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# SB-10054116-6192

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## Technical Information Bulletin

### High Pressure Turbocharger Troubleshooting Guide for CT660 On Highway Truck {7000}

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## High Pressure Turbocharger Troubleshooting Guide for CT660 On Highway Truck{7000}

SMCS - 7000

### On Highway Truck:

CT660 (S/N: TGA1-UP; TGD1-UP; TEJ105-UP; TRK1-UP; TKL1-UP; TEP1-UP; TJS1-UP; TGT107-UP; TSW1-UP; TSY1-UP; TGZ1-UP)

## Introduction

The problem below has been identified. Use the solution that is identified below.

## Problem

High-pressure turbo failures on the CT660 On-Highway Trucks.

## Solution

Follow high-pressure turbocharger troubleshooting guide. The troubleshooting guide is effective with the following machines:

Table 1

Effectivity
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<b>Model</b>	<b>Affected Machines</b>
CT660	S/N:TEJ105-UP
	S/N:TEP1-177,181-205,207,209-220,223-UP
	S/N:TGA1-88,90-194,196-198,200-219,221-233,249-UP
	S/N:TGD1-3,5-9,117-UP
	S/N:TGT107-UP
	S/N:TGZ1-UP
	S/N:TJS1-UP
	S/N:TKL1-161,164-171,174-176,178-587,599-UP
	S/N:TRK1-39,41-48,100-284,286-288,290-600,602-1237,1240-1520,1565-UP
	S/N:TSW1-UP
	S/N:TSY1-UP

## High Pressure Turbocharger Service Plan

Follow the procedure below to troubleshoot high-pressure Turbocharger performance issues.

Obtain the following information before starting this procedure:

- VIN number
- Mileage
- Date
- Customer
- Tech Name
- Obtain documentation of pervious service performed
- Detailed description of the problem

1. Review Initial Examinations Table 2

Table 2

<b>Initial Examinations</b>	
<b>Check Or Test Procedure</b>	<b>Follow up Check Or Test Procedure</b>

Do fault codes exist? SPN _____, FMI _____. SPN _____, FMI _____	<b>YES</b> - Resolve fault codes <b>NO</b> - Proceed to Step 2
Any Visible Smoke? White or Black?	<b>YES</b> - Proceed to Step 2 <b>NO</b> - Proceed to Step 2
Any external fluid leaks? (Oil or Coolant)	<b>YES</b> - Proceed to Step 2 <b>NO</b> - Proceed to Step 2
External engine damage?	<b>YES</b> - Proceed to Step 2 <b>NO</b> - Proceed to Step 2
Is engine overheating?	<b>YES</b> - Proceed to Step 2 <b>NO</b> - Proceed to Step 2
Is the engine knocking?	<b>YES</b> - Proceed to Step 2 <b>NO</b> - Proceed to Step 2.
Have any parts been replaced to address these issues? Check warranty history.	<b>YES</b> - Proceed to Step 2 <b>NO</b> - Proceed to Step 2

2. Check the Air Management System

- Inspect for Boost leaks

Table 3

Were any Boost leaks Detected? Was any wet oil residue detected?	<b>Yes</b> Note any boost leaks before repairing. Proceed to Step 3.
	<b>No</b> Inspect the inlet high-pressure charge air cooler (HPCAC) Proceed to Step 4.

3. Remove the CAC pipe between the high-pressure turbocharger and high-pressure charge air cooler.

- Inspect the high-pressure turbo outlet duct for wet oil residue.

Table 4

Was any wet oil residue detected?	<b>Yes</b> Proceed to Step 5
	<b>No</b> Proceed to Step 4

4. Reference DTC'S noted earlier

Table 5

Was SPN 190 FMI 0 noted at the top of Inspection Seat	Yes Proceed to Step 6
	No Proceed to Step 8

5. Check the Calibration Scorecard on the service portal to ensure that the latest calibration is installed.

Table 6

Is the ECM Calibration up to date?	Yes Proceed to Step 4
	No Proceed to Step 6

6. Inspect by opening the freeze frame data and check the ID 58071 max trip RPM logged for SPN 190 FMI 0.

- Open DSN. Attach freeze frame data and engine parameters.
- Refer to Service Magazine, SEPD1677
- Do not use ID 57531 "Total Engine Maximum Speed"

Table 7

Is the engine RPM between 2600-2999?	Yes Proceed to Step 9
	No Proceed to Step 10

7. Update engine ECM with the latest calibration level

**Note:** With the new calibration any residual oil will dry up.

- Go To Step 19.

8. Remove the turbo center section and inspect.

- Is there excessive radial or axial end-play (Fin to housing contact.)
- Is there any visual damage evident.

Table 8

Are either of these conditions present?	Yes Proceed to Step 11
	No Proceed to Step 12

9. Replace

- Remove and Drain CAC.

- Turbo center section.
- All six injectors.
- Close case File.
- Go to Step 19

10. For RPM 3000 or higher.

- Remove oil pan.
- Check for bent rods and damaged liners.

Table 9

Is There any damage present?	<b>Yes</b> Proceed to Step 15
	<b>No</b> Proceed to Step 16

11. Inspect

Table 10

Is there any oil in the intake or in the AFT system?	<b>Yes</b> Proceed to Step 14
	<b>No</b> Proceed to Step 13

12. Provide documents or information that supports replacement of the turbo with no damage evident.

- Pictures
- Data
- Go to Step 13

13. Replace Turbo center section.

- Go to Step 19

14. Inspect

- If Turbine housing damaged is noted, open DSN, continue if not damaged.
- If no damage is noted, replace Turbo Center Section (No approval required for center section only.)
- Remove the CAC and allow it to drain, then reinstall
- For the AFT system, open a Tech Service case file and provide pictures of the contamination

- Perform any additional directives as instructed by Tech Services.
- Go to Step 19

15. Perform

- Attach pictures of the damage to the case file
- Repair as directed in case file
- Go to Step 19

16. Review

Table 11

What was the ID 58071 Max Trip RPM recorded?	<b>3000 - 3599</b> Proceed to Step 17
	<b>3600+</b> Proceed to Step 18

17. Replace

- Remove and drain CAC.
- Turbo Center Section.
- All six Injectors.
- Reset trip report and freeze frame.
- Go to Step 19.

18. Replace

- Remove and drain CAC.
- Turbo Center Section.
- All six Injectors.
- Water Pump
- Reset trip report and freeze frame.
- Go to Step 19.

19. End of Repair

- Release Vehicle

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chrismk2