

Installation Instructions

18SP535—Installing and Using Wastegate Turbo Calibration Kit TLZ00100

Introduction

This wastegate turbo calibration kit is intended for use on a Detroit Diesel engine with a wastegate turbocharger actuator canister.

Preparations for Installation

Natural Gas-Fueled Engine:

Perform the following steps before installing the kit on a natural gas-fueled engine:



CAUTION:

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



CAUTION:

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



CAUTION:

To avoid injury, an operable natural gas engine must be kept in a well-ventilated area away from open flames and sparks.




CAUTION:

To avoid injury from an 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 (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.


1. Shut down the engine and allow it to cool to ambient temperature.
2. If the engine can run, use the following procedure to relieve the natural gas pressure downstream of the shutoff valve:
 - A. Turn off the manual shutoff valve on the natural gas supply line.
 - B. Start the engine and run it until it stalls due to fuel starvation.
 - C. Disconnect battery power to the starting system.
 - D. Slightly loosen the NG fuel line fitting to be serviced in a well-ventilated area to allow any remaining gas to vent.
 - E. Completely open the fitting that was slightly opened and allow to vent in a well-ventilated area.

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


- F. Disconnect battery power to the starting system.

Diesel -Fueled Engine:

Perform the following steps before installing the kit on a diesel-fueled engine:

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

1. Shut down the engine and allow it to cool to ambient temperature.

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

2. With the engine shut down and at ambient temperature (cool to the touch), disconnect battery power to the starting system.

Installation of the Kit

Install the wastegate turbo calibration kit as follows:

1. Remove the hose from the wastegate actuator canister.
2. Clamp vise-grip assembly (TLZ00102) to a convenient location. See Figure 1.
3. Mount dial indicator (TLZ00115) to the end of the actuator lever, in-line with the lever. Zero the indicator.

NOTE:

This may be difficult in some applications. A “foot-type” attachment has been provided in the kit. Other attachments may be required in some instances.

4. Attach regulated shop air to the fitting (not provided) on the digital pressure/regulator set-up.
5. Turn the regulator (TLZ00107) down until airflow stops.
6. Attach the digital pressure/regulator hose (TLZ00105) to the wastegate actuator canister.
7. Turn the digital pressure gage (TLZ00101) on and set to “zero.”
8. While watching the dial indicator, *SLOWLY* apply regulated air pressure to the wastegate canister.

NOTE:

Do not reverse this procedure by watching the pressure gage.

9. As the indicator moves, regulate the pressure until the indicator is at the specified amount of travel.
10. Once the indicator is at the specified amount of travel, read the exact pressure on the digital pressure gage.
11. Compare the readings with the most current specifications for the part number.

12. To adjust the wastegate, slowly apply shop air to the actuator to release actuator spring tension. Loosen the nut and remove the clip on the actuator arm.
 - If the pressure is below the minimum allowed specification, shorten the rod.

- If the pressure is above the minimum allowed specification, lengthen the rod.
13. Reassemble the actuator arm and test the calibration.
 14. Repeat until the wastegate canister is within the specifications required.

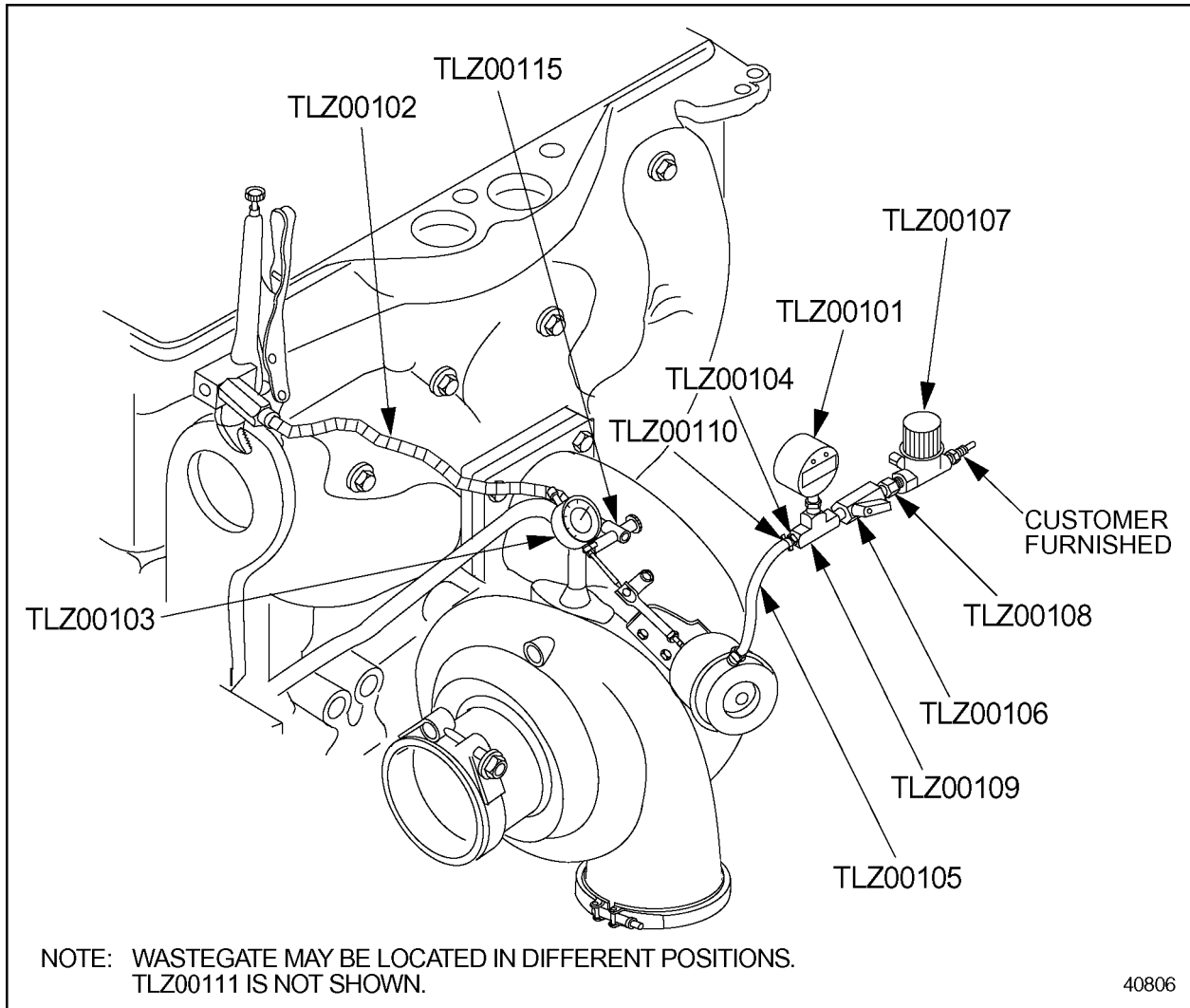


Figure 1. TLZ00100 Wastegate Calibration Tool Set-Up

DETROIT DIESEL



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

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