

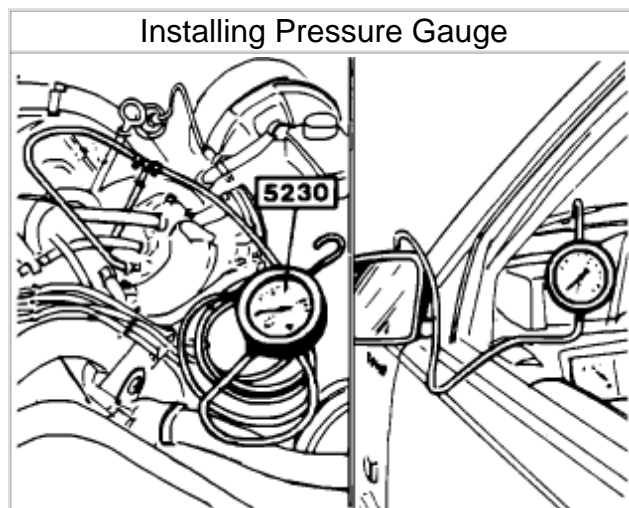
[Select Vehicle](#) | [New TSBs](#) | [Technician's Reference](#)

Component Search:

OK

[Conversion Calculator](#)**1992 Volvo 740 L4-2320cc 2.3L SOHC Turbo VIN 87 B230FT**[Vehicle Level](#) → [Powertrain Management](#) → [Fuel Delivery and Air Induction](#) → [Turbocharger](#) → [Testing and Inspection](#)  
→ [Turbo Boost Pressure Test](#) ←

## Turbo Boost Pressure Test

[Notes](#)

Zoom

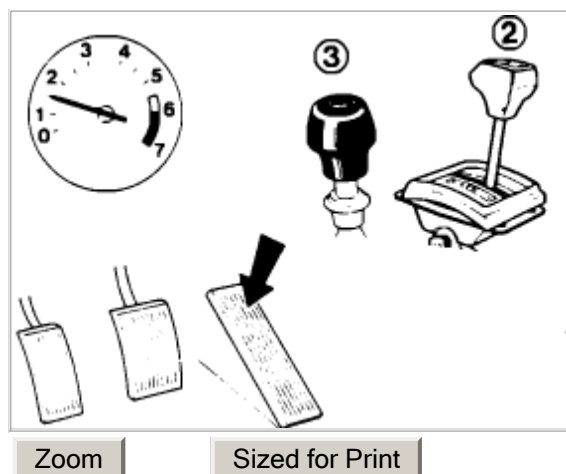
Sized for Print

**CAUTION:** Excessive boost pressure can damage your engine.

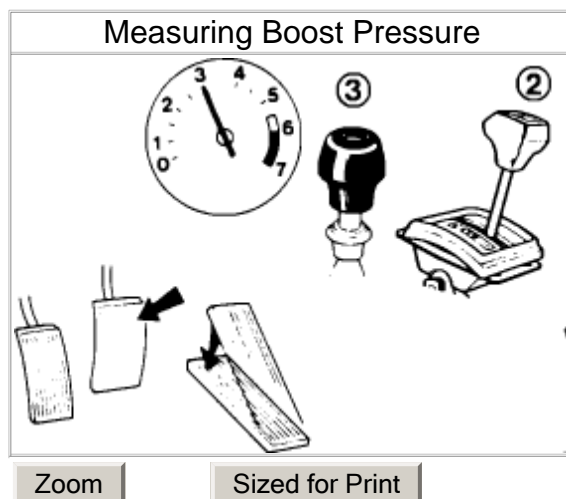
**NOTE:** First check all turbo related hoses and connections for good condition.  
Replace if needed.

1. Connect pressure gauge Volvo tool #5230 (or equivalent) between line to boost pressure gauge and intake manifold connection.
2. Run gauge into passenger compartment.
3. Start engine and run until it reaches operating temperature.

[Measuring Boost Pressure](#)



4. Drive vehicle in 3rd gear (2nd for A/T) at approx 1500 RPM.
5. Press [accelerator pedal](#) to the floor (but do not engage kick-down).



6. Apply brakes at approx. 3000 RPM while still holding the [accelerator pedal](#) in the full load position. Do not apply brakes for more than five seconds. Read boost pressure on gauge.

**Reading:**  $50 \pm 4$  kPa ( $7.1 \pm 0.6$  psi)

If boost pressure is correct, turbo system operates correctly. Disconnect all testing equipment and reinstall hose.

If boost pressure is incorrect, adjust wastegate valve (refer to **ADJUSTMENT PROCEDURES**) and retest.

7. If valve adjustment does not fix the problem, check the following:

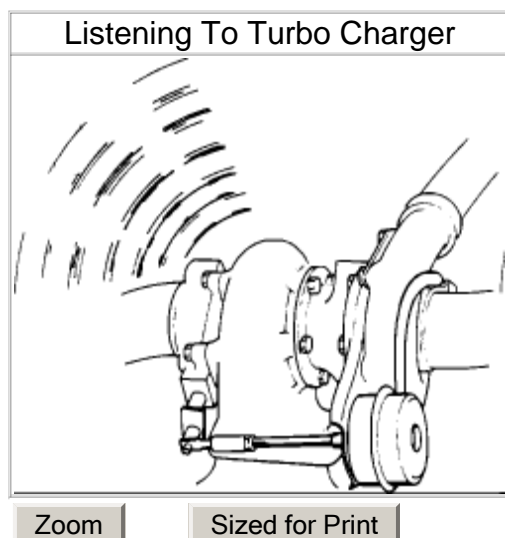
- a. Wastegate valve
- b. Turbo charger
- c. By-pass valve
- d. Turbo over-boost pressure switch
- e. Turbo boost system Repair or replace bad component(s) and retest.

© 2008 ALLDATA LLC. All rights reserved.

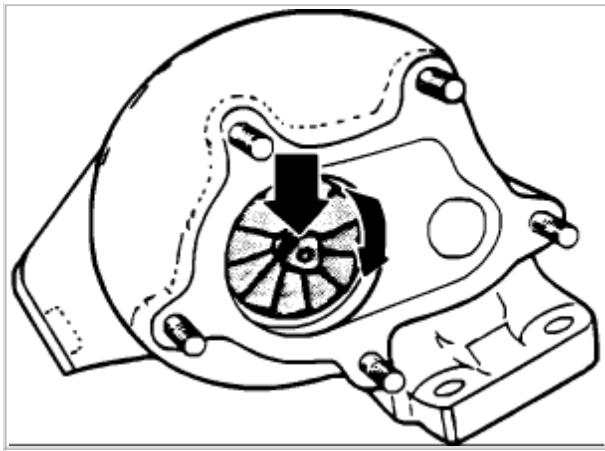
[Terms of Use](#)

[Select Vehicle](#) | [New TSBs](#) | [Technician's Reference](#)Component Search:   [Conversion Calculator](#)**1992 Volvo 740 L4-2320cc 2.3L SOHC Turbo VIN 87 B230FT**[Vehicle Level](#) → [Powertrain Management](#) → [Fuel Delivery and Air Induction](#) → [Turbocharger](#) → [Testing and Inspection](#)  
→ [Turbocharger Mechanical Test](#) ←

## Turbocharger Mechanical Test

[Notes](#)

1. Check the turbo charger housing visually for cracks and leakage at the gaskets. Repair or replace as needed and retest.
2. With the engine at idle, turn ignition OFF and listen to the turbo charger. Rotating parts of the charger should continue to spin for a short amount of time.
  - a. If no unburned engine oil can be detected in the intake (upstream PCV system) or exhaust system and turbo charger operates quietly and spins for a short amount of time after engine shut-down, turbo charger is in good condition. Proceed with charge pressure test, refer to **TURBO BOOST PRESSURE TEST**. If turbo charger is noisy or oil leakage is suspected, proceed with next steps.
  - b. If turbo charger does not spin after engine shut-down, proceed with next steps.

[Zoom](#)[Sized for Print](#)

3. Disconnect the inlet air hose from the charger. For more accurate testing or when checking the oil seals, also disconnect the turbo exhaust pipe and [wastegate](#) housing assembly (refer to **COMPONENT REPLACEMENT AND REPAIR PROCEDURES** ).
4. Check that:
  - a. The compressor wheel rotates freely.
  - b. Axial play is normal. Turn the turbo charger and press the wheel towards housing, no contact to housing should be felt.
  - c. Radial play. Turn the turbo charger and press the wheel sideways towards housing, no contact to housing should be felt.
  - d. No fresh oil exists in turbine or compressor housing. If oil exists, turbo shaft seals are damaged.

**NOTE:** In some cases turbo chargers have been replaced unnecessarily as a result of finding some free play in the turbine shaft. The shaft is free floating on a film of oil, therefore some play is always present.  
Do not replace charger unless wheel is scraping the housing.

If charger does not pass above test, replace and retest with new charger.

| <b>Fault symptom</b>   | <b>Cause</b>  | <b>Check/remedy</b>   |
|--|---|---|
| <b>Charge pressure too low</b><br><br><i>Low output</i><br><i>Boost pressure gauge reading too low</i>   | Air filter blocked  | Replace cartridge   |
|  | Throttle linkage incorrectly set  | Adjust  |
|  | Engine fault (low compression, incorrect valve clearance, poor fuel supply)                       | Check/remedy as required  |
|  | Leakage between compressor housing and cylinder head or between cylinder head and turbine housing | Replace damaged seals, connections, etc. Tighten bolts, nuts, clamps                |
|  | Wastegate seized in open or partly open position  | Replace wastegate + housing   |
|  | Bypass valve leakage or seized in open position   | Check   |
|  | Exhaust or catalytic converter system partly blocked  | Replace   |
|  | Charge pressure incorrectly adjusted  | Check/adjust  |
|  | Turbocharger defective  | Replace/repair as required  |
|  | Bypass valve does not close   | Check   |
| <b>Charge pressure to high</b><br><br><i>Engine pings (knocks) at high output</i><br><i>Boost pressure gauge moves into red sector</i><br><i>Pressure sensor cuts out engine</i> | Leakage from hose between turbocharger and wastegate actuator                                     | Replace hose and clamps   |
|  | Wastegate actuator (diaphragm) defective  | Replace   |
|  | Wastegate stuck in closed position  | Replace wastegate and housing   |
|  | Charge pressure incorrectly adjusted  | Check/adjust  |
| <b>Engine surges during engine braking</b>   | Bypass valve does not open  | Check   |
|  | Throttle switch incorrectly adjusted  | Check/adjust  |
| <b>Engine pings (knocks)</b>   | Poor quality fuel (low octane)  | Drain/fill new  |
|  | Ignition setting, incorrect   | Check/adjust  |
|  | Air filter blocked  | Replace cartridge   |
|  | Defective fuel supply   | Check pumps and pressure  |
|  | Charge pressure too high  | Check/adjust  |
|  | Blocked PCV system  | Check hoses   |
| <b>Metallic sound from wastegate</b>   | Loose or fractured preheating shields   | Replace, tighten  |
|  | Wastegate housing or exhaust pipe, loose  | Tighten   |
|  | Wastegate loose in guide  | Replace wastegate + housing   |
| <b>Turbocharger noise or vibrations</b>  | Loose or fractured preheating plates  | Replace, tighten  |
|  | Inlet or exhaust system leakage   | Tighten, replace seals, etc.  |
|  | Poor lubrication of turbocharger  | Check oil pressure and flow of oil to turbo. If fault remains, replace turbocharger |
|  | Turbo shaft, turbine wheel or compressor wheel imbalance caused by damage                         | Replace turbocharger  |
| <b>Oil leakage from turbo shaft seals</b><br><br><i>Exhaust-gas oil smoke</i>  | Blocked air filter (oil leakage from inlet side causes white exhaust smoke)                       | Replace air filter cartridge  |
|  | Exhaust system loose or leaking   | Tighten, replace  |
|  | Crankcase pressure too high   | Clean crankcase ventilation system  |
|  | Oil return pipe blocked   | Clear   |
|  | Turbo shaft seals damaged   | Replace turbocharger  |