DRIVER INFORMATION DISPLAY MANUAL

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Foreword

This manual contains information concerning the safe operation of your vehicle. It is extremely important that this information is read and understood before the vehicle is operated. Please keep this manual in the vehicle at all times.

Note: It is important that this manual stays with the vehicle when it is sold. Important safety information must be passed on to the new customer.

Note: Illustrations in this manual are used for reference only and may differ slightly from the actual vehicle. However, key components addressed in this document are represented as accurately as possible.

All information, illustrations and specifications contained in this manual are based upon the latest product information available at the time of publication. Volvo Trucks North America reserves the right to make changes at any time or to change specifications or design without notice and without incurring obligation.

The National Highway Traffic Safety Administration (NHTSA) and Volvo Trucks North America should be informed immediately if you believe that the vehicle has a defect that could cause a vehicle accident, injury or death.

Contact NHTSA by calling the Auto Safety Hotline at 1 (888) 327-4236, by writing to NHTSA, U.S. Department of Transportation, Washington, DC 20590, by TTY at 1 (800) 424-9153, or visit their website at www.nhtsa.dot.gov.

Volvo Trucks North America, a division of Volvo Group North America, Inc.

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Safety Information

IMPORTANT: Before driving this vehicle, be certain that you have read and that you fully understand each and every step of the driving and handling information in this manual. Be certain that you fully understand and follow all safety warnings.

IT IS IMPORTANT THAT THE FOLLOWING INFORMATION BE READ, UNDERSTOOD AND ALWAYS FOLLOWED.

The following types of advisories are used throughout this manual:

⚠ DANGER

Danger indicates an unsafe practice that could result in serious personal injury or death. A danger advisory banner is in **white** type on a **black** background with a **black** border.

⚠ CAUTION

Caution indicates an unsafe practice that could result in damage to the product. A caution advisory is in **black** type on a **white** background with a **black** border.

⚠ WARNING

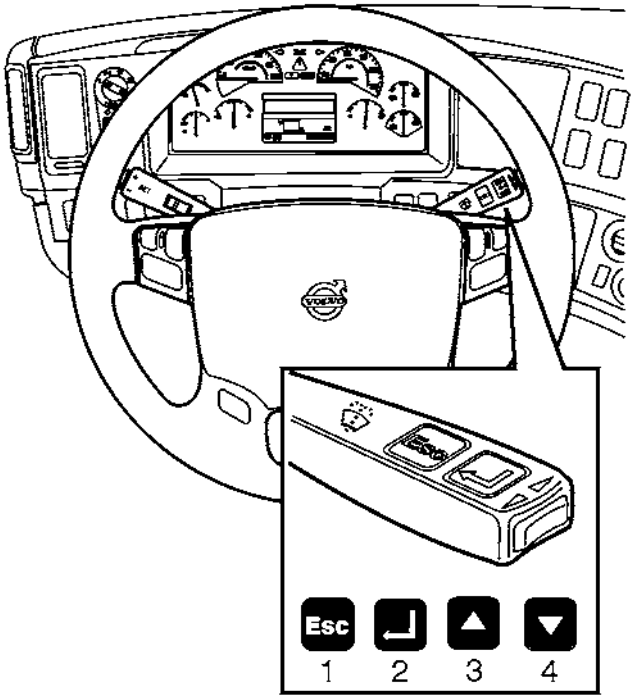
Warning indicates an unsafe practice that could result in personal injury. A warning advisory banner is in **black** type on a **gray** background with a **black** border.

Note: Note indicates a procedure, practice, or condition that must be followed in order for the vehicle or component to function in the manner intended.

Labels Danger, Warning, Caution and Advisory labels are placed in various locations of the vehicle to alert drivers and service technicians about situations that may lead to personal injury or equipment damage. In the event that a label is damaged or missing the **label must be replaced**. Contact your authorized Volvo Truck dealer for assistance regarding labels.

STALK SWITCH CONTROL LEVER

The stalk switch control lever is used to interact with the DID. The lever is located on the right-hand side of the steering wheel.



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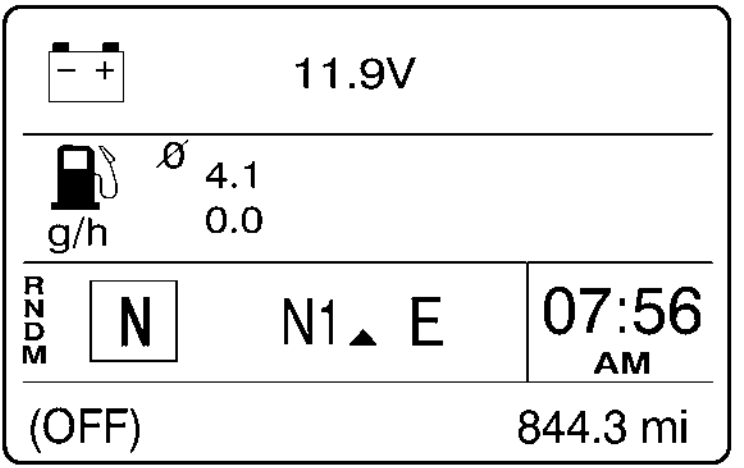
2 Driver Information Display

Stalk Switch Functions

- The Esc or Escape button is used to return to the previous menu or display, or to cancel a setting or operation.
- The Enter button is used to display a list of menus, open a menu, and select a chosen value.
- The Up arrow is used to scroll up through a menu and to increase numerical values.
- The Down arrow is used to scroll down through a menu and to decrease numerical values.

Selecting a Menu

The following drawing is the current condition screen. This is what is displayed when starting the truck and also while driving.



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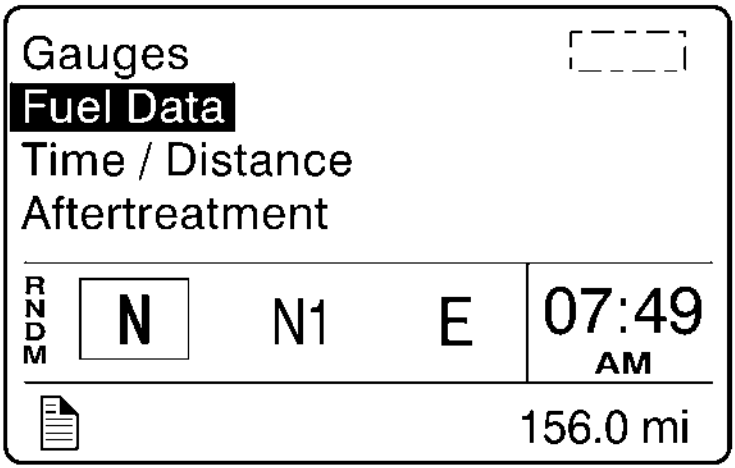
1 Press the Enter button to display the available menus.
2 Use the up and down arrows to scroll through the list of menus.
3 Press the Enter button to open the selected menu.
4 Press the Esc button to return to the previous menu or display, or to cancel a setting or operation.



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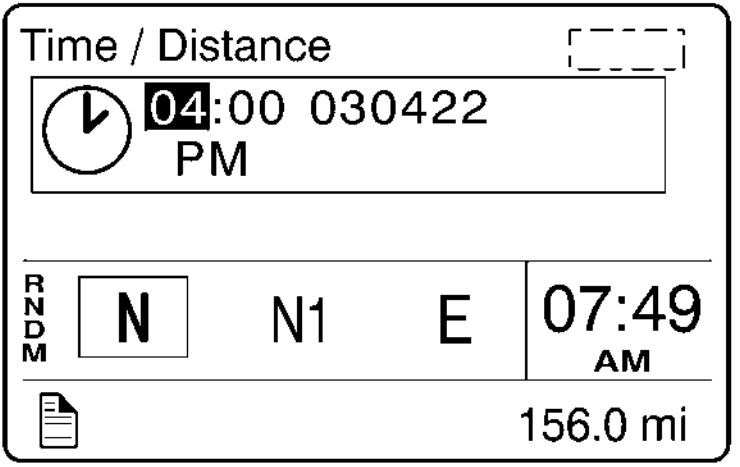
Changing Settings

1 The up and down arrows increase and decrease set values.

2 Press the Enter button to confirm the choice and move to the next position.

3 Press the Esc button to return to the previous position, or to cancel a setting or operation.



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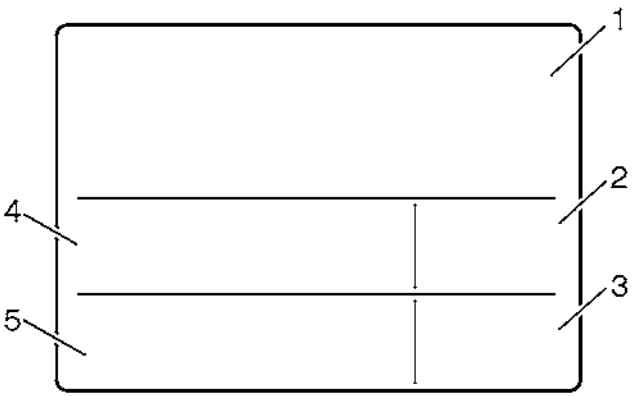
MID-LEVEL AND HIGH-LEVEL INSTRUMENT CLUSTER DID

Note: Depending on vehicle configuration, some menus may not be available.

The Driver Information Display (DID) is located in the center of the mid-level and high-level instrument clusters. It displays digital gauges, main menus and sub-menus that provide necessary and important information to the vehicle operator.
The information available to the operator depends on vehicle configuration, and whether the vehicle is in operation or parked. Certain functions are password-protected and are not shown until the correct password is entered. See “Password”, page 104.
There are three sections of display information in the DID:

Note: All saved favorites are displayed on the left hand side of the DID screen.

- Top — Messages and available menus
- Middle — Favorite display
- Bottom — Current status and odometer



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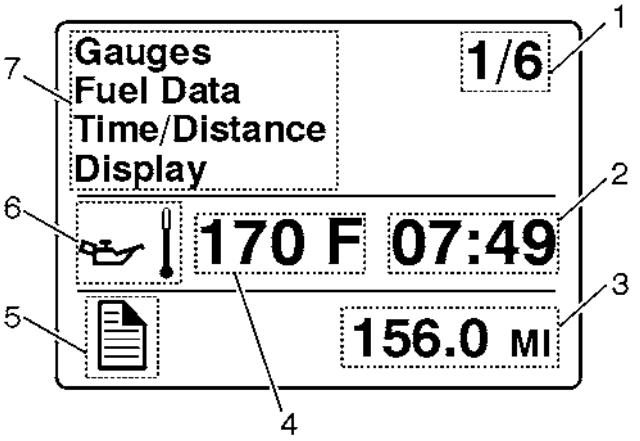
1 Messages and Available Menus
2 Clock
3 Odometer
4 Favorite Display
5 Current Status

6 Driver Information Display

The top section displays messages, selected digital gauges, and the available DID menus. The favorite display, clock, odometer and current status are always visible. The current status section provides status information required at all times.
DID, example screen view:



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1 Indicates First of Six Available Menus (varies by menu)

2 Clock

3 Odometer

4 Engine Oil Temperature (EOT)

5 Current Status Icon(s)

6 EOT Icon

7 Messages and Available Menus

Mid-Level and High-Level DID Menus

There are Driving and Non-Driving menus. Several sub-menus are password-protected while the vehicle is parked. The Non-Driving menu is accessible only when the vehicle is parked.

Driving Menus

- Gauges
  - — Current Gear Position (Automated Transmission)
  - — Ambient Air Temperature (AAT)
  - — Engine Oil Temperature (EOT)
  - — Temperature Transmission
  - — Battery Voltage
  - — Axle Temperature (Front/Rear)
  - — Air Suspension (Front/Rear)
  - — Volvo Link Compass
- Fuel Data
  - — Fuel Economy
  - — Trip Fuel Used
  - — Distance to Empty
  - — Fuel Economy
  - — Idle Percent
  - — Sweet Spot/Performance Bonus
  - — Sweet Spot Percentage
  - — Road Speed Limit
- Time/Distance
  - — Time and Date
  - — Alarm Clock
  - — Trip Odometers 1 and 2
  - — Average Trip Speed
  - — Estimated Time of Arrival (ETA)
- Aftertreatment
  - — Request Parked REGEN
  - — ATS Status
  - — Delay REGEN
  - — Cancel REGEN

- Volvo Link
  - — Read Message
  - — Send Message
  - — Other Info
- Display
  - — Black Panel
  - — Favorite Display
  - — Backlight
  - — Favorite Display Setting
  - — Night/Day
- Vehicle Messages
- Aftertreatment

Digital Gauges in the DID (High and Mid Level Cluster Only)

There are several gauges in the Gauges menu. The number of gauges your vehicle is programmed with depends on the equipment level of the vehicle. The gauges are used to view current status of important functions in the vehicle.
All gauges are programmed into the instrument cluster and are therefore visible only in the DID.

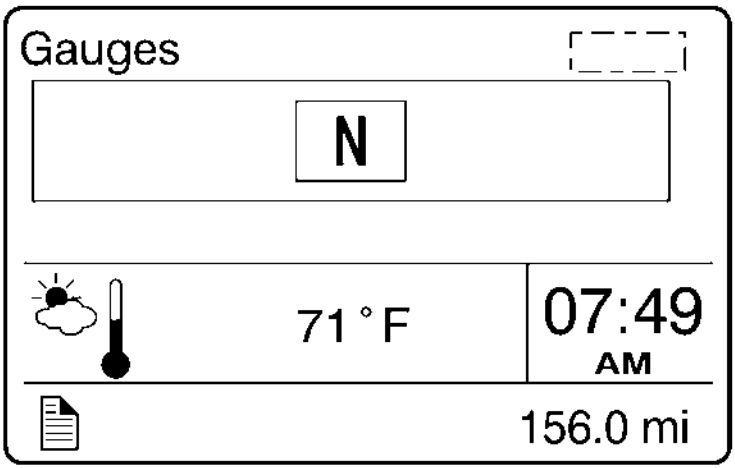
- Current Gear Position (Automated Transmission)
- Ambient Air Temperature (AAT)
- Engine Oil Temperature (EOT)
- Transmission Temperature
- Battery Voltage
- Front and Rear Axle Temperature
- Front and Rear Suspension Pressure
- Volvo Link Compass

1. Current Gear Position (Automated Transmission)

Note: When the vehicle is equipped with an automated transmission, the current transmission gear position is always displayed in the favorites display section.

The current gear position gauge is standard with automated transmissions.

- N = Neutral
- R = Reverse
- Forward Gear = 1 – 18 (varies with type of transmission)



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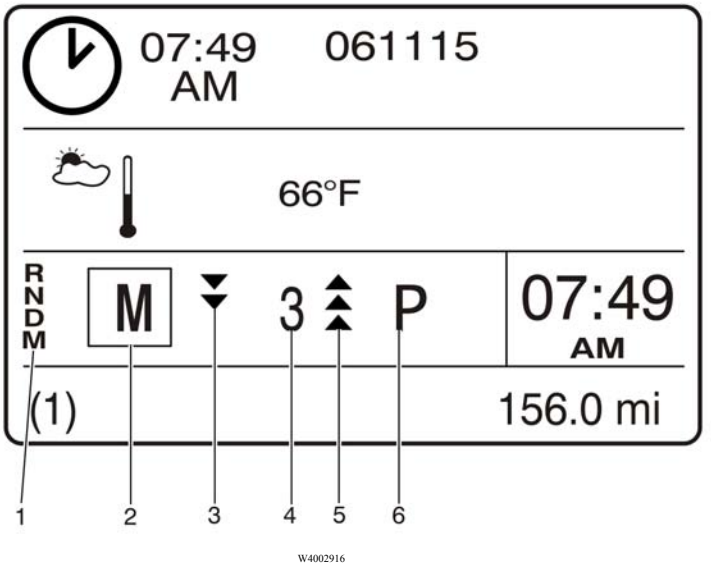
10 Driver Information Display

Current Gear Position (I-Shift Transmission)

The Driver Information Display (DID) in the instrument cluster provides current operating information about the I-Shift transmission. The I-Shift information is always displayed in a portion of the DID.



Driver Information Display with I-Shift Transmission

1 **Gear Selector Pattern** is shown in the display so the operator does not have to look down at the gear selector to determine which way to move the gear lever to obtain a different gear range.

2 **Selected Gear Position** indicates the current position of the gear lever.

3 **Available Gears Down** indicates the number of downshifts with the current vehicle operating conditions.

4 **Current Gear** indicates the current transmission operating gear.

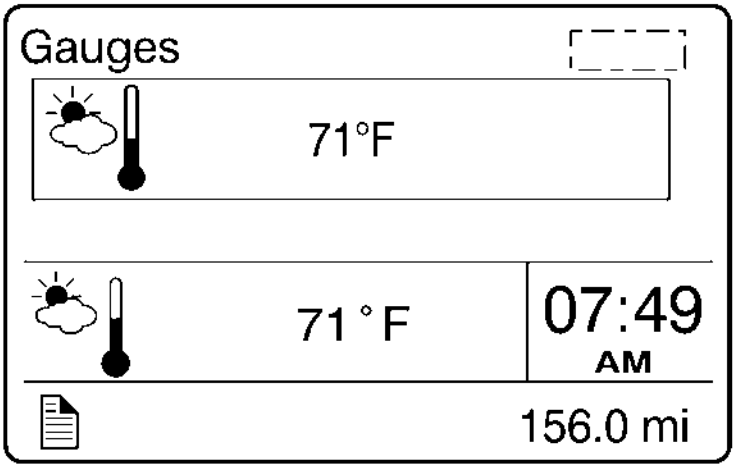
5 **Available Gears Up** indicates the number of upshifts with the current vehicle operating conditions.

6 **Driving Mode** indicates if the transmission is operating in Economy, Performance, Engine Brake Performance or Eco-Roll mode.

Note: For more information about the I-Shift Transmission, refer to the I-Shift Transmission Operator's Manual.

2. Ambient Air Temperature (AAT)

The AAT gauge is optional.



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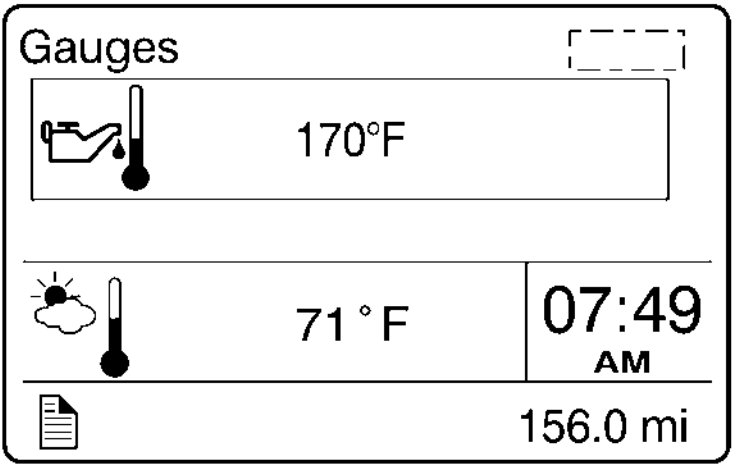
3. Engine Oil Temperature (EOT)

The EAT is displayed as illustrated



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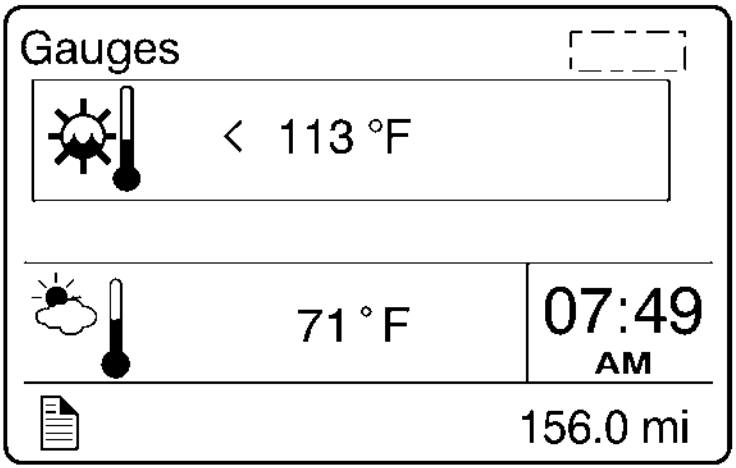
4. Transmission Oil Temperature



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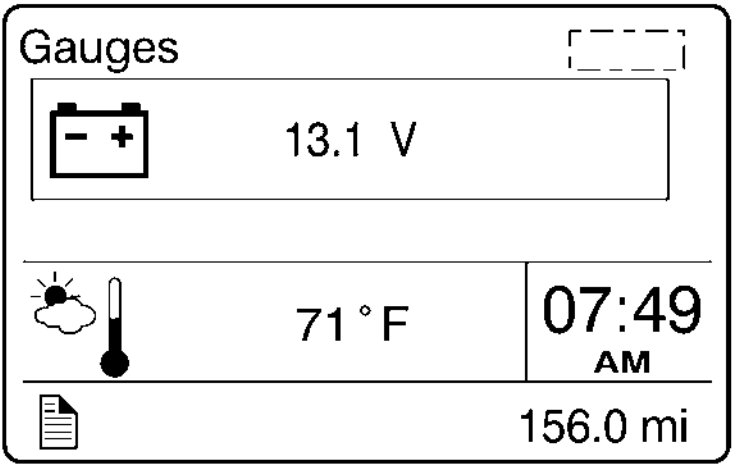
5. Battery Voltage



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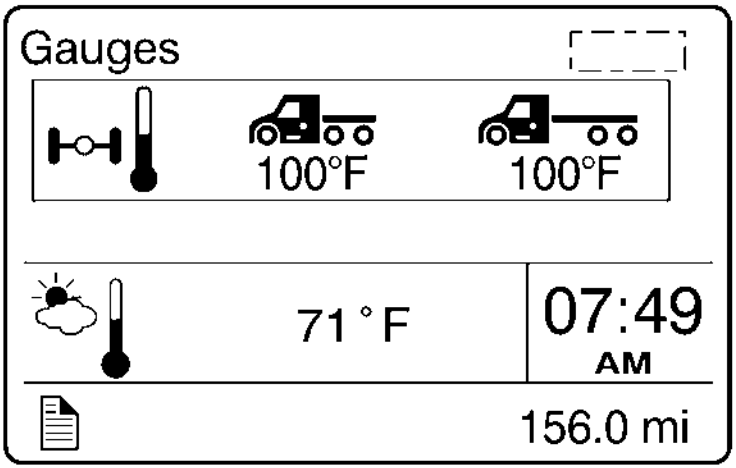
6. Front and Rear Axle Temperature



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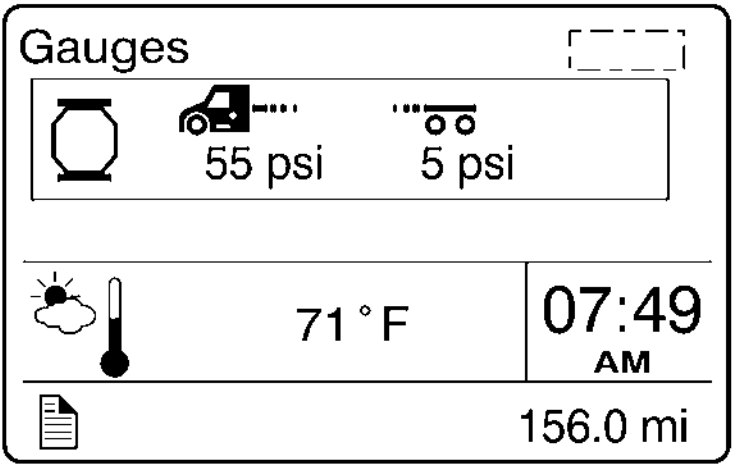
7. Front and Rear Suspension Pressure



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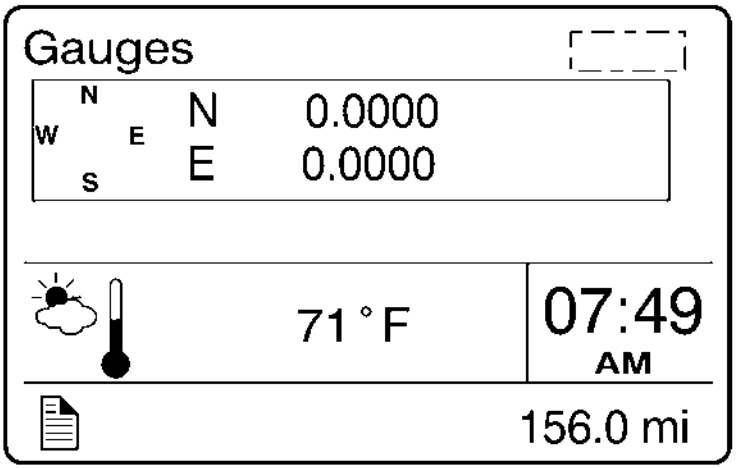
8. Volvo Link Compass



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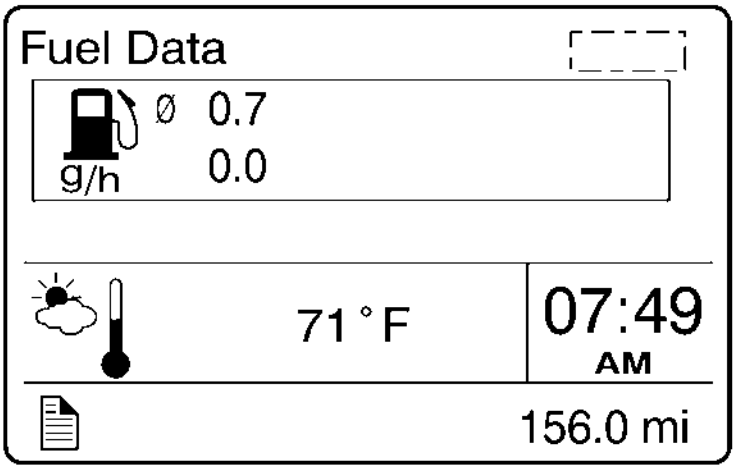
Fuel Data

The Fuel Data menu provides information on the fuel consumption of the vehicle in various situations. For example, how much fuel has been used, how much fuel is remaining, how much fuel is remaining before refueling the vehicle.

- Performance Bonus
- Trip Fuel Used
- Distance to Empty
- Fuel Economy for Performance Bonus or Sweet Spot
- Idle Percent for Performance Bonus or Sweet Spot
- Sweet Spot/Performance Bonus
- Sweet Spot Percentage
- Road Speed Limit

1. Performance Bonus



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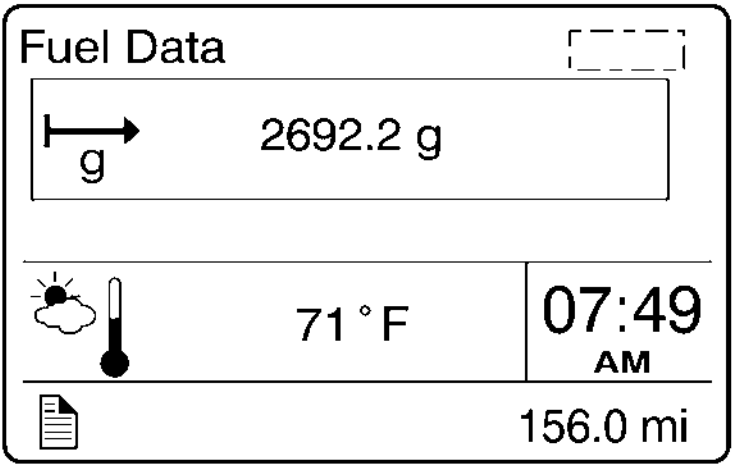
2. Trip Fuel Used



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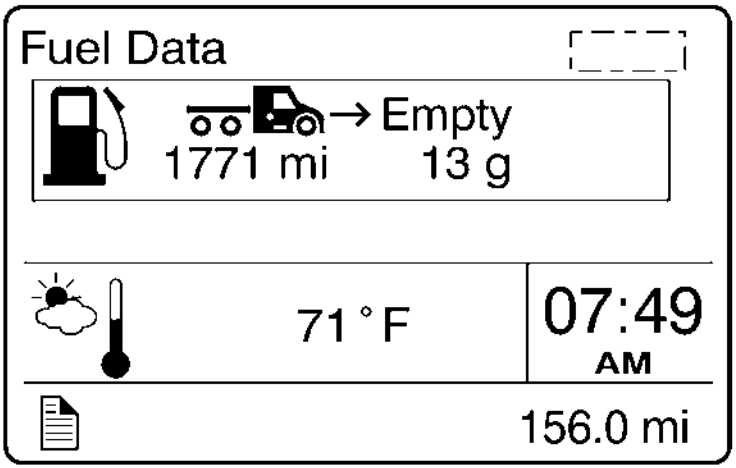
3. Distance to Empty



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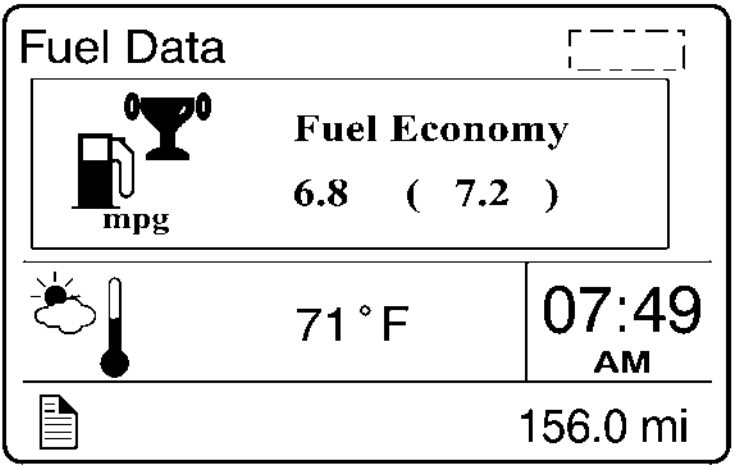
4. Fuel Economy for Performance Bonus or Sweet Spot



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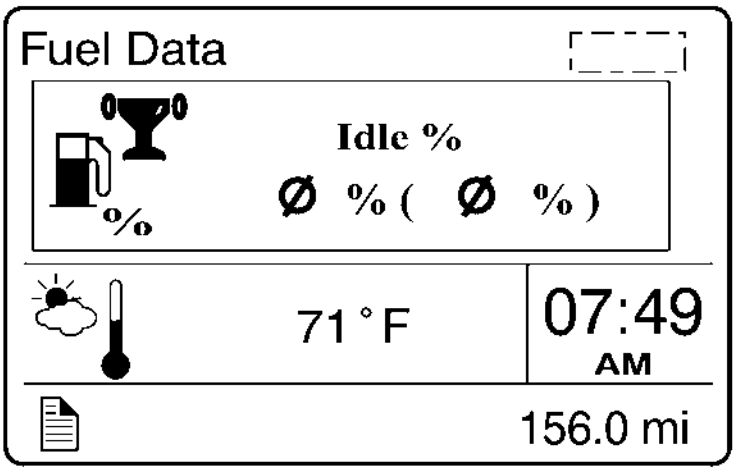
5. Idle Percentage for Performance Bonus or Sweet Spot



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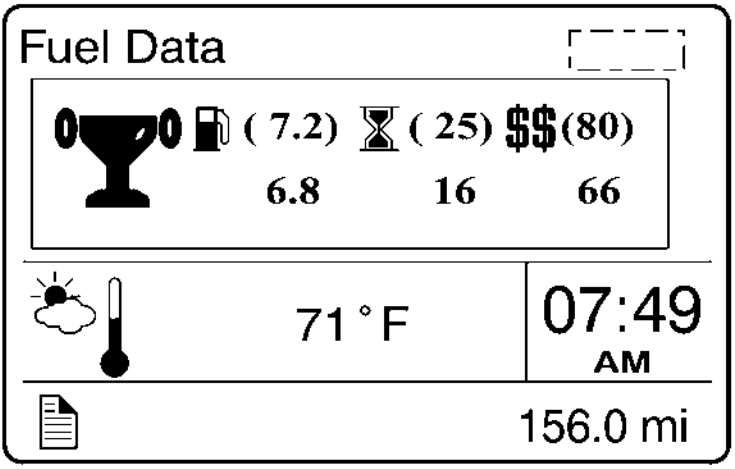
6. Sweet Spot/Performance Bonus

Note: For information about sweet spot data, refer to Performance Bonus Guide in the vehicle operator's manual.



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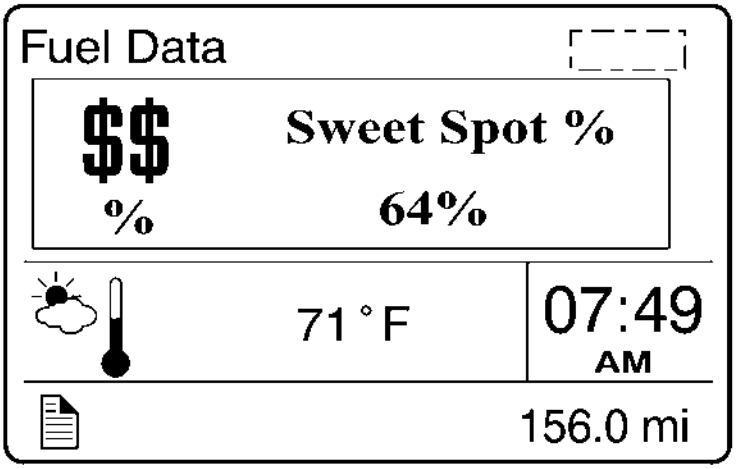
7. Sweet Spot Percentage

Note: For information about sweet spot data, refer to Performance Bonus Guide in the vehicle operator's manual.



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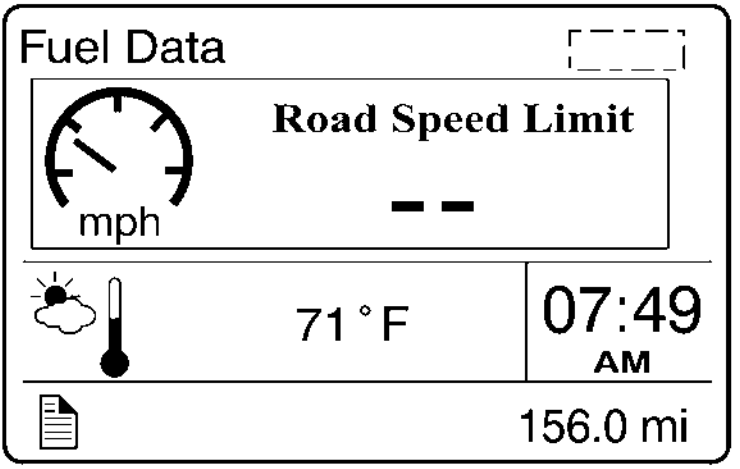
8. Road Speed Limit



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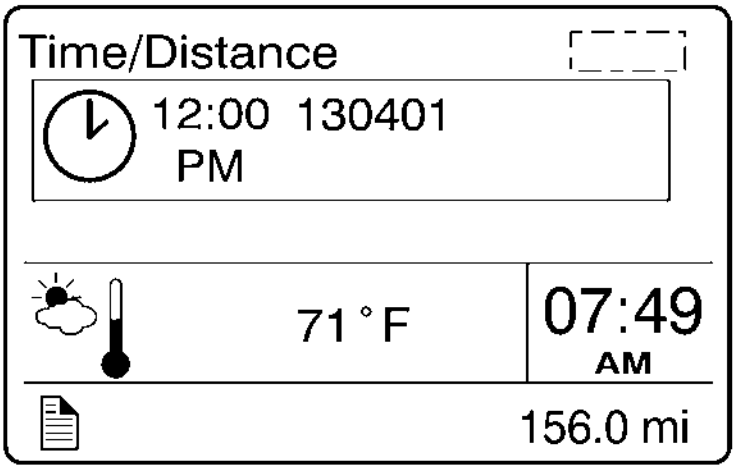
Time/Distance

The time and date can be set in the Time/Distance menu. The alarm clock can also be set from this menu. Following the alarm clock menu is the Trip Odometer 1 and 2 selection, which allows the operator see the distance since the last reset. Average trip speed is also shown. By specifying the distance to your destination, the vehicle can calculate the estimated time of arrival (ETA).

- Time and Date
- Alarm Clock
- Trip Odometer 1 and 2
- Average Trip Speed
- Estimated Time of Arrival (ETA)

1. Time and Date



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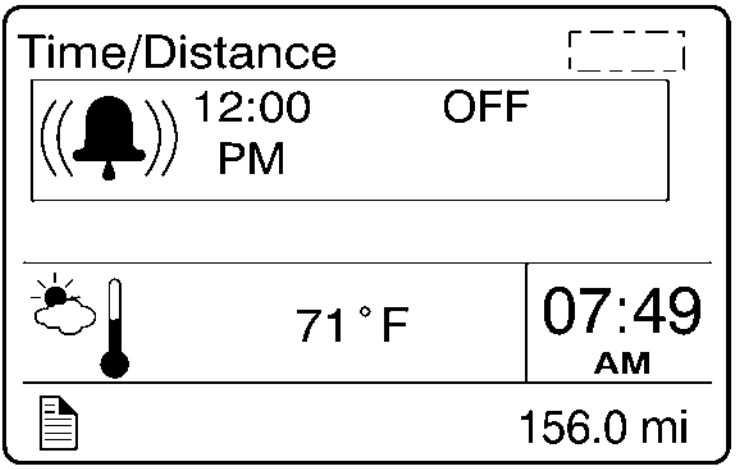
2. Alarm Clock



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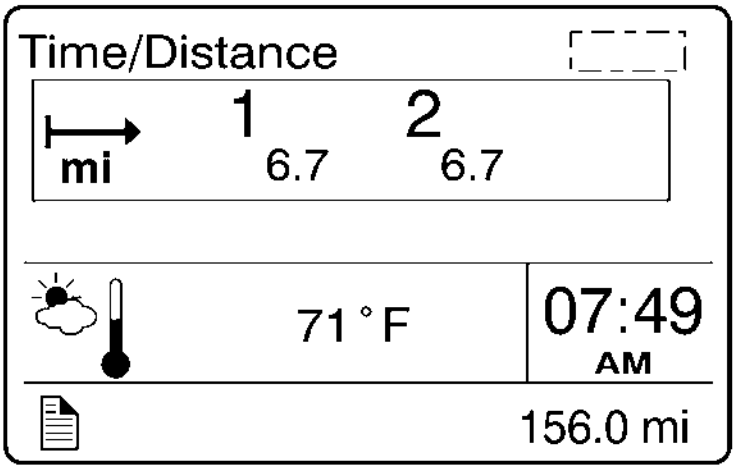
3. Trip Odometer 1 and 2



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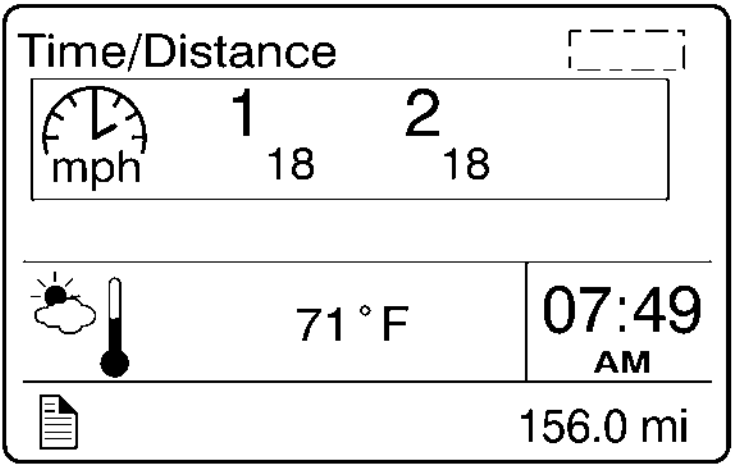
4. Trip Average Speed



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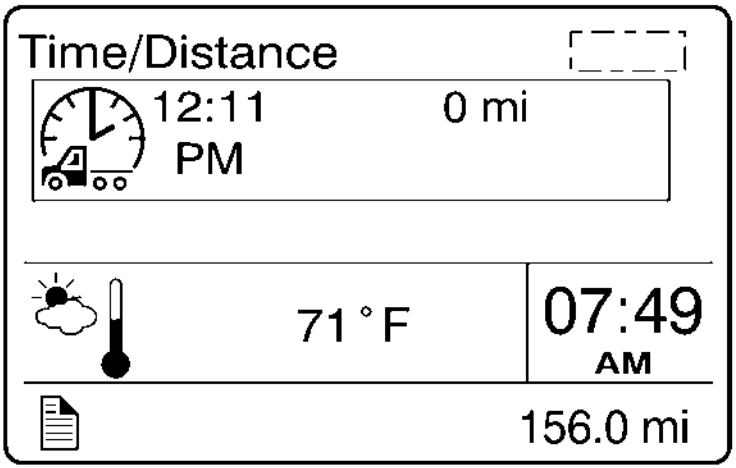
5. Estimated Time of Arrival (ETA)



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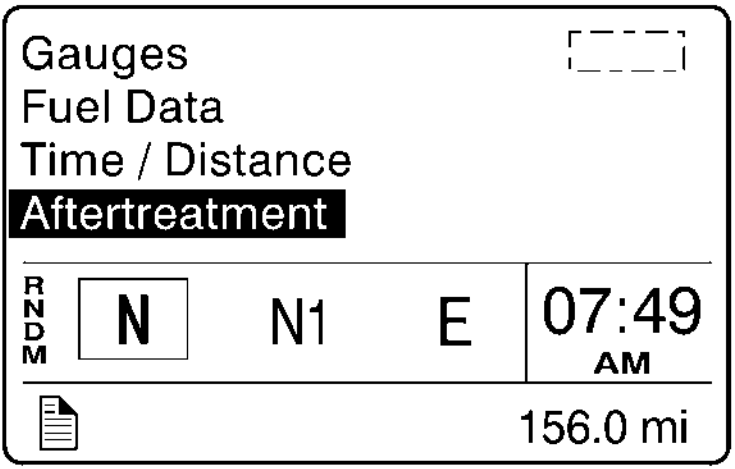
Aftertreatment Menu

1 The Aftertreatment system menu is in the DID. Press the **Esc** button to display the main menus in the DID.

2 Use the up and down buttons on the stalk switch to scroll to the Aftertreatment menu.

3 Press the ↵ button to select the Aftertreatment menu.



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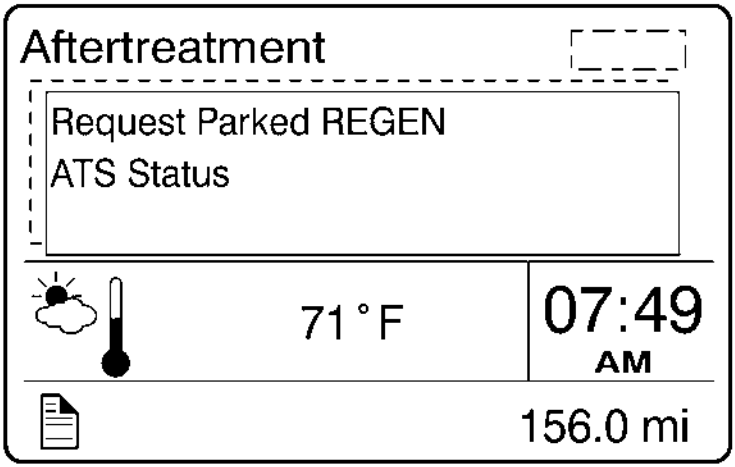
The Aftertreatment menu has two submenus: Request Parked REGEN and ATS status.



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Aftertreatment DPF Regeneration

CAUTION

During the Parked Regeneration, the exhaust gas temperature will be elevated. DO NOT park the vehicle with the exhaust outlet near flammable objects such as trees, awnings, etc. that could be damaged by elevated exhaust gas temperatures.

CAUTION

If the vehicle is PARKED in a location that may be hazardous when a parked Regeneration begins (i.e., in close proximity to flammable materials or gases, inside tunnels, parked under flammable objects, etc.), the Aftertreatment DPF Regeneration should be stopped. If Regeneration is stopped by the vehicle operator, it must be initiated at a later time when the vehicle is in a safer location. Regeneration that are stopped and never restarted at a later time, however, will require that the vehicle be taken to an authorized Volvo Truck dealer to have the Aftertreatment parked Regeneration manually started with special service tools.

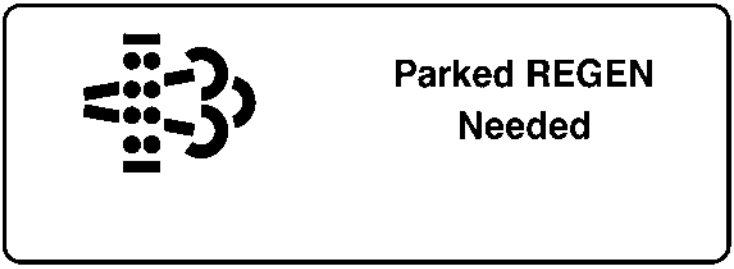
Note: If passive Regeneration occurs during vehicle operation, idle speed may increase when the vehicle is stopped at a traffic light to maintain proper Regeneration conditions.

There are two types of Aftertreatment DPF Regeneration: Passive regeneration and Parked regeneration.
Passive Regeneration occurs when the exhaust gas within the aftertreatment system is hot enough to burn soot without injecting additional fuel into the DPF system. On chassis equipped with a US07 aftertreatment system, DPF"s needed an active regeneration, that includes this injection of fuel. With the addition of the SCR system active regenerations are no longer needed in US2010.
Parked regeneration is initiated manually by the driver when alerted by the dash. The vehicle must be stationary to begin the regeneration, and remain stationary to complete.
The Aftertreatment DPF Regeneration system is self-monitoring. Under certain duty cycles driver action is needed to perform a parked regeneration. When driver action is needed to perform a parked regeneration the Aftertreatment DPF Regeneration Needed icon on the instrument cluster flashes and the message "Parked REGEN Needed" is displayed. Initiate a parked Aftertreatment DPF regeneration at the next stop.

The Aftertreatment DPF Regeneration system is self-monitoring. When the Aftertreatment Diesel Particulate Filter is becoming full and Aftertreatment DPF regeneration is needed, the Aftertreatment DPF Regeneration Needed icon on the instrument cluster illuminates and the message. "Parked REGEN Needed" is displayed. To return to the main menu, press the **Esc** button on the stalk switch.

W3007445

Aftertreatment DPF Regeneration Required Icon

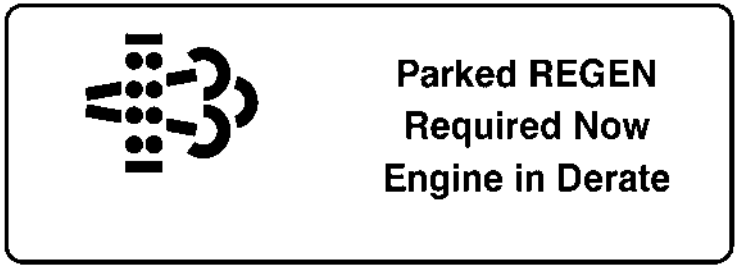


W3055322

Parked REGEN Needed

To return to the main menu, press the **Esc** button on the stalk switch.

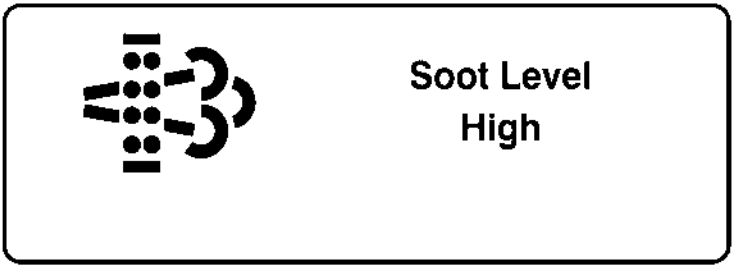
If the vehicle has not had a parked REGEN completed after the “Parked REGEN Needed” screen displays the vehicle must be stopped. Perform the parked REGEN now. The vehicle will also be in Engine Derate.



W3055326

Parked REGEN Required Now Engine in Derate

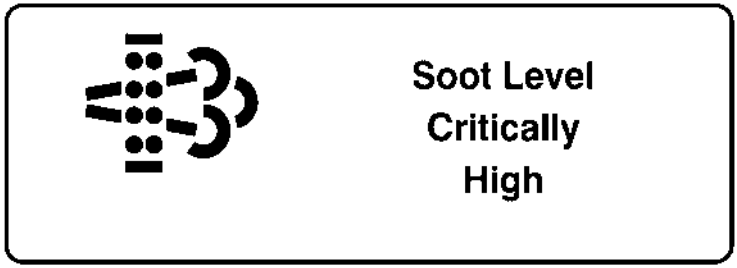
If the vehicle is driven when the “Soot Level High” screen displays. The REGEN is needed immediately.



W3055332

Soot Level High

If a parked REGEN is not done when the” Soot Level High” displays the “Soot Level Critically High” screen displays.



W3055333

Soot Level Critically High

40 Driver Information Display

When the ATS Service DID and the Stop Light illuminates screen displays stop the vehicle immediately and perform a Parked Regen. If that Parked Regen doesn't work take the vehicle immediately to a service center for ATS.

W3055405

ATS Service Required

W3005171

The High Exhaust System Temperature (HEST) Icon comes on when the vehicle temperature becomes excessive. The Icon also comes on during the REGEN.

W3007444

High Exhaust System Temperature (HEST) Icon

Note: It is important to perform a Regeneration when required to avoid engine problems. Long-term engine operation with Aftertreatment DPF Regeneration Required screen displayed may result in a loss of engine performance, reduced horsepower, torque and speed, and temperature derate. Also, the Aftertreatment DPF may become overloaded with soot and require service at a authorized VOLVO dealer.

Aftertreatment DPF Regeneration Required cannot be initiated if it is not required. The following conditions must be met for parked Regeneration:

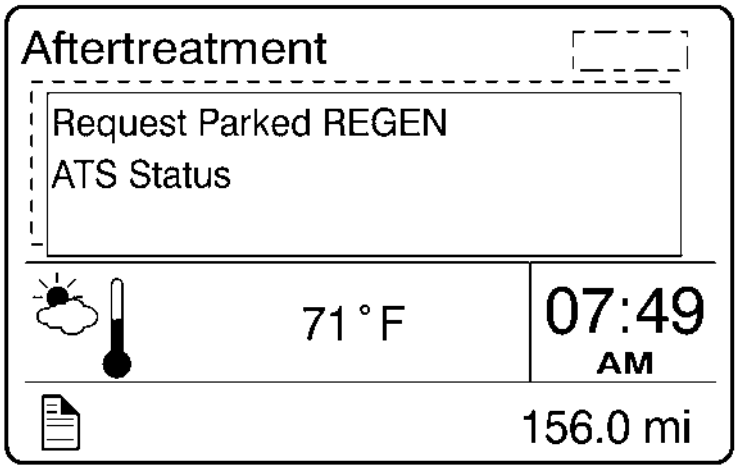
- Parking brake on and transmission in neutral
- Minimum 10 volts battery charge
- Engine running
- Accelerator and clutch pedal released
- PTO not active
- Parked Aftertreatment Regeneration required, message displayed

If the conditions are not met and a parked REGEN is attempted the “Parked REGEN Conditions Not Met Check Menu Status” screen displays.

W3055181

Parked REGEN Conditions Not Met

Scroll to the Aftertreament menu in the Driver information Display (DID) and select “ATS Status” to determine why the Regeneration did not initiate.



W3054903

If the Aftertreatment DPF Regeneration Required icon is flashing, the Aftertreatment Diesel Particulate Filter is over full. Maintain uninterrupted highway speed for a passive Aftertreatment DPF Regeneration Required or move the vehicle to a safe location and initiate a parked Aftertreatment DPF Regeneration.

W3007445

Aftertreatment DPF Regeneration Required Icon

If the Aftertreatment DPF Regeneration Required icon is flashing and the CHECK light illuminates, the Aftertreatment Diesel Particulate Filter is critically full. Engine performance will be limited. To avoid further engine derate, immediately move the vehicle to a safe location and initiate a parked Aftertreatment DPF Regeneration , or take the vehicle to an authorized Volvo Truck dealer.

W3005170

If the Aftertreatment DPF Regeneration Required icon is flashing and the STOP light illuminates, a serious engine problem has occurred. The Aftertreatment Diesel Particulate Filter may be over its maximum capacity and the engine may shut down. The vehicle must be taken immediately to an authorized Volvo Truck dealer for service.

W3005171

Refer to the Exhaust Aftertreatment System Information sun visor label for additional Aftertreatment DPF information.

ENGINE EXHAUST AFTERTREATMENT SYSTEMS (EATS)

DPF Indicators:			
Diesel Particulate Filter (DPF) Condition: DPF Action:	The DPF filter is full. Initiate a parked manual regeneration at next available stop.	The DPF filter is overfull. Engine is in derate mode. IMMEDIATELY stop and initiate a parked manual regeneration	The DPF filter may be clogged with soot. Engine is in shutdown mode Service EATS system immediately.
DEF Indicators			 Message
Diesel Exhaust Fluid (DEF) Condition: DEF Action:	The DEF tank is low Refill the DEF tank	The DEF tank is empty Engine is in derate mode Refill the DEF tank now (before adding diesel)	The DEF tank is empty. The vehicle is limited to 5 mph Refill the DEF tank now (before operating vehicle).

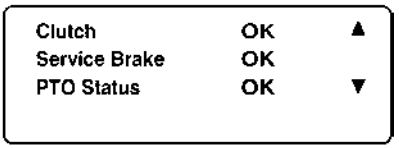
W8029446

Exhaust Aftertreatment System (ATS) Status

The ATS status submenus provide information about the conditions required for performing a parked DPF Regeneration.

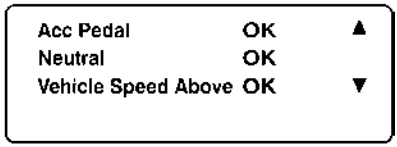
The status can be OK (regeneration allowed), Check (regeneration not allowed) or N/A (not applicable). When ATS Status is selected, the following submenus are available.

To perform a parked Regeneration, the clutch pedal must not be depressed, the service brake must not be engaged and a PTO must not be engaged or the PTO must be able to operate above the minimum engine speed required.



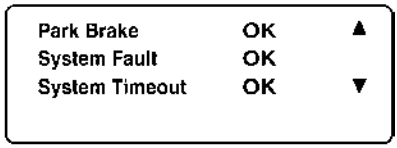
W3054893

To perform a parked Regeneration, the accelerator pedal (AP) must not be depressed, the transmission must be in the neutral position and the vehicle speed must not be zero.



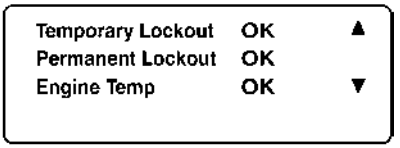
W3054889

To perform a parked Regeneration, the park brake must be engaged and there can be no active Diagnostic Trouble Codes (DTC) codes.



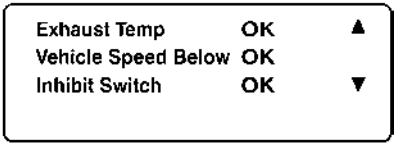
W3054886

Temporary lockout prevents performing a parked DPF Regeneration when it is not needed. Permanent lockout prevents performing a parked Regeneration when a condition exists that requires vehicle service. Take the vehicle to a Volvo Truck dealer. A minimum engine temperature (ECT) of 35°C (95°F) is required for parked DPF Regeneration.



W3054884

When Disable REGEN is selected in the Cancel REGEN submenu, regeneration is inhibited. Select REGEN to allow Aftertreatment DPF Regeneration.



W3054900

Aftertreatment DEF Tank Level - Driver Warning & Inducement

Aftertreatment DEF tanks are sized to have no less than two times the diesel fuel tank mileage or one hour range.

The vehicle instrument cluster has an aftertreatment DEF tank level gauge.

Note: Repeated acts of tampering will result in more severe Inducement.

Triggers	**Aftertreatment DEF Tank Low Level Indicator**	**Driver Information Display Screen**
100% to 12 % Aftertreatment DEF Tank Level Gauge	None	None
<=12 % Aftertreatment DEF Tank Level Gauge	 W2029416	**DEF Low**
0% Aftertreatment DEF Tank Level Gauge (~1% DEF Remaining)	 W2029415	**DEF Tank Near Empty Engine in Derate Add DEF**
0 % Aftertreatment DEF Tank Level Gauge, Insufficient DEF Pump Pressure, Diesel Fuel Refueling >15%	 W2029415	**DEF Tank Empty Refill DEF to avoid 5 Mph Limit Engine in Derate**

Triggers	Aftertreatment DEF Tank Low Level Indicator	Driver Information Display Screen
DEF tank empty and refueling event with parking brake applied **Note:** To avoid the Back Stop feature, the DEF tank must be filled to more than 18% of capacity.	 W2029415	**Veh Speed Limited to 5 Mph** **Add DEF**
Back Stop Feature	 W2029415	**Veh Speed Limited to 5 Mph** **Add DEF**

Aftertreatment DEF Quality - Driver Warning & Inducement

Triggers	Aftertreatment DEF Quality Indicator	Driver Information Display Screen
Good DEF Quality	None	None
Poor DEF Quality DTC Initial Detected	 W2029417	**Engine Will Derate Soon**
Poor DEF Quality DTC Initial Detected + 1 hours	 W2029417	**SCR Malfunction Engine in Derate Check SCR to Avoid 5 Mph Limit**
Poor DEF Quality DTC Initial Detected + 4 hours Diesel Fuel Refueling >15% **OR** vehicle stopped or shut down for > 20 minutes	 W2029417	**Service SCR System Repair needed to avoid 5 Mph Limit**
Refueling Event with Parking Brake **ON**	 W2029417	**Service SCR System 5 Mph Limit**
Stationary for 20 minutes with engine on or off (Back Stop)	 W2029417	**Service SCR System 5 Mph Limit**
Temporary Exit from 8 km/h (5 mph) Inducement	 W2029417	**DEF Quality Being Evaluated Engine in Derate 5 Mph Limit Removed**
Ignition Key Cycle Before Evaluation Completed/Confirmed DEF Dilution	 W2029417	**DEF Quality Being Evaluated Engine in Derate 5 Mph Limit Removed**

Exit conditions for DEF Quality "8 km/h (5 mph) road speed limit" Inducement:

Next 1 Engine Starts: Return to 25% torque reduction until there is a proper DEF quality evaluation. If poor DEF quality is detected during the next monitoring cycle then 8 km/h (5 mph) is resumed after the vehicle is stationary for 20 minutes. After one engine start has been exhausted then a Tech Tool is required to exit the 8 km/h (5 mph) road speed limit.

With Tech Tool DTC Clearing: Invoke 25% torque reduction until there is a proper DEF quality evaluation. If poor DEF Quality is detected during the next monitoring cycle then 8 km/h (5 mph) is resumed after the vehicle is stationary for 20 minutes.

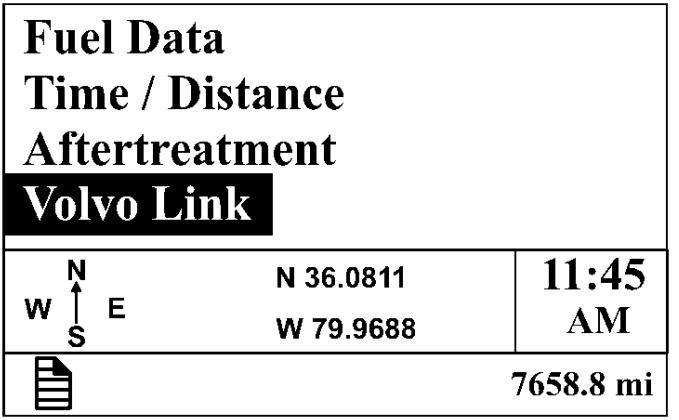
Aftertreatment Tampering - Driver Warning & Inducement

Triggers	Aftertreatment Tampering Indicator	Driver Information Display Screen
No Fault	None	None
Tampering Fault Detected **Note:** For examples of the various SCR sensor tampering types refer to the “SCR Sensor Disconnected Tampering Type” table below.	 W2029417	**SCR System Fault Engine Will Derate Soon**
Second Drive Cycle with Active DTC	 W2029417 W3031200	**SCR System Fault Engine Will Derate Soon**
Driving with Active Fault for + 1 hrs	 W2029417 W3031200	**SCR System Fault Engine In Derate**

Triggers	Aftertreatment Tampering Indicator	Driver Information Display Screen
Driving with Active Fault for + 4 hrs	 W2029417 W3031200	**SCR System Fault Repair needed to Avoid 5 Mph Limit**
1 Refueling Event (> 15 % fuel level increase) with stationary brake 2 Vehicle stationary for 20 minutes (vehicle speed < 1.6 km/h (1 mph) 3 Engine shut off for 20 minutes	 W2029417 W3031200	**Repair SCR System Fault 5 Mph Limit**

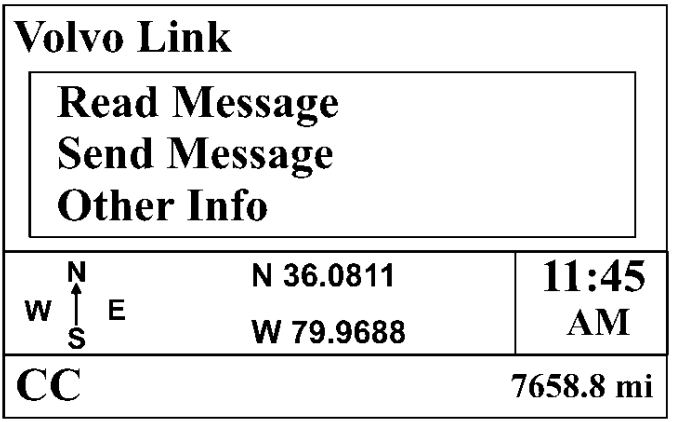
SCR Sensor Disconnected Tampering Type
Aftertreatment Control Module (ACM) Disconnected
Aftertreatment NOx Sensor Disconnected
Aftertreatment NOx Sensor Disconnected
DEF Pump Disconnected
DEF Dosing Valve Disconnected
DEF Tank Level Sensor Disconnected
DEF Supply Line to DEF Pump Disconnected
DEF Return Line Blocked or Plugged

Volvo Link



W3007688

Main Menu



W3007689

Start-Up Menu

For information about the Volvo Link System, refer to the Volvo Link System Operator’s Manual.

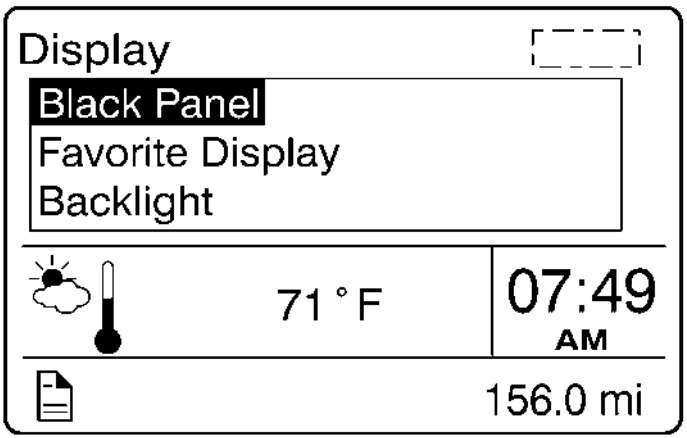
Display

The operator can adjust the display in the Display menu. The entire display can be blacked out for night driving. The display brightness level is adjustable. The Favorite Display function allows the operator to select up to three different gauges to be displayed at the same time. Night/Day can be selected to provide a light or dark background.

- Black Panel
- Favorite Display
- Backlight
- Favorite Display Setting
- Night/Day

1. Black Panel

The screen and the entire display is completely dark, except the speedometer and tachometer. The black panel mode can be exited by pressing the Esc button.

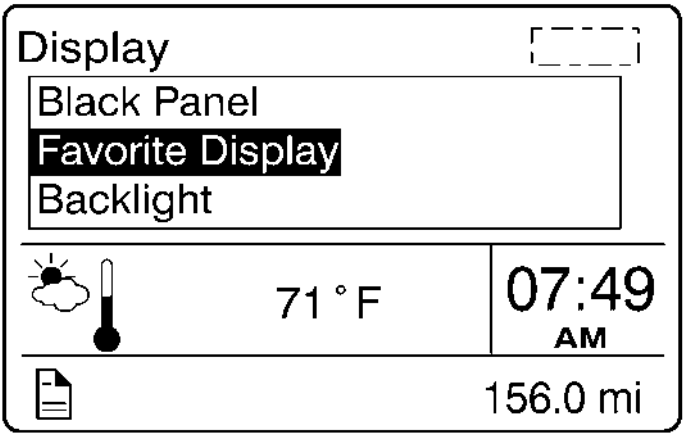


W3007409

2. Favorite Display

Note: This section is for viewing your selection only. To choose your favorite selection, go to Favorite Display Setting (see “4. Favorite Display Setting”, page 58).

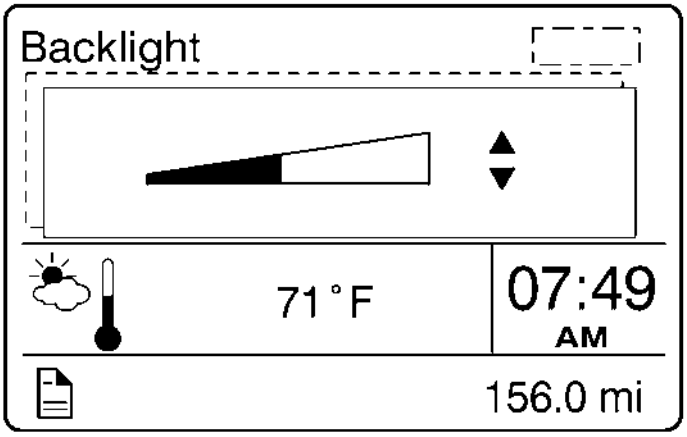
If Favorite Display is selected, the DID will always display the selected gauges.



W3007408

3. Backlight

To increase or decrease the backlight setting, press the up and down arrows on the stalk switch.

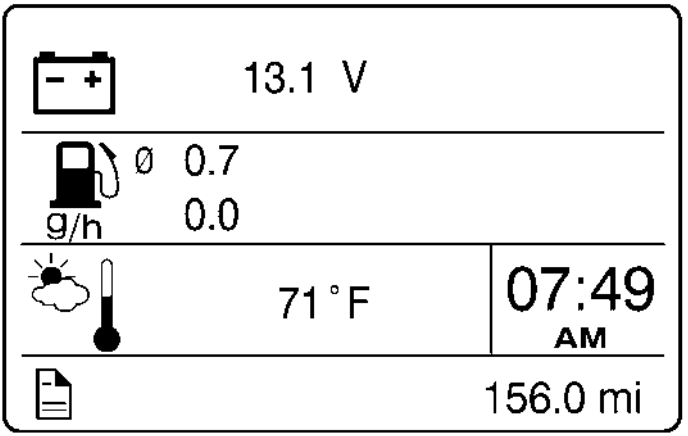


W3007407

4. Favorite Display Setting

Select Favorite Display Setting to choose the gauges displayed on the DID. This screen shows all active pop-ups.

Note: When the gear information is displayed, it is locked. All other favorites are still selectable.



W3007406

5. Night/Day

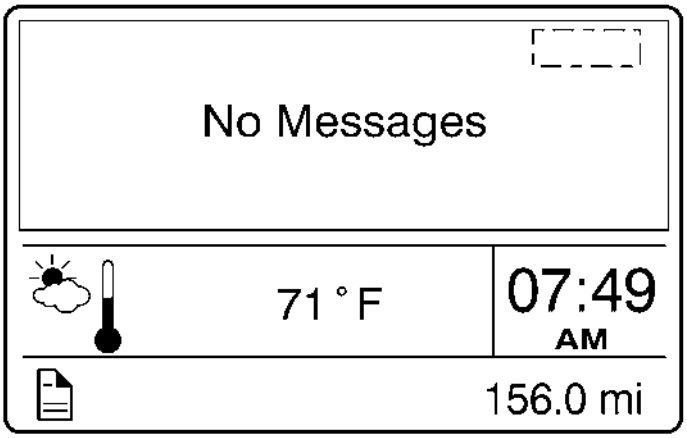
Use the Night/Day menu to choose a dark background with light text and images or a light background with dark text and images.

Vehicle Messages

Vehicle Messages appear in the DID depending on the number of faults the vehicle has at any given time.

Note: All messages that are 'dismissed' by the driver are saved in the Vehicles Messages DID screen.

If there are no messages, the following screen is displayed.

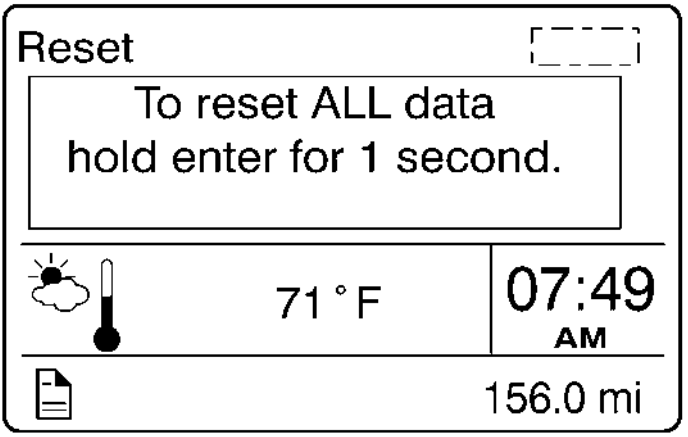


W3035533

Reset

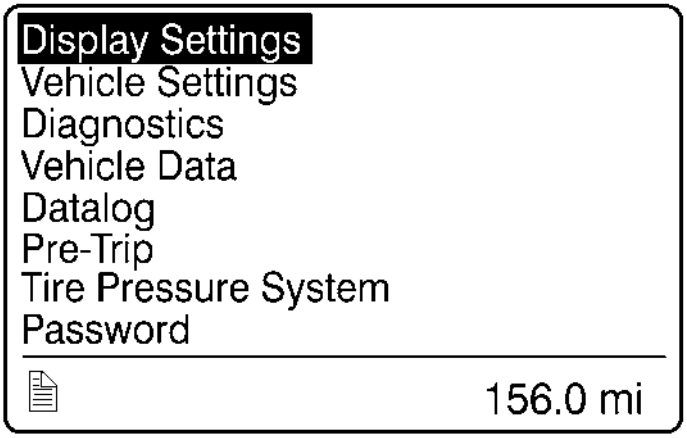
When the Reset menu is open, pressing and holding down the Enter button for more than 1 second resets the following functions:

- Instantaneous gallons per hour
- Trip fuel used
- Distance to empty



W3007403

Non-Driving/Stationary Menu

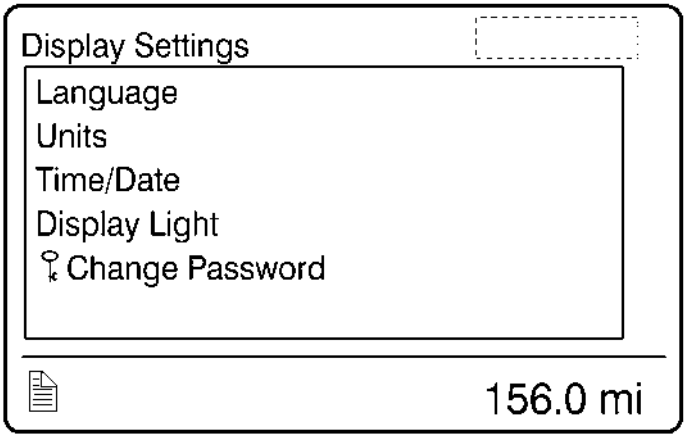


W3035541

- Display Setting
  - — Language
  - — Units
  - — Time/Date
  - — Display Light
  - — Change Password
- Vehicle Settings (Volvo engines only)
  - — Fleet Limits
  - — Fleet ID
- Diagnostics
  - — Fault Diagnostics
  - — Cluster Self Test

- Vehicle Data (Volvo Engines Only)
  - — Engine Oil Level (EOL)
  - — Maintenance Data
- Data Log
  - — Vehicle ID
  - — Sweet Spot Data (Volvo Engines Only)
  - — Total Data
  - — Trip Data
  - — Reset Trip Data
- Tire Pressure System (If Equipped)
  - — Tire Pressure
  - — Tire Temperature
- Password
  - — Enter Password

Display Setting



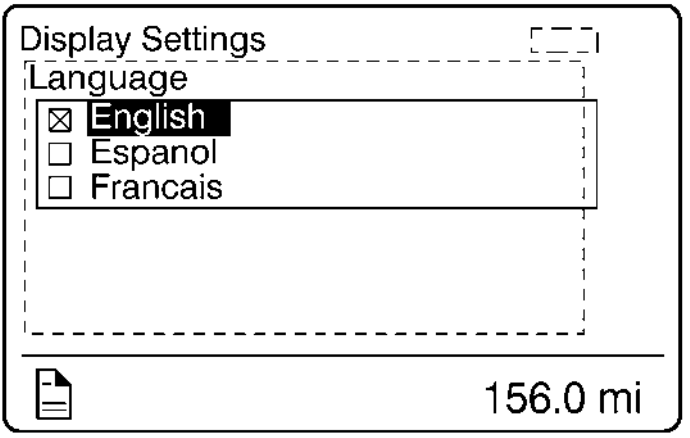
W3029787

64 Driver Information Display

The Display Setting menu is used to change languages and units. The password, time and date can also be changed. The backlight and contrast of the display screen can be adjusted.

- Language
- Units
- Time/Date
- Display/Adjust
- Change Password

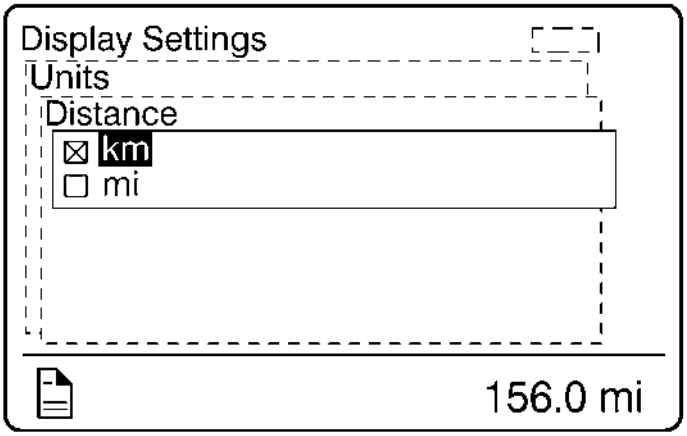
1. Language



W3007396

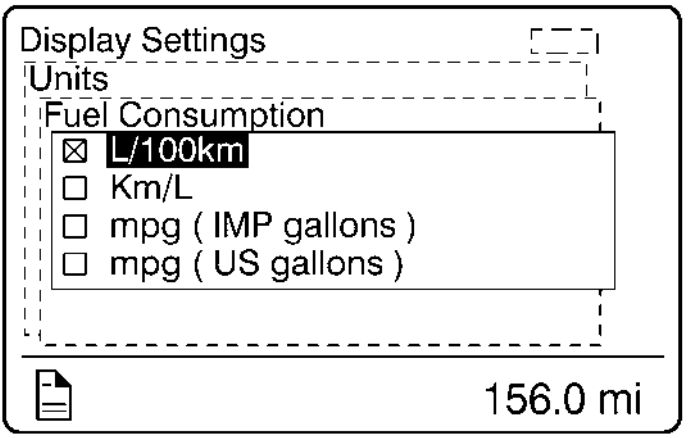
2. Units

- Distance
- Fuel Consumption
- Temperature



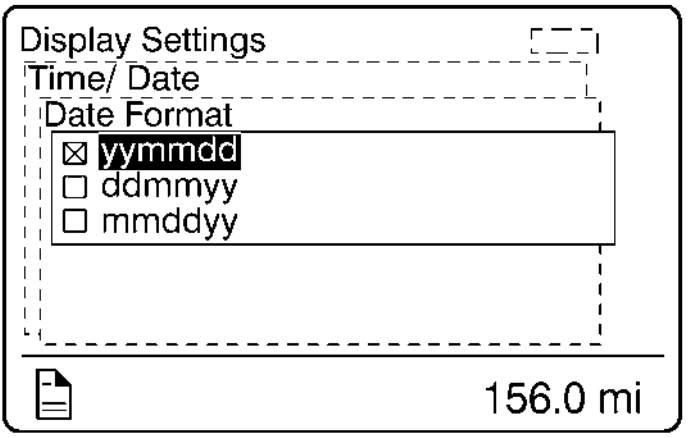
W3007395

Distance



W3007394

Fuel Consumption



W3007391

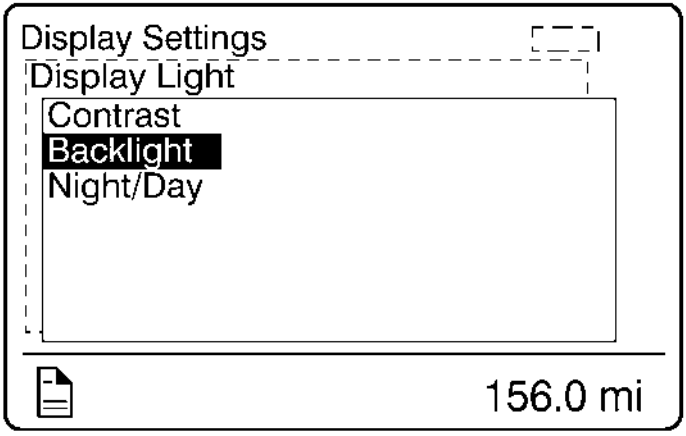
Date Format

4. Display Light

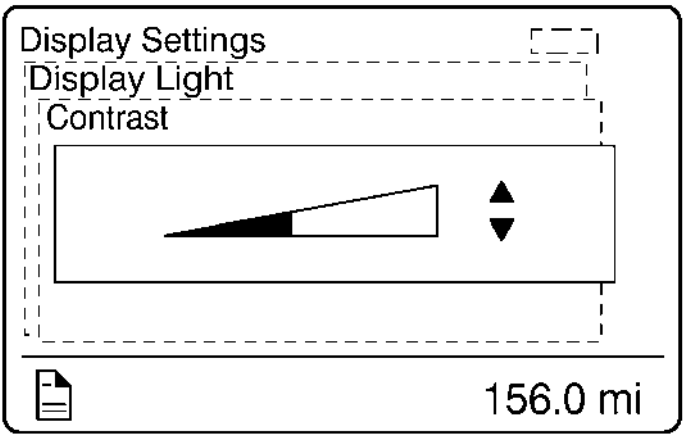
The Display Light menu has three sub-menus:

- Contrast
- Backlight
- Night/Day

Use the Night/Day menu to choose a dark background with light text and images or a light background with dark text and images.

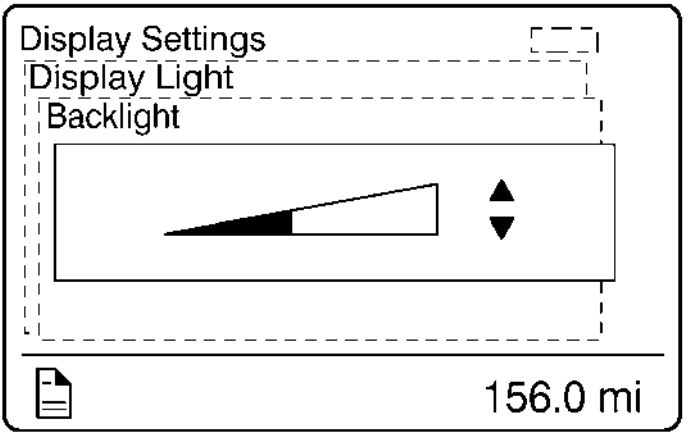


W3007390



W3007389

Contrast

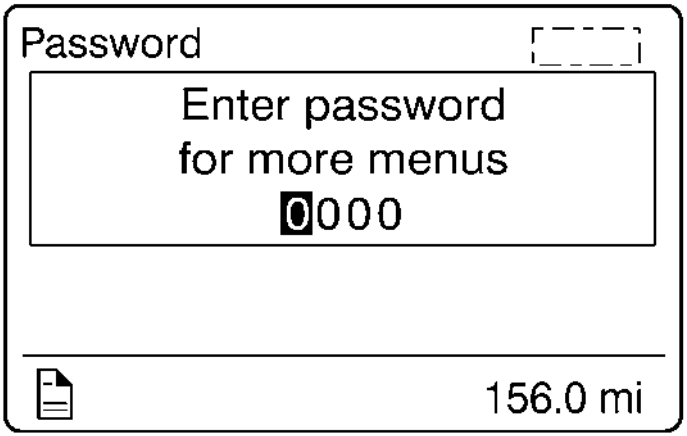


W3007388

Backlight

5. Change Password

Note: This menu is only accessible if the correct password is entered. The default password from Volvo is 0000.



W3007356

Vehicle Settings

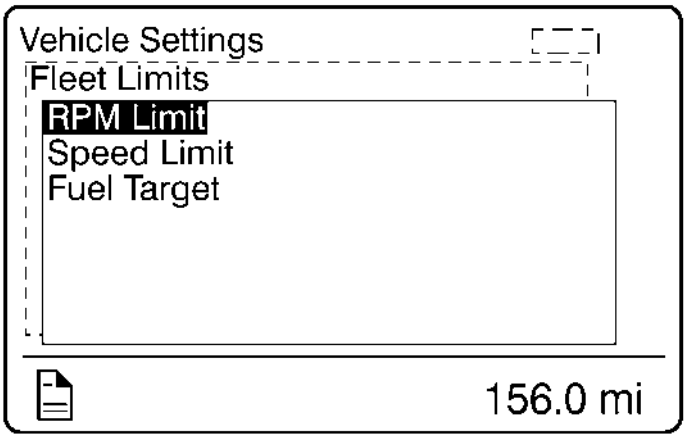
The Vehicle Settings menu allows fleet owners to set targets for vehicle operation regarding maximum engine speed (RPM), maximum road speed, and fuel consumption.

Note: This area is password protected.

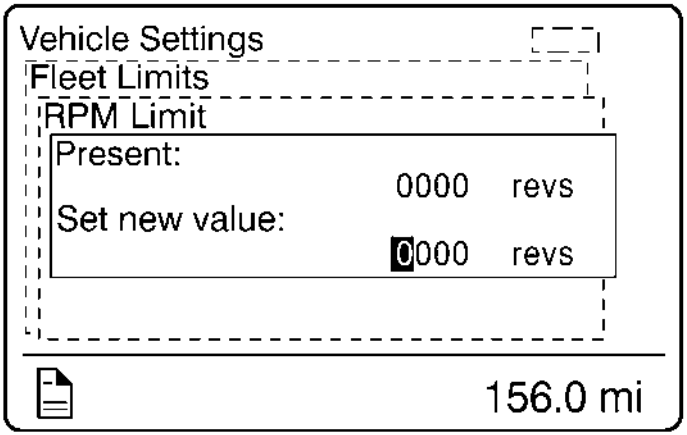
1. Fleet Limits

The Fleet Limits menu has three sub-menus:

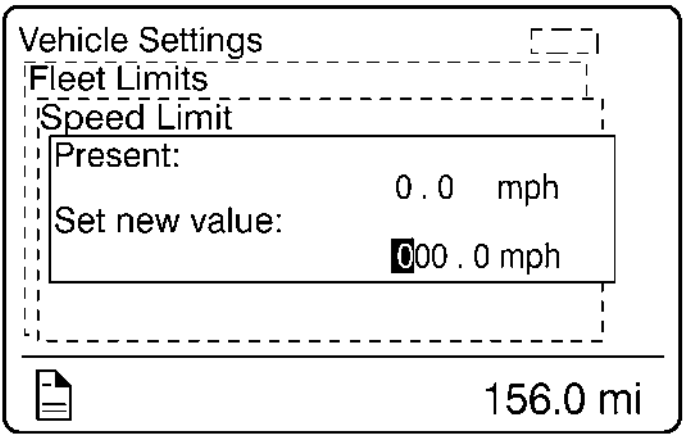
- RPM Limit
- Speed Limit
- Fuel Target



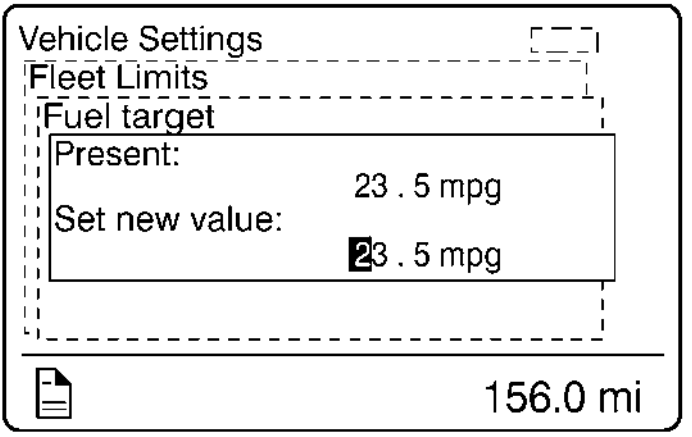
W3007386



W3007385



W3007384

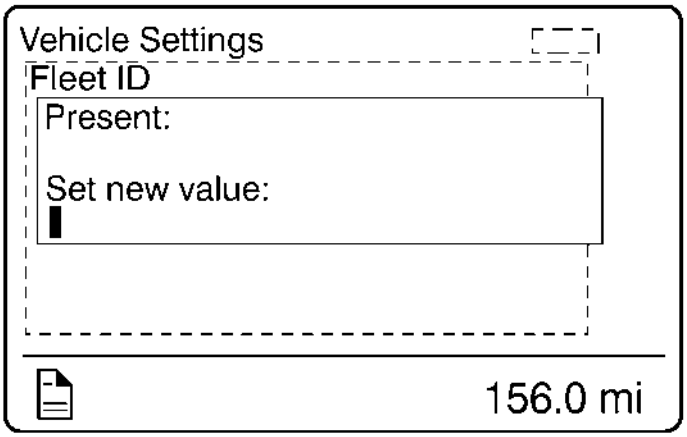


W3007383

2. Fleet ID

Note: This menu can only be accessed if the correct password has been entered.

The owner can enter the Fleet ID of the vehicle in this menu if required. Data registered in the engine control unit is then registered for this ID. Enter the new Fleet ID using the up and down arrows. Enter one number at a time followed by pressing the Enter button. 13 characters must be entered, blank characters are entered in unused positions. The ignition key must be turned to OFF and back ON to update the fleet ID.



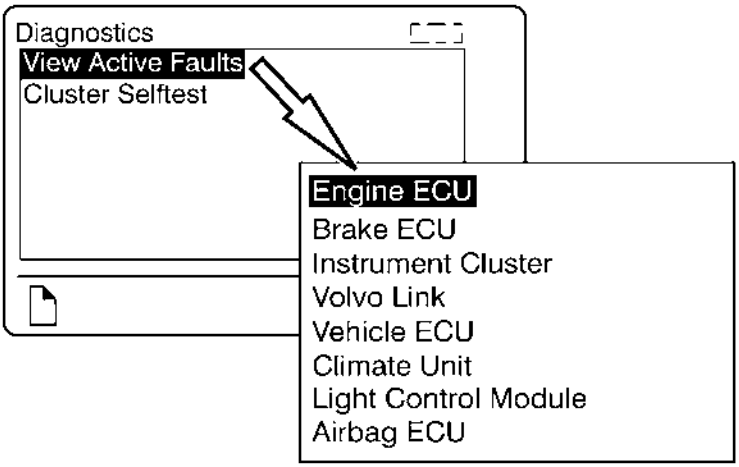
W3007382

Diagnostics

The Diagnostics menu enables fault tracing on the electronic control units (ECUs) in the vehicle to check for faults. Instrument tests are available to check the telltales, gauges, display and speaker. The part number of an ECU can be identified in the part number menu.

1. Fault Diagnostics

A list of the electronic control units (ECUs) on the vehicle is displayed in the Fault Diagnostics menu.



W3032461

2. Cluster Self Test

There are four sub-menus available:

- Telltales test
- Gauge test
- Display test
- Speaker test

The following table describes the tests. To cancel a test, press the Esc button.

Telltales Test	Telltales illuminate for approximately five seconds.
Gauge Test	The indicators move forwards and backwards between the end positions. They do not show any particular value. This is just a check to confirm that the indicators move, and to make sure the operators are working.
Display Test	The entire display lights up until the Esc button is pressed.
Speaker Test	The sound is activated and at the same time, the name of the selected sound is shown in the DID screen.

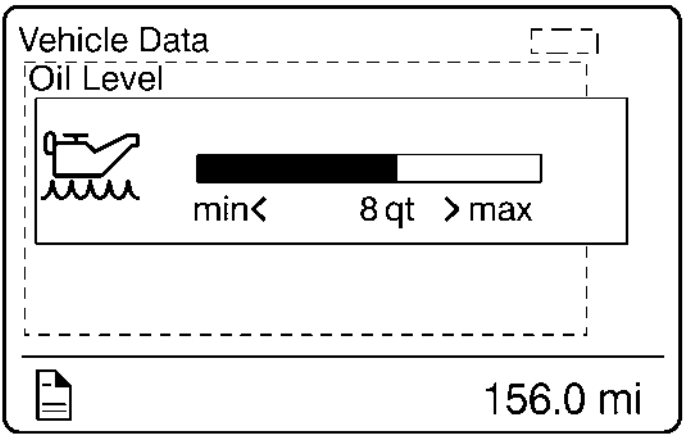
Vehicle Data

The engine oil level (EOL) and Maintenance Data can be checked in the Vehicle Data menu.

1. Oil Level (Volvo Engines Only)

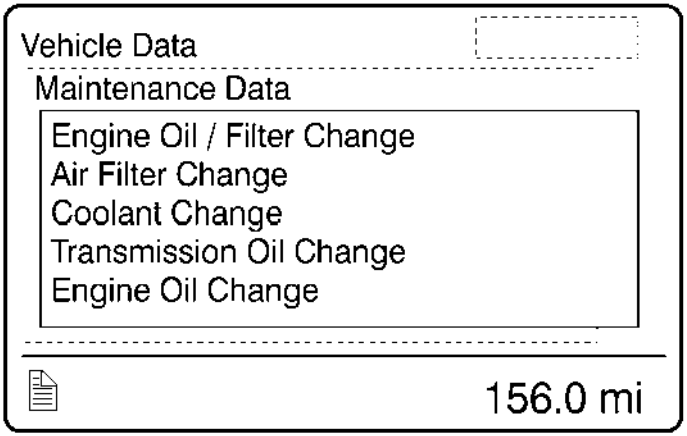
Note: For information about engine oil, refer to the Operator's Manual Vehicle Maintenance.

The vehicle is equipped with an electronic EOL sensor. The bar marked MIN and MAX shows the EOL. The number in the middle indicates the difference between the MIN and MAX level.



W3007375

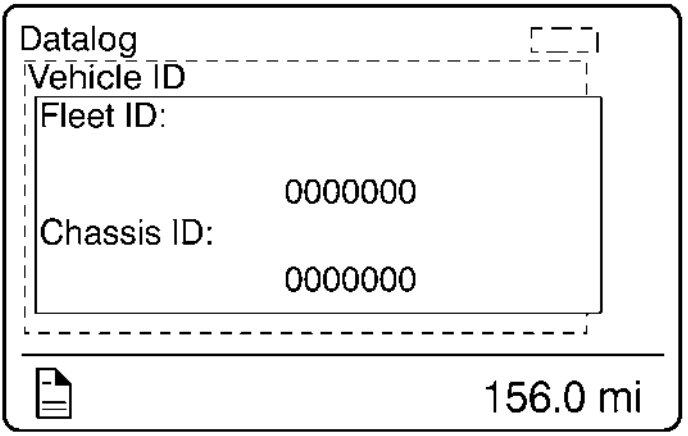
2. Maintenance Data



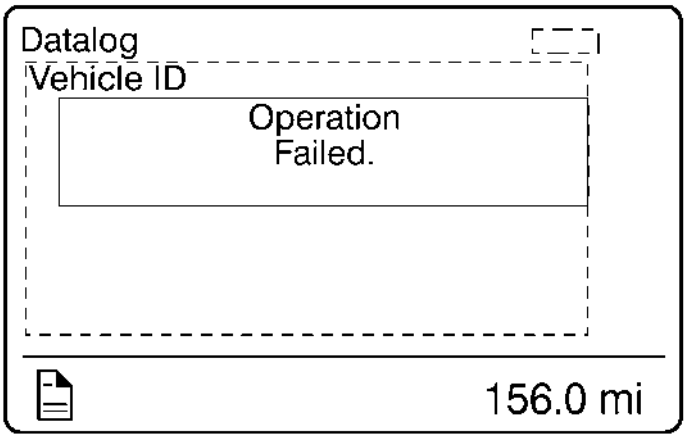
W3029788

Datalog

1. Vehicle ID



W3007374

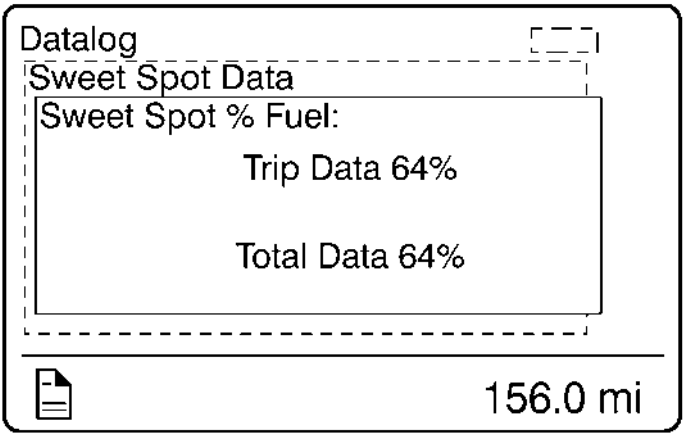


W3007373

Communication Error

2. Sweet Spot Data

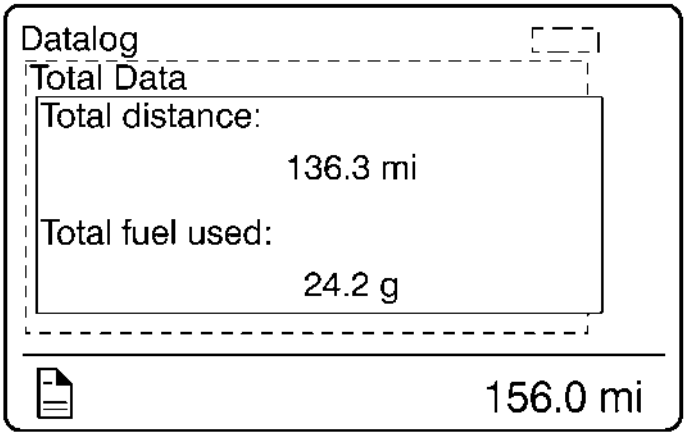
Note: For information about sweet spot data, refer to Performance Bonus Guide in the vehicle operator's manual.



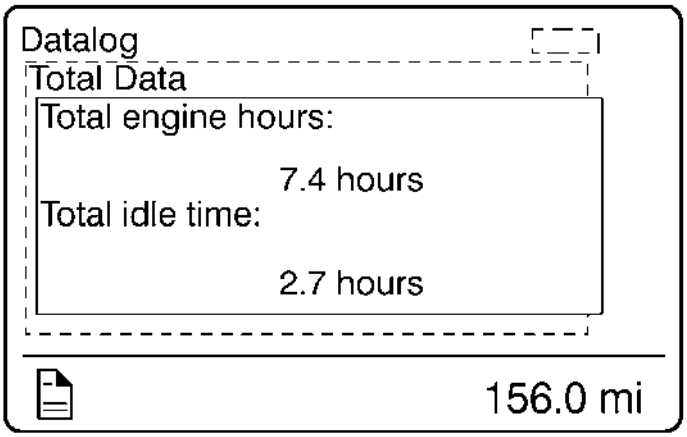
W3007372

3. Total Data

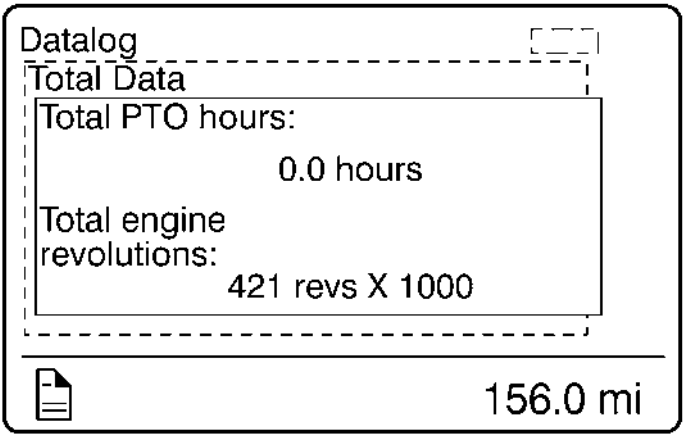
Totals indicate the accumulated engine values that have been logged during the lifetime of the engine control module (ECM). Six different totals are stored.



W3007370



W3007369



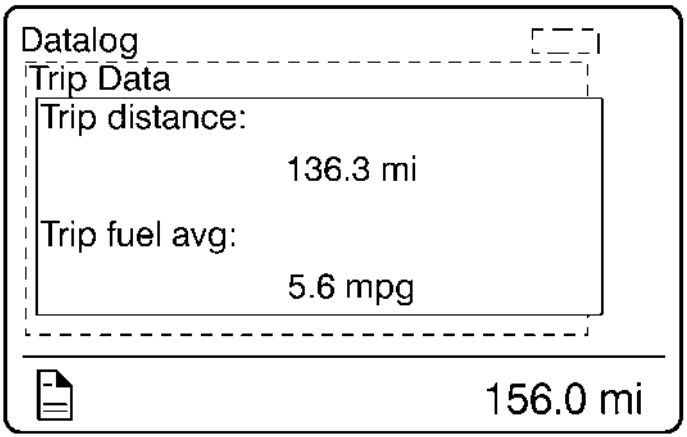
W3035601

4. Trip Data

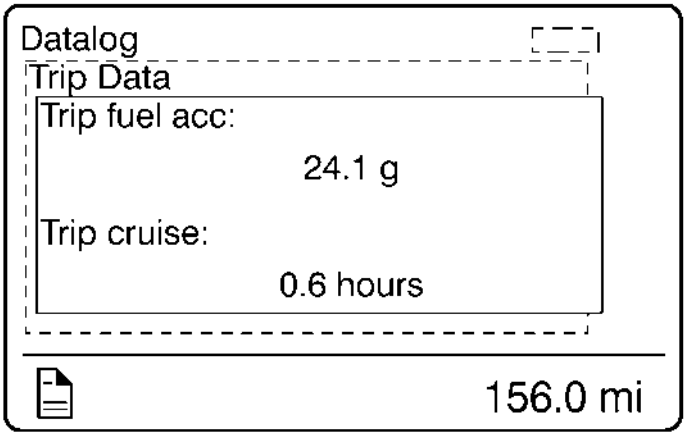
Note: Some menus are not available with the Cummins ISX engine.

There are 14 different trip data values stored.

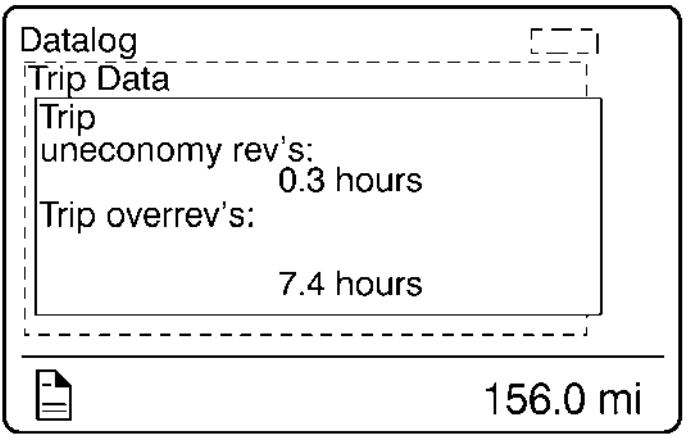
Note: The trip data must be reset before each measurement, see “5. Reset Trip Data”, page 87.



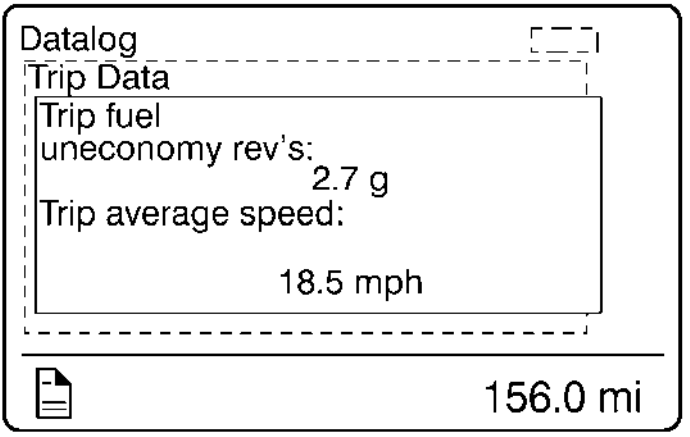
W3007367



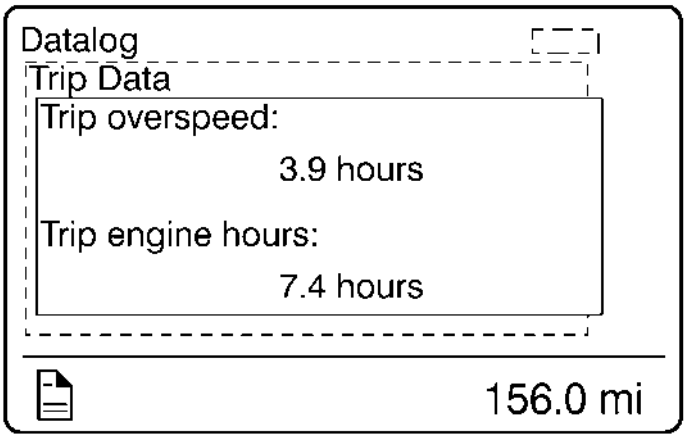
W3007366



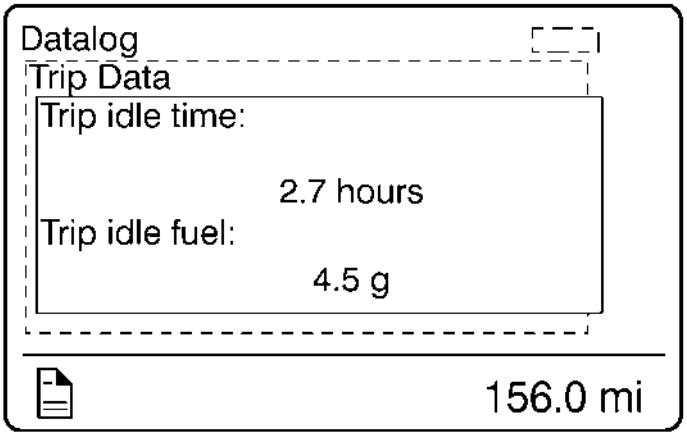
W3007365



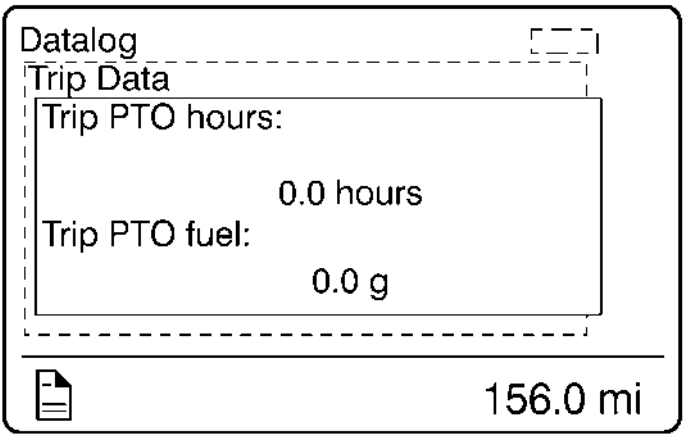
W3007364



W3007363



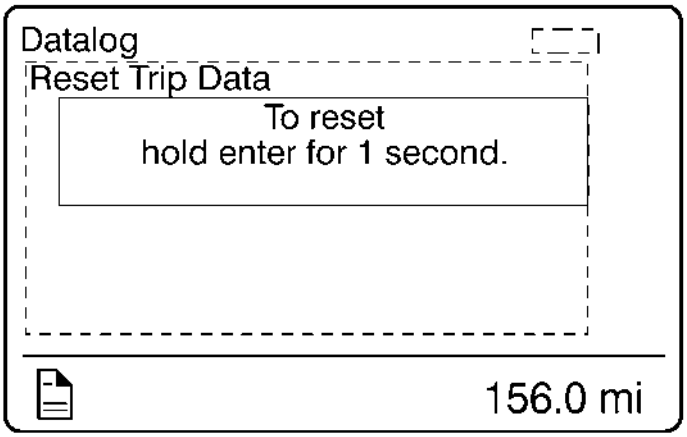
W3007362


Datalog
Trip Data
Trip PTO hours:
0.0 hours
Trip PTO fuel:
0.0 g
156.0 mi

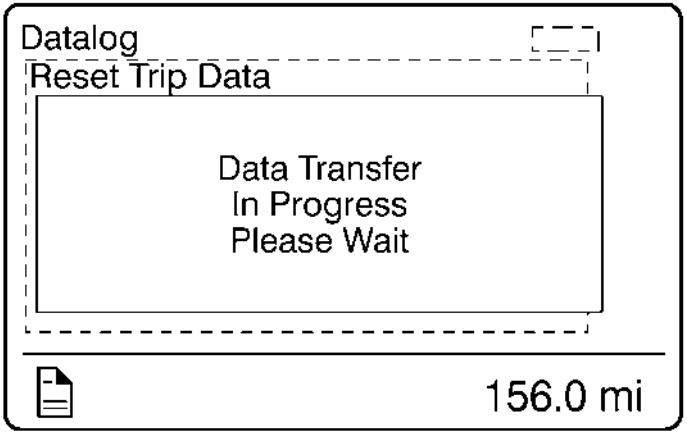
W3007361

5. Reset Trip Data

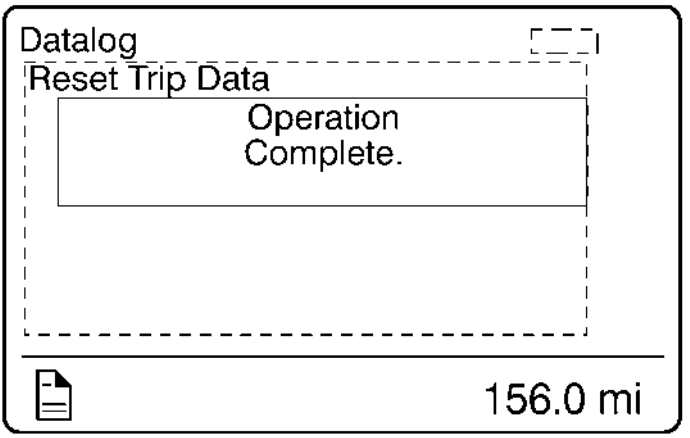
Note: This menu can only be accessed if the correct password has been entered.



W3007360

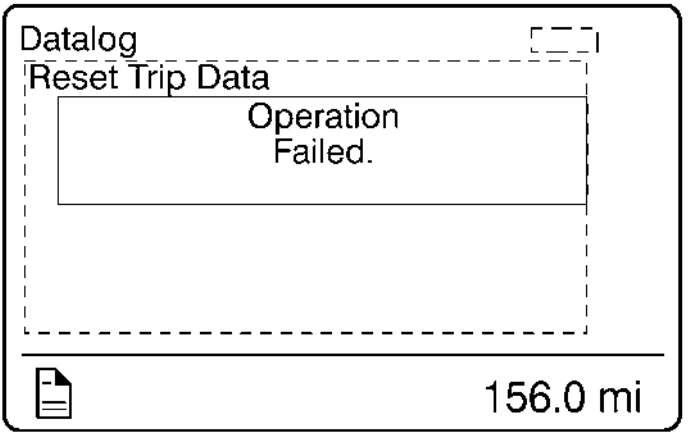


W3007359



W3007358

Successful Reset



W3007357

Unsuccessful Reset

Pre-Trip Assistance

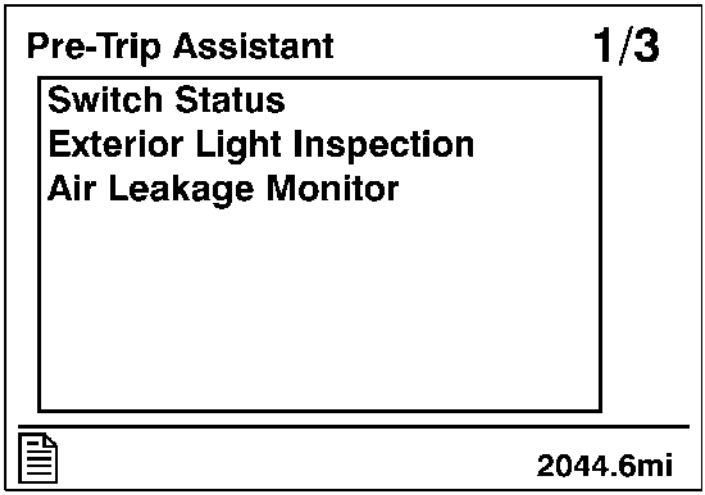
The Pre-Trip Assistance option is a tool to assist the driver in completing the pre-trip inspection of the vehicle. This option is not a substitute for a complete pre-trip inspection. If any system of the vehicle does not pass inspection, the error must be corrected before operating the vehicle.
The available pre-trip tests include a Switch/Circuit Status check, Exterior Light Inspection check, and a Air Leakage check.

Switch/Circuit Status Check

The Switch/Circuit Status check tests the functionality of the switches and their corresponding circuits. To start the check the driver must turn the individual switches on/off. As the switches turn on/off, the cluster updates the DID to show switch option being tested and it's status.

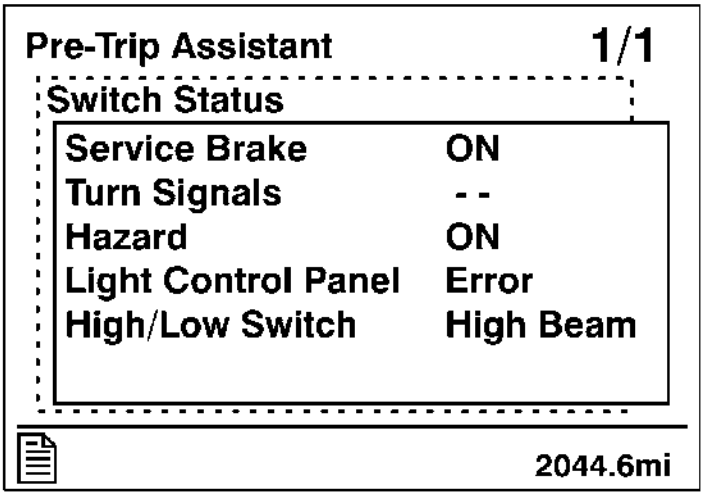
Note: The Hazard and High/Low Switches are momentary switches and return to the OFF position when released during testing.

1. The initial Pre-Trip screen displays.
Using the stalk controls, select Switch Status.



W3035544

2. After the diagnostic is completed, the following screen displays detailing the status of each switch.



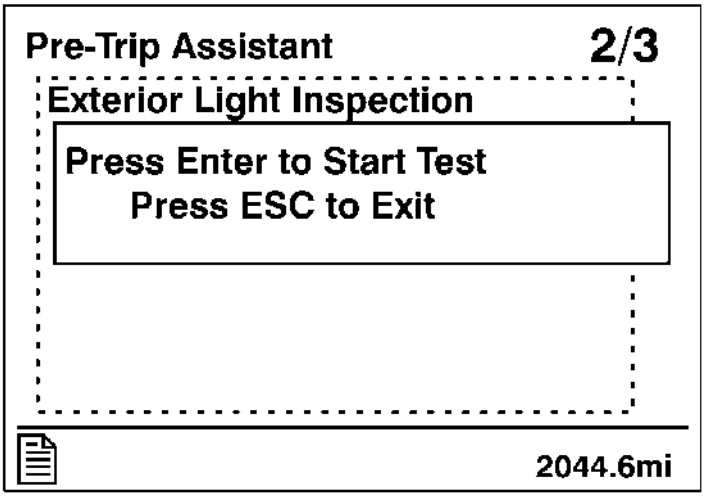
W3035548

Exterior Light Inspection Check

The Exterior Light Inspection check repeatedly turns all exterior lights on/off for the vehicle. This allows the operator to start the test, exit the vehicle and do a visual check that all exterior lighting is functioning properly.
The following exterior lights are cycled through the check:

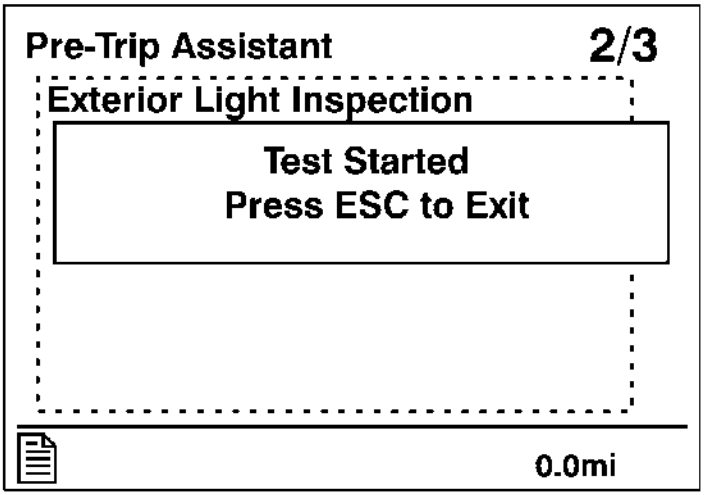
- Parking
- Hazard
- Turn signals (left and right)
- High/Low beam headlights
- Brake
- Fog/Driving (Optional)

1. From the Pre-Trip Assistant main screen select Exterior Light Inspection.



W3035554

2. The Test Started screen displays. You can stop the test by pressing 'ESC' on the stalk or by starting the ignition.



W3035557

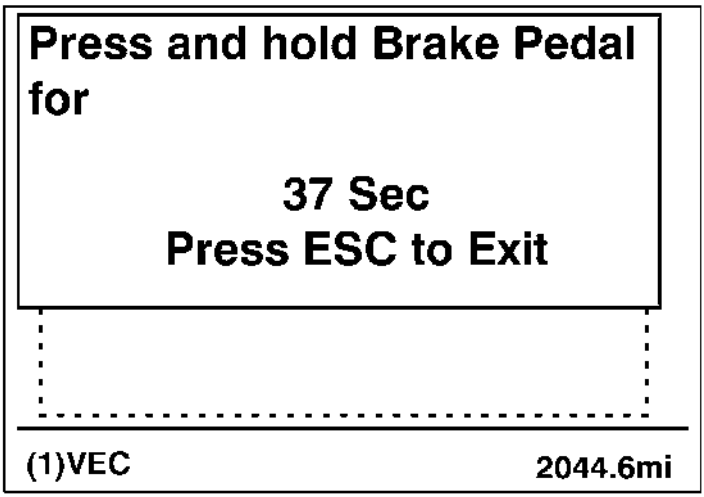
Once the test is started all exterior lights flash on and off so that you can perform a visual check.

Air Leakage Check

The Air Leakage check allows the driver to accurately measure the amount of air pressure drop in the front and rear brake air systems. After selecting this test from the DID, you are prompted to apply the service brake for 60 seconds. After applying and holding the service brake for 60 seconds, the DID will display the amount of pressure drop in the brake system.
Before starting the test through the DID, complete the following:

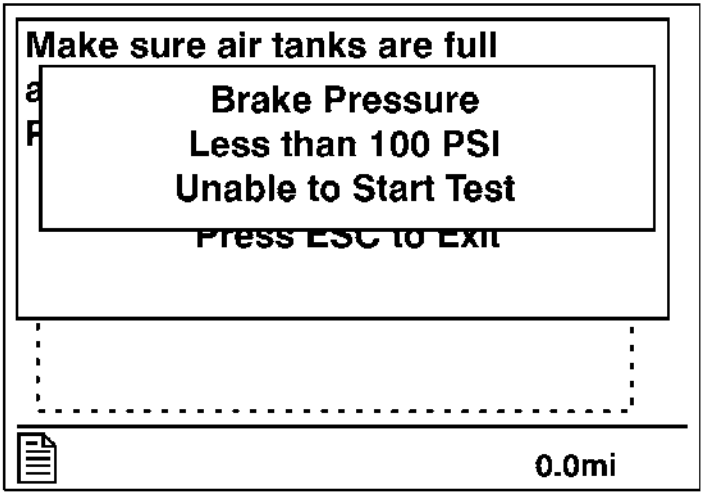
- Start the engine and check that the brake pressure gauges are greater than 136 Nm (100 psi).
- Turn engine off.
- Release all brakes and allow the system to settle (air gauge needle stops moving).

1. When running the brake pressure test the following screen displays. Press and hold the brake pedal for a total of 60 seconds.



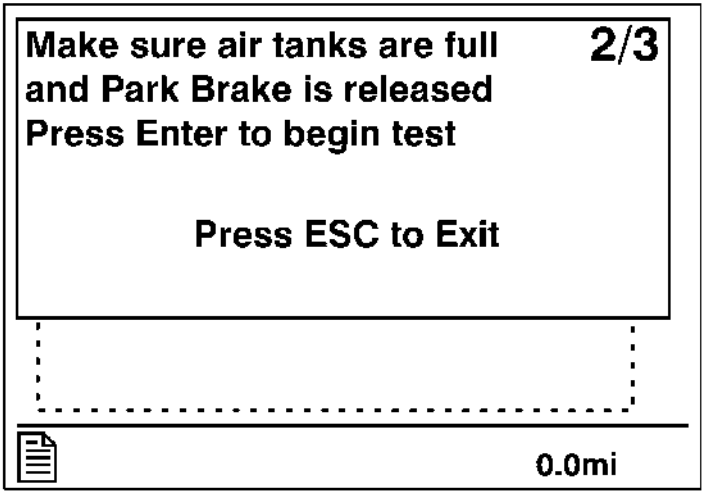
W3035558

If the air tanks are not full, in order to complete the air leakage test, the following screen displays.


Make sure air tanks are full
Brake Pressure
Less than 100 PSI
Unable to Start Test
Press ESC to Exit
0.0mi

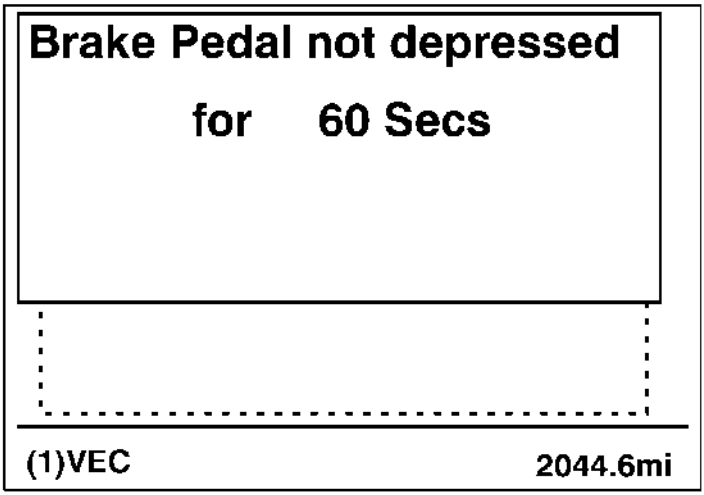
W3035559

2. When the system is ready to be checked, the following screen displays. Press Enter to begin the test.



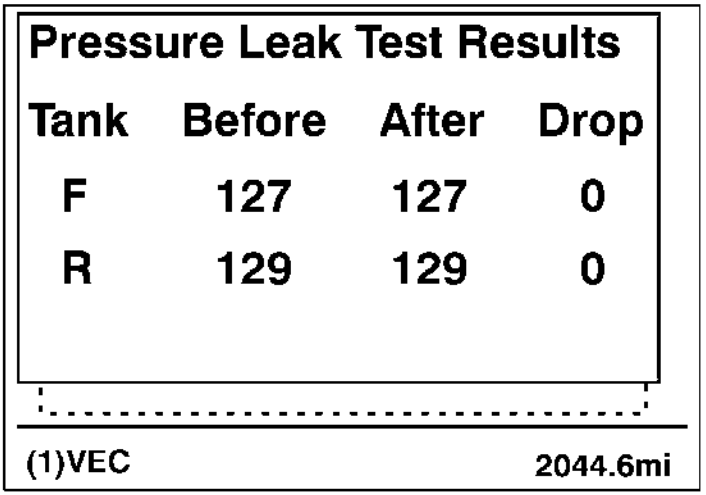
W3035566

Press and hold the brake pedal for 60 seconds. If the brake pedal is not pressed and held for 60 seconds the following warning screen displays.



W3035571

3. Once the brake pressure test is completed the pressure leak test results are displayed.



W3035574

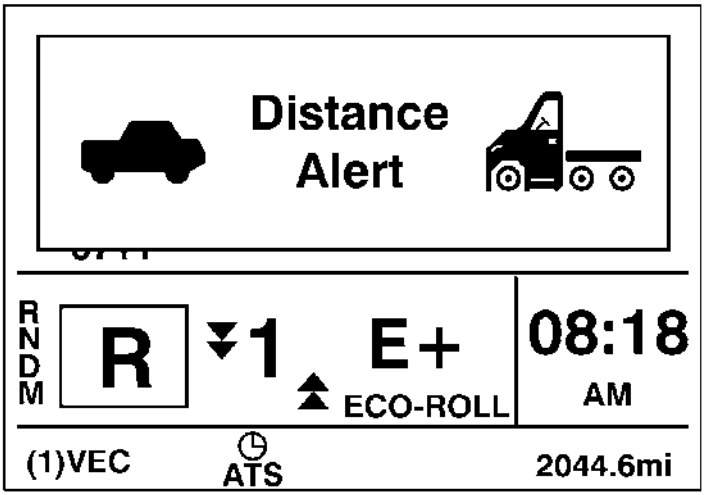
Volvo Enhanced Cruise (VEC) [If Equipped]

The Volvo Enhanced Cruise (VEC) reacts to vehicles moving in the same direction as your vehicle. The system is not responsive to stopped vehicles, side-to-side moving traffic, or oncoming traffic. The system will not slow your vehicle or provide warning as you approach vehicles in these circumstances.

If the vehicle is equipped with the adaptive control and is activated, several screens are displayed through the DID. For additional information on the Volvo Enhanced Cruise adaptive cruise control, refer to the Volvo Enhanced Cruise Active Cruise with Braking (ACB) service manual.

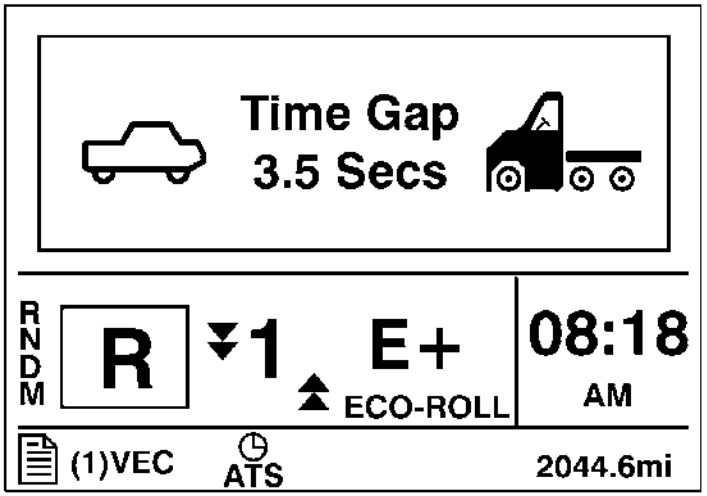
Note: For more information about the Volvo Enhanced Cruise (VEC), refer to the Volvo Enhanced Cruise Operator's Manual.

1. Distance Alert: When a vehicle moving in the same direction as your vehicle and is within the alert distance the following screen displays.



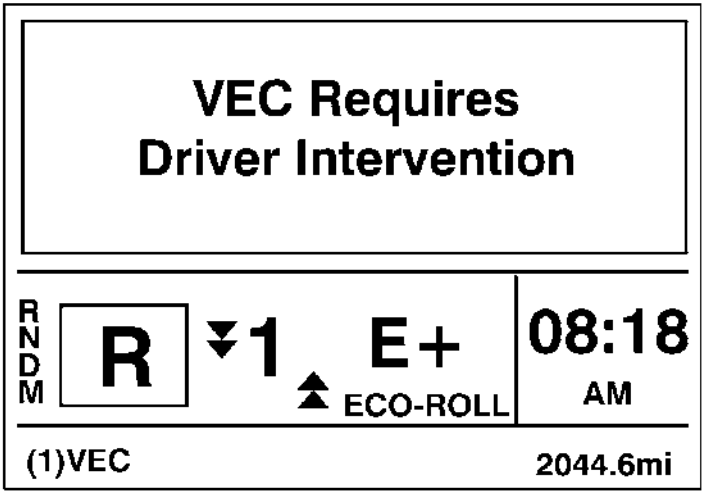
W3035576

2. Time Gap: After the Distance Alert screen displays, several time gap screens display, relaying the total time distance between your vehicle and the vehicle in front of you. The minimum time gap between your vehicle and vehicle ahead is 1.5 seconds. The maximum is 3.5 seconds.



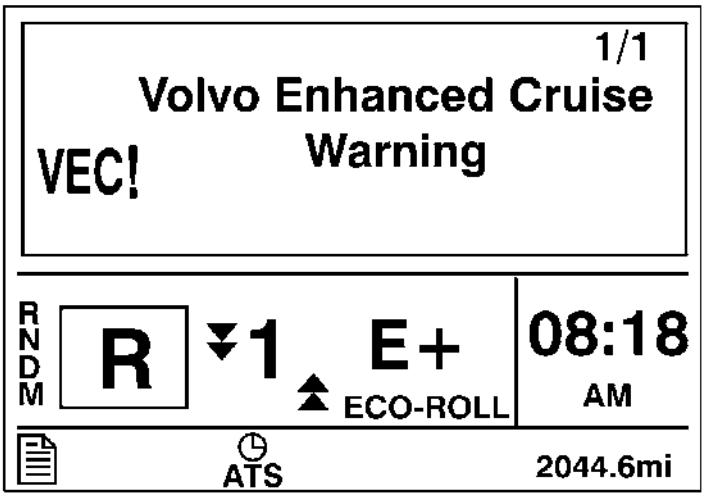
W3035579

3. If the VEC detects that the vehicle is within a certain distance that a vehicle collision is eminent, driver intervention is required. The following screen displays.



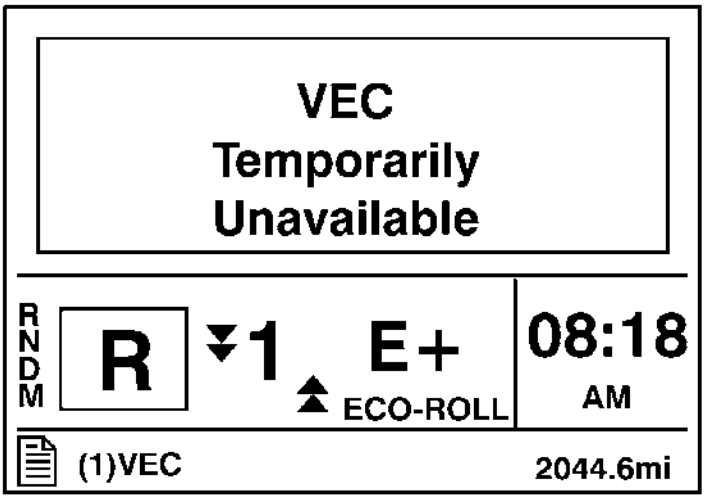
W3035580

4. When the vehicles are within collision distance, the following screen displays.



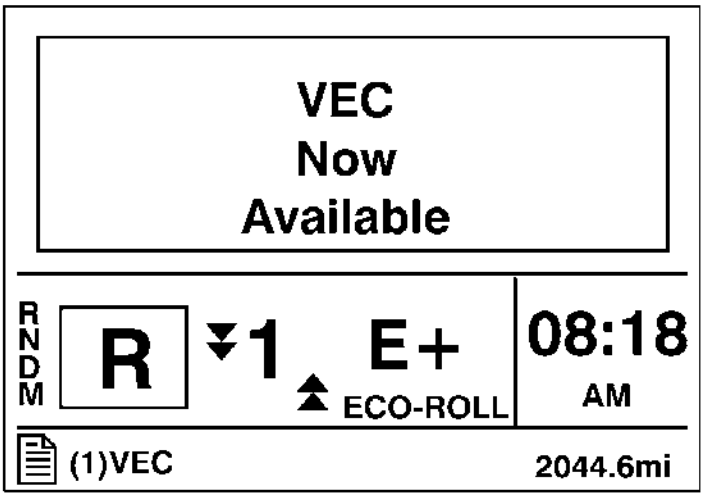
W3035586

5. If the VEC system becomes temporarily unavailable the following screen displays.



W3035592

6. When the VEC system is restored to proper operation the following screen displays.

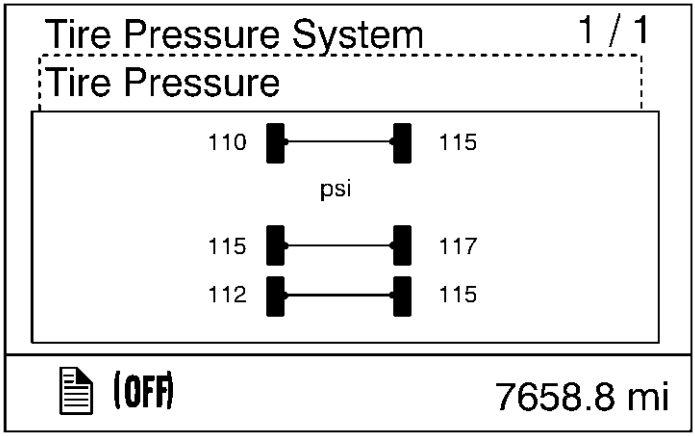


W3035594

Tire Pressure System (If Equipped)

The tire pressure/temperature sensor is attached to each wheel with a stainless steel tire strap and is located in line with the wheels valve stem. This self powered sensor is responsible for transmitting the tire cavity pressure and temperature to the system via a radio frequency sign that is received by the system antenna.

1. Tire Pressure



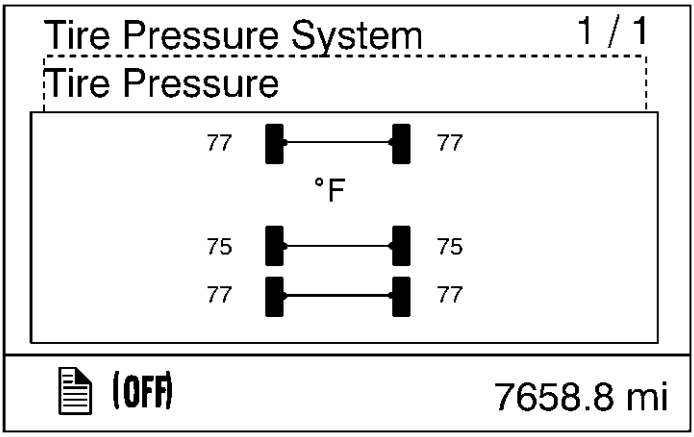
W3035597

Air Pressure Monitoring and Alert

The air pressure of each programmed tire can monitored by the operator via the DID. The system monitors tire air pressure in all cab tires independently and alerts the operator of low tire pressures in two stages;

1. Low Pressure Alert — The low pressure alert is triggered when tire pressure is 8% below it's "Set Point". The operator is alerted by an amber warning telltale light/buzzer that is displayed in the instrument cluster. The set point pressure is a nominal tire pressure that is set at the factory.

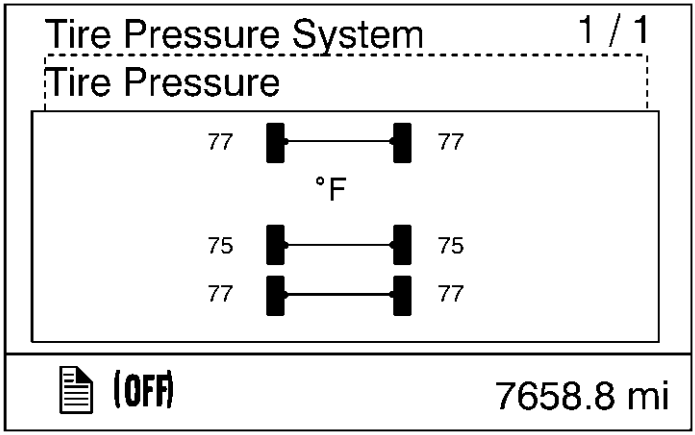
2. Critically Low Air Pressure — The critically low air pressure alert is triggered when tire pressure is 18% below it's "Set Point". The driver is alerted by a red flashing telltale light/buzzer that is displayed in the instrument cluster. The set point pressure is a nominal tire pressure that is set at the factory.



W3035599

Tire Temperature Monitoring and Alert

The cavity air temperature of each programmed tire can monitored by the operator via the DID. The system monitors cavity air temperature in all cab tires independently and alerts the operator when any of these tire cavity temperature reaches 77 °C (170 °F). The operator is alerted by a red flashing telltale light/buzzer that is displayed in the instrument cluster.



W3035599

Password

Certain functions are password-protected and there are a number of passwords for the display. It is also possible to disable the password protection for functions, which is useful when the owner is the operator. Contact your local Volvo dealer to set this function.

1. Password

Note: This password must be changed to prevent unauthorized access to the menus.

These passwords give the user access to all password-protected functions. See “5. Change Password”, page 69 to change the password.
The following menus are password-protected and marked with a key symbol in the menus:

- Fleet Limits
- Fleet ID
- Reset (applies to a number of functions)

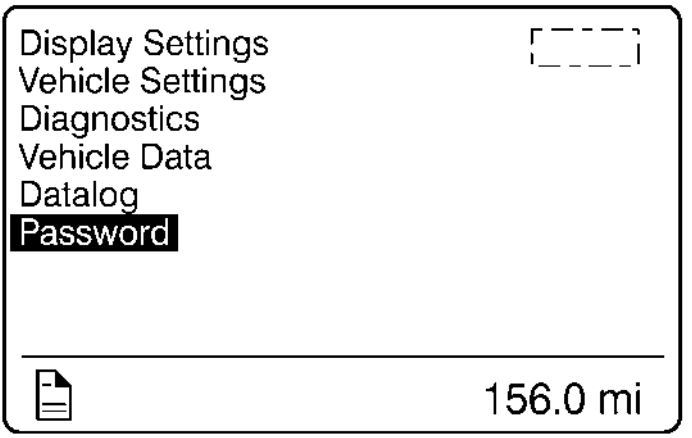
When the ignition key has been in the stop position for more than 60 seconds or the batteries have been disconnected, the password must be entered again in order to access all the functions.
No functions should be password-protected:
To make all menus available without password you must go to Password and press the Enter button.
You can also go to a password-protected menu and press the Enter button. A password entry box is displayed.

1 Select the Password menu.

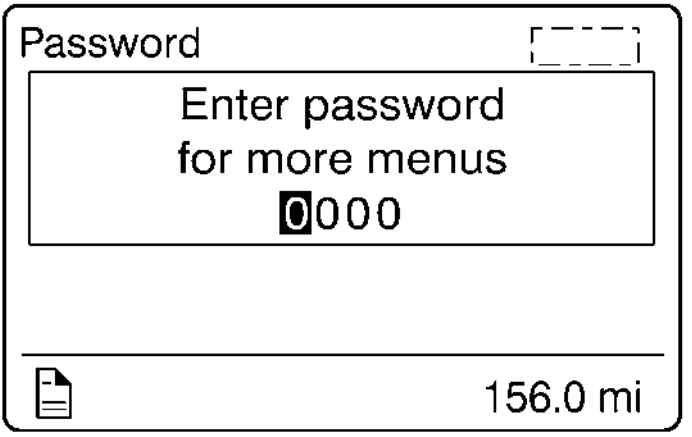
2 The password consists of a four-digit number, 0000?9999, that is scrolled forward using the up and down arrows on the control lever, one number at a time, followed by pressing the Enter button. The display shows the following:
Press the Enter button when the correct password has been entered.

Note: If the ignition key has been in the stop position for more than 60 seconds or the batteries have been disconnected, the password must be entered again in order to access all the functions.

3 If an incorrect password is entered, the user is returned to point 2. Re-enter the password using the up and down arrows, followed by the Enter button on the control stalk as in point 2.



W3007371



W3007356

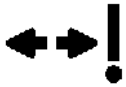
DISPLAY SYMBOLS

Alarm, Check and Information Symbols

Symbol	Meaning
 T3014529	Engine Coolant Temperature (ECT)
 T3008851	Engine Coolant Level (ECL)
 T3014506	Engine Oil Pressure (EOP)
 T3014525	Engine Oil Level (EOL)
 W3005104	Engine Oil Temperature (EOT)
 T3014511	High Engine Oil Temperature (EOT)
 T3016138	Fault in preheating
 T3014455	Engine temperature too low for engine brake (VEB)
 W3036197	Air filter restriction

Symbol	Meaning
 T3014503	Engine idle shut down
 T3016140	Transmission oil temperature
 W3005098	High transmission oil temperature
 T3014507	Transmission malfunction
 T3014494	Low brake pressure or ABS
 W3005087	Air dump
 W3005089	Air suspension pressure
 W3005090	Air suspension pressure warning
 T3014400	Wheel spin
 T3014424	Anti-spin temporarily disengaged

Symbol	Meaning
 W3005102	5th wheel unlocked
 W3005171	Stop
 W3005105	Voltage meter
 T3014509	Voltage warning
 T3008842	SRS
 T3008838	Low level washer fluid
 W3006084	Fault in main beam
 T3014470	Interaxle lock
 W3006119	Differential lock
 T3015664	Fault in brake light

Symbol	Meaning
 T3015663	Fault in blinkers
 T3014395	Caution, freezing conditions
 T3014505	Fuel level
 W3005101	Ambient air temperature (AAT)
 W3005092	Air application
 T3014476	Parking Brake engaged
 W3005366	Axle Temperature
 T3014527	Engine speed (RPM)

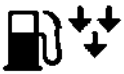
Symbol	Meaning
 W3005083	Intake Manifold Pressure (IMP)
 T3014518	Instantaneous/average fuel economy (liters/100km)
 T3014519	Instantaneous/average fuel economy (km/liter)
 T3014520	Instantaneous/average fuel economy (mpg)
 T3014521	Instantaneous/average fuel economy (liters/hour)
 W3005095	Leg fuel (liter)
 W3005091	Leg fuel (gallon)
 W3005096	Trip data (km)
 W3005097	Trip data (miles)

Symbol	Meaning
 W3005099	Average speed (km/h)
 T3014517	Average speed (mi/h)
 W3005094	Estimated time of arrival
 W3006078	Safety Belts Reminder
 W3029774	Performance Bonus Guide
 W3004309	Water in fuel
 W3007445	Aftertreatment DPF Regeneration
 W3007444	Aftertreatment High Exhaust System Temperature

STATUS SYMBOLS

Status symbols are displayed at the bottom of the Mid Level and High Level instrument cluster DID screens.

Symbol	Meaning
 T3008841	Preheating active or preheating fault
 T3013619	Alarm clock activated
 T3013629	Message active
MI	Odometer, miles
KM	Odometer, kilometers
PTO	Power takeoff active
CC	Cruise Control active
 T3014410	Engine brake position 1
 W3006122	Engine brake position 2
 W3005543	Engine brake position 6
 W3005100	Axle suspension pressure, front
 W3005084	Axle suspension pressure, rear
 W3005086	Distance to empty

 W3005148	ABS malfunction trailer
 W3005149	ABS malfunction tractor
 T3019229	Water in fuel priming
 W3029783	Water in fuel draining

Other Symbols

There are various other symbols for the other menus which are not explained here. Refer to the sections on the different menus for explanations of those symbols.

MESSAGES

General

There are three types of messages:

- Stop
- Warning
- Information

Stop, warning, and information messages are displayed automatically with their associated symbols. Above the display are three lamps (for stop warning, or information messages) used to draw the attention of the operator whenever necessary. If the engine is running when a stop message comes on, a buzzer is also activated. More than one message can be active at the same time. A displayed message can be replaced by a new message provided the new message has a higher priority. For example, the displayed message is the highest priority.
Only diagnostic trouble codes (DTCs) that have a direct impact on vehicle operation are displayed. All DTCs are stored in the appropriate engine control unit (ECU) for access by service technicians.

Stop Message

⚠ DANGER

Failure to stop and take necessary action when the STOP message light is on can result in automatic engine shutdown and loss of power steering assist. This can result in vehicle accident, personal injury or death.

In the event of a serious fault, the red STOP light comes on; the buzzer will also activate if the engine is on. An illuminated STOP message light signifies a serious problem has been detected, and the operator must respond immediately to the problem.

W3005171

This lamp ON means the vehicle must be safely pulled off the road and stopped. In some instances, the engine must be switched off immediately.

In some cases preventive action may be taken by the engine control module (ECM) to protect the engine.
Example 1: if engine oil pressure (EOP) or engine coolant level (ECL) drops too low, the engine is forced to low idle and when the vehicle speed is zero, the engine shuts down.
Example 2: with excessive engine coolant temperature (ECT), the engine will gradually reduce power output to 50%. This telltale always activates the buzzer.
The engine may be restarted after the ignition key is turned to OFF position and then back ON. However, it will only operate for 30 seconds unless the problem is resolved. The engine could be forced to low idle within 30 seconds from when the light comes on. Pull off the road as soon as possible without creating a safety hazard.

⚠ CAUTION

If an engine problem is allowed to persist, serious damage to the engine may occur. Always repair the cause of the problem before operating the vehicle again.

See “Stop, Check, Info Symbols and Associated Icons”, page 118 for other telltales that trigger the STOP message light.

Warning Message

⚠ DANGER

The CHECK warning message lights up when there is a specified fault the operator should be aware of. Air pressure is low and remaining air volume may not be sufficient for repeated braking. The emergency brakes my engage, causing a wheel lockup, loss of vehicle control. This can cause the vehicle to become a hazard to vehicles behind it. Bring the vehicle to a controlled stop. Failure to follow these precautions can result in loss of braking control, serious personal injury, vehicle accident or death.

Note: This lamp ON means that there is a specified fault that must be checked at the next stop.

W3005170

If there is an electrical or mechanical problem, the CHECK warning light comes on and a default message appears in the DID.
See “Stop, Check, Info Symbols and Associated Icons”, page 118 for other telltales that trigger the CHECK warning light.

Information Message

Note: This indicator light ON means there is a new information message.

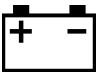
W3005150

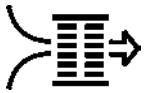
The INFO indicator light comes on when there is a new information message or an abnormal status is detected by the electronic control unit. A telltale, text or both are shown in the DID in addition to the INFO light. For certain telltales, a reference value is also shown.

Note: Make sure the indicated fault is checked at the next stop once the INFO indicator come on.

See “Stop, Check, Info Symbols and Associated Icons”, page 118 for other telltales that trigger the INFO indicator.

Stop, Check, Info Symbols and Associated Icons

Symbols and Associated Icons		
 W3005171	 W3005170	 W3005150
Icons Displayed		
 T3014511	 W3005105	 T3008838
 W3005098	 W3006084	 W3005171
 T3014507	 T3015664	
 T3014494	 T3015663	
 W3005087	 T3014395	
 W3005102	 T3014505	
	 W3005092	

	 T3014527	
	 W3005083	
	 T3016138	
	 T3014455	
	 W3036197	
	 W3005090	
	 T3008842	

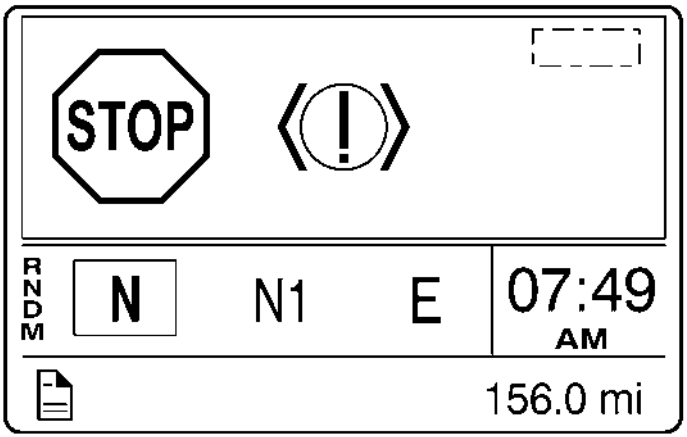
Acknowledging Messages

A fault message is acknowledged by pressing the Esc button after which the display returns to the same status that existed before the fault occurred. All messages can be acknowledged. Acknowledged but inactive messages are displayed again when the ignition key is turned to the START position or they can be read in the menu.
Information or Warning Messages: Information and warning messages can be acknowledged using the "Esc" button. This warning stays acknowledged until the next time the ignition key is turned to the START position.
Exceptions: The message can be displayed again if the fault is corrected and then becomes active again.
Example: If the transmission fluid temperature is too high, a message will be activated automatically. The operator acknowledges this message using the Esc button. If the temperature then drops to a normal level temporarily and then increases again to an excessive level, the warning will activate again.
Stop Message: The buzzer and a STOP message can be acknowledged using the Esc button, but may become active again 10 seconds after the last acknowledgment. The STOP symbol will be illuminated the whole time.

Examples of Fault Symbols and Text

Factory — Installed Equipment When Stationary

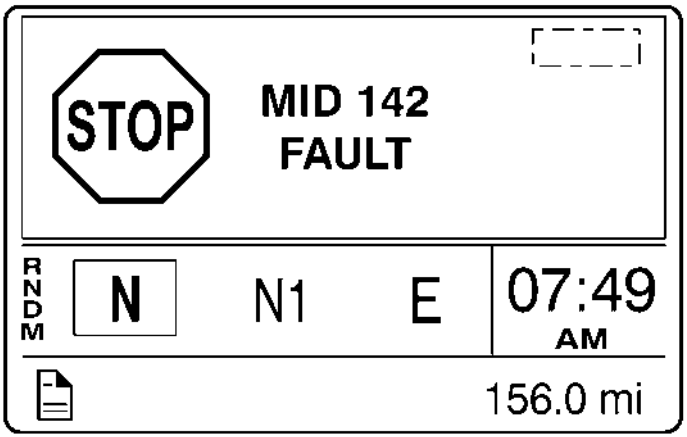
The stop, warning, or info symbol comes on and the information message is shown on the display (for more information on the fault, see “1. Fault Diagnostics”, page 74). A warning tone will be heard if the engine is running when a stop message is activated. The message contains information about the location of the fault where the fault has occurred:



W3007349

Non-Factory-Installed Equipment

If a coach builder or customer has retrofitted equipment that is connected to the data link, the following symbols may be displayed:
MID (Message Identifier) = electronic control unit (ECU)



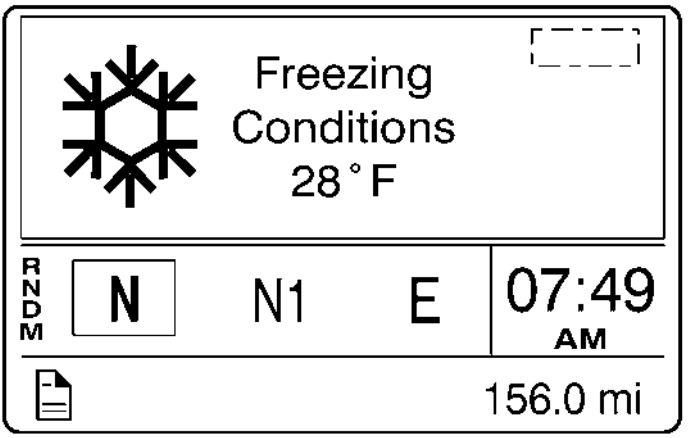
W3007350

Examples of Symbol and Value

Information, warning or stop symbol comes on and another symbol and value is displayed. Example of warning message:

Warning, Freezing Conditions

The Freezing conditions message is activated when the ambient air temperature (AAT) drops below 2 °C (35 °F) or increases from a lower temperature to –2 °C (28 °F). Press the Esc button to acknowledge the warning. The warning is cancelled when the temperature drops below –3 °C (26 °F) or rises to 3 °C (37 °F).



W3007353

123 Driver Information Display

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