



VoluMAX FUEL PUMPS P/N 12-705-1 and 12-706-1
FUEL PRESSURE REGULATORS P/N 12-704 and 12-707
Installation Instructions

WARNING! THESE INSTRUCTIONS MUST BE READ AND FULLY UNDERSTOOD BEFORE BEGINNING INSTALLATION. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN POOR PERFORMANCE, VEHICLE DAMAGE, PERSONAL INJURY, OR DEATH. IF THESE INSTRUCTIONS ARE NOT FULLY UNDERSTOOD, INSTALLATION SHOULD NOT BE ATTEMPTED. PLEASE CONSULT HOLLEY TECH SERVICE OR A QUALIFIED MECHANIC.

APPLICATIONS:

P/N	DESCRIPTION	FLOWS	PRESSURE REGULATOR	ALCOHOL/METHANOL COMPATIBLE	PRESET PRESSURE	SAFETY SWITCH SHUT-OFF
12-705-1	Billet Aluminum Pump. Two 1/2" Inlets, One 1/2" Outlet	160 GPH at 15 PSI	12-704 (1x4) 12-707 (2x4)	Yes	15 PSI	Recommended (P/N 12-810)
12-706-1	Billet Aluminum Pump. Two 1/2" Inlets, One 1/2" Outlet	250 GPH at 15 PSI	12-704 (1x4) 12-707 (2x4)	Yes	15 PSI	Recommended (P/N 12-810)

P/N	DESCRIPTION	PRESSURE RANGE	INLET/OUTLET SIZE	RESTRICTION
12-704	Fuel Regulator (1x4). Lightweight die cast aluminum components	4-1/2 to 9 PSI Factory set at 6 PSI	One 1/2" NPT Inlet and Two 1/2" NPT Outlet Ports	.437" (7/16")
12-707	Fuel Regulator (2x4). Teflon hard coat anodized billet aluminum body and cast aluminum top cover	4-1/2 to 9 PSI Factory set at 6 PSI	One 1/2" NPT Inlet, Six 1/2" NPT Outlet Ports. Two 1/8" NPT fuel Gauge Ports	.437" (7/16")

INTRODUCTION:

Congratulations on your purchase of the **VoluMAX fuel pump**. This instruction sheet contains all the information needed to install this fuel system. Please read all the **WARNINGS** and **NOTES**. They contain valuable information that can save you time and money. Holley Performance Products cannot and will not be responsible for any alleged or actual engine or other damage, or other conditions resulting from misapplication of the **VoluMAX** fuel pumps and fuel pressure regulators described herein. However, it is our intent to provide the best possible products for our customer; products that perform properly and satisfy your expectations. Should you need information or parts assistance, please contact our Technical Service Dept. at 1-270-781-9741, Monday through Friday, 7 a.m. to 5 p.m. Central Time. Please have the part number of the product you purchased when you call.

NOTE: A fuel pressure regulator, top quality fuel filter at 70 micron or less, fuel hose and clamps, 14 gauge wire, fuel fittings, assorted terminals, and an optional safety shut-off switch is required to complete the installation of the **VoluMAX** fuel pump. These parts are not included with the **VoluMAX** fuel pump.

NOTE: The **VoluMAX** fuel pumps require the use of a fuel pressure regulator. Holley P/N 12-704 is designed for a 1 x 4 setup and the 12-707 is designed for a 2 x 4 setup. Choose the correct fuel pressure regulator for your intended use.

NOTE: The **VoluMAX** fuel pump P/N 12-706-1 is intended for race only applications and not for continuous running on the street.

PUMP MOUNTING AND INSTALLATION:

The best location for mounting any electric fuel pump is the rear of the vehicle, near the fuel tank and in a position that will allow the fuel to be gravity fed to the pump. The pump should be mounted on a solid member, such as the chassis, in a vertical position with the pump motor on top. Avoid exposure of the pump and fuel lines to moving parts and to any hot areas, such as the exhaust manifold. The pump should not be mounted in an enclosed area, such as the vehicle's trunk. Follow the steps below for mounting the pump.

WARNING! THE PUMP MUST BE LOCATED, SO THAT INTERFERENCE BETWEEN THE VEHICLE'S BODY AND ITS CHASSIS MOVEMENT IS AVOIDED. THE PUMP AND ITS CONNECTING HOSES MUST NOT BE SUBJECTED TO LOW GROUND CLEARANCE, WHERE ANY FLYING ROCKS OR ROAD DEBRIS CAN CAUSE DAMAGE. FAILURE TO AVOID THESE HAZARDS WILL LEAD TO PUMP DAMAGE, WHICH COULD RESULT IN FIRE AND/OR PROPERTY DAMAGE, SERIOUS INJURY, AND/OR DEATH.

1. Select a mounting site as close as possible to the fuel supply and away from possible sources of heat as detailed previously.
2. Use the mounting bracket attached to the pump as a template and drill two clearance holes for 5/16" bolts.

3. Mount the pump in the vertical position (motor on top) using two 5/16 bolts.

NOTE: To ensure pump life and flow efficiency, a quality fuel filter, such as Holley P/N 162-515 must be installed between the tank and each pump inlet. The filter should be supported in such a manner that it does not hang from the fuel lines.

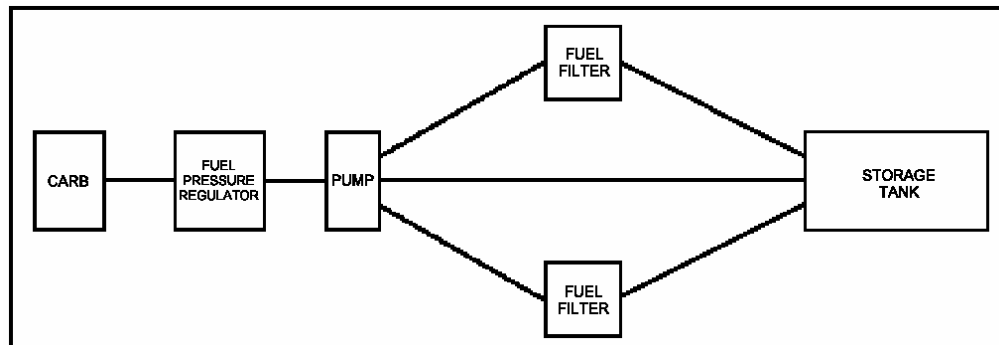
WARNING! THE VoluMAX FUEL PUMP MUST BE FED WITH TWO FUEL INLET LINES. FAILURE TO USE TWO INLET LINES TO THE FUEL PUMP WILL RESULT IN PREMATURE PUMP FAILURE AND WILL VOID THE WARRANTY. SEE FIGURE 1 FOR CORRECT FUEL LINE ROUTING AND INSTALLATION.

4. Connect the fuel line(s) from the tank to each fuel filter and then to each inlet port of the pump. The fuel pump must be fed by two fuel inlet lines. Connect the carburetor delivery line to the outlet port of the pump and to the regulator located near the carburetor inlet. See Figure 1. The fuel pump inlet and outlet ports take a 1/2" NPT fitting, therefore a 1/2" fuel line is recommended.
5. The return port on the pump should be connected to a line running back to the tank. The return port on the pump is 3/8" NPT, therefore a 3/8" return line is recommended. A return line to the fuel tank is mandatory.

NOTE: Avoid unnecessary restrictions, such as sharp bends and undersized fuel fittings and hoses. Avoid routing fuel lines in areas that would cause chafing. All fuel line connections must be leak proof.

WARNING! IF SPLICING INTO EXISTING FUEL LINES, USE EXTREME CARE TO AVOID CONTAMINATING THE LINE WITH RUBBER OR METAL SHAVINGS, AS THIS WILL DAMAGE THE PUMP. IN ALL CASES WHERE THE FUEL LINE HAS BEEN CUT, IT IS ESSENTIAL THAT IT BE CLEANED TO ENSURE THAT NO METAL OR RUBBER PARTICLES ENTER THE FUEL SYSTEM. THIS IS PERFORMED BY BLOWING THE LINE CLEAN WITH COMPRESSED AIR. HOLLEY DOES NOT RECOMMEND THE PROCEDURE WHERE THE COIL WIRE IS DISCONNECTED, THE ENGINE IS CRANKED, AND THE FUEL IS COLLECTED IN A CONTAINER. SPARKING CAN OCCUR DURING THIS PROCEDURE, WHICH MAY RESULT IN A FIRE AND/OR EXPLOSION.

WARNING! DO NOT OVER TIGHTEN THE FITTINGS ON THE FUEL PUMP. TORQUE 1/2" NPT FITTINGS ONLY TO 15 FT/LBS. TORQUE 3/8" NPT FITTINGS ONLY TO 10 FT/LBS. OVER TIGHTENING OF THE FITTINGS CAN CAUSE THE PUMP BASE TO CRACK ALLOWING FUEL TO LEAK. A FUEL LEAK CAN CAUSE A FIRE AND/OR EXPLOSION RESULTING IN PROPERTY DAMAGE, SERIOUS INJURY, AND/OR DEATH.



High Performance Fuel System

Figure 1

USING A FUEL PRESSURE REGULATOR WITH A FUEL PUMP:

If the pump is a high-pressure model, a pressure regulator must be installed in the line between the pump and the carburetor.

1. Using the bracket supplied with the regulator, position the regulator as close to the carburetor as possible, taking care to minimize the exposure to heat sources. **DO NOT** mount the regulator on the exhaust manifold or any extremely hot surface.

NOTE: The fuel pressure regulator must be purchased separately. Holley P/N 12-704 is designed for a 1 x 4 setup and has one inlet and two outlet ports. The 12-707 is designed for a 2 x 4 setup and has one inlet and six outlet ports. Choose the correct fuel pressure regulator for your intended use. Plug any unused ports.

2. Connect the fuel line from the "out" side of the pump to the "in" side on the regulator. All fuel line connections must be leakproof.
3. Connect the "out" side of the regulator to the fuel inlet on the carburetor(s). All fuel line connections must be leakproof.
4. The regulator comes from Holley with the regulator pressure preset at 6 psi. However, for individual requirements, it may be readjusted. The pressure is increased by loosening the regulator locknut and turning the adjustment screw clock-wise. Decrease pressure by turning the adjustment screw counter-clockwise. Pressure adjustments can only be made while the engine is running. Due to the high volume design of these regulators, pressure settings may not be maintained with a zero flow.

WARNING! TURNING THE ADJUSTMENT SCREW ALL THE WAY IN, WILL RESULT IN EXCESSIVE FUEL PRESSURE AND CAUSE THE CARBURETOR TO FLOOD. A FLOODED CARBURETOR CAN CAUSE A FIRE AND/OR EXPLOSION, RESULTING IN PROPERTY DAMAGE, SERIOUS INJURY, AND/OR DEATH. ALWAYS USE A FUEL PRESSURE GAUGE, SUCH AS HOLLEY P/N 26-500 BETWEEN THE REGULATOR AND THE CARBURETOR(S) WHEN ADJUSTING THE FUEL PRESSURE REGULATOR.

NOTE: Any change made in fuel pressure will change the fuel bowl float level requirements. A readjustment in fuel bowl levels will be required for proper operation of the fuel system.

WIRING:

One method is to wire the pump to a switched 12-volt source (providing power only when the engine is running), which is located at the vehicle's electric panel. To assure this condition, the installation of a Holley 12-810 oil pressure safety switch is recommended for installation into the wiring circuit. This will assure that the pump will not continue to operate after the engine is shut off and/or when the key is left in the "ON" position.

1. Connect the red pump wire (+) to a 12V ignition-activated source.
2. Connect the black pump wire (-) to the vehicle ground

USING AN OIL PRESSURE SAFETY SWITCH WITH A FUEL PUMP:

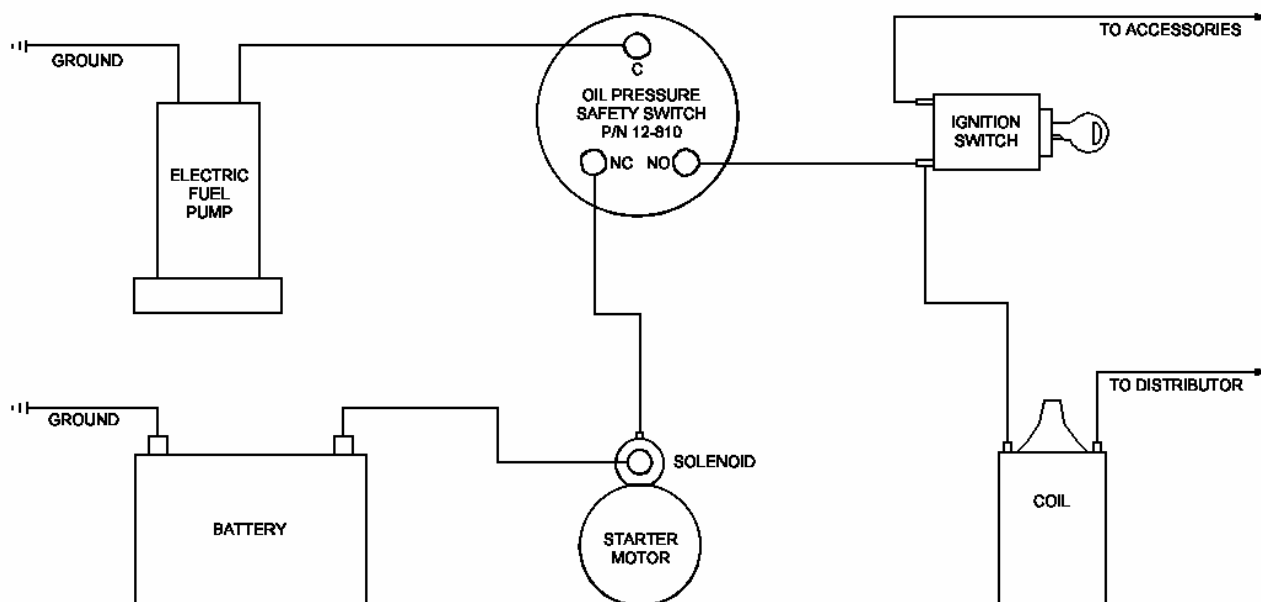
The switch is activated by engine oil pressure and will break the circuit and shut the pump off if the engine should stall for any reason. If the pressure switch is to be used, follow the installations instructions as outlined below (refer to Figure 2).

1. Disconnect the ground cable from the battery.
2. Remove the original equipment oil pressure switch and retain.
3. Screw a 1/8" pipe nipple into the hole from which the original pressure switch was removed. Use any suitable thread sealant on all fittings, taking care to avoid any excess, which might contaminate the engine.
4. Screw a 1/8" pipe tee onto the nipple and position it in a manner to facilitate the installation of the original oil pressure switch and the new oil pressure safety switch in the remaining two holes.
5. Screw in the two switches and reconnect the lead to the original equipment oil pressure switch.

NOTE: The pump oil pressure switch will normally have three terminals marked: C(common), NC(normally closed), and NO(normally open).

6. Connect the red pump wire (+) to the terminal marked "C" on the safety switch. In this line, add an in-line fuse holder. (15 amp fuse for the 250 GPH and 7.5 amp for the 160 GPH).
7. Connect the terminal marked "NO" to the on terminal of the ignition switch.
8. Connect the terminal marked "NC" to the starter motor circuit.
9. Connect the black pump wire (-) to the vehicle ground and reconnect the ground cable to the battery.

WARNING! USE A MINIMUM OF 14 GAUGE WIRE. BE SURE TO CRIMP ALL ELECTRICAL CONNECTORS SECURELY AND CLEAN ANY AREA WHERE GROUND LEADS WILL BE FASTENED. FAILURE TO USE THE MINIMUM WIRE GAUGE COULD RESULT IN A PUMP MALFUNCTION AND/OR ELECTRICAL FIRE, RESULTING IN PROPERTY DAMAGE, SERIOUS INJURY, AND/OR DEATH.



**Typical Wiring Diagram
Figure 2**

MAINTENANCE AND CLEANING INSTRUCTIONS FOR VoluMAX PUMPS:

Due to the current poor quality gasoline that's available, it is recommended that periodically a can of dry gas be used to absorb the water out of the fuel delivery system. The fuel filter element should be blown clean with compressed air every 6,000 miles and replaced every 12,000 miles to assure maximum protections. If your fuel pump fails to pump or fails to maintain adequate pressure, check the following:

1. Check the voltage at the pump to assure a 12 volt supply.
2. Check the fuel line (especially the fuel filter) for any obstruction. Use compressed air to blow the line free.
3. If this doesn't solve the problem, turn the pump on and listen for a hum from the top of the pump. If there is no hum, the pump electrical system should be checked by a competent repairman. If the pump hums, it probably only needs to be cleaned. See Figure 3.

CLEANING THE PUMP:

The following is a step-by-step procedure for cleaning the Holley electric fuel pumps. Do all disassembling on a clean bench. Read all instructions thoroughly and completely before starting.

1. Remove the pump from the car.
2. Remove the inlet, outlet, and return line fittings from the pump housing assembly.
3. Remove the filter screens from the inlet ports and clean them thoroughly with a spray-type carburetor cleaner.

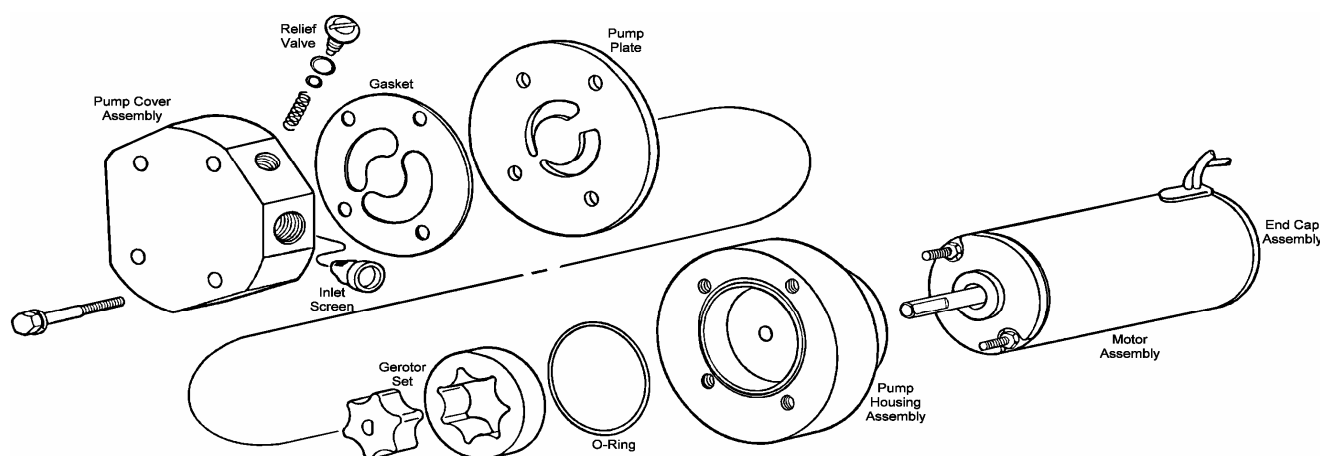


Figure 3

4. Mark a line across the pump housing and onto the pump cover. These marks will be used as an alignment guide during reassembly.
5. Turn the pump upside down, remove the four bolts, and carefully lift off the pump cover followed by the gasket, pump plate, and O-Ring.
6. Very carefully remove the gerotor assembly (both parts) from the pump housing.

WARNING! KEEP THE GEROTOR TOGETHER AS A MATCHED SET. THIS ASSEMBLY MUST BE REASSEMBLED THE SAME WAY IT WAS DISASSEMBLED. THE TOP OF EACH PART MUST REMAIN TOWARD THE TOP OF THE PUMP.

WARNING! DO NOT IMMERSE THE ENTIRE UNIT IN ANY LIQUID. IMMERSION COULD DAMAGE THE ELECTRICAL CIRCUITRY, RESULTING IN A PUMP MALFUNCTION. A PUMP MALFUNCTION COULD RESULT IN A FIRE, WHICH MAY RESULT IN PROPERTY DAMAGE, SERIOUS INJURY, OR DEATH.

7. Remove the relief valve plug along with the O-Ring and shim. Not all pumps use a shim. Then remove the spring and relief valve piston.
8. To remove the motor assembly, take the nuts off the end of the thru-bolts located at the pump housing assembly. The motor assembly can now be pulled from the pump housing assembly.

NOTE: The brushes are serviceable by replacing the brush and end cap assembly.

9. Clean the housing assembly, pump plate, and pump cover assembly with any good quality spray-type carburetor cleaner. Make sure the gasket surfaces are clean. Blow parts dry with compressed air. Clean any loose Teflon tape, etc. from the inlet and outlet ports.
10. Inspect the gerotor assembly and its corresponding contact surfaces for damage such as pits, gouges, or deep scratches. Damage and wear of this nature can greatly affect the pump's performance. Suspect components should be replaced.
11. Reassemble the motor assembly to pump housing.
12. Reassemble the pump in reverse order of the disassembly. Lubricate all friction surfaces during the assembly with WD-40 or equivalent.

13. Insert the relief valve piston into the pump cover assembly. The rubber end goes in first, followed by the spring. Replace the relief valve plug with the O-Ring, making sure to replace the small brass shim on the end, if used on your pump.

14. Turn the pump housing over and insert the gerotor assembly. Keep the same sides up.

WARNING! MAKE SURE THE GEROTOR ASSEMBLY IS REPLACED IN THE SAME ORIENTATION AS WHEN IT WAS DISASSEMBLED. KEEP THE SAME SIDES UP.

15. Set the large O-Ring in place on the pump housing along with the pump plate, gasket, and pump cover assembly. These parts can only be positioned one way in order for the bolt holes to align. Apply a drop of Loctite to each screw. Insert the bolts and washers and tighten to 50-60 in./lbs. of torque.

WARNING! OVERTIGHTENING CAN CAUSE THE PUMP BASE TO CRACK ALLOWING FUEL TO LEAK. A FUEL LEAK CAN CAUSE A FIRE AND/OR EXPLOSION, RESULTING IN PROPERTY DAMAGE, SERIOUS INJURY, AND/OR DEATH.

16. Replace the inlet filter screens along with the fuel fittings. Teflon paste can be used on the fittings and they should be torqued to 15 ft./lbs. See the warning above.

WARNING! DO NOT USE TEFLON TAPE ON PUMP FITTINGS. THIS TAPE CAN BREAK DOWN WHEN IT COMES IN CONTACT WITH FUEL. THE TEFLON TAPE MAY PLUG THE FUEL PUMP, CAUSING DAMAGE TO THE PUMP AND THE FUEL SYSTEM.

17. Reinstall the pump in the vehicle.

CLEANING THE REGULATOR:

1. Loosen the hex nut on the top of the regulator and back the adjusting screw out all the way to relieve tension on the diaphragm spring. See Figure 4.
2. Remove the four screws holding the regulator cover on. The diaphragm, spring, and spring guide will fall out.
3. Use a spray-type carburetor cleaner to clean the cover and regulator body. Thoroughly spray into the ports, as well as into the check ball seat area while depressing the check ball.

WARNING! THE BRASS SEAT ASSEMBLY IS PRESSED IN AND SHOULD NOT BE REMOVED.

4. Blow the cover and body dry with compressed air and reassemble following the diagram below.
5. Be sure to readjust the fuel pressure with the adjusting screw after installing in your vehicle. Pressure adjustments must be made with the engine running.

VoluMAX SERVICE PARTS AND ACCESSORIES:

ITEM	PART NUMBER
Chevy Small Block Mechanical Pump Block-Off Plate	12-814
Chevy Big Block Mechanical Pump Block-Off Plate	12-813
Replacement Fuel Filter for P/N 162-521 and 162-531	162-504
VoluMAX Fuel Filter	162-515
Replacement Fuel Filter for P/N 162-515	162-516
0-15 PSI Fuel Pressure Gauge (non-liquid filled)	26-500
0-30 PSI Fuel Pressure Gauge (non-liquid filled)	26-502
0-15 PSI Electric Fuel Pressure Gauge (dash mount)	26-503
0-15 PSI Fuel Pressure Gauge (liquid filled)	26-504
0-30 PSI Fuel Pressure Gauge (liquid filled)	26-505
90° Elbow for Attachment to Holley Fuel Line	26-69
Safety Shut Off Switch	12-810
VoluMAX Fuel Pressure Regulator	12-704

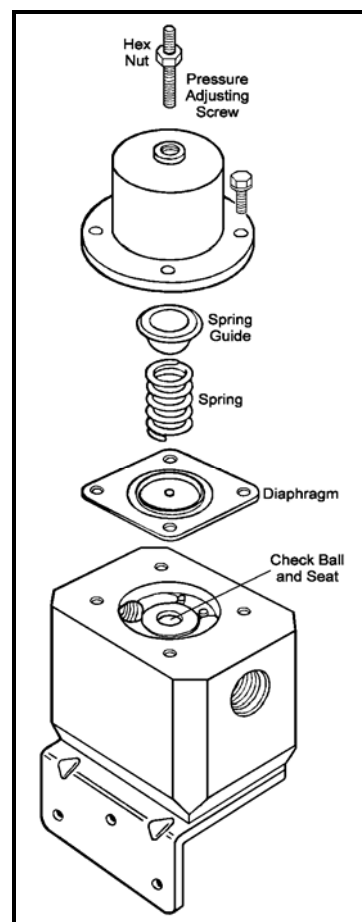


Figure 4

Copyright © 2001
Printed in USA

199R-9843-1

Holley
Performance Products Inc

Date: 1-4-01