

The F-106A “DELTA DART”

All Weather Fighter Interceptor

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Converted from its original typed text on 11 Apr 2001 by Patrick McGee, Webmaster [Pat's World F-106 Delta Dart](#)

The F-106A “Delta Dart” is as different from the World War II interceptor as they were different from the fabric-covered bi-planes of World War I. It travels 4 times as fast (1525 MPH) as the fastest WW II fighter (400 MPH) and flies twice as high. It is only 3 feet shorter than the B-17 “Flying Fortress” but flies on wings of only 1/3 the span of the “Flying Fortress.

Though it is crewed by only one man, it carries the destructive power (1700 tons TNT) of a formation of 500 WW II bombers. At top speed its engine is developing as much horsepower (72000) as 36 WW II interceptors.

It weighs 5 tons more (35,500 lbs) than a fully loaded (25,500 lbs) North Central Airliner, and touches down on the runway at a speed (180 MPH) equal to the cruising speed of a DC-3.

It carries enough fuel (1530 gallons) in its “wet” wing to drive the average car at 18 miles per gallon for 27,500 miles or about 2 years for the average driver. It would never win a Mobil gas Economy Run, though. Throttled back to best cruise speed (9 miles per minute) at 40,000 ft the best the F-106 can do is 1.2 miles per gallon.

Incidentally, at maximum power at sea level, where the engine is relatively inefficient, an F-106 could burn off its full fuel load of 1530 gallons in only 8 minutes. Conversely, by climbing to 40,000 ft and flying at best cruise speed, the aircraft can stay airborne for 3 hours and 20 minutes and fly 1700 miles (Minot to Key West, Florida). Carrying two external fuel tanks their range can be increased to 4 hours and 10 minutes or 2200 miles.

The Delta Wing was developed by Convair aircraft and first flew on the XF 92 in 1948. The F-106 is direct descendent of this aircraft and the F-102 which first flew in 1953 and which was flown by the 5th Fighter Squadron from 1957 until the end of 1959.

The F-106 was built under the relatively new “Weapons System” concept, which pools the resources and talents of a number of contractors, each specializing in a different field and provides an aircraft built around a Weapons System. Under the old concept an aircraft company built an airplane and then loaded it with whatever armament was available at the time.

In this case an aircraft was needed to carry and implement the MA-1 Fire Control System and Radar which was being developed by the Hughes Aircraft Company. Convair Aircraft was chosen to provide the airframe and Pratt and Whitney Aircraft was picked to provide the engine. Douglas Aircraft received a contract to develop the nuclear tipped “GENIE” rocket which would be mated to the system along with 4 Hughes built Falcon guided missiles.

The resultant package was the extremely complex, amazingly reliable, swift, deadly F-106A each copy of which costs as much (\$3,000,000) as 2 squadrons of the famous P-51 “MUSTANG” which the 5th Fighter Squadron flew during WW II.

Let's see what we get for this price.

The airframe is jammed with secondary systems designed to return the expensive machinery and more

expensive pilot safely to base in the event that the primary system is damaged or fails.

Some examples are:

- (1) Three completely independent hydraulic pressure sources for the flight control surfaces, one of which does not even depend on the engine for motive power
- (2) Three sources of D.C. electrical power
- (3) Two sources of A.C. electrical power
- (4) Two fuel control systems
- (5) Three fuel pumps
- (6) Two fuel tank pressurization systems
- (7) Two cabin pressurization systems
- (8) Two methods to lower the landing gear
- (9) A drag chute plus wheel brakes if the drag chute fails
- (10) Two sets of primary flight instruments

The aircraft is equipped with an elaborate warning system of lights and horns to tell the pilot which system has failed.

In case of an emergency which the pilot is unable to correct and which endangers his life the aircraft is provided with a new type ejection seat which is powered by a small rocket motor and permits safe bailouts at all speeds and altitudes.

The F-106 is capable of flying a completely automatic combat mission from just after takeoff until just before landing. The pilot's function is to monitor the operation of the various systems, chase the target to be destroyed, make any other tactical decisions, which may become necessary, combat the enemy's electronic countermeasures and squeeze the trigger at the appropriate time. The pilot is necessary to take over manually and complete the mission in the event of a system failure in the aircraft or in the SAGE control system and of course he lands the aircraft.

The "Delta Dart" is capable of intercepting and destroying any manned nuclear delivery system yet devised.

The aircraft is directed to the vicinity of its target by the SAGE system, which is another story. Once in the vicinity of the target, the aircraft search radar sweeps a pie shaped segment of sky up to 80 miles ahead of the aircraft and 180 miles wide at its widest. This is an area of 7700 square miles. Flying at cruise speed (Mach .92), the radar searches an additional 1620 square miles every minute. This means that it searches an area of sky as large as the state of North Dakota in about 30 minutes. When the pilot "sees" the target on his radar scope, he chooses the correct one and "locks on"; the airplane then automatically flies at best course as computed by a digital computer, which is part of the MA-1 system, to intercept the enemy, and the armament is fired from 2 to 6 miles out depending on a number of factors in the intercept problem. The mission can be accomplished in any type of weather.

After expending all his armament, which is sufficient for three intercepts, the pilots selects a "Homing Point" and the aircraft automatically returns to base.

Our aircraft are capable of engaging the enemy 500 miles north of the Canadian Border and then returning to Minot or they can fly further north and recover at a Canadian Base.