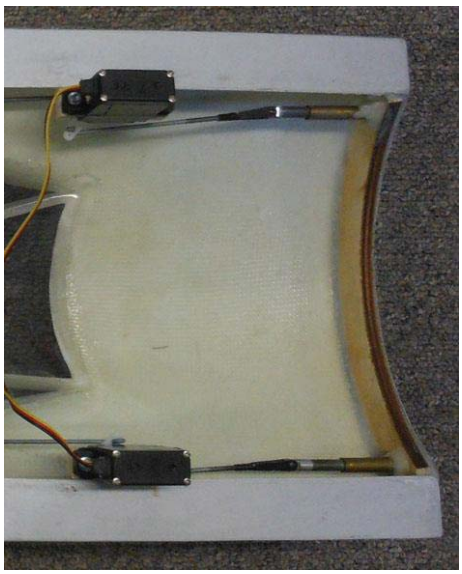
# P-47 Instructions
# Ver. 2

Install cockpit hatch

Make 2, 2-56 pushrods approx. 14.625” long (rear)
Make 2, 2-56 pushrods approx. 3.375” long (front)
Glue two servo mounts together to make one. Repeat for other side.
Mount servo so that both pins retract equally. The prototype used HiTec HS-85MG servos. Repeat for other side.
Install pushrod support midway on long pushrod.
A slight amount of grease will help the pins engage in the receiver.

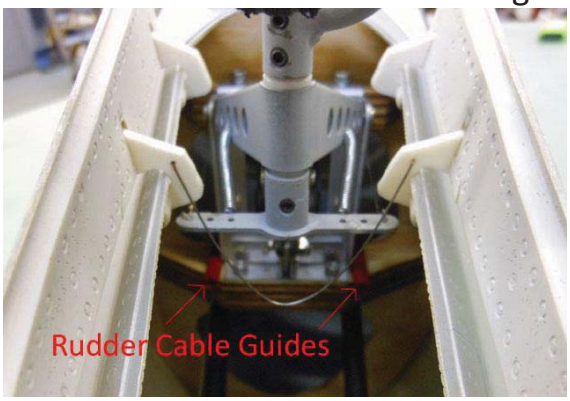


Before installing the Fuselage servo tray, determine if pneumatic or electric retracts are to be used. If using pneumatic retracts, an opening is provided under the servo tray to mount the Robart air tank. If using electric retracts, determine servo / controller location and install servo tray.

Attach horizontal stabilizer / elevator using slow setting epoxy and provided carbon fiber tubes. It is recommended that the carbon fiber tubes be glued into one stab /elev. and allowed to cure, then install stab / elev. / tube assembly into the fuselage and glue on the other stab / elev. half. Take care to allow equal lengths of tube in both horizontal stabilizers.

Assemble elevator pushrods using provided carbon fiber shafts and inserts. The finished pushrod should be approx. 47" long from pin to pin. Try to use similar lengths of 4-40 wire on each end of pushrod. Pushrod guide holes are provided in fuselage bulkheads.

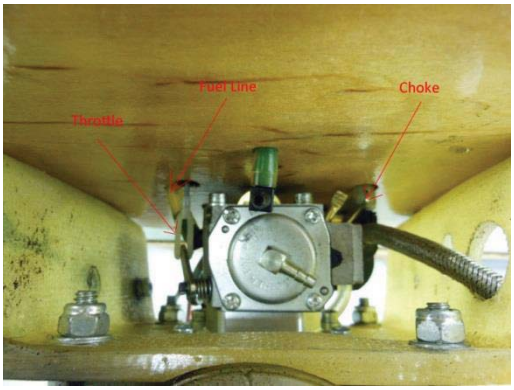
Install the Robart retractable tail wheel with four #6x3/4" Phillips head wood screws and hinge tail wheel doors with provided hinges. The tail wheel doors are pulled closed by a .025" music wire bow that is attached to a hinge on each side.

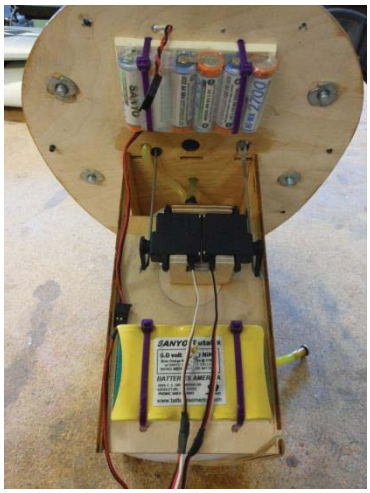
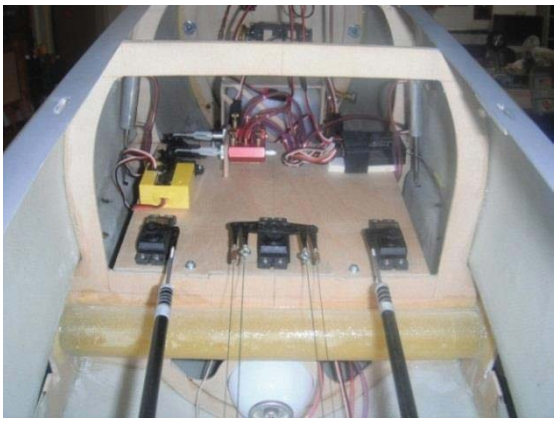



Prepare rudder by hinging it temporarily by inserting the white plastic tube from the bottom and marking for pull – pull eyelets. The pull–pull screw eyes should align with the fairing on the fuselage lower hinge gap cover. A small Robart round carbide cutter will make an appropriate dimple to allow the eyelet to be screwed in nearly flush with the surface of the rudder. The rudder will have to be relieved as in the picture to allow clearance for the lower rudder hinge and for the elevator pushrods. The cables are connected directly to the eyes and swedged in place. It is recommended that a cable guide be installed on each side of the retractable tail wheel for the rudder cables. There are holes in the fuselage bulkhead for the rudder and tail wheel cables. The upper holes are for the rudder cables and the lower holes are for the tail wheel steering cables.

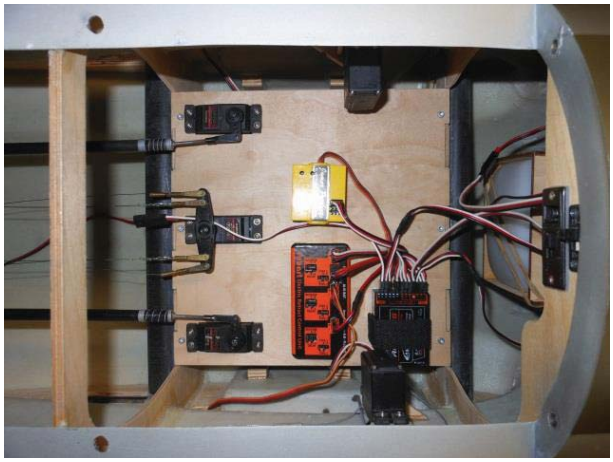
The firewall to fuselage mounting holes are pre-drilled but must be opened up. The firewall ring in the fuselage should be drilled to allow the 8-32 blind nuts to be pressed in from the rear. The firewall holes should be drilled out to accept an 8-32 socket head cap screw. Four of the firewall mounting screws are also used to attach the engine cowl.

If using the Evolution 80 engine, the appropriate mounting, pushrod, and fuel line holes are indicated on the back of the firewall.
The motor mount is attached to the firewall with four ¼-20x3/4" hex head bolts, blind nuts and flat washers. The Evolution 80 is attached to the motor mount with four ¼-20x1-1/4" hex head bolts, flat washers, and ny-lock nuts.
After all necessary holes are drilled in the firewall, assemble and install fuel tank box. You may want to shorten the top front of the box to allow easier access to the fuel tank fittings. It is recommended that the front of the firewall be fuel proofed using Pacer Finishing Resin (PT-40). A DuBro 32oz. fuel tank was used on the prototype.





Bottom view of Evo 80 carb

The layout of the servo tray has the two elevator servos toward the outside and the rudder / tail wheel servo in the middle, there are also two holes to accommodate two small servos to operate Robart retract valves for pneumatic gear. The servo tray may be permanently glued in place or made removable by securing it to the mounting rails with wood screws.



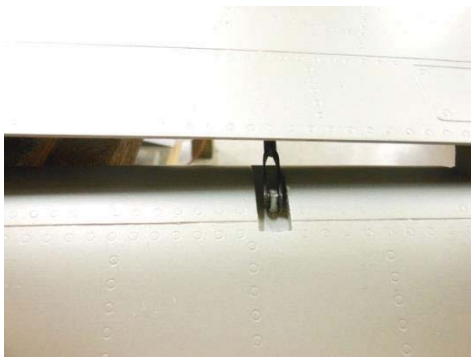
1

2

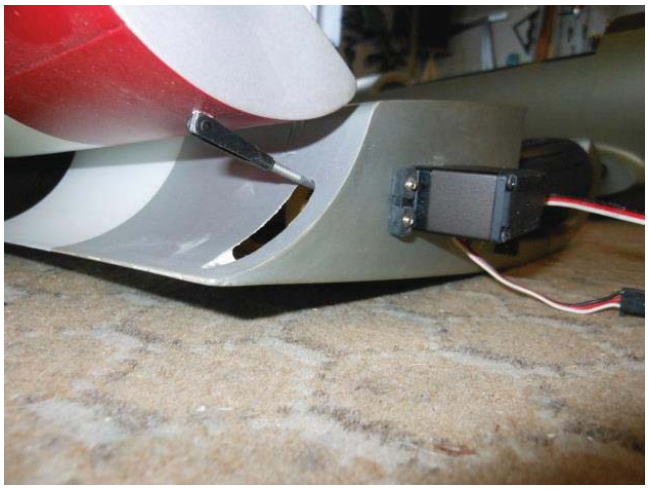
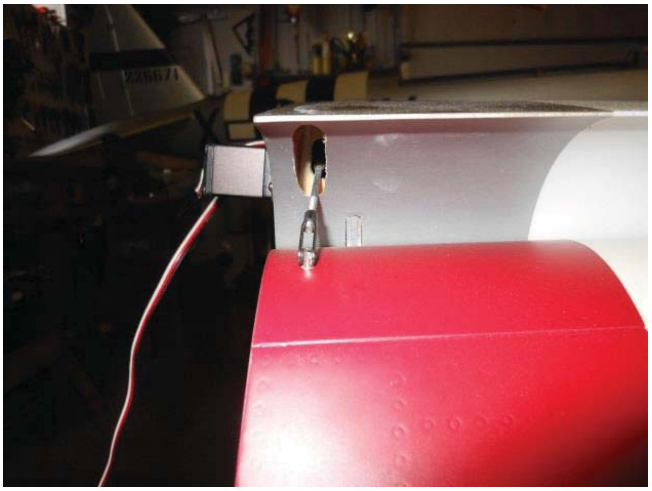
Picture 1 shows the Robart electric retract installation using the EMS gear door sequencer. The servos mounted vertically on the fuselage sides are the inner gear door servos.
Picture 2 shows the Robart Pneumatic retract installation using #165 air cylinders to operate the inner gear doors.

The aileron servo is a close fit into the wing. The servo mounting area and the servo hatch opening may have to be enlarged slightly. Make sure to leave enough of a ledge to attach the servo hatch cover.



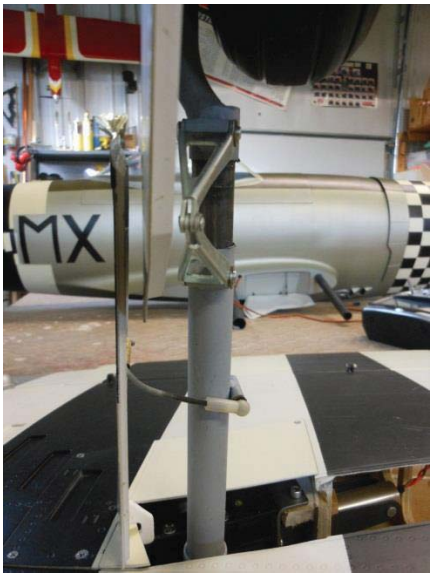


The flap servo attaches to the wing root. A pushrod opening is required in the flap hinge area and the wood inside the wing may have to be relieved to clear the pushrod. The flap control horn is approx. .43” from the flap root and 1” forward of the panel line that is scribed on the top of the flap.

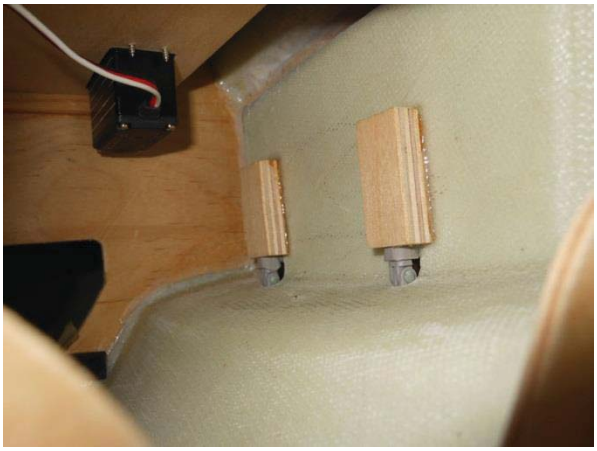



Futaba S9155 digital servo.

The Robart main retract installation. Some shimming may be required to achieve the proper installed height and angle of retraction. Some early kits require shims under the retract mounting flanges to prevent the retract mechanism from contacting the upper wing skin. Shims are supplied.

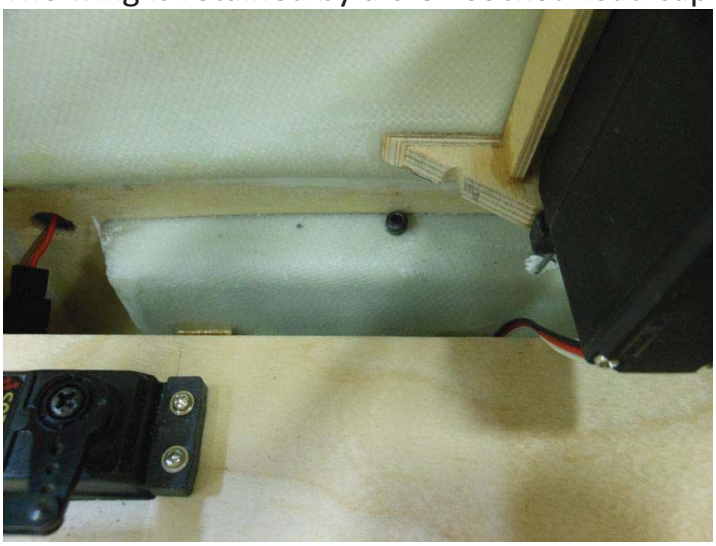




The strut door is hinged as shown with the supplied hinge. The actuator is made from a 2-56 threaded pushrod and a DuBro ball link and a short piece of brass tubing. The wheel cover door is glued to the lower strut with ZAP Goo while the gear is retracted.



The inner gear doors are hinged using Robart 3/16” hinge points and hinge pockets so that the doors are removable. The control horn is made from a cut off servo arm that is glued into the door.

The wing is retained by a 6-32 socket head cap screw.

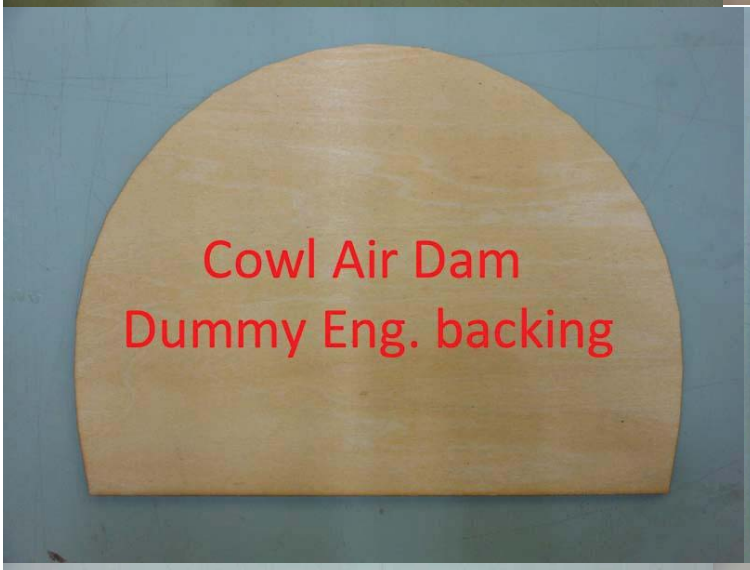


Center of Gravity: 5 ½” aft of wing leading edge at the wing root.

Control deflections:
Aileron - ¾” up & down
Elev. - 1-1/4” up & down
Rudder - 2” left & right
Flap - 45 deg.


Air Tank Ring

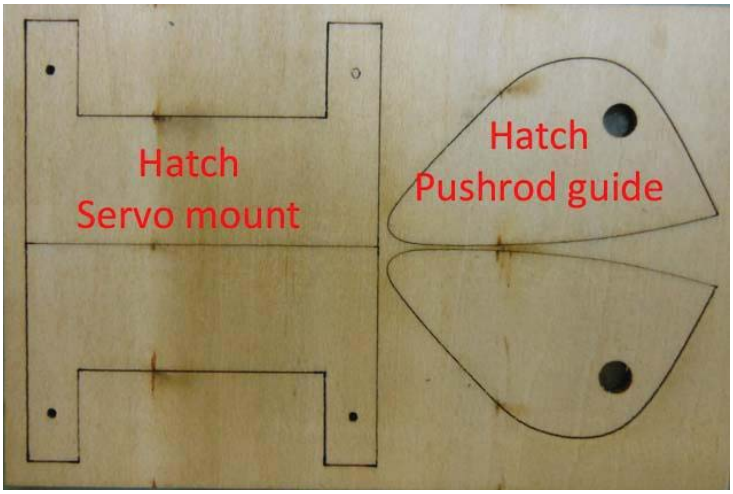

Air Valve Mount


Cowl Air Dam
Dummy Eng. backing


Evo 80 / Bisson Muffler
Cowl opening
Template


Throttle - Choke
servo mount


Retract Mounting
Spacers


Hatch
Servo mount
Hatch
Pushrod guide

| PARTS BREAKDOWN - HARDWARE | QUANITY |
|---|---|
| **1048F** | **2** |
| Wing attach, 6-32x.375” SHCS | 2 |
| **1058F** | **16** |
| Aileron Hatch L&R, #2x5/16”FHSMS | 8 |
| Retract Cover L&R, #2x5/16”FHSMS | 8 |
| **1115F** | **2** |
| Wing attach, 6-32 blind nut | 2 |
| **1128F** | **7** |
| Cowl Mount, 8-32x.75”,SHCS | 4 |
| Firewall Mount, 8-32x.75”, SHCS | 3 |
| **1129F** | **7** |
| Firewall/Cowl Mount, Blind Nut, 8-32 | 7 |
| **1131F** | **7** |
| Firewall/Cowl Mount washer,#8 | 7 |
| **1204F** | **16** |
| Retract Mount L&R, #6x.75” PHWS | 2 |
| Retract Mount L&R, #6x.75” SHWS | 10 |
| Tailwheel Mount, #6x.75” SHWS | 4 |
| **1205F** | **8** |
| Servo Tray Mount, #4 SHWS | 8 |
| **1206F** | **12** |
| Aileron/Flap Hinge Pin, 2-56x.375”PHCS | 12 |
| **1207F** | **2** |
| Rudder Pull-Pull, #2 Screw Eye | 2 |
| **1053F** | **12** |
| Aileron/Flap Hinge 2-56 Nylock Nut | 12 |
| **RP47801M** | **4** |
| Elev. PR inserts | 4 |
| **RP47803M** | **4** |
| Canopy Hatch Lock Pin | 4 |
| **RP47802M** | **4** |
| Aileron Servo Mount | 4 |
| **RP47804M** | **4** |
| Aileron Control Horn | 2 |
| Flap Control Horn | 2 |
| **309025A** | **4** |
| Lg. Hinge | 4 |
| **317001M** | **4** |
| Lg. Hinge Pocket | 4 |
| **350010P** | **6** |
| Gear Door Hinge | 6 |
| **Grand Total** | **121** |