

Subject: Meritor WABCO OnGuard System

Models Affected: Specific Freightliner Cascadia vehicles manufactured November 13, 2012, through March 13, 2014, with a Meritor WABCO OnGuard system.

General Information

Daimler Trucks North America LLC, on behalf of its Freightliner Trucks Division, is initiating Field Service Campaign SF499A-H to modify the vehicles mentioned above.

Certain vehicles with the OnGuard System may not perform optimally under all conditions. A range of updates to enhance the performance of the OnGuard System have been made.

Specific updates will be made to the OnGuard System unit as necessary.

There are approximately 15,000 vehicles involved.

Additional Repairs

Dealers must complete all outstanding field service campaigns prior to the sale or delivery of a vehicle. A Dealer will be liable for any progressive damage that results from its failure to complete campaigns before sale or delivery of a vehicle.

Owners may be liable for any progressive damage that results from failure to complete campaigns within a reasonable time after receiving notification.

Please contact Warranty Campaigns for consideration of additional charges prior to performing the repair.

Work Instructions

Please refer to the attached work instructions. Prior to performing the campaign, check the vehicle for a completion sticker (Form WAR261).

Replacement Parts

Replacement parts are now available and can be obtained by ordering the kit number listed below from your facing Parts Distribution Center.

If our records show your dealership has ordered any vehicle(s) involved in campaign SF499A-H, a list of the customers and vehicle identification numbers will be available on AccessFreightliner.com. Please refer to this list when ordering parts for this campaign.

Field Service Campaign

**Daimler Trucks
North America LLC**

June 2014
SF499A-H

Table 1 - Replacement Parts for SF499A-H

Campaign Number	Kit Number	Part Description	Part Number	Qty. per Kit	Suggested Wholesale*
SF499A, D, E, and H	25-SF499-000	BRACKET-STANDOFF	23-09130-007	1 ea	\$3.19 US \$3.32 CAN
		STRAP-TIE, STUD MNT	23-12115-001	3 ea	
		STRAP-TIE STUD MNT 3	23-13279-000	2 ea	
		STRAP-TIE ANTI-VIB M6.3 PUSHON	23-13481-000	1 ea	
		TIE STRAP-BUTTON HEAD,.3 X 15.05IN	23-12069-001	3 ea	
		COMPLETION STICKER	WAR261	1 ea	

* Please charge all U.S. and Canadian Direct Warranty Customers the above-listed price for the kit, as they are authorized to perform their own Recalls. This pricing does not apply to Export Distributors.

Table 1

Removed Parts

U. S. and Canadian Dealers, please follow Warranty Failed Parts Tracking shipping instructions for the disposition of all removed parts. Export distributors, please destroy removed parts unless otherwise advised.

Labor Allowance

Table 2 - Labor Allowance

Campaign Number	Procedure	Time Allowed (hours)	SRT Code	Damage Code
SF499A (4,941 vehicles)	OnGuard Radar and Display update, DDE PT update, Harness Routing Mod	2.1	996-0932A	000-Modifiedx
SF499B (4,510 vehicles)	OnGuard Radar update, DDE PT update	1.0	996-0932B	000-Modifiedx
SF499C (3,587 vehicles)	OnGuard Radar and Display update, DDE PT update	1.1	996-0932C	000-Modifiedx
SF499D (816 vehicles)	OnGuard Radar update, DDE PT update, Harness Routing Mod	2.0	996-0932D	000-Modifiedx
SF499E (484 vehicles)	OnGuard Radar and Display update, Harness Routing Mod	1.4	996-0932E	000-Modifiedx
SF499F (343 vehicles)	OnGuard Radar update	0.3	996-0932F	000-Modifiedx
SF499G (302 vehicles)	OnGuard Radar and Display update	0.4	996-0932G	000-Modifiedx
SF499H (2 vehicles)	OnGuard Radar, Harness Routing Mod	1.3	996-0932H	000-Modifiedx
SF499A-D (1,997 vehicles)	Vehicles with DT12 transmission add an additional 0.2 hrs	0.2	996-0932I	000-Modifiedx

Table 2

IMPORTANT: When the campaign has been completed, locate the base completion label in the appropriate location on the vehicle, and attach the gray completion sticker provided in the field service kit (Form WAR261). If the vehicle does not have a base completion label, clean a spot on the appropriate location of the vehicle and first attach the base completion label (Form WAR259). If a field service kit is not required or there is no completion sticker in the kit, write the campaign number on a blank sticker and attach it to the base completion label.

Claims for Credit

You will be reimbursed for your parts, labor, and handling (landed cost for Export Distributors) by submitting your claim through the Warranty system within 30 days of completing this campaign. Please reference the following information in QuickClaim or OWL:

- Claim type is **Field Service**.
- In the FTL Authorization field, enter the campaign number and appropriate condition code (e.g. SF499A, SF499B, etc.)
- In the Primary Failed Part Number field, enter **25-SF499-000**.
- In the Parts field, enter the appropriate kit number(s) as shown in the Replacement Parts Table.
- In the Labor field, first enter the appropriate SRT from the Labor Allowance Table. For administrative time, enter SRT 939-0010A for 0.3 hours. Vehicles with the DT12 transmission may add SRT 996-0932I to their claim for an additional 0.2 hours.
- For OWL, the VMRS Component Code is 036-001-034 and the Cause Code is A1 - Campaign.

This Field Service Campaign will **terminate on June 30, 2015**. Dealers will be notified of any changes to the termination date via Important Campaign Information Letter posted on AccessFreightliner.com.

IMPORTANT: ServicePro or OWL must be viewed prior to beginning work to ensure the vehicle is involved and the campaign has not previously been completed. Also, check for a completion sticker before beginning work.

All claims must be submitted within 30 days of the repair and within 30 days of the termination date of the campaign. U.S. and Canadian Dealers: All excess inventory to be returned to the PDC following the conclusion of the campaign must be returned in resaleable condition to the Memphis PDC within 90 days from the termination date. Please submit a PAR to request return to the Memphis PDC. (Canadian dealers should return the kits to their facing PDC.) Export Distributors: Excess inventory is not returnable.

U.S. and Canadian dealers, contact the Warranty Campaigns Department from 7:00 a.m. to 4:00 p.m. Pacific Time, Monday through Friday, via Web inquiry at AccessFreightliner.com / Support / My Tickets and Submit an Inquiry, or the Customer Assistance Center at (800) 385-4357, after normal business hours, if you have any questions or need additional information. Export distributors submit a Web inquiry or contact your International Service Manager.

Field Service Campaign

Daimler Trucks
North America LLC

June 2014
SF499A-H

Copy of Notice to Owners Subject: Meritor WABCO OnGuard System

Daimler Trucks North America LLC, on behalf of its Freightliner Trucks Division, is initiating Field Service Campaign SF499A-H to modify specific Freightliner Cascadia vehicles manufactured November 13, 2012, through March 13, 2014, with a Meritor WABCO OnGuard system.

Certain vehicles with the OnGuard System may not perform optimally under all conditions. A range of updates to enhance the performance of the OnGuard System have been made.

Specific updates will be made to the OnGuard System unit as necessary.

Please contact an authorized Daimler Trucks North America dealer to arrange to have the campaign performed and to ensure that parts are available at the dealership. To locate an authorized dealer, search online at www.Daimler-TrucksNorthAmerica.com / Contact Us / Find a Dealer. The campaign will take approximately one to three hours depending on the repair and will be performed at no charge to you.

This Field Service Campaign will **terminate on June 30, 2015**. Please make sure the campaign is completed prior to this date. Work completed after this date will be done at the customer's expense.

As stated in the terms of your express limited warranty, Daimler Trucks North America LLC will not pay for any damage caused by failure to properly maintain your vehicle. Daimler Trucks North America LLC considers the work necessary under this campaign to be proper maintenance and will, therefore, not pay for any damage to your vehicle caused by your failure to have the repairs that are the subject of this campaign performed in a reasonable time.

Contact the Warranty Campaigns Department at (800) 547-0712, from 7:00 a.m. to 4:00 p.m. Pacific Time, Monday through Friday, e-mail address DTNA.Warranty.Campaigns@Daimler.com, or the Customer Assistance Center at (800) 385-4357, after normal business hours, if you have any questions or need additional information.

WARRANTY CAMPAIGNS DEPARTMENT

Enclosure

Work Instructions

Subject: Meritor WABCO OnGuard System

Models Affected: Specific Freightliner Cascadia vehicles manufactured November 13, 2012, through March 13, 2014, with a Meritor WABCO OnGuard system.

Preliminary Procedure

1. Check the base label (Form WAR259) for a completion sticker for SF499 (Form WAR261) indicating this work has been completed. The base label is usually located on the passenger-side door, about 12 inches (30 cm) below the door latch. If a completion sticker is present, no work is needed. If a completion sticker is not present, proceed to the next step.
2. Park the vehicle on a level surface. Shut down the engine, set the parking brake, and chock the tires.
3. Below is a listing of the vehicle populations and their respective repair(s). For each vehicle, complete the appropriate section(s) of the work instructions in the order listed below:
 - **SF499A:** - OnGuard Radar Update - pg 6
 - OnGuard Display Update - pg 9
 - DDE Powertrain Update - pg 11
 - Harness Routing Modification - pg 13
 - **SF499B:** - OnGuard Radar Update - pg 6
 - DDE Powertrain Update - pg 11
 - **SF499C:** - OnGuard Radar Update - pg 6
 - OnGuard Display Update - pg 9
 - DDE Powertrain Update - pg 11
 - **SF499D:** - OnGuard Radar Update - pg 6
 - DDE Powertrain Update - pg 11
 - Harness Routing Modification - pg 13
 - **SF499E:** - OnGuard Radar Update - pg 6
 - OnGuard Display Update - pg 9
 - Harness Routing Modification - pg 13
 - **SF499F:** - OnGuard Radar Update only - pg 6
 - **SF499G:** - OnGuard Radar Update - pg 6
 - OnGuard Display Update - pg 9
 - **SF499H:** - OnGuard Radar Update - pg 6
 - Harness Routing Modification - pg 13

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NOTICE

Before performing the OnGuard and DDE Powertrain updates, make sure the diagnostic adapter firmware is updated and the most current versions of WABCO TOOLBOX and DRS (or DiagnosticLink) are installed.

OnGuard Radar Update

NOTE: An internet connection is required to obtain the OnGuard programming tool.

1. Download the "OnGuard Programming Tool" from the Meritor WABCO website.
 - 1.1 On a web browser, navigate to <ftp://mwtoolbox.com>

NOTE: The User ID and password are case sensitive.
 - 1.2 When prompted, enter the following User ID and password:
 - User ID: OnGuard
 - Password: DTNA1
 - 1.3 Click the link "OnGuard Programming Tool v1.zip"
 - 1.4 When prompted to open or save the file, select Save.
 - 1.5 When prompted to Save As, save the file to a known location.
 - 1.6 After the file is downloaded, select Open.
 - 1.7 Unzip the "OnGuard Programming Tool v1.zip" folder. The folder should contain the following four files:
 - OnGuard Programming Tool.exe
 - Adapter_Selection.exe
 - J1939Diag_UDS.dll
 - ars301_appl_DPL1-60-1-6-1-9-4-3-1-3.hex

NOTICE

Be sure to save all the files in the same location/folder. Failure to do so will result in errors and prevent the software update tool from starting.

NOTE: Contact the Meritor WABCO Customer Call Center at 1-855-454-8273 for assistance with downloading, installing, or running the update tool.

2. Make sure the ignition is off, then connect the computer to the vehicle's diagnostic connector using a diagnostic adapter.
3. Turn the ignition key to the ON position and wait 20 seconds.
4. Check for any diagnostic trouble codes displayed on the radar OnGuard display unit. If there are any diagnostic trouble codes, correct them before continuing with the campaign.
5. On the laptop, run the program file "OnGuard Programming Tool.exe." A window will open when the application is launched. See **Fig. 1**.

NOTE: The radar update process should take less than 10 minutes. Updating the device drivers of the diagnostic adapter via the manufacturer's website may expedite the process.

6. Select "UPDATE RADAR SOFTWARE."

If the tool is able to connect to the adapter, the software and ECU will connect and the software will continue. Go to step 9.

If the tool is unable to connect to the adapter, the message "Unable to connect to the adapter" will appear. Select OK and continue with step 7.

7. The next message box to appear says "Ensure that the correct adapter is selected in the following window, then retry connecting to the ECU." Select OK.

8. Select the adapter being used from the list. Select OK. See **Fig. 2**



Fig. 1, Update Radar Software Screen



Fig. 2, Adapter Settings Entry



Fig. 3, Software Installation Status



Fig. 4, Initializing File for Download

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9. If the software connects to the radar, but the radar already has the latest application software, the Software Installation Status screen will appear. See **Fig. 3**. Select YES to save the parameter, then follow the screen prompts. When the prompts are completed, go to step 11.

If the radar does not have the latest application software, the Status Message will read "Initializing File for Download". See **Fig. 4**. Continue below.

The next screen to appear will be the "VIN Entry Screen." See **Fig. 5**. Enter the 17 digits of the VIN in the text box, then select "Save Parameters."

IMPORTANT: Once the process is finished, a message displays indicating a successful flash. There is also an instruction in the dialog box to email saved parameters to Meritor WABCO. It is not necessary to email parameters to Meritor WABCO. This instruction can be ignored.

10. Once the radar update is complete, the "Radar Programming Successful" message appears. See **Fig. 6**.

11. Close the window.

NOTICE

If the radar software update fails, try again. If after three attempts it still will not complete the update, run OnGuard within Meritor TOOLBOX and check the "Product Information" screen. If the software version name is legibly displayed, shutdown TOOLBOX, turn the ignition off, reboot the laptop, then begin the procedure again at step 2. If the software version field contains a series of "Ys" ("yyyyyyyyyyyyyyy") the OnGuard radar must be replaced. Contact Meritor at 1-855-454-8273 for more information.

If several units require multiple attempts to complete the update, or if multiple units in a row have the Software Version Name error, or there is reason to suspect that data transmission may be slow or erratic, try switching out the USB cable from the computer to the adapter.

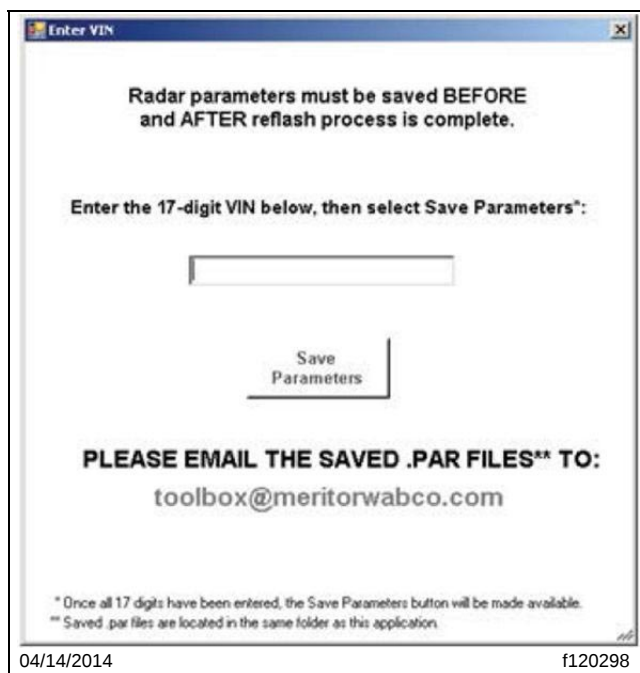


Fig. 5, VIN Entry Screen



Fig. 6, Radar Programming Successful

12. Turn off the ignition, disconnect the adapter from the vehicle and wait two minutes.
13. Turn on the ignition and verify there are no diagnostic trouble codes or error messages displayed on the OnGuard display unit. Troubleshoot, if needed.
14. The OnGuard Radar update is complete. Go to the next designated repair for this vehicle as listed below:
 - Vehicles in SF499A, C, E, and G, go to OnGuard Display Update on pg 9.
 - Vehicles in SF499B and D, go to DDE Powertrain Update on pg 11.
 - Vehicles in SF499H go to Harness Routing Modification on pg 13.
 - Vehicles in SF499F, the campaign is complete. Clean a spot on the base label (Form WAR259). Write the campaign number, SF499, on a blank grey completion sticker (Form WAR261) to indicate the work has been completed and attach it to the base label.

OnGuard Display Update

1. Make note of the existing OnGuard™ Display Software version.
 - 1.1 Turn on the vehicle ignition switch.
 - 1.2 Look for revision level 1.1 (Rev 1.1) listed at the bottom of the display initialization screen. See **Fig. 7**.

If the display shows Rev 1.1, the latest software version is already installed. No further work is necessary in the "OnGuard Display Update" procedure. Go to the next designated repair for this vehicle as listed below:

- Vehicles in SF499A and C, go to DDE Powertrain Update on pg 11.
- Vehicles in SF499E, go to Harness Routing Modification on pg 13.
- Vehicles in SF499G, the campaign is now complete. Clean a spot on the base label (Form WAR259). Write the campaign number, SF499, on a blank grey completion sticker (Form WAR261) to indicate the work has been completed and attach it to the base label.

If the display does not show Rev 1.1, go to step 3.



Fig. 7, OnGuard Display Software Initialization Screen

2. Check for any diagnostic trouble codes displayed on the radar OnGuard display unit. If there are any diagnostic trouble codes, correct them before continuing with the campaign.

NOTE: An internet connection is required to obtain the OnGuard programming tool.

3. Download the "Software Reflash" tool from the Meritor WABCO website.

- 3.1 On a web browser, navigate to <ftp://mwtoolbox.com>

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NOTE: The User ID and password are case sensitive.

3.2 When prompted, enter the following User ID and password:

- User ID: OnGuard
- Password: DTNA1

3.3 Click on the link "MeritorWabcoDisplay_ ReflashTool_v100.zip".

3.4 When prompted to open or save the file, select Save.

3.5 When prompted to Save As, save the file to a known location.

3.6 After the file downloaded, select Open.

3.7 Unzip the "MeritorWabcoDisplay_ ReflashTool_v100.zip" folder. The folder will contain the following three files:

- MeritorWabcoDisplay_ReflashTool.exe
- SOF00086211_SBF.mot
- uninstall.exe

NOTICE

Be sure to save all the files in the same location/folder. Failure to do so will result in errors and prevent the software update tool from starting.

NOTE: Contact the Meritor WABCO Customer Call Center at 1-855-454-8273 for assistance with downloading, installing, or running the update tool.

4. Turn off the vehicle ignition switch. The OnGuard display unit will shut down.

5. Make sure the ignition is off, then connect the computer to the vehicle's diagnostic connector using a diagnostic adapter.

6. Run the MeritorWabcoDisplay_ReflashTool.exe program.

7. The "Device Selection Screen" will appear. See **Fig. 8**

7.1 From the Tools drop-down list, select the device name for the applicable diagnostic tool (NEXIQ or NOREGON).

7.2 From the Protocol drop-down list, select CAN (CAN Network Protocol).

7.3 From the Device drop-down list, select one of the following:

- USBLINK (USB-Link) if using a NEXIQ USB-Link tool
- DLA+PLC (DLA+PLC, USB) if using a NOREGON DLA+PLC tool

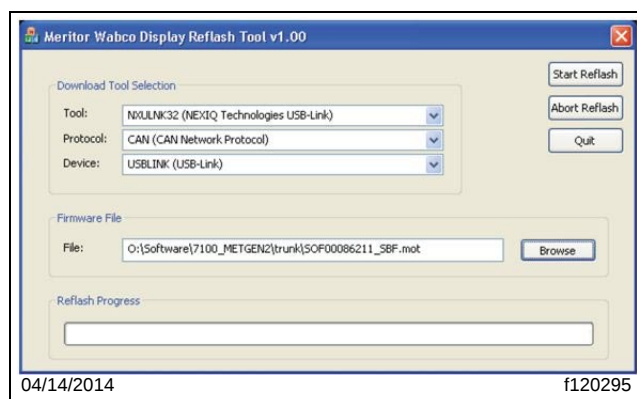


Fig. 8, Device Selection Screen

IMPORTANT: Always use a USB connection. Do not use a Bluetooth or wireless connection.

8. Click the "Browse" button, navigate to the Save location on the computer, then Select the OnGuard display software file: **SOF00086211_SBF.mot**.
9. Click "Start Reflash" to begin the process.
10. Press and hold the DOWN key on the OnGuard display unit. While holding the DOWN key, turn on the vehicle ignition switch. The OnGuard display should go into Boot mode and the screen should stay blank. Wait for the instrument cluster gauges to finish their sweep, then release the DOWN key.
11. Select the OK button on the computer screen message. Wait for the progress bar under Reflash Progress to turn completely green. The display update should take less than five minutes to complete.
12. After the display update is finished, the OnGuard display will beep and the backlight will turn on showing the Software Initialization screen for a few seconds. See **Fig. 7**. Verify that the display software version now reads **Rev 1.1**. The OnGuard display should continue in a normal NO CMS mode. The OnGuard Display Software has now been successfully updated to revision level 1.1.

IMPORTANT: If the OnGuard display screen fails to power up after the update has completed, or other error messages are generated, the update was not successful. Contact the Meritor WABCO Customer Call Center at 1-855-454-8273 for assistance.

13. Select Quit in the display reflash tool.
14. The OnGuard Display update is complete. Go to the next designated repair for this vehicle as listed below:
 - Vehicles in SF499A and C, go to DDE Powertrain Update on pg 11.
 - Vehicles in SF499E, go to Harness Routing Modification on pg 13.
 - Vehicles in SF499G, the campaign is complete. Clean a spot on the base label (Form WAR259). Write the campaign number, SF499, on a blank grey completion sticker (Form WAR261) to indicate the work has been completed and attach it to the base label.

DDE Powertrain Update

1. Verify that the current version of Detroit reprogramming software is being used.
 - 1.1 Open the programming software.
 - 1.2 Select the "Help" drop-down menu, and then select "About." Detroit Diesel Reprogramming Software (DDRS) 7.11 with Service Pack 1 (or higher) must be used when programming. If using DiagnosticLink, the current version is 8.0.
2. Connect DDRS to the vehicle. Make sure that the modules (ACM, CPC, MCM, and, if applicable, the DT12 TCM) are connected.

NOTICE

Before programming, make sure the VIN is correct in all modules (ACM, CPC, MCM, and, if applicable, the DT12 TCM). If the VIN is not correct in any of the modules, the process will fail.

3. If the ignition is off, then turn the ignition on and wait 20 seconds.
4. Make sure the VIN is correct in all modules by looking at the "Identification" screen in DDRS. If the VIN is not correct in all modules, the VIN can be corrected in the "Actions" drop-down menu in DDRS. Select **Check VIN Synchronization**, then select **Start** and follow the prompts. When synchronization is complete continue with the download process.

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5. Make a note of the engine serial number.
6. On the "Identification" screen, check the current software and fuel map levels. The following are the minimum levels required:
 - MCM with 4.1.0.47 software and fuel map version ZGS 002
 - ACM with 3.1.3.0 software and fuel map version ZGS 001
 - CPC with R32_00_000A software
 - TCM with NAMT050400 software (Detroit™ DT12™ transmissions)
7. If the software and fuel map levels are higher than the levels listed in step 6, then no programming is necessary. Go to step 18. Otherwise, continue with step 8.

IMPORTANT: Certain parameter names within the CPC changed slightly with the introduction of current CPC software R33_00_000A. When programming the CPC with Detroit Diesel Reprogramming Software (DDRS) 7.11, the software may not correctly copy the current parameter values due to the name change. Making note of the parameter values in **Table 3** before updating the CPC, then verifying those parameter value settings after updating will help ensure proper performance, especially on DT12 equipped units.

8. Write down the parameter values in **Table 3** so they can be referenced after programming the CPC. The parameters can be viewed by clicking on "Parameters" in the DDRS sidebar.

CPC Parameter Reference		
Software R30.04, R31, Or R32	Parameter Value	Software R33
Enable Creep Mode, found in group PGR002 Vehicle Parameters I		Enable Creep Mode (Detroit Transmission), found in group PGR002 Vehicle Parameters I
Enbl AutoShift OnDynamometerTest, found in group PGR047 AG		Enable Dyno Mode (Detroit Transmission), found in group PGR047 AG
Enbl SpecTuning MBAutoTransType, found in group PGR047 AG		Enable Performance Gear Sel Mode (Detroit Transm), found in group PGR047 AG
Enbl MANUAL Gear Sel Mode (Detroit Transmission), found in group PGR047 AG		Enable Manual Gear Sel Mode (Detroit Transmission), found in group PGR047 AG
Fix StartGear IfShiftProg Active, found in group PGR047 AG		Fix StartGear, found in group PGR047 AG

Table 3, CPC Parameter Reference

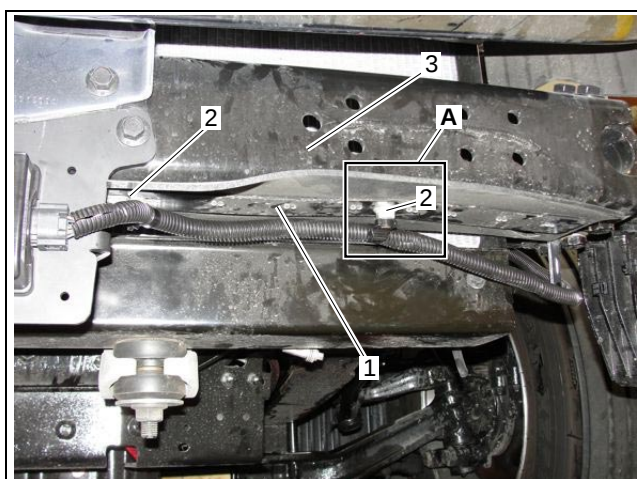
NOTE: Older versions of DDRS may list different parameter names from those listed in **Table 3**. If there is a difference, verify the DDRS software version.

9. Select **Program Device** on the left side of the DDRS screen.
10. Select **Add** in the upper right corner of the DDRS screen, then enter the engine serial number.
11. Click **Connect to Server** in the bottom right corner of the DDRS screen.
12. Program the MCM, ACM, and CPC, and, if applicable, the DT12 TCM. The currently available software and fuel map levels may be higher than the minimum levels shown in step 6.
13. After updating the CPC, verify that the parameter values noted in **Table 3** match. If the parameter values do not match, set the values to those documented in step 8.
14. When programming is complete, click the **Finish** button.
15. Turn the vehicle ignition off, disconnect the USB Link at either the computer port or vehicle diagnostic port, and wait one minute.
16. Turn the vehicle ignition on and wait one minute for the modules to synchronize.

17. Connect the USB Link and connect DDRS to the modules. Confirm the proper software levels.
18. The DDE Powertrain update is complete. Go to the next designated repair for this vehicle as listed below:
 - Vehicles in SF499A and D, go to Harness Routing Modification on pg 13.
 - Vehicles in SF499B and C, the campaign is complete. Clean a spot on the base label (Form WAR259). Write the campaign number, SF499, on a blank grey completion sticker (Form WAR261) to indicate the work has been completed and attach it to the base label.

Harness Routing Modification

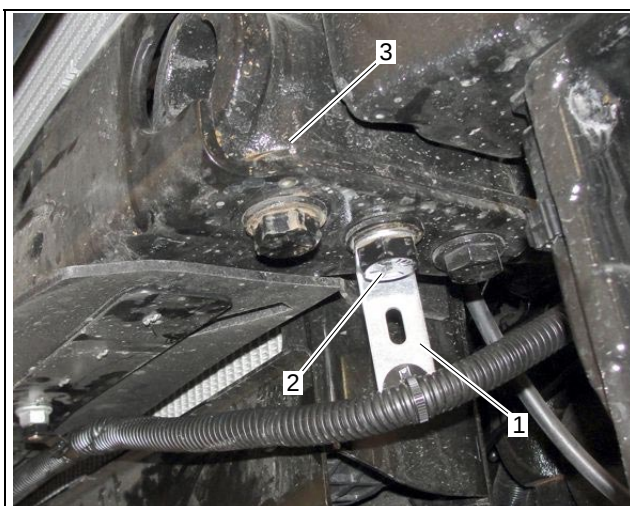
1. Remove the bumper.
2. Locate the radiator air baffle on the driver's side of the vehicle, and remove the two mounting bolts nearest to the OnGuard mounting bracket. See **Fig. 9**. Flip the orientation of the bolts and install them so that the threads are facing down. Tighten the nuts securely.
3. Position a stud-mount tie strap (23-12115-001) on each bolt thread, then secure the harness. See **Fig. 9**.
4. Install the L-bracket.
 - 4.1 Remove the center mounting bolt from the driver's-side frame rail extension. See **Fig. 10**.
 - 4.2 Position the L-bracket (23-09130-007) on the frame rail extension at a 45° angle so that the "L" is facing away from the vehicle, then install the bolt.



A. The stud-mounted tie straps attach to the threads of the air baffle bolts.

- | | |
|------------------------------|------------------------|
| 1. Air Baffle | 3. Forward Crossmember |
| 2. Air Baffle Mounting Bolts | |

Fig. 9, OnGuard Harness Routed Under the Forward Crossmember



- | |
|-------------------------|
| 1. L-Bracket |
| 2. Center Mounting Bolt |
| 3. Forward Frame Rail |

Fig. 10, Harness Secured to the L-Bracket

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4.3 Tighten the nut to 135 lbf·ft (184 N·m).

IMPORTANT: Make sure that the harness is oriented away from the OnGuard mounting bracket. The harness will be chafed and damaged if it contacts the bracket.

4.4 Secure the harness to the L-bracket with a push-on tie strap (23-13481-000). See **Fig. 10**.

NOTE: Use an edge clip (23-13477-200), if necessary, to keep the harness away from the frame rail extension. See **Fig. 11**.

5. Bundle any excess harness in the engine bay, and tuck it tightly against the frame rail. Secure the harness with button-head tie straps (23-12069-001) so that it does not come in contact with the steering column or any other moving parts. See **Fig. 11**.

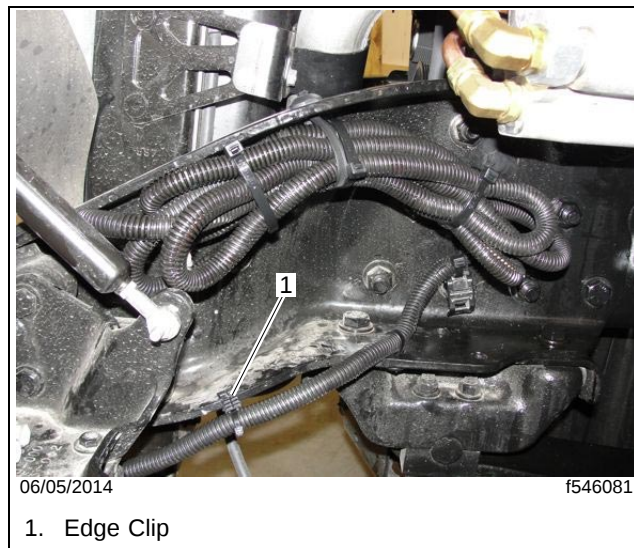


Fig. 11, Excess Harness

NOTE: Harness configuration varies, and may branch off of the headlight and fog light harnesses. Follow the forward radar harness from the radar mount location back to the main commodity harness on the inboard side of the frame rail. The forward radar harness should be routed underneath the forward closing crossmember and outboard on the driver's side, then over the top of the frame rail extension and through the front frame bracket pass-through hole. Make sure the harness is not positioned in a manner that will cause it to rub or become pinched.

6. The campaign is complete. Clean a spot on the base label (Form WAR259). Write the campaign number, SF499, on a blank grey completion sticker (Form WAR261) to indicate the work has been completed and attach it to the base label.