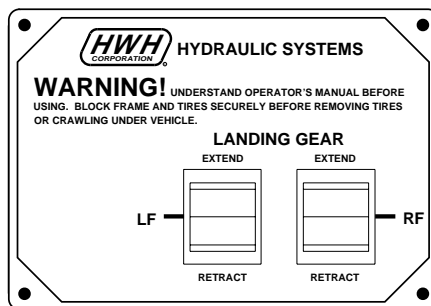
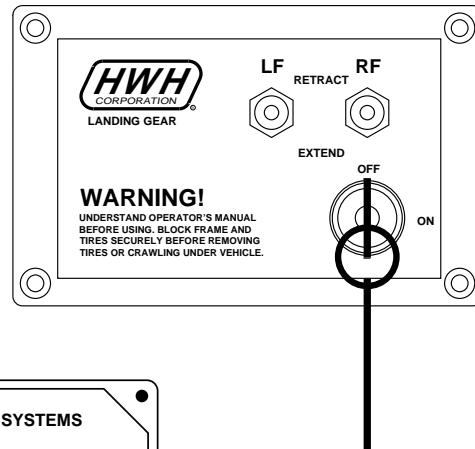
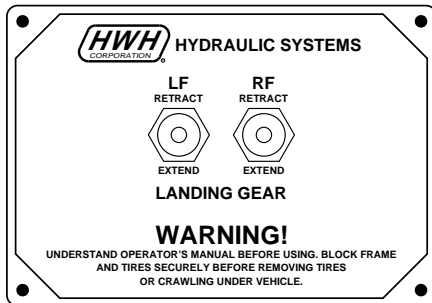




OPERATOR'S MANUAL

HWH® HYDRAULIC LANDING GEAR SYSTEM

FEATURING:
Two Double-Acting Jacks



HWH CORPORATION
(On I-80, Exit 267 South)
2096 Moscow Road | Moscow, Iowa 52760
Ph: 800/321-3494 (or) 563/724-3396 | Fax: 563/724-3408
www.hwh.com

ML44078/MP04.4510
20APR09

OPERATOR'S MANUAL

WARNING !

READ ENTIRE HWH AND VEHICLE OPERATOR'S MANUALS BEFORE OPERATING.

JACKS UNDER LOAD WILL RETRACT WHEN A JACK SOLENOID VALVE IS OPENED TO THE RETRACT POSITION WITHOUT THE PUMP RUNNING.

CHOCK TRAILER WHEELS SECURELY BEFORE USING THE LANDING GEAR.

DO NOT LIFT THE TOW VEHICLE WITH THE LANDING GEAR.

BLOCK FRAME AND TIRES SECURELY BEFORE CRAWLING UNDER THE TRAILER, CHANGING TIRES, OR ENTERING AREAS WHERE BODY MAY BE CRUSHED BY SUDDEN DROPPING OR SLIDING OF TRAILER.

THE TRAILER MAY DROP AND/OR MOVE FORWARD OR BACKWARD WITHOUT WARNING CAUSING INJURY OR DEATH.

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

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

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

PUMP RUN TIME

PUMP RUN TIME

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

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

SYSTEM VARIATIONS FOR PUMP RUN TIME

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

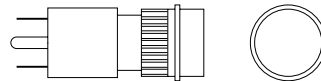
Some systems can be turned back on immediately after the processor turns the pump off. **DO NOT turn the system back on or run the pump without allowing the pump motor to cool for thirty minutes.**

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

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

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

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



LIGHTED RESET SWITCH

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

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

COLD WEATHER OPERATIONS

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

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

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

OPERATING PROCEDURES

GENERAL INSTRUCTIONS

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

If parking on soft ground or asphalt paving, a wood block or pad should be placed under the jacks.

WARNING: DO NOT MOVE THE VEHICLE IF ONE OR MORE LANDING GEAR ARE EXTENDED TO THE GROUND.

PREPARATION FOR TRAVEL

Any room extension should be fully retracted before traveling.

WARNING: DO NOT MOVE THE VEHICLE WHILE THE LANDING GEAR JACKS ARE STILL IN CONTACT WITH THE GROUND OR IN THE EXTENDED POSITION. THIS VEHICLE IS EQUIPPED WITH STRAIGHT- ACTING LANDING GEAR JACKS. MOVING THE VEHICLE WITH

THE LANDING GEAR JACKS EXTENDED CAN CAUSE SEVERE DAMAGE TO THE LANDING GEAR JACKS AND OR THE VEHICLE AND CREATE A DRIVING HAZARD. IT IS THE OPERATOR'S RESPONSIBILITY TO CHECK THAT ALL LANDING GEAR JACKS ARE FULLY RETRACTED INTO THE STORE/TRAVEL POSITION.

ROOM EXTENSION PROCEDURES

IMPORTANT: If the vehicle is equipped with a room extension read this section carefully.

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

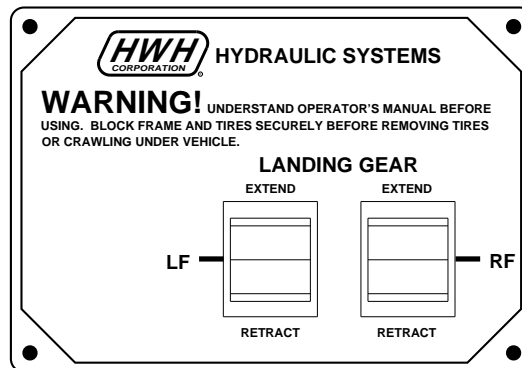
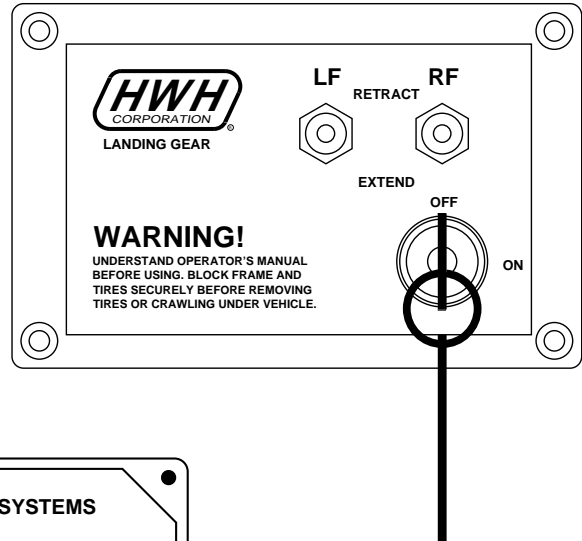
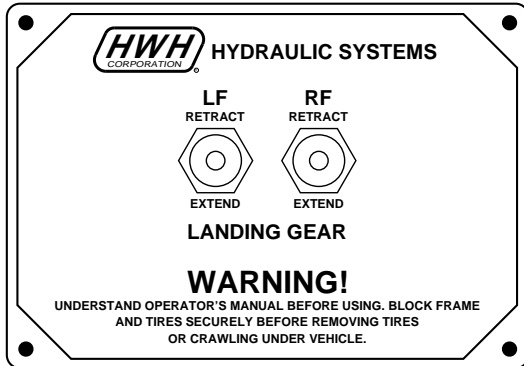
IMPORTANT: Extending or retracting any leveling jacks or landing gear when the room is extended is not recommended.

Refer to the vehicle owner's manual for proper operation of room extensions.

IMPORTANT: Do not use a room extension support when the vehicle is supported by the landing gear system.

OPERATING PROCEDURES

SET UP PROCEDURE



WARNING: DO NOT STAND BETWEEN THE TOW VEHICLE AND THE TRAILER OR BEHIND THE TRAILER WHEN UNHITCHING THE TRAILER OR OPERATING THE HWH LANDING GEAR.

If parking on soft ground or asphalt paving, a wood block or pad should be placed under the jacks.

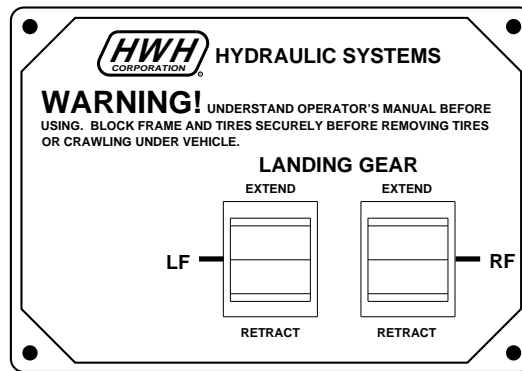
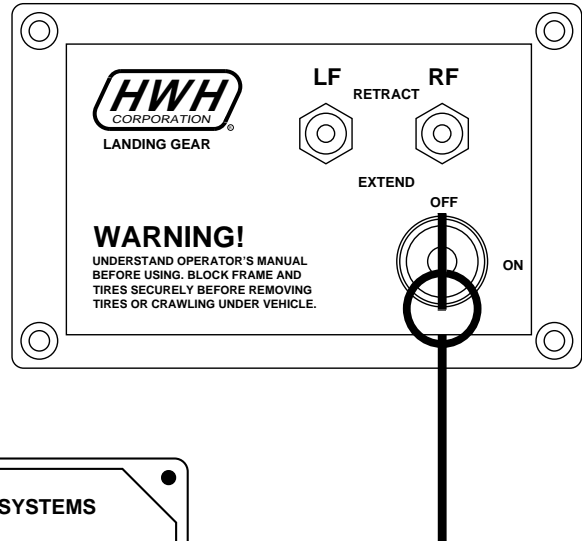
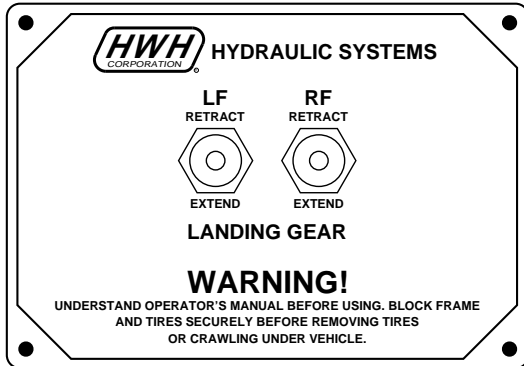
NOTE: There is an operating switch for each landing gear jack. Each can be operated individually by moving one switch only. IT IS RECOMMENDED TO OPERATE BOTH JACKS AT THE SAME TIME WHEN UNHITCHING, LIFTING OR SUPPORTING THE TRAILER WITH THE LANDING GEAR.

1. Refer to the trailer manufacturer for instructions on unhitching the trailer from the tow vehicle.
2. If applicable, turn the panel key switch to "ON".
3. Push and hold the landing gear switch(es) to the extend position.
4. When the landing gear and trailer are in the desired position, release the operating switch.
5. If applicable, turn the panel key switch to "OFF".

In the case of a power or pump failure, see "MANUAL LANDING GEAR RETRACT PROCEDURES".

OPERATING PROCEDURES

PREPARATION FOR TRAVEL



WARNING: DO NOT STAND BETWEEN THE TOW VEHICLE AND THE TRAILER OR BEHIND THE TRAILER WHEN UNHITCHING THE TRAILER OR OPERATING THE HWH LANDING GEAR.

The trailer can be hitched to the tow vehicle by pushing the "LANDING GEAR" switches to the retract positions.

If, applicable, the panel key switch must be "ON" to operate the landing gear.

1. Hitch the trailer to the tow vehicle according to the trailer manufacturer's instructions.

NOTE: It is recommended to operate both switches at the same time while lowering the trailer. This will reduce twisting of the trailer.

2. When the trailer is securely hitched to the tow vehicle push and hold the "LANDING GEAR" switches to the retract positions until the jacks have retracted to the full store position.

3. Release the switches when the landing gear are fully retracted.

NOTE: Do Not hold the "LANDING GEAR" switches for more than 10 seconds after the jacks are fully retracted.

4. If, applicable, turn the panel key switch "OFF".

WARNING: DO NOT MOVE THE VEHICLE WHILE THE LANDING GEAR JACKS ARE STILL IN CONTACT WITH THE GROUND OR IN THE EXTENDED POSITION. THIS VEHICLE IS EQUIPPED WITH STRAIGHT- ACTING LANDING GEAR JACKS. MOVING THE VEHICLE WITH THE LANDING GEAR JACKS EXTENDED CAN CAUSE SEVERE DAMAGE TO THE LANDING GEAR JACKS AND OR THE VEHICLE AND CREATE A DRIVING HAZARD. IT IS THE OPERATOR'S RESPONSIBILITY TO CHECK THAT ALL LANDING GEAR JACKS ARE FULLY RETRACTED INTO THE STORE/TRAVEL POSITION.

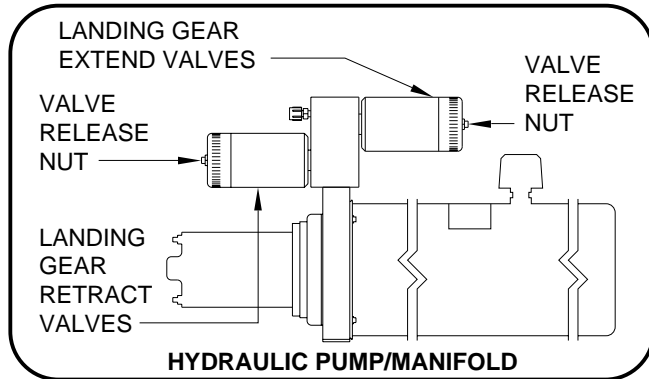
OPERATING PROCEDURES

MANUAL LANDING GEAR RETRACT PROCEDURE

(WITH SOLENOID VALVES WITH VALVE RELEASE NUTS)

WARNING: MAKE SURE THE VEHICLE IS SECURELY HITCHED TO THE TOW VEHICLE OR THE FRAME OF THE VEHICLE IS SECURELY BLOCKED BEFORE OPENING THE LANDING GEAR SOLENOID VALVES. VEHICLE MAY DROP WHEN LANDING GEAR SOLENOID VALVES ARE OPENED.

1. Locate Hydraulic Pump/Manifold unit.



2. Open the landing gear solenoid valves by slowly turning the valve release nuts counterclockwise. **DO NOT open the valve release nuts more than 4 and 1/2 turns. More than 4 and 1/2 turns may damage the valve.**

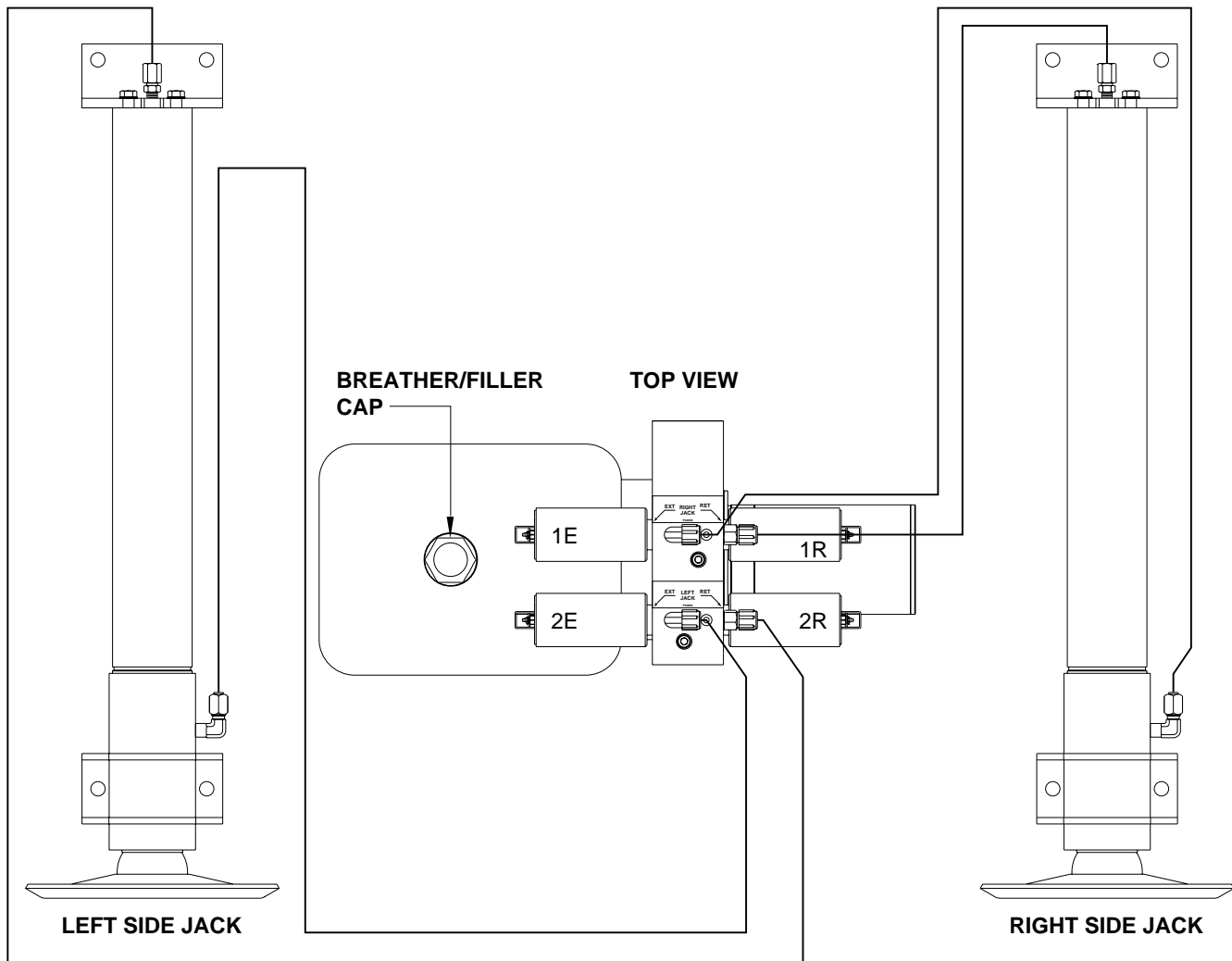
Open both landing gear EXTEND valves first. Open the landing gear RETRACT valves as evenly as possible to keep the vehicle from twisting.

NOTE: When the retract valves are opened, the vehicle will drop until the weight of the vehicle is off the landing gear jacks.

3. Some type of pry bar or jack will be needed to force the landing gear jacks up.
4. When the landing gear jacks are completely retracted, close the solenoid valves. **DO NOT OVER TIGHTEN THE VALVE RELEASE NUTS.**

The system should be repaired before using again.

HYDRAULIC LINE CONNECTION DIAGRAM



1E - RIGHT SIDE LANDING GEAR EXTEND VALVE
1R - RIGHT SIDE LANDING GEAR RETRACT VALVE
2E - LEFT SIDE LANDING GEAR EXTEND VALVE
2R - LEFT SIDE LANDING GEAR RETRACT VALVE

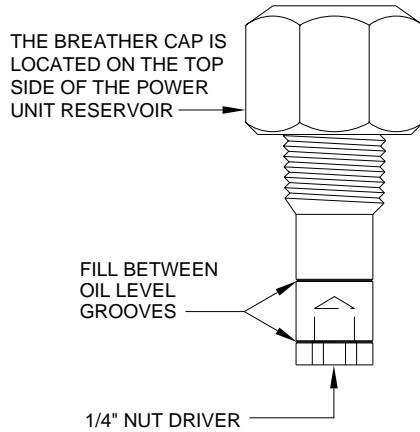
INFORMATION/INSTRUCTION SHEET

HYDRAULIC SOLENOID VALVE

IDENTIFICATION - MANUAL OPERATIONS - REPLACEMENT

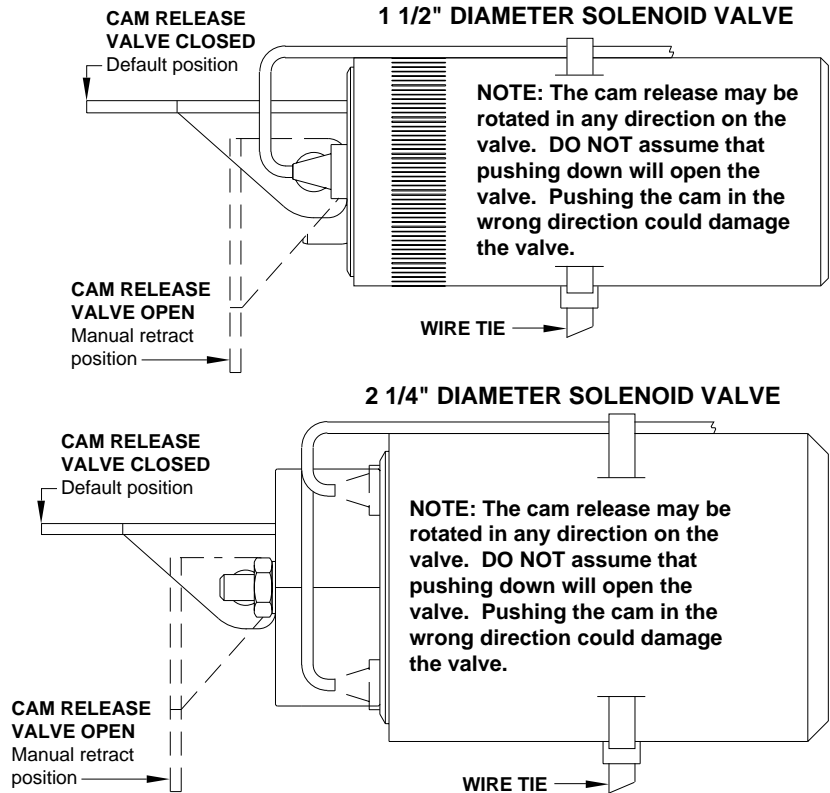
REPLACEMENT VALVES WILL HAVE A VALVE RELEASE CAM

BREATHER CAP W/NUT DRIVER

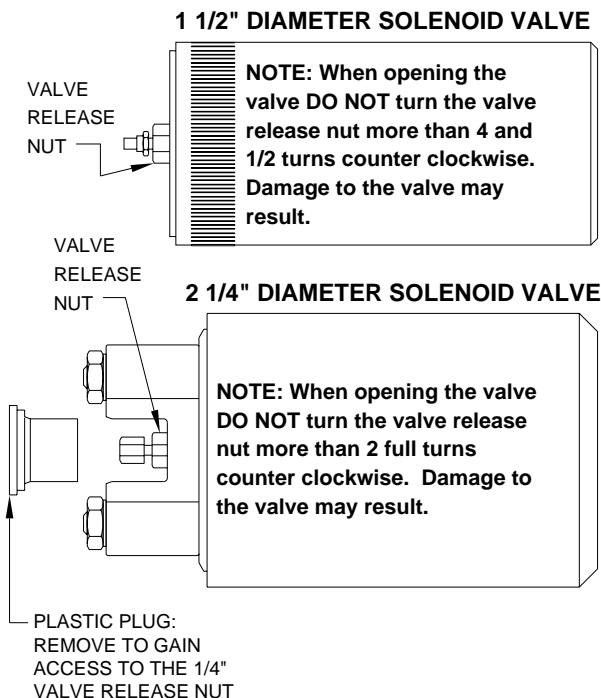


IMPORTANT: PRIOR TO REMOVING THE BREATHER CAP, EITHER TO CHECK THE OIL LEVEL OR TO USE 1/4" NUT DRIVER, CLEAN ANY DEBRIS FROM THE TOP OF THE RESERVOIR. BEFORE RETURNING THE BREATHER CAP TO THE RESERVOIR, REMOVE ANY PAINT CHIPS OR OTHER DEBRIS FROM THE DIPSTICK INCLUDING DEBRIS INSIDE THE 1/4" NUT DRIVER.

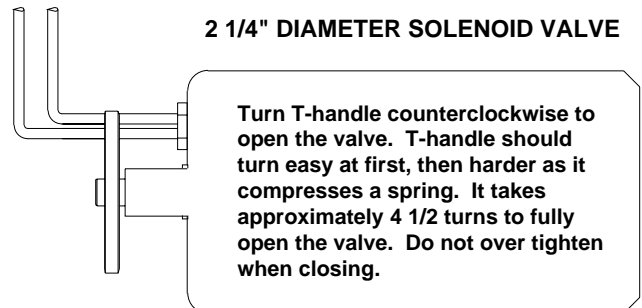
SOLENOID VALVES WITH CAM RELEASE



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.