

The flying Edsel

McNamara's F-111s have never been in combat but they have certainly been through the wars

by Jonathan Eberhart

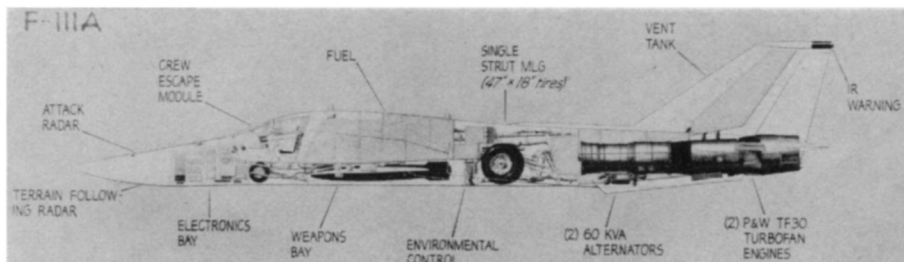
Five years ago, Defense Secretary Robert S. McNamara overruled his source selection board and picked General Dynamics over Boeing to build the TFX, a jet superfighter now famous—or notorious—as the F-111. McNamara's decision is still being questioned and investigated in Washington.

The plane's big advantage was supposed to be that both the Air Force and the Navy could use it, the two versions differing in only 20 percent of their parts. This, said the Secretary, would save at least \$1 billion over the cost of developing a separate aircraft for each service.

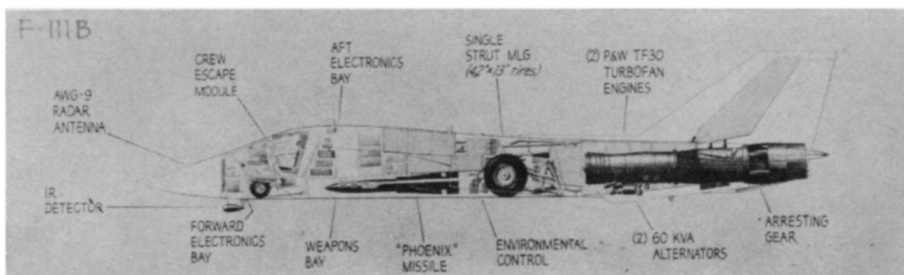
It hasn't worked out that way. Grumman Aircraft Engineering Corp., which is responsible for testing the Navy version (the F-111B), as well as being a major parts subcontractor to GD, has said as plainly as it can that "commonality" simply is no substitute for two separate aircraft designs. Faced with a grievous weight problem in the F-111B, Grumman wrote that "the weight savings achievable . . . are directly proportional to the permissible reduction in airframe commonality." In English, that means "This airplane is too heavy and it's going to stay that way as long as the Navy has to worry about the Air Force's design limitations."

The Defense Department was irretrievably committed to commonality, however, so in order to solve the F-111Bs difficulty a weight-improvement program, or WIP, was instituted. When that scarcely dented the problem, Grumman began a contractor's WIP called CWIP, which was later succeeded by a super-WIP, still going on, known as SWIP. After all that WIPing, the Navy aircraft is still more than eight tons overweight.

The F-111s ranking enemy is Sen. John L. McClellan (D-Ark.), from whom a typical mild criticism is that "there are still some very major problems associated with this plane—the development of it, the refinement of it—which must be solved before it becomes a reliable weapon." Even a vested-interest F-111 proponent such as Adm. David L. McDonald, former Naval Chief of Operations, has conceded that "there is a possibility that it won't work." Despite the troubles, how-



Among other differences, the F-111A's longer nose houses its unique radar,



General Dynamics

while the F-111B has longer wings to give it added lift for carrier takeoffs.

ever, Air Force Secretary Harold Brown insists that commonality "reflects the broad overlap in the flying qualities required for the Air Force and Navy missions." This overlap is presumably in spite of the fact that the F-111A and B differ in length, wingspan, weight, range, armament, and takeoff and landing distance.



General Dynamics

Speed brake shakes in both versions.

Excess fat is only one of the plane's worries, unfortunately. When pilots began test-flying the F-111B in May of 1965, other shortcomings began turning up. Its combat ceiling, although top-secret, is admittedly two miles lower than it was supposed to be. Loiter time

—the length of time the plane can stay over its target—is half an hour too short, which could limit the amount of fuel available for maneuvering during the return to base, and might necessitate mid-air refueling in or near combat areas. The aircraft's speed brake, a panel that lowers into the airstream from the fuselage, needs strengthening and redesign because it vibrates like a loose shutter, and a device called the adverse yaw compensator does such a poor job of controlling the plane's side-to-side motion that it adds to the already considerable hazards of night landings on an aircraft carrier, from which the F-111Bs will operate.

Engine stall problems have held top speeds to about 1,450 miles per hour, or Mach 2.2, some 200 mph slower than the manufacturer's original figure, although Navy officials have said that an improvement is expected on upcoming test aircraft.

One of the most severe of the plane's shortcomings lies in its inability to take off in adverse winds. Ideally, carrier-based planes, because of the short available runway, take off into the wind so that it is blowing across the wing to provide extra lift. The F-111B was originally supposed to be able to take off with an eight-knot tailwind, a considerable asset. Instead, the ones built so far need at least a 19-knot headwind,

which can mean that the carrier has to steam upwind to make up some of that speed, thus limiting the ship's combat maneuverability.

Still more problems have been the fault of the F-111B's main weapon, the Phoenix missile. Designed and built by Hughes Aircraft Co., the Phoenix sys-

Force version's center of gravity has caused enough instability during landing to pose a control problem for pilots, and to get engineers thinking about a number of possible remedies including lead weights in the plane's nose.

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job as well (and save an entire ton); the Air Force is split into warring camps over whether or not the F-111 can be made to double (or triple) as the next long-range super-bomber; and the F-111 itself is in the middle—is it the most versatile military aircraft ever made, or is it just the Flying Edsel?



General Dynamics

The heavy F-111B makes the Air Force's troubles look small.

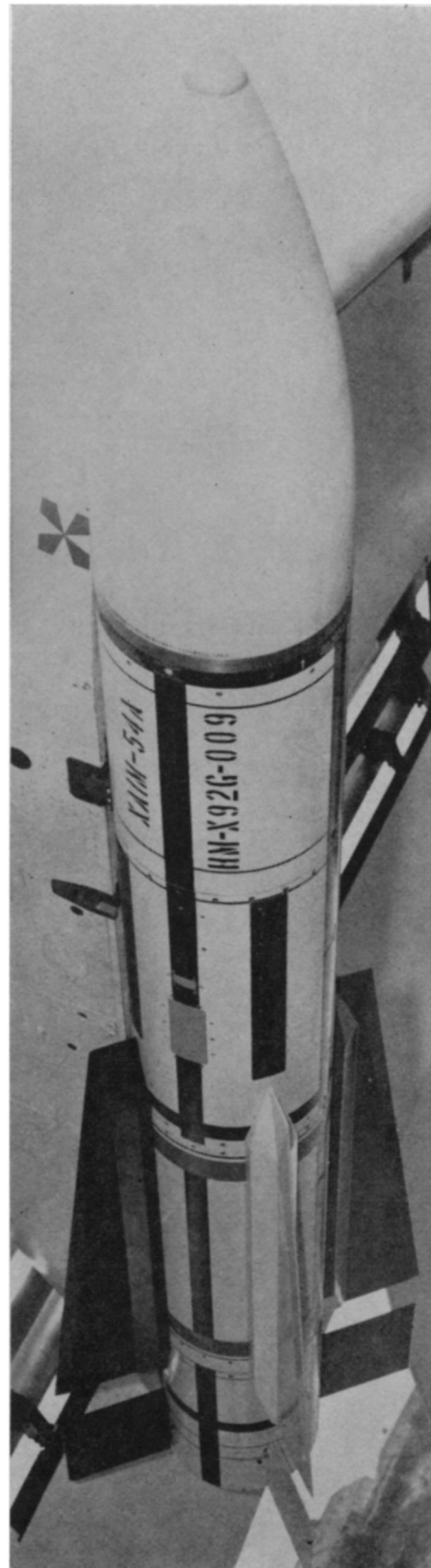
tem is capable of tracking as many as 18 approaching targets, then selecting and firing missiles at the six most dangerous ones. The missiles in turn will reportedly be capable of speeds up to 4,000 miles per hour and will have twice the range of any existing air-to-air missile. Chief headache has come from the Phoenix's fiendishly complicated guidance system, now estimated by the Navy to cost more than \$2 million per plane, not including the missiles. The system was delayed for more than a year, and the first Phoenix missile—an inanimate drop-test dummy—was not tested from an F-111B until some five months after the plane's first flight.

Though the F-111B has been coming in for most of the fire, the Air Force's F-111A has recently been revealed to have troubles of its own. Its gross (fully loaded) takeoff weight is more than 12,000 pounds over the contractor guarantee of 69,122 pounds, an excess of about 17 percent. The speed brake vibrates enough to cause buffeting of the aircraft. A variety of difficulties with the engine air inlets have caused designers to consider changing them in several ways: moving them four inches out from the fuselage, increasing the area of the opening by 10 percent and blunting or rounding the inlet lips. Improper location of the Air

Force version's center of gravity has caused enough instability during landing to pose a control problem for pilots, and to get engineers thinking about a number of possible remedies including lead weights in the plane's nose. With all the difficulties surrounding both planes, production schedules have gone completely to pot. The Air Force is in the better shape, and hopes to send its first operational F-111A to Vietnam late this year or early in 1968. The F-111B is three years behind schedule, and even if no other troubles crop up, cannot go on active duty until mid-1971. To add to the Navy's unhappy state, Congress cut from a dozen down to eight the number of additional test F-111Bs that it will be allowed to build, and curtailed funds for long-lead-time parts for future combat aircraft.

Almost the only remaining characteristic of the original F-111 besides the paint color is the cost, and there's trouble there too. Originally A's and B's were to have sold for about \$2.9 million apiece. The Air Force's 1965 order for 431 production F-111As totalled \$1.5 billion, or about \$3.5 million per plane (which already uses up a fourth of McNamara's billion-dollar saving), and the F-111B, with its additional setbacks, is now estimated at \$8 million per aircraft.

So the argument goes on. Congress wants to know if the contractors can't be threatened with fines or other penalties; the contractors are anxiously trimming off weight, realizing that every hundred pounds saved may mean another aircraft sold in the long run; the Navy is wondering if four Phoenix missiles instead of six wouldn't do the



Hughes Aircraft

Phoenix missile dragged its heels.