

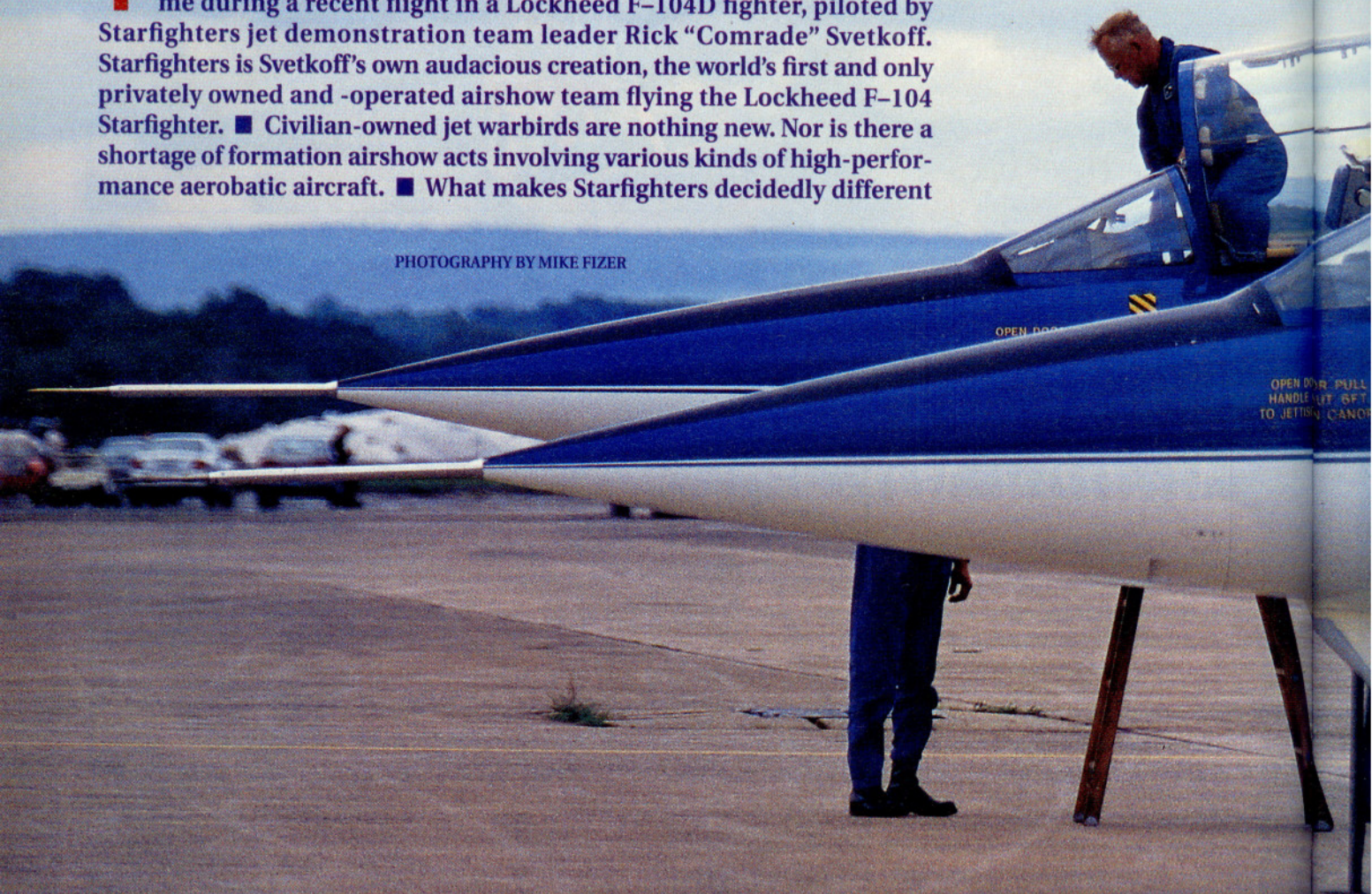
ROCKETING OUT OF

Lockheed's Starfighter climbs in airshow popularity—
at 60,000 feet per minute

BY VINCENT CZAPLYSKI

Figure this out on your E6B: At 500 knots and a 60,000-foot-per-minute initial climb rate, you are (a) in awe; (b) well behind the airplane; (c) high above show center in a couple of nanoseconds. The correct answer, of course, is (d)—all of the above. At least it was for me during a recent flight in a Lockheed F-104D fighter, piloted by Starfighters jet demonstration team leader Rick "Comrade" Svetkoff. Starfighters is Svetkoff's own audacious creation, the world's first and only privately owned and -operated airshow team flying the Lockheed F-104 Starfighter. ■ Civilian-owned jet warbirds are nothing new. Nor is there a shortage of formation airshow acts involving various kinds of high-performance aerobatic aircraft. ■ What makes Starfighters decidedly different

PHOTOGRAPHY BY MIKE FIZER



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is the team's choice of the F-104, a Mach 2-capable fighter interceptor with a ferocious, and some say well-deserved, reputation for eating its young with nary an afterthought. Designed almost half a century ago, the "missile with a man in it" (an early nickname) is notable for its ridiculously small razor blade-like wings and rakish, needle-nosed snout. Nearly 50 years later, it still possesses a wild-blue-yonder aura that telegraphs pure, unadulterated speed.

The F-104 was conceived by Lockheed's Clarence L. "Kelly" Johnson, who in 1952 put together a team of engineers at the now legendary Skunk Works in Burbank, California. They were tasked with designing an all-new "Century Series" fighter. Johnson's intent was to reverse the developing trend of ever heavier, more complex fighter aircraft. He wanted to build a lightweight, comparatively simple airplane possessing superb speed and altitude capability. What emerged from the secrecy of the Skunk Works was the world's first operational interceptor capable of sustained speeds above Mach 2. It would go on to become the first aircraft to hold both the world speed and altitude records at the same time. Eventually some 2,580 Starfighters were manufactured, but only slightly fewer than 300 of them saw service with the U.S. military. Deficiencies in



range and weapons-bearing capability doomed its chances for a long career in this country. However, it proved to be a successful export fighter, with the German Luftwaffe being the largest operator of Starfighters.

Just how does one create an F-104 jet demonstration team from scratch? Svetkoff did it through pure perseverance. Despite his call sign and Russian surname, his early flying career was spent as a red-blooded U.S. Navy A-4

carrier pilot flying the McDonnell Douglas A-4 Skyhawk. Later the airlines beckoned, and his eventual day job as a McDonnell Douglas MD-80 captain with Continental Airlines allowed him time to dream, and dream he did. For years the F-104 had been a favorite of his, and he figured if one ever became available on the private market, he would find a way to buy it. This naturally led to thoughts of how to make ownership financially feasible, and it wasn't

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Svetkoff managed to convince several corporations that his was a dream worth chasing, and enough money began trickling down to keep things moving forward. When a second and third aircraft became available, Svetkoff found ways to buy them too, and Starfighters became a going concern.

One logistics problem that solved itself was finding qualified pilots. Early on in his search for airplanes, Svetkoff teamed up with Tom "Sharkbait" Delashaw, a former Air Force pilot with extensive F-104 experience. Delashaw is a graduate of the Air Force Fighter Weapons School, where he flew the F-104. He had helped pick the first cadre of Air Force pilots to fly the F-104

ers through the warbird grapevine. A former German Luftwaffe F-104 pilot, Czaia had considerable experience in the aircraft. Other volunteers materialized as well, including Kurt Bachman, a former Air Force crew chief and engine mechanic who had been a member of the Thunderbirds during his military career. Svetkoff also enlisted the aid of several current Lockheed technical reps, and was able to entice retired Lockheed aerospace engineer Ben McAvoy to assist as well. McAvoy had been part of Johnson's original design team and knew as much about the airplane as anyone alive.

With several airplanes and a core team in place, Svetkoff became glued to his telephone, lining up flying engagements. After the first couple of years, polite interest from show organizers transformed into solid demand for the team, which has proven to be a crowd pleaser. Starfighters has been a featured act at numerous major airshow venues, and there are plans for more than 20 appearances next season. The team recently signed a multiyear major sponsorship deal with Alltel Corporation, a wireless communications firm that also sponsors the Alltel Stadium in Jacksonville, Florida. During the 2001/2002 NFL season, Starfighters will be performing halftime flybys at all Jacksonville Jaguar home games at the stadium, in addition to its other airshow performances. Nascar fans will also be getting a closer look at the team, which is planning appearances at several major racing events as well.

At a typical airshow, the team flies for 20 minutes in a close, two-ship formation. A vertical climb to 15,000 feet at show center highlights the incredible climb capability of the aircraft. Some rolls and a series of high-speed passes with tightly banked turns make up the rest of the show. Unlike more modern fighters such as the F-16, the F-104 is not especially maneuverable (one reason for its short-lived career with the Air Force). Turns tend to require a lot of airspace. According to Svetkoff, "The toughest part is staying within the show's boundaries." In order to do so,

A former Air Force pilot, Tom "Sharkbait" Delashaw (below left) teamed up with Rick "Comrade" Svetkoff (below right) when Svetkoff was building the Starfighter team.



too much of a stretch to come up with "airshow team" as the answer.

"The biggest challenge was getting the initial capital," related Svetkoff, who took out second and third mortgages on his home, and who flirted with personal bankruptcy lining up funds when an aircraft finally did become available after years of searching. The next hurdle was to find some long-term sponsors, since the care and feeding of even one F-104 is an expensive undertaking.

in Southeast Asia, and held his former unit's speed and altitude records in the aircraft (1,600 mph and 92,000 feet). Delashaw flew both the F-4 Phantom and the F-104 during his combat tours in Vietnam, and sought out Svetkoff when he heard of the latter's plans to form a team.

Another pilot, Wolfgang "Wolf" Czaia, a Boeing 757/767 captain for American Airlines, also tracked down Svetkoff when he heard rumors about Starfight-



much of the performance is flown at 6 to 7 Gs and 350 knots, with takeoff flaps extended for better stability at what is considered a slow speed for the aircraft. Landings are made with drag chutes because of the high touchdown speed, and also because they add an interesting visual element for spectators. Future plans call for incorporating the third ship, currently undergoing restoration, in the performance. This will allow a solo aircraft to alternate with the two-ship formation, thus keeping an airplane in front of the crowd at all times. The team has already located a fourth aircraft, which it plans to acquire as a spare.

"We never get slower than 350 kt once we get in the air, except for landing," Svetkoff told me before our flight, and that proved to be the case. Following a formation takeoff and rocket-ship climb, Svetkoff and Delashaw descended for some high-speed passes along the beach at Clearwater, Florida. An Alltel Corporation beach party crowd had assembled for the show, and our flight of two showed up at exactly the designated time. The two aircraft remained glued in close formation throughout, while on the beach below, Czaia acted as show announcer for the assembled crowd. With the luxury of plenty of maneuvering room over the Gulf of Mexico, Svetkoff was able to keep the G loads somewhat gentler than usual. Returning to St. Petersburg/Clearwater International Airport following the demonstration, we entered the initial pattern at 350 kt and half flaps. In the "break," speed brakes were extended and the gear lowered as our speed bled off to 260 kt. Next, final flaps were selected at 240 kt, and speed was reduced to 180 kt as we began our turn to final approach. "This is where a lot of F-104 pilots got into trouble getting too slow," pointed out Svetkoff. Touchdown occurred at an attention-getting 165 kt.

And a lot of pilots did get in trouble over the years in the F-104, for many reasons. Early problems with the General Electric J79 series engines were to blame for numerous crashes. The thin, highly-loaded wing proved ill-suited for maneuverability. At high angles of attack and high G loads, the T-tail stabilizer tended to stall in the wing downwash. The result was often a flat spin. Early versions of the F-104 employed a downward-firing ejection seat, which meant that at low altitudes, a pilot needed to roll inverted before ejecting.

This system was blamed for the deaths of as many as 21 pilots, including well-known test pilot Iven C. Kincheloe. Eventually this seat was replaced by an upward-firing system that proved better suited to its task.

It was the airplane's poor operational track record in countries like Germany and Canada that earned it such unsavory monikers as the "Flying Coffin" and "Widowmaker." Nearly half of Canada's 200 CF-104s were lost in flying accidents. Germany lost 110 pilots and 270 aircraft, or about 30 per-

cent of its F-104G fleet. In the airplane's defense, many of these crashes were caused by bird strikes, striking the ground, and other hazards of high-speed, low-altitude flight in marginal weather. Insufficient training has also been cited as a cause of many of these mishaps. It should be noted too that Spain's air force never lost a single F-104 in many thousands of hours of service, and Norway enjoyed almost as good a record.

So, does the airplane really suffer from design flaws, or is human error or

poor mission selection to blame? For an opinion, I asked no less an expert than the legendary Gen. Charles "Chuck" Yeager, who knows a thing or two about the subject. He was there flying chase in an F-86 when test pilot A.W. "Tony" LeVier made the maiden flight of the experimental XF-104 on March 4, 1954. Yeager himself went on to acquire about 700 hours in various F-104 models. In his most well-known Starfighter exploit, he ejected from a modified jet- and rocket-powered NF-104 after entering a flat spin at 104,000 feet over the high desert near Edwards Air Force Base, an incident documented in Tom Wolfe's classic book, *The Right Stuff*.

"Basically it's a pretty honest airplane," said Yeager. "It flew very nice, very stable. The high accident rate is a misconception." He went on to point out that the airplane employed a lot of "firsts" that took some getting used to. For instance, it used compressed air from the engine blown down over the trailing-edge flaps to lower stall speed. "But there were no redundancies in some of the systems. If the blow-down air failed, for instance, you had to increase your landing speed by 30 knots."

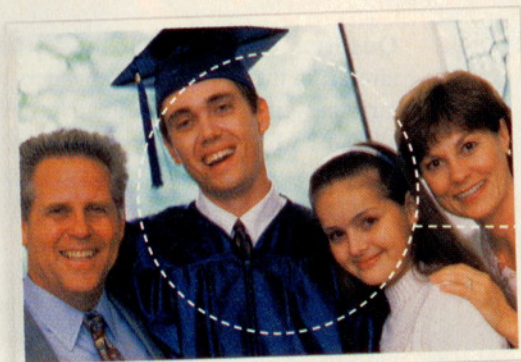
And some things just took time and experience to figure out. No one knew it at the time of Yeager's ejection episode, but the only way to recover from a flat spin in the airplane is to go to 100-percent power. According to Yeager, gyroscopic action of the turning engine eventually brings the nose back down, and the airplane starts flying again. The Air Force later determined that it was the gyroscopic action of the jet engine spooling down that caused his spin entry in the first place, way up there at the edge of space.

Yeager, who the day before our interview had flown an Aviat Husky, and who still regularly flies P-51 and F-15 aircraft, summed up his thoughts on the airplane in the following way. "I've got one word of advice for anyone flying the F-104 today. Be careful, buddy."

For a look back at an unusual part of aviation history, catch Starfighters soon at an airshow near you. □

i Links to additional information about Starfighters and other jet airshow teams may be found on AOPA Online (www.aopa.org/pilot/links.shtml). Vincent Czaplyski holds ATP and flight instructor certificates. He flies as a Boeing 757/767 captain for a major U.S. airline.

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