

Hole Sucking Air, The Republic F-84, Part Three

In Flight USA

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This F-84F was one of the General Motors-built examples, and it was delivered to the USAF in 1954. It last saw service with the Indiana Air National Guard and was retired in 1971. The aircraft is currently on display at the March Field Air Museum in Moreno Valley, CA. (Scott Schwartz)

Naturally, the damage caused by salt corrosion during the trip overseas required extensive repairs. Once the repairs were completed, the F-84Es were sent into combat. The 27th Fighter Escort Group, under the command of Lt. Col. Don Blakeslee (who was a famous P-51 pilot during WWII) was dispatched on its first combat mission on December 6, 1950. This was supposed to be an armed reconnaissance mission, but between it, and the next day's mission, the 27th had fired 7,200 rounds of machine gun ammunition and thirty two rockets. The net result of all this was the strafing of a North Korean village and damage to several locomotives. Although one is tempted to sneer at the results of these missions, it should be remembered that none of these pilots had ever flown ground-attack missions before – with the exception of Blakeslee and one other pilot.

By August of 1951, the first of the F-84Gs had been delivered to the Air Force. Once again, airplane production outpaced delivery of the Allison J-35 engines, and the 27th Fighter Escort Group – which had now returned from Korea – had received only 36 F-84Gs.

Although it looked nearly identical to the F-84E, the F-84G was equipped with a reinforced “bird-cage” type canopy, and an in-flight refueling door was added to the left wing. Plus, a different gun sight, as well as an Instrument Landing System (ILS) was installed. Most significant, however, was the ability of the F-84G to carry atomic weapons or four thousand pounds of external weapons and the fact that it was fitted with an in-flight refueling receptacle.

For all of the improvements incorporated into the aircraft, the F-84G was considered to be an “interim” aircraft until the swept-wing F-84F could be deployed. Still, the demand for F-84Gs was almost insatiable; the Air Force needed the aircraft for action in Korea, where it would eventually be heavily used in the ground-attack role.

Although the straight-wing F-84 was “old-technology” when compared to the swept-wing MiG – 15, F-84 pilots were able to score some air-to-air victories against the MiG. Still, the F-84 was usually outclassed in air-to-air combat against the MiG-15 – especially when the MiGs were flown by Soviet pilots. Not surprisingly, the F-84 was replaced in the air-to-air and bomber escort roles by the F-86 Sabrejet. At that point, the F-84s were used primarily as low-altitude attack aircraft – which was a role that suited the aircraft well. Indeed, by the end of the Korean War, F-84s had been used on 140,000 combat missions, had dropped 50,427 tons of bombs, dropped 5,500 tons of napalm, destroyed 4,000 locomotives and/or rolling stock, caused the death or wounding of 23,000 enemy soldiers, and the F-84 pilots launched over 22,000 air-to-ground rockets. Roughly eighty-seven F-84 pilots were killed as a direct result of combat action (quite a few pilots were killed in accidents), and five pilots remain Missing In Action to this day.

As far back as 1949 the future appeared to belong to swept-wing fighters (and their ability to attain higher Mach speeds). So, in November of that year, Republic asked the Air Force for authorization to pull an F-84E off the production line in order to “convert” it into an improved long-range escort fighter.

At the beginning, Republic used its own money to fund the development of the new aircraft. Believing that it would be easier to obtain funding for a new aircraft, over an existing model, the Air Force changed the designation from YF-84F to YF-96. Once the Korean War started, the Air Force, now believing that it would be easier to obtain money for an existing aircraft over a completely new one, changed the designation back to YF-84F.

Basically, the YF-84F that was delivered to Edwards AFB in May, 1950, was an F-84E with wings that were swept back at a 40 degree angle.

Flight tests, some of which were carried out by Major (at the time) Charles Yeager and Gen. Albert Boyd revealed that the aircraft was under powered. The Air Force approved the construction of two additional YF-84Fs, which were to be powered by an engine made by the

British firm of Armstrong-Siddeley. This engine – the “Sapphire” – generated 7,200 pounds of thrust and was to be produced under license by Curtiss-Wright (as the J65).

Because the J65 was a larger engine, the two additional YF-84Fs fuselages had to be deepened, and the second aircraft was fitted with intakes in the wing roots instead of in the nose.

As previously mentioned, the Korean War caused the need for new fighter-bombers to skyrocket; primitive operating conditions, accidents, wear and tear, as well as combat losses were depleting the inventories of F-51s and F-80s by the end of 1950. Although F-86s and F-84Es were being deployed, these aircraft were largely untested in combat, at this point.

In order to ensure that there would be adequate supplies of F-84Fs, the Air Force contracted with General Motors to build additional F-84s in an old Kansas City B-25 plant, while the company’s Buick Motors division was retained to build J65 engines.

Republic was less than thrilled about being told who to use as alternate suppliers of its aircraft – especially since the company would not receive license fees from sources that were chosen by the Government.

If the whole F-84F program hadn’t been plagued with problems from the start, Republic would have had the last laugh – the F-84Fs that were built by General Motors were thought to be inferior to the ones that were produced by Republic.

Despite the “superior” quality of the Republic-built F-84Fs, the program was adding to the company’s already precarious financial situation. In the first place, the company was making F-84Fs at the same time that it was producing the straight-wing F-84G. One could argue that this was poor planning on the part of Republic, but the company originally expected the F-84F to have fifty-five percent parts and tooling commonality with the F-84E. Unfortunately, enlarging the fuselage to accommodate the J65 engine reduced this figure to fifteen percent, and after more improvements were made there was no commonality between the two models. Things got even worse.

At the time, there were only three aircraft-aluminum presses in the entire country. One of these belonged to North American Aviation, and the other two were tied up with the Boeing B-47 program.

Republic was not given access to these aluminum presses until April, 1952. This delayed the delivery of the first production F-84F until November. Incidentally, the nose engine air-intake was retained in the production aircraft, while the photo-reconnaissance variant – the RF-84F Thunderflash – retained the wing-root engine air-intakes. This freed up the nose for the installation of camera equipment, and it should be noted that the RF-84F was plagued by the same problems as the F-84F.

Ultimately, the company was able to produce three F-84Fs per day, but the usual delays with engine deliveries meant that new F-84s had to be stored outside until their engines

arrived. By May, 1954, deliveries of J65 engines was so far behind schedule that four hundred, fifty F-84Fs were sitting out on the Republic ramp without engines!

Eventually, of course, the engines arrived, but these early versions of the J65 didn't produce enough power to enable the F-84F to perform as it should. These aircraft were given to the Air National Guard, and a few were supplied to West Germany.

Later F-84Fs were equipped with more powerful versions of the J65 engine, which finally enabled the aircraft to reach the potential that was envisioned for it. Well, not really.

It seemed that neither the elevator, nor the horizontal stabilizer had enough surface area to provide enough stability or control authority. Republic "solved" this problem by rigging a sort of flying tail by converting the elevator and stabilizer into one moveable unit.

The Air Force didn't like this jury-rigged arrangement and insisted that aircraft so-modified be put back into their original configuration. Nevertheless, later production F-84Fs were equipped with flying tails.

Happily, the airframe problems appeared to have been sorted out by 1953. It was during the following year that the engine fires started. Naturally, the entire fleet was grounded, and deliveries of new F-84Fs were not accepted by the Air Force until all existing F-84Fs were inspected and the necessary repairs were made.

General Motors stopped making the J65 engine in 1955. Shortly thereafter, it was discovered that the J65 engine had an annoying tendency to flame-out when the aircraft was flown through heavy precipitation. Accordingly, flying through heavy precipitation and icing conditions was subject to strict limitations.

Production of the F-84F ended in 1957, with the majority of the aircraft being transferred to the Air National Guard. The Air National Guard retired its F-84Fs in 1971.

Much has been written about some of the experimental projects involving the F-84 – most notably the "Fighter-Conveyor" (FICON) idea, which involved the launching and recovery of fighters via a trapeze apparatus mounted beneath B-36 bombers, as well as Project TIP-TOW, which was just that – the towing of escort fighters that were attached to the wing-tips of long-range bombers.

Another interesting F-84-derived project was the XF-84H. Two of these aircraft were built, and they were basically F-84Fs that were fitted with large Allison turbo-prop engines (producing over 5300 shaft horsepower, plus 1296 pounds of jet thrust). A "T" tail and a small retractable fin on the top of the fuselage were fitted in order to counteract the propeller torque. The propeller itself was mounted in the nose of the aircraft; its spinner was flush with the fuselage contour, and the engine was mounted behind the cockpit. Because its propeller blade tips hit supersonic speeds, the XF-84H was extremely noisy. In fact several ground crewmen were reputed to have become completely deaf as a result of the noise generated by this aircraft during ground run-ups.

To say that the XF-84H was prone to mechanical problems would be an understatement. Of the twelve flights that were made with the two XF-84Hs, eleven of them resulted in emergency

landings. However, it seems that the main reason for cancelling the program was the loss of hearing that was sustained by ground personnel who were involved with the project.

After all of these years, it is easy to wonder what the Air Force was thinking when it signed on to the XF-84H program. The truth is that the aircraft was meant to test the idea of the "supersonic" propeller. In other words, it was a flying test bed for the testing of these propellers. Let's not forget that this idea didn't die with the XF-84H. Certainly, some readers will recall the "un-ducted fan" experiments that were conducted with jet airliners, during the 1980s.

Although it was given somewhat disdainful nick-names (such as "hole sucking air"), and there were jokes about the aircraft's long take off run (one being that the F-84 was equipped with a "dirt-sniffer," which, when it detected the dirt at the end of the runway, finally allowed the pilot to take-off), many of the F-84's problems were similar to those of other jets produced during the same era.

The jet-age was just beginning.