



**No.: 21TS-14**  
October 2021

TO: Service Locations

FROM: Service Systems Engineering

SUBJECT: **Gen 5 DD15 Exhaust Valve Adjusting Screw Excessive Wear & Increased Engine Idle Speed w/ DiagnosticLink Routine Impact**

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**ISSUE 1 – Valve Bridge/Adjusting Screw Failure**

Some Detroit® Heavy Duty Gen 5 DD15 engines are experiencing exhaust valve bridges that fall out of position or have excessive valve lash. The engine may experience conditions such as ticking, rough running, misfire, or popping out sounds from the intake. The following fault codes have been associated with this failure and may also be present.

| <b>Fault Code</b> | <b>DiagnosticLink Description</b>           |
|-------------------|---------------------------------------------|
| SPN 521154/FMI 3  | Cylinder #1 Exhaust Pressure Pulse Too High |
| SPN 521155/FMI 3  | Cylinder #2 Exhaust Pressure Pulse Too High |
| SPN 521156/FMI 3  | Cylinder #3 Exhaust Pressure Pulse Too High |
| SPN 521157/FMI 3  | Cylinder #4 Exhaust Pressure Pulse Too High |
| SPN 521158/FMI 3  | Cylinder #5 Exhaust Pressure Pulse Too High |
| SPN 521159/FMI 3  | Cylinder #6 Exhaust Pressure Pulse Too High |



**Figure 1. Exhaust Valve Bridge Out of Position**

**CAUSE**

Excessive exhaust valve adjusting screw wear results in excessive valve lash.

**REQUIRED ACTION**

1. Did the valve bridge fall out of position?
  - a) Yes; replace the affected valve bridge **and** all six exhaust valve lash adjusting screws. Inspect the related valve train components on that cylinder for wear or damage. Do not replace the exhaust camshaft unless there is camshaft lobe damage.
  - b) No; go to step 2.

2. Measure exhaust valve lash on all six cylinders. Is any cylinder location equal to or greater than 1.0 mm (0.040 in.) of lash?
  - a) Yes; replace all six adjusting screws.
  - b) No; reset exhaust valve lash to the correct specification of 0.6 mm (0.024 in.) and verify complaint has been resolved.

#### **REPAIR PROCEDURE FOR ADJUSTING SCREW OR VALVE BRIDGE REPLACEMENT**

1. Turn ignition OFF, apply parking brake, chock wheels, and perform any other applicable safety steps.



**CAUTION:**  
**ELECTRICAL SHOCK**

To avoid injury from electrical shock, use care when connecting battery cables. The magnetic switch studs are at battery voltage.

2. Disconnect batteries.
3. Open the hood.
4. If necessary, remove bumper for access.



**WARNING:**  
**FIRE HAZARD**

Do not power wash or steam clean the engine bay in the area of vehicle electrical components, unless specified by vehicle manuals or service literature. Power washing/steam cleaning can permanently damage these components, which could result in fire, personal injury, or property damage.

5. Steam clean the engine.
6. Remove air filter housing.
7. If equipped, remove air compressor resonator.
8. Remove the rocker cover.
9. Position the engine at Top Dead Center (TDC) on the appropriate cylinder.
10. Loosen and remove the exhaust rocker arm adjusting screw locknut.
11. Thread the adjusting screw down between the exhaust valves to remove the screw from the exhaust rocker arm.
12. Install a new rocker arm adjusting screw by threading it up from the bottom of the rocker arm tip.
13. Loosely install the rocker arm adjusting screw locknut.
14. Install exhaust valve bridge onto the exhaust valves. Make sure the bridge fully seats on the front exhaust valve and rear exhaust valve cap.

**Note:** **Only** install a **new** exhaust valve bridge when it is found out of position. Reuse the exhaust valve bridge if it is properly positioned.

15. Adjust the valve and engine brake lash for all cylinders. REFERENCE the chapter “Engine Mechanical” and section “Setting the Valve and Engine Brake Lash” in the Gen 5 DD15 Platform Workshop Manual (DDC-SVC-MAN-0215). Note that the torque for the engine brake adjusting screw locknut is 30 N·m (22 lb·ft) which is much lower than GHG17 heavy-duty engines.
16. Install the rocker cover. REFERENCE the chapter “Engine Mechanical” and section “Installation of the Rocker Cover” in the Gen 5 DD15 Platform Workshop Manual (DDC-SVC-MAN-0215).
17. If equipped, install air compressor resonator.
18. Install air filter housing.



**CAUTION:**  
**ELECTRICAL SHOCK**

To avoid injury from electrical shock, use care when connecting battery cables. The magnetic switch studs are at battery voltage.

19. Connect batteries.



**WARNING:**  
**PERSONAL INJURY**

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

- Always start and operate an engine in a well ventilated area.
- If operating an engine in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system or emission control system.



**WARNING:**  
**ENGINE EXHAUST**

To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.



**WARNING:**  
**PERSONAL INJURY**

To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.

20. Start engine (key ON, engine ON) and check for oil leaks.
21. If removed, install bumper.
22. Close the hood.

### **CLAIM PROCESS**

Normal in-warranty procedures apply. PFP: Exhaust rocker arm adjusting screw.

**ISSUE 2 – Interim Corrective Action – Higher Idle Speed**

Some units equipped with a Gen 5 DD15 engine (ESN 472912S) have experienced exhaust valve bridges falling out of place and in some cases, repeat failures. This is due to exhaust rocker arm adjusting screw wear as a result of insufficient lube during extended idle periods.

It is recommended to reduce idle time whenever possible.

When a vehicle regularly idles for eight or more consecutive hours, the engine should be idled at 880RPM to improve lubrication to the exhaust rocker arm adjusting screw.

This can be achieved one of two ways:

1. Educate the driver to use the cruise switches to increase idle speed to 880RPM.
2. Contact the Detroit® Customer Support Center (CSC) for a server change to set a parameter to increase engine idle to 880RPM any time the park brake is set (Parking Brake Idle Speed).

**NOTE:** If the unit is equipped with a PTO that requires operation below 880RPM with the park brake set, the vehicle application and parameter settings must be reviewed before this parameter can be set. Please contact the Detroit® Customer Support Center (CSC) for review and corrective measures.

If the unit has experienced a failure related to exhaust valve adjusting screw wear, repairs should be completed by following the procedure outlined in **Issue 1** (Pages 2-5). Additional work is underway to improve exhaust valve adjuster screw lubrication and eliminate the need for elevated idle speeds. Once completed, this document will be removed and replaced with updated information.

Please see Page 8 of this letter for a driver notification letter to be printed and left in the cab of the unit.

**CLAIM PROCESS**

Normal In-Warranty Procedures apply.

Proactive programming is not Warrantable.

Normal in-warranty procedures apply.

PFP: Exhaust rocker arm adjusting screw

**ISSUE 3 – DiagnosticLink Routines Impacted by 880 RPM Idle Speed**

Those engines that are at risk for Issue 1 (Pages 2-5) may have Parking Brake Idle Speed set to 880 RPM, and the below DiagnosticLink routines are impacted when engine is set to this speed:

- **Automatic Fuel System Integrity Check (FSIC)** - This routine cannot execute because Parking Brake Idle Speed is 880 RPM. Error message received will state; *FSIC Automatic Test: Procedure cannot start: AAS: Engine Speed is not valid.*
- **SCR Efficiency Test** - This routine cannot execute because Parking Brake Idle Speed is 880 RPM, which is above the 600 RPM base idle required to start the routine.

**NOTE:** Parked Regenerations are not impacted and are able to be performed without the below *Required Action*.

**REQUIRED ACTION**

If either of the above routines need to be ran as directed by the TechLit Troubleshooting Manual for diagnostic procedures or repair validation, a Special Parameter to allow Parking Brake Idle Speed of 600 RPM will need to be set up by the Detroit® Customer Support Center (CSC) before the routines can be performed.

Once the change has been made, navigate to the *Parameters* window on the left-hand side bar using DiagnosticLink 8.14 Service Pack 3 (or newer). Navigate to the *Program Device* window and upload to the server before downloading, and then flash the CPC501T using the latest server settings. Run the routine required for diagnostics and repair per TechLit.

Once repairs are complete, technicians will need to contact Detroit® Customer Support Center (CSC) again to have Parking Brake Idle Speed set back to 880 RPM. Perform download from the server and flash CPC501T using latest server settings.

**CLAIM PROCESS**

Normal In-Warranty Procedures apply.  
Proactive programming is not Warrantable.  
Normal in-warranty procedures apply.  
PFP: Exhaust rocker arm adjusting screw

**CONTACT INFORMATION**

Please contact the Detroit Diesel Customer Support Center at 800-445-1980 or email [csc@daimler.com](mailto:csc@daimler.com) if you have any questions.

**ISSUE 4 – Driver Notification of Adjusted Idle RPM**

Driver notification letter.

# **ATTENTION DRIVER**

THE ENGINE IDLE SPEED HAS  
BEEN CHANGED TO 880RPM  
WHenever THE PARK BRAKE IS  
ENGAGED.

THIS IS ONLY TEMPORARY AND  
WILL BE SET BACK TO 600RPM AT  
A FUTURE DATE.