

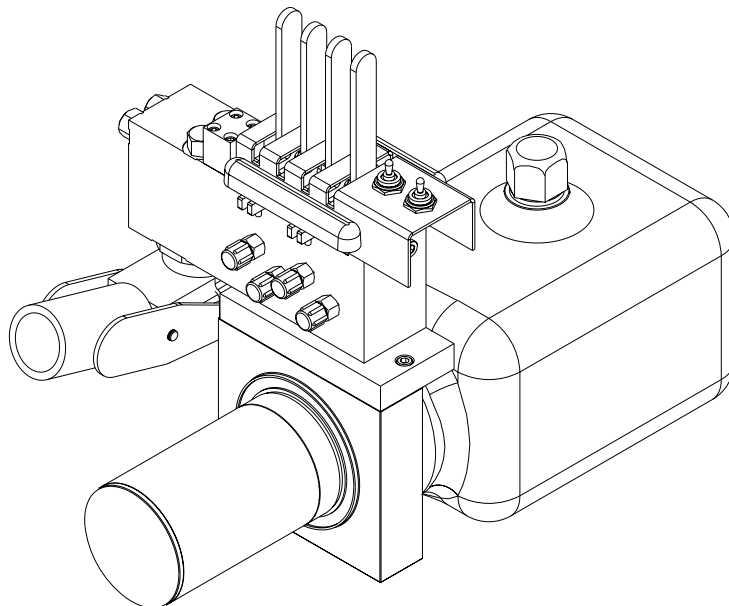


OPERATOR'S MANUAL

HWH® HYDRAULIC LANDING GEAR SYSTEM

FEATURING:

*Hydraulic Switches and Auxiliary Hand Pump
Two Double-Acting Jacks or
Four Double-Acting Jacks or
Two Double-Acting Jacks and Two Single Acting Jacks with Return Springs
Optional Levelize® Light Package*



HWH CORPORATION
(On I-80, Exit 267 South)
2096 Moscow Road | Moscow, Iowa 52760
Ph: 800/321-3494 (or) 563/724-3396 | Fax: 563/724-3408
www.hwh.com

OPERATOR'S MANUAL

WARNING !

READ ENTIRE HWH AND VEHICLE OPERATOR'S MANUALS BEFORE OPERATING.

JACKS UNDER LOAD WILL RETRACT WHEN LEVER IS MOVED TO RETRACT POSITION WITHOUT THE PUMP RUNNING.

CHOCK TRAILER WHEELS SECURELY BEFORE USING THE LANDING GEAR.

DO NOT LIFT THE TOW VEHICLE WITH THE LANDING GEAR.

BLOCK FRAME AND TIRES SECURELY BEFORE CRAWLING UNDER THE TRAILER, CHANGING TIRES, OR ENTERING AREAS WHERE BODY MAY BE CRUSHED BY SUDDEN DROPPING OR SLIDING OF TRAILER.

THE TRAILER MAY DROP AND/OR MOVE FORWARD OR BACKWARD WITHOUT WARNING CAUSING INJURY OR DEATH.

NEVER PLACE HANDS OR OTHER PARTS OF THE BODY NEAR HYDRAULIC LEAKS. OIL MAY PENETRATE SKIN CAUSING INJURY OR DEATH.

WEAR SAFETY GLASSES WHEN INSPECTING OR SERVICING THE SYSTEM TO PROTECT EYES FROM DIRT, METAL CHIPS, OIL LEAKS, ETC. FOLLOW ALL OTHER APPLICABLE SHOP SAFETY PRACTICES.

IMPORTANT: IF COACH IS EQUIPPED WITH A ROOM EXTENSION, READ ROOM EXTENSION SECTION BEFORE OPERATING LEVELING SYSTEM.

HOW TO OBTAIN WARRANTY SERVICE

THIS IS NOT TO BE INTERPRETED AS A STATEMENT OF WARRANTY

HWH CORPORATION strives to maintain the highest level of customer satisfaction. Therefore, if you discover a defect or problem, please do the following:

FIRST: Notify the dealership where you purchased the vehicle or had the leveling system installed. Dealership management people are in the best position to resolve the problem quickly. If the dealer has difficulty solving the problem, he should immediately contact the Customer Service Department, at HWH CORPORATION.

SECOND: If your dealer cannot or will not solve the problem, notify the Customer Service Department:
HWH CORPORATION 2096 Moscow Rd. Moscow IA. 52760
(563) 724-3396 OR (800) 321-3494. Give your name and address, coach manufacturer and model year, date the coach was purchased, or the date of system installation,

description of the problem, and where you can be reached during business hours (8:00 a.m. till 5:00 p.m. c.s.t.). HWH CORPORATION personnel will contact you to determine whether or not your claim is valid. If it is, HWH CORPORATION will authorize repair or replacement of the defective part, either by appointment at the factory or by the authorization of an independent service facility, to be determined by HWH CORPORATION. All warranty repairs must be performed by an independent service facility authorized by HWH CORPORATION, or at the HWH CORPORATION factory, unless prior written approval has been obtained from proper HWH CORPORATION personnel.

OPERATING PROCEDURES

GENERAL INSTRUCTIONS

Maintain adequate clearance in all directions for vehicle, room extensions, awnings, doors, steps, etc. Vehicle may move in any direction due to landing gear extending or retracting, settling of the landing gear or the vehicle, equipment malfunction, etc..

If parking on soft ground or asphalt paving, a wood block or pad should be placed under the jacks.

WARNING: DO NOT MOVE THE TRAILER IF ONE OR MORE LANDING GEAR OR JACKS ARE EXTENDED TO THE GROUND. DO NOT LIFT THE TOW VEHICLE WITH THE LANDING GEAR. DO NOT LEVEL THE TRAILER IF HITCHED TO THE TOW VEHICLE.

PREPARATION FOR TRAVEL

When the landing gear and jacks are completely stored or the trailer is supported on the landing gear and jacks, the operating levers should be in the neutral position.

Any room extension should be fully retracted before traveling.

WARNING: DO NOT MOVE THE VEHICLE WHILE THE LANDING GEAR AND JACKS ARE STILL IN CONTACT WITH THE GROUND OR IN THE EXTENDED POSITION. THIS VEHICLE IS EQUIPPED WITH STRAIGHT- ACTING LANDING GEAR AND JACKS. MOVING THE VEHICLE

WITH THE LANDING GEAR AND JACKS EXTENDED CAN CAUSE SEVERE DAMAGE TO THE LANDING GEAR, JACKS AND OR THE VEHICLE AND CREATE A DRIVING HAZARD. IT IS THE OPERATOR'S RESPONSIBILITY TO CHECK THAT ALL LANDING GEAR AND JACKS ARE FULLY RETRACTED INTO THE STORE/TRAVEL POSITION.

If the landing gear and jacks cannot be extended or retracted according to the SET UP or PREPARATION FOR TRAVEL procedures, refer to the AUXILIARY HAND PUMP procedures.

ROOM EXTENSION PROCEDURES

IMPORTANT: If the vehicle is equipped with a room extension read this section carefully.

IMPORTANT: It is recommended to level and stabilize the vehicle before extending the room.

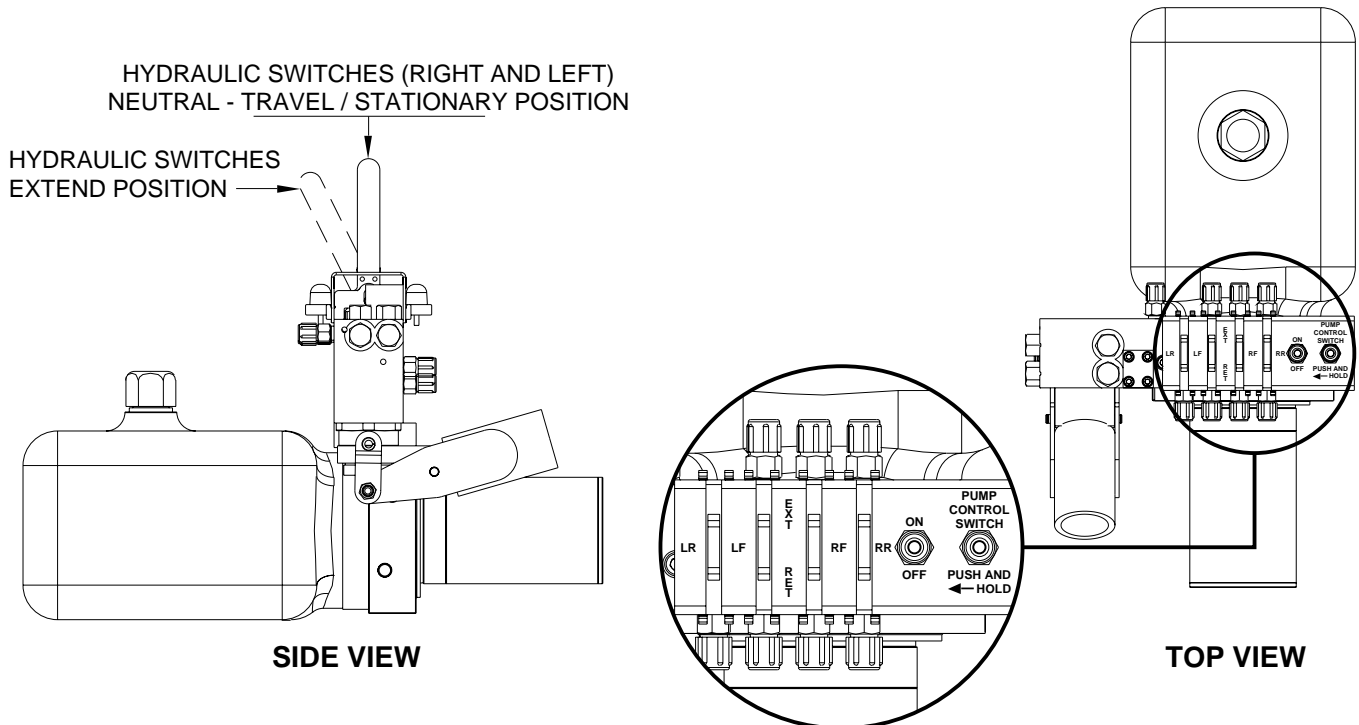
IMPORTANT: Extending or retracting any leveling jacks or landing gear when the room is extended is not recommended.

Refer to the vehicle owner's manual for proper operation of room extensions.

IMPORTANT: Do not use a room extension support when the vehicle is supported by the landing gear system.

OPERATING PROCEDURES

SET UP PROCEDURE



WARNING: DO NOT STAND BETWEEN THE TOW VEHICLE AND THE TRAILER OR BEHIND THE TRAILER WHEN UNHITCHING THE TRAILER OR OPERATING THE HWH LANDING GEAR OR JACKS.

If parking on soft ground or asphalt paving, a wood block or pad should be placed under the jacks.

NOTE: There is a hydraulic switch for each landing gear jack. Each can be operated individually by moving one hydraulic switch only. IT IS RECOMMENDED TO OPERATE BOTH JACKS AT THE SAME TIME WHEN UNHITCHING, LIFTING OR SUPPORTING THE TRAILER WITH THE LANDING GEAR.

1. Refer to the trailer manufacturer for instructions on unhitching the trailer from the tow vehicle.

2. Turn any master power switch for the landing gear system on.

NOTE: If the system is equipped with a Leveze® light package, the Leveze® power control switch must be on for the pump to operate.

3. Move the desired hydraulic switch(es) to the "EXTEND" position.

4. Push and hold the pump control switch.

5. When the landing gear and trailer are in the desired position, release the pump control switch.

IMPORTANT: BE CAREFUL TO NOT TWIST THE TRAILER WHEN OPERATING THE LANDING GEAR AND OR JACKS WITH THE INDIVIDUAL OPERATING LEVERS.

6. Return the hydraulic switches to the "NEUTRAL" position.

7. Turn all system power switches off.

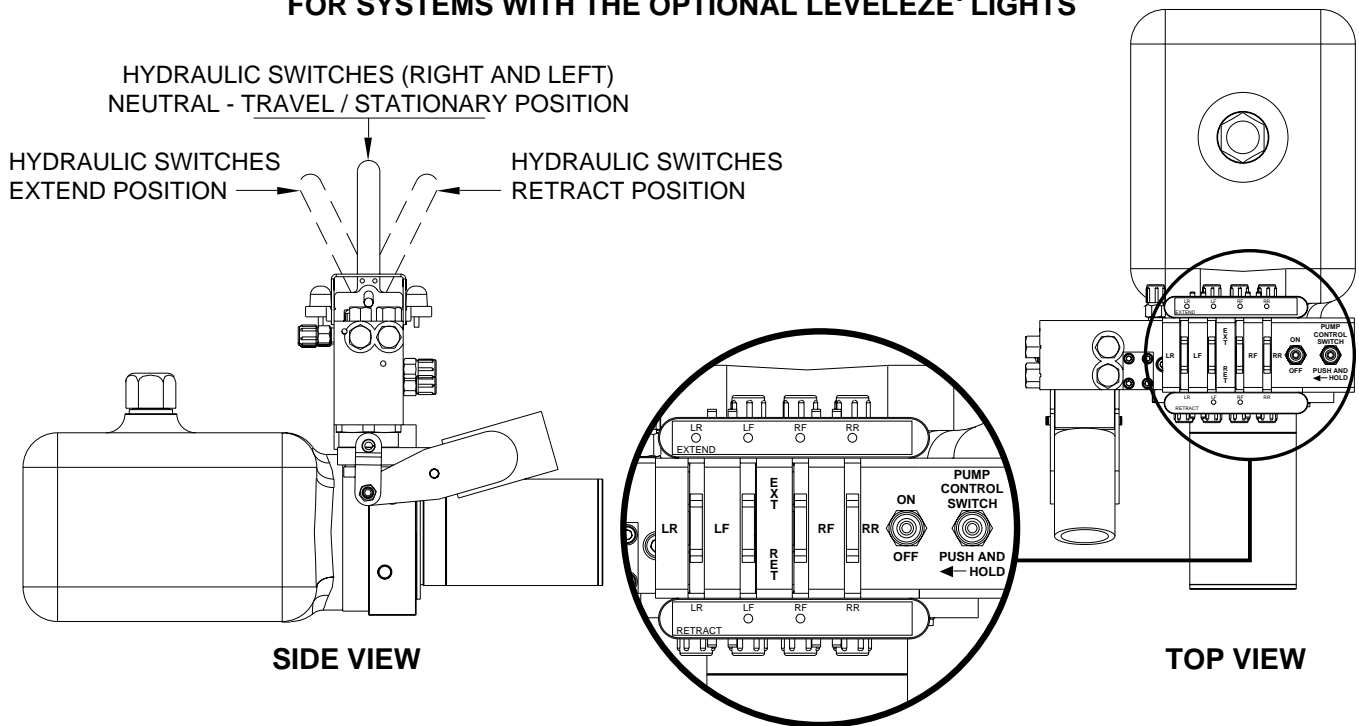
8. For vehicles equipped with rear jacks use the Right Rear and Left Rear hydraulic switches along with the pump control switch to extend the rear jacks as desired.

IMPORTANT: KEEP THE HYDRAULIC SWITCHES IN THE "NEUTRAL" POSITION WHEN THE TRAILER IS SUPPORTED ON THE LANDING GEAR AND JACKS.

In the case of a power failure or pump failure, the landing gear can be extended to hitch or unhitch the trailer. See "AUXILIARY HAND PUMP" operating procedures.

OPERATING PROCEDURES

LEVELING PROCEDURE FOR SYSTEMS WITH THE OPTIONAL LEVEZE® LIGHTS



WARNING: DO NOT STAND BETWEEN THE TOW VEHICLE AND THE TRAILER OR BEHIND THE TRAILER WHEN UNHITCHING THE TRAILER OR OPERATING THE HWH LANDING GEAR OR JACKS.

If parking on soft ground or asphalt paving, a wood block or pad should be placed under each jack.

1. Unhitch the trailer from the tow vehicle according to the "SET UP PROCEDURE" section in this manual.

Each hydraulic switch has an "EXTEND" and a "RETRACT" position. There is a yellow level indicator light for each "EXTEND" position. Only the two front hydraulic switches have yellow level indicator lights for the "RETRACT" position. The yellow level lights tell you which hydraulic switches to move and where to move the switch to, "EXTEND" or "RETRACT". **It is recommended to move both switches with lit yellow level lights so that two jacks are operated at the same time. This will reduce twisting of the trailer.** NOTE: The LEDs on the sensing unit mechanism are only used to adjust the sensing unit. Lit LEDs on the sensing unit may not be exactly the same as the Leveze® lights on the hydraulic switch assembly.

NOTE: The jacks can be extended or retracted with the hand pump to level and stabilize the trailer. Follow the same LEVELING PROCEDURE instructions using the hand pump instead of the pump control switch.

2. Move the hydraulic switches according to lit yellow level lights.

Note: when the two front hydraulic switches are moved to RETRACT, the trailer will start to lower without running the pump. It is recommended to NOT allow the hydraulic switches to latch in the retract position. By "feathering" the switches to RETRACT, the two front yellow level lights should go out. Allow the switches to return to the NEUTRAL position when the two front retract level lights go out. Repeat this procedure any time the two front yellow RETRACT light are on.

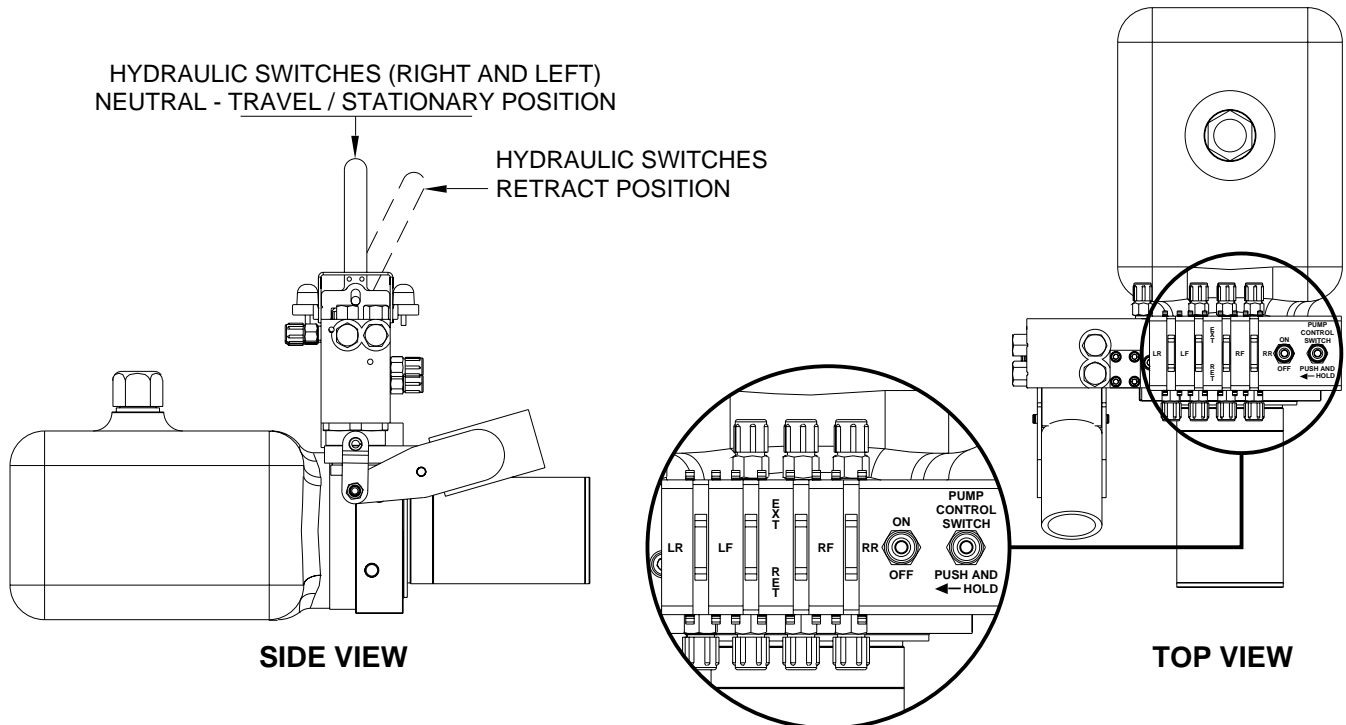
3. Push and hold the PUMP CONTROL SWITCH, when the hydraulic switches are in the EXTEND position, until the yellow level lights turn off. Repeat this process with any yellow level lights that come on.

Note: The yellow level lights may move back and forth between the same sets of lights several times before the trailer is level. Continue to operate the system according to lit yellow level lights.

4. When all 6 yellow level lights are off, the leveling process is complete.
5. Extend any jacks not used to level the vehicle. This is to stabilize the vehicle. Jacks used to stabilize the vehicle should lift the vehicle 3/4 to 1 inch after touching the ground.
6. Turn the Power Control toggle switch that is on the pump assembly OFF. Turn any master power control switch for the HWH system OFF.

OPERATING PROCEDURES

PREPARATION FOR TRAVEL



WARNING: DO NOT STAND BETWEEN THE TOW VEHICLE AND THE TRAILER OR BEHIND THE TRAILER WHEN UNHITCHING THE TRAILER OR OPERATING THE HWH LANDING GEAR OR JACKS.

IMPORTANT: IF THE VEHICLE IS EQUIPPED WITH REAR JACKS, RETRACT THE REAR JACKS BEFORE HITCHING THE TRAILER TO THE TOW VEHICLE.

NOTE: If the vehicle is equipped with rear jacks that have retract springs, the pump control switch is not needed to retract the rear jacks.

The trailer can be hitched to the tow vehicle using the front hydraulic switches without running the pump. By slowly pulling the hydraulic switches to the "RETRACT" position, the weight of the trailer can be lowered onto the tow vehicle.

1. Hitch the trailer to the tow vehicle according to the trailer manufacturer's instructions. DO NOT pull the hydraulic switches to the full retract detent (lock) position until the trailer is securely hitched to the tow vehicle.

WARNING: THE TRAILER SHOULD BE SECURELY HITCHED TO THE TOW VEHICLE BEFORE MOVING THE HYDRAULIC SWITCHES TO THE FULLY LOCKED "RETRACT" POSITION.

NOTE: It is recommended to pull both front hydraulic switches at the same time while lowering the trailer. This will reduce twisting of the trailer.

2. When the trailer is securely hitched to the tow vehicle, pull all hydraulic switches to the full "RETRACT" position. They should lock in place.

3. Push and hold the pump control switch until the jacks have retracted to the full store position.

4. Release the pump control switch and move all hydraulic switches to the "NEUTRAL" position for traveling.

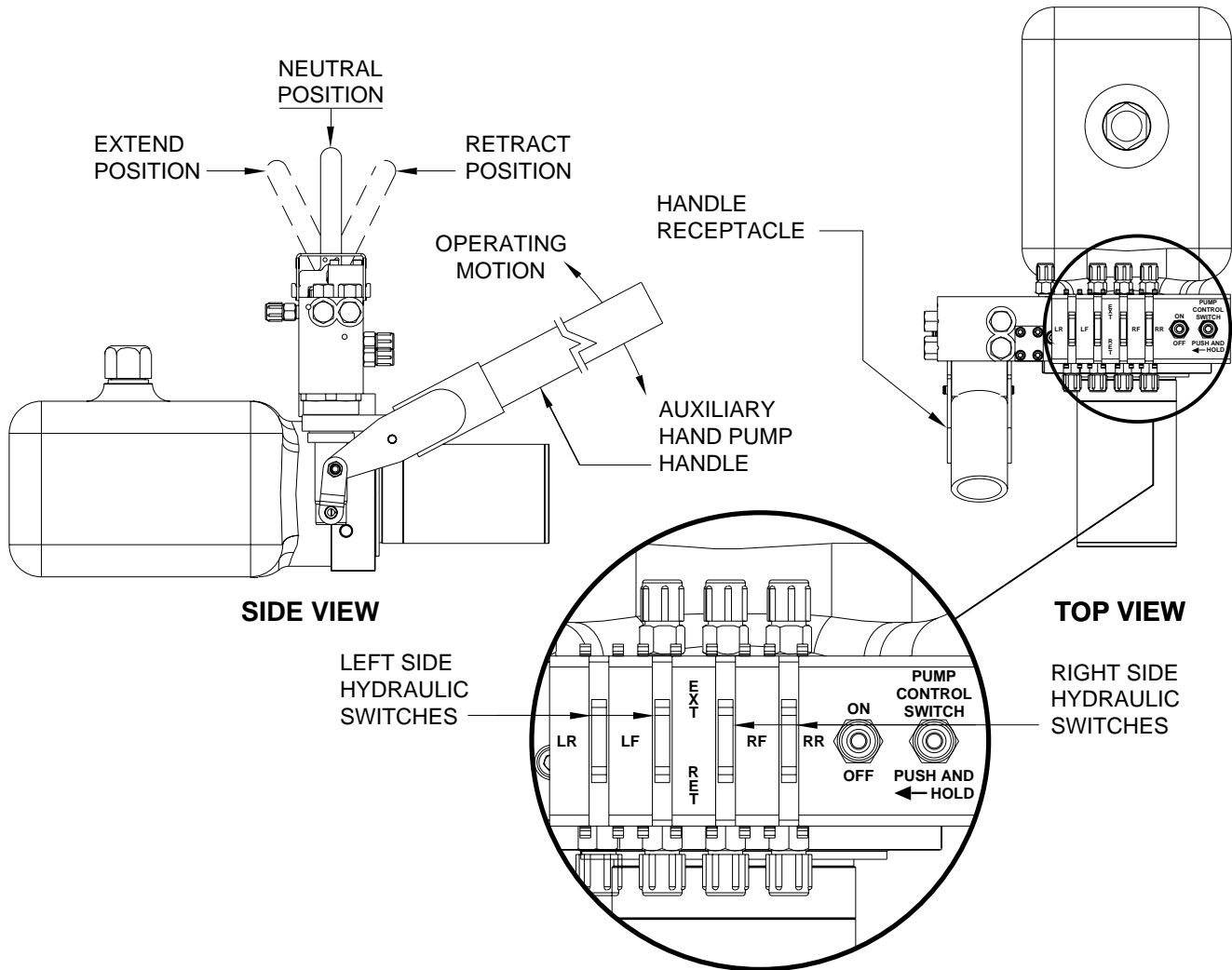
NOTE: Do Not hold the pump control switch for more than 10 seconds after the jacks are fully retracted.

WARNING: DO NOT MOVE THE VEHICLE WHILE THE LANDING GEAR JACKS ARE STILL IN CONTACT WITH THE GROUND OR IN THE EXTENDED POSITION. THIS VEHICLE IS EQUIPPED WITH STRAIGHT-ACTING LANDING GEAR JACKS. MOVING THE VEHICLE WITH THE LANDING GEAR JACKS EXTENDED CAN CAUSE SEVERE DAMAGE TO THE LANDING GEAR JACKS AND OR THE VEHICLE AND CREATE A DRIVING HAZARD. IT IS THE OPERATOR'S RESPONSIBILITY TO CHECK THAT ALL LANDING GEAR JACKS ARE FULLY RETRACTED INTO THE STORE/TRAVEL POSITION.

If the landing gear jacks cannot be extended or retracted to PREPARATION FOR TRAVEL procedures, refer to the "AUXILIARY HAND PUMP" procedures in this manual.

OPERATING PROCEDURES

AUXILIARY HAND PUMP OPERATION



The auxiliary hand pump can be used to extend or retract the landing gear and rear jacks, if so equipped, anytime the pump will not function.

IMPORTANT: DO NOT USE THE HAND PUMP IF THE FLUID LEVEL IN THE TANK IS LESS THAN ONE HALF FULL.

The auxiliary hand pump is a two stage pump that will produce enough pressure to extend the landing gear and lift the trailer as well as retract the landing gear. When operating the auxiliary pump to lift the trailer or when the jacks are fully retracted, the pump handle will seem to "snap" as the pump goes to the second stage. The pumping action will be easier at first as the second stage starts to create more pressure.

To operate the auxiliary hand pump, move the hydraulic switches to the desired position. Insert the hand pump handle into the handle receptacle and move the handle in an up and down motion.

NOTE: The auxiliary hand pump is not needed to retract jacks equipped with retract springs.

WARNING: THE TRAILER SHOULD BE SUPPORTED BY AUXILIARY STANDS OR SECURELY HITCHED TO THE TOW VEHICLE BEFORE MOVING THE HYDRAULIC SWITCHES TO THE FULLY LOCKED "RETRACT" POSITION.

The auxiliary hand pump may work easier if only one hydraulic switch is used at a time. **Be careful to not twist the trailer if only one hydraulic switch is in the EXTEND or RETRACT position.**

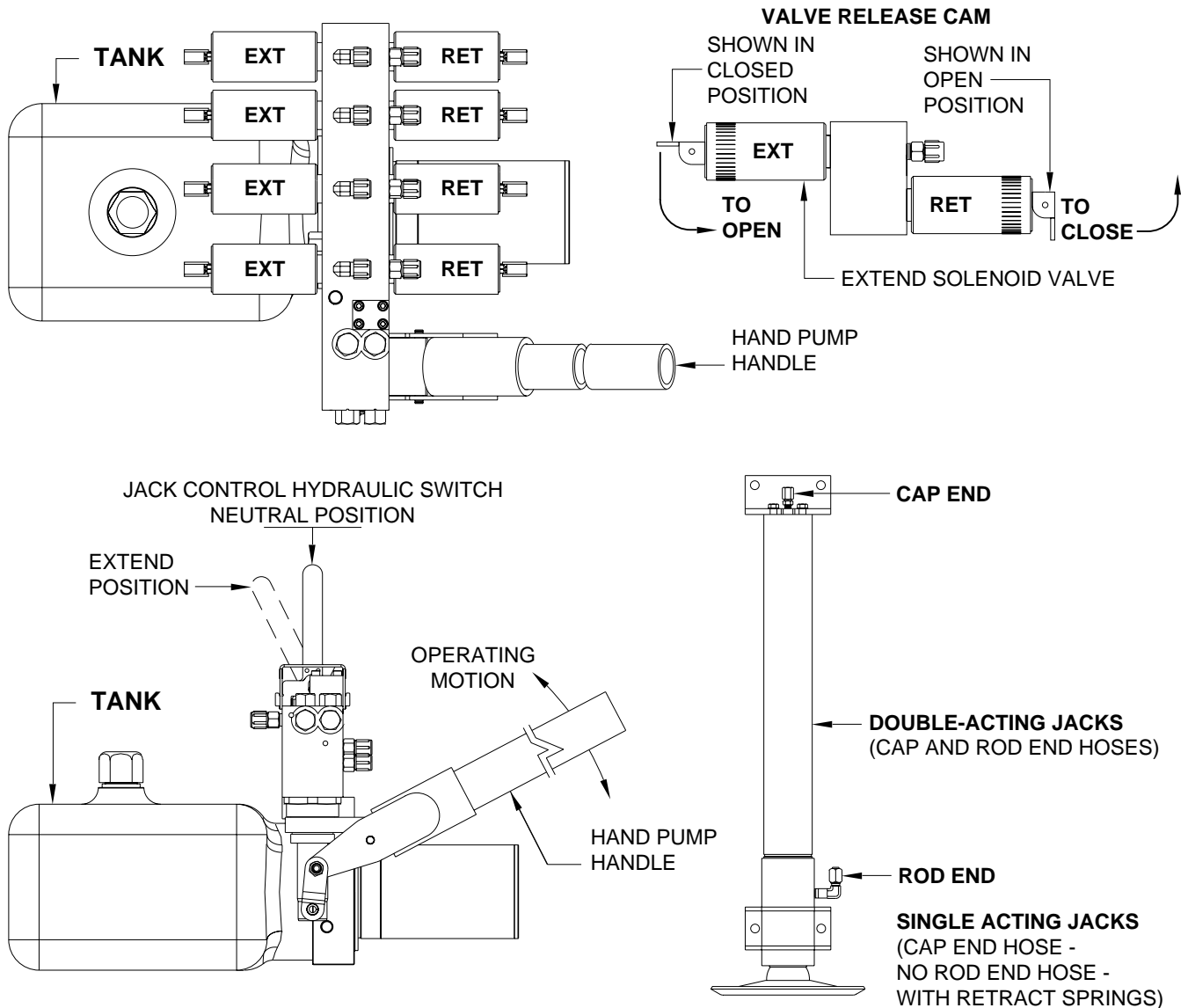
IMPORTANT: FOLLOW THE "SET UP" AND "PREPARATION FOR TRAVEL" PROCEDURES WHEN USING THE AUXILIARY HAND PUMP.

It is recommended to operate the auxiliary hand pump occasionally to check its operation.

The hand pump should not lose its prime, but if it does, see MAINTENANCE - PRIMING THE HAND PUMP.

MAINTENANCE

PRIMING THE HAND PUMP



To prime the hand pump, it will be necessary to remove a hose from one of the jacks. One of the front jacks would be best, but use the easiest hose to get to.

If the system has Double-Acting cylinders on the front, remove the rod end hose from either of the front jacks. Place the end of the hose in a bucket. Make sure the tank is at least half full. Pump the hand pump until a healthy flow of oil is coming from the hose.

IMPORTANT: DO NOT ALLOW THE FLUID LEVEL IN THE TANK TO LOWER MORE THAN 1 INCH BEFORE ADDING FLUID.

Reattach the hose and retry the hand pump. Repeat the procedure if the hand pump does not move the jacks.

If the system has only Single-Acting jacks with return springs, remove the easiest hose to access and place the end in a bucket. Using the release cam, manually open the EXTEND solenoid valve for that jack (if equipped with solenoid valves) or move the jack control hydraulic switch to "EXTEND" for that jack. Make sure the tank is at least half full. Pump the hand pump until a healthy flow of fluid comes from the hose.

IMPORTANT: DO NOT ALLOW THE FLUID LEVEL IN THE TANK TO LOWER MORE THAN 1 INCH BEFORE ADDING FLUID.

Reattach the hose and retry the hand pump. Repeat the procedure if the hand pump does not move the jacks.

SENSING UNIT MAINTENANCE/SERVICE

REMOTE MOUNTED "POTTED" ELECTRONIC SENSING UNIT

SENSING UNIT ACCURACY TOLERANCE

The sensing unit has an accuracy tolerance of ± 5.4 inches front to rear and ± 1 inch side to side on a 36 foot vehicle. Typical leveling results will be better.

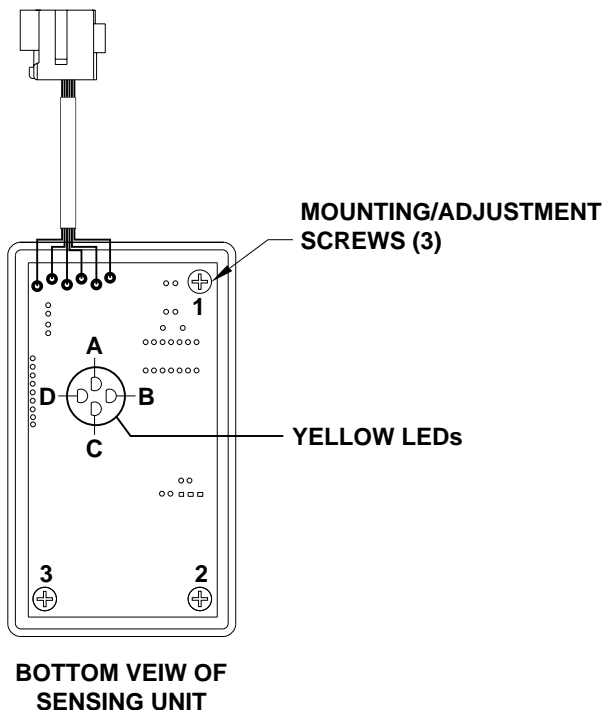
SENSING UNIT ADJUSTMENT

Level the vehicle by placing a bubble level in the center of the freezer floor or upon whichever surface within the vehicle that is to be level. Using the Leveling System and the bubble level, ignoring the yellow LEVEL lights on the Touch Panel, level the vehicle until the bubble is centered.

With the vehicle level according to the bubble level, if there are no yellow lights lit on the Touch Panel, the sensing unit is properly adjusted. If there are yellow LEVEL lights lit on the Touch Panel, manual adjustments to the Sensing Unit are needed. Tighten or loosen the adjustment screws according to these instructions to adjust the sensing unit.

IMPORTANT: BUMP THE SENSING UNIT TO SEE THAT IT IS SETTLED TIGHT AGAINST ALL THREE SCREW HEADS AND STILL INDICATES THAT THE UNIT IS LEVEL.

LED A - FRONT OF VEHICLE
 LED B - LEFT SIDE OF VEHICLE
 LED C - REAR OF VEHICLE
 LED D - RIGHT SIDE OF VEHICLE



NOTE: If opposing LED's are lit, there is a problem with the Sensing Unit.

If LED (A) is lit: Tighten adjustment screw number 1 until the LED is off.

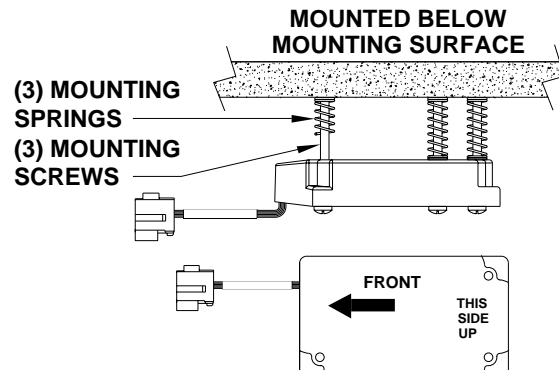
If LED (C) is lit: Loosen adjustment screw number 1 or tighten screws 2 and 3 until the LED is off.

If LED (B) is lit: Loosen adjustment screw number 3 or tighten screws 1 and 2 until the LED is off.

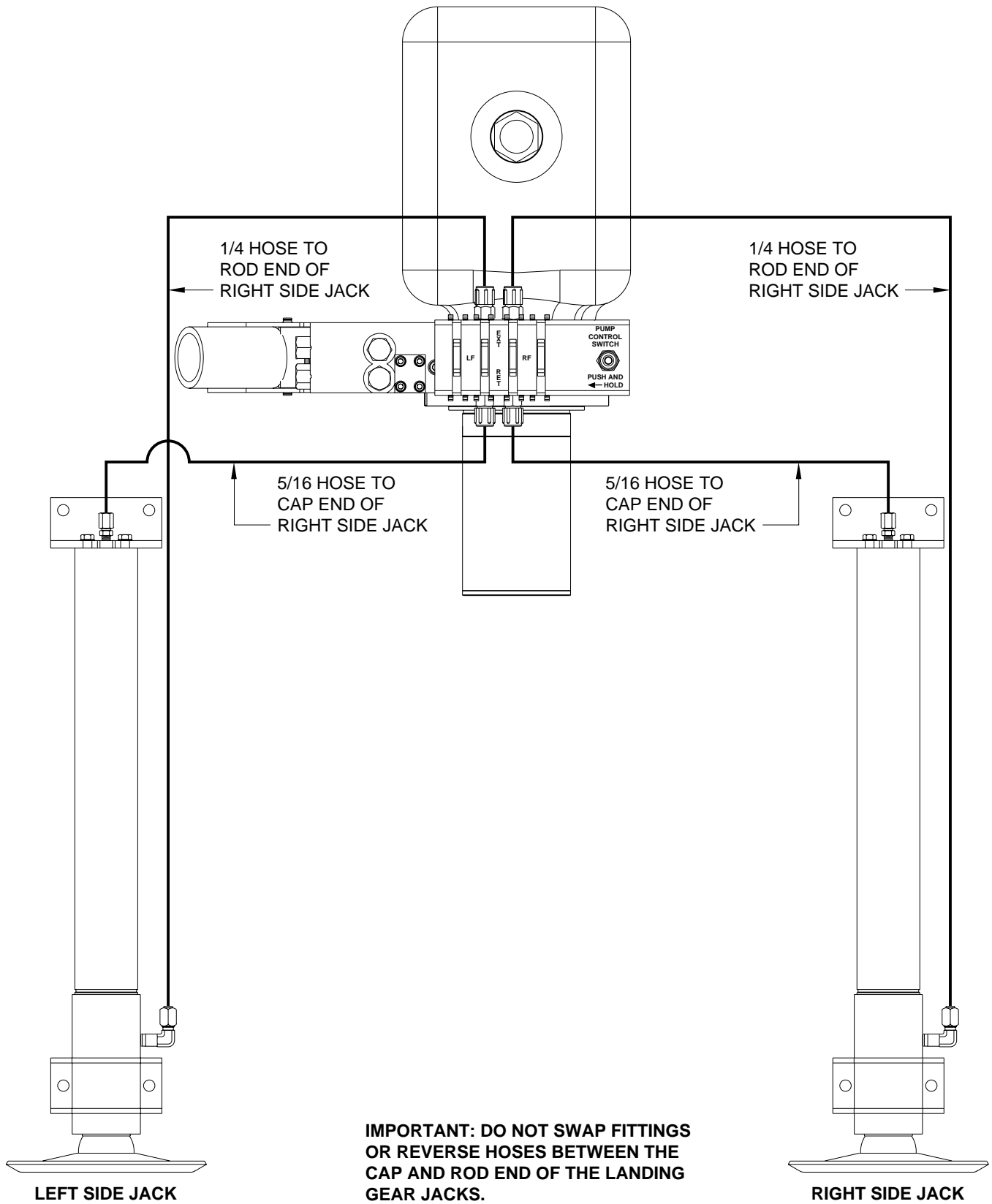
If LED (D) is lit: Tighten adjustment screw number 3 until the LED is off.

IMPORTANT: WHEN ALL 4 LED'S ARE OFF, MOVE THE VEHICLE TO AN UNLEVEL POSITION SO ONE OR TWO YELLOW LIGHTS ARE ON. LEVEL THE VEHICLE ACCORDING TO THE YELLOW LEVEL LIGHTS. RECHECK THE LEVEL. IF MORE ADJUSTMENT IS NEEDED, DO NOT TRY TO ADJUST THE SENSING UNIT UNTIL THE YELLOW LEVEL LIGHTS GO OUT, INSTEAD JUST "TWEAK" THE SENSING UNIT, IGNORING THE LED'S ON THE SENSING UNIT.

Example: After the initial adjustment and releveling the vehicle, the front is still low. This means the front yellow level light is turning off too soon. LED A is for the front of the vehicle. Move the adjustment for that light very, very, slightly in the OPPOSITE direction that is given in the above instructions for LED's A, B, C and D. This will allow the front yellow light to stay on slightly longer to bring the front up more. Again, unlevel the vehicle then relevel the vehicle using the yellow level lights on the touch panel. Recheck with a level. Repeat the "tweaking" process until the system levels the vehicle properly.



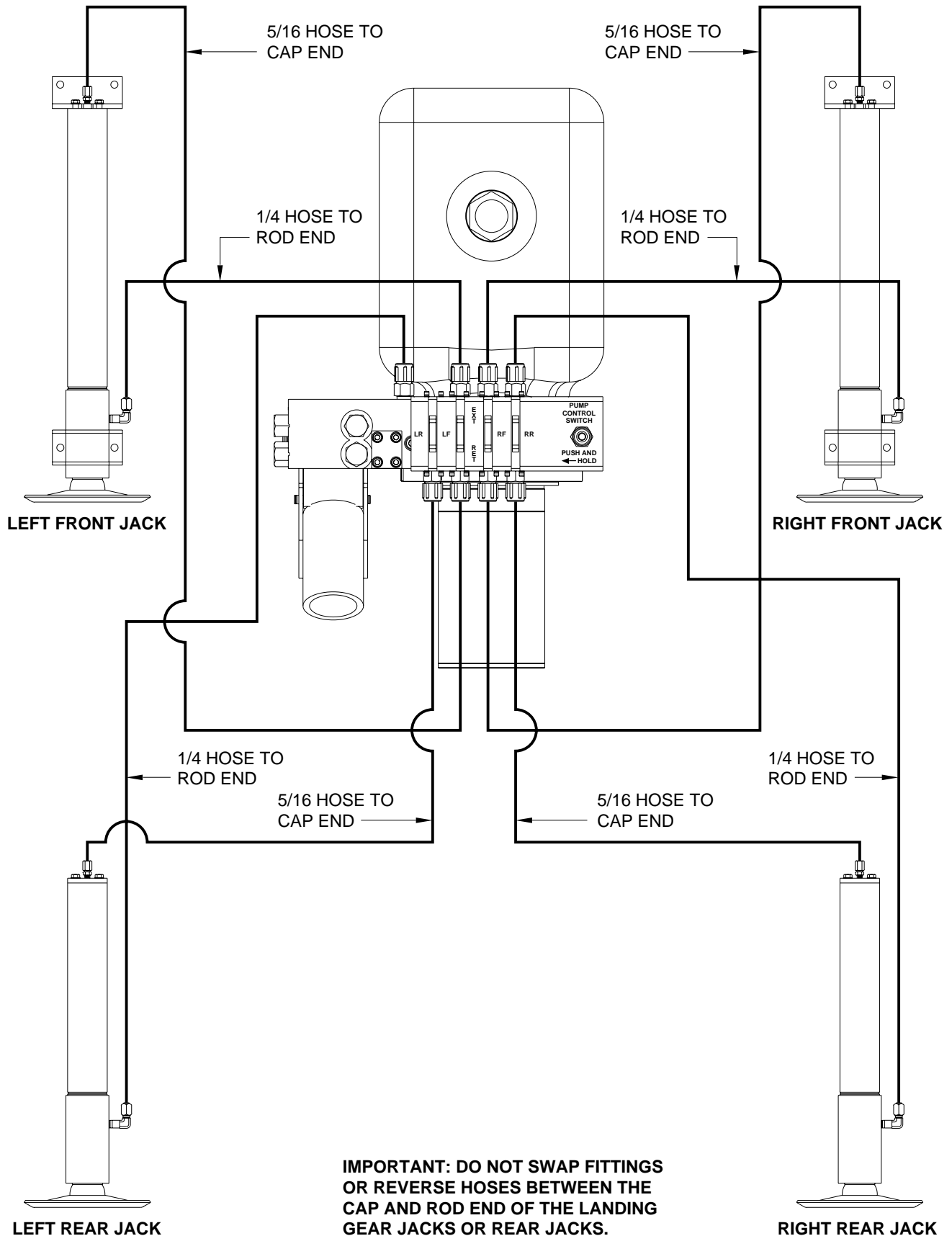
HYDRAULIC LINE CONNECTION DIAGRAM
LANDING GEAR SYSTEM
2 - DOUBLE-ACTING JACKS



HYDRAULIC LINE CONNECTION DIAGRAM

LANDING GEAR SYSTEM

4 - DOUBLE-ACTING JACKS

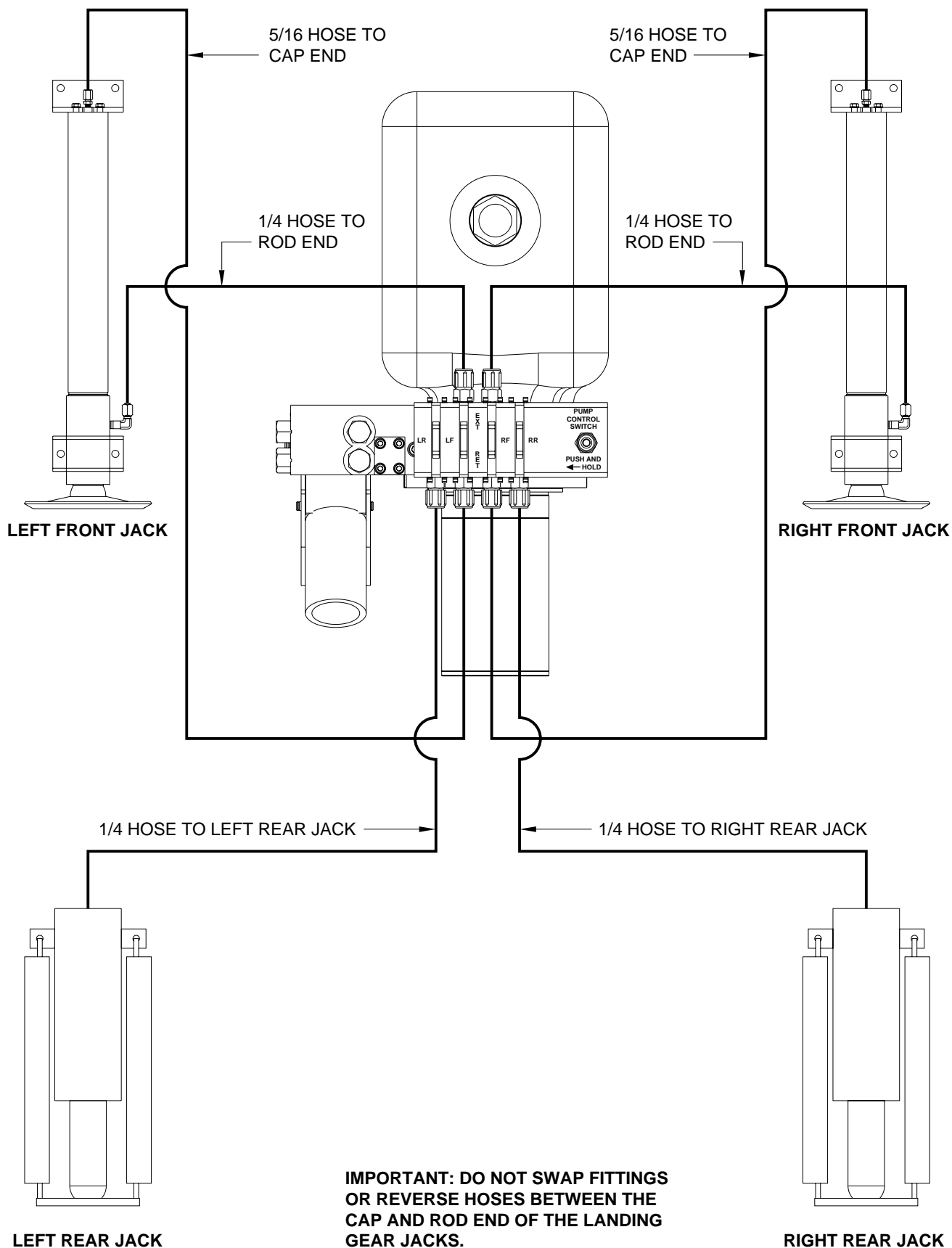


**IMPORTANT: DO NOT SWAP FITTINGS
OR REVERSE HOSES BETWEEN THE
CAP AND ROD END OF THE LANDING
GEAR JACKS OR REAR JACKS.**

HYDRAULIC LINE CONNECTION DIAGRAM

LANDING GEAR SYSTEM

2 - DOUBLE-ACTING JACKS (FRONT) & 2 - SINGLE ACTING JACKS (REAR)



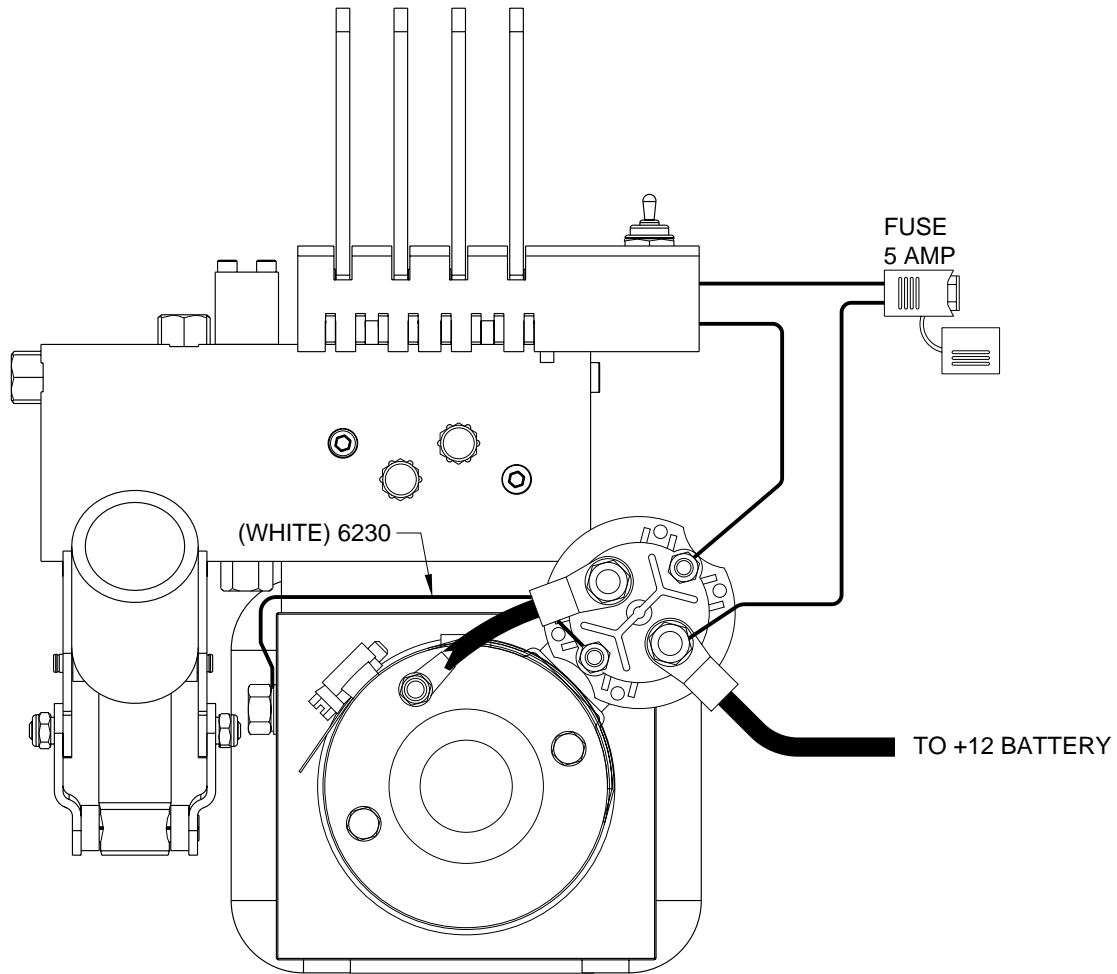
IMPORTANT: DO NOT SWAP FITTINGS OR REVERSE HOSES BETWEEN THE CAP AND ROD END OF THE LANDING GEAR JACKS.

LEFT REAR JACK

RIGHT REAR JACK

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ELECTRICAL CONNECTION DIAGRAM PUMP RELAY AND GROUNDING



IMPORTANT: THE PUMP MUST HAVE A SOLID FRAME MOUNT OR A NUMBER 2 BATTERY CABLE SHOULD BE APPLIED FROM THE GROUNDING STUD TO THE FRAME TO SUPPLY AN AMPLE GROUND CONNECTION FOR THE PUMP MOTOR.

ELECTRICAL CONNECTION DIAGRAM

LEVELEZE® LIGHTS AND SENSING UNIT

