

Mustang Aeronautics Inc.

1470 Temple City Troy, MI 48084
(248) 649-6818
FAX (248) 649-0098
www.MustangAero.com

M-II Center Section Aux. Fuel Tank Installation

The following is a recommended installation procedure for the 6 gallon center section auxiliary tanks on the Mustang II.

These tanks were designed to have 1/4" clearance fit with the center section top and bottom skins. They are also short enough in the chordwise direction to install or remove them from the end of the center section without removing the rib attach angles. They will fit with the folding wing option as well if care is taken that proper clearance with the catch tongue ramp is maintained. The catch assembly can be moved slightly forward if necessary. Closed cell rubber pad strips should be used around the tanks to wedge them in place. These are now included with the tanks. If a large single pad is used it will be difficult to get the tank in place since the large surface area will not squash down easily. Remember when the tanks are filled the weight will tend to pull the top skin down if there is insufficient support under the tanks.

Trial fit the tanks with the aileron push rods in place to determine the proper location for the tanks. In new installations fitting the tank first and then the aileron pushrod will help to avoid clearance problems. The side with the fuel outlet fitting in the middle is intended to be the outboard side of the tank. This is not mandatory or critical but provides easier access to the fitting. The fitting should be roughly in the center of the rib lightening hole. Mark and cut the filler neck holes in the top skin using a hole saw or punch.

The tanks can be secured in place by drilling and tapping the filler neck flange. Use 8 #6-32 machine screws per filler neck. If flat head screws are to be installed in place of truss head screws use 100° flat heads MS24693 / AN507. Dimple the skins and countersink the filler neck flange. It has been reinforced on the inside. A square rubber pad is included with the tanks. This should have a hole cut in the center to fit around the filler cap, sealing the tank to the skin.

A clearance hole should be cut in the bottom skin for the quick drain.

Threaded pipe fittings for tank vents and fuel pick up are installed. We recommend pumping the fuel from the center section tanks to the main header tank. On the newer header tanks a 3/8" pipe fitting is installed in the upper right corner. On older tanks a 1/4" fitting is used. A new fitting can be installed on the tank without removal if necessary. A fitting welded to a square plate can be blind riveted and sealed with proseal to the aft side of the tank.

Use 3/8" soft aluminum tubing for the fuel lines. The tubing can be run between the wing attach fittings and through the leading edge. The lines should come together at a "T" fitting (AN824-6D) and then go through the fuel pump. A solid state Facet fuel pump is light weight and works well for transferring fuel.. Facet p/n 40108 with the 3/8" flare tube fittings is included in the hardware kit. Using one Facet pump will take about 30 minutes to pump 11 gallons. A check valve included in the hardware kit is used between the pump and tank to prevent fuel from feeding back to the center section tanks.

The vent line fitting on the tank is located on the top inboard side. The 1/4" line should run across the tank to the outboard side and then down through the bottom skin. This will prevent fuel from going out the vent line during turns.

Fuel and vent lines need to be properly supported to prevent fatigue failure. Also ensure that they do not contact the skin or other parts where they could chafe.

The tanks are not made with sending units. They are auxiliary tanks that pump into the header tank and not directly to the engine. A timer is typically used to monitor the fuel transfer and a panel mounted light to indicate that the transfer pump is on.

Do a careful weight and balance for your aircraft! The CG for the tanks is about station 86.2, depending on installation. The lighter the empty weight of the airplane the more it will be affected by the aft CG of these tanks. With most Mustangs ***it is possible to get an aft CG situation with these center section tanks.*** Check for a condition with full baggage, 2 people, full center section tanks, and a less than full header tank. Determine how empty the header tank can be before the aft CG is reached and placard the airplane.

Hardware Requirement

19ft 3/8" aluminum tube (3003 or 5052) for fuel lines
7ft 1/4" aluminum tube (3003 or 5052) for vent lines
2 Curtis quick drains 1/8" pipe

fuel outlet fittings and header tank inlet:

3 MS20822-6-6D 3/8" pipe to 3/8" flare tube elbow
{replace 1 of these with MS20822-6D if 1/4" header inlet}
3ea AN818-6D, MS20819-6D coupling nuts & sleeves

tank vent fitting:

2 MS20822-4D 1/8" pipe to 1/4" tube elbow
2ea AN818-4D, MS20819-4D coupling nuts & sleeves

"T" fitting:

1 AN824-6D 3/8" flare tube "T"
3ea AN818-6D, MS20819-6D coupling nuts & sleeves

pump:

1 Facet fuel pump 40108
2ea AN818-6D, MS20819-6D coupling nuts & sleeves

check valve:

1 Wicks CV-3/8
2ea AN818-6D, MS20819-6D coupling nuts & sleeves

tank installation pads:

4pcs 5/16"x1.25"x 6ft rubber strips

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