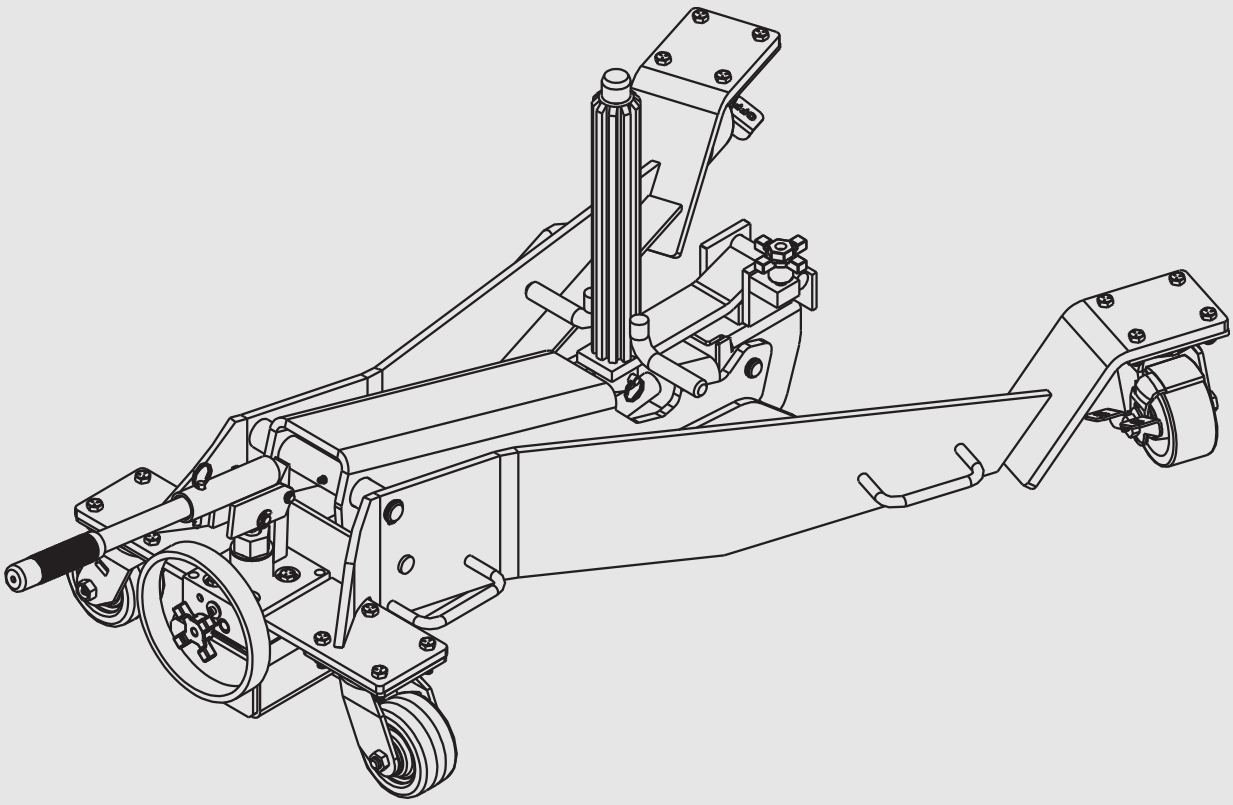
MAHLE CCL-300

EN

Operation Manual
Truck Component Jack



EVERY PERSON WHO OPERATES THIS EQUIPMENT NEEDS TO KNOW AND UNDERSTAND ALL OF THE INFORMATION IN THIS MANUAL – FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.

READ THIS MANUAL CAREFULLY AND RETAIN FOR YOUR RECORDS

Contents

1. Safety Regulations

1.1 Warnings

⚠ To avoid serious injury or death, read this manual carefully before operating this unit. Contact the manufacturer at the number or address printed on the back cover of this manual if you have any questions.

⚠ The maximum capacity is 300 lbs. / 140 kg. Do not overload. When an attachment or adapter is used, the lowest capacity of any component becomes the maximum capacity for the system.

⚠ No alterations shall be made to this product.

⚠ Use this jack only on hard, level surfaces capable of sustaining the load.

⚠ Be sure the vehicle is appropriately supported before starting repairs or getting under the vehicle.

⚠ Do not allow any part of your body to be under the load while supported solely by the jack.

⚠ Do not use blocks or cribbing devices with this jack. Do not attempt to extend the height or range of the jack beyond what it is designed for.

⚠ Do not use any attachments, adapters, or accessories that are not approved for use with this jack by the manufacturer.

⚠ Never use any part of the jack as a lifting surface. Use only the factory supplied adapters as a means of contacting the load.

⚠ Never transport a component in the raised position or use the component to push, pull, or transport the jack. Keep the component in the lowest position when rolling the jack across floor. Do not move the jack any faster than 2 feet per second.

⚠ Never use anything other than the factory supplied pump handle to pump this jack.

Failure to understand and obey these warnings may result in personal injury and / or property damage

2. Foreword

2.1 From the manufacturer

Thank you for your purchase. To complement the offering of A/C, fluid and nitrogen service equipment, MAHLE Service Solutions has partnered with Gray Manufacturing to provide the highest quality hydraulic and pneumatic equipment available for the professional service technician. This equipment adheres to high standards promised in the MAHLE guarantee including the assurance of innovation and reliability that comes with the Gray Manufacturing name. Please contact MAHLE Service Solutions' customer service at (800) 468-2321 or tech.mss@mahle.com with any comments or questions.

3. Symbol Use

3.1 Signal words

Signal words call attention to a safety message or messages, or a property damage message or messages, and designate a degree or level of hazard seriousness. Signal words used in this manual include:

Keyword	Probability of occurrence	Severity of danger if instructions not observed
DANGER	**Immediate** impending **danger**	**Death** or **severe** injury.
WARNING	**Possible** impending **danger**	**Death** or **severe** injury
CAUTION	Possible d**angerous situation**	**Minor** injury
NOTICE	Possible damage to property	**Possible property damage**

4. Responsibilities

4.1 Receiving inspection

Before attempting to operate this equipment, thoroughly read and understand this manual. Completely remove all tape and packaging. Inspect the equipment immediately upon delivery. If shipping damage is evident, inform the delivering carrier immediately and contact the manufacturer using the contact information on the back cover of this manual.

4.2 Owner and/or operator responsibilities

The owner of this equipment must read these instructions and maintain them for future reference and for instructing any other users of the equipment. The owner is responsible for keeping all warning labels and instruction manuals legible and intact. Replacement labels and literature are available from the manufacturer. The owner must never authorize or allow anyone to use this equipment until the operator has read and understood the information in this manual and on the accompanying labeling on the equipment itself.

If this equipment is being used in an occupational setting (or workplace), the employer should ensure that all personnel working with and around the equipment know of the risks associated with its use. Personnel involved in the use and operation of this equipment shall be careful, competent, trained, and qualified in the safe operation of the equipment and its proper use when servicing motor vehicles and their components. Safety information provided with this equipment should be emphasized by the employer and understood by each employee. The employer must make this manual available to all personnel using this equipment and all personnel must read and understand the contents of this manual. If the operator is not fluent in English, the manufacturer's instructions and warnings shall be read to and discussed with the operator in the operator's native language by the employer, making sure that the operator comprehends its contents and observes the proper procedures for use of this equipment.

5. Specifications

5.1 CCL-300

Model CCL-300	US units	Metric units
Capacity	300 lb	140 kg
Start Height	15-1/4 in	38.74 cm
Lift Height	39 in	99.1 cm
Width	31 in	78.74 cm
Length	46 in	116.84 cm
Supplied Spline Shaft	2 in 10-tooth Spline	5.1 cm 10-tooth Spline
4 Swivel Casters	4 in	10.16 cm
Head rotation	360°	360°
Weight	189 lb	85.73 kg

6. Product Description

6.1 Component identification

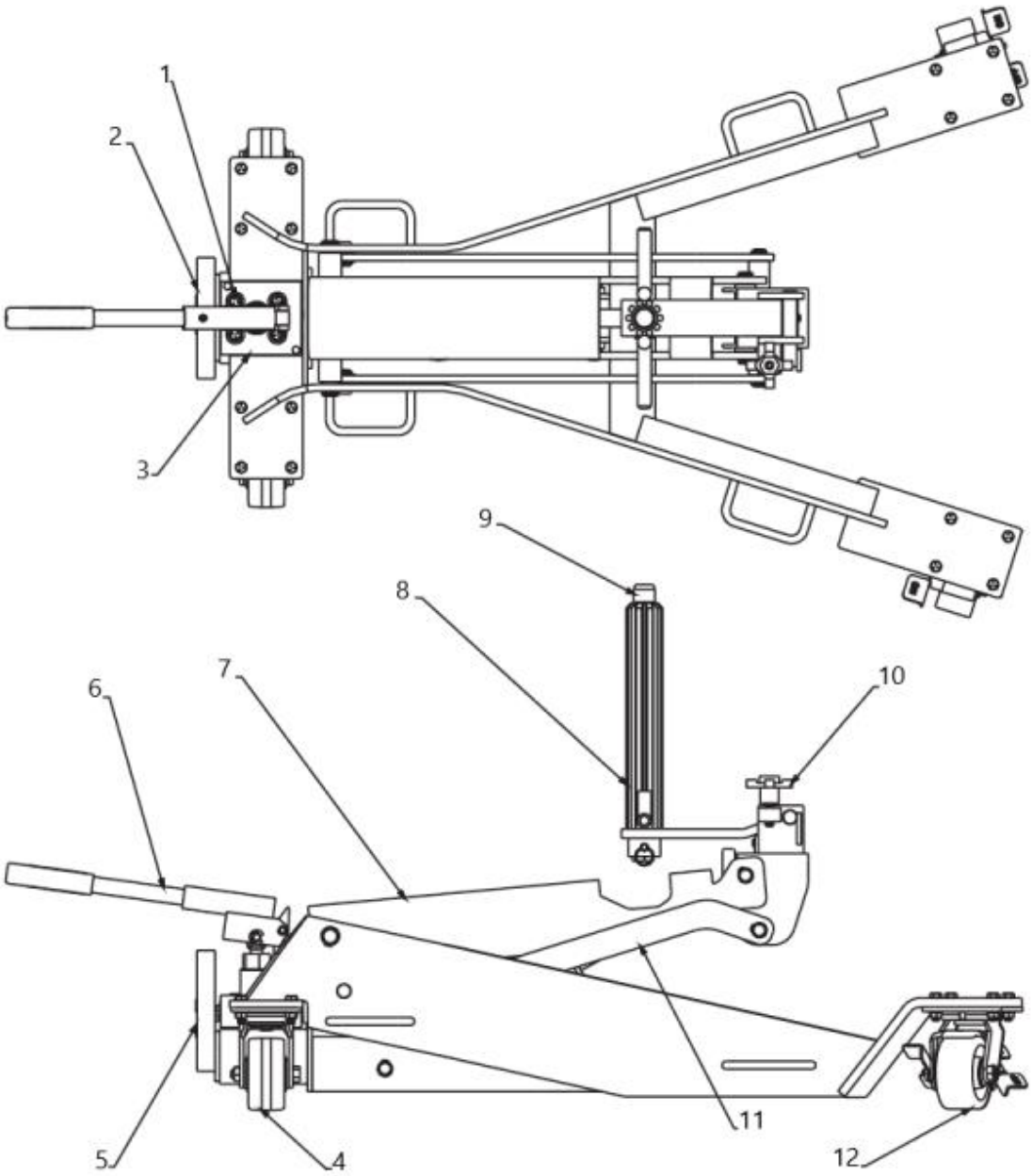


Fig. 1: Side view

1 Reservoir Fill Plug
2 Hydraulic Reservoir Vent Screw
3 Hydraulic Pump Block
4 Caster
5 Release knob
6 Pump handle
7 Lift Arm
8 Spline Sleeve
9 Adapter Shaft
10 Tilt Adjustment Knob
11 Leveling Link
12 Caster With Brake

7. Operation

⚠ WARNING - This section discusses the appropriate and safe methods for using the jack to raise and lower a component from a vehicle. Safe operation is not limited to simply raising and lowering the parts - it also includes adequate preparation before removing them. Failure to follow all of the steps outlined in this section could result in serious injury and/or property damage.

7.1 Preparing the Jack

After unpacking the jack, use a standard screwdriver to open the hydraulic reservoir vent screw ½ to 1 turn. Turn counterclockwise. This vent screw is located on the left side of the rear face of the pump block which is mounted on top of the reservoir at the rear of the jack. Always close this vent screw during shipment or if stored in an upended position to prevent hydraulic fluid loss.

The adapters are equipped with ball detent screws. To remove an adapter, pull it straight up off the jack. It might help to push down on the lift arm or fully raise the jack while pulling the adapter off. To install an adapter, push it straight down onto the jack until it fully contacts the head.

The jack may not lower with no load on it. If it will not lower while unloaded, ensure the jack is lubricated then push down on the lift arm to get it started. Grease fittings are provided to assist with lubrication.

7.2 Removing a Clutch

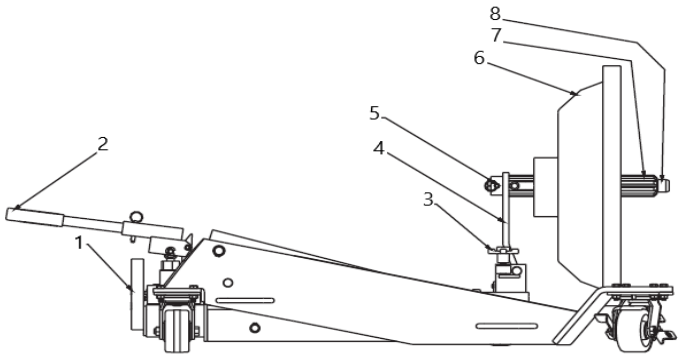


Fig. 2: Unit in use for Clutch removal

1 Power Unit release
2 Pump Handle
3 Tilt Adjustment Knob
4 Head Plate
5 Quick Release Pin
6 Clutch
7 Spline Sleeve
8 Adapter Shaft

1. Select the correct spline sleeve for the clutch to be removed, place it on the adapter shaft, and install it on the head plate with the quick release pin.
2. Close the power unit release by turning the power unit release clockwise. Operate the pump handle to raise the lift arm and align the spline sleeve with the clutch.
3. Tilt the adapter with the tilt adjustment knob to align it with the clutch bore. Fully Insert the spline sleeve into the clutch.
4. Remove the clutch mounting bolts following the clutch manufacturer's instructions and back the jack and clutch away from the flywheel. Lower the load slowly by turning the power unit release counterclockwise.

7.3 Loading / Unloading a Clutch from the Jack

1. To load or unload a clutch from the jack, be sure the adapter shaft is in the vertical position. Lay the adapter shaft straight back, as shown, to avoid hitting the frame of the jack.
2. Add or remove one piece of the clutch at a time.

7.4 Transporting the Jack While loaded

1. Be sure the adapter shaft is in the vertical position and the jack is fully lowered before transporting.

7.5 Installing a Clutch

1. Rotate the adapter shaft into the horizontal position and raise the clutch into position for installation. Tilt the clutch using the tilt adjustment knob to align with the flywheel.
2. Put the jack and clutch into position so that the spline shaft engages the pilot bearing in the flywheel. Install and tighten the clutch mounting bolts per the manufacturer's instructions.

7.6 Removing / Installing Flywheel using optional Flywheel Adapter – PN# 485 80040 00

⚠ WARNING! The flywheel adapters are rated at 250 lbs. DO NOT overload the jack when using these adapters.

Failure to heed this warning may result in personal and / or property damage.

1. Remove all retaining bolts connecting the flywheel to the crankshaft except for the top bolt and two at 90° to the top bolt.
2. Close the release knob and operate the pump handle to raise the lift arm and align the flywheel adapter to the flywheel using the tilt adjustment knob.

3. Position the flywheel adapter centrally on the flywheel and secure it with bolts. Ensure there is sufficient space to access the remaining three bolts that attach the flywheel to the crankshaft flange. Confirm that the release knob on the jack is closed, then proceed to remove the last three bolts connecting the flywheel to the crankshaft.
4. Back the jack and flywheel away from the engine and slowly lower the flywheel.
5. Adequately support the flywheel and remove it from the adapter.
6. Attach the new flywheel to the adapter and reverse the removal steps to install it.

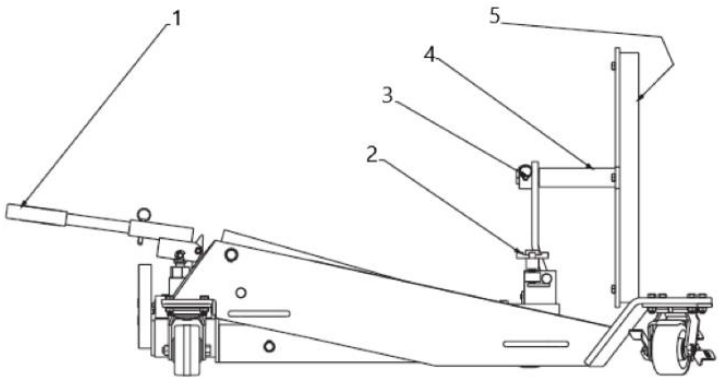


Fig. 3: Unit in use for Flywheel Install / Removal

1	Pump Handle
2	Tilt Adjustment Knob
3	Quick release pin
4	Optional Flywheel adapter
5	Flywheel

7.7 Removing / Installing a brake drum using Brake Drum Adapter – PN# 485 80046 00

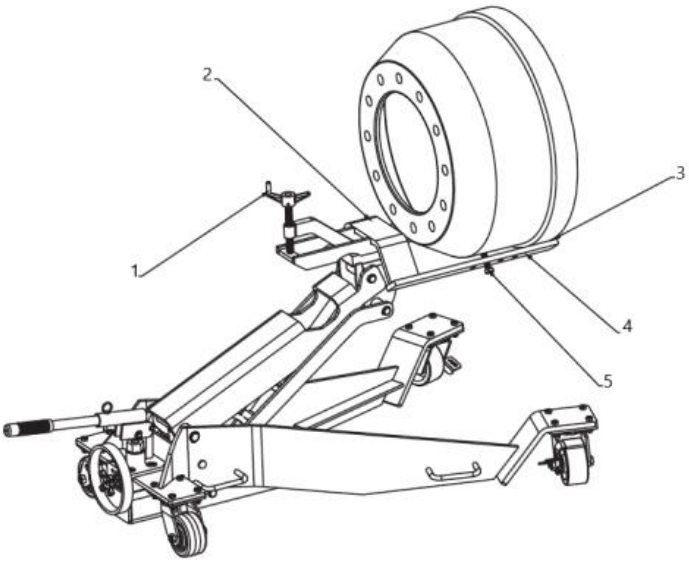


Fig. 4: Unit in use for Brake Drum Install / removal

1	Tilt Crank
2	Support rear of inboard drum/hub here
3	Stops
4	Support Arms
5	Support rear of outboard drum using capscrews provided here

⚠ WARNING! The brake drum adapter is rated at 300 lbs. DO NOT overload the jack when using this adapter. Failure to heed this warning may result in personal and / or property damage.

1. Install the Brake Drum Adapter to the jack.
2. Remove necessary hardware from the vehicle to free the drum from the wheel assembly.
3. Using the tilt crank, adjust the support arms until they are parallel with the outer bore of the drum.
4. Position the Brake Drum Adapter so that the stops engage on the front of the outer most portion of the drum.
5. Outboard Drums: Adjust the capscrews so that they contact the rear of the drum. Inboard Drum / Hub: Raise the jack until both the front and the rear of the drum / hub are supported.
6. Slide the drum off the axle by supporting the drum and rolling the jack and Brake Drum Adapter away from vehicle
7. Slowly lower the brake drum and remove it from the adapter.
8. Place the new brake drum on the adapter and reverse the removal steps to install it.

8. Optional Adapters

8.1 Flywheel Adapter – PN# 485 80040 00

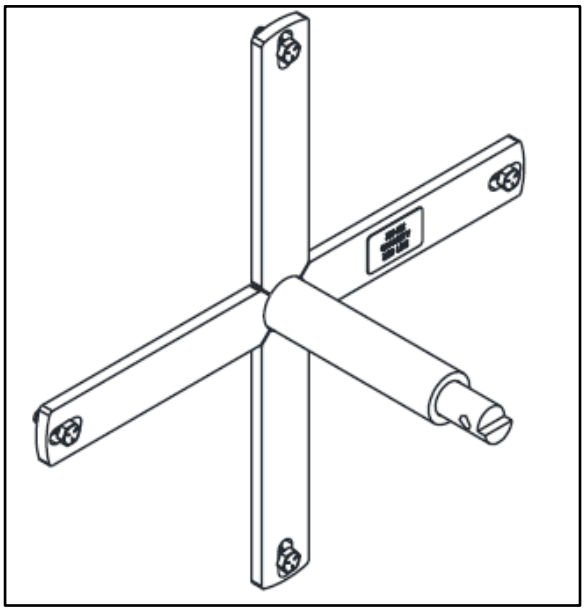


Fig. 3: Flywheel adapter - rear view

8.2 Brake Drum Adapter – PN# 485 80046 00

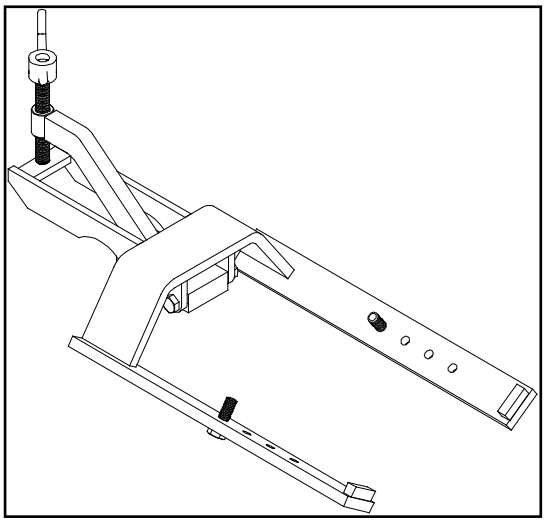


Fig. 6: Brake drum adapter

8.3 Spline Adapters

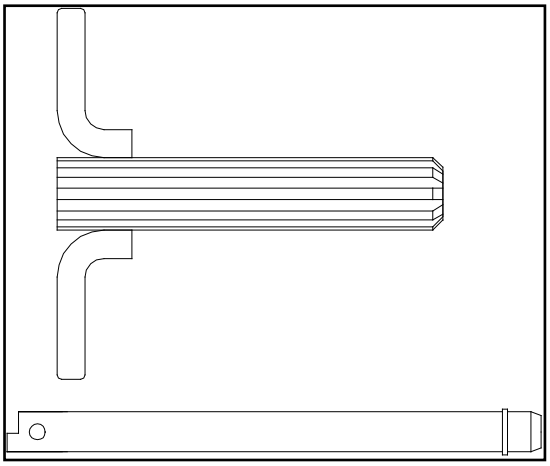


Fig. 6: Clutch Spline adapter

Spline Adapters Available:

1. 1 ¾” Diameter 10 tooth spline – PN# 485 80043 00
2. 2” Diameter 14 tooth spline – PN# 485 80047 00
3. 2” Diameter 18 tooth spline (Eaton Endurant & Detroit DT12) – PN# 485 80173 00
4. 2” Diameter 24 tooth spline (Mack M-Drive & Volvo I-Shift)- PN# 485 80174 00

9. Maintenance and Inspection

⚠ WARNING - All inspection and maintenance procedures must be performed after the equipment has been removed from service. Failure to heed this warning may result in personal injury and / or property damage.

1. Check oil level in the oil reservoir. Refer to the “Adding hydraulic fluid” section.
2. All warning and capacity labels should be readable and complete. Wash external surfaces of the jack, labels, and decals with a mild soap solution.
3. Lubricate all rotating and sliding portions of the jack monthly.

9.1 Structural Inspection – before each use

⚠ WARNING -Equipment must be removed from service and inspected for damage immediately if the unit is subjected to an abnormal shock or load. Failure to heed this warning may result in personal and / or property damage.

⚠ NOTICE: Before each use, the owner must inspect or appoint a knowledgeable person to visually inspect all components of the jack for signs of corrosion and / or excessive wear.

The owner must inspect or appoint a knowledgeable person to inspect the jack. Each jack must be inspected immediately if subjected to an abnormal load or shock. Any jack which appears to be damaged in any way, is found to be badly worn, or operates abnormally shall be removed from service until necessary repairs are made. Refer to the “Maintenance Instructions” and the “Structural Inspection” sections located in this manual.

Inspect the jack daily as follows:

1. Visually inspect the jack for signs of cracking, chipping, or excessive wear, including all welds. Also check for loose or missing parts.

2. Visually inspect all four wheels for cracking, chipping or excessive wear.

3. Visually inspect the lift arm for any permanent deformation such as bending or twisting. The lift arm should raise and lower smoothly. If the lift arm doesn’t raise to full height, refer to the adding Hydraulic Fluid section of this manual.

4. Visually inspect the power unit for oil leaks.

If any irregularities or problems are detected during an inspection, the unit must be removed from service immediately and repaired. Contact the manufacturer using the contact information printed on the back cover of this manual.

9.2 Adding hydraulic fluid

1. Remove the jack from service.
2. The lift arm must be in the fully lowered position and the jack must be on a level surface.
3. Check that the hydraulic reservoir vent screw is open (refer to the “ID components” & “Prepare the Jack ” sections of this manual for identification and adjustment).
4. Clean around the surface of the reservoir fill plug to prevent contamination of the hydraulic oil system.
5. Remove the reservoir fill plug, (check the “ID components” section of this manual for model type and identification). Measure hydraulic oil level with a dip stick. If the fluid level is below 2 ½ inches, add Tellus T22 or equivalent hydraulic fluid to reservoir through fill hole until 2 ½ inches shows on dip stick. If excess fluid is added to the reservoir, it will expel itself through the reservoir vent as the jack is used. While it will create a mess on the floor, it will not harm the jack or impair its function.

⚠ CAUTION - Do not use brake or transmission fluid. Use of the wrong fluid can deteriorate the seals and corrosion problems will occur.

6. Re-install the reservoir fill plug. Clean up any spilled oil. Test the jack for normal operation.

⚠ If the lift arm doesn’t raise to proper height contact the manufacturer using the contact information printed on the back cover of this manual.

10. Troubleshooting

This section is a list of possible problems that may be encountered, and their solutions. If the solution listed fails to correct the problem, contact the manufacturer using the contact information printed on the back cover of this manual. Please have the model number, and serial number of your jack available. The serial number is located on a tag on the left rear caster bracket.

Problem	Cause/Solution
Fails to lift load	• Low oil level. see the “Adding Hydraulic Fluid” section in this manual. • Release knob is open. Close release knob by turning release knob clockwise to tighten. • Vent screw closed. see “Preparing the Jack” section of this manual
Fails to hold load	• Release knob not securely closed. Turn release knob clockwise to tighten.
Oil leaks	• Oil fill plug missing or not properly installed. Replace or repair. • Reservoir is overfilled. (Lower lift arm completely. Remove power unit reservoir fill plug. Allow excess oil to run out. Install fill plug in reservoir.)

11. Maintenance Chart

Action	Date	Details	Person responsible
Receiving inspection			

Action	Date	Details	Person responsible

12. Notes

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