

Ride and Handling Optimization

Overview

Ride and handling optimization incorporates the terrain response system which links a number of modules around the vehicle to give the best combination of settings in the different systems.

For information on the description and operation of the system:

[Ride and Handling Optimization](#)

Inspection and Verification

- 1 . Verify the customer concern.
- 2 . Visually inspect for obvious mechanical or electrical faults.

Mechanical	Electrical
<ul style="list-style-type: none"> ● Tire condition, pressures, etc ● Driveline components (correct fitment, damage, etc) ● Engine components (correct fitment, damage, etc) ● Transmission components (correct fitment, damage, etc) ● Suspension components (correct fitment, damage, etc) 	<ul style="list-style-type: none"> ● Fuses ● Harnesses/Connectors ● Terrain response module ● Engine control module (ECM) ● Transmission control module (TCM) ● Transfer case control module ● ABS control module ● Rear differential control module ● Dynamic suspension control module ● Controller area network (CAN) circuits

3 . If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.

4 . Use the approved diagnostic system or a scan tool to retrieve any diagnostic trouble codes (DTCs) before moving onto the symptom chart or DTC index.

For engine control module DTCs: or For transmission control module DTCs: or For dynamic suspension DTCs: For ABS DTCs: or

[Electronic Engine Controls](#)

[Electronic Engine Controls](#)



[Automatic Transmission](#)

[Automatic Transmission](#)

[Vehicle Dynamic Suspension](#)

[Anti-Lock Control - Traction Control](#)

[Anti-Lock Control - Stability Assist](#)



Make sure that all DTCs are cleared following rectification.

Symptom chart

Because the overall function of the system is dependent on sub-systems, it is possible to misinterpret displays in the message center as being terrain response faults when they are actually a result of a fault in one of the sub-systems.

Refer to the table below for help in deciding when to investigate terrain response faults and when the fault is likely to be in a sub-system.

Symptom	Description	Possible causes	Action
			For details of the

Message center display indicating a sub-system fault	The message center indicates to the driver that a fault has occurred and in which sub-system	<ul style="list-style-type: none"> Any sub-system fault supported by the message center 	available messages: Information and Message Center Carry out a complete vehicle DTC read and follow the diagnostic routine(s) indicated.
Message center display: System fault special programs not available, terrain response switch operation normal	This message will display when a sub-system fault has occurred if the driver attempts to change the special program, and at each ignition on cycle for 5 seconds until the fault is rectified	<ul style="list-style-type: none"> Any sub-system fault supported by the message center 	For details of the available messages: Information and Message Center Carry out a complete vehicle DTC read and follow the diagnostic routine(s) indicated.
Message center display: System fault special programs not available, terrain response switch LEDs inoperative	This combination of messages will display when a terrain response module or switch fault has occurred if the driver attempts to change the special program, and at each ignition on cycle for 5 seconds until the fault is rectified	<ul style="list-style-type: none"> Terrain response module fault Terrain response switch fault 	Check for DTCs (refer to the index below). Follow the diagnostic routine indicated.
Message center display: System fault special programs not available, ALL terrain response switch LEDs illuminated	CAN circuit errors	<ul style="list-style-type: none"> CAN circuit: short circuit to ground CAN circuit: short circuit to power CAN circuit: high resistance 	Carry out a complete vehicle DTC read and follow the diagnostic routine(s) indicated.
Special program changes not available	User error	<ul style="list-style-type: none"> Engine not running Rock crawl selected with transfer box in high range Special program change attempted with ABS or DSC active This includes ABS cycling as part of HDC Special program change attempted with an overheat condition present in the center or rear differential 	Ride and Handling Optimization Make sure that the driver is familiar with the correct operation of the system.

DTC index

NOTE:

Generic scan tools may not read the codes listed, or may read only 5-digit codes. Match the 5 digits from the scan tool to the first 5 digits of the 7-digit code listed to identify the fault (the last 2 digits give extra information read by the

manufacturer-approved diagnostic system).

DTC	Description	Possible causes	Action
C1A0046	Terrain response control module	<ul style="list-style-type: none"> Control module EEPROM fault 	Refer to the warranty policy and procedures manual if a module is suspect.
C1A0196	LED circuit	<ul style="list-style-type: none"> LED circuit: short circuit to ground LED circuit: high resistance 	Check the LED and circuits. Refer to the electrical guides.
C1A0294	Rotary encoder stuck	<ul style="list-style-type: none"> Rotary switch detected between detents for more than 1 minute 	Check the operation of the rotary switch.
U007388	Control module communication bus	<ul style="list-style-type: none"> CAN bus off 	Communications Network
U010087	Lost communication with the ECM	<ul style="list-style-type: none"> CAN module status signals not received from the ECM in the specified time 	Communications Network
U010187	Lost communication with the TCM	<ul style="list-style-type: none"> CAN module status signals not received from the TCM in the specified time 	Communications Network
U010287	Lost communication with the transfer case control module	<ul style="list-style-type: none"> CAN module status signals not received from the transfer case control module in the specified time 	Communications Network
U012287	Lost communication with the anti-lock brake (ABS) module	<ul style="list-style-type: none"> CAN module status signals not received from the ABS module in the specified time 	Communications Network
U013287	Lost communication with the air suspension control module	<ul style="list-style-type: none"> CAN module status signals not received from the air suspension control module in the specified time 	Communications Network
U015587	Lost communication with the instrument cluster module	<ul style="list-style-type: none"> CAN minute counter signal not received from the instrument cluster in the specified time 	Communications Network
U030055	Terrain response control module	<ul style="list-style-type: none"> Software incompatibility Not configured 	Configure the module using the approved diagnostic system.
U040194	Invalid data received from the ECM	<ul style="list-style-type: none"> Engine management status signals received are inconsistent with the mode indicated EMS fault 	Check for engine management DTCs. Electronic Engine Controls Electronic Engine Controls Electronic Engine Controls
U040294	Invalid data received from the TCM	<ul style="list-style-type: none"> Transmission status signals received are inconsistent with the mode indicated Transmission fault 	Check for transmission DTCs. Automatic Transmission Automatic Transmission Automatic Transmission
U040394	Invalid data received from the transfer case control module	<ul style="list-style-type: none"> Transfer case status signals received are inconsistent with the mode indicated Transfer case fault 	Check for transfer case DTCs. Four-Wheel Drive Systems
U041694	Invalid data received from the vehicle dynamics control module	<ul style="list-style-type: none"> Vehicle dynamics status signals received are inconsistent with the mode indicated Vehicle dynamics system fault 	Check for dynamic suspension DTCs. Vehicle Dynamic Suspension

U042194	Invalid data received from the dynamic suspension control module	<ul style="list-style-type: none">• Dynamic suspension system fault	Check for dynamic suspension DTCs. Vehicle Dynamic Suspension
U1A034A	Vehicle configuration	<ul style="list-style-type: none">• Incorrect module installed	Configure the module using the approved diagnostic system.
U1A1449	CAN initialization failure	<ul style="list-style-type: none">• Internal electronic fault	Communications Network