

LEVELING AND STABILIZATION

Purpose

This kit outlines the procedure to replace existing square hydraulic landing gear jacks, including square and round hydraulic, pin-less jacks. Square landing gear is no longer available.

Required Resources

- Acetylene torch or reciprocating saw
- Cordless or electric drill or screw gun
- 5/32" hex wrench
- 1/4" hex bit
- 1/4" socket wrench
- 3/8" cobalt drill bit
- 3/4" socket wrench
- 3/4" box end wrench
- 9/16" open end wrench
- 10" adjustable wrench
- Torque wrench
- Welder
- Hole Patch Plates

Replacement Kits	
Part #	Description
671675	Hydraulic Leg Replacement Kit
671676	Hydraulic Leg Hardware Kit

Instructions

To replace existing square landing gear **in the same place** with Hydraulic Leg Replacement Kit 671675, do all sections except for Installation of Hydraulic Leg Replacement Kit 671675 to Outside of Frame section.

To replace existing square landing gear **to the outside of the frame** with Hydraulic Leg Replacement Kit 671675, do all sections except for step 10G of Removal of Square Landing Gear section.

Removal of Square Landing Gear

1. Make sure trailer is on solid, level ground.
 - A. Clear all hydraulic jack landing pad locations of debris and obstructions.
 - B. Make sure hydraulic jack landing pad locations are free of depressions.

⚠ WARNING

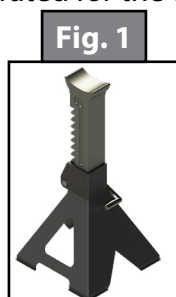
Non-chocked tires allow rolling or movement of trailer when performing service. Rolling or movement of trailer can create a condition that may cause severe property damage, serious personal injury or death.

Chock tires to prevent unnecessary rolling or movement of trailer when performing service.

2. Chock tires before beginning jack replacement.

NOTE: Chocked tires will prevent trailer from rolling during part replacement procedure.

3. Support chassis under the front of the chassis I-beams.
 - A. Use jack stands (Fig. 1) appropriately rated for the trailer being serviced.



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⚠ WARNING

An off-the-ground supported trailer creates an unsafe condition that could result in serious personal injury or death. Do not raise trailer completely off of ground. Trailer tires must remain in contact with the ground at all times.

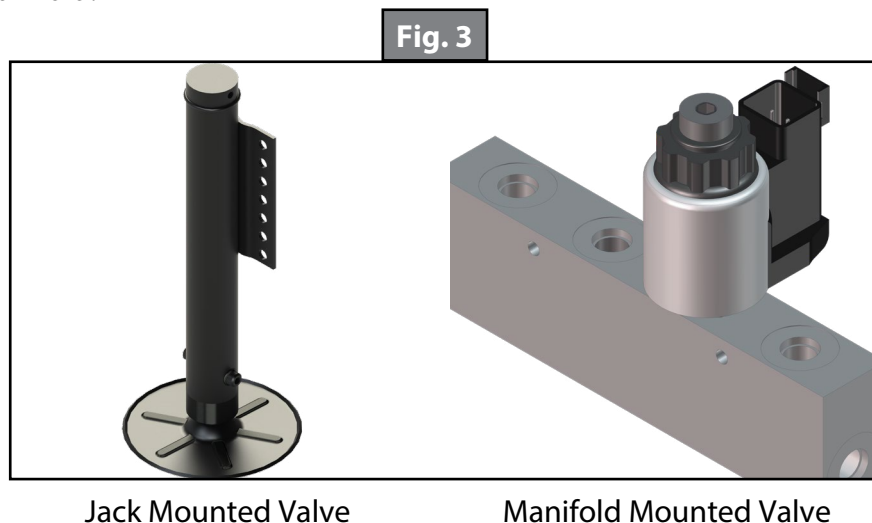
- B. Do not lift trailer completely off of the ground. Trailer tires must remain in contact with the ground.
- 4. Retract existing hydraulic landing gear using the system's electrical switch (Fig. 2).



- A. Push and hold the RET (Retract) switch until the landing gear is fully retracted.
- B. If jacks did not retract, use a standard hand-held cordless or power drill to manually retract the jacks as follows:

NOTE: Landing gear jacks are identified as LH (left hand/curbside) and RH (right hand/roadside), where curbside and roadside are defined by local highway regulations. "Lead" and "follow" terms associated with any particular hydraulic jack are defined by the physical interconnection and functional application of the jack within the overall hydraulic system. Any landing gear jack connected directly to the power unit becomes the "lead" jack. The second landing gear jack connected to the lead jack becomes the "follow" jack.

- I. Locate existing cartridge valve (Fig. 3) on the top cap of either of the landing gear jacks or on the manifold.



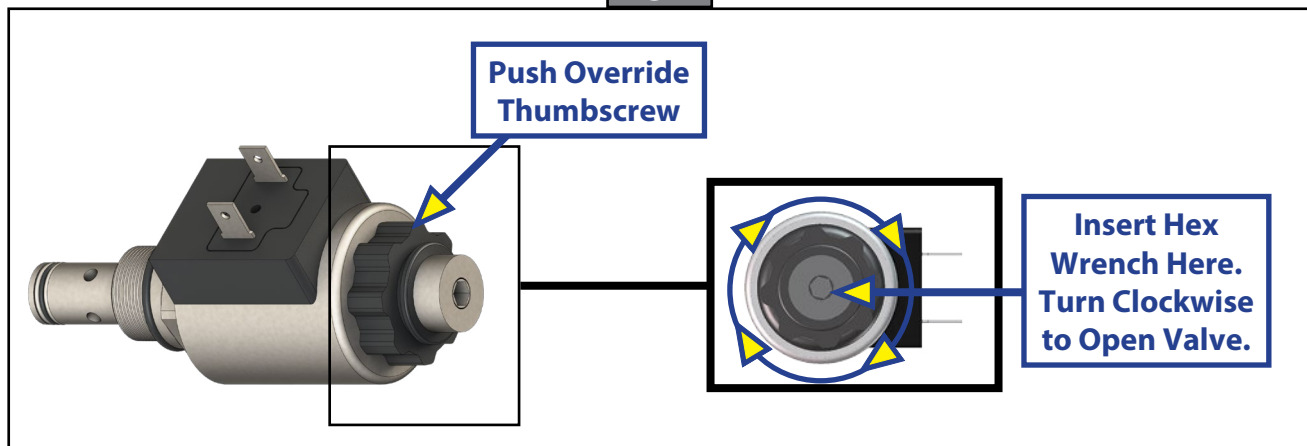
Jack Mounted Valve

Manifold Mounted Valve

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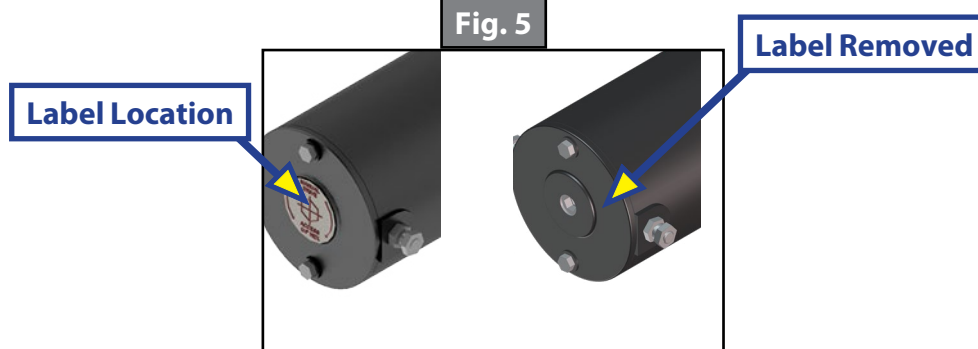
- II. Use thumbscrew or a $\frac{5}{32}$ " hex wrench to manually open the valve by turning the thumbscrew or hexagon set screw clockwise (Fig. 4).

Fig. 4



- III. Remove protective label from the motor (Fig. 5).
- IV. Insert a standard $\frac{1}{4}$ " hex bit into the cordless drill or power drill.

Fig. 5

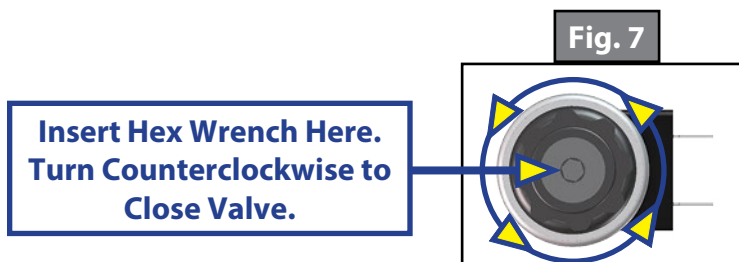


- V. Insert hex bit into coupler found under protective label (Fig. 6).
- VI. Run drill forward, or clockwise, to retract jacks.
- VII. Make sure manual override set screw is turned back to the counterclockwise position after retracting landing gear (Fig. 7).

Fig. 6

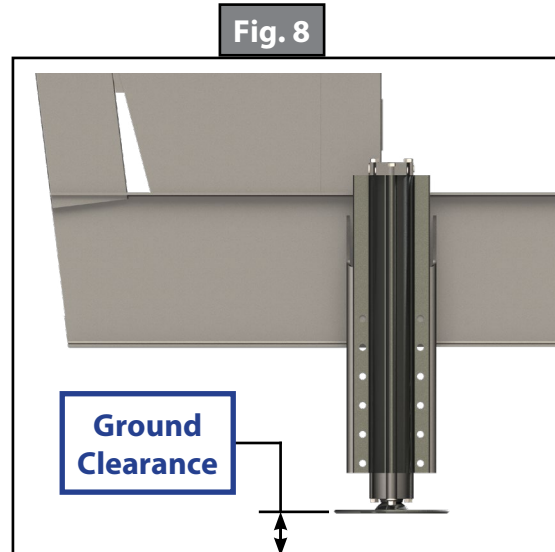


Fig. 7



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5. Level trailer before taking measurements.
6. Measure and record the current ground clearance of existing curbside (LH) and roadside (RH) jacks from their retracted position (Fig. 8).



7. Remove power from the hydraulic jack system.
8. Place a drip pan underneath the work area to catch hydraulic fluid.
9. If existing cartridge valve is installed in a manifold (Fig. 3), remove and discard valve. Replace valve with threaded O-ring plug.
10. The following procedure is for the curbside (LH) jack and assumes this is the lead jack, where the original cartridge valve is installed. Do as follows:

NOTE: This procedure also applies if the lead jack is the roadside (RH) jack.

- A. Remove old, existing cartridge valve from jack.
- B. Discard old cartridge valve.
- C. Disconnect hydraulic lines from the curbside (LH) jack.
- D. Remove old hydraulic fittings from jack cap to ease removal of existing jack from trailer.
- E. If drop leg of jack is installed with a snapper pin (Fig. 9), remove pin from drop leg as follows:



- I. Keep hands and feet clear of drop leg and foot pad.
- II. Detach clamping end of snapper pin from safety pin (Fig. 9).

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⚠ CAUTION

Free-falling objects can cause personal injury. Keep clear of free-falling object area. Use personal protective equipment (PPE), such as safety glasses and steel-toed shoes.

- III. Pull snapper pin completely out, clearing both drop leg height adjustment holes. The drop leg will release freely to the ground.
- F. Remove and discard mounting bolts from existing curbside (LH) jack mounting brackets.
- G. Remove existing curbside (LH) jack mounting brackets from the frame work.

⚠ WARNING

Acetylene torch cutting operations can cause serious personal injury to unprotected areas. Use and wear appropriate personal protective equipment (PPE) to prevent injury.

NOTE: If using an acetylene torch to cut mounting brackets from framework, exercise caution and wear appropriate personal protective equipment to help prevent personal injury.

- 11. Repeat previous steps 10C-G to remove the second (roadside (RH), follow) existing hydraulic jack.

Installation of Hydraulic Leg Replacement Kit 671675 to Inside of Frame

- 1. To prepare trailer framework for the installation of Hydraulic Leg Replacement Kit 671675, do as follows:
 - A. Identify the desired location of the landing gear mounting bracket on the chassis.
 - B. Hold in-place one end of the landing gear mounting bracket on the chassis frame's bottom pan.
 - C. Place hole patch plate template around the landing gear mounting bracket.
 - D. Remove landing gear mounting bracket.
 - E. With hole patch plate in position, trace the inside cut-out pattern for the new aluminum jack.
 - F. Remove patch plate.
 - G. Use an acetylene torch or reciprocating saw to cut hole pattern in the bottom pan of the chassis frame's front compartment.
 - H. Install landing gear mounting bracket through the cut-out and onto the chassis. Make sure the width of the bracket is aligned with the cut-out to prevent an interference fit during assembly of the new aluminum jack.

⚠ WARNING

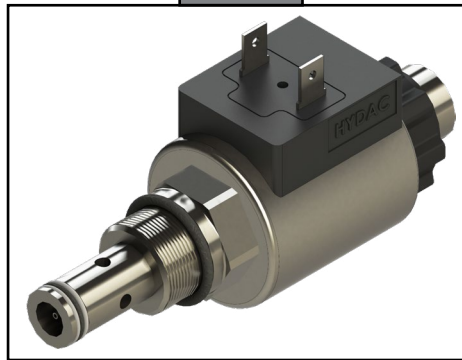
Welding operations can cause serious personal injury to unprotected areas. Use and wear appropriate personal protective equipment (PPE) to prevent injury.

- I. Weld landing gear mounting bracket in-place as follows:
 - I. Have welder apply full vertical welds along either side of the landing gear mounting bracket flanges.
 - II. Have welder apply one full horizontal weld across at least one of the two interconnecting surfaces of the I-beam and the slots on the landing gear mounting bracket.
- 2. Insert a new curbside (LH) aluminum hydraulic jack through the cut-out and install as follows:
 - A. Align three mounting holes of the jack's mounting flange with three mounting holes of the landing gear mounting bracket.
 - B. Secure jack to the landing gear mounting bracket using six 1/2" - 20 UNF x 1-1/2" bolts and six 1/2" - 20 UNF serrated flange nuts as follows:
 - I. Install three bolts and nuts on either side of jack.

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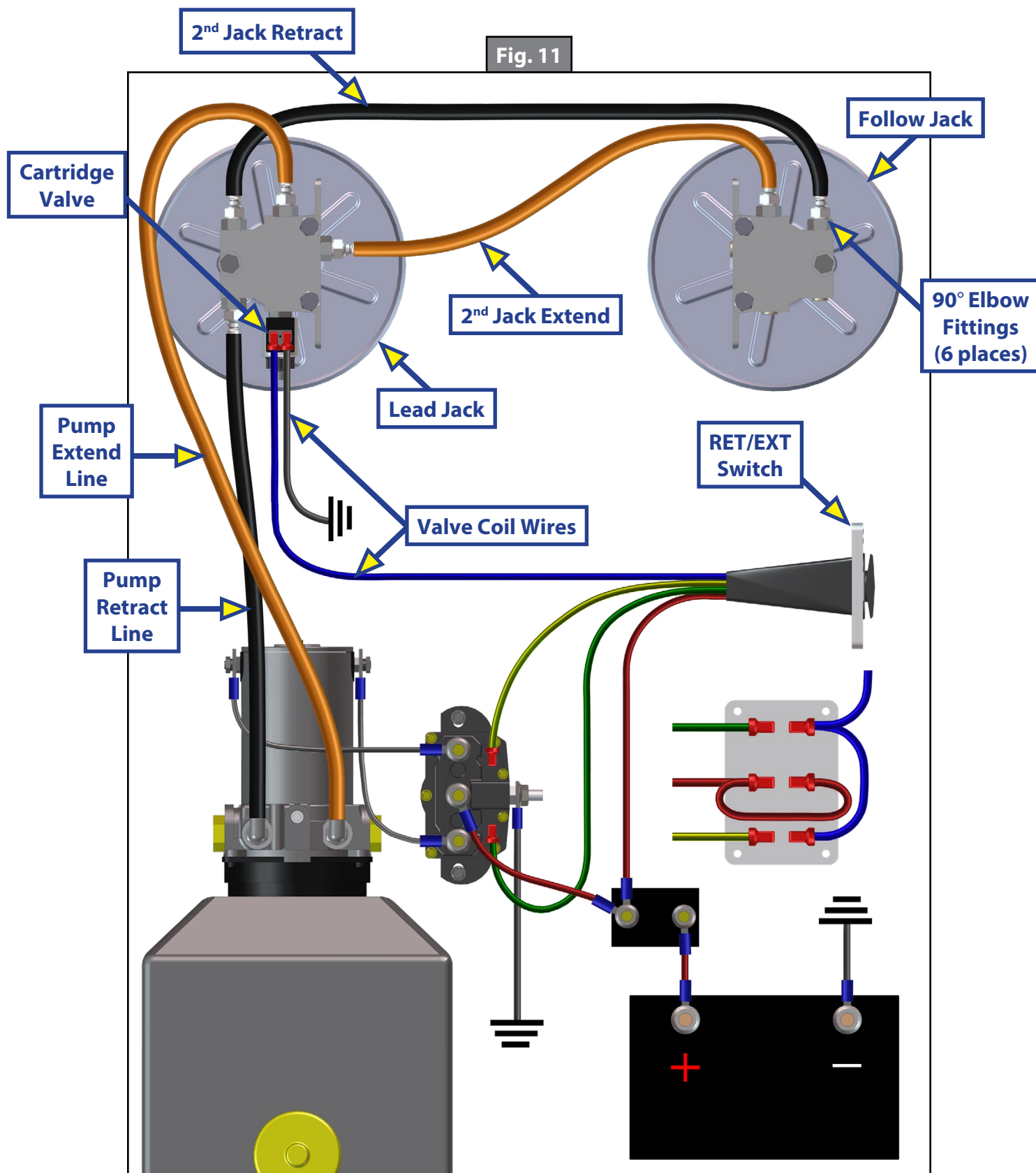
- II. Maximize bolt spacing across the bracket's mounting holes, with one bolt near the middle of the span of holes.
 - III. Install flange nuts onto bolts with a $\frac{3}{4}$ " socket wrench and $\frac{3}{4}$ " box end wrench.
 - IV. Use a torque wrench to torque bolts to 95-100 ft-lbs.
 - 3. Repeat step 1 for new roadside (RH) (follow) aluminum hydraulic jack.
 - 4. If not already in place, insert a patch hole plate around each landing gear jack. Secure plate to chassis frame's bottom pan as follows:
 - A. If using self-drilling screws (not included in kit), use appropriate tool to install fasteners.
 - B. If welding, use best practice to butt stitch weld patch plate to bottom pan.
 - 5. Install new cartridge valve, with new 12V DC coil, into curbside (LH) lead jack's cap.
- NOTE:** Optionally, cartridge valve may be connected to the roadside (RH) jack, which will make it the "lead" jack.
- A. Use 10" crescent wrench to install cartridge valve.
 - B. Connect existing coil wires to spade connectors on valve (Fig. 10).

Fig. 10



- 6. Connect existing hydraulic lines to new aluminum jacks (Fig. 11) as follows:
 - A. Install four new fittings into lead hydraulic jack cap where shown in Figure 11.
 - B. Install two new fittings into follow hydraulic jack cap where shown in Figure 11.
 - C. Install Pump Extend Line hose (Fig. 11) to lead on right side of LH (lead) aluminum jack.
 - D. Install Pump Retract Line hose (Fig. 11) to lead on left side of LH (lead) aluminum jack.
 - E. Install 2nd Jack Extend hose to Extend port on RH (follow) jack (Fig. 11).
 - F. Install 2nd Jack Retract hose to Retract port on RH (follow) jack (Fig. 11).
- 7. Go to Fluid Recommendation and Purging the Hydraulic System sections.

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Wiring Diagram

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Installation of Hydraulic Leg Replacement Kit 671675 to Outside of Frame

1. Do sections and steps except for Hydraulic Leg Replacement Kit 671675 to Outside of Frame section and step 10G of Removal of Square Landing Gear section.
 - A. Place hole patch plate over the landing gear's through-hole in the bottom pan of the chassis frame's front compartment.
 - B. Clamp patch plate in-place.

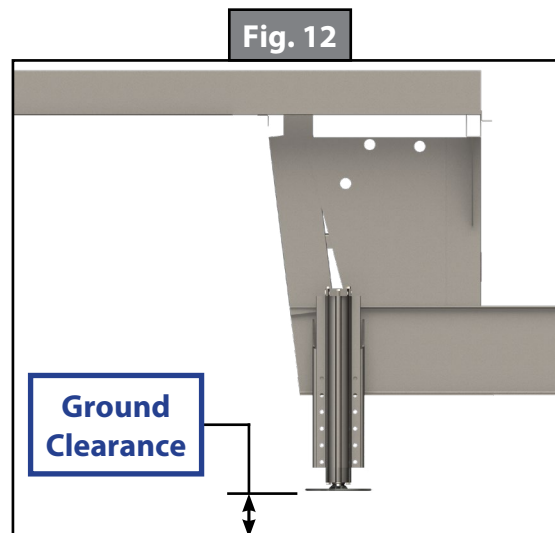
⚠ WARNING

Welding operations can cause serious personal injury to unprotected areas. Use and wear appropriate personal protective equipment (PPE) to prevent injury.

- C. Weld a continuous bead around all edges of the plate.

NOTE: If using self-drilling screws (not included in kit) to install hole patch plates, apply gasket material (not included in kit) between mating surfaces to prevent moisture from entering into the bottom pan and the appropriate tool to install fasteners.

- D. Identify the desired location of the landing gear mounting bracket on the outside surface of the chassis rail (Fig. 12).



- E. Clamp mounting bracket in-place.
- F. Weld landing gear mounting bracket in-place as follows:
 - I. Weld full vertical welds along both sides of the landing gear mounting bracket flanges.
 - II. Apply one full horizontal weld across at least one of the two interconnecting surfaces of the I-beam and the slots on the landing gear mounting bracket.
2. Install a new curbside (LH) aluminum hydraulic jack to the mounting bracket as follows:
 - A. While maintaining the ground clearance measurement taken (Fig. 12) in step 6 of the Removal of Square Landing Gear section, align three mounting holes of the jack's mounting flange with three mounting holes of the landing gear mounting bracket.
 - B. Secure jack to the landing gear mounting bracket with six 1/2" - 20 UNF x 1-1/2" bolts and six 1/2" - 20 UNF serrated flange nuts as follows:
 - I. Install three bolts and nuts on both sides of the jack.
 - II. Maximize bolt spacing across the bracket's mounting holes, with one bolt near the middle of the span of holes.

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III. Install flange nuts onto bolts with a $\frac{3}{4}$ " socket wrench and $\frac{3}{4}$ " box end wrench.

IV. Use a torque wrench to torque bolts to 95-100 ft-lbs.

3. Repeat steps 1 and 2 for new roadside (RH) (follow) aluminum hydraulic jack.
4. Install new cartridge valve, with new 12V DC coil, into curbside (LH) lead jack's cap.

NOTE: Optionally, cartridge valve may be connected to the roadside (RH) jack, which will make it the "lead" jack.

- A. Use 10" crescent wrench to install cartridge valve.
- B. Connect existing coil wires to spade connectors on valve (Fig. 10).
5. Connect existing hydraulic lines to new aluminum jacks (Fig. 11) as follows:
 - A. Install four new fittings into lead hydraulic jack cap where shown in Figure 11.
 - B. Install two new fittings into follow hydraulic jack cap where shown in Figure 11.
 - C. Install Pump Extend Line hose (Fig. 11) to lead on right side of LH (lead) aluminum jack.
 - D. Install Pump Retract Line hose (Fig. 11) to lead on left side of LH (lead) aluminum jack.
 - E. Install 2nd Jack Extend hose to Extend port on RH (follow) jack (Fig. 11).
 - F. Install 2nd Jack Retract hose to Retract port on RH (follow) jack (Fig. 11).

Fluid Recommendation

The Hydraulic Landing Gear Replacement System is primed and tested at the factory. However, the hydraulic system is shipped dry to avoid hazardous material restrictions. Automatic transmission fluid (ATF) with Dexron III® or Mercon 5® or a blend of both is recommended by Lippert Components, Inc. To obtain this Technical Information sheet online, go to: <https://www.lci1.com/stabilization/support-hydraulic-landing-gear>. Then click on Technical Information Sheets tab. Look for: TI-188: Hydraulic Operation Fluid Recommendation within the listing.

NOTE: In colder temperatures (less than 10° F) the jacks may extend and retract slowly due to the fluid's molecular nature. For cold weather operation, fluid specially formulated for low temperatures may be desirable.

NOTE: For a list of approved fluid specifications, see [TI-188](#).

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Purging the Hydraulic System

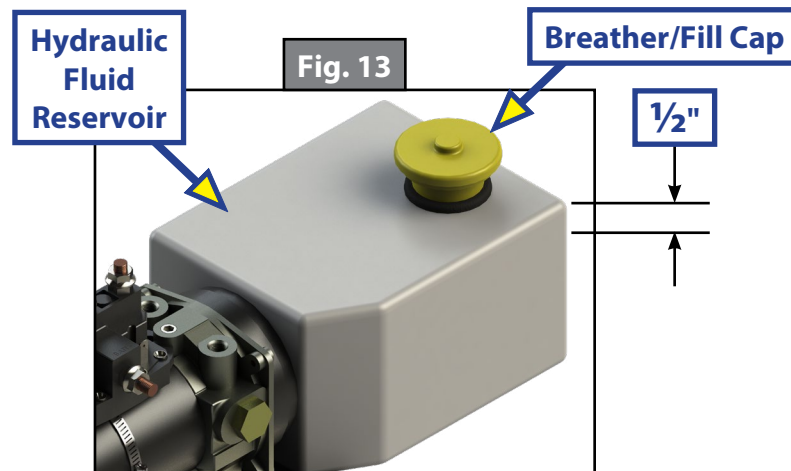
NOTE: Be sure landing gear jacks are fully retracted prior to filling reservoir to prevent over-filling.

1. Zip tie any loose wiring or hydraulic lines.

NOTE: The basic purge procedure to bleed the Hydraulic Landing Gear Replacement System can be performed without the use of any tools. The system's own function purges the air from the hydraulic lines and cylinders by simply running the pump.

2. Start with all hydraulic components in the fully retracted position, meaning all jacks (and slide-outs, if equipped) are brought back inside the unit as if it were ready to travel.
3. Find the hydraulic pump location and note the amount of fluid currently in the reservoir. The fluid level should be about $\frac{1}{4}$ " from the top of the reservoir and no more than $\frac{1}{2}$ " from the top (Fig. 13).

NOTE: When checking the fluid level after ensuring all hydraulic components are retracted, note if there are any bubbles, froth or foam on top of the fluid. This is an indication that air has been pushed back to the reservoir when the hydraulic components were retracted in the last cycle. Wait 15-20 minutes for the foam to dissipate before beginning the purge process.



4. If there is no froth or foam in the reservoir and the fluid is not within $\frac{1}{2}$ " of the top, fill the reservoir to within the level described in step 3.
5. With the fluid level full and no foam in the reservoir, begin cycling the hydraulic system:
6. Extend jacks fully, taking the trailer off the tires. Once all jacks and slide-outs (if equipped) are extended, immediately retract all slide-outs and then all jacks.
7. Check the reservoir for foam. If foam is present, see NOTE following step 3 then repeat steps 5 and 6. Repeat these steps until no foam is present in the reservoir. If no foam is present, the system is purged of air. (Purged air will vent to atmosphere through the Breather/Fill Cap (Fig. 13).
8. With landing gear still retracted, check ground clearance dimension (Figs. 8 and 12) for each jack.
 - A. Level trailer before taking measurements.
 - B. New ground clearance measurement shall not be less than one jack mounting hole spacing ($1-\frac{1}{8}$ ") from the original measurement.
 - C. If new ground clearance measurement is less than the original ground clearance measurement, adjust installed jack's vertical location on the landing gear mounting bracket until the new measurement is equal to or greater than the original measurement.

NOTE: Use a torque wrench to re-torque mounting bolts to 95-100 ft-lbs.



HYDRAULIC LANDING GEAR REPLACEMENT

TI-252

LEVELING AND STABILIZATION

Completing Hydraulic Landing Gear Replacement

After acceptable ground clearance measurement has been achieved, fully extend new landing gear to support trailer.

Remove jack stands from under front of trailer's I-beams.

Remove tire chocks.

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