DG Technical Support Bulletin

May 15, 2015

Volvo/Mack 2013 (and Newer Vehicles) and The DPA 5

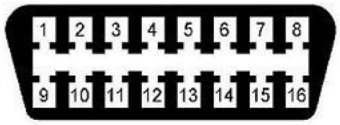
Tech Support Bulletin - Application Notes

- This bulletin applies only to 2013 and newer Volvo/Mack chassis using the SAE J1962/OBDII connector. It does not apply to Volvo/Mack chassis using the standard 9-pin Deutsch connector.
- The DPA 4 Plus cannot be used with these platforms and the user must upgrade to a DPA 5.

Introducing the New Volvo OBDII Connector

In 2013, Volvo introduced a new diagnostic connector. It is based ***in part*** on the SAE standard J1962/OBDII connector. It has two CAN channels with the ISO15765 protocol on CAN Channel 1 and the J1939 protocol on CAN channel 2. The connector also contains the J1708/J1587 protocol. The position of J1939 on CAN channel 2 **is significant** since J1939 has always been traditionally connected to CAN channel 1.

A second CAN channel and a J1708 channel are not part of the J1962/OBDII standard connector (see table below). This required every Vehicle Diagnostic Adapter (VDA) vendor to develop a new cable solution for this platform. The following diagram shows the pinouts of the Volvo connector and the differences between Volvo's implementation and the standard J1962/OBDII:



RED = SAE J1962/OBDII
GREEN = Volvo Specific

* Ford DCL Was For Argentina & Brazil, Pre-OBDII 1997-2000

Pin	CAN Channel	Volvo Function	OBDII Function
1			N/C
2			J1850(+)
3	**CAN 2(+)**	**J1939(+)**	Ford DCL(+)*
4			Chassis Ground
5		Ground	Signal Ground
6	CAN 1(+)	ISO15765(+)	ISO15765(+)
7			K-Line ISO9141/ISO14230
8			N/C
9			N/C
10			J1850(-)
11	**CAN 2(-)**	**J1939(-)**	Ford DCL(-)*
12		**J1708(+)**	N/C
13		**J1708(-)**	N/C
14	CAN 1(-)	ISO15765(-)	ISO15765(-)
15			L-Line ISO9141/ISO14230
16		BAT (+12V)	BAT (+12V)

The following pages explain what DPA 5 cables to use for running Volvo PTT and for running component applications such as Allison DOC, Eaton Service Ranger, Meritor-WABCO Toolbox, Bendix ACOM, etc.

After the cables are introduced and their applications explained, there is a section on how to run Adapter Validation Tool (AVT) to troubleshoot the DPA 5 connectivity as well as running DG Diagnostics (MD/HD) and DG Diagnostics (OBDII) on this platform.

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DG-DPA5-9OBDII-CABLE

The OBDII connector is only used for Volvo PTT and DG Diagnostics software!
The crossover cable described below is NOT used for Volvo PTT!!!

The DG-DPA5-9OBDII-CABLE has an OBDII connector that meets the needs of Volvo PTT along with other standard SAE J1962/OBDII diagnostics and reflashing software. The OBDII connector only works for *Volvo PTT*, *DG Diagnostics (OBDII)*, DG Diagnostics (MD/HD) or third-party OBDII compliant applications. ***A user cannot connect to Allison, Eaton, WABCO, or Bendix components through this cable alone (the XOVER cable is needed - see below)!!!***

This cable also has a standard J1939 Type II (250k and 500k) connector. This keeps the user from having to switch cables between an OBDII vehicle and a standard Deutsch 9-pin vehicle.

DG-V13-XOVER-CABLE (Crossover Cable)

This cable is only used for connecting to Allison, Eaton, WABCO, Bendix, or other component applications.
The crossover cable CANNOT be used with Volvo PTT or DG Diagnostics!!!

The DG-V13-XOVER-CABLE has a special purpose. When used in conjunction with the DG-DPA5-9OBDII-CABLE, it passes J1708 data as well as crossing CAN Channel 2 (where J1939 is) to CAN Channel 1 (where ISO15765 is) and vice versa. The significance is that when a component application connects to J1939, it expects it to be on CAN Channel 1. Since J1939 on this platform is on CAN Channel 2, this special cable was needed to crossover J1939 to CAN Channel 1.

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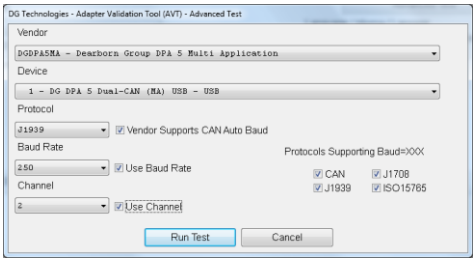
Using AVT (MD/HD) to Test This Vehicle Platform – J1708/J1587 Protocol

1. Connect the DG-DPA5-9OBDII-CABLE (only) to the DPA 5 and vehicle OBDII connector.
2. Run ***AVT (MD/HD)***.
3. Select
    i. Vendor: DGDPA5MA - Dearborn Group DPA 5 Multi Application
    ii. Device: 1 – DG DPA 5 Dual-CAN (MA) USB – USB
    iii. Protocol: J1708
4. Press the ***Run Test*** button.
    i. Green/green indicates J1708/J1587 is working properly.

Using AVT (MD/HD) to Test This Vehicle Platform – J1939 Protocol

1. Connect the DG-DPA5-9OBDII-CABLE (only) to the DPA 5 and vehicle OBDII connector.
2. Run ***AVT (MD/HD)***.
3. Press the ***Advanced Test*** button to get the Advanced Test dialog box.
4. Select
    i. Vendor: DGDPA5MA - Dearborn Group DPA 5 Multi Application
    ii. Device: 1 – DG DPA 5 Dual-CAN (MA) USB – USB
    iii. Protocol: J1939
    iv. Baud Rate: 250
        1. Check ***Use Baud Rate*** checkbox.
    v. Channel: 2
        1. Check ***Use Channel*** checkbox.



5. Press the ***Run Test*** button.
6. Green/green indicates J1939 on CAN Channel 2 is working properly.

Using AVT (OBDII) to Test This Vehicle Platform – ISO15765 Protocol

1. Connect the DG-DPA5-9OBDII-CABLE (only) to the DPA 5 and vehicle OBDII connector.
2. Run ***AVT (OBDII)***.
3. Select
    i. Vendor: DPA 5 – Dearborn Group, Inc.
    ii. Protocol: ISO15765:1
4. Press the ***Run Test*** button.
5. Green/green indicates ISO15765 on CAN Channel 1 is working properly.

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Using DG Diagnostics (MD/HD) on This Vehicle Platform – J1708/J1939 Protocols

1. Connect the DG-DPA5-9OBDII-CABLE (only) to the DPA 5 and vehicle OBDII connector.
2. Run ***DGD (MD/HD)***.
3. Select
   ii. Vendor: DGDPA5MA - Dearborn Group DPA 5 Multi Application
   iii. Device: 1 – DG DPA 5 Dual-CAN (MA) USB – USB
4. Check the "***2013 (or newer) Volvo + Volvo engine (OBDII connector - J1939:Channel=2)***" checkbox. This tells DGD to look for the J1939 protocol on CAN channel 2.
5. Press the ***Connect*** button.

Using DG Diagnostics (OBDII) on This Vehicle Platform – ISO15765 Protocol

1. Connect the DG-DPA5-9OBDII-CABLE (only) to the DPA 5 and vehicle OBDII connector.
2. Run ***DGD (OBDII)***.
3. Select ***File Menu -> Configuration***
4. Select
   i. Vendor: DPA 5 – Dearborn Group, Inc.
5. Click the ***Save*** button.
6. Press the ***Connect*** button.

Configuring Volvo/Mack Premium Tech Tool (PTT) – Version 2.X

1. Start Program.
2. Select Settings from the PTT menu.
3. Go to the Communication Unit tab:
4. Highlight RP1210 Dearborn Group DPA 5 Single Application USB.
5. Select Activate (green circle with checkmark).
6. In a few seconds, under the Status column, Activated will appear next to RP1210 Dearborn Group DPA 5 Single Application USB.
7. Select the OK Button.
   - Wait a few minutes to establish connection. If connection doesn't occur, re-boot the PC.
   - **Do not select *Connect* immediately after PTT opens!** Reading product data.... will appear after a little bit of time while the connection is being established.

Configuring Volvo/Mack Premium Tech Tool (PTT) – Version 1.X

1. Start Program.
2. Select Settings from the PTT menu.
3. Go to the Communication Unit configuration tab:
   a. It is here that you select the settings for each adapter that you may use. For example, if you have an RP1210A adapter, it is here that you select which adapter, port, and protocol.
   b. NOTE: This identifies the settings for each adapter. It does not select which adapter the PTT application will use to communicate with the vehicle.
4. Go to the Comm unit selection tab:
   a. It is here that you identify which adapter is to be used by the PTT application to communicate with the vehicle. You may have to change this selection depending upon the vehicle.
   b. For example, if you typically use an 88890020 adapter in direct mode, when you need to communicate with an older vehicle you will need to change to RP1210A adapter or the 9998555 adapters, depending upon the vehicle.

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