

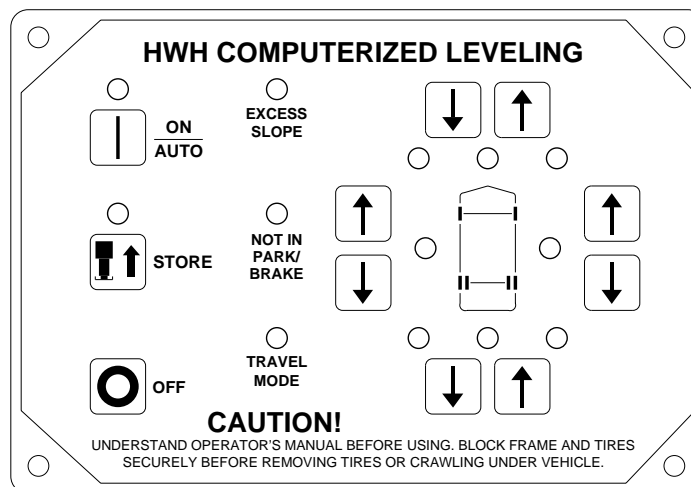


# OPERATOR'S MANUAL

## HWH® COMPUTER-CONTROLLED 2000 SERIES LEVELING SYSTEM FOR TRAILERS

### FEATURING:

*Touch Panel Leveling Control  
BI-AXIS® Hydraulic Leveling  
Four Double - Acting Jacks OR  
Four Single - Acting Jacks OR  
Two Double - Acting Front Jacks AND Two Single - Acting Rear Jacks  
Auxiliary Hand Pump*



### HWH CORPORATION

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[www.hwh.com](http://www.hwh.com)

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# OPERATOR'S MANUAL

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## WARNING !

**READ THE ENTIRE OPERATOR'S MANUAL BEFORE OPERATING.**

**BLOCK FRAME AND TIRES SECURELY BEFORE CRAWLING UNDER VEHICLE. DO NOT USE LEVELING JACKS OR AIR SUSPENSION TO SUPPORT VEHICLE WHILE UNDER VEHICLE OR CHANGING TIRES. VEHICLE MAY DROP AND/OR MOVE FORWARD OR BACKWARD WITHOUT WARNING CAUSING INJURY OR DEATH.**

**KEEP ALL PEOPLE CLEAR OF VEHICLE WHILE LEVELING SYSTEM IS IN USE.**

**WHILE HITCHING OR UNHITCHING, AVOID AREAS WHERE BODY MAY BE CRUSHED BY SUDDEN DROPPING OR SLIDING OF THE TRAILER.**

**DO NOT LIFT TOW VEHICLE WITH LEVELING SYSTEM.**

**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 VEHICLE 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.

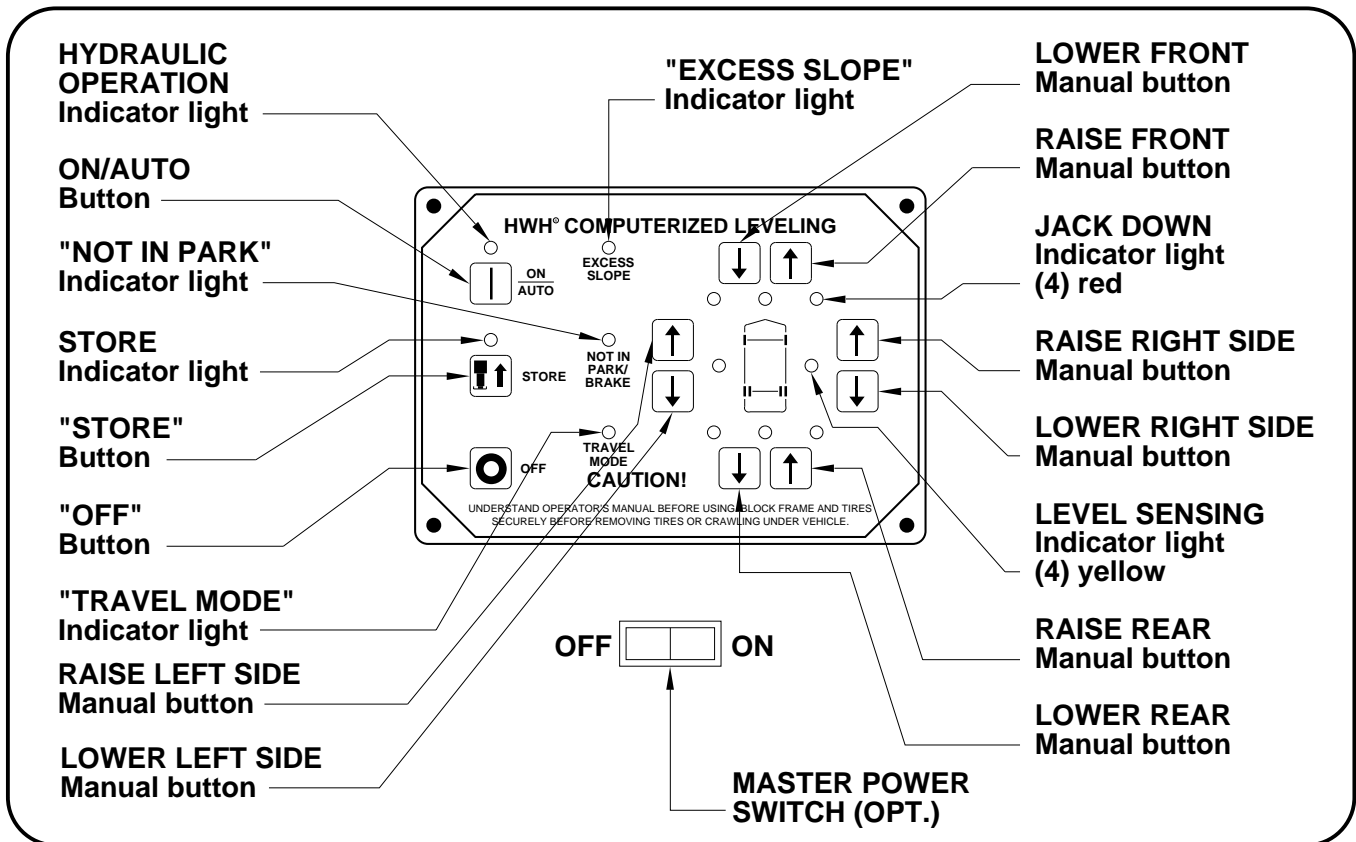
**SECOND:** If your dealer cannot or will not solve the problem, notify the Customer Service Department:  
HWH CORPORATION 2096 Moscow Rd. Moscow IA. 52760  
(563) 724-3396 OR (800) 321-3494. Give your name and address, coach manufacturer and model year, date the coach was purchased, or the date of system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

# CONTROL IDENTIFICATION

## 625/2000 SERIES LEVELING SYSTEM

### COMPUTER-CONTROL



## CONTROL FUNCTIONS

### CONTROL BUTTONS

**ON/AUTO (I) BUTTON:** This is the on button and automatic operation button. The on indicator light is above the (I) button.

**"OFF" BUTTON:** Push the "OFF" button to stop hydraulic operation.

**"STORE" BUTTON:** The store indicator light is above the "STORE" button. This button is used to automatically retract the jacks.

**EXTEND BUTTONS (UP ARROWS):** These buttons will extend the jacks to lift the vehicle.

**RETRACT BUTTONS (DOWN ARROWS):** These buttons will retract the jacks to lower the vehicle.

SEE MANUAL LEVELING PROCEDURE.

**MASTER POWER SWITCH:** This switch controls power to the HWH control system. This is an optional switch from HWH. The system should have a master power switch.

### INDICATOR LIGHTS

**HYDRAULIC OPERATIONS (I) LIGHT:** This light indicates that the panel is active.

**"NOT IN PARK/BRAKE" LIGHT:** N/A.

**STORE LIGHT:** This light indicates that the system is in STORE mode.

**"TRAVEL MODE" LIGHT:** This indicator light will be on when there is power to the control box, if the jacks are retracted and there are no red WARNING lights on.

**LEVELING LIGHTS:** The four yellow indicating lights are level sensing indicators. When a yellow light is on, it indicates that its side, end, or corner of the vehicle is low. No more than two lights should be on at the same time.

**JACK DOWN LIGHTS:** The four red lights surrounding the yellow level indicators are jacks down WARNING lights. They are functional only when the system is on, and the jacks are extended 1/4 to 1/2 inch.

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# OPERATING PROCEDURES

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## GENERAL INSTRUCTIONS

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

If parking on soft ground or asphalt paving, wood blocks or pads must be placed under the jacks.

Press the "OFF" button and turn the master power switch "OFF" at any time to stop the operation of the system.

**WARNING: DO NOT MOVE THE VEHICLE IF ONE OR MORE JACKS ARE EXTENDED TO THE GROUND.**

The HWH or OEM supplied master power switch must be on for the leveling system to operate.

## PREPARATION FOR TRAVEL

Before traveling, the red jack warning lights must be off and the "TRAVEL MODE" light must be on. If lights are not correct for travel, retract jack as described in the JACK RETRACTION Section.

If the jacks are retracted but a red "WARNING" light is lit or the green "TRAVEL MODE" light is not lit, the system needs to be serviced.

Any room extension should be fully retracted before traveling.

**WARNING: DO NOT MOVE THE VEHICLE WHILE THE LEVELING JACKS ARE STILL IN CONTACT WITH THE GROUND OR IN THE EXTEND POSITION. THIS**

**VEHICLE IS EQUIPPED WITH STRAIGHT-ACTING JACKS. MOVING THE VEHICLE WITH THE LEVELING JACKS EXTENDED CAN CAUSE SEVERE DAMAGE TO THE JACKS AND OR THE VEHICLE AND CREATE A DRIVING HAZARD. DO NOT RELY SOLELY UPON WARNING LIGHTS. IT IS THE OPERATOR'S RESPONSIBILITY TO CHECK THAT ALL JACKS ARE FULLY RETRACTED INTO THE STORE/TRAVEL POSITION.**

Any time the "I" button has been pushed, push the "STORE" button before traveling.

If the jacks cannot be retracted according to the JACK RETRACTION Section, retract the jacks according to the MANUAL JACK RETRACTION Section. The system should then be checked.

## JACK STYLES

This trailer may be equipped with (4) Double - Acting jacks, (4) Single - Acting jacks or (2) Double - Acting and (2) Single - Acting jacks. It is important to understand the style of jack on your trailer to make sure the system is functioning properly.

**Double - Acting jacks:** Are power up and power down with two hydraulic hoses going to each jack. Double - Acting jacks have no return springs.

**Single - Acting jacks:** Are power down only with one hydraulic hose going to each jack. Single - Acting jacks have return springs.

## 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 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 leveling system.**

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# OPERATING PROCEDURES

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## SET UP AND AUTOMATIC LEVELING PROCEDURE

Trailer must be unhitched from the tow vehicle before leveling. The HWH front jacks may be used to lift the trailer for unhitching. If auxiliary jacks are used to unhitch the trailer, extend the HWH front jacks to the ground and retract the auxiliary jacks before the leveling system is used for leveling.

**NOTE: Refer to the trailer manufacturer owner's manual for unhitching.**

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

**IMPORTANT: Overheating and excessive current drain will result if raise arrows are operated for an extended period of time.**

1. Turn the HWH master power switch on.
2. Press the "ON/AUTO" button to enter the hydraulic operation mode. The ON light will glow steady.
3. Use the front UP arrow manual button to extend the front jacks to unhitch the trailer.
4. At this time, the operator may want to check the jacks and place pads under the jacks if the ground will not support the vehicle.
5. Press the "ON/AUTO" button a second time. The ON light will start to flash.

**Before starting the auto level procedure, at least one front leveling jack must be firmly on the ground supporting the weight of the trailer. If the rear yellow level light is lit, both front red warning lights must be lit along with at least one front leveling jack firmly on the ground.**

**If these requirements are not met, the system will remain idle when the "ON/AUTO" button is pushed the second time.**

The system will automatically extend the jacks to level the vehicle and then extend any remaining jacks for stabilizing. The system will level the trailer front to rear (if needed) before leveling side to side. If the rear yellow level indicator is on, the system will lower the front of the trailer to level the trailer. If the front jacks are Double - Acting jacks, the pump will run while the front is lowering. After the system has finished leveling and stabilizing, it will automatically shut off.

**NOTE: The system will only lower the front of the trailer if the rear level light is on when the "ON/AUTO" button is pushed the second time. If the rear light is not on or goes out while lowering the trailer, no lowering procedure is used after that no matter what level light may come on. If either front red warning light goes out while the front is lowering, the system will discontinue the leveling procedure and shut off.**

**EXCESS SLOPE SITUATION:** In the event the jacks are unable to level the coach, the "EXCESS SLOPE" light will come on. Excess slope is one or two jacks fully extended without turning the yellow level light out. The system will not stabilize the vehicle if the "EXCESS SLOPE" light comes on. One or more jacks may be extended. The system will shut off leaving the "EXCESS SLOPE" light on. The "EXCESS SLOPE" light will remain on if there is power to the control box, until the jacks have been fully retracted using the "STORE" button, turning the red warning lights out. Refer to the HITCHING AND STORING JACKS section. Move the trailer to a more level position or level the trailer as close as possible according to the MANUAL LEVELING section. Manual leveling will operate when the EXCESS SLOPE light is on.

6. Turn the HWH master key switch off.

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# OPERATING PROCEDURES

## 625/2000 SERIES LEVELING SYSTEM

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### HITCHING AND STORING JACKS

**WARNING:** THE OPERATOR MUST BE SURE THAT THERE ARE NO OBJECTS UNDER THE TRAILER AND THAT ALL PEOPLE ARE CLEAR OF THE TRAILER.

#### HITCHING

**IMPORTANT:** The "STORE" button will not function until the weight of the trailer is off the front jacks.

1. The HWH master switch must be on to hitch the trailer and store the jacks.
2. Push the "ON" button. The ON light will glow steady.

3. Push the rear down arrow (RETRACT button) until the weight of the trailer is off the rear jacks.

4. Hitch the trailer to the tow vehicle according to the manufacturers instructions. Use the existing landing gear or the front UP (EXTEND jacks) and DOWN (RETRACT jacks) arrows.

#### STORING JACKS

1. After the trailer is securely hitched to the tow vehicle, and the weight of the trailer is off of the front jacks, push the "STORE" button. All 4 jacks will retract.

**NOTE:** If the weight of the trailer is not removed from both front jacks, the "AUTO STORE" button will not function. If the "AUTO STORE" button is pushed, the "INCORRECT PROCEDURE" light will come on steady with the two front warning lights flashing for 10 seconds. The manual UP DOWN arrow buttons will function while the "INCORRECT PROCEDURE" light is on.

If the vehicle is equipped with double-acting front jacks or landing gear, it may be necessary to use the manual front DOWN ARROW button to hitch the trailer to the tow vehicle or slightly retract the front jacks before the "STORE" button will function, even if the front jacks are not supporting the trailer.

If the system has (4) Double - Acting jacks, the pump will run with all retract loads staying on until 10 seconds after the last red warning light goes out. If any warning light remains on the pump and all retract loads will remain on for (4) minutes from the time the "AUTO STORE" button was pushed.

If the system has (2) Double - Acting and (2) Single - Acting jacks, the pump will run until (10) seconds after the warning lights for the Double - Acting jacks go out. The Single - Acting jacks will continue to retract if not fully retracted at the time. The system will shut off (1) minute after the warning lights for the Single - Acting jacks go out. If a warning light for the Double - Acting jacks will not go out, the pump will run for (4) minutes and shut off. If a warning light for the Single - Acting jacks will not go out, the system and retract loads for the Single - Acting jacks will remain on for (20) minutes and then shut off.

If the system has (4) Single - Acting jacks, the pump never runs during the auto store procedure. The system shuts off (1) minute after the last red warning light goes out. If any warning light remains on, the system will stay in the auto store mode for (20) minutes and then shut off.

**WARNING:** ONLY USE THE "STORE" BUTTON IF THE TRAILER IS HITCHED TO A TOW VEHICLE OR SECURELY SUPPORTED BY THE EXISTING LANDING GEAR.

**IMPORTANT:** DO NOT interrupt power to the leveling system while the "STORE" indicator light is blinking. DO NOT push the "OFF" button or turn power off to the system. The system must be allowed to completely finish the STORE mode.

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

2. Turn the HWH master power switch off before traveling.
3. The trailer can be moved as soon as the red warning lights are out, the jacks are in the STORE/TRAVEL position and the green "TRAVEL MODE" light is on.

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# OPERATING PROCEDURES

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## MANUAL LEVELING

Trailer must be unhitched from the tow vehicle before leveling. The HWH front jacks may be used to lift the trailer for unhitching. If auxiliary jacks are used to unhitch the trailer, extend the HWH front jacks to the ground and retract the auxiliary jacks before the leveling system is used for leveling.

**NOTE: Refer to the trailer manufacturer owner's manual for unhitching.**

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

**IMPORTANT: Overheating and excessive current drain will result if raise arrows are operated for an extended period of time.**

1. Turn the HWH master key switch on.
2. The touch panel must be on for the system to function.
3. Use the front UP arrow buttons to extend the front jacks and unhitch the trailer.

4. A lit yellow LEVEL light indicates that the side, end or corner of the trailer is low. **If the rear yellow level light is on, it is recommended to push the front down arrow until the rear yellow light goes out.** Pushing the up arrow for corresponding yellow level lights will extend that jack or jack pair to level the vehicle. Extend jacks as needed to put out all the yellow lights. Always give a front or rear yellow level light priority when leveling the trailer. If the ground is too uneven, the jacks may not have enough stroke to level the trailer. The trailer may have to be moved.

**NOTE: No matter what type of jacks the trailer is equipped with, the pump will always run when an UP (raise) arrow is pushed.**

**The pump will run when pushing any DOWN (lower) arrow if the trailer has (4) Double - Acting jacks.**

**If the trailer has (2) Double - Acting and (2) Single - Acting jacks, the pump will only run if the front DOWN (lower) arrow is pushed.**

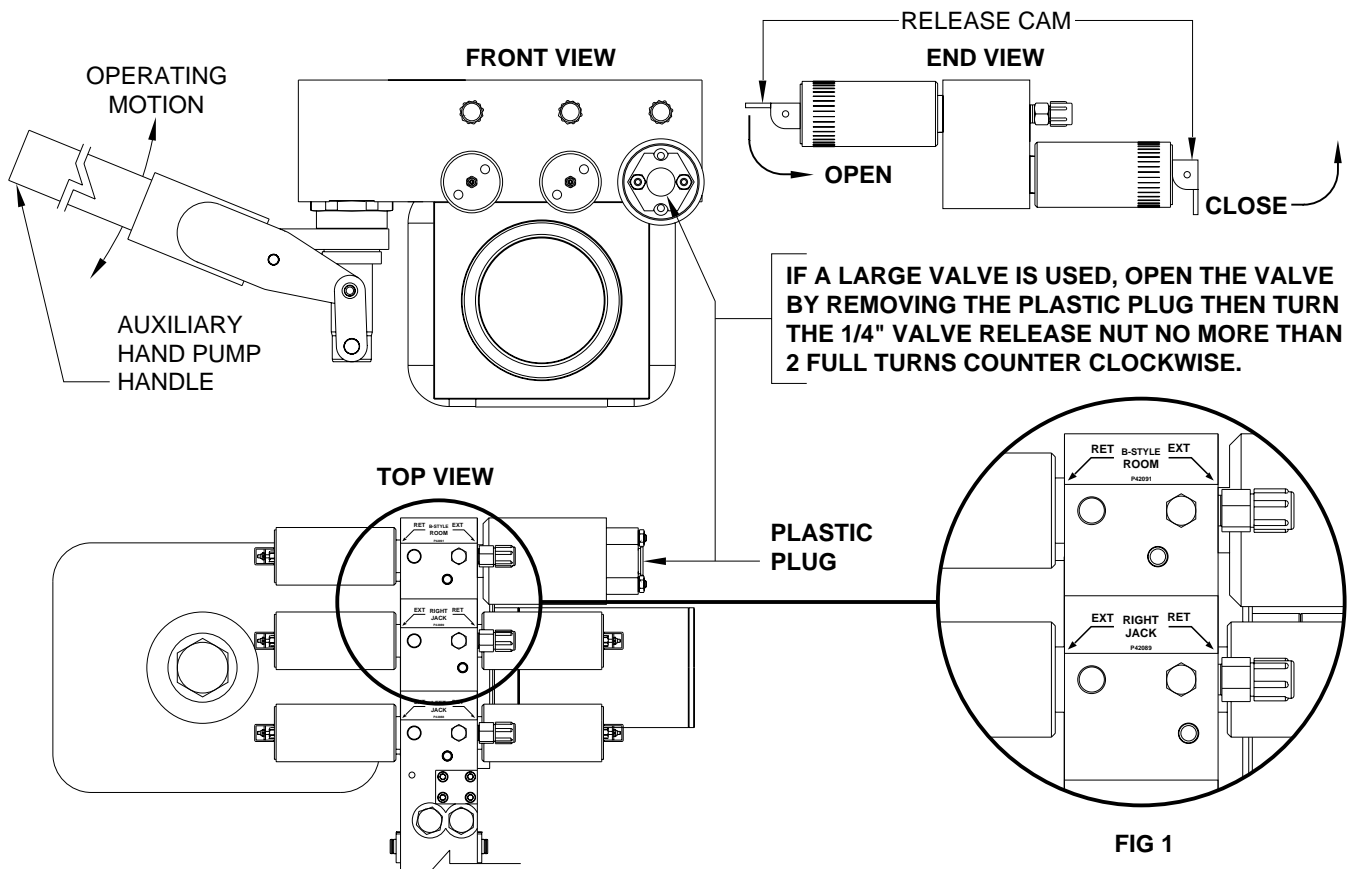
5. After the trailer is level, the jacks not used for leveling may be extended until they touch the ground. This provides additional stability against wind and activity in the trailer. Jacks used to stabilize the trailer should lift the trailer about 3/4 inch.

6. Push the "OFF" button on the touch panel to turn the system off.

7. Turn the HWH master power switch off.

# OPERATING PROCEDURES

## AUXILIARY HAND PUMP OPERATION



**NOTE:** Each hydraulic function requires a pair of solenoid valves one each for the extend and retract procedures. The number of functions and the items controlled by each pair of solenoid valves will vary for each system. The diagrams shown on this page represent a (3) function system of (2) jacks and (1) room as indicated by the labels shown in FIG 1. Use the labels specific to your system when following these procedures.

The auxiliary hand pump can be used to extend or retract the landing gear, jacks or room extensions anytime the pump will not function.

The auxiliary hand pump is a two stage pump that will produce enough pressure to extend the landing gear and lift the vehicle as well as retract the landing gear. When operating the auxiliary pump to lift the vehicle 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.

**NOTE:** The hand pump will swivel to any position which will ease the operation of the hand pump.

To operate the auxiliary hand pump, open the appropriate solenoid valve. Insert the hand pump handle into the handle receptacle and move the handle in an up and down motion.

**NOTE:** If a room cannot be retracted using the auxiliary hand pump, see "MANUAL ROOM RETRACTION PROCEDURES".

**WARNING:** THE VEHICLE SHOULD BE SUPPORTED BY AUXILIARY STANDS OR SECURELY HITTED TO THE TOW VEHICLE BEFORE OPENING ANY VALVES.

The auxiliary hand pump may work easier if only one valve is open at a time. **Be careful to not twist the vehicle if only one solenoid valve is open.**

**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.

**IMPORTANT:** ONLY MOVE THE RELEASE CAM IN THE DIRECTION SHOWN. MOVING THE CAM IN THE OPPOSITE DIRECTION CAN DAMAGE THE VALVES.

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# MAINTENANCE

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## OIL LEVEL

It is important that the four leveling units are fully retracted before checking the hydraulic oil level. To check the oil supply, remove the breather cap from the top of the hydraulic oil reservoir. The oil level should be approximately one inch below the top of the reservoir when adequately filled.

**FLUID:** HWH Specialty Hydraulic Oil is recommended. In an emergency Dexron automatic transmission fluid can be used.  
**NOTE:** Dexron automatic transmission fluid contains red dye and can cause staining should a leak occur. **DO NOT USE** brake fluid or hydraulic jack fluid. Use of these can damage seals.

## UNUSUAL CONDITIONS

In general, to insure the smooth operation of the leveling system, it is a good idea to occasionally check the individual leveling units to prevent problems. This is especially true under the unusual conditions stated in the following:

If driving conditions are unusually muddy, the units may become caked or clogged with mud. This condition may hamper the proper operation of the leveling system. This problem may be prevented or remedied by cleaning off each leveling unit if they become excessively muddy.

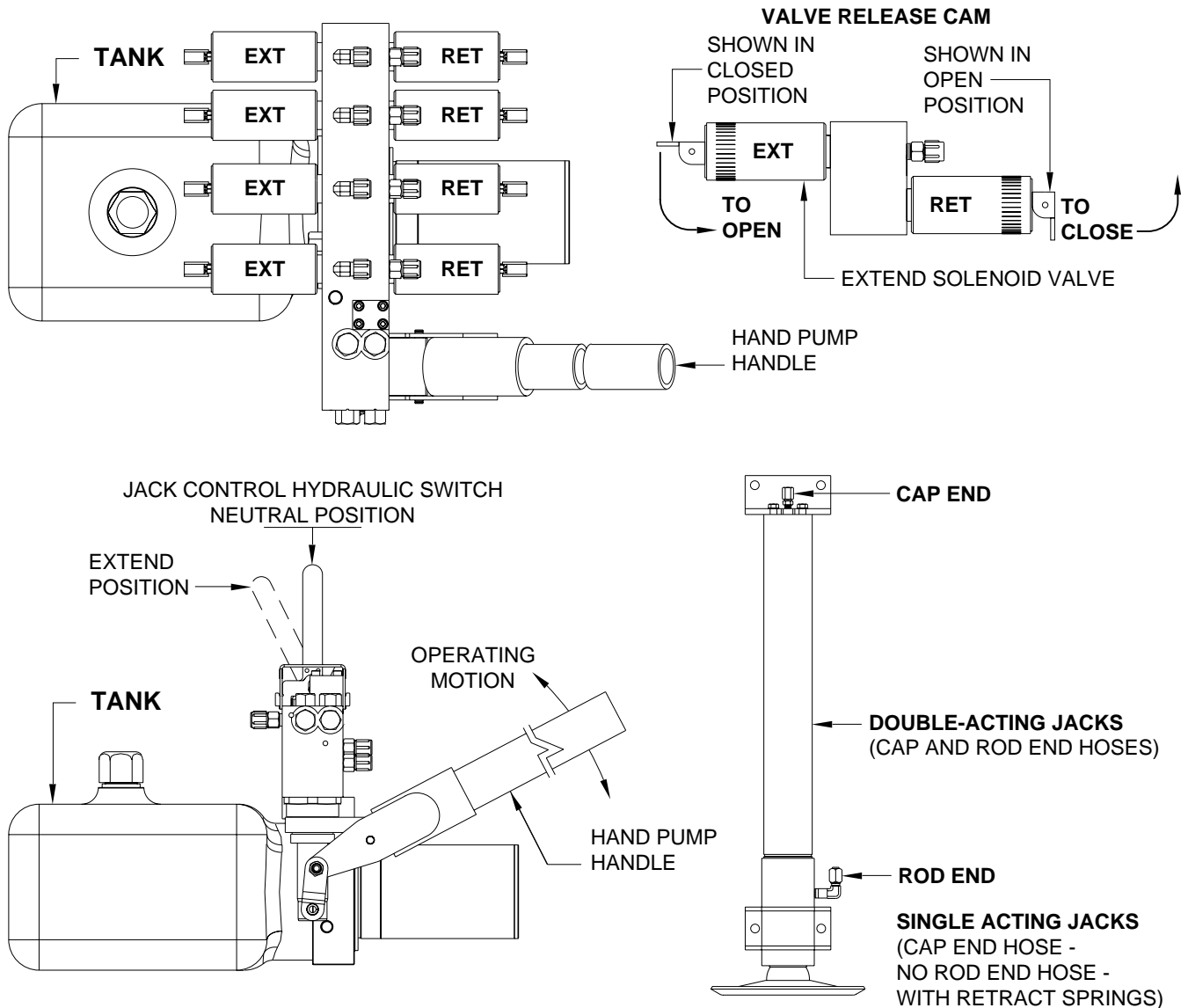
In wet or icy weather leveling units may become encrusted with ice. This may cause the leveling system to function improperly. To eliminate this problem, periodically check the leveling units and break loose any ice which may be causing improper operation.

Do not move the trailer while the leveling units are still in contact with the ground. Visually check to see if the leveling units have returned to the STORE/TRAVEL position before moving the trailer.

**NOTE:** All major components of the system can be replaced with rebuilt units or can be sent to HWH CORPORATION to be rebuilt, when the system is out of warranty.

# 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  $\pm 5.4$  inches front to rear and  $\pm 1$  inch side to side on a 36 foot vehicle. Typical leveling results will be better.

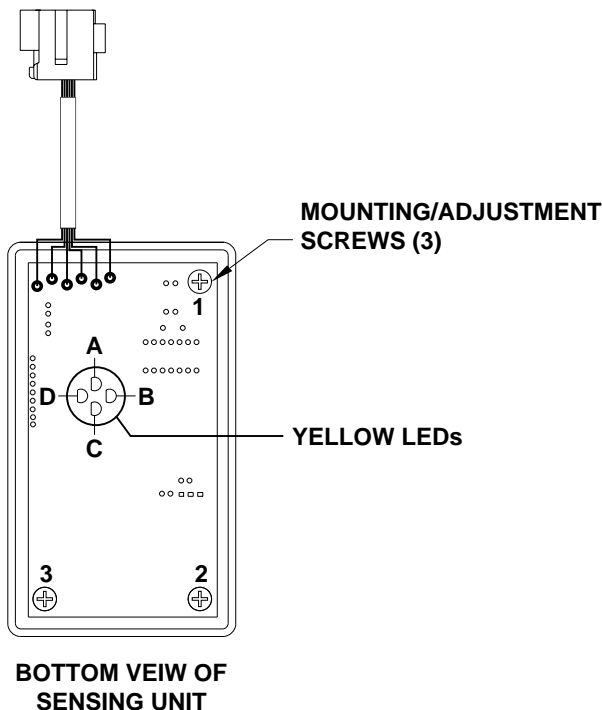
### SENSING UNIT ADJUSTMENT

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.**

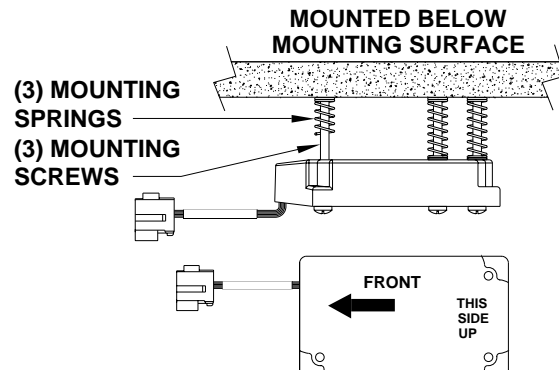
**If LED (C) is lit: Loosen adjustment screw number 1 or tighten screws 2 and 3 until the LED is off.**

**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.**

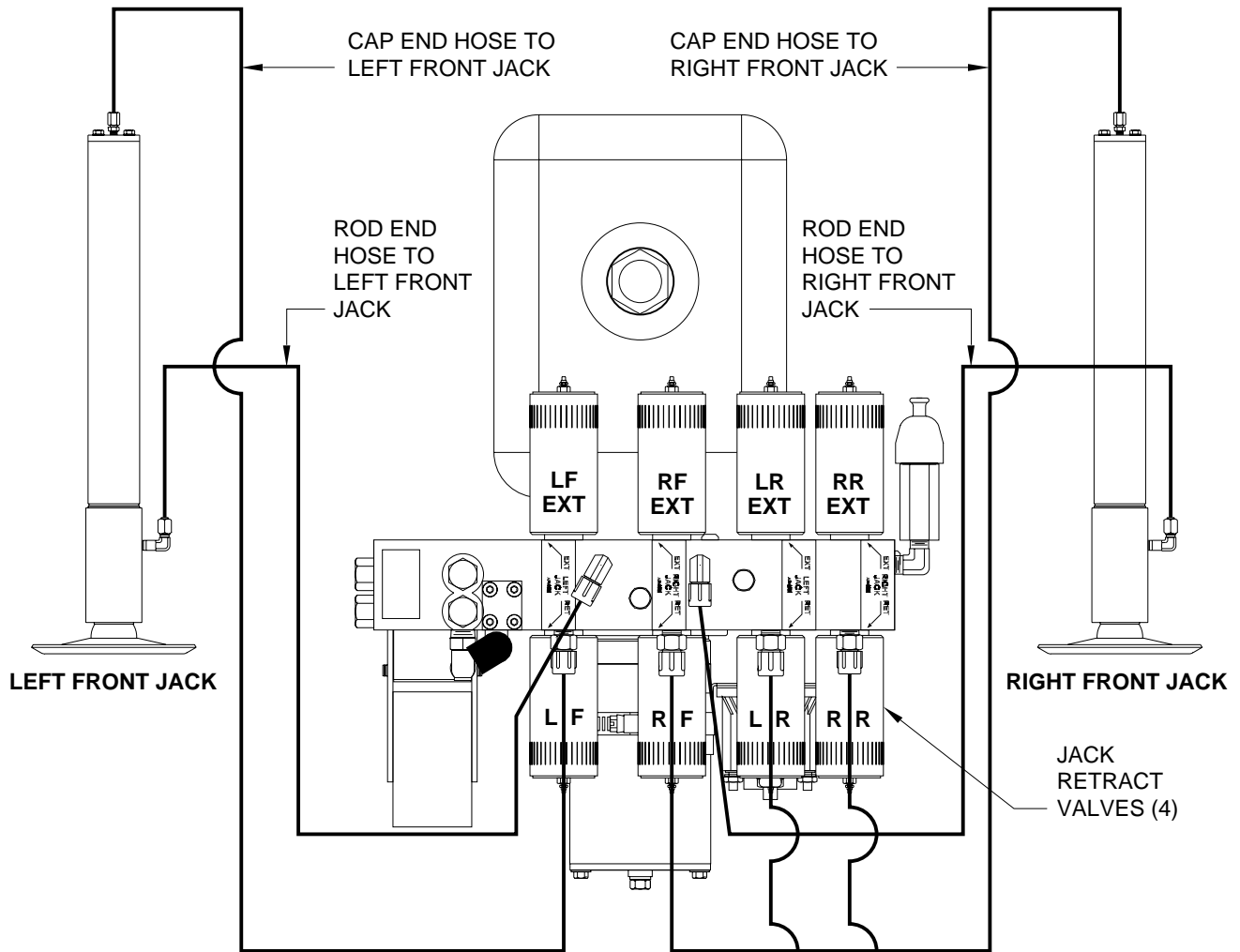
**Example: After the initial adjustment and releveling the vehicle, the front is still low. This means the front yellow level light is turning off too soon. LED A is for the front of the vehicle. Move the adjustment for that light very, very, slightly in the OPPOSITE direction that is given in the above 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

## 2000 SERIES LEVELING SYSTEM

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



**NOTE: LEFT FRONT AND RIGHT FRONT JACK RETRACT VALVES MAY BE LARGE SOLENOID VALVES.**

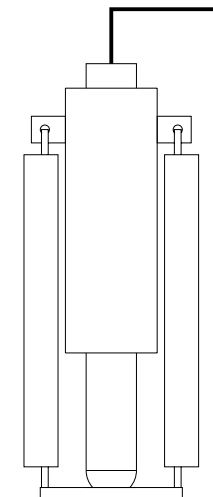
HOSE TO LEFT REAR JACK

HOSE TO RIGHT REAR JACK

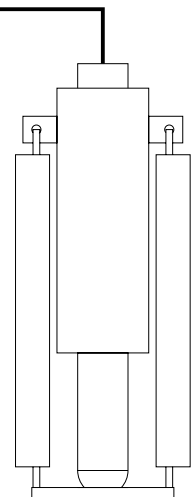
**NOTE: THE CAP END HOSE FOR DOUBLE-ACTING JACKS ONLY MAY BE 5/16" HOSE OR 1/4" HOSE WITH 5/16" HOSE ENDS.**

**IMPORTANT: DO NOT SWAP FITTINGS OR REVERSE HOSES BETWEEN THE CAP AND ROD END OF THE JACKS. MAKE SURE HOSE ROUTINGS ARE CORRECT BEFORE OPERATING THE SYSTEM. IMPROPER HOSE ROUTING WILL DAMAGE SYSTEM COMPONENTS.**

**NOTE: EARLY SYSTEMS MAY BE PLUMBED DIFFERENTLY. CONTACT HWH FOR ASSISTANCE.**

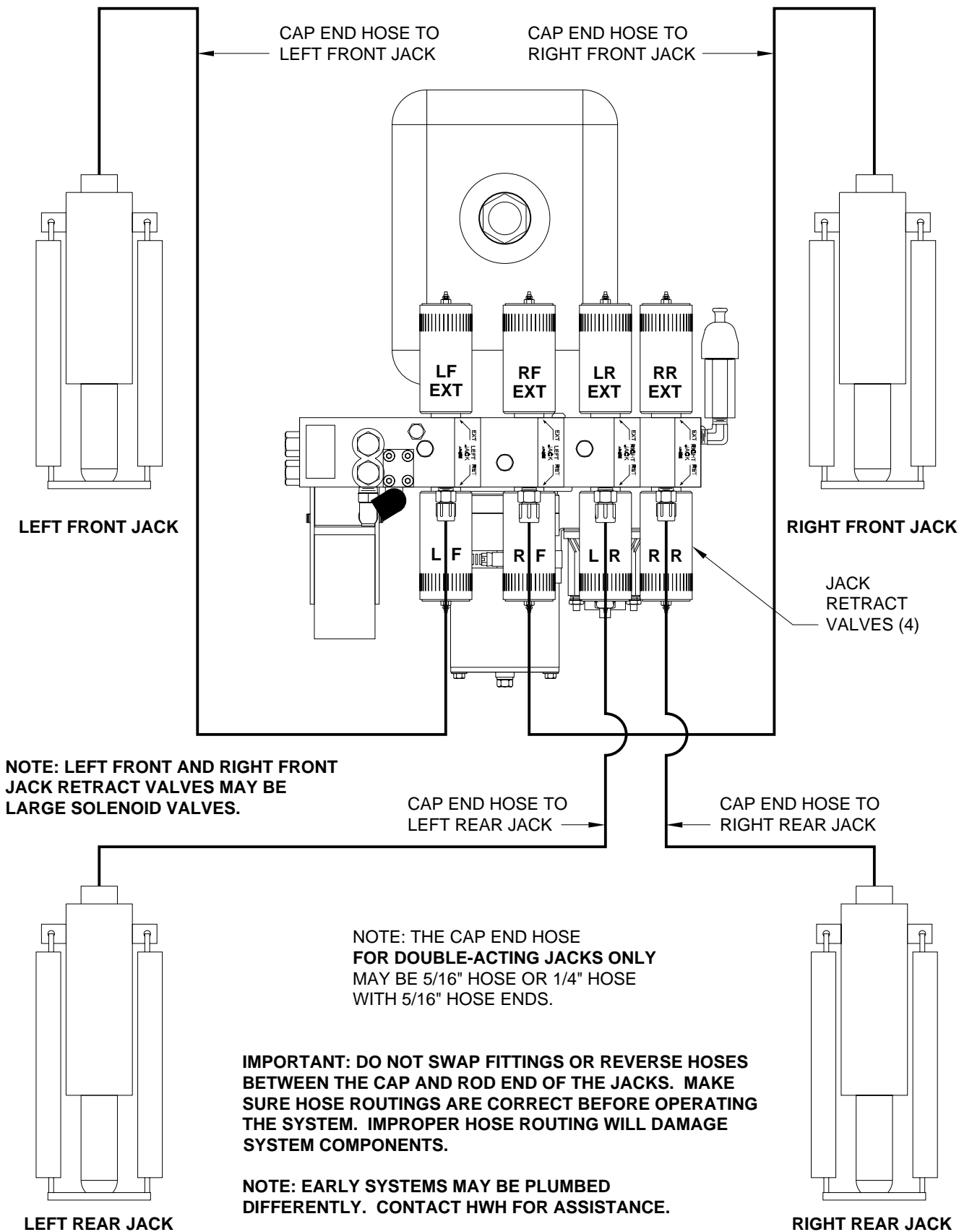


LEFT REAR JACK



RIGHT REAR JACK

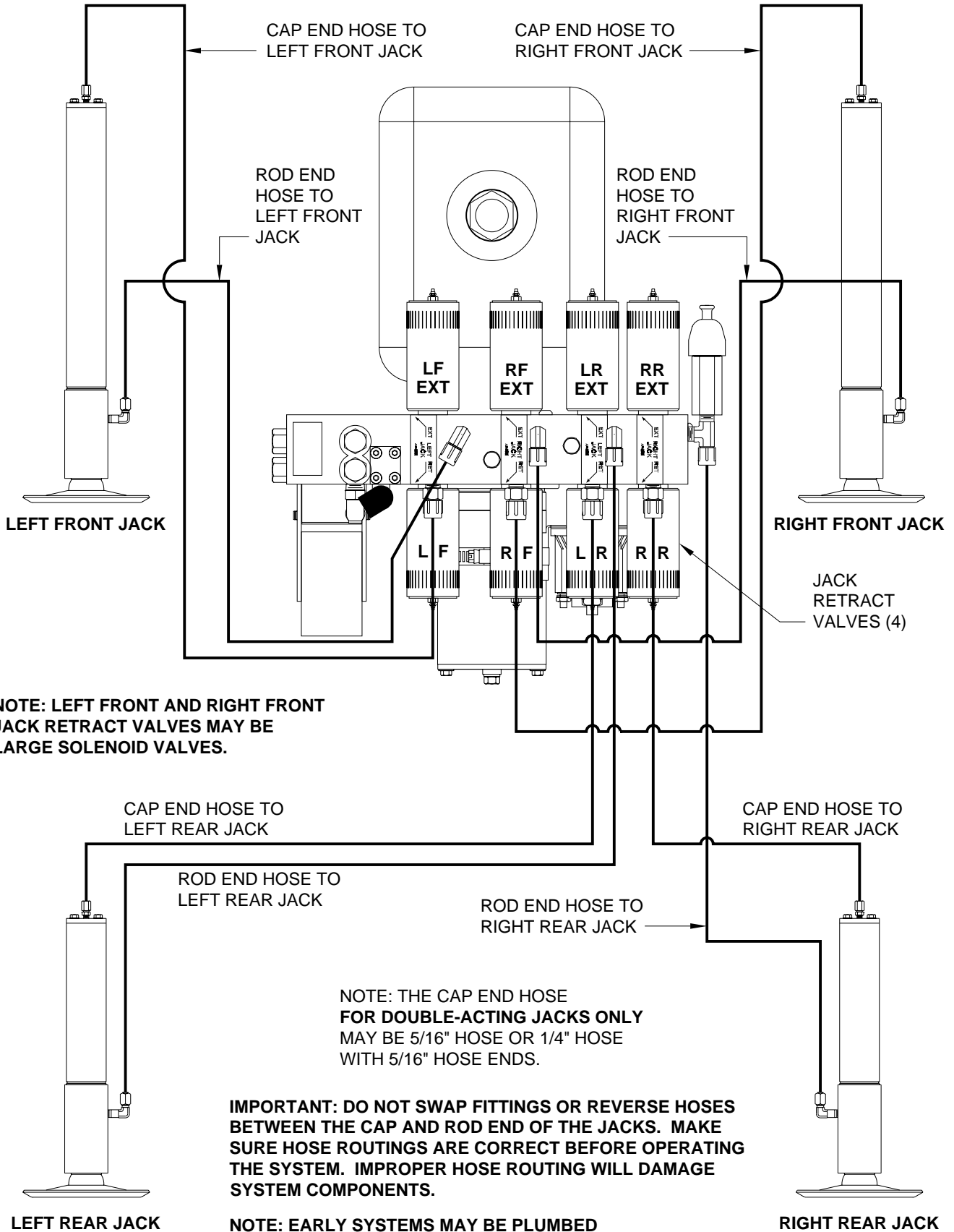
**HYDRAULIC LINE CONNECTION DIAGRAM  
2000 SERIES LEVELING SYSTEM  
4 - SINGLE-ACTING JACKS**



# HYDRAULIC LINE CONNECTION DIAGRAM

## 2000 SERIES LEVELING SYSTEM

### 4 - DOUBLE-ACTING JACKS



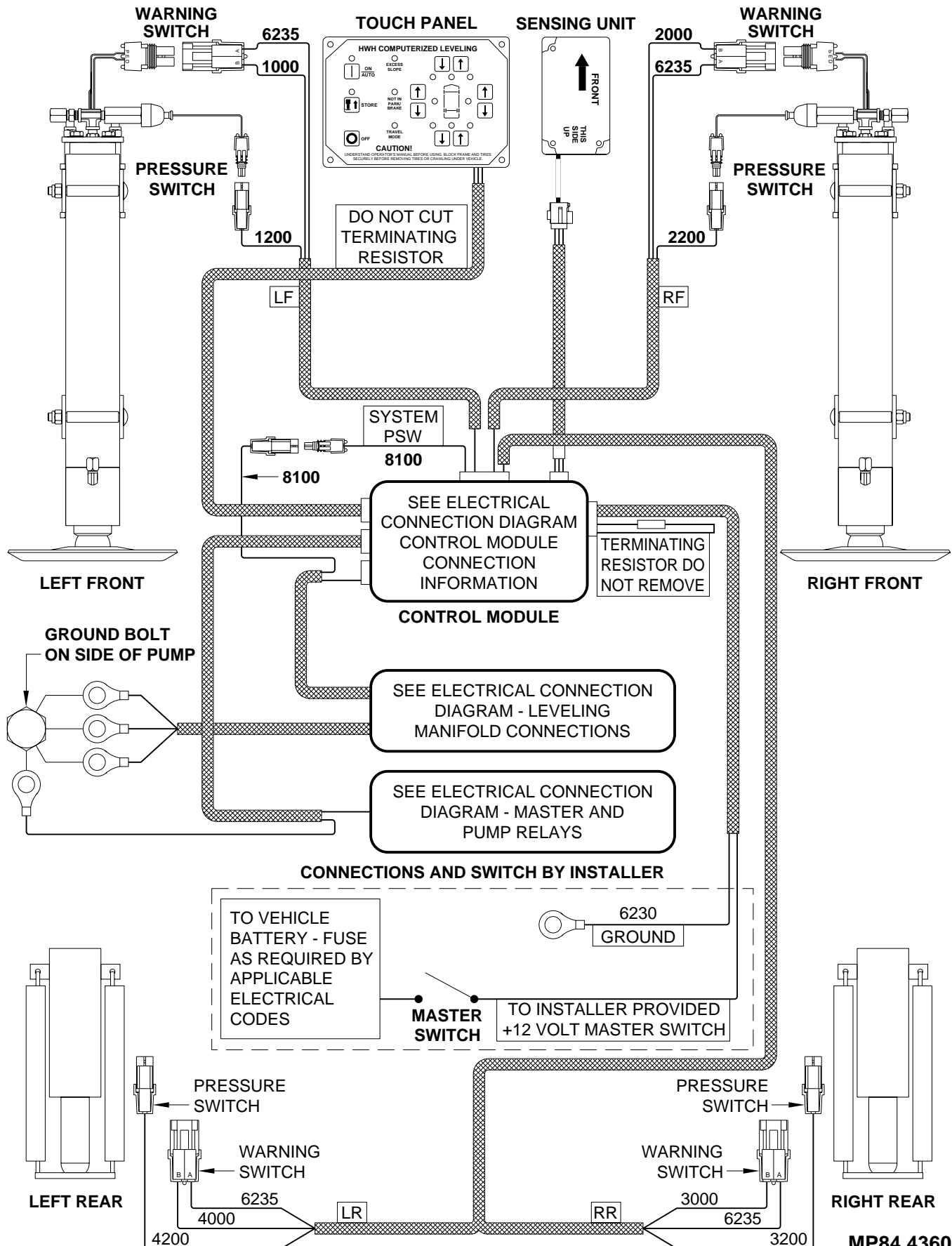
**NOTE: LEFT FRONT AND RIGHT FRONT JACK RETRACT VALVES MAY BE LARGE SOLENOID VALVES.**

**NOTE: THE CAP END HOSE FOR DOUBLE-ACTING JACKS ONLY MAY BE 5/16" HOSE OR 1/4" HOSE WITH 5/16" HOSE ENDS.**

**IMPORTANT: DO NOT SWAP FITTINGS OR REVERSE HOSES BETWEEN THE CAP AND ROD END OF THE JACKS. MAKE SURE HOSE ROUTINGS ARE CORRECT BEFORE OPERATING THE SYSTEM. IMPROPER HOSE ROUTING WILL DAMAGE SYSTEM COMPONENTS.**

**NOTE: EARLY SYSTEMS MAY BE PLUMBED DIFFERENTLY. CONTACT HWH FOR ASSISTANCE.**

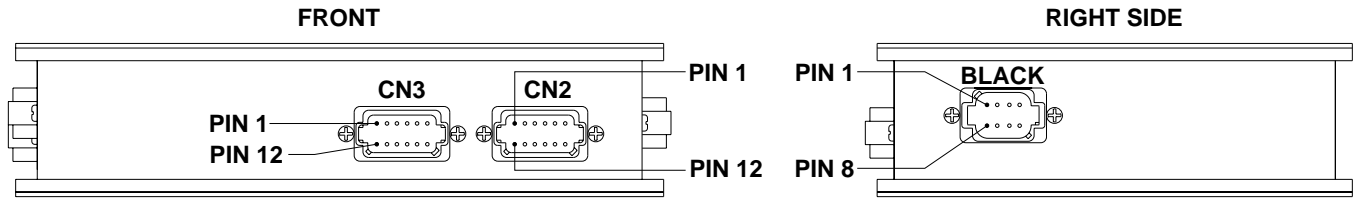
# ELECTRICAL CONNECTION DIAGRAM 2000 SERIES CAN SYSTEM FOR TRAILERS



# ELECTRICAL CONNECTION DIAGRAM

## CONTROL MODULE CONNECTION INFORMATION

### PAGE 1 OF 2

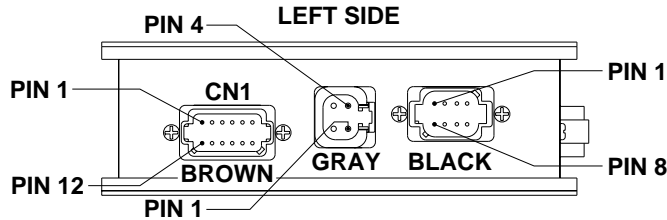


PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
<b>FRONT</b>			
<b>CN2 - 12 PIN BROWN CONNECTOR</b>			
1			KEY PIN
2 THRU 5			NO CONNECTION
6	WHITE	N/A	GROUND FOR SENSING UNIT
7	RED	N/A	+12 VOLTS FOR SENSING UNIT
8			NO CONNECTION
9	YELLOW	N/A	GROUND TO CONTROL MODULE WHEN LEFT SIDE IS LOW
10	BLACK	N/A	GROUND TO CONTROL MODULE WHEN FRONT IS LOW
11	GREEN	N/A	GROUND TO CONTROL MODULE WHEN RIGHT SIDE IS LOW
12	ORANGE	N/A	GROUND TO CONTROL MODULE WHEN REAR IS LOW
<b>CN3 - 12 PIN BLACK CONNECTOR</b>			
1	BLACK	1000	SWITCHED GROUND FROM LEFT FRONT WARNING SWITCH
2	BLACK	1200	SWITCHED GROUND FROM LEFT FRONT PRESSURE SWITCH
3	BLACK	2000	SWITCHED GROUND FROM RIGHT FRONT WARNING SWITCH
4	BLACK	2200	SWITCHED GROUND FROM RIGHT FRONT PRESSURE SWITCH
5	BLACK	8100	SWITCHED GROUND FROM 3000 PSI MANIFOLD PRESSURE SWITCH
6	WHITE	6235	GROUND FOR JACK WARNING SWITCHES AND PRESSURE SWITCHES
7 & 8			NO CONNECTION
9	BLACK	4000	SWITCHED GROUND FROM LEFT REAR WARNING SWITCH
10	BLACK	4200	SWITCHED GROUND FROM LEFT REAR PRESSURE SWITCH
11	BLACK	3000	SWITCHED GROUND FROM RIGHT REAR WARNING SWITCH
12	BLACK	3200	SWITCHED GROUND FROM RIGHT REAR PRESSURE SWITCH
<b>RIGHT SIDE</b>			
<b>8 PIN BLACK CONNECTOR</b>			
1 & 2			NO CONNECTION
3	RED	6100	SWITCHED +12 BATTERY FROM OEM MASTER SWITCH
4	WHITE	6230	GROUND BY OEM FOR PROCESSOR BOARD
5 & 6			NO CONNECTION
7 & 8	BLACK	N/A	120 OHM CAN BUS TERMINATING RESISTOR - <b>DO NOT REMOVE OR MODIFY</b>

# ELECTRICAL CONNECTION DIAGRAM

## CONTROL MODULE CONNECTION INFORMATION

### PAGE 2 OF 2

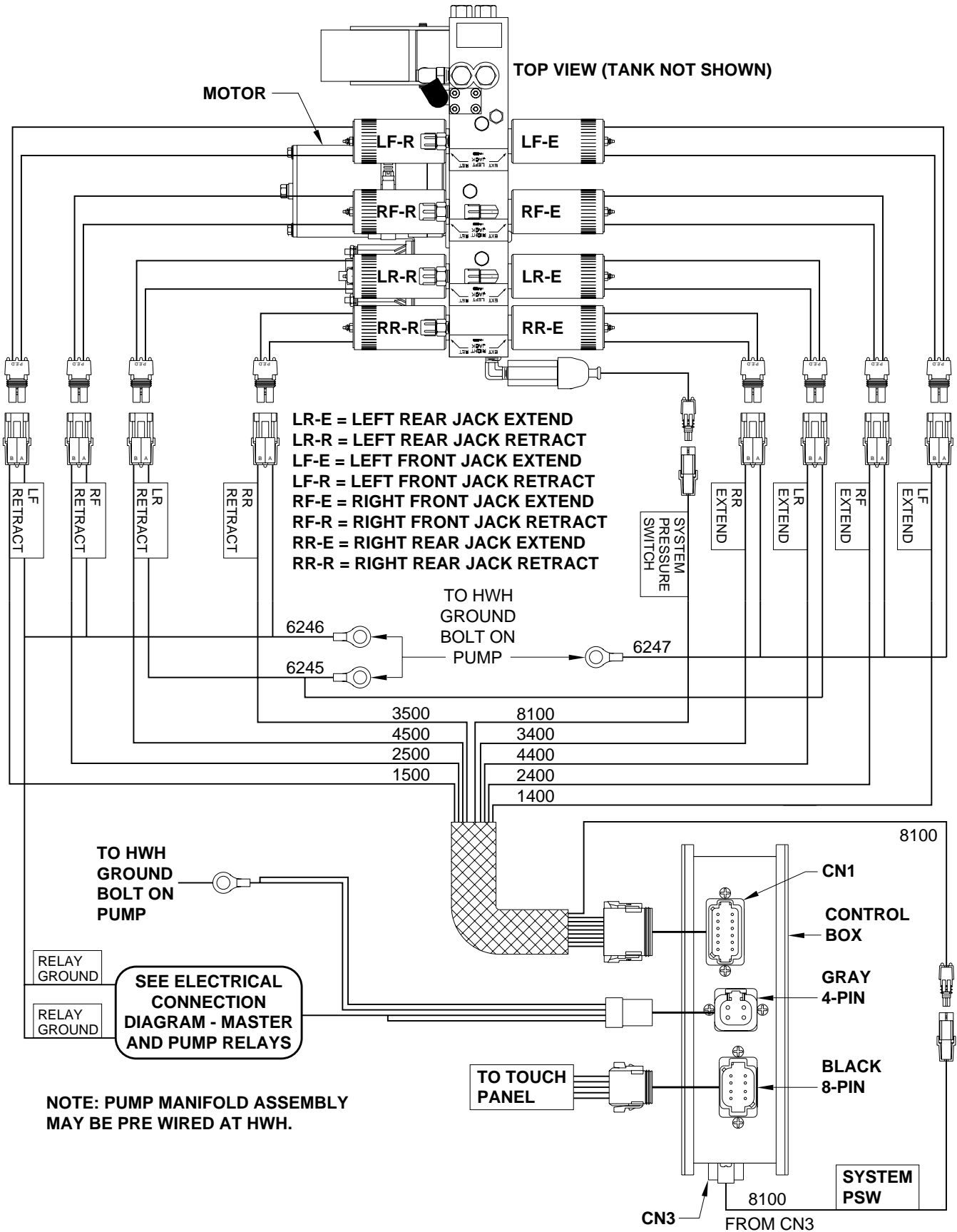


PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
<b>CN1 - 12 PIN BROWN CONNECTOR</b>			
1	BLACK	1400	SWITCHED +12 FOR LEFT FRONT EXTEND SOLENOID VALVE
2	BLACK	1500	SWITCHED +12 FOR LEFT FRONT RETRACT SOLENOID VALVE
3	BLACK	2400	SWITCHED +12 FOR RIGHT FRONT EXTEND SOLENOID VALVE
4	BLACK	2500	SWITCHED +12 FOR RIGHT FRONT RETRACT SOLENOID VALVE
5	BLACK	4400	SWITCHED +12 FOR LEFT REAR EXTEND SOLENOID VALVE
6	BLACK	4500	SWITCHED +12 FOR LEFT REAR RETRACT SOLENOID VALVE
7	BLACK	3400	SWITCHED +12 FOR RIGHT REAR EXTEND SOLENOID VALVE
8	BLACK	3500	SWITCHED +12 FOR RIGHT REAR RETRACT SOLENOID VALVE
9	BLACK	8500	SWITCHED +12 FOR MASTER RELAY CONTROL
10	BLACK	8600	SWITCHED +12 FOR PUMP RELAY CONTROL
11 & 12			NO CONNECTION
<b>4 PIN GRAY CONNECTOR</b>			
1	BLACK	6800	+12 FROM SWITCHED SIDE OF MASTER RELAY FOR OUTPUT BOARD
2	BLACK	6800	+12 FROM SWITCHED SIDE OF MASTER RELAY FOR OUTPUT BOARD
3	WHITE	6230	GROUND FOR CONTROL MODULE OUTPUT BOARD
4	WHITE	6230	GROUND FOR CONTROL MODULE OUTPUT BOARD
<b>8 PIN BLACK CONNECTOR</b>			
1 & 2			NO CONNECTION
3	RED	6800	+12 TO TOUCH PANEL
4	WHITE	6230	GROUND TO TOUCH PANEL
5			CAN SHIELD WIRE
6			NO CONNECTION
7	GREEN	N/A	CAN LOW
8	YELLOW	N/A	CAN HIGH

# ELECTRICAL CONNECTION DIAGRAM

## 2000 SERIES CAN SYSTEM FOR TRAILERS

### LEVELING MANIFOLD CONNECTIONS

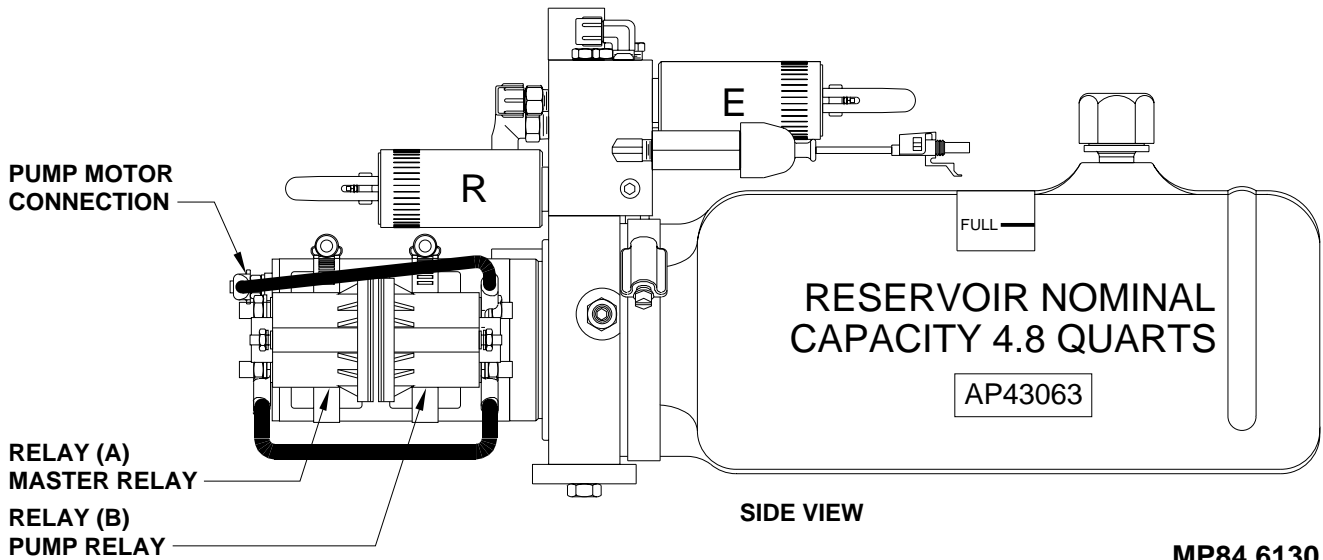
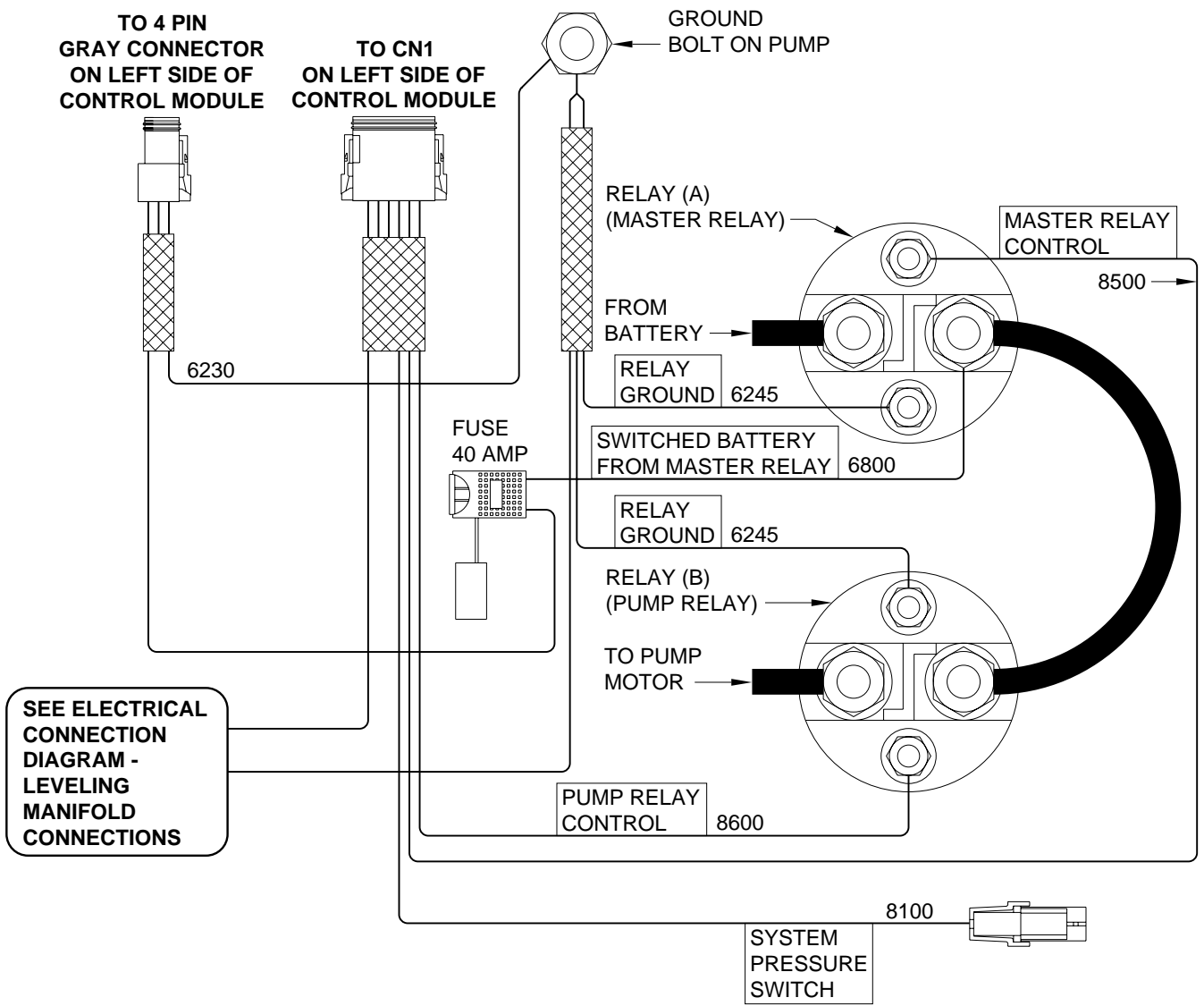


**NOTE: PUMP MANIFOLD ASSEMBLY MAY BE PRE WIRED AT HWH.**

# ELECTRICAL CONNECTION DIAGRAM

## 2000 SERIES CAN SYSTEM FOR TRAILERS

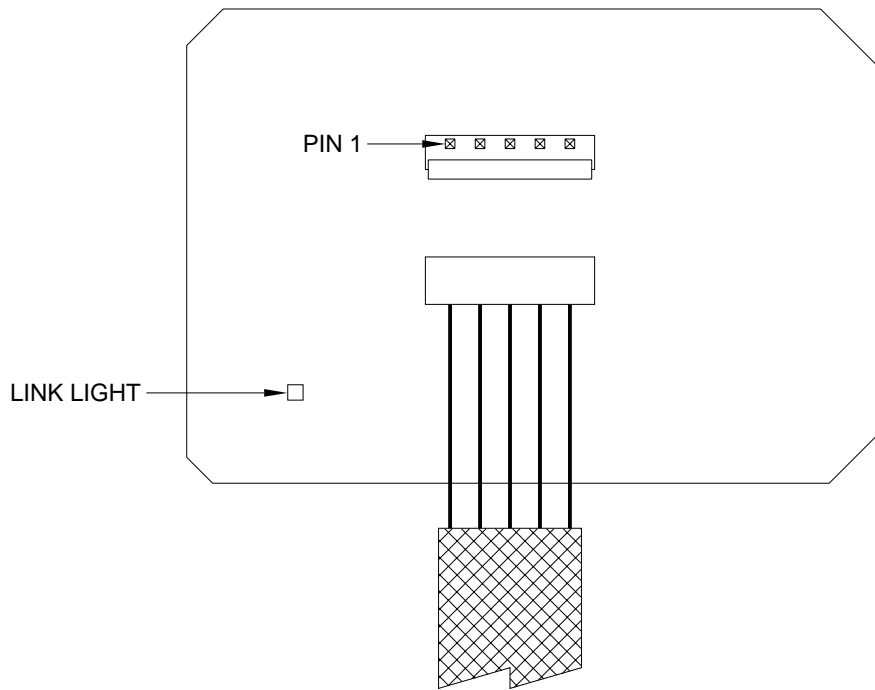
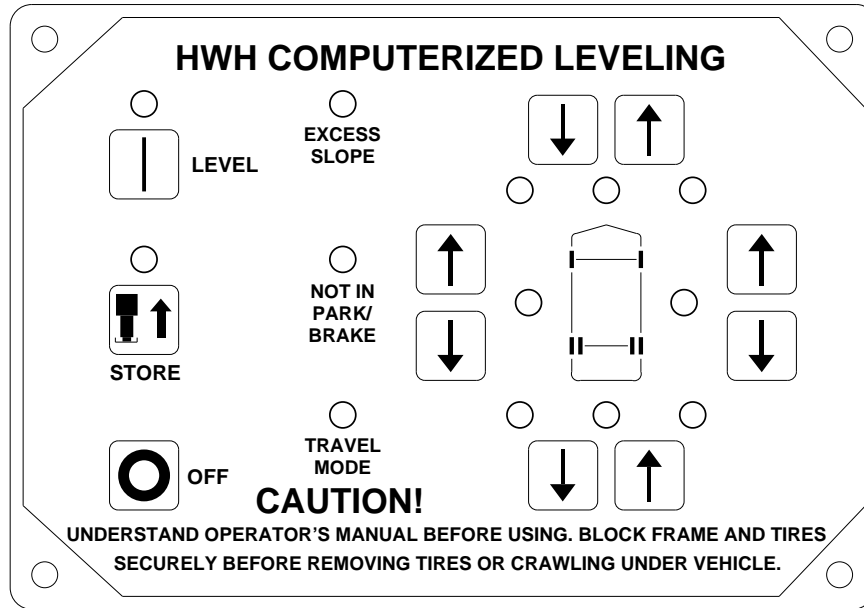
### MASTER AND PUMP RELAYS



# ELECTRICAL CONNECTION DIAGRAM

## 625/2000 SERIES LEVELING SYSTEM

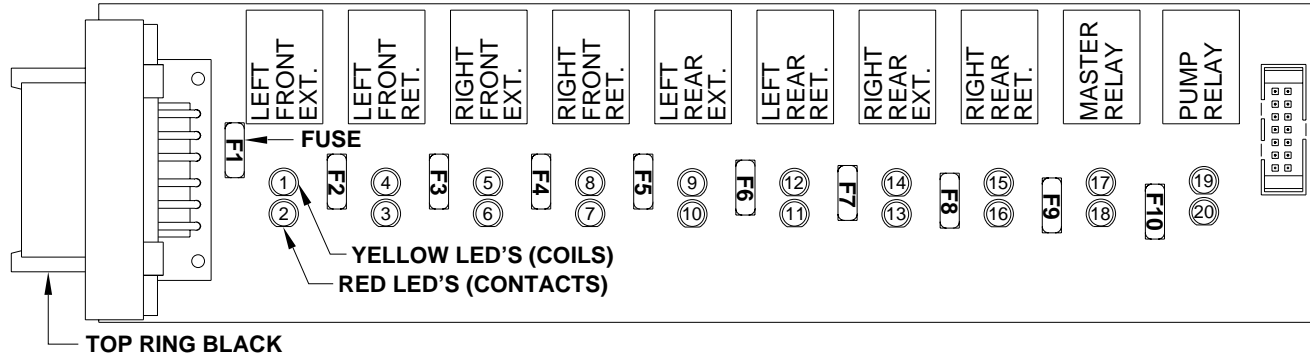
### TOUCH PANEL CONNECTIONS



PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
1	YELLOW		CAN HIGH
2	GREEN		CAN LOW
3			CAN SHEILD
4	WHITE	6230	GROUND FROM CONTROL MODULE
5	RED	6800	SWITCHED BATTERY FROM CONTROL MODULE

**ELECTRICAL CONNECTION DIAGRAM**  
**LED - FUSE LOCATION AND DESCRIPTION**  
**OUTPUT BOARD**  
**PAGE 1 OF 2**

**OUTPUT BOARD**



LED	RELAY DESCRIPTION	FUSE	BLACK
1-YELLOW	LEFT FRONT EXT. - COIL		
2-RED	LEFT FRONT EXT. - CONTACT	F1-15 AMP	PIN 1
3-RED	LEFT FRONT RET. - CONTACT	F2-15 AMP	PIN 2
4-YELLOW	LEFT FRONT RET. - COIL		
5-YELLOW	RIGHT FRONT EXT. - COIL		
6-RED	RIGHT FRONT EXT. - CONTACT	F3-15 AMP	PIN 3
7-RED	RIGHT FRONT RET. - CONTACT	F4-15 AMP	PIN 4
8-YELLOW	RIGHT FRONT RET. - COIL		
9-YELLOW	LEFT REAR EXT. - COIL		
10-RED	LEFT REAR EXT. - CONTACT	F5-15 AMP	PIN 5
11-RED	LEFT REAR RET. - CONTACT	F6-15 AMP	PIN 6
12-YELLOW	LEFT REAR RET. - COIL		
13-RED	RIGHT REAR EXT. - CONTACT	F7-15 AMP	PIN 7
14-YELLOW	RIGHT REAR EXT. - COIL		
15-YELLOW	RIGHT REAR RET. - COIL		
16-RED	RIGHT REAR RET. - CONTACT	F8-15 AMP	PIN 8
17-YELLOW	MASTER RELAY - COIL		
18-RED	MASTER RELAY - CONTACT	F9-15 AMP	PIN 9
19-YELLOW	PUMP RELAY - COIL		
20-RED	PUMP RELAY - CONTACT	F10-15 AMP	PIN 10

**NOTE: FOR DETAILED INPUT / OUTPUT INFORMATION ABOUT PIN CONNECTIONS SEE ELECTRICAL CONNECTION DIAGRAM - CONTROL MODULE CONNECTION INFORMATION - PAGE 2 OF 2.**

**NOTE: A LIT YELLOW LED INDICATES THERE IS A GROUND SIGNAL TO TURN THE CORRESPONDING RELAY ON.**

**A LIT RED LED INDICATES THERE IS VOLTAGE ON IT'S CORRESPONDING CN1 PIN.**

**IF A YELLOW LED IS LIT AND THE CORRESPONDING RED LED IS OFF, EITHER IT'S FUSE IS BLOWN OR THE RELAY IS BAD.**

**IF THE YELLOW LEDS ARE WORKING BUT NO RED LED IS COMING ON THERE MAY BE PROBLEM WITH INPUT VOLTAGE FROM THE 4-PIN CONNECTOR.**

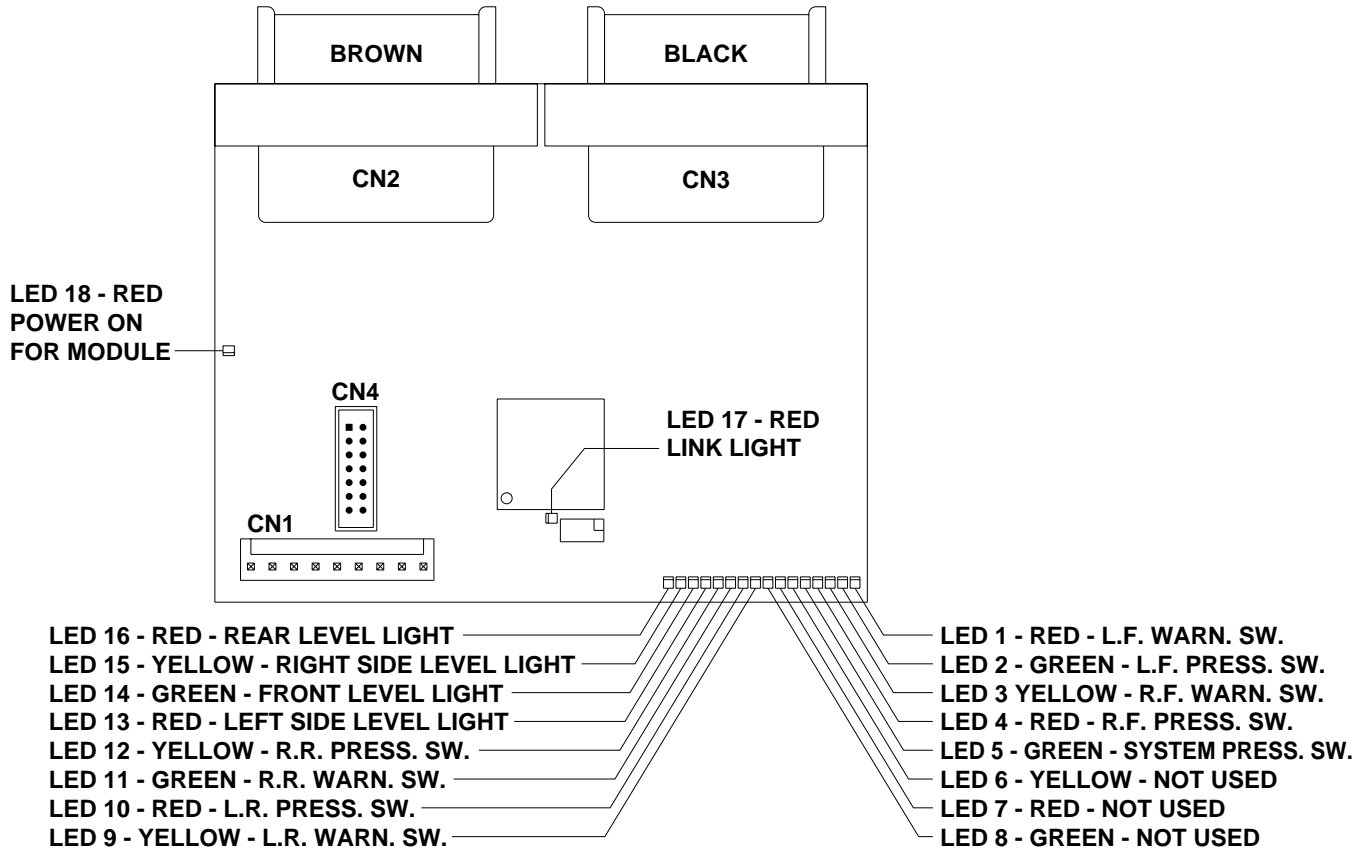
**IF A YELLOW LED IS NOT LIT, THIS INDICATES A POSSIBLE PROBLEM WITH THE MODULE.**

# ELECTRICAL CONNECTION DIAGRAM

## LED LOCATION AND DESCRIPTION

### MAIN BOARD

#### PAGE 2 OF 2



LED	DESCRIPTION	CN AND PIN
1 - RED	LEFT FRONT WARN. SW.	CN3 - PIN 1
2 - GREEN	LEFT FRONT PRESS.SW.	CN3 - PIN 2
3 - YELLOW	RIGHT FRONT WARN. SW.	CN3 - PIN 3
4 - RED	RIGHT FRONT PRESS.SW.	CN3 - PIN 4
5 - GREEN	SYSTEM PRESS.SW.	CN3 - PIN 5
6 THRU 8-NOT USED		
9 - YELLOW	LEFT REAR WARN. SW.	CN3 - PIN 9
10 - RED	LEFT REAR PRESS. SW.	CN3 - PIN 10
11 - GREEN	RIGHT REAR WARN. SW.	CN3 - PIN11
12 - YELLOW	RIGHT REAR PRESS. SW.	CN3 - PIN 12
13 - RED	LEFT SIDE LEVEL LIGHT	
14 - GREEN	FRONT LEVEL LIGHT	
15 - YELLOW	RIGHT SIDE LEVEL LIGHT	
16 - RED	REAR LEVEL LIGHT	
17 - RED		N/A
18 - RED		N/A

LIT LED'S 1 THRU 5 AND 9 THRU 12 INDICATE A GROUND SIGNAL FROM A WARNING OR PRESSURE SWITCH THAT IS ON.

LED 18 ON INDICATES THAT THERE IS POWER TO THE MAIN BOARD.

**NOTE: FOR DETAILED INPUT / OUTPUT INFORMATION ABOUT PIN CONNECTIONS SEE ELECTRICAL CONNECTION DIAGRAM - CONTROL MODULE CONNECTION INFORMATION PAGE 1 OF 2.**