

SECTION 8D

CENTRAL CONTROL MODULE

CAUTION: The vehicle is equipped with supplemental Inflatable Restraint (SIR). Refer to CAUTIONS in Section 9J under "ON-VEHICLE SERVICE" and the SIR Component and Wiring Location view in Section 9J before performing service on or around SIR components or wiring. Failure to follow CAUTIONS could result in possible air bag deployment, personal injury, or otherwise unneeded SIR system repairs.

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8D-2 CENTRAL CONTROL MODULE

GENERAL DESCRIPTION

SYSTEM FUNCTIONS

The Central Control Module (CCM) performs the following functions:

- Ambient Light Signal Processing
- Chime (Belts/Lights/Key Warning/Turn Signal Minder) Control
- Courtesy Lamp Control
- Displayed Accessory Bus (DAB) Control
 - Power Windows
 - Audio System
- Dimming Control
 - Instrument Cluster LCD Backlighting
 - Instrument Cluster Gages Backlighting
 - LCD Backlighting (Radio, C68 HVAC)
 - LED Indicator Dimming
 - High-Beam Indicator Dimming
- Driver Information Center (DIC) Switches
 - Trip Odometer Reset
 - Average Fuel Economy Reset
 - Display Instant/Average Fuel Economy
 - Display Fuel Range
 - Display Normal/Trip Odometer
 - Display Digital Coolant Temperature
 - Display Digital Oil Temperature
 - Display Digital Voltage
 - English/Metric Mode Selection
 - On-Board Diagnostic Control
 - Engine Oil Life Monitor Reset
 - Passive Keyless Entry (PKE) Programming Mode
- Fuel Level Detection/Processing
- Instrument Panel LCD Digit Display
 - Fuel Level
 - Vehicle Speed
 - Trip Odometer
 - Normal Odometer
 - Fuel Range
 - Instant Fuel Economy
 - Average Fuel Economy
 - Digital Coolant Temperature
 - Digital Oil Temperature
 - Digital Voltage
 - Digital Automatic Transmission
 - Fluid Temperature
 - Diagnostic Information Display
- PASS-Key® (Personal Automotive Security System)
 - Passive Keyless Entry (PKE) System Interaction
 - Programming Command sent to PKE Module
 - UTD Status sent to PKE Module
 - Arm UTD Signal Received from PKE Module
 - Sounds Horn to Verify UTD Arming From PKE
- Rear Defog Control
- Odometer Processing
- Oil Level Monitoring

- Status Warnings (“Check Gauges” Indicator)
 - Engine Coolant Overtemperature
 - Engine Oil Overtemperature
 - Fuel Level Low
- System Component Malfunction Detection
- System diagnostics Processor/Controller
- Trip Computer Processing
 - Instantaneous Fuel Economy
 - Average fuel Economy
 - Fuel Range
 - Trip Odometer
- UART Serial Communications Master
- Universal Theft Deterrent (UTD) Control
- Vehicle Speed Detection/Processing

WAKE-UP/ASLEEP STATES

“Wake-Ups” are signals that will turn the CCM “ON” and cause it to begin active control and/or monitoring. The CCM is “Asleep” when it has stopped control or monitoring and has become idle again. The Wake-Ups are as follows:

- Valid PKE Transmitter Comes in Range
- Key in Door Lock Switch, L & R
- Door Ajar Switch, L & R
- Hatch Ajar Switch
- Key in Ignition Switch
- Ignition “ON” (IGN 3)
- Park or Head Lamps “ON”

After CCM is awake and the wake-up input is removed (i.e., a door is opened, then closed) the CCM will “go to sleep” again in 5-15 seconds. An exception to this is if the CCM sees engine RPM while it is awake (as it would under normal operating conditions). In this instance, the CCM will stay awake for approximately 30 seconds, after the ignition is turned “OFF” and all wake-ups are removed, including removing the ignition key. If the ignition key is in the ignition switch, but the switches not in the “START” or “RUN” position, the CCM will stay awake for 30 minutes.

If the CCM sees a door ajar wake-up, and that wake-up remains active (i.e., the door remains open) for 15 minutes, the CCM will turn courtesy lamps “OFF” if they were “ON.” This is done to prevent battery drain if a door is inadvertently left open for an extended period of time. If the CCM sees the hatch ajar wake-up, and the hatch remains open, but all other wake-ups are removed, after 10 minutes the CCM will go to sleep. However, the cargo area lamps will stay “ON” until the hatch is closed.

POWER REQUIREMENTS

Operating current at the CCM(s) battery terminals should not exceed 1.0 amperes while the CCM is awake, 200 milliamps is an approximately “normal” value. This may be higher if Delayed Accessory Bus (DAB) is active. The DAB system allows operation of the audio system and/or power windows until a door is opened or 15 minutes passes. When the CCM is asleep, the current should not exceed 15 milliamps. Operating current drawn by the IGN 1 and IGN 3 terminals of the CCM should not

exceed 100 milliamps each. See SECTION 6D1 for more details on CCM current drain in various awake and asleep conditions. For most CCM functions, the CCM will operate properly with a system voltage of 9-16 volts.

ABBREVIATIONS/DEFINITIONS

Several abbreviations are commonly used throughout this section. They are presented here for easy reference.

ABS	Antilock Brake System
TCS	Traction Control System
CKT	Circuit
DAB	Delayed Accessory Bus
DERM	Diagnostic Energy Reserve Module
DIC	Driver Information Center
DLC	Data Link Connector
DTC	Diagnostic Trouble Code
DVM	Digital Volt Meter
EBTCM	Electronic Brake and Traction Control Module
EEPROM	Electronic Erasable Programmable Read-Only Memory
FEDS	Fuel Enable Data Stream
HVAC	Heating, Ventilation and Air Conditioning
LCD	Liquid Crystal Display
LED	Light Emitting Diode
PASS	Personalized Automotive Security System
PCM	Powertrain Control Module
PKE	Passive Keyless Entry
PWM	Pulse Width Modulated
RTD	Real Time Damping
SIR	Supplemental Inflatable Restraint
UART	Universal Asynchronous Receive and Transmit
UTD	Universal Theft Deterrent

OIL LEVEL MONITORING

The CCM monitors the engine oil level using a normally-closed grounding switch. The switch opens when the oil level is low. The procedure the CCM uses to determine a "Low Oil" condition considers many different variable and sequences of events.

To turn "ON" the "Low Oil" indicator, the following parameters must be met:

- Oil temperature during the previous ignition cycle must have been at least 90.6°C (195°F).
- Oil temperature must have dropped at least 40.6°C (105°F) since the engine was last running.
- The oil level sensor must be open, indicating low oil, when the ignition switch is turned "ON."

Verification of Oil Level

If the "Low Oil" indicator comes "ON," verification of the oil level with the oil level indicator dipstick requires a 10 minute wait with the engine "OFF." This waiting time is required for the oil to drain back into the oil pan from the various areas of the engine.

Resetting "CHANGE OIL" Indicator

The "Change Oil" indicator is reset by using a sequence of Driver Information Center (DIC) key presses as follows:

1. Turn ignition "ON," but do not start engine. DLC terminal "12" should "NOT" be grounded.
2. Press the "ENG/MET" button and release, then, within 5 seconds, press it again.
3. Within 5 seconds of Step 2, press and hold the "GAUGES" button. While the button is held, the "Change Oil" indicator will flash.
4. Continue holding the "Gauges" button until the "Change Oil" indicator stops flashing and goes out, indicating successful completion of the reset cycle. This should take about 10 seconds. If it does not successfully reset, turn ignition "OFF" and repeat the procedure from Step 1.

CCM INTERFACE WITH PASSIVE KEYLESS ENTRY (PKE) SYSTEM

- The Passive Keyless Entry (PKE) module interacts with the CCM in the following ways:
 - PKE sends "Arm UTD" and "Disarm UTD" signals to the CCM.
 - Upon receiving a "Disarm UTD" signal from PKE, the CCM turns courtesy lamps "ON."
 - Upon receiving an "Arm UTD" signal from PKE, the CCM turns courtesy lamps "OFF," and momentarily sounds the horn to indicate security system arming.
- The CCM interacts with PKE in the following ways:
 - CCM provides UTD status information to PKE.
 - CCM provides key-in-ignition switch status to PKE.
 - CCM sends a programming request signal to PKE when the appropriate DIC button-pressing sequence has been completed. For additional information on CCM and PKE interaction, refer to SECTION 9K.

DIAGNOSIS

The Central Control Module (CCM) uses the speedometer, odometer, and the trip monitor located on the instrument cluster to display information while in the diagnostic mode.

The speedometer is used to display Diagnostic Trouble Codes (DTCs) (CCM, RTD, ABS/TCS, SIR and PCM), the odometer displays data, and the trip monitor indicates the system being tested and the test which is being performed. Refer to Figure 1. The buttons on the Driver Information Center (DIC) are used to send instructions to the CCM when in the diagnostic mode. Refer to Figure 4.

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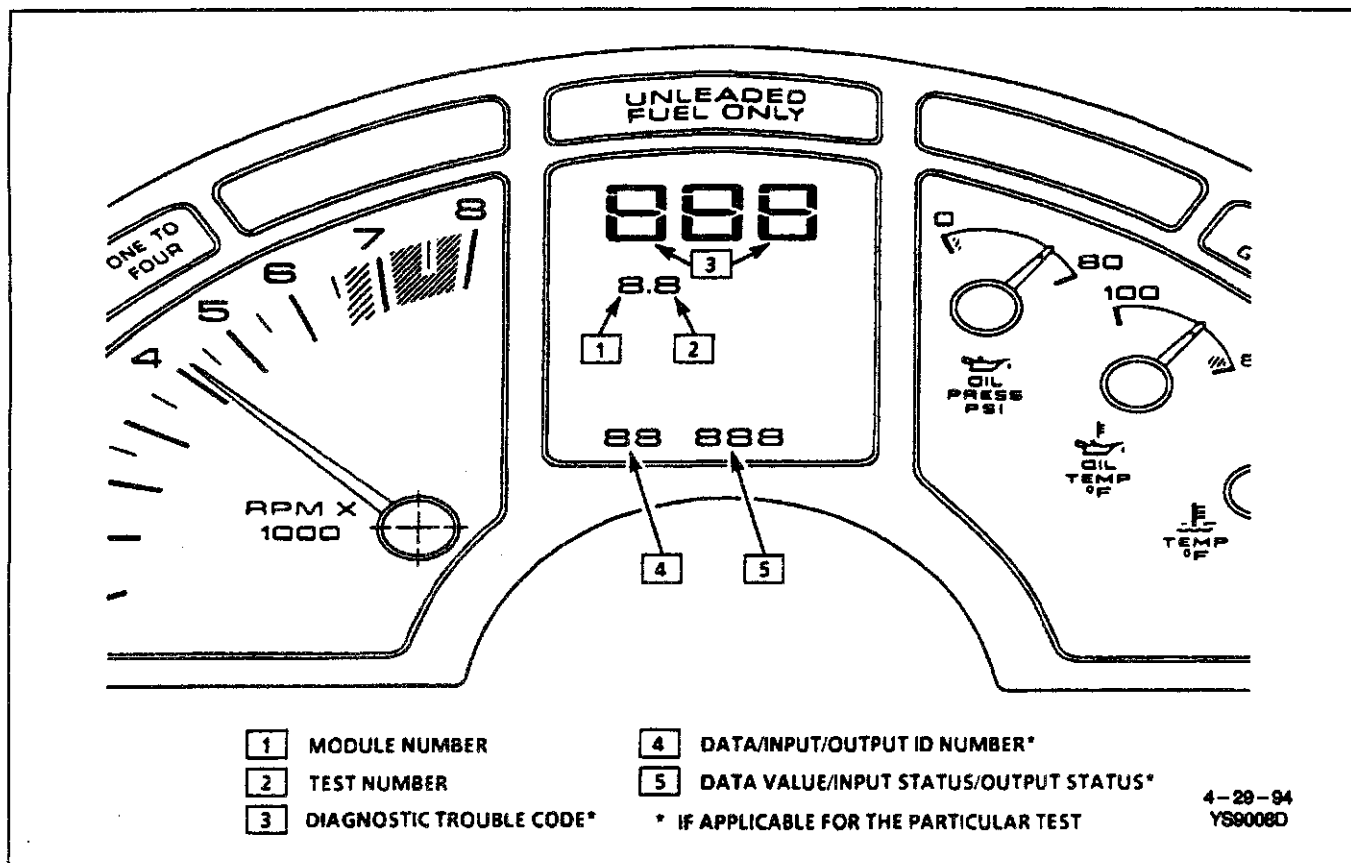


Figure 1 - CCM Diagnostic Mode

Unlike other vehicle electronic systems, such as PCM, SIR, etc., there is no specific "CCM" lamp to indicate a malfunction. A DTC-setting malfunction in any of the CCM-monitored systems is indicated by "SYS" (SYSTEM ERROR) flashing in the instrument cluster trip monitor. If a malfunction does not recur within 100 ignition cycles the CCM will automatically clear the DTC.

The "SYS" indicator will flash 3 times every 15 seconds while a current-DTC malfunction is present. An exception to the "SYS" malfunction indicator is that PASS-Key® malfunctions (DTCs 51-53) will be indicated by the "SECURITY" lamp being illuminated without the "SYS" indicator flashing. If there is a Fuel Enable Data Stream (FEDS) malfunction (DTC 54), the "SECURITY" indicator and "SYS" indicator will flash together, to illustrate that the problem condition affects vehicle security. Refer to SECTIONS 9D and 9K for more information on the CCM and security system interaction.

DIAGNOSTIC MODE

To enter the diagnostic mode, ground terminal "12" of the Data Link Connector (DLC) (Figure 3) and turn the ignition switch to the "ON" position.

! Important

- If the A/C fuse is blown, the CCM will not receive IGN 3 power and will not enter diagnostic mode. This condition should also be indicated by a DTC 16 being set.

After turning the ignition "ON," the CCM will display any DTC(s) and the module for which they apply in an automatic DTC display sequence. The CCM is module 1, the PCM is module 4, the RTD is module 7, the ABS/TCS EBTCM is module 9 and the DERM is module A. During the automatic display sequence, each DTC is displayed for three seconds, followed by a one second pause before the next DTC is displayed. There is a three second pause between the DTC display sequence for each module. The end of the DTC list for each module is indicated by "—" being displayed in the speedometer. If there is a communications problem between the PCM, EBTCM, DERM or RTD module and the CCM, the speedometer will display "Err" when the CCM trying to communicate with that module.

The particular module being interrogated is indicated on the trip monitor, and the DTC(s) are displayed on the speedometer (refer to Figure 2). The speedometer also indicates if the DTC is a current DTC (malfunction present now) or history DTC (malfunction has occurred, but is not present now) with a "C" or an "H," respectively. All PCM and EBTCM DTC(s) will be displayed by the CCM as history DTC(s), whether they are current or history. Refer to history DTC(s) in this section for more information.

When all DTC(s) have been displayed for all modules, the trip monitor will display 1.0 and the speedometer will be blank, this indicates the CCM is in the manual mode, waiting for input from the technician. At any time during the automatic DTC display sequence, the manual mode may be entered by pressing any button on the DIC.

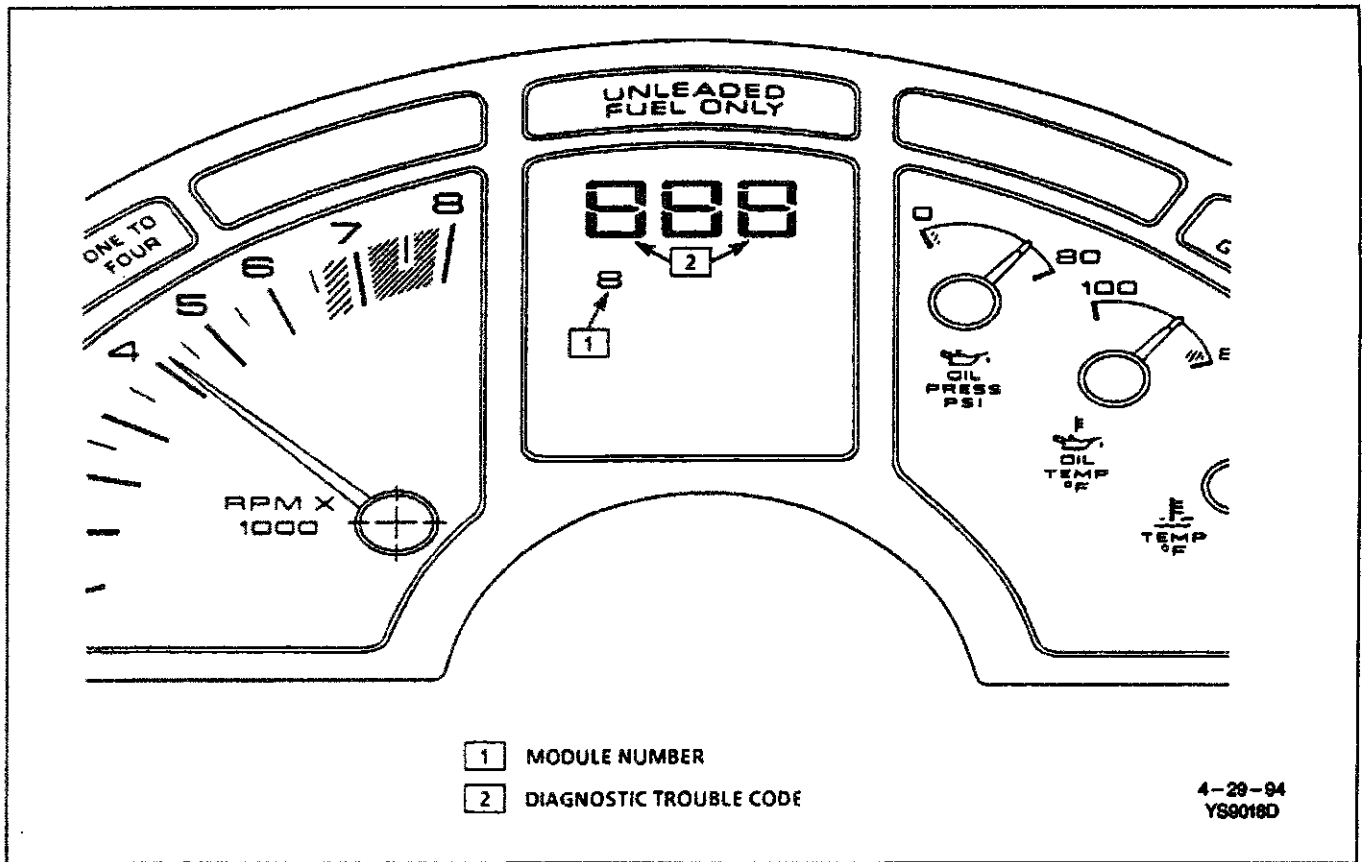


Figure 2 - CCM Automatic Display Mode

MANUAL MODE

The manual mode can be entered as described previously, or will automatically be entered after the automatic DTC display sequence is complete.

When manual mode is entered, the speedometer will be blank, and the trip monitor will display "1.0," indicating that module 1 (the CCM) is ready for further instructions. The buttons on the DIC are used to control other systems and options as illustrated in Figure 4.

The indicator "—" will be displayed on the speedometer if the end or the beginning of a list of malfunction DTC(s) is reached (using the "Next Value" or "Previous Value" button). The "—" will also display if no DTC(s) are present for the module being checked.

DIAGNOSTIC SYSTEM FUNCTIONS

In addition to displaying DTC(s), the CCM is capable of displaying the state of its inputs and the data values it is using to make decisions. It is also capable of cycling many of its systems "ON" and "OFF." These diagnostic features are selected by using the DIC buttons. The functions available are shown on the trip monitor display as follows:

Display On Trip Monitor

Function

- 1.0 Waiting for Instructions (CCM)
- 1.1 Display CCM DTC(s)
- 1.2 Display CCM Data
- 1.3 Display CCM Inputs Status
- 1.4 Cycle CCM Outputs
- 1.7 Clear CCM DTC(s)
- 4.0 Waiting for Instructions (PCM)
- 4.1 Display PCM DTC(s)
- 4.7 Clear PCM DTC(s)
- 7.0 Waiting for Instructions (RTD)
- 7.1 Display RTD DTC(s)
- 7.7 Clear RTD DTC(s)
- 9.0 Waiting For Instructions (ABS/TCS)
- 9.1 Display ABS/TCS DTC(s)
- 9.7 Clear ABS/TCS DTC(s)
- A.0 Waiting for Instructions (DERM)
- A.1 Display DERM DTC(s)
- A.7 Clear DERM DTC(s)

8D-6 CENTRAL CONTROL MODULE

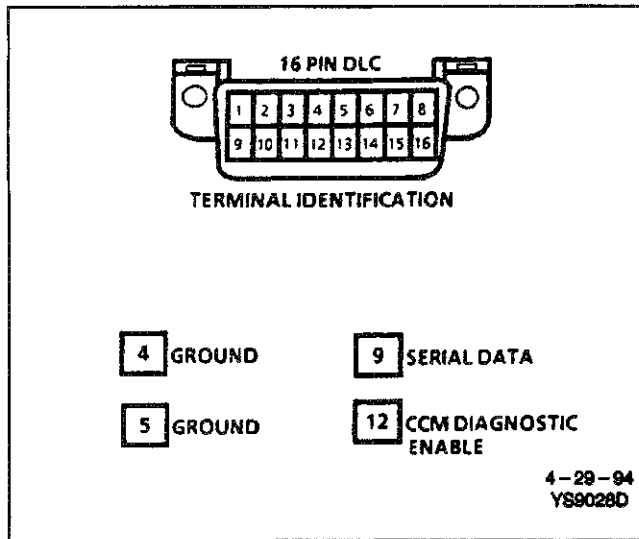


Figure 3 - DLC Connector

It is beneficial to become familiar with the features operation, and capabilities of the CCM(s) diagnostics. These self-diagnostic features are referenced often in the CCM DTC charts, and also can be a great help in quick and correct diagnosis of non-DTC-setting problems.

Display CCM DTC(s) (Diagnostic Mode 1.1)

To display CCM DTC(s), select the "Display DTC(s)" mode by pressing the "TRIP/ODO" button until "1.1" appears in the trip monitor area of the

cluster. Then, press the "ENG/MET" button to display the first DTC. Continue pressing the "ENG/MET" button to display additional CCM DTC(s), until the End-Of-Information indicator ("—") is displayed in the speedometer. A "C12" indicates no stored DTC(s) for the CCM.

If it is necessary to go backward in the list, use the "FUEL INFO" button. The top of the DTC list will be indicated by the "—" display in the speedometer.

CCM DTC LIST

DTC	Definition
12	On-Board Diagnostics Operational, No DTC(s).
13	DIC Switch Open or Shorted to B+.
14	DIC Switches Shorted To Ground.
16	Ignition 3 Fuse Circuit Open.
21	Horn Relay Coil Shorted To B+ or CCM Internal Open.
22	Rear Defogger Relay Coil Shorted to B+ or CCM Internal Open.
24	Courtesy Lamp Relay Coil Shorted to B+ or CCM Internal Open.
25	Courtesy Lamp Relay Coil Circuit Open or Shorted to Ground.
26	LCD Blanking Control Circuit Shorted To B+ or CCM Internal Open.

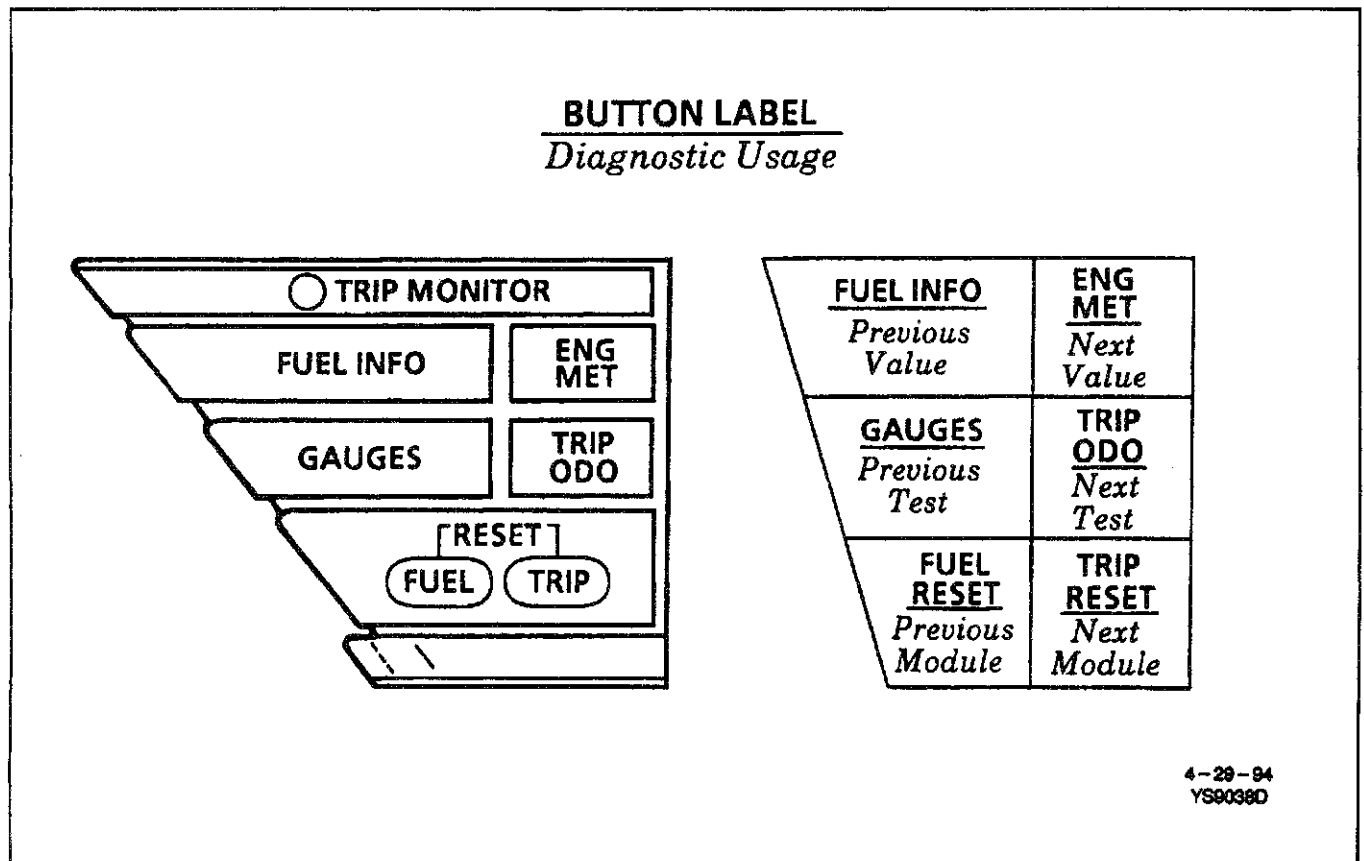


Figure 4 - Driver Information Center Buttons

DTC	Definition
27	LCD Blanking Control Circuit Open or Shorted To Ground.
31	LCD Data Circuit Shorted to B+ or CCM Internal Open.
32	LCD Data Circuit Open or Shorted To Ground.
33	Data Clock Circuit Shorted to B+ or CCM Internal Open.
34	Data Clock Circuit Open or Shorted to Ground.
35	Data Strobe Circuit Shorted to B+ or CCM Internal Open.
36	Data Strobe Circuit Open or Shorted to Ground.
37	M Clock Circuit Shorted to B+ or CCM Internal Open.
38	M Clock Circuit Open or Shorted to Ground.
51	PASS-Key® - Invalid Key Detection.
52	PASS-Key® - Key Detection Circuit Shorted.
53	PASS-Key® - Key Detection Circuit Open or Shorted to B+.
54	FEDS - Fuel Enable Failure.
61	PASS-Key® - Key #1 Programming Resistance Out of Range.
62	PASS-Key® - Key #2 Programming Resistance High.
63	PASS-Key® - Key #2 Programming Resistance Low.
71	LCD Dimming Output Circuit Shorted to B+ or CCM Internal Open.
72	LCD Dimming Circuit Open or Shorted to Ground.
73	LED Display Dimming Output Circuit Shorted to B+ or CCM Internal Open.
74	LED Display Dimming Output Circuit Open or Shorted to Ground.
81	Invalid Vehicle Configuration.

**Display CCM Data
(Diagnostic Mode 1.2)**

The CCM can display the data it is using to make its control decisions. This data can be helpful in determining if a system is operating properly and/or sending correct data to the CCM.

Select the display data function by repeatedly pressing the "TRIP/ODO" button until "1.2" is showing in the trip monitor area of the cluster. Then, press the "ENG/MET" button until the identifying number for the data value to be displayed is shown in the first two digits of the odometer. If it is necessary to go backward in the list, use the "FUEL INFO" button.

The data value is displayed as the last three digits of the odometer when in the data display mode. The data units displayed differ from item to item, and are listed below with the description of the data ID number and the system data. Letters in parentheses before an item's description indicate that there is a special note about that item. The notes are shown below the list.

An example of the use of the data display functions, using a theoretical courtesy lamp system malfunction as an example, might involve the ambient light sensor. The courtesy lamp system does not operate if there is a substantial amount of ambient light (i.e. it is not dark outside). If there were a malfunction with the ambient light sensor circuit in which the CCM was always interpreting that it was daytime outside, the CCM would never turn the courtesy lights "ON." To check this possibility, select the data display function, then select the ambient light sensor data (Data ID 03). When the data is displayed, cover the light sensor and see if the data value changes. If not, the light sensor may be malfunctioning, there may be a wiring malfunction, etc. This is an example of how the CCM(s) diagnostics can provide valuable information without any time spent on disassembly of the vehicle or probing of circuits.

Data ID Number	Data(Units)
01	Fuel Level (Gallons, Tenths)
02	(A) Dimming Potentiometer (A/D-Counts)
03	Ambient Light Sensor (A/D Counts)
04	(B) Rear Defogger Timer (Seconds)
05	Vehicle Speed (M.P.H.)
06	PASS-Key® (A/D Counts)
07	Ignition Voltage (Volts. Tenths)
08	Switched Battery Voltage (Volts. Tenths)
09	Cluster Incandescent Lamp Dimming PWM (0-100%)
10	Cluster LCD Backlight Lamps Dimming PWM (0-100%)
11	Radio & Climate Control LCD Backlight Lamps Dimming PWM (0-100%)
12	LED Dimming PWM (0-100%)
13	Vehicle Configuration
14	Vehicle Configuration
15	(C) Oil Monitor Effective Revolution (100,000 Revolutions per count)
16	(D) CCM software Version

NOTES:

- A. Headlights or Parking Lights must be "ON"
- B. Engine must be running
- C. 0-200 counts
- D. See Figure 5 for version number identification, note that the number 16 Data ID Number will not be displayed, due to the length of the version number.

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Display CCM Input Status (Diagnostic Mode 1.3)

The CCM can display the status of its inputs. This can assist in determining if the CCM is "seeing" a system operate as intended. For example, courtesy light operation requires seeing a door open, indicated by the door ajar switch. If the courtesy lamps are not operating properly, a starting point might be selecting this diagnostic function and watching if the CCM recognizes the door opening and closing.

Select the "Display Inputs" function by repeatedly pressing the "TRIP/ODO" button until "1.3" is shown in the trip monitor area of the cluster. Then, press the "ENG/MET" button until the identifying number for the item to be monitored is shown in the first two digits of the odometer. If it is necessary to go backward in the list, use the "Fuel INFO" button.

The status of the item being monitored will appear in the last three digits of the odometer. The input status will be displayed as "1" ("ON") or "0" ("OFF"). The display will constantly move to the left, one digit at time. The first two digits in the odometer show the last two states of the selected input, the third digit shows the current state of the input. If, again using the door ajar switch as our example, this mode was entered with the door open, a "1" would be displayed as the last digit in the odometer. If the door is then closed, the display would show "10" (system input "ON," then "OFF"). If we were to open the door again, a "101" in the odometer would indicate the system was "ON," then "OFF," and is currently "ON."

If an input state display never changes when a system is operated, that system could be stuck. If the display is constantly a "1", never changing to a "0", the input could be stuck "ON." This could be a short, a malfunctioning switch, etc. If the input state is constantly a "0", the problem could be an open, a malfunctioning switch, or a similar problem. Exceptions to this are Input ID's 01, 02, 06, and 14, which should not change or cannot be changed during diagnostics.

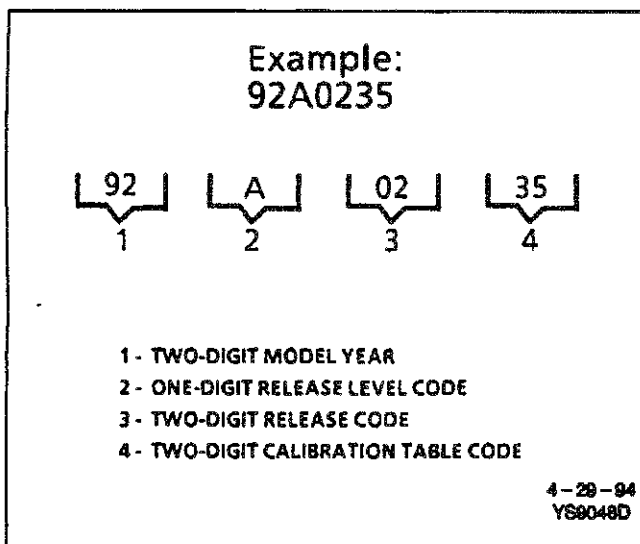


Figure 5 - Software Version Number

Letter in parentheses before an item's description indicate that there is a special note about that item. The notes are shown below the list.

Input ID Number	Input	1=
01	PASS-Key® Fuel	Enabled
02	(A) English/Metric Status	Metric
03	Door Key Switch	"ON"
04	Right Door Ajar	Open
05	Left Door Ajar	Open
06	(B) Key In Ignition	Closed
07	hatch Ajar	Open
08	Power Door Unlock	Yes
09	Power Door Lock	Yes
10	Parking Lights	"ON"
11	(C) Rear Defogger Input	"ON"
12	(D) Seat Belt Switch	Buckled
13	(E) High Beam Switch Input	"ON"
14	Low Oil Level Switch	Low Oil

NOTES:

- A. English or metric status must be selected with the system in normal operating mode, before the diagnostic mode is entered by grounding DLC "12".
- B. The key in ignition switch is closed only if there is a key in the ignition when the ignition switch is in the "OFF" or "ACC" position. Therefore, if the input display shows a "1," the key in ignition switch or its circuits must be malfunctioning, the CCM should not detect a key when in the "RUN" position, which is the switch position when in diagnostics.
- C. The engine must be running to monitor this input. Also, with C68 HVAC systems, the rear defog switch sends a very short (90 millisecond) pulse when depressed. The CCM may not see the pulse the first time, so pressing the button more than once may be required.
- D. Driver's side seat belt only.
- E. Headlights must be "ON."

Cycle CCM Outputs (Diagnostic Mode 1.4)

The CCM can cycle its outputs "ON" and "OFF." This can be very helpful in determining if certain portions of a circuit or components are in working order.

Select the cycle outputs function by repeatedly pressing the "TRIP/ODO" button until "1.4" is shown in the trip monitor area of the cluster. Then, press the "ENG/MET" button until the identifying number for the item to be cycled is shown in the first two digits of the odometer. If it is necessary to go backward in the list, use the "FUEL INFO" button.

The status of the output being cycled is shown as a "0" ("OFF") or a "1" ("ON"), in the last digit of the odometer. The output status cycles between "ON" and ("OFF") or a "1" ("ON"), in the last digit of the odometer. The output status cycles between "ON" and "Off" every three seconds.

Using the courtesy lamp system as an example, cycling the output to the courtesy lamp relay can indicate whether the circuitry from the CCM to the relay, the relay itself, and the circuitry from the relay to the bulbs are good. If, for example, when cycling the output to the courtesy lamp relay, the relay is heard to be clicking and the I/P output indicator is cycling from "0" to "1" to "0," but the bulbs are not lighting when the display indicates "1" ("ON"), there is a good possibility that the problem lies in the wiring from the relay to the bulbs. In the same instance, if the relay were not cycling, it could be the wiring from the CCM to the relay, the relay, or in rare instances, the CCM itself.

Letters in parentheses before an item's description indicate that there is a special note about that item. The notes are shown below the list.

Output ID Number	Output Controlled
01	Change Oil Indicator
02	(A) Check Gauges Indicator
03	Fasten Seatbelt Indicator
04	Security Lamp Indicator
05	High Beam Indicator
06	Chime 1
07	Chime 2
08	LCD Blanking Control
09	Rear Defogger Relay
10	Courtesy Lamp Relay
11	Low Oil Indicator
12	(B) Theft Deterrent Relay
13	Delayed Accessory Bus Relay
14	Door Ajar Indicator
15	Horn Relay

NOTES:

- A. Engine must be running to see this indicator cycle, it will be "ON" without engine running because the gage systems it monitors will be outside their correct range.
- B. The theft deterrent relay output will be cycled only if the proper PASS-Key® is in the ignition or if PASS-Key® is unprogrammed.

**Clear CCM DTC(s)
(Diagnostic Mode 1.7)**

After all diagnosis and repairs are completed, clear the CCM DTC(s) as follows (if already in CCM diagnostic mode, begin at Step 3):

1. With ignition "OFF," ground terminal "12" of DLC connector.

2. Turn ignition "ON."
3. Press "TRIP/ODO" button on DIC until "1.7" appears in the trip monitor area of the instrument cluster.
4. Press "ENG/MET" button on DIC and hold until "—" appears in speedometer area of cluster, this will clear CCM DTC(s).
5. Turn ignition "OFF."
6. Turn ignition "ON" and verify that no CCM DTC(s) are present.
7. Turn ignition "OFF," then remove DLC ground to terminal "12".

Display PCM, RTD, ABS/TCS or SIR DTC(s) (Diagnostic Modes 4.1, 7.1, 9.1 or A.1)

To display DTC information do the following (if already in CCM diagnostic mode, begin at Step 3):

1. With ignition "OFF" ground terminal "12" of the DLC connector.
2. Turn ignition "ON."
3. Press the "TRIP RESET" button on the DIC until the desired system is displayed in the trip monitor area of the cluster. Refer to "Diagnostic System Functions" for a table of system functions.
4. Press "TRIP/ODO" button on the DIC and hold until the desired diagnostic mode is displayed on the trip monitor area of the cluster.
5. Press the "ENG/MET" button on the DIC to display the DTC(s) on the speedometer. "—" displayed on the speedometer indicates the last DTC has been displayed. Refer to the appropriate section for DTC information and diagnostics.

Clear PCM, RTD, ABS/TCS or SIR DTC(s) (Diagnostic Modes 4.7, 7.7, 9.7 or A.7)

To clear DTC information do the following (if already in CCM diagnostic mode, begin at Step 3):

1. With ignition "OFF," ground terminal "12" of the DLC connector.
2. Turn ignition "ON."
3. Press the "TRIP RESET" button on the DIC until the desired system is displayed in the trip monitor area of the cluster. Refer to "Diagnostic System Functions" for a table of system functions.
4. Press "TRIP/ODO" button on the DIC until the desired diagnostic mode is displayed on the trip monitor area of the cluster.
5. Press and hold the "ENG/MET" button on the DIC until "—" is displayed in the speedometer area of the cluster.
6. Turn ignition "OFF."
7. Turn ignition "ON" and verify that the DTC(s) cleared are no longer present.
8. Turn ignition "OFF," then remove DLC ground to terminal "12".

8D-10 CENTRAL CONTROL MODULE

HISTORY DTC(s)

CCM history DTC(s) are those indicating that the CCM previously detected a malfunction which later disappeared. The reason could be either that the malfunction is an intermittent, only happening occasionally, or that the system for which the DTC is set is not currently being operated. An example of this would be the rear defogger system; it does not operate unless the engine is running. Since a technician would most likely be using CCM diagnostics with the engine "OFF," a rear defogger DTC would always show as history, though the malfunction was currently present. For this reason, if a CCM DTC is displayed as a history DTC and the malfunction cannot be found easily, try clearing the DTC(s) and operating the system that the DTC applies to. Be sure to read the "Diagnostic Aids" portion of the DTC description

page. "Diagnostic Aids" often contains information on certain settings the system must have before the DTC will set. If the DTC resets, it can be assumed that the condition is present.



Important

- All PCM, RTD, EBTCM (ABS/TCS) and DERM DTC(s) will be displayed by the CCM as history DTC(s), whether they are current or history.

INTERMITTENTS AND POOR CONNECTIONS

Refer to SECTION 8A-4 for a very thorough discussion of how to locate and repair intermittents and/or poor connections.