



655 Eisenhower Drive  
Owatonna, MN 55060-0995 USA  
Phone: (507) 455-7000  
Tech. Serv.: (800) 533-6127  
Fax: (800) 955-8329  
Order Entry: (800) 533-6127  
Fax: (800) 283-8665  
International Sales: (507) 455-7223  
Fax: (507) 455-7063

Form No. 551980

Operating Instructions  
for:

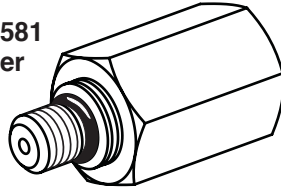
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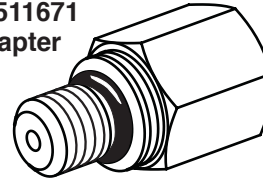
## Test Adapters

*Application: Diagnosing Leaks in the High Pressure Rail and Pump on Ford 6.0L Diesel Vehicles*

No. 551581  
Adapter

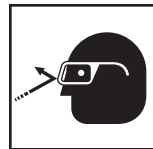


No. 511671  
Adapter



### Notes:

- The air pressure applied during these tests must be at least 100 psi (689 kPa). When pressure is applied for the first time, it may take 3 – 5 minutes before the leak can be heard. This allows air pressure to displace engine oil in the Injection Control Pressure (ICP) system. The Injection Pressure Regulator (IPR) valve may need to be energized open more than once to completely clear oil from the ICP system. Once the oil is displaced, an air leak may be heard almost immediately after applying air pressure.
- An air leak on the high pressure oil pump shaft lip seal is normal during this procedure. This is not an indication of a high pressure oil leak, and the high pressure oil pump should not be replaced for this condition.
- Replacement parts may leak unless all surfaces are oil-saturated under system pressure and seals are seated during installation.



**CAUTION:** To prevent personal injury, wear eye protection that meets ANSI Z87.1 and OSHA standards.

### High Pressure System Air Pressure Test

**CAUTION:** To prevent equipment damage,

- Do not leave the IPR valve energized longer than 120 seconds at a time.
  - Inspect adapter o-rings before performing these tests. Replace o-rings if worn, cracked, or cut.
1. Verify base engine oil pressure.
  2. Turn the vehicle's ignition to Key ON, Engine OFF.
  3. Use a diagnostic tool (OTC No. 6764 or equivalent) to close the Injection Pressure Regulator (IPR) valve.
  4. Apply shop-air pressure of at least 100 psi (689 kPa) to the high pressure oil system:
    - 2003 – 2004-½ Vehicles:** Use adapter No. 551581; remove valve cover to access high pressure oil port.
    - 2004-½ – 2007 Vehicles:** Use adapter No. 511671; use the Injection Control Pressure (ICP) location.
    - Note: It may be possible to use adapter No. 511671 on 2008–newer 6.0L Econoline vans.*
  5. Use a diagnostic tool (OTC No. 6764 or equivalent) to open the IPR valve and allow the oil to drain. An air leak should be heard. Close the IPR valve.
    - If no change is heard, the IPR valve may not be functioning as commanded. Install a new IPR valve and repeat the test.
    - If the no-start condition exists, an audible leak may be identified by using a mechanic's stethoscope (OTC No. 4491 or equivalent) through the oil fill tube or left valve cover crankcase vent hole.

**High Pressure System Air Pressure Test contd.**

6. Apply shop air pressure to the right-side high pressure oil rail:

**2003 – 2004-½ Vehicles:** Use adapter No. 551581; apply air pressure through the fill port.

**2004-½ – 2007 Vehicles:** Use adapter No. 511671; apply air pressure through the ICP port. *Note: It may be possible to use adapter No. 511671 on 2008—newer 6.0L Econoline vans.*

7. Use a mechanic's stethoscope (OTC No. 4491 or equivalent) to check for leaks. Repair leaks, if necessary, and repeat air pressure test. If leaks are still detected, continue with diagnostics.

8. Disconnect shop air supply. Install an ICP sensor or plug.

9. Apply shop air pressure to the left-side high pressure oil rail:

**2003 – 2004-½ Vehicles:** Use adapter No. 551581; apply air pressure through the fill port.

**2004-½ – 2007 Vehicles:** Use adapter No. 511671; apply air pressure through the ICP port. *Note: It may be possible to use adapter No. 511671 on 2008—newer 6.0L Econoline vans.*

10. Use a diagnostic tool (OTC No. 6764 or equivalent) to open the IPR valve and allow the oil to drain. An air leak should be heard. Close the IPR valve.

11. Use a mechanic's stethoscope (OTC No. 4491 or equivalent) to check for high pressure oil rail leaks. Repair leaks, if necessary, and repeat air pressure test.

If no audible leaks are detected, proceed to the High Pressure Oil Pump test procedure.

**High Pressure Oil Pump Test**

**CAUTION: To prevent equipment damage,**

- **Do not over-tighten the high-pressure tube assembly fitting.**
- **Do not leave the IPR valve energized longer than 120 seconds at a time.**
- **Inspect adapter o-rings before performing these tests. Replace o-rings if worn, cracked, or cut.**

1. Verify the ICP sensor or fill port plug is installed.

2. Remove the high pressure pump cover.

3. Remove the M12 plug from the top of the high pressure pump.

4. Install adapter No. 511671 on top of the high pressure pump in place of the plug removed in Step 3.

5. Apply shop air pressure to the high pressure pump through the adapter.

6. Use a diagnostic tool (OTC No. 6764 or equivalent) to close the IPR valve.

7. Check the high pressure pump for leaks.

8. Inspect the discharge tube, quick connect joint, and the high pressure oil branch tube for damage.

- If the leak is isolated to the branch tube quick connect fitting, install a new quick connect fitting and a new branch tube.
- If no leaks are found, and the engine has the correct oil flow, install a new high pressure pump.