



1/8 SCALE REPLICA RADIAL ENGINE

ASSEMBLY AND FINISHING INSTRUCTIONS



The Top Flite Replica Radial Engine (hereafter referred to as *Radial*) is patterned after the Pratt & Whitney radial engines that powered numerous aircraft from the *Golden Age* of aviation. Modeled to fit the Top Flite P-47D Thunderbolt, this 1/8th scale Radial will fit any cowls with a frontal opening of 5-1/2" to 6-1/4". Not only does the Radial enhance scale appearance, but it also serves as an air-flow baffle for more efficient engine cooling.

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WARNING

Do not attempt to start your engine unless the radial has been modified to permit cooling airflow to the engine! See text for more information.

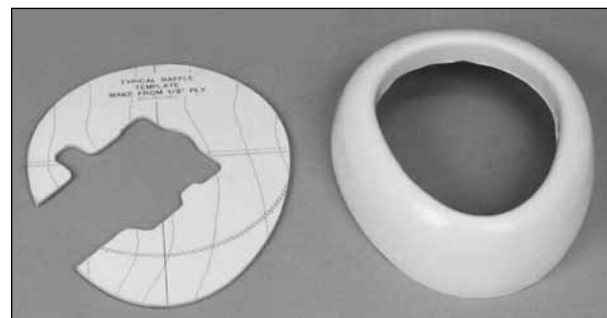
TOOLS AND SUPPLIES NEEDED (Not Included)

- Hobby Knife with # 11 Blade (HCAR0100)
- Hand Drill or Dremel® Moto-Tool®
- 1/16" and 1/8" Drill Bits
- 6-Minute Epoxy (Great Planes® Pro™, GPMR6042)
- CA+ (Great Planes® Pro™, GPMR6014)
- 1/8" x 8" x 8" Lite-ply
- Round File or 1/2" Drum Sander
- Small Paint Brushes
- Paint (see painting instructions)
- Scroll or Coping Saw
- Rubber Cement or Spray Adhesive
- 100 & 240-Grit Sandpaper

ASSEMBLY

The following procedure covers the assembly and modifications required for a **flying model**. Static display models require no modification.

- 1. Measure the inside diameter of your cowl about 1-1/2" from the frontal opening and match this size to the concentric circles on the **Baffle Template**. *The correct size for the Top Flite P-47 is the innermost solid line on the template.*



- 2. Trace or photocopy the Baffle Template, then glue the copy to a sheet of 1/8" lite-ply (not included). Cut around the circumference and the engine opening with a scroll or coping saw.

- 3. Trim the **Radial** to fit the lite-ply Baffle with a hobby knife or scissors.



- 4. Cut away the prop shaft opening from the center of the Radial. Smooth the edges with a round file or drum sander.

- 5. Tape the Radial to the baffle, then test fit the assembly inside the cowl. If necessary, sand the baffle and Radial for a better fit.

- 6. **Flight Modification** — Trim away one of the cylinders but leave excess backing material in place. This material will be trimmed off during final fitting of the engine.



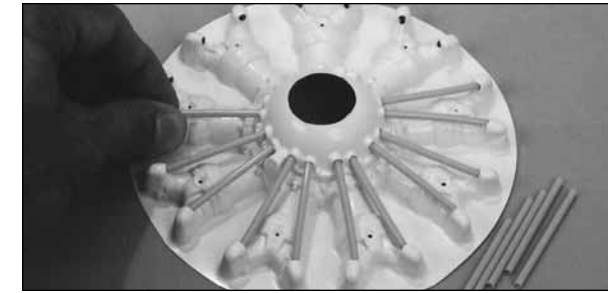
- 7. Drill a 1/8" hole through each of the *indented marks* around the perimeter of the crankcase and also through the bottom of each rocker arm cover. Drill a 1/16" hole through the *dimple* near the top of each cylinder.

- 8. Use 240-grit sandpaper to lightly sand the full length of the **5 plastic tubes** for better glue and paint adhesion. Cut **18 pieces 2"** long to use for the pushrod tubes.

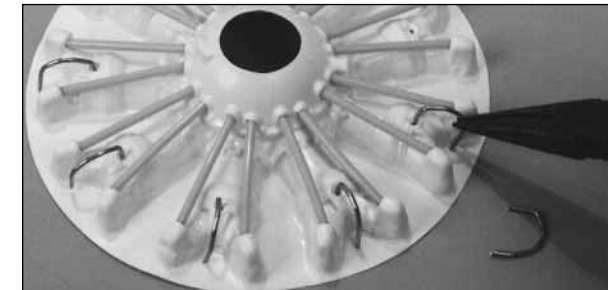
- 9. Sand the **16" wire**, then cut **9 pieces 1-1/2"** long to use for the ignition leads. Make a 90 degree bend 3/8" from one end.

Note: As you will probably be removing at least one cylinder when you use the Radial as an air baffle, you **need not** install pushrod tubes and an ignition lead in **one** cylinder. Complete all 9 cylinders if you will **only** be using the Radial for static display.

Painting Hint: Some modelers find that it's easier to paint this type of structure **before** final assembly. If this is your preference, skip down to the section on **Painting**. Then return to step 10 when you are ready to proceed.



- 10. Insert the pushrod tubes into the rocker arm covers and the crankcase as shown in the photo. They should protrude **inside** the Radial about 3/32" at each end of each piece. Don't worry about gluing them yet.



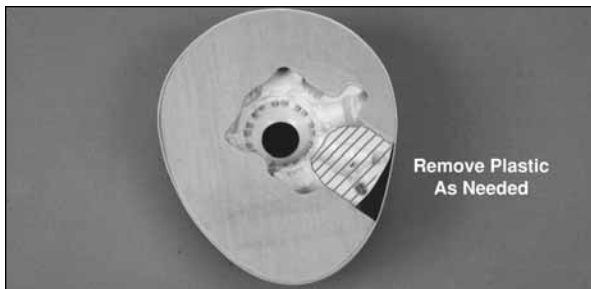
- 11. Insert the ignition leads into the cylinders.

NOTE: Bend the wires over the top of each cylinder so that they touch the backing. They will be installed in the baffle later.



- 12. Turn the Radial over and apply a drop of CA to both ends of all push rod tubes and ignition leads.

- 13. Glue the Radial to the ply baffle with 6-minute epoxy. Be sure to align the "removed cylinder" with the opening in the baffle. **Hint:** Roughen the back surface of the Radial with 100-grit sandpaper for a better bond.



14. Tape the Radial assembly inside the cowl. Make final adjustments to the fit between the cutouts and the engine. By working from the *inside* it's possible to remove material from the Radial without affecting the pushrod tubes and ignition leads. Pay special attention to provide **unrestricted throttle and needle valve movement**.

15. When satisfied with the fit, smooth all rough edges with fine sandpaper. Then paint the Radial (if not already done).

PAINTING SUGGESTIONS

We painted our prototype Radial with Testors Model Enamel paint, then sprayed two light top-coats of satin finish epoxy over the finished job. This finish withstands fuel and normal wear and tear quite well.

If you are building a scale replica of a particular aircraft, paint the Radial in similar colors to the full scale version. The colors we chose represent typical P&W colors with *chrome plated* pushrod tubes.

PAINTING SEQUENCE AND COLORS USED

Top Flite LustreKote™ (Aerosol)
1. Entire Exterior – Gray Primer

Testors Model Master Enamel (Brushed on)
2. Crankcase – Gunship Gray
3. Cylinders – Euro Gray
4. Background – Light Gray or Flat Black
5. Pushrod Tubes – Silver
6. Ignition Leads – Red
7. Rocker Arm Covers – Black
8. "Spark Plug" Connectors – Gold or Copper
9. Cylinder Fins and Weathering – Silver & Black
Random Fine Lines On The Fins
10. Engine I.D. Plate – Black with Silver details

11. Epoxy Satin Finish Clear Coat (Test clear coat to make sure it is compatible with the Testors Enamel.)

PARTS LIST		
Qty.	Description	Part No.
1	ABS Plastic Radial	RADIAL08
5	8" Plastic Push Rod Tubes	PLTB025
1	16" Wire for Ignition Leads	WIRES58
1	Instruction Sheet	RADIALP08

Baffle Template

The cutout in this baffle is sized to fit a typical .60-size 2-stroke engine.

