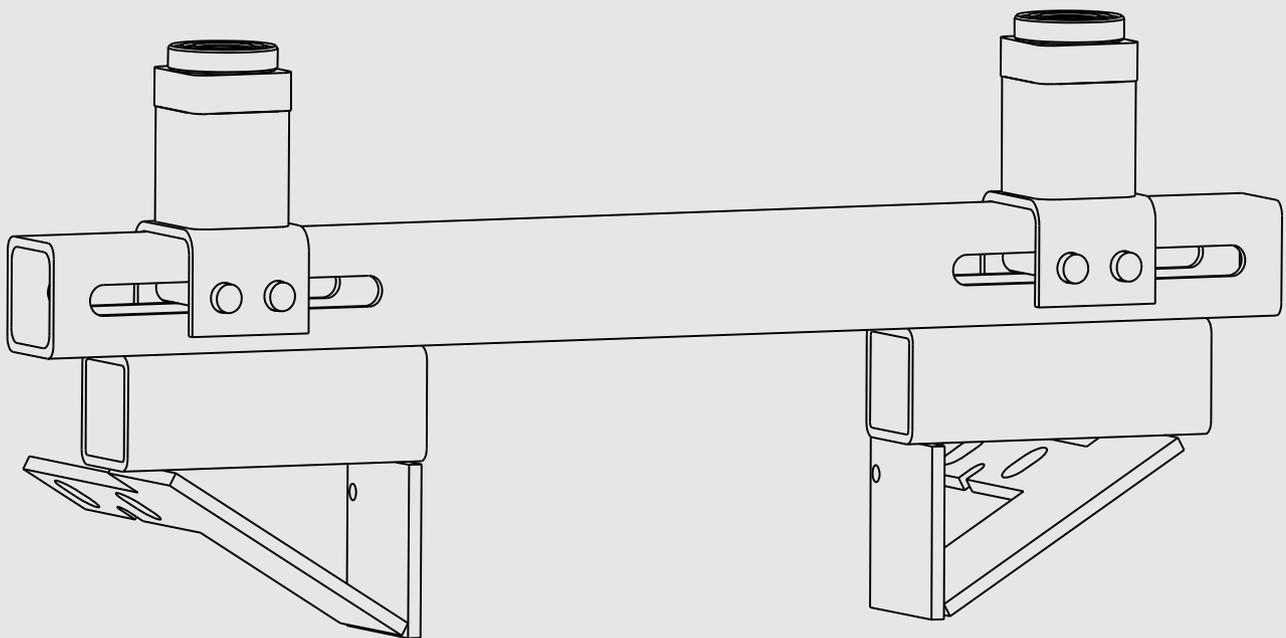


MAHLE CAD-EL

EN

Operation Manual
End Lift Adapter





**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**

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1. Safety Regulations

1.1 Safety Instructions

- ⚠ ALWAYS USE (2) end lift adapters in conjunction with a set of (2) lift units. The end lift adapters must each be positioned at opposite ends of the vehicle to be lifted and centered side-to-side with clear access to the vehicle's frame. Use of one end lift adapter on a vehicle can cause the vehicle to be unstable, unlevel, and prone to falling. The end lift adapters shall
- ⚠ NEVER be used in any configuration other than a set of (2) lift units with each lift unit having an end lift adapter attached by properly inserting the locking pin brackets and positioned at opposite ends of the vehicle.
- ⚠ ALWAYS USE adequate vehicle support stands once the vehicle has been raised. End lift adapters are lifting devices only and shall never be used to support a load.
- ⚠ DO NOT exceed rated capacity.
- ⚠ USE ONLY on a hard level surface capable of sustaining the load.
- ⚠ DO NOT use attachments or cribbing devices to increase the start height unless they are supplied by the manufacturer of this device.
- ⚠ NO alterations shall be made to this device.
- ⚠ ONLY use this adapter with a lift system for which it is intended. It is designed specifically for use with the lift system supplied by the manufacturer.
- ⚠ ALWAYS follow the owner's manual supplied with the lift system when operating the lift system. If you need a copy of the owner's manual as supplied with the lift system, contact the manufacturer.

Failure to heed these warnings can 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@us.mahle.com with any comments or questions.

3. Symbols 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 dangerous 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.

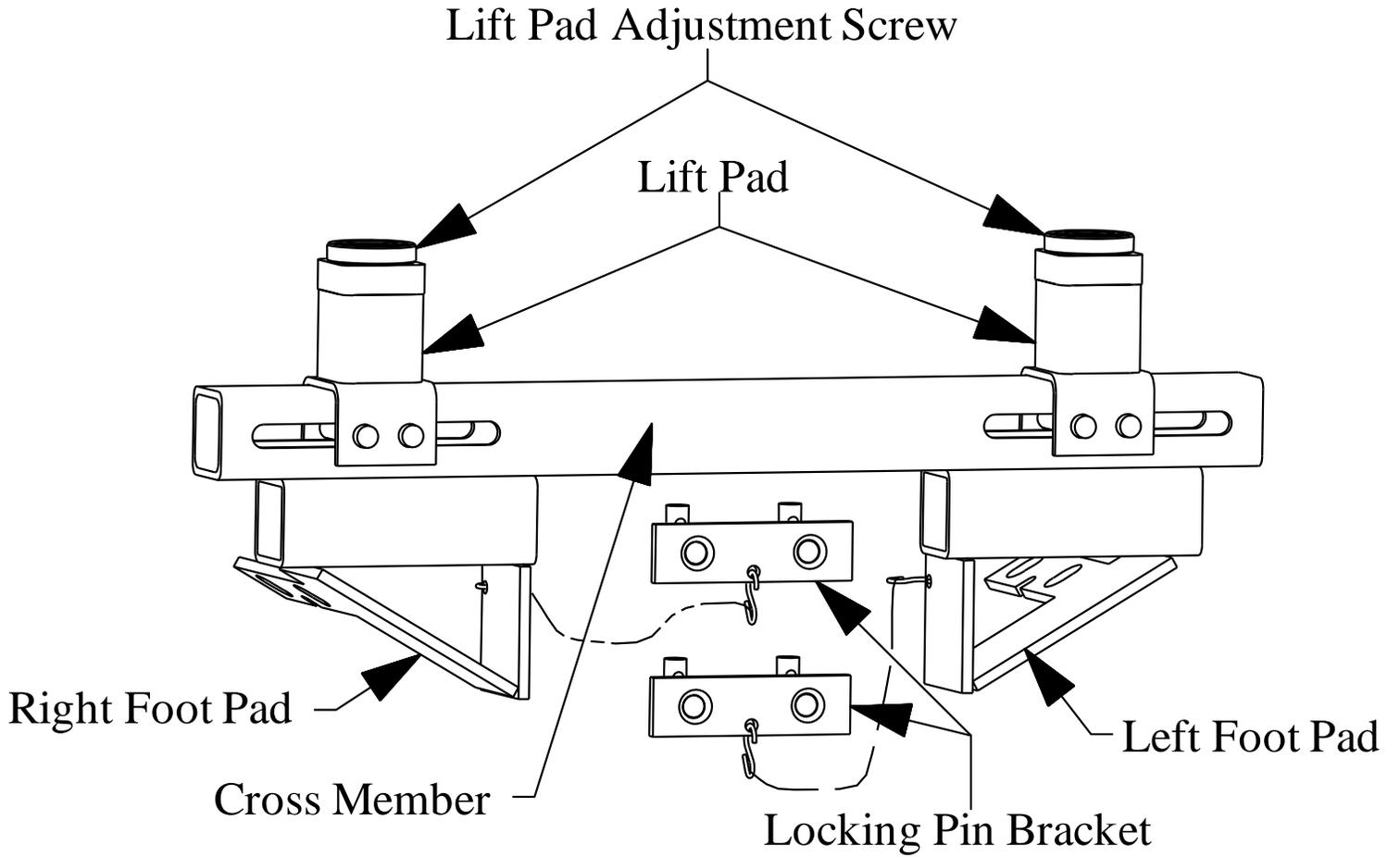
If this equipment is being used in an occupational setting (or workplace), the employer should ensure that all personnel working with and around the equipment know of the risks associated with its use. Personnel involved in the use and operation of this equipment shall be careful, competent, trained, 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

Model CAD-EL	US units	Metric units
Maximum capacity	9,000 lbs.	4,082 kg each
Overall width	11.5 in	29.2 cm
Overall length	37 in	94 cm
Minimum Starting Height	16 in	40.6 cm
Minimum Lift Pad Spread-Center to Center	20 in	50.8 cm
Maximum Lift Pad Spread-Center to Center	32 in	81.3 cm
Minimum Lift Pad Clearance from Cross Member	5 in	12.7 cm
Maximum Lift Pad Clearance from Cross Member	7.5 in	19.1 cm
Lift Pad Diameter	3 in	7.6 cm
Base Pad Spread-Center to Center	26.5 in	67.3 cm
Weight	80 lbs.	36.3 kg

6. Product Description

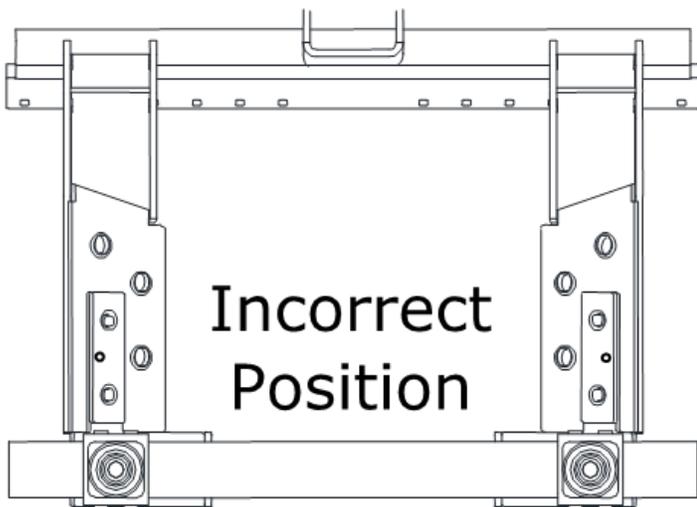
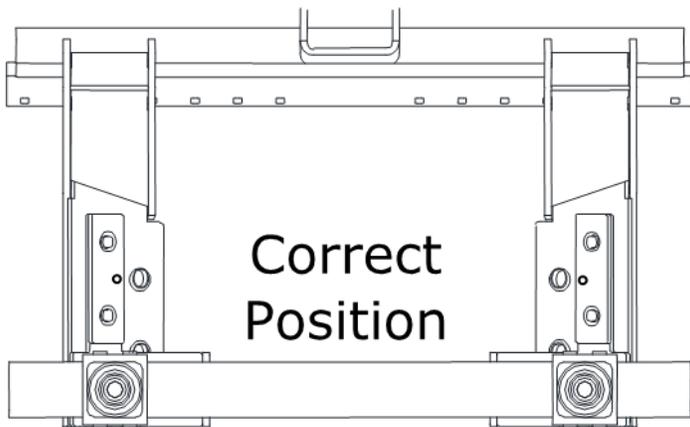
6.1 Component identification



7. Operation

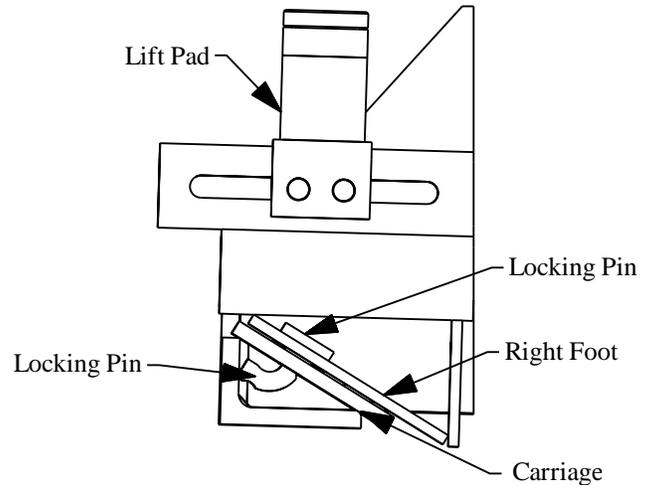
7.1 Operation

1. Set each end lift adapter on the carriage of a lift unit and align the holes in the end lifts' foot pads with the rear, outermost holes in the lift units' carriages, as shown below. Note: Some lift models are able to roll under the end lift adapter.



Secure the end lift adapters to the lift units with the locking pin brackets. Insert and rotate the pins so that they point toward the outside of the lift unit's carriage after installation, as shown below.

- ⚠ WARNING!** The end lift adapters must be secured by properly inserting the locking pin brackets. Failure to adequately secure the end lift adapters can cause the vehicle to be unstable and shift, rock, or fall, possibly leading to property damage, personal injury, and/or death.



2. Roll a lift unit with end lift adapter properly attached under each end of the vehicle to be lifted. Position the lifts such that the end lift adapters are centered with the vehicle and so that the lifting pads can contact the vehicle's frame or a lift point specified by the vehicle's manufacturer.

⚠ WARNING! The lift pads must be positioned so both pads of both end lift adapters properly engage the vehicle frame or a vehicle manufacturer approved lifting point. Failure to lift by the frame or a vehicle manufacturer approved lifting point could result in loss of load and damage to the vehicle. The bumper **CANNOT** be assumed to be an adequate lifting point.
3. Adjust the end lift adapters' lift pads side to side keeping them equally distant from the center of the end lift adapter so that any obstacle, such as a tank, pan, or other part, can be avoided by the lift pads.

⚠ WARNING! Contacting the vehicle with any part of the end lift adapter other than the lift pad adjustment screws could result in loss of load and vehicle damage.

Raise the lift pad adjustment screws by rotating them counter clockwise until they have just enough height to completely clear any obstacle between the end lift adapter cross members and the vehicle's frame and have as close as possible to the same distance between each lift pad and the point on the vehicle's frame at which that lift pad will contact.

⚠ WARNING! The vehicle must be kept level at all times. Failure to keep the vehicle level while lifting can result in the vehicle being unstable and shifting, rocking, or falling, possibly leading to property damage, personal injury, and/or death.

Note: Some models of the lift system may have a different setup procedure than is outlined below. See the owner's manual that was supplied with the lift system for more information.

4. Turn on the first lift unit as the master unit and start setting up the lift by opening the lift program and choosing the channel and frequency.
5. Choose 2 as the number of lifts and then choose the End Lift Adapter Mode from the operating mode options.
6. Once the first lift unit is set up, turn on the second lift unit and finish setting up the lift system.
7. On each lift, push the Adapter Setup button and raise the lift unit until it contacts the vehicle. After the lift unit has contacted the vehicle, press Enable and Re-sync. Note: After contacting the vehicle, the lift should not raise any farther.
8. After each lift is properly set up and has been raised to contact the vehicle, raise the vehicle until it is just off the ground and check its stability. Pay close attention to how the vehicle reacts when the end lift adapters start to lift the vehicle. If the vehicle shifts, tilts, or rocks, lower the vehicle and reposition the lift pads as necessary. If the vehicle seems secure at this time, its stability can be checked by pushing on the vehicle's bumper to ensure that the vehicle will not fall when it is raised farther.
9. Raise the vehicle to the desired work height and then lower the vehicle onto adequate vehicle support stands capable of sustaining the load. Ensure the stands are intended to be used to fully support the entire vehicle and follow the operating procedure established in the stands' owner's manual.
10. Before lowering the vehicle to the ground, ensure that all obstructions, including tools, equipment, and personnel, are clear of the vehicle. Raise off of the support stands, remove the stands, and then lower the vehicle using the procedure outlined in the owner's manual supplied with the lift system.
11. Once the vehicle is on the ground the lift system will stop lowering and need to exit the adapter

mode before continuing operation. Press the exit button and continue lowering until the lift units' carriages are fully lowered.

12. Lower the end lift adapters' adjustment screws and remove the lift units from the vehicle.

8. Maintenance Instructions

The following list describes the maintenance that should be performed on the end lift adapter at least monthly.

1. Check that all placards are clean and legible. Use a mild soap and water solution to clean the placards if dirty. Replace any missing or damaged placards by contacting the manufacturer using the contact information on the back cover of this manual.
2. Lightly oil the locking pins to prevent corrosion and aid in installation.
3. Clean the threads and rubber washers of the lift pad adjustment screws to minimize wear and allow easy adjustment.
4. Clean the top of the cross member to allow the lift pads to slide freely along the length of the crossbeam.
5. Perform a structural inspection.

8.1 Structural inspection

⚠ WARNING! Equipment must be removed from service and inspected for damage immediately if subjected to an abnormal shock or load. Failure to heed this warning may result in personal injury and/or property damage. It is critical that the end lift adapters are inspected regularly for any signs of wear or damage that might affect their ability to perform lifts safely. If the end lift adapters appear to be damaged in any way, are found to be badly worn, or operate abnormally, they must be removed from service until necessary repairs are made. Contact the manufacturer if you need to have an end lift adapter serviced or if you have any questions about how to address any wear or damage observed on an end lift adapter. The employer, owner, and/or manager is responsible for maintaining the end lift adapters in good, serviceable condition. Employees must be trained on how to inspect the end lift adapters. Before each use of the end lift adapters, the operator must visually inspect the end lift adapters for any abnormal conditions. The employer, owner, and/or manager must inspect (or appoint a knowledgeable person to inspect) the end lift adapters regularly. Regular inspections should be made weekly (if the end lift adapters are used daily) or monthly (if the end lift adapters are used only intermittently). Regular inspections should include the following:

1. Check for any visual cracks, chips, or other signs of excessive wear on any part of the end lift adapters.
2. Slide the lift pads back and forth through their entire range of travel and check for any binding or catching. The lift pads must move freely to ensure they can be properly positioned under the vehicle lifting point or frame.
3. Turn the lift pad adjustment screws within the lift pads and make sure the lift pad adjustment screws thread freely through their full range of motion.
4. Check the locking pins for signs of damage such as chipping, gouging, or deformation. The pins must be smooth and free of corrosion.
5. Check that all welds are in good condition and do not have any cracks or chips.

If you are not sure whether any identified wear or damage is “serious,” DO NOT use the end lift adapter. The time it takes to determine whether or not the problem is “serious” or to repair the problem is small compared to the time it will take to deal with the consequences of a lost load (which could include severe injury or death to personnel).

9. Notes

MAHLE

MAHLE Aftermarket Inc.

916A West State Street
St. Johns, Michigan 48879-1401 U.S.A.

Phone: (800) 468-2321

E-mail: tech.mss@us.mahle.com

www.servicesolutions.mahle.com