

2000-01 SUSPENSION**Electronic - Expedition & Navigator****DESCRIPTION**

NOTE: Electronic suspension system may also be referred to as load leveling control system or vehicle dynamic suspension system.

Two optional computer controlled air suspension systems are available. Rear Air Suspension (RAS) system, available only on 2WD models, replaces conventional steel coil rear springs with 2 air springs providing low spring rates for improved ride and automatic rear load leveling. Air springs are mounted on rear axle spring seats and to frame upper spring seats, much like conventional steel coil springs.

Four Wheel Air Suspension (4WAS) system is available only on 4WD models. To control ride height at all 4 corners of vehicle, RAS system is combined with front air shock absorbers. Other components include air compressor assembly, air lines, solenoids, height sensor(s) and Generic Control Module (GEM). On both systems, ride height is determined by GEM in response to load, road and driving condition inputs received from 2 suspension mounted height sensors (1 sensor on RAS system), Vehicle Speed Sensor (VSS) and Throttle Position (TP) sensor.

COMPONENT LOCATIONS**Air Compressor Assembly**

Assembly is located on right side of engine compartment, between windshield washer reservoir and headlight.

Air Compressor Relay

Relay is located on right side of engine compartment, under air compressor assembly.

Air Compressor Vent Solenoid

Vent solenoid is part of air compressor assembly.

Air Shock Absorber

Air shock absorbers are located at front corners of vehicle, between frame and axle.

Air Suspension Control Module

Air suspension control module is located behind right side of instrument cluster panel.

NOTE: Air suspension control module may also be referred to as simply a control module or 4 Wheel Air Suspension (4WAS) module.

Air Suspension Height Sensor (Front)

Front height sensor is located between frame and left upper control arm bracket.

Air Suspension Height Sensor (Rear)

Rear height sensor is located between crossmember No. 5 and rear axle panhard rod (track bar).

Air Suspension Switch

Air suspension switch is located under glove box, in right kick panel.

Air Suspension Warning Light

Warning light is located in instrument cluster.

Data Link Connector (DLC)

DLC is located under steering column.

Front Air Fill Solenoid

Front air fill solenoid is located in engine compartment, near transmission oil cooler.

Gate Solenoid

Gate solenoid is located in front of A/C condenser.

Generic Electronic Module (GEM)

GEM is located behind center of instrument panel.

Powertrain Control Module (PCM)

PCM is located on right side of engine compartment.

Rear Air Fill Solenoid

Rear air fill solenoid is located on left frame rail, near center of vehicle.

Vehicle Speed Sensor (VSS)

VSS is located at rear of transmission.

OPERATION

Both air suspension systems are operational with ignition switch in RUN position, and have limited operation for 40 minutes after ignition is turned off. Air suspension switch, located under glove box in right kick panel, must be turned off when vehicle is being hoisted, towed or jump-started.

Air suspension warning light is located in instrument cluster. Warning light stays on when air suspension is turned off or a system malfunction is detected.

Air required for leveling vehicle is distributed from air compressor to front and rear fill solenoids through nylon air lines. Front air system can be pneumatically separated from side to side by control module

activation of front gate solenoid. This separation provides vehicle stability during roll conditions.

For safety during loading and unloading, vehicle height is memorized and maintained when any door is opened. Vehicle will return to commanded height when doors are closed or vehicle speed exceeds 10 MPH.

AIR COMPRESSOR ASSEMBLY

Air compressor assembly consists of an air compressor and vent solenoid. Neither is serviceable. Air compressor assembly is located on right side of engine compartment between windshield washer reservoir and headlight. Air compressor is powered through a relay, which is controlled by air suspension control module.

Pressurized air from compressor passes through a drier containing a drying agent. Moisture is removed from drier when vented air passes out of system during vent operation. Drier may be replaced separately.

AIR COMPRESSOR RELAY

Air compressor relay is mounted on bracket near right headlight. Relay, solid state type controlled by air suspension control module, provides high current flow required to operate air compressor motor.

AIR SUSPENSION CONTROL MODULE

Air suspension control module may also be referred to as simply control module or 4 Wheel Air Suspension (4WAS) module. Air suspension control module is located behind right center of instrument cluster panel. Module controls air compressor and all system solenoids. Control module also provides power to height sensors. Control module outputs are controlled by monitoring height sensors, Vehicle Speed Sensor (VSS), steering sensor, acceleration input, door ajar signal, 2 transfer case signals (on 4WD models) and brake switch feedback signals. Control module conducts all fail-safe strategies and incorporates self-diagnostic and communication capabilities.

AIR SHOCK ABSORBER

Two system-specific front air shock absorbers are used in 4WD system. Air shock absorber is not repairable. If one fails, both should be replaced.

AIR SPRING SOLENOID VALVE

Air spring solenoid valve allows air to enter or exit rear air spring. Solenoid valve receives signals from air suspension control module. Air spring solenoid valve is located on top of air spring.

AIR SUSPENSION HEIGHT SENSOR

Front air suspension height sensor is located between frame and left upper control arm bracket. Rear height sensor is located between crossmember No. 5 and rear axle panhard rod (track bar). Height sensors send voltage signals to control module. These signals, combined with other inputs, help control module adjust ride height as conditions require.

FILL SOLENOID

Front Fill Solenoid (4WD)

Front fill solenoid connects air compressor to front air shock absorbers. When energized, riding height of body can be modified, relative to front axle. Front fill solenoid can be used to bleed air from front shock absorbers.

Rear Fill Solenoid (All Models)

Rear fill solenoid connects air compressor to rear air springs. When energized, along with front gate solenoid, riding height of body can be modified, relative to rear axle.

GATE SOLENOID

Gate solenoid may also be referred to as front gate solenoid. Gate solenoid, located in front of A/C condenser, provides pneumatic isolation of right and left sides of vehicle. This is necessary to prevent transfer of air from right side to left side shock absorbers during roll conditions. When solenoid is off, right and left sides are separated, allowing a pressure differential to be generated. In a turn, increased air pressure in outermost shock absorbers raises two outermost spring rates, decreasing roll.

STEERING SENSOR

Steering sensor, located on steering column, provides steering rates and position to air suspension control module. Signals are provided through 2 sensors, steering sensor "A" and steering sensor "B".

ADJUSTMENTS**INFLATING/DEFLATING AIR SUSPENSION SYSTEM**

NOTE: **Inflating or deflating air suspension system is necessary to adjust ride height.**

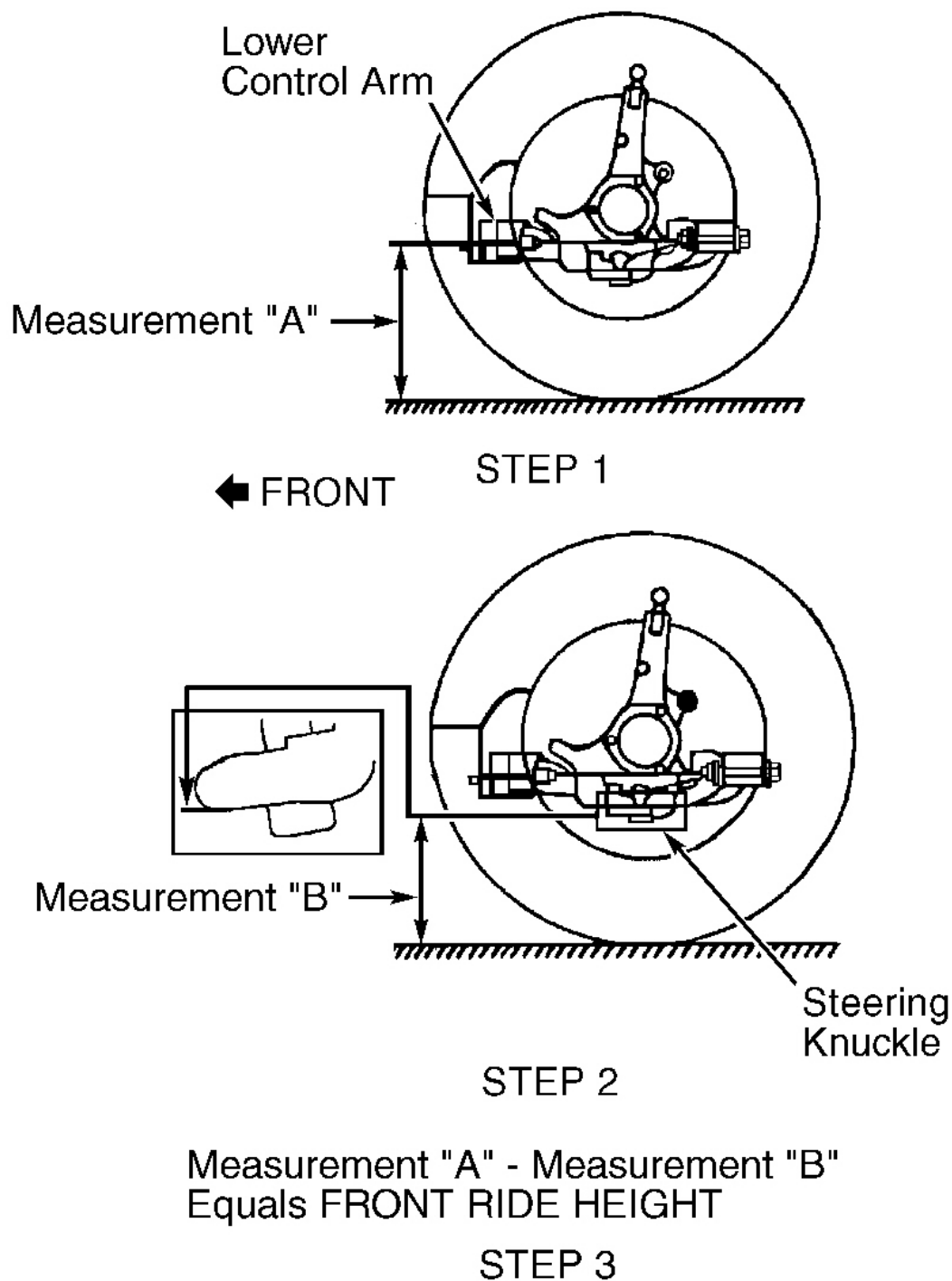
1. Turn ignition on. Connect New Generation Star (NGS) Tester (007-00500) to Data Link Connector (DLC). DLC is located under steering column. Select proper vehicle, year and engine type.
2. Select AIR SUSPENSION CONTROL MODULE under active command mode. Turn on following active commands as necessary:
 - Select VENT FRNT to lower front of vehicle.
 - Select LIFT FRNT to raise front of vehicle.
 - Select VENT REAR to lower rear of vehicle.
 - Select LIFT REAR to raise rear of vehicle.

RIDE HEIGHT ADJUSTMENT (FRONT)

1. Turn ignition on. Connect New Generation Star (NGS) Tester (007-00500) to Data Link Connector (DLC). DLC is located under steering column. Select proper vehicle, year and engine type.
2. Select 4WAS-AIR SUSP/EVO (4x2 and 4x4) module. On NGS tester, trigger through warning message and reset FRONT and REAR by turning from OFF to ON. On later version NGS tester, only reset FRONT.
3. Back out torsion bar adjuster bolt 1.57" (40 mm). Fully deflate front air shock absorbers. See **INFLATING/DEFLATING AIR SUSPENSION SYSTEM** .
4. Raise vehicle on hoist with frictionless plates to support front wheels. Measure distance between

center of lower control arm front bolt and ground (STEP 1 in illustration). See **Fig. 1** . Measure distance between bottom of steering knuckle and ground (STEP 2 in illustration). Subtract smaller measurement from larger measurement. This is ride height measurement. Ride height should be 2.99-3.22" (76-82 mm). If ride height is not as specified, tighten or loosen torsion bar adjusting bolt as required.

5. After mechanical ride height adjustment is complete, select SAVE CALIBRATION VALUES under ACTIVE COMMAND MODES menu. Trigger through warning message and save FRONT by turning from OFF to ON.



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Fig. 1: Adjusting Front Ride Height
Courtesy of FORD MOTOR CO.

RIDE HEIGHT ADJUSTMENT (REAR)

NOTE: Rear ride height adjustment procedure is same on 4WD and 2WD applications.

1. Turn ignition on. Connect New Generation Star (NGS) tester (007-00500) to Data Link Connector (DLC). DLC is located under steering column.
2. Measure rear ride height on driver's side between bottom of frame to rear jounce bumper bolt at rear side of head base. See **Fig. 2**.
3. Using NGS tester, select ACTIVE COMMAND MODES. Raise or lower vehicle by using active command LIFT_REAR or VENT_REAR as necessary. Adjust rear ride height to 5.8" (146.8 mm). See **INFLATING/DEFLATING AIR SUSPENSION SYSTEM**.
4. On right side of NGS tester screen, monitor rear height sensor voltage. Loosen rear height sensor ball stud nut on track bar. Adjust height sensor up or down until 2.58-2.64 volts is indicated. Tighten ball stud nut.

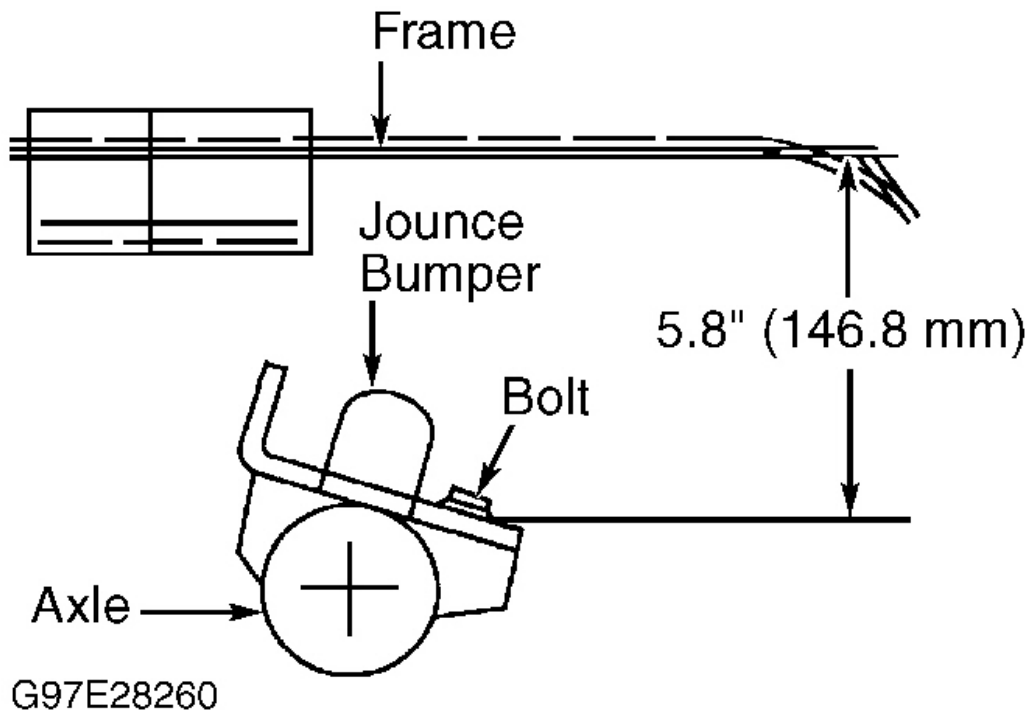


Fig. 2: Adjusting Rear Ride Height
Courtesy of FORD MOTOR CO.

PURGING AIR SUSPENSION SYSTEM

NOTE: If oil or water is found in air suspension system, air lines and components must be purged. If oil is found, carefully inspect affected components for deterioration and operation. Replace as necessary.

Front Air System

1. Disconnect both ends of air line between air drier and front fill solenoid. Connect shop air to air line, and blow out any fluid. Reconnect air line.
2. Disconnect air line to front fill solenoid at compressor air drier. Disconnect air line from right front air shock absorber. Connect New Generation Star (NGS) Tester (007-00500) to Data Link Connector (DLC) located under steering column. Select active command mode for proper vehicle, year and engine. Select 4WAS FRNT_FILL ON. Connect shop air to air line, and blow out any fluid. Reconnect air line to right front air shock absorber.
3. Disconnect air line from left front air shock absorber. Using NGS tester, select active command mode 4WAS FRNT_FILL ON and GATEVALVE ON. Connect shop air to air line, and blow out any fluid.
4. If oil is found, replace both front shock absorbers and compressor air drier. See **FRONT SHOCK ABSORBERS** and **COMPRESSOR AIR DRIER** under REMOVAL & INSTALLATION. Reconnect air lines.

Rear Air System

1. Disconnect both ends of air line between air drier and rear fill solenoid. Connect shop air to air line, and blow out any fluid. Reconnect air line.
2. Disconnect air line to rear fill solenoid at compressor air drier. Disconnect air line from both rear air springs. Using NGS tester, select active command mode for proper vehicle, year and engine. Select 4WAS_REAR_FILL ON. Connect shop air to air line and blow out any fluid. Replace compressor air drier. See **COMPRESSOR AIR DRIER** under REMOVAL & INSTALLATION. Reconnect air lines.

DIAGNOSIS & TESTING

NOTE: During testing, connect battery charger. Use of air compressor will drain battery if used for extended periods.

TESTING PROCEDURE

NOTE: Air suspension control module cannot recognize some system failures. If no DTCs exist, but symptoms exist, match symptom with listed descriptions. See **ELECTRONIC AIR SUSPENSION SYSTEM SYMPTOM INDEX** table.

Perform **VISUAL CHECKS** . Service any faults found. Perform **PRETEST CHECKS** . Perform on-demand self-test. Record all Diagnostic Trouble Codes (DTCs) stored in 4WAS module. Service DTCs in order displayed. After all DTCs and symptoms have been serviced, clear DTCs. See **CLEARING DIAGNOSTIC TROUBLE CODES (DTC)** . If symptoms exist, but no DTCs have been stored, see **ELECTRONIC AIR SUSPENSION SYSTEM SYMPTOM INDEX** table for testing procedures.

Visual Checks

NOTE: Instrument panel fuse/relay box may also be referred to as central junction box. Power distribution box may also be referred to as battery junction box.

Ensure battery is fully charged and battery cables are clean and tight. Check for following conditions:

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- Shock absorber failure or improper installation.
- Air line leaks or kinks.
- Air spring leaks or ruptures.
- Damaged or improperly installed height sensor(s).
- Loose or corroded connectors.
- Faulty fuse(s) No. 4 (15-amp), No. 6 (5-amp) and/or No. 20 (5-amp) in instrument panel fuse/relay box.
- Faulty power distribution box fuses No. 4 (15-amp), No. 15 (50-amp) and/or No. 109 (50-amp).

Pretest Checks

Ensure following conditions are met before performing on-demand self-test:

- All doors, liftgate and liftgate glass are closed.
- Transmission is in Park.
- Brake On/Off (BOO) Switch is not on during test.
- Parking brake is released.
- Accelerator pedal is fully released.
- On 4WD vehicles, transfer case is not in 4L position.

On-Demand Self-Test

NOTE: On-demand self-test may be used to verify that no electrical faults exist in air suspension system. If instructed to perform on-demand self-test from a specified test procedure, ensure ignition switch is in proper position as listed in test procedure.

1. Connect New Generation Star (NGS) Tester (007-00500) to Data Link Connector (DLC) according to manufacturer's instructions. DLC is located under steering column.
2. Turn ignition on. Rotate dial on scan tester to DIAGNOSTIC DATA LINK menu and press trigger.
3. Rotate dial on scan tester to highlight desired module to be tested and press trigger. Ensure DIAGNOSTIC TEST MODES is highlighted and press trigger.
4. Rotate dial on scan tester to highlight on-demand self-test and press trigger. Press button No. 3 to start test. Press trigger. Record any on-demand self-test Diagnostic Trouble Codes (DTC) that are displayed. On-demand self-test DTCs must be serviced first.
5. Retrieve all stored continuous DTCs. Compare DTCs to **ELECTRONIC AIR SUSPENSION SYSTEM DTC INDEX** table. Service DTCs as necessary. Clear all DTCs. See **CLEARING DIAGNOSTIC TROUBLE CODES (DTC)**.

CLEARING DIAGNOSTIC TROUBLE CODES

Using NGS Tester

After all DTCs have been serviced, follow manufacturer's instructions to clear stored DTCs. After initiating clearing procedure with NGS tester, ignition switch must be cycled from ON to OFF to ON positions. This will complete DTC clearing sequence.

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Using Key Cycling Method

ABS control module will automatically clear all serviced DTCs that have not recurred after 80 normal key cycles have occurred.

ELECTRONIC AIR SUSPENSION SYSTEM DTC INDEX

DTC	Description	Go To
B1318	Battery Voltage Low	<u>TEST A</u>
B1342	Air Suspension Control Module	(1)
B1485	Brake Pedal Input Circuit Short	(2)
B1566	Door Ajar Circuit Short To Ground	<u>TEST B</u>
B1749 (3)	Park/Neutral Switch Circuit Failure	<u>TEST C</u>
B2140	Vehicle Ride Height Not Programmed	(4)
C1439	Acceleration Input Signal Circuit Fault	<u>TEST D</u>
C1724	Height Sensor Power Circuit Fault	<u>TEST E</u>
C1725 (3)	Front Pneumatic Fault	<u>TEST F</u>
C1726	Rear Pneumatic Fault	(5) <u>TEST G</u> (2WD) Or <u>TEST G</u> (4ED)
C1756 (3)	Front Height Sensor Circuit Fault	<u>TEST H</u>
C1760	Rear Height Sensor Circuit Fault	<u>TEST H</u>
C1770	Vent Solenoid Circuit Fault	<u>TEST J</u>
C1790	Left Rear Air Spring Solenoid Circuit Failure	<u>TEST K</u>
C1795	Right Rear Air Spring Solenoid Circuit Failure	<u>TEST L</u>
C1830	Air Compressor Relay Circuit Fault	<u>TEST M</u>
C1845 (3)	Front Fill Solenoid Circuit Fault	<u>TEST N</u>
C1865 (3)	Rear Fill Solenoid Circuit Fault	<u>TEST P</u>
C1869 (3)	Rear Gate Solenoid Circuit Fault	<u>TEST Q</u>
C1917	Steering Electronic Variable Orifice (EVO) Out-Of-Range Fault	(6)
P1807 (1)	4WD High Range Circuit Short To Ground	<u>TEST R</u>
P1808 (1)	4WD Low Range Circuit Short To Ground	<u>TEST R</u>

(1) Replace air suspension control module. Repeat On-Demand Self-Test.

(2) Repeat On-Demand Self-Test.

(3) 4WD vehicles only.

(4) See RIDE HEIGHT under ADJUSTMENTS.

(5) Use appropriate TEST G for 2WD or 4WD applications.

(6) Repair EVO steering system.

ELECTRONIC AIR SUSPENSION SYSTEM SYMPTOM INDEX

Symptom	Go To
DTCs For Front Air Suspension System Displayed On 2WD Vehicle	(1)

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Only Rear Air Suspension Components Used on 4WD Vehicle	(1)
Vehicle Height Changes With Door Open	(2) TEST B
Vehicle Rises Or Drops Too Slowly	(2) TEST F & TEST G (2WD) Or TEST G (4WD)
Uneven Vehicle Height (4WD)	(2) TEST F & TEST G (2WD) Or TEST G (4WD)
Uneven Vehicle Height (2WD)	(2) TEST G (2WD)
Compressor Cycles Continuously With Switch Off (No DTCs Are Set)	TEST S
Air Suspension System Inoperative	(2) TEST T (2WD) Or TEST T (4WD)
Excessive Air Compressor Operation	TEST T (2WD) Or TEST T (4WD)
Harsh Or Bouncy Ride	(2) TEST T (2WD) Or TEST T (4WD)
Ride Height Changes Unexpectedly	(2) TEST T (2WD) Or TEST T (4WD)
ARC System Functions With Switch Off	TEST U
Excessive Compressor Noise	TEST P
No Module Communication Or Only Intermittent Communication	TEST Q
(1) Check ground circuit (Black wire) for open or short.	
(2) Retrieve and service stored DTCs before going to indicated test.	

DIAGNOSTIC TESTS

CAUTION: Electrical power supply to air suspension system must be turned off prior to hoisting, jacking or towing vehicle. This can be done by disconnecting battery or turning off air suspension switch, located in right kick panel.

NOTE: To identify circuits and wire colors referenced in testing, see **WIRING DIAGRAMS** . After completing each repair, recheck system to verify problem has been repaired. See **ON-DEMAND SELF-TEST** under **DIAGNOSIS & TESTING**.

TEST A: BATTERY VOLTAGE LOW

1. Measure voltage between battery terminals. If greater than 10 volts exist, go to next step. If less than 10 volts exist, check charging system and battery condition. Repair or replace as necessary.
2. Turn ignition off. Turn air suspension system off. Disconnect control module harness connectors. Turn air suspension on. Turn ignition on. Measure voltage at control module Black harness connector terminal No. 4. See **Fig. 3** . If greater than 10 volts exists, go to next step. If less than 10 volts exists, repair Gray/Yellow wire.
3. Measure voltage at control module Black harness connector terminals No. 1 and 21 (both Dark

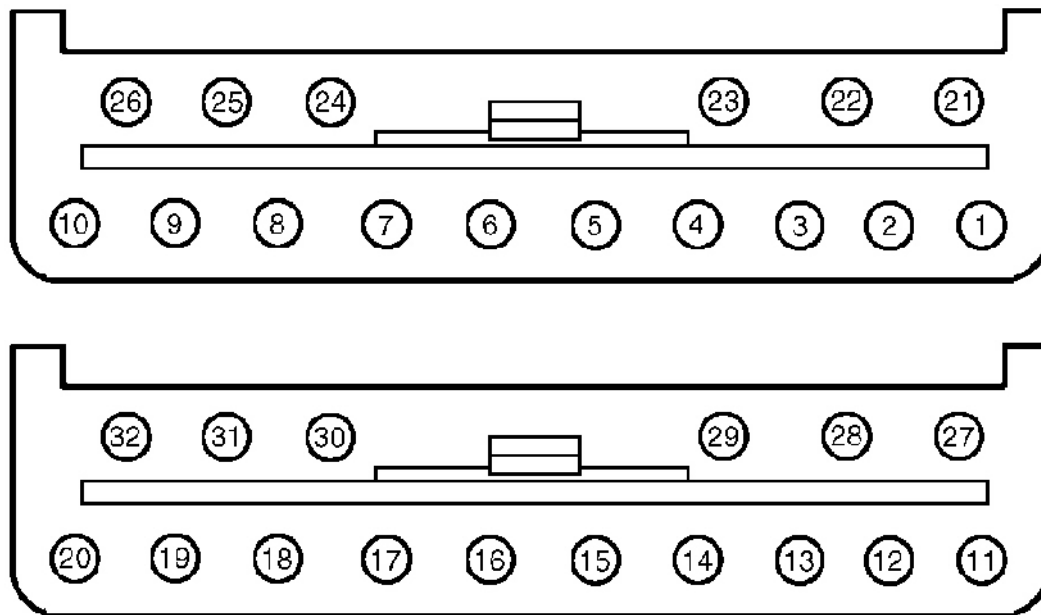
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Green/Yellow wire). See **Fig. 3** . If greater than 10 volts exists at both terminals, repair height sensor ground circuit (Black/Pink wire). If less than 10 volts exists at either or both terminals, repair Dark Green/Yellow wire.

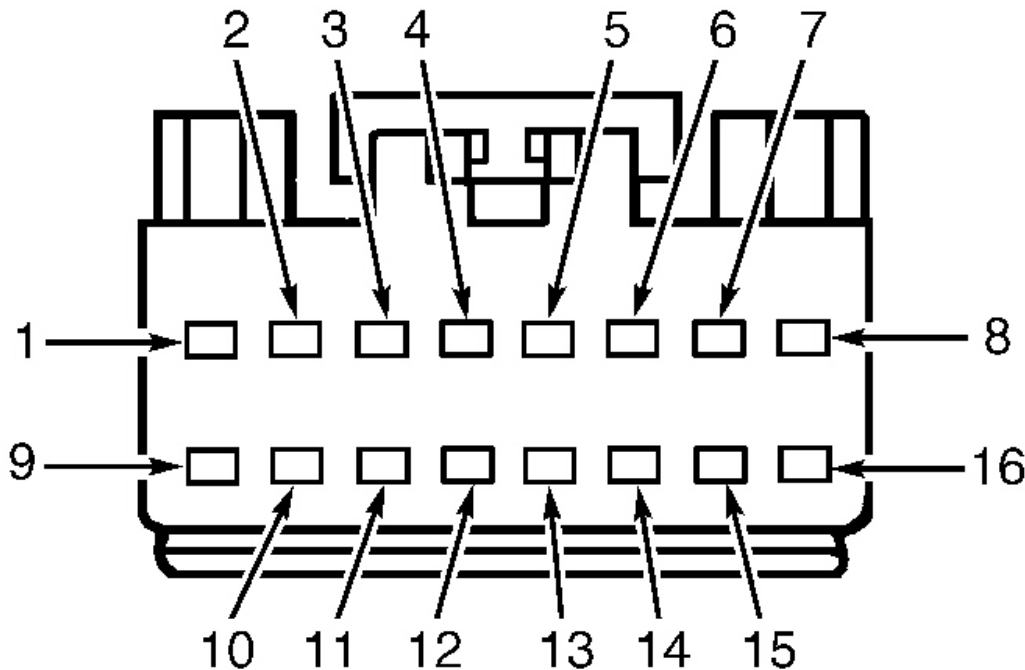


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Fig. 3: Identifying Air Suspension Control Module Connector Terminals
Courtesy of FORD MOTOR CO.

TEST B: DOOR AJAR CIRCUIT SHORT TO GROUND

1. Turn ignition on. Ensure all doors, liftgate and liftgate class are closed. If door ajar indicator is not illuminated, go to next step. If door ajar indicator is illuminated, see appropriate diagram in ILLUMINATION/INTERIOR LIGHTS article in ACCESSORIES & EQUIPMENT.
2. Measure resistance of Light Blue/White wire between air suspension control module Black harness connector terminal No. 5 and ground. See **Fig. 3** . Also measure resistance of Light Blue/White wire between air suspension control module Black harness connector terminal No. 5 and Generic Electronic Module 16-pin harness connector terminal No. 3. See **Fig. 3** and **Fig. 4** . If resistance between modules is less than 5 ohms and resistance between control module and ground is greater than 10 k/ohms, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. Perform riding height adjustment. See **RIDE HEIGHT ADJUSTMENT (FRONT)** or **RIDE HEIGHT ADJUSTMENT (REAR)** under ADJUSTMENTS. If resistances are not as described, repair Light Blue/White wire.



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Fig. 4: Identifying GEM 16-Pin Connector Terminals
 Courtesy of FORD MOTOR CO.

TEST C: PARK/NEUTRAL SWITCH CIRCUIT FAILURE (4WD)

Turn ignition off. Turn air suspension system off. Disconnect air suspension system control module harness connectors. Turn air suspension switch and ignition on. Measure voltage at control module Black harness connector terminal No. 23 (Red/Black wire). See **Fig. 3**. If less than 10 volts exists, repair Red/Black wire. If 10 greater than 10 volts exists, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION.

TEST D: VEHICLE ACCELERATION CIRCUIT FAILURE

1. Connect New Generation Star (NGS) Tester (007-00500) to Data Link Connector (DLC) located under steering column. Monitor PCM PID TP MODE. While watching NGS tester display, press accelerator to floor. If NGS displays C/T, P/T and WOT, go to next step. If NGS display is not as described, see appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.
2. Turn ignition off. Turn air suspension system off. Disconnect air suspension control module harness connectors. Connect voltmeter between control module harness connector terminal No. 6 (Dark Blue/White wire) and ground. See **Fig. 3**. Turn ignition on. If voltage does not change during transition of closed to open throttle, go to next step. If voltage changes during throttle transition, replace control module and perform riding height adjustment. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. See **RIDE HEIGHT ADJUSTMENT (FRONT)** or **RIDE HEIGHT ADJUSTMENT (REAR)** under ADJUSTMENTS. After repair, retest

system for normal operation.

3. Turn ignition off. Disconnect air suspension control module harness connectors. Connect 104-pin Breakout Box (014-00950) to control module and harness. Measure resistance between control module Black harness connector terminal No. 6 (Dark Blue/White wire) and breakout box terminal No. 19. Also measure resistance between control module Black harness connector terminal No. 6 and ground. See **Fig. 3** . If resistance between module and breakout box is less than 5 ohms and resistance between control module and ground is greater than 10 k/ohms, see appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE. If resistance is not as described, repair open in Dark Blue/White wire. Retest system for normal operation.

TEST E: HEIGHT SENSOR POWER CIRCUIT FAILURE

Turn ignition off. Turn air suspension system off. Disconnect air suspension control module harness connectors and both height sensor harness connectors. Measure resistance between control module Gray harness connector terminal No. 28 and ground. See **Fig. 3** . If resistance is less than 10 k/ohms, repair Purple/Light Green wire. If resistance is greater than 10 k/ohms, check Purple/Light Green wire for intermittent short to ground. Repair wire. If wire is good, replace control module and perform riding height adjustment. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. See **RIDE HEIGHT ADJUSTMENT (FRONT)** or **RIDE HEIGHT ADJUSTMENT (REAR)** under ADJUSTMENTS.

TEST F: FRONT PNEUMATIC FAULT (4WD)

CAUTION: It may be necessary to vent some air from front shock absorbers during this test.

1. Check front height sensor for proper installation at upper and lower ball stud brackets. Inspect upper and lower mounting brackets for damage. If no problem is found, go to next step. If problem is found, repair or replace front height sensor and/or mounting bracket as necessary. See **HEIGHT SENSOR (FRONT & REAR)** under REMOVAL & INSTALLATION. Repeat on-demand self-test to validate repair.
2. Disconnect lower end of front height sensor. Using NGS tester, set active commands and activate PID FHGHTSEN. While watching PID display, extend and compress height sensor through it full length of travel. If voltage changes from about .25 volt to 5.0 volts, reconnect height sensor and go to next step. If voltage does not vary as described, repair Black/Pink wire.
3. Record height sensor indicated voltage. Using NGS tester, turn on active command LIFT FNT ON. Allow front of vehicle to rise for 30 seconds. If front of vehicle rises and holds at higher position, go to next step. If front of vehicle does not rise and hold at higher position, go to step 5 .
4. Using NGS tester, turn on active command VENT FNT ON. Allow front of vehicle to lower for 30 seconds or until displayed height sensor voltage matches voltage reading in step 3 . If front of vehicle lowers, adjust ride height. See **RIDE HEIGHT ADJUSTMENT (FRONT)** or **RIDE HEIGHT ADJUSTMENT (REAR)** under ADJUSTMENTS. After adjustment, clear DTCs. If front of vehicle does not lower, go to step 8 .
5. Using NGS tester, turn on active command COMPRESSR ON. If air compressor operates (indicated by slight buzzing noise from right front fender of vehicle), turn off active command COMPRESSR OFF and go to next step. If air compressor does not operate, turn off active command COMPRESSR OFF and go to **TEST X** .

NOTE: DO NOT let air compressor operate for more than 3 minutes at a time.

6. Disconnect air line at rear air line union in engine compartment. Connect air pressure gauge with 250 psi (17.6 kg/cm²) maximum capacity, to air line exiting air compressor drier. Using NGS tester active command COMPRESSR ON, operate air compressor for 30 seconds. Wait 5 minutes and check pressure. If compressor can produce and hold 110 psi (7.7 kg/cm²), go to step 8. If compressor cannot produce and hold specified pressure, remove pressure gauge, reconnect air line and go to next step.
7. Using NGS tester, turn on active command COMPRESSR ON. Check for air lines for leaks, bends or kinks between air compressor and front fill solenoid. If no problem is found, replace air compressor assembly. See **AIR COMPRESSOR ASSEMBLY** under REMOVAL & INSTALLATION. If problem is found, repair air lines as necessary.
8. Disconnect air line leading to front fill solenoid from drier. Disconnect air line between front fill solenoid on side toward right front air shock. Using NGS tester, turn on active commands FRNT FILL ON. Connect vacuum tester to compressor assembly air line. Attempt to draw a vacuum, and go to next step. If vacuum cannot be drawn and held, trigger FRNT FILL OFF and go to step 10.
9. Ensure vacuum tester is still connected. Disconnect air line from front fill solenoid on side toward air compressor. Attempt to draw and hold a vacuum. If vacuum can be drawn and held, replace faulty air line. If vacuum cannot be drawn and held, replace front fill solenoid. See **FILL SOLENOID (FRONT & REAR)** under REMOVAL & INSTALLATION.
10. Disconnect air line from right front shock absorber. Connect vacuum tester to air line at right front shock absorber. Attempt to draw and hold vacuum. If vacuum can be drawn and held, replace air line. If vacuum cannot be drawn and held, go to next step.
11. Disconnect air line from left front shock absorber. Connect vacuum tester to air line at left front shock absorber. Attempt to draw and hold vacuum. If vacuum can be drawn and held, replace air line. If vacuum cannot be drawn and held, go to next step.
12. Disconnect air line from front gate solenoid on side toward fill solenoid. Connect vacuum tester to air line. Attempt to draw and hold vacuum. If vacuum can be drawn and held, replace air line between fill solenoid and front gate solenoid. If vacuum cannot be drawn and held, go to next step.
13. Disconnect air line from front gate solenoid on side toward left front shock absorber. Connect vacuum tester to air line at left front shock absorber. Attempt to draw and hold vacuum. If vacuum can be drawn and held, replace air line. If vacuum cannot be drawn and held, replace front gate solenoid. See **FRONT GATE SOLENOID** under REMOVAL & INSTALLATION.

TEST G: REAR PNEUMATIC FAULT (2WD)

CAUTION: It may be necessary to vent some air from rear air springs during this test.

1. Check rear height sensor for proper installation at upper and lower ball stud brackets. Inspect upper and lower mounting brackets for damage. Inspect air lines for proper connection. If no problem is found, go to next step. If problem is found, repair or replace rear height sensor and/or mounting bracket as necessary, retest system to validate repair.
2. Disconnect lower end of rear height sensor. Using NGS tester, set active commands and activate PID RHGTSEN. While watching PID display, extend and compress height sensor through its full length of travel. If voltage varies from about .25 volt to 5.0 volts, reconnect height sensor and go to next step. If voltage does not vary as described, repair Black/Pink wire.
3. Record height sensor indicated voltage. Using NGS tester, select active command LIFT REAR ON. Allow rear of vehicle to rise for 30 seconds. If rear of vehicle raises and holds at higher position, go to

next step. If rear of vehicle does not raise and hold at higher position, go to step 5 .

4. Using NGS tester, select active command VENT REAR ON. Allow rear of vehicle to lower for 30 seconds or until displayed height sensor voltage matches voltage reading in step 3 . If rear of vehicle lowers, adjust ride height. See **RIDE HEIGHT ADJUSTMENT (FRONT)** or **RIDE HEIGHT ADJUSTMENT (REAR)** under ADJUSTMENTS. After adjustment, clear DTCs. If rear of vehicle does not lower, go to step 8 .
5. Using NGS tester, select active command COMPRESSR ON. If air compressor operates (indicated by slight buzzing noise from right front fender of vehicle), select active command COMPRESSOR OFF and go to next step. If air compressor does not operate, select active command COMPRESSR OFF and go to step 12 .

NOTE: DO NOT let air compressor operate for more than 3 minutes at a time.

6. Disconnect air line at rear air line union in engine compartment. Connect air pressure gauge with 250 psi (17.6 kg/cm²) maximum capacity, to air line exiting air compressor drier. Using NGS tester active command COMPRESSR ON, operate air compressor for 30 seconds. Select active command COMPRESSR OFF. Wait 5 minutes and check pressure. If compressor can produce and hold 130 psi (9.1 kg/cm²), reconnect air line. Remove pressure gauge and go to next step. If compressor cannot produce and hold specified pressure, repair or replace air line.
7. Using NGS tester, select active command COMPRESSR ON. Check for air line for leaks, bends or kinks between air compressor and rear fill solenoid. If no problem is found, replace air compressor assembly. See **AIR COMPRESSOR ASSEMBLY** under REMOVAL & INSTALLATION. If problem is found, repair or replace air line as necessary.
8. Trigger NGS tester active command VENT REAR ON. Disconnect both ends of air line to right rear air spring. Trigger NGS tester active command RRAIRSP ON. Connect vacuum tester to air line. Attempt to draw and hold vacuum. If vacuum cannot be held, reconnect air line and go to step 10 If vacuum can be held, trigger active command RRAIRSP OFF and go to next.
9. Disconnect air line from right rear air spring solenoid. Connect vacuum tester to solenoid. If vacuum can be drawn and held, repair or install new air line. If vacuum cannot be drawn and held, replace right rear air spring solenoid. See **AIR SPRING SOLENOID** under REMOVAL & INSTALLATION.
10. Remove left rear air spring solenoid. See **AIR SPRING SOLENOID** under REMOVAL & INSTALLATION. Trigger NGS tester active command LRAIRSP ON. Connect vacuum tester at air drier. Attempt to drawn and hold vacuum. If vacuum can be drawn and held, trigger active command LRAIRSP OFF and go to next step. If vacuum cannot be drawn and held, install new air compressor assembly. See **AIR COMPRESSOR ASSEMBLY** under REMOVAL & INSTALLATION. After repair, clear DTCs and repeat on-demand self-test. See **CLEARING DIAGNOSTIC TROUBLE CODES (DTC)** .
11. Disconnect air line at left rear air spring solenoid. Connect vacuum tester to air line. Attempt to draw and hold vacuum. If vacuum can be drawn and held, repair or replace air line as necessary. If vacuum cannot be drawn and held, replace left rear air spring solenoid. See **AIR SPRING SOLENOID** under REMOVAL & INSTALLATION.
12. Disconnect air compressor relay. Relay is located on right side of engine compartment under air compressor assembly. Inspect connector and relay for corrosion, bent terminals or other damage. If problem is found, repair or replace as necessary. If no problem is found, go to next step.
13. Measure voltage at Light Blue/Pink wire terminal of air compressor relay connector. If greater than 10 volts exist, go to next step. If less than 10 volts exist, repair Light Blue/Pink wire.
14. Disconnect air compressor assembly harness connector. Measure resistance of Gray/Red wire between

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relay connector and air compressor harness connector. If resistance is less than 5 ohms, go to next step. If resistance is greater than 5 ohms, repair open in Gray/Red wire.

15. Measure resistance of Light Green/Red wire between air compressor assembly harness connector and ground. If resistance is less than 5 ohms, reconnect compressor connector and go to next step. If resistance is greater than 5 ohms, repair open in Light Green/Red wire.
16. Allow vehicle to cool down for 60 minutes. Turn air suspension system on. Turn ignition on. Using NGS tester, select active commands VENT ON and COMPRESSR ON. If air compressor does not operate, go to next step. If air compressor operates, go to step 18 .
17. Turn ignition off. Disconnect air compressor relay harness connector. Connect jumper wire between Light Blue/Pink and Gray/Red wire terminals of air compressor relay harness connector. If air compressor operates, disconnect jumper wire and replace relay. If air compressor does not operate, disconnect jumper wire, replace air compressor assembly. Retest system.
18. Select NGS tester active command COMPRESSR ON. Operate air compressor for 60 seconds. If air compressor operates for 60 seconds, retest to verify system is okay. If air compressor does not operate for 60 seconds, thermal breaker is failing sooner than designed. Replace air compressor assembly. See **AIR COMPRESSOR ASSEMBLY** under REMOVAL & INSTALLATION.

TEST G: REAR PNEUMATIC FAULT (4WD)

NOTE: DO NOT operate air compressor for more than 3 minutes at a time. System could overheat and open internal circuit breaker in air compressor assembly. Compressor must cool for about 15 minutes. Circuit breaker will automatically reset.

CAUTION: It may be necessary to vent some air from rear air springs during this test.

1. Check rear height sensor for proper installation at upper and lower ball stud brackets. Inspect upper and lower mounting brackets for damage. Inspect air lines for proper connection. If no problem is found, go to next step. If problem is found, repair or replace rear height sensor and/or mounting bracket as necessary. See **HEIGHT SENSOR (FRONT & REAR)** under REMOVAL & INSTALLATION. Retest system to validate repair.
2. Disconnect lower end of rear height sensor. Using NGS tester, trigger active command PID RHGTSEN. While watching PID display, extend and compress height sensor through it full length of travel. If voltage varies .25-5.0 volts, reconnect height sensor and go to next step. If voltage does not vary as described, repair Black/Pink wire.
3. Record height sensor indicated voltage. Using NGS tester, trigger active command LIFT REAR ON. Allow rear of vehicle to rise for 30 seconds. If rear of vehicle raises and holds at higher position, go to next step. If rear of vehicle does not raise and hold at higher position, go to step 5 .
4. Using NGS tester, trigger active command VENT REAR ON. Allow rear of vehicle to lower for 30 seconds or until displayed height sensor voltage matches voltage reading in step 3 . If rear of vehicle lowers, adjust ride height. See **RIDE HEIGHT ADJUSTMENT (FRONT)** or **RIDE HEIGHT ADJUSTMENT (REAR)** under ADJUSTMENTS. After adjustment, clear DTCs. If rear of vehicle does not lower, go to step 8 .
5. Using NGS tester, trigger active command COMPRESSR ON. If air compressor operates (indicated by slight buzzing noise from right front fender of vehicle), trigger active command COMPRESSR OFF and go to next step. If air compressor does not operate, trigger active command COMPRESSR OFF and go to **TEST X** .

NOTE: DO NOT let air compressor operate for more than 3 minutes at a time.

6. Disconnect air line at rear air line union in engine compartment. Connect air pressure gauge with 250 psi (17.6 kg/cm²) maximum capacity, to air line exiting air compressor drier. Using NGS tester active command COMPRESSR ON, operate air compressor for 30 seconds. Wait 5 minutes and check pressure. If compressor can produce and hold 110 psi (7.7 kg/cm²), reconnect air line and inspect for leaks. Repair as necessary. If compressor cannot produce and hold specified pressure, remove pressure gauge, reconnect air line and go to next step.
7. Using NGS tester, trigger active command COMPRESSR ON. Check for air line for leaks, bends or kinks between air compressor and rear fill solenoid. If no problem is found, replace air compressor assembly. See **AIR COMPRESSOR ASSEMBLY** under REMOVAL & INSTALLATION. If problem is found, repair or replace air line as necessary.
8. Disconnect both ends of air line between air compressor and rear fill solenoid. Disconnect air line from air fill solenoid on side toward rear air springs. Trigger NGS tester active command REAR FILL ON. Connect vacuum tester to air line at air compressor. Attempt to draw and hold vacuum. If vacuum cannot be held, trigger active command REAR FILL OFF and go to step 9. If vacuum can be held, trigger active command REAR FILL OFF and go to next step.
9. Disconnect air line from rear fill solenoid on side toward air compressor. Connect vacuum tester to air line. Attempt to draw and hold vacuum. If vacuum can be drawn and held, repair or replace air line as necessary. If vacuum cannot be drawn and held, replace rear fill solenoid. See **FILL SOLENOID (FRONT & REAR)** under REMOVAL & INSTALLATION.
10. Remove solenoid from right rear air spring with air line and electrical connector attached. Trigger NGS tester active command RR AIRSP ON. Connect vacuum tester to air line at rear fill solenoid going toward rear air springs. Attempt to draw and hold vacuum. If vacuum can be held, trigger active command RR AIRSP OFF and go to next step. If vacuum cannot be drawn and held, trigger active command RR AIRSP OFF and go to step 12 **AIR COMPRESSOR ASSEMBLY** under REMOVAL & INSTALLATION.
11. Disconnect air line from right rear air spring solenoid. Connect vacuum tester to air line. Attempt to draw and hold vacuum. If vacuum can be drawn and held, repair or replace air line between rear fill solenoid and right rear air spring solenoid. If vacuum cannot be drawn and held, replace right rear air spring solenoid. See **AIR SPRING SOLENOID** under REMOVAL & INSTALLATION.
12. Remove solenoid from left rear air spring with air line and electrical connector attached. Trigger NGS tester active command LR AIRSP ON. Connect vacuum tester to air line at rear fill solenoid going toward rear air springs. Attempt to draw and hold vacuum. If vacuum can be held, trigger active command LR AIRSP OFF and go to next step. If vacuum cannot be drawn and held, replace air compressor assembly. See **AIR COMPRESSOR ASSEMBLY** under REMOVAL & INSTALLATION.
13. Disconnect air line from left rear air spring solenoid. Connect vacuum tester to air line. Attempt to draw and hold vacuum. If vacuum can be drawn and held, repair or replace air line between rear fill solenoid and left rear air spring solenoid. If vacuum cannot be drawn and held, replace left rear air spring solenoid. See **AIR SPRING SOLENOID** under REMOVAL & INSTALLATION.

TEST H: HEIGHT SENSOR HIGH SIGNAL CIRCUIT FAILURE

1. Perform on-demand self-test. If DTC C1756 or C1760 is set, go to next step. If DTC C1756 or C1760 is not set, go to step 5.
2. Turn ignition off. Turn air suspension system off. Disconnect suspect height sensor (rear only on 2WD vehicles). Turn air suspension system on. Turn ignition on. Using NGS tester, monitor PID

FHGTSEN for front height sensor (if equipped) or PID RHGTSEN for rear height sensor. Measure voltage between Black/Pink and Purple/Light green wire terminals of suspect height sensor harness connector. If about 5 volts exist, go to step 4 . If less than 5 volts exist, go to next step. If greater than 5 volts exist, repair Purple/Light Green wire.

3. Turn ignition off. Measure resistance between height sensor harness connector Black/Pink wire terminal and ground. If resistance is less than 5 ohms, repair Purple/Light Green wire. If resistance is greater than 5 ohms, repair Black/Pink wire.

NOTE: **DO NOT use frame or sheet metal as ground contact when testing circuit ground. Use only negative battery terminal or engine block as ground contact.**

4. Turn ignition off. Turn air suspension system off. Disconnect air suspension control module harness connectors. Measure resistance between ground and height sensor harness connector Tan wire terminal (Orange/Black wire terminal on rear height sensor). Also measure resistance of Tan wire (Orange Black wire on rear height sensor) between height sensor harness connector and control module Black harness connector terminals No. 7 (front) or No. 9 (rear). See **Fig. 3** . If resistance between sensor and control module connectors is less than 5 ohms and resistance between sensor connector and ground is greater than 10 k/ohms, reconnect system and go to next step. If resistances are not as described, repair wiring.
5. Turn air suspension system on. Turn ignition on. Monitor PID FHGTSEN for front height sensor (if equipped) or PID RHGTSEN for rear height sensor while wiggling harness between height sensor and control module. If indicated voltage is greater than 5.0 volts or less than 0.2 volts, repair wiring. If indicated voltage is not as described, replace suspect height sensor. See **HEIGHT SENSOR (FRONT & REAR)** under REMOVAL & INSTALLATION.

TEST J: VENT SOLENOID OUTPUT CIRCUIT FAILURE

1. Perform on-demand self-test. If DTC C1770 is set, go to next step. If DTC C1770 is not set, go to step 10 .
2. Turn ignition off. Turn air suspension system off. Disconnect air compressor assembly harness connector. Inspect connector for corrosion, bent terminals or other damage. If no problem is found, reconnect harness connector and go to next step. If problem is found, repair or replace as necessary as necessary.
3. Turn air suspension system on. Turn ignition on. Using NGS tester, turn on active commands and activate PID AS_VENT. Toggle VENT command ON and OFF. If "O", "G" or "B" do not appear next to ON/OFF on tester display, go to step 11 . If "O" is displayed, go to step 4 . If "G" is displayed, go to step 7 . If "B" is displayed, go to step 9 .
4. Turn ignition off. Disconnect air compressor harness connector. Measure resistance between Dark Blue and Dark Green wire terminals at air compressor. If resistance is less than 25 ohms, go to next step. If resistance is greater than 25 ohms, replace air compressor assembly. See **AIR COMPRESSOR ASSEMBLY** under REMOVAL & INSTALLATION.
5. Measure resistance of Black wire between air compressor harness connector and ground. If resistance is less than 5 ohms, go to next step. If resistance is greater than 5 ohms, repair open in Black wire, repeat on-demand self-test.
6. Turn air suspension off. Disconnect control module connectors. Measure resistance of Pink wire between air compressor harness connector and control module Gray harness connector terminal No. 30. See **Fig. 3** . If resistance is less than 5 ohms, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. If resistance is greater than 5 ohms,

repair open in Pink wire.

7. Turn ignition off. Disconnect air compressor harness connector. Measure resistance between Pink and Black wire terminals of air compressor connector. If resistance is greater than 15 ohms, go to next step. If resistance is less than 15 ohms, replace air compressor assembly.
8. Turn air suspension off. Measure resistance of Pink wire between control module Gray harness connector terminal No. 30 and ground. See **Fig. 3** . If resistance is greater than 10 k/ohms, replace control module. If resistance is less than 10 k/ohms, repair Pink wire.
9. Turn ignition off. Turn air suspension system off. Disconnect control module connectors. Turn air suspension system on. Turn ignition on. Measure voltage at control module Gray harness connector terminal No. 30 (Pink wire). See **Fig. 3** . If any voltage exists, repair short to power in Pink wire. If no voltage exists, replace control module.
10. Turn ignition off. Turn air suspension off. Disconnect air compressor assembly harness connector. Inspect connector for corrosion, bent terminals or other damage. If no problem is found, go to next step. If problem is found, repair or replace as necessary.
11. Turn air suspension on. Turn ignition on. Using NGS tester set active commands and activate PID AS_VENT. Observe PID display while wiggling harness between air compressor and control module. If "O", "G" or "B" appear on text of tester display, repair Pink wire. If "O", "G" or "B" are not displayed, go to next step.
12. Using NGS tester, monitor AS_VENT PID. Take vehicle for 10 minute road test over rough road and/or through a car wash. During road test, shift between 2H and 4L and back. If "O", "G" or "B" do not appear next to ON/OFF on tester display, replace control module and adjust ride height. See **RIDE HEIGHT ADJUSTMENT (FRONT)** or **RIDE HEIGHT ADJUSTMENT (REAR)** under ADJUSTMENTS. If "O" is displayed, go to step 4 . If "G" is displayed, go to step 7 . If "B" is displayed, go to step 9 .

TEST K: LEFT REAR AIR SPRING SOLENOID OUTPUT CIRCUIT FAILURE

1. Perform on-demand self-test. If DTC C1790 is set, go to next step. If DTC C1790 is not set, go to step 10 .
2. Turn ignition off. Turn air suspension system off. Disconnect left air spring solenoid harness connector. Inspect connector for corrosion, bent terminals or other damage. If no problem is found, reconnect harness connector and go to next step. If problem is found, repair or replace as necessary as necessary.
3. Turn air suspension system on. Turn ignition on. Using NGS tester, turn on active commands and activate PID ASLRSOL. Trigger active command RRAIRSP ON, LRAIRSP ON, RRAIRSP OFF and LRAIRSP OFF in order given. If "O", "G" or "B" do not appear next to ON/OFF on tester display, go to step 10 . If "O" is displayed, go to step 4 . If "G" is displayed, go to step 7 . If "B" is displayed, go to step 9 .
4. Turn ignition and air suspension system off. Disconnect air spring harness connector. Measure resistance between air spring solenoid terminals. If resistance is less than 25 ohms, go to next step. If resistance is greater than 25 ohms, replace left rear air spring solenoid. See **AIR SPRING SOLENOID** under REMOVAL & INSTALLATION.
5. Measure resistance of Black wire between air spring harness connector and ground. If resistance is less than 5 ohms, go to next step. If resistance is greater than 5 ohms, repair open in Black wire and repeat on-demand self-test.
6. Turn ignition and air suspension system off. Disconnect control module connectors. Measure resistance of Brown/Pink wire between left rear air spring harness connector and control module Gray harness connector terminal No. 17. See **Fig. 3** . See **WIRING DIAGRAMS** . If resistance is less than

- 5 ohms, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. If resistance is greater than 5 ohms, repair open in Brown/Pink wire.
7. Turn ignition and air suspension system off. Disconnect air spring harness connector. Measure resistance between air spring solenoid terminals. If resistance is greater than 15 ohms, go to next step. If resistance is less than 15 ohms, replace air spring solenoid. See **AIR SPRING SOLENOID** under REMOVAL & INSTALLATION.
 8. Turn air suspension off. Measure resistance of Brown/Pink wire between control module Gray harness connector terminal No. 17 and ground. See **Fig. 3**. If resistance is greater than 10 k/ohms, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. If resistance is less than 10 k/ohms, repair Brown/Pink wire.
 9. Turn ignition off. Turn air suspension system off. Disconnect control module connectors. Turn air suspension system on. Turn ignition on. Measure voltage at control module Gray harness connector terminal No. 17 (Brown/Pink wire). See **Fig. 3**. If any voltage exists, repair short to power in Brown/Pink wire. If no voltage exists, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION.
 10. Turn ignition off. Turn air suspension system off. Disconnect left rear air spring harness connector. Inspect connector for corrosion, bent terminals or other damage. If no problem is found, restore all connections. If problem is found, repair or replace as necessary.

TEST L: RIGHT REAR AIR SPRING SOLENOID OUTPUT CIRCUIT FAILURE

1. Perform on-demand self-test. If DTC C1795 is set, go to next step. If DTC C1795 is not set, go to step 10.
2. Turn ignition off. Turn air suspension system off. Disconnect right air spring solenoid harness connector. Inspect connector for corrosion, bent terminals or other damage. If no problem is found, reconnect harness connector and go to next step. If problem is found, repair or replace as necessary.
3. Turn air suspension system on. Turn ignition on. Using NGS tester, turn on active commands and activate PID ASRRSOL or RR_SOL. Trigger active command LRAIRSP ON, RRAIRSP ON, LRAIRSP OFF and RRAIRSP OFF in order given. If "O", "G" or "B" do not appear next to ON/OFF on tester display, go to step 10. If "O" is displayed, go to step 4. If "G" is displayed, go to step 7. If "B" is displayed, go to step 9.
4. Turn ignition and air suspension system off. Disconnect air spring harness connector. Measure resistance between air spring solenoid terminals. If resistance is less than 25 ohms, go to next step. If resistance is greater than 25 ohms, replace right rear air spring solenoid. See **AIR SPRING SOLENOID** under REMOVAL & INSTALLATION.
5. Measure resistance of Black wire between air spring harness connector and ground. If resistance is less than 5 ohms, go to next step. If resistance is greater than 5 ohms, repair open in Black wire, repeat on-demand self-test.
6. Turn air suspension off. Disconnect control module connectors. Measure resistance of Tan/White wire between right rear air spring harness connector and control module harness connector terminal No. 14. See **Fig. 3**. If resistance is less than 5 ohms, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. If resistance is greater than 5 ohms, repair open in Tan/White wire.
7. Turn ignition and air suspension system off. Disconnect air spring harness connector. Measure resistance between air spring solenoid terminals. If resistance is greater than 15 ohms, go to next step. If resistance is less than 15 ohms, replace air spring solenoid. See **AIR SPRING SOLENOID** under REMOVAL & INSTALLATION.
8. Turn air suspension off. Measure resistance of Tan/White wire between control module harness

connector terminal No. 14 and ground. See **Fig. 3** . If resistance is greater than 10 k/ohms, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. If resistance is less than 10 k/ohms, repair Tan/White wire.

9. Turn ignition and air suspension system off. Disconnect control module connectors. Turn air suspension system on. Turn ignition on. Measure voltage at control module harness connector terminal No. 14 (Tan/White wire). See **Fig. 3** . If any voltage exists, repair short to power in Tan/White wire. If no voltage exists, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION.
10. Turn ignition off and air suspension system off. Disconnect right rear air spring harness connector. Inspect connector for corrosion, bent terminals or other damage. If no problem is found, restore all connections and repeat on-demand self-test. If problem is found, repair or replace as necessary.

TEST M: AIR COMPRESSOR RELAY CIRCUIT FAILURE

1. Perform on-demand self-test. If DTC C1830 is set, go to next step. If DTC C1830 is not set, go to step 9 .
2. Turn ignition and air suspension system off. Disconnect air compressor relay harness connector. Relay is located on right side of engine compartment, under air compressor assembly. Inspect relay connector for corrosion, bent terminals or other damage. If no problem is found, reconnect connector and go to next step. If problem is found, repair or replace as necessary.
3. Inspect battery junction box fuse No. 109 (50-amp). If fuse is good, go to next step. If fuse is faulty, check Light Blue/Pink wire for short to ground. Repair wire if necessary and replace fuse.
4. Turn air suspension system on. Turn ignition on. Using NGS tester, select active command and activate PID AS_COMP. Trigger active command COMPRESSOR ON and OFF. If letters "O" or "B" do not appear on tester display, go to step 9 . If "O" is displayed, go to next step. If "B" is displayed, go to step 8 .
5. Turn ignition off. Turn air suspension system off. Disconnect air compressor relay harness connector. Measure resistance of Light Green/Red wire between relay connector and ground. If resistance is less than 5 ohms, go to next step. If resistance is greater than 5 ohms, repair open in Light Green/Red wire.
6. Measure voltage at air compressor relay harness connector Light Blue/Pink wire terminal. If greater than 10 volts exist, go to next step. If less than 10 volts exist, repair open in Light Blue/Pink wire.
7. Disconnect air suspension control module connectors. Measure resistance of Dark Blue/Yellow wire between air compressor relay harness connector and control module Gray harness connector terminal No. 18. See **Fig. 3** . Also measure resistance between control module connector terminal No. 18 and ground. If resistance between harness connectors is less than 5 ohms and resistance between control module connector terminal No. 18 and ground is greater than 10 k/ohms, replace air suspension relay. If resistances are not as described, repair Dark Blue/Yellow wire.
8. Turn ignition and air suspension system off. Disconnect control module and air compressor relay harness connectors. Turn air suspension system on. Turn ignition on. Measure voltage at control module harness connector terminal No. 18 (Dark Blue/Yellow wire). See **Fig. 3** . If voltage exists, repair short to power in Dark Blue/Yellow wire. If less than voltage does not exist, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION.
9. Turn ignition and air suspension system off. Disconnect air compressor relay harness connector. Inspect connector for corrosion, bent terminals or other damage. If problem is found, repair or replace as necessary. If no problem is found, reconnect connector and repeat on-demand self-test.

TEST N: FRONT FILL SOLENOID OUTPUT CIRCUIT FAILURE (4WD)

1. Perform on-demand self-test. If DTC C1845 is set, go to next step. If DTC C1845 is not set, go to step 10 .
2. Turn ignition and air suspension system off. Disconnect front fill solenoid harness connector. Front fill solenoid is located on right side of engine compartment, near transmission oil cooler. Inspect connector for corrosion, bent terminals or other damage. If no problem is found, reconnect connector and go to next step. If problem is found, repair or replace as necessary. Retest system for normal operation.
3. Turn ignition and air suspension system on. Using NGS tester, select active command and activate PID F_FILL. Trigger active command FRNT FILL ON and OFF. If letters "O", "G" or "B" do not appear on tester display, go to step 10 . If an "O" is displayed, go to next step. If a "G" is displayed, go to step 7 . If "B" is displayed, go to step 10 .
4. Turn ignition and air suspension system off. Disconnect front fill solenoid harness connector. Measure resistance between solenoid terminals. If resistance is less than 20 ohms, go to next step. If resistance is greater than 20 ohms, replace front fill solenoid. See **FILL SOLENOID (FRONT & REAR)** under REMOVAL & INSTALLATION.
5. Measure resistance of Black wire between front fill solenoid harness connector and ground. If resistance is less than 5 ohms, go to next step. If resistance is greater than 5 ohms, repair Black wire. Test system for normal operation.
6. Disconnect air suspension control module harness connectors. Measure resistance of Yellow/Black wire between front fill solenoid harness connector and control module Gray harness connector terminal No. 19. See **Fig. 3** . If resistance is less than 5 ohms, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. If resistance is greater than 5 ohms, repair open in Yellow/Black wire. Test system for normal operation.
7. Turn ignition off and air suspension system off. Disconnect front fill solenoid harness connector. Measure resistance between solenoid terminals. If resistance is greater than 10 ohms, go to next step. If resistance is less than 10 ohms, replace front fill solenoid. See **FILL SOLENOID (FRONT & REAR)** .
8. Disconnect air suspension control module connectors. Measure resistance of Yellow/Black wire between ground and control module harness connector terminal No. 19. See **Fig. 3** . If resistance is greater than 10 k/ohms, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. If resistance is less than 10 k/ohms, repair Yellow/Black wire as necessary. After repair, retest system for normal operation.
9. Turn ignition and air suspension system off. Disconnect control module harness connectors. Turn ignition and air suspension system on. Measure voltage at control module harness connector terminal No. 19 (Yellow/Black wire). See **Fig. 3** . If any voltage exists, repair short to power in Yellow/Black wire. If no voltage exists, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. After repair, retest system for normal operation.
10. Turn ignition and air suspension system off. Disconnect front fill solenoid harness connector. Inspect connector for corrosion, bent terminals or other damage. If problem is found, repair or replace as necessary. Retest system for normal operation. If no problem is found, reconnect and retest system for normal operation.

TEST P: REAR FILL SOLENOID OUTPUT CIRCUIT FAILURE (4WD)

1. Perform on-demand self-test. If DTC C1865 is set, go to next step. If DTC C1865 is not set, go to step 10 .
2. Turn ignition and air suspension system off. Disconnect rear fill solenoid harness connector. Rear fill solenoid is located at front of left rear wheel well. Inspect connector for corrosion, bent terminals or

other damage. If no problem is found, reconnect connector and go to next step. If problem is found, repair or replace as necessary. Retest system for normal operation.

3. Turn ignition and air suspension system on. Using NGS tester, select active command and activate PID R_FILL. Trigger active command GATEVALVE ON, REAR FILL ON, GATEVALVE OFF and REAR FILL OFF in order given. If letters "O", "G" or "B" do not appear on tester display, go to step 10. If an "O" is displayed, go to next step. If a "G" is displayed, go to step 7. If a "B" is displayed, go to step 9.
4. Turn ignition and air suspension system off. Disconnect rear fill solenoid harness connector. Measure resistance between solenoid terminals. If resistance is less than 20 ohms, go to next step. If resistance is greater than 20 ohms, replace rear fill solenoid. See **FILL SOLENOID (FRONT & REAR)** under REMOVAL & INSTALLATION.
5. Measure resistance of Black wire between rear fill solenoid harness connector and ground. If resistance is less than 5 ohms, go to next step. If resistance is greater than 5 ohms, repair Black wire. Retest for normal system operation.
6. Disconnect air suspension control module harness connectors. Measure resistance of Brown/Orange wire between rear fill solenoid harness connector and control module harness connector terminal No. 15. See **Fig. 3**. If resistance is less than 5 ohms, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. If resistance is greater than 5 ohms, repair open in Brown/Orange wire. Retest system for normal operation.
7. Turn ignition and air suspension system off. Disconnect rear fill solenoid harness connector. Measure resistance between solenoid terminals. If resistance is greater than 10 ohms, go to next step. If resistance is less than 10 ohms, replace rear fill solenoid. See **FILL SOLENOID (FRONT & REAR)** under REMOVAL & INSTALLATION. Retest system for normal operation.
8. Disconnect air suspension control module connectors. Measure resistance of Brown/Orange wire between ground and control module harness connector terminal No. 15. See **Fig. 3**. If resistance is greater than 10 k/ohms, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. If resistance is less than 10 k/ohms, repair Brown/Orange wire as necessary. Retest system for normal operation.
9. Turn ignition and air suspension system off. Disconnect control module harness connectors. Turn ignition and air suspension system on. Measure voltage at control module harness connector terminal No. 15 (Brown/Orange wire). See **Fig. 3**. If any voltage exists, repair short to power in Brown/Orange wire. If no voltage exists, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. After repair, retest system for normal operation.
10. Turn ignition and air suspension system off. Disconnect rear fill solenoid harness connector. Inspect connector for corrosion, bent terminals or other damage. If problem is found, repair or replace as necessary. Retest system for normal operation. If no problem is found, reconnect connector and retest system for normal operation.

TEST Q: GATE SOLENOID OUTPUT CIRCUIT FAILURE (4WD)

1. Perform on-demand self-test. If DTC C1869 is set, go to next step. If DTC C1869 is not set, go to step 10.
2. Turn ignition and air suspension system off. Disconnect gate solenoid harness connector. Gate solenoid is located in front of A/C condenser. Inspect connector for corrosion, bent terminals or other damage. If no problem is found, reconnect connector and go to next step. If problem is found, repair or replace as necessary. Retest system for normal operation.
3. Turn ignition and air suspension system on. Using NGS tester, select active commands and activate PID AS_GATE. Trigger active command REAR FILL ON, GATEVALVE ON, REAR FILL OFF

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and GATEVALVE OFF in order given. If letters "O", "G" or "B" do not appear on tester display, go to step 10 . If "O" is displayed, go to next step. If "G" is displayed, go to step 7 . If "B" is displayed, go to step 9 .

4. Turn ignition and air suspension system off. Disconnect gate solenoid harness connector. Measure resistance between solenoid terminals. If resistance is less than 20 ohms, go to next step. If resistance is greater than 20 ohms, replace gate solenoid. See **GATE SOLENOID** under REMOVAL & INSTALLATION. Retest system for normal operation.
5. Measure resistance of Black wire between gate solenoid harness connector and ground. If resistance is less than 5 ohms, go to next step. If resistance is greater than 5 ohms, repair Black wire. Retest system for normal operation.
6. Disconnect air suspension control module harness connectors. Measure resistance of Light Blue/Black wire between front gate solenoid harness connector and control module harness connector terminal No. 16. See **Fig. 3** . If resistance is less than 5 ohms, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. If resistance is greater than 5 ohms, repair open in Light Blue/Black wire. After repair, retest system for normal operation.
7. Turn ignition and air suspension system off. Disconnect gate solenoid harness connector. Measure resistance between solenoid terminals. If resistance is greater than 10 ohms, go to next step. If resistance is less than 10 ohms, replace gate solenoid. See **GATE SOLENOID** under REMOVAL & INSTALLATION. Retest system for normal operation.
8. Disconnect air suspension control module connectors. Measure resistance of Light Blue/Black wire between ground and control module harness connector terminal No. 16. See **Fig. 3** . If resistance is greater than 10 k/ohms, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. If resistance is less than 10 k/ohms, repair Light Blue/Black wire as necessary. After repair, retest system for normal operation.
9. Turn ignition and air suspension system off. Disconnect control module harness connectors. Turn ignition and air suspension system on. Measure voltage at control module harness connector terminal No. 16 (Light Blue/Black wire). See **Fig. 3** . If any voltage exists, repair short to power in Light Blue/Black wire. If no voltage exists, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. After repair, retest system for normal operation.
10. Turn ignition and air suspension system off. Disconnect gate solenoid harness connector. Inspect connector for corrosion, bent terminals or other damage. If problem is found, repair or replace as necessary. Retest system for normal operation. If no problem is found, reconnect connector and retest system for normal operation.

TEST R: 4WD INDICATOR CIRCUIT SHORT TO GROUND

1. Perform on-demand self-test. If DTC P1807 or P1808 is set, go to next step. If DTC P1807 or P1808 is not set, take vehicle for 10 minute road test over rough road and/or through a car wash. During road test, shift between 2H and 4L and back. If DTC(s) is not reset, 4WD indicator system is okay.
2. Turn ignition and air suspension system off. Disconnect Generic Electronic Module (GEM) harness connector. GEM is located behind center of instrument panel. Disconnect control module harness connectors. Measure resistance between ground and control module harness connector terminal No. 11 (Light Blue/Black wire). See **Fig. 3** . If resistance is less than 10 k/ohms, repair short in Light Blue/Black wire. If resistance is greater than 10 k/ohms, check Light Blue/Black wire for open between Generic Electronic Module (GEM) and control module harness connector. Repair as necessary. After repair, retest system for normal operation.

TEST S: AIR COMPRESSOR CYCLES CONTINUOUSLY WITH KEY OFF (NO DTC IS SET)

1. Turn ignition off. Determine if air compressor cycles 40 minutes after ignition is turned off. If air compressor still cycles, go to next step. If air compressor does not cycle, system is functioning normally.
2. Turn air suspension system off. Disconnect control module harness connectors. If air compressor still cycles, go to next step. If air compressor does not cycle, replace control module and adjust ride height. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. See **RIDE HEIGHT ADJUSTMENT (FRONT)** or **RIDE HEIGHT ADJUSTMENT (REAR)** under ADJUSTMENTS. Check system for normal operation.
3. Disconnect air compressor relay harness connector. If air compressor still cycles, repair short to power in Gray/Red wire. If air compressor does not cycle, replace air compressor relay. After repair, test system for normal operation.

TEST T: AIR SUSPENSION SYSTEM INOPERATIVE (2WD)

1. Using NGS tester, monitor IGN_AS PID. If PID indicates RUN, go to next step. If PID does not indicate RUN, repair Gray/Yellow wire as necessary. Clear any DTCs. **CLEARING DIAGNOSTIC TROUBLE CODES (DTC)** under DIAGNOSIS & TESTING.
2. Turn ignition off. Disconnect control module connectors. If IGN_PIN shows notRUN, go to next step. If PID does not indicate as described, repair Gray/Yellow wire as necessary and repeat on-demand self-test.
3. Turn ignition on. Monitor STEER_A and STEER_B PIDs. Turn steering wheel 1/4 turn in both directions. If both PIDs cycle between HIGH and LOW, go to next step. If either or both PIDs do not cycle as described, see appropriate ELECTRONIC article in STEERING.
4. Monitor BOO_AS PID. Press and release brake pedal. If PID changes between OFF and ON, go to next step. If PID does not change, repair Light Green wire. Repeat on-demand self-test.
5. Monitor DOOR_AS PID. Ensure all doors, liftgate and liftgate glass are closed. Open any door. If DOOR_AS PID changes between CLOSED and AJAR, go to next step. If PID does not change, repair Light Blue/White wire.
6. Monitor 4WDSYS PID. If 4WDSYS PID is in NO state, go to next step. If 4WDSYS PID is in YES state, input signal is faulty for this application (2WD). Repair Black wire as necessary and repeat on-demand self-test.
7. Monitor ACC_SIG PID. Press and release accelerator pedal. If ACC_SIG PID shows both notPRE and PRESNT states, go to next step. If PID does not indicate as described, repair Dark Blue/White wire as necessary.
8. Monitor PID VSS_AS or VSS_ARC. Test drive vehicle at various speeds. If PID tracks speedometer within 5 MPH, go to next step. If PID does not track speedometer within 5 MPH, repair Gray/Black wire as necessary.
9. Monitor PK/N_SW PID. Move gear selector from Park to Drive. If PK/N_SW PID does not indicate P/N with selector in Drive and P/N with selector in Park, perform on-demand self-test to retrieve all stored DTCs. See **ELECTRONIC AIR SUSPENSION SYSTEM DTC INDEX TABLE** for further test procedure information. If PID does not indicate as described, repair Red/Black wire as necessary.

TEST T: AIR SUSPENSION SYSTEM INOPERATIVE (4WD)

1. Using NGS tester, monitor PID IGN_AS. If PID indicates RUN, go to next step. If PID does not indicate RUN, repair Gray/Yellow wire as necessary and retest system for normal operation.
2. Turn ignition off. Recheck PID IGN_AS. If PID indicates notRUN, go to next step. If PID does not indicate as described, repair Gray/Yellow wire as necessary. Retest system for normal operation.

3. Turn ignition on. Monitor PIDs STEER_A and STEER_B. Turn steering wheel 1/4 turn in both directions. If both PIDs cycle between HIGH and LOW, go to next step. If either or both PIDs do not cycle as described, see appropriate ELECTRONIC article in STEERING.
4. Monitor PID BOO_AS. Press and release brake pedal. If PID changes between OFF and ON, go to next step. If PID does not change, repair Light Green wire as necessary.
5. Monitor PID DOOR_AS. Ensure all doors, liftgate and liftgate glass are closed. Open any door. If DOOR_AS PID changes between CLOSED and AJAR, go to next step. If PID does not change, repair Light Blue/White wire. Retest system for normal operation.
6. Monitor PID 4WDSYS. If PID 4WDSYS is in YES state, go to next step. If PID 4WDSYS display is not as described, repair Black wire as necessary. Retest system for normal operation.
7. Monitor PID 4WDLOW. Put mode switch, located on instrument panel, in 2H mode. Indicator light will go out. Place switch in 4L mode. Place gear selector in "N". Press brake pedal. If PID 4WDLOW indicates OFF in 2H mode and ON in 4L mode, go to next step. If PID does not indicate as described, repair Light Blue/Black wire as necessary. Retest system for normal operation.
8. Monitor PID ACC_SIG. Press and release accelerator pedal. If PID ACC_SIG shows both notPRE and PRESNT states, go to next step. If PID does not indicate as described, repair Dark Blue/White wire as necessary. Retest system for normal operation.
9. Monitor PID VSS_AS or PID VSS_ARC. Test drive vehicle at various speeds. If PID tracks speedometer within 5 MPH, go to next step. If PID does not track speedometer within 5 MPH, repair Gray/Black wire as necessary. Retest system for normal operation.
10. Monitor PID P/N_SW. Move gear selector from Park to Drive. If PID P/N_SW does not indicate P/N with selector in Drive and P/N with selector in Park, perform on-demand self-test to retrieve all stored DTCs. See **ELECTRONIC AIR SUSPENSION SYSTEM DTC INDEX TABLE** for further test procedure information. If PID does not indicate as described, repair Red/Black wire as necessary. Retest system for normal operation.

TEST U: AIR SUSPENSION OPERATES WITH SWITCH IN OFF POSITION

1. Turn ignition and air suspension system off. Disconnect air suspension switch harness connector. Measure resistance between switch terminals. If resistance is greater than 10 k/ohms, go to next step. If resistance is less than 10 k/ohms, replace air suspension switch. See **AIR SUSPENSION SWITCH** under REMOVAL & INSTALLATION. Retest system.
2. Disconnect air suspension control module harness connectors. Turn ignition on. Measure voltage at control module harness connector terminal No. 1 (Dark Green/Yellow wire). See **Fig. 3**. If greater than 10 volts exist, repair Dark Green/Yellow wire as necessary. If less than 10 volts exist, replace control module. See **AIR SUSPENSION CONTROL MODULE** under REMOVAL & INSTALLATION. After repair, retest system for normal operation.

TEST V: EXCESSIVE AIR COMPRESSOR NOISE

1. Check for loose fasteners, wiring harnesses or foreign material contacting air compressor. If no problem is found, go to next step. If problem is found, repair, reroute or replace as necessary. Retest system.
2. Check air compressor bracket for damage or bends, permitting contact with other components. If no problem is found, go to next step. If problem is found, repair or replace as necessary.
3. Inspect air compressor mounts for cracks or breaking away of insulating material. If no problem is found, go to next step. If problem is found, repair or replace as necessary.
4. Remove air compressor, but leave electrical connections intact. Using NGS tester, turn on active

command COMPRESSR. If air compressor is excessively noisy, replace air compressor assembly. See **AIR COMPRESSOR ASSEMBLY** under REMOVAL & INSTALLATION. If air compressor does not produce excessive noise, recheck mountings and bracket for damage. Repair or replace components as necessary.

TEST W: NO MODULE COMMUNICATION

1. Check air suspension switch position. If switch is in ON position, go to next step. If switch is in OFF position, turn to ON position and retest system for normal operation.
2. Measure voltage at control module harness connector terminals No. 1 and 21 (Dark Green/Yellow wires). See **Fig. 3**. If greater than 10 volts exist, go to step 5. If less than 10 volts exists in only one circuit, repair wire and retest system for normal operation. If less than 10 volts exist in both circuits, go to next step.
3. Turn ignition off. Disconnect air suspension switch harness connector. Turn ignition on. Measure voltage at air suspension switch harness connector Purple/Orange wire terminal. If greater than 10 volts exist, go to next step. If less than 10 volts exist, repair Purple/Orange wire. Retest system for normal operation.
4. Ensure air suspension switch is in ON position. Measure resistance between switch terminals. If resistance is less than 5 ohms, repair Dark Green/Yellow wire. If resistance is greater than 5 ohms, replace air suspension switch. See **AIR SUSPENSION SWITCH** under REMOVAL & INSTALLATION. After repair, retest system for normal operation.
5. Turn ignition and air suspension system off. Disconnect air suspension control module harness connectors. Measure resistance of Black/Pink wire between ground and control module harness connector terminal No. 20. Also measure resistance of Black wire between ground and control module harness connector terminal No. 32. See **Fig. 3**. If resistance is less than 5 ohms, go to appropriate MODULE COMMUNICATIONS NETWORK article in ACCESSORIES & EQUIPMENT. If resistance is greater than 5 ohms, repair Black/Pink wire. Retest system for normal operation.

TEST X: AIR COMPRESSOR NOT WORKING

1. Turn ignition off. Turn air suspension system off. Check battery junction box fuse No. 109 (50-amp). If fuse is good, go to next step. If fuse is faulty, check Light Blue/Pink wire between fuse box and air compressor relay connector for short to ground. Repair wire as necessary. Replace fuse.
2. Disconnect air compressor relay connector. Relay is located on right side of engine compartment under air compressor assembly. Inspect relay connector for corrosion, bent terminals or other damage. If no problem is found, go to next step. If problem is found, repair or replace as necessary.
3. Measure voltage at air compressor relay harness connector Light Blue/Pink wire terminal. If greater than 10 volts exist, go to next step. If less than 10 volts exist, repair Light Blue/Pink wire.
4. Disconnect air compressor assembly harness connector. Measure resistance of Gray/Red wire between air compressor harness connector and air compressor relay harness connector. If resistance is less than 5 ohms, go to next step. If resistance is greater than 5 ohms, repair Gray/Red wire.
5. Measure resistance of Light Green/Red wire between ground and air compressor assembly harness connector. If resistance is less than 5 ohms, reconnect air compressor assembly harness connector and go to next step. If resistance is greater than 5 ohms, repair Light Green/Red wire.
6. Allow vehicle to sit for 60 minutes. Turn air suspension system on. Turn ignition on. Using NGS tester, trigger active command VENT ON. Trigger active command COMPRESSR ON. If air compressor runs, turn active commands off and go to step 8. If air compressor does not run, turn active commands off and go to next step.

7. Turn ignition off. Disconnect air compressor relay harness connector. Connect jumper wire between Light Blue/Pink and Gray/Red wire terminals of air compressor harness connector. If air compressor runs, disconnect jumper wire and replace relay. If air compressor does not run, disconnect jumper wire and replace air compressor assembly. See **AIR COMPRESSOR ASSEMBLY** under REMOVAL & INSTALLATION. Retest system.
8. Turn active command COMPRESSOR ON. Operate air compressor for 60 seconds. If air compressor operates for 60 seconds, retest to verify system is okay. If air compressor does not operate for 60 seconds, thermal breaker is failing sooner than designed. Replace air compressor assembly.

REMOVAL & INSTALLATION

CAUTION: Electrical power supply to air suspension system must be turned off prior to hoisting, jacking or towing vehicle. This can be done by disconnecting battery or turning off air suspension switch located in right kick panel.

AIR COMPRESSOR ASSEMBLY

Removal & Installation

Turn air suspension system off. Switch is located in right kick panel. To disconnect air lines from air compressor, depress Red plastic retaining ring and hold firmly while pulling outward on air line. Disconnect electrical connector from air compressor assembly. Remove mounting bracket bolts. Remove air compressor assembly. To install, reverse removal procedure. Tighten bolt to specification. See **TORQUE SPECIFICATIONS**.

AIR SUSPENSION CONTROL MODULE

Removal & Installation

CAUTION: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See **COMPUTER RELEARN PROCEDURES** article in **GENERAL INFORMATION** before disconnecting battery.

1. Disconnect battery negative cable. Remove instrument panel center finish panel. Disconnect transfer case rotary control switch harness connector. Remove trim panel from under steering column. Remove headlight switch. Remove instrument cluster finish panel.
2. Remove control module mounting bracket screws. Lift control module and mounting bracket from instrument panel. Disconnect wiring harness connectors. To install, reverse removal procedure.

AIR SPRING

Removal & Installation

Turn air suspension system off. Raise and support rear of vehicle. Bleed air from air spring. See **INFLATING/DEFLATING AIR SUSPENSION SYSTEM** under ADJUSTMENTS. Remove rear air spring retainer. Lift bottom of air spring off rear axle. To disconnect air line from air spring, depress Green

plastic retaining ring and hold firmly while pulling outward on air line. Disconnect solenoid harness connector and remove air spring. To install, reverse removal procedure. Tighten bolt and nut to specification. See **TORQUE SPECIFICATIONS** .

AIR SPRING SOLENOID

Removal & Installation

1. Turn off air suspension system. Air suspension switch is located in right kick panel. Raise vehicle on hoist so rear suspension is at full extension. Remove heat shield (if equipped). Disconnect electrical connector and air line from solenoid.
2. Remove air spring solenoid clip. Rotate solenoid counterclockwise and remove solenoid from spring. Remove "O" ring from solenoid housing. To install, reverse removal procedure.

AIR SUSPENSION SWITCH

Removal & Installation

Disconnect negative battery cable. Remove passenger's door frame scuff plate. Remove right kick panel. Disconnect electrical harness connector. Remove mounting screws and remove switch. To install, reverse removal procedure. Tighten bracket bolt and specification. See **TORQUE SPECIFICATIONS** .

COMPRESSOR AIR DRIER

NOTE: **DO NOT damage "O" ring located between compressor air drier and air compressor head.**

Removal & Installation

Remove air compressor assembly. See **AIR COMPRESSOR ASSEMBLY** . Push in and twist compressor air drier clockwise to remove from compressor housing. To install, reverse removal procedure. Tighten mounting screw to specification. See **TORQUE SPECIFICATIONS** .

FILL SOLENOID (FRONT & REAR)

Removal & Installation

Turn air suspension system off. Raise and support vehicle. Disconnect wiring harness connector. To disconnect air line from solenoid, depress Red plastic retaining ring and hold firmly while pulling outward on air line. Pry solenoid from frame or remove mounting bolts (as appropriate). To install, reverse removal procedure.

FRONT SHOCK ABSORBER

Removal & Installation

Turn air suspension system off. Bleed air from air suspension system. See **INFLATING/DEFLATING AIR SUSPENSION SYSTEM** under ADJUSTMENTS. Raise and support front of vehicle. Remove shock absorber lower mounting nut and bolt. To disconnect air line from air shock absorber, depress Red plastic retaining ring and hold firmly while pulling outward on air line. Remove upper mounting nut and grommet. Remove shock absorber. To install, reverse removal procedure. Tighten bolt and nut to specification. See

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TORQUE SPECIFICATIONS**GATE SOLENOID****Removal & Installation**

NOTE: **GATE SOLENOID** may also be referred to as **FRONT GATE SOLENOID**.

Turn air suspension system off. Disconnect wiring harness connector from front gate solenoid, located in front of A/C condenser. To disconnect air lines from solenoid, depress Red plastic retaining ring and hold firmly while pulling outward on air line. Remove mounting bolts. To install, reverse removal procedure. Tighten nut to specification. See **TORQUE SPECIFICATIONS**.

HEIGHT SENSOR (FRONT & REAR)**Removal & Installation**

Turn air suspension system off. Raise and support vehicle. Disconnect height sensor wiring harness connector. Depress metal tabs and remove height sensor from ball studs. Remove height sensor. To install, reverse removal procedure.

TORQUE SPECIFICATIONS**TORQUE SPECIFICATIONS**

Application	Ft. Lbs. (N.m)
Air Spring Lower Bolt	56-76 (76-103)
Air Spring Upper Nut	37-44 (50-60)
Air Suspension Switch Bracket Bolt	8-10 (10.2-13.8)
Height Sensor Ball Stud Nut	8-10 (10.2-13.8)
Shock Absorber Lower Mount Nut	56-76 (76-103)
Shock Absorber Upper Mount Nut	37-44 (50-60)
INCH Lbs. (N.m)	
Compressor Drier Mounting Screw	67-92 (7.6-10.4)
Compressor Mounting Bracket Nut	67-92 (7.6-10.4)

WIRING DIAGRAMS

2000 Lincoln Navigator

2000-01 SUSPENSION Electronic - Expedition & Navigator

Fig. 5: Electronic Suspension Wiring Diagram (2000 Expedition & Navigator - 1 Of 2)

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2000 Lincoln Navigator

2000-01 SUSPENSION Electronic - Expedition & Navigator

Fig. 6: Electronic Suspension Wiring Diagram (2000 Expedition & Navigator - 2 Of 2)

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2000 Lincoln Navigator

2000-01 SUSPENSION Electronic - Expedition & Navigator

Fig. 7: Electronic Suspension Wiring Diagram (2001 Expedition & Navigator - 1 Of 2)

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2000 Lincoln Navigator

2000-01 SUSPENSION Electronic - Expedition & Navigator

Fig. 8: Electronic Suspension Wiring Diagram (2001 Expedition & Navigator - 2 Of 2)

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