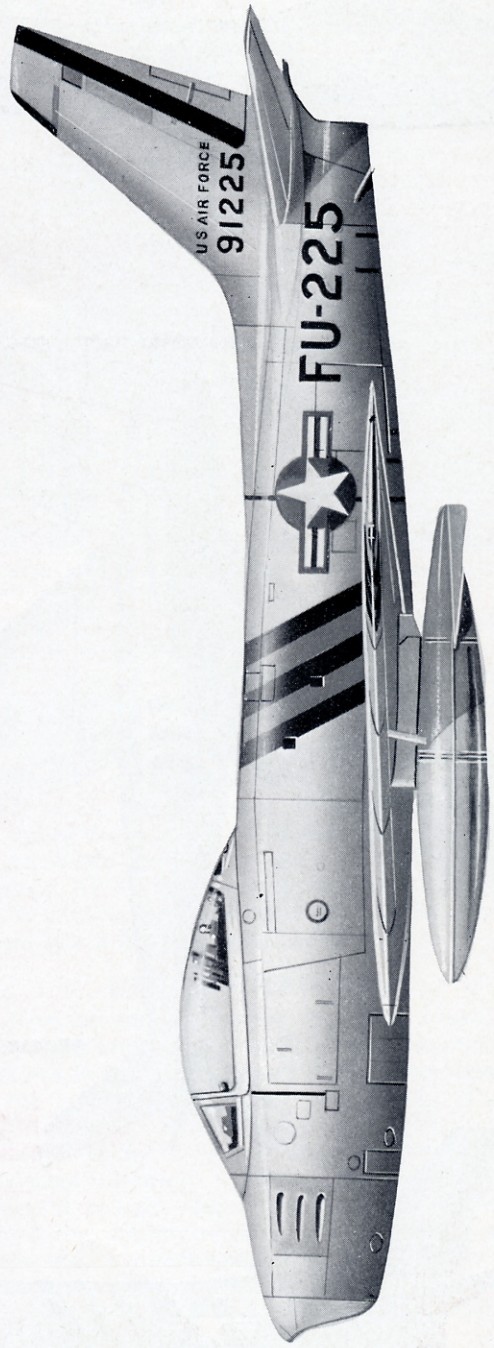
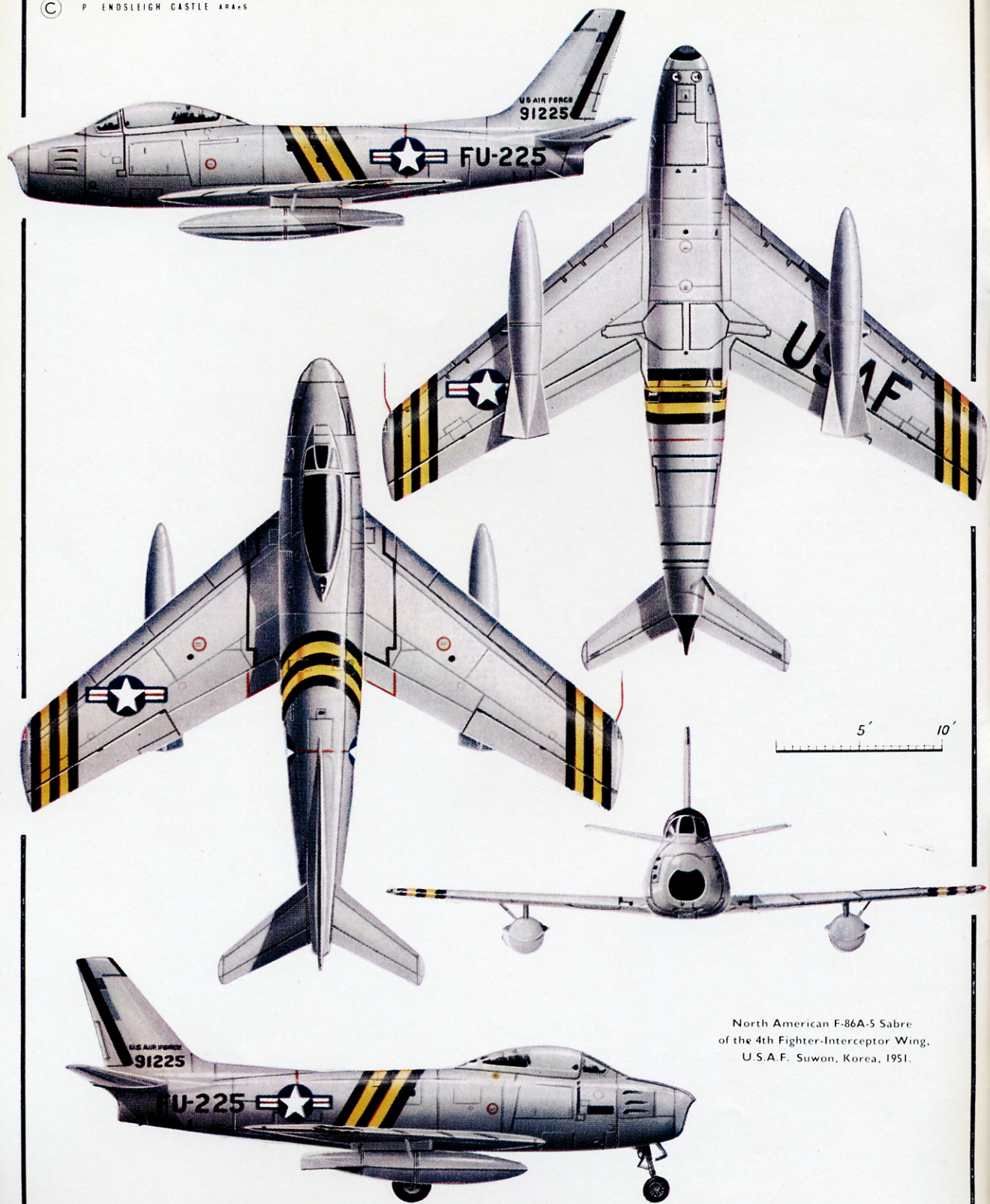


PROFILE PUBLICATIONS

The North American F-86A Sabre

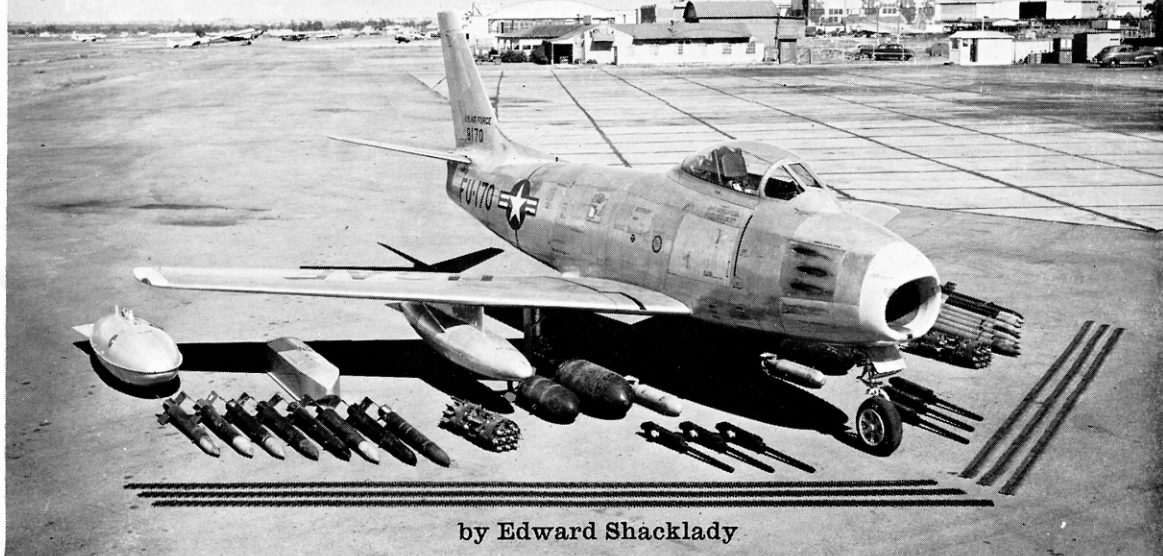
NUMBER 20
TWO SHILLINGS





North American F-86A-5 Sabre
of the 4th Fighter-Interceptor Wing,
U.S.A.F. Suwon, Korea, 1951.

The North American F-86A Sabre



by Edward Shacklady

Main armament of the F-86A Sabre was six .50 machine guns grouped in the nose section, but various underwing loads could be carried as may be seen by the selection in this photograph.

Few warplanes make history, but those that do are remembered long after their deeds are forgotten. Prime examples are Great Britain's Supermarine Spitfire and Hawker Hurricane; Germany's Messerschmitt Me 109 and Focke-Wulf Fw 190, and Japan's A6M1-3, better known by its wartime appellation of Zero. All these famous fighters had one thing in common—they were designed and built for a war that had been anticipated by the world's major powers for at least three years. And, when World War II finally exploded upon a waiting world in September 1939, this fighting quintet was in full production and awaiting testing in a bitter struggle that took nearly six years to decide.

One of the greatest warplanes of the years of uneasy peace that followed the end of World War II in 1945, was not specifically built for the conflict in which it played such a decisive part, but was, in fact, a development of a jet fighter ordered for the U.S. Navy.

In late autumn, 1944, the North American Aviation Company was engaged in the design of their first jet-propelled fighter, the NA-134, or XFJ-1, for the U.S. Navy. At about the same period the U.S. Air Force had issued a requirement for a medium-range day fighter, which could also be utilised as an escort fighter and, of all things, a dive bomber. A proposed variant of the XFJ-1 minus its naval equipment was offered to the Air Force, which on 18th May 1945, authorised construction of three aircraft under the designation XP-86. The XP-86, like its stablemate, had a straight, thin section wing set low on the fuselage, which was tubby and featured a straight through

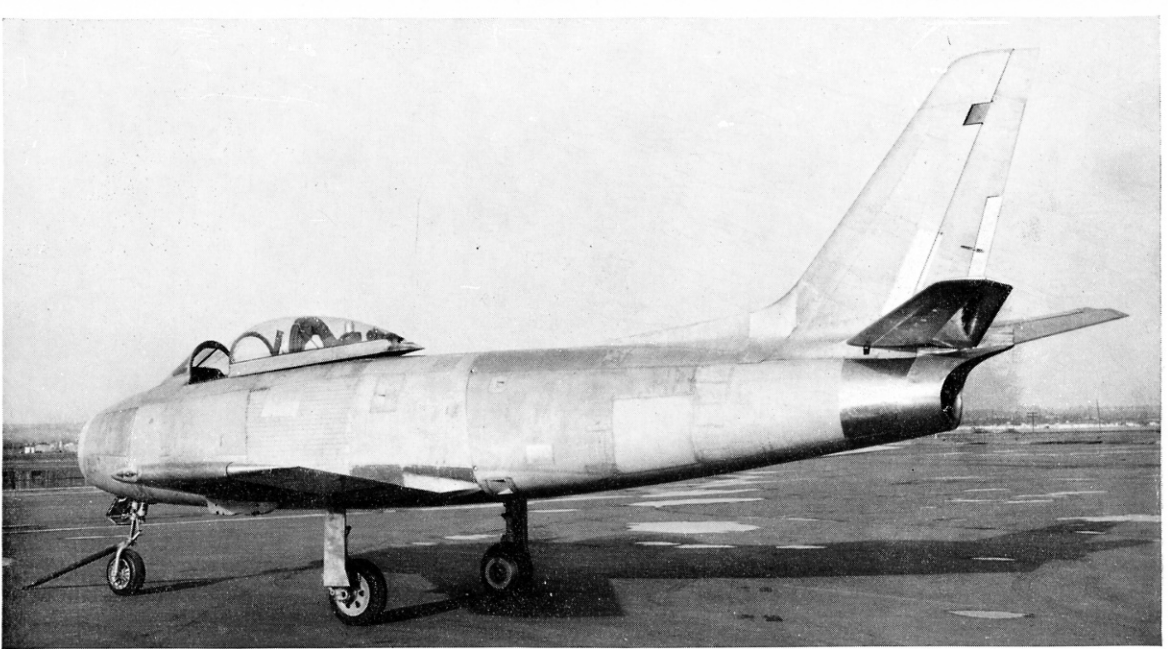
flow of air from nose intake to jet exhaust under a straight tailplane.

A mock-up of the aircraft was constructed and Air Force approval received in June. Salient details included a wing span of 38.2 feet, a length of 35.5 feet, and a height of 13.2 feet. At a gross weight of 11,500 lb. a maximum speed at sea level of 574 m.p.h. was estimated. But the specification had called for a speed of at least 600 m.p.h. for the Air Force already had nearing completion the Republic XP-84 Thunderjet possessing a speed of 587 m.p.h. It appeared that the XP-86 would remain just a drawing board design.

DESIGN CHANGES

At about this period, however, the North American P-86 design team, headed by L. P. Greene, became interested in captured German wind tunnel reports on the advantages of wing sweep-back. These reports were discovered amongst a mass of scientific data collected by the Allied armies swarming over a defeated Germany. The reports showed that whereas a straight-winged aeroplane was severely affected by compressibility as sonic speed was approached, a swept-wing delayed the effects of shock waves thus permitting control at higher speeds. One major defect, however, was the problem of low-speed stability.

Armed with this knowledge North American constructed a scale wind-tunnel model, subsequent tests revealing that the swept-wing raised the limiting Mach number to .875. A new design study for a swept-wing XP-86 was submitted to the Air Force, which swiftly approved the proposal. This



The prototype XP-86 on roll-out.

important decision was to have a decided effect on the outcome of the Korean War that began five years later in June 1950.

The sweeping changes to the design called for by the new wing resulted in a radically different aeroplane from that originally planned, and more than one thousand trials with the wing were undertaken by North American in their subsonic wind tunnel. A Messerschmitt Me 262A wing was studied in order to adopt the leading-edge slots for the XP-86 wing in an effort to overcome low-speed stability problems, but they proved unsuitable, and eventually a completely new automatic slat had to be developed.

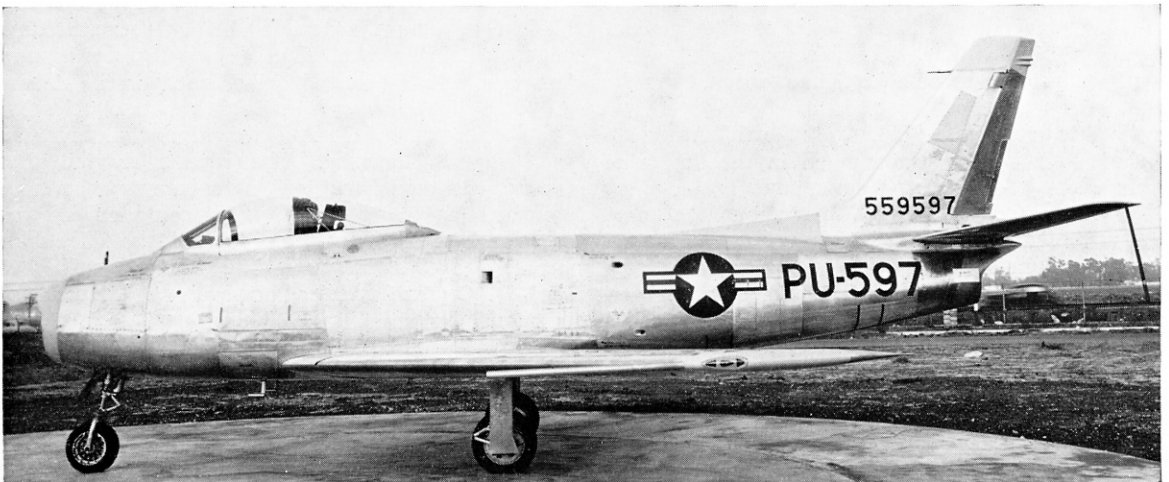
The first of three prototypes serialled 45-59597 was completed on 8th August 1947, and it was powered by a Chevrolet-built General Electric

J-35-C-3 engine developing 4,000 lb. static thrust. Taxiing trials took several weeks and on 1st October the XP-86 took to the air for its maiden flight with North American test pilot George Welch at the controls, just thirteen weeks before its would-be adversary, the Russian MiG-15, left the ground for its first flight. On 26th April 1948, the prototype exceeded Mach One for the first time in a shallow dive. Later production aircraft were limited for safety reasons to Mach .95, 669 m.p.h. The prototype was officially delivered to the Air Force on 30th November 1948, and was followed shortly afterwards by 598 and 599.

PRODUCTION BEGINS

Like the majority of modern fighters production of the P-86A (or F-86A as it became later when the

The prototype, now bearing national insignia and serial numbers.



U.S.A.F. changed the P for Pursuit to F for Fighter) had been planned long before the prototype's first flight, a production contract for 33 aircraft having been approved during December 1946. Engineering drawings were released to the North American Los Angeles Division shops in June 1947, and the first production F-86A-1-NA, serial 47-605, made its first flight on 20th May 1948. Production aircraft had the new General Electric J-47 engine and three .50 calibre machine guns installed on either side of the pilot's cockpit. The first and second production aircraft 605 and 606 were officially accepted by the U.S.A.F. on 28th May, and by March the following year the final machine 47-637 had been delivered.

While the first production F-86s were under construction North American's design team was working on a U.S.A.F. requirement for larger tyres and had drawn up a scheme for a fuselage seven inches wider in order to accommodate them. The second production order of F-86s was for 188 of the modified aircraft and they were given the designation F-86B. Fortunately, higher pressure tyre design did away with the need for larger tyres, and the F-86B with the wider fuselage never went into production. The contract for 188 86Bs was transferred to the F-86A-5-NA at the suggestion of North American to the Air Force.

Deliveries of the A-5 with the new General Electric J-47 engine of 5,200 lb. thrust began in late March 1949 when 48-129 was accepted by the Air Force. The A-5 differed externally from the A-1 in having a V-shaped instead of rounded windscreen, and in place of the flush-fitted, auto-

matic gun-muzzle doors of the earlier machines which opened and closed when the machine guns were fired, plastic plugs were installed. These were blasted clear with the first shots.

Performance-wise the F-86A-5 was far in advance of other jet fighters of the period, possessing a maximum sea-level speed of 679 m.p.h., a service ceiling of 48,000 feet, and an initial climb rate of 7,470 feet per minute. In common with contemporary American fighters it was armed with six .50 M-3 machine guns with a rate of fire of approximately 1,100 rounds per minute. Ammunition supply was 267 rounds per gun.

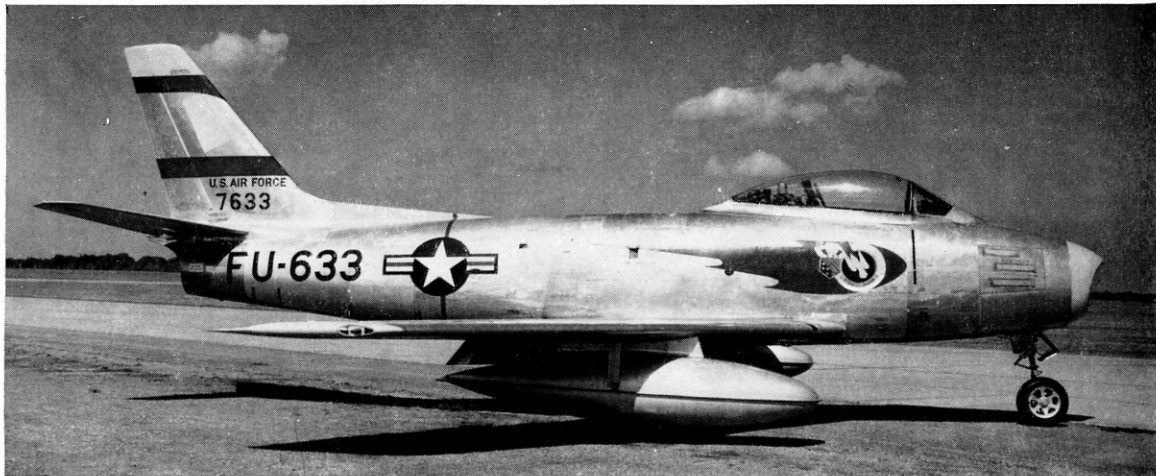
The guns were aimed with the aid of a Mark 18 sight, a lead computing device that included both a gyro and fixed sighting system. When a target was identified the span selector lever was set to correspond with the aircraft's span, and when the target appeared within a circle of six diamond images on the reflector the range control was rotated until the circle diameter was identical in size to the target. With the target thus framed for one second the gun sight automatically completed the required lead and the guns were fired. A more advanced sight, the A-1CM, was coupled with an AN/APG-30 radar installed in the upper air intake lip of later production Sabres.

THE SABRE DESCRIBED

The F-86A Sabre was a low-wing cantilever monoplane featuring a modified N.A.C.A. 0012-64 (root), 0011-64 (tip) wing section. Maximum thickness at 50 per cent chord and 35° sweep-back along 25 per cent chord line. Structurally the wing con-

The prototype F-86A (XP-86) in the white overall finish applied for early trials.





F-86A Sabre of the 71st Squadron, First Group. Note Group emblem aft of squadron emblem.

sisted of two spars with upper and lower skins, each of which was a sandwich of two sheets milled to tapering thickness separated by hat section extrusions. The whole formed a torsion-box structure. Split flaps were carried inboard of the ailerons. Wing area 287.9 sq. ft.

Fuselage was an oval section, all metal, flush riveted, stressed skin structure with lateral airbrakes on each side of the fuselage. Tail unit was a cantilever monoplane, all-metal structure with 35° sweep-back on all three surfaces. The “flying-tail” elevator and tailplane were geared together and moved differentially with movements of the control column to provide in-flight trim.

First U.S.A.F. combat organisation to receive the F-86 was the First Fighter Group at March Air Force Base, California. The 9th Squadron, the famed “Hat in the Ring” outfit of World War I fame, becoming the first F-86A tactical squadron, taking delivery of its aircraft in February and March 1949. The 27th and 71st Squadrons were equipped next and by the end of May the Group had accepted delivery of 83 aircraft.

As yet the F-86 was unnamed and the First

Fighter Group sponsored a contest in February for this purpose. Seventy-eight names were submitted, the best of these was deemed to be “Sabre”, the name becoming official on 4th March 1949.

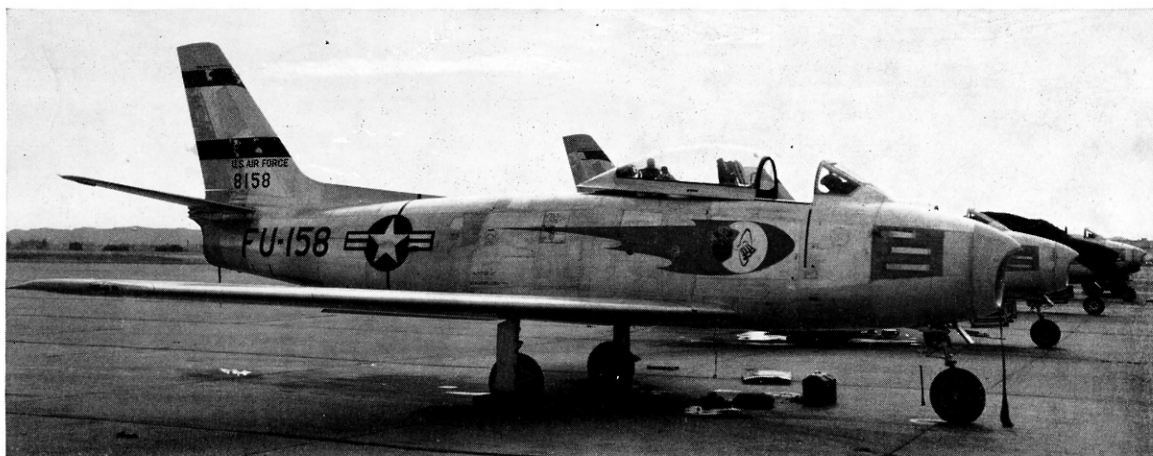
CANADA'S F-86A

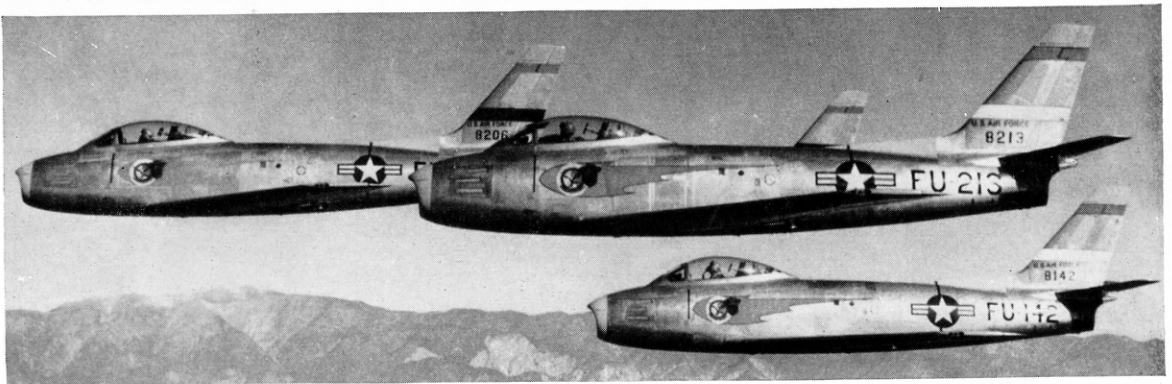
Development of the Sabre had been watched with great interest by the Royal Canadian Air Force, and in early 1949 the Canadian Government decided to obtain a licence to manufacture the American fighter. In August of that year an order for 100 aircraft was placed with the Canadair Company under the designation of CL-13, Sabre Mk. 1.

It had been intended that the F-86A would be built by Canadair, and the first Sabre off the production was in fact an ‘A’ bearing the serial number 191-010. It flew for the first time on 9th August 1950, piloted by A. J. Lilly, just one year after the contract with North American Aviation had been signed, and one month before the fighter was to meet the MiG-15 in combat over Korea.

By August 1949, however, North American was building the improved F-86E which had the “all-

First squadron to receive F-86A-1s was the First Group's “Hat in the Ring” 94th Squadron of World War I fame.





Sabres of 27 Squadron, First Group.

(Photo: U.S.A.F.)

flying" tailplane, and Canadair introduced this major modification on the aircraft on their production line and built only one 86A. Almost 90 per cent of the 15,000 components were obtained from the United States for the Canadian aircraft industry lacked the facilities and technicians to produce them, but by 1956 almost 85 per cent of the Canadian Sabre was produced in the Dominion.

THE SABRE IN KOREA

As previously mentioned the Sabre was not designed from the outset for the Korean War, but it was, fortunately, in production when its appearance over the battlefield prevented the MiG-15 from sweeping the United Nations aircraft from the sky.

The division of Korea after the Japanese surrender in 1945 led to continuous friction between the Northern and Southern halves of the country, for one was dominated by the Communists in the shape of Russia and Red China, whilst the other half was strongly influenced by America. In 1948, as the result of elections, the Republic of Korea was established. America aided the new Republic by organising and constructing an internal security

force, and by July 1949 had withdrawn all its own forces with the exception of a small military group.

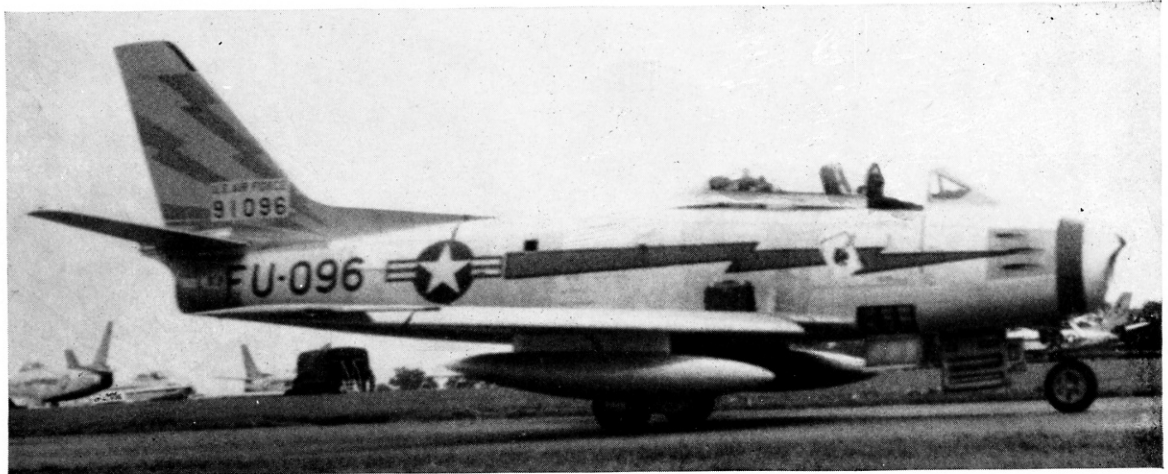
Just before dawn on the morning of 25th June 1950, the North Korean Army crossed the 38th Parallel, and just over 24 hours later they entered Seoul, capital city of South Korea. The United Nations Security Council adopted a resolution calling upon the North Koreans to cease their aggression and withdraw their forces to the 38th Parallel. But without avail for the North Koreans intensified their efforts.

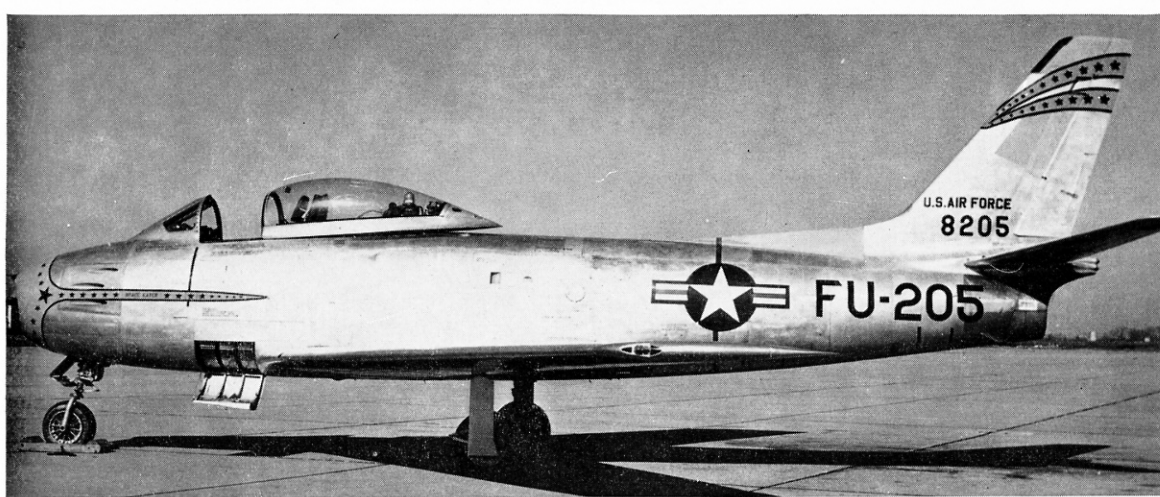
On 27th June, on the instructions of President Truman, General MacArthur ordered the Far East Air Force into action against the invaders, the Americans flying Lockheed F-80 Shooting Star; F-51 Mustang and F-82 Twin-Mustang fighters, and Boeing B-29 bombers. Command of the air was soon established and as a fighting entity the North Korean Air Force was rendered completely ineffective.

With enemy air power neutralised the United Nations ground forces, now fighting alongside the South Koreans, fought to stem the North Korean army's advance down the peninsula. United Nations aircraft bombed and strafed the invading armies, and there is little doubt that without

F-86A-5 Sabre of the 116th Squadron.

(Photo: C. R. Elliot)





F-86A-5-NA, serial 48-205, of the 56th Fighter Group, O'Hare Air Force Base. It was named "Space Eater". (Photo: U.S.A.F.)

complete mastery of the air the whole of Korea would have come under the influence of Communism.

While the U.N. armies were being pushed back into a small area south of Naktong River, General MacArthur was planning an amphibious encirclement of the enemy. On the morning of September 15th, units of the U.S. X Corps went ashore at Inchon and the strengthened and reinforced Eighth Army broke out of the Pusan perimeter in an all-out drive to crush the enemy forces.

In just over fourteen days the whole of South Korea was clear of the invading armies and the counter invasion of North Korea began. Within a month the capital city Pyongyang fell and by the end of October the whole of the Korean peninsula was in United Nations hands. It seemed that

victory was complete until, quite suddenly, the armies of Red China were hurled into battle and once again United Nations forces began the retreat southwards.

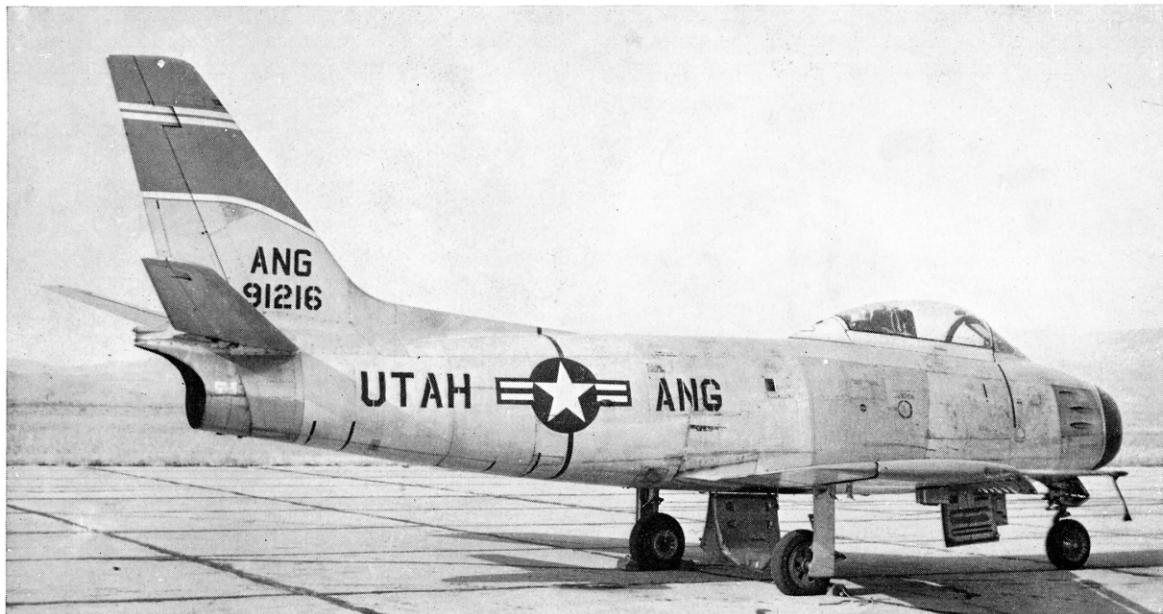
SABRE v. MiG-15

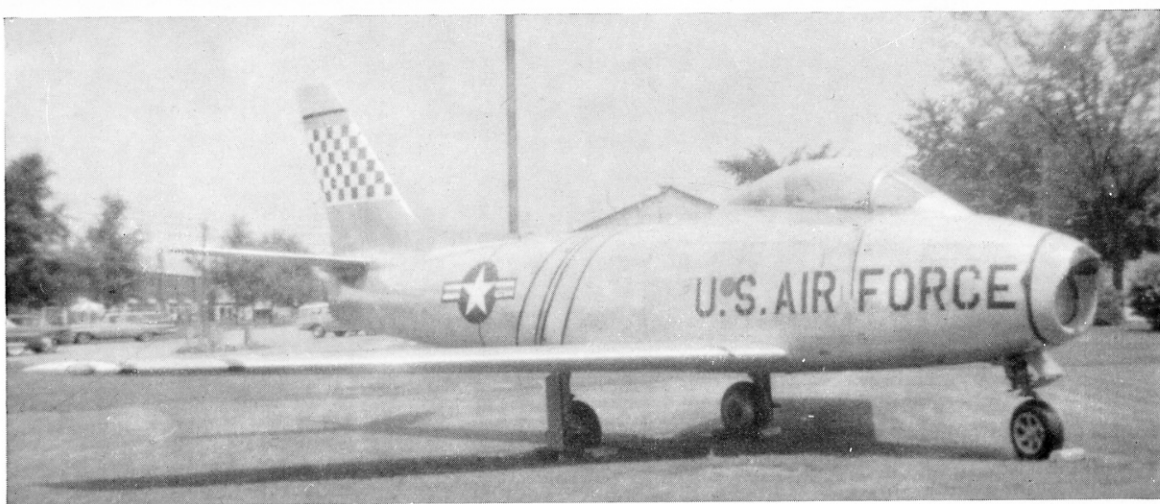
It was during this period, November 1950, that the Russian-built MiG-15 swept-wing jet fighter appeared, flying from airfields situated in Manchuria, across the border in China. The F-80 and F-51 were no match for the MiG and the Americans decided to commit their new fighter the F-86A against the new menace.

On November 8th the 4th Fighter-Interceptor Wing was ordered to Korea and the unit's Sabres were flown from their home base at Wilmington, Delaware, to San Diego, California. There they

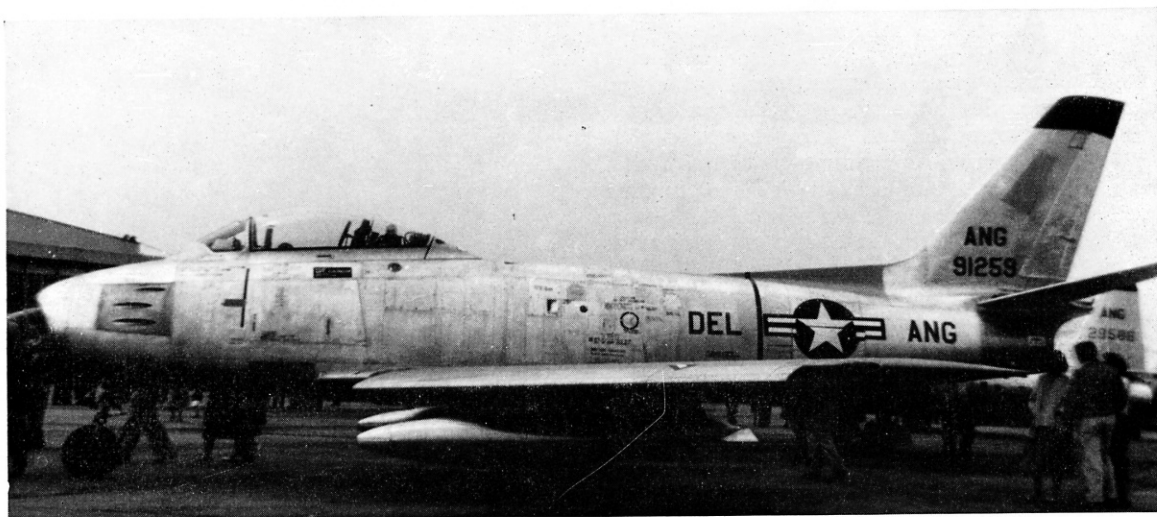
F-86A-5-NA, serial 49-1216, of the Utah Air National Guard. Green trim on fin.

(Photo: Roger Besecker)





F-86A-1-NA, 47-614, which took part in the Korean campaign. Named "Go for Broke" it is now on display at Chanute AFB. (Photo: Roger Besecker)



F-86A-5-NA of the Delaware Air National Guard. Red-tipped fin.

(Photo: G. J. Letzer)

were embarked aboard an aircraft carrier and shipped to Yokosaka, Japan.

FIRST SABRE SORTIES

The first Sabre missions against the Red Air Force were flown on December 17th, when an advance detachment of F-86A-5s based on Kimpo airfield in Korea took off for an armed reconnaissance of the Yalu River. Flying at 32,000 feet and at a speed of 472 m.p.h., they patrolled the area until four MiG-15s were sighted flying at 7,000 feet below the Sabres. The two 120-gallon drop tanks were jettisoned as the Americans made ready to take on the enemy fighters. The aircraft of 336 Squadron led by Lt.-Col. B. H. Hinton closed rapidly on the MiGs, and in the matter of seconds one of them was diving earthwards, its entire rear section enveloped in flames. The other three MiGs got clear of the scrap by diving for the Manchurian border. It was first blood for the Americans and

for the Sabre which, in its first air battle had emerged victorious.

Colonel Hinton led another four-plane flight from Kimpo on December 19th, and on approaching the Yalu they met six MiGs. The red jets made head-on passes through the American formation without firing a shot, and by the time the F-86s turned to give chase the enemy were diving for their home base. A further six MiGs appeared, but they did not enter the fight.

However, this situation was not to last for long as the American pilots were aware, and on December 22nd the MiGs stayed to fight. The day began with eight Sabres meeting MiGs at 40,000 feet, the enemy fighters attacking with cannons blazing. One of the Sabres fell in flames as the MiGs once again raced back across the border unscathed. Four hours later the Sabres returned to the scene to be met by 15 MiGs. Minutes later the exuberant Americans saw the enemy fleeing



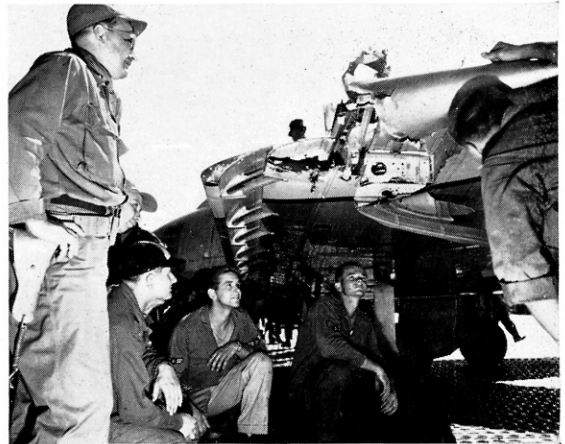
Cocooned F-86As on a lighter at the beginning of the journey to Korea.

across the Yalu leaving six of their comrades diving in flames to their destruction. This high rate of loss deterred the enemy pilots and for the rest of December they studiously avoided the Americans as they patrolled the Yalu. By the end of the month the 4th Wing had flown 234 sorties, during which time the opposing sides had clashed 76 times, with eight victories to the Sabres for the loss of one.

But the situation on the ground had worsened. The Chinese armies had swept the U.N. forces from North Korea and on New Year's day 1951 had begun an invasion of South Korea. To escape the advancing Chinese the Sabres had to leave Kimpo and return to Johnson Air Force Base in Japan, this move putting them effectively out of range for the Korean fighting.

Before the end of the month, however, the Sabre was once again in the thick of it, operating from Taegu in the interceptor and ground attack rôle. Armament consisted of two 5-inch rockets in addition to the standard machine guns, and since drop fuel tanks were needed to give the aircraft effective range, time over target was limited. Because of this lack of time over target the Sabres were not very successful in their new rôle.

The Chinese attack finally ground to a halt due



Heavy battle damage sustained during the Korean air battles.

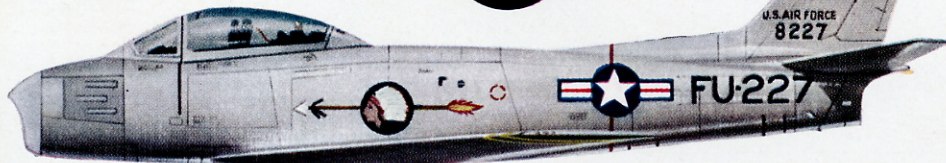
to the problem of supplying front-line troops over long supply lines that were constantly under attack by U.N. aircraft. After a lull in the fighting a new Chinese offensive started and it was heralded with an increase in aggressiveness by the MiG fighters. They were met determinedly by the Sabres of the

One of the original batch of 33 NA-151s, F-86A Sabres, now on display in America. Serial number is 47-614.

(Photo: Roger Besecker)

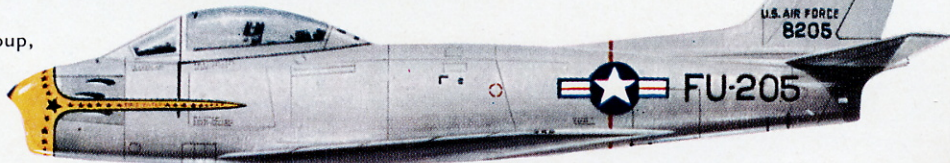


F-86A Sabre,
"The Silver Sabres"
aerobatic team.



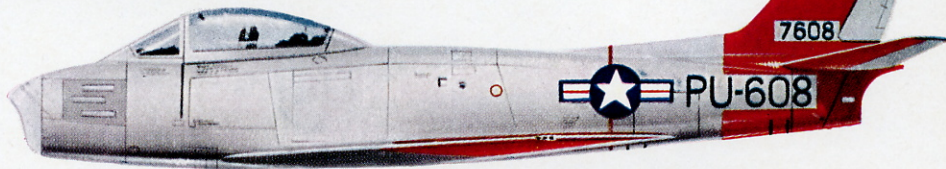
56th F.G.
nose detail.

F-86A Sabre,
56th Fighter Group,
O'Hare A.F.B.
"Space Eater".



1st Fighter Group.

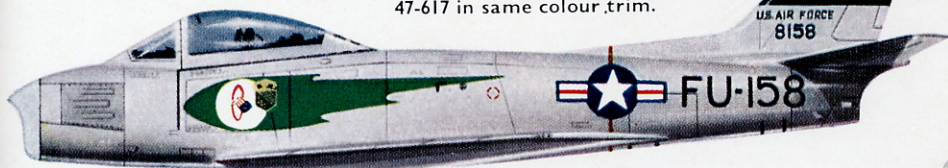
F-86A Sabre, 47-608 in colour trim as flown by Maj. R. L. Johnson in abortive attempt to break the world's speed record during the National Air Races at Cleveland, Ohio, Sept. 1948. Record subsequently broken by 47-617 in same colour trim.



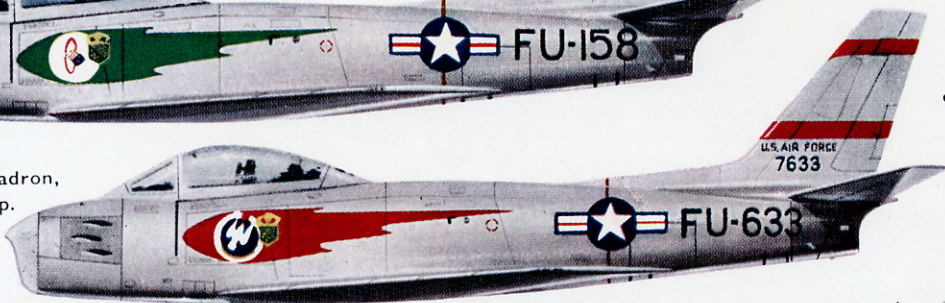
F-86A Sabre,
94th Fighter Squadron,
1st Fighter Group.



94th Fighter Sqdn.



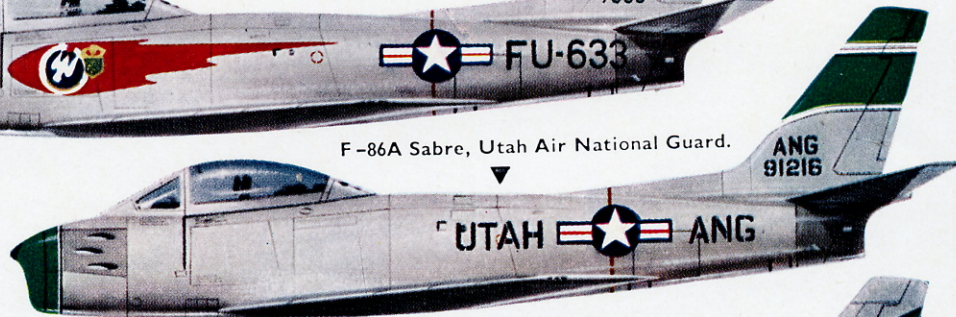
F-86A Sabre,
71st Fighter Squadron,
1st Fighter Group.



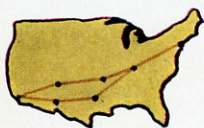
F-86A Sabre, Utah Air National Guard.



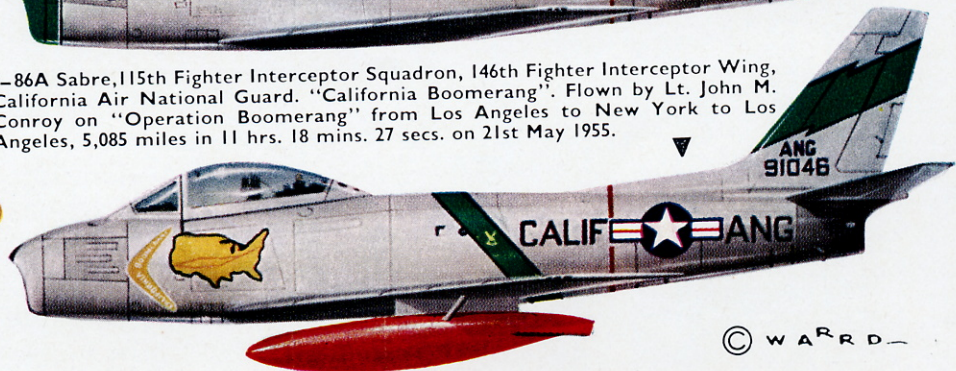
71st Fighter Sqdn.



F-86A Sabre, 115th Fighter Interceptor Squadron, 146th Fighter Interceptor Wing, California Air National Guard. "California Boomerang". Flown by Lt. John M. Conroy on "Operation Boomerang" from Los Angeles to New York to Los Angeles, 5,085 miles in 11 hrs. 18 mins. 27 secs. on 21st May 1955.



"Operation Boomerang"
insignia.
Stbd. side.



334th and 336th Squadrons of the 4th Wing. The pace quickened during April and more MiG-Sabre clashes took place, with the tactical advantage always to the former as they still fled across the border into China after making fast passes at the American 'planes from a superior height. The Americans, despite this handicap, still managed a loss/victory ratio of about 4 to 1 in their favour.

As the first year of the war drew to its close it was apparent that the Sabre had frustrated the MiG-15's bid for air superiority, and without this superiority the efforts to rebuild the North Korean air bases came to nothing as the B-29s blasted them at regular intervals. With the start of the second year of war a programme was under way to increase Sabre strength in Korea. Continued development of the basic Sabre airframe had resulted in a new version designated the F-86E and in due course this improved fighter gradually replaced the tired 86As. The first 86E reached Korea during October 1951 and it was not until July the following year that the last 'A' was returned home.

Wartime development of the Sabre produced a Mark that was basically an improvisation. For tactical reconnaissance the Lockheed RF-80A was used in Korea, but it proved too slow for the MiG-15 and had to be escorted. To provide a recce-fighter capable of operating without an escort six F-86A-5s were converted into RF-86As by installing two 2-inch K-24 and one 24-inch K-24 cameras in a compartment below the cockpit. Five were delivered to the 67th Wing, 15th Reconnaissance Squadron. At least another five F-86As were converted to the reconnaissance rôle, and after the war a number were turned over to the R.O.K. Air Force. One was also used by the California National Air Guard.

© Edward Shacklady, 1965.

Nose radar detail. Note Indian head emblem under cockpit.



Night gun firing tests. Note landing lamps under air intake.

PRODUCTION DETAILS

North American F-86A Sabre.

First production batch of 33 aircraft (NA-151), serialled 47-605 to 47-637 to Specification NA46-841A; Contract AC-16013. First flight of 47-605 took place on 20th May 1948. Deliveries commenced 28th May 1949 and ended in March 1949.

North American F-86A Sabre.

Second production batch of 188 aircraft (NA-151) serialled 48-129 to 48-316. Deliveries commenced March 1949 and ended in September the same year.

North American F-86A-5 Sabre.

Third batch of 333 (NA-161) serialled 49-1007 to 49-1339 to Specification 48-506A; Contract AC-21671. Deliveries commenced October 1949 and ended in December 1950.

WING AND SQUADRON ALLOCATION

1st Wing—Squadrons 27,71,94.
 4th Wing—Squadrons 334,335,336.
 33rd Wing—Squadrons 58,59,60.
 56th Wing—Squadrons 61,62,63.
 81st Wing—Squadrons 78,91,92.
 Air National Guard Squadrons—115,146,195,197,198.
 Sabre F-86As lost due to enemy action in Korea, June 1951 to July 1952.
 48-301, 49-1083, -1088, -1098, -1109, -113, -1123, -1139, -1140, -1147, -1159, -1179, -1199, -1210, -1223, -1226, -1255, -1258, -1276, -1281, -1298, -1307, -1318, -1319, -1334, -1338.
 Sabre F-86As converted to the RF-86A configuration.
 48-183, -1841, -185, -186, -187, -196, -217, -246, -257.

SPECIFICATION AND LEADING PARTICULARS

Dimensions: Span, 37-12 feet. Length, 37-54 feet. Height, 14-74 feet. Wheel track 8-3 feet.
Weights: Empty, 10,093 lb. Take-off weight, 14,108 lb. With 2-120 gallon tanks, 15,876 lb. With 2-1,000 lb. bombs, 16,223 lb.
Performance: Stalling speed, 121 m.p.h. Combat radius, 330 miles. Maximum speed, 679 m.p.h. at sea level, 601 m.p.h. at 35,000 feet. Cruising speed, 533 m.p.h. Maximum rate of climb, 7,470 feet per minute at sea level. Climb to 40,000 feet, 10-4 min. Service ceiling, 48,000 feet.
Powerplant: One General Electric J-47-GE-13 (GE-7 on F-86A-1) of 5,200 lb. thrust.