

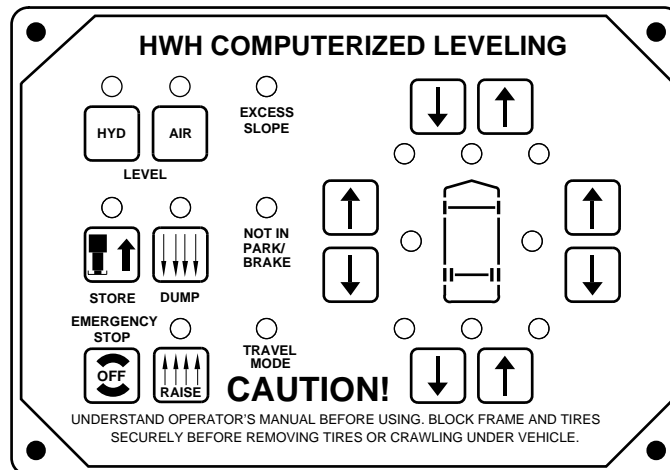


OPERATOR'S MANUAL

HWH® COMPUTER-CONTROLLED 700 SERIES LEVELING SYSTEM

FEATURING:

- Touch Panel Leveling Control*
- Air Leveling With Tag Axle Dump*
- BI-AXIS® Hydraulic Leveling*
- Straight-Acting Power Extend/Spring Retract Jacks*



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

OPERATOR'S MANUAL

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 AND ROOM EXTENSION ARE BEING OPERATED.

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.

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

DO NOT OPERATE THE LEVELING SYSTEM OR USE THE DUMP OR RAISE BUTTONS IF THE VEHICLE IS MOVING IN EXCESS OF 5 MPH.

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

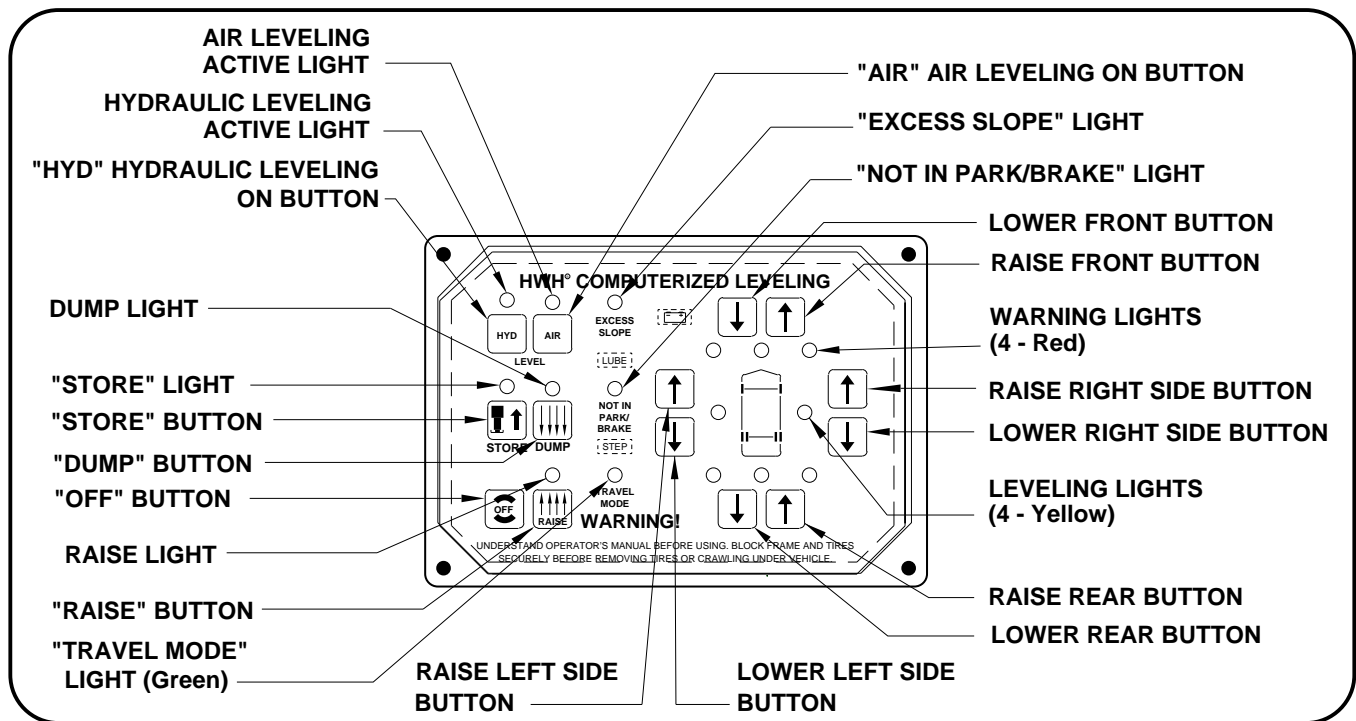
HWH CORPORATION strives to maintain the highest level of customer satisfaction. Therefore, if you discover a defect or problem, please do the following:

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



CONTROL FUNCTIONS

CONTROL BUTTONS

"HYD" BUTTON: This is the hydraulic leveling on and automatic operation button. It works if the ignition is in the "ON" position.

"AIR" BUTTON: This is the air leveling on and automatic operation button. It works if the ignition is in the "ON" position.

"OFF" BUTTON: This button turns the system OFF but does NOT control power to the "DUMP" or "RAISE" buttons. Pushing this button will NOT put the system in the TRAVEL mode.

"STORE" BUTTON: This button will put the Leveling System in the TRAVEL mode. The ignition must be "ON" for the vehicle to return to proper ride height for traveling.

"DUMP" BUTTON: This button will lower the whole coach by dumping air from the suspension system.

"RAISE" BUTTONS: This button will raise the whole coach by adding air to the suspension system.

IMPORTANT: Read "DUMP AND RAISE FUNCTIONS" before using the "DUMP" or "RAISE" buttons.

UP ARROWS (RAISE BUTTONS): These momentary buttons are used for manually operating the leveling systems. Sides or ends of the vehicle will raise while these buttons are pushed. (jack pairs will extend)

DOWN ARROWS (LOWER BUTTONS): These momentary buttons are used for manually operating the leveling systems. Sides or ends of the vehicle will lower (retract jacks) while these buttons are pushed.

INDICATOR LIGHTS

HYDRAULIC LEVELING ACTIVE LIGHT (BLUE): On when hydraulic leveling is on and flashes during automatic hydraulic leveling.

AIR LEVELING ACTIVE LIGHT (BLUE): ON when air leveling is on and flashes during automatic air leveling.

DUMP LIGHT: Flashes when "DUMP" button is pushed.

RAISE LIGHT: Flashes when "RAISE" button is pushed.

"EXCESS SLOPE" LIGHT: ON if the leveling system can NOT level the coach.

STORE LIGHT: Flashes while in the hydraulic store mode.

"TRAVEL MODE" LIGHT (GREEN): ON if the ignition is in the "ON" position, the system is not being used, and there is sufficient air pressure in the suspension. See PREPARATION FOR TRAVEL.

CONTROL IDENTIFICATION

INDICATOR LIGHTS (CONTINUED)

"NOT IN PARK/BRAKE" LIGHT: ON while the "HYD" or "AIR" button is being pushed if the Park Brake is NOT set. The light will go out when the button is released.

WARNING LIGHTS: Function with the ignition in the "ON" position. ON when the AIR LEVELING ACTIVE LIGHT is ON or individual warning lights will come on when a jack is extended approximately one inch. See PREPARATION FOR TRAVEL.

LEVELING LIGHTS: One or two yellow lights can be on indicating the side, end or corner of the coach is low.

MASTER WARNING LIGHT: ON any time the "TRAVEL" light is not ON, if the ignition is in the "ON" position.

CONTROL IDENTIFICATION

PUMP RUN TIME

PUMP RUN TIME

Pump motors used with HWH leveling systems and room extension systems come in 3 different diameters; 3", 3.7" and 4.5". Contact the vehicle manufacturer or HWH for help with identifying the motor size. **It is important that any time the pump runs for more than three minutes with a 3" motor; or six minutes with a 3.7" or 4.5" motor that the motor is allowed to cool for thirty minutes before continuing. Continuous operation of the pump motor without allowing the motor to cool can damage the motor.** For cold weather information see "COLD WEATHER OPERATIONS" below.

The HWH systems with a computer processor monitor the pump run time and will turn the pump off if the run time exceeds a specified time. This time can vary with different systems. Due to available electronics or system design, the pump run time programs will also vary. Leveling systems and room extensions that are not controlled by a system processor have no pump run time protection. **DO NOT run the pump more than three or six minutes without allowing the pump motor to cool for thirty minutes.**

SYSTEM VARIATIONS FOR PUMP RUN TIME

Some systems with rooms run the rooms separate from the system processor. These systems do not monitor pump run time when operating the rooms. **DO NOT run the pump more than three or six minutes without allowing the pump motor to cool for thirty minutes.**

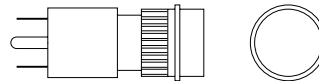
Some systems can be turned back on immediately after the processor turns the pump off. **DO NOT turn the system back on or run the pump without allowing the pump motor to cool for thirty minutes.**

When operating some leveling systems manually or operating the room extensions, the pump will turn off and back on while pushing the control button when the pump run time has been exceeded. **DO NOT continue without allowing the pump motor to cool for thirty minutes.**

With some systems, when the processor has turned the pump off because the run time has been exceeded, power to the HWH system must be turned off and back on before the system will operate. With motorized vehicles, turn the ignition off and back on. With non-motorized vehicles, turn the master power switch for the HWH system off and back on. **DO NOT continue without allowing the pump motor to cool for thirty minutes.**

Some HWH systems are equipped with a lighted reset switch. If the processor turns the pump off because the run time has been exceeded, the light in the reset switch will turn on. The system will not operate until the reset switch is pushed.

DO NOT continue without allowing the pump motor to cool for thirty minutes.



LIGHTED RESET SWITCH

No matter what HWH system is on the vehicle, the pump should not be ran for more than three minutes (3" motors) or six minutes (3.7" or 4.5" motors) without allowing the pump motor to cool for thirty minutes. Continuous operation of the pump motor without allowing the motor to cool can damage the pump motor.

Contact HWH corporation to get specific information about the system in this vehicle.

COLD WEATHER OPERATIONS

HWH leveling and room extension systems are designed to function in cold weather down to 0 degrees Fahrenheit. Below freezing (32 degrees Fahrenheit) the jacks or rooms will operate slower than usual.

For operation in temperatures dropping below -20 degrees Fahrenheit, it is necessary that the system is equipped with oil designed for extreme cold weather application such as a synthetic oil. (Contact HWH for recommendations.)

DO NOT run the pump motor continuously. It is important that any time the pump runs for more than three minutes with a 3" motor; or six minutes with a 3.7" or 4.5" motor that the motor is allowed to cool for thirty minutes before continuing. Continuous operation of the pump motor without allowing the motor to cool can damage the motor. Continuous operation of the pump with slow moving jacks or rooms in cold weather, without allowing the pump motor to cool will cause the pump motor to burn up and damage the pump assembly.

OPERATING PROCEDURES

GENERAL INSTRUCTIONS

Maintain adequate clearance in all directions for vehicles, room extensions, doors, steps, etc. Vehicle may move in any direction due to raising or lowering of vehicle during leveling, settling of vehicle, equipment malfunction, etc..

The MASTER WARNING LIGHT will be on if an air bag has low pressure or if a jack is extended and the ignition is in the "ON" position. The "TRAVELMODE" light will be off.

CAUTION: DO NOT MOVE THE VEHICLE AT SPEEDS IN EXCESS OF 5 MPH IF THE MASTER WARNING LIGHT IS ON.

The "DUMP" and "RAISE" buttons will function with the leveling system and park brake off, if the ignition is in the "ON" or "ACC" position or if the network is active. See AIR DUMP AND RAISE FUNCTIONS section of this manual. Leveling function will not start.

If the Park Brake is not set, the Leveling System cannot be turned ON.

The Tag axle dump switch will not function if the park brake is set. See TAG AXLE Dump section in this manual.

MASTER WARNING LIGHT

This light is on the dash, separate from the control panels. It can be on only if the ignition key is in the "ON" position.

Anytime the master warning light is on, the Touch panel TRAVELMODE light will be off.

If any suspension air bag has less than 20 PSI or the vehicle air supply is less than 85 PSI, the master warning light will be on.

If any jack is extended approximately 1 inch, the master warning light and the Touch panel warning light for that jack will be on if the ignition is in the ON position.

PREPARATION FOR TRAVEL

IMPORTANT: Before traveling, the red jack warning lights must be off the "TRAVEL MODE" light must be on and the vehicle should be at the proper height for travel. If lights are not correct for travel, retract jacks as described in the JACK RETRACTION Section.

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 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.

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.

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.

If the jacks are retracted but a red "WARNING" light is lit the system needs to be serviced.

Any room extension or generator slide should be fully retracted before traveling.

Visually check that the vehicle is at the proper ride height for traveling.

The ignition must be in the "ON" position for the vehicle suspension to be in the travel mode. Also the "STORE" button must be pushed or the park brake released for the suspension to be in the travel mode if a Leveling System was used.

A lit "TRAVEL MODE" LIGHT indicates that the HWH Leveling System is in the TRAVEL MODE. It does not indicate that the suspension is at ride height or that the coach is ready to travel.

OPERATING PROCEDURES

REMOTE AUTO LEVEL/STORE ROCKER SWITCH HYDRAULIC LEVELING ONLY

NOTE: Transmission should be in the recommended position for parking. The park brake must be set. The ignition should be in the "ACCESSORY" position.

WARNING: PRIOR TO PUSHING THE "AUTO LEVEL" BUTTON, THE OPERATOR MUST BE SURE THAT ALL PERSONS AND OBJECTS ARE CLEAR OF THE VEHICLE. AIR WILL BE EXHAUSTED FROM THE VEHICLE SUSPENSION AND THE VEHICLE WILL LOWER IMMEDIATELY AFTER THE REMOTE "AUTO LEVEL" BUTTON IS PUSHED.

REMOTE AUTO LEVEL

Press the leveling system rocker switch to AUTO LEVEL. The light on the switch will flash. The coach will level. The switch light will turn off when leveling is complete.

REMOTE AUTO STORE

Press the leveling system rocker switch to AUTO STORE. The jacks will begin to retract. If the ignition is in the "ON" position the master warning light and buzzer will turn off when all four jacks are completely retracted.

NOTE: If the leveling system rocker switch is pushed to AUTO LEVEL or AUTO STORE, pushing the switch again in either position will cancel the AUTO function. If the touch panel is used to operate the leveling system, pushing the remote rocker switch to either position will cancel the AUTO function.

TAG AXLE DUMP

The tag axle dump switch is supplied by the vehicle manufacturer.

IMPORTANT: Refer to the vehicle manufacturer for proper use and operation of the TAG DUMP feature.

The tag dump/reverse dump switch will only function if the ignition is on and the park brake is off.

The tag axle switch has three positions, dump, off and reverse dump.

The dump position is momentary and will dump air from the tag axle air bags while the switch is held in the "dump" position. The tag axle will return to ride height when the switch is released or the vehicle exceeds 8 mph.

The reverse dump position is a maintain position. When the switch is in this position, air will dump from the tag axle air bags when the transmission is shifted to the reverse position. The tag axle will return to ride height when the transmission is shifted from the reverse position or the vehicle exceeds 8 mph.

OPERATING PROCEDURES

725 SERIES LEVELING SYSTEM

AUTOMATIC HYDRAULIC LEVELING (HWH TOUCH PANEL CONTROLS)

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

NOTE: One or two yellow level indicator lights on the leveling system touch panel can be on anytime the vehicle ignition is in the ON or ACC. position and the park brake is set.

2. At this time, the operator may want to check the jacks and place a pad under each jack if the ground will not support the vehicle.

3. Push the "HYD LEVEL" button one time. The HYDRAULIC LEVELING ACTIVE light will come on steady.

WARNING: PRIOR TO PUSHING THE "HYD LEVEL" BUTTON A SECOND TIME, THE OPERATOR MUST BE SURE THAT ALL PERSONS AND OBJECTS ARE CLEAR OF THE VEHICLE. AIR WILL BE EXHAUSTED FROM THE VEHICLE SUSPENSION AND THE VEHICLE WILL LOWER IMMEDIATELY AFTER THE "HYD LEVEL" BUTTON IS PUSHED A SECOND TIME.

4. Press the "HYD LEVEL" button a second time. The HYD LEVEL light will start to flash. The system will begin to dump air from the vehicle suspension. After approximately 25 seconds, the leveling process will begin.

IMPORTANT: During the Automatic Leveling procedures, pushing the "HYD LEVEL", "STORE" or the "OFF" button on the HWH touch panel will stop the automatic leveling function.

When a jack extends approximately 1 inch, it's individual red warning light on the touch panel will come on. The touch panel "TRAVEL MODE" light will go out. If the ignition is in the ON position, the warning buzzer will sound.

AUTO LEVEL SEQUENCE: During the automatic leveling sequence, after the system has extended the appropriate jacks to level the vehicle and has turned the yellow level indicator lights off, the system will then stabilize the vehicle.

STABILIZE SEQUENCE: The stabilize sequence is part of the Auto Level sequence. Each jack has a pressure switch. The switch will turn on when the jack extends to the ground and lifts the vehicle slightly. Jacks that have lifted the vehicle for leveling should have pressure switches that are on.

The stabilize procedure is a specific sequence where the computer checks the jack pressure switches. If the switch is on, the jack is already stabilizing the vehicle. If the switch is not on, the computer turns the pump and valve on for that jack until the pressure switch turns on.

The sequence starts with the right rear jack. If the pressure switch is not on, the system will extend the jack as necessary. If the switch is on (or when it comes on) the system will check the left rear jack pressure switch, extending the jack if necessary. If the left rear switch is on (or when it comes on), the system will recheck the right rear (extending if necessary) then recheck the left rear (extending if necessary). After checking and rechecking both rear jacks, the system then checks the front jacks. The system checks both front jacks at the same time. If either pressure switch is not on, the system will turn the pump on and open the valves for both front jacks. When both front pressure switches are on, the system turns the pump and front valves off.

The slight lift experienced during the stabilizing procedure normally is not sufficient to cause a level issue for the motor home.

If desired, the operator can use the UP ARROWS (extend jacks) that correspond to any lit yellow level indicator light to "bump" the vehicle up slightly to turn that yellow indicator light off. Push the "HYD LEVEL" one time to use the manual buttons.

EXCESS SLOPE SITUATION: In the event the jacks are unable to level the coach, the "EXCESS SLOPE" light will come on. Excess slope is when one or two jacks extend fully 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 for two minutes if the ignition is in the "ON" or "ACC" position.

Retract the jacks and move the vehicle to a more level position or level the vehicle as close as possible according to the MANUAL HYDRAULIC OPERATION section. The "STORE" button will function if the "EXCESS SLOPE" light is on. The manual UP and DOWN arrow buttons will function with the "EXCESS SLOPE" light on. The "AUTO LEVEL" button will NOT function if the "EXCESS SLOPE" light is on.

5. Turn the ignition switch to the "OFF" position.

OPERATING PROCEDURES

725 SERIES LEVELING SYSTEM

JACK RETRACTION (HWH TOUCH PANEL CONTROLS)

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

NOTE: When the jacks are stored with the ignition in the ON position, the warning buzzer will sound until the jacks have retracted to the STORE position. If desired, the jacks can be stored with the ignition key in the accessory position. This will eliminate the warning buzzer while the jacks are retracting.

It is recommended to retract any room extensions before retracting the jacks.

1. Start the engine and press the "STORE" button. The store indicator light will flash. The vehicle should start to return to proper ride height. The front jacks will retract for 5 seconds before the rear jacks will begin to retract. As each jack retracts, its red WARNING light will go out. The system will automatically shut down 1 minute 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 fifty 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: If power to the system is interrupted after starting a store procedure with either the touch panel or the remote rocker switch, the store

procedure should be reinitiated and the jacks should be completely retracted with all four red WARNING lights out prior to traveling.

IMPORTANT: During the Automatic Store procedures, pushing the "HYD LEVEL", "STORE" or the "OFF" button on the HWH touch panel will stop the automatic store function. Pushing the remote auto level/store button will stop the automatic store function.

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 AND THE VEHICLE IS AT THE PROPER RIDE HEIGHT.

2. The vehicle 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, if the vehicle is at the proper ride height for traveling.

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.

3. 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. Place pads under the jack feet if the ground will not support the vehicle on the jacks.
3. Push the "HYD" button one time. The HYDRAULIC LEVELING ACTIVE light will come on steady.
4. Push the "DUMP" button. Wait until all air is exhausted from the vehicle suspension.
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, end or corner 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, turn the ignition switch to the "OFF" position or push the "OFF" button.

MANUAL JACK RETRACTION

The solenoid valves on the power unit valve assembly are equipped with a manual valve release. Use the manual valve release for retracting only if the "AUTO STORE" button on the control panel will not retract the jacks for travel.

NOTE: Assemblies can have different combinations of large and / or small valves.

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.

1. Locate the manual valve release on each solenoid valve. The solenoid valves are located on the power unit/valve assembly.

2. Allow clearance for the vehicle to lower.

Large and small valves will be equipped with a valve release cam. The cam might be rotated in any direction on the valve. Pushing the release cam in the wrong direction may damage the valve.

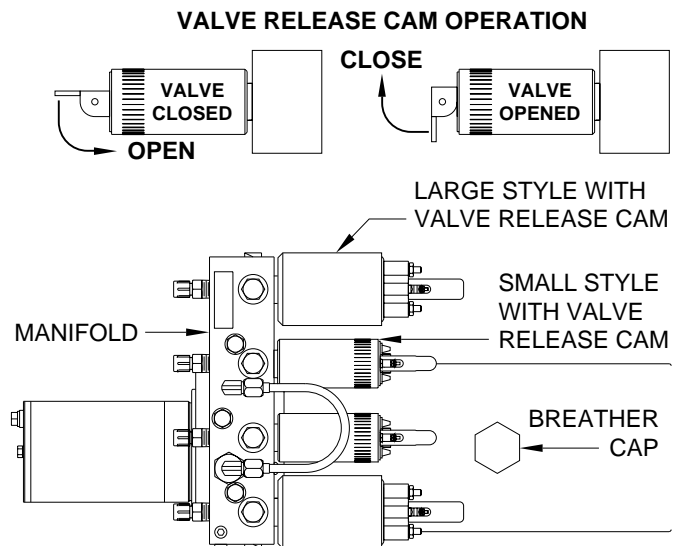
3. Retract the front jacks by slowly opening the two center valves.

4. Repeat the process for the rear jacks by opening the two outer valves.

5. Check that all four jacks are now retracted.

6. Close the valves by moving the valve release cam to the closed position.

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



OPERATING PROCEDURES

AUTOMATIC AIR OPERATION

NOTE: The ignition must be in the "ON" or "ACC" position to use the "AIR" button. Once the operation is started, the ignition can be moved to the "OFF" position and the operation will continue.

IMPORTANT: The "AIR" button will not function if any jack is extended and a Touch panel red warning light is on.

1. Place the transmission in the proper position for parking and set the park brake. The air leveling system can only be turned on if the ignition is in the "ON" or "ACC" position. Leaving the engine running during leveling is recommended. This will provide a better air supply for leveling. The vehicle will level with the engine shut off, however more time will be required for leveling.

NOTE: If the ignition key is in the "ON" or "ACC" position, the panel will not turn on if the park brake is not set. The "NOT IN PARK/BRAKE" light will be on while the "AIR" button is being pushed.

2. Press the "AIR" button one time. The AIR LEVELING SYSTEM ACTIVE light will come on steady. The four red WARNING lights on the panel will come on. This indicates that the height control valves have been locked out. The vehicle should not be moved when these lights are on.

3. Press the "AIR" button a second time to start the automatic leveling sequence. The LEVELING SYSTEM ACTIVE LIGHT will flash. The system will first exhaust all air from the suspension air bags regardless of the status of the yellow level lights. After the air is exhausted from the air bags, if no yellow light is on, the system will go directly to the sleep mode. If yellow lights are on, the system will add air to air bags to raise the low side or end of the vehicle, starting with any lit side yellow light.

NOTE: Only one or two yellow LEVEL SENSING lights may be ON at one time.

4. When all four yellow level lights are out, the LEVELING SYSTEM ACTIVE LIGHT will start flashing rapidly. The Leveling System is now in the SLEEP MODE. The four red warning lights will go out. The vehicle's engine/ignition may now be turned OFF. With the ignition off, the SYSTEM ACTIVE LIGHT will be off. Anytime the ignition is on and the system is in the SLEEP MODE, the SYSTEM ACTIVE LIGHT will flash rapidly.

5. 30 minutes after the Leveling System enters the SLEEP MODE, the computer will monitor the LEVELING SENSING UNIT for one minute. If no leveling is needed, the computer will continue to monitor the LEVELING SENSING UNIT every 30 minutes.

6. If the vehicle needs to be re-leveled, the Leveling System touch panel lights will come on and the leveling procedure will begin. The LEVELING SYSTEM ACTIVE LIGHT will flash. One or two yellow LEVELING LIGHTS will be ON. The system will relevel the vehicle. When the yellow LEVELING LIGHTS are all out, the LEVELING SYSTEM ACTIVE LIGHT will turn off. The Leveling System will remain in the SLEEP MODE with the computer monitoring the LEVELING SENSING UNIT every 30 minutes, re-leveling the vehicle as needed.

NOTE: The four red warning lights will be on anytime the system is re-leveling the vehicle.

7. The SLEEP MODE will continue until the "OFF" button or the "STORE" button is pushed or the park brake is released, if the ignition is in the "ON" position.

EXCESS SLOPE: The system will attempt to level the vehicle for approximately 30 minutes. After the 30 minutes, if a LEVEL SENSING light is still on, the "EXCESS SLOPE" light will come on. The LEVELING SYSTEM ACTIVE light will go out. The system will NOT be in the SLEEP MODE. The "EXCESS SLOPE" light will go out when the ignition is turned off.

NOTE: If the system went EXCESS SLOPE during an automatic leveling procedure, the "EXCESS SLOPE" light will be on any time the ignition is on until the "STORE" button is pushed or the park brake is released with the ignition on.

When the "EXCESS SLOPE" light is on, the "AIR" button will not function. The manual UP or DOWN arrows and the "RAISE" or "DUMP" buttons will function if the ignition is on.

OPERATING PROCEDURES

MANUAL AIR OPERATION

1. Place the transmission in the proper position for parking and set the park brake. The manual raise and lower buttons can only be used if the ignition is in the "ON" or "ACC" position. Running the vehicle engine during leveling is recommended. This will provide a better air supply for leveling. The vehicle will level with the engine shut off, however more time will be required for leveling.

IMPORTANT: The "AIR" button will not function if a touch panel pad warning light is on.

NOTE: The RAISE and LOWER buttons will not function if the system is in automatic leveling or the SLEEP mode. Push the "OFF" button with the ignition in the "ON" or "ACC" position to use the manual RAISE and LOWER buttons.

2. Push the "AIR" button one time. The AIR LEVELING SYSTEM ACTIVE light will come on steady.

3. The vehicle can be leveled using the RAISE (up arrow) and LOWER (down arrow) buttons on the right half of the panel in conjunction with the yellow LEVEL indicator lights. **Any side to side leveling should be done, if needed, before leveling the vehicle front to rear.**

The yellow LEVEL indicator light indicates that side or end is low. When all yellow lights are out, the vehicle is level. Try leveling the vehicle by lowering the high side or end (opposite of the lit yellow level lights). If a level position is not achieved use the RAISE (up arrow) button to raise the low side or end.

4. Turn the ignition to the "OFF" position.

5. Turn the system off.

NOTE: If the "DUMP" or "RAISE" buttons are pushed while manually leveling the vehicle with air and the ignition is in the "ON" position, the system will latch into the dump or raise mode until the "OFF" button is pushed or the ignition is turned off.

"DUMP" AND "RAISE" FUNCTIONS

The "DUMP" and "RAISE" functions are provided for operator convenience for purposes such as dumping the air suspension when parked.

WARNING: REREAD CAUTIONS ON THE FIRST PAGE OF THIS MANUAL. THE VEHICLE MAY DROP OR RAISE AND/OR MOVE FORWARD OR BACKWARD WITHOUT WARNING CAUSING INJURY OR DEATH.

The ignition must be in the "ON" or "ACC" position to use the "DUMP" or "RAISE" buttons.

Leave the engine running if the "RAISE" function is to be used. The park brake **DOES NOT** have to be set to use the "DUMP" or "RAISE" buttons.

IMPORTANT: When the "RAISE" button is pushed, the raise feature will latch in and remain on. The vehicle will raise to the maximum capability of the suspension and stay in that position.

When the "DUMP" button is pushed, the dump feature will latch in and stay on. The vehicle will lower until the suspension air bags are completely empty and stay in that position.

To stop a DUMP or RAISE function when the park brake is set, push the "OFF" or "STORE" button. The vehicle will stop raising or lowering and start to return to ride height.

To stop a DUMP or RAISE function if the park brake is NOT set:

- A. If the vehicle is moving and the speed exceeds approximately 10 MPH, the system will return to the Travel Mode. The vehicle should return to ride height.
- B. Push the "STORE" or "OFF" button. The system will immediately return to the "TRAVEL MODE". The vehicle should return to ride height.

DO NOT operate the vehicle for extended distances unless the air suspension is at the proper height for travel. The vehicle can not return to ride height until the "OFF" button or "STORE" button is pushed; or the vehicle exceeds 8 MPH, putting the system in the TRAVEL MODE if the park brake is released.

WARNING: IT IS THE OPERATOR'S RESPONSIBILITY TO CHECK THAT THE VEHICLE IS AT PROPER RIDE HEIGHT BEFORE TRAVELING.

MAINTENANCE

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.

OPERATIONAL CHECK

Review the OPERATOR MANUAL. Run the system according to the SYSTEM OPERATION Section. Note any abnormal operation.

Review the "JACK RETRACTION" Section. Make sure the jacks will fully retract to the "STORE" position. Jacks should not interfere with any of the coach when in the "STORE" position.

Check that all lights work according to the "INDICATOR LIGHT" Section. Correct function of the red "WARNING" light is important.

Review the "Preparation for Travel" section. Make sure the suspension will return to ride height after air or hydraulic leveling is used.

NOT IN PARK/BRAKE CHECK

WARNING: WHEN MAKING THIS CHECK, BLOCK THE COACH WHEELS SECURELY SO THE COACH CANNOT ROLL FORWARD OR BACKWARD.

Switch the ignition to the "ON" or "ACC" position. Release the park brake. Push and hold the "AIR" button. The "NOT IN PARK/BRAKE" light should come on while pushing the "AIR" button. The system should not function. Release the "AIR" button and set the park brake. Push the "AIR" button. The AIR LEVELING SYSTEM ACTIVE light should come on steady.

If any of the above checks or inspections reveal a problem or if there are other problems or questions, consult a qualified RV repair center, your vehicle or coach manufacturer, or HWH CORPORATION for service or repair.

INSTRUCTION SHEET

SENSING UNIT MAINTENANCE/SERVICE

REMOTE MOUNTED "POTTED" ELECTRONIC SENSING UNIT

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 / WITH ADJUSTING ENHANCEMENT

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. It is best if the level is placed close to the mounting area of the sensing unit. 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.

The ignition (motorized units) or master power switch (towable units) must be on. Remove the "Adjusting Enhancement Cap". **DO NOT LOSE THIS CAP.** There is a small pin beneath the cap. Use a jumper wire with an alligator clip to apply a ground to the pin. This will make the sensing unit very sensitive. The yellow lights may "jump" around while adjusting the sensing unit. Let the lights settle down after each adjustment. Small, gentle turns will work best. Turn mounting screws 1 and 3 to adjust the sensing unit. Turn screws as instructed to turn out all the yellow LEDs. When all the LEDs are out, remove the jumper wire and replace the adjusting enhancement cap. **DO NOT** over tighten.

Move the vehicle to an unlevel position and level the vehicle according to the yellow level sensing lights on the touch panel. Readjust if necessary.

IMPORTANT: THE SENSING UNIT MOUNTING SPRINGS SHOULD BE COMPRESSED ABOUT 1/2 THEIR FREE LENGTH. SCREW NUMBER 2 SHOULD NOT BE TURNED WHILE ADJUSTING THE SENSING UNIT. AFTER ADJUSTING THE SENSING UNIT, BUMP THE SENSING UNIT TO SEE THAT IT IS SETTLED TIGHT AGAINST ALL THREE SCREW HEADS AND STILL INDICATES THAT THE UNIT IS LEVEL.

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 until the LED is off.

If LED (B) is lit: Loosen adjustment screw number 3 until the LED is off.

If LED (D) is lit: Tighten adjustment screw number 3 until the LED is off.

