TROUBLESHOOTING TIPS

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CAUTION: The Air Suspension System must be turned off at the System Power switch when the vehicle is to be jacked, hoisted, towed, jump-started or raised off the ground to avoid unnecessary operation of the system and / or possible damage to individual components and / or persons.

- The attached information gives simple checks to perform before connecting the diagnostics tool to resolve potential issues. If the attached troubleshooting guide does not correct the problem, use the diagnostics tool.
- Many sporatic problems can exist if the ECU connector is not properly seated on the ECU and locked into place. Ensure that both ECU connectors are pressed fully into the ECU.
- When using the diagnostic tool to diagnose a problem, disable the system before connecting the diagnostic tool by turning the system power switch to the OFF position.
- WHEN USING THE COMPUTER DIAGNOSTICS TOOL to diagnose a problem with Horizon Leveling, start by clicking on DIAGNOSE - ACCELEROMETER. If this does not correct the problem, proceed to diagnosing the height sensors.
- WHEN USING THE COMPUTER DIAGNOSTICS TOOL to diagnoose any other problem, including valve manifold or ECU issues, start by clicking on DIAGNOSE - HEIGHT SENSORS.

ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
AIR LEAK (These are the key items to check any time your system has been diagnosed with an air leak, either by this guide or the computer Diagnostics tool)	Insuffiecient torque on air fitting (air spring) - esp. compression fittings	Tighten as required
	Air line not cut square	Re-cut square end on air line. Be sure not to kink air line bends.
	Longitudinal scratches on end of air line	Inspect and recut the air line as necessary. Be sure not to kink air line bends.
ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
Vehicle not level in horizon leveling shortly after entering horizon leveling (H.L. LED solid on)	Suspect wire harness	Check VIN for first three production units. If vehicle is one of first three production units, replace harness.
	Incorrect wiring	With vehicle in Horizon Leveling, turn off ignition. If HL LED goes out, vehicle is wired wrong. Check pins 2 and 4 on vehicle side 6-pin connector. Pin 2 should be Ignition, Pin 4 should be constant +12V power. Re-wire as appropriate. Recalibrate ECU ON LEVEL SURFACE.
	Air harness / Air spring leak	Turn engine on to ensure air is available. Exit H.L., re-enter H.L. Check vehicle height at each corner immediately after LED goes on solid. Wait 15 minutes - recheck vehicle height each corner (visually confirm on dash gauge that reservoir air pressure is still above 100 psig). Check for air leaks at the vehicle corner that has dropped.
	Bad accelerometer	Use Diagnostics tool. Diagnose Accelerometer. With vehicle sitting level on a level surface, accelerometer voltages (shown on diagnostic tool) should be around 2.1 to 2.7 volts.
		(after diagnosing accelerometer) Recalibrate vehicle ON

	Incorrect calibration	LEVEL SURFACE.
ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
Vehicle not level in horizon leveling (HL LED solid on) only after overnight stay (level OK immediately after entering horizon leveling)	Reservoir leak - insufficient air for overnight leveling	Check for reservoir pressure drop at in-cab gauge. If pressure is dropping without moving the vehicle height, repair reservoir leak. If no reservoir leak is found, see "Air Harness Leak" section. (Harness leak will cause system to use reservoir pressure periodically overnight to re-achieve level - pressure is not replenished with engine not running and may be insufficient to re-acheive level).
	Air harness / Air spring leak	Exit H.L., re-enter H.L. Check vehicle height at each corner immediately after LED goes on solid. Wait 15 minutes - recheck vehicle height each corner. Check for air leaks at the vehicle corner that has dropped after measurement.
	Incorrect wiring	With vehicle in Horizon Leveling, turn off ignition. If HL LED goes out, vehicle is wired wrong. Check pins 2 and 4 on vehicle side 6-pin connector. Pin 2 should be Ignition, Pin 4 should be constant +12V power. Re-wire as appropriate. Recalibrate ECU ON LEVEL SURFACE.
ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
Vehicle not level in horizon leveling (H.L. LED flashing slow (1 flash per second))	Terrain too severe for suspension travel to achive level.	Slow flash indicates 'as close to level as possible' has been achieved. If unacceptable, move vehicle to another spot.
	Insufficient air pressure	Make sure engine is running and pressure gauge shows over 100 psig while system is attempting to achieve horizon leveling.
	Water in height sensors	Inspect each height sensor connector to ensure the (3) cable seals are in place and (3) plugs are in place / not damaged. Remove sensor and inspect connector cavity for water marks. If water is detected, replace sensor and repair harness connector. Recalibrate vehicle ON LEVEL SURFACE.
	Sensors modified	Check height sensor / link locations (see pictures). If linkage in in the incorrect location, move it to the correct hole on the rotating arm.
	Other	Proceed to above section (Vehicle not level in horizon leveling (HL LED solid on))
ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
Vehicle not level in horizon leveling (H.L. LED flashing fast (5 flash per second))	Insufficient air pressure	Make sure engine is running and pressure gauge shows over 100 psig while system is attempting to achieve horizon leveling.
	Other	Proceed to above section (Vehicle not level in horizon leveling (HL LED solid on))
ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
Vehicle will not enter horizon leveling (other functions working)	Vehicle is not in park	Engage park brake.
	No connection between button and ECU	Make sure panel connector is secure. Make sure ECU connector is secure. Check for push-button wire continuity from switch panel connector to ECU connector.
		Place vehicle on slope. Press horizon leveling button. If vehicle moves and levels, but H.L. LED does not flash:

	H.L. LED not working	(1) ensure panel connector is locked, (2) ensure ECU connector is locked, (3) (if still not working) replace switch panel.
	Push-button not working	Replace switch panel
ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
Coach has developed a lean after ignition off and sitting overnight (not in horizon leveling)	Air harness / Air spring leak	With engine on to supply air, set vehicle at ride height. Turn off ignition, measure vehicle height at each corner. After sufficient time to see lean, measure vehicle heights. Correct leak at the appropriate corner.
ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
Coach operation sporatic; Will not maintain a height but system is operating (lights on switch panel function).	Height sensor damage	Inspect each height sensor to ensure that rotating arm is not broken and that linkage is attached to the rotating arm and the bracket on the suspension control arm.
	Water in ECU	Check ECU for watermarks on outside of case, water dripping from inside case, or rust marks on screws or serial cable connector. Replace ECU if watermarks are found.
	Water in height sensors	Inspect each height sensor connector to ensure the (3) cable seals are in place and (3) plugs are in place / not damaged. Remove sensor and inspect connector cavity for water marks. If water is detected, replace sensor and repair harness connector. Recalibrate vehicle ON LEVEL SURFACE.
	Air harness / Air spring leak	With engine on to supply air, set vehicle at ride height. Turn off ignition, measure vehicle height at each corner. After sufficient time to see lean, measure vehicle heights. Correct leak at the appropriate corner.
	Insufficient air pressure	Make sure engine is running and pressure gauge shows over 100 psig while system is attempting to achieve heights.
	Suspect wire harness	Check VIN for first three production units. If vehicle is one of three first production units, replace wire harness.
	Valves won't open	Using diagnostic tool, start by diagnosing 'height sensors'. Using tool, inflate / deflate each corner to ensure valves are working. If not, replace manifold.
	RR valve won't open	Using diagnostic tool, direct air into RR valve. If valve will not open, replace ECU and recalibrate system ON LEVEL SURFACE.
	Debris in ECU	Shake ECU lightly. If a rattle is apparent, replace ECU and recalibrate system ON LEVEL SURFACE.
ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
Coach can not achieve Raised or Kneel heights (lights start flashing during height change, but coach comes back to Ride height); OR coach achieves Raised and Kneel, but vehicle is not level. Coach is level at Ride height	Insufficient air pressure	Make sure engine is running and pressure gauge shows over 100 psig while system is attempting to achieve heights (up movements).
	Sensors modified	Check height sensor / link locations (see pictures). If linkage is in incorrect position, move linkage to correct hole.
	Sensors damaged	Inspect each height sensor for bent brackets or links, broken rotating arm, links in wrong hole on arm. If appear OK, connect diagnostic tool, diagnose height sensors.

	Water in height sensors	Inspect each height sensor connector to ensure the (3) cable seals are in place and (3) plugs are in place / not damaged. Remove sensor and inspect connector cavity for water marks. If water is detected, replace sensor and repair harness connector. Recalibrate vehicle ON LEVEL SURFACE.
ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
Coach does not attempt height change away from Ride height when switch is pressed to request height change.	Single failed height sensor (height change lights should flash slow)	Inspect each height sensor (see pictures). Check linkage location in holes, wire connector attached, brackets not broken. If appear OK, connect diagnostic tool. Diagnose height sensors.
	Switch panel not working	Ensure switch panel connector is locked. Ensure ECU connector is locked. Check continuity between switch pins at panel connector and ECU connector. If continuity is OK, replace switch panel.
ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
Coach completes height changes, but does not show either Raised or Kneel heights on LED display	Height Change LED not functioning	During height change, watch for both height change LED's to flash quickly. If only one flashes, the other is not working. Ensure panel connector is locked. Ensure ECU connector is locked. If still not working, replace switch panel.
ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
Coach is fully down on bump-stops. Height change lights are flashing slow.	Multiple height sensor failure.	Inspect each height sensor (see pictures). Check linkage location in holes, wire connector attached, brackets not broken. If appear OK, connect diagnostic tool. Diagnose height sensors.
	Water in ECU	Check ECU for watermarks on outside of case, water dripping from inside case, or rust marks on screws or serial cable connector. Replace ECU if watermarks are found.
	Water in height sensors	Inspect each height sensor connector to ensure the (3) cable seals are in place and (3) plugs are in place / not damaged. Remove sensor and inspect connector cavity for water marks. If water is detected, replace sensor and repair harness connector. Recalibrate vehicle ON LEVEL SURFACE.
ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
When ignition is turned on, coach always goes to Kneel height. (NOTE: The coach should return to the last vehicle height achieved before ignition-off).	Incorrect wiring	With vehicle in Horizon Leveling, turn off ignition. If HL LED goes out, vehicle is wired wrong. Check pins 2 and 4 on vehicle side 6-pin connector. Pin 2 should be Ignition, Pin 4 should be constant +12V power. Re-wire as appropriate. Recalibrate ECU ON LEVEL SURFACE.
ISSUE	POTENTIAL CAUSE	DIAGNOSIS / SOLUTION
	Serial cable wrong style.	Change serial cable. It is a standard DB9 serial cable.
	Serial cable not connected.	Check connection at ECU and computer.
	Debris in ECU	Shake ECU lightly. If a rattle is apparent, replace ECU and recalibrate system ON LEVEL SURFACE.

Diagnostics tool can not communicate with the ECU.	Incorrect wiring	Incorrect wiring may have erased some code. At the vehicle side 6-pin connector, be sure that pin 2 is ignition power, and pin 4 is constant +12V power. Correct wiring and replace ECU.
	Water in ECU	Check ECU for watermarks on outside of case, water dripping from inside case, or rust marks on screws or serial cable connector. Replace ECU if watermarks are found.
	Diagnostics software not supported on computer.	Be sure computer is running Windows 98 or newer (2000 is preferred).
	Serial cable incorrect - internal to ECU	Replace ECU (can not be diagnosed - last resort).

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