



Troubleshooting **Manual Control Panel** (Old Platform) Electronic Control- Prior to 2008, Using Leg Switches

Control Panel part # 1702 (number located on back of printed circuit board)

This guide addresses the troubleshooting of electronic controls used on Equalizer Systems' manual control panels manufactured prior to 2008. These systems can be identified by having a 12 pin connector located at the back of the control panel. Control panels from years 2003 thru 2008 will have white translucent buttons. Control panels manufactured prior to 2003 will have toggle switches or solid black buttons. The troubleshooting of these is basically the same. Many of these original (old platform) control panels are obsolete. Depending on the specific control panel, there may not be an exact replacement. Replacement may require the filling out of the [Panel Replacement Form](#) so that a proper part 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. On panels that have an ATO fuse at the back of the panel, the power connection (12 VDC positive) will be next to the fuse. If the fuse is present -check it. The fuse should be rated at 20 amps. If a 20 amp fuse is blown, there may be an issue that needs resolved. The ground for these panels will be the black wire in the end of the 12 pin connector. If there is no fuse, 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 the 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 (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 the wires to it disconnected (on a two terminal coil one of the terminals 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 and check for voltage when trying to extend or retract. There should be at least 10.5 VDC applied to the valve coil when the correct up or down button is pressed. If voltage is good, 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:

1. Check for proper operation of the jacks down lights: 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 leg switches (there is a switch at the bottom of each leg that is triggered by the foot). The leg switches are connected with a wire for each one that mates with a connector near the pump assembly. That then feeds into the main harness and connects to the back of the control panel in the twelve pin connector. See the chart for the wire colors and pin placement. Each leg switch also has a ground wire to it. The leg switch wire is connected to ground thru the leg switch to turn the light on. When the jack foot extends from the stowed position, the plunger on the switch extends which closes the switch; connecting the leg switch wire to ground- which turns the light on. When the jack foot retracts and presses on the plunger, it opens the switch which breaks the connection to ground and turns the light off.

Note: Missing feet from the jack leg(s) will not allow for the leg switches to properly operate. Also if the feet are bent or distorted they may not properly activate the switch. Feet that are bent “upward” may damage or destroy the leg switch.

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 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.

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	Brown/trace	Left front jack light/leg switch
	3	White	Right front jack valve output 12 VDC +
	4	White/trace	Right front jack light/leg switch
	5	Orange	Left rear jack valve output 12VDC +
	6	Orange/trace	Left rear jack light/leg switch
	7	Yellow	Right rear jack valve output 12VDC +
	8	Yellow/trace	Right rear jack light/switch
	9	Green	Directional Control Valve DV1 12 VDC +
	10	Pink or Red	Ignition disable input 12 VDC + from Key On
	11	Blue	Pump motor solenoid 12 VDC + output
	12	Black	Control panel Ground 12 VDC – (chassis grnd)
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) (if present)	1	Red	Power 12VDC +
	2	Black	Ground 12VDC –
J3 (fused)	1	(installed supplied)	Power 12 VDC +