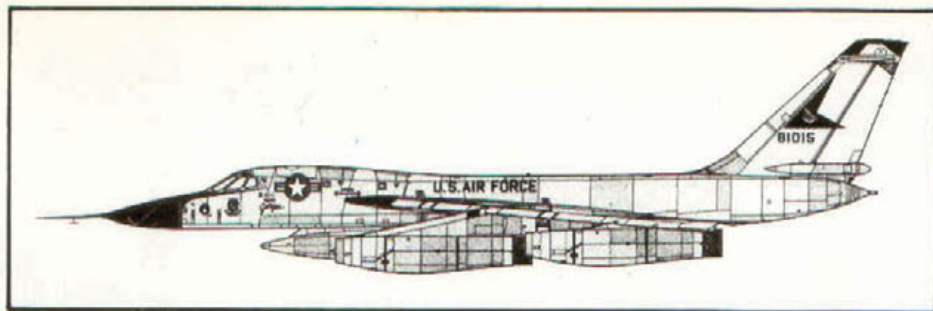




£1.50

CONVAIR B-58 HUSTLER

and variants

BY LINDSAY PEACOCK

B-58A 12054 of the 305th Bomb Wing after its arrival for storage at Davis-Monthan AFB, Arizona in November 1969. The two-component TC weapons pod beneath the fuselage is easily seen in this view. (Author)



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The three members of a Hustler crew seen racing to their aircraft in a simulated alert practice during the sixties. (USAF)



CONVAIR B-58 HUSTLER

Compiled by Lindsay Peacock. Drawings by Mike Keep

IT is one of the more surprising paradoxes of post war aviation history that of the numerous attempts by western world nations to produce a manned supersonic bomber from the drawing board up, only three have reached the flight test stage and of these, two have ultimately been abandoned on the grounds of economy. Of the other two projects which have reached fruition both are in fact derivatives of aircraft originally intended for the tactical role and subsequently adapted for strategic purposes—France's Mirage IV is a logical progression from the Mirage interceptor whilst, in turn, the General Dynamics FB-111A is descended from the fighter variant as used by Tactical Air Command. So far the sole successful candidate is Convair's B-58A Hustler which entered service with the USAF's Strategic Air Command (SAC) in 1960 and which was, in terms of longevity, destined for only a relatively brief career, finally being retired early in 1970. Both subsequent attempts to procure a type capable of sustained supersonic operation have been doomed to failure after reaching flight status in the prototype stage.

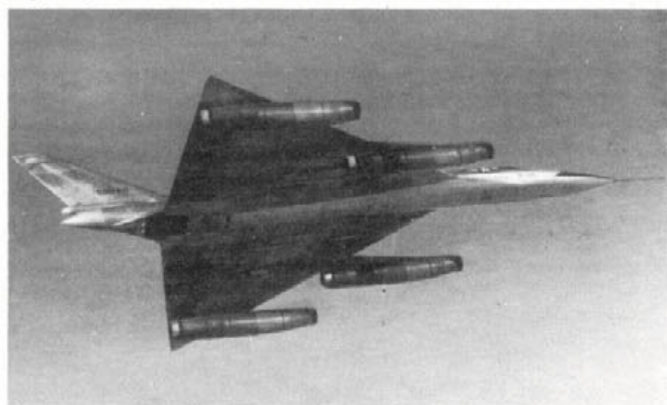
The first of these, North American's exotic XB-70 Valkyrie, was to have possessed Mach 3 capability for the entire mission but was relegated to high speed aerodynamic research duties even before its maiden flight in September 1964. Undoubtedly one of the most graceful types of recent years, only two prototypes (20001, 20207) were built, the second being destroyed following a mid-air collision with an F-104 chase-plane during June 1966. The survivor remained in use until February 1969 when it was retired to a permanent home at Wright-Patterson AFB, Ohio where it is now one of the star exhibits of the USAF museum.

The second, and most recent, attempt whilst being less ambitious from the performance viewpoint, was in many ways more sophisticated but this has now met a similar fate to its predecessor. Recently cancelled in one of the more

controversial acts of President Carter's administration, the Rockwell B-1A had in fact attained quantity production for SAC and the flight test programme, utilising three prototypes, appeared to be progressing smoothly. Present intentions regarding the aircraft currently on the line are unclear but it seems likely that some, if not all, will be completed for further trials as insurance against a sudden deterioration in international relationships.

The track record of the US supersonic bomber is singularly inauspicious and even the Hustler, by far the most successful attempt, was subjected to a reduction in total procurement caused, ironically, by diversion of funds to the XB-70

Above: The first prototype XB-58A seen over the Texas countryside during an early test flight from Fort Worth. Colour scheme at this time was natural metal with a red fin and nose section and white trim. (Convair) **Below:** Another view of the prototype at a later stage in its career when the colour scheme had changed to a largely natural metal finish. Noteworthy features are the absence of the weapons pod and the later five-digit style of serial presentation. (Convair)



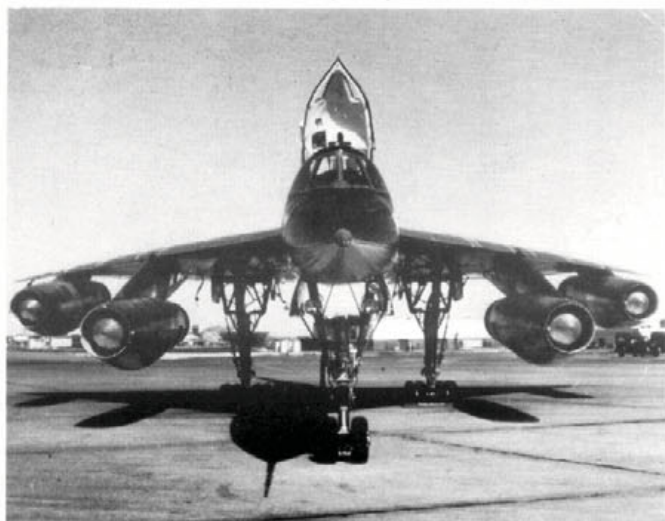


The second XB-58A, 50661, taxiing back to the Convair factory at Fort Worth after a routine test flight. The large braking parachute is clearly visible. Finish is identical to that of the first prototype. (Convair)

programme. When production ended in Autumn 1962 only 116 had been completed, with no less than 30 of these being intended initially for research and development work. Eighteen of the research and development aircraft were eventually reworked for use by SAC which reached peak strength in the early sixties when approximately 100 were on charge. By late 1969, when retirement began, attrition had reduced this to 85, giving an overall loss rate of roughly 17 per cent, which over the 10 years of service is remarkably good considering the complexity of the design.

USAF interest in obtaining a manned bomber capable of supersonic performance first manifested itself in the late forties when increasing realisation of the peculiar advantages offered by the jet engine brought about a major reappraisal of military aviation and in 1949 Convair was one of several companies awarded design study contracts to examine the feasibility of such a type. At this time Convair had for several years been exploring the merits of the tail-less delta and had gained some valuable flight experience with an experimental design known as the XF-92A which eventually formed the basis for the F-102 Delta Dagger. In view of this it was hardly surprising that their 1949 proposal centred around a delta wing design and, even at this early stage, the use of a

The distinctive stalky undercarriage of the Hustler is readily apparent in this head-on view of the first prototype aircraft on the ramp at Fort Worth. Also easily seen is the unusual 'teardrop' shape of the four podded General Electric J79 engines and the pronounced camber of the wing leading edge. Once again, this aircraft lacks the area-ruled weapons pod. (Convair)



disposable pod to house weaponry and fuel.

USAF interest was sufficient to warrant a further contract in March 1951 enabling Convair to continue work on their design proposal which was henceforth to be known as the B-58 and by August 1952 it was adjudged that this type was deserving of an initial R&D contract covering the assembly of 13 prototypes — two XB-58A's and 11 YB-58A's — for flight test purposes.

Over four years were to elapse before the maiden flight of the prototype during which time the lessons learned by Convair's unfortunate experience with the F-102 were fully absorbed and incorporated into the Hustler. The Delta Dagger in its original configuration was essentially a growth version of the earlier XF-92A and early in the flight test programme it became apparent that one of the prerequisites of the USAF specification, the ability to attain Mach unity, would not be achieved without major redesign. In the event, Convair were forced to resort to the then relatively unused area rule formula in order to reduce the unacceptably high level of transonic drag. The resulting changes in design were successful in overcoming this problem but there was inevitably a prolonged delay and it was not until mid-1956 that the 'Deuce' attained operational status.

By the time the B-58 prototype (50660) made its first flight on 11 November 1956 area-ruling was an accepted facet of aerodynamic design and there can be little doubt that the ill-fortune which plagued the F-102 did much to smooth the path of the Hustler in later years.

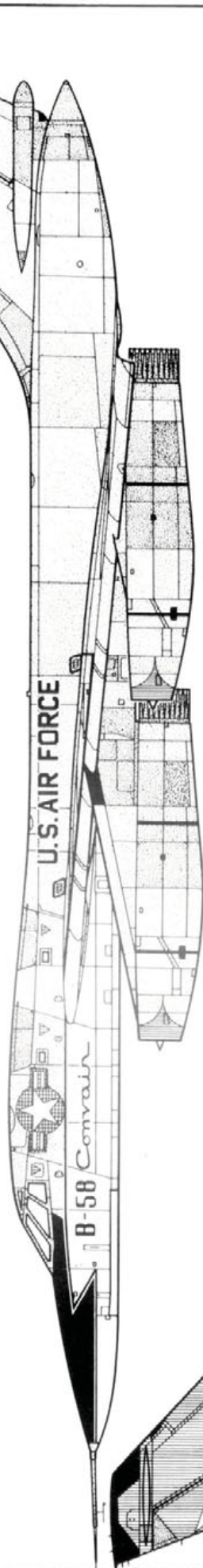
The pace of the Hustler test programme accelerated throughout 1957 as more aircraft became available and in the latter half of the year an additional 17 Hustlers (81007-81023) were ordered, these being primarily intended for use by the Air Research and Development Command's Joint Test Force in 1958-59. In the intervening period the original batch of 13 prototypes were used on an extensive series of manufacturers trials conducted at both Fort Worth's Convair facility and at the Air Force Flight Test Centre at Edwards AFB.

With the creation of the Joint Test Force, the ARDC's 6592nd Test Squadron assumed responsibility for basic performance and handling trials whilst investigation into the more warlike capabilities and operational aspects fell to the 3958th Operational Evaluation and Training Squadron at Carswell AFB. The latter was also responsible for the initial training of SAC aircrews destined to fly the Hustler when it attained front-line status.

At the time, the B-58 was rightly considered as one of the most sophisticated combat aircraft yet evolved and its undoubted complexity was to prove a major headache throughout the development programme and during the initial two year period after joining SAC as an operational aircraft. Most of the problems were related directly to the highly advanced bombing and navigation system which formed a vital part of the overall capability of the B-58 but

B-58 HUSTLER PROTOTYPES

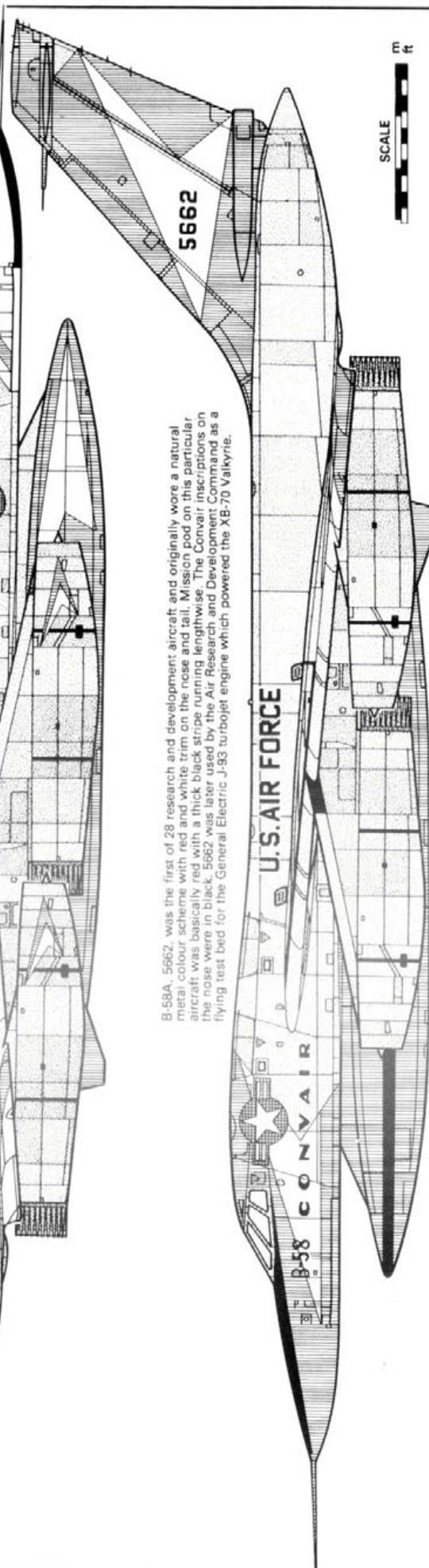
The first prototype XB-58A (50660) in the later colour scheme worn by this aircraft. This comprised natural metal overall with white forward lower fuselage. The air intake nozzles, narrow fuselage band and Convair titles were in red whilst the upper radome and anti-dazzle panel were black. Nose probe was silver. Amongst the most notable features of this aircraft were the absence of the integral rearward-facing Vulcan cannon armament and weapons pod.

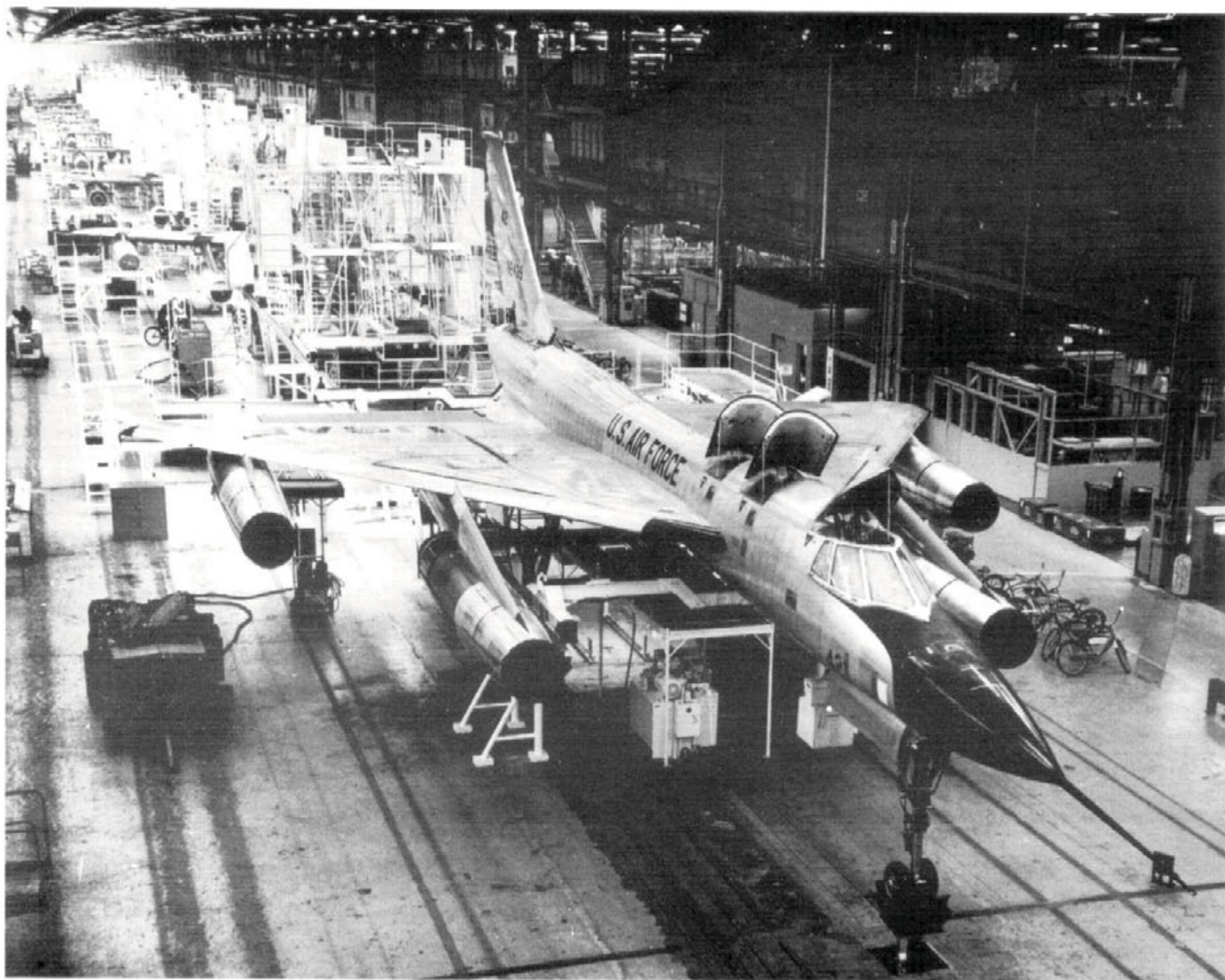


The prototype TB-58A conversion (5670) in the original finish applied whilst undergoing initial company trials at Fort Worth. Colour scheme was basically natural metal with red and white trim applied to the nose, fin, engine nacelles and weapons pod. Nose probe was white. One interesting result of the TB-58A conversion was the re-positioning of the national insignia to a position below and slightly aft of the rear cockpit windows. This aircraft subsequently joined the 43rd Bomb Wing.



B-58A, 5662, was the first of 28 research and development aircraft and originally wore a natural metal colour scheme with red and white trim on the nose and tail. Mission pod on this particular aircraft was basically red with a thick black stripe running lengthwise. The Convair inscriptions on the nose were in black. 5662 was later used by the Air Research and Development Command as a flying test bed for the General Electric J-93 turbojet engine which powered the XB-70 Valkyrie.





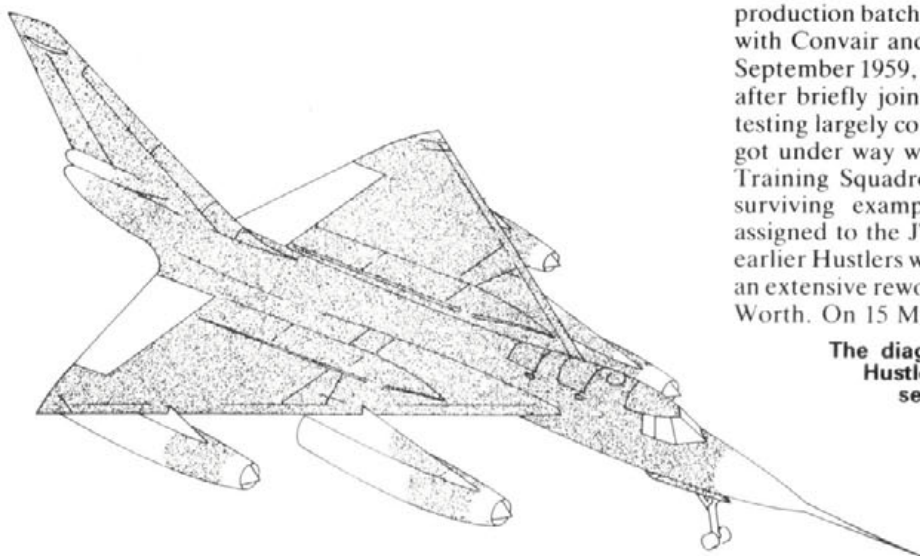
At least nine Hustlers can be seen at various stages of completion in this view of the production line taken during 1960 at Convair's Fort Worth factory. The nearest aircraft, 92439 (c/n 42), is virtually complete and is about to be lifted clear of the railed trestles upon which it took shape during its progress down the line. Hydraulic jacks were used in this operation and the nosewheel of the aircraft can be seen resting on one of these. (Convair)

there were others of which perhaps the most serious concerned the escape systems available to aircrews.

The use of the ejector seat, whilst generally considered satisfactory at speeds below Mach 1, was revealed to be

inadequate above this speed in tragic fashion on 15 December 1958 when one of the research aircraft had to be abandoned whilst at supersonic speed during a test flight. The tremendous blast forces encountered in this ejection resulted in serious injuries to two of the crew and the death of the third. To their credit the USAF reacted quickly to eradicate the possibility of recurrence by drawing up a requirement for an escape capsule capable of providing protection over the entire performance range. Despite the prompt action of the USAF it was to be some time before all aircraft featured the new system.

In the meantime a further contract covering an initial production batch of 36 aircraft (92428-92463) had been placed with Convair and the first of these made its maiden flight in September 1959, being delivered to the USAF on 1 December after briefly joining the test programme. By late 1959, with testing largely completed, preparation for operational service got under way with the formation of the 65th Combat Crew Training Squadron at Carswell, this unit using most of the surviving examples of the 17 FY.58 aircraft previously assigned to the JTF. As newer aircraft became available the earlier Hustlers were brought up to full production standard in an extensive rework programme conducted by Convair at Fort Worth. On 15 March 1960 the 65th CCTS had completed its

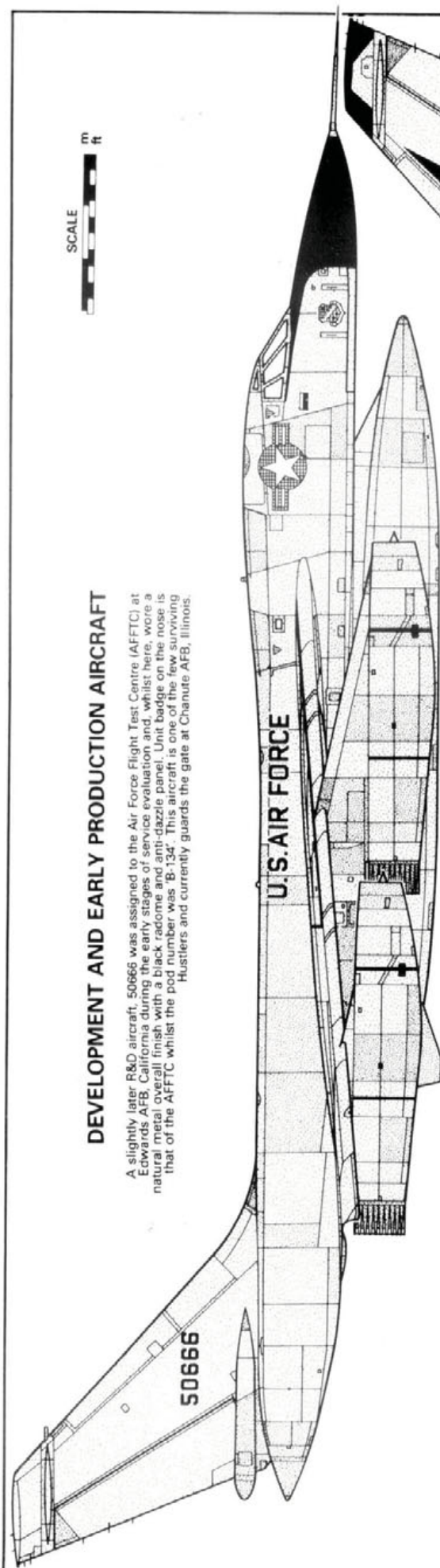


The diagram shows the different methods used in Hustler skin construction. Dark shaded areas represent use of the bonded thermal sandwich comprising duralumin alloy sheets with a core of either phenolic-resin-fibreglass cloth or light gauge duralumin. Lighter areas, excluding the nose radome and tail section, are of brazed stainless steel sandwich panels.

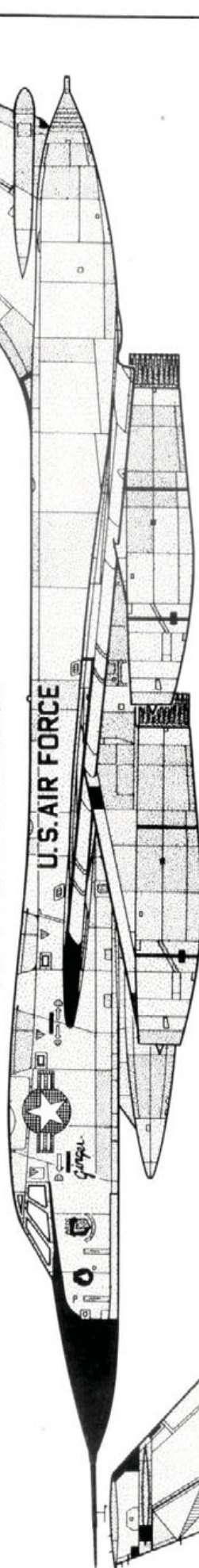


DEVELOPMENT AND EARLY PRODUCTION AIRCRAFT

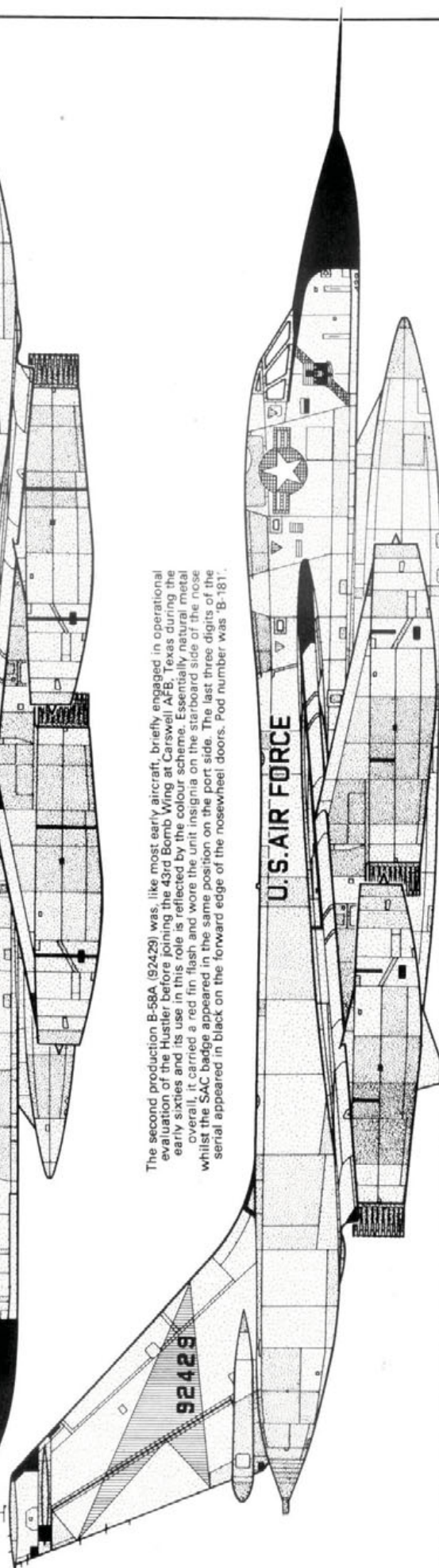
A slightly later R&D aircraft, 50666 was assigned to the Air Force Flight Test Centre (AFFTC) at Edwards AFB, California during the early stages of service evaluation and, whilst here, wore a natural metal overall finish with a black radome and anti-dazzle panel. Unit badge on the nose is that of the AFFTC whilst the pod number was 'B-134'. This aircraft is one of the few surviving Hustlers and currently guards the gate at Chanute AFB, Illinois.

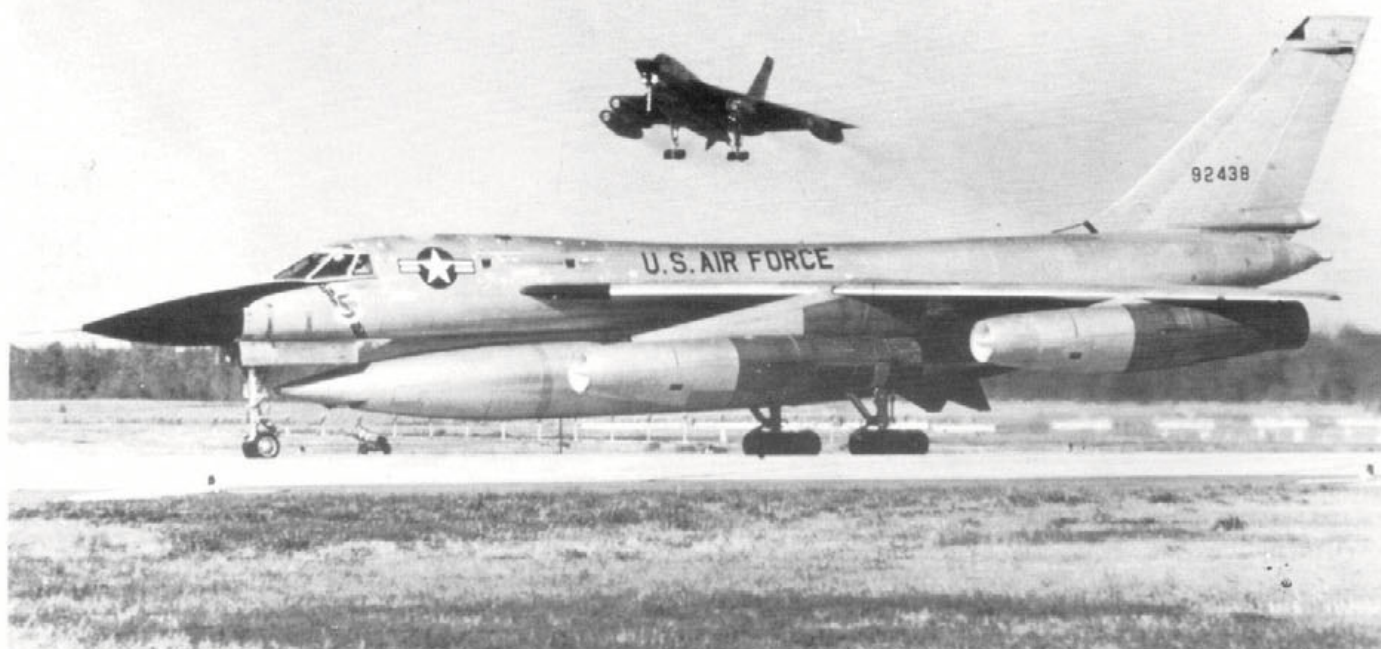


B-58A 81015 'Ginger' from the second batch of R&D aircraft whilst serving with ARDC at Edwards AFB in the late fifties. Virtually to full production configuration, this Hustler carried more than its fair share of insignia, including an ARDC badge on the nose and the AFFTC badge superimposed on a black fin flash. It also wore a blue disc with a white Hustler silhouette on the nose and was basically natural metal overall with black wing roots, nose cone and fin cap. It was also unusual in carrying only the upper half of the TC weapons pod.



The second production B-58A (92429) was, like most early aircraft, briefly engaged in operational evaluation of the Hustler before joining the 43rd Bomb Wing at Carswell AFB, Texas during the early sixties and its use in this role is reflected by the colour scheme. Essentially natural metal overall, it carried a red fin flash and wore the unit insignia on the starboard side of the nose whilst the SAC badge appeared in the same position on the port side. The last three digits of the serial appeared in black on the forward edge of the nosewheel doors. Pod number was 'B-181'.





Above: B-58A 92438 of the 43rd Bomb Wing holds short of the Little Rock runway whilst a sister aircraft returns from a routine mission. Both carry the single component MB weapons pod. Right: An unidentified B-58A seen shortly after take-off. The main undercarriage units of this aircraft, which carries the two-part TC pod, are still in the process of retraction.



task and was deactivated simultaneously with the activation of the 43rd Bombardment Wing as the first fully operational Hustler unit.

Some time was to elapse before the 43rd was to attain full combat status and during the immediate post-conversion period it was involved in several very varied functions including training of both its own personnel and those of the 305th Bombardment Wing which had been selected to be the next B-58 unit, some follow-on test work and, of course, its share of SAC alert. During this period the 43rd was stationed at Carswell AFB just across the runway from the Fort Worth factory and close links were maintained with Convair whilst the wing worked up to full strength. Subsequently the 43rd were moved to Little Rock AFB which remained their home base until the passing of the Hustler in 1970.

By the time the 305th BW began to receive the B-58 in May 1961 some 86 production examples had been contracted for

but, sadly, the increased importance placed upon the ICBM resulted in the decision not to re-order and so, on 26 October 1962, the last aircraft (12080) was accepted by the Air Force, this subsequently joining the 305th at Bunker Hill AFB, Indiana. Incidentally, this aircraft is one of the few surviving Hustlers, currently forming part of the Pima County collection at Davis-Monthan AFB, Arizona.

This 1957 photograph shows Convair employees putting the final touches to an early example of the weapons pod. This particular pod was one of several which were used in assessing aerodynamic qualities during the late fifties and is of the single component type. (Convair)



CONSTRUCTION

When introduced to service the B-58 possessed many revolutionary features of which perhaps the most innovative were the methods and materials employed in construction. The basic airframe structure was particularly unusual in that it consisted of hundreds of internal transverse corrugated duralumin spars running spanwise through the fuselage at intervals of 11-15 inches. This method did away with the need for chordwise ribs — in practice the only chordwise members incorporated in the design were used as attachment points for control surfaces, undercarriage components and engine pylons. Of particular interest was the aircraft's skin — the bonded thermal sandwich — specially developed by Convair and, in the case of the wing, featuring top and bottom layers of duralumin alloy sheets with a half-inch thick core of either phenolic-resin-fibreglass cloth or light gauge duralumin. Attachment was by titanium screws. Slightly different materials were used for the fuselage structure panels which were reinforced with beaded inner skins bonded to outer



As part of the overall development programme of the Hustler, one of the pre-production aircraft was assigned to the Air Force Proving Ground at Eglin AFB, Florida. This is seen shortly before it entered the climatic laboratory where it was subjected to extremes of temperature designed to test the operational flexibility of the B-58A's complex systems. (Convair)

skins. Hot spots such as the engine exhaust areas and elevons used brazed stainless steel sandwich panels.

Much of the fuselage structure and the entire wing assembly contained fuel for the thirsty J79 turbojets which powered the Hustler. Four tanks were available with the largest being the aft portion of the wing, this containing a maximum of 39,794 lbs. of JP-4. Next largest was that housed in the forward wing section, this having a capacity of 20,648lbs whilst both fuselage tanks were considerably smaller. These comprised a reservoir tank above the wing and a balance tank towards the rear giving a combined capacity of 12,358lbs. In addition both types of the external weapon pod also contained fuel, providing a maximum load in excess of 100,000lbs.

The General Electric J79-GE-5A or -5B engine also introduced some new features including variable-position inlet guide vanes and stator vanes in the first six compressor stages. Automatically programmed as a factor of engine speed and temperature these minimised the possibility of compressor stall by initially admitting the correct amount of air and then channelling it to the rotating compressor vanes at the required angle of attack. Optimum thrust and specific fuel consumption under different operating conditions were further regulated by the primary and secondary exhaust

nozzle flaps which were linked to the throttle settings, opening and closing automatically as and when necessary.

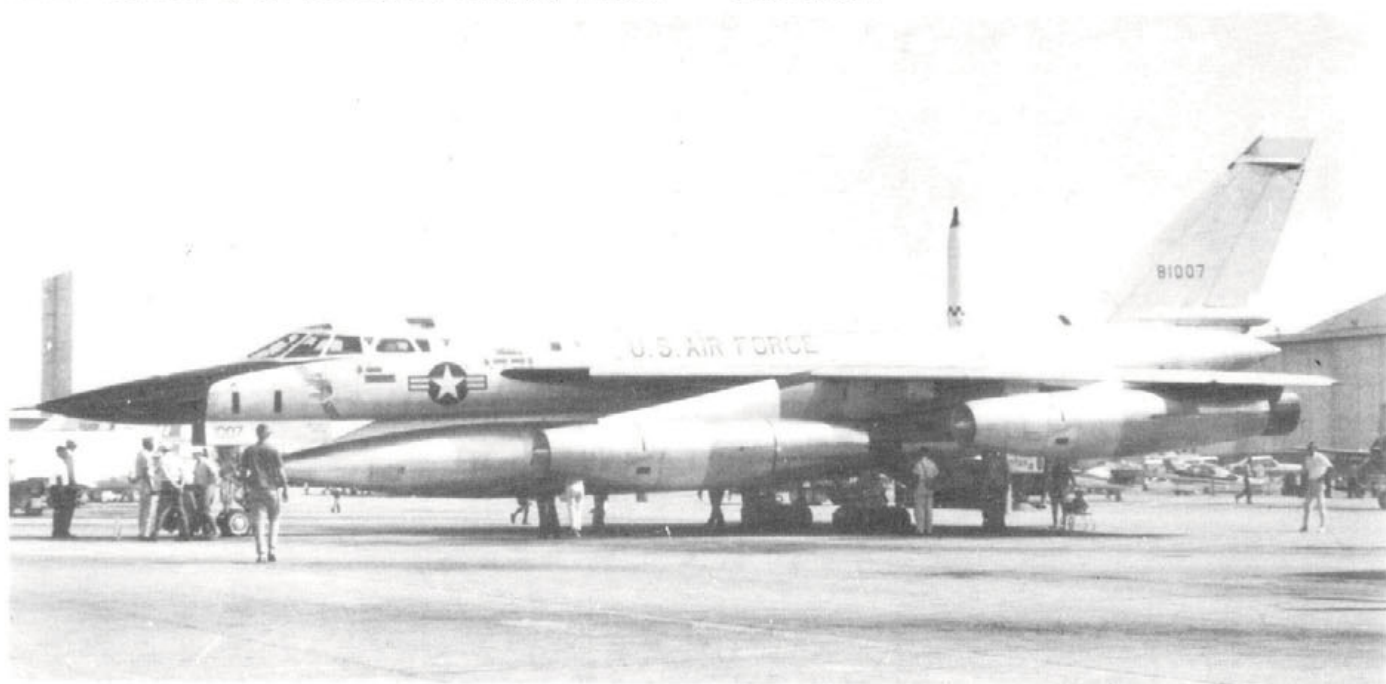
The stalky tricycle undercarriage of the B-58, whilst essentially conventional, possessed one or two novel features arising from the unusually high touchdown speed of 165 knots at the design landing gross weight of 75,000lbs. Both main members had four non-frangible steel wheels, each with two 22 inch diameter tyres inflated to the tremendous pressure of 240 psi (pounds/square inch). In the event of these disintegrating in a hard landing the Hustler could roll safely on the steel wheels. The nose wheel assembly consisted of two tyres and was fully steerable for taxiing. This featured a rather unusual method of retraction necessitated by the close proximity of the weapons pod which precluded rearward movement and so the entire leg assembly slid aft whilst folding forward.

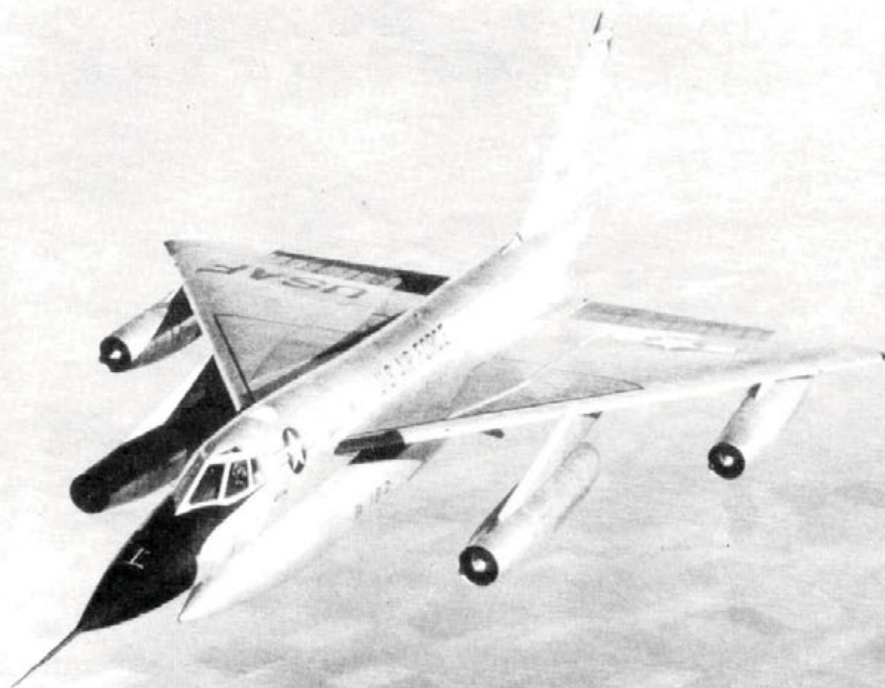
Electrical power was provided by a total of three independent generators driven by the turbojet engines. Two main supplies were available, 115 to 200 volt alternating current and 28 to 250 volt direct current, with the former being used by most of the instruments, fuel pumps and some radar and navigational equipment. Caution/warning lamps, autopilot, navigational electronics and the remaining radar apparatus were powered by the latter. For use in emergencies a single 28 volt battery was also carried.

Hydraulically actuated mechanisms were catered for by two independent systems — utility and primary — each possessing two engine-driven pumps maintaining a pressure of 3,000 psi. Operation of flight control surfaces was shared but in the



Above: The only other variant of the Hustler to attain operational status was the TB-58A trainer, the prototype conversion of which is seen taxiing at Fort Worth soon after its maiden flight on 10 May 1960. Colour scheme is similar to the XB-58A, being mainly natural metal with red and white trim. (Convair) Below: TB-58A 81007, of the 43rd Bomb Wing at an American air display in the early sixties. The extra cockpit windows of this version are clearly visible. (APN)





The distinctive delta wing planform adopted by Convair for the Hustler is readily apparent in this view of 01118 high over the North American wheatfields. Reference markings for the in-flight refuelling receptacle can be seen just forward of the windscreen. (USAF)

event of failure of one system the other was fully capable of assuming responsibility. Total loss of pressure inevitably resulted in crew ejection due to the aircraft being literally uncontrollable. Other hydraulically operated items were the landing gear, nose wheel steering, brakes, tail turret and damper servos. For lowering of undercarriage and braking in an emergency a pneumatic back-up system was available.

Of particular interest is the encapsulated escape system which was the first such system to be used by a combat aircraft. Capable of being sealed and fully pressurised in just seven seconds after loss of main cabin pressure, the capsules were lifted clear of the aircraft by rockets in the event of ejection and also contained the necessary survival gear such as clothing, radio and rations. If depressurisation occurred above 40,000 feet full control could be maintained by the pilot

who was able to see part of the instrument panel through windows in the capsule door. Switches on the control column enabled him to disconnect the autopilot, shift the centre of gravity and manipulate the throttles whilst descending to a safe altitude. Once this was reached decapsulation was possible and full control could be regained. Life-support systems included two separate air conditioning plants providing cooling air to both the crew and electronics apparatus whilst liquid oxygen fed the pressure breathing masks used by the crew. Cabin pressure differentials of up to 7.45 psi were possible using the pressure regulator. All of the foregoing equipment combined to provide an almost shirt-sleeve working environment and did away with the need for bulky and restricting pressure suits.

In the event of an emergency, highly sophisticated audio and

TB-58A 50672 of the 43rd Bomb Wing returns to its home base at Little Rock after completing a routine training mission. The eight trainer conversions were equally distributed between the two operational units.





On a rare visit to the UK, B-58A 92434 'Cannonball' of the 43rd Bomb Wing stands on a rain-soaked tarmac at Upper Heyford during the early sixties. This particular aircraft carries the single component MB pod. (A. W. Hall)

visual warning systems were available — of these the rather novel audio system received a great deal of publicity principally due to it incorporating the use of a seductive and alluring female voice. Under this system there were a total of 20 pre-recorded announcements which were relayed to the crew over the intercom. Amongst these were such warnings as 'Hydraulic system failure', 'nose too high' and, the popular favourite, 'weapon unlocked!' The visual system comprised master warning and master caution lights on the left-hand side of the instrument panel with these being used to draw the pilot's attention to warning and caution display panels on the right of the cockpit. Here, individual bulbs were used to specify the particular problem.

The undoubted key to the Hustler's combat capability was the Sperry AN/ASQ-42 Navigation and Attack system. This relieved the crew of many of the more tedious duties and would, in the event of war, have enabled them to largely confine their attentions to the tactical situation as it developed. In the navigational mode it was capable of directing the B-58, along a great circle track, to any point in



Above: The rearward facing Vulcan rotary cannon armament and its associated gunsight ranging radar are clearly visible in this close up of the fin of 92434. Flexible plates on the cannon installation permitted it to be aimed automatically by the fire control computer. (A. W. Hall) Below: Testing of the XB-70's massive General Electric J93-GE-3 turbojet engine was performed by the AFFTC on a specially modified NB-58A at Edwards AFB. This aircraft, 50662, carried the J93 in a pod beneath the fuselage. (via R. Alexander)



B-58 HUSTLER WARPAINT



Above: 43rd Bomb Wing B-58A 92451 'The Firefly' shortly after arrival at Le Bourget on 26 May 1961 having set a new world record for the New York-Paris flight of just 3 hours 19 mins. Just over a week later this aircraft was destroyed when it disintegrated during a demonstration flight. (APN) **Below:** Just so much junk! The wreckage of B-58A 92451 lying in a corner of Le Bourget after its tragic crash of 3 June 1961. (via author)



the world — desired target co-ordinates were input to the computer which then issued flight instructions to the autopilot. A nose-mounted search radar, combined with individual visual display units, provided the crew with constantly updated data on current position, terrain and altitude and also indicated when certain pre-set locations were reached. In the attack mode it would again take the aircraft on a rhumb-line course to the desired target — pre-set fix-points appeared on the radar scopes and during the final stages of a bombing run the navigator was able to make small course corrections. Weapon release occurred automatically at a point calculated to ensure the airburst of a nuclear weapon directly over the target area.

To further enhance the Hustler's chances in combat, both active and passive defence systems were present with responsibility for operation of these resting with the defence systems operator in the rearmost cockpit. In the former category, perhaps the best known item was the rearward facing Vulcan rotary cannon. Operation of this was largely automatic with enemy aircraft being presented on the DSO's radar screen. Having satisfactorily locked on to the hostile aircraft, the fire control computer performed the necessary calculations and then aimed the gun prior to instructing the DSO when to open fire. Passive systems included track-breaking electronic equipment intended to reduce the enemy's defensive capability by disrupting their radar network.

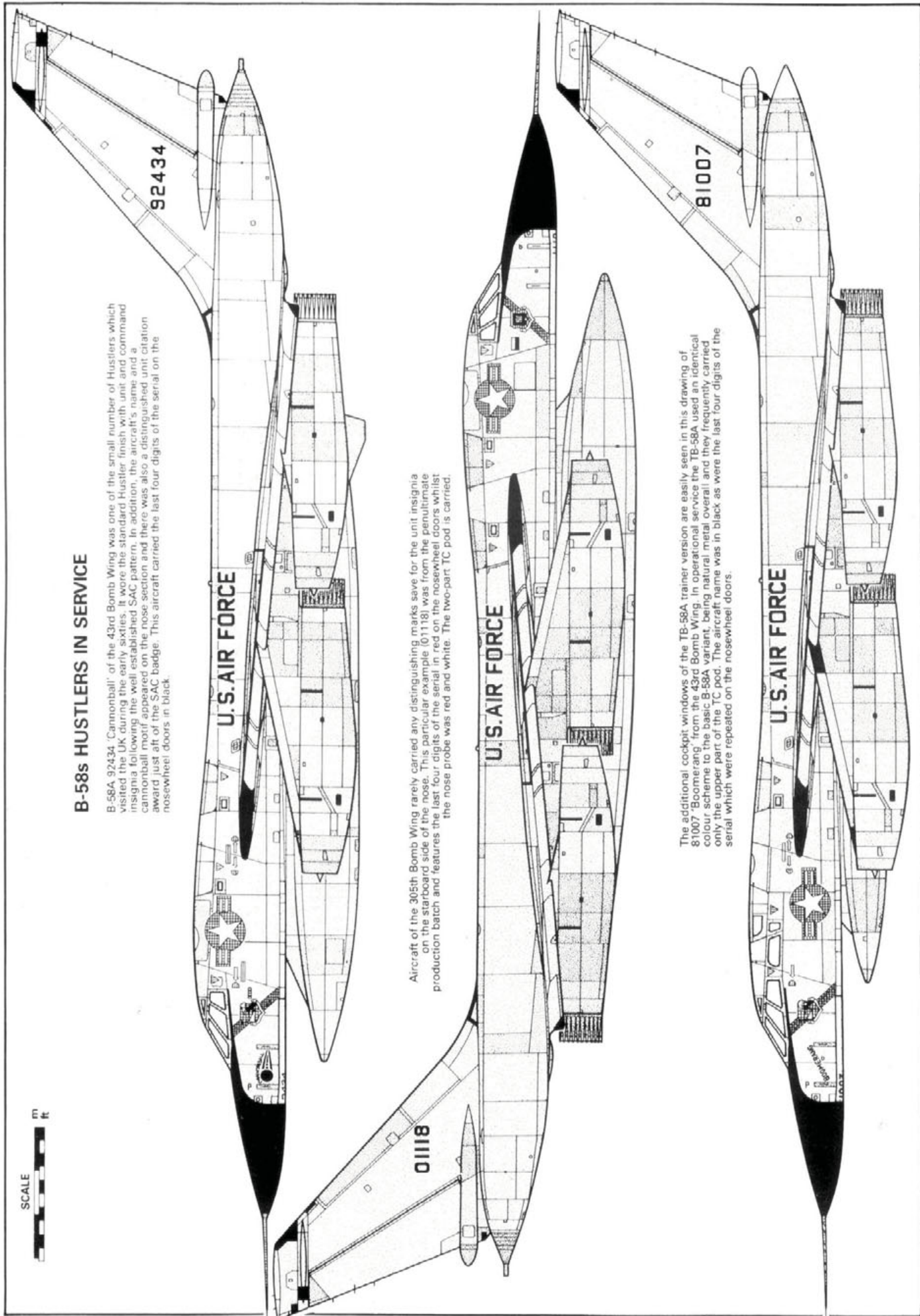
In 1965 the USAF again exhibited the B-58 at Paris and once again lost one of these in a fatal crash. This aircraft, 12069 of the 305th Bomb Wing, seen taxiing at Le Bourget remained in service with SAC until the Hustler's retirement. (APN)



Possessing no internal weapons bay, the Hustler carried a large external area-ruled pod, this housing fuel as well as the principal nuclear armament. Two different types of pod were available, a single element 57 ft long MB pod or the two-part TC (two component) pod. The former seems to have been the most commonly used and appears to have been almost entirely confined to the carriage of fuel whilst the lower section of the two-part pod is known to have contained only fuel. The 35ft long upper segment, retained for the final run-in to the target, housed approximately 2,500 lbs of fuel in addition to the warhead.

WORLD RECORDS

Despite its warlike applications the Hustler is undoubtedly best known for its record breaking exploits of the early sixties when it repeatedly hit the headlines with a remarkable series of flights. These events began quietly on 23 March 1960 when one aircraft set an endurance record of 18 hrs. 10 mins. during which time it covered some 11,000 miles at an average speed of 620 mph. 1961 was just 11 days old when, in operation 'Quick Step', B-58A 92442 'Little Rascal' of the 43rd BW set three world payload records by flying over a 2,000 km. closed circuit course at an average speed of 1,061.80 mph. Two days later another aircraft from the same unit (possibly 92451 'The



B-58s HUSTLERS IN SERVICE

B-58A 92434 'Cannonball' of the 43rd Bomb Wing was one of the small number of Hustlers which visited the UK during the early sixties. It wore the standard Hustler finish with unit and command insignia following the well established SAC pattern. In addition, the aircraft's name and a cannonball motif appeared on the nose section and there was also a distinguished unit citation award just aft of the SAC badge. This aircraft carried the last four digits of the serial on the nosewheel doors in black.

Aircraft of the 305th Bomb Wing rarely carried any distinguishing marks save for the unit insignia on the starboard side of the nose. This particular example (01118) was from the penultimate production batch and features the last four digits of the serial in red on the nosewheel doors whilst the nose probe was red and white. The two-part TC pod is carried.

The additional cockpit windows of the TB-58A trainer version are easily seen in this drawing of 81007 'Boomerang' from the 43rd Bomb Wing. In operational service the TB-58A used an identical colour scheme to the basic B-58A variant, being natural metal overall and they frequently carried only the upper part of the TC pod. The aircraft name was in black as were the last four digits of the serial which were repeated on the nosewheel doors.





Firefly') won the Thompson Trophy for averaging 1,284.73 mph, this time over a 1,000 km. course with an identical 2,000 kg. payload.

The 43rd were again in the news on 10 May 1961 when they won the Bleriot Trophy. This had been offered some 31 years earlier and was to be awarded for the first flight which maintained a speed of 2,000 kmph for 30 minutes. In fact the Hustler exceeded this figure handsomely by averaging 1,302 mph. Just over two weeks later, on 26 May, the B-58 gained world acclaim when 92451, of 'Quick Step' fame, arrived at Le Bourget, Paris after flying from New York in just 3 hrs. 19 mins. The crew, again from the 43rd BW, were subsequently awarded the Mackay Trophy for the most meritorious flight of the year by any USAF command. The ensuing celebrations were to be brought to an abrupt and tragic halt on 3 June 1961 when 92451 disintegrated whilst performing at the Paris Air Show. The crew on this occasion

One of six surviving Hustlers, 50666 can now be seen at Chanute AFB, Illinois where it serves as a gate guardian. Formerly assigned to the test programme it lacked the weapons pod when this photograph was taken. (MAP)

Seen at Brize Norton during the heyday of Strategic Air Command's UK operation in the early sixties, 01117 was assigned to the 305th Bomb Wing and carries the two-part TC weapons pod. (APN)

was the one which had won the Bleriot Trophy just three weeks earlier. Le Bourget, incidentally, was not a happy hunting ground for the B-58A — of the three aircraft which attended Paris air shows, only one made the return journey to the USA.

Activities on the record breaking front were curtailed for nearly a year until, on 5 March 1962, the 43rd retained the Mackay Trophy and added the Bendix Trophy to their laurels for a non-stop round trip between Los Angeles and New York. Under the code-name 'Operation Heat Rise', the aircraft concerned (92458) took just 2 hrs. 1 min. for the outbound leg at an average speed of 1,214 mph. The slightly slower return to Los Angeles was made at an average of 1,081 mph requiring some 2 hrs. 15 mins.

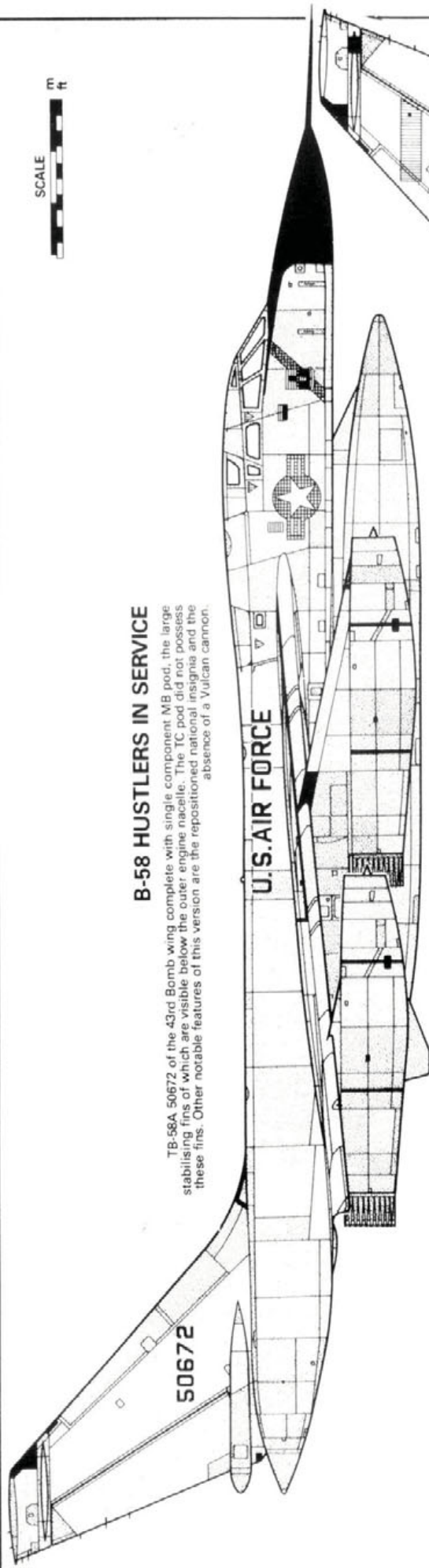
Six months later the ARDC got into the act with a payload to altitude record of 5,000 kgs to 85,360 feet and yet, of all the Hustler's exploits, perhaps the best remembered will be the



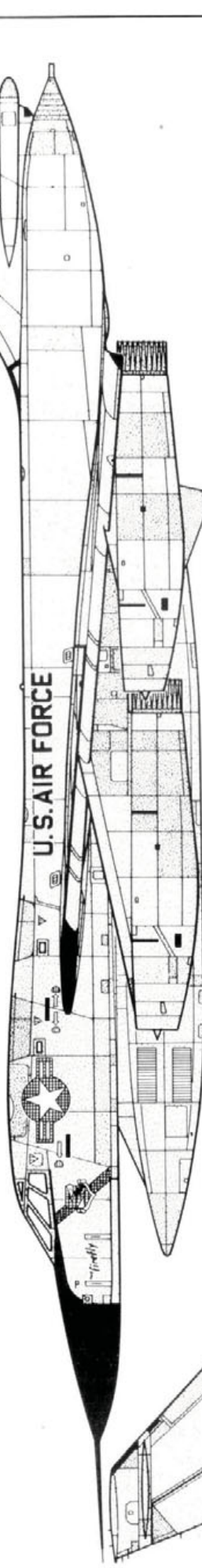


B-58 HUSTLERS IN SERVICE

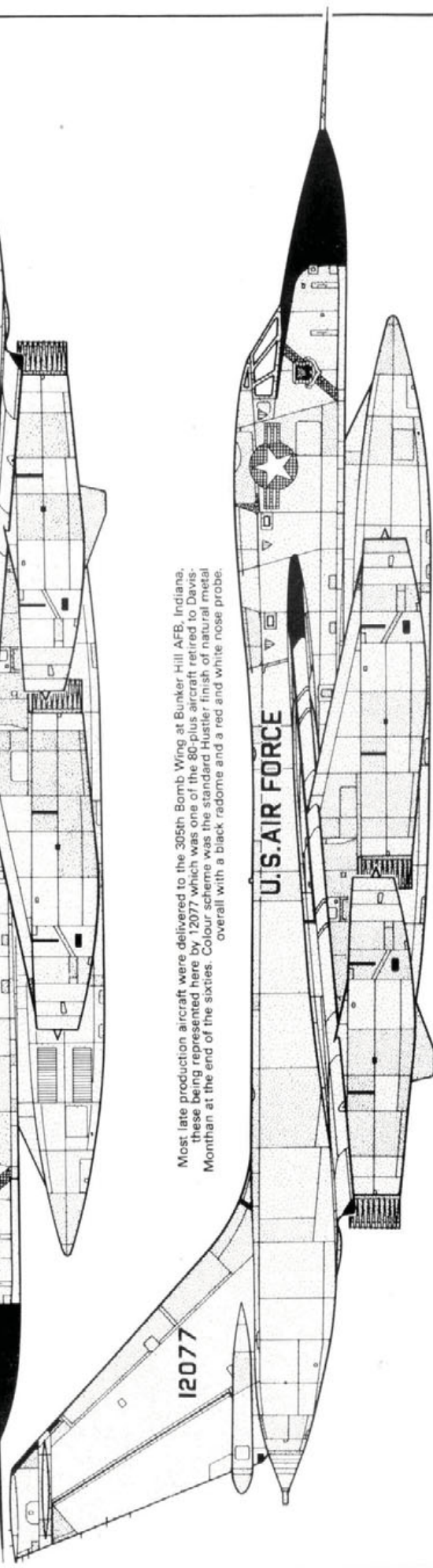
TB-58A 50672 of the 43rd Bomb wing complete with single component MB pod, the large stabilising fins of which are visible below the outer engine nacelle. The TC pod did not possess these fins. Other notable features of this version are the repositioned national insignia and the absence of a Vulcan cannon.



43rd Bomb Wing B-58A 92451 'The Firefly' in the scheme it wore when it crashed at the 1961 Le Bourget air show. Predominantly natural metal, it carried twin red bars on the pod and fin whilst the name was also in red and was only present on the port side. Application of unit insignia was as usual in that the unit badge was to starboard and the SAC insignia to port. The weapons pod carried the number 'B-1106' in black.



Most late production aircraft were delivered to the 305th Bomb Wing at Bunker Hill AFB, Indiana, these being represented here by 12077 which was one of the 80-plus aircraft retired to Davis-Monthan at the end of the sixties. Colour scheme was the standard Hustler finish of natural metal overall with a black radome and a red and white nose probe.





sole contribution by the 305th Bomb Wing who had had to stand by and watch their colleagues of the 43rd grabbing all the glory. On 16 October 1963, in operation 'Greased Lightning', 12059 claimed the distinction of making the world's longest supersonic flight when it flew from Tokyo to London, a distance of 8,028 miles in 8 hrs. 35 mins. at an average speed of 938 mph. Somewhat surprisingly no award appears to have been made for this epic journey — perhaps the 43rd had won all the trophies that were going!

VARIANTS

As already mentioned the B-58 made its debut at about the same time that the ICBM began to realise its full potential as a weapon of war. Consequently, Hustler production was limited to just 116 aircraft. However several further variants were proposed by Convair but only one, the TB-58A, ever saw the light of day and even this was restricted to the modification of early R&D aircraft. Eight conversions were eventually authorised with the first of these (50670) making its maiden flight on 10 May 1960, being delivered to the 43rd BW in August of that year. Easily recognisable by the additional cockpit windows and absence of the Vulcan cannon these were used solely for training duties. Principal internal changes

Another view of the ill-fated 92451 during its brief Paris appearance of 1961. Mission pod fitted to this aircraft was the single-part MB type and comparison of this with the onlookers gives a clear indication of its great size. It is interesting to note that the name 'The Firefly' only appeared on the port side just ahead of the SAC badge. (A. W. Hall)



The last B-58A to be seen in the UK, 92440 was serving with the 43rd Bomb Wing when it visited the Mildenhall Armed Forces Day in May 1969. In this view, taken on departure, the clean lines of the fuselage are easily seen. '440 was one of 85 Hustlers withdrawn from use during the winter of 1969-70 and was eventually scrapped at Davis-Monthan AFB. (G. Pennick)

centred around the removal of the Nav/Attack and defence systems and the installation of dual controls in the area normally occupied by the navigator, thus permitting the TB-58A to be flown from either of the two forward cockpits.

The four other variants offered to the USAF were as follows:

B-58B: Stretched variant intended for use by SAC as a strategic nuclear bomber. Featured J79-GE-9 engines.

B-58C: Re-engined with Pratt and Whitney J58's for sustained Mach 2.4 operation. Again for use by SAC.

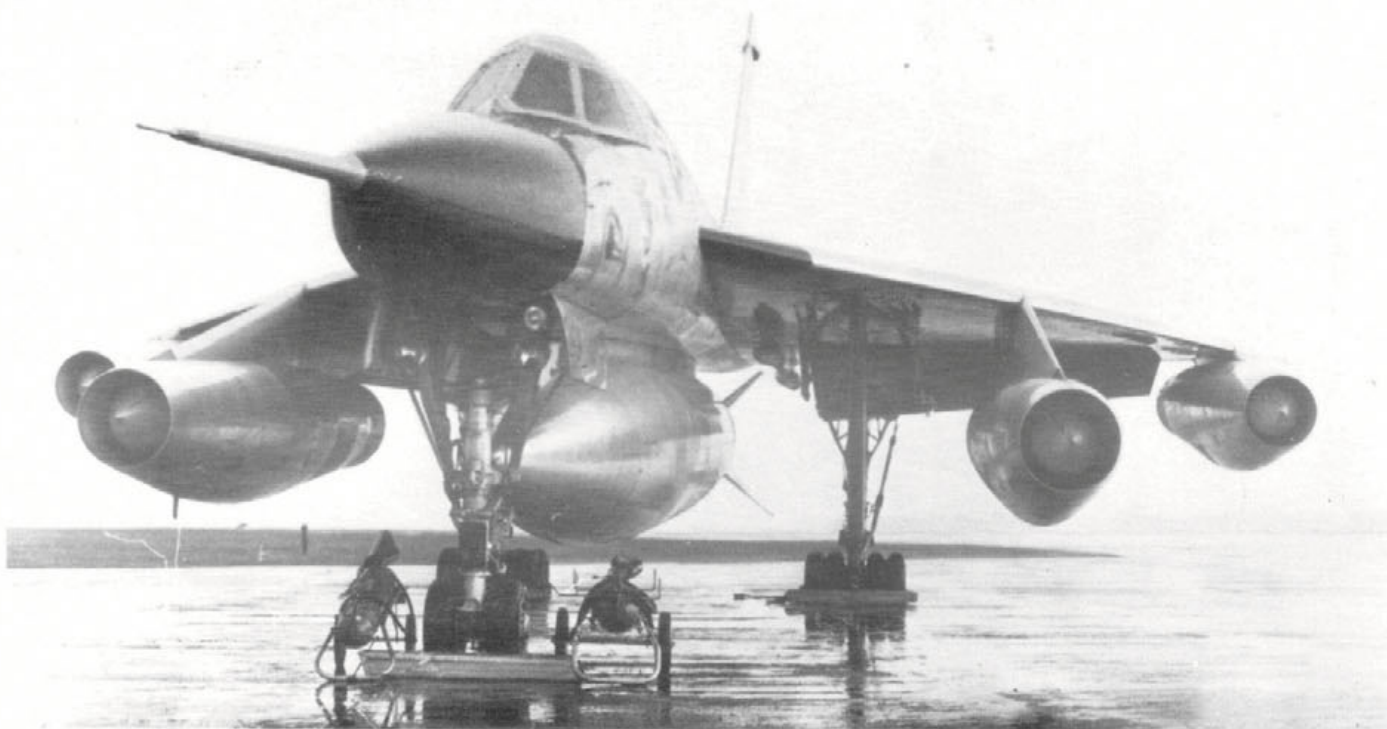
B-58D: Long-range all-weather interceptor variant for Air Defence Command. Powered by two P&W J58s.

B-58E: Essentially similar to the twin-engined B-58D. Intended for use by Tactical Air Command.

In addition, the B-58 also provided the basis for one of the first supersonic airliner designs. Convair proposals of mid-1961 envisaged a 52-seat transport capable of sustained supersonic performance but this did not proceed beyond the initial design stage.

OPERATIONAL USE

In operational service the relatively low fuel capacity meant that the Hustler was not suitable for maintaining the airborne alert status of the B-52 and so different methods of deployment had to be evolved for the two wings. Each had approximately 45 aircraft on charge at any given time, this figure including three to four TB-58A's and normal aircrew strength was 70 per wing. In practice, each maintained 50 per cent of its assigned aircraft on standing alert at all times and, with the use of minimum interval take-off (MITO) procedures, it was possible to launch all alert B-58A's within 15 minutes of a warning being received. To man these aircraft, each crew undertook a seven day alert tour every three weeks — during these periods they were able to move freely on base but obviously were required to stay together. In practice, much of the time was spent in the alert barracks at each base, these being jocularly referred to as the 'Hidden Hilton' at Little Rock and 'Mole Hole' at Bunker Hill.



Of the remaining aircraft, about half were usually available for routine training missions whilst the balance were in 'down' status undergoing either major or minor maintenance. A typical training sortie was normally of some 7-8½ hours duration, this generally being flown at high subsonic speed (Mach 0.91) and, in addition to an in-flight refuelling, also featured a navigation leg and at least one RBS (radar bomb scoring) run. Although capable of prolonged Mach 2

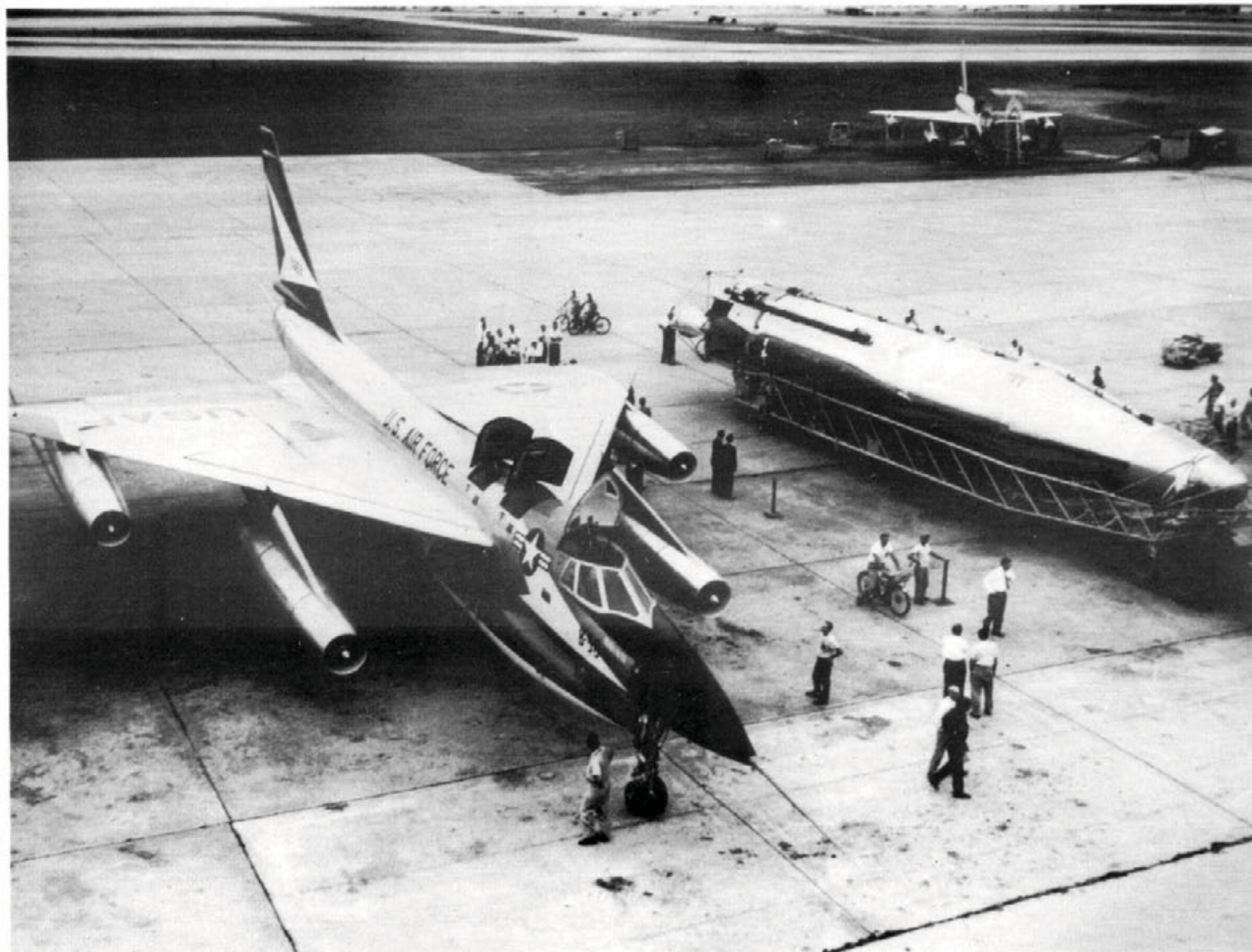
On the ground, the Hustler was a particularly ungainly looking aircraft as can be seen in this view of 92434 'Cannonball' at Upper Heyford. The large trailing edge flap of the port wing is clearly visible as are the variable position inlet cones of the General Electric J79 engines. (A. W. Hall)

'Can Do' no more! B-58A 12054 of the 305th Bomb Wing was one of the first Hustlers to be retired and is seen here on the ramp at Davis-Monthan soon after arrival in November 1969. Lack of preservative indicates that this aircraft has not yet been inhibited for storage. (author)

operation, most B-58 missions were subsonic and by the mid-sixties less than two per cent of the total flight time was at speeds exceeding Mach 1. A regular feature of operations until 1965 were the routine training missions to overseas bases in Europe and the Far East — several aircraft visited the UK SAC bases during this period but with the rundown of the SAC UK operation in 1965 these visits ceased and no further B-58's were recorded at a British base until May 1969 when



B-58 HUSTLER WARPAINT



92440 of the 43rd BW paid a brief visit to take part in the Mildenhall Armed Forces Day. This proved to be the first and last appearance of a Hustler at a British air show for the surviving aircraft were all retired soon after.

By the end of the sixties the B-58 was finally deemed to have outlived its usefulness and, in common with many other types, most were destined to spend their final days at the Military Aircraft Storage and Disposition Centre, Davis-Monthan AFB, Arizona. The first to be withdrawn, 92446 of the 43rd BW, reached there on 3 November 1969 and by 16 January 1970, when the phase-out was completed, no less than 83 Hustlers had arrived for storage. Stripped of most of their useful systems these remained at MASDC until as recently as

Seen at an open house at Beale AFB, Calif in November 1969, shortly before being withdrawn from use, this 305th Bomb Wing B-58A, 12053, carries the emblem of the 2nd Air Force on the fin in yellow with a red outline. (via author)



One of the initial batch of development aircraft, B-58A 5663 is seen against an Atlas ICBM at Fort Worth during the early stages of the flight test programme. Like most early R&D aircraft it featured red and white trim. (Convair)

1976 but all have now fallen victim to the breaker's axe and in October 1977 only one could still be seen in reasonably complete condition — a sad end for what was, in its heyday, a remarkable blend of technological and aerodynamic expertise.

Fortunately, the powers that be saw fit to recognise the important contributions to aviation history made by the Hustler and several of the more significant aircraft can still be seen in museum collections throughout the USA. Amongst these are 92458, the 1962 Bendix Trophy winner, and 12059 'Greased Lightning', of Tokyo-London fame.

Although perhaps best remembered for its many record shattering exploits the Hustler was first and foremost a strategic nuclear bomber and undoubtedly made a vital, if small, contribution to keeping the cold war 'cold' during the sixties. Perhaps its greatest achievement though, was in proving that the supersonic bomber was, in every way, a viable and effective entity. Unfortunately the full potential of this type of aircraft has never been fully realised by the United States and the recent axing of the Rockwell B-1A may well prove to be the final nail in the coffin of the manned supersonic bomber.

The author would like to express his thanks to all those who helped in the production of this monograph. Special thanks are due to Rick Alexander of Rockwell International for supplying some of the rare pictures and the United States Air Force public relations branches who helped with copy verification. Finally colleagues in the West London Aviation Group are thanked for their continued help and encouragement.

B-58 HUSTLER PRODUCTION DETAILS

55-660 to 55-661	XB-58A-CF	2	C/n 1-2
55-662 to 55-672	B-58A-CF	11	C/n 3-13
58-1007 to 58-1023	B-58A-CF	17	C/n 14-30
59-2428 to 59-2463	B-58A-CF	36	C/n 31-66
60-1110 to 60-1129	B-58A-CF	20	C/n 67-86
61-2051 to 61-2080	B-58A-CF	30	C/n 87-116

OPERATIONAL B-58 HUSTLER UNITS

43rd Bombardment Wing	Little Rock AFB, Arkansas	2nd Air Force
63rd Bomb Squadron	Initially at Carswell AFB, Texas	
64th Bomb Squadron		
65th Bomb Squadron		
305th Bombardment Wing	Bunker Hill AFB, Indiana	2nd Air Force
364th Bomb Squadron		
365th Bomb Squadron		
366th Bomb Squadron		

R&D AIRCRAFT MODERNISED FOR SAC SERVICE

As B-58A — Total of 10 aircraft: 81009, 81010, 81011, 81013, 81014, 81015, 81018, 81019, 81020, 81021.
As TB-58A — Total of eight aircraft: 50661, 50662, 50663, 50668, 50670, 50671, 50672, 81007.

AIRCRAFT RETIRED TO MASDC

November 1969 to January 1970. All bar 12080 were sold for scrap on 13/10/76.

43rd Bomb Wing: 50661, 50670, 81007, 81010, 81013, 81014, 81015, 81018, 81019, 81021, 92428, 92429, 92431, 92432, 92433, 92434, 92435, 92436, 92438, 92439, 92440, 92441, 92442, 92444, 92445, 92446, 92448, 92449, 92450, 92452, 92453, 92454, 92455, 92456, 92457, 92460, 92461, 92463, 01122, 12051, 12066, 12078.

305th Bomb Wing: 50672, 81009, 81011, 92430, 01110, 01112, 01113, 01114, 01115, 01117, 01118, 01120, 01121, 01123, 01124, 01125, 01126, 01127, 01129, 12053, 12054, 12055, 12058, 12060, 12064, 12067, 12068, 12069, 12070, 12071, 12072, 12074, 12075, 12076, 12077, 12079, 12080.

Unit unknown: 50662, 50671, 01111, 12052.

The end of the line. The first seven Hustlers to arrive at Davis-Monthan for storage on the North Ramp receiving area during November 1969. These had previously seen service with both the 43rd and the 305th Bomb Wings. (author)



Formerly operated by the 43rd Bomb Wing, B-58A 92445 soaks up the Arizona sunshine in company with 82 other Hustlers shortly after arrival at Davis-Monthan AFB. The white patches on the intakes and cockpit are spraylat, a sealing compound used extensively in the preparation of aircraft for long-term storage. (MAP)

SURVIVING B-58's AND LOCATIONS

- 50663** Gate guardian at Grissom AFB, Indiana (formerly known as Bunker Hill AFB).
- 50665** In semi-derelict condition on range at Edwards AFB, California.
- 50666** Gate guardian at Chanute AFB, Illinois. Reportedly marked as 12059 'Greased Lightning'.
- 92458** In USAF museum at Wright-Patterson AFB, Ohio. Bendix Trophy winner in 1962.
- 12059** In SAC museum at Offutt AFB, Nebraska. 'Greased Lightning' Tokyo to London record holder.
- 12080** In Pima County air museum at Davis-Monthan AFB, Arizona. Last production aircraft from Fort Worth line.

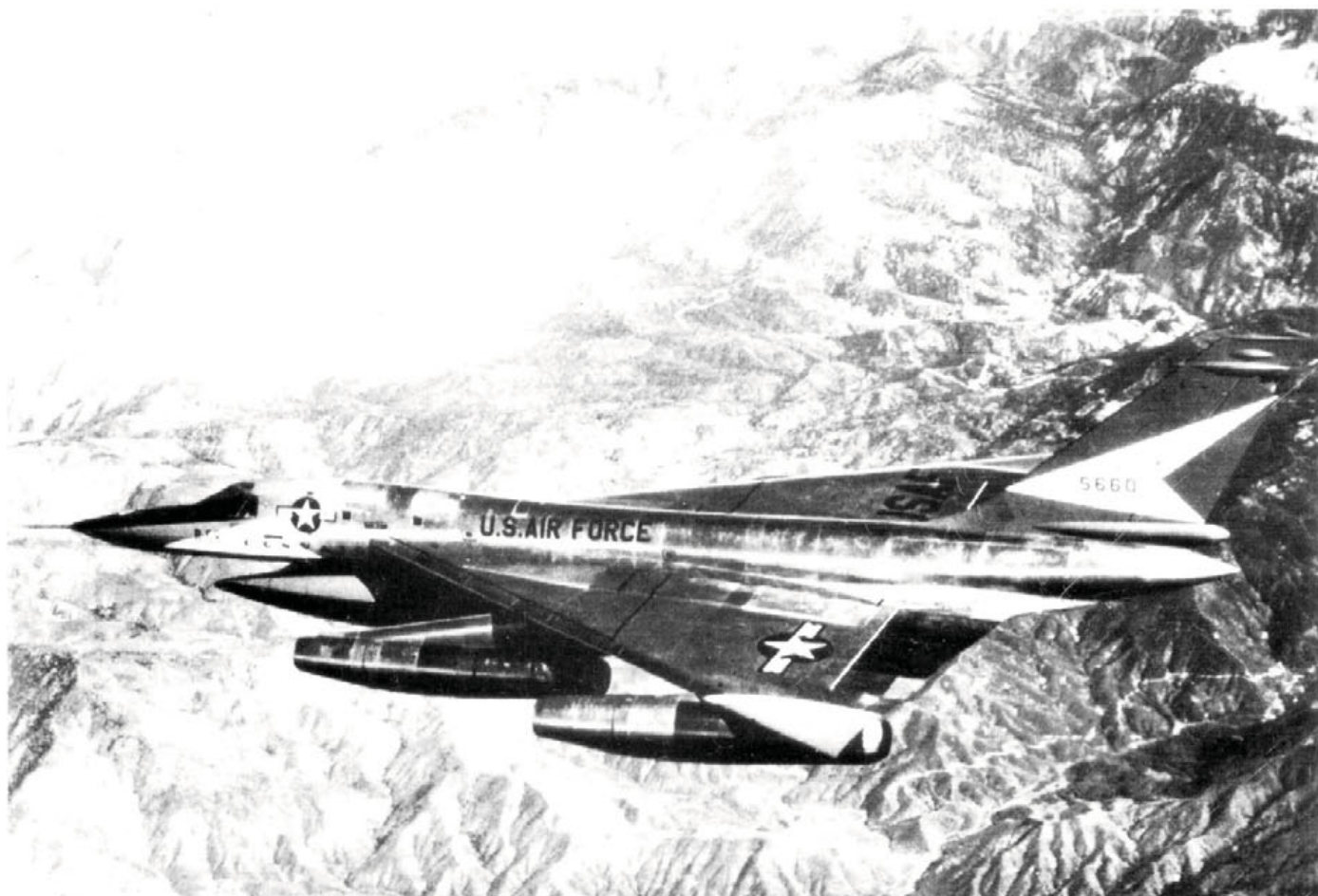
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26 THE BROADWAY, AMERSHAM, BUCKS.





These two views show the first prototype XB-58A at different stages during its life. In the upper view it can be seen in its original red, white and natural metal finish complete with four digit serial and weapons pod. Subsequently, it adopted a predominantly natural metal finish and acquired a five digit serial as in the lower view. Other features worth noting are the absence of both the pod and the integral tail-mounted Vulcan rotary cannon. (Convair)



