

M-03: Replace/Repair Complex Valves

SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.
- Perform a lockout/tagout after closing the main air supply.

EQUIPMENT

- Maintenance Mechanic hand tools
- rebuild kit

RESOURCES

- none

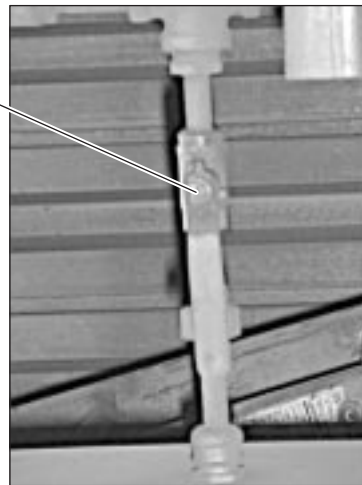
Replace/Repair Complex Valves

Replace a Complex Valve

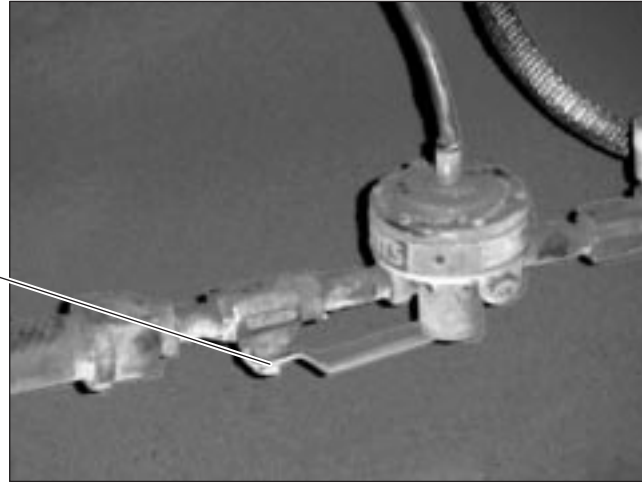
1. Turn off the air supply.

- Locate the main air supply to the defective valve.
- Close the main air valve and perform a lock and tag.
- Close the air supply valve just above the defective valve.

Air Supply Valve



- Close the air valve just below the defective valve.



2. Disconnect the solenoid.

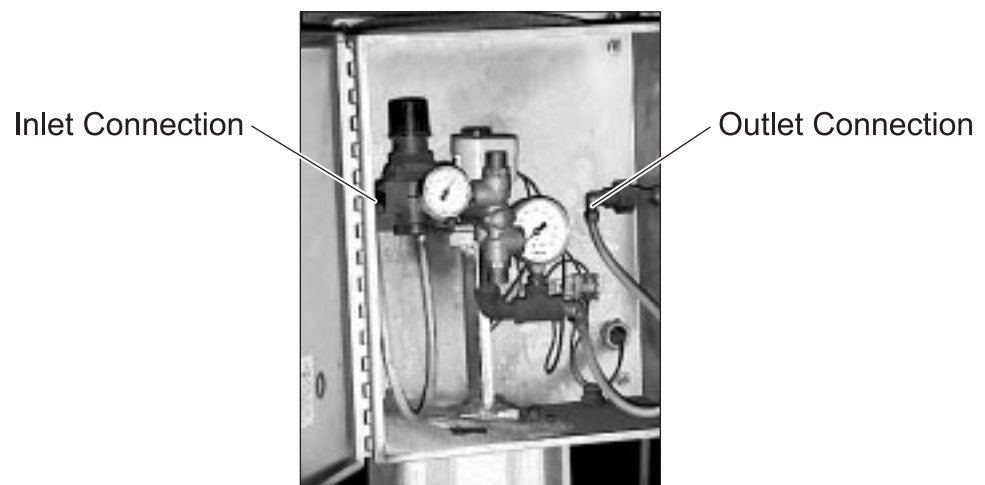
- Ask an Electrician to disconnect the solenoid from its power source.

3. Bleed the air pressure.

- Bleed the air pressure on both sides of the defective valve.
- Observe the pressure gage and ensure that the system pressure is reduced to zero.

4. Remove the defective valve.

- Disconnect the plastic tubing at both the inlet and outlet connections.



- Unbolt the valve bracket from the cabinet.
- Remove the valve and bracket assembly from the cabinet.
- Remove the valve assembly from the bracket.
- Remove the regulator and gage assembly from the defective valve.

5. Install the new valve.

- Clean and inspect all pipe threads for serviceability.
- Apply Teflon tape or pipe dope to all threads.
- Install the regulator and gage assembly in the new valve.
- Attach the valve to the bracket.
- Install the valve and bracket assembly in the cabinet.
- Secure the bracket to the cabinet.
- Reconnect the plastic tubing at the inlet and outlet connections.
- Ask the Electrician to reconnect the solenoid to its power source.

6. Restore the air supply.

- Remove the lock and tag.
- Open the main air valve.
- Open the air supply valve just above the new valve.
- Open the air valve just below the new valve.

7. Check for leaks.

- Use soapy water around all connections that were loosened.
- Tighten any connections that show bubbles.

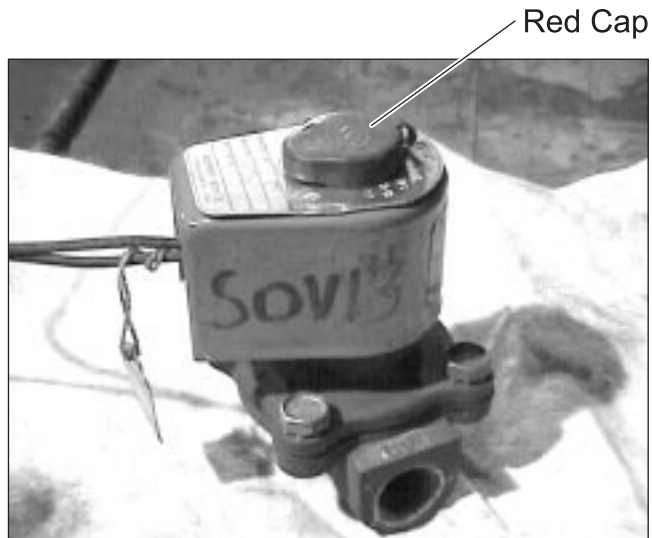
Repair a Complex Valve

1. Remove the solenoid from the valve.

- Lift up on the red cap that holds the solenoid to the valve.



- Remove the red cap.



- Remove the nameplate, solenoid, and cover from the valve.



Note: If the solenoid is still connected to its power source, replace the valve stem with a screwdriver or other metal rod. To prevent the solenoid from burning up.

2. Disassemble the valve.

- Remove the four bolts holding the two halves of the valve together.



Four Bolts to be Removed

- Remove the O-ring, diaphragm, and spring from the valve.



- Inspect both halves of the valve for serviceability.



3. Reassemble the valve.

- Use the rebuild kit designed for this valve.
- Insert the spring into the plunger that is part of the diaphragm.
- Install the diaphragm over the O-ring on the bottom half of the valve.
- Place the top half of the valve over the bottom half and bolt them together.

4. Install the solenoid to the valve.

- Remove the screwdriver or other metal rod from the solenoid and place the solenoid over the valve stem.
- Place the nameplate over the valve stem.
- Install the red cap on the top of the valve stem, and lock in place.

5. Check the operation of the valve and clean up the work site.