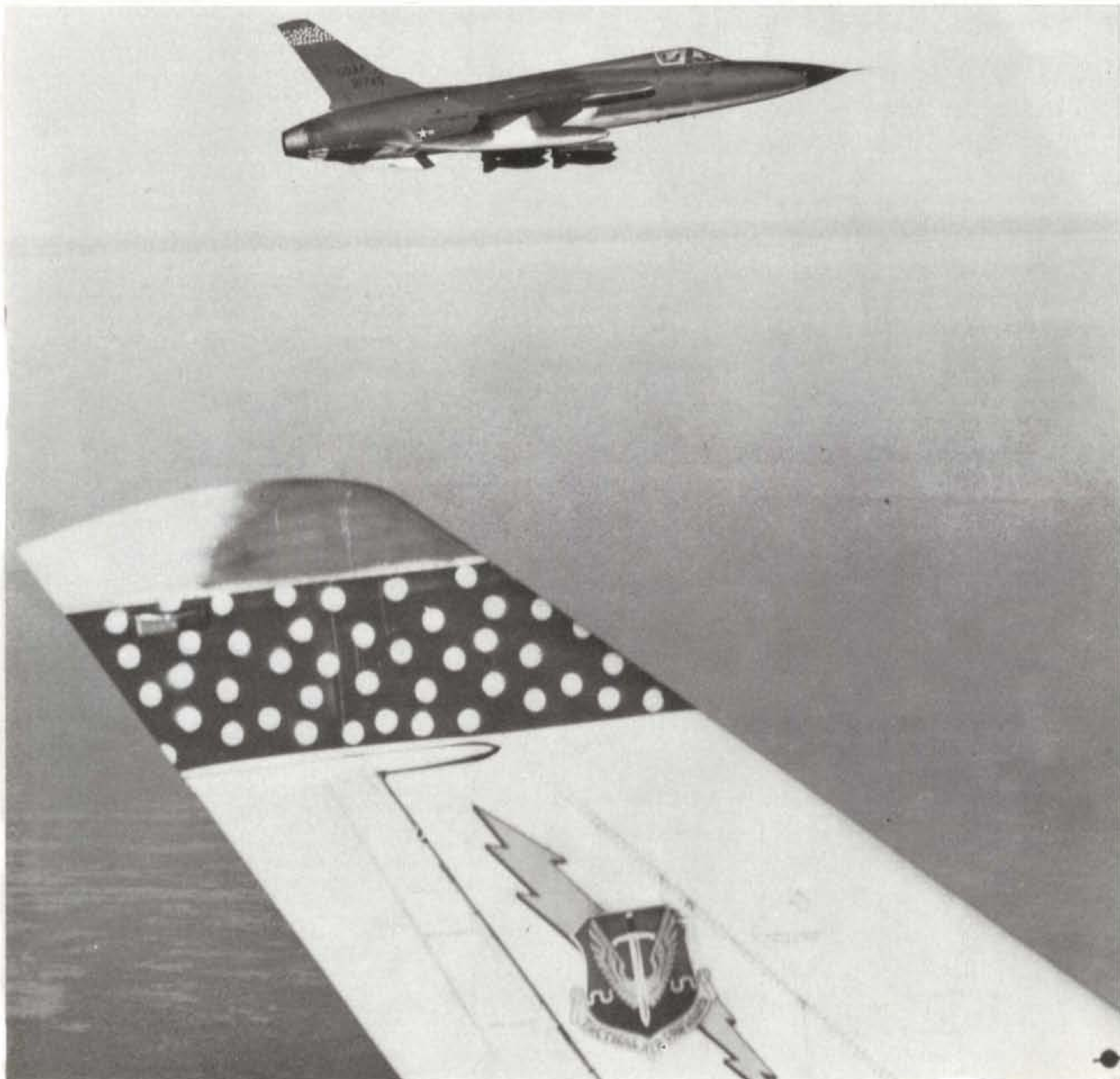


Republic F-105 Thunderchief

by Theodore W Van Geffen





Study in planforms as a jet "pathfinder" Douglas EB-66 Destroyer provides four Tactical Air Command F-105Ds with radar control through 8/8ths cloud cover over the "southern panhandle" of N. Vietnam on June 14, 1966. On the three camouflaged F-105s, the remarkable "sawtooth" wing leading-edge air intakes stand out more clearly than on the all-silver Thunderchief. All four F-105s have just released their two 3,000-lb M-118 wing pylon-mounted bombs, a load 50% greater than Boeing B-17G Flying Fortress of World War Two. This incident was recorded by a shadowing photo-reconnaissance McDonnell RF-101C Voodoo of TAC. (Photo: USAF ref. 96182)

Republic F-105 Thunderchief

By Theodore W. van Geffen, Jr.

ONE of the most plagued aircraft ever built is the Republic* F-105 Thunderchief. Figuratively speaking, it has been bestowed with such unflattering names as "Ultra-Hog" and "Lead-Sled", over the years since entering United States Air Force service in 1959. In a more direct sense, too, no more than about 275 of the 833 F-105s constructed have survived their first decade.

Even so, as a combat aircraft designed in the mid-1950s, the F-105 deserves high distinction for its achievement in carrying out 75 per cent of all air strikes into North Vietnam in 1964-9. Many have been the times when an F-105 has brought its crew safely back to base when severely punctured with shrapnel. Perhaps, too, with a hole in the wing almost "big enough to dance in", or even when carrying back the enemy missile fired to destroy it protruding from the F-105's tail.

For these reasons, the men who knew and flew the F-105 nicknamed it "Thud". Few aircraft will ever command such admiration, affection and respect from the men who flew and serviced it as has the Thunderchief.

Let it not be forgotten, either, that no other USAF or U.S. Navy aircraft carried more ordnance or flew more strike missions into North Vietnam than the F-105.

EVOLUTION AND PRODUCTION OF THE A AND B SERIES

Although the Thunderchief was to go on to earn an excellent reputation in the Vietnam War during the 1964-70 period, it had—as more recently with the General Dynamics F-111—earlier been the subject of "sharp criticism and unprintable epithets". This early unfavourable renown was the result of lack of versatility, poor handling qualities and a complex electronics system which was a maintenance crew's nightmare. Some even asserted that the F-105 was the wrong aircraft for its job, being too fast, too big and too expensive (\$2,200,000 a piece). Yet its successor, the F-4 Phantom, is bigger, faster and even more expensive. Nevertheless, the F-105 achieved a good safety record during its first two years or so in service with the USAF. For example, during the period July-December 1959, F-105s flew 12,326 hours with the 4th Tactical Fighter Wing (then at Brookley Air Force Base) without a single loss. This record is even more impressive when one bears in mind the fact that most of these hours were accumulated by pilots converting from North American F-100 Super Sabres to the more advanced F-105.

By comparison with other supersonic aircraft developed since the Korean War, the F-105's safety

* Now Fairchild-Hiller, Republic Aviation Division.



Two views of 54-0102, the third of four F-105B-1REs and the fifth Thunderchief to be built. In the first photograph, "102" has been set up for a publicity photo-call with correct "Buzz No." of FH-102 ignored in the interests of the more obvious "F-105". The centreline tank holds 650 US gals. of fuel and the wing pylons mount dummy 3,000-lb and 750-lb stores. The later photograph shows FH-102 at the Air Force Flight Test Center, Edwards AFB, California on June 20, 1958. Transparency behind canopy is evident on this development "Bravo Chief". (Photos: Fairchild Hiller Republic ref. B-2680 & USAF ref. 4526-AC)

record is indeed one of the best. After 52,300 flying hours, other "Century"-series fighters had recorded the following numbers of crashes: 22 for the F-106, 52 (F-104), 40 (F-102), 35 and 59 (F-101 and F-100); but "only" 34 for the F-105.

Like the manufacturer's earlier P-47 Thunderbolt and F-84 Thunderjet, the Thunderchief was designed under the leadership of Republic's Chief Engineer (from 1939 to 1960), Alexander Kartveli. Originally, Republic conceived the type as a private-venture to succeed the F-84-series on their assembly lines. Finalized in early 1952 as a supersonic nuclear tactical strike fighter, the design was labelled AP-63 (Advanced Project 63). The aircraft was to be powered by one Allison J71 engine. In fact, the AP-63 had its origin in a Republic plan to improve the performance of the F-84F Thunderstreak, then just entering production. In March 1952 Republic submitted its initial proposals to the Department of Defense. Six months later, the Department awarded Republic a contract for tooling and engineering. Within another month, the first major alteration was made; it was decided to switch to the Pratt & Whitney J57 turbojet.

In March 1953 this award was followed by an initial order for 37 aircraft—subsequently designated XF-105A0—for development and evaluation. However, the armistice in Korea in July of that year greatly reduced the urgency of the XF-105 programme; in addition to changing the future plans of the USAF. United States' strategy now shifted towards the building-up of a global nuclear deterrent force. Accordingly, Republic revised the initial rôle of their F-105, now placing emphasis on the long-range capability of the aircraft with an internally-stowed nuclear weapon.

By October 1953 the first XF-105 mock-up was ready for inspection by the USAF. Until February 1954 all seemed very encouraging for Republic, but, that month, the original order was cut from 37 to only 15 aircraft. First delivery was scheduled to take place in November 1955. However, the Department of Defense repeatedly changed its F-105 requirements. Republic received instructions to substitute Pratt & Whitney J75s in place of J57s in four examples, which were given the new designation YF-105B (August 1954). One month later the number of this variant on order was reduced to three. In October 1954, however, this figure was doubled. Eventually, in the following February, J75s were specified for all 15 aircraft. Three examples were to be of the RF-105B reconnaissance version.

Throughout this time, Kartveli's team had, of course,

been busy improving on the basic design. Several new developments were exploited. One of these, the now familiar "coke bottle" pinched-waistline area-rule (which, incidentally, rescued the Convair F-102 Delta Dagger programme), assisted in reducing airflow drag at transonic speeds. Also introduced into the design were forward-swept air intake ducts—resembling flared nostrils—at the aircraft's wing roots, together with a ventral fin located on the aft fuselage underside to provide greater lateral stability at high speeds. Construction of the initial two prototypes, serialled 54-0098 and '99, was too far advanced to incorporate these modifications, and thus they featured substantial external differences by comparison with later aircraft. As the first example to be built to the revised design, aircraft serial 54-0100 was designated F-105B-1RE.

Finally, on October 22, 1955, the first Thunderchief (YF-105A serial 54-0098) was taken into the air for the first time, by Republic's chief experimental test pilot Russell M. ("Rusty") Roth—about one month ahead of schedule. On this initial flight, which lasted 45 minutes, Roth managed to attain Mach 1.2.

This early success was soon overshadowed by a hazard threatening the further development and production of the F-105. The USAF decided to evaluate the Thunderchief in competition with its rival, the North American XF-107. During the competition, which took place at Edwards Air Force Base in early 1956, the F-105 proved much the superior aircraft in most test categories.

Despite these encouraging signs and the successful first flight, on May 26, 1956 of the F-105B-1RE 54-0100, Republic was faced with considerable uncertainty. Only in January 1957, after many fluctuations in the defence budget, was it decided to put the F-105B into quantity production.

Even then, the USAF's vacillating policy was far from over, since it was decided to cancel the three RF-105s on order in preference for the McDonnell RF-101 Voodoo. These three aircraft were already under construction and were completed as JF-105s, serving thereafter as instructional airframes.

Exactly two years after the Thunderchief's initial flight, an initial F-105B (54-0111, the only F-105B-6RE) was delivered to the Tactical Air Command, for service with 335TFS/4TFW*. For test purposes, this squadron was stationed at Eglin AFB, and with the delivery of 17 further F-105Bs, 335TFS became the first (USAF)

* On May 26, 1958. A list of commonly used abbreviations—TFS/TFW or Tactical Fighter Squadron of TFWing—appears on page 94.

combat squadron in the world to be equipped with Mach 2 strike aircraft. A similar number of F-105Bs were delivered to the 334TFS and 336TFS at Seymour Johnson AFB, while the fourth 4TFW squadron (the 333TFS) was the first to receive the later D-series. Several new records were set by F-105s in service with this Wing. One of these was achieved by the 4TFW commander, Brigadier General Joseph H. Moore, who flew the 100 kilometre closed-circuit course at an average speed of 1,216.4 mph. This was at the Edwards AFB, in Thunderchief 57-5812, an F-105B-20RE.

Later, the 4TFW was fully re-equipped with D-model F-105s, while the B-series aircraft were transferred to the Air National Guard of New Jersey, with which they were still serving early in 1971.

Another unit to receive F-105Bs was the USAF "Thunderbirds" Air Demonstration Squadron at Nellis AFB. A number of modifications had to be carried out before these aircraft were supplied to the team, including the construction of a special stainless steel vertical fin to withstand the exhaust heat of the lead aircraft when flying in tight formation. Delivered early in 1964, the Thunderbirds F-105s were serialised as follows: 57-5782, 787, 790, 793, 797, 798, 801, 802 and 814. However, only six displays were preformed by these Thunderchiefs. During the first six months of 1964, a series of unrelated F-105 crashes led to all USAF F-105s being grounded twice for inspection and modification. The Thunderbird

aircraft were also involved in some of these accidents. On May 9, 1964, 57-5801 hit a mast and broke in two during a demonstration at Hamilton AFB. It was then decided for the Thunderbirds to revert to the F-100 Super Sabre, leaving their remaining eight F-105s to be converted to standard B-series configuration for transfer to the 141TFS (New Jersey ANG), where they remained in use at the beginning of 1971. During the course of its career, the F-105 strengths as a whole have been grounded no fewer than ten times due to accidents, with in-flight fires proving an especially series problem.

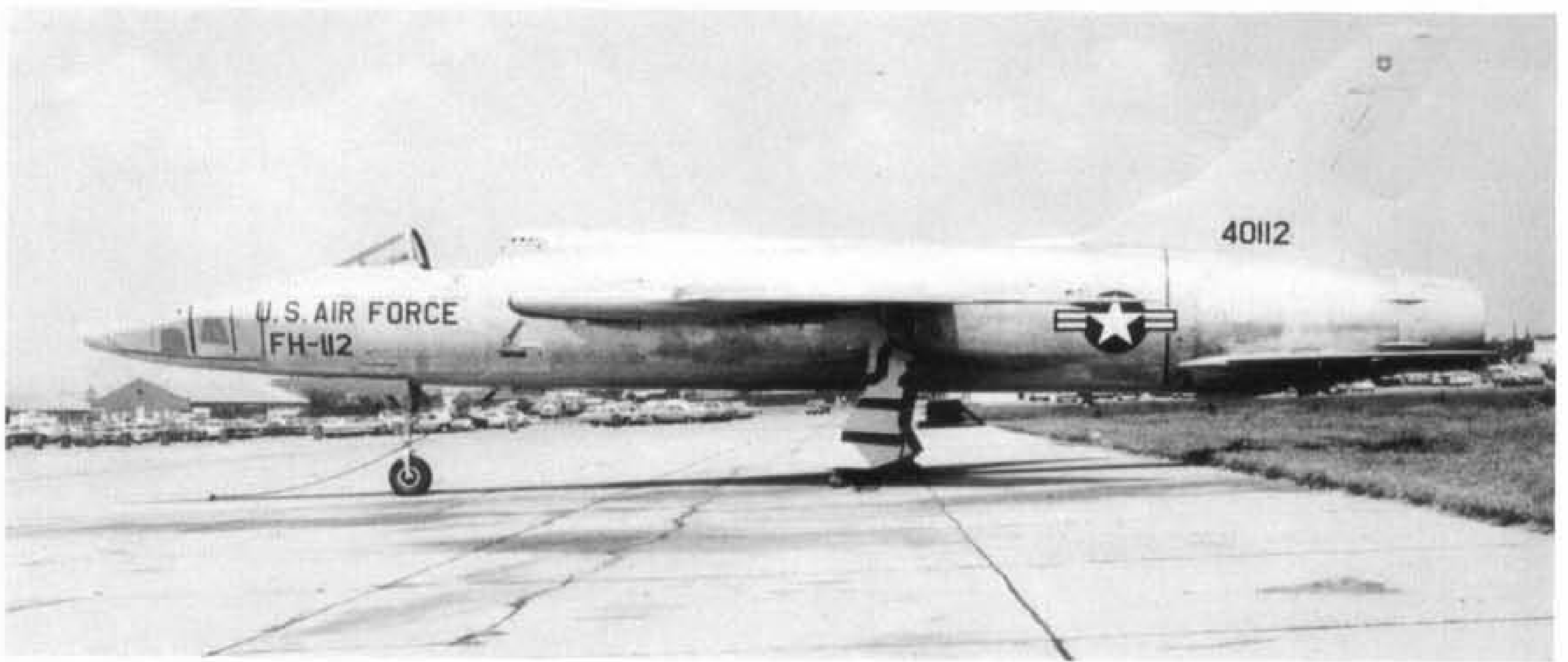
D-SERIES, AND ITS PRODUCTION

Only 75 examples of the B-series (including nine in the original order for 12 pre-production aircraft) were completed, since shortly after F-105 production began the USAF switched its policy of developing a strong nuclear deterrent force into one of building-up an all-weather ground attack force. Republic was asked to develop the Thunderchief design accordingly, which led to the F-105D. Main external change was a 15-inch nose extension, on which the pitot boom was mounted. Further alterations took place internally, including the substitution of a water-injected J75-P-19W engine delivering 26,000 lb thrust with afterburner. Among new equipment installed was an APN-131 Doppler airborne navigation system, the ASG-19 "Thunderstick" fire-

Study in markings. FH-111, the one and only "Bravo-Six" (F-105B-6RE; serial 54-0111), in Spring 1958, has petal air brakes open to formate on the slower photo-call aircraft. The "Indian Head" device on the tail was incorrectly applied as proved by the accompanying photograph of two F-105B-15REs of the 335TFS/4TFW (Seymour Johnson AFB, N.C.) taken in the late 1950s. TAC emblem, on white outlined green band, is on the tail. Green and white repeated around the nose to rear of radar nose cone.

(Photos: F.H. Republic ref. B-4858 & B-7736)





Bearing the Special Test (Temporary Bailment) prefix JF-105, this singular JF-105-2RE (of the trio which included two JF-105-1REs) shows the discarded photo-reconnaissance nose and camera ports—reminiscent of the RF-101 Voodoo. While at Wright-Patterson AFB for several years and engaged in research & development programmes, 54-0112 bore the tail identification "JF-3". Here it is at the Air Force Technical Training Center of Air Training Command, at Chanute AFB, Illinois. Photographed in May 1970, FH-112 will end its useful life as a ground instructional airframe devoid of nose probe, pilot's canopy, wing pylons and ventral tail strake. (Photo: David W. Menard, A.A.H.S.)

control system, which included NASARR R-14A all-purpose monopulse radar, and a Bendix toss-bomb computer. In these devices, the F-105D featured the most sophisticated automatic navigation and weapon-aiming systems in service when first introduced. Teething troubles did at first keep operational-readiness rates low, and contributed to the unpopularity of the aircraft, but gradually the equipment was brought to an acceptable degree of reliability. First of the F-105Ds, serialled 58-1146, made its maiden flight on June 9, 1959.

History was repeated when, on paper only this time, the USAF set the F-105D in competition with the F-101. Again the Thunderchief emerged as victor, and a programme to equip 14 Tactical Air Command wings with 1,500 F-105Ds was approved.

The arrival of the Kennedy Administration in 1961 brought sweeping changes in the U.S. armed forces. Robert McNamara, Secretary of Defense, decided to cut the proposed 14 F-105D Wings by half, with F-4 Phantoms equipping the remaining seven. At the same time he placed special emphasis on conventional warfare capabilities. This second change in USAF policy brought the Thunderchief around full circle since the original proposals of 1952. Multiple ejector racks (MER) were added to both the inboard and centreline pylon stations, increasing the F-105D's bomb capacity from four to 16 x 750 lb weapons. As mentioned earlier, 333TFS was the first unit to receive the F-105D. Like the 335TFS, this squadron was stationed at Eglin AFB for test purposes, with the Air Research and Development

Look closely! The famous USAF Air Demonstration Squadron, "The Thunderbirds" flew Thunderchiefs in the first half of 1964 but reverted to North American F-100 Super Sabres after a series of accidents. Eight of the Thunderchiefs were reworked to USAF F-105B-15RE standards and allocated to the 141TFS of the New Jersey Air National Guard. Two of the "Thunderbirds" execute the "Calypso" sequence over the home base of Nellis AFB, Nevada. It is the subject of colour illustration No. 1. (Photo: USAF Official)



Command (ARDC). Next units to be equipped with D-series aircraft were the 4423CCTS ("Hornets") and 4426CCTS ("Cobras"), of the 4520CCTW at Nellis AFB. These were followed by the remaining units of the 4TFW: 334, 335 and 336TFS, using F-105D-1, -5 and -6RE variants.

With the beginning of U.S. involvement in Vietnam, 4520CCTW was de-activated, its work being taken over by the 4TFW which now became a training unit. At the same time, the Thunderchief-equipped 4537FWS and 4525FWW were activated. Task of the 4537FWS was one of weapons training, and providing instruction for F-105F "Wild Weasel" crews. On January 1, 1966, the 4TFW was joined by the 23TFW, and the former transferred to F-4 Phantoms in early 1967.

First overseas unit to be equipped with the F-105D (-10RE model) was the 36TFW at Bitburg Air Base, W.

Germany, for NATO, whose first example arrived on May 12, 1961. It was followed the same year by the Spangdahlem-based 49TFW (F-105D-15 and -20RE variants). However, none of these aircraft originally featured the new conventional warfare equipment, since the first F-105D to be produced to this standard was the -25RE variant, still on the assembly line when the USAF policy changes were announced. The F-105Ds in Germany were flown back to the United States under "Operation Look-Alike" for modification to -25RE configuration. Each aircraft spent about one month in the U.S.A. on this programme, but the operational readiness of the F-105D strength in Germany as a whole was never endangered.

In 1966, 36TFW turned its aircraft over to F-105 units elsewhere in the world, followed a year later by 49TFW. Both units were re-equipped with F-4D Phantoms.



Three F-105B-20REs (57-5807, '5815 & '5819) of the second USAF unit to be Thunderchief-equipped, the 334TFS/4TFW (the first being the 335th of the same Wing). At the time of being photographed near their base of Seymour Johnson AFB, North Carolina, on November 13, 1959, no unit colours had been added. (Photo: F. H. Republic ref. B-6407 via "Air-Britain Digest")

F-105B-20RE serial 57-5815 appears again, ten years later, having been transferred from the 334TFS to the 141TFS of the New Jersey Air National Guard at McGuire AFB, N.J. Both 57-5815 and its companion, 57-5796 (an F-105B-15RE), bear the ten-year rating prefix to tail serial numbers. The 141TFS has been honoured with AFOUA—Air Force Outstanding Unit Award, the ribbon of which is minusculely applied near the top of the fin. Photograph taken in October 1967. (Photo: via Jerry Geer)





An F-105B-20RE (57-5835) at McConnell AFB, Kansas, in November 1967. McConnell is the tactical fighter combat crew training base of the 12th Air Force, TAC. This Thunderchief was later given the 23TFW's 419TFTS unit code letters "MG" and was the personal F-105B of the Wing's Commander. See colour side view No. 7. (Photo: Jerry Geer)

Next recipient of the F-105D was the newly reactivated 355TFW at George AFB in July 1962, followed by the 18TFW at Kadena Air Base—thus becoming the first Thunderchief-equipped unit in Okinawa and in the entire Pacific division of the USAF (PACAF). Two of the Kadena Wing's squadrons were subsequently disbanded, 44TFS in 1967 and 67TFS the following year, but the third squadron, 12TFS, was continuing service in that country into the 1970s. Early in 1963 the 8TFW at Itazuke Air Base became the second Wing in the Pacific area to receive Thunderchiefs. In May 1964 Itazuke was closed and the Wing moved to Yokota Air Base, where the 8TFW was redesignated 6441 Air Division, and, later still, as the 6441TFW. In 1966 all these squadrons came under the direct control of the 41 Air Division.

After high losses in the Vietnam war, both the 35TFS and 36TFS transferred to F-4Cs; leaving, of the 41AD units, only the 80TFS equipped with F-105s. In February 1968 even this had to replace its Thunderchiefs with Phantoms, and at the same time 41AD became the 347TFW.

Last of the seven Wings in the original programme to receive F-105s was the 388TFW at McConnell AFB, which received its first example on October 5, 1963. On August 2, 1964, 388TFW was de-activated, its place at the McConnell base being taken by the 23TFW, absorbing the former Wing's personnel and equipment. On the

The sixth Thunderchief of this block, F-105B-20RE (57-5808) was photographed at McClellan AFB, California in May 1969 and bears the badge and unit markings of the 561TFS/23TFW. Unlike the later F-105D/F variants, the F-105B has a shorter radar nose cone and forward-positioned cannon port for the 20-mm M-61 Vulcan. Also clearly visible is the partially opened cover to the flight refuelling probe. (Photo: Author)



same date, the 23TFW was joined at the base by 355TFW.

It is worth mentioning here that in the early 1960s Republic offered their F-105 to the air forces of the Netherlands and Belgium, at \$1.4 million each. Any such Thunderchiefs would have been locally built in those respective countries. Other competitors comprised the Lockheed F-104 Starfighter, Northrop F-5 Freedom-Fighter and Dassault Mirage III. In the event, both nations opted for the F-104 Starfighter.

F-SERIES DEVELOPMENT AND PRODUCTION

As with North American, McDonnell and other manufacturers, Republic was keen to develop a specialised trainer variant of its "Century"-series fighter. First proposal along these lines was the F-105C, a tandem-seat version of the F-105B. But, after constructing one metal mock-up—using the fuselage of the JF-105 54-0105 and equipped with a one piece canopy over the two-seat cockpit—the project was cancelled. This decision was on grounds of high cost, as the F-105C trainer would have had no other rôle.

The trainer proposal was followed by another two-seat Thunderchief, this time as an all-weather fighter-bomber. Designated F-105E, the new variant also featured a one-piece canopy over the tandem seats. The F-105E, too, was virtually "nipped-in-the-bud"; the few examples already under construction being converted to D-series configuration on the production line.

Skies brightened again for Republic late in 1962. Combining the rôles of the abortive F-105C and -E, a dual-purpose, two-seat trainer and tactical fighter version development was offered to the USAF and accepted as the F-105F. This time the Air Force placed an order for 143 examples—to take the place of a similar number of F-105D-series Thunderchiefs still in the order book. Main distinction of the F-105F, by comparison with the D-series, was a fuselage extension taking length up to 69 ft from 67 ft. This amounted to an additional section being inserted in the forward fuselage to accommodate the second cockpit. Forty days ahead of schedule, on July 11, 1963, the first F-105F (62-4412) made its initial flight.

In practice, however, the limited view available from the second cockpit made the F-105F unsuitable for conventional training purposes. Nevertheless, this Thunderchief variant was able to display its full potential in action in Vietnam. In particular, the F-105F invaluable



Bearing, under the cockpit, the "ace-of-spades" (and-sabre) device of the 563TFS/23TFW, this F-105B-20RE (57-5823) was photographed in July 1969 while on deployment at George AFB, California. F-105Bs of the 23TFW were flown by instructors only and not combat crews under training. On the outboard wing pylon is a high-speed dart used as an air gunnery target. (Photo: Gerald Liang via Author)

in electronic counter-measures (ECM) operations by jamming the radar of AAA (anti-aircraft artillery) and SAM (surface-to-air-missiles) installations. Most of the two-seaters in south-east Asia have been fitted with the special "Wild Weasel" ECM device first installed in the F-105F.

ACTION IN VIETNAM—F-105D AND F

For the Thunderchief, the air war in Vietnam began in August 1964. At that time, four aircraft of the 36TFS/6441TFW on TDY (temporary duty) at Korat RTAFB (Royal Thai Air Base), were alerted to fly a RESCAP (rescue) mission for a pilot who had been shot down by enemy ("Pathet Lao") anti-aircraft fire over the Plain of the Jars in Laos. On this mission, F-105D 62-4371

"B" was the first Thunderchief to be hit by enemy AAA. Although the "Thud" returned safely to base, the "Pathet Lao" proudly announced the destruction of this F-105.

When, again in August 1964, communist torpedo boats attacked two USN destroyers in the Gulf of Tonkin, the USAF Tactical Air Command deployed its tactical air strike, reconnaissance and transport units to south-east Asia. These included a few Thunderchief units, which were initially placed on TDY before the 355TFW (comprising 333, 354 and 357TFS) became permanently stationed in Thailand in November 1965. The first F-105 base in the combat area was at Da Nang, in the northern part of South Vietnam. Some F-105 units were also sent to the Korat and Takhli Air Bases in

Study in development, "Foxtrot" and "Delta" Thunderchiefs. The tandem-seat "FH-283", an F-105F-1RE (62-8283) comes in to land at Yokota Air Base, Honshu, Japan, alongside "FH-358", an F-105D-31RE (62-4358). Both, at this time (1964) were allocated to the 6441TFWing. The approx. 8% increase in length of the F-105F is hardly noticeable but the ventral tail fin clearly shows the outline of the arrestor hook applied to all F-105Ds and 'Fs and late-production F-105Bs. (Photo: "Aireview", Japan)





The effects of weathering are evident on this F-105D-10RE about to take-off from the USAF-resident Royal Air Force Station of Mildenhall, West Suffolk, England, November 1965. The colours are those of the 22TFS/36TFW normally based at Bitburg AB, West Germany. (Photo: via Paul Offen)

Thailand because, at that time, only three bases, Da Nang, Tan Son Nhut and Bien Hoa, were available in South Vietnam for USAF aircraft. On February 7, 1965, the opposing South Vietnamese "Vietcong"—with North Vietnamese support—attacked the Pleiku Air Base. In the previous November, the Vietcong had attacked Bien Hoa AB and destroyed four South Vietnamese Air Force Douglas A-1 Skyraiders together with five USAF Martin B-57s (licence English Electric Canberra). In answer to these attacks, USAF and South Vietnamese Air Force (SVnAF) aircraft—supported by USN carrierborne aircraft—flew their first air strike into North Vietnam, bombing supply bases and military installations.

On March 2, 1965, from Korat, Thunderchiefs flew their first combat missions into North Vietnam. The F-105s of the 12 and 67TFS (on TDY from Kadena AB) bombed the Xom Bong ammunition storage area close to the demilitarised zone (DMZ). On this first mission, one F-105 was downed over North Vietnam, but the pilot parachuted into Laos after ejecting from the crippled "Thud". Another "first" for Korat came on April 4 when two of its Thunderchief aircraft were shot down by a flight of four North Vietnamese MIG-17s. Thereafter, F-4 Phantoms were used to fly top cover.

The first F-105 to be destroyed by a SAM rocket hit North Vietnamese soil on September 30, while on a bombing mission near the Ninh Binh bridges.

As the key strike aircraft of the Tactical Air Command, F-105s carried out more than 75 per cent of all strike missions into North Vietnam. In doing so they achieved an average utilization of some 60 flying hours per month; about twice the normal peace-time levels. Often, many

Key to colour illustrations

1 F-105B-15RE (Air Force 57-5787), one of nine allocated to "The Thunderbirds" in the first half of 1964. They were specially modified for the USAF Air Demonstration Squadron (the 4520th) which is based at Nellis Air Force Base, Nevada. Not shown here but visible in a photograph of 57-5787 on page 76 is the block of 40 national flags indicating countries the 4520ADS has visited.

2 F-105D-25RE (AF: 61-0169), the eighth of this production block, in the markings of the 563rd Tactical Fighter Squadron of the 23rd Tactical Fighter Wing (home base, McConnell AFB, Kansas). Small "ace-of-spades" on top of fin is the unit's emblem. Pilot: Captain Bill Sparks. Period: May 1965. Probable deployment base: Da Nang Air Base, Republic of (South) Vietnam.

3 F-105D-31RE (62-4408), the fourth last production F-105D. Around May 1965, this Thunderchief—allocated to the 561TFS/23TFW—had moved from Yokota AB, Japan to South Vietnam.

4 F-105D-10RE (60-0496) of the 53TFS/36TFW, period 1962; operating from Bitburg AB, German Federal Republic, in support of Nato requirements.

squadrons attained operational-readiness rates in excess of 90 per cent. However, later in the war some seven or eight per cent of the Thunderchiefs were grounded through lack of spares alone. Other types to serve alongside the F-105s on strike work included F-100s, B-57s and aircraft of the US Navy.

Missions in 1965 took in attacks on ammunition depots, fuel storage areas, radar sites, SAM launching sites, bridges and tunnels. One of these missions—against the Lang Bun railroad bridge on August 25—brought US aircraft closer to the People's Republic of China border than on any previous occasion. Another significant mission was carried out by 17 F-105s against the Nghia Lo Airfield on December 22, leaving craters in

Only poets and skiers appreciate "the mantle of snow"! Winter 1963, at the 49th Tactical Fighter Wing's European base, Spangdahlem AB, West Germany. The original policy of open-air deployment revealed sealing and corrosion deficiencies resulting in "Operation Look-alike" whereby earlier F-105Ds (D-10s, -15s & -20s) were suitably modified to F-105D-25RE standard at Brookley AFB, Mobile, Alabama. Externally, the most obvious change was from natural metal finish to a protective acrylic aluminiumized coating overall. The F-105Ds have been treated at Mobile although serials show they were built as (left to right) an F-105D-15RE (61-0092), an F-105D-10RE (60-0519) and an F-105D-20RE (61-0117).

(Photo: USAF Official)







"FH-250" (white 16 on unit colour red band on the nose) and "FH-267" (26 on band) are two F-105D-30REs of the 67TFS/18TFW photographed in June 1963 at Itazuke AB, Japan. The 450 US gal. pylon fuel tanks lack the usual anti-dazzle panels. (Photo: "Aireview", Japan)

the runway and the destruction of 23 buildings. Of a less destructive nature were the leaflet raids over three North Vietnam cities on August 8, when three F-105s dropped a total of 880,000 pamphlets. Three days after the first US aircraft—a USAF F-4C Phantom—was destroyed by a SAM rocket, no fewer than 46 Thunderchiefs, armed with heavy fragmentation bombs, massed in North Vietnam skies to bomb SAM sites. Three of the F-105s were shot down by intensive ground fire, while a further two collided on the return journey. At least two pilots were killed and two more taken prisoner, leaving only one to be rescued in friendly territory. Some days earlier 16 Thunderchiefs had launched the first-ever attack on a SAM site, 30 miles northwest of Hanoi.

Increasingly sophisticated enemy defences, which included radar-controlled SAMs, radar-directed 87 mm and 100 mm AAA, together with the "conventional" 20, 37 and 57 mm AAA, resulted in the loss of some 170 fixed-wing aircraft and helicopters over North Vietnam. These included about 60 F-105s. Taking all these losses into account, the Vietnam attrition rate worked out at 3.2 losses per 1,000 sorties, or 0.3 less than the Korean War record of the 1950s. More than 15 pilots were killed in action, over 100 were reported missing and at least ten were known to have been captured—during a total of some 26,000 sorties. Of the 170 aircraft destroyed, five examples each belonging to the USAF and USN were shot down by SAMs for a total of about 150 of these potent guided missiles launched against them. All these figures relate to the year 1965. Later in the Vietnam war only one in every 48 enemy SAMs succeeded in hitting its target.

According to F-105 pilots the author interviewed in the USA, this enemy ground fire fell into one of five categories: "light, moderate, intense, unbearable and let's-get-the-hell-out-of-here!"

After these results, the USAF re-adopted aircraft camouflage for the first time since late 1943, and by early 1966 most Thunderchiefs had been so treated.

The year 1966 began quietly enough for the Thunderchiefs in North Vietnam, since on December 24 the previous year a second "bombing halt" was called by the USA. The first such lull, in May 1965, had lasted seven days, but this one continued for no fewer than 37 days. But, on January 31, the air strikes resumed their full tempo, and the first US "attrition loss" for 1966 was a F-105D. This "Thud" was shot down 20 miles south of Vinh after attacking a string of barges on a river. In February the 334TFS/4TFW returned to its home base

at Seymour Johnson AFB, having arrived in south-east Asia on August 31 the previous year. During its five months of Vietnam combat service the 334TFS flew a total of 6,031 hours, of which 5,488 on 2,204 sorties were combat flying hours. This unusually high proportion of operational flying, 90.9 per cent, reflected a phenomenal maintenance record. The pilots dropped 9,920 tons of bombs, and fired 17,031 2.75 in. rockets together with 351,547 rounds of ammunition. Of the 27 pilots in the squadron, three were shot down but two were recovered by rescue. The remaining 24 pilots achieved an average of 90 combat missions each.

On March 14 that year, the 388th Tactical Fighter Wing was re-activated and established at Korat Air Base on April 8. This fourth re-activation was intended to achieve a more stable organizational control of F-105 combat units on missions over North Vietnam. The 388TFW absorbed all personnel and equipment of the 6234TFW, which had operated for one year as a provisional Wing to direct combat operations of temporary and rotational duty squadrons based in Thailand. Units which had been assigned to the 388TFW were the 421 and 469 TFS, both at Korat from November 1965. In June 1966 they were joined by the 13 and 34TFS, both from Japan, bringing the number of Thunderchief-equipped squadrons in south-east Asia to seven, with a total of some 144 F-105 aircraft.

The heaviest air attack yet in the Vietnam war was carried out on May 31, by about 150 aircraft of which the majority were Thunderchiefs. The target was the large Yen Bay military storage area, where 72 warehouses were destroyed and a further 40 damaged. In addition, some 25 AAA sites in the area were strafed or bombed into silence.

Claiming the first MIG "kill" by a Thunderchief was Major Fred L. Tracy, of 388TFW, on June 29, 1966. Four further MIGs were to follow the fate of this one during the course of the year. Most significant of these "kills" was that by Lt. Karl W. Richter, piloting F-105D 59-1766. He was just 23 years of age at the time, and thus became the youngest pilot to shoot down a MIG.

Nevertheless, the 13,000 missions flown in Vietnam by the USAF in 1966 against airfields, bridges, causeways, radar sites, staging areas and other targets also had their negative sides. A grand total of some 286 aircraft of all units were downed by North Vietnamese gunners, SAMs and MIGs, representing a loss rate of 2.7 per 1,000 sorties. About 85 F-105s figured among the losses. Indeed 1966 was an exceptionally bad year for "attrition" and during one period of two months the 354TFS lost



An F-105D-31RE out from Yokota AB, Honshu, Japan, in late 1964, in the colours of the 561TFS/23TFW whose home base is McConnell AFB, Kansas. This may account for the hurried scrawled "MAFB" on the outer wing pylon. Emblem on the fin is that of TAC. Nosewheel strut radar reflector shows clearly. (Photo: "Aireview", Japan)



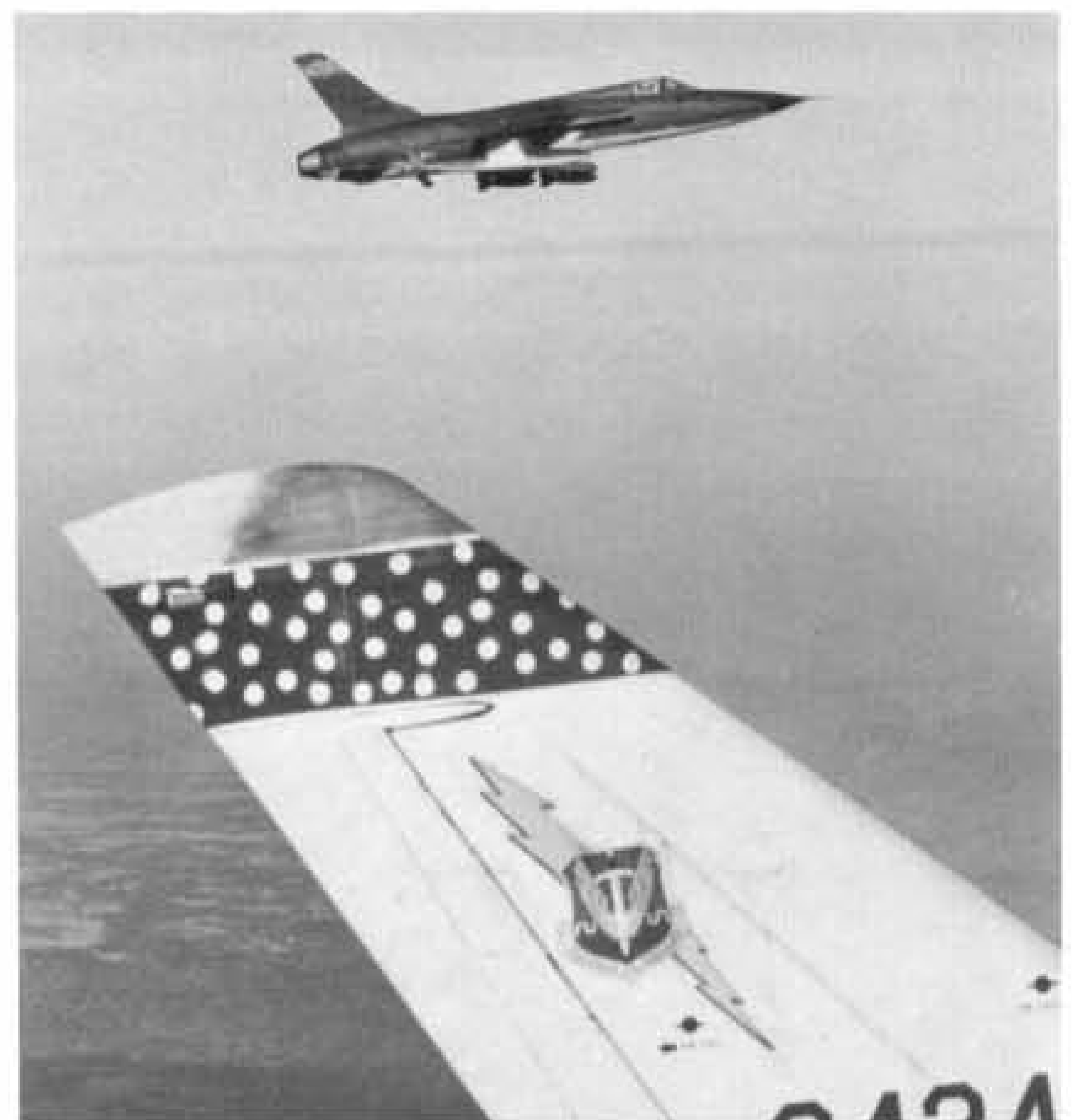
The "Flying Tigers" tradition of the 23rd Fighter Group (activated 1942) lives on in this photograph taken in the mid-1960s at the 23TFW's South Vietnam base of Da Nang Airport. "FH-133" is an F-105D-20RE armed with six 750-lb M-117s on the centreline MER (Multiple Ejector Rack), and one pylon-mounted M-117 bomb on each wing. A pair of 450 US gal. fuel tanks complete the external load. On the MER of the F-105F-1RE to the rear are a pair of fire bombs (napalm). MER-cluster ground clearance is impressively economical! (Photo: USAF Official)

(Right) Over N. Vietnam, winter 1965-6; two F-105Ds with 4TFW tail markings (blue band, white "snowflakes")—unofficially retained on MER-clustered, camouflaged 59-1745 (a 'D-5RE). Foreground metal-finish 62-4347 ('D-31RE) displays TAC emblem.

(Photo: USAF ref. 96244)

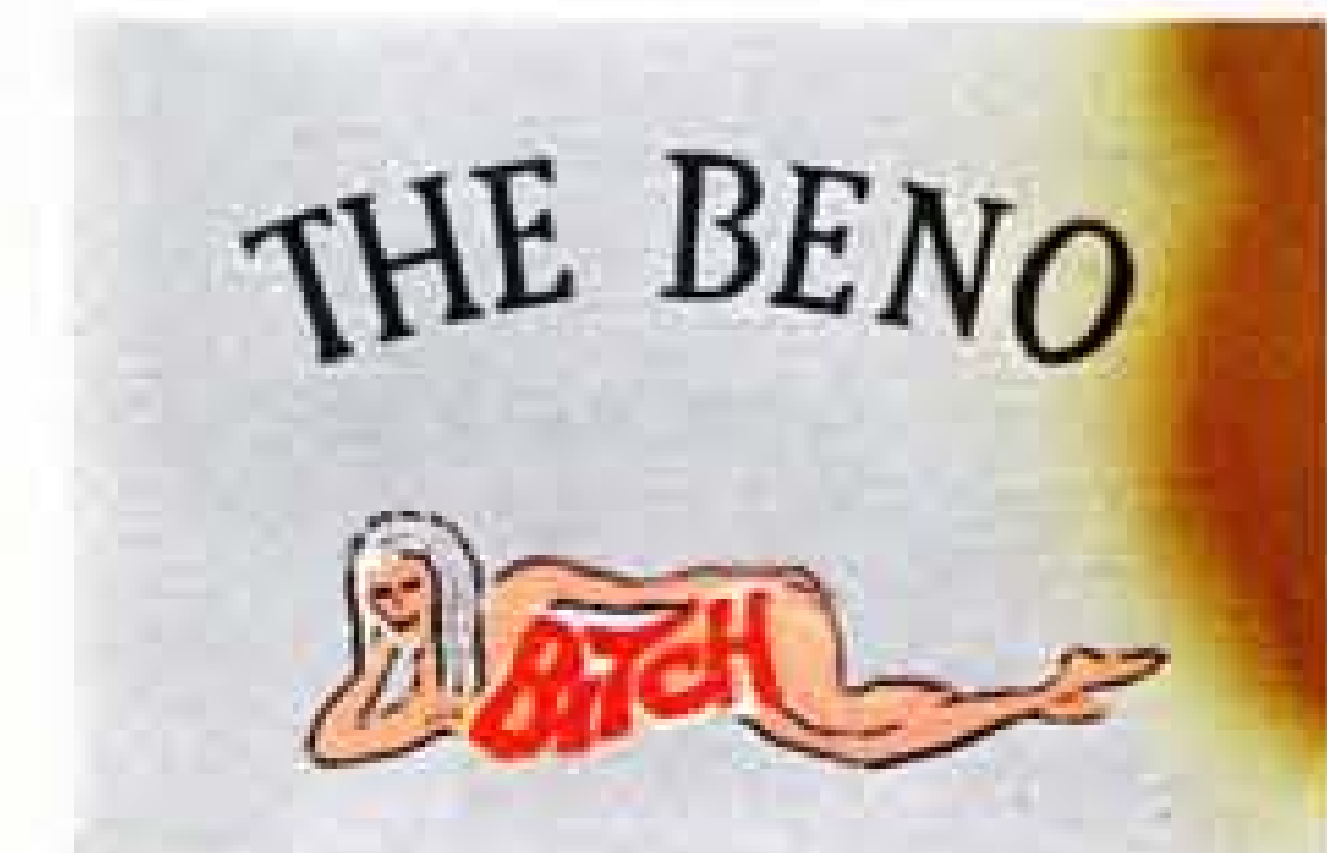
A tight box quartet of the 4TFW's F-105D Thunderchiefs over the Republic of Vietnam during the mid-1960s. Leadship is an F-105D-20RE flanked by two 'D-25REs and backed by a 'D-15RE. The "sawtooth" wing intakes show to effect.

(Photo: USAF Official)





Republic F-105F-1RE Thunderchief (Air Force serial 63-8276) bearing the unit letters of the 419th Tactical Fighter Training Squadron (ex-4519th Combat Crew Training Sqdn.) of the 23rd Tactical Fighter Wing based at McConnell Air Force Base, near Wichita, Kansas. Before returning to the U.S.A. in May 1969 from Thailand-based operations, "The Angel" had begun its south-east Asia tour with the 12TFS/18TFW at Okinawa's Kadena Air Base. "The World's Finest" 4519CCTS badge inherited by the 419TFTS is a sentiment of the squadron's prime function, that of being the only unit devoted to F-105 pilot-training. Front cockpit inscription reads: "Pilot Lt. Taylor E." The enigmatic Vietnamese cartoon figure and legend "434TFS" (starboard lower part of fuselage between the cockpits) is small enough to be missed. The 434TFS is an F-4D/E Phantom unit of the George AFB-based 479TFW. This California AFB had been visited by units of the 23TFW.





Thunderchiefs could be moved around as witness this F-105D-10RE (60-5376) at Bitburg Air Base, West Germany, in May 1965, when allocated to the 36TFW. Later, this F-105D was attached to the 49TFW and, later still, with the 34TFS/388TFW when it acquired the inscription "Valiante". A protective cover adorns the nose pitot/static head. The ladder's length and the ground crew member define the immense size of the Thunderchief.
 (Photo: S. P. Peltz via Udo Weisse)



Yet another camouflage variation, even extended to pylon fuel tanks. Photographed in Japan in 1966, USAF: 60-0427 was the first of the 121 F-105D-10REs ordered. The slightly stepped-down twin landing lights between the nosewheel and radar reflector are revealed to advantage.
 (Photo: "Aireview", Japan)

Attractive target for ground staffers! This is the Royal Thai air base at Ban Ta Khli (Takhli AB) in 1966 just before a big strike by F-105Ds over N. Vietnam. Boeing KC-135 tankers and Douglas EB-66 radar "pathfinders" are in the background. More than 50 mostly camouflaged Thunderchiefs can be counted in this photograph.
 (Photo: USAF ref. K-21109)





A Tactical Air Command North American F-100D Super Sabre equipped with radar monitoring aids acts as "pathfinder" on a N. Vietnam mission on August 15, 1966. These F-100Ds were used for all-weather, day and night operations. The Thunderchiefs are an F-105D-31RE (62-4287) and an F-105D-10RE (60-0469) and each carries five 1,000-lb M-83 bombs. (Photo: F. H. Republic ref. B-15695)

nearly 40 per cent of its total aircraft strength. On August 7 and 8, for example, 10 aircraft were destroyed, including six F-105Ds together with two F-105Fs. Statistically, a pilot would not be able to reach his 100th mission without being "downed".

However, it should be mentioned that, especially after the introduction of F-105F "Wild Weasel" aircraft, the number of Thunderchiefs destroyed over North Vietnam in fact lay below the overall average bearing in mind the number of missions flown. At the beginning of Fiscal Year 1967, it was announced that the USAF had no fewer than 597 F-105s in its inventory.

It was known in advance that 1967 would be a crucial year, not only for the USAF but also for the North Vietnamese Air Force (NVnAF). Both were to go through a certain amount of "give-and-take". First to lose out in the process was the NVnAF, which on January 2 lost seven MIG-21s over "Red Valley" at the hands of pilots of the 8TFW ("Wolf Pack") and 366TFW ("The Gunfighters"). Two further MIG-21s suffered similar fates four days later. Between May 12-20, at least 20 MIGs were "downed" by US aircraft. Naturally the Thunderchief played a major part in these "kills". During the course of the year F-105s were responsible for the destruction of 24 MIGs, comprising 22 MIG-17s (21 by F-105Ds) together with two MIG-21s, both shot down by F-105F two-seaters. On two occasions a Thunderchief destroyed two MIGs on the same mission, the first such "double killing" being on March 10 at the hands of Captain Max C. Brestel, and the second on August 23 by Lt. David B.

Waldrop of 354TFS in his F-105 nicknamed "Hanoi Special".

That April, the 421TFS (388TFW) was disbanded, but a newcomer to Korat was 44TFS, of the 18TFW (Kadena). Later, in October, heavy losses made it necessary to cut back on the number of F-105 units. One squadron, 13TFS, was transferred to the 432TRW at Udorn, where it was re-equipped with F-4D Phantoms.

In May 1967 the Thunderchief-equipped 355TFW received its first Presidential Unit Citation for its achievements over the period January 1 to October 10,

Boeing KC-135 Stratotanker "flying boom" refuelling over Japan in November 1967. Foreground Thunderchief is a late-production F-105D-31RE (62-4399) attached to the 12TFS/18TFW. Unit colour yellow band encircles nose to rear of radar cone and bulge for strike camera can be observed at this station.

(Photo: "Aireview", Japan)





IRON
BUTTERFLY



Key to colour illustrations

5 F-105D-30RE (AF: 62-4240), third of this production block, in the colours of the 335TFS/4TFW, at Da Nang AB, S. Vietnam in July 1965. The 335th was the first tactical fighter squadron to be equipped with Thunderchiefs. This is the standard camouflage pattern but about every 20th F-105 had the pattern applied in "mirror" reverse order.

6 F-105D-10RE (60-0482) of the 388th Tactical Fighter Wing which was operating from Takhli AB, Thailand, in the mid-1960s. "Iron Butterfly" was in combat from February to September 1966 when it was severely battle-damaged. After "gate guardian"-type refurbishing (including adaptation of F-105B main-planes) by the 2951st Combat Logistic Support Squadron at McClellan AFB, California, "Iron Butterfly" was dedicated to the Cadet Wing of the Air Force Academy, Colorado Springs, Colorado, on May 31, 1968.

7 F-105B-20RE (57-5835) is the sixth last B-block production Thunderchief and bears the badge of the 23rd Tactical Fighter Wing. In 1969, it was flown by Colonel Jim Hartinger, commander of the 23TFW but bearing the unit code of the 419th Tactical Fighter Training Squadron. See the colour spread of the F-105F-1RE for detail of the unit's emblem.

8 F-105D-5RE (59-1739) of 355TFW (George AFB, California), also of the 1969 period, displays "The Fighting Bulldogs" symbol of the 354TFS. Above and forward of the bulldog is the commendatory ribbon of the Air Force Outstanding Unit Award.

1966. During this time the Wing flew 11,892 sorties, shooting down two MIGs and damaging a further eight. However, in May 1967 the US lost at least 38 aircraft on combat missions over North Vietnam.

June 1967 was the month in which the first F-105 reached the 2,000 flying hours mark; it belonged to the 354TFS of 355TFW. Another memorable milestone was reached early in July, when the 469TFS/388TFW became the first unit to log 20,000 combat hours. Participating in all major raids, the 469TFS had been flying missions to all parts of North Vietnam since November 1965. Together with the other squadrons of 388TFW, this

Seeing is believing! Ironically named "Miss Universe", and piloted by by Major McKenzie of the 388TFW, this F-105D-5RE (58-1167) was flown back several hundred miles to Da Nang Air Base after its starboard "stabilator" (slab tailplane) had been entirely shot away. The arrestor hook is well in evidence, as is the starboard auxiliary air intake to cool the aft engine bay, a retrofit. (Photos: via Jerry Geer)



At Takhli Air Base, Thailand, 1968, an F-105D-31RE (62-4364) is being readied for another sortie and is armed with 6 x 750-lb M-117 bombs. By late October 1968, the 355TFW's "364" had become one of the first four Thunderchiefs to log 3,000 flying hours. (Photo: F.H. Republic ref. B-16290)

squadron earned an Air Force Outstanding Unit Award for its participation in the famous Hanoi petroleum raid. On the day of the presentation of this award, the 388th Tactical Fighter Wing completed its 56,000th combat flying hour.

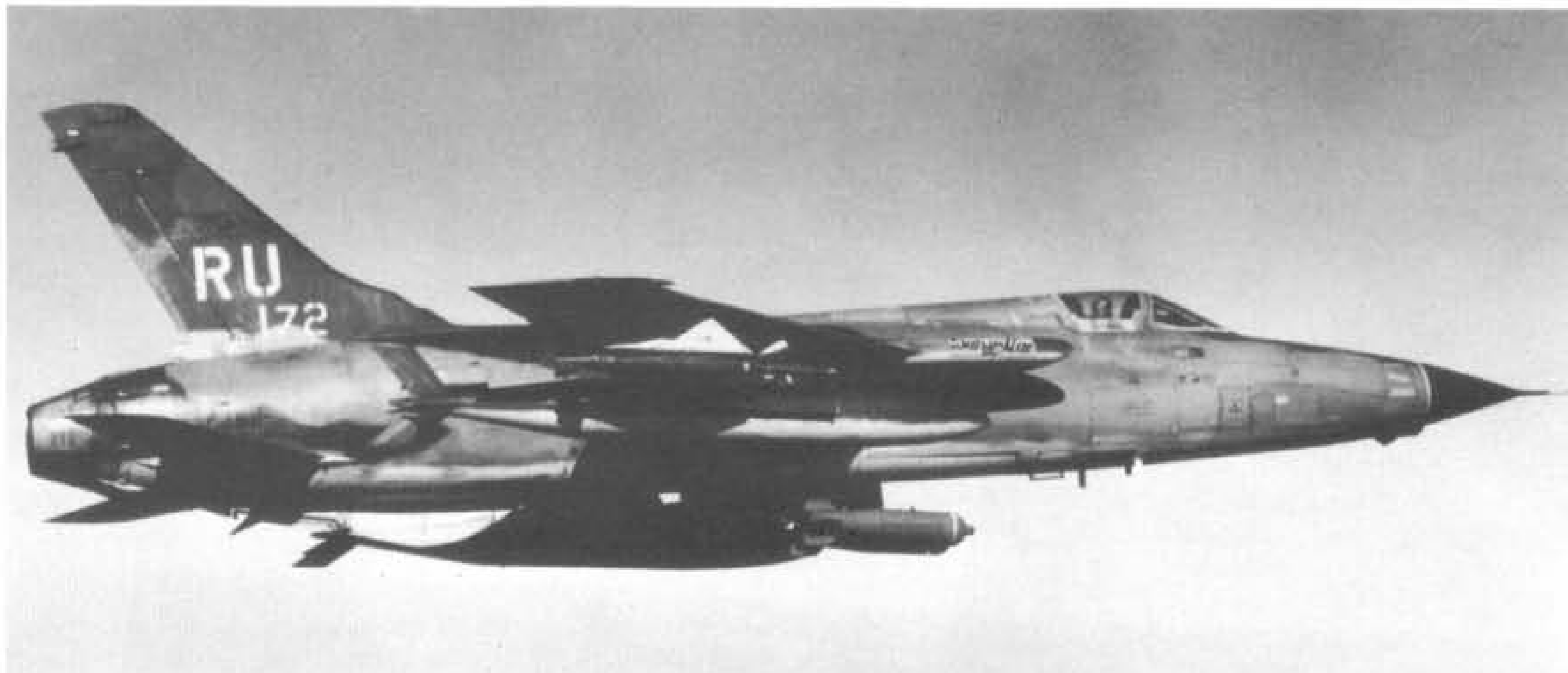
That August two Douglas EB-66 Destroyer units, 41st and 42nd Tactical Electronic Warfare Squadrons (TEWS), joined the ranks of the 355TFW at Takhli. These squadrons had in fact been stationed there since August 1965, but now supported the Thunderchief missions by jamming the radar of the North Vietnamese 87 mm and 100 mm AAA and SAM sites.

MIGs were not the only Thunderchief victims. On October 8, for example, two giant Russian-built Mi-6 and four smaller Mi-4 helicopters were destroyed by F-105s of the 355TFW. In the face of MIG harassment, these Thunderchiefs were able to make 30 strafing passes against the helicopters, which were dispersed over an area 30 miles west of Hanoi.

Among major missions undertaken in 1967 by F-105s of the 355 and 388TFW were strikes, beginning on March 10, against the iron and steel plants, thermal power station, army supply depot and railway station at Thai Nguyen. Other points attacked included the Phuc Yen Pol area, the Dap Cau railway and highway bridge, the transformer yard at Hanoi, Phuc Yen Airfield (October 24), Kep Airfield, Hoa Lac Airfield (July 1) and Lang Son railway yards—the last-mentioned, attacked on August 13, being within ten miles of the Chinese border.

A story apart are the hazardous strikes against the Paul Doumer rail and road bridge, crossing the Red River in downtown Hanoi. This most vital three-lane bridge was initially attacked on August 11, by Thunder-





On the "sawtooth" wing leading-edge air intake, the inscription "Daisy Mae". This F-105D-5RE (58-1172) also bears the unit code of the 357TFS/355TFW and was photographed in 1968 on a strike against the "Pathet Lao" operating in Laos. Previously "172" was with the same Wing's 354TFS and coded "RM" with the serial no. 0-81172. The external stores are noteworthy. (Photo: F. H. Republic ref. B-17168)

chiefs carrying 3,000 lb bombs, resulting in the destruction of one of the spans. However, the Vietnamese were by now adept at rapid repairs so that very quickly the bridge was in use again. A second attack accomplished the job more thoroughly. On December 18, a bombing raid of exceptionally high accuracy left this key bridge totally unserviceable, with eight of the 19 spans destroyed and a further three damaged.

A new record was set in late August when US aircraft completed 209 missions in one day, 12 more than the previous "high". However, during that final ten-day period of August 21 aircraft were lost. In May 1967 it was reported that at least 225 F-105s had been destroyed in the air war over North Vietnam since the first combat mission on March 2, 1965. It was also announced at this time that 406 Thunderchiefs remained on the USAF's strength. This meant that of the 833 F-105s built, as many as 427 had been lost in the Vietnam conflict or other crashes in less than ten years. However it is noteworthy that by the end of 1967 Thunderchief

bombers had been responsible for some 75 per cent of the 18,583 USAF missions over North Vietnam. Indeed, in 1966 and 1967, about 250 Thunderchief pilots achieved their 100th mission over the enemy territory, for which they were awarded special certificates by Republic Aviation.

Although at least 325 aircraft of all units were "downed" over North Vietnam in all, this worked out at a fairly modest loss rate of 1.6 aircraft per 1,000 sorties, reflecting the enormous number of attack missions flown.

The year 1968 was also to be an important one, but in contrast to 1967 it was also a more successful period for the Thunderchief. Frequent strikes were made against North Vietnamese targets during the first quarter of the year, including attacks on the Yen Bay and Hoa Lac airfields, together with a raid on a 50-truck convoy, most of which was destroyed.

In March 1968, the first F-105 unit to complete 30,000 combat flying hours was the 469TFS. In this

The subject of No. 8 of the colour artwork side views, "RM 739" is another F-105D-5RE (59-1739) of the 354TFS/355TFW, seen here at McClellan AFB, California, in June 1969. The triple row of eight louvres to exhaust the gases from the six-barrel 20-mm M-61 Vulcan cannon stand out clearly just above the nosewheel doors, as does the boundary-layer fence at the wing root and the strike camera immediately behind the radar nose cone. The F-105D's "last three" appears in white on the nosewheel radar reflector. In the background, a camouflaged North American F-86 Sabre.

(Photo: Author)





Transformation to F-105G standard (by incorporating "Thunderstick II" computerized, all-weather bombing system equipment) had been applied to "MG 047" by the time it had been transferred to 419TFTS (ex-4519CCTS) of the 23TFW. Upper photograph, also taken at McConnell AFB (but in July 1969), shows the F-105D-15RE (61-0047) as "MD" of the 23rd Wing's 561TFS. Outer pylon carries a 2.75-in rocket pod while, in both instances, the centreline MER mounts a device bearing the 23rd's traditional "Shark's Mouth" motif. The colour two-page spread devoted to the F-105F features a detail on the "The World's Finest" badge on the fuselage. Subsequently, "MG 047" became "MF 047" when transferred to the 23rd's 563TFS.

(Photos: Author and Jerry Geer)



Back in the USA, two F-105Ds show the variable facility of the Republic "petal" air brakes which also, when closed, offer a convergent/divergent jet efflux nozzle. Named "Aquarius", "488" is an F-105D-10RE (60-0488) which, when photographed at McConnell AFB in October 1970, had just been flown back from the combat zone by its pilot, Lieutenant Colonel Ron Crozier of the 355TFW. Previously "488" had been with both the 36TFW and the 388TFW. Tail unit letters painted over and M-61 Vulcan cannon port and exhaust louvres taped. (Lower) "365" of "ZA" (12TFS/18TFW) is an F-105D-31RE (62-4365), photographed at McClellan AFB in June 1969 and awaiting overhaul. The unit's yellow band round the nose is colour repeated on the nosewheel strut's radar reflector.

(Photos: Jerry Geer and Author)

period, some 135,000 tons of ordnance were dropped on nearly all major North Vietnamese targets. From March 31, bombing was confined to points south of the 20th Parallel. The smaller targets in this area, such as barges, sampans, lines of communication and truck convoys, made necessary more frequent use of the M-61 Vulcan cannon. Also, after a lull since 1965, the 2.75-in. rockets came into use once more. This partial bombing halt now enabled the Thunderchief to operate over South Vietnam.

Immediately before the bombing cut-back, on March 17, Takhli received the first detachment of 428TFS/474TFW, equipped with six of the new F-111A swing-wing aircraft. Eight days later the F-111 made its combat debut in the skies over North Vietnam—and before the end of the month the 428TFS had lost one third of its aircraft. By April, both 355TFW and 388TFW passed the 100,000 combat flying hours mark. Also, on April 8, the 388TFW celebrated its second anniversary of operations in south-east Asia. During the two years of Vietnam service, the Wing had completed some 38,500 combat sorties, dropping 86,625 tons of bombs.

On August 9, 1968, it was officially revealed that US air losses over North Vietnam now totalled 887 fixed-wing aircraft together with nine helicopters. Since the Thunderchief had flown about 75 per cent of these missions, it follows that F-105 losses were very heavy. The USAF was accordingly forced to reduce the authorised squadron strength of the six 355 and 388TFW units assigned to the war zone from 21 to 18 aircraft each. In August, too, 388TFW claimed the first F-105 to attain 3,000 flying hours. The aircraft involved, 60-0428 (personally named "Tiger"), left the assembly lines in 1961 and now had over 500 combat missions to its

credit. This F-105D had suffered serious damage on three occasions, including a mid-air collision earlier in 1968.

In late October, only seven months after completing 30,000 combat flying hours, the 469TFS passed the 40,000 hour mark. That same month three more F-105s each attained 3,000 flying hours. These were serialised 62-4234 "Sweet Thirza May", 62-4394 and 62-4364; all of the 355TFW.

All bombing runs to North Vietnam ceased on November 1—on which date a USN F-4 Phantom became the 915th United States aircraft to be destroyed over North Vietnam.

When bombing was resumed it became the turn of Laos and in particular the "Ho Chi Minh Trail" to receive special attention. Although less impressive targets, the narrow mountain roads and forest-covered supply dumps were just as vital as those in North Vietnam, and in many ways more challenging. As the aircraft action concentrated, so did that of the increasingly sophisticated enemy defence fire. Mobile radar-controlled 52 mm AAA began to accompany the major supply convoys down the Trail. Still heavier guns were positioned at the so-called "choke-points". This certainly had its due effect on losses. Although no official figures were released, a reputable US publication estimated that the USAF lost some 100 aircraft between November 1, 1968 and April 1, 1969—mostly F-105s. US Navy losses are not known, but were certainly much lower as the USAF accounted for about 85 per cent of the missions. During this same period, about 45 pilots were listed as missing in action.

First noteworthy feature of 1969 was the return of an F-105, "The Tea Sipper", to the USA. Assigned to

354TFS, this Thunderchief was a combat veteran in the true sense of the word, having accumulated 3,000 flying hours in action. Three MIGs succumbed to its fire power. On no fewer than eight occasions, "The Tea Sipper" returned safely to Takhli with severe damage; three times with a badly shot-up aft section. The nose section and port wing was replaced twice, and after another enemy attack a new starboard wing had to be fitted.

In April 1968, the 388TFW received the coveted Presidential Unit Citation for its achievements over the period March 10 to May 1, 1967. During these seven weeks the Wing delivered 169 tons of ordnance, destroying, among other things, a major North Vietnamese industrial complex.

Another distinguished Thunderchief, "Baby Doll", reached the 3,500 flying hour mark in May 1968, thus achieving a record for all Republic aircraft. It had been delivered to the 355TFW at Takhli in April 1966 with only 971.5 hours on the airframe.

Equipped with a new advanced automatic bomb delivery system, the prototype F-105G (61-0080) was flown to Eglin AFB for systems trials in August 1968. The modified Thunderchief featured a "saddle back" atop the fuselage to house avionics equipment. This new system, called "Thunderstick Two" (or "T-stick II"), enables the F-105 to locate and strike targets at night or under the worst weather conditions, giving the type the most accurate weapons delivery system in the tactical inventory. A contract to retrofit 30 Thunderchiefs with the system was awarded to Fairchild-Hiller in September 1968. Indeed, this modification is the most significant

of the more than 60 Class V* modifications carried out on the F-105 since its entry into service.

Meanwhile, another new system was on test at the Eglin AFB. This device, known as "Wild Weasel III", was evaluated on F-105F 62-4414, and aircraft so equipped may be recognised by their tail and chin blisters, and metallic nose radome. Installation of Wild Weasel III became virtually universal for attacker aircraft, to counteract North Vietnam's comprehensive electronics defence systems.

In September 1968, the number of F-105-equipped 388TFW squadrons was reduced to just one, since the other two had now "traded" their Thunderchiefs for F-4E Phantoms. These were the 34 and 469TFS, leaving 44TFS standing alone with its F-105s.

The history of 44TFS is one of the most impressive of all Thunderchief squadrons. Arriving at Korat Air Base (Royal Thai Air Force Base) in December 1964 as one of the first F-105 units to be sent on temporary duty to Thailand, it flew missions from Korat until May the following year, when all its resources and personnel were taken over by the 13TFS. The unit then returned to Kadena (18TFW), becoming a paper organisation and having no aircraft. It retained this status until returning again to Korat, completely absorbing 421TFS in April 1967. For the next six months the 44TFS served primarily as a strike squadron, with F-105Ds. In October, now self-styled as the "Vampires", this unit absorbed 13TFS together with its F-105F two-seaters.

* Class V modifications are directed by and must be approved by the Air Force Chief of Staff.



A Chief for the Boss. Personal Thunderchief of Colonel Edward McNeff, Commander of the TAC's 835 Air Division (fuselage badge) and bearing the "ME" unit code of the AD's 562TFS/23TFW of McConnell AFB. This photograph was taken in May 1970 at the USAF Flight Test Center, Edwards AFB, California. "535" is an F-105D-10RE (60-0535). In the immediate background, a two-seat test Convair F-106B Delta Dart.

(Photo: Gerald Liang)

Two-seat Thunderchief. "FH-332", in immaculate acrylic aluminiumized finish, is temporarily adorned with olive drab triple bands on wings and rear fuselage when taking part in Exercise "Goldfire I" held in south-west Missouri from October 29 to November 11, 1964. This is an F-105F-1RE (63-8332). TAC emblem is on the fin.

(Photo: USAF ref. 175513)





Acrylic finish F-105F-1RE (63-8279) of the 36TFS/6441TFW on finals and approaching Yokota Air Base, Japan in August 1964. The "sawtooth" wing leading-edge air intake has unit's identifying colour of red, outlined in white, in form of an inwards-pointing arrow.

(Photo: "Aireview", Japan)

Primary mission now became one of flying "escort" to suppress AAA and SAM sites. Additional activities were the "Ryan's Raiders" night bombing radar-guided flights, using specially-equipped F-105s with locally applied pale olive-green and tan undersurfaces. On October 10, 1969, the 44TFS moved to Takhli where it became a part of the 355TFW. The squadron's F-105s were distributed throughout the other three units in the Wing, and the "Vampires" began flying strike missions again.

By the beginning of 1970 the F-105 strength had accumulated nearly 1.2 million flying hours, of which over half represented Vietnam war flying during the four years 1966-9. Peak year of activity was 1966, when Thunderchiefs logged more than 200,000 hours. Again by early 1970, no fewer than 10 Thunderchiefs each had more than 3,500 flying hours to their credit, nine of these aircraft being assigned to 355TFW.

In January 1970, the Takhli-based 355TFW was awarded a second Presidential Unit Citation for action in south-east Asia, including the daring raids against the Paul Doumer railway and road bridge on August 11-12 and October 24-28, 1967, which resulted in the destruction of two spans each one mile long. The most active 355TFW squadron by that month was 357TFS which had accumulated 606 missions involving a total flying time of 1,400 hours. On one day alone the squadron had launched as many as 26 Thunderchiefs, adding 68 airborne hours to its log book.

First F-105 to reach the remarkable 4,000 flying hours mark was 61-0159 "Honey Pot II" of 354TFS. This was in February 1970. Prior to the bombing halt in November 1968, "Honey Pot II" had flown each of three different pilots on 100 missions over North Vietnam. The aircraft had completed 600 south-east Asia missions in all, and was credited with one MIG "kill".

First two F-105s to be fitted with the new and advanced "T-stick II" bombing system were handed over at McClellan AFB in late March 1970, for further testing by the USAF's Tactical Air Warfare Center at the Eglin AFB. Two more Thunderchiefs joined the 4,000-hour club that June, both serving with 333TFS. They were 60-0498, which had been with the 355TFW since December 1967, and 62-4347, named "Little Lois Ann" in August 1967, which had been on the Wing's strength for over three years.

In July 1970 the number of Thunderchief-equipped ANG (Air National Guard) units was increased to two with the transfer of 21 F-105Bs to the 119TFS/177TFG of the New Jersey ANG. Another Presidential Unit Citation, the third, was awarded to the 355TFW that same month. The period in respect of which the Citation was awarded was that from April 12, 1968 to April 30, 1969, when 355TFW flew more than 17,000 combat sorties and delivered over 32,000 tons of ordnance leading to the destruction of 2,100 targets. This third Citation represented a record for any USAF unit so far as south-east Asia action was concerned, and between them the two F-105 Wings in the area received four Presidential Unit Citations.

In the Fall or Autumn of 1970, the 561, 562 and 563TFS of the 23TFW at McConnell AFB became operational fighter squadrons, leaving 419TFTS as the sole Thunderchief pilot training squadron. Since the 23TFW took on its role as a replacement training unit on January 1, 1966, it has been responsible for the graduation of 600 new F-105 pilots and the retraining of a further 150 or more, USAF pilots.

In the meantime, bombing raids were not just confined to Laos. Thunderchiefs several times entered North Vietnamese airspace to attack AAA and SAM installations which were endangering RF-4C Phantoms on reconnaissance flights.

VIETNAM FINALE FOR F-105s

The finale for many Thunderchiefs serving on Vietnam war operations came on October 6, 1970. On this date word was sent from the Seventh Air Force that that day's missions were to be the last flown by the 355TFW in south-east Asia, and that the Wing was to transfer aircraft together with personnel to McConnell AFB in the USA. The first wave of 15 F-105s touched down at the McConnell base on October 23, after intermediate stops at Andersen AFB (Guam), Hickam AFB (Hawaii) and Nellis AFB (Nevada). Within the next two weeks a further 39 Thunderchiefs returned home from war, in two groups and again flying to McConnell AFB. This left only 26 of the Wing's 80-strong Thunderchief force still serving in Asia. All the returning aircraft were stripped of code letters and only a few still carried their names on the side of the fuselage.

Since arriving at Takhli Air Base in November 1965,



Thunderchief F-105Fs with a difference. (Left) F-105F-1RE (62-4419), the eighth "Foxtrot" of the first production block, at Nellis AFB, Nevada, in 1968. It had been allocated to the Test & Evaluation Detachment of the 452th Fighter Weapon Wing. The unit is now redesignated the 66th Fighter Weapon Squadron of the 57th Fighter Weapon Wing. (Right) An Electronics-prefixed EF-105F-1RE (62-4422; the 12th first production F-105F) at the USAF Tactical Air Warfare Center, Eglin AFB, Florida, where the "Wild Weasel III" ECM device was evaluated. The lower fuselage bulge begins in line with the rear cockpit. The unit letters "WC" signify the 66FWS/57FWW. (Photos: via Jerry Geer and Albert Piccirillo)

the 355TFW had flown 101,304 sorties, logging 263,650 flying hours and dropping 202,596 tons of bombs on 12,675 targets. Its pilots shot down 19 MIGs (not counting the two MIGs destroyed by 44TFS as this squadron was then serving under 388TFW), of which the 333 and 354TFS were credited with eight each, and 357TFS with three "kills". On the other hand, the 355TFW lost 136 aircrew members in combat over south-east Asia, including two senior officers (colonels).

The Thunderchiefs returning from the Vietnam war theatre were earmarked for transfer to ANG units, and the Kansas ANG's 127TFS received its first two F-105Ds on January 20, 1971, thus becoming the first ANG unit to be equipped with D-series Thunderchiefs. Later in the year a further 16 F-105s were expected to be delivered to the squadron, which at the same time was to change its designation to 127 Training TFS, as the only F-105 training unit of the Air Guard. Other units to receive these Thunderchiefs are those with the Texas, Iowa and Minnesota ANG.

The 26 or so Thunderchiefs remaining in Thailand after the 355TFW de-activation and return of its aircraft to the USA are F-105F and -G models, and were at the time of writing being flown out of Korat AB by pilots of the 6010TFS/388TFW. Main 6010TFS tasks are "Wild Weasel" anti-SAM sorties, of which a few were carried out in January and February 1971.

LIST OF COMMON ABBREVIATIONS

AAA—Anti-aircraft artillery
AB—Air Base
AD—Air Division
ADS—USAF Air Demonstration Squadron
AFB—Air Force Base, USAF
ANG—Air National Guard
CCTS/CCTW—Combat Crew Training Squadron/Wing
ECM—Electronic counter measures
FWS/FWW—Fighter Weapon (Training) Sqdn./Wing
MIG—Soviet jet fighters of the Mikoyan & Gurevich Bureau
NVnAF/SVnAF—North/South Vietnam Air Forces
RE—Republic (as in F-105B-1RE)
SAM—Surface-to-air missile
TAC—Tactical Air Command
TDY—Temporary duty (overseas).
TFG—Tactical Fighter Group
TFTS/TFTW—Tactical Fighter Training Sqdn./Wing
TRS/TRW—Tactical Reconnaissance Sqdn./Wing

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The author would like to begin these acknowledgements by dedicating this Profile on the F-105 Thunderchief to Lieutenant Karl W. Richter, who died over North Vietnam and was the youngest pilot to shoot down a MIG jet fighter, and whose parents are my most respected friends in the USA. This Profile is also dedicated to all other F-105 jockeys.

Also, the author expresses his grateful appreciation to the following for their indispensable assistance: the USAF and Republic information departments, "Aireview" (Japan), Gerald Geer, David Menard, Gerald Liang, Udo Weisse, Albert Piccirillo, Gerald Joos, Henk Schakelaar, Paul Offen and all others who so generously helped. Further information was provided by articles in the leading aviation magazines. Special thanks go to Major Robert V. Baird and Robert Sonnett, USAF.

LIST OF MIG "KILLS" AND THE PILOTS INVOLVED

Date:	Pilot:	Type:	Unit:	Location:	No:
1966					
29 June	Maj. Fred L. Tracy	MIG-17	388TFW	25 miles NW Hanoi	1
18 Aug.	Maj. Kenneth T. Blank	MIG-17	388TFW	25 N Hanoi	2
21 Sep.	Lt. Karl W. Richter	MIG-17	388TFW	30 NNW Haiphong	3
21 Sep.	Lt. Fred A. Wilson	MIG-17	355TFW	37 ENE Hanoi	4
4 Dec.	Maj. Roy S. Dickey	MIG-17	388TFW	15 N Hanoi	5
1967					
10 Mar.	Capt. Max C. Brestel	MIG-17	355TFW	10 W Thai	6
		MIG-17		Nguyen	7
26 Mar.	Col. Robert R. Scott	MIG-17	355TFW	23 W Hanoi	8
19 Apr.	Maj. Leo K. Thorsness	MIG-21	355TFW	37 SSW Hanoi	9
	Capt. Harold E. Johnson				
19 Apr.	Maj. Frederic G. Tolman	MIG-17	355TFW	37 SW Hanoi	10
19 Apr.	Maj. Jack W. Hunt	MIG-17	355TFW	37 SW Hanoi	11
19 Apr.	Capt. William E. Eskew	MIG-17	355TFW	37 SW Hanoi	12
28 Apr.	Lt. Col. Arthur F. Dennis	MIG-17	355TFW	18 W Hanoi	13
28 Apr.	Maj. Henry E. Higgins	MIG-17	355TFW	26 W Hanoi	14
30 Apr.	Capt. Thomas C. Lesan	MIG-17	355TFW	40 NE Hanoi	15
12 May	Capt. Jacques A. Suzanne	MIG-17	355TFW	10 N Hanoi	16
13 May	Maj. Carl D. Osborne	MIG-17	355TFW	44 NW Hanoi	17
13 May	Maj. Maurice E. Seaver	MIG-17	388TFW	25 NW Hanoi	18
13 May	Lt. Col. Philip C. Gast	MIG-17	355TFW	44 NW Hanoi	19
13 May	Capt. Charles W. Couch	MIG-17	355TFW	47 NNW Hanoi	20
13 May	Maj. Robert G. Rilling	MIG-17	355TFW	46 NNW Hanoi	21
3 June	Capt. Larry D. Wiggins	MIG-17	388TFW	38 ENE Hanoi	22
3 June	Maj. Ralph L. Kuster	MIG-17	388TFW	41 ENE Hanoi	23
23 Aug.	Lt. David B. Waldrop	MIG-17	388TFW	18 N Hanoi	24
		MIG-17			25
18 Oct.	Maj. Donald M. Russell	MIG-17	355TFW	19 NW Hanoi	26
27 Oct.	Capt. Gene J. Basel	MIG-17	355TFW	8 NE Hanoi	27
28 Dec.	Maj. Robert B. Huntley	MIG-17	355TFW	Hanoi area	28
	Capt. Ralph D. Stearman				
29 Dec.	Maj. William H. Wheeler	MIG-21	388TFW	Hanoi area	29
	Capt. Philip M. Drew				



Two views of F-105F-1RE (63-8276) "Angel"—featured in the two-page colour spread—photographed at McClellan AFB, California on May 24, 1969. In the starboard view and above the wing, weathering has removed the camouflage in an irregular line and this is portrayed in the colour section, as are the various badges. Unit letters "MG" are the 419TFTS (ex-4519CCTS) of the 23rd TFWing. (Photos: Author)

UNITS WHICH HAVE FLOWN OR ARE STILL FLYING THE F-105 THUNDERCHIEF

Wing	Squadron	Fate	Code	Colour	Adopted names	
4TFW	333TFS	Seymour Johnson, N.C.	to 355TFW	—	Green	"Lancers"
	334TFS		current/F-4	—	Yellow	
	335TFS		current/F-4	—	Blue	
	336TFS		current/F-4	—	Red	
8TFW	35TFS	Itazuke AB, Japan	de-activated	—	Blue	"Black Panthers"
6441TFW	36TFS	Yokota AB, Japan	de-activated	—	Red	"Flying Fiends"
347TFW	80TFS	USA	de-activated	GR	Yellow	
18TFW	12TFS	Kadena AB, Okinawa	current	ZA	Yellow	"Fighting Dogs"
	44TFS		to 388TFW	—	Blue	
	67TFS		to 475TFW/F-4	—	Red	
23TFW	560TFS	McConnell, Kansas	to 4531TFW/F-4	—	Black	"World's Finest"
	561TFS		current	MD	Yellow	
	562TFS		current	ME	Blue	
	563TFS		current	MF	Red	
419TFTS	current	MG	Green			
57FWW	66FWS	Nellis, Nevada	current	WC	1. Blue/Red	
36TFW	22TFS	Bitburg AB, Germany	current/F-4	—	Blue	
	23TFS		current/F-4	—	Red	
	53TFS		current/F-4	—	Yellow	
49TFW	7TFS	Spangdahlem AB, Germany Holloman, New Mexico	current/F-4	—	Blue	
	8TFS		current/F-4	—	Yellow	
	9TFS		current/F-4	—	Red	
108TFW	119TFS	Atlantic City, New Jersey McGuire, New Jersey	current	—		
	141TFS		current	—		
355TFW	333TFS	George, California McConnell, Kansas Takhli AB, Thailand USA	de-activated	RK	Red	"Lancers"
	354TFS		de-activated	RM	Blue	"Fighting Bulldogs"
	357TFS		de-activated	RU	Yellow	"Licking Dragons"
	358TFS		de-activated	—		
	421TFS		to 388TFW	—		
44TFS	de-activated	RE	Black	"Vampires"		
388TFW	469TFS	Korat AB, Thailand	current/F-4	JV	Green	"Fighting Bulls"
	421TFS		de-activated	—		
	13TFS		current/F-4	—	Yellow	
	34TFS		current/F-4	JJ	Black	
	44TFS		to 355TFW	JE	Yellow	"Vampires"
6010TFS	current	ZB				
4520CCTW	4423CCTS	Nellis, Nevada	de-activated	—		"Hornets"
	4426CCTS		de-activated	—		"Cobras"
	4520ADS		"Thunderbirds"	current/F-4	—	
140TFW	127TFTS	McConnell, Kansas	current	—		

More F-105F-1REs of the 23TFW. (Left) The 419TFTS's "433" (62-4433) bears "The World's Finest" badge, depicted in the colour spread, and supports a rocket pod on the outer wing pylon. (Right) The 561TFS's "366" (63-8366) has the distinction of being the last Thunderchief built. The all-flying slab tailplane ("stabilator") is clearly defined. Photographs taken May-June 1969. Both F-105Fs were resident at McConnell AFB at that time. The 419th is the only Tactical Fighter Training Squadron for F-105 pilots. (Photos: Author)





The clouds remember. An evocative study in near silhouette of F-105F-1RE (63-8268) of the 12TFS/18TFW in November 1967 when based at Kadena AB, Okinawa. From the outer port wing pylon is the launch equipment for the high-speed dart trailed for air gunnery training. The dart gear is illustrated on page 79. (Photo: "Aireview", Japan)

GENERAL INFORMATION:

Quantity:	USAF Serials:	Type & Block No.	Quantity:	USAF Serials:	Type & Block No.
2	40098 and 099	YF-105A-1RE	121	00427 to 00535 and	F-105D-10RE
4	40100 to 40103	F-105B-1RE		05374 to 05385	
5	40104, 106, 107, 109 and 110	F-105B-5RE	66	10041 to 10106	F-105D-15RE
1	40111	F-105B-6RE	55	10107 to 10161	F-105D-20RE
2	40105 and 108	JF-105-1RE	80	10162 to 10220 and	F-105D-25RE
1	40112	JF-105-2RE		24217 to 24237	
9	75776 to 75784	F-105B-10RE	39	24238 to 24276	F-105D-30RE
18	75785 to 75802	F-105B-15RE	135	24277 to 24411	F-105D-31RE
38	75803 to 75840	F-105B-20RE	143	24412 to 24447 and	F-105F-1RE
3	81146 to 81148	F-105D-1RE		38260 to 38366	
66(*)	81149 to 81173 and	F-105D-5RE			
	91717 to 91757		833		
45	91758 to 91774,	F-105D-6RE			
	91817 to 91826 and				
	00409 to 00426				

(*) 81150 became the prototype F-105D-31RE
 Nos. Built:—Fiscal Year 1954: 15; Fiscal Year 1957: 65; Fiscal Year 1958: 28; Fiscal Year 1959: 68; Fiscal Year 1960: 139; Fiscal Year 1961: 180; Fiscal Year 1962: 231; Fiscal Year 1963: 107.

SPECIFICATION:

	F-105D:	F-105F:
Span:	10,65m (34ft 11in)	10,65m (34ft 11in)
Height:	6,01m (19ft 8in)	6,24m (20ft 2in)
Weight (empty):	12,700kg (27,500lb)	12,700kg (27,500lb)
Weight (loaded):	16,400kg (38,034lb)	16,250kg (40,073lb)
Weight (max):	23,990kg (52,546lb)	24,780kg (54,027lb)
Length:	19,58m (64ft 3in)	21,21m (69ft 7in)
Wing area:	35,8sq m (385sq ft)	35,8sq m (385sq ft)
Power plant:	P & W J75-P-19W turbojet rated at 7,800kg thrust and 11,100kg with reheat (12,000kg wet).	
Max. Speed (sea level)	1,376 km/h (855mph) +)	
(at 36,000ft)	2,237 km/h (1,390mph) +)	
(at 50,000ft)	1,806 km/h (1,122mph) +)	
Initial climb rate (without external stores)		
Tactical radius (2 1,705 litres/450 US gal and 1 2,460 litres/650 US gal drop tanks)	1,480km (920mils) +)	
Ferry range (max external fuel at 940km/hr = 584mph)	3,846km (2,390mils) +)	+) Performance of the F-105F within 3% of these figures

THE FOLLOWING GENERAL FUEL AND BOMB LOAD WERE CARRIED BY F-105s IN THE VIETNAM WAR:

- F-105D:** 6 x 750lb M-117 bombs on the Multiple Ejector Rack (MER) or 5 x 1,000lb M-83 bombs
 2 x 450US gallon drop tanks externally and 1 x 390US gallon tank in the bomb-bay
 2 x ECM pods (Hughes ALQ-71 and later General Electric ALQ-87).
- F-105F:** 2 x 750lb M-117 bombs on the inboard pylon under the wing
 1 x 650US gallon drop tank on the centre-line pylon and 1 x 390US gallon tank in the bomb-bay.
 ECM pods (see F-105D) or AGM-45A Shrike anti-radiation missiles.
- Other loads:** 2 x 3,000lb M-118 bombs/ 650US gallon drop tank/ ECM pods/ missiles. Additional 500lb bombs, 2,000lb bombs, 2.75in rocket pods, AGM-12B and C Bullpup, and AIM-9 Sidewinder.

Tailpiece. Safe return from an AAA/SAM suppression sortie in July 1968 is evidenced at Thailand's Takhli AB, with the braking parachute billowing behind the 354TFS/355TFW's F-105F-1RE (62-4415), the fourth of this two-seat production variant to be built. (Photo: USAF Official)

