2, Y-7 = An-24, Y-8 = An-12 ac; Z-5 = Mi-4, Z-6 = Mi-8 hel. In export models the J is generally read as F.

Other Nations

AFGHANISTAN

Est GNP 1981/2: Afs 137.0 bn (\$2,708 bn). 1982/3: 145.0 bn (\$2,866 bn).
 Est debt 1983: \$1.5 bn.
 Est def exp 1983: Afs 15.0 bn (\$296.443 m). 1984: 10.60 bn (\$209.486 m).
FMA: (Total Soviet military assistance since 1980 not known. US, Western, friendly Islamic states' assistance to Afghan rebels est \$600 m 1979-84, \$200-280 m 1985.)
 \$1 = afghanis 50.6 (1981-5).
 Est population: 14-17,000,000.
 Men: 18-30: 2,010,000; 31-45: 1,388,000.
 Women: 18-30: 1,915,000; 31-45: 1,328,000.

TOTAL ARMED FORCES:

Regular: 47,000.

Terms of service: Males 15-55: volunteers 2 years, conscription 3 years +, non-combatants 4 years.
Reserves: No formal force identified; call-up from ex-servicemen, Youth League and regional tribes from age 20 to age 40.

ARMY: 40,000 (mostly conscripts). (Actual strength suspect. Divs reported to average 2,500 [about quarter strength]. Desertion is common. The Soviet High Command in Afghanistan [see USSR entry for Soviet forces deployed] effectively controls the Afghan forces; it is not possible to differentiate between Soviet and Afghan holdings of identical equipment. Some 5,000 Cuban and Czech advisers have been reported with the Afghan Air Force.)

3 corps HQ.
 11 inf divs } (under strength bdes).
 3 armd divs }
 1 mech inf bde.
 2 mountain inf regts.
 1 arty bde with 3 arty regts.
 1 cdo bde; 3 cdo regts (bns; 1 para).

Tks: 50 T-34, 300 T-54/-55, 100 T-62; LT: 60 PT-76. **AFV:** MICV: 40 BMP-1; APC: 400 BTR-40/-50/-60/-152. **Arty:** GUNS: 900 76mm, M-1944 100mm; HOW: M-30 122mm, D-1 152mm; MRL: 50 BM-13-16 132mm; MOR: 82mm, 100 120mm, 160mm. **ATK:** RCL: SPG-9 73mm, 82mm; GUNS: 76mm, 100mm. **AD:** GUNS: 350 23mm, 37mm, 57mm, 85mm and 100mm towed, 20 ZSU-23-4 sp.

AIR FORCE: 7,000 (incl AD Comd); perhaps 150 combat ac, some 30 armed hel.

Lt bdrs: 3 sqns with some 20 Il-28.

FGA: 10 sqns; 4 with some 50 MiG-17, 3 with 40 MiG-21 *Fishbed*, 2 with 25 Su-7B *Filter A*, 1 with 12 Su-17 *Filter C*.

OCU: 1: MiG-15UTI/-17/-19/-21/-23U, Il-18U.

Attack hel: 2 sqns: some 30 Mi-24 (10 more nonoperational, more reported being delivered).

Tpt: AC: 3 sqns: 1 vip with 1 Il-18D, 12 An-14 *Ciod*; 2 with some 10 An-2, 15 An-26, An-30; HEL: 1 regt (3 sqns) with some 12 Mi-4, up to 30 Mi-8.

Flying school: Yak-18, L-39C.

AD: 1 div: 2 SAM bdes (each 3 bns) with 120 SA-2, 115 SA-3; 1 AA bde (2 bns) with 37mm, 85mm, 100mm guns; 1 radar bde (3 bns).

PARA-MILITARY: Gendarmerie (*Sarandoy* 'Defence of the Revolution'): 30,000; Border Force: largely ex-mil-

itary to age 55 org in provincial regts. Ministry of Interior: *Khad* (secret police). Regional militias incl, 'Revolution Defence Groups' (Civil Defence), Pioneers, Afghan Communist Party Guards, *Khalqi* Youth, tribal.

OPPOSITION: Perhaps 90,000 guerrillas (possibly 20,000 intermittently active) supported by about 110,000 'reserves' in some 37 exile political groups (7 active). Eqpt: small arms, T-55 MBT; BMP MICV, BTR-60 APC; D-30 122mm how; AGS-17 30mm grenade launchers; 2-in. (51mm), 60mm, M-41 82mm mor; RPG-7 RL; SPG-9, 3 75mm, 82mm RCL; 12.7mm, 14.5mm AA machine guns, ATK mines; SA-7 SAM.

ALBANIA

Est GNP 1981: lekë 12.30 bn (\$2,460 bn). 1982: 15.50 bn (\$2.58 bn).
 Debt 1984: \$5.4 bn (estimated total since 1949).
 Def budget 1984: lekë 1.01 bn (\$130.32 m). 1985: 1.70 bn (\$188.89 m).
 \$1 = lekë 5.0 (1981), 6.0 (1982), 7.75 (1984), 9.0 (1985).
 Population: 3,000,000.
 Men: 18-30: 379,000; 31-45: 255,000.
 Women: 18-30: 365,000; 31-45: 248,000.

TOTAL ARMED FORCES:

Regular: 40,400 (22,400 conscripts).

Terms of service: Army 2 years; Air Force, Navy and special units 3 years.
Reserves: 155,000 (to age 56); Army 150,000, Navy/Air 5,000.

ARMY: 30,000 (20,000 conscripts).

1 tk bde.
 5 inf bdes.
 4 arty regts.
 8 lt coastal arty bns.

Tks: 70 T-34, 15 T-54, 15 T-59. **AFV:** RECCE: 20 BA-64 armd, BRDM-1; APC: BTR-40/-50/-152, K-63. **Arty:** GUNS: M-1942, Su-76 sp 76mm, D-44, Type-56 85mm, M-1931/37 122mm, Type-59-1 130mm; GUN/HOW: M-1938, Type-60 122mm, M-1937, Type-66 152mm; HOW: D-1 152mm; MRL: Type-63 107mm; MOR: 82mm, 120mm, 160mm. **ATK:** RCL: T-21 82mm; GUNS: M-1942 45mm, M-1943 57mm, D-44, Type-56 85mm. **AD:** GUNS: M-1939 37mm, S-60 57mm, KS-12 85mm, KS-19 100mm. (Spares are short; some eqpt may be unserviceable.)

NAVY: 3,200 (1,000 conscripts). (Spares are short; some eqpt may be unserviceable.)

Bases: Durres, Valona, Sazan Island, Pasha Liman.
Subs: 3 Sov W-class (1 trg).

Patrol craft: 2 Sov *Kronstadt* large.

FAC: 6 Ch *Shanghai-II*; (T): 12 Ch P-4.

Hydrofoil: 32 Ch *Huchwan*.

MCMV: 1 T-43 ocean, 2 T-301 inshore, 9 PO-2 utility.

(Plus, in reserve: 1 W-class sub, 2 *Kronstadt* patrol craft, 1 T-43, 4 T-301 minesweepers.)

AIR FORCE: 7,200 (1,400 conscripts); some 100 combat ac. (Spares are short; some eqpt may be unserviceable.)

Ftrs: 6 sqns with 20 MiG-15/F-2, 30 MiG-17, 30 MiG-19/

J-6, 20 Ch J-7.

Tpt: 1 sqn with 3 Il-14M, 10 An-2.

Hel: 2 sqns with 30 Mi-4.

Trg: 1 sqn with MiG-15UTI.

SAM: some 5 SA-2 sites.

PARA-MILITARY: 12,500. Internal security force (5,000); frontier guard (7,500).

ALGERIA

GDP 1982: AD 208.7 bn (\$45.447 bn). 1983: 231.2 bn (\$48.425 bn).
 GDP growth 1983: 0%. 1984: 3.5%.
 Inflation 1983: 3.7%.
 Debt 1983: \$12.9 bn. 1984: \$15.8 bn.
 Def budget (excl eqpt expenditures) 1984: AD 4.631 bn (\$929.285 m). 1985: 4.793 bn (\$937.506 m).
 \$1 = dinar 4.5922 (1982), 4.7888 (1983), 4.9834 (1984), 5.1125 (1985).
 Population: 22,106,000.
 Men: 18-30: 2,449,000; 31-45: 1,330,000.
 Women: 18-30: 2,374,000; 31-45: 1,471,000.

TOTAL ARMED FORCES:

Regular: 170,000 (at least 100,000 conscripts).

Terms of service: 2 years.
Reserves: Army: up to 150,000.

ARMY: 150,000 (perhaps 100,000 conscripts).

6 Military Regions.
 2 armd bdes.
 5 mech bdes.
 8 mot inf bdes.
 1 AB/special force bde.
 28 indep inf bns.
 4 para bns.
 5 indep arty bns.
 5 AD bns.
 4 engr bns.

12 coys desert troops.
Tks: 300 T-54/-55, 300 T-62, 100 T-72.
AFV: RECCE: 150 BRDM-2; MICV: 650 BMP-1; APC: 450 BTR-50/-60, 100 BTR-152.

Arty: GUNS: 60 ZIS-3 (M-1942) 76mm, 100 D-44 85mm, 120 M-1931/37 122mm towed, 40 ISU-122, 70 M-1974 122mm, 50 ISU-152 152mm sp; HOW: 40 M-30, M-1938, 100 D-30 122mm, 20 M-1937 152mm towed; MRL: 150 BM-21 122mm, 20 BM-24 240mm; MOR: 180 M-43 120mm and M-43 160mm.

ATK: GUNS: 90 ZIS-2 57mm, 50 SU-100 sp; RCL: T-21 82mm, B-11 107mm; ATGW: AT-3 *Sagger* (some sp/BRDM-2), *Milan*.

AD: GUNS: 150 37mm, 57mm, 85mm, 100mm, 130mm towed, 130 ZSU-23-4 and ZSU-57-2 sp; SAM: 18 SA-6, SA-7/-9.

NAVY: 8,000.

Bases: Algiers, Annaba, Mers el Kebir.

Subs: 2 R-class.

Frigates: 3 *Koni* with 2 x 2 SA-N-4 SAM.

Corvettes: 4 *Nanuchka* with 4 SS-N-2b ssm, 2 x 2 SA-N-4 SAM.

FAC: 6 Brooke Marine *Kebir*; (a): 11: 2 *Osa-I*, 9 *Osa-II* with Styx ssm.

MCMV: 1 T-43 ocean minesweeper (in reserve).
Amph: LST: 2 Brooke; LCT: 1 *Polnochny*.
(On order: 2 corvettes, 3 P-1200 patrol craft, 2 802 harbour craft.)

AIR FORCE: 12,000; some 332 combat ac, some 35 armed hel.

FGA: 10 sqns: 1 with 12 Su-7B; 4 with 60 MiG-17; 4 with some 60 MiG-23BM; 1 with some 18 Su-20 (*Fitter C*).
Interceptors: 4 sqns: 3 with 95 MiG-21MF/F; 1 with 15 MiG-25 *Foxbat A*.

Rece: 1 sqn with 6 MiG-25R *Foxbat B*.
MR: 1 sqn with 8 F-27-400 (Navy-assigned), 2 Beech *Super King Air T-200T*.

Tpt: 1 sqn with 8 An-12, 11 C-130H, 6 C-130H-30, 1 Il-18, 1 *Mystère-Falcon 20*, 2 *Caravelle Super B*.

Hel: 9 sqns: **ATTACK:** 3 sqns with 35 Mi-24; **TPT (HY):** 3 sqns with 35 Mi-8 (some may be armed), 4 Mi-6; (**MED**): 2 sqns with 28 Mi-4, 5 SA-330 *Puma*; (**LT**): 6 Hughes 269A, 4 *Alouette II*.

Misc: 2 CL-215 SAR, 12 *King Air*, 12 Beech *Sierra 200*, 3 *Queen Air*.

Trg: **COMBAT:** 20 MiG-17/121UT1, 8 Su-7U, 2 MiG-23U, 3 MiG-25U, perhaps 20 MiG-15U, 6 T-34C; **BASIC:** 20 CM-170 *Magister*, 41 *Gumhuriya*, Yak-11.

AD: **GUNS:** 3 regts: 85mm, 100mm, 130mm; **SAM:** 1 regt: 24 SA-2 (96 missiles), some 20 SA-3.

AAM: AA-2 *Atoll*.

PARA-MILITARY (Ministry of Interior): *Gendarmerie* 30,000; 44 Panhard M-3 APC, Coastguard 550: 38 patrol craft (2 P-6, 16 *Baglietto* (6 *Mangusta*, 10 Type-20 GC), 20 small).

ANGOLA

Est GDP 1982: K 126.0 bn (\$4.186 bn).
Est def exp 1982: K 23.50 bn (\$780.731 m).

\$1 = kwanza 30.1 (1982), 30.214 (1983).
Population: 8,000,000.

Men: 18-30: 889,000; 31-45: 652,000.
Women: 18-30: 919,000; 31-45: 680,000.

TOTAL ARMED FORCES:

Regular: 49,500 (perhaps 24,000 conscripts).
Terms of service: conscription, 2 years.
Reserves: Militia: 50,000.

ARMY: 36,000 (perhaps 24,000 conscripts).
10 Military Regions.

5 div HQ.
2 mot inf bdes (each of 1 tk, 2 inf bns).
17 inf bdes.
4 AA arty bdes.
10 tk bns.
6 arty bns.
10 SAM bty.

Tks: 175 T-34, 200 T-54/55, 90 T-62; LT: some 50 PT-76.

AFV: RECC: 200 BRDM-1/1-2, AML; **APC:** 255 BTR-60/152. **Arty: GUNS/HOW:** 250: incl 76mm, 85mm, 100mm, SU-100 SP, 122mm, 130mm, 152mm; **MOR:** 460 82mm, 40 120mm; **MRL:** 50 BM-21 122mm. **ATK: RCL:** 900 75mm, 82mm and 107mm; **ATGW:** *Sagger*. **AD:** **GUNS:** 300+ ZPU-4 14.5mm, M-55 20mm, ZU-23-2, M-1939 23mm, 37mm, 70 S-60 57mm towed, 20 ZSU-23-4, 40 ZSU-57-2 SP; **SAM:** SA-7. (Delivery data incomplete; eqpt totals uncertain.)

NAVY: 1,500 (Serviceability, especially non-Soviet equipment, uncertain).

Bases: Luanda, Lobito, Moçâmedes.

FAC: (g): 6 Osa-II with 4 SS-N-2 SSM; (r): 4 Sov *Shershen*.

Patrol craft: 12: 4 large Port *Argos*; 8 coastal: 3 Sov (1 *Zhuk*, 2 *Poluchat*), 5 Port (1 *Jupiter*, 4 *Bellatrix*).

Amph: LCT: 3 Sov *Polnochny*, 1 Port *Alfange*; LCM: 5 Sov T-4.

AIR FORCE: 2,000; some 141 combat ac, some 12 armed hel. (Serviceability, especially non-Soviet equipment, uncertain.)

FGA: 4 sqns with 48 MiG-21MF, 20 MiG-17F, 5 Su-22, 25 MiG-23, incl 2 trg.

Interceptor: 3 sqns: 1 with (?12) MiG-19; 2 with 30 MiG-21bis.

MR: 1 F-27MPA.

Tpt: 2 sqns with 6 *Noratlant*, 3 C-47, 8 CASA C-212, 6 An-2, An-22, 16 An-26, 4 *Turbo-Porter*, 8 *Islander*.

Hel: 2 sqns with 12 Mi-24 (?A), 40 Mi-8, 27 *Alouette III*, 27 SA-365N *Dauphin*, some 6 IAR-316B.

Trg: incl 1 MiG-15UTI, 6 Yak-11, 12 PC-7.

AD: 2 SAM bns; 11 radar units.

AAM: AA-2 *Atoll*.

SAM: 40 SA-3 Goa, 72 SA-6, 48 SA-8, SA-9.

Radar: EW: *Tall King*, *Spoon Rest*; SEARCH: *Bar Lock*, *Flat Face*, *Squat Eye*; HEIGHT-FINDING: *Side Net*; MSL COMD: *Low Blow* (SA-3), *Land Roll* (SA-8); AA ARTY: *Flap Wheel*, *Fire Can*, *Gun Dish*.

(On order: Su-22 FGA, An-26, 12 C-212 tpt ac; some 30 IAR-316B, 6 AS-341 *Gazelle* attack, 4 SA-365 *Dauphin* recce hel.)

Forces Abroad: São Tomé: 200.

PARA-MILITARY:

Militia (People's Defence Organization, oDP) 50,000; 11+ 'bdes'; Border Guard (IGFA): 7,000; South West African People's Organization (SWAPO): 7,000. 'Popular Vigilance Brigades' reported; role unclear.

FOREIGN TROOPS:

Cuba 20,000 (plus 6,000 civilian instructors/advisers); 4-6 inf regts in field role, combat ac pilots, technicians, advisers. E. Germany 500; advisers, technicians. Bulgaria, 'Palestine', Portugal, other, 1,500; incl combat pilots, technicians, USSR 700; advisers and technicians.

OPPOSITION:

UNITA (Union for the Total Independence of Angola): some 18,000 'regulars' (1-2 years service), 23,000 militia (spt and log). **Eqpt:** captured T-34/85 MBT, BM-21 122mm MRL, 76mm fd guns, 82mm, 120mm mor, 85mm RPG-7 RL, 75mm RCL, 12.7mm hy machine guns; 14.5mm and ZU-23-2 23mm AA guns, SAM-7; it ac reported.

FNLA (National Front for the Liberation of Angola): (few hundred); small arms only.

FLEC (Front for the Liberation of the Cabinda Enclave): (200-300); small arms only.

ARGENTINA

GDP 1982: pA 150,499 bn (\$58,062 bn). Est 1983: pA 730.0 bn (\$69,326 bn).

GDP growth 1983: 2.8%. 1984: 3.1%.

Inflation 1983: 433%. 1984: 700%.

Debt 1983: \$44.5 bn. 1984: \$45.5 bn.

Def budget 1983: pA 134,548 bn (\$12,778 bn). 1984: 181.0 bn (\$2,676 bn) (excl \$1,621 bn (1983), \$660 m (1984) for frontier, maritime and air security budget).

\$1 = pesos 2,592 (1982), 10.53 (1983), 67.649 (1984).

Population: 29,940,000.

Men: 18-30: 2,990,000; 31-45: 2,840,000.

Women: 18-30: 2,930,000; 31-45: 2,800,000.

TOTAL ARMED FORCES:

Regular: 108,000 (61,000 conscripts).

Terms of service: Army 6-12 months, Air Force 1 year, Navy 14 months; some conscripts may serve less.

Reserves: 377,000: Army 250,000 (National Guard 200,000, Territorial Guard 50,000), Navy 77,000, Air 50,000.

ARMY: 55,000 (35,000 conscripts).

HQ: 4 army corps, 5 Military Region, 1 Garrison. Many units cadres only.

2 arm'd cav bdes (each 2 arm'd cav, 1 tk regts, 1 arty bn).
3 mech, 2 mot inf bdes (each 3 regts, plus arm'd cav sqn, engr, arty bns).

2 mountain inf bdes (each 3 inf, 1 arty, 1 engr bns, 1 recce det).

2 jungle bdes (3 lt inf, 1 arty (mor) bns).

1 av bde (3 av bns, 1 arty gp).

16 arty bns (12 with bdes).

1 Presidential Guard tk regt.

1 indep mech inf regt.

1 av trg regt.

5 AD bns.

1 indep engr gp (regt), 5 indep engr bns.

5 log bns.

1 aviation bn (5 dets), 1 spt coy.

Tks: 100 M-4 *Sherman*, 130 TAM; LT: 50 M-41, 60 AMX-13.

AFV: RECC: Panhard ERC-90; MICV: 300 AMX-VTP, some 150 TAM VCPT; APC: 85 M-3, 125 M-113, 80 MOWAG *Grenadier* (Roland), 5 BDX.

Arty: GUNS: 20 M-2A1/M-101 105mm, 18 M-59 155mm towed; **HOW:** 180 105mm incl M-56 pack; 70 M-114 towed, 24 Mk F3, 6 M-109 SP 155mm; **MRL:** SALM-Pampera 105mm; SAPBA-1 127mm; **MOR:** 81mm, 200 120mm (some SP in GCTM MICV).

ATK: GUNS: 227 *Kuerassier* 105mm SP; **RCL:** 75mm, 90mm, 105mm; **RL:** M-65 89mm; **ATGW:** SS-11-12, *Cobra*, *Mathogo*, *Mamba*.

AD: GUNS: Rh 202 twin HSS-669 20mm, HS-83/4 30mm, K-63 35mm, 40mm, 50 M-1A1 90mm (trg); **SAM:** *Tiger-cat*, *Blowpipe*, *Roland*, SAM-7.

Avn: AC: 3 G-222, 3 DHC-6, 5 *Turbo-Commander* 690A, 2 *Turbo-Porter*, 5 *Merlin IIIA*, 2 *Queen Air*, 1 *Sabreliner*, 49 *Cessna* (15 182, 20 U-17A/B, 7 207, 2 *Citation*, 5 T-41); **HEL:** 9 A-109, 31 Bell (7 206, 18 UH-1H, 2 47G, 4 212), 6 FH-1100, 1 CH-47C, 6 SA-315B *Lama*, 14 SA-330 *Puma*, some 12 AS-332B *Super Puma*.

(On order: 85 TAM MBT, RAM V-2 micv; 25 155mm SP how conversion kits; 198 *Kuerassier* SP ATK; some 12 AS-332B *Super Puma* (being delivered), 9 A-109 hel.)

NAVY: 36,000 (16,000 conscripts), incl naval air force and marines.

Bases: Buenos Aires, Rio Santiago, Puerto Belgrano, Mar del Plata, Ushuaia.

Subs: 4: 2 Type 1200, 2 TR-1700.

Carrier: 1 Br *Colossus* (up to 12 *Super Etendard/A-4*, 6 S-2 ac; 4 SH-30H, 1 S-61D hel).

Destroyers: 6: 4 Meko 360H-2 with 2 x 4 *Exocet* MM-40 SSM, 1 x 4 *Aspide* multi-role missiles, 2 AB-212 hel; 2 Type 42 with 4 *Exocet* MM-38, 1 x 2 *Sea Dart* SAM, 1 hel. **Corvettes** with *Exocet* SSM: 6: 3 *Espera* (Meko 140) with 4 MM-40, 1 hel; 3 Fr A-69 with 4 MM-38.

Patrol ships: 5: 2 US *Cherokee*, 2 *King* (1 trg), 1 US *Sotoyomo*.

Patrol vessel: 1 large.

FAC: (g): 2 TNC-45; (r): 2 US *Higgins* (may not now be operational); (p): 4 *Dabur*.

MCMV: 6 Br *Ton* coastal minesweepers/hunters.

Amph: 1 LST, some LCVP, 4 LCM.

Spt: TANKERS: 3: 1 14,000-, 1 6,000-, 1 1,600-ton.

Arty: some 10 coast defence batteries: 12 M-1898 87mm, 16 M-3 155mm, 12 280mm guns.

(On order: 5 TR-1700 subs, 3 *Espera* corvettes.)

NAVAL AIR FORCE: (3,000): 54 combat ac, 24 combat hel.

Attack: 3 sqns with 28 A-4Q, 14 *Super Etendard*.

MR/ASW: 2 sqns: 1 with 6 S-2E; 1 with 6 L-188E *Electra*.
ASW: HEL: 1 sqn with 4 SH-30H/1, 1 S-61D *Sea King*, 10 AB-212, 9 A-103 (*Alouette III*).

Tpt: 2 sqns with 8 *Super King Air 200/220*, 3 L-188A *Electra*, 1 HS-125, 3 F-28/3000 ac; 3 S-61D hel.

Liaison: 1 sqn with 3 S-2A, 5 B-80 *Queen Air*, 3 PC-6 (Antarctic flt).

Trg: 3 sqns: 11 EMB-326GB *Xavante*; 6 MB-326B, 5 MB-339A; 11 T-34C.

(**Store:** some A-4Q, 1 C-45, 5 MB-339A, 12 T-28 ac; 6 Hughes 500, 1 WG-13 *Sea Lynx* hel.)

ASM: 20 *Exocet* AM-39E/H, ASM-2 *Martin Pescador* (*Kingfisher*).

(On order: 16 A-4 attack ac.)

MARINES: (10,000).

Fleet Forces: 2:

1 inf regt (2 bns, 1 amph recce gp, 1 fd arty bn, 1 hy mor, 1 ATK, 1 engr coys).

1 inf regt (2 bns).

Amph spt force: 1:

1 amph veh bn.

1 AA regt.

1 sigs bn.

1 servive/log bn.

6 indep inf (security) coys.

AFV: RECC: 12 Panhard ERC-90 *Lynx*; **APC:** 15 LVT-3/4, 19 LVT-7, 15 LARC-5, 6 MOWAG *Roland*, 24 Panhard VCR/TT. **Arty: HOW:** 40 M-101 105mm; **MOR:** 81mm, 120mm. **ATK: RCL:** 75mm, 90mm, M-1968 105mm; **ATGW:** 20 *Bantam*. **AD: GUNS:** 20mm, 30mm, 35mm; **SAM:** 7 *Tigercat*.

AIR FORCE: 17,000 (10,000 conscripts); combat: 157 ac, 18 hel, 6 more may be armed.

9 air bdes (1 more forming).

AD Command (4 bdes):

FGA/interceptor: 4 sqns: 2 (1 ocy) with 15 *Mirage IIIA*, 2 *Mirage IIIcj*; 2 with 9 *Mirage 5P*, 27 *Dagger* (*Nesher*).

Air Operations Command (8 bdes):

Bbr: 1 sqn with 6 *Canberra* B-62, 2 T-64.

FGA: 3 sqns with 31 A-4P *Shayhawk*.

COIN: 4 sqns: 2 ac with 45 IA-58A *Pucará*; 2 hel with 12 Hughes 500M (369HM), 6 UH-1H.

SAR: 1 sqn with 5 *Lama*.

Tpt: 5 sqns with ac: 4 Boeing 707, 8 C-130E/H, 1 KC-130H, 3 *Learjet* 35A, 4 C-47, 13 F-27, 5 F-28, 5 DHC-6, 14 IA-50 *Guarani II*, 2 *Merlin IVA*; **HEL:** 2 S-58T (VIP), 12 AS-332B *Super Puma*.

Antarctic: 1 sqn with ac: 1 DHC-6, 1 LC-47; **HEL:** 2 S-61R/NR, 4 UH-19, 2 CH-47C (SAR); 15 Bell (3 UH-1D, 4 47G, 8 212).

Comms: 1 sqn with 13 *Shrike Commander*.

Air Training Command:

24 *Paris*, 12 EMB-326GB *Xavante*, 48 T-34C, some IA-63 *Pampa*.

(**Store:** 37 A-4P FGA, 70 IA-58 *Pucará* COIN.)

AAM: R-530.

ASM: AS-11-12, ASM-2 *Martin Pescador*.

(On order: 2 C-130, 16 *Turbo-Commander* tpts; some 12 IA-63 *Pampa*, 10 MB-339 trg ac; 12 AS-332B *Super Puma* hel.)

PARA-MILITARY (Ministry of Defence): 21,000.

Gendarmerie (mainly frontier duties) 12,000; 3 Regional HQ; org in groups (*agrupaciones*), sqns, 'gps' (platoons), sections. **RECC:** *Shorland* (to replace with RAM V-2); **APC:** 40 M-113; **AC:** 22 lt; **HEL:** 3.

Naval Prefecture (coastguard) 9,000; **PATROL CRAFT:** 20 large (5 *Halcon* with 1 hel; 1 more on order), 19 coastal; **AC:** 5 SC-7 *Skyvan*; **HEL:** 6 Hughes 500M *Defender*, 3 *Puma*.

AUSTRALIA

GDP 1982/3: \$A 159.23 bn (\$US 149,428 bn), 1983/4: \$A 173.95 bn (\$US 157,663 bn).
 GOP growth 1982/3: -1.2%. 1983/4: 5.7%.
 Inflation 1982/3: 11.5%. 1983/4: 6.9%.
 Debt 1983: \$US 38.0 bn. 1984: \$US 43.0 bn.
 Def exp 1983/4: \$A 5,540 bn (\$US 5,021 bn). Budget 1984/5: 6,252 bn (\$US 4,836 bn).
 \$US 1 = \$A 1.0656 (1982/3), 1.1033 (1983/4), 1.2927 (1984/5).
 Population: 15,600,000.
 Men: 18-30: 1,740,000; 31-45: 1,670,000.
 Women: 18-30: 1,656,000; 31-45: 1,586,000.

TOTAL ARMED FORCES:

Regular: 70,731.
Terms of service: voluntary.
 Reserves: 31,518. Army: 29,021, Navy 1,220, Air 1,277.

ARMY: 32,029.

1 inf div with 3 bdes of 2 inf bns.
 1 armd regt (3 sqns).
 2 cav regts.
 4 arty regts (1 med, 2 fd, 1 ad); 1 locating bty.
 1 fd engr, 1 construction, 1 fd survey regts.
 5 sigs regts.
 1 Special Air Service regt.
 3 tpt regts (one air support).
 Army Aviation:
 1 regt (2 recce, 1 comd spt, 1 utility sqns).

ASW: 1 hel sqn with 8 *Sea King* Mk 50; 2 HS-748 E ac.
 Utility/SAR: 1 hel sqn with 10 *Wessex* 31B; 1 composite sqn with 4 UH-1B, 4 Bell 206B, 6 AS-350B *Squirrel* hel, 2 HS-748 ac.
 Trg: 1 sqn with 2 *Wessex* 31B hel.
 (On order: 2 FFG-7 frigates, 2 mcm catamarans; *Harpoon* ssm, 8 SH-60 *Seahawk* ASW hel.)

AIR FORCE: 22,677; some 138 combat ac.
 FGA/recce: 2 sqns: 16 F-111C, 4 F-111A, 4 RF-111C.
 Interceptor/FGA: 3 sqns: 58 *Mirage* III/D.
 MR: 2 sqns: 1 with 6 P-3B *Orion* (out Aug 1985); 1 with some 12 P-3C.
 OCU: 1 with some 4 A-21 (F/A-18), 18 *Mirage* III/D, 10 MB-326H.

Forward air control: 1 flt with 6 CA-25 *Winjeel*.
 Tpt: 6 sqns: 2 with 24 C-130E/H; 1 with 4 Boeing 707-338C (to be tanker ac); 1 with 4 CC-08 (C-7A *Caribou*) ac, 4 UH-1B hel; 1 with 17 CC-08; 1 with 2 BAC-111, 2 HS-748, 3 *Mystere* 20.

Tpt: 1 med hel sqn with 8 CH-47 *Chinook*.
 Utility: 2 hel sqns: 31 UH-1B/H *Iroquois*, 5 AS-350 *Squirrel*.

Trainers incl 81 MB-326H (72 being uprated), 8 HS-748T2, 46 CT-4/A *Air-trainer*.
 AAM: *Sidewinder*, R-530.
 (4 *Chinook* hel in reserve.)
 (On order: some 71 F/A-18 FGA/interceptor/trg, some 8 P-3C MR, 69 A-10 *Warrior* trg ac; R-550 *Magic* AAM; *Harpoon* ASM.)

Forces Abroad: Egypt (Sinai MFO): 110; 8 UH-1H hel.
 Malaysia/Singapore: 1 sqn with 20 *Mirage* III/D, 1 flt

Terms of service: 6 months recruit trg; 60 days reservist refresher trg during 15 years (or 8 months trg, no refresher), 30-90 days additional for specialists.
 Reserves: 170,000; Immediate: 28,000, 970,000 (being increased) have a reserve commitment (men to age 51, specialists, NCOs, officers 65).

ARMY: 50,000 (25,000 conscripts):

Army HQ.
 Standing Alert Force (some 15,000):
 1 mech div of 3 mech bdes (3 tk, 3 mech inf, 3 sp arty, 2 SP ATK bns); 3 comd/spt, 1 airmobile, 2 mountain, 1 guards, 1 AA, 1 engr, 1 sigs bns.
 Standing Field Units (regional defence force):
 Army: 1 HQ, 1 recce bns; 1 sigs, 1 log regts.
 Corps: 2 HQ, 2 arty, 1 SP ATK, 2 AA, 2 engr, 2 sigs bns; 2 log regts.

9 Regional (county) Commands.
 29 *Landwehrstammregimente* (trg regts).
 Peacetime: trg and maintenance.
 Mobilization: active personnel for mobile and territorial forces.

Cadre Force (full strength on mobilization):
 8 mobile bde HQ:
 Bde tps (45,000): 24 inf, 8 arty, 8 engr/ATK, 8 comd/spt bns.

Territorial tps (82,000): 26 inf regts, 86 inf coys, 42 guard coys; 16 hy, 14 lt inf, 11 inf/ATK bns, 13 engr, 5 ATK coys.
 Tks: 50 M-60A3, 120 M-60A1. APC: 464 Saurer 4K4E/F.
 Arty: GUNS: M-6 75mm, 84mm, 85mm, some 100 M-36 90mm, and some L-7A2 105mm (tank turrets), 22 SFKM2 155mm fortress; HOW: 108 IFH (M-2A1) 105mm, 24 FHM-1 155mm, 18 M-109 155mm; MRL: 18 M-51



Australia is modernizing its tactical fighter force with the addition of seventy-five F/A-18 aircraft. This TF/A-18 from RAAF Williamtown near New Castle in New South Wales is one of eighteen two-seat Hornets on order. While used mainly for training, the TF/A-18 has all of the fighting capabilities of the single-seat version.

1 avn school + base workshop bn.
 Tks: 103 *Leopard* 1A3. AFV: micv: 63 M-113 with 76mm gun (48 with *Scorpion*, 15 with *Saladin* turret); APC: 727 M-113. Arty: HOW: 227 105mm, 36 M-198 155mm.
 ATK: RCL: 51 M-40 106mm; ATGW: 12 *Milan*. AD: SAM: *Redeye*, 20 *Rapier* launchers. Avn: AC: 14 *Turbo-Porter*, 13 *Nomad*; HEL: 47 Bell 206B-1 *Kiowa*. Marine: 36 watercraft, 87 LARC-5 amph craft.
 (On order: 59 105mm lt guns, 60 RBS-70 SAM launchers, 150 msls.)

NAVY: 16,025 (incl Fleet Air Arm).

Bases: Sydney, Melbourne, Jervis Bay, Brisbane, Cairns, Darwin, Cockburn Sound.

Subs: 6 *Oxley* (*Oberon*).

Destroyers: 3 *Perth* (US *Adams*) ASW with *Standard* SAM, 2 *Ikara* ASW.

Frigates: 10: 4 *Adelaide* (FFG-7) with 1 *Harpoon* ssm, 1 *Standard* SAM, 2 AS-350 hel; 6 *River* with 1 x 4 *Seacat* SAM/SSM, 1 *Ikara* ASW.

Pair/craft: 23: 15 PCF-420 *Freemantle*, 8 *Attack* (5 reserve).

Minehunter: 1 mod Br *Ton* coastal.

Amph: LCT: 6 (1 Reserve).

Spt: 1 hy amph tpt ship; 1 destroyer tender with 1 *Wessex* hel; 2 trg ships (1 *Daring* destroyer, 1 ex-ocean ferry); 1 fleet tanker.

FLEET AIR ARM: (1,083); 2 combat ac, 8 combat hel.

with CC-08 ac. Papua New Guinea 135; trg/spt unit: 2 engr units, 106 advisers. Indian Ocean: 2 destroyers, 1 amph. Trg gps in Indonesia, Malaysia, Philippines, Singapore.

PARA-MILITARY: Bureau of Customs: 10 *Searchmaster* MR ac.

AUSTRIA

GDP 1983: OS 1,206 bn (\$67.14 bn). 1984: 1,285 bn (\$64.22 bn).

GOP growth 1983: 2.1%. 1984: 2.2%.
 Inflation 1983: 3.3%. 1984: 5.6%.

Debt 1984: \$11.8 bn.

Def exp 1984: OS 15,843 bn (\$791.79 m). Budget 1985: 17,875 bn (\$816.62 m).

S1 = schilling 17,963 (1983), 20,009 (1984), 21,889 (1985).

Population: 7,550,000.

Men: 18-30: 800,000; 31-45: 770,000.

Women: 18-30: 774,000; 31-45: 760,000.

TOTAL ARMED FORCES:

Regular: 54,700 (27,300 conscripts, some 70,000 Reservists on refresher training).

128mm; MOR: 451 81mm, 105 M-2/M-30 107mm, 82 M-60 (M-38/41) 120mm, ATK: RL: LAW; RCL: *Miniman* 74mm, *Carl Gustav* 84mm, 397 M-40A1 106mm; GUNS: 240 M-52/M-55 85mm towed, M-36 90mm SP, 225 *Kuerassier* JPz SK 105mm SP; 150 M-68 (L-7A1) 105mm turret-mounted. AD: GUNS: 512 20mm, 74 35mm towed, 38 M-42 twin 40mm SP.

(On order: some 180 *Centurion* MBT, L-7A2 105mm gun turret (for fixed defences).)

AIR FORCE: (Austrian air units, an integral part of the Army, are listed separately for purposes of comparison.) 4,700 (2,300 conscripts); 32 combat ac.

1 Air Div HQ; 3 Air Regts:

Multi-role (ftr/FGA/recce): 4 sqns with 32 Saab 105OE.

Recce: some L-19 (arty fire control, retiring).

Hel: 6 sqns: RECCO/ARTY FIRE CONTROL: 12 OH-58B *Kiowa*, 16 AB-204; MED TPT: 23 AB-212; LT TPT: 12 AB-206A; SAR: 12 *Alouette* III.

Liaison: 1 sqn with 2 *Skyvan* 3M, 12 PC-6 *Turbo Porter*.

Trg: 18 Saab 91D *Safir*, some 10 PC-7 *Turbo-Trainer*.

AD: 3 bns with 36 20mm, 18 M-65 35mm AA guns; *Super-Bat* and *Skyguard* Ad, *Goldhaube* ewng, Selenia MR(S-403) 3-D radar systems.

(On order: 24 J-35D *Draken* interceptors, 6 PC-7 *Turbo-Trainer*.)

Forces Abroad: Cyprus (UNFICYP): 1 inf bn (301). Syria (UNDOF): 1 inf bn (533). Other Middle East (UNTSO): 13.

BAHAMAS

GDP 1982: \$B 1.449 bn (\$US 1.449 bn), Est 1983: 1,537 bn (\$US 1,537 bn).
GDP growth 1982: 2.0%. 1983: 1.5%.
Inflation 1983: 4.1%. 1984: 3.9%.
Debt 1983: \$US 246.40 m. 1984: \$US 250 m.
Def exp 1984: \$B 8.6 m (\$US 8.6 m). Budget 1985: 10.6 m (\$US 10.6 m).
FMA 1985: \$US 5.4 m.
\$US 1 = \$B 1 (1982/3/4/5).
Population: 233,000.
Men: 18-30: 24,000; 31-45: 19,600.
Women: 18-30: 26,200; 31-45: 20,400.

TOTAL ARMED FORCES (Para-Military):

Regular: 496.
Terms of service: voluntary.

Coastguard: 496.

1 103-ft, 5 60-ft Vosper Thornycroft, 4 30-ft patrol craft, 2 supply vessels.
(On order: 3 Protector-class fast patrol boats.)

BAHRAIN

GDP 1982: BD 1.74 bn (\$4.628 bn), Est 1983: 1,914 bn (\$5,090 bn).
GDP growth 1982: 8.2%. 1983: 4.5%.
Inflation 1983: 3.0%. 1984: 5.5%.
Debt 1983: \$420 m. 1984: \$330 m.
Def exp 1982: BD 105 m (\$279.255 m). Est 1983: 125 m (\$332.447 m). (Bahrain shares a \$1.0-bn common defence fund with Oman, set up under the auspices of the GCC.)
\$1 = dinar 0.376 (1982/3/4).
Population: 400,000 (incl some 150,000 non-Bahrainis).

TOTAL ARMED FORCES:

Regular: 2,800.
Terms of service: voluntary.

ARMY: 2,300.

1 bde:
1 inf bn.
1 armd car sqn.
1 arty, 2 mor blys.
AFV: RECCE: 8 *Saladin*, 20 AML-90, 8 *Ferret*; APC: AT-105 *Saxon*, 110 *Shorland* M, Panhard M-3. **Arty:** guns: 8 105mm lt; **mor:** 6 81mm. **ATK:** rcl: 6 MOBAT 120mm; **ATGW:** BGM-71A *TOW*. **AD:** SAM: 6 RBS-70.
(On order: 7 M-198 155mm how, *TOW* ATGW.)

NAVY: 300.

Base: Jufair (Manama).
FAC: 2 Lürssen 38-metre; (g): 2 Lürssen 45-metre with 4 MM-40 *Exocet* SSM.

AIR FORCE: 200.

Hel: 1 sqn with 10 AB-212, 3 BO-105, 2 Hughes 500D.
(On order: 4 F-5E, 2 F-5F FGA ac, 60 AIM-9P3 *Sidewinder* AAM.)

PARA-MILITARY (Ministry of Interior): Coastguard 180:
19 coastal patrol craft, 2 landing craft, 1 hovercraft.
Police 2,000; 2 Bell 412, 2 *Scout* hel.
(On order: 1 *Wasp* coastal patrol craft.)

BANGLADESH

GDP 1982/3: Tk 287.13 bn (\$12.086 bn). 1983/4: 316.14 bn (\$12.672 bn).
GDP growth 1983/4: 4.5%. 1984/5: 3.8%.
Inflation 1983/4: 8.0%. 1984/5: 12.0%.
Est debt 1983: \$4.0 bn. 1984: \$4.4 bn.
Est def exp 1984/5: Tk 7,050 bn (\$273.359 m). Budget 1985/6: 5,011 bn (\$185.593 m).
Est FMA 1983: \$0.3 m. 1984: \$0.5 m.
\$1 = Tk 23.7578 (1982/3), 24.9485 (1983/4), 25.7903 (1984/5), 27.0 (1985).
Population: 102,000,000.
Men: 18-30: 11,855,000; 31-45: 8,149,000.
Women: 18-30: 10,991,000; 31-45: 7,683,000.

TOTAL ARMED FORCES:

Regular: 91,300.
Terms of service: voluntary.
Reserves: 30,000 (Bangladesh Rifles).

ARMY: 81,800.

5 inf div hc.
13 inf bdes.
2 armd regts.

6 arty regts.
6 engr bns.
Tks: 20 Ch Type-59, 30 T-54/-55; Lt: 6 M-24 *Chaffee*. **Arty:** guns/how: 30 Model 56 pack, 50 M-101 105mm, 5 25-pdr (88mm), 20 Type-54 122mm; **mor:** 81mm, 50 Type-53 120mm. **ATK:** rcl: 30 106mm; guns: 6-pdr (57mm), Ch Type-54 76mm.

NAVY: 6,500. (Spares are short; some eqpt unserviceable.)

Bases: Chittagong (HO), Dacca, Khulna, Chalna.
Frigates: 3 Br (1 Type 61, 2 Type 41).
FAC: (g): 4 O-24 (Ch *Hegu*) with 2 HY-2 SSM; (p): 4 Ch *Hainan*; (t): 12: Ch *Shanghai* II, 4 Type-123K (P-4).
Patrol craft: 6 large: 2 Singapore *Meghna*, 2 Ind *Akshay*, 1 Jap *Akaqi*, 1 *Bishkali* (River).
Patrol boats: 5 *Pabna* (*Kacha*) river.
Misc: 1 trg, 1 barracks, 1 log spt ships, 1 repair vessel, 2 O-69 coastal survey craft.
(On order: 4 *Hainan* FAC(P).)

AIR FORCE: 3,000: 23 combat ac.

FGA: 2 sqns with 18 Ch J-6.
Interceptor: 1 sqn with 3 MiG-21MF, 2 MiG-21U.
Tpt: 1 sqn with 1 An-24, 4 An-26; (1 Yak-40, 1 DC-6). (Spares are short; some eqpt unserviceable.)
Hel: 1 sqn with 7 Bell 212, 2 206L, 6 Mi-8 *Hip*, 4 *Alouette* III.
Trg: 12 Ch CJ-6, 6 CM-170 *Magister*, 4 MiG-15UTI *Midget*.
AAM: AA-2 *Atoll*.

PARA-MILITARY: 55,000, Bangladesh Rifles 30,000 (border guard), Armed Police: 5,000, *Ansars* (Security guards) 20,000.

BELIZE

GDP 1982: \$BZ 332.3 m (\$US 166.15 m). 1983: 351.7 m (\$US 175.85 m).
GDP growth 1983: 2.0%. 1984: 1.3%.
Inflation 1983: 2.0%. 1984: 6.0%.
Debt 1983: \$US 55.70 m. Est 1984: \$US 60.0 m.
Est def budget 1983: \$BZ 6.50 m (\$US 3.250 m). 1984: 7.20 m (\$US 3.60 m).
FMA 1984: \$US 0.5 m. 1985: \$US 0.5 m.
\$US 1 = \$B 1 (1982/3/4/5).
Population: 160,000.
Men: 18-30: 16,600; 31-45: 6,000.
Women: 18-30: 16,600; 31-45: 9,000.

TOTAL ARMED FORCES:

Regular: 610.
Terms of service: voluntary.
Reserves (militia): Army (300).

ARMY: 555.

1 inf bn (three Regular, three Reserve coys).
Mor: 10 81mm.

MARINE: 40.

Patrol boats: 4 fast: 2 *Souter* 20-metre, 2 12-metre *Brooke*.

AIR: 15.

MR/tpt: 2 BN-2B *Defender*.

BENIN

GDP 1982: fr CFA 342.90 bn (\$1.04 bn). 1983: 385.30 bn (\$1.011 bn).
Debt 1983: \$720.0 m. 1984: \$800.0 m.
Def budget 1982: fr CFA 7,821 bn (\$23.800 m). Est def exp 1983: 9,500 bn (\$24.930 m).
\$1 = francs CFA 328.62 (1982), 381.07 (1983).
Population: 3,900,000.
Men: 18-30: 380,000; 31-45: 244,000.
Women: 18-30: 448,000; 31-45: 304,000.

TOTAL ARMED FORCES:

Regular: 3,460.
Terms of service: conscription (selective), 18 months.

ARMY: 3,200. (All Services form part of the Army.)

3 inf bns.
1 para/cdo bn.
1 engr bn.
1 service bn.
1 armd sqn.
1 arty bty.
Tks: Lt: 10 PT-76. AFV: RECCE: 7 M-8, 8 BRDM-2. **Arty:** how: 4 M-101 105mm; **mor:** 60mm, 81mm.

NAVY: 100.

Base: Cotonou.
Patrol boats: 3 *Zhuk*.

AIR FORCE: 160; no combat ac or hel.
Ac: 2 C-47, 2 An-26, 1 F-27 Mk 600, 1 *Falcon* 20, 1 *Aero Commander* 500B, 1 *Corvette* 200 (vip), 2 *Broussard* tpts; 1 Reims Cessna 337 II.
Hel: 1 *Alouette* II, 2 AS-350B *Ecureuil*, 1 Bell 47G.

PARA-MILITARY: 2,000, Gendarmerie: 4 mobile coys, Public Security Force. People's Militia 1,500-2,000.

BOLIVIA

GDP 1982: pB 398.5 bn (\$6.245 bn). 1983: 1,515.8 bn (\$6.597 bn).
GDP growth 1982: -10%. 1983: -7.6%.
Inflation 1983: 330%. 1984: 2,200%.
Debt 1983: \$3.85 bn. 1984: \$4.2 bn.
Def exp 1983: pB 45.0 bn (\$195.84 m). 1984: 500.0 bn (\$229.97 m).
FMA 1984: \$3.0 m. 1985: \$6.0 m.
\$1 = pesos 63.81 (1982), 229.78 (1983), 2,174.21 (1984).
Population: 6,350,000.
Men: 18-30: 670,000; 31-45: 467,000.
Women: 18-30: 691,000; 31-45: 498,000.

TOTAL ARMED FORCES:

Regular: 27,600 (some 16,800 conscripts).
Terms of service: 12 months, selective.

ARMY: 20,000 (some 15,000 conscripts).

HQ: 6 Military Regions.
Army HQ control:
2 armd bns.
1 mech inf regt.
1 Presidential Guard regt.
1 Military Police bn.
9 divs (5 cadre).
6 cav regts (horsed).
1 mech inf regt (2 bns).
12 inf regts (2 mountain), each with 2 bns.
4 arty regts (incl AA).
2 ranger regts.
1 para bn.
1 armd bn.
6 engr bns.
AFV: RECCE: 24 EE-9 *Cascavel*; APC: 60 M-113, 15 V-100 *Commando*, 24 MOWAG *Roland*, 24 EE-11 *Urutu*. **Arty:** guns: 26 75mm; how: 6 M-116 75mm pack, 6 M-101 105mm; **mor:** 60mm, 45 81 mm. **ATK:** guns: 36 JPz-SK *Kuerassier* 105mm sp. **AD:** guns: M-1A1 37mm.

NAVY: 3,600 (incl 600 marines) (perhaps 1,800 conscripts).

Bases: Riberalta, Tiquina, Puerto Busch, Puerto Horquilla, Puerto Villaroel, Trinidad, Puerto Suárez.
4 Naval Districts; each 1 Flotilla.
Patrol craft: 37 lake and river: (36) incl 2 ex-US PBR II (clinic) launches, 2 hospital.
Ac: 1 Cessna 206G.
1 marine bn (600; coy+ in each District).

AIR FORCE: 4,000; 14 combat ac, 9 armed hel.

Ftr/trg: 1 sqn with 10 T-33A/N, 2 F-86F.
COIN: 5 AT-6G.
Special ops: 1 gp with 9 Hughes 500 armed hel.
SAR: 1 hel sqn with 8 SA-315B *Gavião* (*Lama*).
Tpt: 1 sqn with 1 *Electra*, 1 L-100-30, 1 C-130H, 1 *Sabreliner*, 2 *Learjet*, 2 *Arava*, 1 CV-440, 3 CV-580, 8 C-47, 3 *King Air*, 4 F-27 (?operational), 2 U-3A (Cessna 310).

Utility: ac incl 1 *Turbo-Porter*, 27 Cessna (3 172K, 3 *Turbo-Centurion*, 8 185U-17A, 9 206C/G, 2 414, 2 421); HEL: 1 UH-1H, 2 Bell 212.
Trg ac incl 2 T-41D, 18 T-23 *Uirapurú*, 3 SF-260M, 24 PC-7 *Turbo-Trainer*.
1 para bn.
1 airbase defence regt (Bofors L/40mm AA guns).
(On order: 18 T-33A (status unclear).)

BOTSWANA

GDP 1982/3: P 1,022 bn (\$955.842 m). 1983/4: 1,176 bn (\$1,051 bn).
GDP growth 1982/3: 25.0%. 1983/4: 15.0%.
Inflation 1983: 10.3%. 1984: 7.4%.
Debt 1983: \$250.0 m. Est 1984: \$300.0 m.
Def budget 1982: P 28.5 m (\$26.663 m). (The National Development Plan 1979-85 allocates some P 72.0 m).
FMA 1983: \$50.0 m. 1984: \$60.0 m.
\$1 = pula 1.0689 (1982/3), 1.1183 (1983/4).
Population: 980,000.
Men: 18-30: 95,000; 31-45: 55,000.
Women: 18-30: 120,000; 31-45: 74,000.

TOTAL ARMED FORCES:

Regular: 3,000.

Terms of service: voluntary.

ARMY: 2,850. (All Services form part of the Army.)
1 inf bn gp (5 inf, 1 recce, 1 engr, 1 sigs, 1 log, 1 spt coys).
AFV: **RECCE:** 8 *Shorland*, 11 *Cadillac Gage*; **APC:** 30 *BTR-60*. **Arty:** **GUNS:** 6 105mm lt; **HOW:** 4 *Model 56* 105mm pack; **MOR:** 10 81mm, 10 120mm. **ATK:** **RCL:** 20 *84mm Carl Gustav*. **AD:** **SAM:** some 60 SA-7.

AIR FORCE: 150; 5 combat ac.
COIN: 1 sqn with 5 *BN-2 Defender*.
Tpt: 1 sqn with 3 *Skyvan 3M*, 2 *Islander*.
Comms/trg: 1 sqn with 2 *Cessna 152*, 6 *Bulldog 120*.

PARA-MILITARY: 1,000 (Police mobile unit).

BRAZIL

GDP 1982: Cr \$209,815 bn (\$283,076 bn). 1983: 121,055 bn (\$209,786 bn).
GDP growth 1983: -4.0%. 1984: 4.0%.
Inflation 1983: 211%. 1984: 223%.
Debt 1983: \$92.8 bn. 1984: \$105.0 bn.
Def budget 1983: Cr 753.20 bn (\$1,305 bn). 1984: 1,950,233 bn (\$1,055 bn).
\$1 = cruzeiros 179.51 (1982), 577.04 (1983), 1,848.03 (1984).

Population: 136,000,000.
Men: 18-30: 16,450,000; 31-45: 11,650,000.
Women: 18-30: 16,370,000; 31-45: 11,670,000.

TOTAL ARMED FORCES:

Regular: 276,000 (137,700 conscripts).
Terms of service: 12 months.
Reserves: Trained first-line 1,115,000; 400,000 subject to immediate recall. Second-line (limited trg) 225,000; state military police schools, centres. Para-Military (q.v.) 220,000.

ARMY: 183,000 (to be 296,000); (135,500 conscripts).
HQ: 5 army, 1 regional cmd, 12 military region; 8 div.
1 armd bde.
6 mech cav bdes.
9 armd inf bdes.
21 motor inf bdes (2 indep).
2 AB bdes (6 bns) (1 indep).
1 AA arty bde (indep).
10 arty regts (2 hy, 1 AB).
4 coast arty gps, and 3 btys.
8 AA arty gps (5 hy).
2 Special Forces bns; 5 'jungle' inf bns (2 indep).
2 engr gps: 9 bns (to be increased to 34 bns).
Tks: **LT:** some 190 M-3, some 100 X-1A, 70 X-1A2 (M-3 mod); 315 M-41B.
AFV: **RECCE:** 196 *EE-9 Cascavel*, 29 M-8; **APC:** 170 *EE-11 Urutu*, 22 M-59, some 600 M-113.

Arty: **GUNS:** some 240 57mm to 12-in. (304.8mm); coast incl 26 Mk 5 6-in. (152mm); **HOW:** 420 105mm, 150 M-114 155mm towed, some 60 M-7/108 105mm sp; **MOR:** 81mm, 4.2-in. (107mm), 120mm; **MRL:** SS-06 108mm, SS-40 180mm, SS-60 300mm incl sp.
ATK: **RCL:** 240 M-18A1 57mm, M-20 75mm, 106mm; **RL:** 3.5-in. (89mm); **ATGW:** 300 *Cobra*.
AD: **GUNS:** M-55 quad 12.7mm, 30 35mm, 30 40mm, some 180 57mm, M-2A1 90mm; **SAM:** 4 *Roland II*.
(On order: *EE-T1 Osorio* MBT; *GH N-45* 155mm gun/how (some to be sp), *SS-60 (FGT-X40)* 300mm MRL, *TOW* ATGW, M-55 mod quad 12.7mm.)

NAVY: 48,000 (2,200 conscripts) incl naval air and marines.
Bases: Rio de Janeiro, Aratu (São Salvador, Bahia Province), Val-de-Caas (Belem), Pará (Rio Grande do Sul), Natal (Rio Grande do Norte); River: Ladario (Mato Grosso), Rio Negro (Amazonas).
Naval Districts: 7 (1 Comd).
Subs: 7: 3 *Oberon*, 3 *US Guppy* IIII.
Carrier: 1 *Br Colossus* (capacity 20 ac: 7-8 S-2E *ASW* ac; 4 SH-3D *Sea King* hel).
Destroyers: 10: 5 *Sumner* (1 with 1 x 4 *Seacat* SAM, 4 with 1 *Wasp* hel); 2 *Gearing* with *ASROC* *ASW*, 1 *Wasp* hel; 3 *Fletcher*.
Frigates: 6 *Niteroi* with 2 x 3 *Seacat* SAM, 1 *Lynx* hel; 2 *GP* with 2 x 2 *Exocet* SSM; 4 *ASW* with *Ikara*.
Corvettes: 9 *Imperial Marinheiro*.
River ships: **PATROL:** 5: 2 *Petro Teixeira*, 3 *Roraima*;
MONITOR: 1 with 1 x 3-in. (76mm), 2 x 40mm, 2 x 47mm, 6 x 20mm guns.
Patrol craft: large: 6 *Piratini*.
MCMV: 6 *Aratu* (*Schütze*-type) minesweepers.
Amph: **LST:** 2 US; **LCM:** 3; **LCU:** 3 US Type 1610, 28 landing craft.
Spt: 6 trg ships (3); 1 fleet support; 2 river tankers; 1 repair, 1 spt ships; 5 ocean, 19 harbour tugs; 20 tpts (2 river), 8 survey ships, 6 survey launches, 2 hospital ships.

NAVAL AIR FORCE: (600); 16 combat hel.

ASW: 2 hel sqns with 4 SH-3D, 4 ASH-3H *Sea King*, 8 WG-13 *Sea Lynx*.
Utility: 1 hel sqn with 6 *Wasp* HAS-1, 12 AS-350B *Esquilo* (*Ecureuil*).
Trg: 1 hel sqn with 17 *Bell JetRanger II*.

MARINES: (14,500).
Fleet Force: 1 amph div (1 comd, 3 inf, 1 special operations bns, 1 arty gp, 1 service bn).
Reinforcement Comd: 5 bns incl 1 engr, supply.
Internal Security Force: 6 regional, 1 special operations gps.
AFV: **RECCE:** 6 *EE-9 Mk IV Cascavel*; **APC:** 30 M-113, 5 *EE-11 Urutu*. **Arty:** **HOW:** 8 M-102 105mm, 8 M-114 155mm; **MRL:** SS-06 108mm. **ATK:** **RL:** M-20 3.5-in. (89 mm); **RCL:** M-40 106mm. **AD:** **GUNS:** 8 M-140mm towed. (On order: 3 Type 1400 subs, 4 *Jacari* corvettes; 1 log spt, 1 trg ship; 12 *Exocet* AM-39 SSM; 60 *Tigerfish* torpedoes; 15 AS-332 *Super Puma* (AM-39 ASM), 4 SH-3D *Sea King* hel; 12 *LVT-7A1* APC.)

AIR FORCE: 45,000; 166 combat ac.
AD Command: 1 Gp (13 combat ac):
Interceptors: 2 sqns with 12 F-103E (*Mirage IIIEBR*), 1 F-103D (*Mirage IIIDBR*).
Tactical Command: 10 Gps (104 combat ac).
FGA: 2 sqns with 31 F-5E, 4 F-5F.
COIN: 2 sqns with 50 AT-26 (*EMB-326*) *Xavante*.
Recce: 2 sqns with 8 RC-95 *Bandeirante*, 11 RT-26 *Xavante*.
Liaison: 6 sqns: 1 ac with 27 *EMB-C-42*; 5 hel with 28 UH-1H; 6 SA-330L *Puma*, *Bell 47*.
Maritime Command: 4 Gps (49 combat ac).
ASW (afloat): 1 sqn with 8 S-2E; 7 S-2A (trg).
MR/SAR: 4 sqns with ac: 5 RC-130E, 14 *EMB-110B Bandeirante* (C-95), 15 *EMB-111 Bandeirante* (P-95); **HEL:** UH-1H armd, SH-1H.
Transport Command: 4 Gps (6 sqns), 7 regional indep sqns:
Hy: 2 sqns: 1 with 10 C-130E/H; 1 with 2 KC-130H.
Med/lt: 2 sqns: 1 with 12 C-91 (HS-748); 1 with 12 C-95A/B (*EMB-110 Bandeirante*).
Tac: 1 sqn with 12 C-115 (*DHC-5 Buffalo*).
VIP: 1 sqn with 2 VC-96 (*Boeing 737*), 1 VC-91 (*Viscount*), 11 VC/VU-93 (HS-125), *EMB-121 VU-9* (*Xingu*).
Indep sqns: 7 with 7 C-115, 68 C-95A/B, VU-9.

Training Command:
Ac: 80 T-25 *Universal* (being replaced), some 88 T-27, 50 AT-26, some *EMB-110*, 5 *EMB-C-42/U-42*; **HEL:** 16 *Bell 47* (H-13J), 8 UH-1D.
Calibration unit: 1 with 2 HS-125 (EC-93, U-93), 2 C-95A, 4 EC-95.
AAM: R-530, *Piranha* (MAA-1).
(On order: 79 *AMX*, 12 *EMB-120 Brasilia* tpts, 100 *YT-17* (A-123) *Tangará*, some 30 T-27 *Tucano* (*EMB-312*) trg ac; 10 AS-332 *Super Puma*, 15 AS-350 *Ecureuil*, some 32 UH-1H *hel*, *Piranha* AAM.)

PARA-MILITARY: Some 220,000 Public Security Forces in state, military police orgs (State Militias) under Army control and considered an Army Reserve.

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BRUNEI

GDP 1983: \$B 8,940 bn (\$US 4,158 bn). 1984: 9.20 bn (\$US 4,253 bn).
GDP growth 1983: 3.0%. 1984: 3.0%.
Est def exp 1983: \$B 550.00 m (\$US 255.814 m). 1984: 650.0 m (\$US 300,509 m).
\$US 1 = \$B 2.15 (1983), 2.163 (1984).
Population: 240,000.
Men: 18-30: 31,400; 31-45: 26,800.
Women: 18-30: 23,400; 31-45: 15,400.

TOTAL ARMED FORCES:
Regular: 4,050.
Terms of service: voluntary.

ARMY: 3,400. (All Services part of Army; Navy, Air Force shown separately only for comparison.)
2 inf bns.
1 armd recce sqn.
1 AD bty: 8 dets with *Rapier*.
1 engr sqn.
1 sigs sqn.

Tks: **LT:** 16 *Scorpion*. **AFV:** **RECCE:** 2 *Sultan*; **APC:** 24 *Sankey AT104*. **Arty:** **MOR:** 16 81mm. **AD:** **SAM:** 12 *Rapier/Blindfire*.

NAVY: (450).
Base: Muara.
FAC(g): 3 *Waspada* each with 2 *Exocet* MM-38 SSM.
Patrol craft: 3 *Perwira* coastal, 3 *Rotorak*.
Amph: 2 *Loadmaster* landing craft, 24 inf assault boats. 1 special boat sqn.

AIR FORCE: (200); 6 combat ac.

COIN: 1 sqn with 6 *Saab 105CB*.
Hel: 1 sqn with 10 *Bell 212*.
Composite sqn: 2 SF-260 ac, 3 *Bell 206A/B* hel.
VIP flt: 1 BO-105, 1 *Bell 212*, 1 S-76 hel.
Misc hel: 2 *Bell 212*, 1 *206A*.
(On order: 1 *AUH-76* (S-76) armed hel.)

PARA-MILITARY: Royal Brunei Police elms (1,750); Gurkha Reserve Unit (900).

BURKINA FASO (UPPER VOLTA)

GDP 1982: fr CFA 347.0 bn (\$1,056 bn). 1983: 429.4 bn (\$1,127 bn).
GDP growth 1982: 2.2%. 1983: 4.5%.
Inflation 1983: 10.0%. 1984: 8.5%.
Est debt 1983: \$400 m. 1984: \$440 m.
Est def budget 1983: fr CFA 11,20 bn (\$29,391 m). 1984: 12.50 bn (\$28,607 m).
\$1 = francs CFA 328.62 (1982), 381.07 (1983), 436.96 (1984).
Population: 6,900,000.
Men: 18-30: 711,000; 31-45: 399,000.
Women: 18-30: 690,000; 31-45: 555,000.

TOTAL ARMED FORCES:
Regular: 4,000.
Terms of service: voluntary. People's Militia 2 years part time; men and women 20-35 (military and civic duties); 40,000 trained.

ARMY: 3,900. (All Services form part of the Army.)
3 inf rgts (bns): 1 with 2 inf coys, 1 recce sqn, 1 engr coy; 1 with 2 inf coys, 1 para coy, school; 1 Garrison coy, 1 AA bty. Honour Guard unit.
1 arty bty.
AFV: **RECCE:** 15 *AML-60/90*, 10 M-8, 4 M-20, 30 *Ferret*; **APC:** 13 M-3. **Arty:** **HOW:** M-101 105mm; **MRL:** Ch Type-63 107mm; **MOR:** 60mm, 10 81mm. **ATK:** **RL:** M-20 3.5-in (89mm); **RCL:** *RP-G-7*, Ch Type-52 75mm. **AD:** 30 14.5mm hy machine guns; **SAM:** SA-7.

AIR FORCE: 100; no combat ac or hel.
Ac: 10: 2 C-47, 2 Nord 262 *Fregate*, 2 HS-748A/B, 1 *Aero Commander* 500B, 1 MH-1521M *Broussard*, 1 *Cessna F-172N*, 1 F-337E *Super Skymaster*.
Hel: 3: 2 *Alouette III*, 1 *Dauphin*.

PARA-MILITARY: 2,100; Gendarmerie 650; 6 coys (2 mobile). Republican Guard 1,200. Security Company (CRG) 250.

BURMA

GDP 1983: K 49,730 bn (\$6,130 bn). 1984: 52,816 bn (\$6,171 bn).
GDP growth 1983: 5.6%. 1984: 6.3%.
Inflation 1983: 10.0%. 1984: 15.0%.
Debt 1983: \$2.3 bn. 1984: \$2.6 bn.
Est def exp 1983/4: K 1,900 bn (\$234,209 m). 1984/5: 2,100 bn (\$245,379 m).
FMA 1983: \$1.2 m. 1984: \$1.4 m.
\$1 = kyats 8,1124 (1983/4), 8,5582 (1984/5).
Population: 39,600,000.
Men: 18-30: 4,196,000; 31-45: 2,759,000.
Women: 18-30: 4,208,000; 31-45: 2,850,000.

TOTAL ARMED FORCES:
Regular: 186,000.
Terms of service: voluntary.

ARMY: 170,000.
8 Regional, 1 Garrison, commands.
6 lt inf div HQ (under central control, 3 with 3 Tactical Operational Comds = bdes; 10 bns).
16 Tactical Operational Comds (bdes).
85 inf bns (25 indep).
2 armd bns.
4 arty bns.
1 AA bty.
Tks: 24 *Comet*. **AFV:** **RECCE:** 40 *Humber*, 45 *Ferret*. **Arty:** **GUNS:** 50 25-pdr (88mm); **GUNS/HOW:** 5.5-in. (140mm); **HOW:** 120 76mm, 80 M-101 105mm; **MOR:** 80 120mm. **ATK:** **RCL:** *Carl Gustav* 84mm; **GUNS:** 50 6-pdr (57mm) and 17-pdr (76.2mm). **AD:** **GUNS:** 10 40mm. (Spares are short; some eqpt unserviceable.)

NAVY: 7,000 incl Marines.
Bases: Bassein, Mergui, Moulmein, Seiky, Sinmalaik, Sittwe.
Corvettes: 4: 2 US (1 *PCE-827*, 1 *Admirable*), 2 *Nawarat*.
Gunboats: 36 (15).
Patrol craft: 47 river.
Amph: **LCU:** 1 US; **LCM:** 8 US, 1 spt vessel.

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MARINES: (800): 1 bn.

AIR FORCE: 9,000; 22 combat ac. (Spares are short; some eqpt unserviceable.)

COIN: 2 sqns: 16 PC-7 Turbo-Trainer, 6 AT-33A.
Tpt: 3 sqns: 1 F-27F, 5 FH-227, 7 PC-61-6A, 5 DHC-3D.
Liaison flt: 6 Cessna 180, 1 Cessna 550.
Hel: 4 sqns: 20 Bell 205/206, 10 Alouette III.
Trg: incl 16 SF-260MB, 9 T-37C.

PARA-MILITARY: 73,000. People's Police Force (38,000); People's Militia (35,000). Fishery Dept: 15 patrol boats (3 Osprey, 12).

OPPOSITION:

Burmese Communist Party: 12,000 regulars; 8,000 militia.
Kayan New Land Party: perhaps 100.
Karen National Liberation Army: some 4,000; 5 bdes, 3 indep bns.
Shan State Army: some 3,500.
Shan United Revolutionary Army: 900-1,200.
Shan United Army: 4,000.
Palaung State Liberation Army: some 500.
Pa-O National Army: some 500.
Wa National Army: some 300.
Kachin Independence Army: 5,000; 4 bdes.
Karenni Army: perhaps 600; 4 'bdes'.
Mon State Army: two groups: one some 500; other perhaps 200.
Kawthoolei Muslim Liberation Front (Karen linked) absorbed Ommat Liberation and Rohingya Patriotic Fronts.

BURUNDI

GDP 1983: fr CFA 100,375 bn (\$1,080 bn). 1984: 109,818 bn (\$917,367 m).

GDP growth 1983: 1.1%. 1984: 0%.
Inflation 1983: 8.5%. 1984: 14.3%.
Debt 1983: \$290 m. 1984: \$350 m.
Def exp 1983: fr CFA 4.50 bn (\$48,413 m). 1984: 3.90 bn (\$32,579 m).
\$1 = francs CFA 92.95 (1983), 119.71 (1984).
Population: 4,800,000.
Men: 18-30: 557,000; 31-45: 294,000.
Women: 18-30: 565,000; 31-45: 338,000.

TOTAL ARMED FORCES:

Regular: 5,200.
Terms of service: voluntary.

ARMY: 5,000. (All Services form part of the Army.)

2 inf bns.
1 para bn.
1 cdo bn.
1 armd car coy.

AFV: RECC: 6 AML-60, 12 -90, *Shorland*; APC: 9 M-3, 20 BTR-40 *Walid*. **Arty:** MOR: 18 82mm. **ATK:** RL: *Blindicide* 83mm; RCL: 15 Ch Type-52 75mm. **AD:** GUNS: 15 quad 14.5mm.

NAVY: 50.

Base: Bujumbura.
Patrol boats: 3 *Lambro river* (2 in reserve).

AIR: 150; 3 combat ac.

COIN: 3 SF-260W.
Tpt: 1 DC-3, 3 Reims Cessna 150.
Trg: 3 SF-260C.
Hel: 2 *Gazelle*, 3 *Alouette III*.

PARA-MILITARY: Gendarmerie (1,500).

CAMEROON

GDP 1983/4: fr CFA 3,089 bn (\$7,543 bn). Est 1984/5: 3,700 bn (\$7,840 bn).

GDP growth 1983/4: 5.0%. 1984/5: 6.9%.
Inflation 1983/4: 16.0%. 1984/5: 13.0%.
Debt 1983: \$2.50 bn. 1984: \$2.750 bn.
Def budget 1983/4: fr CFA 43,211 bn (\$105,504 m). 1984/5: 56,340 bn (\$119,383 m).
FMA 1983: \$2.60 m. 1984: \$5.10 m.
\$1 = francs CFA 409.5675 (1983/4), 471.925 (1984/5).
Population: 9,600,000.
Men: 18-30: 997,000; 31-45: 721,000.
Women: 18-30: 1,014,000; 31-45: 758,000.

TOTAL ARMED FORCES:

Regular: 7,300.
Terms of service: voluntary (pre-military compulsory training programme in force).

ARMY: 6,600.

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3 Military Regions; 7 Military Sectors: coy gps under command.

1 armd car bn.
1 para/cdo bn.
4 inf bns.
1 engr bn.
5 fd, 6 AA arty btys.
HQ regt, spt units.
AFV: RECC: M-8, *Ferret*, 8 *Commando* (20mm gun); **MCV:** 12 *Commando* (90mm gun); **APC:** 29 *Commando*, M-3 half-track. **Arty:** HOW: 6 75mm pack, 16 M-101 105mm; **MOR:** 60mm, 20 81mm, 16 120mm. **ATK:** RL: 89mm ACL-STRIM; RCL: 13 Ch Type-52 57mm; 40 106mm; **ARGW:** *Milan*. **AD:** GUNS: 18 Type-58 14.5mm, 18 twin 35mm, 18 Ch Type-63 37mm, 18 40mm.

NAVY: 350.

Bases: Douala, Port Gentil.
FAC(g): 1 P-48S *La Combattante* with 8 *Exocet* MM-40 SSM.
FAC: 3: 1 PR-48, 2 Ch *Shanghai-II*.
Patrol craft: 3 coastal.
Amph: LCM: 2; LCVp: 5; 9 lt assault/spt craft.

AIR FORCE: 350; 15 combat ac, 2 armed hel.

1 composite sqn.
1 Presidential flt.
FGA/COIN: 8 *AlphaJet*, 4 *Magister*, 1 BN-2T *Defender*.
MR: 2 Do-128D-6.
Tpt: 3 C-47, 1 DHC-4, 4 DHC-5D, 3 C-130, 2 HS-748, 7 *Broussard*, 1 Boeing 727-200, 1 PC-6 *Turbo-Porter*, 1 PC-7 *Turbo-Trainer*.
Hel: 1 SA-330 *Puma*, 1 AS-332 *Super Puma*, 3 *Alouette III*, 4 *Gazelle* (2 with *HOT* atrov), 1 SA-365 *Dauphin II*.

PARA-MILITARY: 4,000. Gendarmerie: 7 regional groups.

CAPE VERDE

Population: 366,000.
Men: 18-30: 40,000; 31-45: 9,000.
Women: 18-30: 46,000; 31-45: 17,000.

TOTAL ARMED FORCES:

Regular: 1,185.
Terms of service: conscription (selective).

ARMY: 1,000 (Popular Militia).

4 inf coys.
Spt elms.
AFV: RECC: 8 BRDM-2. **Arty:** MOR: 16 82mm, 8 120mm.
ATK: RL: 3.5-in (89mm).

NAVY: 160.

Base: Praia.
FAC: 2 *Shershen*.
Patrol craft: 1 *Zhuk* coastal.
(Misc: 1 *Kamenka* survey ship reported.)

AIR FORCE: 25; no combat ac.

Tpt: 2 An-26.

CENTRAL AFRICAN REPUBLIC

Est GDP 1983: fr CFA 139.0 bn (\$364,762 m). 1984: 160.0 bn (\$366,166 m).

GDP growth 1983: -5%. 1983: -2.3%.
Inflation 1983: 13.0%. 1984: 11.0%.
Debt 1983: \$220.0 m. 1984: \$300.0 m.
Def budget 1981: fr CFA 4,029 bn (\$14,827 m). Est exp 1982: 5.0 bn (\$15,215 m).
FMA 1982: \$10.0 m. Est 1983: \$15.5 m.
\$1 = francs CFA 271.73 (1981), 328.62 (1982), 381.07 (1983), 436.96 (1984).
Population: 2,560,000.
Men: 18-30: 276,000; 31-45: 161,000.
Women: 18-30: 275,000; 31-45: 209,000.

TOTAL ARMED FORCES:

Regular: 2,300.
Terms of service: conscription (selective), 2 yrs.

ARMY: 2,000.

1 regt HQ.
1 mech bn.
1 inf bn.
1 engr coy.
1 sigs coy ('bn').
1 tpt coy.
Tks: 4 T-55. **AFV:** RECC: 22 BRDM-2, 10 *Ferret*; APC: 4 BTR-152. **Arty:** MOR: 81mm, 12 120mm. **ATK:** RCL: 14 106mm. **River patrol craft:** 9.

AIR FORCE: 300; 2 combat ac.

COIN: 2 *Guerrier*.

Tpt: 1 DC-4 (vip), 4 DC-3/C-47, 1 *Caravelle*, 1 *Corvette*, 6 MH-1521 *Broussard*, 2 Cessna 337 *Skymaster*.
Hel: 1 *Alouette II*, 4 H-34 (S-58).

PARA-MILITARY: some 10,000.

Presidential Guard 500. Gendarmerie 700; 3 Regional Legions, 8 'bdes'. Republican Guard 700. Security Forces. National Young Pioneers 8,000 (boys and girls 14-18); unarmed, some elementary drill and discipline.

CHAD

GDP 1982: fr CFA 181.0 bn (\$550,788 m). 1983: 210.0 bn (\$551,080 m).

Debt 1983: \$130.0 m. 1984: \$140.0 m.
Est def exp (excl French military subventions. Total French costs in Chad est at French francs 1.2 bn) 1983: fr CFA 20.0 bn (\$52,484 m). 1984: 24.0 bn (\$54,925 m).
FMA 1983: \$25 m. 1984: \$5 m.
\$1 = francs CFA 328.62 (1982), 381.07 (1983), 436.96 (1984).

Population: 4,947,000.
Men: 18-30: 531,000; 31-45: 407,000.
Women: 18-30: 539,000; 31-45: 422,000.

TOTAL ARMED FORCES:

Regular: 12,200 (not incl para-military: perhaps 6,000 conscripts).
Terms of service: conscription, 3 years.

ARMY: over 12,000; comprises regular and rejoined rebel groups.

6 inf bns:
16 inf coys, 3 para coys.
1 recce sqn (Sahara).
2 recce tps (camel).
3 Nomad coys.
3 sigs coys.
Presidential Guard (400 men).

1 armd bn.
2 indep para coys.
2 arty btys.
1 tpt coy.
Numerous indep cdo (guerrilla) 'bns' (gps).

AFV: RECC: 4 Panhard ERC-90, 10 AML-60, 16 -90. **Arty:** GUNS: 6 M-1942 76mm, 6 105mm; MOR: 81mm, 120mm. **ATK:** RL: 68mm, 89mm; RCL: 106mm, APILAS 112mm; **ARGW:** *Milan* 160mm. **AD:** GUNS: 20mm, 30mm.

AIR FORCE: 200; 2 combat ac.

COIN: 2 PC-7 Turbo-Trainer (armed).
Tpt: 1 DC-4, 2 C-130A, 9 C-47, 1 *Noratlant*, 1 *Caravelle* 6R (vip), 1 C-212, 2 PC-6, 2 *Broussard*; Lt: 4 Reims Cessna 337.
Hel: 10 *Alouette II/III*, 4 *Puma*.

PARA-MILITARY: 11,400.

Gendarmerie 1,800; 10 coys, 140 sub units. National and Nomad Guards 3,900; 46 national, 15 Nomad sub units. 2 Security Companies 1,000; 17 sub units; 81mm mor. *Sureté* (Police) 800. Village Militias 3,900.

OPPOSITION: 10,000.

North: Libyan-backed, mainly Arab. *Government d'Union Nationale du Tchad* (GUNT). *Forces Armées Populaires* (FAP) ?3,000. *Conseil Démocratique de la Révolution* (CDR) 200. *Forces Armées du Tchad* (FAT) 5,000. BMP MCV; BTR-60 APC; BM-21 MRL; 120mm, 2 CL-106mm mor; ZU-23-2 AA guns; SA-7 SAM; Libyan forces in spt incl tks, ac.

South: mainly African, may be combining into *Armée de Libération* (ANL). *Front d'Action Commune* (FAC) 300. *Front de Libération du Tchad* (Frolinat): rump only. *Mouvement Populaire pour la Libération du Tchad* (MPLT) ?300. *Union Nationale Démocratique* 100. Plus 7 other groups. Mainly small arms.

CHILE

GDP 1982: pC 1,239.1 bn (\$24,340 bn). 1983: 1,557.7 bn (\$19,757 bn).

GDP growth 1983: -0.7%. 1984: 5.5%.
Inflation 1983: 23.1%. 1984: 23.0%.
Debt 1983: \$15.0 bn. 1984: \$20.4 bn.
Est def exp 1983: pC 130.0 bn (\$1,649 bn). 1984: 160.0 bn (\$1,622 bn).
\$1 = pesos 50,909 (1982), 78,842 (1983), 98,656 (1984).
Population: 12,100,000.
Men: 18-30: 1,483,000; 31-45: 1,162,000.
Women: 18-30: 1,460,000; 31-45: 1,177,000.

TOTAL ARMED FORCES:

Regular: 101,000 (32,000 conscripts).
Terms of service: 2 years (Army and Navy only).

Reserves: 100,000 active; all able-bodied citizens have a Reserve obligation to age 45.

ARMY: 57,000 (30,000 conscripts).
HQ: 6 div (under strength).
1 armd regt.
10 armd car regts.
24 inf regts (17 mt, 7 mountain (1 indep); 8 reinforced with recce unit and arty gp).
8 arty regts and 3 indep arty gps.
1 engr regt and 6 bns.
1 hel-borne ranger unit.
6 cdo bns.

Army Aviation:

1 hel regt (under a div comd).
1 composite gp with 1 log bn and spt unit.
Tks: 150 M-4A3, 21 AMX-30, Lt: 15 M-3, 50 M-41.
AFV: RECCE: 200 EE-9 Cascavel; APC: 60 M-113, 150 Cardoen/MOWAG Piranha, 250 EE-11 Urutu.
Arty: how: 124 105mm, 12 Mk F3 155mm sp; MOR: M-1 81mm, 120mm.
ATK: RCL: M-18 57mm, 106mm; ATGW: Milan/Mamba.
AD: SAM: 50 Blowpipe.
Avn: TPT: 6 C-212, 1 Citation, 8 Piper Dakota 236, 3 Navajo; TRG: 18 Cessna R-172 Hawk XP; HEL: 11 SA-330FL Puma, 1 AS-332 Super Puma, 10 SA-315B Lama, 2 AB-206B.

NAVY: 29,000 (2,000 conscripts), incl naval air and marines.

Bases: Talcahuano, Valparaiso, Puerto Montt, Punta Arenas, Puerto Williams, Iquique.
2 Naval Districts: 3 Naval Zones.
Subs: 2 Type 1300, 2 Oberon.
Cruisers: 2 Br County with 4 Exocet MM-38 SSM, 1 x 2 Seaslug, 2 x 2 Seacat SAM, 1 hel.
Destroyers: 4: 2 Almirante with 4 Exocet MM-38 SSM, 2 x 4 Seacat SAM, 2 US Sumner with 1 hel.
Frigates: 2 Leander with 4 Exocet MM-38 SSM, 1 x 4 Seacat SAM, 1 hel.
FAC: (g): 2 Saar-IV with 6 Gabriel SSM; (t): 4 Lürssen-type.
Patrol craft: LARGE: 4: 2 Sotoyomo, 1 Cherokee, 1 PC-1638; COASTAL: 6.
Amph: 3 Batral, 2 Orompello II LST.
Spt: 3 tankers, 5 tpts, 1 sub spt vessel.

NAVAL AIR FORCE: (500); 6 combat ac.

MR: 1 sqn with 6 EMB-111N maritime Bandeirante.
Utility: 1 sqn with 3 EMB-110N Bandeirante, 4 C-212A.
Hel: 1 sqn with 8 Alouette III, 4 SH-57 (Bell 206A).
Trg: 1 sqn with 10 Pilatus PC-7.

MARINES: (5,000).

4 gps: each 2 inf bns, 1 cdo coy, 1 coast, 1 AA arty bty, 1 amph bn.
AFV: APC: MOWAG Roland, 30 LVIP-5. **Arty:** how: 16 105mm, 35 155mm; COAST GUNS: 16 GPFM-3 155mm; MOR: 50 60mm, 50 81mm. **AD:** GUNS: 20 37mm; SAM: Crotale.

AIR FORCE: 15,000; 101 combat ac.

4 Air Bdes: 4 combat wings and 2 gps; each wing incl comms flt with ac/hel.
FGA: 2 sqns with 32 Hunter F-71/FGA-9, 13 F-5E, 3 F-5F.
COIN: 2 sqns with 29 A-37B.
Ftr/Rece: 1 sqn with 11 Mirage 50FC, 9 C-101 Aviojet.
Rece: 2 photo sqns with 2 Canberra PR-9, 2 Learjet 35-A.
Tpt: 1 sqn with AC: 1 Boeing 727-22C, 1 707-351C, 2 C-130H, 5 DC-6B, 9 Beech 99A, 1 King Air 90; HEL: 2 SA-315B Lama, 1 Bell 47.
Utility/liaison: flts: AC incl: 17 DHC-6, 3 Twin Bonanza; HEL: 3 S-55T, 4 Lama.
Trg: 1 wing, 3 flying schools with AC: 4 Hunter T-72, 30 T-34A, 25 T-37B/C, 8 T-41A, some 26 Piper T-35A/B Pillán, 5 JT-3 Halcón (C-101), 10 Cessna 180, 10 Piper Dakota 236; HEL: 6 UH-1H, 3 Bell 212.
AA: AIM-9L Sidewinder, Shafrir.
ASM: AGM-65B Maverick, AS-11/12.
AD: 1 regt (5 gps) with GUNS: S-639/665 20mm, GAI-CO1 twin 20mm, 36 35mm, K-63 twin 35mm; SAM: Blowpipe, 12 Cactus (Crotale); RADAR: 4 sqns.
(On order: 3 Mirage 50 ftrs (status unclear), 21 C-101BB COIN, 2 EMB-120 tpts, Dakota, some 56 T-35A, -35B Pillán trg ac; 3 Super Puma hel.)

PARA-MILITARY: Carabineros: 25,000, Coastguard: 10 Anchoa patrol craft, 13 SAR craft, 3 service launches.

COLOMBIA

GDP 1982: pC 2,497.3 bn (\$38,969 bn), 1983: 3,036.7 bn (\$38,510 bn).

GDP growth 1983: 1.5%. 1984: 3%.
Inflation 1983: 17.0%. 1984: 18.3%.
Debt 1983: \$8.1 bn, 1984: \$9.0 bn.
Def exp 1984: pC 43.0 bn (\$426.515 m), Est budget 1985:

39.0 bn (\$286.870 m).
FMA 1983: \$0.7 m, 1984: \$25.0 m.
\$1 = pesos 64,065 (1982), 78,854 (1983), 100,817 (1984), 135,95 (1985).
Population: 20,120,000.
Men: 18-30: 3,644,000; 31-45: 2,385,000.
Women: 18-30: 3,620,000; 31-45: 2,350,000.

TOTAL ARMED FORCES:

Regular: 66,200 (25,900 + conscripts).
Terms of service: 2 years (all Services).
Reserves: 116,600, Army 100,000, Navy 15,000, Air 1,600.

ARMY: 53,000 (24,000 conscripts).

11 inf bdes ('Regional Bdes'): 6 with 3 inf, 1 arty, 1 engr gp, 1 mech or horsed cav gp; 4 with 2 inf bns only; 1 forming.
1 trg bde, incl Presidential Guard (mech bn).
1 indep mech gp.
1 Ranger, 1 para, 1 AA bns.
Tks: 12 M-3A1, **AFV:** RECCE: 45 M-8, 120 EE-9 Cascavel; APC: 50 M-113, 76 EE-11 Urutu, 45 M-3A2 half-track.
Arty: how: 48 M-101 105mm; MOR: 100 81mm, 148 107mm. **AD:** GUNS: 30-M1A1 40mm.

NAVY: 9,000 (incl 2,500 marines) (some conscripts).
Bases: Cartagena, Buenaventura; River: Puerto Leguizamo, Puerto Orocué, Málaga (building).

Subs: 2 Type 1200, 2 SX-506 midget (reserve).
Frigates: 4 FS-1500 with 8 Exocet MM-40 SSM.
Patrol craft: 5 large: 4 US Cherokee, 1 Abnaki; 2 coastal, 8 river.
Gunboats: 6: 2 Asheville, 3 Arauca, 1 Barranquilla.
Spt: 1 tanker, 4 tpts.

MARINES: 2 bns, 3 indep coys, cdo units.
No hy eqpt.

NAVAL AIR: forming.

Rece: 4 A-37B.
Hel: 4 flts with BO-105.

AIR FORCE: 4,200 (some 1,900 conscripts); 49 combat ac, 17 armed hel.
Combat Command:

FGA: 2 sqns with 9 Mirage 5COA, 2 5COR, 1 5COD.
COIN: ac: 1 sqn with 12 AT-33A, 22 A-37B/D; HEL: 1 sqn with 10 Hughes 500C (OH-6A Cayuse).
Rece: 1 sqn with AC: 3 RT-33A; HEL: 7 Hughes 300C, 10 Hughes 500C.

Military Air Transport Command:

Ac: 1 sqn with C-130E, 2 C-130H, 4 C-54, 12 C-47, 8 HS-748, Arava, 2 F-28, 10 DHC-2, 1 Aero Commander 560A, 12 PC-6 Turbo-Porter.
Hel: 1 sqn with 19 UH-1B/H, 13 Bell 205.

Training and Spt Command:
Ac: 9 T-37C, 20 T-41D, 3 RT-33, 12 T-33A, 25 T-34A/B.
Hel: 5 Bell 47 (OH-13 Sioux), 2 Hughes 300C.
AD: 3 Skyguard/Sparrow system sites.
AA: R-530.

Forces Abroad: Egypt (Sinai MFO) 500.

PARA-MILITARY: National Police Force 50,000; 1 HS-748 ac, 30 hel; Coastguard: 9 craft (5). (On order: Bell hel: 2 212, 2 412.)

OPPOSITION: (1) Revolutionary Workers' Party: 6 Groups (M-19, National Liberation Army (ELN), Popular Liberation Army (ELP), Free Fatherland, Quintin Lame (Indian), Ricardo Franco Front). (2) Colombian Revolutionary Armed Forces (FARC).

CONGO

Est GDP 1982: fr CFA 590.0 bn (\$1,795 bn), 1983: 685.0 bn (\$1,798 bn).

GDP growth 1983: 3.5%. 1984: 3.0%.
Inflation 1983: 13.0%. 1984: 10.0%.
Debt 1983: \$1.50 bn, 1984: \$1.60 bn.
Def budget 1984: fr CFA 21,596 bn (\$49,423 m), Est exp 1985: 25.0 bn (\$52,794 m).
\$1 = francs CFA 328.62 (1982), 381.07 (1983), 436.96 (1984), 473.54 (1985).
Population: 1,745,000.
Men: 18-30: 195,000; 31-45: 110,000.
Women: 18-30: 199,000; 31-45: 129,000.

TOTAL ARMED FORCES:

Regular, 8,700.
Terms of service: voluntary (2 years).

ARMY: 8,000.

1 armd bn (5 sqns).
2 inf bn gps (each lt tk tp, 76mm gun bty).
1 arty gp (how, MRL).
1 engr bn.
1 para/cdo bn.

Tks: 35 T-54/55, 15 Ch T-59; Lt: 14 Ch T-62, 3 PT-76. **AFV:** RECCE: 25 BRDM-1/2; APC: M-3, 30 BTR-50, 30 BTR-60, 44 BTR-152. **Arty:** how: 6 M-116 75mm pack, 8 M-1942 76mm, 10 M-1944 100mm, 8 M-1938 122mm; MRL: 8 BM-21; MOR: 82mm, 10 120mm, **ATK:** GUNS: 5 57mm; RCL: 57mm. **AD:** GUNS: 28 37mm.
(Some T-34 met in store.) (Spares are short; much eqpt may be non-operational.)

NAVY: 200. (Spares are short; much eqpt may be non-operational.)
Base: Point Noire.

FAC(t): 7: 1 Sov Shershen, 3 Pirana HS, 3 Ch Shanghai.
Patrol craft: 9 river: 5 ARCOR (3 13-metre Type 43, 2 11.4-metre Type 38), 4 Ch Yulin.

AIR FORCE: 500; 21 combat ac. (Spares are short; much eqpt may be non-operational.)

FGA: 1 MiG-15, 20 MiG-17.
Tpt: 1 F-28, 5 An-24, 5 Il-14, 3 C-47, 1 Frigate, 2 Broussard.
Trg: 4 L-39.
Hel: 1 Puma, 4 Alouette IIIII.

PARA-MILITARY: 6,100: Gendarmerie 1,400, 20 coys, People's Militia 4,700.

COSTA RICA

GDP 1982: C 97,002 bn (\$2,593 bn), Est 1983: 105.0 bn (\$2,555 bn).

GDP growth 1982: -4.5%. 1983: 2.0%.
Inflation 1983: 15%. 1984: 30%.
Debt 1983: \$4.0 bn, 1984: \$4.1 bn.
Def budget 1983: C 1.15 bn (\$27,985 m), (Figures for Public Security and Civil Guard.) Est exp 1984: 900 m (\$20,210 m), (Figures for Public Security and Civil Guard.)
FMA 1984: \$9.1 m, Est 1985: \$9.0 m.
\$1 = colones 37,407 (1982), 41,094 (1983), 44,533 (1984).
Population: 2,550,000.
Men: 18-30: 336,000; 31-45: 214,000.
Women: 18-30: 325,000; 31-45: 212,000.

TOTAL SECURITY FORCES (Para-Military):

Regular: 8,000.

Civil Guard: 4,500.

Presidential Guard: 1 bn, 7 coys.
1 COIN bn (forming).
Eqpt: 1 UR-416 APC, 81mm mor, 90mm RL, M-203 grenade launchers; **PATROL CRAFT:** 1 Swiftships 105-ft fast, 4 65-ft coastal (, 8 18-ft inshore (, ac: Cessna 180, 1 U-17A, 6 Piper; HEL: 1 FH-1100 (vip), 2 S-58ET, 3 Hughes (1 500E, 2 269C), 2 Bell UH-1B.
(To get M-113 APC; 3 Swift patrol craft, 5 river patrol vessels (, 2 T-41, 3 Cessna 206, 1 C-212 Aviocar ac; 2 Hughes 500E hel.)

RESERVES: incl Air element; 30 lt ac and hel.

Rural Guard (Ministry of Government and Police): 3,500. Small arms only.

Numerous private armed guard units.

CUBA

GNP 1982: pC 12,251 bn (\$15,49 bn), 1983: 13.35 bn (\$15,76 bn).

GDP growth 1983: 4.5%. 1984: 7.4%.
Debt 1983: \$3.30 bn, 1984: \$3.50 bn.
Def budget 1984: pC 1,167 bn (\$1,357 bn), 1985: 1,471 bn (\$1,577 bn).
FMA: The economy is heavily subsidized through Soviet aid, est at \$4 bn in 1983; exact military subvention unknown.
\$1 = pesos 0.791 (1982), 0.8471 (1983), 0.8602 (1984), 0.933 (1985).
Population: 10,150,000.
Men: 18-30: 1,253,000; 31-45: 977,000.
Women: 18-30: 1,200,000; 31-45: 953,000.

TOTAL ARMED FORCES:

Regular: 161,500 (99,500 conscripts).
Terms of service: 3 years.
Reserves: ?165,000. Army: 135,000 Ready Reserves (serve 45 days per year) to fill out Regular and Reserve units; Navy ?12,000, Air ?18,000. See also *Para-Military*.

ARMY: 130,000 (incl proportion of Ready Reserve) (some 80,000 conscripts).
HQ: 4 Regional Command, 3 Army, 1 Isle of Youth; 4 corps.

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1 arm'd div.
3 mech divs.
13 inf divs (8 cadre, others at about 60%).
1 AA assault bde; Special Force (1,500) 2 bns.
8 indep inf regts.
1 arty div (3 fd arty bdes).
AD: 26 arty regts and SAM bdes.
Tks: 325 T-34, 350 T-54-55, 160 T-62; LT: 55 PT-76.
AFV: RECCE: 75 BRDM-1/2; MICV: 50 BMP; APC: 500 BTR-40/60-152.
Arty: GUNS/HOW: 1,400; incl M-1942 76mm, 85mm, 100 SU-100 SP, 122mm, M-46 130mm, D-1, D-2, ML-20 152mm; MRL: BM-21 122mm, BM-14 140mm, BM-24 240mm; SSM: 65 FROG-4/7; MOR: M-43 120mm. Additionally, some 60 JS-2 hy tks, T-34/85 MBT, SU-100 SP guns may be static defence arty.
ATK: GUNS: 600; M-1943 57mm, M-45 85mm, T-12 100mm; RCL: 57mm; ATGW: Sagger, Snapper.
AD: GUNS: 1,600 incl ZU-23, 37mm, 57mm, 85mm, 100mm towed, ZSU-23-4 23mm, 30mm M-53 (twin)/BTR-60P, ZSU-57 57mm SP; SAM: 12 SA-6, SA-7/9.

NAVY: 13,500 (8,500 conscripts).
Bases: Cienfuegos, Cabanas, Havana, Mariel, Punta Ballenatos, Mayor.
Subs: 4: 3 F-class, 1 W-class (trg).
Frigates: 2 Koni with 1 x 2 SA-N-4.
Patrol craft: 17 large (5 SO-1, 12 coastal).
FAC(G) with Styx ssm: 23: 5 Osa-I, 13 Osa-II, Komar; (T): 17: 9 Turya, 4 P-6I, 4 P-45; (P): 25 Zhuk.
MCMV: 12 minesweepers: 2 Sonya, 10 Yevgenya.
Amph: 2 Polnocny LSM, 7 T-4 LCM.
Misc: 1 intelligence collector.

NAVAL INFANTRY: (550).
1 amph assault bn.

COASTAL DEFENCE:
Arty: GUNS: M-1931/37 122mm, M-1937 152mm, M-46 130mm; SSM: 50 Samlet (inactive).

AIR FORCE: 18,000, incl air defence forces (11,000 conscripts); 250 combat ac, some 38 armed hel.
FGA: 4 sqns: 1 with 15 MiG-17, 3 with 36 MiG-23BN Flogger F.
Interceptors: 16 sqns: 2 with 30 MiG-21F; 3 with 34 -21PFM; 2 with 20 -21PFMA; 8 with 100 -21bis; 1 with 15 MiG-23 Flogger E.
Tpt: 4 sqns: 16 Il-14, 35 An-2, 3 An-24, 22 An-26, 4 Yak-40.
Hel: 8 sqns: 60 Mi-4, 40 Mi-8 (perhaps 20 arm'd), 18 Mi-24 Hind D, Mi-14 Haze ASW.
Trg: incl 2 MiG-23U, 10 MiG-21U, some An-2, 30 Zlin 326, some L-39.
AAM: AA-1 Alkali, AA-2 Atoll, AA-8 Aphid.
AD: 37 SAM sites: 28 SA-2, 9 SA-3.
Civil Airline: 10 Il-62, 5 Tu-154 used as tp tpts; 1 Il-76 long-range tpls.

Forces Abroad: Angola 20,000 (plus some 6,000 civilian 'instructors'), Congo 500, Ethiopia 5,000, Mozambique 750, S. Yemen 500, Nicaragua 3,000, Afghanistan (reported).

PARA-MILITARY:
Ministry of Interior: State Security 15,000, Frontier Guards 3,500, some 22 craft.
Ministry of Defence: Youth Labour Army 100,000; Civil Defence Force: 100,000; Territorial Militia 1,200,000.

CYPRUS

REPUBLIC OF CYPRUS
GDP 1983: £C 1.092 bn (\$2.076 bn), 1984: 1.215 bn (\$2.070 bn).
GDP growth 1983: 3%. 1984: 3.3%.
Inflation 1983: 5.1%. 1984: 5.0%.
Debt 1983: \$600 m.
Def budget 1983: £C 30.395 m (\$57.80 m).
\$1 = £C 0.5259 (1983), 0.587 (1984).
Population: 668,000.
Men: 18-30: 74,000; 31-45: 67,000.
Women: 18-30: 71,000; 31-45: 67,000.

TOTAL ARMED FORCES:
Regular: 10,000.
Terms of service: conscription, 26 months, then Reserve to age 50 (officers 65).
Reserves: 60,000 (have yearly refresher training): 30,000 immediate; 30,000 second-line.

NATIONAL GUARD: 10,000. (Mainly Greek-Cypriot conscripts, but some seconded Greek Army officers and NCOs.)
1 arm'd bn.
2 recce/mech inf bns.
20+ inf bns (under strength).
8 arty bns.
8 spt units.

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Tks: 8 T-34. AFV: RECCE: 18 VAB-VC1, 120 EE-9 Cascavel, 20 Marmon-Harrington arm'd cars (in reserve); APC: 66 VAB-VTT, 17 BTR-50, 15 BTR-152. Arty: GUNS: 130 M-1942 76mm, M-1944 100mm, M-101 105mm and 25-pdr (88mm); HOW: 4 M-116A1 75mm pack, M-56 105mm pack; MRL: 8 Yug YMRL-32 128mm; MOR: M-41-43 82mm, ATK: RCL: M-18 57mm, M-40 106mm. AD: GUNS: 100 M-50 20mm, 40mm and 3.7-in. (94mm); SAM: SA-7.
Patrol craft: 2: 1 30-metre, 1 10-metre.
Air wing: ac: 12 L-21A Super Cub; HEL: 1 AB-47G, 1 FH-1100.

PARA-MILITARY: Armed police 3,000; 1 96-ton patrol boat, 1 Islander lt tpt ac.

NORTHERN CYPRUS
TOTAL ARMED FORCES:
Regular: 36,500 (25,000 conscripts).
Terms of service: conscription, 24 months, then reserve to age 50.
Reserves: 5,500 first-line, 10,000 second-line.

SECURITY FORCES: some 4,500.
7 inf bns.
1 arm'd coy.
Tks: 5 T-34 (operability questionable), Mor: 50 81mm and 120mm.

DJIBOUTI

Est GDP 1982: fr D 64.60 bn (\$363.493 m), 1983: 65.90 bn (\$370.808 m).
GDP growth 1983: 1.2%. 1984: 0.9%.
Inflation 1983: 1.4%. 1984: 1.8%.
Est debt 1983: \$44.0 m, 1984: \$47.0 m.
Est def exp 1983: fr D 4.70 bn (\$26.446 m), 1984: 4.950 bn (\$27.282 m).
FMA 1983: \$1.60 m (excl French military assistance), 1984: \$2.10 m.
\$1 = Djibouti francs 177.72 (1982/3), 181.44 (1984).
Population: 394,000.
Men: 18-30: 39,000; 31-45: 27,000.
Women: 18-30: 37,000; 31-45: 26,000.

TOTAL ARMED FORCES:
Regular: 4,500 incl 1,500 Gendarmerie. (Does not incl French garrison—see France, Forces Abroad.)
Terms of service: voluntary.

ARMY: 2,870. (All Services form part of the Army.)
1 inf regt.
1 arty bn.
1 arm'd sqn.
1 AA bty (more to form).
1 spt bn.
1 border cdo bn.
1 para coy.
AFV: RECCE: 12 BRDM-2, 4 AML-60, 16 -90; APC: 12 BTR-60. Arty: HOW: 24 105mm pack; MOR: 81mm, 4 120 mm. ATK: RL: 89mm; RCL: 106mm. AD: some 6 40mm.

NAVY: 30.
Base: Djibouti.
Patrol boats: 1 Tecimar coastal.
Amph: LCA: 3.

AIR FORCE: 100, no combat ac or hel.
Tpt: 1 Mystere 20 (VIP), 2 Norallas; LT: 1 Cessna 206, 1 Rallye 235GT.
HEL: 1 Alouette II.

PARA-MILITARY: 1,500. Gendarmerie: 1 bn.

DOMINICAN REPUBLIC

GDP 1983: \$RD 8.773 bn (\$US 8.773 bn). Est 1984: 10.878 bn (\$US 10.878 bn).
GDP growth 1983: 4.0%. 1984: 1.5%.
Inflation 1983: 5.5%. 1984: 24%.
Debt 1983: \$2.4 bn, 1984: \$2.8 bn.
Def exp 1984: \$RD 156.2 m (\$US 156.2 m). Budget 1985: 175.8 m (\$US 54.77 m).
FMA 1983: \$6.60 m, 1984: \$6.40 m.
\$1 = peso 1.00 (1983/4), 3.21 (1985).
Population: 6,120,000.
Men: 18-30: 762,000; 31-45: 448,000.
Women: 18-30: 755,000; 31-45: 450,000.

TOTAL ARMED FORCES:
Regular: 22,200.
Terms of service: voluntary.

ARMY: 13,000.
5 Defence Zones.

3 inf bdes (11 bns).
3 arty bns.
1 arm'd bn.
1 Presidential Guard bn.
1 engr bn.
1 recce coy.
Tks: LT: 2 AMX-13, 12 M-41A1 (76mm). AFV: RECCE: 20 AML; APC: 8 V-150 Commando, 2 M-3A1 half-track. Arty: HOW: 22 M-101 105mm; MOR: 24 120mm.

NAVY: 4,900, incl naval inf.
Bases: Santo Domingo, Las Calderas, Puerto Plata.
Frigate: 1 Cdn River (trg).
Patrol craft: 20: 7 large (3 US Argo, in reserve), 11 coastal (8).
Amph: LSM: 1; LCU: 2.
Auxiliary/misc service craft: 14.
1 naval inf bn; 1 cdo unit.

AIR FORCE: 4,300; 36 combat ac.
Ftrs: 1 sqn with 16 A-37B, 11 T-34B Mentor, 6 T-41D Mescalero, 3 AT-6A Texan.
Tpt: 1 sqn with 5 C-47, 1 Queen Air 80, 1 Aero Commander, 1 Mitsubishi MU-2.
Hel: 1 SAR/tpt sqn with 8 Bell 205, 3 OH-6A, 3 Alouette III, 1 SA-360 Dauphin; 6 Bell 206.
AB: 1 para gp.
AD: 1 AA arty bn with 10 40mm guns.

PARA-MILITARY: National Police 'special ops unit' 1,000.

ECUADOR

GDP 1982: ES 416.96 bn (\$13.887 bn), 1983: 565.80 bn (\$12.826 bn).
GDP growth 1982: -2.0%. 1983: -3.3%.
Inflation 1983: 52.5%. 1984: 33%.
Debt 1983: \$6.7 bn, 1984: \$7.3 bn.
Def budget 1983: ES 9.50 bn (\$215.35 m). (Excl internal security budget.) Est exp 1984: 14.0 bn (\$223.87 m). (Excl internal security budget.)
\$1 = sucres 30.026 (1982), 44.115 (1983), 62.536 (1984).
Population: 10,100,000.
Men: 18-30: 987,000; 31-45: 640,000.
Women: 18-30: 980,000; 31-45: 635,800.

TOTAL ARMED FORCES:
Regular: 42,500.
Terms of service: 1 year, selective; most volunteers.
Reserves: system in force, ages 18-47, numbers unknown.

ARMY: 35,000.
HQ: 4 Military zones.
1 mech bde } 2 mech, 15 inf, 4 jungle, 4 arty, 3
7 inf bdes } engr bns, 5 cav gps, 3 recce
(2 'jungle') } sqns.
1 mech bde (2 bns).
1 Presidential Guard sqn.
1 Special Forces (AA) bde of 2 units.
3 AA btys.
1 construction engr bn.
Tks: LT: 45 M-3, 100 AMX-13; RECCE: 27 AML-60, 28 EE-9 Cascavel; APC: 20 M-113, 55 AMX-VCI. Arty: HOW: M-56 pack, 50 105mm towed, 10 M-198 towed, 10 Mk F3 SP 155mm; MOR: 12 160mm. AD: GUNS: 28 M-1935 20mm, 30 GDF-002 twin 35mm, 30 40mm; SAM: 240 Blowpipe.
Avn: ac: 3 Turbo-Porter, 1 Learjet, 3 Arava, 2 Cessna (1 172G, 1 182) tpt; HEL: 5 Puma, 6 Super Puma, 26 Gazelle, 2 Lama.

NAVY: 4,500, incl some 1,500 marines.
Bases: Guayaquil, San Lorenzo, Galapagos Islands.
Subs: 2 Type 1300.
Destroyers: 1 Gearing, 1 Lawrence.
Corvettes: 6 Esmeraldas with 4 Exocet MM-40 ssm, 1 x 4 Albatros/Aspide SAM, 1 hel.
FAC(G): 3 Quito (Lürssen) with 4 Otomat ssm; 3 Manta with 4 Gabriel.
Patrol craft: 10 coastal.
Amph: LST: 1; LSM: 1; LCVP: 6 9-ton Rotork.
Avn: ac: 1 Super King Air, 3 T-34C, 1 Arava, 1 Cessna 320E; HEL: 2 Alouette III, 6 AB-212.
3 marine bns, 2 on garrison duties; 1 cdo (no hy weapons, eqpt).

AIR FORCE: 3,000; 72 combat ac.
1 Wing:
Interceptor: 2 sqns: 1 with 15 Mirage F-1JE, 1 F-1JB; 1 with 10 F-5E, 2 -5F.
FGA: 2 sqns with 8 Jaguar S, 2 B, 12 Kfir C-2.
COIN: 1 sqn 6 A-37B.
COIN/trg: 2 sqns: 1 with 6 BAC-167 Strikemaster Mk 89; 1 with 10 T/AT-33A.
Military Air Transport Gp (incl civil/military airline): 3 Boeing 727-273, 1 737-2VR, 4 707, 2 720, 3 Electra, 1

C-130H, 1 L-100-30, 1 Transall C-160, 3 DHC-5D *Bufalo*, 3 DHC-6 *Twin Otter*, 1 *King Air* 90, 1 Cessna 337D, 2 HS-748, 5 *Arava*.
Liaison/SAR flts: **HEL:** 1 SA-330C *Puma*, 2 AS-332 *Super Puma*, 6 SA-316 *Alouette III*, 27 Bell (2 UH-1D, 1 212, 24 UH-1H).
Trg: incl 20 T-34C, 8 T-41.
AAM: R-550 *Magic*, Super 530.
 1 para sqn.
 (In store: 3 *Canberra* B-6.)

PARA-MILITARY: Coastguard (200): 12 40-foot patrol craft.

EGYPT

GDP 1982/3: £E 24.634 bn (\$35,196 bn). Est 1983/4: 23.56 bn (\$33,662 bn).
 GDP growth 1983: 7.5%. 1984: 6.5%.
 Inflation 1983: 20.0%. 1984: 18.5%.
 Debt 1983: \$22.2 bn. 1984: \$24.0 bn.
 Est def exp 1984/5: £E 2.65 bn (\$3,766 bn). Def exp 1985/6: 2.9 bn (\$4,143 bn).
FMA 1983: \$1,327 bn. 1984: \$1,367 bn.
 \$1 = £E 0.6999 (1983/4/5).
 Population: 48,500,000.
 Men: 18-30: 5,427,000; 31-45: 3,986,000.
 Women: 18-30: 5,289,000; 31-45: 3,951,000.

TOTAL ARMED FORCES:

Regular: 445,000 (some 250,000 conscripts).
Terms of service: 3 years (selective).
 Reserves (totals tentative): 380,000; Army 323,000, Navy 15,000, Air Force 12,000, AD 30,000.

ARMY: 320,000 (perhaps 180,000 conscripts). (Most Soviet equipment now in reserve. Incl 1,200 MBT, 397 combat aircraft. Some shown as Soviet has been refurbished with Western, Chinese and domestically-produced components.)

3 Army HQ:
 3 armd divs (each with 2 armd, 1 mech bdes).
 6 mech inf divs (each with 2 mech, 1 armd bdes).
 3 inf div (each with 2 inf, 1 mech bdes).
 1 Republican Guard Div (2 bdes).
 1 indep armd bde.
 2 indep mech inf bdes.
 5 indep inf bdes.
 2 airmobile, 1 para bdes.
 12 indep arty bdes.
 2 hy mor bdes.
 6 atgw bdes.
 7 cdo gps.
 2 ssm regts (1 with *FROG-7*, 1 with *Scud B*).
Tks: 900 T-54/55, 600 T-62, 659 AM-60 (M-60A3); LT: 30 PT-76.
AFV: **RECCE:** 300 BRDM-2; **MCV:** 200 BMP-1, some 217 BMR-600P; **APC:** 2,500 T-62, *Walid* (to National Guard), *Fahd* (being introduced), BTR-40/50/60; 550 M-113A2.

Arty: **GUNS:** 1,500 D-44 85mm, M-1944 towed, 200 SU-100 sp 100mm, M-31/37, Type-60 122mm, M-46, Type 59-1 130mm, SU-152 sp 152mm and S-23 180mm; **GUN/** **HOW:** M-1937, D-20 152mm; **HOW:** M-1938, D-30 122mm, M-1943, D-1 152mm, M-109A2 sp 155mm; **MRL:** about 300 VAP-80-12 80mm, BM-21/Saqr-18/30 122mm, M-51/Praga V3S 130mm, BM-13/16 132mm, BM-14/16 140mm and BM-24 240mm; **SSM:** 12 *FROG-7*, 9 *Scud B*; **MOR:** 400 M-43 120mm, M-43 160mm and M-1953 240mm.

ATK: **RCL:** 900 B-10 82mm, B-11 107mm; **GUNS:** 900 M-1943 57mm, M-1942 76mm, T-12 100mm; **ATGW:** 1,000 AT-1 *Snapper*, AT-2 *Swatter*, AT-3 *Sagger*, *Milan*, *Beeswing*, *Swingfire* and *TOW* (incl M-901 (M-113) sp).

AD: **GUNS:** 350 ZU-23-2, ZSU-23-4 23mm and ZSU-57-2 57mm sp; **SAM:** 75 SA-6, SA-7/As-Saqr, SA-9, 20 *Crotale*.

(On order: some 250 M-60A3 MBT; some 350 BMR-600P, some 500 M-113A2 APC; some 54 M-109A2 155mm sp how; JPz SK-105 sp ATK guns, some 50 M-901 sp improved *TOW* AFV; 100 M-106A2 and M-125A2 mor carriers; 200 *TOW* launchers, 4,000 msls (incl 2,500 improved *TOW*), 2,000 *Swingfire* atgw; as-Saqr (SA-7), 60 *Chaparral* SAM.)

NAVY: 20,000 (10,000 conscripts). (Most Soviet equipment now in reserve. Incl 1,200 MBT, 397 combat aircraft. Some shown as Soviet has been refurbished with Western, Chinese and domestically-produced components.)

Bases: Alexandria, Port Said, Mersa Matruh, Port Tewfig, Hurghada, Safaqa.

Subs: 14: 10 R-class (4 Ch Type-O-33), 4 Sov W-class.
Destroyers: 3: 2 Sov *Skory* (1 with 1 x 2 *Styx* ssm), 1 Br Z-class.

Frigates: 7: **FFG:** 4: 2 Ch *Jianghu* with 4 *Hai Ying-2* ssm, 2 Spanish F-30 (*Descubierta*) with 2 x 4 *Harpoon*; **FF:** 3

Br (1 *Black Swan*, 1 *Hunt*, 1 *River* (trg and sub spt ship)).

FAC: 18: 4 *Shereshen* with 1 x 8 BM-21 122mm or 1 x 12 BM-24 240mm MRL, 1 SA-7 SAM; 12 P-6 (with 1 x 8 BM-21); 2 *Shanghai*.

FAC (G): 30: 6 *Ramadan* with 4 *Otomat* ssm; 6 *October-6* (P-6) with 2 *Otomat*; 8 *Sov Osa-1* with 4 *Styx* ssm, SA-7 SAM; 6 *Huangfen* with 4 *Hai Ying-2* ssm; 4 *Komar* with 2 SS-N-2a ssm.

FAC (T): 14: 2 *Shereshen*, 6 P-6, 4 P-4.

Patrol craft: 30 large: 12 Sov SO-1 (6 with 1 x 8 BM-21 122mm MRL, some with SA-7 SAM), 9 Ch *Hainan*, 9 *Timsah*.

MCMV: 12 minesweepers: 10 ocean (6 T-43, 4 *Yurka*), 2 T-301 inshore.

Minelayers: 3 SRN-6 hovercraft.

Amph: **LCT:** 3 *Polnochny*; **LCU:** 13 (9 *Vydra*, 4 *SMB1*).

Coastal defence unit (Army manpower, Navy control): **guns:** SSM-4-1 130mm; **SSM:** 30 *Otomat* and *Samlet*. (On order: 2 Ch Type-O-33 ss; 4 *Luda* bbs; 2 *Jianghu* FFG; 6 *Cormoran* FAC(G); 4 *Shanghai II* FAC, 2 *Hainan*, 9 *Swift*, 13 *Timsah* patrol boats; 14 SRN-6 hovercraft; 6 *LST*; *Stingray* torpedoes; 16 *Harpoon*, *Otomat* ssm.)

AIR FORCE: 25,000 (10,000 conscripts); some 427 combat ac, 48 armed hel (incl AD comd). (Most Soviet equipment now in reserve. Incl 1,200 MBT, 397 combat aircraft. Some shown as Soviet has been refurbished with Western, Chinese and domestically-produced components.)

Bbr: 1 bde (sqn) with 13 Tu-16.

AD/FGA: 2 bdes (4 sqns): 70 J-6, 33 F-4E.

FGA: 2 bdes (4 sqns): 54 *Mirage* 5SDE2 (*Mirage* 2000EM being delivered), 19 *AlphaJet* MS-2.

Interceptors: 6 bdes (9 sqns): 5 sqns with 100 MiG-21F/PFS/FL/PM/IM/IF, 1 with 12 J-6; 1 with 20 J-7; 2 with 32 F-16A.

Recce: 1 bde (2 sqns): 6 *Mirage* 5SDR, 16 MiG-21F/RF, 13 Il-28 (MR).

ELINT: 2 EC-130H.

Hel: 11 sqns: **ATTACK:** 1 bde (4 sqns): 24 SA-342M *Gazelle* (HOT), 24 SA-342L (20mm gun); **ASW:** 1 bde (sqn) with 5 *Sea King* Mk 47; **TAC TPT:** 3 bdes: (HY): 1 sqn with 15 CH-47C *Chinook*, (MED): 3 sqns with 56 Mi-8, 1 sqn with 23 Westland *Commando* Mk 2 (2 VIP); (LT): 1 sqn with Hiller UH-12E.

Tpt: 2 bdes (3 sqns): 2 x 22 C-130H, 9 DHC-5D *Buffalo*, 4 *Mystere-Falcon* 20 (VIP), 1 Boeing 707, 1 Boeing 737. **Trg:** incl 16 MiG-19 (OCU), 8 *AlphaJet* MS-1, 50 L-29 (being replaced), 36 *Gumhuria*, 36 Yak-18 *Max*, *Wilga* 35/80, 4 JJ-6, 6 *Mirage* 5SDD, 6 F-16B, 2 EMB-312 *Tucano*.

AAM: AA-2 *Atoll*, R-530, *Matra Sparrow*, R-550 *Magic*, AIM-9P3/AIM-9L *Sidewinder*.

ASM: AS-1 *Kennel*, AS-5 *Keit*, AGM-65 *Maverick*, *HOT*. (On order: some 40 Ch J-7 (MiG-21-type), 80 F-16C/D, some 40 *Mirage* 2000EM, 4-BM, 16 *Mirage* 5E2 flts, 26 Ch J-6, some 18 *AlphaJet* (MS-2 FGA, MS-1 trg); 5 E-2C AEW, 3 C-130H tpt, some 18 *Tucano* trg ac; 12 *Sea King* ASW, AS-332 *Super Puma*, 24 AH-1 *Cobra* with *TOW*, 15 CH-47, 18 UH-12E, 24 *Gazelle* (some 12 with *HOT* atgw), 4 Bell 222, 1 AS-61 tpt hel; *Sparrow*, 150 *Sidewinder* AAM; *Exocet* AM-39, *Maverick* ASM.)

AIR DEFENCE COMMAND: 80,000 (50,000 conscripts), 12 centres under construction.

AD: 2 divs: regional bdes.

100 AA and msl bns, radar bns.

Arty: **GUNS:** 2,500 20mm, 23mm, 37mm, 40mm, 57mm, 85mm and 100mm; **SAM** (sites): some 60 SA-2 (400 launchers), 50 SA-3 (240 launchers). Some *Amoun* AD systems. 75 SA-6, 12 improved *HAWK* (36 msls), 16 *Crotale*.

Radar: AN/TPS-43/59I-63, AN/TS-93, *Fan Song*, *Flat Face* P-15, *Spoon Rest* P-12, *Low Blow*, *Straight Flush* missile/gun and *Squint Eye*, *Long Track* ewng.

(On order: Ch CSA-1, *Spada*, LPD-20 search radar; some 18 *Amoun* (Skyguard/AIM-7F *Sparrow* AD systems (36 twin 35mm guns, 36 x 4 SAM)), 8 btys totalling 96 launchers, 288 improved *HAWK* SAM.)

Forces Abroad: Iraq, Oman, Sudan, Somalia, Zaire.

PARA-MILITARY: 139,000. National Guard 60,000; (getting *Walid* APC). Frontier Corps 12,000. Defence and Security 60,000. Coast Guard 7,000; 3 *Nisr*, 6 *Crestitalia*, 6 *Bertram* patrol boats, 34 rescue launches.

EL SALVADOR

GDP 1982: C 8.966 bn (\$3,586 bn). 1983: 9.754 bn (\$3,902 bn).

GDP growth 1982: -6%. 1983: 0%.

Inflation 1983: 14%. 1984: 12%.

Debt 1983: \$1.4 bn. 1984: \$1.6 bn.

Def exp (incl 'Public Security Sector' budget) 1983: C 420 m (\$168 m). Est 1984: 480 m (\$192 m).

FMA 1984: \$197 m. Est 1985: \$250 m.

\$1 = colones 2.5 (1982/3/4).

Population: 5,500,000.

Men: 18-30: 617,000; 31-45: 382,000.

Women: 18-30: 608,000; 31-45: 385,000.

TOTAL ARMED FORCES:

Regular: 41,650.

Terms of service: conscription, selective, 2 years: all services.

Reserves: ex-soldiers registered but no org exists.

ARMY: 38,650 (conscripts),

6 Military Zones (15 Regions),

6 Inf bdes (37 bns).

1 Lt inf (COIN) bde (3 bns),

1 mech cav regt,

1 arty bde (3 bns),

1 engr bn.

5 indep COIN bns.

1 para bn } Army personnel,

1 AA arty bn } Air Force control.

Reserves: 15 inf regts (42 bns incl 2 bns of each of 6 active regts).

Tks: LT: 12 AMX-13. **AFV:** **RECCE:** 5 M-3A1, 10 AML-90; **APC:** 20 M-113, 10 UR-416. **Arty:** **HOW:** 30 M-101, 6 M-102, 14 Yug M-56 105mm, 6 M-114 155mm; **MOR:** 111 81mm, 8 UB-M52 120mm, **ATK:** **RCL:** 430 M-67 90mm; **RL:** **LAW:** **AD:** **GUNS:** 24 20mm.

NAVY: 650 (Marine unit forming)(conscripts).

Patrol boats: 20, incl 3 31-metre *Camcraft*, 1 20-metre *Sewart*, 1 20-metre *Swift*, 1 40-ft coastguard utility.

AIR FORCE: 2,350 (incl ad, security gp; conscripts), 32 combat ac, 4 armed hel.

FGA: 1 sqn with 8 *Ouragan*.

COIN: 3 sqns with: **Ac:** 2 armed C-47AFSP, 8 A-37B, 6 CM-170 *Magister*; **HEL:** 2 sqns: 36 UH-1H, 4 Hughes 500MD attack.

Recce: 1 flt with 8 O-2.

Tpt: 16 ac: 1 sqn with 9 C-47, 2 DC-6B, 3 *Arava*, 2 C-123K.

Trg: 3 T-41.

AB: 1 para bn } Army personnel,

AD: 1 arty bn (24 Yug M-55 } Air force control.

20mm guns, 4 sp)

(On order: UH-1H hel.)

PARA-MILITARY: National Guard 4,000. National Police 5,000. Treasury Police 2,000. *Defensa Civil* (territorial civil defence force) 7,000.

Opposition: perhaps 10,000. *Dirección Revolucionaria Unificada* (DRU): political wing *Frente Democrático Revolucionario* (FDR), coordinating body for political elements and military forces. Military wing is the Farabundo Martí National Liberation Front (FMLN): 1,400-12,600, perhaps 8,500 combatants:

(1) Peoples' Revolutionary Army (ERP): (4,800-5,600).

(2) Farabundo Martí Popular Liberation Forces (FPL): (2,400-2,500).

(3) Armed Forces of National Resistance (FARN or RN): (1,800-2,100).

(4) Revolutionary Party of Central American Workers (PRCA): (perhaps 1,250).

(5) Armed Forces of Liberation (FAL): (perhaps 1,200).

EQUATORIAL GUINEA

Est GDP 1982: B 35.0 bn (\$137,255 m). 1983: 20.0 bn (\$80.0 m).

Debt 1983: \$103 m. Est 1984: \$110 m.

\$1 = bipekuele 255 (1982), 250 (1983).

Population: 410,000.

Men: 18-30: 40,000; 31-45: 31,000.

Women: 18-30: 41,000; 31-45: 33,000.

TOTAL ARMED FORCES:

Regular: 2,200.

Terms of service: voluntary.

ARMY: 2,000.

1 inf bn (5 coys).

AFV: **RECCE:** 10 BRDM-2; **APC:** 10 BTR-152. **Arty:** **MOR:** 81mm.

NAVY: 150.

Bases: Malabo (Santa Isabel), Bata.

Patrol craft: 1 P-6, 1 *Poluchat*.

AIR FORCE: 50; 2 combat ac,

FGA: 2 MiG-17.

Tpt: 1 Reims Cessna 337, 3 C-212, 1 Yak-40.

Hel: 2 *Alouette III*.

PARA-MILITARY: some 1,000.

Guardia Civil: 2 coys.

ETHIOPIA

GDP 1982/3: EB 10.016 bn (\$4.839 bn) 1983/4: 10.055 bn (\$4.857 bn).
GDP growth 1982: 0%. 1983: 4.0%.
Inflation 1983: 0%. 1984: 8.4%.
Debt 1983: \$1.20 bn (excl military grants and aid from USSR and Eastern Europe (est at \$2.5 bn)); 1984: \$1.90 bn (excl military grants and aid from USSR and Eastern Europe (est at \$2.5 bn)).
Est def budget 1982/3: EB 950 m (\$458.937 m). (Incl internal security budget, but excl military capital expenditure (est at \$275 m for 1983/4).) Budget 1983/4: 1.044 bn (\$504.155 m). (Incl internal security budget, but excl military capital expenditure (est at \$275 m for 1983/4).)
\$1 = birr 2.07 (1982/3/4).
Population: 42,000,000.
Men: 18-30: 4,000,000; 31-45: 2,800,000.
Women: 18-30: 4,000,000; 31-45: 2,800,000.

TOTAL ARMED FORCES:

Regular: 217,000. (Some 1,400 Soviet, 5,000 Cuban and 250 E. German technicians and advisers operate ac and hy eqpt.)
Terms of service: conscription, 30 months, incl police, border guard. Reserves: All citizens 18-50 do 6 months trg. Assigned to Army, Police and Border Guard.

ARMY (incl People's Militia): 210,000.

22 inf divs (incl 3 mot, 4 mountain, 3 It) with some 20 tk bns.
4 para/cdo bdes.
50 arty bns.
25 AD bns (incl 3 bns each of SA-2, SA-3 SAM).
TKs: 65 M-47, 40 T-34, 800 T-54/55, 30 T-62; LT: 20 M-41.
AFV: recce: 150 BRDM-1/2; micv: 40 BMP-1; APC: some 30 M-113, 600 BTR-40/60/152, V-150 *Commando*. Arty: GUN/HOW: some 700 incl M-116 75mm pack, 40 M-101 105mm, 350 122mm (incl sp), M-1954 130mm, M-1955/D-20 152mm, 12 towed, 12 M-109 SP 155mm; MOR: 60mm, 81mm, 82mm, 100 M-38 120mm, 100 M-2/30 4.2-in. (107mm), 120mm; MRL: BM-21 122mm. ATK: GUNS: M-1955 100mm; ATGW: *Sagger*. AD: GUNS: ZU-23 23mm, 37mm towed, ZSU-23-4 23mm, M-1950, ZSU-57-2 57mm SP; SAM: 18 SA-2, 18 SA-3, SA-7. (War situation makes eqpt data suspect.)

NAVY: 3,000. (War situation makes eqpt data suspect.)
Bases: Massawa, Assab.
Frigates: 2 *Petya*.
Patrol craft: 14: 7 large (1 Yug *Kraljevica*, 3 US PGM, 3 *Swiftship*), 7 coastal (4 *Sewart*, 1 *Poluchat*, 2 *Zhuk*).
FAC: (g): 4 Sov *Osa-II* with 4 SS-N-2a; (r): 1 Sov *Mol*.
Amph: LSM: 2 *Polnocny*; LCV: 4 T-4.
Trg: 1 US *Barnegat*.

AIR FORCE: 4,000 (some 1,400 Soviet, 5,000 Cuban and 250 E. German technicians and advisers operate ac and hy eqpt); perhaps 150 combat ac; some 30 armed hel. (War situation makes eqpt data suspect.)
FGA: 9 sqns: 1 with 10 MiG-17; 6 with 100 MiG-21; 1 with 35 MiG-23. Some of 16 F-5A/E/B held pre-1978 reported serviceable.
Tpt: 1 sqn with 10 An-12.
Trg: MiG-21U, 10 L-39 *Albatros*; some 4 SF-260TP.
Hel: incl 32 Mi-8 (some may be armed), 24 Mi-24, some *Chetak* (*Alouette III*).
(On order: some 6 SF-260 ac, some 10 *Chetak* hel.)

PARA-MILITARY: 169,000. Border Guard. Mobile emergency police force (9,000).

OPPOSITION: Eritrean Liberation Front (ELF) some 6,500 (14 'bdes'). Eritrean Liberation Front-People's Liberation Forces (ELF-PLF) some 5,000 (reported to be merging with ELF Revolutionary Council and ELF Revolutionary Committee to become Eritrean Liberation Front (unified organization)). People's Liberation Front Revolutionary Guard (PLFRG) some 5,000; Eritrean People's Liberation Front (EPLF) some 12,000; Oromo Liberation Front (OLF) some 600; 12 gps. Tigray People's Liberation Front (TPLF) 5,000. Western Somali Liberation Front (WSLF). Mainly small arms but captured eqpt incl T-54/55 tks; APC: 76mm, 85mm, 122mm, 130mm guns/how; 23mm, 37mm, 40mm AA guns.

FIJI

GDP 1983: \$F 1,168 bn (\$US 1,149 bn). Est 1984: 1,231 bn (\$US 1,139 bn).
GDP growth 1983: 3.9%. 1984: 1.5%.
Inflation 1983: 7.0%. 1984: 5.3%.

Debt 1983: \$432.4 m. 1984: \$450.0 m.
Est def exp 1984: \$F 14,900 m (\$US 13,782 m) 1985: 15,900 m (\$US 13,429 m).
\$US 1 = \$F 1.0161 (1983), 1.0811 (1984), 1.184 (1985).
Population: 700,000.
Men: 18-30: 85,000; 31-45: 59,000.
Women: 18-30: 84,000; 31-45: 59,000.

TOTAL ARMED FORCES:

Regular: 2,670.
Terms of service: voluntary.
Reserves: 300; 1 inf bn.

ARMY: 2,500.
3 inf bns (1 reserve).
1 engr coy.
Spt units.
Mor: 12 81mm.

NAVY: 170.

Base: Suva.
MCMV: 3 US *Bluebird* coastal minesweepers.
Misc: 2 marine survey vessels, 1 research vessel.

Forces Abroad: 1,126: 2 inf bns. Lebanon (UNIFIL) (626); Egypt (Sinai MFO) (500).

FINLAND

GDP 1983: m 274.94 bn (\$49.36 bn), 1984: 304.48 bn (\$50.66 bn).
GDP growth 1983: 2.9%. 1984: 2.9%.
Inflation 1983: 8.6%. 1984: 7.6%.
Debt 1983: \$21.46 bn. 1984: \$24.33 bn.
Def exp 1984: m 4,528 bn (\$753.41 m). Budget 1985: 4,693 bn (\$725.31 m).
\$1 = markkaa 5.5701 (1983), 6.01 (1984), 6.4703 (1985).
Population: 4,825,000.
Men: 18-30: 472,000; 31-45: 600,000.
Women: 18-30: 451,000; 31-45: 570,000.

TOTAL ARMED FORCES:

Regular: 36,500 (25,000 conscripts).
Terms of service: 8-11 months (11 months for officers and NCOs); three entries per year.
Reserves (all services): some 700,000 (35,000 a year do conscript training; 43,000 reservists a year do refresher training: total obligation 40 days (75 for NCOs, 100 for officers) between conscript service and age 50 (NCOs and officers 60)). Some 210,000 would, with the Regulars, form the 'last deployment force' to cover full mobilization. Mobilization units supporting general, local or spt forces org in some 20 bdes, some 100 indep bns, etc., under Military Areas.

ARMY: 30,900 (22,300 conscripts).

7 Military Areas; 23 Military Districts:
1 armd bde.
7 inf bdes (1 lt).
Field arty: 2 regts, 2 indep bns.
Coast arty: 2 regts, 3 indep bns (1 mobile).
1 AA arty regt (incl 1 SAM bn with SAM-79).
4 indep AA arty bns.
2 engr bns.
Sigs: 1 regt, 1 bn.
TKs: T-54/55/72; LT: PT-76. AFV: micv: BMP-1; APC: BTR-50P, BTR-60 (to retire), A-180 *Sisu*. Arty: GUNS: M-54 (M-36) 130mm; COASTAL: D-10T 100mm (tank), 110mm, M-60 122mm, 130mm, 152mm; GUN/HOW: M-83 (M-74) 155mm; How: M-37/61 105mm, M-38/D-30 122mm, M-40 150mm, ML-20 152mm; MOR: 81mm, 120mm. ATK: RCL: M-55 55mm, *Miniman* 74mm, SM-58-61 95mm; ATGW: SS-11 (also as ssm), M-82 (AT-4 *Spigot*), M-83 (BGM-71A *TOW*). AD: GUNS: ZU-23 23mm, 30mm, GDF-002 35mm, L-60/L-70 40mm, S-60 57mm towed, ZSU-57-2 SP; SAM: SAM-79 (SA-3), SAM-78 (SA-7).
(On order: A-180 *Sisu* APC.)

NAVY: 2,700 (1,400 conscripts).
Bases: Upinniemi (Helsinki), Turku.

Corvettes: 2 *Turunmaa*.

FAC: 6 *Nuoli*; (g): 1 *Helsinki* (4 RBS-15SF ssm); 4 *Tuima* (Sov *Osa-II*), 1 *Isku* (experimental) with MTO-66 (SS-N-2a) ssm.

Patrol craft: 5 R-class large; 1 *Hurja* coastal (experimental).

MCMV: 3 minelayers (1 trg), 6 *Kuha*, 7 *Kiiski* 'slave' inshore minesweepers.
1 hollog ship.

Spt: 3 *Pukkio*.

LCU/Tpt: 14 small, 5 *Valas*, 6 *Hauki*.
(On order: 3 *Helsinki* FAC(g); RBS-15SF ssm (1985-6).)

AIR FORCE: 2,900 (1,300 conscripts); 64 combat aircraft. 3 AD districts: 3 fighter wings.
Ftrs: 3 sqns with 27 MiG-21bis, 24 J-35F/BS/XS *Draken*; 8

Hawk Mk 51, 2 *Magister* (to get *Draken*).
OCU: 6 MiG-21U/JM, 3 J-35C; 10 F-35F, 2 F-35C.
Recce: 1 flt with 4 MiG-21F (at Ho).
Tpt: ac: 1 sqn with 3 F-27-100, 3 *Learjet* 35; HEL: 1 flt with 6 Mi-8 (also SAR), 2 Hughes 500.
Trg: 34 *Hawk Mk 51*, 13 *Magister*, 30 *Vinka* (Leko 70).
Liaison: 9 *Cherokee Arrow*, 6 *Chieftain*.
AAM: AA-2 *Atoll*, RB-27, RB-28 (*Falcon*).
(On order: 10 J-35 *Draken* AD, 8 *Hawk* trg ac, AD system.)

Forces Abroad: 947 (UN only, not within Force totals). Cyprus (UNFICYP) 10. Syria (UNDOF) 1 bn (411). Lebanon (UNIFIL) 1 bn (500). Other Mid-East (UNTSO) 22. Pakistan (UNMOGIP) 4.

PARA-MILITARY: Ministry of Interior: Frontier Guards 3,500; 4 frontier, 3 coastguard districts, 7 bns (17 coys); 4 large, 9 coastal, 34 patrol craft; ac and 3 Mi-8 hel (SAR).
(On order: 1 large, 4 *Lokki* coastal patrol boats.)

GABON

GDP 1982: fr CFA 1,184 bn (\$3.603 bn). 1983: 1,197 bn (\$3.141 bn).
GDP growth 1982: -2.5%. 1983: -1.6%.
Inflation 1983: 10.0%. 1984: 7.0%.
Debt 1983: \$875 m. 1984: \$1.0 bn.
Def budget (incl internal security) 1983: fr CFA 27.846 bn (\$73.073 m). 1984: 29.364 bn (\$67.201 m).
Est FMA 1983: \$100 m.
\$1 = francs CFA 328.62 (1982), 381.07 (1983), 436.96 (1984).
Population: 995,000.
Men: 18-30: 75,000; 31-45: 61,000.
Women: 18-30: 78,000; 31-45: 64,000.

TOTAL ARMED FORCES:

Regular: 2,400.
Terms of service: voluntary.

ARMY: 1,700.

Presidential Guard bn gp (1 *recce/armd*, 3 inf coys, arty, AA btys).
8 inf coys.
1 engr coy.
1 para/cdo coy.
1 service coy.

AFV: recce: 16 *Cascavel*, 24 AML-90, 12 EE-3 *Jararaca*; APC: 12 EE-11 *Urutu*, 6 *Commando*, M-3, 12 VXB-170. Arty: HOW: 4 M-101 105mm; MRL: 140mm; MOR: 81mm, 120mm; RCL: *Armbrust* 67mm, 106mm. AD: GUNS: 24 ZU-23-2 23mm, 10 37mm, 2 40mm.

NAVY: 200.

Base: Port Gentil.
FAC: (g): 1 Fr 150-ton with 4 SS-12 ssm.
FAC: 3: 1 118-ton *Swift*, 1 88-ton, 1 80-ton.
Patrol craft: 2 (1 Brazil Type V-3).
Amph: LST: 1; LCM: 3.
Tpt: 1 *Batal* lt.
(On order: 2 P-400 patrol craft.)

AIR FORCE: 500; 11 combat ac.

FGA: 9 *Mirage* 5GD, 1 DR.
MR: 1 EMB-119P1.
Tpt: 5 C-130 *Hercules*, 3 C-47, 1 DC-8-30, 4 EMB-110, 1 *Gulfstream III* (VIP), 1 *Falcon*, 1 YS-11A, 3 Nord 262, 4 *Broussard*; Lt: 2 Reims *Canvas* 337, 2 *Magister*, 4 T-34C.
Hel: 4 *Puma*, 3 *Alouette III*.
(On order: 4 *Beech* T-34C1 lt tpt ac.)

PARA-MILITARY: Coastguard 2,800; 9 patrol craft. Gendarmerie 2,000; 3 'bdes', 11 coys. Republican Guard. Rapid Intervention Force.

GHANA

GDP 1982: cedi 85,854 bn. 1983: 182,008 bn.
GDP growth 1982: -7.2%. 1983: 0.7%.
Inflation 1983: 125.0%. 1984: 40%.
Debt 1983: \$1.9 bn. 1984: \$2.0 bn.
Def budget 1982: cedi 587.30 m.
Est FMA 1983: \$0.4 m. 1984: \$0.3 m.
\$1 = cedi 2,7503 (1982). (Official exchange rate: continuing economic crisis and multiple exchange rates make meaningful dollar conversions impossible. Def exp for 1983/4 believed around \$60 m.)
Population: 12,800,000.
Men: 18-30: 1,456,000; 31-45: 833,000.
Women: 18-30: 1,438,000; 31-45: 939,000.

TOTAL ARMED FORCES:

Regular: 15,100.

Terms of service: voluntary.**ARMY:** 12,500.

2 Command HQ;
 2 bdes (6 inf bns and spt units),
 1 recce bn,
 3 border tps bns (were police/customs),
 1 para bn,
 1 mor bn,
 1 fd engr bn,
 1 sigs bn,
 1 AB coy.

AFV: RECCE: 25 *Saladin*; APC: 100 MOWAG *Piranha*. **Arty:** MOR: 50 81mm, 28 Tampella 120mm; RCL: 50 *Carl Gustav* 84mm; SAM: SA-7.

NAVY: 1,200.

Bases: Sekondi, Tema.
 2 Command HQ;
Corvettes: 2 *Kromantse* ASW.
FAC: 4: 2 FPB-57, 2 FPB-45.
Patrol craft: 6: 2 *Dela*, 2 *Br Ford* large; 2 *Spear II* coastal.

AIR FORCE: 1,400; 10 combat ac.
COIN: 1 sqn with 10 MB-326F/KB.
Tpt: 1 sqn with 6 Skyvan 3M.
Comms/liaison: 1 sqn with 5 F-27, 1 F-28.
Hel: 2 *Alouette III*, 2 Bell 212.
Trg: 1 sqn with 11 *Bulldog*, 8 SF-260TP.

Forces Abroad: Lebanon (UNIFIL): 1 bn (709).

PARA-MILITARY: People's Militia. Committees for the Defence of the Revolution (National Civil Defence Force).

GUATEMALA

GDP 1982: q 8,728 bn (\$8,728 bn), 1983: 8,724 bn (\$8,724 bn).

GDP growth 1982: -0.2%, 1983: 0%.

Inflation 1983: 4.2%, 1984: 2.5%.

Debt 1983: \$1.8 bn, 1984: \$2.9 bn.

Def budget 1983: q 170 m (\$170 m), 1984: 179.8 m (\$179.8 m).

\$1 = quetzal 1.00 (1982/3/4).

Population: 8,370,000.

Men: 18-30: 960,000; 31-45: 639,400.

Women: 18-30: 980,000; 31-45: 635,800.

TOTAL ARMED FORCES (National Armed Forces are combined; the Army provides logistic support to the Navy and Air Force.):

Regular: 31,700.

Terms of service: Conscript: 24-30 months.

Reserves: Army 10,000, Navy (some), Air 200.

ARMY: 30,000.

HQ: 4 Regional bde.
 12 inf bns.
 4 fd arty gps (8 btys).
 4 recce sqns.
 1 Presidential Guard bde (2 bns).
 1 Special Forces bde (2 bns).
 1 armd bn.
 1 engr bn.
 1 AA arty bn (2 btys).

Tks: LT: AMX-13, 10 M-41A3, 5 M-3A1. **AFV:** RECCE: 5 M-8, 10 RBY-1, 5 M-3A1; APC: 10 M-113, 7 V-150 *Commando*. **Arty:** how: 12 M-116 75mm pack, 12 M-101 105mm; MOR: M-1 81mm, 12 M-30 4.2-in. (107mm), 12 EC1A 120mm. **AD:** GUNS: 12 M-1A1 40mm.

NAVY: 1,000 incl 650 marines (4 coys), (900 conscripts). Bases: Santo Tomás de Castillas, Sipacate, Puerto Quetzal.

Patrol craft: 13 coastal, 36 small (some 30 armed), 8 river.

Amph: 1 LCM, 2 small tp carriers, 12 *Zodiac*-type assault boats (marines).

AIR FORCE: 700 (500 conscripts); 16 combat ac, 4 armed hel.

COIN: 1 sqn with 10 A-37B, 6 PC-7 *Turbo-Tracker*.

Tpt: 1 sqn with 1 DC-6B, 8 C-47, 8 *Arava*.

Comms: 1 sqn with 17 Cessna (4 170A/B, 8 172K, 2 180, 2 206C, 1 310).

Hel: 1 sqn with 25 Bell (perhaps 6 operational): 4 UH-1D (4 armed), 2 212, 6 412, 5 206B, 5 206L-1.

Presidential flt: 1 *Super King Air* 200.

Trg: 5 PC-7 *Turbo-Tracker*, 5 T-33A, 3 T-37C, 12 T-41. (On order: 12 PC-7.)

PARA-MILITARY: National Police 9,500. Treasury Police 2,100. Territorial Militia (900,000) formed, 15,000 may be armed.

GUINEA

Est GDP 1982: sylis 35.50 bn (\$1,598 bn), 1983: 36.30 bn (\$1,551 bn).

GDP growth 1982: 0%, 1983: 1.0%.

Def exp 1982: sylis 1,850 bn (\$83,251 m). (The USSR, Egypt and Libya have reportedly supplied military aid; value unknown.)

\$1 = sylis 22,222 (1982), 23.4 (1983).

Population: 5,700,000.

Men: 18-30: 663,000; 31-45: 373,000.

Women: 18-30: 645,000; 31-45: 504,000.

TOTAL ARMED FORCES:

Regular: 9,900 (perhaps 7,500 conscripts).

Terms of service: conscription, 2 years.**ARMY:** 8,500.

1 armd bn.
 5 inf bns.
 1 arty bn.
 1 engr bn.
 1 cdo bn.
 1 special force bn.
 1 ad bn.

Tks: 45 T-34, 8 T-54; LT: 20 PT-76. **AFV:** RECCE: 25 BRDM-1/2; APC: 40: 16 BTR-40, 10 BTR-50, 8 BTR-60, 6 BTR-152. **Arty:** GUNS/HOW: 8 76mm, 6 85mm, 12 122mm; MOR: 20 M-1938/43 120mm. **ATK:** GUNS: 57mm. **AD:** GUNS: 8 37mm, 12 57mm, 4 100mm; SAM: SA-7, SA-8, 24 SA-6.

NAVY: 600.

Bases: Conakry, Kakanda.

FAC: 6 Ch *Shanghai*-II.

Patrol craft: 16: 1 T-58 ex-MCM, 2 Sov *Shershen*, 6 P-6; 7 coastal (incl 5 Sov (3 *Poluchat*, 2 MO-6)).

Amph: LCU: 2.

(On order: 1 Swiftship 65-foot, 2 26-foot patrol craft.)

AIR FORCE: 800; 6 combat ac.**FGA:** 6 MiG-17F (serviceability questionable).

Tpt: 4 Il-14, 2 Il-18, 4 An-14, 2 An-24, 1 Yak-40; LT: 1 Reims Cessna F-337.

Trg: 2 MiG-15UTI, 5 Yak-18, 3 L-29, 2 C-119.

Hel: 1 Bell 47G, 1 *Puma*, 1 *Gazelle*, 1 UH-12B.

PARA-MILITARY: 9,000.

People's Militia: 7,000. Gendarmerie 1,000, Republican Guard 1,000.

GUINEA-BISSAU

Est GDP 1982: pG 9.20 bn (\$228,884 m), 1983: 7.0 bn (\$155,556 m).

Est def budget 1982: pG 375.0 m (\$9,330 m).

\$1 = Guinea pesos 40,195 (1982), 45 (1983).

Population: 850,000.

Men: 18-30: 85,000; 31-45: 59,000.

Women: 18-30: 97,000; 31-45: 77,000.

TOTAL ARMED FORCES:

Regular: 8,550 (incl Gendarmerie).

Terms of service: ? conscription (selective).**ARMY:** 6,200. (All Services form part of the Army.)

1 armd bn (sqn).

5 inf bns.

1 recce sqn.

1 engr coy.

1 arty bn.

Tks: 10 T-34; LT: 20 PT-76. **AFV:** RECCE: 10 BRDM-2; APC: 35 BTR-40/60/152, 20 Ch Type-56. **Arty:** GUNS: 18 85mm, 122mm; MOR: 8 120mm. **ATK:** RL: 89mm; RCL: Ch Type-52 75mm. **AD:** GUNS: 18 23mm, 10 57mm; SAM: SA-7.

NAVY: 275.

Base: Bissau.

Patrol craft: 13: 1 *Shershen* large; 2 Ch *Shantou*, 1 Sov *Poluchat*, 9 other coastal.

Amph: LCVP: 2 T-4.(On order: 4 *Bazan* coastal patrol craft.)**AIR FORCE:** 75.

Tpt: 2 Do-27, 2 Yak-40; LT: 1 Reims Cessna FTB-337.

Hel: 1 *Alouette II*, 2 *Alouette III*, 1 Mi-8.

PARA-MILITARY: Gendarmerie 2,000.

GUYANA

GDP 1982: \$G 1,446 bn (\$US 482 m), 1983: 1,455 bn (\$US 485 m).

GDP growth 1983: 0%, 1984: 2.0%.

Debt 1983: \$US 800 m.

Security budget 1984: \$G 153.7 m (\$US 40.11 m), 1985: 190.8 m (\$US 43.25).

\$US 1 = \$G 3.0 (1982/3), 3.8316 (1984).

Population: 844,000.

Men: 18-30: 113,000; 31-45: 61,400.

Women: 18-30: 111,400; 31-45: 64,800.

TOTAL ARMED FORCES (all Services form part of the Army):

Regular: 6,600.

Terms of service: voluntary.**ARMY:** 6,000.

3 inf bns.

1 guard bn.



1 arty bn.
1 engr coy.
AFV: RECCE: 6 EE-9 *Cascavel*, 2 *Shorland*. **Arty:** guns: 6 130mm; MOR: 12 81mm, 20 Ch T-53 120mm. **AD:** SAM: SA-7.

NAVY: 300.
Patrol craft: (11: 1 Vosper large, 5 coastaf, 1 N. Korean *Sin Hung*).
Amph: 1 LCT.

AIR FORCE: 300.
Tpt: ac: 6 BN-2A, 2 DHC-6, 1 *Skyvan* Srs 2, 1 *Super King* Air 200, 1 Cessna 206F; HEL: 5 Bell 206B, 3 212, 2 214.

PARA-MILITARY: 5,000.

HAITI

GDP 1982: G 7.378 bn (\$1.476 bn). 1983: 8.183 bn (\$1.637 bn).

Debt 1983: \$612 m.
Def budget 1983: G 140 m (\$28.0 m). Est 1984: 150 m (\$30.0 m).

FMA 1983: \$0.7 m. 1984: \$1.0 m.
\$1 = gourdes 5.0 (1982/3/4).
Population: 5,450,000.
Men: 18-30: 612,000; 31-45: 397,000.
Women: 18-30: 630,000; 31-45: 440,000.

TOTAL ARMED FORCES:

Regular: 6,900.
Terms of service: voluntary.

ARMY: 6,400.
Presidential Guard (1 inf bn, 1 armd sqn).
1 inf bn.
1 **Special Forces** bn.
1 arty gp (2 blys).
Garrison det.

Tks: Lt: 6 M-5A1. **APC:** 5 M-2, 6 V-150 **Commando**. **Arty:** how: 2 M-1A1 75mm pack, 4 M-2A1 105mm; MOR: 36 60mm, 81mm. **ATK:** guns: 10 M-3 37mm, 10 M-1 57mm; RCL: 8 M-18 57mm. **AD:** guns: 6 RAMTA TCM-20, 4 other 20mm, 6 40mm, 4 57mm.

NAVY: 300 (Coastguard).
Patrol craft: 14: 1 *Sotoyomo*, 13 coastal (3 *Sewart*, 9 3812-VCF, 1 *Bertram*).

AIR FORCE: 200; 7 combat ac.
COIN: 7 Cessna 337.
Tpt: 3 C-47, 2 DHC-2, 3 DHC-3, 1 *Baron*, 1 Cessna 140, 1 402.
Trg: 6 SIAI S-211, 4 SF-260TP, 3 Cessna 152, 1 172, 1 Beech *Bonanza*.

Hel: 5 S-58/CH-34C, 3 Hughes 269C/369C.

PARA-MILITARY: 15,000 National Security Volunteers (VSN).

HONDURAS

GDP 1983: L 5.891 bn (\$2.946 bn). 1984: 6.375 bn (\$3.188 bn).

GDP growth 1982: -12%. 1983: -1%.
Inflation 1983: 9.4%. 1984: 8.9%.
Debt 1983: \$2.30 bn. 1984: \$2.40 bn.
Def budget (excl internal security costs) 1983: L 140 m (\$70 m). 1984: 180 m (\$90 m).
FMA 1983: \$48.30 m. 1984: \$76.50 m.
\$1 = lempiras 2.00 (1983/4).
Population: 4,365,000.
Men: 18-30: 472,000; 31-45: 293,000.
Women: 18-30: 466,000; 31-45: 291,000.

TOTAL ARMED FORCES:

Regular: 16,600; (13,000 conscripts).
Terms of service: conscription, 24 months.
Reserves: 50,000 (personnel only; no units).

ARMY: 14,600 (12,000 conscripts).
10 **Military Zones:**
3 inf bdes (each 2 inf, 1 arty bns).
5 indep inf bns (1 AB).
1 engr bn.
1 special forces bn.

1 **Presidential Guard** (coy).
Tks: Lt: 12 *Scorpion*. **AFV:** RECCE: 72 *Saladin*, 10 RBV Mk 1. **Arty:** how: 24 M-101/102 105mm; MOR: M-1 81mm, 30 Soltam M-65 120mm. **ATK:** RCL: 106mm; RL: *Carl Gustav*.

NAVY: 500 (300 marine conscripts).
Bases: Puerto Cortés, Amapala.
Patrol craft: 9 Swiftships, 3 31-metre, 1 26-metre(, 5 21-metre(.

AIR FORCE: 1,500 (700 conscripts); 25 combat aircraft.
FGA: 1 sqn with 14 *Super Mystère* B2.
COIN: 1 sqn with 11 A-37B.
Tpt: 1 sqn with 10 C-47, 2 *Arava*, 1 *Electra*, 1 *Westwind*.
Spt: 1 sqn with ac: 1 Beech *Baron*, 4 Cessna (2 180, 2 185), 1 Piper *Cheyenne*; HEL: 1 S-76.
Hel: 1 sqn with 11 UH-1H, 11 UH-1B, 1 Hughes 500, 8 TH-5 (Hughes 300).
Trg: 4 CASA C-101B, 8 *Tucano*, 7 T-41A.

PARA-MILITARY: Public Security Forces (FUSEP) (national police) 5,000.

INDIA

GDP 1982: Rs 1,635.8 bn (\$169.891 bn). 1983: 1,957.4 bn (\$189.766 bn).

GDP growth 1983: 1.8%. 1984: 4.0%.
Inflation 1983: 12.5%. 1984: 5.2%.
Debt 1983: \$25.0 bn. 1984: \$29.0 bn.
Est def exp 1984/5: Rs 82.100 bn (\$6.907 bn). Budget 1985/6: 76.860 bn (\$6.126 bn).
\$1 = rupees 9.6285 (1982/3), 10.3148 (1983/4), 11.8868 (1984/5), 12.546 (1985).
Population: 759,000,000.
Men: 18-30: 86,666,000; 31-45: 64,121,000.
Women: 18-30: 80,614,000; 31-45: 61,321,000.

TOTAL ARMED FORCES:

Regular: 1,260,000.
Terms of service: voluntary.
Reserves: Army 200,000. Territorial Army 50,000. Air Force (Regular, Air Defence, Auxiliary) known to exist, strengths unknown.

ARMY: 1,100,000.
5 **Regional Commands**.
8 corps HQ.
2 armd divs.
1 mech div.
19 inf divs.
10 mountain divs.
7 indep armd bdes.
10 indep inf bdes.
1 mountain bde.
1 para bde.
8 indep arty bdes.
3 indep engr bdes.
Tks: 700 T-54/-55, 300 T-72, 1,500 *Vijayanta*; Lt: 150 PT-76.
AFV: MICV: 350 BMP-1; APC: 500 OT-62/-64, BTR-60.
Arty: guns: Yug M-48 76mm, 25-pdr (88mm) (retiring), 100 100mm, 200 105mm (incl *Abbot* sp), 550 M-46 130mm (some SP), 5.5-in. (140mm) (retiring), S-23 180mm; how: 75/24 75mm mountain, 105mm (incl

M-56 pack), D-20 152mm; MOR: 81mm, 500 120mm, 20 160mm; SSM: *FROG-7*.

ATK: RCL: M-18 57mm, *Carl Gustav* 84mm, M-40 106mm; guns: 6-pdr (57mm); ATGW: SS-11-B1, *Milán*, AT-3 *Sagger*.
AD: guns: 20mm, ZSU-23-4 23mm SP, L40/60, L40/70 40mm; 500 3.7-in. (94mm); SAM: 180 SA-6, SA-7, 48 SA-8A, SA-9, 40 *Tiger*cat.
(On order: *Arjun*, 1,600 T-72M MBT, BRDM RECCE, BMP-1/-2, BMD MICV, 105mm Mk-II gun, SA-8 SAM.)

NAVY: 47,000, incl naval air force.
Bases: Western Fleet: Bombay, Goa. Southern Fleet: Cochin. Eastern Fleet: Vishakapatnam, Port Blair.

Subs: 8 Sov F-class.
Carriers: 1 Br *Majestic* (capacity 18 attack, 4 ASW ac/hel).
Cruiser: 1 Br *Fiji* (trg).
Destroyers: 3 Sov *Kashin* II cw with 4 *Styx* ssm, 2 2 SA-N-1 SAM, 1 Ka-25 hel.
Frigates: 23: 2 *Godavari* with 2 *Styx* ssm, 1 SA-N-4 SAM, 2 *Sea King* hel; 6 *Leander* (4 with 2 x 4 *Seacat* SAM, 2 with 1 x 4, 1 hel); 2 Br *Whitby* with 3 *Styx* ssm, 1 *Alouette* hel; 10 Sov *Petya* II; 3 Br *Leopard* (trg).
Corvettes: 3 Sov *Nanuchka* with 4 SS-N-2 ssm, 1 SA-N-4 SAM.

FAC(a): 14: 6 Sov *Osa-I*, 8 *Osa-II* with 4 *Styx* ssm.
Patrol craft: 8: 2 *Osa-I*, 1 *Abhay*, 5 SDB-2 large.
MCMV: 19: 6 Sov *Natya* ocean; 4 Br *Ham*, 6 Sov *Yevgenya*(, 3 Indian(inshore hunters.
Amph: LST: 2 (1 Br); LST: 7 (6 Sov, 1 Polish *Polnocny*); LCU: 4.
(On order: 4 Sov F-class, 2 Type-1500 subs, 2 *Kashin* cw destroyers, 2 *Godavari* (mod *Leander*) FFG, 2 *Nanuchka* corvettes, 5 *Polnocny* LCT, 1 survey ship, *Exocet* SSM.)

NAVAL AIR FORCE: (2,000); some 36 combat ac, 26 combat hel.

Attack: 1 sqn with 15 *Sea Hawk* FGA-6 (being retired), 8 *Sea Harrier* FRS Mk-51 (2 T-60 trg) (10 ac in carrier).
ASW: 1 ac sqn with 5 *Alizé* 1050 (4 in carrier); 5 hel sqns with 5 Ka-25 *Hormone* A (in *Kashins*), 10 *Sea King*, 11 *Alouette* III (frigates).
MR: 2 sqns: 5 L-1049 *Super Constellation*, 3 Il-38 *May*.
Comms: 1 sqn with 18 PBN *Defender* (?2 MR).
SAR: 1 hel sqn with 10 *Alouette* III.
Trg: 2 sqns: 7 HJT-16 *Kiran*, 2 *Sea Hawk* FB-5, 10 BN-2 *Islander* ac; 4 Hughes 300 hel.
Other ac incl: 5 *Alizé* 1050, 4 *Sea King*.
(On order: 10 *Sea Harrier* Mk 51, 1 T-60; 3 Tu-142M *Bear* MR ac; 12 *Sea King* Mk 42B, 18 Ka-27 *Helix* ASW hel; *Sea Eagle* SSM; *Exocet* AM-39 ASM.)

AIR FORCE: 113,000; 846 combat ac; some 60 armed hel.

5 **Air Commands**.
Bbers: 3 sqns (1 maritime role): 35 *Canberra* B(II)58/B(II)12 (to be replaced), 18 *Jaguar*.
FGA: 12 sqns: 2 (1 forming) with some 7 *Mirage* 2000H; 1 with some 10 *Hunter* F-56A (*Jaguar* to replace); 2 with 50 *Jaguar* GR-1, 6 T-2; 3 with 40 Su-7BM (to retire, 1 sqn with MiG-27 to form 1985); 1 with 50 HF-24 *Marut* (MiG-23BN to replace); 3 with 90 MiG-23BN *Flogger* H.
AD: 20 sqns: 2 with 40 MiG-23MF *Flogger* B; 14 with 260 MiG-21FL/PFMA/MF/bis; 4 with 92 *Ajeet*.
RECCE: 2 sqns: 1 with 8 *Canberra* PR-57, 4 HS-748; 1 with 7 MiG-25R, 1 MiG-25U.
Tpt: ac: 11 sqns: 5 with 95 An-32; 2 with 30 An-12B; 2 with 20 DHC-3; 1 with 16 DHC-4; 2 with 28 HS-748, 2 Boeing 737-248 (leased), 3 Il-76 *Candid*; HEL: 6 sqns with 72 Mi-8.

Comms: 1 HQ sqn with 7 HS-748M.
Liaison flts and dets: 16 HS-748, C-47.
Liaison: 7 hel sqns: 3 with 100 SA-316B *Chetak* (*Alouette* III); 4 with 60 SA-315B *Cheetah* (*Lama*); some with 4 AS-11B ATGW.
Trg Comd: 3 trg and conversion sqns with 11 *Canberra* T-4/-13/-67, 25 *Hunter* F-56/T-66, 40 MiG-21U, 16 Su-7U; 13 MiG-23UM *Flogger* C/L; 5 MiG-27 *Flogger* D/J; 5 *Jaguar*, 60 HT-2, 83 HJT-16 *Kiran*, 15 *Marut* Mk 1T, some 20 HPT-32 (replacing HT-2), 44 TS-11 *Iskra*, 27 HS-748 ac; 20 *Chetak* hel.

AAm: R-23R/T *Apex*, R-60 *Aphid*, R-550 *Magic*, AA-2 *Atoll*.
ASM: AS-30; AS-11B (ATGW).
SAM: 30 bns: 180 *Divina* V75SM/VK (SA-2), SA-3.

Air Defence Ground Environment System.
(On order: some 40 MiG-29, some 33 *Mirage* 2000H, 31 *Jaguar* (to be locally assembled), some 165 MiG-27M, MiG-21bis fltrs; 69 An-32, some 17 Il-76, 3 Do-228 tpts; 90 *Kiran* Mk 2, some 120 HPT-32 trg ac; Mi-17, 10 Mi-26 *Halo*, 45 *Chetak* hel; R-23R *Apex*, R-60 *Aphid* SAM.)

PARA-MILITARY: Border Security Force 85,000; small arms, some Lt arty, tpt/liaison air spt. 175,000 in other orgs incl Assam Rifles. Coastguard 2,000; 2 Br Type 14 frigates, patrol vessels (2 P-957 offshore, 2 SDB-2 fast, 17 inshore), 2 air sqns with 2 F-27, 5 *Defender* ac, 4 *Chetak* hel.
(On order: 4 offshore, 3 inshore defence patrol vessels, 9 Lt tpt ac, 6 hel.)



The Indian Air Force has nearly eighty operational Anglo-French Jaguars, with thirty-one more on order. The IAF uses the Jaguar in bombing, ground attack, and training roles.

INDONESIA

GDP 1983: Rp 71,215 bn (\$72,419 bn), Est 1984: 76,300 bn (\$72,705 bn).
GDP growth 1983: 4.2%, 1984: 4.4%.
Inflation 1983: 12.0%, 1984: 9.0%.
Debt 1983: \$26.0 bn, 1984: \$31.0 bn.
Est def exp 1983/4: Rp 2,485 bn (\$2,527 bn), 1984/5: 2,540 bn (\$2,420 bn).
Est FMA 1983: \$37.0 m, 1984: \$58.0 m.
\$1 = rupiahs 983.375 (1983/4), 1,049.45 (1984/5).
Population: 161,000,000.
Men: 18-30: 17,858,000; 31-45: 12,535,000.
Women: 18-30: 18,394,000; 31-45: 13,244,000.

TOTAL ARMED FORCES:

Regular: 278,050.
Terms of service: conscription, 2 years selective.
Reserves: Army (planned): cadre units; numbers, strengths unknown, obligation to age 45 for officers.

ARMY: 216,000.

10 Military Area Commands. (reorg 1985/6).
2 inf divs (KOSTRAD).
1 armd cav bde (3 cav bns, spt units).
3 inf bdes (9 bns).
2 ab inf bdes (6 bns).
2 fd arty regts (6 bns).
1 AA arty regt (3 bns).
1 fd engr regt (2 bns).
4 special warfare gps.
7 indep cav bns, 1 cav det.
63 indep inf bns (under Military Province Commands (KOREM)).
4 indep ab inf bns.
8 indep fd arty bns.
7 indep AA arty bns; 4 indep bty's.
4 construction engr bns.
Fd engrs: 6 indep bns; 10 indep det's.
Army Avn: 1 composite sqn; 1 hel sqn.
Tks: Lt: some 111 AMX-13, 41 PT-76.
AFV: RECCE: 56 *Saladin*, 58 *Ferret*; MICV: 200 AMX-VC1; APC: 56 *Saracen*, 60 V-150 *Commando*, 80 BTR-40, 24 BTR-152.
Arty: GUNS/HOW: some 30 M-1938 76mm pack, 170 105mm; MOR: 480 81/82mm, M-43 120mm.
ATK: RCL: 480 M-67 90mm, M-40 106mm.
AD: GUNS: 20 20mm, 90 M-1 40mm, 200 57mm; SAM: RBS-70.
Avn: 8 NC-212 *Aviocar*, 2 *Aero Commander* 680, 1 *Beech Super-18* ac; 16 Bell 205, 4 *Alouette III*, 16 BO-105 hel.
AmpH: LST: 1; LCU: 20 300-ton.
Marine spt: 14 tpts.
(On order: some 82 AMX-13 lt tks; 6 Bell 212, *Super Puma* hel; *Rapier* SAM.)
DEPLOYMENT: E, Timor 15,000; 20 inf bns.

NAVY: 36,950 incl naval air and marines.

Bases: Surabaya, Tanjung Priok (Jakarta), Bitung (Celebes); (Teluk Rantai, near Lampung, Sumatra, planned).
2 Fleets (being org 1985).
Subs: 2 *Cakra* (Type-1300).
Frigates: 13: 4 gw with *Exocet* MM-38 ssm; 3 *Fatahillah* (1 with 1 *Wasp* hel); 1 *Hadjar Dew Antara* (Yug; 1 hel); 4 US *Jones*, 1 *Pattimore* (?now non-operational).
Patrol vessels: 24: 3 *Pandorng* (Sov *Kronstadt*), 4 *Layang* (Yug *Kraljevica*), 2 *Andale*, 8 *Sibarau* (Aus *Attack*), 1 *Hui* (US PC-461), 6 *Samadar* (Aus *Carpentaria*) coastal, 1 *Jetfoil* 429 hydrofoil.
FAC: 4 *Andau* (Lürssen PB-57); (c): 4 PSM-5 *Mandau* (*Dagger*) with 4 *Exocet* ssm; (t): 4: 2 Lürssen TNC-45, 2 *Beruang* (FRG).
Minesweepers: 2 *Pulau Rani* (Sov T-43) ocean.
Comd/spt ships: 2.
AmpH: LST: 18 incl 2 comd (with up to 3 hel); LCU: 6; LCM: 28. (3 LST, 22 LCU, 2-4 tpt/cargo in Military Sealift Command).
Spt: 11: 2 cargo ships, 4 tankers (3 harbour), 2 tpts, 1 repair, 1 hospital, 1 trg ship.
NAVAL AIR: (1,000); combat: 19 ac, 14 hel.
ASW: 10 *Wasp*, 4 AS-322 *Super Puma* hel.
MR: 13 N-24B *Nomad*, 6 N-24L.
Other: ac: incl 6 C-47, 6 NC-212, 3 *Aero Commander*; HEL: 2 AS-332F *Super Puma*, 1 *Alouette II*, 4 BO-105.

MARINES: (12,000).

5 regts: 2 inf (each 6 bns), 1 combat spt, 1 admin spt, 1 trg.
Tks: Lt: 30 PT-76. AFV: MICV: 40 AMX-10, PAC-90; APC: 57 incl 25 AMX-10P, BTR-50P. Arty: how: 40 M-38 122mm; MRL: BM-14 140mm. AD: GUNS: 40mm, 57mm.
(On order: 1 Type-1300 sub, 3 *Tribal* frigates (1985), 8 PB-57 FAC, 2 *Lerici*, 1 *Aikmaar* MCMV, 5 *Jetfoil* 429 patrol boats (may be for Coastguard); 18 NC-235 tpt ac; 20 AS-332F *Super Puma* hel (may be for Coastguard).)

AIR FORCE: 25,100; 68 combat aircraft.

2 Air Operations Areas:
FGA: 2 sqns: 27 A-4E, 2 TA-4H *Skyhawk*.
Interceptor: 1 sqn with 11 F-5E, 4 F-5F.
COIN: 1 sqn with 15 OV-10F.
MR: 1 sqn with 1 C-130H-MP, 3 Boeing 737-200, 5 HU-16.
Tpt: 4 sqns: 2 with 21 C-130B/H/H/S, 1 L-100-30; 2 with 1 C-140 *Jetstar*, 7 C-47, 1 SC-7 *Skyvan*, 1 F-28, 8 F-27, 2 NC-212A4, 1 Boeing 707, 12 Cessna 207/401/402.
Hel: 3 sqns: 1 with 9 S-58 (UH-34T); 2 with 5 Bell 204B, 12 SA-330L *Puma*, 12 Hughes 500; 6 NBO-105 (with Forestry).
Trg: 3 sqns: 16 *Hawk* T-53, 24 T-34C1, 20 AS-202 *Bravo* ac; 12 Bell 47G hel.
Quick Reaction Forces:
5 COIN bns.
Spt vessels: 6: 600-ton RoRo cargo ships.
(On order: 8 NC-212-200, 32 NC-235, 3 Transall C-160 tpt ac; (N)BO-105, SA-332 *Super Puma*, Bell 412, BK-117 hel.)
OTHER HQ:
KOSTRAD = Strategic Reserve Command: (16,500-19,000 men); main national force under direct control of the Commander of the Armed Forces; 2 divs, cav bde, special force gps, spt arms and services.
KOPKAMTIB = Command for the Restoration of Order and Security; no forces assigned.
KOPPASSANDHA = Special Forces Command: 4,000; 4 special para/cdo gps.
PARA-MILITARY: Police mobile bde (part of Department of Defence and Security) org in coys: 12,000; 2 BO-105 hel, Militia, about 70,000, Coastguard; many small patrol boats, Customs; 12 28-metre, 8 57-metre *Lürssen* patrol boats (12 FPB-38 on order), Civil Defence Forces (millions registered).
Maritime Security Agency: 6 patrol boats. Police Patrol craft incl 15 armed DKN 140-ton.
Sea Communications (Transport Ministry): 9 SAR craft.

OPPOSITION: Revolutionary Front for an Independent East Timor (FRETLIN): some 700; small arms. Free Papua Movement (OPM): perhaps 100 armed.

IRAN

GDP 1982/3: rial 8,700 bn (\$99.738 bn), 1983/4: 11,276 bn (\$122.687 bn).
GDP growth 1983: 5.2%, Est 1984: 3.4%.
Inflation 1983: 16.0%, 1984: 20.0%.
Def exp 1983/4: rial 1,500 bn (\$17.196 bn), Est 1984/5: 1,853 bn (\$20.162 bn). Est budget 1985/6: 1,295 bn (\$13.877 bn). (Incl war zone reconstruction and revolutionary guard budgets but excl armament industry budget (\$145 m for 1984/5).)
\$1 = rial 84.4523 (1982), 87.2283 (1983), 91.906 (1984), 93.317 (1985).
Population: 43,000,000.
Men: 18-30: 5,158,000; 31-45: 3,406,000.
Women: 18-30: 5,005,000; 31-45: 3,309,000.

TOTAL ARMED FORCES:

Regular: 305,000.
Terms of service: 24 months.
Reserves: Army: 350,000, ex-service volunteers.

ARMY: 250,000 (100,000 conscripts).

(?) Army HQ.
3 mech divs (each 3 bdes: 9 armd, 18 mech bns).
7 inf divs.
1 ab bde.
1 Special Forces div (4 bdes).
Some indep armd, inf bdes (incl 'coastal force').
12 SAM bns with *HAWK*.
Reserve: 'Quds' (bns, ex-service volunteers).
Ground Forces Air Support units.
(Losses and incomplete reporting of resupply makes estimates very tentative. Reports of Chinese tk and ac deliveries unconfirmed; MRL identified. Operational status of US-source equipment impossible to determine precisely.)
Tks: 1,000: T-54/55, 50 T-62, 100 T-72, 300 *Chieftain* Mk 3/5, 200 M-47/48, 250 M-60A1; Lt: 50 *Scorpion*.
AFV: RECCE: 130 EE-9 *Cascavel*; MICV: 180 BMP-1; APC: perhaps 250 M-113, 500 BTR-40/-50/-60/-152, perhaps 250 M-113.
Arty: some 1,200: GUNS: 1,000 M-116 75mm pack, M-1965 85mm, M-46 130mm towed, 30 M-107 175mm SP; HOW: M-101 105mm, M-114 towed, M-109A1 SP 155mm, M-115 towed, 10 M-110 SP 203mm; MRL: Ch Type-63 12 x 107mm, 65 BM-21 40 x 122mm; MOR: 81mm, M-30 4.2-in (107mm), 3,000 120mm; SSM: *Scud*.
ATK: RCL: 57mm, 75mm, M-40A/C 106mm; GUNS: some 120 ASU-85 SP; ATWG: ENTAC, SS-11/-12, M-47 *Dragon*, BGM-71A *TOW*.
AD: GUNS: 1,500 ZU-23 towed, ZSU-23-4 SP 23mm, 37mm

towed, ZSU-57-2 SP 57mm, 85mm towed; SAM: *HAWK/Improved HAWK*, SA-7.
Ac incl 46 Cessna (185, 310), 10 O-2A, 2 F-27, 5 *Shrike Commander*, 2 *Mystère-Falcon*. HEL (ATTACK): AH-1 *Cobra*; (HY TPT): CH-47C, (270 Bell 214A, 35 AB-205A, 15 AB-206 were also held.)
(Captured Iraqi expt in service.)
(On order: 100 TAM, 200 Ch T-58 MBT; Type-60 122mm gun, Type-54 122mm how, Type-59 130mm gun; Type-63 107mm, 40 x 122mm MRL.)

REVOLUTIONARY GUARD CORPS: (*Pasdaran*): 250,000; some 10 divs org in bdes; some indep bdes. In bns may include armd, arty, engr, av units. Serve indep or with Army; small arms, spt weapons from Army, Naval elm; some Air.

NAVY: 20,000, incl naval air and marines.
Bases: Bandar Lengeh, Bandar Abbas, Bushehr, Kharg, Bandar-e-Anzelli, Bandar-e-Khomeini, Chah Bahar (building).
Destoyers: 3 with 4 *Standard* ssm; 1 Br *Battle* with 1 x 4 *Seacat* SAM; 2 US *Sumner* (in reserve).
Frigates: 4 *Saam* with 1 x 5 *Seakiller* ssm, 1 x 3 *Seacat* SAM (1 probably non-operational).
Corvettes: 1 US PF-103.
FAC(g): 7 *Kaman* (*La Combattante II*) with a total of 7 *Harpoon* ssm (73 serviceable).
Patrol craft: 7 large (5 lost?); 3 Improved PGM-71, 4 *Cape*; 2 BH-7 hovercraft.
MCMV: 2 US coastal.
AmpH: LST: 4 *Hengam*; LCU: 1 US.
Spt: 1 replenishment, 2 fleet supply, 1 repair ships.
Marines: 3 bns.
(On order: 6 Type-120C subs.)

NAVAL AIR: 2 combat ac, 12 combat hel.
MR: 1 sqn with 2 P-3F *Orion*.
ASW: 1 hel sqn with 12 SH-3D } many have
MCM: 1 hel sqn with 2 RH-53D } combined.
Tpt: 1 sqn with 4 *Shrike Commander*, 4 F-27, 1 *Mystère-Falcon* 20, 7 AB-212.

AIR FORCE: 35,000; perhaps 80 serviceable combat ac, FGA: 8 sqns: 4 with some 35 (???) F-4D/E; 4 with some 45 F-5E/F.
Interceptor/FGA: (???) F-14.
Recce: 1 sqn (dets) with some 5 F-14A, 3 RF-4E.
Tanker/tpt: 2 sqns: 10 Boeing 707, 7 747.
Tpt: 5 sqns: 26 C-130E/H, 10 F-27, 2 *Aero Commander* 690, 4 *Mystère-Falcon* 20.
Hel: 10 Sikorsky S-55 (HH-34F), 10 AB-206A, 5 AB-212, 39 Bell 214C, 10 CH-47 *Chinook*, 2 Sikorsky S-61A4.
Trg: incl 26 F-33A/C *Bonanza*, 7 T-33, 46 PC-7.
SAM: 5 sqns: *Rapier*, 25 *Tigercat*.
AAM: *Phoenix*, AIM-9 *Sidewinder*, AIM-7 *Sparrow*.
ASM: AS-12 *Maverick*.
(On order: 12 Ch J-6 FGA; trg ac; 11 CH-47 tpt hel; CSA-1 SAM.)

Forces Abroad: Lebanon: Revolutionary Guard,

PARA-MILITARY: *Basidj* 'Popular Mobilization Army' volunteers, mostly youths; small arms, ancillary to main field forces. *Gendarmerie* (70,000 incl border guard element), *Mostazafin* (Guards), *Hezbollahi* (Home Guard) 2,500,000. Border Tribal Militia. Cessna 185/310 lt ac, AB-205/206 hel, patrol boats.

IRAQ

Est GDP 1982: ID 10,324 bn (\$34,598 bn), 1983: 9,50 bn (\$30,556 bn).
GDP growth 1982: -6.0%, 1983: -8.5%.
Inflation 1983: 18.0%, 1984: 22.0%.
Est debt 1983: \$35 bn, 1984: \$40-45 bn. (Incl loans from GCC states and massive credits from the USSR, France and Brazil.)
Est def exp 1983: ID 3.20 bn (\$10.293 bn), 1984: 4.30 bn (\$13.831 bn).
\$1 = dinar 0.2984 (1982), 0.3109 (1983/4).
Population: 15,000,000.
Men: 18-30: 1,699,000; 31-45: 1,144,000.
Women: 18-30: 1,631,000; 31-45: 1,104,000.

TOTAL ARMED FORCES:

Regular: 520,000.
Terms of service: basic 21-24 months, extended for war.
Reserves: Army 75,000.

ARMY: 475,000. (Losses and incomplete reporting of resupply makes estimates very tentative.)
4 corps HQ.
6 armd divs ('Type' comprises 1 armd, 1 mech bde; varies).

5 mech/mot inf divs.
5 inf divs.
4 mountain divs.
1 Presidential Guard div (2 armd, 1 inf, 1 cdo bdes).
2 special forces divs (6 bdes).
9 Reserve bdes.
15 Peoples Army/volunteer inf bdes.

Tks: 2,900: T-54/-55/-62/-72, 450 T-55E (Ch T-59), 200 Ch T-69, 50 Rom M-77, (?150) *Chieftain* Mk 3/5; **tr:** 250 PT-76. **AFV:** about 3,000; **RECCO:** incl BRDM-2, FUG-70, ERC-90, MOWAG *Roland*, 200 EE-9 *Cascavel*, EE-3 *Jararaca*; **micv:** 500 BMP; **APC:** BTR-50/-60/-152, OT-62/-64, 100 VC-TH (with *HOT* ATGW), M-113A1, Panhard M-3, 900 EE-11 *Urutu*.

Arty: **guns:** some 3,500 incl 75mm pack, 1,000 85mm, 50 SU-100 100mm SP, ISU 122mm SP and M-46 130mm, some 5 GCT 155mm SP; **GUN/HOW:** 150 GHN-45 155mm; **how:** M-56 pack, M-102 105mm, D-30 towed, M-1936, M-1974 122mm SP, M-1943, M-1955 towed, M-1973 SP 152mm, M-114/M-109 SP 155mm; **MRL:** FGT 108-R (SS-06) 108mm, BM-21 122mm, 22 *ASTROS II* 127mm, BM-14 140mm; **SSM:** 19 *FROG-7*, 9 *Scud-B*, 15 SS-12; **MOR:** 120mm, 160mm.

ATK: **rcl:** SPG-9 73mm, B-10 82mm, 107mm; **guns:** 85mm, 100mm towed, 100 JPz SK-105 105mm SP; **ATGW:** *Sagger*, SS-11, *Milan*, *HOT* (incl Panhard M-3 SP).

Avn (Army Air Corps): **HEL (ATTACK):** (?45) Mi-24 *Hind*; 15 SA-342 *Gazelle* (with *HOT*); 5 *Super Frelon*, some with *Exocet* AM-38 ASM; some *Alouette III* with AS-12 ASM; some 44 BO-105 with SS-11 ATGW; **ATGW:** 360 *HOT*, AS-11-12, *Swatter*.

AD: **guns:** 4,000: 23mm, ZSU-23-4 SP, M-1939 and twin 37mm, 57mm incl ZSU-57-2 SP, 85mm, 100mm, 130mm; **SAM:** 120 SA-2, 150 SA-3, SA-6, SA-7, SA-9, 30 *Roland*.

(Captured Iranian eqpt in service.)
(On order: 140 M-77, T-62 MBT; 100 EE-9 *Cascavel*, EE-3 *Jararaca* recce; 80 EE-11 *Urutu* APC; some 80 GCT 155mm SP guns; M-1973 152mm SP, 38 *ASTROS II* 127mm MRLS; SS-11 ATGW; X-40, *Scud B* SSM; Mi-24 hel; SAM.)

NAVY: 5,000.
Bases: Basra, Umm Qasr.

Frigate: 1 (trg).

FAC: (a): 10 *Osa* with 4 *Styx* SSM; (t): 5 P-6.

Patrol craft: **LARGE:** 3 SO-1; **COASTAL:** 8: *Poluchat*, *Nyryat II*, PO-2, *Zhukl*.

MCMV: **MINESWEEPERS:** 2 Sov T-43 ocean, 3 *Yevgenya* (3 *Nestin*) inshore.

Amph: LCR: 3 *Polinochny*.

Spt ship: 1.
(On order: 4 *Lupo* FFG, 6 *Itassad* 685-ton corvettes, 3 LST, 1 *Stromboli* (reported commissioned but undelivered), 1 *Agnadeen* tanker, 1 tpt); *Otomat-2* SSM, *Albatros/Aspide* SAM.)

AIR FORCE: 40,000 incl 10,000 AD personnel; some 500 combat ac, perhaps 1000 armed hel.

Bbirs: 2 sqns: 1 with perhaps 7 Tu-22, 1 with 8 Tu-16.

FGA: 11 sqns: 4 with some 48 MiG-23BM; 6 with some 75 Su-7 and 50 Su-20; 1 with 8 *Mirage* F-1.

Interceptors: 5 sqns: some 25 MiG-25, some 40 MiG-19, some 200 MiG-21, 6 *Mirage* F-1EQ, 4 F-1BQ.

Recce: 1 sqn with 5 MiG-25.

Tpt ac: 2 sqns: 10 An-2 *Colt*; 10 An-12 *Cub*, 6 An-24 *Coke* (retiring); 2 An-26 *Curl*, 13 Il-176 *Candid*, 2 Tu-134 *Crusty*, 13 Il-14 *Crate*, 1 *Heron*; **HEL (HY):** 5 Mi-6 *Hook*; **(MED):** 60 Mi-8, 20 Mi-4, 10 SA-330 *Puma*; **(LT):** some 20 *Alouette III*, 35 *Gazelle*.

Trg: incl MiG-15/-21/-23U, Su-7U, *Hunter* T-69; 10 Yak-11 *Moose*, 10 L-29 *Delphin*, 10 L-39 *Albatross*, 48 AS-202/18A, 16 MBB-223 *Flamingo*, 50 PC-7 *Turbo-Trainer*.

AAM: R-530, R-550 *Magic*, AA-11/-2/-6/-7/-8.

ASM: *Exocet* AM-39, AS-4 *Kitchen*, AS-5 *Kelt*.

(On order, status unclear: some 90 MiG-23/-25, 31 *Mirage* F-1, 100 Ch J-7 ftrs; 30 Su-20, 80 EMB-312 *Tucano* trg ac (Egypt); 3 *Super Frelon*, 10 *Gazelle*, *Lynx*, 26 *Puma*, 6 AS-61TS, 8 AB-212 (ASW) hel; MPS-1, 20 *Exocet* AM-39 ASM; *Super* 530 AAM.)

PARA-MILITARY:
Frontier Guards. Security troops 4,800. People's Army 650,000.

IRELAND

GDP 1983: £14,477 bn (\$18,026 bn). Est 1984: 16,069 bn (\$17,466 bn).
GDP growth 1983: 0.6%. 1984: 3.5%.
Inflation 1983: 10.6%. 1984: 8.6%.
Debt 1983: \$18.9 bn. 1984: \$16.1 bn.
Def exp 1984: £260 m (\$282.639 m). Budget 1985: 277 m (\$278.588 m).
\$1 = £0.8031 (1983), 0.9199 (1984), 0.9943 (1985).
Population: 3,596,000.
Men: 18-30: 391,000; 31-45: 316,000.

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Women: 18-30: 375,000; 31-45: 304,000.

TOTAL ARMED FORCES:
Regular: 13,742.
Terms of service: voluntary, 3-year terms to age 60, officers 65.
Reserves: 16,358 (obligation to age 60, officers 57-65).
Army: 1,174 first-line, (?14,823) second-line. **Navy** (?361), 5 coys.

ARMY: 11,944.
1 inf force (2 Inf bns).
4 inf bdes: 2 with 2, 1 with 3 inf bns, 1 fd arty regt, 1 motor recce sqn, 1 engr coy; 1 with 2 inf bns, 1 armd recce sqn, 1 fd arty bty.
Army tps: 1 tk sqn, 1 AD regt, 1 Ranger coy.
Total units:
12 inf bns (3 with micv coy; 1 UNIFIL bn *ad hoc*—dets from other bns).
1 tk sqn.
4 recce sqns (1 armd).
3 fd arty regts (each of 2 bty); 1 indep bty.
1 AD regt (1 regular, 3 reserve bty).
3 fd engr coys.
1 Ranger coy.
Reserves:
4 Army Gps (garrisons).
6 inf bns.
6 fd arty regts.
3 motor sqns.
3 engr sqns.
3 supply, 8 tpt coys.
3 sigs coys.
3 AA bty.

Tks: **LT:** 12 *Scorpion*. **AFV:** **RECCO:** 20 AML-90, 32 AML-60; **APC:** 60 Panhard VTT/M3, 10 *Timoney*. **Arty:** **guns:** 12 105mm lt; **GUN/HOW:** 35 25-pdr; **MOR:** 199 60mm, 250 81mm, 72 120mm. **ATK:** **rcl:** 447 *Carl Gustav* 84mm, 96 PV-111 90mm; **ATGW:** 4 *Milan*. **AD:** **guns:** 24 L/60, 2 L/70 40mm; **SAM:** 4 RBS-70.

NAVY: 912 (to be increased to about 1,500).
Base: Cork.
Patrol craft: 1 P-31 offshore, 4 coastal.
MCMV: 2 Br *Ton* coastal (fishery protection).
Hel: 3 SA-365F *Dauphin II* (for P-31, 2 to be delivered Sept 1985).

AIR FORCE: 886; 15 combat ac.
3 Wings (1 trg):
COIN: 1 sqn: 6 CM-170-2 *Super Magister*.
COIN/trg: 1 sqn with 9 SF-260WE ac, 2 SA-342L *Gazelle* trg hel.
Liaison: 1 sqn with 7 Reims *Cessna* F-172H, 1 F-172K.
Hel: 1 sqn with 8 *Alouette III*.
Composite sqn: 3 *King Air* (2 MR, 1 trg), 1 HS-125-700 (VIP).
(On order: 3 SA-365F *Dauphin II* MR hel.)

Forces Abroad: (759). Cyprus (UNFICYP) 8. Lebanon (UNIFIL) 1 bn + (730); 4 AML-90 armd cars, 13 VTT/M-3 APC, 4 120mm mor. Other Middle East (UNTSO) 21.

ISRAEL

GDP 1983: IS 1,414.5 bn (\$25,164 bn). 1984: 6,844.7 bn (\$23,344 bn).
GDP growth 1983: 1.8%. 1984: 1.6%.
Inflation 1983: 191%. 1984: 445%.
Debt 1983: \$28.0 bn. 1984: \$30.0 bn.
Est def exp 1984: IS 1,700 bn (\$5,798 bn). 1985: 3,600 bn (\$3,621bn). (Hyper-inflation and continued conflict in Lebanon will increase operational and ordinary budget outlays, despite proposed budget cuts. Israel will have to rely on continuous US military aid, which has so far reached a total of \$18.3 bn.)
FMA 1983: \$1.70 bn. 1984: \$1.76 bn.
\$1 = shekels 56.21 (1983), 293.21 (1984), 994.07 (1985).
Population: 4,300,000.
Men: 18-30: 464,000; 31-45: 403,000.
Women: 18-30: 441,000; 31-45: 397,000.

TOTAL ARMED FORCES:
Regular: 142,000.
Terms of service: Military service: men 39 months, women 24 months (Jews, Druze only; Christians and Arabs may volunteer). Annual training for reservists thereafter to age 54 for men, 34 (or marriage) for women.
Reserves: 370,000 (all services). **Army** 310,000, **Navy** 10,000, **Air Force** 50,000.

ARMY: 104,000 (88,000 conscripts, male and female); some 400,000 on mobilization.
11 armd divs } many at
33 armd bdes (3 tk, 1 mech } cadre
inf bns) strength.
5 mech inf bdes.

5 para bdes.
12 territorial/border inf bdes with *Nahal* militia.
15 arty bdes (each 5 bns of 3 bty).
AD: 2 *Vulcan/Chaparral* bty.
Tks: 3,600 incl 1,100 *Centurion*, 600 M-48A5, 1,210 M-60/A1/A3, 250 T-54/-55, 150 T-62, 250 *Merkava I/II*.
AFV: **RECCO:** about 4,000 incl *Ramta*, RBY, BRDM-2, M-2/-3; **APC:** 4,000 M-113, OT-62, BTR-50P. (Does not include captured PLO equipment: T-34, T-54, APC, 130mm guns, BM-21 MRL, ZSU-23-4 AA guns, SA-9 SAM.)
Arty: **guns:** M-46 130mm, 140 M-107 175mm SP; **how:** 70 M-101 105mm, 100 D-30 122mm, M-68/-71 155mm towed, 300 *Soltam* M-68, M-50, M-72, 300 M-109A1/A2 155mm, 48 M-110 203mm SP; **MRL:** BM-21 122mm, LAR-160 160mm, BM-24 240mm, MAR-290 290mm; **SSM:** MGM-52C *Lance*, *Ze'ev* (*Wolf*); **MOR:** 900 81mm, 120mm and 160mm (some SP).
ATK: **rcl:** B-300 82mm; **rcl:** 106mm; **ATGW:** BGM-71 *TOW*, *Cobra*, M-47 *Dragon*, *Picket* 81mm.
AD: **guns:** 24 M-163 *Vulcan* 20mm gun and M-48 *Chaparral* msl systems, 900 20mm, ZSU-23-4 23mm SP, 30mm, 37mm and L-70 40mm; **SAM:** MIM-42A *Fedeye*. (Does not include captured PLO equipment: T-34, T-54, APC, 130mm guns, BM-21 MRL, ZSU-23-4 AA guns, SA-9 SAM.)
(On order: *Merkava*, 125 M-60 MBT, *Re'em* AFV; 800 M-113 APC; 200 M-109A1B SP 155mm how, M-107 175mm SP guns; *Lance* SSM, *TOW*, *Dragon* ATGW.)

NAVY: 10,000 (3,300 conscripts), 10,000 on mobilization. **Bases:** Haifa, Ashdod, Eilat.
Subs: 3 Type 206.
Corvettes: 6 *Aliya* (Sa'ar-4.5) with 4 *Gabriel* and 4 *Harpoon* SSM, 1 Bell 206 ASW hel.
FAC(a): 24: 9 *Reshef* (Sa'ar-4) with 5 *Gabriel III*, 4 *Harpoon* SSM; 6 Sa'ar III with 3 *Gabriel* 3, 1 x 2 *Harpoon*; 6 Sa'ar II with 5 *Gabriel* 2; 1 *Dvora* with 2 *Gabriel* 3; **HYDROFOIL:** 2 *Shimrit* (Flagstaff 2) with 2 *Gabriel* 3, 2 *Harpoon* SSM; 1 *Snapir* with 4 *Harpoon*, 2 *Gabriel* SSM.

Patrol craft: 45 coastal (37 *Dabur*, 2 *Dvora*, 6 *Yatush*).
Amph: **LSM:** 3; **LCt:** 6; **LCM:** 3.
MR ac: 7 *Seascan* 1124N.
Naval cdo: (300).
(On order: 5 Sa'ar-5 corvettes, 10 *Shimrit* hydrofoils.)

AIR FORCE: 28,000 (2,000 conscripts, in AD), 37,000 on mobilization; some 684 combat ac (perhaps 90 stored), 60 armed hel.
FGA/interceptor: 15 sqns: 2 with some 46 F/TF-15: 5 with 131 F-4E; 5 with 150 *Kfir* C1/C2/C7; 3 with 67 F-16A, 8 F-16B.
FGA: 4 sqns with 130 A-4N/J *Skyhawk*.
Recce: 13 RF-4E, 2 OV-1E.
AEW: 4 E-2C.
ECM: 4 Boeing 707 (some comd), 2 C-130, 4 RU-21J.
Tpt: 1 wing: incl 7 Boeing 707 (2 tanker mods), 20 C-130E/H, 18 C-47, 2 KC-130H.
Liaison: 1 *Islander*, 5 Do-27, 14 Do-28D; 18 *Cessna* U-206C, 2 T-41D, 2 180; 12 *Queen Air* 80; 2 *Westwind*; 20 *Super Cub*.
Trg: incl 73 TA-4E/H, 50 *Kfir* (incl TC-2), 85 *Magister/I* *Tzugit*.
Hel: **ATTACK:** 1 sqn with 30 AH-1G/S, 1 with 28 Hughes 500MD; **ECM/SAR:** 1 sqn with 37 Bell 206, 212; **TPT (HY):** 17 CH-53A/D; **(MED):** 8 SA-321 *Super Frelon*, 17 UH-1D; **(LT):** 2 sqns with 50 Bell 206A, 212.
Drones: *Mastiff* 3, *Scout*, *Teledyne* Ryan 124R, MQM-74C *Chukar II*.
SAM: 15 bns with MIM-23B *HAWK/Improved HAWK*.
AAM: AIM-9/-9L *Sidewinder*, AIM-7E/F *Sparrow*, *Shafir*, *Python III*.
ASM: *Luz*, AGM-65 *Maverick*, *Shrike*, AGM-62A *Walleye*, *Bullpup*, *Gabriel III* (mod).
(On order: some 5 F-15 (end 1985), 75 F-16 ftrs; 60 *Kfir*-C7 and TC-2 trg ac; 200 *Improved HAWK* SAM; 200 *Sidewinder* AAM.)

Forces Abroad: Lebanon (est 500).

PARA-MILITARY: Border Guards 4,500; BTR-152 APC. Arab Militia; small arms. Coastguard: 3 US PBR, 3 other patrol craft (1 *Gadna* (youth bns), volunteers 15-18. Premilitary service trg by Defense Force.

IVORY COAST

GDP 1982: fr CFA 2,484.0 bn (\$7,559 bn). 1983: 2,497.7 bn (\$6,554 bn).
GDP growth 1982: 1.8%.
Inflation 1983: 7.4%. 1984: 4.3%.
Debt 1983: \$6.30 bn. 1984: \$7.0 bn.
Def budget 1984: fr CFA 31,262 bn (\$71,544 m). (Incl equipment cost.) 1985: \$2,203 m (\$68,005 m). (Excl equipment costs and internal security budget.)
Est FMA 1983: \$350 m. 1984: \$500 m.

\$1 = francs CFA 328.62 (1982), 381.07 (1983), 436.96 (1984), 473.54 (1985).

Population: 9,471,000.
Men: 18-30: 1,087,000; 31-45: 965,000.
Women: 18-30: 967,000; 31-45: 732,000.

TOTAL ARMED FORCES:

Regular: 13,220 (incl full time para-military).

Terms of service: conscription (selective), 6 months.
Reserves: 12,000.

ARMY: 6,100.

4 Military Regions:
3 inf bns.
1 armd sqn (bn being formed).
1 arty bty (gp being formed).
1 AA arty bty.
1 engr coy.
1 HQ coy.
1 spt coy.
1 para coy.

Tks: LT: 5 AMX-13. **AFV:** RECCE: 7 ERC-90; APC: 16 M-3. **Arty:** how: 4 105mm; MOR: 81mm, 16 120mm, ATK: RL: 89mm STRIM. **AD:** GUNS: 10 20mm, 5 40mm towed, 4 M-3 VDA 20mm sp.

NAVY: 690.

Base: Abidjan.
FAC(g): 2 *Patra*: (4 *Exocet* MM-40).
Patrol craft: 8; 2 *Vigilant* (PR-48), 4 *Ancor-26*, 2 -31 launchers.
Amph: 1 *Batral* LSM, 13 assault boats.
Trg ship: 1.

AIR FORCE: 930; 6 combat ac.

FGA: 1 sqn with 6 *AlphaJet*.
Tpt: 1 sqn with: AC: 3 F-27, 4 F-28, 6 F-33C *Bonanza*; HEL: 3 SA-330 *Puma*, 2 *Alouette* III, 2 SA-365C *Dauphin*.
Liaison/vip: 1 flt with: AC: 1 F-26 Mk 4000, 1 *Metro*, 2 *Gulfstream* II/III; HEL: 1 *Puma*.
Other: AC: 2 Reims Cessna F-337, 1 Cessna 421, 1 *King Air*; HEL: 2 SA-365C *Dauphin*.

PARA-MILITARY: 7,800: Presidential Guard 1,100. Gen-darmierie 4,400; 4 patrol boats. Militia 1,500. Military Fire Service 800.

JAMAICA

GDP 1982: \$J 5,807 bn (\$US 3,260 bn). 1983: 6,750 bn (\$US 3,789 bn).

GDP growth 1982: 1.0%. 1983: 1.4%.
Inflation 1983: 17.0%. 1984: 31%.
Debt 1983: \$US 2.66 bn. 1984: \$US 3.40 bn.
Est def budget 1983/4: \$J 90 m (\$US 38.88 m). 1984/5: 112.3 m (\$US 25.43 m).
FMA 1983: \$US 3.5 m. 1984: \$US 4.2 m.
\$US 1 = \$J 1.7814 (1982/3), 2.315 (1983/4), 4.4167 (1984/5).

Population: 2,330,000.
Men: 18-30: 315,000; 31-45: 121,000.
Women: 18-30: 315,000; 31-45: 145,000.

TOTAL ARMED FORCES (all Services form part of the Army):

Regular: 2,100.
Terms of service: voluntary.
Reserves: some 1,300 (1 inf bn, some 400 may be serving with the regular units).

ARMY: 1,780.

2 inf bns, 1 spt bn.
APC: 10 V-150 *Commando*. **Arty:** 12 81mm mor.

NAVY: 150.

Patrol boats: 1 115-ft, 3 85-ft coastal.

AIR FORCE: 170.

Ac: 2 *Islander*, 1 *King Air*, 2 Cessna 185.
Hel: 4 Bell 202, 3 212.

PARA-MILITARY: Mobile Reserve: 1,500 (part of the police).

JAPAN

GDP 1982: yen 264,798 bn (\$1,061 bn). 1983: 274,919 bn (\$1,163 bn).

GDP growth 1983: 3.4%. 1984: 5.7%.
Inflation 1983: 1.9%. 1984: 2.8%.
Debt 1983: \$112.0 bn. 1984: \$115.0 bn.
Def exp 1984/5: yen 2,934.6 bn (\$12.018 bn). 1985/6: 3,137.0 bn (\$12.471 bn). (Salary increases of 3.4% will raise defence outlay.)

\$1 = yen 249.638 (1982/3), 236.328 (1983/4), 244.193 (1984/5), 251.54 (1985).

Population: 121,800,000.
Men: 18-30: 10,859,000; 31-45: 14,420,000.
Women: 18-30: 10,515,000; 31-45: 14,367,000.

TOTAL ARMED FORCES:

Regular: 243,000.
Terms of service: voluntary.
Reserves: Army 43,000; Navy 600.

ARMY: 155,000.

5 Army HQ (Regional Commands).
1 armd div.
12 inf divs (5 at 7,000, 7 at 9,000 men each).
2 composite bdes.
1 AB bde.
1 arty bde, 2 arty gps; 8 SAM gps (each of 4 btys).
1 sigs bde.
5 engr bdes.
Avn: 1 hel bde: 24 sqns, 2 ATK hel platoons forming.
Tks: some 530 Type 61 (retiring), some 540 Type 74 (increasing).
AFV: APC: 430 Type 60, 120 Type 73.
Arty: GUNS/how: 330 105mm (incl some 20 Type 74), some 340 155mm SP (incl 180 Type 75), 80 203mm (incl some 20 SP); MRL: some 60 Type 75 130mm SP; SSM: 50 Type 30; MOR: 780 81mm, 560 107mm (some SP).
ATK: RCL: 1,840 75mm, *Carl Gustav* 84mm, 106mm (incl Type 60 SP); ATGW: 220 Type 64, some 40 Type 79.
AD: GUNS: 100 35mm twin, 37mm, 40mm (incl M-42 SP), 75mm; SAM: some 10 Type 81 *Tan*, 70 *HAWK*, 130 *Improved HAWK*.
Avn: AC: 32: 21 LR-1, 2 TL-1, 9 L-19; HEL: 390: 10 AH-1S, 60 KV-107, 80 UH-1H, 60 UH-1B, 30 TH-55, 150 OH-6J/D. (On order: 60 Type 74 MBT; 15 Type 73 APC; 13 Type 75, 38 FH-70 (176 planned) 155mm, 24 M-110A2 203mm SP how; 12 Type 79 HTAW; 22384mm rcl; 61 *Stinger*, 10 Type 81 *Tan* launchers; 16 AH-1S ATK, 9 OH-6D II, 4 UH-1H, 2 CH-47 tpt hel.)

NAVY: 44,000 (including naval air).

Bases: Yokosuka, Kure, Sasebo, Maizuru, Ominato.
Subs: 14: 6 *Yushio*, 7 *Uzushio*, 1 *Asahio* (to retire).
Destroyers: 31: 2 *Shirane* with *Sea Sparrow* SAM, 1 × 8 ASROC, 3 ASW hel; 2 *Haruna* with 1 × 8 ASROC, 3 ASW hel; 7 *Hatsuyuki* with 2 × 4 *Harpoon* SSM, 1 *Sea Sparrow*, 1 × 8 ASROC, 1 ASW hel; 3 *Tachikaze* with *Tartar* Standard SAM, 1 × 8 ASROC; 1 *Amatsukaze* with 1 Standard SAM, 1 × 8 ASROC; 4 *Takatsuki* with 1 × 8 ASROC; 6 *Yamagumo* (2 to be modernized) with 1 × 8 ASROC; 3 *Minegumo* with 1 × 8 ASROC; 1 *Akizuki*; 2 *Ayanami*.
Frigates: 18: 3 with 2 × 4 *Harpoon* SSM (2 *Yubari*, 1 *Ishikari*); 11 *Chikugo* with 1 × 8 ASROC; 4 *Isuzu*.
Patrol craft: 11: 2 *Mizutori* large; 9 coastal.
FAC(tr): 5 35-metre.
MCMV: 47: 3 spt ships, 32 coastal minesweepers (13 *Hatsushima*, 19 *Takami*), 6 *Nanago* boats, 6 diving tenders.
Trg/spt: 36: 1 *Katori*, 5 *Ayanami*, 3 *Mizutori*, 1 *Azuma*, 3 *Murasame*, 2 *Umitaka*, 1 *Akizuki*; 1 *Chigoda* sub depot, 2 sub rescue; 20 other.
Amph: Lstr: 6 (3 *Miura*, 3 *Atsumi*); Lsu: 2.

NAVAL AIR ARM: (12,000); combat: 84 ac, 64 hel.
6 Air Wings.

MR: 7 sqns: 2 sqns with 16 P-3C (2 more (30 ac) to form); 55 P-2J, 13 PS-1.

ASW: 6 hel sqns with 57 HSS-2/2A/B *Sea King*.
Test: 1 sqn with 2 P-3C, 3 P-2J ac; 3 HSS-2A, 2 -B hel.
SAR: 7 flts: 8 US-1A ac, 14 S-61A/2 hel.
Trg: 5 sqns: incl ocu with 19 P-2J, 6 YS-11T, 20 TC-90, 4 B-65, 32 KM-2 ac; 10 HSS-2, 6 OH-6J/D, 3 Bell 47G hel. (On order: 3 *Yushio* subs; 2 *Hatakaze* (Type 171), 9 *Hatsuyuki* dog; 2 *Hatsushima* MCMV; 1 combat spt ship; 22 P-3C, 1 *Learjet* 36 (U-36A), 1 TC-90 ac; 12 HSS-2B, 2 SH-60B *Seahawk* ASW, 1 S-61A, 2 OH-6D, 2 US-1A hel.)

AIR FORCE: 44,000, some 270 combat ac.

6 combat air wings; 1 combat air gp; 1 recce sqn.
FGA: 3 sqns: 50 F-1.
Interceptors: 10 sqns: 3 with some 60 F-15J/DJ (1 more forming 1985); 6 with 110 F-4EJ; 1 with 30 F-104J.
Recece: 1 sqn with 10 RF-4EJ, ewng gp with 6 E-2C.
Aggressor trg: 1 sqn with 5 T-2, 6 T-33.
Tpt: 1 tactical wing: 3 sqns: 20 C-1, 10 YS-11, 4 C-130H.
SAR: 1 wing (9 dets) with MU-2 ac, 29 V-107 hel.
Test: 1 wing with 20 F-4EJ, 2 F-15J, F-104J/DJ, 2 T-1, 10 T-2, 2 T-3, T-33A, C-1, 2 C-130H.
Air traffic control/weather: 1 wing with YS-11, MU-2J, T-33A.
Trg: 5 wings: 10 sqns: 40 T-1A/B, 60 T-2, 40 T-3, 50 T-33A.
AAM: *Sparrow*, *Sidewinder*.

Air Defence:

Aircraft control and warning: 3 wings and 1 group; 28 radar sites.
SAM: 6 gps: 19 sqns: 180 *Nike-J* (*Patriot* to replace), 1 Air

fd Def sqn: 20mm *Vulcan* AA gun, Type 81 *Tan*, *Stinger*. (On order: 53 F-15J/DJ, 7 F-1 fltrs, 2 C-130H tpt ac; 1 CH-47 *Chinook*, 3 KV-107 hel; 4 Type 81 *Tan* SAM launchers, 2 btys *Patriot* SAM (24 btys planned).)

PARA-MILITARY: 20,000: Coast Guard; 43 large (6 with 1 hel), 47 med, 19 small, 221 coastal patrol vessels; 98 misc service, 83 tender/trg vessels; 1 C-130HMP, 5 YS-11A, 2 *Skyvan*, 15 *King Air*, 1 Cessna U-206G ac; 29 Bell 212, 4 206B, 2 Hughes 269S hel. (On order: 1 large, 2 medium, 1 coastal patrol craft.)

JORDAN

GDP 1983: JD 1,434 bn (\$3.950 bn). 1984: 1,523 bn (\$3.965 bn).

GDP growth 1983: 5.4%. 1984: 2.4%.
Inflation 1983: 5.4%. 1984: 6.8%.
Debt 1983: \$2.4 bn. 1984: \$2.9.
Def budget 1984: JD 204.63 m (\$532.752 m). 1985: 206.0 m (\$508.893 m).
FMA (excl Gulf Co-operation Council aid) 1983: \$52.8 m. 1984: \$210 m.

\$1 = dinar 0.363 (1983), 0.3841 (1984), 0.4048 (1985).
Population: 2,650,000 (excl West Bank).
Men: 18-30: 397,000; 31-45: 212,000.
Women: 18-30: 360,000; 31-45: 205,000.

TOTAL ARMED FORCES:

Regular: 70,300.
Terms of service: voluntary. People's Army (militia, forming): conscription, 2 years authorized.
Reserves (all Services): 35,000. Army 30,000 (obligation to age 40).

ARMY: 62,750.

5 armd bdes.
6 mech bdes.
2 indep inf bdes.
1 indep Royal Guards bde.
1 Special Forces bde (3 AB bns).
15 arty bns.
4 AA bdes.

Tks: 795: 140 M-47/48A5, 186 M-60A1/A3, 278 *Khalid*, 191 *Centurion*. **APC:** 850 M-113, 32 *Saracen*. **Arty:** GUNS: 17 M-59 155mm; how: 36 M-101A1 105mm, 38 M-114 towed, some 20 GHN-45, 20 M-44, 80 M-109A2 SP 155mm, 4 M-115 towed, 24 M-110 SP 203mm; MOR: 500 81mm, 107mm and 120mm. **ATK:** rcl: 300 106mm and 120mm; ATGW: 300 BGM-71A *TOW*, 310 M-47 *Dragon*. **AD:** GUNS: 100 M-163 *Vulcan* 20mm, 16 ZSU-23-4, 250 M-42 40mm SP; SAM: *Redeye*, 20 SAM-8, *Improved HAWK*. (On order: 180 GHN-45 155mm how; SA-8 SAM.)

NAVY (Coast Guard): 350.

Base: Aqaba.
Patrol craft: 9 armed.

AIR FORCE: 7,200; 121 combat ac.

FGA: 3 sqns with 68 F-5E/F.
Interceptor: 2 sqns with 35 *Mirage* F-1CJ/EJ.
OCU: 1 sqn with 15 F-5A, 3 F-5B.
Tpt: 1 sqn with 6 C-130B/H, 2 *Sabreliner* 75A, 2 C-212A.
VIP: 1 sqn with 2 Boeing 727, 3 *Mystère-Falcon* 20, 1 T-39 *Sabreliner* ac, 4 S-76 hel.
Hel: 2 sqns with 16 *Alouette* III, 14 S-76, 8 Hughes 500D hel.

Trg: 13 T-37C, 19 *Bulldog*, 1 C-212 ac.
AAM: AIM-9 *Sidewinder*.
AD: 14 btys with 112 *Improved HAWK* SAM. (On order: 14 C-101F5 *Aviojet* trg/ocu, 2 CN-235 tpt, 1 C-212 II tpt ac; 24 AH-1Q *Cobra* hel with *TOW*; 6 *Maverick* ASM.)

PARA-MILITARY: 11,000: Public Security Force 3,500, Civil Militia 7,500. Palestine Liberation Army: 2,000; bde (forming).

KAMPUCHEA/CAMBODIA

Est population: 6-7,000,000. (No reliable data since April 1975 available.)

TOTAL ARMED FORCES:

Regular: some 35,000.
Terms of service: conscription, 18 months minimum.

ARMY: some 35,000.

4 inf divs.
3 indep inf bdes.
1 armd regt.
Some 50 indep units incl cav (recece), arty, AD, pioneer.
Tks: 10 T-54/55; LR: 10 PT-76. **AFV:** APC: U-100, M-113,

BTR-40/60-152. **Arty**: how: M-1942 76mm, M-1938 122mm; **MRL**: Type-63 107mm, BM-13-16 132mm, BM-14-16 140mm; **MOR**: 82mm, 120mm. **ATK**: **rcl**: B-10 82mm, B-11 107mm. **AD**: **guns**: M-1938 37mm, M-1950 57mm. **Avn**: **HEL**: 6 Mi-8, 2 Mi-24. (On order: tks, arty, ships, ac, Mi-8 hel reported; details unknown.)

Provincial Forces: HQ; bn, coy, district and sub-district units: numbers of units, strengths, eqpt unknown.

PARA-MILITARY: Militia, Regional Armed Forces/Self Defence forces (org in coys), People's Police force: strengths, eqpt unknown.

OPPOSITION:

Coalition of Democratic Kampuchea:
Democratic Kampuchea (*Khmer Rouge*), some 35,000 org in bdes ('divs') and bns.
Kampuchean People's National Liberation Front (KPNLF), some 18,000 (plus perhaps 5,000 unarmed reserves); small arms, incl 12.7mm machine guns, 60mm, 82mm mor, RPG-7 RL, DK-75mm, mor, rcl. *Armée Nationale Sihanoukienne* (ANS), perhaps 7,000. Though formally merged, the three forces largely operate independently.

KENYA

GDP 1982: K sh 67,989 bn (\$6,225 bn), 1983: 76,174 bn (\$5,722 bn).

GDP growth 1983: 3.4%, 1984: 3.9%.
Inflation 1983: 20.0%, 1984: 10.0%.
Debt 1983: \$2.40 bn, 1984: \$2.70 bn.
Est def budget 1983/4: K sh 3.10 bn (\$232.881 m) 1984/5: 3.50 bn (\$242.819 m).
Est FMA 1983: \$23 m, 1984: \$25 m.
\$ 1 = shillings 10.9223 (1982), 13.3115 (1983), 14.414 (1984).

Population: 19,100,000.
Men: 18-30: 2,048,000; 31-45: 1,176,000.
Women: 18-30: 2,117,000; 31-45: 1,265,000.

TOTAL ARMED FORCES:

Regular: 13,650.
Terms of service: voluntary.

ARMY: 13,000.

1 armd bde (2 armd bns).
2 inf bdes (1 with 2, 1 with 3 inf bns).
1 engr bde.
1 armd recce bn.
2 arty bns.
2 engr bns.
1 indep air cav bn.
5 inf bns (cadre).
1 para bn.
Air wing with 15 armed hel.

Tks: 76 Vickers Mk 3. **AFV**: **RECCE**: 30 AML-60, 38 -90, 8 *Shorland*; **APC**: 50 UR-416, 12 Panhard M-3. **Arty**: **guns**: 40 lt, 16 105mm pack; **HOW**: 12 M-109 155mm SP; **MOR**: 20 81mm, 10 120mm. **ATK**: **rcl**: 50 *Carl Gustav* 84mm, *Wombat* 120mm; **ATGW**: *Milan*, 8 *Swingfire*. **Avn** (pre-1982 Air Force—now re-formed under Army): **FGA**: 9 F-5E, 2 F-5F; **COIN**: 5 BAC-167 *Strikemaster*, 12 *Hawk* T-52; **TPT**: 5 DHC-4 *Caribou*, 6 DHC-5D *Buffalo*, 7 Do-28D, 1 Nord 262, 1 *Turbo Commander*, 2 *Navajo*; **TRG**: 14 *Bulldog* 103; **HEL**: 10 *Puma*, 2 Bell 47G, 32 Hughes (15 500 *Scout*, 15 500MD with *TOW* ATGW, 2 500D trg); **MSLS**: *Sidewinder* AAM, *Maverick* ASM.

NAVY: 650.

Base: Mombasa.
FAC(g): 4 Brooke Marine (1 37.5-metre, 3 32.6-metre) with 4 *Gabriel* II ssm.
Patrol craft: 3 Vosper 31-metre (*Simba*) large, (On order: 2 *Province* FAC(g); *Gabriel* ssm.)

PARA-MILITARY: Police (General Service Unit) 1,800; Police Air Wing, 7 Cessna lt ac, 3 Bell hel.

KOREA: DEMOCRATIC PEOPLE'S REPUBLIC (NORTH)

Est GDP 1983: won 36,020 bn (\$38,319 bn), 1984: 37,570 bn (\$39,968 bn).
GDP growth 1982: 4.8%, 1983: 4.3%.
Inflation 1983: 5.0%, 1984: 2%.
Debt 1983: \$3.30 bn.
Def budget 1984: won 3,841 bn (\$4,086 bn), 1985: \$3,944 bn (\$4,196 bn).
\$ 1 = won 0.94 (1982/3/4/5).

Population: 20,100,000.
Men: 18-30: 2,412,000; 31-45: 1,619,000.
Women: 18-30: 2,460,000; 31-45: 1,608,000.

TOTAL ARMED FORCES:

Regular: 638,000.
Terms of service: Army, Navy 5 (?10) years; Air Force 3-4 years.
Reserves: Army 500,000, Navy 40,000, Air Force (reserves believed to exist). Mobilization claimed 12 hours; up to 5,000,000 have some Reserve/Militia commitment. See Para-Military.

ARMY: 750,000.

HQ: 3 mech, 8 all-arms corps (major re-org reported).
2 armd divs.
5 mot and mech inf divs.
24 inf divs.
7 indep armd bdes.
9 indep inf bdes (5-8 bns: up to 8,500 men).
22 special ops bdes incl 3 cdo, 4 recce, 1 river crossing regts, 3 amph, 5 Av bns (80,000). ('Bureau of Reconnaissance Special Forces.')

Arty Command:

Fd: 2 hy arty, 2 mor regts; 6 ssm bns.
AD: 2 AA divs; 7 AA regts.
Reserve: 23 inf divs.
Tks: 300 T-34, 2,800 T-54/55/62, 175 Type-59; **LT**: 100 Type-63, 50 Type-62.
AFV: **RECCE**: 140 BA-64; **MICV**: BMP-1; **APC**: 1,100 BTR-40/50/60-152, Ch Type-531.
Arty: 4,650; **guns**: M-1942 76mm; D-44, Type-56 85mm; M-1944 100mm; A-19, M-1931/17, D-74, Type-60 122mm; M-46, Type-59 130mm; **GUN/HOW**: M-1937 152mm towed; **HOW**: Type-54, M-30 122mm, D-20, ML-20, M-1938 152mm; **MRL**: 2,000 Type-63 107mm, BM-21 122mm, Type-63 130mm, RPU-14, BM-14-16 140mm, BMD-20 200mm and BM-24 240mm; **SSM**: 54 *FROG-5/7*; **MOR**: 11,000 82mm, 120mm, 160mm and 240mm.

ATK: **rcl**: 1,500 B-10 82mm, 1,000 B-11 107mm; **guns**: M-1942 45mm, M-1943 57mm, Type-52 75mm, D-48 85mm towed, 800 SU-76 and SU-100 SP; **ATGW**: AT-1 *Snapper*, AT-3 *Sagger*.
AD: **guns**: 8,000 23mm, Type-55, M-1939 37mm, Type-59, 85mm, 100mm towed, ZSU-23-4 and ZSU-57-2 SP; **SAM**: SA-7.

NAVY: 35,000.

Bases: East Coast: Wonsan, Cha-ho, Chongjin, Kimchaek, Toejo. West Coast: Nampo, Haeju, Pipaqwan, Sagwan-ri.
2 Fleet HQ.
Subs: 20: 4 Sov W-class; 4 Ch, 12 local-built Type-033/R-class.

Frigates: 4 *Najin* (2 may be in reserve).
FAC: (g): 30: 6 *Soju*, 10 *Osa-I* (4 *Styx* ssm), 8 *Komar*, 6 *Sohung* (2 *Styx* ssm); (t): 152: 47 *Sov* (3 *Shershen*, 34 P-6, 10 P-4), 105 (79 *Sinpo*, 15 *Iwon*, 6 *An Ju*, 75 *Ku Song/Sin Hung*).
FAC: 163: 11 *Shanghai* II, 4 *Chodo*, 4 K-48, some 144 (20 *Sov* MO-IV, 8 *Shantou*, 66 *Chaho*, 40 *Chong-Jin* (*Chong-Ju*-class reported); 710 *Sinpo*).
Patrol craft: 32 large: 15 SO-1 (6 *Sov*), 2 *Sov Tral*, 3 *Sariwan*, 6 *Ch Hainan*, 6 *Taechong*; 30 coastal: 10 *Sov KM-4*, 20 misc.
Amph: **LSM**: 6 *Hantae*; **LCU**: 9 *Hanchon*, 90 *Nampo* assault/landing craft; **LCM**: 15.
Coast defence: 2 msl regts: *Samlet* in 6 sites; M-1931/37 122mm, SM-4-1 130mm, M-1937 152mm guns. (On order: *Sohung*, *Soja* FAC(g), patrol craft, *Hantae* LSM.)

AIR FORCE: 53,000; some 800 combat ac.

Bbbs: 3 lt sqns with 80 Il-28.
FGA: 10 sqns: 1 with 20 Su-7; 6 with some 280 MiG-15/17; 3 with some 100 MiG-19/Q-5.
Interceptors: 12 sqns: 160 MiG-21, some 60 MiG-19.
Tpt: perhaps 25 sqns: 250 An-2, 10 An-24, 5 Il-14, 4 Il-18, 2 Tu-154B, 1 Il-62.
Hel: 170 incl 40 Mi-4, 20 Mi-8, 80 Hughes 300, -500 (some 60 reported to be armed).
Trg: incl 4 MiG-23, 120 Yak-18, 100 MiG-15UTI/19UTI/-21U, Il-28, 30 Ch CJ-6.
AAM: AA-2 *Atoll*.
SAM: 4 bdes (12 bns, 40 blys) with 800 SA-2 in 45 sites. (On order: some 32 MiG-23.)

Forces Abroad: Iran (300); 11 African countries incl Angola (1,000), Madagascar (100); Seychelles (40); Uganda (200).

PARA-MILITARY: Security forces and border guards: 38,000. Workers-Farmers Red Guards (militia); some 3 m. Youth Red Guard: some 700,000. Instruction force (Reserve Military units): ex-Regular and selected Militia staff/trg cadre. HQ (corps equivalent) in each of 9 Provinces and 3 towns; bde HQ in towns; bns, coy/ platoons at village, farm, factory, etc., some with small arms, mor to 120mm, some AA arty.

KOREA: REPUBLIC OF (SOUTH)

GDP 1982: won 59,603 bn (\$76,833 bn), 1984: 67,071 bn (\$83,217 bn).

GDP growth 1983: 9.5%, 1984: 7.6%.
Inflation 1983: 2.0%, 1984: 2.4%.
Debt 1983: \$43.0 bn, 1984: \$45.0 bn.
Def budget 1984: won 3,622 bn (\$4,494 bn). Exp 1985: 3,825 bn (\$4,402 bn). Est budget 1986: 4,500 bn (\$5,028 bn).
FMA 1983: \$187 m, 1984: \$232 m.
\$ 1 = won 775.75 (1983), 805.98 (1984), 868.92 (1985).
Population: 42,224,000.
Men: 18-30: 5,685,000; 31-45: 3,818,000.
Women: 18-30: 5,318,000; 31-45: 3,672,000.

TOTAL ARMED FORCES:

Regular: 598,000.
Terms of service: all Services, 30-36 months.
Reserves: Army: Regular Reserves 1,400,000, Homeland Reserve Defence Force 3,300,000. Navy 7,000, Marines 60,000, Air 55,000.

ARMY: 520,000.

HQ: 3 Army (1 Reserve), 5 Corps (each 4 divs).
2 mech inf divs (each 3 bdes: 3 mech inf, 3 mot, 3 tk, 1 recce bns; 1 fd arty bde).
19 inf divs (each 3 inf regts, 1 recce, 1 tk, 1 engr bn, arty gp).
7 Special Warfare bdes.
2 AA arty bdes.
2 ssm bns with *Honest John*.
2 SAM bdes: 3 *HAWK* bns (24 sites), 2 *Nike Hercules* bns (10 sites).
1 army aviation bde.
Reserves: 1 Army HQ, 23 Inf divs.
Tks: 350 M-47, 850 M-48 (incl 180 A5).
APC: 450 M-113, 250 Fiat 6614.
Arty: 3,000; **guns**: M-53 155mm, M-107 175mm SP; **HOW**: M-101 105mm, M-114 towed, 100 M-109A2 SP 155mm, M-115 towed 203mm; **MRL**: 130mm; **SSM**: 12 *Honest John*; **MOR**: 5,300 81mm and 107mm.
ATK: **guns**: 8 M-18 76mm, 50 M-36 90mm; **RL**: *LAW*; **rcl**: 57mm, 75mm, 106mm; **ATGW**: *TOW*.
AD: **guns**: 500 incl 60 *Vulcan* 20mm, 35mm, 80 40mm; **SAM**: 110 *HAWK*, 100 *Nike Hercules*.
Avn: **AC**: 14 O-2A; **HEL**: 100 UH-1B, 150 Hughes 500MD *Defender* (50 with *TOW*). (On order: *Stinger* ATGW.)

NAVY: 23,000.

Bases: Chinhae (HQ), Cheju, Inchon, Mokpo, Mukho, Pukpyong, Pohang, Pusan.
5 Command HQ.
Destroyers: 11: 7 *Gearing* (5 with 2 x 4 *Harpoon* ssm, 1 *Alouette* III hel; 2 with 8 *ASROC*); 2 *Sumner* with 2 x 4 *Harpoon*, 1 *Alouette* III hel; 2 *Fletcher*.
Frigates: 7: 2 *Ulsan* with 2 x 4 *Harpoon*; 5 *US* (2 *Lawrence*, 3 *Crosley*).
Corvettes: 7: 4 *Dongnae* HDP-1000, 3 HDP-600 (*Sea Whale*).
FAC(g): 11: 8 PSMM-5 (3 with 2 x 2 *Standard* ssm (ARM), 5 with 2 x 2 *Harpoon*); 1 *Asheville* with 2 x 2 *Standard*; 2 *Wildcat* with 2 *Exocet* MM-38.
Patrol craft: 84: **LARGE**: 52: 8 *Cape*, 42 *Gireogi*, 2 other; **COASTAL**: 32: 30 *Schoolboy* / *Sea Hawk*, 2 other.
Minesweepers: 1 *US* LSM.
Amph: **LST**: 8; **LSM**: 9 (1 fire spt); **LCU**: 6; **LCM**: 9.
Spt ships: 2 supply, 6 tankers.
ASW: 2 sqns: 1 ac with 22 S-2A/F; 1 hel with 10 Hughes 500MD; 12 flts with *Alouette* III.
(On order: 2 frigates, 4 HDP-1000, 3 PCL-827 corvettes, 20 FAC(g) (7 types), 75 *Harpoon* ssm.)

MARINES: 22,000.

2 divs, 1 bde.
Tks: 40 M-47. **APC**: LVTP-7. **How**: 105mm, 109mm. (On order: 40 LVTP-7.)

AIR FORCE: 33,000; some 451 combat ac.

7 combat, 2 tpt wings.
FGA: 18 sqns with 260 F-5A/B/E/F.
AD: 4 sqns with 65 F-4D/E.
COIN: 1 sqn with 16 OV-10G.
Recce: 1 sqn: 10 RF-5A.
SAR: 1 hel sqn with 6 UH-1H, 20 UH-1B/H.
Tpt: 5 sqns: 10 C-54, 16 C-123J/K *Aero Commander*, 2 HS-74B, 6 C-130H.
Trg: incl 20 T-28D, 33 T-33A, 39 T-37C, 20 T-41D, 35 F-5B, 63 F-5F, perhaps 6 F-16.
AAM: *Sidewinder*, *Sparrow*.
(On order: some 30 F-16A, 6 F-16B, 4 F-4E, 36 F-5E, 30 F-5F ftrs; 24 OV-10 *Bronco* COIN; 25 T-27 *Tucano* trg ac; *Maverick* ASM.)

PARA-MILITARY: Civilian Defence Corps (to age 50)

3,500,000. Student Homeland Defence Corps (Schools) 600,000. Hydrographic Service; 3 mcmv. Coastguard; 25 ocean, many small craft, 9 Hughes 500D hel.

KUWAIT

GDP 1982: KD 5.728 bn (\$19.697 bn), 1983: 6.219 bn (\$21.269 bn).

GDP growth 1983: -1.5%. Est 1984: -3.5%.

Inflation 1983: 1.9%. 1984: 1.5%.

Def budget 1982/3: KD 340.0 m (\$1.169 bn). 1983/4: 418.0 m (\$1.430 bn).

\$ 1 = dinar 0.2908 (1982), 0.2924 (1983).

Population: 1,800,000. (Incl non-Kuwait population.)

Men: 18-30: 222,000; 31-45: 251,000.

Women: 18-30: 160,000; 31-45: 124,000.

TOTAL ARMED FORCES:

Regular: 12,000.

Terms of service: 2 years (university students, 1 year), Reserves: planned conscript force.

ARMY: 10,000.

2 arm'd bdes.

1 mech inf bde.

1 ssm bn.

Tks: 70 Vickers Mk 1, 10 *Centurion*, 160 *Chieftain*. **AFV:** **RECCE:** 100 *Saladin*, 60 *Ferret*, **APC:** 175 M-113, 100 *Saracen*. **Arty:** **HOW:** 20 AMX Mk F-3, 18 M-109A2 155mm sp; **SSM:** 4 *FROG-7*; **MOR:** 81mm. **ATGW:** *HOT*, *BGM-71A TOW*, *Vigilant*, **SAM:** SA-6, SA-7, SA-8 *Gecko*. (On order: *Scorpion* II tks, 188 M-113 APC, 56 M-113 SP *TOW* veh, 4,800 *Improved TOW*.)

NAVY: (admin by Ministry of the Interior: 1,100).

Base: Kuwait City.

FAC: 2 Lürssen FPB-57; (a): 6 Lürssen TNC-45 with 4 *Exocet* MM-40 ssm.

Patrol craft: 48 coastal (15 armed).

Amph: 3 320-ton spt ships; *Lcu:* 6 *Loadmaster*, 3 landing craft.

(On order: 20 *Sedan* patrol craft; 6 SRN-6 hovercraft; SA-365N *Dauphin* II hel; *Exocet* MM-40 ssm.)

AIR FORCE: 2,000 (excluding expatriate personnel); combat: 76 ac, 23 hel.

FGA: 2 sqns with 30 A-4KU.

Interceptor: 1 sqn with 32 *Mirage* F-10K, 2 F-1BK.

COIN/trg: 1 sqn with 12 *Hawk*.

Tpt: 2 DC-9; 2 L-100-20, 4 L-100-30 (used also in civil role).

Hel: 3 sqns: **ATTACK:** 23 SA-342K *Gazelle*; **TPT:** 12 SA-330 *Puma*.

Trg: incl 9 *Strikemaster*.

AD: 1 bn (4 blys) with 8 x 3 *Improved HAWK* SAM.

AAM: R-550 *Magic*, Super R-530, AIM-9 *Sidewinder*.

ASM: AS-11/12.

(*Store:* 12 *Lightning*, 9 *Hunter*.)

(On order: 6 AS-332F *Super Puma* hel; 12 *Exocet* AM-39 ASM; AD radar/comd system.)

PARA-MILITARY: National Guard; Palace, Border Guard, 20 V-150, 62 V-300 *Commando* APC.

LAOS

Est GDP 1982: kip 5.00 bn (\$500 m), 1983: 5.20 bn (\$520 m).

Est FMA 1982: \$100 m.

\$ 1 = kip 10 (1982-5).

Est population: 3,700,000.

Men: 18-30: 328,000; 31-45: 294,000.

Women: 18-30: 348,000; 31-45: 323,000.

TOTAL ARMED FORCES:

Regular: 53,700.

Terms of service: conscription, 18 months min.

ARMY: 50,000.

Military Regions: 4.

4 inf divs.

1 arty div.

7 indep inf regts.

1 engr regt.

2 construction regts, indep construction bns.

5 arty, 9 AA arty bns.

65 indep inf coys.

1 lt ac liaison flt.

Tks: 30 T-34/54-55; LT: 25 PT-76. **APC:** 48 BTR-60. **Arty:** **guns:** M-46 130mm; **how:** 80 M-116 75mm, M-1942 76mm, M-101 105mm, M-1938 and D-30 122mm; **MOR:** 81mm, 82mm, 107mm (4.2-in.). **ATK:** **RCL:** M-18/A1 57mm, 107mm. **AD:** **guns:** ZSU-23-4 23mm sp; M-1939 37mm; M-1950, ZSU-57-2 sp 57mm; **SAM:** SA-7.

NAVY: 1,700.

Patrol craft: 20 river: most ex-Vietnamese, incl Sov *Shmel*.

(Perhaps 20 more vessels incl 3 LCM, 6 tpts (in reserve).)

AIR FORCE: 2,000; 20 combat ac.

FGA: 1 sqn with some 20 MIG-21.

Tpt: 1 sqn: 2 Yak-40, 5 An-24, 2 An-26, 6 An-2.

Hel: 1 sqn with 10 Mi-8, 2 Mi-6.

Trg: MIG-21UTL.

AAM: AA-2 *Atoll*.

PARA-MILITARY: Militia, Self-Defence forces.

LEBANON

Est GDP 1982: £L 17.0 bn (\$3.584 bn), 1983: 11.25 bn (\$2.484 bn).

GDP growth 1983: -6%.

Inflation 1983: 18%.

Def budget (most information unreliable. Actual defence outlays estimated to be some £L 6.5 bn (about \$1.0 bn)) 1983: £L 1.50 bn (\$331.257 m), 1984: 2.030 bn (\$311.775 m).

FMA 1983: \$101.7 m. (Excl subsidies to various militias by external powers.)

\$ 1 = £L 4.7435 (1982), 4.5282 (1983), 6.5111 (1984).

Est population: 2,700,000.

Men: 18-30: 306,000; 31-45: 161,000.

Women: 18-30: 339,000; 31-45: 202,000.

TOTAL ARMED FORCES:

Regular: perhaps 17,400.

Terms of service: 18 months.

ARMY: perhaps 16,000 (all units well below strength). (Army divided on sectarian lines: perhaps 10,000 pro-Gemayel Christians (2+ bdes); 3 Shi'ite, 1 Sunni, 2 Christian, 3 mixed Muslim/Christian, 1 Druze (forming).)

9 inf bdes (1 'AB'; 10th said to be forming).

Tks: some 50 M-48; LT: 60 AMX-13 (40 with 75mm, 20 x 105mm gun). **AFV:** **RECCE:** 70 *Saladin*, 20 *Ferret*; **APC:** 400 M-113, *Saracen*, 20 UTT. **Arty:** **guns:** M-46 130mm; **how:** 18 M-102, M-1938 122mm, 36 M-50, M-114, M-198 155mm; **MOR:** 200 81mm, 83mm. **ATK:** **RL:** RPG-7 85mm, 88mm; **RCL:** 106mm; **ATGW:** *ENTAC*, 40 *Milan*, 18 *BGM-71A TOW*. **AD:** **guns:** 20mm, ZU-23 23mm, 30mm towed, M-42 40mm sp.

(Eqpt in storage incl up to 40 M-48A1/A5 MBT, 20 *Saladin*, 300 M-113.)

(On order: 12 155mm how.)

NAVY: 300.

Base: Junie.

Patrol craft: 4: 1 37-metre, 3 *Byblos* coastal; also 6 9-metre, 1 small landing craft.

AIR FORCE: 1,100; 7 combat ac, 4 armed hel.

Ftrs: 1 sqn with 7 *Hunter* F-70 (operational status questionable).

Hel: 1 sqn: **ATTACK:** 4 *Gazelle* with SS-11/12 ASM; **TPT (MED):** 7 AB-212, 12 SA-330 *Puma*; (LT): 9 *Alouette* III/III.

Trg: 5 *Bulldog*, 3 CM-170 *Magister*.

Tpt: 1 *Dove*, 1 *Turbo Commander* 690B.

PARA-MILITARY: Ministry of the Interior: Gendarmerie: 5,000. Internal Security Force 8,000; 30 *Chaimite* APC. Border Guard (forming, planned 20,000). Customs: 1 *Tracker*, 5 *Aztec* patrol craft.

PRIVATE MILITIAS (status, strengths, questionable):

Maronite Christian: 5,000 regulars; up to 30,000 reservists.

Lebanese Forces Militia (*Kata'eb* = Phalange): (720,000); 50 M-48 MBT, 50 155mm how, 1 *Tracker*, 2 *Yatush* patrol boats.

Guardians of the Cedars: *MARADA* Brigades (Zehorta Liberation Army): pro-Syrian militia.

South Lebanon Army (SLA; Israeli-backed): Maronite and some Shi'ite: perhaps 1,200; 40 M-4, 15 captured T-54 MBT.

National Guard: Israeli-backed village militia linked to SLA (forming).

Al-Tanzim: extremist militia (part of Lebanese Forces).

Druze:

Progressive Socialist Party (Jumblatt): (?4,000) (reserves perhaps 12,000 more); T-34/54 MBT, MRL.

Sunni:

Islamic Unity Movement: Tripoli (?600).

Al-Mourabitoun (independent Nasserites) militia (underground; 2,500).

October 24 Movement: secular militia.

Jundullah ('soldiers of God'): PLO-financed: (?few hundred).

Shi'a.

Amal (orthodox): (?5,500 regulars; ?15,000 reserv-

ists): pro-Syria.

Al Amal al Islam (Islamic *Amal*): (few hundred); break-away faction, links with Iranian Revolutionary Guard Corps.

Hizbollah ('The Party of God'): fundamentalist, pro-Iranian.

Islamic Resistance Movement: *Hizbollah*-linked; 400 'Grad' (BM-21 122mm) RL, *Sagger* ATGW.

Other:

Lebanese Arab Army: Lebanese Army deserters; pro-Syrian.

Lebanese National Resistance Front: umbrella for anti-Israeli forces in South Yemen.

Tawhid (Islamic) Unification Movement: Sunni; reported Tripoli 1982, status now unclear.

LIBERIA

Est GDP 1983: \$L 870 m (\$US 870 m), 1984: 920 m (\$US 920 m).

GDP growth 1983: 1.0%. 1984: 2.0%.

Inflation 1983: 3.3%. 1984: 2.0%.

Debt 1983: \$US 1.20 bn. Est 1984: \$US 1.40 bn.

Def budget 1983/4: \$L 22.40 m (\$US 22.40 m). Est 1984/5: \$L 26.0 m (\$US 26.0 m).

FMA 1983: \$US 12.70 m, 1984: \$US 12.80 m.

\$US 1 = \$L1 (1983/4).

Population: 2,404,000.

Men: 18-30: 222,000; 31-45: 174,000.

Women: 18-30: 227,000; 31-45: 172,000.

TOTAL ARMED FORCES:

Regular: 6,750.

Terms of service: voluntary; militia conscription authorized, not in force.

Reserves: ?50,000 males 16-45.

ARMY: 6,300.

1 Executive Mansion Guard bn.

6 inf bns.

1 arty bn.

1 engr bn.

1 arm'd recce sqn.

1 service bn.

1 air recce bn (250).

AFV: **RECCE:** 12 M-3A1. **Arty:** **how:** 75mm pack, 8 105mm; **MOR:** 20 60mm, 10 81mm, 4.2-in. (107mm). **ATK:** **RL:** 3.5-in. (89mm); **RCL:** 57mm, 106mm. **Avn:** **MR:** 1 Cessna 337; **TPT:** 2 C-47; **LT AC:** 13 Cessna (2 172, 1 185, 1 207, 9 337).

(On order: 7 *Arava*; 3 *recce*, 4 tpt ac.)

NAVY (Coastguard): 450.

Bases: Monrovia, Bassa, Sinoe, Cape Palmas.

Patrol craft: 5: 3 *Swed* CG-27 50-ton, 2 *Swiftships* 38-ton.

PARA-MILITARY: National Police 2,000.

LIBYA

GDP 1982: LD 8.846 bn (\$29.875 bn).

GDP growth 1982: -2%.

Inflation 1983: 9.0%.

Est def exp 1982: LD 210 m (\$709.22 m).

\$1 = dinar 0.2961 (1982).

Population: 3,550,000.

Men: 18-30: 439,000; 31-45: 375,000.

Women: 18-30: 361,000; 31-45: 254,000.

TOTAL ARMED FORCES:

Regular: 73,000.

Terms of service: selective conscription, term varies. Reserves: People's Militia, some 40,000.

ARMY: 58,000. (Much equipment, including 1,400 MBT, 450 combat aircraft (Tu-22, MIG-21/23-25, Su-22) in storage. Soviet, Syrian, Pakistani, North Korean and Palestinian pilots also reportedly fly Libyan aircraft; expatriates form a large proportion of the technical support staff.)

1 tk, 1 mech inf div Hq.

20 tk bns.

30 mech inf bns.

1 National Guard bde.

10 arty, 2 AA bns.

2 special forces gps (10 bns).

3 AD regts.

2 SSM bdes.

3 AD regts with SA-6; 9 div SAM bns with SA-6, SA-8, SA-9-13.

Tks: 2,500 T-54/55-62, 300 T-72.

AFV: **RECCE:** 200 BRDM-2, 300 EE-9 *Cascavel*; **MICV:** 700 BMP; **APC:** 900 BTR-50/60, OT-62/64, 100 EE-11 *Urutu*, Fiat 6614, 160 M-113A1.

Arty: guns: 60 D-74 122mm; 360 M-46 130mm; GUN/HOW: D-20 152mm; how: some 60 M-101 105mm, 330 M-1938; D-30 122mm towed, 78 M-1974 122mm sp, 48 M-1973, DANA 152mm sp, 200 *Palmaria*, 18 M-109 155mm sp; **MRL:** some 600 BM-11 107mm, BM-21/RM-70 122mm and M-51 130mm; **MOR:** 450 81mm, 120mm, 160mm and 240mm; **SSM:** 48 FROG-7, *Scud* B, **ATK:** RCL: 200 106mm; **ATGW:** 3,000 *Vigilant*, *Milan* and *AT-3 Sagger* (incl BRDM sp).
AD: guns: 450 ZSU-23-2, ZSU-23-4 23mm sp, 30mm incl M-53/59 sp, L/70 40mm, 57mm; **SAM:** 350 SA-6, SA-7-8/-9/-13.
 (On order: Fiat 6616, EE-9 *Jararaca* armd cars; 100 *Urutu* APC; ASTROS II SS-40 MRLs.)

NAVY: 6,500.

Bases: Tarabulus, Benghazi, Darnah, Tubruq, Bardiyah, Al Khuma, Ras Hilal (building).
Subs: 6: Sov F-class.

Frigates: 1 Vosper Mk 7 with 4 *Otomat* ssm, 4 *Albatros/Aspide* SAM.

Corvettes: 9: 4 *Assad* with 4 *Otomat* ssm, (1 with 1 x 4 *Aspide* SAM); 4 Sov *Nanuchka* II with 4 SS-N-2c ssm, 1 x 2 SA-N-4 SAM; 1 Vosper Mk 1B 440-ton.

FAC(g): 25: 10 *Sharara* (La Combattante II; see also Coastguard) with 4 *Otomat* ssm; 12 Sov *Osa-II* with 4 SS-N-2c ssm; 3 *Susa* with 8 SS-12M ssm.

Patrol craft: 5: 4 *Garian*, 1 78-ft coastal.

MCMV: 7 Sov *Natya*.

Amph: LSD: 1 (log sp/HQ ship); LST: 2 PS-700; LCT: 3 *Polnocny*, 20 C-107.

Misc: 1 tpt (could be minelayer).

Drone craft: 50.

(On order: 4 *Assad* corvettes, 4 *Rade Koncar*-type FAC(g), 1 *Benina* patrol craft (?Coastguard); 10 C-107 LCT.)

AIR FORCE: 8,500; some 535 combat ac, 42 armed hel.
Bbns: 1 sqn with 7 Tu-22 *Blinder* A.

Interceptors: 3 sqns and 1 occu: some 26 *Mirage* F-1ED, 6 F-1BD, 143 MiG-23 *Flogger* E, 50 MiG-25 *Foxbat* A, 55 MiG-21, 5 MiG-25U.

FGA: 5 sqns and 1 occu: 45 *Mirage* 5D/DE, 13 5DD, 14 *Mirage* F-1AD, 18 MiG-23BM *Flogger* F, 14 MiG-23U, some 100 Su-20/-22 *Filter EIFJ*.

COIN: 1 sqn with 30 J-1 *Jastreb*.
Recces: 1 sqn with 7 *Mirage* 5DR.

Tpt: 2 sqns: 5 An-26 *Curl*, 8 C-130H, 2 Boeing 707, 9 G-222, 2 *Mystère-Falcon*-20, 4 C-140 *Jetstar*, 2 CL-44, 9 Il-76 *Candid*, 1 *Corvette* 200, 2 *King Air*, 8 F-27-600, 10 *Turbolet* L-410.

Hel: 8 sqns: **ATTACK:** 2 with 30 Mi-24 *Hind*; **ASW:** 1 with 12 Mi-14 *Haze*; **SAR:** 1 with 8 *Super Frelon*; **TPT (HY):** 1 with 19 CH-47C; **(MED):** 1 with Mi-8, 2 AB-212; **(LT):** 1 with 5 AB-206, 1 with 10 SA-342 *Alouette* III, 9 AB-47.

Trg: 4 sqns: 2 with 61 G-2 *Galeb* ac; 2 with 20 Mi-2 (*Hoplite*) hel; 2 Tu-22 *Blinder* D, 100 L-39ZO, 12 *Magister*, 139 SF-260WL.

AD: SAM: 3 bdes, 2 bns: 30 x 4 *Crotale*, 72 SA-2, 2 x 2 SA-3.

AAM: AA-2 *Atoll*, AA-6 *Acrid*, R-550 *Magic*.

ASM: *Swatter* ATGW (hel-borne).

(On order: MiG-25, MiG-23 frs; 25 EMB-121 *Xingu*, 50 SF-260M trg ac; *Gazelle*, 2 A-109 hel; Super 530 AAM.)

Forces Abroad: Chad: some 1,000; mech inf bn, MRL, ac, hel.

PARA-MILITARY: Islamic Pan-African Legion, some 7,000; 1 armd, 1 inf, 1 para/cdo bdes; some 75 T-54/-55 MBT, EE-9 micv, BTR-50/-60 APC (army inventory), Customs/coastguard; 2 SAR-33 Lürssen-type FAC (SSM/SAM capable), 3 *Benina*, 3 *Jihad* patrol craft. Muslim Youth, People's Cavalry Force: parade unit.

MADAGASCAR

GDP 1982: fr M 1,045.90 bn (\$2.991 bn). Est 1983: 1,250.0 bn (\$2.904 bn).

GDP growth 1983: 0.5%. 1984: 1.5%.

Inflation 1983: 19.0%. 1984: 10.0%.

Est debt 1983: \$1.20 bn. Debt 1984: \$1.40 bn.

Def budget 1984: fr M 31.730 bn (\$55.029 m). 1985: 36.0 bn (\$52.554 m).

FMA 1983: \$100 m. 1984: \$150 m.

\$1 = Malagasy francs 349.71 (1982), 430.45 (1983), 576.6 (1984), 685.01 (1985).

Population: 9,962,000.

Men: 18-30: 1,063,000; 31-45: 632,000.

Women: 18-30: 1,074,000; 31-45: 702,000.

TOTAL ARMED FORCES:

Regular: 21,100.

Terms of service: national service (incl civil), 18 months.

ARMY: 20,000.

2 bn gps.

1 engr regt.

1 sigs regt.

1 service regt.

7 construction regts.

Tks: 12 PT-76. **AFV:** **RECC:** 8 M-8, (?20) M-3A1, 10 *Ferret*, (?35) BRDM-2; **APC:** (?30) M-3A1 half-track. **Arty:** **GUNS:** 12 ZIS-3 76mm; **HOW:** 12 122mm; **MOR:** 81mm. **ATK:** RCL: 106mm. **AD:** **GUNS:** 50 ZPU-4 14.5mm.

NAVY: 600 (incl 120 marines).

Base: Diégo-Suarez.

Patrol craft: 1 PR-48 large.

Amph: LSM: 1 *Batram* with 8 SS-12 ssm; LCM: 1 N. Korean *Nampo*.

1 marine coy +.

AIR FORCE: 500; 12 combat ac.

FGA: 1 sqn with 4 MiG-17, 8 MiG-21FL.

Tpt: 1 sqn with 1 HS-748 (vip), 4 An-26, 2 Yak-40, 1 C-53D, 5 C-47, 1 *Defender*, An-12, 1 *Aztec*, 3 Cessna 337, 5 It ac.

Hel: 1 sqn with 1 Bell 47, 3 *Alouette* III/II, 2 Mi-8.

PARA-MILITARY: Gendarmerie 8,000, incl maritime police with 5 patrol craft.

MALAWI

GDP 1983: K 1,559 bn (\$1,327 bn). 1984: 1,695 bn (\$1,199 bn).

GDP growth 1983: 4.9%. 1984: 7.6%.

Inflation 1983: 13.5%. 1984: 19.0%.

Debt 1983: \$720 m. 1984: \$900 m.

Def budget 1983: K 27.0 m (\$22,983 m). Est 1984: 27.9 m (\$19,740 m).

FMA 1983: \$250 m. 1984: \$250 m.

\$1 = kwacha 1,1748 (1983), 1,4134 (1984).

Population: 6,833,000.

Men: 18-30: 656,000; 31-45: 479,000.

Women: 18-30: 713,000; 31-45: 524,000.

TOTAL ARMED FORCES:

Regular: 5,250.

Terms of service: voluntary, 7 years.

Reserves: Army: some 500; ex-soldiers have a 5-year obligation.

ARMY: 5,000. (All Services form part of the Army.)

3 inf bns.

1 spt bn (incl 1 reccs sqn).

AFV: **RECC:** 10 *Fox*, 10 BRDM-2. **Arty:** **GUNS:** 9 105mm;

MOR: 81mm. **ATK:** RL: 3.5-in. (89mm); RCL: 57mm. **AD:**

SAM: 14 *Blowpipe*.

MARINE: 100.

Base: Chilumba.

Patrol boats: 1 Fr 21-metre, 1 *Spear*, 3 lake/.

AIR: 150; no combat ac or hel.

Tpt: 1 sqn with 6 Do-27, 8 Do-28, 1 BN-2T ac.

Hel: 1 sqn with 3 *Puma*, 1 *Alouette* III.

(On order: 1 AS-365, 1 AS-350 hel.)

PARA-MILITARY: 1,000; Police: 1 BN-2T *Defender* ac (border patrol).

MALAYSIA

GDP 1983: ringgits 67.979 bn (\$29.285 bn). 1984: 76.40 bn (\$32.599 bn).

GDP growth 1983: 6.0%. 1984: 7.3%.

Inflation 1983: 3.8%. 1984: 4.0%.

Debt 1983: \$13.30 bn. 1984: \$15.80 bn.

Def budget 1984: ringgits 4.630 bn (\$1.976 bn). Est exp 1984: 4.200 bn (\$1.792 bn). Est budget 1985: 4,050 bn (\$1.624 bn). (All figures incl internal security budget/expense.)

\$1 = ringgits 2.3213 (1983), 2.3436 (1984), 2.4945 (1985).

Population: 16,300,000.

Men: 18-30: 2,007,000; 31-45: 1,247,000.

Women: 18-30: 1,962,000; 31-45: 1,286,000.

TOTAL ARMED FORCES:

Regular: 110,000.

Terms of service: voluntary

Reserves: 46,400. Army 45,000. Navy 800. Air 600.

ARMY: 90,000.

1 corps, 4 div HQ.

9 inf bdes, consisting of 36 inf bns (1 APC), 4 cav, 4 fd arty, 1 AA arty, 5 sigs, 5 engr regts; admin units.

1 Special Service regt (3 bns).

Tks: Lt: 26 *Scorpion* (90mm).

AFV: **RECC:** some 64 SIBMAS, 140 AML, 60 *Ferret*; **APC:**

AT-105, 200 V-100/150 *Commando*, 25 *Stormer*, 460 *Condor*.

Arty: **HOW:** 92 Model 56 pack, 22 M-102A1 105mm; **MOR:** 81mm.

ATK: RL: M-20 89mm; RCL: 150 106mm, 5 120mm; **ATGW:** SS-11.

AD: **GUNS:** 70 12.7mm, 35 40mm.

NAVY: 9,000.

Bases: Lumut, Tanjung Gelang, Kuantan (HQ Naval Region), Labuan, Sungai Aute (Sarawak), Woodlands (Singapore; trg base).

Frigates: 3: 2 *Kasturi* (FS-1500) with 4 *Exocet* MM-38, 1 hel; 1 *Yarrow* with 1 x 4 *Seacat* SAM.

FAC: 6 *Jerong*; (g): 12: 8 *Handalan* (*Spica-M*); 4 *Perdana* (La Combattante II) with 4 or 2 *Exocet* MM-38 ssm.

Patrol craft: 20 large: 2 *Kedah*, 4 *Sabah*, 14 *Kris*, 9 '25-metre'.

Minesweepers: 6: 4 *Lerici*, 2 Br *Ton* coastal.

Amph: LST: 2 US 511-1152, 29 small vessels.

Spt: 3 Sakti cmd/comms/cargo ships.

(Naval Air Wing to form 1985/6.)

(On order: 2 1,300-ton patrol vessels.)

AIR FORCE: 11,000; 42 combat ac.

2 Air Regions, 1 Spt Command.

FGA: 3 sqns (1 forming); 2 RF 20 A-4PTM (being delivered), 13 F-5E, 4 F-5F, 2 RF-5E.

MR: 1 sqn with 3 PC-130H.

Tpt: 5 sqns: ac: 3: 1 with 6 C-130H; 2 with 2 HS-125, 2 F-28, 12 Cessna 402B; **HEL:** 2 with 36 S-61A-4.

Liaison: 4 sqns: ac: 2 with 14 DHC-4A; **HEL:** 2 with 22 SA-316B *Alouette* III.

Trg: 3 sqns: ac: 12 MB-339, 40 PC-7; **HEL:** 7 Bell 47, 2 *Alouette*.

AAM: *Sidewinder*.

(On order: some 20 A-4PTM FGA/trg (plus 20 for spares; delivery 1985), 4 NC-212 *Aviocar* tpt ac; *Super Sidewinder* AAM.)

PARA-MILITARY:

Police Field Force 18,000; 21 bns (incl 2 Aboriginal); *Shorland* armd cars, SB-301 APC, 210 patrol boats(, 4 Cessna 206 ac.

Area Security Units (Home Guard); 3,100 men in 89 units. Border Scouts (in Sabah, Sarawak) 1,200.

People's Volunteer Corps (RELA) over 350,000.

OPPOSITION: 1,450. Communist Party of Malaya (CPM) (1,000); CPM Marxist and Leninist faction (450).

MALI

GDP 1982: fr CFA 395.32 bn (\$1,203 bn). 1983: 420.0 bn (\$1,102 bn).

GDP growth 1982: 4.4%. 1983: 2.5%.

Debt 1983: \$880.0 m. 1984: \$1.10 bn.

Est def budget 1983: fr CFA 16 bn (\$41,988 m). 1984: 12 bn (\$27,462 m).

FMA 1983: \$100 m. 1984: \$150 m.

\$1 = francs CFA 328.61 (1982), 381.06 (1983), 436.96 (1984).

Population: 7,915,000.

Men: 18-30: 697,000; 31-45: 441,000.

Women: 18-30: 765,000; 31-45: 637,000.

TOTAL ARMED FORCES:

Regular: 4,950.

Terms of service: national service (incl civil), 2 years (selective).

ARMY: 4,600. (All Services form part of the Army.)

1 tk bn.

3 inf bns.

1 arty bn.

1 engr bn.

1 para bn.

1 special force bn.

2 AA arty coys.

1 SAM bty.

Tks: 21 T-34; Lt: 12 Type 62. **AFV:** **RECC:** 20 BRDM-2;

APC: 30 BTR-40, 10 BTR-152, 10 BTR-60. **Arty:** **GUNS:** 6 85mm, 6 100mm, 8 D-30 122mm; **MRL:** 2 BM-21 122mm; **MOR:** 81mm, 30 120mm. **AD:** **GUNS:** 6 37mm, 6 57mm; **SAM:** 6 SA-3. (Eqpt serviceability questionable.)

NAVY: 50

Bases: Bamako, Mopti, Segou, Timbuktu.

Patrol craft: 3 river/.

AIR FORCE (Army Air Coy): 300; 5 combat ac.

FGA: 5 MiG-17.

Tpt: 2 C-47, 3 An-2, 2 An-24, 2 An-26, 1 *Corvette* 200 (vip).

Trg: 1 MiG-15UTI, 6 Yak-11/-18.

Hel: 2 Mi-4, 1 Mi-8.

PARA-MILITARY: Gendarmerie 5,800; 8 coys. Republic

can Guard 2,000. Militia 3,000. Civilian Defence Organization 1,500.

MALTA

GDP 1983: LM 457.6 m (\$1,059 bn).
GDP growth 1982: 2.2%. 1983: 0.9%.
Inflation 1983: 0.4%. 1984: 1.0%.
Debt 1983: \$103 m. 1984: \$120 m.
Def budget 1983: LM 6.38 m (\$14.762 m). Est exp 1984: 7.1 m (\$15.421 m).
FMA 1983: \$3.0 m.
\$1 = liri 0.4322 (1983), 0.4604 (1984).
Population: 380,000.
Men: 18-30: 42,800; 31-45: 41,600.
Women: 18-30: 41,400; 31-45: 44,000.

TOTAL ARMED FORCES:

Regular: 775.

Terms of service: voluntary.

'TASK FORCE': 500.

1 inf bn; RPG-7 RL, 50 ZPU-4 14.5mm quad machine guns.
1 marine section; 11 patrol, 4 spt craft.
1 hel flt: 1 AB-206 *Jet Ranger*, 3 *Alouette III* (serviceability questionable), 3 AB-47G.

'ARMED FORCES OF MALTA': 275.

1 AD bty; 6 40mm AA guns.
1 general duties coy.
1 electrical and mechanical engr coy.

PARA-MILITARY: Reserves (*Id Dejma*) some 900.

MAURITANIA

GDP 1981: OM 34.50 bn (\$714.345 m). 1982: 37.60 bn (\$726.303 m).
Inflation 1983: 7.0%. 1984: 1.0%.
Debt 1983: \$1.20 bn. 1984: \$1.40 bn.
Est def budget 1982: OM 3.50 bn (\$67.608 m).
FMA 1983: \$200 m. 1984: \$250 m.
\$1 = ouguiyas 48.296 (1981), 51.769 (1982).
Population: 1,850,000.
Men: 18-30: 172,000; 31-45: 123,000.
Women: 18-30: 177,000; 31-45: 129,000.

TOTAL ARMED FORCES:

Regular: 8,470.

Terms of service: voluntary; conscription (2 years) authorized.

ARMY: 8,000.

1 inf bn.
1 arty bn.
1 Camel Corps.
3 armd recce sqns.
1 AA bty.
1 engr coy.
1 para coy.
AFV: RECCE: 15 EBR-75 hy, 39 AML-60, 14-90, 12 M-3A1; APC: 40 M-3 half-track. Arty: MOR: 81mm, 8 120mm. ATK: RCL: 57mm, 75mm, 106mm. AD: GUNS: 14.5mm, ZU-23-2, 6 37mm; SAM: SA-7.

NAVY: 320.

Bases: Port Etienne, Nouadhibou.
Patrol craft: 8: 1 Fr *Patra*-class, 3 *Barcelo*, 4,

AIR FORCE: 150; 9 combat ac.

COIN: 5 *Defender*, 4 *Cessna 337*.
MR: 4 *Piper Cheyenne*.
Tpt: 1 DHC-5D, 1 *Caravelle*, 2 *Skyvan*, 2 *Islander*.

PARA-MILITARY: 5,000.

Gendarmerie 2,500; 6 regional coys (Def Ministry). National Guard 1,400. Border Guard 100. Auxiliaries 1,000 (Interior Ministry).

MEXICO

GDP 1983: pM 17,142 bn (\$142.736 bn). 1984: 29,339 bn (\$174.811 bn).
GDP growth 1983: -5.3%. 1984: 3.5%.
Inflation 1983: 81%. 1984: 59.2%.
Debt 1983: \$90.0 bn. 1984: \$95.60 bn.
Def budget 1984: pM 94.243 bn (\$561.538 m). Est 1985: 150.0 bn (\$686.091 m).
FMA 1983: \$100 m. 1984: \$200 m.

\$1 = pesos 120.094 (1983), 167.83 (1984), 218.63 (1985).
Population: 79,000,000.
Men: 18-30: 9,200,000; 31-45: 5,660,000.
Women: 18-30: 9,040,000; 31-45: 5,820,000.

TOTAL ARMED FORCES:

Regular: 129,000 (+ 60,000 reservists).
Terms of service: voluntary, militia: part-time conscription (by lottery).
Reserves: 300,000.

ARMY: 100,000 regular (+ 60,000 reservists).

1 inf bde (Presidential Guard) (3 bns).
2 inf bdes: each 2 inf, 1 armd recce, 1 arty bns.
3 armd regts.
36 Zonal Garrisons incl: 21 indep cav (being mot), 3 arty regts, 70 indep inf bns.
AA, engr and support units.

Tks: LT: 40 M-3. AFV: RECCE: 15 M-8, 40 Panhard ERC-90F (*Lynx*), DN-3/-4/5 *Caballo*; APC: 40 HWK-11, 3 M-3. Arty: HOW: 18 M-116 75mm pack, 50 M-101 105mm towed, some 40 M-8 75mm and M-7 105mm sp; MOR: 1,600 60mm, 81mm and 60 120mm. ATK: GUNS: 35 M-3 37mm. AD: GUNS: 40 12.7mm.
(On order: 40 Panhard M-11 VBL recce (delivery late 1985).)

NAVY: 23,600, incl naval air force and marines. 2 Areas (Gulf, Pacific) of 5 and 12 Zones respectively.
Bases: Gulf: Vera Cruz, Tampico, Chetumal, Ciudad del Carmen, Yukalpetén. Pacific: Acapulco, Ensenada, La Paz, Puerto Cortés, Guaymas, Mazatlán, Manzanillo, Salina Cruz, Puerto Madero, Lázaro Cárdenas.

Destroyers: 2 *Gearing*.

Frigates: 6: 4 US *Lawrence/Crosley*, 1 *Durango*, 1 US *Edsall* (trg ship).

Corvettes: 6 *Halcón* (B-120) with 1 BO-105 hel.

Patrol ships: 35: 18 *Auk*, 16 *Admirable* ex-minesweepers, 1 *Guanajuato*.

Patrol craft: 31 *Azteca* large 6 coastal, 12 river.

Amph: 3 US 511-1152, 7 *Pegasos*.

Spt: 1 repair ship; 1 tpt, 2 harbour tankers.

Coastal defence: GUNS: M-1902/-1906 75mm, L/27 120mm.

NAVAL AIR FORCE: (300); 8 combat ac.

MR: 1 sqn with 8 HU-16 *Albatross*.
Liaison: 1 sqn with 1 *Learjet* 24D, 3 F-27, 6 *Bonanza*; 11 *Cessna* (3 150J, 3 180, 3 310, 2 337).
Hel: 1 sqn with 4 *Alouette II*, 5 Bell 47G, 6 MBB BO-105.

MARINES: (4,500).

3 bn HQ.
19 security coys.
(On order: 6 *Aguila* corvettes (mod *Halcón*); 5 *Azteca* large patrol craft; 5 *Olmecca* river patrol boats; 2 supply, 1 oceanographic ships.)

AIR FORCE: 5,500 (incl 2,000 AB bde); 85 combat ac.

Interceptors: 1 sqn with 10 F-5E, 2 F-5F.
COIN: 6 sqns with 55 PC-7, 10 T-33.
Recce: 1 photo sqn with 8 *Aero Commander* 500S.
SAR: 2 sqns: 1 ac with 8 *Arava*; 1 HEL with 4 *Alouette III/III*, 1 Hiller 12E, 3 *Puma*, 17 Bell (1 47G, 5 206B, 1 212, 10 205A).

Presidential (tpt) sqn: Ac: 9 Boeing 727, 2 737, 1 F-27, 1 *Jetstar*, 1 *Electra*, 1 HS-125-400, 5 T-39 *Sabreliner*, 1 *Cessna* 310XR; HEL: 1 Bell 212, 2 *Puma*, 2 AS-332L *Super Puma*.

Tpt: 4 sqns: 3 DC-6/-7, 2 C-118, 5 C-54, 12 C-47, 3 *Skyvan*, 1 *Islander*, 6 CF-27, 2 DHC-5D, 1 *Cessna* 182, 2 206E.
Trg: some 12 T-28D, 1 *Baron*, 20 *Bonanza*, 2 *King Air*, 34 *Musketeer*, 5 PC-7 *Turbo-Trainer*, 20 CAP-10B.

1 AB bde (2 regular, 1 trg bns).

(On order: 10 CASA C-212 patrol ac.)

MONGOLIA

Est GDP 1983: tugrik 6.39 bn (\$1,936 bn). 1984: 6.65 bn (\$1,985 bn).
Def budget 1983: tugrik 725.5 m (\$219.848 m). 1984: 763.8 m (\$228,000 m).
Est FMA 1982: \$600 m.
\$1 = tugrik 3.3 (1983), 3.35 (1984).
Population: 1,900,000.
Men: 18-30: 211,000; 31-45: 149,000.
Women: 18-30: 212,000; 31-45: 148,000.

TOTAL ARMED FORCES:

Regular: 36,500.
Terms of service: 3 years, authorized, actual service may only be 2.
Reserves: Army 40,000.

ARMY: 33,000.

4 inf divs.

Tks: 650 T-54/-55/-62. AFV: RECCE: BRDM-2; MICV: BMP; APC: 70 BTR-60/-152. Arty: GUNS: ZIS-3 76mm, 650 100mm incl SU-100 sp, 122mm, 130mm; GUN/HOW: M-1937 152mm; HOW: 152mm. ATGW: AT-1. AD: GUNS: 37mm, 57mm.

AIR FORCE: 3,500 (100 pilots); Soviet technicians; 12 combat ac. (Operates civil air line).

Ftrs: 1 sqn with 12 MiG-21.
Tpt: min 2 sqns: 20 An-2, 19 -24, 1 -26, 3 Il-14.
Hel: 1 sqn with Mi-8, 10 Mi-4.
Trg: Yak-11/-18, 3 PZL-104 *Wilga* utility.

PARA-MILITARY: Ministry of Public Security (15,000); Militia (Police), internal security troops, frontier guards; BTR-40/-152 APC.

MOROCCO

GDP 1982: MD 90.09 bn (\$14.958 bn). 1983: 94.59 bn (\$13.301 bn).
GDP growth 1983: 2.0%. 1984: 2.4%.
Inflation 1983: 12.5%. 1984: 12%.
Debt 1983: \$12.0 bn. 1984: \$13.6 bn.
Def budget 1984: MD 4.190 bn (\$475.569 m). 1985: 5.246 bn (\$504.074 m).
FMA (excl substantial aid from Saudi Arabia) 1983: \$75.0 m, 1984: \$39.0 m.
\$1 = dirham 6.023 (1982), 7.1113 (1983), 8.8105 (1984), 10.4072 (1985).
Population: 22,000,000.
Men: 18-30: 2,612,000; 31-45: 1,323,000.
Women: 18-30: 2,482,000; 31-45: 1,501,000.

TOTAL ARMED FORCES:

Regular: 149,000.
Terms of service: 18 months.

ARMY: 130,000.

3 mech inf bdes.
1 lt security bde.
1 para bde.
1 AA gp.
9 mech inf regts.
9 arty groups.
7 armd bns.
1 Royal Guard bn.
4 camel corps bns.
2 desert cav bns.
1 mountain bn.
4 cdo bns.
4 engr bns.
4 armd car sqns.
Tks: 120 M-48A5; LT: 70 AMX-13.
AFV: RECCE: 20 EBR-75, 30 AMX-10RC, 162 AML-90, 250 *Eland* 90mm, 150 AML-245; APC: 40 M-8, 350 M-113, 220 VAB, 70 UR-416, 70 *Ratel*-20, 56 M-3, *Steyr* 4K-7FA.
Arty: GUNS: D-44 85mm, 10 SU-100 100mm sp, 36 105mm lt, 12 M-48 130mm, 40 AMX-F-3 sp 155mm; GUN/HOW: 12 M-1937 152mm; HOW: 60 M-101 towed, 22 Mk 61, 105mm, 20 M-114 155mm towed, 36 M-109 155mm sp; MRL: 20 BM-21 122mm; MOR: 300 60mm, 600 81mm, 70 82mm, 320 120mm.

ATK: RL: STRIM-89; RCL: M-40 106mm; GUNS: 20 M-56 90mm, 121 *Kuerassier* 105mm sp; ATGW: M-47 *Dragon*, *Milan*, BGM-71A *TOW*.

AD: GUNS: 100 20mm, M-38/-39 37mm, S-60 57mm and KS-19 100mm towed, 40 M-63 *Vulcan* 20mm sp; SAM: SA-7, 30 M-730 *Chaparral*.
(On order: AML-90, 61 AMX-10RC armd cars; 126 VAB APC.)

NAVY: 6,000 incl 1,000 naval infantry.

Bases: Casablanca, Safi, Agadir, Kenitra, Tangier.
Frigates: 1 *Descubierta* with 4 *Exocet* MM-38 ssm, 1 x 8 *Aspide* SAM.
FAC: 2 PR-72; (g): 4 *Lazaga* with 4 *Exocet* MM-38.
Patrol craft: 1 *Sirius* ex-mcmv, 3 other large, 13 coastal.
Amph: 4 LST: 3 *Batral*; LCT: 1 *EDIC*-type.
1 naval inf bn.
(On order: 2 PR-72 FAC, 4 P-32 patrol vessels.)

AIR FORCE: 13,000; 105 combat ac.

FGA/recce: 5 sqns: 3 with 21 *Mirage* F-1E, 18 F-1C; 2 with 38 F-5 (5 A, 14 E, 3 B, 4 F, 12 RF-5A).
COIN/recce: 1 sqn with 22 *Magister*, 6 OV-10 *Bronco*.
Tpt: 1 sqn with 15 C-130H, 3 KC-130H, 1 *Gulfstream*, 4 *King Air*, 10 Do-28D.
Hel: ATTACK: 12 SA-342 *Gazelle*, 6 A-109; TPT (HY): 11 CH-47; (MED): 27 SA-330 *Puma*, 33 AB-205A; (LT): 5 AB-206, 10 AB-212; SAR: 4 HH-43B *Husky*.
Trg: 11 T-34C, 11 AS-202/18A *Bravo*, 28 SF-260M, 24 *AlphaJet*.
AAM: AIM-9J *Sidewinder*, R-550 *Magic*.
(On order: 25 *Gepal* Mk IV trg ac; 12 SA-342 *Gazelle*, 19 AB-206 hel; 381 *Maverick* ASM.)

Forces Abroad: Equatorial Guinea: 300.

PARA-MILITARY: 31,000 incl *Gendarmerie Royale, Force Auxiliare* and Mobile Intervention Corps: 2 *Rallye* ac; 5 *Alouette II/III*, 3 *Lama*, 6 *Gazelle*, 6 *Puma*, 6 A-109 hel.

OPPOSITION: Polisario: 21,000 (perhaps 4,000 'Regulars') org in bns, spt elms; T-55 MBT, BMP-1 MICV, M-1931/37 122mm how, BM-21 122mm MRL, 120mm, 160mm mor, ZSU-23-2 23mm AA guns, SA-6, SA-7 SAM.

MOZAMBIQUE

GDP 1982: M 89.30 bn (\$2,928 bn). Est 1983: 82.0 bn (\$3,008 bn).

GDP growth 1982: 0%. 1983: -0.8%.
Debt 1983: \$1.35 bn. Est 1984: \$1.50 bn.
Est def exp 1982: M 6.20 bn (\$203.279 m).
Est FMA 1984: \$1.8 m. (Western military aid only.)
\$1 = meticals 30.5 (1982), 27.257 (1983).
Population: 12,324,000.
Men: 18-30: 1,464,000; 31-45: 1,023,000.
Women: 18-30: 1,532,000; 31-45: 1,076,000.

TOTAL ARMED FORCES:

Regular: 15,800 (some 10,500 conscripts). (Cuban, East German and Soviet advisers reported.)
Terms of service: conscription (selective), 2 years (incl women).

ARMY: 14,000 (perhaps 75% conscripts).

1 tk bde (Presidential Guard).
7 inf bdes (each 1 tk, 3 inf, 2 mot, 2 arty, 1 ad bns, spt units).
2 indep mech bns.
7 AA arty bns.
Tks: 195 T-34, some 90 T-54/55. **AFV:** RECCE: 30 BRDM-1/2; APC: 200 BTR-60/152. **Arty:** GUNS: 250 M-1942 76mm, M-1945 85mm, 24 M-1944 100mm, M-1938 122mm, 24 M-1946 130mm; HOW: M-101 105mm; MRL: 30 BM-21 122mm; MOR: 325 60mm, 82mm and 120mm. **ATK:** RCL: 75mm, B-10 82mm, B-11 107mm; ATGW: *Sagger*. **AD:** GUNS: 300 20mm, ZU-23 23mm, 37mm, 57mm towed and ZSU-57-2 SP; SAM: 10 SA-3, SA-7. (Eqpt serviceability questionable. Some in store.)

NAVY: 800.

Bases: Maputo, Beira, Nacala, Pemba, Metangula.
Patrol craft: 26 coastal: 6 Sov (5 *Zhuk*, 1 *Poluchat*), 6 Port (1 *Antares*, 3 *Jupiter*, 2 *Bellatrix*), 4 Neth, 10 Indian.
Amph: Lcr: 1 Port *Alabarda* 500-ton; Lcu: 2 LDM-100.

AIR FORCE: 1,000; some 18 combat ac.

FGA: 3 sqns with some 18 MiG-17.
Hel: 1 sqn with 4 Mi-8 (some Mi-24 reported).
Tpt: 1 sqn with 1 Tu-134, 4 An-26.
Trg: L-39, 7 Zlin, 3 MiG-15.

PARA-MILITARY: Border Guard 9,500: 4 bdes, Provincial, People's Militias, Local Militias (village self-defence force).

OPPOSITION: National Resistance Movement of Mozambique (MNR or *Renamo*): up to 15,000 reported, perhaps 6,000 trained, 3,000 reserve.

NEPAL

GDP 1982/3: NR 33.621 bn (\$2,203 bn). Est 1983/4: 35.600 bn (\$2,001 bn).

GDP growth 1982/3: -1.6%. 1983/4: 6.0%.
Inflation 1983: 14.0%. 1984: 6.7%.
Debt 1983: \$350.00 m. Est 1984: \$390.00 m.
Def budget 1983/4: NR 463.40 m (\$30.366 m). Est 1984: 530.0 m (\$29.792 m).
\$1 = rupees 13.7955 (1982/3), 15.2603 (1983/4), 17.7898 (1984/5).
Population: 16,500,000.
Men 18-30: 1,798,000; 31-45: 1,263,000.
Women 18-30: 1,700,000; 31-45: 1,265,000.

TOTAL ARMED FORCES:

Regular: 25,000.
Terms of service: voluntary.
Reserves: 25,000.
1 Palace Guard bde: incl 1 cav sqn, 1 garrison bn, 5 inf bdes: incl AB bn.
1 spt bde: 1 arty, 1 engr, 1 sigs bn.
1 log bde: incl 1 tpt bn, 1 air sqn (1 ac, 1 hel flts).
Tks: Lt: (716) AMX-13 (?operational). **Recce:** 25 *Ferret*.
Arty: how: 6 75mm pack, 4 3.7-in. (94mm) mountain; MOR: 4 4.2-in. (107mm), 18 120mm. **AD:** GUNS: 2 40mm. **Avn:** Ac: 2 *Skyvan*, 1 HS-74B, 1 DHC-6 *Twin Otter*; HEL: 6 *Chetak* (*Alouette III*), 2 *Puma*.

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Forces Abroad: Lebanon (UNIFIL): 1 inf bn (666).

PARA-MILITARY: Police force 22,000.

NEW ZEALAND

GDP 1982/3: \$NZ 32,368 bn (\$US 23,609 bn). 1983/4: 34,935 bn (\$US 22,956 bn).

GDP growth 1983: 0.2%. 1984: 3.1%.
Inflation 1983: 9.0%. 1984: 5.0%.
Debt 1983: \$US 11.5 bn. 1984: \$US 14.0 bn.
Def budget 1984/5: \$NZ 773.10 m (\$US 408,745 m).
1985/6: 884.87 m (\$399,869 m).
FMA 1983: \$US 1,216 m. 1984: \$1,216 m.
\$US 1 = \$NZ 1.371 (1982/3), 1.5218 (1983/4), 1.8914 (1984/5), 2.2129 (1985).
Population: 3,300,000.
Men: 18-30: 380,000; 31-45: 294,000.
Women: 18-30: 348,000; 31-45: 323,000.

TOTAL ARMED FORCES:

Regular: 12,443.
Terms of service: voluntary, supplemented by Territorial Army service: 7 weeks basic, 20 days per year.
Reserves 9,553. Regular 2,915: Army 1,370, Navy 755, Air 790. Territorial 6,638: Army 5,963, Navy 462, Air 213.

ARMY: 5,431.

2 inf bns.
1 arty bty.
1 lt armd sqn.
Territorials: 6 inf bns, 4 fd, 1 med arty bty, 1 recce, 1 APC.
1 ATK sqns.
Tks: Lt: 26 *Scorpion*. **APC:** 72 M-113. **Arty:** GUNS: 10 5.5-in. (140mm); HOW: 41 105mm (incl pack); MOR: 71 81mm. **ATK:** RCL: 22 106mm.

NAVY: 2,687.

Base: Auckland.
Frigates: 4 *Leander* with 1 *Wasp* hel, *Seacat* SAM (1 with 2 x 4 SAM, 3 with 1 x 4; 1 with 2 x 4 *Ikara* ASW).
Patrol craft: 8: 4 *Lake*, 4 inshore (Reserves).
Survey vessels: 3.
Oceanographic vessel: 1.
Hel: 7 *Wasp* (see Air Force).

AIR FORCE: 4,325; 44 combat ac.

Ops Gp:
FGA: 2 sqns: 17 A-4K, 5 TA-4K *Skyhawk*.
MR: 1 sqn with 6 P-3B *Orion*.
COIN: 1 with 16 BAC-167 *Strikemaster*.
Tpt: 3 sqns: ac: 2 with 5 C-130H, 2 Boeing 727-100C; HEL: 1 with 6 *Sioux*, 12 UH-1D/H, 7 *Wasp* (Navy-assigned).
Comms: 1 sqn with 6 *Andover*, 3 Cessna 421C.
Support Gp:
Trg wing: 4 *Airtourer*, 15 CT-4 *Airtrainer*, 3 F-27 *Friendship* ac; 3 *Sioux* hel.

Forces Abroad: Singapore: 1 inf bn with log spt, 1 spt hel unit (3 UH-1). Egypt (Sinai MFO): 35; 2 UH-1 hel.

NICARAGUA

GDP 1982: \$C 29,696 bn (\$US 2,955 bn). 1983: 35,783 bn (\$US 3,560 bn).

GDP growth 1982: -1.4%. 1983: 5.1%.
Inflation 1983: 33%. 1984: 53.2%.
Debt 1983: \$US 3.42 bn. 1984: \$US 3.70 bn.
Est def exp 1982: \$C 2.50 bn (\$US 248,756 m). 1983: 3.50 bn (\$US 348,259 m). (Official government figures claim defence expenditure was 25% of the 1984 budget, while the FSLN claims it was up to 63%. Value of Soviet, East European and Cuban military aid not known.)
\$1 = córdobas 10.05 (1982/3/4).
Population: 3,200,000.
Men: 18-30: 350,000; 31-45: 211,200.
Women: 18-30: 349,400; 31-45: 217,000.

TOTAL ARMED FORCES:

Regular: 62,850 (perhaps 25,000 conscripts).
Terms of service: conscription, males 18-40, 6 months, 2-year period authorized (extended indefinitely in national emergency).
Reserves (all services): 57,000. Army 29,000 (15,000 active duty); Navy and Air exist, totals unknown.

ARMY: 60,000; 30,000 Regular (some 25,000 conscripts), rest active Reserves and militia.
3 Military Zones with 6 Militia, 1 Special Regions.
1 mot inf bde (other bde orgs reported).
5 arm'd bns.
10 inf bns (1 AB).
10 COIN (1t inf) bns.
1 fd arty bde (perhaps 8 btyes).

Some 6 engr bns.

1 AA arty gp (perhaps 7 bns; with Air Force).
Reserves/Militia: some 160 bns.
Tks: 2 M-4A3, some 120 T-54/55; Lt: 30 PT-76. **AFV:** RECCE: 50 BRDM-2, 6 *Staghound*; APC: 24 BTR-60, 148 BTR-152. **Arty:** GUNS: 12 M-1942 76mm; GUN/HOW: 24 D-30 122mm, 24 D-20 152mm; HOW: 12 105mm, 24 M-1938 122mm; MRL: 24 BM-21 122mm; MOR: 24 M-43 120mm. **ATK:** GUNS: 98 ZIS-2 57mm. **AD:** GUNS: some 100 ZPU-1/2/4 14.5mm, some 30 ZU-23 23mm, 56 M-1939 37mm, S-60 57mm; SAM: SA-7.

NAVY: 850 (some conscripts).

Patrol craft: 2 Fr, 3 Sov *Zhuk*, 2 N. Korean *Sin Hung*, 6 *Hatteras*, 4 *Dabur*, 1 *Sewart*, 10 other coastal.
MCMV: 4 Polish K-8, 2 Sov *Yevgenya* inshore.
Amph: 1 LCM.

AIR FORCE: 2,000, incl AD (some conscripts); combat: 17 ac, 8 hel.

COIN: 1 sqn with 3 AT-33A, 4 T-28D, 3 SF-260 *Warrior*, 7 Cessna 337 (O-2).
Tpt: 1 sqn with 2 C-212A, 1 *Arava*, 3 C-47, 6 An-2, 2 An-26 armed.
Hel: 1 sqn with 2 OH-6A, 2 *Alouette III*, 6 Mi-2, 12 Mi-8, 6 Mi-24 *Hind*.
Trg: 6 L-39.
AD (Army/Air Force): **RADAR:** 3 installations.
(On order: status of MiG-21, long reported, unclear: 14 L-39 trg ac; Mi-24 hel, 100 *Matra* LRF-2 68mm ASM pods.)

PARA-MILITARY: Border Guard (*Tropas Guardafronteras*, TGF; under Army): some 3,000; 6 bns. Civilian Militia (*Milicia Popular Sandinista*): perhaps 40,000. Ministry of Interior Troops (*Tropas Pablo Ubeda*): 2,000.

OPPOSITION: some 20,300. Southern Front: *Fuerzas Revolucionarias Sandino* (FRS), Democratic Revolutionary Alliance (ARDE), 72,000; Northern Front: *Fuerza Democrática Nicaragüense* (FDN) (US-backed), 15,000; Atlantic Coast: *Misurasata*, 600, *Misura* perhaps 1,500.

NIGER

GDP 1982: fr CFA 653.40 bn (\$1,988 bn). 1983: 697.20 bn (\$1,830 bn).

GDP growth 1982: -4.0%. 1983: -3.5%.
Inflation 1983: 0%. 1984: 8.5%.
Debt 1983: \$950.0 m.
Def budget 1983: fr CFA 5.0 bn (\$13,121 m). 1984: 4.5 bn (\$10,297 m).
\$1 = francs CFA 328.62 (1982), 381.07 (1983), 437 (1984).
Population: 6,180,000.
Men: 18-30: 670,000; 31-45: 466,000.
Women: 18-30: 685,000; 31-45: 479,000.

TOTAL ARMED FORCES:

Regular: 2,220.
Terms of service: conscription (2 years), selective.

ARMY: 2,150.

3 Military Districts.
2 arm'd recce sqns.
6 inf coys.
1 engr coy.
1 para coy.
1 log/spt coy.
AFV: RECCE: 10 M-8, 18 AML-90, 18 AML-60-7; APC: 14 M-3. **Arty:** MOR: 60mm, 81mm, 15 120mm. **ATK:** RCL: 57mm, 75mm. **AD:** GUNS: 10 M-3 VDA 20mm SP.

AIR FORCE: 70; no combat ac or hel.
Tpt: 1 Boeing 737 (VIP), 2 C-47, 2 C-130H, 3 Do-28D, 1 *Aero Commander* 500, 1 *Reims* Cessna F-337.

PARA-MILITARY: some 2,550. *Gendarmerie* (7850); 5 groups. *Presidential Guard* (?200). *Republican Guard* (?1,500). Four *Nomad* patrol groups.

NIGERIA

GDP 1982: N 44,884 bn (\$66,673 bn). Est 1983: 49.0 bn (\$67,736 bn).

GDP growth 1983: -6.4%. 1984: -1.0%.
Inflation 1983: 38.0%. 1984: 44.0%.
Debt 1983: \$18.50 bn. 1984: \$20.0 bn.
Def budget (excl N 3.94 bn development plan) 1984: N 928.2 m (\$1,215 bn). 1985: 975.7 m (\$1,106 bn).
\$1 = naira 0.6732 (1982), 0.7234 (1983), 0.7642 (1984), 0.8825 (1985).
Population: 94,000,000.
Men: 18-30: 10,310,000; 31-45: 6,799,000.

Men: 18-30: 10,310,000; 31-45: 6,799,000.
Women: 18-30: 10,493,000; 31-45: 7,058,000.

TOTAL ARMED FORCES:

Regular: 94,000.
Terms of service: voluntary.
Reserves: strength unknown; in all Services.

ARMY: 80,000.

1 arm'd div (4 arm'd, 1 mech bdes).
1 composite div (incl 1 AB, 1 air portable, 1 amph bdes).
2 mech divs (each 3 mech bdes).
4 arty bdes } organic
4 engr bdes } to divs
4 recce bns } (1 each).

1 Guards bde (1 arm'd recce, 3 inf bns).
Tks: 40 T-55, 36 Vickers Mk 3; Lt: 50 *Scorpion*. **AFV:**
RECCO: 20 *Saladin*, 90 *AML-90*, 55 *Fox*; **APC:** 10 *Saracen*, 6 M-3 VPC, 4 *AMX VTT*, 26 *Steyr 4K-7FA*. **Arty:**
gns: 76mm, 200 D-30/-74 122mm, 30 M-46 130mm;
HOW: 200 M-56 105mm; **MOR:** 200 81mm. **ATK:** **rcl:**
106mm. **AD:** **gns:** some 60 200mm, 40mm towed, 30
ZSU-23-4 SP; **SAM:** *Blowpipe*, 16 *Roland*.
(On order: 36 Vickers Mk 3 MBT, 70 4K-7FA APC; 25 Bofors
FH-77B 155mm, 25 *Palmaria* 155mm SP how; *Swing-
fire* ATGW; *Blowpipe*, 16 *Roland* SAM.)

NAVY: 5,000.

Bases: Apapa (Lagos; Western Command), Calabar
(Eastern Command).
2 Commands:
Frigates: 2 *ASW*; 1 Meko 360H with 8 *Otomat* ssm, 1 x 8
Aspide SAM, 1 *Lynx* hel; 1 ex-Neth (trg).
Corvettes: 4; 2 *Hippo* (Vosper Thornycroft Mk 9) with 2
x 3 *Seacat* SAM; 2 *Dorina* Mk 3 (may not be opera-
tional).
FA-C(g): 6; 3 Lürssen Type-57 with 4 *Otomat* ssm; 3 *La
Combattante* III B with 2 x 2 *Exocet* MM-38.
Patrol craft: 9 large; 4 *Makurdi*, 4 *Argun Gu*, 1 *Yan-Yan*.
Amph: LST: 2 Type-502 (*Crocodile*); LCU: 2.
Hel: 3 *Lynx* Mk 89 MR/SAR.
(On order: 2 *Lerici* MCMV.)

AIR FORCE: 9,000; 49 combat ac.

FGA/interceptor: 3 sqns: 1 with 16 *AlphaJet*; 2 with 17
MiG-21MF (to be replaced); 14 *Jaguar* (12 -5N, 2 -BN).
SAR: 1 sqn with: **AC:** 2 F-27MPA MR; **HEL:** 20 BO-105C/D.
Tpt: 2 sqns with 9 C-130H-30, 3 F-27, 5 G-222, 1 *Gulf-
stream* III (VIP), 1 *Super King Air*.
Spt: 3 sqns with 13 Do-28D, some 14 Do-128-6.
Hel incl 14 *Puma*.
Trg: **AC:** 2 MiG-21U, P-149D, 12 MB-339, 4 *Jaguar*, 25
Bulldog; **HEL:** 15 Hughes 300.
AAM: AA-2 *Atoll*.
(On order: 18 MiG-21 (12 MF, 6 U), 8 *AlphaJet* FGA; some 4
Do-128-6 utility ac; 5 CH-47 *Chinook* hel.)

PARA-MILITARY: Coastguard: 15 *Abeokuta*, 3 other patrol
craft. Port Security Police 12,000. Security and
Civil Defence Corps (Ministry of Internal Affairs): Po-
lice: UR-416 APC, 4 hel, 68 small craft, 7 hovercraft (5
AV Tiger).

OMAN

Est GDP 1983: RO 2,620 bn (\$7,585 bn), 1984: 2,750 bn
(\$7,962 bn).
GDP growth 1983: 5.5%. 1984: 5.0%.
Inflation 1983: -2.2%. 1984: 1.5%.
Debt 1983: \$1.1 bn. 1984: \$1.2 bn.
Def budget (excl development costs for civilian pur-
poses) 1984: RO 677 m (\$1,960 bn), 1985: 717 m
(\$2,076 bn).
\$1 = rial 0.3454 (1982-5).
Population: 1,000,000-1,600,000. (Breakdown based on
World Bank projections and total population of 1.2 m.)
Men: 18-30: 129,000; 31-45: 112,000.
Women: 18-30: 114,000; 31-45: 88,000.

TOTAL ARMED FORCES:

Regular: 21,500 (incl some 3,700 foreign personnel).
Terms of service: voluntary.
Reserves: National Volunteer Reserve Force.

ARMY: 16,500.

2 bde HQ.
1 Royal Guard bde.
1 arm'd regt (2 lk sqns, 1 sp arty bty).
2 lt fd arty regts, 2 med arty bty, 1 lt AA bty.
1 recce regt (2 arm'd car sqns).
8 inf 'regts' (bns).
1 special force regt.
1 sigs regt.
1 fd engr regts (2 sqns).
1 para regt.
Tks: 6 M-60A1, 27 *Quayid Al Ardh* (*Chieftain*); Lt: 30
Scorpion, 6 VBC-90. **AFV:** *micv* (VAB): 2 VCAC with
Milan, 2 VD (AD; 20mm), 2 PC; **APC:** 6 VAB VCI, 15

AT-105 *Saxon*. **Arty:** **gns:** 39 ROF It 105mm, 12
M-1946 130mm; **gun/how:** 18 25-pdr (88mm); **how:** 12
FH-70, 12 M-109A2 155mm SP; **MOR:** 60mm, L-16
81mm, 12 M-30 4.2-in. (107mm), 12 120mm. **ATGW:** 10
BGM-71A *TOW*, *Milan*. **AD:** **gns:** 4 ZU-23-2 23mm;
SAM: *Blowpipe*.

NAVY: 2,000.

Bases: Muscat, Raysut, Ghanam (Goat) Island; (Wa-
dai Alwi, under construction).
1 Royal Yacht.
FA-C(g): 4 Brooke Marine with *Exocet* ssm: 3 *Province* (2
with 2 x 4, 1 with 2 x 3 MM-40), 1 with 2 MM-38.
Patrol craft: 4 inshore.
Amph: 2 log spt ships; **LCM:** 3; **LCU:** 2.
Trg ship: 1.

AIR FORCE: 3,000; 52 combat ac.

FGA: 2 sqns with 20 *Jaguar* S(O) Mk 1, 4 T-2.
FGA/recce: 1 sqn with 12 *Hunter* FGA-6, 4 T-7.
COIN/trg: 1 sqn with 12 BAC-167 *Strikemaster* Mk 82.
Tpt: 3 sqns: 1 with 3 BAC-111, 1 *Mystère-Falcon* 20; 2
with 7 *Defender/Islander*, 15 *Skyvan* 3M, 3 C-130H.
Royal flt: 1 *Gulfstream*, 1 DC-8, 1 VC-10 tpts.
Hel: 2 sqns: TPT (MED); 20 AB-205, 4 AB-212, 2 AS-332
Super Puma, 5 AB-214B; (Lt): 3 AB-206.
Trg: 2 AS-202 *Bravo*.
AD: 2 sqns with 28 *Rapier* SAM.
AAM: AIM-9 *Sidewinder*, R-550 *Magic*.
(On order: 1 C-130H, 2 DHC-5D tpts; 6 Bell 214ST hel; 2
S-713 (3-D radar) systems, 28 *Blindfire* radars.)

PARA-MILITARY: tribal Home Guard (*Firqat*) 3,500. Po-
lice Coastguard; 15 AT-105 APC, 12 coastal patrol, 9 spt
craft (Air Wing: 1 *Learjet*, 2 *Dornier* 228-100, 2 *Merlin*
IVA, 2 *Buffalo* ac, 5 AB-205, 3 AB-206 hel, Musandam
Security Force (Shikuk Tribal Militia) 85.

PAKISTAN

GDP 1982/3: Rs 363.83 bn (\$28.648 bn), 1983/4: 419.80 bn
(\$31.151 bn).
GDP growth 1983: 6.5%. 1984: 5.3%.
Inflation 1983: 10.1%. 1984: 5.0%.
Debt 1983: \$10.50 bn. 1984: \$12.70 bn.
Def budget 1984/5: Rs 27.80 bn (\$1.835 bn). Est 1985/6:
32.90 bn (\$2.059 bn).
FMA 1983/4: \$300.0 m. 1984/5: \$325.0 m.
\$1 = rupees 12.6998 (1982/3), 13.4763 (1983/4),
15.1515 (1984/5), 15.979 (1985).
Population: 95,225,000. (Excl Afghan refugees.)
Men: 18-30: 11,310,000; 31-45: 6,990,000.
Women: 18-30: 10,170,000; 31-45: 6,350,000.

TOTAL ARMED FORCES:

Regular: 482,800.
Terms of service: voluntary.
Reserves: 513,000. Army 500,000 (obligation to ages 45
(men) or 50 (officers); active liability for 8 years after
service). Navy 5,000, Air 8,000.

ARMY: 450,000.

7 Corps HQ; 1 Field Command.
2 arm'd divs.
16 inf divs.
8 arty bdes/bde equivalent.
3 AA arty bdes.
6 arm'd recce regts.
4 indep arm'd bdes.
8 indep inf bdes.
7 SAM bty: 6 with 6 *Crotale* (each 4 msls); 1 with 6 CSA-1
(SA-2).
1 special services group.
Tks: 405 M-47/48 (incl A5), 51 T-54/55, 1,050 Type-59.
APC: 500 M-113, 45 UR-416. **Arty:** **gns:** some 1,000
25-pdr (88mm), Type-59 100mm, 130mm, 5.5-in.
(140mm) and 155mm; **HOW:** M-116 75mm pack, 105mm
incl pack, 12 M-7 SP, 75 M-198 towed, 100 M-109A2 SP
155mm, M-115 and 40 M-110A2 SP 203mm; **MRL:**
122mm; **MOR:** 107mm, 120mm. **ATK:** **RL:** 75mm, 3.5-in.
(89mm); **rcl:** Type 52 75mm, 106mm. **ATGW:** *Cobra*,
200 *TOW*. **AD:** **gns:** 14.5mm, 37mm, 40mm, 57mm,
85mm; **SAM:** 100 *Stinger*, 6 *Crotale*; 6 CSA-1.

AVIATION:

Liaison: **AC:** 1 sqn with 45 *Mashshaq* (Saab-91 *Safari*);
HEL: 4 sqns.
Observation: indep flts: **AC:** 45 O-1E, Cessna 421, 50
Mashshaq (Saab *Safari*), *Turbo Commander*, *Queen*
Air; **HEL:** some 2 AH-1S *Cobra* with *TOW*, 16 Mi-8, 35
Puma, 23 *Alouette* III, 13 Bell 47G.
(On order: 65 M-48A5 MBT; M-113 APC; *TOW* ATGW
launchers (incl 24 M-901 *Improved TOW* SP, 1,000
msls); some 10 AH-1S hel; 144 RBS-70 SAM launchers,
400 msls.)

NAVY: 15,200 (incl Naval Air).

Base: Karachi.

Subs: 11; 2 *Agosta*, 4 *Daphne*, 5 SX-404 midget.
Destroyers: 8; 1 Br *County* with 2 x 4 *Seacat* SAM, 1
Alouette hel; 6 US *Gearing* with 1 x 8 *ASROC* ASW
(being mod to 3 x 2 *Harpoon* ssm); 1 Br *Battle*.
FA-C: 16 Ch: 12 *Shanghai-II*; 4 *Huchwan* hydrofoil; (a); 8
Ch: 4 *Huangfen* (4 HY-2 ssm), 4 *Huku* (2 HY-2).
Patrol craft: 24; 4 Ch *Hainan*, 1 *Town*, 1 *Spear*, 18 MC-55
coastal.
MCMV: 3 US *Adjutant* and MSC-268 coastal.
Spt: 2 tankers (1 ocean, 1 coastal), 1 Br *Dido* cruiser
(cadet trg/AA ship; non-operational).
(On order: 3 Type-21 frigates; 16 RGM-84 *Harpoon* ssm.)

NAVAL AIR: 3 combat ac, 6 combat hel.
ASW/MR: 1 sqn of 3 *Atlantic* with AM-39 ASM.
ASW/SAR: 2 hel sqns: 6 *Sea King* ASW with AM-39, 4
Alouette III.
Comms: 1 F-27 ac (Air Force).
ASM: AM-39 *Exocet*.

AIR FORCE: 17,600; 375 combat ac.
FGA: 8 sqns: 1 with 17 *Mirage* IIIEP; 4 with 50 *Mirage*
5PA3; 3 with 41 Ch Q-5.
Interceptor/FGA: 11 sqns: 9 with 170 Ch J-6; 2 with some
30 F-16.
Recce: 1 sqn with 13 *Mirage* IIIRP.
Tpt: 2 sqns: 1 with 13 C-130B/E, 1 L-100; 1 with 1
Mystère-Falcon 20, 1 F-27-200 (with Navy), 1 *Super*
King Air, 1 *Bonanza*.
SAR: 1 hel sqn with 6 HH-43B, 4 *Alouette* III.
Utility: 1 hel sqn: 4 *Super Frelon*, 12 Bell 47G.
Trg: 1 sqn with 20 T-33A, 4 MiG-15UTI; other ac incl 2
Mirage 5DPA2, 3 *Mirage* IIIDP, 2 J-6, 35 T-37C, 45 Ch
JJ-5 (MiG-17U), 12 Ch CJ-6, 24 Reims Cessna FTB-337.
AAM: *Sidewinder*, R-530, R-550 *Magic*.
(On order: 10 F-16, some 100 Ch Q-5 FGA, 500 AIM-9L
Sidewinder.)

Forces Abroad: 30,000 contract personnel. Saudi Arabia
(20,000), Jordan, Libya, Oman, UAE.

PARA-MILITARY: 164,000: National Guard (75,000): Mu-
jahid Force; Janbaz Force; National Cadet corps;
Women Guards; Frontier Corps (65,000); Pakistan
Rangers (15,000); Coastguard (2,000); Northern Light
Infantry (7,000).

PANAMA

GDP 1982: B 4,279 bn (\$4,279 bn), 1983: 4,379 bn (\$4,379
bn).
GDP growth 1982: 5.5%. 1983: 0.4%.
Inflation 1983: 1.9%. 1984: 1.8%.
Debt 1983: \$3.5 bn. 1984: \$4.0 bn.
Def budget 1984: B 88 m (\$88 m). 1985: 96.469 m (\$96.469
m).
FMA 1983: \$5.5 m. 1984: \$8.0 m.
\$1 = balboas 1.00 (1982/3/4).
Population: 2,100,000.
Men: 18-30: 248,000; 31-45: 176,200.
Women: 18-30: 236,000; 31-45: 166,000.

TOTAL ARMED FORCES:

Regular: 12,000.
Terms of service: voluntary (conscriptio authorized).

ARMY (National Guard): 11,500.
7 lt inf coys (1 *Special Forces*; 1 AB (1,500 men)).
AFV: **recce:** 28: 16 V-150 *Commando*, 12 V-300 *Com-
mando*.
(On order: 60 *TAM* micv.)

NAVY: 300.

Patrol craft: 2 *Vosper* large, 6 coastal.
Amph: 2 *Batral* lt tpts, 1 LSM, 1 LCM.

AIR FORCE: 200.

Recce: 1 sqn.
SAR: 1 sqn.
Tpt: 'Service'.
AC: 1 *Electra*, 4 C-47, 2 *Islander*, 2 C-212, 2 DHC-3, 2
DHC-6, 1 *Skyvan*, 1 *Mystère* 20 (VIP), 6 Cessna 180, 5
185U-17A, 1 402.
Hel: 3 FH-1100, 17 UH-1B/D/H/N.

PAPUA NEW GUINEA

GDP 1983: K 1,998 bn (\$2,395 bn), 1984: 1,913 bn (\$2,139
bn).
GDP growth 1983: 0.9%.
Inflation 1983: 8.5%. 1984: 8.0%.
Debt 1983: \$1.09 bn. 1984: \$1.15 bn.
Def exp 1984: K 29,375 m (\$32.851 m), 1985: 31,228 m

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(\$30.239 m).
FMA 1983: \$13.00 m. 1984: \$14.50 m.
 \$1 = kina 0.8341 (1983), 0.8942 (1984), 1.0327 (1985).
 Population: 3,450,000.
 Men: 18-30: 383,000; 31-45: 271,000.
 Women: 18-30: 356,000; 31-45: 243,000.

TOTAL ARMED FORCES:

Regular: 3,232.
 Terms of service: voluntary.

ARMY: 2,846.

2 inf bns.
 1 engr bn.
 1 sigs sqn.
 Log units.

NAVY: 300.

Bases: Port Moresby, Lombrum.

Patrol craft: 5 *Attack large*.
Amph: 2 310-ton landing craft.
 (On order: patrol vessels.)

AIR FORCE: 86.

Tpt: 1 sqn with N-22B *Nomad Missionmaster*, 3 IAI *Arava* 201, 6 C-47.

PARA-MILITARY: 4,600 Police (Border Patrol).

PARAGUAY

GDP 1982: Pg 737.04 bn (\$5.850 bn). 1983: 812.69 bn (\$6.450 bn).

GDP growth 1983: -3.0%. 1984: 2.9%.
Inflation 1983: 14.1%. 1984: 30%.
Debt 1983: \$1.3 bn. 1984: \$4.0 bn.
Def budget 1984: Pg 15,275 bn (\$75.995 m). 1985: 18,333 bn (\$76.388 m).
 \$1 = guaranies 126 (1982/3), 201 (1984).
Population: 3,387,000.
Men: 18-30: 411,200; 31-45: 263,000.
Women: 18-30: 408,000; 31-45: 267,000.

TOTAL ARMED FORCES:

Regular: 14,370 (9,800 conscripts).
 Terms of service: 18 months; Navy 2 years.
 Reserves: some 36,300. Army 30,500, Navy 2,200 (incl some 400 Marines), Air 3,600.

ARMY: 11,200 (8,100 conscripts).

HQ: 6 Military Region, 3 corps.

Army no:

1 Presidential Escort regt.
 1 inf regt.
 1 arty regt (3 bns).
 5 engr bns.
 Log spt, sigs bns.
 3 corps:
 1 cav div (bde) (2 mech, 2 horsed cav regts, 1 mot inf bn, 1 arty bty).
 8 inf divs (9 inf regts and 16 cadre regts).
 2 frontier inf bns.
 (Reserves: 16 inf bns.)
Tks: 3 M-4A3, LT: 10 M-3A1. **AFV:** RECCE: 12 M-8; APC: 12 M-2 med. **Arty:** COASTAL GUNS: 6 Mk V 6-in. (152mm); **HOW:** 25 Model 1927/1934 75mm, 10 Model 1927 105mm; **MOR:** 4.2-in. (107mm). **ATK:** RCL: 75mm. **AD:** GUNS: 20 20mm, 10 M-1A1 40mm. **Avn:** ac: 8 Fokker S-11; HEL: 3 Bell 47G.

NAVY: 2,200 (1,000 conscripts).

Bases: Asunción/Puerto Sagonia, Bahía Negra, Puerto Presidente Stroessner.

River defence vessels: 2 *Paraguay*; 1 *Itaipu* gunboat.
 2 Arg *Bouchard* ex-minesweepers.
Patrol craft: 11: 9 coastal.
Amph: 1 US LSM (with hel deck, carries UH-12), 2 LCu.
Spt/cargo: 3.

MARINES: 400 (200 conscripts).

1 marine 'regt' (bn).
 1 cdo bn.

COAST DEFENCE CORPS:

4 btys. **GUNS:** 8 M-1911 3-in (76.2mm); 6 mobile 152mm (Army).

NAVAL AIR FORCE: (55).

Utility: 1 C-47, 9 Cessna (4 206, 4 150M, 1 210).
Trg: 20 T-6G.
Hel: 2 OH-13, 2 UH-12E.

AIR FORCE: 970 (690 conscripts); 5 combat ac.

Composite sqn: 1:
COIN flt: 5 EMB-326 *Xavante*.
Liaison flt: 4 Cessna (2 185, 1 337, 1 402).
Hel flt: 3 OH-13A, 2 UH-12.

Tpt: 1 sqn with 2 DC-6B, 23 C-47, 1 DHC-6 (VIP), 1 DHC-3, 2 C-212, PBV-5A.
Trg: 4 T-25 *Universal*, 4 T-23 *Uirapurú*, 15 T-6, 5 T-41D.
 1 para regt (bn).
 (On order: 2 HB-350B *Esquilo* hel.)

PARA-MILITARY: Capital Police Force, Special Police Service: 6,000.

PERU

GDP 1982: S 14,134 bn (\$20.262 bn). 1983: 26,499 bn (\$16.271 bn).

GDP growth 1983: -11.8%. 1984: 4.7%.
Inflation 1983: 125.1%. 1984: 111.5%.
Debt 1983: \$13 bn. 1984: \$15.2 bn. (Arms purchase debt to USSR some \$1 bn.)
Def budget 1983: S 2,300 bn (\$1.412 bn). 1984: 4,600 bn (\$1.328 bn).
FMA 1983: \$4.6 m. 1984: \$10.7 m.
 \$1 = soles 697.57 (1982), 1,628.6 (1983), 3,464.9 (1984).
Population: 19,800,000.
Men: 18-30: 2,142,000; 31-45: 1,416,000.
Women: 18-30: 2,235,000; 31-45: 1,489,000.

TOTAL ARMED FORCES:

Regular: 128,000 (?42,000 conscripts).
 Terms of service: 2 years, selective.
 Reserves: Army only (?175,000).

ARMY: 85,000 (27,000 conscripts).

5 Military Regions:
 3 armd divs (bdes).
 1 cav div (4 mech regts).
 7 inf divs (bdes, each of 4 bns, 1 arty gp).
 1 para-cdo div (bde; 1 para, 2 cdo bns).
 1 jungle div (bde).
 1 armd car det (bde).
 2 indep fd arty gps; 2 indep arty bns.
 1 indep AA gp, 1 indep SAM gp.
 2 indep inf gps; 4 indep inf bns.
 8 indep engr bns.
 4 hel sqns (1 liaison, 3 tpt).
Tks: 250 T-54/-55; LT: 110 AMX-13. **AFV:** RECCE: 60 M-8/-20, 15 Fiat 6616; APC: 280 M-113, 150 UR-416. **Arty:** GUNS: 30 M-1954 130mm; HOW: 10 M-56 pack, 170 105mm, 30 D-30 122mm; GUNS/HOW: 36 155mm; **MRL:** 24 BM-21 122mm; **MOR:** 300 120mm. **AD:** GUNS: 23 ZSU-23-4 sp, 40 40mm towed; **SAM:** SA-3/-7. **Avn:** HEL: 25 Mi-8, 6 *Alouette* II.

NAVY: 27,000 (perhaps 9,000 conscripts) incl naval air marines.

Bases: Callao, San Lorenzo Island, Talara; (lake): Puno; (river): Iquitos, Madre de Dios.
Subs: 12: 6 Type 200, 2 *Guppy* IA, 4 *Abtao*.
Cruisers: 2 *Neth De Ruyter* (1 with 3 SH-3D hel).
Destroyers: 10: 2 *Br Daring* (? to retire) with 8 *Exocet* MM-38 ssm; 1 *Holland*, 7 *Friesland*.
Frigates: 4 *Carvajal* (mod *Lupo*) with 8 *Otomat* ssm, 1 x 8 *Albatros/Aspide* SAM, 1 AB-212 hel.
FAC(a): 6 PR-72P *Velarde* with 4 *Exocet* MM-38 ssm.
River gunboats: 5.
Patrol craft: 4 lake.
Amph: 5.
Spt: 2 tpts; 3 replenishment, 2 tankers.

NAVAL AIR FORCE: 13 combat ac, some 6 combat hel.
ASW/MR: 3 sqns with: ac: 7 S-2E *Tracker*, 2 F-27MPA, 4 *Super King Air* B-200T; HEL: some 8 AS-61 (SH-3D).
Utility: 1 hel sqn with 4 Bell 206B, 6 AB-212.
Tpts: 2 C-47.
Trg: ac: 6 T-34A/C; HEL: 4 Bell 206B.
Msls: ssm: *Otomat*, *Exocet* MM-38; **ASM:** 40 (*Exocet*) AM-39; **SAM:** *Albatros*, *Aspide*.

MARINES: (3,500).

1 Marine bde (3 bns).
Amph: RECCE: V-100; APC: 40 V-200 *Chaimite*. **Arty:** RCL: 106mm; RL: 84mm; **MOR:** ?18 120mm. **AD:** GUNS: twin 20mm sp.
Coast defence: 3 btys with 18 155mm how.
 (On order: 2 *van Straelen* mcm (1 may have survey role), 3 EMB-111 MR ac, some 2 SH-3D hel.)

AIR FORCE: 16,000 (?6,000 conscripts); 108 combat ac, 42 armed hel.

Bbr: 1 Gp (3 sqns) with 13 *Canberra* B-2/B(-)8.
FGA: 2 Gps (6 sqns): 2 with 16 *Mirage* 5P; 2 with 48 Su-22; 2 with 25 A-37B.
COIN: 1 hel sqn with 42 Mi-24 (probably Army-assigned).
Recce: 1 photo sqn with 2 *Queen Air* A-80, 2 *Learjet* 36A, 2 25.
Tpt: 2 Gps (3 sqns): 4 L-100-20/C-130H, 2 DC-8-62CF, 13 An-26, 8 DHC-6, 14 CC-115, 4 *Turbo-Porter*; **LIAISON:** 10 *Queen Air* A-80. **Indep** hel flts with 3 *Alouette* III, 6 Mi-6, 5 Mi-8, 3 BO-105, 35 Bell (9 206B, 20 212, 6 214ST).
Presidential Flt: 1 F-28 ac.

Trg: 4 sqns with 19 T-41D, 23 T-37B/C, 13 MB-339A.

ASM: AS-30.

(On order: some 26 *Mirage* 2000P/DP ac (1986): 8 UH-60A hel, status uncertain.)

PARA-MILITARY: 51,600. *Guardia Civil*, 36,000; **MOWAG Roland** APC, Coastguard (600); 23 patrol craft. **Republican Guard** 15,000. *Rondas Campesinas* (self-defence force or People's Militia) reported to be forming: no details.

OPPOSITION: *Sendero Luminoso* (Shining Path).

PHILIPPINES

GDP 1983: P 384.5 bn (\$34.600 bn). 1984: 548.47 bn (\$32.844 bn).

GDP growth 1983: 1.3%. 1984: -5.5%.
Inflation 1983: 26.1%. 1984: 51.0%.
Debt 1983: \$25.00 bn. 1984: \$26.50 bn.
Def budget 1984: P 8,420 bn (\$504.222 m). 1985: 7,800 bn (\$422.078 m).
FMA 1983: \$55.00 m. 1984: \$62.00 m.
 \$1 = pesos 11.1127 (1983), 16.699 (1984), 18.480 (1985).
Population: 55,000,000.
Men: 18-30: 6,629,000; 31-45: 4,420,000.
Women: 18-30: 6,430,000; 31-45: 4,346,000.

TOTAL ARMED FORCES:

Regular: 114,800 (plus 42,000 Para-Military).
 Terms of service: voluntary.
 Reserves: 48,000; Army 20,000 (obligation to age 49), some 75,000 more have commitments; Navy 12,000; Air 16,000 (to age 49).

ARMY: 70,000.

5 inf divs.
 1 ranger regt (5 scout ranger, 1 mountain bns).
 2 engr bdes.
 1 lt armd regt.
 4 arty regts.
 1 military police bde (3 bns).
Tks: LT: 28 *Scorpion*. **AFV:** MICV: 45; APC: 80 M-113, 20 *Chaimite*, 100 V-150. **Arty:** HOW: 200 105mm (incl pack), 12 M-114 155mm; **MOR:** 81mm, 107mm. **ATK:** RCL: M-20 75mm, M-67 90mm, M-40 106mm.

NAVY: 26,000 (9,600 marines, 2,000 Coast Guard).

Base: Sangley Point/Cavite, Zamboanga.
Frigates: 7: 4 *Casco*, 1 *Savage*, 2 *Cannon*.
Corvettes: 10: 2 *Auk*, 7 *PCE*-827, 1 *Admirable*.
Patrol craft: 12 large: 1 command ship, 4 *Kagitingan*, 5 *PGM*-39/-71, 2 *US* PC-461.
Amph: 3 spt, 24 LST, 4 LSM, 61 LCM, 7 LCVP, 3 LCU.
SAR: 1 sqn with 5 *Islander* ac, 5 BO-105 hel.
Spt: 1 Presidential yacht, 3 repair ships, 1 spt ship, 2 tankers.
Marines: 3 bdes (8 bns); 30 LVTP-5, 55 LVTP-7 APC, 150 105mm how, 4.2-in. (107mm) mor.
 (On order: 2 ex-US destroyers, 3 PSMM-5 FAC(G), 6 *Kagitingan*, 50 patrol boats (some for Coastguard).)

AIR FORCE: 16,800; combat: 64 ac, 17 hel.

FGA: 1 sqn with 22 F-8H.
AD: 1 sqn with 19 F-5A, 3 F-5B.
COIN: ac: 3 sqns: 1 with 16 SF-260 WP; 2 with 20 T-28D; HEL: 1 wing with 62 UH-1H, 17 S-76.
Presidential tpt: 1 sqn with: ac: 1 Boeing 707, 1 BAC-111, 1 YS-11, 1 F-28; HEL: 1 S-62A, 2 UH-1N, 1 *Puma*, 2 S-70AS.
Tpt: 5 sqns: ac: 1 with 4 C-130H; 1 with 5 C-47, 8 F-27, 3 F-27MR; 1 with 12 *Nomad*; 1 with 12 *Islander*; HEL: 1 with 11 BO-105.
Liaison: 1 sqn with O-1E, 1 Cessna U-17A/B.
Trg: 3 sqns: 1 with 1 T/RT-33A, 12 T-41D; 1 with 30 SF-260MP, 16 WP; 1 with 10 T-34A.
Weather: 1 sqn with 3 Cessna 210.
AAM: *Sidewinder*.

PARA-MILITARY: (Ministry of Defence) 42,000. **Philippine Constabulary** (40,000); 13 coys, 180 provincial coys. **Coast Guard** (2,000); some 65 patrol craft incl 3 large SAR, 2 lt ac; by law part of armed forces, **Civil Home Defence Force** 70,000. 18 inf bns (Army Reserve Comd).

OPPOSITION: **Moro National Liberation Army** 1,000. **New People's Army** (Maoist) 10-12,000 (perhaps 7,000 armed); inf bns (300 men), small arms.

QATAR

GDP 1983: QR 23.37 bn (\$6.421 bn). Est 1984: 21.03 bn (\$5.778 bn).

GDP growth 1983: -15.5%, 1984: -10.0%.
Inflation 1983: 2.7%, 1984: 3.5%.
Def budget 1983/4: QR 604 m (\$165.939 m).

\$1 = rial 3.6399 (1983/4).
Est population: 290,000. (Incl expatriates; indigenous est at 80,000.)

TOTAL ARMED FORCES:

Regular: 6,000.
Terms of service: voluntary.

ARMY: 5,000.

1 Royal Guard regt.
1 tk bn.
3 inf bns.
1 arty bty.
1 SAM bty with *Rapier*.

Tks: 24 AMX-30. **AFV: RECCE:** 10 *Ferret*; **MICV:** 30 AMX-10P; **APC:** 25 *Saracen*, 136 VAB, 8 *Commando* Mk 3. **Arty:** **GUN/HOW:** 8 25-pdr (88mm); **HOW:** 6 Mk F-3 155mm sp; **MOR:** 81mm. **AD: SAM:** *Rapier*, *Blowpipe*.

NAVY: 700 incl Marine Police.

Base: Doha.
FAC(g): 3 *La Combattante* IIIB with 8 *Exocet* MM-40 SSM.
Patrol craft: 6 *Vosper Thornycroft* 110-ft large, 41 coastal (2 75-ft, 2 *Tracker*, 2 44-ft, 7 P-1200 type, 25 *Spear*, 2 *Interceptor* (SAR), 1 other).
Coast defence: 3 *Exocet* MM-40.

AIR FORCE: 300; 17 combat ac; 2 armed hel.

FGA: 5 *Mirage* F-1C, 3 *Hunter* FGA-6, 1 T-79, 8 *AlphaJet*.
Tpt: 1 BN-2 *Islander*, 1 Boeing 727, 2 707.
Hel: 2 SA-342 *Gazelle*, 9 Westland (2 *Whirlwind*, 4 *Commando*, 3 *Lynx*).
SAM: 5 *Tigercat*.
(On order: 9 *Mirage* F-1C ftrs, SA-330 *Puma* hel.)

PARA-MILITARY: Police: 3 *Lynx*, 2 *Gazelle* hel.

RWANDA

GDP 1982: fr R 134.40 bn (\$1.448 bn). Est 1983: 141.5 bn (\$1.50 bn).

GDP growth 1983: 1.0%, 1984: 2.9%.
Inflation 1983: 6.6%, 1984: 5.4%.

Est debt 1983: \$250 m. 1984: \$330 m.
Est def exp 1983: fr R 2.70 bn (\$28.620 m). 1984: 3.0 bn (\$29.949 m).
\$1 = Rwanda francs 92.84 (1982), 94.34 (1983), 100.17 (1984).

Population: 5,560,000.
Men: 18-30: 705,000; 31-45: 341,000.
Women: 18-30: 699,000; 31-45: 395,000.

TOTAL ARMED FORCES:

Regular: 5,150.
Terms of service: voluntary.

ARMY: 5,000. (All Services form part of the Army.)
1 cdo bn.
1 recce sqn.
8 inf coys.
1 engr coy.

AFV: RECCE: 12 AML-60; **APC:** 16 M-3. **Arty: MOR:** 8 81mm. **ATK: RL:** *Blindicide* 83mm; **GUNS:** 6.

AIR: 150; 4 combat ac.
COIN: 2 BN *Defender*, 2 SF-260W.
Tpt: 1 *Caravelle* (VIP); 2 C-47, 2 *Rallye* 235G.
Liaison: HEL: 6 SA-342L *Gazelle*, 2 *Alouette* III.
Trg: 1 CM-170 *Magister*.

PARA-MILITARY: 1,200.

SAUDI ARABIA

GDP 1983: SR 415.23 bn (\$119.597 bn). 1984: 381.59 bn (\$108.349 bn).

GDP growth 1983: 0.9%, 1984: -3%.
Inflation 1983: 7.5%, 1984: 8.0%.
Debt 1984: \$13.3 bn.
Def budget 1984/5: SR 79.9 bn (\$22.687 bn). 1985/6: 64.085 bn (\$17.777 bn).
\$1 = rial 3.4719 (1983), 3.5219 (1984), 3.605 (1985).
Est population: 8-12,000,000. (Based on World Bank projections for 1985 of 11.2 million.)
Men: 18-30: 1,394,000; 31-45: 1,201,000.
Women: 18-30: 1,052,000; 31-45: 741,000.

TOTAL ARMED FORCES:

Regular: 62,500 (incl 10,000 National Guard).
Terms of service: conscription, males aged 18-35.

ARMY: 35,000.

3 armd bdes (1 more to form).
3 mech bdes.
1 inf bdes.
1 AB bde (2 para bns, 3 special forces coys).
1 Royal Guard regt (3 bns).
5 arty bns.
18 AA arty btys.
14 SAM btys: 12 with *Improved HAWK* (216 msls); 2 with 12 *Shahine* (48 msls) and AMX-30SA 30mm SP AA guns.
Tks: 300 AMX-30, 150 M-60A1 (converting to A3).
AFV: RECCE: 200 AML-60/90; **MICV:** 350 AMX-10P, some BMR-600P; **APC:** 1,300 M-113, 30 EE-11 *Urutu*, Panther M-3.
Arty: HOW: some 24 Model 56 105mm pack, 100 M-101-102 105mm, 29 FH-70, 18 M-198 towed, 275 M-109 and GCT 155mm SP; **MOR:** 81mm, M-30 4.2-in. (107mm).

ATK: RCL: 75mm, 90mm, 106mm; **ATGW:** BGM-71A *TOW* (incl 200 VCC-1 SP), M-47 *Dragon*, *HOT* (incl some on AMX-10P).
AD: GUNS: 48 M-163 *Vulcan* 20mm, AMX-30SA 30mm, 200 35mm, M-42 40mm SP; **SAM:** FIM-92A *Stinger*, FIM-43 *Redeye*, *Shahine*, MIM-23B *Improved HAWK*.

(On order: 100 M-60A3 MBT; 60 AMX-10P, some 140 BMR-600, EE-11 *Urutu* APC; 24 M-198, 43 FH-70 155mm how; some 400 JPZ SK-105 SP ATK guns; AS-TROS II MRLS; *TOW* ATGW; *Shahine*, 800 *Stinger* SAM.)

NAVY: 3,500; 24 combat hel.

Bases: Western Fleet: Jiddah, Al Wajh, Yanbu. Eastern Fleet: Al Qatif, Ras Tanura, Al Dammam, Ras al Mishab.

2 Fleet HO.
Frigates: 4 F-2000 with 8 *Otomat* SSM, 1 x 26 *Crotale* SAM, 1 AS-365 hel.
Corvettes: 4 PCG-1 (815 tons) with 2 x 4 RGM-84A *Harpoon* SSM.
FAC: (g): 9 PGG-1 (384 tons) with 2 x 2 *Harpoon* SSM; (t): 3 *Jaguar* (Lürssen).
Patrol craft: 1 large (100 tons).
MCMV: 4 MSC-322 coastal.
Amph: LST: 3; **LCU:** 4 US Type-1610; **LCM:** 8 Type 6 US; **LCVP:** 4.
Spt: 2 *Durance* log spt ships.
Hel: 24 AS-365N *Dauphin* 2 (4 SAR, 20 with AS-15TT ASM) (Air Force).
(On order: 2 *Atlantic* II MRAC; *Otomat* coast defence SSM, AS-15TT ASM.)

AIR FORCE: 14,000; 205 combat ac.

FGA: 3 sqns with 65 F-5E.
Interceptor: 4 sqns: 1 with 15 *Lightning* F-53, 2 T-55; 3 (1 forming) with 62 F-15C.
AWACS: 4 E-3A *Sentry*.
OCU: 2 with 24 F-5F, 16 F-5B, 17 TF-15D.
Tpt: 3 sqns: 49 C-130E/H, 8 KC-130H, 2 C-140 *Jetstar*.
Hel: 2 sqns: 12 AB-206B, 14 AB-205, 10 AB-212.
Trg: 39 *Strikemaster* Mk 80.
AAM: *Red Top*, *Firestreak*, AIM-9J/L/P *Sidewinder*, AIM-7F *Sparrow*.
ASM: *Maverick*.
AD: Air Defence Command (forming); to control msl, gun and radar elms.
(In reserve: 17 *Lightning* F-53/T-55.)
(On order: 9 F-15, 5 F-5E ftrs; 2 TF-15, 1 F-5F trainers; 10 RF-5E recce; 1 E-3A AWACS; 1 Boeing 747, 4 CN-235, 40 C-212-200 tpts; 8 Boeing KE-3A (707-320C) (6 tankers, 2 ECM ac); 22 AB-212, 8 KV-107 hel; 1,000 AIM-7F *Sparrow*, 3,000 AIM-9L/P *Sidewinder* AAM; 400 *Maverick* ASM.)

PARA-MILITARY:

National Guard (10,000 regular, est 15,000 reserve): Bde HO; 4 all-arms, 16 regular inf, 24 irregular inf bns, 1 ceremonial cav sqn, spt units; 240 V-150 *Commando* APC, M-102 105mm how, 81mm mor; 106mm RCL, *TOW* ATGW, 20mm *Vulcan*, 90mm AA guns.
(On order: 489 *Commando* incl V-300 APC, V-150 SP 20mm AA guns, SP *TOW*, 90mm armed AFV.)
Foreign contract military personnel: 10,000.
Ministry of Interlor:
Counter-terrorist unit; hel.
Frontier Force and Coastguard 8,500; 8 BH-7, 16 SR-N6 hovercraft, 164 coastal, 300 inshore patrol craft.
General Civil Defence Administration units; 10 Kawasaki hel.

An M163 Vulcan Air Defense System goes through its paces at General Electric's proving ground in Burlington, Vt. Saudi Arabia has forty-eight of these vehicles, which feature a six-barreled 20-mm Vulcan cannon mounted on a derivative of an M113 personnel carrier.



SENEGAMBIA

Senegal and The Gambia signed and ratified a Confederation Pact in December 1981, which included plans to combine their forces. The exact nature and extent of the amalgamation is still unclear; the Gambian Army apparently functions as a Gendarmerie with civilian-manned marine and air elements. Senegal formed a new Gendarmerie in 1984.

In December 1983 a confederal defence budget of fr CFA 3.451 bn was introduced.

SENEGAL

GDP 1982/3: fr CFA 840.60 bn (\$2.833 bn).
GDP growth 1982: -3.3%, 1983: -14.0%.
Inflation 1983: 12.0%, 1984: 12.0%.
Debt 1983: \$1.50 bn. 1984: \$1.80 bn.
Def budget 1984/5: fr CFA 28.092 bn (\$68.589 m), 1985/6: 28.380 bn (\$59.932 m).
FMA 1983: \$1.0 m, 1984: \$3.50 m.
\$1 = francs CFA 296.683 (1982), 409.568 (1984), 473.54 (1985).

Population: 6,464,000.
Men: 18-30: 705,000; 31-45: 341,000.
Women: 18-30: 706,000; 31-45: 495,000.

TOTAL ARMED FORCES:

Regular: 9,700.
Terms of service: conscription, 2 years selective.

ARMY: 8,500.

4 Military Zone HQ.
5 inf bns.
1 engr bn.
1 trg bn.
1 Presidential Guard (horsed).
1 recce sqn.
1 arty gp.
1 AA arty gp.
2 para coys.
3 construction coys.

AFV: RECCE: 10 M-8, 4 M-20, 30 AML-60, 27 -90; APC: some 40 Panhard M-3, 25 M-3 half-track. **Arty:** HOW: 6 M-116 75mm pack, 6 M-101 105mm; **MOR:** 8 81mm, 8 120mm. **ATK:** RL: STRIM-89; **ATGW:** Milan. **AD:** GUNS: 21 M-693 20mm, 40mm.

NAVY: 700.

Base: Dakar.
Patrol craft: 8: 1 PR-2M, 3 P-48 large, 3 *Interceptor*, 1 *Tracker* coastal.
Amph: LCT: 1; LCM: 2.

AIR FORCE: 500; 2 combat ac.

MR/SAR: 1 EMB-111 maritime *Bandeirante*, 1 DHC-6, **Tpt:** 1 sqn with 1 Boeing 727-200, 1 *Caravelle* (VIP); 5 C-47, 6 F-27-400M.
Trg: incl 6 *Magister*, 1 Reims Cessna F-337; **LT:** 6 *Rallye* 235G.
Hel: incl 1 *Gazelle*, 1 *Puma*, 2 *Alouette II*.

PARA-MILITARY: 6,800 Gendarmerie; 12 VXB-170 APC. Customs: 17 coastal patrol craft (11 armed).

THE GAMBIA

GDP 1982/3: D 560.0 m (\$226.180 m), 1983/4: 614.60 m (\$208.778 m).
\$1 = dalasi 2.4759 (1982/3), 2.9438 (1983/4).
Population: 688,800.
Men: 18-30: 77,000; 31-45: 65,000.
Women: 18-30: 78,000; 31-45: 59,000.

TOTAL ARMED FORCES:

Regular: 475.
Terms of service: voluntary; some compulsory conditions authorized.

GENDARMERIE: 400.

Recce: 8 *Ferret*. **RL:** 4 M-20 3.5-in. (89mm).

MARINE: 50.

Base: Banjul.
Patrol boats: 2 coastal; 1 31-ton *Tracker*, 1 17-ton *Lance*.

AIR: 25.

Tpt: 1 *Skyvan* 3M, 1 BN-2 *Defender*.

SEYCHELLES

GDP 1982: SR 965.1 m (\$147.29 m), 1983: 1,020 bn (\$150.72 m).
GDP growth 1982: -0.5%.
Inflation 1983: 6.0%, 1984: 3.2%.
Est def budget 1982: SR 42.25 m (\$6.45 m), 1983: 58 m (\$8.57 m).
\$1 = Seychelles rupees 6.5525 (1982), 6.7676 (1983).

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Population: 67,800.
Men: 18-30: 9,000; 31-45: 4,800.
Women: 18-30: 9,000; 31-45: 3,800.

TOTAL ARMED FORCES:

Regular: 1,200.
Terms of service: conscription: 2 years.

ARMY: 1,000. (All services form part of the Army)

1 inf bn.
2 arty tps.
Spt coy.
AFV: RECCE: 6 BRDM-2, (?8) *Shorland*. **Arty:** GUNS: 3 D-30/M-1963 122mm; **MRL:** 4 BM-21; **MOR:** 6 M-1937 82mm. **RL:** RPG-7. **SAM:** SA-7.

MARINE: 100.

Base: Port Victoria.
Patrol craft: 1 It FPB-42; 2 *Zhuk*, 1 coastal.
Amph: LCT: 1.

PARA-MILITARY: People's Militia 900.

SIERRA LEONE

GDP 1982/3: Le 1.605 bn (\$1.271 bn). Est 1983/4: 2.65 bn (\$1.056 bn).
GDP growth 1982/3: -1.8%, 1983/4: 0.5%.
Inflation 1983/4: 73.0%.
Debt 1983: \$400.0 m.
Def budget 1982/3: Le 17.5 m (\$13.860 m), 1983/4: 24 m (\$9.562 m).
\$1 = Leones 1,2626 (1982/3), 2.51 (1983/4).
Population: 3,944,000.
Men: 18-30: 353,000; 31-45: 276,000.
Women: 18-30: 363,000; 31-45: 280,000.

TOTAL ARMED FORCES:

Regular: 3,100.
Terms of service: voluntary.

ARMY: 3,000.

2 inf bns.
2 arty blys.
1 engr sqn.
AFV: RECCE: 4 *Saladin*; APC: 10 MOWAG *Piranha*. **Arty:** GUNS/HOW: 10 25-pdr (88mm); **MOR:** 60mm, 81mm. **ATK:** RL: M-20 3.5-in; **RCL:** *Carl Gustav* 84mm. **AD:** SAM: SA-7.

NAVY: 100 (coastguard).

Base: Freetown.
Patrol boat: 1 *Tracker II*(.

AIR: (civilian crew: 74).

Hel: 1 BO-105 (VIP).

PARA-MILITARY: 800. State Security Division: 1 special forces bn.

SINGAPORE

GDP 1982/3: S\$ 31.946 bn (\$US 14.959 bn), 1983/4: 35.171 bn (\$US 16.570 bn).
GDP growth 1983: 7.9%, 1984: 8.2%.
Inflation 1983: 1.4%, 1984: 0.9%.
Debt 1984: \$2.0 bn.
Def exp 1984/5: S\$ 1.855 bn (\$US 857.328 m). Budget 1984/5: 2.263 bn (\$US 1.046 bn), 1985/6: 2.156 bn (\$US 969.904 m).
\$1 = S\$ 2.1355 (1982/3), 2.1226 (1983/4), 2.1637 (1984/5), 2.2229 (1985).
Population: 2,600,000.
Men: 18-30: 364,000; 31-45: 297,000.
Women: 18-30: 343,800; 31-45: 288,200.

TOTAL ARMED FORCES:

Regular: 55,500 (34,800 conscripts).
Terms of service: conscription; 24 to 30 months.
Reserves: Army 150,000; annual trg to age 40 for men, 50 for officers. Navy (exists, 74,500), Air Force (exists, 77,500).

ARMY: 45,000 (30,000 conscripts).

1 div HQ.
1 arm'd bde (1 recce, 1 tk, 2 APC bns).
3 inf bdes (each 3 inf bns).
6 arty bns.
1 cdo bn.
6 engr, 3 sigs bns.
Reserves: 2 div, 6 inf bde HQ; 18 inf, 1 cdo, 9 arty, 6 engr, 2 sigs bns.
Tks: LT: 270 AMX-13. **APC:** 720 M-113, 280 V-100/-150/200 *Commando*. **Arty:** HOW: 60 155mm; **MOR:** 60mm, 81mm, 50 120mm (some sp in M-113). **ATK:** RL: 89mm; **RCL:** *Carl Gustav* 84mm, 90 106mm. **AD:** GUNS:

20mm, 35mm, L-70 40mm.

NAVY: 4,500 (1,800 conscripts).

Base: Pulau Brani (Singapore).
FAC(g): 6 TNC-45 with 5 *Gabriel II* ssm each.
FAC: 6 *Vosper A/B*.
Patrol craft: 12 *Swift* coastal.
Minesweepers: 2 *US Redwing* coastal.
Amph: 6 US 511-1152 LST (1 in reserve), 8 landing craft, **Trg:** 1 ship.

AIR FORCE: 6,000 (3,000 conscripts); 164 combat ac. **FGA:** 3 sqns: 2 (1 more to form) with 40 A-4S/51, 6 TA-43 *Skyhawk*; 1 with 21 *Hunter* FGA-74.

AD: 1 sqn with 23 F-5E, 3 F-5F.
Recce: 1 sqn with 7 *Hunter* FR-74S, 4 T-75S, 2 E-2C *Hawkeye* MR.
COIN: 3 sqns: 1 with 18 BAC-167; 1 with 20 T-33A; 1 with some 20 SIAI S-211.
Tpt/SAR: 1 sqn with 8 C-130B/H.
Trg: 11 SF-260W, 12 SF-260MS.
Hel: 2 sqns: 36 UH-1B/H, 3 AB-212, 6 AS-350B *Ecoureuil*, 6 AS-332 *Super Puma*.
SAM: 4 sqns: 1 with 28 *Bloodhound* 2; 1 with 10 *Rapier*; 1 with 6 *Improved HAWK*; 1 with *Bofors* RBS-70.

AAM: AIM-9J/P *Sidewinder*.
(On order: 8 F-16, 70 A-4SI (being rebuilt), some 10 SIAI S-211, 2 E-2C ac; 16 AS-332 *Super Puma* hel (local production); *Rapier/Blindfire* SAM; 200 AGM-65 *Maverick* ASM.)

Forces Abroad: Brunei: (500); trg school.

PARA-MILITARY: Police/marine police 7,500; 49 patrol craft. Gurkha guard units, People's Defence Force, some 30,000.

SOMALI REPUBLIC

Est GDP 1982: S sh 16.5 bn (\$1.535 bn), 1983: 20 bn (\$1.267 bn).
Inflation 1983: 20.0%, 1984: 92.0%.
Est debt 1983: \$1.20 bn. 1984: \$1.60 bn.
Def budget 1983: S sh 1.933 bn (\$122.437 m), 1984: 2.601 bn (\$129.927 m).
Est FMA 1983: \$35.0 m, 1984: \$45.0 m.
\$1 = Somali shillings 10,7504 (1982), 15,7877 (1983), 20,019 (1984).
Population: 6,432,000.
Men: 18-30: 509,000; 31-45: 366,000.
Women: 18-30: 511,000; 31-45: 375,000.

TOTAL ARMED FORCES:

Regular: 62,700.
Terms of service: conscription (males 18-40), 2 years selective.

ARMY: 60,000.

3 corps, 8 div HQ.
3 lk/mech bdes.
20 inf bdes.
1 cdo bde.
1 SAM bde.
30 fd, 1 AA arty bns.
Tks: 35 T-34, 45 T-54/55, 100 M-47, 35 *Centurion*. **AFV:** RECCE: 35 BRDM-2, 15 AML-90; APC: 65 BTR-40/-50/-60, 100 BTR-152, V-150 *Commando*, 24 M-113 with *TOW*, 300 Fiat 6614/6616. **Arty:** GUNS/HOW: about 70 76mm, M-1945 85mm and M-1955 100mm, 60 M-1938 122mm, M-1946 130mm; **MOR:** 81mm, 50 120mm. **ATK:** RL: 300 STRIM-89, RCL: 106mm; **ATGW:** 100 *Milan*. **AD:** GUNS: ZU-23, 5 ZSU-23-4 SP 23mm, M-1939 37mm, M-1950 57mm, M-1949 100mm; **SAM:** 40 SA-2, 10 SA-3, SA-7. (Spares are short and much eqpt is unserviceable.)

NAVY: 700. (Spares are short and much eqpt is unserviceable.)
Bases: Berbera, Mogadishu, Kismayu.

FAC: (g): 2 *Osa-II* with 4 SS-N-2 ssm; (T): 8 *A Mol*, 4 P-6G.
Patrol craft: 5 *Poluchat* large.
Amph: LCT: 1 *Polnoony*; LCMG: 4 T-4.

AIR FORCE: 2,000; 64 combat ac. (Spares are short and much eqpt is unserviceable.)

FGA: 3 sqns with 9 MiG-17, 10 *Hunter* FGA-76, 2 T-77.
Ftr: 3 sqns with 7 MiG-21MF, 30 Ch J-6.
COIN: 1 sqn with 6 SF-260W.
Tpt: 1 sqn with 5 *Islander*, 2 An-24/-26, 2 C-47, 4 G-222, 4 Piaggio P-166-DL3 recce/tpt.
Hel: 1 sqn with 4 Mi-4, 2 Mi-8, 1 AB-204, 4 AB-212 (2 VIP).
Trg: incl 2 MiG-15UTI, 4 SF-260W.
AAM: AA-2 *Atoll*.
(On order: SIAI S-211 coin, 6 C-212 tpt ac; 4 *Agusta Bell* hel.)

PARA-MILITARY: 29,500.
Police 8,000; 2 Do-28 ac. Border Guards 1,500. People's Militia 20,000.

SOUTH AFRICA

GDP 1983/4: R 89,333 bn (\$77.816 bn). 1984/5: 104,765 bn (\$64.495 bn).

GDP growth 1983: -3.2%. 1984: 4.7%.

Inflation 1983: 11%. 1984: 13.2%.

Debt 1983: \$23.50 bn. Est 1984: \$25.0 bn.

Def budget 1984/5: R 3,954 bn (\$2,434 bn). 1985/6: 4,274 bn (\$2,147 bn). (Excl intelligence and internal security force budget.)

\$1 = rand 1.148 (1983/4), 1.6244 (1984/5), 1.9904 (1985).

Population: 29,000,000 (Black: 15,250,000; White 4,600,000; Coloured: 2,800,000; Asian: 805,000; Homelands: 5,500,000).

Men: 18-30: 3,730,000; 31-45: 2,865,000.

Women: 18-30: 3,722,000; 31-45: 2,714,000.

TOTAL ARMED FORCES:

Regular: 106,400 (64,000 conscripts).

Terms of service: 24 months. Reservists: 8 camps totaling up to 240 days, then commitment to age 65. Reserves: 317,000. Army 140,000; Navy 2,000; Air 25,000. After National Service, active reservists serve in the Citizen Force for 12 years, in which they spend 720 days in uniform. They then spend 5 years in the Citizen Force Reserve (150,000) and may be allocated to the Commando Force, where they serve 12 days a year up to age 55.

ARMY: 76,400. Regulars: 18,400 (12,000 White, 5,400 Black and Coloured, 1,000 women). National Service: 58,000. Part-time Citizen Force and Commando:

11 territorial commands.

2 div HQ (1 arm'd, 1 mech inf).

1 arm'd bde (2 tk, 1 mech inf bns).

1 mech bde (1 arm'd car, 2 mot inf bns).

3 mot bdes (each 3 inf bns, 1 arm'd car bn).

1 para bde (3 para bns).

1 special recce regt.

9 fd, 3 med, 6 lt AA arty regts.

1 AA missile regt (3 *Crotale*, 3 *Tiger* cat btys).

15 fd engr sqns.

3 sigs regts, 3 sigs sqns.

Tks: some 250 *Centurion/Olivan*. **AFV:** **RECCE:** 1,600 *Eland* (90mm gun, 60mm mor); **MIW:** 1,500 *Ratel* (20mm/60mm/90mm gun); **APC:** 1,500 incl *Buffalo*, *Hippo*, *Rhino*, *Lynx* (wheeled). **Arty:** **how:** 30 25-pdr (88mm), 75 5.5-in. (140mm), 40 G-5 towed, (?10) G-6 SP 155mm, 20 *Valkiri*, 127mm SP; **MOR:** 81mm, 120 120mm. **ATK:** **RCL:** 84mm, 106mm; **GUNS:** 6-pdr (57mm), 17-pdr (76mm), M-67 90mm; **ATGW:** SS-11, 120 *ENTAC*. **AD:** **GUNS:** 20mm, 55 K-63 twin 35mm, 25 L/70 40mm, 15 3.7-in. (94mm); **SAM:** 20 *Cactus* (*Crotale*), 54 *Tiger* cat.

NAVY: 9,000, incl 900 marines, 4,000 conscripts.

Bases: Simonstown, Durban.

Subs: 3 *Daphne*.

Frigates: 1 *President* (Br Type-12) ASW with 1 *Wasp* hel (trg).

FAc(g): 9 *MOD* (*Minister of Defence*) (*Reshel* (Saar-4)-type) with 6 *Skorpion* (*Gabriel*-type) ssm.

Patrol craft: 4 *Br Ford*, 4 mod *Ton*, 1 other large; 30 *Namacurra* armed harbour.

MCMV: 6: 3 *Br Ton* minesweepers, 3 *Ton* minehunters, 1 fleet replenishment ship (with hel deck; 2 hel), 1 ocean (2 hel), 1 inshore hydrographic ships. (On order: 3 *MOD*, 3 *Dvora*-type *FAc(g)*.)

MARINES: (900; 600 conscripts); 9 local harbour defence units.

AIR FORCE: 13,000 (2,000 conscripts); 356 combat ac (incl 93 with Citizen Force), some 16 armed hel, 3 Territorial Area Commands; Trg, Tactical Spt, Logistics Commands.

Bbers: 2 sqns: 1 with 5 *Canberra* B(1)12, 3 T-4; 1 with 6 *Buccaneer* S-50.

FGA: 4 sqns with 20 *Mirage* F-1AZ, 82 MB-326/MK *Impala* I/II.

Interceptor/FGA/Recce: 2 sqns: 1 AD with 20 *Mirage* IIICZ/EZ; 1 with 12 F-1CZ; 1 flt with 6 RZ/R2Z. **Hel:** 7 sqns with 12 *Super Frelon*, 50 *Puma*, 80 *Alouette* III.

Tpt: 3 sqns: 1 with 7 C-130B, 9 Transall C-160Z; 1 with 4 HS-125 *Mercurius*, 1 *Viscount* 781; 1 with 12 C-47. **Liaison:** 3 sqns with 15 AM-3C *Bosbok*, 25 C-4M *Kudu*, 20 *Cessna* 185.

Recce/MR: 2 sqns: 1 with some 8 C-47; 1 with 12 Piaggio P-166S-DL3MAR *Albatross*. Some C-130 have a MR role.

Trg: 1 sqn with C-47 and *Albatross*.

Attack/trg: 1 sqn with 24 *Impala* I/II.

ASW: 1 hel sqn with 10 *Wasp* HAS-1, 6 *Alouette* III.

Training Command (incl ocu):

6 schools: ac: 80 T-6G *Harvard* IIA/III, 40 *Impala* I/II, 25 *Mirage* III (some 10 EZ, some R2Z, some 10 D2Z), 12

C-47; **HEL:** 30 *Alouette* II/III.

Reserves: 93 *Impala* COIN ac, 15 L-100 (*Hercules*; civil freight ac).

AAM: R-530, R-550 *Magic*, *Sidewinder*, *Kukri* V-3 (*Sidewinder*-type).

ASM: AS-20/30.

(On order: 4 *Partenavia*: 3 *Spartacus* (liaison/tpt), 1 *Ob-server* (patrol) ac.)

Medical Corps: 8,000.

SOUTH WEST AFRICA TERRITORY FORCE (SWATF): (21,000).

Conscription: 24 months (all race groups), selective, with Citizen Force (Reserve) commitment.

Four Area Commands:

26 Area Force units (similar to South African Commands).

1 engr, 1 sigs bns.

1 mounted specialized unit.

1 inf bns.

Air: 1 sqn II ac (Citizen Force).

Mobile Reserve: 1 mot inf bde (3 mot inf bns, 1 arm'd car regt (bn), 1 arty regt, spt units); 1 mot, 4 lt inf bn Regu-lars, rest Citizen Force, 3 trg units, 1 engr, 1 sigs bns. *Para-Military:* Industrial Defence units.

PARA-MILITARY: Commandos 130,000; inf bn-type protective units in formations of 5+; 12 months initial, 19 days annual trg. Air Commando 20,000; 13 sqns with private ac. South African Police 35,500 (19,500 White, 16,000 Non-white), Police Reserves 20,000. Coast-guard to form: 7 MR ac planned.

OPPOSITION:

South West African People's Organization (SWAPO) (6,000-8,500); possibly 7 field bns: **Tks:** T-34/-54. **APC:** BTR. **ATGW:** RPG-7. **SAM:** SA-7.

African National Congress: perhaps 10,000 trained guerrillas.

SRI LANKA

GDP 1983: Rs 121.664 bn (\$5.171 bn). 1984: 151.575 bn (\$5.959 bn).

GDP growth 1983: 5.1%. 1984: 1.0%.

Inflation 1983: 21.4%. 1984: 9.5%.

Debt 1983: \$2.6 bn, 1984: \$3.1 bn.

Def budget 1984: Rs 2,60 bn (\$102,209 m). 1985: 3.60 bn (excl some Rs 2 bn for development of defence infrastructure) (\$131,396 m).

\$1 = rupees 23.529 (1983), 25.438 (1984), 27.398 (1985).

Population: 16,200,000.

Men: 18-30: 2,047,000; 31-45: 1,346,000.

Women: 18-30: 2,028,000; 31-45: 1,344,000.

TOTAL ARMED FORCES: 37,660 incl active Reservists. Regular: 21,560.

Terms of service: voluntary.

Reserves: 16,100. Army 14,000. Navy 1,000. Air 1,100.

ARMY: 30,000 incl active Reservists.

5 'Task Forces' (inf bdes: 5 regular, 6 reserve bns).

2 recce regts (bns) (1 reserve).

2 fd arty (1 reserve), 1 AA regts.

1 fd engr, 1 engr plant regts.

1 sigs bn.

1 Special Forces bn (Task Force).

Support services: log units.

AFV: **RECCE:** 18 *Saladin*, 15 *Ferret*, 12 Daimler *Dingo*; **APC:** 10 BTR-152. **Arty:** **GUNS:** 16 Yug M-48 76mm, 30 Type-56 85mm; **MOR:** 12 82mm, 12 4.2-in. (107mm).

ATK: **RCL:** M-60 82mm. **AD:** **GUNS:** 24 40mm, 24 3.7-in. (94mm).

NAVY: 3,960.

Bases: Trincomalee, Karainagar, Colombo, Tangalla, Kalpitaya.

Patrol craft: **LARGE:** 2 *Jayesagara* 40-metre; **COASTAL:** 28: 11 *Pradeepa*, 17 other.

FAc: 7 *Sooraya* (Ch *Shanghai*-II).

(On order: 3 *Jayesagara* large, 12 coastal patrol craft.)

AIR FORCE: 3,700; 2 combat hel.

Tpt: 1 sqn with 1 HS-748, 2 DC-3, 2 *Riley Heron*, 1 DH *Heron*, 3 *Cessna* 337, 1 *Beechcraft*, 1 *Cessna* 421C. **Hel:** 1 sqn with 8 Bell 206, 2 212 attack, 2 SA-365.

Trg: incl 6 *Cessna* 150/152, 5 *Chipmunk*, 3 *Dove*. Reserves: Air Force Regt, 3 sqns; Airfield Construction Regt, 1 sqn.

(In storage: 2 *Jet Provost* Mk 51 ac.)

(On order: 12 SF-260TP trg ac, 4 Bell 212 hel.)

PARA-MILITARY: Police Force 14,500. Volunteer Force 5,000. Home Guard.

OPPOSITION: Eelam National Liberation Front (ENLF); 4

gps:

Liberation Tigers of Tamil Eelam (LTTE).

Eelam People's Revolutionary Liberation Front (EPRLF).

Tamil Eelam Liberation Organization.

Eelam Revolution Organization.

People's Liberation Organization of Tamil Eelam (PLOTE).

Est 2,000 activists, perhaps 6,000 supporters/reserves; small arms, RPG-7 RL, SA-7 SAM.

SUDAN

GDP 1982: £S 6.218 bn (\$8.856 bn).

GDP growth 1983: -2.5%. 1984: -5.2%.

Inflation 1983: 31.2%. 1984: 35.0%.

Debt 1983: \$5.7 bn, 1984: \$9.0 bn.

Est def exp 1983/4: £S 250 m (\$223.934 m), 1984/5: 350 m (\$269.231 m).

FMA 1983: \$45.0 m. 1984: \$45.0 m.

\$1 = £S 0.7021 (1982/3), 1.1164 (1983/4), 1.3 (1984/5). Est population: 23,500,000.

Men: 18-30: 2,346,000; 31-45: 1,644,000.

Women: 18-30: 2,264,000; 31-45: 1,623,000.

TOTAL ARMED FORCES:

Regular: 56,600.

Terms of service: voluntary (conscription legislated, not implemented).

ARMY: 53,000 (incl AD).

6 Regional Commands.

4 div HQ.

1 Republican Guard bde.

2 arm'd bdes.

7 inf bdes.

1 para bde.

3 arty regts.

1 engr regt.

Air Defence (3,000):

2 AA arty bdes.

1 SAM bde (3 btys) with SA-2.

Tks: 120 T-54/-55, some 30 Ch Type-59, 20 M-60A3; LT: 55 M-41, 78 Ch Type-62, some 50 Type-63.

AFV: **RECCE:** 6 AML-90, 48 *Saladin*, 55 *Ferret*, BRDM-1/-2; **APC:** 50 BTR-50/-152, 30 OT-62/-64, 35 V-150 *Commando*, 30 M-113, 40 *Walid*.

Arty: **GUNS:** 30 D-44 85mm, 55 25-pdr (88mm), 25 M-1944 100mm, Type-60 122mm, 36 M-46 and Ch 59-1 130mm, 11 Mk F-3 155mm; **HOW:** 18 M-101 105mm pack, 64 M-1938/Type-54/D-30 122mm; **MRL:** *Al Saqr*-30 122mm; **MOR:** 30 120mm.

ATK: **GUNS:** 20 D-48 85mm; **ATGW:** *Swingfire*.

AD: **GUNS:** M-167 towed, M-163 SP 20mm, ZU-23-2 23mm, 100 M-1939/Type-63 37mm, 80 L/60 40mm, KS-12 85mm, KS-19 100mm towed; **SAM:** 20 SA-2, SA-7.

(On order: 24 M-163A1 *Vulcan* 20mm SP AA guns.)

NAVY: 600. (Eqpt serviceability questionable.)

Base: Port Sudan.

Patrol craft: 13: 5 *Yug large* (1 *Kraljevica*, 4 PBR); 4 75-ton, 4 10-ton coastal.

Amph: **LCT:** 2 *Yug* DTK-221.

(On order: 2 *Barcelo* *FAc*, 6 11-metre patrol boats.)

AIR FORCE: 3,000; 45 combat ac. (Eqpt serviceability questionable.)

FGA/Interceptor: 1 sqn with some 2 F-5E, 2 F-5F, 8 MiG-21.

FGA: 1 sqn with 8 Ch J-5, 6 Ch J-6, 10 MiG-17.

COIN: 1 sqn with 3 *Strikemaster* (forming).

MR: 2 C-212.

Tpt: 1 sqn with 6 C-130H, 1 *Mystere-Falcon*, 3 DHC-5D, 8 *Turbo-Porter*, 6 EMB-110P2 *Bandeirante*.

Hel: 1 sqn with 15 *IAR/SA-330 Puma*, 10 BO-105, 5 Bell 212.

Trg: incl 3 *Jet Provost* Mk 55, 3 MiG-15UTI, 2 MiG-21U, 2 Ch JJ-5, 2 Ch JJ-6.

AAM: AA-2 *Atoll*.

(On order: some 8 F-5E, 6 Ch J-6 flr, 7 *Strikemaster* Mk 90 (*Jet Provost*) COIN, 4 C-212 (1985/6), 2 C-130 tpt ac; 6 Bell 212 hel.)

PARA-MILITARY: 3,000: National Guard 500; Border Guard 2,500.

OPPOSITION: Southern People's Liberation Army (SPLA): est 5,000 org in bns; mainly small arms; arty reported.

SURINAME

GDP 1982: gld 2,205 bn (\$1,235 bn), 1983: 2,293 bn (\$1,285 bn).

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Gov growth 1982: 0%. 1983: 0%.
Inflation 1983: 7.3%. 1984: 3.6%.
Est debt 1983: \$350 m. 1984: \$425 m.
Def budget 1983: gld 73.56 m (\$41.21 m). Est 1984: 77.30 m (\$43.305 m).
\$1 = guilders 1.785 (1982/3/4).
Population: 380,000.
Men: 18-30: 55,000; 31-45: 15,000.
Women: 18-30: 53,000; 31-45: 21,000.

TOTAL ARMED FORCES (all Services form part of the Army):
Regular: 2,020.
Terms of service: voluntary.

ARMY: 1,800.

1 inf bn.
APC: 9 YP-408, 15 EE-11 *Urutu*, 6 EE-9 *Cascavel*. Mor: 6 81mm.

NAVY: 160.

Patrol craft: 9: 3 large, 6 (3 coastal, 3 river).

AIR FORCE: 60.

4 *Defender* ac.

PARA-MILITARY: National Militia 700.

SWEDEN

GDP 1983: S kr 704.47 bn (\$99.080 bn). 1984: 784.03 bn (\$98.936 bn).

Gov growth 1983: 2.3%. 1984: 3.0%.

Inflation 1983: 9.3%. 1984: 8.2%.

Debt 1983: \$39.9 bn. 1984: \$47.5 bn.

Def budget 1984/5: S kr 23.671 bn (\$2.676 bn). 1985/6: 25.081 bn (\$2.784 bn).

\$1 = kronor 7.1101 (1983), 7.9246 (1984), 8.846 (1984/5), 9.0081 (1985).

Population: 8,343,000.

Men: 18-30: 764,000; 31-45: 990,150.

Women: 18-30: 730,300; 31-45: 944,200.

TOTAL ARMED FORCES:

Regular: 65,650 (48,900 conscripts): mobilizable to about 800,000 in 72 hours, 850,000 maximum excl 500,000 auxiliary orgs. 25,000 civilians provide spt services.

Terms of service: Army and Navy 7½-15 months, Air Force 8-12 months.

Reserves (all services: obligation to age 47): 735,500; voluntary auxiliary organizations 500,000.

ARMY: 47,000 (38,000 conscripts). (There are normally some 95,000 more conscripts (70,000 Army, 4,500 Navy, 6,000 Air Force) plus 15,000 officer and NCO reservists doing 11-40 days refresher training at some time in the year. Obligation is 5 times per reservist between ages 20 and 47.)

6 Military commands; 26 Defence districts (*Laens*).

Peace establishment:

50 armd, cav, inf, arty, AA, engr, sig spt regts (local defence, cadre for mobilization, basic conscript plus refresher trg).

War establishment (700,000 on mobilization, incl 100,000 Home Guard):

4 armd bdes.

1 mech bde.

19 inf, 5 *Norrland* bdes.

60 indep armd, inf, arty and AA arty bns.

1 army aviation bn (4 coys; 40 hel).

11 arty aviation platoons (66 ac and hel).

Local Defence Districts: 100 indep bns, 400-500 indep coys and Home Guard units.

Tks: 340 *Strv-101*, *Strv-102/104 (Centurion)*, 330 *Strv-103B*; Lt: 200 *lkv-91*. APC: *Pbv-302*. Arty: guns:

BK-1A 155mm sp; how: Type-4140 105mm, M-39 150mm, FH-77-A and (sp) -B 155mm; mor: 81mm, 120mm. ATK: rcl: *Miniman 74mm*, *Carl Gustav 84mm*, *PV-1110 90mm*; atgw: RB-53 (*Bantam*), RB-55 (*TOW*).

AD: guns: 20mm, 40mm; SAM: RB-69 (*Redeye*), RB-70 (incl *Lvrbv* sp), RB-77 (*Improved HAWK*). Avn:

ac: 66 *SK-61C (Bulldog)* observation, Do-27 tpt; hel: 15 *HKP-3 (AB-204B)* tpt, 10 *HKP-5 (Hughes 300C)* trg, 24 *HKP-6 (Jet Ranger)* utility.

(On order: *Pvriv* 551 *TOW* veh; 20 *BO-105 (HKP-9A)* ATK hel.)

NAVY: 9,650, incl coast arty (6,250 conscripts), 10 combat hel.

Bases: Muskö, Harnösand, Karlskrona, Göteborg (spt only).

Subs: 13: 3 *Näcken*, 5 *Sjöormen*, 4 *Draken*; 1 *Mala* two-man.

Destroyer: 1 *Holland*.

FAC: (o): 30: 2 *Stockholm (Spica III)* with 6 RBS-15 ssm, 16 *Hugin* with 6 RB-12 (*Penguin*), 12 *Spica II (R-131)* with 4 RBS-15 ssm; (r): 6 *Spica I (T-121)*.

Patrol craft: 4 *Hanö* large, 29 coastal incl 11 *Skånör*.

Minelayers: 3 large: 1 trg; 10 coastal, 17 inshore.

MCMV: 2 *Landsort*, 9 *Arka* coastal, 23 inshore.

Amph: LCM: 12; LCU: 80; LCA: 55.

Icebreakers: 6.

Coast arty: 5 bdes: 30 mobile and static bns: guns:

75mm, 105mm, 120mm, 152mm; ssm: RB-08, RB-52.

Coast rangers (coys): Marine: 10 coastal, 17 inshore minelayers; 18 60-/70-class coastal patrol craft; 9 LCM, 80 LCU, 55 LCA.

Hel: 2 sqns with 10 *HKP-4B/C (KV-107)* ASW/MCM, 10 *HKP-6* liaison.

(On order: 4 A-17 subs, 4 *Stockholm FAC*(g), 4 *Landsort* minehunters; RBS-15 ssm; 6 MCMV; 6 *V/KV-107* ASW hel.)

AIR FORCE: 9,000 (4,650 conscripts); 524 combat ac.

1 attack gp.

4 AD districts.

12 wings (liaison ac: 48 *SK-50 (Saab 91)* *Safir*).

FGA: 6 sqns: 5 with 95 *AJ-37 Viggen*, 1 with 20 *SK-60B/C (Saab 105)*.

AD: 12 sqns: 6 with 109 *J-35F Draken*, 2 with 36 *J-35D*, 4 with 68 *JA-37 Viggen*.

Rece: 6 sqns: 52 *SH/SH-37 Viggen*; 2 *Caravelle (ELINT)*; 3 *J-32B Lanser* (radio activity monitors).

OCU: 1 with 15 *SK-37 Viggen* (6 *SK-35C Draken* in store).

Tpt: 1 sqn with 8 *C-130E/H*.

Comms units: *SK-60A*, 2 *CT-39 Sabreliner*, 2 *Cessna 404*, 1 *Metro III* (leased).

Trg: incl 124 *SK-60A/B/C*, 57 *SK-61*, 20 *J-32 (14-32E ECM* trg, 6 -32D target tug).

SAR: 1 sqn with 10 *HKP-4*, 10 *HKP-5* hel (2 *HKP-9B (BO-105)* for delivery July 1985).

Utility unit: 6 *HKP-2* (to retire), 7 *HKP-3* hel.

AAM: RB-24, AIM-9J/L *Sidewinder*, RB-27 (*Falcon*), RB-28 (*Improved Falcon*), RB-71 (*Skyllash*).

ASM: RB-04E, RB-05A, RB-75 (*Maverick*).

AD: Semi-automatic control and surveillance system, *Stril 60*, co-ordinates ad components.

(On order: 76 *JA-37 Viggen*, 30 *JAS-39 Gripen* multi-role ac, 4 *BO-105 SAR* hel, *RBS-15F*, *Hellfire* ASM, AIM-9L *Sidewinder* AAM.)

Forces Abroad: (526). Cyprus (UNFICYP) 1 inf bn (376).

Lebanon (UNIFIL) HQ/log/medical tps (150).

PARA-MILITARY: Coast Guard (550); 2 TV-171 fishery protection vessels, 67 patrol craft; (Air Arm): 1 *Cessna 337G*, 1 402C. Civil Defence: shelters for some 5 million people outside military ages (16-65).

SWITZERLAND

GDP 1983: fr 203.9 bn (\$97.137 bn). Est 1984: 213.2 bn (\$90.735 bn).

Gov growth 1983: 0.7%. 1984: 2.0%.

Inflation 1983: 2.9%. 1984: 3.0%.

Debt 1983: \$29.0 bn. 1984: \$30.0 bn.

Def exp 1984: fr 4.6 bn (\$1.958 bn). Budget 1985: 5.128 bn (\$1.957 bn). (Excl communes' and cantons' contributions.)

\$1 = francs 2.0991 (1983), 2.3497 (1984), 2.6198 (1985).

Population: 6,513,000.

Men: 18-30: 507,000; 31-45: 560,000.

Women: 18-30: 410,600; 31-45: 642,400.

TOTAL ARMED FORCES:

Regular: about 1,500 regular and 18,500 recruits (two recruit intakes a year (Feb/Jul) each of 17,000. Some 400,000 reservists a year do refresher training) (mobilizable to some 1,100,000 incl Civil Defence in 48 hours).

Terms of service: 17 weeks recruit training followed by reservist refresher training of 3 weeks over an 8-year period between ages 20-32 for *Auszug*, 2 weeks over 3-year period (33-42) for *Landwehr*, 1 week over 2-year period (43-50) for *Landsturm*.

Reserves (all services): 625,000 (45,000 officers, 110,000 NCOs, 3,000 women auxiliaries).

ARMY: War establishment: 580,000 on mobilization.

3 fd corps, each of 1 mech, 2 inf divs; corps tps: 3 infantry, 3 cyclist, 3 engr regts (3 bns); 3 sigs, 3 traffic control bns; 3 hel sqns, 3 lt ac flts.

1 mountain corps of 3 mountain inf divs, corps tps; 1 mountain inf, 1 engr, 1 sigs regts; 7 indep inf, 2 pack horse bns; 1 traffic, 1 hel sqns.

17 indep bdes (11 frontier, 3 fortress, 3 redoubt).

6 Territorial Zones: 13 medical, 12 log, 11 civil def regts.

Indep units: 3 hy arty, 3 engr, 2 sigs.

20 Fortress Guard companies.

Tks: some 6 *Pz-Leopard 2*, 300 *Pz-55/57 (Centurion)*, 150 *Pz-61*, 390 *Pz-68*. APC: 1,350 *M-63/73/64 (mor)* (M-113). Arty: guns: some 900 Model-35 105mm; how: Model-46 105mm, M-50 towed, 290 *PzHb-66/74 (M-109U)* 155mm sp; MRL: *RWK-014* 30-tube 81mm;

MOR: 3,000 M-33, M-72 81mm, M-74 120mm. ATK: guns: 1,340 Model-50-57 and 90mm; rcl: M-58 106mm; rl: 20,000 M-58, M-80 83mm; atgw: 6 MOWAG *Piranha* with TOW; 800 B/B-65 (*Bantam*), B/B-77 (*Dragon*). AD: guns: 1,200 43/57, 54 20mm, 600 63, GDF-002 35mm; SAM: *Bl-84 (Rapier)*. Marine: 11 *Aquarius* patrol craft.

(On order: some 374 *Leopard 2* MBT, 125 M-113 APC, *Dragon*, *TOW-2* atgw.)

AIR FORCE (Aviation Corps, an integral part of the Army): 45,000 on mobilization (maintenance by civilians); 299 combat ac.

3 air regts.

FGA: 9 sqns with 139 *Hunter F-58/T-68*.

Ftrs: 6 sqns with 98 F-5E, 12 F-5F.

Interceptors: 2 sqns with 30 *Mirage IIIS/BS*.

Rece: 1 sqn with 16 *Mirage IIIRS*.

Liaison/SAR: 4 sqns with 16 *PC-6 Porter*, 24 *PC-6A Turbo-Porter*, 6 *Do-27*, 3 *Twin Bonanza*.

Hel: 4 sqns with 21 *Alouette II*, 76 *Alouette III*.

Trg: incl 40 *PC-7 Turbo-Porter*, 37 *DH-100 Vampire T-55*, 65 *Vampire Mk 6*, 4 *Mirage IIIBS*, 68 *Pilatus P-3*.

AAM: *Sidewinder*, AIM-26B *Falcon*.

ASM: AS-30.

1 air force fd bde (3 fd regts, 1 para coy, 1 lt ac wing).

1 airbase bde with 3 AA arty regts, each with 4 batteries of 20mm and 35mm guns.

1 AD bde with 1 SAM regt (2 bns, each of 2 btys; 64 *BL-64 (Bloodhound)*, some 6 *Rapier* SAM); 7 AA arty regts (each of 3 btys; 20mm and 35mm guns, *Skyguard* fire control).

3 comd and comms, 1 log regts.

(On order: some 54 *Rapier* SAM launchers; 500 *AGM-65 Maverick* ASM.)

PARA-MILITARY: Civil Defence: 480,000 (300,000 fully trained). Shelter programme for 5,500,000; emergency supplies and medical facilities.

SYRIA

GDP 1982: £S 71.727 bn (\$18.274 bn). 1983: 77.50 bn (\$19.745 bn).

Gov growth 1983: 3.1%.

Inflation 1983: 7.5%. 1984: 20.0%.

Debt 1983: \$2.60 bn. Est 1984: \$3.50 bn. (Excl some \$15 bn owed to USSR and eastern-bloc states.)

Def budget 1984: £S 12.60 bn (\$3.210 bn). 1985: 13.0 bn (\$3.312 bn). (Between 1979 and 1983 the acc and other Arab states provided some \$1.9 bn p.a. in military aid. This seems to have been suspended.)

\$1 = £S 3.925 (1982/3/4/5).

Population: 11,000,000.

Men: 18-30: 1,239,000; 31-45: 664,000.

Women: 18-30: 1,136,000; 31-45: 644,000.

TOTAL ARMED FORCES:

Regular: 402,500.

Terms of service: 30 months.

Reserves: 272,500. Army 270,000 active, Navy 2,500.

ARMY: 270,000 (135,000 conscripts, 55,000 reservists).

HQ: 2 corps.

5 armd divs (each 3 armd, 1 mech bdes; 1 is Presidential Guard).

3 mech divs (each 2 armd, 2 mech bdes).

1 special forces div.

2 indep mech bdes.

6 arty bdes.

8 para/cdo regts.

3 SSM regts: 1 each with *Scud*, *FROG*, SS-21.

10 SAM bns (30 btys) with SAM-6.

Coast Def: arty and msl bns.

(Reserves: 9 mech and inf bdes.)

Tks: 4,200: 1,800 T-54/55, 1,300 T-62, 1,100 T-72.

AFV: RECC/ATK: 800 *BRDM-2*; MICV: 600 *BMP-1*; APC: 1,600 *BTR-40/50/60/152*, *OT-64*.

Arty: guns: 40,000: D-44 85mm, M-1944 100mm (incl 36 T-34/100 sp), M-1931/37/38, ISU-122, M-1974 sp 122mm, M-46, SM-4-1 coastal 130mm, ISU-152 sp 152mm, S-23 180mm; GUN/HOW: M-1937 152mm; how: M-38, D-30, T-34/D-30 sp 122mm, D-1, M-1943, M-1973 sp 152mm; MRL: BM-21 122mm, BM-14-16 140mm, BM-24 240mm; ssm: 18 *FROG-7*, 18 SS-21, 18 *Scud-B*; SSC-2B *Samlet* coastal; mor: 120mm, 160mm, 240mm.

ATK: guns: T-12 100mm; atgw: 1,300 AT-3 *Sagger* (incl *BRDM-2* sp), AT-4 *Spigot* and *Milan*.

AD: guns: 1,000 ZU-23-2 23mm, M-1939 37mm, S-60 57mm, M-1939/44 85mm, KS-19 100mm towed, ZSU-23-4, ZSU-57-2 sp; SAM: SA-6/7/8/9-13 SAM.

AIR DEFENCE COMMAND: (60,000; Army comd).

22 AD bdes (63 SAM btys): 11 (28 btys) with some 370 SA-2/3; 2 (8 btys) with some 48 SA-5; 9 (27 btys) with some 240 SA-6, AA arty and radar.

NAVY: 2,500.

Bases: Latakia, Tartus, Minet el-Baida.

Frigates: 2 *Petya I*.

FAC: (g): 22 with SS-N-2a/c ssm; 6 *Osa-I*, 10 *Osa-II*; 6 *Komar*; (r): 8 Sov P-4.

Patrol craft: 7: 1 Fr CH large, 6 Sov *Zhuk* coastal, MCMV: 4 Sov: 1 T-43 ocean, 2 *Vanya* coastal, 1 *Yevgenya* inshore.

Amph: LCT: 2 *Polnochny*.

(On order 1981: 4 *Nanuchka II* corvettes.)

AIR FORCE: 70,000; some 500 combat ac; some 100 armed hel. (Some aircraft believed to be in storage.)

FGA: 9 sqns: 4 with 85 MiG-17; 1 with 18 Su-7; 2 with 40 Su-20; 2 with 50 MiG-23BM *Flogger F*.

Recces: perhaps 10 MiG-25R.

Interceptor: 15 sqns: 2 with 30 MiG-25 *Foxbat E*; 10 with 180 MiG-21PF/MP, 3 with 70 MiG-23 *Flogger E/G*.

Tpt: 2 sqns: 5 An-24 *Coke*, 6 An-26 *Curly*, 4 Il-76 *Candid*, 6 Tu-134 *Crusty*, 2 *Mystère-Falcon*-20F.

Trg: incl 90 L-39, 60 L-29, 10 MiG-15UTI, 50 MBB-223 *Flamingo*.

Hel: ATTACK: 40 Mi-24 *Hind*, 35 SA-342 *Gazelle* (ATK), perhaps 25 armed Mi-8; TPT: 100 Mi-8, 30 Mi-17 (mod-8), 10 SA-342 *Gazelle*, 10 Mi-4 *Hound*, 10 Mi-2 *Hoplite*; NAVY-ASSIGNED (ASW): 3 Ka-25 *Hormone*, 20 Mi-14 *Haze*.

AAM: AA-2 *Atoll*, AA-6 *Acrid*, AA-7 *Apex*.

ASM: AT-2 *Swatter* ATGW.

(On order: 12 SA-342 *Gazelle* hel; AAM.)

Forces Abroad: Lebanon 30,000 (3 divs-); 800 MBT.

PARA-MILITARY:

Ministry of Defence: Desert Guard (Frontier Force) 1,800, Palestine Liberation Army 4,500; 3 bdes (in Syria/Lebanon, some Syrian officers, nominally under PLC); 90 T-54-55 MBT; 105mm, 122mm, 152mm how; MRL; AT-3 *Sagger* ATGW; SA-7 SAM.

Ministry of Interior: Gendarmerie 8,000.

Ba'ath Party: Workers' Militia (People's Army).

TAIWAN

GDP 1983/4: \$NT 2,085 bn (\$US 50.120 bn). 1984/5: 2,328 bn (\$US 56.056 bn).

GDP growth 1983: 9.0%. 1984: 10.9%.

Inflation 1983: -1.2%. 1984: 1.7%.

Est debt 1983: \$9.0 bn. 1984: \$8.5 bn.

Def budget (off.) 1984/5: \$NT 141.9 bn (\$US 3.417 bn). 1985/6: 161.257 bn (\$US 3.948 bn). (Estimates of likely actual expenditure run up to \$NT 185 bn for 1984/5 and \$NT 205 bn for 1985/6.)

\$1 = \$NT 41.00 (1982/3), 41.60 (1983/4), 41.53 (1984/5), 40.85 (1985).

Population: 19,890,000.

Men: 18-30: 2,518,000; 31-45: 1,813,000.

Women: 18-30: 2,410,000; 31-45: 1,738,000.

TOTAL ARMED FORCES:

Regular: 444,000.

Terms of service: 2 years.

Reserves: 1,470,000. Army: 1,300,000 have some Reserve obligation. Navy 45,000, Marines 35,000, Air 90,000.

ARMY: 290,000.

3 Army, 6 Corps, 1 Special Force HO.

12 hy inf divs,

6 lt inf divs,

6 mech bdes,

2 AB bdes,

4 tk gps.

20 fd arty bns.

5 SAM bns: 2 with *Nike Hercules*, 3 with *HAWK*.

6 army aviation sqns,

9 Reserve divs (cadre).

Tks: 309 M-48; LT: 325 M-24 (90mm gun), 795 M-41.

AFV: recces: M-8; APC: M-3 half-track, 1,100 M-113, 150 V-150 *Commando*.

Arty: GUNS/HOW: 390 M-59 155mm; how: 350 M-116 75mm pack, 550 M-101 (T-64) 105mm, 90 M-114 (T-65) 155mm, 10 M-115 203mm towed, 225 M-108 105mm, 250 M-109A1 155mm, 150 M-110 203mm SP; MRL: *Kung Feng* (*Worker Bee*) 65mm, (VI) 45 x 117mm, (III) IV) 40 x 126mm towed and SP; ssm: *Hsiung Feng* (*Drone Bee* = *Gabriel*-type) coastal defence ssm, *Ching Feng* (*Green Bee* = *Lance*-type) ssm/SAM; MOR: 81mm.

ATK: RCL: 500 106mm; GUNS: 150 M-18 76mm SP; ATGW: *Kun Wu* (*Fire God* = *TOW*-type), *TOW* (some SP).

AD: GUNS: 300 40mm (incl M-42 SP); SAM: 400 *Nike Hercules*, 800 *HAWK*, 20 *Chaparral*.

Avn: HEL: 118 UH-1H, 2 KH-4, 7 CH-34.

(On order: 75 M-60 MBT, 164 M-113 APC (incl variants); 1,000 *TOW*, *Kun Wu* ATGW; 16 launchers, 766 MIM-72F *Chaparral* msls; 370 *Improved HAWK*, *Skyarrow I* (Patriot-type) SAM.)

DEPLOYMENT: Quemoy 55,000, Matsu 18,000.

NAVY: 38,000.

Bases: Tsoying, Makung (Pescadores), Keelung.

Subs: 2 *Guppy*-II.

Destroyers: 27: 14 *Gearing* (3 may be non-operational) with 1 hel (fitting 3 *Hsiung Feng* (HF) ssm, 10 with 1 x 8 ASROC); 1 radar picket with 3 HF; 8 *Sumner* (1 with 1 x 3, 2 with 2 x 3 HF); 4 *Fletcher* with 1 x 2 *Sea Chaparral* SAM.

Frigates: 9: 3 *Lawrence*, 6 *Crosley*.

Corvettes: 3 *Auk*.

FAC(g): 33 with HF SSM; 3 *Lung Chiang* (PSMM-5) with 4 x 1, 30 *Tzu Chiang* (mod *Dvora*) with 2 x 1.

Patrol craft: 28 coastal.

MCMV: 14 *Adjutant* and MSC-268/269 coastal.

Amph: LPD: 1; LSD: 2; LST: 22 (1 comd); LSM: 4; LCU: 22; LCM: some 250; LCVP: 100; other: 25.

Spt: 1 repair ship, 3 tpts, 7 tankers.

Hel: 1 sqn with 12 *Hughes Defender* 500MD.

(On order: 2 mod *Zwaardvis* subs; 3 *Lung Chiang*, 4 *Tzu Chiang* FAC(a); 10 ASW hel; ASROC asw: 170 *Standard SM-1*, 284 *Improved Sea Chaparral* SAM.)

MARINES: 39,000.

3 divs.

APC: LVT-4/5. Arty: how: 105mm, 155mm; RCL: 106mm.

AIR FORCE: 77,000; 567 combat ac, 12 armed hel.

5 combat wings.

FGA: 13 sqns: 22 F-5E, 30 F-5F, 42 F-100A/D, 80 F-104G.

Ftrs: 1 sqn with 19 F-104A.

Recces: 1 sqn with 8 RF-104G.

MR: 1 sqn with 9 S-2A, 20 S-2E.

SAR: 1 sqn with 8 HU-16B ac, 10 UH-1H hel.

Tpt: 6 sqns: 20 C-47, 5 C-54, 1 C-118B, 40 C-119, 10 C-123, 1 Boeing 720B, 4 727-100.

Hel: 2 sqns: 7 UH-19, 10 Bell 47G.

OCU: 82 F-5A/B, 30 FTF-104G, 6 F-104D, 15 F-100F.

Trg: incl 55 PL-1B *Chien Shou*, 50 T-CH-1, 32 T-33/38, 10 T-28, AT-3.

AAM: *Sidewinder*, *Shafirir*.

ASM: *Bullpup*, AGM-65A *Maverick*.

(On order: 39 F-104G, 27 F-104G, 60 F-5E/F ftr, 12 C-130H tpt, 42 Beech T-34C *Mentor*, 50 AT-TC3 trg ac; *Sparrow* AAM.)

PARA-MILITARY: Taiwan Garrison Comd, 25,000. Customs Service (Ministry of Finance) 5 ocean armed, 11 inshore patrol craft.

TANZANIA

GDP 1981/2: T sh 47,853 bn (\$5.534 bn).

GDP growth 1983: 0%. 1984: 0.0%.

Inflation 1983: 26.0%. 1984: 36.0%.

Debt 1983: \$1.80 bn. 1984: \$2.10 bn.

Est def exp 1981/2: T sh 2,745 bn (\$317.46 m). 1982/3: 3.0 bn (\$307.31 m).

\$1 = shillings 8.6468 (1981/2), 9.762 (1982/3).

Population: 21,300,000.

Men: 18-30: 2,179,000; 31-45: 1,562,000.

Women: 18-30: 2,249,000; 31-45: 1,625,000.

TOTAL ARMED FORCES:

Regular: 40,350 (perhaps 20,000 conscripts).

Terms of service: national service incl civil duties, 2 years.

ARMY: 38,500 (some 20,000 conscripts).

2 div HO.

8 inf bdes.

1 tk bn.

2 fd arty bns, 2 AA arty bns (6 btys).

2 mor bns.

1 SAM bn with SA-3, SA-6.

2 ATK bns.

2 sigs bns.

Tks: 30 Ch Type-59; LT: 30 Ch Type-62, 36 *Scorpion*. AFV:

recces: 20 BRDM-2; APC: 50 BTR-40/152. Arty: GUNS: 40 ZIS-3 and Ch Type-54 76mm, 200 122mm, 50 130mm; MRL: 50 BM-21 122mm; MOR: 350 82mm and 120mm. ATK: RCL: 540 Ch Type-52, US M-20 75mm. AD: GUNS: 280 ZPU-2/4 14.5mm, 40 ZU-23, 120 Ch Type-55 37mm; SAM: 9 SA-3, 12 SA-6, 40 SA-7.

NAVY: 850.

Bases: Dar es Salaam, Zanzibar.

FAC: 7 *Ch Shanghai*-II.

Patrol craft: 12 coastal; 1 *GDR Schwalbe*, 2 *GDR MB-13* 50-ton, 3 *Ch Yulin*, 2 N. Korean *Nampo* mod LCA; 4 *Vesper Thornycroft* 75-ft in Zanzibar.

AIR FORCE: 1,000; 29 combat ac.

Ftr: 3 sqns with 11 *Ch J-7*, 15 *J-6*, 3 *J-4*.

Tpt: 1 sqn with 1 *HS-125-700*, 1 *An-2*, 3 *HS-748*, 6 *DHC-5D*.

Trg: 2 MiG-15UTI, 6 *Piper Cherokee*, 8 *Cessna* (6 310, 2 404).

Hel: 2 *Bell 47G*, 5 *AB-205*, 6 *AB-206*.

(On order: *An-26*, *An-32* tpt ac.)

Forces Abroad: Mozambique 200; trg team. Uganda 500.

PARA-MILITARY: Police Field Force 1,400. Police Marine Unit (100). Citizen's Militia; 50,000.

THAILAND

GDP 1983: baht 924.25 bn (\$40.185 bn). 1984: 991.75 bn (\$43.120 bn).

GDP growth 1983: 5.8%. 1984: 6.0%.

Inflation 1983: 3.8%. 1984: 0.9%.

Debt 1983: \$13.0 bn. 1984: \$14.7 bn.

Def budget (excl Internal Security Budget and proposed F-16A purchase) 1984/5: baht 39,377 bn (\$1.712 bn). 1985/6: 38,809 bn (\$1.411 bn).

FMA 1983: \$76.0 m. 1984: \$94.0 m.

\$1 = baht 23.00 (1983/4), 23.00 (1984/5), 27.513 (1985).

Population: 51,765,000.

Men: 18-30: 6,507,000; 31-45: 4,503,000.

Women: 18-30: 6,322,000; 31-45: 4,399,000.

TOTAL ARMED FORCES:

Regular: 235,300.

Terms of service: 2 years.

Reserves: 500,000.

ARMY: 160,000 (80,000 conscripts).

4 Regions; 4 Army HO.

1 cav div (2 cav, 1 arty regts).

1 arm div (1 tk, 1 cav, 1 mech regts).

7 inf divs (5 with 1 tk bn).

2 special force divs.

1 Royal Guard.

1 arty div, 1 AA div (2 AA arty regts).

11 engr bns.

8 indep inf bns.

4 recce coys.

Avn: 3 airmobile coys, some hel fts.

Reserves: 4 div HO.

Tks: 190 M-48A5; 200 M-41 (most in reserve); LT: 144 *Scorpion*, M-24.

AFV: recces: 56 *Cascavel*, 32 *Shorland* Mk 3; APC: 450 M-113, M-3A1 half-track, 280 V-150 *Commando*, 20 *Saracen*.

Arty: how: 300 M-116 75mm pack, M-101/101 mod 105mm, 110 M-114, 62 M-198 155mm; MOR: 81mm, 120mm.

ATK: RL: M-72 *LAW*; RCL: 57mm, M-20 75mm, 215 106mm; ATGW: *TOW*, *Dragon*.

AD: GUNS: 24 M-163 *Vulcan* 20mm, 80 M-1/L-70/M-42 SP 40mm; SAM: *Redeye*.

Avn: AC (TPT): 4 C-47, 1 *King Air*; (LT): 2 Short 330-UTT, 80 O-1, 13 U-17A, 1 *Beech* 99; (TRG): 2 Short T-41A; HEL: 76 UH-1B/H, 3 OH-13H, 3 OH-58A, 11 TH-55A, 2 *Bell* 214ST.

(On order: 16 M-60A3 MBT; *Kittichachorn* 105mm MRL; *Blowpipe* SAM; Short 330-UTT tpt ac; 4 UH-60A hel.)

NAVY: 32,200 (some conscripts) incl naval air and marines.

Bases: Bangkok, Sattahip, Songkla, Phangnga.

Frigates: 6: 1 *Br Yarrow*-type with 1 x 4 *Seacat* SAM; 2 *Tapi* (PF-103); 2 *Tahchin* (US *Tacoma*); 1 *Cannon* (trg).

FAC(g): 7: 3 *Ratcharit* (Breda BMB-230) with 4 *Exocet* ssm; 4 *Prabrarapak* (TNC-45) with 5 *Gabriel* ssm.

FAC: 3 *Chonburi* (Breda MV-400).

Patrol craft: 94: 23 large (4 *Sattahip* (PSMM-5), 6 *Sarasin* (PC-461), 10 T-11 (PGM-71), 3 T-81 (*Cape*); 31 coastal; 40 river.)

MCMV: 4 *Ladya* (US *Bluebird*) coastal, 5 boats, 1 spt ship.

Amph: LST: 5; LSM: 3; LSIL-351: 2; LCG: 1; LCU: 10; LCM (all US): 26; LCA: 1; LCVP: 12.

Trg ships: 3: 2 *Br* (1 *Algerine*, 1 *Flower*), 1 *Maeklong*.

Spt ships: 2 tpts, 1 tanker.

NAVAL AIR: (900); some 28 combat ac.

MR/ASW: 1 sqn with 10 S-2F.

MR/SAR: 1 sqn with 4 F-27MPA, 2 CL-215, 5 C-47.

MR/COIN: 5 N-24 *Nomad Searchmaster*, 2 *Cessna* 337.

Trg/SAR: 1 hel sqn with 11 UH-1H/N.

Observation: 1 sqn with 13 U-17, 10 O-1A, 7 O-2.

MARINES: (13,000).

1 bde: 2 inf, 1 arty regts; 1 amph assault bn.

APC: 40 LVTP-7. Arty: GUNS/HOW: 24 GC-45 155mm. Spt weapons.

(On order: 2 Type-1400 subs, 1 *Descubierta* frigate, 3 PFMM-16 corvettes, 2 *Sattahip*, 3 coastal patrol craft; 2 minehunters, 4 *Lürssen* minesweepers, 1 *LST*; *Aspide* SAM; *Harpoon* ssm; 10 *Exocet* MM-39 coast defence



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msls; 12 *Stingray* torpedoes; 3 F-27MPA MR ac; 21 LVT-7A1 APC.)

AIR FORCE: 43,100 (conscripts); 183 combat ac.
FGA: 1 sqn with 13 F-5A/B.
AD: 2 sqns: 34 F-5E, 5 F-5F.
COIN: 7 sqns: 1 with 22 T-28D; 2 with 25 OV-10C; 1 with 13 A-37B; 1 with 25 AU-23A *Peacemaker*, 1 with 14 AC-47; 1 with 14 T-33A, 3 RT-33.
Recce: 1 sqn with 4 RF-5A, 6 RC-47D, 3 *Arava* 201, 1 *Queen Air* 65, 1 Cessna 340.
Tpt: 3 sqns incl Royal flt: 1 with 10 C-47, 2 *Merlin* IVA; 2 with 10 C-123B, 3 C-130H; 8 HS-74B; 1 Boeing 737-200, 20 N-22B *Nomad Missionmaster*.
Liaison: 3 sqns: 4 U-10, 30 O-1.
Hel: 2 sqns: 18 CH-34C, 27 UH-1H, 2 Bell 412.
Trg: incl 10 T-37B, 6 O-1A, 9 T-41A, 16 SF-206MT, 23 CT-4, some 4 V-400/600 *Fantrainer*.
AAM: AIM-9 *Sidewinder*.
Airfield defence troops: 4 bns; *Blowpipe* SAM.
(On order: 8 F-16A, 4 F-16B FGA, 8 F-5E, 2 RF-2E, 6 RC-47, 2 *Merlin* IVA, 4 N-24 *Nomad*, 6 HS-74B, 1 C-130H-30 Tpt, some 29 V-400, 14 V-600 *Fantrainer* trg ac; 4 UH-60 hel; *Stingray* torpedoes; AIM-9P AAM; *Blowpipe* SAM.)

PARA-MILITARY: *Thahan Phran* 14,000: volunteer irregular force; 32 regts, 196 indep coys, to be 6th Army Region Border Guard. Volunteer Defence Corps 33,000. Marine Police 1,700; 14 patrol craft. Police Aviation 500; 3 *Skyvan*, 1 *Sherpa*, 1 Short 330-UTT, 8 PC-6, 2 DHC-4, 1 Do-28, 2 Cessna 310, 1 *Airtourer*, 1 CT-4 ac; 27 Bell 205, 13 206, 1 S-62, 6 HH-12, 1 KH-4 hel. Border Patrol Police 20,000. Special Action Force 3,800. Rangers 13,000. Village Scouts. National Defence Volunteers. 20 V-150 *Commando* APC, 1 Coastguard cutter.
(On order: 7 *Nomad* ac.)

OPPOSITION: Communist Party of Malaya: some 1,500. Communist Party of Thailand: perhaps 500. Thai People's Revolutionary Movement: some 250.

TOGO

GDP 1982: fr CFA 269.90 bn (\$821.313 m). 1983: 284.720 bn (\$747.159 m).
GDP growth 1982: 1.0%. 1983: -2.5%.
Inflation 1983: 9.0%. 1984: -3.5%.
Est debt 1983: \$805 m. 1984: \$900 m.
Est def budget 1984: fr CFA 7.50 bn (\$17.162 m). 1985: 8.20 bn (\$17.316 m).
\$1 = francs CFA 328.62 (1982), 381.07 (1983), 437 (1984), 473.54 (1985).
Population: 2,900,000.
Men: 18-30: 275,600; 31-45: 191,400.
Women: 18-30: 333,000; 31-45: 226,600.

TOTAL ARMED FORCES:
Regular: 5,110 (incl Gendarmerie).
Terms of service: conscription, 2 yrs (selective).

ARMY: 4,000. (All Services form part of the Army.)
2 inf regts: 1 with 1 mech bn, 1 mot bn; 1 with 2 arm'd sqns, 3 inf coys; spt units (trg).
1 Presidential Guard regt: 2 bns (1 cdo), 2 coys.
1 para cdo regt: 3 coys.
1 spt regt.
1 fd arty bty.
2 AA arty btys.
1 log/tpt/engr bn.
Tks: 7 T-34, 2 T-54I-55. **AFV:** **RECCE:** 6 M-8, 3 M-20, 3 AML-60, 7 -90, 36 EE-9 *Cascavel*; **APC:** 4 M-3A1, 30 UR-416. **Arty:** **GUNS:** 4 HM-2 105mm; **MOR:** 20 81/82mm. **ATK:** **RCL:** 5 ZIS-2 57mm, 12 Ch Type-52/56 75mm, 10 Ch Type-65 85mm. **AD:** **GUNS:** 38 ZPU-4 14.5mm, 5 M-39 37mm.

NAVY: 100.
Base: Lomé.
Patrol craft: 2 coastal(.

AIR FORCE: 260; some 11 combat ac.
COIN: 6 EMB-326GC *Xavante*.
COIN/trg: 5 *AlphaJet*.
Tpt: 1 Boeing 727, 2 DHC-5D, 1 F-28-1000.
Trg: 3 TB-30 *Epsilon*; LT: 2.
Hel: 1 SA-330 *Puma*, 2 SA-315 *Lama*.

PARA-MILITARY: 1,550; Gendarmerie 750; 2 regional sections, 1 mobile sqn. Presidential Guard 800.

TRINIDAD & TOBAGO

GDP 1982: \$TT 17.558 bn (\$US 7.316 bn).
GDP growth 1982: -0.4%. 1983: -4%.

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Inflation 1983: 15.4%. 1984: 13.4%.
Debt 1983: \$US 1.10 m. 1984: \$US 1.40 m.
Est def budget 1983: \$TT 195 m (\$US 81.25 m). 1984: 180 m (\$US 75.0 m).
\$US 1 = \$TT 2.4 (1982/3/4).
Population: 1,172,000.
Men: 18-30: 146,000; 31-45: 95,600.
Women: 18-30: 150,400; 31-45: 96,000.

TOTAL ARMED FORCES (all Services form part of the Army):
Regular: 2,130.
Terms of service: voluntary.

ARMY: 1,500.
1 inf bn.
1 reserve bn (3 coys).
1 spt bn.
Arty: **MOR:** 6 81mm; **RCL:** *Carl Gustav* 84mm.

COASTGUARD: 580.
Patrol craft: 6 large (2 Swed Type CG-40 41-metre, 4 Vosper 31-metre); 7 coastal(incl 4 *Souter* 17-metre).

AIR FORCE: 50.
Ac: 1 Cessna 402.
Hel: 1 *Gazelle*; 2 S-76 (SAR).

PARA-MILITARY: Police (400); 12 armed patrol craft(.

TUNISIA

GDP 1983: TD 5,520 bn (\$8,136 bn). 1984: 6,235 bn (\$8,027 bn).
GDP growth 1983: 4.5%. 1984: 5.5%.
Inflation 1983: 6.0%. 1984: 8.2%.
Debt 1983: \$3.40 bn. 1984: \$4.10 bn.
Def budget (incl eqpt budget) 1984: TD 339.64 m (\$437.230 m). 1985: 347.6 m (\$402.036 m).
FMA 1983: \$90.0 m. 1984: \$100.0 m.
\$1 = dinar 0.6785 (1983), 0.7768 (1984), 0.8646 (1985).
Population: 7,150,000.
Men: 18-30: 888,000; 31-45: 466,000.
Women: 18-30: 857,000; 31-45: 516,000.

TOTAL ARMED FORCES:
Regular: 35,100 (27,000 conscripts) (excl Gendarmerie).
Terms of service: 12 months selective.

ARMY: 30,000 (26,000 conscripts).
2 combined arms bdes (each with 1 arm'd, 2 mech inf bns).
1 Sahara bde.
1 para-cdo bde.
2 arm'd recce regts.
3 fd, 2 AA arty regts.
1 engr regt.
Tks: 14 M-48A5, 54 M-60A3; LT: 40 AMX-13, 10 M-41.
AFV: **RECCE:** 20 *Saladin*, 30 EBR-75, 10 AML-60, EE-3 *Jararaca*, EE-9 *Cascavel*; **APC:** 50 M-113A1, 18 EE-11 *Urutu*. **Arty:** **GUN/HOW:** 6 25-pdr (88mm); **HOW:** 48 M-101A1 towed, M-108 sp 105mm; 10 M-114A1, Model 50, 19 M-109 sp 155mm; **MOR:** 81mm (incl M-125 sp), 82mm, 107mm (12 M-106A2 sp). **ATK:** **RCL:** STRIM-89; **GUNS:** 54 JPz SK-105 105mm sp; **ATGW:** MGM-71A *TOW* (incl 20 M-113 sp), *Milan*, SS-11. **AD:** **GUNS:** 45 M-1939/Type-55 37mm; **SAM:** RBS-70, 62 MIM-72 *Chaparral*.

NAVY: 2,600 (500 conscripts).
Bases: Tunis, Suse.
Frigate: 1 *US Sauge*.
FAC: 2 *Ch Shanghai-II*; (a): 6: 3 *La Combattante* IIIIM with 8 *Exocet* MM-40 ssm; 3 P-48 with 8 SS-12 ssm.
Patrol craft: 17: 5 large (1 *Le Fougueux*, 2 *Adjudant* ex-MCMV, 2 Vosper Thornycroft 103-ft); 12 coastal(, (On order: 2 Lürssen 23-metre FAC.)

AIR FORCE: 2,500 (500 conscripts); 20 combat aircraft.
FGA: 8 F-5E, 4 F-5F.
COIN: 1 sqn with 5 MB-326K, 3 MB-326L.
Tpt: 2 C-130H.
Liaison: 4 S-208M ac.
Trg: 17 SF-260, 7 MB-326B, 12 T-6, 12 *Salif*.
Hel: 1 wing with 7 *Alouette II*, 5 *Alouette III*, 4 UH-1H, 1 *Puma*, 18 AB-205, 6 Bell 205-A1, 6 AS-350B *Ecureuil*, 1 SA-365N *Dauphin*.
(On order: 2 F-5F trg ac.)

PARA-MILITARY: Gendarmerie (Public Order Brigade) 3,500; 3 bns; 110 Fiat 6614 APC. National Guard: 6,000.

UGANDA

Est GDP 1982: U sh 451.2 bn (\$5.361 bn).
GDP growth 1982: 8.2%. 1983: 5.0%.

Inflation 1983: 30.0%.
Debt 1983: \$700 m. 1984: \$820 m.
Def budget (excl internal security services) 1981/2: U sh 8.045 bn (\$95.595 m). Est 1982/3: 10.40 bn (\$94.153 m). \$1 = shillings 84.1575 (1981/2), 110.458 (1982/3).
Population: 14,700,000.
Men: 18-30: 1,487,000; 31-45: 1,011,000.
Women: 18-30: 1,524,000; 31-45: 1,027,000.

TOTAL ARMED FORCES:
Regular: 18,000.
Terms of service: voluntary.

ARMY: 18,000 (20,000 planned).
3 bde HO.
Some 18 inf bns.
Tks: 10 T-34/54I-55, 3 M-4. **APC:** 150 BTR-40/152, OT-64 and *Saracen*. **Arty:** **GUNS:** 60 76mm, 20 122mm. **ATGW:** 40 *Sagger*. **AD:** **GUNS:** 40 23mm, 40mm; **SAM:** SA-7 (serviceability doubtful).

AIR: (100; part of Army).
Trg: 6 FFA AS-202 *Bravo*.

PARA-MILITARY: 23,000. Armed Police Special Force 3,000. People's Militia: perhaps 20,000.

OPPOSITION: Buganda National Resistance Army 6,000; captured small arms, some hy machine guns. At least two other minor groups.

UNITED ARAB EMIRATES (UAE)

GDP 1982: Dh 108.90 bn (\$29.665 bn). Est 1983: 101.3 bn (\$27.595 bn).
GDP growth 1983: -7.0%. 1985: -6.5%.
Inflation 1983: 0%. 1984: 2%.
Def budget 1984: Dh 6.855 bn (\$1.867 bn). Est exp 1985: 7.50 bn (\$2.043 bn).
\$1 = dirham 3.671 (1982-5).
Population (incl expatriates): 1,400,000.
Men: 18-30: 248,000; 31-45: 315,000.
Women: 18-30: 88,000; 31-45: 75,000.

TOTAL ARMED FORCES: (The Union Defence Force and the armed forces of the United Arab Emirates (Abu Dhabi, Dubai, Ras al Khaimah and Sharjah) were formally merged in 1979; Abu Dhabi and Dubai still maintain a degree of independence. Perhaps a third of the force is made up of non-nationals.)
Regular: 43,000.
Terms of service: voluntary.

ARMY: 40,000.
3 regional commands: Western (Abu Dhabi), Central (Dubai), Northern (Ras al Khaimah).
1 Royal Guard 'bde'.
1 arm'd bde.
1 mech inf bde.
2 inf bdes.
1 arty, 1 ad bde (each 3 bns).
Tks: 100 AMX-30, 36 OF-40 Mk 2 (*Lion*); LT: 60 *Scorpion*.
AFV: **RECCE:** 90 AML-90, VBC-40; **micv:** AMX-10P; **APC:** 30 AMX VCI, VCRIT, 300 Panhard M-3, VAB, 30 EE-11 *Urutu*. **Arty:** **GUNS:** 50 ROF lt 105mm, Mk F-3 sp 155mm; **HOW:** M-56 105mm pack; **MOR:** 81mm. **ATK:** **RCL:** 84mm; **ATGW:** *Vigilant*. **AD:** **GUNS:** M-3VDA 20mm sp, GCF-BM2 30mm; **SAM:** *Rapier*, *Crotale*, RBS-70. (**Store:** 70 *Saladin* arm'd, 70 *Ferret* scout cars; 12 *Saracen* APC.)

(On order: 20 *Scorpion* lt tks; 66 *Urutu* APC with *TOW*; 54 *TOW* ATGW; 42 *Improved HAWK* SAM; 343 msls.)

NAVY: 1,500.
Bases: **ABU DHABI:** Dalma, Mina Zayed; **AJMAN:** **DUBAI:** Mina Razhid, Mina Jabal 'Ali'; **FUJAIRAH:** **RAS AL KHAIMAH:** Mina Sakr; **SHARJAH:** Mina Khalid, Khor Fakkan.
FAC(g): 6 Lürssen TNC-45 with 2 x 2 *Exocet* MM-40 ssm.
Patrol craft: 9: 6 Vosper Thornycroft large, 3 Keith Nelson coastal(.
Spt: 2 Cheverton tenders(.

AIR FORCE (incl Police Air Wing): 1,500; 42 combat ac, 7 arm'd hel.
Interceptor: 2 sqns: 24 *Mirage* 5AD, 3 5RAD, 2 5DAD.
FGA: 1 sqn with 3 *AlphaJet*.
COIN: 1 sqn with 10 MB-326K/LD.
Tpt: incl 4 C-130H, 1 L-100-30, 1 Boeing 720-023B, 1 G-222, 4 C-212, 5 *Islander*, 9 DHC-5D, 1 Cessna 182.
Hel: incl 7 *Alouette III* with AS-11, 8 AB-205, 6 AB-206, 3 AB-212, 9 SA-330 *Puma*, 4 AS-332F *Super Puma*, 10 SA-342 *Gazelle*.
Trg: some 3 *Hawk*, 6 SF-260TP, 2 MB-339.
AAM: R-550 *Magic*.

ASM: AS-11-12.

(On order: 38 *Mirage* 2000 ftrs (3 recce, 3 trg), 3 *AlphaJet* FGA/trg, 1 G-222, 1 C-130H-30 tpt, 2 MB-339, some 24 *Hawk* (8 Mk 61, 16 Mk 63) trg ac; 30 A-129 *Mangusta*, 4 AS-332F *Super Puma*, *Lynx* hel; *Skyguard* AD system with twin 35mm guns.)

PARA-MILITARY: Coastguard (Ministry of the Interior): 56 coastal patrol boats/craft.

URUGUAY

GDP 1983: \$UR 188,437 bn (\$US 5,456 bn), 1984: 295,546 bn (\$US 5,265 bn).
GDP growth 1983: -4.7%, 1984: -1.8%.
Inflation 1983: 51.5%, 1984: 66.1%.
Debt 1983: \$US 4.0 bn, 1984: \$US 4.70 bn.
Est def exp 1981: \$UR 3,950 bn (\$US 365.06 m), 1982: 5,50 bn (\$US 395.43 m).
\$1 = new pesos 10.82 (1981), 13,909 (1982), 34.54 (1983), 56,135 (1984).
Population: 3,004,000.
Men: 18-30: 303,400; 31-45: 262,000.
Women: 18-30: 297,400; 31-45: 267,000.

TOTAL ARMED FORCES:

Regular: 31,900.

Terms of service: voluntary; 1-2 years, extendable.

ARMY: 22,300.

4 Military Regions.

Army troops:

Presidential Escort (1 cav regt).
1 inf bde (1 AB, 1 mot bns).
1 engr bde (2 bns).
1 sigs bde (2 bns).

4 inf divs:

3 cav bdes with 4 mech, 1 mot, 1 horsed regts.
5 inf bdes: 15 bns (incl 1 armd, 1 mot, 1 AB).
5 fd arly gps.
1 AA gp.
6 engr bns.

Tks: LT: 17 M-24, 28 M-3A1, 22 M-41A1. **AFV:** RECCE: 22 FN-4-RM-62, 16 EE-3 *Jararaca*, 15 EE-9 *Cascavel*; APC: 15 M-113, 55 *Condor*. **Arly:** how: 12 Bofors M-1902 75mm, 20 M-101A1, 8 M-102 105mm, 6 M-114A2 155mm; **MOR:** 81mm, 4.2-in. (107mm). **ATK:** RL: 57mm; **RCL:** 106mm; **GUNS:** M-1 57mm. **AD:** GUNS: 6 M-167 *Vulcan* 20mm, L/60 40mm.

(On order: 15 *Scorpion* lt tks.)

NAVY: 6,600 incl naval air, naval infantry.

Base: Montevideo.

Frigates: 3: 1 *Dealey*, 2 *Cannon*.

Corvette: 1 *US Auk*.

Patrol craft: 7: 5 large (incl 1 *US Adjutant*, 3 *Vigilante*), 2 coastal.

Amph: 5: 2 LCM, 3 LCU.

NAVAL AIR FORCE: (390); 7 combat ac.

ASW: 1 flt with 6 S-2A/G.

MR: 1 flt with 1 *Super King Air* B-200T.

Tpts: 2 *Expeditor* (C-45J); 1 *Super Cub* utility.

Trg: 5 T-28, 1 T-34B, 1 T-34C ac.

Hel: 1 flt with 2 S-58 (SH-34C), 1 Bell 222 SAR.

NAVAL INFANTRY: (450); 1 bn.**AIR FORCE:** 3,000; some 41 combat ac.

COIN: 2 sqns: 1 with 4 AT-33A, 6 A-37B; 1 with 12 IA-58B *Pucara*.

Recce/trg: 1 sqn: 8 T-6G; **MR:** 6 EMB-110B, 5 CASA 212.

SAR: 1 sqn with: AC: 6 Cessna 185C (U-17A); **HEL:** 2 Bell 212, 8 UH-1B/H.

Tpt: 3 sqns with 5 C-212, 2 C-47, 6 *Queen Air* B-80, 1 *Learjet* (VIP), 5 EMB-110B/C *Bandeirante*; 2 F-27, 2 FH-227.

Trg: 6 T-41D, 30 T-34B.

Forces Abroad: Egypt (Sinai MFO), 70.**PARA-MILITARY:** Metropolitan Guard 650. Republican

Guard 520. Coastguard 1,500; 6 coastal patrol craft.

VENEZUELA

GDP 1982: Bs 291,270 bn (\$67,856 bn), 1983: 290,490 bn (\$67,595 bn).

GDP growth 1983: -4.8%, 1984: -1.7%.

Inflation 1983: 6.9%, 1984: 18.3%.

Debt 1983: \$32.50 bn, 1984: \$33.30 bn.

Def budget 1983: Bs 4.10 bn (\$954.04 m), Est exp 1984: 7.50 bn (\$1,069 bn).

\$1 = bolivares 4.2925 (1982), 4.2975 (1983), 7.0175 (1984).

The General Dynamics F-16 is truly a multirole, multinational fighter. The Venezuelan Air Force, which has thirteen operational F-16s and three more on order, uses the aircraft as interceptors and in the ground attack role.



Population: 18,352,000.

Men: 18-30: 2,202,000; 31-45: 1,460,000.

Women: 18-30: 2,160,000; 31-45: 1,486,000.

TOTAL ARMED FORCES:

Regular: 49,000 (perhaps 18,000 conscripts).

Terms of service: 2 years selective, all services.

ARMY: 34,000 (incl conscripts).

HQ: 5 div (regional) incl 1 cav.

1 armd bde (2 med, 1 lt tk, 1 mech, 1 sp arty, 1 ad bns).
6 inf bdes (2 mech, 11 hy, 13 lt inf bns).
1 cav regt (horsed) (5 sqns with divs).

5 arty gps.

2 AA arty gps (1 sp), 2 indep AA arty blys (3 more gps forming).

5 engr bns.

1 AB gp (2 bns).

Tks: 80 AMX-30; **LT:** 386 M-41, 36 AMX-13. **AFV:** RECCE:

10 AML-245, 30 M-8, 60 M-706E1; **APC:** 10 *Fuchs/Transportpanzer* 1, 30 EE-11 *Urutu*, 25 AMX-VCI, 61 V-100.

Arly: how: 50 M-56 105mm pack, 35 M-101 105mm towed, 20 Mk F3, 10 M-109 155mm SP; **MRL:** 25 160mm SP; **MOR:** 100 81mm, 85 120mm. **ATK:** GUNS: 35 M-18

76mm SP; **RCL:** 106mm; **ATGW:** SS-11, AS-11. **AD:** GUNS: 24 40mm towed; 12 AML S-530 twin 20mm SP, 12 M-42A1 twin 40mm SP.

Avn: AC: 1 tpt sqn with 1 *Islander*, 2 IA-202 *Arava*, 1 *Queen Air*, 1 *Super King Air*, 8 Cessna (3 182, 5 206); **HEL:** 1 sqn with 2 Bell 206, 4 UH-1H, 4 *Agusta* A-109.

(On order: *LAR* 160mm MRL, 40mm L/70 AD system.)

NAVY: 10,000 (some conscripts) incl naval air, marines

and coastguard.

Bases: Caracas, Puerto Cabello, La Guaira, Puerto de

Hierro, Punto Fijo.

Subs: 2 Type 1300.

Frigates: 8: 6 *Sucra* (*Lupo*) with 8 *Otomat* SSM, 1 x 8 *Albatros/Aspide* SAM, 1 AB-212 hel (2 on refit); 2 *Almirante Clemente* (to Coastguard, mid-1985).

Amph: 19: 5 LST, 2 LCU, 12 LCVF.

Spt: 2 transports.

NAVAL AIR FORCE: (3,500); 4 combat ac, 6 combat hel.

MR: 1 sqn with 4 S-2E *Tracker* ac.

ASW: 1 hel sqn (afloat) with 6 AB-212AS.

SAR: 1 sqn with 3 C-212/200 MR.

Tpt: 1 sqn with 1 DHC-7, 1 HS-748, 1 *King Air* B-90, 2 Cessna 310R/310Q, 1 402.

MARINES: (4,500).

4 bns.

1 arty bn.

1 amph bn.

1 AA coy.

APC: 11 LVTP-7, 36 EE-11 *Urutu*. **How:** 18 105mm. **AA** guns: 6 M-42 40mm twin SP.

(On order: 1 river patrol boat; 2 tpt ac; 35 M-41C lt tks.)

AIR FORCE: 5,000 (some conscripts); 91 combat ac.

Bbr/recce: 2 sqns with 20 *Canberra* (12 B-82, 5 B(I)-82, 1 PR-83, 2 T-84).

FGA: 1 sqn: 13 *Mirage* (6 IIIEV, 5 5V, 2 5DV).

Interceptor/FGA: 3 sqns (1 forming): 2 with 15 (C)F-5A, 2 (C)F-5D; 1 with 16 *Mirage* (10 IIIEV, 4 5V, 2 5DV); 13 F-16A/B/D.

COIN: 1 sqn with 12 OV-10E *Bronco*.

Presidential (tpt) sqn: AC: 1 Boeing 737, 1 DC-9, *Gulfstream* 2, 1 Cessna 500; **HEL:** 2 Bell UH-1H.

Tpt: 2 sqns with 5 C-130H, 5 C-47, 7 C-123A, 5 G-222.

Utility/liaison/recce: 2 sqns with: AC: 3 *King Air*, 9 *Queen Air*, 8 Cessna 182N; **HEL:** 4 Bell 47G, 13 *Alouette* III.

Hel: 1 sqn with 14 Bell (10 UH-1D/H, 2 214ST, 2 412); 6 A-109A.

Trg: 12 *Jet Provost*, 20 T-2D *Buckeye* (12 armed), 23 T-34 *Mentor*.

AAM: R-530 *Magic*.

1 para bn.

(On order: 3 F-16A, 15 (C)F-5A ftrs, 24 IA-58 *Pucara* (6 trg), 1 G-222 tpt, 4 (C)F-5B, 30 EMB-312 *Tucano* trg ac; 16 Bell 206, 4 A-109A, 4 AS-61 (HH-3) utility hel.)

PARA-MILITARY: *Fuerzas Armadas de Cooperación* (National

Guard): 22,000; **micv:** 25 UR-416; **APC:** 15 *Shorland*; **MOR:** 120 60mm; **AC:** 3 *Arava*, 1 *Islander*, 1 *King Air* B-90, 3 *Queen Air* B-80, 17 Cessna; **HEL:** 3 *Agusta* 109A, 12 Bell (6 47J, 5 206B, 1 206L); 46 coastal

patrol craft; 22 Type-A, 12 *Bertram*, 10 *Lago*, 2 other.

VIETNAM

Est GNP 1984: \$10-16 bn.

Est debt 1983: \$5.5 bn.

Population: 60,000,000.

Men: 18-30: 7,721,000; 31-45: 3,647,000.

Women: 18-30: 7,549,000; 31-45: 4,362,000.

TOTAL ARMED FORCES:

Regular: 1,027,000.

Terms of service: 3 years, specialists 4 years, some ethnic minorities 2 years.

Reserves (all services): 'Tactical Rear Force' 500,000; semi-mobilized first-line quick reinforcement org. Militia Self Defence 2,500,000.

ARMY: 1,000,000.

16 Corps HQ.

1 armd div.

65 inf divs. (incl Forces Abroad. Inf div strengths vary by geographic location, composition and role between 5,000 and 15,000, but 10,500 is 'average'.)

10 marine bdes.

8 engr, 16 economy construction divs. (Men beyond nor-



mal military age; unit strength about 3,000 each, fully armed, with military and economic role; most in northern Vietnam.)

5 fd arty divs (some 10 regts).
4 indep engr bdes.
10 indep arm'd regts.

Tks: 1,600 T-34/-54/-55/-62, Type-59; Lt: 450 PT-76 and Type-60/-63.

AFV: RECCE: BRDM-1/-2; APC: 1,500 BTR-50/-60, BMP, Ch Type-55/-56, Type 531, 1,200 M-113.

Arty: guns: 300 76mm, 85mm, 100mm, 122mm, 200 130mm, M-107 sp 175mm; **how:** 75mm pack M-101/-102 105mm, 122mm, 100 152mm, M-114 155mm, 90 SU-76, SU-100, ISU-122; **MRL:** Type-63 107mm, BM-21 122mm, BM-14-16 140mm; **MOR:** 60mm, 81mm, 82mm, 107mm, 120mm, 160mm.

ATK: rcl: Type-36 57mm, 75mm, 82mm, Type-51 88mm, 90mm, 107mm.

AD: GUNS: 3,000 23mm, 30mm, 37mm, 40mm, 57mm, Type-63 37mm, ZSU-23-4, ZSU-57-2 sp; **SAM:** SA-7/-9. (Much US eqpt is probably inoperable.)

NAVY: 12,000. (Much US eqpt is probably inoperable.)
Bases: Cam Ranh Bay, Da Nang, Haiphong, Hanoi, Ha Tou, Ho Chi Minh City. *Kampuchea:* Kompong Som.

Frigates: 8: 6 Sov *Petya II*, 2 US (1 *Barnegat* (may have 2 Styx SSM), 1 *Savage*).

FAC: 22: 8 *Shanghai*, 14 *Swatow*; (c): 8 Sov *Osa-II* with Styx SSM; (r): 26: 12 *Sheriden*, 8 P-4G, 3 P-6G, (?) *Turya* hydrofoil.

Patrol craft: 54: 6 SO-1, 10 US PGM-59-71 large; 1 *Poluchat*, 7 *Zhuk*, 2 PO-2 coastal, 20 *Swift*, 8 P-4.

Amph: Lst: 7: 3 US 510-1152, 4 Sov *Polnocny*; **LCM:** 20. Perhaps some 1,300 ex-US. South Vietnamese naval vessels, naval and civilian junks and coasters could augment this force.

AIR FORCE: 15,000; some 270 combat ac, 65 combat hel (plus many in store).
4 Air Divs.

FGA: 1 regt with 25 MiG-21MF, 45 Su-20/-22.

Ftrs: 4 regts with 200 MiG-21bis/F/PF.

Tpt: 3 regts: some 135 ac incl 20 An-2, 10 Li-2, 12 An-24, An-12, 50 An-26, 2 An-30, 6 Tu-134, 11 Yak-40, 7 Il-14, 2 Il-18. (2 C-130, 1 DC-3, 4 DC-4, 2 DC-6, 2 Boeing 707, 7 U-17 may not now be serviceable.)

Hel: 1 div (3 regts): 200 hel incl 15 Mi-6, 36 Mi-8, 30 Mi-24, 17 Ka-25, 45 UH-1 (few serviceable).

Trg: 3 regts: 60 ac incl L-29, L-39, MiG-21; Mi-8, Mi-24 hel.

AAM: AA-2 *Atoll*.

Air Defence Force: 60,000: 4 AA divs (30,000; 1,000 85mm, 100mm and 130mm towed guns). 20 SAM regts (20,000; some 60 sites with SA-2/-3), 6 radar bdes (10,000; 100 sites).

Forces Abroad (numbers fluctuate):
Laos 40,000 (3 Inf divs and spt tps).
Kampuchea/Cambodia 160,000 (2 Front HQ, 12 army divs

+ spt tps (1 Corps HQ, 5 divs—some 20,000 tps, Thai border area), naval base, fighter ac incl MiG-21).

PARA-MILITARY: Border Defence Forces 60,000. People's Regional Force (militia) 500,000; 1 regt HQ at each provincial capital, local inf coys, small arms. Some Northern regts org in divs. Some AA eqpt.

People's Self Defence Force: (1,000,000): Two components: Urban; Rural (People's militia): local coy-sized units in towns, some mobile police function and support. Small arms.

YEMEN ARAB REPUBLIC (NORTH)

GDP 1982: YR 14.637 bn (\$3.208 bn).

GDP growth 1983: 4.2%.

Inflation 1983: 5.0%. 1984: 6.0%.

Debt 1983: \$1.50 bn. 1984: \$2.40 bn.

Def budget 1983: YR 2.879 bn (\$599.817 m). Est def exp 1984: 3.10 bn (\$579.255 m).

\$1 = rial 4.5625 (1982), 4.7998 (1983), 5.3517 (1984).
Population: 8,000,000.

Men: 18-30: 755,000; 31-45: 402,000.

Women: 18-30: 867,000; 31-45: 647,000.

TOTAL ARMED FORCES:

Regular: 36,550 (perhaps 25,000 conscripts).

Terms of service: conscription, 3 years.

Reserves: Army: perhaps 40,000.

ARMY: 35,000 (perhaps 25,000 conscripts).

1 arm'd bde.

1 mech, 5 inf bdes.

1 Special Forces bde.

1 para/cdo bde.

1 marine bde.

1 central guard force.

3 arty bdes.

3 AA arty, 2 ad bns (1 with SA-2 SAM).

Tks: 100 T-34, 500 T-54/-55, 64 M-60A1, **AFV:** RECCE: 50 *Saladin*, *Ferret*; APC: 90 M-113, 300 BTR-40/-60/-152, *Al Walid*. **Arty: GUNS:** 200 M-1942 76mm, 30 SU-100 100mm sp, M-1931/37 122mm; **HOW:** M-101 105mm, M-38 122mm, M-115 155mm; **MRL:** 65 BM-21 122mm; **MOR:** 200 82mm and 120mm. **ATK:** RL: *LAW*; RCL: M-20 75mm, 82mm; **ATGW:** 20 *Vigilant*, BGM-71A *TOW*, 24 M-47 *Dragon*. **AD: GUNS:** 52 M-167, 20 M-163 *Vulcan* sp 20mm, ZU-23, ZSU-23-4 23mm, M-1939 37mm, S-60 57mm; **SAM:** SA-2/-6/-9.

NAVY: 550.

Base: Hodeida.

FAC: (c): 2 *Osa II* with 4 SS-N-2b; (r): 4 Sov P-4.

Patrol craft: 6: (3 Sov (2 *Zhuk*, 1 *Poluchat*); 3 US *Broad-sword* (may be non-operational).

MCMV: 2 *Yevgenya* inshore.

Amph: LCM: 4: 2 T-4, 2 *Ondatra*.

AIR FORCE: 1,000; 76 combat ac. (Some 15 ac in storage.)

Ftrs: 5 sqns: 2 with 40 MiG-21; 1 with 10 MiG-17F; 1 with 11 F-5E; 1 with 15 Su-22.

Tpts: 2 C-130H, 2 C-47, 2 *Skyvan*, 1 Il-14 *Crate*, 1 An-24 *Coke*, 3 An-26 *Curl*.

Trg: 4 F-5B, 4 MiG-15UTI.

Hel: 20 Mi-8, 6 AB-206, 5 AB-212, 2 *Alouette*.

AD: 1 regt with 12 SA-2 SAM.

AAM: AA-2 *Atoll*, AIM-9 *Sidewinder*.

PARA-MILITARY: Ministry of National Security Force 5,000. Tribal levies at least 20,000.

YEMEN: PEOPLE'S DEMOCRATIC REPUBLIC (SOUTH)

Est GDP 1982: YD 318.8 m (\$923 m). 1983: 326.8 m (\$946 m).

GDP growth 1982: -2%. 1983: 1.5%.

Inflation 1982: 15%. 1983: 10%.

Est debt 1983: \$1.26 bn. 1984: \$1.50 bn.

Def exp 1981: YD 56.044 m (\$162.258 m). 1982: 55.06 m (\$159.409 m).

\$1 = dinar 0.3454 (1981-4).

Population: 2,250,000.

Men: 18-30: 220,400; 31-45: 127,200.

Women: 18-30: 230,600; 31-45: 158,000.

TOTAL ARMED FORCES:

Regular: 27,500 (perhaps 18,000 conscripts).

Terms of service: 2 years.

Reserves: Army: 45,000.

ARMY: 24,000 (perhaps 18,000 conscripts).

1 arm'd bde.

1 mech bdes.

10 inf 'bdes' (regts) (some being mechanized).

1 arty bde.

10 arty bns.

1 SSM bde with *FROG-7* and *Scud B*.

2 SAM blys with SA-2/-3.

Tks: 450 T-54/-55/-62. **AFV:** RECCE: BRDM-2; MICV: some 100 BMP-1; APC: 300 BTR-40/-60/-152. **Arty: GUNS:** 350 D-44 85mm, M-46 and SM-4-1 coastal 130mm; **HOW:** M-38, D-30 122mm; **MRL:** BM-21 122mm, BM-25 250mm; **SSM:** 12 *FROG-7*, 6 *Scud B*; **MOR:** 120mm,

160mm. AD: GUNS: 200 ZU-23, ZSU-23-4 sp 23mm, M-1939 37mm, S-60 57mm, KS-12 85mm; SAM: 6 SA-2, 3 SA-3, SA-6/7.

NAVY: 1,000.

Bases: Aden, Perim Island, Al Mukalla.
FAC: (g): 8 Sov Osa-II with 4 SS-N-2b ssm; (r): 2 Sov P-6.
Patrol craft: 4: 2 Sov SO-1 large, 2 Zhuk.
Amph: LST: 1 Sov *Ropucha*; LCT: 3 Sov *Polnocny*. LCA: 3 Sov T-4.

AIR FORCE: 2,500; 103 combat ac, some 15 armed hel. (Some eqpt believed in storage; some ac believed flown by Soviet and Cuban crews.)

FGA: 4 sqns: 2 with 30 MiG-17F; 1 with 12 MiG-21; 1 with 25 SU-20/22.

Interceptor: 3 sqns with 36 MiG-21F.

Tpt: 1 sqn with 3 An-24.

Hel: 1 sqn with 15 Mi-24, 30 Mi-8.

SAM: 1 regt with 48 SA-2.

Trg: 3 MiG-15UTI.

AAM: AA-2 Atoll.

ASM: AT-2 Sagger.

PARA-MILITARY: People's Militia 15,000. Public Security Force 30,000 (increasing); 1 Tracker 2, 4 Spear, 1 Interceptor patrol craft.

YUGOSLAVIA

GMP 1982: YD 2,294.8 bn (\$58,175 bn). 1983: 4,083.5 bn (\$43,985 bn).

GDP growth 1983: -1.3%. 1984: 2.0%.

Inflation 1983: 58.0%. 1984: 47.7%.

Debt 1983: \$19.0 bn. 1984: \$19.3 bn.

Def budget 1984: YD 244.3 bn (\$1,599 bn). 1985: 391.3 bn (\$1,461 bn).

\$1 = dinars 50,276 (1982), 92,839 (1983), 152,822 (1984), 267.85 (1985).

Population: 23,308,000.

Men: 18-30: 2,544,000; 31-45: 2,356,000.

Women: 18-30: 2,445,000; 31-45: 2,319,000.

TOTAL ARMED FORCES:

Regular: 241,000 (154,000 conscripts).

Terms of service: 15 months.

Reserves: Army 500,000 (mobilization troops to complete units to war establishment). Navy 45,000 (to age 55, officers 60). Air ? (to age 60).

ARMY: 191,000 (140,000 conscripts).

7 Military Regions:

12 inf divs: 9 active (est 75% strength), 3 reserve.

8 indep tk bdes.

9 indep inf bdes (incl 3 mech, 3 lt).

3 mountain bdes.

1 aa bde (Air Force manned, HQ control).

12 fd, 11 aa arty regts.

6 ATK regts.

4 SAM regts (SA-6).

Tks: 760 T-54/55, some 100 T-74 (mod T-72), 60 M-47; LT: PT-76. AFV: RECCE: 100 M-3A1, 20 M-8, some 50 BRDM-2; MICV: 200 M-80; APC: 200 BTR-40/50, 300 M-60P. Arty: GUNS: 1,800 M-48 pack, M-1942, SU-76 sp 76mm, SU-100 sp 100mm, M-1931/37 122mm, M-46 130mm, M-59 155mm; GUN/HOW: M-1937, D-20 152mm; HOW: M-101, M-56, M-18, M-7 sp 105mm; D-30, M-1938, 2S1 sp 122mm; M-65, M-114 155mm; MOR: 82mm, 120mm; MRL: M-73, M-63 128mm; SSM: 4 FROG-7. ATK: GUNS: M-1943, PAL-40 75mm, M-63B2 90mm (incl sp), T-12 100mm; RCL: 57mm, M-60PB 82mm sp, M-65 105mm; ATGW: Bov-1 veh with ATGW, Snapper, Sagger. AD: GUNS: M-55/75, Bov-3 sp triple 20mm, M-53, M-53F-59, Bov-3 twin sp 30mm, M-1939 37mm, M-1, L/70 40mm, S-60, ZSU-57-2 sp 57mm, M-1944 85mm, M-117 90mm, 3.7 in. (94mm); SAM: SA-6/7/9.

Reserves: some 250 T-34/85, 400 M-4 MBT, AA guns; 300 M-18 Hellcat 76mm, M-36B2 90mm sp ATK guns in store.

(On order: T-74 MBT, some 300 M-80 MICV.)

NAVY: 13,000 incl 1,500 marines (6,000 conscripts).

Bases: Lora/Spilut, Pula, Sibenik, Kardeljvo, Kotor.

Subs: 3 Sava, 2 Heroj, 2 Sutjeska (trg); 2 S-11 (Mala) two-man.

Frigates: 2 Koni with 4 Styx ssm, 1 x 2 SA-N-4 SAM.

Corvettes: 3: 2 Morna, 1 La Fougueux (in reserve).

FAC: (g): 16: 6 Rade Koncar, 10 Osa-I with 2 and 4 SS-N-2a/b; (r): 14 Sov Shershens.

Patrol craft: 18 large: 10 Kraljevica, 7 Type 131 (to retire), 1 Kobra ASW.

MCMV: 22 minesweepers: 4 Vukov Klanac coastal, 10 inshore (4 Ham, 6 M-117), 8 Nestin river (some in reserve).

Amph: LCU/MINELAYERS: 13 DTM-211 (to retire 1985/6); LCA: 24 DJC-601-type/.

2 marine bdes (2 regts, each of 2 bns).

25 coast arty btys: GUNS (Army): M-44 85mm, M-36 88mm, M-37 122mm, M-54 130mm, D-20 152mm; SSM: Samlet, Brom (truck-mounted SS-N-2).

(On order: 1 Koni frigate, some 9 Kobra, 1 Nestin mcmv, 1 PO-91 spt/trg ship.)

AIR FORCE: 37,000 (8,000 conscripts); some 420 combat ac, 20 armed hel.

2 air divisions:

FGA: 12 sqns: 25 Kraguj, 150 Galebi/Jastreb, some 25 Orao, some G-4 Super Galeb.

Interceptors: 9 sqns: 130 MiG-21F/PF/M/bis, 20 MiG-21U.

Recce: 2 sqns: 35 Galebi/Jastreb RJ-1, some Orao.

OCU: 30 Galebi/Jastreb J-1/Ty-1, some Orao.

ASW hel: 1 sqn with 10 Ka-25 (Navy-assigned).

Tpt hel: 1 sqn with 20 Mi-8, SA-341 Gazela (Navy-assigned).

Tpt: 6 sqns: 2 AC with 6 Yak-40, 2 An-12, 15 An-26, 2 DC-6B, 2 Mystere-Falcon 50 (VIP), 4 CL-215, PC-6 Porter; 4 HEL with 20 Mi-4, 70 Mi-8, 45 Gazela, 2 A-109 Hirundo (some 20 hel are armed).

Trg: AC incl 80 Galebi/Jastreb, 100 UTVA-75, UTVA-66; HEL: 15 Gazela.

AAM: AA-2 Atoll.

ASM: AGM-65 Maverick.

Air Defence Force:

15 AA regts.

8 SA-2, 6 SA-3 SAM bns.

(On order: Super Galeb, some 180 Orao FGA, PC-6A tpt ac, some 94 SA-341H Gazela hel.)

PARA-MILITARY (under Army): Frontier Guards 15,000; some 7 Mirna patrol craft. Territorial Defence Force 1 million. Militia: mobile inf bdes, TAB-71/72 APC, arty, AA bns. Civil Defence 2 million on mobilization.

ZAIRE

GDP 1982: Z 31,110 bn (\$5,410 bn). 1983: 59,134 bn (\$4,588 bn).

GDP growth 1983: 2.0%. 1984: 2.5%.

Inflation 1983: 100.0%. 1984: 14.5%.

Debt 1983: \$5.40 bn. 1984: \$5.80 bn.

Est def budget 1982: Z 850 m (\$147,826 m). Def exp 1983: 1.80 bn (\$139,654 m).

FMA 1983: \$20.0 m.

\$1 = zaires 5.75 (1982), 12,889 (1983).

Population: 30,000,000.

Men: 18-30: 3,355,000; 31-45: 2,424,000.

Women: 18-30: 3,487,000; 31-45: 2,561,000.

TOTAL ARMED FORCES:

Regular: 48,000 (incl Gendarmerie).

Terms of service: voluntary.

ARMY: 22,000.

3 Military Regions.

1 inf div:

1 arm'd bde.

2 inf bdes (each 3 inf bns, 1 spt bn).

1 Special Forces div:

1 para bde (3 para bns, 1 spt bn).

1 special force (cdo/coin) bde.

1 Presidential Guard bde.

Tks: some 50 Ch Type-62. AFV: RECCE: 95 AML-60, 60 AML-90, 40 M-3; APC: 12 M-113, 12 K-63, 60 M-3, 45 BTR-152. Arty: GUNS/HOW: 60 75mm pack, 20 122mm, 8 130mm; MOR: 82mm, 4.2-in. (107mm), (?100) 120mm. ATK: RL: Blindicide 83mm, 107mm; RCL: 57mm, 75mm, 106mm. AD: GUNS: 57mm, 37mm, 40mm.

NAVY: 1,500 incl marines.

Bases: Banana, Maladi (coast), Kinshasa (river), Kalemie (lake).

FAC: 4 Ch Shanghai II.

Patrol craft: 46: (4 Huchuan hydrofoils, 6 Sewart, 6 Swift II, 1 other US, 29 Fr Arcoa).

MARINES: (600).

AIR FORCE: 2,500; 40 combat ac.

Ftr: 1 sqn with 8 Mirage 5M/5DM.

COIN: 3 sqns with 20 Reims Cessna FTB-337, 6 MB-326K, 6 AT-6G.

Tpt: 1 wing with 5 C-130H, 2 DC-6, 2 DHC-4A Caribou, 2 DHC-5 Buffalo, 8 C-47, 2 Mitsubishi MU-2J, 1 Falcon-20.

Hel: 1 sqn with 3 SA-319B Alouette III, 9 SA-330 Puma; 1 AS-332L Super Puma, 1 SA-321 Super Frelon (VIP).

Trg: incl 21 Cessna (9 310, 12 150), 8 MB-326GB, 9 SF-260MC.

(On order: S-211 COIN/trg, 4 F-27-500 tpt ac.)

PARA-MILITARY: Gendarmerie 22,000 (to be 27,000 in 1986); 40 bns. Civil Guard.

ZAMBIA

GDP 1983: K 4.181 bn (\$3,343 bn). 1984: 4,733 bn (\$2,638 bn).

GDP growth 1983: -2.0%. 1984: -1.3%.

Inflation 1983: 20.0%. 1984: 20.0%.

Debt 1983: \$2.60 bn. 1984: \$2.80 bn.

\$1 = kwacha 1,2506 (1983), 1,7944 (1984).

Population: 6,800,000.

Men: 18-30: 683,000; 31-45: 417,000.

Women: 18-30: 721,000; 31-45: 485,000.

TOTAL ARMED FORCES:

Regular: 16,200.

Terms of service: voluntary.

ARMY: 15,000.

1 arm'd regt (incl 1 arm'd recce bn).

9 inf bns (3 Reserve).

3 arty btys, 2 AA arty btys.

1 engr bn, 2 sigs sqns.

Tks: 30 T-54/55 and Ch Type-59; LT: 50 PT-76. AFV: RECCE: BRDM-1/2; APC: 13 BTR-60. Arty: GUNS: 30 76mm, 35 130mm; HOW: 18 105mm pack, 25 122mm; MRL: 50 BM-21 122mm. ATK: RCL: 12 M-18 57mm, Carl Gustav 84mm; ATGW: Sagger. AD: GUNS: 50 M-75 triple 20mm, 40 37mm, 55 57mm, 16 85mm; SAM: SA-7.

AIR FORCE: 1,200; 44 combat ac.

FGA: 2 sqns: 1 with 12 Ch J-6; 1 with 14 Sov MiG-21.

COIN/trg: 1 sqn with 18 MB-326GB.

Tpt: 2 sqns: 1 with 10 Do-28; 1 with 6 DHC-2, 5 DHC-4, 6 DHC-5D; 1 VIP flt with 2 Yak-40, 1 HS-74B.

Trg: incl 8 SF-260MZ, 20 Saab Safari, 2 Ch BT-3, 10 Jastreb/Galeb.

Hel: 1 sqn with 3 AB-205A, 3 AB-206, 2 AB-212, 20 Bell 47G, 11 Mi-8.

SAM: 1 bn; 3 btys: SA-3.

PARA-MILITARY: 1,200.

Police Mobile Unit (PMU) 700; 1 bn of 4 coys. Police Para-Military Unit (PPMU) 500; 1 bn of 3 coys.

ZIMBABWE

GDP 1982/3: \$Z 5,005 bn (\$US 5,775 bn).

GDP growth 1983: -3.8%. 1984: 1.0%.

Inflation 1983: 32%. 1984: 25%.

Debt 1983: \$US 2.5 bn. 1984: \$US 2.85 bn.

Def budget (excl security forces budget) 1983/4: \$Z 418 m (\$US 381.631 m). 1984/5: 351.5 m (\$US 238.953 m). \$US 1 = \$Z 0.8666 (1982/3), 1.0953 (1983/4), 1.471 (1984/5).

Population: 8,500,000.

Men: 18-30: 860,000; 31-45: 467,000.

Women: 18-30: 867,000; 31-45: 520,000.

TOTAL ARMED FORCES:

Regular: 42,000.

Terms of service: voluntary.

ARMY: 41,000.

6 bde HQ (incl 1 Presidential Guard).

1 arm'd regt.

23 inf bns (incl 3 Guard, 1 cdo, 2 para).

1 arty regt.

1 ad regt (2 btys).

7 engr, 7 sigs sqns.

Tks: 3 T-34, 8 T-54, 20 Ch T-59. AFV: RECCE: 90 EE-9 Cascavel (90mm gun), 28 AML-90 Eland, 4 Ferret, BRDM-2; APC: 15 BTR-152, 10 Type-531. Arty: GUN/HOW: 24 25-pdr (88mm), 18 M-56 105mm pack, 16 122mm; MOR: 100 81mm, 4-10 120mm. ATK: RCL: 12 107mm. AD: GUNS: 14.5mm, 20mm, 23mm, 37mm; SAM: 8 SA-7.

(On order: 35 T-59 MBT.)

AIR FORCE: 1,000; some 53 combat ac; perhaps 25 operational (est numbers in parentheses).

Btrs: 1 sqn with 5 Canberra B-2, 2 T-4 (0).

FGA: 2 sqns: 1 with 10 Hunter FGA-9 (10); 1 with 12 Ch J-7 (forming).

Ftr: 1 sqn with 7 Hawk T-54 (3).

COIN/recce: 1 sqn with 17 Cessna 337 (0-2) Lynx (3).

Trg/recce/liaison: 2 sqns with 12 SF-260W/C/B Genet, 5 SF-260TP (?10 in all).

Tpt: 1 sqn with 6 C-212-200 (VIP) (2), 12 C-47 (6), 6 Islander (6).

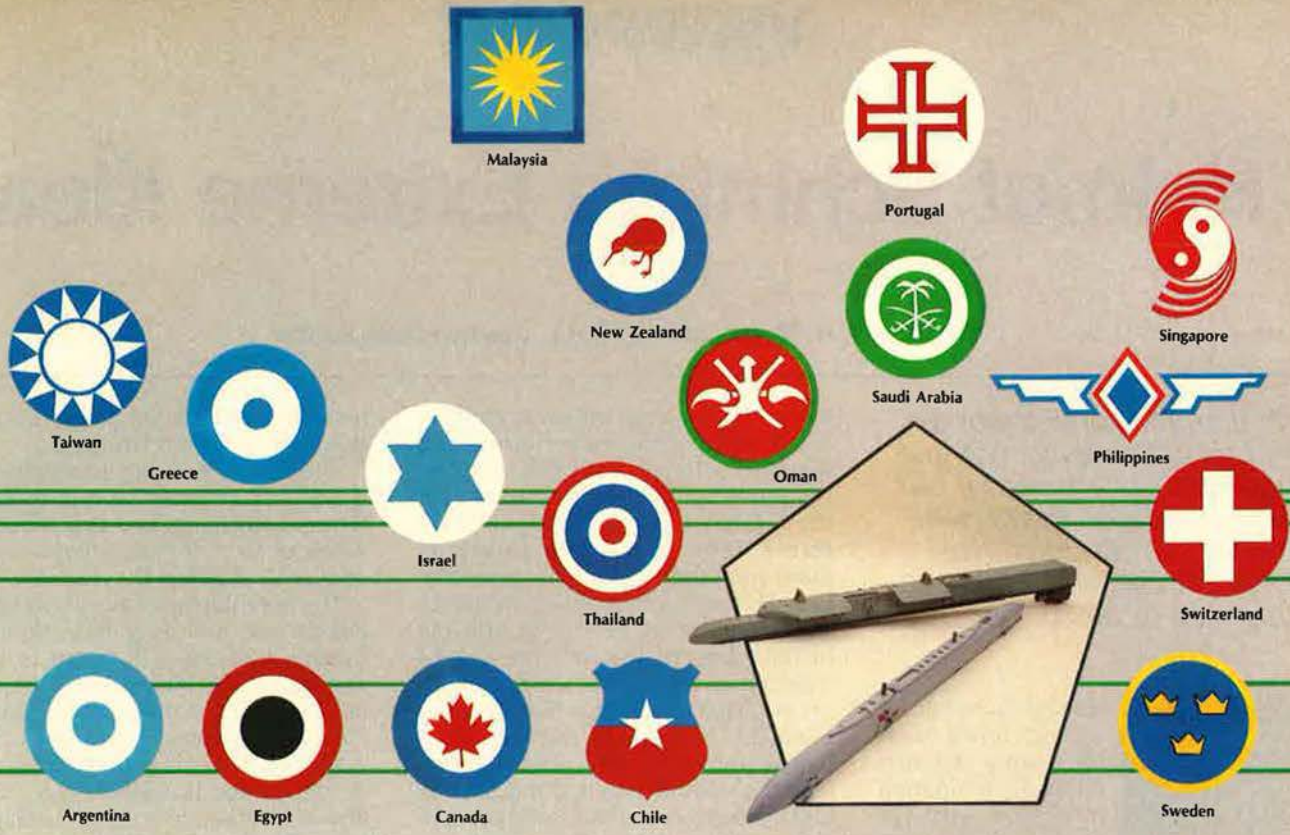
Hel: 2 sqns with 12 Alouette II/III, 8 Bell/AB-205A (4), 4 AB-412 (VIP) (4).

Security: 2 sqns.

(On order: 6 SF-260 COIN/trg ac.)

PARA-MILITARY: 26,000; Zimbabwe Republic Police Force, incl Air Wing, 15,000. Police Support Unit 2,000. National Militia 9,000.

AIR FORCE Magazine / February 1986



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*WEBSTER'S NEW COLLEGIATE DICTIONARY, G & C Merriam Co., 1981, page 551.

**Aircraft: AH-1T Sea Cobra, A-4, A-6, A-7, F-4, OV-10, F-8, F-14, F-18, Harrier, Hawk, Hunter, Jaguar, Nimrod and Tornado.

Helmut Schmidt's Extreme Idea

By Gen. T. R. Milton, USAF (Ret.), CONTRIBUTING EDITOR

It's time to examine worldwide commitments, not just traditions, as a basis for our force structure. Passage of the Gramm-Rudman-Hollings bill may add further to the need to do so.



Helmut Schmidt, at various times West Germany's defense minister, its finance minister, and its chancellor, is a man inclined to speak his mind. There have been times

when this inclination has caused his NATO colleagues to wince, as, for instance, at a meeting in Copenhagen years ago. The occasion was a small gathering of NATO defense ministers, a senior allied commander or two, and a few high-level horseholders. Nothing is really expected to happen at such gatherings, but Schmidt, a bit out of sorts that day, decided otherwise. He lectured the group on the true nature and limitations of NATO strategy as seen by the German occupants of the potential battleground. His listeners shifted uncomfortably, then returned to the agenda, but the message got across. Nukes, while an essential element, are no substitute for a conventional defense.

Now, years later, Helmut Schmidt is a private citizen, rejected even by his Social Democrats in favor of the left-leaning adherents of Willy Brandt. Nevertheless, he remains perhaps the most knowledgeable political figure in the Alliance's recent history, and while provocative, he is so only in the constructive sense. He is the undoubted friend not only of NATO but of the United States.

His recent book, *A Grand Strategy for the West*, is based on lectures given at Yale last spring. Briefly, Schmidt, the economist, excoriates American fiscal policies and the

havoc our national deficit is causing in the world economy. In his role as a former defense minister, he reorganizes NATO. It is time, he says, for the United States to cut back its forces in Europe and to devote its main attention to global responsibilities. The key to that action would be the reintegration of France into the military side of the Alliance, with a Frenchman taking over the role of Supreme Allied Commander, Europe. SACEUR, of course, has been from the beginning an American fiefdom.

As luck would have it, Congress has just passed the Gramm-Rudman-Hollings bill, and the President has signed it. In anticipation of the still-uncertain effects of this legislative assault on the deficit, Secretary of State George Shultz warned the NATO defense ministers in December that there might be cuts in our European troop commitment. If the bill actually means what it says, there will almost certainly be cuts in Europe, as everywhere else.

Helmut Schmidt's proposal is too extreme for serious consideration, at least in the foreseeable future. We must also bear in mind France's continuing intransigence against military integration. His point, however, about tying American military cutbacks in Europe to responsibilities elsewhere around the globe is worth reflecting on. The US troop commitment to NATO is not so much the result of strategic calculations against the threat as it is a measure of what, over the years, could be sustained.

European defense has been the primary US military preoccupation since the USSR made its objectives clear after World War II. Vietnam saw the US Army in Europe go sharply downhill in quality, but the numbers, reassuringly, stayed about the same. As for the Air Force, there has been a similar stability in the number of wings. NATO obligations have thus become the justification for a considerable share of the Army and Air Force force structure. The Navy has managed to keep its NATO contribution

less rigid, but the Sixth Fleet's size is watched closely in Brussels.

There is an anomaly somewhere in all this, and it may be that between Gramm-Rudman and the heretical views of Mr. Schmidt, someone may decide to examine it.

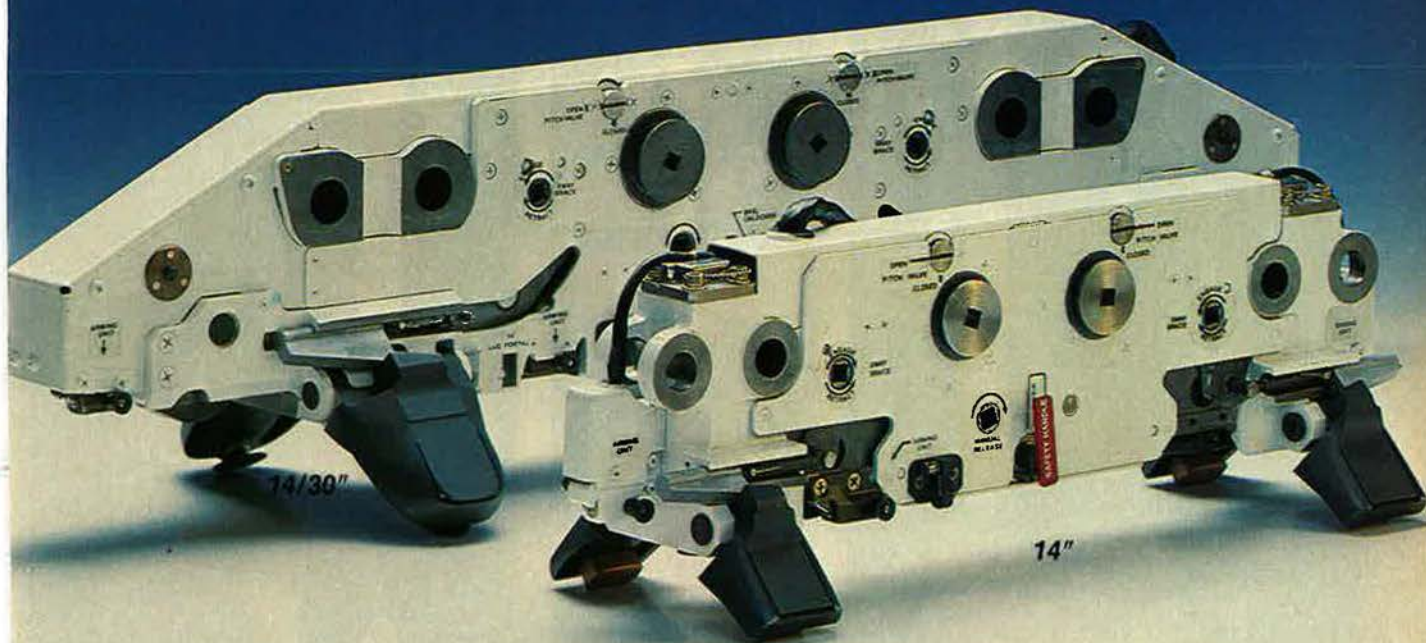
The potential meat axe of legislated deficit reduction is a clear signal to Europe that there is going to be a shifting of the burden for European defense. The conventional side of Flexible Response has always been marginal, due in large part to European reluctance to spend money on it and, even then, to spend it wisely for the common good. Europeans now face the very real possibility of a strapped Uncle Sam, hard put to maintain what he already has in Europe, let alone increase expenditures at the NATO-agreed rate of three percent a year.

With all this going on, there are, it would seem, two courses of action. The first, and traditional one, is to stonewall, maintain the force structure, however hollow, and hope for better days. It will look better on paper, but unready and poorly manned outfits won't fool the people who count. The other approach is to step back and take a hard look at our worldwide military commitments.

A powerful incentive for maintaining the present NATO structure is, of course, the well-founded fear that any unit withdrawn will fall to the axe of the budgeteer. It should not be so. The world is a troublesome place, and airpower that can move halfway around that world in a day or so has become our first line of defense. The troublesome world, then, is the logical justification for force structure, not a promise made to NATO years ago.

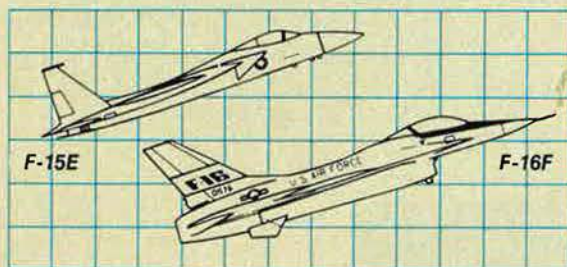
Maybe nothing will come of all the budget-cutting save a gradual, almost imperceptible erosion of readiness and morale, so recently won back. But, as Helmut Schmidt suggests, the US does have global commitments and an obligation to the free world to discharge them. ■

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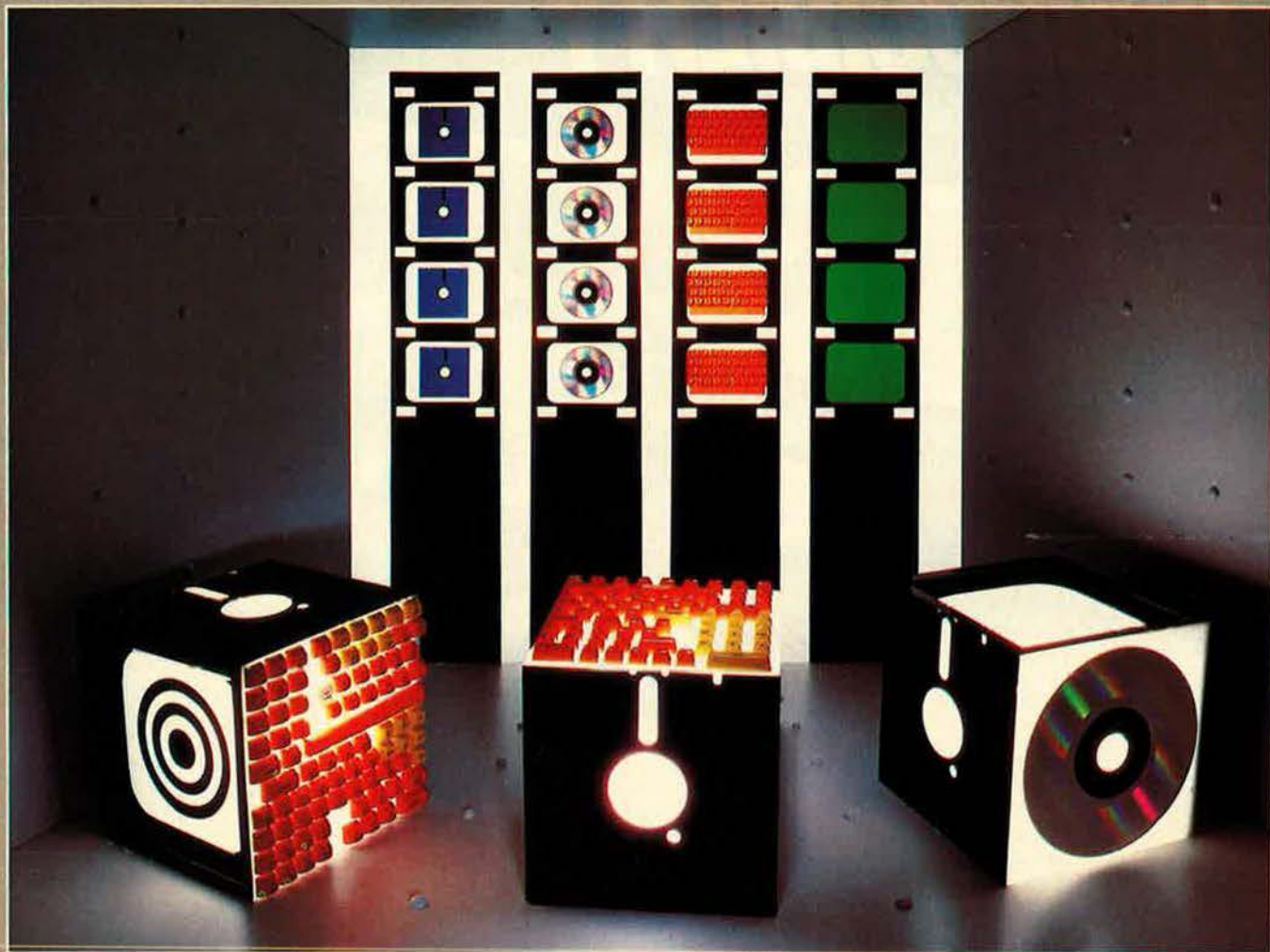
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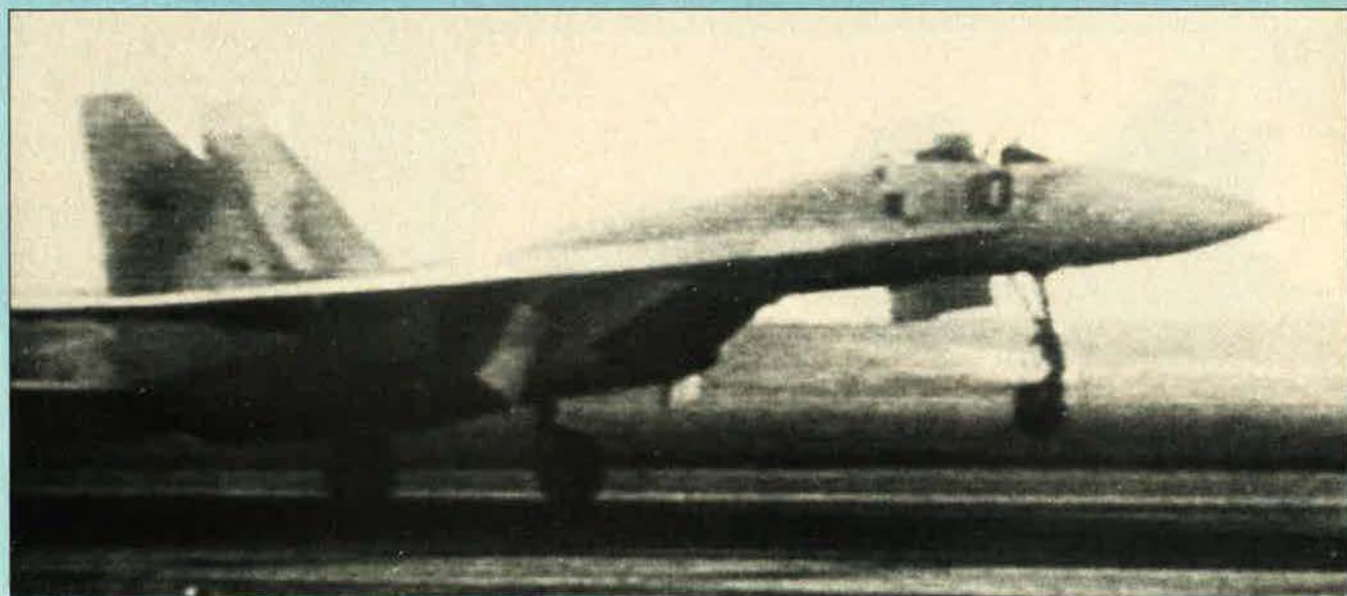


CHANGING THE COURSE
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FEBRUARY 1986



Sukhoi Su-27 (NATO 'Flanker') counter-air fighter

SUKHOI

PAVEL OSIPOVICH SUKHOI DESIGN BUREAU; USSR

Responsibility for the smaller of two new-generation Soviet counter-air fighters, equivalent to USAF's F-16 Fighting Falcon, was assigned to the Mikoyan design bureau, leading to development and manufacture of the MiG-29. At the same time, the Sukhoi bureau was given the task of producing a fighter equivalent to the US F-15 Eagle. When a prototype of the Sukhoi aircraft was first observed by reconnaissance satellite at Ramenskoye flight test centre, it was given the temporary US designation Ram-K. Its Soviet designation of Su-27 was quoted by official sources in the West in 1982, and it received the NATO reporting name of 'Flanker'.

SUKHOI Su-27

NATO reporting name: Flanker

The Su-27 is described by the Department of Defense as a supersonic all-weather counter-air fighter, with lookdown/shootdown weapon systems and beyond-visual-range air-to-air missiles, and with a possible secondary ground attack role. The

aircraft's range, thrust-to-weight ratio, and manoeuvrability are all said to be improved by comparison with earlier Soviet fighters. Its large pulse Doppler radar and heavy armament should also give it formidable potential against low flying aircraft and cruise missiles, particularly when it is deployed in partnership with the new Soviet AEW&C aircraft, based on the Il-76 transport and known to NATO as 'Mainstay'.

Release by the Soviet Union of the TV film from which the accompanying stills are taken, before the Su-27 became fully operational, suggests that the aircraft shown is a prototype or pre-series model. The single plan view drawing, based on material released officially in the US, is believed to reflect better the form of the wingtips (with wingtip launchers for air-to-air missiles), outboard location of the tail fins, and tailcone extension on current production Su-27s.

Series production of the Su-27 is centred at a plant in Komsomolsk, Khabarovsk territory. The fighter was expected to achieve operational capability during 1985 and, with the MiG-31 'Foxhound', to replace progressively many of the MiG-21 'Fishbed', MiG-23/27 'Flogger', Su-15/21 'Flagon', and

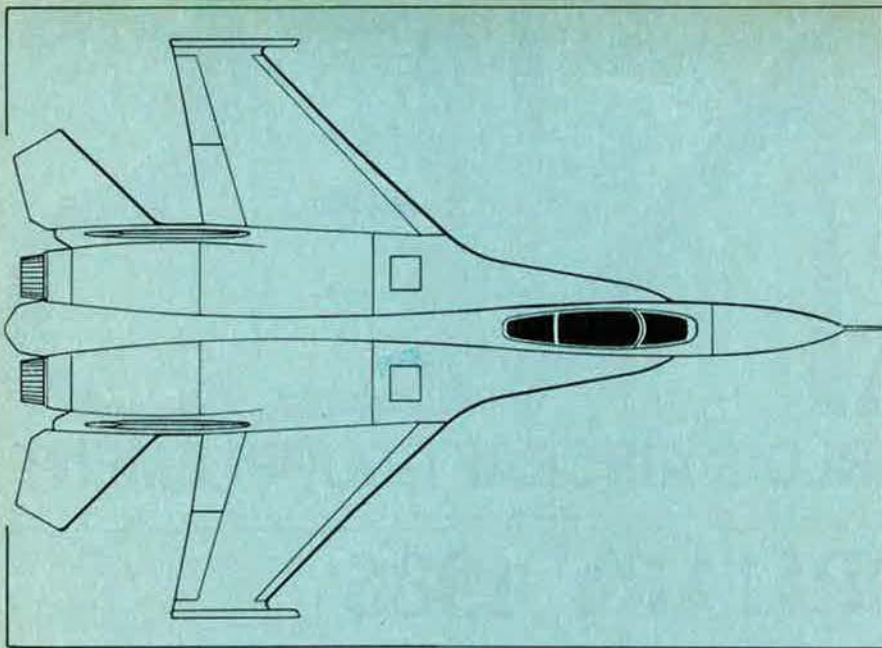
older MiG-25 'Foxbat' aircraft in the 17 tactical air forces assigned to military districts and groups of forces.

'Flanker' has also been observed, with various other types, at Saki naval air base on the Black Sea. There, the Soviet Navy has a 297 m (975 ft) dummy flight deck, complete with arrestor gear and barriers, as well as two ski-jump ramps, as part of the development programme for the 65,000 ton nuclear-powered aircraft carrier under construction at Nikolayev. This may suggest the eventual manufacture of a navalised version of the Su-27 to equip the ship's carrier air group.

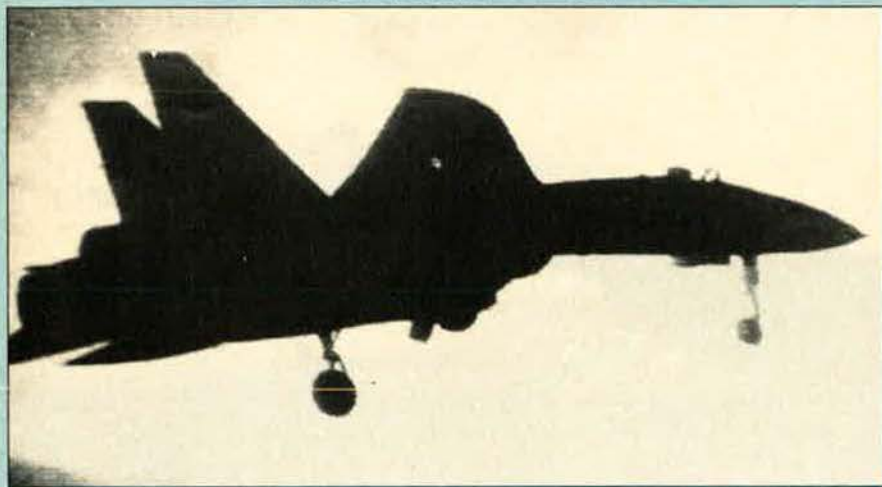
TYPE: Single-seat all-weather counter-air fighter, with secondary ground attack capability.

WINGS: Cantilever mid-wing monoplane. Basic wing sweepback approx 40° on leading-edge, with long leading-edge root extensions swept-back at 77°. Anhedron approx 2° 30'. Leading-edge manoeuvring flaps. Flap and aileron (possibly flaperons) on trailing-edge of each wing. Two fences on upper surface of each wing of aircraft illustrated are deleted on later aircraft.

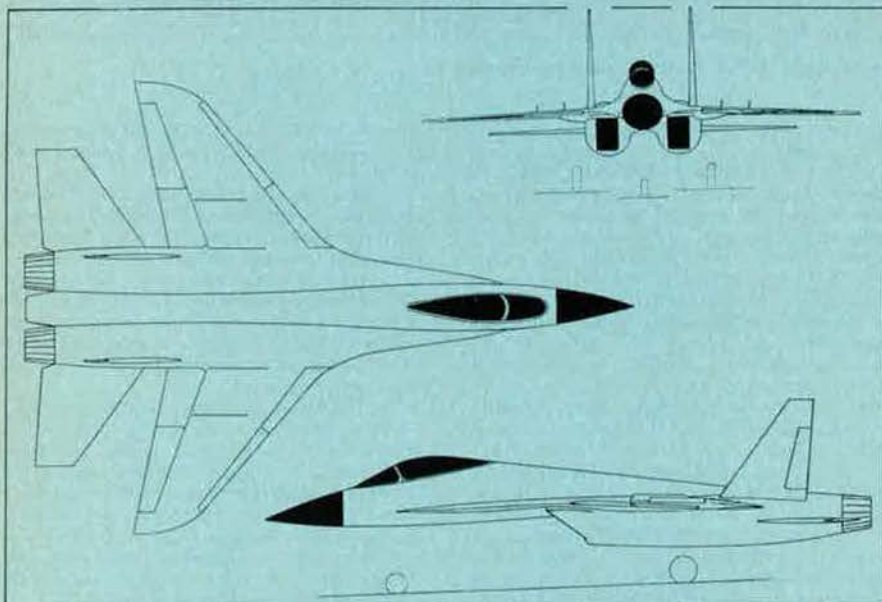
FUSELAGE: All-metal semi-monocoque structure of basically circular section, with cockpit high-set



The production 'Flanker' is believed to have missile launch rails on squared wingtips, and tail fins moved outboard (Pilot Press)



Curved wingtips identify this Su-27 as a prototype or pre-series aircraft



Provisional three-view of the Sukhoi Su-27 as shown in the accompanying photographs

behind drooped nose. Large ogival dielectric nosecone.

TAIL UNIT: Cantilever structure, comprising uncanted twin fins and rudders, mounted on narrow decks outboard of engines, and all-moving horizontal surfaces, all sharply sweptback.

LANDING GEAR: Retractable tricycle type, with single wheel on each unit. Mainwheels retract into wingroots, nosewheel rearward. Mudguard over nosewheel. Brake-chute housed in fuselage tailcone.

POWER PLANT: Two unidentified turbojets, possibly related to the Tumansky R-31, each with estimated rating of 133.5 kN (30,000 lb st) with afterburning. Underwing engine ducts have bottom lip on their wedge inlets.

ACCOMMODATION: Pilot only, under rearward sliding transparent blister canopy.

AVIONICS: Track-while-scan radar with reported search range of 130 nm (240 km; 150 miles) and tracking range of 100 nm (185 km; 115 miles). Said by Department of Defense to embody technology of Hughes AN/APG-65 multi-mode digital radar of F/A-18 Hornet.

ARMAMENT: Basic interception armament of six AA-10 medium-range radar homing air-to-air missiles under fuselage and wings, and on wing-tip launch rails. (AA-10 has been described by US official as superior to USAF's AIM-120A AMRAAM, still under development.) Ability to carry up to 6,000 kg (13,225 lb) of external stores (e.g., twelve 500 kg bombs) for secondary attack role.

DIMENSIONS, EXTERNAL (estimated):

Wing span	14.50 m (47 ft 7 in)
Length overall, excl nose probe	21.00 m (69 ft 0 in)
Height overall	5.50 m (18 ft 0 in)
Tailplane span	9.75 m (32 ft 0 in)

WEIGHT (estimated):

Max T-O weight, depending on mission
20,000-28,500 kg (44,000-63,000 lb)

PERFORMANCE (estimated):

Max level speed:	
at height	Mach 2.35 (1,350 knots; 2,500 km/h; 1,550 mph)
at S/L	Mach 1.1 (725 knots; 1,345 km/h; 835 mph)
Combat radius	810 nm (1,500 km; 930 miles)

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DHC-7 DASH 7 IR

Somewhat later than originally planned, the Dash 7 IR (for ice reconnaissance) was due to enter service with Canada's Department of Environment in January 1986. This one-off aircraft, registered C-GCFR, is a specially equipped non-standard example of the Dash 7 Series 150, intended for use in surveying sea ice and icebergs in the shipping and oil drilling regions of the Labrador coast and the Gulf of St Lawrence, where it supplements two Lockheed Electras already used for this purpose by the DoE's Atmospheric Environment Service.

Non-standard features of the Dash 7 IR that are apparent in the accompanying photograph include a special dorsal observation cabin just aft of the flight deck, and a Canadian Astronautics Ltd SLAR 100 side looking radar, mounted in a fairing on the port side of the fuselage, to locate ice in shipping lanes and drilling areas. Other mission equipment includes a laser profilometer to measure ice formation contours, photographic mapping equipment, and a data link between the aircraft and ships and drilling rigs in the patrol area.

The following details apply to the standard commercial Series 150:

POWER PLANT: Four Pratt & Whitney Canada PT6A-50 turboprop engines, each flat rated at 835 kW (1,120 shp) and driving a Hamilton Standard 24PF-305 constant-speed fully-feathering reversible-pitch four-blade propeller with Beta control. Propeller blades are of GRP, with forged aluminum



C-DCFR, the Canadian government's ice reconnaissance DHC-7 Dash 7 IR

um spars and foam cores. Fuel in two integral tanks in each wing: total standard capacity 5,602 litres (1,232 Imp gallons; 1,480 US gallons), increaseable optionally to 9,747 litres (2,144 Imp gallons; 2,575 US gallons). Single pressure refuelling/defuelling point on underside of rear fuselage, aft of pressure dome. Pneumatic de-icing of engine air intakes; electric de-icing for propellers. Oil capacity 23 litres (5 Imp gallons; 6.1 US gallons).

DIMENSIONS, EXTERNAL:

Wing span	28.35 m (93 ft 0 in)
Length overall	24.54 m (80 ft 6 in)
Height overall	7.98 m (26 ft 2 in)
Wheel track	7.16 m (23 ft 6 in)
Wheelbase	8.38 m (27 ft 6 in)

AREA:

Wings, gross	79.90 m ² (860.0 sq ft)
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WEIGHTS AND LOADINGS:

Operating weight empty	12,465 kg (27,480 lb)
Max payload	5,225 kg (11,520 lb)
Max fuel: standard	4,563 kg (10,060 lb)
optional	7,938 kg (17,500 lb)
Max T-O weight	21,319 kg (47,000 lb)
Max zero-fuel weight	17,690 kg (39,000 lb)
Max landing weight	20,411 kg (45,000 lb)
Max cabin floor loading	366.2 kg/m ² (75 lb/sq ft)

Max wing loading	266.7 kg/m ² (54.65 lb/sq ft)
Max power loading	12.77 kg/kW (20.98 lb/shp)

PERFORMANCE (max T-O weight at S/L, ISA, FAR Pt 25, except where indicated):

T-O field length	792 m (2,600 ft)
Landing field length at max landing weight, 25° flap	975 m (3,200 ft)
Max range at max cruise power, IFR reserves	2,525 nm (4,679 km; 2,907 miles)

HANZHONG

STATE AIRCRAFT FACTORY, HANZHONG; Shaanxi Province, People's Republic of China

HANZHONG (ANTONOV) Y-8

Chinese name: Yunshuji-8 (Transport aircraft 8) or Yun-8

NATO reporting name: Cub

China is building at Hanzhong, near Xian, its own version of the Antonov An-12BP four-turboprop civil/military transport aircraft. Soviet-built An-12s have been in service (although not in large numbers) with the country's military services and the civil airline, CAAC, for several years.

Outwardly, the Y-8 can be distinguished from the An-12 by its more pointed nose transparencies, which extend the overall length of the aircraft by approx 0.91 m (3 ft). The aircraft's 3,169 kW (4,250 ehp) engines, derived from the Ivchenko AI-20K, are produced at Shanghai under the Chinese designation Wojiang-6 or WJ-6.

The decision to put the Y-8 into small scale production was taken in February 1980, and 16 had been completed by the Autumn of 1984. In 1985, these were in use mainly for specialised long-range cargo flights to such places as Tibet and Hong Kong. The Y-8 is now believed to have become a major production priority programme.

In an attempt to upgrade the original avionics and equipment, Litton Systems Canada Ltd had an agreement in 1985 to provide more modern items such as inertial navigation systems, Doppler and weather radars, radio compasses, and transponders; Sully (France) was providing windscreen de-icing installations for two Y-8s; and an in-flight refuelling tanker study for the Y-8 had been made by Flight Refuelling Ltd of the UK.

On 4 September 1985 Beijing radio reported that the first maritime patrol version of the Y-8 had cleared its technical qualification tests that day. This aircraft (see accompanying photograph) has larger-area nose transparencies, resembling those of the Xian H-6 (Tupolev Tu-16) 'Badger' bomber, and a large 'chin' radome housing the antenna for an imported (Litton?) search radar. The maritime surveillance version is expected to be used for both naval patrol and civilian offshore duties such as fishery patrol, pollution monitoring, and support of the oil exploration industry.

A detailed description of the An-12BP can be found in the USSR section of the 1982-83 and earlier editions of *Jane's*. Details of the standard Y-8 published by the Chinese are as follows:

ACCOMMODATION: Standard seating for a crew of six and 96 passengers.

DIMENSIONS, EXTERNAL:

Wing span	38.00 m (124 ft 8 in)
Length overall	34.02 m (111 ft 7½ in)
Height overall	11.16 m (36 ft 7½ in)
Rear loading hatch:	
Length	7.67 m (25 ft 2 in)
Width: min	2.16 m (7 ft 1 in)
max	3.10 m (10 ft 2 in)

DIMENSIONS, INTERNAL:

Cargo hold: Length	13.50 m (44 ft 3½ in)
Width: min	3.00 m (9 ft 10 in)
max	3.50 m (11 ft 5½ in)
Height: min	2.40 m (7 ft 10½ in)
max	2.60 m (8 ft 6½ in)

AREA:

Wings, gross	121.86 m ² (1,311.7 sq ft)
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WEIGHTS:

Weight empty, equipped	35,500 kg (78,265 lb)
Max fuel load	22,900 kg (50,485 lb)
Max payload	20,000 kg (44,090 lb)



First photograph to be released of the maritime surveillance version of the Hanzhong Y-8 four-turboprop transport aircraft

Max T-O weight	61,000 kg (134,480 lb)
Max landing weight	58,000 kg (127,870 lb)
PERFORMANCE:	
Max level speed at 7,000 m (22,965 ft)	351 knots (650 km/h; 404 mph)
Normal cruising speed	297 knots (550 km/h; 342 mph)
Max rate of climb at S/L, AUW of 51,000 kg (112,435 lb)	600 m (1,968 ft)/min
Service ceiling	10,400 m (34,120 ft)
T-O run	1,230 m (4,035 ft)
Landing run	1,150 m (3,773 ft)
Range with max fuel	3,020 nm (5,600 km; 3,480 miles)
Max endurance	10 h 40 min

NAL

NATIONAL AEROSPACE LABORATORY: 1880 Jindaiji-machi, Chofu City, Tokyo 182, Japan

Japan's National Aerospace Laboratory is a government establishment responsible for research and development in the field of aeronautical and space sciences. Since 1962 it has extended its activity to include advanced V/STOL techniques, and is currently engaged in a major programme to develop a quiet STOL transport aircraft embodying the upper surface blowing (USB) concept of lift enhancement.

NAL ASUKA

The NAL is now well into the second half of an 11-year programme to develop a large experimental quiet STOL transport aircraft. Total cost of the development programme has been estimated at Y36,000 million, including flight testing. Data obtained from the programme will, it is hoped, enable NAL to develop, in co-operation with the Japanese aerospace industry, a commercial STOL transport able to operate from 800 m (2,625 ft) runways, carrying 150 passengers.

The Asuka is based on the airframe of the Kawasaki C-1 twin-turboprop tactical transport (see 1981-82 *Jane's*), with the following modifications: replacement of the two Pratt & Whitney JT8D engines by four 48 kN (10,800 lb st) MITI/NAL FJR-710-600S high bypass turbofans, installed above and far ahead of the wing leading-edges in nacelles with upper surface blowing, as on the Boeing YC-14 prototype (see February 1977 Supplement and 1978-79 *Jane's*); installation of wing leading-edge and aileron boundary layer control systems; replacement of the existing inboard flaps by USB flaps; structural strengthening of the fuselage and landing gear; and installation of a digital (fly by wire) stability and control augmentation system. The USB flaps are manufactured from heat and acoustic resistant composite materials, and the upper surface skin panels of the wing centre-section from heat-resistant honeycomb composites.

Airframe modification began in 1979, and the aircraft was named Asuka (after an ancient capital city of Japan) when it made its first public appearance, at the Japan International Aerospace Show, at



Two views of the National Aerospace Laboratory Asuka QSTOL research aircraft

Gifu in October 1983. At that time only the inboard engines had been installed, and it was expected that the first flight would take place in June 1984. However, inlet redesign and other problems associated with the power plant installation caused this to be postponed, and the aircraft was not rolled out in its completed form until 12 April the following year. Registered JQ8501, it made its first flight on 28 October 1985.

DIMENSIONS, EXTERNAL:

Wing span 30.60 m (100 ft 4 1/4 in)
 Length overall, excl nose probe 29.00 m (95 ft 2 in)
 Height overall 10.245 m (33 ft 7 1/2 in)
 Tailplane span 11.30 m (37 ft 1 in)
 Wheel track (c/l of shock struts) 4.40 m (14 ft 5 1/4 in)
 Wheelbase (c/l of shock struts) 9.33 m (30 ft 7 1/4 in)

WEIGHTS (estimated):

Weight empty 31,820 kg (70,150 lb)
 Max T-O weight 38,700 kg (85,320 lb)

PERFORMANCE (estimated):

Cruising speed Mach 0.565
 Landing speed 72 knots (133 km/h; 83 mph)
 T-O to 10.7 m (35 ft) 680 m (2,230 ft)
 Landing from 10.7 m (35 ft) 480 m (1,575 ft)
 Max range 900 nm (1,668 km; 1,036 miles)

created overall length and provision of trim tab in rudder.

POWER PLANT: One Allison 250-B17C turboprop engine, flat rated at 261 kW (350 shp) and driving a Hartzell HC-B3TF-7A/T10173-25R three-blade constant-speed fully-feathering reversible-pitch propeller with spinner. Fuel in two light alloy tanks in wings, capacity of each 49.5 litres (10.9 Imp gallons; 13.1 US gallons), and two permanent wingtip tanks, capacity of each 72 litres (15.85 Imp gallons; 19.0 US gallons). Total internal fuel capacity 243 litres (53.5 Imp gallons; 64.2 US gallons), of which 235 litres (51.7 Imp gallons; 62.1 US gallons) are usable. Automatic fuel feed system. Individual refuelling point on top of each tank. Oil capacity 7 litres (1.5 Imp gallons; 1.85 US gallons).

ACCOMMODATION: Side by side front seats (for instructor and pupil in trainer), with third seat centrally at rear. Front seats individually adjustable fore and aft, with forward folding backs and provision for back type parachute packs. Dual controls standard. All three seats equipped with lap belts and shoulder harnesses. Baggage compartment aft of rear seat. Upper portion of canopy tinted. Emergency canopy release handle for each front seat occupant. Steel tube windscreen frame for protection in the event of an overturn.

DIMENSIONS, EXTERNAL:

Wing span over tip tanks 8.35 m (27 ft 4 1/4 in)
 Length overall 7.40 m (24 ft 3 1/4 in)
 Height overall 2.41 m (7 ft 11 in)
 Wheel track 2.274 m (7 ft 5 1/2 in)
 Wheelbase 1.66 m (5 ft 5 1/4 in)

AREA:

Wings, gross 10.10 m² (108.7 sq ft)

WEIGHTS AND LOADINGS:

Weight empty, equipped 750 kg (1,654 lb)
 Max T-O weight:
 Aerobatic category 1,100 kg (2,425 lb)
 Utility category 1,200 kg (2,645 lb)

Warrior, max permitted 1,300 kg (2,866 lb)

Max wing loading:

trainer 119 kg/m² (24.4 lb/sq ft)
 Warrior 129 kg/m² (26.4 lb/sq ft)

Max power loading:

trainer 4.60 kg/kW (7.56 lb/shp)
 Warrior 4.98 kg/kW (8.19 lb/shp)

PERFORMANCE (at trainer Utility max T-O weight of 1,200 kg; 2,645 lb, ISA):

Never-exceed speed 236 knots (437 km/h; 271 mph)
 Max level speed at 3,050 m (10,000 ft) 228 knots (422 km/h; 262 mph)
 Max cruising speed at 2,440 m (8,000 ft) 216 knots (400 km/h; 248 mph)
 Econ cruising speed at 4,575 m (15,000 ft) 170 knots (315 km/h; 195 mph)
 Stalling speed at S/L, flaps down, power off 68 knots (126 km/h; 79 mph)
 Max rate of climb at S/L 661 m (2,170 ft)/min
 Service ceiling 8,535 m (28,000 ft)
 T-O run 298 m (978 ft)
 T-O to 15 m (50 ft) 467 m (1,532 ft)
 Landing from 15 m (50 ft) 533 m (1,749 ft)
 Landing run, without reverse pitch 307 m (1,007 ft)
 Range at 4,575 m (15,000 ft) with max fuel, 30 min reserves 512 nm (949 km; 589 miles)

SIAI-MARCHETTI

SIAI-MARCHETTI SpA: Via Indipendenza 2, 21018 Sesto Calende (VA), Italy

SIAI-Marchetti has for many years held the type certificate and manufacturing rights for the SF.260, the prototype of which was designed by Dott Ing Stelio Frati and flown for the first time on 15 July 1964. By mid-1985 the company had built more than 800 SF.260s in several versions, of which the major ones are the piston engine SF.260M two/three-seat military trainer and its armed counterpart, the SF.260W Warrior. A detailed description of these appeared in the August 1977 *Jane's Supplement*, and can still be found in current editions of *Jane's All the World's Aircraft*. More recently, SIAI-Marchetti has introduced a turboprop version known as the SF.260TP.

SIAI-MARCHETTI SF.260TP

First flown in July 1980, the SF.260TP is a turboprop powered development of the SF.260M/W, the airframe remaining virtually unchanged aft of the firewall except for substitution of an inset rudder trim tab and provision of an automatic fuel feed system. It has been available since early 1982, both as a conversion kit for existing SF.260s and as a new-production aircraft. Three prototypes were built.

In 1985 deliveries were continuing of more than 60 SF.260TPs ordered by several military customers including the air forces of Dubai, Ethiopia, Sri Lanka, and Zimbabwe.

TYPE: Two/three-seat turboprop military trainer and (Warrior) tactical support aircraft.

AIRFRAME: As for SF.260M/W, except for in-

PARTENAVIA

PARTENAVIA COSTRUZIONI AERONAUTICHE SpA: Via G. Pascoli 7, 80026 Casoria (Naples), Italy

Partenavia began production of the P.68B Victor in its new factory at Naples Airport in 1974, and has since delivered more than 350 examples of this six/seven-seat light transport in a number of different versions. Current standard models, all described in



SIAI-Marchetti SF.260TP landing after demonstration at 1985 Paris Air Show (Air Portraits)

the 1985-86 edition of *Jane's*, are the P.68C, P.68C-TC, and Observer. An eight/nine-seat turboprop derivative, known originally as the P.68 Turbo, was developed subsequently in a joint programme with Aeritalia and flew for the first time on 11 September 1978. Certificated in Italy in December 1983, and by the FAA in May 1984, this aircraft has a non-retractable landing gear. It is now in production as the AP 68TP-300 Spartacus, and has been followed by a ten-seat retractable-gear version known as the AP 68TP-600 Viator.

PARTENAVIA AP 68TP-600 VIATOR (WAYFARER)

The first retractable landing gear version of the Spartacus (I-RAIZ, c/n 6) made its initial flight in early July 1984. It was followed on 29 March 1985 by a prototype of the Viator (I-RAIL, previously known as the Spartacus 10), which has a longer fuselage than the fixed-gear AP 68TP-300, seating two additional passengers.

Certification of the Viator was expected by the end of 1985, and an initial order for two, by an African customer, has been reported. A **Viator MP**, developed primarily to meet an Italian Coast Guard maritime patrol requirement, was announced at the 1985 Paris Air Show. This would be equipped with a PPI 25 radar system incorporating 360° search and

second/third row passengers on port side at centre of cabin. Double door (starboard, rear) provides access for rear seat passengers and to 181 kg (400 lb) capacity baggage compartment aft of rear bench seat, and serves also as an emergency exit. With all passenger seats removed and special kits installed, up to 12 parachutists, or two stretcher patients plus two medical attendants, can be carried in cabin. Viator MP carries a pilot and three systems operators. Dual controls, and cabin heating, ventilation, and soundproofing, are standard. Hot air for cabin heating and wind-screen de-icing is provided by a Janitrol 45,000 BTU combustion heater installed in the fuselage nose.

ARMAMENT (optional): One 7.62 mm machine-gun mounted on each mainwheel fairing. Two underwing hardpoints, each of 181 kg (400 lb) capacity, with standard NATO MA-4A racks. Typical loads may include two SUU-11B/A 7.62 mm Minigun pods, four LAU-32B/A rocket launchers (each containing seven rockets), two 400 lb bombs, flare dispensers, air-to-surface missiles, supply containers, or auxiliary fuel tanks.

DIMENSIONS, EXTERNAL:

Wing span	12.00 m (39 ft 4 1/2 in)
Wing chord, constant	1.55 m (5 ft 1 in)
Wing aspect ratio	7.742



Partenavia Viator, a 'stretched' version of the Spartacus with retractable landing gear

SLAR antennae and other LRUs (line-replaceable units) derived from the APS-705.

The following description applies to the civil Viator, except where indicated:

TYPE: Twin-turboprop general purpose transport.
WINGS, FUSELAGE, AND TAIL UNIT: As for AP 68TP-300 (see 1985-86 *Jane's*), except for lengthened fuselage.

LANDING GEAR: Retractable tricycle type, with electrically controlled hydraulic actuation. Oleopneumatic shock absorber in each unit. Nose-wheel retracts forward, mainwheels inward into fuselage fairing. Cleveland wheels, sizes 40-77B (nose) and 40-163EA (main), with McCreary 8-ply tyres. Nosewheel tyre size 6.00-6; mainwheel tyres size 6.50-8, pressure 4.83 bars (70 lb/sq in). Cleveland disc brakes. No anti-skid units.

POWER PLANT: Two Allison 250-B17C turboprop engines, each flat rated at 244.5 kW (328 shp) for T-O and max continuous operation. Hartzell HC-B3TF-7A/T10173B-21R three-blade constant-speed fully-feathering reversible-pitch propellers with spinners. Fuel in two 380 litre (83.6 Imp gallon; 100.4 US gallon) tanks in wings and a 40 litre (8.8 Imp gallon; 10.6 US gallon) tank in each engine nacelle. Total capacity 840 litres (185 Imp gallons; 222 US gallons). Two 100 litre (22 Imp gallon; 26.4 US gallon) underwing tanks optional. Refuelling point at each wingtip. Oil capacity 11.4 litres (2.5 Imp gallons; 3.0 US gallons) per engine.

ACCOMMODATION: Standard club seating for pilot and nine passengers, in four rows of two seats (second and fourth rows rearward facing) plus a rear bench seat for two persons. Forward opening door on starboard side of flight deck, and for

Length overall: Viator	10.85 m (35 ft 7 1/2 in)
Viator MP	11.55 m (37 ft 10 1/2 in)
Length of fuselage: Viator	9.66 m (31 ft 8 1/4 in)
Fuselage: Max width	1.20 m (3 ft 11 1/4 in)
Height overall	3.64 m (11 ft 11 1/4 in)
Tailplane span	4.01 m (13 ft 2 in)
Wheel track	2.167 m (7 ft 1 1/4 in)
Wheelbase	3.51 m (11 ft 6 1/4 in)

Propeller diameter	2.03 m (6 ft 8 in)
Propeller ground clearance	0.725 m (2 ft 4 1/2 in)
Distance between propeller centres	4.03 m (13 ft 2 1/4 in)
Passenger door (port):	
Height	1.03 m (3 ft 4 1/2 in)
Width	0.80 m (2 ft 7 1/2 in)
Height to sill	0.71 m (2 ft 4 in)
Passenger/emergency door (strbd):	
Height (mean)	0.91 m (2 ft 11 1/2 in)
Width	1.10 m (3 ft 7 1/4 in)
Height to sill	0.79 m (2 ft 7 in)

DIMENSIONS, INTERNAL:

Cabin, excl flight deck and baggage compartment:	
Length	3.60 m (11 ft 9 1/4 in)
Floor area	4.00 m ² (43.06 sq ft)
Volume	4.70 m ³ (165.98 cu ft)
Baggage compartment volume	0.65 m ³ (22.95 cu ft)

AREAS:

Wings, gross	18.60 m ² (200.2 sq ft)
Ailerons (total)	1.76 m ² (18.94 sq ft)
Trailing-edge flaps (total)	2.42 m ² (26.05 sq ft)
Fin	2.90 m ² (31.22 sq ft)
Rudder, incl tab	1.64 m ² (17.65 sq ft)
Tailplane	3.76 m ² (40.47 sq ft)
Elevators (total)	1.30 m ² (13.99 sq ft)

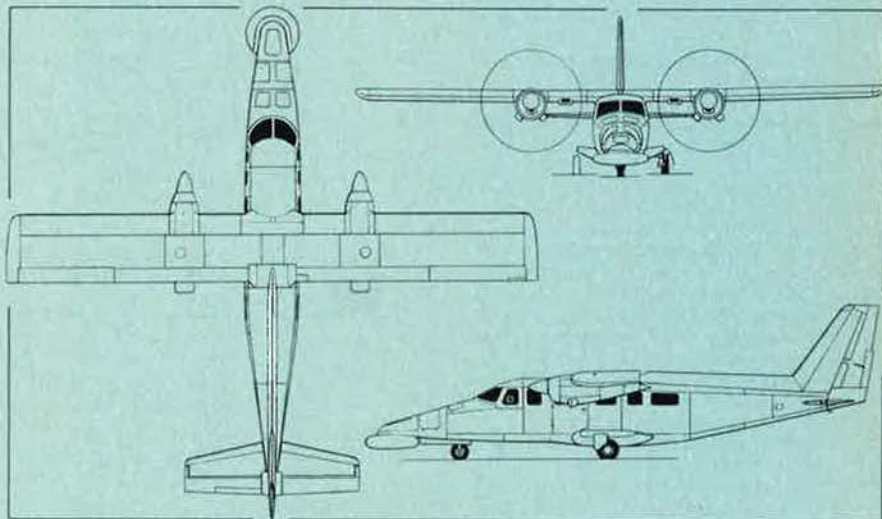
WEIGHTS AND LOADINGS:

Basic weight empty: Viator	1,560 kg (3,439 lb)
Viator MP	1,780 kg (3,924 lb)
Max fuel load	680 kg (1,499 lb)
Max payload: Viator	990 kg (2,182 lb)
Viator MP	770 kg (1,697 lb)
Max T-O and landing weight	2,850 kg (6,283 lb)
Max ramp weight	2,875 kg (6,338 lb)
Max zero-fuel weight	2,550 kg (5,622 lb)
Max wing loading	153.23 kg/m ² (31.38 lb/sq ft)

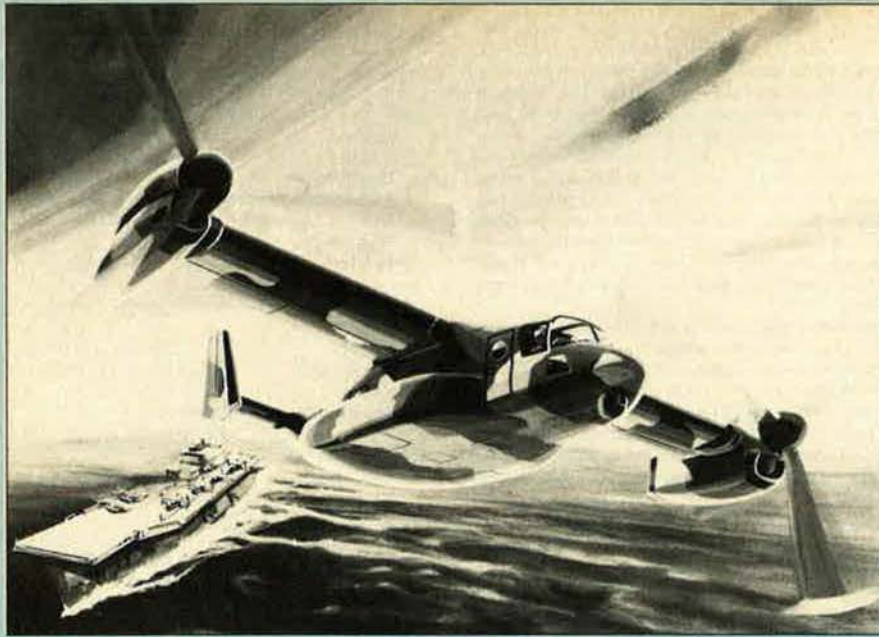
Max power loading 5.83 kg/kW (9.58 lb/shp)

PERFORMANCE (at max T-O weight):

Max operating speed	200 knots (370 km/h; 230 mph) IAS
Max level and max cruising speed at 3,660 m (12,000 ft)	220 knots (408 km/h; 253 mph)
Econ cruising speed at 3,660 m (12,000 ft)	175 knots (324 km/h; 202 mph)
Stalling speed, power off:	
flaps up	83 knots (154 km/h; 96 mph)
flaps down	69 knots (128 km/h; 80 mph)
Max rate of climb at S/L	589 m (1,932 ft)/min
Rate of climb at S/L, one engine out	131 m (430 ft)/min
Max operating altitude	7,620 m (25,000 ft)
Service ceiling, one engine out	3,355 m (11,000 ft)
T-O run	275 m (900 ft)
T-O to 15 m (50 ft)	460 m (1,510 ft)



Partenavia Viator MP maritime patrol aircraft (Pilot Press)



Artist's impression of V-22 Osprey leaving an assault carrier

Landing from 15 m (50 ft)	490 m (1,610 ft)
Landing run	250 m (820 ft)
Min ground turning radius	10,36 m (34 ft 0 in)
Range at long-range power, allowances for start, taxi, take-off, descent, and 45 min reserves; with max payload	445 nm (824 km; 512 miles)
with max fuel	875 nm (1,621 km; 1,008 miles)
Range (Viator MP) with 395 kg (870 lb) payload and auxiliary fuel, at 3,660 m (12,000 ft), 45 min reserves;	
at 215 knots (398 km/h; 247 mph) max continuous cruising speed	1,006 nm (1,865 km; 1,158 miles)
at 170 knots (315 km/h; 196 mph) long-range cruising speed	1,264 nm (2,344 km; 1,456 miles)

BELL/BOEING VERTOL

BELL HELICOPTER TEXTRON INC: PO Box 482, Fort Worth, Texas 76101, USA
 BOEING VERTOL COMPANY: PO Box 16858, Ridley Park, Philadelphia, Pennsylvania 19142, USA

BELL/BOEING VERTOL V-22 OSPREY

US military designations: CV-22A, HV-22A, MV-22A

Bell is teamed with Boeing Vertol in a joint programme, based on the Bell Model 301/XV-15 experimental tilt-rotor aircraft, to meet the US government's Joint Services Advanced Vertical Lift Aircraft (formerly JVX) proposal, named V-22 Osprey in January 1985. The US Navy and US Air Force are currently participating in this programme, with the US Navy as executive service.

On 26 April 1983 the two companies received a US Naval Air Systems Command contract to proceed with preliminary design of the aircraft over the following 24 months. Two further contracts, totaling \$17.5 million, were awarded in April 1985 for systems engineering, long-lead tooling, a V-22 mockup, and purchasing and design analysis for the aircraft's engine interface and avionics integration. Bell/Boeing Vertol, as prime contractors, have subcontracted Grumman to design and build the V-22's tail unit, General Electric for the digital fly by wire flight control system, Lockheed-Georgia for the wing control surfaces and fixed trailing-edge, and Menasco of Canada and Dowty of Canada respectively for the nose and main landing gears. Boeing will build the fuselage and overwing fairing; Bell is

responsible for wings, nacelles, drive system, and prop-rotor assemblies.

Initial plans for the interim installation of General Electric T64-GE-717 engines in the V-22 prototypes and six early production aircraft, pending development of a definitive power plant, were cancelled in 1984 as a cost saving measure. Engine manufacturers Allison, General Electric, and Pratt & Whitney submitted proposals for derivatives of modern technology demonstrator engines (MTDE) in the 3,728 kW (5,000 shp) class for the V-22; but these initial proposals were rejected because of USAF requirements for engines in the 4,474 kW (6,000 shp) class for its V-22s, which will be used for long-range special operations such as commando raids. The US Navy requested \$603.7 million in the 1986 defence budget for V-22 development but received about \$30 million less after the budget cleared congressional hurdles. First flight of the prototype is provisionally scheduled for February 1988, with production deliveries to begin in mid-1991. Six flying prototypes are planned, with four other airframes for static, ground, fatigue, and drop testing.

In January 1984 Bell began a simulated V-22 flight test programme, using data from wind tunnel tests and analyses. Formal evaluation by military pilots, using NASA/Ames simulation, began in the follow-

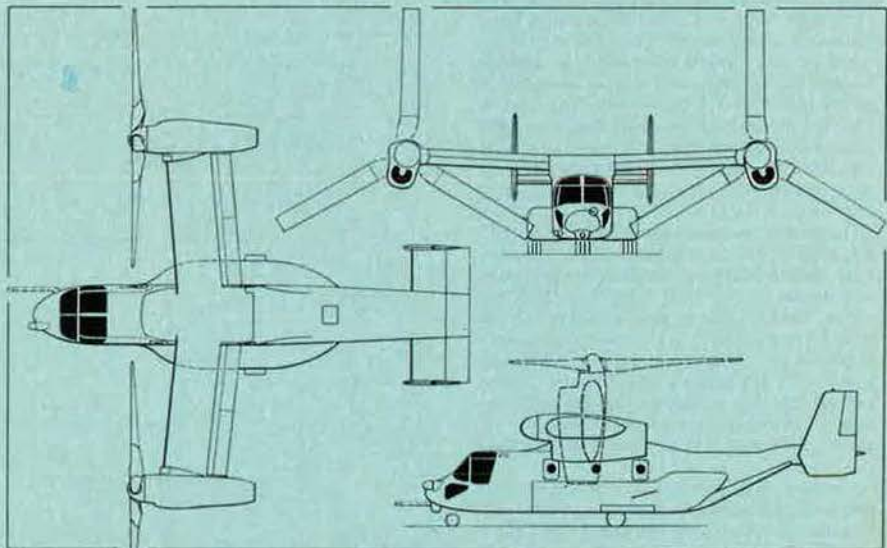
ing March. Boeing Vertol has built a two-thirds scale rotor/wing model to prove hover performance predictions. Testing of critical structural components has been co-ordinated at Bell and Boeing Vertol in anticipation of full scale development go-ahead. Total cost of the V-22 development programme, including construction of the prototypes, flight testing, and military certification, is estimated at \$1.5 billion.

The V-22 Osprey has been conceived as a multi-mission aircraft. The US Marine Corps, which will receive the first production examples, has a requirement for 552 assault transport variants, designated MV-22A, to replace CH-46 and CH-53 helicopters. The MV-22A is required to carry 24 combat-equipped Marines at a speed of 250 knots (463 km/h; 288 mph) over an operational radius of 200 nm (370 km; 230 miles), with the ability to hover at 915 m (3,000 ft) at an ambient air temperature of 33°C. The US Army, although not involved in the development phase, has plans to procure 231 aircraft in the Marine Corps configuration for medical evacuation and medium cargo lift. The US Navy has a requirement for up to 50 combat search and rescue aircraft, designated HV-22A, to replace HH-3 helicopters. In this role, the Osprey would be required to operate at 250 knots (463 km/h; 288 mph) over a 460 nm (852 km; 530 mile) radius and hover mid-mission at 2,135 m (7,000 ft) OGE, with accommodation for four survivors.

The US Air Force requires 80 long-range special operations aircraft, designated CV-22A, to carry 12 special forces troops or up to 1,306 kg (2,880 lb) of internal cargo over a 700 nm (1,297 km; 806 mile) mission radius at 250 knots (463 km/h; 288 mph), with capability to hover OGE at 1,525 m (5,000 ft). Additional requirements specified by one or more of the services for the V-22 Osprey include an unrefuelled ferry range of 2,100 nm (3,892 km; 2,418 miles) for self-deployability; ability to carry outside external loads of up to 4,536 kg (10,000 lb); all-weather low-altitude navigation capability; self-protection (an 0.50 in Gatling gun would be mounted in a nose turret); and low maintenance. To meet Navy/Marine Corps requirements for operation from US Navy amphibious assault ships, the wing and rotor system must 'fold' in 90 seconds. After landing, the rotor blades are stopped and folded inboard automatically; nacelles are then rotated to the aeroplane mode, bringing the folded blades in line with the wing leading-edge; finally, the entire wing is rotated automatically to align with the fuselage.

The following data are provisional:

DIMENSIONS, EXTERNAL:	
Rotor diameter (each)	11.58 m (38 ft 0 in)
Distance between rotor centres	14.19 m (46 ft 6 3/4 in)
Length overall	17.47 m (57 ft 4 in)



Bell/Boeing Vertol V-22 Osprey multi-mission tilt-rotor aircraft (Pilot Press)

Height over tail fins 5.28 m (17 ft 4 in)
 Height overall, nacelles vertical 6.63 m (21 ft 9 in)
 Tail unit span, incl fins 5.61 m (18 ft 5 in)
 Width over mainwheels 4.64 m (15 ft 2½ in)
 Nacelle ground clearance, nacelles vertical 1.58 m (5 ft 2½ in)

DIMENSIONS, INTERNAL:

Cabin: Length 7.32 m (24 ft 0 in)
 Width 1.83 m (6 ft 0 in)
 Height 1.83 m (6 ft 0 in)

AREA:

Rotor discs (each) 105.4 m² (1,134 sq ft)

WEIGHTS:

Max T-O weight:
 STOL (20° forward tilt) 24,947 kg (55,000 lb)
 VTOL 21,546 kg (47,500 lb)

PERFORMANCE:

Max cruising speed at max STOL T-O weight
 340 knots (630 km/h; 391 mph)
 T-O run at max STOL T-O weight
 less than 152 m (500 ft)



Lake Seawolf maritime patrol amphibian with underwing SAR pods

LAKE

LAKE AIRCRAFT: Kissimmee Airport, Kissimmee, Florida 32741, USA

LAKE SEAWOLF

The Lake Seawolf was introduced in early 1985 as a military/maritime surveillance version of the company's LA-250 Renegade commercial amphibian, which itself is basically a development of the popular LA4-200 with lengthened fuselage, more powerful engine, redesigned vertical tail surfaces, and a cabin accommodating six seats. The Renegade was designed for STOL capability and is able to make high-speed step turns on water. FAA certification of the Renegade was received in August 1983.

The Seawolf is equipped with an Alkan 6091 rack under each wing to carry a variety of external stores including bombs of up to 200 lb size, rocket launchers, cartridge launchers, and machine-gun pods. The weapons boresight position is constant and repeatable even after store removal and re-installation. In addition, the Seawolf can carry and release wing mounted rescue pods designed for use at sea or over land, with contents suitable for desert, Arctic, and sea survival. Sea search and rescue pods are equipped with a liferaft, rations, homing and signalling devices, while desert pods have tent, rations, water, and other necessary equipment for survival and rescue.

A variety of radar systems is available, with the antenna mounted at the forward face of the engine pod, between the cooling inlets. The systems offer colour weather detection, a range of 240 nm (445 km; 276 miles), and three search modes: Search 1, employing sea clutter rejection circuitry to assist in detecting small boats down to a minimum range of 275 m (900 ft); Search 2, designed for precision surface mapping where high target resolution is important; and Search 3, which offers normal surface mapping for such tasks as the detection and tracking of oil slicks.

Interface units are available to provide a moving map display, waypoint designation, checklists, beacon navigation, and multiple indicators. Provision has also been made for the installation of Loran or Omega navigation equipment.

Lake Aircraft claims that the Seawolf can fulfil a variety of paramilitary roles, including patrol and reconnaissance, search and rescue, special missions, liaison and logistics support, anti-smuggling duties, fish and wildlife protection, pollution control, law enforcement, and medevac duties. In medevac configuration the cabin can accommodate two litter patients and an attendant, as well as emergency medical equipment, once the passenger seats have been removed.

The prototype Seawolf (N1401G), which made its public debut at the 1985 Paris Air Show, retained the standard 12V electrical system of the civil Renegade; production versions will have a 28V system.

Typical mission profiles for the Seawolf are:

Maritime patrol, with standard fuel and two gun pods; pilot only; take-off weight 1,485 kg (3,274 lb).

70 min fuel reserves; radius of action 100 nm (185 km; 115 miles); outbound leg flown at 120 knots (222 km/h; 138 mph) at 1,830 m (6,000 ft), with 6 h 30 min on station at 450 m (1,500 ft), returning to base at 120 knots at 2,440 m (8,000 ft).

Single strike mission, with standard fuel, and bombs or rockets; pilot only; take-off weight 1,517 kg (3,344 lb), 70 min fuel reserves; flying outbound to target 400 nm (740 km; 460 miles) from base at 120 knots at 6,000 ft, with ten min over target, returning to base at 125 knots (231 km/h; 144 mph) at 3,050 m (10,000 ft).

Multiple strike mission, with standard fuel and rockets; two crew; take-off weight 1,568 kg (3,457 lb), 1 h 50 min fuel reserves; flying to initial target 200 nm (370 km; 230 miles) distant at 6,000 ft, ten min over target, continuing to second target 150 nm (278 km; 172 miles) beyond, ten min over target, returning to base at 10,000 ft.

Search and rescue mission, with external fuel and two SAR packs; pilot only; take-off weight 1,568 kg (3,457 lb), 1 h 50 min fuel reserves; to search locality 250 nm (463 km; 287 miles) from base at 6,000 ft, time on station 8 hours, returning to base at 120 knots at 10,000 ft.

Photo reconnaissance mission, with standard fuel and two reconnaissance pods; two crew; take-off weight 1,430 kg (3,152 lb), 1 h 30 min fuel reserves; flying at 120 knots to three locations at 50 nm (93 km; 57 mile) intervals from base, one hour loiter over each at 1,500 ft, returning 150 nm to base at 120 knots at 6,000 ft.

Ferry flight, with external fuel; two crew; take-off weight 1,563 kg (3,445 lb), 1 h 50 min fuel reserves; range 1,500 nm (2,775 km; 1,726 miles) at 120 knots; endurance 12 h 30 min.

TYPE: Single-engined multi-role amphibian.

WINGS: Cantilever shoulder-wing monoplane with tapered wing panels attached directly to sides of hull. Wing section NACA 4415 at root, NACA 4409 at tip. Dihedral 5° 30'. Incidence 3° 15'. Structure consists of duralumin leading- and trailing-edge torsion boxes separated by a single duralumin main spar. All-metal ailerons and hydraulically operated slotted flaps over 80 per cent of span. Ground adjustable trim tabs on ailerons. Floats are light alloy monocoque structures.

HULL: Single-step all metal structure, with double-sealed boat hull. Alodined and zinc-chromated inside and out against corrosion, interior LPS preservative spray optional. Strakes at base of hull for improved water handling.

TAIL UNIT: Cantilever all-metal structure, with swept fin and rudder and dorsal fillet. High-set tailplane. Outboard portion of elevator on port side is actuated hydraulically and independently as large trim tab. Fin is notched at tailplane position to permit elevator movement. Small retractable water rudder in base of rudder.

LANDING GEAR: Hydraulically retractable tricycle type. Consolidated oleo-pneumatic shock absorbers in main gear, which retracts inward into wings. Nosewheel, with long-stroke oleo, retracts forward. Gerdes mainwheels with Goodyear tyres, size 6.00-6, pressure 2.41 bars (35 lb/sq in). Gerdes nosewheel with Goodyear tyre, size 5.00-5, pressure 1.38 bars (20 lb/sq in). Gerdes disc brakes. Parking brake. Nosewheel is free to swivel 30° each side.

POWER PLANT: One 186 kW (250 hp) Avco Lycoming IO-540-C4B5 flat-six engine, driving a Hartzell three-blade constant-speed Q-tip metal push-



Lake Seawolf exhibited at 1985 Paris Air Show (Brian M. Service)



Frogman entering water from Lake Seawolf amphibian

er propeller with spinner. Turbocharged TIO-540 engine optional. Standard fuel capacity 333 litres (88 US gallons); optional capacity, with external tanks, 568 litres (150 US gallons).

ACCOMMODATION: Enclosed cabin capable of seating up to six persons. All seats except pilot's removable, with a variety of optional internal configurations according to mission. Entry through two forward-hinged windscreen sections. Upward hinged gull wing cargo door standard.

ARMAMENT: Standard 14 in NATO stores mounts on underwing hardpoints, one inboard and one outboard of each wing balancer float, can accommodate a variety of stores, including external fuel tanks, parachute flares, SAR pods, ECM pods, gun pods, reconnaissance pods, rocket launchers, photo-reconnaissance pods, cartridge throwers, flare dispensers, hazardous material containers, practice and general purpose bombs. Inboard stores points can each carry up to 100 kg (220 lb), outboard points can each carry up to 35 kg (77 lb).

DIMENSIONS, EXTERNAL:

Wing span	11.68 m (38 ft 4 in)
Wing chord, mean	1.35 m (4 ft 5.1 in)
Length overall	8.64 m (28 ft 4 in)
Height	3.04 m (9 ft 11½ in)
Tailplane span	3.05 m (10 ft 0 in)
Wheel track	3.40 m (11 ft 2 in)
Wheelbase	3.13 m (10 ft 3 in)
Propeller diameter	1.93 m (6 ft 4 in)

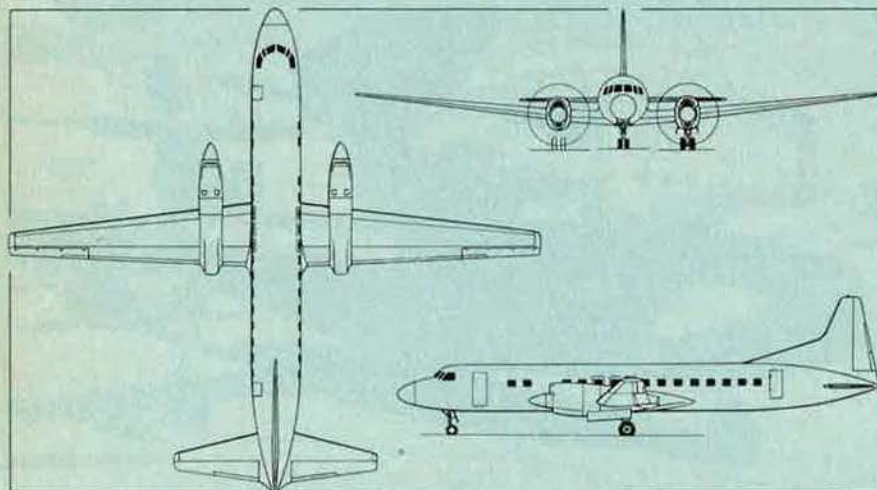
DIMENSION, INTERNAL:

Cabin: Length	2.03 m (6 ft 8 in)
WEIGHTS:	
Weight empty	998 kg (2,200 lb)
Max ramp and T-O weight	1,565 kg (3,450 lb)*
Max landing weight, on land	1,383 kg (3,050 lb)

PERFORMANCE:

Never-exceed speed	148 knots (274 km/h; 170 mph)
Max level speed at 1,980 m (6,500 ft)	139 knots (258 km/h; 160 mph)
Max cruising speed, 75% power at 1,980 m (6,500 ft)	132 knots (245 km/h; 152 mph)
Cruising speed, 55% power	110 knots (204 km/h; 127 mph)
Stalling speed, landing gear and flaps down	48 knots (89 km/h; 56 mph) IAS
Max rate of climb at S/L	274 m (900 ft)/min
Service ceiling	4,480 m (14,700 ft)
T-O run: on land	268 m (880 ft)
on water	381 m (1,250 ft)
Landing distance, land and water	230 m (755 ft)
Range with standard fuel at 120 knots (222 km/h; 138 mph), with 38 litres (10 US gallons) fuel reserves	876 nm (1,622 km; 1,008 miles)
Range with external tanks at 120 knots (222 km/h; 138 mph), with 62 litres (16.4 US gallons) fuel reserves	1,500 nm (2,780 km; 1,727 miles)

*181 kg (400 lb) must be underwing stores



Allison Turbo Flagship ATF-580S conversion of Convair 340/440/580 (Pilot Press)

138 mph), with 62 litres (16.4 US gallons) fuel reserves 1,500 nm (2,780 km; 1,727 miles)
 Endurance with standard fuel at 90 knots (167 km/h; 104 mph), with 38 litres (10 US gallons) fuel reserves 8 h 30 min
 Endurance with external tanks at 90 knots (167 km/h; 104 mph), with 62 litres (16.4 US gallons) fuel reserves 14 h 30 min

ALLISON

ALLISON GAS TURBINE DIVISION OF GENERAL MOTORS CORPORATION; PO Box 420, Indianapolis, Indiana 46206-0420, USA

ALLISON TURBO FLAGSHIP ATF-580S

Allison Gas Turbine Division has developed the Allison ATF-580S Turbo Flagship from the Super 580 conversion of the piston-engined Convair 340/440 and turboprop Convair 580 airliners, with engineering assistance from the Convair Division of General Dynamics Corporation.

The aircraft has an extended fuselage, created by the insertion of a 2.41 m (7 ft 11 in) 'plug' section forward of the wing/fuselage junction, and a 1.93 m (6 ft 4 in) plug aft of the wing. This makes possible standard seating for 72 passengers in 'widebody' 0.86 m (34 in) pitch seats. 76 passengers in an optional configuration, or provision for up to 8,618 kg (19,000 lb) of payload in all-cargo configuration, with port side rear cargo door.

The Turbo Flagship conversion includes installation of two 3,728 kW (5,000 shp) Allison 501-D22G Series III turboprop engines, each driving a Hamilton Standard 54H60-77 four-blade propeller, a new APU, improved cabin pressurisation control, an all-AC electrical system with lightweight electrical wiring, zero-timed airframe, single point refuelling under each wing, anti-skid braking, overhead baggage stowage bins, and a King Gold Crown Series III avionics package with dual Sperry flight director systems. Optional equipment includes a cabin door designed for 'jetway' compatibility and for self-contained airstair ground boarding, deluxe hot food galley, exterior strobe lighting, a 1.64 m³ (58 cu ft) baggage stowage space in the aft fuselage plug, a high speed landing light system, and a Collins avionics package including EFIS and ProLine II com/nav with dual digital flight director systems.

Standard fuel capacity of the Allison Turbo Flagship is 6,549 litres (1,730 US gallons) with 7,796 litres (2,058 US gallons) and 11,008 litres (2,908 US gallons) available optionally. The all-cargo configuration can accommodate up to seven 2.23 x 2.74 m (88 x 108 in) pallets or up to nine LD-3 containers, and is equipped with a 9g cargo tiedown system.

DIMENSIONS, INTERNAL:

Cabin: Width	2.69 m (8 ft 10 in)
Height	1.98 m (6 ft 6 in)
Floor area	48.1 m² (518 sq ft)
Volume	87.6 m³ (3,096 cu ft)
Cargo door: Width	3.66 m (12 ft 0 in)
Baggage holds, volume:	
Passenger: standard	12.6 m³ (444 cu ft)
optional	14.2 m³ (502 cu ft)
Cargo: standard	4.2 m³ (150 cu ft)
optional	5.9 m³ (208 cu ft)

WEIGHTS:

Weight empty:	
Passenger	16,951 kg (37,370 lb)
Cargo	14,968 kg (33,000 lb)
Zero-fuel weight	23,587 kg (52,000 lb)
Max T-O weight	27,215 kg (60,000 lb)
Max landing weight	24,947 kg (55,000 lb)

PERFORMANCE (at max T-O weight, except where indicated):

Max cruising speed	305 knots (565 km/h; 351 mph)
Max rate of climb at S/L	746 m (2,450 ft)/min
Service ceiling	7,620 m (25,000 ft)
Service ceiling, one engine out	4,265 m (14,000 ft)
T-O balanced field length	1,600 m (5,250 ft)
Landing field length at max landing weight	1,250 m (4,100 ft)
Range with 72 passengers, 45 min reserves	640 nm (1,185 km; 736 miles)



984

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The Greater Mark of Valor

The B-29 was about to explode. Sgt. Paul Ramoneda knew there were survivors in the tangled wreckage.

BY JOHN L. FRISBEE
CONTRIBUTING EDITOR

THE sky was clear with ten miles' visibility on the night of August 5, 1950, as the B-29 Superfortress lined up for takeoff from Fairfield-Suisun (now Travis) AFB in California, its destination Hickam AFB, Hawaii. Aboard were nineteen members of the 9th Bomb Group and Brig. Gen. Robert F. Travis, 9th Bomb Wing Commander—ten men forward and ten in the rear pressurized compartment.

It looked like a routine flight: good weather, an experienced crew, and only minor write-ups in the plane's Form 1-A. But as the B-29 broke ground an hour before midnight, aircraft commander Capt. Eugene Steffes reported a runaway propeller. He was cleared for an emergency landing on runway 21-L.

Then, Captain Steffes tried unsuccessfully to raise his landing gear in order to reduce drag while he came around for the landing. At an altitude of 200 feet, he notified the tower that the gear would not retract. The Superfort, heavily loaded with fuel, bombs, and ammunition, never made the runway. Its left wing hit the ground near the border of the base and sheared off, rupturing the fuel tanks. The rear compartment was immediately engulfed in flames. As the bomber careened toward a trailer park near the main gate, the fuselage broke at the forward bomb bay, the nose section cartwheeling past the base bake shop.

Four airmen on duty in the shop saw the plane hit, burst into flames, and skid past them. All four ran toward the B-29, Sgt. Paul P. Ramoneda in the lead. As they approached the nose section, they

heard cries for help. All the crew members and passengers in the forward compartment were injured, dazed by the violence of the crash, and disoriented in the tangle of darkened wreckage.

In the minutes before the crash crew arrived, Paul Ramoneda and his companions managed to extricate eight men from the nose section and carry them to safety. One of the injured men told the rescuers to get away from the plane before it exploded. Already, .50-caliber ammunition and flares were cooking off, and the heat from the blazing tail section was becoming intolerable. But Paul Ramoneda knew there were still survivors in the nose section, which was now beginning to burn.

Since the crash crew had arrived, Sgt. Lewis Siqueira, the NCO in charge of the four bakers, ordered his men back to the bake shop.



As Sgt. Paul Ramoneda ran toward the nose section of the crashed B-29, he heard cries for help.

“Ramoneda was behind the rest of us, and one of the other men yelled at him to come on,” Siqueira later recalled. “He started toward us and then yelled back that he was going to save those men and turned around and started back for the plane. The last time I saw him, he had wrapped his apron around his head and face and was going back into the plane, which was on fire. That was when it blew up.”

Exploding bombs left a crater sixty feet in diameter and six feet deep. Sgt. Paul Ramoneda, five members of the crash crew, and twelve men still aboard the B-29 were killed in the fire and explosion, and 175 others in the area were injured.

Heroism has been defined as an act performed voluntarily at the risk of one's own life—an act which, if not undertaken, would subject a person to no justifiable criticism. By that criterion or any other, Sgt. Paul Ramoneda died a hero. He was awarded the Soldier's Medal posthumously and later the Cheney Award, which has been given annually since 1927 for an “act of valor, extreme fortitude, or self-sacrifice in a humanitarian interest performed in connection with aircraft.” In April 1951, Fairfield-Suisun was renamed Travis AFB in honor of General Travis, who died in the crash.

Before he joined the Air Force, Paul Ramoneda had served with distinction in the Marine Corps during World War II. But his heroism on the night of August 5, 1950, was not the spontaneous reflex that often yields unexpected bravery in the heat of combat. He had been at the crash site for at least ten minutes, had felt the awful heat of the fire, had heard the ammunition detonating, and had been warned of an imminent explosion. Nevertheless, he deliberately accepted the certainty of painful injury and the probability of death in his attempt to save the lives of men he did not know.

For all that, his act had the greater mark of character, and of valor. ■

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Listed below are the Industrial Associates of the Air Force Association. Through this affiliation, these companies support the objectives of AFA as they relate to the responsible use of aerospace technology for the betterment of society and the maintenance of adequate aerospace power as a requisite of national security and international amity.

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By Robin L. Whittle, AFA DIRECTOR OF COMMUNICATIONS

AFA Turns Forty on February 4

Forty years ago, on February 4, 1946, AFA was incorporated in the District of Columbia. A headquarters office had been set up on December 1, 1945, on the basement level of a building at 1603 K St., N. W., in Washington, D. C. Col. Willis Fitch, US Army Air Forces (Ret.), was executive director and the only staff member. Furniture from a previous occupant was put to use, and a typewriter was obtained on loan. Membership solicitation began in January. The first nine members of AFA, who joined concurrently, were John S. Allard, Grenville Carrol, Edward P. Curtis, James H. Doolittle, W. Deering Howe, Sol Rosenblatt, Julian Rosenthal, James Stewart, and Lowell P. Weicker.

The year 1946 was devoted primarily to financial survival, development, organizational activity, and membership solicitation, recalls former Executive Director Jim Straubel in his book *Crusade for Airpower: The Story of the Air Force Association*. By midyear, the fledgling Association could boast a periodical. Effective July 1946, *AIR FORCE Magazine*, the wartime "Official Service Journal of the Army Air Forces," became the official journal of AFA. Each AFA member was entitled to a subscription as a part of the \$3 annual dues.

Gen. Jimmy Doolittle became the first president of AFA on January 24, 1946. His leadership of the new organization was hailed by Gen. H. H. "Hap" Arnold, Commanding General of the Army Air Forces and spiritual father of AFA, in a telegram read at the announcement reception in Washington, D. C.

"Your acceptance of the presidency of the Air Force Association is a source of great satisfaction to me as well as a guarantee of future success of the organization," said General Arnold.

In accepting the presidency of the Air Force Association, General Doolittle explained that the new organization would be based on a grass-roots structure with local, state, and regional affiliates, that it would publish a national magazine, and that it would



Six of the officers of the newly formed Air Force Association met with President Harry S. Truman at the White House in early 1946. From left: AFA President Jimmy Doolittle, Executive Director Willis S. Fitch, National Director Forrest Vosler, President Truman, Third Vice President Thomas G. Lanphier, Jr., Second Vice President Meryll Frost, and National Director James M. Stewart.

sponsor educational programs to keep its members and the public at large abreast of airpower developments. Doolittle's new role was announced by Maj. Gen. Edward P. "Ted" Curtis, USAAF (Ret.), who had served in World War II as chief of staff to Lt. Gen. Carl A. Spaatz, commander of the US Strategic Air Forces in Europe. Curtis was selected by General Arnold to put AFA together. It was his idea to bring Doolittle aboard.

General Doolittle spent the year crisscrossing the country, pushing membership, unit organization, and AFA's first policy goal—a separate Air Force. He stimulated formation of AFA's first chapter (then known as squadron) in Baltimore, Md., and the first state organization (then known as wing) in Ohio. The *Baltimore Sun* reported on AFA's first chapter in its June 16, 1946, edition, calling it the first of three big organizational meetings to be held across the country—with another in Chicago and the third on the West Coast.

Wherever he went, AFA's first president drew large crowds and extensive newspaper and radio coverage. The essence of his message was pub-

lished in the April 1947 issue of *AIR FORCE Magazine* under the title "Shall We Court Calamity?" His points are as relevant today as they were forty years ago. Here are some excerpts from General Doolittle's address:

"To reduce military appropriations at this time would be to court—if not invite—calamity, for such cuts would weaken most our strongest agency of defense—airpower.

"We cannot—and must not—forget the lessons of the past. The fact is that through military unpreparedness and disinterest in international affairs, we have in less than three decades been drawn into two costly and devastating wars that were not ours. Had we been militarily strong, these wars might not have been started, and certainly had we become involved, our losses in men, money, and materials would have been much less and world disruption greatly reduced.

"There can be no compromise with American security or with America's solemn obligation to the rest of the world to maintain world peace. We are not an aggressor nation. We never have been nor will we ever be one. The peace-loving nations of the world re-

alize that fact and look to us to maintain the peace.

"We want peace, but we have learned the hard way that wanting peace is not enough. We must plan and strive for peace—and if necessary sacrifice for it.

"In the present condition of world unrest and insecurity, it is fundamentally unsound for us to reduce our military budget and in so doing weaken our military establishment. Therefore, it is the duty of every citizen who desires peace on earth to make the financial sacrifice necessary to permit the United States of America to fulfill her obligations to herself and to the world, and, furthermore, it is his duty to make known his desires to his duly elected representatives in Washington."

At the end of AFA's first year, more than 50,000 present and former members of the Army Air Forces had joined what Doolittle termed "an aggressive, fast-growing, young organization."

AFA is now nearly a quarter of a million strong, and life, as they say, begins at forty.

AFA Leaders Observe Veterans Day

"We pay homage to an 'eternal truth' which has come to all Americans over [time] and which will continue to live regardless of any attack or subversive act that may be directed upon us," Massachusetts AFA President John White told the Veterans Day gathering in Boston. "That concept, in its purest form, holds that 'human freedom and dignity and justice are more precious than life itself.'"

Humanity, the AFA leader continued, has flourished in those lands that have honored and obeyed this eternal truth. "Our nation has led the entire world in bringing these blessings to her people—and to countless millions beyond our borders. Education, equality, freedom of religion, personal liberty, and dignity—all these blessings have been ours.

"But there is . . . a cost. It is declared in these words, 'More precious than life.' We have achieved these blessings, but will retain [them] only so long as we are brave enough to fight for them—and to the death, if need be. There is no credit card for American national survival. There is no charge plate for human freedom.

"This country can and must afford a position of strength to persevere in arms-control negotiations. . . . All citizens in and out of uniform share this burden, this responsibility to keep our people free."

Mr. White addressed the first Veterans Day observance held in Boston in nearly a decade.

In the South, AFA's General Bruce K. Holloway Chapter joined forces with the Greater Knoxville Chamber of Commerce and the Greater Knoxville Committee for America to sponsor a Veterans Day luncheon featuring Gen. John T. "Jack" Chain, Jr., Chief of Staff, Supreme Headquarters Allied Powers Europe (SHAPE). General Chain discussed his hopes for the Geneva summit and the importance of NATO, which he termed as critical to world peace today as it was in the aftermath of World War II.

"NATO is the strongest military-political alliance in the history of the world, and its main purpose is to serve as a deterrent to armed conflict. It's the best insurance we have against World War III," he said.

More than 250 people attended the luncheon, including junior and senior AFROTC cadets, Rep. John J. Duncan (R-Tenn.), Knoxville Mayor Kyle Testerman, Knox County Executive W. Dwight Kessel, Knoxville Assistant Safety Director Ray Oglesby, who served as Grand Marshal of the Veterans Day parade, Holloway Chapter President Walt Bacon, and Harwell Proffitt, president-elect of the Knoxville Chamber of Commerce.

"The military crowd as well as civic and service clubs and patriotic organizations really turned out for this event, making it a resounding success," Tennessee AFA President Jack Westbrook said.

Excellent coverage appeared in the Knoxville *Journal* and the *News Sentinel*, and the parade marshal, who served in the Army Air Forces in the South Pacific during World War II,

joined AFA during the festivities, Mr. Westbrook reports.

In the Midwest, AFA's General E. W. Rawlings Chapter sponsored an annual awards banquet on Veterans Day featuring then-Chairman of the Joint Chiefs of Staff Gen. John W. Vessey, Jr., as speaker.

Rawlings Chapter Vice President Charles Melby reports that some 238 chapter members and civic leaders from Minneapolis, St. Paul, and surrounding communities attended the event. Seventeen awards were presented to outstanding Air Force Reserve, Air National Guard, and Air Force recruiting personnel and AFROTC cadets by General Vessey and Chapter President Doyle Larson, a retired two-star general who served as Commander of Electronic Security Command before his retirement. James Holden, Alex Perdanovich, and George Briebenow received AFA certificates of appreciation for their work in support of the Chapter.

"The highlight of the evening was General Vessey's address," Mr. Melby said. "He emphasized the quality of people in today's armed forces and received a standing ovation."

AFA's Active Grass Roots

Ohio AFA President John Boeman stomped around the house after reading an opinion piece in the Cleveland *Plain-Dealer* entitled "Physicians Prescribe Anti-Nuclear Remedy." It was written by a member of the Physicians for Social Responsibility. Then he thought about it and wrote a response that appeared in the newspaper un-

(Continued on p. 144)



Gen. John W. Vessey, Jr., then Chairman of the Joint Chiefs of Staff, was the featured speaker at the General E. W. Rawlings Chapter's Veterans Day awards banquet. Presenting a plaque to General Vessey was North Central Region National Vice President Paul Markgraf (right) and Minnesota President Earl Rogers.

Central East Region: A Study in C

AFA's Central East Region is a study in contrasts. Just as the terrain varies from tidewater Delaware and Virginia to the mountains of West Virginia and Kentucky, so, too, are the region's chapters a series of contrasts.

Here you'll find AFA's Nation's Capital, Donald W. Steele, Sr., and Thomas W. Anthony Chapters, each proudly boasting their proximity to the Pentagon and Bolling and Andrews AFBs as well as to surrounding defense-related organizations and industries. Here, too, you'll find AFA chapters in picturesque mountain communities and seacoast fishing villages—equally proud of their Air Force relationships.

These chapters may be near a National Guard squadron, an AFROTC detachment, an aviation museum, or perhaps other veterans organizations. So no matter where you travel within the region, you'll find AFA people working the mission and proud of AFA's heritage.

Membership was our primary emphasis during the year, with Central East chapters working to recruit new members while retaining those already on the rolls. Programs were implemented to carry the Air Force Association message of action to existing members and to emphasize the need to expand general membership and community and industrial partners.

—By *William L. Ryon, Jr., National Vice President/Central East Region.*

Central East Region National Vice President and Central Maryland Chapter President William L. Ryon, Jr. (left), and Maryland State President Joseph O'Clair presented Col. Ralph Albertazzie an AFA mug after the Colonel spoke at a recent chapter dinner meeting.



Virginia

Virginia AFA was led by C. W. Scott in 1985 and has nine chapters.

In Northern Virginia, the Donald W. Steele, Sr., Memorial Chapter headed by Rick George has concentrated on community outreach, communications, and an effective scholarship program, which funded two \$1,000 grants in 1985. They went to Didier Kaczmarek, a former AFJROTC cadet at Washington and Lee High School who was named "Outstanding Aerospace Education Senior." He entered Virginia Military Institute to study mechanical engineering. The other grant recipient

was Thomas C. Coglitore of Springfield, Va., who entered AFROTC at the University of Southern California to study aerospace and astronautical engineering.

The Donald Steele Chapter also supported the Fairfax Civil Air Patrol squadron and, in membership recruiting, signed up forty percent more members than in any previous year for an all-time high.

Elsewhere in Virginia, Bob Edwards, President of AFA's Tidewater Chapter, was recognized by the Virginia Aviation Commission and the state Aviation Department for continuing support of Virginia aviation. Mr. Edwards has provided flights for CAP and AFJROTC cadets for several decades.

Across Hampton Roads harbor, the Langley Chapter—Virginia AFA's largest—set a national record for recruiting Community Partners. Chapter officials signed up sixty-eight area businesses.

Langley President Don Anderson and his executive council established dynamic programs for 1985. Events ranged from luncheons with distinguished guest speakers and support for Langley AFB's Distinguished Visitor program to an annual salute to Tactical Air Command, civic-military receptions, oyster roasts, a steak fry for the "Thunderbirds" support team, and annual golf and tennis tournaments.

In other activities, Chapter officials honored Chapter member and AFA National Secretary A. A. "Bud" West and Chapter member Larry Shellhammer with Jimmy Doolittle Fellowships. The Fellowships are a program of the Aerospace Education Foundation.

Chapter President Don Anderson is particularly proud of the improvements made to the annual "Salute to Tactical Air Command." This civic-military program offers briefings on the status of TAC as well as updates on equipment, plans, programs,



Chapter President and former US Senator Howard W. Cannon presented the first-ever Nation's Capital Chapter Award for International Achievement to Robert C. McFarlane, then-National Security Advisor to President Reagan. (Photo by Ron Hall)

trasts

and mission capabilities. These briefings are presented by key TAC personnel for military and civilian participants.

During the year, Langley Chapter officials commissioned a sculpture in memory of Gen. Jerome F. O'Malley, who was Commander of TAC at the time of his tragic death. The welded steel figure will be displayed on Langley AFB's Memorial Park.

Other Virginia Chapters are Danville, led by Thomas Holland; Leigh Wade, headed by Richard M. Wray; Lynchburg, led by James L. Ford; Jack Manch, headed by Willodean Bauman; Richmond, led by Jon R. Donnelly; Roanoke, headed by George W. McKay; and Tidewater Chapter, led by Bob Edwards.

Maryland

Joe O'Clair is Maryland AFA President, and the state has three chapters: Thomas W. Anthony, headed by Spann Watson; Central Maryland Chapter, led by Bill Ryan, Jr.; and Baltimore Chapter, with Rick Gibbs as President.

The Thomas W. Anthony Chapter celebrated its tenth year by sponsoring a number of projects involving personnel from Andrews and Bolling AFBs. The Chapter began publishing a twenty-four-page quarterly news magazine, *Allegiance*, and held a highly successful "Salute to the Armed Forces" dinner, a charitable golf tournament, a "Harvest Moon Ball," and a Christmas party.

Central Maryland Chapter also had an



"The Airmen of Note," the US Air Force Band's swing-era ensemble, provided a portion of the entertainment during the Thomas W. Anthony Chapter's "Salute to the Armed Forces" event held in May.

impressive year, growing from just twenty-one to 100 members in its first year. One outstanding program featured a briefing by the Air Force's Soviet Awareness Group. Another featured a former pilot of *Air Force One*.

The Central Maryland Chapter is working to strengthen its ties to Air National Guard personnel at Martinsburg, W. Va.

Delaware

Horace W. Cook is President of Delaware AFA. There are two chapters. Diamond

State is led by Ronald G. Mehan, and James A. Flood, Sr., presides over the Delaware Galaxy Chapter.

West Virginia

West Virginia's Chuck Yeager Chapter is led by David L. Bush.

Kentucky

Kentucky has two AFA chapters: The General Russell E. Dougherty Chapter, headed by Jo Bendel, and the Lexington Chapter, led by Francis X. Lamm.



Langley Chapter President R. D. "Don" Anderson (right) presented Gen. Robert D. Russ, Commander of Tactical Air Command, with a pewter mug following the General's speech at the chapter's "Salute to TAC" luncheon.



Maj. Gen. Michael J. Dugan, TAC's Deputy Chief of Staff for Operations, discusses Air Force programs with National Directors H. B. "Buzz" Henderson (left) and Jon Donnelly at a recent AFA reception.

der the heading "Take That Prescription Back." No single assertion in this article surprised him, Mr. Boeman wrote, because none of them was new. "Most can be tracked back to Communist propaganda. Such an article, rather than reduce the probability of nuclear war, in my view only encourages the Kremlin to continue playing on the fears of war among the people on both sides of the Iron Curtain." Mr. Boeman concluded that "upon reading 'Physicians Prescribe Anti-Nuclear Remedy,' I found little evidence that the writer held any such view. That upset me."

The Ohio AFA leader's response generated a flurry of letters published in the *Plain-Dealer* under the heading "Assessing the Threat From the Kremlin." Wrote one letter writer: "Boeman insults respected doctors in this country as having been found by the Kremlin to parrot its propaganda. Where on earth are the doctors supposed to have received all these evil messages? There can't be many in the peace movement (let alone the general public, the majority of whom want a nuclear freeze) who've read anything written by a Soviet, past or present. Maybe Boeman imagines the propaganda is disseminated by Santa Claus, down the chimney, or that the Tooth Fairy does double duty. . . ." Said another: "If anyone deserves praise, it's John Boeman for writing such an essay. The clarity of style and statement of historical facts leave one with the impression that he gives us a true lesson in history."

Mr. Boeman took the time to write back to each letter writer, explaining his position further.

INTERCOM

The letters columns in the Danville, Va., *Bee* and *Register* carried letters in support of the Strategic Defense Initiative that illuminated public misconceptions about defense spending, thanks to the efforts of **Jake Nelson**, Secretary of AFA's Danville Chapter. AFA National Director **Howard Strand** responded to a letter to the editor he spotted in the *Battle Creek Enquirer*, and his response was published on November 5. "[The gentleman] asked to be enlightened as to why we, the United States, are in an arms race with the Soviet Union. The answer is simple—we are not," Mr. Strand began. "They have civil defense, we don't. They have anti-ballistic missile defense, we don't. They have been in research and development of the so-called 'Star Wars' for ten or more years, while we just started. And keep in mind that approximately sixty percent of all military funding goes to house, feed, clothe, and pay for personnel in uniform before a single weapon is purchased."

Concluded Mr. Strand: "Today Russia has an average of six to eight times more weapons than we do—yet their production rate averages ten to twelve times ours. One can hardly call that a race."

Honored in September by AFA's San Bernardino Chapter for outstanding support of Norton AFB, Cal-

if., were San Bernardino Mayor **Evelyn Wilcox**; Redlands Mayor **Carol Beswick**; **Col. Paul Green**, USAF (Ret.), former Norton base commander; **Col. Larry Moore**, USAF (Ret.), former chairman of the Redlands Military Affairs Committee of the Chamber; **Chuck Obershaw**, owner of Imperial Toyota in San Bernardino; **Paul Sauter**, member of the San Bernardino Military Affairs Committee; **William O'Brien**, member of the Del Rosa Council of Knights of Columbus; and Inland Action, Inc., represented by past president **Wayne Lynch**. **Col. Thomas E. Eggers**, Commander, 63d Military Airlift Wing, presented the awards at a luncheon program featuring **Brig. Gen. James A. McDivitt**, USAF (Ret.), as speaker. The former astronaut piloted the Gemini-4 and Apollo-9 missions and recalled the days when astronauts had to be less than six feet tall so that they could fit into the spacecraft.

Birthday greetings from **President Reagan**, **Jimmy Doolittle**, **Paul Garber** of the Smithsonian's National Air and Space Museum, New Jersey Governor **Thomas Kean**, **Rep. James Courter** (R-N. J.), and others were read during a birthday party for **A. Raymond Brooks**, a World War I flying ace who turned ninety on November 1. AFA's Union Morris Chapter sponsored the birthday bash, which was emceed by aviation artist and active Chapter member **Keith Ferris**. Also participating were Raymond's friend and fellow World War I ace **George Vaughn**; **Thomas S. Thomas III**, former Chapter president; **Bob Stlastny**, also a past president and now of Vero Beach, Fla.; **Amos Chalif**, past New Jersey AFA president; and **Al Kadoika**, Union Morris Chapter President, among others.

AFA's General Curtis E. LeMay/Orange County Chapter recently saluted its namesake on the General's seventy-ninth birthday. **Lt. Gen. James E. Light, Jr.**, Commander, Fifteenth Air Force, SAC, made a special presentation highlighting General LeMay's career as it related to the history of strategic bombardment and airpower. Participants included LeMay Chapter President **Lou Villegas**, AFA National Chairman of the Board **Ed Stearn**, **Tom Henderson**, National Vice President/Far West Region, and California AFA President **Gerry Chapman**. Elsewhere in California, singer/performer **Tennessee Ernie Ford** helped present awards at the Tennessee Ernie Ford Chapter annual awards program, which featured **Gen. Lawrence A. Skantze**, Commander, Air Force Systems Command, as speaker.



Union Morris (N. J.) Chapter officials helped World War I ace **A. Raymond Brooks** (center) celebrate his ninetieth birthday recently. With **Captain Brooks** from left: **Thomas S. Thomas III**; **Bob Stlastny**; **Amos Chalif**; **Union Morris President Al Kadoika**; and fellow World War I ace **George Vaughn**.



Ohio AFA Communications Director Leo D'Arcy (left), a well-known radio personality in the Cleveland area, recently received an Air Force Recruiting Service American Spirit Award from Col. John W. Burns, Jr., 3505th Air Force Recruiting Group Commander.

Pease Chapter members joined the Amoskeag Chapter and New Hampshire AFA in participating in New Hampshire public television's fund drive recently. Pease Chapter President **Lee Blythe Lilljedahl** found it an excellent way to publicize AFA while serving a good cause. In other Pease Chapter news, **Rep. Robert Smith** (R-N. H.) addressed the Seacoast Military Affairs Council at an awards banquet attended by Chapter President Lilljedahl, Pease Chapter Treasurer **Al White**, and Membership Chairman **Robert Lilljedahl**. Chapter officials contribute funds in support of the Council. Earlier in the year, Congressman White was honored with an AFA tankard at the Pease Chapter's annual "bring-a-guest-to-brunch" function.

A Florida fish fry in observance of "National Preparedness Day" and the forty-fourth anniversary of the attack on Pearl Harbor was held December 7 as part of the Florida Highlands Chapter's general meeting. **Brig. Gen. Joseph K. Stapleton**, deputy director for operations, US Readiness Command at MacDill AFB, was guest speaker.

Ohio State AFA Communications Director **Leo D'Arcy** was recently honored with the Air Force Recruiting Service American Spirit Award. **Col. John W. Burns, Jr.**, 3505th Air Force Recruiting Group Commander, presented the award before an audience of local media, friends, family, and AFA members. Mr. D'Arcy is a well-known radio personality in Cleveland. The American Spirit Award is the highest honor presented to an individual by the Air Force Recruiting Service for sustained and exemplary support of Air Force recruiting. Mr. D'Arcy hosted WELW-AM's talk show "Guest

Time" in Mentor, Ohio, and has two sons on active duty in the Air Force.

"I was at 30,000 feet, en route to the dedication ceremonies of the monument to World War I overseas flyers at the Air Force Academy, when I struck up a conversation with a doctor from Salt Lake City sitting next to me. I learned that he was interning in Yonkers, N. Y., and that his son was interested in the Air Force Academy,



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INTERCOM

so I signed up the good doctor as a member of AFA and was pleased at his offer of a voluntary donation to the monument project at the Academy," writes New York AFA Vice President **John Householder**.

"Three natives of southwest Virginia, including the first woman in the state to run an airport fixed-base operation, have been named to the Virginia Aviation Hall of Fame for 1985," wrote AFA National Director **Jon Donnelly** in the *Richmond News Leader*. Mr. Donnelly was recently promoted to Associate City Editor of the *News Leader*. The three—**Grady W. Dalton**, a leading figure in both banking and aviation; **Martha W. Zillhardt**, believed to be the first woman in Virginia to earn an instrument rating and who organized her aviation company at Woodrum Field just after World War II and built it into a major operation; and **W. Clayton Lemon**, considered the "father of aviation in the Roanoke Valley" who got his start by swapping an auto for an airplane and who is credited with changing the public's perception of aviation from an expensive hobby to that of a serious business in the valley—were honored at a dinner sponsored by the Virginia Aeronautical Historical Society on November 16.

UNIT REUNIONS

9th Bomb Wing

Members of the 9th Bomb Wing will hold a reunion on June 6-8, 1986, in Boise, Idaho. **Contact:** Harvey R. McAtee, 10140 Saranac Dr., Boise, Idaho 83709. Phone: (208) 376-3489.

20th Air Force Ass'n

The third annual reunion of the 20th Air Force Association of Southern California will be held on March 14-16, 1986, at the Red Lion Inn in Ontario, Calif. All former bomber commands, naval mine warfare troops, 7th Fighter Command, and B-29 bomber commands are invited. **Contact:** Dwight O. King, 16040 Leffingwell Rd.,

Whittier, Calif. 90603. Phone: (213) 947-2007.

29th Air Service Group

Members of the 29th Air Service Group and attached units of the Thirteenth Air Force will hold a fortieth-year reunion on July 13-19, 1986, at the Adam's Mark Hotel in Charlotte, N. C. **Contact:** Frank Pace, 315 W. 15th St., Dover, Ohio 44622. Phone: (1-216) 343-7855.

Class 43-D

Members of Class 43-D will hold a reunion on April 27-May 1, 1986, in Las Vegas, Nev. **Contact:** Gene Causey, 3914 W. Shore Rd., Edgewater, Md. 21037. Phone: (301) 798-0341.

P-47 Thunderbolt Pilots

The Western P-47 Thunderbolt Pilots will serve as the host organization for all P-47 pilots who wish to participate in the Air Force Association's "Gathering of Eagles," which will be held in Las Vegas, Nev., on April 27-May 1, 1986. **Contact:** Harvey Victor, 22110 Victory Blvd., Suite C-314, Woodland Hills, Calif. 91367. Phone: (818) 347-8150. Jack Hartswick, (818) 704-3855. Robert Rice, (805) 947-7255.

Class 48-B

Members of Class 48-B will hold a reunion on April 10-13, 1986, in Orlando, Fla. **Contact:** James T. Pace, 1530 Dorsal St., Merritt Island, Fla. 32952, or Tamarac Travel Agency, (1-800) 228-9690.

Merced Army Airfield

The Air Force Association Merced County Chapter 144 will host a reunion at Castle AFB, Calif., formerly Merced Army Airfield, on March 21-23, 1986. **Contact:** Tom Sawyer, P. O. Box 757, Merced, Calif. 95341.

Santa Ana AAB

The eleventh annual reunion of the Santa Ana Army Air Base Wing (SAAAB) will be held on March 15, 1986, at the Orange Coast College in Costa Mesa, Calif. **Contact:** Maj. Norman I. French, USAF (Ret.), P. O. Box 1764, Costa Mesa, Calif. 92628.

8th Air Force Historical Society

The Florida Chapter of the 8th Air Force Historical Society will hold a reunion on May 23-25, 1986, at the Breckenridge Hotel in St. Petersburg Beach, Fla. **Contact:** Jim Beavers, 4920 Tellson Pl., Orlando, Fla. 32806. Phone: (305) 275-1029.

Class 53-G

Pilot Class 53-G will hold its reunion in conjunction with the Air Force Association's "Gathering of Eagles" in Las Vegas, Nev., on April 26-27, 1986. **Contact:** Maj. Jerry D. Byers, USAF (Ret.), 488 Orchard View Dr., Greenwood, Ind. 46142. Phone: (317) 881-8633.

B-58 Hustler Ass'n

The B-58 Hustler Association will hold a reunion on June 6-8, 1986, in Fort Worth, Tex. **Contact:** Kenneth W. Ryker, P. O. Box 26058, Fort Worth, Tex. 76116. Phone: (817) 249-2877.

AIR FORCE Magazine / February 1986



Majesty

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AFA State Contacts

Following each state name, in parentheses, are the names of the communities in which AFA Chapters are located. Information regarding these Chapters, or any place of AFA's activities within the state, may be obtained from the appropriate contact.

ALABAMA (Auburn, Birmingham, Huntsville, Mobile, Montgomery, Selma): **Jim Patterson**, 802 Brickell Rd., N. W., Huntsville, Ala. 35816 (phone 205-837-5087).

ALASKA (Anchorage, Fairbanks): **Michael T. Cook**, P. O. Box 25, Fairbanks, Alaska 99707 (phone 907-456-7762).

ARIZONA (Green Valley, Phoenix, Sedona, Sun City, Tucson): **Robert A. Munn**, 7042 Calle Bellatrix, Tucson, Ariz. 85710 (phone 602-747-9649).

ARKANSAS (Blytheville, Fayetteville, Fort Smith, Little Rock): **Thomas P. Williams**, 4404 Dawson Drive, N. Little Rock, Ark. 72116 (phone 501-758-6885).

CALIFORNIA (Apple Valley, Edwards, Fairfield, Fresno, Hermosa Beach, Los Angeles, Merced, Monterey, Novato, Orange County, Pasadena, Riverside, Sacramento, San Bernardino, San Diego, San Francisco, San Jose, Santa Barbara, Santa Monica, Sunnyvale, Vandenberg AFB, Yuba City): **Gerald S. Chapman**, 13822 Via Alto Court, Saratoga, Calif. 95070 (phone 408-379-6558).

COLORADO (Boulder, Colorado Springs, Denver, Fort Collins, Grand Junction, Greeley, Littleton, Pueblo, Waterton): **Thomas W. Ratterree**, 5007 Alta Loma Rd., Colorado Springs, Colo. 80918 (phone 303-599-0143).

CONNECTICUT (Brookfield, East Hartford, Middletown, North Haven, Storrs, Stratford, Waterbury, Westport, Windsor Locks): **Joseph Zaranka**, 9 S. Barn Hill Rd., Bloomfield, Conn. 06002 (phone 203-242-2092).

DELAWARE (Dover, Wilmington): **Horace W. Cook**, 112 Foxhall Drive, Dover, Del. 19901 (phone 302-674-1051).

DISTRICT OF COLUMBIA (Washington, D. C.): **Howard W. Cannon**, 1501 Lee Highway, Arlington, Va. 22209-1198 (phone 703-247-5820).

FLORIDA (Avon Park, Brandon, Cape Coral, Daytona Beach, Fort Walton Beach, Gainesville, Homestead, Jacksonville, Leesburg, Miami, Naples, Neptune Beach, New Port Richey, Orlando, Panama City, Patrick AFB, Redington Beach, Sarasota, Tallahassee, Tampa, West Palm Beach, Winter Haven): **Donald T. Beck**, 1150 Covina St., Cocoa, Fla. 32927 (phone 305-636-7648).

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GUAM (Agana): **George W. Baldwin, Jr.**, P. O. Box 8710, Tamuning, Guam 96911 (phone 671-646-4445).

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IDAHO (Boise, Mountain Home, Twin Falls): **Stanley I. Anderson**, Box 45, Gowen Field, Boise, Idaho 83707 (phone 208-362-9360).

ILLINOIS (Belleville, Champaign, Chicago, Elmhurst, Peoria, Springfield-Decatur): **Walter G. Vartan**, 230 W. Superior Court, Chicago, Ill. 60610 (phone 312-477-7503).

INDIANA (Bloomfield, Fort Wayne, Indianapolis, Lafayette, Logansport, Marion, Mentone, South Bend, Terre Haute): **Bill Cummings**, 12031 Mahogany Drive, Fort Wayne, Ind. 46804 (phone 219-672-2728).

IOWA (Des Moines, Sioux City): **Carl B. Zimmerman**, 608 Waterloo Bldg., Waterloo, Iowa 50701 (phone 319-232-2650).

KANSAS (Garden City, Topeka, Wichita): **Cletus J. Pottebaum**, 6503 E. Murdock, Wichita, Kan. 67206 (phone 316-683-3963).

KENTUCKY (Lexington, Louisville): **Jo Brendel**, 726 Fairhill Drive, Louisville, Ky. 40207 (phone 502-897-7647).

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MAINE (Bangor, Limestone, N. Berwick): **Alban E. Cyr, Sr.**, P. O. Box 160, Caribou, Me. 04736 (phone 207-496-3331).

MARYLAND (Andrews AFB area, Baltimore, Rockville): **Francis R. O'Clair**, 6604 Groveton Drive, Clintons, Md. 20735 (phone 301-372-6186).

MASSACHUSETTS (Bedford, Boston, Falmouth, Florence, Hanscom AFB, Lexington, Taunton, West Springfield, Worcester): **John F. White**, 49 West Eagle St., East Boston, Mass. 02128 (phone 617-567-1592).

MICHIGAN (Alpena, Battle Creek, Detroit, Kalamazoo, Marquette, Mount Clemens, Oscoda, Petoskey, Southfield): **Robert J. Schaeztl**, 42247 Trotwood Court, Canton, Mich. 48187 (phone 313-552-3280).

MINNESOTA (Duluth, Minneapolis-St. Paul): **Earl M. Rogers, Jr.**, 325 Lake Ave., S., Duluth, Minn. 55802 (phone 218-727-2191).

MISSISSIPPI (Biloxi, Columbus, Jackson): **R. E. Smith**, Route 3, Box 282, Columbus, Miss. 39701 (phone 601-327-4071).

MISSOURI (Kansas City, Knob Noster, Springfield, St. Louis): **Orville R.**

Blair, 1504 Golden Drive, St. Louis, Mo. 63137 (phone 314-867-0285).

MONTANA (Great Falls): **Ed White**, 2333 6th Ave., S. Great Falls, Mont. 59405 (phone 406-453-2054).

NEBRASKA (Lincoln, Omaha): **Donald D. Adams**, First Tier Inc., 17th & Farnam, Omaha, Neb. 68102 (phone: 402-348-7905).

NEVADA (Las Vegas, Reno): **David Broxterman**, 1455 E. Tropicana, Las Vegas, Nev. 89119 (phone 702-361-7027).

NEW HAMPSHIRE (Manchester, Pease AFB): **Robert N. McChesney**, Scruton Pond Rd., Barrington, N. H. 03825 (phone 603-664-5090).

NEW JERSEY (Andover, Atlantic City, Belleville, Camden, Chatham, Cherry Hill, E. Rutherford, Forked River, Fort Monmouth, Jersey City, McGuire AFB, Middlesex County, Newark, Old Bridge, Trenton, Wallington, West Orange, Whitehouse Station): **Jim Young**, 513 Old Mill Rd., Spring Lake Heights, N. J. 07762 (phone 201-449-8637).

NEW MEXICO (Alamogordo, Albuquerque, Clovis): **Louie T. Evers**, P. O. Box 1946, Clovis, N. M. 88101 (phone 505-762-1798).

NEW YORK (Albany, Brooklyn, Buffalo, Chautauqua, Garden City, Hempstead, Hudson Valley, New York City, Niagara Falls, Plattsburgh, Queens, Rochester, Rome/Utica, Southern Tier, Staten Island, Suffolk County, Syosset, Syracuse, Westchester): **Robert H. Root**, 57 Wynnwood Ave., Tonawanda, N. Y. 14150 (phone 716-692-2100).

NORTH CAROLINA (Asheville, Charlotte, Fayetteville, Goldsboro, Greensboro, Kitty Hawk, Raleigh): **Bobby G. Suggs**, P. O. Box 1630, Fayetteville, N. C. 28302 (phone 919-323-5281).

NORTH DAKOTA (Concrete, Fargo, Grand Forks, Minot): **Michael Langlie**, 2901 Columbine Court, Grand Forks, N. D. 58201 (phone 701-772-7211).

OHIO (Akron, Cincinnati, Cleveland, Columbus, Dayton, Mansfield, Newark, Youngstown): **John Boeman**, 10608 Lake Shore Blvd., Bratenal, Ohio 44108 (phone 216-249-8970).

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OREGON (Eugene, Portland): **Zane R. Harper**, 5360 SW Dover Lane, Portland, Ore. 97225 (phone 503-244-4561).

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town, Lewistown, Mon-Valley, Philadelphia, Pittsburgh, Scranton, State College, Willow Grove, York): **Jack B. Flaig**, P. O. Box 375, Lemont, Pa. 16851 (phone 814-238-4212).

PUERTO RICO (San Juan): **Fred Brown**, 1991 Jose F. Diaz, Rio Piedras, P. R. 00928 (phone 809-790-5288).

RHODE ISLAND (Warwick): **King Odell**, 413 Atlantic Ave., Warwick, R. I. 02888 (phone 401-941-5472).

SOUTH CAROLINA (Charleston, Clemson, Columbia, Myrtle Beach, Sumter): **Harry E. Lavin**, 28 Little Creek Rd., The Forest, Myrtle Beach, S. C. 29577 (phone 803-272-8440).

SOUTH DAKOTA (Rapid City, Sioux Falls): **John E. Kittelson**, 141 N. Main, Suite 308, Sioux Falls, S. D. 57102 (phone 605-336-2498).

TENNESSEE (Chattanooga, Knoxville, Memphis, Nashville, Tri-Cities Area, Tullahoma): **Jack K. Westbrook**, P. O. Box 1801, Knoxville, Tenn. 37901 (phone 615-523-6000).

TEXAS (Abilene, Amarillo, Austin, Big Spring, College Station, Commerce, Corpus Christi, Dallas, Del Rio, Denton, El Paso, Fort Worth, Harlingen, Houston, Kerrville, Laredo, Lubbock, San Angelo, San Antonio, Waco, Wichita Falls): **Ollie R. Crawford**, P. O. Box 202470, Austin, Tex. 78720 (phone 512-331-5367).

UTAH (Brigham City, Clearfield, Ogden, Provo, Salt Lake City): **Harry Cleveland**, 224 N. Jackson Ave., Ogden, Utah 84404 (phone 801-621-2365).

VERMONT (Burlington): **John D. Navin**, 6 Belwood Ave., Chocchester, Vt. 05446 (phone 802-863-1510).

VIRGINIA (Arlington, Danville, Harrisonburg, Langley AFB, Lynchburg, Norfolk, Petersburg, Richmond, Roanoke): **Charles G. Durazo**, 1725 Jefferson Davis Highway, Suite 510, Arlington, Va. 22202 (phone 703-360-9098).

WASHINGTON (Bellingham, Seattle, Spokane, Tacoma, Yakima): **Edward V. Hudson**, 2902 S. 12th St., Tacoma, Wash. 98405 (phone 206-627-1177).

WEST VIRGINIA (Huntington): **David Bush**, 2317 S. Walnut Drive, St. Albans, W. Va. 25177 (phone 304-722-3583).

WISCONSIN (Madison, Milwaukee): **Gilbert Kwiatkowski**, 8260 W. Sheridan Ave., Milwaukee, Wis. 53218 (phone 414-463-1849).

WYOMING (Cheyenne): **Irene G. Johnson**, 503 Notre Dame Court, Cheyenne, Wyo. 82009 (phone 307-775-3641).

75th Fighter Squadron

Veterans of the 75th Fighter Squadron, 23th Fighter Group, Fourteenth Air Force (China), will hold a reunion on May 15-17, 1986, in Alexandria, La. **Contact:** Louis Weber, 503 Post Oak Rd., Alexandria, La. 71303. Myron Levy, 11933 Claychester, Des Peres, Mo. 63131.

82d Troop Carrier Squadron

The 82d Troop Carrier Squadron, 436th Troop Carrier Group, will hold a reunion on April 25-26, 1986, in Las Vegas, Nev., prior to the Air Force Association's "Gathering of Eagles." **Contact:** Mel Pliner, Rte. 2, Box 10N, Pagosa Springs, Colo. 81147. Phone: (303) 264-5286.

314th Fighter Squadron

Members of the 314th Fighter Squadron will hold a reunion on April 4-6, 1986, at the Howard Johnson's Hotel in Orlando, Fla. (near Walt Disney and Sea World). **Contact:** Eugene Rouse, 122 Sheraton Rd., Syracuse, N. Y. 13219.

3901st Strategic Missile Evaluation Squadron

The 3901st Strategic Missile Evaluation Squadron (SMES) will hold its silver anniversary reunion on July 25-27, 1986, in Las Vegas, Nev. **Contact:** Maj. Richard H. Merlin, USAF, 3901st SMES/MBMT, Vandenberg AFB, Calif. 93437. Phone: (805) 866-9210.

Class 42-B

I would like to hear from cadets or instructors who were a part of Class 42-B at Cal-Aero Cadet School in Ontario, Calif., for the purpose of organizing a reunion.

INTERCOM

Please contact the address below.

Lt. Col. Ted Carlon, USAF (Ret.)
7145 S. W. 95th St.
Miami, Fla. 33156

Class 45-A

I would like to hear from anyone who graduated from Class 45-A, Moore Army Airfield, Tex., and who transitioned to P-40s at Foster Army Airfield, Tex., for the purpose of meeting at the "Gathering of Eagles" event in Las Vegas, Nev., on April 27-May 1, 1986.

Please contact the address below.

Jack B. Williams
7707 Charlestown Rd.
Mercersburg, Pa. 17236

Phone: (717) 328-3774

315th Bomb Wing

I would like to hear from any former members of the 315th Bomb Wing who are interested in taking a trip to Guam, Japan, and Hong Kong along with other members of the Wing after our reunion on September 4-6, 1986, which will be held in Los Angeles, Calif. Other Twentieth Air Force wings or units that served on the Marianas are also invited.

Please contact the address below.

George E. Harrington
4600 Ocean Beach Blvd.
Cocoa Beach, Fla. 32931

Phone: (305) 784-0342

Eagle Watch

Watch this space each month for notes of interest on the activities planned for AFA's exciting Gathering of Eagles and the people who plan to attend this spectacular event. The Gathering, to be held in Las Vegas, Nev., from April 27 through May 1, 1986, promises to be *the* aerospace event of the decade and an event you'll not want to miss!

Air Force-oriented groups have responded well to our call to gather together and celebrate the fortieth anniversary of the Air Force Association. Fifteen groups are now gearing up for the fantastic events AFA has scheduled, and many are planning their own events to share in the spirit and camaraderie of the Gathering. These groups, listed below, represent a wide variety of people who have an interest in aerospace issues, past and present.

Western P-47 Thunderbolt Pilots
P-51 Mustang Pilots Association
Pilot Class 43-D Association
44th Heritage Memorial Group
Crew-7

18th Tactical Fighter Wing Association
438th Troop Carrier Group
Reserve Officers Association
1st Air Commandos
1st Troop Carrier Squadron
F-86 Sabre Pilots Association
8th Air Force Historical Society

82d Troop Carrier Squadron
86th Fighter Bomber Group
459th Bomb Group Association

This group has recently signed up:

Class 41-C, West Coast Training Center
Melvin Faulk
6025 Wimbleton Way
Fort Worth, Tex. 76133
Phone: (817) 292-2704

If you belong to one of these groups, we urge you to join them during the Gathering of Eagles. For more information on group contacts, call Rick Harris, AFA Headquarters, (703) 247-5800.

See you in Las Vegas!

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Send your check for \$15.00, name and address to:

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Please send me _____ Library Cases \$6.95 each, 3 for \$20, 6 for \$36. (Postage and handling included.)

My check (or money order) for \$ _____ is enclosed.

Name _____

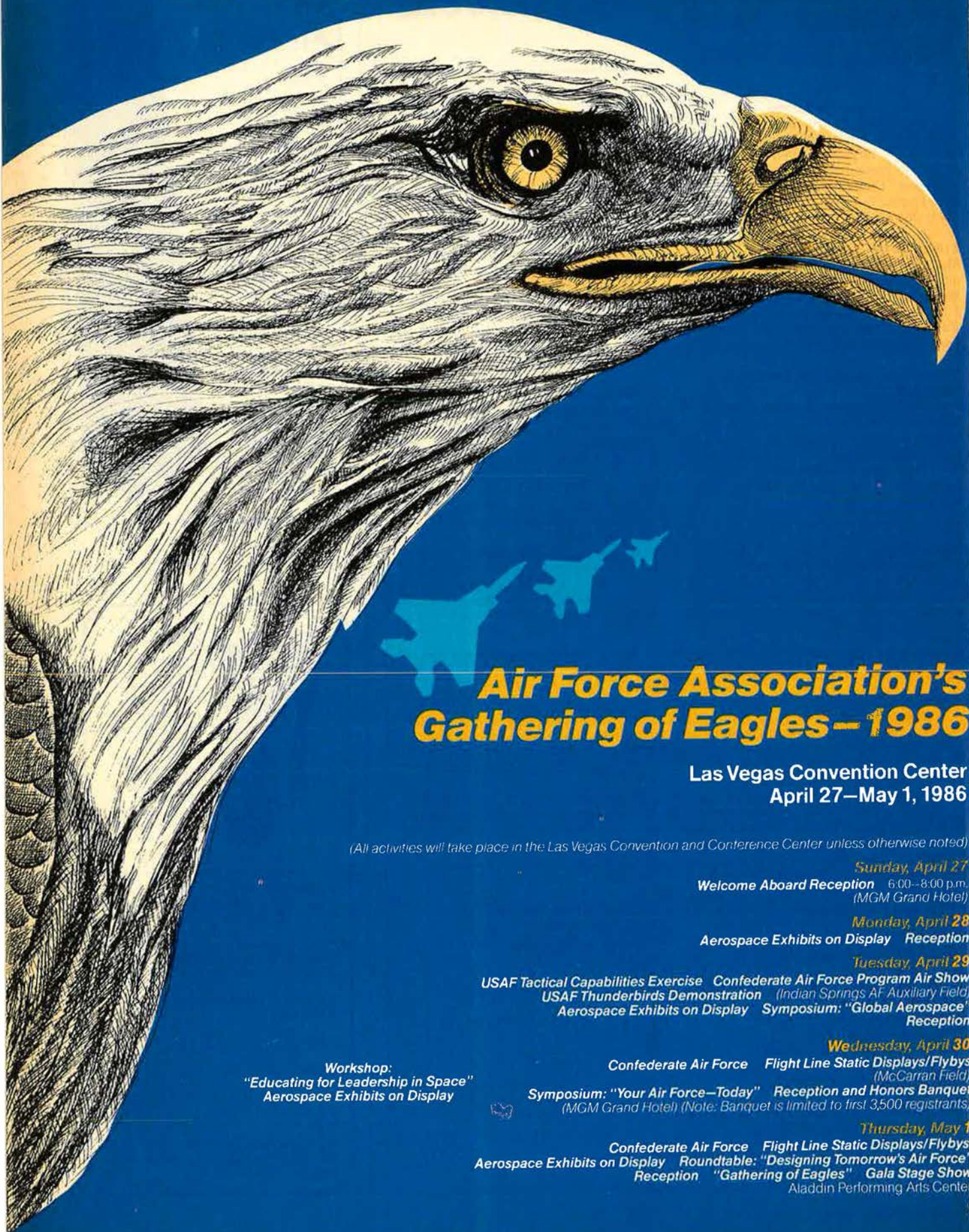
Address _____

City _____

State _____ Zip _____

Allow four weeks for delivery. Orders outside the U. S. add \$1.00 for each case for postage and handling.

REGISTER TODAY!



Air Force Association's Gathering of Eagles—1986

Las Vegas Convention Center
April 27—May 1, 1986

(All activities will take place in the Las Vegas Convention and Conference Center unless otherwise noted)

Sunday, April 27

Welcome Aboard Reception 6:00–8:00 p.m.
(MGM Grand Hotel)

Monday, April 28

Aerospace Exhibits on Display Reception

Tuesday, April 29

USAF Tactical Capabilities Exercise Confederate Air Force Program Air Show
USAF Thunderbirds Demonstration (Indian Springs AF Auxiliary Field)
Aerospace Exhibits on Display Symposium: "Global Aerospace"
Reception

Wednesday, April 30

Confederate Air Force Flight Line Static Displays/Flybys
(McCarran Field)

Symposium: "Your Air Force—Today" Reception and Honors Banquet
(MGM Grand Hotel) (Note: Banquet is limited to first 3,500 registrants)

Thursday, May 1

Confederate Air Force Flight Line Static Displays/Flybys
Aerospace Exhibits on Display Roundtable: "Designing Tomorrow's Air Force"
Reception "Gathering of Eagles" Gala Stage Show
Aladdin Performing Arts Center

Workshop:
"Educating for Leadership in Space"
Aerospace Exhibits on Display



WHEN SHOULD I REGISTER?

It is important that you register as soon as you can—TODAY, if possible. Las Vegas hotels are normally booked to capacity during the April/May time period each year. Consequently, to ensure you are able to reserve the hotel of our choice—AT the very special AFA rate—you must make your reservations immediately. Seating at Wednesday's Honors Banquet and Thursday's Gala Stage Show is limited, so sign up *now* to guarantee that you will be able to participate fully in all events.

See you in Las Vegas!

Postmark Date
On and After March 1, 1986
(and on site)

Postmark Date
Prior to February 28, 1986

Package #1

activities including Honors Banquet—limited to first 3,500 registrants)

Member/Patron \$205 \$250
Spouse/Dependent

Member \$235

Package #2:

activities except Honors Banquet, (i.e., April 30)

Member/Patron \$155 \$200
Spouse/Dependent

Member \$185

(Please print or type)

Application for Hotel Reservations

Please list three choices of hotels:

1st _____
2nd _____
3rd _____

Type of Accommodation

___ Single Rate ___
___ Double Rate ___
___ 1 B/R Suite Rate ___
___ 2 B/R Suite Rate ___

Date of Arrival: _____

_____ Hour _____ AM-PM

Date of Departure: _____

_____ Hour _____ AM-PM

Room will be occupied by:

Name _____

Affiliation _____

Street _____

City _____ State _____ Zip _____

Fill out this form completely and mail to:

"AFA Housing Bureau"

Las Vegas Convention & Visitors Authority
3150 Paradise Road
Las Vegas, Nevada 89109-9096

Note:

1. The AFA Housing Bureau will handle all reservations. Do not contact hotels. If changes need to be made after receiving confirmation, contact hotel directly.
2. A deposit of one night's lodging must be sent directly to the hotel once you receive confirmation.
3. Room assignments will be made on a first-come, first-served basis.
4. If a block of rooms is required, attach a list of individuals needing rooms to this form with arrival and departure dates and times.

Hotels and Rates

HOTELS	Single	Double	1-Bedroom Suite	2-Bedroom Suite
MGM Grand	\$77	\$77	\$178-up	\$260-up
Caesar's Palace	70	70	200	300
Flamingo Hilton	60	60	150-up	240-up
Dunes	58	58	180	250
Imperial Palace	60	60	150	210
Maxim	38	38	—	—
Continental	45	45	—	—
Alexis Park (All Suites)	70/90	70/90	—	—
Tropicana	42	42	125	250
Hacienda	55	55	100	165
Marina	42	42	100	150
Sands	55	55	125-up	225-up
Desert Inn	75	75	150-up	225-up
Frontier	54	54	185	225
Riviera	55	55	150	200
Sahara	55	55	90-up	180-up
Landmark	52	52	95-125	—
Las Vegas Hilton	64	64	—	—
Mardi-Gras (All Suites)	33	33	—	—

REGISTRATION FORMS MUST BE ACCOMPANIED BY U.S. DOLLAR CHECK, MONEY ORDER PAYABLE TO "AFA," OR CREDIT CARD AUTHORIZATION.

What Name/Title on your Registration Badge(s):

Your Name: _____

Other Registrants: _____

Your Address: _____

Street Address

City _____ State _____ Zip _____

Country _____

Phone Number: (____) _____

Send this form and your payment to:

**"Gathering of Eagles"
Air Force Association
1501 Lee Highway
Arlington, VA 22209-1198**

I enclose \$ _____ U.S. Dollars (in check or money order only) for _____ Registration Packages

or:

Charge \$ _____ U.S. Dollars to my credit card, as indicated:

AM EX
 VISA
 MasterCard

Account number: _____

Expiration date: _____

Cardholder's signature: _____

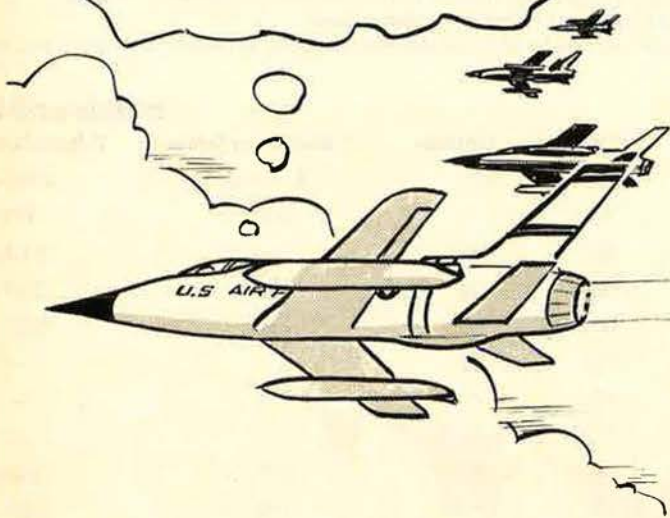
Bob Stevens'

"There I Was..."



THE BEST STORIES ARE TRUE. THE FOLLOWING IN-FLIGHT REFUELING EPISODE PROVES THE POINT. PICTURE YOURSELF OVER THE MID-ATLANTIC DURING THE EARLY 1960s. YOU'RE IN A FLIGHT OF F-105s EQUIPPED WITH RATHER PRIMITIVE DOPPLER NAVIGATION EQUIPMENT and LED BY A KNOW-IT-ALL ACE.

ACCORDING TO MY READOUT, WE'RE RIGHT AT THE REFUELING POINT. WHERE ARE THOSE STUPID TANKERS?



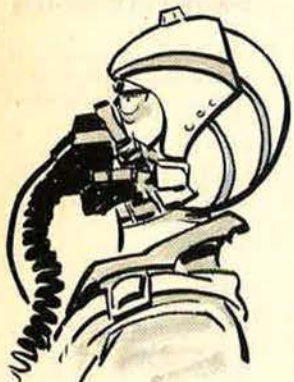
MEANWHILE, THE TANKERS-EMPLOYING THE SERVICES OF 6 CRACK NAVIGATORS-ARE MILES AWAY ORBITING PRECISELY "IN THE BOX"

BLINDMAN BLUE FLIGHT, THIS IS TANKER ABLE 5. ACCORDING TO OUR PLOT, YOU'RE NORTH OF US!



THERE ENSUES A RUNNING RADIO STREET FIGHT AS TO WHO IS IN THE CORRECT POSITION-

YOU CLOWNS ARE OUTTA POSITION!! MY DOPPLER SAYS SO!

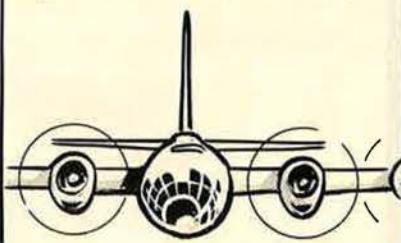


AN I SAY YOU GOTTA HEAD 180° FOR 50 NM TO REACH US!

ETC.
ETC.
ETC.

FINALLY, TANKER NO. 6 PICKS UP THE MIKE and BROADCASTS ON GUARD (EMERGENCY) CHANNEL-

ATTENTION, ALL FIGHTERS IN THE MID-ATLANTIC AREA, ATTENTION, ALL FIGHTERS IN THE MID-ATLANTIC AREA, THIS IS GOD, THIS IS GOD, THE TANKERS ARE RIGHT, THE TANKERS ARE RIGHT, GOD OUT!



AH... UMM... AH... TANKER ABLE 5, SAY AGAIN VECTOR and DISTANCE TO YOUR POSITION.



THANKS TO COL. JOE BOYER, CROSSETT, AR. *Bob Stevens*

COLLINS HF: Our Integrated Comm Central can call any HF radio in the world. Collins Communications Central in Cedar Rapids—one of the most advanced HF radio installations in the world—is system engineered to provide global communications with 'round the clock reliability. ■ Our "Antenna Farm" has thirteen high performance antennas linked to the Collins HF-80 family through microprocessor control for a completely integrated HF system. This grouping includes four 10,000 watt and three 1,000 watt receiver/transmitters. Plus Collins SELSCAN™ processors that automatically scan and select the best HF frequency at the touch of a button. It's an outstanding example of Collins HF integration. ■ The efficiency of Collins integrated HF systems has been user proved on land, sea and in the air by military, government and civilian agencies. ■ Take advantage of more than 50 years of Collins technology in building HF radios and integrated subsystems. Let our experts build and install your HF system so that it works properly. They'll select the best configuration for your HF needs and get it into operation fast. ■ For information contact: Collins Defense Communications, Rockwell International, Cedar Rapids, Iowa 52498, U.S.A. (319) 395-2690, Telex 464-435. ■ **COLLINS HF says it all.**



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General Industries / A-B Industrial Automation

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U.S.



PAM EARNS NEW ASTRONAUT WINGS WITH THE U.S. AIR FORCE

The U.S. Air Force Space Division has contracted for 28 McDonnell Douglas PAMs (Payload Assist Modules) to launch a series of Navstar Global Positioning System satellites from the space shuttle.

PAM development began in 1976 as a privately funded commercial venture. It has launched numerous commercial satellites, first from our Delta rocket and more recently from the space shuttle. The PAM-DII chosen by the Air Force is a new-generation booster with an improved motor capable of lifting a 4200-pound satellite to geosynchronous orbit altitude. The first Air Force PAM-DII launch is set for 1986 from Kennedy Space Center.

The Navstar satellite system will allow land, sea and air forces from the U.S. and NATO nations to obtain instant three-dimensional navigation information from any point on Earth. Navigation information also will be available for worldwide commercial and private operations such as air traffic control, commercial shipping, and search and rescue.

For more information, write PAM Marketing,
McDonnell Douglas Astronautics Company,
5301 Bolsa Ave., Huntington Beach, CA 92647.

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