Module Configuration

Special Tool(s)

 ST2834-A	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool

Principles of Operation

Configurable modules accommodate a variety of vehicle options, eliminating the need for many unique modules for one vehicle line. These modules must be configured when replaced as part of a repair procedure. Configurable modules should not be exchanged between vehicles since the settings are unique to each vehicle. Failure to configure a new module may result in incorrect operation and/or DTCs setting.

The following are the 3 different methods of configuration:

- Programmable Module Installation (PMI)
- Module reprogramming (flashing)
- Programmable parameters

Some modules do not support all 3 methods.

Definition of Terms

The following are definitions of configuration terms:

Programmable Module Installation (PMI)

PMI is a scan tool process which configures settings in a new module. Data used for the PMI process is automatically downloaded from the original module and stored when a scan tool session is started. If this data cannot be retrieved from the module being replaced, the scan tool may prompt for As-Built data entry or display a list of parameter values that need to be manually selected. Some modules are reprogrammed during PMI when a strategy/calibration update is available. To carry out PMI , refer to Programmable Module Installation (PMI) in this section.

NOTE: *It is important that the scan tool identifies the vehicle and obtains configuration data prior to removing any modules. The new module must be able to communicate with the scan tool in order to carry out PMI .*

Module Reprogramming

Module reprogramming (also referred to as flashing) is a scan tool process which updates the strategy/calibration in a module. Reprogramming a module with the same level of software will not improve module operation or repair a hardware failure. Module reprogramming is automatically carried out during PMI when a later strategy/calibration is available.

NOTE: *Module reprogramming should be limited to circumstances where a published TSB procedure recommends doing so.*

NOTE: *A module cannot communicate with other modules on the communication network while being reprogrammed. Clear any network communication DTCs which may have been set in other modules during the reprogramming process.*

Accessory Protocol Interface Module (APIM) Programming

Accessory Protocol Interface Module (APIM) programming is a process that updates the APIM Consumer Interface Processor (CIP) and Vehicle Interface Processor (VIP) software. The VIP programming updates the calibration files in the portion of the APIM that interfaces with the Controller Area Network (CAN) . The CIP programming updates calibration files in the portion of the APIM that interfaces with mobile phones and other customer devices.

APIM programming uses the Vehicle Communication Module (VCM) to read and program the VIP software through the Data Link Connector (DLC) . A web-based On-Line Automotive Service Information System (OASIS) application is used to read and program the CIP software via a Universal Serial Bus (USB) cable between the scan tool and the vehicle USB port. Both the VCM and the OASIS application must be running on the scan tool during APIM programming. To carry out APIM programming, refer to Accessory Protocol Interface Module (APIM) Programming in this section.

Programmable Parameters

Programmable parameters are customer preference items that may be modified by the dealer via the scan tool or in some cases, modified by the customer following a procedure listed in the Owner's Literature. While many configuration options may exist for a module, only a few of these options are programmable parameters.

Adaptive Learning and Calibration

Some modules require a separate learning procedure be carried out if replaced as part of a repair procedure. For adaptive learning and calibration instructions, refer to the specific module removal and installation procedures.

Vehicle Identification (VID) Block

Some PCMs contain a memory area called a Vehicle Identification (VID) block. The PCM VID block commonly stores powertrain configuration items such as Vehicle Identification Number (VIN) , tire size, axle ratio, and whether or not the vehicle is equipped with speed control.

Transmission Identification

PCM controlled transmissions have a solenoid strategy identification tag located on the left side of the transmission case with a 13-digit solenoid strategy number. The solenoid strategy is correct if the 13-digit number displayed on the scan tool matches the number listed on the tag. If the numbers do not match, then the solenoid strategy identification etched on the main control will need to be compared to the identification displayed on the scan tool. The solenoid body strategy must be

downloaded to the PCM if the identification on the main control does not match the identifcation displayed on the scan tool, or transmission damage may result. Refer to Section 307-01.

Module Address

A unique module address is assigned to each module on the network for identification.

As-Built Data

As-Built data is a VIN -specific module configuration record. During vehicle build, the configuration from all modules is downloaded and stored in the As-Built database. As-Built data does not reflect customer preference items that have been changed from the default state. These items need to be changed using programmable parameters after the module is configured.

NOTE: *It is not necessary to obtain As-Built data unless directed to do so by the scan tool. This data may be accessed from the technician service publication website.*

The following chart describes specific module configuration information:

Module Configuration and Parameter Chart

Module	Requires PMI	Reprogram/ Flash Capable	Requires Adaptive Learning or Calibration	Available Programmable Parameters
ABS module	Yes	Yes	• Yaw rate sensor calibration	None
Accessory Protocol Interface Module (APIM)	Yes	Yes	No	None
Audio Front Control Module (ACM)	Yes	Yes	No	• Clock display (navigation) • External Satellite Digital Audio Receiver System (SDARS) module
Body Control Module B (BCM-B)	Yes	Yes	• Security module routine calibration	• Ambient lighting dim • Ambient lighting color
Front Controls Interface Module (FCIM)	No	Yes	No	None
Front Display Interface Module (FDIM)	Yes	Yes	No	None
Global Positioning System Module (GPSM)	Yes	Yes	No	None
HVAC module	No	Yes	No	None
Instrument Panel Cluster (IPC)	Yes	Yes	No	• Default language • TraKey
Occupant Classification System Module (OCSM)	No	Yes	• Seat weight sensor re-zero	None
Parking Aid Module (PAM)	Yes	Yes	No	None
PCM	Yes	Yes	• Adaptive airflow • Idle speed • Refueling event • Fuel trim	• Axle ratio • Speed control • Tire size
Power Steering Control Module (PSCM)	Yes	Yes	No	None
Restraints Control Module (RCM)	Yes	Yes	• Seat weight sensor re-zero • Yaw rate sensor calibration	• Belt-minder® status • Emergency call (eCall) present
Smart Junction Box (SJB)	Yes	Yes	No	• Locking light feedback • Tire placard pressure
Vehicle Dynamics Module (VDM)	Yes	Yes	No	None

Inspection and Verification

This section provides step-by-step module configuration procedures. Carry out the Programmable Module Installation (PMI) procedures in this section when another workshop manual section directs to carry out configuration or when DTCs from the list below are present:

DTC Chart

NOTE: *Some modules on this vehicle utilize a 5-character DTC followed by a 2-character failure-type code. The failure-type code provides information about specific fault conditions such as opens, or shorts to ground. Continuous Memory DTCs have an additional 2-character DTC status code suffix to assist in determining DTC history.*

DTC	Description	Source	Action
B2477	Module Configuration Failure	• Front Display Interface Module (FDIM) • Smart Junction Box (SJB)	CARRY OUT Programmable Module Installation (PMI) . REFER to Programmable Module Installation (PMI) in this section.
P0315	Crankshaft Position System Variation Not Learned	• PCM	Using the scan tool, CARRY OUT the Misfire Monitor Neutral Profile Correction procedure, following the on-screen instructions.
P0602	Powertrain Control Module Programming Error	• PCM	CARRY OUT PMI . REFER to Programmable Module Installation (PMI) in this section.
P0603	EEPROM Malfunction: Not Configured	• Parking Aid Module (PAM)	CARRY OUT PMI . REFER to Programmable Module Installation (PMI) in this section.
P0605	Internal Control Module Read Only Memory (ROM) Error	• PCM	CARRY OUT PMI . REFER to Programmable Module Installation (PMI) in this section.
P1639	Vehicle ID Block Corrupted, Not Programmed	• PCM	CARRY OUT PMI . REFER to Programmable Module Installation (PMI) in this section.
U0300	Internal Control Module Software Incompatibility	• PCM • Restraints Control Module (RCM)	CARRY OUT PMI . REFER to Programmable Module Installation (PMI) in this section.
U201A:51	Control Module Main Calibration Data: Not Programmed	• Audio Front Control Module (ACM) • Front Controls Interface Module (FCIM)	CARRY OUT PMI . REFER to Programmable Module Installation (PMI) in this section.
U2050	No Application Present	• ABS module • FDIM • Occupant Classification System Module (OCSM) • SJB	CARRY OUT PMI . REFER to Programmable Module Installation (PMI) in this section.
U2051	One or More Calibration Files Missing / Corrupt	• ABS module • FDIM • OCSM	CARRY OUT PMI . REFER to Programmable Module Installation (PMI) in this section.
U2100:00	Initial Configuration Not Complete: No Sub Type Information	• ACM • Global Positioning System Module (GPSM) • Power Steering Control Module (PSCM) • RCM • Vehicle Dynamics Module (VDM)	CARRY OUT PMI . REFER to Programmable Module Installation (PMI) in this section.
U2100:00	Initial Configuration Not Complete: No Sub Type Information	• Accessory Protocol Interface Module (APIM)	CARRY OUT APIM programming. REFER to Accessory Protocol Interface Module (APIM) Programming in this section.
U2100:55	Initial Configuration Not Complete: Not Configured	• Body Control Module B (BCM-B) • Instrument Panel Cluster (IPC)	CARRY OUT PMI . REFER to Programmable Module Installation (PMI) in this section.

DTC	Description	Source	Action
U2101:00	Control Module Configuration Incompatible: No Sub Type Information	• APIM	CARRY OUT APIM programming. REFER to Accessory Protocol Interface Module (APIM) Programming in this section.
U2101:00	Control Module Configuration Incompatible: No Sub Type Information	• ACM • GPSM	CARRY OUT PMI . REFER to Programmable Module Installation (PMI) in this section.
U2101:56	Control Module Configuration Incompatible: Invalid / Incompatible Configuration	• IPC	CARRY OUT PMI . REFER to Programmable Module Installation (PMI) in this section.
U3002:62	Vehicle Identification Number: Signal Compare Failure	• RCM	CARRY OUT PMI . REFER to Programmable Module Installation (PMI) in this section.