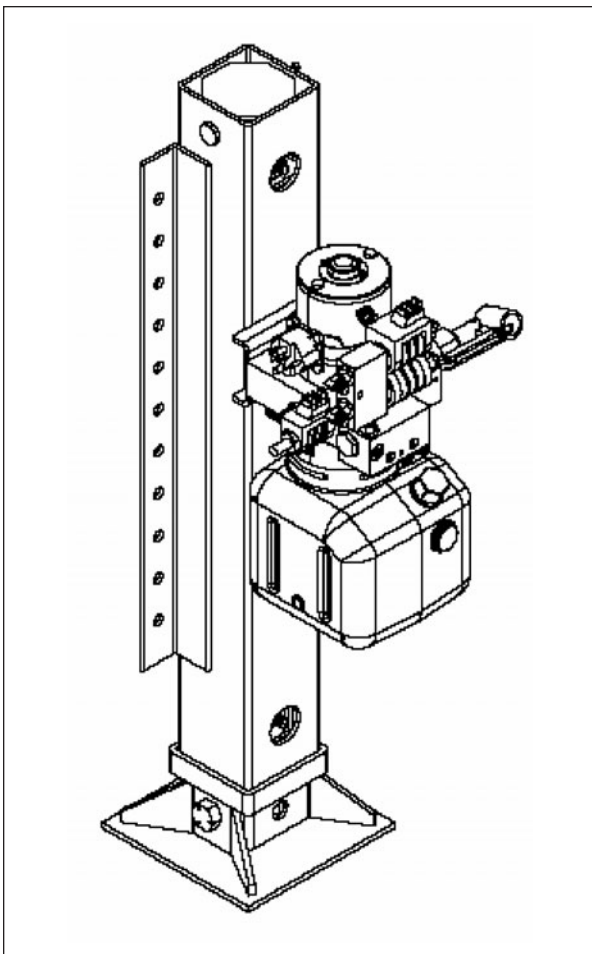




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Equalizer Systems Dual Leg System (CM-2) Includes Uni and Bi Rotational Pumps

Pump Identification



Uni Rotational Pumps

see page 3

The unit will have a tag on either the motor or the port plate. The tag will include the Equalizer Part Number 2142.

(MTE # S101T* 4996)

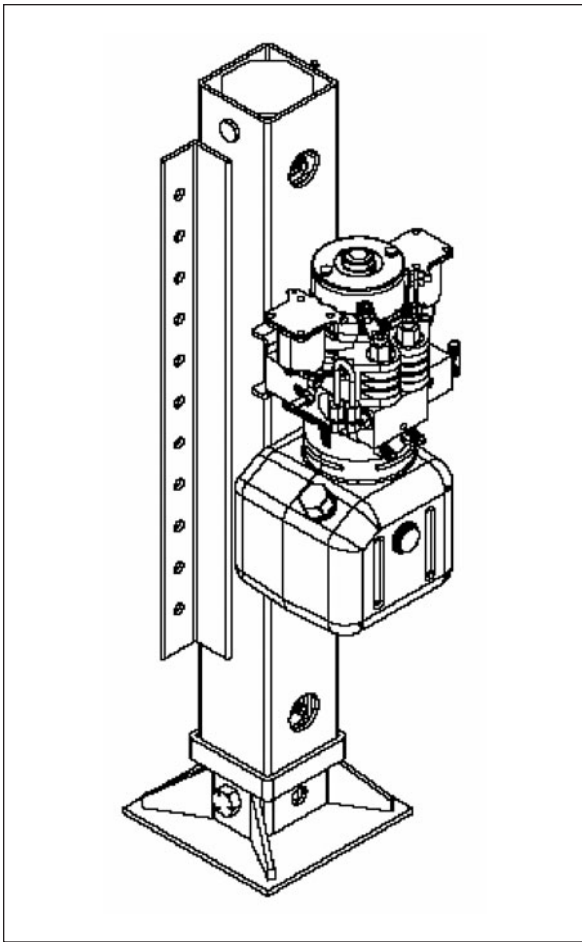
The unit will have 1 motor solenoid attached to the motor with a worm clamp.

The motor will have 1 power terminal exiting the case. A cable connects the motor to the solenoid.

A manifold block with two valves and two hose connections are mounted to the check body on the pump. Hose connections are labeled.

A directional valve with a knurled red knob is located in the pump plate near the motor solenoid. This valve controls extension and retraction of the jacks.

Additional drawings on page 10.



Bi Rotational Pumps

see page 7

The unit will have a tag on either the motor or the port plate. The tag will include the Equalizer Part Number 2532.

(MTE # S101T* 5075)

The unit will have 2 motor solenoid attached to the motor with a worm clamp (as opposed to a single motor solenoid).

The motor will have 2 power terminals exiting the case. One is for extension; one is for retraction.

A manifold block with two valves and two hose connections are mounted to the check body on the pump. Hose connections are labeled.

No directional valve (with knurled red knob) is present. Jack extension and retraction is controlled by the direction of motor rotation.

Additional drawings on page 10.

Basic Pump Installation - for either type pump

Tools Required for Installation

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

Additional Parts Needed for Installation

- #4 gauge ground wire (to connect battery ground to pump)
- #4 gauge ring terminals
- Loom clips (to secure switch and harness to the trailer)
- Self tapping screws or pop rivets (to secure loom clips)
- Wire ties

Jacks

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

The jacks should be mounted so that when the trailer is level (while mounted to the tow vehicle) there is a minimum of 10 inches 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 foot pad should not be lower than any other item mounted on the trailer.**

Installation & Operation for Uni Directional Pumps

Uni Rotational Pump Power Connections

- o **Pump Ground (-12 volts DC):** A 5/16" stud is provided at the port plate (next to the directional valve) to attach a wire (minimum 4 gauge) to the negative post of the battery. It is not acceptable to use the frame of the vehicle (or trailer) as the sole grounding connection.
- o **Pump Positive (+12volts DC):** A wire (minimum 4 gauge) must be connected from the battery post on the motor solenoid to the positive side of the battery. This post will also have a 12 gauge yellow fuse holder. If circuit protection is required, a circuit breaker with a minimum rating of 100 amps is required **at the battery**.
- o **Switch & Harness Connection:** The 6 wire (white in color) connector on the pump assembly mates with the connector on the end of the Switch & Harness assembly.

Uni Rotational Pump Hydraulic Hose Connections

The manifold block with two valves and two hose connections is mounted to the check body on the pump. Hose connections are labeled.

- o **Hose Connections Top port:** These ports are located on the manifold block that holds the cartridge valves for either the left or right jack. The brown solid sticker is for the top port on the left jack. The white solid sticker is for the top port on the right jack.
- o **Hose Connections Bottom port:** This TEE fitting exits the pump near the reservoir. This is the retract port and must be connected to the bottom fitting of each jack (rod end of hydraulic cylinder). It does not matter which one is left or right.

Uni Rotational Pump Hydraulic Fluid Purging

This applies ONLY to CM-2 systems that are equipped with hand pump for override.

This procedure should be performed with the initial installation & running of hydraulic system, following installation of the pump assembly and jacks.

All electrical and hose connections must be completed before the purging process.

- o Fill the reservoir with ATF (Dexron III preferred)
- o Run the pump to extend the jacks. Maintain the fluid level in the reservoir approx. ½ full. Do not allow reservoir to run empty. If jack(s) will not fully extend, crack loose the upper hose(s) at the jack(s) and run pump to extend until air is expelled. Retighten the hoses and complete the extension of the jack(s). Maintain the fluid level.
- o Run the pump to retract the jacks. Maintain the fluid level as above. Do not fill to full until after the legs are fully retracted.
- o If fluid in reservoir appears to be aerated (foaming), allow unit to sit until foam dissipates (approx. 5- 10 minutes).
- o Fully extend and retract jacks a minimum of 3 times. Allow foamed oil to dissipate as needed. Maintain the fluid level in the reservoir as needed.

Additional Notes regarding Purging of Uni Rotational Pump

The reservoir fluid level will be greatest when the jack(s) are fully retracted and lowest when the jack(s) are fully extended.

Never allow the reservoir to go empty. Maintain the fluid level at least ¼ full all the time. This ¼ line should be clear fluid not foamed up. The fuller the reservoir is the better just remember that the level will rise as the jacks are retracted. If it is too full when the jacks are extended then the reservoir will overflow out of the breather cap when the jacks are retracted.

Being patient helps! It does no good to run the pump and try to move the jacks when the reservoir is full of foam. Pumping foam will only reintroduce air into the system.

We want the air out! Allowing the air to dissipate through the reservoir and maintaining the reservoir fluid level will get things working faster.

Uni Rotational Pump Manual Override Operation

For units with Hand Pump

1. The jack valves have a slotted screw in the end of the stem. Using a small screw driver turn the screw in (clockwise) until it stops.
2. To **extend** the jack(s) operate the hand pump. Use slow, full strokes. It may take several strokes to get the jack(s) to move. The jacks will move between $\frac{1}{8}$ and $\frac{1}{4}$ inch per stroke. You may also use the $\frac{7}{16}$ " socket for override, in lieu of the hand pump.
3. To **retract** the jacks, pull out and turn the knob on the end of the directional valve (RED Knob). Use only your fingers – Do not use any tools on this knob! Operate the hand pump as described above.
4. Return the screws from step #1 to the original position by turning them counter-clockwise. Return the red knob on the directional valve to the "in" position*.
5. Return the directional valve knob to its original position by turning it until it snaps into its "in" position*.

For units without Hand Pump - Screw override

1. Follow the instructions above except for item 2.
2. Remove the black plastic cap from the end of the motor by using a small screw driver. Use a drill motor with a $\frac{7}{16}$ " socket instead of the hand pump. The drill must be capable of a minimum 2000 RPM.
3. Insert the drill socket on to the hex and run the drill clockwise.

*Failure to return the valves to the "normal" position following manual override may cause the jacks to drift from the stowed position.

Warning: 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(s) 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.

*** 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.

Installation & Operation for Bi Rotational Pumps

Bi Directional Pump Power Connections

- o **Pump Ground (-12 volts DC):** A 5/16" stud is provided at the port plate to attach a wire (minimum 4 gauge) to the negative post of the battery. It is not acceptable to use the frame of the vehicle (or trailer) as the sole grounding connection.
- o **Pump Positive (+12volts DC):** A wire (minimum 4 gauge) must be connected from the common posts on the 2 motor solenoids to the positive side of the battery. If circuit protection is required, a circuit breaker with a minimum rating of 100 amps is required **at the battery.**
- o **Switch and harness connection:** A 6 terminal connector (white in color) is provided on the pump assembly and mates with the connector at the end of the switch and harness assembly.

Bi Rotational Pump Hydraulic Hose Connections

The manifold block with two valves and two hose connections is mounted to the check body on the pump. Hose connections are labeled.

- o **Hose Connections Top port:** These ports are located on the manifold block that holds the cartridge valves for either the left or right jack. The brown solid sticker is for the top port on the left jack. The white solid sticker is for the top port on the right jack.
- o **Hose Connections Bottom port:** This TEE fitting exits the pump near the reservoir. This is the retract port and must be connected to the bottom fitting of each jack (rod end of hydraulic cylinder). It does not matter which one is left or right.

Bi Rotational Pump Hydraulic Fluid Purging

This applies ONLY to CM-2 systems that are equipped with Bi Rotational motors

This procedure should be performed with the initial installation & running of hydraulic system, following installation of the pump assembly and jacks.

All electrical and hose connections must be completed before the purging process.

- o Fill the reservoir with ATF (Dexron III preferred)
- o Remove the bottom hose(s) from the TEE fitting at the pump. **Place into a clean container.** This is the bottom (or retract) hose.
- o Run the pump to **extend** the jacks(s). Maintain the fluid level in the reservoir approx ½ full. Do not allow reservoir to run empty. If jacks(s) will not fully extend, crack loose the upper hose(s) at the jack(s) and run pump to extend until air is expelled. Retighten the hoses and complete the extension of the jack(s). **Maintain the fluid level as described above.**
- o Reconnect the hose(s) to the TEE fitting at the pump.
- o Run the pump to retract the jack(s). Maintain the fluid level as above. Do not fill to full until after the legs are fully retracted.
- o If fluid in reservoir appears to be aerated (foaming), allow unit to sit until foam dissipates (approx 5-10 minutes).
- o Fully extend and retract jack leg(s) a minimum of 3 times. Allow foamed oil to dissipate as needed. Maintain the fluid level in the reservoir as needed.

Additional Notes Regarding Purging

The reservoir fluid level will be greatest when the jack(s) are fully retracted and lowest when the jack(s) are fully extended.

Never allow the reservoir to go empty. Maintain the fluid level at least $\frac{1}{4}$ full all the time. This $\frac{1}{4}$ line should be clear fluid not foamed up. The fuller the reservoir is the better just remember that the level will rise as the jacks are retracted. If it is too full when the jacks are extended then the reservoir will overflow out of the breather cap when the jacks are retracted.

Being patient helps! It does no good to run the pump and try to move the jacks when the reservoir is full of foam. Pumping foam will only reintroduce air into the system.

We want the air out! Allowing the air to dissipate through the reservoir and maintaining the reservoir fluid level will get things working faster.

Bi Rotational Pump Manual Override Operation

1. The jack valves have a slotted screw in the end of the stem. Using a small screw driver turn the screw in (clockwise) until it stops.
2. Remove the black plastic cap from the end of the motor by using a small screw driver
3. To **extend** the jacks, operate drill motor with a $\frac{7}{16}$ " socket. The drill must be capable of a minimum 2000 RPM. Insert the drill socket on to the hex run the drill clockwise.
4. To **retract** the jacks, insert the drill socket on to the hex run the drill counter-clockwise.
5. Return the screws from step #1 to the original position by turning them counter-clockwise. Return the red knob on the directional valve to the "in" position.*

*Failure to return the valves to the "normal" position following manual override may cause the jacks to drift from the stowed position.

Warning: With any hydraulic application, holding any position on a cylinder must be done with safety in mind. Failure in the system may cause the leg 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.

* 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.

Problem Solving

“The jacks run for a few seconds, then stop”

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

“The jacks only run 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 jacks are jerky when retracting”

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

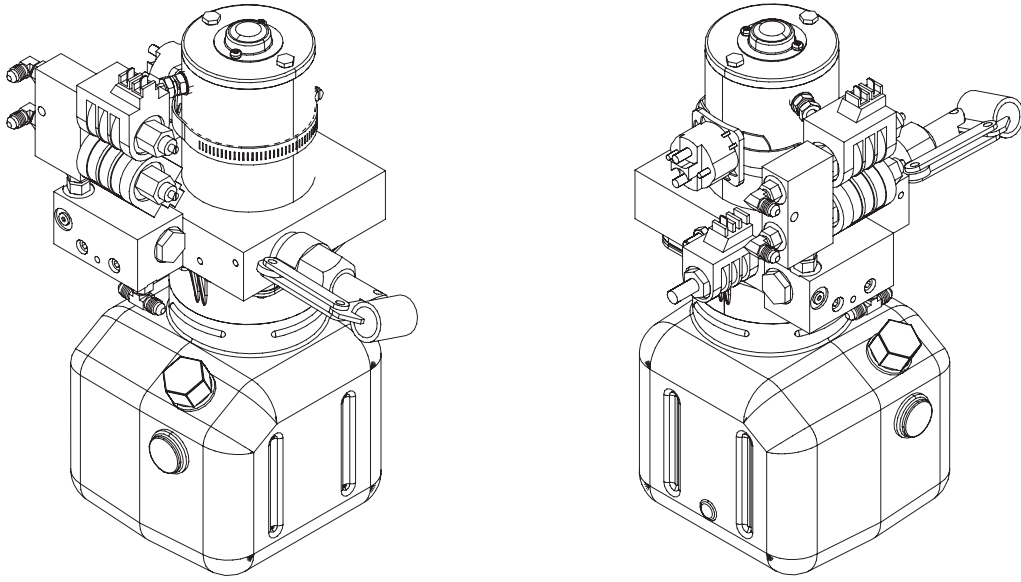
Avoid headaches—Always ensure & verify proper charge on the batteries!

Proper and adequate grounding of the pump is essential!

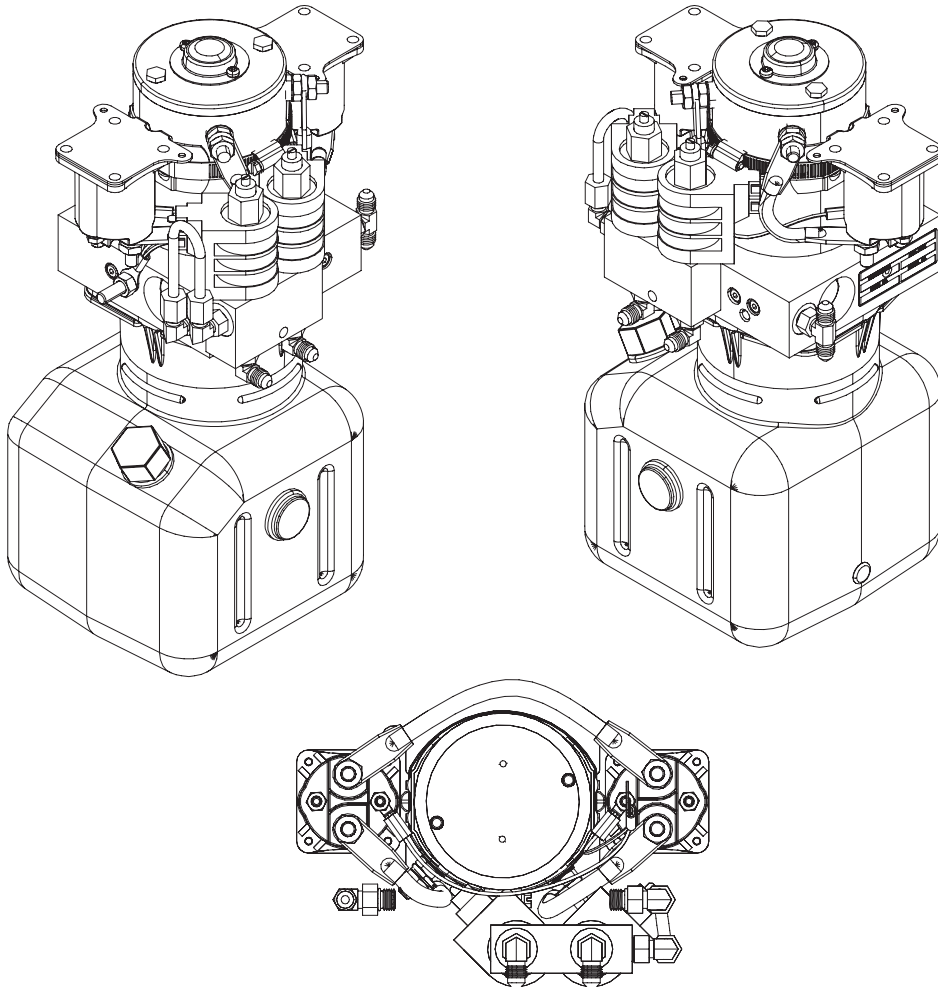
90% of the phone calls we receive are found to be a discharged battery or poor ground!

**If your problem is not listed or persists, call Equalizer Systems at (800) 846-9659.
Please gain prior authorization for warranty service or repair.**

Uni Rotational Pump



Bi Rotational Pump



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.

Warranty Policy, Continued

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
Elkhart, IN 46515

(800) 846-9659
(574) 264-3437
(574) 266-6083 fax



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