Module Programming

Check

NOTE: *Perform the following pre-checks to make sure module programming completes without errors.*

1. Start the programming session in Key OFF, Engine OFF and prior to initiating programming, turn to <u>KOEO</u> .

2. Make sure the vehicle battery is fully charged or is connected to a battery charger. The battery state of charge should be 12.6 - 13.6 volts during vehicle programming.

3. **NOTE:** *A good internet connection is necessary.*

   Inspect the <u>VCM</u> II, <u>VCMM</u> or later level device and cables for damage. Make sure cables remain connected throughout the programming procedure.

4. Turn off all unnecessary accessories, such as radio, <u>A/C</u> , climate controlled seats, headlamps, interior and demand lamps.

5. Disconnect any aftermarket accessories, such as remote start, security alarm and power inverter.

6. For Plug-in hybrid and electric vehicles, disconnect the external charge cord from the charge port.

7. Disable Microsoft Windows sleep mode, screensaver and hibernation modes.

8. **NOTE:** *If the diagnostic software does not load or if the vehicle cannot be identified properly.*

   Make sure there is a good internet connection and the <u>VCM</u> II, <u>VCMM</u> or later level device is properly connected to the <u>DLC</u> .

Programming

1. **NOTE:** *If a new module is being installed, install the new module before carrying out the following procedure.*

   - *If replacing the module **do not** connect the new module to a Wi-Fi network before completing the scan tool module replacement programming as it may cause programming concerns.*
   - *This programming procedure deletes any phones that are paired with the SYNC system when programming the <u>APIM</u> .*
   - *To prevent time-out errors and minimize programming time, a wired internet connection is strongly recommended when programming.*
   - *Make sure the <u>FDRS</u> version and patch software levels are up to date.*

   Connect a battery charger to the vehicle and select the low charge setting. The negative battery charger lead must be connected to a clean chassis ground, **not** the negative battery post.

2. Connect the diagnostic scan tool to a power supply. The length of time required for programming may extend past the duration of the diagnostic scan tool.

3. Connect the diagnostic scan tool to the <u>DLC</u> .

4. Log into <u>FDRS</u> .

5. Identify/enter the vehicle being programmed on <u>FDRS</u> .

6. **NOTE:** *Vehicle information is automatically retrieved by the diagnostic software and a Network Test is run. Vehicle identification data appears on the screen when this is complete.*

   Click 'Read <u>VIN</u> from Vehicle' or manually enter the <u>VIN</u> .

7. **NOTE:** *Available modules are shown on the <u>LH</u> side of the screen, and available procedures are listed on the*

RH side of the screen. Modules that are communicating are highlighted in green.

Select Toolbox tab.

8. **NOTE:** *If a module is integrated within another module, both modules will automatically program during this process. For example, if the ACM is selected, the DACMC (if integrated with the ACM) is also programmed.*

   From the list on the LH side of the screen, select the module that requires a programming procedure to be completed.

9. There are 3 types of module programming available:
   - **Programmable Module Installation (PMI)**—When the module is replaced, this type of programming carries out the required provisioning (restores software for newly installed hardware).
   - **Module configuration** — Downloads configuration data to the module. The module may also be programmed, depending on current software level, when this option is selected.
   - **Software Update**— Updates the module and any currently installed applications to the latest software levels. This option is not available if the module is already at the latest level.

10. From the list on the RH side of the screen, select PMI Software Update or Module Configuration.

11. **NOTE:** *Do not disconnect the VCM from the DLC during the module programming process unless directed by the diagnostic scan tool on-screen prompts.*

    Follow all on-screen instructions carefully.

12. After programming is complete, "Programming has been successfully completed" displays.

Programming

NOTE: *If updating using a USB memory device.*

1. Connect a battery charger to the vehicle 12V battery. Set the charger to maintain 12.6 - 13.6 volts.

2. Connect the VCM II, VCMM or later level device to the vehicle DLC and the diagnostic scan tool USB port.

3. Log into FDRS .

4. **NOTE:** *Vehicle information is automatically retrieved by the diagnostic software and a Network Test is run. Vehicle identification data appears on the screen when this is complete.*

   Click 'Read VIN from Vehicle' or manually enter the VIN .

5. **NOTE:** *Available modules are shown on the LH side of the screen, and available procedures are listed on the RH side of the screen. Modules that are communicating are highlighted in green.*

   Select Toolbox tab.

6. **NOTE:** *If the module is already at the latest software level, the software update application will not be available in the diagnostic scan tool.*

   If replacing the module, download and run the PMI . If the module is not being replaced but is receiving a software update in accordance with a TSB or service publication, download and run the software update application for the target module.

7. Close all doors or mechanically latch the door to simulate a closed door.

8. Follow the on-screen prompts to complete the PMI .

9. On-screen prompts are displayed to inform that a USB is required to complete the process.

10. Follow the on-screen instructions to download the required software to the USB memory device and upload to the vehicle though the vehicle USB port.

11. Once the USB memory device is connected to the media hub or USB port, the software update will automatically install. The USB memory device transfers the data through the USB cable to the APIM . The APIM transfers the

data to the GWM where it is distributed to the receiving module over the Ethernet network.

12. It is advised that the USB memory device remain connected to the vehicle for a minimum of 2 minutes after the progress bar displayed on the vehicle display screen has reached 100%, to ensure the upload has completed fully.

13. If an error occurs during the USB programming process an error message is displayed on the vehicle display screen indicating an error has occurred and displays an error number relating to the type of error that occurred. REFER to the Error Condition Table below for a description and action to be taken, if an error message is displayed.

Error Condition Table

Vehicle display screen Error Message	Cause	Action
USB Error 1	CacheFull	Delete all contents on the USB memory device/ Format the USB memory device. Re-run the PMI routine with the diagnostic scan tool and re attempt the PMI . If the PMI fails again, attempt a CAN flash, following the diagnostic scan tool on-screen instructions.
USB Error 2	Manifestinvalid	Delete all contents on the USB memory device/ Format the USB memory device. Re-run the PMI routine with the diagnostic scan tool and re attempt the PMI . If the PMI fails again, attempt a CAN flash, following the diagnostic scan tool on-screen instructions.
USB Error 3	InstallationPackageError	Delete all contents on the USB memory device/ Format the USB memory device. Re-run the PMI routine with the diagnostic scan tool and re attempt the PMI . If the PMI fails again, attempt a CAN flash, following the diagnostic scan tool on-screen instructions.
USB Error 4	USBRemoved	- Make sure the USB memory device is installed in the vehicle until the vehicle display screen indicates programming was successful and the USB memory device can be removed. - Using a diagnostic scan tool carry out the APIM self -test and verify there are no USB cable or media hub related Diagnostic Trouble Codes (DTCs). - Verify USB / media hub functionality by using the MIT , a mobile phone connected via a USB charge cord and/or a USB memory device with media files loaded. - Remove and reinsert the USB memory device and retry programming. - Attempt programming with a different USB memory device.
USB Error 5	InstallSignature	Delete all contents on the USB memory device/ Format the USB memory device. Re-run the PMI routine with the diagnostic scan tool and re attempt the PMI . If the PMI fails again, attempt a CAN flash, following the diagnostic scan tool on-screen instructions.
USB Error 6	RebootReset	- Do not perform a master reset or SYNC hard reset during the USB programming. Make sure active resets are finished and the SYNC system has rebooted before re-attempting the USB programming. - Test the vehicle's 12 volt vehicle battery using approved diagnostic battery testers. Fully recharge or replace the battery per the test results. Complete the Battery Monitoring System (BMS) reset after the battery service, if directed by the workshop manual procedure. Retry the programming.

USB Error 7	USBReadError	- Make sure the USB memory device is installed in the vehicle until the vehicle display screen indicates programming was successful and the USB can be removed. - Using a diagnostic scan tool carry out the APIM self -test and verify there are no USB cable or media hub related Diagnostic Trouble Codes (DTCs). - Verify USB / media hub functionality by using the MIT , a mobile phone connected via a USB charge cord and/or a USB memory device with media files loaded. - Remove and reinsert the USB memory device and retry programming. - Attempt programming with a different USB memory device.
USB Error 8	USBWriteError	- Make sure the USB memory device used for the update is a 32GB, Exfat formatted USB memory device. - Attempt programming with the correctly formatted USB memory device or a different 32GB, Exfat formatted USB memory device.
USB Error 9	BatVoltageLow	Test the vehicle 12 volt battery using approved diagnostic battery testers. Fully recharge or replace the battery per the test results. Complete the Battery Monitoring System (BMS) reset after the battery service, if directed by the workshop manual procedure. Retry the programming.
USB Error 10	USBWrongFiles	Make sure the correct files have been downloaded to the USB memory device.
USB Error 11	VehicleModes	Make sure the vehicle's ignition is in the key on, engine off state. Verify the vehicle is in park/neutral.
USB Error 12	eCallPhone	Verify that any paired mobile phones are not making a Bluetooth connected call through the SYNC system.
USB Error 13	Crash	Using a diagnostic scan tool carry out the OCSM and RCM self-test. Verify there are no crash related Diagnostic trouble codes (DTCs) stored. Diagnose any related codes and reattempt to reprogram the vehicle.
USB Error 14	IgnitionCycle	- Make sure the vehicle ignition remains in the key on, engine off state during programming. The LED indicator on the ignition push button remains flashing when in key on, engine off state. Low battery state of charge or battery health may cause battery load shed strategies to shut the ignition off during programming. - Test the 12-volt battery using an approved diagnostic battery tester. Fully recharge or replace the battery per the tester results. Once complete, carry out the Battery Monitor System (BMS) reset with the scan tool. - Reattempt the programming.
USB Error 15	MasterReset	Do not perform a master reset or SYNC hard reset during the USB programming. Make sure active resets are finished and the SYNC system has rebooted before re-attempting the USB programming.

Recovery

NOTE: *Perform the following steps when programming has resulted in a blank module.*

1. Disconnect the VCM II, VCMM or later level device from the DLC and PC.

2. Launch FDRS and log in.

3. In the Device Manager window that populates, select CANCEL.

4. Select the appropriate <u>VIN</u> from the Vehicle Identification menu or use Manual <u>VIN</u> Entry and select GO.

5. In the Vehicle Communication Device Not Detected window that populates, select CONTINUE. If a Device Explorer window populates, select CANCEL.

6. After the session has started, reconnect the <u>VCM</u> II/ <u>VCMM</u> to the <u>DLC</u> and the PC. The <u>VCM</u> II/ <u>VCMM</u> or later level device icon should turn green in the bottom right corner of the screen. If it does not, troubleshoot the <u>FDRS</u> to <u>VCM</u> II, <u>VCMM</u> or later level device connection.

7. In the Toolbox menu, navigate to the failed module and Download/Run <u>PMI</u> . Follow the on-screen prompts. When asked if the original module is installed, select NO and continue through the installation application.

8. Once programming has completed, a screen may list additional steps required to complete the programming process. Make sure all applicable steps are followed in order.