



SERVICE MANUAL

**FOR WINNEBAGO MOTORIZED VEHICLES
610, 310 OR 200 SERIES LEVELING SYSTEMS**

FEATURING:
Pilot Operated Air Dump

HWH CORPORATION
(On I-80, Exit 267 South)
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TROUBLE SHOOTING

WARNING!

BLOCK FRAME AND TIRES SECURELY BEFORE CRAWLING UNDER VEHICLE. DO NOT USE THE 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 PEOPLE AND OBJECTS CLEAR OF THE ROOM EXTENSION WHEN IT IS BEING OPERATED. MAKE SURE THERE IS AMPLE ROOM TO EXTEND THE ROOM FULLY.

WHEN ROUTING OR REROUTING HYDRAULIC HOSES AND WIRES, BE SURE THEY ARE NOT EXPOSED TO ENGINE EXHAUST OR ANY HIGH TEMPERATURE COMPONENTS OF THE VEHICLE.

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

SAFETY GLASSES ARE TO BE WORN TO PROTECT EYES FROM DIRT, METAL CHIPS, OIL LEAKS, ETC. FOLLOW ALL OTHER SHOP SAFETY PRACTICES.

NOTES AND CHECKS

Read and check before proceeding.

NOTE: HWH CORPORATION ASSUMES NO LIABILITY FOR DAMAGES OR INJURIES RESULTING FROM THE INSTALLATION OR REPAIR OF THIS PRODUCT.

1. Make sure the leveling system operates properly. Some problems encountered with the leveling system may create a problem with the Pilot Dump.

2. Batteries should read 12.6 volts. Batteries must be in good condition with no weak cells. An alternator, converter or battery charger will not supply enough power for the system to operate properly. Check between the positive and negative posts of the battery while the pump is running. This will check the battery condition under load.

3. Proper ground of all components is critical. See the electrical circuit for specific grounds required. Faulty grounds, especially for the solenoid manifold or the pump assembly, may cause component damage and /or improper or erratic operation.

This manual is intended for use by experienced mechanics with knowledge of hydraulic and automotive electrical systems. People with little or no experience with HWH Leveling Systems should contact HWH technical service (800-321-3494) before beginning. Special attention should be given to all cautions, wiring, and hydraulic diagrams.

Tightening of hose ends: If tightening a new hose end, make the hose end snug (finger tight) on the fitting, then tighten the hose end 1/3 turn (2 FLATS). If tightening an existing hose end, tighten the hose end to snug plus 1/4 turn (1 FLAT).

Suggested tools for trouble shooting the HWH room extension systems:

JUMPER WIRES (UP TO 10 GAUGE)
PRESSURE GAUGE (3500 PSI MIN.)
MULTI-METER
12 VOLT TEST LIGHT

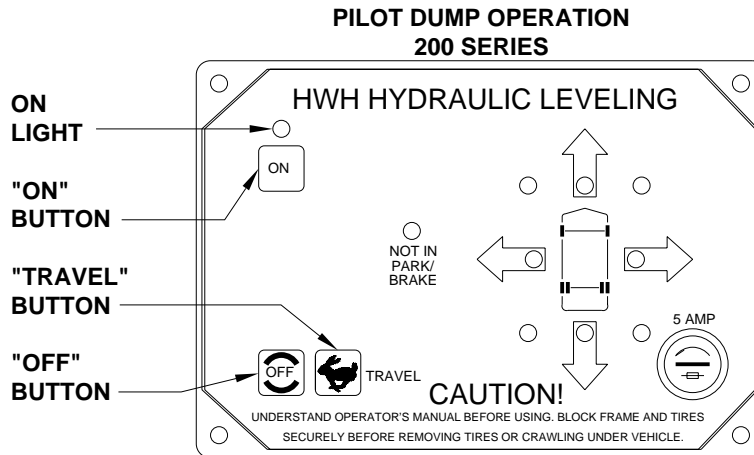
PROCEED WITH THE TROUBLE SHOOTING STEPS ON THE FOLLOWING PAGE



PILOT DUMP OPERATION AND TROUBLE SHOOTING

200 SERIES LEVELING SYSTEMS

FOR WINNEBAGO



DUMP

1. The Ignition switch must be in the "ON" or "ACC" position.
2. The PARK BRAKE must be set.
3. Push the "ON" button. The pilot dump valve will shift to the DUMP position.

Whenever the ON light is lit, there will be a +12 signal to the PILOT valve on the DUMP (9300) wire. After the PILOT valve has shifted to the DUMP position, the valve will stay in the DUMP position until the TRAVEL side of the PILOT valve is energized. There will be no +12 signal on the DUMP (9300) wire if the ON light on the Leveling System Panel is not lit. Only the air in the Air Bags will be dumped.

NOTE: The air can only be dumped by pushing the "ON" button on the Leveling System Panel.

TRAVEL

1. The Ignition switch must be in the "ON" or "ACC" position.
2. Push the "TRAVEL" button on the Leveling System Panel.

NOTE: The PARK BRAKE does not have to be off to shift the PILOT valve to the TRAVEL position.

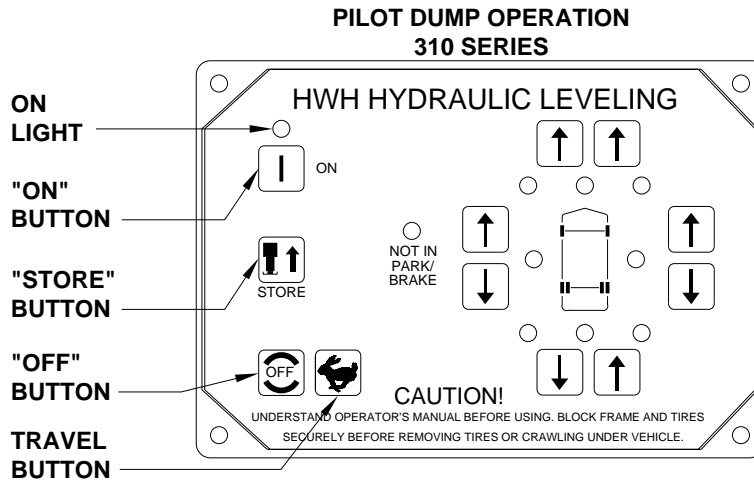
Pushing the TRAVEL button with the Ignition "ON" will put a +12 signal on the TRAVEL (9301) wire. This will shift the PILOT valve to the TRAVEL position. The vehicle should return to the proper ride height for traveling. If the PILOT valve is in the TRAVEL position, there is constant +12 signal on the TRAVEL (9301) wire when the Ignition is "ON".

NOTE: Any time the PARK BRAKE is released AND the Ignition is "ON", there will be +12 signal on the TRAVEL (9301) wire.

PILOT DUMP OPERATION AND TROUBLE SHOOTING

310 SERIES LEVELING SYSTEMS

FOR WINNEBAGO



DUMP

1. The Ignition switch must be in the "ON" or "ACC" position.
2. The PARK BRAKE must be set.
3. Push the "ON" button. The pilot dump valve will shift to the DUMP position.

If the "ON" button is being pushed, there will be a +12 signal on the DUMP (9300) wire. This will shift the PILOT valve to the DUMP position. After the PILOT valve has shifted to the DUMP position, the valve will stay in the DUMP position until the TRAVEL side of the PILOT valve is energized. There will be a +12 signal on the DUMP (9300) wire only if the "ON" button is being pushed. Only the air in the Air Bags will be dumped.

NOTE: The air can only be dumped by pushing the "ON" button on the Leveling System Panel.

TRAVEL

1. The Ignition switch must be in the "ON" or "ACC" position.
2. Push the TRAVEL (Rabbit) button on the Leveling System Panel.

NOTE: The PARK BRAKE does not have to be off to shift the PILOT valve to the TRAVEL position.

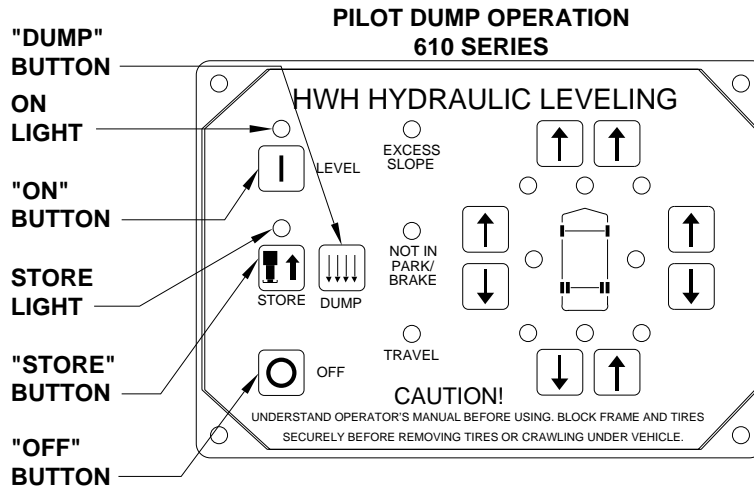
Pushing the TRAVEL (Rabbit) button with the Ignition "ON" will put a +12 signal on the TRAVEL (9301) wire. This will shift the PILOT valve to the TRAVEL position. The vehicle should return to the proper ride height for traveling. There will be a signal on the TRAVEL wire only while the TRAVEL button is being pushed. If the PILOT valve is in the TRAVEL position, there is constant +12 signal on the TRAVEL (9301) wire when the Ignition is "ON" if the PARK BRAKE is released.

NOTE: Any time the PARK BRAKE is released AND the Ignition is "ON", there will be +12 signal on the TRAVEL (9301) wire.

PILOT DUMP OPERATION AND TROUBLE SHOOTING

610 SERIES LEVELING SYSTEMS

FOR WINNEBAGO



DUMP

1. The Ignition switch must be in the "ON" or "ACC" position.
2. The PARK BRAKE must be set.
3. Push the "ON" button. The ON light will come on.
4. Push the "ON" button a second time. This will start the Automatic Leveling Sequence. The PILOT DUMP valve will shift to the DUMP position.

NOTE: Pushing the "DUMP" button will shift the PILOT valve to the DUMP position only if the PARK BRAKE is set and the ON light is lit.

Automatic Pilot Dump: There will be a constant +12 signal on the DUMP (9300) wire if the ON light is flashing for Automatic Leveling. After the PILOT valve has shifted to the DUMP position, the valve will stay in the DUMP position until the TRAVEL side of the PILOT valve is energized. Only air in the Air Bags will be dumped. If the ON light is on but not flashing or the ON light is not lit, there will be NO +12 signal on the DUMP (9300) wire.

Manual Pilot Dump: The PARK BRAKE must be set and the Leveling Panel must be on. While pushing the DUMP button, there will be a +12 signal on the DUMP (9300) wire. If the button is released, the +12 signal is turned off. The valve will stay in the DUMP position.

TRAVEL

1. The Ignition switch must be in the "ON" or "ACC" position.
2. Push the "ON" button one time. The PARK BRAKE must be set.
3. Push the "STORE" button. The STORE light will flash.

Pushing the "STORE" button will put a +12 signal on the TRAVEL (9301) wire. This will shift the PILOT valve to the TRAVEL position. The vehicle should return to the proper ride height for traveling. When the STORE light stops flashing the +12 signal to the TRAVEL (9301) wire will turn off if the Park Brake is set. The PILOT valve will remain in the TRAVEL position.

NOTE: Any time the PARK BRAKE is released AND the Ignition is "ON", there will be +12 signal on the TRAVEL (9301) wire.

PILOT DUMP DIAGNOSTIC

The PILOT DUMP valve is an electrically controlled two position valve which controls the TRAVEL/DUMP valves at the Height Control valves. The valve will maintain the position it is in until it is energized to shift to the other position.

The PILOT DUMP valve and wiring to the valve is supplied by the vehicle or chassis manufacturer. The valve is controlled by the HWH Leveling System from the control box (610/310) or the Light Panel (200) through a harness. The connection is a 4 PIN UML with 3 wires. The DUMP wire, YELLOW or number 9300, the TRAVEL wire, GRAY or number 9301 or the GROUND wire, WHITE or number 6230.

Refer to the proper Leveling Series Operation for DUMP or TRAVEL instructions. Check for +12 volts at the 4 PIN plug on the appropriate wire for DUMP or TRAVEL malfunctions. The 6230 (WHITE) wire in the plug should have constant GROUND at all times.

If there is NO GROUND on the 6230 (WHITE) wire at the 4 PIN UML plug, but the Leveling System is working, the problem is the wire or the wire connections. If the Leveling System is NOT functioning, check the main GROUND wire for the system at the HWH Ground Stud.

If voltage is present at the 4 PIN plug, the problem is the wiring or valves supplied by the vehicle manufacturer. Refer to Winnebago for Diagnostic Procedures.

If +12 volts is NOT present at the 4 PIN plug on the appropriate wire when trying to shift the PILOT DUMP valve to DUMP or TRAVEL, check for voltage on the appropriate PIN at the Control Box or Light Panel.

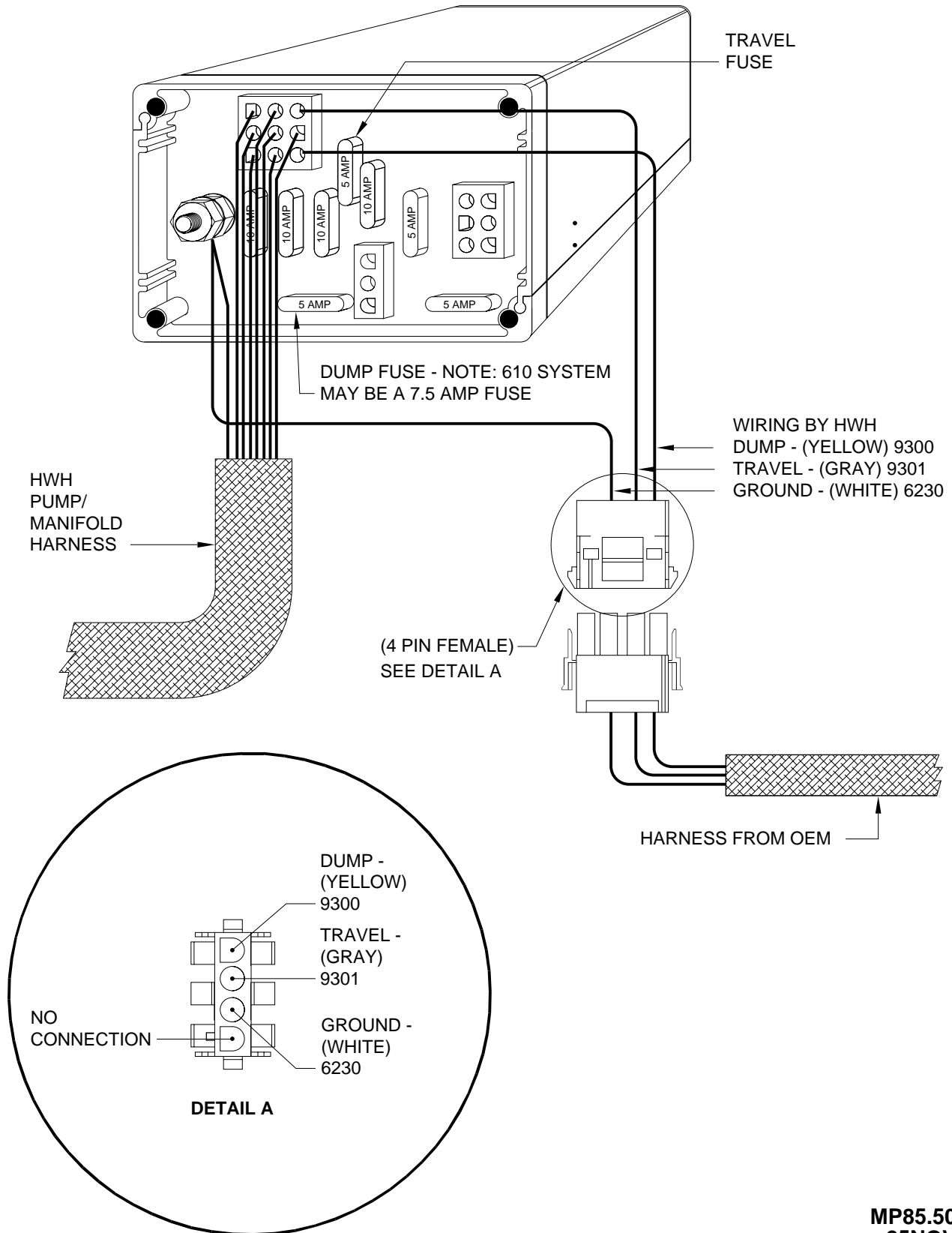
If voltage is present at the Panel but not at the 4 PIN plug, the problem is the wire from the Control Box or Light Panel, or the 4 PIN UML plug.

If voltage is NOT present at the Control Box or the Light Panel, check the travel or dump fuse for the 310 or 610 system OR the 5 AMP fuse on the 200 light panel. If the fuses are OK, replace the control box or light panel. If a fuse is blown, replace the fuse. Unplug the 4 pin connector. Retry the system. If the fuse blows, there is a short in the HWH harness. If the fuse does not blow, the problem is in the chassis harness or equipment. Refer to Winnebago for proper procedures.

ELECTRICAL CONNECTION DIAGRAM

AIR DUMP INTERFACE - PILOT DUMP

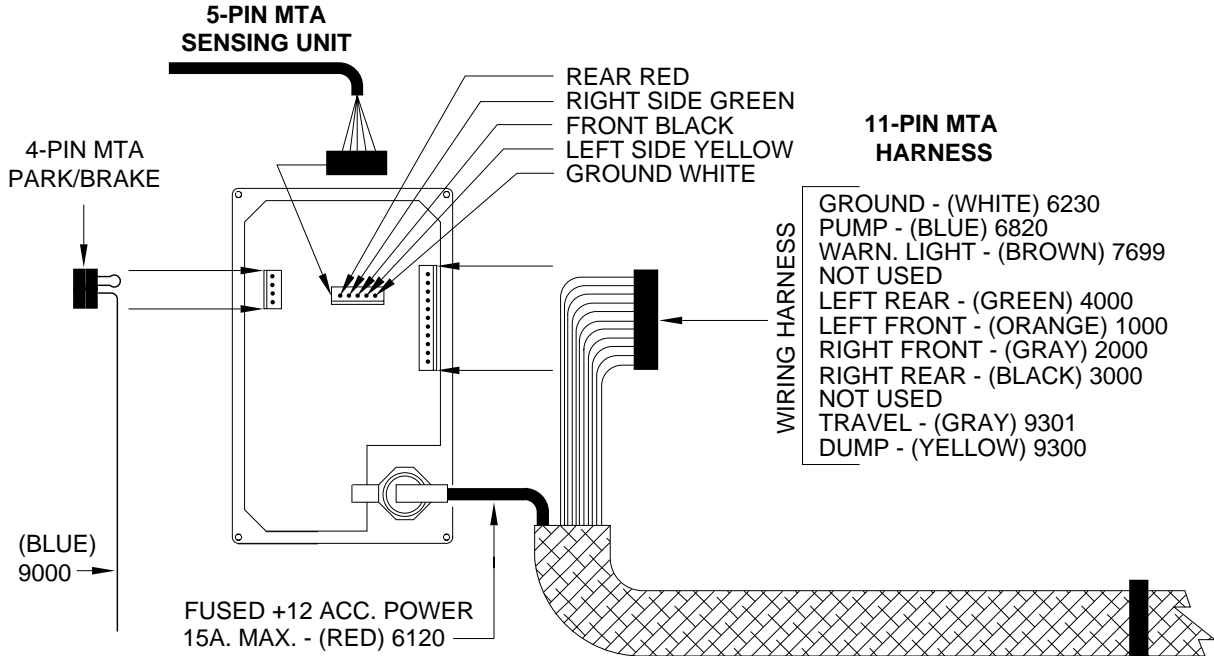
610 OR 310 SERIES LEVELING SYSTEM



ELECTRICAL CONNECTION DIAGRAM

AIR DUMP INTERFACE-PILOT DUMP

200 SERIES LEVELING SYSTEM



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

