



ENEMIES FOR HIRE

By Walter J. Boyne

Sometimes, the best “Red Air” comes from the private sector.

FIGHTER pilots have been practicing air combat maneuvering—dogfighting—since 1914. Most air forces have some kind of formal dogfighting instruction, and most fighter pilots do it on their own—frequently against regulations and often with casualties. It was not until the Vietnam War, however, that systematic air combat maneuver (ACM) training was introduced using aircraft with dissimilar performance

Formal schooling was established for dissimilar air combat tactics after Vietnam, but it wasn't until the early 1990s that private firms were attracted to provide DACT as a commercial service.

Increasingly, these firms provide many types of DACT at far lower cost than the military services can achieve on their own. Most of the activities don't involve “Red on Blue” dogfights, although these receive the most attention. Because the types of services vary widely, so do the companies offering to support this training, and the government can benefit from the intense competition.

Since the first air battles in 1914, air forces have been curious about the “other guys'” airplanes. These early encounters quickly generated reports on enemy per-

formance and tactics that were studied by the respective air forces and industries on both sides. Contemporary magazines, such as Britain's *Flight Magazine*, printed numerous insightful analyses of enemy aircraft, including three-view drawings and detailed sketches of technical innovations.

Both sides repaired and flew captured enemy aircraft, often to practice friendly air combat. A few pilots, such as German ace Rudolf F. O. Windisch, who earned 22 victories, went further. For his sixth kill, Windisch shot down a French SPAD S. VII, flown by Portuguese Captain Oscar Monteiro Torres. Windisch had the SPAD repaired and painted it red, replacing Allied markings with German insignia. Then he flew it in combat, reportedly liking it better than his own government-issue Albatros D.V.

In truth, the Albatros and the SPAD were similar in performance and that remained the case in fighter adversaries for decades. The major powers competed in a cyclical fashion, with one nation one-upped by another, such as Britain's Hawker Fury bested—temporarily—by Russia's Polikarpov I-16. Smaller countries such as Czechoslovakia, Poland, and



Romania, too, created indigenous aero industries producing competitive aircraft. When World War II began, the Luftwaffe's Messerschmitt Bf 109 and the Royal Air Force's Spitfire set the standard, but other countries soon caught up.

During World War II, testing opposing aircraft reached an industrial level; the Luftwaffe had the Zirkus Rosarius, which operated a varied fleet of captured Allied aircraft that were sometimes used in combat by the special operations unit Kampfgeschwader 200. Britain tested captured German aircraft from the start, with its No. 1426 (Enemy Aircraft) Flight. The US tested aircraft at several Stateside facilities and participated in four Allied Air Technical Intelligence Units to evaluate Japanese aircraft.

It wasn't until late in World War II that a large disparity in fighter performance was created by the arrival of the German Messerschmitt Me 262 jet fighter. Ad hoc tactics were quickly developed, but this was on-the-job training, not course work. Had it appeared a year earlier, the Me 262

Left: An ATAC Kfir and two Hunters perform "Red Air Force" duties over San Clemente Island, Calif., during a command and control exercise in 2013. Below: A Draken TA-4K and an MB-339 on a radar intercept training mission.

might have made a temporary difference in the European air war, but there were too few and it was too late to make a significant impact.

By the time the Korean War began in 1950, the need for DACT seemed to disappear as Russian MiG-15s battled the US F-86. The performance of the two jets was comparable, though each had advantages over the other.

PROJECT RED BARON

It wasn't until Vietnam that it became urgent to train pilots in DACT, where the performance of the opposing aircraft varied markedly. High-performance US fighters such as the McDonnell F-4 and Republic F-105 were pitted against older North Vietnamese MiG-17, -19, and -21, fighters. On paper, there should have been no contest: Only the MiG-21's performance was in any way competitive with that of its American opponents.

Unfortunately, given the nature of the US offensive mission and the onerous rules of engagement under which it was flown, North Vietnam was able to dictate tactics and rack up an alarming number of kills using its combined limited airpower and integrated ground-based air defense system. During Operation Rolling Thunder—from March 2, 1965, to Oct. 31,

1968—almost 1,000 US aircraft were lost, about one per day.

The air-to-air kill ratio in the Korean War was thought to have favored the US at a rate of roughly 10 to one. The kill ratio in Vietnam, however, sank to 1.1 to one; and even this number was in doubt. Both the Air Force and the Navy knew that the situation had to be corrected.

The Navy responded first, with a report by Capt. Frank W. Ault indicating that the low kill ratio was caused by insufficient training in ACM. The Navy's Fighter Weapons School was established at NMAS Miramar, Calif., on March 3, 1969; it later became world famous as the "Top Gun" program.

Initially, the Navy operated Douglas A-4 Skyhawks and Northrop T-38 Talons to simulate the characteristics of the MiG-17 and MiG-21, respectively. It also used some Grumman A-6 Intruders and Convair F-106s.

The program was immediately successful, as the Navy's kill-to-loss ratio rose to 13 to one after 1970. DACT has since become basic to naval flight training.

In 1996, Top Gun was incorporated into the Naval Strike and Air Warfare Center at NAS Fallon, Nev. There are four classes a year, each lasting nine-and-a-half weeks for nine Navy and Marine Corps strike fighter crews. Top Gun also supports other agencies of NSAWC, including a lecture series that runs concurrently with the strike training for entire air wings.

The Navy has several other adversary squadrons stationed around the country. Many other air arms, including those of the US Army, Argentina, Britain, Canada, Greece, Israel, France, Netherlands, Pakistan, Russia, and Turkey have specialized units with similar functions.

The Air Force took much longer to respond to the situation as it conducted an intensive study called Project Red Baron. This analysis of air combat over Vietnam revealed three main problems USAF crews faced: (1) they were not seeing the enemy until he fired his guns—a poor way to begin a battle; (2) they did not know enough about enemy pilots, their airplanes, or their tactics; and (3) they believed that air superiority was a given and hadn't been trained to fight an enemy equipped with dissimilar machines.

In effect, the air war in Vietnam was on-the-job training.

One important finding of other studies of that time was that, after 10 combat missions, a pilot or weapon systems officer's odds of surviving later battles rose dramatically.



Photo by Jose Ramos



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The decision to create the intensive combat exercise program that became known as Red Flag was spurred on by then-Maj. Richard “Moody” Suter at Nellis AFB, Nev. The first Red Flag was flown in November 1975, and the 4440th Tactical Fighter Training Group (Red Flag) became operational on March 1, 1976.

Red Flag became a true university of air combat. Relatively quickly, four Aggressor squadrons were formed: the 64th and 65th in the US, the 26th Tactical Fighter Training Aggressor Squadron at Clark Air Base in the Philippines, and the 527th TFTS at RAF Alconbury in England. Northrop F-5Es were chosen to be the initial aggressor aircraft.

The training grew rapidly in depth and breadth and is now the responsibility of the 57th Wing, which handles all aspects of air combat training. The 414th Combat Training Squadron puts together several Red Flag exercises each year, operating Lockheed Martin F-16 and Boeing F-15 fighters to simulate the MiG-29 Fulcrum and the Su-30 Flanker. The aggressor aircraft are painted in colors and markings of foreign users of the competitor aircraft and emulate their tactics, ordnance, and electronic capabilities.

Four major changes affected the world of DACT, opening opportunities for adventuresome entrepreneurs.

First was the appearance of highly sophisticated competitor aircraft, with advanced electronic and ordnance capabilities, teamed with airborne command posts. This made the typical aggressor aircraft of the past unable to simulate a potential enemy’s true capability.

Second was the massive increase in ground support requirements implicit in an aggressor program.

Third was the skyrocketing cost-per-hour to fly modern tactical aircraft. This



Photo by Jose Ramos

Top: An ATAC Kfir plays aggressor for a 390th Fighter Squadron F-15 from Mountain Home AFB, Idaho, in 2008 during a two-week exercise with the 390th and other squadrons on the base. Above: The view from a cockpit of an MB-339 shows two Draken aircraft—an A-4K and an MB-339—on an air-to-ground training mission over Florida in 2013.

factor alone almost prohibited using modern USAF aircraft on missions that didn’t require their top performance.

Last but not least was the cost in airframe life.

Most aggressor missions don’t require dogfighting, but instead involve flying important but relatively simple profiles to test the target acquisition and tracking capabilities of radars, missiles, and aircraft. It would be incredibly wasteful in terms of both hourly flight time costs and airframe hour cost to use Lockheed Martin F-22s against other F-22s in all but the most important tactical exercises.

JOB IT OUT

The significance of these changes was amplified by reductions in the Pentagon budget and by the effects of budget sequestration.

Several companies emerged in the US and elsewhere to supply essential elements of training at a lower cost than the services can provide.

One of the most experienced is the Airborne Tactical Advantage Co., with headquarters in Newport News, Va. ATAC has flown more than 35,000 hours in support of US and allied aggressor training and owns a fleet of fighter and attack aircraft. It contracts for more aircraft as required.

Another, a relative newcomer, is Draken International. Draken owns a large fleet of modern aircraft and is focused on the future of DACT—when potential enemies will be generally equipped with fourth and fifth generation aircraft.

For 20 years, ATAC has provided aggressor services on an as-required basis, boasting savings to its clients of hundreds of millions of dollars. ATAC has a build-it-to-order philosophy that allows it to extend existing capabilities to meet new contractual requirements. It trains Navy, Marine Corps, Air Force, and Army aircrews, ship crews, and combat controllers from six sites around the world. The training includes air-to-air, air-to-ship, and air-to-ground techniques.

For the Navy, these tactical flight services have been integrated into every level of air-to-air operations, from fleet replacement squadrons to Top Gun. For USAF, ATAC has conducted training in F-15 operational readiness evaluations, Red Flag and Northern Edge exercises, and support for training Lockheed Martin F-22 crews. It provided 300 hours per year of

close air support training to US Air Force in Europe's Air-Ground Operations School.

In Asia, ATAC recently completed a first ever two-week deployment to Kunsan AB, Republic of Korea, home of USAF's 8th Fighter Wing. As a guest Red Air Forces player, ATAC deployed two Hawker Hunter Mk-58 aircraft from NAS Atsugi, Japan. They took part in the joint South Korea Air Force-7th Air Force exercise Max Thunder 13-2. The versatile hunters provided adversary support in multiple large force exercises. They flew missions ranging from defensive counterair to low-level strike.

The 8th Operations Group commander at Kunsan, Col. Peter M. Bilodeau, commended ATAC for its professional threat replication to the Blue Air Forces.

The savings provided by ATAC include millions of dollars in training and readiness costs. A less obvious benefit is the life extension this provides for frontline aircraft. For example, in the last two decades the Navy has saved hundreds of millions of dollars with ATAC's aircraft supplanting F/A-18 Hornets in specific training scenarios, according to the company. Using ATAC aircraft saved \$16,000 per flight hour, over the course of 19,000 sorties. Perhaps more importantly, it also saved an average of 130 years of airframe time, assuming that the Hornets would have flown 230 hours per year.

ATAC's fleet of 24 aircraft includes specialized versions of three different fighters, each one capable of executing the specific military requirements called for by a contract. The most important of these are the supersonic, single-seat Israel Aircraft Industries F-21 Kfir, the legendary Hawker Hunter, and the Aero Vodochody Albatros L-39. However, ATAC is engaged with several aircraft vendors so that it can supply other types as needed, including the Lockheed Martin F-16. The firm also supports other aerospace companies in their development programs.

The company attributes its success in part to its rigorous hiring process, recruiting only retired or reserve US fighter pilots with an average of 3,000 hours flying time. More than 75 percent of these hires are graduates of either the USAF Weapons School or the Navy's Top Gun. Maintenance personnel hiring standards are equally high, as the aircraft in ATAC's fleet are the most sophisticated versions of their type, equipped with the most modern electronic and ordnance systems available. ATAC has been able to maintain a 97 percent mission completion rate over its 20-year history.

Draken International operates out of Lakeland, Fla., with a very different

Commercial British Aggressors

In Great Britain, Hawker Hunter Aviation is the only company authorized to provide dissimilar air combat training services to the British armed services and to defense contractors. HHA supplies fast-jet aircraft for work as aggressors in air combat maneuvers, threat simulation, mission support training, photo chase, radar calibration, and other services. HHA also has contracts to operate against Royal Navy ships, testing their defensive capabilities.

HHA took advantage of the Swiss Air Force's decision to retire a fleet of low-hour Hawker Hunters and bought 12 of the versatile aircraft. The Hunters have been equipped with state-of-the-art electronics so that they can replicate 80 percent of all recognized aircraft or missile threats.

Large-scale investments made it possible for the firm to expand its engineering and operational infrastructure to organically operate and maintain its aircraft. It uses the Sukhoi Su-22 to meet requirements for supersonic aircraft and the BAE Buccaneer for long-range work. Aircraft are based at RAF Scampton.

business model. Draken has assembled a fleet of more than 50 aircraft, with more than 80 planned. It claims to be the largest privately owned fleet of military aircraft in the world, and it is focused on the requirements of air forces using fourth and especially fifth gen aircraft.

The Draken fleet includes 11 Douglas A-4K Skyhawks, 27 MiG-21s, nine Aermacchi MB-339s, and five L-39 aircraft. Many of these are equipped with modern electronic equipment. Most are fairly low-time aircraft or have gone through service life extension programs.

Management at Draken states that it offers the only "fourth generation" solution to the industry, claiming a cost effectiveness of four to five times that of using service aircraft. Although its fleet is not fourth generation, it offers a wide spectrum of services.

Draken contends that the military services should concentrate their limited flight time—and airframe life hours—on Blue Air capability and outsource the adversary stand-ins. The business case depends on shrinking budgets for frontline jet flying hours, a model that has been borne out in recent years.

While Draken emphasizes joint tactical air combat training, it also offers airborne adversary support, aerial refueling of its own and other aircraft, threat simulation, and other missions as required. Beyond just training functions, Draken offers research and development capabilities in the form of weapon carriage, photo chase, High-Q testing, and radar testing. It also provides support for remotely piloted aircraft opera-

tions and space missile defense testing. The firm says the main difference between itself and its clients is the lower cost at which it can provide these functions.

Like ATAC, and most of the other commercial adversary firms, Draken recruits top quality personnel. The pilots are military-trained and many are Red Flag or Top Gun graduates. Ground personnel are equally experienced.

Draken and ATAC are the bookends of the commercial aggressor training spectrum. In between there are a number of other aggressor companies, such as Discovery Air Defense Services of Canada or Hawker Hunter Aviation in Great Britain. Each firm has its own style, business model, and philosophy.

The future is bright for such companies and other new entrants in the field. First is the rising cost of new equipment, in the form of the F-35 Lightning, JAS 39 Gripen, Eurofighter Typhoon, Sukhoi T-50, or Chengdu J-20. These new fighters are getting very expensive for any air force to use in many training roles, both in flight hour and in airframe hour cost.

Moreover, there are myriad possibilities for combat, ranging from small actions against terrorist operations to full-scale wars between major powers. This calls for a wide array of threat aircraft, armed with a variety of ordnance and the necessary support personnel equipment to be used in many different training scenarios. As a result, there will be opportunities for entrepreneurs to offer specialized training solutions for far less than the respective air forces could provide. ■

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