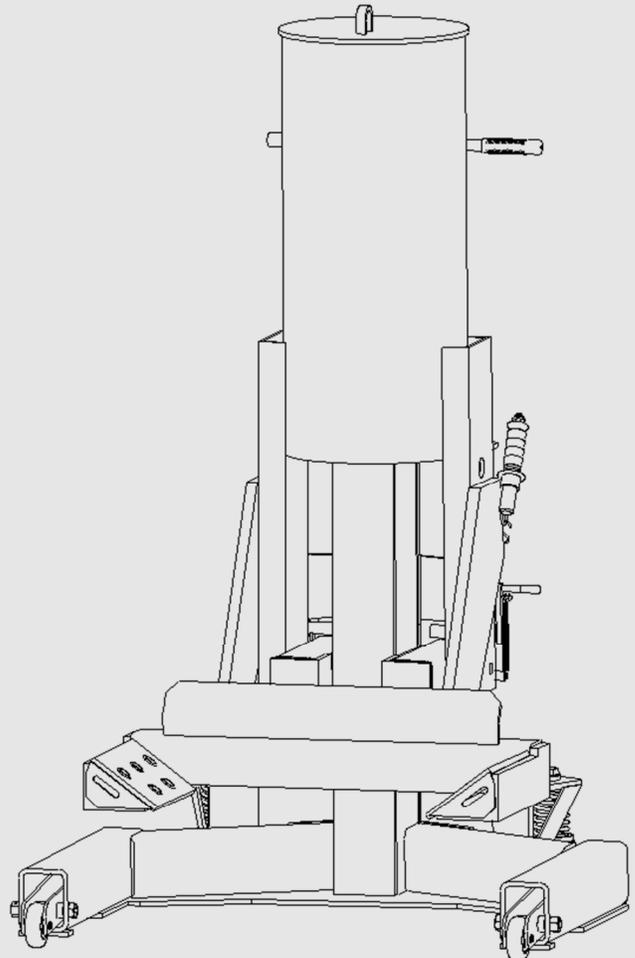


MAHLE CWL-20

EN

Operation Manual
Wheel lift system



U.S. Patent No. D357,106 & 5,484,134



**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 Warnings

△ Failure to follow all of these safety instructions can lead to severe injury or death from a sudden loss of the load. Contact the manufacturer at the numbers or address printed on the back cover of this manual if you have any questions.

△ **Anyone who operates this jack must read and understand all the instructions and warnings provided with this jack before being allowed to use it.** All operators must be careful, competent, trained, and qualified in the safe operation of the jack. The owner (or other responsible individual) must ensure that any operator observes the proper safety procedures for using this jack at all times. If the operator does not read well or is not fluent in English, the owner / manager must read and review the instructions and warnings in the manual with the operator in the operator's native language to be sure that the operator will use the jack properly.

△ **The owner / manager must keep this manual for future reference,** and make sure the warning labels on the jack are legible and intact at all times. Replacement labels and manuals are available from the manufacturer. Call the manufacturer using the contact information on the back cover of this manual if you have any questions.

△ **Make sure the load does not exceed the maximum capacity of the lift.** Maximum capacity is 20,000 lbs. / 9,070 kg. per lift. Never use the lift system to raise or support more than maximum capacity per lift. Never use a lift as a stand to support more than maximum capacity per lift.

△ **NEVER modify the product in any way.** Modifications may cause the lift to perform improperly, resulting in injury or death.

△ **Always use lift on a hard level surface, capable of sustaining the load.** Be sure surface is clean and free of debris, cracks, and chips.

△ **The lift system is designed to lift over-the-road vehicles with rims of at least 21 inches in diameter** (14 inches in diameter if the manufacturer supplied optional adapters are used). NEVER use the lift system on vehicles with rims *less* than 21 inches in diameter (14 inches if adapters are used).

△ **Use the lifts only in pairs,** on the opposite ends of the same axle.

△ **NEVER use the lift system to raise a vehicle by the frame or structural member.** The lift is designed to be used only beneath the vehicle tires.

△ **To prevent tipping, never raise or lower just one side of a vehicle.**

△ **NEVER lift an entire vehicle with the lift system.**



Fig. 1: Warnings

△ **Do not allow any part of your body under the vehicle until both the lifts are pinned as stands.**

△ **NEVER use the lift system in conjunction with any other equipment used to raise a vehicle.**

△ **Never use blocks, adapters, or accessories that have not been provided by the manufacturer, or cribbing devices of any kind with this lift system.**

△ **NEVER use the lift system as a wheel dolly** for the removal of tires.

△ **NEVER allow the lift system to be used unless all warning labels** and instructional decals are in place and legible.

△ **NEVER use this jack to lower a vehicle if the vehicle was raised using another lifting device or devices.** The vehicle should be lowered with the same equipment that was used to properly raise it (read and follow the warnings and instructions for this other equipment).

△ **Always use caution while operating this device** and remain mindful of how the device and load will react during operation of this device.

△ **Failure to understand and obey this warning may result in personal injury or death.**

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 and / or user must have an understanding of the manufacturer's operating instructions and warnings before using this system. The use of portable lifting devices is subject to certain hazards that cannot be avoided by mechanical means, but only by the exercise of intelligence, care, and common sense. Personnel involved in the use and operation of 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. Examples of hazards are dropping, tipping, or slipping of vehicles or their components caused primarily by improperly securing loads, overloading, off-centered loads, use on other than hard level surfaces, and using equipment for a purpose for which it was not designed. Warning information should be emphasized and understood.

The owner / manager must make this manual available to all personnel using this jack at your direction. They 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 purchaser / owner, making sure that the operator comprehends its contents and observes the proper procedures for use of this jack.

Owner and / or user must study and maintain for future reference the manufacturer's instructions. Owner and / or user are responsible for keeping all warning labels and instruction manuals legible and intact. Replacement labels and literature are available from the manufacturer.

5. Specifications

5.1 CWL-20

Model CWL-20	US units	Metric units
Maximum capacity (each lift)	20,000 lb	9,070 kg
Maximum capacity (system)	40,000 lb	18,140 kg
Maximum air pressure	155 psi	10.7 bar
Minimum wheel diameter (w/o adapters)	21 in	53.3 cm
Minimum wheel diameter (w. adapters)	14 in	35.6 cm
Maximum tire to fender clearance	8 in	20.3 cm
System weight	1964 lb	890.9 kg
Weight per lift	982 lb	445.4 kg
Adapter weight	22 lb	10 lb
Width	45 in	114.3 cm
Depth	44 in	111.8 cm
Height (lowered)	63 in	160.0 cm
Height (raised)	93 in	236.2 cm

Air pressure requirements (used in pairs)	
Weight	Air pressure
10,000 lbs.	40 psi
15,000 lbs.	59 psi
20,000 lbs.	78 psi
25,000 lbs.	97 psi
30,000 lbs.	116 psi
35,000 lbs.	134 psi
40,000 lbs.	152 psi

6. Product Description

6.1 Component identification

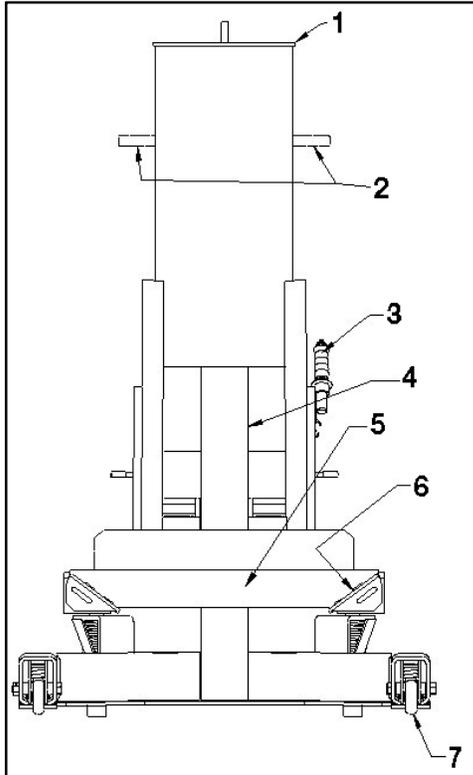


Fig. 2: CWL-20 front view

- 1 Cylinder head plate
- 2 Handle grips
- 3 Load retention pin
- 4 Base post
- 5 Lift table tube
- 6 Lift pad
- 7 Front wheels

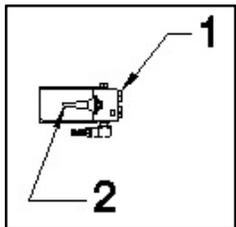


Fig. 3: Air control unit components

- 1 Air control unit
- 2 Air control levers

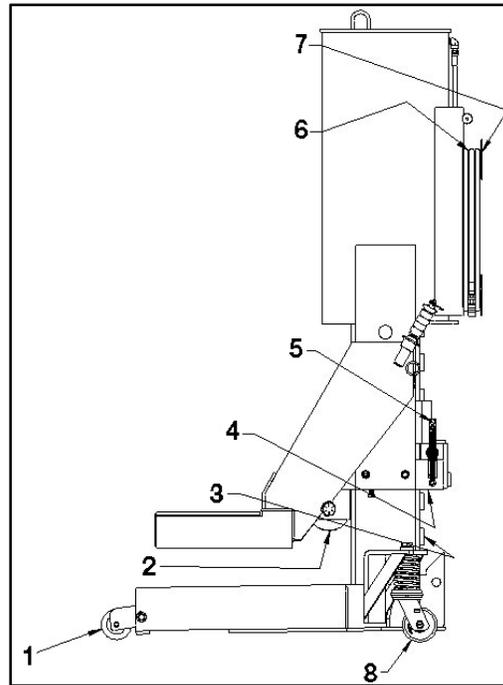


Fig. 4: CWL-20 side view

- 1 Front wheels
- 2 Roller wheel
- 3 Downstop lug
- 4 Downstop pawl
- 5 Downstop release handle
- 6 Air hose
- 7 Air hose holder
- 8 Swivel caster

7. Operation

⚠ **WARNING** - To prevent serious injury or death from a falling vehicle, make sure the vehicle's rims are at least 21 inches in diameter (or 14" if adapters are used). Make sure the tires are properly inflated, to maintain necessary tire diameter. Make sure weight on the vehicle axle does not exceed 40,000 lbs.

⚠ **WARNING** - To prevent serious injury or death from a falling vehicle, make sure that the hoses avoid all pinch points and that they do not pass under the base of a lift. The base lowers slightly as the vehicle is raised.

7.1 Preparing the lifts and vehicle

1. Before proceeding, review the Safety Instructions section of this manual.
2. Position the vehicle on a hard, level surface and set the parking brake.
3. Check that the tires on the vehicle are properly inflated, to maintain necessary tire diameter.
4. Position the Wheel Lifts so the lift pads are cradling the tires at opposite ends of the same axle.
5. Push the lift pad under the tire until the lift table tube contacts the tire (see Fig. 5 for identification).

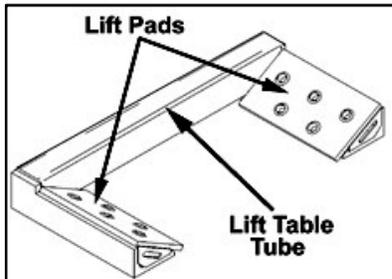


Fig. 5: Lift table tube and pads

6. Release the vehicle's parking or air brake and place the transmission in neutral.
7. Uncoil the air hoses from both lifts and route them for connecting to the air control unit, at either the front or the rear of the vehicle.
8. Position yourself at the front or rear of the vehicle so both lifts are visible. Face the vehicle and hold the air control unit with the air control levers pointing toward the vehicle and the quick couplers on the underside of the air control unit. (See Fig. 6 for orientation).

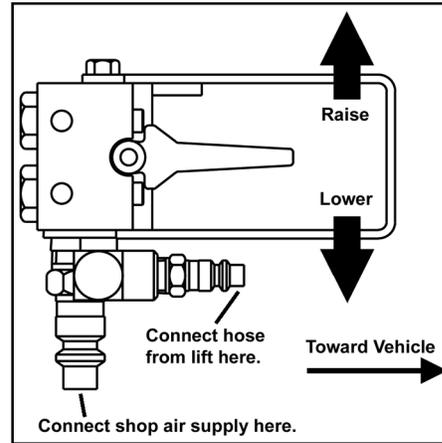


Fig. 6: Air control lever

9. Connect the air hose from the lift on your right to the right side of the air control unit. Connect the air hose from the lift on your left to the left side of the air control unit (see Fig. 6 for connections).
10. Connect the air supply (145 psi max) to the air inlet port of the air control unit (see Fig. 3 for connection).

7.2 Raising a vehicle

⚠ To prevent serious injury or death from a falling vehicle, operate **both** air control levers **at the same time** and keep the vehicle level as it is raised or lowered.

1. Position one unit on each end of the same axle. Make sure the lift arms fully engage each wheel.
2. Raise the vehicle by lifting up on both the air control levers at the same time. Be sure to operate the air control levers so the vehicle stays level at all times as it is raised or lowered.
3. Raise the vehicle until it is 2"- 4" above the desired working height (the vehicle will lower by that amount as the downstop lugs engage). Visually confirm that the downstop pawls will engage downstop lugs at the same height on each lift. If they will not engage downstop lugs at the same height, carefully adjust vehicle level until the lifts are at the same height. See Fig. 7 and 8 for downstop pawl and lug identification.

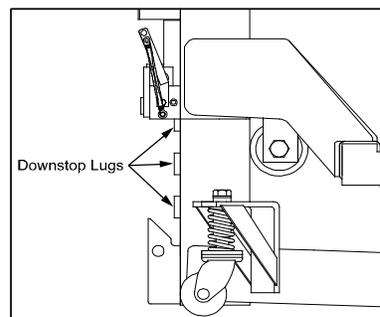


Fig. 7: Downstop lug identification

7.3 Pinning the lifts as stands

1. With the vehicle 2"-4" above the final working height, carefully lower the lifts by pushing both the air control levers down at the same time until the downstop pawls engage the closest downstop lugs.
2. Visually confirm that the downstop pawls are securely engaged on the downstop lugs of each lift and the raised axle is level (see Fig. 8).

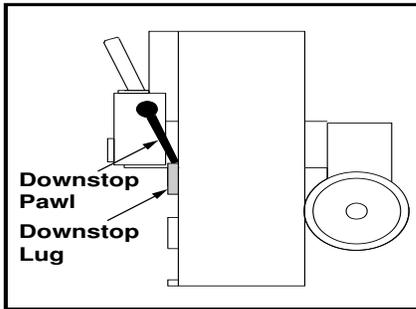


Fig. 8: Downstop pawl and lug identification

3. On both lifts, remove the load retention pin from its holder and insert it through the oblong hole in the lift stop bar and fully into the corresponding hole in the downstop lug (see Fig. 9) to pin the lifts as stands.

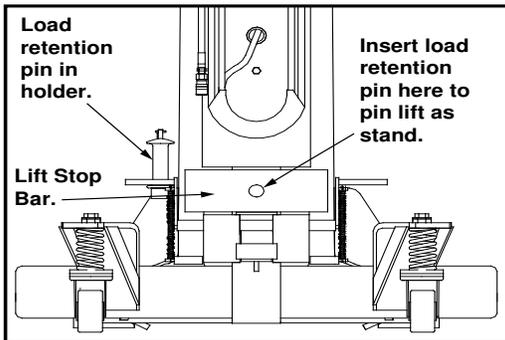


Fig. 9: Load retention pin

4. Exhaust all air from both cylinders by pushing both air control levers down at the same time.
5. Disconnect the air hoses and coil them on the hose holders on the back of each lift.

7.4 Lowering a vehicle to the ground

- △ To prevent serious injury or death from a falling vehicle, operate **both** air control levers **at the same time** and keep the vehicle level as it is raised or lowered.
- △ To prevent serious injury or death, clear the work area of all tools and equipment. Make sure all personnel are clear before lowering a vehicle.

1. Use this lift to lower the vehicle only if you used it to lift the vehicle. Using this lift to lower a vehicle that was raised with another device (or multiple devices) could overload the lift to the point of catastrophic failure.
2. Remove the load retention pins and insert them into their holders.
3. Uncoil the air hoses from both lifts. Be sure the air hoses are free from all pinch points.
4. Position yourself at the front or rear of the vehicle so both lifts are visible. Face the vehicle and hold the air control unit with the air control levers pointing toward the vehicle and the quick couplers at the bottom of the air control unit.
5. Connect the air hose from the lift on your right to the right side of the air control unit and the air hose from the lift on your left to the left side of the air control unit (see Fig. 6).
6. Connect the air supply to the air inlet port of the air control unit (see Fig. 6).
7. Raise both lifts slightly (about 1/2") so the downstop pawls are raised above the downstop lugs.
8. At each lift, release the downstop pawl by pushing the downstop release handle toward the lift (see Fig. 10.)

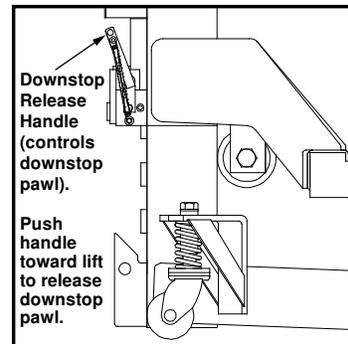


Fig. 10: Push downstop release handle toward lift

9. Lower the lifts by pushing both the air control levers down at the same time. Be sure to operate the air control levers so the vehicle stays level. Lower the lifts to their lowest position do the downstop pawls will automatically reset.
- △ If you decide to raise the vehicle again before it has been fully lowered, you must reset the downstop pawls. To manually reset the downstop pawls, pull the downstop release handle toward you on each of the lifts. (See Fig. 7).
10. Place the vehicle transmission in gear (or park) and engage the brakes.
11. Disconnect the air hoses and coil them on each lift.
12. Move the lifts away from the work area.

7.5 Using the lifts with support stands

- △ To prevent serious injury or death from a falling vehicle, never put any part of your body under a vehicle supported by lift system unless the lifts have the load retention pins properly inserted to pin the lifts as stands.
- △ To prevent serious injury or death from a falling vehicle, operate **both** air control levers **at the same time** and keep the vehicle level as it is lowered.
- △ Vehicles that are not supported evenly may shift and fall. To avoid serious injury or death by crushing, make sure that the stands used are the same height, and that they are positioned at the manufacturer's recommended locations the same distance from the lifts on each side of the vehicle.

Transferring a load to support stands

After the vehicle has been raised (following instructions under the "Raising a vehicle" section) and the wheel lifts have been pinned as stands ("Pinning the lifts as stands" section) you can transfer the vehicle to support stands and remove the wheel lifts, if you choose.

1. Select stands of the same height for each side of the vehicle. Make sure the stands are capable of supporting the weight of the vehicle.
 2. Identify appropriate manufacturer recommended locations, suitable for supporting the vehicle on stands, an equal distance from the lifts on each side of the vehicle.
 3. Clear the work area under the vehicle of all personnel, then place the stands at the appropriate locations on each side of the vehicle.
 4. Remove the load retention pins and lower the vehicle down onto the support stands (if the load retention pins will not pull out easily, raise the vehicle just enough to free the load retention pins). Make sure the vehicle comes down evenly on the stands.
 5. When the vehicle is securely supported by the support stands, lower the lifts to their lowest position so the downstop pawls are automatically reset.
- △ CAUTION - The downstop pawls will not automatically reset until lift has been fully lowered. If lift is used without being lowered completely first, you must manually reset downstop pawls by pulling the downstop release handle toward you on each of the lifts.
6. Disconnect the air hoses and coil them on the air hose holders on the back of each lift. Pull the lifts away from the work area.

Removing support stands

1. Move the lifts into place at opposite ends of the axle to be lowered and position them so the lift pads will cradle the tires when contact is made.
2. Carefully follow steps 7-10 under "Preparing the lifts and vehicle," section.
3. To raise the lifts, pull up on both air control levers at the same time. Operate the air control levers so both of the lift pads contact the tires at the same time.
4. Visually confirm that both lift pads have securely engaged the tires, and that the lift table tube of each lift contacts the side of the tire.
5. Raise the vehicle off the support stands by lifting up on both the air control levers at the same time. Be sure to operate the air control levers so the vehicle stays level.
6. Pin the lifts as stands, carefully following the instructions in "Pinning the lifts as stands," section.
7. Once the lifts have been pinned as stands, remove the support stands from under the vehicle; then lower the vehicle, following the instructions under "Lowering a vehicle to the ground" section.

8. Maintenance and Inspection

⚠ WARNING - The owner must inspect, or appoint a knowledgeable person to inspect the jack for signs of corrosion and / or excessive wear. Visual inspection should be made before each use of jack, checking for abnormal conditions. Regular inspections should be made weekly for daily use and monthly for intermittent use. 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. Contact the manufacturer using the contact information printed on the back cover of this manual.

8.1 Structural inspection

The jack must be removed from service and inspected for damage immediately if the jack is subjected to an abnormal shock or load. Never return the Lift system to service until all damaged components have been properly repaired or replaced. Always test the lift and verify proper operation before returning the Lift system to service. Failure to heed this warning may result in personal and / or property damage.

⚠ To prevent serious injury or death from a falling vehicle, all inspection and maintenance procedures must be performed **after** the jack has been removed from service. Position the lifts so you have clear access to all sides of the lift for inspection and service.

- Inspect the lifts for any cracks, chips, or signs of excessive wear. Visually inspect the welds.
- Inspect the load retention pins for deformities or excessive wear — if the deformities or wearing away of material are easily noticeable without close inspection, it is excessive. Test the load retention pins by inserting them through the lift stop bar and into each downstop lug. If the load retention pin cannot be inserted fully through the lift stop bar and into each of the holes in the downstop lugs in all positions, it is excessively damaged and must be replaced before the lift can be used again.
- Inspect the holes for the load retention pins in the base post. If these holes show excessive elongation or wear on the top or bottom surfaces, they must be repaired before the lift can be placed back into service. Contact the manufacturer using the contact information on the back cover of this manual for repair recommendations.

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

8.2 Air hose inspection

To prevent serious injury or death from a falling vehicle, or possible serious injury due to bursting air hoses, replace air hoses only with single-wire reinforced air hoses from manufacturer, part number 1-271-02002. The use of any other air hose increases the risk that the air hose may become pinched or damaged, resulting in failure of the air hose or of the lift during operation. Contact the manufacturer.

- Inspect the air hoses daily for any signs of cuts, abrasions, or excessive wear. If any air hose appears to be damaged, replace it immediately with manufacturer authorized reinforced steel air hose, part number 1-271-02002.
- Inspect the air fittings daily for cracks and/or damaged parts. If any show damage, replace them before putting the Lift system back into service.

8.3 Maintenance instructions

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

- All warning and capacity labels should be readable and complete. Wash external surfaces of jack, labels, and decals with a mild soap solution.
- Lubricate all rotating and sliding portions of the jack monthly (Fig. 11).

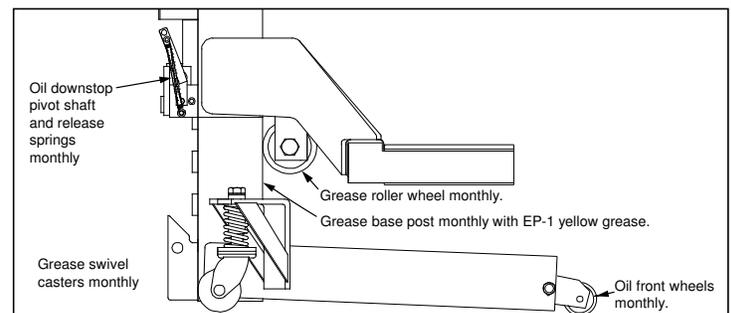


Fig. 11: Lubrication points

8.4 Air control unit cleaning instructions

Occasionally, pieces of rust, scale or dirt from the airlines may become lodged under the rubber seals of the air control unit. This may cause minor air leakage and the lift system units may slowly raise or lower even though the air control levers have not been actuated. This minor air leakage is easily corrected by following the steps below (refer to Fig. 12 for component identification):

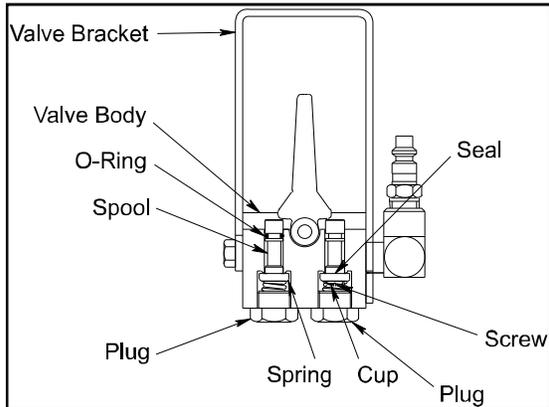


Fig. 12: Air control unit component identification

1. Disconnect the three air hoses attached to the air control unit.
2. Remove the valve bracket.
3. Remove the plug or plugs.
4. Use a stiff wire or pin punch to push the spool out of the valve body.
5. Carefully examine the rubber seal for any dirt or foreign material. If foreign material is embedded in the rubber seal, remove the screw and cup from the end of the spool, then remove and clean the rubber seal. Turn the seal over and reassemble it into the cup. Secure the cup back onto the end of the spool with the screw.
6. Lubricate the spool with a light chassis grease.
7. Insert the spool with O-ring into the air inlet spool port.
8. Insert the spool without O-ring into the air exhaust spool port.
9. Insert the spring(s).
10. Apply thread sealant to the plug(s) and install the plugs into the valve body. Do not over tighten the plug(s), as the threads can very easily be damaged.

8.5 Lift table adjustment

The lift system has a 1/2-13 hex head cap screw mounted inside the top weldment to allow the lift table to be raised or lowered slightly. The cap screw has been adjusted at the factory to provide 1/4" to 5/16" of clearance between the bottom of the lift pads and the floor.

To raise or lower the lift table, follow the lift table adjustment steps below:

1. Place the lifts on a level floor in a suitable open area.
2. Raise both lifts onto their lowest downstop.
3. Loosen the jam nut and turn the cap screw a few turns in the required direction. Clockwise raises the lift table, counterclockwise lowers it. (See Fig. 13 for identification.)

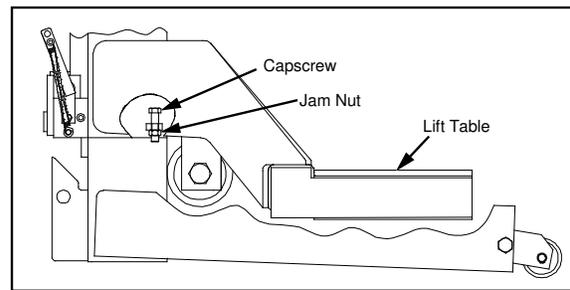


Fig. 13: Lift table clearance adjustment

4. Tighten the jam nut.
5. Lower the lift to its lowest position and check the lift table height above the floor.

Repeat the adjustment as needed until each lift has a minimum of 1/8" clearance between the lift table bottom and the floor. With the lift table resting on the floor, the lifts may not easily move around the shop floor.

9. Troubleshooting

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

Problem	Cause/Solution
Fails to lift load	<ul style="list-style-type: none"> Inadequate air pressure; requires 155 psi. Lifts are overloaded. Rated capacity is 20,000 lbs. per lift. Use larger-capacity lift. Air hoses are not connected properly, damaged or pinched. Air control unit is dirty or damaged. See the "Air control unit cleaning instructions" section of manual.
Only one lift raises	<ul style="list-style-type: none"> Air hoses are not connected properly, damaged or pinched. Air control unit is dirty or damaged. See the "Air control unit cleaning instructions" section of manual.
Will not cradle tire	<ul style="list-style-type: none"> Tire is underinflated or tire diameter is too large. Lift is not fully lowered. Vehicle is overloaded. Use other lifting means.
Lift will not lower or lowers erratically	<ul style="list-style-type: none"> Vehicle parking brake is set and/or transmission is in gear. Air hoses are not connected properly. Air hoses are pinched. Remove load from lifts using other lifting means; remove air hoses from pinch point.
Lift table hits floor	<ul style="list-style-type: none"> Floor is uneven and/or rough. Raise lift to lowest downstop. Lift table height needs adjustment for minimum clearance. See the "Lift table adjustment: section of this manual.
Lift raises slowly	<ul style="list-style-type: none"> Low air pressure. Raise air pressure to 145 psi. Air control unit is dirty or damaged. See the "Air control unit cleaning instructions" section of manual. Lifts overloaded. Rated capacity is 20,000 lbs. per lift. Use other lifting means.

10. Optional adapters

⚠ To prevent serious injury or death from a falling vehicle, use WL-Adapters only for vehicles with rims between 14" and 21" in diameter.

⚠ Install the WL-Adapters with both hooks in the holes of the lift pad. Proper installation is shown in Fig. 14.

Installing the adapters

Make sure the wheel rims on the vehicle to be raised are a minimum of 21" in diameter, unless you are using the manufacturer supplied adapters with the lift system. With the adapters, properly positioned on the lift pads, vehicles with wheel rims of 14" can be safely raised. For rims of 14-21 inches in diameter, install the adapters as follows:

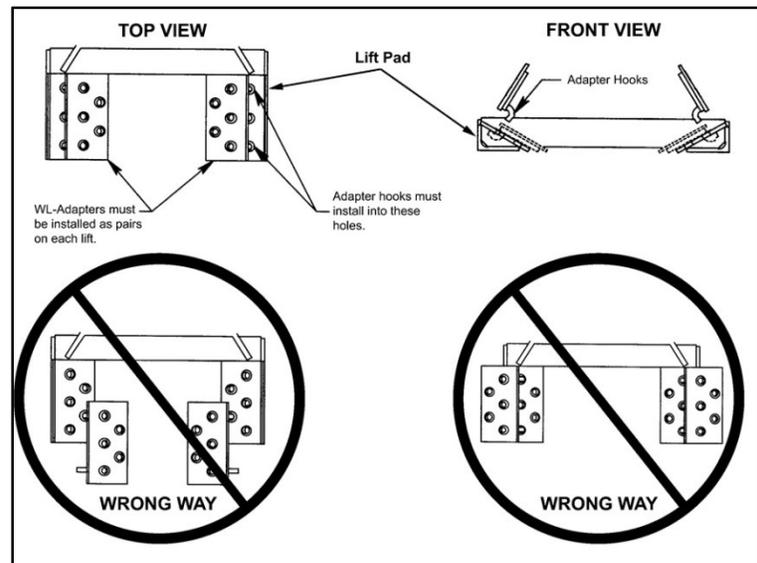


Fig. 14: Installing the WL-adapters

Using the adapters

Use the adapters only on vehicles with rims of 14 inches - 21 inches in diameter. Follow normal operating instructions to use the lift system with adapters installed.

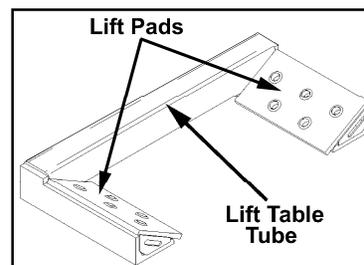


Fig. 15: Lift table tube identification

12. Notes

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