

THE XF-11 AFFAIR



It was the aircraft that nearly did for Howard Hughes, and it was embroiled in a corruption scandal, but does his XF-11 deserve a better reputation?

WORDS: TONY BUTTLER and BEN DUNNELL



For William L. Durkin, a 30-year-old US Marine Corps master technical sergeant stationed at El Toro, California, 7 July 1946 had been a Sunday like many others. Spending it off-duty, he'd been visiting a girlfriend, Betty Gettle, in Beverly Hills. He was to end up as witness to an aircraft accident that attracted more attention than most — and as rescuer to one of the world's most famous figures.

Tycoon and pilot Howard Hughes was no stranger to aviation's dangers. Most recently, in May 1943 he'd survived the crash of his Sikorsky S-43 flying boat in Lake Mead on the Colorado River, which killed the other two occupants. Now, on this July evening, he found himself in trouble again. The maiden flight of his new prototype reconnaissance platform for the US Army Air Forces, the Hughes XF-11,

was not going to plan. A propeller problem was causing the sleek, twin-boom machine to lose height, and there was nothing he could do about it. A forced landing was inevitable. The question was, where? The golf course at the Los Angeles

Country Club looked a good option. But such was the trouble afflicting the XF-11 that reaching it proved impossible. Instead of landing on a fairway, Hughes crashed into a residential area.

What happened next was remarkable. Having first hit and bounced off the roof of one house, belonging to dentist Dr Jules Zimmerman, the machine struck the neighbouring property on North Linden Drive. Municipal judge John Shidler and his wife, actress Rosemary DeCamp, were at home when part of the XF-11's wing ripped a hole in their bedroom roof and wrecked the side porch. Having separated from the airframe, one engine damaged the house of retired Swedish industrialist Gösta Guston and landed on its lawn. Finally, the stricken aeroplane ploughed into what the *Oxnard Press-Courier* described as "the palatial mansion" of Lt Col Charles Meyer, lead interpreter for the Nuremberg trials. He was out at the time, but his wife

had the misfortune to be in. The crash "split the house in two, and flames which licked up seconds later burned it completely". Yet no-one on the ground sustained injury — and, just as unbelievably, Hughes too was still alive.

It was into this hellish scene that Durkin selflessly threw himself. According to the aforementioned newspaper, "The wing assembly of the XF-11 was flung onto the front lawn, and the tail assembly at the rear and the motors scattered in pieces". In a personal testimony, Durkin wrote, "Reasoning that a ship that large would have a crew of at least three aboard, and that there is always a chance in a million that somebody would be alive [...] I made a running jump onto the trailing edge of the wing and started forward". He found no-one, but then, "I saw a hand move through the fire and smoke not more than four feet

in front of me. At the same time I heard a scream of agony, and I knew a man was burning to death."

Hughes had freed himself from the wreckage, but, as Durkin told reporters, he "was bleeding from one ear,

his nose and mouth [...] and he was muttering to himself. When we [Durkin was aided by Gösta Guston's son James] carried him out he kept saying, 'Let me up. Lay me on the lawn.' He was conscious and badly banged up. His shirt was burned almost completely off, and one shoe was missing". Taken to hospital first in Beverly Hills, Hughes was subsequently transferred to San Francisco's Good Samaritan Hospital for emergency surgery. Physicians said he had "about a 50-50 chance" of survival.

His presence at the hospital inevitably created a circus, hardly discouraged by Hughes himself. "Despite a crushed chest, collapsed left lung, possible skull fractures, eight broken ribs, a broken left shoulder, a smashed nose, and numerous bruises and barns, Hughes called for his secretary the moment he regained consciousness", the *Oxnard Press-Courier* told its readers, breathlessly. "He dictated a sheaf of orders from his oxygen

“Some senior figures were unconvinced of Hughes's qualities as an aircraft manufacturer”



tank, called [an] assistant to discuss several pending business deals, and cancelled an appointment in Los Angeles — all before his horrified physician burst in to break up the session". Apparently, "countless members of Hughes' spider-like web of businesses" were to be found "stumbling over each other and getting in the way of hospital workers."

Yet soon Hughes was on the road to recovery, and keen not just to resume the XF-11 programme, but to return to its cockpit when a second prototype was ready. In the end, as so often in Hughes's turbulent life, it became embroiled in controversy. The effects of the Beverly Hills crash, too, would leave their mark. And, in commercial terms, it had all been for nothing. The full story embraces a series of twin-engine, twin-boom designs, designated — amongst others

MAIN PICTURE: The second Hughes XF-11 in flight off the coast of California during a sortie from Eglin Field.

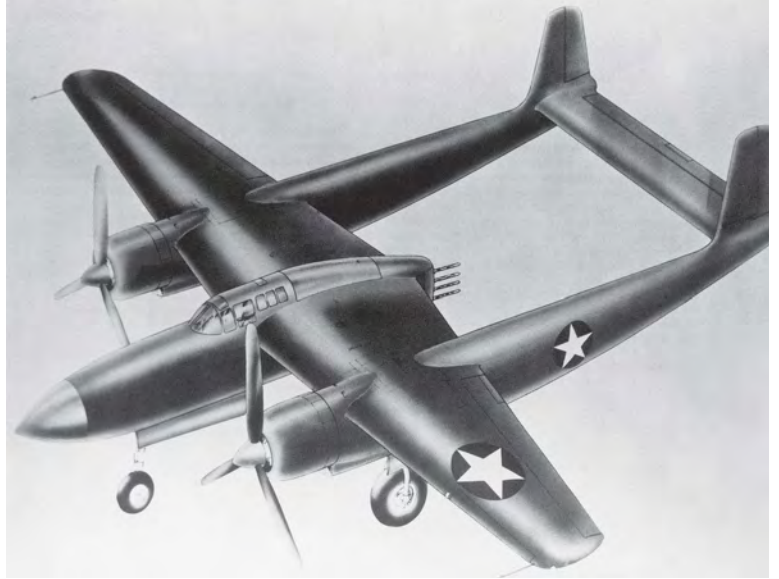
VIA GERALD H. BALZER

ABOVE: Howard Hughes — his 'tache a legacy of the first XF-11's accident — climbs into the second machine. ALAMY



ABOVE: Col Elliott Roosevelt was, in large part, responsible for getting the XF-11 procured in quantity. Accusations of bribery were fiercely denied. USAF

ABOVE RIGHT: A manufacturer's artwork for the Hughes D-5 attack bomber. KEY COLLECTION



— as the D-2, D-3, D-5, XA-37 and XF-11. It passed through numerous phases including long-range pursuit, medium bomber, bomber escort and long-range photo-reconnaissance. A D-2 bomber prototype flew, as did the two XF-11s, but all plans for production were cancelled.

From December 1939 the Hughes company began to push hard for a contract to construct an aircraft of its own design for the US Army Air Corps. On 19 March 1940, authority was granted to build its D-2 bomber project, which would have a primarily wooden structure formed using the Duramold process. This was to become a bone of contention, since there was considerable debate in air corps circles regarding Hughes' ability to manufacture aircraft in this way. The company had acquired some rights to use this composite material, formed of birch ply impregnated with phenolic resin, which offered certain advantages over aluminium.

However, the air corps considered Duramold unsatisfactory for use in combat aircraft that were expected to be airworthy under all climatic conditions. Some senior figures were also unconvinced of Hughes's qualities as an aircraft manufacturer. In November 1941, the D-2 was officially rejected.



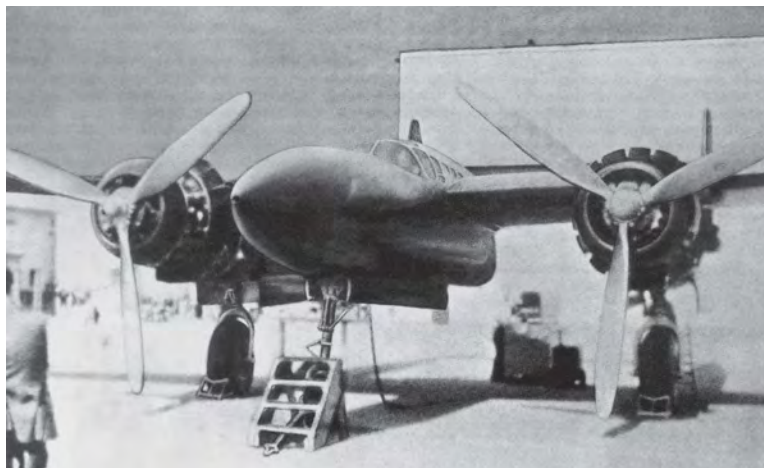
It was, therefore, a major reversal when the air corps' Materiel Division decided in mid-1942 to purchase the D-2 after all, as a single prototype. Hughes had carried out a successful lobbying operation, convincing officials that the design could be adapted and improved. Its operational use was another matter. Being categorised as a light bomber/attack aircraft, the XA-37 designation was applied for contractual purposes, though it was also considered as a long-range bomber escort fighter. Less than acceptable to Hughes was the government's offer of just \$500,000

for the aircraft, given his investment of up to \$3 million. He hoped a future series production order would recoup the deficit.

The D-2 was test-flown by Hughes on 20 June 1943, getting airborne from Harper Dry Lake in the Mojave Desert. Power came from two Pratt & Whitney R-2800s of 2,000hp each, these in place of the new Wright R-2160 Tornado units originally intended. In the air it performed poorly, due to problems with high control forces. A full redesign of the main wings was considered necessary, but then the aircraft was destroyed by a mysterious fire at Harper Dry Lake on 11 November 1944, having flown very little. Even so, it went on to have quite a considerable legacy.

Gen Henry 'Hap' Arnold, commander of the Army Air Forces — as the Army Air Corps became — had been among the doubters. Only reluctantly, he later said, had he approved the sole D-2's purchase. Then, in June 1943, Arnold commented on the service's lack of night fighters and reconnaissance aircraft. He noted in an official memo how he had been unable to secure sufficient de Havilland Mosquitos for these two roles. Might the Hughes machine suit?

When flight-testing revealed the D-2's problems, Hughes realised the design would have to be revised, not least with a new wing section. As such it became known as the D-5. The Lockheed XP-58 long-range fighter prototype was also considered for the reconnaissance role at this time, and Wright Field's engineers felt it would be a better option. However, this reckoned



RIGHT: This absurdly retouched photo is one of the very few images of the Hughes D-2, a project almost as camera-shy as Hughes himself later became. KEY COLLECTION

without the intervention of Col Elliott Roosevelt.

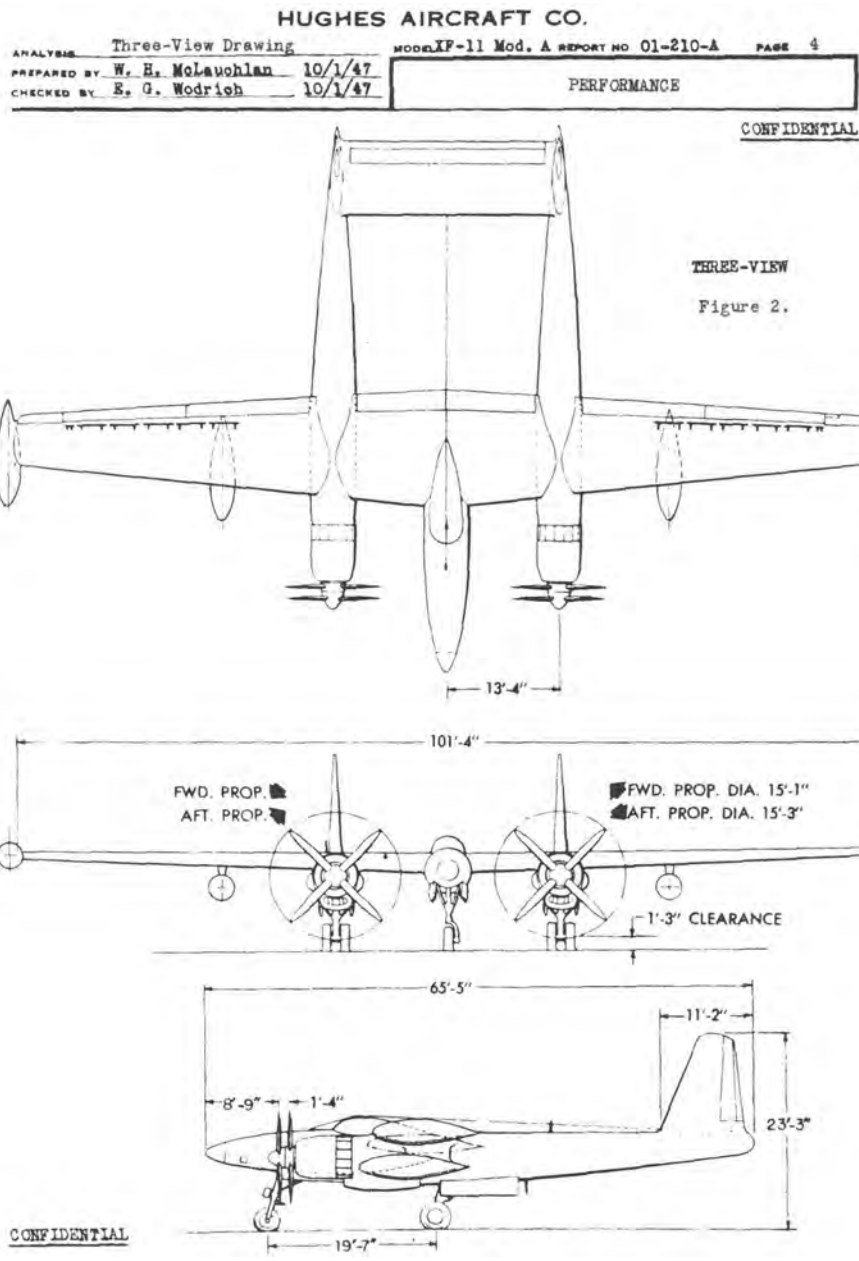
Long a controversial figure, the President's second son had become a reconnaissance specialist during his AAF service as a navigator/bombardier, taking command of the 3rd Photographic Group in the Mediterranean theatre and the Northwest African Photographic Reconnaissance Wing. Arnold asked him in early 1943 to head up a commission tasked with finding a suitable new photo-reconnaissance platform in lieu of sufficient Mosquitos. Hughes saw an opportunity. Through his publicist John W. Meyer, he laid on a lavish programme of entertainment and hospitality for Roosevelt and his party in Los Angeles. He also flew them to Harper Dry Lake, where they became some of the few non-Hughes personnel to see the D-2.

Hughes's wooing of Roosevelt was later to embroil both men in scandal, but in the short term it had the desired effect. Even

“Hughes's wooing of Roosevelt was to embroil both men in scandal”

before August was over, Roosevelt recommended that 100 examples of the proposed Hughes aircraft could possibly even do much to shorten the war. On 1 September, a still reluctant Arnold agreed to the \$43-million procurement. The aircraft was designated that November as the F-11, the 'F' prefix then referring to photography, not fighter, which was covered by the 'P' pursuit designation. Only in 1948 did 'F' come to represent fighter in US military aircraft parlance, at which point the prototype XF-11 became the XR-11 with 'R' for reconnaissance.

Turning the D-5 into the F-11 proved a considerable task for the team led by chief engineer Stanley Bell. One major change resulted from an AAF demand that it should have an all-metal (aluminium) airframe. Plans were laid down for two XF-11 prototypes, a static test airframe and 98 production machines, and on 5 April 1944 contract approval was given



UNDER THE SKIN

The Hughes XF-11's structure was built in semi-monocoque, flush-riveted aluminium alloy. Each engine nacelle extended aft of the wing to form a boom to either side of the short, centrally located needle-nose cockpit and fuselage. The straight and slightly tapered wing had spoiler-type ailerons for roll control.

Production aeroplanes would have carried up to 12 cameras in the nose of the central nacelle and in the booms to the rear of the wings. The F-11 was a two-seater (pilot and observer), but an additional 'photographer' could also be taken on board. The cockpit was pressurised

and a tricycle undercarriage was fitted, at the time still a relatively new feature.

Self-sealing bullet-proof fuel tanks were used. The XF-11 never carried weaponry.

XF-11 DATA

POWERPLANTS

Two Pratt & Whitney R-4360 28-cylinder turbo-supercharged piston engines, 3,000hp each (first prototype: R-4360-31s driving eight-blade Hamilton Standard Super-Hydromatic dual-rotation constant-speed fully feathering propellers; second prototype: R-4360-37s driving four-blade Curtiss-Electric single-rotating propellers)

DIMENSIONS

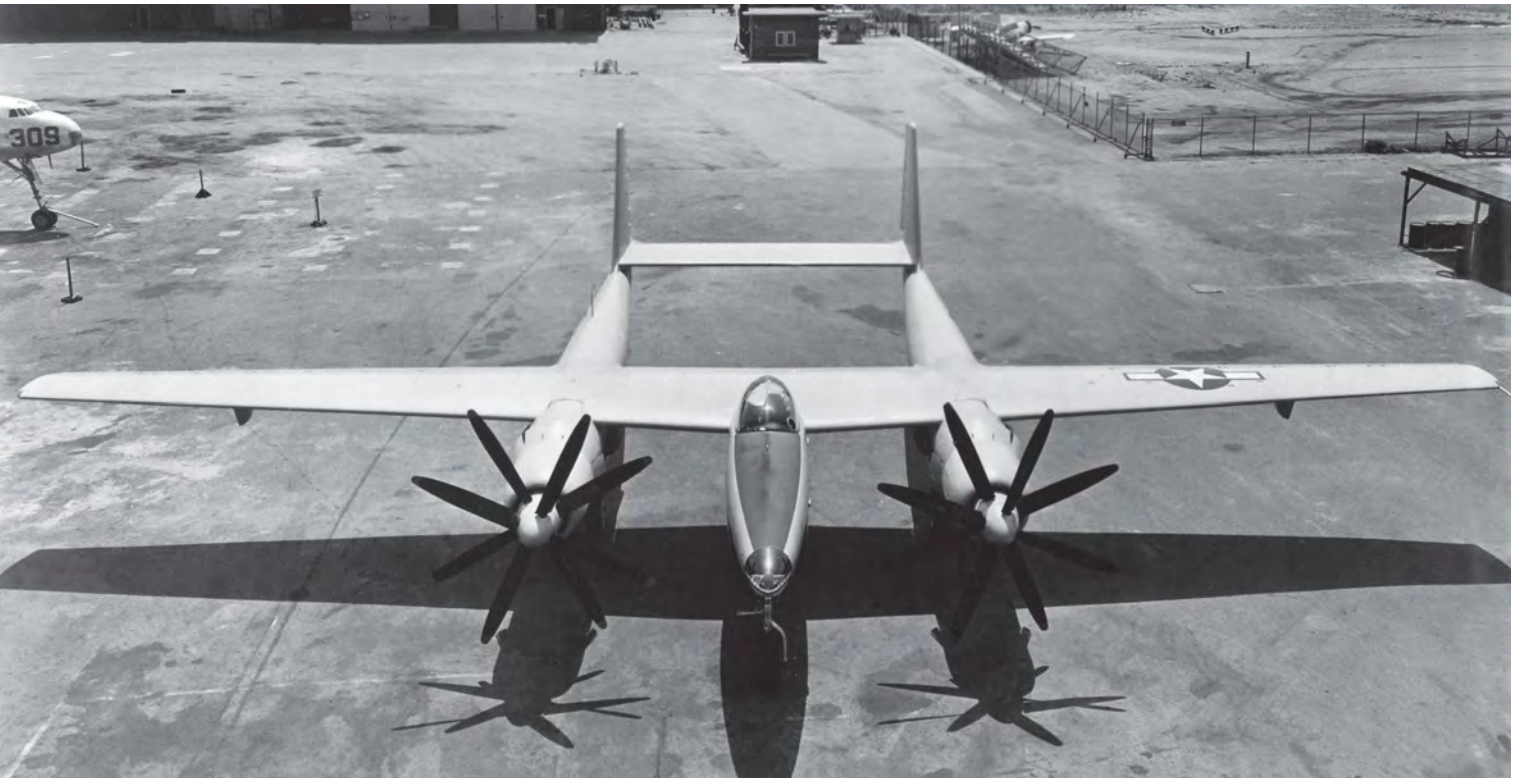
Length: 65ft 5in (19.94m)
Wingspan (excluding tip tanks): 101ft 4in (30.89m)

WEIGHTS

Empty: 37,100lb (16,828kg)
Maximum take-off weight: 58,315lb (26,452kg)

PERFORMANCE

Maximum speed: 420mph (676km/h) at 30,000ft (9,144m)
Absolute ceiling: 48,000ft (14,630m)



ABOVE: One of a series of walk-around views of the first XF-11 with its contra-rotating propellers, taken at Culver City on 3 July 1946.

VIA GERALD H. BALZER

for the latter to be built at Hughes Aircraft's Culver City plant. It was hoped that the production rate would reach 10 aircraft per month by September 1945. As at 30 September 1944, the requirements stated a maximum speed of 315mph (507km/h) at sea level and 450mph (724km/h) at 33,000ft (10,058m), a sea level rate of climb of 2,025ft per minute (617m per minute), a range without bombs of 5,000 miles (8,045km), and a service ceiling of 42,000ft (12,802m).

The programme experienced difficulties and constant delays. For example, by October 1943 the wings were to be sub-contracted to Fleetwings since it was considered that Hughes could not produce the complete aircraft to the proposed schedule. This plan collapsed in February 1944 after Fleetwings complained about the difficulty of acquiring the necessary information to do the job. Hold-ups were experienced in the delivery of engines and propellers, and Hughes was itself affected by the shortage of manpower within the industry. At times, the negotiations between manufacturer and customer proved fractious, Hughes for example asking for a refund on the D-2 which it described as a prototype of the F-11. The AAF said this request was "ridiculous".

By the end of July 1944 the design was 85 per cent complete

and, at this stage, the project was considered vital. Gen Franklin O. Carroll, chief of the experimental engineering section at Wright Field, had written on 7 June that "no other aircraft being developed at this time [...] could meet all of the F-11 Specification". It was deemed superior to any other photo-reconnaissance aircraft in existence. At a conference in August, representatives from the AAF's Operations, Commitments, and Requirements Office were very enthusiastic and believed that, in combat, they would rather fly it

than the four-engine Republic F-12 because it was smaller, had higher strength factors and a better view to the rear. As it turned out, the XF-12 Rainbow would also progress no further than the flight of a prototype.

According to a document dated 3 November 1944, the first XF-11 was scheduled for completion in March 1945. It would have eight-blade propellers, which were the best available at the time — high-altitude propellers would need another 18 months before they were ready. The loss of some bases in China by 28 February 1945 made the programme



Howard Hughes runs up the engines of XF-11 number one, serial 44-70155. VIA GERALD H. BALZER

more secure, since many target areas were now out of range of any other photo-reconnaissance platforms apart from the Boeing F-13 derivative of the B-29, and those aircraft were now needed as bombers. Producing the F-11 was now “of the utmost importance”. Indeed, on 29 March it was given a Group 1 preference rating, which signified that these machines were needed urgently.

However, by 6 April 1945 it was becoming doubtful if they could be produced in time to be of material value in the war effort, in part because of the lack of skilled labour working on the project at Hughes. There was at this time a shortage of personnel throughout the US aircraft industry. By May the project was running late and it had become unduly expensive.



As a result, on 26 May all 98 production aircraft (allocated serials 44-70157 to 44-70254) were cancelled. Construction of the two prototypes, 44-70155 and 44-70156, would continue, although the first would now not be ready until the spring of 1946. The F-11 mock-up was completed in September 1945 and by late January 1946 the first machine was deemed to be 93 per cent finished. It was accepted on 5 April, at which point the second aircraft was 65 per cent ready.

Taxi trials commenced on 15 April 1946 with Hughes himself in the cockpit. They took place on the grass runway at his company’s home airfield at Culver City, rather than the usual venue for AAF aircraft first flights of Muroc Base in the Mojave Desert, Hughes having apparently persuaded the relevant authorities to let him fly the aeroplane from its birthplace. On 20 April the XF-11 was taken 20ft (6m) into the air to check the effectiveness of the control surfaces, before landing and stopping without clearing the airfield boundary. It was then grounded until the contra-rotating propellers could finally be delivered.

Hughes accumulated a considerable amount of taxiing time and on occasion was accompanied by Frank J. Prinz, a service engineer from Hamilton Standard who supplied the propellers. On one occasion this proved fortunate when Hughes, watching the instruments closely, failed to notice how close they were to the end of the runway. Prinz put all four contra-rotating



propellers into reverse pitch while Hughes applied full brake, just enough to stop in time. Another run, on 26 June, revealed that the rudder forces were too high, which brought further delay while this was remedied. Ominously, thanks to a small internal leak, after each taxi run several ounces of oil were needed to replenish the tank for the starboard propeller. Some sources indicate that Hughes was not aware of this.

“It was a miracle that Hughes survived, with severe injuries and burns”

Phase I flight-testing was to be conducted by the contractor. Hughes took 44-70155 for its maiden flight on 7 July 1946 after having completed two further hours of taxi runs that day. As per AAF instructions, the sortie was to be limited to one hour’s duration and a total of 600 US gallons (2,271 litres) of fuel was to be carried. However, when the aircraft took off at 17.20hrs it had 1,200 US gallons (4,542 litres)

aboard at a weight of 44,000lb (19,958kg). Hughes clearly intended to stay airborne for rather longer and he had chosen to fly alone, though two of his engineers followed in a Douglas A-20 chase-plane.

Another AAF stipulation had been to keep the undercarriage extended, but Hughes retracted it. However, an unsafe red light on one gear showed in the cockpit. He had to recycle the landing gear handle several times and perform low-g manoeuvres to ensure it became fully retracted. Hughes flew above Culver City at around 5,000ft (1,524m) for about 40 minutes, before at one point passing over the airfield at low level with the gear deployed once again.

Then at 18.35hrs, after 75 minutes airborne, still at 5,000ft (1,524m) altitude and about two miles (3.2km) from base, the oil leak in the starboard propeller’s self-contained supply suddenly put the rear propeller into reverse pitch. To counteract the resulting drag the forward propeller went into high pitch, which meant the thrust from the starboard engine was lost. The pilot applied full left rudder and aileron deflection to hold the aircraft level, but began to lose altitude. There was no radio communication and the A-20 crew thought Hughes was preparing to land. He was, but not back at Culver Field.

It was a miracle that Hughes survived the ensuing catastrophe, ➤

ABOVE:
A bad night in Beverly Hills — firefighters worked into darkness to damp down the blaze that resulted from the XF-11’s accident. That there was no loss of life is incredible. GETTY



ABOVE: The XF-11's wing flaps stretched from outside the tail booms to almost the wingtips, where they met the relatively small ailerons. The trailing edge between the tail booms also carried a flap. Note the ports for the cameras under and on the sides of the fuselage nose. VIA GERALD H. BALZER

RIGHT: Howard Hughes (right) before testifying to the Senate sub-committee on defence. At left is his attorney, Thomas Black. The Republican-dominated committee attempted to discredit the Roosevelt administration by investigating recipients of wartime government contracts. ALAMY

but he did sustain severe injuries and burns. The moustache he subsequently sported was grown to conceal some of those. Having been given large doses of morphine to help ease the pain of his injuries, it has long been speculated that the addiction to opiates that allegedly afflicted Hughes's latter years can be traced back to the XF-11 crash.

Hughes also suffered in the resulting inquiry, held on 16 August 1946. By then he had reported how the blades on the rear half of the right propeller had inadvertently reversed pitch, and how he had unsuccessfully attempted to remedy the situation by reducing power on the left engine and retaining power on the right. Preliminary investigations indicated that, once again, there had been a leakage in the oil seal around the propeller shaft, and that the loss of hydraulic fluid had permitted the blades to reverse pitch and render the propeller controls ineffective. In fact, similar leakage had been seen with these propellers on other aircraft types, particularly on the Northrop XB-35 bomber. Furthermore, this propeller had not passed a type test,

nor had it been tested at Wright Field. The props were eventually rejected and did not complete their type test.

Cameras in the aeroplane had recorded flight information for an hour and 35 minutes. The inquiry report stated that, because of his record, Hughes's request to personally make the first flight had been granted; however, it was

supposed to have been limited to one hour. He had embarked on a 45-minute sortie, but stayed in the air for almost twice that time and concentrated mainly on landing gear issues instead of following the approved flight programme. During the last few minutes, drag had built up on the aircraft's starboard side and Hughes did not have time to find the cause before it crashed.



The engines had passed their military test and there was no indication from the examined wreckage that either had failed. Previous difficulties had occurred with the Hamilton Standard dual propellers on the test stand and on other aircraft, though the damaged props from the XF-11 were still undergoing investigation at Wright Field. It appeared that the loss of hydraulic fluid had caused the failure of the pitch change mechanism on the right rear propeller. Hughes had maintained full power on the right engine and reduced it on the left, instead of trying to fly with the right propeller windmilling without power. Wright Field's engineering division felt he should have been able to continue flying on one engine. Indeed, it was Wright Field's understanding that the crash was attributed to pilot error. Hughes, not surprisingly, disagreed.

On 28 August, after a careful review of the investigation board's report, as well as the recommendations from the propeller laboratory and the engineering division at Wright Field, Hughes was pointedly asked to name a pilot, "other than Howard Hughes", to flight-test the second



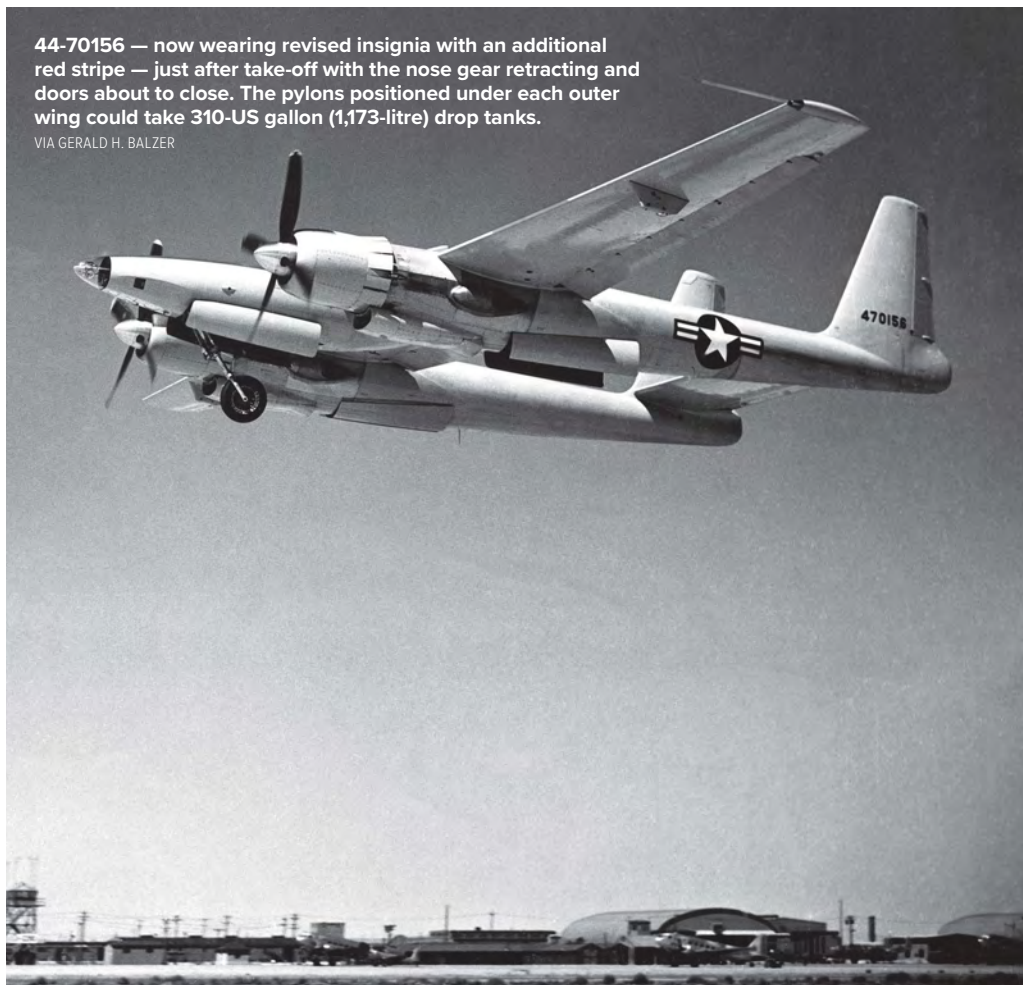
XF-11 prototype, which would now have single-rotating, four-blade propellers. The company was also directed to conduct the first 10 hours of flight testing at Muroc, after the aircraft had been transported there by road for final assembly.

Incredibly, after much lobbying, Hughes was permitted to take the second aircraft on its maiden flight as well, from Muroc on 5 April 1947. This time there were no problems, and indeed Hughes went on to complete numerous sorties as part of the manufacturer's testing programme.

But the success of the second XF-11 was overshadowed by events. Back in 1941, the US Congress had established the Senate Special Committee to Investigate the National Defense Program, better-known as the Truman Committee after its first chairman, future President Harry S. Truman. Its remit was to look into and correct waste and inefficiency in America's war production effort. Hearings continued after hostilities, and both the XF-11 and Hughes's other pet project, the H-4 Hercules flying boat, came under scrutiny. Inevitably, when it came to the XF-11, this included the involvement of John Meyer and Elliott Roosevelt. ➤

44-70156 — now wearing revised insignia with an additional red stripe — just after take-off with the nose gear retracting and doors about to close. The pylons positioned under each outer wing could take 310-US gallon (1,173-litre) drop tanks.

VIA GERALD H. BALZER



IN HOWARD'S OWN WORDS

By 1954, Howard Hughes was not yet the eccentric recluse he subsequently became, but he was increasingly withdrawing from public life. One exception was a three-part interview that year in *Look* magazine, an unusually wide-ranging affair for a man not given to such discussions. He insisted on copy approval, and the sessions in which he met author Stephen White to discuss amendments to the text were themselves transcribed in full. Today these transcripts are held by the University of Nevada, Las Vegas, which describes them as, "the closest we have [to] an off-the-record interview."

In discussing the XF-11, Hughes said, "If I have made a mistake in the design, then I'm the one who should pay for it, and I certainly would not ask somebody else to fly the plane if I were afraid to do it myself". However, he was still far from happy with the results of the accident investigation, adding, "the Air Force conclusion [was] that it was pilot error, etc. I read the conclusion of this Board of Inquiry very carefully and [...] I think that it was a very partial and unfair conclusion, which I protested at the time."

Warming to his theme, Hughes went on, "there were very strong indications that this Board did not make a careful study of the accident. There was a great deal of evidence which was not available at the time this conclusion was reached. In fact, the Board of Inquiry was composed of a group of young officers who were jealous, in the first place. Secondly, as I say, they didn't have the facts. There was a strong doubt in the minds of the officers on this Board as to whether there had really, in fact, been a malfunctioning

of the propeller. Their entire conclusion, as I say, was one which I feel was loaded with partiality". Hughes said the US government had invested "an enormous amount of money" in the Hydromatic propellers used on the aircraft, meaning the air force "certainly did not want to see the establishment of any proof that this propeller actually was a failure or [had] malfunctioned". All the cockpit instruments, he said, "indicated the powerplant and the propeller to be functioning normally."

Hughes told White, "to give this fair treatment you ought to consider my testimony as being pretty damned accurate, because I was the only one there; and I think later evidence pretty well showed that it was accurate, otherwise I'm sure the Air Force never would have permitted me to fly the second F-11."

A further point of contention was that Hughes was trying to look at the XF-11's undercarriage when he lost control. He countered by saying, "Hell, there was no loss of control. The airplane was completely under control right up to the time it hit the house. There never was a semblance of any stall or spin or anything of that kind at all. It was just a matter of a steady loss of altitude, due to the fact that this right propeller was in reverse, and the extreme throw of the controls, both the aileron and the rudder, necessary to keep the plane from falling into a spin to the right... there was never any slightest indication that the airplane was out of control at any time."

In the event, the XF-11 was not mentioned at all in White's published piece, and Hughes never discussed the aircraft in public ever again.

The extent to which Meyer plied Roosevelt with hospitality and gifts now became public knowledge.

During his own appearance in front of the committee, which began on 10 November 1947, Howard Hughes was in combative mood. Inducements, he insisted, had never come into it. The whole of Roosevelt's group, Hughes said, thought the D-2 "was a terrific airplane and just what they wanted. Then, thereafter, instead of my getting a contract to build the D-2, all I got was mañana, mañana, stall, stall, stall, and finally a contract to build an airplane under the jurisdiction of Wright Field; and Wright Field forced me to make so many changes that it turned out to be a whole new design". But more than a whiff of corruption was left hanging around what remained of the XF-11 programme.



On 14 April 1948, 44-70156 was accepted by the Wright Field test section. It operated and assessed the aeroplane until December, after which it was flown to Eglin Field, Florida to undergo operational suitability testing by Air Proving Ground Command. This lasted until July 1949. Finally, on 26 July 1949 the XR-11, as it had now become, was transferred to Sheppard Air Force Base, Texas where it was used for ground maintenance instruction by the 3750th Technical Training Wing. It was finally released from the US Air Force inventory in November 1949 and subsequently scrapped.

As one of the last high-power piston aeroplanes built for the air force, the XF-11 had acceptable performance, but the arrival of jet-powered aircraft had made it obsolete by the time it flew. Its time had simply passed, despite apparently having few design faults. Before the congressional committee, Hughes stated, "I would like to say right now that if the army has any photo-reconnaissance airplane that can outperform the XF-11 tomorrow or the next day or next week, I will retire from designing and flying airplanes for the rest of my life, permanently". Had it arrived a year or two earlier, the story may well have been different. **A**

Thanks to Gerald H. Balzer, George Cully, Alan Griffith, the Maxwell AFB archive and the University of Las Vegas, Nevada University Library.

"If this was designed for photography, let's forget it"

The official F-11 case history, one of the sources used for this article, does not provide information on the second prototype's flying qualities. However, in an article for the October 1984 issue of this magazine, test pilot Lindell C. Hendrix offered some insight on what the aircraft was like. He also flew the Republic XF-12 Rainbow (later XR-12) and was able to make a comparison between the two types.

"When the specifications for a photographic aircraft were laid down by the engineers at Wright Field, invitations to bid were sent to all major aircraft manufacturers, but only Hughes and the Republic Aviation Corporation responded. Each firm was awarded a contract to build two prototypes. Hughes, having already had the experience with the D-2, chose a two-engined configuration. Alexander Kartveli, Republic's design genius, felt that a four-engined aircraft was the only way to meet the requirements as specified by the Photographic Branch at Wright Field.

"I will not go into the ramifications as to why the two chose their designs, but suffice it to say that Hughes was working under a handicap, although it may not have seemed so to him. He was updating an existing design and had high recommendations for his aircraft. Kartveli, on the other hand, had no such odds in his favour and, consequently, attacked the problem in his own typical way; furthermore, he knew that the photo people were looking for something much more sophisticated than just another aircraft that could take pictures. He had the further benefit of having designed high-altitude fighters, the P-47 and P-43, whereas Hughes had yet to build a military aircraft. Hughes had designed some marvellous racing aeroplanes which far surpassed contemporary military fighters, but he had not faced the grim task of meeting military specifications. He was fortunate in that he could design to his own satisfaction without the burden of military specifications, something which can often bog down a promising design.

"However, when Col Roosevelt was made aware of his D-2 design, the colonel felt that the aircraft had definite possibilities for high-altitude photo work. The colonel's thinking was based on field experience with the modified fighters such as the F-4, F-5, and F-6 (adapted Lockheed P-38s and North American P-51s), whereas the photographic branch under Col George Goddard and the photo ace of them all, Col Karl Polifka, were already thinking in terms of flying laboratories which could deliver finished negatives at the end of the reconnaissance mission.

"So, while Hughes stayed with the two-engined aircraft, which was essentially of fighter technology, Kartveli built that flying laboratory in the form of the XF-12, which is still considered one of the finest ever examples of a propeller-driven aeroplane. I was privileged to fly both aircraft, probably the only one to do so, or at least one of a very few. In fact, I bailed out of the XF-12 in November 1948, after an explosion in the port wing. Even so, I considered it the finest four-engined aircraft ever built and, certainly, the best I ever flew.

"In December 1948 the Hughes XF-11 (by now redesignated the XR-11) arrived at Eglin Field, where I was assigned to the Photo Test Branch of the 3200th Proof Test Group. My first impression of the XR-11 was that it was a huge machine. With only two engines and a wingspan of 101ft 4in (30.89m), it was large. Bear in mind that the XR-12 Rainbow, with four of the same massive 'corn-cob' engines, spanned 129ft 2in (39.37m) and looked smaller. My second impression was that the XR-11 seemed an awful lot of aeroplane for a crew of just two. In many respects it looked like a big P-38 with radial engines, although Howard Hughes would have been dismayed to hear anyone say that (he would have preferred that the P-38 looked suspiciously like his D-2).

"But what really bothered the photographic crews was the discovery that installing and loading the cameras required a tedious trip



LEFT:
A wartime photo
of Lindell 'Lin'
Hendrix.
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SPACE MUSEUM

up the ladder to the cockpit and then a long crawl to the nose, where the camera stations were located. No quick turn-arounds here! Our reactions in the 3200th Photo Test Squadron were simply stated by one of my sergeants: 'If this was designed for photography, let's forget it and get another XR-12'. To us, the XR-11 seemed just another modified fighter, and perhaps in that role it might have succeeded.

"After considerable struggling, we got the cameras installed and the film loaded, and we took off on the first photo mission. The young first lieutenant, who was the instructor pilot (with a total of three or four hours in the aeroplane), revved up those 28-cylinder engines, checked the props, released the brakes, and within seconds we were airborne. As the gear retracted into the wheel wells, I couldn't help but think that this aircraft was an interceptor rather than a photo-reconnaissance machine. We climbed at over 5,000ft (1,524m) per minute on the initial climb-out and went on up to the highest altitude I had ever been in any aircraft — jet or prop. When I

saw the number 48,000ft (14,630m) on the altimeter, I immediately checked my oxygen system regulator to be certain that the demand system was functioning properly.

"The XR-11 was a remarkably stable aeroplane, and at high speeds the

“At high speeds lateral control was excellent, but it left a great deal to be desired at low speeds”

lateral control was excellent, but it left a great deal to be desired at low speeds. The XR-11 had an aileron-spoiler combination for lateral control, similar to that which was installed on the [Northrop] P-61, but, in my opinion, the ailerons were much too small for low-speed flight. With those

huge wings, the aircraft stalled at an amazingly low speed of 80mph (129km/h). While I never actually stalled it, I'll take Howard Hughes' word for it. An eccentric he might have been, but he was an excellent pilot, and his words regarding flight characteristics were good enough for me. He described the stall of the XR-11 as a two-phase oscillation with a final clean break with no tendency to roll off.

"The aircraft had non-standard tyres, and we had to order special ones. Someone had also overlooked the fact that the fuel vent was 450 US gallons (1,703 litres) below the topped-off tanks! The aeroplane was a remarkably clean, low-drag design. Its long, straight wing reminds one of something designed a decade later — the Lockheed U-2. Hughes and Kartveli had one thing in common in their approach to aircraft design. Each designed for the lowest drag possible. The fact is, however, that Kartveli was a shade better at it, possibly because designing aeroplanes was all he did, whereas Hughes had many other business ventures on his mind. This is in no way intended to take any of the aeronautical genius away from Howard Hughes, for I personally think had he devoted more time to the aeronautical field he would have been the equal of any of his contemporaries.

"Let us look at the two aircraft which entered the photo competition that led to nowhere in the ill-fated post war years. Each aircraft was remarkably clean and represented each designer's concept of a low-drag configuration. That Kartveli achieved a cleaner design can be attributed to greater experience. The compelling comparison comes not in the performance of the two aircraft but rather in the capability of accomplishing the mission for which the two planes were intended, and there is no doubt that this is where the XF-12 won without question. This writer believes (and I am one of the photo pilots who flew both aircraft) that the XF-12 would have won a production contract had it not been built and flown during unfavourable economic times for the Air Force. The XF-11 might well have achieved production as well, but as an interceptor — not a photo aircraft. Both aircraft operated at altitudes that contemporary jet aircraft had difficulty reaching, if they could at all."