

9. Fuel System Final Installation

LS-1

Section Objective: Correct installation of the fuel system components.

Required Parts: 1/4" rubber fuel line, fuel line hose clamps, fire-sleeve, Facet electric fuel pump, gascolator, firewall fuel fitting, delrin fuel Y, fuel valves, fuel filters, brass finger filters, 3 brass 1/4npt to 1/4" barbed elbow, 1 brass 1/8npt to 1/4" barbed elbow, 1/4npt to 1/4" brass straight, 1/8"npt to 1/4" brass straight, 1/4" plug, 1/8" plug,

Required Hardware: Loctite 567 or permatex #2 gasket sealer, zip ties, 1/4" clear pvc tube(left over static line), 2 of 3/16" stainless rivets, 4 of AN3-4A, 2 of AN3-7A, 6 AN363-1032 lock nuts, 6 of AN960-3 washers

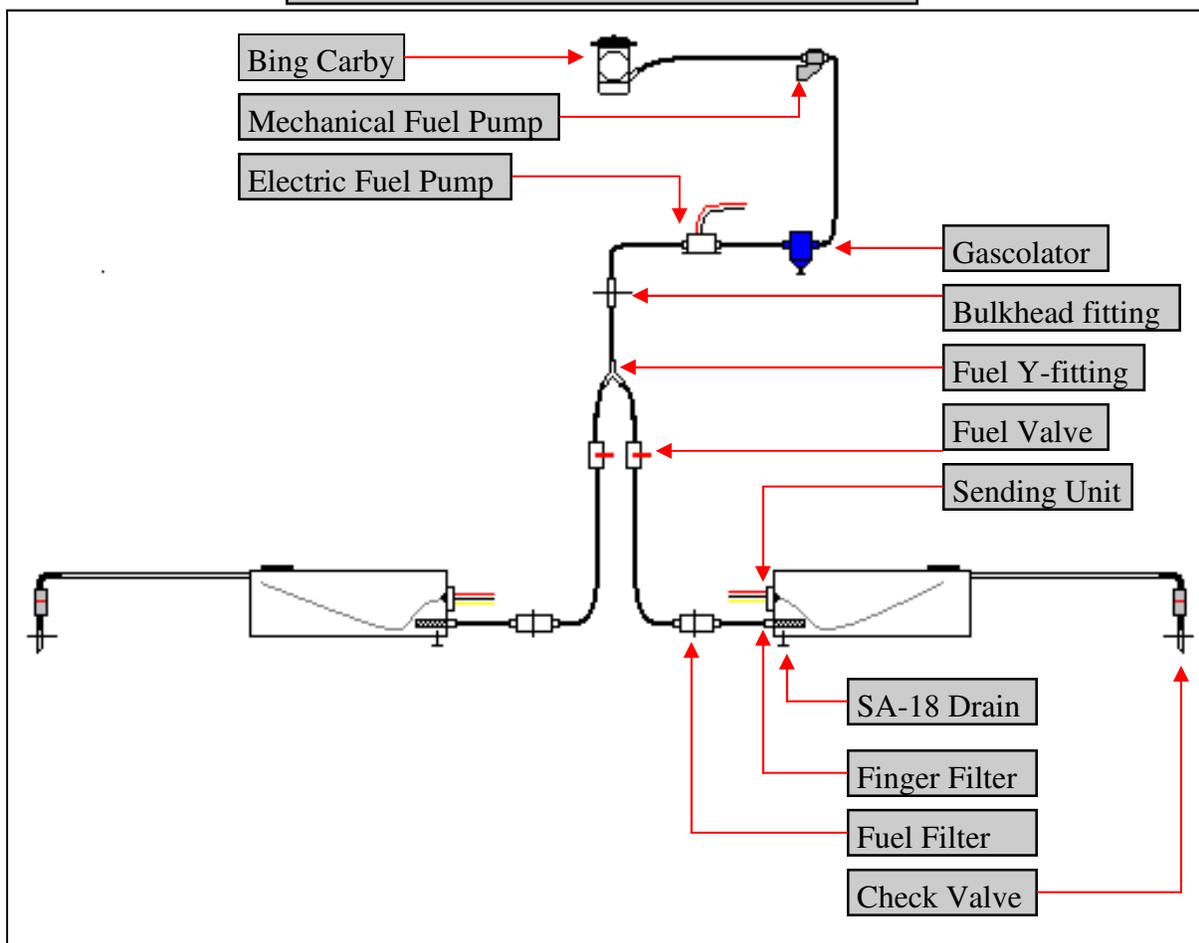
Required Tools: Various wrenches, Various sockets, Drill bit set, Screwdrivers, diagonal cutters,

Required Conditions: N/A

Required Skills or Training: Ability to read simple CAD drawings, use of hand tools.

1. Use the diagram below as a guide to installing the basic components of the fuel system.
2. Everything shown below is either included in the kit or comes with the Jabiru engine.
3. If installing any optional components such as fuel flow, or other equipment in-lieu of components already provided. Follow that manufactures installation instructions.

Lightning basic fuel system schematic

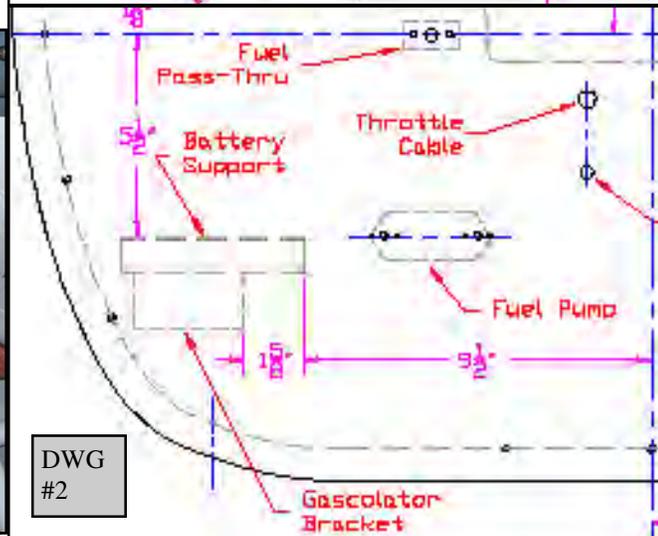
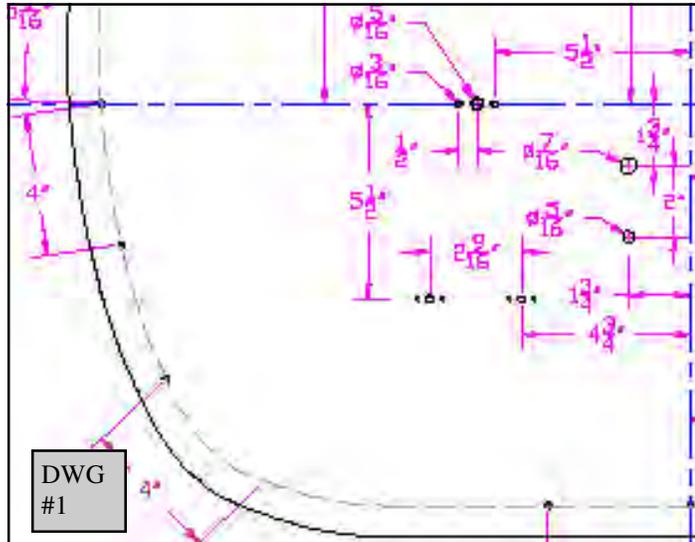


Date
Completed

9. Fuel System Final Installation

LS-1

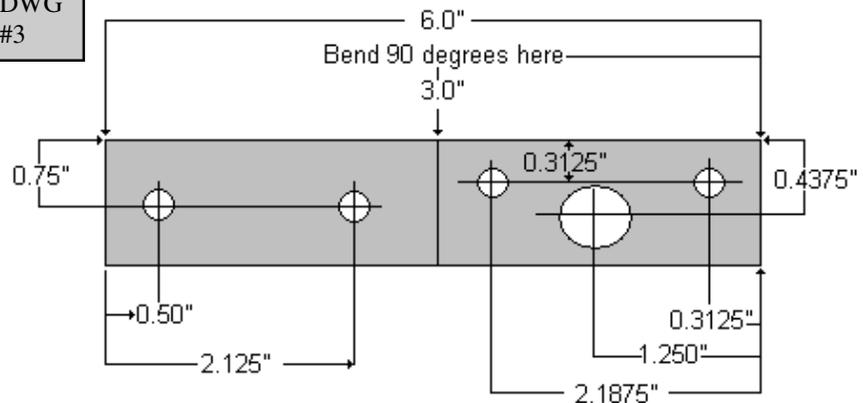
1. The CAD drawings to the right are cut down from the full-size drawings available in section 30 of the build manual. These are to show the specific locations the fuel system components.
2. Use drawing #1 to locate the holes in the firewall if you have not already.
3. Use drawing #2 to locate the position of the gascolator bracket.
4. The holes drilled for the fuel pump can be drilled to 3/16" and a AN bolt used to hold the fuel pump in place. However it is our recommendation that a builder install #10 nut plates here to allow the removal of the fuel pump if it fails.
5. Use drawing #3 to fabricate a bracket to mount the gascolator to the fire-wall.



Gascolator Mounting Bracket



DWG #3



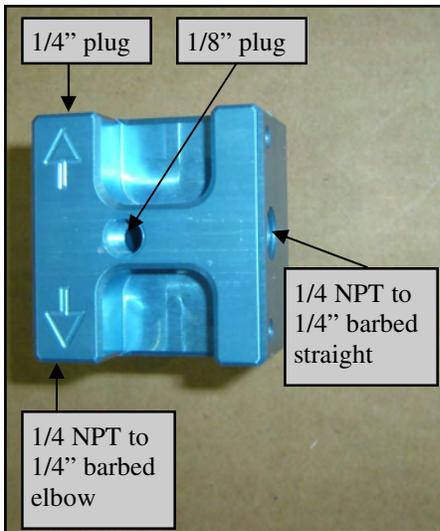
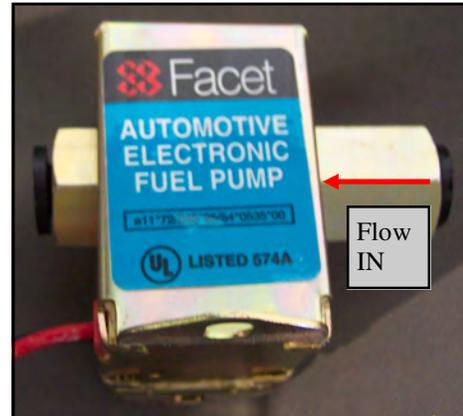
Material: 0.080 6061T6 aluminum
6.0" by 1.50" bar
stock

Date
Completed

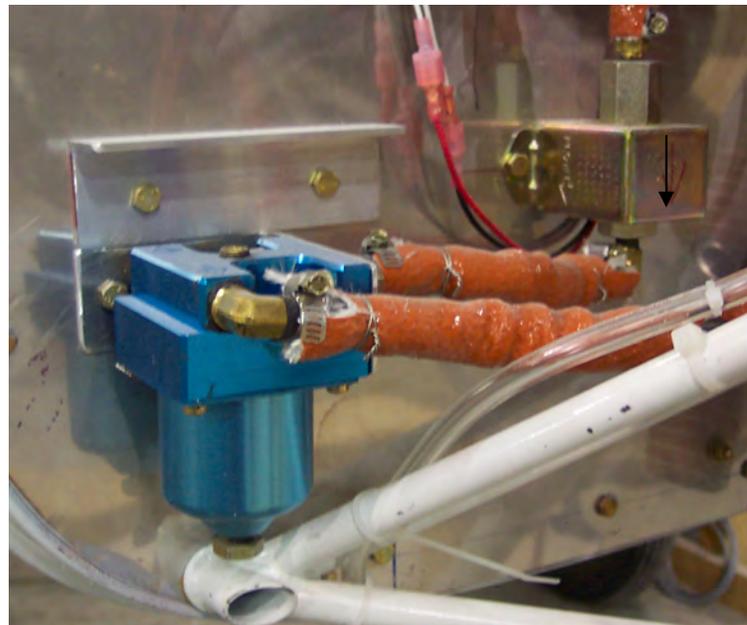
9. Fuel System Final Installation

LS-1

6. Locate the fuel pass-thru bulk head fitting. Note in the picture that the side stick out in to the engine compartment must point down.
7. Drill the mounting holes in the fitting out to 3/16".
8. Put some red RTV on the part of the fitting which contacts the firewall, this will seal the holes.
9. Rivet the fitting to the firewall with 3/16" stainless rivets.
10. Locate the Facet electric fuel pump.
11. Note that the case has a direction of flow arrow stamp on the case. The picture shows which end the fuel must go into to for clarity.
12. Lightly coat the threads of a 1/8" Npt to 1/4" brass barbed fitting with locite 567.
13. Install this into the long boss on the fuel pump.
14. The long boss will be oriented up.
15. With that in mind, the shorter lower boss will get a brass elbow installed.
16. Lightly coat the threads of a 1/8" npt to 1/4" brass barbed elbow.
17. Install this into the short boss on the pump so that it point to the out side of the firewall or co-pilots side of the plane.
18. If opting to bolt the fuel pump in place do so with AN3-4A bolts and AN363-1032 heat nuts on the back side.
19. If you installed nut plates, install the pump with AN3-3A bolts and locite on the threads.
20. Next bolt the gascolator bracket you fabricated earlier to the firewall position specified with AN3-4As an AN363-1032 heat nuts.
21. Locate the blue anodized gascolator.
22. Use the photos to install the correct plugs and fittings into the correct positions. Lightly coat the threads of each fitting with locite 567.
23. Bolt the gascolator to the firewall bracket with AN3-7As and AN363-1032 heat nuts.
24. Install 1/4" fuel line from the firewall bulkhead fitting to the pump, the pump to the gascolator, than from the gascolator up to the mechanical fuel pump. Cover each length of fire sleeve, and safety wire the end closed lightly. Make sure to install fuel line hose clamps at each joint to hold the line to the barbed fitting.



Front of Aircraft



Date
Completed

9. Fuel System Final Installation

LS-1

- 25. Locate the 3/8 NPT brass finger filter. Lightly coat the threads with loctite 567.
- 26. Install the finger filter into the lower aluminum boss in the fuel tank.
- 27. Locate a 1/4 NPT to 1/4" barbed brass elbow. Lightly coat the threads with loctite 567.
- 28. Thread the elbow into the finger filter until tight. The fitting also must point straight back from the spar.
- 29. Put a 18" piece of 1/4" fuel line on the brass elbow. Tighten down the fuel line hose clamp.
- 30. Repeat for the other side.
- 31. Under each wing is an airfoil shaped bumped. Inside the bump is an aluminum boss for a wing tank sump.
- 32. Locate the SA-18 safeair drain valves. Lightly coat the threads with loctite 567.
- 33. Install the drain in to this boss.
- 34. Repeat for the other side.

Note: The fuel center console was made earlier in section 4. Photos 1 shows the panel you made with the optional fuel valve. Photo 1 shows the standards valves.

- 35. If installing the supplied valves make sure to fit the delrin fuel Y between the valves and the firewall. Normally a 6" length of hose from each valve into the Y is sufficient than a length of your choice to the firewall bulkhead fitting, keep in mind shorter is better but not stretched.
- 36. Install fuel line hose clamps at each joint.
- 37. From which ever valve you choose install 24" length of 1/4" fuel line to the right valve or right portion of the selector, use hose clamps to secure the line to the fitting.
- 38. Route this to under the right seat near the spar box. Do so in such a way as to not inter-fear with other moving components or sharp edges and turns.
- 39. Install a 18" piece of 1/4" fuel line to the left valve or left port on the selector. Secure any joints with the proper fuel line hose clamp.
- 40. Route this to under the pilot side seat near the spar.
- 41. Once the wings have been installed for the final time than the fuel system can be finished
- 42. Install a 1/4" inline fuel filter under each occupant seat between the fuel lines from the wing to the valves. Secure all connections with the proper sixe hose clamps.
- 43. Keep the filter in place by using a clear piece of hose and a zip tie to make a stand off.

