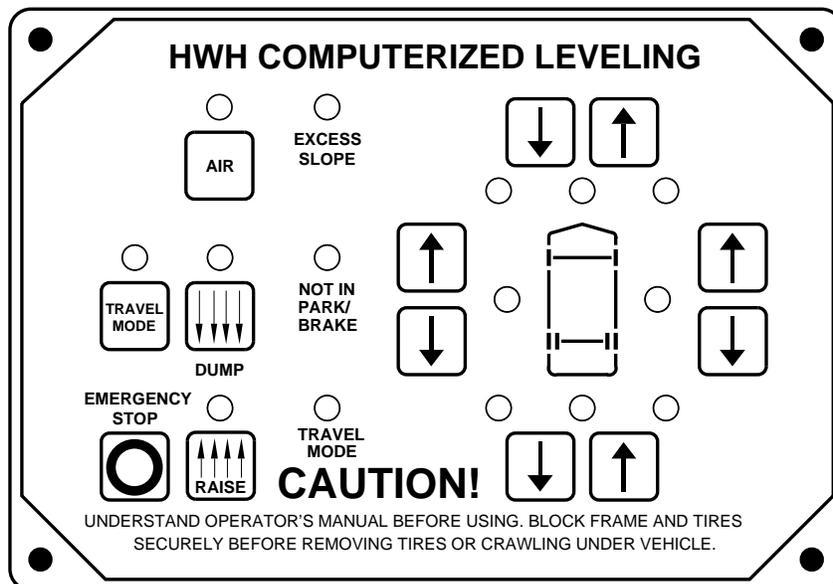




OPERATOR'S MANUAL

HWH COMPUTER-CONTROLLED LEVELING SYSTEM 2000 SERIES

FEATURING:
TOUCH PANEL CONTROL
AIR LEVELING (WITH TAG AXLE)
ONE OR TWO ROOM EXTENSIONS
(WITH ROOM LOCKS AND AIR SEALS)



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

OPERATOR'S MANUAL

CAUTION !

READ THE ENTIRE OPERATOR'S MANUAL BEFORE OPERATING.

BLOCK FRAME AND TIRES SECURELY BEFORE CRAWLING UNDER VEHICLE. DO NOT USE LEVELING JACKS OR AIR SUSPENSION TO SUPPORT VEHICLE WHILE UNDER VEHICLE OR CHANGING TIRES. VEHICLE MAY DROP AND/OR MOVE FORWARD OR BACKWARD WITHOUT WARNING CAUSING INJURY OR DEATH.

KEEP ALL PEOPLE CLEAR OF 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 OPERATE THE LEVELING SYSTEM OR USE THE DUMP OR RAISE BUTTONS IF THE VEHICLE IS MOVING IN EXCESS OF 5 MPH.

WEAR SAFETY GLASSES WHEN INSPECTING OR SERVICING THE SYSTEM TO PROTECT EYES FROM DIRT, METAL CHIPS, OIL LEAKS, ETC. FOLLOW ALL OTHER APPLICABLE SHOP SAFETY PRACTICES.

IMPORTANT: IF COACH IS EQUIPPED WITH A ROOM EXTENSION, READ ROOM EXTENSION SECTION BEFORE OPERATING LEVELING SYSTEM.

HOW TO OBTAIN WARRANTY SERVICE

THIS IS NOT TO BE INTERPRETED AS A STATEMENT OF WARRANTY

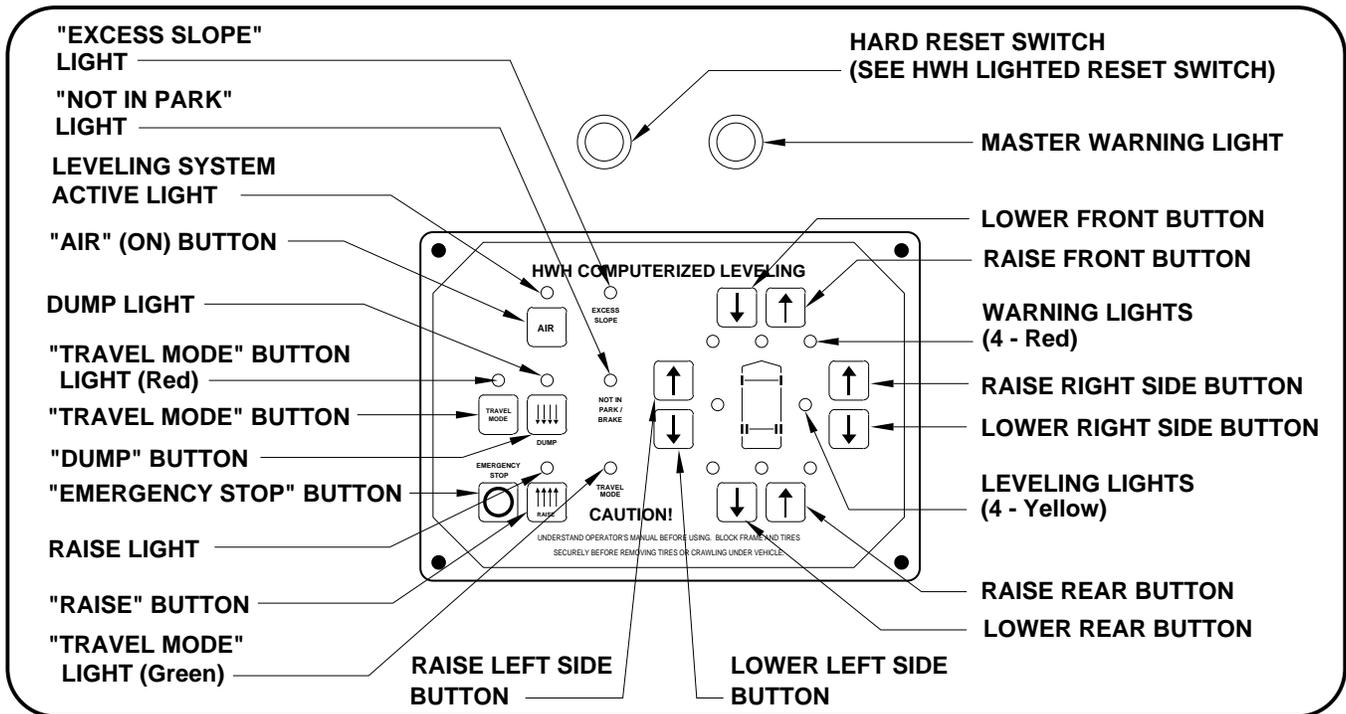
HWH CORPORATION strives to maintain the highest level of customer satisfaction. Therefore, if you discover a defect or problem, please do the following:

FIRST: Notify the dealership where you purchased the vehicle or had the leveling system installed. Dealership management people are in the best position to resolve the problem quickly. If the dealer has difficulty solving the problem, he should immediately contact the Customer Service Department, at HWH CORPORATION.

SECOND: If your dealer cannot or will not solve the problem, notify the Customer Service Department:
HWH CORPORATION 2096 Moscow Rd. Moscow IA. 52760
(563) 724-3396 OR (800) 321-3494. Give your name and address, coach manufacturer and model year, date the coach was purchased, or the date of system installation,

description of the problem, and where you can be reached during business hours (8:00 a.m. till 5:00 p.m. c.s.t.). HWH CORPORATION personnel will contact you to determine whether or not your claim is valid. If it is, HWH CORPORATION will authorize repair or replacement of the defective part, either by appointment at the factory or by the authorization of an independent service facility, to be determined by HWH CORPORATION. All warranty repairs must be performed by an independent service facility authorized by HWH CORPORATION, or at the HWH CORPORATION factory, unless prior written approval has been obtained from proper HWH CORPORATION personnel.

CONTROL IDENTIFICATION



CONTROL FUNCTIONS

CONTROL BUTTONS

"AIR" BUTTON: This is the system active and automatic operation button. It works if the ignition is in the "ON" position.

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

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

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

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

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

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

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

INDICATOR LIGHTS

LEVEL SYSTEM ACTIVE LIGHT: ON when the system is active, and flashes during automatic leveling.

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

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

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

"TRAVEL MODE" BUTTON LIGHT (RED): Light flashes for 3 seconds after the "TRAVEL MODE" button is pushed.

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

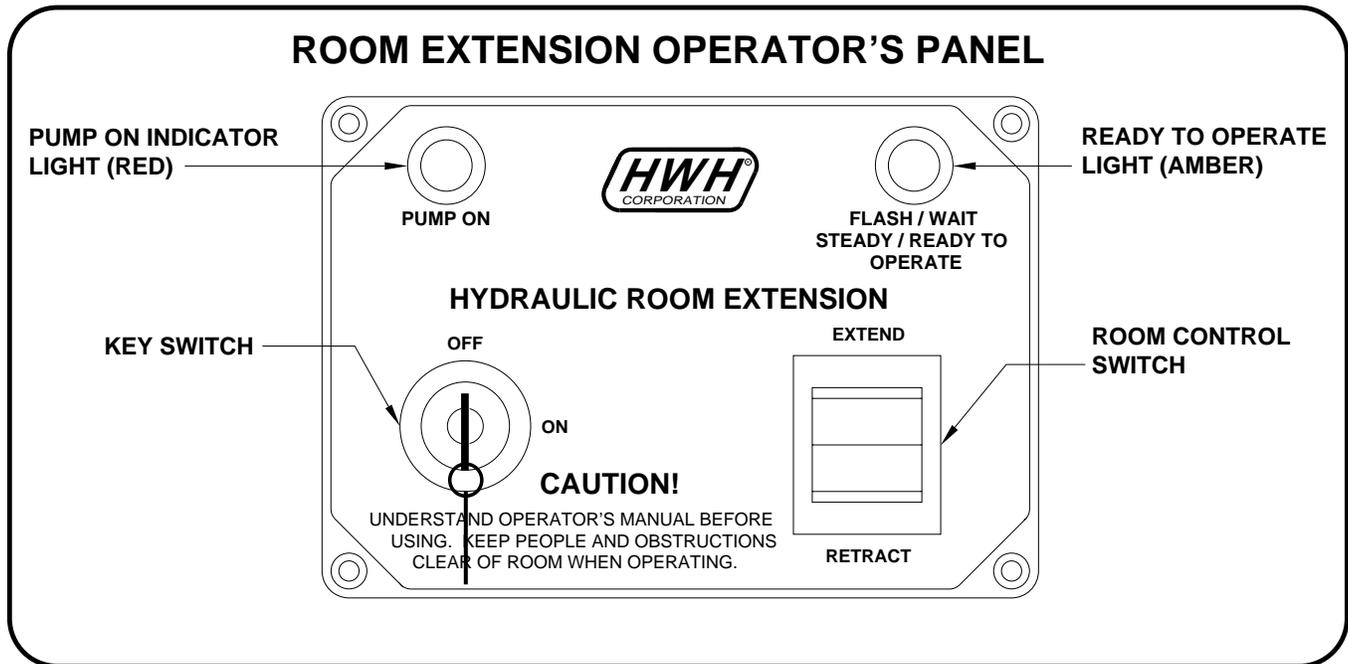
WARNING LIGHTS: Function with the ignition in the "ON" position. ON when the LEVELING SYSTEM ACTIVE LIGHT is ON. See PREPARATION FOR TRAVEL.

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

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

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

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.

PUMP ON INDICATOR LIGHT: This light will be on when the pump is running.

READY TO OPERATE LIGHT: This light will flash for 20 seconds while the air seal deflates, after the KEY SWITCH is turned on. It will then glow steady. Except for EXCESS SLOPE situations, the room cannot be extended or retracted if this light is flashing.

If the "EXCESS SLOPE" light on the leveling system control panel is on, 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 not turn on and flash when the KEY SWITCH is turned "ON".

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 a HWH low air pressure switch is on, if the Leveling System is on, if the Leveling System is not in the TRAVEL mode, or if a room in or room lock limit switch is not made.

CONTROL IDENTIFICATION

PUMP RUN TIME

PUMP RUN TIME

Pump motors used with HWH leveling systems and room extension systems come in 3 different diameters; 3", 3.7" and 4.5". Contact the vehicle manufacturer or HWH for help with identifying the motor size. **It is important that any time the pump runs for more than four 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 four 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 four or six minutes without allowing the pump motor to cool for thirty minutes.**

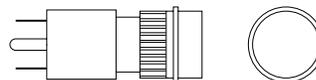
Some systems can be turned back on immediately after the processor turns the pump off. **DO NOT turn the system back on or run the pump without allowing the pump motor to cool for thirty minutes.**

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 four 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 four minutes with a 3" motor; or six minutes with a 3.7" or 4.5" motor that the motor is allowed to cool for thirty minutes before continuing. Continuous operation of the pump motor without allowing the motor to cool can damage the motor. Continuous operation of the pump with slow moving jacks or rooms in cold weather, without allowing the pump motor to cool will cause the pump motor to burn up and damage the pump assembly.

OPERATING PROCEDURES

NETWORK INFORMATION

The HWH 2000 series CAN system is a computerized modular network. It controls all functions of the leveling system and the room extensions. The network is active any time the ignition is in the "ON" position or when any room extension control panel key is "ON". Certain functions and indicator lights for the leveling system will work when the network is active. Certain functions and lights will work ONLY if the the ignition is in the "ON" position to start the function.

NOTE: The network will stay active for 10 minutes after the ignition key and all room extension control panel keys have been turned "OFF". If the leveling system was turned "ON", the network will stay active for 10 minutes after automatic leveling is complete or the system goes "EXCESS SLOPE". If manual leveling buttons were used, the network stays active for 10 minutes after the last manual button is released.

GENERAL INSTRUCTIONS

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

The MASTER WARNING LIGHT will be on if an air bag has low pressure or if a room in or room lock limit switch is not made, if the ignition is in the "ON" position.

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

The "DUMP" and "RAISE" buttons will function with the leveling system and park brake off, if the ignition is in the "ON" position or if the network is active. See AIR DUMP AND RAISE FUNCTIONS section of this manual.

If the Park Brake is not set, the Leveling System cannot be turned ON and the room extension will not operate.

If a ROOM CONTROL SWITCH is being pushed, no other room or the Leveling System can be operated. If any Leveling System raise or lower function is being operated, no room control switch will work.

NEUTRAL HOLD OVERRIDE SWITCH

If a room is not fully retracted and locked the transmission will not shift out of "NEUTRAL".

If the rooms are fully retracted and locked and the transmission will not shift out of NEUTRAL, using a key or a screwdriver turn the HOLD OVERRIDE selector switch to the

position labeled "220" the switch is located on the outside of the Central Control Module. This will allow the transmission to be shifted. The system should be serviced as soon as possible. The HOLD OVERRIDE selector switch should be left in the "110" position for normal operation.

HWH LIGHTED RESET SWITCH

The HWH lighted reset switch is located on the shifter panel. If there is a failure at any time in the HWH CAN network, the network will shut down. The leveling system and all room extensions will not operate. If the ignition is off, no indicator lights will come on. If the ignition is in the "ON" position, the lighted reset switch and the MASTER WARNING Light will come on.

If the lighted reset switch is on, the switch must be pushed before any room or the leveling system can be operated.

If the operation of the room is halted and the lighted reset switch is on, there may be a problem with an unlock limit switch. The room mechanism should be checked and repaired before trying to operate that room again. Operating a room with a lock extended may cause extensive damage to the room.

Excessive operation of the hydraulic pump can shut the HWH CAN network down. The lighted reset switch will be on if the ignition is on. The reset button must be pushed before any operation can continue. Allow the pump to cool before continuing hydraulic operations.

A network problem with one room will not inhibit the use of the other rooms or leveling system after the reset switch is pushed.

A network problem with the leveling system will not inhibit the use of the room extensions after the reset switch is pushed.

If the lighted reset switch will not go out when pushed, there is a problem with the central control module of the network system. No rooms or the Leveling System will operate. The vehicle suspension will return to the travel mode if the ignition key is in the "ON" position.

CAUTION: IF THE IGNITION IS IN THE "ON" POSITION AND THE LIGHTED RESET SWITCH IS ON, THE VEHICLE CAN RETURN TO RIDE HEIGHT WITHOUT RELEASING THE PARK BRAKE.

OPERATING PROCEDURES

PREPARATION FOR TRAVEL

Check that all room extensions are fully retracted and locked. The green "TRAVEL MODE" light on the touch panel will not be on if a room is extended or not locked. The MASTER WARNING light will be ON. (SEE ROOM RETRACT PROCEDURES)

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

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

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

CAUTION: IT IS THE OPERATOR'S RESPONSIBILITY TO CHECK THAT THE VEHICLE IS AT PROPER RIDE HEIGHT AND THE SLIDE-OUT IS FULLY RETRACTED BEFORE TRAVELING.

Before traveling, the MASTER WARNING light must be off and the "TRAVEL MODE" light must be ON.

NOTE: Low air pressure or an extended or unlocked room can turn the green "TRAVEL MODE" light off and turn the MASTER WARNING light on.

Refer to "DUMP" and "RAISE" FUNCTIONS operating procedures when moving the vehicle with the suspension NOT at the proper ride height.

AUTOMATIC AIR OPERATION

NOTE: The ignition must be in the "ON" position to use the "AIR" button. Once the operation is started, the ignition can be moved to the "OFF" position and the operation will continue. If a ROOM CONTROL switch is being pushed, the Leveling System can not be operated.

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

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

2. Press the "AIR" button once to enter the air mode. The LEVELING SYSTEM ACTIVE LIGHT will glow steady. When the ignition is in the "ON" position, the four red WARNING lights on the panel will come on. This indicates that the height control valves have been locked out. The vehicle should not be moved when these lights are on.

3. Press the "AIR" button a second time. The LEVELING SYSTEM ACTIVE LIGHT will start flashing and air leveling will begin. The system will attempt to level the vehicle by exhausting air from 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.

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

4. When all four yellow level lights are out, the LEVELING SYSTEM ACTIVE LIGHT will stop flashing and start pulsating dimly. The Leveling System is now in the SLEEP MODE. The vehicle's engine/ignition may now be turned OFF.

NOTE: After the ignition and all room extension KEY SWITCHES are turned OFF, the CAN Network stays active for 10 minutes before shutting down. Leveling System touch panel lights will stay ON during this time and go out when the CAN Network shuts down. If the Leveling System is in the SLEEP MODE when the Network shuts down, the computer will stay ON. The Leveling System touch panel lights will all be OFF, but the Leveling System will still be in the SLEEP MODE.

5. During the Sleep Mode, after 30 minutes the processor checks the Level Sensing Unit inputs. If no input for a yellow level light is seen, the processor remains dormant and will recheck the level unit inputs every thirty minutes. If a yellow level light input is blinking, the processor will monitor the level sensing unit inputs continuously. If the input stays off for one minute, the processor reverts to checking the inputs every 30 minutes. If the input stays on for one minute continuously, the processor will relevel the vehicle.

NOTE: Touch Panel Lights will not be ON unless the system is actively leveling the vehicle.

6. If the vehicle needs to be relevelled, the CAN Network will become active. The LEVELING SYSTEM ACTIVE LIGHT will flash. One or two yellow LEVELING LIGHTS will be ON. When the yellow LEVELING LIGHTS are all out, the LEVELING SYSTEM ACTIVE LIGHT will stop flashing and start pulsating dimly. The Leveling System will remain in the SLEEP MODE with the computer monitoring the LEVELING SENSING UNIT every 30 minutes, releveling the vehicle as needed.

OPERATING PROCEDURES

AUTOMATIC AIR OPERATION (Continued)

NOTE: The CAN Network will stay active for 10 minutes after releveling the vehicle and then shut down, turning the touch panel lights OFF. This happens every time the system relevels the vehicle.

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

EXCESS SLOPE: The system will attempt to level the vehicle for approximately 15 to 20 minutes. After the 15 to 20 minutes, if a LEVEL SENSING light is still on, the "EXCESS SLOPE" light will come on. The LEVEL LIGHT indicator light will go out. The "EXCESS SLOPE" light will be on whenever the network is active.

NOTE: Room extensions can not be extended if the "EXCESS SLOPE" light is on but they can be retracted.

The "EXCESS SLOPE" light will be on whenever the network is active until the vehicle is leveled with all yellow LEVEL indicator lights off.

TAG AXLE DUMP

The tag axle dump switch is supplied by Foretravel.

IMPORTANT: Refer to Foretravel for proper use of the TAG DUMP feature.

The tag dump switch will work only with the ignition switch in the "ON" position and the Leveling System panel off.

NOTE: If the TAG DUMP switch is in the DUMP position and the ignition key is turned ON (with the Leveling System panel OFF) the tag axle air bags will go into the dump mode.

The TAG DUMP switch, in either the DUMP or TRAVEL position, will not interfere with any air leveling operations.

OPERATING PROCEDURES

MANUAL AIR OPERATION

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

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

NOTE: If the "NOT IN PARK/BRAKE" light is on, the leveling system cannot be turned on.

2. Press the "AIR" button once to enter the air mode. The LEVELING SYSTEM ACTIVE LIGHT indicator light will glow steady. When the ignition is in the "ON" position, the four red WARNING lights on the panel will come on. This indicates that the height control valves have been locked out. The vehicle should not be moved when these lights are on.

3. The vehicle can now be leveled using the RAISE (up arrow) and LOWER (down arrow) buttons on the right half of the

panel in conjunction with the yellow LEVEL indicator lights. **Any side to side leveling should be done, if needed, before leveling the vehicle front to rear.** The yellow LEVEL indicator light indicates that side or end is low. When all yellow lights are out the vehicle is level. Try leveling the vehicle by lowering the high side or end (opposite of the lit yellow level lights). If a level position is not achieved use the RAISE (up arrow) button to raise the low side or end.

NOTE: In either manual or automatic leveling when either front air manifold air bag pressure switch is on a front lower procedure is halted. When either rear air manifold air bag pressure switch is on, a rear lower procedure is halted. Air bag pressure switches will not interfere with either a right or left lower procedure.

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

5. Turn the system off.

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

"DUMP" AND "RAISE" FUNCTIONS

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

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

IMPORTANT: If the ignition is ON and the park brake is OFF, the "DUMP" and "RAISE" features will latch in and remain on. If the vehicle exceeds 10 MPH, the "DUMP" or "RAISE" functions will automatically turn off and the system will return to the TRAVEL MODE. If the park brake is set, the "TRAVEL MODE" button must be pushed before the vehicle can return to ride height.

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

DO NOT OPERATE THE VEHICLE UNLESS THE AIR SUSPENSION IS AT THE PROPER HEIGHT FOR TRAVEL.

The "RAISE" and "DUMP" buttons can be used at any time the network is active. The park brake does not have to be on.

If the ignition is in the "ON" position and the park brake is off, the "RAISE" or "DUMP" buttons will latch in. The vehicle will raise or lower completely and stay in that position. The vehicle can not return to ride height until the "TRAVEL MODE" button or the "EMERGENCY STOP" button is pushed or the vehicle exceeds 10 M.P.H, putting the system in the TRAVEL MODE.

If the ignition is in the "OFF" position the "RAISE" and "DUMP" buttons will not latch in. The vehicle will remain in the position it was when the button was released. The vehicle can return to ride height when the ignition is turned to "ON" if the park brake is released or the "TRAVEL MODE" button is pushed.

DO NOT operate the vehicle for extended distances unless the air suspension is at the proper height for travel. The vehicle can not return to ride height until the "EMERGENCY STOP" button is pushed or the vehicle exceeds 10 MPH, putting the system in the TRAVEL MODE.

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

OPERATING PROCEDURES

ROOM EXTEND PROCEDURE

IMPORTANT: It is recommended to level the vehicle before extending the room.

1. The park brake must be set for the room to be operated. If the "EXCESS SLOPE" light on the touch panel is on, the room cannot be extended.

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

IMPORTANT: If the "EXCESS SLOPE" light is ON, the vehicle must be re-leveled so all yellow LEVEL indicator lights on the touch panel 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. Insert the KEY into the KEY SWITCH on the room extension operator's panel and turn it to the "ON" position. The READY TO OPERATE light will flash. When the amber light is on steady the room can be operated.

NOTE: Anytime the KEY SWITCH is on, the room air seal 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.

3. To extend the room, push and hold the ROOM CONTROL SWITCH in the extend position. The red PUMP ON light will come on. There may be a delay of several seconds (no more than 10 seconds) before the PUMP ON light comes on after the switch is pushed. 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. This may cause a delay in room operation when the Room Control switch is pushed. While the Room Control Switch is being pushed a loss of vacuum in the air seal will not halt the movement of the room unless the Room Control switch is released. The Room Control switch will not work until the vacuum switch is made.

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.

4. 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.

OPERATING PROCEDURES

ROOM RETRACT PROCEDURE

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

1. The park brake must be set for the room to be operated.

IMPORTANT: It is recommended that the coach is level before retracting the room.

2. 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.

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.

3. 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: (FOR ROOMS WITH HWH LOCKS) If the ROOM CONTROL SWITCH is released before the red PUMP ON light goes out, the room may not be properly locked. The transmission will not shift out of "NEUTRAL".

NOTE: Under normal operation 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.

4. 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.

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

MANUAL ROOM AND GENERATOR SLIDE RETRACT PROCEDURE (WITH SOLENOID VALVES WITH VALVE RELEASE NUTS)

(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 winch and information for connecting the winch to the room.

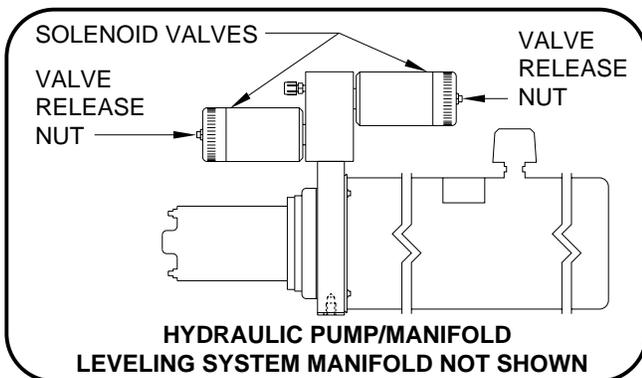
IMPORTANT: If the vehicle is not equipped with a winch, DO NOT use other pulling devices to retract the room. Follow steps 2 and 3 and try pushing the room in. Contact the vehicle manufacturer or HWH Customer Service at 1-800-321-3494 or 563-724-3396 for assistance.

CAUTION: THE MANUAL RETRACT WINCH 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 CAUTIONS AND INSTRUCTIONS MAY CAUSE FAILURE OF THE MANUAL RETRACT WINCH OR CONNECTIONS RESULTING IN DAMAGE OR PERSONAL INJURY. MAINTAIN 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, make sure the jacks are retracted before retracting the room.

2. Locate the HYDRAULIC PUMP/MANIFOLD unit.



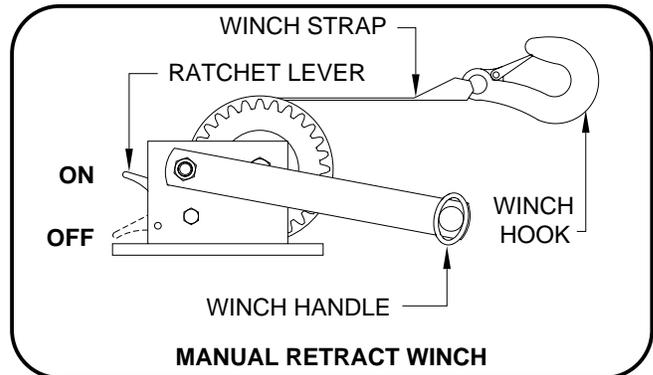
3. Open the Solenoid Valves by slowly turning the valve release nuts counter clockwise using the 1/4" nut driver supplied.

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.

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

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

4. Locate the MANUAL RETRACT WINCH and connect it to the room according to the vehicle manufacturer's instructions. To extend the 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.

CAUTION: 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 TOO DIFFICULT STOP AND CHECK FOR OBSTRUCTIONS OR 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.

CAUTION: THE ROOM EXTENSION SOLENOID VALVE RELEASE NUTS 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.

MP35.952D
01MAY02

OPERATING PROCEDURES

FRONT ROOM ROOM EXTENSION OPERATION SEQUENCE ROOM EXTEND SEQUENCE

IMPORTANT: MAKE SURE A WINDOW OR DOOR IS OPEN BEFORE EXTENDING THE ROOM.

1. Park brake must be set.
2. Turn the room extension control panel key to "ON".
3. The amber "READY TO OPERATE" light will flash. A +12 signal controls the "READY TO OPERATE LIGHT".
4. Any time the room extension key is ON, there is a +12 volt signal to the air seal valve. There is also a +12 volt signal to the vacuum valve which is not constant. The +12 signal for the vacuum valve is present during the initial 20 second air seal deflate time, anytime the room control switch is pushed to "EXTEND" or "RETRACT", or if the air seal manifold is equipped with a vacuum switch, anytime the vacuum switch is not made.
5. After 20 seconds, the amber "READY TO OPERATE" light will be on steady. The room cannot be operated if the "READY TO OPERATE" light is flashing.
6. Push the Room Extension Control Switch to "EXTEND". This will send a +12 signal for the pump relay and the room extension solenoid valves from the control modules. A +12 signal turns the room control panel red pump on light ON when the pump is running.

NOTE: The room control switch must be held in the "EXTEND" position during the extend sequence. If the room control switch is released before the sequence is complete, the sequence will start over from Step 6 when the switch is pushed to extend again.

7. A +12 signal will open the room unlock valve. This valve will stay open during the complete extend sequence.

8. When the room lock pins are fully retracted, the room unlock limit switch arrangement will send a +12 volt signal to the room module. The manifold pressure switch will send a ground signal to the central control module when pump pressure reaches 3000 psi. The sequence will not continue until both signals are received by their modules.

9. When both the room unlock limit switches and the manifold pressure switch signals are received by their modules, a +12 signal will open the room extend solenoid valve.

NOTE: The room extend valve will be the cylinder retract valve.

10. When the room is fully extended, the room out limit switch arrangement sends a ground signal to the room module. The manifold pressure switch sends a ground signal to the central control module when the pump pressure reaches 3000 psi. The sequence will continue when both signals are received by their modules.

11. When both the room out limit switches and the manifold pressure switch signals are received by the modules, the +12 signal to the room extend valve is turned off. The extend sequence is finished and the pump will shut off. The room control switch may be released.

12. The red pump on light will go out.

NOTE: The unlock valve will stay open for 10 seconds after the pump shuts off, even if the room control switch is released.

13. The air seal will inflate when the room control key switch is turned off. The amber light on the room control panel will go out.

OPERATING PROCEDURES

FRONT ROOM ROOM EXTENSION OPERATION SEQUENCE ROOM RETRACT SEQUENCE

IMPORTANT: MAKE SURE A WINDOW OR DOOR IS OPEN BEFORE EXTENDING THE ROOM.

1. Park brake must be set.
2. Turn the room extension control panel key to "ON".
3. The amber "READY TO OPERATE" light will flash. A +12 signal controls the "READY TO OPERATE LIGHT".
4. Any time the room extension key is ON, there is a +12 volt signal to the air seal valve. There is also a +12 volt signal to the vacuum valve which is not constant. The +12 signal for the vacuum valve is present during the initial 20 second air seal deflate time, anytime the room control switch is pushed to "EXTEND" or "RETRACT", or if the air seal manifold is equipped with a vacuum switch, anytime the vacuum switch is not made.
5. After 20 seconds, the amber "READY TO OPERATE" light will be on steady. The room cannot be operated if the "READY TO OPERATE" light is flashing.

NOTE: The room can be retracted if the "READY TO OPERATE" light is flashing due to the "EXCESS SLOPE" light on the leveling system panel being on.

6. Push the Room Extension Control Switch to "RETRACT". This will send a +12 signal for the pump relay and the room extension solenoid valves from the control modules. A +12 signal turns the room control panel red pump on light ON when the pump is running.

NOTE: The room control switch must be held in the "RETRACT" position during the retract sequence. If the room control switch is released before the sequence is complete, the sequence will start over from Step 6 when the switch is pushed to retract again.

7. A +12 signal will open the room unlock valve. This valve will stay open until the room is fully retracted.

NOTE: Even though the room does not lock in the extended position, the system checks to make sure the locks are fully retracted before proceeding.

8. When the room lock pins are fully retracted, the room unlock limit switch arrangement will send a +12 volt signal to the room module. The manifold pressure switch will send a ground signal to the central control module when pump pressure reaches 3000 psi. The sequence will not continue until both signals are received by their modules.

9. When both the room lock limit switches and the manifold pressure switch signals are received by their modules, a +12 signal will open the room retract solenoid valve.

NOTE: The room retract valve will be the cylinder extend valve.

10. When the room is fully retracted, the room in limit switch arrangement sends a ground signal to the room module. The manifold pressure switch sends a ground signal to the central control module when the pump pressure reaches 3000 psi. The sequence will continue when both signals are received by their modules.

11. When both the room in limit switches and the manifold pressure switch signals are received by their modules, the +12 signal to the room unlock valve is turned off and the unlock valve closes.

12. A +12 signal opens the room lock valve.

13. When the room lock pins are fully extended, the room lock limit switch arrangement sends a +12 signal to the room module. The manifold pressure switch sends a ground signal to the central control module when pump pressure reaches 3000 psi.

14. When both the room lock limit switches and the manifold pressure switch signals are received by their modules, the pump will shut off. The red pump on light will shut off and the sequence is complete. The room control switch may be released.

NOTE: Do Not release the room control switch until the "PUMP ON" light goes out.

15. The air seal will inflate when the room control key switch is turned off. The amber light on the room control panel will go out.

OPERATING PROCEDURES

BEDROOM ROOM EXTENSION OPERATION SEQUENCE ROOM EXTEND SEQUENCE

IMPORTANT: MAKE SURE A WINDOW OR DOOR IS OPEN BEFORE EXTENDING THE ROOM.

1. Park brake must be set.
2. Turn the room extension control panel key to "ON".
3. The amber "READY TO OPERATE" light will flash. A +12 signal controls the "READY TO OPERATE LIGHT".
4. Any time the room extension key is ON, there is a +12 volt signal to the air seal valve. There is also a +12 volt signal to the vacuum valve which is not constant. The +12 signal for the vacuum valve is present during the initial 20 second air seal deflate time, anytime the room control switch is pushed to "EXTEND" or "RETRACT", or if the air seal manifold is equipped with a vacuum switch, anytime the vacuum switch is not made.
5. After 20 seconds, the amber "READY TO OPERATE" light will be on steady. The room cannot be operated if the "READY TO OPERATE" light is flashing.
6. Push the Room Extension Control Switch to "EXTEND". This will send a +12 signal for the pump relay and the room extension solenoid valves from the control modules. A +12 signal turns the room control panel red pump on light ON when the pump is running.

NOTE: The room control switch must be held in the "EXTEND" position during the extend sequence. If the room control switch is released before the sequence is complete, the sequence will start over from Step 6 when the switch is pushed to extend again.

7. A +12 signal will open the room unlock valve. This valve will stay open during the complete extend sequence.

8. When the room lock pins are fully retracted, the room unlock limit switch arrangement will send a +12 volt signal to the room module. The manifold pressure switch will send a ground signal to the central control module when pump pressure reaches 3000 psi. The sequence will not continue until both signals are received by their modules.

9. When both the room unlock limit switches and the manifold pressure switch signals are received by their modules, a +12 signal will open the room extend solenoid valve.

NOTE: The room extend valve will be the cylinder extend valve.

10. When the room is fully extended, the room out limit switch arrangement sends a ground signal to the room module. The manifold pressure switch sends a ground signal to the central control module when the pump pressure reaches 3000 psi. The sequence will continue when both signals are received by their modules.

11. When both the room out limit switches and the manifold pressure switch signals are received by the modules, the +12 signal to the room extend valve is turned off. The extend sequence is finished and the pump will shut off. The room control switch may be released.

12. The red pump on light will go out.

NOTE: The unlock valve will stay open for 10 seconds after the pump shuts off, even if the room control switch is released.

13. The air seal will inflate when the room control key switch is turned off. The amber light on the room control panel will go out.

OPERATING PROCEDURES

BEDROOM ROOM EXTENSION OPERATION SEQUENCE ROOM RETRACT SEQUENCE

IMPORTANT: MAKE SURE A WINDOW OR DOOR IS OPEN BEFORE EXTENDING THE ROOM.

1. Park brake must be set.
2. Turn the room extension control panel key to "ON".
3. The amber "READY TO OPERATE" light will flash. A +12 signal controls the "READY TO OPERATE LIGHT".
4. Any time the room extension key is ON, there is a +12 volt signal to the air seal valve. There is also a +12 volt signal to the vacuum valve which is not constant. The +12 signal for the vacuum valve is present during the initial 20 second air seal deflate time, anytime the room control switch is pushed to "EXTEND" or "RETRACT", or if the air seal manifold is equipped with a vacuum switch, anytime the vacuum switch is not made.
5. After 20 seconds, the amber "READY TO OPERATE" light will be on steady. The room cannot be operated if the "READY TO OPERATE" light is flashing.

NOTE: The room can be retracted if the "READY TO OPERATE" light is flashing due to the "EXCESS SLOPE" light on the leveling system panel being on.

6. Push the Room Extension Control Switch to "RETRACT". This will send a +12 signal for the pump relay and the room extension solenoid valves from the control modules. A +12 signal turns the room control panel red pump on light ON when the pump is running.

NOTE: The room control switch must be held in the "RETRACT" position during the retract sequence. If the room control switch is released before the sequence is complete, the sequence will start over from Step 6 when the switch is pushed to retract again.

7. A +12 signal will open the room unlock valve. This valve will stay open until the room is fully retracted.

NOTE: Even though the room does not lock in the extended position, the system checks to make sure the locks are fully retracted before proceeding.

8. When the room lock pins are fully retracted, the room unlock limit switch arrangement will send a +12 volt signal to the room module. The manifold pressure switch will send a ground signal to the central control module when pump pressure reaches 3000 psi. The sequence will not continue until both signals are received by their modules.

9. When both the room lock limit switches and the manifold pressure switch signals are received by their modules, a +12 signal will open the room retract solenoid valve.

NOTE: The room retract valve will be the cylinder retract valve.

10. When the room is fully retracted, the room in limit switch arrangement sends a ground signal to the room module. The manifold pressure switch sends a ground signal to the central control module when the pump pressure reaches 3000 psi. The sequence will continue when both signals are received by their modules.

11. When both the room in limit switches and the manifold pressure switch signals are received by their modules, the +12 signal to the room unlock valve is turned off and the unlock valve closes.

12. A +12 signal opens the room lock valve.

13. When the room lock pins are fully extended, the room lock limit switch arrangement sends a +12 signal to the room module. The manifold pressure switch sends a ground signal to the central control module when pump pressure reaches 3000 psi.

14. When both the room lock limit switches and the manifold pressure switch signals are received by their modules, the pump will shut off. The red pump on light will shut off and the sequence is complete. The room control switch may be released.

NOTE: Do Not release the room control switch until the "PUMP ON" light goes out.

15. The air seal will inflate when the room control key switch is turned off. The amber light on the room control panel will go out.

MAINTENANCE

OIL LEVEL

It is important that all front rooms are fully retracted before checking the hydraulic oil level. If the coach has a bed slide, the bed slide must be fully retracted before checking the hydraulic oil level. If the coach has a wardrobe slide, the wardrobe slide must be fully extended before checking the hydraulic oil level. To check the oil supply, remove the breather cap from the top of the hydraulic oil reservoir. The oil level should be approximately one inch below the top of the reservoir when adequately filled.

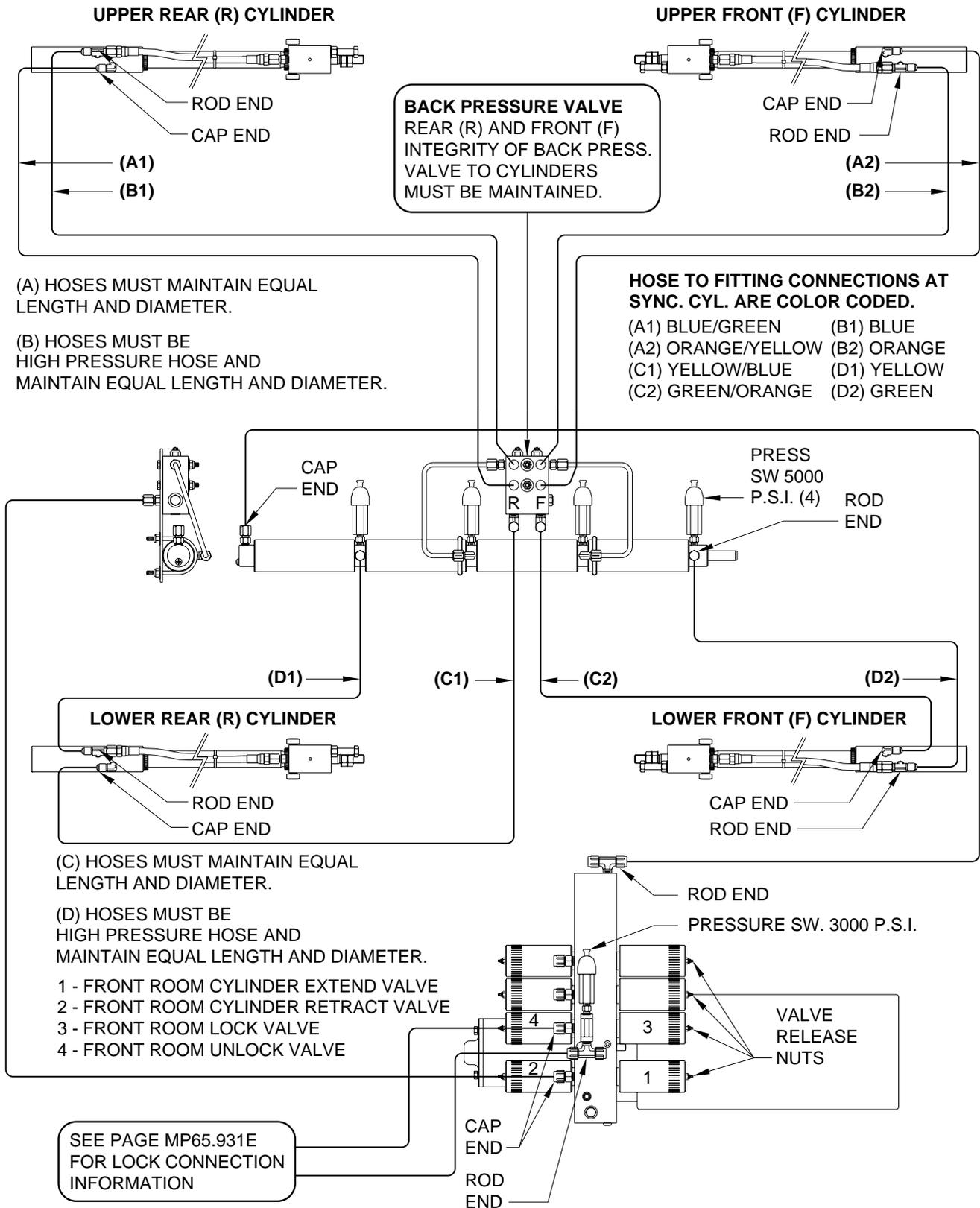
FLUID: HWH Specialty Hydraulic Oil is recommended. In an emergency Dexron automatic transmission fluid can be used.

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.

HYDRAULIC LINE CONNECTION DIAGRAM

FRONT ROOM - TRAIN DRIVE ROOM EXTENSION - 4 ROOM LOCKS (WITH SYNCHRONIZING CYLINDER)

VIEW FROM INSIDE VEHICLE

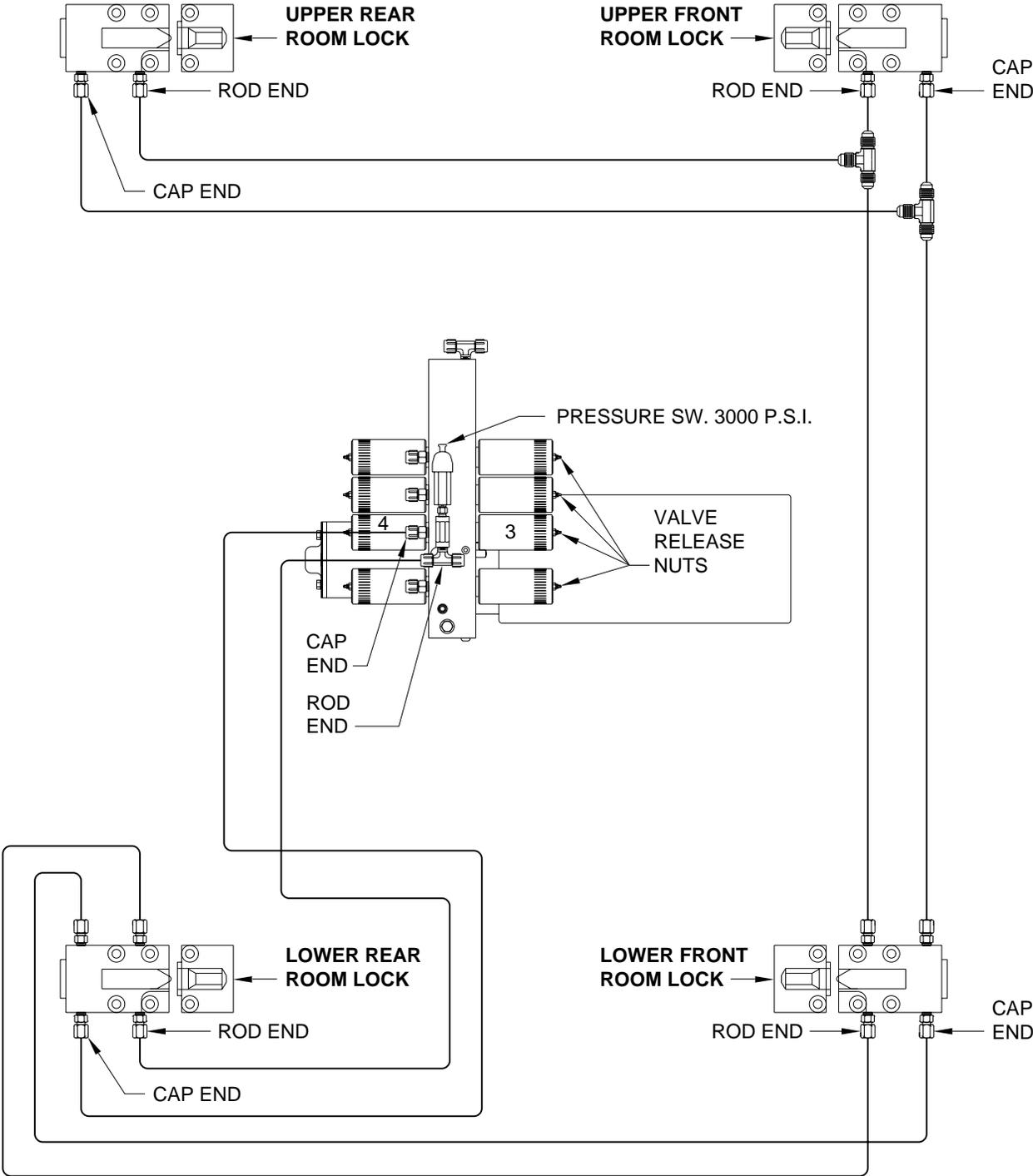


**CYLINDER EXTEND - ROOM RETRACT
CYLINDER RETRACT - ROOM EXTEND**

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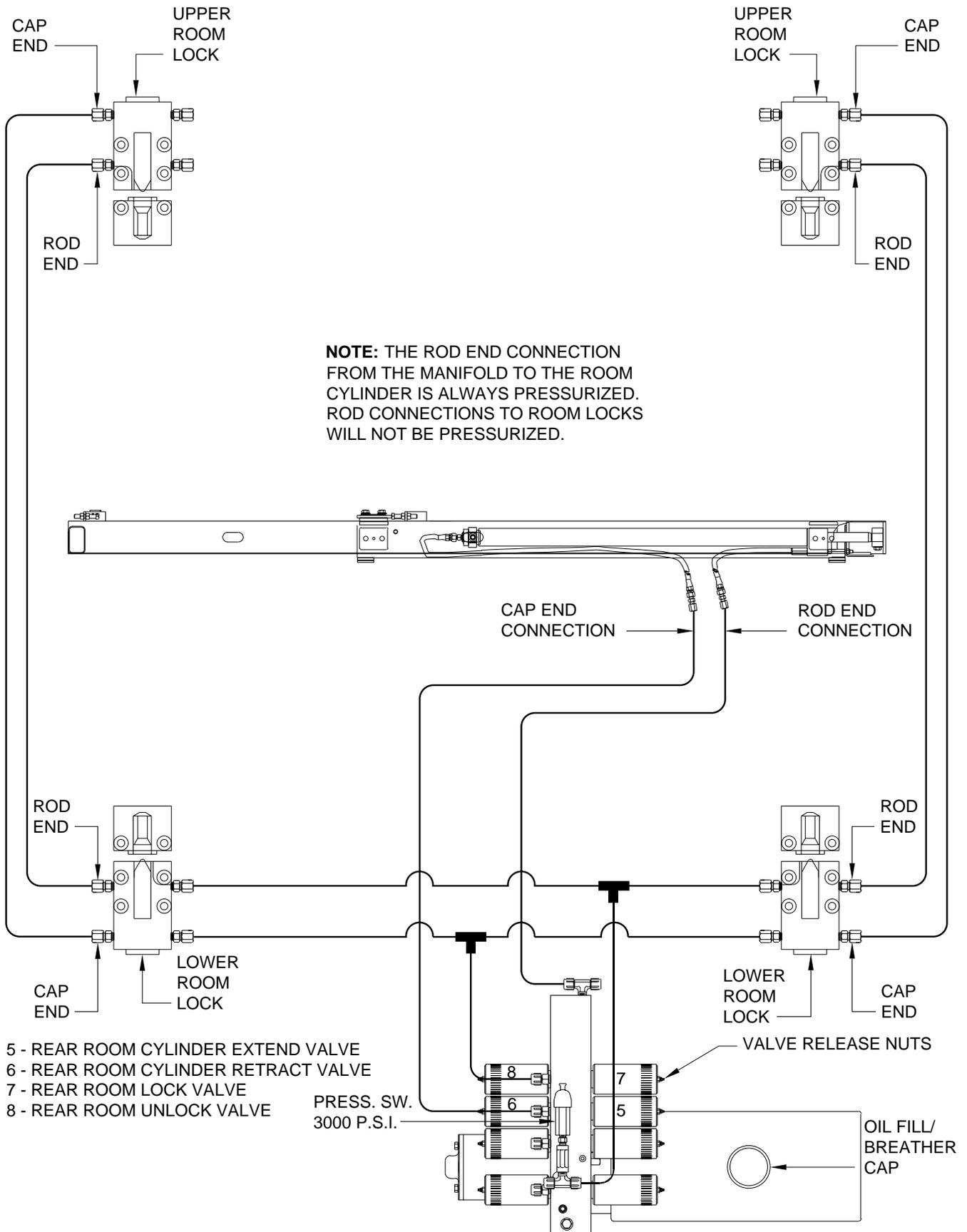
HYDRAULIC LINE CONNECTION DIAGRAM
FRONT ROOM - TRAIN DRIVE ROOM EXTENSION - 4 ROOM LOCKS
(WITH SYNCHRONIZING CYLINDER)

VIEW FROM INSIDE VEHICLE



HYDRAULIC LINE CONNECTION DIAGRAM

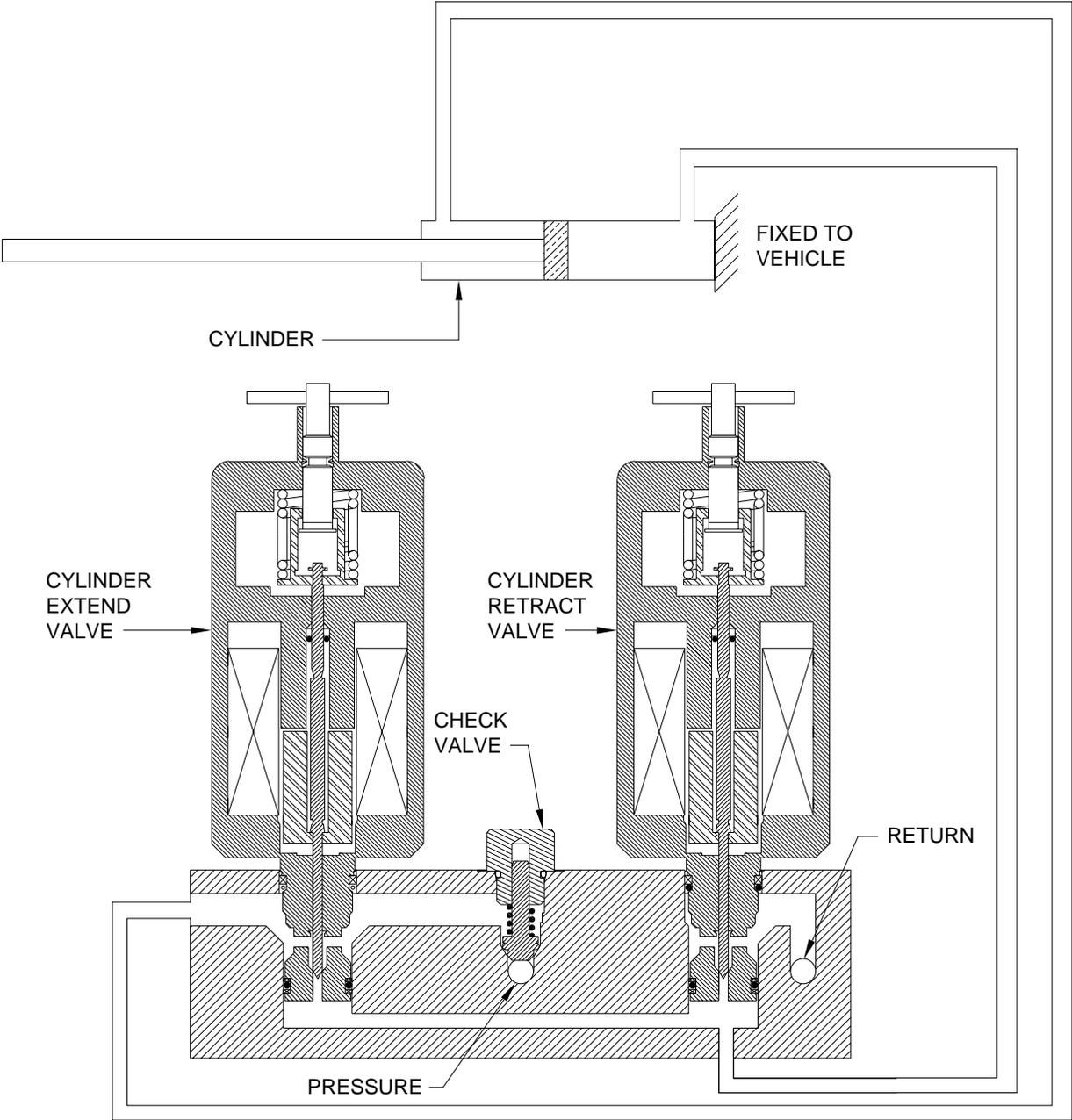
REAR SINGLE CYLINDER "GUIDED" ROOM EXTENSION - 4 ROOM LOCKS BEDROOM SLIDE



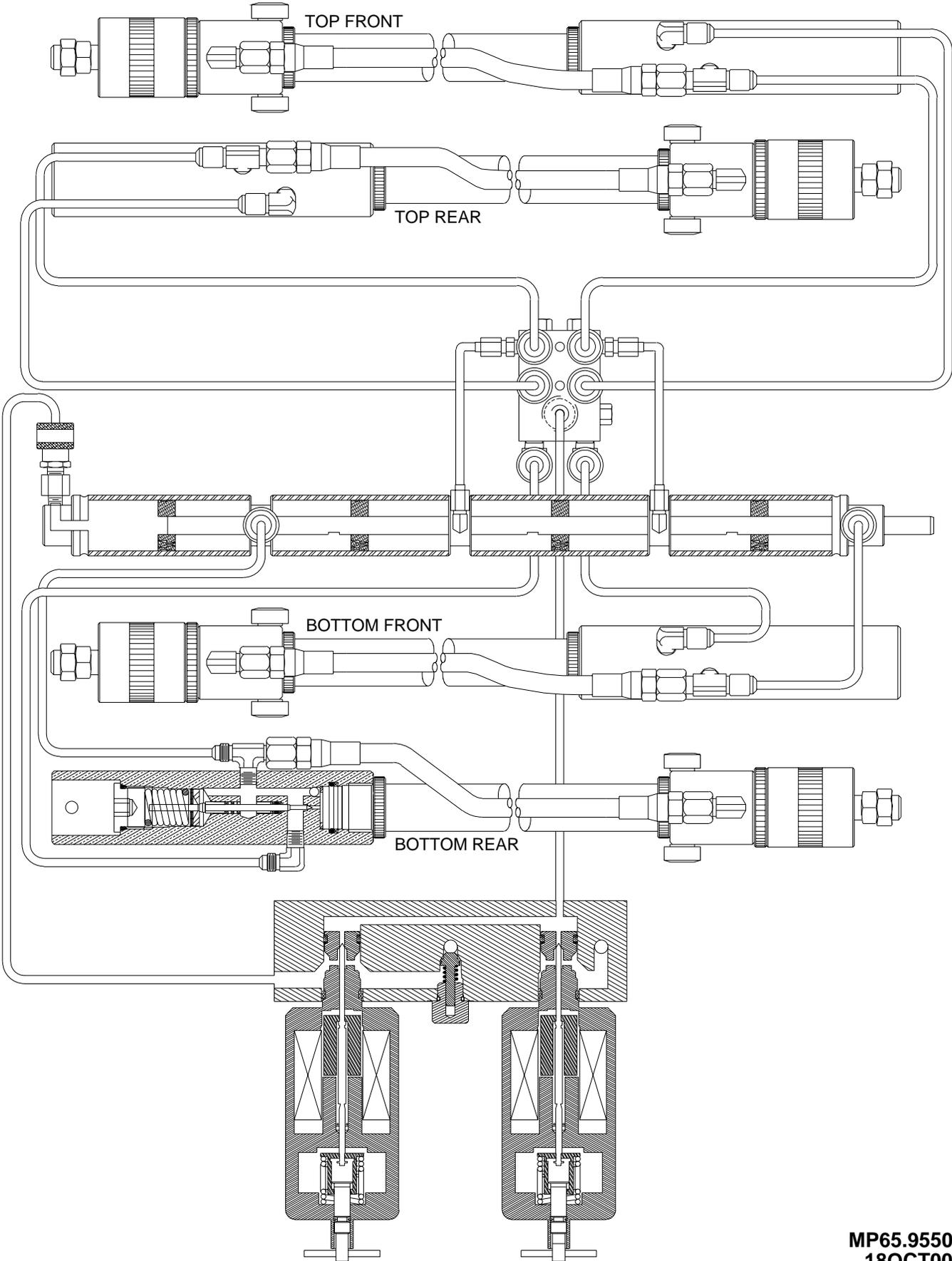
CYLINDER EXTEND - ROOM EXTEND
 CYLINDER RETRACT - ROOM RETRACT

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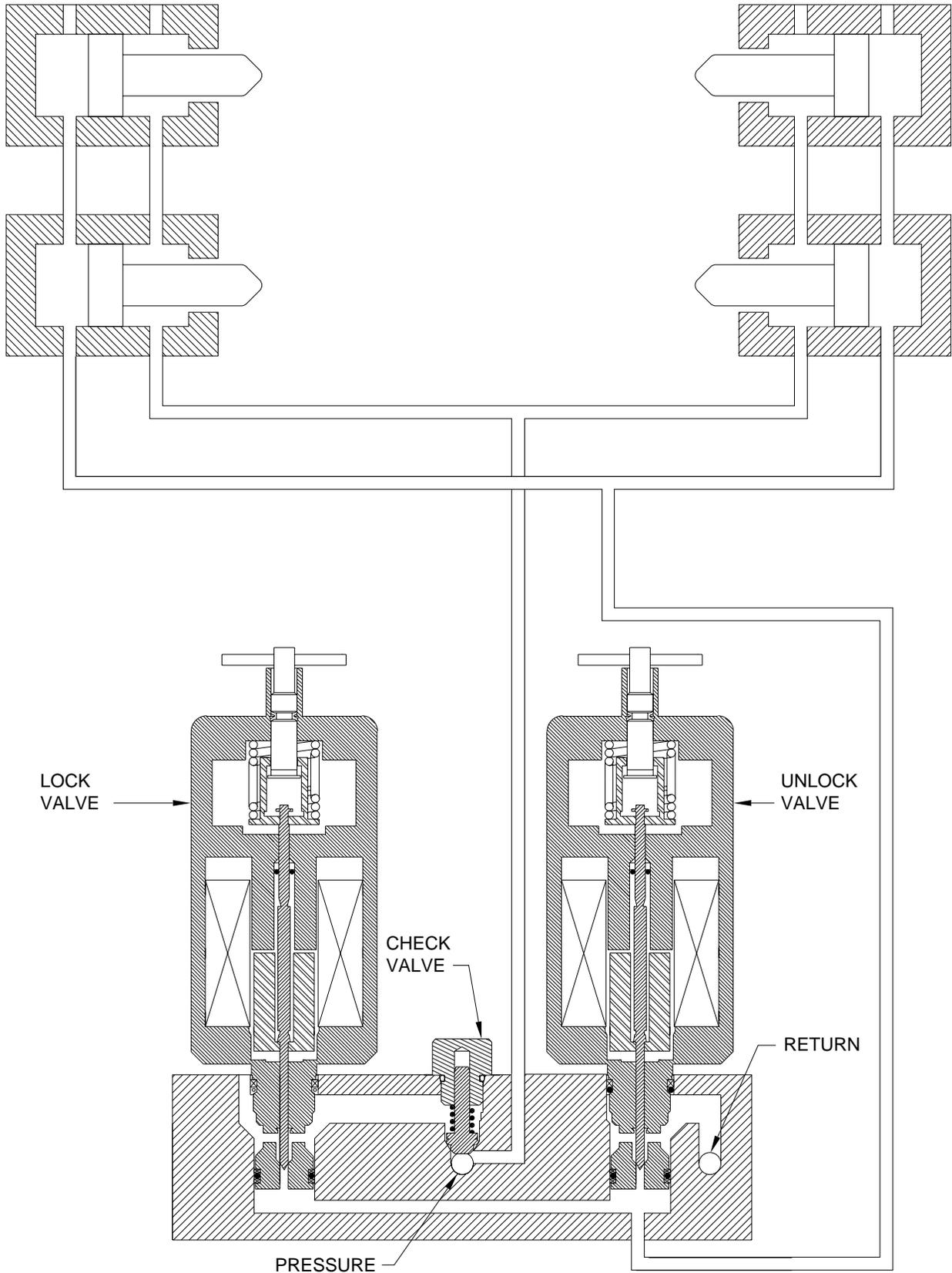
**HYDRAULIC FLOW DIAGRAM
SINGLE CYLINDER ROOM EXTENSION
STATIONARY POSITION**



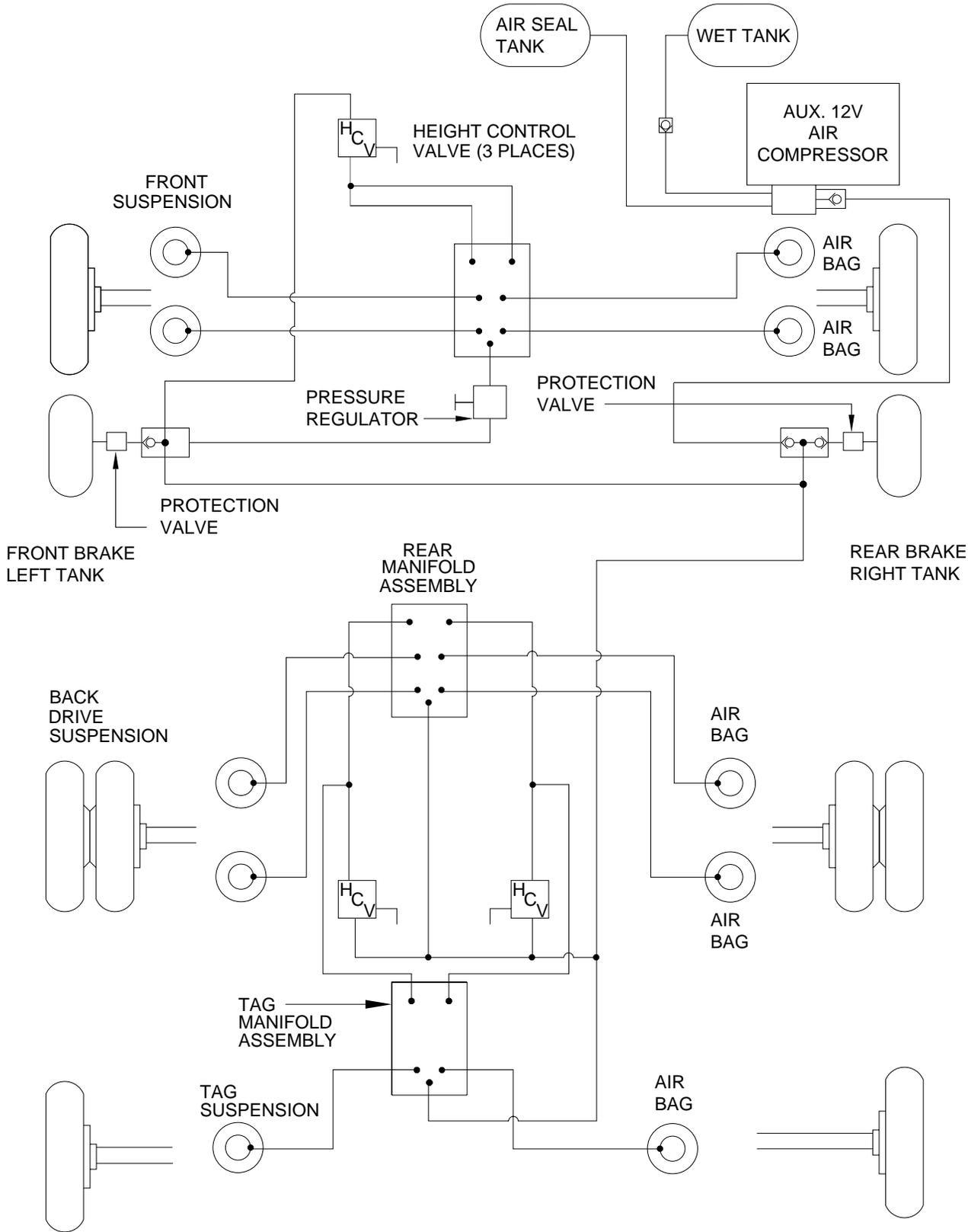
**HYDRAULIC FLOW DIAGRAM
FOUR CYLINDER ROOM EXTENSION
WITH SYNCHRONIZING CYLINDER**



**HYDRAULIC FLOW DIAGRAM
ROOM LOCK
STATIONARY POSITION**

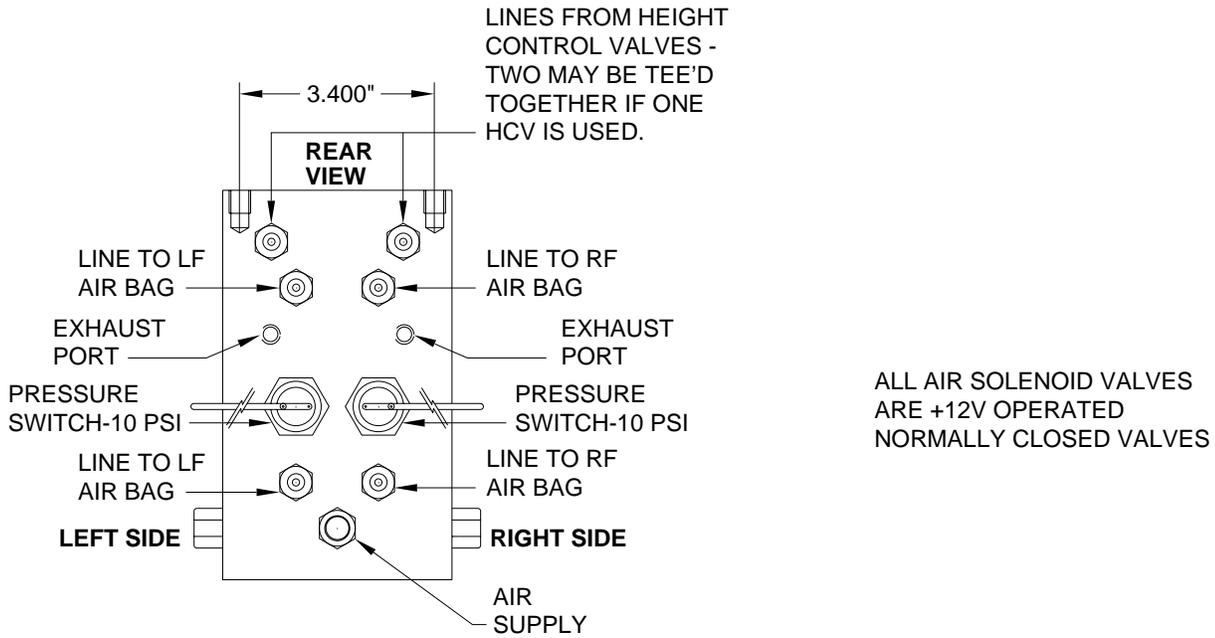


AIR LINE CONNECTION DIAGRAM FORETRAVEL WITH TAG AXLE

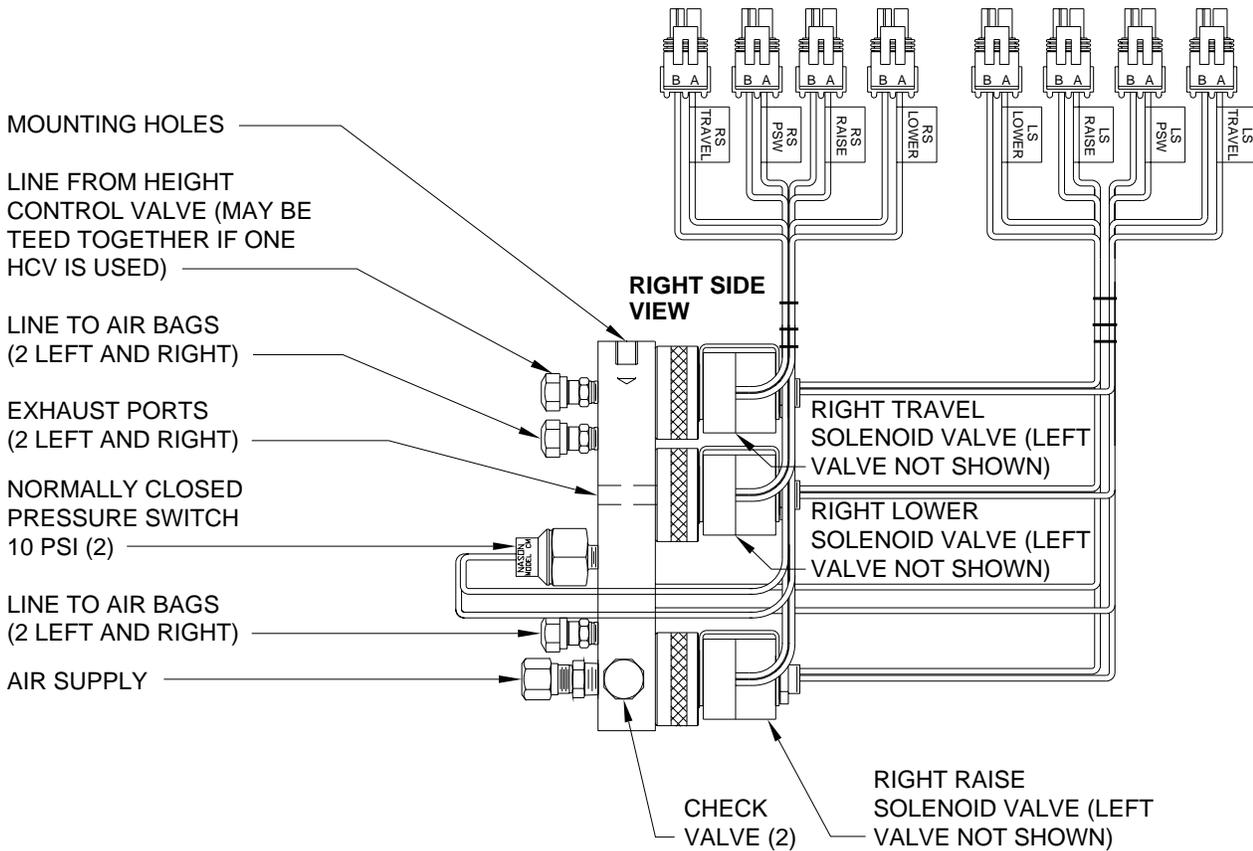


FRONT AIR SOLENOID MANIFOLD CONNECTIONS

6 VALVE WITH TWO PRESSURE SWITCHES

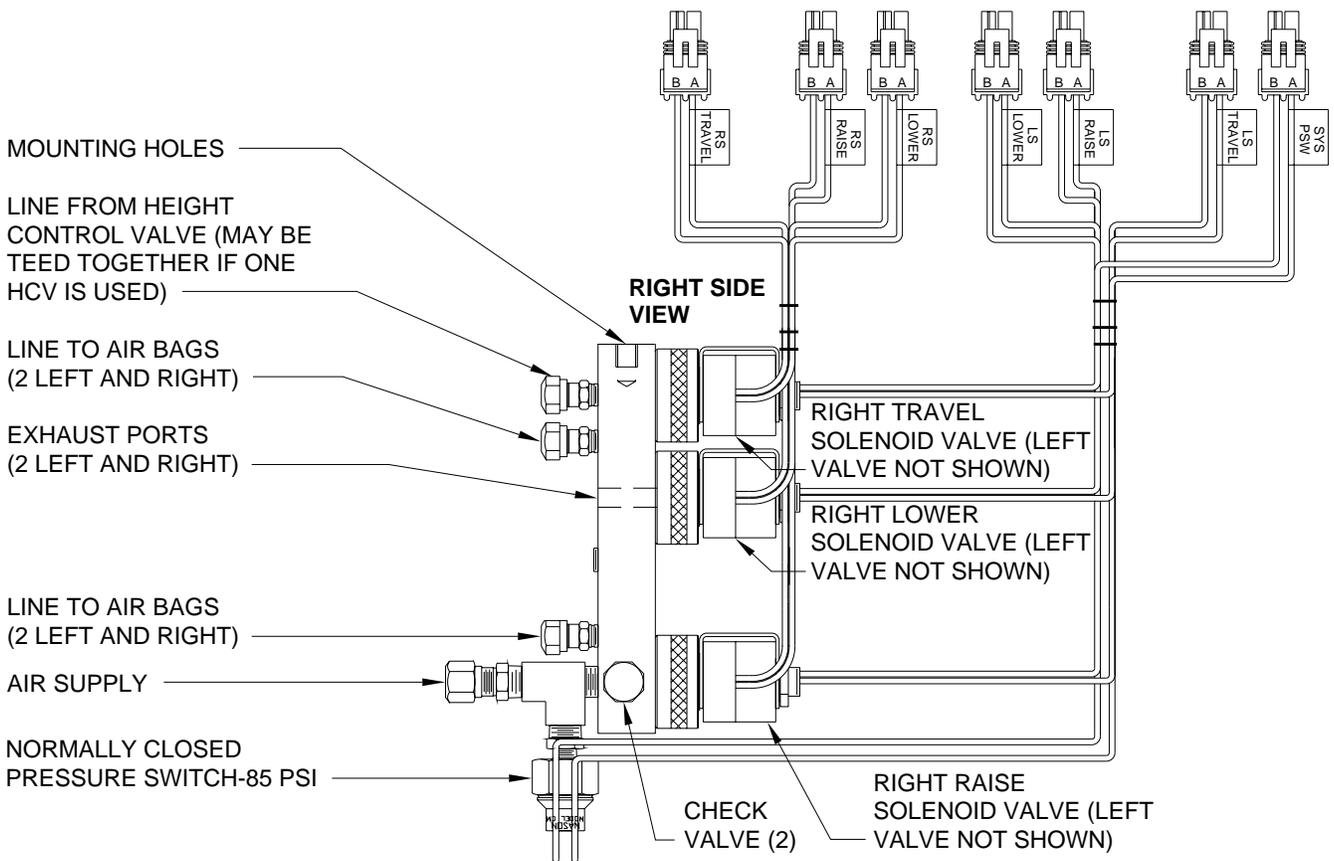
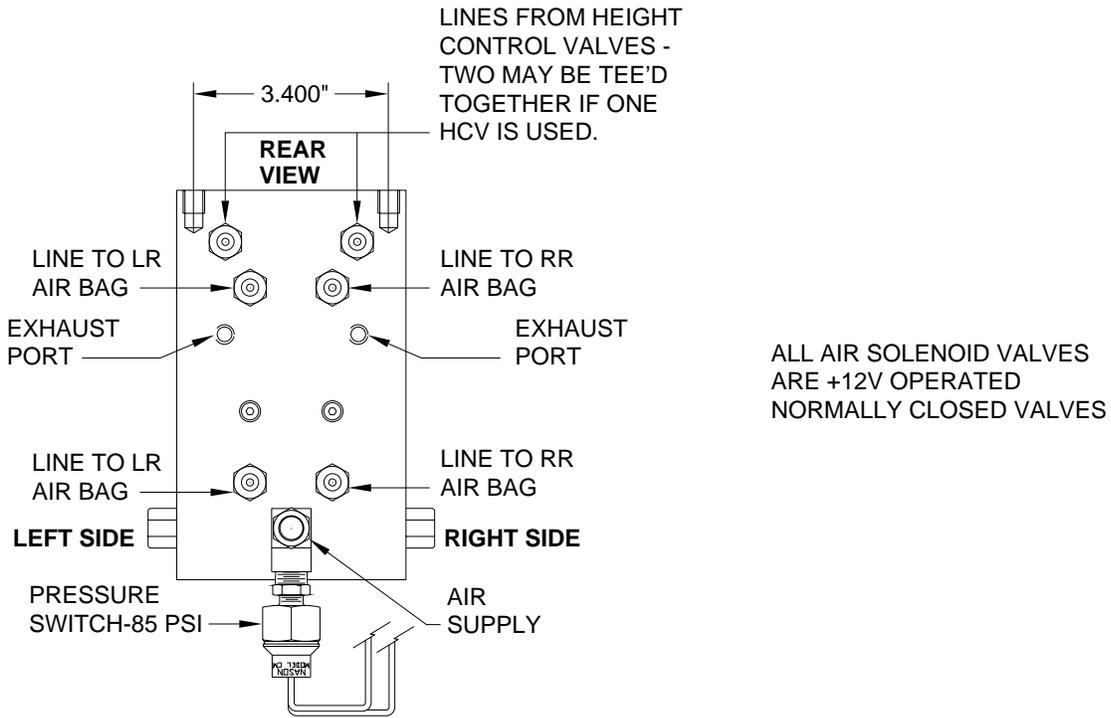


ALL AIR SOLENOID VALVES ARE +12V OPERATED NORMALLY CLOSED VALVES



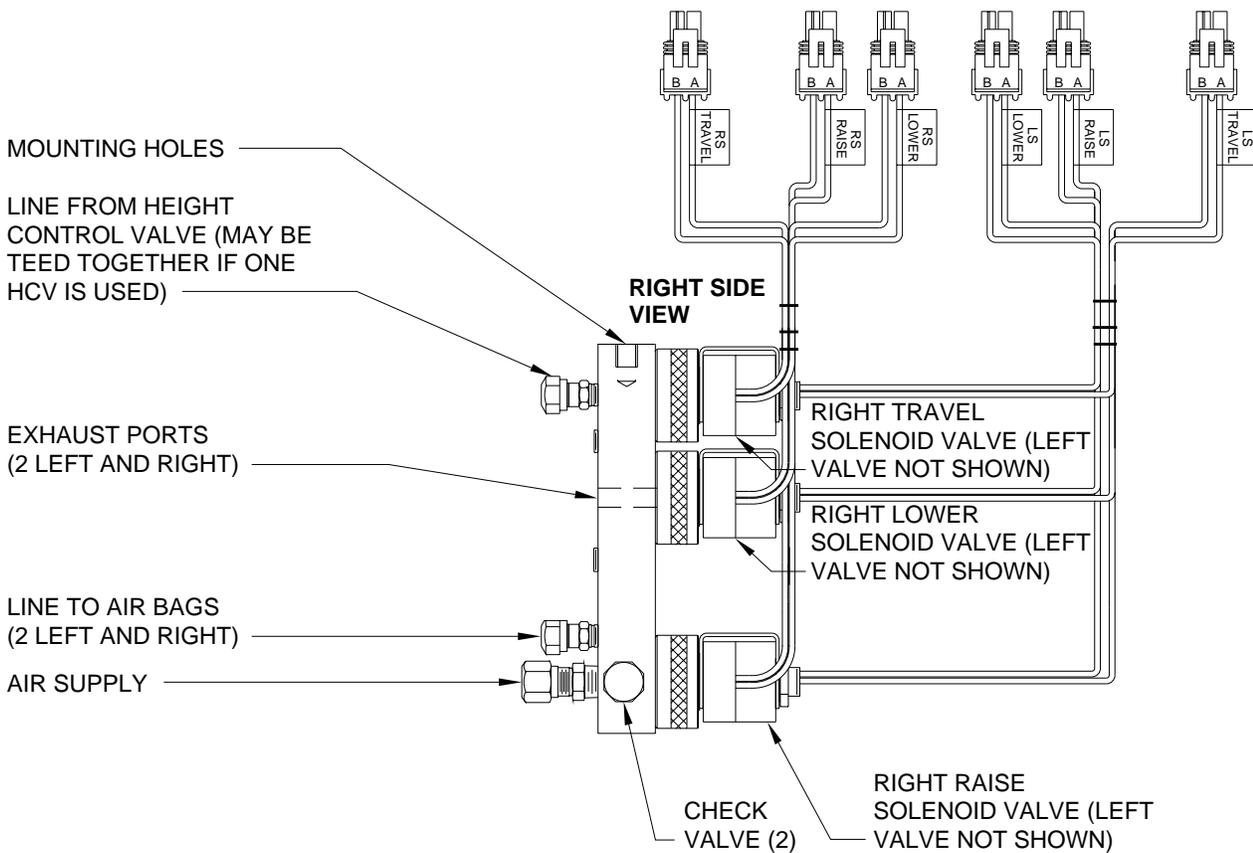
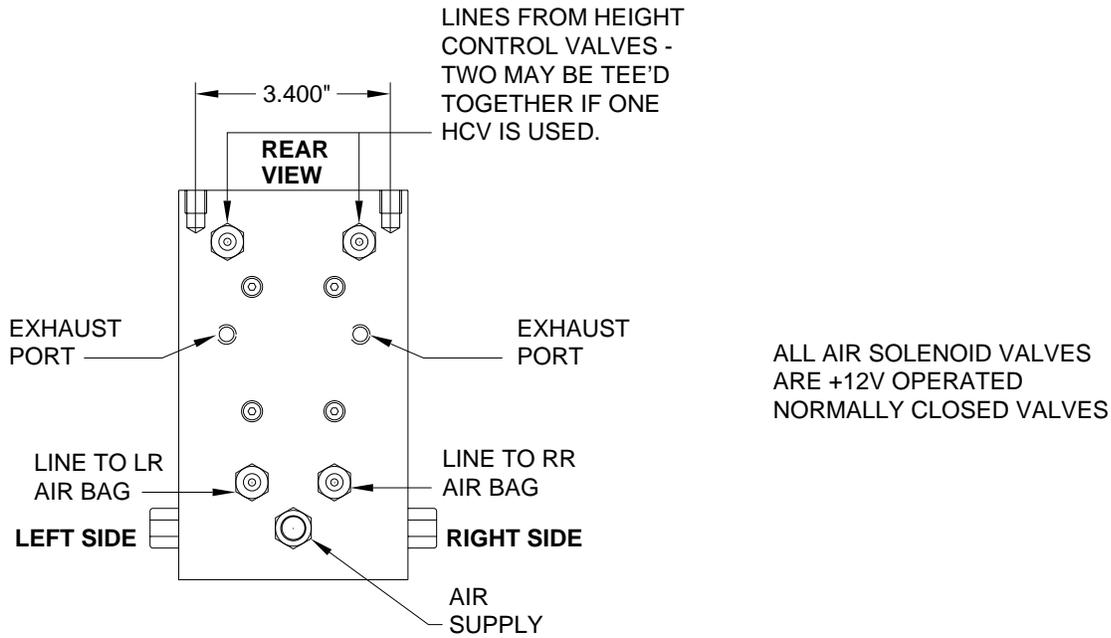
REAR AIR SOLENOID MANIFOLD CONNECTIONS

6 VALVE WITH ONE PRESSURE SWITCH

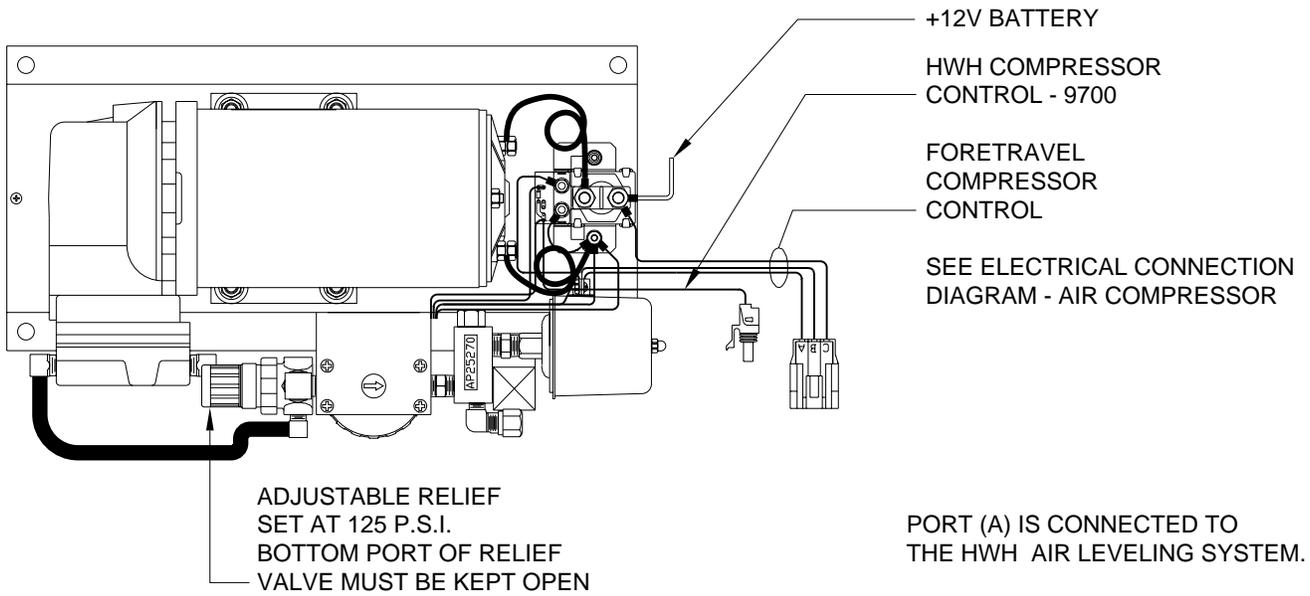


TAG AIR SOLENOID MANIFOLD CONNECTIONS

6 VALVE WITH NO PRESSURE SWITCHES



AIR CONNECTION DIAGRAM AIR COMPRESSOR

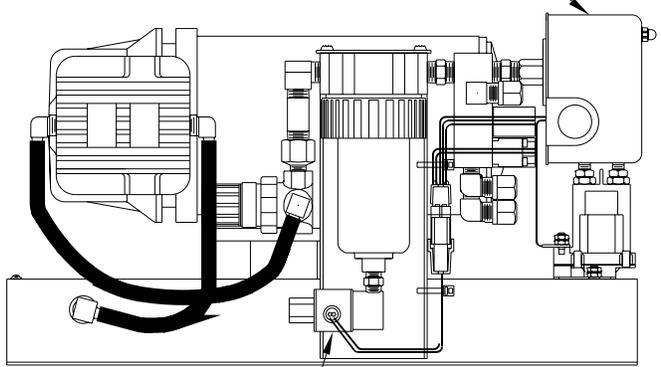


PORT (A) IS CONNECTED TO THE HWH AIR LEVELING SYSTEM.

PORT (B) IS CONNECTED TO THE COACH AIR SUPPLY SYSTEM.

PORT (C) IS CONNECTED TO THE AIR SEAL/ACC. AIR TANK.

PRESSURE SWITCH - SET TO OPEN AT 90 P.S.I. - RESET AT 70 TO 80 P.S.I.



SOLENOID (1)
NORMALLY OPEN

SOLENOID (3)
NORMALLY OPEN

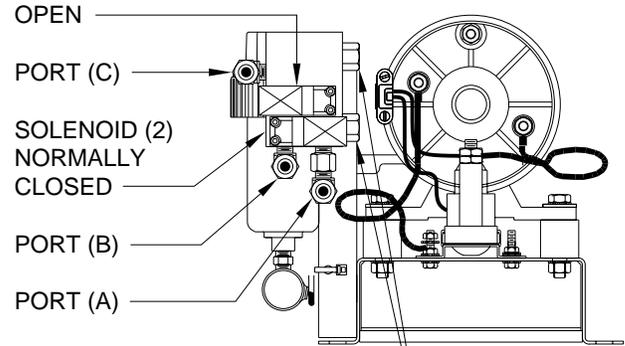
PORT (C)

SOLENOID (2)
NORMALLY CLOSED

PORT (B)

PORT (A)

CHECK VALVE
(VIEW A)

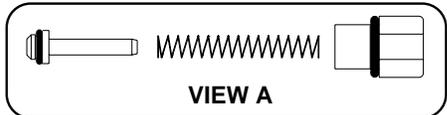


SOLENOID (1) IS THE WATER TRAP DUMP VALVE. THIS VALVE IS CLOSED WHENEVER THE COMPRESSOR IS RUNNING.

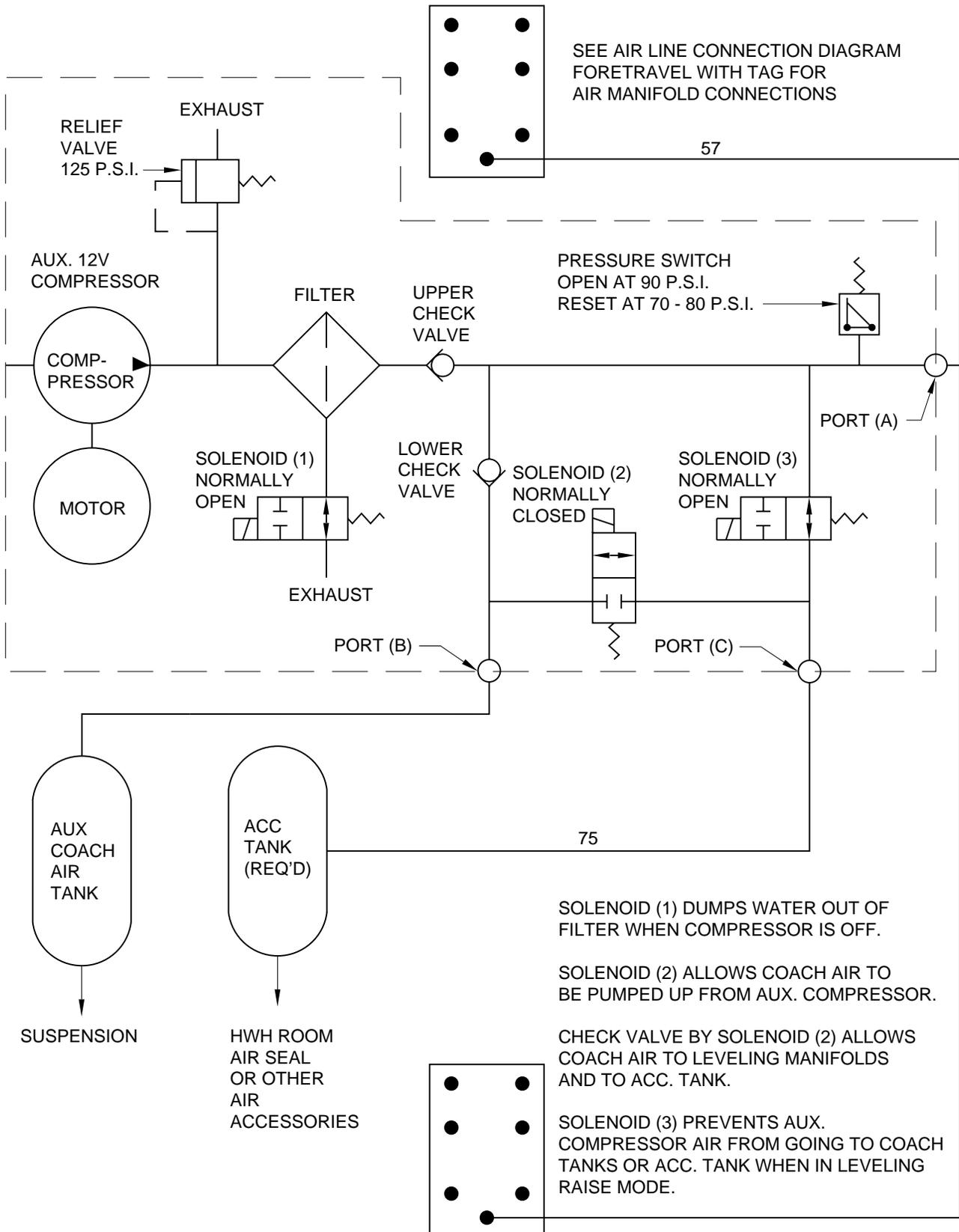
SOLENOID (2) OPENS WHEN THE FORETRAVEL DASH SWITCH IS ON. THE AIR COMPRESSOR RUNS IF THE PRESSURE SWITCH HAS RESET (COACH AIR BELOW 70 - 80 P.S.I.). THIS MAINTAINS COACH AIR SUPPLY AT APPROXIMATELY 90 P.S.I. IF THE VEHICLE IS EQUIPPED WITH AN AIR AWNING THE COACH AIR SUPPLY WILL BE MAINTAINED AT 110 P.S.I.

SOLENOID (3) CLOSSES WITH A +12V SIGNAL FROM THE HWH CONTROL SYSTEM. THIS ALLOWS THE HWH AUXILIARY AIR COMPRESSOR TO BE USED FOR AIR LEVELING ONLY.

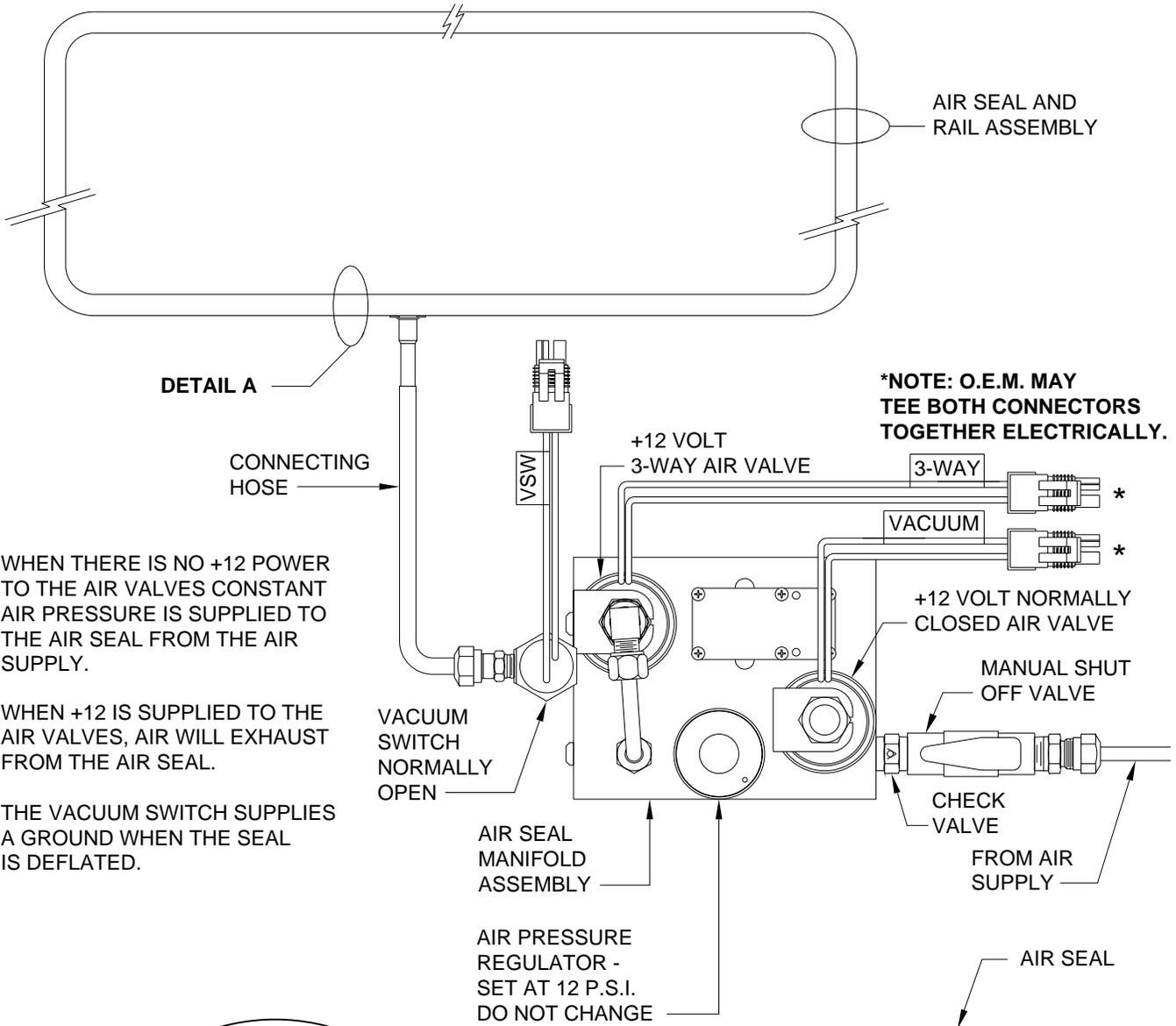
THE AIR COMPRESSOR RUNS WHENEVER THE PRESSURE SWITCH RESETS (AIR SEAL/ACC. TANK BELOW 70 - 80 P.S.I.). THIS MAINTAINS THE AIR SEAL/ACC. TANK AT APPROXIMATELY 90 P.S.I.



AIR CONNECTION DIAGRAM AIR COMPRESSOR SCHEMATIC



AIR SEAL CONNECTION DIAGRAM

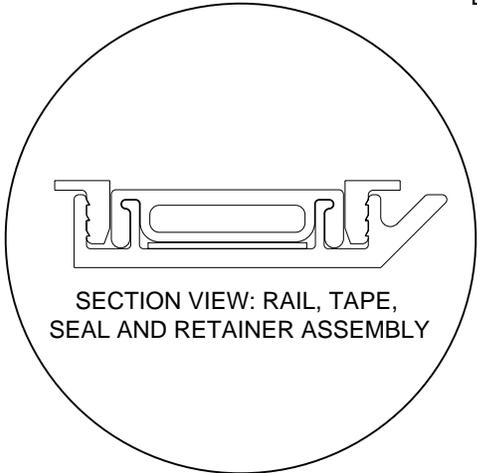


***NOTE: O.E.M. MAY
TEE BOTH CONNECTORS
TOGETHER ELECTRICALLY.**

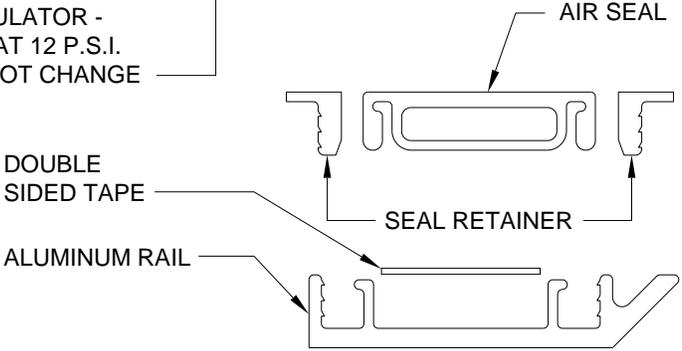
WHEN THERE IS NO +12 POWER TO THE AIR VALVES CONSTANT AIR PRESSURE IS SUPPLIED TO THE AIR SEAL FROM THE AIR SUPPLY.

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

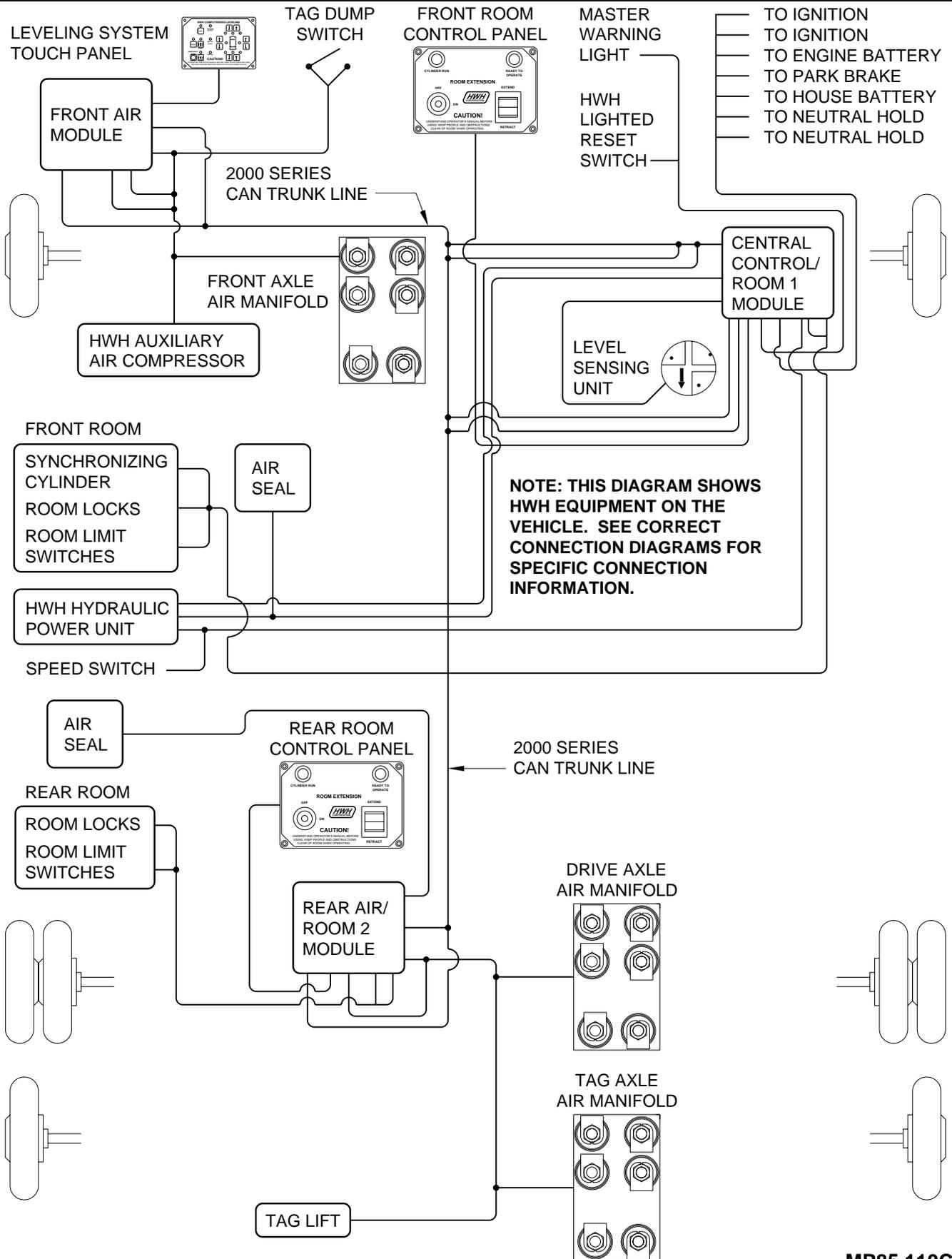


EXPLODED VIEW

ELECTRICAL CONNECTION DIAGRAM

FORETRAVEL 2000 SERIES CAN SYSTEM

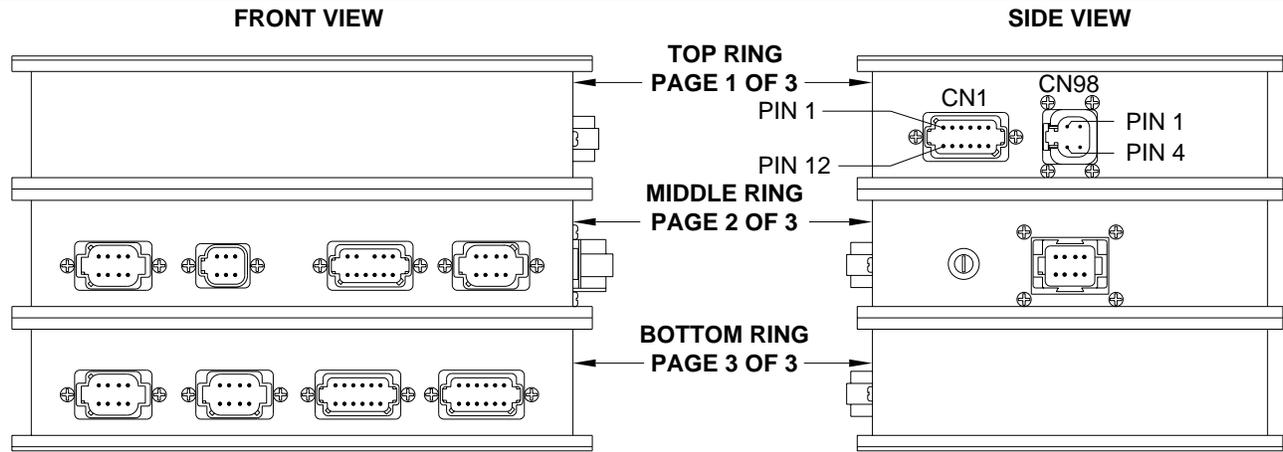
2 ROOM EXTENSIONS AND AIR LEVELING W/TAG AXLE



ELECTRICAL CONNECTION DIAGRAM

CENTRAL CONTROL / ROOM 1 MODULE CONNECTION INFORMATION

PAGE 1 OF 3



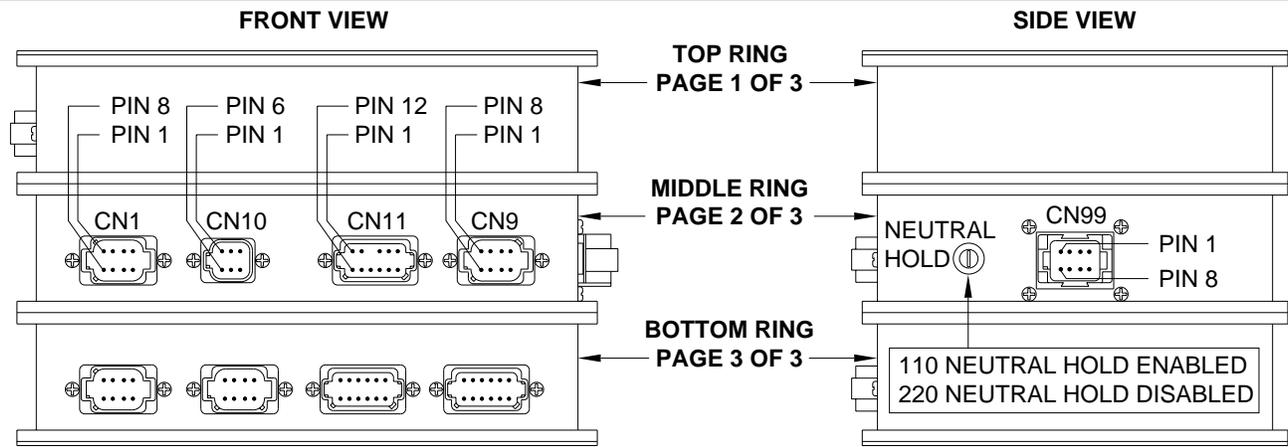
PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
TOP RING CN1 ————— 12 PIN BROWN CONNECTOR			
1	BLACK	5050	ROOM 1 CYLINDER EXTEND VALVE - SWITCHED +12
2	BLACK	5150	ROOM 1 CYLINDER RETRACT VALVE - SWITCHED +12
3	BLACK	5200	ROOM 1 LOCK VALVE - SWITCHED +12
4	BLACK	5300	ROOM 1 UNLOCK VALVE - SWITCHED +12
5	BLACK	5051	ROOM 2 CYLINDER EXTEND VALVE - SWITCHED +12
6	BLACK	5151	ROOM 2 CYLINDER RETRACT VALVE - SWITCHED +12
7	BLACK	5600	FRONT ROOM AIR SEAL MANIFOLD 3-WAY VALVE - SWITCHED +12
8	BLACK	5650	FRONT ROOM AIR SEAL VACUUM VALVE - SWITCHED +12 (NOT USED)
9	BLACK	5301	ROOM 2 UNLOCK VALVE - SWITCHED +12
10	BLACK	5201	ROOM 2 LOCK VALVE - SWITCHED +12
11 AND 12			NO CONNECTION
TOP RING CN98 ————— 4 PIN GRAY CONNECTOR			
1	RED	6801	SWITCHED +12 BATTERY FROM MASTER RELAY
2	RED	6801	SWITCHED +12 BATTERY FROM MASTER RELAY
3	GREEN	6230	GROUND FROM GROUND STUD FOR ALL SOLENOID VALVES
4	GREEN	6230	GROUND FROM GROUND STUD FOR ALL SOLENOID VALVES

IMPORTANT: WHEN OPERATING THE FRONT ROOM (ROOM 1), THE HYDRAULIC ROOM CYLINDERS ARE RETRACTED TO EXTEND THE ROOM, THE ROOM CYLINDERS ARE EXTENDED TO RETRACT THE ROOM.

ELECTRICAL CONNECTION DIAGRAM

CENTRAL CONTROL / ROOM 1 MODULE CONNECTION INFORMATION

PAGE 2 OF 3

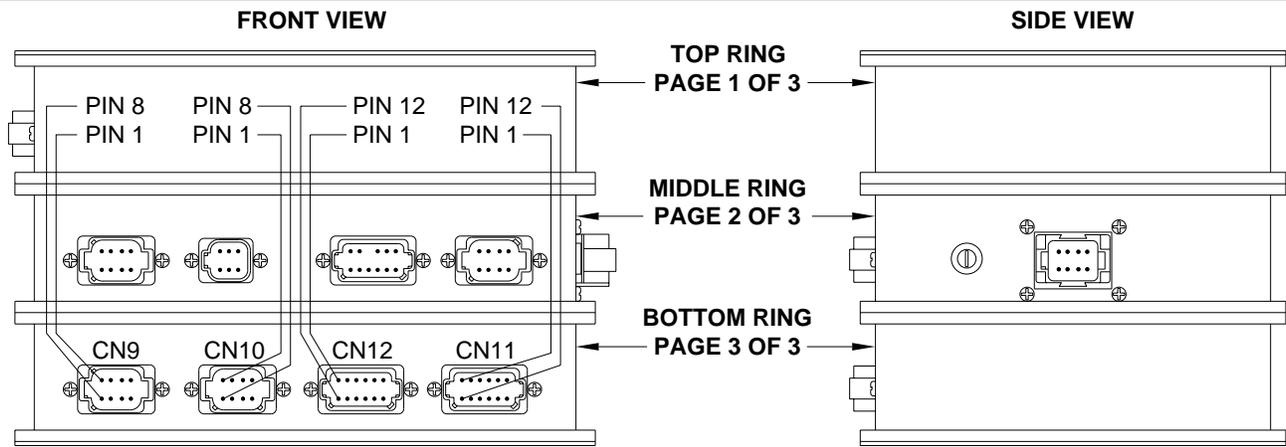


PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
MIDDLE RING CN1			8 PIN BLACK CONNECTOR
1	WHITE	7696	SYSTEM WAKE UP - SWITCHED GROUND
2			NO CONNECTION
3	RED	6800	SWITCHED +12 BATTERY FROM MASTER RELAY
4	GREEN	6230	GROUND
5			SHIELD WIRE FOR GROUND CABLE
6	RED	6110	IGNITION +12 - OUT
7	GREEN		CAN DATA LINE LOW - DO NOT MODIFY
8	YELLOW		CAN DATA LINE HIGH - DO NOT MODIFY
MIDDLE RING CN10			6 PIN GRAY CONNECTOR
1	WHITE	7599	RESET SWITCH LIGHT CONTROL - SWITCHED +12
2	WHITE	6100	RESET SWITCH SUPPLY - HOUSE BATTERY +12
3	WHITE	7550	RESET SWITCH OUTPUT - +12
4	WHITE	6121	MASTER WARNING LIGHT SUPPLY - +12 IGNITION
5	WHITE	6230	RESET SWITCH LIGHT - GROUND
6	WHITE	7699	MASTER WARNING LIGHT CONTROL - SWITCHED GROUND
MIDDLE RING CN11			12 PIN GRAY CONNECTOR
1	RED	6110	SWITCHED +12 FROM IGNITION
2 THRU 4			NO CONNECTION
5	RED	6120	SWITCHED +12 FROM IGNITION
6	RED	6100	HOUSE BATTERY +12 - IN
7	GREEN	6230	GROUND - IN FOR PROCESSOR AND DATA SWITCHES
8	WHITE	9961	NEUTRAL HOLD
9	WHITE	9955	NEUTRAL HOLD
10			NO CONNECTION
11	WHITE	9000	FROM PARK BRAKE SWITCH - SWITCHED GROUND
12	RED	6101	HOUSE BATTERY +12 - IN
MIDDLE RING CN9			8 PIN GREEN CONNECTOR
1	BLACK	8500	MASTER RELAY CONTROL - SWITCHED +12
2	BLACK	8100	HYDRAULIC MANIFOLD PRESSURE SWITCH - SWITCHED GND
3			NO CONNECTION
4	BLACK	8600	PUMP RELAY CONTROL - SWITCHED +12
5	BLACK	9900	SPEED SWITCH - +12 SLOW SPEED
6	BLACK	9901	SWITCHED BATTERY +12 FROM PUMP RELAY
7 AND 8			NO CONNECTION
MIDDLE RING CN99			LEVEL SENSING UNIT
8 PIN GRAY CONNECTOR			
1	RED		REAR YELLOW LEVEL LIGHT - SWITCHED GROUND
2	GREEN		RIGHT SIDE YELLOW LEVEL LIGHT - SWITCHED GROUND
3	BLACK		FRONT YELLOW LEVEL LIGHT - SWITCHED GROUND
4	YELLOW		LEFT SIDE YELLOW LEVEL LIGHT - SWITCHED GROUND
5	WHITE		GROUND FOR LEVEL SENSING UNIT
6 THRU 8			NO CONNECTION

ELECTRICAL CONNECTION DIAGRAM

CENTRAL CONTROL / ROOM 1 MODULE CONNECTION INFORMATION

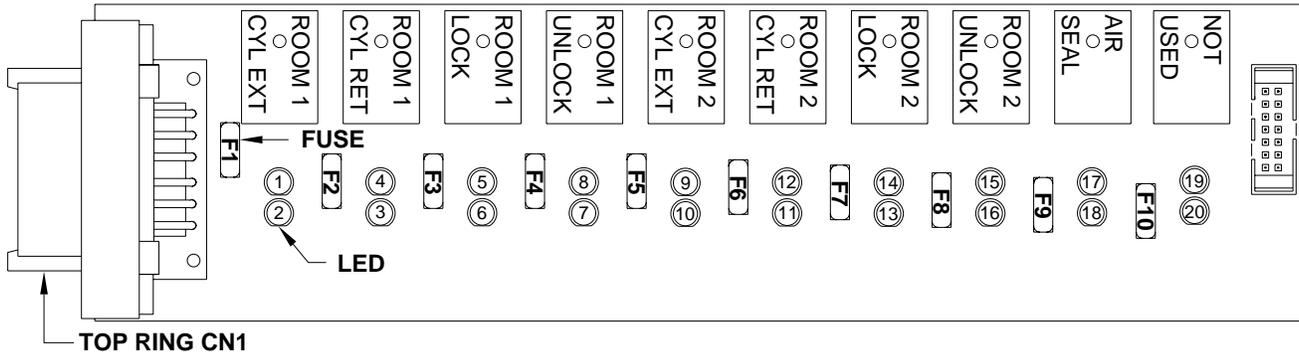
PAGE 3 OF 3



PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
BOTTOM RING CN9			8 PIN BLACK CONNECTOR
1	WHITE	7696	SYSTEM WAKE UP - SWITCHED GROUND
2			NO CONNECTION
3	RED	6800	SWITCHED +12 BATTERY FROM MASTER RELAY
4	GREEN	6230	GROUND
5			SHIELD WIRE FOR CAN CABLE
6	RED	6110	IGNITION +12 - OUT
7	GREEN		CAN DATA LINE LOW - DO NOT MODIFY
8	YELLOW		CAN DATA LINE HIGH - DO NOT MODIFY
BOTTOM RING CN10			8 PIN GRAY CONNECTOR
1			NO CONNECTION
2	WHITE	7510	READY TO OPERATE LIGHT CONTROL - SWITCHED +12
3	WHITE	7530	PUMP ON LIGHT - SWITCHED +12
4	WHITE	7501	ROOM EXTEND - SWITCHED +12 FROM ROOM CONTROL SWITCH
5	WHITE	7502	ROOM RETRACT - SWITCHED +12 FROM ROOM CONTROL SWITCH
6	RED	6805	SWITCHED +12 BATTERY TO ROOM PANEL KEY SWITCH
7	WHITE	7631	SYSTEM WAKE UP - SWITCHED GROUND FROM PANEL KEY SWITCH
8	GREEN	6230	GROUND TO ROOM PANEL KEY SWITCH
BOTTOM RING CN12			12 PIN GRAY CONNECTOR
1	BLACK	5706	SWITCHED +12 FROM LOWER FRONT UNLOCK SWITCH
2	BLACK	5701	SWITCHED GROUND FROM ROOM OUT LIMIT SWITCH
3			NO CONNECTION
4	BLACK	5710	SWITCHED +12 FROM LOWER FRONT LOCK SWITCH
5			NO CONNECTION
6	WHITE	6230	GROUND FOR ROOM IN AND OUT HALL EFFECT SWITCHES
7	RED	6121	SWITCHED +12 BATTERY TO ALL FRONT LIMIT SWITCHES
8			NO CONNECTION
9	BLACK	5708	SWITCHED +12 FROM UPPER FRONT LOCK SWITCH
10	BLACK	5703	SWITCHED GROUND FROM UPPER FRONT ROOM IN LIMIT SWITCH
11	BLACK	7695	SWITCHED GROUND FROM SYNCH. CYLINDER PRESSURE SWITCHES
12	BLACK	5704	SWITCHED +12 FROM UPPER FRONT UNLOCK SWITCH
BOTTOM RING CN11			12 PIN GREEN CONNECTOR
1	BLACK	5707	SWITCHED +12 FROM LOWER REAR UNLOCK SWITCH
2 AND 3			NO CONNECTION
4	BLACK	5711	SWITCHED +12 FROM LOWER REAR LOCK SWITCH
5 AND 6			NO CONNECTION
7	RED	6120	SWITCHED +12 BATTERY TO ALL REAR LIMIT SWITCHES
8			NO CONNECTION
9	BLACK	5709	SWITCHED +12 FROM UPPER REAR LOCK SWITCH
10	BLACK	5702	SWITCHED GROUND FROM REAR ROOM IN LIMIT SWITCH
11			NO CONNECTION
12	BLACK	5705	SWITCHED +12 FROM UPPER REAR UNLOCK SWITCH

ELECTRICAL CONNECTION DIAGRAM
LED - FUSE LOCATION AND DESCRIPTION
CENTRAL CONTROL / ROOM 1 MODULE (TOP RING)
PAGE 1 OF 3

ROOM 1 AND 2 OUTPUT BOARD



LED	RELAY DESCRIPTION	FUSE	CN1
1-YELLOW	ROOM 1 CYL EXTEND		
2-RED	ROOM 1 CYL EXTEND	F1-15 AMP	PIN 1
3-RED	ROOM 1 CYL RETRACT	F2-15 AMP	PIN 2
4-YELLOW	ROOM 1 CYL RETRACT		
5-YELLOW	ROOM 1 LOCK		
6-RED	ROOM 1 LOCK	F3-15 AMP	PIN 3
7-RED	ROOM 1 UNLOCK	F4-15 AMP	PIN 4
8-YELLOW	ROOM 1 UNLOCK		
9-YELLOW	ROOM 2 CYL EXTEND		
10-RED	ROOM 2 CYL EXTEND	F5-15 AMP	PIN 5
11-RED	ROOM 2 CYL RETRACT	F6-15 AMP	PIN 6
12-YELLOW	ROOM 2 CYL RETRACT		
13-RED	ROOM 2 LOCK	F7-15 AMP	PIN 10
14-YELLOW	ROOM 2 LOCK		
15-YELLOW	ROOM 2 UNLOCK		
16-RED	ROOM 2 UNLOCK	F8-15 AMP	PIN 9
17-YELLOW	AIR SEAL		
18-RED	AIR SEAL	F9-5 AMP	PIN 7
19-YELLOW	VACUUM (NOT USED)		
20-RED	VACUUM (NOT USED)	F10-5 AMP	PIN 8

NOTE: FOR DETAILED INPUT / OUTPUT INFORMATION ABOUT PIN CONNECTIONS SEE ELECTRICAL CONNECTION DIAGRAM - CENTRAL CONTROL / ROOM 1 MODULE CONNECTION INFORMATION - PAGE 1 OF 3.

NOTE: A LIT YELLOW LED INDICATES THERE IS A GROUND SIGNAL TO TURN THE CORRESPONDING RELAY ON.

A LIT RED LED INDICATES THERE IS VOLTAGE ON IT'S CORRESPONDING CN1 PIN.

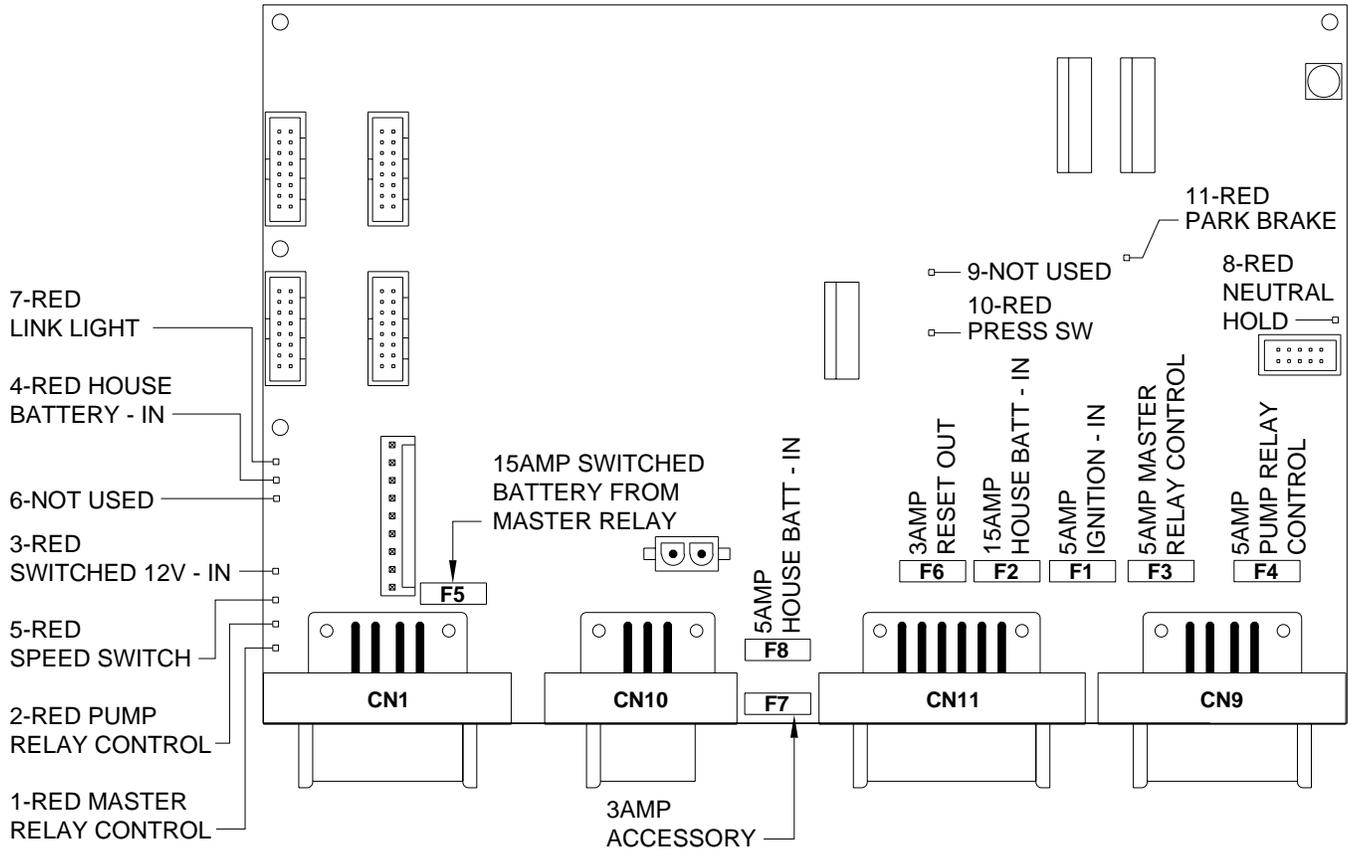
IF A YELLOW LED IS LIT AND THE CORRESPONDING RED LED IS OFF, EITHER IT'S FUSE IS BLOWN OR THE RELAY IS BAD.

IF THE YELLOW LEDS ARE WORKING BUT NO RED LED IS COMING ON THERE IS A PROBLEM WITH INPUT VOLTAGE IN THE 4-PIN CONNECTOR ON THE TOP RING.

IF A YELLOW LED IS NOT LIT, THIS INDICATES A PROBLEM WITH A MODULE.

ELECTRICAL CONNECTION DIAGRAM
LED - FUSE LOCATION AND DESCRIPTION
CENTRAL CONTROL / ROOM 1 MODULE (MIDDLE RING)
PAGE 2A OF 3

CENTRAL CONTROL MOTHER BOARD



LED	DESCRIPTION	CN AND PIN	FUSE DESCRIPTION
1-RED	MASTER RELAY CONTROL	CN 9 - PIN 1	F1 - 5AMP IGNITION - IN
2-RED	PUMP RELAY CONTROL	CN 9 - PIN 4	F2 - 15AMP HOUSE BATTERY - IN
3-RED	SWITCHED 12V FROM MASTER RELAY	CN 1 - PIN 3	F3 - 5AMP MASTER RELAY CONTROL
4-RED	HOUSE BATTERY - IN	CN 11 - PIN 12	F4 - 5AMP PUMP RELAY CONTROL
5-RED	SPEED SWITCH	CN 9 - PIN 5	F5 - 15AMP SWITCHED BATTERY - IN
6-NOT USED	NOT USED	NOT USED	F6 - 3AMP RESET OUT
7-RED	LINK LIGHT	CN 1 - PIN 7 & 8	F7 - 3AMP IGNITION - IN
8-RED	NEUTRAL HOLD	CN 11 - PIN 8 & 9	F8 - 5AMP HOUSE BATTERY - IN
9-NOT USED	NOT USED	NOT USED	
10-RED	3000 LBS PRESS SWITCH - ON	CN 9 - PIN 2	
11-RED	PARK PRAKE - ON	CN 11 - PIN 11	

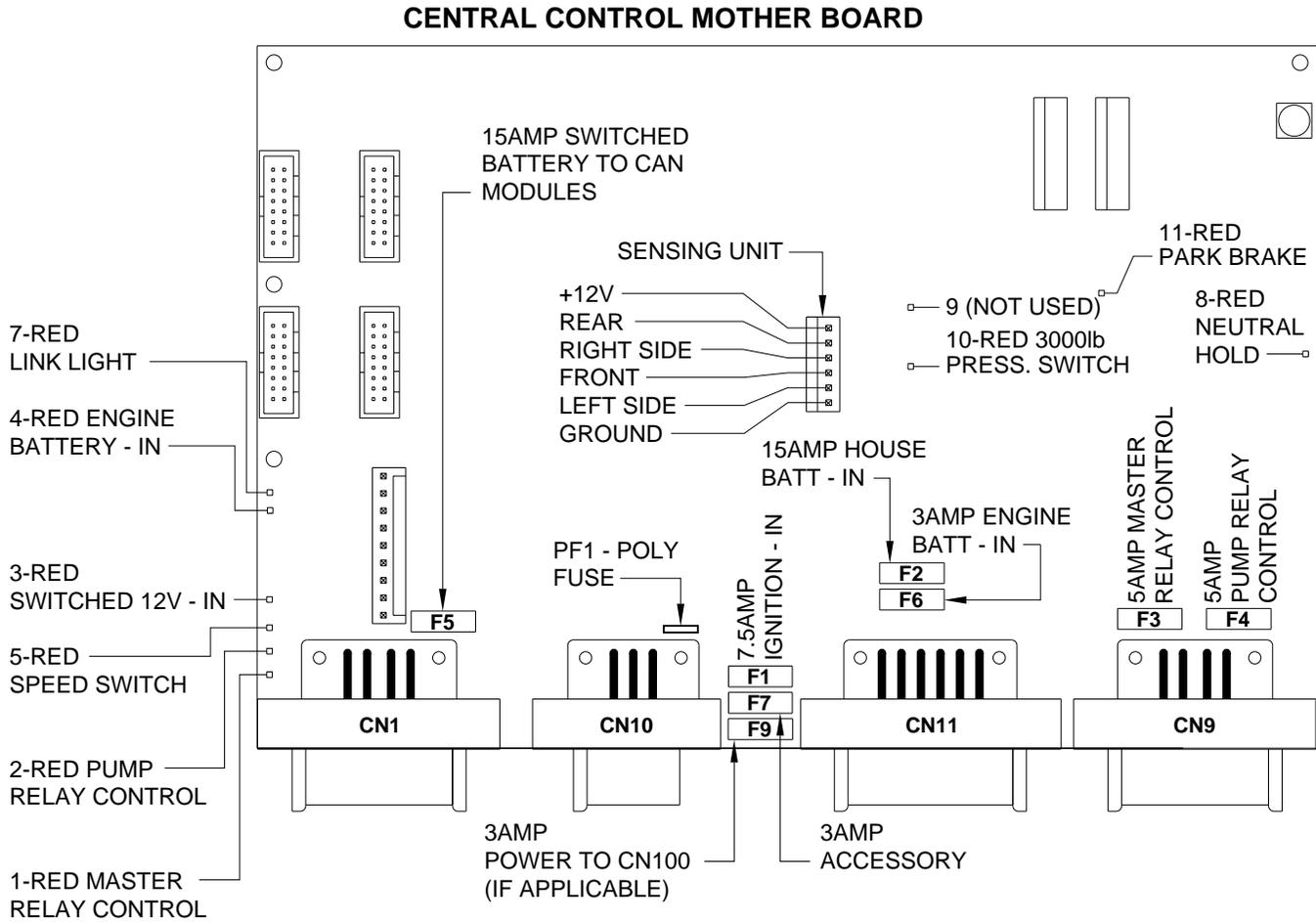
NOTE: FOR DETAILED INPUT / OUTPUT INFORMATION ABOUT PIN CONNECTIONS SEE ELECTRICAL CONNECTION DIAGRAM - CENTRAL CONTROL / ROOM 1 MODULE CONNECTION INFORMATION - PAGE 2 OF 2.

ELECTRICAL CONNECTION DIAGRAM

LED - FUSE LOCATION AND DESCRIPTION

CENTRAL CONTROL / ROOM 1 MODULE (MIDDLE RING)

PAGE 2B OF 3



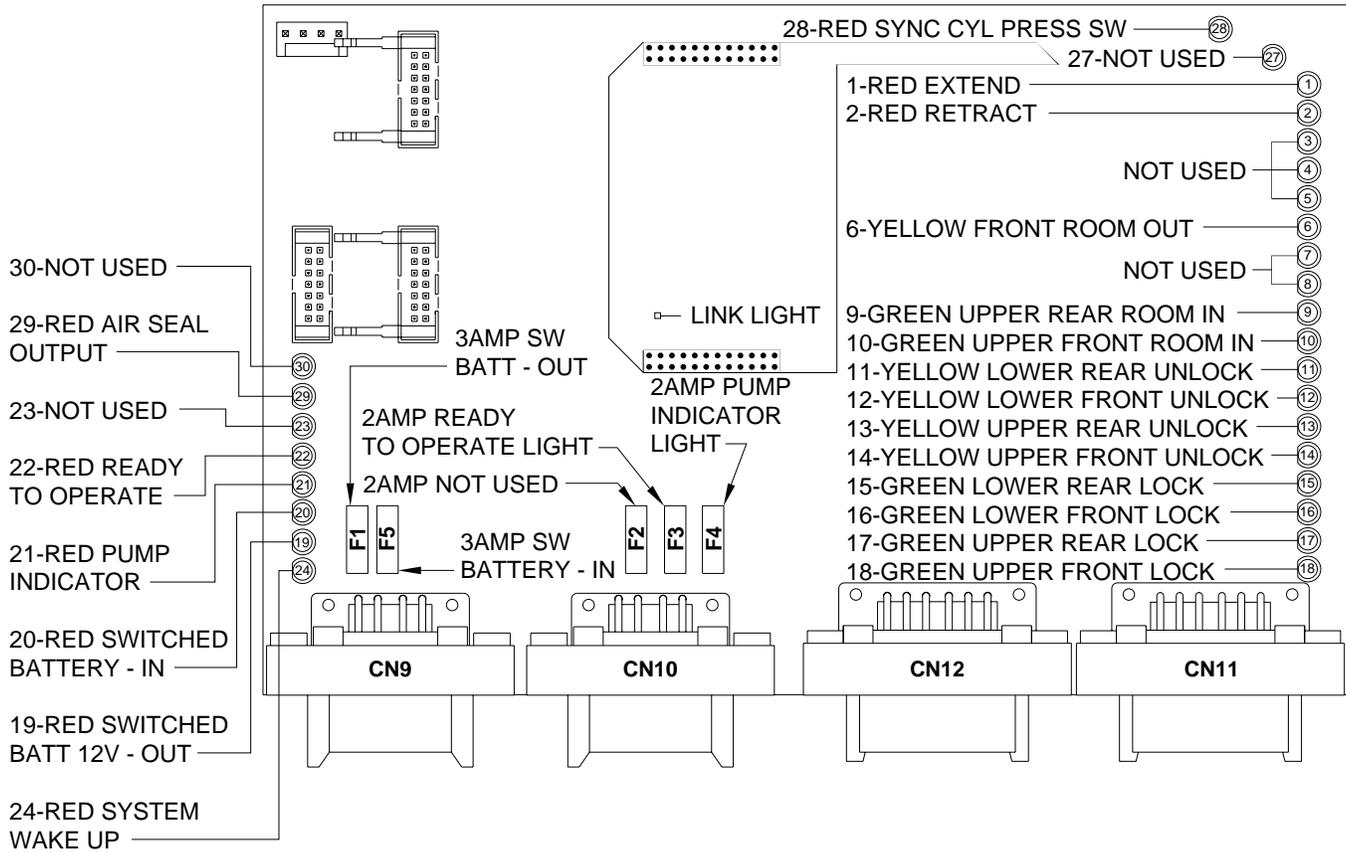
LED	DESCRIPTION	CN AND PIN	FUSE DESCRIPTION
1-RED	MASTER RELAY CONTROL (NOT USED)	CN 9 - PIN 1	PF1 - POLY FUSE F1 - 7.5AMP IGNITION - IN F2 - 15AMP HOUSE BATTERY - IN F3 - 5AMP MASTER RELAY CONTROL F4 - 5AMP PUMP RELAY CONTROL F5 - 15AMP SWITCHED BATTERY - IN F6 - 3AMP RESET OUT F7 - 3AMP ACCESSORY - IN F9 - 3AMP POWER TO CN100 (IF APPLICABLE)
2-RED	PUMP RELAY CONTROL (NOT USED)	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	SPEED SWITCH*	CN 9 - PIN 5	
7-RED	LINK LIGHT	CN 1 - PIN 7 & 8	
8-RED	NEUTRAL HOLD**	CN 11 - PIN 8 & 9	
9-NOT USED	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 - CENTRAL CONTROL MODULE CONNECTION INFORMATION - PAGE 4 OF 6.

* LED 5 INDICATES A +12 SIGNAL FROM THE SPEED SWITCH - IGNITION ON COACH SPEED LESS THAN 10 MPH
 ** LED 8 INDICATES TRANSMISSION IS DISABLED WHEN LIT.

ELECTRICAL CONNECTION DIAGRAM
LED - FUSE LOCATION AND DESCRIPTION
CENTRAL CONTROL / ROOM 1 MODULE (BOTTOM RING)
PAGE 3 OF 3

ROOM 1 I/O BOARD



LED	DESCRIPTION	CN AND PIN
1-RED	EXTEND	CN 10 - PIN 4
2-RED	RETRACT	CN 10 - PIN 5
3-RED	NOT USED	NOT USED
6-YELLOW	FRONT ROOM OUT	CN 12 - PIN 2
7-RED	NOT USED	NOT USED
8-RED	NOT USED	NOT USED
9-GREEN	UPPER REAR ROOM IN	CN 11 - PIN 10
10-GREEN	UPPER FRONT ROOM IN	CN 12 - PIN 10
11-YELLOW	LOWER REAR UNLOCK	CN 11 - PIN 1
12-YELLOW	LOWER FRONT UNLOCK	CN 12 - PIN 1
13-YELLOW	UPPER REAR UNLOCK	CN 11 - PIN 12
14-YELLOW	UPPER FRONT UNLOCK	CN 12 - PIN 12
15-GREEN	LOWER REAR LOCK	CN 11 - PIN 4
16-GREEN	LOWER FRONT LOCK	CN 12 - PIN 4
17-GREEN	UPPER REAR LOCK	CN 11 - PIN 9
18-GREEN	UPPER FRONT LOCK	CN 12 - PIN 9
19-RED	SWITCHED BATT 12V - OUT	CN 11/CN 12 - PIN 7
20-RED	SWITCHED BATTERY	CN 9 - PIN 3
21-RED	PUMP INDICATOR	CN 10 - PIN 3
22-RED	READY TO OPERATE	CN 10 - PIN 2
23-NOT USED	NOT USED	NOT USED
24-RED	SYSTEM WAKE UP	CN 10 - PIN 7
27-NOT USED	NOT USED	NOT USED
28-RED	SYNC CYL PRESS SW	CN 12 - PIN 11
29-RED	AIR SEAL OUTPUT	
30-RED	VACUUM OUTPUT	NOT USED
LINK LIGHT		

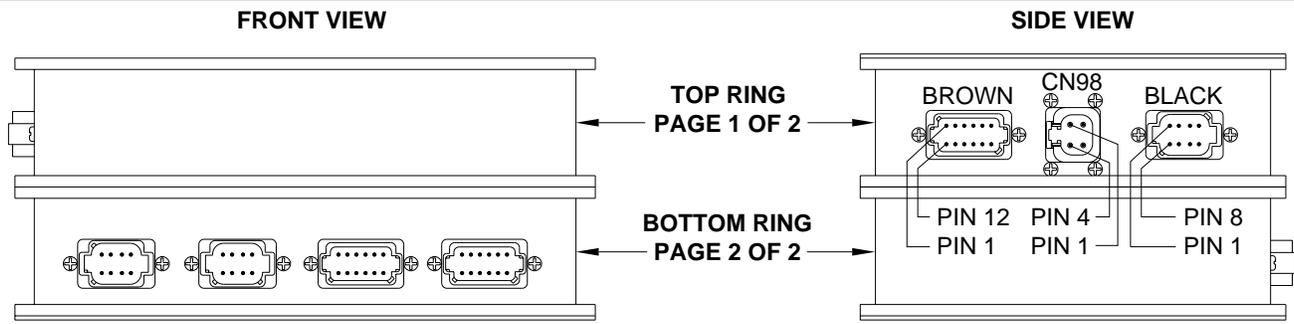
FUSE DESCRIPTION
F1 - 3AMP SW BATTERY OUT
F2 - 2AMP NOT USED
F3 - 2AMP READY TO OPERATE LIGHT
F4 - 2AMP PUMP INDICATOR LIGHT
F5 - 3AMP SWITCHED BATTERY - IN

NOTE: FOR DETAILED INPUT / OUTPUT INFORMATION ABOUT PIN CONNECTIONS SEE ELECTRICAL CONNECTION DIAGRAM - CENTRAL CONTROL / ROOM 1 MODULE CONNECTION INFORMATION - PAGE 3 OF 3.

ELECTRICAL CONNECTION DIAGRAM

FRONT AIR MODULE CONNECTION INFORMATION

PAGE 1 OF 2

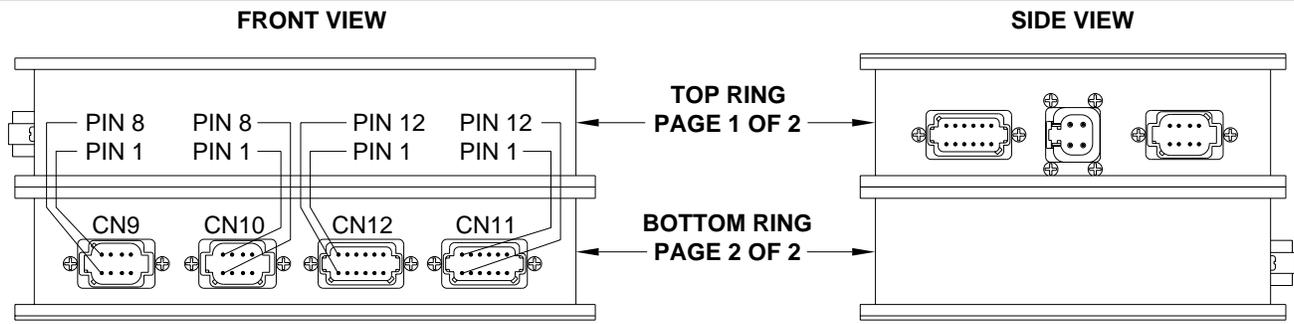


PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
TOP RING BROWN			12 PIN BROWN CONNECTOR
1			NO CONNECTION
2	BLACK	1500	LEFT FRONT RAISE AIR VALVE CONTROL - SWITCHED +12
3	BLACK	1600	LEFT FRONT LOWER AIR VALVE CONTROL - SWITCHED +12
4	BLACK	2500	RIGHT FRONT RAISE AIR VALVE CONTROL - SWITCHED +12
5	BLACK	2600	RIGHT FRONT LOWER AIR VALVE CONTROL - SWITCHED +12
6	BLACK	9700	AUXILIARY AIR COMPRESSOR CONTROL - SWITCHED +12
7			NO CONNECTION
8	BLACK	1700	FRONT AIR MANIFOLD TRAVEL VALVES CONTROL - SWITCHED +12
9 AND 10			NO CONNECTION
11	WHITE	6254	GROUND FOR ALL SOLENOID VALVES
12			NO CONNECTION
TOP RING CN98			4 PIN GRAY CONNECTOR
1	RED	6800	SWITCHED +12 BATTERY FROM MASTER RELAY
2	RED	6800	SWITCHED +12 BATTERY FROM MASTER RELAY
3	GREEN	6230	GROUND FROM GROUND STUD FOR ALL SOLENOID VALVES
4	GREEN	6230	GROUND FROM GROUND STUD FOR ALL SOLENOID VALVES
TOP RING BLACK			8 PIN BLACK CONNECTOR - TOUCH PANEL CONNECTION
1 AND 2			NO CONNECTION
3	RED	6800	SWITCHED +12 BATTERY FROM MASTER RELAY
4	GREEN	6230	GROUND
5	.	.	SHIELD WIRE FOR CAN CABLE
6			NO CONNECTION
7	GREEN	.	CAN DATA LINE LOW - DO NOT MODIFY
8	YELLOW	.	CAN DATA LINE HIGH - DO NOT MODIFY

ELECTRICAL CONNECTION DIAGRAM

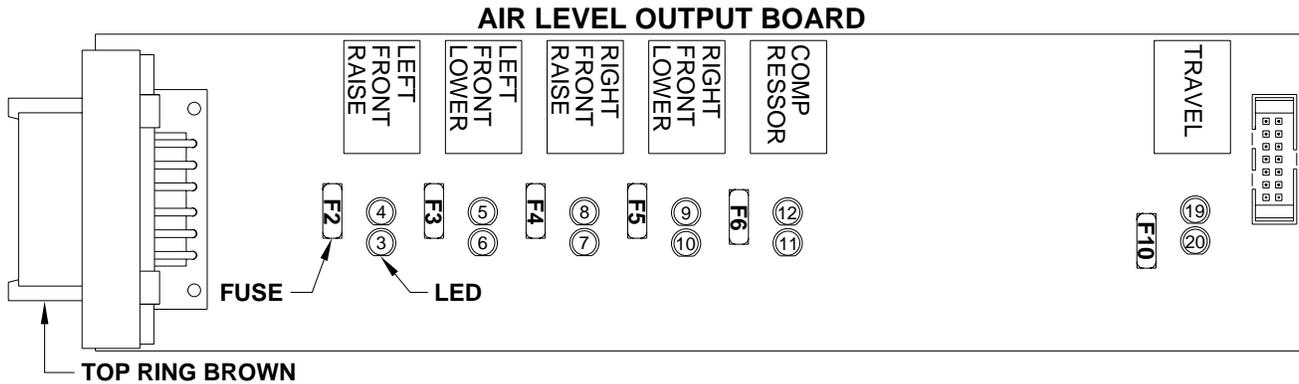
FRONT AIR MODULE CONNECTION INFORMATION

PAGE 2 OF 2



PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
BOTTOM RING CN9			8 PIN BLACK CONNECTOR
1	WHITE	7696	SYSTEM WAKE UP - SWITCHED GROUND
2			NO CONNECTION
3	RED	6800	SWITCHED +12 BATTERY FROM MASTER RELAY
4	GREEN	6230	GROUND
5			SHIELD WIRE FOR CAN CABLE
6	RED	6110	IGNITION +12 - IN
7	GREEN		CAN DATA LINE LOW - DO NOT MODIFY
8	YELLOW		CAN DATA LINE HIGH - DO NOT MODIFY
BOTTOM RING CN10			8 PIN GRAY CONNECTOR
1 THRU 8			NO CONNECTION
BOTTOM RING CN12			12 PIN GRAY CONNECTOR
1 THRU 5			NO CONNECTION
6	WHITE	6236	GROUND FOR RIGHT FRONT AIR PRESSURE SWITCH
7	BLACK	6800	SWITCHED +12 BATTERY FOR TAG DUMP SWITCH
8 AND 9			NO CONNECTION
10	BLACK	2210	FROM RIGHT FRONT AIR PRESSURE SWITCH - SWITCHED GROUND
11	BLACK	7521	SWITCHED +12 FROM TAG DUMP SWITCH
12			NO CONNECTION
BOTTOM RING CN11			12 PIN GREEN CONNECTOR
1 THRU 5			NO CONNECTION
6	WHITE	6235	GROUND FOR LEFT FRONT AIR PRESSURE SWITCH
7 THRU 9			NO CONNECTION
10	BLACK	1210	FROM LEFT FRONT AIR PRESSURE SWITCH - SWITCHED GROUND
11 AND 12			NO CONNECTION

**ELECTRICAL CONNECTION DIAGRAM
LED - FUSE LOCATION AND DESCRIPTION
FRONT AIR MODULE (TOP RING)
PAGE 1 OF 2**



LED	RELAY DESCRIPTION	FUSE	BROWN
3-RED	LEFT FRONT RAISE	F2-5 AMP	PIN 2
4-YELLOW	LEFT FRONT RAISE		
5-YELLOW	LEFT FRONT LOWER		
6-RED	LEFT FRONT LOWER	F3-5 AMP	PIN 3
7-RED	RIGHT FRONT RAISE	F4-5 AMP	PIN 4
8-YELLOW	RIGHT FRONT RAISE		
9-YELLOW	RIGHT FRONT LOWER		
10-RED	RIGHT FRONT LOWER	F5-5 AMP	PIN 5
11-RED	COMPRESSOR	F6-5 AMP	PIN 6
12-YELLOW	COMPRESSOR		
19-YELLOW	TRAVEL		
20-RED	TRAVEL	F10-7.5 AMP	PIN 8

NOTE: THE TRAVEL RELAY IS WIRED AS A NORMALLY CLOSED RELAY. WHEN THE YELLOW LED (19) IS ON THE RELAY CONTACTS WILL OPEN. THE RED LED (20) WILL NOT BE ON. THE RED LED WILL BE ON IF THE LEVELING SYSTEM IS IN THE TRAVEL MODE AND THE IGNITION IS ON.

NOTE: FOR DETAILED INPUT / OUTPUT INFORMATION ABOUT PIN CONNECTIONS SEE ELECTRICAL CONNECTION DIAGRAM - FRONT AIR MODULE CONNECTION INFORMATION - PAGE 1 OF 2.

NOTE: A LIT YELLOW LED INDICATES THERE IS A GROUND SIGNAL TO TURN THE CORRESPONDING RELAY ON.

A LIT RED LED INDICATES THERE IS VOLTAGE ON IT'S CORRESPONDING CN1 PIN.

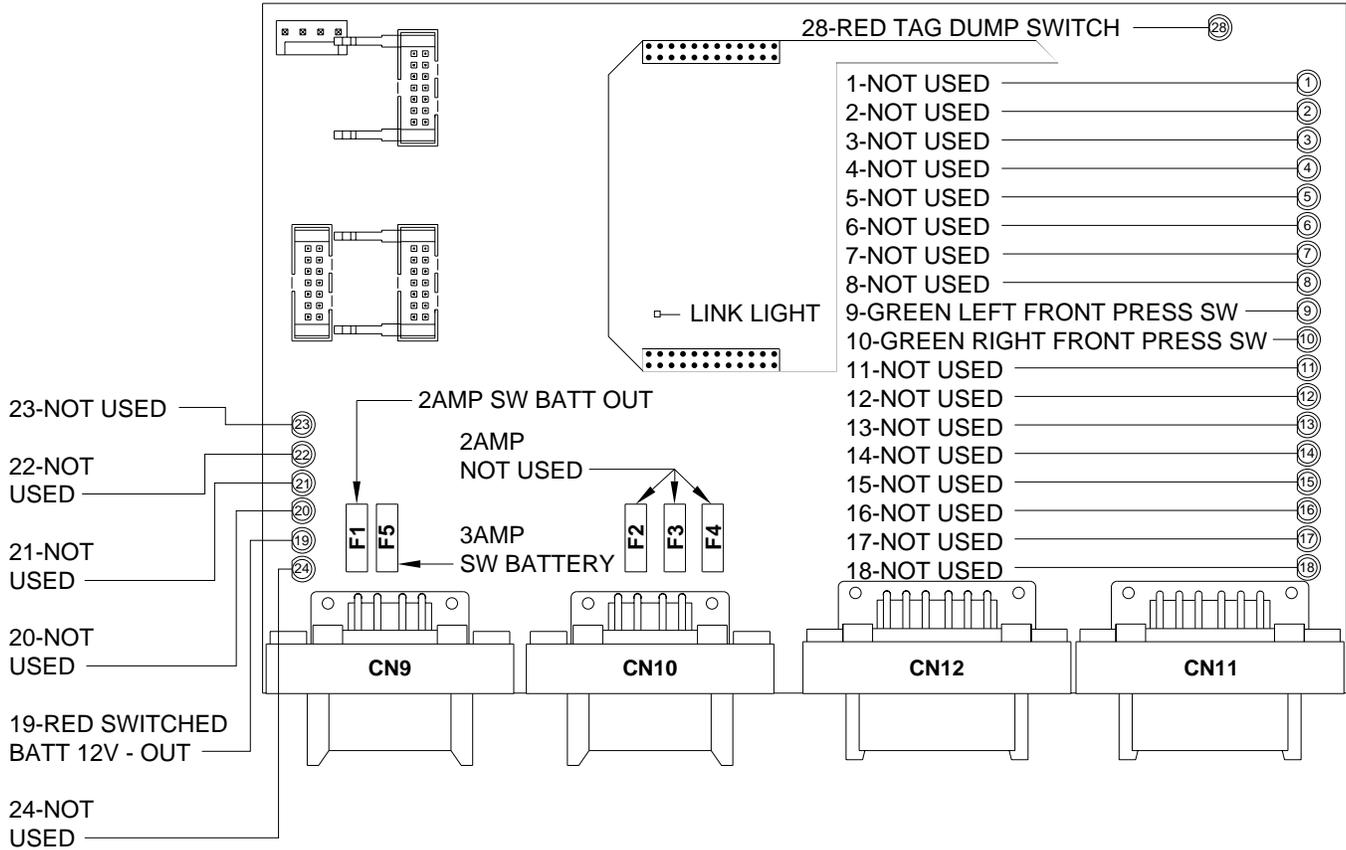
IF A YELLOW LED IS LIT AND THE CORRESPONDING RED LED IS OFF, EITHER IT'S FUSE IS BLOWN OR THE RELAY IS BAD.

IF THE YELLOW LEDS ARE WORKING BUT NO RED LED IS COMING ON THERE IS A PROBLEM WITH INPUT VOLTAGE IN THE 4-PIN CONNECTOR ON THE TOP RING.

IF A YELLOW LED IS NOT LIT, THIS INDICATES A PROBLEM WITH A MODULE.

ELECTRICAL CONNECTION DIAGRAM LED - FUSE LOCATION AND DESCRIPTION FRONT AIR MODULE (BOTTOM RING) PAGE 2 OF 2

AIR I/O BOARD



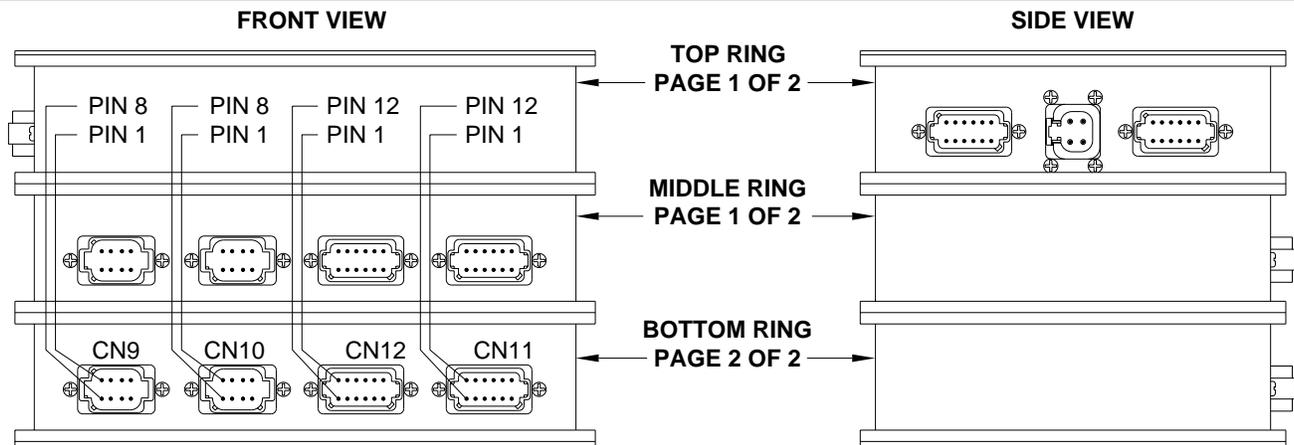
LED	DESCRIPTION	CN AND PIN	FUSE DESCRIPTION
1 THRU 8-NOT USED	NOT USED	NOT USED	F1 - 2AMP SW BATTERY OUT
9-GREEN	LEFT FRONT PRESS. SW.	CN 11 - PIN 10	F2 - 2AMP NOT USED
10-GREEN	RIGHT FRONT PRESS. SW.	CN 12 - PIN 10	F3 - 2AMP NOT USED
11 THRU 18-NOT USED	NOT USED	NOT USED	F4 - 2AMP NOT USED
19-RED	SWITCHED BATT 12V - OUT	CN 11 & CN 12 - PIN 7	F5 - 3AMP SWITCHED BATTERY IN
20 THRU 24-NOT USED	NOT USED	NOT USED	
28-RED	TAG DUMP SWITCH	CN 12 - PIN 11	

NOTE: FOR DETAILED INPUT / OUTPUT INFORMATION ABOUT PIN CONNECTIONS SEE ELECTRICAL CONNECTION DIAGRAM - FRONT AIR MODULE CONNECTION INFORMATION - PAGE 2 OF 2.

ELECTRICAL CONNECTION DIAGRAM

REAR AIR / ROOM 2 MODULE CONNECTION INFORMATION

PAGE 2 OF 2



PIN #	WIRE COLOR	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
BOTTOM RING CN9			8 PIN BLACK CONNECTOR
1	WHITE	7696	SYSTEM WAKE UP - SWITCHED GROUND
2			NO CONNECTION
3	RED	6800	SWITCHED +12 BATTERY FROM MASTER RELAY
4	GREEN	6230	GROUND
5			SHIELD WIRE FOR CAN CABLE
6	RED	6110	IGNITION +12 - IN
7	GREEN		CAN DATA LINE LOW - DO NOT MODIFY
8	YELLOW		CAN DATA LINE HIGH - DO NOT MODIFY
BOTTOM RING CN10			8 PIN GRAY CONNECTOR
1			NO CONNECTION
2	WHITE	7510	READY TO OPERATE LIGHT CONTROL - SWITCHED +12
3	WHITE	7530	PUMP ON LIGHT CONTROL - SWITCHED +12
4	WHITE	7501	ROOM EXTEND - SWITCHED +12 FROM ROOM CONTROL SWITCH
5	WHITE	7502	ROOM RETRACT - SWITCHED +12 FROM ROOM CONTROL SWITCH
6	RED	6805	SWITCHED +12 BATTERY TO ROOM PANEL KEY SWITCH
7	WHITE	7631	SYSTEM WAKE UP - SWITCHED GROUND FROM PANEL KEY SWITCH
8	GREEN	6230	GROUND TO ROOM PANEL KEY SWITCH
BOTTOM RING CN12			12 PIN GRAY CONNECTOR
1	BLACK	5706	SWITCHED +12 FROM LOWER FRONT UNLOCK SWITCH
2	BLACK	5701	SWITCHED GROUND FROM ROOM OUT LIMIT SWITCH
3			NO CONNECTION
4	BLACK	5710	SWITCHED +12 FROM LOWER FRONT LOCK SWITCH
5			NO CONNECTION
6	WHITE	6230	GROUND FOR ROOM IN AND OUT HALL EFFECT SWITCHES
7	RED	6121	SWITCHED +12 BATTERY TO ALL FRONT LIMIT SWITCHES
8			NO CONNECTION
9	BLACK	5708	SWITCHED +12 FROM UPPER FRONT LOCK SWITCH
10	BLACK	5703	SWITCHED GROUND FROM UPPER FRONT ROOM IN LIMIT SWITCH
11			NO CONNECTION
12	BLACK	5704	SWITCHED +12 FROM UPPER FRONT UNLOCK SWITCH
BOTTOM RING CN11			12 PIN GREEN CONNECTOR
1	BLACK	5707	SWITCHED +12 FROM LOWER REAR UNLOCK SWITCH
2 AND 3			NO CONNECTION
4	BLACK	5711	SWITCHED +12 FROM LOWER REAR LOCK SWITCH
5 AND 6			NO CONNECTION
7	RED	6120	SWITCHED +12 BATTERY FOR ALL REAR LIMIT SWITCHES
8			NO CONNECTION
9	BLACK	5709	SWITCHED +12 FROM UPPER REAR LOCK SWITCH
10	BLACK	5702	SWITCHED GROUND FROM UPPER REAR ROOM IN SWITCH
11			NO CONNECTION
12	BLACK	5705	SWITCHED +12 FROM UPPER REAR UNLOCK SWITCH

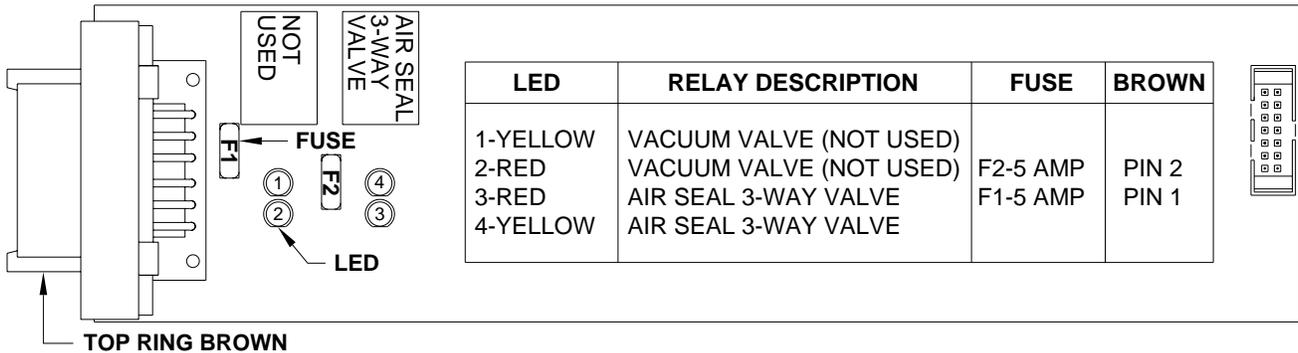
ELECTRICAL CONNECTION DIAGRAM

LED - FUSE LOCATION AND DESCRIPTION

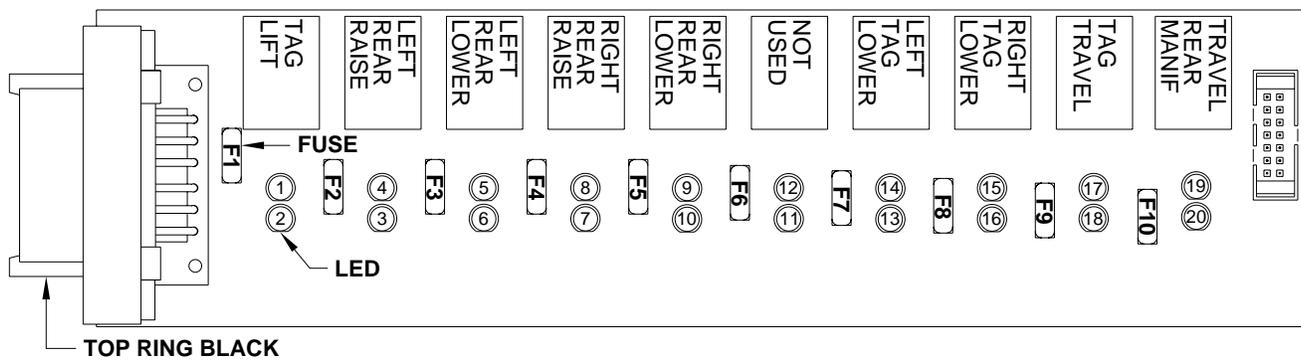
REAR AIR / ROOM 2 MODULE (TOP RING)

PAGE 1 OF 3

AIR SEAL OUTPUT BOARD



AIR LEVEL OUTPUT BOARD



LED	RELAY DESCRIPTION	FUSE	BLACK
1-YELLOW	TAG LIFT		
2-RED	TAG LIFT	F1-5 AMP	PIN 1
3-RED	LEFT REAR RAISE	F2-5 AMP	PIN 2
4-YELLOW	LEFT REAR RAISE		
5-YELLOW	LEFT REAR LOWER		
6-RED	LEFT REAR LOWER	F3-5 AMP	PIN 3
7-RED	RIGHT REAR RAISE	F4-5 AMP	PIN 4
8-YELLOW	RIGHT REAR RAISE		
9-YELLOW	RIGHT REAR LOWER		
10-RED	RIGHT REAR LOWER	F5-5 AMP	PIN 5
11-RED	NOT USED	F6-5 AMP	PIN 6
12-YELLOW	NOT USED		
13-RED	LEFT TAG LOWER	F7-5 AMP	PIN 10
14-YELLOW	LEFT TAG LOWER		
15-YELLOW	RIGHT TAG LOWER		
16-RED	RIGHT TAG LOWER	F8-5 AMP	PIN 9
17-YELLOW	TAG TRAVEL		
18-RED	TAG TRAVEL	F9-3 AMP	PIN 7
19-YELLOW	TRAVEL - REAR MANIFOLD		
20-RED	TRAVEL - REAR MANIFOLD	F10-3 AMP	PIN 8

NOTE: FOR DETAILED INPUT / OUTPUT INFORMATION ABOUT PIN CONNECTIONS SEE ELECTRICAL CONNECTION DIAGRAM - REAR AIR / ROOM 2 MODULE CONNECTION INFORMATION - PAGE 1 OF 2.

NOTE: A LIT YELLOW LED INDICATES THERE IS A GROUND SIGNAL TO TURN THE CORRESPONDING RELAY ON.

A LIT RED LED INDICATES THERE IS VOLTAGE ON IT'S CORRESPONDING CN1 PIN.

IF A YELLOW LED IS LIT AND THE CORRESPONDING RED LED IS OFF, EITHER IT'S FUSE IS BLOWN OR THE RELAY IS BAD.

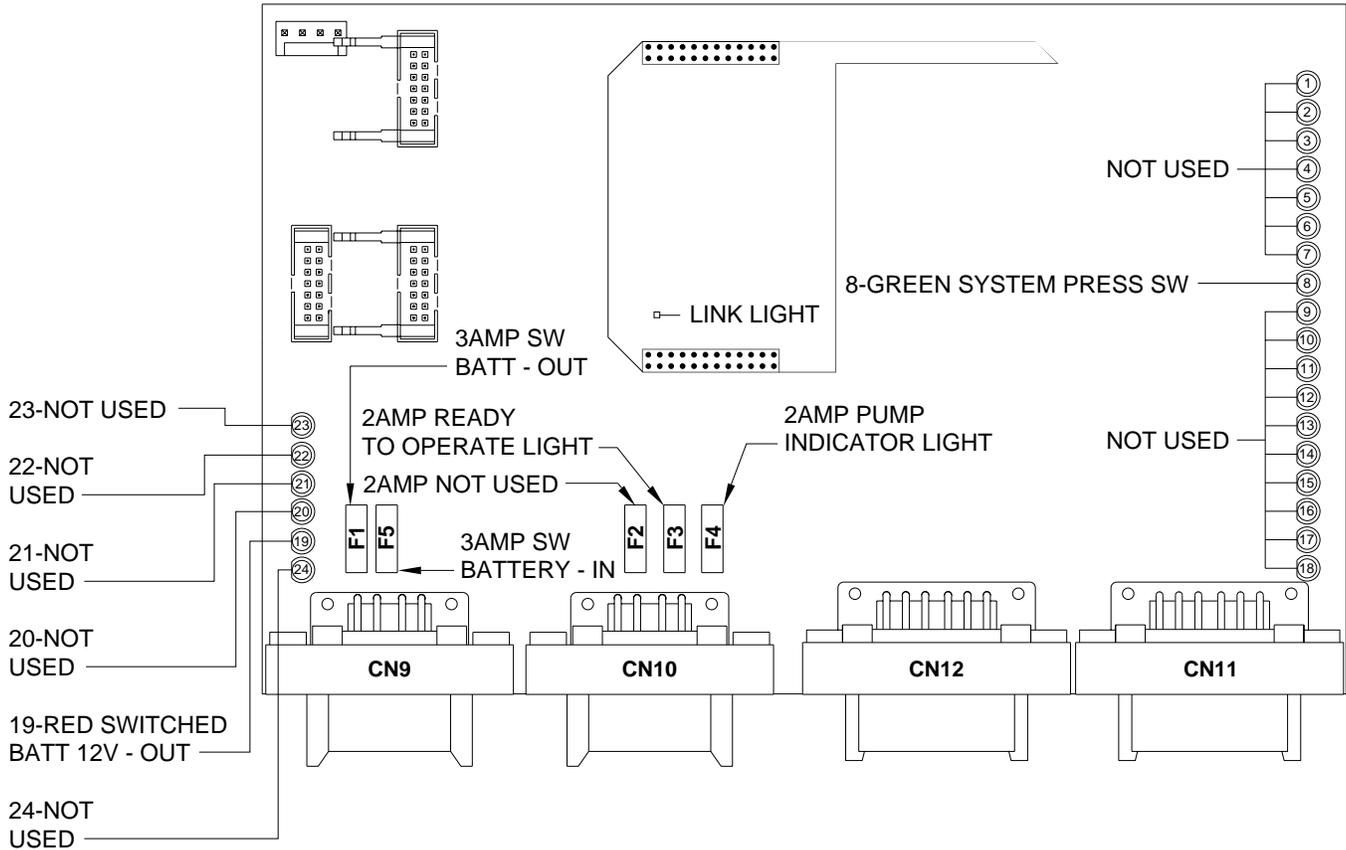
IF THE YELLOW LEDS ARE WORKING BUT NO RED LED IS COMING ON THERE IS A PROBLEM WITH INPUT VOLTAGE IN THE 4-PIN CONNECTOR ON THE TOP RING.

IF A YELLOW LED IS NOT LIT, THIS INDICATES A PROBLEM WITH A MODULE.

NOTE: THE TWO TRAVEL RELAYS ARE WIRED AS NORMALLY CLOSED RELAYS. WHEN THE YELLOW LED (19) IS ON THE RELAY CONTACTS WILL OPEN. THE RED LED (20) WILL NOT BE ON. THE RED LED WILL BE ON IF THE LEVELING SYSTEM IS IN THE TRAVEL MODE AND THE IGNITION IS ON.

**ELECTRICAL CONNECTION DIAGRAM
LED - FUSE LOCATION AND DESCRIPTION
REAR AIR / ROOM 2 MODULE (MIDDLE RING)
PAGE 2 OF 3**

REAR AIR I/O BOARD

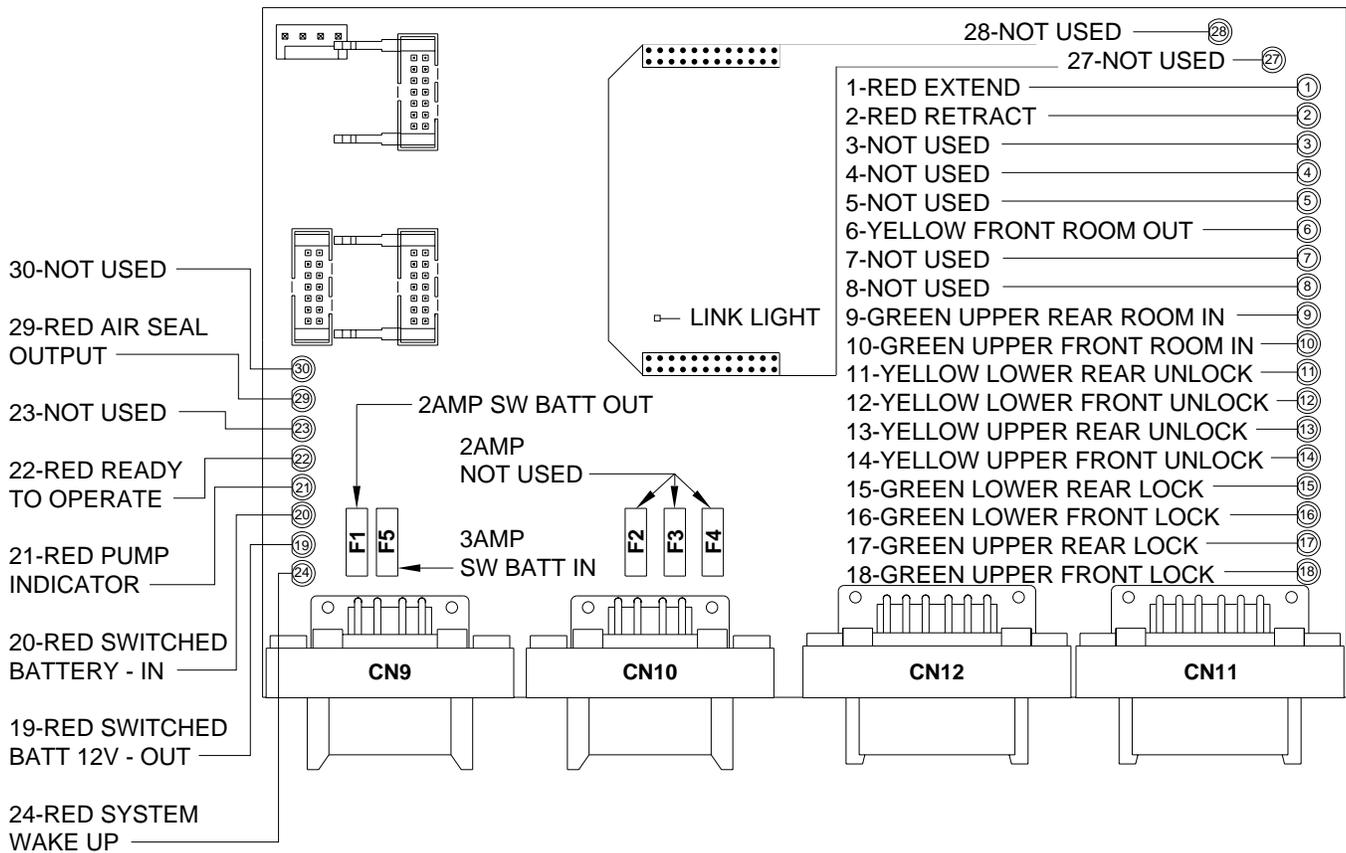


LED	DESCRIPTION	CN AND PIN	FUSE DESCRIPTION
1 THRU 7-NOT USED	NOT USED	NOT USED	F1 - 2AMP SW BATTERY OUT
8-GREEN	SYSTEM PRESS. SWITCH	CN 12 - PIN 3	F2 - 2AMP NOT USED
9 THRU 18-NOT USED	NOT USED	NOT USED	F3 - 2AMP READY TO OPERATE LIGHT
19-RED	SWITCHED BATT 12V - OUT	CN11 & CN12 - PIN 7	F4 - 2AMP PUMP INDICATOR LIGHT
20 THRU 24-NOT USED	NOT USED	NOT USED	F5 - 3AMP SWITCHED BATTERY IN
LINK LIGHT			

NOTE: FOR DETAILED INPUT / OUTPUT INFORMATION ABOUT PIN CONNECTIONS SEE ELECTRICAL CONNECTION DIAGRAM - REAR AIR / ROOM 2 MODULE CONNECTION INFORMATION - PAGE 1 OF 2.

ELECTRICAL CONNECTION DIAGRAM
LED - FUSE LOCATION AND DESCRIPTION
REAR AIR / ROOM 2 MODULE (BOTTOM RING)
PAGE 3 OF 3

ROOM 2 I/O BOARD



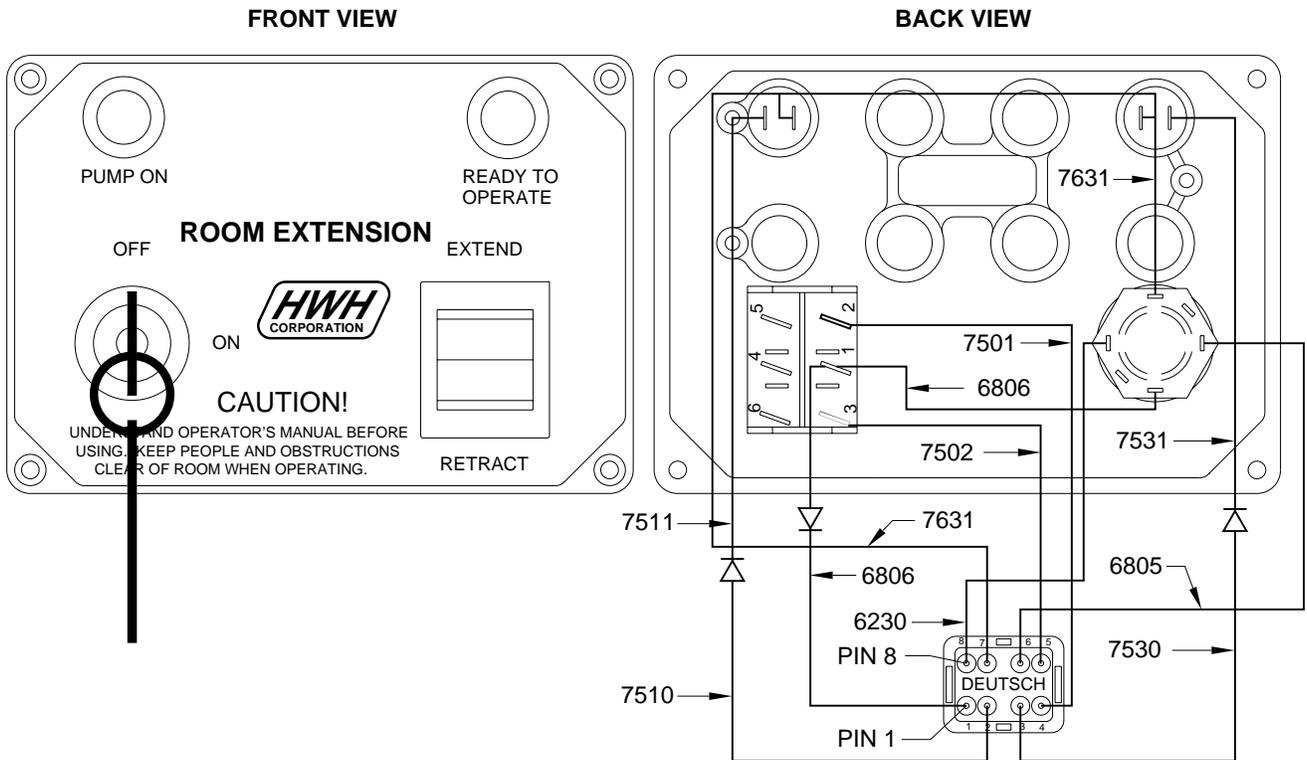
LED	DESCRIPTION	CN AND PIN
1-RED	EXTEND	CN 10 - PIN 4
2-RED	RETRACT	CN 10 - PIN 5
3 THRU 5-NOT USED	NOT USED	NOT USED
6-YELLOW	FRONT ROOM OUT	CN 12 - PIN 2
7 AND 8-NOT USED	NOT USED	NOT USED
9-GREEN	UPPER REAR ROOM IN	CN 11 - PIN 10
10-GREEN	UPPER FRONT ROOM IN	CN 12 - PIN 10
11-YELLOW	LOWER REAR UNLOCK	CN 11 - PIN 1
12-YELLOW	LOWER FRONT UNLOCK	CN 12 - PIN 1
13-YELLOW	UPPER REAR UNLOCK	CN 11 - PIN 12
14-YELLOW	UPPER FRONT UNLOCK	CN 12 - PIN 12
15-GREEN	LOWER REAR LOCK	CN 11 - PIN 4
16-GREEN	LOWER FRONT LOCK	CN 12 - PIN 4
17-GREEN	UPPER REAR LOCK	CN 11 - PIN 9
18-GREEN	UPPER FRONT LOCK	CN 12 - PIN 9
19-RED	SWITCHED BATT 12V - OUT	CN 11 & CN12 - PIN 7
20-RED	SWITCHED BATTERY - IN	CN 9 - PIN 3
21-RED	PUMP INDICATOR	CN 10 - PIN 3
22-RED	READY TO OPERATE	CN 10 - PIN 2
23-NOT USED	NOT USED	NOT USED
24-RED	SYSTEM WAKE UP	CN 10 - PIN 7
27-NOT USED	NOT USED	NOT USED
28-NOT USED	NOT USED	NOT USED
29-RED	AIR SEAL	
30-RED	VACUUM	
LINK LIGHT		

FUSE DESCRIPTION
F1 - 2AMP SW BATTERY OUT
F2 - 2AMP NOT USED
F3 - 2AMP NOT USED
F4 - 2AMP NOT USED
F5 - 3AMP SWITCHED BATTERY IN

NOTE: FOR DETAILED INPUT / OUTPUT INFORMATION ABOUT PIN CONNECTIONS SEE ELECTRICAL CONNECTION DIAGRAM - REAR AIR / ROOM 2 MODULE CONNECTION INFORMATION - PAGE 2 OF 2.

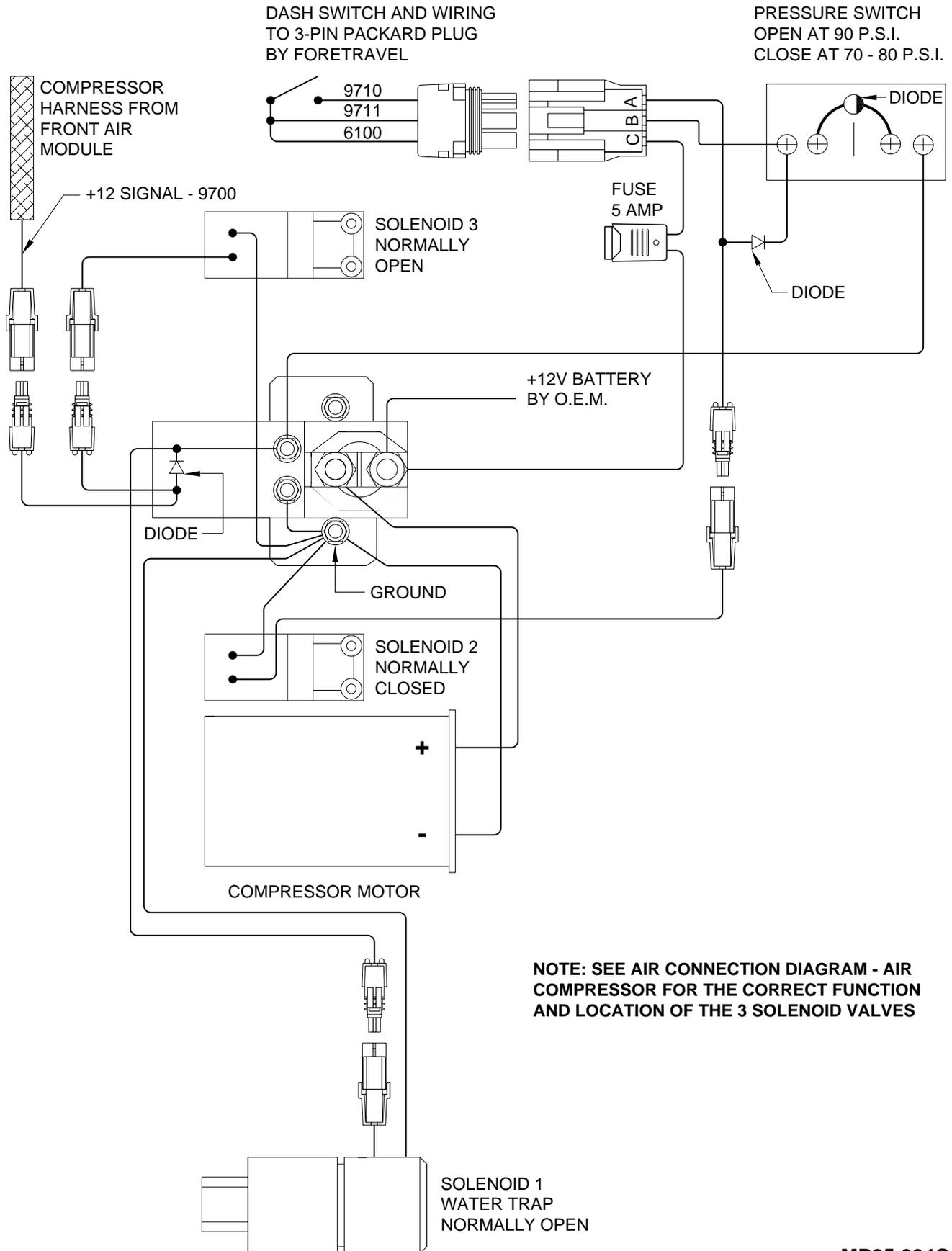
ELECTRICAL CONNECTION DIAGRAM

ROOM EXTENSION PANEL

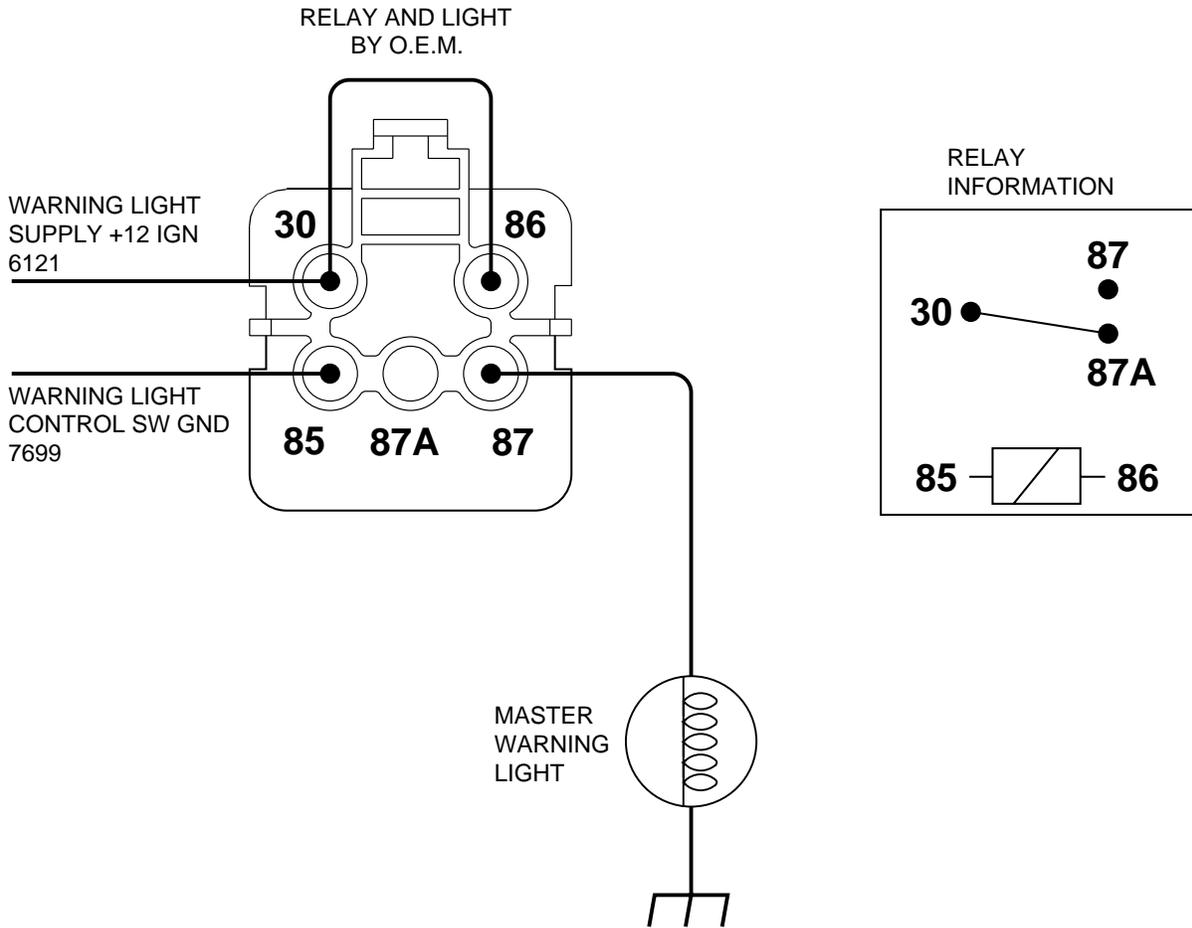


CONNECTOR PIN #	WIRE NUMBER	WIRE DESCRIPTION AND FUNCTION
1	6806	SWITCHED +12 FROM KEY SWITCH FOR ROOM CONTROL SWITCH
2	7510/7511	READY TO OPERATE LIGHT CONTROL WIRE SWITCHED +12V
3	7530/7531	PUMP ON LIGHT CONTROL WIRE SWITCHED +12
4	7501	ROOM EXTEND - SWITCHED +12V FROM ROOM CONTROL SWITCH
5	7502	ROOM RETRACT - SWITCHED +12V FROM ROOM CONTROL SWITCH
6	6805	SWITCHED +12V TO ROOM PANEL KEY SWITCH
7	7631	SWITCHED GROUND FROM ROOM PANEL KEY SWITCH FOR PANEL INDICATOR LIGHTS AND SYSTEM WAKE UP
8	6230	GROUND SUPPLY FOR ROOM PANEL KEY SWITCH

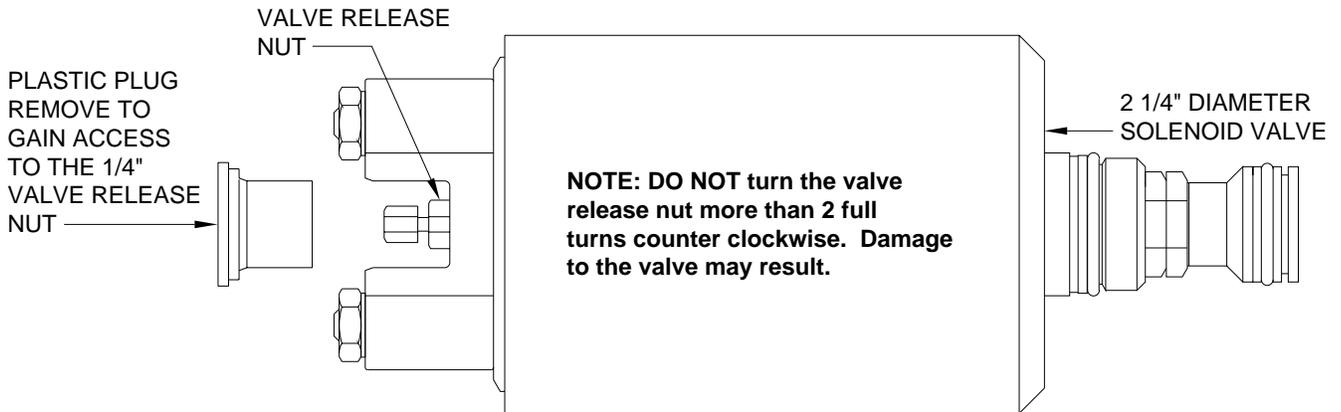
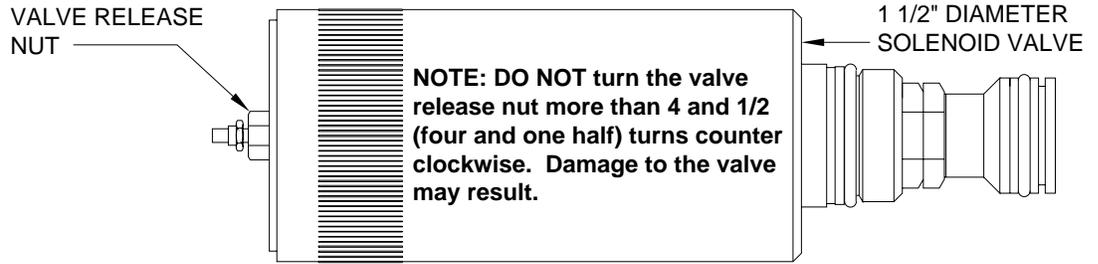
ELECTRICAL CONNECTION DIAGRAM AUXILIARY COMPRESSOR CONNECTIONS



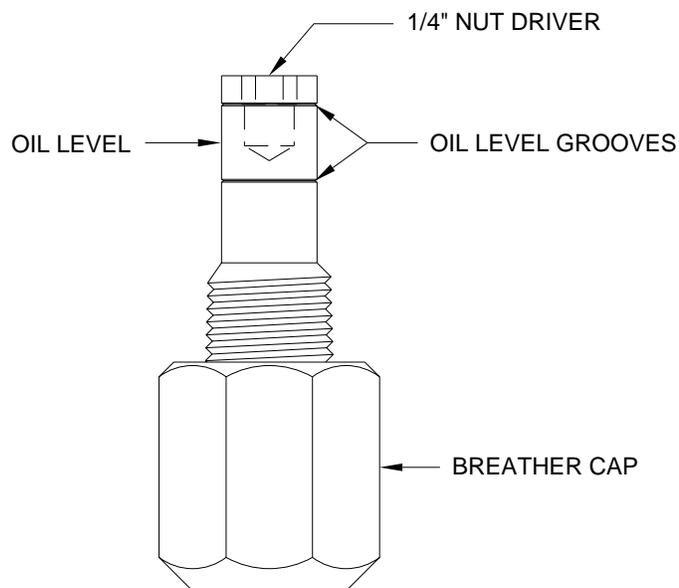
ELECTRICAL CONNECTION DIAGRAM MASTER WARNING LIGHT



BREATHER CAP - DIPSTICK - 1/4" NUT DRIVER



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



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