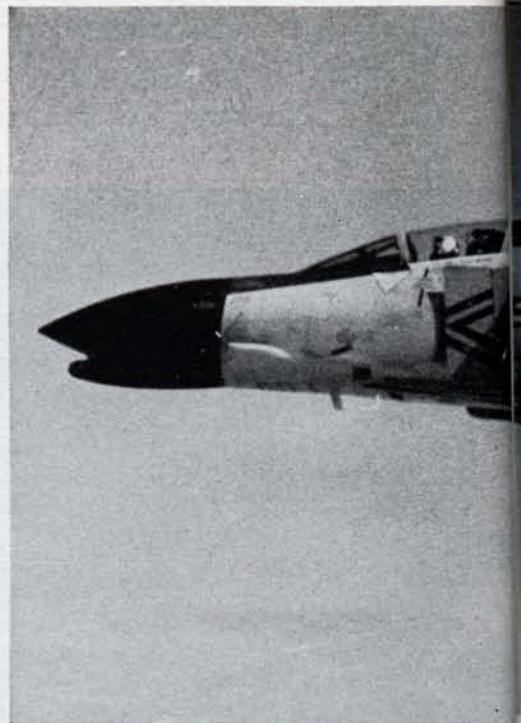


TAC pilots soon will be flying the F-110, latest in the Century series and USAF version of the Navy's crack F4H Phantom II, a plane that is breaking records these days with the same ease that it breaks the sound barrier . . .

# F-110

## USAF'S NEW TACTICAL FIGHTER



**T**ACTICAL Air Command pilots soon will be flying one of the hottest machines that fifty-plus years of airplane building have been able to produce. TAC Commander Gen. Walter C. Sweeney, Jr., had only praise for the aircraft after he flew one recently from Langley AFB, Va., out to Nellis AFB, Nev., for evaluation tests. The plane, the McDonnell-built F-110, shown in full color on the front cover of *AIR FORCE/SPACE DIGEST* this month, will also be an important part of the weapons package of the new US Strike Command, headquartered at MacDill AFB, Fla., near Tampa (*see accompanying article*).

Designated the F-110 for USAF use, or RF-110 in its reconnaissance configuration, the plane earned its earlier laurels as the Navy's crack supersonic jet fighter, the F4H Phantom II. As the F4H, the plane now holds six official world's records, has eight others pending certification by the Fédération Aéronautique Internationale—the record-governing international body of which the NAA is the US member.

For one of the records now waiting certification the F4H roared from a dead stop to an altitude of seven and one-half miles in only one minute, seventeen seconds. This and the other time-to-climb records were set at the Brunswick, Maine, Naval Air Station, where the Phantom II also:

- Flew to 9,842.5 ft. (3,000 meters) in 34.523 seconds;
- Flew to 19,685 ft. (6,000 meters) in 48.787 seconds;

- Flew to 29,527.5 ft. (9,000 meters) in 61.629 seconds;
- Flew to 49,212.5 ft. (15,000 meters) in 114.548 seconds.

More recently the Phantom II racked up a second series of time-to-climb records, between March 31 and April 12 at Point Mugu, Calif., Naval Air Station when the plane:

- Flew to 65,620 ft. (20,000 meters) in 178.5 seconds;
- Flew to 82,025 ft. (25,000 meters) in 230.44 seconds;
- Flew to 98,425 ft. (30,000 meters) in 371.43 seconds. This is traveling from a dead stop (though with the aircraft at full throttle on the ground until released by an explosive bolt) to an altitude of more than eighteen and a half miles in a little over six minutes.

In addition, the Phantom II holds world's records in these categories:

- Straightaway speed of 1,606.3 mph.
- The 100-km., closed-course record of 1,390 mph.
- The 500-km., closed-course record of 1,216 mph.
- The 3-km., low-altitude record of 902 mph.
- The sustained-altitude record of 66,443 ft.
- The transcontinental Los Angeles to New York record of two hours, forty-eight minutes.

USAF, on March 5, filed a claim for the latter record after one of its B-58s flew coast-to-coast in two hours, one minute, 39.6 seconds.

Perhaps most significant of the F4H's current rec-



ords is the absolute world speed record of 1,600-plus mph—about Mach 2.8. This is an indication that the plane flies at about the top speed possible with an aluminum airframe. A structure of steel or some other high-temperature material would be needed for cruise at Mach 2.8, or for a short-period dash to higher speeds.

In prospect for the Air Force are 336 F-110s, worth about \$1 billion (including engines and electronic equipment), under the present Administration plan. Most of the money is in the FY '63 budget, which still needs congressional approval. Most—310—of the new planes will be slightly modified versions of the F4H. The other twenty-six will be used for a reconnaissance mission.

Much of the credit for the F-110's fine high-speed and time-to-climb performance is given to its variable-geometry inlets for engine air. Each engine air duct has two sections that move automatically to adjust the duct's size and shape for efficient airflow at all times.

The plane is powered by two General Electric J79-GE-15 turbojets, each producing a maximum 17,000 pounds of thrust with afterburning.

With its drooped-down tail and tilted-up wingtips, the F-110 presents a strange appearance at first view (*see cover drawing*). The plane is a relatively large fighter—fifty-six feet long with thirty-eight-foot, five-inch span, as compared with the forty-seven-foot length and thirty-eight-foot span of the F-100F Super-sabre. It was the Navy's requirement for a maximum

length of less than fifty-nine feet that was a controlling factor in the F4H's design. This length limitation posed problems in designing a stable, Mach 2.5-plus aircraft with good range and weighing more than 35,000 pounds.

In solving the stability problems, the horizontal stabilizer was given a large negative dihedral. These tail surfaces were drooped downward twenty-three degrees to get their center of area down near the plane of the wing. The positive dihedral in the wingtips was needed to maintain the proper ratio between lateral and directional stability after the tail was drooped. The wings are swept back forty-five degrees.

Approach speed for the F-110 is about 140 mph. The aircraft has blowing boundary layer control on both the leading-edge and trailing-edge flaps to keep landing speeds low. The Phantom II was first flown in May 1958.

Equipped with very-long-range radar, the F-110 can carry a wide variety of armament—including more than twice the conventional bomb weight capacity of the World War II B-17 Flying Fortress. It also has a nuclear capability. The F-110 armament load includes several mixes of the Martin Bullpup radio-controlled missile, guided into the target by the pilot and the radar operator (the missile is shown in the outboard position in artist Roy Grinnell's dramatic cover painting of the F-110 in flight); the Philco Sidewinder, heat-seeking air-to-air defensive missile; or Raytheon's Sparrow III air-to-air missile.—END