

## MAHLE CTJ-2200

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**

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# 1. Safety Regulations

## 1.1 Warnings

- ⚠ **To avoid serious injury or death**, read this manual carefully before operating this unit. Contact the manufacturer using contact information on the back cover of this manual if you have any questions.
- ⚠ **Before using this jack**, be sure you have read and understood all of the instructions and warnings on the on product labeling and in this owner's manual. See the section entitled "OWNER AND/OR OPERATOR RESPONSIBILITIES" on page 6 of this manual for more information.
- ⚠ **Inspect the jack before each use**. The jack must be removed from service if damage is detected or if the jack is subjected to an abnormal shock or load. See page 10 of this manual for proper "INSPECTION – BEFORE EACH USE."
- ⚠ **Inspect the work area before each use**. Make sure vehicle is appropriately supported before starting repairs. Use the jack only on hard, level surfaces capable of sustaining the load. Do not allow any part of your body under the load while jack is supporting a load.
- ⚠ **Make sure the load does not exceed the rated capacity of the jack**. The maximum lifting capacity of this jack is 2,206 lbs./1,000 kg.
- ⚠ **Use the jack only as a lift, not as a workstand**. Always transfer a component to a work bench for servicing. This product's use is only intended for installation and removal.
- ⚠ **Keep component in lowest position when rolling jack across floor**. Never transport a component that is in raised position. Never use component to push, pull or transport the jack.
- ⚠ **Use only the factory supplied adapters**. Do not use any adapters that are not supplied by the manufacturer.
- ⚠ **Always use jack as intended**. Never modify/alter jack.
- ⚠ **Always place component's center of weight as near as possible to the lift platform's center**. See Fig. 1.

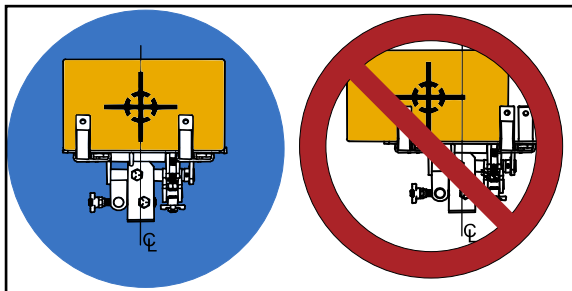


Fig. 1: Center mass

- ⚠ **The area around jack must be clear** for the jack to move and accommodate swinging movement of lift arm.
- ⚠ **Excessive lift platform tilt can cause tipping of the jack**. This is especially critical when handling a heavy component with a high center of weight. Never use more lift platform tilt than necessary to perform job. The amount of tilt may be limited by: Height of the lift platform, Physical size, weight, and center of gravity location of the object being handled, and/or Configuration of adapter kit being used.
- ⚠ **Never use a power wrench to operate lift platform tilt controls**. Instead, always adjust lift platform by means of hand knobs or hand wrenches. Limit torque to 30 foot-pounds to avoid damage to the platform tilt controls (Fig. 2).

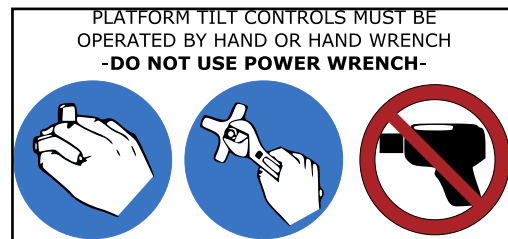


Fig. 2: Tilt control adjustment

- ⚠ **Secure component firmly using manufacturer supplied brackets and adapters**. When possible, component should rest directly on the lift platform (Fig. 3).

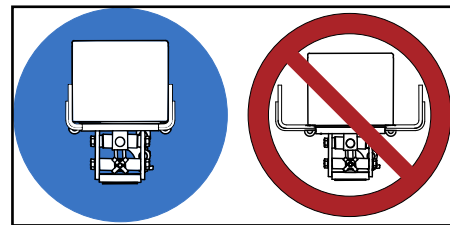


Fig. 3: Securing component

- ⚠ **Secure component to lift platform using tie down strap and ratchet** (Fig. 4). Refer to "Tie Down Ratchet Operating Instructions" section of this manual.

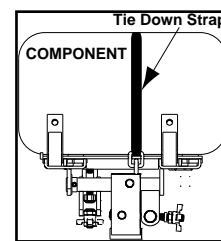


Fig. 4: Strapping component

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

## 2. Foreword

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### 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](mailto:tech.mss@us.mahle.com) with any comments or questions.

## 3. Symbols Use

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### 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
<b>DANGER</b>	<b>Immediate</b> impending <b>danger</b>	<b>Death</b> or <b>severe</b> injury.
<b>WARNING</b>	<b>Possible</b> impending <b>danger</b>	<b>Death</b> or <b>severe</b> injury
<b>CAUTION</b>	Possible <b>dangerous situation</b>	<b>Minor</b> injury
<b>NOTICE</b>	Possible <b>damage to property</b>	<b>Possible property damage</b>

## 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.

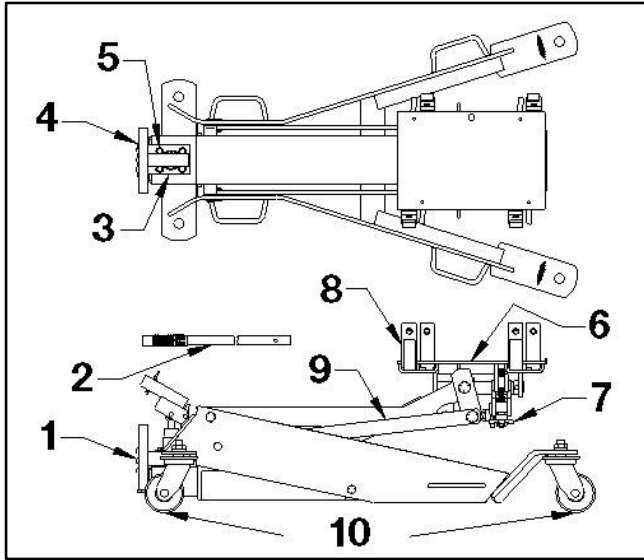
## 5. Specifications

### 5.1 CTJ-2200

Model CTJ-2200	US units	Metric units
Capacity	2,206 lb each	1,000 kg each
Lift Pad Height Up	34 in	86.4 cm
Lift Pad Height Down	8 in	20.3 cm
Width	28.25 in	71.8 cm
Length	44.5 in	113 cm
Powered Lift	26 in	66 cm
4 Swivel Casters	4 in diameter	10.2 cm dia.
Weight (Jack) – Hand Powered	214 lbs	97.1 kg
Weight (Jack) – Air/Hydraulic Model	218 lbs	98.9 kg
Weight (Adapter Kit)	87 lbs	39.5 kg
Tilt Forward	10°	10°
Tilt Rear	10°	10°
Tilt Side	10°	10°

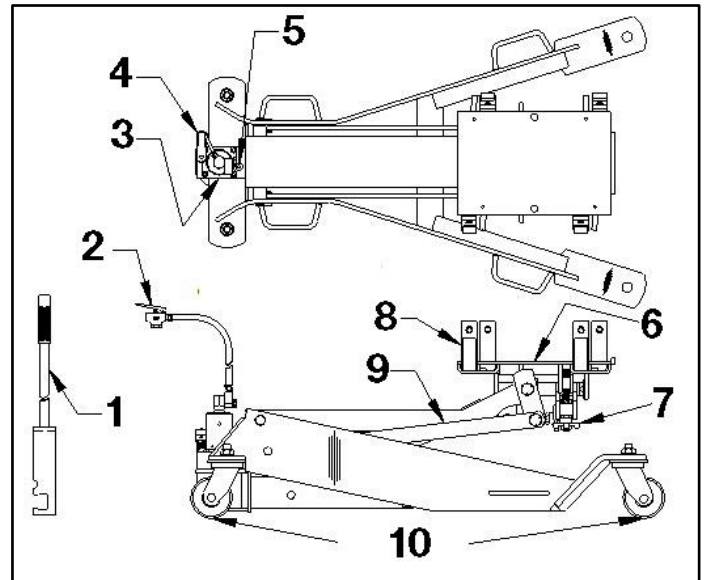
## 6. Product Description

### 6.1 Component identification



**Fig. 5: Hand powered model**

- 1 Release knob
- 2 Pump handle
- 3 Hydraulic pump block
- 4 Hydraulic reservoir vent screw
- 5 Reservoir fill plug
- 6 Lift platform
- 7 Tilt controls (hand knobs)
- 8 Adjustable brackets (component securing brackets)
- 9 Lift arm
- 10 Caster wheels



**Fig. 6: Air/hydraulic powered model**

- 1 Tow handle
- 2 Hand air valve
- 3 Power unit
- 4 Release knob
- 5 Reservoir fill plug
- 6 Lift platform
- 7 Tilt controls (hand knobs)
- 8 Adjustable brackets (component securing brackets)
- 9 Lift arm
- 10 Caster wheels

## 7. Operation

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

### 7.1 Hand powered model

**ⓘ** After unpacking the hand powered model, use a flat bladed screwdriver to open the hydraulic reservoir vent screw. Turn counterclockwise. This vent screw is located on the left side of the pump block which is mounted on top of the reservoir at the rear of the jack. Always close this vent screw to prevent hydraulic fluid loss during shipment or if stored in an upended position.

### 7.2 Air/Hydraulic powered model

**ⓘ** After unpacking the air / hydraulic powered model, install a quick coupler into the hand air valve. The jack is now ready for use. The following chart is for reference only. The exact air pressure required may vary slightly.

Typical Air Motor Operating Pressures

Component weight	Air pressure required
500 lbs	40 psi
1000 lbs	70 psi
1500 lbs	100 psi
2000 lbs	135 psi
2206 lbs	145 psi

**ⓘ** When using the tow handle, position hose as shown in the photo below.



### 7.3 Removing components

1. Place jack under component on a hard level surface free of obstacles.
  2. Use the pump handle or hand air valve to raise hydraulic portion of jack to make contact with the component.
  3. Secure component firmly using manufacturer supplied brackets and adapters. When possible, the component should rest directly on the lift platform.
  4. Secure component to jack using tie down strap and ratchet. Refer to "Tie Down Ratchet Operating Instructions" section of this manual.
  5. When removing a driveline component do not lower the jack until the component is completely free of the vehicle. All bolts, control connections, etc. must be disconnected and the housing interface seal must first be broken free. Remove component mounting bolts. Lower the hydraulic portion of the jack by slowly turning the release knob.
- ⓘ Note:** The area around the jack must be clear for the jack to move and accommodate the swinging movement of the lift arm.
6. Use the tow handle or pump handle to transport a component.



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## 7.4 Installing components

1. Once the component is secure using the tie down strap, place jack under component's installation position.
2. Use the pump handle or hand air valve to raise hydraulic portion of jack into position for installation.
- ① **Note:** The area around the jack must be clear for the jack to move and accommodate the swinging movement of the lift arm.
3. Install component.
4. Loosen the component securing brackets on lift platform which support the component.
5. Remove the tie down strap. Refer to "Tie Down Ratchet Operating Instructions" section of this manual.
6. Lower the hydraulic portion of the jack by slowly turning the release knob.

## 8. Maintenance and Inspection

⚠ **WARNING** - The jack must be inspected according to the requirements of this section. Failure to properly inspect the jack could lead to severe injury or death. The jack must be removed from service and inspected immediately if it is subjected to an abnormal load or a shock load. If any irregularities or problems are detected during an inspection, the jack must be removed from service immediately and repaired. Contact the manufacturer at the numbers and address printed on the back cover of this manual.

### 8.1 Inspection – before each use

Visual inspection of the jack must be made before each use of the jack. The jack should be immediately removed from service if any of the following conditions are detected or observed:

- Check oil level in the oil reservoir. Refer to the “Adding Hydraulic Fluid” section.
- 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.
- An oil leak is observed.
- Any abnormal condition or sign of damage that suggests the jack will not work properly.

### 8.2 Inspection – structural

The jack owner (or a knowledgeable person appointed by the owner) must give the jack a more thorough inspection weekly (if it is used on a daily basis) or monthly (if used less frequently). In addition to a visual inspection (as described above), the inspector should also operate and move the jack to assist in identifying any problems that might exist. The jack must be removed from service and repaired if the jack appears damaged, if it is badly worn, or if it operates abnormally.

- Visually inspect upper and lower components of the jack frame and lift arm for signs of cracking, chipping, or excessive wear, including all welds.
- Visually inspect all four caster wheels for cracking, chipping or excessive wear.
- 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 rise to full height, refer to the “Adding Hydraulic Fluid” section of this manual.
- Visually inspect the power unit for oil leaks.
- ❗ If any irregularities or problems are detected during an inspection, the jack must be removed from service immediately and repaired. Contact the manufacturer using the contact information shown on the back cover of this manual.

### 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.
- Check oil level in the oil reservoir. Refer to Section 8.4 “ADDING HYDRAULIC FLUID”.
- 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.

### 8.4 Adding hydraulic fluid – hand powered model

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. Open hydraulic reservoir vent screw one turn counterclockwise, (check the “ID Components” section of this manual for identification).
4. Clean around the surface of the oil 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. Reinstall and secure the oil fill plug. Clean up any spilled oil. Test the jack for normal operation.

❗ If the lift arm does not rise to the proper height, contact the manufacturer at the number and address printed on the back cover of this manual.

### 8.5 Adding hydraulic fluid – air/hydraulic powered model

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. Clean around the surface of the oil fill plug to prevent contamination of the hydraulic oil system.
4. Remove the reservoir fill plug, (check the “ID Components” section of this manual for model type and identification). Add Tellus T22 or equivalent hydraulic fluid to reservoir through fill hole until full.

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

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

❗ If the lift arm does not rise to the proper height, contact the manufacturer at the number and address printed on the back cover of this manual.

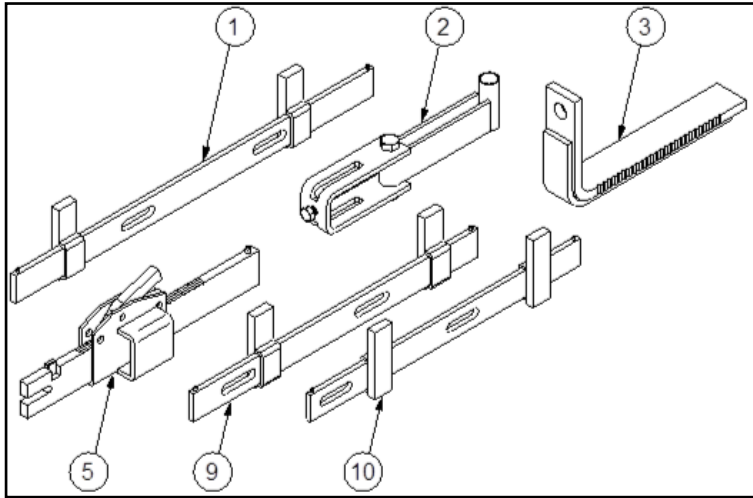
## 9. Troubleshooting

This section is a list of potential problems and solutions. If the solution listed fails to correct the problem, call the manufacturer at the numbers and address 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 the capacity tag on the top of the head plate.

Problem	Cause/Solution
Fails to lift load	<ul style="list-style-type: none"> <li>• Low oil level, see the Section 8.4 “ADDING HYDRAULIC FLUID”</li> <li>• Release open, turn control knob clockwise until tight.</li> <li>• Overloaded; use larger-capacity jack.</li> </ul>
Fails to hold load	<ul style="list-style-type: none"> <li>• Release open, turn control knob clockwise until tight.</li> </ul>
Oil leaks	<ul style="list-style-type: none"> <li>• Reservoir fill plug loose; tighten fill plug.</li> <li>• Reservoir is overfilled. Oil will leak from the oil plug if the reservoir is overfilled.</li> </ul>

## 10. Optional adapters

⚠ Do not attempt to use the adapter kit until thoroughly being familiar with its elements, understanding the functional purposes and also understanding the principles of assembling and usage of the adapter kit. Use of the adapter kit by unknowledgeable or unthinking mechanics can be dangerous and can result in personal injury and/or property damage.



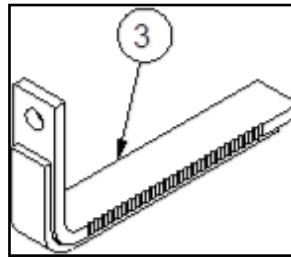
**Fig. 7: Adapter kit contents**

- 1 Long universal support bar
- 2 Bolt circle adapter
- 3 90° transmission brackets (included with jack)
- 4 Tie down strap (not shown)
- 5 Adjustable vertical supports
- 6 Tool box (not shown)
- 7 Coil chains (not shown)
- 8 Cap screws (not shown)
- 9 Short universal support bar (L.H.)
- 10 Short universal support bar (R.H.)

❶ Each element fulfills a functional purpose for the technician and is designed so it can be used in combination with the other elements to provide a universal support system.

❶ The following description of the functional capability of each adapter kit element will help the technician understand how to use these devices to stabilize and support a driveline component.

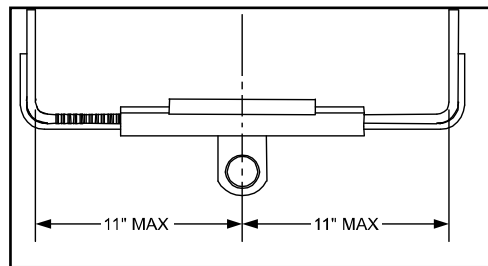
### 90° Transmission brackets



**Fig. 8: 90° transmission bracket**

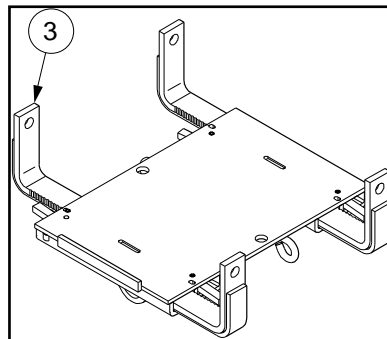
The above transmission bracket (Fig. 8), has ratchet teeth. The bracket fits in slots under the sides of the lift platform. The maximum useful spread of the transmission bracket is 22 inches.

⚠ If the transmission brackets are spread wider than 22", the ratchet will not engage the transmission bracket and it cannot support a component to prevent it from slipping sidewise from the platform. Failure to heed this warning may result in personal injury and/or property damage.



**Fig. 9: Maximum spread width**

When properly adjusted, the ratchet lock prevents components from shifting sidewise on the lift platform. The brackets also serve as adjustable mounts for other elements of the adapter kit.



**Fig. 10: 90° bracket installation**

Fig. 10 illustrates how the 90° brackets are installed in the lift platform.

## Adjustable vertical supports

- ① The purpose of the adjustable vertical supports (5) is to provide supports with independent vertical adjustment. A ratchet makes vertical adjustment and locking possible. They are designed to mount over the upright part of the transmission brackets as illustrated in Fig. 11. When mounted in this manner, the top of each of the four adjustable height vertical supports can be independently adjusted in width by using transmission bracket and can be independently adjusted in height by using the ratchet of the adjustable vertical support (5).

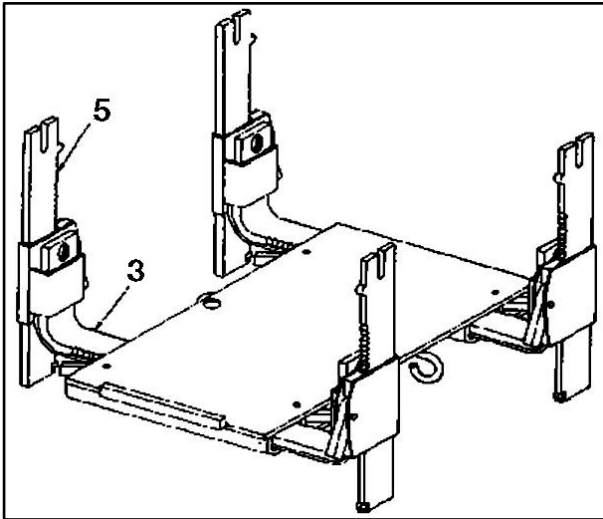


Fig. 11: Adjustable vertical supports

Adjustable vertical supports (5) may be used to stabilize a top heavy component that rests on a narrow base. To do this, raise the vertical supports to their maximum height, and push the transmission bracket inward until the vertical supports are in firm contact with the component to be stabilized. Choose from assembly configurations shown in Fig. 11 and Fig. 35.

## Coil chains

The primary purpose of the coil chain (7) is to form a sling between the slots in the upper part of adjustable vertical supports (5) as is illustrated in Fig. 12. The slings can be used to support an entire component cradle fashion; however, most frequently they will be used as auxiliary supports to provide front to rear, or side to side stability. By assembling the chain slings as shown in Fig. 23 they will support some inter axle differential carriers.

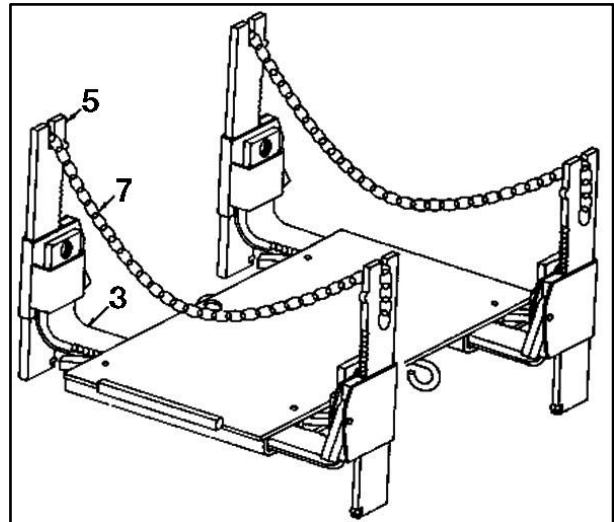
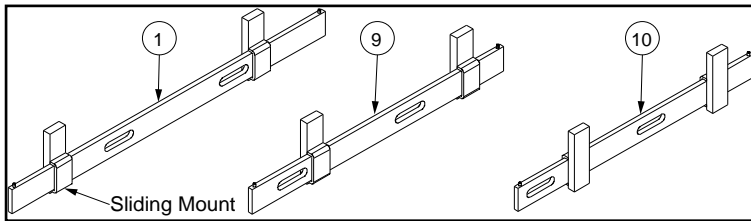


Fig. 12: Coil chains

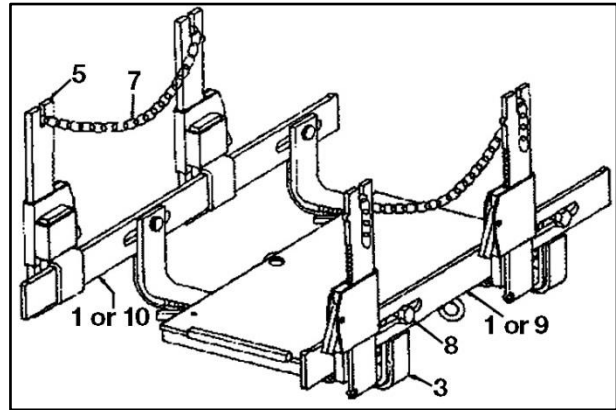
### Universal support bars

The universal support bars (1), (9), and (10) are equipped with two lengthwise slots in each bar, through which cap screws can be inserted to bolt the bar to the holes in the upper part of the transmission brackets. Each universal support bar (1), (9), or (10) is equipped with two sliding mounts on which the adjustable vertical supports (5) can be mounted. This makes it possible to independently move each vertical support forward or backward. The long support bars (1) are most suitable for long components such as automatic transmissions. The short support bars (9) and (10) are adequate for most components and help eliminate interference problems that are sometimes encountered with the long bars. These bars are illustrated in Fig. 13 below.

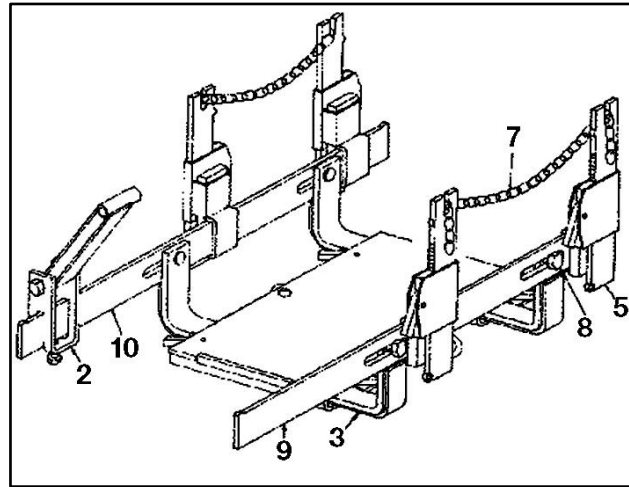


**Fig. 13: Universal support bars**

With the bars properly bolted to the transmission brackets, the technician can slide an adjustable vertical support (5) over each of the four sliding mounts (see photograph on next page) thus providing true independent three dimensional adjustments for each of the four supports. The transmission bracket provides width adjustment, the adjustable vertical support (5) provides height adjustment, and the universal support bar slides provide length adjustment. These components can be used as illustrated in Fig. 14 with or without coil chains (7), and with or without bolt circle adapter (2) as shown in Fig. 15.

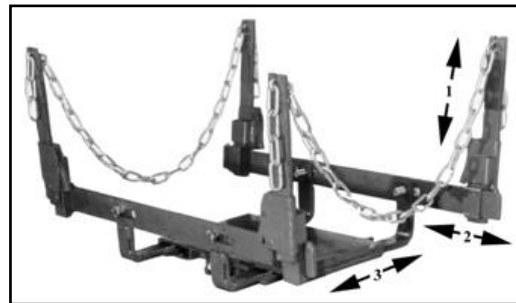


**Fig. 14: Coil chain use on universal support bars**



**Fig. 15: Bolt circle adapter use with support bars**

Fig. 16 shows how the supports can independently be adjusted in three dimensions:



**Fig. 16: Using accessories**

- 1 Height adjustment using ratchet of vertical supports (5)
- 2 Length adjustment using sliding mount of universal support bar
- 3 Width adjustment using transmission bracket



### Bolt circle adapters

The purpose of the bolt circle adapters (2) is to help support, to stabilize, or in some cases to directly support a driveline component by making it possible to bolt the component to the lift platform. The bolt circle adapter (2) shown is designed with slots to slip over the universal support bars (1), (9), and (10) and can be locked in place by the locking bolt. The components mounting-bolt-socket is offset a half inch to one side to eliminate housing interference if necessary. It is mounted on an arm which pivots, extends, and retracts as required to align with a bolt hole in the component housing to securely tighten and support the component. Figures 6 and 6B below illustrate the bolt circle adapters installed as primary mounting devices. Figure 4B illustrates a bolt circle adapter (5) used as an auxiliary support.

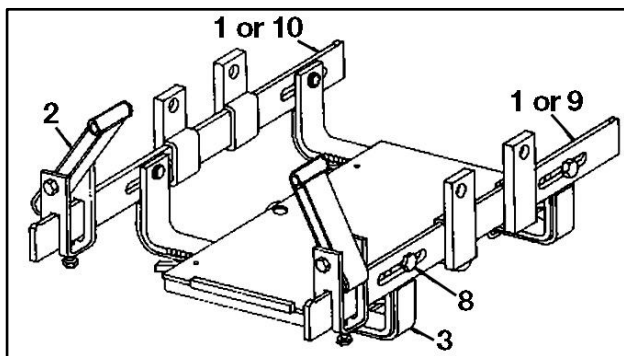


Fig. 17: Bolt circle adapter installed

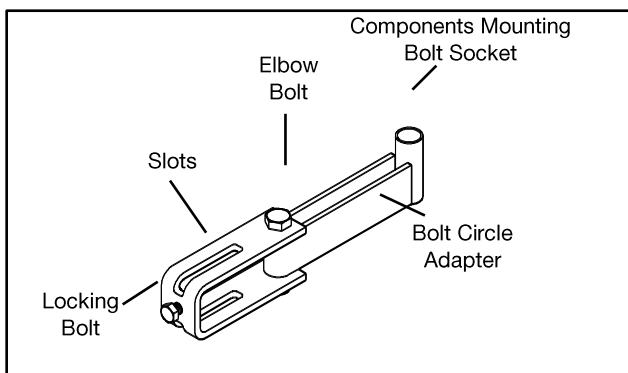


Fig. 18: Bolt circle adapter

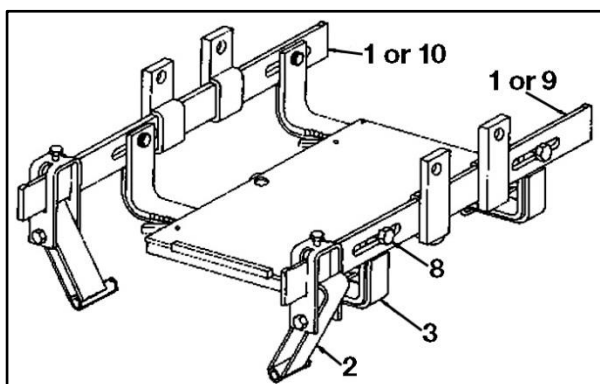


Fig. 19: Bolt circle adapter as auxiliary adapter

### Tie down strap

One tie down strap (4) is supplied with the adapter kit to secure the component to the lift platform. The lift platform has hooks under the center of the lift and right sides to receive the “D” ring end fittings of the tie down straps. The ratcheting tension device can then be used to tighten the strap securely, binding the component to the lift platform. This strap must be used in all circumstances except when the bolt circle adapters are used to stabilize the component.

### Tie down ratchet operating instructions

**Tensioning:** Pull webbing through reel bars to eliminate slack. Operate handle up and down until webbing is properly tensioned. Reel bars must have at least two wraps of webbing to ensure no slippage.

**Releasing:** Pull handle pawl back and rotate handle to lock open position. Unwind webbing from reel bars. Pull handle pawl back and return handle to original position.

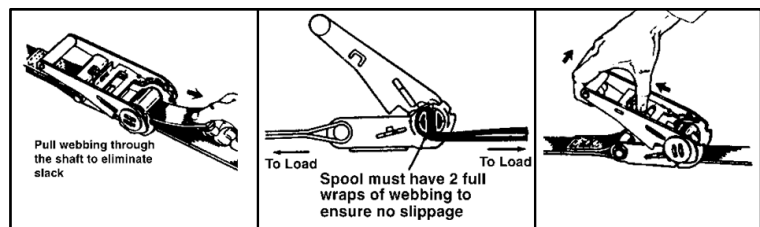


Fig. 20: Ratchet strap operation

### Tool box

A metal tool box (6) is supplied to store the elements of the adapter kit. The decal on the inside cover of the box lists each element contained in the adapter kit. A copy of this manual should be stored in the tool box.

## Assembly

When assembling the adapter kit, the technician should remember the phrase **outside, outside, outside**. Fig. 21 shows the meaning of this phrase.

- Universal support bars (1), (9), or (10) are mounted on the **outside** of transmission brackets (3).
- Front to rear sliding mounts are on the **outside** of the universal support bar (1), (9), or (10).
- Adjustable vertical supports (5) fit on the **outside** of the sliding mounts.

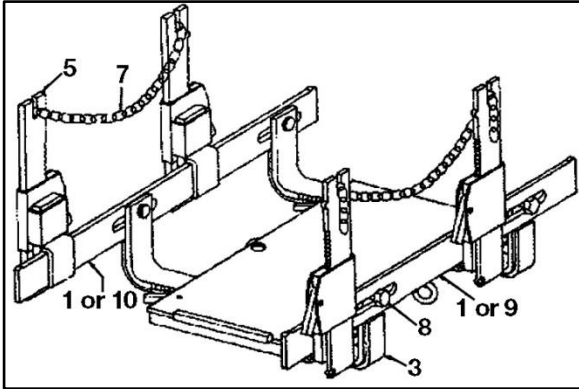


Fig. 21: Assembly of accessory adapters

⚠ **ATTENTION:** The cap screws (8) which are used to attach the support bars (1), (9), or (10) to the transmission brackets (3) should not be fully tightened. They should be left with about 1/4 inch of slack to permit independent width adjustment of the four transmission brackets. If the cap screws are too tight they will bind the universal support bars to the transmission brackets making independent width adjustment impossible.

Transmission brackets (3) can be mounted in an inverted position as is illustrated by the Fig. 22 and 23. When mounted in this position the locking ratchets are non-operational; however, the transmission brackets are held in place by the bolt circle adapters (2) which are bolted to the driveline component and/or by the chain sling (7), Fig. 22, which captures the support bar.

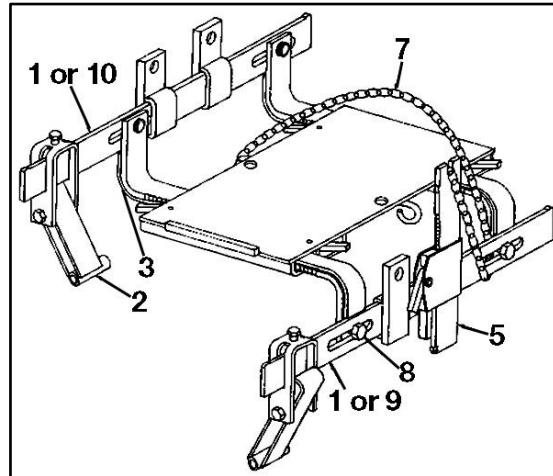


Fig. 22: Inverted bracket use

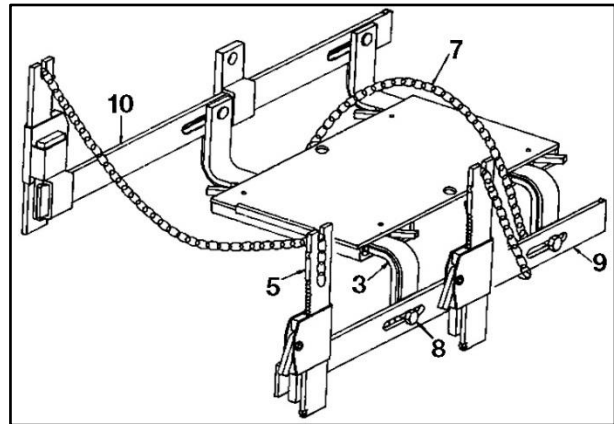


Fig. 23: Inverted bracket use

When the sliding mounts of the universal support bar (1), (9), and (10) are not being used they can be mounted in an inverted position to further help eliminate interference with vehicle parts (Fig. 24).



Fig. 24: Adjusting brackets to eliminate interference



## 11. Weight limitations

⚠ The jack will become unstable if the component's center of weight is offset too far from the center of the lift platform. The weight and distance limitations in the following table must be followed. The jack must be in its fully lowered position with the component's center of weight overhanging towards the front of the jack and not towards the sides when transporting. Failure to heed this warning may result in personal and / or property damage.

Typical Air Motor Operating Pressures

Component weight	Air pressure required
500 lbs	40 psi
1000 lbs	70 psi
1500 lbs	100 psi
2000 lbs	135 psi
2206 lbs	145 psi

## 12. Commercial applications

The following information suggests configurations of the adapter kit recommended to handle specific truck components. This is not intended to be a comprehensive list of components the adapter kit will accommodate; it is a representative sample which will illustrate usage techniques and the versatility of the adapter kit. This section includes information on:

- Drive shafts
- Power dividers and differentials
- Transmissions
- Axle assemblies

### 12.1 Drive shafts

The photographs which follow illustrate commercial driveline components being supported by various adapter kit assembly configurations. Use Configuration 5 (Fig. 25 and 35) to support drive shaft during removal and installation. Transmission brackets (3) should be adjusted inwardly so the upper tips of adjustable vertical supports (5) come into physical contact with the drive shaft being supported by chain slings (7).

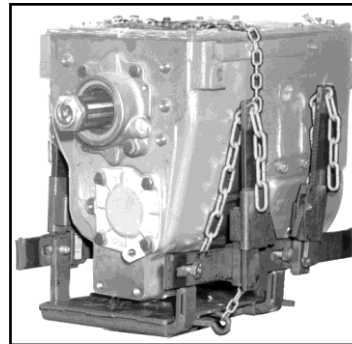


Fig. 25: Drive shaft removal example

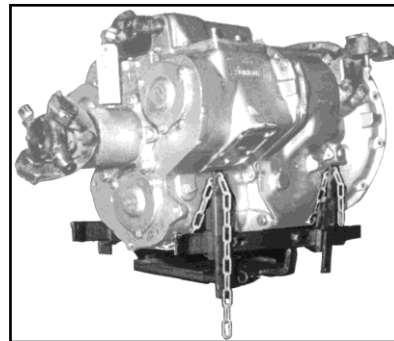


Fig. 26: Mack transmission example

## 12.2 Power dividers and differentials

Most power dividers and differentials can be suspended partially or completely in front of the lift platform as is illustrated by the photographs on this page. The advantages of this supporting technique are that it provides the technician with better access to the bolt circle and it minimizes clearance problems since he can lower the component completely to the floor. Depending upon the particular component to be handled assembly configurations shown in Fig. 27-29 is used for this purpose. When used in this manner, the jack serves as counterweight to prevent the unit from tipping forward. As a rule of thumb, the technician will find this technique suitable for handling differentials from axles up to 18,500 pounds or from tandem axles up to 40,000 pounds capacity.

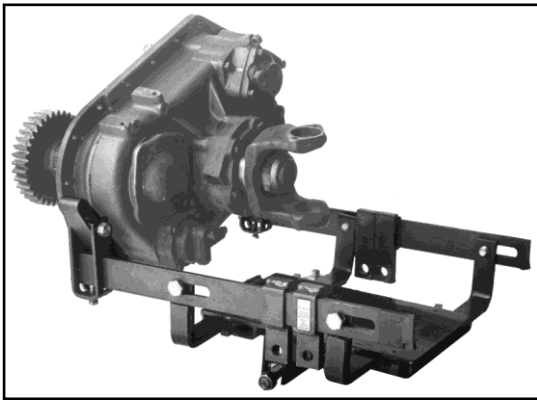


Fig. 27: Supporting differential carrier

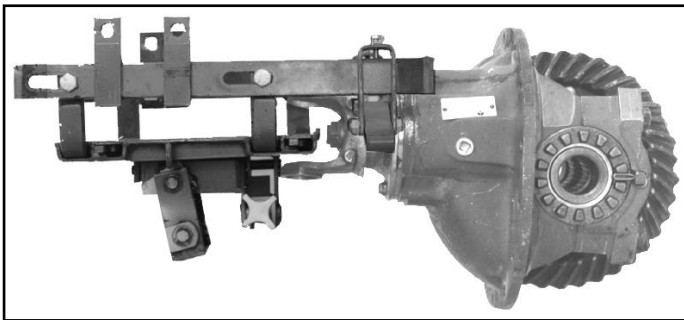


Fig. 28: Supporting compound gearing

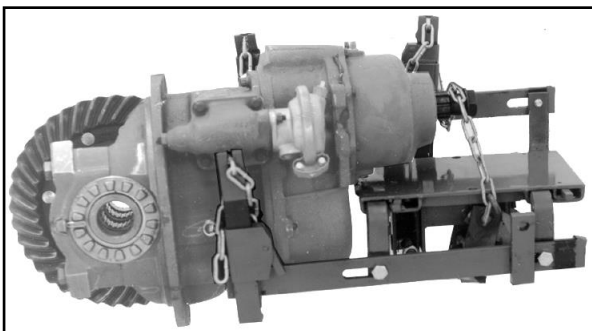


Fig. 29: Supporting inter-axle differential carrier

## 12.3 Transmissions

**⚠ WARNING** – Always support rear of motor with adequate means before unbolting and removing transmission. Failure to heed this warning may result in personal and/or property damage.

This jack lets you handle virtually any over-the-road truck transmission. A one-piece flat lifting surface provides solid support for components, and the universal adapter kit can be used to cradle or to stabilize awkward or bulky transmissions.

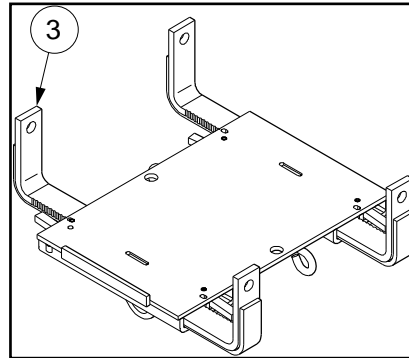


Fig. 30: Configuration 1

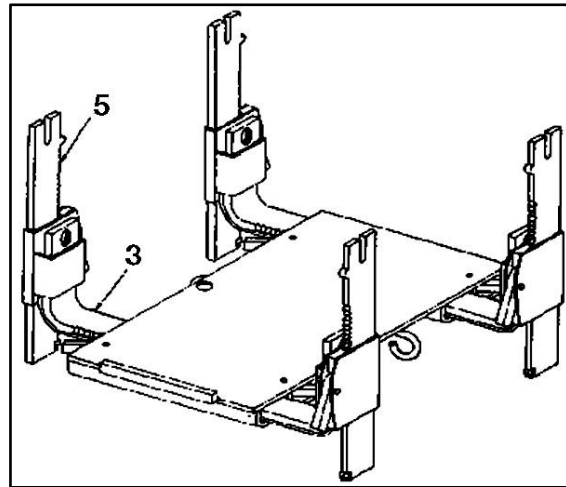


Fig. 31: Configuration 2

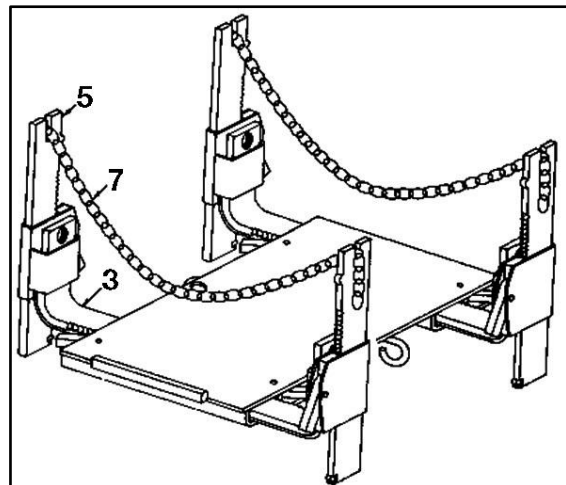
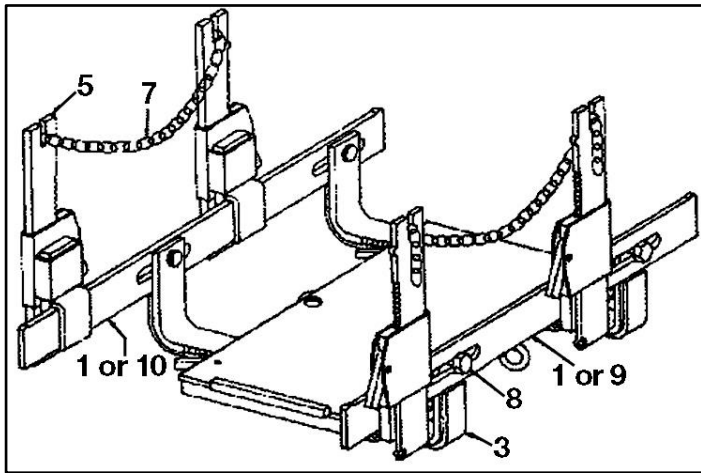
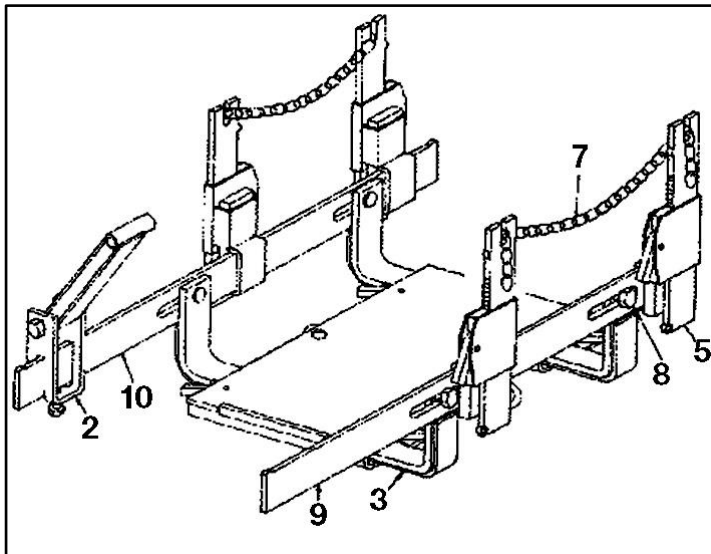


Fig. 32: Configuration 3



**Fig. 33: Configuration 4A**

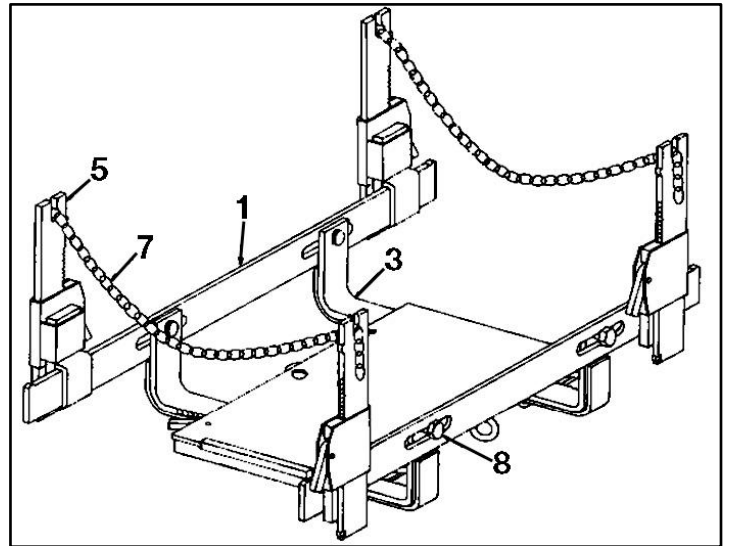
The technique for applying configuration 4A (Fig. 33) is to position the lift platform so lower part of the differential housing and the tie rod both rest directly on the lifting platform. Spread transmission brackets (3) to left and right of the differential housing. Slide adjustable vertical supports (5) along the universal support bars (9) or (10) until the upper portions come into contact with the axle housing. Use vertical supports (5) to tighten the chain slings (7) so they firmly cradle the axle housing. This provides lateral stability for axle assembly. Use tie down strap (4) to secure the drive shaft lift platform.



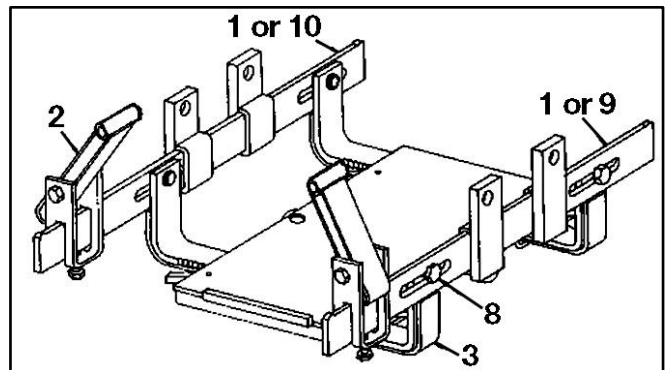
**Fig. 34: Configuration 4B**

The technique for using configuration 4B (Fig. 30) is to position the axle assembly so the bottom of the differential housing rests directly on the lift platform. Spread transmission brackets (3) so they are approximately 18 inches wide and so the chains (7) are located to left and right of the differential housing. Slide adjustable vertical supports (5) along the universal support bars (9) and (10) until the upper portions come into contact with the axle housing. Use vertical supports (5) to tighten the chain slings (7) so they firmly cradle the axle housing on each

side of the differential. This provides lateral stability for the axle assembly. Secure the bolt circle adapter (2) to the end yoke or the housing by removing a bolt directly from the flange which supports the input shaft bearing. On the bolt circle adapter, tighten the elbow bolt and component mounting bolt sufficiently to secure the load. This support mechanism will prevent the assembly from tending to rotate and will hold the axle assembly firmly in place.



**Fig. 35: Configuration 5**



**Fig. 36: Configuration 6**

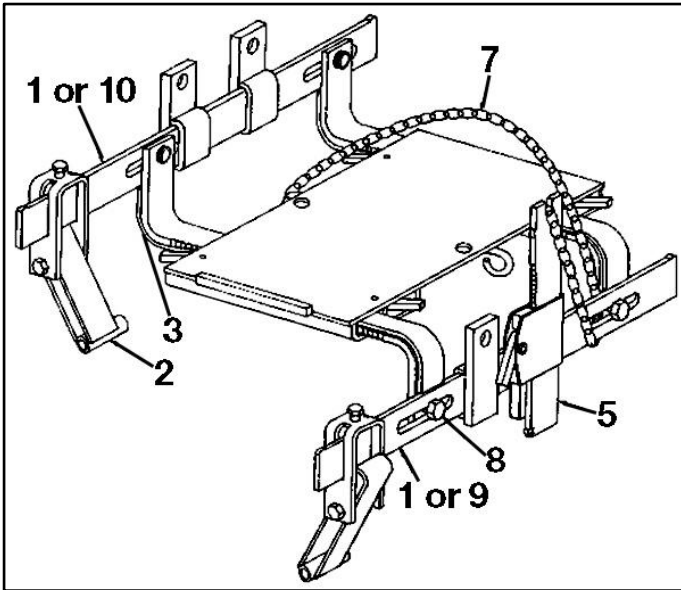


Fig. 37: Configuration 6A

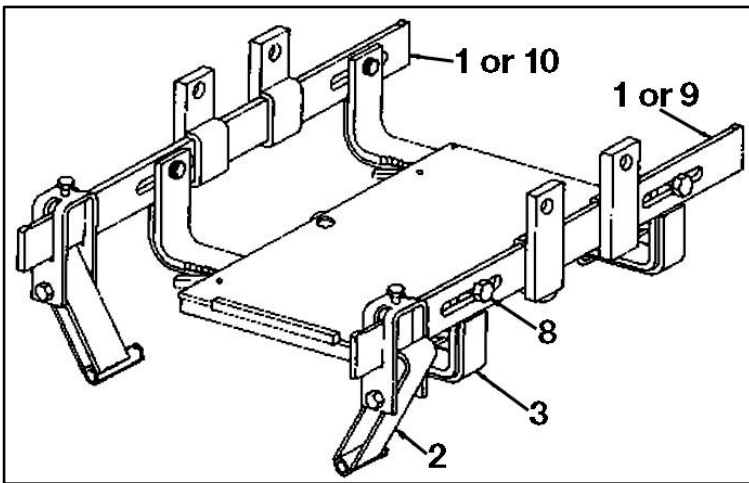


Fig. 38: Configuration 6B

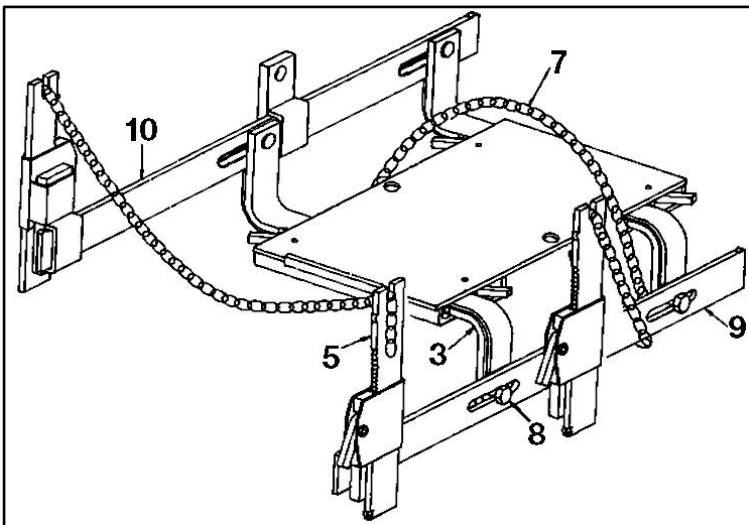


Fig. 39: Configuration 6C





## 14. Notes

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