

EQUALIZER **S Y S T E M S**

Electric & Hydraulic Lifting Systems

Elkhart, Indiana

800-846-9659

www.equalizersystems.com



Auto-Level™ Operation/ Troubleshooting & Warranty Guide

Prepared specifically for Four Winds Owners

Effective March 2007

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*****WARNING*****

READ ENTIRE INSTRUCTIONS AND ALL PRECAUTIONS
PRIOR TO INSTALLING, USING OR TROUBLESHOOTING
THIS EQUIPMENT

*****WARNING*****

EQUALIZER SYSTEMS AutoLevel™ Owners Guide

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.

Operation

Manual Operation

Power On: Push and release the POWER keypad button to engage power. The LED next to the POWER button should be lit RED when power is on. You will need to have the ignition key in the “off” position to extend the jacks. If you attempt to extend individual jacks by pressing the DOWN ▽ keypad button or all jacks with the AUTO-LEVEL button, you will hear a “deny” tone from the keypad if the ignition key is in the improper position.

Planting the Jacks: Using the DOWN ▽ keypad 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 keypad will indicate the jack is out of the “stowed” position. Jacks may be operated individually or in pairs. **Do not manually overextend individual jacks. This may cause unwanted stress on the coach or the jacks.**

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 △ keypad 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 keypad may be left on once level has been achieved.

Retracting the Jacks: The Equalizer System provides the ability to retract the jacks using the ALL RETRACT keypad button or the UP △ keypad button for each individual jack. All jacks will automatically retract and return to stowed position when the ALL RETRACT keypad button is pressed and released. The pump will run in retract mode until all of the jacks are fully stowed (plus an additional 5 seconds) up to a maximum of 60 seconds. You may stop the ALL RETRACT by pressing any button on the keypad.

AutoLevel™ Operation

Setting the Null: Null is the term used to indicate “levelness” of the coach. The null has been preset from the factory. If the coach is not level following an attempt to Auto-Level, you will need to reset the null. To set the null, push and release the POWER keypad button to engage power. The LED next to the POWER keypad button should be lit RED when power is on. Level the coach by deploying jacks manually (using the DOWN ▽ keypad button, extend each jack until the coach is level), or by simply parking the coach on a level site. You do not need to have jacks deployed to set the null. 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 keypad 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 keypad will continue to beep as long as the AUTO-LEVEL button is held). The new null has been set and the panel will maintain this setting. Press and release the ALL RETRACT button to retract the jacks to the stowed position.

Power On: Push and release the POWER touch pad button to engage power. The LED next to the POWER keypad button should be lit RED when power is on. You will need to have the ignition key in the “off” position to extend the jacks. If you attempt to extend individual jacks by pressing the DOWN ▽ touch pad or all jacks with the AUTO-LEVEL touch pad, you will hear a “deny” tone from the panel if the key is in the improper position.

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 keypad button or the UP △ button for each individual jack. All jacks will automatically retract and return to stowed position when the ALL RETRACT keypad button is pressed and released. The pump will run in retract mode until all of the jacks are fully stowed (plus an additional 5 seconds) up to a maximum of 60 seconds. You may stop the ALL RETRACT by pressing any button on the keypad.

4 Winds Slide Operation

Slide rooms will operate with the ignition key in the 'OFF' position ONLY.

Ignition control of the slides is done with a 12VDC 30A Normally Closed Relay installed 12" from slide switch #1 in the harness. This relay interrupts the signal from the slide switch(s) that activates the motor.

12VDC power is supplied to the slide control switches via a 15-amp auto-reset thermal circuit breaker located on the hydraulic pump, inside a red plastic cover.

Rooms with travel locks require both locks to be fully retracted (unlocked) before power to the slide room switch is restored.

When retracting rooms, a delay may be present until the hydraulic pump builds enough pressure to pull the room in. Just continue to press the switch until the room retracts.

Erratic operation of the slide rooms may be caused by low voltage to the pump. Be sure to keep batteries fully charged to prevent erratic operation.

HOSE COLOR IDENTIFICATION

SLIDE #1(DF)	GREEN = EXTEND	GREEN/BLACK = RETRACT
SLIDE #2(DR)	PURPLE = EXTEND	PURPLE/BLACK = RETRACT
SLIDE #3(PR)	GREY = EXTEND	GREY/BLACK = RETRACT
SLIDE #4(PF)	RED = EXTEND	RED/BLACK = RETRACT

SLIDE ADJUSTMENT

Adjustments to the threaded rod end of the cylinder attachment can be made by moving jamb nuts back and forth until desired setting is found.

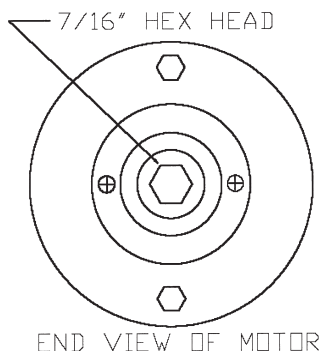
Adjustments to the stop bolt located on the end of the slide mechanism can be made by releasing the jamb nuts and moving the bolt back and forth until the desired setting is found.

Manual Override for 3.7 MTE Uni-Rotation Pump

THIS PUMP IS IDENTIFIED BY THE PRESENCE OF A SINGLE MOTOR SOLENOID AND A SINGLE POWER POST ON THE MOTOR

If electrical power is lost to the Equalizer Systems jack leveling system, your system has been equipped with a manual override option.

The following procedure gives step-by-step instructions on how to operate the manual override to either extend or retract the leveling jacks.



Your hydraulic motor is equipped with a manual override output shaft. You must use a drill with a 7/16" (11mm) hex head driver.

The drill must be capable of producing a minimum of 2000 r.p.m. for the pump to develop appropriate pressure output.

To retract your jack(s):

1. The individual cartridge valves are clustered together on the side of the pump manifold. They are labeled 1 thru 4. Locate the screws on the appropriate cartridge valve(s). Using a small flat blade screwdriver, turn the screw(s) clockwise until all the way in*.

2. Locate the red knurled knob on the directional valve** DV2. This valve will be on the opposite side of the manifold from the cluster of cartridge valves. Pull the red knob out and turn $\frac{1}{4}$ turn. The knob will remain in the 'out' position.

3. To retract, locate the red knurled knob on the directional valve** DV1. This valve will be on the adjacent side of the manifold to the cluster of cartridge valves. Pull the red knob out and turn $\frac{1}{4}$ turn. The knob will remain in the 'out' position.

4. Remove the black plastic cap from the top of the motor. Use a small flat head screwdriver. Place the drill with the 7/16" (11mm) hex bit on the manual override shaft located at the top of the motor. Run drill in a clockwise direction at 2000 r.p.m. (minimum). The jack leg(s) will retract.

5. When retraction is complete, return the cartridge valve(s) and the directional valves DV1 & DV2 to the normal positions. Reinstall black plastic cap on motor.

CAUTION: Following manual override operation, failure to return all valves to normal position may result in one or more jack legs drifting down from their retracted (stowed) position. For cartridge valves, rotate the center screw fully counter- clockwise. For directional valves, rotate the red knob until it 'snaps' back to the normal position.

***Note: The normal operating position of the screw in the cartridge valve is the counter-clockwise 'out' position. The only time the valve should be shifted manually is when attempting to operate jack(s) via manual override.**

****Note: The normal operating position of the red knob on the directional valve(s) is the 'in' position. The only time the valve should be shifted manually is when attempting to operate jack(s) via manual override.**

To extend your jack(s):

To extend the jack(s), follow all of the above steps EXCEPT DO NOT manually shift directional valve DV1 as described in step #3 above.

Manual Override for 3.7 MTE Bi-Rotation Pump

THIS PUMP IS IDENTIFIED BY THE PRESENCE OF TWO MOTOR SOLENOIDS AND TWO POWER POSTS ON THE MOTOR

Your hydraulic motor is equipped with a manual override output shaft. You will use a 2000 r.p.m. drill and a 7/16" socket.

Care must be taken to ensure neither the drill nor the socket contact any wires or hydraulic hoses while in use.

To operate your jack(s) using the manual override (with bi-rotational motor):

1. The individual cartridge valves are clustered together on the side of the pump manifold. They are labeled 1 thru 4. Locate the screws on the appropriate cartridge valve(s). Using a small flat blade screwdriver, turn the screw(s) clockwise until all the way in**.
2. Remove the black plastic cap from the top of the motor. Use a small flat head screwdriver. Place the drill with the 7/16" (11mm) socket on the manual override shaft located at the top of the motor.
3. To **retract** your jack(s) run the drill in the counter-clockwise direction.
4. To **extend** your jack(s), run the drill in the clockwise direction.
5. When manual override is complete, return the cartridge valve(s) to the normal positions. Reinstall black plastic cap on motor.

CAUTION: Following manual override operation, failure to return all valves to normal position may result in one or more jack legs drifting down from their retracted (stowed) position. For cartridge valves, rotate the center screw fully counter-clockwise.

****Note:** The normal operating position of the screw in the cartridge valve is the counter-clockwise 'out' position. The **only** time the valve should be shifted manually is when attempting to operate jack(s) via manual override.

Helpful Hints

- You may allow any automatic function to run for the entire programmed time (and stop automatically), or you may stop the action by pressing any button on the keypad.
- You must ensure a motionless environment (don't move around in the coach) during the Auto Level process. Auto Level may be unsuccessful if motion is present.
- Your Auto-Level™ is a microprocessor-controlled system. Proper and adequate battery voltage and permanent chassis ground are essential.
- Maintain the reservoir level to a minimum of $\frac{3}{4}$ full with Dexron III Transmission fluid.
- Your system may be equipped with a manual override option. Refer to the procedure for proper operation of this option. It is usually better to review this procedure prior to its actual use, rather than having to learn a new procedure in difficult environments.

Troubleshooting Guide

Symptom	Possible Cause	Corrective Action
Keypad will not turn on	Blown fuse	Replace fuse at hydraulic pump
	Faulty ground or power wire	Trace and repair
	Low Battery Voltage	Charge chassis and/or coach batteries
	Defective Keypad or Controller	Call Equalizer Tech Support
	Communication failure	Check Brown/White and Green/White wires from Keypad to Controller
Keypad turns on – Jacks will not operate	Low Battery Voltage to Pump	Charge chassis and/or coach batteries
	Faulty electrical connection	Trace and repair
	Defective Keypad or Controller	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
	Anti-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 Keypad or Controller	Call Equalizer Tech Support
	Faulty electrical connection	Trace and repair
	Defective pressure switch circuit	Check and repair
	Other 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
	Incorrect pump wiring for valves	Check and re-wire
	Defective Keypad, Controller or Solenoid	Call Equalizer Tech Support
AutoLevel™ will not level	System Null not set	Set Null
	Controller installed improperly or has moved	Check Controller orientation
	Ignition Switch in wrong position or Jacks are deployed	Check and change as needed
	Defective Keypad, Controller or Solenoid	Call Equalizer Tech Support
	Defective pressure switch circuit	Check and repair - Call Equalizer Tech Support
	Communication failure	Check Brown/White and Green/White wires from Keypad to Controller
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
	Defective pressure switch circuit	Check and replace - Call Equalizer Tech Support
	Defective Keypad or Controller	Call Equalizer Tech Support
	Other System Defect	Call Equalizer Tech Support
Jack LED's on panel stay on when Jacks are fully retracted	Defective Pump harness or Pressure Switch	Check and replace
	Defective motor or solenoid	Check and replace
	Hydraulic Fluid leak or level low	Repair leak and/or fill reservoir
	Defective Keypad	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 from system
	External fluid leak	Trace and repair
	Defective cartridge valve in pump or valve screws in improper position	Replace cartridge valve or position screw counter-clockwise
	Defective jack	Replace jack leg
Jack(s) are jerky when retracting	Air in the system	Purge air from system
	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
	Defective Keypad or Controller	Call Equalizer Tech Support
	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.

Prior to operating or repairing any system, you must first assure that neither personal safety nor vehicle safety will be jeopardized by the selected operation or service method. This information is supplied for the owner/operator of the Four Winds / Equalizer Systems product and is not an authorization for repairs.

Equalizer Systems Limited Warranty Policy

RV or Vehicle Manufacturer Installed Systems or Components:

1. Only warranty claims with prior written or verbal authorization from Equalizer Systems will be recognized, all other claims will be denied.
2. Equalizer Systems warrants slide out and leveling system components for a period of three years from the date of original sale of the vehicle. This warranty covers defects in material and workmanship only. Equalizer Systems is not liable for any damage due to abuse, neglect, misuse, negligence, misapplication, error of operation, accidental or purposeful damage or damage due to an "act of God" such as, wind or rain damage, flood, lightning or other natural occurrence of the like. Equalizer Systems limited warranty is applicable to the Equalizer Systems components only and does not apply to the vehicle, apparatus or property to which it is attached. Warranty parts will be shipped at no charge if the repair is authorized by an Equalizer Systems representative. Purchased components used in authorized warranty repairs will be reimbursed at the original purchase price.
3. Labor and freight expenses due to warrantable parts defects or workmanship will be reimbursed for a period of one year from the date of original sale of the vehicle. Freight expenses will either be prepaid by Equalizer Systems or reimbursed at the UPS Ground rate only. Any additional shipping charges or requirements are the obligation of the vehicle owner or service center performing the warranty repair. The owner or service center's obligation may include overseas shipping charges, border fees, brokerage fees and any other additional fee of the like.
4. Warranty labor will be reimbursed only for claims that have prior written or verbal authorization from an Equalizer Systems representative. Warranty labor compensation is required to correspond with the "Warranty Parts Replacement Time Guideline" published by Equalizer Systems. Any warranty repair not listed on this guideline will require prior authorization from an Equalizer Systems representative. A reasonable time allowance will be determined by the Equalizer Systems representative. Any warranty repair that is not listed on this guideline that is performed without prior authorization will be denied without exception. Time associated with learning about the repair or excessive diagnostic and installation time will not be reimbursed. Warranty labor will be reimbursed at the authorized service center's published shop rate if the rate is reasonable for that region. Overtime labor will not be reimbursed without exception.
5. Labor, parts and freight credit (if applicable) will be sent after the parts are tested and the warranty claim is validated. Returned parts that are found to be in normal operating condition are not warrantable and will be charged to the owner or service center. Equalizer Systems reserves the right to charge back the service center for labor claim payments previously submitted if the installation of the warranted part is found to be inadequate at a later date.
6. Claims will be denied if the date submitted is greater than 30 days from the repair date.
7. Prior authorization is required before parts may be sent back to Equalizer Systems. A Return Authorization Number required for items to be accepted.
8. Complete systems are not warranted unless authorized by an Equalizer Systems representative. There are absolutely no exceptions to this clause.
9. This warranty begins upon the original sale date of the vehicle and is transferable, with limitation, to subsequent owners upon furnishing the original sale date of the vehicle and proof of purchase. Only the remainder of the three year parts warranty is applicable. Warranty labor and freight are only applicable to original owner of the vehicle.
10. Equalizer Systems is not liable for loss of time, manufacturing costs, labor material, loss of profits, direct or indirect damages incurred by the vehicle manufacturer.
11. Excessive warranty labor resulting from inadequate access to the Equalizer Systems product will not be reimbursed.
12. Equalizer Systems will not pay a markup on warranty parts unless required by law.
13. Travel expenses, hotel, telephone, fuel or any other expenses of the like are not covered under warranty.

Replacement Parts:

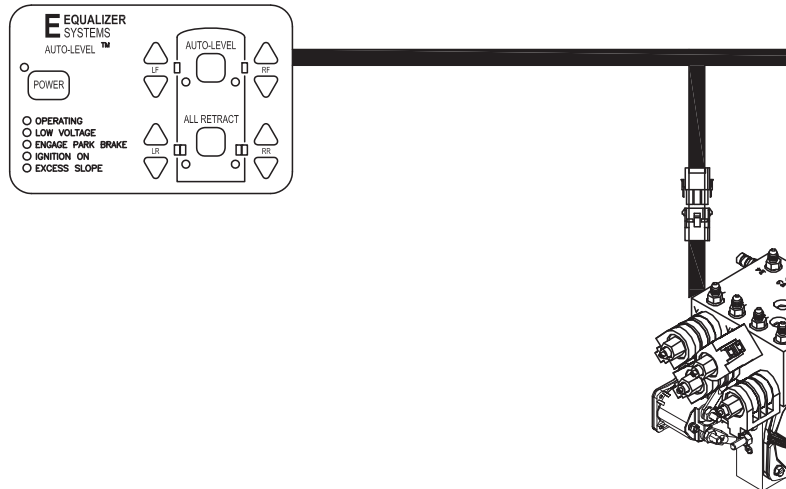
1. Replacement parts are warranted under the same guidelines listed above for the remainder of the original warranty or 90 days, whichever is longer. Proof of warranty repair date and original vehicle purchase date are required.
2. No additional warranties, expressed or implied, are authorized by Equalizer Systems
3. This warranty voids all previous issues. Questions concerning this warranty should be directed to:

Equalizer Systems • P.O Box 668, 55169 CR 3 North • Elkhart, IN 46515
(800) 846-9659 • (574) 264-3437 • Fax: (574) 266-6083

GENERAL LAYOUT FOR 4 P

KEYPAD

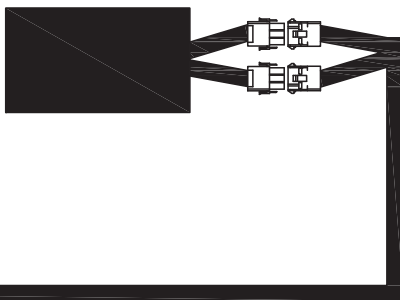
located at driver's dash



POINT LEVELING SYSTEM

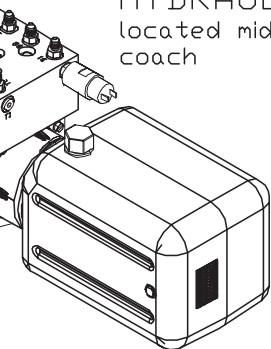
CONTROL BOX

located middle of coach
behind entry step

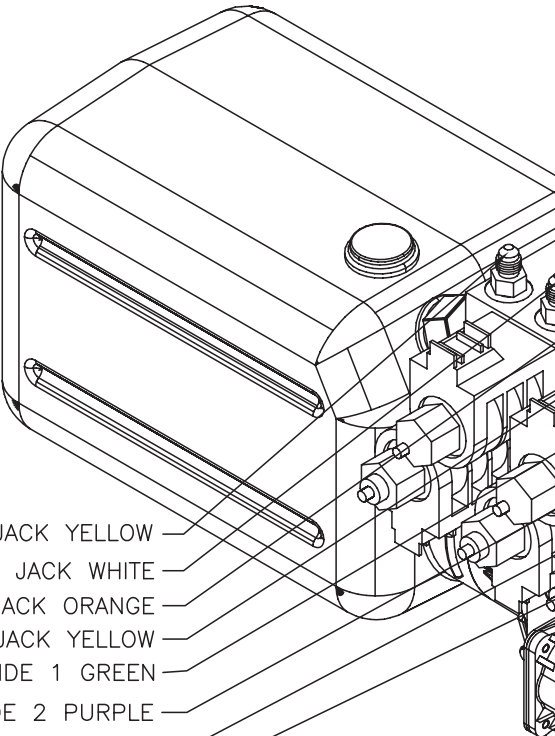


HYDRAULIC PUMP ASSEMBLY

located middle of driver's side of
coach



B4 = RIGHT REAR JACK YELLOW/BL
B3 = LEFT REAR JACK ORANGE/BLA
B2 = RIGHT FRONT JACK WHITE/BLA
B1 = LEFT FRONT JACK BROWN/BLA



T1 = LEFT FRONT JACK YELLOW
T2 = RIGHT FRONT JACK WHITE
T3 = LEFT REAR JACK ORANGE
T4 = RIGHT REAR JACK YELLOW
T5 = SLIDE 1 GREEN
T6 = SLIDE 2 PURPLE
T7 = SLIDE 3 GREY
T8 = SLIDE 4 RED

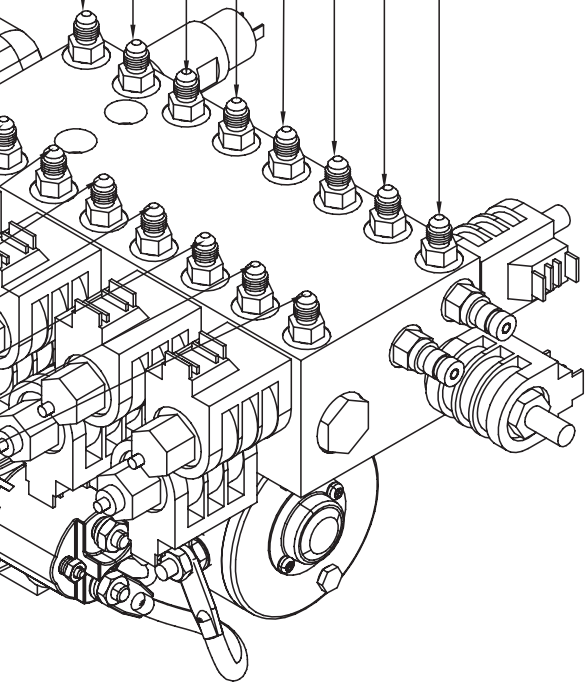
HOSE CONNECTION IDENTIFICATION

T = EXTEND

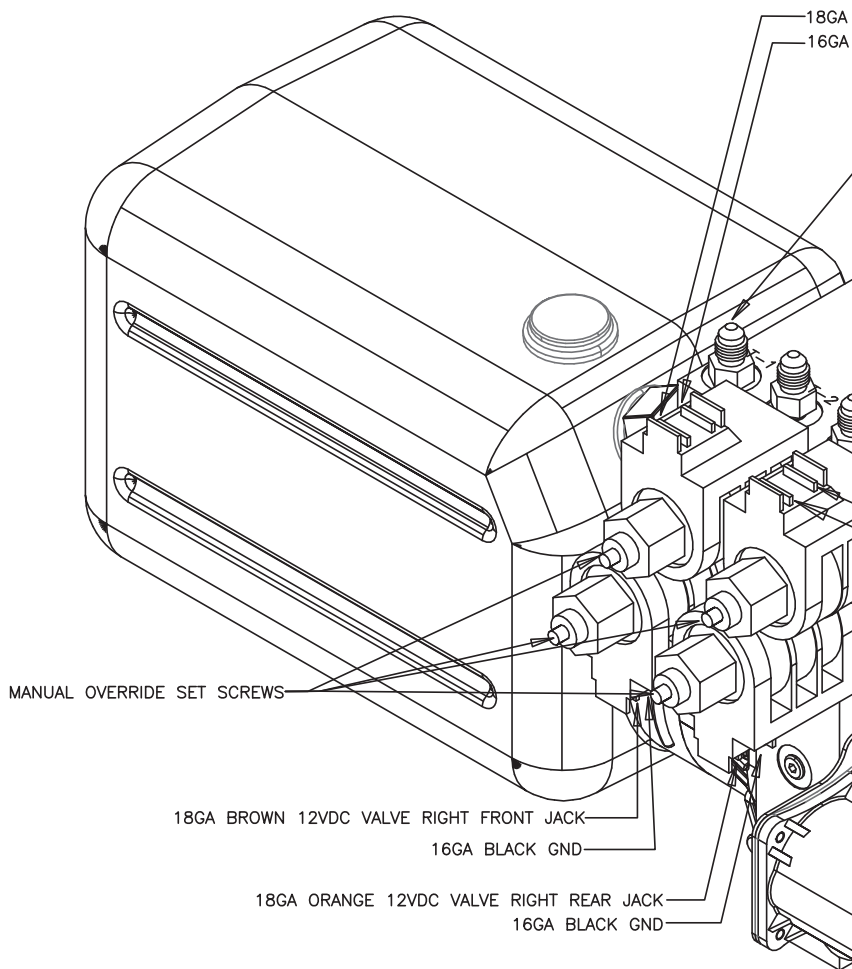
B = RETRACT

ACK
ACK
ACK
ACK

B5 = SLIDE 1 GREEN/BLACK
B6 = SLIDE 2 PURPLE/BLACK
B7 = SLIDE 3 GREY/BLACK
B8 = SLIDE 4 RED/BLACK

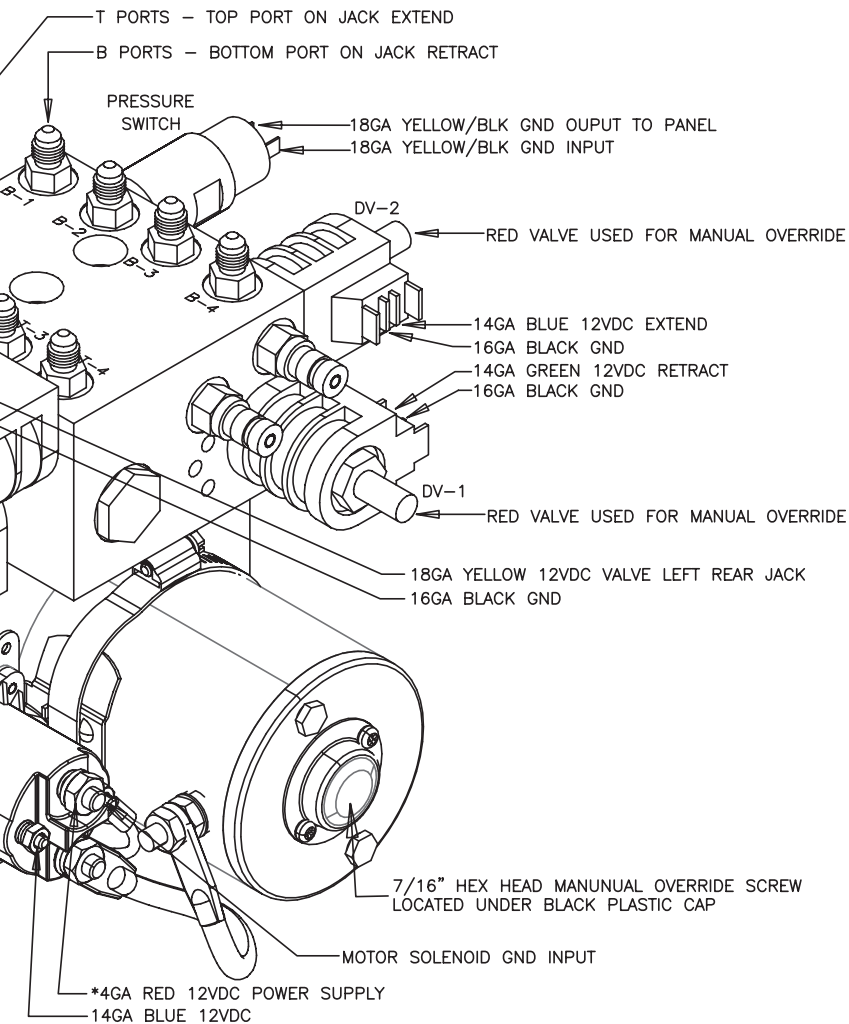


N

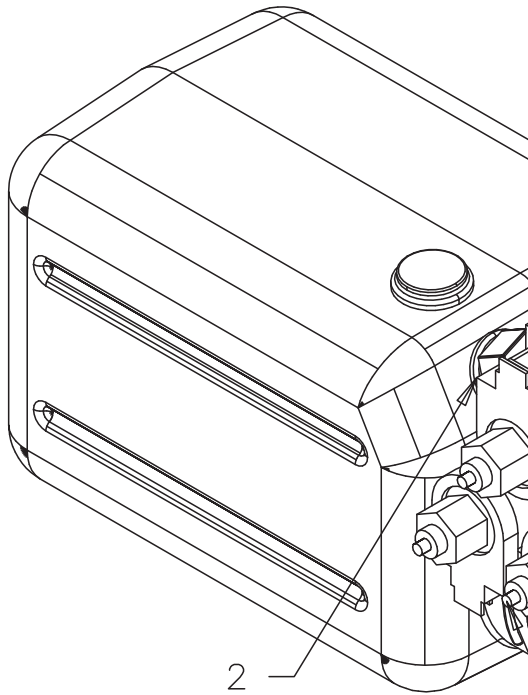


HYDRAULIC PUMP WIRING

WHITE 12VDC LEFT FRONT JACK
BLACK GND

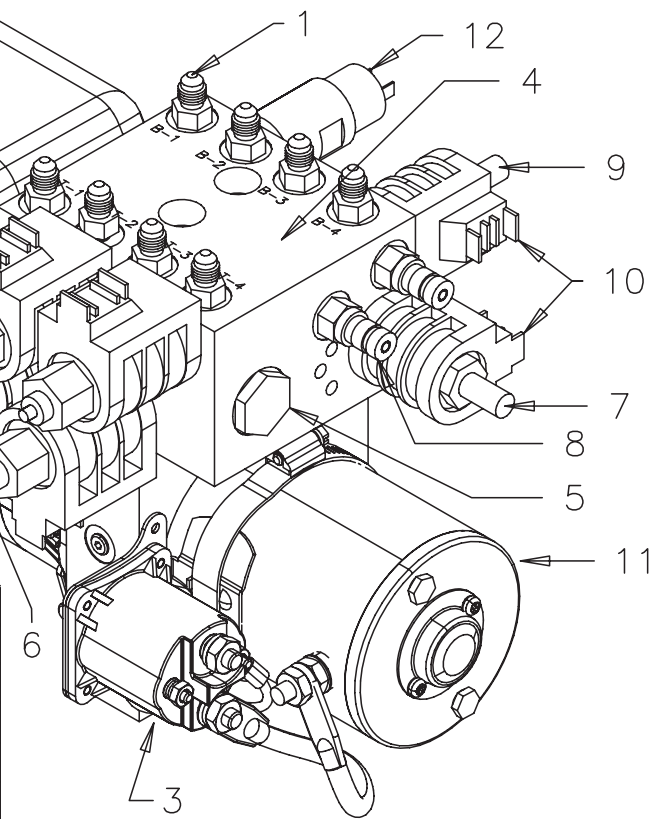


20AMP YELLOW INLINE FUSE & 10AMP BLUE INLINE FUSE ATTACH HERE
20AMP FUSE IS FOR +12VDC SUPPLY TO CONTROL PANEL
10AMP FUSE IS FOR +12VDC SUPPLY TO SLIDE OUT SWITCH



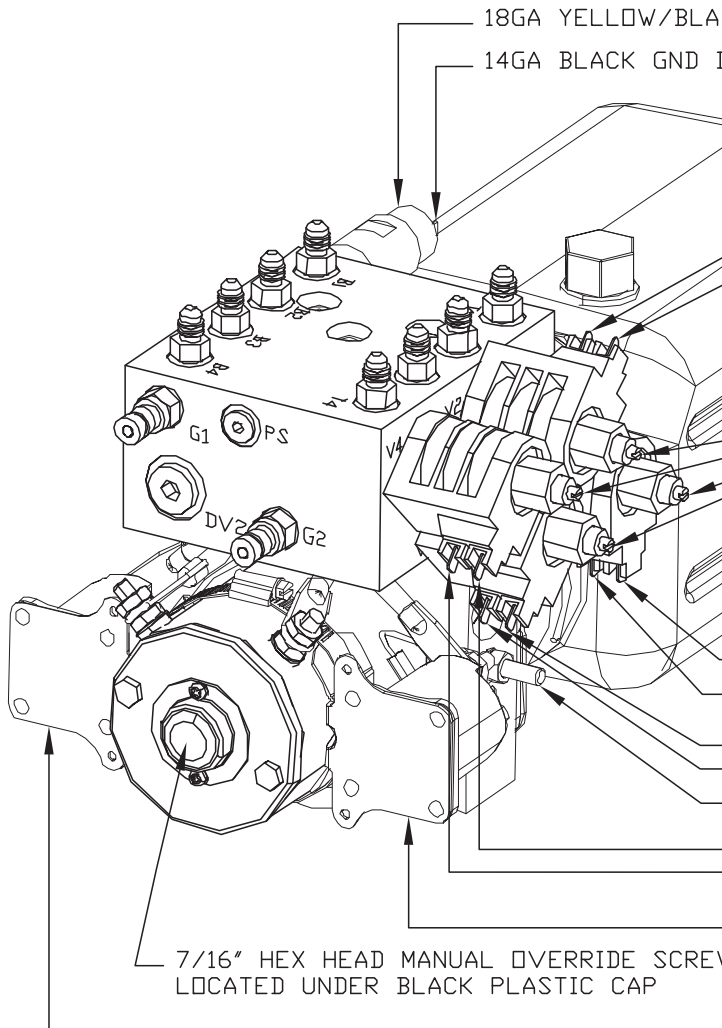
#	PART #	DESCRIPTION	QTY
1	1122	#4 JIC X #4 O-RING MALE	8
2	1130	DDS12 COIL	4
3	1444	HD PLATED SOLENOID	1
4	1710	MANIFOLD 4 FUNCTION	1
5	1713	CAVITY PLUG HP	1
6	1716	CARTRIDGE VALVE MANUAL OVERRIDE	4
7	1717	DIRECTIONAL VALVE #6 MANUAL OVERRIDE	1
8	1735	DIAGNOSTIC TIP	2
9	1745	#8 2 POSITION MANUAL OVERRIDE	1
10	1746	#6 COIL 10V	2
11	2015	PUMP MTE 3.7	1
12	2047	PRESSURE SWITCH 1000 PSI	1

HYDRAULIC COMPONENTS



PART #	DESCRIPTION (HARNESSES NOT SHOWN)	QTY
6517	HARNESS, PUMP	1
6520	HARNESS, 4 WAY GROUND LEAD	1
6523	HARNESS, 2 WAY GROUND LEAD	1
6536	HARNESS, PRESSURE SWITCH PIGTAIL	1
6572	HARNESS, POWER & GROUND FEED	1

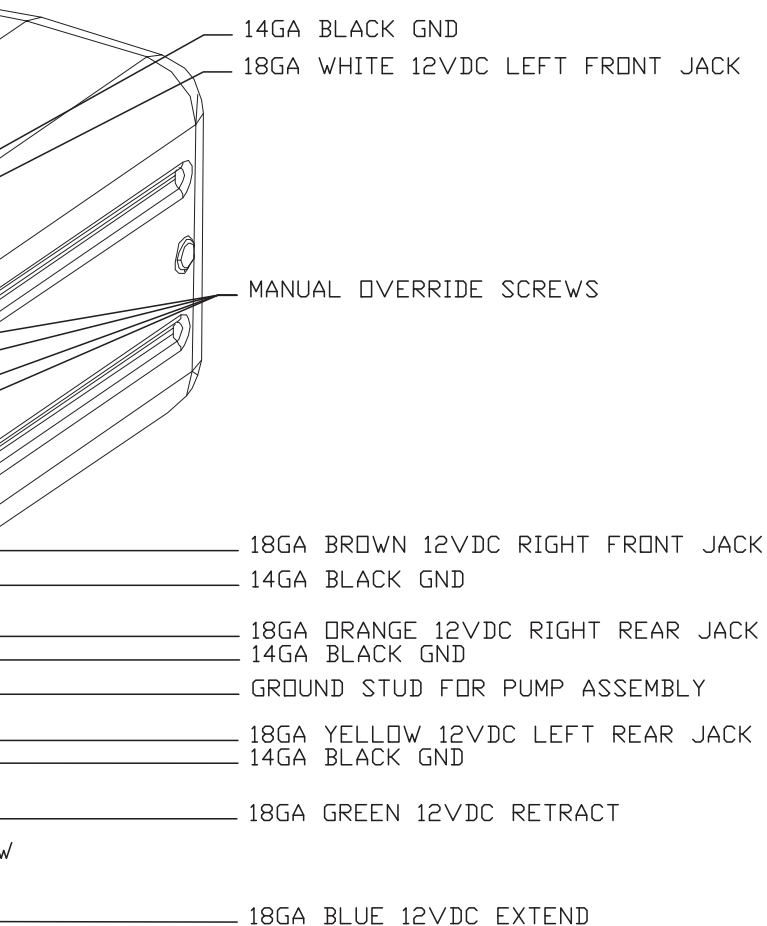
HYDRAULIC PUMP



FUNCTION WIRING

CK GND OUTPUT

INPUT



HOSE IDENTIFICATION

B = RETRACT FUNCTION

B1 = LEFT FRONT JACK BROWN/BLACK

B2 = RIGHT FRONT JACK WHITE/BLACK

B3 = LEFT REAR JACK ORANGE/BLACK

B4 = RIGHT REAR JACK YELLOW/BLACK

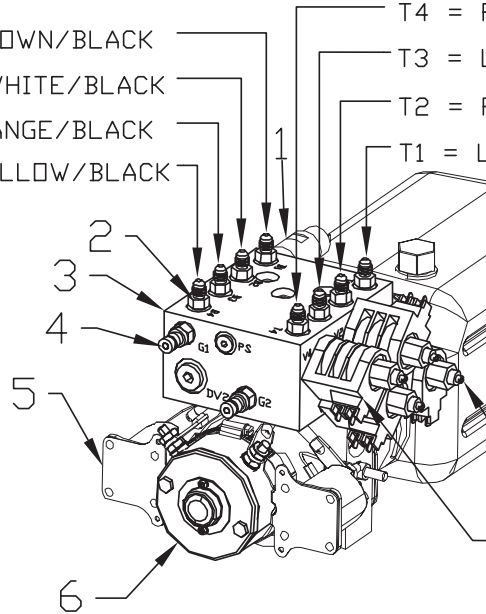
T =

T4 =

T3 =

T2 =

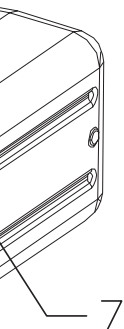
T1 =



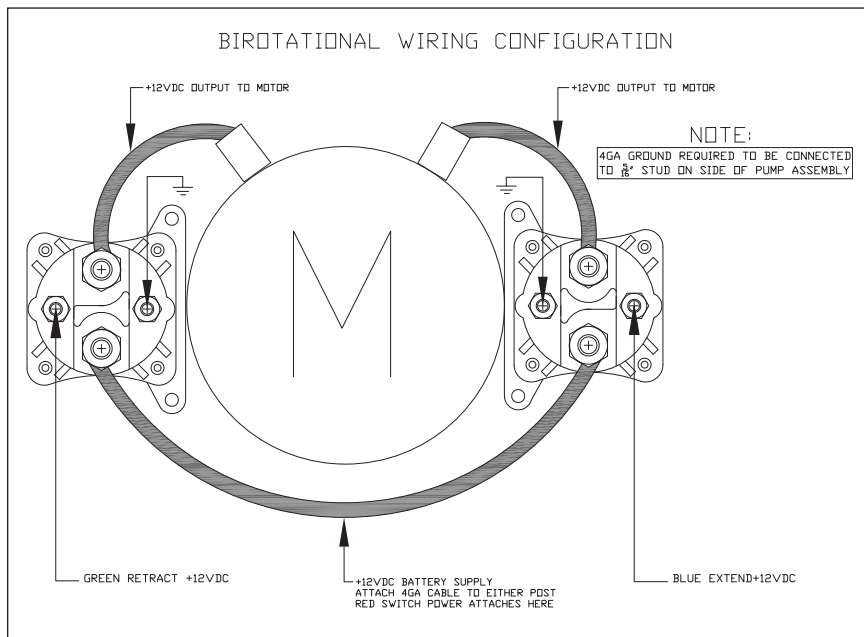
HYDRAULIC COMPONENTS

#	PART #	DESCRIPTION	QTY
1	2047	PRESSURE SWITCH 1000 PSI	1
2	1122	#4 JIC X #4 O-RING MALE	8
3	2547	MANIFOLD BODY 4 FUNCTION	1
4	1735	DIAGNOSTIC TIP	2
5	1444	HD PLATED SOLENOID	2
6	2605	MOTOR MTE BODY	1
7	1716	CARTRIDGE VALVE MANUAL OVERRIDE	4
8	1130	DDS12 COIL	4
9	6689BR	PUMP HARNESS (NOT SHOWN)	1

EXTEND FUNCTION
 RIGHT REAR JACK YELLOW
 LEFT REAR JACK ORANGE
 RIGHT FRONT JACK WHITE
 LEFT FRONT JACK BROWN



8



Equalizer Systems

P.O Box 668, 55169 CR 3 North
Elkhart, IN 46515

(800) 846-9659 • (574) 264-3437 • Fax: (574) 266-6083