OPERATOR’S MANUAL

HWH® TOUCH PANEL-CONTROLLED
625 SERIES LEVELING SYSTEM

FEATURING:
Touch Panel Leveling Control
BI-AXIS® Hydraulic Leveling
Straight-Acting Jacks
With Air Dump

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

HWH COMPUTERIZED LEVELING

HYD LEVEL
EXCESS SLOPE
NOT IN PARK/ BRAKE
TRAVEL MODE
CAUTION!

UNDERSTAND OPERATOR’S MANUAL BEFORE USING. BLOCK FRAME AND TIRES SECURELY BEFORE REMOVING TIRES OR CRAWLING UNDER VEHICLE.
CAUTION!

READ THE ENTIRE OPERATOR 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 OPERATING LEVELING SYSTEM OR ROOM EXTENSIONS.

KEEP ALL PEOPLE CLEAR OF VEHICLE WHILE DUMPING AIR FROM THE VEHICLE’S SUSPENSION.

DO NOT MOVE THE VEHICLE IF THE VEHICLE IS NOT AT THE PROPER RIDE HEIGHT. CONTACT MANUFACTURER TECHNICAL SERVICE FOR MOVING THE VEHICLE WHEN NOT AT THE PROPER RIDE HEIGHT.

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.
CONTROL IDENTIFICATION
625 SERIES LEVELING SYSTEM
COMPUTER-CONTROL

CONTROL FUNCTIONS

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

"LEVEL" (HYD) BUTTON: This is the on button and automatic operation button. The ON indicator light is above the "HYD" button.

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

"DUMP" BUTTON: This is a manual button for dumping air from the vehicle suspension.

EXTEND BUTTONS (UP ARROWS): These buttons will extend their respective jack pairs to lift the vehicle.

RETRACT BUTTONS (DOWN ARROWS): These buttons will retract their respective jack pairs to lower the vehicle.

INDICATOR LIGHTS

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.

WARNING LIGHTS: The four red lights surrounding the yellow level indicators are jacks down WARNING lights. They are functional only when the ignition is in the "ON" or "ACC" position, the system is on, and the jacks are extended 1/4 to 1/2 inch.

"EXCESS SLOPE" LIGHT: This indicator will light when the leveling system cannot level the vehicle.

"NOT IN PARK/BRAKE" LIGHT: This indicator will light when the hand/auto brake is not set and the "LEVEL" button is being pushed.

"TRAVEL MODE" LIGHT: This indicator light will be on when the ignition is on, when the jacks are retracted and there are no red WARNING lights on.

MASTER "JACKS DOWN" WARNING LIGHT: This is a light mounted in the dash separate from the touch panel. It will be on when any one or more jacks are extended and the ignition is "ON".

BUZZER: This is a jacks down warning. It will sound if the master "JACKS DOWN" warning light is on.
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, a wood block or pad should be placed under each jack.

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

Any time a hydraulic leveling process is interrupted, retract the jacks according to the JACK RETRACTION Section and then restart the leveling process.

If the hand / auto brake is not set when the "HYD" button is pressed, the "NOT IN PARK/BRAKE" light will come on. When the "HYD" button is released the "NOT IN PARK/BRAKE" light will go out. The panel will NOT turn on.

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

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 or generator slide should be fully retracted before traveling.

**CAUTION: 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 SEVER 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 AND THE VEHICLE IS AT THE PROPER RIDE HEIGHT FOR TRAVELING. CONTACT MANUFACTURER TECHNICAL SERVICE BEFORE MOVING A VEHICLE THAT IS NOT AT PROPER TRAVEL HEIGHT.

**IMPORTANT: Any time the "HYD" 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.

ROOM EXTENSION PROCEDURES

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

If the vehicle is equipped with kick-down jacks, the wheels MUST be blocked securely. It is recommended to complete the Leveling Procedure before operating room extensions. It is recommended to retract room extensions before retracting jacks.

Refer to the vehicle owners manual for proper operation of room extensions.

**IMPORTANT: Do not use a room extension support when the vehicle is supported by the leveling system.**
OPERATING PROCEDURES
625 SERIES LEVELING SYSTEM

AUTOMATIC HYDRAULIC LEVELING

1. Place transmission in the recommended position for parking vehicle and set parking brake. Turn the coach engine off. Turn the ignition to the “ACCESSORY” position.

NOTE: If the vehicle has an air suspension, running the vehicle engine during leveling can cause erratic operation and inhibit proper leveling of the vehicle.

2. Press the "LEVEL" button to enter the hydraulic operation mode. The ON light will glow steady.

3. 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.

4. Press the "LEVEL" button a second time. The ON light will start to flash.

NOTE: After pushing the "LEVEL" button a second time, the system will begin to dump air from the vehicle suspension. After approximately 25 seconds, the leveling process will begin.

5. Turn the ignition switch to the “OFF” position.

The system will automatically extend the jacks to level the vehicle and then extend any remaining jacks for stabilizing. After the system has finished leveling and stabilizing, and has completed the air dump cycle, it will automatically 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 two jacks fully extending 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 not be extended. The system will shut off leaving the "EXCESS SLOPE" light on. The "EXCESS SLOPE" light will remain on if the ignition is in the "ON" or "ACC" position, until the jacks have been fully retracted turning the red warning lights out. Push the "STORE" button to retract the jacks. Move the vehicle to a more level position or level the vehicle as close as possible according to the MANUAL HYDRAULIC OPERATION section.

5. Turn the ignition switch to the “OFF” position.

JACK RETRACTION

CAUTION: THE OPERATOR MUST BE SURE THAT THERE ARE NO OBJECTS UNDER THE VEHICLE AND THAT ALL PEOPLE ARE CLEAR OF THE VEHICLE.

1. Start the engine. Store the jacks immediately.

2. Press the "STORE" button. The store indicator light will flash. As each jack retracts, its red WARNING light will go out. The system will automatically shut down six minutes after the four individual red “WARNING” lights are out. If any one red “WARNING” light does not go out, the system will continue to store for thirty minutes, then shut down regardless of the "WARNING" lights condition.

NOTE: When traveling thermal expansion may cause a jack to extend slightly. When the "STORE" button has been used to retract the jacks, the system will automatically retract any jack that extends due to thermal expansion.

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

NOTE: If a red warning light and buzzer come on while traveling, the jacks should be checked as soon as a safe parking location is found.

3. The vehicle can be moved as soon as the red warning lights are out, the jacks are in the STORE/TRAVEL position, the green "TRAVEL" light is on, and the suspension air bags are inflated to the vehicles proper ride height.

IMPORTANT: If a red warning light and buzzer come on while traveling, the jacks should be checked as soon as a safe parking location is found.

4. If jacks cannot be retracted by the above procedure see MANUAL JACK RETRACTION Section.
OPERATING PROCEDURES

MANUAL HYDRAULIC OPERATION

1. Place transmission in the recommended position for parking the vehicle, and set the parking brake. Turn the ignition to the “ACCESSORY” position.

2. Press the “HYD” button. The indicator light will glow steady.

3. Place pads under the jack feet if the ground will not support the vehicle on the jacks.

4. Push the “DUMP” button. Wait until all of the air is exhausted from the vehicle's suspension system.

5. The vehicle may be leveled using the manual EXTEND (UP ARROW) buttons on the right half of the panel. If a yellow LEVEL SENSING light is on, that side or end of the vehicle is low. It is best to level the vehicle side to side first, if needed, before front to rear.

Jacks will extend (or retract) in pairs to raise (or lower) a side or end of the vehicle. Any jack not used for leveling can be extended to the ground. This provides additional stability against wind and activity in the vehicle. Jacks used to stabilize the vehicle after leveling is complete should lift the vehicle slightly after touching the ground.

IMPORTANT: Do not continue to push an EXTEND button for more than ten (10) seconds after that pair of jacks are fully extended.

6. When leveling is completed, push the “OFF” button on the touch panel and turn the ignition switch to the “OFF” position.

IMPORTANT: Push the “STORE” button before traveling when manual operation of the leveling system is used.
MANUAL JACK RETRACTION

WARNING: KEEP AWAY FROM THE WHEELS, DO NOT CRAWL UNDER THE VEHICLE, KEEP A SAFE DISTANCE IN FRONT AND REAR OF THE VEHICLE. THE VEHICLE MAY DROP AND/OR MOVE FORWARD OR BACKWARD WITHOUT WARNING AS THE VALVE RELEASE IS OPERATED.

IMPORTANT: HWH recommends that all HWH room extensions are fully retracted prior to performing manual jack retraction procedures.

Use the manual valve release for retracting the jacks only if the STORE feature on the HWH control panel will not retract the jacks.

1. Locate your power unit-manifold assembly. (The diagram below represents a typical Power Unit-Manifold Assembly it may not be an exact match to yours).

NOTE: Multiple manifolds may be present on the power unit. The upper most manifold should control jack functions. (Valve styles and arrangements will vary)

2. Allow clearance for the vehicle to lower.

3. Using the diagram below identify the style of your two center valves.

NOTE: As of APRIL 2002 a 1/4” Nut Driver has been incorporated into the Breather Cap. Before using read and understand the last page of this manual.

Large style with T-Handle valve release: The T-Handle will turn several turns easily. As the valve starts to open, the T-Handle will turn harder. Make sure the valves have been opened far enough to allow the jacks to retract.

Small style with Valve Release Nut: DO NOT turn the 1/4” valve release nut more than 4 and 1/2 turns. Turning the nut more could damage the valve.

Large style with Valve Release Nut: The 1/4” Valve release nut is located under a plastic plug that must be removed to gain access. Open valve 1-1/2 to 2 full turns. DO NOT turn the 1/4” valve release nut more than 2 full turns. Turning the nut more could damage the valve. Replace the protective plastic plug.

4. Retract the front jacks by opening the two center valves. Slowly turn the manual valve releases counter clockwise until the jacks start to retract.

5. Repeat the process by identifying then opening the two outer valves, if applicable.

6. Check that all jacks are now retracted. If yes, continue. If no, notify the dealership where you purchased the vehicle or had the leveling system installed or contact HWH Corporation customer service.

7. Close the valves by turning each valve release clockwise.

IMPORTANT: Once the manual valve release is snug, DO NOT tighten the manual valve release past this point as internal damage may occur to the solenoid.

8. The system should now be repaired before using again.
MAINTENANCE

OIL LEVEL

It is important that the four leveling jacks 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.

ELECTRICAL SYSTEM

The batteries should be in good condition and fully charged. Weak batteries can cause erratic operation. Battery cable terminals and battery posts and connections should be kept clean.

All electrical connections, especially ground connections, should be clean, tight, free from corrosion and protected from weathering.

UNUSUAL CONDITIONS

If driving conditions are unusually muddy, the jacks 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 jack if they become excessively muddy.

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

Do not move the vehicle while the leveling jacks are still in contact with the ground. Retract the jacks according to the "JACK RETRACTION" section and then visually check to see if the leveling jacks have returned to the STORE/TRAVEL position.

**NOTE:** All major components of the system can be replaced with rebuilt parts or can be sent to HWH CORPORATION for assistance.

OPERATIONAL CHECK

Review the operator manual and run the system in the automatic and manual mode. Note any abnormal operation.

Check that all lights work according to the INDICATOR LIGHT section. Correct function of the four red WARNING lights is essential to the correct operation of the system.

Check that the vehicle is level when all the yellow LEVEL indicator lights are out.

Contact you dealer or HWH Corporation for assistance.

Review the JACK RETRACTION Section.

Make sure the jacks will fully retract to the store position. Jacks should not interfere with any part of the vehicle when in the store position.

With the jacks extended, check that the jacks can be retracted using the "T" handles on the solenoid valves. Refer to the MANUAL JACK RETRACTION section.

Check the air dump system by using the manual "DUMP" button according to the MANUAL AIR DUMP section. If the system will not dump air or return to the proper ride height, contact your dealer or HWH Corporation.

NOT IN PARK/BRAKE LIGHT CHECK

1. Turn the ignition on.
2. Set the park brake.
3. Turn the leveling system on.
4. Apply the foot brake or chock the wheels so the vehicle cannot move.
5. Release the park brake. The Leveling System panel should turn off.
6. Apply the park brake.
7. If the panel does not turn off when the park brake is released, the system needs to be checked.
SENSING UNIT MAINTENANCE/SERVICE

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

To adjust the sensing unit, first the vehicle must be level. Either position the vehicle on a level surface or use the leveling system to manually level the vehicle. It is recommended to use the vehicle trim line to determine level. An alternative would be to use a small bubble level. If using a bubble level, the level should be placed on a flat surface close to the mounting location of the control box/sensing unit.

With the vehicle level, if there are no yellow light 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. A Phillips screw driver or sockets w/driver or box end wrenches of 7/8, 3/4, 1/2, 5/16 or 1/4 sizes will be needed.

The Sensing Unit is mounted inside the Control Box. The Control Box is mounted to the power unit/valve assembly.

There are four LED’s on the Sensing Unit, A,B,C and D. Refer to the drawing below. The Sensing Unit is adjusted by turning the adjustment nut to turn out LED’s B and D. The adjustment screw will turn out LED’s A and C. If the adjustment nut has to be turned more than 1/2 flat or the adjustment screw has to be turned more than 3/4 turn to turn the LED out, there may be a problem with the Sensing Unit or the mounting of the Control Box. If two LED’s are on, it is best to make the B-D adjustments first, then hold the adjustment nut from moving while making the A-C adjustment.

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

If LED (A) is lit: Turn the adjustment screw COUNTER CLOCKWISE until the LED is off.

If LED (B) is lit: Turn the adjustment nut COUNTER CLOCKWISE until the LED is off.

If LED (C) is lit: Turn the adjustment screw CLOCKWISE until the LED is off.

If LED (D) is lit: Turn the adjustment nut CLOCKWISE 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. Determine which sensing unit light is the front light, A-B-C or D. 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.
NOTE: BEFORE OPERATING ANY MANUAL VALVE RELEASE
READ AND UNDERSTAND PROCEDURE FOR MANUAL JACK
RETRACTION IN OPERATOR’S INSTRUCTIONS. THIS MANIFOLD
IS SHOWN WITH (1) LARGE VALVE WITH A VALVE RELEASE
"T"-HANDLE, (2) SMALL VALVES WITH VALVE RELEASE NUTS
AND (1) LARGE VALVE WITH A VALVE RELEASE NUT.

NOTE: SOME MANIFOLDS ARE EQUIPPED
WITH VELOCITY VALVES

NOTE: 50 PSI PRESSURE
SWITCH MAY NOT
BE USED ON ALL
625 MANIFOLDS.

ROOM EXTENSION MANIFOLD NOT SHOWN

VELOCITY VALVE
### Electrical Connection Diagram

**625 or 625S Series Leveling Systems**

**Control Box Connection Information**

<table>
<thead>
<tr>
<th>PIN #</th>
<th>Wire Color</th>
<th>Wire Number</th>
<th>Wire Description and Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RED</td>
<td>6800</td>
<td>+12V Battery Power from Master Relay</td>
</tr>
<tr>
<td>2</td>
<td>RED</td>
<td>6800</td>
<td>+12V Battery Power from Master Relay</td>
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<tr>
<td>3</td>
<td>WHITE</td>
<td>6230</td>
<td>Ground from HWH Ground Stud</td>
</tr>
<tr>
<td>4</td>
<td>WHITE</td>
<td>6230</td>
<td>Ground from HWH Ground Stud</td>
</tr>
<tr>
<td>12</td>
<td>BLACK</td>
<td>8600</td>
<td>Pump Relay Control</td>
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</table>

<table>
<thead>
<tr>
<th>PIN #</th>
<th>Wire Color</th>
<th>Wire Number</th>
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<td>2</td>
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<td>3000 lb Pressure Switch Switched Ground</td>
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<td>3</td>
<td>BLACK</td>
<td>8101</td>
<td>50 lb Pressure Switch Switched Ground</td>
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<td>BLACK</td>
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<td>5</td>
<td>BLACK</td>
<td>7600</td>
<td>Ground for Right Front Solenoid Valve</td>
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<tr>
<td>6</td>
<td>BLACK</td>
<td>7601</td>
<td>Ground for Right Rear Solenoid Valve</td>
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<td>7</td>
<td>BLACK</td>
<td>4400</td>
<td>Switched +12 for Left Rear Solenoid Valve</td>
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<tr>
<td>8</td>
<td>BLACK</td>
<td>3400</td>
<td>Switched +12 for Right Rear Solenoid Valve</td>
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<td>9</td>
<td>BLACK</td>
<td>2400</td>
<td>Switched +12 for Right Front Solenoid Valve</td>
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<td>BLACK</td>
<td>9300</td>
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<td>1200</td>
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<th>Wire Color</th>
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<th>Wire Description and Function</th>
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<td>8000</td>
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<td>7</td>
<td>BLACK</td>
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<td>Switched Ground from Park Brake Switch</td>
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<td>8</td>
<td>YELLOW</td>
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<td>Switched House Battery</td>
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<td>9</td>
<td>GREEN</td>
<td>6300</td>
<td>Can Low</td>
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<tr>
<td>10</td>
<td>YELLOW</td>
<td>6235</td>
<td>Can High</td>
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<tr>
<td>12</td>
<td>WHITE</td>
<td>6230</td>
<td>Shared Ground for Warning Switch</td>
</tr>
</tbody>
</table>

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**Diagram Notes:**
- **Gray Connector:**
  - 4 pin gray connector
  - Pin 1: +12V Battery Power from Master Relay
  - Pin 2: +12V Battery Power from Master Relay
  - Pin 3: Ground from HWH Ground Stud
  - Pin 4: Ground from HWH Ground Stud

- **Brown Connector:**
  - 12 pin brown connector
  - Pin 1: Master Relay Control Switched +12 Volts
  - Pin 2: 3000 lb Pressure Switch Switched Ground
  - Pin 3: 50 lb Pressure Switch Switched Ground
  - Pin 4: No Connection
  - Pin 5: Switched +12 for Left Front Solenoid Valve
  - Pin 6: Ground for Right Front Solenoid Valve
  - Pin 7: Ground for Right Rear Solenoid Valve
  - Pin 8: Switched +12 for Left Rear Solenoid Valve
  - Pin 9: Switched +12 for Right Rear Solenoid Valve
  - Pin 10: Switched +12 for Right Front Solenoid Valve
  - Pin 11: Switched +12 for Air Dump Valves
  - Pin 12: Pump Relay Control

- **Black Connector:**
  - 12 pin black connector
  - Pin 1: No Connection
  - Pin 7: Switched Ground from Park Brake Switch
  - Pin 8: No Connection
  - Pin 11: Buzzer Control Switched Ground
  - Pin 12: No Connection

- **Gray Connector:**
  - 12 pin gray connector
  - Pin 1: No Connection
  - Pin 3: Switched Ground from Right Front Warning Switch
  - Pin 4: Switched Ground from Right Front Pressure Switch
  - Pin 5: Switched Ground from Right Front Pressure Switch
  - Pin 6: Switched Ground from Left Rear Pressure Switch
  - Pin 7: Switched Ground from Right Rear Pressure Switch
  - Pin 8: Switched Ground from Right Rear Warning Switch
  - Pin 9: Switched Ground from Left Rear Warning Switch
  - Pin 10: No Connection
  - Pin 11: No Connection
  - Pin 12: Shared Ground for Warning Switch

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**Additional Notes:**
- Shared ground for warning switch
- Master relay control
- Switched +12 for various components
- Ground for various components
- Switched ground for various switches
- Black, yellow, green, red, white, gray, brown connectors

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**References:**
- MP85.176C 08SEP09
### LED RELAY DESCRIPTION | FUSE
---|---
1-YELLOW | RIGHT REAR COIL | F1 - 15 AMP
2-RED | RIGHT REAR OUTPUT | F1 - 15 AMP
3-YELLOW | LEFT REAR COIL | F2 - 15 AMP
4-RED | LEFT REAR OUTPUT | F2 - 15 AMP
5-YELLOW | RIGHT FRONT COIL | F3 - 15 AMP
6-RED | RIGHT FRONT OUTPUT | F3 - 15 AMP
7-YELLOW | LEFT FRONT COIL | F4 - 15 AMP
8-RED | LEFT FRONT OUTPUT | F4 - 15 AMP
11-YELLOW | DUMP COIL | F5 - 5 AMP
12-RED | DUMP OUTPUT | F5 - 5 AMP
13-YELLOW | MASTER RELAY COIL | F6 - 5 AMP
14-RED | MASTER RELAY OUTPUT | F7 - 5 AMP
15-YELLOW | PUMP COIL | F8 - 5 AMP
16-RED | PUMP OUTPUT | F8 - 5 AMP
17-YELLOW | TRAVEL COIL | F9 - 5 AMP
18-RED | TRAVEL OUTPUT | F9 - 5 AMP
19-YELLOW | CRX 2 | F10 - 10 AMP
20-YELLOW | CRX 1 | F10 - 10 AMP
21-YELLOW | LEFT FRONT WARN SW | NOT USED
22-YELLOW | RIGHT FRONT WARN SW | NOT USED
23-YELLOW | RIGHT REAR WARN SW | NOT USED
24-YELLOW | LEFT REAR WARN SW | NOT USED
25-RED | LEFT FRONT PRESS SW | 3000 LB PRESS SW INPUT
26-RED | RIGHT FRONT PRESS SW | 3000 LB PRESS SW INPUT
27-RED | RIGHT REAR PRESS SW | 50 LB PRESS SW INPUT
28-RED | LEFT REAR PRESS SW | 50 LB PRESS SW INPUT
29-RED | NOT USED | JACK INTERRUPT
30-YELLOW | NOT USED | JACK INTERRUPT
31-GREEN | 3000 LB PRESS SW INPUT | PARK BRAKE
32-RED | MASTER WARN CONTROL | BOARD ENABLE
33-GREEN | 50 LB PRESS SW INPUT | ACCESSORY IN
34-RED | JACK INTERRUPT | ACCESSORY OUT FOR
35-RED | PARK BRAKE | MASTER WARNING
36-RED | BOARD ENABLE | LINK LIGHT
37-RED | ACCESSORY IN | F10 - 10 AMP
38-RED | ACCESSORY OUT FOR | PF4 (F11)
(39) 9-RED | NOT USED | MASTER WARNING

**NOTE:** FOR DETAILED INPUT / OUTPUT INFORMATION ABOUT PIN CONNECTIONS SEE ELECTRICAL CONNECTION DIAGRAM - CONTROL BOX CONNECTION INFORMATION.

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

**NOTE:** A LIT RED LED INDICATES THERE IS VOLTAGE ON IT’S CORRESPONDING OUTPUT PIN.

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

**NOTE:** IF THE YELLOW LED’S ARE WORKING BUT NO RED LED IS COMING ON THERE MAY BE PROBLEM WITH INPUT VOLTAGE IN THE 4-PIN CONNECTOR.

**NOTE:** IF A YELLOW LED IS NOT LIT, THERE IS A PROBLEM WITH THE CONTROL BOX, TOUCH PANEL OR CONNECTION CABLE.

**NOTE:** LED’S 19 AND 20 (YELLOW) WILL BE ON WHENEVER THE TOUCH PANEL IS ON UNLESS THE “STORE” BUTTON IS PUSHED. TWO SECONDS AFTER THE “STORE” BUTTON IS PUSHED, LED’s 7 AND 20 WILL TURN OFF. 5 SECONDS LATER LED’S 3 AND 19 WILL TURN OFF.

**NOTE:** THE TRAVEL RELAY IS WIRED AS A NORMALLY CLOSED RELAY. WHEN THE YELLOW LED (17) IS ON THE RELAY CONTACTS WILL OPEN. THE RED LED (18) WILL NOT BE ON. THE RED LED WILL BE ON IF THE LEVELING SYSTEM IS IN THE TRAVEL MODE AND THE IGNITION IS ON.

**NOTE:** THE TRAVEL RELAY IS NOT USED ON VEHICLES EQUIPPED WITH HWH AIR DUMP SYSTEMS. IT IS ONLY USED WITH PILOT OPERATED AIR DUMP SYSTEMS.

**NOTE:** ON NEWER CONTROL BOXES, FUSE F11 AND FUSE F12 HAVE BEEN REPLACED WITH POLY SWITCHES PF4 AND PF3. POLY SWITCHES PROTECT A COMPONENT OR WIRE AS A FUSE DOES EXCEPT THE POLY SWITCH WILL ALLOW CURRENT THROUGH WHEN THE OVERLOAD OR SHORT IS REMOVED. POLY SWITCHES ARE NOT REPLACEABLE.