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SCALE Aircraft Modelling

THE INTERNATIONAL MAGAZINE FOR SCALE AIRCRAFT MODEL BUILDERS

Editorial

MONEY, THE MIDDLE EAST AND THE MARKET PLACE

THERE seems to be a lot going on at the moment that could raise doubts as far as modellers are concerned. To be specific this concern can be narrowed down to perhaps three subjects and an observation. To begin with I detect a distinct slackening of sales within the market and although several direct mail retailers tell me that they haven't experienced any great drop in sales, their customers are becoming far more selective and some of the higher priced kits are not selling as well as they used to at this time last year. What they really mean to say is that their profits could be far higher than they are at the moment.

Looking at it from another point of view I am beginning to wonder at the policies being followed by some of the Japanese manufacturers in putting out the same kit in a different box and a change of decal sheet. Our review kit shelf at the office is getting stacked up with Tomcats, F-15s, F-16s and Phantoms all quite highly priced but differing only in the box art and the decals. One could be excused asking if this is not taking the case a bit too far and milking just a wee bit too much from the same set of moulds? When this sort of thing started some time ago we applauded the manufacturers for their ingenuity. Now it seems they have gone a little too far and if the policy is to continue they should try re-releasing some of the less well-known kits with different decal sheets rather than stick to the favoured four.

All this has an effect on the market place. The retailer cannot find space on his shelves for the great number of 'new' kits emerging and, in not being able to do so, risks disappointing his customers by not having the exact model wanted, albeit that the plastic inside the box is exactly the same in each one. Add to this the high price of the model and one can see a potential disaster by stock not moving off the shelves quickly enough and the retailer having to over invest in order to keep up with possible demand. A slowing down of re-released kits ought to take place fairly soon with investment made in really new models.

If sales are down what then is likely to happen with the present Middle East crisis and the price of crude oil? Kit prices took such a leap a few years ago when the basic raw material from which plastic is derived became so expensive that it sounded the near death knell of the hobby and in one case the bankruptcy of a major manufacturer. The market has stabilised since and due to the unqualified success of the smaller cottage industry type of manufacturer, has increased in interest and received considerable support from modellers. Although we should not show anything but complete disgust at the way in which Iraq has usurped its powerful position and annexed its smaller neighbour Kuwait, this does have a knock-on effect on modelling because the cost of plastic appears to be on the increase once again.

We live in somewhat troubled times. No sooner does the West appear to settle its differences with the Soviet Union than another part of the world erupts in conflict with the resulting increase in the price of raw materials. Combine this with the spending power of the individual being on the decline and the costs of running a business rising by the day and one has a potentially dangerous situation for the future of the hobby.

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Front cover: The only Greek squadron to operate the Thunderflash was 348 Mira based at Larissa, one of their aircraft being shown here carrying the unit's distinctive insignia. (AAR)



AIRCRAFT IN DETAIL

Republic RF-84F

In this third and last article of the series, Malcolm V. Lowe discusses the reconnaissance variant of Republic's mighty F-84 family

THUNDERFLASH

ARGUABLY less well-known and possibly regarded as being less glamorous than its headline-stealing fighter contemporaries, the reconnaissance aircraft nevertheless performs a highly significant role within the inventory of many air arms around the world. Indeed, it may be said that one of the first, if not *the* first, of the many important tasks performed by air-

craft in warfare was that of reconnaissance, as exemplified by the activities of seemingly fragile biplanes and their intrepid crews before and during the early days of World War 1.

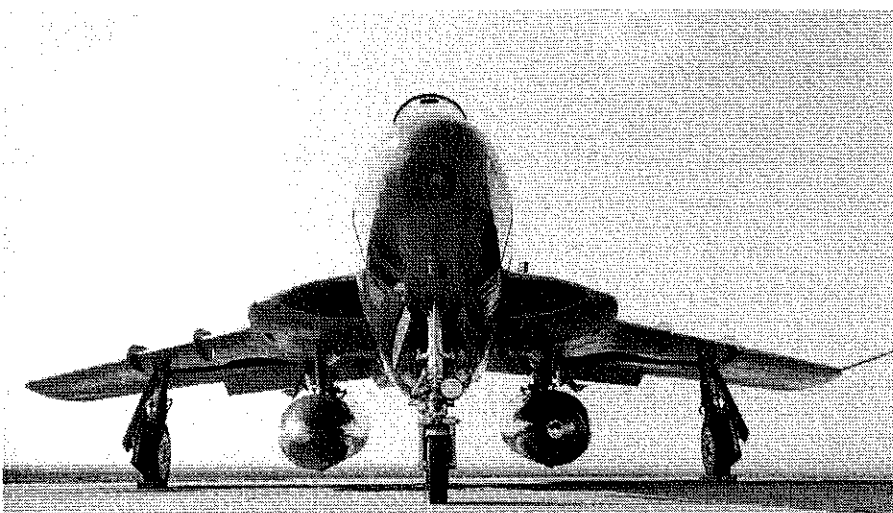
Over the years since those pioneering times, the art of aerial reconnaissance has developed in leaps and bounds and it has often been the case that reconnaissance aircraft have been

derived from an already successful or proven fighter, bomber or related high-performance design. Such was indeed the case with the Republic RF-84F Thunderflash, which was basically derived from the ultimately successful F-84F Thunderstreak fighter-bomber.

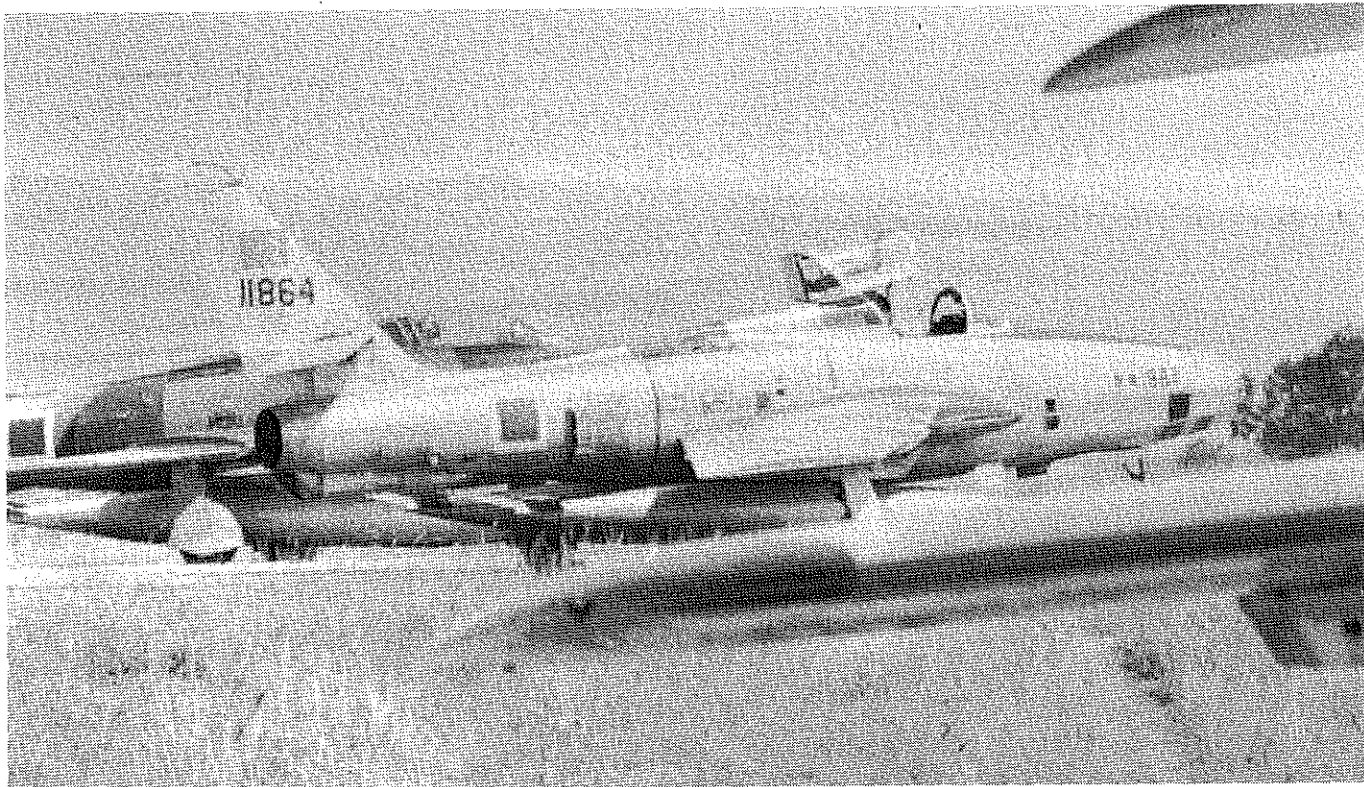
The Thunderflash was the final new production version of the F-84 family of combat aircraft and, like its straight-wing and swept-wing close relatives, it was to perform significant service with USAF and Air National Guard units, as well as serving for many years with a variety of important overseas air arms.

DESIGN HISTORY

The F-84 story can be traced back to the closing years of World War 2, when many USAAF



Above: What it's all about. The camera combination of the RF-84F included a forward facing K-22A 12 inch camera with side oblique K-17C six inch and K-22A 24 inch cameras. Vertically mounted were the K-17C 12 inch and K-38 36 inch models. This machine belonged to the 10th TRW's 32nd Tactical Reconnaissance Squadron based at Spangdahlem, Germany. (10th TRW). Left: The camera nose and side mounted air intakes distinguished the Thunderflash from its fighter-bomber cousins. Also shown to advantage in this view are the underwing fuel tanks and wide-track main landing gear.



Above and right: The Turkish Air Force received a substantial number of RF-84Fs as evidenced here by 51-1864 and 51-1901. (MAP). Below right: Many Thunderflashes ended their days as gate guardians. This anonymous RF-84K is shown in a red, white and blue bi-centennial colour scheme. (Via A.D. Annis)

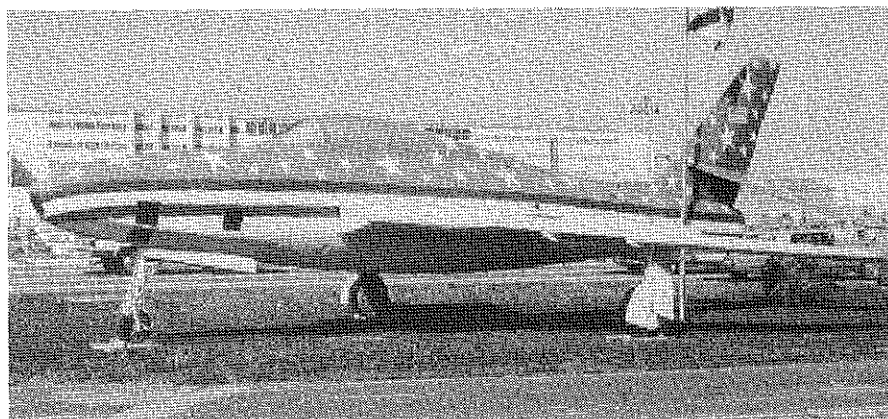
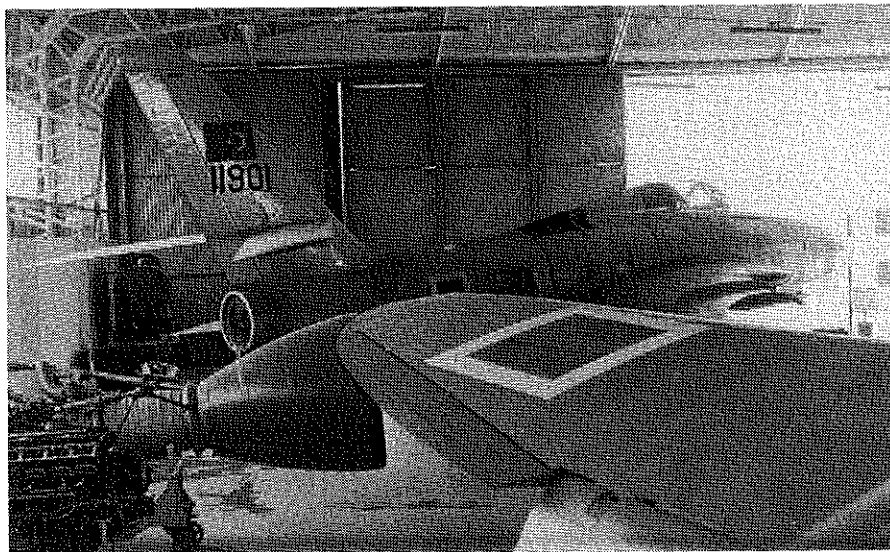
the Chinese Nationalists (Taiwan), about which very little has come to light.

The Aeronautica Militare Italiana is much better documented, 78 Thunderflashes being received and serving from 1956 into the 1970s. Squadrons of the 3rd Aerobrigata (later Stormo) were operational with the type, these being the 18th, 28th and 132nd, with bases at Verona and Villafranca being associated with Italian RF-84Fs. The final examples remained in service until around 1974.

In terms of numbers, West Germany's Luftwaffe received the largest overseas complement of Thunderflashes, with over 100 being supplied and serving in three main units. In service from around 1958 to the mid-1960s, the units concerned were WaFLw-50 (code 'BD') at Furtstentfeldbruck, its successor unit AG-51 (code 'EA'), stationed at bases which included Erding and AG-52 at Eggebeck (code 'EB'). Additionally, both AG-53 and AG-54 were intended at one time to operate the type — eventually Fiat G.91Rs configured for reconnaissance joined these two wings, making the overall procurement of RF-84Fs apparently 108 machines (although some sources quote a higher figure). Some former West German aircraft were passed to Greece and Belgium.

The Force Aérienne Belge/Belgische Luchtmacht received 34 RF-84Fs from around the mid-1950s. They were given the serials FR-1 to FR-34 and served with No.42 Squadron, this unit again operating from several bases before eventually settling at Bierset. The last four Thunderflashes delivered came from West Germany, with some of the others possibly also coming from this source and some reports suggest that at the end of the type's Belgian service it operated for a short time with No.1 Squadron. Both the RF-84F and the F-84F Thunderstreak were formally retired by the Force Aérienne Belge at a ceremonial flypast at Bierset in May 1972, the Mirage 5BR replacing the venerable Thunderflashes.

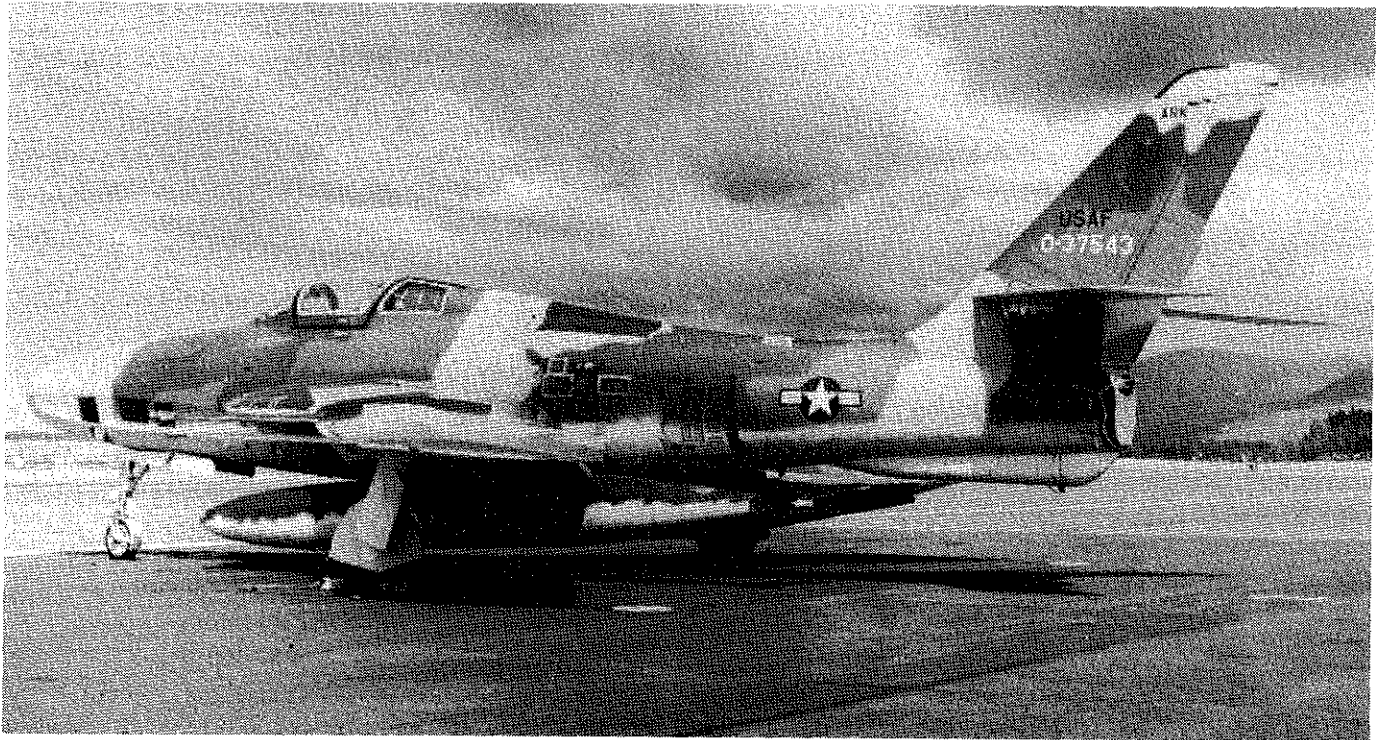
Several European companies became involved in the RF-84F and F-84F support programme for these Mutual Defence Assistance programme aircraft. Numbers amongst



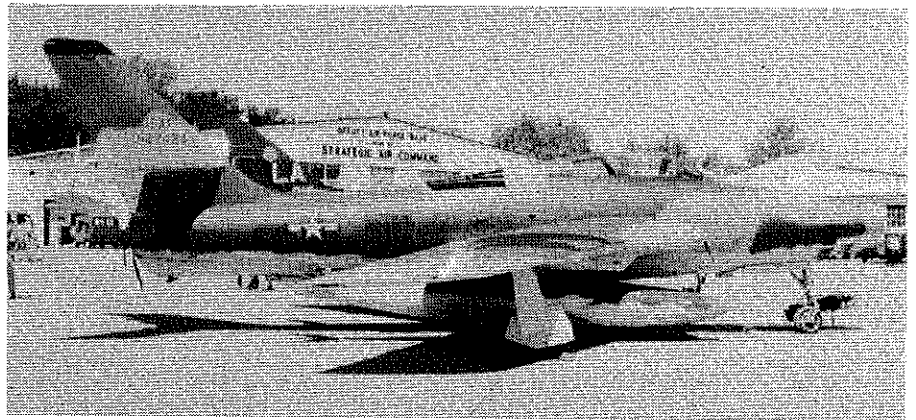
these was the Dutch concern Avio-Diepen, which processed and prepared F-84Fs and RF-84Fs destined for NATO countries upon arrival at Rotterdam after the sea voyage from the US.

By the end of its service with most NATO air arms, the RF-84F had already established a fine operational record, although, in keeping with the F-84F, its attrition rate was in some instances fairly high. By the 1970s far more powerful and sophisticated reconnaissance air-

craft were already in service in numbers, but the Thunderflash successfully bridged the gap between earlier generations of World War 2 vintage and immediate post-war early jet reconnaissance aircraft and newer types such as the RF-4 Phantom II. In coming up with the Thunderflash, Republic certainly created a most capable reconnaissance aircraft and a worthy member of the high successful Thunderjet and Thunderstreak family.



Above: Final paint scheme for USAF RF-84Fs was the South East Asia dark green, medium green and tan low visibility finish with small national markings. This machine is from the 184th TRS, Arkansas ANG. (Via A.D. Annis). Right: Thunderflash 52-7424 exhibits the standard starboard side camouflage pattern of the SEA scheme. (MAP)



fixed intake opening was situated on each side of the fuselage at the wing root. This layout was fully tested on the third Thunderstreak prototype, YF-84F 51-1345, which was built in this configuration to serve as a test-bed.

The one and only prototype to bear the Thunderflash's own designation, YRF-84F 51-1828, was ready for flight testing in early 1952. In appearance, it resembled the YF-84F and this still differed in some respects to the layout of the production Thunderflash. Notable amongst these differences was a fuselage and cockpit canopy that was reminiscent of the F-84E Thunderjet.

The YRF-84F first flew in early February 1952, with Republic test pilot Carl Bellingier at the controls. The successful testing of this aircraft and the YF-84F eventually led to 715 production RF-84F Thunderflashes being built in the early to mid-1950s. The first production aircraft carried the serial number 51-1829 and overall production was covered by three major contracts. Manufacture was accomplished by Republic at Farmingdale, New York and the RF-84F was fortunate in that it did not suffer many of the major teething problems that had so beset the F-84F Thunderstreak. Neverthe-

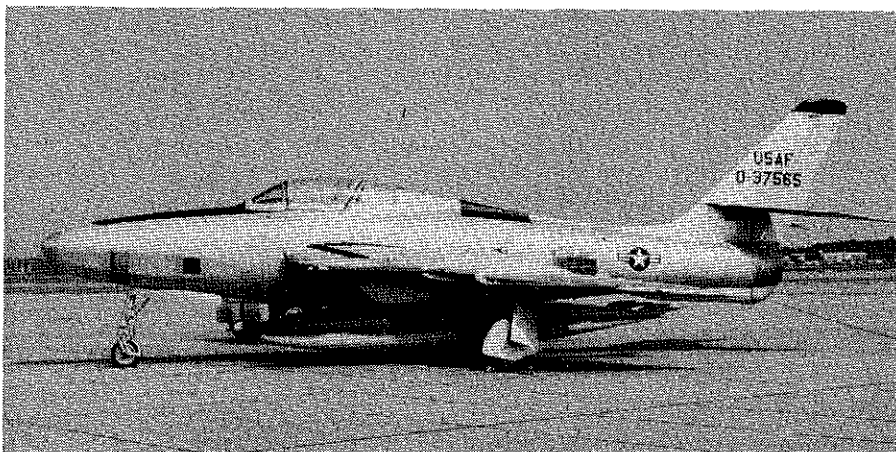
less, difficulties did arise and many of these became apparent during Phase IV testing.

One serious problem concerned the rather dangerous take-off characteristics, particularly at high gross weights, with the J65 engine still a cause for concern. The first 11 RF-84Fs were all reportedly powered by the Z65-W-3 of some 7,220 lbst, while all other Thunderflashes utilised the 7,800 lbst J65-W-7. The aircraft still appeared to some to be a little underpowered, however, although the later engines were generally more successful and reliable. Overall, though, development, production and service entry of the Thunderflash was accomplished rather more smoothly than had been the case with the F-84F and the final

Thunderflash (RF-84F-46-RE 53-7697) was not rolled out at Farmingdale until December 1957.

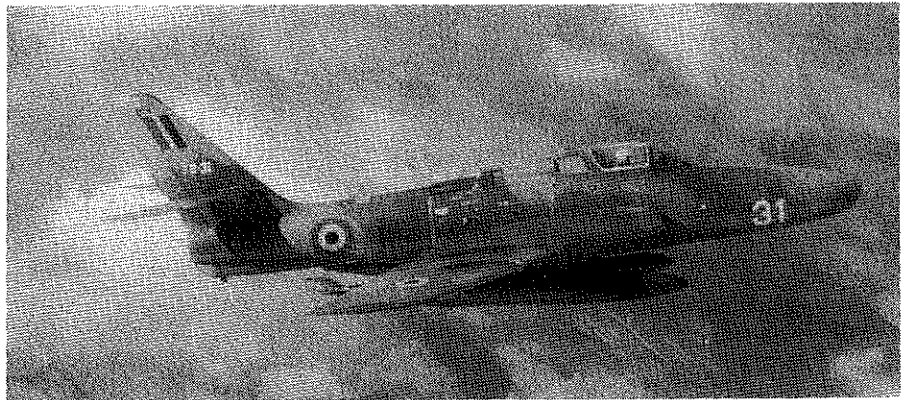
Apart from its redesigned nose and air intake arrangement, the RF-84F generally resembled the standard F-84F, although there were other important differences such as the addition of prominent wing fences, two on each wing. Primarily built of aluminium, the aircraft was of conventional all-metal construction. The pilot was seated in a Republic-developed ejector seat, an unusual feature of the otherwise vintage 1950s-type cockpit layout being the canopy, which, like that of the F-84F, was opened by hinging upwards and backwards on three support members.

Cockpit instrumentation itself was greatly altered with a large viewfinder scope centrally-mounted high on the instrument panel and a battery of camera controls set below this, in addition to other detail changes. The aircraft's control surfaces were conventional and basically hydraulically-operated, with no high-lift devices on the wing leading edges although perforated spoilers were fitted to many (possibly all) aircraft on the upper wing surface ahead of the flaps. These acted with the ailerons and were particularly effective in high speed flight at high airframe loads. Even on this comparatively early jet-powered high-performance aircraft, an all-flying horizontal tail was fitted, representative of a solution found to one of the F-84F's major flight



What a mixture! This Thunderflash has the small insignia associated with camouflaged aircraft but retains a metal finish. Tanks are in camouflage colours and have pale grey undersides.

Right: Belgian operator of the Thunderflash was 42 Smaldeel based at Wahn and later Brustem and Bierset. FR-31 shows clearly the starboard side green and grey NATO camouflage. (Via A.D. Annis). Below right: With 42 Smaldeel's red devil emblem on the nose, FR-6 shows the NATO camouflage pattern and the PRU blue lower surface demarcation line. (MAP)



performance problems.

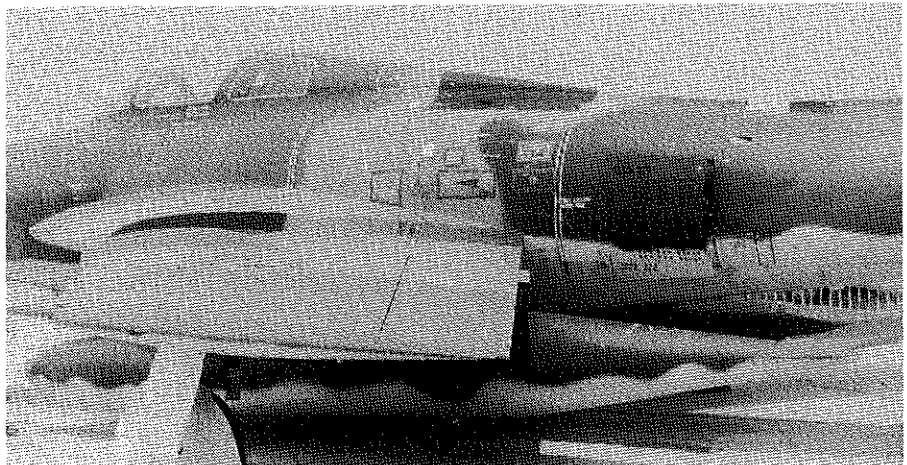
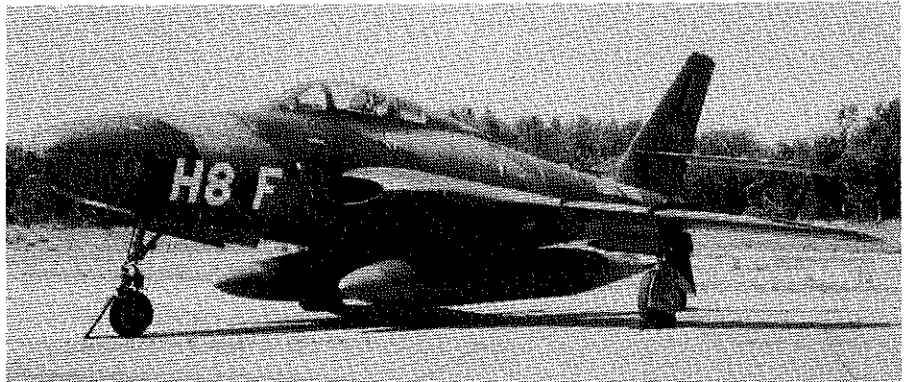
A hydraulically-actuated perforated air brake was fitted on each side of the fuselage behind the wing and a braking parachute was provided on many (but apparently not all) aircraft, this being housed in a fairing situated beneath the rear fuselage.

RECONNAISSANCE EQUIPMENT

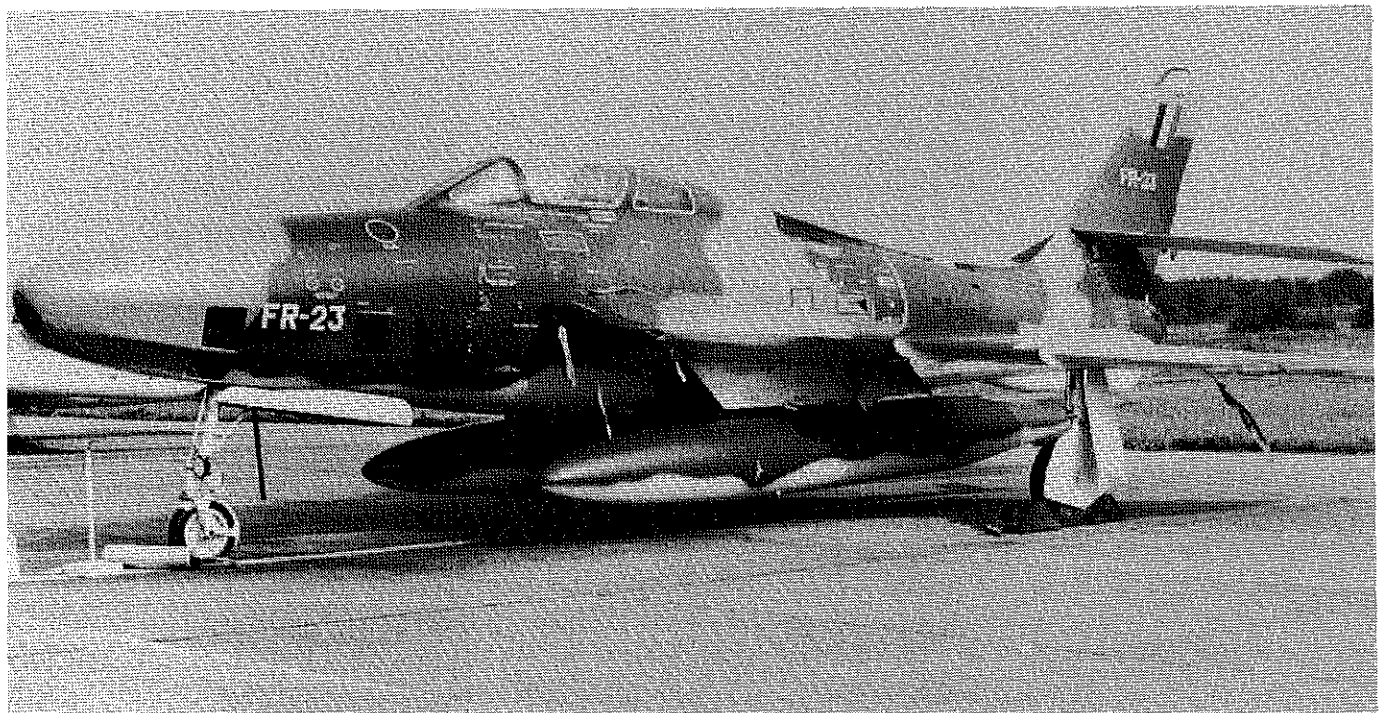
The Thunderflash's solid nose increased overall length to 47 ft 7 $\frac{3}{4}$ in (some sources quote 47 ft 6 in; the F-84F was 43 ft 4 $\frac{1}{4}$ in long). It featured a heated and air-conditioned compartment which housed six cameras — from the front rearwards these were typically a forward oblique, a forward vertical, a mid-high port oblique and a mid-high starboard oblique, an aft high port oblique and a prime vertical. Each camera station had its own optically-flat exterior window.

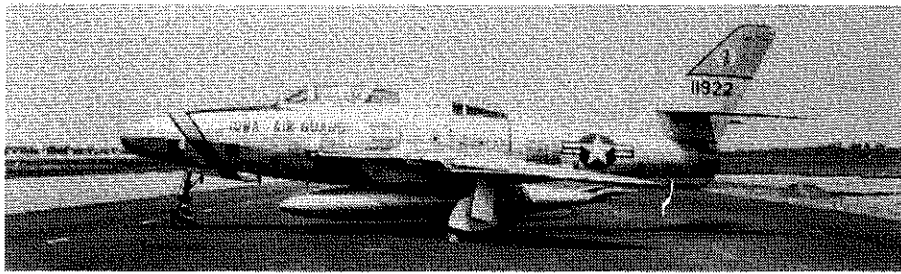
A large variety of different cameras could be carried, usually of the K-17, K-22 and K-38 types while the camera fit could also be altered as necessary, with some positions unoccupied for some missions. Behind the camera compartment was a periscopic viewfinder for the pilot's use and there was also a photo-cell unit for camera activation during flare illumination at night, photoflash cartridges being carried as required. Although most reconnaissance aircraft of this period were unarmed, the RF-84F carried four Mk.3 0.5 inch machine guns, two being positioned just outboard of each air intake opening.

The Thunderflash had provision for in-flight refuelling, the relevant receptacle for the flying-boom being located in the upper port wing ahead of the wing flap. Later, in around 1957, some aircraft were fitted with a prominent probe on the port wing leading edge just outboard of the inner wing fence, for probe-and-drogue refuelling as well. Under-

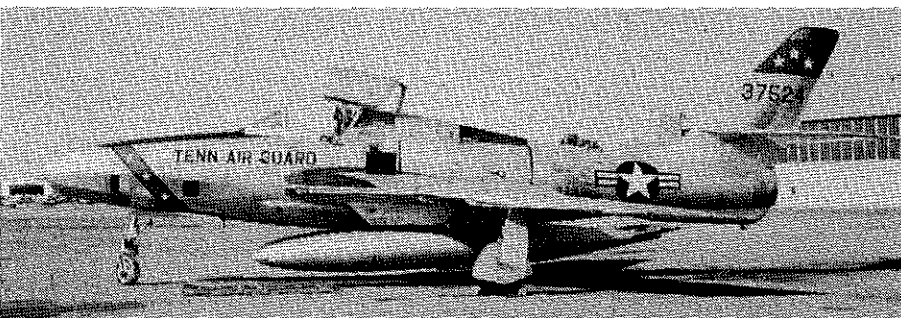
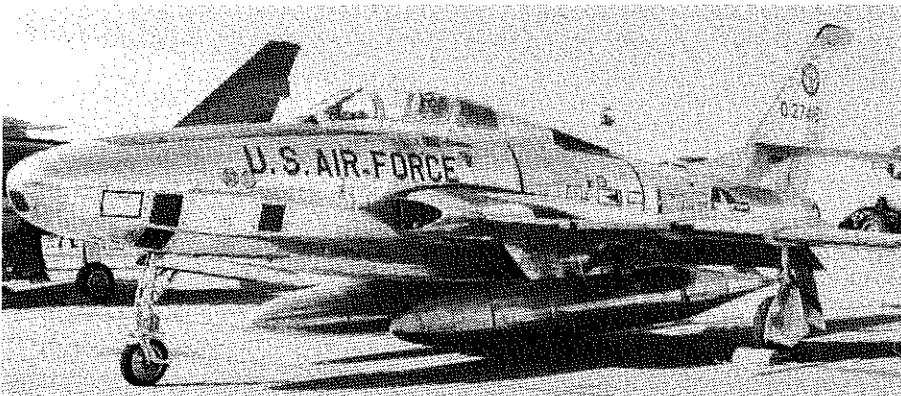
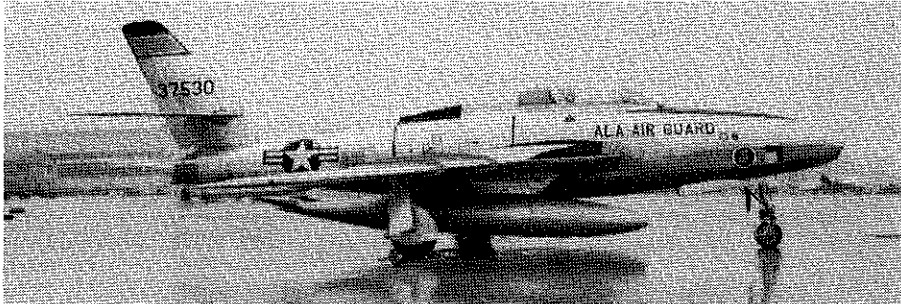


Right: Useful centre fuselage detail is visible on this Belgian machine finished in USAF camouflage. Note red outlined panels. Below: A 42 Smaldeel RF-84F seen during 1968 with full USAF camouflage.





Left: Iowa Air National Guard unit, the 174th TRS (185th TFG) operated the RF-84F during the 1958-61 period. All trim is yellow and black. Below left: 106th TRS (117th TRW) of the Alabama ANG was operating 53-7530 during the Berlin crisis of 1961. Again, the trim is yellow. (Via A.D. Annis)



some components with the straight-wing Thunderjet.

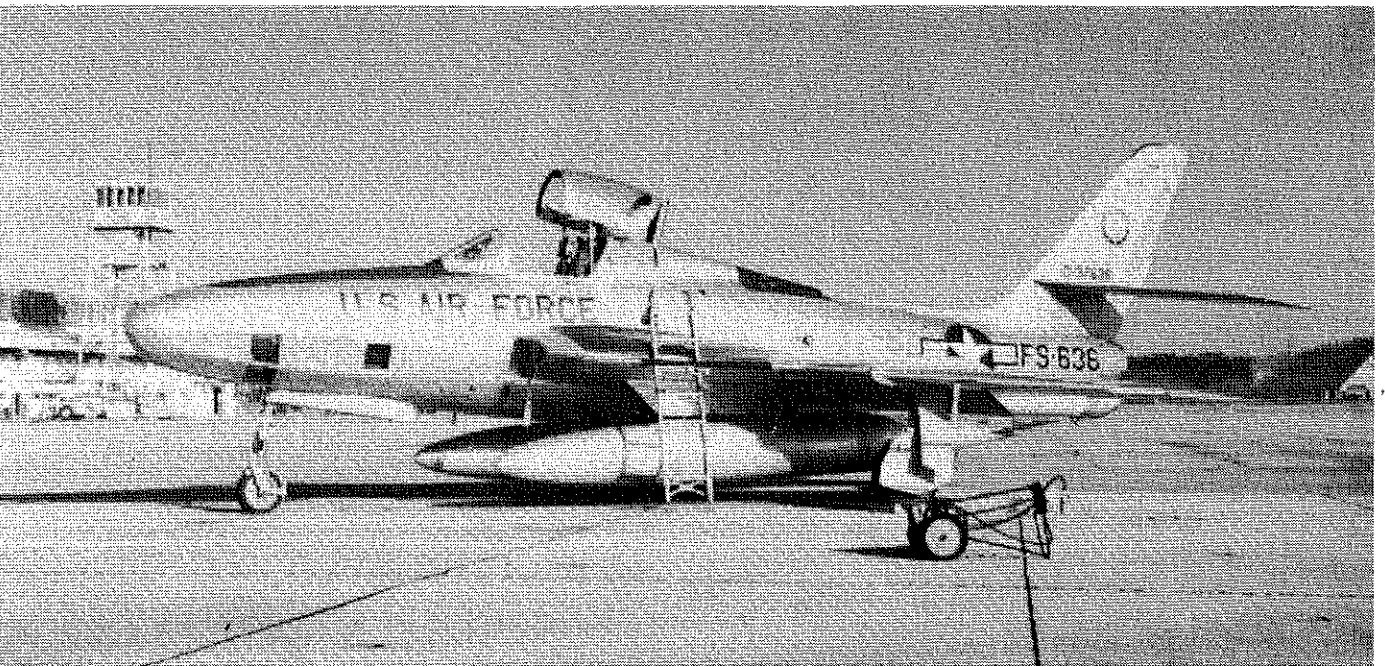
The Thunderstreak, as the F-84F was named, unfortunately ran into a number of major pre-production and early production difficulties, some of which were associated with the power plant, the Wright J65 turbojet. It was some time before the various problems were ironed out but the type did mature into an effective warplane. The first production F-84F flew in November 1952 and from 1954 the type went on to equip many front-line USAF squadrons while several hundred were passed on to the Air National Guard as well as to the air arms of Belgium Denmark, France, Greece, Holland, Italy, Turkey and West Germany.

Significantly, at around the time that the Thunderstreak was going through its birth pains, there was also a growing requirement within the USAF for a viable, state-of-the-art, high-performance reconnaissance aircraft. By the late 1940s, the Air Force was seriously examining this requirement, particularly as a replacement for the existing Lockheed RF-80A and RF-80C Shooting Star would eventually be badly needed. Mindful of this situation, Republic proposed in August 1949 a reconnaissance aircraft design which, as eventually built, was generally derived from and, in many respects, close resembled the swept-wing Thunderstreak. This proposal, and some preliminary work done by Republic, was rewarded in July 1950 with the issue by the Air Force of a letter of intent relating to acquisition of the reconnaissance version which was given the designation RF-84F.

MARKED DIFFERENCES

Named Thunderflash, the new aircraft differed markedly from the standard F-84F Thunderstreak particularly in featuring a solid nose with the engine air intake relocated from the nose and split so that a comparatively small,

Top left: With the colourful era now gone, Arkansas ANG was operating 52-7416 in this highly polished metal finish with olive drab anti-glare panel. Left: Thunderflash 53-7524 was being operated by the 155th TRS, 164th TRG, Tennessee ANG when this picture was taken. Below: This Thunderflash is thought to be from the 153rd TRS, Mississippi ANG at Gulfport. (Via A.D. Annis)

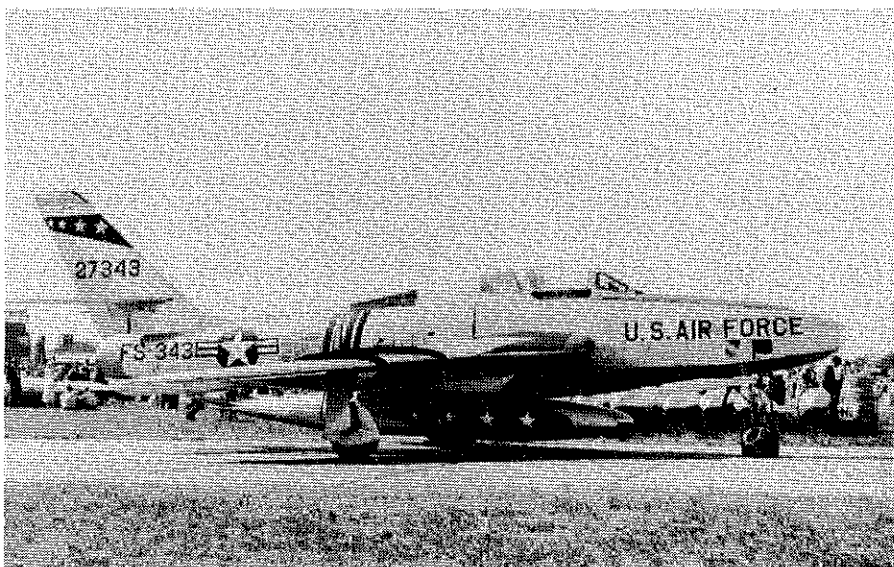
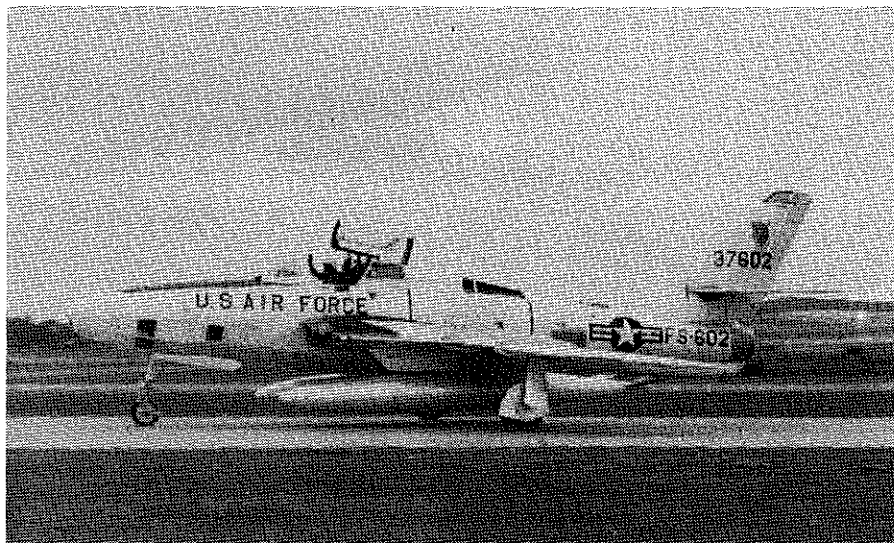


Right: RF-84F Thunderflash 53-7602 in standard USAF colouring and with unit emblem on fin, taxiing in after a demonstration during an Armed Forces Day display. The aircraft is believed to be from the 303rd TRS, 66th TRW. (Photavia). Below right: Bearing the insignia blue with white star markings of the 303rd TRS, 52-7343 was the flagship of the 66th TRW in 1957 and carries the wing commander's blue, red, yellow and green fuselage stripes. (Via A.D. Annis)

fighter and fighter-bomber units were equipped with versions of the famous Republic P-47 Thunderbolt. Design studies instigated at this time by Republic under the direction of Alexander Kartveli were aimed at conceiving a viable jet-powered fighter for USAAF service at the earliest possible time. At first, Republic examined the possibility of creating a jet-powered Thunderbolt derivative, but much more successful studies ensued when this idea was abandoned and a number of new designs were created on a 'clean sheet of paper'. In a comparatively short time these studies led to the successful maiden flight of the first straight-wing XP-84 prototype, in February 1946, this being the forerunner of more than 4,400 F-84 Thunderjets. Several different versions were eventually built and the Thunderjet became the mainstay of many USAF and overseas fighter-bomber squadrons, serving with distinction as a ground attack aircraft in the Korean War.

Republic began work on a swept-wing derivative of this successful aircraft as early as 1947, with great emphasis being given to the advances in swept-wing technology which by then had already gained great prominence. Design and development of this new variant, which would itself ultimately lead to the reconnaissance Thunderflash, began in earnest in late 1949, with official interest soon being expressed in the project. Initially, the new aircraft received the designation YF-96A although this was later changed to YF-84F due to the considerable degree of commonality of

Nice detail of the camera ports, nose-wheel gear and intake splitter plate, all of which are visible in this view of the first production Thunderflash 51-1829.



Port and starboard side views of 52-7325/NU being operated by ER.2/33 'Savoie', Armee de l'Air. Camouflage is unique to French aircraft. (MAP and via A.D. Annis)

wing fuel tanks could also be carried. The Thunderflash's performance included a maximum speed at sea level of some 697 mph — slightly slower than the F-84F Thunderstreak, although some sources quote it as being even less than this figure — but it could fly a little higher, at around 46,000 ft.

USAF SERVICE

In total, five USAF Tactical Reconnaissance Wings (TRWs) flew the RF-84F, plus a Strategic Reconnaissance Wing (SRW). The first to receive the type was the 363rd TRW at Shaw Air Force Base (AFB), South Carolina, in 1954, this Tactical Air Command (TAC) wing operating it until 1958. A second TAC unit, the 432nd TRW again at Shaw AFB, also flew the RF-84F.

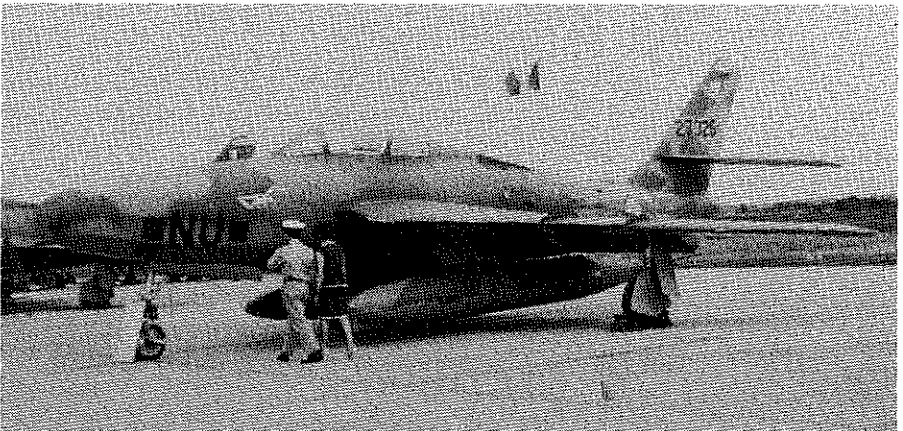
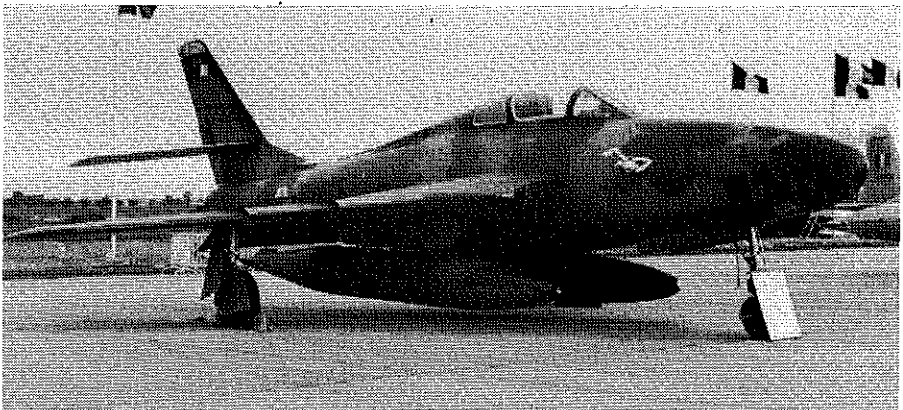
Within Pacific Air Forces (PACAF), the 67th TRW operated the Thunderflash from 1955. The wing itself was based at Itami Air Base (AB) in Japan until the summer of 1957 when it moved to Yokota AB, on the outskirts of Tokyo. Principal squadrons concerned were the 15th TRS, originally at Yokota and, with effect from the summer of 1956 at Kadena AB, Okinawa and the 45th TRS at Misawa AB, Japan. The final RF-84Fs reportedly left in late 1958.

The Thunderflash was also a familiar sight for a number of years with units of the US Air Forces in Europe (USAFE), the 10th and 66th TRWs both operating it alongside other equipment like the RB-66 Destroyer. The former wing operated the RF-84F from 1955, its 32nd and 38th TRSs being the relevant squadrons. Principal base of the 10th TRW was Sapngdahlem AB, West Germany, but it lost both RF-84F squadrons to the 66th TRW in 1958. This wing had also received its first Thunderflashes in 1955 and, with the addition of the 32nd and 38th TRSs, it became a four-squadron wing, the 302nd and 303rd TRSs being the original two elements with the type. Based first at Sembach AB, West Germany and then at Laon AB in France from July 1958, the wing had surrendered its Thunderflashes by the end of the 1950s in favour of more modern equipment.

The remaining front-line USAF wing within the US to operate the RF-84F was the 71st SRW at Larson AFB, Washington. Two squadrons operated the type within this wing, the 25th and 82nd SRSs and some RF-84Fs were also on the strength of the 91st SRS. The Thunderflash served with the 71st SRW from 1955 until 1957 when Strategic Air Command dismantled its relatively small fighter force.

TOM TOM AND FICON

The RF-84F also became involved in two major flight-test programmes, based upon the



parasite aircraft concept and operated in conjunction with suitably modified reconnaissance versions of the Convair B-36. The least known and least successful of these two programmes was known as 'Tom Tom'. Employing the comparatively dangerous method of wingtip-to-wingtip link-up between a mother aircraft and a parasite craft, 'Tom Tom' had its roots in the concept of a bomber carrying its own defensive fighter, an idea which had been around for many years prior to this development.

Even the concept of wingtip-to-wingtip mating as performed by project 'Tom Tom' was not unique, flight tests having been conducted in the US with a suitably-modified Douglas C-47A and a Culver PQ-14B and, subsequently, under project 'Tip Toe', with specially adapted Republic EF-84D Thunderjets and a Boeing ETB-29A Superfortress. There were great dangers inherent in this particular method of in-flight link-up, however, caused mainly by the wingtip vortices generated by large mother aircraft — in April 1953 a fatal crash resulted when one of the 'Tip Toe' EF-84Ds went out of control at link-up and flipped over on to the wing of the Superfortress.

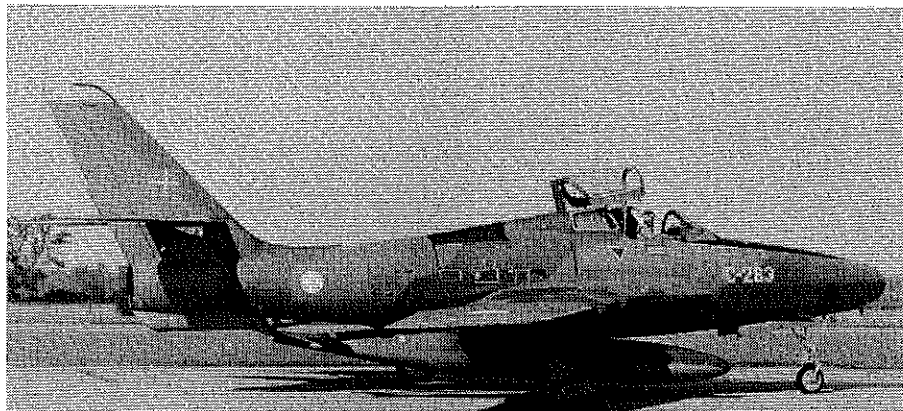
Nevertheless, 'Tom Tom' proceeded un-

deterred, using modified RB-36F 49-2702 which featured podded, articulated hook-up points on its wing tips, plus RF-84Fs 51-1848 and 51-1849, with wing tip articulated jaws that clamped shut on the RB-36's wing tip members to hold the Thunderflash in place. After successful ground testing, full in-flight trials duly ensued, although it appears that only one of the two RF-84Fs was fully configured for in-flight link-up, all relevant conversion work having been performed by Convair at Fort Worth. While several successful matings (some reports state up around 50) were eventually made, the process nevertheless remained hazardous. In what became the final test flight, Convair pilot B.A. Ericson found his RF-84F inadvertently and suddenly attached to the RB-36's wing tip and oscillating violently up and down. Fortunately, the Thunderflash broke free and fell away from the bomber, but further flight trials were abandoned and the project was terminated.

Much more successful was FICON (Fighter Conveyor). This again utilised modified RB-36 aircraft, this time converted to carry specially adapted RF-84Fs known as RF-84Ks beneath the fuselage. The project included the potential of illustrating the feasibility of allowing the B-36 its own parasite fighter, but could also give the RF-84F a massive increase in range capability, in effect allowing the proposed RB-36/RF-84 combination to cover just about every part of the world.

Phase I testing took place using a suitably modified GRB-36F and an F-84E, these being followed by trials employing the first prototype YF-84F Thunderstreak, 49-2430, while for the extensive Phase IV evaluation an RF-84F converted to virtually standard RF-84K configuration was used. In the event, some 25 RF-84Ks were produced through modification of standard RF-84Fs (they were apparently referred to as GRF-84Fs prior to the RF-84F designation) and several RB-36Fs were converted to GRB-36F configuration.

Modification of the latter included a redesigned lower fuselage which incorporated special opening and closing fairings to fit



At RAF Coltishall in 1968 was C-283 of Esk.729, Royal Danish Air Force. Finish is green, grey and blue with red and white markings. (A.D. Annis)

around the top part of the RF-84K when carried beneath the fuselage as well as a retractable hydraulically-activated trapeze assembly which could be lowered as necessary to launch or recover the parasite RF-84K.

The RF-84Ks' special features included a retractable hook fitted on the top of the nose ahead of the windscreen for engaging with the trapeze assembly and a major modification to the horizontal tail surfaces that saw these all-flying components given considerable anhedral, mainly to clear the lower part of the GRB-36F's fuselage when mated. The latter modification coincidentally improved lateral control by virtually eliminating pitch-up in accelerated manoeuvres and would have been a useful feature to retrofit on existing conventional Thunderflashes and Thunderstreaks.

With testing of the FICON system successfully completed, deployment commenced, the RF-84Ks serving with the 91st SRS of the 71st SRW. This squadron, which also operated some standard RF-84Fs, was assigned to the 71st SRW from January 1955 but was actually attached to the 407th Strategic Fighter Wing at Great Falls (later Malmstrom) AFB, Montana, between December 1954 and July 1955. From July 1955 onwards, the squadron was based at Larson AFB, Washington, with other elements of the 71st SRW.

FICON operations apparently continued until around April 1956, there having been several near disasters by this time and overall the RF-84Ks service career with the 91st SRS remains something of a mystery although rumours tend to confirm that it was employed operationally, some aircraft possibly overflying China in the course of intelligence gathering activities. The parasite concept had been proved valid, however, by this deployment, a testimony to the faith put in the programme by both Republic and the Air Force.

In addition to serving with the 91st SRS, some RF-84Ks also found their way to PACAF's 45th TRS at Misawa AB, Japan, operating alongside standard RF-84Fs, while others joined the inventories of various test and research units. Some also reportedly served

with the 3600th Combat Crew Training Wing at Luke AFB, Arizona while others ended up with Air National Guard squadrons, again operating in conjunction with standard examples of the RF-84F. Needless to say, RF-84Ks with these units operated from runways in the conventional fashion.

ANG EMPLOYMENT

The RF-84F joined the ANG comparatively early in its service life, initial examples reaching the 155th TRS, Tennessee ANG and the 160th TRS, Alabama ANG in 1956. Eventually, 11 ANG reconnaissance squadrons and two ANG fighter squadrons operated the Thunderflash and details of these are presented elsewhere.

It should be noted that the RF-84F gave long and important service to the Air Guard, with peak strength in terms of numbers of squadrons being reached in 1958 but it remained active in declining numbers until the early 1970s. The last ANG operator was the 173rd TRS, Nebraska ANG which had begun flying the type comparatively late, in 1964 — it traded in its final RF-84Fs in early 1972 for the more potent RF-4C Phantom II.

While operated by the ANG the RF-84F gave distinguished service during the Berlin crisis in 1961-62, when four squadrons — the 106th and 160th TRSs (Alabama ANG), the 153rd TRS (Mississippi ANG) and the 184th TRS (Arkansas ANG) — were called to active duty. Of these units, the 153rd, 160th and 184th remained at their home stations (Key Field,

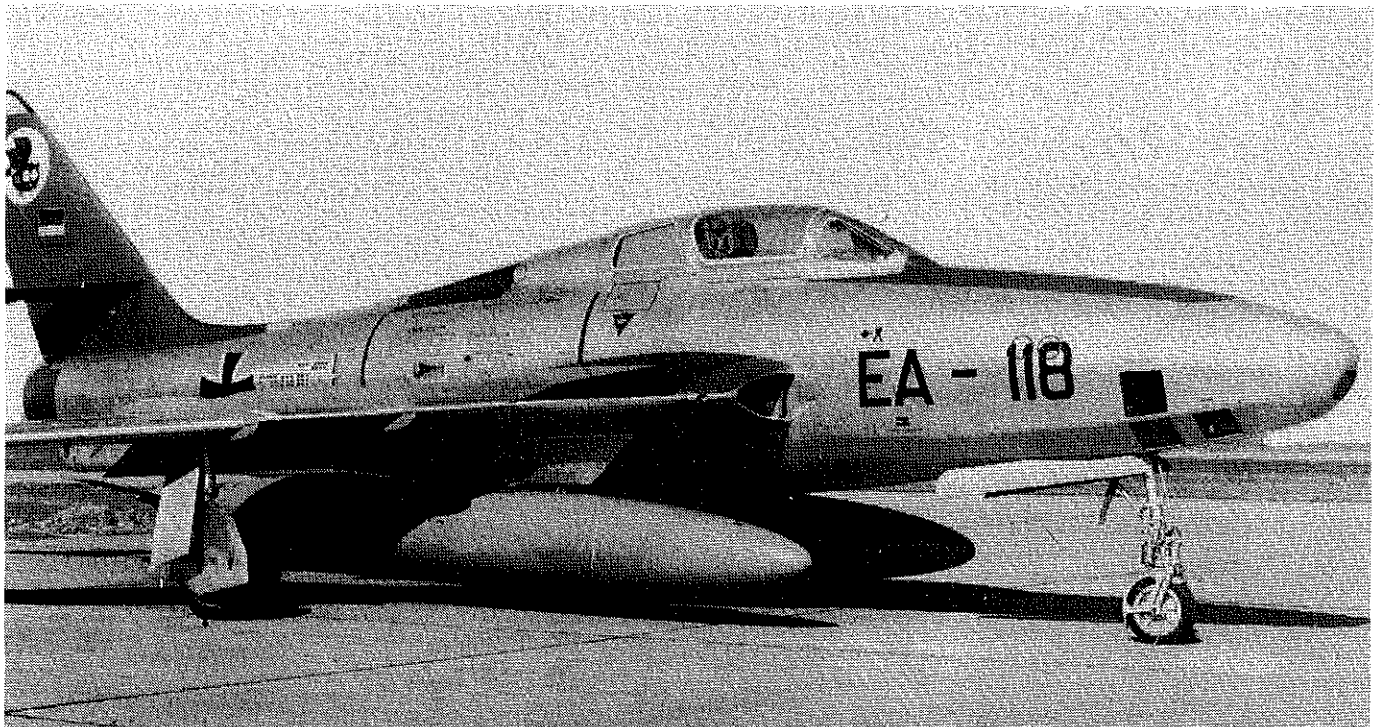
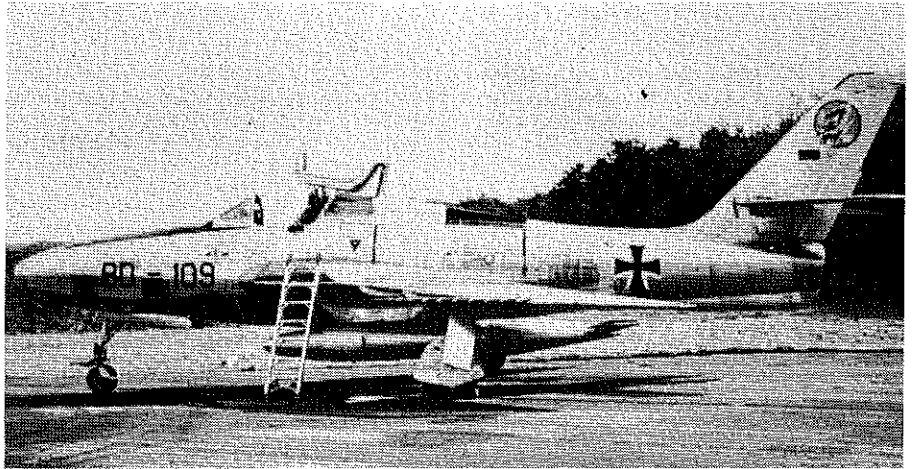
Mississippi; Dannelly ANG Base, Alabama and Fort Smith Municipal Airport, Arkansas, respectively) until they returned to State control in August 1962, but the 106th TRS was lucky enough to go overseas, to France. The unit's deployment to Europe was made via McGuire AFB, New Jersey, to Argentina Newfoundland, thence to Lajes in the Azores, Moron in Spain and, finally, to Dreux AB in France. The squadron eventually returned to the USA and State control in August 1962.

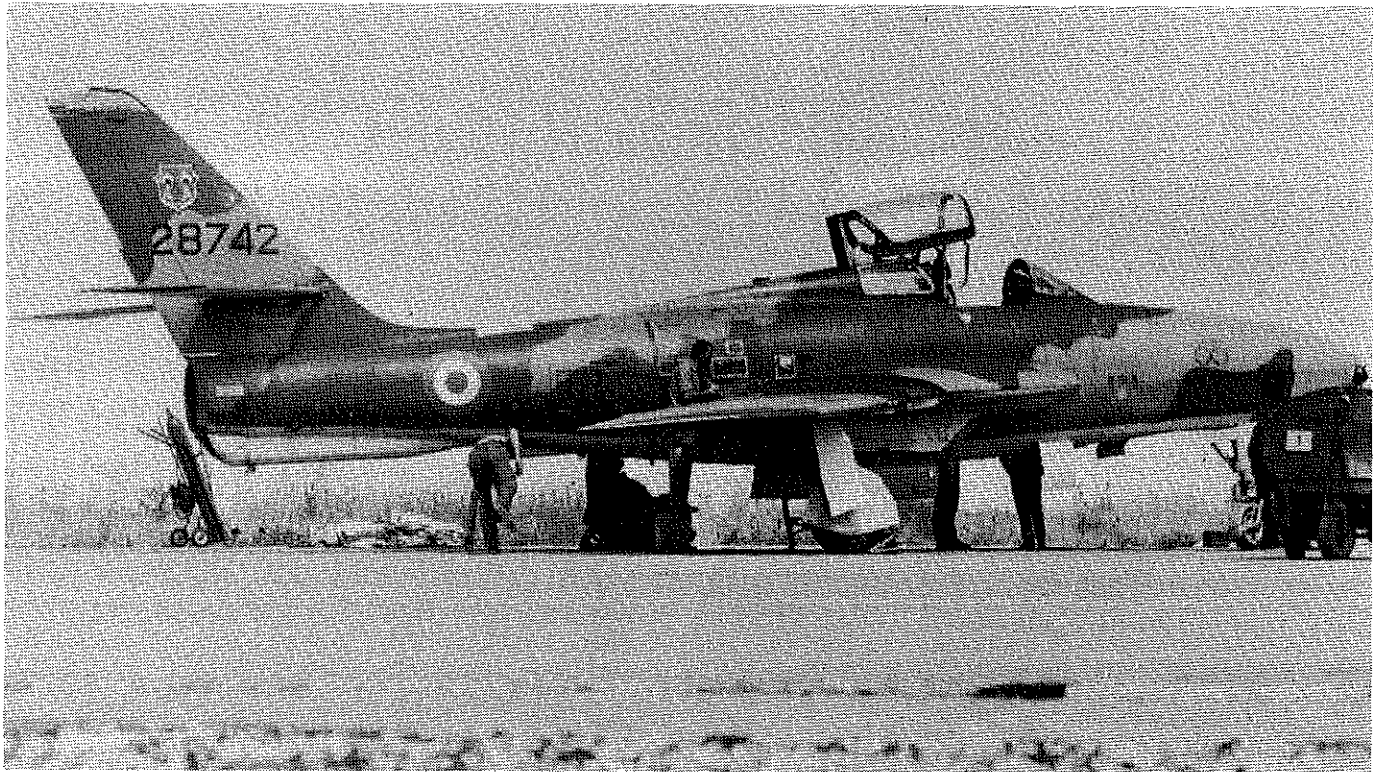
As a result of the Berlin crisis and the need within the regular Air Force for more F-84F Thunderstreaks, the RF-84F temporarily equipped two ANG fighter units, namely Indiana's 113th and 163 TFSs. These squadrons, normally equipped with the F-84F, were called to active duty during the Berlin crisis and, as their F-84Fs were needed by the Air Force, they both received RF-84Fs which they flew between 1962 and 1964 when Thunderstreaks were again available during this period, they retained the tactical fighter mission even though they were equipped with reconnaissance aircraft.

OVERSEAS AIR ARMS

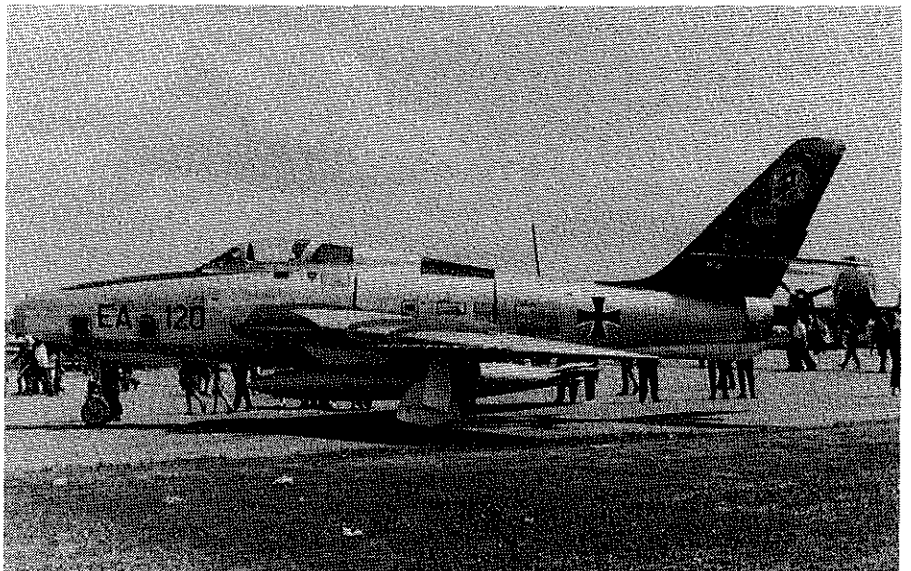
Like the F-84F Thunderstreak, the RF-84F gave many years of important service in the inventories of several overseas air arms. One of the most significant operators was France, the Armée de l'Air receiving approximately 75 RF-84Fs from the mid-1950s. In French service, the Thunderflash equipped the three squadrons

Right: WaSLw 50 was the Luftwaffe Weapons School based at Erding and BD-109 shown here carries the unit's devil-with-camera emblem on an otherwise all natural metal finish. (Via A.D. Annis). Below: Natural metal with a red tail unit, EA-118 belonged to AKG 51. Drop tanks are blue.



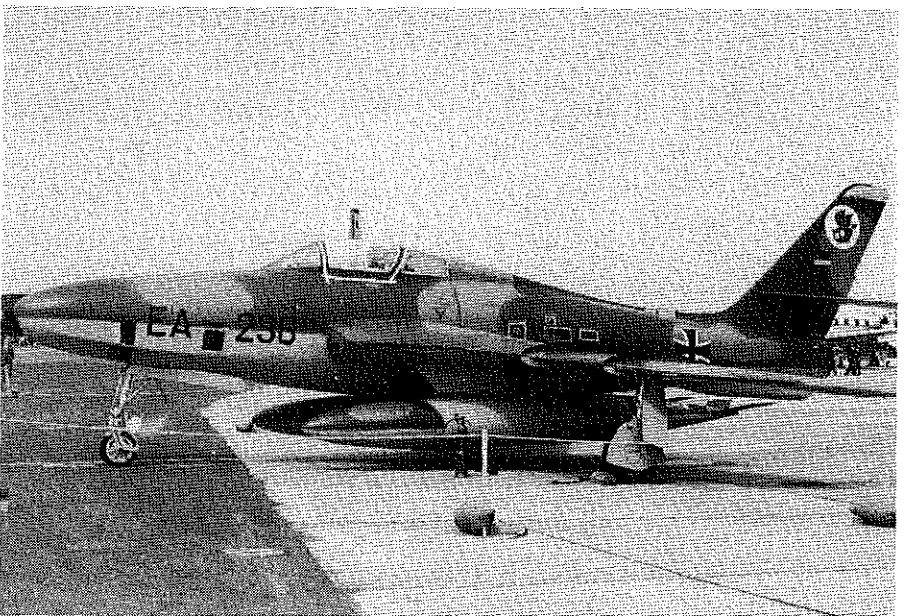


Above: RF-84F Thunderflash 52-8742 in service with 348 Mira, Greek Air Force. Right: AKG 51 initially used the emblem of WaSLw 50 on its red-tailed aircraft prior to development of its own insignia. (APN). Bottom: This AKG 51 aircraft shows clearly the green and grey camouflage later applied to Luftwaffe aircraft. Lower surface is silver grey. (Franz Schädler)



of the 33e Escadre de Reconnaissance, namely ER.1/33 'Belfort', ER.2/33 'Savoie' and ER.3/33 'Moselle'. Aircraft of these squadrons were coded in the '33-C', '33-D' and '33-T' ranges respectively. During the time that the Escadre operated the type, these squadrons flew from a number of bases, including Strasbourg. Additionally, the honour of taking the Thunderflash into combat fell to one of these French squadrons, this taking place during the famous Anglo-French and Israeli operations in the Suez operation of 1956. The unit concerned was ER.1/33 'Belfort' which was based at Akrotiri, Cyprus during the campaign and which flew vital photo-reconnaissance missions for the Allied forces in conjunction with Canberra PR.7s of No.13 Squadron, RAF.

The RF-84F served with the French until the early 1960s when the Dassault Mirage IIIR entered service. Some of the French machines found their way to Denmark and there was also some interchange of aircraft with Norway. The Royal Danish Air Force received 23 RF-84Fs, comprising an initial batch of ten with



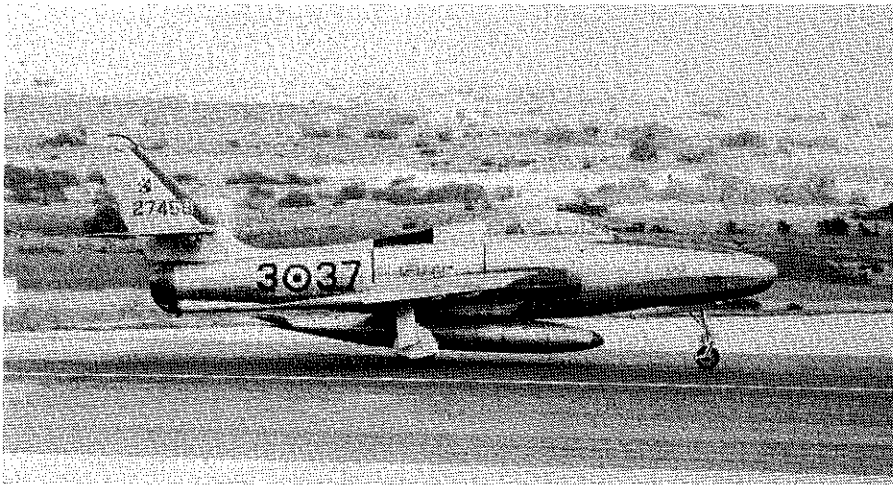
AIR NATIONAL GUARD RF-84F UNITS

Tactical Reconnaissance Squadrons:

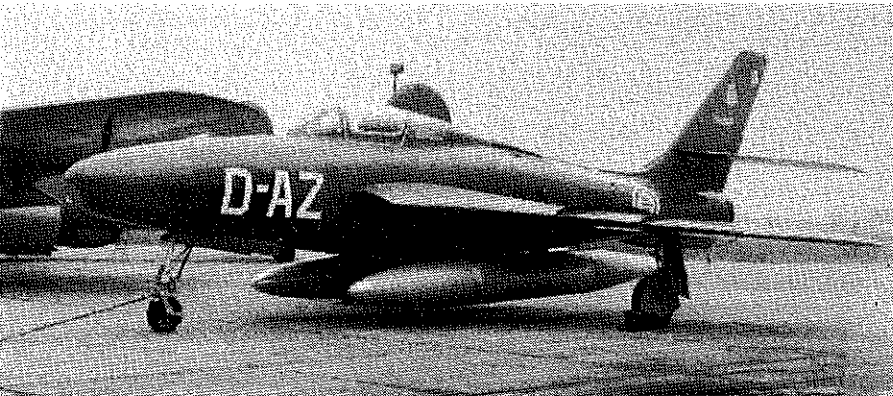
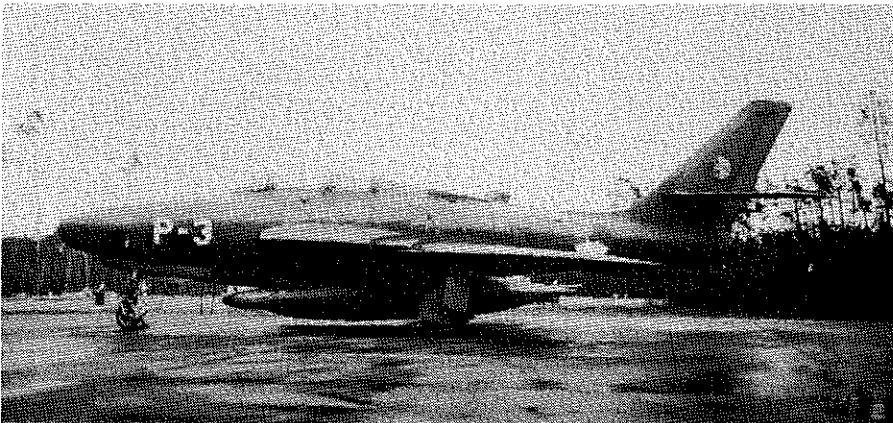
Squadron	State	Period of service
106th TRS	Alabama	1957-1971
107th TRS	Michigan	1958-1971
153rd TRS	Mississippi	c. 1957-1970
154th TRS	Arkansas	1957-1958
155th TRS	Tennessee	1956-1961
160th TRS	Alabama	1956-1971
171st TRS	Michigan	1958-1971
173rd TRS	Nebraska	1964-1972
174th TRS	Iowa	1958-1961
180th TRS	Missouri	1958-1962
184th TRS	Arkansas	1957-1970

Tactical Fighter Squadrons:

113th TFS	Indiana	1962-1964
163rd TFS	Indiana	1962-1964



Left: Coding and the black and white cat tail emblem identify 52-7458 as belonging to Italy's 3^o Aerobrigata. (Godfrey Mangion). Below left: The Royal Netherlands Air Force was another NATO Thunderflash operator. Shown here is P-3/52-7233 of No.306 Squadron. (Via A.D. Annis).



deliveries commencing in May 1957; a replacement delivered in July 1958; seven more replacements from the US in 1962-63, possibly ex-ANG machines and five more in the autumn of 1964 from France. They served with the Danes until approximately 1971, the relevant squadron being Esk.729 at Karup and the type suffered a fairly high attrition rate. The Thunderflashes were replaced by SAAB RF-35 Drakens.

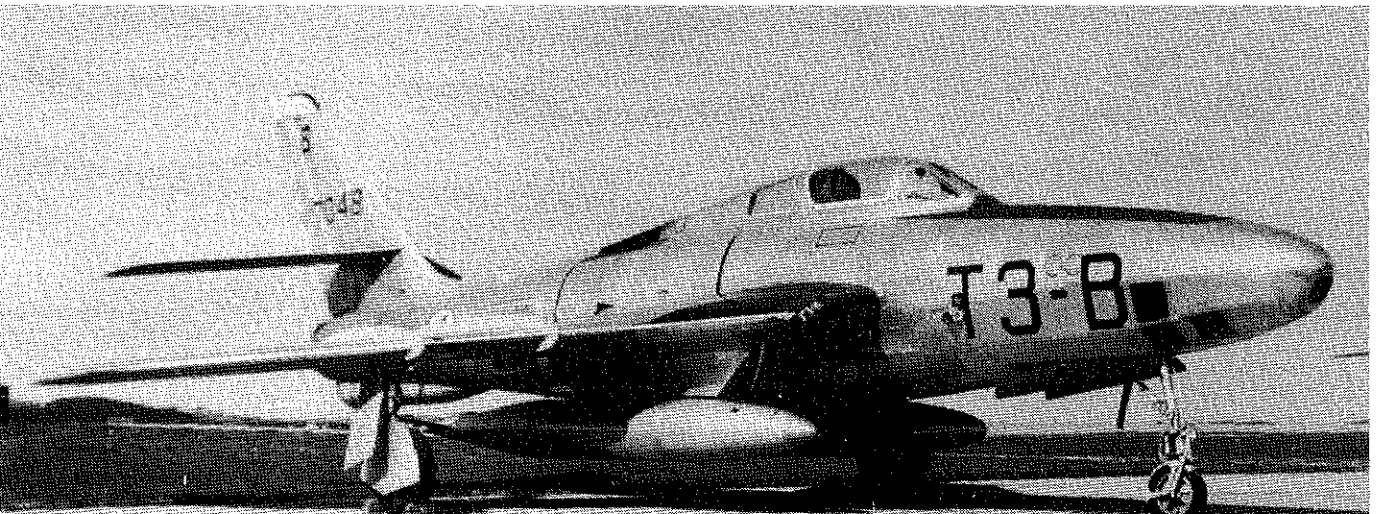
The Royal Norwegian Air Force received around 31 RF-84Fs, starting in April 1956 with an initial batch of 20 aircraft — the last of these arrived in January 1957 and all were supplied from the US. The relevant squadron was No.717 (aircraft originally coded in the 'T-3' range) at Sola and, later, at Rygge. A variety of other RF-84Fs were received after the initial batch and an interchange of aircraft with France apparently took place. The type remained in service until the late 1960s.

The Royal Netherlands Air Force received 24 RF-84Fs, for service with No.306 Squadron. This unit also reportedly served at a number of bases, including Twenthe. The aircraft wore the codes 'TP-1' to 'TP-18' (for the first 18) and, later, P-1 to P-24 (when the code system was altered and all 24 aircraft had been received). In service until the early 1960s, many of these RF-84Fs subsequently found their way to Greece and Turkey.

One squadron of Thunderflashes was operated by the Elliniki Aeroporia (Hellenic Air Force), this being No.348 Mira at Larissa. A number of RF-84Fs had been received from around 1960 onwards, two of these originating in Holland and two in West Germany. Significantly, the type remained in service into the late 1980s, some 15 aircraft still being recorded as on strength in Greece at that time.

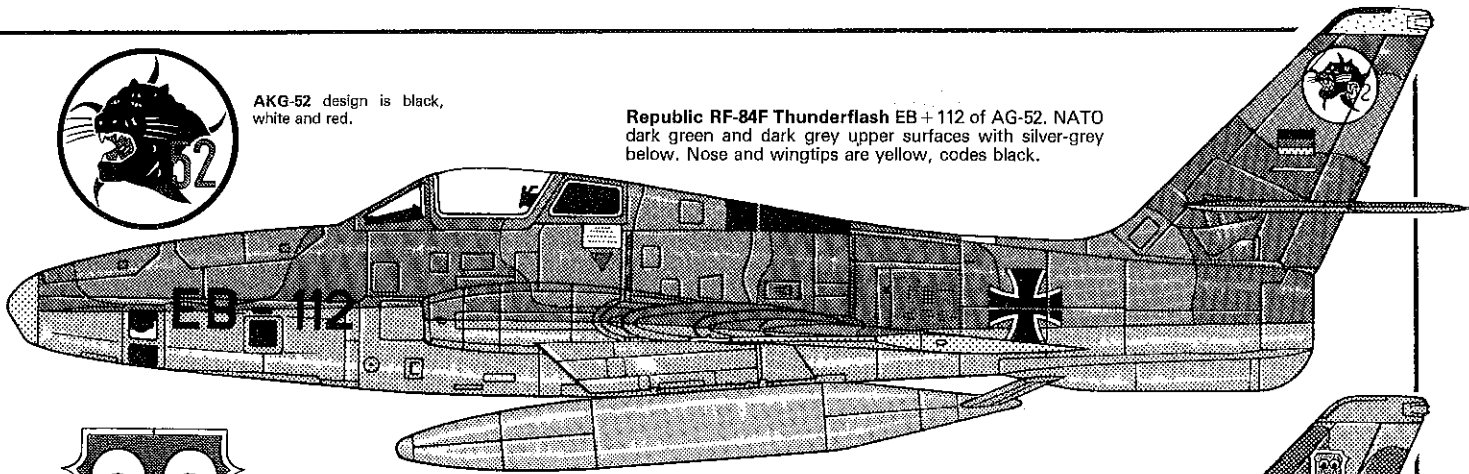
The Turk Hava Kuvvetleri operated the Thunderflash from approximately 1960 into the 1970s, with two squadrons equipped with the type. The second of these was formed in around 1963, with over a dozen aircraft (possibly 15) being supplied from Holland. The exact number of RF-84Fs operated by Turkey remains something of a mystery and the same can also be said of those RF-84Fs supplied to

No.717 Squadron, Royal Norwegian Air Force used PRU blue above natural metal as shown here on AZ-D (left) or overall metal finish as seen on 7048/T3-B (below). (MAP)

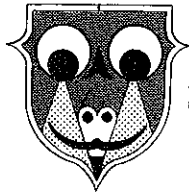




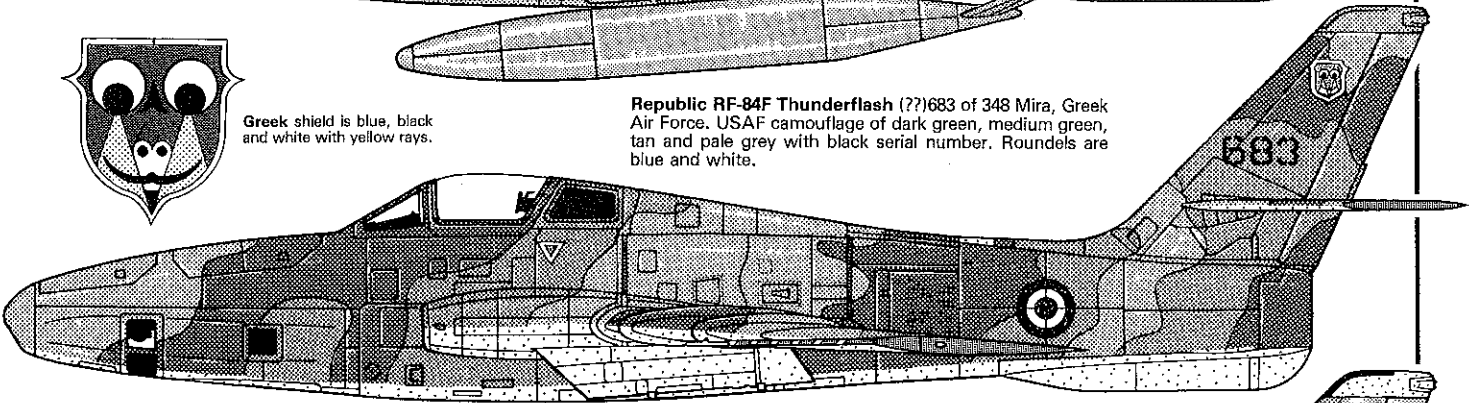
AKG-52 design is black, white and red.



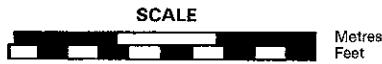
Republic RF-84F Thunderflash EB + 112 of AG-52. NATO dark green and dark grey upper surfaces with silver-grey below. Nose and wingtips are yellow, codes black.



Greek shield is blue, black and white with yellow rays.

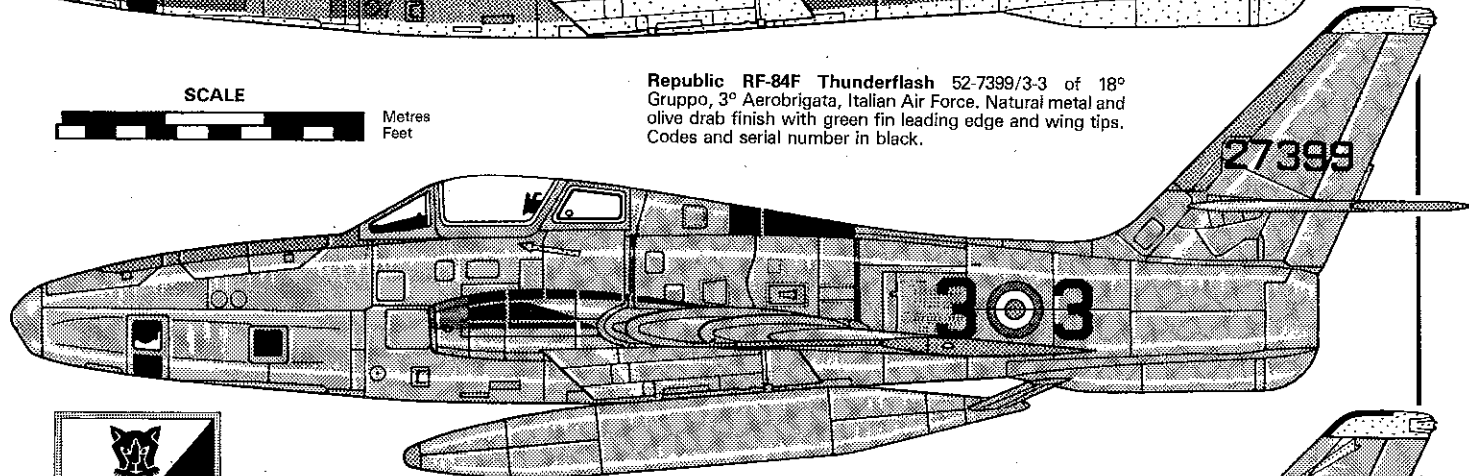


Republic RF-84F Thunderflash (??)683 of 348 Mira, Greek Air Force. USAF camouflage of dark green, medium green, tan and pale grey with black serial number. Roundels are blue and white.



SCALE

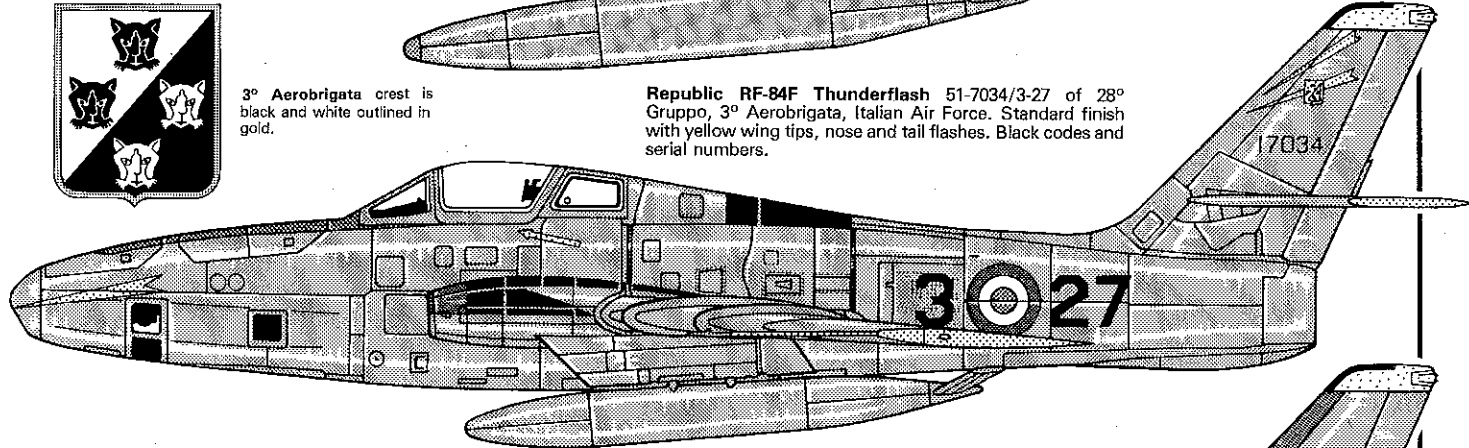
Metres
Feet



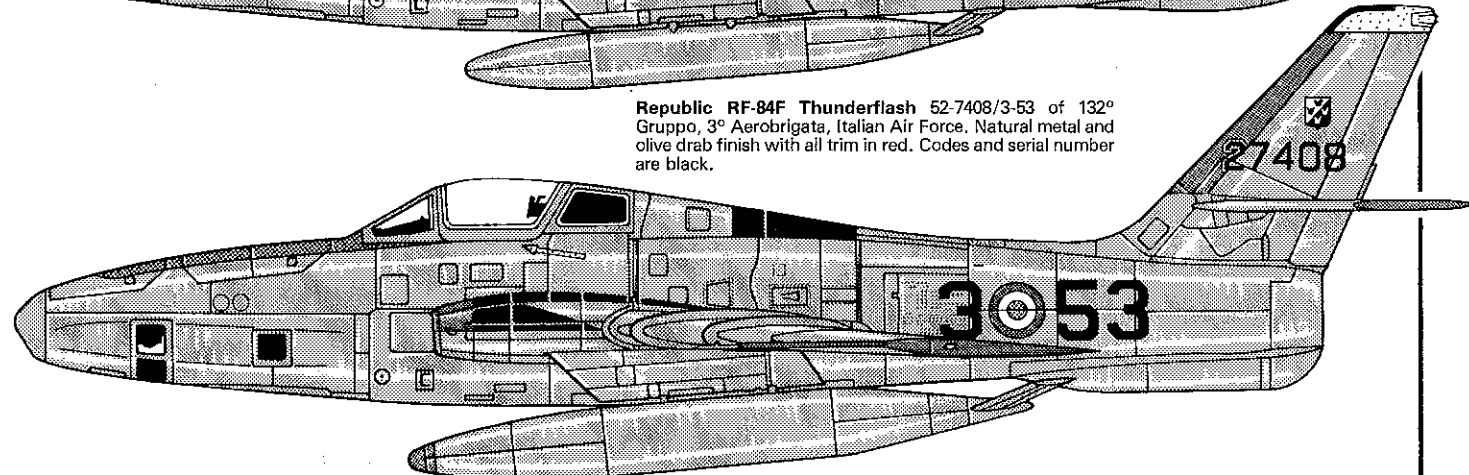
Republic RF-84F Thunderflash 52-7399/3-3 of 18° Gruppo, 3° Aerobrigata, Italian Air Force. Natural metal and olive drab finish with green fin leading edge and wing tips. Codes and serial number in black.



3° Aerobrigata crest is black and white outlined in gold.

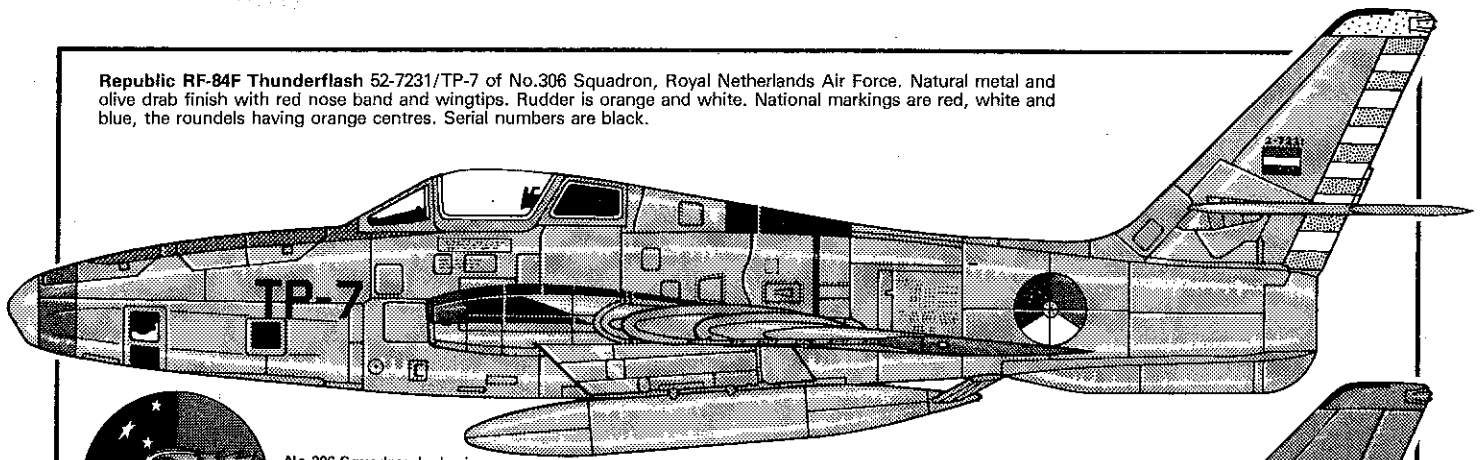


Republic RF-84F Thunderflash 51-7034/3-27 of 28° Gruppo, 3° Aerobrigata, Italian Air Force. Standard finish with yellow wing tips, nose and tail flashes. Black codes and serial numbers.



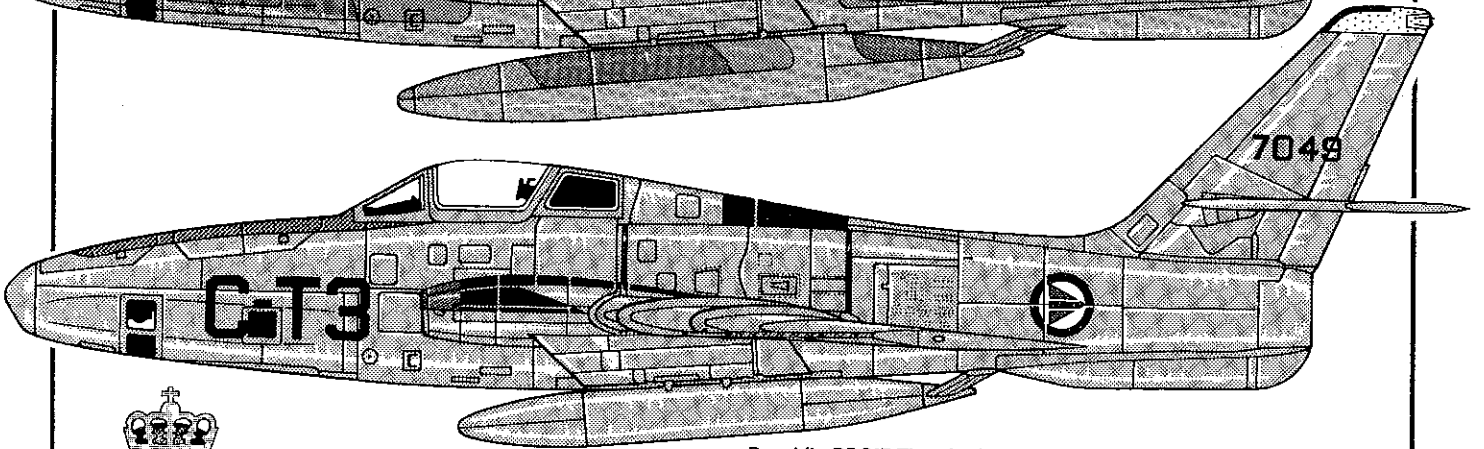
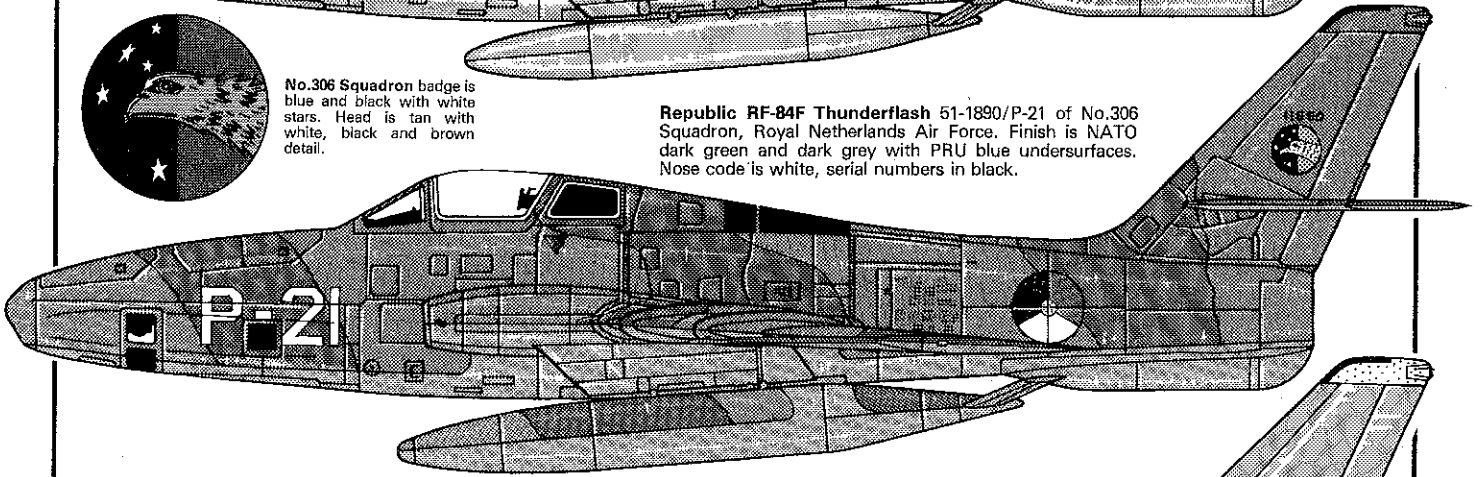
Republic RF-84F Thunderflash 52-7408/3-53 of 132° Gruppo, 3° Aerobrigata, Italian Air Force. Natural metal and olive drab finish with all trim in red. Codes and serial number are black.

Republic RF-84F Thunderflash 52-7231/TP-7 of No.306 Squadron, Royal Netherlands Air Force. Natural metal and olive drab finish with red nose band and wingtips. Rudder is orange and white. National markings are red, white and blue, the roundels having orange centres. Serial numbers are black.



No.306 Squadron badge is blue and black with white stars. Head is tan with white, black and brown detail.

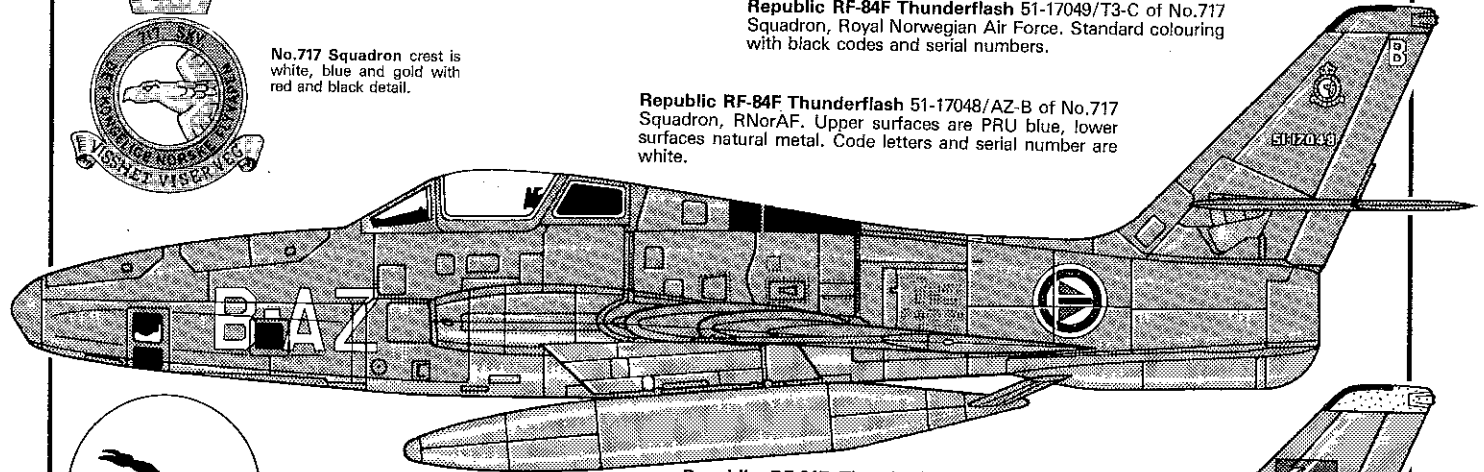
Republic RF-84F Thunderflash 51-1890/P-21 of No.306 Squadron, Royal Netherlands Air Force. Finish is NATO dark green and dark grey with PRU blue undersurfaces. Nose code is white, serial numbers in black.



No.717 Squadron crest is white, blue and gold with red and black detail.

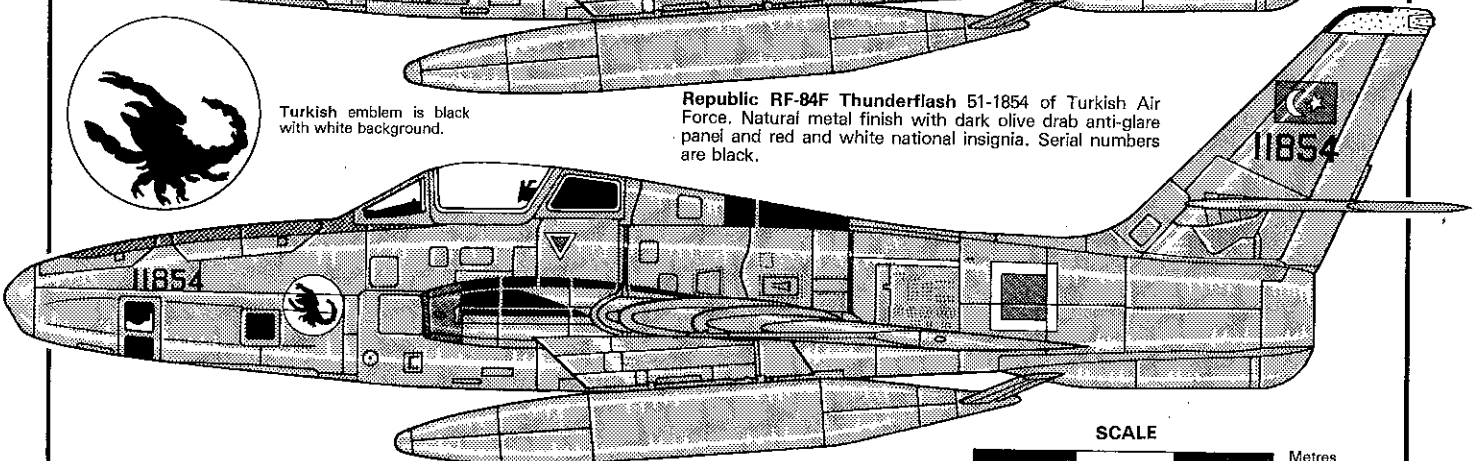
Republic RF-84F Thunderflash 51-17049/T3-C of No.717 Squadron, Royal Norwegian Air Force. Standard colouring with black codes and serial numbers.

Republic RF-84F Thunderflash 51-17048/AZ-B of No.717 Squadron, RNorAF. Upper surfaces are PRU blue, lower surfaces natural metal. Code letters and serial number are white.



Turkish emblem is black with white background.

Republic RF-84F Thunderflash 51-1854 of Turkish Air Force. Natural metal finish with dark olive drab anti-glare panel and red and white national insignia. Serial numbers are black.



SCALE



SCALE



Metres
Feet

Denmark upper surface camouflage pattern showing orange walkway lines and red no-step lines on trailing edge.

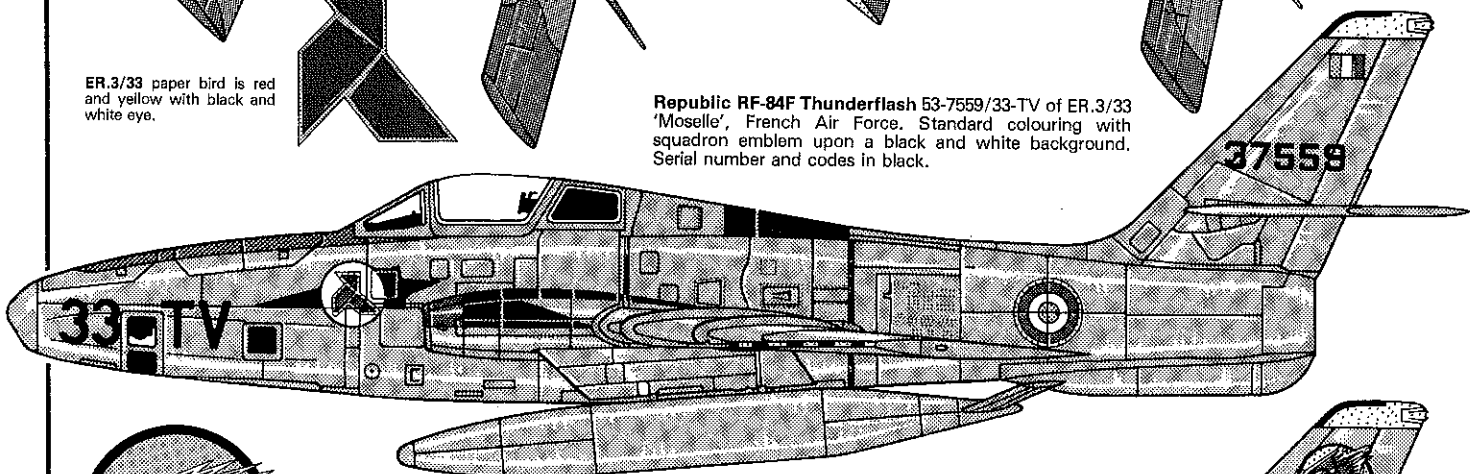


ER.2/33 motif is blue and white upon a black background.

Luftwaffe typical camouflage pattern.

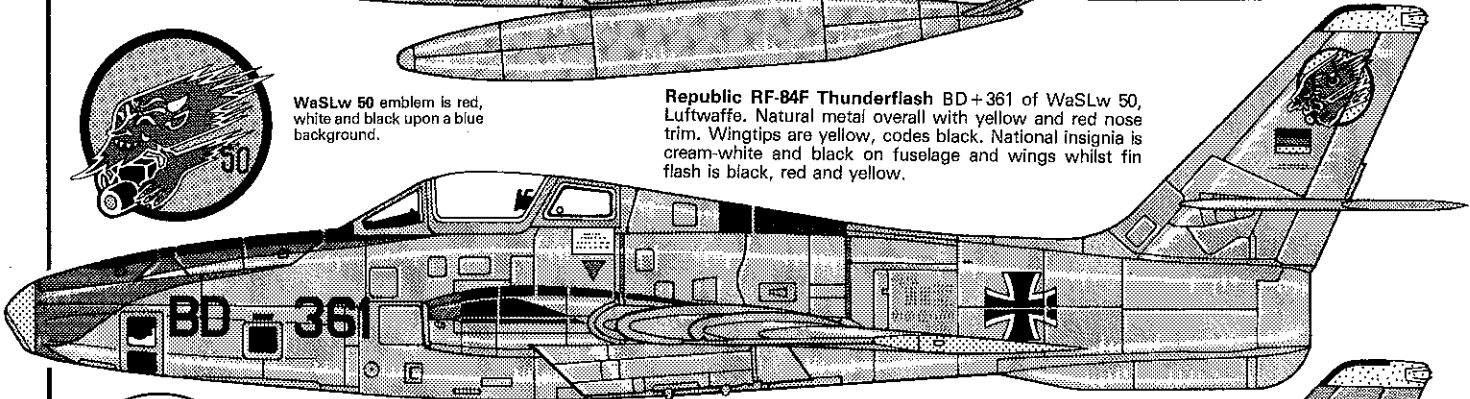
ER.3/33 paper bird is red and yellow with black and white eye.

Republic RF-84F Thunderflash 53-7559/33-TV of ER.3/33 'Moselle', French Air Force. Standard colouring with squadron emblem upon a black and white background. Serial number and codes in black.



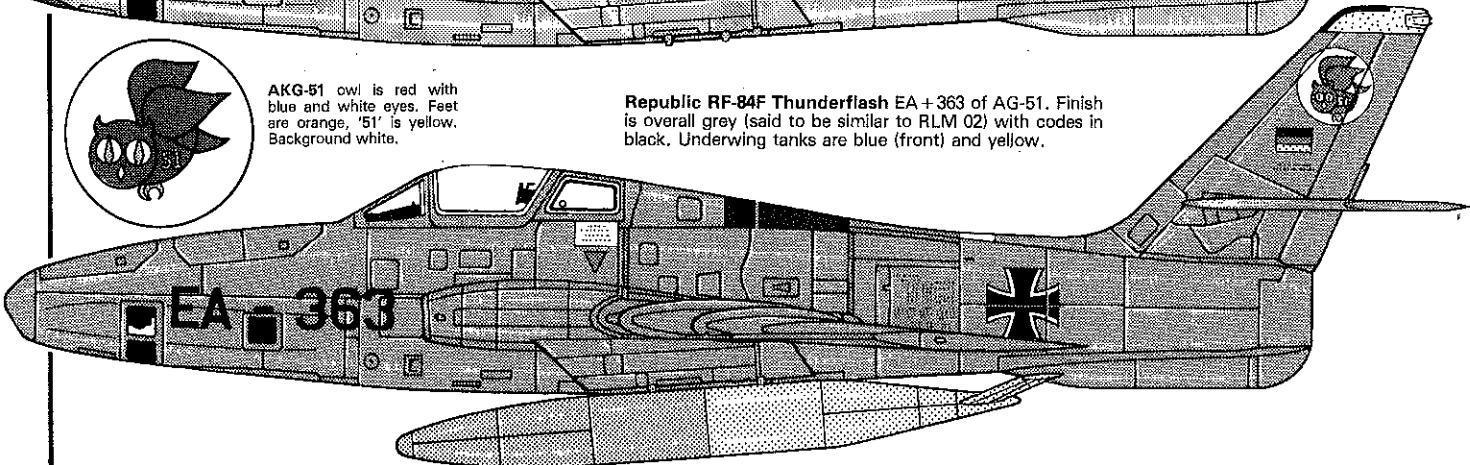
WaSLw 50 emblem is red, white and black upon a blue background.

Republic RF-84F Thunderflash BD+361 of WaSLw 50, Luftwaffe. Natural metal overall with yellow and red nose trim. Wingtips are yellow, codes black. National insignia is cream-white and black on fuselage and wings whilst fin flash is black, red and yellow.

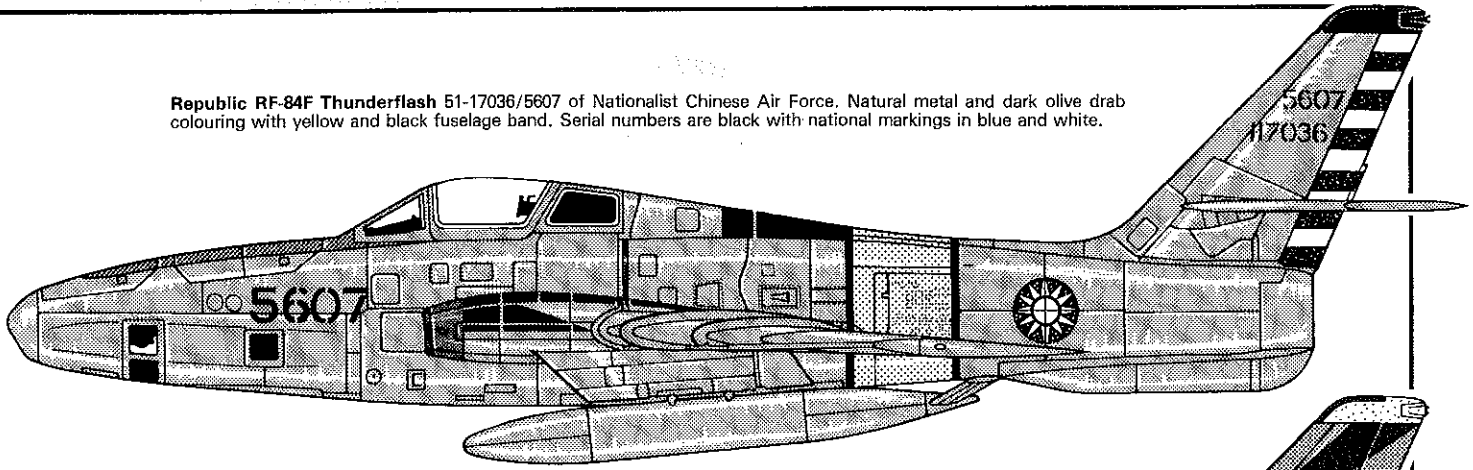


AKG-51 owl is red with blue and white eyes. Feet are orange, '51' is yellow. Background white.

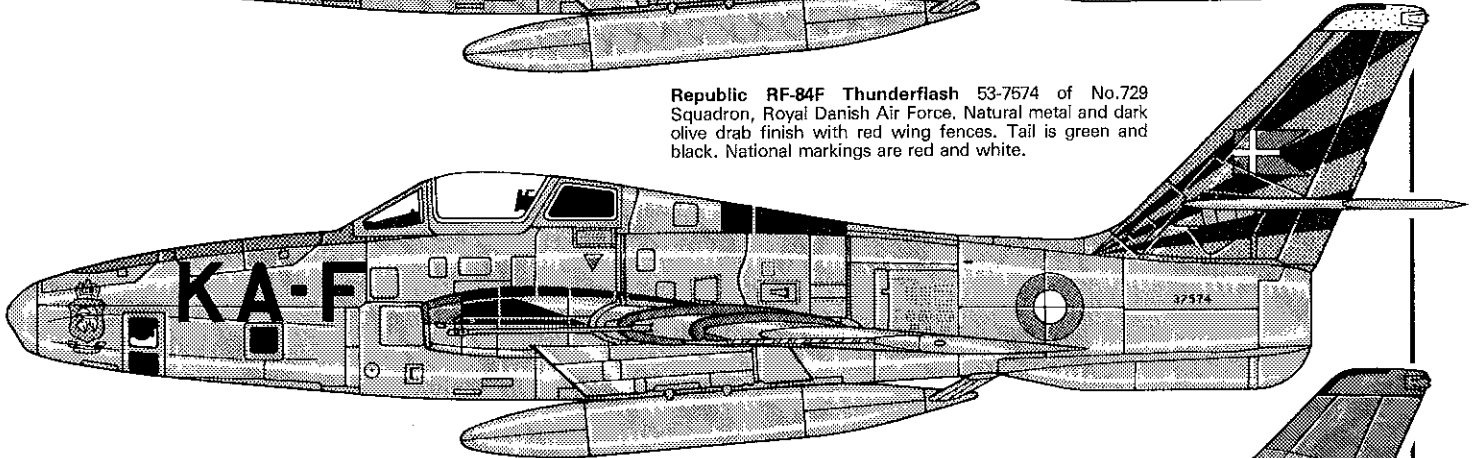
Republic RF-84F Thunderflash EA+363 of AG-51. Finish is overall grey (said to be similar to RLM 02) with codes in black. Underwing tanks are blue (front) and yellow.



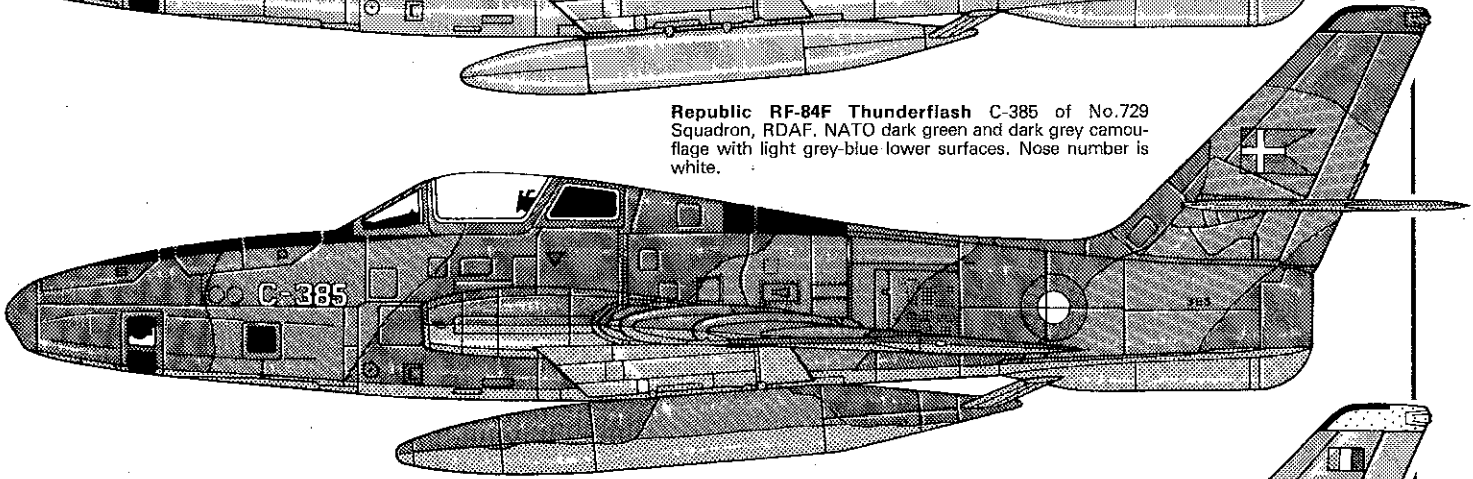
Republic RF-84F Thunderflash 51-17036/5607 of Nationalist Chinese Air Force. Natural metal and dark olive drab colouring with yellow and black fuselage band. Serial numbers are black with national markings in blue and white.



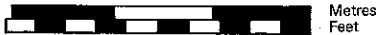
Republic RF-84F Thunderflash 53-7574 of No.729 Squadron, Royal Danish Air Force. Natural metal and dark olive drab finish with red wing fences. Tail is green and black. National markings are red and white.



Republic RF-84F Thunderflash C-385 of No.729 Squadron, RDAF. NATO dark green and dark grey camouflage with light grey-blue lower surfaces. Nose number is white.

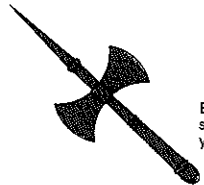
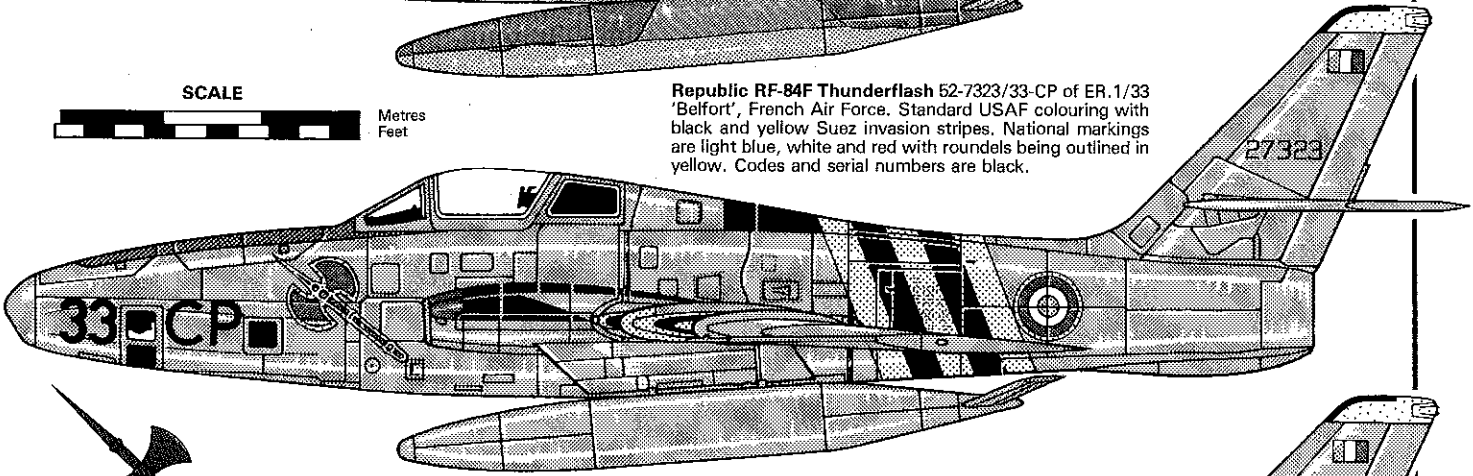


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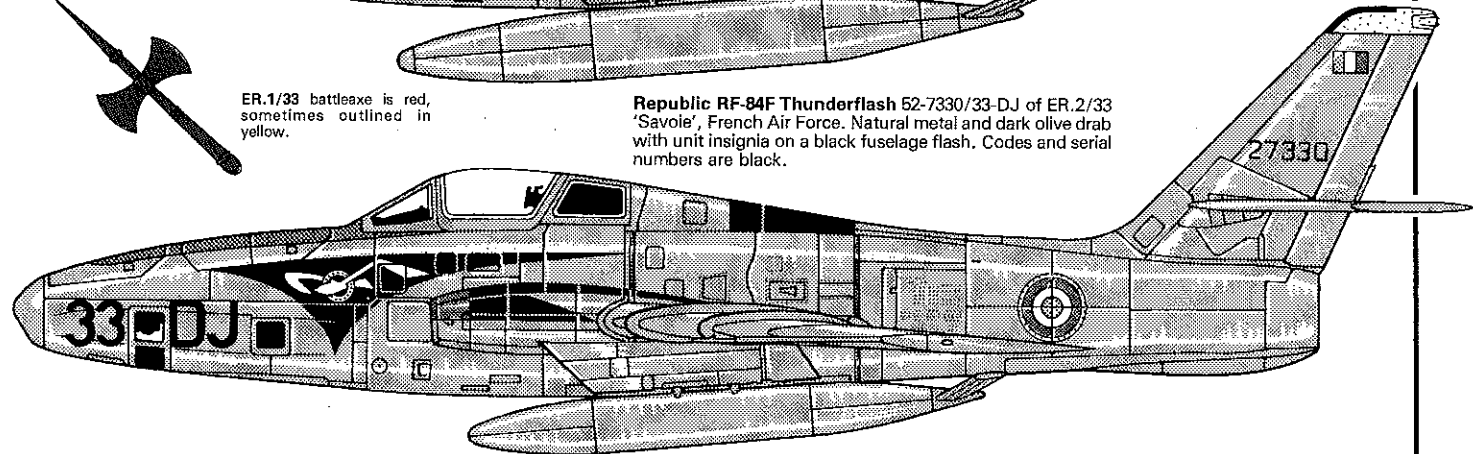
Metres
Feet

Republic RF-84F Thunderflash 52-7323/33-CP of ER.1/33 'Belfort', French Air Force. Standard USAF colouring with black and yellow Suez invasion stripes. National markings are light blue, white and red with roundels being outlined in yellow. Codes and serial numbers are black.



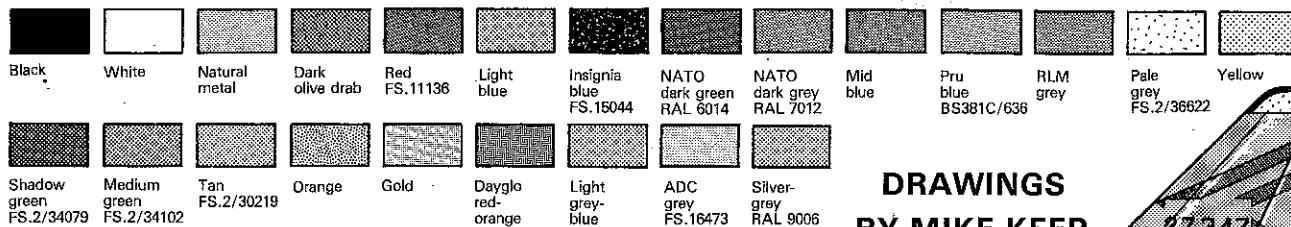
ER.1/33 battleaxe is red, sometimes outlined in yellow.

Republic RF-84F Thunderflash 52-7330/33-DJ of ER.2/33 'Savoie', French Air Force. Natural metal and dark olive drab with unit insignia on a black fuselage flash. Codes and serial numbers are black.

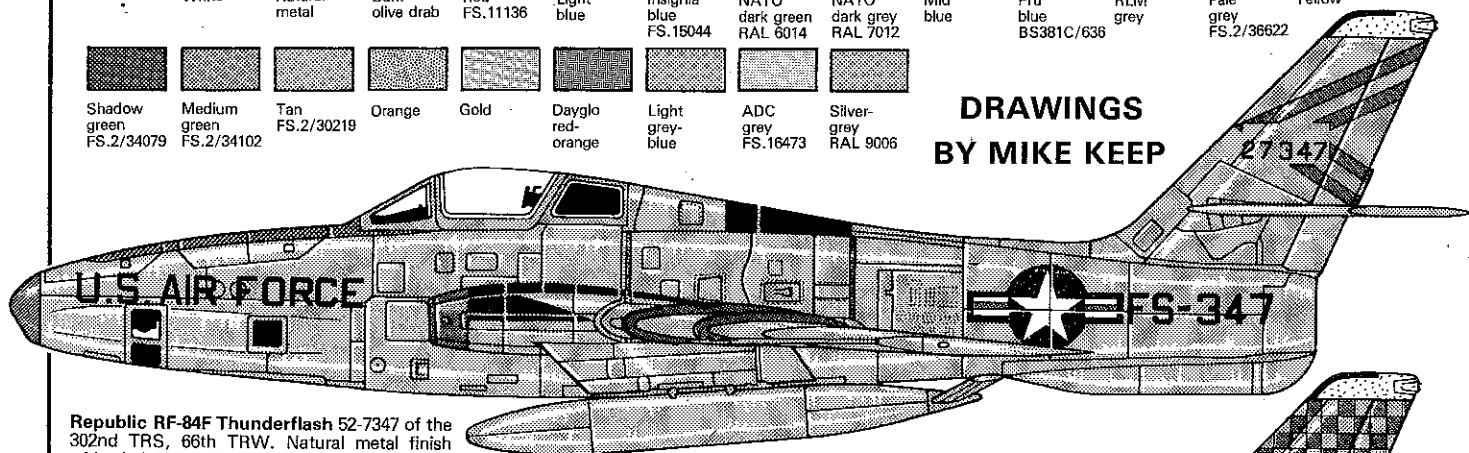


Republic RF-84F Thunderflash camouflage and markings

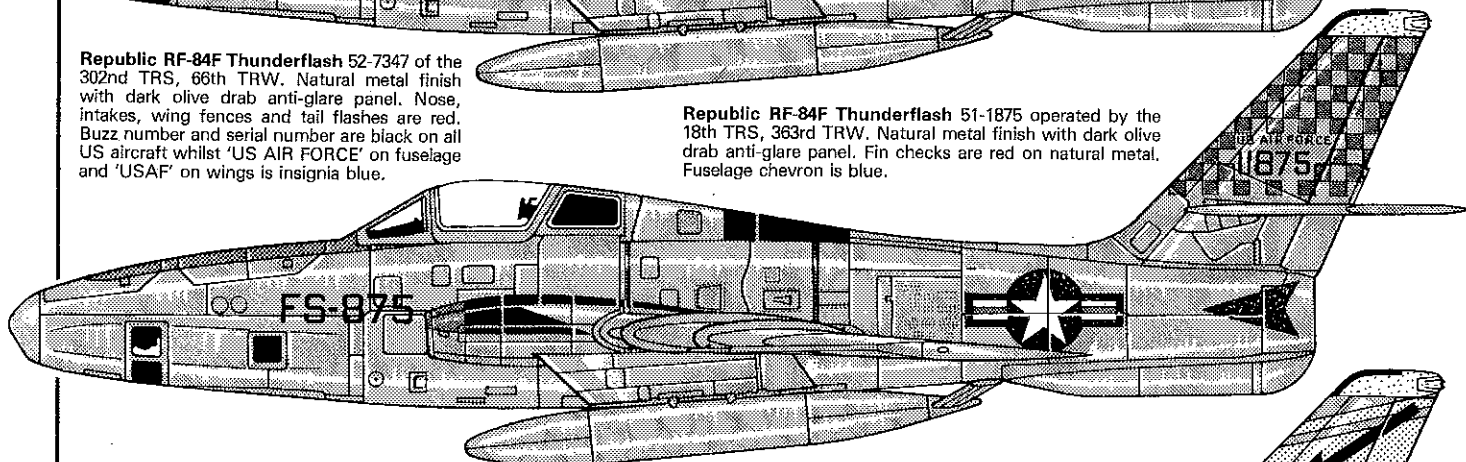
REPUBLIC RF-84F THUNDERFLASH COLOUR KEY



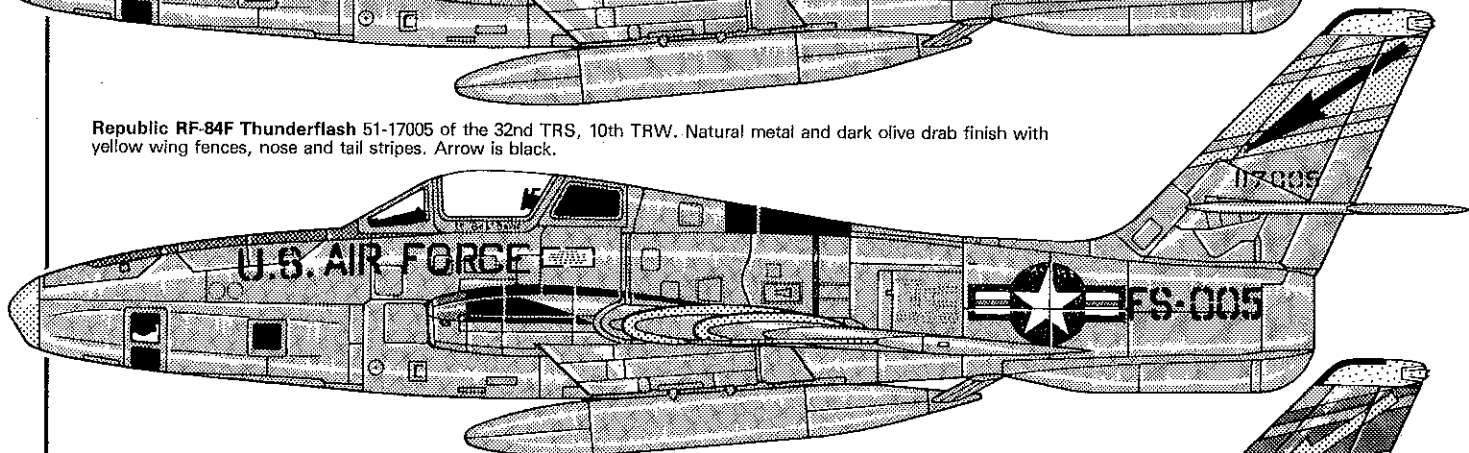
**DRAWINGS
BY MIKE KEEP**



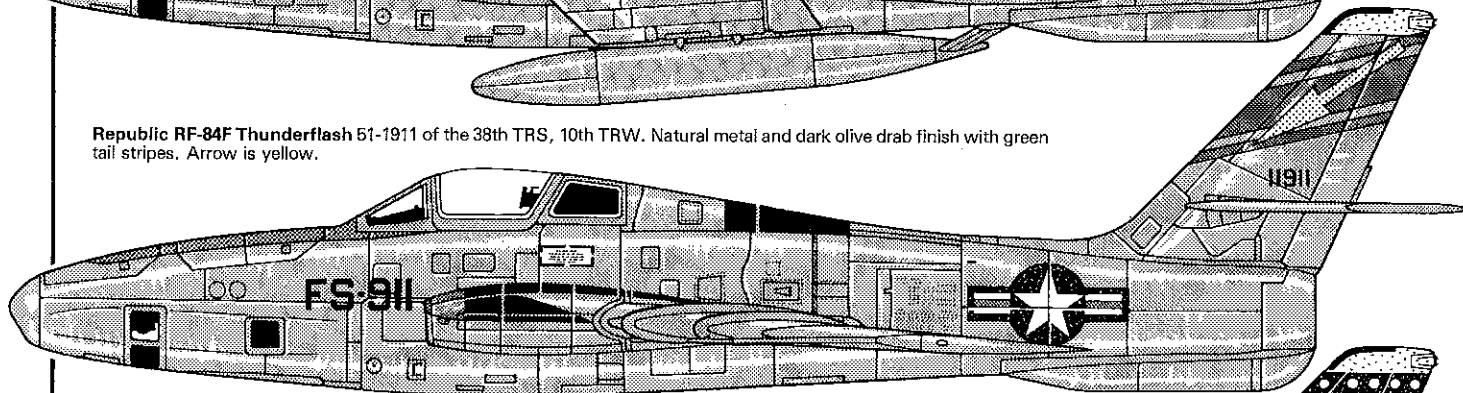
Republic RF-84F Thunderflash 52-7347 of the 302nd TRS, 66th TRW. Natural metal finish with dark olive drab anti-glare panel. Nose, intakes, wing fences and tail flashes are red. Buzz number and serial number are black on all US aircraft whilst 'US AIR FORCE' on fuselage and 'USAF' on wings is insignia blue.



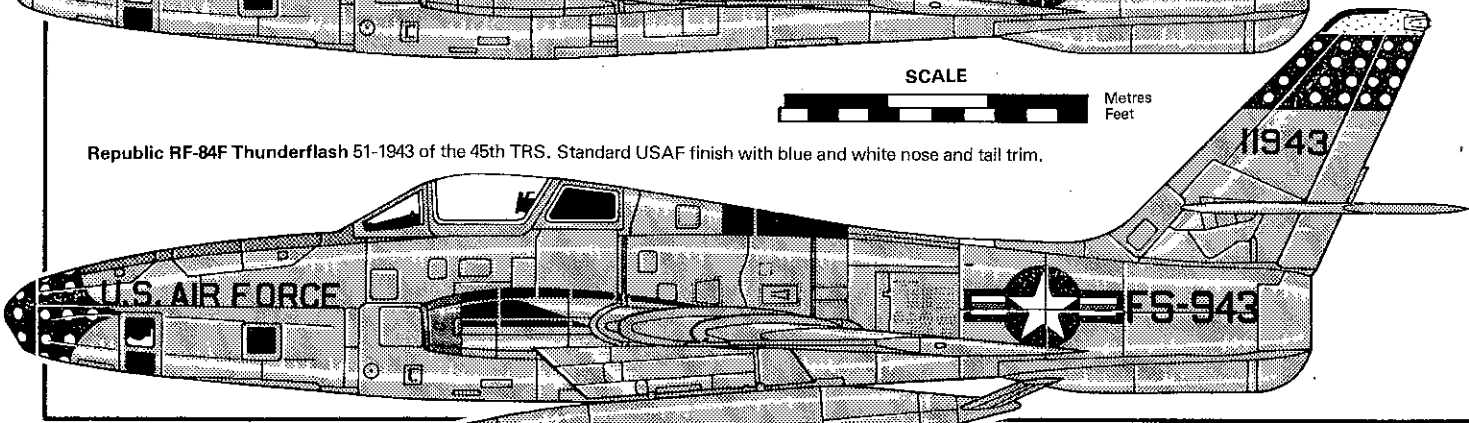
Republic RF-84F Thunderflash 51-1875 operated by the 18th TRS, 363rd TRW. Natural metal finish with dark olive drab anti-glare panel. Fin checks are red on natural metal. Fuselage chevron is blue.



Republic RF-84F Thunderflash 51-17005 of the 32nd TRS, 10th TRW. Natural metal and dark olive drab finish with yellow wing fences, nose and tail stripes. Arrow is black.

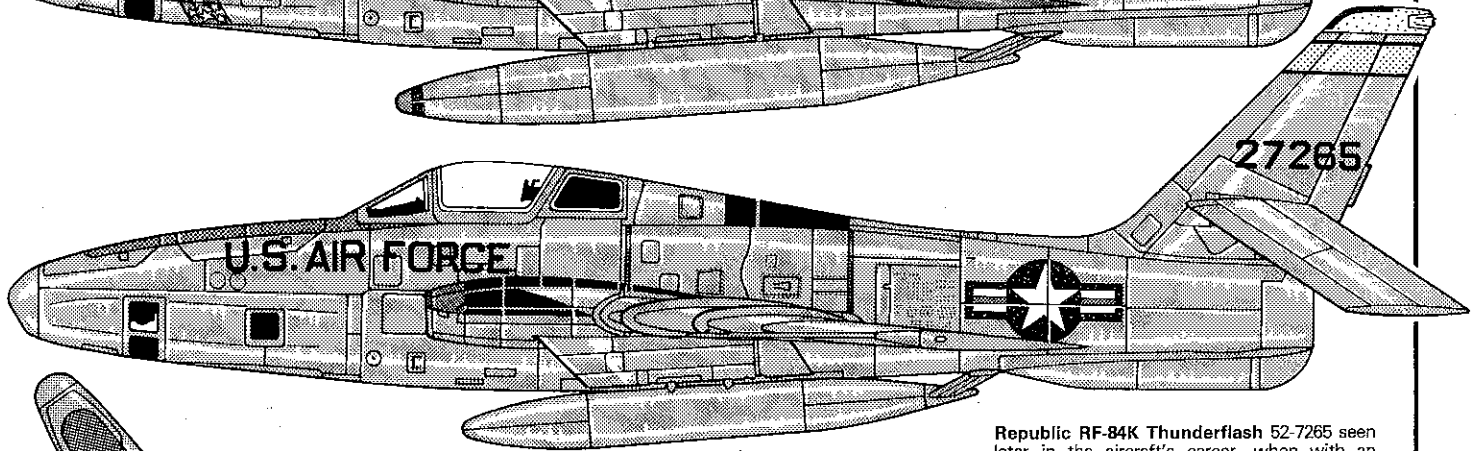
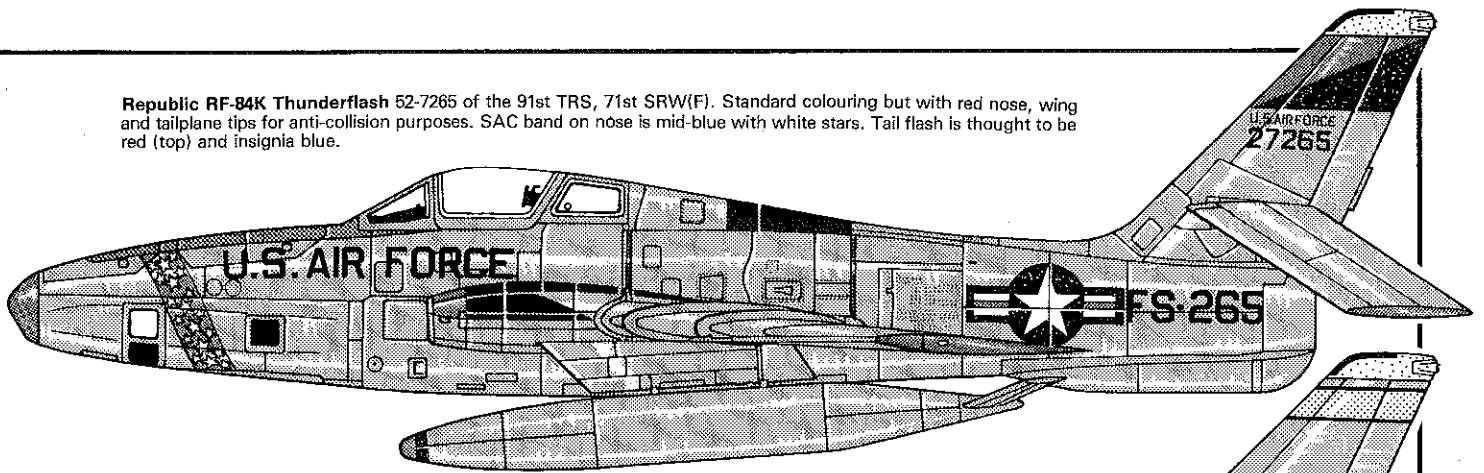


Republic RF-84F Thunderflash 51-1911 of the 38th TRS, 10th TRW. Natural metal and dark olive drab finish with green tail stripes. Arrow is yellow.

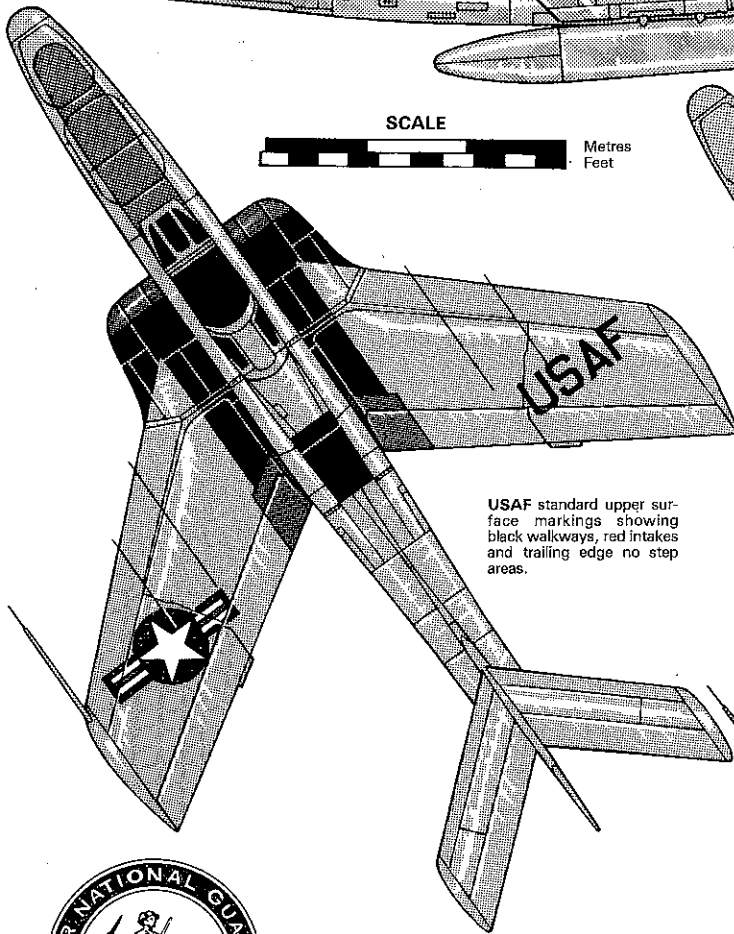


Republic RF-84F Thunderflash 51-1943 of the 45th TRS. Standard USAF finish with blue and white nose and tail trim.

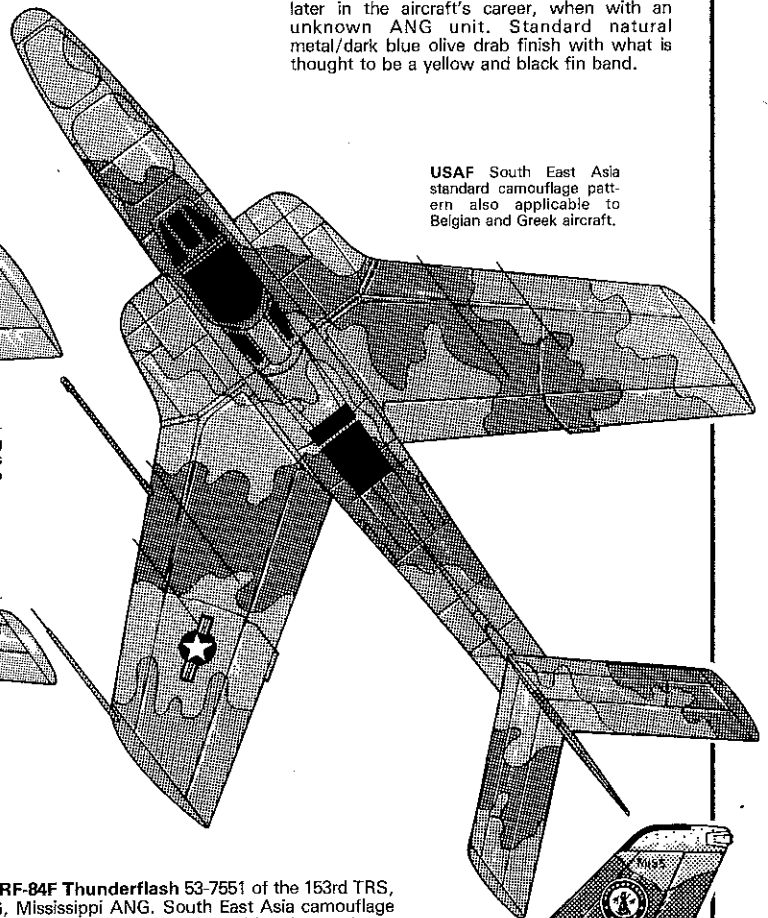
Republic RF-84K Thunderflash 52-7265 of the 91st TRS, 71st SRW(F). Standard colouring but with red nose, wing and tailplane tips for anti-collision purposes. SAC band on nose is mid-blue with white stars. Tail flash is thought to be red (top) and insignia blue.



Republic RF-84K Thunderflash 52-7265 seen later in the aircraft's career, when with an unknown ANG unit. Standard natural metal/dark blue olive drab finish with what is thought to be a yellow and black fin band.



USAF standard upper surface markings showing black walkways, red intakes and trailing edge no step areas.

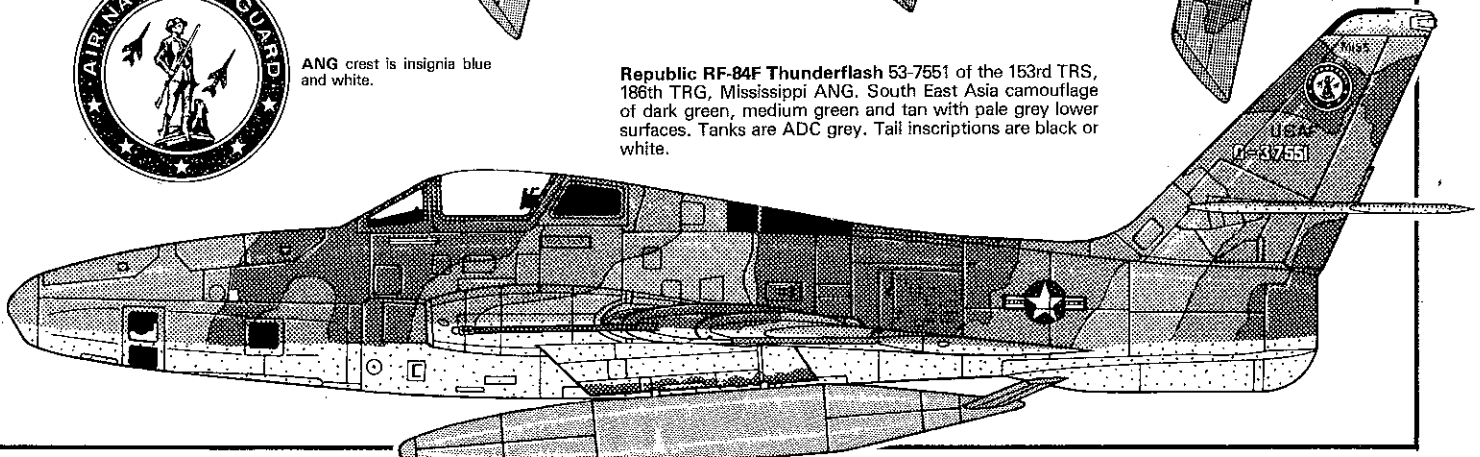


USAF South East Asia standard camouflage pattern also applicable to Belgian and Greek aircraft.

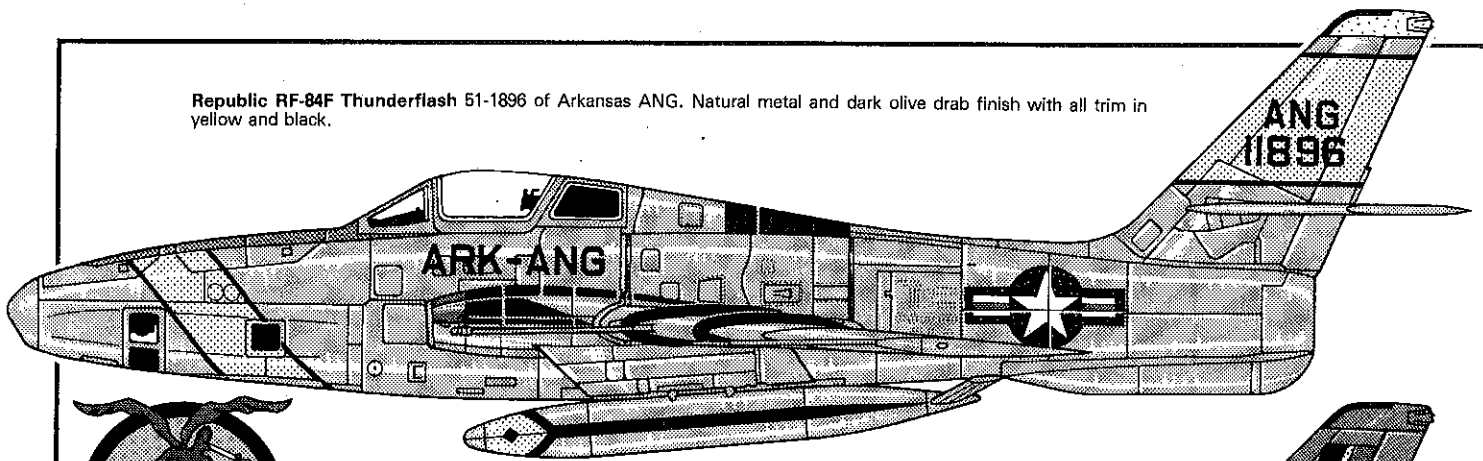


ANG crest is insignia blue and white.

Republic RF-84F Thunderflash 53-7551 of the 153rd TRS, 186th TRG, Mississippi ANG. South East Asia camouflage of dark green, medium green and tan with pale grey lower surfaces. Tanks are ADC grey. Tail inscriptions are black or white.

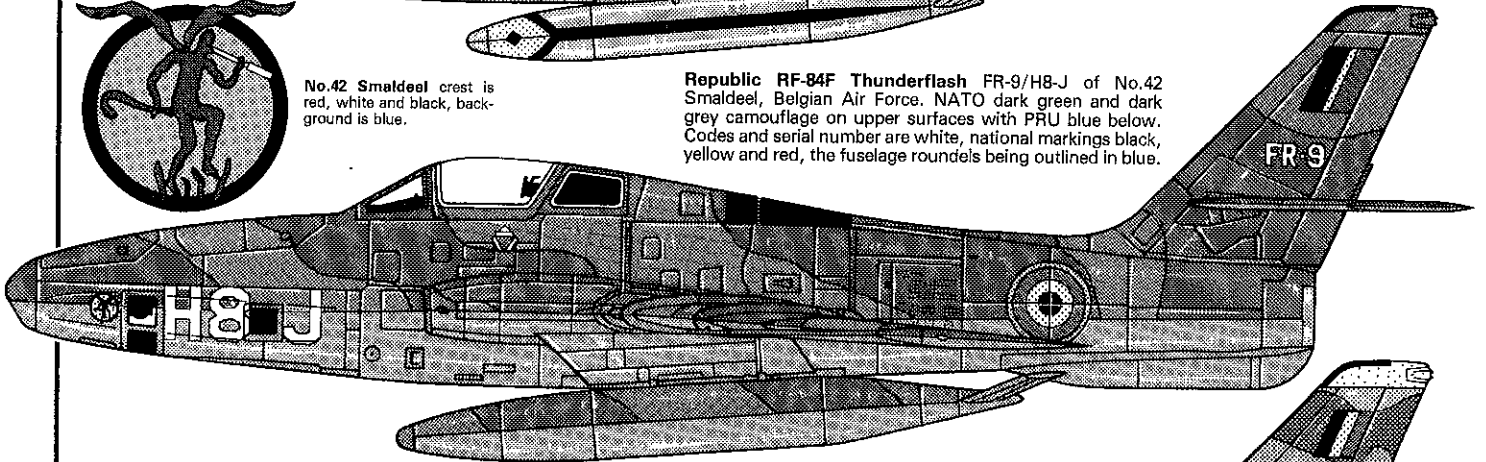


Republic RF-84F Thunderflash 51-1896 of Arkansas ANG. Natural metal and dark olive drab finish with all trim in yellow and black.

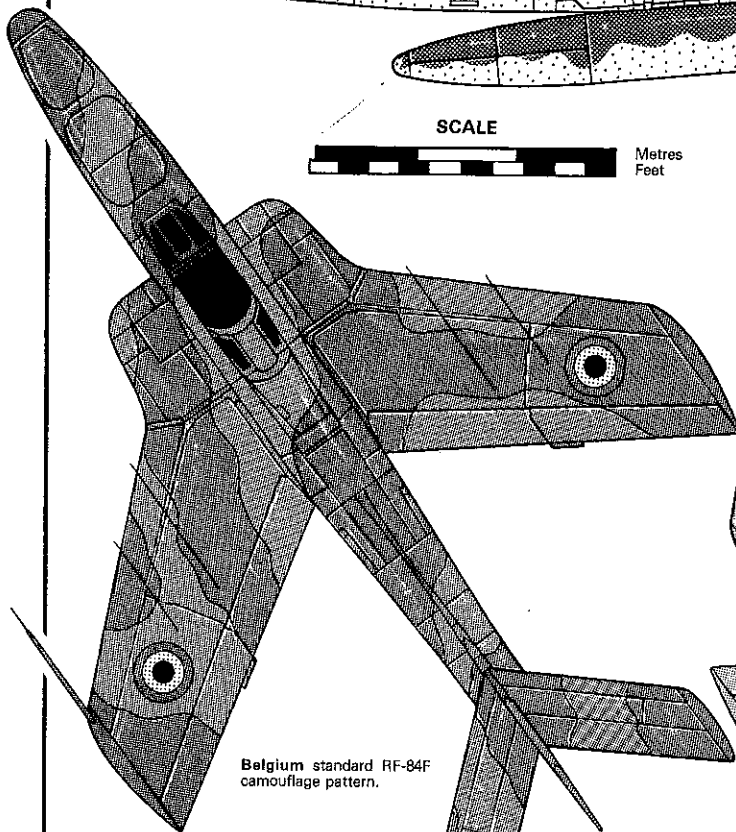
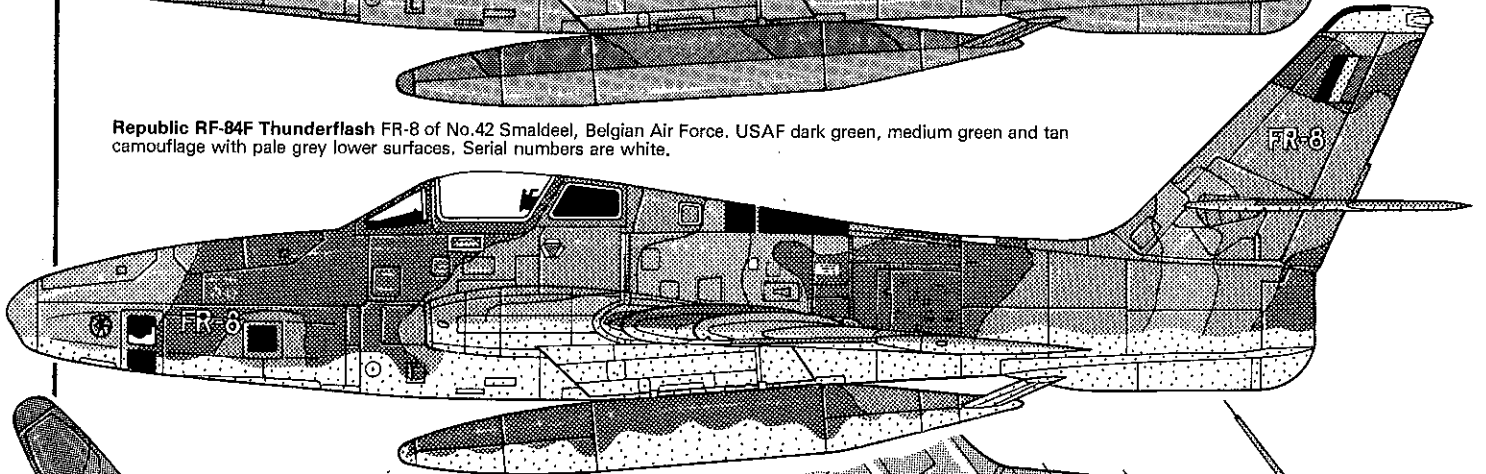


No.42 Smaldeel crest is red, white and black, background is blue.

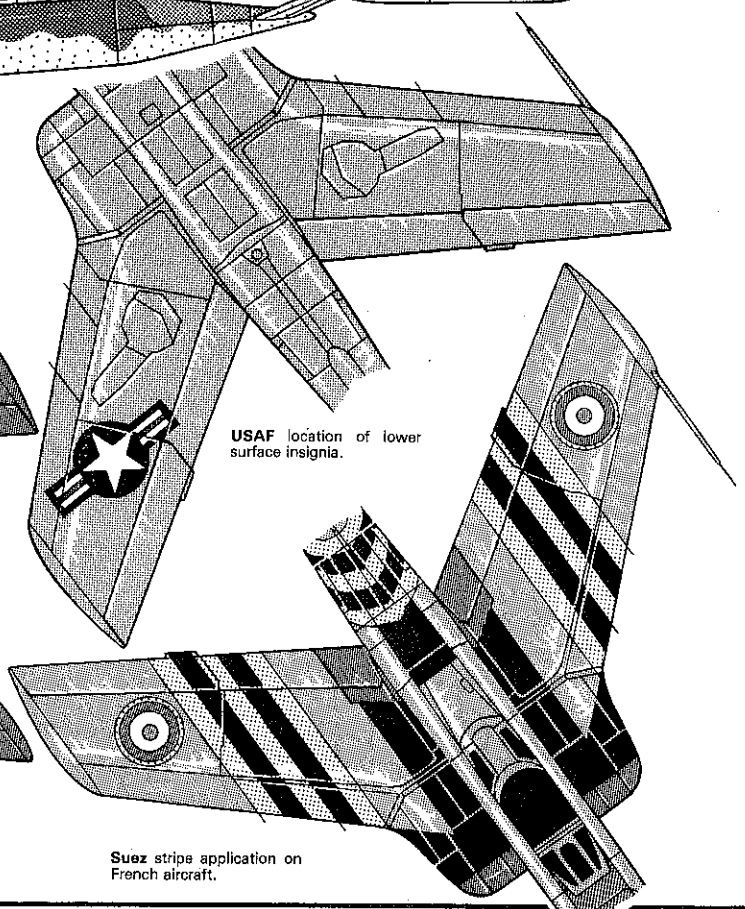
Republic RF-84F Thunderflash FR-9/H8-J of No.42 Smaldeel, Belgian Air Force. NATO dark green and dark grey camouflage on upper surfaces with PRU blue below. Codes and serial number are white, national markings black, yellow and red, the fuselage roundels being outlined in blue.



Republic RF-84F Thunderflash FR-8 of No.42 Smaldeel, Belgian Air Force. USAF dark green, medium green and tan camouflage with pale grey lower surfaces. Serial numbers are white.



Belgium standard RF-84F camouflage pattern.



USAF location of lower surface insignia.

Suez stripe application on French aircraft.