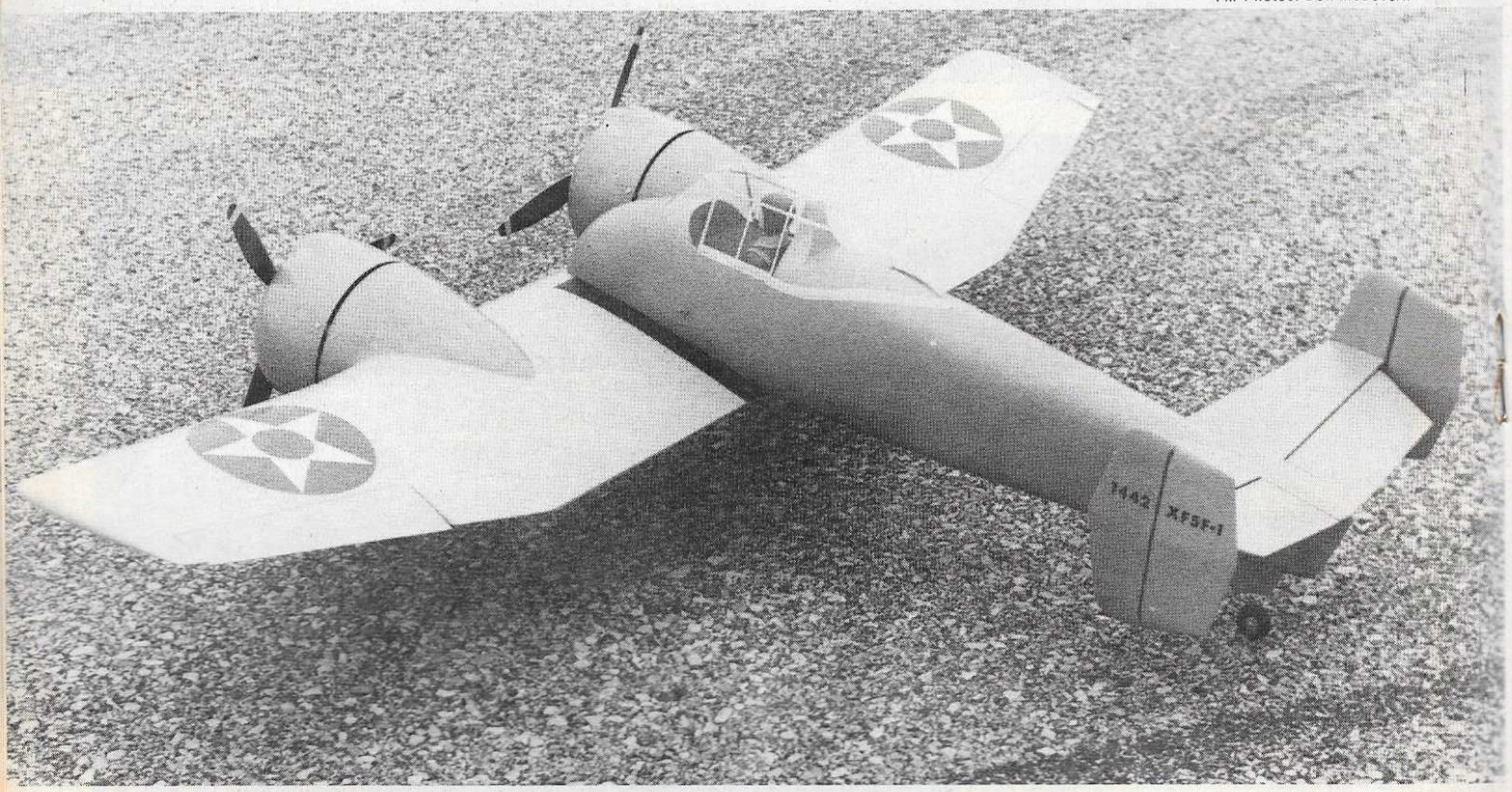
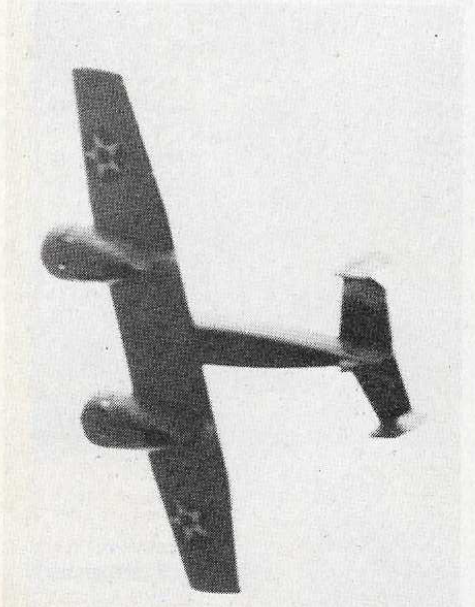
Full Scale Photos by Grumman Aerospace Corporation

FM Photos: Don McGovern



Almost a good idea. Grumman's twin "Skyrocket" was a test-bed of ideas for later F7F. Somehow it captured the fancy of aviation enthusiasts. **Below:** Nick's R/C replica with engines synched. **Facing page:** Note the red center in the stars.



Stand-Off Scale R/C

GRUMMAN SKYROCKET

by Nick Ziroli

Two massive engines and no nose do not a carrier-dwelling fighter make, but this 1940 experimental with an unlikely name will make a great project for modeling.

The Grumman XF5F-1 "Skyrocket" was a radical approach in the development of Navy air power. Orders were issued in June, 1938 for this new twin engined shipboard fighter. This at a time when biplanes were the king of the fleet and monoplanes were just coming into use.

It was first flown on April 1, 1940. Performance was good, but cooling and airflow problems led the way to a long series of development modifications. An extended nose, fillets and nacelle improvements were made. Landing gear failures added to development problems. The "Skyrocket" was written off in December, 1944 after a landing gear failure at Floyd Bennet Field in New York.

Wing span was 42 feet, length 28″ 8½″, top speed 383 mph and a rate of climb of 4,000 feet per minute, which probably attributes to the name "Skyrocket".

While only one XF5F-1 was built, the development work on it paved the way for the very successful F7F "Tigercat".

The Model Design

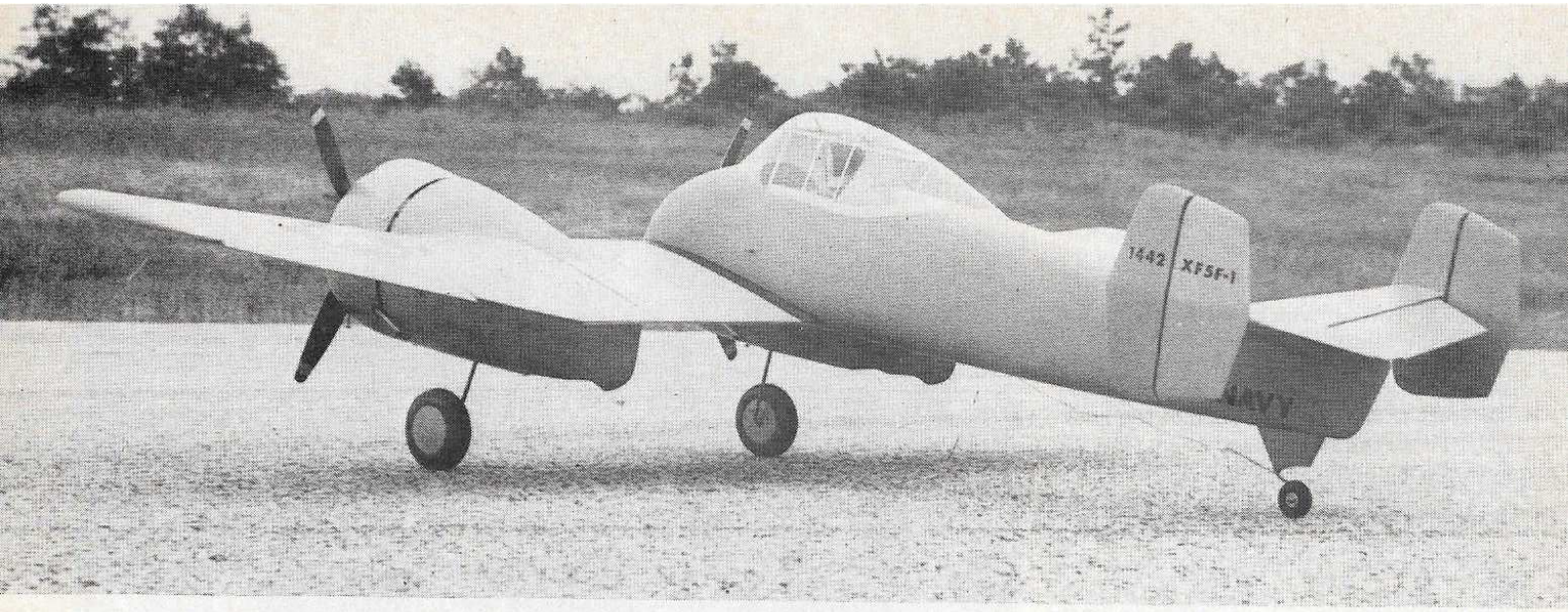
The "Skyrocket" is the type of plane you either like or you don't. It's unique snub nose, or rather no nose appearance and big radial engines is either appealing or appalling, depending on your taste. I have always been intrigued by this airplane and decided it was time to build one. I sized it to suit a pair of Wankel .30's, however any good reliable pair of .29 to .40 engines would do the job. The span is 58″ and wing area totals 585 square inches. Ready to go my "Skyrocket" weighs 9 pounds, giving a wing loading of about 35 ounces per square foot.

This is kind of heavy loading for a sport flier, but the "Skyrocket" was not built for every-day pleasure flying. A complex twin engine model just can't be considered a sport plane. Ample power, a well forward center of gravity and a generous amount of wash-out in the wing tips all help to make the "Skyrocket" perform reliably.

Dependable engines are of the utmost importance! The engines are quite far apart, although the absence of a nose make them look even wider spaced than they are. Add to this the large cowls with their resultant high drag and it isn't hard to imagine the single engine performance. In a word, risky, a trait not unique to the "Skyrocket" alone. I have not seen a scale twin engine model other than those with tandem, push-pull, engines that was not in trouble to some degree when an engine quit. An exception might be some flying boats such as the "Catalina".

Pointing the engines outward, about 3 or 4 degrees, can help. I didn't do this on my model, but if you build it you may want to.

I went all out and included flaps and retractable landing gear. Rhom Retracts were used with excellent results and this system must be one of the most reliable available. The Rhom main gears can be made to retract back by simply rotating the legs 90 degrees and mounting them as you would a nose gear. The air tank and



block them up to hold them flat. The tips should be blocked to hold in the 3/8" washout. Install landing gear blocks if a fixed landing gear is used, or retract mounts for Rhoms. Sheet the bottom of the panels.

If flaps are being considered, the 1/8"x1/4" spar must be cemented in place followed by the 1/32" plywood covering and then a 1/4" square spar. The 3/32" sheet extends back to the 1/4" square spar.

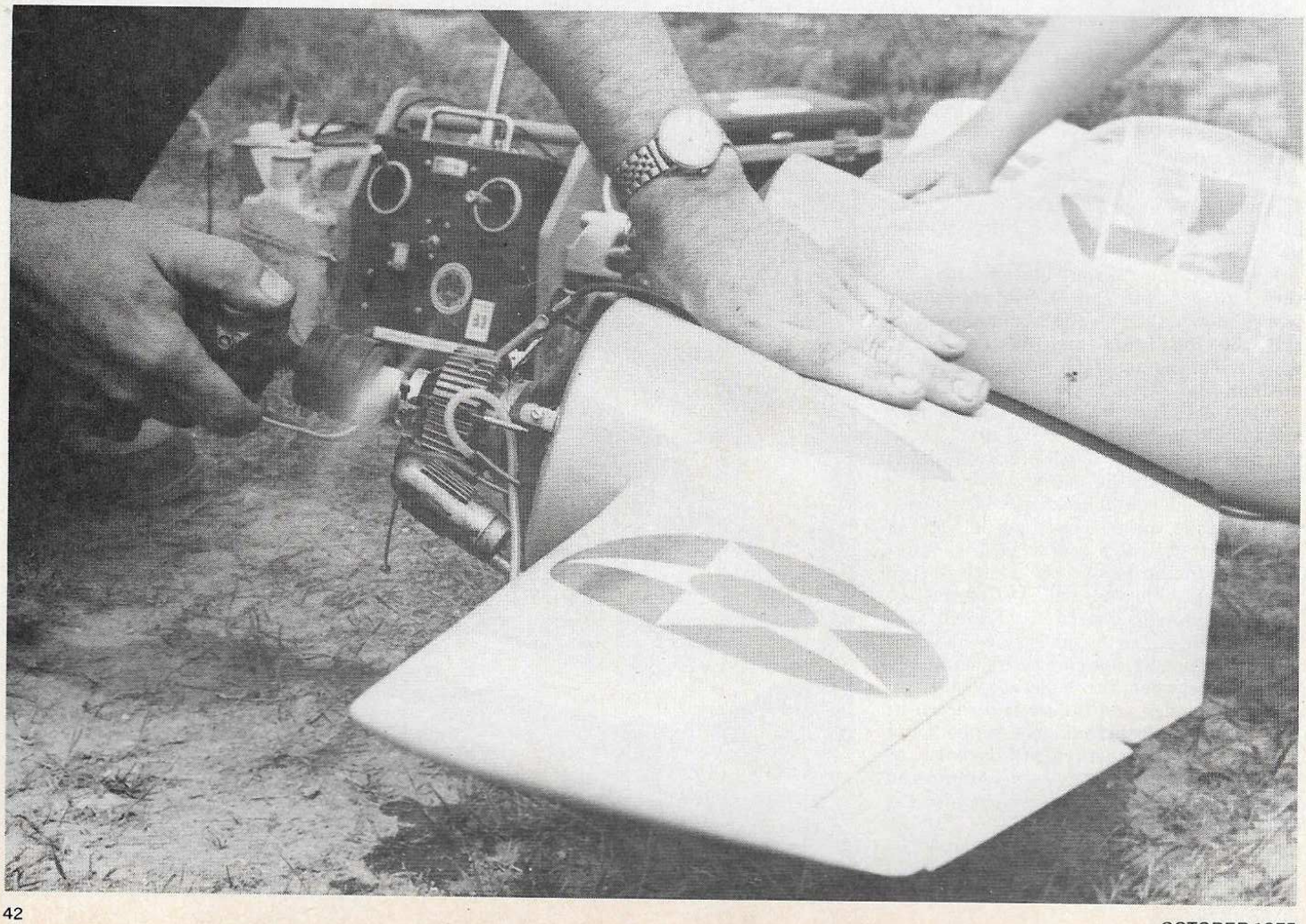
Mount the wing center panel to the fuselage. Line up wing mount screw holes and bolt in place. Cut the fuselage for a good fit on the wing. With the wing in place on the fuselage set the airfoil up on blocks so it is 0 degrees to the work surface. Position the stabilizer in it's cut-out and check the incidence angle. It should be at 0 degrees also, or slightly negative. Cut the fuselage as required to make this correct. Check from the front that the stabilizer is not cocked and align the top also.

When satisfied with the fit, epoxy the stabilizer in place. The tail wheel assembly should have been installed before final installation of the stabilizer. There are two pushrods to the rudder servo. The tail wheel has it's own that goes to the inner hole on the servo arm and the rudders to to the outer. Install all the pushrods at this time and then plank the top of the fuselage.

Draw a nacelle center line 9" out from each side of the center of the wing. If a fixed landing gear is sued, install them at this time. Build up the nacelle framework on the wing. Trial fit the Rhom retracts if they are being used. Fuel tanks may be built in, or a hatch cut in the finished nacelle for installation. I used 6 ounce tanks,

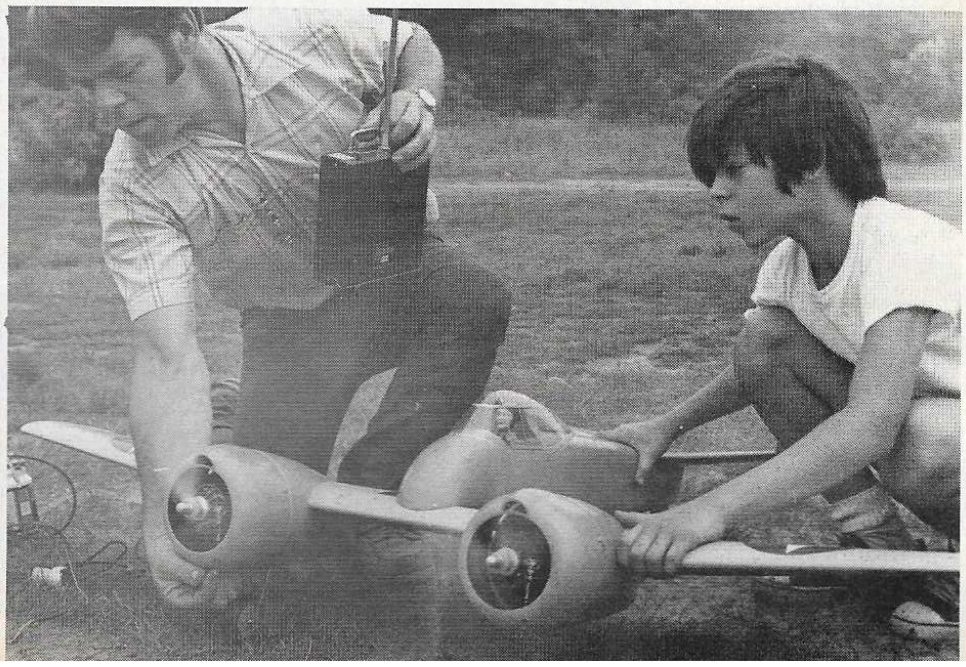
Grumman had vision. The XF5F-1 tried its wings, learned some lessons. It was intended for Carrier operations. Note three-bladed display props.

Beneath: Test run of the Wankel powerplants. Any other muffled engines in displacement range may be used. World Engines' Blue Max R/C system.



Take-off here, kind of blurried. A pair of Wankels does it beautifully. **At right:** With Rhom Air gears retracted, Nick angles it in for a photo.

No, you can't make it a tri-motor Nick, there's nowhere to hang it. And consider the environment! **Beneath:** A last tweak to the needle valve. Take time to tune in the engines. Two screws churning.



though eight ounce would be better for the larger engines.

Plank the nacelles and cover the firewall with eight wedge shaped pieces of 1/8" sheet. Sand the front of the firewall flat and epoxy a 1/4" plywood disc in place. Use a Kraft or Tatone mount for engines other than the Wankel.

When the nacelles are complete, epoxy the outer wing panels to the center-section. Dihedral should be 2" under each tip.

Sand the entire airframe to final shape and a smooth surface. Finish in any way you prefer, but keep it light at the tail. The colors are silver all over with the top wing yellow. I painted the stars on the wing since I could not find any decals the correct size. The markings are rub-on letters or decals.

The cowls are made by the Hobbypoxy Easy-Does-It system. A master cowl was made from urethane foam, "Pro Foam", and the cowls laid up over it. It is necessary to cut the bottom of the cowl to remove it from the mold. This is easily joined again with a strip of glass cloth and epoxy. Mount the cowls with three hardwood blocks epoxied to the firewall. Sheet metal screws 1/2" long hold the cowls in place. Leave at least an 1/8" space between the cowl and firewall.

I could not find a canopy that was even close to scale. If you don't have facilities for vacuum forming one, they are available. See the plans for details.

Install the radio system at this point. I used a World Engines Blue Max Mark II. This is a medium-small size system and just fits. Anything much larger is going to be really tight, especially if the flaps and reracts are used.

There are a few precautions that should be taken before flying. One is to take some time and get the engines running the same. Set up the throttle so the idle is the same on both engines. When peaking the engines, hold the nose up at almost 90 degrees and make sure they will keep running at full power in this attitude. When you feel all is right, it's time to fly.