EQUALIZER SYSTEMS

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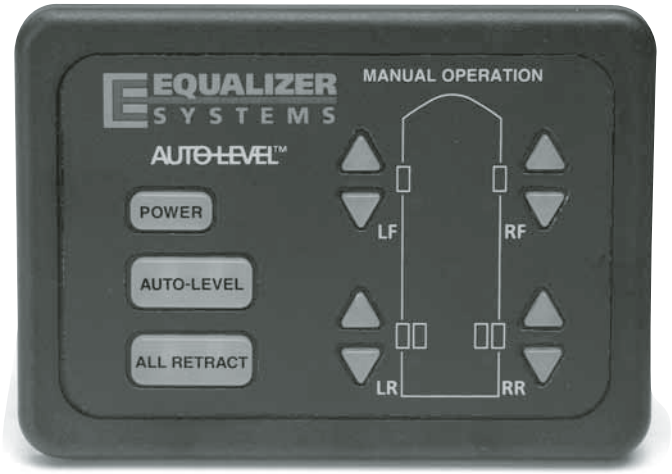
Auto Level™ Installation–Operation–Troubleshooting & Warranty Guide

Includes Manual and Auto Level™ 4-Point Leveling Systems



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*****WARNING*****

Read entire instructions and all precautions prior to installing, using or troubleshooting this equipment

EQUALIZER SYSTEMS AutoLevel™ Installation Guide

This manual is intended to be used by technicians installing Equalizer Systems Manual and AutoLevel™ systems. It is assumed that the reader is familiar with hydraulic, mechanical and electrical systems in addition to workplace safety.

Tools Required for Installation

- Ratchet, sockets and wrench set
- Wire cutters / crimpers
- Electric drill and bits
- Screw gun bits
- Welding equipment (if welding leg or bracket in place)

Additional Items Required for Installation

- # 4 gauge power wire (to connect battery +12V to the pump)*
- # 4 gauge ground wire (to connect battery ground to pump)*
- # 4 gauge ring terminals *
- Loom clips (to secure harnesses and hydraulic hoses to the coach)
- Self tapping screws or pop rivets
- Wire ties
- 10 quarts Dexron III Automatic Transmission Fluid

* Note: These items must be #2 gauge if cable run is greater than 12 ft.

WARNING: Modification of **ANY** factory-supplied item may result in the denial of all warranty claims. Call Equalizer Technical Support prior to any modifications.

DANGER: With any hydraulic application, holding position on a cylinder must be done with safety in mind. Failure in the system may cause the leg(s) to retract or extend on its own. When working under or near the coach, always use jack stands of appropriate rating to support the weight of the coach.

Installation

!!!!! Make sure that all hydraulic lines, power cables and wire harnesses are clear of hot exhaust and chassis pinch points. All of these items must be securely fastened to the chassis with wire ties.

Jack Leg / Pump Installation

STEP 1: Determine where the legs will be mounted. The legs must be mounted to the chassis frame, as close as possible to the front and rear axels.

STEP 2: Secure the leg brackets in place with c-clamps and weld the bracket to the frame. Bolt the jackleg to the bracket using washers on both the bolt head and the nut. The legs must be installed with a **minimum of 7 to 8 inches of ground clearance.** In any case, the bottom of the footpad should be no lower than any other item mounted on the coach. Pay particular attention to the angle of departure for the chassis when mounting the rear legs and the angle of approach when mounting the front legs.

STEP 3: Install the pump kit on the coach. The pump must be mounted in a location that is reasonable to run all of the hydraulic hoses to the manifold. It must be accessible for filling the reservoir and monitoring the fill level. Take note if the unit is equipped with the manual override option. The pump handle, cartridge valves and directional valves must be accessible, if manual override is employed. In most applications, one of the side storage compartments or the engine compartment will provide the perfect location. An additional mounting box may be used on other style coaches.

STEP 4: Install the hydraulic hose fittings in the top and bottom of each leg and install the JIC o-ring fittings into the manifold. The fitting should be installed in the manifold finger tight. Rotate the fitting to the desired orientation, and then tighten the 9/16" jam nut. **Care must be taken to ensure that the fitting is tight in the manifold, but not overly tight as to compromise the o-ring seal.**

STEP 5: Install the hydraulic hoses. Route the hoses clear of all hot exhaust components and pinch points in the suspension system. Attach the hoses to the manifold and legs according to the hose connection chart on page 3. Secure the hydraulic hoses with wire ties to the chassis.

Installation of Hoses to the Manifold

Jack Leg	Manifold Connection	Leg Switch Wire Color
Left Front-TOP	T-1 Brown Solid	Brown w/ Trace
Left Front-BOTTOM	B-1 Brown Stripe	
Right Front-TOP	T-2 White Solid	White w/ Trace
Right Front-BOTTOM	B-2 White Stripe	
Left Rear-TOP	T-3 Orange Solid	Orange w/ Trace
Left Rear-BOTTOM	B-3 Orange Stripe	
Right Rear-TOP	T-4 Yellow Solid	Yellow w/ Trace
Right Rear-BOTTOM	B-4 Yellow Stripe	

Power Supply Connections: Pump Assembly / Control Panel

!!!!! The harnesses used in the system are communication cables. It is very important that all connections for the pump and control panel harnesses are tight and physically sound.

STEP 6 (Control Panel/Pump harness): Fasten the control panel mount in the desired location. Attach the supplied wire harness between the pump and the intended location for the control panel. This harness will connect between the horizontal 12-pin connector (J1) on the control panel and the 6-pin connector (P4) on the pump assembly. Secure the harness with wire ties to the chassis. Refer to the attached diagram.

STEP 7 (Leg Switch Harness): Note the dual harness "break-out" near the end of the 6-pin connector (P4). The connector with brown/white and white/black wires (P2) attaches to the harness for the front jack leg switches. The connector with the yellow/black and orange/white wires (P3) attaches to the harness for the rear jack leg switches. Secure the harnesses with wire ties to the chassis. Refer to the attached diagram.

STEP 8 (Leg Switches): Attach the supplied jackleg switch harnesses to the connectors P2 and P3. The harness for the front and rear jackleg switches is color coded for easy identification. Note color designations listed in step 7. Secure the harnesses with wire ties to the chassis. Refer to the attached diagram. (Leg Switch - part # 6011).

NOTE: Some applications may require the welding of a leg switch bracket (part # 1817C) on the outer tube of the jackleg. Care must be taken to ensure the bracket is tack welded so that the plunger of the switch is depressed when the leg is stowed; however, it must allow approximately 3/16" of additional plunger travel. This will prevent the foot from destroying the switch by depressing the plunger beyond normal travel.

STEP 9 (Control Panel/Leg Switch Ground): Note the "break-out" wires near the end of the 12-pin control panel connector (J1). Locate the dual black #16 gauge wires with the eyelet and attach firmly to a known and verified chassis ground. It may be necessary to attach these wires directly to the battery. In any case, this **must** be a high quality ground (negative) connection for the control panel to operate properly.

STEP 10 (Control Panel Ignition Disable Circuit): Again, note the "break-out" wires near the end of the 12-pin control panel connector (J1). Locate the single red #16 gauge wire. Connect this wire to the ignition positive. This will make the wire "hot" and will inhibit jack extension when the vehicle ignition key is in the on (engine run) position. If the coach is not motorized, skip this step and protect the wire with electrical tape or a wire nut.

STEP 11 (Control Panel +12volts): Locate the single spade connector (J3) on the rear of the panel circuit board next to the 20-amp. fuse. Attach a #12 gauge wire with a 1/4" insulated spade connector between J3 and the coach battery side. It is acceptable to attach this wire directly to the battery side of the fuse panel. This supply may be fused at the source with a 20-amp fuse. **This +12 volt supply must be a dedicated and isolated circuit (not shared with other devices), and must be constant, non-switched +12 volt.**

STEP 12 (Pump -12volts): Attach a #4 gauge wire (#2 gauge if the run is over 12ft.) between the negative 12 volt terminal on the battery and the ground stud on the pump. This is the preferred method of grounding. If grounding the pump to the chassis, the connection must be sound, free of paint and not susceptible to corrosion. **It is not acceptable to allow the pump mounting bolts to be the sole grounding connection.**

STEP 13 (Pump +12volts): Attach a #4 gauge wire (#2 gauge if the run is over 12 ft.) between the positive 12 volt terminal on the battery and the open post at the motor solenoid on the pump. This supply may be fused at the source with a 120-amp. circuit breaker.

AutoLevel™ Sensor (Auto-Level™ Systems ONLY)

STEP 14 (AutoLevel™ Sensor): Mount the Auto-Level Sensor Assembly (part # 7196) to the underside of the coach, or in the basement (if available). The sensor must be mounted as close to center of the coach as possible. The sensor assembly has a label with mounting instructions for proper orientation. The mounting directions must be followed for the Auto-Level sensor to operate properly.

STEP 15 (AutoLevel™ Sensor Harness): The Auto-Level Sensor Harness (part # 1616) will connect between the Auto-Level™ Sensor and the Auto-Level™ Control Panel. Note the small white 3-pin connector attaches to J2 on the control panel. The large black connector attaches to the wire harness exiting the Auto-Level Sensor. Secure the harness with wire ties to the chassis.

Hydraulic Fluid and Purging

The MH jacklegs are shipped in the fully retracted position. The retraction side of the cylinders is the first to be purged of air.

***Do not manually overextend *individual* jacks singularly.**
This may cause unwanted stress on the coach or the jacklegs.

STEP 16 (Retraction Purge): Fill the reservoir to 3/4 full with Dexron III Transmission fluid. This is the same fluid used in GM vehicles. Begin to purge the retraction side of the system by pushing the UP D touch pad button for each leg. The legs may be run in pairs (front pair & rear pair). We will know when the retraction side of the hydraulic circuit is purged when the fluid level in the reservoir stops and the pump changes sound (bypass mode). Release the touch pad button(s). Repeat this process for the rear leg(s). **Refill the reservoir to 3/4.**

STEP 17 (Full Purge): Next, cycle the system by lowering each leg to the ground manually, using the DOWN ▽ touch pad buttons on the control panel. Do not allow the jack to lift the coach. After all legs are in contact with the ground, press ALL RETRACT to retract the legs. Next, run the legs in pairs (front pair & rear pair) to full extension by holding both DOWN ▽ simultaneously. Monitor the fluid level and all fittings for leakage. Retract the legs by pressing ALL RETRACT. Recheck the reservoir and fill to 3/4. Note the fluid level in the reservoir is at maximum when all legs are fully retracted and minimum when legs are fully extended. **This full extension and retraction in pairs should be repeated 3-4 times.**

Null Setting (AutoLevel™ Systems ONLY)

The null, or level position has been preset at the factory. However, it is recommended to reset the null after installation, or if the coach has been dormant for more than 60 days.

STEP 18 (Setting the Null): To set the null, press and release the POWER touch pad button on the control panel. The POWER button should be lit GREEN when power is on. Level the coach by deploying jacks manually (using the DOWN ▽ touch pad, extend each jack until the coach is level), or by simply parking the coach on a level site. Use a bubble level on a flat surface in the center of the coach as a reference. Once the coach is level, turn the POWER off at the panel. Depress and hold the AUTO-LEVEL touch pad button. Continue to hold the AUTO-LEVEL button and press and release the POWER button and listen for a series of beeps. After the panel has beeped 5 to 6 times, release the AUTO-LEVEL button. The new null has been set. Press and release the ALL RETRACT button to retract the jacks to the stowed position.

Operation

Manual Operation

- **Power On:** The power to the unit must be turned on before any function can be attempted. If you have installed the ignition disable circuit (see Step 10, above), you will need to have the ignition key in the "off" or "auxiliary" power position (depending on the wiring scheme chosen). Push and release the POWER touch pad button to engage power. The POWER button should be lit GREEN when power is on.

- **Planting the Jacks:** Using the DOWN ▽ touch pad button, extend each jack until they contact the ground (this is referred to as "planting" the jacks). As you extend each jack, an LED light positioned on the panel will indicate the jack is out of the "stowed" position. Jacks may be operated individually or in pairs. **Do not manually overextend individual jack. This may cause unwanted stress on the coach or the jacklegs.**

- **Leveling the Coach:** Use a bubble level on a flat surface in the **center** of the coach as a reference. Level the vehicle by using DOWN ▽ or UP △ touch pad buttons until the vehicle is level. Jacks may be operated individually or in pairs as long as they are operated in the same direction. Do not attempt to lift the vehicle off of the tires. The panel may be turned off once level has been achieved.

- **Retracting the Jacks:** The Equalizer System provides the ability to retract the jacks using the ALL RETRACT touch pad button or the UP △ touch pad for each individual jack. All jacks will automatically retract and return to the stowed position when the ALL RETRACT touch pad is pressed and released. It may take up to 90 seconds for full retraction, depending on coach, pump location, battery condition, etc.

AutoLevel™ Operation

- **Setting the Null (Initial operation only. If null is set, proceed to the next step):** To set the null, press and release the POWER touch pad button on the control panel. The POWER button should be lit GREEN when power is on. Level the coach by deploying jacks manually (using the DOWN ▽ touch pad, extend each jack until the coach is level), or by simply parking the coach on a level site. Use a bubble level on a flat surface in the center of the coach as a reference. Once the coach is level, turn the POWER off at the panel. Depress and hold the AUTO-LEVEL touch pad button. Continue to hold the AUTO-LEVEL button and press and release the POWER button and listen for a series of beeps. After the panel has beeped 5 to 6 times, release the AUTO-LEVEL button. The new null has been set. Press and release the ALL RETRACT button to retract the jacks to the stowed position.

- **Power On:** The power to the unit must be turned on before any function can be attempted. If you have installed the ignition disable circuit (see Step 10, above), you will need to have the ignition key in the “off” or “auxiliary” power position (depending on the wiring scheme chosen). Push and release the POWER touch pad button to engage power. The POWER button should be lit GREEN when power is on.

- **AutoLevel™:** Press the AUTO-LEVEL touch pad and release. The system will send out a continuous series of beeps to let you know Auto-Level™ is operating and will automatically level the coach. When completed, the panel will signal a successful level with a dual-level tone. The panel will enter “sleep mode” after ten minutes of inactivity.

- **Retracting the Jacks:** The Equalizer System provides the ability to retract the jacks using the ALL RETRACT touch pad button or the UP △ touch pad for each individual jack. All jacks will automatically retract and return to the stowed position when the ALL RETRACT touch pad is pressed and released. It may take up to 90 seconds for full retraction, depending on coach, pump location, battery condition, etc.

Troubleshooting Guide

Control Panel will not turn on	Blown fuse on rear of control panel or in fuse panel	Replace fuse
	Faulty ground or power wire	Trace and repair
	Low Battery Voltage	Charge chassis and/or coach batteries
	Defective Control Panel	Call Equalizer Tech Support
	Defective Control Panel harness	Trace and repair
Control panel turns on – Jacks will not operate	Low Battery Voltage to Pump	Charge chassis and/or coach batteries
	Faulty electrical connection	Trace and repair
	Defective Control Panel	Call Equalizer Tech Support
	Defective pump motor or solenoid	Replace
	Other system defect	Call Equalizer Tech Support
Jacks will retract but will not extend	Low Battery Voltage to Pump	Charge chassis and/or coach batteries
	Park Brake not set	Set park brake
	System Null not set	Set Null (See step 18 above)
	Cross-Frame Twist Software Protocol has been Initiated	Lower opposite side of coach and/or Re-set Null and Level Coach
	Ignition Switch in wrong position	Check and change as needed
	Defective Control Panel	Call Equalizer Tech Support
	Faulty electrical connection	Trace and repair
	Damaged or defective leg switch	Check and replace
	System Defect	Call Equalizer Tech Support

Jacks will extend but will not retract	Low battery voltage	Charge chassis and/or coach batteries
	Incorrect hose connection at pump or jack	Trace and repair (see chart)
	Incorrect pump wiring for valves	Check and re-wire
	Defective Control Panel	Call Equalizer Tech Support
AutoLevel™ will not level	System Null not set	Set Null (See step 18 above)
	AutoLevel sensor installed improperly or has moved	Check sensor orientation (See step 14 above)
	Ignition Switch in wrong position	Check and change as needed
	Damaged or defective Auto-Level sensor or harness	Check center LED on panel - Call Equalizer Tech Support
	Damaged or defective leg switch	Check and replace – Call Equalizer Tech Support
	Defective Control Panel	Call Equalizer Tech Support
AutoLevel™ stops mid-cycle	Low battery voltage	Charge chassis and/or coach batteries
	Excessive vehicle motion during leveling sequence	Reset Control Panel and re-try
	System Null not set	Set Null (See step 18 above)
	Damaged or defective leg switch	Check and replace – Call Equalizer Tech Support
	Damaged or defective Auto-Level sensor or harness	Check center LED on panel - Call Equalizer Tech Support
Leg LED's on panel stay on	System Defect	Call Equalizer Tech Support
	Defective leg switch or harness	Trace and repair or replace
	Defective leg switch harness or ground	Trace and repair or replace
	Defective Control Panel	Call Equalizer Tech Support

Hydraulic pump inoperative	Low battery voltage	Charge chassis and/or coach batteries
	Blown fuse or breaker in fuse panel	Replace fuse or reset breaker
	Faulty electrical connection	Trace and repair
	Defective pump motor or solenoid	Replace
Jack(s) bleed down from leveled position or stowed position	Air in hydraulic system	Purge air (see steps 16 & 17)
	External fluid leak	Trace and repair
	Defective cartridge valve in pump	Replace cartridge valve
	Defective jack leg	Replace jack leg
	Air in the system	Purge air (see step 17 above)
Jack(s) are jerky when retracting	Fluid level low	Check fluid level and add as necessary
Jack(s) will not retract from full extension	Low Battery Voltage to Pump	Charge chassis and/or coach batteries
	Low battery voltage or poor ground to control panel	Charge chassis and/or coach batteries and ensure proper grounding
	Damaged or defective harness from panel to pump	Trace and repair
	Fluid level low	Check fluid level and add as necessary

Always ensure proper charge on the batteries

Proper and adequate grounding of the control panel and the pump are essential

90% of the phone calls we receive are found to be a discharged battery

If your problem is not listed or persists, call Equalizer Systems at (800) 846-9659.

Please gain prior authorization for warranty service or repair.

Important Precautions

1. Make sure there are no obstructions in the extend or retract paths of the jacks.

2. Do not use the jacks to change the tires. The system is designed as a leveling and stabilizing system and is not meant to lift the coach off the tires.

3. Do not use the jacks as stands to perform service work under or near the coach.

4. Do not operate any system functions while anyone is under the coach.

5. Do not attempt to operate the system while the vehicle is in motion.

6. Do not allow excessive motion in the coach during the Auto-Level™ operation. This could cause the system to level improperly.

7. Do not attempt any technical repairs without first consulting the troubleshooting guide above. Next, call Equalizer Systems technical assistance at (800) 845-9659. Failure to do so may result in denial of warranty claims.

It is impossible to know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Accordingly, anyone who uses a service procedure or tool must first assure that neither personal safety nor vehicle safety will be jeopardized by the selected service methods. This bulletin is supplied for technical information only and is not an authorization for repairs.

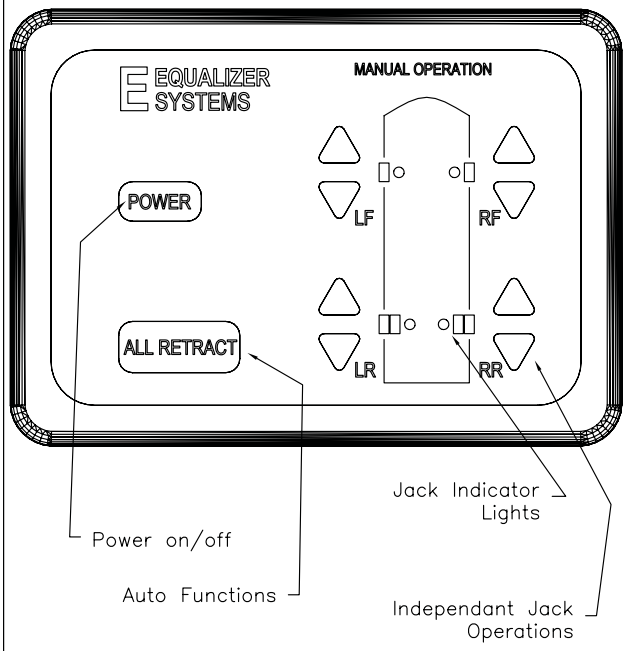
Control Panel Visual Status Outputs

#S	STATUS LED	DESCRIPTION	LED COLOR	STATUS
1	Power Switch	**Normal** - Backlight Location LED when voltage is normal Backlight Location LED when voltage is **below** 10.0V +/-0.5V	Green -	On Off
		Warning LED when Voltage is **below** 10.0v +/- 0.5V Warning LED when Voltage is **above** 10.0v +/- 0.5V	Red Red	Off On
2	AutoLevel™ Switch	AutoLevel™ is activated and in progress	Green	Flash
		Error condition -Any leg that fails to un-stow initiates an error condition. Press any switch or power off will clear the error condition.	Red	On
3	All Retract	All Retract is activated and in progress	Green	Flash
		Error condition – any leg, which fails to stow. Any switch press or power off will clear the error condition.	Red	Flash
4	LF Leg Stow Status LED	LF Leg is stowed or LF Leg is extended	Red	Off or On
		Error condition – anytime leg fails to un-stow during Auto-Level or fails to stow during All Retract	Red	Flash
5	RF Leg Stow Status LED	RF Leg is stowed or RF Leg is extended	Red	Off or On
		Error condition – anytime leg fails to un-stow during Auto-Level or fails to stow during All Retract	Red	Flash
6	LR Leg Stow Status LED	LR Leg is stowed or LR Leg is extended	Red	Off or On
		Error condition – anytime leg fails to un-stow during Auto-Level or fails to stow during All Retract	Red	Flash
7	RR Leg Stow Status LED	RR Leg is stowed or RR Leg is extended	Red	Off or On
		Error condition – anytime leg fails to un-stow during Auto-Level or fails to stow during All Retract	Red	Flash
8	All @ Power-Up	**Backlight**-All Location LEDs, except power switch not in use	Green	On
		Visual Test – All Warning/Error LEDs located under Auto-Level™ switch and All Retract/Travel Mode switch, all Stow LEDs Plus Sensor LED. Power switch red & green LEDs, which is not selected, do not turn On	Red	1.5-sec
9	AutoLevel™	• Sensor is On and communicating with ALV • No sensor data is available • Sensor data in intermittent due to harness failure • Noise on sensor line or Low Voltage	- Red Red Red	Off On Flash On
10	Heartbeat	**Normal** - LED on printed circuit board - Processor is active	Red	Flash

Control Panel Audible Status Outputs

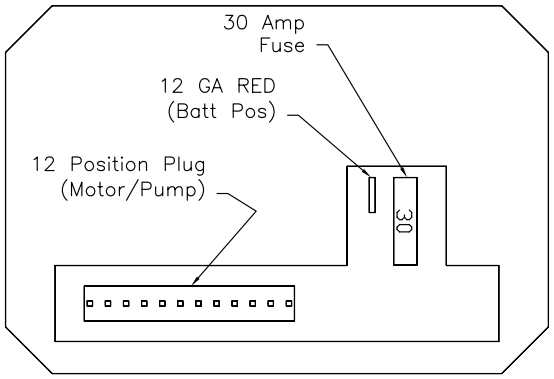
#S	AUDIO STATUS	DESCRIPTION
1	Denied w/Disable On	Continuous tone sounded while switch is pressed.
1a	Denied w/No Disable	"Uh-Uh" tone sounded each time a switch is pressed
2	Failed	Dual Low tone "Uh-Uh"
3	Passed	Hi tone, Low tone. "Be-doop"
4	Warning	1/2 sec. Low tones plus 1/4 sec. High tones – 10-second timeout
5	Auto Operating	1/2 sec. Hi tones.
6	Auto Operating failed	1/4 sec. **Hi tone pulse** - Indicates a continuously present error condition, which is probably indicated by one or more leg status LEDs – **Continuous** until any switch is pressed to clear the error condition
7	System Reset	Short series of 1/4 sec Hi tones – (indicates power reset)

Front View



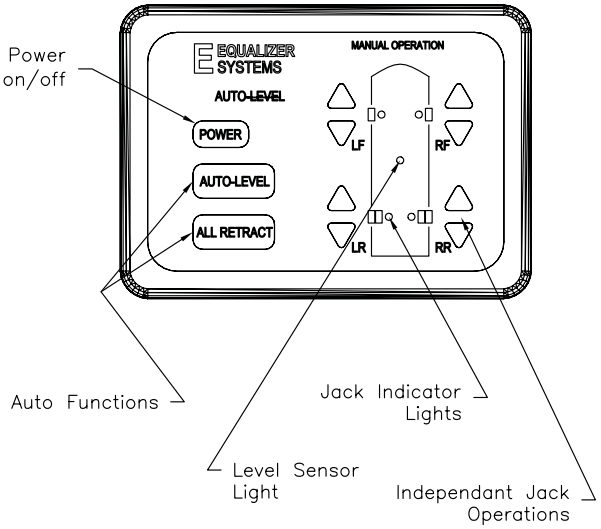
P/N 1702 Manual Hydraulic Control Panel

Rear View



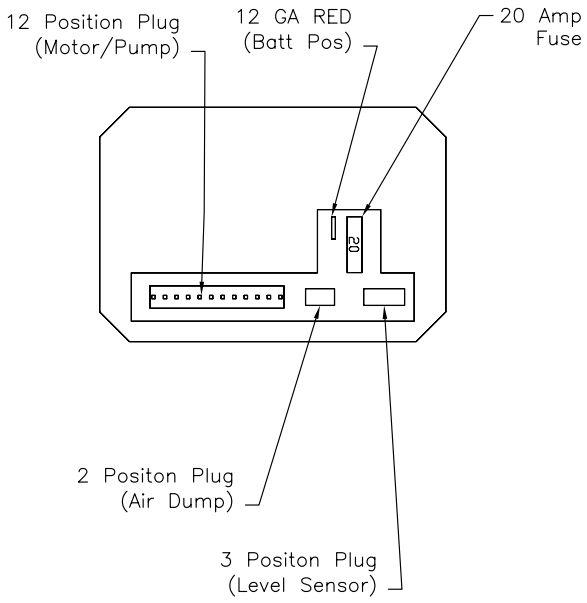
Front View

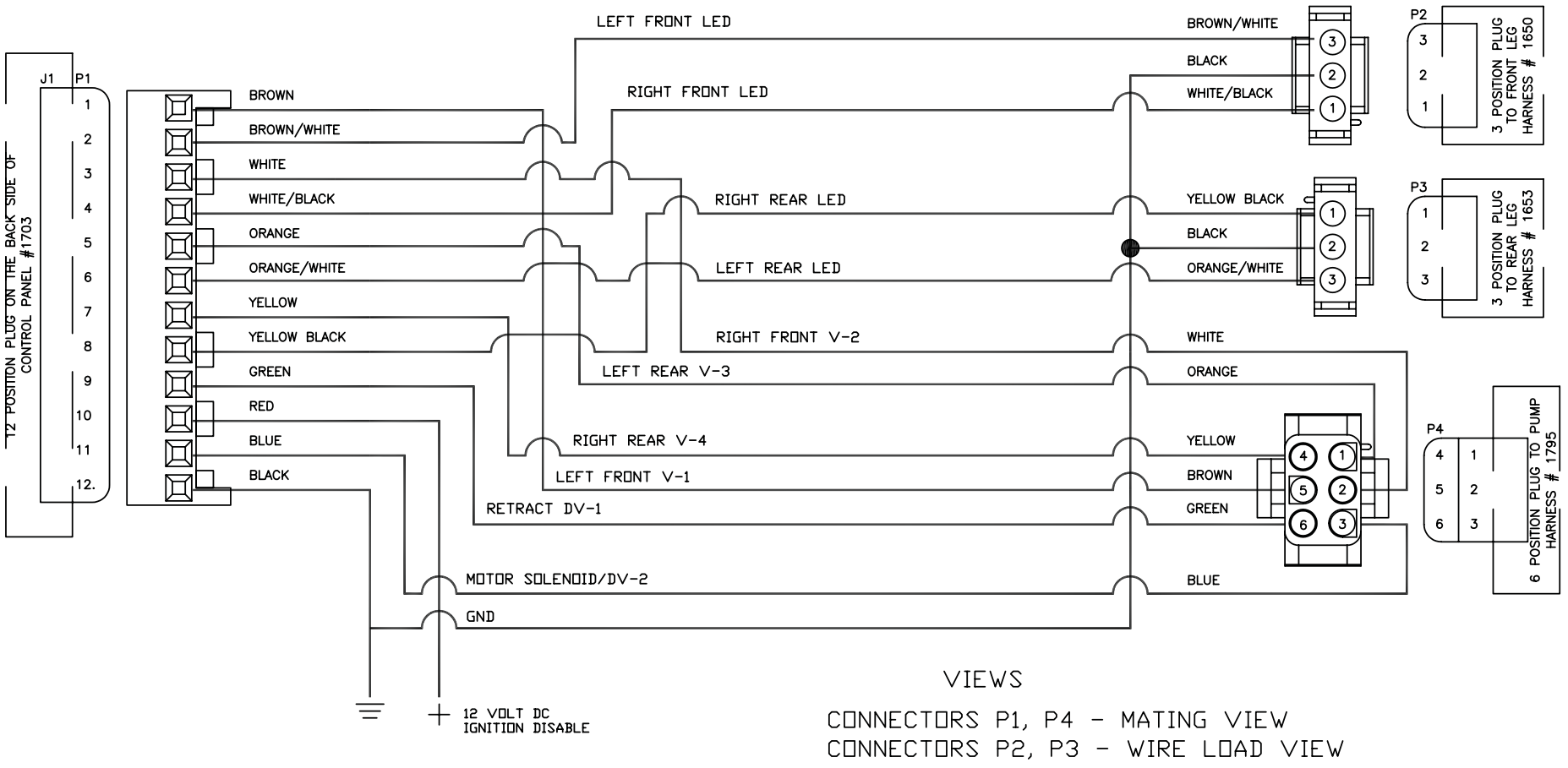
IMPORTANT-Null must be set on panel before attempting any operation



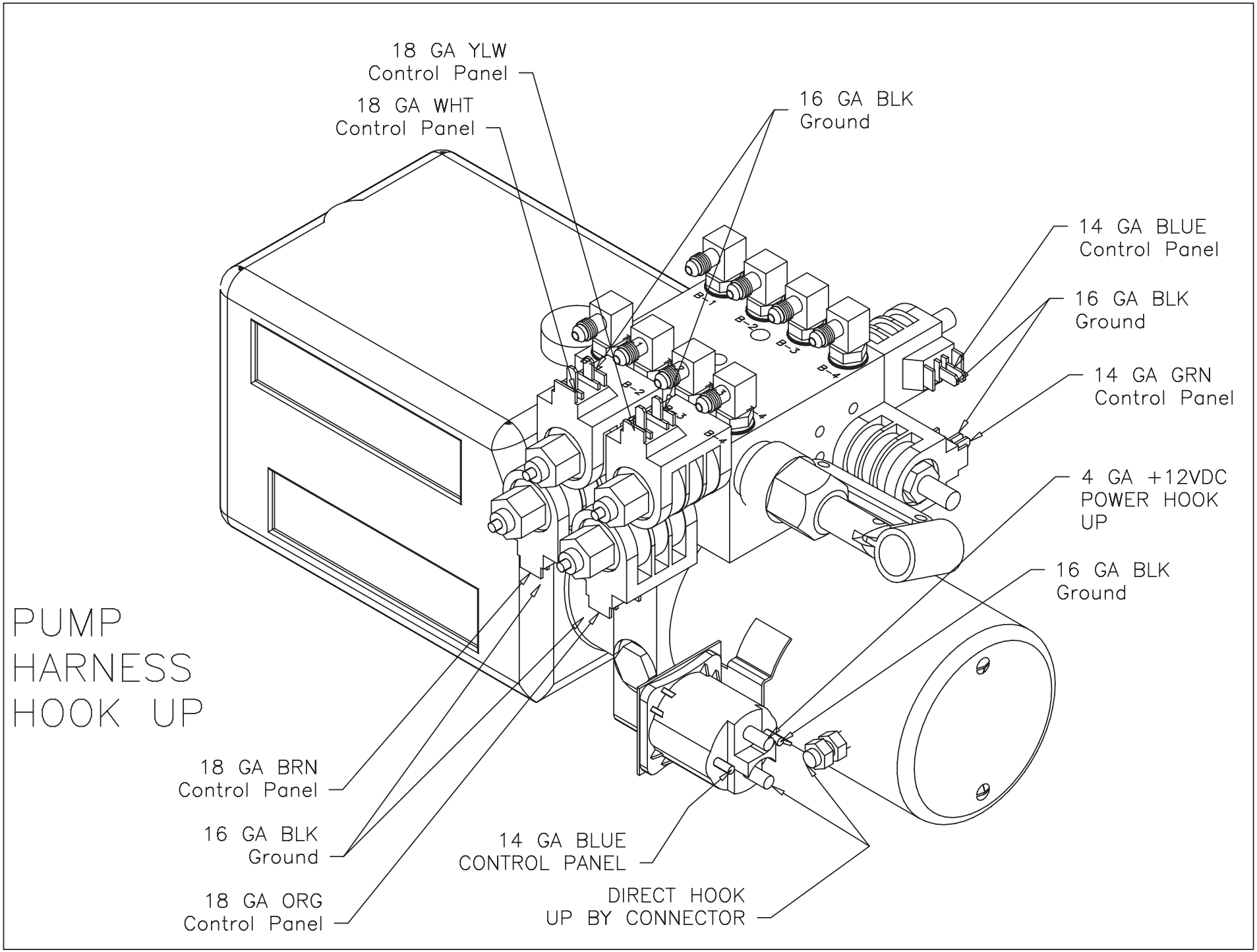
P/N 1703 AutoLevel Hydraulic Control Panel

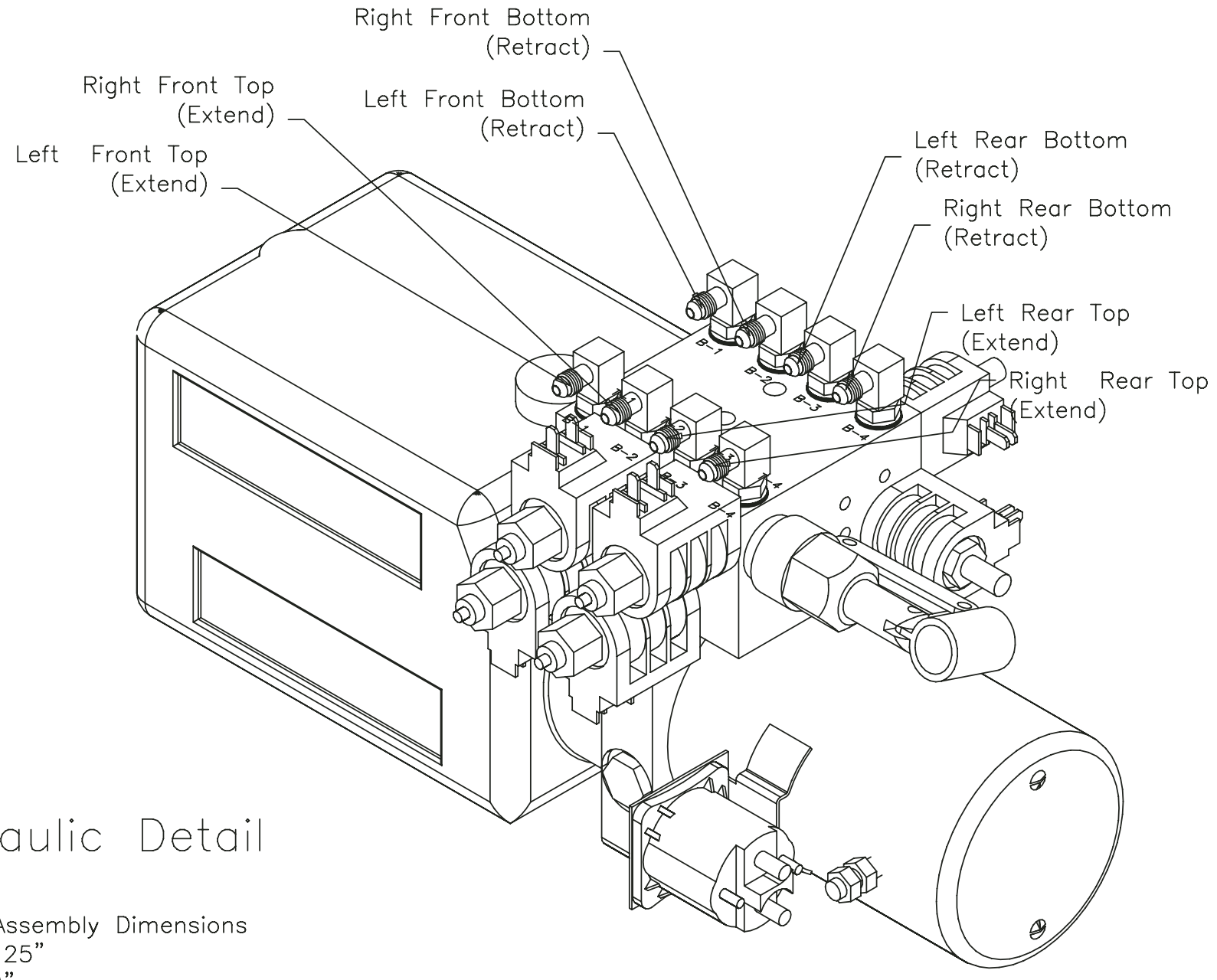
Back View





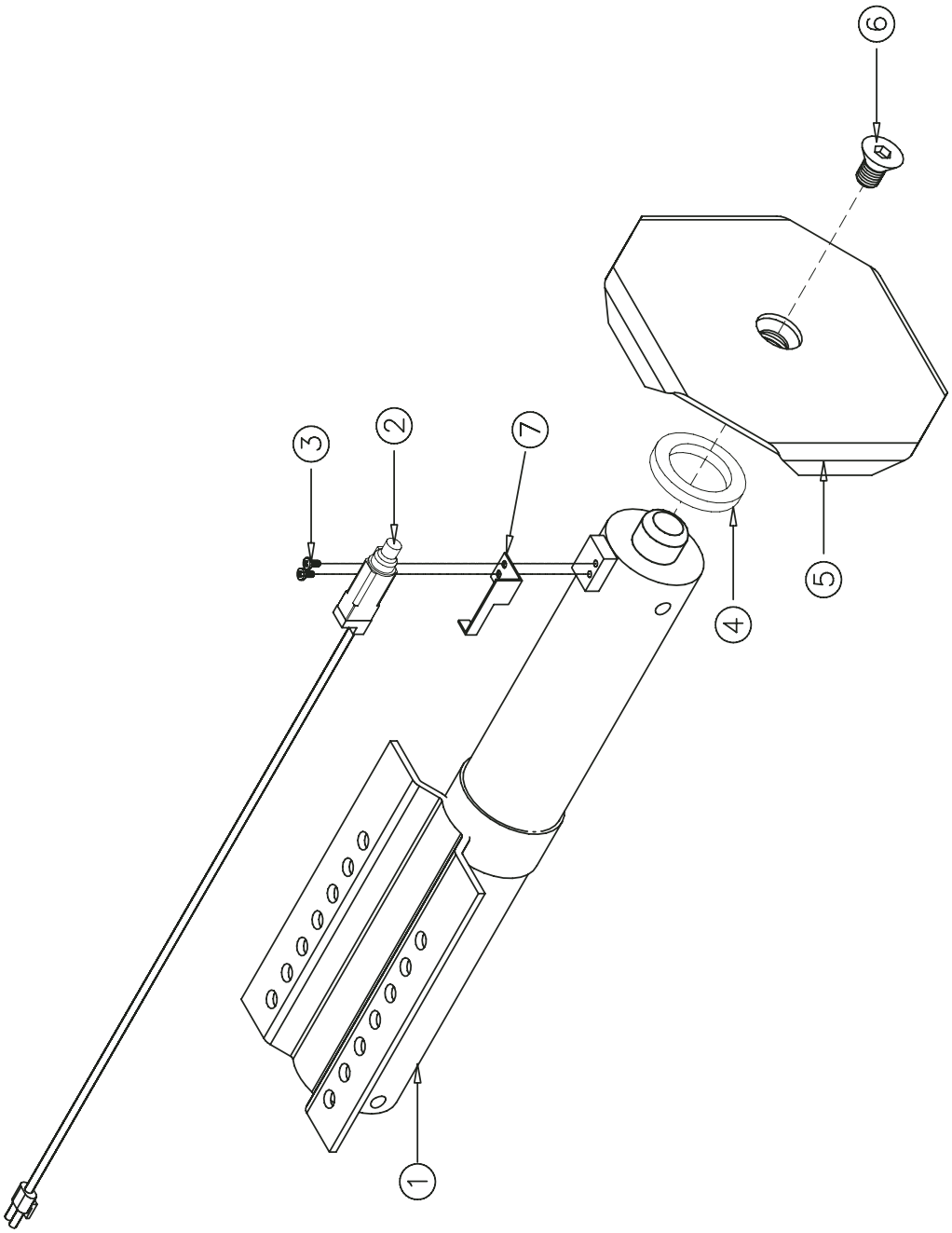
STANDARD MOTOR HOME HARNESS


18 GA YLW
Control Panel
18 GA WHT
Control Panel
16 GA BLK
Ground
14 GA BLUE
Control Panel
16 GA BLK
Ground
14 GA GRN
Control Panel
4 GA +12VDC
POWER HOOK
UP
16 GA BLK
Ground
B-1
B-2
B-3
B-4
PUMP
HARNESS
HOOK UP
18 GA BRN
Control Panel
16 GA BLK
Ground
18 GA ORG
Control Panel
14 GA BLUE
CONTROL PANEL
DIRECT HOOK
UP BY CONNECTOR



Hydraulic Detail

Pump Assembly Dimensions
Length 25”
Width 9”
Height 9”



ITEM #	PART # / DESCRIPTION	QUANTITY
1	#1592 - CYLINDER	1
2	#6011 - LEG SWITCH/HARNESS ASSEMBLY	1
3	#1413 - LEG SWITCH SCREWS	2
4	#1800 - GASKET	1
5	#1683 - 10X10 FOOT	1
6	#1383 - 3/4-10 SCREW	1
7	#1550 - LEG SWITCH CLIP	1

Warranty

The Equalizer System shall have the following warranty coverage:

100% parts coverage for all defective parts for a period of three (3) years and 100% labor coverage for replacement of any defective parts, including shipping, for a period of one (1) year. This warranty period shall begin on the date when the Equalizer System enters into service. If the part is found to be defective, Equalizer Systems shall pay parts and shipping expense for the defective part for a period of one year. Equalizer Systems reserves the right to authorize repair, parts, replacement, shipping costs, and/or any expense having to do with warranty service, prior to any work or shipping expense is incurred. Equalizer Systems also reserves the right to authorize the location and technician to perform the service.

In the event that service must be performed, Equalizer Systems will provide labor coverage only for the allotted time issued on the "Equalizer Systems Parts Replacement Schedule" at a reasonable shop rate. Equalizer Systems will determine reasonable shop rates. Equalizer Systems will not be responsible for improper installations, damage due to improper installation, or service, performed by parties other than Equalizer Systems.

Equalizer Systems will not be responsible for any damage due to abuse, neglect, misuse, negligence, misapplication, error of operation, accidental or purposeful damage. This warranty extends to the Equalizer System only, and does not extend to the vehicle to which the Equalizer System is attached or any other apparatus or property, loss of time, manufacturing costs, labor material, loss of profits, consequential damages direct or indirect or incidental damages, whether due to rights arising under this warranty or otherwise, and whether a claim for damages is based on contract, tort, or warranty.

Written permission for any warranty claim return must be first obtained from authorized Equalizer Systems personnel. All warranty parts must be accompanied by a complete written explanation of claimed defects and the circumstances of failure.

Products manufactured or sold by Equalizer Systems are not warranted expressly or by implication for merchantability or fitness for a particular use, notwithstanding any disclosure to Equalizer Systems of the use to which the product is to be put. This express warranty is the sole warranty of Equalizer Systems. Equalizer Systems does not authorize the sale of its products under any other warranty or guarantee, expressed or implied.

This warranty voids all previous issues. Effective date: November 1, 2002. Any questions concerning this product warranty should be directed to:

Equalizer Systems
P.O. Box 668, 55169 CR 3 North
Elkhart, IN 46515
(800) 846-9659