

18SP661 – EPA07 DD15 Cold Boost Pipe Service Kit (P/N: A4720981307)

KIT DESCRIPTION

New service kit (P/N: A4720981307) contains a new Cold Boost Pipe and associated parts to prevent condensation freezing near the Intake Throttle Valve. In addition to installing the parts, the MCM and possibly the CPC must be reprogrammed for the engine to run properly with the new hardware.

KIT CONTENTS

Service kit part number A4720981307 contains the parts listed in Table 1:

Part No.	Qty.	Description
A4720981207	1	Cold Boost Pipe
A4721401108	1	Mixer Pipe
N910105008005	3	Bolt, M8 x 25 – Mixer Pipe to Cold Boost Pipe
A4729970945	1	Seal Ring – Mixer Pipe to Cold Boost Pipe
A4721501633	1	Adaptor Harness
A4721530375	1	Bracket – Intake Air Temperature Sensor *
A4721530175	1	Bracket – Intake Manifold Pressure Sensor
910105008011	3	Bolt, M8 x 20 - Intake Manifold Pressure Sensor Bracket
910105008008	1	Bolt, M8 x 16 – Intake Air Temperature Sensor Bracket to Mixer Pipe
A4729970053	1	Hose – Mixer Pipe to Venturi
A0069972690	2	Hose Clamp
A4720980180	1	Seal Ring – Cold Boost Pipe to Intake Manifold
A4600980180	2	Gasket – Intake Throttle Valve
N000835008131	1	Stud, M8 x 30 – Grid Heater
05101020	3	Tie Straps
N/A	1	Oil Level Label
18SP661	1	Installation Instructions

* For Western Star applications, Bracket P/N: A4721500175 must be used (purchased separately).

Table 1 DD15 Cold Boost Pipe Installation Kit (P/N: A4720981307)

 **WARNING:**

PERSONAL INJURY

To avoid injury, never remove any engine component while the engine is running.

 **WARNING:**

PERSONAL INJURY

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

 **WARNING:**

PERSONAL INJURY

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

REPLACEMENT PROCEDURE

Install the new Cold Boost Pipe service kit as follows:

NOTE:

Certain parts must be retained during the removal process for reuse during the installation process. These parts will be noted in **bolded** font in the removal steps below.

REMOVAL

1. Apply the parking brake, chock the wheels, disconnect vehicle battery power, and perform any other applicable safety steps.
2. Remove three bolts securing Mixer Pipe to Cold Boost Pipe. Discard the bolts.
3. Remove two hose clamps from hose on Mixer Pipe and Venturi. Discard the clamps.
4. Remove Mixer Pipe from Cold Boost Pipe and Venturi. Discard Mixer Pipe and hose.
5. Disconnect Engine Sensor Harness from Intake Air Temperature Sensor, Intake Manifold Pressure Sensor, Intake Throttle Valve, and Grid Heater.
6. Remove two nuts securing vehicle power and ground cables to the Grid Heater. **Save nuts for reuse.**
7. Remove bolt and bracket securing vehicle power and ground Grid Heater cables to Cold Boost Pipe. **Save bolt and bracket for reuse.**
8. Remove CAC hose clamp and hose from Intake Throttle Valve. **Save clamp and hose for reuse.**
9. Remove four bolts securing Adaptor and Intake Throttle Valve to Cold Boost Pipe. **Save bolts for reuse.**
10. Remove Intake Air Temperature Sensor bracket, Adaptor, Intake Throttle Valve and two gaskets. Discard two gaskets and bracket. **Save Adaptor and Intake Throttle Valve for reuse.**
11. Remove three bolts securing Grid Heater to Cold Boost Pipe. Remove Grid Heater. **Save Grid Heater, seal, and bolts for reuse.**
12. Remove Intake Manifold Pressure Sensor from Cold Boost Pipe. **Save Intake Manifold Pressure Sensor for reuse.**
13. Remove four bolts securing Cold Boost Pipe to intake manifold. **Save bolts for reuse.**
14. Remove two bolts securing Cold Boost Pipe bracket to Cold Boost Pipe. **Save bolts for reuse.** See Figure 3.
15. Remove and discard Cold Boost Pipe.



Figure 3 Cold Boost Pipe Bracket Bolts to Cold Boost Pipe

INSTALLATION

1. Install new Seal Ring (P/N: A4720980180) on intake manifold.
2. Secure new Cold Boost Pipe (P/N: A4720981207) to intake manifold with four bolts. Torque bolts to 30 N·m (22 lb·ft).
3. Attach Cold Boost Pipe support bracket to the Cold Boost Pipe using two M10 x 35 bolts. Torque M10 bolts to 60 N·m (44 lb·ft). See Figure 3.
4. Install new mixer pipe Seal Ring (P/N: A4729970945) into Cold Boost Pipe.
5. Install two new Hose Clamps (P/N: A0069972690) and new Hose (P/N: A4729970053) on new Mixer Pipe (P/N: A4721401108). Do not tighten clamps. See Figure 4.



Figure 4 Installation of Mixer Pipe Hose and Clamps

6. Insert EGR cooler side of Mixer Pipe hose on Venturi, and secure Mixer Pipe to Cold Boost Pipe with three new bolts (P/N: N910105008005). Torque bolts to 30 N·m (22 lb·ft). See Figure 5.



Figure 5 Installation of Mixer Pipe

7. Position and secure two Hose Clamps on new Mixer Pipe hose. Torque to 3 N·m (2 lb·ft). See Figure 6.



Figure 6 Installation of Mixer Pipe Hose Clamps

8. Install new Stud (P/N: N000835008131) in Cold Boost Pipe. Torque Stud to 15 N·m (11 lb·ft). See Figure 7 for location of Stud.
9. Install Grid Heater with electrical connector facing to front of engine and secure with three bolts to Cold Boost Pipe. Torque bolts to 30 N·m (22 lb·ft). See Figure 7.
10. Install the vehicle power and ground cables to the Grid Heater and secure with two nuts. Torque nuts to 25 N·m (18 lb·ft). See Figure 7.

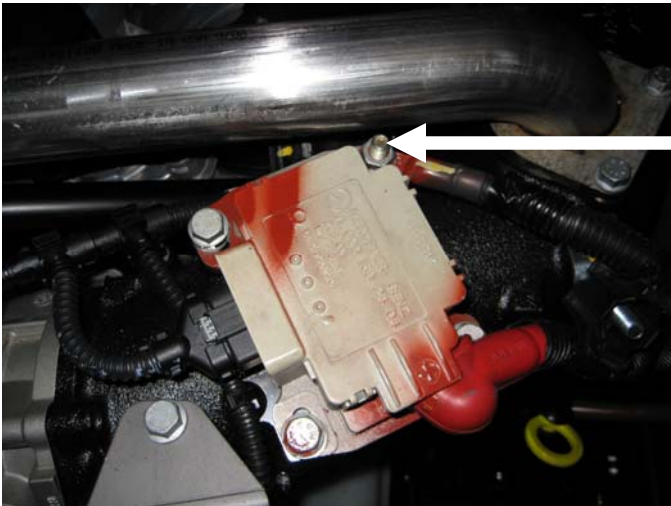


Figure 7 Installation of Grid Heater Stud

11. Install bolt and bracket securing the vehicle power and ground Grid Heater cables to Cold Boost Pipe. Torque bolt to 25 N·m (18 lb·ft).
12. Install Intake Manifold Pressure Sensor to Cold Boost Pipe and secure with two bolts. Torque bolts to 12 N·m (9 lb·ft).
13. Install new Intake Manifold Pressure Sensor bracket (P/N: A4721530175) to Cold Boost Pipe and secure with three new bolts (P/N: 910105008011). Torque bolts to 30 N·m (22 lb·ft). See Figure 8.

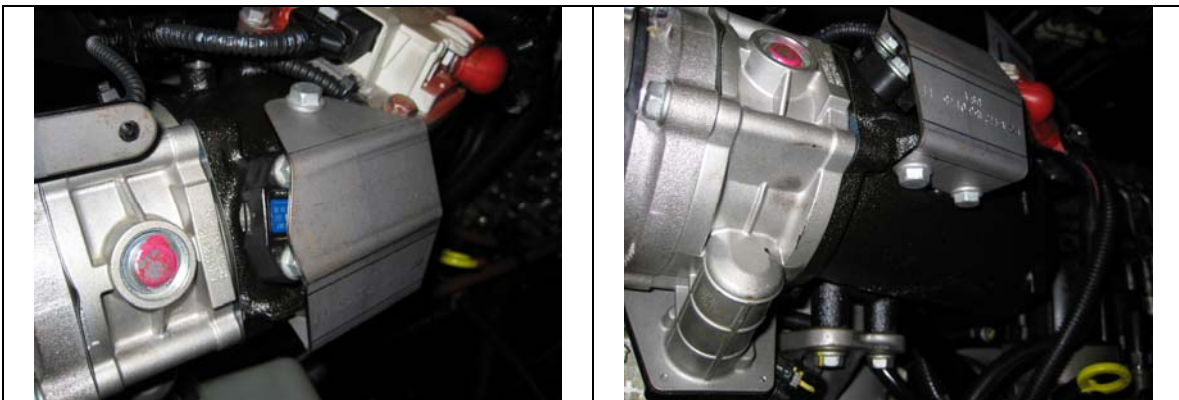


Figure 8 Installation of Intake Manifold Pressure Sensor Bracket

14. Install the new Intake Air Temperature Sensor bracket as follows (See Figure 9):
 - a. For Freightliner and Sterling trucks, install new Bracket (P/N: A4721530375) that comes in the kit with Adaptor and new Gasket (P/N: A4600980180) to the Intake Throttle Valve with four bolts.
 - b. For Western Star trucks, install new Bracket (P/N: A4721500175 - purchased separately) with Adaptor and new Gasket (P/N: A4600980180) to the Intake Throttle Valve with four bolts.

15. Install Intake Throttle Valve and new Gasket (P/N: A4600980180) to Cold Boost Pipe and secure with four bolts previously used for the Adaptor. Do not tighten the bolts. See Figure 9.
16. Install new Bolt (P/N: 910105008008) through Intake Air Temperature Sensor bracket into Mixer Pipe. Torque bolt to 30 N·m (22 lb·ft). See Figure 9.



Figure 9 Installation of Intake Throttle Valve and Related Parts

17. Torque four bolts securing Intake Throttle Valve to Cold Boost Pipe to 30-38 N·m (22-28 lb·ft).
18. Install CAC hose and clamp to Adaptor and torque to 5 N·m (45 lb·in.).
19. Attach new Adaptor Harness (P/N: A4721501633) to the corresponding connectors on Engine Sensor Harness. Use Tie Straps (P/N: 05101020) to secure extra harness length to main branch of Engine Sensor Harness. See Figure 10.



Figure 10 Installation of Adaptor Harness Using Tie Straps

20. Attach Adaptor Harness to the Intake Air Temperature Sensor, Intake Manifold Pressure Sensor, Intake Throttle Valve, and Grid Heater. Be particularly careful

when attaching the Adaptor Harness to the Grid Heater and Intake Manifold Pressure Sensor since these connectors are identical and are not labeled on the Adaptor Harness. The 90 degree 4-pin connector attaches to the Intake Manifold Pressure Sensor and the straight 4-pin connector attaches to the Grid Heater. See Figure 11.

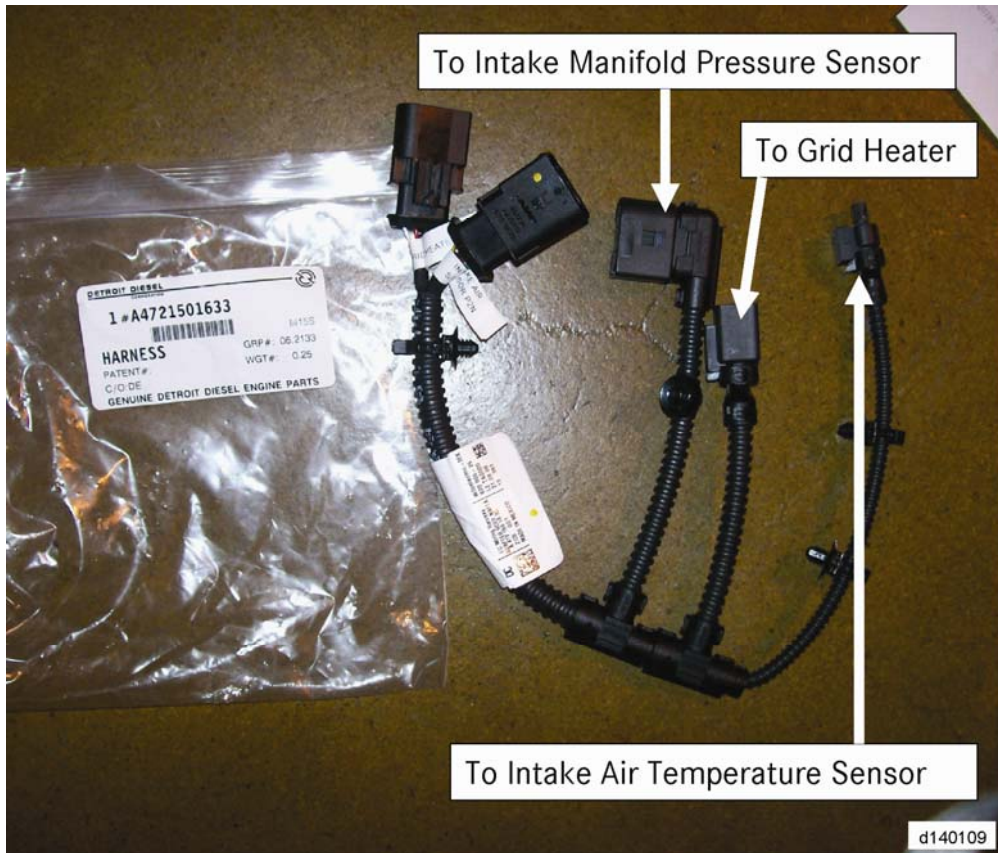


Figure 11 Adaptor Harness Connections

21. Attach four Adaptor Harness Clips to Cold Boost Pipe and Intake Air Temperature Sensor Bracket. See Figure 12.



Figure 12 Installation of Adaptor Harness Clips

⚠ CAUTION:

ELECTRICAL SHOCK

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

22. Install new Oil Level Label on Cold Boost Pipe. See Figure 13.



Figure 13 Installation of Oil Level Label

23. Reconnect vehicle battery power.

24. Call the Detroit Diesel Customer Support Center (313-592-5800) to have the server reset to the correct fuel map. Note the extra requirements for CARB units (reference 08 CSA-21). Reprogram the MCM to software level v11.4.0.0 or higher. Ensure the CPC is programmed to software level r4.01 or higher.

⚠ WARNING:

ENGINE EXHAUST

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

25. Start the engine and verify the repair.



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

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