OPERATOR’S MANUAL

HWH® TOUCH PANEL-CONTROLLED
310 SERIES LEVELING SYSTEM

FEATURING:
- Touch Panel Control
- Hydraulic Leveling
- Kick-Down Jacks
- Electronic Sensing Unit

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 HYDRAULIC LEVELING

ON

STORE

NOT IN PARK/ BRAKE

OFF

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

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CAUTION!
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 THE VEHICLE WHILE LEVELING SYSTEM AND ROOM EXTENSIONS ARE BEING OPERATED.

KICK-DOWN JACKS MAY ABRUPTLY SWING UP WHEN THE FOOT OF THE JACK CLEARS THE GROUND OR WHEN THE JACK REACHES FULL EXTENSION.

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

IF THE VEHICLE IS EQUIPPED WITH KICK-DOWN STYLE JACKS, DO NOT OVER EXTEND THE REAR JACKS. IF THE WEIGHT OF THE VEHICLE IS REMOVED FROM ONE OR BOTH REAR WHEELS, THE VEHICLE MAY ROLL FORWARD OR BACKWARD OFF OF THE JACKS.

NOTE: KEEP THE CONTROL VALVE LEVERS IN THE STORE POSITION WHEN JACKS ARE NOT IN USE.

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

CONTROL FUNCTIONS

"ON" BUTTON: This is the "ON" button for the leveling system. It provides control power to operate the electrical relay on the pump, the leveling lights and the 4 red warning lights.

"OFF" BUTTON: This button turns off control power to the leveling system.

"STORE" BUTTON: This button will retract all four jacks at the same time.

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

POWER ON LIGHT: This light indicates the system is on.

STORE LIGHT: This light will be on when the system is in the store mode.

NOT IN PARK/BRAKE LIGHT: This indicator light is on when the panel is on, but the hand/auto park brake is not set.

LEVELING LIGHTS: If a yellow LEVELING LIGHT is on, that indicates a side or end of the vehicle is low. Extend the appropriate jack pairs to put out the yellow light. Only one yellow leveling light can be on at a time. The vehicle is level when all yellow lights are out.

"WARNING LIGHTS": A red "WARNING" light will be on whenever the corresponding jack is in the vertical position, provided the ignition switch is in the "ACC" or "ON" position and the system is on. Some vehicles are equipped with a dash mounted master "JACKS DOWN" light which will be on when one or more jacks are vertical, provided the ignition switch is "ON".

HWH HYDRAULIC LEVELING
OPERATING PROCEDURES

SITE SELECTION

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 jacks or vehicle, equipment malfunction, etc. Park with the front of the vehicle facing downhill if possible. Care must be taken not to raise the rear of the vehicle too high or the vehicle may roll forward or backward off the jacks. If parking on soft ground or asphalt paving, wood blocks or pads should be placed under the jacks.

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.

LEVELING PROCEDURE

1. Place gear selector in the parking position, apply park brake and block tires securely.

   NOTE: If the hand/auto park brake is not set, the "NOT IN PARK/BRAKE" light will come on when the "ON" button is pushed. The panel will turn on, but the system will not operate.

2. Turn ignition switch to "ON" or "ACCESSORY".

3. Push the "ON" button on the touch panel. The POWER ON light will be lit. Place pads under the jacks, if necessary, at this time.

4. Swing the jacks to the vertical position by pushing the front EXTEND (up arrow) button until the two front red WARNING lights come on. Then push the rear EXTEND (up arrow) button until the two rear red WARNING lights are on. Check that all jacks have swung to the vertical position. Place a pad under each jack, if necessary, at this time.

5. A lit yellow LEVEL light indicates that the end, side, or corner is low. Push the EXTEND (up arrow) button to extend jack pairs according to a lit yellow light. ALWAYS LEVEL THE VEHICLE FROM SIDE TO SIDE IF NECESSARY BEFORE LEVELING THE VEHICLE FROM FRONT TO REAR. Only one yellow LEVEL light can be on at one time. Extend jack pairs accordingly until all yellow lights are out. If the ground is too uneven, the jack may not have enough stroke to level the vehicle. The vehicle may have to be moved. REMEMBER, if lifted too high, the vehicle may roll forward or backward off the jacks.

6. After the vehicle is level, the jacks not used for leveling may be extended until they touch the ground and lift the vehicle slightly. This provides additional stability against wind and activity in the vehicle. Do this by pushing the front and/or rear EXTEND buttons as needed to extend any remaining jacks. Do not use the right or left EXTEND buttons.

7. Push the "OFF" button on the touch panel.

8. Turn the ignition switch off.
JACK RETRACT PROCEDURES

1. Turn the ignition switch "ON" and press the "ON" button one time. The ON indicator light will glow steady.

2. Press the "STORE" button. As each jack retracts, its red WARNING light will go out. The vehicle can be moved as soon as the red WARNING lights are out, provided the jacks are in the STORE/TRAVEL position.

IMPORTANT: Pushing the "OFF" button or moving the ignition key will interrupt the STORE mode. The jacks will stop retracting. The STORE mode should be completed before traveling. If the engine was started before putting the system in the STORE mode, the vehicle may be moved when the jacks are in the "STORE" position. This will not interrupt the store procedure.

IMPORTANT: It is recommended to retract Room Extensions before retracting the jacks.

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

3. The system will automatically shut down approximately two minutes after the four individual red WARNING lights are out.

IMPORTANT: If any one red WARNING light does not go out the system will continue to store. Push the "OFF" button and have the system serviced.

4. Turn the ignition switch to the "OFF" position or proceed to travel.

NOTE: If jacks cannot be retracted by the above procedure see MANUAL JACK RETRACTION Section.

CAUTION: DO NOT RELY SOLELY UPON THE WARNING INDICATORS. IT IS THE OPERATOR’S RESPONSIBILITY TO CHECK THAT ALL JACKS ARE IN THE STORE/TRAVEL POSITION BEFORE MOVING THE VEHICLE.
OPERATING PROCEDURES

MANUAL JACK RETRACTION
(4 Jack Systems with Valve Release Nuts)

NOTE: Use the Valve Release Nuts for retracting only if the "STORE" button on the control panel will not retract the jacks for travel.

CAUTION: 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.

1. Locate the (4) valve release nuts on the solenoid valves. The solenoid valves are located on the power unit/valve assembly.

2. Allow clearance for the vehicle to lower.

3. Retract the rear jacks by opening the two outer valves. Slowly turn the valve release nuts counter clockwise using the 1/4" nut driver supplied.

4. Retract the front jacks by opening the two center valves. Slowly turn the valve release nuts counter clockwise using the 1/4" nut driver supplied.

IMPORTANT: Only open the valves enough to retract the jacks. DO NOT turn the release nuts more than 4 and 1/2 turns. Turning the nuts more could damage the valves.

NOTE: Prior to APRIL 2002 a 1/4" Nut Driver was sent with the Operators Manual. As of APRIL 2002 the 1/4" Nut Driver has been incorporated into the Breather Cap. See the back page of this manual for further info.

5. Check that all four jacks are now retracted.

6. Close the valves by turning the valve release nuts clockwise.

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

7. The system should now be repaired before using again.
It is important that all of the 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.

On the 9,000 lb. jacks and the 16,000 lb. jacks there are roller assemblies that need to rotate freely. (See above FIGURE) These rollers should be cleaned with a penetrating fluid, such as WD-40, and lubricated with a light oil as part of your regular maintenance schedule.

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

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. However, if this should accidentally happen, the leveling system was designed to protect itself from damage in most cases. Place the system in the STORE mode 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 to be rebuilt, when the system is out of warranty.

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.
There are two basic adjustments which are made at the time of installation. However, when adjustment of a leveling unit is needed, the following procedures are recommended.

1. 6,000 lb. JACKS: Always make vertical adjustment first. If the vertical adjustment is changed at anytime, be sure to check the horizontal adjustment. Vertical position is changed by adjusting the lock nuts on the actuator cable. If the jack stopped short of vertical, tighten the lock nuts. If the jack goes past vertical, back the lock nuts off. Be sure to adjust each nut the same number of turns.

**NOTE:** The two front jacks should be adjusted to the same horizontal position.

Horizontal stop is adjusted by turning the set screws located just inside the cable locknuts. The jack can be adjusted down to provide clearance for objects which may interfere with the operation of the jacks. The horizontal stop must be adjusted to provide clearance between the hat bracket and mounting bolts; and the actuator and hose fittings, when the jack is in the STORE POSITION. The jack must be able to fully extend in the horizontal position without interfering with suspension components, tanks, etc.

2. 9,000 lb. JACKS: Each jack should be checked to be sure that it is vertical when it swings down. To do this, retract all jacks, then extend each jack until it is close to, but not touching the ground. If the jack stopped short of being vertical, it can be adjusted by loosening the lower adjusting nut and tightening the upper nut.

The horizontal stop can be adjusted up or down in the slot to provide clearance for objects which may interfere with operation of the jack. The stop must be adjusted so that the jack can be fully extended in the horizontal position without interfering with suspension components, tanks, etc.

3. 16,000 lb. JACKS: If the jack stopped short of being vertical loosen the set screw and turn the adjusting cap clockwise. If the jack went beyond vertical, loosen the set screw and turn the adjusting cap counterclockwise. After each adjustment, the weight of the vehicle must be applied to the jack to make the adjustment effective. DO NOT adjust cap more than one turn without cycling the jack.

The horizontal stop on the heavy-duty jack is adjusted by adding washers under the urethane stop.

**LEVEL SENSING UNIT ADJUSTMENT**

Level the vehicle by placing a circular bubble level in the center of the freezer floor or location within the vehicle that is to be level. With the vehicle level, adjust the sensing unit until all yellow lights are off. This is done by drawing up the corresponding screw if the sensing unit is mounted below the surface as shown or backing out the corresponding screw if the sensing unit is mounted above the surface. Bump the sensing unit to see that it is settled tight against all three screw heads and still indicates that the unit is level.
The following is a list of problems, and possible solutions, which might occur to the leveling system.

**NOTE:** Only qualified technicians should install or repair leveling systems on coaches. A knowledge of hydraulics, welding, the vehicle’s suspension and electrical system, as well as an understanding of the leveling system’s hydraulics and electronics is required.

1. **JACK RETRACTS AFTER COACH IS LEVEL.**
   - A. Hose or jack has external leak.
   - B. Fluid is leaking back to reservoir through solenoid valve.

2. **LEVELING JACKS WILL NOT RETRACT COMPLETELY.**
   - A. Actuator rod bent or scored (rod will not move freely).
   - B. Jack clogged with mud or ice.
   - C. Main rod bent or scored.
   - D. Springs weak or broken.
   - E. Hydraulic line pinched.

3. **UNIT IS EXTENDED BUT NOT VERTICAL.**
   - A. Roller assembly frozen or missing.
   - B. Actuator rod bent.
   - C. Actuator not functioning properly.

4. **IGNITION SWITCH ON, BUT NO POWER TO PUMP AND/OR LIGHTS.**
   - A. Park brake not set.
   - B. 12 volts from main power source not present.
   - C. Faulty control box.
   - D. Faulty wire or electrical connection.

5. **PUMP WILL NOT ACTIVATE.**
   - A. Bad touch panel.
   - B. Bad control box.
   - C. Pump relay not functioning.
   - D. Pump not grounded.

6. **HYDRAULIC PUMP ACTIVATES, BUT THE JACKS WILL NOT EXTEND.**
   - A. Bad solenoid valve.
   - B. Bad manifold pressure switch.
   - C. Oil supply low in reservoir.
   - D. Pump is not developing pressure.
   - E. Broken hydraulic line.
   - F. Bad control box.
   - G. Bad shuttle valve.

7. **LEVELING LIGHTS (YELLOW) NOT FUNCTIONING PROPERLY.**
   - A. Yellow lights will not go out when vehicle is level: adjust sensing unit.
   - B. If more than two yellow lights are on, replace the sensing unit.

8. **WARNING LIGHTS (RED) NOT FUNCTIONING PROPERLY.**
   - A. Light will not come on: check for broken wire at warning switch on the jack.
   - B. Lights will not go out bad warning switch or wires are shorted to ground.
   - C. Check the touch panel.

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**NOTE:**

Only qualified technicians should install or repair leveling systems on coaches. A knowledge of hydraulics, welding, the vehicle’s suspension and electrical system, as well as an understanding of the leveling system’s hydraulics and electronics is required.

**Troubleshooting Leveling System**

1. **JACK RETRACTS AFTER COACH IS LEVEL.**
   - A. Hose or jack has external leak.
   - B. Fluid is leaking back to reservoir through solenoid valve.

2. **LEVELING JACKS WILL NOT RETRACT COMPLETELY.**
   - A. Actuator rod bent or scored (rod will not move freely).
   - B. Jack clogged with mud or ice.
   - C. Main rod bent or scored.
   - D. Springs weak or broken.
   - E. Hydraulic line pinched.

3. **UNIT IS EXTENDED BUT NOT VERTICAL.**
   - A. Roller assembly frozen or missing.
   - B. Actuator rod bent.
   - C. Actuator not functioning properly.

4. **IGNITION SWITCH ON, BUT NO POWER TO PUMP AND/OR LIGHTS.**
   - A. Park brake not set.
   - B. 12 volts from main power source not present.
   - C. Faulty control box.
   - D. Faulty wire or electrical connection.

5. **PUMP WILL NOT ACTIVATE.**
   - A. Bad touch panel.
   - B. Bad control box.
   - C. Pump relay not functioning.
   - D. Pump not grounded.

6. **HYDRAULIC PUMP ACTIVATES, BUT THE JACKS WILL NOT EXTEND.**
   - A. Bad solenoid valve.
   - B. Bad manifold pressure switch.
   - C. Oil supply low in reservoir.
   - D. Pump is not developing pressure.
   - E. Broken hydraulic line.
   - F. Bad control box.
   - G. Bad shuttle valve.

7. **LEVELING LIGHTS (YELLOW) NOT FUNCTIONING PROPERLY.**
   - A. Yellow lights will not go out when vehicle is level: adjust sensing unit.
   - B. If more than two yellow lights are on, replace the sensing unit.

8. **WARNING LIGHTS (RED) NOT FUNCTIONING PROPERLY.**
   - A. Light will not come on: check for broken wire at warning switch on the jack.
   - B. Lights will not go out bad warning switch or wires are shorted to ground.
   - C. Check the touch panel.

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**NOTE:**

Only qualified technicians should install or repair leveling systems on coaches. A knowledge of hydraulics, welding, the vehicle’s suspension and electrical system, as well as an understanding of the leveling system’s hydraulics and electronics is required.
NOTE: BEFORE OPERATING VALVE RELEASE NUTS, READ AND UNDERSTAND PROCEDURE FOR MANUAL JACK RETRACTION IN OPERATOR'S INSTRUCTIONS.

NOTE: SOME MANIFOLD ARE EQUIPPED WITH VELOCITY VALVES.
12 VOLT D.C. HYDRAULIC POWER UNIT

RELIEF VALVE

Solenoid Manifold Assembly

Pressure/Return Shuttle Valve

50 PSI Switch

Check Valve Inner

Check Valve Outer

Solenoid Valve LR

Solenoid Valve LF

Solenoid Valve RF

Solenoid Valve RR

Left Front

Right Front

Jack Cylinder

Left Rear

Right Rear

Pressure/Return

Return

M

MP65.3025
12MAY03
310/325 LEVELING SYSTEM
ELECTRICAL CONNECTION DIAGRAM

NOTE: THE (4) DIGIT WIRE NUMBER SUPERSEDES ANY AND ALL WIRE COLORS.
AWAY FROM THE PANEL WHEN PLUGGED IN.

ALL WIRE CONNECTIONS WILL POINT AWAY FROM THE PANEL WHEN PLUGGED IN.

NOTE: THE (4) DIGIT WIRE NUMBER SUPERSEDES ANY AND ALL WIRE COLORS.

NOTE: ALL WIRE CONNECTIONS WILL POINT AWAY FROM THE PANEL WHEN PLUGGED IN.

WARNING SWITCH INPUTS

LEVEL SENSING UNIT INPUTS

CABLE CONNECTIONS

NOTE: UNDERSTAND OPERATOR'S MANUAL BEFORE USING. BLOCK FRAME AND TIRES SECURELY BEFORE REMOVING TIRES OR CRAWLING UNDER VEHICLE.

WARNING SENSOR

MP85.3007 12MAY03
NOTE: THE (4) DIGIT WIRE NUMBER SUPERSEDES ANY AND ALL WIRE COLORS.

- LEFT REAR SOLENOID VALVE - (BROWN) 4400
- RIGHT FRONT SOLENOID VALVE - (GREEN) 2400
- LEFT FRONT SOLENOID VALVE - (BLUE) 1400
- LEFT REAR FUSE PUMP - (GRAY) 8600
- #10 POWER WIRE - (+12 VOLTS) (BLACK) 6100
- PARK BRAKE - (BLUE) 9000
- ACC. FUSE

- LEFT FRONT FUSE
- RIGHT FRONT FUSE
- RIGHT REAR FUSE
- PUMP FUSE JACK INTERRUPT FOR ROOM EXTENSION (IF NEEDED)

- FROM +12 ACC. - (BROWN) 6120

- 1 - JACK DOWN WARNING SWITCH
- 2 - FUSED ACCESSORY - (FROM TOUCH PANEL)
- 3 - SWITCHED ACCESSORY - (FROM TOUCH PANEL)
- 4 - FUSED ACCESSORY - (TO TOUCH PANEL)
- 5 - STORE RETURN
- 6 - PARK BRAKE
- 7 - GROUND
- 8 - NO CONNECTION
- 9 - STORE
- 10 - PUMP
- 11 - LEFT FRONT
- 12 - LEFT REAR
- 13 - RIGHT REAR
- 14 - BLANK
- 15 - RIGHT FRONT

- TOUCH PANEL CABLE INPUT 15 PIN
- PART NUMBER AND SERIAL NUMBER
- ROOM EXTENSION PUMP CONTROL (ONLY USED WITH HWH ROOM EXTENSION)
- CONNECTION LABEL

ELECTRICAL CONNECTION DIAGRAM
CONTROL BOX
310/325 SERIES LEVELING SYSTEM

NOTE: THE (4) DIGIT WIRE NUMBER SUPERSEDES ANY AND ALL WIRE COLORS.

- LEFT REAR SOLENOID VALVE - (BROWN) 4400
- RIGHT FRONT SOLENOID VALVE - (GREEN) 2400
- LEFT FRONT SOLENOID VALVE - (BLUE) 1400
- LEFT REAR FUSE PUMP - (GRAY) 8600
- #10 POWER WIRE - (+12 VOLTS) (BLACK) 6100
- PARK BRAKE - (BLUE) 9000
- ACC. FUSE

- LEFT FRONT FUSE
- RIGHT FRONT FUSE
- RIGHT REAR FUSE
- PUMP FUSE JACK INTERRUPT FOR ROOM EXTENSION (IF NEEDED)

- FROM +12 ACC. - (BROWN) 6120

- 1 - JACK DOWN WARNING SWITCH
- 2 - FUSED ACCESSORY - (FROM TOUCH PANEL)
- 3 - SWITCHED ACCESSORY - (FROM TOUCH PANEL)
- 4 - FUSED ACCESSORY - (TO TOUCH PANEL)
- 5 - STORE RETURN
- 6 - PARK BRAKE
- 7 - GROUND
- 8 - NO CONNECTION
- 9 - STORE
- 10 - PUMP
- 11 - LEFT FRONT
- 12 - LEFT REAR
- 13 - RIGHT REAR
- 14 - BLANK
- 15 - RIGHT FRONT

- TOUCH PANEL CABLE INPUT 15 PIN
- PART NUMBER AND SERIAL NUMBER
- ROOM EXTENSION PUMP CONTROL (ONLY USED WITH HWH ROOM EXTENSION)
- CONNECTION LABEL
310/325 LEVELING SYSTEM
HYDRAULIC MANIFOLD-PUMP RELAY
ELECTRICAL CONNECTION DIAGRAM

MANIFOLD DIAGRAM

SEE GROUNDING INSTRUCTION DIAGRAM

NOTE: THE (4) DIGIT WIRE NUMBER SUPERSEDES ANY AND ALL WIRE COLORS.

DO NOT REVERSE WIRE COLORS TO A & B ON PACKARD CONNECTORS!

PRESSURE SWITCH (50 PSI)

PUMP/MANIFOLD HARNESS

VIEW FROM TANK END

PUMP RELAY

PUMP MUST BE MOUNTED SOLIDLY TO FRAME. SOME PUMPS HAVE A GROUND CABLE THAT IS TO BE ATTACHED TO THE GROUND STUD.

BATTERY

GROUND

* FUSE

(WHITE) 6231

(WHITE, 6240) (GREEN) 2400

(WHITE) 6241

(WHITE) 6240

(WHITE) 6241

(BROWN) 4400

(BLUE) 1400

(BLACK) 8100

40 AMP FUSE

(GRAY) 8600

(BLACK) 6100

PUMP/MANIFOLD HARNESS

NOTE: THE (4) DIGIT WIRE NUMBER SUPERSEDES ANY AND ALL WIRE COLORS.

NOTE: IF THE PUMP BRACKET IS WELDED TO THE FRAME, USE THE GROUND STUD TO ATTACH THE PUMP TO THE BRACKET. IF THE PUMP BRACKET IS BOLTED TO THE FRAME, USE THE GROUND STUD TO ATTACH THE BRACKET TO THE FRAME.

* FUSE MAY BE REQUIRED - CHECK APPLICABLE CODE

NOTE: IF THE PUMP BRACKET IS WELDED TO THE FRAME, USE THE GROUND STUD TO ATTACH THE PUMP TO THE BRACKET. IF THE PUMP BRACKET IS BOLTED TO THE FRAME, USE THE GROUND STUD TO ATTACH THE BRACKET TO THE FRAME.
ELECTRICAL CONNECTION DIAGRAM
310/325 LEVELING SYSTEM POWER UNIT/HARNESS
GROUNDING INSTRUCTIONS

WELDED PUMP MOUNT
USE GROUNDING STUD AND 3/8" INTERNAL STAR LOCKWASHERS AS SHOWN.

IMPORTANT: STAR LOCKWASHER MUST BE USED BETWEEN GROUNDING SURFACE AND WIRE TERMINALS

PUMP MOUNTING CHANNEL
GROUND CABLE STRAP (NOT USED ON SOME PUMPS)

PUMP MOUNTING POSITIONS.

GROUP OF WHITE WIRES 6 INCHES FROM END OF LOOM TO BE GROUNDED TO STUD.

NOTE: THE (4) DIGIT WIRE NUMBER SUPERSEDES ANY AND ALL WIRE COLORS.

PUMP MOUNTED REMOTE FROM FRAME
USE GROUNDING STUD AND 3/8" INTERNAL STAR LOCKWASHERS AS SHOWN.

IMPORTANT: STAR LOCKWASHER MUST BE USED BETWEEN GROUNDING SURFACE AND WIRE TERMINALS.

NOTE: THE (4) DIGIT WIRE NUMBER SUPERSEDES ANY AND ALL WIRE COLORS.

MANIFOLD GROUND SEE HYDRAULIC MANIFOLD/PUMP RELAY ELECTRICAL CONNECTION DIAGRAM

GROUNDING STUD

3/8" INT. STAR LOCKWASHER (3 USED)
(WHITE) 6233
(WHITE) 6240
(WHITE) 6241
(WHITE) 6230
(WHITE) 6231

NOTE:
The (4) DIGIT WIRE NUMBER SUPERSEDES ANY AND ALL WIRE COLORS.

3/8-16 NUT
(WHITE) 6240
(WHITE) 6241
(WHITE) 6231
(WHITE) 6230

6233

MP85.3043
12MAY03
**CAUTION:** THE 6121 WIRE IN THE MASTER WARNING LIGHT PIGTAIL IS HOT WHenever THE IGNITION IS "ON" OR IN "ACC". THE 6121 WIRE MUST BE REMOVED FROM THE PIGTAIL WHEN USING DIRECT IGNITION VOLTAGE FOR THE MASTER WARNING INDICATORS.

A MASTER WARNING INDICATOR SHOULD ALWAYS BE USED.

**WARNING LIGHT WIRES ARE PLUGGED DIRECTLY INTO THE TOUCH PANEL**
NOTE: DO NOT turn the valve release nut more than 4 and 1/2 (four and one half) turns counter clockwise. Damage to the valve may result.

NOTE: DO NOT turn the valve release nut more than 2 full turns counter clockwise. Damage to the valve may result.

NOTE: THE BREATHER CAP IS LOCATED ON THE TOP SIDE OF THE POWER UNIT RESERVOIR.

IMPORTANT: PRIOR TO REMOVING THE BREATHER CAP, EITHER TO CHECK THE OIL LEVEL OR TO USE THE 1/4" NUT DRIVER, CLEAN ANY DEBRIS FROM THE TOP OF THE RESERVOIR. BEFORE RETURNING THE BREATHER CAP TO THE RESERVOIR, REMOVE ANY PAINT CHIPS OR OTHER DEBRIS FROM THE DIPSTICK INCLUDING DEBRIS INSIDE THE 1/4" NUT DRIVER.