

GENERAL INFORMATION

Programming and Setup - CTS Coupe & Wagon

DIAGNOSTIC INFORMATION AND PROCEDURES

CONTROL MODULE REFERENCES

Reference Information

- Data Link References
- Diagnostic System Check - Vehicle
- Diagnostic Trouble Code (DTC) List - Vehicle
- Symptoms - Vehicle

Control Module References

Code	Control Module/Scan Tool Information	Schematic	Repair Instruction	Programming and Setup
A11	-	<u>Radio/Navigation System Schematics</u>	<u>Radio Replacement</u>	<u>Radio Programming and Setup</u>
A22	Radio/HVAC Controls	<u>Radio/Navigation System Schematics</u>	<u>Radio Control Assembly Replacement (with Navigation Display) , Radio Control Assembly Replacement (without Navigation Display)</u>	<u>Radio Control Programming and Setup</u>
B87	Rearview Camera	<u>Object Detection Schematics</u>	<u>Rearview Driver Information Camera Replacement (Wagon)</u> or <u>Rearview Camera Image Display Module Replacement (Coupe)</u>	This device does not require programming or setup
B218L/R	<u>Side Object Sensing Alert Module Scan Tool Information (Right) , Side Object Sensing</u>	<u>Object Detection Schematics</u>	<u>Rear Parking Assist Alarm Sensor</u>	<u>Side Object Sensor Programming and Setup</u>

	<u>Alert Module Scan Tool Information (Left)</u>		<u>Replacement</u>	
K8	Blower Motor Control Module	<u>HVAC Schematics</u>	<u>Blower Motor Control Module Replacement</u> or <u>Blower Motor Control Module Replacement</u>	-
K9	<u>Auxiliary Body Control Module Scan Tool Information</u>	<u>Body Control System Schematics</u>	<u>Auxiliary Body Control Module Replacement (UA2)</u>	<u>Auxiliary Body Control Module Programming and Setup</u>
K9	<u>Body Control Module Scan Tool Information</u>	<u>Body Control System Schematics</u>	<u>Body Control Module Replacement</u>	<u>Body Control Module Programming and Setup</u>
K17	<u>Electronic Brake Control Module Scan Tool Information</u>	<u>Antilock Brake System Schematics</u>	<u>Electronic Brake and Traction Control Module with Brake Pressure Modulator Valve Replacement (CTS-V) , Electronic Brake and Traction Control Module with Brake Pressure Modulator Valve Replacement (CTS)</u>	<u>Electronic Brake Control Module Programming and Setup</u>
K18	Electronic Compass Module	<u>Instrument Cluster Schematics</u>	<u>Electronic Compass Module Replacement (Coupe) , Electronic Compass Module Replacement (Wagon)</u>	This device does not require programming and setup
K19	<u>Electronic Suspension Control Module Scan Tool Information</u>	<u>Electronic Suspension Control Schematics</u>	<u>Electronic Suspension Control Module Replacement</u>	<u>Electronic Suspension Control Module Programming and Setup</u>
			<u>Engine Control</u>	

K20	<u>K20 Engine Control Module: Scan Tool Information (LFW, LFX or LSA)</u>	<u>Engine Controls Schematics</u> - 3.0L or 3.6L engine or <u>Engine Controls Schematics</u> - 6.2L engine	<u>Module Replacement</u> - 3.0L or 3.6L engine or <u>Engine Control Module Replacement</u> - 6.2L engine	<u>K20 Engine Control Module: Programming and Setup</u>
K26	-	<u>Headlights/Daytime Running Lights (DRL) Schematics</u>	<u>Headlamp Control Module Replacement</u>	<u>Headlamp Control Module Programming and Setup</u>
K33	<u>HVAC Control Module Heating, Ventilation and Air Conditioning Control Module Scan Tool Information</u>	<u>HVAC Schematics</u>	<u>HVAC Control Module Replacement</u>	<u>HVAC System Control Module Programming and Setup</u>
K36	<u>Inflatable Restraint Sensing and Diagnostic Module Scan Tool Information</u>	<u>SIR Schematics</u>	<u>Airbag Sensing and Diagnostic Module Replacement</u>	<u>Inflatable Restraint Sensing and Diagnostic Module Programming and Setup</u>
K38	<u>Chassis Control Module Scan Tool Information</u>	<u>Engine Controls Schematics</u> - 3.0L or 3.6L engine or <u>Engine Controls Schematics</u> - 6.2L engine	<u>Fuel Pump Flow Control Module Replacement (Coupe) , Fuel Pump Flow Control Module Replacement (Wagon) - 3.0L or 3.6L engine or Fuel Pump Flow Control Module Replacement (Coupe, Sedan) , Fuel Pump Flow Control Module Replacement (Wagon) - 6.2L engine</u>	<u>Chassis Control Module Programming and Setup</u>
K39	<u>Liftgate Close Actuator Motor Control Module Scan Tool Information</u>	<u>Liftgate Schematics</u>	<u>Accessory and Liftgate Control Module Replacement (Wagon)</u>	<u>Liftgate Control Module Programming and Setup</u>
	<u>Seat Memory Control</u>		<u>Driver or Passenger Seat</u>	<u>Memory Seat Control</u>

K40	<u>Module Scan Tool Information</u>	<u>Driver Seat Schematics</u>	<u>Adjuster Memory Module Replacement</u>	<u>Module Programming and Setup</u>
K41R	<u>Rear Object Alarm Module Scan Tool Information</u>	<u>Object Detection Schematics</u>	<u>Rear Object Alarm Control Module Replacement (Coupe) , Rear Object Alarm Control Module Replacement (Wagon)</u>	<u>Object Alarm Module Programming and Setup</u>
K42	<u>Pedestrian Impact Detection Module Scan Tool Information</u>	<u>Object Detection Schematics</u>	<u>Pedestrian Impact Detection Module Replacement</u>	<u>Pedestrian Impact Detection Module Programming and Setup</u>
K46	-	<u>Radio/Navigation System Schematics</u>	<u>Television Tuner Replacement</u>	-
K64	<u>Theft Deterrent Module Scan Tool Information</u>	<u>Immobilizer Schematics</u>	<u>Theft Deterrent Module Replacement</u>	<u>Theft Deterrent Module Programming and Setup</u>
K69	-	<u>Transfer Case Control Schematics</u>	<u>Transfer Case Shift Control Module Replacement</u>	-
K71	Control Solenoid Valve and Transmission Control Module Assembly <u>Transmission Control Module Scan Tool Information (6L45/6L50/6L80/6L90)</u>	<u>Automatic Transmission Controls Schematics</u>	<u>Control Solenoid Valve and Transmission Control Module Assembly Replacement</u>	<u>Control Solenoid Valve and Transmission Control Module Assembly Programming and Setup (6L45/6L50/6L80/6L90)</u>
K73	<u>Telematics Communication Interface Control Module Scan Tool Information</u>	<u>OnStar/Telematics Schematics</u>	<u>Communication Interface Module Replacement</u>	<u>Telematics Communication Interface Control Module Programming and Setup</u>
			<u>Remote Control Door Lock Receiver Replacement (Coupe) , Remote Control Door Lock Receiver Replacement (Wagon)</u>	<u>Remote Control Door Lock Receiver Programming and Setup (without ATH). Remote Control Door Lock</u>

K77	<u>Remote Control Door Lock Receiver Scan Tool Information</u>	<u>Remote Function Schematics</u>	or <u>Remote Control Door Lock and Theft Deterrent Receiver Replacement (Coupe) , Remote Control Door Lock and Theft Deterrent Receiver Replacement (Wagon)</u>	<u>Receiver Programming and Setup (with ATH - Canada and Europe), Remote Control Door Lock Receiver Programming and Setup (with ATH - N America and Asia)</u>
K61	<u>Sunroof Control Module Programming and Setup</u>	<u>Sunroof Schematics</u>	<u>Sunroof Motor/Actuator Replacement (Sedan/Wagon)</u>	<u>Sunroof Control Module Programming and Setup</u>
K83	<u>Electronic Parking Brake Control Module Scan Tool Information</u>	<u>Park Brake System Schematics</u>	<u>Electronic Parking Brake Control Module Replacement</u>	<u>Electronic Parking Brake Control Module Programming and Setup</u>
K85	<u>Inflatable Restraint Passenger Presence System Scan Tool Information</u>	<u>SIR Schematics</u>	<u>Inflatable Restraint Passenger Presence System Replacement - Front</u>	<u>Passenger Presence System Programming and Setup</u>
P16	<u>Instrument Cluster Scan Tool Information</u>	<u>Instrument Cluster Schematics</u>	<u>Instrument Cluster Replacement (Left Hand Drive) , Instrument Cluster Replacement (Right Hand Drive)</u>	<u>Instrument Cluster Programming and Setup</u>
S25	Garage Door Opener	<u>Remote Function Schematics</u>	<u>Garage Door Opener Transmitter Replacement</u>	<u>Garage Door Opener Programming and Setup</u>
S84D/P	Door Lock and Side Window Switch <u>Door Lock Control Module Scan Tool Information (Passenger</u>	<u>Door Control</u>	<u>Door Lock and Side Window Switch Replacement - Driver Side</u> or	<u>Door Lock and Side Window Switch</u>

	<u>Door Switch) , Door Lock Control Module Scan Tool Information (Driver Door Switch)</u>	<u>Module Schematics</u>	<u>Door Lock and Side Window Switch Replacement - Passenger Side</u>	<u>Programming and Setup</u>
T3	-	<u>Radio/Navigation System Schematics</u>	<u>Radio Speaker Amplifier Replacement (Wagon with UQS) , Radio Speaker Amplifier Replacement (Coupe With UQA) , Radio Speaker Amplifier Replacement (Coupe With UQS) , Radio Speaker Amplifier Replacement (Wagon with UQA)</u>	-

REPAIR INSTRUCTIONS

AUXILIARY BODY CONTROL MODULE PROGRAMMING AND SETUP

Introduction

A new auxiliary body control module (XBCM) must be programmed with the latest operating software and vehicle calibrations. Ensure that the following conditions exist in order to prepare for BCM programming:

- The battery is fully charged.
- The ignition switch is in the ON position.
- The data link connector (DLC) is accessible.
- All disconnected modules and devices are connected.

For some export vehicles the additional procedures below are designed to program the export body control module. Before you start, read these procedures carefully and completely.

Programming the XBCM

IMPORTANT: The vehicle theft system may not operate properly if a replacement XBCM is

not properly programmed.

Program the auxiliary body control module. Refer to Service Programming System (SPS) for more information.

Enabling the Inclination Sensor - UA2

Perform auxiliary BCM special function "Enable inclination sensor".

IMPORTANT: After programming, perform the following to avoid future misdiagnosis:

1. Turn the ignition OFF for 10 seconds.
2. Connect the scan tool to the data link connector.
3. Turn the ignition ON, with the engine OFF.
4. Use the scan tool in order to retrieve history DTCs from all modules.
5. Clear all history DTCs.

BODY CONTROL MODULE PROGRAMMING AND SETUP

Introduction

A new body control module (BCM) must be programmed with the latest operating software and vehicle calibrations. Ensure that the following conditions exist in order to prepare for BCM programming:

- The battery is fully charged.
- The ignition switch is in the ON position.
- The data link connector (DLC) is accessible.
- All modules and devices are connected.

The procedures below are designed to program the body control module (BCM) correctly during BCM related service. Before you start, read these procedures carefully and completely.

Programming the BCM

IMPORTANT: The vehicle will not start and many other functions may not operate properly if a replacement BCM is not properly set up. The following procedures must be completed:

IMPORTANT: After the procedure is completed, the personalization settings of the BCM are set to default settings. Inform the customer that the personalization must be set again.

1. Programming the BCM-From the Main Menu, select Service Programming System, then follow the instructions on the screen. Refer to **Service Programming System (SPS)** for more information.
2. BPP Sensor calibration-Refer to **Brake Pedal Position Sensor Calibration** .

3. Learning the restraints ID-Navigate on the Tech 2 to Vehicle Control Systems > Module Setup > Body Control Module > Setup SDM Primary Key in BCM, then follow the instructions on the screen.

IMPORTANT: After any programming or setup, perform the following to avoid future misdiagnosis:

1. Turn the ignition OFF for 10 seconds.
2. Connect the scan tool to the data link connector.
3. Turn the ignition ON, with the engine OFF.
4. Use the scan tool in order to retrieve history DTCs from all modules.
5. Clear all history DTCs.

CHASSIS CONTROL MODULE PROGRAMMING AND SETUP

NOTE:

- **DO NOT** program a control module unless directed to by a service procedure or a service bulletin. If the control module is not properly configured with the correct calibration software, the control module will not control all of the vehicle features properly.
- Ensure the programming tool is equipped with the latest software and is securely connected to the data link connector. If there is an interruption during programming, programming failure or control module damage may occur.
- Stable battery voltage is critical during programming. Any fluctuation, spiking, over voltage or loss of voltage will interrupt programming. When required install the EL-49642 SPS Programming Support Tool to maintain system voltage. If not available, connect a fully charged 12 V jumper or booster pack disconnected from the AC voltage supply. **DO NOT** connect a battery charger.
- Turn OFF or disable systems that may put a load on the vehicles battery such as; interior lights, exterior lights (including daytime running lights), HVAC, radio, etc.
- During the programming procedure, follow the SPS prompts for the correct ignition switch position.
- Clear DTCs after programming is complete. Clearing powertrain DTCs will set the Inspection/Maintenance (I/M) system status indicators to NO.

Reference Information

Special Tools

EL-49642 SPS Programming Support Tool

For equivalent regional tools, refer to **Special Tools**.

Replace and Program Control Module or Reprogram Control Module

To program a replacement or an existing control module, perform the following procedure:

1. Install **EL-49642** SPS Programming Support Tool.
2. Access the Service Programming System (SPS) and follow the on-screen instructions.
3. On the SPS Supported Controllers screen, select K38 Chassis Control Module - Programming and follow the on-screen instructions.
4. At the end of programming, choose the "Clear All DTCs" function on the SPS screen.

Unsuccessful Programming Recovery

In the event of an interrupted or unsuccessful programming event, perform the following steps:

1. Ignition ON. Ensure the control module, DLC and programming tool connections are secure and the SPS software is up to date.
2. Verify the control module can be reprogrammed.
 - **If the control module cannot be reprogrammed**
 1. Ignition OFF for one minute, ignition ON.
 2. Verify the control module can be reprogrammed.
 - If the control module cannot be reprogrammed, replace the control module.
 - If the control module can be reprogrammed.
 3. All OK.
 - **If the control module can be reprogrammed**
3. All OK.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

Control Module References for Control Module replacement, programming and setup

CONTROL SOLENOID VALVE AND TRANSMISSION CONTROL MODULE ASSEMBLY PROGRAMMING AND SETUP (6L45/6L90)

The following service procedures require either a programming or a setup event be performed for a complete repair. The transmission control module (TCM) is part of the control solenoid (w/body and TCM) valve assembly, and is not serviced separately.

Transmission Control Module (TCM) Replacement

If the TCM is replaced, the following procedures must be performed:

1. TCM Reprogramming

2. The Reset Transmission Adapts - Refer to **Reset Transmission Adapts**

TCM Reprogramming

1. If the TCM needs to be reprogrammed, refer to **Service Programming System (SPS)**.
2. Perform the Reset Transmission Adapts - Refer to **Reset Transmission Adapts** .

NOTE: **After programming, perform the following to avoid future misdiagnosis:**

1. Turn the ignition OFF for 30 seconds.
2. Turn the ignition ON with the engine OFF.
3. Use the scan tool in order to retrieve history DTCs from all modules.
4. Clear all history DTCs.

Setup for Component Replacement

The replacement of some components will require a setup procedure for complete repair.

If any of the following components are replaced, the **Reset Transmission Adapts** procedure must be performed:

- Transmission replacement
- Any internal transmission repair
- Any speed sensor

Refer to **Reset Transmission Adapts** .

DOOR LOCK AND SIDE WINDOW SWITCH PROGRAMMING AND SETUP

After replacing the Door Lock/Window Switch - Driver or the Door Lock/Window Switch - Passenger, perform the programming procedure. Refer to **Service Programming System (SPS)**.

ELECTRONIC BRAKE CONTROL MODULE PROGRAMMING AND SETUP

EBCM Replacement

If the electronic brake control module (EBCM) is replaced, the following procedures must be performed:

- EBCM Reprogramming-Refer to **Service Programming System (SPS)**.
- Recalibrate the brake pedal position (BPP) sensor (Without JL7). Refer to **Brake Pedal Position Sensor Replacement** .
- Steering Angle Sensor (SAS) calibration. Refer to **Steering Angle Sensor Centering** .

ELECTRONIC PARKING BRAKE CONTROL MODULE PROGRAMMING AND SETUP

If the electronic parking brake control module is replaced, the following procedures must be performed:

Refer to **Service Programming System (SPS)**.

Calibration with Scan Tool

NOTE: **Verify the rear brakes are clear of any obstacles before starting the calibration procedure. During the procedure the rear brakes will cycle several times, stay clear of all moving parts until the process is complete.**

Perform the Parking Brake Calibration procedure in Module Setup.

Calibration without Scan Tool

1. Ignition ON, apply and hold the brake pedal.
2. Push and hold the electric parking brake switch down for 5-6 seconds.
3. Release the electric parking brake switch.
4. Momentarily push the electric parking brake switch down.
5. Remove the EPB MODULE fuse and reinstall.
6. Apply the electric parking brake.
7. Release the electric parking brake.

ELECTRONIC SUSPENSION CONTROL MODULE PROGRAMMING AND SETUP

- NOTE:**
- **DO NOT** program a control module unless directed to by a service procedure or a service bulletin. If the ECU is not properly configured with the correct calibration software, the ECU will not control all of the vehicle features properly.
 - Ensure the programming tool is equipped with the latest software and is securely connected to the data link connector. If there is an interruption during programming, programming failure or ECU damage may occur.
 - Stable battery voltage is critical during programming. Any fluctuation, spiking, over voltage or loss of voltage will interrupt programming. Install the EL-49642 SPS programming support tool to maintain system voltage. If not available, connect a fully charged 12 V jumper or booster pack disconnected from the AC voltage supply. **DO NOT** connect a battery charger.
 - Turn OFF or disable systems that may put a load on the vehicles battery such as; interior lights, exterior lights (including daytime running lights), HVAC, radio, etc.
 - During the programming procedure, follow the SPS prompts for the correct ignition switch position.
 - Clear DTCs after programming is complete. Clearing powertrain DTCs will set the Inspection/Maintenance (I/M) system status indicators to NO.

Replace and Program ECU or Reprogram ECU

To program a replacement or an existing ECU, perform the following procedure:

1. Install **EL-49642** SPS programming support tool.
2. Access the Service Programming System (SPS) and follow the on-screen instructions.
3. On the SPS Supported Controllers screen, select ESCM - Electronic Suspension Control Module and follow the on-screen instructions.
4. At the end of programming, choose the "Clear All DTCs" function on the SPS screen.

Unsuccessful Programming Recovery

In the event of an interrupted or unsuccessful programming event, perform the following steps:

1. DO NOT turn the ignition OFF. Ensure that all ECU, DLC and programming tool connections are secure and the TIS terminal operating software is up to date.
2. Attempt to reprogram the ECU.
3. If the ECU can still not be programmed, turn the ignition OFF for at least one minute.
4. Turn the ignition ON and attempt to reprogram the ECU. The ECU should program.
 - o If the ECU still cannot be programmed, replace the ECU.

K20 ENGINE CONTROL MODULE: PROGRAMMING AND SETUP

The following service procedures require either a programming or a setup event performed for a complete repair.

Before Programming The Engine Control Module

NOTE: **DO NOT program a control module unless you are directed by a service procedure or you are directed by a service bulletin. Programming a control module at any other time will not permanently correct a customer's concern.**

The following criteria must be met before performing the programming or learning procedure:

- There are no charging system concerns. All charging system concerns must be repaired before programming a control module.
- Battery voltage is between 12-16 V. The battery must be fully charged before programming the control module.
- A battery charger is NOT connected to the vehicle battery. Incorrect system voltage or voltage fluctuations from a battery charger may affect programming or control module damage.
- Note the engine oil life remaining percentage.
- Turn OFF or disable any of the following systems that may put a load on the vehicle battery:
 - o Twilight sentinel
 - o Interior lights

- Daytime running lights
- HVAC systems
- Radio
- Engine cooling fans, etc
- The ignition switch is in the proper position. The scan tool prompts you to turn ON the ignition, with the engine OFF. DO NOT change the position of the ignition switch during the programming procedure, unless instructed to do so.
- All of the following tool connections are secure:
 - The connection at the data link connector (DLC)
 - The voltage supply circuits

DO NOT disturb the tool harnesses while programming. If an interruption occurs during the programming procedure, the control module programming may be affected or control module damage may occur.

Replace and Program Control Module

If the engine control module (ECM) is replaced, the following procedures must be performed:

1. Connect a scan tool to the vehicle and access SPS. Refer to **Service Programming System (SPS)**.
2. Before removing the old control module, perform the SPS function Prepare Control Module for Removal, if available.

NOTE: **The Prepare Control Module for Removal function can only be performed when communication with the old control module is still possible.**

3. Replace the ECM.
4. Perform the SPS function Engine Control Module - Programming and follow the on-screen instructions.
5. Clear the DTCs after completing the Programming procedure.
6. Perform the SPS function Immobilizer Learn and follow the on-screen instructions. Refer to **Immobilizer System Component Programming (without ATH)** , **Immobilizer System Component Programming (with ATH)** .
7. Perform the SPS function Engine Control Module - Configuration & Setup and follow the on-screen instructions.
8. Clear DTCs after completing the Configuration & Setup procedure.

Reprogram Control Module

To reprogram an existing ECM, perform the following procedure:

1. Connect a scan tool to the vehicle and access SPS. Refer to **Service Programming System (SPS)**.
2. Perform the SPS function Engine Control Module - Programming and follow the on-screen instructions.
3. Clear DTCs after completing the Programming procedure.
4. Perform the SPS Function Immobilizer Learn and follow the on-screen instructions. Refer to

Immobilizer System Component Programming (without ATH) , Immobilizer System Component Programming (with ATH) .

5. Perform the SPS function Engine Control Module - Configuration & Setup and follow the on-screen instructions, if available.
6. Clear DTCs after completing the Configuration & Setup procedure.

Unsuccessful Programming Recovery

In the event of an interrupted or unsuccessful programming event, perform the following:

1. Ignition ON. Ensure the control module, DLC, and programming tool connections are secure and the SPS software is up to date.
2. Verify the control module can be reprogrammed.
 - If the control module cannot be reprogrammed
 1. Ignition OFF for one minute, ignition ON.
 2. Verify the control module can be reprogrammed.
 - If the control module cannot be reprogrammed, replace the K20 Engine Control Module.
 - If the control module can be reprogrammed
 - 3. All OK.
 - If the control module can be reprogrammed
3. All OK.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

Control Module References for ECM replacement, programming and setup.

GARAGE DOOR OPENER PROGRAMMING AND SETUP

Replace and Program ECU or Reprogram ECU

This ECU does not require SPS programming but does require the following setup procedures after a new ECU is installed:

The customer must learn the device they wish to control. This must be done at the device (garage door opener, electric gate, etc.) and cannot be performed at a dealership. Refer to the vehicle owner's manual for programming instructions.

HEADLAMP CONTROL MODULE PROGRAMMING AND SETUP

NOTE:

- **DO NOT** program a control module unless directed to by a service procedure or a service bulletin. If the control module is not properly configured with the correct calibration software, the control module will

not control all of the vehicle features properly.

- **Ensure the programming tool is equipped with the latest software and is securely connected to the data link connector. If there is an interruption during programming, programming failure or control module damage may occur.**
- **Stable battery voltage is critical during programming. Any fluctuation, spiking, over voltage or loss of voltage will interrupt programming. When required install the EL-49642 SPS Programming Support Tool to maintain system voltage. If not available, connect a fully charged 12 V jumper or booster pack disconnected from the AC voltage supply. DO NOT connect a battery charger.**
- **Turn OFF or disable systems that may put a load on the vehicles battery such as; interior lights, exterior lights (including daytime running lights), HVAC, radio, etc.**
- **During the programming procedure, follow the SPS prompts for the correct ignition switch position.**
- **Clear DTCs after programming is complete. Clearing powertrain DTCs will set the Inspection/Maintenance (I/M) system status indicators to NO.**

Replace and Program Control Module or Reprogram Control Module

This control module does not require SPS programming but does require the following setup procedures after a new control module is installed:

To program a replacement or an existing control module, perform the following procedure:

1. Install a scan tool.
2. Clear all DTC's before proceeding.
3. Select Module Diagnostics.
4. Select Headlamp Control Module.
5. Select Configuration/Reset Functions.
6. Select Headlamp Leveling Sensor Learn and follow the on-screen instructions.

Unsuccessful Programming Recovery

In the event of an interrupted or unsuccessful programming event, perform the following steps:

1. Ignition ON. Ensure the control module, DLC and programming tool connections are secure.
2. Verify the control module can be reprogrammed.
 - **If the control module cannot be reprogrammed**
 1. Ignition OFF for one minute, ignition ON.
 2. Verify the control module can be reprogrammed.
 - If the control module cannot be reprogrammed, replace the control module.

- If the control module can be reprogrammed.
3. All OK.

- **If the control module can be reprogrammed**

3. All OK.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

Control Module References for Control Module replacement, programming and setup

HVAC SYSTEM CONTROL MODULE PROGRAMMING AND SETUP

Each of the following service procedures may require programming or setup procedures to be performed on the HVAC control module or HVAC actuators.

HVAC Control Module Replacement

If the HVAC manual or HVAC automatic control modules are replaced, an automatic re-calibration of all the actuators will occur. Be sure to check **Service Programming System (SPS)** for the latest calibration software. For the best re-calibration results, start and run the engine for at least one minute after installing the new module. Do not adjust any controls on the HVAC control module during the re-calibration procedure. If interrupted, improper HVAC performance may result. No additional procedures are necessary.

HVAC Control Module Reprogramming

Do not reprogram the HVAC control module unless directed by a service procedure or a service bulletin.

Reprogram HVAC Control Module-Refer to **Service Programming System (SPS)**.

INFLATABLE RESTRAINT SENSING AND DIAGNOSTIC MODULE PROGRAMMING AND SETUP

The inflatable restraint sensing and diagnostic module (SDM) must be programmed with the proper calibration software. The module stores and utilizes this information however if it is not properly configured with the correct calibration software, the SDM will not control all of the vehicle features properly.

Ensure that the following conditions exist in order to prepare for SDM programming:

1. The battery is fully charged.
2. The MDI data link connectors are secure.
3. The scan tool is loaded with the most current software version.
4. All disconnected modules and devices are reconnected securely.
5. This entire procedure has been reviewed before proceeding.

Do not reprogram the SDM unless directed by a service procedure or a service bulletin.

NOTE:

- The air bag indicator light may remain ON after the body control module (BCM), or SDM is replaced, and during the programming procedure for the BCM until after the procedure is completed. When installing a new SDM, there may be several DTCs set prior to programming. Once programmed, these DTCs should be in history and can be cleared.
- Failure to complete the following Setup procedure may cause DTC B1001 to be set in the SDM.

The following service procedures require either a programming or a setup event performed for a complete repair:

Sensing and Diagnostic Module Replacement and/or Programming

If the inflatable restraint sensing and diagnostic module needs to be replaced and/or reprogrammed, the following procedures must be performed:

1. Access SPS. Refer to **Service Programming System (SPS)**.
2. Perform the SPS function Inflatable Restraint Sensing and Diagnostic Module Programming and follow the on-screen instructions.
3. Perform the SPS function Inflatable Restraint Sensing and Diagnostic Module Setup and follow the on-screen instructions.
4. Clear DTCs after completing the programming procedure.

If the control module fails to program, proceed as follows:

1. Ensure the DLC and Accessory Power Module connections are good.
2. Inspect the Techline equipment for the latest software version.
3. Attempt to program the SDM. If the SDM still cannot be programmed properly, replace the SDM.

INSTRUMENT CLUSTER PROGRAMMING AND SETUP

The instrument panel cluster (IPC) must be setup using the service programming system (SPS). Refer to **Service Programming System (SPS)** Service Programming System (SPS) The odometer information will be preprogrammed to the replacement instrument panel cluster.

LIFTGATE CONTROL MODULE PROGRAMMING AND SETUP

The following service procedures require either a programming or a setup event performed for a complete repair.

Liftgate Control Module Replacement

If the liftgate control module is replaced, the following procedures must be performed.

1. Connect a scan tool to the vehicle and access SPS. Refer to **Service Programming System (SPS)**.

2. Perform the SPS function Liftgate Control Module - Programming and follow the on-screen instructions.
3. Perform the SPS function Liftgate Control Module - Configuration & Setup and follow the on-screen instructions. On the screen Control Module - Configuration & Setup Function(s), select both ECU Configuration/Reconfiguration and the appropriate ECU Setup.
4. Clear DTCs after completing the programming procedure.
5. Perform the Liftgate Calibration procedure and if needed, the Garage Height Calibration.

Liftgate Control Module Reprogramming

Do not reprogram the liftgate control module unless directed by a service procedure or a service bulletin.

1. Connect a scan tool to the vehicle and access SPS. Refer to **Service Programming System (SPS)**.
2. Perform the SPS function Liftgate Control Module - Programming and follow the on-screen instructions.
3. Clear DTCs after completing the programming procedure.
4. Perform the Liftgate Calibration procedure and if needed, the Garage Height Calibration.

Liftgate Calibration

If any portion of the power liftgate assembly is replaced, repaired or disassembled, perform the following liftgate calibration procedure:

1. Connect the scan tool to the vehicle.
2. Select Liftgate Module:
3. Select Module Setup:
4. Select LGM Open/Close Test:
5. Press "Enter" and follow the on screen instructions:

Garage Height Calibration

If any portion of the power liftgate assembly is replaced, repaired or disassembled, perform the following liftgate calibration procedure:

1. Ensure that the rotary switch on the driver door panel is set to Garage.
2. Open the liftgate to the desired height manually or by using the one of the following switches:
 - The rotary switch on the driver door panel
 - The unlatch switch on the liftgate handle
 - The remote control switch on the key fob
3. Hold the shutface switch for at least 3 seconds with the liftgate at the desired height.
4. Close the liftgate completely using one of the following switches:
 - The rotary switch on the driver door panel
 - The shutface switch on the liftgate
 - The remote control switch on the key fob

MEMORY SEAT CONTROL MODULE PROGRAMMING AND SETUP

Memory Seat Module Replacement

If the memory seat module is replaced or if the module needs to be reprogrammed refer to Service Programming System (SPS).

OBJECT ALARM MODULE PROGRAMMING AND SETUP

If the object alarm module is replaced it must be programmed. Refer to Service Programming System (SPS).

PASSENGER PRESENCE SYSTEM PROGRAMMING AND SETUP

Passenger Presence System Preload Test

The passenger presence system (PPS) consists of an electronic control module, a sensor mat in the seat, a harness, and PASSENGER AIR BAG ON/OFF indicators. The passenger presence detection system transmits and receives a low-level electric field. The measured capacitance value of this field is used to determine the type of occupant sitting in the front passenger seat. If the measured capacitance is less than a calibrated value, then the passenger presence module will send a hard wire signal to the inflatable restraint sensing and diagnostic module to disable the passenger instrument panel air bag. If the measured capacitance is greater than a calibrated value, then the passenger presence module will send a serial data signal to the inflatable restraint sensing and diagnostic module to enable the passenger instrument panel air bag. The passenger presence detection system module will notify the customer of the enable/disable status by illuminating one of the PASSENGER AIR BAG ON/OFF indicator. If the passenger seat bottom cushion, seat bottom trim, or heater pad has been serviced, reinstalled, or removed for any reason, the procedure below will check for any preloads on the passenger presence system. A service replacement passenger presence system module does not require an unlock procedure prior to an initial preload test.

NOTE:

- Before the passenger presence system can be checked for preloads the front passenger seat must be completely empty of all items. The presence of any items on the front passenger seat will affect the calibration and operation of the passenger presence system.
- DTC B0081 will set if the preload system test is performed with:
 - An aftermarket seat heater located too close to the sensor mat
 - A scan tool, laptop, or other electronic device is in the seat
 - The seat is damp or wet
 - An object or person is in the seat
- When the preload test is performed, the instrument panel cluster and dash lights will begin illuminating at varying intensity. This is normal operation during the preload test procedure and does not indicate additional system faults.
- The Diagnostic Repair Verification must be performed after successfully completing the preload test procedure to ensure the system is functioning properly.

Passenger Presence System Preload System Test

1. Empty the front outboard passenger seat (this system is susceptible to conductive material).
2. With the scan tool, perform the Passenger Presence Sensor Learn procedure.
3. Using the scan tool, check for DTC B0081 in history. If the test fails or DTC B0081 11 is current, confirm that the seat is empty. Perform the passenger presence sensor learn test again. If the test fails again, for heated seats, ensure that the sensor pad is on top of the heater element. Once the test successfully completes, cycle the Vehicle OFF.
4. Perform the **Diagnostic Repair Verification** after successfully completing the preload test procedure to ensure the system is functioning properly.

PEDESTRIAN IMPACT DETECTION MODULE PROGRAMMING AND SETUP

The Pedestrian Impact Detection Control Module does not require programming. If the module is replaced, Module Setup must be performed with the scan tool. Refer to **Pedestrian Impact Detection Module Scan Tool Information** .

RADIO CONTROL PROGRAMMING AND SETUP

Replace and Program ECU or Reprogram ECU

This ECU does not require SPS programming or any setup procedures.

RADIO PROGRAMMING AND SETUP

Special Tools

EL-49642 SPS Programming Support Tool

NOTE:

- **DO NOT** program a control module unless directed to by a service procedure or a service bulletin. If the ECU is not properly configured with the correct calibration software, the ECU will not control all of the vehicle features properly.
- Ensure the programming tool is equipped with the latest software and is securely connected to the data link connector. If there is an interruption during programming, programming failure or ECU damage may occur.
- Stable battery voltage is critical during programming. Any fluctuation, spiking, over voltage or loss of voltage will interrupt programming. Install the EL-49642 SPS Programming Support Tool to maintain system voltage. If not available, connect a fully charged 12 V jumper or booster pack disconnected from the AC voltage supply. **DO NOT** connect a battery charger.
- Turn OFF or disable systems that may put a load on the vehicles battery such as; interior lights, exterior lights (including daytime running lights), HVAC, radio, etc.

- During the programming procedure, follow the SPS prompts for the correct ignition switch position.
- Clear DTCs after programming is complete. Clearing powertrain DTCs will set the Inspection/Maintenance (I/M) system status indicators to NO.

Diagnostic Aids

- During radio programming you may be required to select multiple calibrations dependant upon vehicle equipment. Have the vehicle build/RPO information available during the following procedure to ensure the correct calibrations are selected.
- The XM satellite radio (if equipped) is integrated into the radio. If XM was activated in the previous radio, the replacement radio will require no additional activation steps. Customer subscription information is transferred to the replacement radio when a replacement radio is ordered.

Replace and Program ECU or Reprogram ECU

To program a replacement or an existing ECU, perform the following procedure:

1. Install **EL-49642** SPS Programming Support Tool.
2. Access the Service Programming System (SPS) and follow the on-screen instructions.
3. On the SPS Supported Controllers screen, select Radio - Programming and follow the on-screen instructions.
4. At the end of programming, choose the "Clear All DTCs" function on the SPS screen.

Unsuccessful Programming Recovery

In the event of an interrupted or unsuccessful programming event, perform the following steps:

1. DO NOT turn the ignition OFF. Ensure that all ECU, DLC and programming tool connections are secure and the TIS terminal operating software is up to date.
2. Attempt to reprogram the ECU.
3. If the ECU can still not be programmed, turn the ignition OFF for at least one minute.
4. Turn the ignition ON and attempt to reprogram the ECU. The ECU should program.
 - If the ECU still cannot be programmed, replace the ECU.

REMOTE CONTROL DOOR LOCK RECEIVER PROGRAMMING AND SETUP (WITHOUT ATH)

IMPORTANT:

- When replacing the remote control door lock receiver (RCDLR), the tire pressure monitoring (TPM) information can be learned to the new RCDLR in one of two ways. These two methods are reflected in the selections below. Only choose one of the methods; it is not required to do both methods when replacing the RCDLR.
- If you choose to perform the Copy and Paste TPM Information procedure, Step 1 must be performed BEFORE removing the old RCDLR. This

procedure requires that specific TPM information be extracted from the old RCDLR prior to its removal.

Remote Control Door Lock Receiver Replacement - Copy and Paste TPM Information

This procedure will learn the TPM information to the new RCDLR using the Copy and Paste function on the scan tool. This procedure will extract the TPM Tire Type information as well as the sensor data from the existing RCDLR prior to its replacement and store this information in the scan tool. After RCDLR replacement and SPS programming, the tire type and sensor data stored in the scan tool is written to the new RCDLR, negating the need to perform the tire type setup and sensor learn procedure.

This procedure should be considered as the first programming choice when replacing an RCDLR. The Copy and Paste procedure eliminates the possibility of incorrectly inputting the tire type or learning stray TPM sensors.

IMPORTANT: This step must be performed prior to the removal or replacement of the old RCDLR.

1. Using a scan tool, navigate to the Copy and Paste TPM Information procedure and copy the existing TPM information from the RCDLR using the outline below. Follow the on-screen instructions after selecting Step 1:
 - Vehicle Control Systems
 - Module Setup
 - Remote Control Door Lock Receiver
 - Copy and Paste TPM Information
 - Step 1
2. At this point, install the new RCDLR.
3. Program the RCDLR. Refer to **Service Programming System (SPS)**.
4. Using a scan tool, navigate to the Copy and Paste TPM Information procedure to paste the stored TPM information using the outline below. Follow the on-screen instructions after selecting Step 2:
 - Vehicle Control Systems
 - Module Setup
 - Remote Control Door Lock Receiver
 - Copy and Paste TPM Information
 - Step 2
5. Program the keyless entry transmitters - Refer to **Remote Control Door Lock Transmitter Learn (without ATH)**.

Remote Control Door Lock Receiver Replacement - TPM Sensor Learn

This procedure will learn TPM information to the new RCDLR by manually inputting the tire type using the scan tool and performing the TPM sensor learn. This procedure should be performed if the above Copy and Paste procedure can not be completed. An example of this would be an RCDLR that is unable to communicate

with the scan tool and is required to be replaced.

1. RCDLR Programming-Refer to Service Programming System (SPS).
2. Keyless Entry Transmitter Programming-Refer to Remote Control Door Lock Transmitter Learn (without ATH).
3. Tire Type Setup:
 1. Install a scan tool.
 2. Select Remote Control Door Lock Receiver under Module Setup in the Vehicle Control System menu.
 3. Select Tire Type/Pressure Selection.
 4. Follow the on-screen instructions.
4. Tire Pressure Monitoring Sensor Learn-Refer to Tire Pressure Indicator Sensor Learn (With UH3), Tire Pressure Indicator Sensor Learn (Without UH3).

REMOTE CONTROL DOOR LOCK RECEIVER PROGRAMMING AND SETUP (WITH ATH - CANADA AND EUROPE)

IMPORTANT:

- When replacing the remote control door lock receiver (RCDLR), the tire pressure monitoring (TPM) information can be learned to the new RCDLR in one of two ways. These two methods are reflected in the selections below. Only choose one of the methods; it is not required to do both methods when replacing the RCDLR.
- If you choose to perform the Copy and Paste TPM Information procedure, Step 1 must be performed BEFORE removing the old RCDLR. This procedure requires that specific TPM information be extracted from the old RCDLR prior to its removal.

Remote Control Door Lock Receiver Replacement - Copy and Paste TPM Information

This procedure will learn the TPM information to the new RCDLR using the Copy and Paste function on the scan tool. This procedure will extract the TPM Tire Type information as well as the sensor data from the existing RCDLR prior to its replacement and store this information in the scan tool. After RCDLR replacement and SPS programming, the tire type and sensor data stored in the scan tool is written to the new RCDLR, negating the need to perform the tire type setup and sensor learn procedure.

This procedure should be considered as the first programming choice when replacing an RCDLR. The Copy and Paste procedure eliminates the possibility of incorrectly inputting the tire type or learning stray TPM sensors.

IMPORTANT: This step must be performed prior to the removal or replacement of the old RCDLR.

1. Using a scan tool, navigate to the Copy and Paste TPM Information procedure and copy the existing TPM information from the RCDLR using the outline below. Follow the on-screen instructions after selecting Step 1:

- Vehicle Control Systems
 - Module Setup
 - Remote Control Door Lock Receiver
 - Copy and Paste TPM Information
 - Step 1
2. At this point, install the new RCDLR.
 3. Program the RCDLR. Refer to **Service Programming System (SPS)**.
 4. Using a scan tool, navigate to the Copy and Paste TPM Information procedure to paste the stored TPM information using the outline below. Follow the on-screen instructions after selecting Step 2:
 - Vehicle Control Systems
 - Module Setup
 - Remote Control Door Lock Receiver
 - Copy and Paste TPM Information
 - Step 2
 5. Program the keyless entry transmitters - Refer to **Remote Control Door Lock and Theft Deterrent Transmitter Programming (with ATH - Canada and Europe)** , using Method 1 to perform the programming
 6. Perform the 10-Minute Immobilizer Relearn procedure for the ECM. Refer to **Immobilizer System Component Programming (with ATH)** .

When performing the relearn procedure, select Theft Deterrent Learn for ECM (Export Only) on the SPS terminal.

Remote Control Door Lock Receiver Replacement - TPM Sensor Learn

This procedure will learn TPM information to the new RCDLR by manually inputting the tire type using the scan tool and performing the TPM sensor learn. This procedure should be performed if the above Copy and Paste procedure can not be completed. An example of this would be an RCDLR that is unable to communicate with the scan tool and is required to be replaced.

1. RCDLR Programming-Refer to **Service Programming System (SPS)**.
2. Keyless Entry Transmitter Programming-Refer to **Remote Control Door Lock and Theft Deterrent Transmitter Programming (with ATH - Canada and Europe)** , using Method 1 to perform the programming.
3. Tire Type Setup:
 1. Install a scan tool.
 2. Select Remote Control Door Lock Receiver under Module Setup in the Vehicle Control System menu.
 3. Select Tire Type/Pressure Selection.
 4. Follow the on-screen instructions.
4. Perform the 10-Minute Immobilizer Relearn procedure for the ECM. Refer to **Immobilizer System Component Programming (with ATH)** .

When performing the relearn procedure, select Theft Deterrent Learn for ECM (Export Only) on the SPS terminal.

5. Tire Pressure Monitoring Sensor Learn-Refer to **Tire Pressure Indicator Sensor Learn (With UH3)** , **Tire Pressure Indicator Sensor Learn (Without UH3)** .

REMOTE CONTROL DOOR LOCK RECEIVER PROGRAMMING AND SETUP (WITH ATH - N AMERICA AND ASIA)

IMPORTANT:

- When replacing the remote control door lock receiver (RCDLR), the tire pressure monitoring (TPM) information can be learned to the new RCDLR in one of two ways. These two methods are reflected in the selections below. Only choose one of the methods; it is not required to do both methods when replacing the RCDLR.
- If you choose to perform the Copy and Paste TPM Information procedure, Step 1 must be performed BEFORE removing the old RCDLR. This procedure requires that specific TPM information be extracted from the old RCDLR prior to its removal.

Remote Control Door Lock Receiver Replacement - Copy and Paste TPM Information

This procedure will learn the TPM information to the new RCDLR using the Copy and Paste function on the scan tool. This procedure will extract the TPM Tire Type information as well as the sensor data from the existing RCDLR prior to its replacement and store this information in the scan tool. After RCDLR replacement and SPS programming, the tire type and sensor data stored in the scan tool is written to the new RCDLR, negating the need to perform the tire type setup and sensor learn procedure.

This procedure should be considered as the first programming choice when replacing an RCDLR. The Copy and Paste procedure eliminates the possibility of incorrectly inputting the tire type or learning stray TPM sensors.

IMPORTANT: This step must be performed prior to the removal or replacement of the old RCDLR.

1. Using a scan tool, navigate to the Copy and Paste TPM Information procedure and copy the existing TPM information from the RCDLR using the outline below. Follow the on-screen instructions after selecting Step 1:
 - Vehicle Control Systems
 - Module Setup
 - Remote Control Door Lock Receiver
 - Copy and Paste TPM Information
 - Step 1
2. At this point, install the new RCDLR.
3. Program the RCDLR. Refer to **Service Programming System (SPS)**.

4. Using a scan tool, navigate to the Copy and Paste TPM Information procedure to paste the stored TPM information using the outline below. Follow the on-screen instructions after selecting Step 2:
 - Vehicle Control Systems
 - Module Setup
 - Remote Control Door Lock Receiver
 - Copy and Paste TPM Information
 - Step 2
5. Program the keyless entry transmitters - Refer to **Remote Control Door Lock and Theft Deterrent Transmitter Programming (with ATH - N America and Asia)** using Method 1 to perform the programming
6. Perform the 10-Minute Immobilizer Relearn procedure. Refer to **Immobilizer System Component Programming (with ATH)** .

When performing the relearn procedure, select Theft Deterrent Learn for ECM on the SPS terminal.

Remote Control Door Lock Receiver Replacement - TPM Sensor Learn

This procedure will learn TPM information to the new RCDLR by manually inputting the tire type using the scan tool and performing the TPM sensor learn. This procedure should be performed if the above Copy and Paste procedure can not be completed. An example of this would be an RCDLR that is unable to communicate with the scan tool and is required to be replaced.

1. RCDLR Programming-Refer to **Service Programming System (SPS)**.
2. Keyless Entry Transmitter Programming-Refer to **Remote Control Door Lock and Theft Deterrent Transmitter Programming (with ATH - N America and Asia)** using Method 1 to perform the programming.
3. Tire Type Setup:
 1. Install a scan tool.
 2. Select Remote Control Door Lock Receiver under Module Setup in the Vehicle Control System menu.
 3. Select Tire Type/Pressure Selection.
 4. Follow the on-screen instructions.
4. Perform the 10-Minute Immobilizer Relearn procedure. Refer to **Immobilizer System Component Programming (with ATH)** .

When performing the relearn procedure, select Theft Deterrent Learn for ECM on the SPS terminal.

5. Tire Pressure Monitoring Sensor Learn-Refer to **Tire Pressure Indicator Sensor Learn (With UH3)** , **Tire Pressure Indicator Sensor Learn (Without UH3)** .

SERVICE PROGRAMMING SYSTEM (SPS)

Special Tools

EL-49642 SPS Programming Support Tool

For equivalent regional tools, refer to **Special Tools**.

For step-by-step control module programming instructions, please refer to the techline information system (TIS) terminal.

Review the information below to ensure proper programming protocol.

NOTE:

- **DO NOT program a control module unless you are directed by a service procedure or you are directed by a General Motors service bulletin. Programming a control module at any other time will not permanently correct a customers concern.**
- **It is essential that the TIS terminal, MDI, and/or Scan Tool, is equipped with the latest software before performing service programming.**
- **Stable battery voltage is critical during programming. Any fluctuation, spiking, over voltage or loss of voltage will interrupt programming. When required, install the EL-49642 SPS Programming Support Tool to maintain system voltage. If not available, connect a fully charged 12V jumper or booster pack disconnected from the AC voltage supply. DO NOT connect a battery charger.**
- **Some modules will require additional programming/setup events to be performed before or after programming.**
- **Some vehicles may require the use of a CANDi or MDI module for programming.**
- **Review the appropriate service information for these procedures.**
- **DTCs may set during programming. Clear DTCs after programming is complete.**
- **Clearing powertrain DTCs will set the Inspection/Maintenance (I/M) system status indicators to NO.**

Ensure the following conditions are met before programming a control module:

- **Vehicle system voltage:**
 - There is not a charging system concern. All charging system concerns must be repaired before programming a control module.
 - Battery voltage is greater than 12 volts but less than 16 volts. The battery must be fully charged before programming the control module.
 - Turn OFF or disable any system that may put a load on the vehicles battery, such as the following components:
 - Interior lights
 - Exterior lights including daytime running lights (DRL)-Applying the parking brake, on most vehicles, disables the DRL system

- Heating, ventilation, and air conditioning (HVAC) systems
- Engine cooling fans
- Radio, etc.
- The ignition switch must be in the proper position. SPS prompts you to turn ON the ignition, with the engine OFF. DO NOT change the position of the ignition switch during the programming procedure, unless instructed to do so.
- Make certain all tool connections are secure, including the following components and circuits:
 - Scan Tool
 - The RS-232 communication cable port
 - The connection at the data link connector (DLC)
 - The voltage supply circuits
 - MDI
 - The USB, Ethernet or Wireless communication port
 - The connection at the data link connector (DLC)
- DO NOT disturb the tool harnesses while programming. If an interruption occurs during the programming procedure, programming failure or control module damage may occur.

In the event of an interrupted or unsuccessful programming event, perform the following steps:

1. DO NOT turn the ignition OFF. Ensure that all control module and DLC connections are secure and the TIS terminal operating software is up to date.
2. Attempt to reprogram the control module.
3. If the control module can still not be programmed, turn the ignition OFF for at least one minute.
4. Turn the ignition ON and attempt to reprogram the control module. The control module should program.
 - If the control module still cannot be programmed, replace the control module.

After successfully programming the control module, ensure that all post programming procedures are performed; refer to **Control Module References** for the appropriate control module Programming and Setup document for any required procedures.

SIDE OBJECT SENSOR PROGRAMMING AND SETUP

This device requires no programming or setup.

SUNROOF CONTROL MODULE PROGRAMMING AND SETUP

When replacing the sunroof motor/control module, the sunroof motor/actuator initialization/teach procedure must be followed. Refer to **Sunroof Motor/Actuator Initialization/Teach Process (Sedan/Wagon)** before starting the repair procedure.

TELEMATICS COMMUNICATION INTERFACE CONTROL MODULE PROGRAMMING AND SETUP

Special Tools

EL-49642 SPS Programming Support Tool

For equivalent regional tools, refer to **Special Tools** .

Each of the following service procedures require programming or setup procedures to be performed on the telematics communication interface control module.

Communication Interface Module Replacement

NOTE:

- It is critical to use the service replacement telematics communication interface control module only in the vehicle for which it was ordered.
- Failure to perform the following procedures will result in a red LED, DTC(s) being set, and limited or incomplete OnStar® services.
- An OnStar® button press to the OnStar® call center is not required to complete the procedure.
- It may take up to 24 hours for OnStar® service to become fully activated after performing the procedures.
- Perform the following procedure only once. Repeat attempts of the procedure may result in a delay of the activation process.
- To fully activate an OnStar® module, both the setup and activation request procedures must be completed on all vehicles with and without an active OnStar® subscription to insure the unit has been setup properly for the vehicle it has been installed into and also to update the OnStar® with the correct unit information.
- To initialize the Turn-by-Turn feature, the vehicle must first be driven in open sky condition at speeds greater than 10 mph (16 kph) or more for a minimum of 5 miles (8 km) , and perform at least 2 left and 2 right 90 degree turns coming to complete stops prior to each turn.
- On vehicles up fitted with TTY capabilities, it is necessary to perform a power cycle of the OnStar® Interface Module (OTIM), and toggle the TTY mode after completing the telematics communication interface control module installation and setup procedures.

1. Install **EL-49642** SPS programming support tool .
2. Access the Service Programming System (SPS) and follow the on-screen instructions.
3. On the SPS Supported Controllers screen, select ONSU Onstar® Module Setup and Service Activation and follow the on-screen instructions.
4. At the end of programming, choose the "Clear All DTCs" function on the SPS screen.
5. The default language for the new telematics communication interface control module is English. To change to an alternate language, access the scan tool.
6. Inform the customer that it may take up to 24 hours for the OnStar® service to become fully activated.

THEFT DETERRENT MODULE PROGRAMMING AND SETUP

1. Connect a scan tool to the vehicle in the Pass-thru arrangement.
2. Turn ON the ignition, with the engine OFF.
3. Ensure that all power consuming devices are turned OFF on the vehicle.
4. On the Techline Terminal, select Service Programming System and follow the Techline Terminal on-screen instructions. Go to TDM Theft Deterrent Module from the controller list and select the appropriate on-screen calibration options.
5. After the programming has completed, turn the ignition OFF for 30 seconds.
6. Turn ON the ignition with the engine OFF.
7. On the Techline Terminal, go to V.T.D. Vehicle Theft Deterrent Learn from the controller list and select Vehicle Theft Deterrent Learn, ECM or PK3 Replaced. Follow the on-screen instructions.
8. At this point the scan tool must remain connected for the duration of the 10-minute relearn procedure.

NOTE:

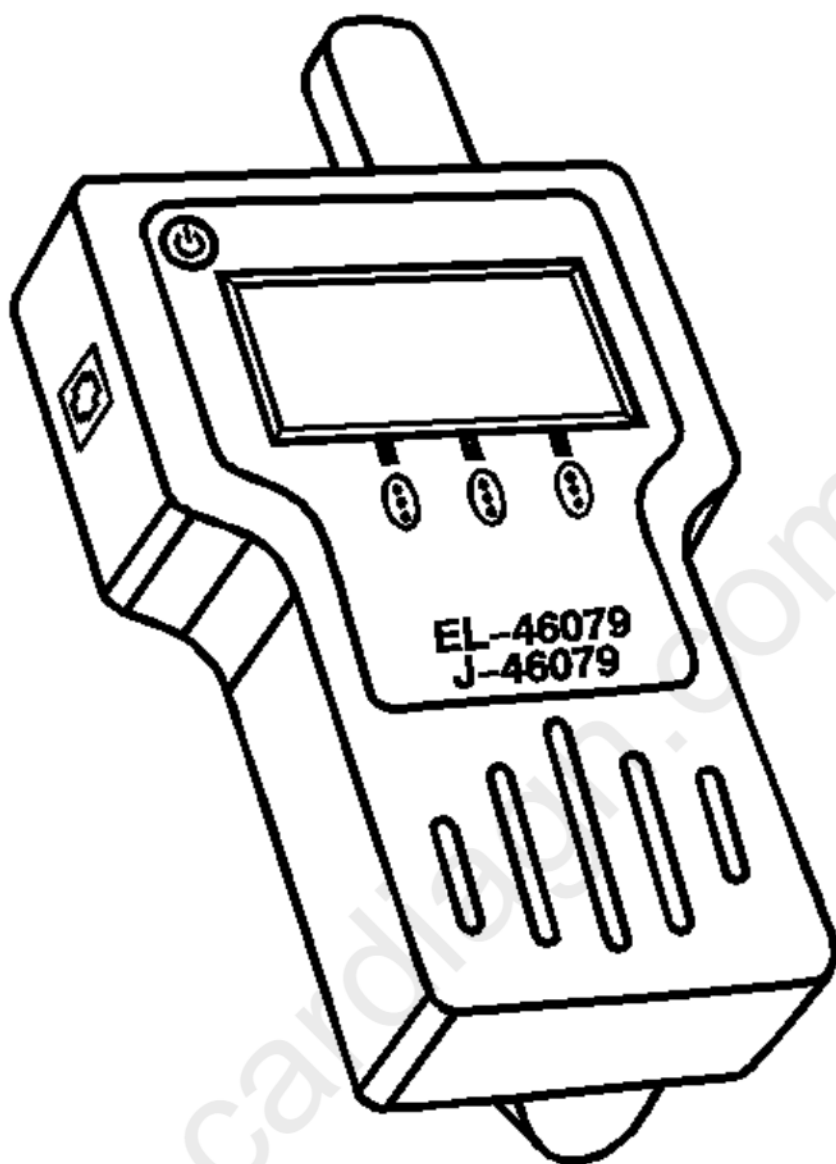
- The Techline Terminal will initially display 12 Minutes. The first 2 minutes allow the scan tool to initialize the appropriate control module. The remaining 10 minutes is the relearn timer.
- On some vehicles the security indicator may be illuminated for the duration of the 10-minute relearn procedure.

9. Observe the scan tool, after approximately 12 minutes the scan tool will display "Programming Successful, Turn OFF Ignition". The vehicle is now ready to relearn the key information and/or the passwords on the next ignition switch transition from OFF to CRANK.
10. Turn OFF the ignition and wait 2 minutes.
11. With a master vehicle key, turn the ignition to the RUN position for 15 seconds, then start the vehicle. The TDM and ECM have now relearned the pre-release password and the challenge/response data.
12. With a scan tool, clear any DTCs.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Illustration	Tool Number/ Description



EL 46079
J 46079
Tire Pressure
Monitor
Diagnostic
Tool

EL 49642
EL 50113

Europe- Use
recommended
equivalent
workshop
equipment
SPS
Programming
Support Tool

