Ryan STA EP Glow Conversion

The Great Planes Ryan STA EP flies great as an electric. But, if you would like to convert your Ryan to glow power, it is simple and easy. The following is a list of hardware required to convert the electric Ryan STA to glow.

(1) Throttle Servo (Micro Precision)
(1) 4 oz. Fuel Tank (GPMQ4101)
(1) 3' Medium Fuel Tubing (GPMQ4131)
(1) Throttle Pushrod
(1) Engine Mount .20-.48 (GPMG1041)
(1) 6-32 Blind Nut Bolt Set (GPMQ3508)
(4) # 6 Washer (GPMQ3404)
(4) #4 x 5/8" Sheet Metal Screw (GPMQ3156)
Engine: .26 4-stroke or .10 to .15 2-stroke

New Wood Parts

The only new wood parts required are forward and aft firewalls and a throttle servo tray. The templates are provided on page 3 of this supplement and the parts should be cut from 1/8" lite plywood. We cut the templates out leaving a 1/4" border around the part. We spray 3M Super 77 adhesive on the back of the template and stick it on the plywood. Do not remove the template from the firewall. It will be used to align the engine mount.

Assembly

Page 21, step 9: Replace former F1A, that is included in the kit, with the one you cut from the template.

Page 25, step 6: Replace former F1B, that is included in the kit, with the one you cut from the template.

Page 25, step 12: After shaping the fuselage, use epoxy to glue the firewall to the front of formers F1A and F1B. Make sure the side with "forward" marked on it is facing forward. Do not remove the template from the front of the firewall until after the engine mount has been installed.

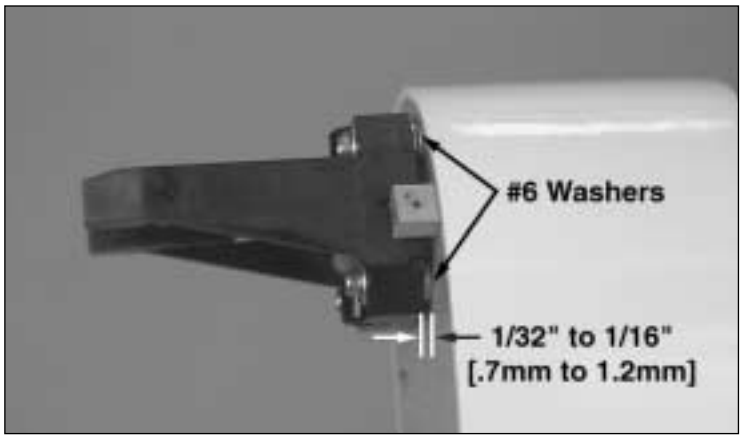
Page 27, *Build the Motor Mount:* Skip this section and install the engine mount as explained next.

Install The Engine Mount

❏ 1. At the locations shown on the template, drill four 5/32" holes through the firewall and formers F1A and F1B for the engine mount blind nuts. **Note:** If you will be using an engine mount other than the Great Planes engine mount, use the centerlines on the template to align your engine mount on the firewall. Drill 5/32" holes at the appropriate locations. Note that the engine mount is offset to the left side to compensate for right thrust.

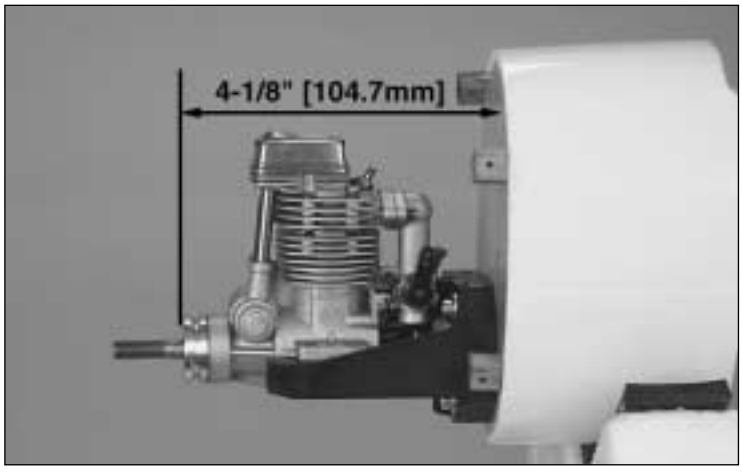
❏ 2. From inside the fuselage, press the four 6-32 blind nuts into the holes. Use a 6-32 x 1" socket head cap screw and #6 washer to pull the blind nuts into the firewall. Apply a few drops of thin CA around each blind nut to secure them in position. Avoid getting CA on the threads of the blind nut.

❏ 3. Cut the "spreader bar" from the Great Planes engine mount and trim off any flashing. Slide the two halves together. Make sure they do not bind.



❏ 4. Temporarily mount the engine mount to the firewall with four 6-32 x 1" socket head cap screws and #6 washers. To angle the engine mount to the right, to provide right thrust, use enough #6 washers on the 6-32 x 1" socket head cap screws, behind the left side of the engine mount, to produce the required 2° right thrust. The left side of the engine mount must be spaced out from the firewall 1/32" to 1/16" (.7mm to 1.2mm).

❏ 5. Place your engine on the engine mount and adjust the mount until the engine fits between the mounting rails. When the engine mount is adjusted, tighten the mounting screws.



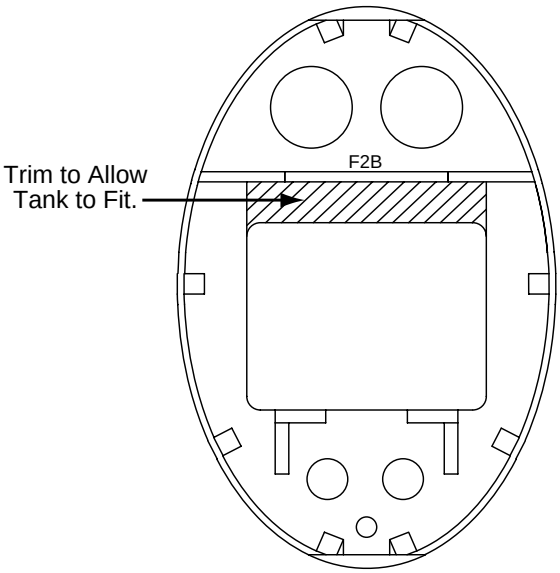
❏ 6. Position the engine on the engine mount with the front of the engine drive washer 4-1/8" (104.7mm) from the front of the firewall. Carefully mark the engine mounting holes on the rails. A great tool for marking the engine mounting holes is the **Great Planes Dead Center™ Engine Mount Hole Locator**. With the engine positioned on the mounting rails, insert the self-centering cone in the mounting hole. Twist the shaft and the drill bit inside will mark the spot with a small starter hole.

❑ 7. Remove the engine from the engine mount. Drill a 3/32" (2.4mm) diameter hole at each mark. If you have access to a drill press, it is the best tool for the job. We recommend to remove the engine mount from the fuselage to drill the holes. However, if you are using a hand held electric drill, try to keep the drill bit perpendicular to the rails.

❑ 8. Install the engine on the engine mount with four #4 x 5/8" sheet metal screws. **Hint:** The sheet metal screw will be easier to install if you wipe the threads across a bar of soap before installing them.

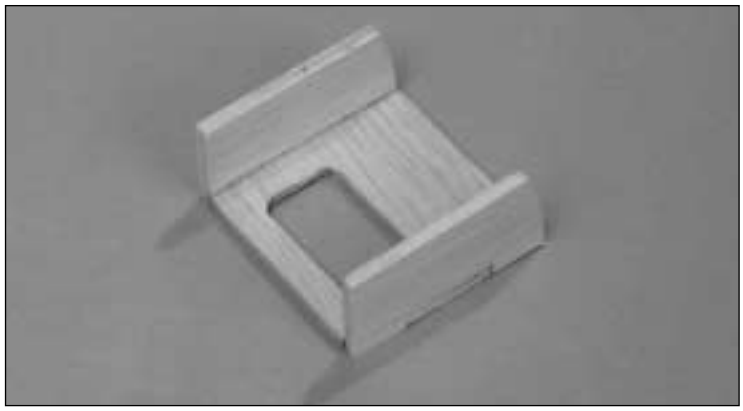
❑ 9. Mark the location for the throttle pushrod exit, fuel pick up line and fuel tank pressure line. The best location for the fuel line to exit through the firewall is through the middle of the engine mount.

❑ 10. Drill an appropriate size hole through the firewall for the throttle pushrod and a 1/4" hole for the fuel and pressure line.



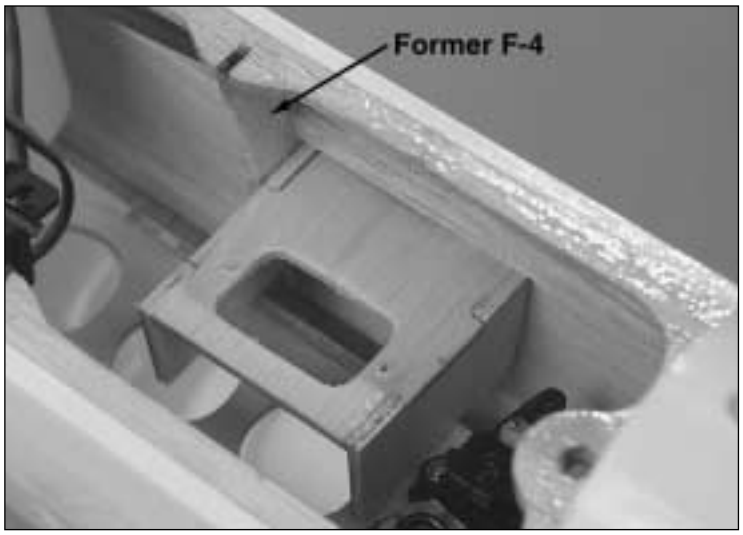
❑ 11. Assemble the fuel tank and install fuel line on the pick-up and pressure fittings on the tank. Check the fit of the tank in the fuselage. You may need to trim former F2 to allow the tank to pass through. We recommend that foam rubber be used around the fuel tank, to prevent fuel foaming.

Continue With Mount the Wing on the Fuselage



Page 32, step 1:

❑ 1. Assemble the throttle servo tray by gluing the two plywood sides perpendicular to the tray.



❑ 2. Glue the throttle servo tray to the top of the battery tray, the fuselage sides and the back of former F4.

❑ 3. Install the throttle servo in the throttle servo tray using the hardware provided with the servo.

❑ 4. Route the throttle pushrod to the throttle servo. You may need to install a brace to support the aft end of the pushrod.

❑ 5. Continue with page 32, step 1 installation of the elevator and rudder servo.

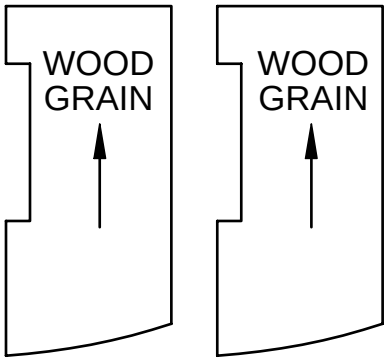
Page 33, skip step 1 through 3: Install the receiver, receiver battery and on/off switch in the fuselage. Plug the servo leads into the receiver and continue with the radio installation. **Don't forget** to setup the throttle control. Because of the vibration caused by the glow engine, we recommend that the receiver and receiver battery be wrapped in 1/4" (6.4mm) foam.

Page 37, step 3 ***Assemble The Cowl:*** Use a sharp hobby knife and Curved-tip Canopy Scissors to accurately trim the openings in the front of the cowl and the air scoops. Also, trim openings for the muffler, needle valve, glow plug and cooling air exit in the bottom of the cowl.

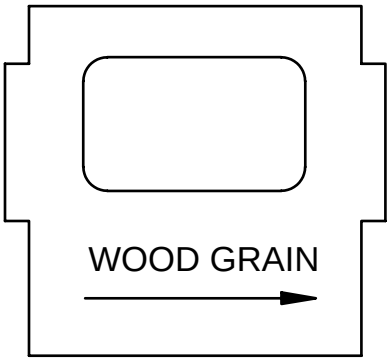
Page 40, ***Painting Your Model:*** After covering the Ryan, use fuel proof paint or epoxy thinned with denatured alcohol to fuel proof the firewall and any other area that will be exposed to fuel and exhaust.

Follow the instructions to finish assembling and adjusting the throws and checking the C.G.

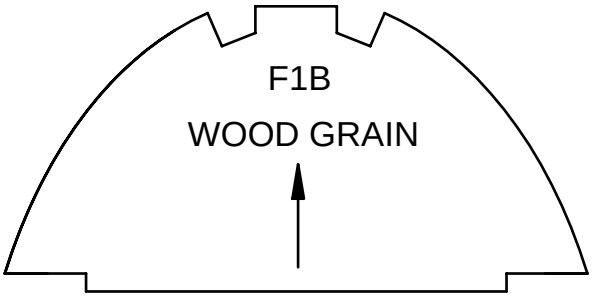
SERVO TRAY SIDES



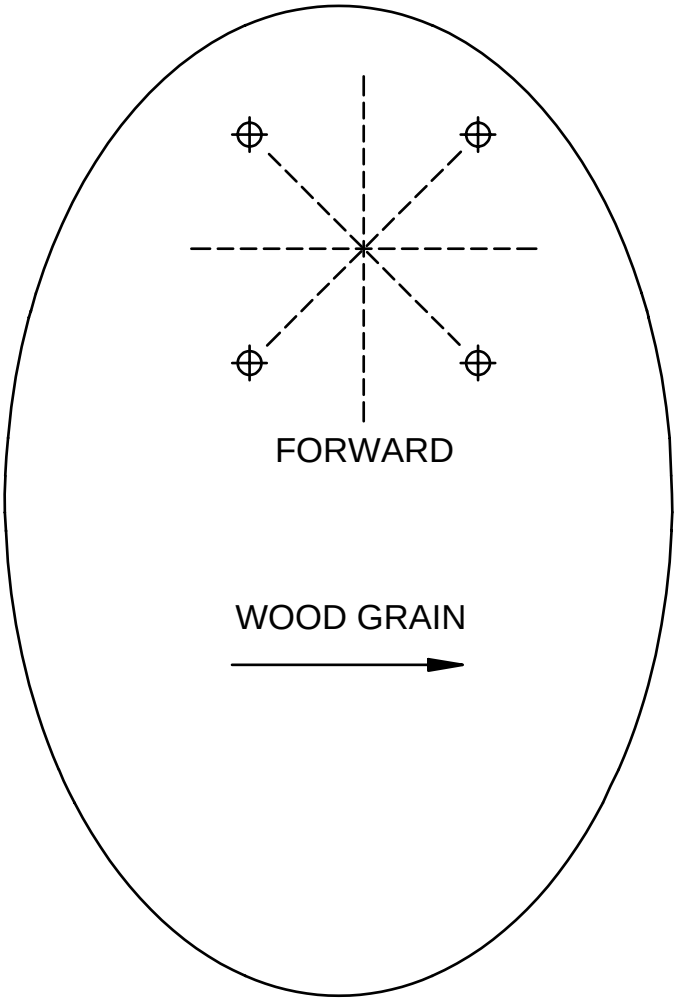
SERVO TRAY



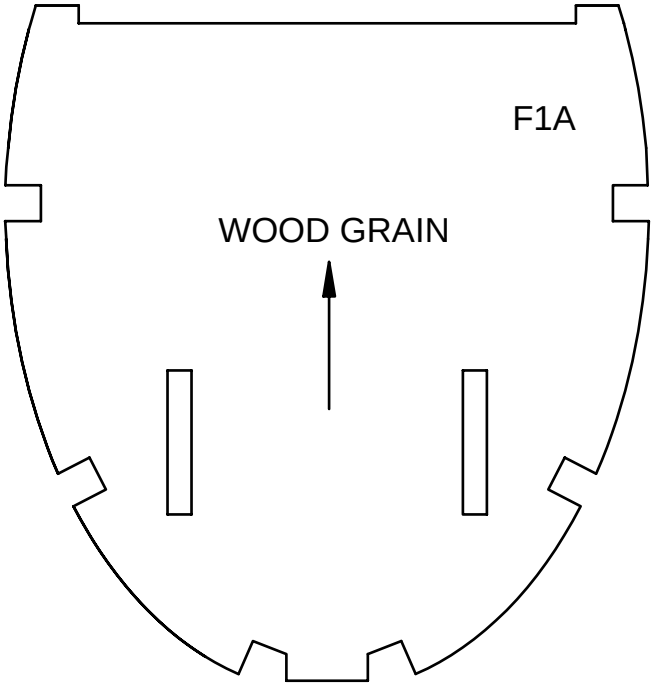
F1B



FIREWALL



F1A



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