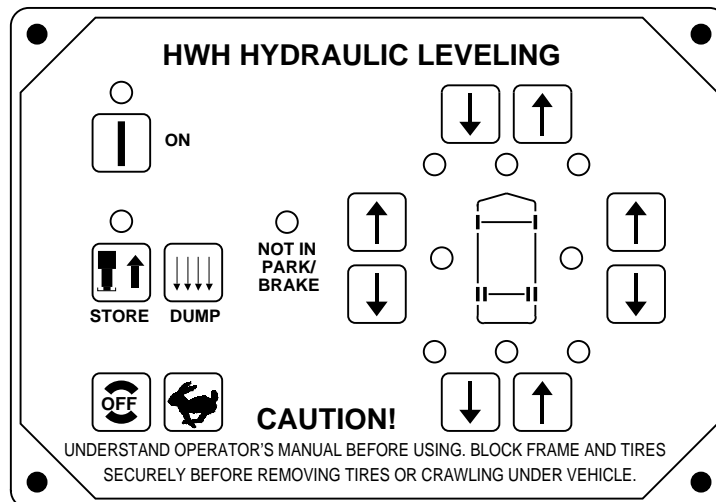




# OPERATOR'S MANUAL

## HWH TOUCH PANEL-CONTROLLED LEVELING SYSTEM 310 SERIES

**FEATURING:**  
**TOUCH PANEL LEVELING CONTROL**  
**HYDRAULIC LEVELING**  
**STRAIGHT-ACTING JACKS**  
**PILOT OPERATED AIR DUMP**



**HWH CORPORATION**  
**(ON I-80, EXIT 267 SOUTH)**  
**2096 MOSCOW ROAD**  
**MOSCOW, IOWA 52760**  
**(800) 321-3494 / (563) 724-3396**  
**INTERNET: <http://www.hwhcorp.com>**

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# OPERATOR'S MANUAL

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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

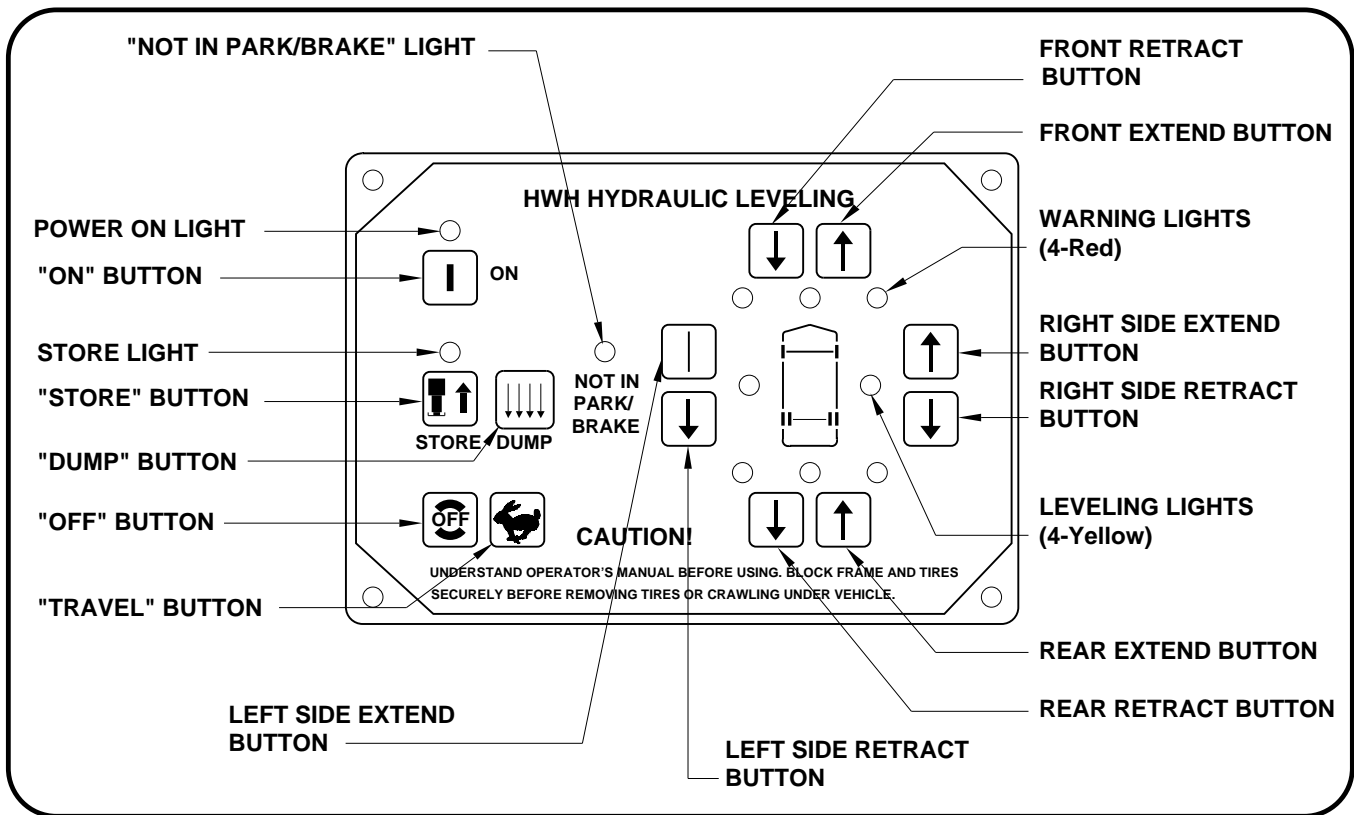
HWH CORPORATION strives to maintain the highest level of customer satisfaction. Therefore, if you discover a defect or problem, please do the following:

**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

### CONTROL BUTTONS

**"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.

**"TRAVEL" BUTTON:** This button will return the vehicle suspension to the TRAVEL mode when pushed. (See Pilot Operated Air Dump.)

**"DUMP" BUTTON:** This button will dump air from the suspension when pushed. (See Pilot Operated Air Dump.)

### 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, corner, 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 extended approximately 1 to 2 inches, provided the ignition 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 extended approximately 1 to 2 inches, if the ignition is in the "ON" position.

**WARNING BUZZER:** A buzzer will sound if a jack is extended 1 to 2 inches or more and the ignition switch is in the "ON" position.

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

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# OPERATING PROCEDURES

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## SITE SELECTION

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

jacks or vehicle, equipment malfunction, etc. If parking on soft ground or asphalt paving, wood blocks or pads should be placed under the jacks.

## PREPARATION FOR TRAVEL

Before traveling, the jacks down warning indicators must be off. If a jacks down warning indicator is on, retract jacks as described in the JACK RETRACTION Section.

All room extensions must be fully retracted before moving the vehicle.

If the jacks are retracted but a warning indicator is on, the system needs to be serviced.

**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 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 VISUALLY CHECK THAT ALL JACKS ARE FULLY RETRACTED INTO THE STORE/TRAVEL POSITION AND THE VEHICLE'S SUSPENSION HAS RETURNED TO THE PROPER RIDE HEIGHT FOR TRAVEL. DO NOT MOVE THE VEHICLE IF ANY ROOM EXTENSION IS EXTENDED. ROOMS MUST BE FULLY RETRACTED BEFORE MOVING THE VEHICLE. SEE THE MANUAL ROOM RETRACT PROCEDURE IF THE ROOM CANNOT BE RETRACTED WITH THE ROOM EXTENSION OPERATOR'S PANEL.

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.

## LEVELING PROCEDURE

**IMPORTANT:** Do not operate the room extension without first leveling and stabilizing the vehicle.

**NOTE:** The leveling system will not function while a room is being operated.

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 "ACCESSORY".

3. Push the "ON" button on the touch panel. The POWER ON light will be lit. Push the "DUMP" button. The air will exhaust from the suspension air bags. Wait until the air is completely exhausted before continuing. Place a pad under each jack, if necessary at this time.

5. A lit yellow LEVEL light indicates that end, side or corner is low. Push an EXTEND (up arrow) button to extend jack pairs according to a lit yellow light. ALWAYS LEVEL THE VEHICLE FROM SIDE TO SIDE BEFORE LEVELING THE VEHICLE 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 jacks may not have enough stroke to level the vehicle. The vehicle may have to be moved.

6. After the vehicle is level, the jacks not used for leveling may be extended until they touch the ground and slightly lift the vehicle. 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.

**NOTE:** The leveling system should be cycled once a month or whenever the vehicle is used, to keep the system in operating condition.

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# OPERATING PROCEDURES

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## PILOT OPERATED AIR DUMP

### DUMP

The vehicle ignition switch must be in the "ON" or "ACC" position and the park brake must be set.

To dump air from the suspension, set the park brake, turn the ignition to "ON" or "ACC". Push the "ON" button on the leveling system panel. Push the "DUMP" button. Air will exhaust from the suspension airbags.

The suspension will stay in the dump mode until the park brake is released or the "TRAVEL" button is pushed, if the ignition is in the "ON" or "ACC" position.

**CAUTION:** THE VEHICLE WILL DROP QUICKLY WHEN THE "DUMP" BUTTON IS PUSHED. MAKE SURE PEOPLE AND OBJECTS ARE CLEAR OF THE VEHICLE BEFORE PUSHING THE "DUMP" BUTTON.

### TRAVEL

To return the vehicle to travel the ignition key must be in the "ON" or "ACC" position. The suspension will return to the travel mode if the "TRAVEL" button is pushed. The leveling system panel does not have to be on. If the ignition is in "ON" or "ACC" the suspension will also return to the travel mode if the park brake is released.

**CAUTION:** IT IS THE OPERATOR'S RESPONSIBILITY TO CHECK THAT THE VEHICLE IS AT THE PROPER RIDE HEIGHT FOR TRAVELING BEFORE MOVING THE VEHICLE. THE VEHICLE MAY ROLL FORWARD OR BACKWARD WHEN THE PARK BRAKE IS RELEASED.

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# OPERATING PROCEDURES

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## RETRACT PROCEDURES

**IMPORTANT:** Do not retract the leveling system until all rooms are fully retracted.

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

1. Turn the ignition switch "ON" or start the engine 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.
3. Press the "TRAVEL" button. The vehicle will return to ride height. The vehicle can be moved as soon as the red WARNING lights are out, provided the jacks are in the "STORE/TRAVEL" position (See FIGURE 1) and the vehicle has returned to the proper ride height for traveling.

**IMPORTANT:** DO NOT interrupt power to the leveling system while it is in the STORE mode. DO NOT push the "OFF" button or turn the ignition key. The system must be allowed to completely finish the STORE mode. 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 interrupt the store procedure.

**NOTE:** If a room is operated after pushing the "STORE" button, this will interrupt the store mode. The STORE process will stop until the room control switch is released. The STORE process will continue after the switch is released.

**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 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 AND THE VEHICLE HAS RETURNED TO THE PROPER RIDE HEIGHT FOR TRAVELING.

4. 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, even though the jack is fully retracted, the system will continue to store. Push the "OFF" button and have the system serviced.

5. 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.

**NOTE:** If the vehicle is parked or stored with the jacks extended for an extended period of time and the jacks fail to retract completely, extend the jacks back down to the ground then retract the jacks again.

## MANUAL JACK RETRACTION

**NOTE:** Use the valve release "T" handles 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 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 "T" handles on the solenoid valves. The solenoid valves are located on the pump/valve assembly.
2. Allow clearance for vehicle to lower.
3. Retract the front jacks by opening the two center valves. Slowly turn the "T" handles counter clockwise. The handles

may turn easily at first but as an internal spring is compressed, turning may become more difficult. The valves need only to be opened enough to retract the jack.

4. Retract the rear jacks by opening the two outer valves as described in Step 3.
5. Check that all four jacks are now retracted.
6. Close the valves by turning the release handles clockwise.

Once the internal spring tension has been released, the handles will turn free for several turns. Once the "T" handles are snug, DO NOT tighten the handles past this point as internal damage may occur to the solenoid.

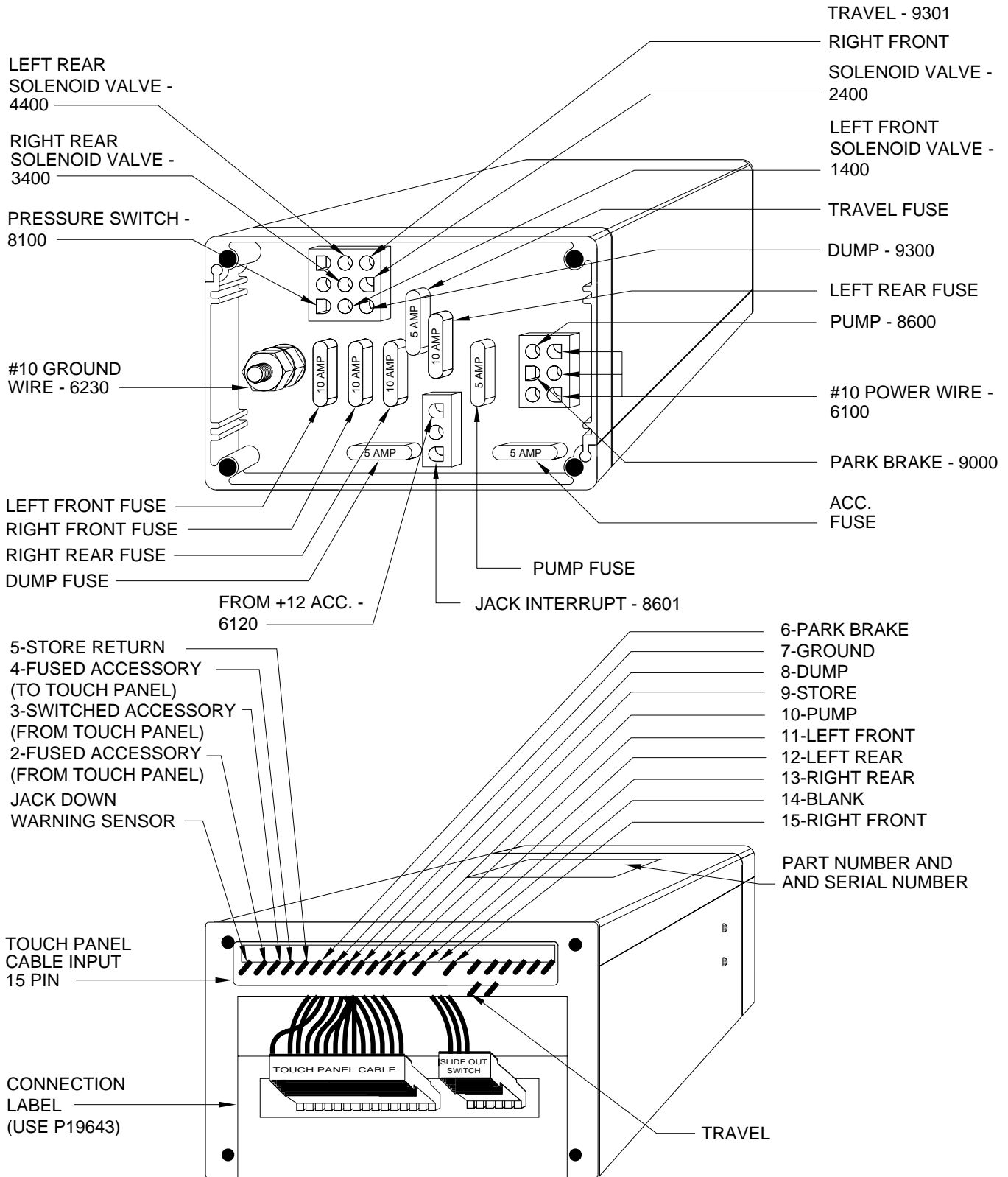
7. The system should now be repaired before using again.

# ELECTRICAL CONNECTION DIAGRAM

## CONTROL BOX

### 310 SERIES LEVELING SYSTEM

#### (WITH PILOT AIR)



# CONNECTION DIAGRAM TOUCH PANEL

## 310 SERIES LEVELING SYSTEM WITH PILOT AIR DUMP

