

Saab 9-5 My 10-12
Driver Assistance Package
Installation Instructions



Introduction

This document describes the installation procedure for the upgrade package for the Forward Camera Module. This version is intended for vehicles with colour instrument cluster, Head-Up Display and stock mounted LDW camera, My10-11, EU or US version. The package consists of a camera that replaces the original camera, a wire harness and an electronic control unit (ECU). Included in the package is also a piece of heat shrink tube to facilitate installation of the wire harness. The installation consists of three procedures; 1. Modifying steering wheel button, 2. Installation of the wire harness and 3. Mounting of camera. This upgrade package has been developed by a Saab enthusiast on spare time. Any advice or suggestions for improvement is highly welcome.

Before starting the installation, read carefully through this document and think twice before performing each step. A correct installation and contemplation is of serious weight in all steps. All installation procedures are done with the car battery disconnected unless otherwise stated.

1. Modify the steering wheel button

The left steering wheel button cluster is prepared for an extra button. The leftmost button which in stock vehicles is used to cancel the cruise control is prepared for an extra function. This function is unlocked by snapping off small piece of plastic behind the button according to the following procedure:

1. Make sure that the battery is connected.
2. Disassemble the two covers behind the steering wheel by unscrewing the screw that holds the lower cover from below.
3. When the lower cover is removed the screws holding the upper cover can be reached. Unscrew these and remove the upper cover. At this step you might have to start the engine to be able to turn the steering wheel to reach the two screws.
4. **Cut the power to the car by lifting the negative connection of the battery. This step is crucial since the airbag will now be removed.**
5. Disassemble the airbag by gently wiggle a small screw driver in the two holes on the back side of the steering wheel according to Figure 1 and Figure 2.
6. When the airbag is out of position, gently pull the left button cluster, towards you out of the steering wheel and unplug it, see Figure 4.
7. Disassemble the button cluster in three parts according to Figure 5.
8. Snap off the lock that holds the upper part of the leftmost button from being pushed.
9. Assemble everything in reversed order.



Figure 1 - Depiction of how to disassemble the airbag, step 1.

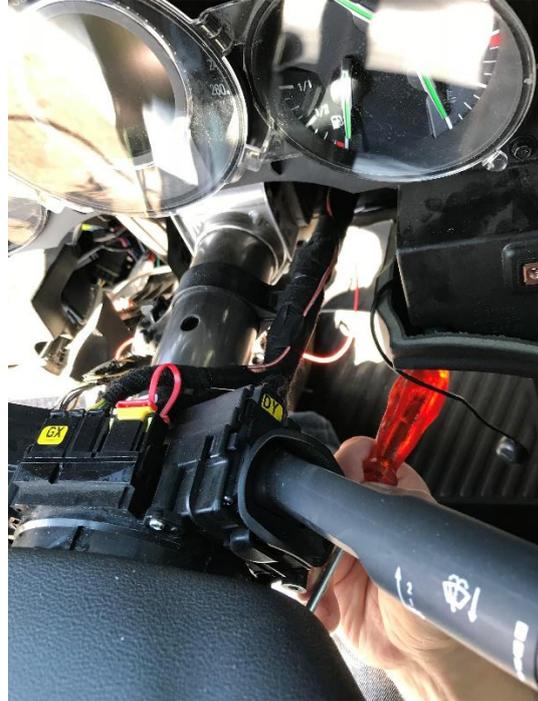


Figure 2 - Depiction of how to disassemble the airbag, step 2.

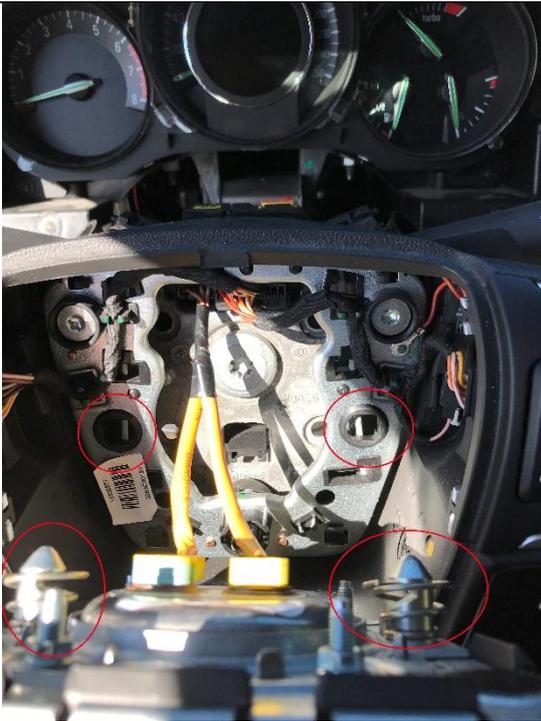


Figure 3 - Picture that shows a removed airbag. The red rings indicate the fasteners and the loaded spring that holds the airbag in place.



Figure 4 - Left steering wheel button cluster



Figure 5 - Disassembled button cluster



Figure 6 - Left button cluster, snap off the lock indicated in the red circle.

2. Installation of the wire harness

A correct installation of the wire harness is done by soldering of the joined cables. Quick splices should under no circumstances be used. The wiring harness will be connected to already existing cables. This is easiest done by cutting the cable in two. Peel thereafter ~15 mm of the isolation of all three cables (the two ones from the one that is cut and the third one from the new cable harness). One of the cable ends is twisted together with the one from the new cable harness. Twist the third cable a few rounds. Prepare thereafter piece of shrink tube on the single cable. Fold thereafter both ends to a U that hooks together and twist the wires. Apply solder on the joint and thereafter shrink the tube over the joint. Last, put a few rounds of electrical insulation tape over the joint for extra resistance.

To enable correct cable routing and access to the wires that will be joined, the instrument panel, gearbox panel and instrument cluster must be removed. The new cables are preferably routed in the existing cable channel behind the instrument cluster.

Connect the wire harness according to Table 1 according to the following instructions:

1. Cut the power to the car by lifting the negative connector from the battery.
2. Mount the ECU with the supplied Velcro band on the side of the Body Control Modul (BCM). The BCM is mounted on the left side where the A-pillar meets the floor behind the interior panel, see Figure 15.
3. Connect the three short cables (6,7 and 8) on the corresponding cables at the diagnostic connector, see Figure 8 and Figure 15.
4. Connect, Ground, +12V feed and ignition (1,2 and 4) in the wiring harness behind the instrument cluster, see Figure 11 and Figure 13.
5. Connect the cables (3 and 10) for the multi-function switch at the gear box console, see Figure 9 and Figure 14.
6. If pin 16 on the third connector from below in the BCM is populated, Follow Step 6.1. If not, go to step 6.2
- 6.1 Cut of the insert from the end of the yellow cable and connect the cable for the steering wheel button (9) to the cable that goes to pin 16 on the third connector from below in the BCM. The connector is indicated in Figure 15. See Figure 10 for pin numbers. The cable end

that goes to the BCM-connector should be left unconnected whereas this cable (9) goes directly to the steering wheel button. I.e. no three-wire joining.

- 6.2 If pin 16 of the BCM-connector is not populated, the yellow cable can be routed directly to the connector going to the steering wheel coil. The steering wheel coil is found behind the steering wheel and is indicated by a red arrow in Figure 1. Pull out the connector and unlock the insert holder to allow for the new insert to be inserted. Gently push the insert into hole 7 according to Figure 12 and lock the insert holder. Remount the connector.
7. Connect the 10-pin Molex connector to the ECU.

Table 1 - Connection table of the new wiring harness.

Pin on Molex connector	Function	Connects to	Pin	Wire colour in harness	Wire colour in original harness
1	Ground	Instrument cluster	10	Black	Black
2	Ignition	Instrument cluster	19	Purple	Violet/Grey
3	Lane Change Indicator	S48E Multi-Function Switch	8	White	White
4	Feed	Instrument cluster	20	Red	Red/Grey
5					
6	Can LS High In	Diagnostic socket	1	Green	Green
7	Can HS High In	Diagnostic socket	6	Blue	Blue
8	Can HS Low In	Diagnostic socket	14	White	White
9	Steering Wheel Button	X3 K9 Body Control Module	16	Yellow	Grey/Green
10	Lange Change Button	S48E Multi-Function Switch	7	White/Blue	Grey/White

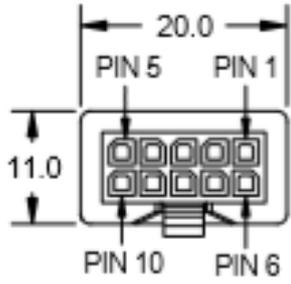


Figure 7 - Molex 10 Pin Connector

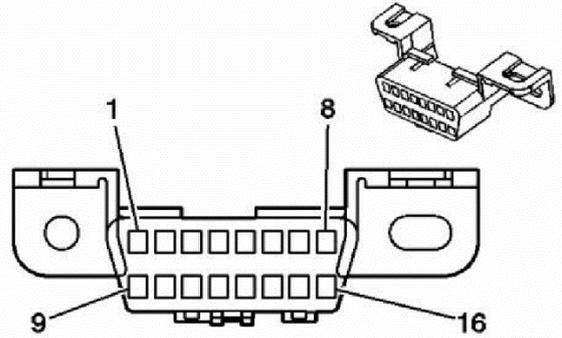


Figure 8 - X84 Diagnostic Connector

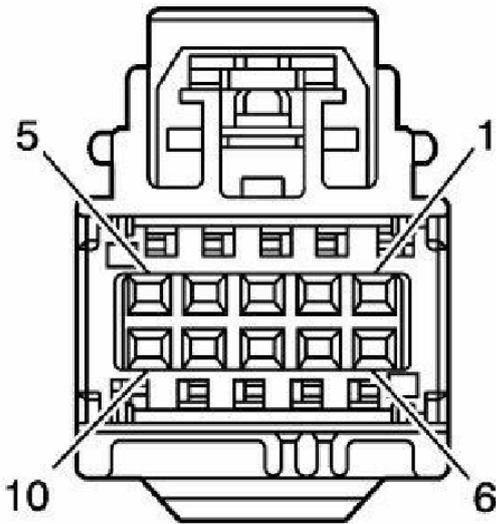


Figure 9 - S48E Multi-Function Switch Connector

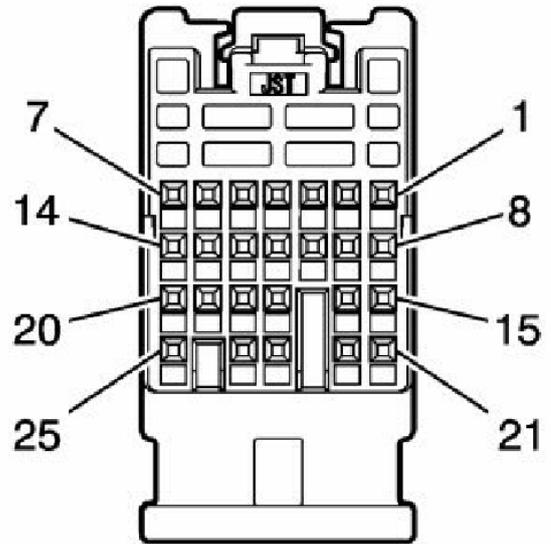


Figure 10 - X3 BCM

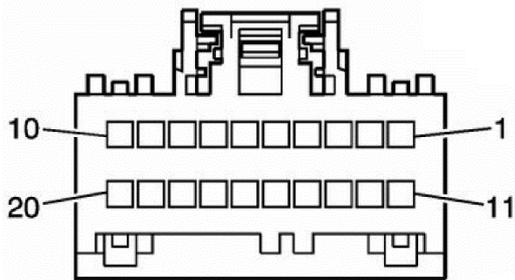


Figure 11 - P16 Combined Instrument

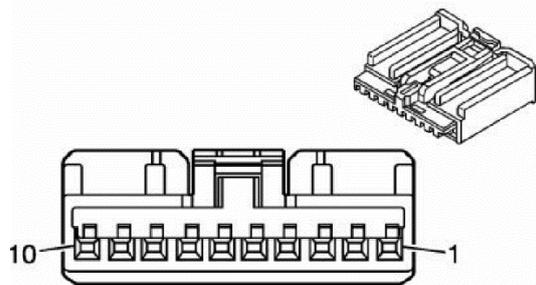


Figure 12 - Steering Coil



Figure 13 - Picture showing the connection of wiring harness at the instrument cluster.

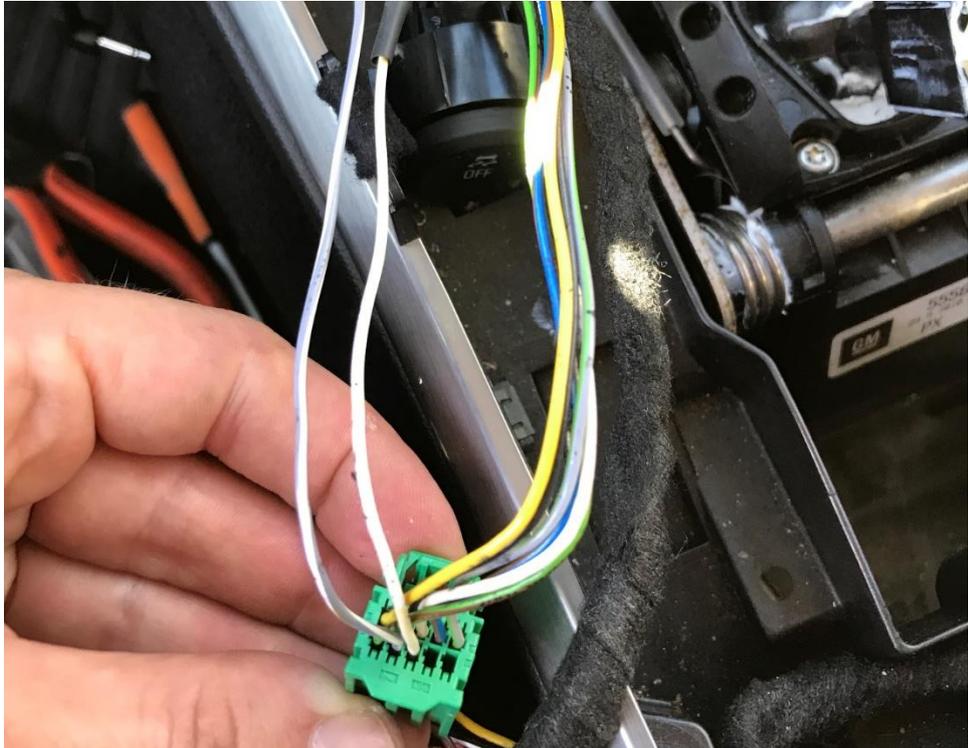


Figure 14 - Picture showing connection of the wiring harness at S48E multi-function switch.



Figure 15 - Picture showing the BCM and the connector X3 in red circle. Below, on the interior panel is the diagnostic connector mounted.

3. Installation of Camera

Uninstall the old camera and install the new one according to the following procedure:

1. Verify that the power of the car is cut.
2. Slide the covers over the camera (at the rear mirror) to the sides to uncover the camera.
3. Disconnect the connector for the old camera and let it hang loose.
4. Hang the new camera in the bracket and move the metal bracket from the old camera to the new and screw the fastening screw in completely. The plastic of the new camera is not pre-threaded but the screw will cut the threads in the plastic. For illustration, see Figure 16.
5. Snap off the small cover on the bottom of the camera, illustrated with a red pointing arrow in Figure 16.
6. Route the camera wire harness down to the ECU. Route it inside the roof, inside the A-pillar and further down to the ECU. Keep in mind that an airbag is mounted in the A pillar. Make sure that the wire harness is routed inside the pre-mounted cable holders on the A-pillar to ensure airbag functionality.
7. Connect the 6-pin Molex connector to the ECU.
8. Re-install the covers from step 1.



Figure 16 - Picture showing the position of the new camera with measurements.

Finishing words

When the installation is done according to the procedures above, connect the battery and start the engine. You might have to relearn the positions of the windows, then follow the instructions. Thereafter, push the new steering wheel button. If the distance graphic shows and no other fault messages related to the lane departure warning system is present after 5 seconds the system is correctly installed. Enjoy your new driver assistance package. For instructions on how to use the system, see the user manual.

If your car was not equipped with the Intelligent High Beam function, the tell-tale in the instrument cluster must be activated. This can be done using an MDI.