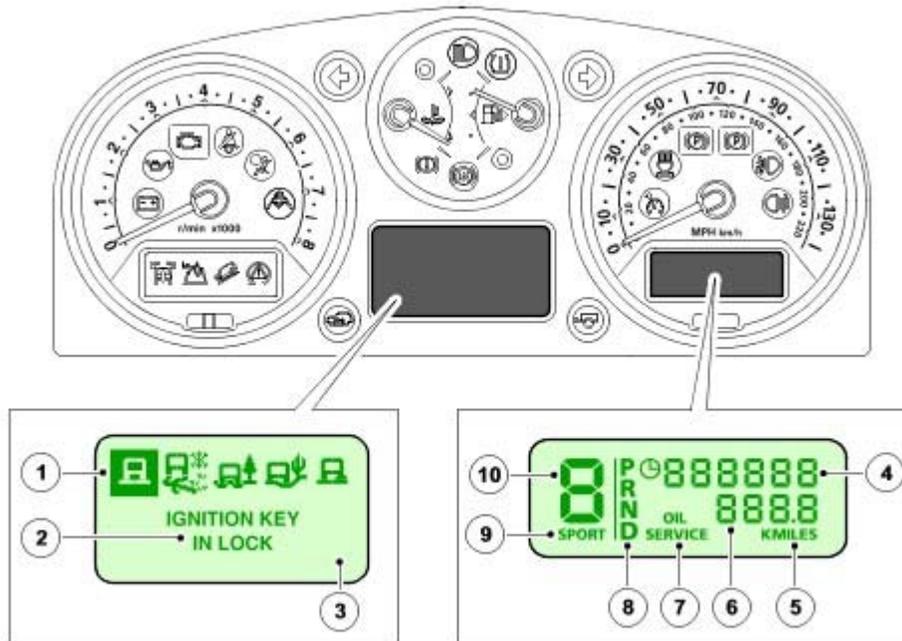


Information and Message Center

GENERAL

Information and Message Displays



E47674

Item	Part Number	Description
1	-	Terrain Response™ icons (if applicable)
2	-	Message display
3	-	LCD Message center
4	-	Odometer display
5	-	Miles or KM display
6	-	Trip meter display
7	-	LCD Information display
8	-	Gear position display (Manual and Automatic transmission)
9	-	Transmission mode display (Automatic transmission only)
10	-	Selected gear position display (Manual and Automatic)

Two variants of the instrument cluster are used; high line and low line. Both variants also differ depending on market specification, engine fitments and features fitted to the vehicle. For additional information, refer to [Instrument Cluster](#) (413-01)

The instrument cluster is an electronic device which receives digital or analog signals via hardwired or bus systems for instrumentation operation.

The information display, which shows odometer, trip, gear position and mode data, is applicable to both high and low line instrument clusters. The message center is only available on high line instrument clusters.

MESSAGE CENTER

The message center is an Liquid Crystal Display (LCD) located in a central position at the bottom of the instrument cluster. The LCD has a viewable area of 71 mm X 36 mm with a pixel size of 0.54 mm X 0.54 mm. When active, the message center is illuminated as follows:

- At ignition on
- At ignition off when all current messages are being displayed to the driver
- At ignition off, each current message is displayed in turn for 3 seconds. The message center will remain active if KEY IN IGNITION or LIGHTS ON is displayed.

When the ignition is switched on and the lights are off, the message center will illuminate at full, normal brightness. If the lights are switched on, the intensity of illumination is reduced to a level determined by the PWM dimmer control located on the lighting control switch.

The majority of messages are generated by the vehicle subsystem modules on receipt of CAN bus message signals. The instrument cluster identifies the signals and displays the appropriate message in the message center.

Most messages are accompanied by a chime or series of chimes which is requested by the module generating the message. The chime is emitted by a sounder located within the instrument cluster.

The driver can view current system status messages by scrolling through the trip computer functions to the replay mode. This is done by pressing the 'I' button on the end of the left hand steering column multifunction switch. If messages are current, an 'I' icon is displayed in the message center.

Message Center Display Arbitration

When the ignition is switched on, the message center displays the system check message for 3 seconds. If the ignition is switched off during this period, the display goes off.

After the system check, the message center shows the normal display for a vehicle without Terrain Response™ (display mode 3E, see following section for mode descriptions). The display shows the ambient temperature, adaptive cruise information (if applicable) and trip computer information. This display format is changed if the driver switches the ignition off or the instrument cluster detects a condition which needs to be relayed to the driver, low washer fluid for example. Driver intervention has the highest priority. If a driver request and a warning condition become active at the same time, the driver request will be displayed first.

If an adaptive cruise set-up message is received, the display will change to display mode 3 D or E (see following section for mode descriptions). This will display for 3 seconds when the display changes back to the normal display.

If a Terrain Response™ message is received, the display will change to a mode 3 display, appropriate for the additional information to be displayed. The instrument cluster reviews the information required to be displayed and shows the appropriate format.

Display Modes

The message center has four different display modes. Each mode is displayed depending on vehicle operating conditions and driver requests. The display modes are detailed in the following table:

Display Mode	Description	Format
0	Blank	No display in this mode
1	Information	Customer settings display
2	Pre-check	System precheck at ignition on
3	Normal	Seven different formats available (A, B, C, D, E, F or G) depending on vehicle specification and active functions

Display Mode 0

This mode is entered when the ignition is off and the CAN bus system is 'asleep' and no characters or symbols are displayed. This mode is exited by switching the ignition on or if the driver selects the 'Customer Settings' mode.

Display Mode 1

This mode displays information to the driver and provides the driver with the option to change certain settings for the vehicle. The display is a full screen format. A number of displays are available to allow the driver to customise various vehicle functions. Refer to 'Customer Settings' in this section for further details.

Display Mode 2 - System Start-up

When the ignition is switched on, the LCD shows the 'SYSTEM CHECK IN PROGRESS' message. This message is displayed during the indicator lamp test period for 3 seconds after the ignition on is sensed. When the ignition is switched off, the LCD returns to the display mode 0.

Display Mode 3

Display mode 3 is the normal operating mode for the message center. There are seven different display formats (A to G) which cover all possible display formats and also provides for vehicles with or without the Terrain Response™ system. The seven displays are described below:

- **A** = Display shows: Terrain Response™ Mode icon; Steering Wheel Direction Icons; Trip computer/Warning Messages
- **B** = Display shows: Terrain Response™ Modes (Active mode in reverse image); Terrain Response™ description message
- **C** = Display shows: Active Terrain Response™ Mode icon; Terrain Response™ Description message; Trip Computer/Warning Messages
- **D** = Display shows: Active Terrain Response™ Mode icon; Ambient Temperature; Text/Information/Advice/Warnings; Adaptive Cruise Control (if applicable)
- **E** = Display shows: Ambient Temperature; Adaptive Cruise Control (if applicable); Text/Information/Advice/Warnings
- **F** = Display shows: Ambient Temperature; Warnings/Information
- **G** = Display shows: Active Terrain Response™ Mode icon; Ambient Temperature; Text/Information/Advice/Warnings

Message Priority

The messages are assigned priorities which are defined by the effect on driving safety and functional ability of the vehicle. New messages are displayed and accompanied by a chime from the sounder. Messages are divided into three priority groups; 1, 2, and 3 as follows:

Priority Group 1

- This group of messages have a direct effect on the driving ability and safety of the vehicle, 'ENGINE SYSTEM FAULT' for example. This message would require an immediate reaction from the driver in response to the message. Priority 1 messages will also be accompanied by the appropriate warning indicator flashing and a continuous chime from the instrument cluster. If more than one priority 1 message is present, each message is displayed in turn at 3 second intervals.

Priority Group 2

- This group of messages do not directly affect the driving ability or safety of the vehicle, 'CHECK BRAKE PADS' for example. This message must be noted by the driver and the cause rectified as soon as possible. Each of these messages is displayed once at ignition on or when the fault occurs for a predetermined time period. These messages can be recalled by the driver by pressing the trip reset button for more than 3 seconds.

Priority Group 3

- This group of messages relate to low priority messages, 'WASHER FLUID LOW' for example. Depending on the message, some messages are only shown at the end of a journey to avoid annoyance to the driver. The messages will be accompanied by a chime when the ignition is switched off to alert the driver to their presence.

The messages are displayed in a language applicable to the market configuration of the vehicle and can be changed using T4. The following list shows the possible messages which can be displayed, other visual or audible warnings and a description of the message.

Message	Other Warnings	Reason	Action

SYSTEM CHECK IN PROGRESS	None	Instrument cluster internal diagnostic routine	None
SYSTEM FAULT SPECIAL PROGRAMS NOT AVAILABLE	Single chime, general program icon illuminated in message center	Terrain Response special programs not available due to system fault. Drive off-road with care.	Connect T4 to diagnose fault
RECOMMEND LOW RANGE IS SELECTED FOR MUD-RUTS PROGRAM	Mud-ruts program icon illuminated in message center	Advisory message for Terrain Response special program displayed once every ignition cycle	Select low range if required
RECOMMEND STARTING IN 2ND GEAR FOR SLIPPERY CONDITIONS	Grass Gravel Snow program icon illuminated in message center	Advisory message for Terrain Response special program (Only displayed on vehicles with manual transmission in low range, once every ignition cycle)	Select 2nd gear if required
RECOMMEND STARTING IN 3RD GEAR FOR SLIPPERY CONDITIONS	Grass Gravel Snow program icon illuminated in message center	Advisory message for Terrain Response special program (Only displayed on vehicles with manual transmission in low range, once every ignition cycle)	Select 3rd gear if required
RECOMMEND RAISING SUSPENSION TO OFF ROAD HEIGHT IN DEEP MUD-RUTS	Mud-ruts program icon illuminated in message center	Advisory message for Terrain Response mud/ruts special program when in high range, displayed once every ignition cycle (Suspension raised automatically when in low range)	Raise suspension manually to off-road height if required
Terrain Response SPECIAL PROGRAMS OFF	All five program icons illuminated in message center	Advisory message to inform driver that Terrain Response special programs are off	None
SPECIAL PROGRAMS OFF	General program icon illuminated in message center	Advisory message to inform driver that current special program has been switched off and general program is active	None
CAUTION! RISK OF GROUNDING WITH SUSPENSION AT NORMAL HEIGHT	The active special program icon will be illuminated in message center	Only displayed when system would have normally provided off-road height, but driver has manually lowered the suspension (or the suspension system is unable to raise the vehicle)	Raise suspension manually to off-road height if possible and where appropriate
TRAILER CONNECTED OFF ROAD HEIGHT NOT SELECTED AUTOMATICALLY	The active special program icon will be illuminated in message center	Advisory message displayed when Terrain Response system would normally have provided off-road height automatically, but system has detected an electrical load on trailer socket	If trailer or light board is connected, manually raise suspension to off-road height if safe to do so. If nothing is connected to trailer socket, investigate trailer socket and/or Terrain Response system for fault
SELECT LOW RANGE TO ACTIVATE ROCK CRAWL	Single chime, rock crawl program icon illuminated in message center	Terrain Response Rock Crawl special program has been requested but transfer box is in high range	Change transfer box to low range
SAND PROGRAM SELECTED	Sand program icon illuminated in message center	Advisory message. Terrain Response Sand special program has been selected for more than 2 seconds and is currently active	None
ROCK CRAWL PROGRAM SELECTED	Rock crawl program icon illuminated in message center	Advisory message. Terrain Response Rock Crawl special program has been selected for more than 2 seconds and is currently active	None
GRASS GRAVEL SNOW PROGRAM	Grass gravel snow program icon illuminated	Advisory message. Terrain Response Grass Gravel Snow special program has been selected	None

SELECTED	in message center	for more than 2 seconds and is currently active	
MUD RUTS PROGRAM SELECTED	Mud-ruts program icon illuminated in message center	Advisory message. Terrain Response Mud/Ruts special program has been selected for more than 2 seconds and is currently active	None
GRASS GRAVEL SNOW	Grass gravel snow program icon illuminated in message center	Advisory message. Terrain Response rotary control has been moved to the Grass Gravel Snow position. Program will be selected after 2 seconds	None
MUD-RUTS	Mud-ruts program icon illuminated in message center	Advisory message. Terrain Response rotary control has been moved to the Mud/Ruts position. Program will be selected after 2 seconds	None
SAND	Sand program icon illuminated in message center	Advisory message. Terrain Response rotary control has been moved to the Sand position. Program will be selected after 2 seconds	None
ROCK CRAWL	Rock crawl program icon illuminated in message center	Advisory message. Terrain Response rotary control has been moved to the Rock Crawl position. Program will be selected after 2 seconds	None
PROGRAM CHANGE IN PROGRESS	Selected special program icon illuminated in message center	Vehicle operating conditions prevent selection of program. This may be caused by ABS or DSC activity or electronically controlled differential(s)	If operating conditions change within 60 seconds, selected program will be activated. If message caused by electronically controlled differential(s) overheat, allow differential(s) to cool and attempt to reselect program.
SUSPENSION FAULT NORMAL HEIGHT ONLY	Two chimes, amber indicator permanently illuminated.	A fault has been detected in the air suspension system. Only normal height is available.	Connect T4 to diagnose fault
SUSPENSION FAULT MAX SPEED 50 km/h or 30 MPH	Two chimes repeated regularly. Red indicator permanently illuminated.	A major fault detected in air suspension system. Height cannot be controlled correctly.	Connect T4 to diagnose fault
SLOW DOWN OR VEHICLE WILL RAISE	Two chimes	Vehicle will rise automatically to normal height from crawl (locked access) height if vehicle speed increases.	Ensure the vehicle speed does not exceed 18.6 mph (30 km/h)
SLOW DOWN OR VEHICLE WILL LOWER	Two chimes	Vehicle will automatically lower to normal height from off road height if vehicle speed increases.	Ensure the vehicle speed does not exceed 18.6 mph (30 km/h)
SUSPENSION WILL RAISE WHEN SYSTEM COOLED	One chime	Air suspension compressor is cooling. Lifting will resume when compressor has cooled.	None
SUSPENSION VEHICLE RAISING SLOWLY	None	Vehicle is lifting slowly because reservoir is empty. Only displayed if lift time exceeds 12 seconds. This is not a system fault	None
SUSPENSION IN EXTENDED MODE	One chime	Vehicle body has become trapped on an obstacle. Alternates with next message. Do not jack the vehicle with the engine running. The suspension will enter extended mode and the message will appear.	None
RESET SUSPENSION			

HEIGHT IF CLEAR OF OBSTACLE	None	Reselect height if door is open or press switch to exit extended mode.	None
SUSPENSION LOCKED AT ACCESS HEIGHT	None	Crawl (locked access) mode selected.	None
SUSPENSION ACCESS HEIGHT SELECTED	None	Access height selected.	None
SUSPENSION NORMAL HEIGHT SELECTED	None	Normal height selected.	None
SUSPENSION OFF ROAD HEIGHT SELECTED	None	Off road height selected.	None
SUSPENSION REMOTE KEY OPERATION	Continuous chime while height is changing.	Air suspension remote control function is being operated.	None
SUSPENSION CLOSE DOOR TO CHANGE HEIGHT	One chime	Air suspension height change is prevented because a door is open.	Close all doors
SUSPENSION SPEED TOO HIGH TO CHANGE HEIGHT	One chime	A height change has been requested but is prevented because speed is too high.	None
SUSPENSION FAULT	Two chimes, amber indicator permanently illuminated.	A fault has been detected in the air suspension system. System may still operate normally.	Connect T4
SUSPENSION START ENGINE TO RAISE VEHICLE	One chime	Vehicle height can only be raised with the engine running.	Start engine
KEY BATTERY LOW PLACE IN IGNITION TO CHARGE	None	Handset battery low	Place key in ignition to charge
SUSPENSION FAULT VEHICLE LEAN WHEN CORNERING	Amber indicator lamp will be permanently illuminated	ACE system (if fitted) no longer available. Vehicle is still driveable.	Connect T4 to diagnose fault
SUSPENSION FAULT STOP SAFELY STOP ENGINE	The red indicator lamp will flash accompanied by a chime	Major component failure, stop vehicle immediately.	Connect T4 to diagnose fault
MEMORY 1 SELECTED	Double chime when selection complete	Memory system - confirmation that selection is completed	None
MEMORY 2 SELECTED	Double chime when selection complete	Memory system - confirmation that selection is completed	None
MEMORY 3 SELECTED	Double chime when selection complete	Memory system - confirmation that selection is completed	None
MEMORY 1 STORED	Single chime	Memory system - confirmation that memory has stored driver information	None
MEMORY 2 STORED	Single chime	Memory system - confirmation that memory has stored driver information	None
MEMORY 3 STORED	Single chime	Memory system - confirmation that memory has stored driver information	None
DOOR MIRROR DIP STORED	Single chime	Memory system - confirmation that memory has stored driver information	None
DSC SWITCHED OFF	Amber indicator permanently illuminated	System not available due to DSC switched off by driver.	To reselect press DSC switch
HDC FAULT SYSTEM NOT AVAILABLE	One chime	System fault, drive with care and do not attempt to descend steep slopes.	Connect T4 to diagnose fault
HDC TEMPORARILY			Wait until message is

NOT AVAILABLE SYSTEM COOLING	Green indicator flashing	HDC switched off while brake system is cooling	deleted before attempting descent
HDC NOT AVAILABLE SPEED TOO HIGH	Green indicator flashing	HDC unavailable, speed threshold exceeded (Max HDC operating speed is 31 mph (50 km/h), max speed for HDC selection is 50 mph (80 km/h)).	None
HDC NOT AVAILABLE IN THIS GEAR	Green indicator flashing	HDC inoperative because of incorrect gear selection. (HDC operates in 1st and reverse on manual transmissions and CommandShift™ 1st, R and D on automatic transmissions in high range. (In low range, HDC operates in all gears for manual and automatic transmissions).	None
HDC SWITCHED OFF	One chime (if deselected by Terrain Response system or 50 mph (80 km/h) speed threshold exceeded)	HDC switched off by driver, Terrain Response system or speed threshold.	None
FUEL TANK CAP LOOSE OR MISSING	None	NAS Only - DMTL pump unable to pressurise system	Tighten or replace cap. Check system for leaks
ENGINE SYSTEM FAULT	MIL illuminated	ECM has detected a fault in the engine management system	Connect T4 to diagnose fault
HIGH ENGINE SPEED FOR COOLING	None	Idle speed increased to assist air conditioning compressor	None
TRANSMISSION FAULT LIMITED GEARS AVAILABLE	None	Advises driver that automatic transmission has a fault and performance may be affected	Connect T4 to diagnose fault
TRANSMISSION FAULT	None	Advises driver that automatic transmission has a fault	Connect T4 to diagnose fault
TRANSMISSION FAULT AND OVERHEAT	None	Advises driver that fault has occurred and transmission temperature is too high.	Connect T4 to diagnose fault
TRANSMISSION OVERHEAT SLOW DOWN	None	Advises driver that transmission temperature is too high. slow down or stop to assist cooling.	Check transmission for faults
REVERSE GEAR SELECTED	None	Advises driver that reverse gear has been selected - Japanese market vehicles only	None
LOW RANGE SELECTED	One chime. Low range indicator flashes when range change is in progress. Indicator is permanently illuminated when range change is complete	Advises driver that transfer box is in low range.	None
HIGH RANGE SELECTED	One chime. Low range indicator lamp is extinguished.	Advises driver that transfer box has engaged high range.	None
SPEED TOO HIGH FOR RANGE CHANGE	One chime	Driver has requested range change when vehicle speed is too high.	Reduce speed to 40 km/h on automatic transmission and 20 km/h on manual transmission
SELECT NEUTRAL FOR RANGE CHANGE	One chime	Alerts driver that range change will not occur until neutral is selected on the transmission.	None
PARK LOCK FAILURE		Automatic transmission park lock function ineffective due to transfer	

APPLY HANDBRAKE (PARK BRAKE - NAS models only)	One chime per second for 3 seconds.	box being out of high or low range. Transfer box control module stopped transmitting on the CAN bus or while in neutral mode.	Connect T4 to diagnose fault
TRANSMISSION OVERHEAT SLOW DOWN	One chime	Rear differential temperature has reached or is approaching the overheat threshold.	None
TRANSMISSION RANGE CHANGE NOT AVAILABLE	None	Fault has occurred which is preventing transfer box range change	Connect T4 to diagnose fault
TRANSMISSION FAULT TRACTION REDUCED	One chime	Transfer box control module has stopped transmitting CAN bus messages. Defaults to open center differential. Message also displayed when fault occurs with electronic rear differential	Connect T4 to diagnose fault
TRANSMISSION FAULT STOP SAFELY	None	Fault has occurred with electronic rear differential. Stop vehicle at earliest opportunity	Connect T4 to diagnose fault
CRUISE CONTROL CANCELLED	None	Driver has disabled the adaptive cruise control system	None
CHECK ALL TYRE PRESSURES	None	Advisory message, pressure in a running tire decreased to first warning threshold.	None
TYRE PRESSURES TOO HIGH	Chimes emitted for a short time, amber indicator illuminated	Check tyre pressures	Inflate tyres to correct pressure
TYRE PRESSURES VERY LOW	Chimes emitted for a short time, amber indicator illuminated	Check tyre pressures	Inflate tyres to correct pressure
FRONT LEFT TYRE PRESSURE VERY LOW	Chimes emitted for a short time, amber indicator illuminated.	Pressure in a running tire decreased to warning threshold.	Inflate tires to correct pressure
FRONT RIGHT TYRE PRESSURE VERY LOW	Chimes emitted for a short time, amber indicator illuminated.	Pressure in a running tire decreased to warning threshold.	Inflate tires to correct pressure
REAR LEFT TYRE PRESSURE VERY LOW	Chimes emitted for a short time, amber indicator illuminated.	Pressure in a running tire decreased to warning threshold.	Inflate tires to correct pressure
REAR RIGHT TYRE PRESSURE VERY LOW	Chimes emitted for a short time, amber indicator illuminated.	Pressure in a running tire decreased to warning threshold.	Inflate tires to correct pressure
FRONT LEFT TYRE PRESSURE TOO HIGH	None	Pressure in a running tire too high threshold reached.	Inflate tires to correct pressure
FRONT RIGHT TYRE PRESSURE TOO HIGH	None	Pressure in a running tire too high threshold reached.	Inflate tires to correct pressure
REAR LEFT TYRE PRESSURE TOO HIGH	None	Pressure in a running tire too high threshold reached.	Inflate tires to correct pressure
REAR RIGHT TYRE PRESSURE TOO HIGH	None	Pressure in a running tire too high threshold reached.	Inflate tires to correct pressure
TYRE PRESSURE MONITORING SYSTEM FAULT	Chimes emitted for a short time, amber indicator permanently illuminated. Chimes emitted and amber indicator permanently illuminated at subsequent ignition on cycles.	TPMS fault has occurred. Use diagnostics to check for correct system functionality.	Connect T4 to diagnose fault
	No instrument cluster		

TYRE PRESSURE MONITORING SET FOR HEAVY LOAD	indicator illumination. TPMS switch status LED illuminated.	TPMS system set by driver for heavy load operation.	None
TYRE PRESSURE MONITORING SET FOR LIGHT LOAD	None	Normal setting for TPMS.	None
CHECK SPARE TYRE PRESSURE	None	Pressure in spare tire decreased to warning threshold.	Inflate tires to correct pressure
FRONT LEFT TYRE PRESSURE NOT MONITORED	Chimes emitted for a short time, amber indicator permanently illuminated. Chimes emitted and amber indicator permanently illuminated at subsequent ignition on cycles.	Possible loss of RF transmission or defective sensor battery.	Connect T4 to diagnose fault
FRONT RIGHT TYRE PRESSURE NOT MONITORED	Chimes emitted for a short time, amber indicator permanently illuminated. Chimes emitted and amber indicator permanently illuminated at subsequent ignition on cycles.	Possible loss of RF transmission or defective sensor battery.	Connect T4 to diagnose fault
REAR LEFT TYRE PRESSURE NOT MONITORED	Chimes emitted for a short time, amber indicator permanently illuminated. Chimes emitted and amber indicator permanently illuminated at subsequent ignition on cycles.	Possible loss of RF transmission or defective sensor battery.	Connect T4 to diagnose fault
REAR RIGHT TYRE PRESSURE NOT MONITORED	Chimes emitted for a short time, amber indicator permanently illuminated. Chimes emitted and amber indicator permanently illuminated at subsequent ignition on cycles.	Possible loss of RF transmission or defective sensor battery.	Connect T4 to diagnose fault
PARK BRAKE FAULT TO HOLD VEHICLE REMOVE KEY THEN APPLY PARK BRAKE	Park brake amber indicator illuminates and red indicator flashes	Loss of CAN or vehicle speed signal is missing	The vehicle cannot be parked by the park brake system in the normal way until the ignition key is removed and a park brake switch apply request is made
PARK BRAKE FAULT SYSTEM NOT FUNCTIONAL	Park brake red indicator flashes	Possible motor fault when driver requested a switch application	Connect T4 to diagnose fault
PARK BRAKE BEDDING CYCLE ACTIVE	Park brake red indicator flashes	The park brake bedding cycle has been initiated by the dealer technician	Follow bedding-in procedure in Service Procedures manual
CAUTION! PARK BRAKE APPLIED	Park brake red lamp permanently illuminated	The park brake is applied when the vehicle is moving	Do not use the park brake system when the vehicle is moving, except in an emergency
PARK BRAKE FAULT	Park brake amber indicator permanently illuminates	Possible system malfunction detected	Follow message instruction
PRESS FOOT BRAKE AND PARK BRAKE	None	Park brake system release is inhibited until footbrake is pressed	Follow message instruction

SWITCH TO RELEASE			
PRESS FOOT BRAKE OR CLUTCH AND PARK BRAKE SWITCH TO RELEASE	None	Park brake system release is prevented until foot brake or clutch pedal is pressed	Follow message instruction
PARK BRAKE FAULT AUTO RELEASE NOT FUNCTIONAL	Park brake amber indicator permanently illuminated	Drive away release function is not operating	Use park brake switch and foot brake to release
PARK BRAKE OFF LIFT SWITCH TO APPLY	Park brake red indicator flashes	An emergency release operation has been detected	Pull park brake switch to re-engage emergency release
LOW WASHER FLUID	Single chime at ignition on.	Washer fluid quantity below 1 litre	Add water and additive mixture to washer bottle
HEADLAMP OFF DELAY XX SEC	None	Driver has selected headlamp feature by turning ignition off before turning off headlamps	None
LOW COOLANT LEVEL	None	Coolant level in header tank below recommended level	Check coolant system for leaks and top up to correct levels
DRIVER'S DOOR OPEN	None	Driver's door open or not fully closed	None
LEFT REAR DOOR OPEN	None	Left rear door open or not fully closed	None
FRONT PASSENGER DOOR OPEN	None	Front passenger door open or not fully closed	None
RIGHT REAR DOOR OPEN	None	Right rear door open or not fully closed	None
TAILGATE OPEN	None	Tailgate open or not fully closed	None
BONNET OPEN	None	Bonnet open or not fully closed	None
SETTINGS	None	Driver has accessed the 'Customer Settings' menu	Use the steering wheel switches to view and change the settings menus or press the trip computer button to exit the setting menu
AUTOMATIC MODE	None	Driver has enabled the interior lamps	None

Ambient Temperature

The external ambient air temperature is measured by a sensor located on the right hand side of the bonnet locking platform, behind the front grill. The sensor is connected to the HEVAC module. The HEVAC module outputs temperature messages on the CAN bus which are used by the instrument cluster to display the current ambient temperature.

The message center displays the ambient temperature in the top right hand corner of the LCD display. The temperature is displayed until the message center is required to display system information. When system information has been displayed, the ambient temperature will reappear. The temperature is displayed in °F or °C depending the market configuration of the vehicle. The driver can also change the temperature reading using the 'Customer Settings' function.

Cold Warning Indication

When the ambient temperature is being displayed, if the temperature falls to 4°C (39.2°F) or below, the cold warning symbol will display. The cold warning symbol is in the form of a snow flake and will flash on and off, five times at a frequency of 2Hz. An audible warning will also be emitted by the instrument cluster to alert the driver. After the fifth flash of the symbol, the display will continue to display the snow flake symbol in place of 'EXT' until a temperature of 6°C (42.8°F) or higher is measured.

The cold warning will only be displayed once during an ignition cycle. If the ambient temperature rises to 6°C (42.8°F) or above and then subsequently falls to 4°C (39.2°F) or below during the same ignition cycle, the warning will be repeated.

If the display mode changes to a mode which does not display the ambient temperature during the warning period, the

cold warning will be cancelled.

INFORMATION DISPLAY

The information display is an Liquid Crystal display (LCD) located on the right hand side at the bottom of the instrument cluster. The LCD has a viewable area of 43 mm X 20 mm with a seven segment display. When active, the information display is illuminated as follows:

- Pressing of the Trip button will cause the odometer to illuminate and the odometer and trip distance only will be displayed for a period of 20 seconds
- Ignition on will cause the odometer to illuminate with the full functions displayed

When the ignition is switched on and the lights are off, the information display will illuminate at full, normal brightness, controlled by the ambient light sensor. If the lights are switched on, the intensity of illumination is reduced to a level determined by the PWM dimmer control located on the lighting control switch.

The data shown in the information display is provided to the instrument cluster from other subsystem modules in the form of CAN bus messages. The odometer and trip meter information is derived from the ABS module, the transmission information is supplied from the transmission control module for automatic transmission vehicles or from the transfer box control module for manual transmission.

Odometer

The odometer displays the total distance which the vehicle has travelled. This is calculated by a microprocessor in the instrument cluster using wheel speed messages from the ABS module.

The odometer display can show 6 characters and distances up to 999,999 miles or kilometres. When the ignition is switched off, the odometer reading can be displayed by pressing the trip rest button. The reading will illuminate for a short time before extinguishing.

The total distance travelled is recorded in the instrument cluster Electronically Erasable Programmable Read Only Memory (EEPROM) and the Random Access Memory (RAM). This ensures that the total distance is not lost if the battery is disconnected. The distance is read and stored every 2 kilometres or miles travelled.

Trip Meter

The trip meter displays the total distance which the vehicle has travelled since the last trip meter reset. The trip meter display can show four characters, with a decimal point separating the fourth character which displays 1/10th mile or kilometre. The trip meter can display up to 999.9 miles or kilometres. When this figure is exceeded, the trip display starts again from 000.0 miles or kilometres.

The trip meter can be reset by pressing the trip reset button on the instrument cluster for two seconds. The trip data is stored in the instrument cluster RAM but not in the EEPROM, therefore, if the battery is disconnected, the trip data will be lost and the display will show 000.0 when the battery is reconnected.

Gear Position Indicator

Automatic Transmission

The gear position indicator shows the current selector lever position on vehicles with automatic transmission. During normal operation the display will show 'P' for Park, 'R' for reverse, 'N' for Neutral and 'D' for Drive.

When the transmission is operated in 'CommandShift™' mode, the display shows the currently selected manual gear; 1, 2, 3, 4, 5 or 6.

The gear position indicator can also display automatic transmission fault information. The following letters are displayed to relay the fault type to the driver:

- 'F' - Transmission Control Module (TCM) has a fault and is using the default limp home mode
- 'H' - TCM has a fault, the default limp home mode is active and the transmission has reached an overheat temperature of more than 137°C (278°F)
- 'E' - TCM has disabled CAN bus transmission because of a CAN bus failure or because of a transmission

overheat temperature of more than 140°C (284°F).

Manual Transmission

The gear position indicator shows the current gear lever position on vehicles with manual transmission. During normal operation the display will show 1, 2, 3, 4, 5, 6 and 'N' for neutral.

The gear position indicator can also display manual transmission fault information. The following letter is displayed to relay a fault to the driver:

- 'E' - The transmission gear position sensor has developed a fault.

PRND and Sport Display

The PRND display is only active on vehicles with automatic transmission. The instrument cluster receives CAN bus messages from the TCM for the current selector lever position. This information is used by the instrument cluster to display the current selector lever position.

If the transmission selector lever is moved to the SPORT position, the term 'Sport' is displayed in the LCD. If the selector lever is subsequently moved forward or backwards the transmission operates in 'CommandShift™' mode, the 'Sport' display goes off and the gear position indicator displays the current selected manual gear.

Service Interval Indicator (SII)

The service interval indicator is displayed in the information display. This provides information to the driver warning of an impending service requirement.

The service interval is displayed for 3 seconds when the ignition is switched on. The service interval is reset by the dealer using T4 or a manual reset procedure and, once set, counts down the mileage and time in days to the next service.

The service interval varies depending on market and vehicle engine fitment. In some Eastern European countries, South American countries, Middle East and African countries and some Asia Pacific countries the SII is disabled.

Remaining Distance

The remaining distance is calculated by the instrument cluster by using the current odometer value and the last service reset odometer value. The instrument cluster uses these two values to calculate the distance remaining to the next service. The remaining distance value is used to display the oil service requirement.

The mileage is displayed to the nearest 50 Km or 25 miles depending on the market configuration of the vehicle. If the service interval passes zero without being reset, the instrument pack will continue counting down and the remaining distance display will show a negative (-) value.

The trigger point for displaying the remaining distance is 600 miles (1000 km) or 30 days or less depending on the market configuration of the vehicle and is contained within the Car Configuration File (CCF).

Driver Alert

When an ignition on signal is received by the instrument cluster, the cluster software performs a check to establish if the driver service alert thresholds have been reached. If a driver alert threshold has been enabled, the applicable service information will be displayed in the information display for 5 seconds. After the 5 second display has elapsed, the information display shows the normal odometer and trip information.

Reset Procedure

There are two ways of resetting the service interval indicator. T4 can be connected to the vehicle and diagnostic routine performed or a manual reset procedure can be performed using the trip reset button on the instrument cluster.

Manual Reset Procedure

- Press and hold the trip reset button.
- Turn the ignition switch on to the ignition position II.
- If the SII function is set in the CCF the information display will flash 'SERVICE' for 5 seconds and then display 'SERVICE' constantly. If the SII function is not set in the CCF the information display will show the normal

- odometer and trip information.
- The software will check if remaining distance service is enabled (threshold reached). If the remaining distance service is not enabled the procedure will continue from step K.
- If the trip reset button is released within 10 seconds of entering the reset mode, the information display will show 'OIL'. If the trip reset button is not released after 10 seconds, the display will show the next service type and distance/days to next service and the instrument cluster will exit the manual reset procedure.
 - If the trip reset button is not released after 10 seconds, the display will show the next service type and distance/days to next service and the instrument cluster will exit the manual reset procedure.
- If the oil service value reset is not required, press the trip reset button within 10 seconds of releasing it in step E and hold for less than 5 seconds and proceed to step H. This will by-pass the oil service reset procedure.
- If the oil service value is to be reset, press the trip reset button within 10 seconds of releasing it and hold for more than 5 seconds. The information display will show 'RESET' for 5 seconds and then reset the oil service value. If reset is not possible, the information display will show 'CANNOT RESET' for 5 seconds.
 - If reset is not possible, the information display will show 'CANNOT RESET' for 5 seconds.
- The information display will show 'INSPECT'.
- If the inspection service value reset is not required, press the trip reset button within 10 seconds of releasing it in step G and hold for less than 5 seconds and proceed to step K. This will by-pass the inspection service reset procedure. If the trip reset button is not pressed after 10 seconds, the display will show the next service type and distance/days to next service and the instrument cluster will exit the manual reset procedure.
 - If the trip reset button is not pressed after 10 seconds, the display will show the next service type and distance/days to next service and the instrument cluster will exit the manual reset procedure.
- If the inspection service value is to be reset, press the trip reset button within 10 seconds of releasing it and hold for more than 5 seconds. The information display will show 'RESET' for 5 seconds and then reset the inspection service value. If reset is not possible, the information display will show 'CANNOT RESET' for 5 seconds.
 - If reset is not possible, the information display will show 'CANNOT RESET' for 5 seconds.
- The software will check if date service is enabled (threshold reached). If the date service is not enabled the procedure will continue from step O.
- The information display will show 'DATE'.
- If the date service value reset is not required, press the trip reset button within 10 seconds of releasing it in step I and hold for less than 5 seconds and proceed to step O. This will by-pass the date service reset procedure. If the trip reset button is not pressed after 10 seconds, the display will show the next service type and distance/days to next service and the instrument cluster will exit the manual reset procedure.
 - If the trip reset button is not pressed after 10 seconds, the display will show the next service type and distance/days to next service and the instrument cluster will exit the manual reset procedure.
- If the date service value is to be reset, press the trip reset button within 10 seconds of releasing it and hold for more than 5 seconds. The information display will show 'RESET' for 5 seconds and then reset the date service value.
- The information display will show 'END'.
- If the trip reset button is pressed within 10 seconds and pressed for less than 5 seconds the procedure will return to step E. If the trip reset button is not pressed after 10 seconds, the display will show the next service type and distance/days to next service and the instrument cluster will exit the manual reset procedure.
 - If the trip reset button is not pressed after 10 seconds, the display will show the next service type and distance/days to next service and the instrument cluster will exit the manual reset procedure.
- If the trip reset button is pressed within 10 seconds and pressed and held for more than 5 seconds the information display will show the next service type and distance/days to next service and the instrument cluster will exit the manual reset procedure.

CUSTOMER SETTINGS

The customer settings procedure allows the driver to adjust certain vehicle settings to change the functionality of selected vehicle functions. The customer settings feature is only available on vehicles with a high line instrument cluster.

The settings are stored in the instrument cluster EEPROM. Each vehicle has a factory set car configuration file which defines the settings for selected vehicle functions. The factory settings are retained and the system can be changed back to the factory default settings by either the dealer or the driver at any time.

NOTE :

The factory default settings may differ between market configuration of the vehicle.

The customer settings system is controlled by CAN bus message inputs and outputs from the instrument cluster, the Central Junction Box (CJB), the ABS Module and the Integrated Head Unit (IHU). The following table details the modules and their associated function within the settings system.

Module	Output Information
Central Junction Box (CJB)	Remote handset identity

Ignition key position	
ABS Module	Vehicle moving
Instrument Cluster	Settings Status
Car configuration parameters	
Driver identity	
Integrated Head Unit (IHU)	Scan UP button pressed
Scan DOWN button pressed	
Volume + button pressed	
Volume - button pressed	
Distance unit request	
Consumption unit request	
Language request	

The following systems/functions support the customer settings system.

- HEVAC control module
- Central Junction Box
- Instrument cluster
- Memory control module
- Navigation control module
- Interior lights (CJB function)
- Exterior lights (CJB function)
- Central door locking (CJB function).

Customer Settings Functionality

The customer settings menu is entered by pressing and releasing the trip computer button on the left hand multifunction switch stalk. For reasons of safety, the settings menu will only be displayed if the vehicle is stationary (vehicle speed signal must be below 1.8 mph (3 km/h)). This is to prevent driver distraction when operating the system. At speeds above 1.8 mph (3 km/h) the settings screen is not displayed.

Once the instrument cluster has entered the settings mode, the selections can be scrolled through in turn using the ICE radio control switches located on the steering wheel. The radio search up and down buttons |<< >>| allow for selection through the menus. The radio volume switches +/- select the values for the current menu displayed.

When the settings menu is entered, the message center shows the 'SETTINGS' welcome message.

This display allows the driver the option of scrolling through the settings menus or exiting the settings function.

The driver can select the first settings menu by pressing the radio search button >>| or the last settings menu by pressing the radio search button |<<. After a selection is made, the setting will be saved by either proceeding to the next menu or exiting the customer settings menu. Pressing the trip computer button at any time will exit the customer settings system.

If a menu parameter is changed, it will be automatically saved when the next menu is selected or the customer settings menu is exited.

TRIP DISTANCE UNITS

The 'TRIP DISTANCE UNITS' menu allows the driver to adjust the units in which the trip distance is displayed in the trip computer display. The units can be changed using the steering wheel + or - buttons.

The menu allows the driver to select the following units:

- MILES (mph) (default)
- KM (Km/h)

FUEL USAGE UNITS

The 'FUEL USAGE UNITS' menu allows the driver to change the units in which the fuel consumption is displayed in the

trip computer. The units can be changed using the steering wheel + or - buttons.

The menu allows the driver to select the following units:

- MPG (default)
- LITRE/100KM
- KM/LITRE

TEMPERATURE DISPLAY UNITS

The 'TEMP. DISPLAY UNITS' menu allows the driver to change the units in which the external temperature is displayed in the message center. The units can be changed using the steering wheel + or - buttons.

The menu allows the driver to select the following units:

- Degrees C (default)
- Degrees F

PROGRAMMABLE OVERSPEED WARNING

The 'OVERSPEED WARNING' menu allows the driver to set the overspeed warning threshold. The threshold can be changed using the steering wheel + or - buttons.

The menu allows the driver to select the following:

- KM/H - 10 to 250 Km/h in increments of 5 Km/h. The default value is OFF.
- MPH - 10 to 140 mph in increments of 5 mph. The default value is OFF.

If the units are changed from miles to kilometres or visa versa, the overspeed warning value will go to the default OFF value.

HEADLAMP TIMER

The 'HEADLAMP OFF DELAY' menu allows the driver to adjust the delay period for the headlamp delay after the ignition is switched off function. The delay period can be changed using the steering wheel + or - buttons.

The menu allows the driver to select the following delay periods (in seconds):

- 30 (default)
- 60
- 120
- 240

DOORS LOCK ON DRIVEAWAY

The 'DRIVE AWAY DOOR LOCKING' menu allows the driver to disable or enable the door automatic lock function. The feature can be changed to on or off using the steering wheel + or - buttons.

The menu allows the driver to select the following:

- OFF
- ON (default)

MIRROR DIP IN REVERSE (if fitted)

The 'REVERSE MIRROR DIP' menu allows the driver to disable or enable the automatic exterior mirror dip in reverse function. The feature can be changed to on or off using the steering wheel + or - buttons.

The menu allows the driver to select the following:

- OFF
- ON (default)

LAZY ENTRY (if memory module fitted)

The 'LAZY ENTRY' menu allows the driver to disable or enable the lazy entry function which moves the exterior door mirror and the seat position to that set by the driver. The memory positions are stored in the memory module and the individual settings are recognised from the ignition key identification. The feature can be changed to on or off using the steering wheel + or - buttons.

The menu allows the driver to select the following:

- OFF (default)
- ON

RESTORE FACTORY SETTINGS

The 'RESTORE DEFAULT SETTINGS' menu allows the driver to change all customer settings menus to the factory default settings. The settings are programmed into the Car Configuration File (CCF) and cannot be overwritten. The defaults can be reset by selecting 'Yes' using the steering wheel + or - buttons.

The menu allows the driver to select the following:

- YES
- NO (default)

AUDIBLE WARNINGS

The instrument cluster can generate audible warnings to alert the driver to a displayed message and change of vehicle operating condition. The audible warning is generated by a sounder located within the instrument cluster. The audible warnings are categorised into one of three types; warning message \ indicator lamp alert tones, system status tones and turn signal indicator status tones. The following warning chimes are produced by various vehicle subsystems:

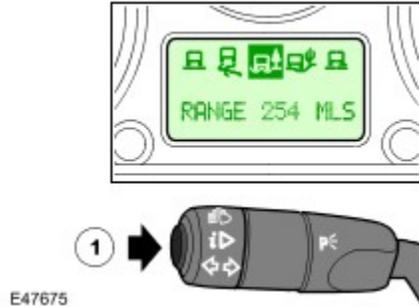
- Lights on warning
- Seat belt warning
- Turn signal indicator/hazard warning indicator warning
- Overspeed warning
- Seat memory warning
- Front parking aid warning
- Alarm system warning
- Key in warning
- Engine coolant over temperature warning
- Air suspension warning
- Tyre pressure monitoring warning
- Adaptive cruise warning
- Electronic park brake warning
- Automatic transmission warning
- Transfer box warning
- Rear differential warning
- Brake pad wear warning
- Low washer fluid warning
- ABS system fault warning
- Brake system fault warning
- Dynamic stability control fault warning
- Hill descent control fault warning
- Hill descent control active warning
- Hill descent control information warning
- Supplementary restraint system warning
- Engine management system warning
- Low engine oil pressure
- Trip computer overspeed.

The audible warning takes the form of either a single chime, a double chime or a repeating chime. The audible warnings are initiated by a CAN bus message from the requesting subsystem control module or by the instrument cluster software.

TRIP COMPUTER

General

The high line instrument cluster contains software which enables the use of an on-board trip computer. The computer allows the driver to access information for current fuel usage, current journey length, average speed and estimated distance on fuel remaining. The information is displayed in the lower part of the message center, providing no other high priority messages are being displayed. If no messages are being displayed or the displayed message is of a low priority, the trip computer will be permitted use of the message center.



Item	Part Number	Description
1	-	Trip computer button

The driver is able to access the computer and change some parameters which control the information display using the trip computer button on the left hand multifunction switch stalk.

Trip Computer Functionality

When the engine is started the instrument cluster enters a diagnostic mode and displays a 'System Check in Progress' message in the message center. Once complete, the instrument cluster then displays any warning messages, i.e.; DRIVER'S DOOR OPEN, in priority order.

When any applicable messages have been displayed the message center displays information in mode 3E. Pressing the trip computer button once will display the customer settings menu, if the vehicle is stationary. A second press of the button will exit the settings menu and the trip information will be displayed. If the vehicle is moving the settings menu display will be ignored and the trip computer information will be displayed in the following order:

- **Trip Distance** The trip distance since the last reset is displayed. Pressing the trip computer button for more than 2 seconds will reset the trip distance. The display will show dashes for 3 seconds and then change to zeros. Pressing the trip computer button for less than 2 seconds will change the display to the next feature.
 - The trip distance since the last reset is displayed.
 - Pressing the trip computer button for more than 2 seconds will reset the trip distance. The display will show dashes for 3 seconds and then change to zeros.
 - Pressing the trip computer button for less than 2 seconds will change the display to the next feature.
- **Range** The range is displayed showing the distance which can be travelled using the fuel remaining in the fuel tank. Pressing the trip computer button for less than 2 seconds will change the display to the next feature.
 - The range is displayed showing the distance which can be travelled using the fuel remaining in the fuel tank.
 - Pressing the trip computer button for less than 2 seconds will change the display to the next feature.
- **Average Fuel Consumption** The average fuel Consumption is displayed. Pressing the trip computer button for more than 2 seconds will reset the average fuel Consumption. The display will show dashes for 3 seconds and then change to zeros. Pressing the trip computer button for less than 2 seconds will change the display to the next feature.
 - The average fuel Consumption is displayed.
 - Pressing the trip computer button for more than 2 seconds will reset the average fuel Consumption. The display will show dashes for 3 seconds and then change to zeros.
 - Pressing the trip computer button for less than 2 seconds will change the display to the next feature.
- **Average Speed** The average speed is displayed. Pressing the trip computer button for more than 2 seconds will reset the average speed. The display will show dashes for 3 seconds and then change to zeros. Pressing the trip computer button for less than 2 seconds will change the display to the next feature.
 - The average speed is displayed.
 - Pressing the trip computer button for more than 2 seconds will reset the average speed. The display will show dashes for 3 seconds and then change to zeros.

- Pressing the trip computer button for less than 2 seconds will change the display to the next feature.
- **Overspeed Warning** The overspeed warning is only displayed if enabled in the customer settings. Pressing the trip computer button for more than 2 seconds will turn the overspeed warning off. A second press of the trip computer button for more than 2 seconds will enable the overspeed warning. Pressing the trip computer button for less than 2 seconds will change the display to the next feature.
 - The overspeed warning is only displayed if enabled in the customer settings.
 - Pressing the trip computer button for more than 2 seconds will turn the overspeed warning off. A second press of the trip computer button for more than 2 seconds will enable the overspeed warning.
 - Pressing the trip computer button for less than 2 seconds will change the display to the next feature.
- **Warning Messages** Any warning messages are now displayed. If more than one message is present, each message will be shown for 3 seconds. When all messages have been shown, the display will go blank momentarily, before the display reverts to the mode 3E. Pressing the trip computer button for less than 2 seconds during the warning message display will cancel the trip computer and the message center will display the mode 3E.
 - Any warning messages are now displayed. If more than one message is present, each message will be shown for 3 seconds. When all messages have been shown, the display will go blank momentarily, before the display reverts to the mode 3E.
 - Pressing the trip computer button for less than 2 seconds during the warning message display will cancel the trip computer and the message center will display the mode 3E.