

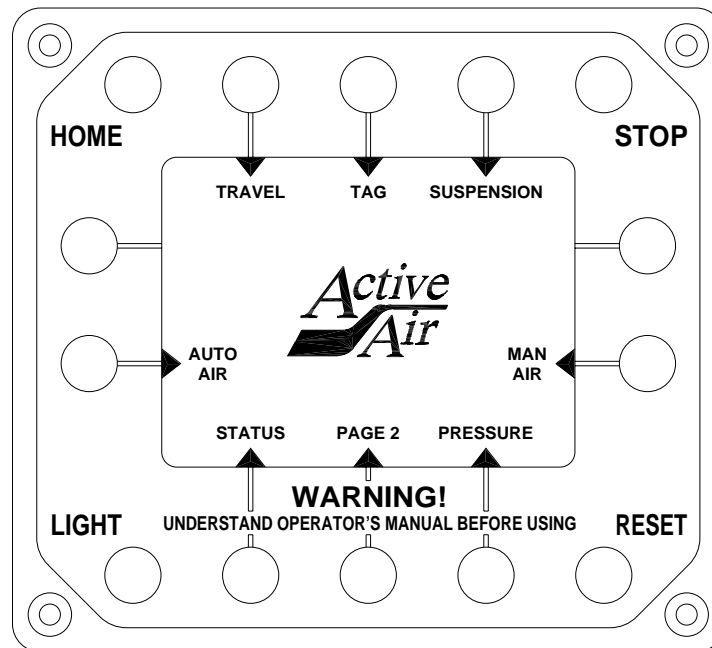


# OPERATOR'S MANUAL

## HWH® ACTIVE AIR SUSPENSION AND SPACEMAKER® ROOM EXTENSION SYSTEMS

### FEATURING:

- Active Air Suspension*
  - Computerized Air Leveling*
  - Multiple Room Extensions (with Air Seals)*
  - Color LCD Panel*
  - Generator Slide*
- Generally for Coaches Built After October 2018*



**HWH CORPORATION**  
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# OPERATOR'S MANUAL

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## 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.

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

DO NOT TRAVEL IF THE VEHICLE IS NOT AT THE PROPER RIDE HEIGHT. CONTACT MANUFACTURER TECHNICAL SERVICE FOR TRAVELING 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

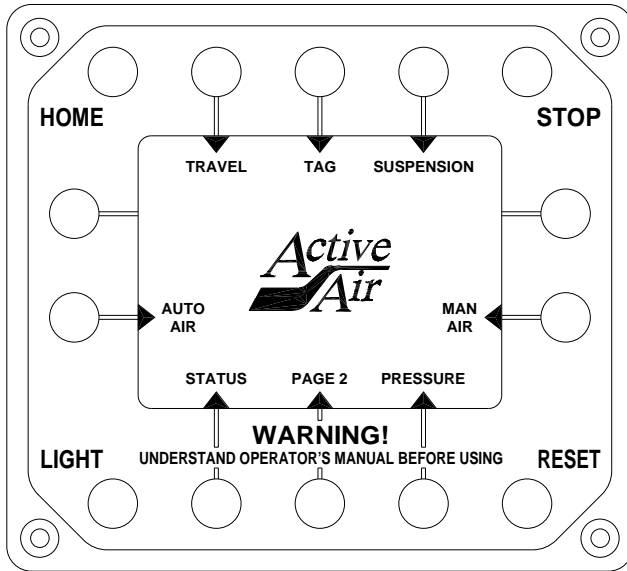
HWH CORPORATION strives to maintain the highest level of customer satisfaction. Therefore, if you discover a defect or problem, please do the following:

**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



## HOME PAGE

**NOTE:** See individual function pages in the OPERATING PROCEDURES section of this manual for detailed information about specific screen buttons.

## PANEL BUTTONS

**"HOME" BUTTON:** Pushing the "HOME" button at any time will return the control panel to HOME PAGE 1. Pushing the Active Air logo located in the center of the LCD will also return the control panel to HOME PAGE 1.

**"LIGHT" BUTTON:** Screen starts at default brightness. Push the button once for user defined setting. **SEE: MP24.3972A** Push the button again, the screen will go dark but the system will remain on. Push again to return to default brightness.

**"STOP" BUTTON:** Pushing the "STOP" button will turn the system off halting any active function including ACTIVE AIR SUSPENSION. If the ignition is on, the Master Warning Light will come on. **IT IS NOT RECOMMENDED TO PUSH THE "STOP" BUTTON WHEN TRAVELING.**

**"RESET" BUTTON:** This button will reset the SYSTEM CONTROL PANEL if the panel ceases to function due to a malfunction. The "RESET" button will also reactivate the CONTROL PANEL if the "STOP" button is pushed at ANY time. The ignition key must be on for the "RESET" button to work.

## SCREEN BUTTONS AND LIGHTS

**"TRAVEL" BUTTON:** This button will put the system in the Travel Mode. When pressed, word "TRAVEL" will flash three times and the LCD will display "INITIALIZING". When "INITIALIZING" is no longer displayed, the suspension is in Travel Mode.

**"TAG" BUTTON:** This button will turn the tag axle feature on. **SEE: MP34.0903 - Only present if the vehicle is equipped with a tag axle.**

**"TAG" LIGHT:** When the background is blue and the letters are white, the tag feature is off. The tag axle should be in the Travel Position. When the background is white and the letters are blue, the tag feature is on. **No function if vehicle is not equipped with a tag axle.**

**"SUSPENSION" BUTTON:** This button will bring up the Suspension Control page. **SEE: MP34.1600C**

**"SUSPENSION" LIGHT:** This light will flash "INITIALIZING" until the suspension reaches ride height if the "TRAVEL" button is pushed and the ignition key is on. If no Leveling System has been used, the word "INITIALIZING" will flash until the suspension reaches ride height when the ignition key is turned on. Any time the word "INITIALIZING" is flashing, the Master Warning Light should be on.

**"MAN AIR" BUTTON:** This button will put the system in the manual air leveling mode. **SEE: MP34.3701A**

**"PRESSURE" BUTTON:** This button will bring up the bag / system pressure readings screen. **SEE: MP24.3992C**

**"PAGE 2" BUTTON:** This button will bring up the page 2 operation screen.

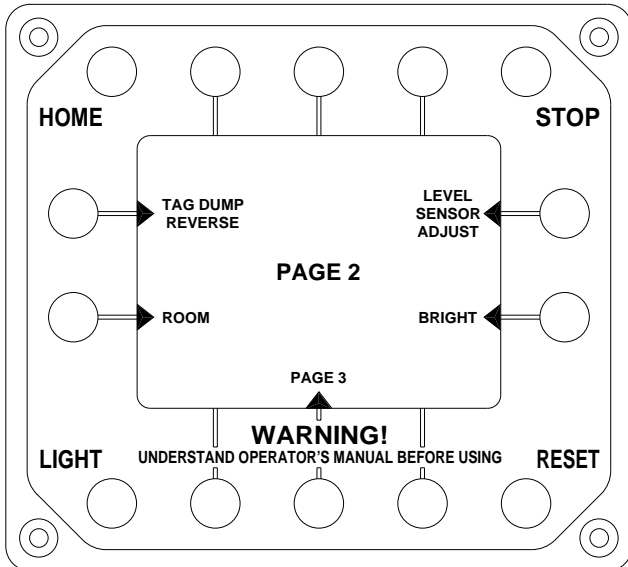
**"STATUS" BUTTON:** This button will bring up the first "STATUS" page. There will be multiple "STATUS" pages. The "PAGE FORWARD" button on a "STATUS" page will advance the screen to the next "STATUS" page. The "PAGE BACK" button on a "STATUS" page will move back one "STATUS" page. **SEE: MP24.3993C and MP24.3994C**

**"AUTO AIR" BUTTON:** This button will put the system in the automatic air leveling mode. **SEE: MP34.3402C**

**NOTE:** Some of the PANEL and SCREEN buttons will react as soon as they are pressed but some buttons will not react until they are released.

# CONTROL IDENTIFICATION

## PAGE 2



**NOTE:** If the vehicle is not equipped with a tag axle, tag axle information will not be present on LCD screen.

## SCREEN BUTTONS AND LIGHTS

**"TAG DUMP REVERSE" BUTTON:** This button will turn on or turn off the tag dump reverse feature. When reverse is selected on the transmission controller the tag axle air bags will dump. White letters on a blue background indicates that this feature is turned off. Blue letters on a white background indicates that this feature is turned on.

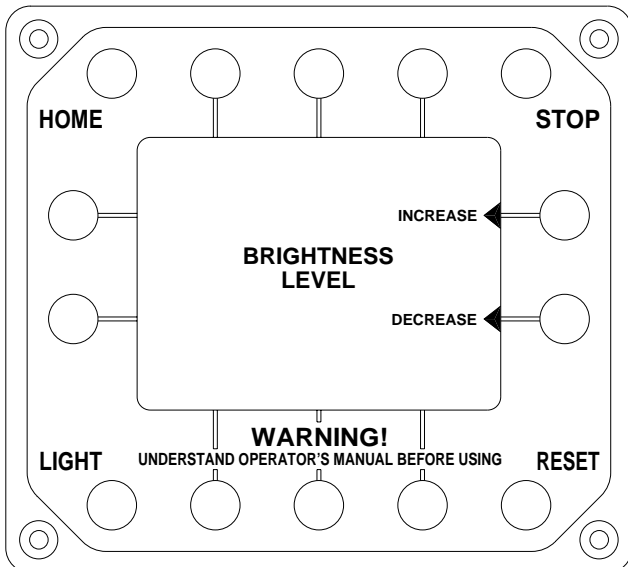
**"ROOM" BUTTON:** This button will bring up the room selection screen. Only rooms 1 and 4 are controlled with the LCD panel.

**"BRIGHT" BUTTON:** This button will bring up the brightness level screen.

**"LEVEL SENSOR ADJUST" BUTTON:** This button should be pressed before adjusting the level sensing unit. See the "SENSING UNIT MAINTENANCE / SERVICE" page.

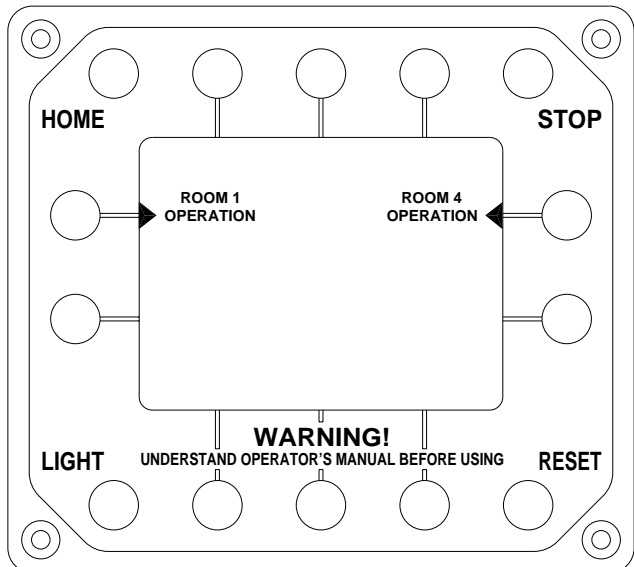
**"PAGE 3" BUTTON:** This button will bring up PAGE 3. PAGE 3 is password protected, contact HWH Corporation for assistance.

## BRIGHTNESS LEVEL SCREEN



**"INCREASE / DECREASE" BUTTONS:** Increase or decrease the screen brightness in increments by pushing the corresponding button. When the desired screen brightness is achieved pressing the HOME button will set this as the user defined setting discussed under the "LIGHT" button on page MP24.3971A.

## ROOM SELECTION SCREEN

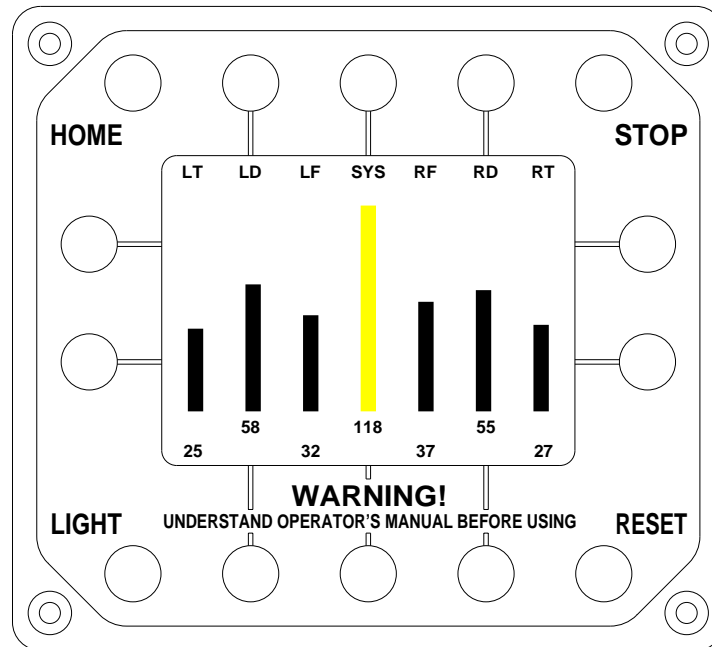


**"ROOM # OPERATION" BUTTON:** Select which room is to be operated. For extend / retract operations SEE: MP34.4304A

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# CONTROL IDENTIFICATION

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## BAG / SYSTEM PRESSURE READINGS PAGE

**PRESSURE NUMBERS SHOWN ON THIS PAGE ARE FOR EXAMPLE PURPOSES ONLY AND MAY NEVER RESEMBLE ACTUAL SYSTEM NUMBERS.**

**NOTE: If the vehicle is not equipped with a tag axle, tag axle information will not be present on LCD screen.**

Each column represents a particular bag or the system pressure.  
The numbers represent an approximate p.s.i. reading.

Bag Columns: RED

System Column: YELLOW

Screen Background: BLUE (Economy Mode)

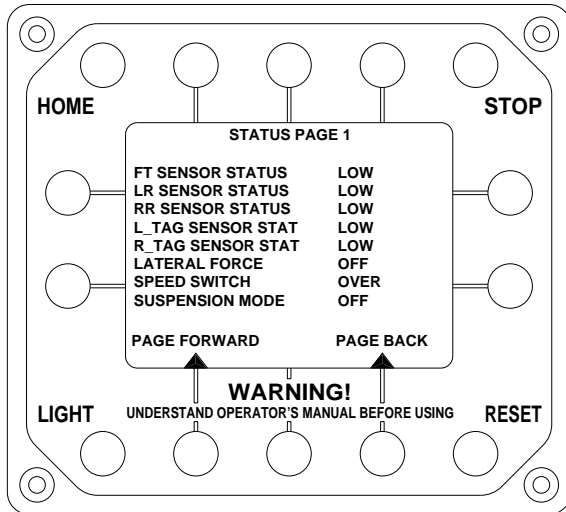
Screen Background: GREEN (Fly Mode)

**LT - LEFT SIDE TAG AXLE PRESSURE TRANSDUCER**  
**LD - LEFT SIDE DRIVE AXLE PRESSURE TRANSDUCER**  
**LF - LEFT SIDE FRONT AXLE PRESSURE TRANSDUCER**  
**SYS - SYSTEM PRESSURE TRANSDUCER (MEASURED AT DRIVE AXLE MANIFOLD AIR SUPPLY)**  
**RF - RIGHT SIDE FRONT AXLE PRESSURE TRANSDUCER**  
**RD - RIGHT SIDE DRIVE AXLE PRESSURE TRANSDUCER**  
**RT - RIGHT SIDE TAG AXLE PRESSURE TRANSDUCER**

# CONTROL IDENTIFICATION

**SCREEN BUTTONS:** "PAGE FORWARD / BACK" **BUTTONS:** Use these buttons to switch from status screen to status screen.

## STATUS PAGE 1



**NOTE:** If the vehicle is not equipped with a tag axle, tag axle information will not be present on LCD screen.

## PAGE 1 STATUS DESIGNATIONS

**FT SENSOR STATUS - FRONT AXLE HEIGHT SENSOR**  
**LR SENSOR STATUS - LEFT SIDE DRIVE AXLE HEIGHT SENSOR**  
**RR SENSOR STATUS - RIGHT SIDE DRIVE AXLE HEIGHT SENSOR**  
**L\_TAG SENSOR STAT - LEFT SIDE TAG AXLE PRESS. TRANSDUCER**  
**R\_TAG SENSOR STAT - RIGHT SIDE TAG AXLE PRESS. TRANSDUCER**  
**HIGH:** Sensor is ABOVE ideal set point.  
**LOW:** Sensor is BELOW ideal set point.  
**CHANGING:** Sensor is "dithering" ABOVE and BELOW the ideal set point.  
**INACTIVE:** Sensor is not changing state within allowed time.

### LATERAL FORCE:

**OFF:** Vehicle is not experiencing high side loads.  
**ON:** High side loads. "FLY" mode maintained.

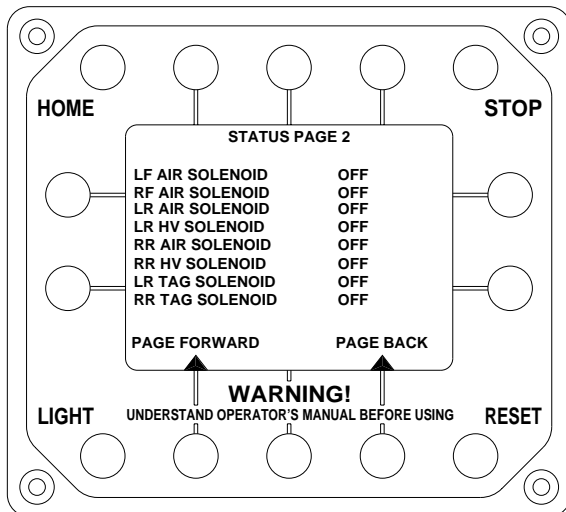
### SPEED SWITCH:

**OVER:** Vehicle is over speed. System is allowed to enter "FLY" mode.  
**UNDER:** Vehicle is under speed. System will not enter "FLY" mode.

### SUSPENSION MODE:

**OFF:** System is not in Active Air mode.  
**AIR LEVELED:** System has leveled the vehicle in auto air or manual air.  
**HYD LEVELED:** System has leveled the vehicle in auto hydraulic or manual hydraulic.  
**SLEEP:** System is in sleep mode.  
**EXCESS SLOPE:** System is in excess slope mode.  
**ECONOMY:** Normal operating mode.  
 Designed to conserve air (Straight roads)  
**FLY:** Active response to driving conditions.  
 (Windy conditions or curvy roads)

## STATUS PAGE 2



**NOTE:** If the vehicle is not equipped with a tag axle, tag axle information will not be present on LCD screen.

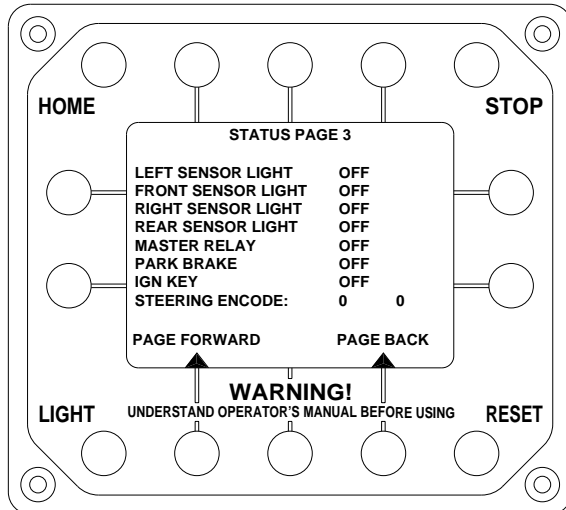
## PAGE 2 STATUS DESIGNATIONS

**LF AIR SOLENOID: LEFT SIDE FRONT AXLE RAISE OR DUMP SOLENOID VALVE**  
**RF AIR SOLENOID: RIGHT SIDE FRONT AXLE RAISE OR DUMP SOLENOID VALVE**  
**LR AIR SOLENOID: LEFT SIDE DRIVE AXLE RAISE OR DUMP SOLENOID VALVE**  
**RR AIR SOLENOID: RIGHT SIDE DRIVE AXLE RAISE OR DUMP SOLENOID VALVE**  
**RR HV SOLENOID: RIGHT SIDE DRIVE AXLE HIGH VOLUME RAISE SOLENOID VALVE**  
**LR TAG SOLENOID: LEFT SIDE TAG AXLE RAISE OR DUMP SOLENOID VALVE**  
**RR TAG SOLENOID: RIGHT SIDE TAG AXLE RAISE OR DUMP SOLENOID VALVE**  
**RAISE:** Raise solenoid valve is on.  
 Air is directed into the air bags.  
**LOWER:** Dump solenoid valve is on.  
 Air is exhausted out of air bags.  
**OFF:** Solenoid valves are off.  
 Air in bag is maintained.

# CONTROL IDENTIFICATION

**SCREEN BUTTONS: "PAGE FORWARD / BACK" BUTTONS:** Use these buttons to switch from status screen to status screen.

## STATUS PAGE 3



## PAGE 3 STATUS DESIGNATIONS

### LEFT SENSOR LIGHT:

**OFF:** Left side of the coach is not low.

**ON:** Left side of the coach is low.

### FRONT SENSOR LIGHT:

**OFF:** Front of the coach is not low.

**ON:** Front side of the coach is low.

### RIGHT SENSOR LIGHT:

**OFF:** Right side of the coach is not low.

**ON:** Right side of the coach is low.

### REAR SENSOR LIGHT:

**OFF:** Rear of the coach is not low.

**ON:** Rear of the coach is low.

### MASTER RELAY:

**OFF:** See LCD screen for error message

**ON:** Master relay is in normal on position

### PARK BRAKE:

**OFF:** Park brake is not set

**ON:** Park brake is set

### IGN KEY:

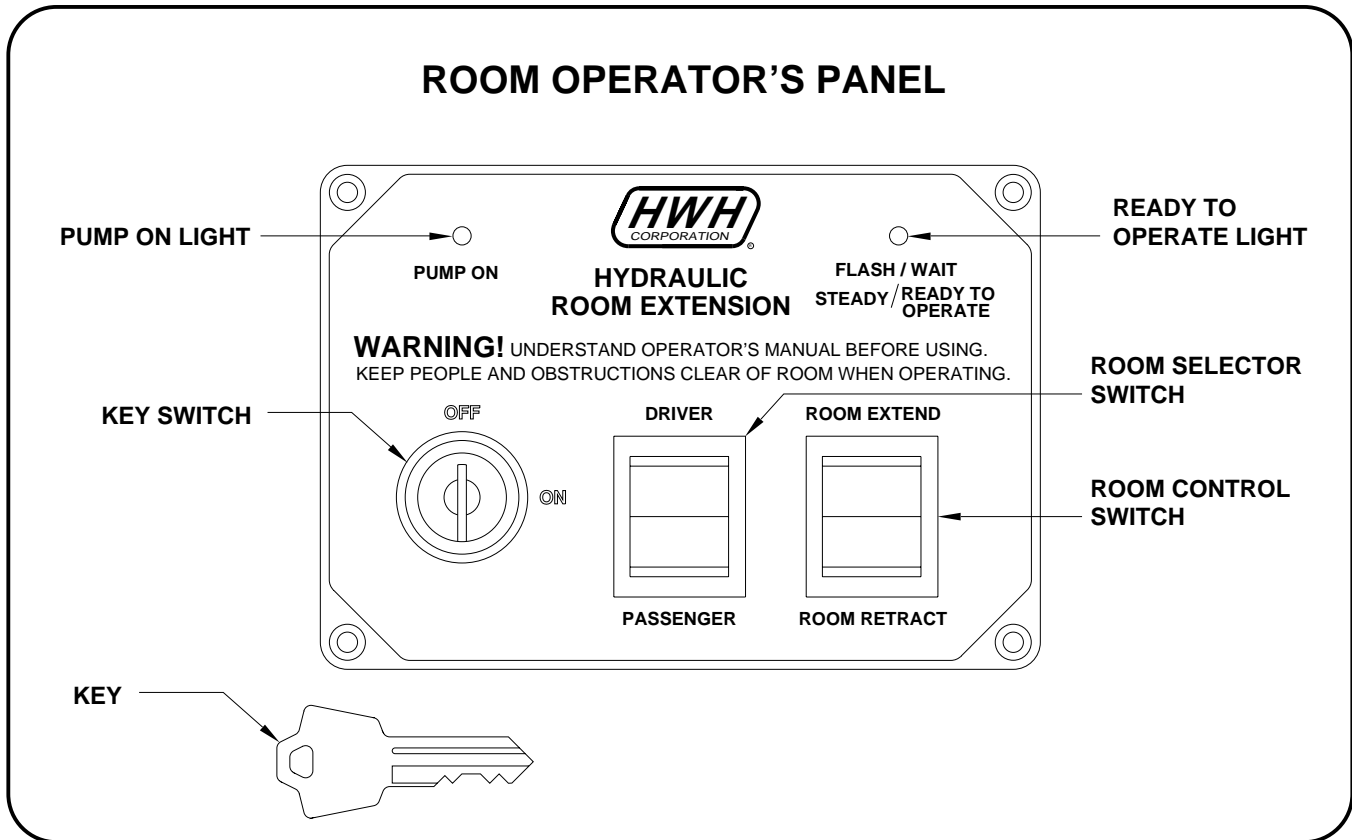
**OFF:** Ignition key is off

**ON:** Ignition key is on

### STEERING ENCODE:

Light flashing between 1 and 0  
indicating steering sensor is working

# CONTROL IDENTIFICATION



## CONTROL FUNCTIONS

**KEY SWITCH:** The KEY SWITCH controls power to the ROOM CONTROL SWITCH. When the KEY SWITCH is in the "ON" POSITION the room can be operated, and the key cannot be removed. When the KEY SWITCH is in the "OFF" position the room cannot be operated, and the key can be removed.

**NOTE:** Any time the KEY SWITCH is ON, the network will be active and will not power down.

**ROOM CONTROL SWITCH:** The ROOM CONTROL SWITCH is a two position momentary switch. Pressing the switch in the EXTEND POSITION will extend the room. Pressing the switch in the RETRACT POSITION will retract the room. Releasing the ROOM CONTROL SWITCH will halt the operation of the room.

**ROOM SELECTOR SWITCH:** Push the selector switch to the desired position to operate a room.

**READY TO OPERATE LIGHT:** This light will flash slowly for 20 seconds after the key switch is turned on. The light will then come on steady. The room can now be operated. If this

light starts to flash rapidly, the room should still function but the air seal manifold may need service.

**PUMP ON LIGHT:** This light will be on when the room control switch is pushed to EXTEND or RETRACT and the READY TO OPERATE light is on steady or flashing rapidly.

If the system is in "EXCESS SLOPE" mode, the READY TO OPERATE light will flash continuously after the key switch is turned ON. The room will not extend. The room will retract if the room control switch is pushed to "RETRACT".

If the PARK BRAKE is not set, the READY TO OPERATE light will may momentarily flash when the KEY SWITCH is turned "ON". The panel will not operate.

If a RAISE or LOWER function of the Leveling System is in use, MANUAL or AUTOMATIC operation, the READY TO OPERATE light will flash if the KEY SWITCH is in the "ON" position. The room will not operate.

## 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.

The light will be on if the suspension has low pressure, if the Leveling System is on, if the Leveling System is not in the TRAVEL mode, or if a room in limit switch is not made.



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# CONTROL IDENTIFICATION

## PUMP RUN TIME

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### 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.**

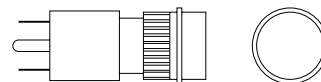
Some systems can be turned back on immediately after the processor turns the pump off. **DO NOT turn the system back on or run the pump without allowing the pump motor to cool for thirty minutes.**

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.

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# OPERATING PROCEDURES

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## GENERAL INSTRUCTIONS

Turn the ignition to the "ON" or "ACC" position to turn the SYSTEM CONTROL panel on.

Push the "HOME" button to return the SYSTEM CONTROL panel to HOME PAGE 1. Any function that is to be operated from the SYSTEM CONTROL panel can only be accessed from HOME PAGE 1. Individual screen functions are explained in this section.

The SYSTEM CONTROL screen will exhibit messages to the operator when there is a problem or malfunction in the system or when a function cannot be used. The "HOME" button must be pushed to acknowledge the message. The malfunction or situation must be corrected before proceeding.

**WARNING: ANYTIME A "WARNING" MESSAGE APPEARS ON THE CONTROL SCREEN, IT IS THE OPERATORS RESPONSIBILITY TO CORRECT THE PROBLEM TO ENSURE SAFE OPERATION OF THE VEHICLE AND ITS SYSTEMS.**

Push the "STOP" button to stop any function. Pushing the "STOP" button will turn the SYSTEM CONTROL panel off. Push the "RESET" button to turn the panel on if the "STOP" button is pushed. The ignition must be on for the "RESET" button to work.

**WARNING: THE ACTIVE AIR SUSPENSION CANNOT FUNCTION IF THE SYSTEM CONTROL PANEL IS OFF.**

The Air Leveling system cannot be activated if the park brake is not set.

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

## PREPARATION FOR TRAVEL

When the leveling system has been used, push the "TRAVEL" button to return the system to the traveling mode.

**NOTE: If the ignition is on and the park brake is released, the vehicle will return to ride height unless the "STOP" button has been pushed.**

Check that the vehicle is at the proper ride height for traveling. When the SUSPENSION Light is flashing "INITIALIZING", the vehicle is not at ride height.

The SYSTEM CONTROL PANEL should be on when traveling.

**WARNING: DO NOT RELY SOLELY UPON WARNING LIGHTS. IT IS THE OPERATOR'S RESPONSIBILITY TO CHECK THAT 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. ALL ROOM EXTENSIONS OR GENERATOR SLIDES SHOULD BE FULLY RETRACED BEFORE TRAVELING.**

## TAG DUMP

**IMPORTANT: REFER TO THE VEHICLE MANUFACTURER FOR PROPER USE OF THE TAG FEATURE.**

The system must be at ride height, the ignition must be on and the park brake off for the tag feature to function. If the park brake is set or if the vehicle is traveling faster than approximately 10 mph the tag will return to the travel position.

To use the tag feature, push the "TAG" button. The "TAG" letters will turn blue with a white background. The tag feature will remain on until the "TAG" button is pushed again or the vehicle exceeds approximately 10 mph. The "TAG" letters will turn white with a blue background when the feature is off.

It is recommended to have the tag in the travel position before using the leveling system.

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# OPERATING PROCEDURES

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## TOWING

**WARNING:** THESE INSTRUCTIONS ARE FOR THE HWH ACTIVE AIR EQUIPMENT AND MANUAL INFLATION OF THE VEHICLE SUSPENSION AIR BAGS. CONSULT THE VEHICLE MANUFACTURER FOR COMPLETE TOWING INSTRUCTIONS.

There is a Schrader valve supplied for each air bag or sets of air bags on the vehicle suspension. They are labeled as follows: RIGHT FRONT - LEFT FRONT  
RIGHT DRIVE AXLE - LEFT DRIVE AXLE  
If Applicable: RIGHT TAG AXLE - LEFT TAG AXLE

**NOTE:** A Schrader valve is the same type of valve used to inflate or deflate a tire.

Consult the vehicle manufacturer for the specific location of the air bag Schrader valves and proper ride height for towing.

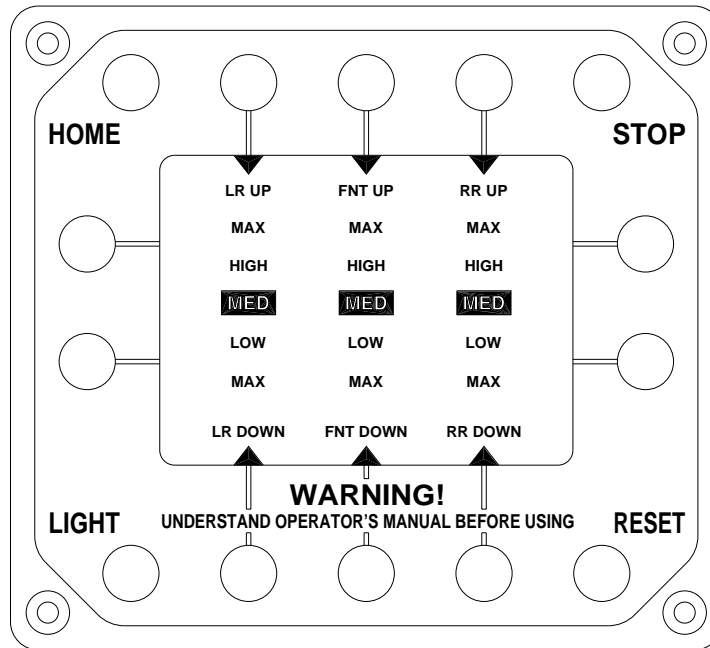
The HWH Active Air Control Panel must be OFF when using the manual air bag Schrader valves and during towing. Push the "STOP" button to turn the Active Air Control Panel OFF. The ignition key should also be "OFF" while towing.

**NOTE:** With the HWH Active Air System OFF during towing, the air bags may be controlled only from the Schrader valves. Monitor and maintain proper travel height during towing using the Schrader valves.

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# OPERATING PROCEDURES

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**SUSPENSION CONTROL SCREEN**

## INDICATORS

This page is accessed by pushing "SUSPENSION" on the HOME PAGE.

This screen is used to control the ride height of the vehicle. There are five predetermined suspension positions.

Push UP or DOWN buttons to move the indicator light one position.

**NOTE: Pushing and holding a button will move an indicator one position only.**

## BUTTONS

**LR UP:** This will raise the LEFT REAR one position.

**FNT UP:** This will raise the FRONT one position.

**RR UP:** This will raise the RIGHT REAR one position.

**LR DOWN:** This will lower the LEFT REAR one position.

**FNT DOWN:** This will lower the FRONT one position.

**RR DOWN:** This will lower the RIGHT REAR one position.

**MED:** When the indicator is in this position the suspension should be at the normal ride height for traveling.

**HIGH:** When the indicator is in this position the suspension should be approximately one-half (1/2) inch HIGHER than normal ride height.

**LOW:** When the indicator is in this position the suspension should be approximately one-half (1/2) inch LOWER than normal ride height.

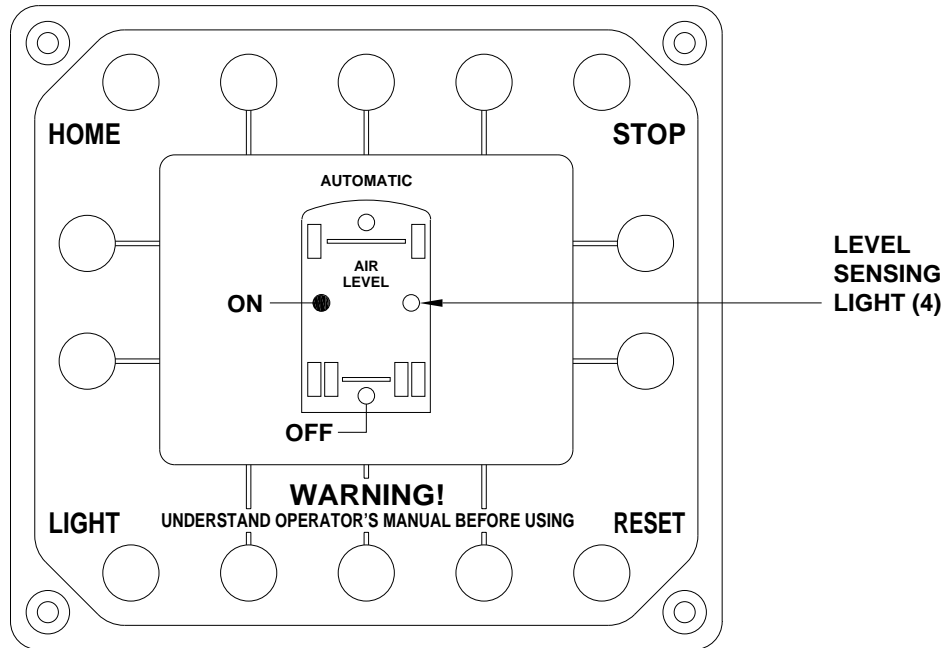
**MAX:** When this indicator is in this position, the suspension will be at it's MAXIMUM height if an UP button is used OR the suspension will be at it's LOWEST point if a DOWN button is used.

If either rear button is pushed to MAX UP or MAX DOWN, the other side will follow.

**NOTE: The system monitors the transmission speed switch. The system will not allow the suspension to move to the MAX position, UP or DOWN when the vehicle is moving faster than the setting of the speed switch. This is usually between 5 MPH to 15 MPH. If the suspension is set to the MAX position, when the setting of the speed switch is exceeded, the system will default to the MED position. This would be normal ride height for the vehicle.**

**IMPORTANT: Any time the RESET button is pushed while traveling, the system will default to the MED position, normal ride height.**

# OPERATING PROCEDURES



## AUTOMATIC AIR LEVELING

**WARNING:** KEEP PEOPLE AND OBJECTS CLEAR OF THE VEHICLE WHILE OPERATING THE LEVELING SYSTEM.

**NOTE:** It is recommended the tag axle (if so equipped) is in the travel position before using the air leveling system. If the tag lift function is on, push the "TAG" button to turn the tag lift feature off.

The ignition key must be on and the park brake must be set to use automatic air leveling. If the ignition and/or the park brake are not on, a message will appear on the screen when the "AUTO AIR" button is pushed. Push the "HOME" button and correct the problem before pushing the "AUTO AIR" button again.

**NOTE:** Automatic leveling and automatic store can only be started when the "HOME" page is being displayed.

The system will level the vehicle according to level sensing lights. A lit level sensing light indicates that side, end or corner of the vehicle is low. When all level sensing lights are out the vehicle is level.

**NOTE:** Only one or two LEVEL SENSING lights may be on at one time.

1. Turn the ignition key on and set the park brake. 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.

2. Push the "AUTO AIR" button on the HOME page. The AUTOMATIC AIR LEVEL page will appear. The air leveling process will begin. The system first exhaust air from all of the air bags. If a level position is not achieved by lowering the vehicle, the low side and/or end of the vehicle will be raised by adding air to the air bags. When all four yellow LEVEL SENSING lights are out the leveling is complete. The system will be in the SLEEP MODE. The screen will display a message for 45 seconds, then return to the HOME PAGE. The screen will turn off after 5 minutes if the ignition is turned off.

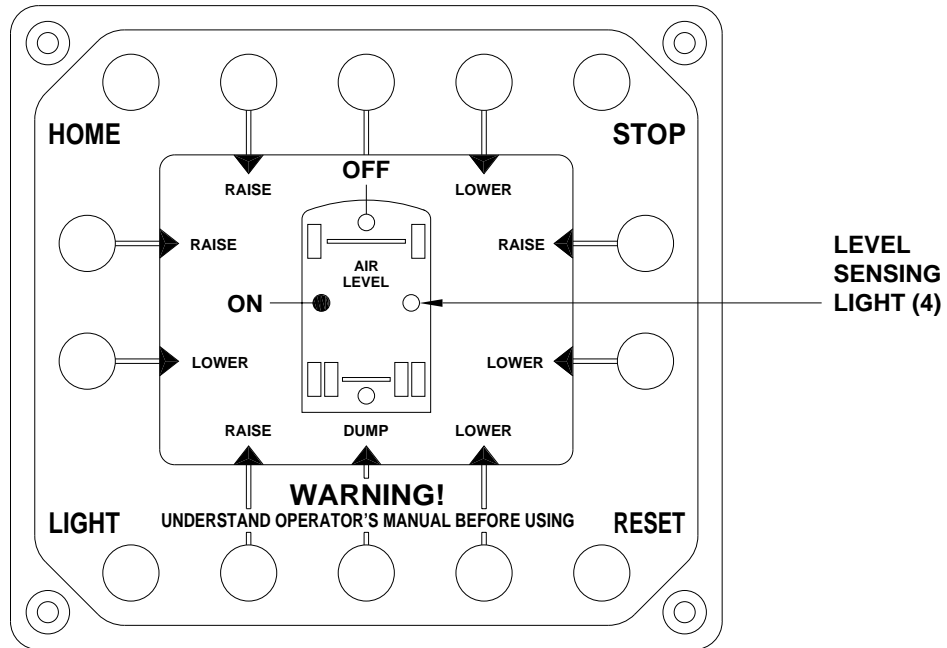
3. SLEEP MODE: If automatic air leveling is successful the system will be in the SLEEP MODE when all 4 level sensing lights go out. The system will remain in the SLEEP MODE until the "STOP" button is pushed or the park brake is released with the ignition on.

**NOTE:** The system will remain in the SLEEP MODE even with the screen off.

In the SLEEP MODE, the system will check the level sensing unit every 30 minutes. If an input is on continuously for one minute, the system will relevel the vehicle.

**EXCESS SLOPE:** The system will attempt to level the vehicle for 15 to 20 minutes. If the automatic leveling attempt is not successful, the system will go into EXCESS SLOPE. The screen will display an EXCESS SLOPE message. This message will remain on the screen until the "HOME" button is pushed or if the ignition is off, the screen will turn off 10 minutes later.

# OPERATING PROCEDURES



## MANUAL AIR LEVELING

**WARNING:** KEEP PEOPLE AND OBJECTS CLEAR OF THE VEHICLE WHILE OPERATING THE AIR LEVELING SYSTEM.

**NOTE:** It is recommended the tag axle is in the travel position before using the air leveling system. If the tag lift function is on, push the "TAG" button to turn the tag lift feature off.

1. Place the ignition key in the "ON" position. Transmission must be in the proper position for parking and the park brake must be set to use MANUAL AIR LEVELING. Running the vehicle 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.

2. Push the "MAN AIR" button located on "HOME PAGE 1". If the ignition and/or the park brake are not in the recommended positions, when the "MAN AIR" button is pushed, a message will appear on the screen. Push the "HOME" button and correct the problem before pushing the "MAN AIR" button again.

The LEVEL SENSING LIGHTS indicate which side, end or corner of the vehicle is low. No more than two level lights should be on at any one time. The vehicle is level when all LEVEL SENSING LIGHTS are off.

3. To level, use the "LOWER" buttons to exhaust air from the corresponding air bags. Use the "RAISE" buttons to add air to the corresponding air bags. The "RAISE" and "LOWER" buttons are momentary buttons. The bags will inflate or deflate only when the buttons are being pushed.

**NOTE:** Any side to side leveling should be done, if needed, before leveling the vehicle front to rear.

Try leveling the vehicle by lowering the high side or end (opposite of the lit level lights). If a level position is not achieved use the RAISE button to raise the low side or end.

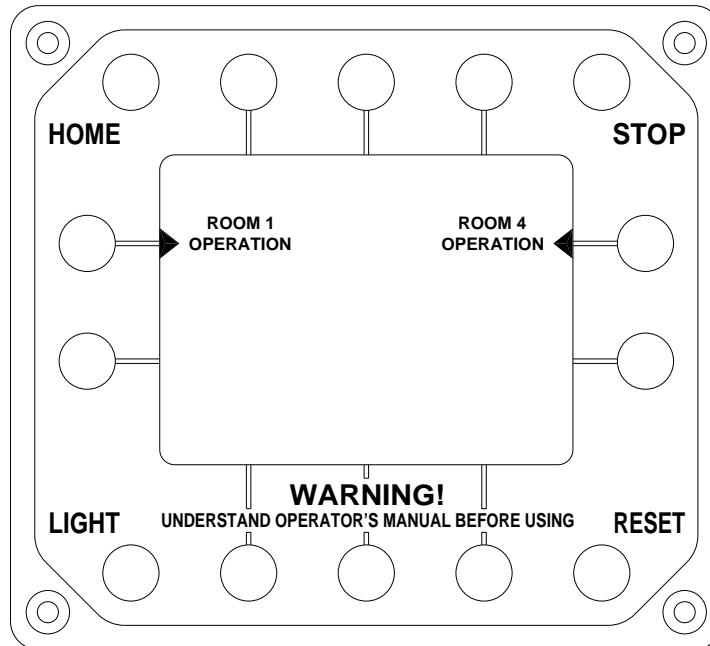
**NOTE:** Pushing and holding the "DUMP" button will exhaust air from all bags of the vehicle suspension.

4. When the leveling procedure is complete, the engine can be turned off.

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# OPERATING PROCEDURES

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## ROOM SELECTION

1. Push the "ROOM" button on the "HOME" page to access the ROOM SELECTION page.
2. Push the corresponding button to select a room extension that is to be operated. A ROOM OPERATION page will be displayed.

The park brake must be set to access the ROOM SELECTION page. If the park brake is not set, a message will appear when the ROOM button on the "HOME" page is pushed. The operator is directed to push the "HOME" button and correct the problem.

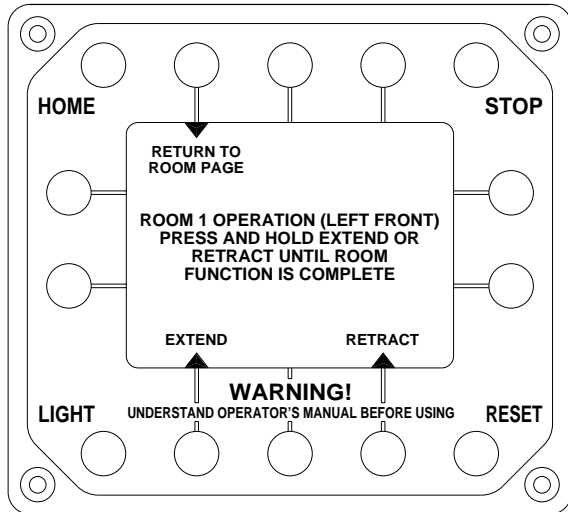
If an attempt to level the vehicle in an automatic leveling mode fails putting the system in an EXCESS SLOPE situation, rooms cannot be extended. Individual ROOM OPERATION pages can be accessed from the ROOM SELECTION page, but when the EXTEND button is pushed, a message will appear directing the operator to push the HOME button and resolve the EXCESS SLOPE situation.

Rooms can be retracted when the leveling system is in an EXCESS SLOPE situation.

**NOTE: See "EXCESS SLOPE" in the AUTOMATIC HYD or AIR procedures for detailed explanation of "EXCESS SLOPE".**

# OPERATING PROCEDURES

## LCD ROOM CONTROL



### ROOM 1 EXTEND / RETRACT PAGE

**WARNING:** OPERATING A ROOM WITH ANY ROOM LOCKING, CLAMPING OR MANUAL RETRACTING DEVICES ATTACHED OR ENGAGED CAN CAUSE PERSONAL INJURY AND VEHICLE DAMAGE. IT IS THE OPERATOR'S RESPONSIBILITY TO ENSURE THAT ALL ROOM LOCKING, CLAMPING OR MANUAL RETRACTING DEVICES ARE DETACHED OR DISENGAGED BEFORE OPERATING THE ROOM.

It is recommended to complete the Leveling Procedure before operating room extensions.

1. Unlock all room-locking devices.

**NOTE:** If a MANUAL RETRACT device is attached to the room remove it before extending the room.

**WARNING:** KEEP PEOPLE AND OBSTRUCTIONS CLEAR OF ROOM WHEN OPERATING.

**NOTE:** Make sure there is adequate clearance to fully extend the room.

2. To extend the room, press and hold the "EXTEND" button until the room is fully extended.

**NOTE:** Hold the "EXTEND" button three or four seconds after the room is fully extended. This assures proper pressurization of the cylinders. **During normal operation of the room, do not reverse direction of the room until the room is fully extended. If necessary, the direction of the room may be reversed, but watch for binding of the room. If the direction of the room has been reversed, DO NOT re-extend the room until the room has been fully retracted.**

**IMPORTANT:** Do not hold the room "EXTEND" button for more than ten seconds after the room is fully extended or stops moving. **If either side of the room stops moving, release the "EXTEND" button immediately. DO NOT force the room. DO NOT reverse direction of the room, contact HWH Customer Service for assistance 1-800-321-3494.**

**NOTE:** Releasing the "EXTEND" button will halt the operation of the room.

### ROOM RETRACT PROCEDURE

**WARNING:** KEEP PEOPLE AND OBSTRUCTIONS CLEAR OF ROOM WHEN OPERATING.

It is recommended to retract room extensions before retracting the hydraulic leveling system.

1. To extend the room, press and hold the "RETRACT" button until the room is fully extended.

**NOTE:** Hold the "RETRACT" button three or four seconds after the room is fully extended. This assures proper pressurization of the cylinders. **During normal operation of the room, do not reverse direction of the room until the room is fully retracted. If necessary, the direction of the room may be reversed, but watch for binding of the room. If the direction of the room has been reversed, DO NOT retract the room until the room has been fully extended.**

**IMPORTANT:** Do not hold the ROOM CONTROL SWITCH in the "RETRACT" position for more than ten seconds after the room is fully retracted or stops moving. **If either side of the room stops moving, release the room control switch immediately. DO NOT force the room. DO NOT reverse direction of the room, contact HWH Customer Service for assistance 1-800-321-3494.**

**NOTE:** Releasing the room "EXTEND" button will halt the operation of the room.

2. Engage all room-locking devices.

3. If the room will not retract see the MANUAL ROOM RETRACT PROCEDURE.

**IMPORTANT:** Room-locking devices should be locked while traveling.

**RETURN TO ROOM PAGE BUTTON:** This button will return the screen to the ROOM SELECTION page.



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# OPERATING PROCEDURES

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## ROOM EXTEND PROCEDURE

1. The park brake must be set for the room to be operated. If the park brake is not set when the room panel key switch is turned on, the amber "READY TO OPERATE" light may flash momentarily but will not stay on. The room will not extend. If the system is in "EXCESS SLOPE" mode, the room cannot be extended.

**Make sure the door or a window is open while extending a room.**

**IMPORTANT:** If the system is in "EXCESS SLOPE" mode, the vehicle must be re-leveled so all yellow LEVEL indicator lights on the AUTOMATIC or MANUAL AIR LEVELING page are OFF before the room can be extended. If any of the four yellow LEVEL indicator lights cannot be put out, the vehicle should be moved to a more level location before using the room extension.

**CAUTION:** KEEP PEOPLE AND OBSTRUCTIONS CLEAR OF ROOM WHEN OPERATING.

**NOTE:** Make sure there is adequate clearance to fully extend the room.

2. It is recommended to move the room select switch to the desired position before turning the panel key switch

3. Insert the KEY into the KEY SWITCH on the room extension operator's panel and turn it to the "ON" position. The amber READY TO OPERATE light will flash. When the amber light is on steady the room can be operated.

**NOTE:** If there is an issue with the air seal manifold, the amber light will flash rapidly. The room will still function.

**NOTE:** Anytime the KEY SWITCH is on, the room air seal will deflate. The panel is equipped with a room select switch. Any time the panel key switch is on, the air seal for the room indicated by the room select switch will deflate.

**NOTE:** If the Leveling System is being operated, the room will not extend. If the room panel KEY SWITCH is on, the "READY TO OPERATE" light will flash while the Leveling System is being operated.

4. To extend the room, push and hold the ROOM CONTROL SWITCH in the extend position. The red PUMP ON light will come on. When the room is fully extended, the pump will automatically shut off. The red PUMP ON light will go out. Do not release the ROOM CONTROL SWITCH, until the red PUMP ON light goes out. **If the red PUMP ON light remains on 30 seconds after the room is fully extended release the room control switch.**

**NOTE:** The room is equipped with an air seal, the air seal is monitored by a vacuum switch to make sure the air seal is deflated. While the Room Control Switch is being pushed a loss of vacuum in the air seal will not halt the movement of the room.

**NOTE:** Under normal operation of the room, the direction of movement should not be reversed. If the movement of the room must be reversed, do not try to re-extend the room until the room has been fully retracted.

**IMPORTANT:** IF EITHER SIDE OF THE ROOM STOPS MOVING, RELEASE THE ROOM CONTROL SWITCH IMMEDIATELY. THE ROOM OPERATION WILL HALT. DO NOT FORCE THE ROOM. DO NOT REVERSE DIRECTION OF THE ROOM. BINDING OF ROOM CAN CAUSE ROOM DAMAGE. CONTACT HWH CORPORATION CUSTOMER SERVICE FOR ASSISTANCE.

**NOTE:** The READY TO OPERATE light will flash when the room control switch is pushed if the "EXCESS SLOPE" light on the Leveling System panel is ON. The room will not extend.

5. Turn the KEY SWITCH to the "OFF" position and remove the key. The READY TO OPERATE light will go out. The air seal will inflate.

**NOTE:** If the KEY SWITCH is left "ON" the air seal will not inflate and the Network will stay active and not power down.

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# OPERATING PROCEDURES

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## ROOM RETRACT PROCEDURE

**CAUTION: KEEP PEOPLE AND OBSTRUCTIONS CLEAR OF ROOM WHEN OPERATING.**

**Make sure the door or a window is open while retracting a room.**

1. The park brake must be set for the room to be operated. If the park brake is not set when the room panel key switch is turned on, the amber "READY TO OPERATE" light may flash momentarily but will not stay on. The room will not retract.

2. It is recommended to move the room select switch to the desired position before turning the panel key switch on.

3. Insert the KEY into the KEY SWITCH on the room extension operator's panel and turn it to the "ON" position. The air seal will deflate. The READY TO OPERATE light will flash. When the amber light is on steady the room can be operated. If there is an issue with the air seal manifold, the amber light will flash rapidly. The room will still function.

**NOTE: If the Leveling System is being operated, the room will not retract. If the room panel KEY SWITCH is on, the "READY TO OPERATE" light will flash while the Leveling System is being operated.**

4. To retract the room, push and hold the ROOM CONTROL SWITCH in the retract position. The red PUMP ON light will come on. When the room is fully retracted, the pump will automatically shut off. The red PUMP ON light will go out. Do not release the ROOM CONTROL SWITCH, until the red PUMP ON light goes out. **If the red PUMP ON light remains on 30 seconds after the room is fully retracted release the room control switch.**

**NOTE: Under normal operation of the room, the direction of movement should not be reversed. If the movement of the room must be reversed, do not try to retract the room until the room has been fully extended.**

**IMPORTANT: IF EITHER SIDE OF THE ROOM STOPS MOVING, RELEASE THE ROOM CONTROL SWITCH IMMEDIATELY. THE ROOM OPERATION WILL HALT. DO NOT FORCE THE ROOM. DO NOT REVERSE DIRECTION OF THE ROOM. BINDING OF ROOM CAN CAUSE ROOM DAMAGE. CONTACT HWH CORPORATION CUSTOMER SERVICE FOR ASSISTANCE.**

5. Turn the KEY SWITCH to the "OFF" position and remove the key. The READY TO OPERATE light will go out. The air seal will inflate.

**NOTE: If the KEY SWITCH is left "ON" the air seal will not inflate.**

**IN THE EVENT OF THE FAILURE OF THE ROOM TO RETRACT, CONTACT HWH CORPORATION CUSTOMER SERVICE AT 1-800-321-3494 FOR ASSISTANCE.**

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# OPERATING PROCEDURES

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## GENERATOR SLIDE EXTEND PROCEDURE

**WARNING:** KEEP PEOPLE AND OBSTRUCTIONS CLEAR OF SLIDE WHEN OPERATING.

**NOTE:** Make sure there is adequate clearance to fully extend the slide.

1. **THE PARK BRAKE MUST BE SET FOR THE SLIDE TO OPERATE.**

2. To extend the slide, press and hold the GENERATOR SLIDE CONTROL SWITCH in the "EXTEND" position. When the slide is fully extended, release the GENERATOR SLIDE CONTROL SWITCH.

**IMPORTANT:** Do not hold the GENERATOR SLIDE CONTROL SWITCH in the "EXTEND" position for more than ten seconds after the slide is fully extended or stops moving. **DO NOT FORCE THE SLIDE.**

**NOTE:** Releasing the GENERATOR SLIDE CONTROL SWITCH will halt the operation of the slide.

## GENERATOR SLIDE RETRACT PROCEDURE

1. **THE PARK BRAKE MUST BE SET FOR THE SLIDE TO OPERATE.**

2. To retract the slide, press and hold the GENERATOR SLIDE CONTROL SWITCH in the "RETRACT" position. When the slide is fully retracted, release the GENERATOR SLIDE CONTROL SWITCH.

**IMPORTANT:** Do not hold the GENERATOR SLIDE CONTROL SWITCH in the "RETRACT" position for more than ten seconds after the slide is fully retracted or stops moving. **DO NOT FORCE THE SLIDE.**

**NOTE:** Releasing the GENERATOR SLIDE CONTROL SWITCH will halt the operation of the slide.

3. If the slide will not retract see the MANUAL SLIDE RETRACT PROCEDURE.

# MANUAL ROOM AND GENERATOR SLIDE RETRACT PROCEDURE

(USE ONLY WHEN THE ROOM WILL NOT RETRACT WITH THE ROOM CONTROL SWITCH)

## OVERVIEW

The room can be retracted manually if a hydraulic or electric failure prevents the room from being retracted using the CONTROL SWITCH. For normal retract sequence see the ROOM SLIDE RETRACT PROCEDURES. Refer to the vehicle manufacturer for storage location of the retract device and information for connecting the device to the room.

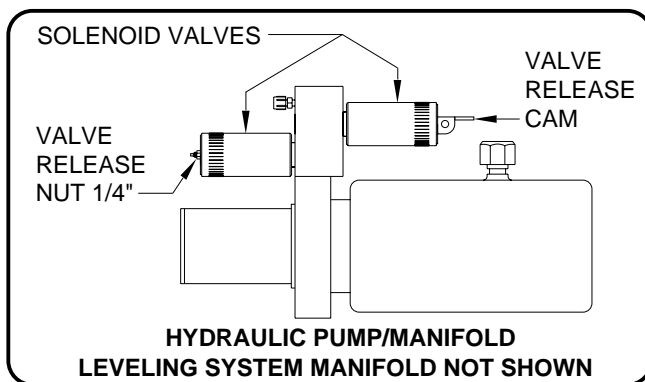
**IMPORTANT:** If the vehicle is not equipped with a winch, DO NOT use other pulling devices to retract the room. Follow steps 2 and 3 and try pushing the room in. Contact the vehicle manufacturer or HWH Customer Service at 1-800-321-3494 or 563-724-3396 for assistance.

**WARNING:** A MANUAL RETRACT WINCH PROVIDED BY HWH IS EQUIPPED FOR MANUALLY RETRACTING THE ROOM ONLY. IT IS NOT TO BE USED FOR LIFTING OR ANY OTHER APPLICATION. HIGH FORCES ARE CREATED WHEN USING A WINCH, CREATING POTENTIAL SAFETY HAZARDS. FAILURE TO FOLLOW ALL WARNINGS AND INSTRUCTIONS MAY CAUSE FAILURE OF THE MANUAL RETRACT WINCH OR CONNECTIONS RESULTING IN DAMAGE OR PERSONAL INJURY. MAINTAIN A FIRM GRIP ON THE WINCH HANDLE AT ALL TIMES. NEVER RELEASE THE HANDLE WHEN RATCHET LEVER IS IN THE OFF POSITION AND THE WINCH IS LOADED. THE WINCH HANDLE COULD SPIN VIOLENTLY AND CAUSE PERSONAL INJURY. CHECK THE WINCH AND STRAPS FOR DAMAGE OR WEAR, AND CHECK FOR PROPER RATCHET OPERATION ON EACH USE OF THE WINCH. DO NOT USE IF DAMAGED OR WORN.

1. Retract jacks following the LEVELING SYSTEM RETRACT PROCEDURE.

**NOTE :** When manually retracting the room, it is recommended the jacks are retracted before retracting the room.

2. Locate the HYDRAULIC PUMP and/or MANIFOLD unit. Some systems may have a remote manifold.



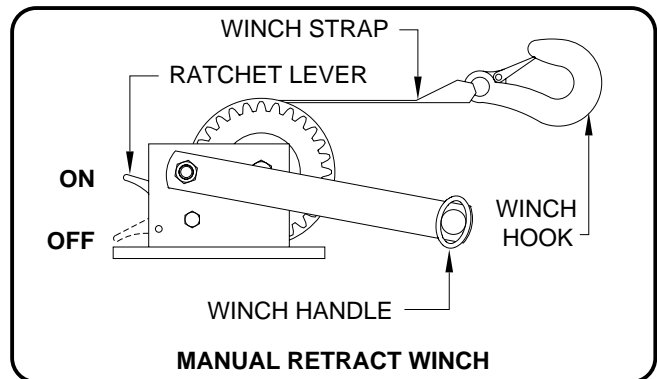
3. Open Nut Style Solenoid Valves by slowly turning the valve release nut counter clockwise using a 1/4" nut driver.

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

Open Cam Style Solenoid Valves by following the instructions located on the last page of this manual MP84.9999.

**NOTE:** The room may move slightly as the SOLENOID VALVES are opened and internal pressure is released.

4. Locate the MANUAL RETRACT DEVICE and connect it to the room according to the vehicle manufacturer's instructions. To extend a WINCH STRAP firmly grasp WINCH HANDLE, place RATCHET LEVER in its OFF position, and slowly rotate the WINCH HANDLE counter clockwise, keeping a firm grip on the handle. When enough WINCH STRAP is extended, place the RATCHET LEVER in its ON position and slowly rotate the WINCH HANDLE clockwise until the RATCHET LEVER locks.



5. Slowly winch the room in by turning the WINCH HANDLE clockwise. The RATCHET LEVER should produce a loud, sharp, clicking noise.

**NOTE:** Winching the room in quickly will raise pressure in the hydraulic fluid and make winching more difficult.

**WARNING:** OPERATE THE MANUAL RETRACT WINCH BY HAND POWER ONLY. IF THE WINCH CANNOT BE CRANKED EASILY WITH ONE HAND IT IS PROBABLY OVERLOADED. IF WINCHING BECOMES TO DIFFICULT STOP AND CHECK FOR OBSTRUCTIONS/RESTRICTIONS ON THE ROOM AND ROOM EXTENSION MECHANISM.

6. When the room is fully retracted, engage the room locking devices. Leave the retract winch engaged and the solenoid valves open.

**WARNING:** THE ROOM EXTENSION SOLENOID VALVE RELEASE MUST BE IN THE OPEN POSITION WHEN THE MANUAL RETRACT WINCH IS ENGAGED.

7. The system should be repaired before using again.

**NOTE:** After repairs are made, when closing the VALVE RELEASE NUTS, do not over tighten the nuts.

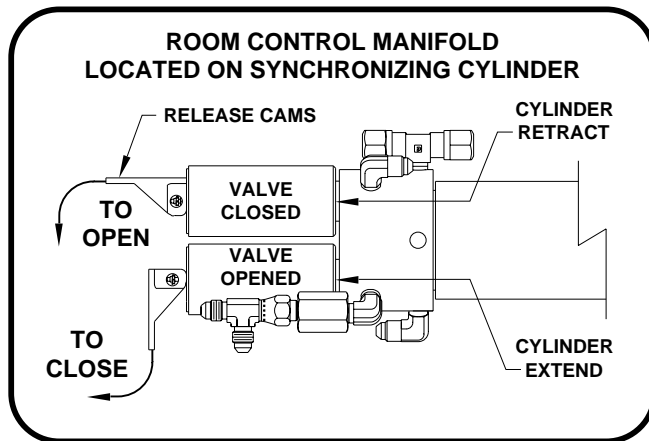
# OPERATING PROCEDURES

## "UNIVERSAL STRAIGHT OUT" ROOM EXTENSION MECHANISM

### MANUAL ROOM RETRACTION PROCEDURES - VALVES WITH RELEASE CAMS

1. Determine which synchronizing cylinder controls the room. Manually open the valve release cams for the extend and retract solenoid valves by moving the valve release cam to the open position.

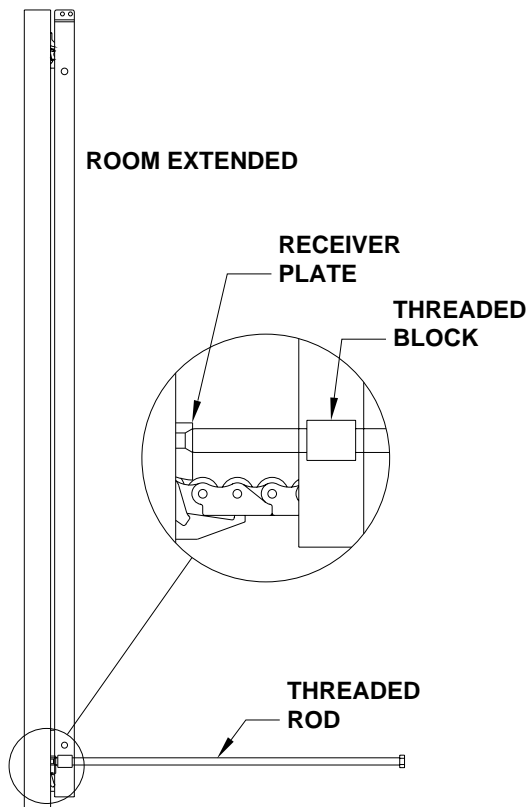
**NOTE: The valve release cam might be rotated in any direction on the valve. Pushing the release cam in the wrong direction could damage the valve.**



2. Start both threaded rods until resistance is met, one for the front and one for the rear mechanism should be provided.

**NOTE: To access the threaded blocks refer to vehicle manufacturer.**

3. **Do Not use an impact wrench.** Using wrench provided, a personal wrench or a tire iron with a 1-1/8" opening rotate either mechanism's threaded rod clockwise 6 complete turns.



4. Move to the other room extension mechanism, rotate the threaded rod clockwise 12 complete turns.

5. Return to the first room extension mechanism and rotate the threaded rod clockwise 12 complete turns.

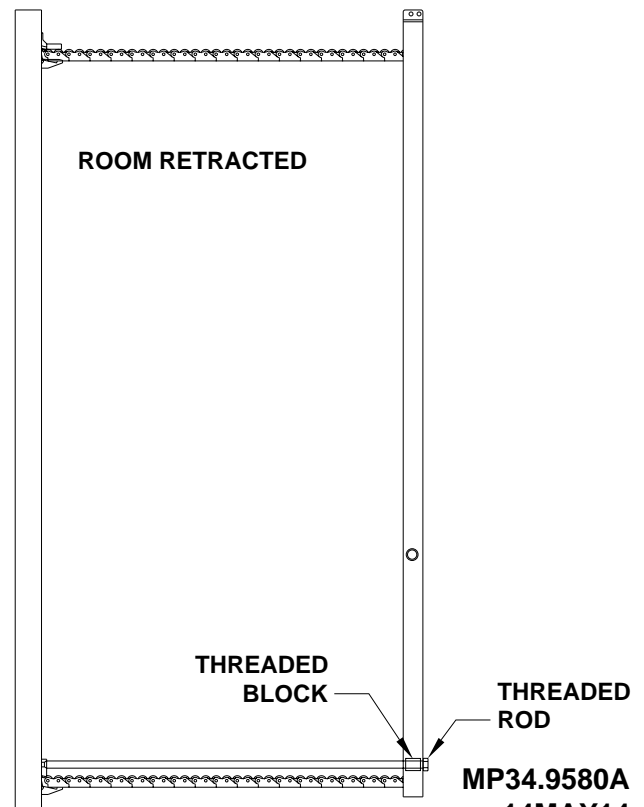
6. Repeat steps 4 and 5 alternating from mechanism to mechanism rotating each threaded rod 12 complete turns until room is sealed. (DO NOT exceed 15 ft.lbs) Make sure the room does not bind.

**IMPORTANT: If at any stage something is not understood or if the room begins to bind DO NOT force the room, contact HWH Customer Service for assistance 1-800-321-3494.**

**NOTE: Leave the solenoid valves open and the threaded rods in place until the room has been serviced.**

**IMPORTANT: DO NOT EXTEND THE ROOM UNTIL THE ROOM HAS BEEN SERVICED. ANY SOLENOID VALVES LEFT OPEN SHOULD BE CLOSED AND THE THREADED RODS SHOULD BE COMPLETELY REMOVED.**

**NOTE: If there is not enough room to remove both threaded rods completely, alternate backing the threaded rods out and slightly extending the room. Be careful to not extend the room so far that the threaded rods impact the coach wall or the mechanism.**



# OPERATING PROCEDURES

## UNIVERSAL LEVEL IN/LEVEL OUT ROOM EXTENSION MECHANISM

### MANUAL ROOM RETRACTION PROCEDURES - SPLINED TORSION SHAFT

#### PAGE 1 OF 2

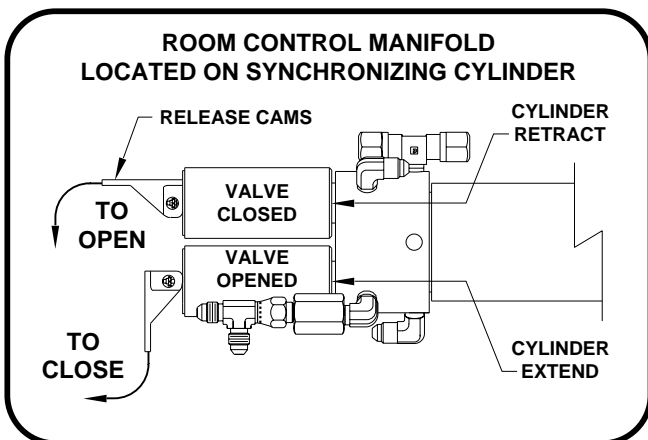
In the event of a hydraulic failure, including the hand pump, if so equipped, the room and floor can be manually retracted.

**IMPORTANT: KEEP PEOPLE CLEAR OF THE ROOM WHEN MANUALLY RETRACTING THE ROOM. MAKE SURE THERE ARE NO OBJECTS SUCH AS CARPET, CHAIRS, ETC. BLOCKING OR INTERFERING WITH THE MOVEMENT OF THE FLOOR OR ROOM.**

To manually retract room, first the floor must be completely lowered. The floor raise / lower mechanism must be accessed to accomplish this. An area closest to the floor lift cylinder is the best area to use. A spline wrench which will be needed to turn the main mechanism spline shaft is wire tied to the main floor lift cylinder.

1. Determine which extend and retract solenoid valves are assigned to the room. Open both valves by moving the valve release cam to the open position as shown in the following diagram. If the correct valves cannot be identified, open all room control valves. Do not open any jack control valves, if so equipped.

**IMPORTANT: ONLY MOVE THE RELEASE CAM IN THE DIRECTION SHOWN. MOVING THE CAM IN THE OPPOSITE DIRECTION CAN DAMAGE THE VALVES.**



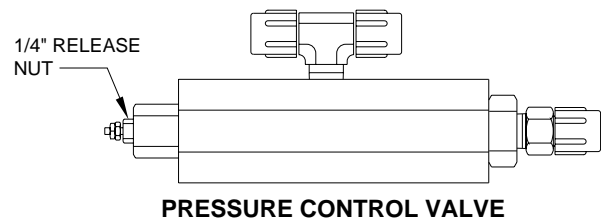
2. Locate the pressure control valve. This valve must be opened to lower the floor. The pressure control valve is wire tied to the synchronizing cylinder or mounted directly to the main floor lift cylinder. (See the hydraulic diagram or contact HWH Corporation) The end of the valve has a 1/4" release nut. Use a 1/4" nut driver to turn the nut 4 & 1/2" turns counterclockwise. DO NOT turn the nut more than 5 turns or damage to the valve can occur.

3. Access the splined shaft as close to the main floor lift cylinder as possible. (See floor lift mechanism diagram.)

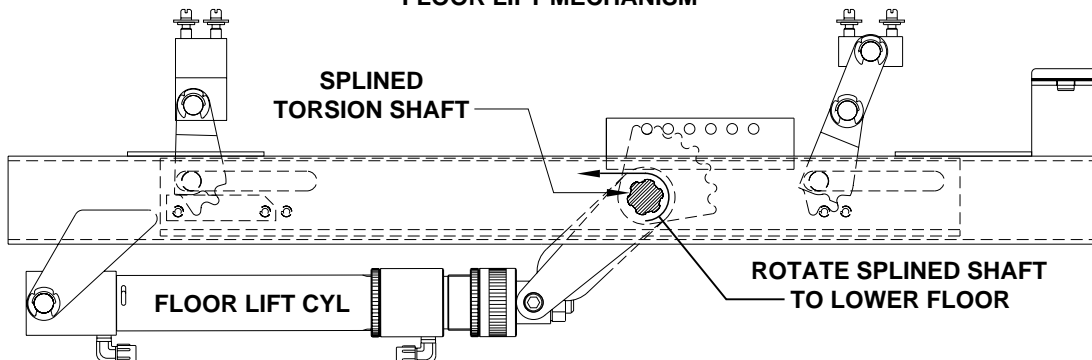
4. Use the spline wrench provided, to rotate the splined shaft in the direction shown in the floor lift mechanism diagram. The floor lift cylinder should extend as the floor lowers to the store position.

5. When the floor is completely lowered, the room can be retracted. Proceed to page 2 for manual room retraction instructions.

**NOTE: The floor should not be raised hydraulically or manually until the system has been serviced.**



SIDE VIEW  
FLOOR LIFT MECHANISM



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# OPERATING PROCEDURES

## UNIVERSAL LEVEL IN/LEVEL OUT ROOM EXTENSION MECHANISM

### MANUAL ROOM RETRACTION PROCEDURES - SPLINED TORSION SHAFT

#### PAGE 2 OF 2

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1. After the floor is completely lowered, the room can be retracted. Leave the synchronizing cylinder solenoid valves open and proceed to step 2.
2. Start both threaded rods until resistance is met, one for the front and one for the rear mechanism should be provided.

**NOTE: To access the threaded blocks refer to vehicle manufacturer.**

3. **Do Not use an impact wrench.** Using wrench provided, a personal wrench or a tire iron with a 1-1/8" opening rotate either mechanism's threaded rod clockwise 6 complete turns.
4. Move to the other room extension mechanism, rotate the threaded rod clockwise 12 complete turns.
5. Return to the first room extension mechanism and rotate the threaded rod clockwise 12 complete turns.

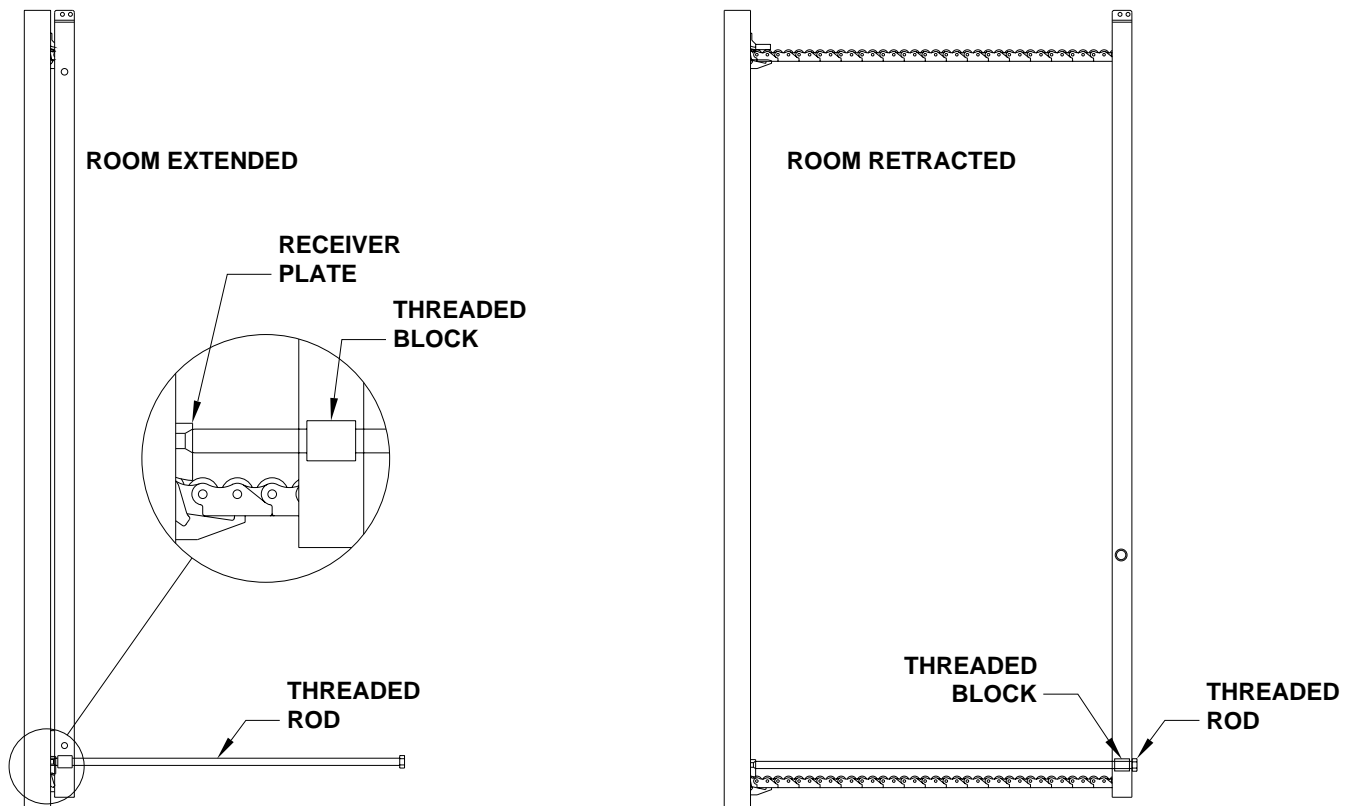
6. Repeat steps 4 and 5 alternating from mechanism to mechanism rotating each threaded rod 12 complete turns until room is sealed. (DO NOT exceed 15 ft.lbs) Make sure the room does not bind.

**IMPORTANT: If at any stage something is not understood or if the room begins to bind DO NOT force the room, contact HWH Customer Service for assistance 1-800-321-3494.**

**NOTE: Leave the solenoid valves open and the threaded rods in place until the room has been serviced.**

**IMPORTANT: DO NOT EXTEND THE ROOM UNTIL THE ROOM HAS BEEN SERVICED. ANY SOLENOID VALVES LEFT OPEN SHOULD BE CLOSED AND THE THREADED RODS SHOULD BE COMPLETELY REMOVED.**

**NOTE: If there is not enough room to remove both threaded rods completely, alternate backing the threaded rods out and slightly extending the room. Be careful to not extend the room so far that the threaded rods impact the coach wall or the mechanism.**



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# MAINTENANCE

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## OIL LEVEL

All maintenance should be done as part of the normal servicing of the coach.

The oil level should be checked when the vehicle is first purchased and then once every two years. More often if there is an oil leak in the system.

Any HWH hydraulic equipment, including jacks, slide-outs and steps should be fully retracted before checking fluid level. The oil reservoir is part of the pump / manifold assembly. The oil level is checked and filled through the breather cap. Clear any dirt away from the breather / filler cap before removing.

The oil level should be within one inch of the top of the reservoir. Most breather caps have a dipstick. Fluid level should be between the bottom of the dipstick and the center mark.

**NOTE: Overfilling the tank can cause leakage of oil through the breather cap.**

**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.

## ROOM EXTENSIONS

The HWH room mechanisms need no maintenance. **DO NOT** grease or lubricate any parts of the HWH mechanism.

Any visible mechanism can be kept clean by washing with water. Refer to the vehicle manufacturer for correct maintenance of the room seals.

## OPERATIONAL CHECK

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

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



# INSTRUCTION SHEET

## SENSING UNIT MAINTENANCE/SERVICE

### SENSING UNIT ADJUSTMENT / WITH LCD CONTROL PANEL

With the ignition on, push the "LEVEL SENSOR ADJUST" button on Page 2 of the LCD panel. Place a bubble level in the center of the coach 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 Central Control Module. Do not place the level inside of a slide-out. Use the raise and lower buttons on this screen to 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 sensing unit, the sensing unit is properly adjusted. If there are yellow LEVEL lights lit on the sensing unit, manual adjustments to the Sensing Unit are needed. A Phillips screw driver or sockets w/driver or box end wrenches of 1/2", or 1/4" sizes will be needed.

The ignition must be left on to adjust the sensing unit. When the system is on the "LEVEL SENSOR ADJUST" page, the sensing unit will be very sensitive. The LEDs on the sensing unit plate may flash on and off quickly while adjusting the sensing unit. Allow the lights to settle down after each adjustment. Small, gentle movements will work best when moving the sensing unit adjustment nut or screw. When all four LEDs are off, the sensing unit is adjusted. Push the "HOME" button on the LCD panel.

Level the vehicle by placing a bubble level in the center of the coach 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 Central Control Module. Do not place the level inside of a slide-out. With the ignition on, push the "LEVEL SENSOR ADJUST" button on Page 2 of the LCD panel. Using the raise and lower buttons on this screen, level the vehicle until the bubble is centered.

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 lit LEDs on the sensing unit plate do not match the yellow level lights on the LCD panel, the control box is not properly oriented. Contact HWH Corporation for assistance.**

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

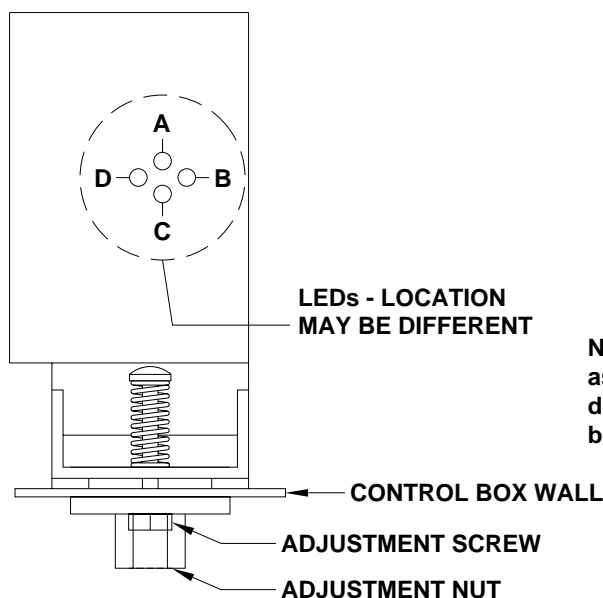
**If LED (C) is lit: Turn the adjustment screw CLOCKWISE until the LED is off.**

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

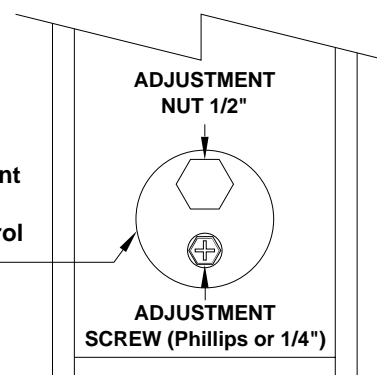
**If LED (D) is lit: Turn the adjustment nut CLOCKWISE until the LED is off.**

When the adjustment is complete, move the vehicle to an out of level position and level the vehicle according to the yellow level lights on the MANUAL AIR LEVELING screen. If necessary, go through the adjustment procedure again.

#### TOP VIEW - SENSING UNIT



#### SIDE VIEW - CONTROL BOX



**NOTE: Sensing unit adjustment assembly may be in a different position due to control box style or orientation.**

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# MAINTENANCE

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## PROCEDURE FOR WEIGHING VEHICLE, CHECKING RIDE HEIGHT MEASUREMENTS, AND ALIGNING THE WHEELS

**WARNING:** DO NOT CRAWL UNDER A VEHICLE UNLESS THE FRAME OF THE VEHICLE IS PROPERLY SUPPORTED. DO NOT USE THE AIR SUSPENSION OR LEVELING JACKS TO SUPPORT THE VEHICLE WHILE UNDER THE VEHICLE.

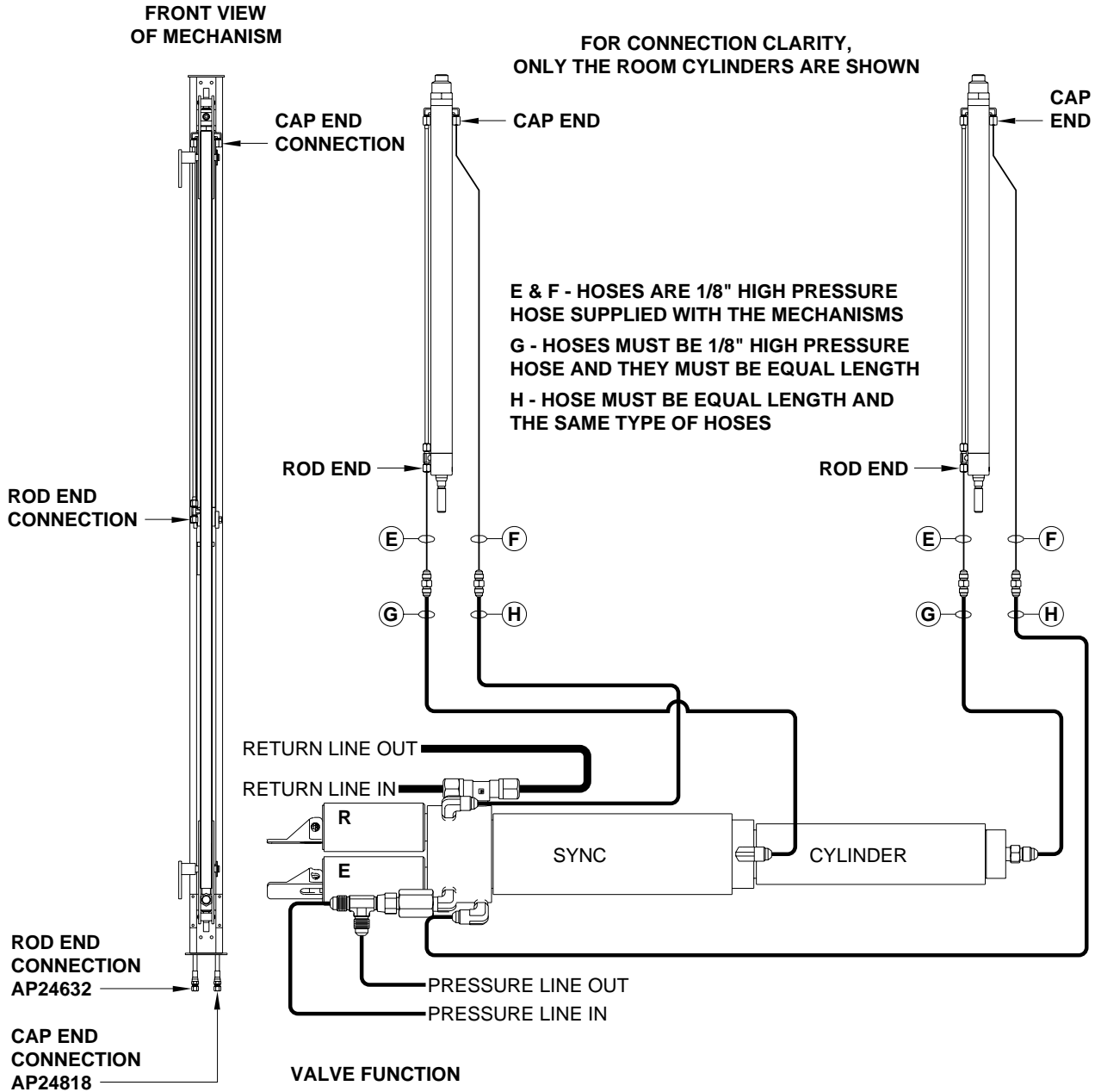
1. Chock wheels.
2. Park brake off.
3. Transmission in neutral.
4. Enter SUSPENSION Screen and select MAX low on all 3 columns (LR, FNT, RR).
5. Press HOME.
6. Select PRESSURE screen and verify all air bags display zero.
7. Press RESET.
8. Press HOME to acknowledge reset had been pressed.
9. Wait for "INITIALIZING" to stop flashing.
10. Wait an additional 2 minutes.

The vehicle can now be weighed, the ride height of the suspension can be checked, or the wheels can be aligned.

Refer to the vehicle or chassis manufacturer for information concerning axle weights or ride height specifications and location on the chassis for measuring ride height.



# HYDRAULIC LINE CONNECTION DIAGRAM UNIVERSAL STRAIGHT OUT ROOM EXTENSION



CYLINDER EXTEND - ROOM RETRACT  
CYLINDER RETRACT - ROOM EXTEND  
CHECK OIL LEVEL WITH ROOM EXTENDED

MP64.0015  
18MAR16

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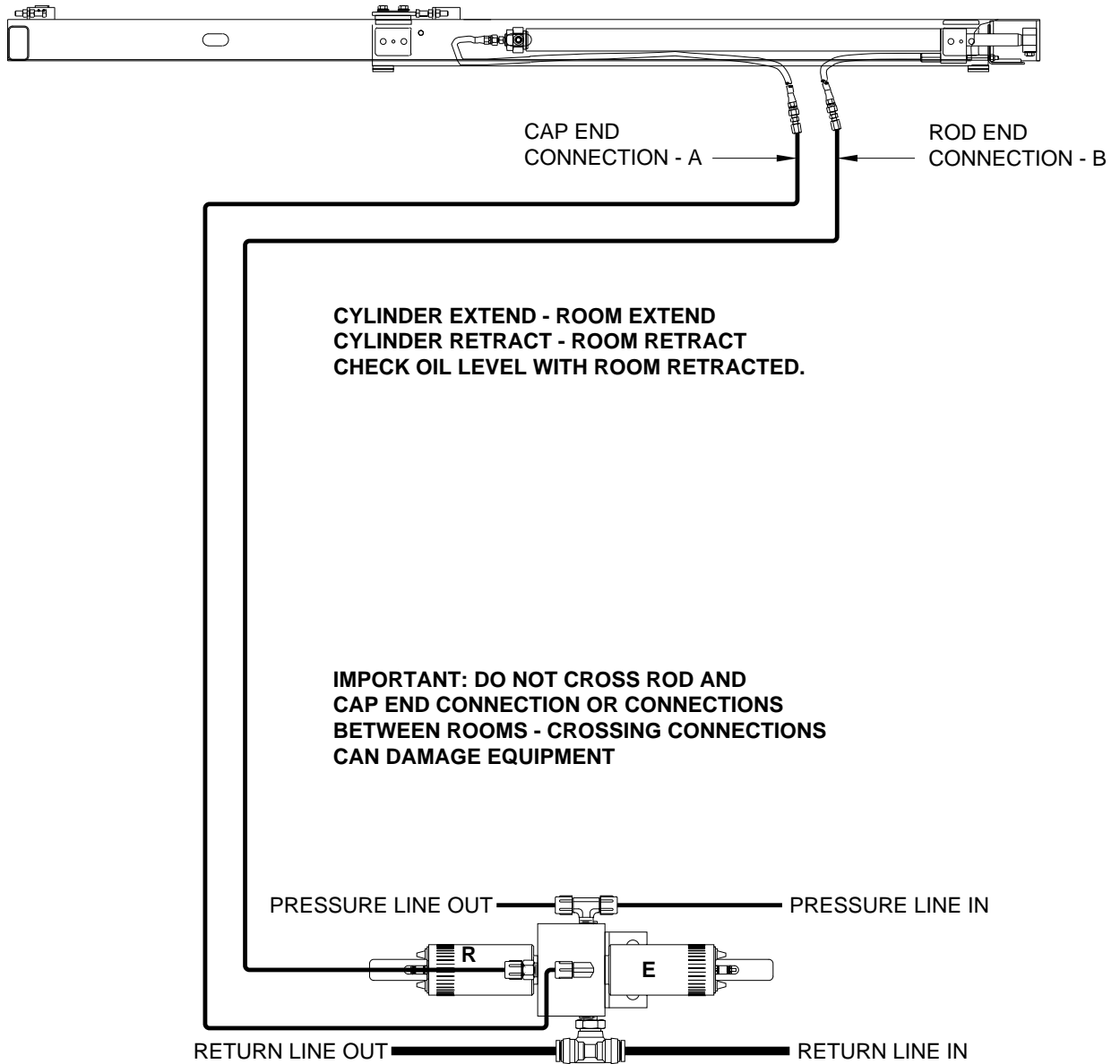
# HYDRAULIC LINE CONNECTION DIAGRAM

## SINGLE CYLINDER "GUIDED" ROOM EXTENSION

### BED SLIDE

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**NOTE:** THE ROD END CONNECTION FROM THE MANIFOLD TO THE ROOM CYLINDER IS ALWAYS PRESSURIZED.



#### VALVE FUNCTION

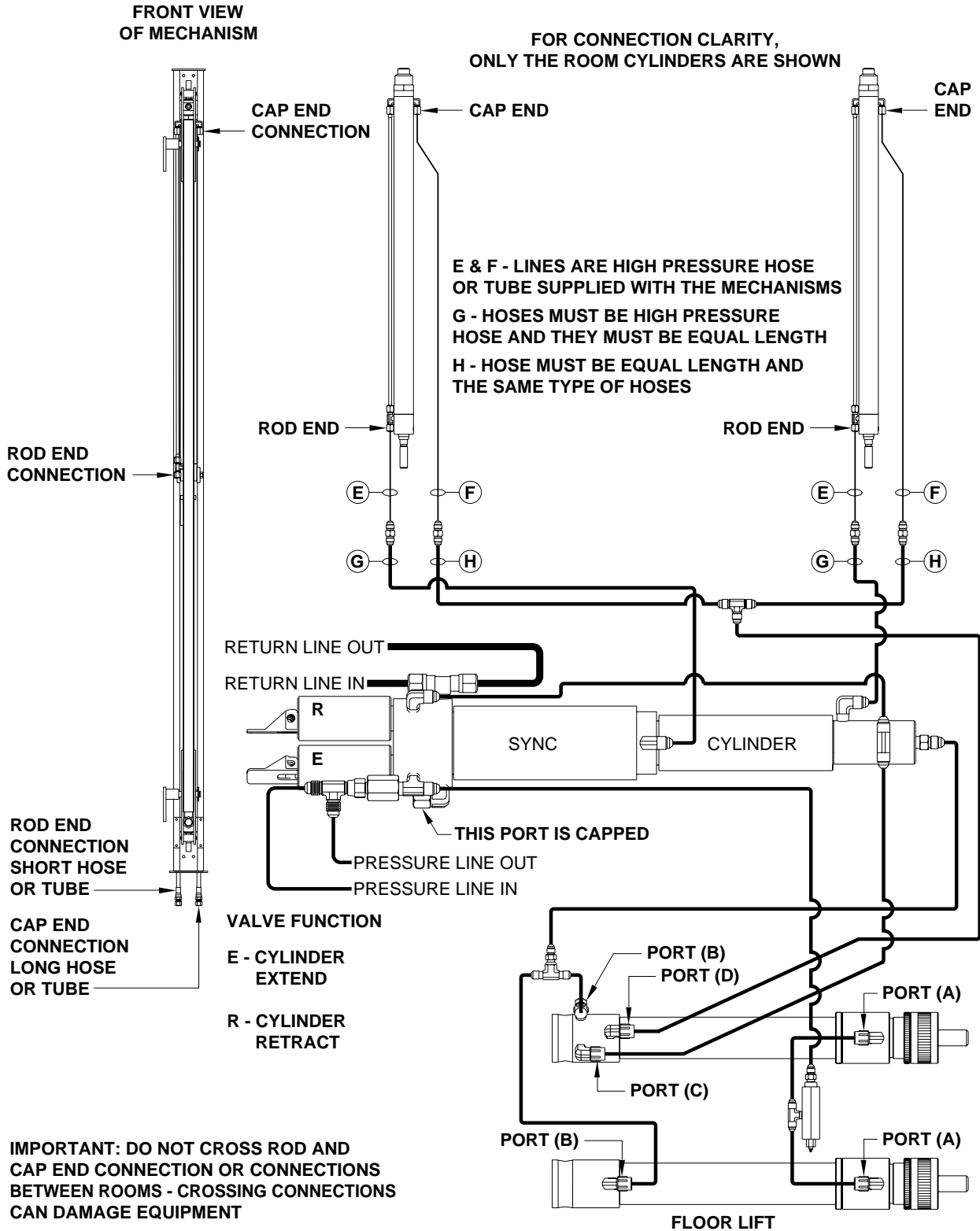
E - CYLINDER  
EXTEND

R - CYLINDER  
RETRACT

# HYDRAULIC LINE CONNECTION DIAGRAM

## UNIVERSAL LEVEL-IN/LEVEL-OUT ROOM EXTENSION

### TWO FLOOR-LIFT CYLINDERS



CYLINDER EXTEND - ROOM RETRACT  
CYLINDER RETRACT - ROOM EXTEND  
CHECK OIL LEVEL WITH ROOM EXTENDED

PROPER HOSE CONNECTIONS ARE  
CRITICAL PAY CLOSE ATTENTION TO  
HOSE ROUTINGS

MP64.0025  
18MAR16



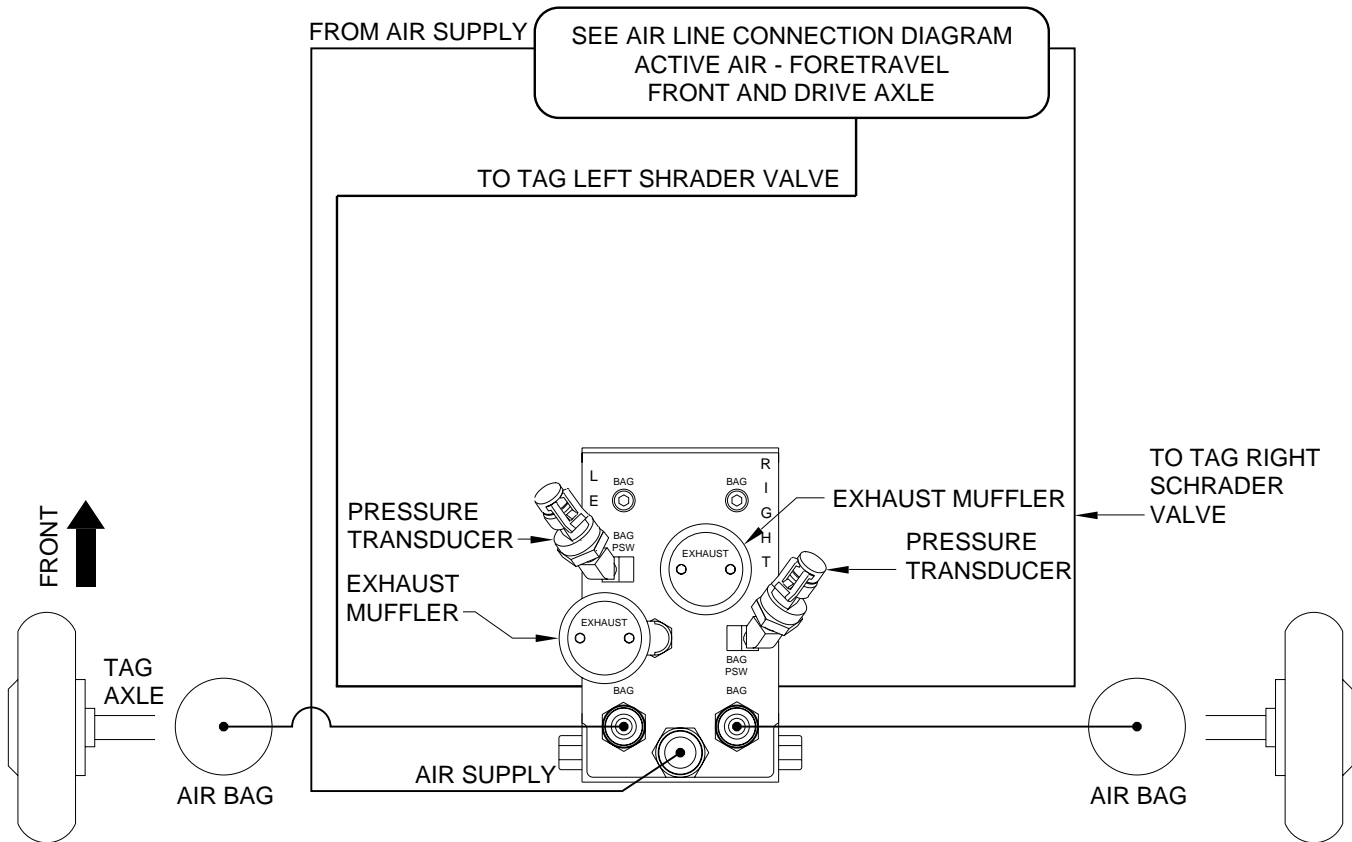
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# AIR LINE CONNECTION DIAGRAM

## ACTIVE AIR - FORETRAVEL

### TAG AXLE

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**IMPORTANT:** MANIFOLDS ARE PRE WIRED AND CONNECTIONS ARE LABELED. RIGHT AND LEFT CONNECTIONS MUST BE PROPERLY MAINTAINED

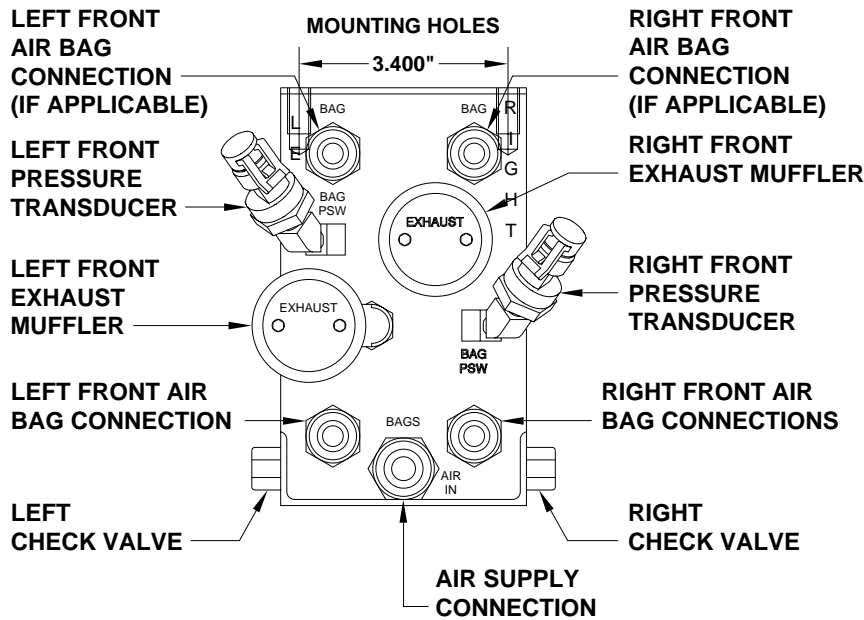
SEE SPECIFIC MANIFOLD DIAGRAMS FOR CONNECTION INFORMATION



# AIR LINE CONNECTION DIAGRAM

## ACTIVE AIR

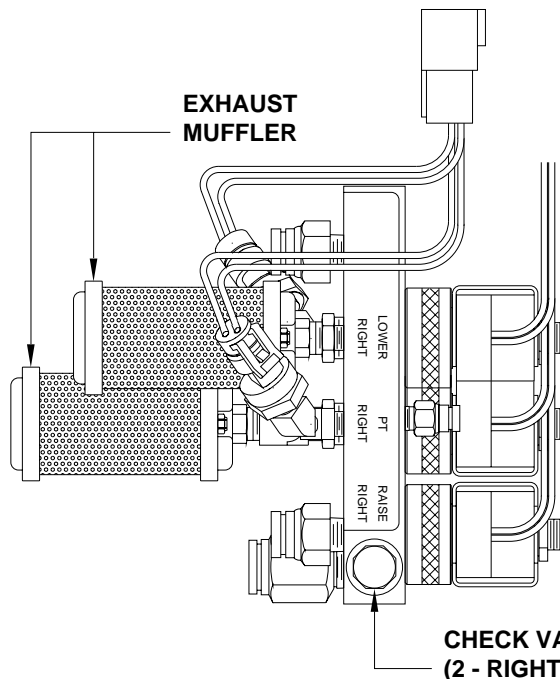
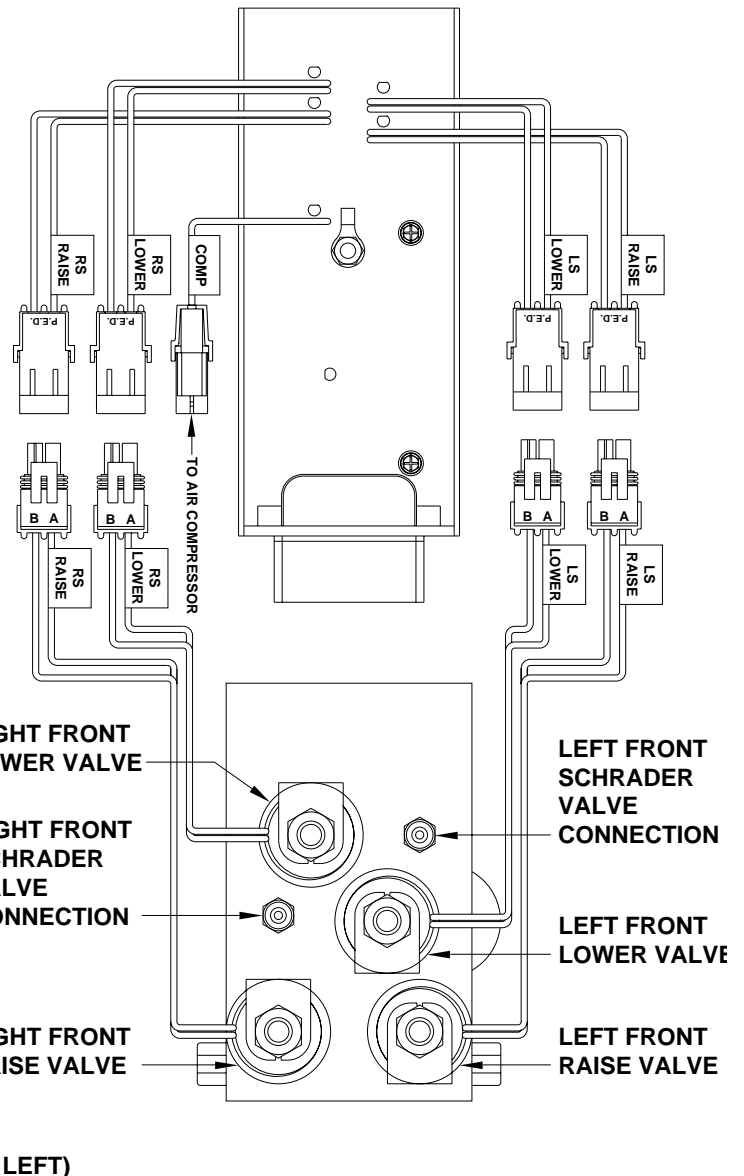
### FRONT AXLE AIR MANIFOLD ASSEMBLY



**IMPORTANT: LEFT AND RIGHT CONNECTIONS MUST BE MAINTAINED AS SHOWN. GROUND SUPPLY WIRES FOR PRESSURE TRANSDUCERS AND AIR SOLENOID VALVES CANNOT BE INTERCHANGED.**

**THE DUMP AND RAISE VALVES ARE DIFFERENT AND CANNOT BE INTERCHANGED.**

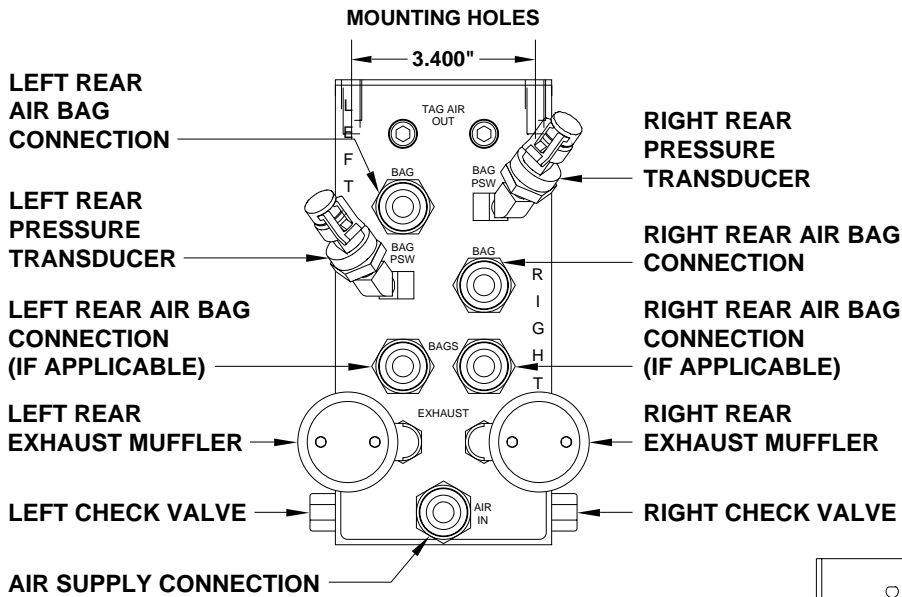
**NOTE: SOLENOID VALVES AND AIR LINE CONNECTIONS ARE LABELED.**



# AIR LINE CONNECTION DIAGRAM

## ACTIVE AIR

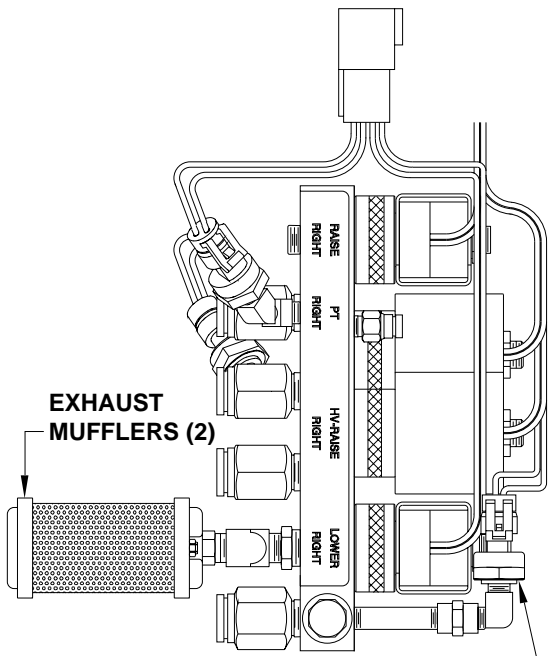
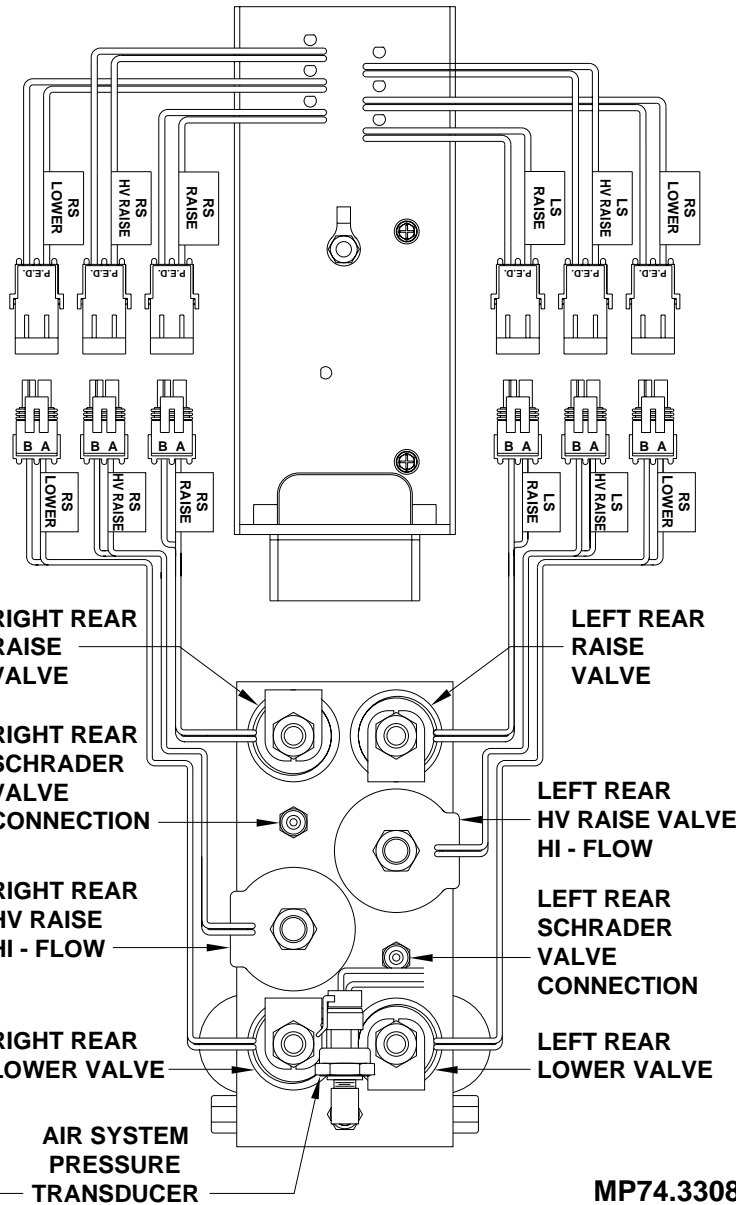
### DRIVE AXLE AIR MANIFOLD ASSEMBLY



**IMPORTANT: LEFT AND RIGHT CONNECTIONS MUST BE MAINTAINED AS SHOWN. GROUND SUPPLY WIRES FOR PRESSURE TRANSDUCERS AND AIR SOLENOID VALVES CANNOT BE INTERCHANGED.**

**THE DUMP AND RAISE VALVES ARE DIFFERENT AND CANNOT BE INTERCHANGED.**

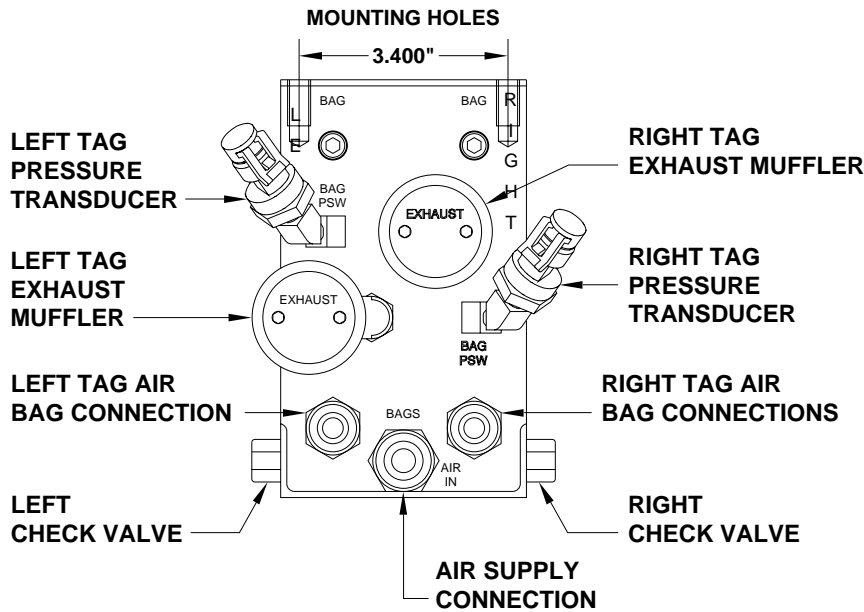
**NOTE: SOLENOID VALVES AND AIR LINE CONNECTIONS ARE LABELED.**



# AIR LINE CONNECTION DIAGRAM

## ACTIVE AIR

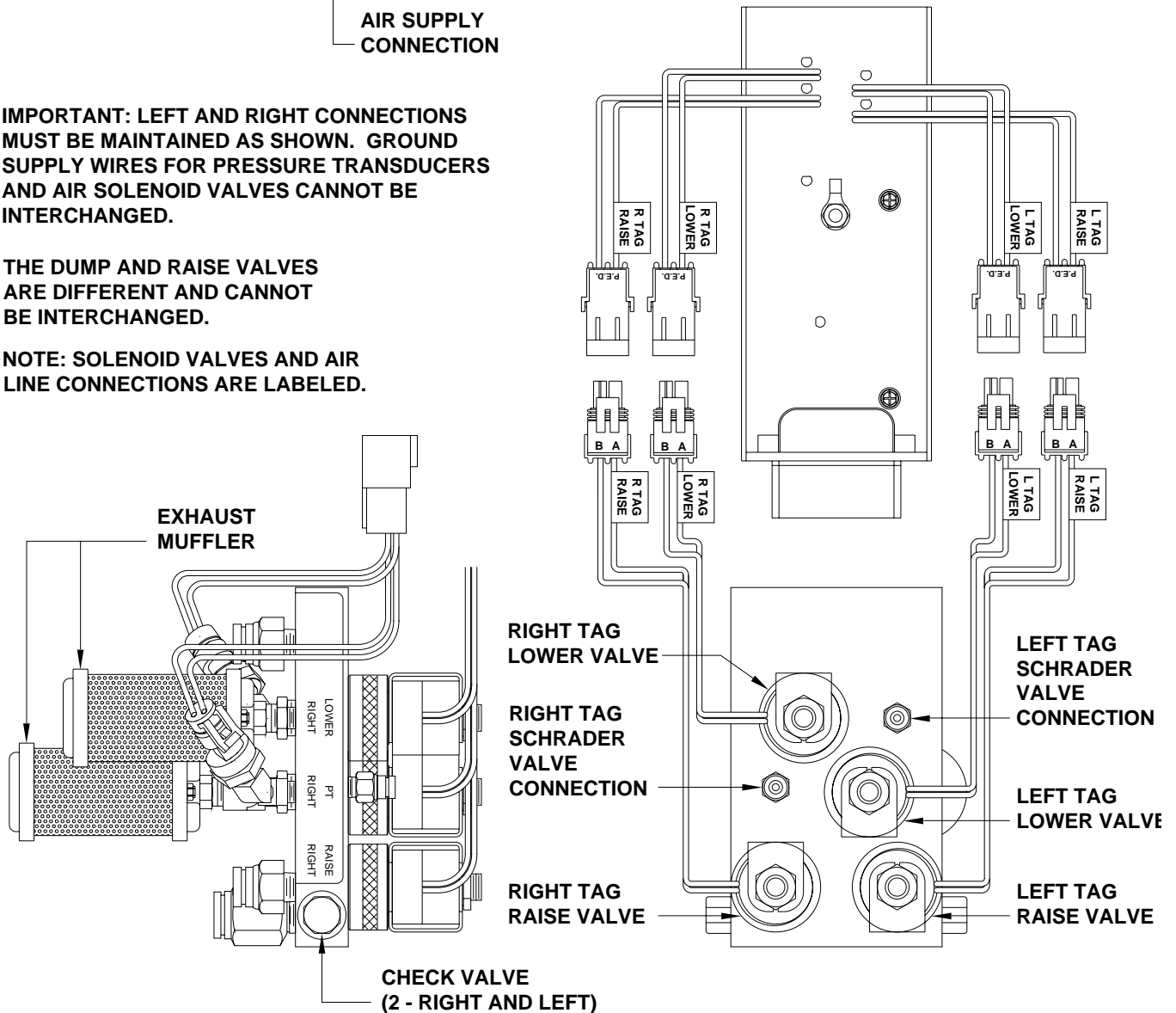
### TAG AXLE AIR MANIFOLD ASSEMBLY



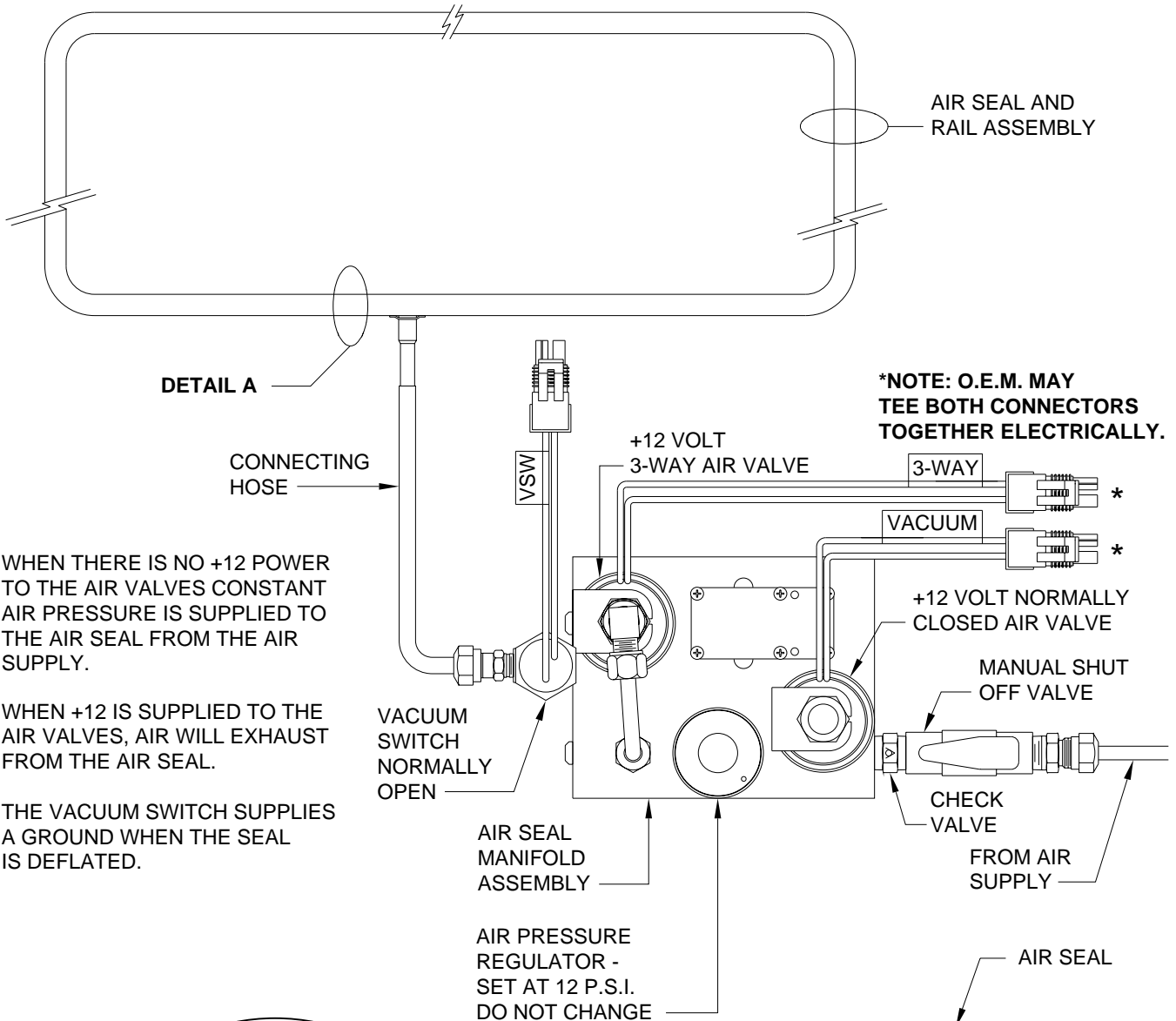
**IMPORTANT: LEFT AND RIGHT CONNECTIONS MUST BE MAINTAINED AS SHOWN. GROUND SUPPLY WIRES FOR PRESSURE TRANSDUCERS AND AIR SOLENOID VALVES CANNOT BE INTERCHANGED.**

**THE DUMP AND RAISE VALVES ARE DIFFERENT AND CANNOT BE INTERCHANGED.**

**NOTE: SOLENOID VALVES AND AIR LINE CONNECTIONS ARE LABELED.**



# AIR SEAL CONNECTION DIAGRAM



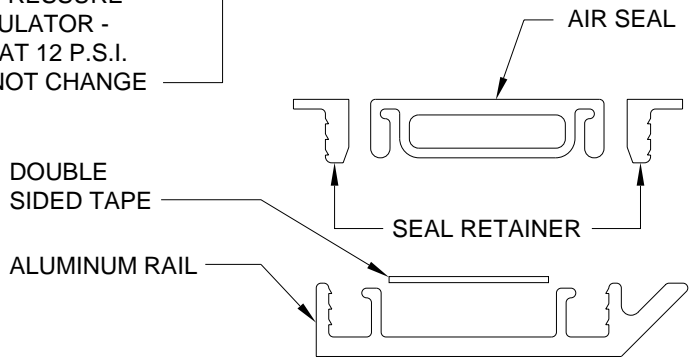
WHEN THERE IS NO +12 POWER TO THE AIR VALVES CONSTANT AIR PRESSURE IS SUPPLIED TO THE AIR SEAL FROM THE AIR SUPPLY.

WHEN +12 IS SUPPLIED TO THE AIR VALVES, AIR WILL EXHAUST FROM THE AIR SEAL.

THE VACUUM SWITCH SUPPLIES A GROUND WHEN THE SEAL IS DEFLATED.

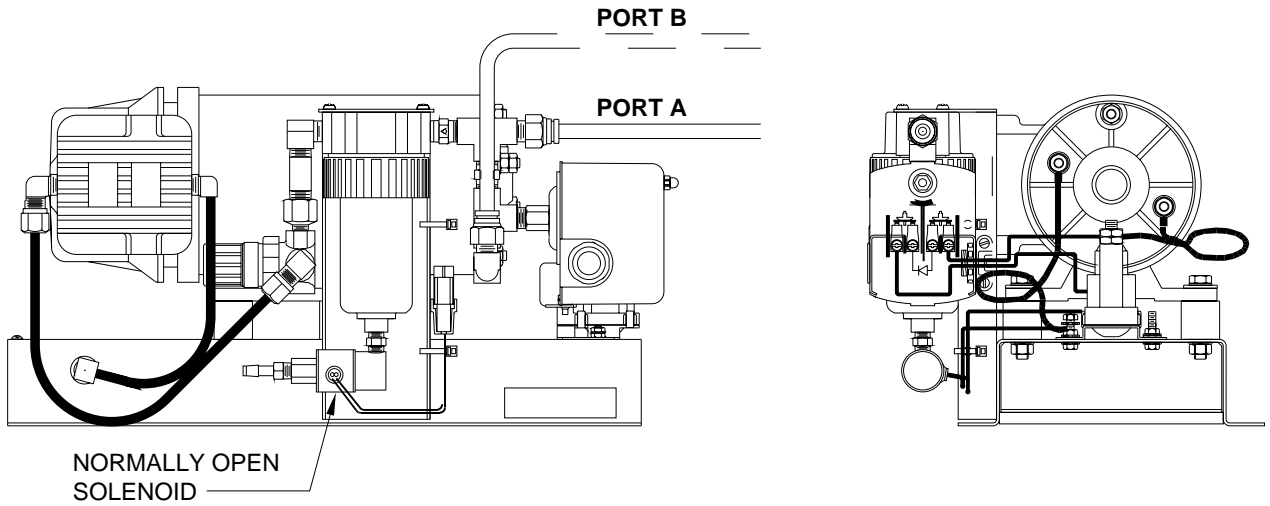
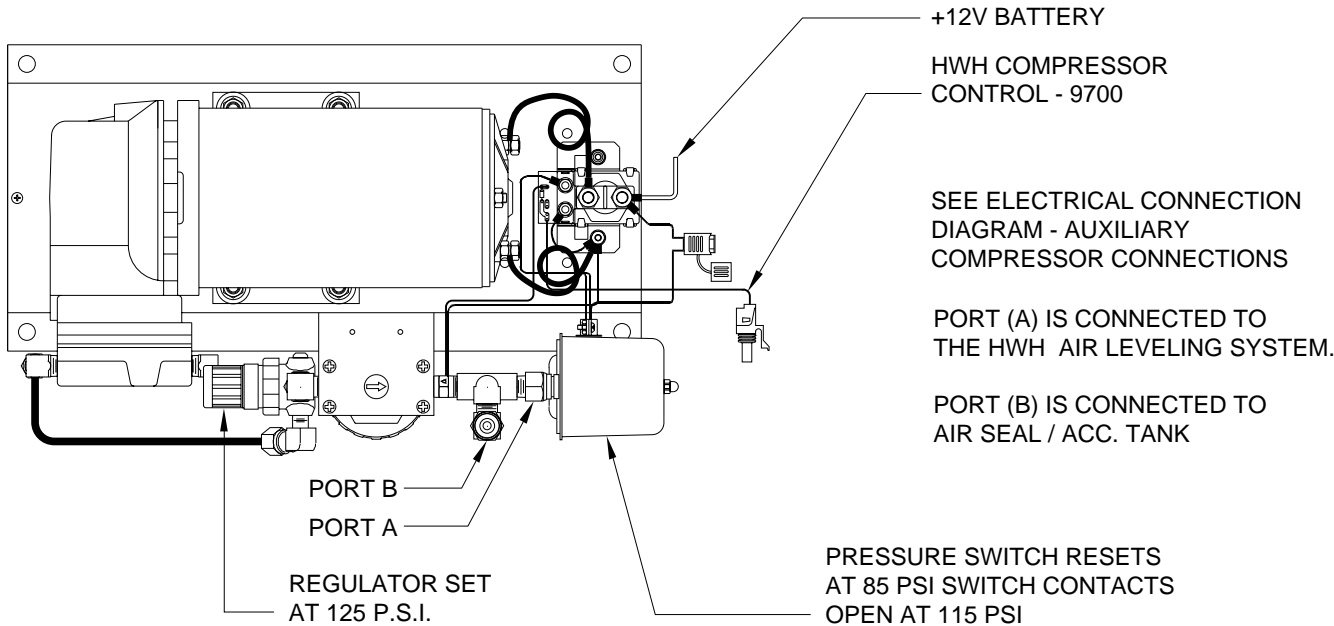


**DETAIL A**



**EXPLODED VIEW**

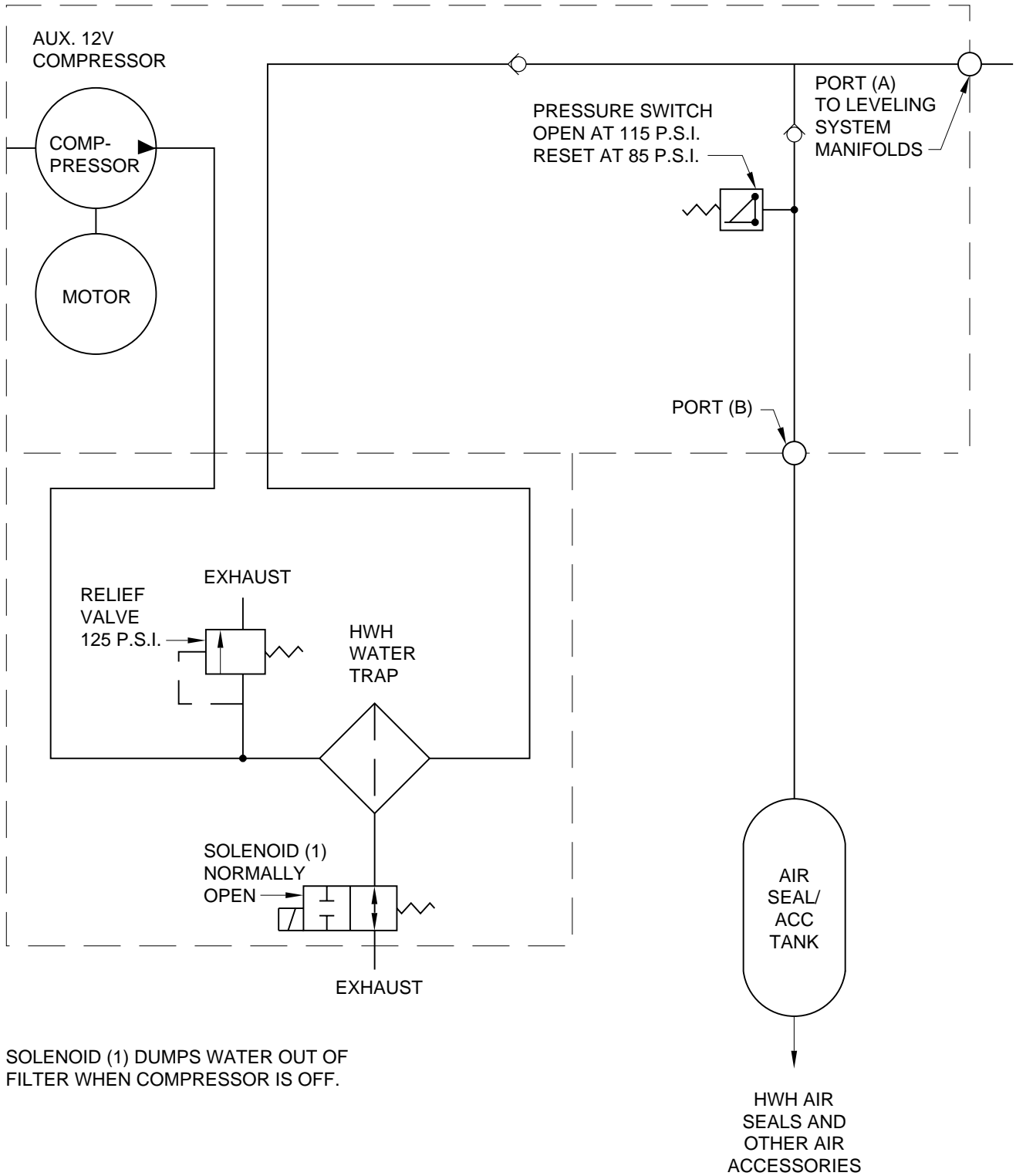
# AIR CONNECTION DIAGRAM AUXILIARY COMPRESSOR



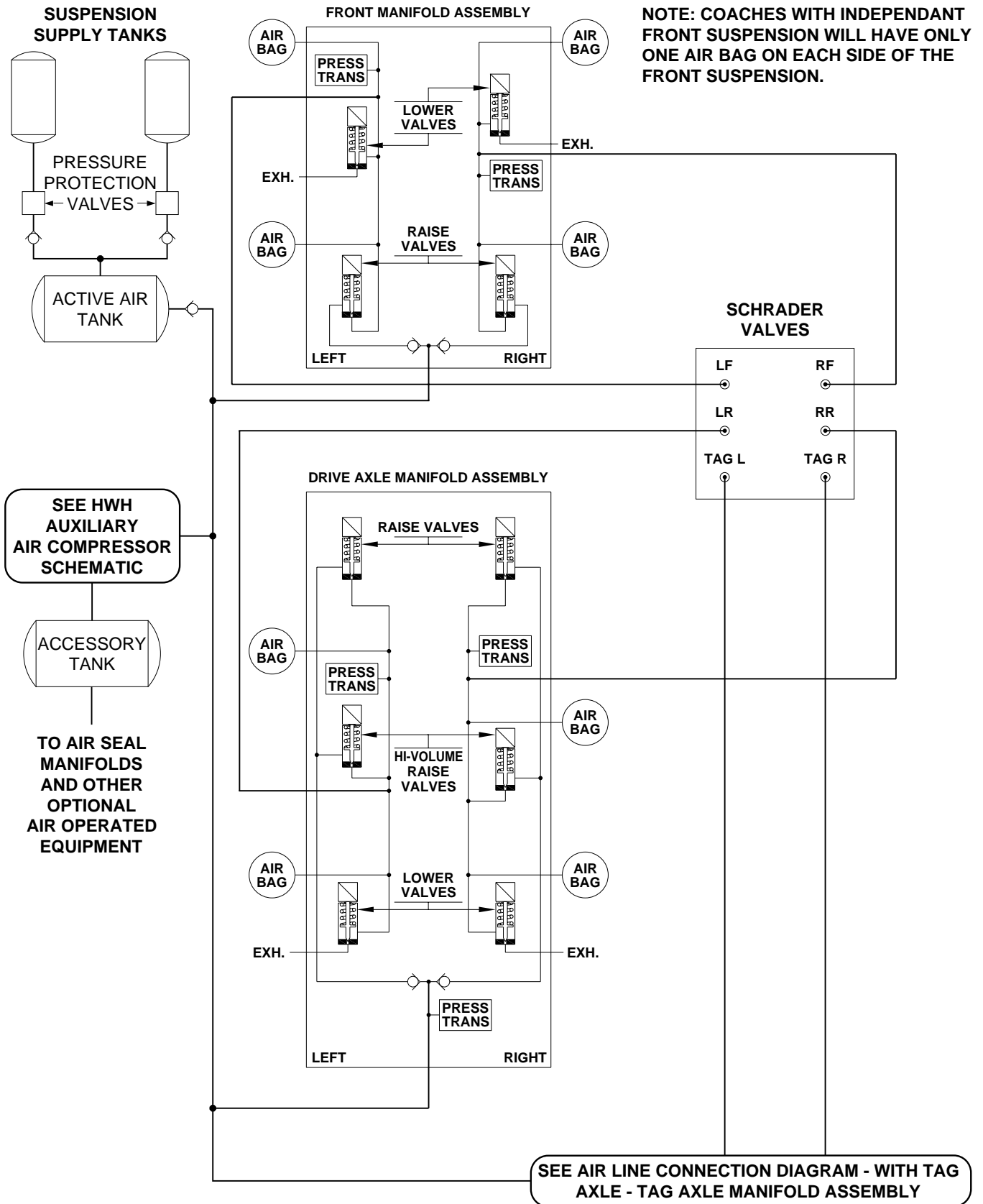
THE AIR COMPRESSOR RUNS WHENEVER THE PRESSURE SWITCH RESETS. THIS MAINTAINS THE AIR SEAL/ACC. TANK AT A MINIMUM OF 85 PSI.

# AIR CONNECTION DIAGRAM

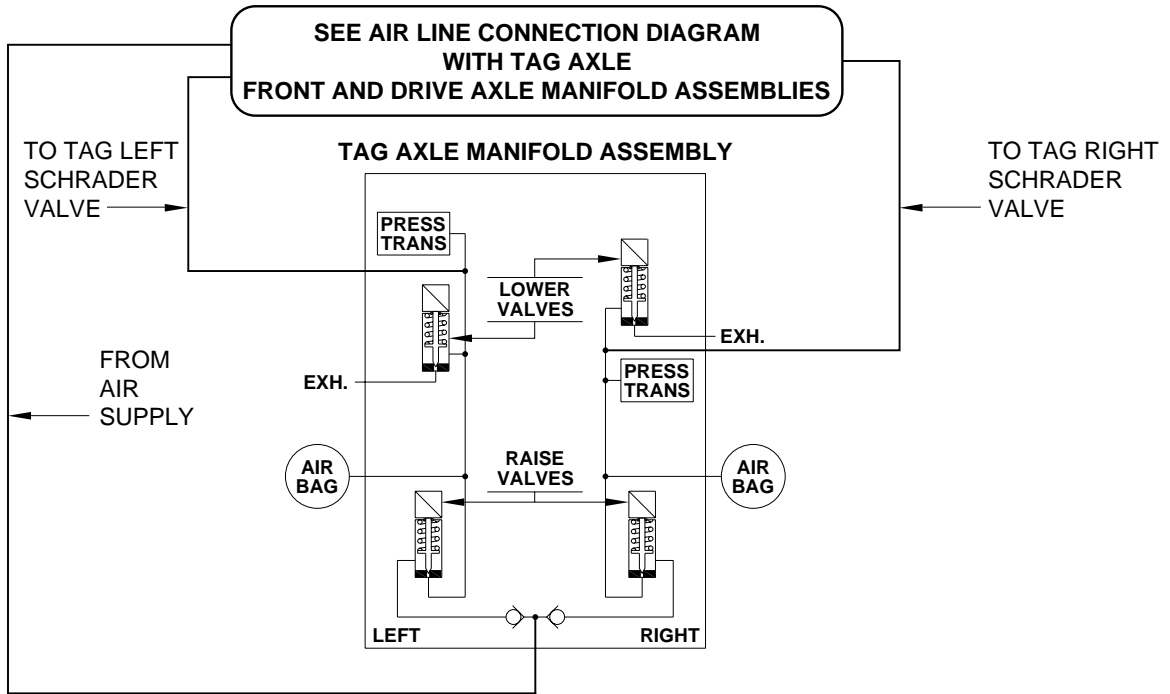
## AIR COMPRESSOR SCHEMATIC



# AIR LINE CONNECTION DIAGRAM WITH TAG AXLE FRONT AND DRIVE AXLE MANIFOLD ASSEMBLIES



# AIR LINE CONNECTION DIAGRAM WITH TAG AXLE TAG AXLE MANIFOLD ASSEMBLY

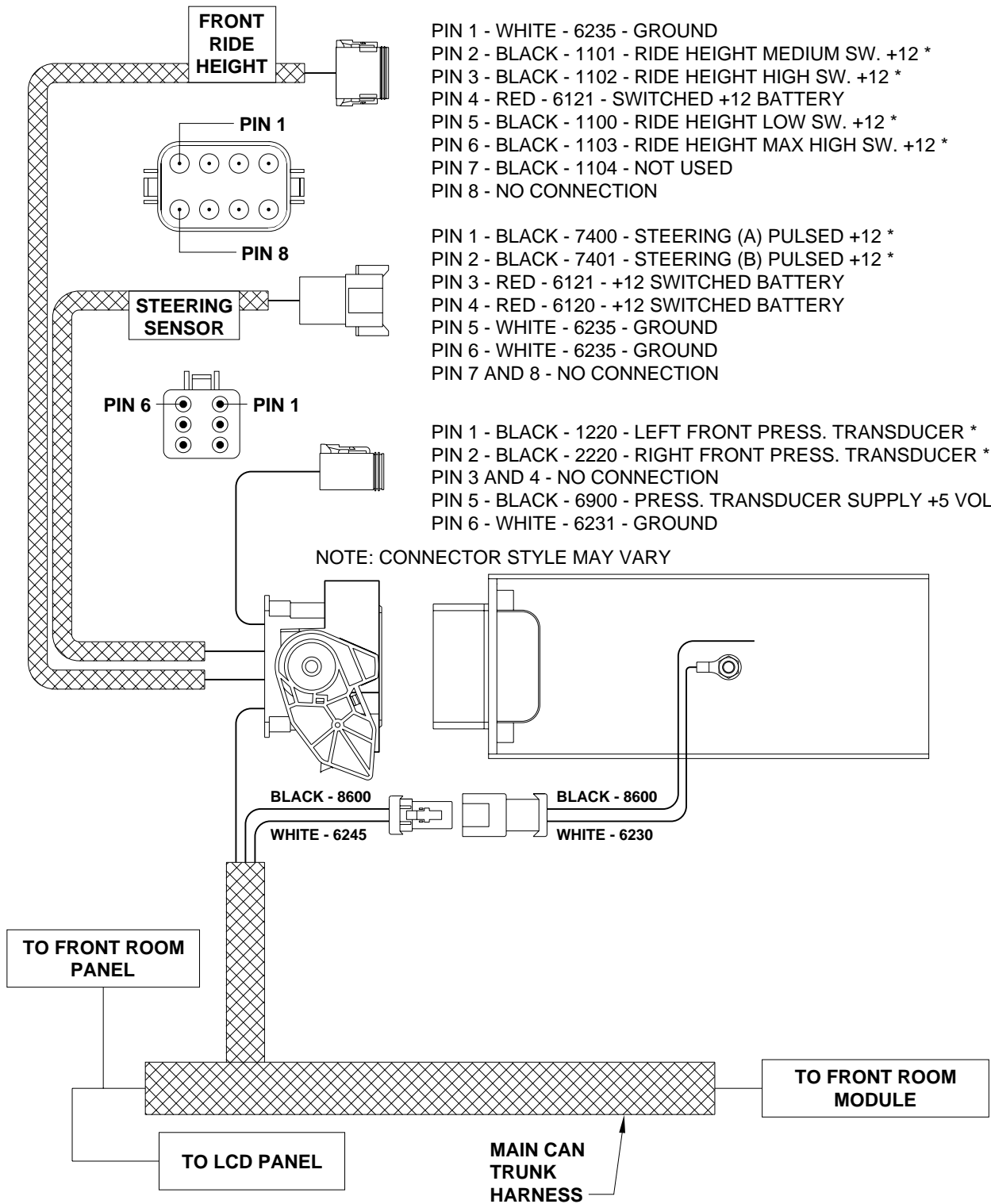




# ELECTRICAL CONNECTION DIAGRAM

## FRONT AXLE MULTIPLEXED INPUT/OUTPUT MODULE

**\* DO NOT USE TEST LIGHT**

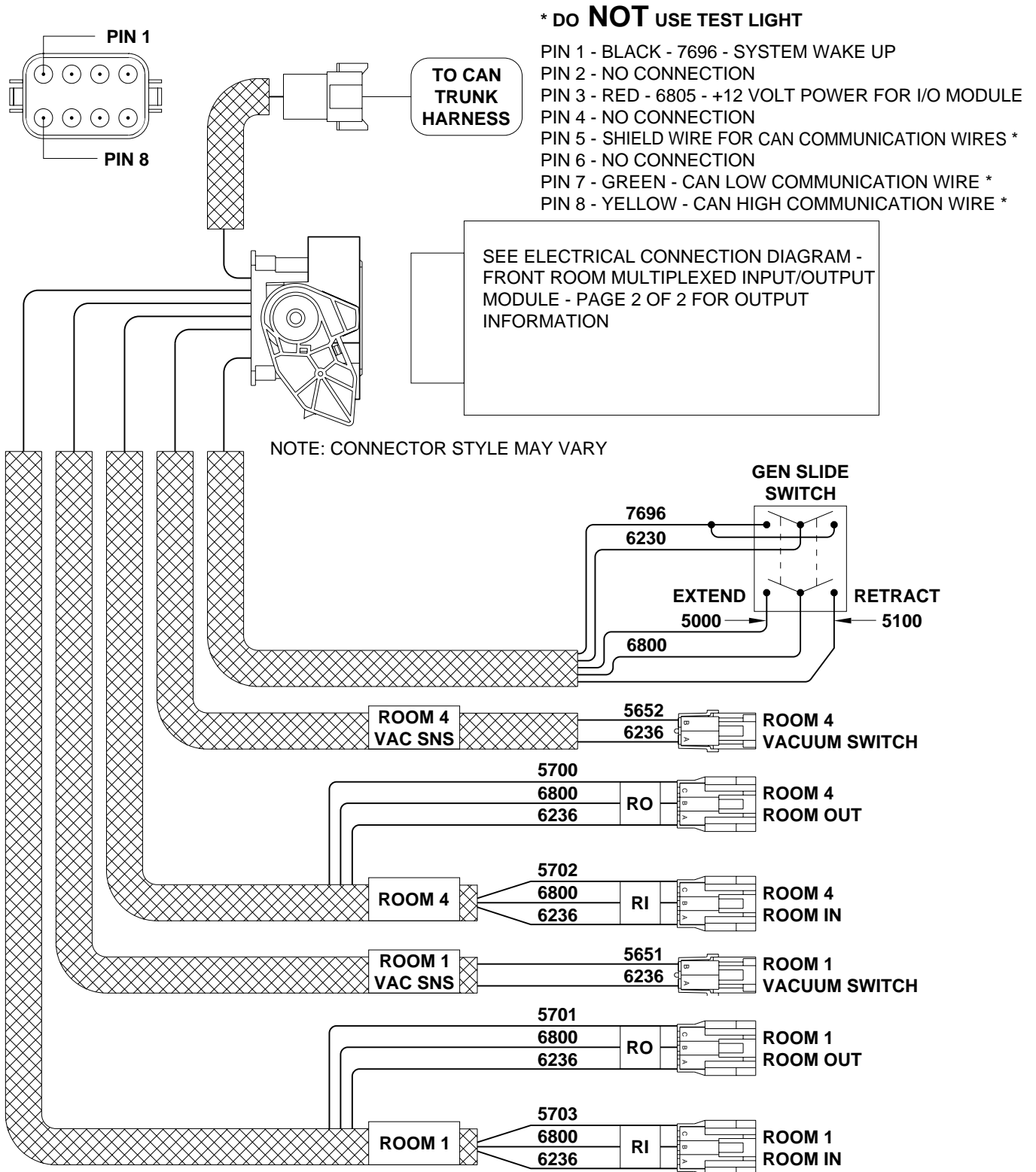


**NOTE: FOR MODULE CONNECTION PIN AND WIRE INFORMATION SEE ELECTRICAL CONNECTION DIAGRAM - FRONT AXLE ACTIVE AIR MULTIPLEXED INPUT/OUTPUT MODULE - LED AND WIRE/CONNECTION INFORMATION FOR OUTPUT CONNECTION INFORMATION SEE AIR LINE CONNECTION DIAGRAM - ACTIVE AIR - FRONT AXLE AIR MANIFOLD ASSEMBLY**

# ELECTRICAL CONNECTION DIAGRAM

## FRONT ROOM MULTIPLEXED INPUT/OUTPUT MODULE

PAGE 1 OF 2

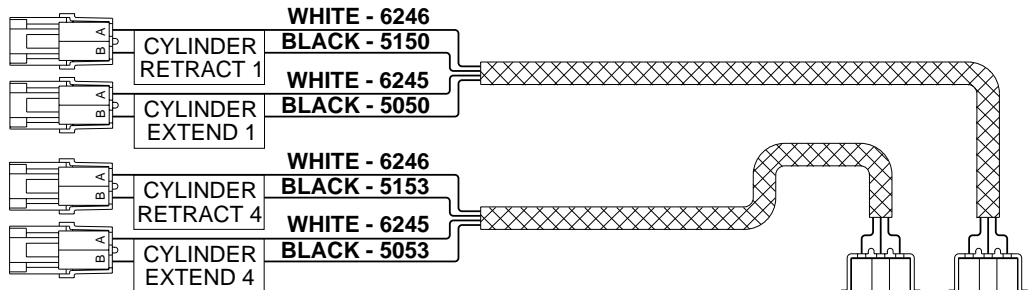


**NOTE: FOR MODULE CONNECTION PIN AND WIRE INFORMATION SEE ELECTRICAL CONNECTION DIAGRAM - FRONT ROOM MULTIPLEXED INPUT/OUTPUT MODULE - LED AND WIRE/CONNECTION INFORMATION**

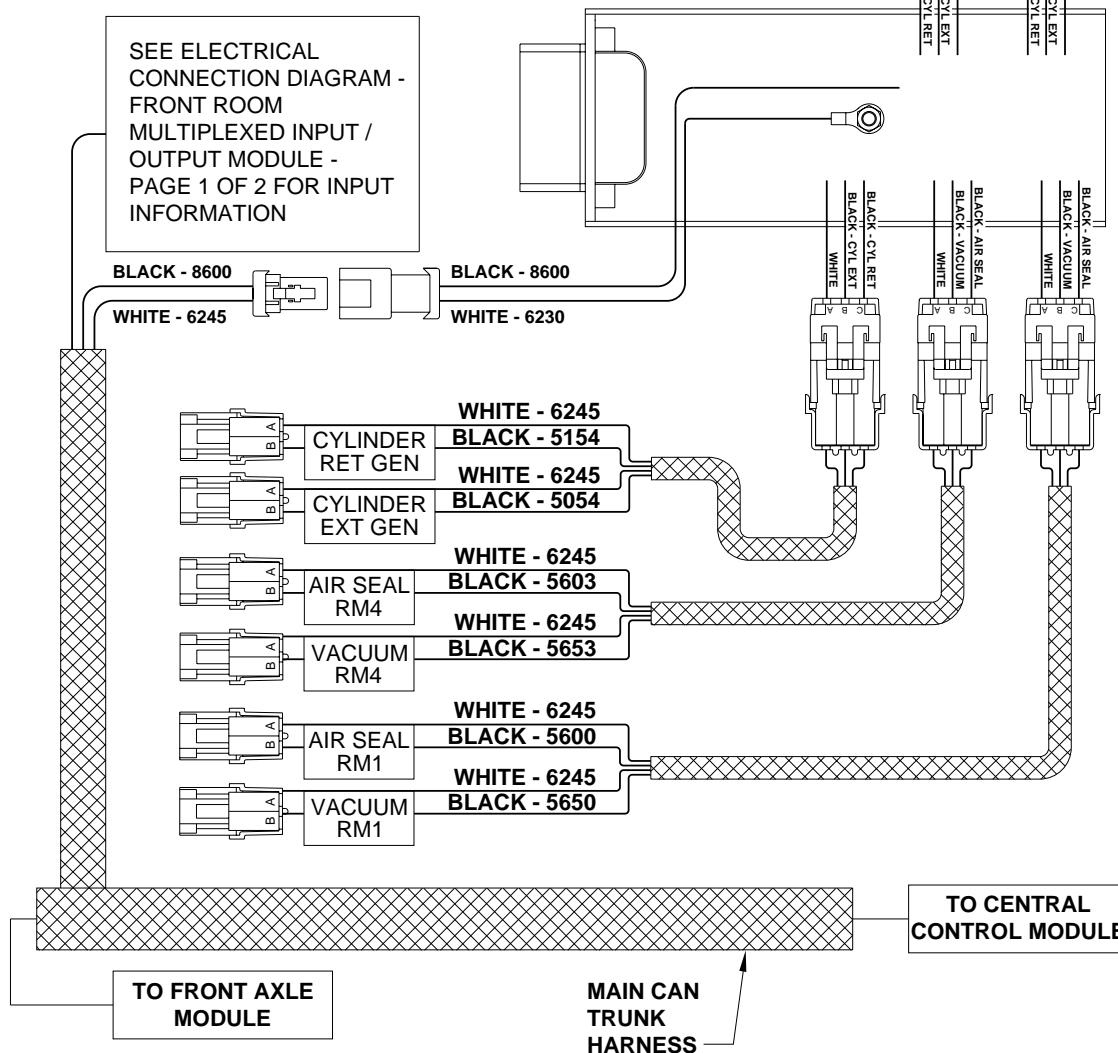
# ELECTRICAL CONNECTION DIAGRAM

## FRONT ROOM MULTIPLEXED INPUT/OUTPUT MODULE

### PAGE 2 OF 2



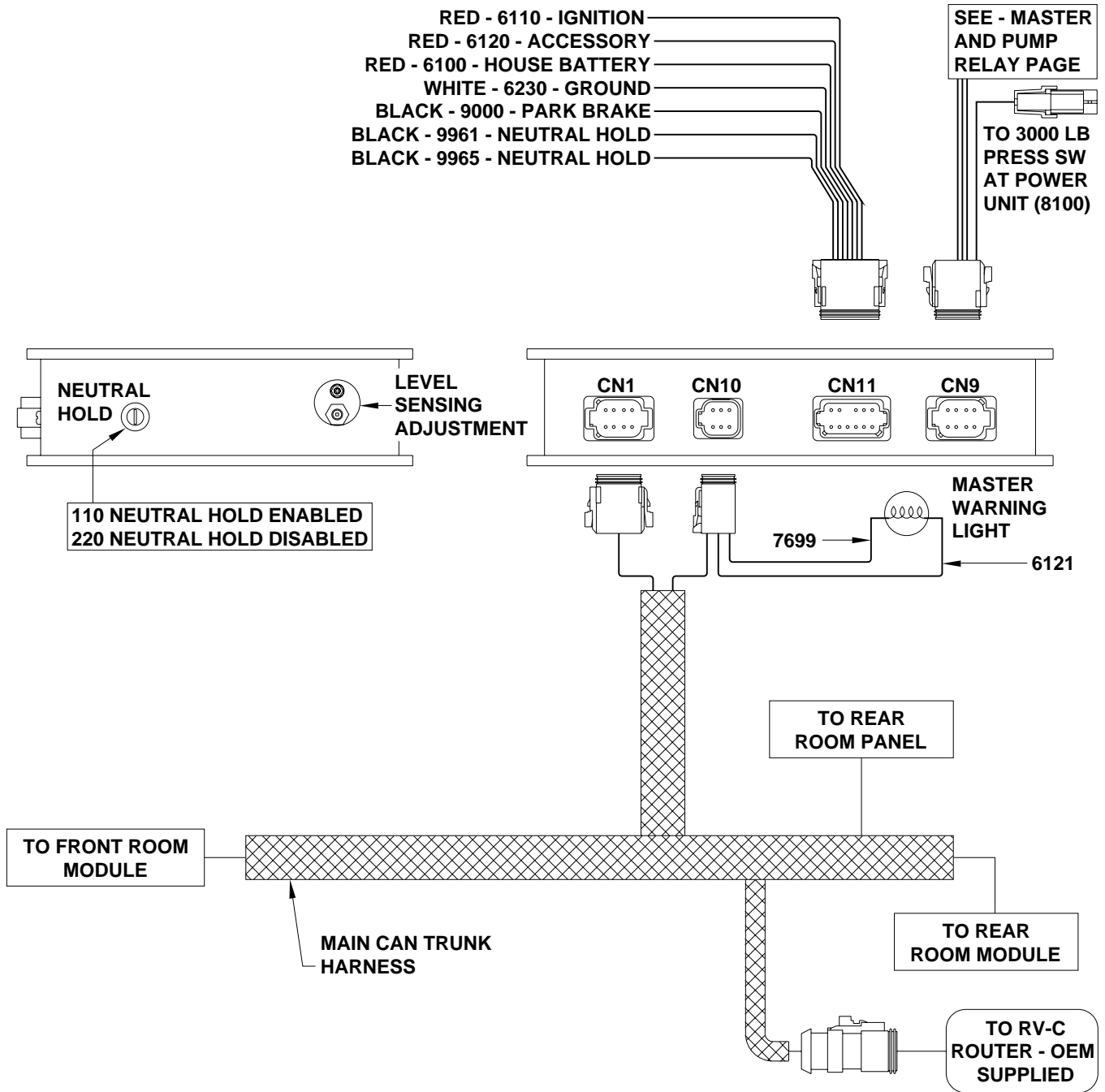
**NOTE: SEE HYDRAULIC LINE CONNECTION DIAGRAM FOR VALVE CONNECTION INFORMATION**  
**SEE AIR SEAL CONNECTION DIAGRAM FOR AIR SEAL / VACUUM CONNECTION INFORMATION**



**NOTE: FOR MODULE CONNECTION PIN AND WIRE INFORMATION SEE ELECTRICAL CONNECTION DIAGRAM - FRONT ROOM MULTIPLEXED INPUT/OUTPUT MODULE - LED AND WIRE/CONNECTION INFORMATION**

# ELECTRICAL CONNECTION DIAGRAM

## CENTRAL CONTROL MODULE



\* DO **NOT** USE TEST LIGHT  
 3 PIN  
 PIN A - YELLOW - CAN HIGH WIRE \*  
 PIN B - GREEN - CAN LOW WIRE \*  
 PIN C - SHIELD WIRE \*

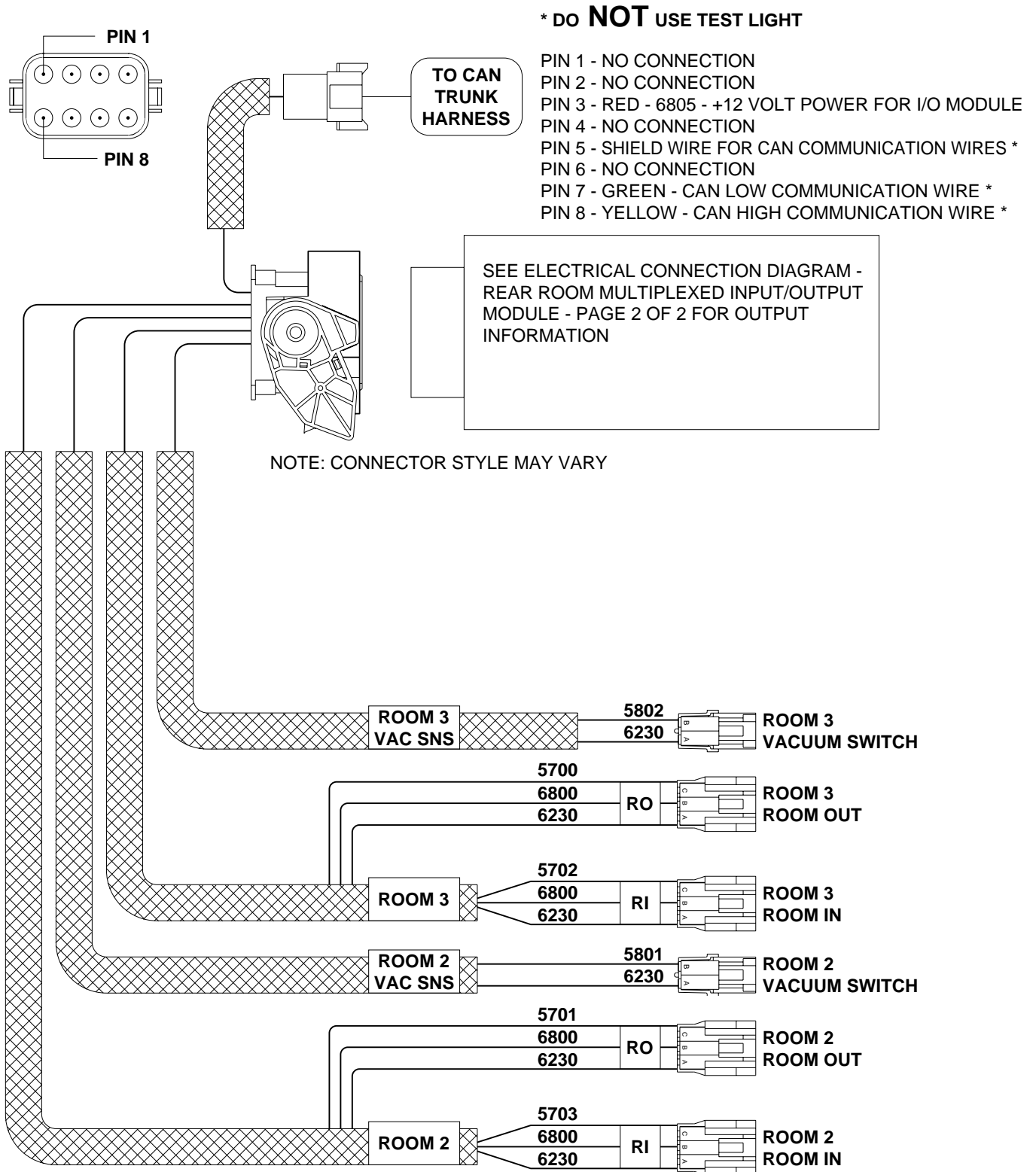
NOTE: FOR MODULE CONNECTION PIN AND WIRE INFORMATION - SEE ELECTRICAL CONNECTION DIAGRAM - WIRE AND CONNECTOR INFORMATION - CENTRAL CONTROL MODULE

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 01APR16

# ELECTRICAL CONNECTION DIAGRAM

## REAR ROOM MULTIPLEXED INPUT/OUTPUT MODULE

PAGE 1 OF 2

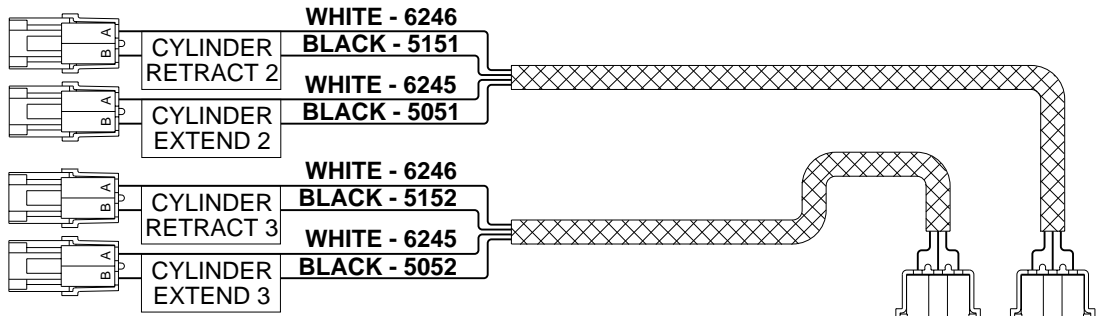


NOTE: FOR MODULE CONNECTION PIN AND WIRE INFORMATION SEE ELECTRICAL CONNECTION DIAGRAM - REAR ROOM MULTIPLEXED INPUT/OUTPUT MODULE - LED AND WIRE/CONNECTION INFORMATION

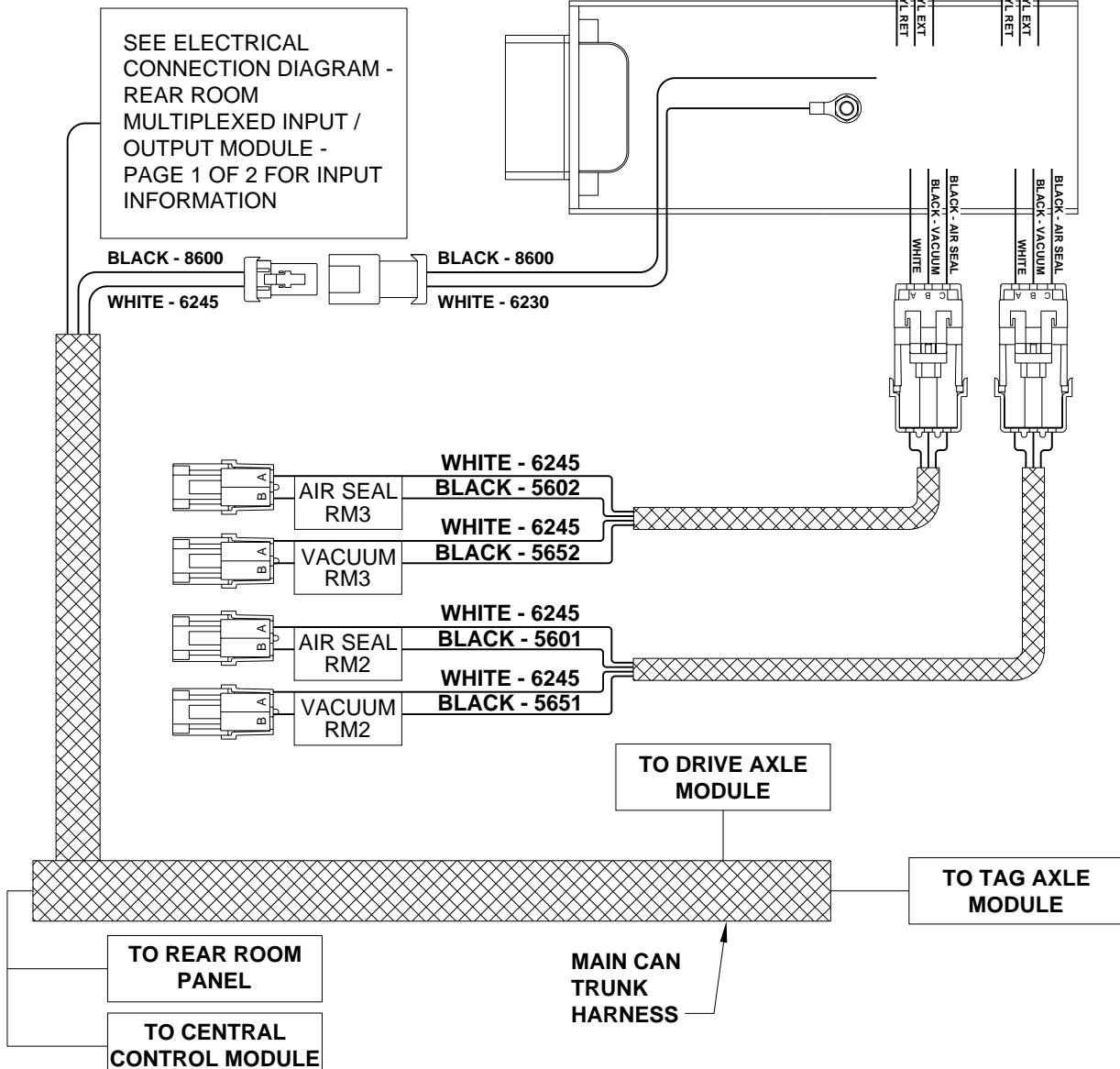
# ELECTRICAL CONNECTION DIAGRAM

## REAR ROOM MULTIPLEXED INPUT/OUTPUT MODULE

PAGE 2 OF 2



**NOTE: SEE HYDRAULIC LINE CONNECTION DIAGRAM FOR VALVE CONNECTION INFORMATION**  
**SEE AIR SEAL CONNECTION DIAGRAM FOR AIR SEAL / VACUUM CONNECTION INFORMATION**

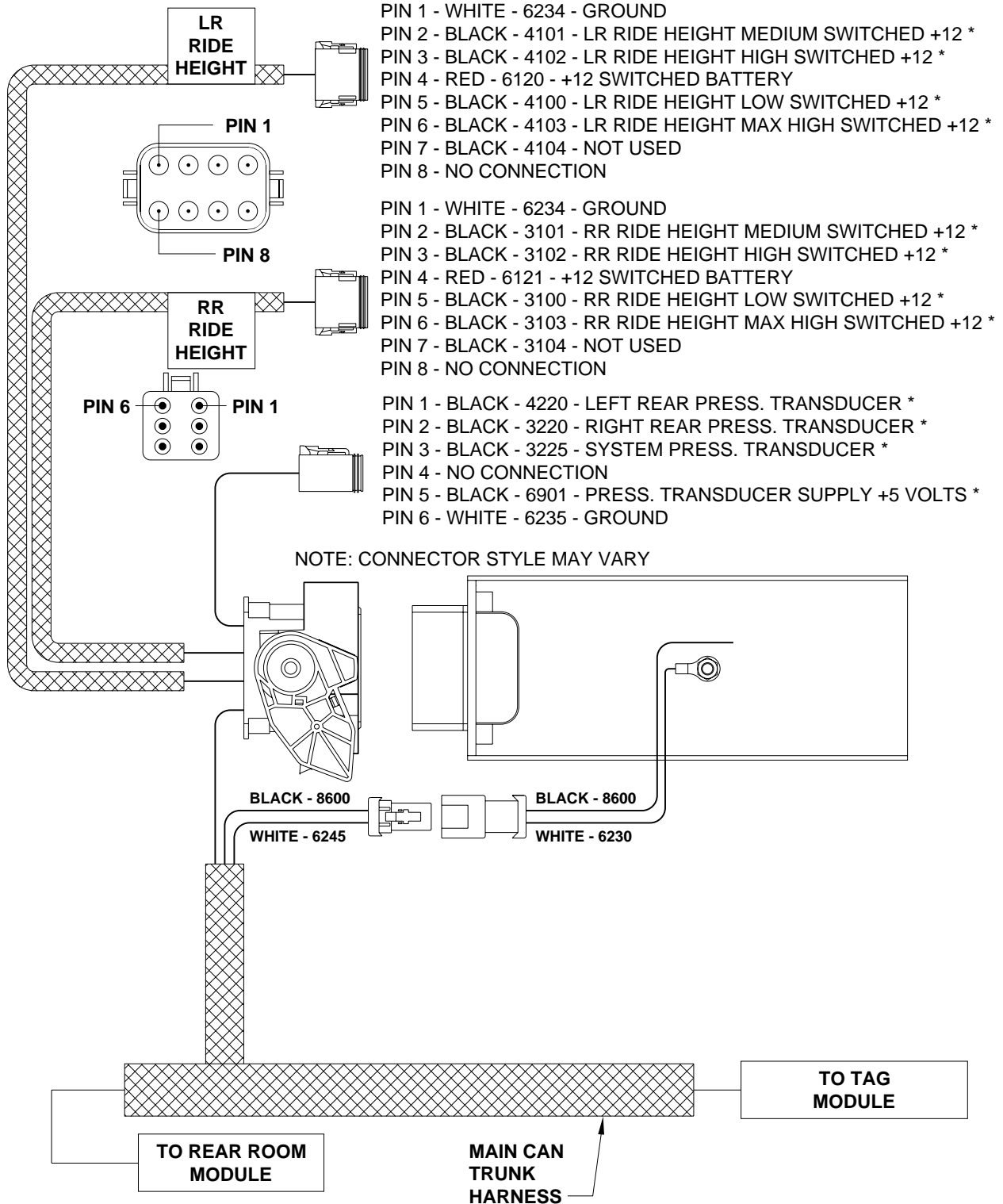


**NOTE: FOR MODULE CONNECTION PIN AND WIRE INFORMATION SEE ELECTRICAL CONNECTION DIAGRAM - REAR ROOM MULTIPLEXED INPUT/OUTPUT MODULE - REAR ROOM MULTIPLEXED INPUT/OUTPUT MODULE**

# ELECTRICAL CONNECTION DIAGRAM

## DRIVE AXLE ACTIVE AIR MULTIPLEXED INPUT/OUTPUT MODULE

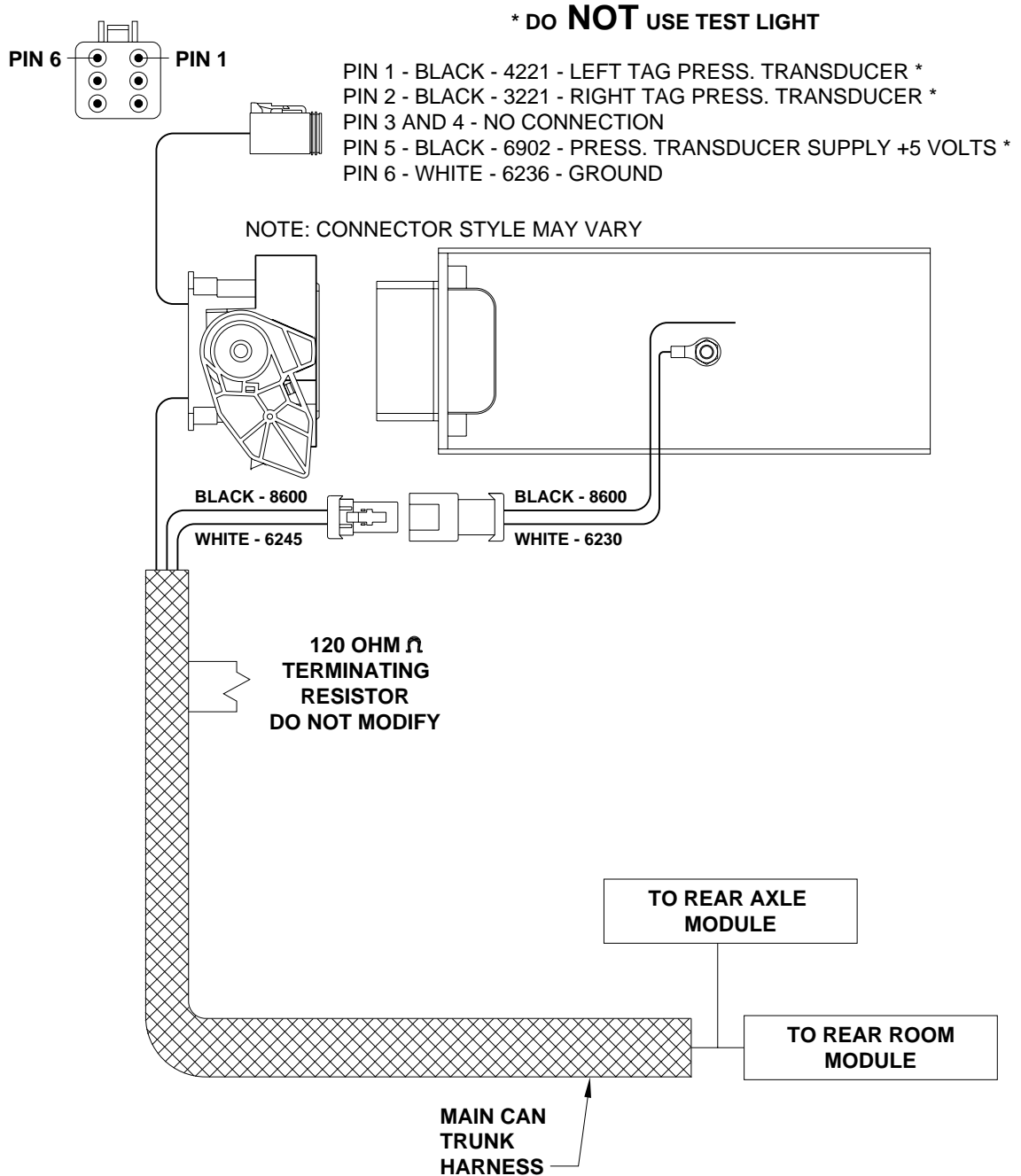
**\* DO NOT USE TEST LIGHT**



**NOTE: FOR MODULE CONNECTION PIN AND WIRE INFORMATION SEE ELECTRICAL CONNECTION DIAGRAM - DRIVE AXLE ACTIVE AIR MULTIPLEXED INPUT/OUTPUT MODULE - LED AND WIRE/CONNECTION INFORMATION FOR OUTPUT CONNECTION INFORMATION SEE AIR LINE CONNECTION DIAGRAM - ACTIVE AIR - DRIVE AXLE AIR MANIFOLD ASSEMBLY**

# ELECTRICAL CONNECTION DIAGRAM

## TAG AXLE ACTIVE AIR MULTIPLEXED INPUT/OUTPUT MODULE



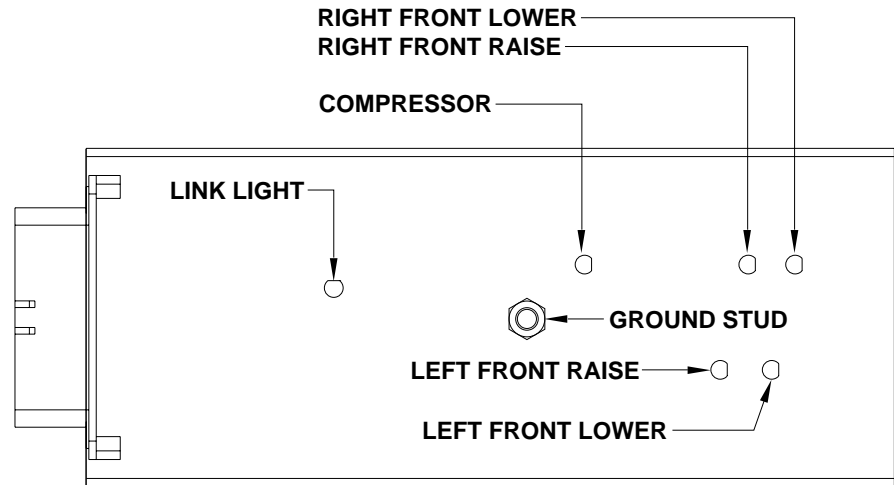
NOTE: FOR MODULE CONNECTION PIN AND WIRE INFORMATION SEE ELECTRICAL CONNECTION DIAGRAM - TAG AXLE ACTIVE AIR MULTIPLEXED INPUT/OUTPUT MODULE - LED AND WIRE/CONNECTION INFORMATION FOR OUTPUT CONNECTION INFORMATION SEE AIR LINE CONNECTION DIAGRAM - ACTIVE AIR - TAG AXLE AIR MANIFOLD ASSEMBLY



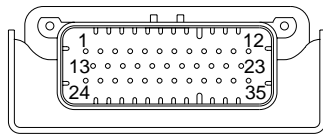
# ELECTRICAL CONNECTION DIAGRAM

## FRONT AXLE ACTIVE AIR MULTIPLEXED INPUT/OUTPUT MODULE

### LED AND WIRE/CONNECTION INFORMATION



FRONT VIEW OF I/O MODULE CONNECTOR



A LIT RED LED INDICATES THERE SHOULD BE +12 VOLTS ON THE CORRESPONDING WIRE.

LINK LIGHT: LINK LIGHT FLASHING INDICATES PROPER COMMUNICATION BETWEEN THE I/O MODULE AND THE TOUCH PANEL. LINK LIGHT ON SOLID OR OFF INDICATES A FAILURE.

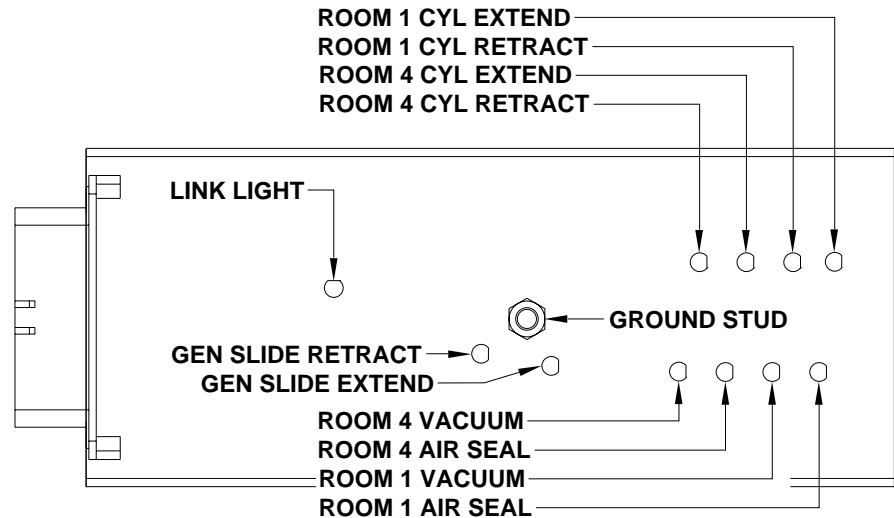
PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
1 AND 2-			NO CONNECTION
3-	BLACK	1220	SIGNAL FROM LEFT FRONT PRESS. TRANSDUCER *
4-	BLACK	1100	HEIGHT CONTROL RIDE HEIGHT LOW SWITCHED +12 *
5-	BLACK	7400	STEERING SENSOR (A) PULSED +12 *
6-	BLACK	1102	HEIGHT CONTROL RIDE HEIGHT HIGH SWITCHED +12 *
7 THRU 19-			NO CONNECTION
20-	WHITE	6230	GROUND
21-	N/A	N/A	SHIELD WIRE FOR GREEN & YELLOW CAN COMMUNICATION WIRES *
22-	YELLOW	N/A	CAN HIGH COMMUNICATION WIRE *
23-	GREEN	N/A	CAN LOW COMMUNICATION WIRE *
24-	BLACK	6900	PRESS. TRANSDUCER SUPPLY +5 VOLTS *
25-			NO CONNECTION
26-	BLACK	2220	SIGNAL FROM RIGHT FRONT PRESS. TRANSDUCER *
27-	BLACK	1101	HEIGHT CONTROL RIDE HEIGHT MEDIUM SWITCHED +12 *
28-	BLACK	7401	STEERING SENSOR (B) PULSED +12 *
29-	BLACK	1103	HEIGHT CONTROL RIDE HEIGHT MAX HIGH SWITCHED +12 *
30 AND 31-			NO CONNECTION
32-	WHITE	6231	PRESS. TRANSDUCER GROUND
33-			NO CONNECTION
34-	RED	6120	SWITCHED +12 POWER
35-	RED	6805	+12 VOLT POWER FOR I/O MODULE

\* DO **NOT** TEST WITH TEST LIGHT

# ELECTRICAL CONNECTION DIAGRAM

## FRONT ROOM MULTIPLEXED INPUT/OUTPUT MODULE

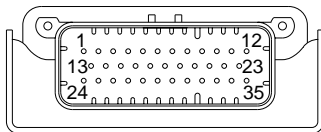
### LED AND WIRE/CONNECTION INFORMATION



A LIT RED LED INDICATES THERE SHOULD BE +12 VOLTS ON THE CORRESPONDING WIRE.

LINK LIGHT: LINK LIGHT FLASHING INDICATES PROPER COMMUNICATION BETWEEN THE I/O MODULE AND THE TOUCH PANEL. LINK LIGHT ON SOLID OR OFF INDICATES A FAILURE.

FRONT VIEW OF I/O MODULE CONNECTOR



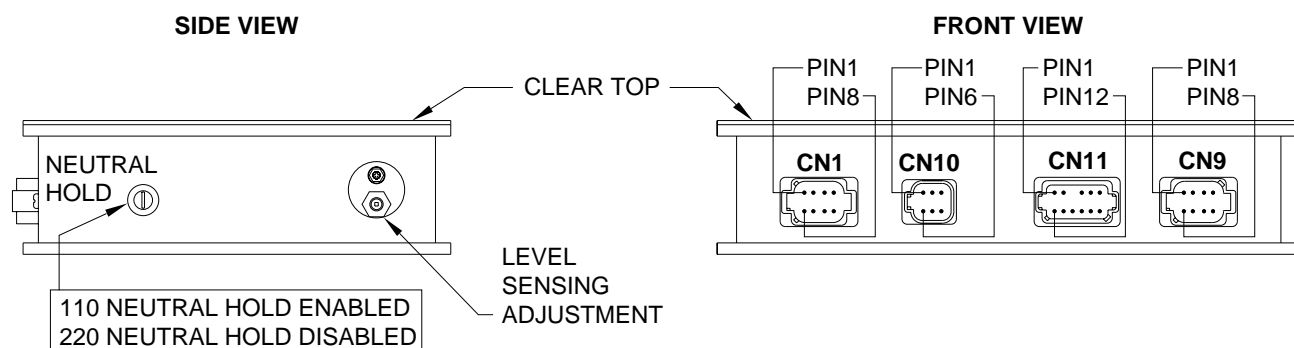
PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
1 THRU 3			NO CONNECTION
4	BLACK	5702	ROOM 4 IN SW. GND. FROM ROOM 4 ROOM IN LIMIT SWITCH *
5			NO CONNECTION
6	BLACK	5800	ROOM 1 AIR SEAL VACUUM SENSOR SWITCHED GROUND
7 THRU 12			NO CONNECTION
13	BLACK	5100	RETRACT GEN SLIDE SWITCHED +12
14 AND 15			NO CONNECTION
16	BLACK	5803	ROOM 4 AIR SEAL VACUUM SENSOR SWITCHED GROUND
17	BLACK	5701	ROOM 1 OUT SW. GND. FROM ROOM 1 ROOM OUT LIMIT SWITCH *
18 THRU 20			NO CONNECTION
21	N/A	N/A	SHIELD WIRE FOR GREEN & YELLOW CAN COMMUNICATION WIRES *
22	YELLOW	N/A	CAN HIGH COMMUNICATION WIRE *
23	GREEN	N/A	CAN LOW COMMUNICATION WIRE *
24 THRU 26			NO CONNECTION
27	BLACK	5700	ROOM 4 OUT SW. GND. FROM ROOM 4 ROOM OUT LIMIT SWITCH *
28	BLACK	5703	ROOM 1 IN SW. GND. FROM ROOM 1 ROOM IN LIMIT SWITCH *
29 AND 30			NO CONNECTION
31	BLACK	5000	EXTEND GEN SLIDE SWITCHED +12
32	WHITE	6230	GROUND
33	RED	6800	SWITCHED +12 POWER
34			NO CONNECTION
35	RED	6805	+12 VOLT POWER FOR I/O MODULE

\* DO **NOT** TEST WITH TEST LIGHT

# ELECTRICAL CONNECTION DIAGRAM

## WIRE AND CONNECTION INFORMATION

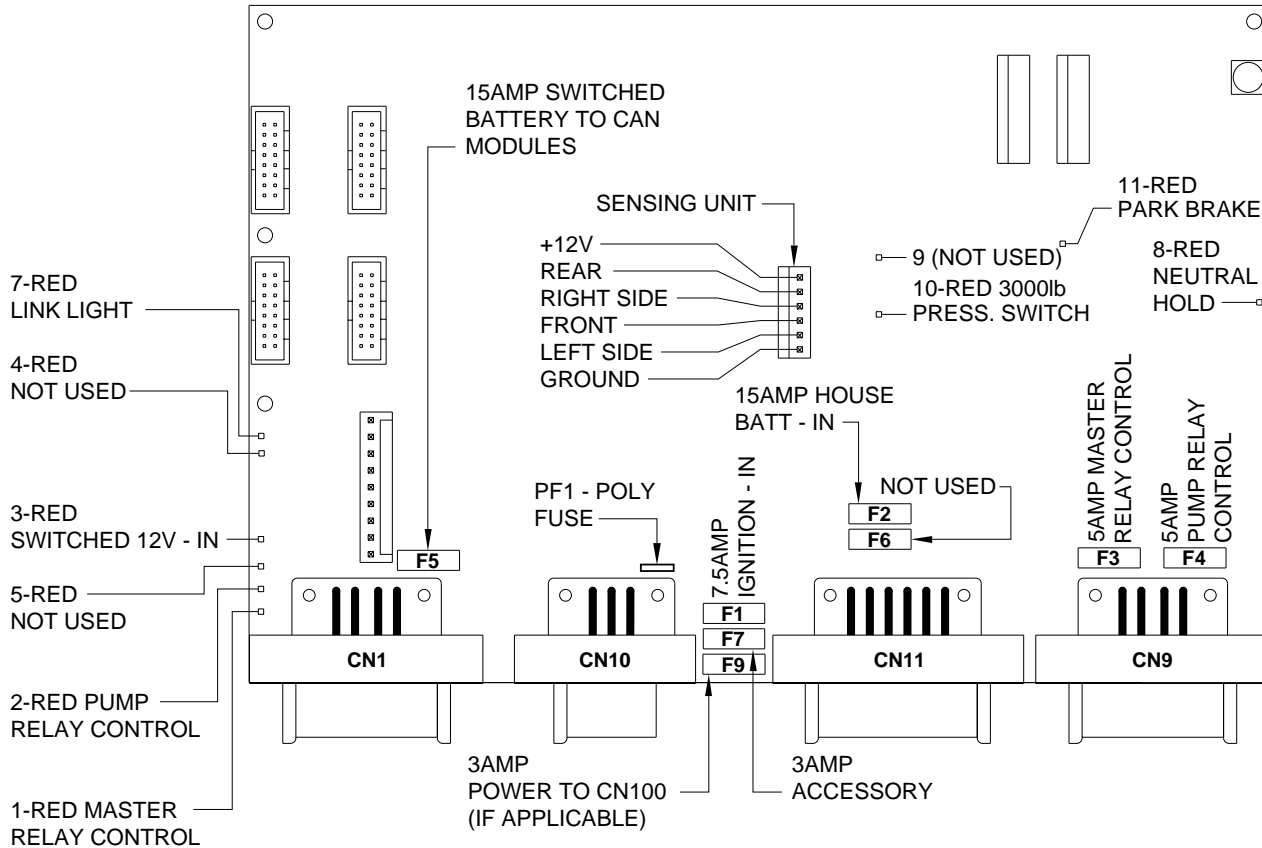
### CENTRAL CONTROL MODULE



PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
* DO <b>NOT</b> TEST WITH TEST LIGHT			
<b>CN1</b>			<b>8 PIN BLACK CONNECTOR</b>
1	BLACK	7696	SYSTEM WAKE UP SWITCHED GROUND
2			NO CONNECTION
3	RED	6805	SWITCHED +12 BATTERY
4	WHITE	6230	GROUND
5	N/A	N/A	SHIELD WIRE FOR GREEN & YELLOW CAN WIRES *
6			NO CONNECTION
7	GREEN	N/A	CAN LOW COMMUNICATION WIRE *
8	YELLOW	N/A	CAN HIGH COMMUNICATION WIRE *
<b>CN10</b>			<b>6 PIN GRAY CONNECTOR</b>
1			NO CONNECTION
2	RED	6101	RESET SWITCH SUPPLY +12
3	BLACK	7550	RESET SWITCH OUTPUT +12
4	RED	6121	WARNING LIGHT SUPPLY +12
5			NO CONNECTION
6	BLACK	7699	WARNING LIGHT CONTROL - SWITCHED GROUND
<b>CN11</b>			<b>12 PIN GRAY CONNECTOR</b>
1	RED	6110	SWITCHED +12 FROM IGNITION
2 THRU 4			NO CONNECTION (PIN 3 - KEY PIN)
5	RED	6120	SWITCHED +12 FROM ACCESSORY
6	RED	6100	HOUSE BATTERY +12
7	WHITE	6230	GROUND FOR PROCESSOR
8	BLACK	9961	NEUTRAL HOLD - GROUND FROM TRANS. ECU
9	BLACK	9955	NEUTRAL HOLD - GROUND TO TRANS. ECU
10			NO CONNECTION
11	BLACK	9000	FROM PARK BRAKE SWITCH - SWITCHED GROUND
12			NO CONNECTION
<b>CN9</b>			<b>8 PIN GREEN CONNECTOR</b>
1	BLACK	8500	MASTER RELAY CONTROL - SWITCHED +12
2	BLACK	8100	SYSTEM PRESSURE SWITCH-SWITCHED GROUND
3			NO CONNECTION
4	BLACK	8600	PUMP RELAY CONTROL - SWITCHED +12
5			NO CONNECTION
6	BLACK	9901	PUMP MONITOR-SWITCHED +12 FROM PUMP RELAY
7 AND 8			NO CONNECTION

# ELECTRICAL CONNECTION DIAGRAM LED - FUSE LOCATION AND DESCRIPTION CENTRAL CONTROL MODULE

## CENTRAL CONTROL MOTHER BOARD



LED	DESCRIPTION	CN AND PIN	FUSE DESCRIPTION
1-RED	MASTER RELAY CONTROL	CN 9 - PIN 1	PF1 - POLY FUSE - POWER TO MASTER WARNING LIGHT AND RESET SWITCH F1 - 7.5AMP IGNITION - IN F2 - 15AMP HOUSE BATTERY - IN F3 - 5AMP MASTER RELAY CONTROL F4 - 5AMP PUMP RELAY CONTROL F5 - 15AMP SWITCHED BATTERY - IN F6 - NOT USED F7 - 3AMP ACCESSORY - IN F9 - 3AMP POWER TO CN100
2-RED	PUMP RELAY CONTROL	CN 9 - PIN 4	
3-RED	SWITCHED 12V FROM MASTER RELAY	CN 1 - PIN 3	
4-RED	ENGINE BATTERY - IN	CN 11 - PIN 12	
5-RED	NOT USED	NOT USED	
7-RED	LINK LIGHT	CN 1 - PIN 7 & 8	
8-RED	NEUTRAL HOLD**	CN 11 - PIN 8 & 9	
9-RED	NOT USED	NOT USED	
10-RED	3000 LBS PRESS SWITCH - ON	CN 9 - PIN 2	
11-RED	PARK PRAKE - ON	CN 11 - PIN 11	

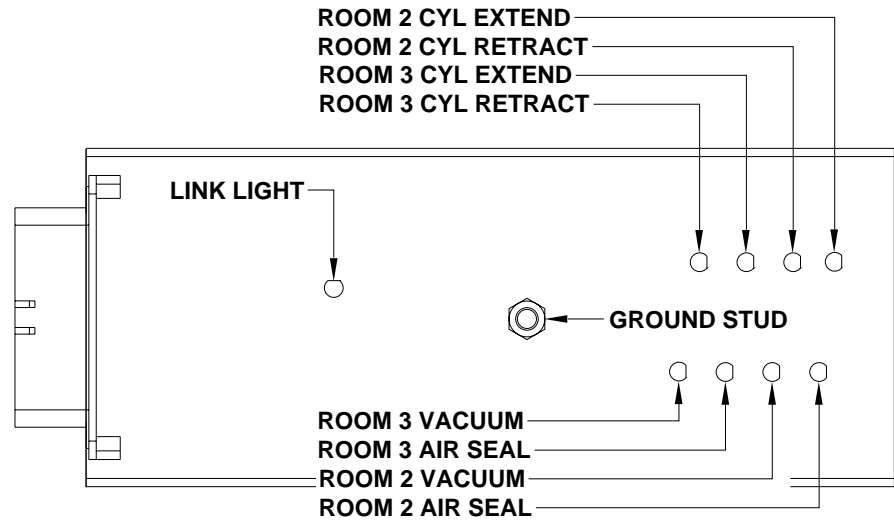
**NOTE: FOR DETAILED INPUT / OUTPUT INFORMATION ABOUT PIN CONNECTIONS SEE ELECTRICAL CONNECTION DIAGRAM - WIRE AND CONNECTION INFORMATION - CENTRAL CONTROL MODULE.**

\*\* LED 8 INDICATES TRANSMISSION IS DISABLED WHEN LIT.

# ELECTRICAL CONNECTION DIAGRAM

## REAR ROOM MULTIPLEXED INPUT/OUTPUT MODULE

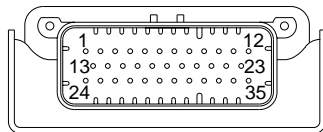
### LED AND WIRE/CONNECTION INFORMATION



A LIT RED LED INDICATES THERE SHOULD BE +12 VOLTS ON THE CORRESPONDING WIRE.

LINK LIGHT: LINK LIGHT FLASHING INDICATES PROPER COMMUNICATION BETWEEN THE I/O MODULE AND THE TOUCH PANEL. LINK LIGHT ON SOLID OR OFF INDICATES A FAILURE.

FRONT VIEW OF I/O MODULE CONNECTOR



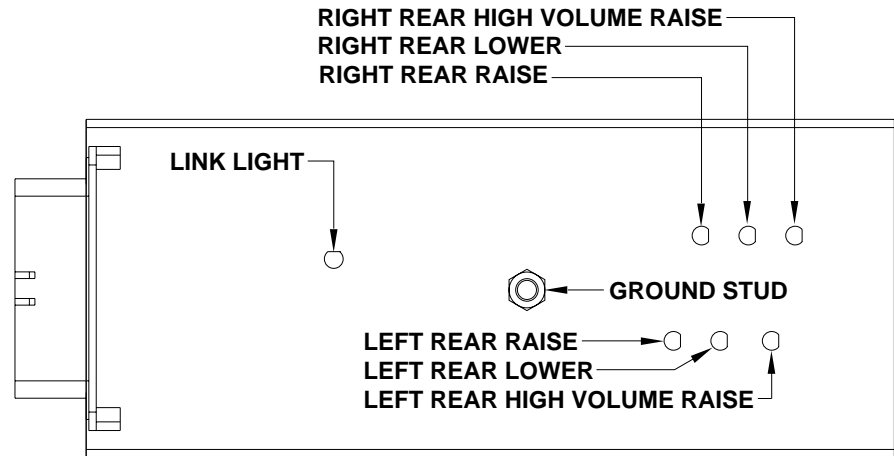
PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
1 THRU 3			NO CONNECTION
4	BLACK	5702	ROOM 3 IN SW. GND. FROM ROOM 4 ROOM IN LIMIT SWITCH *
5			NO CONNECTION
6	BLACK	5801	ROOM 2 AIR SEAL VACUUM SENSOR SWITCHED GROUND
7 THRU 15			NO CONNECTION
16	BLACK	5802	ROOM 3 AIR SEAL VACUUM SENSOR SWITCHED GROUND
17	BLACK	5701	ROOM 2 OUT SW. GND. FROM ROOM 1 ROOM OUT LIMIT SWITCH *
18 THRU 20			NO CONNECTION
21	N/A	N/A	SHIELD WIRE FOR GREEN & YELLOW CAN COMMUNICATION WIRES *
22	YELLOW	N/A	CAN HIGH COMMUNICATION WIRE *
23	GREEN	N/A	CAN LOW COMMUNICATION WIRE *
24 THRU 26			NO CONNECTION
27	BLACK	5700	ROOM 3 OUT SW. GND. FROM ROOM 4 ROOM OUT LIMIT SWITCH *
28	BLACK	5703	ROOM 2 IN SW. GND. FROM ROOM 1 ROOM IN LIMIT SWITCH *
29 THRU 31			NO CONNECTION
32	WHITE	6230	GROUND
33	RED	6800	SWITCHED +12 POWER
34			NO CONNECTION
35	RED	6805	+12 VOLT POWER FOR I/O MODULE

\* DO **NOT** TEST WITH TEST LIGHT

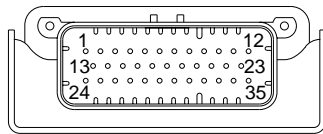
# ELECTRICAL CONNECTION DIAGRAM

## REAR AXLE ACTIVE AIR MULTIPLEXED INPUT/OUTPUT MODULE

### LED AND WIRE/CONNECTION INFORMATION



FRONT VIEW  
OF I/O  
MODULE  
CONNECTOR



A LIT RED LED INDICATES THERE SHOULD BE +12 VOLTS ON THE CORRESPONDING WIRE.

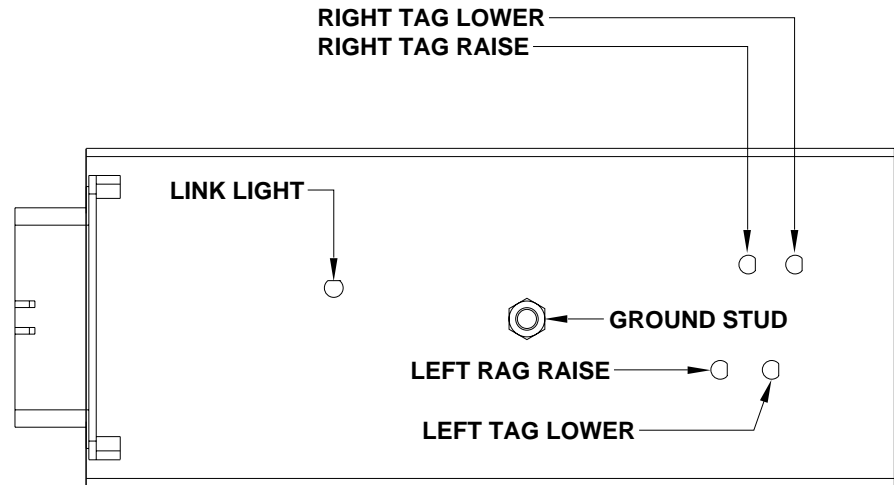
LINK LIGHT: LINK LIGHT FLASHING INDICATES PROPER COMMUNICATION BETWEEN THE I/O MODULE AND THE TOUCH PANEL. LINK LIGHT ON SOLID OR OFF INDICATES A FAILURE.

PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
1 AND 2			NO CONNECTION
3	BLACK	4220	SIGNAL FROM LEFT REAR PRESS. TRANSDUCER *
4	BLACK	4100	LEFT REAR RIDE HEIGHT LOW SWITCHED +12 *
5			NO CONNECTION
6	BLACK	4102	LEFT REAR RIDE HEIGHT HIGH SWITCHED +12 *
7	BLACK	3102	RIGHT REAR RIDE HEIGHT HIGH SWITCHED +12 *
8 THRU 14			NO CONNECTION
15	BLACK	3225	SIGNAL FROM SYSTEM PRESS. TRANSDUCER *
16			NO CONNECTION
17	BLACK	3100	RIGHT REAR RIDE HEIGHT LOW SWITCHED +12 *
18	BLACK	3101	RIGHT REAR RIDE HEIGHT MEDIUM SWITCHED +12 *
19			NO CONNECTION
20	WHITE	6230	GROUND
21	N/A	N/A	SHIELD WIRE FOR GREEN & YELLOW CAN COMMUNICATION WIRES *
22	YELLOW	N/A	CAN HIGH COMMUNICATION WIRE *
23	GREEN	N/A	CAN LOW COMMUNICATION WIRE *
24	BLACK	6901	PRESS. TRANSDUCER SUPPLY +5 VOLTS *
25			NO CONNECTION
26	BLACK	3220	SIGNAL FROM RIGHT REAR PRESS. TRANSDUCER *
27	BLACK	4101	LEFT REAR RIDE HEIGHT MEDIUM SWITCHED +12 *
28	BLACK	3103	RIGHT REAR RIDE HEIGHT MAX HIGH SWITCHED +12 *
29	BLACK	4103	LEFT REAR RIDE HEIGHT MAX HIGH SWITCHED +12 *
30 AND 31			NO CONNECTION
32	WHITE	6231	PRESS. TRANSDUCER GROUND
33			NO CONNECTION
34	RED	6120	SWITCHED +12 POWER
35	RED	6805	+12 VOLT POWER FOR I/O MODULE

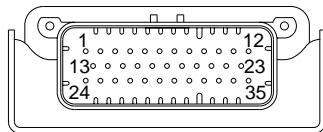
# ELECTRICAL CONNECTION DIAGRAM

## TAG AXLE ACTIVE AIR MULTIPLEXED INPUT/OUTPUT MODULE

### LED AND WIRE/CONNECTION INFORMATION



FRONT VIEW  
OF I/O  
MODULE  
CONNECTOR



A LIT RED LED INDICATES THERE SHOULD BE +12 VOLTS ON THE CORRESPONDING WIRE.

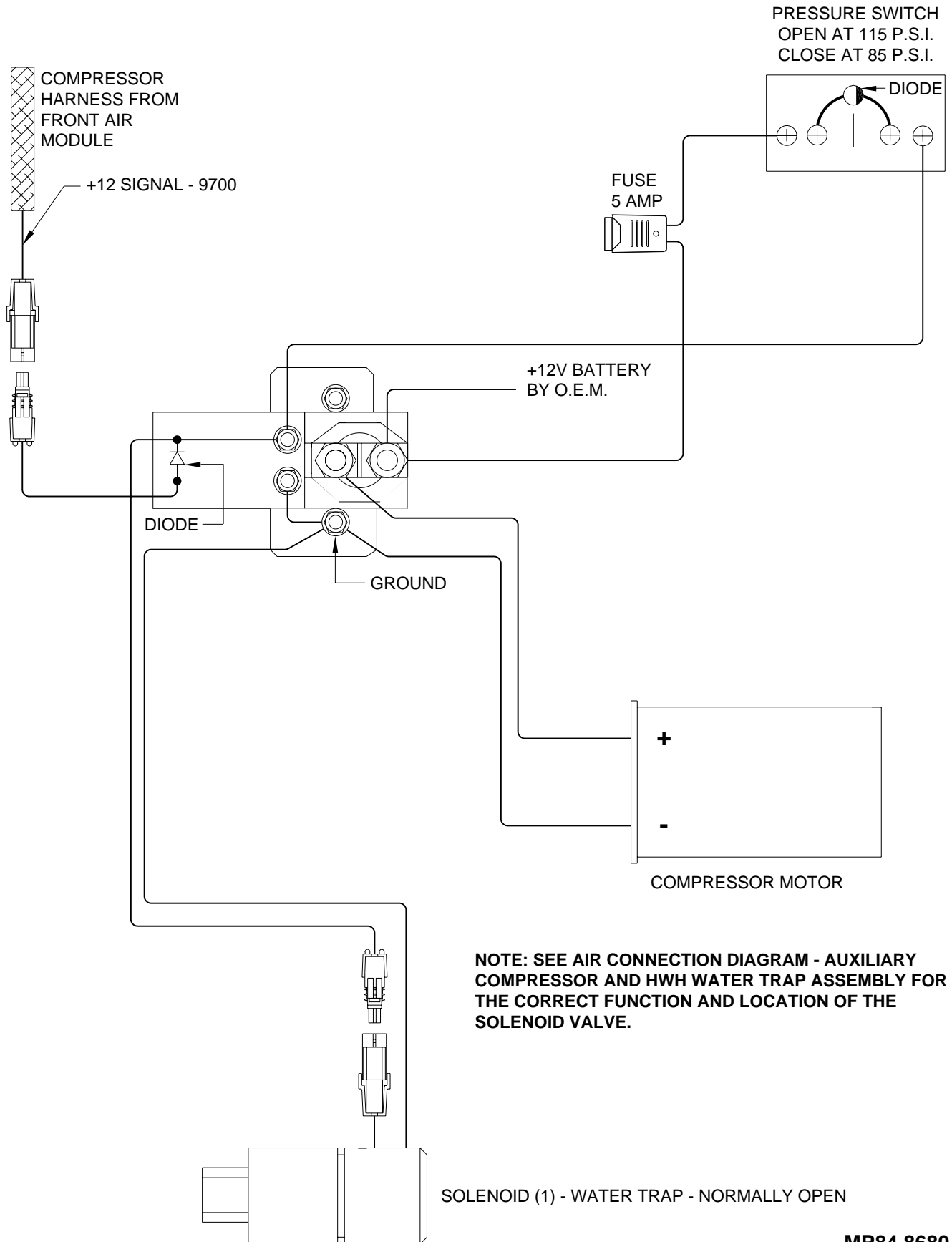
LINK LIGHT: LINK LIGHT FLASHING INDICATES PROPER COMMUNICATION BETWEEN THE I/O MODULE AND THE TOUCH PANEL. LINK LIGHT ON SOLID OR OFF INDICATES A FAILURE.

PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
1 AND 2			NO CONNECTION
3	BLACK	4221	SIGNAL FROM LEFT TAG PRESS. TRANSDUCER *
4 THRU 20			NO CONNECTION
21	N/A	N/A	SHIELD WIRE FOR GREEN & YELLOW CAN COMMUNICATION WIRES *
22	YELLOW	N/A	CAN HIGH COMMUNICATION WIRE *
23	GREEN	N/A	CAN LOW COMMUNICATION WIRE *
24	BLACK	6900	PRESS. TRANSDUCER SUPPLY +5 VOLTS *
25			NO CONNECTION
26	BLACK	3221	SIGNAL FROM RIGHT TAG PRESS. TRANSDUCER *
27 THRU 31			NO CONNECTION
32	WHITE	6232	PRESS. TRANSDUCER GROUND
33 AND 34			NO CONNECTION
35	RED	6805	+12 VOLT POWER FOR I/O MODULE

\* DO **NOT** TEST WITH TEST LIGHT

# ELECTRICAL CONNECTION DIAGRAM

## AUXILIARY COMPRESSOR CONNECTIONS

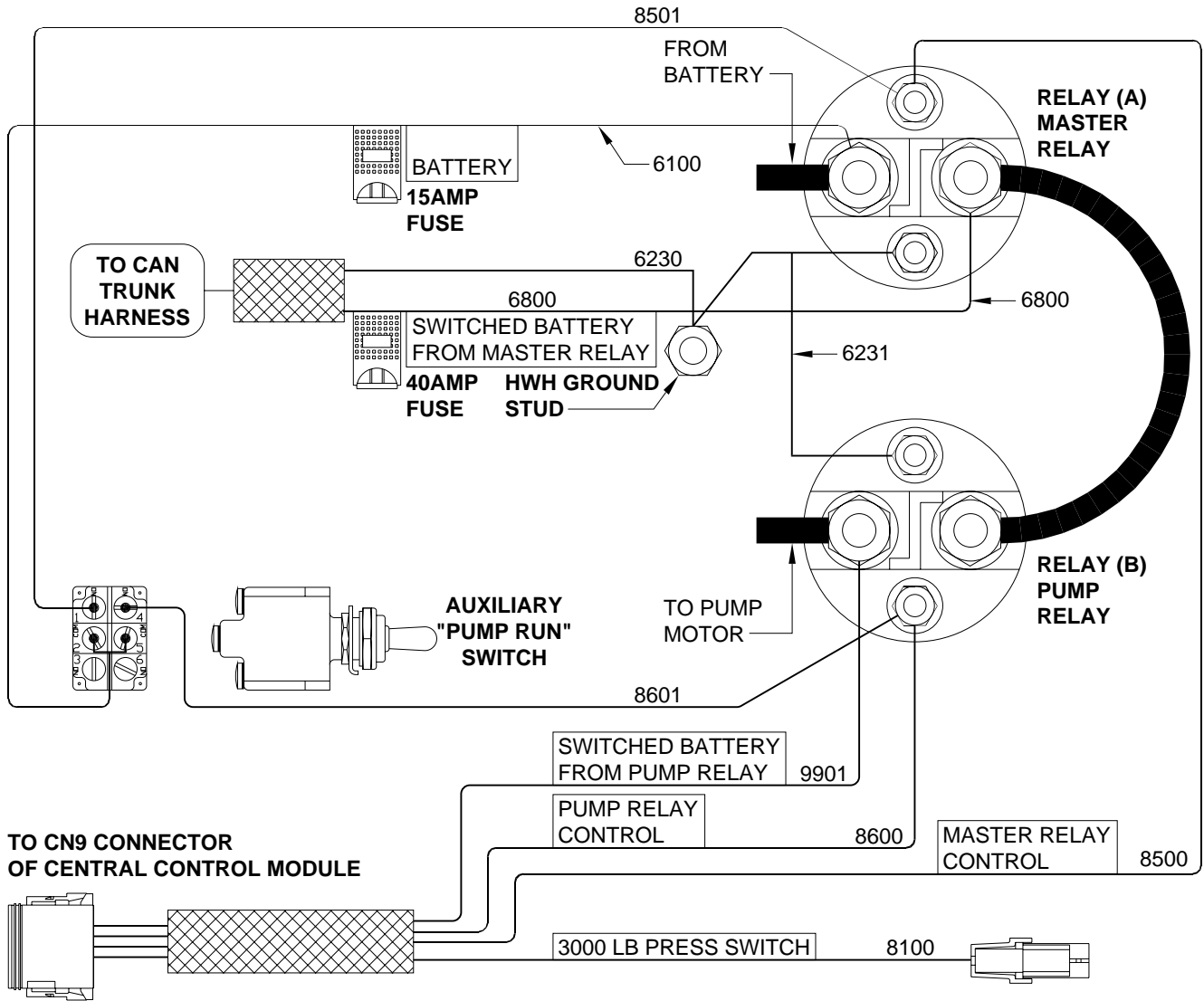




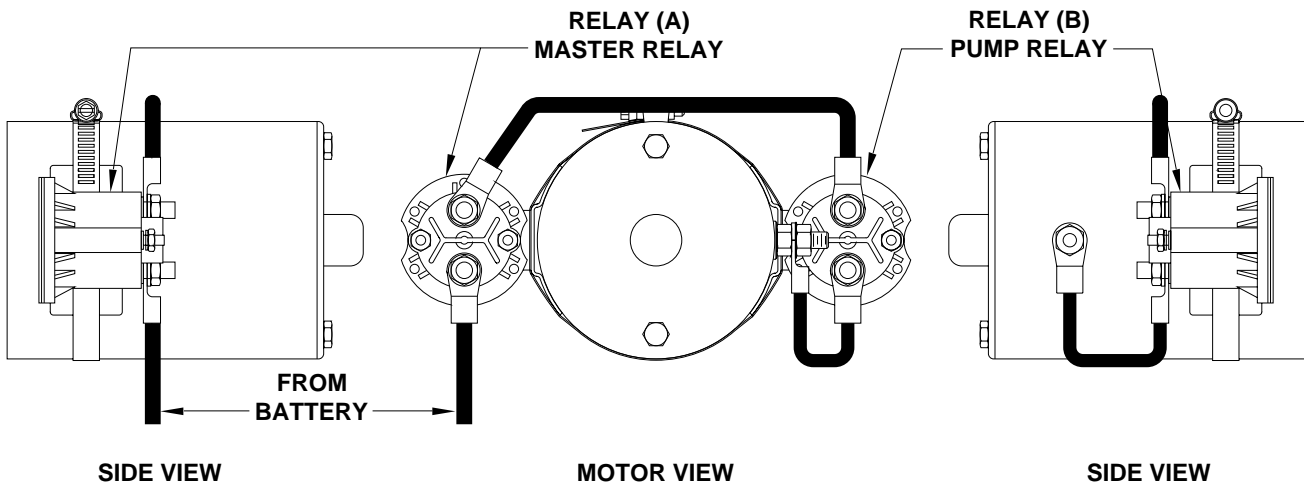
# ELECTRICAL CONNECTION DIAGRAM

## MULTIPLE ROOM EXTENSIONS

### MASTER AND PUMP RELAY

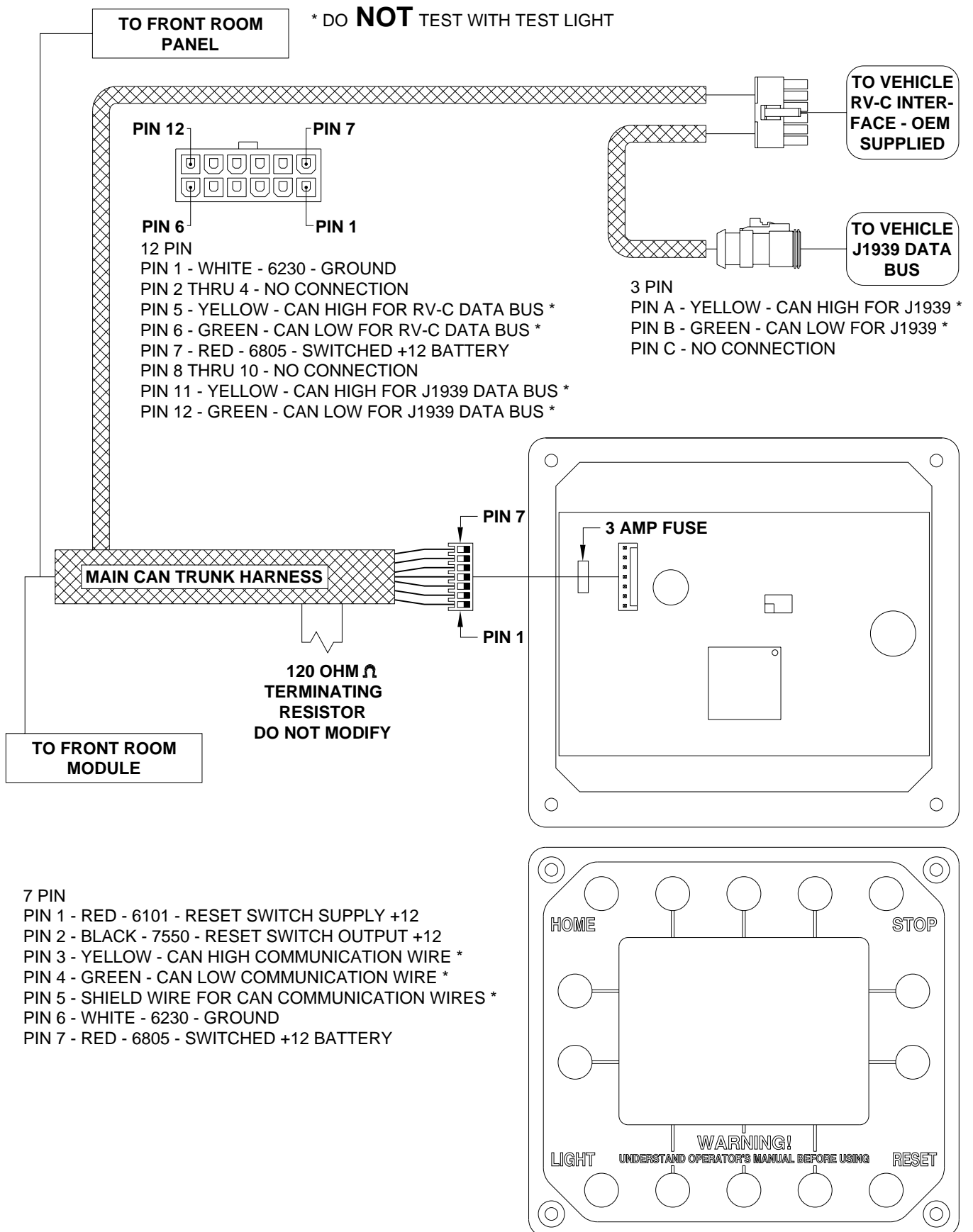


**NOTE: MASTER AND PUMP RELAYS ARE LABELED**



# ELECTRICAL CONNECTION DIAGRAM

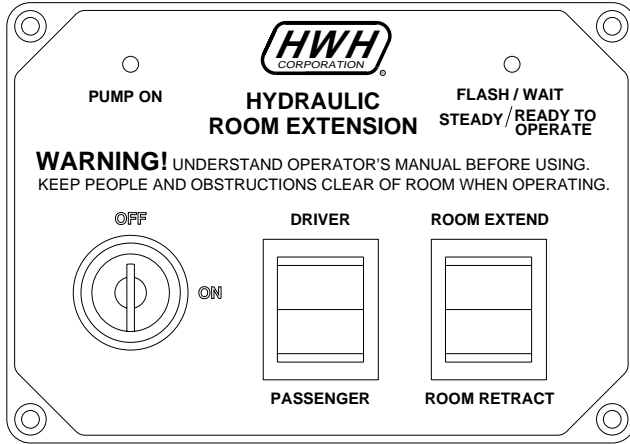
## LCD SYSTEM CONTROL PANEL / RV-C AND J1939 INTERFACE



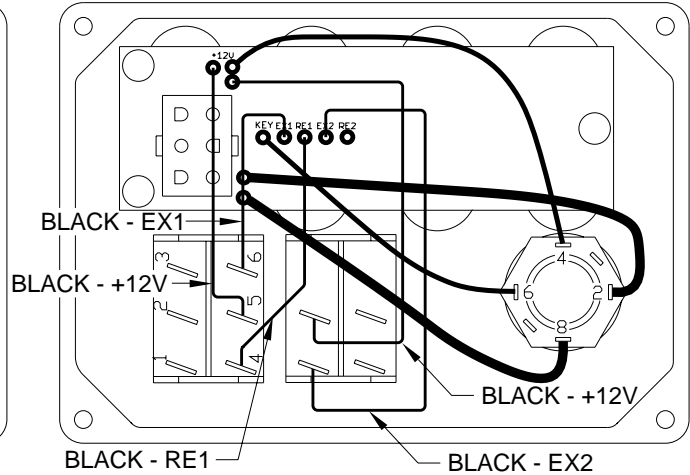
# ELECTRICAL CONNECTION DIAGRAM

## ROOM EXTENSION ROCKER SWITCH CONTROL PANEL

FRONT VIEW

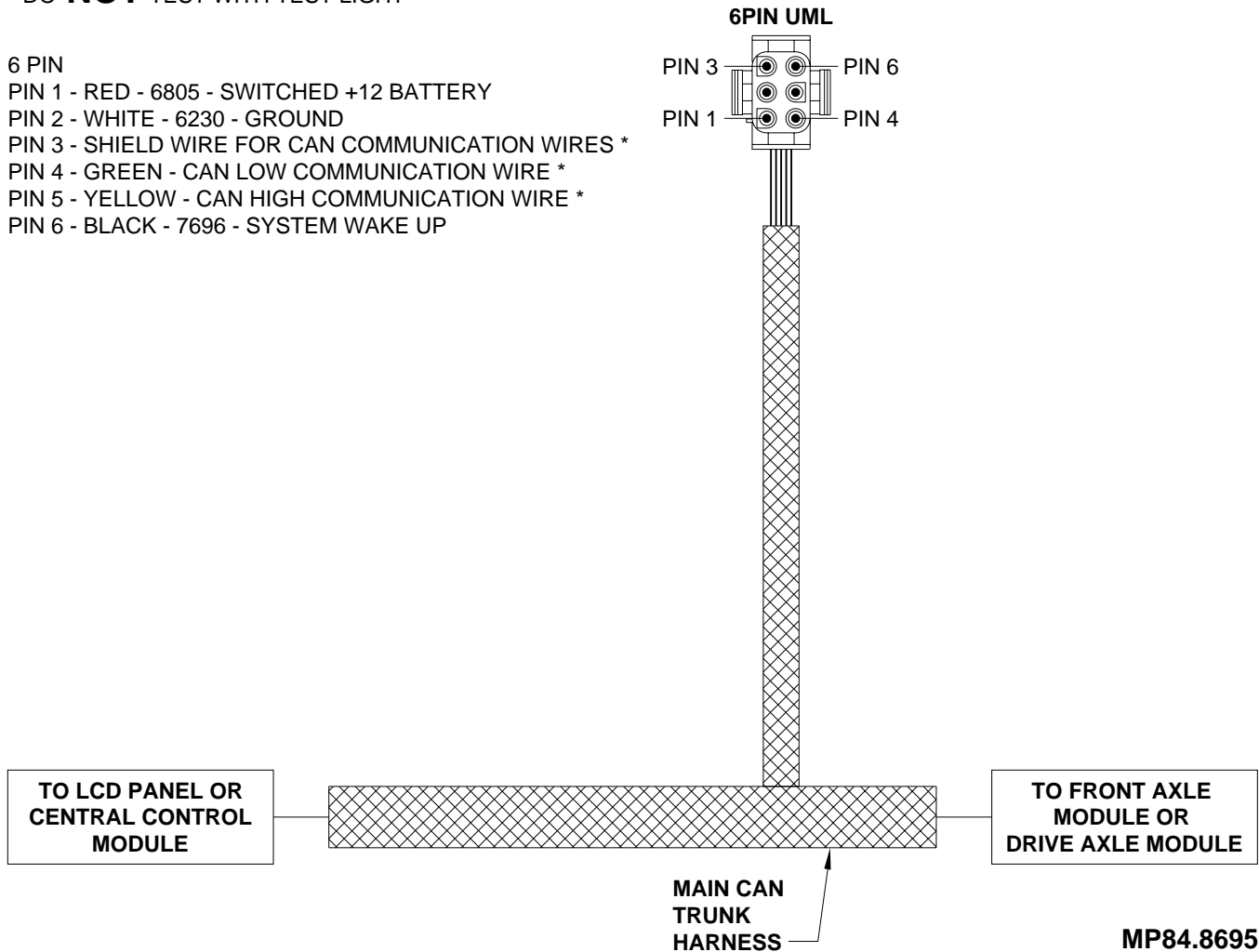


BACK VIEW



\* DO **NOT** TEST WITH TEST LIGHT

- 6 PIN
- PIN 1 - RED - 6805 - SWITCHED +12 BATTERY
  - PIN 2 - WHITE - 6230 - GROUND
  - PIN 3 - SHIELD WIRE FOR CAN COMMUNICATION WIRES \*
  - PIN 4 - GREEN - CAN LOW COMMUNICATION WIRE \*
  - PIN 5 - YELLOW - CAN HIGH COMMUNICATION WIRE \*
  - PIN 6 - BLACK - 7696 - SYSTEM WAKE UP



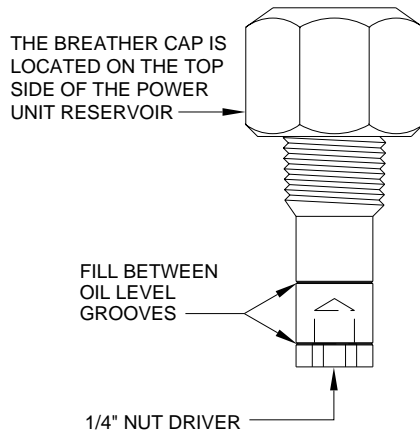
# INFORMATION/INSTRUCTION SHEET

## HYDRAULIC SOLENOID VALVE

### IDENTIFICATION - MANUAL OPERATIONS - REPLACEMENT

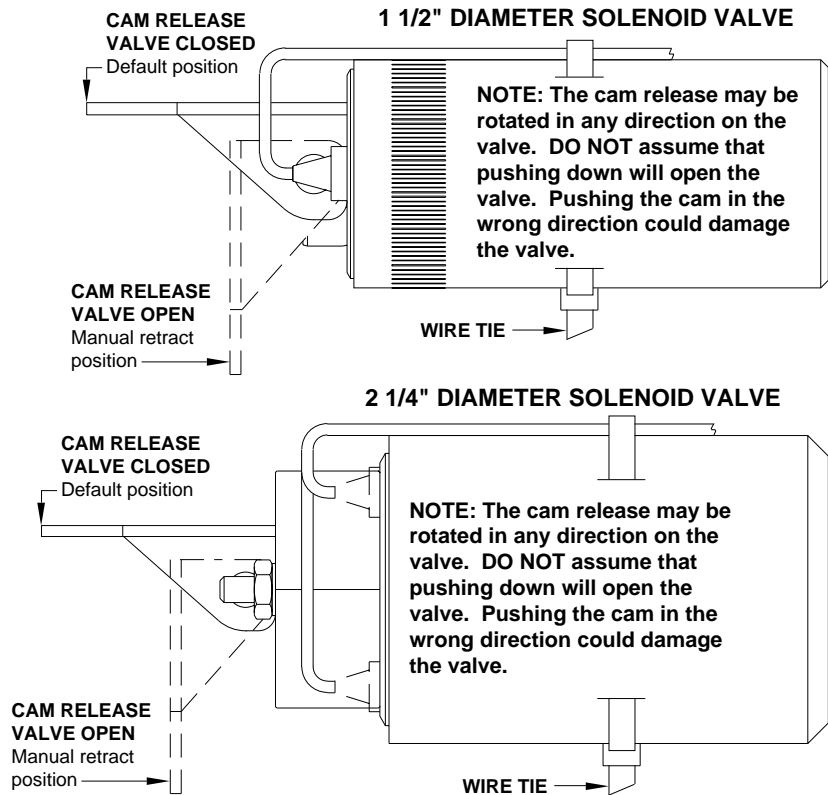
**REPLACEMENT VALVES WILL HAVE A VALVE RELEASE CAM**

#### BREATHER CAP W/NUT DRIVER

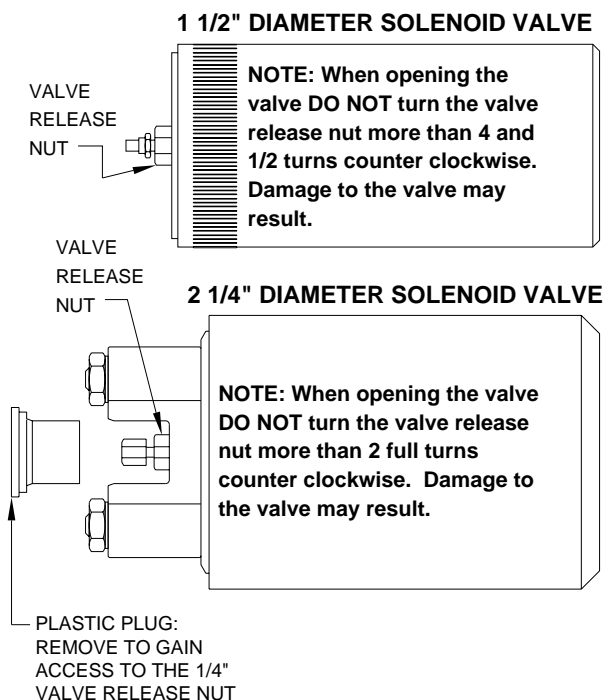


**IMPORTANT: PRIOR TO REMOVING THE BREATHER CAP, EITHER TO CHECK THE OIL LEVEL OR TO USE 1/4" NUT DRIVER, CLEAN ANY DEBRIS FROM THE TOP OF THE RESERVOIR. BEFORE RETURNING THE BREATHER CAP TO THE RESERVOIR, REMOVE ANY PAINT CHIPS OR OTHER DEBRIS FROM THE DIPSTICK INCLUDING DEBRIS INSIDE THE 1/4" NUT DRIVER.**

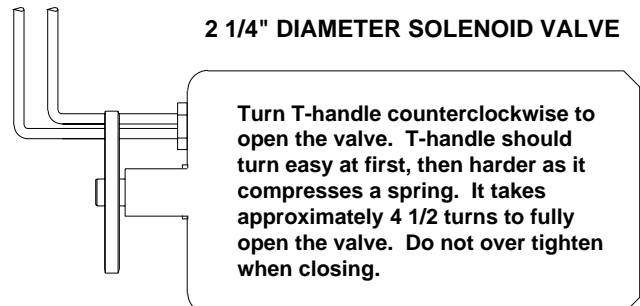
#### SOLENOID VALVES WITH CAM RELEASE



#### SOLENOID VALVES WITH 1/4" NUT RELEASE



#### SOLENOID VALVES WITH T-HANDLE RELEASE



**NOTE: OLD STYLE HEX SHAPED SOLENOID VALVES HAVE NO MANUAL VALVE RELEASE.**