DA-85 CONVERSION MANUAL

Pitts PYTHON

Before starting the DA-85 Conversion on your QQ Pitts Python model, you'll need to decide which type of exhaust system to use.

EXHAUST CHOICES

Slimline Pitts Style Muffler #2185
MTW- TD110 Canister
Greeves Pipe

PARTS LIST

MTW- Flex Type Header 25mm drop-off
MTW- 28mm Clamps & Teflon Couplers
24 oz Du-Bro fuel tank (optional)
DA-1.5" Stand-offs
4- 2.5" 1/4x20 engine bolts
4- 1/4x20 Blind Nuts
1- 12" 2/56 Threaded Choke Rod
1- 1/32 Birch Plywood 6"x12"
Fiberglass cloth and resin
Epoxy
CA
Blue Loctite

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1. Begin by removing blind nuts from firewall. Before we can plug holes with 3/8” dowel rod, we need to drill each hole using a 3/8” drill bit.

2. Cut four 3/8” diameter dowels 3/8” long. Using epoxy or wood glue, coat the inside of each hole before inserting dowel rods.

3. In this step we will measure and drill new holes for the DA-85. The DA-85 bolt pattern height is the same as the DA-100, all we’re changing is the width (80mm center to center). Measure .40 from the center of each dowel outward and draw a vertical line at those four locations. Find center of each dowel and drawn a horizontal line from side to side intersecting vertical lines. Now drill a 1/8” pilot hole at each of these four points before drilling a 3/8” diameter hole. **FIG 1**

4. Using DA’s 1.5” stand-offs, install blind nuts into the firewall as shown. **FIG 2** We used large diameter 1/4x20 blind nuts on our conversion, they can be purchased from Lowe’s or Home Depot stores. I have noticed some of these blind nuts have a 3/8” long shank which when compressed they can protrude through the front of the firewall as much as 1/16”. This protrusion is OK as long as you ream into the backside of each stand-off about 1/8” deep, using a 3/8” drill bit. **FIG 3**

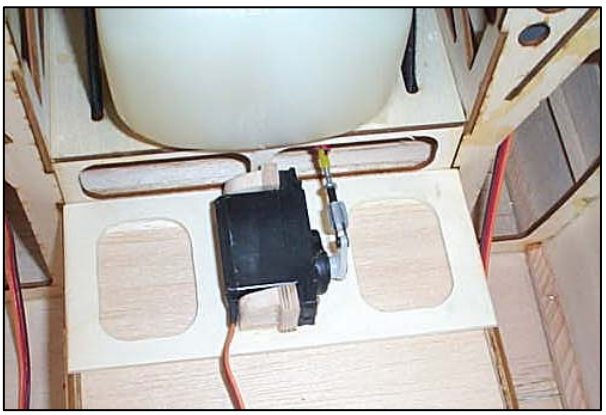
5. Using a Dremel with sanding drum, remove material from firewall to allow clearance for the throttle arm & push rod and choke arm. See **FIG 2**. We have positioned our throttle servo on a 1/8” plywood plate so that it’s inline with the throttle arm located on the engine. This will allow for smooth throttle transitions because pushrod is perfectly straight and not in a bind. **FIG 4** Throttle mount can be installed after fuel tank is installed in step 14

Figure 1

Figure 2

Figure 3

Figure 4



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6. Before mounting engine, Measure down 30mm from lower firewall tab down towards 1/8" angled firewall brace and place a mark as shown, this is the location where we stopped removing material from the bottom of the firewall and sides. **FIG 5** Mount engine and sand plywood sides so they match the muffler radius, see **FIG 6** Note: If you plan to install a header, you need to remove material from the left side only.
7. Remove engine and rotate model upside down. Remove Balsa sheeting from bottom side of 1/8" plywood firewall support and replace it with 1/16" plywood. Start fiberglass back where the old servo mount is, continue it forward over plywood and fold it over the front of firewall one inch. We will refer back to this photo later when we are ready to drill fuel line holes, choke rod hole and fuel spray drain hole.

Figure 5

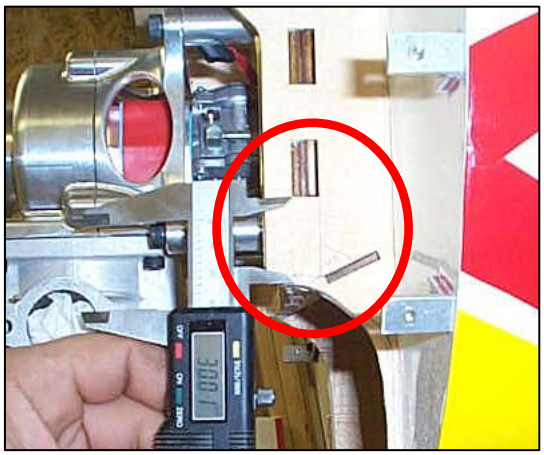


Figure 6

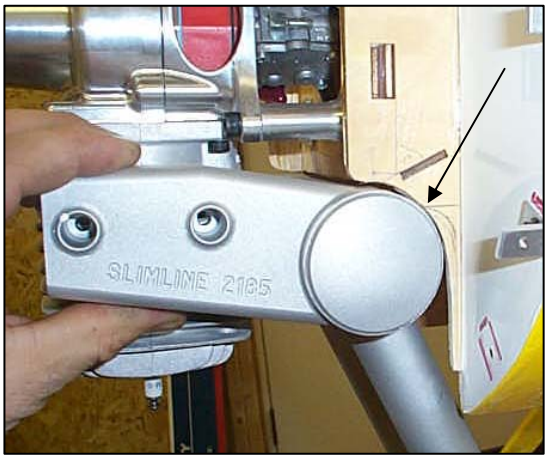
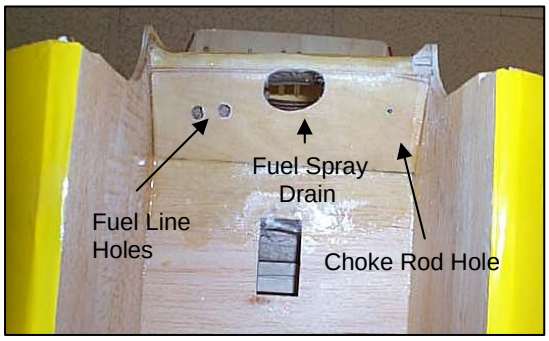
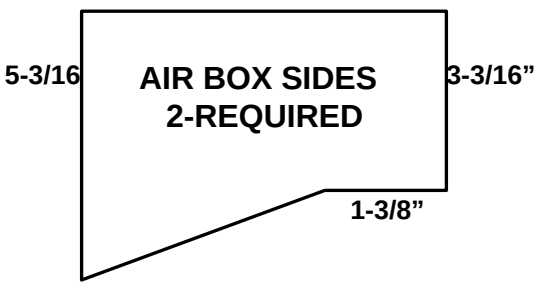
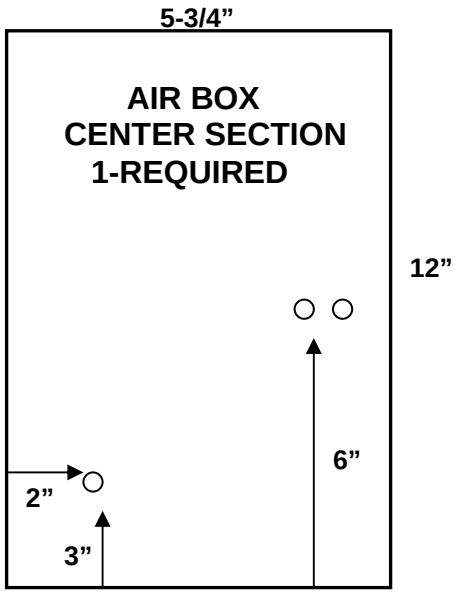


Figure 7



8. Using 1/32" ply-wood, cut the following three parts. When parts are cut, begin measuring the locations of three 5/16 holes as shown on the air box center section. Fuel line holes are located about 1" off the right hand side and 6" up from bottom edge as shown. The last remaining hole is for the throttle push rod housing hole which is located 2" from the left side and 3" up from the bottom. Adjust the diameter of each hole to fit your size fuel tubing and push rod housing. To test fit sides and center section, slide parts in through fuel tank area. The air box side should fit neatly onto each side of the engine box area, adjust if necessary.





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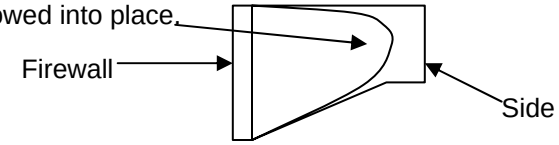
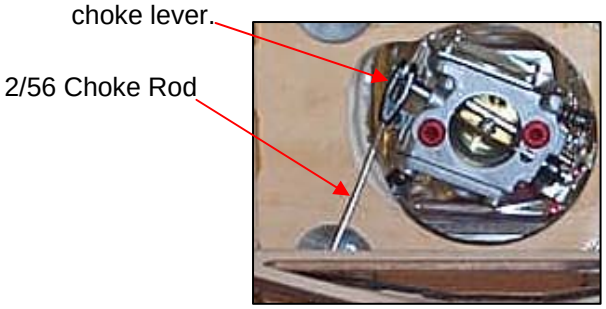
9. With sides in place, slide bottom edge of center section in until it rest firmly in place touching bottom of firewall. Bend top edge of center section forward so that it rest firmly against the top of firewall. Here is a small side view of firewall, side and center section bowed into place.



10. **FIG 8** shows the back side of the bowed center section.
11. Using the throttle hole placed in the center section as a drill guide, drill a hole into the balsa formers and temporarily install the throttle push rod housing. **FIG 9**
12. Remove push rod housing, center section and sides from fuselage. Using epoxy or CA, glue sides in place. Use finishing resin and seal the backside of firewall and the two air box sides completely. Seal center section and install before sides have time to cure.
13. Rotate model upside down and Dremel a ¾ x 1-1/2" slot just behind firewall as shown previously in **FIG 7**, this slot will allow any fuel spray to escape air box. Drill two fuel line exit holes and one choke rod hole at this time.
14. Install throttle push rod housing. With fuel tank assembled route fuel lines through center section holes. Vent line can now be routed out through bottom of air box. Place a tee on fuel supply line, run one side through bottom of air box and the remaining line will go to carburetor when engine is installed. Install Throttle Servo mount now. **FIG 4**
15. Unscrew and flip choke level as shown in **FIG 10**, attach plastic clevis of your choice to choke lever.



16. Install 2.5" bolts and 1.5" stand-offs to engine, be sure to use blue loctite on threads. Place small amount of epoxy to the bottom of each stand-off. Tighten all four bolts. Attach fuel supply line to carburetor inlet and secure with zip-tie or wire clamp.
17. Insert a 2/56 push rod into choke clevis from bottom side of air box (as seen above in step 15)

Figure 8

Figure 9

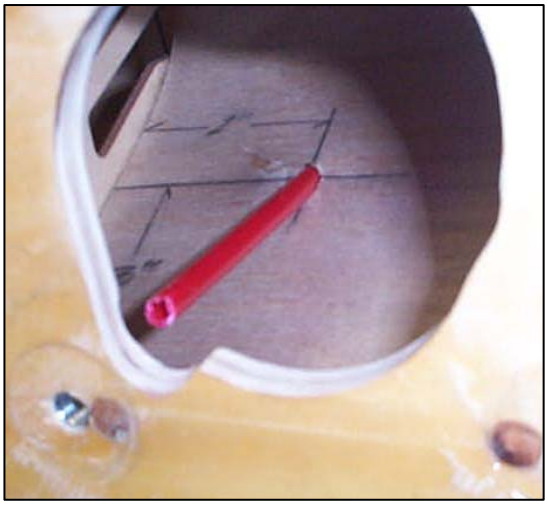


Figure 10

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27. Leave the area between the lower wings uncovered so wing bolts can be reached.
28. Using a Dremel, cut lower cowling to fit around the Pitts Style muffler. **FIG 15** Notice just behind the down pipes we have installed the ignition switch and choke rod.
29. Using a Dremel tool remove shaded area from cowling to allow proper airflow over the head of your DA-85 engine. **FIG 16**

Figure 16

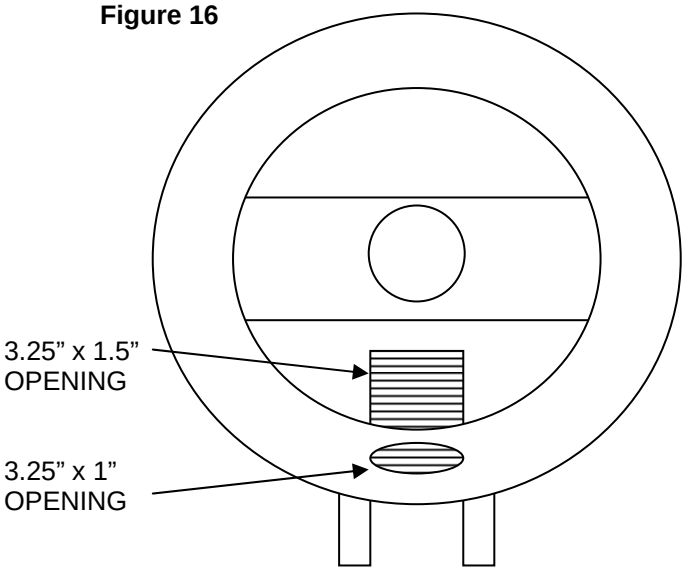

Figure 14

Figure 15

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17. We will make an ignition mount using 1/8 plywood a shown here.

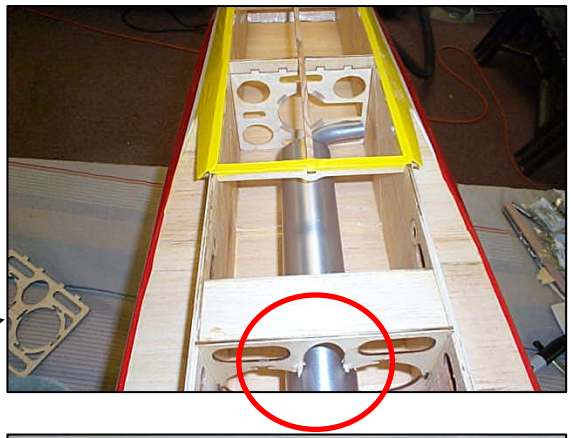
18. Attach mount to the right side as shown using epoxy. When cured place Velcro strap around ignition. Drill small hole between ignition and bulkhead, place zip-tie as shown. Ignition battery pack will mount in the same location as stated in manual and shown in photo, secure using double sided tape and Velcro strap. **FIG 11**
19. Now we are ready to install Slimline Pitts Style muffler to engine. Apply a small amount of red high temperature silicone on the exhaust port, let sit for a minute while placing blue loctite on muffler bolt threads. Tightening muffler bolts and attach vibration strap from engine to muffler.
20. A Canister style exhaust system will fit in your model as shown here.

21. If you plan to use this style exhaust system or Tuned Pipe you will need to prepare header by cutting 1" off the end. Place silicone on exhaust port before installing header to engine. **FIG 12**
22. Remove covering from exhaust cavity and remove balsa deflection plate.
23. Remove material from the center of plywood tuned pipe support that was installed from the factory (red circle) **FIG 13**.
24. Locate the 1/8" plywood rear tuned pipe support that came with your ARF, use it as a template to make a new support for single tuned pipe (as shown lower right photo). Install in place using CA or epoxy. **FIG 13**
25. Attach header to Canister or Tuned Pipe using a Teflon coupler and clamps.
26. Depending on your color scheme, cover bottom of model using appropriate color. As you can see here our model is covered to accept the Greeves tuned pipe and we currently are running the Slimline pitts style muffler which can be seen in the following page. **FIG 14**

Figure 11

Figure 12

Figure 13



Tuned Pipe Mount