Walbro Fuel Pump Installation

Dickinson Part #20-000 12 volt Standard Pump > 6 Ft Lift

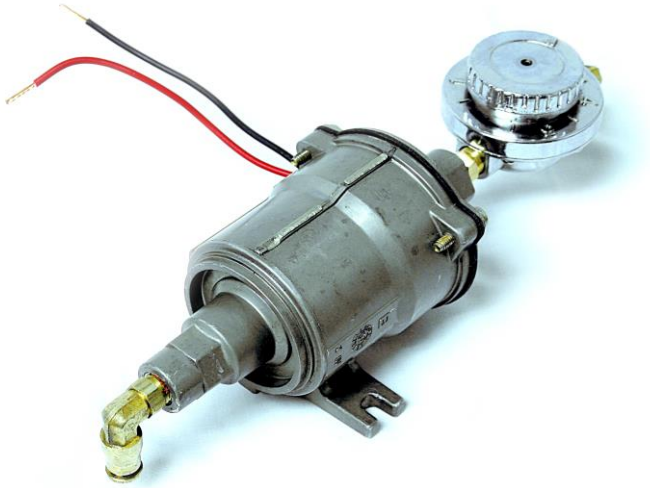
Dickinson Part #20-002 12 volt HD Pump & Regulator + 6 Ft Lift

Dickinson Part #20-002A 24/32 volt HD Pump & Regulator + 6 Ft Lift

PART# 20-000 – 12 volt

PART# 20-002 – 12 volt

PART# 20-002A – 24 to 32 volt



■ Walbro fuel pumps

When installing a Walbro fuel pump it must be mounted approximately at the level of the valve on the heater/stove. These pumps can "pull" fuel but have trouble "pushing" fuel so fuel must be gravity fed from the pump to the heater/stove. The lift and the climate will then indicate if you need the standard pump (part#20-000) or the heavy duty pump (part#20-002). It is highly recommend that the heavy duty pump be used for all installations so you have the option of adjusting the pressure if needed.

■ Standard Pump #20-000

The standard pump, Walbro's FRD-2 part# 20-000, is a 12v DC pump with a pressure of 3psi. It is for a standard installation where the climate is fair and the run from the fuel supply to the pump is less then approx. 6ft vertical and 15ft horizontal.

■ Heavy Duty Pump #20-002 (Recommended)

The heavy duty pump, Walbro's FRD-4 part# 20-002, is 12v DC pump with a factory retrofitted pressure spring and an adjustable pressure regulator installed for heater/stove installations in colder climates or where the run from the fuel supply to the pump is more then approx. 6ft vertical and 15ft horizontal. This pressure regulator will allow you to increase or decrease the pressure to the oil metering valve.

Note:

- If using the heavy duty fuel pump part# 20-002, the adjustable pressure regulator attached has a thread size of 1/8" NPT. It is soft die cast aluminum so use caution not to cross-thread or overtighten the fittings when connecting them.
- The numbered settings on the regulator dial are for reference only and do not indicate Psi. This is because a specific installation and climate will influence the pressure of each setting.

■ Pump Installation Guidelines

The pump should be included in a control circuit with a 2 amp fuse. NOTE: If the power to the pump is shut off, the fuel can still flow through to the pump by way of siphon.

The pumps can be installed with fuel inlets and outlets pointing up or down, however mounting the pump with the fuel inlet on top will give the pump extra pressure and makes it easier to clean. The pump will need to be primed before first use to remove air in the fuel line.

There are 3 check valves in the pump to prevent the back flow of fuel. These enable the pump to stay primed. If the pump does not stay primed then 1 of the 3 check valves in the pump is stuck and needs to be cleaned. To avoid this happening, make sure you prime your pump according to the directions before first use and have a fuel filter installed in line between the fuel tank and the pump.

The pump should be installed in a ventilated area and not near a heat source such as a hot exhaust. Connect the ground wire (black) to a negative battery terminal.

This pump is recommended for diesel only!

■ Priming the Pump

To prime the pump, pump fuel into a container/bucket to remove all the air in the fuel lines. After you have set/adjusted the regulator allow 1 cup (240ml/8oz) worth of fuel be pumped, then turn off the pump and reconnect the fuel line to the valve.

If no fuel is reaching the pump and/or there is air trapped in the fuel line the pump will likely begin to pump rapidly and vibrate. If this happens turn the power to the pump off and check to make sure the fuel line is receiving fuel and that no air locks are present in the line.

Once the valve is filled with fuel and pressure has been reached, the fuel pump will still continue to tick, although less frequently. As the fuel/oil level drops in the valve, the pump will tick more frequently for a few seconds to

refill the valve. To lessen the noise of the pump pulsing, a backing can be cut from a rubber sheet and installed between the pump and the surface it's mounted on.

■ Setting and Adjusting the Regulator on the Heavy Duty Pump

- Disconnect the fuel line at the valve on the stove/heater and position the line over a container to catch fuel flow.

- With the pump on, allow it to push any air out of the fuel line until you see fuel flowing into your bucket/container. When priming the heavy duty pump hold down the knob of the pressure regulator to prime the fuel lines and remove any air.

- Set the regulator to its lowest setting. Observe the flow of fuel. Adjust the regulator setting on the knob until there is a constant flow of fuel pouring into the bucket.

■ Walbro FRD-2 Fuel Pump Pressure Upgrade

If you find you are not getting fuel to the FRD-2 standard pump you may need to upgrade your pump to a stronger pressure.

To upgrade a Walbro FRD-2 (part#20-000) to a Heavy Duty pump FRD-4 (part#20-002) a factory spring (part #FRD4-SPRING) & regulator (part #20-003) must be installed. Please contact Dickinson Marine to order a stronger spring & regulator: info@dickinsonmarine.com

■ Upgrading your fuel pump

Once you have received a stronger spring and regulator from Dickinson, you can upgrade your pump to a higher pressure.

- Disconnect all fuel lines and wires attached to the pump.

- Unscrew the 3 torx screws (t-20). With the 3 screws removed twist the lid in a circular motion to loosen it. Pull up on the lid to remove it - a gasket should come off with the lid – if not peel the gasket free and press it back into place on the underside of the lid.
  Note: the pump plunger, spring, check valve, and a very small amount of fuel will drop out of the pump if it has been installed as per the diagram found on the last page.

- Replace the old spring that comes out with the new Heavy Duty spring and reassemble the pumps inside components in the order shown on the diagram found on the last page.

- Place the Fuel inlet check valve on top of the replacement spring with its spring and cone pointing upwards.

- Seat the spring onto the non- magnetic end of the pump plunger - touch the spring to each end of the plunger to determine which is non-magnetic.

- Carefully insert the assembled parts back into the pump from below, check valve first. Push the assembled parts into the pump as far5 as they will go and hold them in place with a finger until you can flip the pump upside-down to reattach the lid – **It is important to keep the pump upright until the components are inserted all the way in or the check valve can slip sideways inside the shaft.**

- With the pump now sitting with its inlet downwards, reattach the top of the pump (*Note, if the red O-ring has dropped out, press it back into place in the inside center of the top of the pump. It will seat inside the main shaft when the pump is reassembled*) Once the top is back in place rotate top and gasket to line up the screw holes and replace the torx screws.

- Attach the new regulator (part #20-003) to the pump outlet.

■ Re-priming the upgraded Pump

Now that your standard pump is upgraded to a heavy duty pump it must be primed again. When priming the heavy duty pump hold down the knob of the pressure regulator to prime the fuel lines and remove any air. Then turn the dial to the lowest setting on the regulator and increase the pressure one increment at a time until the pump is delivering a constant flow.

**Note: The settings on the pressure regulator do not represent the actual pressure the heavy duty pump is set to (6-9 psi). The numbers represent the variable range of the pump. The dial can be adjusted from the lowest pressure setting (1) up to highest pressure (5) Higher settings are for cold climates & winter weather which thicken diesel fuel, or in case the pump is required to pull more than 4' vertically and/or more than 15 horizontally.

Walbro Fuel Pump
(exploded)