



## **Auto-Level Troubleshooting (Old Platform)** **Electronic Control- Prior to 2009, Pressure Switch** **Control panel #s 2057, 2058, 2795, 2795B**

This guide addresses the troubleshooting of electronic controls used on Auto-Level systems manufactured prior to 2009. These systems can be identified by having a 12 pin connector located at the back of the control panel and one of the above part #s on a sticker on the back of the control panel. These control panels are obsolete. Depending on the specific control panel, there may not be an exact replacement. Replacement will require the filling out of the [Panel Replacement Form](#) so that a proper replacement part(s) may be identified.

**Control panel will not power up:** When the power switch is pressed, the power light should come on regardless of the position of the vehicle's ignition switch. Check for power at the back of the control panel. The power and ground connector will be a 2 pin connector with a red (12 VDC positive) and black wire (12 VDC negative or ground). Check across these wires for voltage. If power and ground is present and the panel will not power up, then the control panel is defective. Locate the part number from the sticker on the back of the board and call Equalizer for replacement. If there is no power or ground to the control panel, the source must be located and repaired. On later model year units (after 2006) that have the 2 pin power and ground connector, the power and ground generally comes from the pump assembly. Locate the 2 pin connector at the pump and check the fuse at the pump assembly (if equipped). Check for power and ground to the pump assembly. On earlier units the power and ground supply may have been supplied from the vehicle fuse panel or directly from the battery. You will need to trace and locate to determine the issue.

**Control panel powers up then shuts down when one or more switch commands is attempted:** This is known as a power reset: If a control panel shuts off when one or more switches are pressed and powers right back up, this is known as a power reset. This is caused by very low voltage or poor ground to the control panel. Check the power feed and the ground (noted above) to the control panel.

**Control panel powers up but you only get a solid beep from the control panel and power light flashes (or turns red on later models) when trying one or more operations:** This is low system voltage. Check the voltage and ground to the control panel. If the voltage falls to 10.5 VDC, operations will be denied. Oftentimes, voltage will start out high then fall below the lower limit when load is applied to the circuit. Generally voltage should stay above 11 VDC during operation.

**Control panel powers up, pump motor won't run when switch commands occur:** Locate the blue wire in the 12 pin connector at the back of the panel. This blue wire is the 'exciter' for the motor solenoid at the pump assembly. The blue wire should be "Hot" (12 VDC positive) when any run command is attempted. If there is no voltage (12 VDC positive) and no disables are in play (see section on disables) and panel supply voltage and ground are good (see the prior sections on voltage), the control panel is defective. If there is voltage, then trace the blue wire down to the pump and check for breaks in the wire. Check for voltage on the blue wire at the pump solenoid. If no issue is found with the blue wire and voltage is present on the blue wire when attempting to run, refer to the troubleshooting guide for motors and solenoids.

**Pump motor runs, however the jacks will only extend:** If jacks extend when a retract command is given (Auto-Level or manual 'up' arrow), locate the green wire in the 12 pin connector at the back of the control panel. There should be 12 VDC positive (min 10.5 VDC) on the green wire when retract is attempted. If there is no voltage on the green wire and the supply voltage and ground (see prior sections on voltage), then the control panel is defective. If there is voltage, trace and test the green wire down to the pump directional valve (DV 1) for issues with the green wire. The green wire is the 'exciter' for the directional valve (DV 1). If the valve does receive voltage (at least 10.5 VDC) during a retract command, the directional valve (DV 1) is stuck in the extend position- or the coil is defective. Remove the directional valve (DV 1) and coil. Clean or replace the valve and coil. If the coil is corroded, replace it. Also check the coil with an ohm meter for a shorted or open coil. On a 2 terminal coil there should be continuity across the 2 terminals. There should be no continuity between either of the terminals and ground -with wires to it disconnected (on a two terminal coil one of the wires goes to ground via a black wire that goes to the pump ground stud). If there is no voltage or low voltage on the green wire and voltage was good on the green wire at the back of the control panel, then there is a wiring or connector issue. Trace and repair the green wire.

**Pump motor runs, no jacks will extend, and jacks are fully retracted:** Check for voltage at the green wire at the directional control valve (DV 1). There should be no voltage when trying to extend. If there is no voltage then the directional control valve (DV 1) is probably stuck in the retract position. Remove and clean the directional valve (DV 1) or replace it. If voltage is present, there is a control panel or a wiring issue.

**Pump motor runs and one or more jacks work, however one or more jacks do not extend or retract:** Locate the manifold valve (V 1 Thru V 4) for the jack(s) that do not work (there is a valve for each leg) and check for voltage when trying to extend or retract. There should be at least 10.5 VDC applied to the valve coil. If voltage is good then the valve or coil is defective. If there is no voltage, check the same color wire at the back of the control panel for voltage. If there is no voltage at the back of the control panel, then the control panel is defective. If there is no voltage to the wire at the coil but there is voltage to the same wire color at the back of the control panel then there is a wiring issue. Trace and repair as needed. See chart for wire function/colors.

## **Pump motor runs, jacks operate from manual ‘up’ and ‘down’ buttons, however jacks down status lights do not operate properly:**

Check for proper operation of the jacks down lights: There is a pressure switch in the manifold that triggers the jacks down lights. The lights should come on if the jack(s) is not in the retracted position and go out when the jack(s) is fully retracted. If the lights do not operate in this manner, there is an issue with the jacks down light circuit. The pressure switch has 2 terminals, one that connects to ground (black wire) and the other wire is yellow with black trace and connects to the main harness that connects to the back of the control panel in the twelve pin connector. See the chart for the wire color and pin placement. When the jack extends from the stowed position the pressure on the retract side goes low which closes the pressure switch connecting the panel/wire to ground thru the ground wire which turns the panel lights on. When the jack foot retracts and pressure goes high the switch opens which breaks the connection to ground and turns the lights off.

Check the pressure switch for continuity: Remove the wires from the pressure switch. There should be continuity across the terminals when the jacks are extended (pressure switch closed). When the jacks are fully retracted there should be no continuity (pressure switch is open). If not then the pressure switch is defective or the pump cannot create enough pressure to trip the pressure switch.

Check for wiring/panel light issues: If you ground the wire going to the pressure switch from the harness/panel the jack status light(s) should come on (if the panel is on or the key switch is on). If you ground the wire at the pressure switch and the lights do not come on then try to ground them the wire at the back of the panel. If they come on then but would not before at the pressure switch then you have a wiring issue. If they won't come on when grounding at the back of the panel then the panel is defective.

Jacks down Status lights go on and off correctly however they won't stay out: If the jacks down status lights work correctly as above however they come back on after they have went out then there is a pressure loss on the retract side of the hydraulic circuit. This could be one of or a combination of the below items.

Check for external fluid leaks at the jacks, the pump/manifold assembly, hose and fittings and at the slide cylinders: A leak anywhere in the retract side of the circuit (including the slides if equipped) can create the jacks down lights coming on or not going off.

Check manifold valve DV1: This valve is the retraction hold valve. If this valve is defective the retract side pressure will not hold high causing the jacks down lights to come on. This can also allow the jacks or slides to drift from the stowed position. Verify that the override screw or knob is in the correct position (check owner's manual for this). Also check the o ring and backing ring on the nose of the valve (valve must be removed from manifold to do this). If the o ring is damaged there could be an issue with the manifold sealing surface which would require the replacement of the manifold.

One or more of the cylinders (jacks or slides) is defective (has internal piston seal bypass). Generally after checking/repairing leaks and checking/replacing the DV 1 valve we would then look for a drifting cylinder (one that does not stay in place (extended or retracted). This cylinder would most likely be defective and would need to be checked for bypass and or replaced.

## **Pump motor runs, jacks operate from manual ‘up’ and ‘down’ buttons, however Auto-Level will not function or it starts and quits:**

1. Check for proper operation of the jacks down lights: Auto Level will not function if a Jack down status light(s) are on. There is a jack down light for each leg. The light should come on if the jack is not in the retracted position and go out when the jack is fully retracted. If the lights do not operate in this manner, there is an issue with the jacks down light circuit. Check the pressure switch at the pump manifold. The pressure switch has 2 terminals, one of them is grounded to the pump ground stud the other one is connected via a yellow with black trace wire back to the control panel. When the jacks are extended and the pressure is low to the pressure switch the pressure switch is closed connecting the Yellow/black wire to ground turning on the jacks down lights. When the jacks are fully retracted (high pressure on retract side then the pressure switch is open breaking the connection of the yellow/black wire turning the jacks down status lights off.

Check the pressure switch for continuity: Remove the wires from the pressure switch. There should be continuity across the terminals when the jacks are extended (pressure switch closed). When the jacks are fully retracted (press the all retract switch to assure that full retract pressure is reached) there should be no continuity (pressure switch is open). If not then the pressure switch is defective or the pump cannot create enough pressure to trip the pressure switch.

Check for wiring/panel light issues: If you ground the wire(s) going to the pressure switch from the harness/panel the jack status light(s) should come on. If you ground the wires at the pressure switch and the lights do not come on then try to ground them right at the back of the panel. If they come on then but would not before at the pressure switch then you have a wiring or pressure switch issue. If they won't come on when grounding at the back of the panel then the panel is defective.

2. Low system voltage could exist. The voltage measured at the control panel should not fall below 11 volts during operation. At 10.5 volts the panel will stop the Auto-Level operation. Higher voltage is required for Auto-Level than manual control. On later model units the power light will turn red if low voltage is present, however it will not stay on red once the voltage comes back up.
3. Level sensor indicator: There is a level sensor light (located in the center of the right hand section of the panel) that will come on and then should go out when the panel powers up. If this light stays on there is an issue with the level sensor circuit. Check the 3 pin connector at the bottom/back of the control panel for loose wire(s) or connector. Unplug the connector, wait 10 seconds, and plug it back in. Then check for the light to be on. If the light stays on or this issue repeats later, there is an issue with the level sensor, the harness, or the control panel. The harness can be checked for continuity end to end. The level sensor and control panel can only be checked by replacement or returning to Equalizer for testing. (prior authorization required for sending any parts to Equalizer Systems)

## Other items to consider:

**Disables:** There will (should) be one or more disables in play that will deny extension of the jacks.

1. **Ignition or 'key on' disable:** In the twelve pin connector there is a red or pink wire. If this wire is hot (12 VDC positive), extension of the jacks will be denied. Generally, this is connected to a source on the vehicle that is "Hot" (12 VDC positive) when the ignition key is turned to the engine run or on position. This also is used to trigger the alarm and flash the jacks down lights should a leg drift from the stowed position when the key is in the on position. This is a required connection as it is a safety alert.
2. **Park brake disable:** On control panels that do not have the fuse (they have the 2 pin power and ground connector described in earlier sections), the black wire in the end of the twelve pin connector can be used as a park brake disable. It must go to ground directly or thru the park brake switch when the brake is applied. Generally, this is only connected to a park brake switch on diesel pusher coaches.

## Wiring connections at back of control panel

Connector	#Wire	Position/Wire Color	Function
J1 (12 pin)	1	Brown	Left front jack valve output 12 VDC +
	2	Empty	
	3	White	Right front jack valve output 12 VDC +
	4	Yellow/black trace	Pressure switch input
	5	Orange	Left rear jack valve output 12VDC +
	6	Empty	
	7	Yellow	Right rear jack valve output 12VDC +
	8	Empty	
	9	Green	Directional Control Valve DV1 12VDC+
	10	Pink or Red	Ignition disable input 12 VDC + from Key On
	11	Blue	Pump motor solenoid 12 VDC + output
	12	Black/yellow trace	Park Brake Disable 12 VDC – (chassis ground)
J2 (3 pin)	1	Red	The J-2 is the feed to the level sensor. No Field
	2	Black& Bare	Measureable test allowed on this connector
	3	Clear	Data Communication.
J3 (2 pin)	1	Red	Power 12VDC + Minimum 12ga/20amp
	2	Black	Ground 12VDC –
J-5 (2 pin)	1	Orange	Air Suspension Deflate 12VDC + (3 minutes)
	2	White	Air Suspension Inflate 12 VDC + (3minites)

Note: For issues involving Air Suspension Inflate/Deflate see [Air Suspension Trouble Shooting Guide](#).

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