BY BOBBY CORBIN > PHOTOS BY JOHN REID

> I didn't expect this much PERFORMANCE from a sport jet.

RICHMOND RC VMAR

F4 PHANTOM II

Jet looks with prop convenience

TO THIS DAY, THE MCDONNELL DOUGLAS F-4 PHANTOM is considered the best fighter-bomber ever built; it was one of the U.S. aviation industry's greatest successes. It came to prominence during the Vietnam era and in subsequent conflicts around the world. By May 1978, shortly before the 20th anniversary of the prototype's maiden flight, this Mach 2 aircraft reached a production total of more than 5,000 aircraft in dozens of versions. The first of these prototypes was designated YF4H-1. Twenty-three pre-series versions of this aircraft followed, and at the end of a long trial period, the first of 649 aircraft designated F-4B went into service in 1961.

This top-quality F4 Phantom II ARF from VMAR by Richmond RC is one of the best sport-jet replicas of the Phantom F-4 available. The revolutionary new VCOTE 2-3DS covering has details such as panel lines, rivets, letters and markings fused in the covering.

SPECIFICATIONS

MODEL: F4 Phantom II
MANUFACTURER: Vmar
DISTRIBUTOR: Richmond RC
TYPE: semi-scale prop-jet
LENGTH: 63 in.
WINGSPAN: 58.5 in.
WING AREA: 910 sq in.
WEIGHT: 10.25 lb.
WING LOADING: 26 oz./sq. ft.
ENGINE REQ'D: .60 to .91 2-cycle
RADIO REQ'D: 4-channel w/6 servos (7 servos if optional retracts installed)
PRICE: $299.95

COMMENTS

The throttle-control connecting rod used in the USAF version needs an EZ connector because of the preinstalled pushrod.

HIGHLIGHTS

- Unbeatable build quality
- Attractive design and scale appearance
- Fast assembly
- Spectacular performance

KIT CONTENTS

The F4 Phantom II ARF comes in two versions: U.S. Navy and U.S. Air Force. The model's parts are neatly packaged between strips of paper with the main components sealed in plastic bags. The fuselage and the wings are all-wood, built-up construction and include hinged and pinned control surfaces. Everything is covered with VCOTE 2-3DS covering, so all of the finish details have been done for you—no decals! A metal spinner, detailed pilot figure and prepainted cockpit are provided. Also included are a fuel tank and a complete hardware package that contains aileron and elevator control rods, metal clevises, screws and plastic control horns. A prebent, semi-scale nose gear, main struts, wheels, a set of dummy fuel tanks and landing-gear cavity covers (in case you choose not to install the optional mechanical retracts) round out the package. A 15-page manual that's chockful of color photos guides you through the assembly of this great-looking ARF.

ASSEMBLY

It's always a good idea to lay everything out first, just to see whether any pieces are missing before you begin construction. You don't want to get halfway through the construction and then discover that something is missing.

The F4 Phantom II requires minimum assembly to make it airworthy. In fact, it takes longer to install the radio gear than it does to assemble the plane! The main components are the fuselage, the plug-in, prehinged wings, the tail stabs and the rudder.

I began construction by joining the wing halves to the fuselage. Note that in some parts of the country, some of the construction steps outlined in the manual may have been completed at the factory, so don't be surprised if you go to install something and find that it has already been done.

I started by inserting two aluminum tubes into the predrilled fuselage holes. The longer, 263/4-inch tube goes in the front hole; the 193/4-inch one goes in the rear hole. Now I was ready to plug the wings into the fuselage. They are held in place with butterfly wing nuts.

Next I installed the aileron servos in the prebuilt servo bay inside the wings. With a hobby knife, I removed the covering from the servo bay, and then I made certain that the servo output shafts were facing the rear of the wing. I attached the aileron control rod and horn with the hardware provided for each wing half. I then inserted straight pins through the wing to hold the aileron in place while I measured for the correct length of the pushrod. Once I had cut the pushrods to the correct length, I connected the linkage to the ailerons.

FUSELAGE CONSTRUCTION

To begin assembling the fuselage, I first test-fit the vertical and horizontal stabilizers. I used 30-minute epoxy to attach these components to the fuselage. Because the elevator and rudder are prehinged to the stabilizers, I had to be careful not to get any excess epoxy around the control rods, the hinge lines and especially the rudder pushrod that is near the vertical fin at the top of the fuselage.

The aileron pushrods are factory installed; you just have to hook up the aileron servo.

The elevators come hinged, and the control horn is installed for fast assembly.

The canopy hides the access hatch to the equipment bay. As you can see, there's plenty of space.

IN THE AIR

IN THE AIR

For the Vmar F4Phantom, I used a powerful, 2-stroke O.S. .91FX-equipped with a supplied silencer, a Top Flite Power Point 14x8 prop and 15-percent PowerMaster fuel. This power combination and a weight of just 10.25 pounds should produce a very fast jet. Because of the speed and the camouflage cover, it's good to have 20/20 vision here. Make sure that you keep your eye on this one!

CONTROL THROWS

Elevator: ±1⁄3 in. (low); ±1⁄2 in. (high); expo 40%
Ailerons: ±1⁄3 in. (low); ±1⁄2 in. (high); expo 20%
Rudder: ±5⁄8 in. (low); expo 0%

GENERAL FLIGHT CHARACTERISTICS:

Stability: I didn't expect this much performance from a sport jet. At low rates, its handling is extremely solid; at high rates, it is agile and quick.

Tracking: the aircraft has good ground handling; just a little right rudder was needed on takeoffs. Once in the air, it goes exactly where you point it.

Aerobatics: this is not an aerobatic model, but it can duplicate the fundamental scale maneuvers that full-size jets perform.

Glide performance: set the Phantom II's center of gravity (CG) at the recommended location (107/16 from the leading edge), and dead-stick landings are surprisingly stable without any tendency to snap-roll!

Stalls: you wouldn't expect stability to be inherent in a semi-scale jet, but the Phantom II flies like most 60-size sport planes! Landings are quite conventional.

PILOT DEBRIEFING

I was pleasantly surprised to discover that after an engine flameout, a deadstick landing was really easy. I didn't expect, the F4 Phantom II to stay aloft very long without power. When the motor quit at 400 feet, I set up my landing approach and kept the nose slightly up. I headed into the wind and pointed the plane right down the middle of the runway. It came in for a perfect landing on the mains, followed by the nosewheel touching down smoothly. Basic aerobatic maneuvers such as stalls, high- and slow-speed turns are all possible with this plane. Flying inverted required very little down-elevator to keep it level. It also demonstrated minimal signs of the roll and pitch coupling that are associated with this type of aircraft. This is truly a rugged and remarkable flying model.

The main landing gears are mounted on a plate on the underside of the wing; they are held in place with four Phillips-head screws. The nose-gear bearing assembly comes mounted on the firewall. I used a little thread-lock on the steering arm and the EZ connector setscrews to prevent them from loosening. I inserted the nose gear in the bearing and the steering arm, and then I connected the pushrod to the EZ connector and tightened both of the setscrews. All of the wheels come mounted on the gears, but I still double-checked the wheel-collar setscrews just to make sure that everything was tight.

I assembled the fuel tank with three lines: fuel feed, pressure and refueling. Before you install the fuel tank, you must remove the seven small screws that hold the cockpit instrument panel to the top of the fuselage. Because the fuel tank sits inside the unfinished fuselage, I did a pressure check on it to make sure that there weren't any leaks. I used foam to cradle the fuel tank in its position so it would not move around in the fuselage. Then I ran the fuel lines through the predrilled firewall and reinstalled the cockpit and canopy.

GEAR USED

RADIO: Futaba T7CAP with a Hitec HFD-08RD receiver and S3151 standard digital servos (6)

ENGINE: OS .91FX, ringed, w/silencer

FUEL: PowerMaster 15%

PROP: Top Flite Power Point 14x8

ENGINE MOUNTING

Because the VMAR F4 Phantom II was designed to accommodate only .60 to .91 2-stroke engines, I chose the O.S. .91FX; it's at the upper end of the recommended range and should provide plenty of power. The engine mount comes installed, and I was able to place the .91FX in the compartment without making any modifications. I positioned engine so that I had a 3/32-inch gap between the spinner's backplate and the front of the fuselage. I marked the location of the holes, drilled a 3/32-inch pilot hole and then installed the motor on its mount using four no. 25 sheet-metal screws. The throttle control rod was already installed; all I had to do was connect the linkage to the servo and throttle arm on the carburetor. The custom-made aluminum spinner comes complete with all of the hardware you'll need. I did find that the spinner's retaining screw was about 1/4 inch too long for the O.S. crankshaft. This extra length wouldn't allow the backplate to seat with the spinner. I solved the problem by grinding off a bit of the brass coupler that lies between the back-

plate and the spinner's retaining screw with a Dremel tool. The shortened coupler allowed a nice, snug fit between the spinner and the backplate.

FINAL ASSEMBLY

Install four servos in the servo bays at the rear of the fuselage. Two of the servos are for the elevator—one for each side—and are connected to the receiver by a 6-inch Y-harness. After attaching the control horns to the rudder and elevators, I used two, 91/2-inch pushrods to connect each elevator to a servo.

Next, install the rudder control horn, and hook up the linkage from the rudder to the appropriate servo (their locations are clearly marked in the instructions). The pushrod for the nose-gear steering is hooked up to the opposite side of the rudder control arm. I wrapped the receiver and battery pack in foam and then mounted them in the rear bay of the fuselage along with the servos. After I had installed most of the airborne system in the rear of the fuselage, I found that I still needed to add 8 ounces of weight there to achieve a properly balanced plane; for my type of flying, that is a slightly nose-heavy plane.

I installed the plastic landing-gear-cavity covers because I did not use retracts on the plane; thin CA is all you'll need to glue them. Using the supplied screws, I then installed the dummy fuel tanks under the wings at the recommended locations. Because I used a servo for each aileron, I decided to program in a flaperon mix. I confirmed all of the control-surface throws and directions and rechecked the balance one last time. Everything was ready for the flying field!

CONCLUSION

The Vmar F4 Phantom II is finished with Richmond RC's "Polycote ECS" enhanced covering system that includes Sure-Seal—a process that provides extra insurance for the covering's durability. The graphics are inside the fuelproof covering! This is a rugged and well-built ARF. Best of all, the Phantom II's flight envelope is exceptionally good. Its solid performance in the air is sure to put a grin on any pilot's face. If you want a great-looking plane that's easy to build and fly, the Vmar F4 Phantom II should be on your list.