



Installation Instructions

18SP555—Rebuild Detroit Diesel Series 50 or Series 60 Natural Gas Solenoid Valve with Kit 23529801

Introduction

This service kit is intended for the rebuild of the following 1/2-inch, normally closed solenoid gas valves used on Detroit Diesel Series 50[®] and Series 60[®] natural gas-fueled engines: 23528701; 23528706; and 23528707. The kit includes the items listed in Table 1.

Description	Qty.
Diaphragm Assembly	1
Spring, Diaphragm	1
O-Ring, Diaphragm To Body	1
O-Ring, Small	1
Installation Instructions	1

Table 1. Service Kit 23529801 Parts List

Rebuild Instructions

Installation of this kit requires depressurization of the natural gas fuel supply system and disconnecting or disabling of the starting system.



CAUTION:

To avoid injury from explosion of natural gas, the following precautions must be taken:

- Do not smoke when installing or servicing the engine or fuel system.
- Installation or servicing of natural-gas equipment must only be conducted in well-ventilated, natural gas compatible areas. Do not install or service equipment in an enclosed area where ignition sources are present without first ensuring that an undetected gas leak may be safely vented without being ignited.
- Bleed natural gas lines before installing or servicing any component connected to the fuel lines.
- Natural gas fuel systems are pressurized. Relieve pressure from any fuel system component prior to installation or service of that component.
- Use a combustible-gas detector. Liquefied natural gas (LNG) is odorless and cannot be detected by smell. Compressed natural gas (CNG) may be odorless and may not be detected by smell.
- Equipment fuel systems are the responsibility of the Original Equipment Manufacturer (OEM). Equipment fuel system guidelines must be closely adhered to when installing or servicing equipment. Refer to OEM guidelines specifying which maintenance procedures require venting of fuel lines and fuel tanks.
- LNG systems are pressurized and contain extremely cold (-260°F [-162° C]) fluids. Contact the fuel supplier or OEM for LNG safety requirements. Contact with LNG may cause personal injury (freezing).
- Vent systems on the equipment should be ducted to a safe area whenever equipment is in an enclosed area.

Natural gas is highly flammable and explosive and may be extremely cold (-260°F [-162°]). C

**CAUTION:**

To avoid injury from hot surfaces, allow the engine to cool before removing any component. Wear protective gloves.

**CAUTION:**

To avoid injury from accidental engine startup while servicing the engine, disconnect/disable the starting system.

NOTE:

Retain all removed parts for installation, unless otherwise noted.

1. With the engine at ambient temperature (cool to the touch) and the starting system disconnected/disabled, depressurize the natural gas supply system.
2. Remove the nut and spring washer securing the gas valve coil to the cover and sleeve assembly. Remove the coil from the cover and sleeve assembly. See Figure 1.
3. Remove the four (4) cover attaching screws and lift the cover from the body.

NOTE:

If the cover is difficult to remove, tap it laterally with a plastic-face hammer or gently pry it from the body with a screwdriver. *Use care not to damage the cover, diaphragm or body.*

4. Remove and discard the diaphragm return spring, the diaphragm assembly and the large and small O-rings.

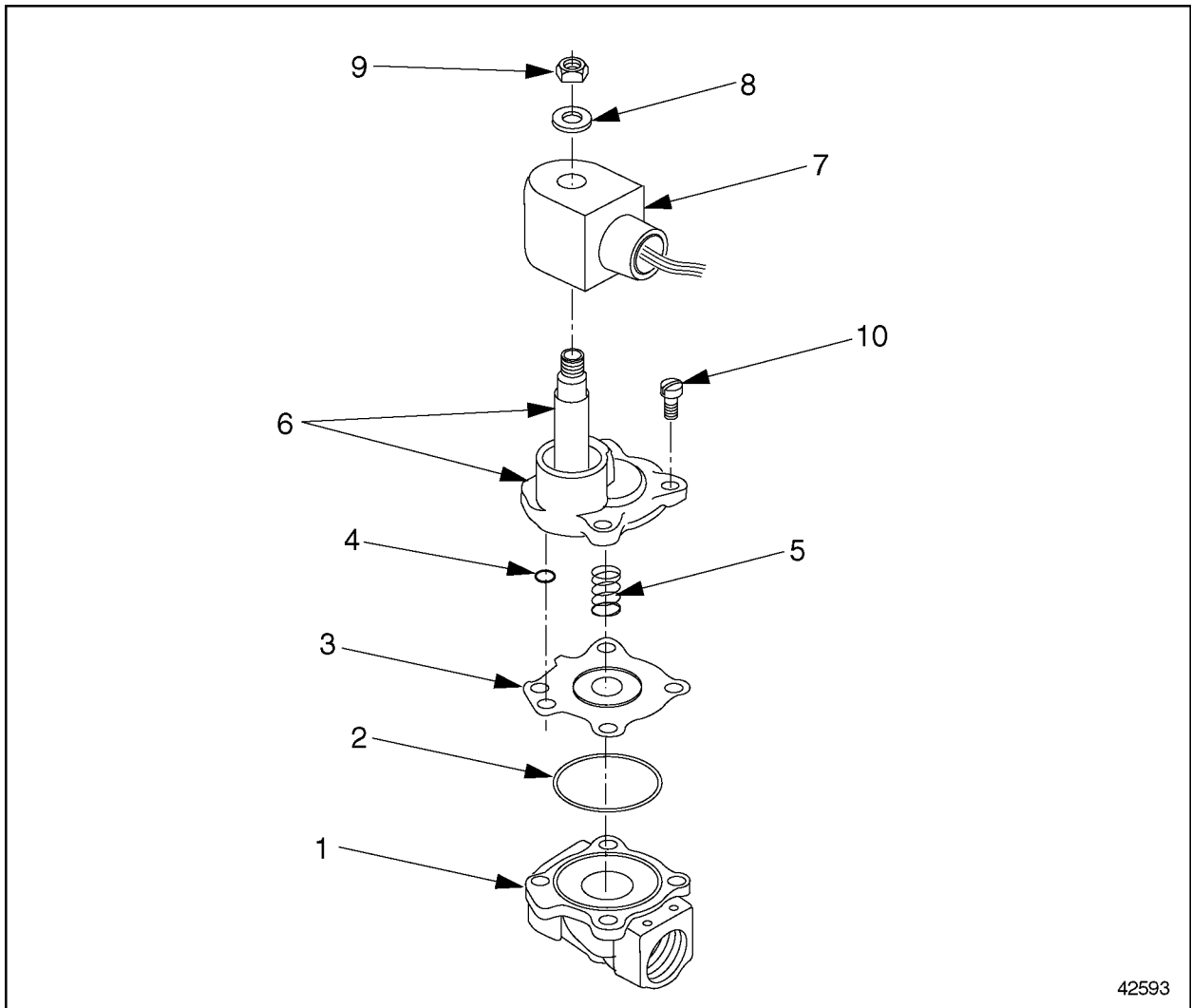
NOTICE:

To avoid possible component damage, do not expose plastic or elastomeric parts to any type of commercial cleaning fluid.

**CAUTION:**

To avoid injury from flying debris when using compressed air, wear adequate eye protection (face shield or safety goggles) and do not exceed 40 psi (276 kPa) air pressure.

5. Clean the body, cover, and cover mounting screws carefully in a mild soap and water solution. Blow dry with compressed air.
6. Insert the new large O-ring into the groove in the top of the valve body.
7. Install the pre-lubricated diaphragm assembly into the valve body, making sure the lubricant is not removed from the diaphragm while handling and the diaphragm tab is located over the *outlet port* (indicated by an arrow) on the body. The diaphragm boltholes and flow holes *must* line up with the appropriate boltholes and flow holes in the valve body. See Figure 1.
8. Install the small O-ring into the hole in the diaphragm. This hole is located approximately 90 degrees counter-clockwise from the valve outlet and surrounds a pressure-equalizing flow hole in the valve body.
9. Install the new diaphragm return spring in the diaphragm cup so that it surrounds the center button.
10. Reinstall the valve cover carefully, making sure the cover is properly aligned and the return spring and small O-ring seal are not disturbed.
11. Install the cover screws and torque to 65 - 85 lb-in (7.34 - 9.60 N•m).
12. Wipe the bottom of the coil to remove any debris and carefully position it onto the sleeve.
13. Install the spring washer and coil assembly nut onto the sleeve end and torque the nut to 43 - 53 lb-in (4.86 - 5.99 N•m).
14. Repressurize the natural gas supply system and check for valve leaks by using a soapy water solution. If no leaks are found, reconnect starting power, start the engine, and check for proper solenoid valve operation.
15. Shut down the engine.



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| 1. Body, Valve | 6. Cover and Sleeve Assembly |
| 2. O-Ring, Large | 7. Coil, Gas Valve |
| 3. Diaphragm | 8. Spring Washer |
| 4. O-Ring, Small | 9. Nut |
| 5. Spring | 10. Bolt, Cover to Body (Qty. of 4) |

Figure 1. Typical Natural Gas Solenoid Valve Assembly

DETROIT DIESEL



13400 Outer Drive, West, Detroit, Michigan 48239-4001
Telephone: 313-592-5000
www.detroitdiesel.com

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