

EQUALIZER

SYSTEMS

A DAYS COMPANY

1-800-846-9659
equalizersystems.com

Installation and Operation Guide

January 2011
Revision- April 2013

AM Series

Single Leg Hydraulic Jack: 12,000# Capacity

Installation

Tools Required for Installation

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

Additional Parts Needed for Installation

- # 4 gauge power wire (to connect battery +12V Positive to the Pump)
- # 4 gauge ground wire (to connect battery -12V Ground to Pump)
- # 4 gauge ring terminals
- Loom clips (to secure wwitch and harness to the trailer)
- Self tapping screws or pop rivets (to secure loom clips)
- Wire tie



Jack

Your AM Jack may have been provided with a mounting flange or bracket (depending on the mounting option ordered for your system). When Bolting the Jack to the trailer we recommend using **Grade 8** bolts. Welding the Jack in place requires sound welding practices.

The Jack should be mounted so that when the trailer is level (while mounted to the tow vehicle) there is a **Range of 10 inches Minimum of Ground Clearance**. This is usually achieved by mounting the jack so that the foot is slightly below the bottom edge of trailer. **The bottom of the footpad should not be lower than any other item mounted on the trailer.**



AJ/AM/CM (Shipped Loose) Assembly and Purge Instructions

This product is shipped with the pump assembly unattached from the leg assembly. The purge process is best performed without any load on the jack; therefore it is recommended that these instructions be fully read prior to starting assembly/installation. The failure to properly purge the leg will result in the jack not being able to extend or retract when under load (trailer weight on jack).

Assembly for units to have the pump mounted to the leg.

Attach the Pump Assembly to the Leg Assembly

1. Lay the leg assembly on the work surface with the pump mounting bracket facing up.
2. The pump is shipped with studs installed in the base of the port plate (center section that separates the motor from the reservoir). Remove the flange nuts (2) from these studs.
3. Set the pump onto the pump mounting bracket of the leg assembly so the studs (item 2 above) pass thru the slots in the pump mounting bracket of the leg assembly. Note that the reservoir goes toward the bottom (Foot) of the leg assembly.
4. Install the Flange nuts onto the studs from the inside of the pump mount bracket. Position the pump off center of the leg assembly prior to tightening the nuts (this is done so that the center of the motor is off center of the jack leg to allow the use of a drill on the end of the motor for manual override). Tighten the nuts to 15 lb/ft.

Assembly/Mounting pump for units with pump mounted remotely from jack.

The pump should be located/mounted in an area so that the following items can be addressed:

1. The manual override motor screw or the hand pump/override valve is accessible.
2. The reservoir fill is accessible.
3. Future maintenance items can be addressed.
4. Some units may be mounted vertical or horizontal. The fill cap will need to be up. When mounting vertically the motor will always need to be up (above the reservoir).
Pump #s 3040 and 3041 (these #s are located on the tag on motor or port plate) must be mounted vertical. Failure to do so will result in the reservoir not having enough volume to handle the fluid required to run the jack(s).
5. Adequate space/routing of Hose assemblies (2) will need to be routed from the pump assembly to the Jack. Wire harness from the pump to the mounting location of the control switch box and power and ground connections from the battery to the pump assembly.
6. The mounting is done using the 2 studs or tapped holes (3/8-16) located in the bottom of the port plate. Tighten these nuts/bolts to 15 lb/ft.

Hose Connections for Single Leg Jacks

There are 2 hose assemblies to connect the pump to the leg assembly. Hose assemblies and adaptor fittings are shipped with caps or plugs to prevent debris from entering the system. These caps and plugs need to be removed prior to attaching hose assemblies.

For pump mounted to leg type systems.

1. The short hose is for the upper (motor end) pump to leg connection. Connect the hose from the upper leg port to the extend fitting at the pump assembly. On the AJ series, the pump port for the upper hose (extend) is stamped 'T' on the aluminum port plate near the reservoir. On other units it is the port nearest to the motor.
2. The long hose is for the lower connection. Generally it will have a 90 degree end on the one end of the hose. Connect the 90 degree hose end to the lower leg port. The opposite end of the hose goes to the remaining port at the pump assembly. On the AJ series the lower (retract) pump port will be stamped 'B' on the aluminum port plate near the reservoir. On other units it will be the port nearest to the reservoir.

For remote mounted pump assembly.

1. Connect a hose from the upper leg port to the extend fitting at the pump assembly. On Bi-Rotational pumps, the pump port for the upper hose (extend) is stamped 'T' on the aluminum port plate near the reservoir. On other units it is the port nearest to the motor.
2. Connect a hose from the lower leg port to the retract fitting at the pump assembly. On Bi-Rotational pumps, the pump port for the lower hose (retract) is stamped 'B' on the aluminum port plate near the reservoir. On other units it is the port nearest to the reservoir.

Notes:

Some adaptor fittings used on the pump/jack assembly may be 90 degree. Some of these 90 degree adaptor fittings will have a jam nut that allows the adaptor fitting to be orientated for proper connection of the hose. To rotate the adaptors, loosen the jam nut then turn the fitting. Retighten the jam nut after the hose is connected and properly orientated. Other 90 degree adaptors only need to be properly orientated prior to tightening.

Hydraulic adaptors and hose connections should be tightened to 15 lb/ft.

When working with hydraulic fittings and hose connections, cleanliness is very important. All fittings and hose assemblies are shipped plugged or capped to prevent debris from entering system. Do not allow dirt, sand, water, or other foreign matter to enter the system through dirty hose or adaptor fitting connections.

Switch Harness and Hydraulic Lines

The AM Jack has been shipped with all necessary Switchgear, Harnesses and Hydraulic Lines. These items are specifically engineered to operate your System and should not be altered in any manner. Modification of any factory supplied item may result in the denial of all warranty claims.

Switchgear

The Unit may have been provided with a key switch in the switchgear box (depending on the option ordered). If unit is not supplied with a key switch, the +12v battery lead must be fed through a power disconnect switch to fully isolate the system during travel or inactivity. Minimum switch rating must be 100 ampere DC. Switchgear is plugged into the system harness through a weather resistant connector (shown in Fig.1)

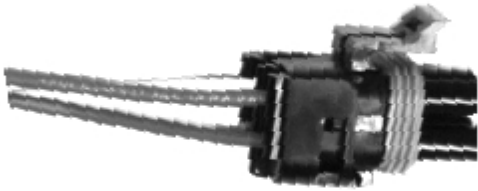


Fig.1- Weather Resistant Connector

Battery Connections for MTE Style Pump with Manual Override

Pumps #'s 2142, 2390, 2532

Battery Connections

Battery Lead (+12volts): Attach a **# 4 gauge wire** between the positive (+12V) terminal on the battery and the large post on the solenoid opposite the black motor wire on the solenoid. If circuit protection is required, Install an 80 amp (minimum) circuit breaker.

Battery / Pump Ground (-12volts): Attach a **# 4 gauge wire** between the negative (-12v) terminal on the battery and the ground stud located directly in front of the motor. It is not acceptable to allow the Jack mounting bolts or the weld to be the sole grounding connection.

If Equipped: Pump #'s 3040, 3041 see Fig. 2

Attached a **# 6 gauge wire** between the positive (+12V) terminal on the battery and the plus (+) terminal on the contactor. Attach **#6 Gauge wire** between battery negative (-) and the pump ground stud.

**Fig. # 2: Pictured
Pump #'s, 3040, 3041**



Purging For Single Leg Jacks

This is the process of filling the system with oil and expelling air from the components of the hydraulic system. This process may be done before mounting it to the trailer. The system must be cycled at least 3 times to fully expel air from the jack. It is best done with no load (weight) on the jack. This process can be done mounted on the trailer ONLY if the trailer is blocked or supported high enough to allow full extension of the jack without lifting the trailer. This is especially important on the units with the Bi-Rotational pumps. Failure to properly purge the system will result in the jack not being able to lift the trailer or that the jack won't retract with weight on it.

1. Connect power and ground to the pump assembly. See the owner's manual for the correct connection points. Jumper cables may be used as a temporary connection to a battery if the unit is being purged prior to being installed on the trailer.
2. Connect the switch and harness assembly to the plug connector on the jack.
3. Fill the reservoir to full using Automatic Transmission fluid multi-purpose or one that meets a Dexron requirement.
4. Operate the switch to extend the jack (Trailer UP). Run the jack to full extension. Add fluid if needed to keep at least 2 inches of fluid in the reservoir. Do not fill more than ½ way during extension. Do not allow reservoir to run out of fluid.
5. If the fluid is foamy or aerated, leave it sit until the foam leaves.
6. Add fluid so that there is at least 2 inches in the reservoir. Do not fill past ½ way.
7. Retract the jack fully.
8. Refill reservoir to full. Allow foam (air) to dissipate.
9. Extend and retract the jack at least 3 times -allowing for foam and air to dissipate from the fluid in the reservoir.
10. The reservoir should be filled to the full line- or about 1 inch below the fill hole.

Notes:

Be patient. It does no good to run the jack when the fluid is foamed up. You will only be moving the foamed up fluid (air) to the other side of the hydraulic system.

During the process, look for leaks at the adaptor fittings and hose connections. Tighten where needed.

This is a high pressure hydraulic system. Do not loosen adaptor fittings or hose connections without proper safety precautions.

All manuals, instructions, and service support can be found on the service page of our website:

www.equalizersystems.com

Please call Equalizer Systems if you have any questions
(800) 846-9659

Reservoir Breather Cap for MTE Style Pump for units that are shipped assembled and filled with fluid.

With the jack installed in the vertical position, remove the flush mounted fill plug from the top of the reservoir and discard. Replace with 6-sided breather cap. Failure to do so will cause the jack to operate erratically.

Operation

To raise and lower the jack, simply push and hold the rocker switch in the up or down position. The jack will hold a position by releasing the switch at any time. There is no need to take the weight off the jack when storing the trailer, as the positive check valves in the system will not allow the jack to bleed down.

*Note: When the jack is fully retracted, the fluid level in the reservoir should be approximately one inch below the fill cap. If fluid needs to be added, use Dexron III automatic transmission fluid (the same as used for a GM automobile).

* Caution *

The keyed switch must be in the off position and the key must be removed when the jack is not in use and/or when the trailer is in transit. If unit is not supplied with a keyed switch, the +12v battery lead must be fed through a power disconnect switch to fully isolate the system during inactivity or travel. The minimum switch rating must be 100 ampere DC.

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

Manual Override – Hand Pump - Pump # 2142 & 3126

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

Your AM series Single Leg Jack is available with a Manual Override, depending on the specific unit ordered. ***If your unit is equipped with the Override Hand Pump, it is operated as follows:***

To **Extend** your Jack:

1. Install a handle in the hand pump. Pump the handle to extend the jack. You may have to pump 10-20 times before you build enough pressure and the jack begins to extend.

To **Retract** your Jack:

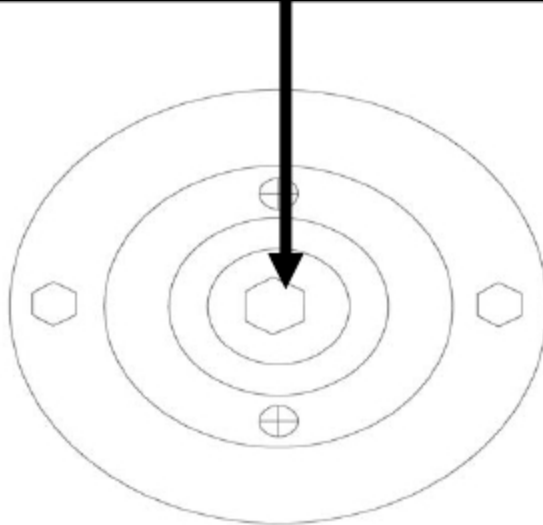
1. Locate the red knurled knob on the directional valve. Pull it out and turn $\frac{1}{4}$ turn. The knob will remain in the "out" position. Do not use anything other than your fingers to manually shift the directional valve.
2. Install a handle in the hand pump. Pump the handle to retract the jack. You may have to pump 10-20 times before you build enough pressure and the jack begins to retract. Return the directional valve to the normal position. 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 jacks drifting down from their retracted (stowed) position. For directional valves, rotate the red knob until it "snaps" back to the normal position.

Manual Override – Output Shaft

If your unit is not equipped with the override hand pump, it is operated as follows: Pump #'s 2390, 2532, 3040, 3041,3043

1/4 " (6mm) Allen Drive Hex Key or 7/16 " (11mm) Hex Head Socket



Your hydraulic motor is equipped with a manual override output shaft. The drill **must** be capable of producing a minimum of 2000 rpm for the pump to develop appropriate pressure output.

To Retract your Jack: Uni-Rotational Pump # 2142 and 3126

1. Locate the red knurled knob on the directional valve; this valve will be on the side of the manifold. Pull the red knob out and turn 1/4 turn. The knob will remain in the "Out" position. Do not use anything other than your fingers to manually shift the directional valve.
2. Remove the black plastic cap / silver seal from the top of the motor. Place the drill with the proper size hex bit on the manual override shaft located at the top of the motor. Run drill in a clockwise direction at 2000 rpm (minimum). The jack (s) will retract.
3. When retraction is complete, return the directional valve to the normal position. Reinstall black plastic cap / silver seal on motor end.

Caution: Following manual override operation, failure to return all valves to normal position may result in one or more jacks drifting down from their retracted (stowed) position. For directional valves, rotate the red knob until it "snaps" back to the normal position.

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

To Extend Your Jack:

1. To extend the jack, follow all of the above steps **Except Do Not** manually shift the directional valve as described in step #3 above.

To Retract your Jack: Bi Rotational Pump

1. Remove the black plastic cap / silver seal (foil) from the end of the motor.
2. Insert drill (capable of minimum 2000rpm) and hex key, 1/4 " (6mm) Allen drive hex key or 7/16 " (11mm) Hex head socket into motor. Rotate counter-clockwise.

To Extend your Jack:

1. Operate the drill in clockwise rotation.

Problem Solving

“The jack runs for a few seconds, then stops”

Your battery is weak or battery capacity is diminished. Charge the battery fully. It may be necessary to “load test” the battery.

“The jack only runs in one direction”

Verify appropriate battery voltage. Verify that all wires are attached appropriately. For the MTE style pump, the jack will only run in the extend direction if the battery does not have enough capacity to operate the motor and shift the directional valve.

“I push the switch and nothing happens”

Ensure both positive and negative 12V have adequate connection. Ensure full charge on your battery. 9 out of 10 calls we receive are related to a discharged battery. Ensure that the battery is grounded to the trailer chassis with a minimum #4 gauge wire. Check all associated wiring.

“The jack is jerky when retracting”

This may be caused by air in the system, low fluid level or incorrect hose installation. To purge jack, add fluid as necessary and run the jack to full extension and retraction at least twice. If problem persists, call Equalizer Systems for assistance.

Avoid Headaches Always Ensure & Verify Proper Charge on the Batteries!

Proper and Adequate Grounding of the Pump is Essential!

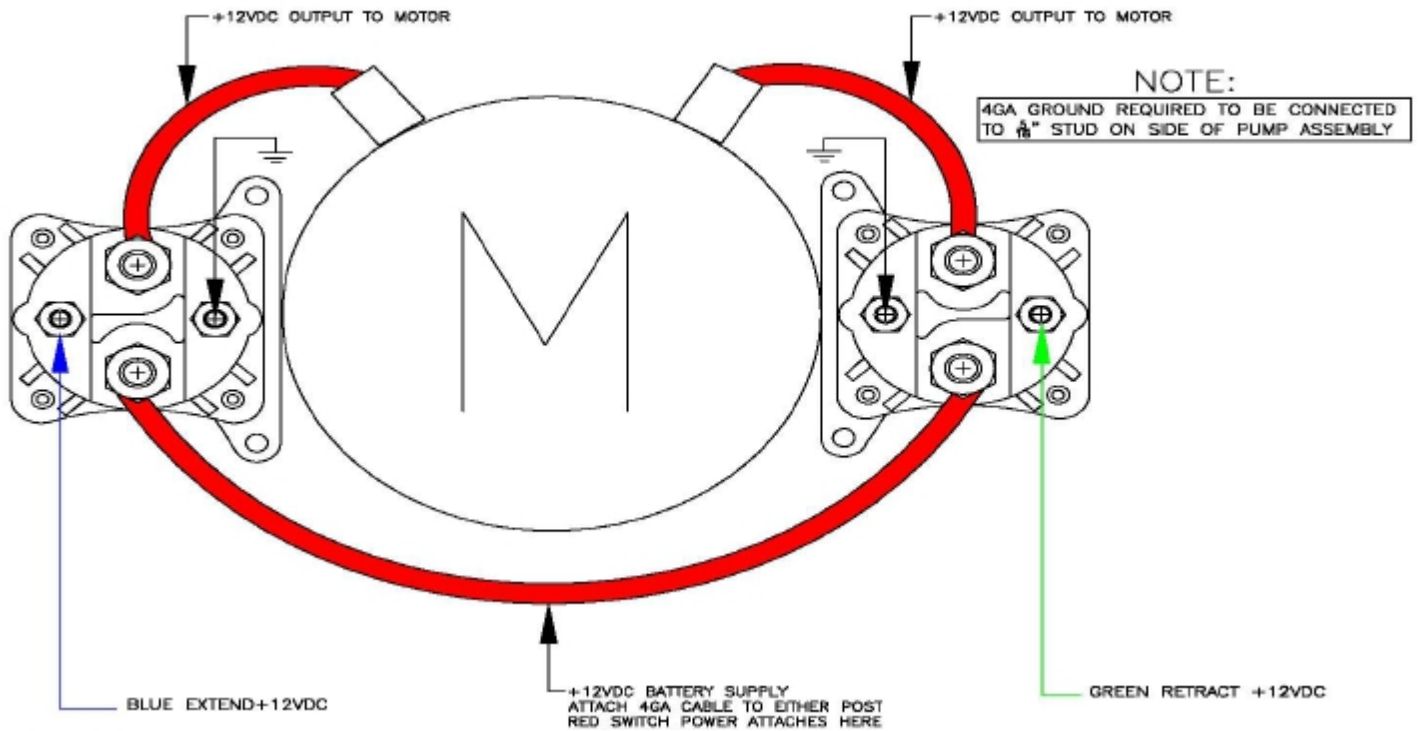
90% of the phone calls we receive are found to be a Discharged Batteries or Poor Grounds!

**If your problem is not listed or persists, call Equalizer Systems at 1-800-846-9659.
Please Gain Prior Authorization for Warranty Service or Repair.**

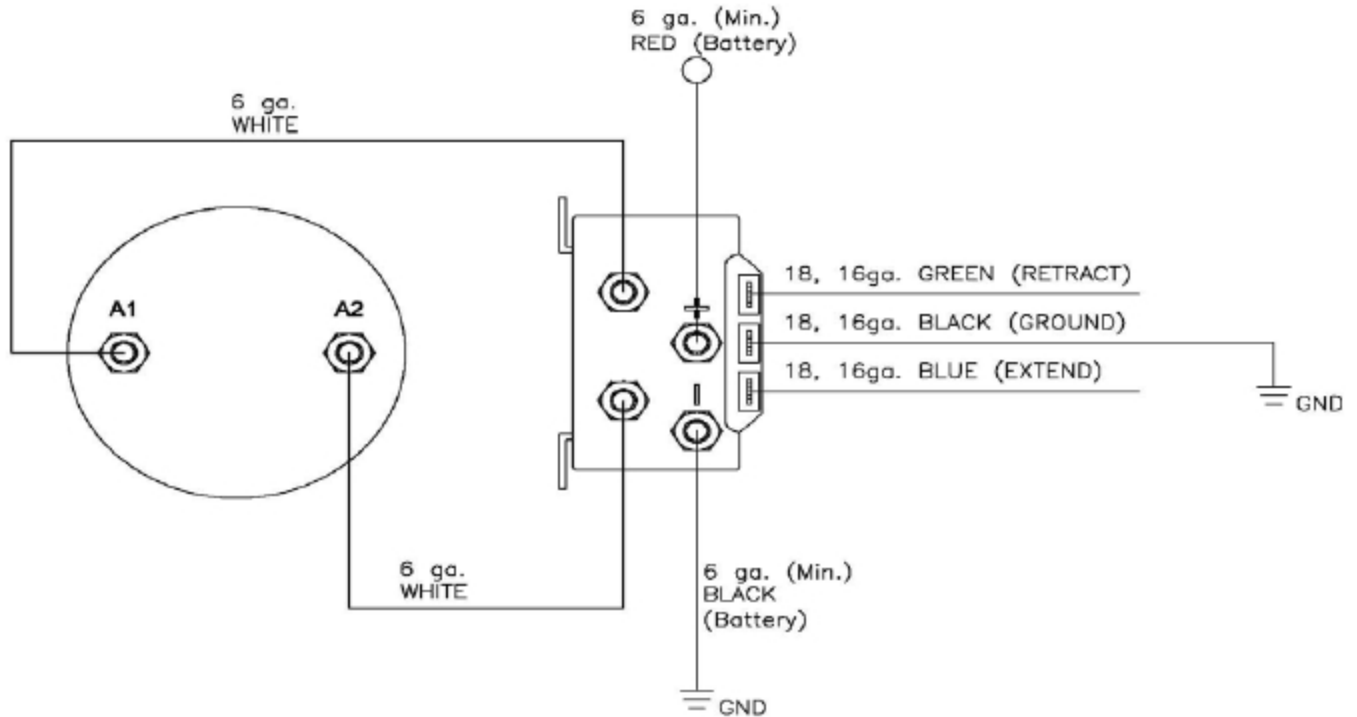
Assembly Wiring, Pump #'s 2390, 2532

Solenoid Wiring Bi-Rot Pump #'s 2390, 2532, 2542

BIROTATIONAL WIRING CONFIGURATION



Wiring for Pump # 3043



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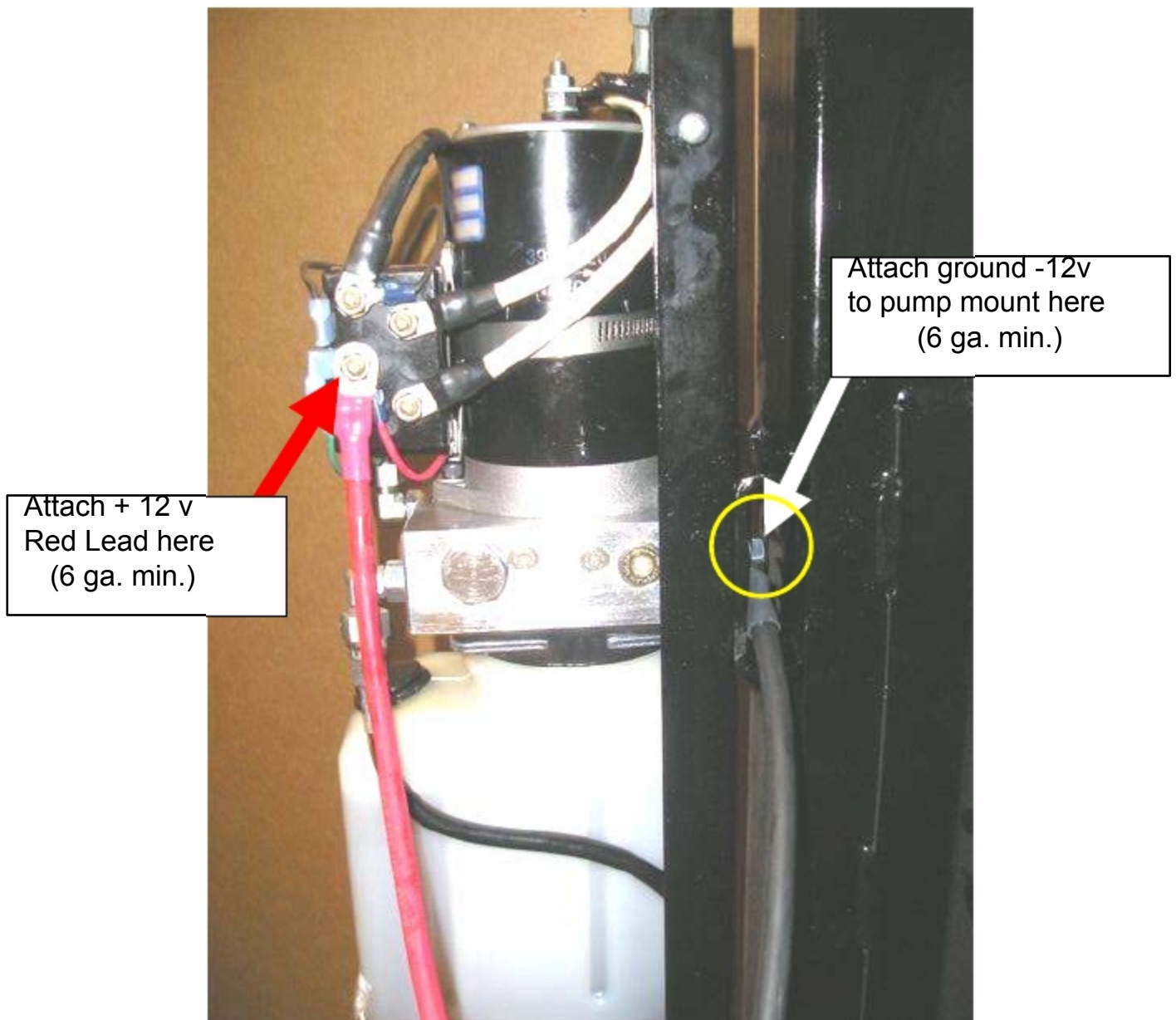
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Electric and Hydraulic Lifting Systems

Supplemental Installation Guide - Reversing Contactor

June 2010

Please see the following diagram for proper power ground connection for AM, AJ 70, and TJ products. This reversing contactor has been phased into production in place of the "relay style" pump harness.





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 **two 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 is 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. Consideration should be taken regarding the location and protection of Equalizer Systems’ components prior to installation. Please reference our installation manuals for recommended locations and maintenance, or visit www.equalizersystems.com for more information. The failure of any Equalizer Systems’ component due to extreme environmental conditions, improper installation, or lack of maintenance will not be covered under warranty.
10. Warranty coverage for parts or systems sold by non-authorized resellers (such as live or internet auctions) will be at the discretion of Equalizer Systems.

Warranty Policy, Continued

11. 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 two year parts warranty is applicable. Warranty labor and freight are only applicable to original owner of the vehicle.
12. 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.
13. Excessive warranty labor resulting from inadequate access to the Equalizer Systems product will not be reimbursed.
14. Equalizer Systems will not pay a markup on warranty parts unless required by law.
15. 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.

No additional warranties, expressed or implied, are authorized by Equalizer Systems

This warranty voids all previous issues. Questions concerning this warranty should be directed to:

Equalizer Systems

P.O. Box 668
Elkhart, IN 46515
(800) 846-9659
(574) 266-6083 fax

1-800-846-9659 www.equalizersystems.com