



**LCI ELECTRONIC/HYDRAULIC  
LEVELING & SLIDEOUT  
OWNER'S MANUAL**

**LIPPERT  
COMPONENTS®**

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## System

### **WARNING**

**Failure to act in accordance with the following may result in death or serious personal injury.**

The use of the Lippert Electronic/Hydraulic Leveling and Slideout System to support the coach for any reason other than which it is intended is prohibited by Lippert's Limited Warranty. The Lippert Electronic/Hydraulic Leveling and Slideout System is designed for leveling the unit and extending/retracting slideouts and should not be used to provide service for any reason under the coach such as changing tires or servicing the system.

Lippert Components, Inc., recommends that a trained professional be employed to change the tire on the coach. Any attempts to change tires or perform other service while coach is supported by the Lippert Electronic/Hydraulic Leveling and Slideout System could result in damage to the motor home and/or cause serious injury or death.

#### **NOTES:**

- Be sure to park the coach on solid, level ground.
- Clear all jack landing locations of debris and obstructions. Locations should also be free of depressions.
- When parking the coach on extremely soft surfaces, utilize load distribution pads under each jack.
- People and pets should be clear of coach while operating leveling system.
- Be sure to keep hands and other body parts clear of fluid leaks. Oil leaks in the Lippert Leveling System may be under high pressure and can cause serious skin penetrating injuries.
- Never lift the coach completely off the ground. Lifting the coach so the wheels are not touching ground will create an unstable and unsafe condition and may result in serious personal injury or death.

## System Description

**NOTE:** Please read and study the operating manual before you operate the system.

The Lippert Electronic/Hydraulic Leveling and Slideout System is an electric/hydraulic system. A 12VDC electric motor drives a hydraulic pump that moves fluid through a system of hoses, fittings and jacks to level and stabilize the coach.

The Lippert Electronic/Hydraulic Leveling and Slideout System is totally integrated into the chassis of the coach at the manufacturer.

There are no serviceable parts within the electric motor. If the motor fails, power unit must be replaced.

Disassembly of the power unit voids the warranty.

Mechanical portions of the Lippert Electronic/Hydraulic Leveling and Slideout System are replaceable. Contact Lippert Components, Inc. to obtain replacement parts.

## Component Description

The Lippert Electronic/Hydraulic Leveling and Slideout System consists of the following major components:

Lippert jacks are rated at a lifting capacity appropriate for your coach. Each jack has a 9" diameter (63.5 square inch) shoe on a ball swivel for maximum surface contact on all surfaces. (12" dia. - 113 sq. in. shoe also available).

Each jack is powered from a central 12VDC motor/pump assembly, which also includes the hydraulic oil reservoir tank, control valve manifold, and solenoid valves.

The Lippert Electronic/Hydraulic Leveling and Slideout System is controlled electronically from the driver's seat of the coach. The control panel is mounted in the dash. The system can be operated in a manual mode or a fully automatic mode.

The slideouts on this system are actuated by hydraulic cylinders integrated into the box of the slideout frames. Some rooms will have one cylinder per room, others will have two. Consult the manufacturer of the coach to find out the cylinder configuration on your unit.

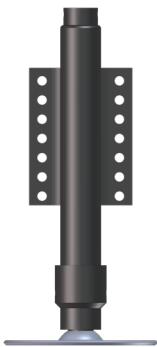
### **⚠ WARNING**

**Your coach should be supported at both front and rear axles with jack stands before working underneath. Failure to do so may result in death or personal injury.**

## **LCI Hydraulic Jacks**

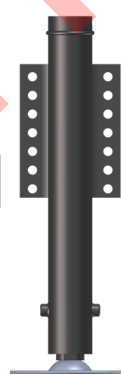
### Steel Jacks - Bi-rotational Power Unit

**Fig. 1**



Part [#113314](#)  
CAPACITY - 7,000 lb.  
STROKE - 13 3/4 in.  
H - 18 1/4 in.  
D - 2 3/8 in.  
A - 2 1/2 in.  
9" SHOE-STANDARD  
12" SHOE-OPTION - 117238

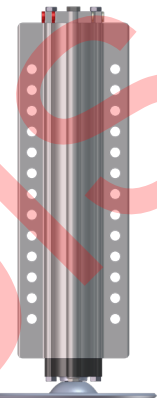
**Fig. 2**



Part [#175176](#)  
CAPACITY - 12,000 lb.  
STROKE - 15 in.  
H - 19 1/2 in.  
D - 2 3/8 in.  
9" SHOE-STANDARD  
12" SHOE-OPTION - 117238  
  
FOUND ON FR GT UNITS  
359WHREG AND 391  
ALL 4 JACKS ARE 12K.

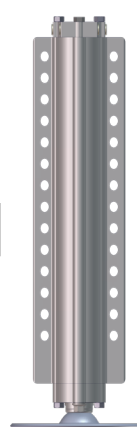
### Aluminum Jacks - Unidirectional Power Unit

**Fig. 3**



Part [#195860](#)  
CAPACITY - 8,000 lb.  
STROKE - 15 in.  
BORE - 2 in.  
H - 21 3/16 in.  
ROD DIA. - 1.50 in.  
9" SHOE-STANDARD  
12" SHOE-OPTION - 117238

**Fig. 4**



Part [#236560](#)  
CAPACITY - 14,000 lb.  
STROKE - 15.13 in.  
BORE - 2 1/2 in.  
H - 21 5/8 in.  
ROD DIA. - 1.875 in.  
9" FOOTPAD-STANDARD  
12" FOOTPAD-OPTION - 117238

# Leveling System Controls

## Leveling Features

- Automatic extension of jacks from full retract position (with automatic ground detection).
- Automatic leveling of jacks.
- Manual leveling of jacks.
- Automatic retraction of jacks (with automatic full retract detection).
- Air bag suspension features (configurable on/off).
- Emergency retract/User alarm mode (jacks not retracted and park brake disengaged).
- Automatic jack error detection and error mode.
- Configuration mode for Air features.
- Configurations mode for Leveling Zero Point.

## System Wiring Requirements

- Battery power (2 ga. SAE J1127. Type SGX).
- Battery ground (2 ga. SAE J1127. Type SGX).
- Logic power (switched via ignition)
- Power brake signal (open=park brake disengaged, GND=park brake engaged).
- 4-wire harness connecting Controller to Touch Panel.
- Jacks status input - Switched to GND

**NOTE:** Jacks not all up – switch closed to ground

**NOTE:** Jacks all up – switch open

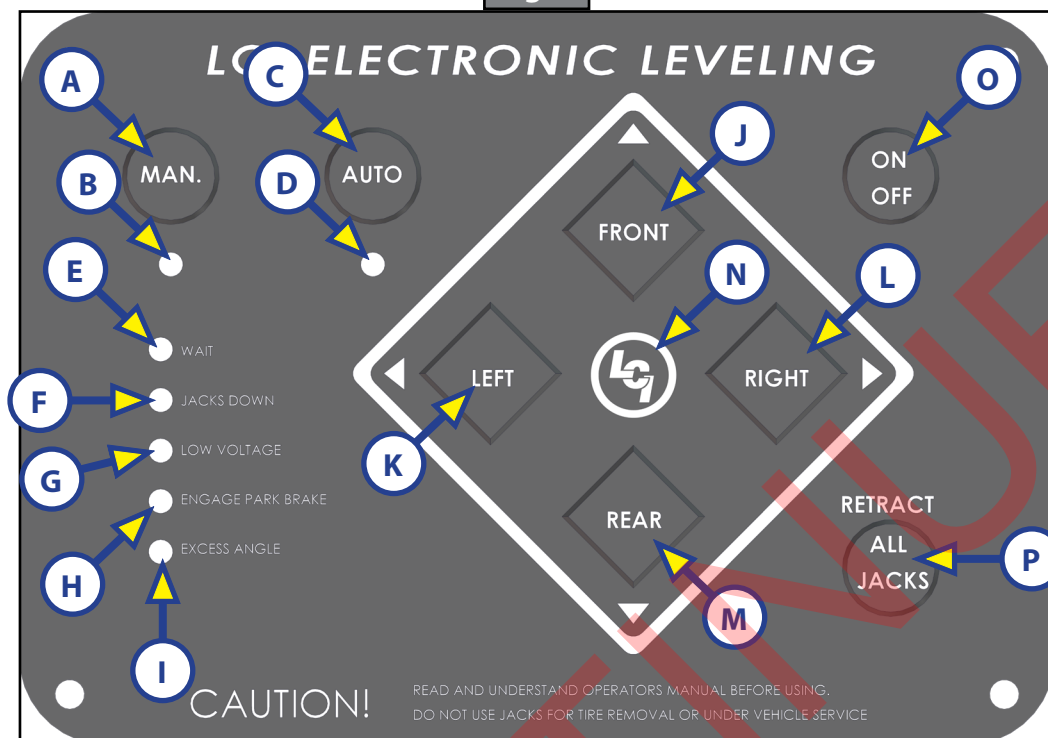
## Air and Auxiliary Features

System has the option to control external Air and Auxiliary features.

When enabled, the feature works according to the following logic:

- Air bag pressure automatically lowered when starting the auto or manual sequence to maximize lift of jacks.
- An Auxiliary mode activated when starting an auto retract sequence to fill air bags.
- Auxiliary is active when jacks are all retracted and park brake is disengaged to fill airbags.

Fig. 5



| Callout | Description                                                                                                                          |
|---------|--------------------------------------------------------------------------------------------------------------------------------------|
| A       | Manual Operation - Places control panel in manual operation mode.                                                                    |
| B       | Manual Operation LED - Indicates control panel in manual operation mode.                                                             |
| C       | Automatic Operation - Places control panel in automatic operation mode.                                                              |
| D       | Automatic Operation LED - Indicates control panel in automatic operation mode.                                                       |
| E       | Wait LED - Indicates to the operator to pause operation until the LED turns off.                                                     |
| F       | Jacks Down LED - Indicates jacks are not fully retracted.                                                                            |
| G       | Low Voltage LED - Indicates voltage has dropped below safe operable level. Solid LED indicates voltage is too low to operate system. |
| H       | Engage Park Brake LED - Flashes when park brake is disengaged; off when park brake has been engaged.                                 |
| I       | Excess Angle LED - Coach may not be able to level in current location and must be moved to a more level location.                    |
| J       | Front Button - Controls operation of both front jacks.                                                                               |
| K       | Left Button - Controls operation of both left jacks.                                                                                 |
| L       | Right Button - Controls operation of both right jacks.                                                                               |
| M       | Rear Button - Controls operation of both rear jacks.                                                                                 |
| N       | Coach Level LED - Indicates that the coach has been leveled.                                                                         |
| O       | Power Button - Turns system on and off.                                                                                              |
| P       | Retract All Jacks - Retracts all jacks automatically. See page 12 for retract procedures.                                            |

## Level Zero Point Calibration

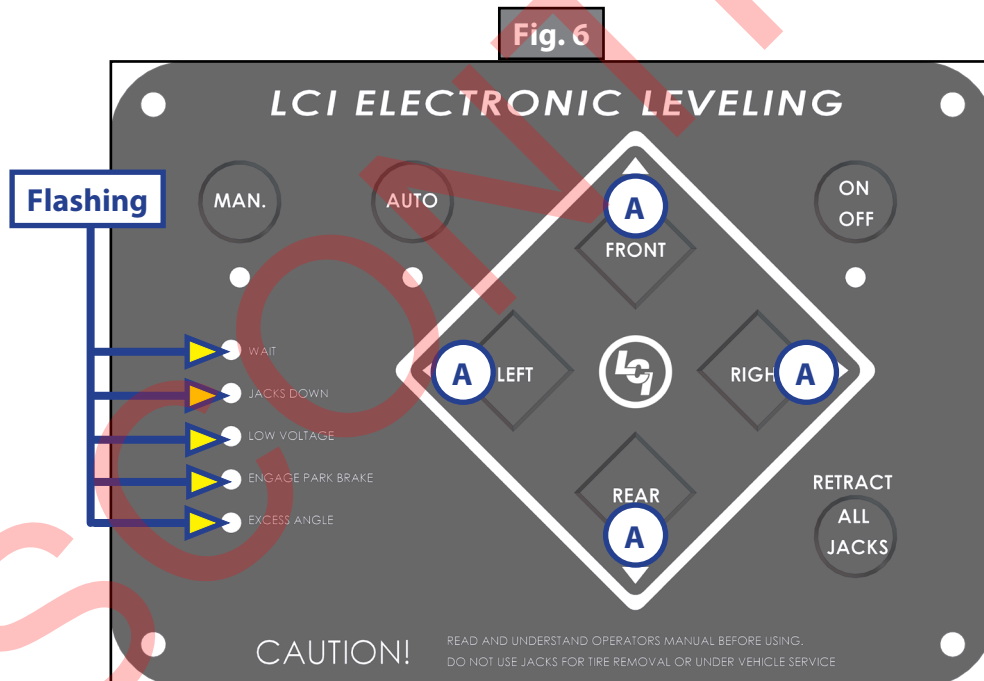
Before auto-leveling features are available, the Level Zero point must be set. This is the point to which the system will return when an auto leveling cycle is initiated.

To set the zero point (controller module must be fully secured in production intent location), first run a manual leveling sequence, using a carpenter's level, to get the vehicle to the desired level point; then activate the Level Zero point configuration mode.

This mode is enabled by performing the following sequence:

1. Turn panel off. Then turn panel on.
2. Perform the following:
  - Press the Front (Fig. 5J) switch 5 times.
  - Press the Rear (Fig. 5M) switch 5 times.
3. At this point all LED outputs will blink, and the buzzer will be off.
4. You are now in IDLE mode ready to set Zero Point.
5. With a carpenter's level, confirm coach remains in level disposition. In IDLE MODE, the leveling system is in MANUAL MODE and can be used to make any corrections to level the coach.
6. When coach is completely leveled manually press the Retract All (Fig. 5P) switch 3 times to set the zero point.

## "Latched Out" Warning



**LATCHED ERROR** mode is "WAIT," "JACKS DOWN," "PARK BRAKE," "EXCESS SLOPE" AND "LOW VOLTAGE" lights flashing. This error is caused by either of these circumstances:

1. Battery voltage below 10.0V DC.
2. Retract time over 67 seconds in auto retract.

**NOTE:** This is the only LATCHED ERROR MODE.

**NOTE:** All revisions prior to "G" controllers treat this error as regular ERROR mode.

To RESET, push all 4 diamond-shaped jack buttons (A) at the same time.

## Air and Auxiliary Feature Configuration

For Diesel Units with Airbag Suspensions ONLY:

- Feature is entered ONLY *after* zero mode programming.
- At this point the WAIT LED (Fig. 5E) will blink for 20 seconds. You are now in Air/Auxiliary Feature Configuration mode.

To enable Air Auxiliary features, perform the following:

- Press the RETRACT ALL (Fig. 5P) switch 3 times.
- User must do this within 20 seconds of entering this mode.

To disable Air features, perform the following:

- Do nothing.
- After 20 seconds, module will exit mode with features disabled.

## Error Mode

If any problem is detected with the jacks, the system will enter error mode. Error mode may be recognized by the blinking of LEFT, LEVEL and RIGHT LEDs.

The following errors are detected by this system:

- Jack over current/short circuit.
- Jack under current/ open circuit.
- Jack extending too long (ground not detected after 2 min).
- Jack retracting too long (fully retracted not detected after 2 min).
- Out of stroke detection during auto cycle (if enabled).

## User Alarm Mode

If the alarm system detects that the park brake has been disengaged while at least one jack is not fully retracted and the sensor value changes in any axis more than a predefined amount, the panel will signal this error to the user.

When in alarm mode, all LEDs will flash and the buzzer will beep. The Status LEDs will show the system status.

The system performs an automatic retract.

No other features are available in this mode.

## Miscellaneous

- The system will automatically shut down after 4 minutes of no operation.
- Auto leveling cycle cannot be started until all jacks are fully retracted. Make sure jacks are retracted before attempting to auto level (unit will perform full retract automatically if jacks are not down on the request of an auto cycle).
- System will refuse any operation when a low voltage condition is present.
- System will automatically alarm and retract if park brake is disengaged and jacks are not retracted with any change in sensor readings. In alarm mode, the only available feature is to retract all jacks.
- Please note the Wait LED shows the status of Air/ Auxiliary features.
- Please note that the LEDs blink differently when in special controller modes (error, alarm, and configuration). Learning how to recognize these modes is important. Excess slope LED blinks whenever the Y axis (vehicle length) is over 5° from programmed level point.

## Prior to Operation

The leveling system should only be operated under the following conditions:

1. The coach is parked on a reasonably level surface.
2. The coach "PARKING BRAKE" is engaged.
3. The coach transmission should be in the neutral or park position.
4. The ignition is in the run position, or engine is running.
5. Be sure all persons, pets and property are clear of the coach while Lippert Leveling System is in operation.

## Operation

### Selecting A Site

When the coach is parked on an excessive slope the leveling requirements may exceed the jack lift stroke capability. If the coach is parked on an excessive slope, the coach should be moved to a more level surface before the leveling system is deployed.

### Automatic Leveling Procedure

#### NOTES:

- Refer to (Fig. 5) for questions regarding location and functions of the Lippert Components Inc. Electronic/Hydraulic Leveling System.
  - Coach must be running for LCI Electronic/Hydraulic Leveling System to operate.
1. Push ON/OFF button on Control Panel. The system is now operational and the electronic level lights will become active.
  2. Check to see that the Control Pad ENGAGE PARK BRAKE light is not flashing.

**NOTE:** Engage Parking Brake if ENGAGE PARK BRAKE light is flashing.

3. Push the AUTO button to begin the automatic leveling cycle.

**NOTE:** After starting the automatic leveling cycle it is very important that you do not move around in the coach until the unit is level and the green LCI logo light illuminates in the center of the touch pad. Failure to remain still during the leveling cycle could have an affect on the performance of the leveling system.

4. If further adjustments are necessary, simply push and hold the MAN button (Fig. 5A) for approximately 5 seconds until the light under this button is illuminated. Push the appropriate leg button to override the system and level the coach to your liking.

#### **WARNING**

**NEVER LIFT ALL THE WHEELS OFF THE GROUND TO LEVEL THE COACH!**  
**Lifting all wheels of the ground may result in death or serious personal injury.**

5. Push ON/OFF button to de-energize the system.



## Manual Leveling Procedure

**NOTE:** When leveling your coach, the coach should be leveled from FRONT TO REAR first (step 2-4). When the coach is level from FRONT TO REAR, then level the coach from LEFT TO RIGHT (Step 5).

**NOTE:** Coach must be running for LCI Electronic/Hydraulic Leveling System to operate.

1. Push ON/OFF (Fig. 5O) button on control panel. The system is now operational and the ON/OFF (Fig. 5O) light will be lit. If ON/OFF (Fig. 5O) light is not lit, see PRIOR TO OPERATION, page 3.
2. Push and hold MAN button (Fig. 5A) for 5 seconds.
3. Push FRONT button (Fig. 5J) until jacks contact the ground.
4. Push REAR button (Fig. 5M) until jacks contact the ground.
5. Push button FRONT or REAR; if bubble is towards front of coach push REAR button; if bubble is towards rear of coach, push FRONT button. Keep button depressed until bubble is centered.
6. Push LEFT (Fig. 5K) or RIGHT (Fig. 5L) button; if bubble is towards left of coach, push RIGHT button; if bubble is towards right of coach push LEFT button. Keep button depressed until bubble is centered in vial.

**NOTE:** The right and left jacks are used to level the coach side to side. Pushing the LEFT (Fig. 5K) button on the control panel will extend both left jacks. Pushing the RIGHT button (Fig. 5L) on the control panel will extend both right jacks. Jacks always work in pairs, both front jacks together, both right side jacks, etc.

7. Repeat steps 2 through 5 if needed.
8. Turn power off to leveling system by pushing ON/OFF button (Fig. 5O).
9. Visually inspect all jacks to ensure all shoes are touching ground. Should one of the rear jack shoes not be touching the ground, press the corresponding LEFT or RIGHT rear jack buttons to lower the corresponding jack to the ground.



**NEVER LIFT ALL THE WHEELS OFF THE GROUND TO LEVEL THE COACH!**  
**Lifting all wheels of the ground may result in death or serious personal injury.**

10. Push ON/OFF button (Fig. 5O) to de-energize the system.

## Jack Retract Procedures

1. Energize the system by pushing ON/OFF button (Fig. 5O) on control panel. The ON/OFF light will be lit.
2. Push the RETRACT ALL JACKS button (Fig. 5P). All the jacks will start to retract and return to the full retract position. When all jacks return to full retract position the JACKS DOWN light (Fig. 5F) will go out.

**NOTE:** If you wish to stop the jacks from retracting, turn the system off and back on again by pushing the on/off pad twice. You can then re-level the coach by following steps 1-5 again.

3. When the JACKS DOWN light (Fig. 5F) goes out, push the ON/OFF button (Fig. 5O) on the Control Panel to deenergize the system. After a brief visual inspection around the coach to verify the jacks are fully retracted, you may proceed to travel.

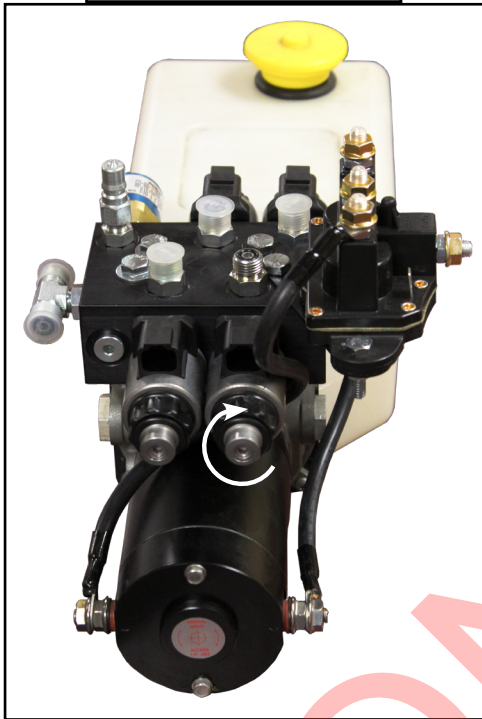
**NOTE:** When in the MANUAL mode, if the RETRACT button is pushed the jacks will only retract as long as the RETRACT button is depressed. In AUTOMATIC mode, the RETRACT button need only be pressed once and released for the jacks to fully retract.



## Manual Override for Bi-Rotational Power Units

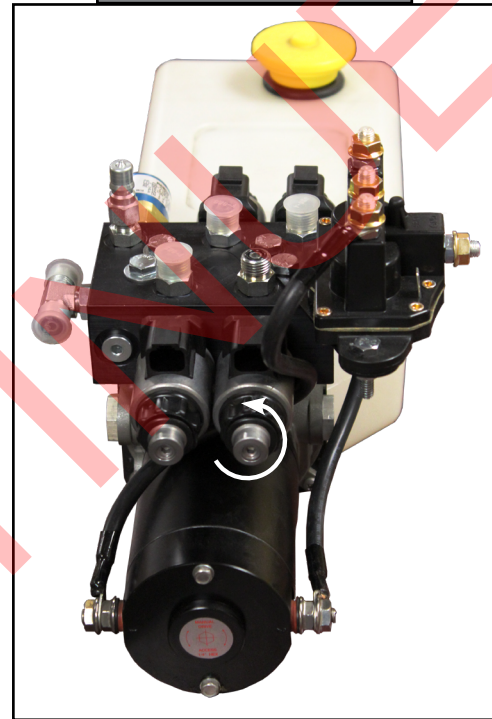
1. Remove protective label (Fig. 9A).
2. Manually open jack valves with a  $\frac{5}{32}$ " hex wrench (Fig. 7).
3. Using a  $\frac{1}{4}$ " hex bit, insert auxiliary drive device, i.e. cordless drill or power drill.
4. Insert hex bit into coupler found under protective label (Fig. 10).
5. Run drill forward or clockwise to extend jacks and in reverse or counterclockwise to retract jacks.
6. Close the manual override on the valves that were manually opened (Fig. 8).

**Fig. 7 - Bi-Rotational**



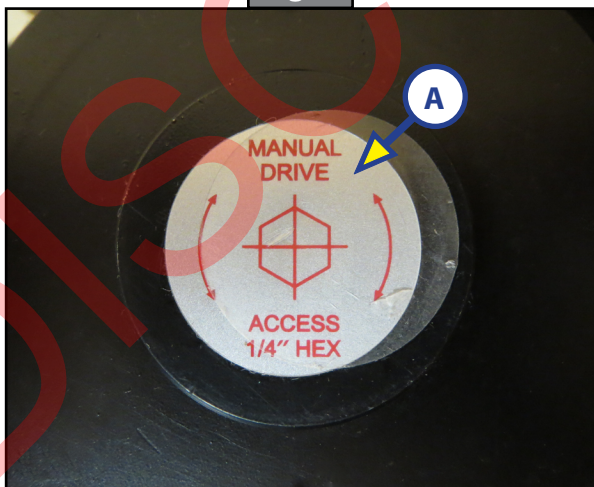
Clockwise for manual override

**Fig. 8 - Bi-Rotational**



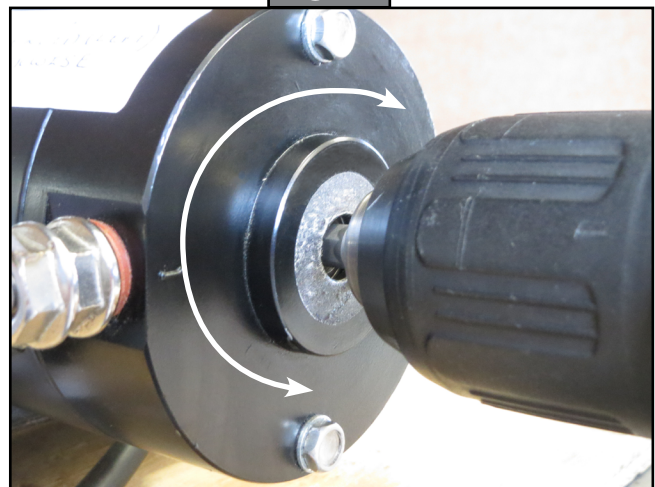
Counter-clockwise for normal operation

**Fig. 9**



Protective Label (A)

**Fig. 10**



Forward or clockwise to extend; reverse or counterclockwise to retract.

| Callout | Part # | Description                                              |
|---------|--------|----------------------------------------------------------|
| A       | 157505 | Fill Cap                                                 |
| B       | 141610 | Extend/Retract Fitting (90° elbow)                       |
| C       | 141087 | Extend/Retract Fitting (Tee)                             |
| D       | 156846 | Extend/Retract Fitting (Swivel Elbow)                    |
| E       | 140457 | Quick Disconnect                                         |
| F       | 140557 | Flow Divider                                             |
| G       | 177094 | Valve                                                    |
| H       | 174184 | Valve Coil                                               |
| I       | 142927 | Pressure Switch                                          |
| J       | 140571 | Isolator Valve                                           |
| K       | 167567 | Motor                                                    |
| L       | 118246 | Solenoid                                                 |
| M       | --     | Battery Power (White)                                    |
| N       | --     | Motor Forward (Black 2 GA)                               |
| O       | --     | Motor Reverse (Black 2 GA)                               |
| P       | --     | Pump Retract (Black with white)                          |
| Q       | --     | Pump Extend (Grey)                                       |
| R       | --     | Battery Ground (Black Single and Black and Brown Double) |

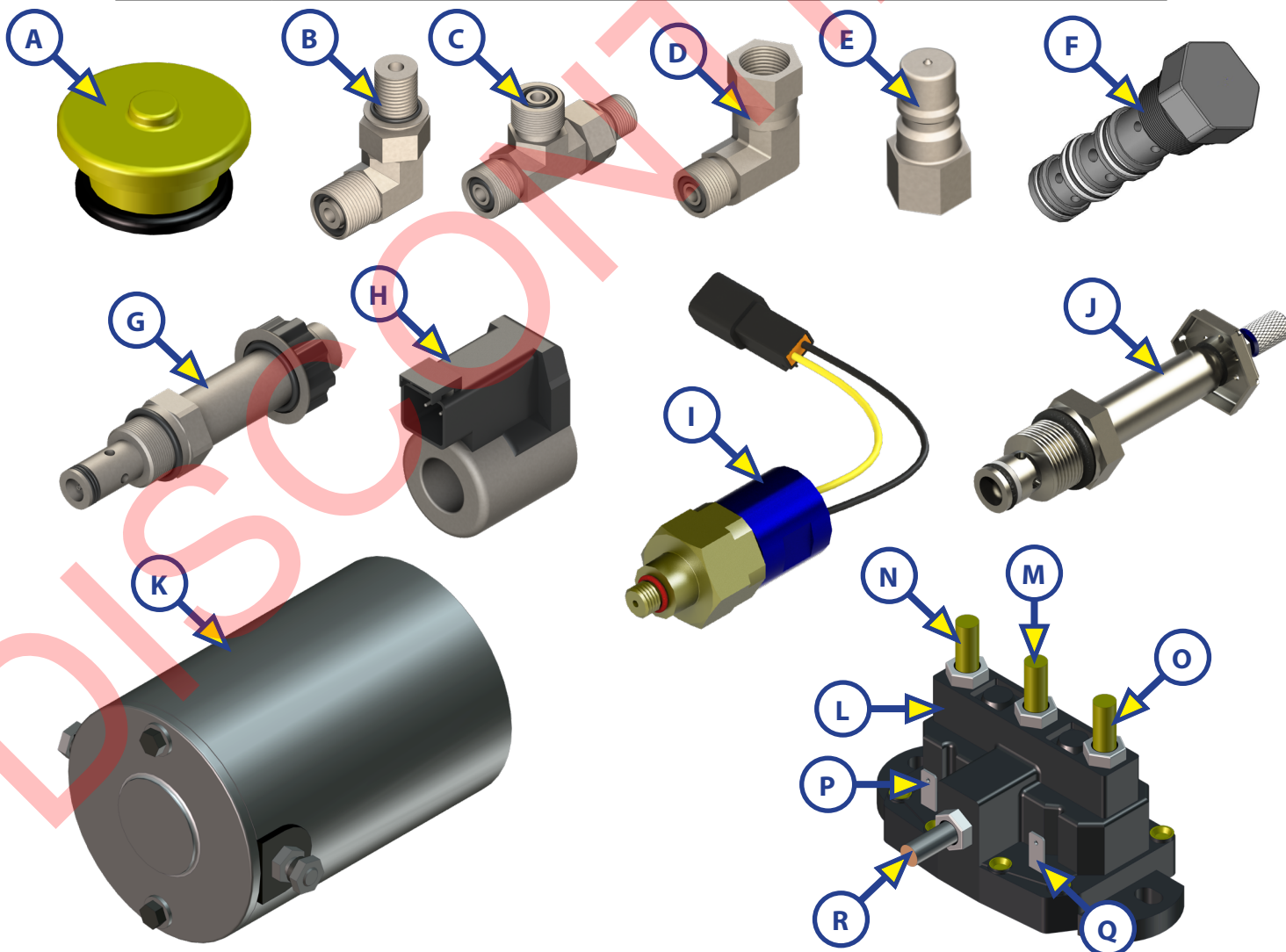


Fig. 11 - P/N 149086

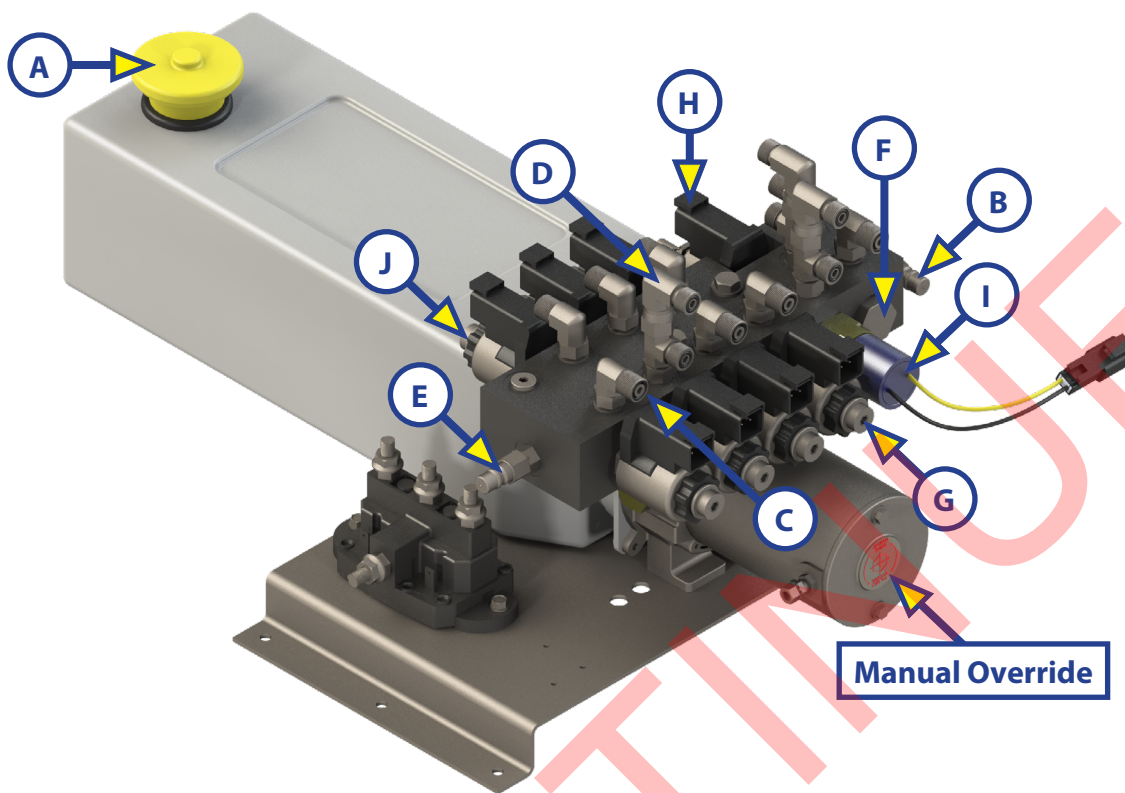


Fig. 12 - P/N 149085

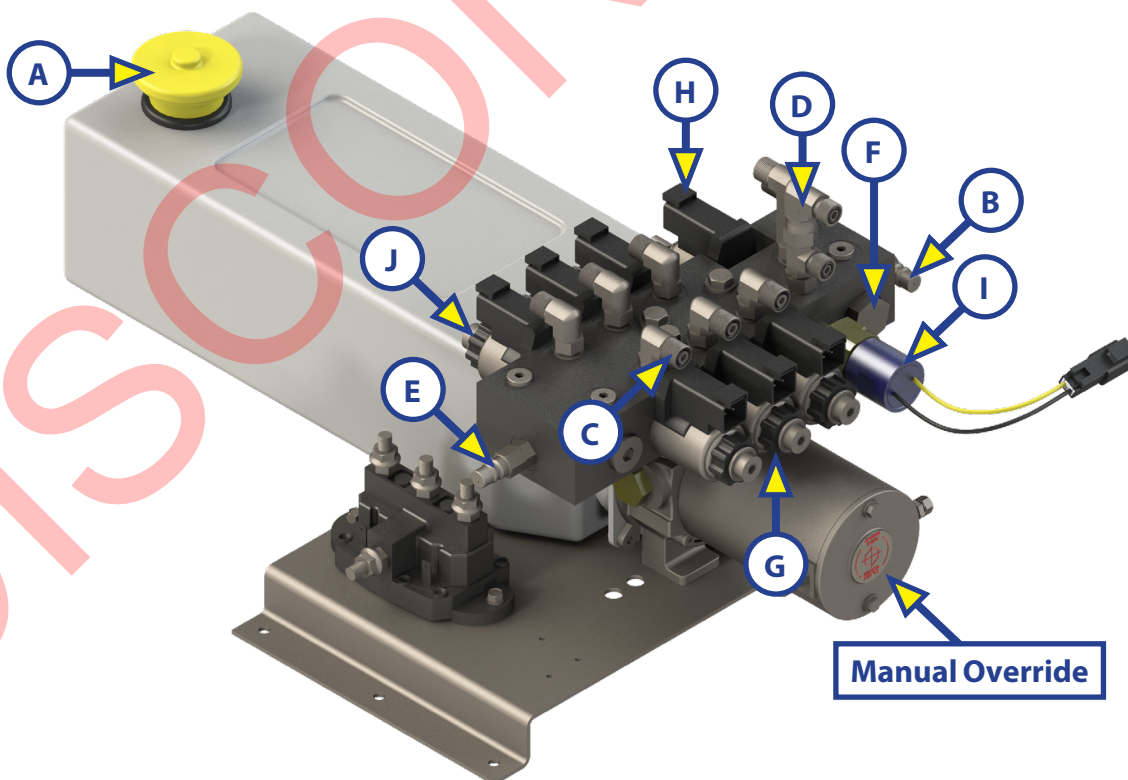


Fig. 13 - P/N 149083

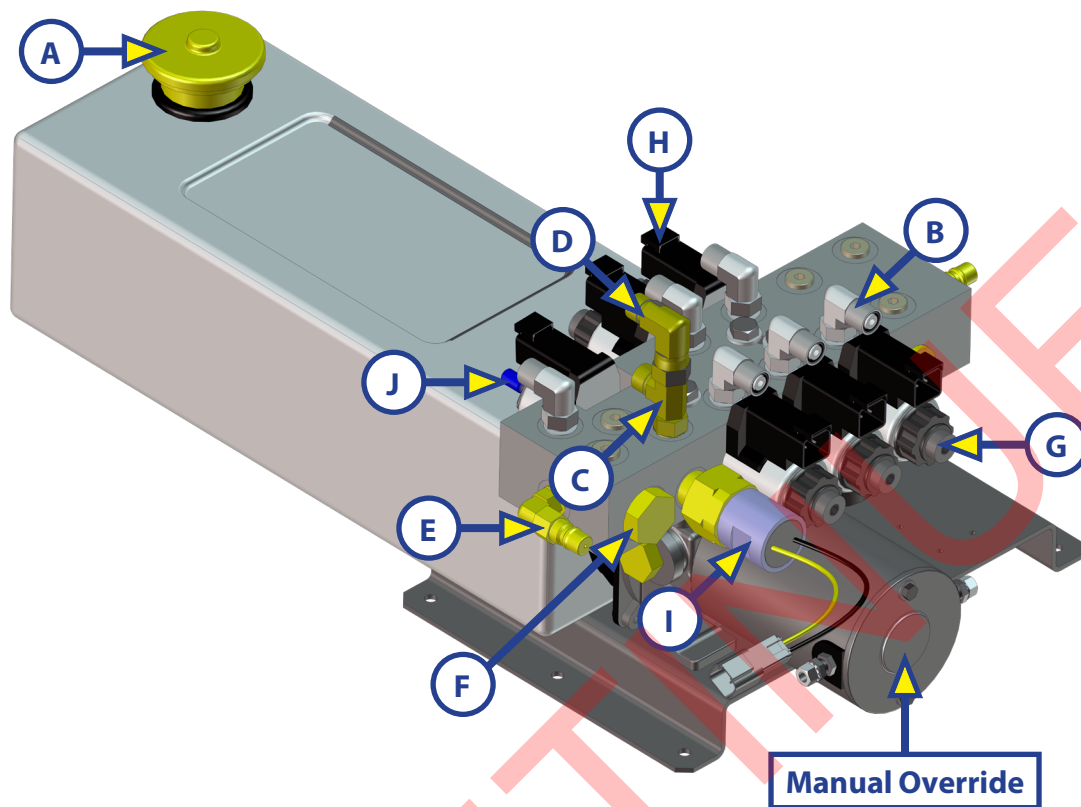


Fig. 14 - P/N 149084

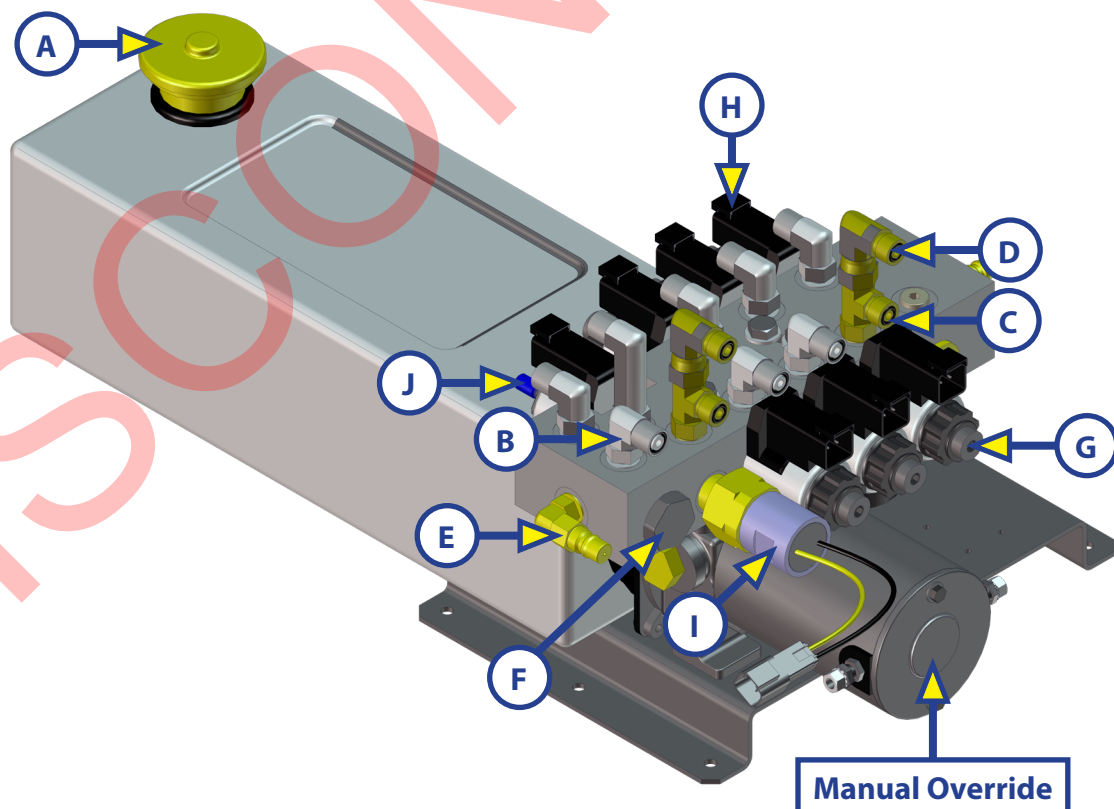




Fig.15 - P/N 149087

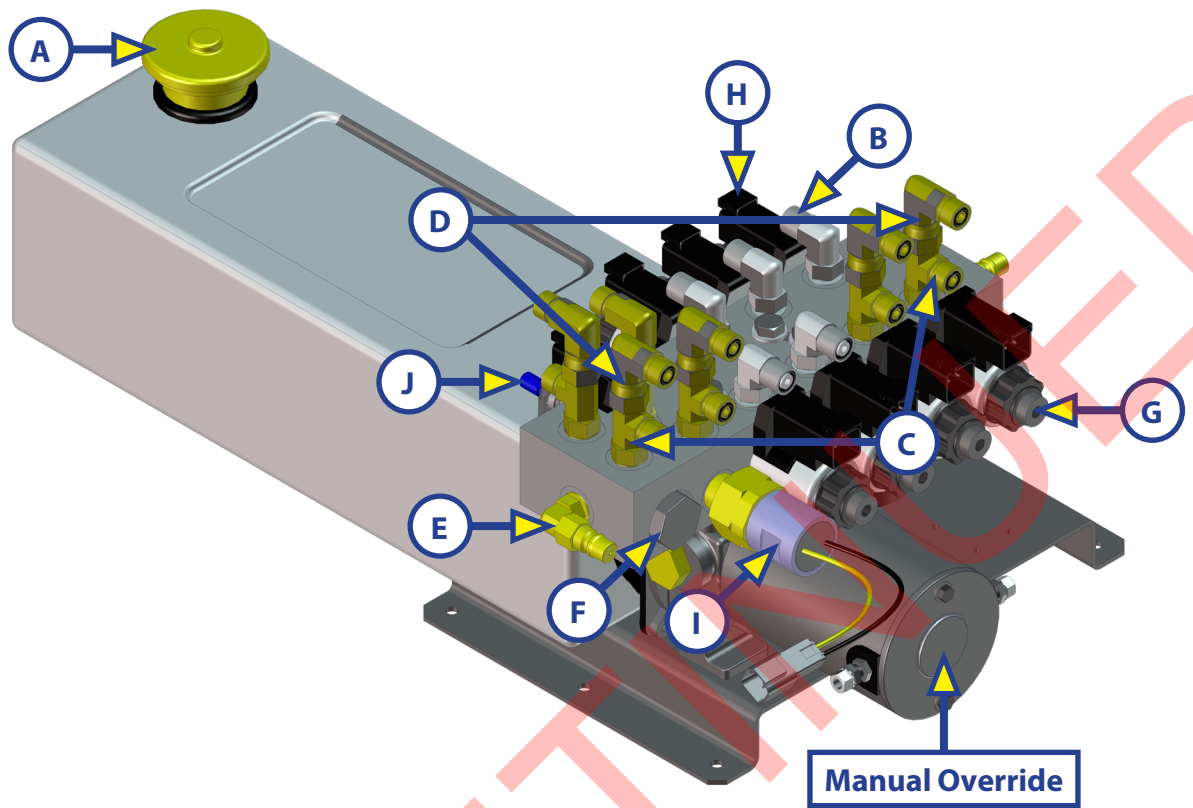


Fig. 16- P/N 145941

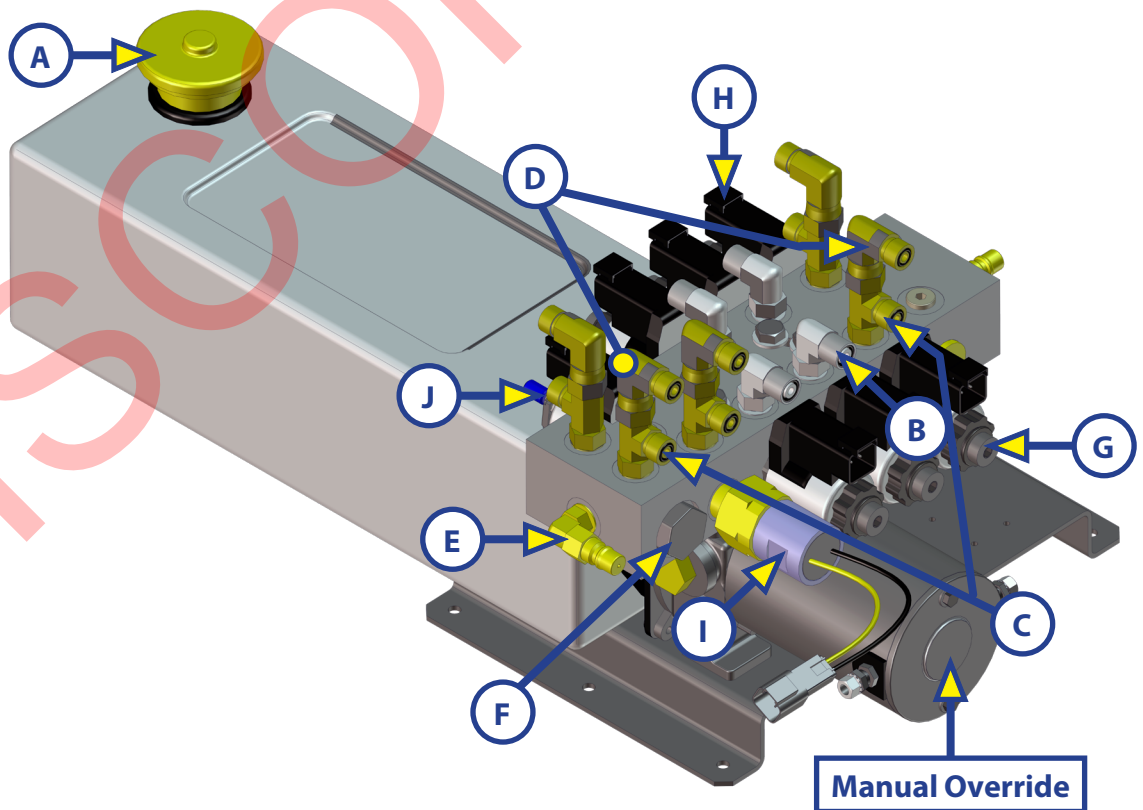
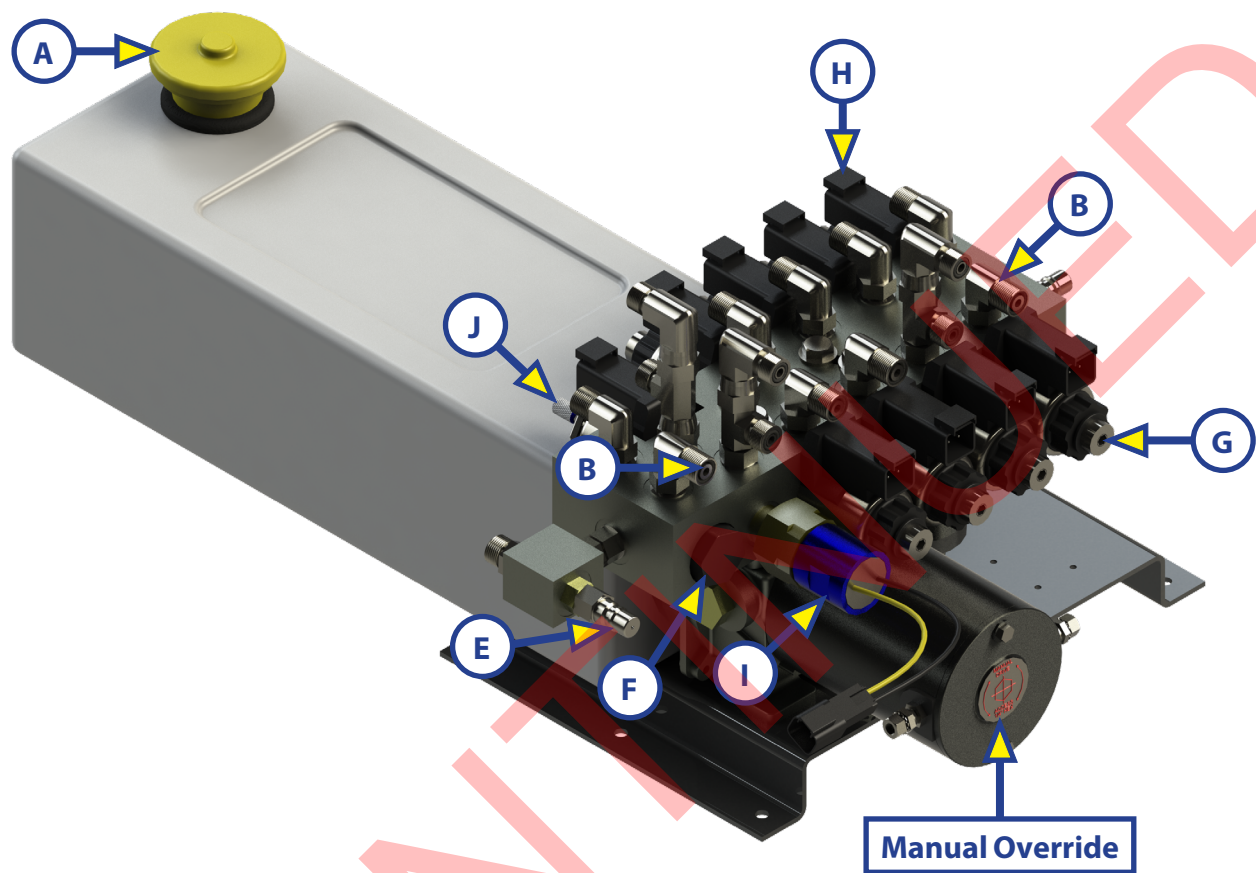
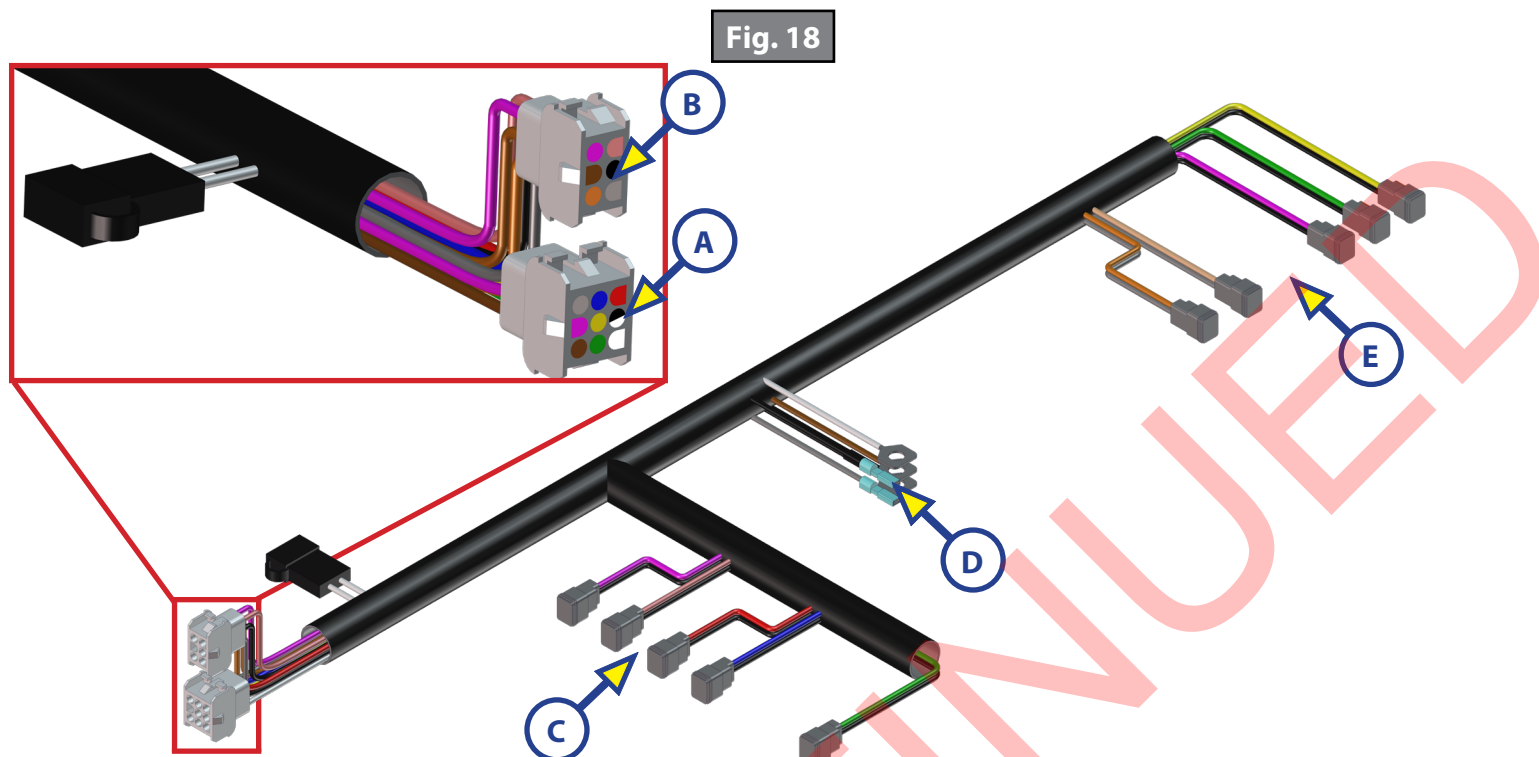


Fig. 17 - P/N 179866



# Wiring Diagram - Bi-Rotational Power Unit Harness



**Fig. 18A**

| Wire Color     | Function             |
|----------------|----------------------|
| White          | 12v DC Power         |
| White w/ Black | Pump Retract         |
| Blue           | Curbside Rear Valve  |
| Green          | Roadside Front Valve |
| Yellow         | PSI Switch           |
| Red            | Roadside Rear Valve  |
| Brown          | Plug                 |
| Purple         | Curbside Front Valve |
| Grey           | Pump Extend          |

**Fig. 18B**

| Wire Color | Function        |
|------------|-----------------|
| Pink       | Auxiliary       |
| Black      | Pump Retract    |
| Grey       | Pump Extend     |
| Orange     | Main Room Slide |
| Purple     | Bed Slide       |
| Tan        | Kitchen Slide   |

**Fig. 18C**

| Wire Color | Function       |
|------------|----------------|
| Purple     | Bed Slide      |
| Pink       | Auxiliary      |
| Red        | RR Valve       |
| Blue       | LR Valve       |
| Green      | Isolator Valve |

**Fig. 18D**

| Wire Color     | Function                        |
|----------------|---------------------------------|
| White          | Power - dual polarity solenoid  |
| Black w/ White | Pump Retract                    |
| Brown          | Ground - dual polarity solenoid |
| Grey           | Pump Extend                     |
| Black          | Ground - dual polarity solenoid |

**Fig. 18E**

| Wire Color | Function        |
|------------|-----------------|
| Tan        | Kitchen Slide   |
| Orange     | Main Room Slide |
| Purple     | RF Valve        |
| Green      | LF Valve        |
| Yellow     | Pressure Switch |



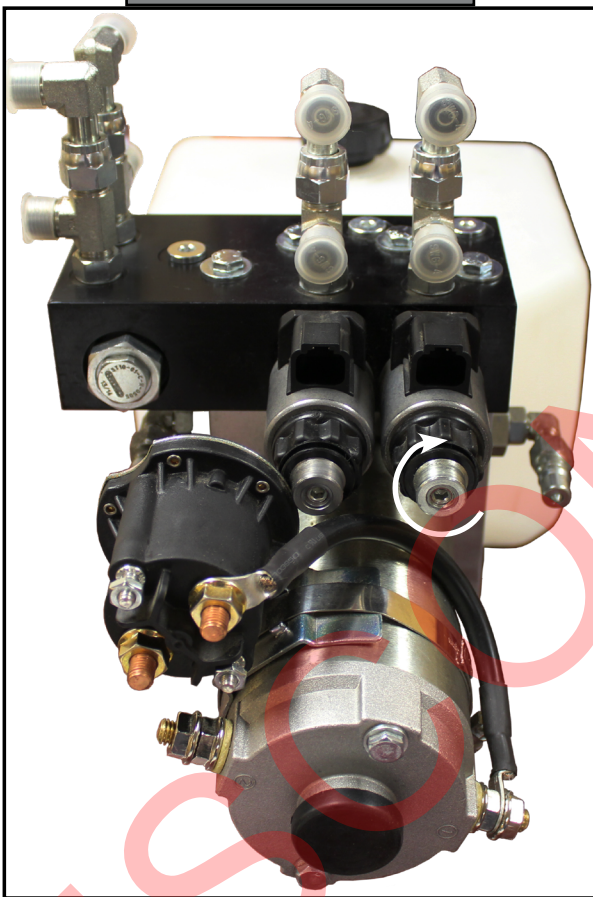
## Manual Override

In the event that the jacks or slideouts will not extend or retract, the valves can be manually overridden. **THIS IS IN AN EMERGENCY SITUATION ONLY!** By using a hex wrench to turn the manual override clockwise on the valve (Fig. 19), and a drill to operate the motor, the leveling jacks can then be retracted. Remember to turn the manual override completely counterclockwise (Fig. 20) until it will no longer turn, to close the valve after the jacks or slideouts have been completely extended or retracted.

### Manual Override for Unidirectional Power Units

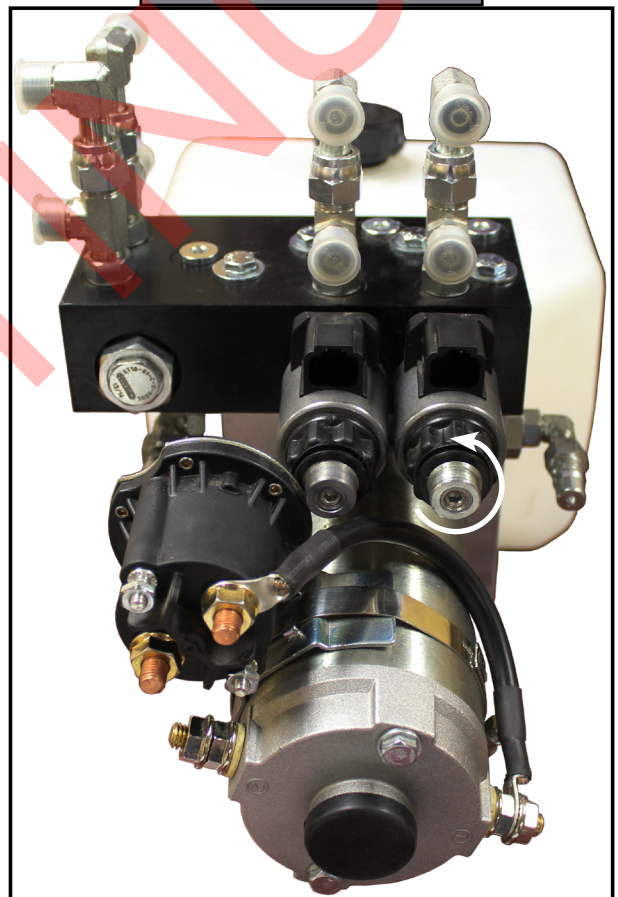
1. Remove protective plastic cap (Fig. 22A).
2. Unplug connector from the directional valve (Fig. 21).
3. Manually open jack valves with a  $\frac{5}{32}$ " hex wrench (Fig. 19).

Fig. 19 - Unidirectional



Clockwise for manual override

Fig. 20- Unidirectional



Counter-clockwise for normal operation

4. Using a ½" nut driver, insert auxiliary drive device, i.e. cordless or power drill.
5. Insert driver into coupler found under plastic cap (Fig. 22).
6. Run drill in reverse or counterclockwise to retract jacks (Fig. 23).
7. Replace connector to the directional valve.
8. Close the manual override on the valves that were manually opened (Fig. 20).

Fig. 21

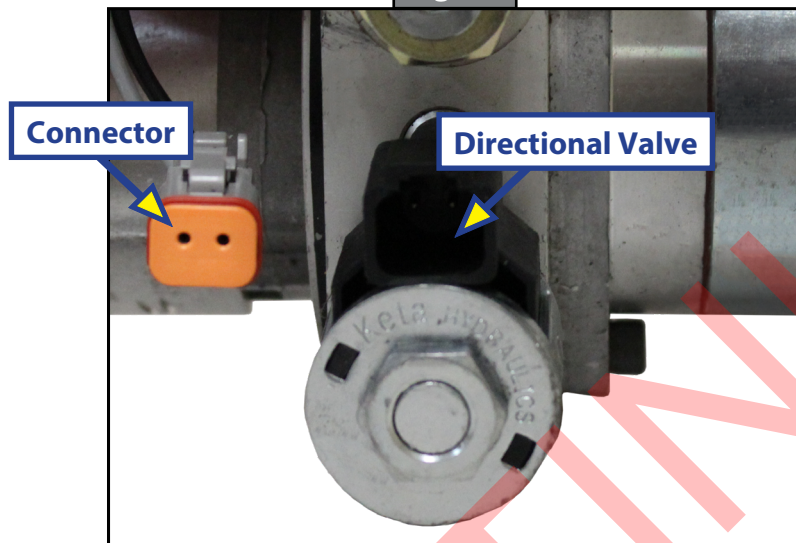
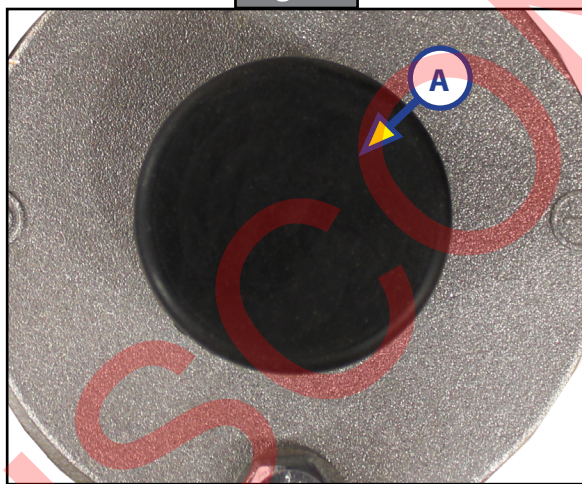
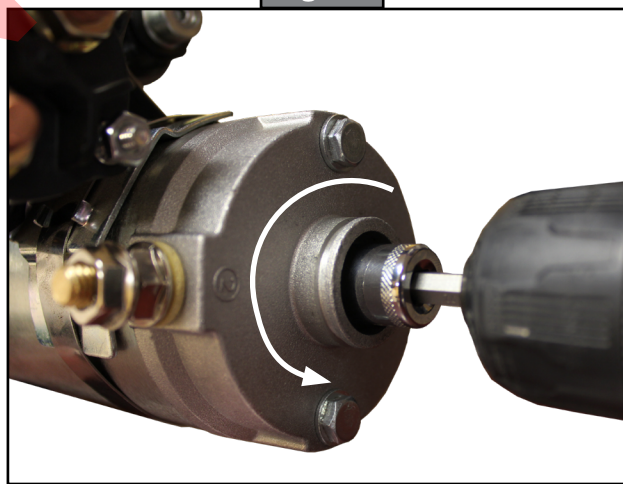


Fig. 22



Plastic Cap (A)

Fig. 23



Run drill in reverse or counterclockwise to retract.

| Callout | Part # | Description                        |
|---------|--------|------------------------------------|
| A       | 141109 | Extend/Retract Fitting (Straight)  |
| B       | 156846 | Extend/Retract Fitting (90° Elbow) |
| C       | 141087 | Extend/Retract Fitting (Tee)       |
| D       | 140457 | Quick Disconnect                   |
| E       | 174184 | Valve Coil                         |
| F       | 177094 | Valve                              |
| G       | 142927 | Pressure Switch                    |
| H       | 259524 | 4-Way Valve                        |
| I       | 140557 | Flow Divider                       |
| J       | 140571 | Isolator Valve                     |
| K       | 161394 | Solenoid                           |
| L       | 179327 | Motor                              |

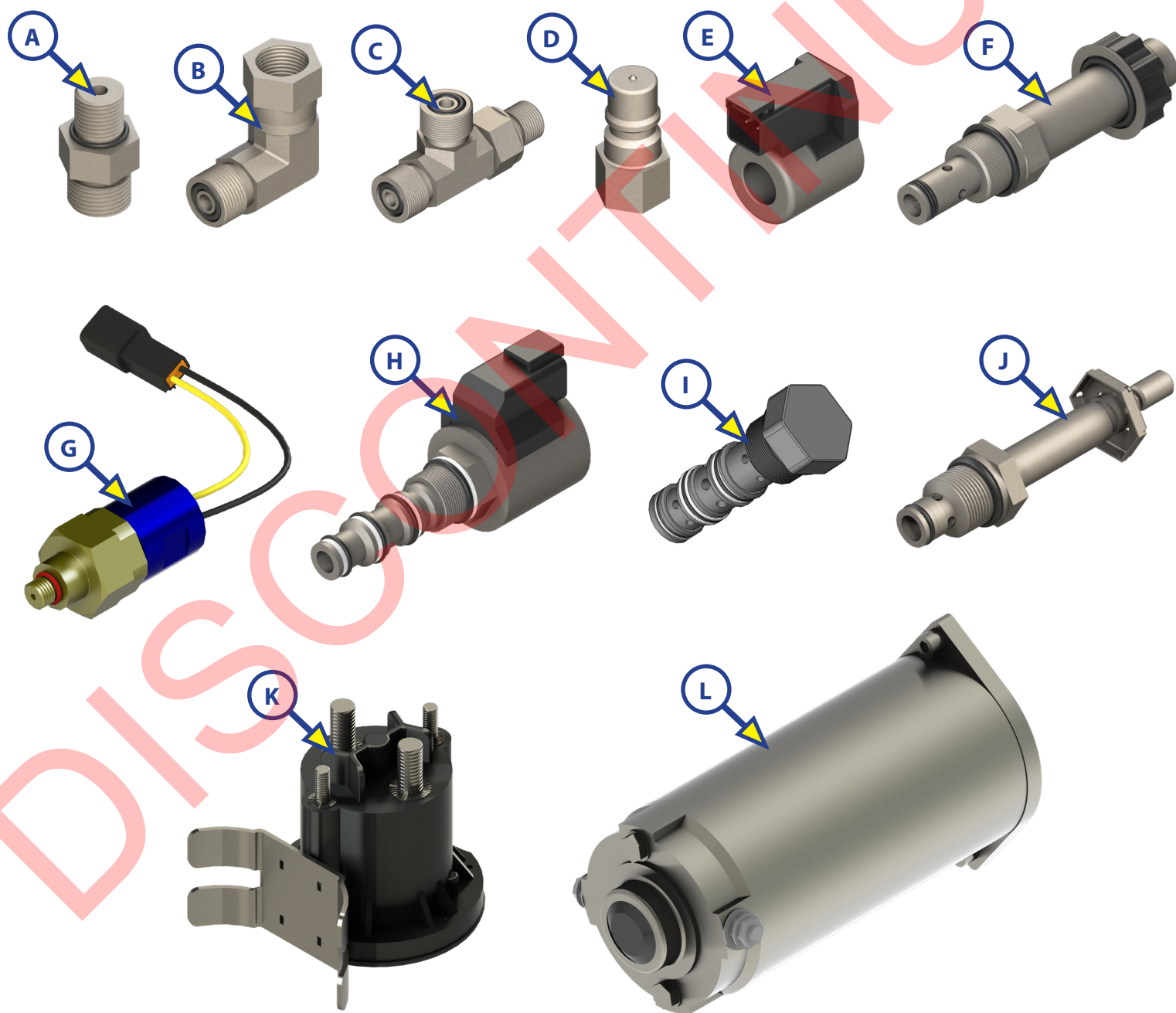




Fig. 24 - P/N 196894

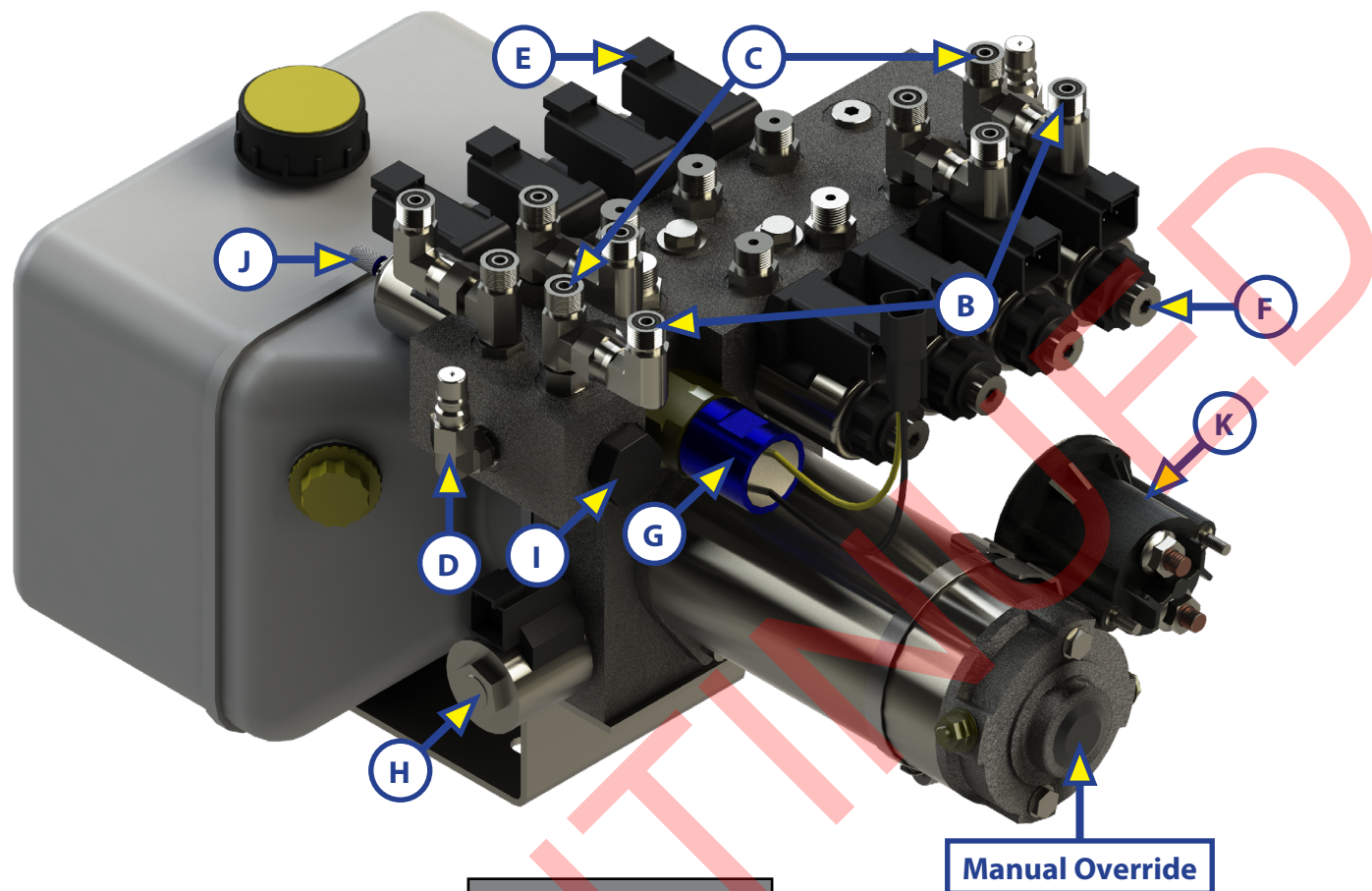


Fig. 25 - P/N 197248

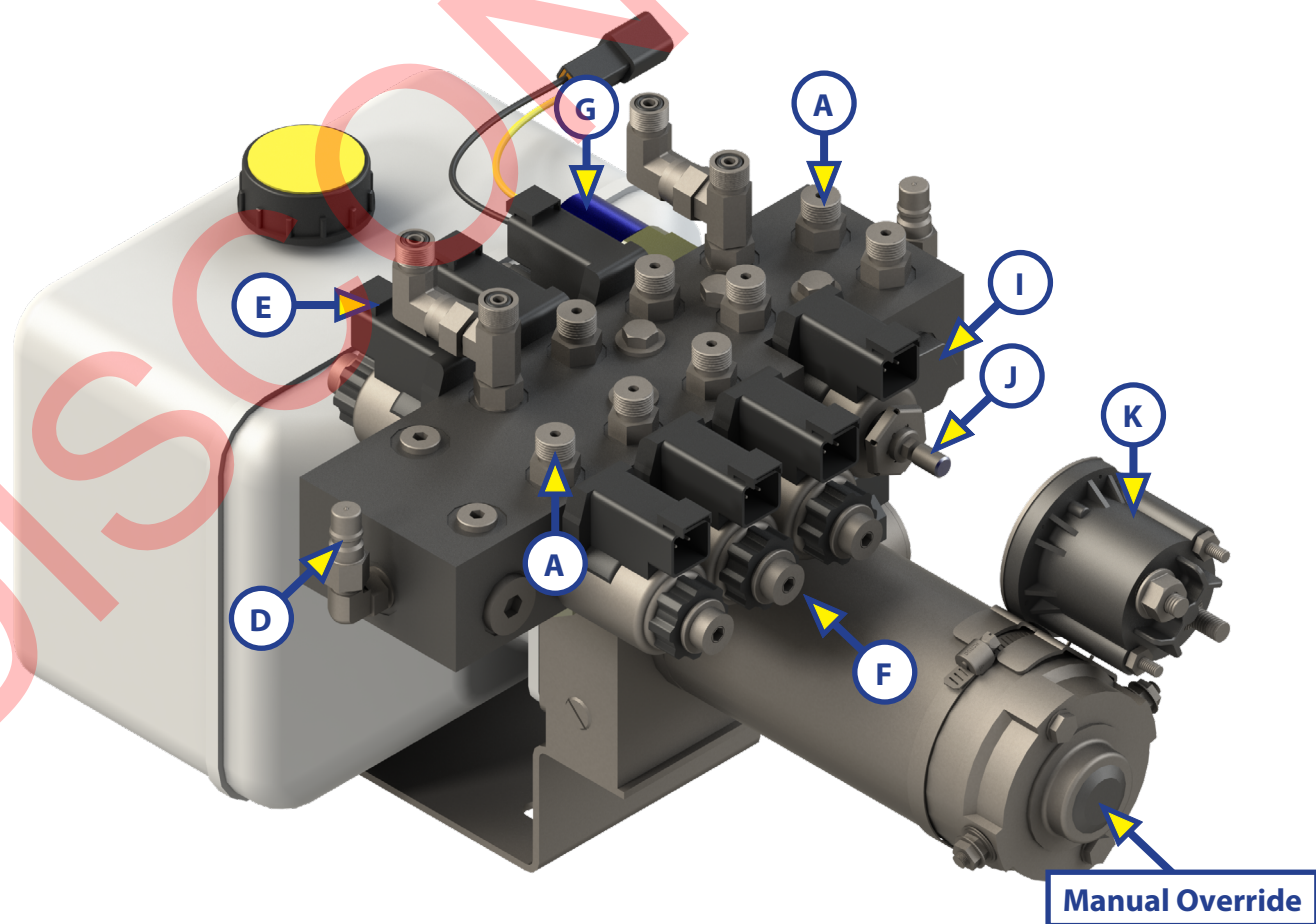


Fig. 26 - P/N 211166

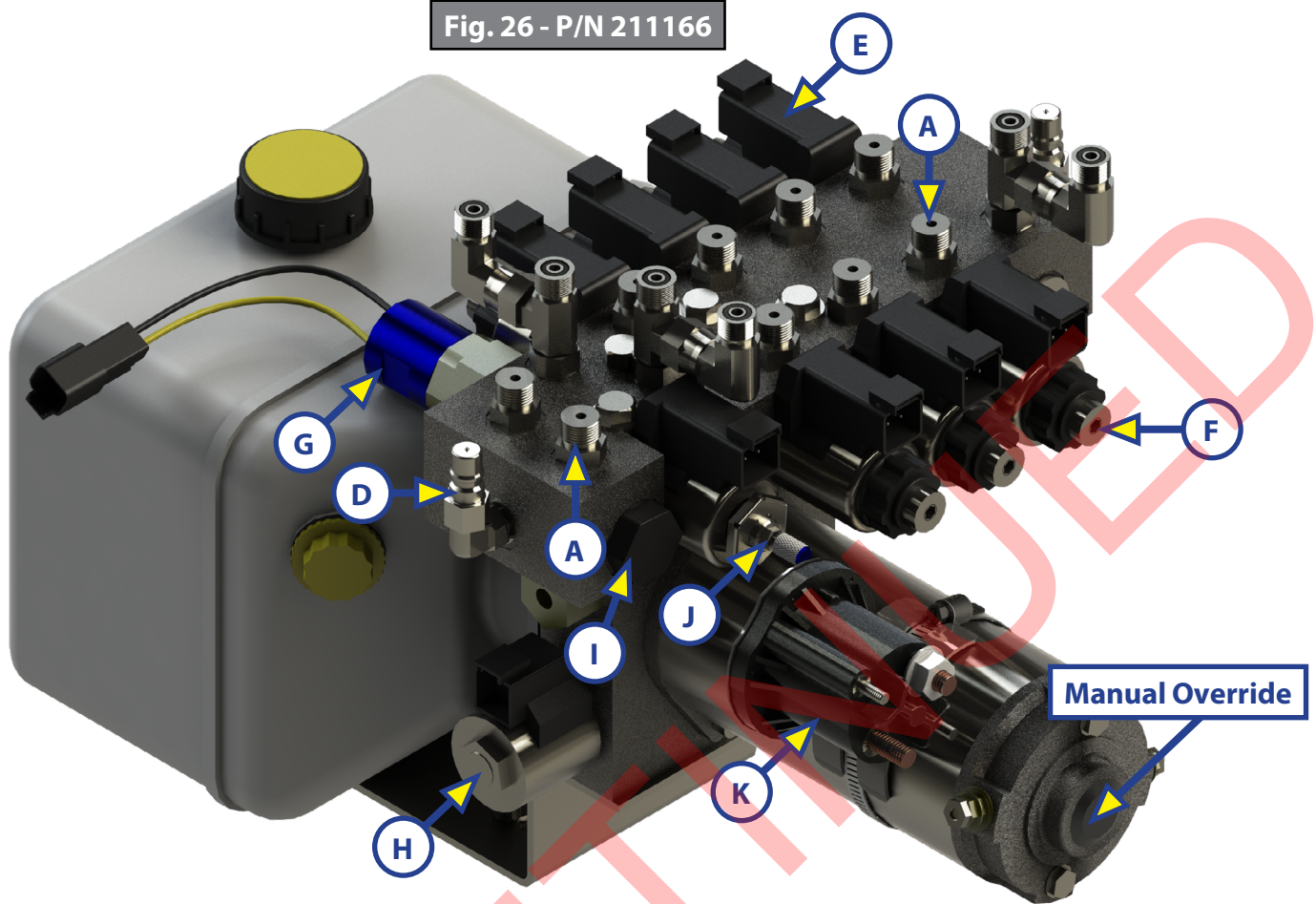


Fig. 27 - P/N 196895

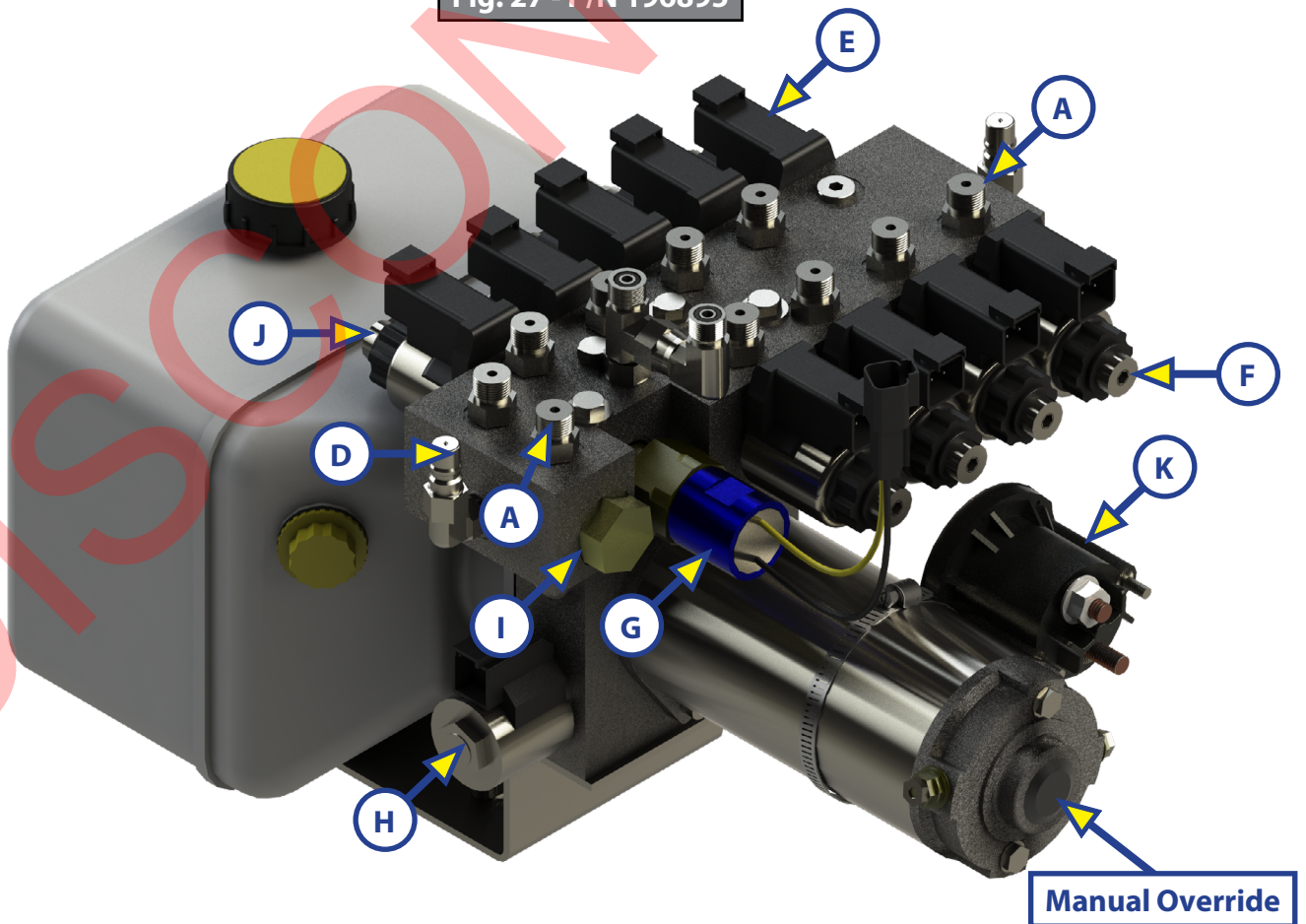




Fig. 28 - P/N 197247

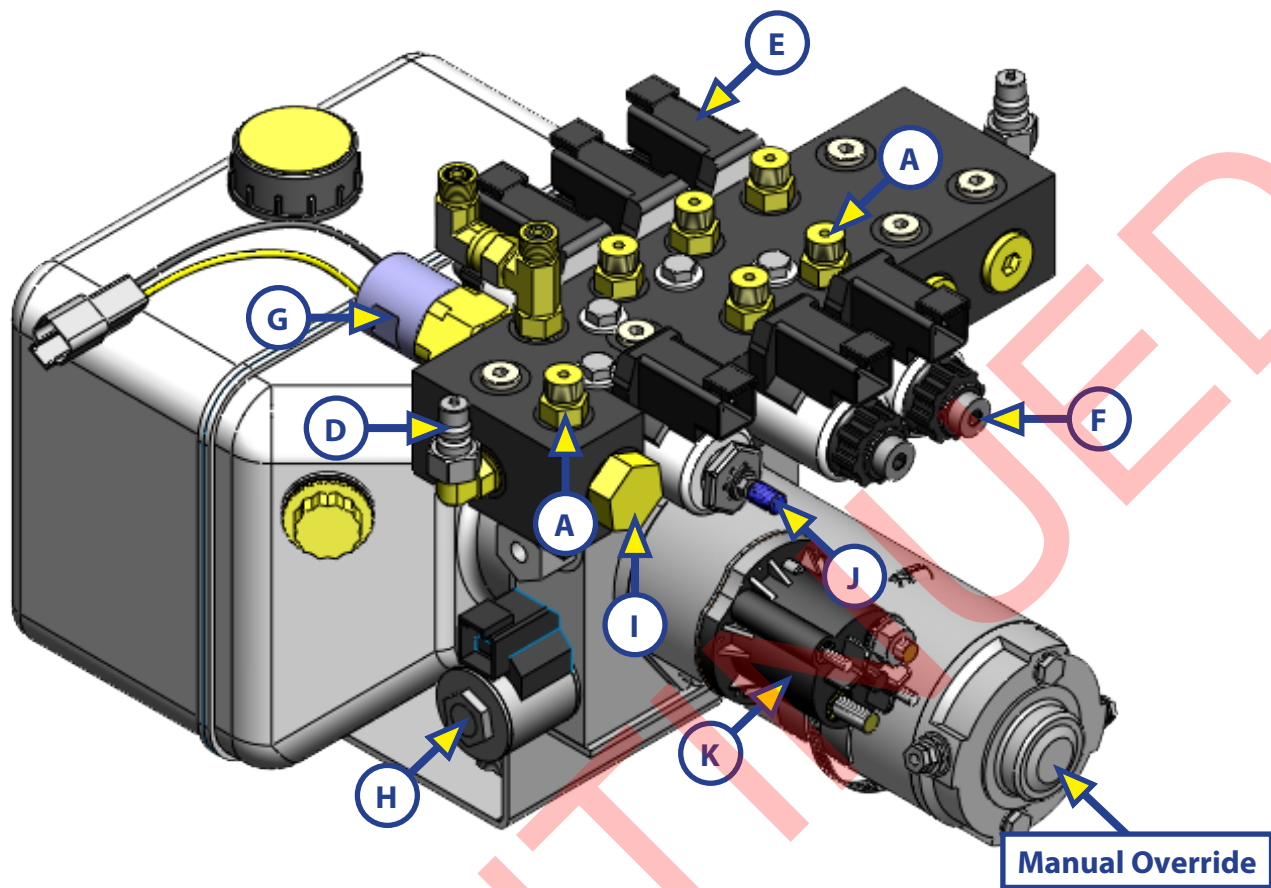


Fig. 29 - P/N 197249

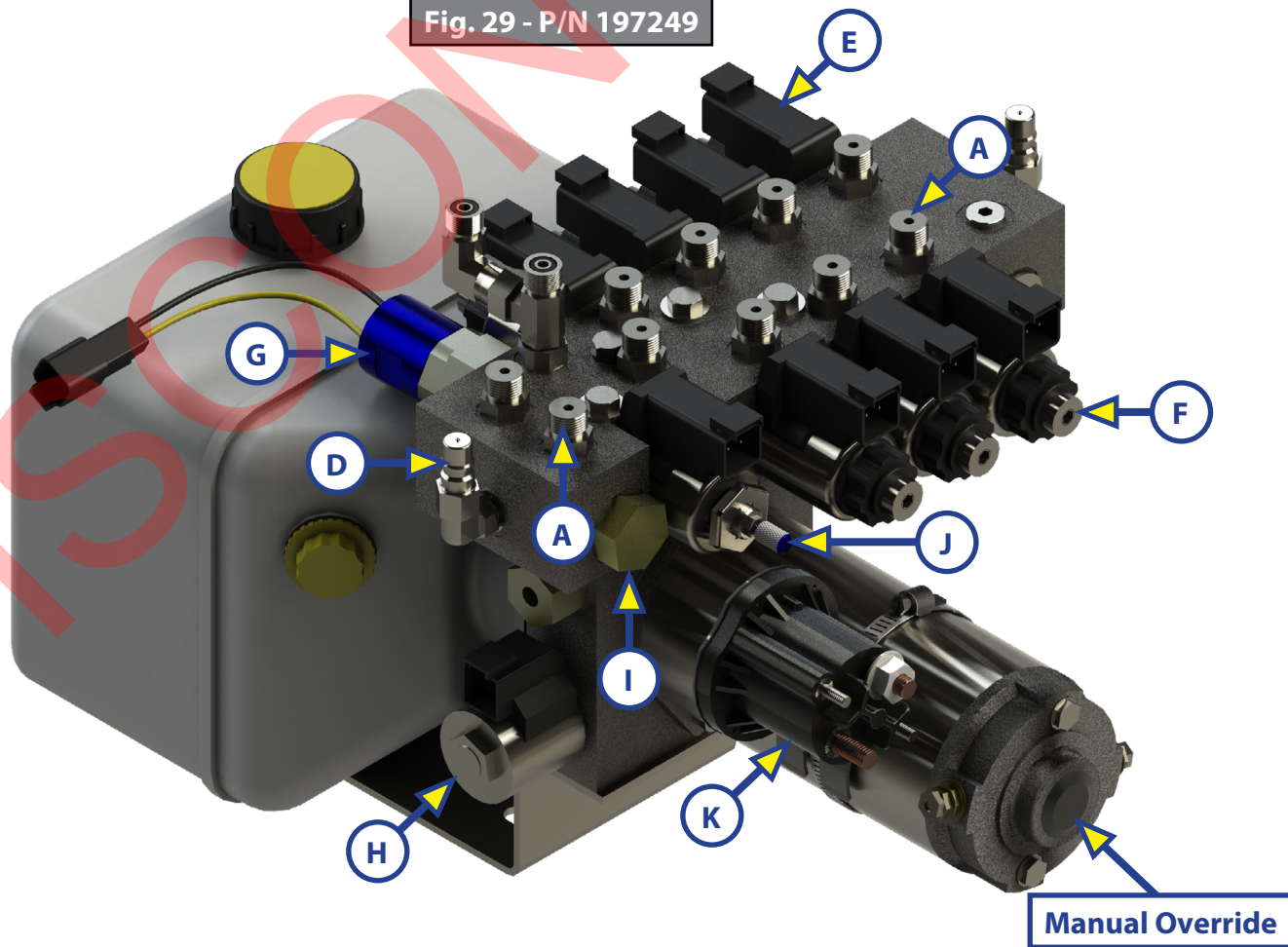
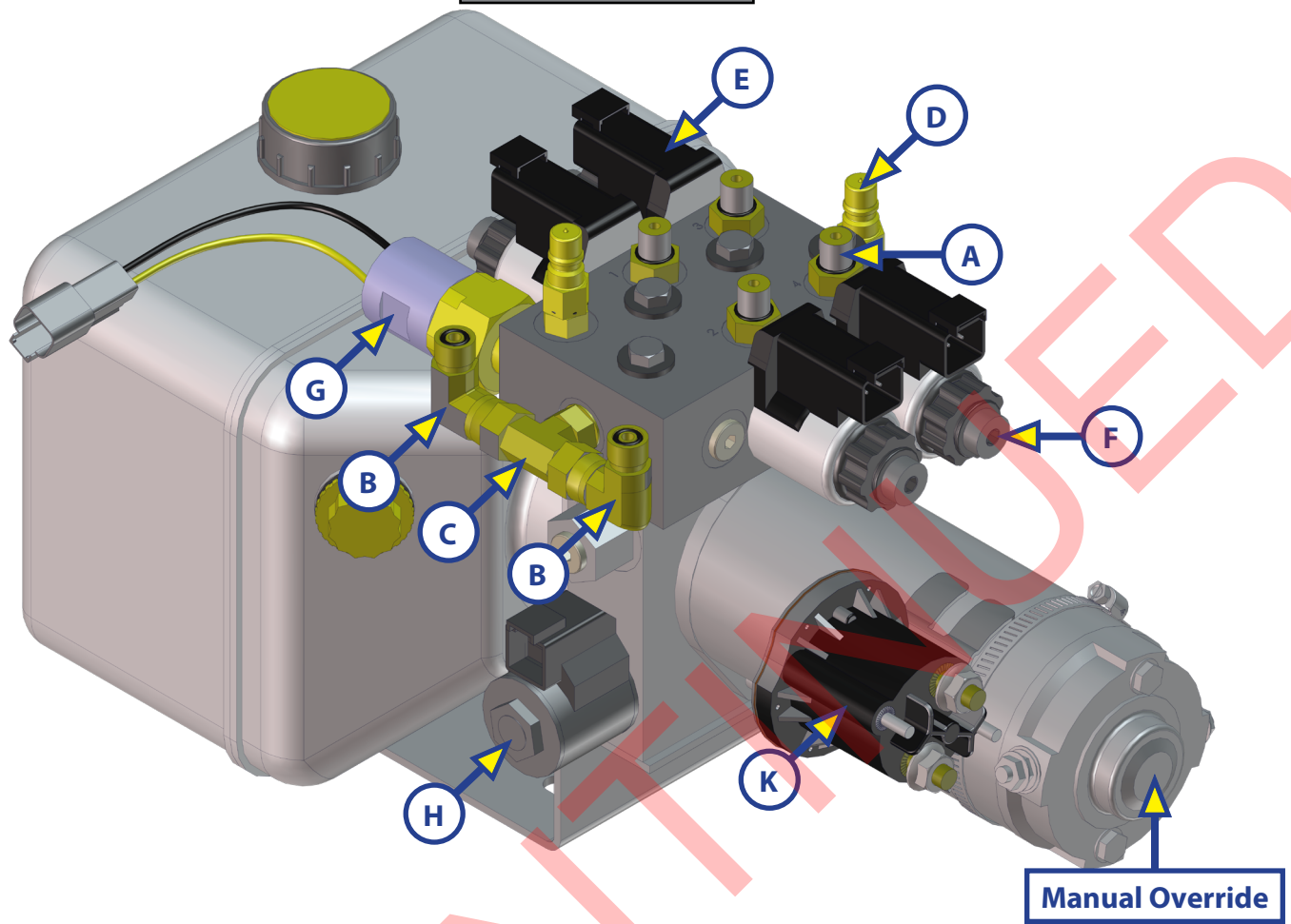
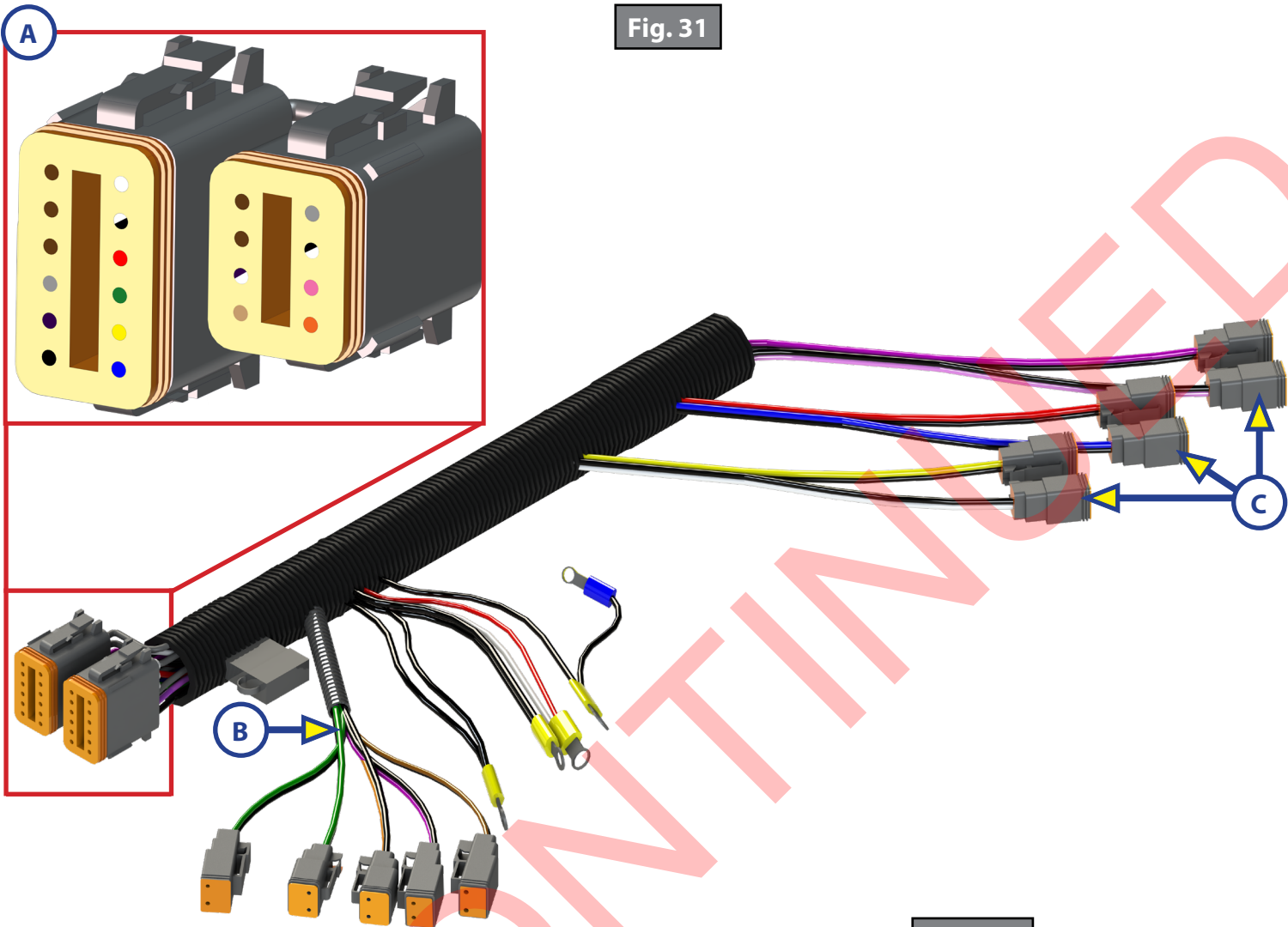


Fig. 30 - P/N 218311



Wiring Diagram - Unidirectional Power Unit Harness



**Fig. 31A**

| Wire Color     | Function                           |
|----------------|------------------------------------|
| White          | 12v DC Power                       |
| White w/ Black | Pump Retract                       |
| Blue           | Curbside Rear Valve                |
| Green          | Roadside Front Valve               |
| Yellow         | PSI Switch                         |
| Red            | Roadside Rear Valve                |
| Black          | Ground from dual polarity solenoid |
| Purple         | Curbside Front Valve               |
| Grey           | Pump Extend                        |

**Fig. 31B**

| Wire Color | Function             |
|------------|----------------------|
| Green      | LF Valve             |
| Green      | Isolator Valve       |
| Orange     | Main Room Slide      |
| Purple     | Curbside Front Valve |
| Tan        | Kitchen Slide        |

**Fig. 31C**

| Wire Color | Function                       |
|------------|--------------------------------|
| Lt. Purple | Bed Slide                      |
| Pink       | Auxiliary                      |
| Red        | RR Valve                       |
| Blue       | LR Valve                       |
| Yellow     | Pressure Switch                |
| White      | Power - Dual polarity solenoid |

## Automatic Safety Shutoff

If the control panel is left on and inactive for four minutes it will shut off automatically. To reset the system the coach ignition must be turned off, then back on and the ON/OFF button must again be pushed.

## Drive Away Protection System

If the ignition is in the "RUN" position, jacks are down, and the operator releases the parking brake, all indicator lights will flash and the alarm beeper will activate. The system will then automatically retract the jacks until the jacks are fully retracted or the operator resets the parking brake.

## "Jacks Down" Alarm

The Lippert Electronic/Hydraulic Leveling System is designed to sound an alarm and illuminate the control panel in the event of two (2) possible scenarios:

1. A "RETRACT" hose leaks.
2. The pressure holding the jacks in the retracted position falls to approximately 1500 psi to sound the alarm.

If the alarm sounds and the control panel illuminates and flash while driving the vehicle;

1. Immediately find an area to safely pull the vehicle off of the roadway.
2. Set the PARKING BRAKE.
3. Inspect all jacks hoses and check valve for leaks.
4. If no leaks are observed;
  - A. Turn control panel "ON."
  - B. Push "RETRACT ALL JACKS" button.
  - C. Wait until "JACKS DOWN" light and alarm are off.
  - D. Inspect jacks. If jacks are retracted and no leaks are observed, vehicle can be driven.

If system is leaking or alarm does not subside after applying the above procedure, disconnect wires from pressure switch and proceed immediately to a service center. For prolonged travel to the service center, be sure to stop and check the disposition of the leveling jacks every so often to make sure they are not extending.



## Maintenance

### Preventative Maintenance Procedures

1. Change fluid in reservoir only every 36 months.
  - A. Check fluid only when jacks and slideouts are fully retracted.
  - B. Always fill the reservoir with the jacks and slideouts in the fully retracted position. Filling reservoir when jacks are extended will cause reservoir to overflow into its compartment when jacks and slideouts are retracted.
  - C. When checking fluid level, fluid should be within 1/4" of fill spout lip.
2. Check the fluid level every month.
3. Inspect and clean all Pump Unit electrical connections every 12 months. If corrosion is evident, spray unit with WD-40 or equivalent.
4. Remove dirt and road debris from jacks and slideout arms as needed.

### Fluid Recommendation

The Lippert Electronic/Hydraulic Leveling and Slideout System is pre-filled, primed and ready to operate direct from the manufacturer. Automatic transmission fluid (ATF) with Dexron III or Mercon 5 or a blend of both is recommended by Lippert Components, Inc.

1. If jacks are down and slideouts extended for long periods, it is recommended to spray exposed leveling jack and slideout cylinder rods with a silicone lubricant every seven days for protection. If your coach is located in a salty environment, it is recommended to spray the rods every 2 to 3 days.

**IF YOU HAVE ANY PROBLEMS OR QUESTIONS CONSULT YOUR LOCAL AUTHORIZED DEALER OR CALL LIPPERT AT: (574) 537-8900.**

### **Troubleshooting**

The Lippert Electronic/Hydraulic Leveling and Slideout System is a new feature that allows the owner more options and flexibility for quickly and effectively leveling the coach. It is a totally integrated system with your coach's chassis and electronics.

Every coach has it's own personality and what may work to fix one coach may not work on another, even if the symptoms appear to be the same.

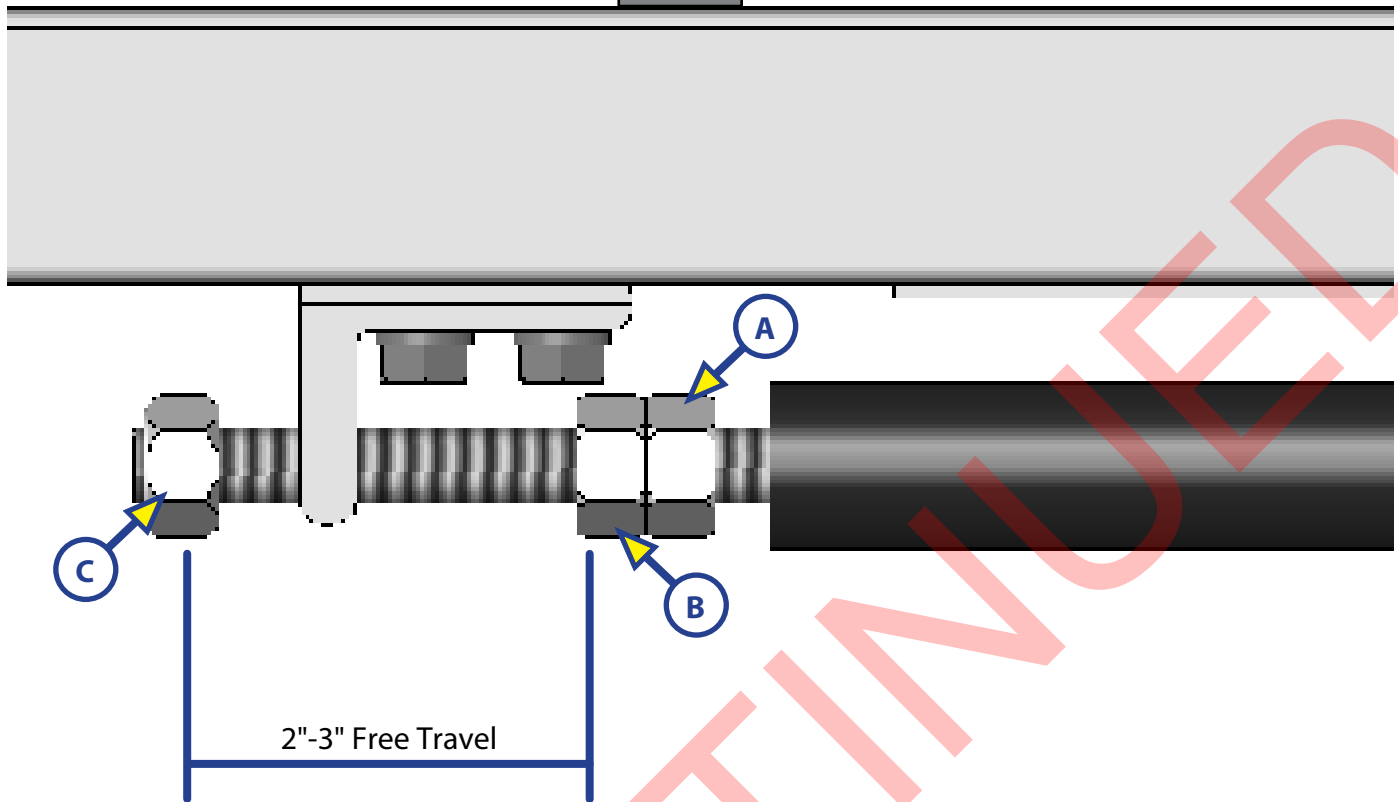
When something restricts mechanized travel, system performances will be unpredictable. It is very important that leveling legs be free of contamination and allowed to travel freely the full distance. Dirt, sand, mud and other contaminants buildup during travel and can be potentially damaging to the performance of the system.

When beginning to troubleshoot the system, make sure the battery is fully charged, there are no visible signs of external damage to the legs, motor or hoses and that the motor is wired properly and all connections are secure.

**IF YOU HAVE ANY PROBLEMS OR QUESTIONS CONSULT YOUR LOCAL AUTHORIZED DEALER OR CALL LIPPERT AT: (574) 537-8900.**

## Slideout Adjustment

Fig. 32



### Adjusting room so it seals in the "IN" position

1. Locate cylinder coming through the frame.
2. Run the room partially out.
3. Hold jam nut (Fig. 32A) in place with a wrench.
4. Adjust Nylock nut (Fig. 32C) towards the bracket if the room does not seal or adjust the Nylock nut (Fig. 32C) away from the bracket if the room is too tight and damages the fascia.

**NOTE:** Make small adjustments running the room in after each adjustment until proper seal is achieved.

### Adjusting room so it seals in the "OUT" position

1. Locate actuator coming through the frame.
2. Extend room completely out.
3. Check the inside fascia and seal positioning.
4. Partially retract room.
5. Loosen Jam nut (Fig. 32A) from nut (Fig. 32B) and back off Jam nut (Fig. 32A) to give nut (Fig. 32B) room for adjustment.
6. Adjust nut (Fig. 32B) away from the bracket if the room extends too far and damages the inside fascia or adjust nut (Fig. 32B) towards the bracket if the room does not seal.

**NOTE:** Make small adjustments running the room out after each adjustment until proper seal is achieved.  
Tighten Jam nut (Fig. 32A) to nut (Fig. 32B).

## Troubleshooting Chart

| Problem                                                                                        | Probable Cause                                                      | Corrective Action                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System will not turn on and on/off indicator light does not illuminate.                        | Coach ignition not in RUN position                                  | Turn ignition to RUN position                                                                                                                                                                        |
|                                                                                                | Parking brake not set                                               | Set parking brake                                                                                                                                                                                    |
|                                                                                                | Controls have been on for more than four minutes and have timed out | Turn ignition OFF and then back ON                                                                                                                                                                   |
| Control pad turns on but turns off when leg button is pushed.                                  | Low voltage on battery                                              | Start coach to charge battery                                                                                                                                                                        |
| Control pad turns on, coach will not auto-level, jacks down light is on, jacks are retracted.  | Low fluid level                                                     | Check fluid level in reservoir. If fluid is low, add fluid to FILL TO HERE line on reservoir. If JACKS DOWN light remains on call Lippert Service.                                                   |
| Jacks will not extend to ground, pump is running                                               | Little to no fluid in reservoir                                     | Fill reservoir with DEXRON III ATF                                                                                                                                                                   |
|                                                                                                | Leg valve is inoperative                                            | Clean, repair or replace                                                                                                                                                                             |
|                                                                                                | Electronic signal is lost between control leg valves                | Trace wires for voltage drop or loss of signal. Repair or replace necessary wires or replace control pad.                                                                                            |
| Any one or two jacks will not retract.                                                         | Hose damaged or unconnected.                                        | Replace with new hose or reconnect hose.                                                                                                                                                             |
|                                                                                                | Return valve inoperative.                                           | Replace inoperative return valve.                                                                                                                                                                    |
|                                                                                                | Electronic signal is lost between control and solenoid.             | Attempt to retract jacks in MANUAL mode. If successful, replace control pad, if not, test for voltage drop between control pad and leg valve. Repair bad wiring or replace defective board or valve. |
| "Jacks down" light does not go out when all jacks are retracted.                               | Low fluid level.                                                    | Fill reservoir to proper level with ATF.                                                                                                                                                             |
|                                                                                                | Retract pressure switch inoperative.                                | Check connection or replace.                                                                                                                                                                         |
| Alarm sounds and "jacks down" light starts flashing while traveling jacks are fully retracted. | Low fluid level.                                                    | Fill reservoir to proper level with ATF.                                                                                                                                                             |
|                                                                                                | Retract pressure switch inoperative.                                | Check connection or replace.                                                                                                                                                                         |
| Jack bleeds down after being extended.                                                         | Valve Manual Override open.                                         | Close override.                                                                                                                                                                                      |

## Troubleshooting Chart - HLG

| Problem                                           | Probable Cause                                         | Corrective Action                                                                                                                                                                               |
|---------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Jacks will not extend to ground, pump is running. | Little or no fluid in reservoir                        | Fill reservoir with DEXRON III                                                                                                                                                                  |
|                                                   | Leg valve is inoperative                               | Clean, repair or replace                                                                                                                                                                        |
|                                                   | Electronic signal is lost between switch               | Trace wires for voltage drop or loss of signal and leg valves. Repair or replace necessary wires or replace switch.                                                                             |
| Any one or two jacks will not retract.            | Hose damaged or disconnected.                          | Replace with new hose or reconnect hose.                                                                                                                                                        |
|                                                   | Return valve inoperative.                              | Replace inoperative return valve.                                                                                                                                                               |
|                                                   | Electronic signal is lost between switch and solenoid. | Attempt to retract jacks in MANUAL mode. If successful, replace control pad. If not, test for voltage drop between switch and leg valve. Repair bad wiring or replace defective board or valve. |

## Troubleshooting – Power Unit

Before attempting to troubleshoot the Power Unit, make sure an adequate power source is available. The unit batteries should be fully charged or the unit should be plugged into to A/C service with batteries installed. Do not attempt to troubleshoot the Power Unit without assuring a full 12VDC charge.

The following tests require only a DC voltmeter (or DC test light) and a jumper lead.

1. Attach voltmeter (or test light) leads to the negative and positive terminals on motor solenoid. Does the meter indicate 12VDC? If **YES**, see **Step 2**; if **NO** see **Step 3**.
2. If **YES**, at the motor, activate system, check the incoming leads to 12VDC (if necessary, disconnect leads at wire splices). Does meter indicate 12VDC? If **YES**, Power Unit needs to be replaced. The motor is not field serviceable. DO NOT ATTEMPT TO REPAIR. If **NO**, Inspect all wires and connections between the motor solenoid and the motor. Repair connections or replace motor solenoid as necessary. Recheck as in **Step 1**.
3. If **NO**, Inspect all connections between battery and motor solenoid. Inspect Manual-reset Circuit Breaker in battery feed line. Recheck as above in **Step 1**.

Since there are no field serviceable parts in the motor of the Power Unit, electrical troubleshooting and service is limited to replacing only those components as previously outlined.

Thorough inspection of wiring and connections is the only other electrical service that can be performed.



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