FC4 Module User and Installation Guide (rev 1.0)

Please check QR code on the module, which will link to product page with most recent Installation guide and configuration software.

FC4 Kit

The FC4 module is a multifunctional controller, operating on CAN bus.

Features that can be implemented:

- Front Camera Switch and display
- Enable touch screen while the car is in motion
- Warning Timer for Turn Signal left on too long

FC4 Kit (option without camera) includes:

1. FC4 module
2. Main harness
3. 2 pin female connectors with terminals
4. USB programing cable

USER GUIDE

Front camera operation:

- The emergency/parking brake MUST be released for the front camera to activate.
- Press the mute button on the center console, OR
- Press the TCS/DSC button to switch the front camera on and off. When TCS is off, and speed is below 5mph, the front camera will show up on the screen.
- If the "Auto" speed limit is selected and set in the configuration software, the display will change from the reverse camera to the front camera when the car is shifted to neutral and/or a forward gear. The display will revert to the driver's selected display [navigation, CarPlay, etc.] when the selected speed is reached.

Touch screen while in motion:

- Selecting this option in the configuration software allows drivers to operate the touch screen while the car is in motion.
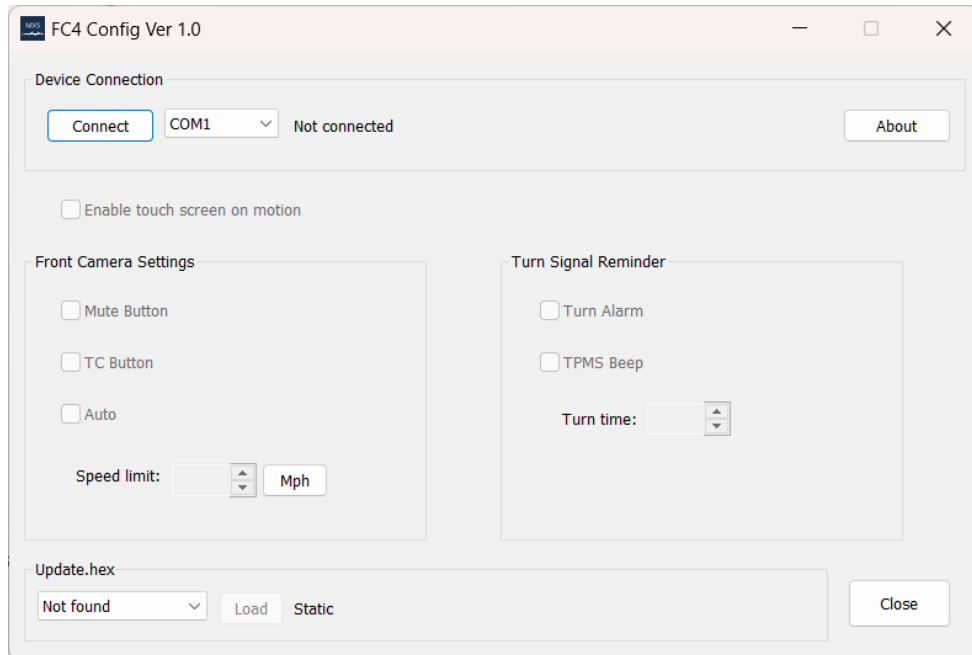
Warning Timer operation:

- Selecting this option in the configuration software will produce a warning beep through the Instrument Cluster buzzer if the turn signal remains on for more than configured timeout during driving (if the car speed is greater than 2 mph).
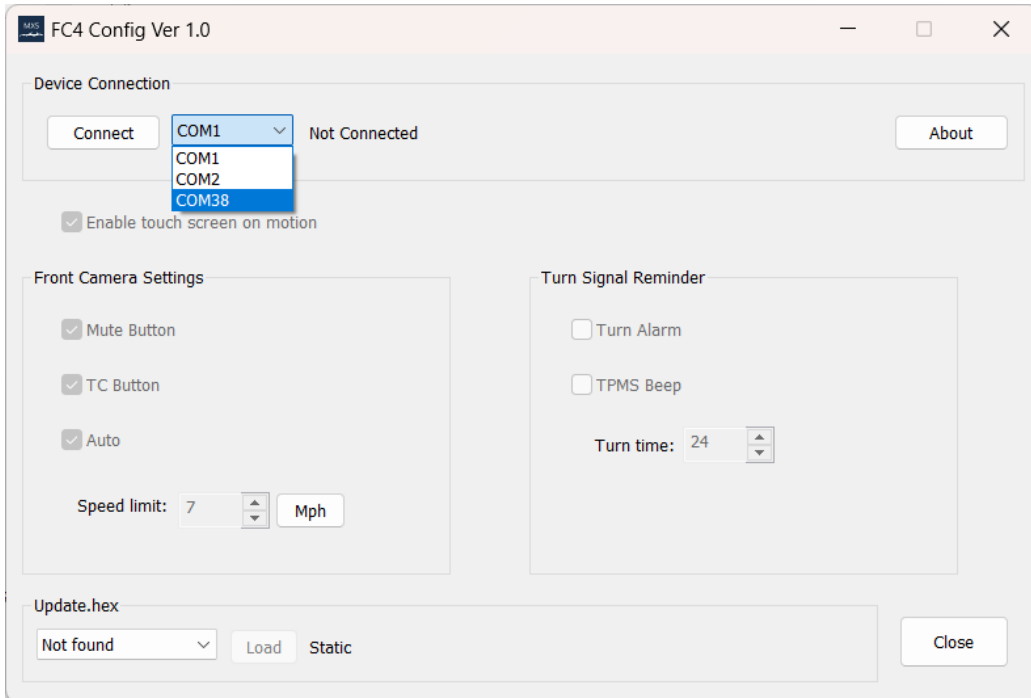
INSTALLATION PREPARATION

Configure the module software via the USB port.

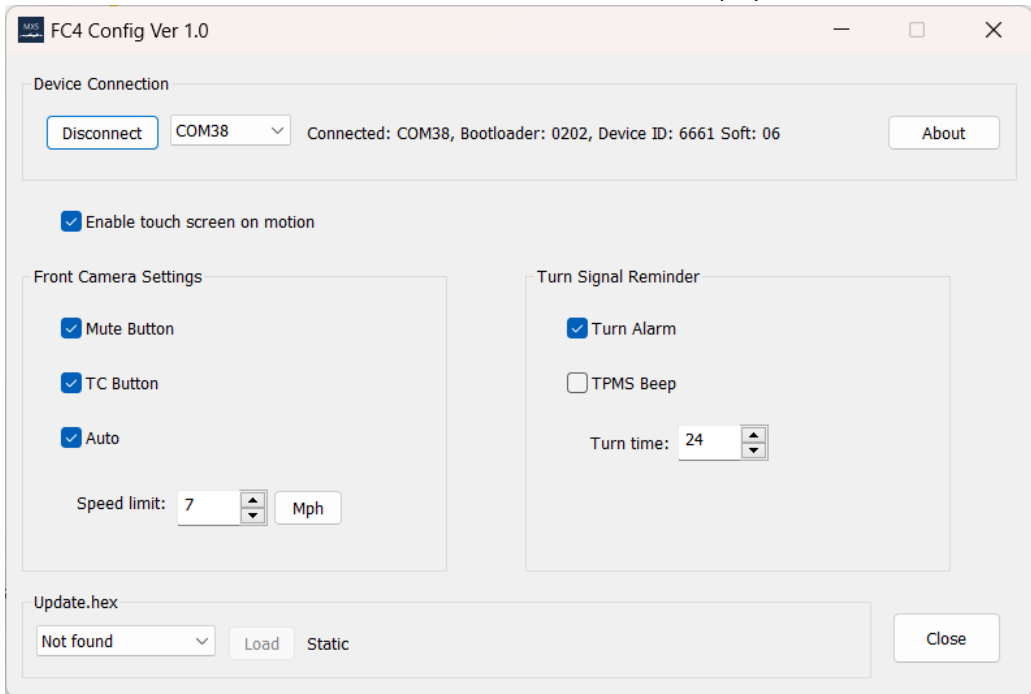1. Download installation package from the product page and unzip it to desired location.
2. Connect FC4 module via Micro-USB cable to a Windows PC. The module status LED will be solid Red.
3. Start application FC4_config.exe.

4. Select COM port which appears after connecting to module.
   Note: if new COM port does not appear after connecting to module, download and install VCP serial driver from FTDI site.

5. Click on "Connect" button.
6. Successful connection and the current software version will be displayed in the status window.
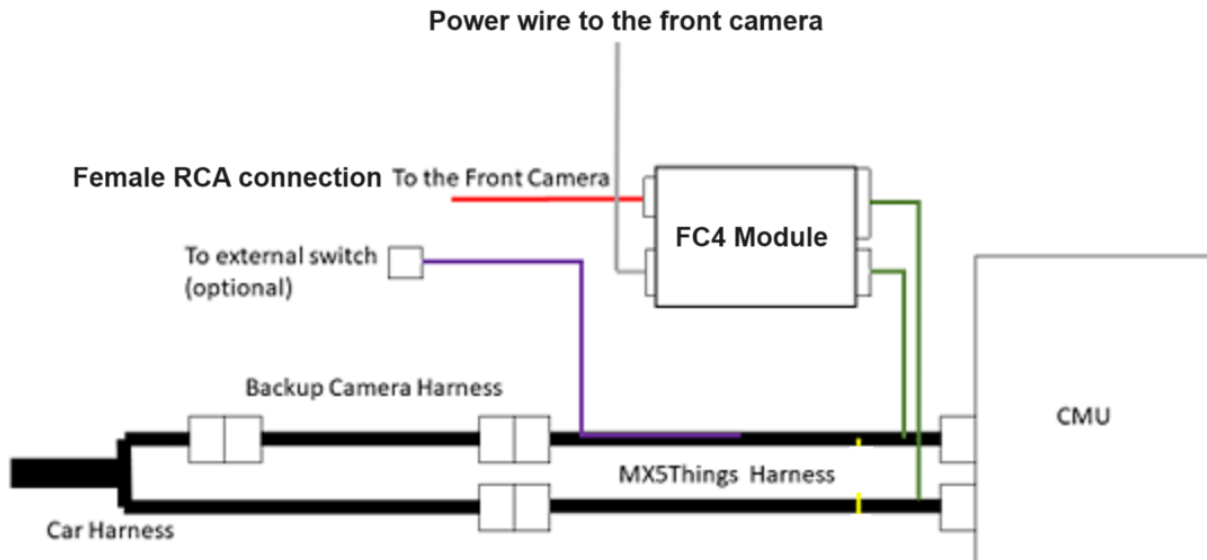

7. Use the check boxes to select the desired configurations.
8. If *Auto* for the front camera is selected, use the up and down arrows to configure the speed limit for the camera to turn off.

9. If the turn signal reminder is desired, *Turn Alarm* causes the instrument cluster to produce beep after the selected time while the car is moving at a speed of 2 mph or greater. For model years 2016 through 2018, a TPMS beep can be selected. *NOTE:*

   - DO NOT check both turn signal reminder boxes.
   - The TPMS Beep function works ONLY with model years 2016 – 2018 that have a TPMS button.

10. Once the desired configuration is selected, press the *Disconnect* button in the software, close the software on your computer, and then disconnect the USB cable from your computer.

11. NOTE: DO NOT press the LOAD button. The software automatically updates module. Pressing LOAD will revert the module to the default settings.

12. SUGGESTION: Keep the USB cable connected to the module. When routed to an accessible location beneath the dashboard, the module configuration can easily be changed.
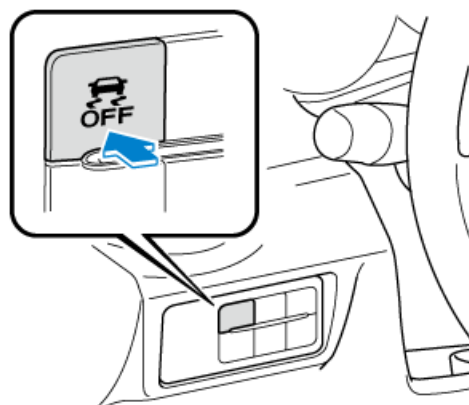
INSTALLATION GUIDE

General Information:

The Front Camera module harness must be installed between the CMU and the CMU harness. If the OEM Backup Camera is installed with an additional harness, this harness must be attached to the switch harness (28 pin female connector).

The Front camera can be activated either by external momentary switch (not included with the kit) or by the mute button on the central console. One click will turn the camera on, a second click will turn it off. See demo clip.

Alternately, the TCS/DSC button can be used for switching the front camera on and off. When TCS is off, and speed is below 5mph, the front camera will show up on the screen.

Front Camera Switch installation

There are a few good public sources that have a documented process of the CMU removal. **It is highly recommended to review them before proceeding with installation.** See links below that explain the CMU removal method recommended by the factory manual:

How To Guide for Installing the OEM Back Up Camera and Cleaner on the Club model ND – check the portion for backup camera installation**.**
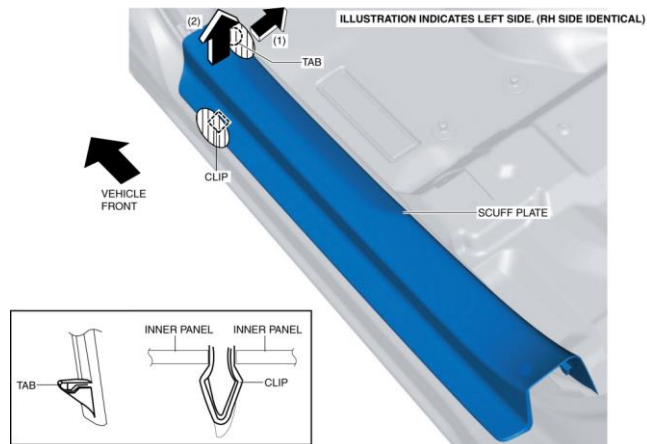
YouTube video by FlyinMiata

A second CMU removal method that requires far less disassembly can also be utilized.

The factory method begins with steps 1 through 6b. To use the alternate method, complete step 1 and then skip to step 6c.
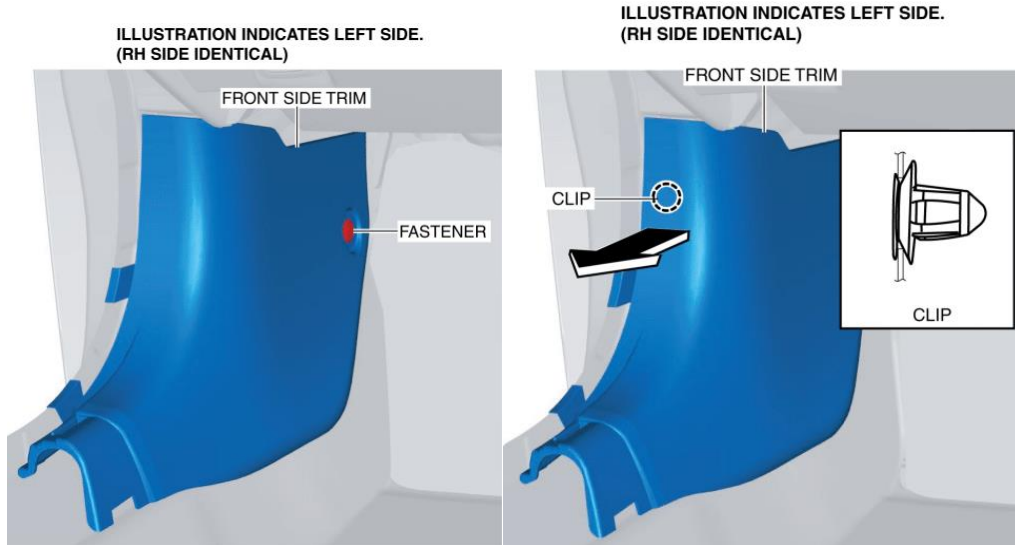
FACTORY MANUAL CMU REMOVAL METHOD
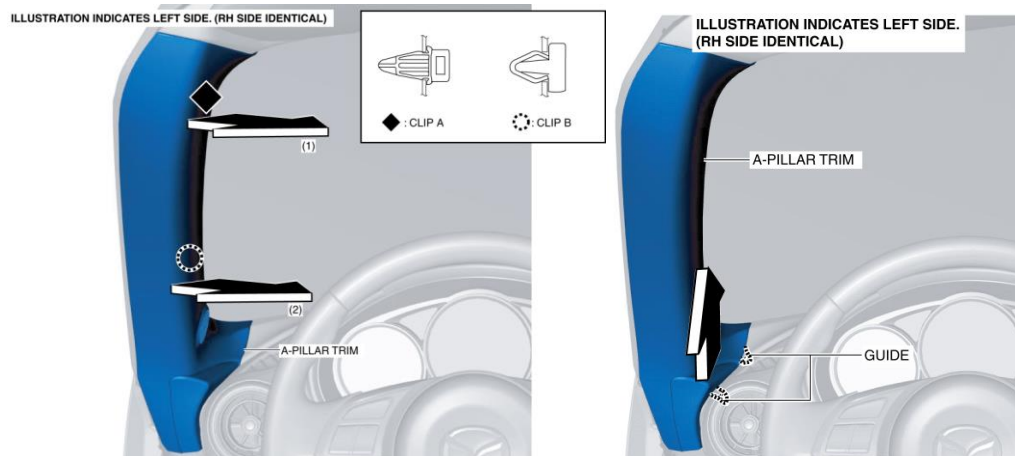
Begin with steps 1 – 6b and then skip to step 7.

1. For safety reasons and to avoid electrical issues, **detach the negative clamp from the car battery.**
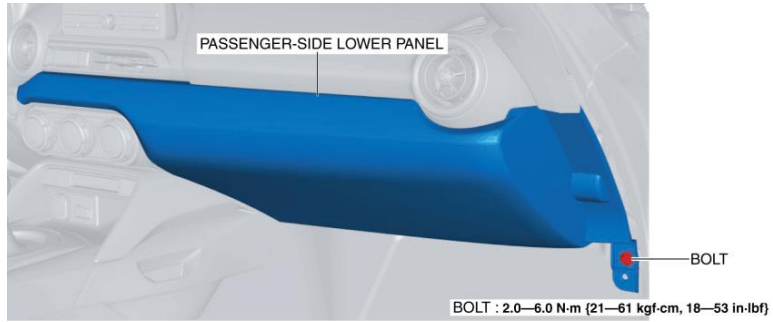2. Remove the **passenger side** scuff plate.

3. Pull up rubber weather stripping to allow front side trim to be removed.
4. Remove one fastener and detach the front side trim on the **passenger side**.
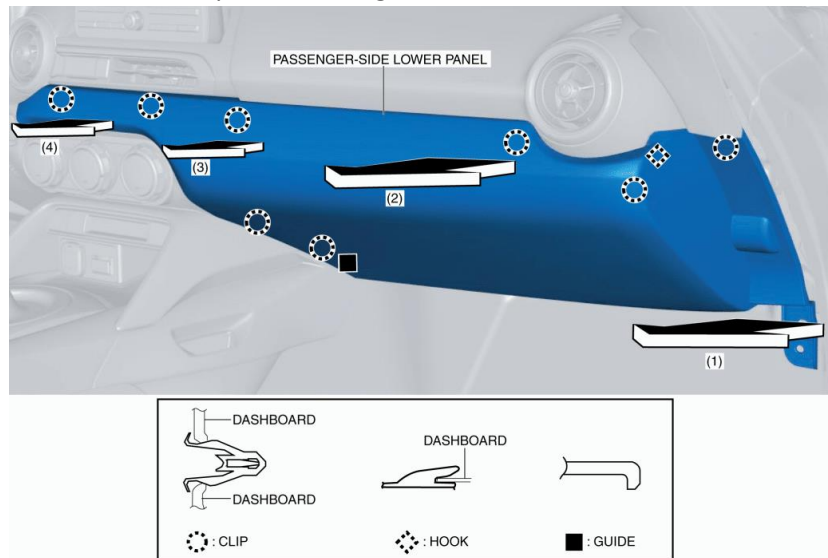
5. Remove **right side** A-pillar. Move the A-pillar trim in the order of arrows (1) and (2) shown below on the left picture and detach clips A and B from the dashboard. Release the tabs in the positions shown below on the right picture.

6. Remove passenger side lower panel.
   a) Remove the bolt using 10mm socket wrench.

PASSENGER-SIDE LOWER PANEL
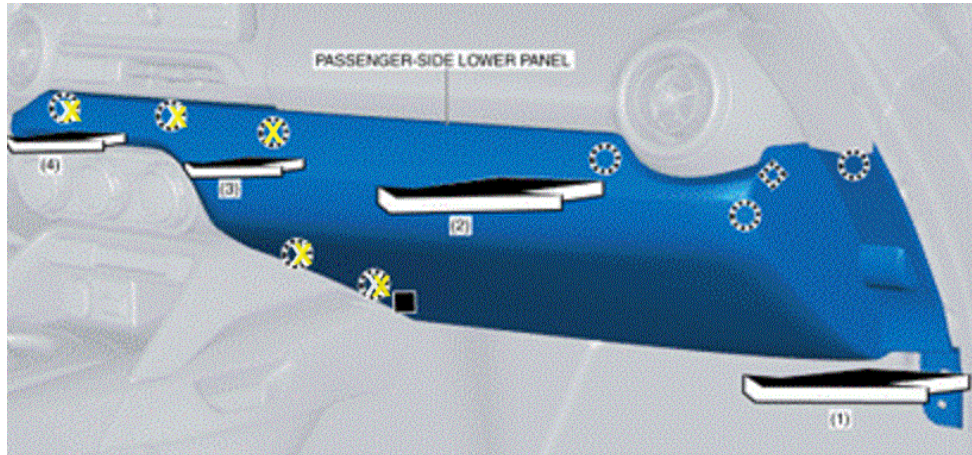
BOLT

BOLT : 2.0—6.0 N·m {21—61 kgf·cm, 18—53 in·lbf}

   b) Move the passenger-side lower panel in the order of arrows (1), (2), (3), and (4) shown in the figure, and detach the clips, hook and guide from the dashboard.

PASSENGER-SIDE LOWER PANEL

(4)
(3)
(2)
(1)

DASHBOARD

DASHBOARD

DASHBOARD

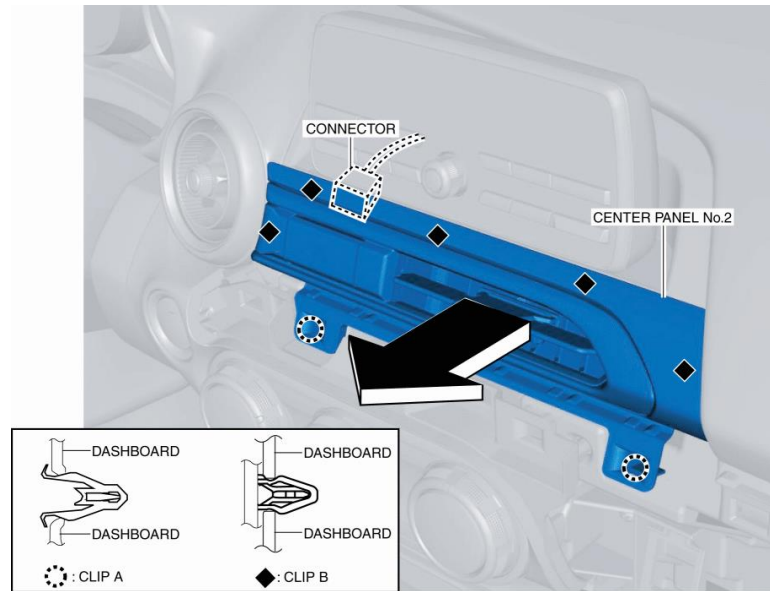⊙ : CLIP   ◈ : HOOK   ■ : GUIDE

ALTERNATE CMU REMOVAL METHOD:

Complete Step 1 and then begin with step 6c.

c) Dislodge the left side of the passenger side lower panel by pulling to release the clips indicated with an X. The remaining lower panel clips can remain attached.
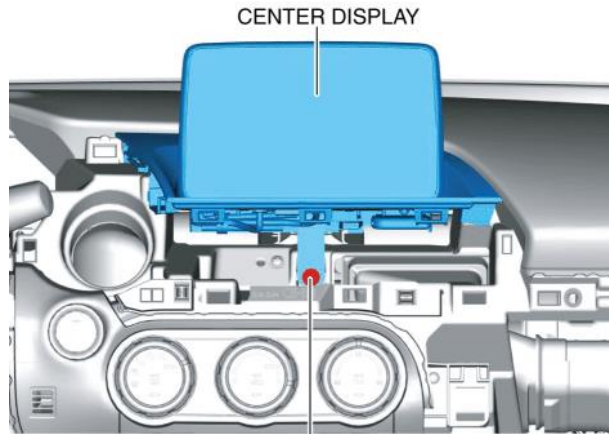
7. Remove Central Panel No.2. Move the center panel No.2 in the direction of the arrow shown in the figure and detach clips A and B from the dashboard.

8. Disconnect the hazard switch electrical connector and set the center panel to one side.

9. Remove the 10mm bolt and pull the CMU out to gain access to the connectors on the back. **NOTE:** a sharp tug may be needed to dislodge the clips holding the CMU in place.
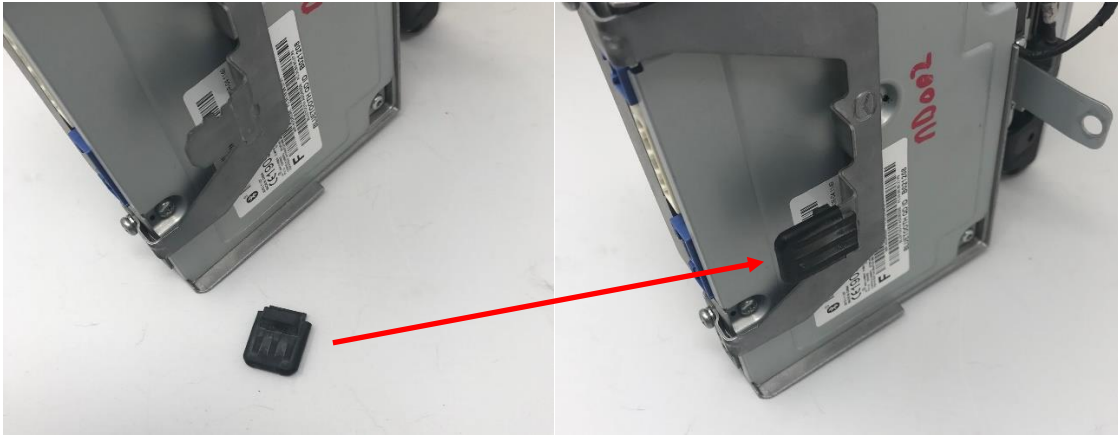

Tip: Make sure that the rubber sleeve stays on the metal bracket. It is easy to lose it during manipulation with CMU. See pictures below.

10. Disconnect the two large harness connectors from the back of the CMU.
11. Plug the male FC4 harness connectors into the CMU. Plug the male factory CMU harness connectors into the female FC4 harness connectors.
12. Using the provided RCA cable, temporarily connect the camera module to the RCA and power connections of the module.
13. Test the module and camera by doing the following:
    - Reconnect the battery, start the car, and wait for the CMU to fully boot.
    - Place one foot on the brake, release the emergency brake and then place the car in reverse.
    - After confirming reverse camera operation, place the car in neutral.
    - Depending on the selected module configuration, the display may show the front camera. If not, press the mute button on the center control. A second press of the mute button or turning the volume knob one click in either direction causes the display to revert to the prior status.
    - Turn the car off and then disconnect the negative battery terminal.
14. Make certain that the RCA and USB cables are firmly plugged into the FC4 module.
15. Use painters or other temporary tape to bundle the RCA, USB, and power cables together and to protect the connectors.
16. Route the bundled camera cables to the left and downward into the driver's [left for U.S. market] footwell.
17. Coil and position the USB cable in a convenient location for easy access. Use a cable tie to secure the cable to nearby structures or wire harnesses.
18. Leave the CMU temporarily dislodged until the camera is installed and tested.

STOP! INSTALL AND TEST THE CAMERA AS DESCRIBED BELOW AND THEN RETURN AND PROCEED AS FOLLOWS:

19. Connect the negative clamp to the battery.
20. Check operation with the backup camera, and switch to the front camera by using the mute button or external switch (if installed).

21. Check the lens position. The lens can be rotated 360 degrees. Place an object in front of the car to determine how to orient your lens.
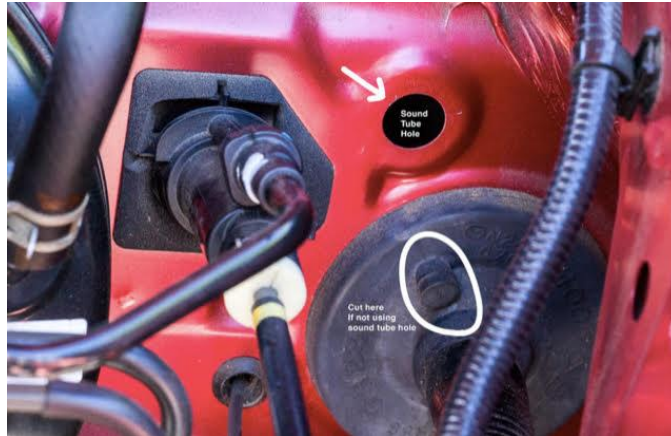

Now that you've installed and tested the camera as instructed below:

22. Disconnect the car battery once again. Position the FC4 module on the left side of the CMU opening. Spread the harness cables with connectors to the right and left side behind the CMU and push into place the CMU unit.
23. Reinstall the 10 mm bolt.
24. Install all of the panels in reverse order.
25. Reconnect the negative battery terminal.

ENJOY YOUR NEW CAMERA AND TOUCHSCREEN FUNCTIONALITY

Front Camera Installation

1. Route the bundled camera cables [NOT the USB cable] from beneath the dash and through the firewall using either the sound tube hole or the rubber gromet.
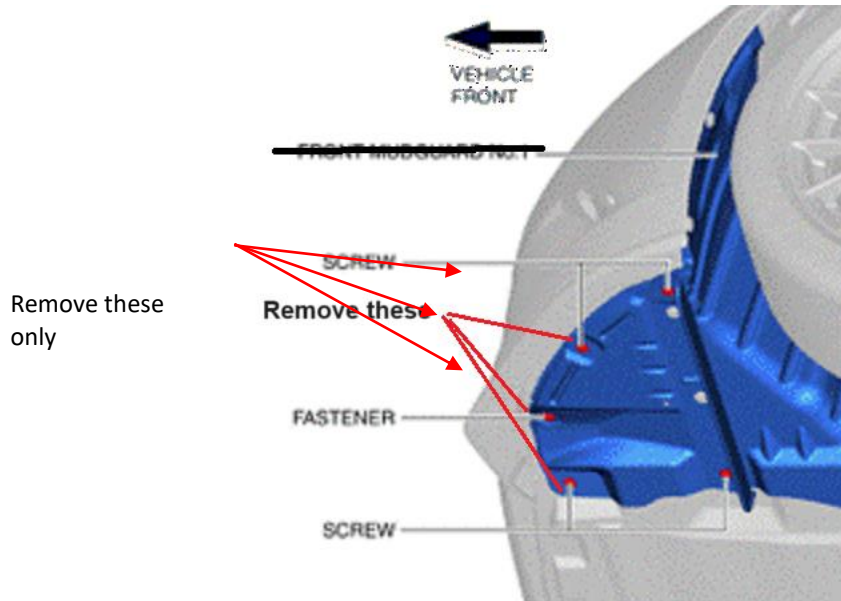

2. If you have the rubber plug for the sound tube hole, slice it with a knife and put it on top of the long cable.

3. Route the camera cables to the front corner on the driver side, using zip ties to bundle with the main harness.
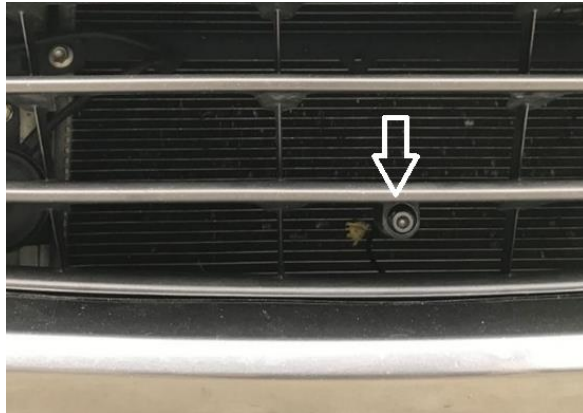
4. To access the camera cables and route them to the grille area, release the lower splash guard screws and fasteners shown below. Dislodge the splash guard and pull the cables to the car center.

Remove these only

The two screws at the back of the splash guard do not need to be removed.

5. Plug the power and RCA connectors into the camera. OPTIONAL: Use heat-shrink tubing to project the connector from the weather.

6. Using body attachment tape, install the camera on the front grill or lower grille opening.

7. After installation, remove protective plastic cover from the lens.
8. Return to module installation step 19 to complete your installation.

REMINDERS

- The front camera operates ONLY when the parking/emergency brake is released.
- If a speed limit is set, the front camera will display when leaving reverse and then stop showing when the selected speed is reached.
- The turn signal timer resets when the car is at a standstill. The timer will resume when the car moves more than 2 mph.

TROUBLESHOOTING

- If the front and rear cameras do not display,
    - Place the car in reverse and then reboot the CMU by pressing the NAV, MUTE, and Back arrow buttons simultaneously and hold for about 10 seconds until the splash screen appears. A dim reverse camera image will appear if all CMU connections are in order.
    - Alternately, disconnect the negative battery cable; wait about 5 minutes, and then reconnect and retest.

- If ONLY the front camera does not display:
    - Confirm that the camera is selected in the configuration software.
    - Check all harness and camera connections. Check the multi-pin connector at the module. Confirm that none of the pins have become dislodged. If so, remove the connector from the module, reseat the pin, and reconnect the harness to the module.
    - Check the connections at the camera.
    - Confirm that an auxiliary grill [i.e. ZunSport] is not crimping the camera wires.

- If the touchscreen does not work when the car is in motion:
    - Confirm that the option is selected in the configuration software.