

# Troubleshooting Guide

## Landing Gear

### Atlas, Classic, CMS2, CMS3 or CMR Constant Mesh Gearbox

The HOLLAND® constant mesh gearbox features gears that are always in mesh. Alignment of the gear teeth is NOT required to shift gears. However, the input shaft, connected to the crank handle, is required to be in position inside the gearbox to shift. If the shift shaft becomes difficult to slide in and out of the gearbox, follow the steps below to restore easy shifting to the constant mesh gearbox.

**NOTE:** These procedures apply to a gearbox that will turn but will NOT shift.

Before working on the landing gear, make sure the trailer is on firm level ground, tires chocked and securely supported independently of the landing gear.

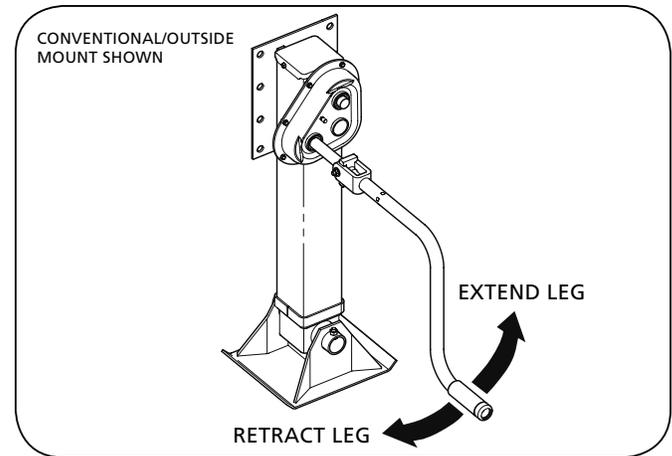
**⚠ WARNING** Failure to properly support the trailer prior to commencing work could create a crush hazard which, if not avoided, could result in serious injury or death.

## 1. Troubleshooting Procedures

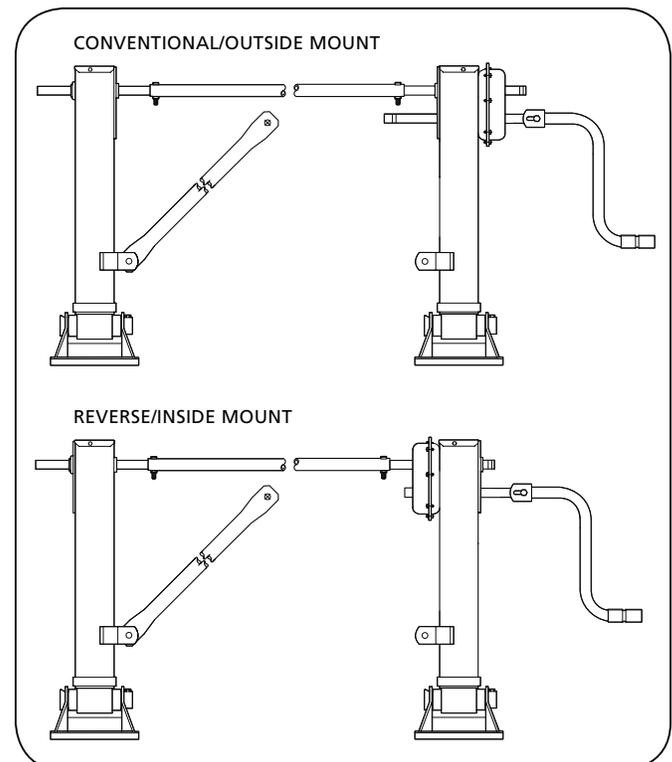
**NOTE:** In the United States, workshop safety requirements are defined by federal and/or state Occupational Safety and Health Act. Equivalent laws may exist in other countries. This manual is written based on the assumption that OSHA or other applicable employee safety regulations are followed by the location where work is performed.

1. Retract the legs two crank turns and then extend them two crank turns (**Figure 1**). This motion may loosen the sticking gear and allow the leg to shift.
2. Verify that the gears are shifting properly. The shift shaft will move .5" (12 mm) when shifting is complete. If the shaft moves, retract and extend the leg and shift several times. This will spread lubricant on the shaft.  
If the shift shaft remains unmovable, see Step 3 below.
3. Determine the following:
  - a. If the leg is in high or low gear. In high gear the leg will travel about 0.2" (5 mm) per turn. In Step 1, the crank would have moved the leg about 0.4" (10 mm). In low gear the leg would have moved about 0.05" (1 mm).
  - b. If the gearbox is a conventional/outside mount, facing out from trailer, or reverse/inside mount, facing in toward the trailer (**Figure 2**).

**Figure 1**



**Figure 2**



4. If the leg is in high gear AND the gearbox is a conventional/outside mount **OR**

If the leg is in low gear AND the gearbox is a reverse/inside mount:

Move the shift shaft outward, away from the center of the trailer. Tap the inside of the shaft to force movement (**Figure 3**). To shift completely, the shaft only needs to move .5" (12 mm). If the shaft does not move turn the crank a quarter-turn and repeat procedure.

If the leg is in low gear AND the gearbox box is a conventional/outside mount **OR**

If the leg is in high gear AND the gearbox is a reverse/inside mount:

Move the shift shaft inward, toward the center of the trailer. Tap the outside of the shaft to force movement (**Figure 4**). To shift completely, the shaft only needs to move .5" (12 mm). If the shaft does not move turn the crank a quarter-turn and repeat procedure

5. Once the shift shaft moves .5" (12 mm), verify that the gears are shifting properly. Retract and extend the leg and shift several times. This will spread lubricant on the shaft.

If the gears DO NOT shift after performing the above procedures, disassemble the gearbox.

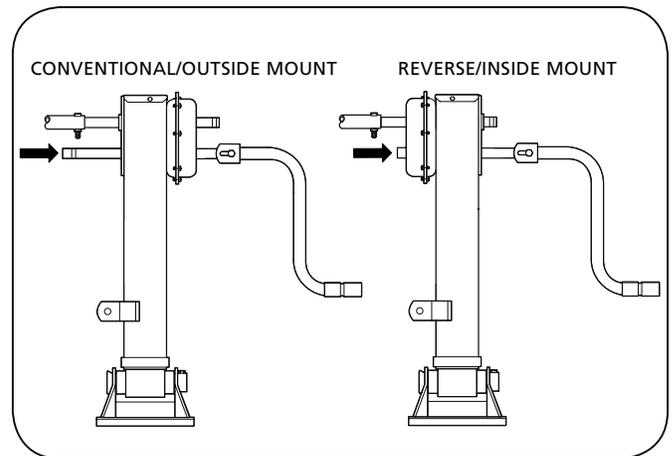
## 2. Gearbox Inspection and Disassembly

**NOTE:** In the United States, workshop safety requirements are defined by federal and/or state Occupational Safety and Health Act. Equivalent laws may exist in other countries. This manual is written based on the assumption that OSHA or other applicable employee safety regulations are followed by the location where work is performed.

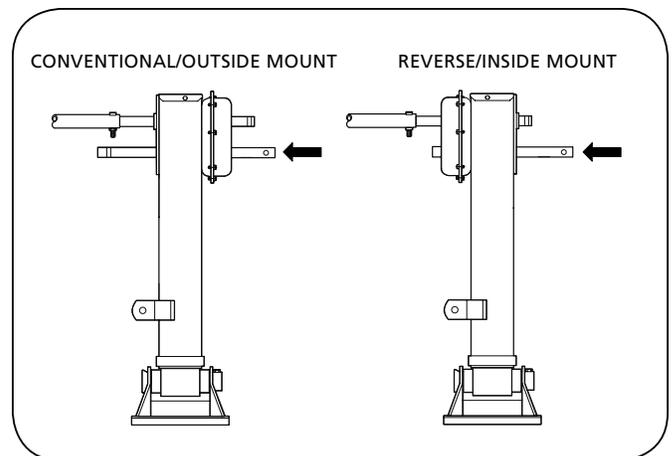
1. Remove any paint and/or dirt from the shafts protruding from the gearbox (**Figure 5**). A strip of emery paper or wire brush should be used to remove any debris build-up on the shafts.

Remove any Burr that may be present on cross drilled holes.

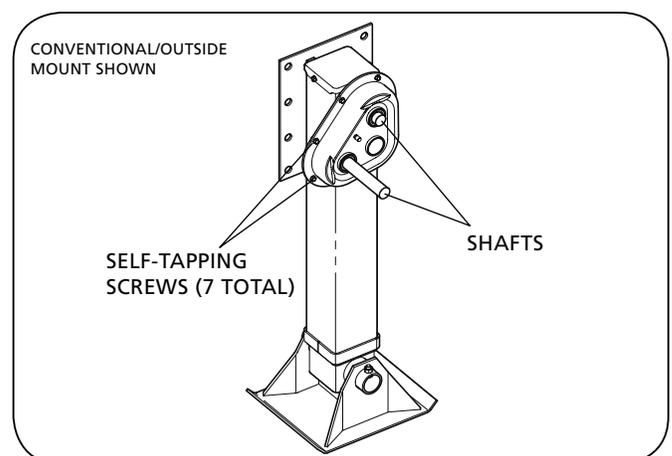
**Figure 3**



**Figure 4**

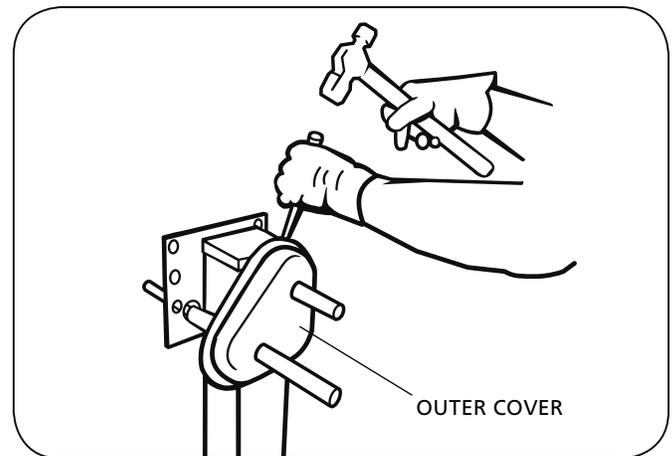


**Figure 5**

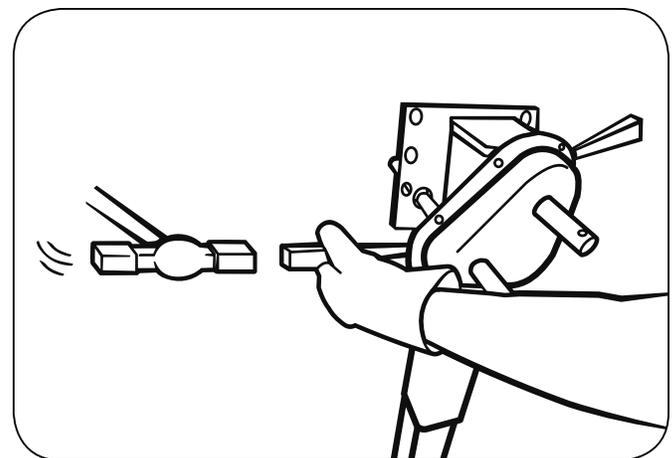


2. Apply a light coat of oil or grease to the cleaned shafts.
3. Remove and retain the seven (7) self-tapping screws that hold the two gearbox halves together (**Figure 5**).
4. Insert a pry bar or similar strength device between the inner and outer gearbox covers at any point on the gearbox perimeter until separation is visible (**Figure 6**).
5. With the first pry bar in position, insert a second pry bar approximately 180 degrees from the first (**Figure 7**).
6. Using both pry bars, separate the inner and outer covers.
7. Remove the outer cover outward and evenly to ease in sliding over the shafts (**Figure 8**). Push the end of the shaft and rock the cover slightly to aid in removal.

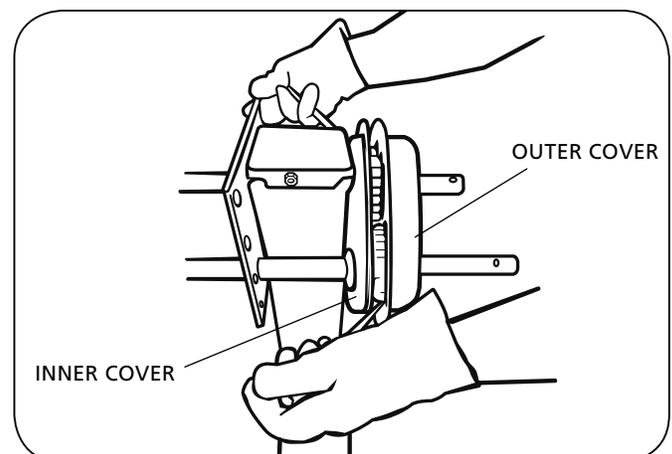
**Figure 6**



**Figure 7**



**Figure 8**



The shift shaft and input gears may move with the cover (**Figure 9**). During removal of the cover the idler gear of the Atlas or CMS3 will come loose (**Figure 10**). Remove the idler gear to prevent it from falling out once the inner and outer covers are far enough apart.

**NOTE:** If the idler gear falls out, closely inspect the gear for any visible damage. Replace if necessary.

8. Once the cover is removed, the shift shaft, and the low and high input gears may be removed. Make sure to note the order the gears are removed for reassembly. Remove all gears from the shaft (**Figure 10**).
9. Use a wire brush to clean and remove any debris from the inner bore of both gears and the exterior of the shaft.
10. Apply a coating of grease (Refer to detailed grease designation in Section 3.6 below) to the clean interior of the gears and the adjacent exterior surface of the shafts. Slide the gears on the shafts in the same order as they were removed per Section 2.8 above.

If the gears will NOT slide onto the shaft in the region of the pin, replace the shaft, pin, and both gears. Refer to the HOLLAND Landing Gear Parts Manual, XL-LG11389PM-en-US to identify the correct parts.

11. Install the pin in the shaft. Apply a light coat of oil or grease to the exterior of the shaft and interior of the gears and slide the gears on the shaft.

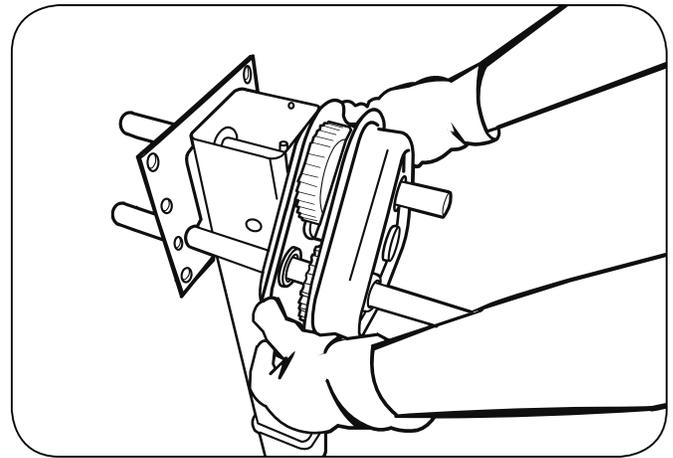
### 3. Gearbox Reassembly

1. Check inner and outer cover of the gearbox for damage. Repair or replace if damage is excessive. Remove any sealant from cover bolting flanges.
2. Assemble the shaft (if removed) and gears to the inside of the inner gearbox cover. Be sure to assemble the gears in the reverse order in which they were removed.

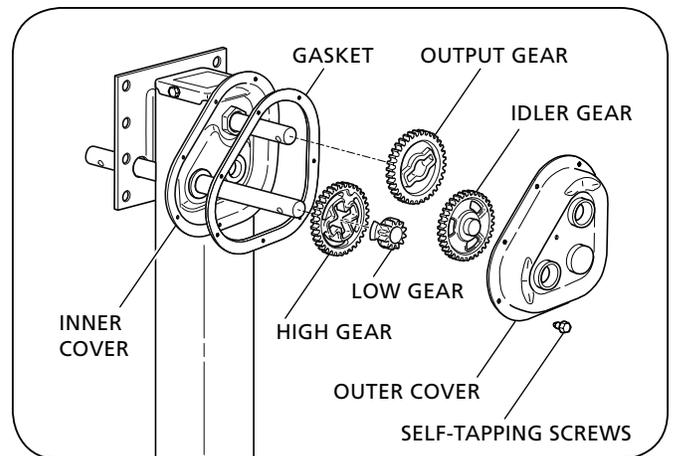
**NOTE:** If the gears are not assembled correctly, the outer gearbox cover will not align properly with the inner cover.

3. Apply a light coating of oil or grease to the shafts. Install the gasket. Use three (3) or more of the self tapping cover screws to hold in place for installation.
4. Slide the outer cover over the shafts evenly.

**Figure 9**



**Figure 10**



5. Install the remaining self-tapping screws to attach the gearbox covers together. The screws should be tightened to 65-90 in.-lbs. (7-10 N•m).
6. For optimum performance add one-half pound of SAF-HOLLAND True Lube™ (per XL-LG20039SL-en-US) grease through the grease fitting in the outer gearbox cover.

**NOTE:** DO NOT use grease with moly or Teflon additives.