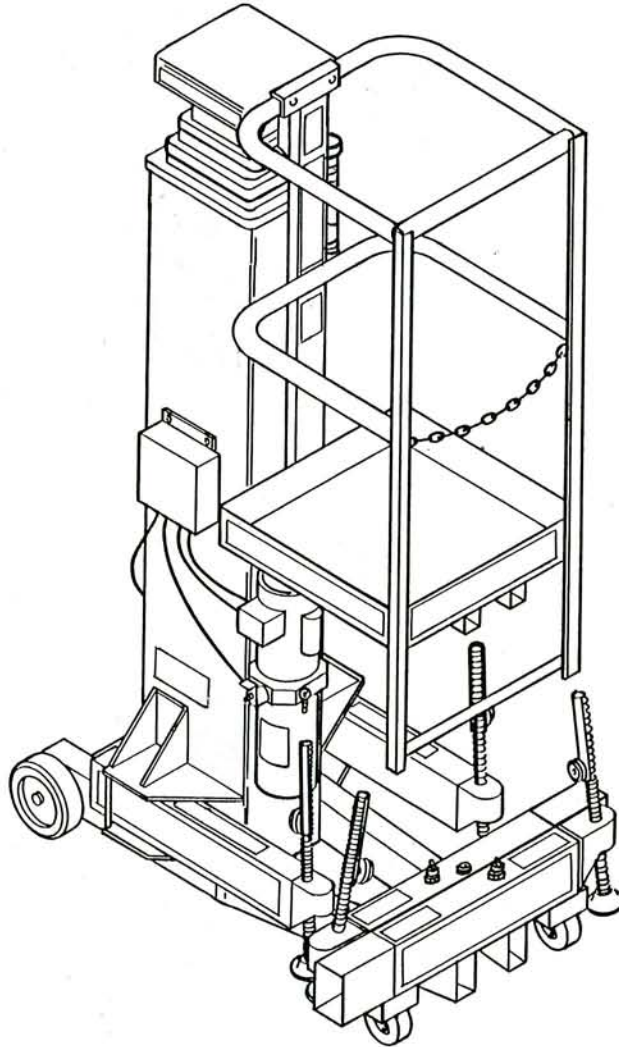


UR UP-RIGHT LIFTS

UL 20/26



SERVICE & PARTS MANUAL

FOR UP-RIGHT LIFTS WITH SERIAL NUMBER 2492 TO CURRENT

Information herein subject to change without notice. When contacting Up-Right for service or parts information, be sure to include the MODEL and SERIAL NUMBERS from the equipment name plate.

UR UP-RIGHT
AERIAL PLATFORMS

Call toll free

(800) 437-0770

California only (800) 442-0770
1775 Park St., Selma, CA 93662

Canada (416) 668-7701

108 Industrial Dr., Whitby, Ontario, Can. L1N5Z8

DEC. 10, 1987

PART No. 62644-000-00

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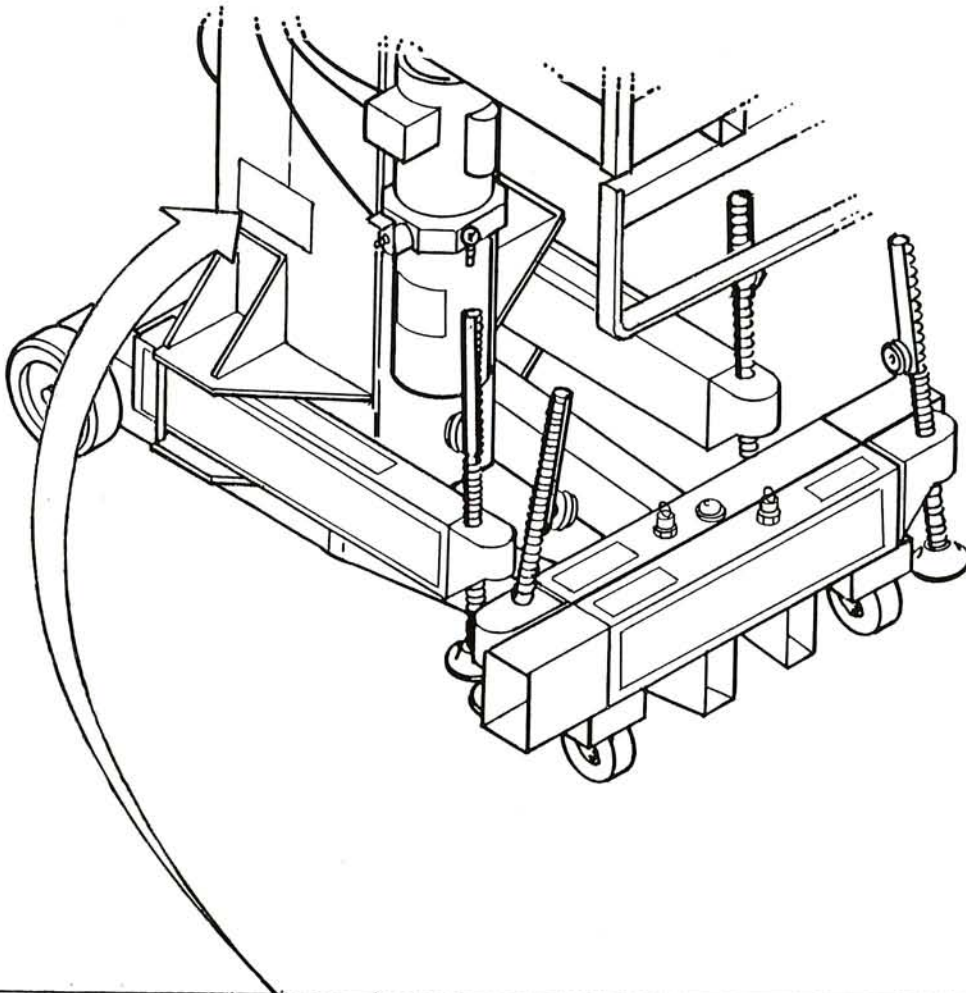
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RECORD OF CHANGES

CHANGE NO.	DATE	TITLE OR BRIEF DESCRIPTION	ENTERED BY



UP-RIGHT INC.	
1775 PARK ST. SELMA, CA 93662	
MODEL NO. <input type="text"/>	MAX. PLATFORM HEIGHT <input type="text"/>
SERIAL NO. <input type="text"/>	BATTERY VOLTAGE <input type="text"/>
MAX. DISTRIBUTED LOAD <input type="text"/>	<input type="text"/>
CAUTION: CONSULT OPERATOR'S MANUAL BEFORE USE. THIS PLATFORM IS NOT ELECTRICALLY INSULATED	
P/N 61205-000-00	

PART NUMBER

Identification Plate and Model Number

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SECTION I

INTRODUCTION AND GENERAL INFORMATION

1-1. INTRODUCTION.

1-2. **PURPOSE.** This manual provides illustrations and instructions for the operation and maintenance of the UP-RIGHT LIFT, UL-20/26 manufactured by Up-Right, Inc. Selma Operations, of Selma, California. (See Figure 1-2).

1-3. **SCOPE.** The operating instructions include both operation and maintenance responsibilities concerning the UP-RIGHT LIFT's readiness. The functions cover scheduled maintenance, troubleshooting, repair, adjustment and replacement.

1-4. GENERAL INFORMATION.

1-5. **ITEM DESCRIPTION.** The Up-Right Lift is a portable lift designed to be used as a means of elevating maintenance personnel and light equipment to access work above the ground. The Up-Right Lift UL-20/26 has a maximum platform height of 19 ft. 6 in.

1-6. **PURPOSE AND LIMITATIONS.** The objective of the UP-RIGHT LIFT is to provide a quickly deployable, variable height work platform. The elevating function shall only be used when the work platform is on a level paved or reinforced work area and all outriggers are properly installed.

1-7. **SPECIFICATIONS.** Refer to Table 1-1 and Figure 1-1.

Table 1-1. Specifications*

ITEM	DESCRIPTION
Working Height (A)	25 ft. 6 in.
Platform Height (B) (Maximum)	19 ft. 6 in.
Platform Capacity (C)	36 in.
Load Capacity	300 lbs.
Platform Dimensions (L x W)	Narrow 22 in. x 21 in. Standard 22 in x 26 in.
Unit Dimensions (D) Outriggers Extended (L x W)	54 in. x 54 in.

Table 1-1. Specifications* (Cont'd)

ITEM	DESCRIPTION
Unit Dimensions (E) (F) (G) Outriggers Stowed (L x W x H)	45 in. x 29 in. x 78 in.
Unit Dimensions Outriggers Removed (L x W x H)	45 in. x 22 in. x 78 in.
Net Weight A.C. Model w/Outriggers	588 lbs.
Net Weight D.C. Model w/Outriggers	637 lbs.
Safety Railing Height	42 in.
Toe Board Height	4 in.
Lift System A.C. Electric Motor D.C. Electric Power Source	120 Volts, 60 Hz 1-12 Volt Battery, Group 27, 105 AMP/Hr.
Hydraulic Reservoir Capacity	1.5 Gallons Hydraulic Fluid, Mobil DTE 13
Battery Charger	Automatic, 120 Volt A.C. 60 Hz Output: 10 AMPS 12 Volts D.C.
*All Specifications Subject to Change Without Notice.	
Meets or exceeds all applicable requirements of OSHA and ANSI A92.3-1980 Standards.	

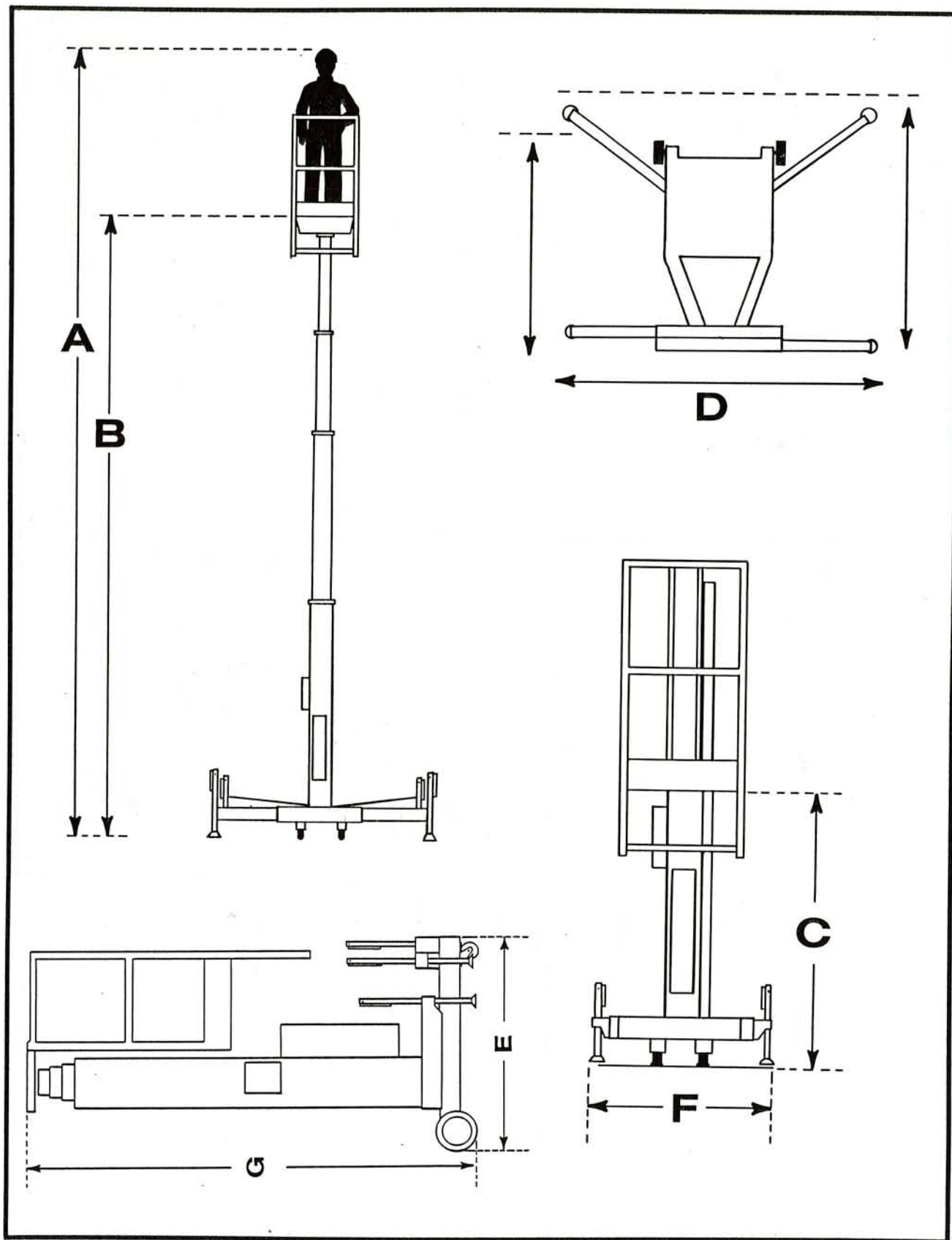


Figure 1-1. Specifications

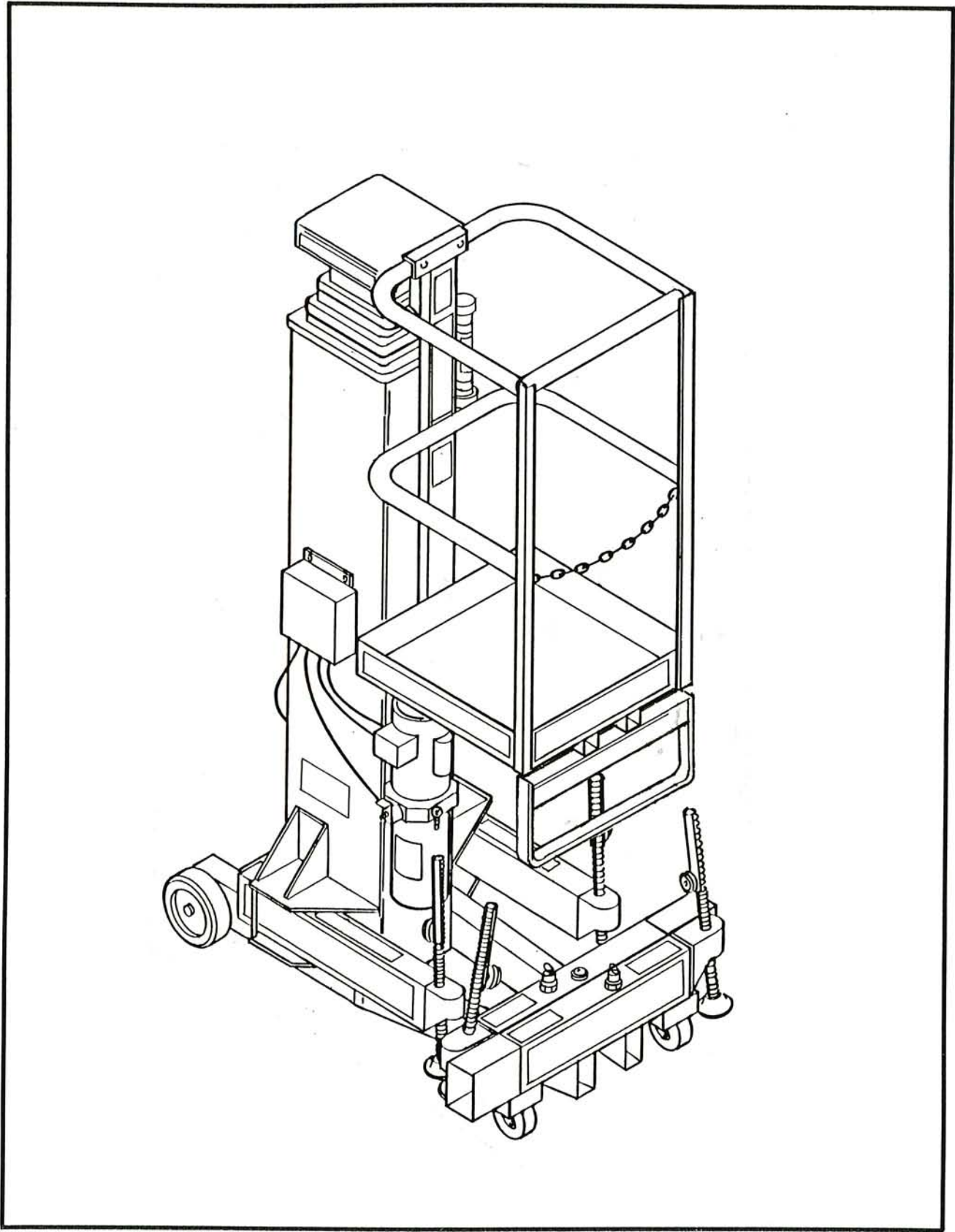


Figure 1-2. Up-Right Lift

1-8. SPECIAL TOOLS AND TEST EQUIPMENT.

1-9. Table 1-2 lists the Special Tools and Test Equipment. Either these or the equivalent are required for maintenance on the Up-Right Lift. Refer to Figures 1-3 through 1-7.

Table 1-2. Special Tools and Test Equipment

TOOL/EQUIPMENT PART NUMBER	FIGURE NUMBER	DESCRIPTION	USE AND APPLICATION
20733-002-00	1-3, Item 1	Tee Adapter	System Relief Pressure Adjustment, Paragraph 5-12.
14048-001-00	1-3, Item 2	Adapter	System Relief Pressure Adjustment, Paragraph 5-12.
11923-003-00	1-3, Item 3	Adapter	System Relief Pressure Adjustment, Paragraph 5-12.
14124-050-00	1-3, Item 4	Pressure Gauge 0-5000	System Relief Pressure Adjustment, Paragraph 5-12.
62477-000-00	1-4	Assist Tool, Cylinder Seal	Removal and Installation, Lift Cylinder Seal Replacement Paragraph 5-18.
62479-000-00	1-5	Retaining Ring Socket	Removal and Installation, Lift Cylinder Seal Replacement Paragraph 5-18.
62521-000-00	1-6	Gland Nut Wrench	Removal and Installation, Lift Cylinder Seal Replacement Paragraph 5-18.
62480-000-00	1-7	Cylinder Bleed Wrench	Cylinder Assembly Reassembly, Paragraph 5-16. Cylinder Bleeding, Paragraph 5-19.
62482-000-00	1-8	Strap Wrench	Removal and installation Cylinder Rod end for Cylinder Seal Replacement, Paragraph 5-17 and Orifice Cleaning, Paragraph 5-20.

Table 1-2. Special Tools and Test Equipment - Continued

TOOL/EQUIPMENT PART NUMBER	FIGURE NUMBER	DESCRIPTION	USE AND APPLICATION
	1-9	Cylinder Insertion Tool	Removal and Instal- lation of Cylinder, Paragraph 5-17.

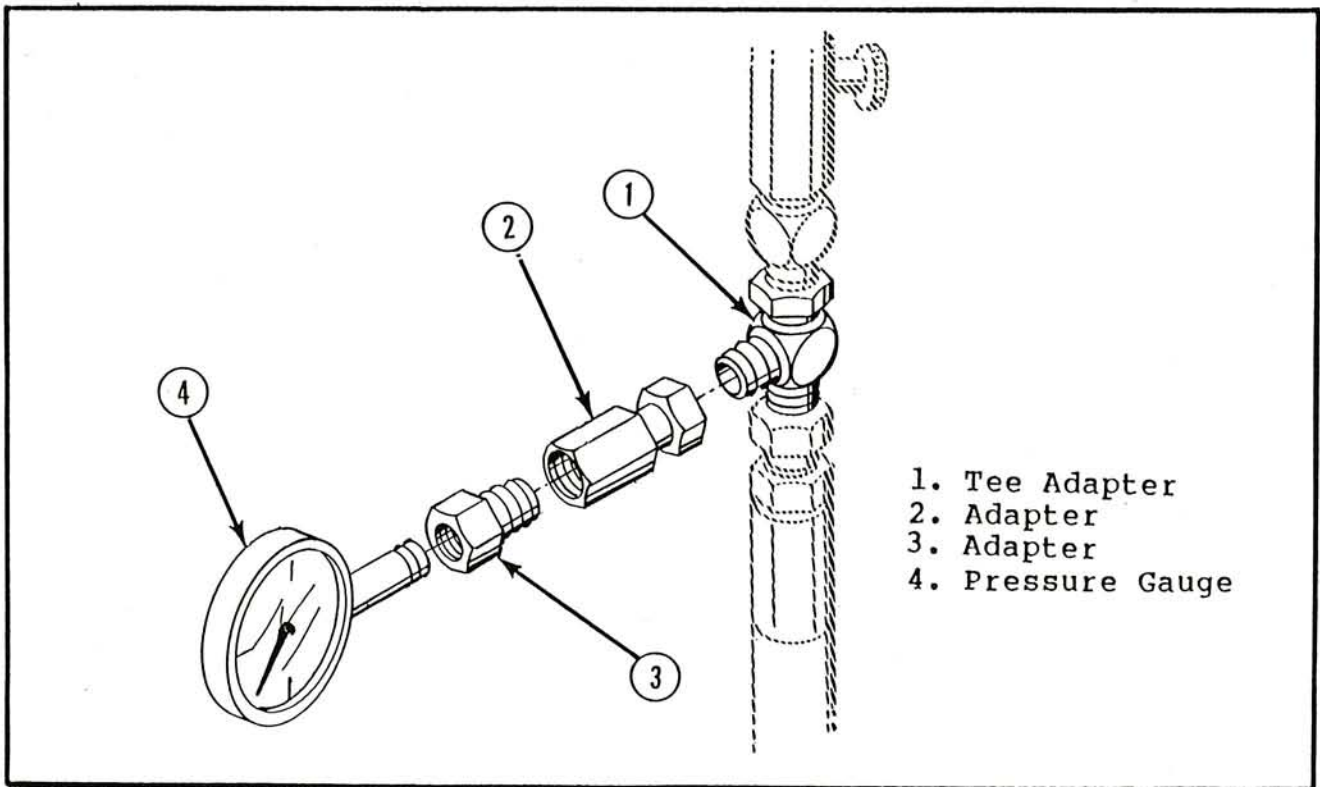


Figure 1-3. Adapters and Pressure Gauge

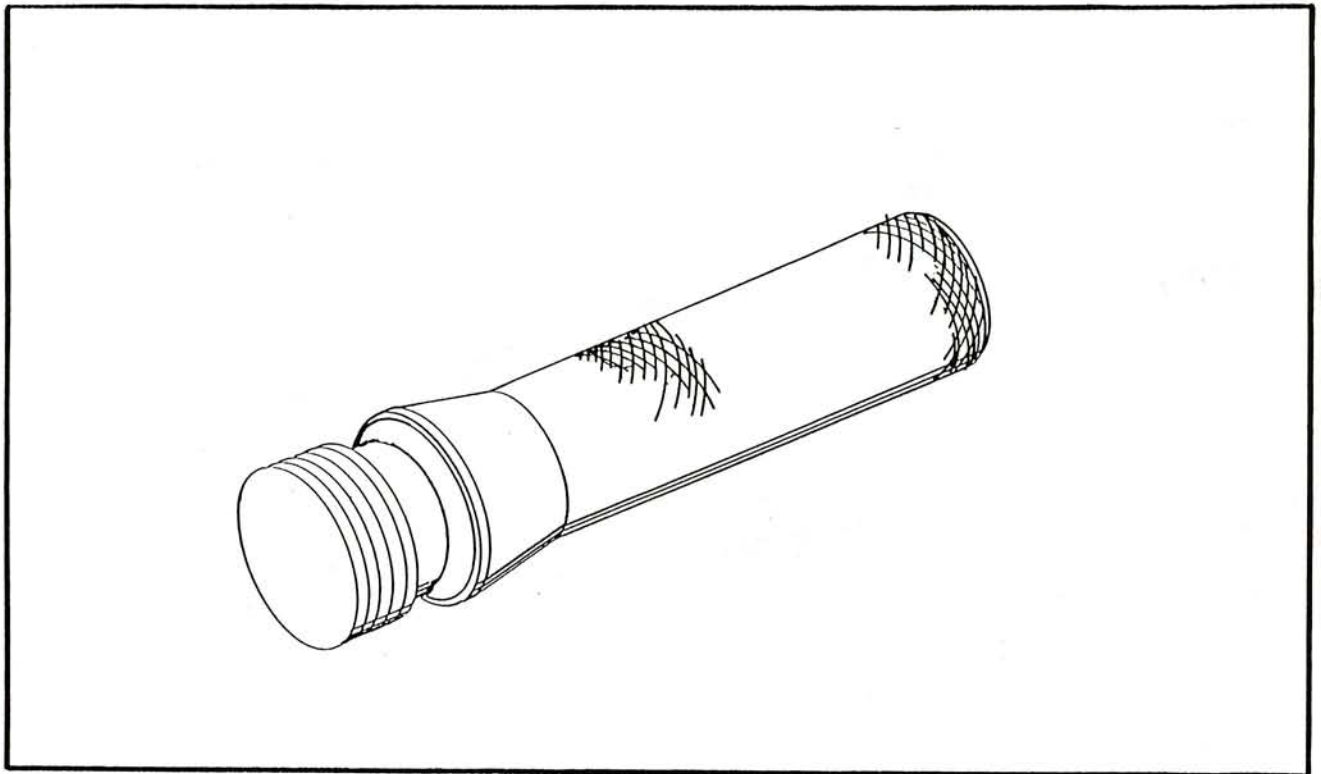


Figure 1-4. Assist Tool, Cylinder Seal

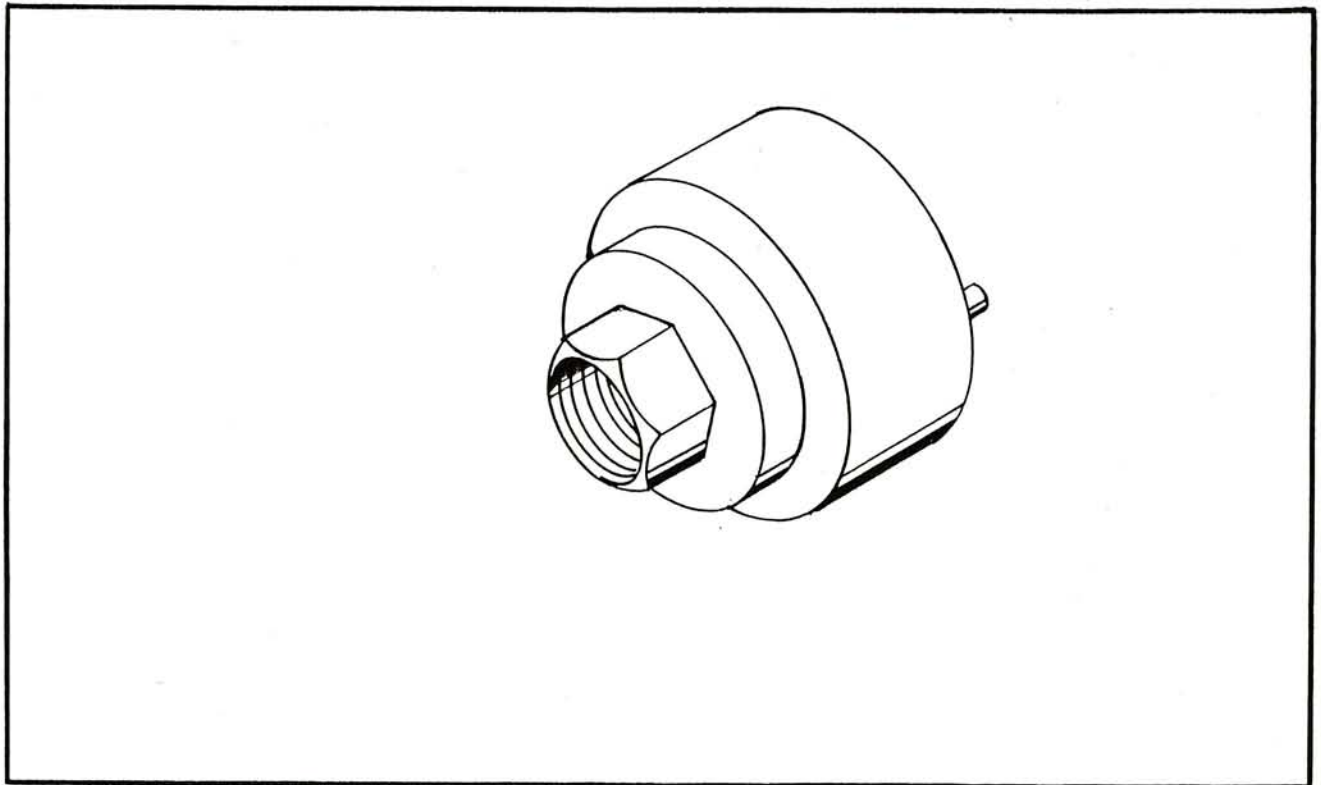


Figure 1-5. Retaining Ring Socket

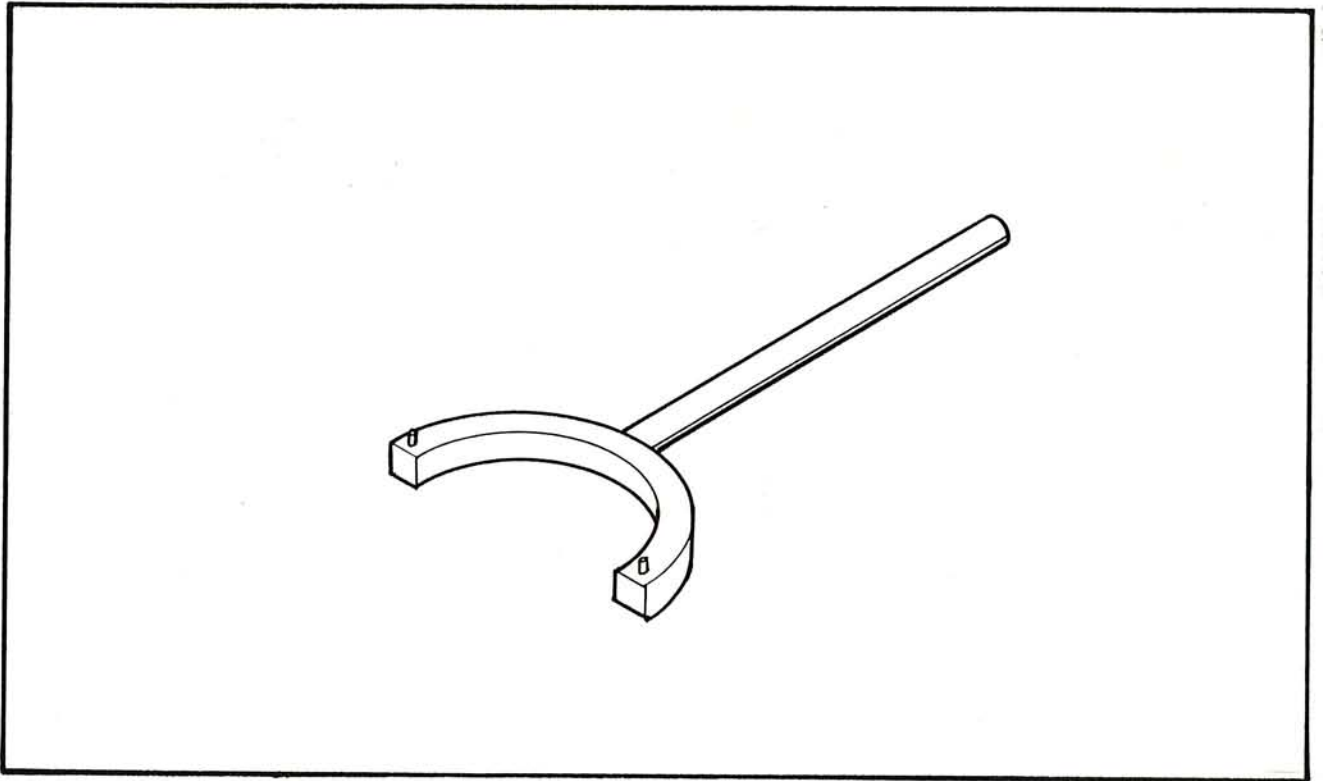


Figure 1-6. Gland Nut Wrench

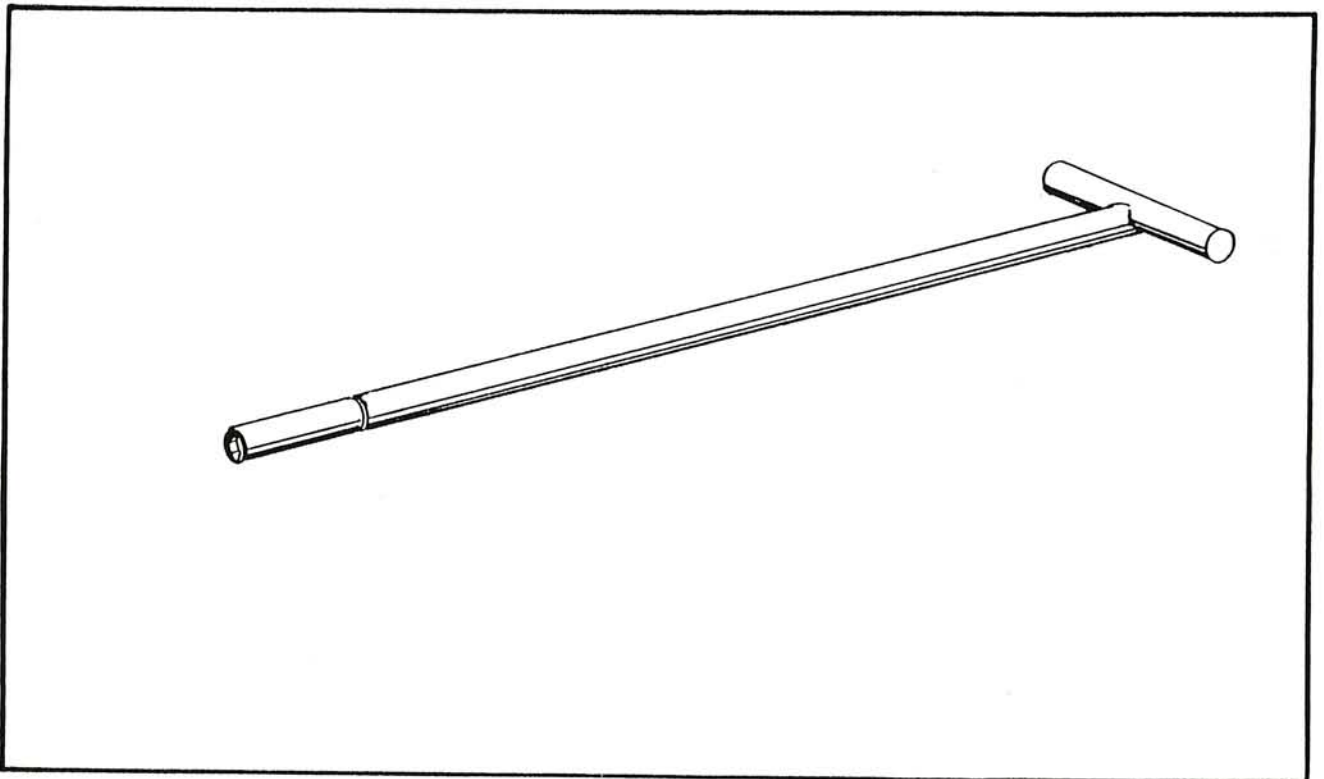


Figure 1-7. Cylinder Bleed Wrench

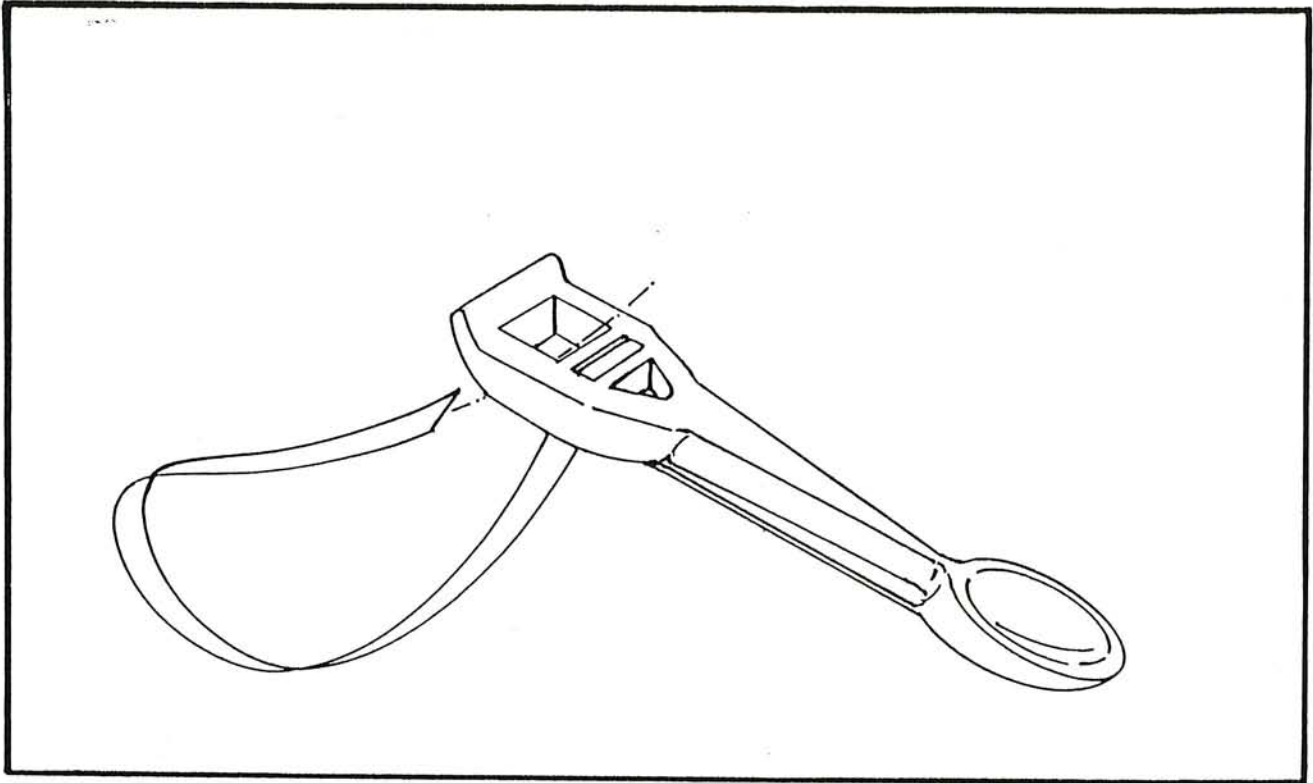


Figure 1-8. Strap Wrench

1. Tie Rod Tensioners
2. Tensioner Brackets
3. Tensioner Spacer

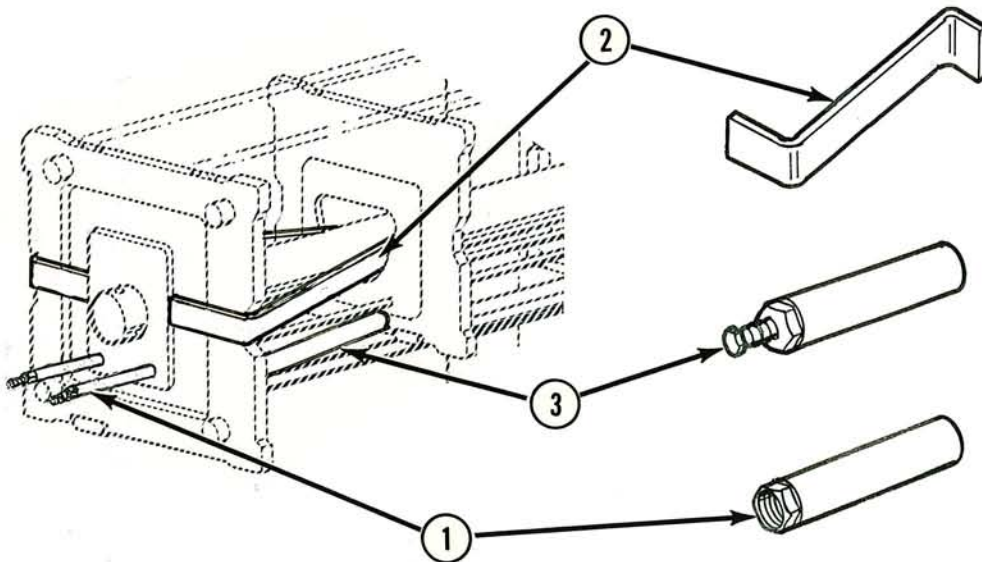


Figure 1-9. Cylinder Insertion Tool

SECTION II

SAFETY

2-1. RULES AND PRECAUTIONS BEFORE USING THE UP-RIGHT LIFT.

Read and then follow completely all Safety Rules and Precautions before operating the Up-Right Lift UL-20/26.

- a. Thoroughly **INSPECT** entire Up-Right Lift for damage such as cracked welds, loose rivets, loose or missing hardware.
- b. **NEVER** use damaged equipment. Contact nearest Up-Right Service Center for instructions.
- c. **NEVER** elevate platform unless all four outriggers have been properly positioned and installed. All outrigger screwjack pads must be in contact with a firm surface before the platform is elevated.
- d. **NEVER** use the Up-Right Lift within 10 feet of electric power lines. This work platform is **NOT** insulated.
- e. **NEVER** elevate the platform unless the base is level.
- f. **NEVER** sit, climb, or stand on the platform guardrails or midrails.
- g. **NEVER** attempt to move the Up-Right Lift when personnel or materials are on the platform or with the platform elevated.
- h. **NEVER** elevate platform if it contains more than the rated load of 300 pounds or more than one person.
- i. **NEVER** attach overhanging loads to the platform or increase the platform size.
- j. **NEVER** use ladders, planks or other devices to increase the height of the platform.
- k. **NEVER** use the Up-Right Lift as a freight or personnel elevator.
- l. **CHECK** clearances above and below the platform.
- m. **LATCH** rope across opening after entering platform.
- n. **AFTER USE** secure the work platform against unauthorized use by turning off the Key Switch and removing Key.
- o. On battery operated models, the battery charger leads **MUST** be connected to battery prior to plugging in charger to ensure no bodily injury.

SECTION III

PREPARATION FOR USE, SHIPMENT AND STORAGE

3-1. PREPARATION FOR USE.

WARNING

STAND CLEAR when cutting the metal banding to avoid being cut when the banding snaps back.

CAUTION

Before standing crate upright, remove banding from battery cradle.

- a. Remove the metal banding around the crate.
- b. Disassemble crate by removing the top and four sides.

NOTE

You may wish to retain the crate to be used for future shipment.

- c. Remove banding from battery cradle.
- d. Unpack the battery charger on D.C. units and any included options.
- e. Remove the metal banding securing the Up-Right Lift to the base of the crate.
- f. Using a rope or tie down, tie off the cage to the ladder to restrain the mast assembly from extending.
- g. Using a suitable lifting means at the attach point near the top of the cage support, stand the work platform up.

3-2. TRANSPORT.

CAUTION

To prevent serious damage to the Mast Assembly, **NEVER** place rope or tie downs across the Mast Assembly when securing the work platform for transport.

- a. The Up-Right Lift may be transported in a vehicle such as a pick-up truck, etc. with the assistance of a Loader Option. (See Figure 4-3, Section IV).

b. The Loader has been designed for easy loading and transporting of the Up-Right Lift. See Paragraph 4-11 for detailed instructions.

3-3. SHIPMENT

a. The Up-Right Lift must be shipped horizontally in a crate to protect the machine.

b. Disconnect the battery leads and band the battery to the battery cradle. (DC Models only).

3-4. STORAGE. No preparation for storage is required for normal usage. Regular maintenance per Table 5-1 and Figure 5-1 should be performed. If the work platform is to be placed in long term storage (dead storage) use the following preservation procedure.

a. Preservation.

(1) Clean painted surfaces. If the paint surface is damaged, repaint.

(2) Fill the hydraulic reservoir to operating level. Reservoir has a capacity of 1.5 gallons.

NOTE

The hydraulic system should be filled to the operating level with Mobil DTE 13 or equivalent. Do not drain.

(3) Coat all exposed unpainted metal surfaces with preservative.

b. Batteries (DC Units only).

(1) Disconnect the battery leads and secure them to the battery cradle.

(2) Remove the battery and place in alternate service.

SECTION IV
OPERATION INSTRUCTIONS

4-1. THEORY OF OPERATION

4-2. GENERAL FUNCTIONING. The electric motor drives a hydraulic pump which supplies fluid pressure to a single stage hydraulic lift cylinder which is located in the center of the mast assembly. The lift cylinder is attached to the base of the work platform and the first movable mast stage. As the lift cylinder extends it in turn forces the remaining mast stages to follow, through a series of alternately connected lift chains.

4-3. SAFETY DESIGN. The Up-Right Lift has the following features to ensure safe operation.

a. A dual lift chain design provides redundancy in the lift system to prevent a free descent in the case of a single element failure.

b. An orifice located in the lift cylinder creates a hydraulic pressure drop to control the descent rate in case of a hydraulic line failure.

c. The emergency down valve located at ground level on the power unit provides a manual override of the down function in the event of an electrical malfunction or operator emergency.

4-4. CONTROLS AND INDICATORS. The controls and indicators for operation of the Up-Right Lift are shown in Figure 4-1. The name and function of each are shown in Table 4-1. The index numbers in Figure 4-1 correspond to the index numbers in Table 4-1.

Table 4-1. Controls and Indicators

INDEX NUMBER	NAME	FUNCTION
1	Key Switch	Provides Power to Lift/Lower Switch.
2	Lift/Lower Switch	Lifting UP on the switch elevates the Up-Right Lift. When the switch is released the lift stops. Pushing DOWN on switch lowers the Up-Right Lift.
3	Emergency Down Valve, D.C. Power Units	When knob is turned counterclockwise to OPEN position platform lowers. Valve is closed by turning knob clockwise. The platform cannot be raised until valve is closed.

1. Key Switch
2. Lift/Lower Switch
3. Emergency Down Valve, D.C. Unit
4. Emergency Down Valve, A.C. Unit
5. Orbit Level

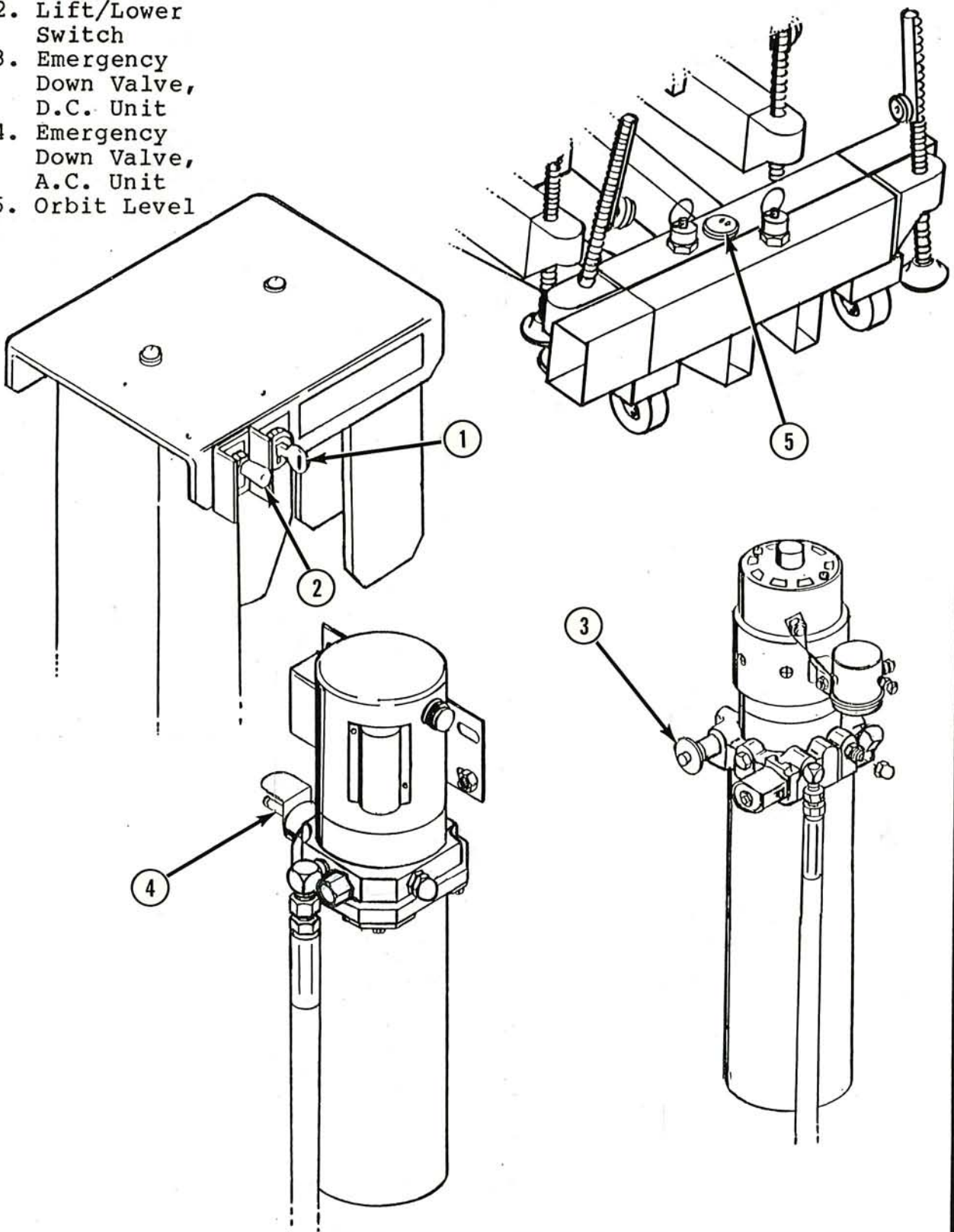


Figure 4-1. Controls and Indicators

Table 4-1. Controls and Indicators - Continued

INDEX NUMBER	NAME	FUNCTION
4	Emergency Down Valve, A.C. Power Units	When knob is turned counterclockwise and then pulled out platform lowers. Valve is closed by pushing knob in and then turning clockwise. The platform cannot be raised until valve is closed.
5	Orbit Level	When bubble is in center of level, this indicates machine is level. Leveling is achieved by using screw-jacks at end of each outrigger.

4-5. OPERATING PROCEDURES.

4-6. PRE-OPERATION CHECKOUT.

- a. Read and then follow completely the Safety Rules and Precautions per Section II, SAFETY.
- b. Check for external damage to the mast.
- c. Ensure that the work platform has been properly set up with all four outriggers in proper position. (See paragraph 4-7).
- d. On DC Power Models, check state of battery. (See Section V, paragraph 5-7).
- e. Check fluid level in battery per Section V, paragraph 5-7.
- f. Before operating ensure that Emergency Lowering Valve is closed (on side of Power Unit).
- g. Using dip stick, check hydraulic fluid level. Use Mobil DTE 13.
- h. On AC Power Models, plug cord into a 120 V.A.C. 60 Hz power source.

4-7. POSITIONING OF OUTRIGGERS (Figure 4-2).

WARNING

NEVER elevate platform unless all four outriggers have been properly positioned and all outrigger screwjack pads are in contact with firm surface.

- a. Pull the two front outriggers out until lockpins engage.

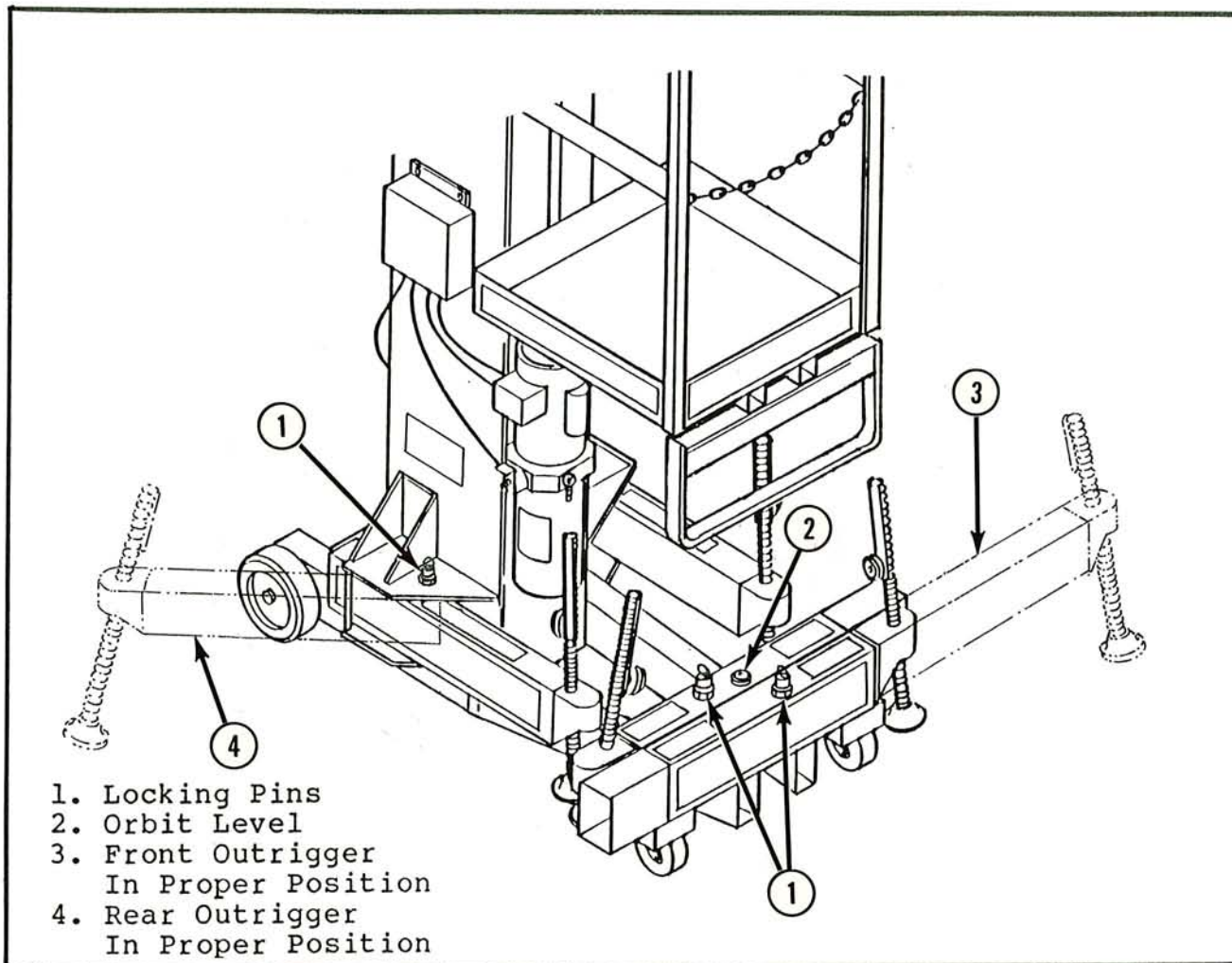


Figure 4-2. Outrigger Positioning Configuration

b. Rotate rear outriggers out towards rear of machine until they stop.

c. Then push outrigger in until locking pin engages. Pull out on outrigger to ensure engagement.

NOTE

At this point machine may be moved provided outrigger screwjacks are fully retracted.

d. Level the base, using the screwjacks at the end of each outrigger.

WARNING

All four screwjack pads **MUST** be in contact with ground before platform is elevated.

e. Center the bubble in the orbit level (located on the center of front outrigger socket) by adjusting screwjacks at end of each outrigger.

4-8. OPERATION.

WARNING

NEVER operate Up-Right Lift unless outriggers are properly positioned.

- a. Mount the platform using the access ladder.
- b. Latch rope across entrance after mounting the platform.
- c. Check for overhead obstructions.
- d. Turn on the keyswitch (1, Figure 4-1).
- e. Lift **UP** on the toggle switch (2, Figure 4-1) to elevate the platform.
- f. Release the toggle switch to stop.

WARNING

If the platform continues to elevate after releasing the "UP" switch hold the switch in "DOWN" position and the platform will lower.

WARNING

ALWAYS check that the area below the platform is clear before lowering the platform.

- g. Push **DOWN** on toggle switch to lower the platform.
- h. After use, secure machine against unauthorized use by turning **OFF** key switch and removing key.

4-9. EMERGENCY PLATFORM LOWERING. In the event of a power loss or electrical malfunction the platform may be manually lowered from the ground by means of a valve located on the power unit (3,4 Figure 4-1.).

a. On D.C. Power Units:

- (1) Turn valve counterclockwise to lower platform.
- (2) After platform is lowered turn valve fully clockwise to close valve. Valve must be fully closed for normal operation.

b. On A.C. Power Units:

(1) Turn knob counterclockwise and then pull out to lower platform.

(2) To close valve push knob in and then turn clockwise. Valve must be fully closed for normal operation.

4-10. OPTIONAL TILT-BACK ASSEMBLY (Figure 4-3). An optional tilt-back assembly is available to allow the UL-20/26 to pass through an opening less than 79 inches.

CAUTION

ENSURE that the jack retaining pin is properly installed before tilting the work platform back onto the transport frame.

CAUTION

Before using tilt-back assembly the lever arm **MUST** be installed and pinned.

a. Deploy the tilt back assembly by removing the retaining pin (1) and lowering the caster frame (2) until the jack (3) comes to rest on the upper mounting bracket (4).

b. Attach the jack (3) to the upper mounting bracket (4) using retaining pin (1).

c. Ensure jack is fully extended by turning handle (5) counterclockwise.

d. Remove lever arm (6) from storage position and insert it into bracket located center front under outrigger socket (7). Then insert retaining pin (8).

e. Pull upward on end of lever arm until the work platform comes to rest on the tilt back assembly.

f. Remove lever arm and replace in storage position.

g. Turn handle (5) on jack counterclockwise to lower the work platform until the desired overall height is reached.

h. Turn handle (5) clockwise to lift the work platform.

i. To stand the work platform upright, fully extend the jack (3). Insert the lever arm into the front and push downward on the end of the lever arm. As the mast approaches vertical, counterbalance the machine's weight by increasing the upward force on the end of the lever arm. This allows the work platform to settle gently on the front casters, avoiding undue impact on the work platform.

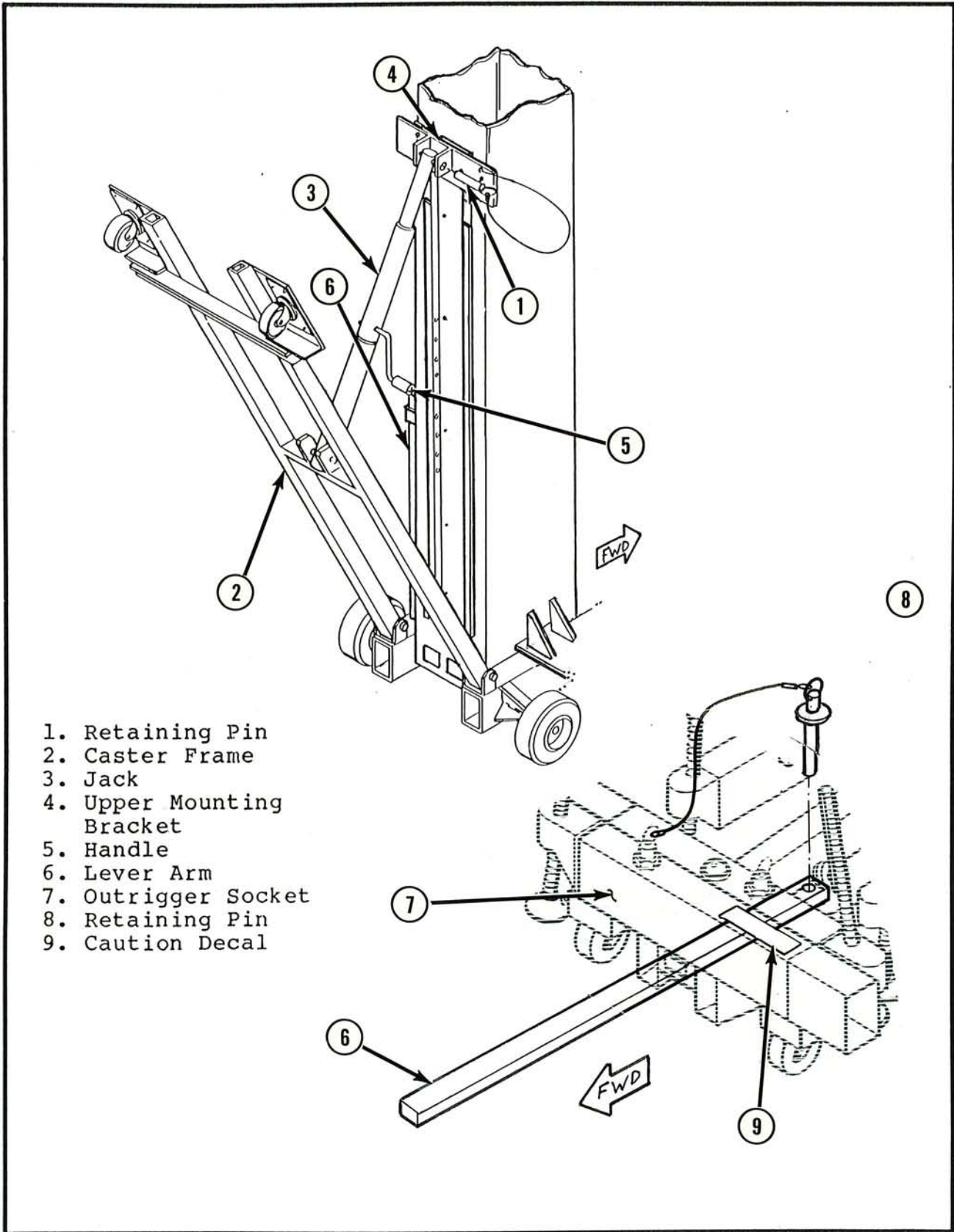


Figure 4-3. Optional Tilt-Back Assembly

j. When work platform is back to upright position, return tilt back assembly to original position by releasing retaining pin (1) from upper mounting bracket (4) and releasing jack.

k. After releasing the jack from bracket, position tilt back frame vertically in stored position and reinstall retaining pin in upper mounting bracket.

l. Remove outrigger and replace in storage position.

m. Release retaining pin. Remove lever arm and return it to stored position.

4-11. OPTIONAL LOADER (Figure 4-4).

WARNING

ENSURE the loader bar is in full contact with a clean level surface.

a. Loading Up-Right Lift Into Vehicle Using Optional Loader.

(1) Slide loader bar (1) (located on rear of work platform) up past the top set of holes and engage the loader pin (2) through the top set of holes **BELOW** the loader bar.

(2) Back the work platform to the rear of the vehicle bed until rear of work platform comes in contact with vehicle bed.

(3) Remove loader pin (2) and slide loader bar (1) down until it comes in contact with the vehicle bed. Then engage loader pin in the first available set of holes **ABOVE** the loader bar. Use hair pin retainer (3) to secure loader pin (2).

CAUTION

Before using loader the lever arm **MUST** be installed and pinned.

(4) Remove the lever arm (6) from storage position and insert it into the bracket located center front under outrigger socket (7). Then insert retainer pin (8).

(5) Pull upward on the end of the lever arm using the loader bar as a fulcrum until the work platform rotates to a horizontal position in the vehicle bed.

(6) Push the base of the work platform towards the front of the vehicle bed. The loader bar will slide on the work platform until the rear wheels contact the vehicle bed.

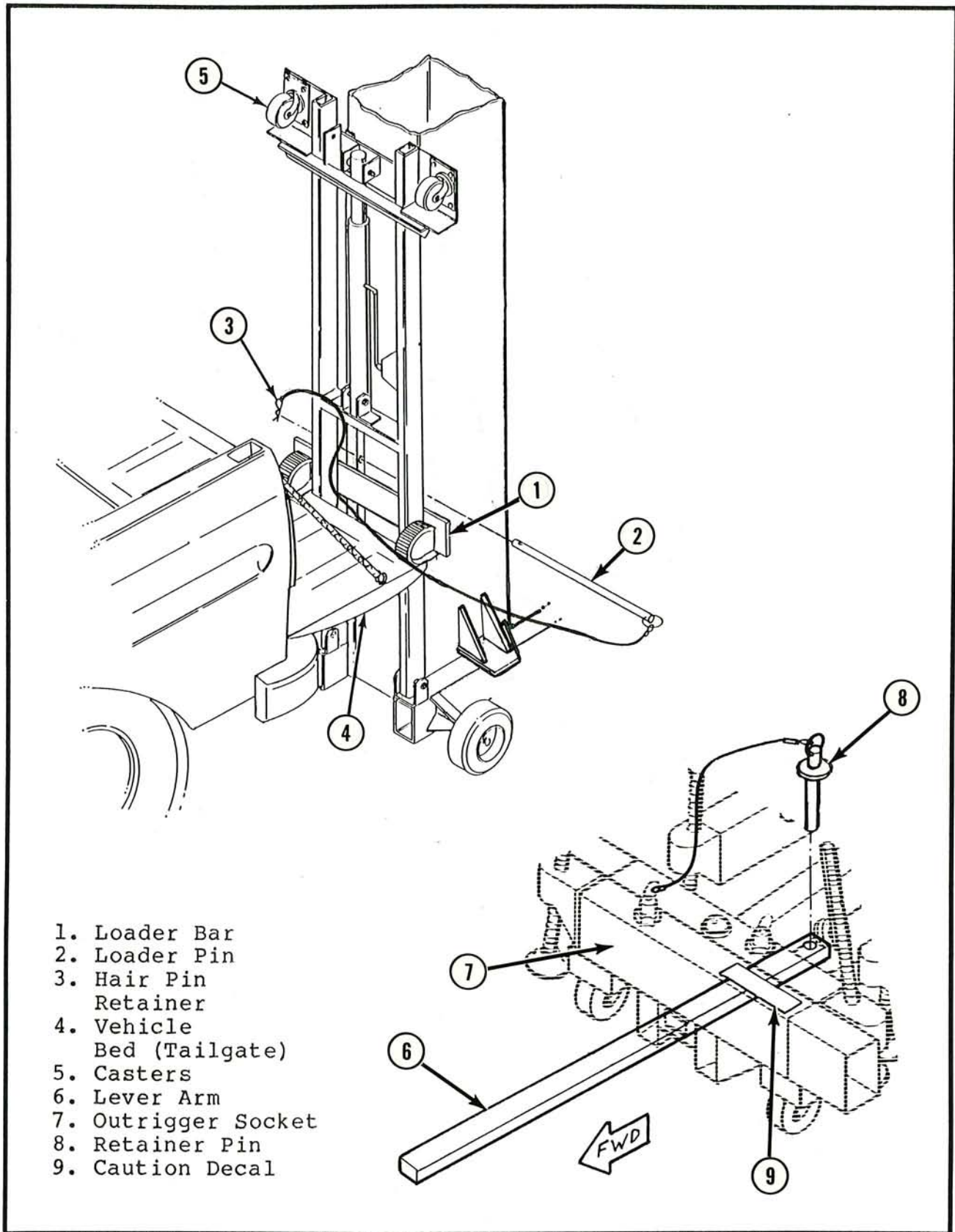


Figure 4-4. Optional Loader

(7) The work platform may then be rolled on the rear wheels and the casters (5) located near the top of the work platform until the work platform is securely on vehicle bed.

(8) Release retaining pin and remove the lever arm in the front socket and return it to the storage location.

CAUTION

To prevent serious damage to the mast assembly, **NEVER** place rope or tie downs across the mast assembly when securing the work platform to vehicle.

(9) Secure the work platform with rope using the tie down holes located on the base of the work platform and at the top of the cage support member.

b. Unloading Up-Right Lift From A Vehicle Using Optional Loader.

(1) Untie ropes from the work platform.

(2) Insert the lever arm (6) into bracket located center front under outrigger socket (7). Then insert the retaining pin.

(3) Roll the work platform back until the rear wheels are off the edge of the vehicle bed.

(4) Pull downward on the lever arm, allowing the work platform to slide on the loader bar. As the work platform stops sliding on the loader bar it will rotate upright using the loader bar as a fulcrum.

(5) Gradually counterbalance the work platform's weight by applying an upward force on the lever arm. This allows the work platform to settle gently on the front casters, avoiding undue impact on the work platform.

(6) Remove the lever arm and return it to the storage location.

SECTION V

MAINTENANCE INSTRUCTIONS

5-1. **SCOPE.** This section contains instructions for the maintenance of the UP-RIGHT LIFT. Procedures for the operational checkout, adjustment, scheduled maintenance, troubleshooting and repair/replacement are included.

5-2. **LOCATION OF COMPONENTS.** Figure 5-1 illustrates major components on the Up-Right Lift.

5-3. **SCHEDULED INSPECTION AND MAINTENANCE.**

5-4. **GENERAL.** The complete inspection consists of periodic visual and operational checks, together with all necessary minor adjustments to assure proper performance. Refer to Table 5-1.

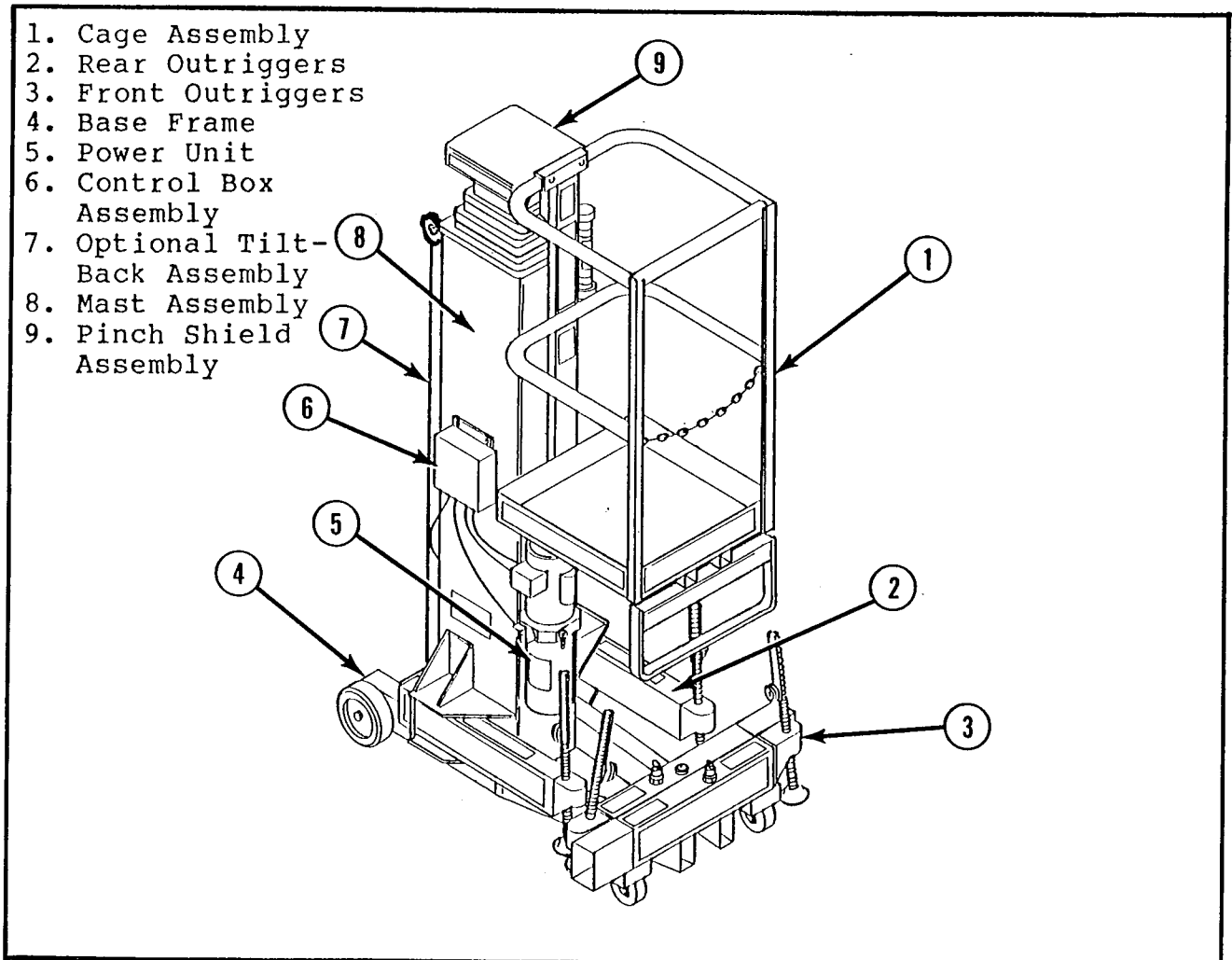


Figure 5-1. Location of Components

Table 5-1. Inspection, Checks and Services.

INTERVAL	COMPONENT/LOCATION	INSPECTION/CHECK/SERVICES
Each Shift	Battery System DC Models/Chassis	Check electrolyte level. Check specific gravity. Clean exterior. Check cable condition. Check batteries per paragraph 5-7.
	Hydraulic Reservoir/ Chassis	Check fluid level and fill if necessary.
	Casters/Chassis	Check for damage.
	Platform Retractable Control Cord/Cage Assy.	Check exterior of the cable for pinching.
	Cage and Cage Support Assy./Cage Assy.	Check fasteners for tightness. Check welds for cracks. Check condition of deck.
	Mast Assembly	Inspect for external damage, dents or cracks.
125 Hours	Control Valve, Hydraulic Pump/ Chassis.	Check for leaks at valve base. Check hose connections for serviceability. Check hose for wear. Open emergency down valve and check for serviceability. Check pump for leaks at mating surfaces. Check mounting bolts for tightness.
	Lift Cylinder/Hydraulic System.	Check rod for gouges. Check seals for leaks. Check hose for serviceability.
	Control Console/ Platform.	Check switches operation. Check cable for wear.
	Up-Right Lift, Complete	Perform pre-operation checkout per paragraph 4-6.
	Up-Right Lift, Complete	Lubricate per paragraph 5-5.

Table 5-1. Inspection, Checks and Services - Cont'd.

INTERVAL	COMPONENT/LOCATION	INSPECTION/CHECK/SERVICES
250 Hours	Battery DC Models/ Chassis.	Clean terminals per paragraph 5-7.
	Hydraulic Pump/Chassis	Wipe clean.
	Chassis	Check hardware.
	Chains, Sheaves, Straps/Mast Assembly.	Check for wear. Check for deformation. Check for bending and weld cracks.
	Up-Right Lift, Complete	Check component mountings for tightness. Check all fasteners for tightness. Check welds for cracks. Check hoses for service- ability. Check for and repair collision damage.
1000 Hours	Hydraulic Fluid/Chassis	Drain hydraulic reservoir replace fluid per para- graph 5-6.

5-5. **LUBRICATION.** Refer to Figure 5-2 for location of items that require lubrication service. Use an aerosol chain lubricant for all components to be lubricated.

a. Rear Wheel Bearings.

(1) Apply with aerosol lubricant into bearing area (2).

b. Chains.

(1) Ensure that Up-Right Lift is in lowered position.

(2) Apply enough aerosol chain lubricant to exposed section of chain (3) to allow lubricant to run down chain.

c. Screw Jacks.

(1) Apply a moderate amount of aerosol chain lubricant to each screwjack assembly (1).

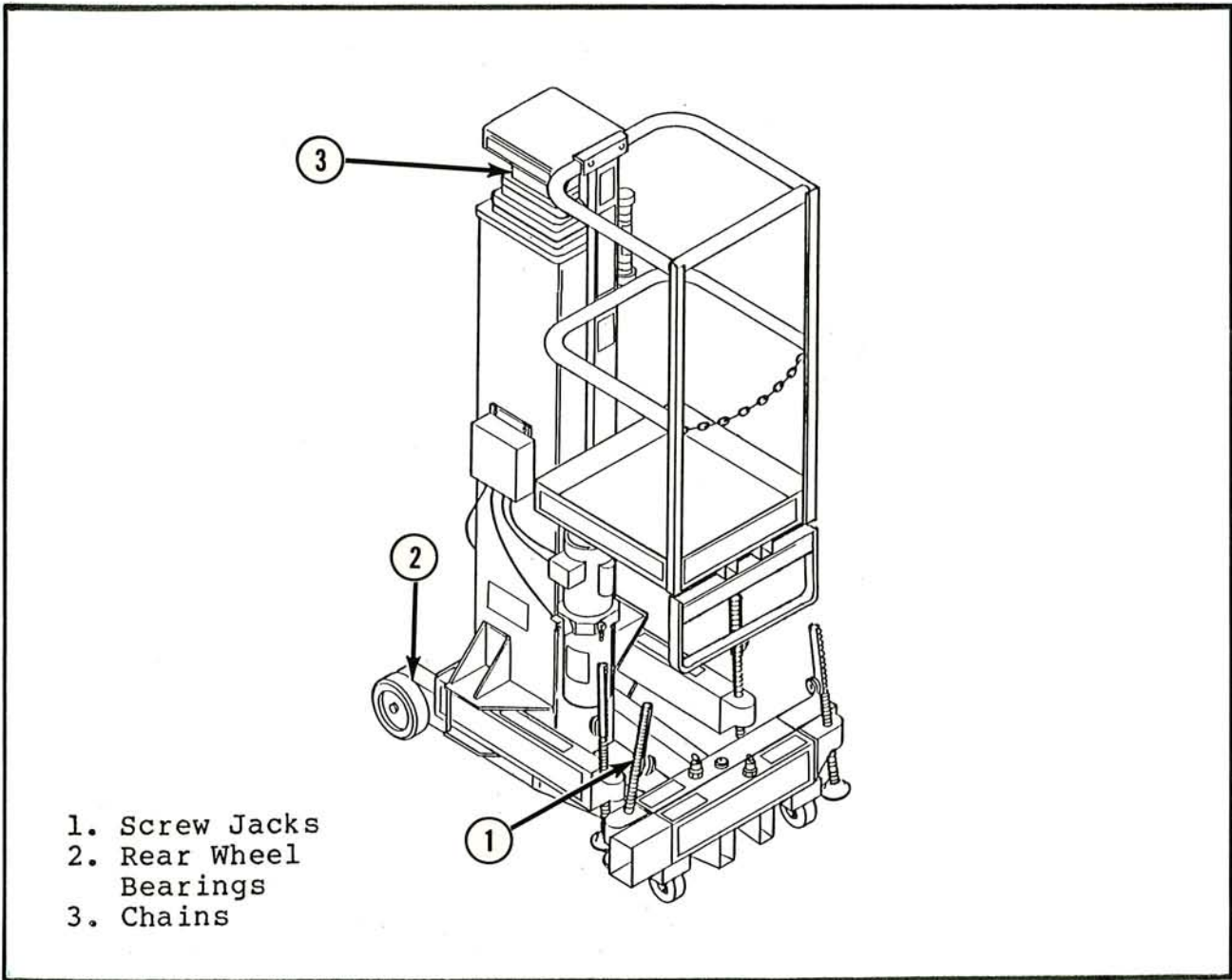


Figure 5-2. Lubrication Points

5-6. HYDRAULIC OIL RESERVOIR (Figure 5-3).

a. Remove hydraulic reservoir (4) from pump (1) by removing four screws (3) and four grip plates (2).

b. Provide a suitable container and discard hydraulic fluid (hydraulic reservoir has a 1.5 gallon capacity).

c. Fill hydraulic reservoir (4) with Mobil DTE 13 or equivalent hydraulic fluid. Hydraulic reservoir has a 1.5 gallon capacity.

NOTE

Ensure O-ring is in place on pump when installing hydraulic reservoir.

d. Reinstall hydraulic reservoir (4) to pump assembly (1) with grip plates (2) and screws (3).

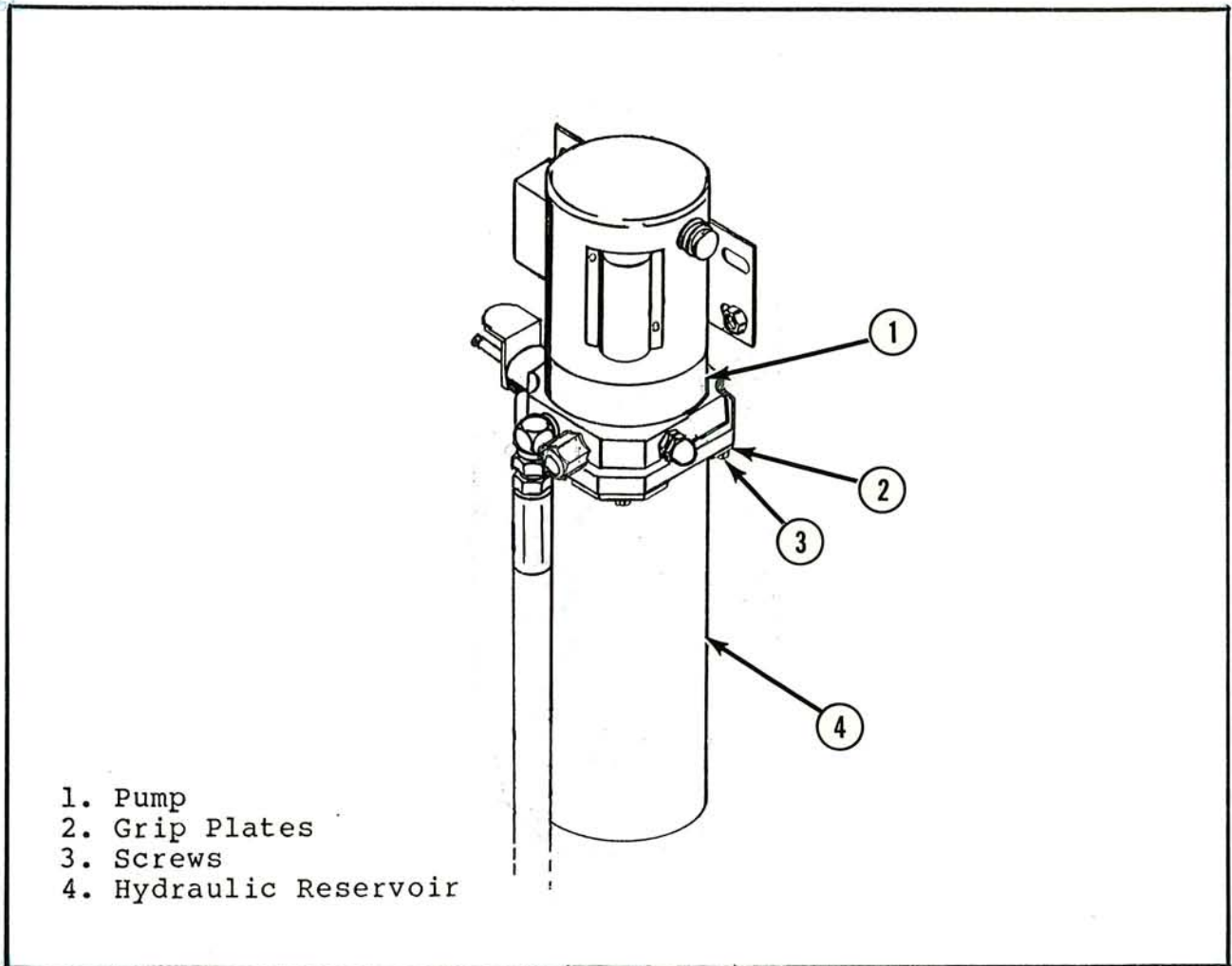


Figure 5-3. Hydraulic Oil Reservoir

5-7. **BATTERY MAINTENANCE (DC Model).** Electrical energy for the motor is supplied by one 12 volt battery. Proper care and maintenance of the battery and motor will ensure maximum performance from the Up-Right Lift.

a. Battery Inspection and Cleaning.

(1) Check battery fluid level daily, especially if Up-Right Lift is being used in a warm, dry climate.

CAUTION

If battery water level is not maintained, battery is not capable of full charge, creating a low discharge rate which will damage motor/pump unit and void warranty.

(2) Battery should be inspected periodically for signs of cracks in the case, electrolyte leakage and corrosion of the terminals. Inspect cables for worn spots or breaks in the insulation and for broken cable terminals.

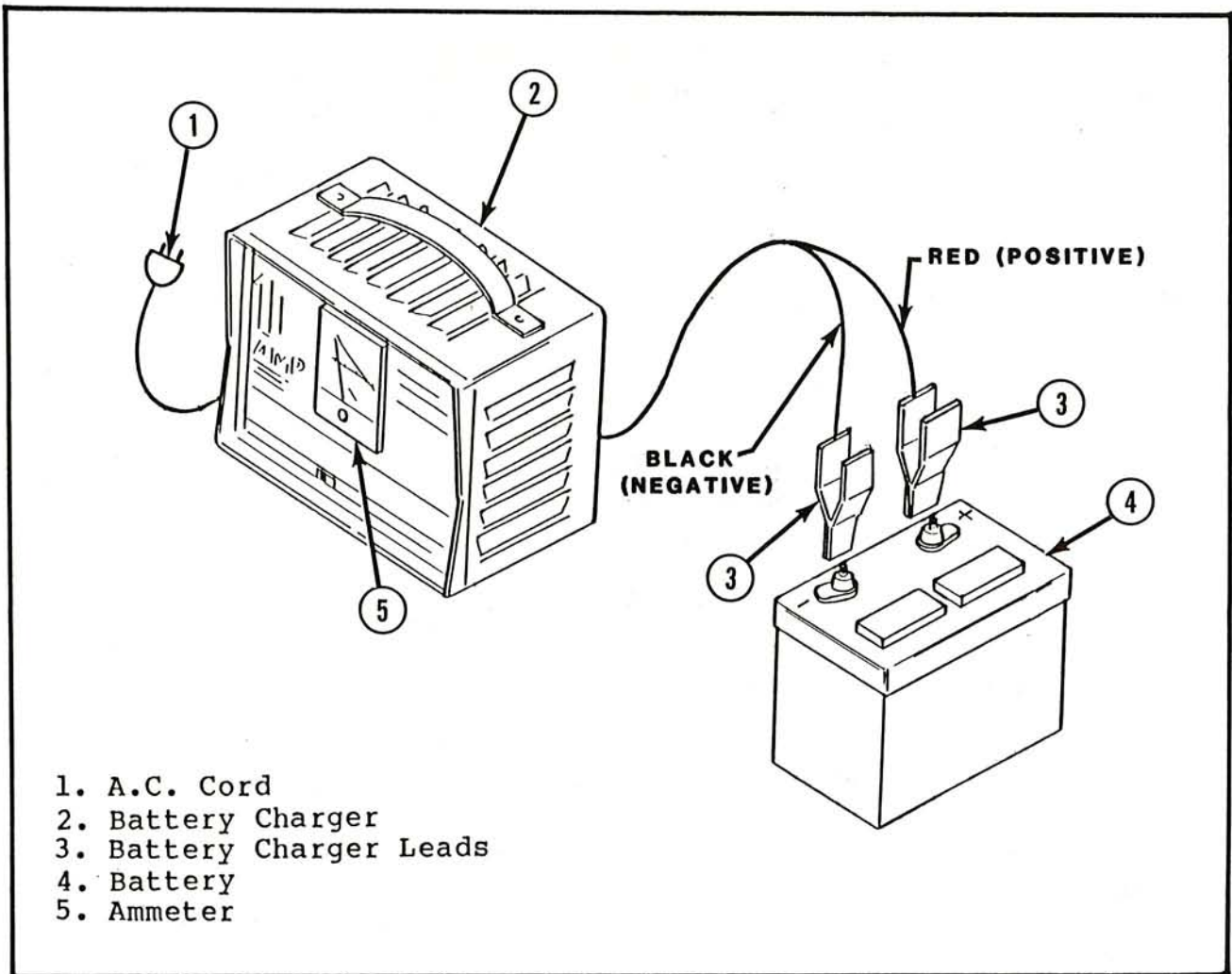


Figure 5-4. Battery Charger

(3) Clean battery when signs of corrosion at the terminals exist, or onto which electrolyte has overflowed during charging. Use a baking soda or ammonia solution to clean the battery, ensuring not to get the solution inside the cells. Rinse thoroughly with clear water. Clean battery and cable contact surfaces to a bright metal finish whenever a cable is removed.

b. Battery Charging (See Figure 5-4).

(1) Charge battery at end of each work shift or sooner if battery has been discharged.

WARNING

DO NOT charge batteries when the Up-Right Lift is in a hazardous area.

CAUTION

Permanent damage to battery will result if battery is not immediately recharged after discharging.

(2) When night air temperatures fall below 65 degrees F battery charged in unheated areas should be placed on charge as soon after use as possible.

WARNING

The Battery Charger Leads **MUST** be connected to battery **BEFORE** plugging in Charger in order to prevent possible bodily injury.

(3) Attach battery charger leads (3) to battery (4) (Note proper polarity).

(4) Connect AC Cord (1) to a properly grounded 115 volt, 60 Hz power supply.

(5) Charge battery. A completely discharged battery will require an eight hour charge.

(6) To determine approximate full charge at start of day's use, the ammeter (5) needle should indicate a charging rate of 1 amp or less.

c. Battery Cell Equalization.

(1) The specific gravity of the electrolyte in the battery cells should be equalized monthly. To do this, charge battery as outlined in Battery Charging. After this initial charge, check the electrolyte level in all cells and add water as necessary. Then, turn the charger on for additional eight hours. During this time, the charging current will be low (1 amp) as cells are equalizing.

(2) After equalization, the specific gravity of all cells should be checked with a hydrometer. The temperature corrected specific gravity in this state should be 1.260. If any corrected readings are below 1.230, the battery should be replaced. At any rate, the specific gravity in all cells after equalization should not vary more than .010. If a wide variation exists, this is an indication for need of battery replacement.

(3) Do not check the specific gravity in a cell to which water has just been added. If there is not enough electrolyte in a fully charged cell to obtain a sample for the hydrometer, add water and continue charging for one to two hours to adequately mix the water and electrolyte.

5-8. TROUBLESHOOTING.

5-9. SCOPE. Table 5-3 provides a logical sequence of tests that are designed to isolate problems with the UP-RIGHT LIFT. This table includes a list of probable causes and remedies. Refer to Tables 6-1, 6-2 and 6-3 for Reference Designators used in Table 5-3. Refer to Figures 6-1, 6-2 and 6-3 for Schematics.

5-10. SAFETY WHILE TROUBLESHOOTING.

WARNING

When troubleshooting, ensure that the lift is on a firm, level surface. When performing any service which requires the platform to be raised, ensure all four (4) outriggers are properly installed (Refer to 4-6). Unplug the work platform (disconnect battery) before replacing or testing the continuity of any electrical component.

TABLE 5-2. Troubleshooting

TROUBLE	PROBABLE CAUSE	REMEDY
1. Lift function inoperable, electric motor does not start.	1. Not plugged in or faulty connection. (AC only)	1. Check all plugs and cords used.
	2. No power at wall outlet. (AC only)	2. Check power output at wall outlet.
	3. Key Switch or Lift/Lower Switch faulty.	3. With the Key Switch (S1) in the ON position, check continuity across the contacts. If none, replace. Repeat procedure for Lift/Lower Switch (S2).
	4. Open circuit in cable to motor control box.	4. Test for continuity through cable assembly (J1) and repair or replace.
	5. Faulty motor relay or control voltage transformer. (AC only)	5. While operating the Lift function, check the voltage across the Relay Coil. If no voltage present, replace faulty Transformer (T1).
<p><u>WARNING</u></p> <p>While control circuit is energized, do not come in contact with any components or the electrical mounting bracket. To do so could result in serious injury or death.</p>		

TABLE 5-2. Troubleshooting - Cont'd.

TROUBLE	PROBABLE CAUSE	REMEDY
<p>1. Lift function inoperable, electric motor does not start - Cont'd.</p>	<p>5. Faulty motor relay or control voltage transformer. (AC only) - Cont'd.</p>	<p>If 24 VAC, check the Motor Relay by observing the contacts while energizing the UP circuit. If the contacts are not activated then replace the faulty Motor Relay (K1).</p>
	<p>6. Faulty Electric Motor. (AC only)</p>	<p>6. Replace Motor.</p>
	<p>7. Faulty Battery Charger (DC only).</p>	<p>7. Check the voltage output of the battery charger. If less than 12 VDC, repair or replace.</p>
	<p>8. Faulty Battery (DC only).</p>	<p>8. After completely charging the battery, test the Battery (BT). Replace as required.</p>
	<p>9. Faulty Motor Relay (DC only).</p>	<p>9. If 12 VDC or more, check continuity across the contact terminals of Motor Relay (K2) while still operating the Lift function. If there is no continuity, replace.</p>
	<p>10. Faulty Electric Motor (DC only).</p>	<p>10. While operating the Lift function, check the voltage across the Electric Motor (B) Terminals. If 12 VDC or more is present, replace the Motor (B).</p>

TABLE 5-2. Troubleshooting - Cont'd.

TROUBLE	PROBABLE CAUSE	REMEDY
2. Lift function inoperable. Electric Motor starts when control is activated.	1. Emergency Lowering Valve open.	1. Close valve.
	2. Hydraulic Reservoir low.	2. Check hydraulic fluid level, top off as required.
	3. Down Valve stuck.	3. Check or replace Down Valve (V1).
	4. Relief Valve out of adjustment or faulty.	4. Adjust the Relief Valve (RV1) (Paragraph 5-12). If not adjustable, replace.
	5. Load Delay Valve out of adjustment.	5. Adjust Load Delay Valve (LDV). (AC only) (See Adjustments Paragraph 5-13).
	6. Faulty Hydraulic Pump.	6. Check pressure and delivery of the Hydraulic Pump (ASSY1) Replace if required.
3. Platform does not descend. (Using Toggle Switch)	1. Down Valve Solenoid faulty.	1. Test for continuity across Solenoid. Repair or replace.
	2. Down Valve stuck closed.	2. Clean or replace valve.
	3. Electrical malfunction.	3. See Trouble 1, Cause/Remedy 3 and 4.
4. Platform does not come down or comes down very slowly. (Using Toggle Switch and Emergency Down Valve)	1. Orifice Check Valve plugged with contamination.	1. Remove and clean Orifice (V3) Check Valve per paragraph 5-20.
5. Platform Down function sticks.	1. Down Valve stuck open.	1. Clean or replace Down Valve (V1).

5-11. **ADJUSTMENTS.**

5-12. **SETTING SYSTEM RELIEF PRESSURE (Figure 5-5).**

NOTE

Check the hydraulic system pressure whenever the pump or relief valve has been serviced or replaced.

a. Operate the hydraulic system for 5-10 minutes to warm the fluid.

NOTE

Installing pressure gauge requires special adapter fittings. See Paragraph 1-9, Table 1-2 and Figures 1-3 through 1-7.

b. Unscrew hose (10) and cap hose.

c. Install special adapter fittings (6,7,8) and 0-5000 psi pressure gauge (9).

d. Uncap hose (10) and screw to special tee adapter fitting (6).

WARNING

Ensure that all four (4) outriggers are properly positioned and installed and the work platform is leveled before elevating platform.

e. Remove the cap (3), loosen the locknut (4) on Main Pump Relief Valve and unscrew the adjusting screw (5) several turns.

WARNING

DO NOT elevate when standing in platform while Pinch Shield is removed.

f. Remove the Pinch Shield (See Figure 5-8) and operate Pinch Shield controls from the ground.

g. Turn Key Switch **ON**.

h. Position Lift/Lower Switch to **UP** and elevate cage until it reaches the top and activates the Relief Valve.

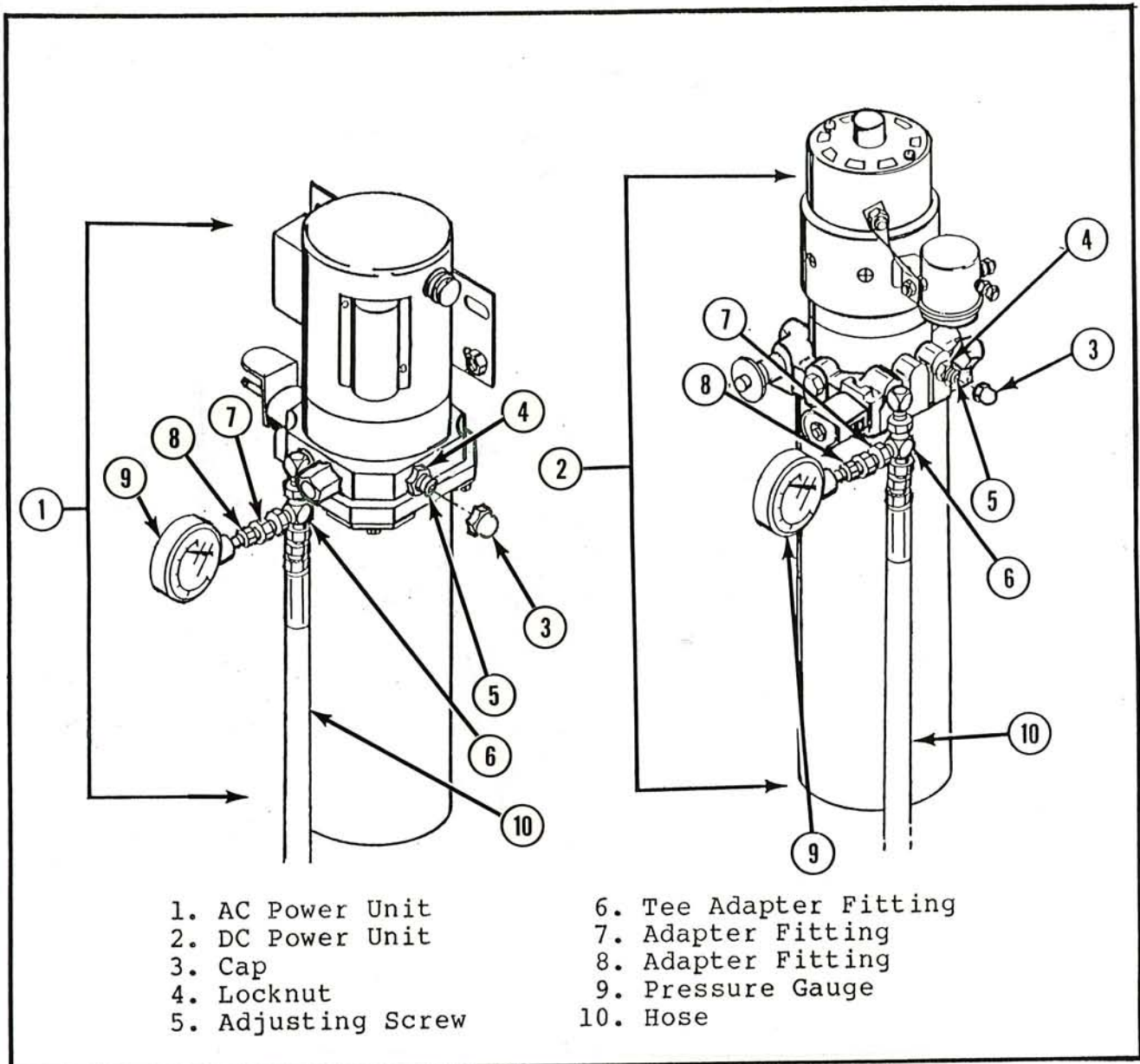


Figure 5-5. System Relief Pressure Adjustment

- i. Position the Lift/Lower Switch to **UP** and hold there.
- j. Slowly screw the adjusting screw (5) in to increase the pressure to 1800 PSI, then tighten the locknut and replace cap.
- k. Turn Key Switch **OFF**.
- l. Reinstall Pinch Shield.
- m. Remove special adapter fittings (6,7,8) and gauge (9) and reconnect hose (10) to remaining fitting.

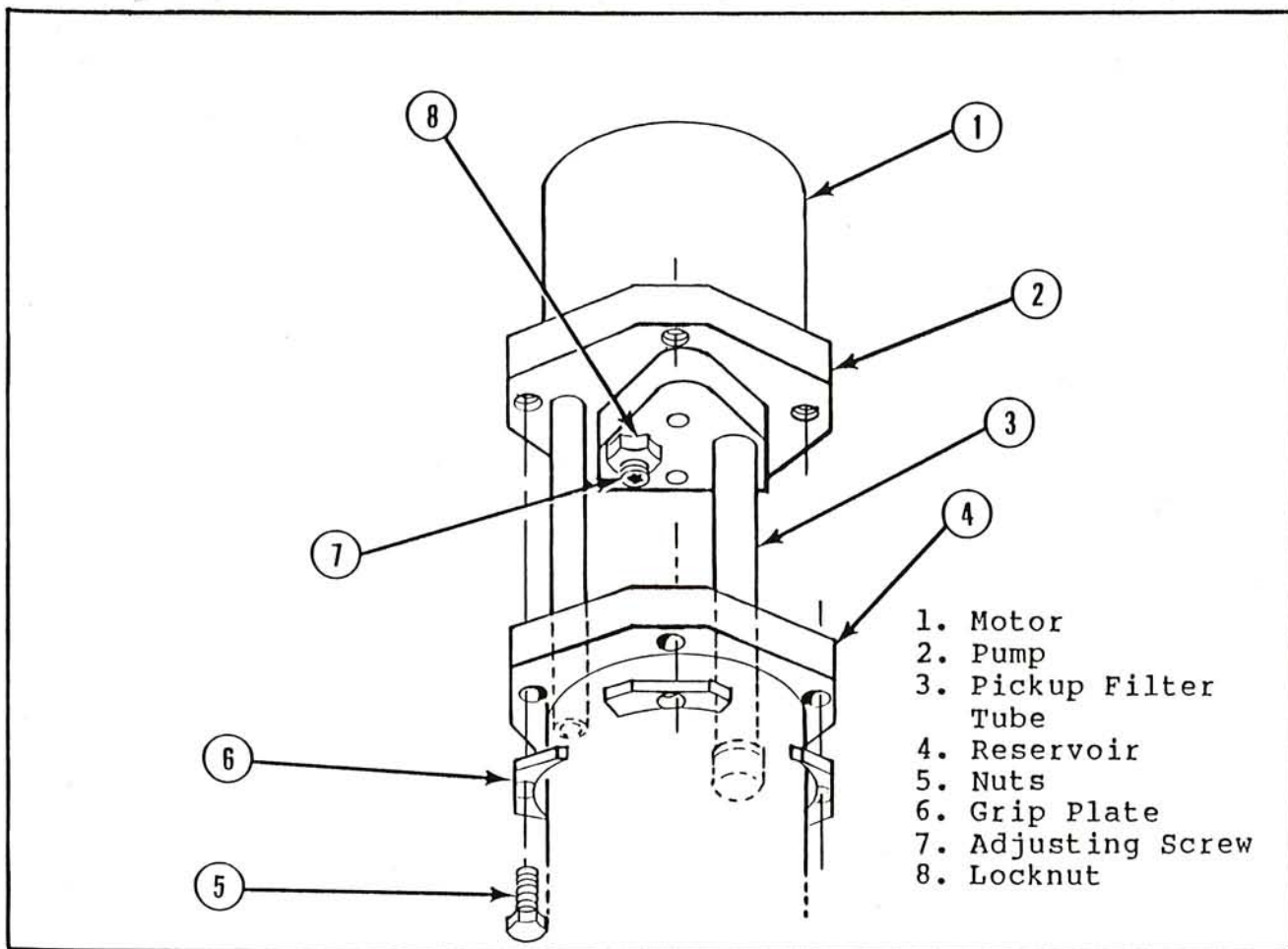


Figure 5-6. Load Delay Valve Adjusting
 (AC Models Only)

5-13. LOAD DELAY VALVE ADJUSTMENT, AC MODELS ONLY (Figure 5-6). The Load Delay Valve (which is used on AC Models only) provides an initial bypass of flow from the pump to allow the AC motor to develop greater startup torque.

WARNING

DO NOT operate when standing in platform while Pinch Shield is removed.

a. Remove the Pinch Shield to permit control from the ground.

b. Remove hydraulic reservoir (4) by removing the four screws (5) and four grip plates (6). Then carefully hold the reservoir up (approximately 2-3 inches from the drive plate) so that the pickup filter tube (3) is still in the hydraulic fluid and the load delay valve adjusting screw (7) on the pump (2) can be seen.

c. Activate the Up Switch and observe the fluid being bypassed by the Load Delay Valve. When properly adjusted the valve should bypass fluid for 1 second and then shut off.

d. To adjust the valve, loosen the locknut (8) on the adjusting screw (7) and turn the adjusting screw clockwise to increase the duration of bypass and counterclockwise to decrease the duration of bypass.

e. Tighten locknut (8) ensuring not to move adjusting screw (7).

f. Reinstall the reservoir, ensuring grip plates (6) are in place and tighten nuts (5).

g. Ensure Key Switch is OFF and replace the Pinch Shield.

5-14. REPAIR AND REPLACEMENT.

5-15. DISASSEMBLY/REMOVAL, MAST ASSEMBLY (Figures 5-7 and 5-8).

a. Mast Disassembly, General.

The general disassembly procedure is to remove one mast section at a time starting with the top section. The basic steps are to disconnect the sequence straps, the lift chains and then remove the top mast bearings. This procedure is the same for the 4th and 5th Stages.

Refer to Legend of Figure 5-7 (Sheet 1 of 2) and Figure 5-7 (Sheet 2 of 2) for proper identification of bearings per part number.

Before the 2nd and 3rd Stages can be removed the Cylinder Assembly must be removed from the bottom of the work platform.

Once the Cylinder Assembly has been removed the 2nd and 3rd Stages can be removed in the same manner as the 4th and 5th Stages.

The following sub-sections; b. Cage Support Assembly Removal., c. Fourth and Fifth Stage Mast Assembly Removal., d. Second and Third Stage Assembly Removal, describe in order, the necessary steps required to completely disassemble the Mast Assembly.

The components removed following this procedure may be further disassembled if necessary (See Figure 7-15, Section VII).

CAUTION

Do not lower work platform to a horizontal position without using a suitable lifting device.

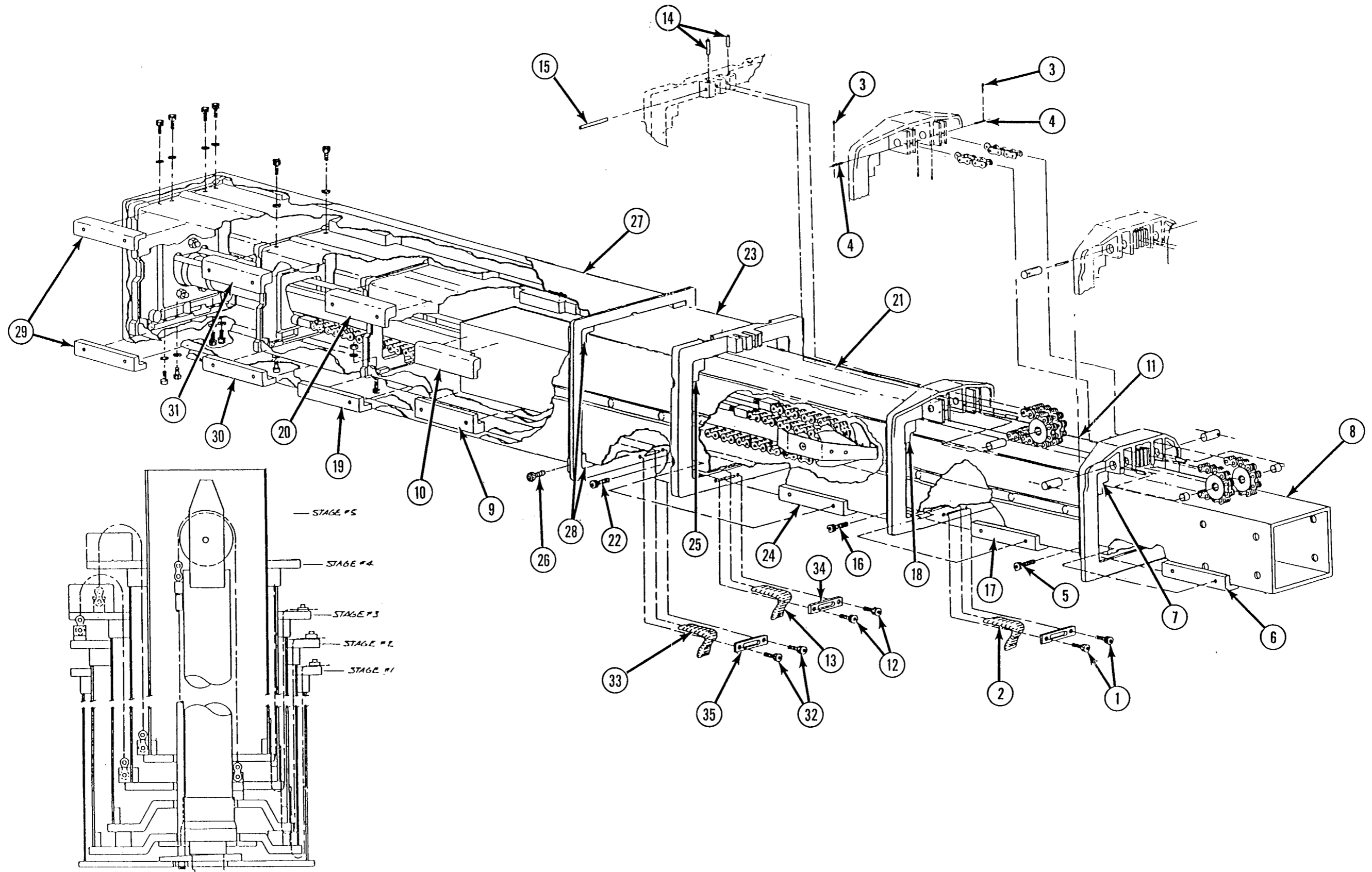
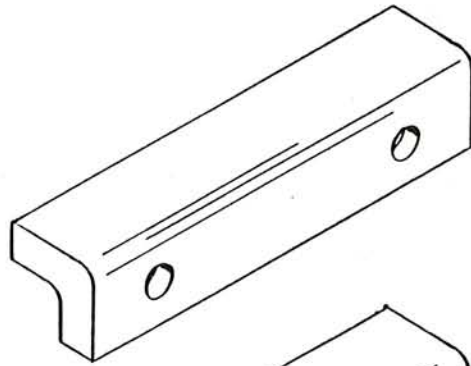


Figure 5-7. Mast Assembly Removal/Installation
(Sheet 1 of 2)

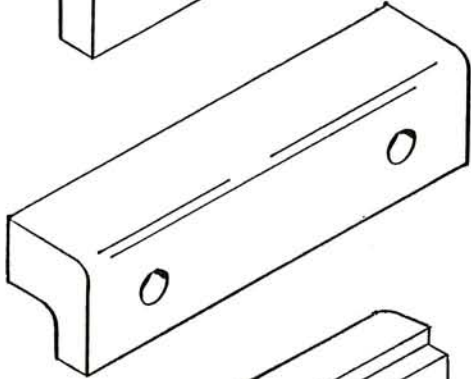
Legend for Figure 5-7 (Sheet 1 of 2)

1. Sequence Strap Clamp Bolts Bolts
2. Sequence Strap
3. Cotter Pins
4. Chain Pins
5. Mast Bearing Retaining Screws
6. Mast Bearings (P/N 62635-000-00)
7. Mast Bearings (P/N 62634-000-00)
8. 5th Stage Mast Assembly
9. Mast Bearings (P/N 62635-000-00)
10. Mast Bearings (P/N 62634-000-00)
11. 4th Stage Mast Assembly
12. Sequence Strap Clamp Bolts
13. Sequence Strap
14. Roll Pins
15. Chain Connecting Pin
16. Mast Bearing Retaining Screws
17. Mast Bearings (P/N 62158-000-00)
18. Mast Bearings (P/N 62159-000-00)
19. Mast Bearings (P/N 62158-000-00)
20. Mast Bearings (P/N 62223-000-00)
21. 3rd Stage Mast Assembly
22. Mast Bearing Retainer Screws
23. 2nd Stage Mast Assembly
24. Mast Bearings (P/N 62158-000-00)
25. Mast Bearings (P/N 62159-000-00)
26. Mast Bearing Retainer Screws
27. 1st Stage Mast Assembly
28. Mast Bearings (P/N 62158-000-00)
29. Mast Bearings (P/N 62158-000-00)
30. Mast Bearings (P/N 62158-000-00)
31. Mast Bearings (P/N 62159-000-00)
32. Sequence Strap Clamp Bolt
33. Sequence Strap
34. Sequence Strap Clamp
35. Sequence Strap Clamp
36. Bleed Screw Valve

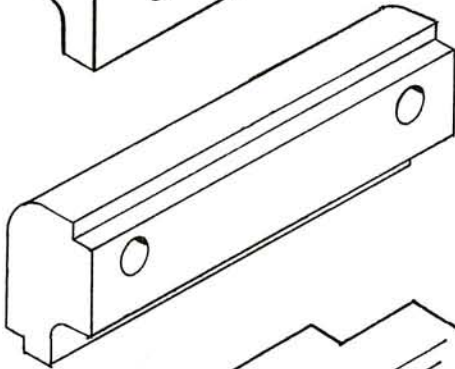
MAST BEARINGS



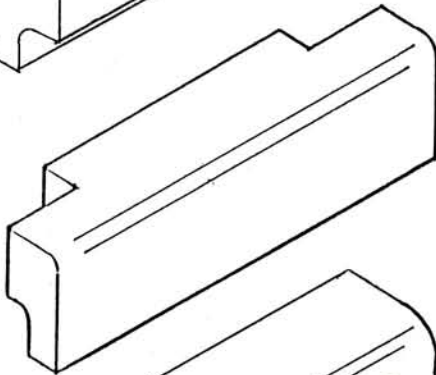
PART NO. 62158-000-00



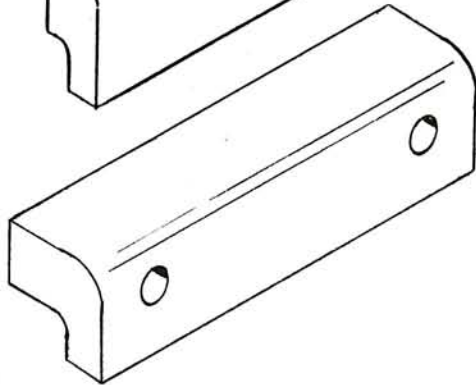
PART NO. 62159-000-00



PART No. 62634-000-00



PART NO. 62223-000-00



PART No. 62635-000-00

Figure 5-7. Mast Assembly Removal/Installation
(Sheet 2 of 2)

(1) Before proceeding with the disassembly it is necessary to lay the work platform down horizontally.

WARNING

Failure to secure cage to ladder before laying work platform down horizontally could result in bodily injury or damage to work platform.

(a) Secure cage to ladder to prevent the work platform from extending when tilted to horizontal position.

(b) Use a suitable lifting device at the attach point near the top of the Cage Support to lower the work platform into horizontal position.

b. Cage Support Assembly Removal (Figure 5-8).

(1) Remove the button head capscrews (1) and flat washers (2). Set aside the Pinch Shield (3).

(2) Extend the Mast Assembly (4) slightly to allow access to the cage support mounting capscrews. Remove capscrews (5) and flat washers (6) to release the Cage Support Assembly (7).

c. Fourth and Fifth Stage Mast Assembly Removal (Figure 5-7).

NOTE

Mark all components as they are removed so as not to confuse their location during reassembly.

(1) Loosen sequence strap clamp bolts (1) and pull sequence strap (2) through the clamp.

(2) Disconnect the 5th Stage lifting chains by removing the cotter pins (3) and the chain pins (4).

(3) Back out the four mast bearing retaining screws (5) until the four top mast bearings (6,7) can be pulled out.

(4) Slide out the 5th Stage Mast Assembly (8).

NOTE

The bottom mast bearings (9,10) will fall off the 5th Stage Mast Assembly once it is pulled out of the 4th Stage Mast Assembly (11).

(5) Loosen sequence strap clamp bolts (12) and pull sequence strap (13) through clamp.

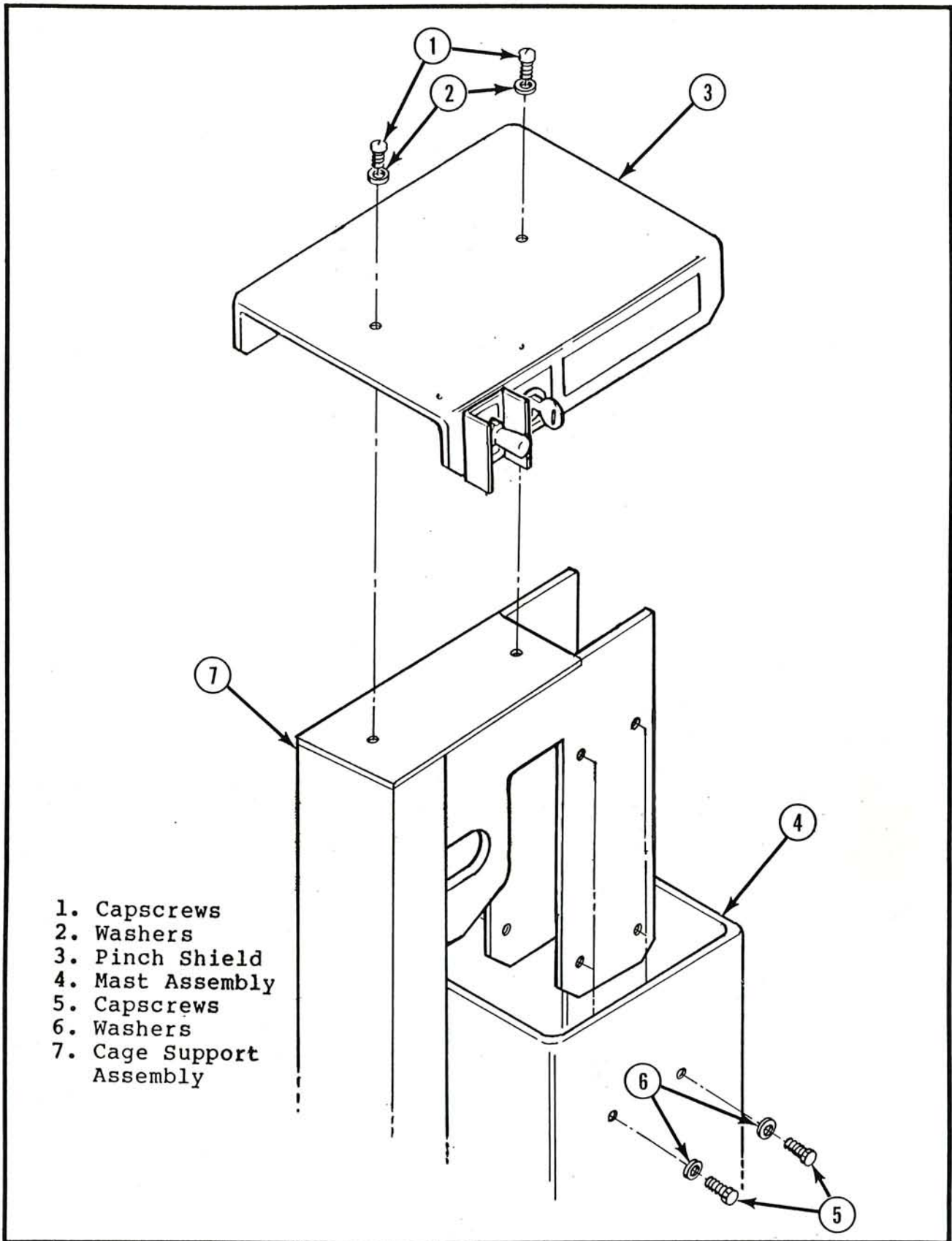


Figure 5-8. Cage Support Assembly Removal/Installation

(6) Disconnect the 4th Stage lifting chains by extracting roll pins (14) and removing chain connecting pin (15).

(7) Back out the four mast bearing retaining screws (16) until the four top mast bearings (17,18) can be pulled out.

(8) Slide out the 4th Stage Mast Assembly (11).

NOTE

The bottom mast bearings (19,20) will fall off the 4th Stage Mast Assembly once it is pulled out of the 3rd Stage Mast Assembly (21).

(9) Remove cylinder assembly per paragraph 5-17.

d. Second and Third Stage Assembly Removal. (Figure 5-7).

(1) Once the Cylinder Assembly has been removed the bottom mast bearings between the 1st and 2nd Stage Mast Assemblies and the bearings between the 2nd and 3rd Stage Mast Assemblies can be pulled out from the bottom.

(2) Back out the four mast bearing retaining screws (22) on the top of the 2nd Stage Mast Assembly (23) until the four top mast bearings (24,25) can be pulled out.

(3) Slide out the 3rd Stage Mast Assembly (21).

(4) Back out the four mast bearing retaining screws (26) on the top of the 1st Stage Mast Assembly (27) until the four top mast bearings (28) can be pulled out.

(5) Slide out the 2nd Stage Mast Assembly (23).

5-16. **REASSEMBLY, MAST ASSEMBLY** (Figures 5-7 and 5-8).

a. Mast Reassembly, General.

In general the procedure for reassembly of the mast is to install one mast section at a time starting with the 2nd Stage Mast (23). Once each mast stage has been reinstalled into the assembly, the cylinder assembly may be reinstalled from the bottom of the work platform.

(1) Slide the 2nd Stage Mast (23) into the 1st Stage Mast (27). Note the orientation so that the sequence strap retainer is towards the front of the work platform.

(2) Install the four top mast bearings (28) by slipping them between the two Mast Stages until the hole lines up with the bearing retaining screws (26). Then tighten the bearing retaining screws.

(3) Install the four bottom mast bearings (29) by sliding them between the two Mast Stages from the bottom of the work platform.

(4) Install the 3rd Stage Mast (21) by sliding it into the 2nd Stage Mast.

NOTE

Fold the sequence strap so that it lays inside the 3rd Stage Mast tube before installing.

(5) Install the four top mast bearings (24,25) between the 2nd and 3rd Mast Stages using the retaining screws (22).

NOTE

Orientate Item (25) towards the back of the work platform and Item (24) towards the front of the work platform.

(6) Install the four bottom mast bearings (30,31) between the 2nd and 3rd Mast Stages from the bottom of the work platform.

NOTE

Mast bearing orientation same as top.

(7) Install the 4th Stage Mast (11) by placing the four bottom mast bearings (19,20) between the bearing stops on the bottom of the 4th Stage Mast and sliding it into the 3rd Stage Mast.

NOTE

Orientation of Item (11) is with the chain towards the back of the work platform. Orientate item (20) towards the back of the work platform and items (19) towards the front. Also, fold the sequence strap so that it lays inside the 4th Stage Mast tube before installing.

(8) Install the four top mast bearings (17,18) between the 3rd and 4th Mast Stages using the retaining screws (16).

NOTE

Orientation of Items (17) is towards the front of the work platform and Items (18) towards the back.

NOTE

When reassembling the 4th Stage lift chain
NEVER reuse roll pins (14).

(9) Feed the 4th Stage lift chain through the sheave on the top of the 3rd Stage Mast and reconnect the chain to the chain attachment by installing chain connecting pin (15) and inserting roll pins (14).

(10) From the bottom of the work platform, pull the 4th Stage sequence strap so that it is laying out the bottom.

(11) Install the 5th Stage Mast (8) by placing the four bottom mast bearings (9,10) between the bearing stops on the bottom of the 5th Stage Mast and sliding it into the 4th Stage Mast.

NOTE

Orientation of Item (8) is with the chain towards the back of the work platform. Orientate items (10) towards the back of the work platform and items (9) towards the front. Also, fold the sequence strap so that it lays inside the 5th Stage Mast tube before installing.

(12) Install the four top mast bearings (6,7) between the 4th and 5th Mast Stages using the retaining screws (5).

NOTE

Orientation of Items (6) is towards the front of the work platform and Items (7) towards the back.

(13) Feed the 5th Stage lifting chains over the sheaves on the top of the 4th Stage Mast (11) and reconnect the chains to the chain anchors with chain pins (4) and cotter pins (3).

(14) Route the 5th Stage sequence strap (2) through the guide on the bottom of the 4th Stage Mast and up to the top strap retainer (32) between the 3rd and 4th Mast Stages and attach with clamp using strap clamp bolts (1).

(15) Install cylinder assembly per paragraph 5-17.

b. Cage Support assembly installation (See Figure 5-8).

(1) Install Cage Support Assembly (7) and secure with capscrews (5) and flat washers (6).

(2) Ensure Key Switch is **OFF** and install pinch shield (3) with flat washers (2) and capscrews (1).

5-17. CYLINDER ASSEMBLY REMOVAL/INSTALLATION (Figure 5-9).

a. Cylinder Assembly Removal.

(1) Disconnect the hydraulic hose (1) to the lift cylinder (2) and cap hose. Cap the fitting (15) on the lift cylinder.

(2) Remove nuts (4), flat washers (5), tie rod locknuts (6) and retaining ring (14) to remove the cylinder mounting plate (7).

(3) Refer to Figure 5-7. Loosen sequence strap clamp bolts (12,32) and pull sequence straps (13,33) through the clamps (34,35).

NOTE

If only the Cylinder Assembly is to be removed both sequence straps (13,33 Figure 5-7) must be released. To simplify the replacement of the Cylinder Assembly attach approximately 10 feet of string or banding material, etc. to the strap before it is removed. When the assembly is removed disconnect the attached string, etc. Then during reassembly reattach the string, etc. to the sequence straps.

(4) Remove the screws (8) and Pinch Shields (9) on lower front and back of the 1st Stage Mast Assembly.

(5) Remove the capscrews (10) and flat washers (11) which attach the 2nd (12) and 3rd (13) Stage bottom castings to the 2nd and 3rd Stage Mast Assemblies.

(6) Partially pull out the Cylinder Assembly (2) so that 2nd Stage bottom casting (12) and 3rd Stage bottom casting (13) are obtainable, ensuring to keep tension on tie rods.

(7) Install tensioner brackets (16) and tensioner spacer (17) on 2nd and 3rd Stage castings (12,13). (See Paragraph 1-8, Special Tools and Equipment.)

(8) Install tie rod tensioners (18) over ends of tie rods (19) tighten until chains are taut with no slack.

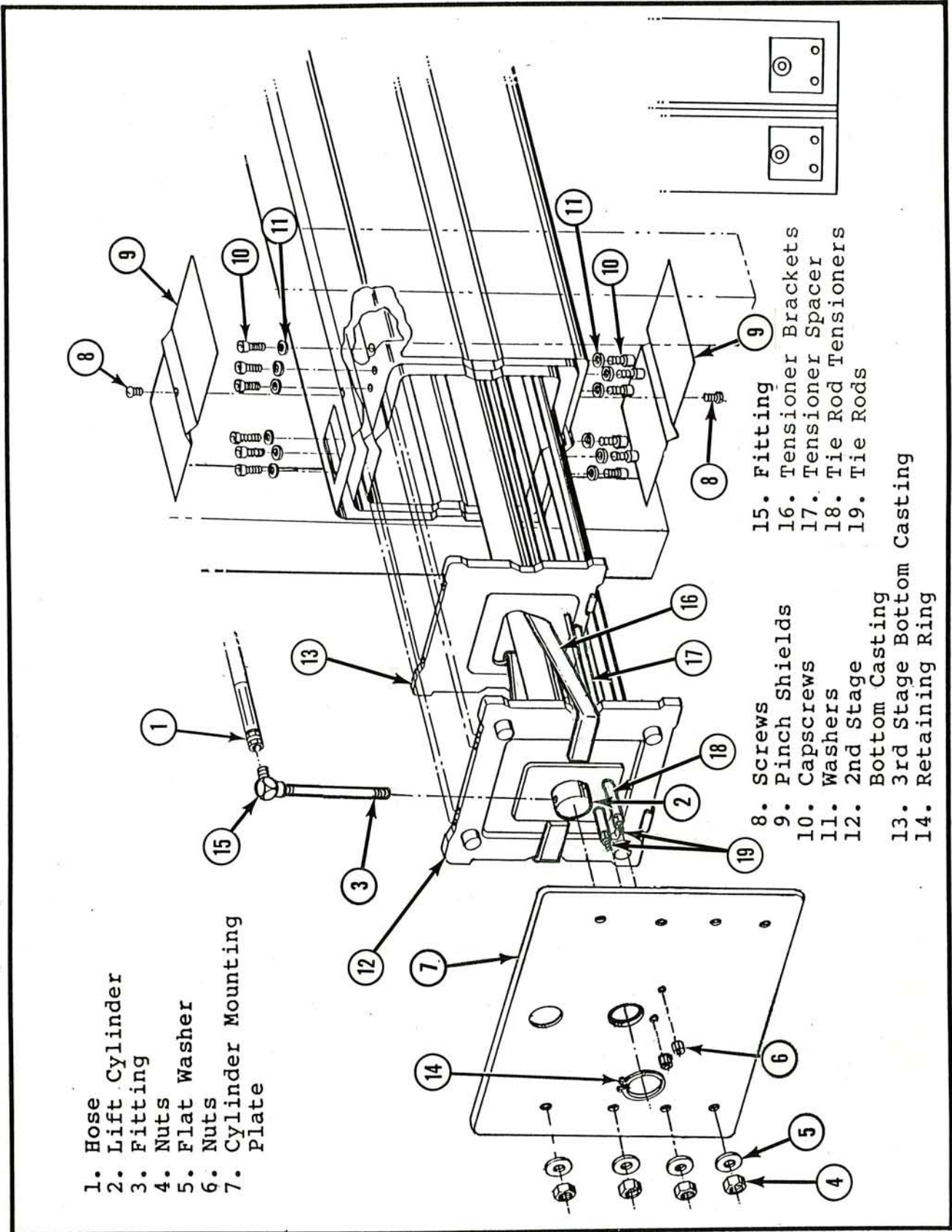
(9) Remove cylinder assembly (2) from mast assembly.

b. Cylinder Assembly Installation.

NOTE

Reattach string, etc. to the sequence straps prior to assembly.

(1) Slide the Cylinder Assembly into the bottom of the work platform as shown.



- 1. Hose Cylinder
- 2. Lift Cylinder
- 3. Fitting
- 4. Nuts
- 5. Flat Washer
- 6. Nuts
- 7. Cylinder Mounting Plate

- 8. Screws
- 9. Pinch Shields
- 10. Cap screws
- 11. Washers
- 12. 2nd Stage Bottom Casting
- 13. 3rd Stage Bottom Casting
- 14. Retaining Ring
- 15. Fitting
- 16. Tensioner Brackets
- 17. Tensioner Spacer
- 18. Tie Rod Tensioners
- 19. Tie Rods

Figure 5-9. Cylinder Assembly Removal/Installation

- (2) Install tensioner brackets (16) and tensioner spacer (17) onto 2nd and 3rd Stage bottom castings (12,13).
- (3) Install tie rod tensioners (18) to tie rods (19).
- (4) While sliding cylinder assembly (2) back into place guide sequence straps up through masts by pulling strings at top of masts.
- (5) Route the 4th Stage sequence strap (13, Figure 5-7) through the guide in the 3rd Stage bottom casting (13).
- (6) Slide the 3rd Stage bottom casting into the 3rd Stage Mast Tube and secure with fasteners (10,11).
- (7) Remove tensioner brackets (16), tie rod tensioners (18), and tensioner spacer (17) while still maintaining tension on tie rods (19).
- (8) Route the 4th Stage sequence strap (13, Figure 5-7) between the 2nd and 3rd Stage Mast tubes by "fishing" a string, etc. down from the top and attaching it to the sequence strap. Then secure the strap using the clamp (34, Figure 5-7) and fasteners (24, Figure 5-7).
- (9) Route the 3rd Stage sequence strap (33, Figure 5-7) through the guide in the 2nd Stage bottom casting (12).
- (10) Push the 2nd Stage bottom casting (12) into the 2nd Stage Mast tube and secure with fasteners (10,11).
- (11) Route the 3rd Stage sequence strap (33, Figure 5-7) between the 1st and 2nd Mast Stages by "fishing" a string, etc. down from the top and attaching it to the sequence strap. Then secure the strap using the clamp (35, Figure 5-7) and fasteners (32, Figure 5-7).
- (12) Replace the pinch shields (9) and secure with fasteners (8).
- (13) Holding tie rods (19) to maintain tension on the chains, thread tie rods and rod end through proper hole on cylinder mounting plate (7).
- (14) Install the cylinder mounting plate (7) and secure with fasteners (4,5). Torque to 17 ft. lbs.
- (15) Install tie rod locknuts (6) and tighten as required to tension chains.
- (16) Reinstall retaining ring (14).
- (17) Reconnect the hydraulic hose (1) to the lift cylinder fitting (15).

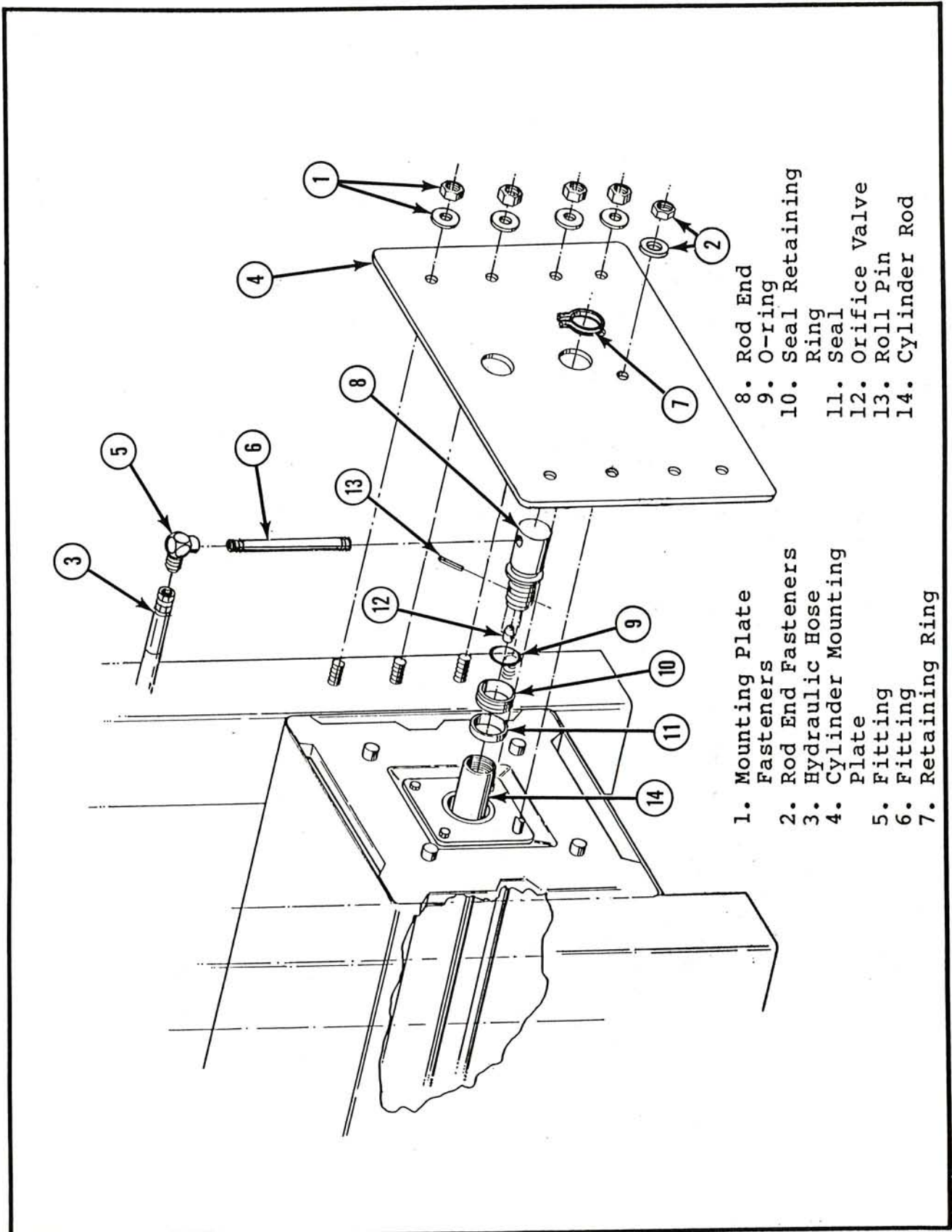


Figure 5-10. Lift Cylinder Seal Replacement and Orifice Valve Cleaning

5-18. **LIFT CYLINDER SEAL REPLACEMENT (Figure 5-10).** The Lift Cylinder Seal can be accessed from the bottom of the Up-Right Lift without removing the Cylinder Assembly.

WARNING

Cage **MUST** be secured to ladder before proceeding with this procedure.

- a. Secure the cage to the ladder to prevent the work platform from extending when tilted to a horizontal position.
- b. Using a suitable lifting means attached to the upper tie down point on the Cage Support, lower the work platform onto its back horizontally.
- c. Remove cylinder mounting plate fasteners (1), rod end fasteners (2) and retaining ring (7).
- d. Remove hydraulic hose (3) from the cylinder fitting (5) and cap the cylinder fitting to prevent air entering into the cylinder.
- e. Remove the cylinder mounting plate (4).
- f. Rotate the cylinder rod so that the fittings (5,6) are pointing straight up, then remove the fittings (5,6).

CAUTION

Marring the surface of the cylinder rod will cause improper cylinder function. Use a strap wrench to prevent rod damage.

- g. Using a Strap Wrench (See Paragraph 1-8, Special Tools and Test Equipment) to secure the cylinder rod, unscrew the cylinder rod end (8).
- h. Remove the seal retaining ring (10) using a Retaining Ring Socket (See Paragraph 1-8, Special Tools and Test Equipment). Use a Gland Nut Wrench (Paragraph 1-8) for the following models: 24'-Serial No. 1952 to Current, 31'-Serial No. 1967 to Current, 38'-Serial No. 1991 to Current.
- i. Using the Cylinder Seal Assist Tool (See Paragraph 1-8, Special Tools and Test Equipment) push the cylinder rod into the cylinder until it is past the seal. Then unscrew the Cylinder Assist Tool and extract the seal.

NOTE

Apply hydraulic fluid to new cylinder seal, threads and all sliding surfaces prior to assembly.

j. Replace the seal (11) making sure the lip of the seal is facing inward.

k. Pull the cylinder rod back through the seal using the Cylinder Seal Assist Tool.

l. Using a Retaining Ring Socket reinstall the seal retaining ring (10). (See paragraph h. above for proper tool for different Serial Numbers.)

CAUTION

Scratches or nicks on the cylinder rod will prevent the seal from seating properly.

m. Using a Strap Wrench to hold the rod, replace the cylinder rod end (8).

n. Set the cylinder mounting plate (4) into place and secure with fasteners (1,2).

o. Reinstall retaining ring (7).

p. Reinstall fittings (6,5).

q. Reconnect hydraulic hose (3).

r. Using a suitable lifting device, stand the work platform upright.

s. Remove securing straps from Cage Support and Ladder.

t. Check the function of the lift cylinder by elevating the platform. If the machine is "spungy" the cylinder will require bleeding to remove air from the system. (See Paragraph 5-19, Cylinder Bleeding).

5-19. CYLINDER BLEEDING PROCEDURE (Figure 5-7).

a. Remove the pinch shield from the cage support (Item 3, Figure 5-8) to operate controls from the ground.

b. Using a Cylinder Bleed Wrench (See Paragraph 1-8, Special Tools and Test Equipment) open the bleed screw valve (36) approximately one half turn.

c. Turn Key Switch on.

d. Hold the Lift/Lower Switch in the **UP** position to force the trapped air to escape through the bleed screw valve.

e. Once the trapped air has escaped through the bleed screw valve quickly close the valve and release the Lift/Lower Switch.

f. Ensure Key Switch is **OFF** and replace the pinch shield.

5-20. LIFT CYLINDER ORIFICE VALVE CLEANING (Figure 5-10).

a. Follow steps a. through g. of Paragraph 5-18.

b. Remove roll pin (13) from threaded end of rod end (8).

c. Lift orifice valve (12) from inside rod end (8).

d. Unplug orifice valve (12) by clearing hole with a straight pin. Flush with solvent to remove any contamination that may remain.

e. Reinstall orifice valve (12) into rod end (8). Drive roll pin (13) back into rod end (8) to secure orifice valve.

f. Reassemble rod end (8) into cylinder rod (14).

g. Reinstall cylinder mounting plate (4) and secure with fasteners (1,2).

h. Reinstall retaining ring (7).

i. Reconnect hydraulic hose (3).

j. Bleed cylinder per Paragraph 5-19.

SECTION VI

DIAGRAMS

6-1. **CONTENT.** This section contains electrical diagrams, hydraulic power diagrams, and associated information for maintenance purposes.

6-2. **USE.** The diagrams are to be used in conjunction with Table 5-2 TROUBLESHOOTING. They allow understanding of the make-up and functions of the systems for checking, tracing and fault-finding during trouble analysis.

6-3. **INDEX OF DIAGRAMS.** The diagrams appear in the following order:

- Figure 6-1. AC Electrical Diagram.
- Figure 6-2. DC Electrical Diagram
- Figure 6-3. Hydraulic Diagram.

6-4. **DIAGRAM LEGENDS.** The components that comprise the electrical and hydraulic systems are given a reference designation and are explained as to location and function in the following tables:

- Table 6-1. AC Electrical Diagram Legend.
- Table 6-2. DC Electrical Diagram Legend.
- Table 6-3. Hydraulic Diagram Legend.

TABLE 6-1. AC Electrical Diagram Legend.

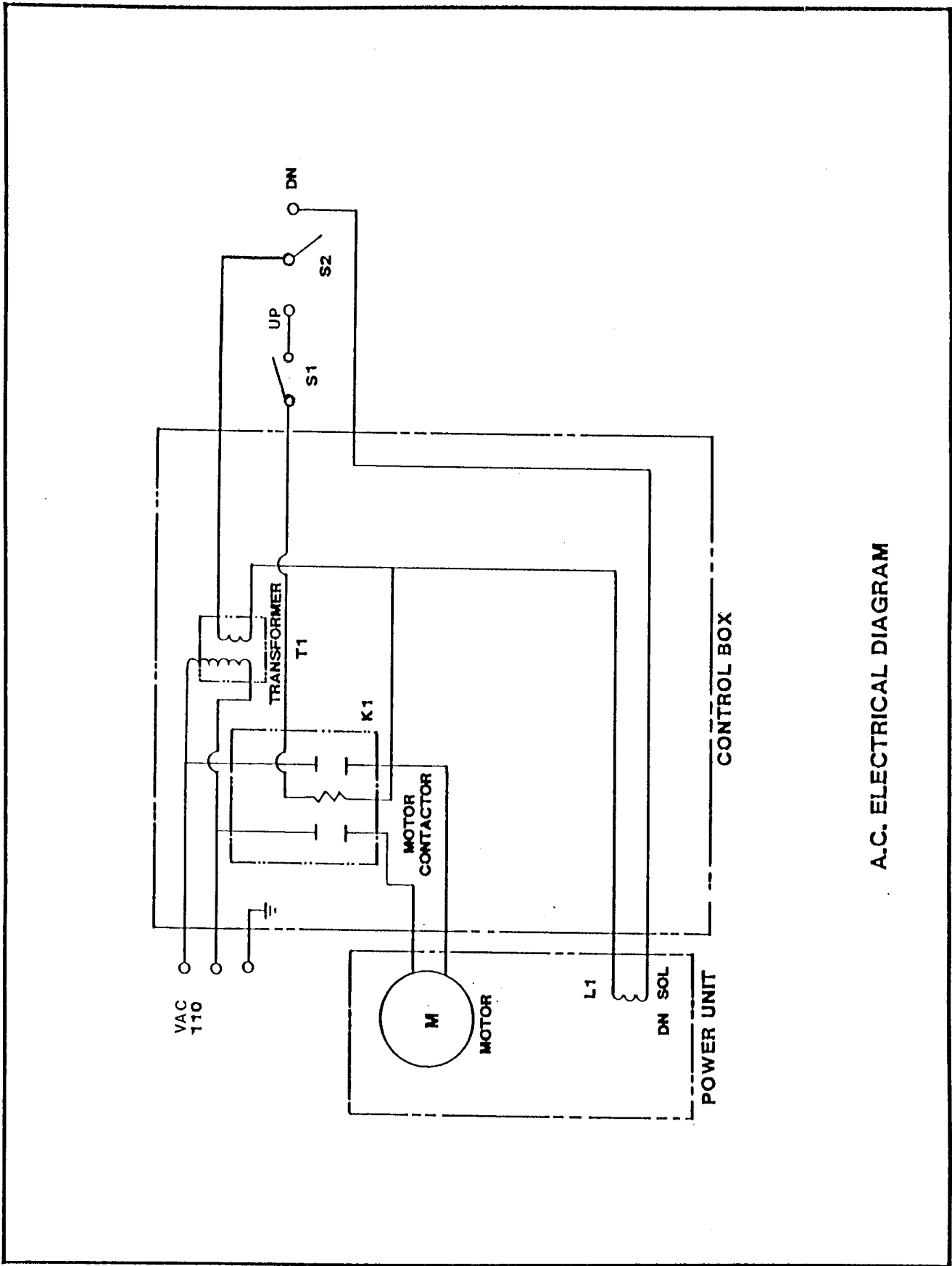
REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
B	Motor, AC Electric	Provides power to drive Hydraulic Pump.	Top of Power Unit.
K1	Motor Contactor	Provides power to Motor.	Inside Control Box on upper left.
L1	Solenoid	Opens Lowering Valve.	On the Power Unit towards the rear of the Up-Right Lift.
S1	Key Switch	Enables/disables Control Circuit.	Right front side of Pinch Shield.

TABLE 6-1. AC Electrical Diagram Legend - Cont'd.

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
S2	Lift/Lower Switch	Provides power to Motor Contactor or Down Solenoid.	Next to Key Switch on the Pinch Shield.
T	Transformer	Provides 24 VAC control voltage to Control Circuit.	Inside Control Box on upper right.

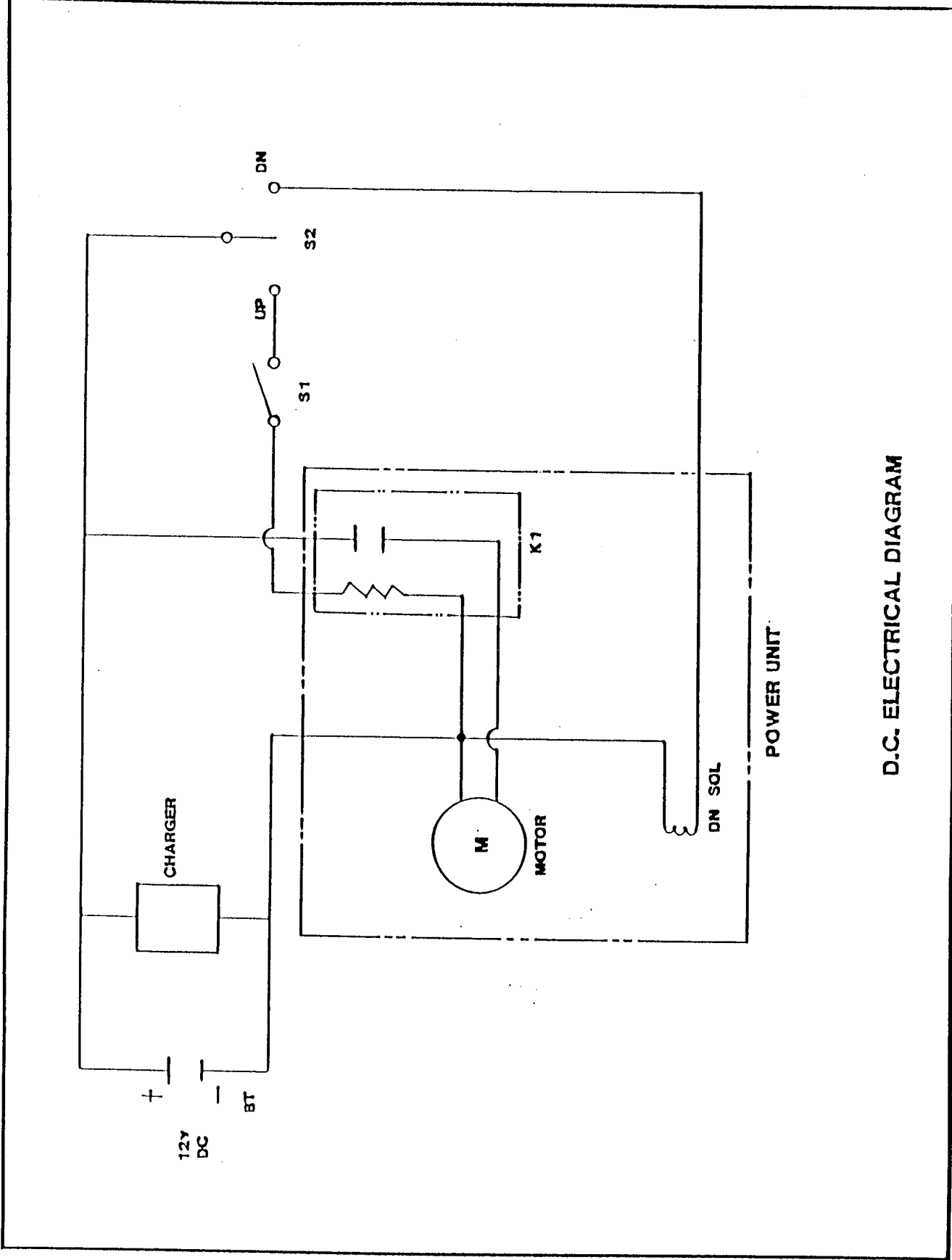
TABLE 6-2. DC Electrical Diagram Legend.

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
B	Motor, DC Electric	Provides power to drive Hydraulic Pump.	Top of Power Unit.
BT	Battery, 12 Volt	Stores energy which is used by Power Unit.	Front center of Base Frame.
C	Charger	Supplies electrical energy to be stored by Battery.	Above the Power Unit.
K2	Motor Relay	Provides power to Motor.	On the Power Unit towards the front.
L2	Solenoid	Opens Lowering Valve.	On the Power Unit.
S1	Key Switch	Enables/disables Control Circuit.	Right front side of Pinch Shield.
S2	Lift/Lower Switch	Provides power to Motor Contactor or Down Solenoid.	Next to Key Switch on the Pinch Shield.



A.C. ELECTRICAL DIAGRAM

Figure 6-1. AC Electrical Diagram



D.C. ELECTRICAL DIAGRAM

Figure 6-2. DC Electrical Diagram

TABLE 6-3. Hydraulic Diagram Legend.

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
CV	Check Valve	Prevents fluid from flowing back thru Pump.	Power Unit Drive Plate/Manifold.
CYL	Lift Cylinder	Provides force to extend the Mast Assembly.	Inside the Mast Assembly.
FLTR	Filter	Filters the fluid as it is drawn to Pump.	Mounted to Pump Pick Up Tube inside reservoir.
LDV (AC Unit only)	Load Delay Valve	Improves start-up torque characteristics.	Located on the back of the Pump.
P	Pump	Provides fluid power to Lift Cylinder.	Located on the bottom of the Power Units Drive Plate/Manifold.
RV	Relief Valve	Limits the hydraulic pressure to Lift Cylinder.	Located on the Power Units Drive Plate/Manifold.
V1	Down Valve	Allows fluid to flow freely to the reservoir to lower the platform.	Located on the Power Units Drive Plate/Manifold.
V2	Emergency Down Valve	Manually operated valve which bypasses Down Valve.	On the Power Unit.
V3	Orifice Check Valve	Controls descent rate of Lift Cylinder.	Inside the Cylinder Assembly.

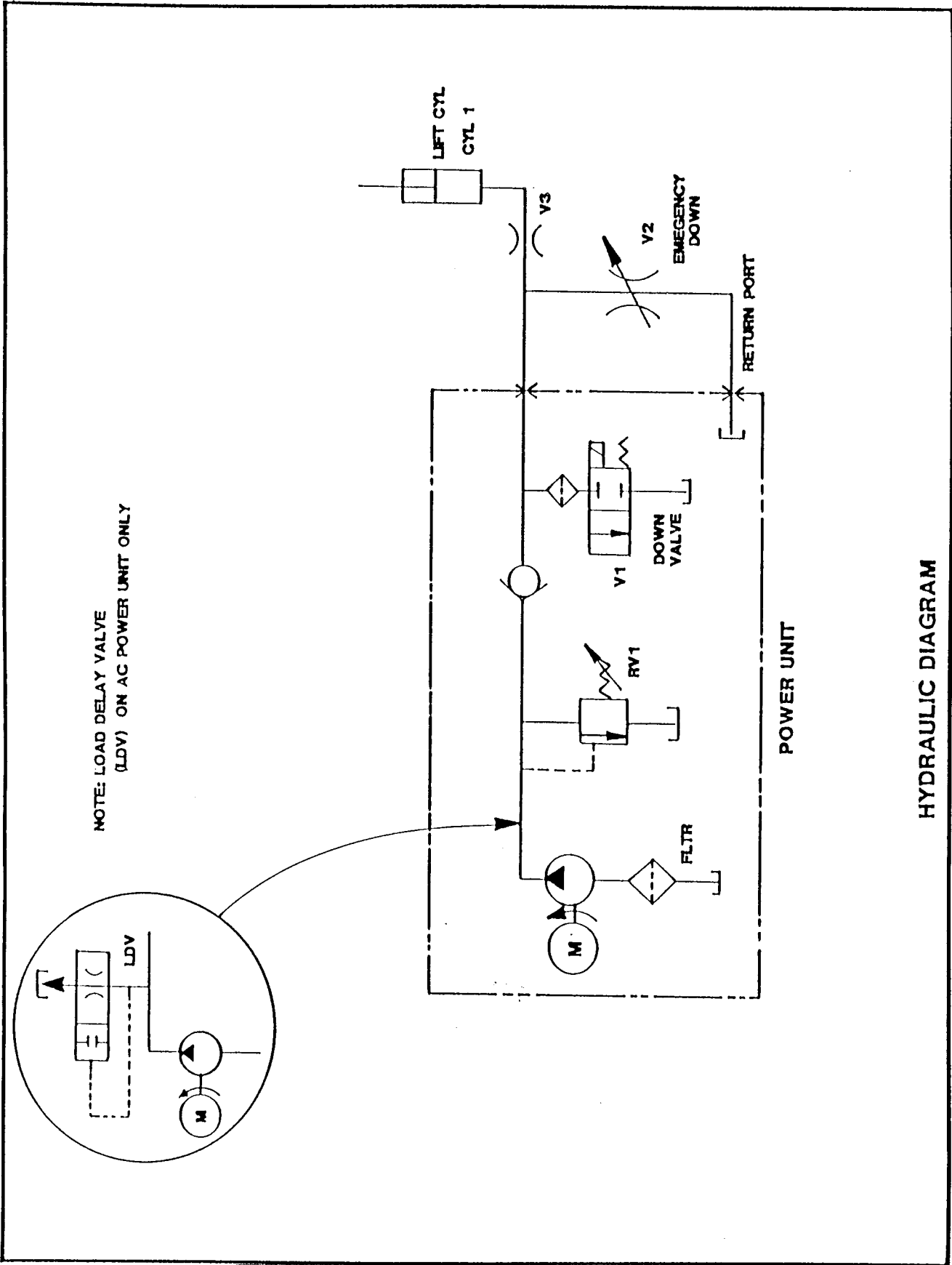


Figure 6-3. Hydraulic Diagram

SECTION VII

ILLUSTRATED PARTS BREAKDOWN

7-1. INTRODUCTION. This section lists and illustrates the replaceable assemblies and parts of the Up-Right Lift, as manufactured by UP-RIGHT INC., Selma, California, 93662. Each assembly is followed by its components parts indented to show their relationship to the assembly.

7-2. EXPLANATION OF COLUMNS IN ILLUSTRATED PARTS BREAKDOWN.

7-3. FIGURE AND INDEX NUMBER COLUMN. The figure and index numbers correlate each parts list to its appropriate illustration. The first number in this column on each page of listings indicates the figure number of the associated illustration. The following numbers, preceded by a dash, correspond to the index numbers of each part on the illustration.

7-4. PART NUMBER COLUMN. This column contains the manufacturer's part number for each item listed.

7-5. DESCRIPTION COLUMN. This column contains the manufacturer's nomenclature for each assembly or part. Each part description is indented to show relationship. Reference to next higher assembly or detail parts breakdown follow the description where applicable.

7-6. QUANTITY REQUIRED COLUMN. This column contains the quantity required for each assembly in the higher assembly and for each detail part in an assembly.

7-7. ABBREVIATIONS. The following abbreviations are used in this Section.

AMP	Ampere
ASSY.	Assembly
BUTT.	Button
DIA	Diameter
FT.	Feet
GA.	Gauge
HD.	Head
HEX	Hexagon
HH.	Hexagon Head
HHC	Hexagon Head Cap
HP.	Horse Power
HWH	Hexagon Washer Head
LBS	Pounds
LG.	Long
LH.	Left Hand
MACH.	Machine
NHA	Next Higher Assembly

NPT Standard Pipe Thread
RD. Round
REF Reference
RH. Right Hand
SLFTP Self Tapping
SOC Socket
UNC Unified National Course
UNF Unified National Fine
V Volt
VAC Volts Alternate Current
VDC Volts Direct Current
W/. With

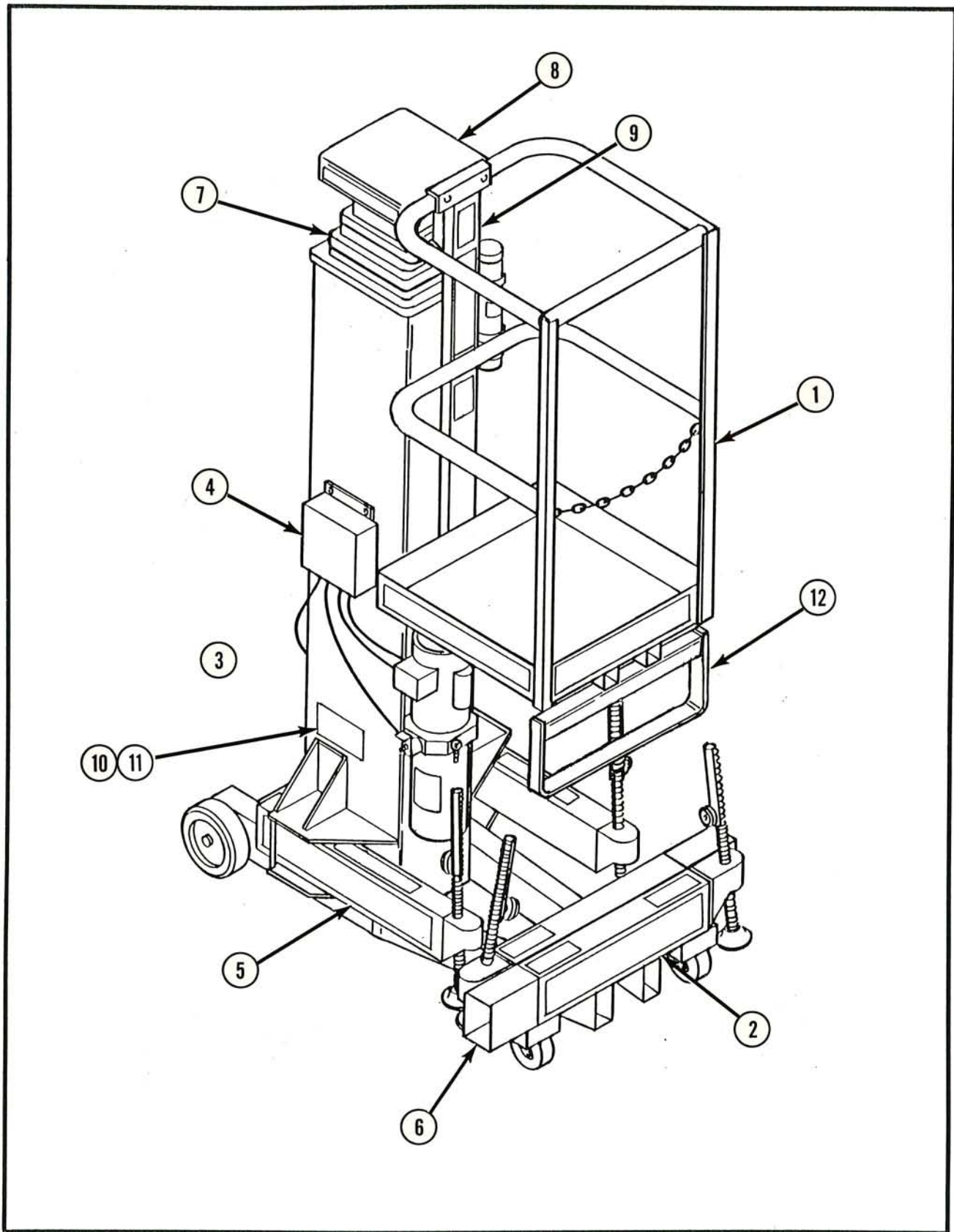


Figure 7-1. Up-Right Lift, 20 FT Model

ITEM	PART	DESCRIPTION	QTY
7-1	62610-000-00	UP-RIGHT LIFT, 20/26 FT AC Model.	REF
	62611-000-00	UP-RIGHT LIFT, 20/26 FT DC Model.	REF
-1	62631-000-00	. CAGE ASSEMBLY (See Figure 7-15)	1
-2	No Number	. BASE FRAME ASSEMBLY, (See Figure 7-2)	1
-3	No Number	. POWER UNIT ASSEMBLY/INSTALLATION, AC Model (See Figure 7-4)	1
	No Number	. POWER UNIT ASSEMBLY/INSTALLATION, DC Model (See Figure 7-5)	1
-4	62416-000-00	. CONTROL BOX ASSEMBLY. (See Figure 7-9)	1
-5	62639-000-00	. OUTRIGGER ASSEMBLY/INSTALLATION, Rear (See Figure 7-3)	2
-6	62638-000-00	. OUTRIGGER ASSEMBLY/INSTALLATION, Front (See Figure 7-3)	2
-7	No Number	. MAST ASSEMBLY (See Figure 7-12)	1
-8	No Number	. PINCH SHIELD ASSEMBLY (See Figure 7-10)	1
-9	No Number	. RETRACTILE CABLE INSTALLATION (See Figure 7-11)	1
-10	61205-000-00	. NAME PLATE (See Figure 7-2)	1
-11	26553-001-00	. RIVET, Pop.	4
-12	62722-000-00	. LADDER (See Figure 7-15).	1

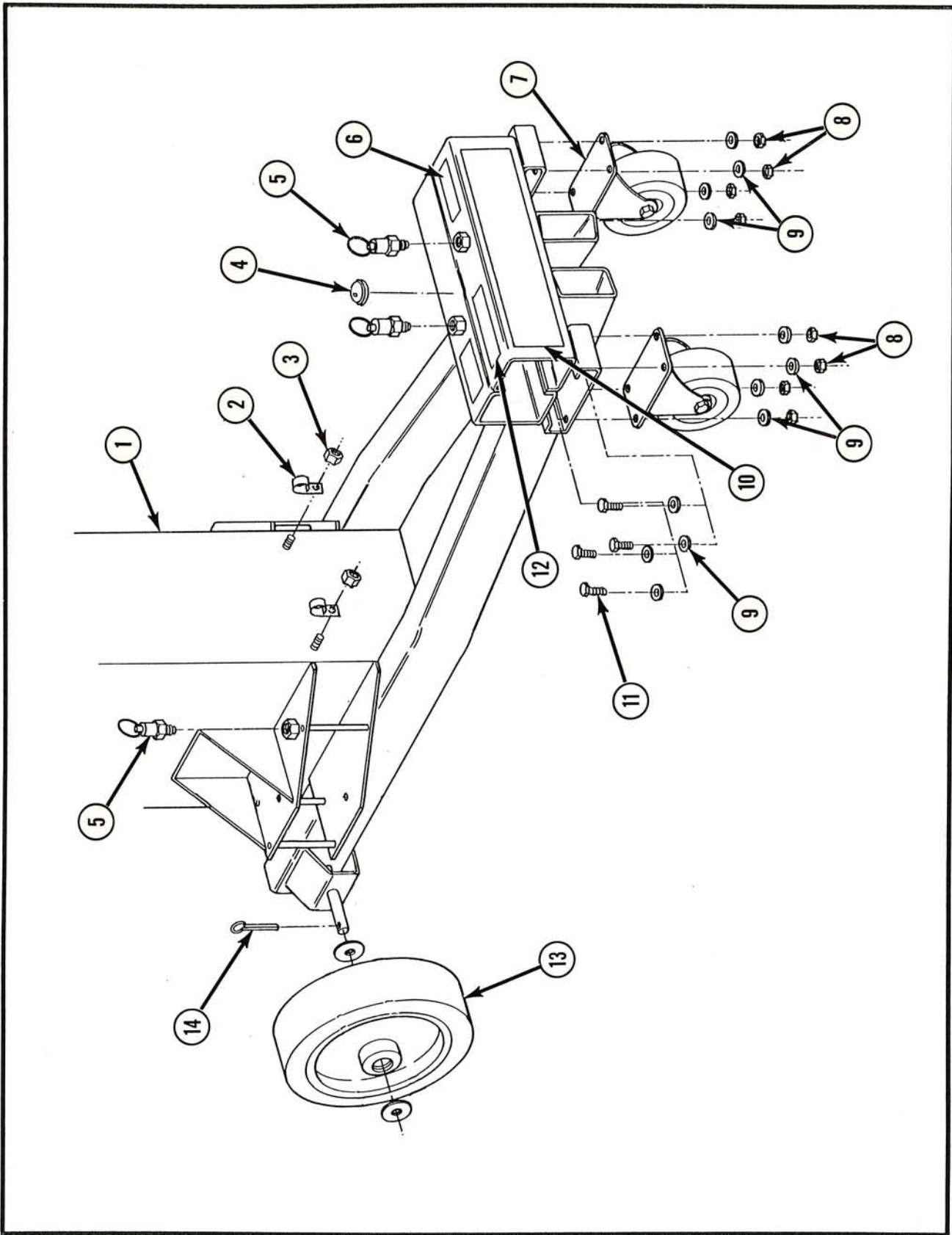


Figure 7-2. Base Frame Assembly

ITEM	PART	DESCRIPTION	QTY
7-2	No Number	BASE FRAME ASSEMBLY (See Figure 7-1). . .	REF
-1	62613-000-00	. BASE WELDMENT	1
-2	13919-006-00	. CLAMP, Hose	2
-3	11248-004-00	. LOCKNUT, 1/4-20 UNC	2
-4	00942-000-00	. LEVEL, Orbit.	1
-5	03570-000-00	. PIN ASSEMBLY, Retaining	4
-6	62726-000-00	. DECAL, Outrigger.	2
-7	03491-000-00	. CASTER.	2
-8	11248-006-00	. LOCKNUT, HEX 3/8-16 UNC	20
-9	11240-006-00	. WASHER, Flat 3/8 DIA.	32
-10	62565-000-00	. DECAL, UR-Lift UL-20.	3
-11	11254-008-00	. SCREW, HHC 3/8-16 UNC x 1	10
-12	62221-000-00	. DECAL, Danger Leveling.	1
-13	62172-000-00	. WHEEL	2
-14	11753-012-00	. PIN, Cotter 1/8 x 1-1/2	2
-15	61205-000-00	. NAME PLATE.	1

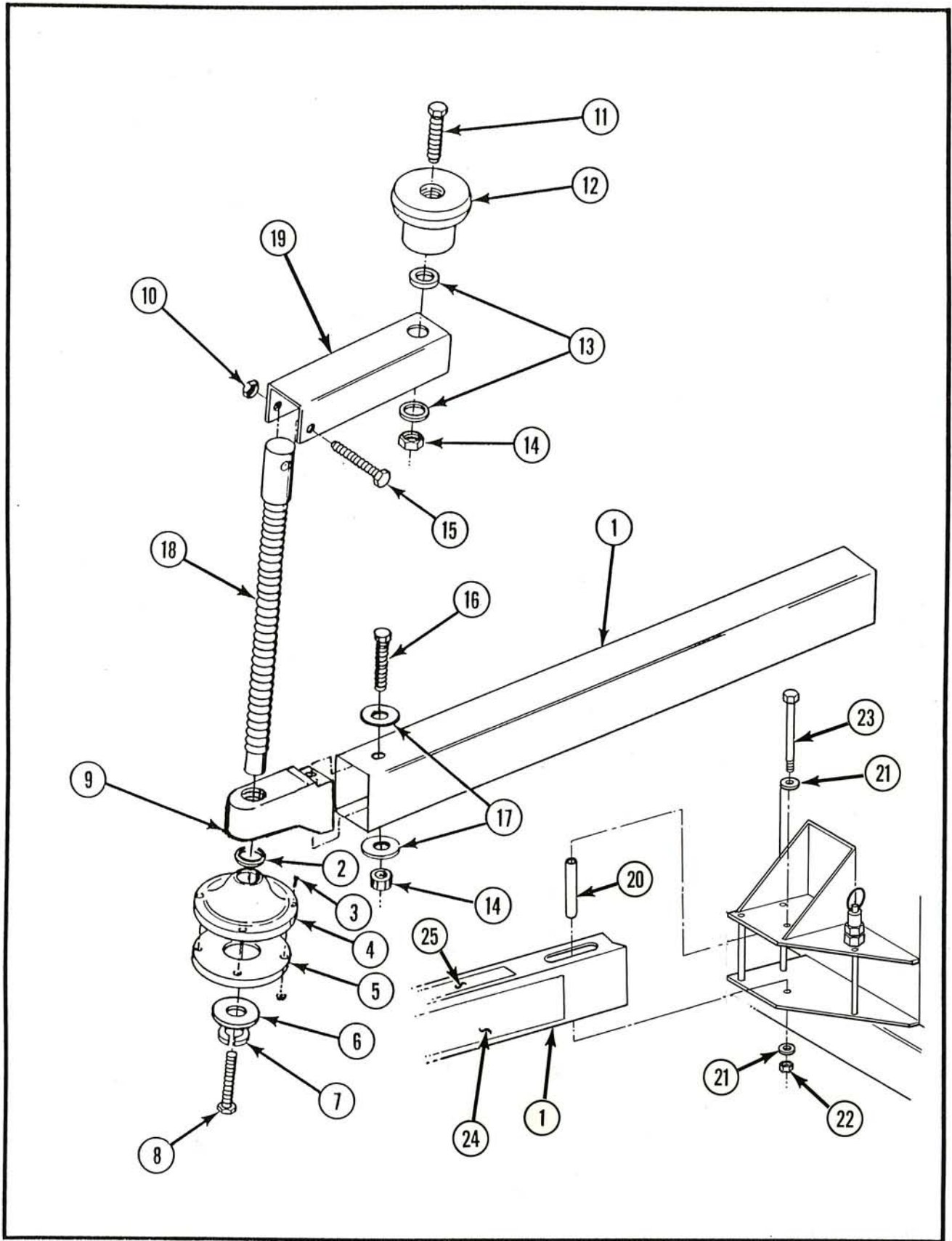


Figure 7-3. Outrigger Assembly

ITEM	PART	DESCRIPTION	QTY
7-3	62638-000-00	OUTRIGGER ASSEMBLY, Front (See Figure 7-1 for NHA)	REF
	62639-000-00	OUTRIGGER ASSEMBLY, Rear. (See Figure 7-1 for NHA)	REF
-1	62633-000-00	. OUTRIGGER TUBE, Front	1
	62632-000-00	. OUTRIGGER TUBE, Rear.	1
-2	14996-010-00	. WASHER, Flat 5/8 DIA.	1
-3	26553-004-00	. RIVET, 3/16 DIA .250 - .375 Grip. . . .	4
-4	03534-000-00	. COVER	1
-5	03533-000-00	. PAD	1
-6	11240-005-00	. WASHER, Flat 5/16 DIA	1
-7	11238-005-00	. LOCKWASHER, 5/16 DIA.	1
-8	11253-008-00	. SCREW, HHC 5/16-18 x 3/4.	1
-9	62459-000-00	. OUTRIGGER CASTING	1
-10	11248-005-00	. NUT, HEX 5/16-18 UNC.	1
-11	11252-016-00	. SCREW, HHC 1/4-20 x 2	1
-12	03508-000-00	. KNOB.	1
-13	11240-004-00	. WASHER, Flat 1/4 DIA.	2
-14	11248-004-00	. NUT, HEX 1/4-20 UNC	2
-15	11253-014-00	. SCREW, HHC 5/16-18 x 3/4.	1
-16	11252-036-00	. SCREW, HHC 1/4-20 x 4-1/2	1
-17	11240-010-00	. WASHER, Flat 5/8.	2
-18	62636-000-00	. JACK SCREW.	1
-19	03471-000-00	. ARM, Handle	1
-20	18062-012-00	. TUBE, Hinge	1
-21	11240-006-00	. WASHER, Flat 3/8 DIA.	2

ITEM	PART	DESCRIPTION	QTY
7-3	62638-000-00	OUTRIGGER ASSEMBLY, Front - Continued	REF
	62639-000-00	OUTRIGGER ASSEMBLY, Rear - Continued. . .	REF
-22	11248-006-00	. LOCKNUT, HEX 3/8-16 UNC	1
-23	11254-044-00	. SCREW, HHC 3/8-16 UNC x 5	1
-24	62565-000-00	. DECAL, UP-RIGHT UL-20	1
-25	62612-000-00	. DECAL, To Deploy Outrigger.	1

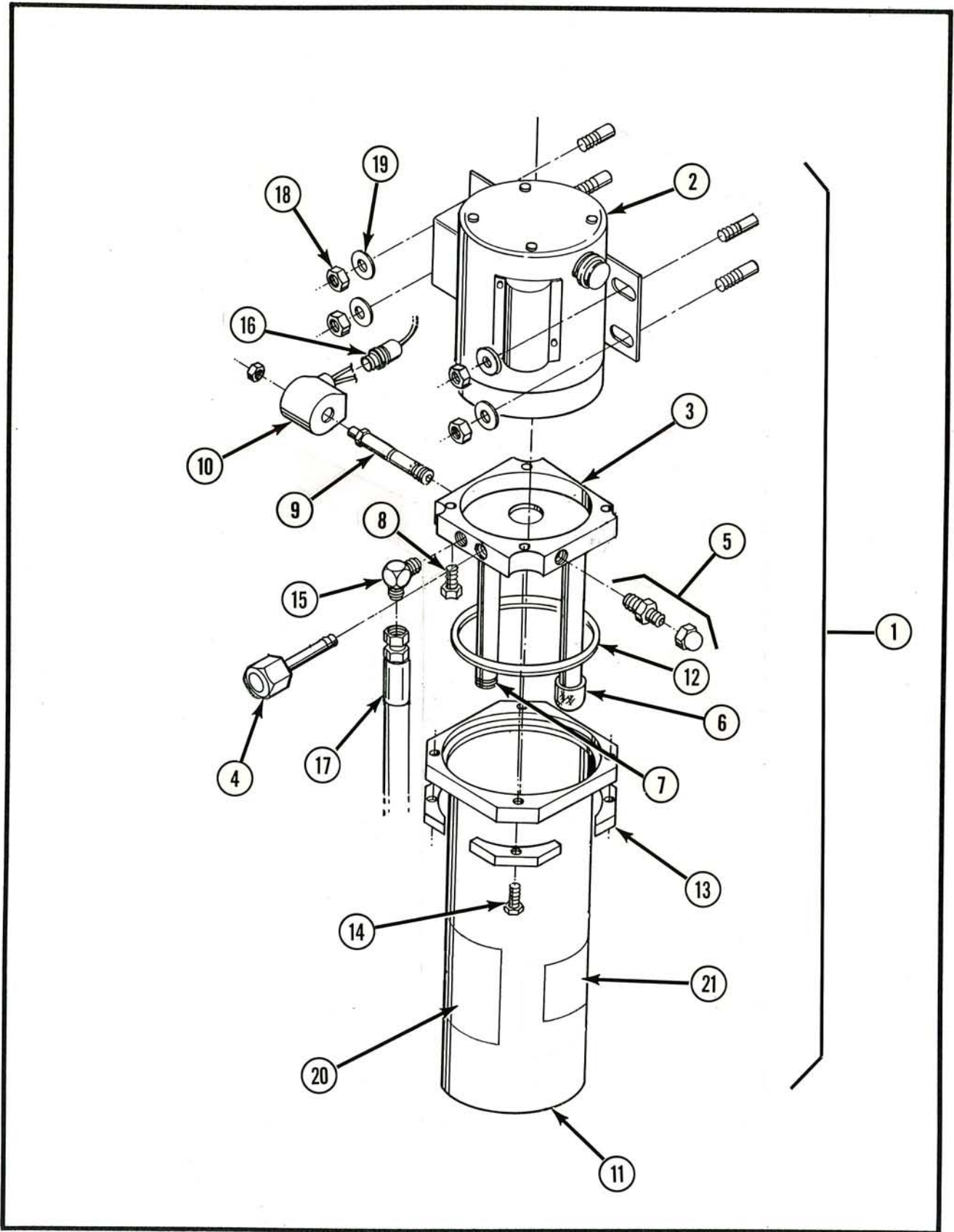


Figure 7-4. AC Power Unit Assembly/
Installation

ITEM	PART	DESCRIPTION	QTY
7-4	No Number	AC POWER UNIT ASSEMBLY/INSTALLATION . . . (See Figure 7-1 for NHA)	REF
-1	62637-000-00	. AC POWER UNIT	1
-2	62161-007-00	. . MOTOR ASSEMBLY, 110 VAC 1/2 HP.	1
	62161-018-00	. . . CAPACITOR W/COVER	1
-3	62161-012-00	. . HYDRAULIC PUMP ASSEMBLY	1
-4	62161-004-00	. . BREATHER CAP.	1
-5	62161-009-00	. . RELIEF VALVE ASSEMBLY	1
-6	62161-006-00	. . FILTER, Pick Up	1
-7	62161-017-00	. . RETURN LINE	1
-8	62161-016-00	. . SCREW	2
-9	62161-001-00	. . CARTRIDGE VALVE, w/Manual Override	1
	13888-011-00	. . . O-RING, Large	1
	13888-032-00	. . . O-RING, Small	1
-10	62161-002-00	. . 24 VAC COIL	1
-11	62161-008-00	. . HYDRAULIC RESERVOIR ASSEMBLY.	1
-12	62161-005-00	. . SEAL, Reservoir	1
-13	62161-010-00	. . GRIP PLATE.	4
-14	62161-015-00	. . SCREW	4
-15	13963-003-00	. FITTING, Elbow.	1
-16	29925-000-00	. CONNECTOR, Cable.	1
-17	62192-003-00	. HOSE ASSEMBLY, 1/4 x 29 LG.	1
-18	11248-005-00	. LOCKNUT, HEX 5/16-18 UNC.	3
-19	11240-005-00	. WASHER, Flat 5/16 DIA	3
-20	05223-000-00	. DECAL, Emergency Down	1
-21	62217-000-00	. DECAL, Hydraulic Fluid. Mobile DTE 13	1

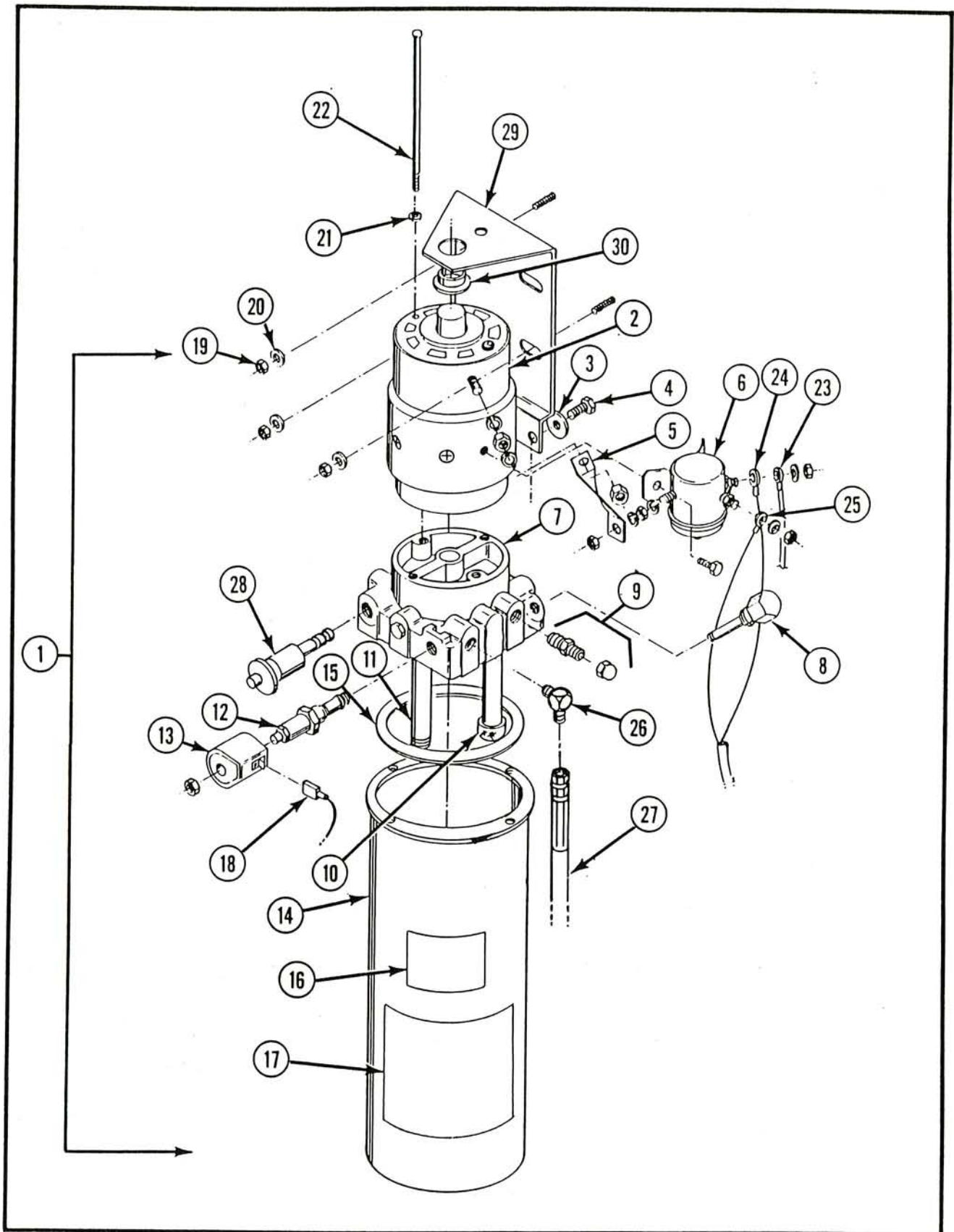


Figure 7-5. DC Power Unit Assembly/
Installation

ITEM	PART	DESCRIPTION	QTY
7-5	No Number	DC POWER UNIT ASSEMBLY/INSTALLATION . . . (See Figures 7-1 for NHA)	REF
-1	62162-000-00	. DC POWER UNIT 1/2 HP.	1
-2	62162-006-00	. . MOTOR ASSEMBLY 12 VDC 1/2 HP.	1
-3	11240-006-00	. . WASHER, Flat 3/8 DIA.	2
-4	11254-004-00	. . SCREW, HHC 3/8-16 UNC x 1/2	2
-5	62162-010-00	. . BRACKET, Relay.	1
-6	62162-007-00	. . STARTER SOLENOID.	1
-7	62162-012-00	. . HYDRAULIC PUMP.	1
-8	62161-004-00	. . BREATHER CAP.	1
-9	62162-017-00	. . RELIEF VALVE ASSEMBLY	1
-10	62161-006-00	. . FILTER, Pick Up	1
-11	62161-017-00	. . RETURN LINE	1
-12	62162-001-00	. . CARTRIDGE ASSEMBLY.	1
	13888-011-00	. . . O-RING, Large	1
	13888-032-00	. . . O-RING, Small	1
-13	62162-013-00	. . SOLENOID.	1
-14	62162-005-00	. . HYDRAULIC RESERVOIR ASSEMBLY.	1
-15	62162-004-00	. . SEAL, Reservoir	1
-16	62217-000-00	. DECAL, Hydraulic Fluid. Mobile DTE 13	1
-17	62524-000-00	. DECAL, Emergency Lowering	1
-18	29931-003-00	. CONNECTOR	1
-19	11248-005-00	. LOCKNUT, HEX 5/16-18 UNC.	4
-20	11240-005-00	. WASHER, Flat 5/16 DIA	4

ITEM	PART	DESCRIPTION	QTY
7-5	No Number	DC POWER UNIT ASSEMBLY/ INSTALLATION - Continued	REF
-21	62162-015-00	. WASHER, Split Lock.	2
-22	62162-016-00	. SCREW	2
-23	No Number	. WIRE ASSEMBLY x 69 FT (See Figure 7-6)	REF
-24	29601-015-00	. CONNECTOR, Ring Terminal.	1
-25	29601-013-00	. CONNECTOR, Ring Terminal.	1
-26	13963-003-00	. FITTING, Elbow.	1
-27	62192-003-00	. HOSE ASSEMBLY, 1/4 x 29 LG.	1
-28	62162-017-00	. VALVE, Emergency Lowering	1
-29	62261-000-00	. BRACKET, Mounting	1
-30	62162-009-00	. GROMMET, Mounting	1
		NOTE: For Battery Installation See Figure 7-6.	
		NOTE: For Battery Charger Installation See Figure 7-7.	

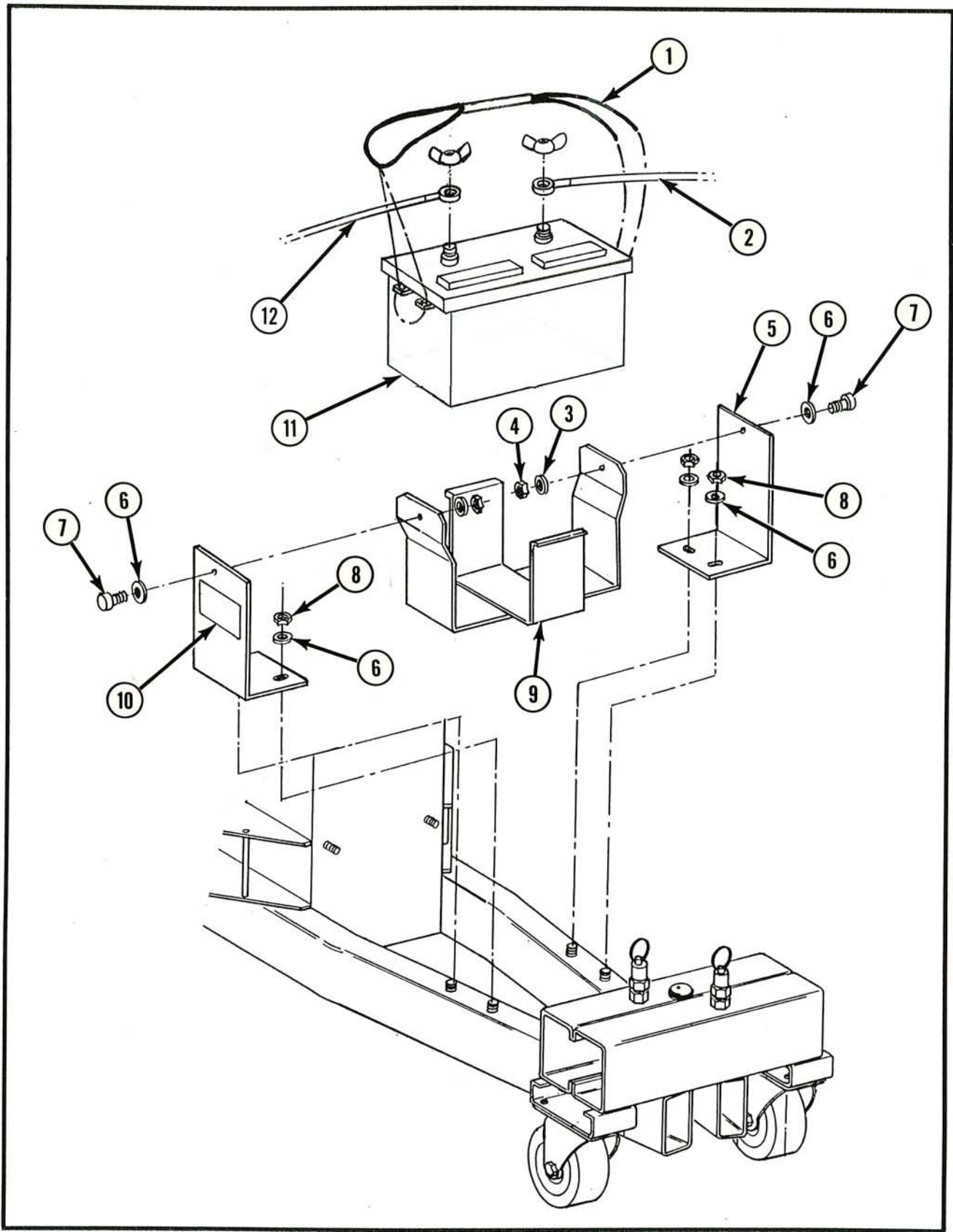


Figure 7-6. Battery Installation, DC Models

ITEM	PART	DESCRIPTION	QTY
7-6	No Number	BATTERY INSTALLATION, DC Models (See Note Figure 7-5 for NHA)	REF
-1	62346-000-00	. STRAP, Battery.	1
-2	62125-002-00	. BATTERY CABLE ASSEMBLY x 69 LG.	1
-3	11240-005-00	. WASHER, Flat STD 5/16 DIA	2
-4	11246-005-00	. LOCKNUT, HEX 5/16-18 UNC.	2
-5	62693-000-00	. SUPPORT, Battery Arm.	2
-6	11239-004-00	. WASHER, Flat ASTM 1/4 DIA	2
-7	15936-003-00	. SCREW, 3/8 DIA x 3/8 LG	2
-8	11248-006-00	. LOCKNUT, HEX 3/8-16 UNC	4
-9	62144-000-00	. SUPPORT, Battery Cradle	2
-10	05221-000-00	. DECAL, Battery Fluid.	2
-11	62299-001-00	. BATTERY, 12 VDC 105 AMP	1
-12	62125-001-00	. BATTERY CABLE ASSEMBLY x 30 LG.	1

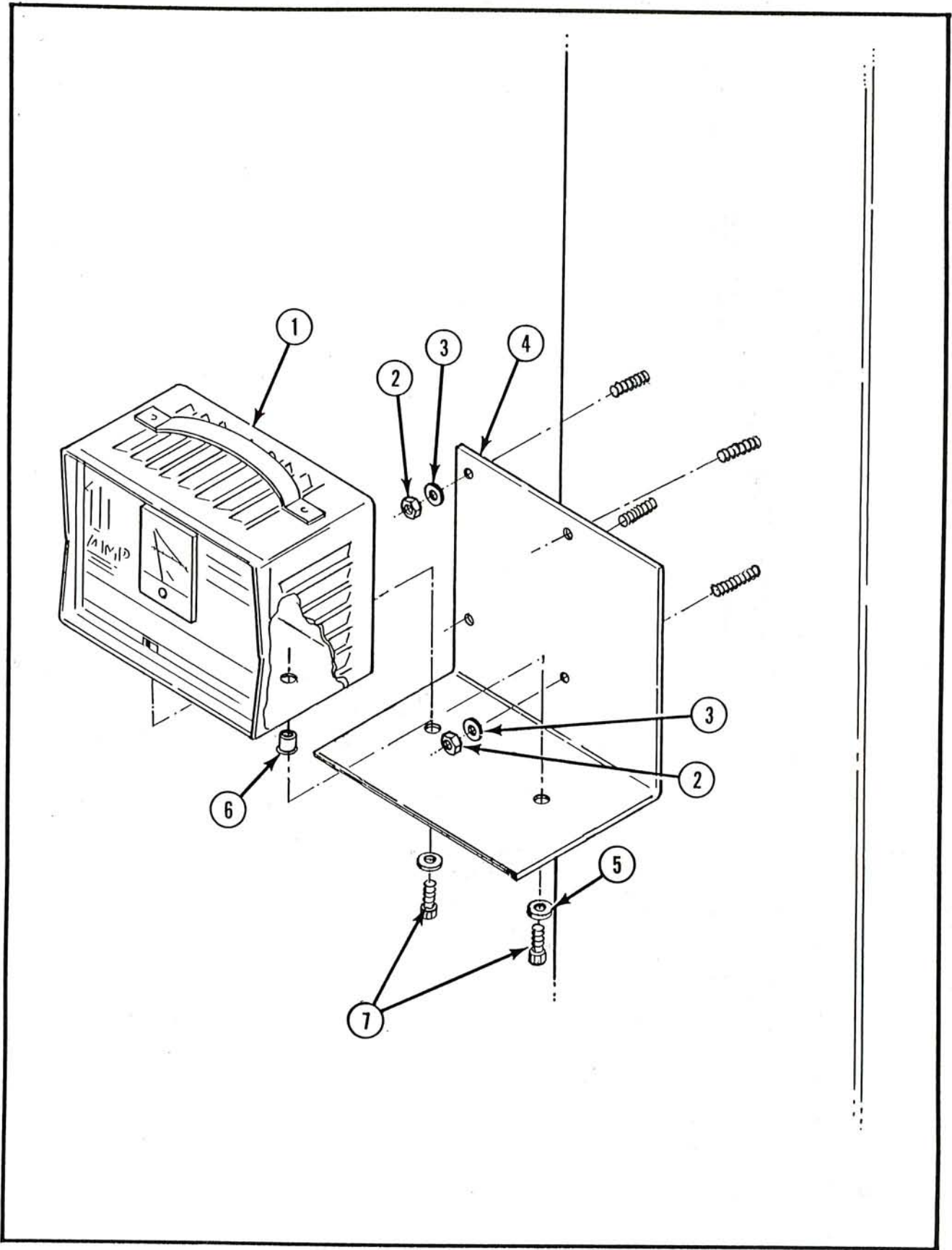


Figure 7-7. Battery Charger Installation, DC Models

ITEM	PART	DESCRIPTION	QTY
7-7	No Number	BATTERY CHARGER INSTALLATION, DC Models . (See Note Figure 7-5 for NHA)	REF
-1	62143-000-00	. CHARGER, Battery (See Figure 7-8) . . .	1
-2	11248-004-00	. LOCKNUT, HEX 1/4-20 UNC	4
-3	11240-004-00	. WASHER, Flat 1/4 DIA.	4
-4	62315-000-00	. MOUNT, Battery Charger.	1
-5	11239-004-00	. WASHER, Flat 1/4 DIA.	2
-6	14252-004-00	. NUT, Sert 1/4-20 UNC.	2
-7	11252-008-00	. SCREW, HHC 1/4-20 UNC x 1	2

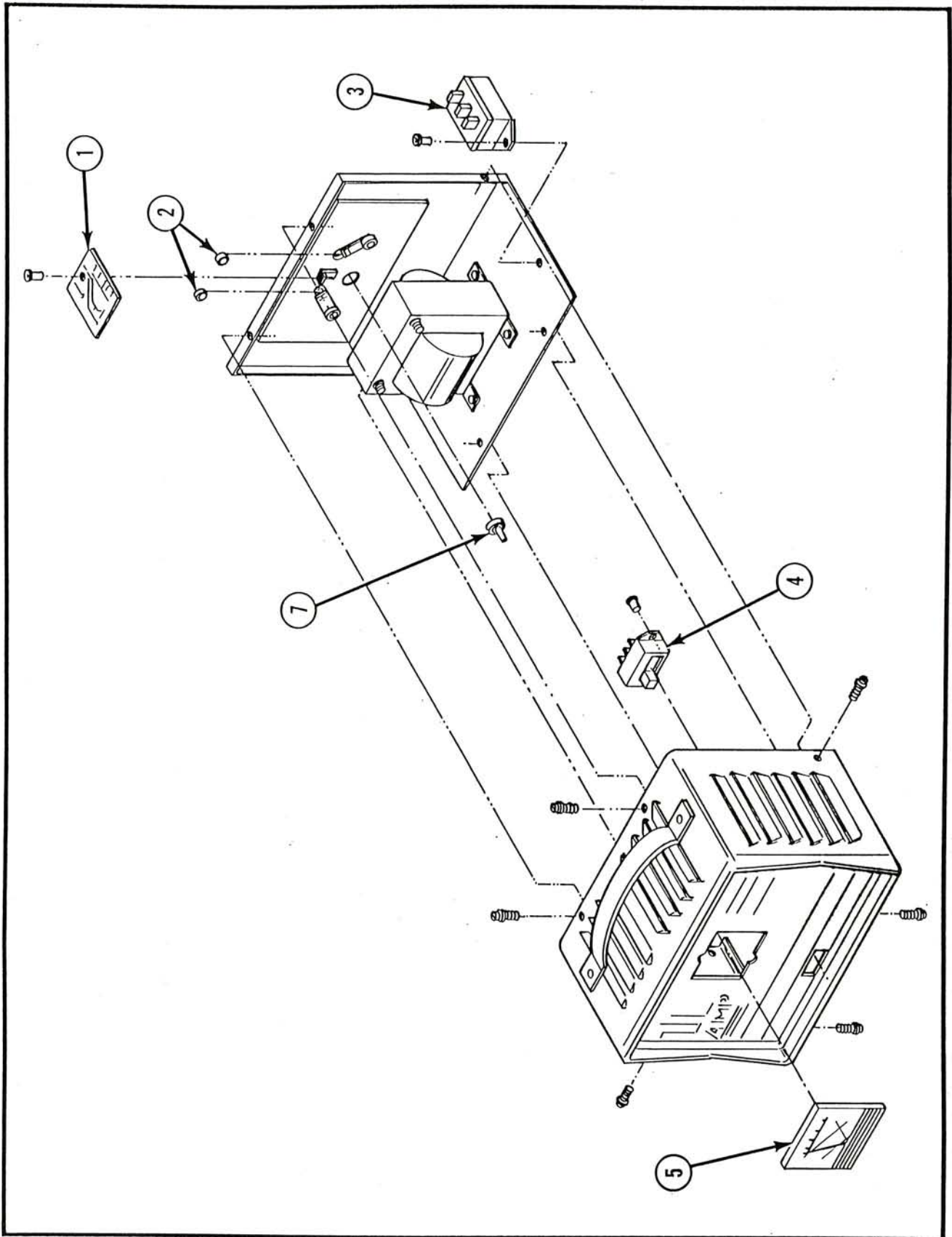


Figure 7-8. Battery Charger Assembly, DC Models

ITEM	PART	DESCRIPTION	QTY
7-8	62143-000-00	BATTERY CHARGER ASSEMBLY, DC Model. . . . (See Figure 7-7 for NHA)	REF
-1	62143-003-00	. CIRCUIT BOARD	1
-2	62143-005-00	. RECTIFIER	2
-3	62143-004-00	. PROTECTOR, Overload	1
-4	62143-006-00	. SWITCH.	1
-5	62143-001-00	. AMMETER	1
-6	62143-007-00	. TIMER (Not Shown) (Not on all Models)	1
-7	62143-002-00	. DIODE.	1

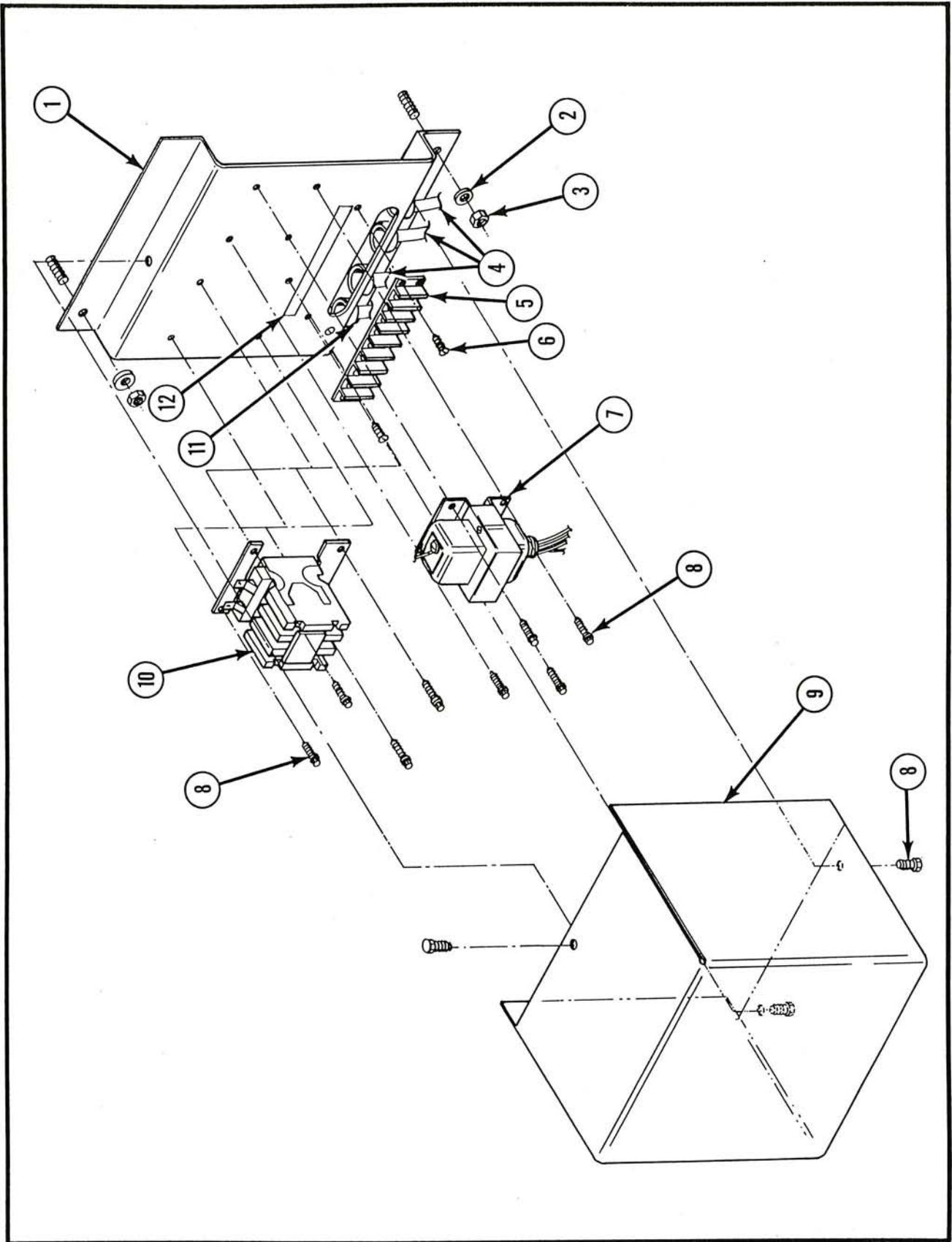


Figure 7-9. Control Box Assembly

ITEM	PART	DESCRIPTION	QTY
7-9	62416-000-00	CONTROL BOX ASSEMBLY,	REF
-1	62414-000-00	. BRACKET, Mounting, Electric	1
-2	11240-004-00	. WASHER, Flat 1/4 DIA.	2
-3	11248-004-00	. LOCKNUT, HEX 1/4-20 UNC	2
-4	29493-099-00	. CABLE, 16 GA.	3
-5	62394-008-00	. TERMINAL STRIP.	1
-6	05503-004-00	. SCREW, HEX WSHR #6 x 1/2 LG	2
-7	62180-000-00	. TRANSFORMER, 24 V	1
-8	14073-006-00	. SCREW, HEX x 3/4.	9
-9	62415-000-00	. COVER	1
-10	62525-001-00	. CONTACTOR	1
-11	62179-000-00	. CORD, 110 V	1
-12	62393-008-00	. DECAL, Terminal Strip	1

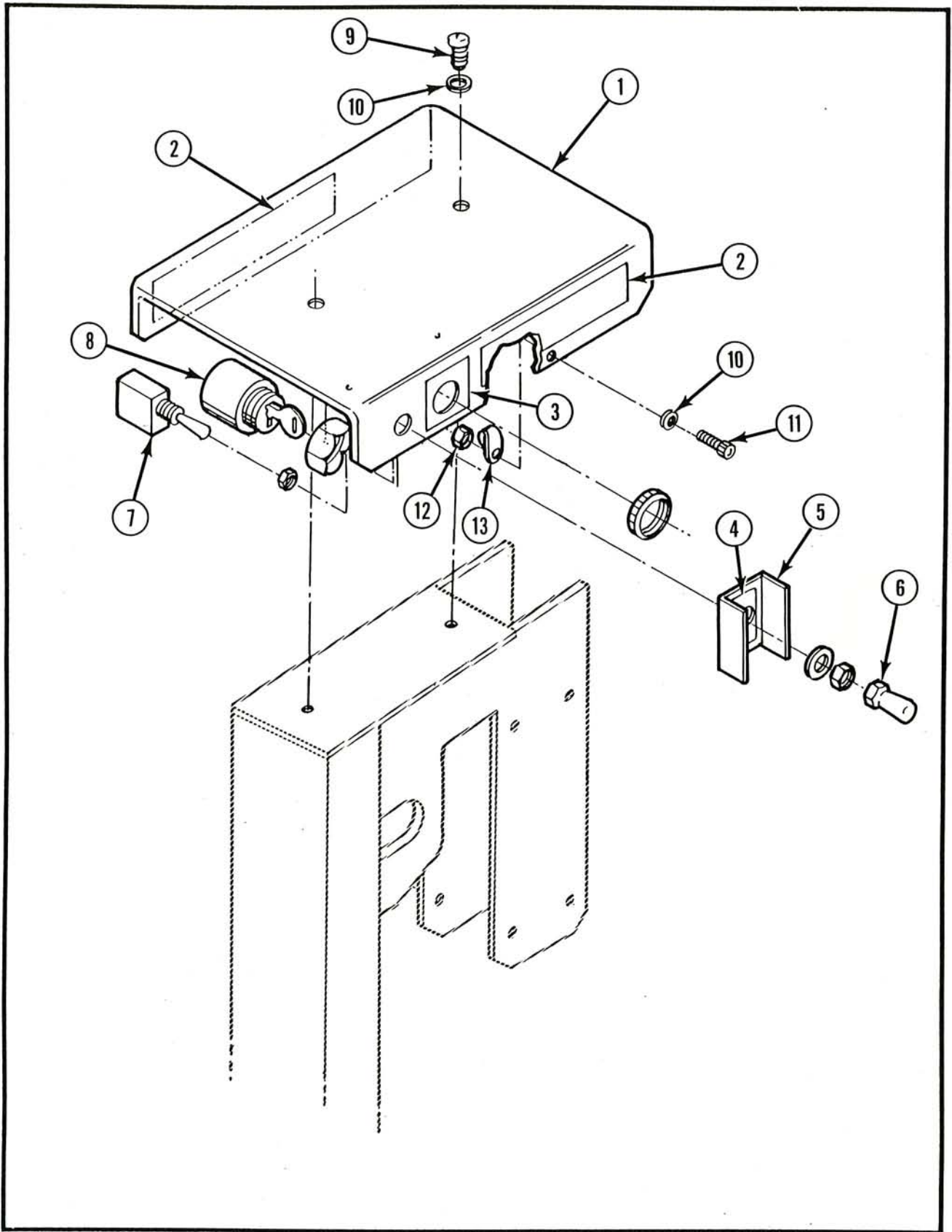


Figure 7-10. Pinch Shield Assembly

ITEM	PART	DESCRIPTION	QTY
7-10	No Number	PINCH SHIELD ASSEMBLY (See Figure 7-1 for NHA)	REF
-1	62469-000-00	. PINCH SHIELD.	1
-2	62220-000-00	. DECAL, Caution Pinch Point.	2
-3	62322-000-00	. DECAL, Key Switch	1
-4	08272-000-00	. DECAL, Up and Down.	1
-5	08271-000-00	. GUARD, Toggle Switch.	1
-6	29872-000-00	. BOOT.	1
-7	12798-000-00	. SWITCH, Toggle.	1
-8	05440-000-00	. KEY SWITCH, with Key.	1
	05442-000-00	. . KEY	1
-9	11820-004-00	. SCREW, BUTT SOC HD 10-32 UNF x 1/2. . .	2
-10	11240-002-00	. WASHER, Flat 1/4 DIA.	3
-11	11728-004-00	. SCREW, SOC HD 10-32 UNF x 1/2	1
-12	11249-003-00	. LOCKNUT, HEX 10-32 UNF.	1
-13	13919-003-00	. CLAMP	1

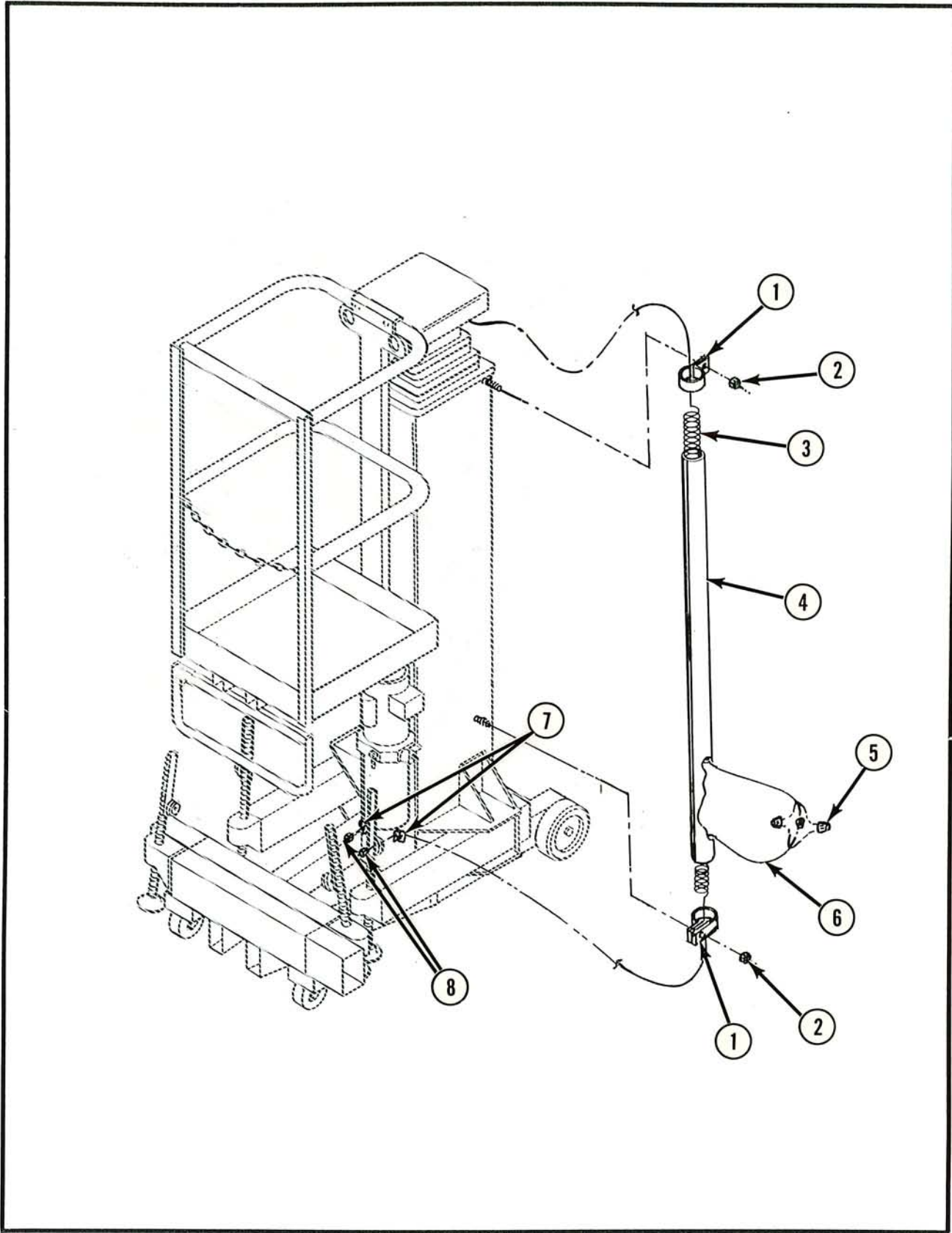


Figure 7-11. Retractable Cable Installation

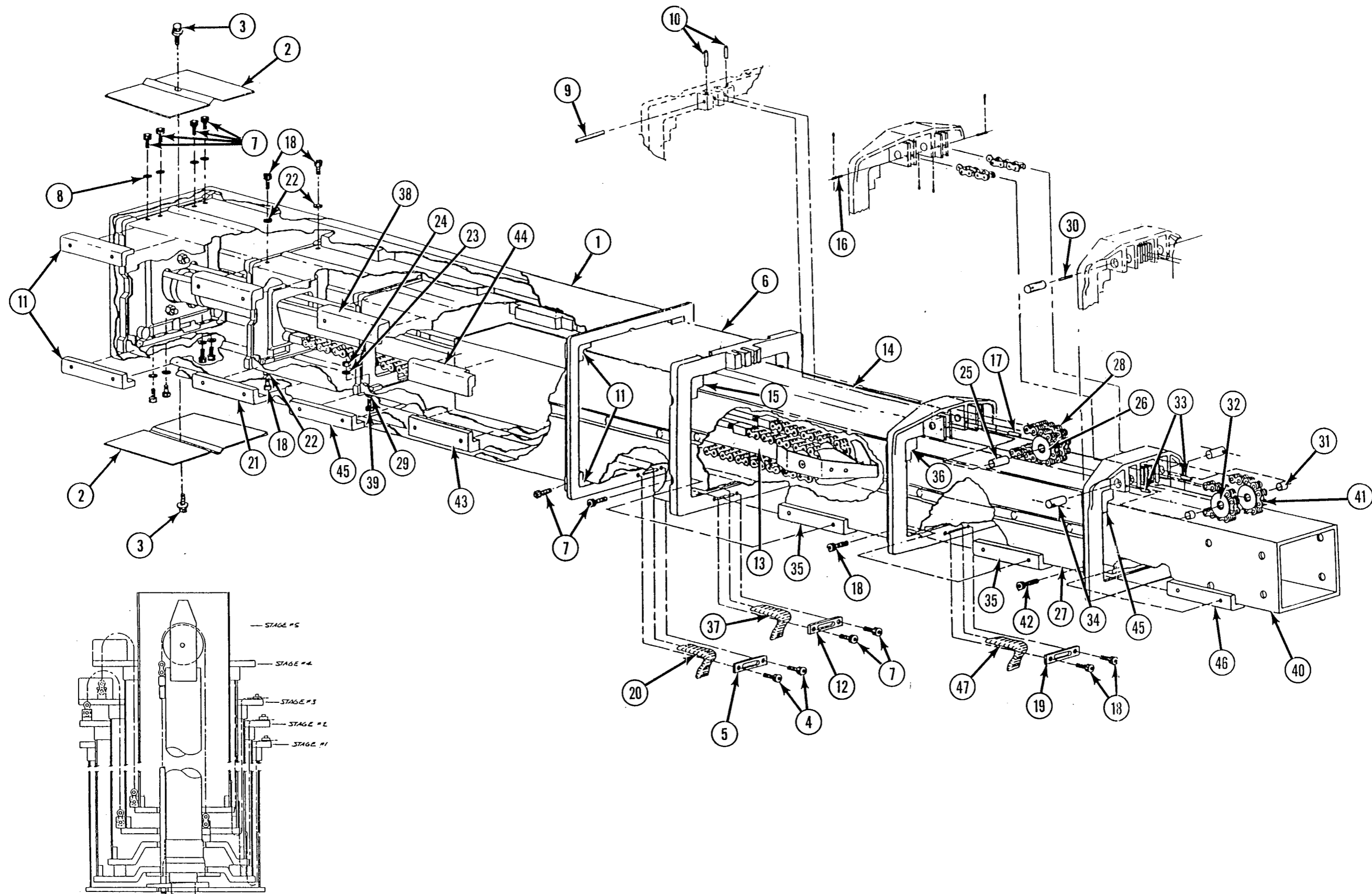


Figure 7-12. Mast Assembly

ITEM	PART	DESCRIPTION	QTY
7-12	No Number	MAST ASSEMBLY (See Figures 7-1, 7-2 and 7-3 for NHA)	REF
-1	62613-000-00	. CHASSIS REF	REF
-2	62470-000-00	. . PINCH SHIELD.	2
-3	05503-003-00	. . SCREW, HH Washer #6 x 3/8	2
-4	12553-005-00	. . SCREW, SOC HD 1/4-20 UNC x 3/4.	2
-5	62239-000-00	. . RETAINER, Strap	1
-6	62668-000-00	. MAST ASSEMBLY, Stage #2	1
-7	12553-005-00	. . SCREW, SOC HD 1/4-20 UNC x 5/8.	2
-8	11246-005-00	. . WASHER, Flat 1/4 DIA.	8
-9	62687-000-00	. . PIN, Chain.	1
-10	11735-012-00	. . ROLL PIN.	2
-11	62158-000-00	. . BEARING, Mast	4
-12	62239-000-00	. . RETAINER, Strap	1
-13	No Number	. LIFT CYLINDER ASSEMBLY. (See Figure 7-13)	REF
-14	62671-000-00	. MAST ASSEMBLY, Stage #3	1
-15	62159-000-00	. . BEARING, Mast	4
-16	62399-001-00	. . PIN ASSEMBLY.	2
-17	11735-012-00	. . ROLL PIN.	1
-18	12553-006-00	. . SCREW, SOC HD 1/4-20 UNC X 3/4.	8
-19	62239-000-00	. . STRAP, Retainer	1
-20	No Number	. . STRAP INSTALLATION, Stage #3. (See Figure 7-14)	REF
-21	62158-000-00	. . BEARING, Mast	4
-22	11239-004-00	. . WASHER, Flat ASTM 1/4 DIA	4
-23	11240-004-00	. . WASHER, Flat 1/4 DIA.	1

ITEM	PART	DESCRIPTION	QTY
7-12	No Number	MAST ASSEMBLY - Continued	REF
-24	11248-004-00	. . LOCKNUT, HEX 1/4-20 UNC	1
-25	62642-010-00	. . BUSHING	1
	62624-016-00	. . BUSHING	1
-26	62652-000-00	. . SHEAVE.	1
-27	62674-000-00	. MAST ASSEMBLY, Stage #4	1
-28	62167-099-00	. . CHAIN x 139 Pitches, Stage #4	2
-29	11240-004-00	. . WASHER, Flat 1/4 DIA.	2
-30	62398-000-00	. . PIN	1
-31	62642-010-00	. . BEARING	2
-32	62654-000-00	. . SHEAVE.	2
-33	11735-012-00	. . ROLL PIN.	2
-34	62128-000-00	. . SHAFT	2
-35	62158-000-00	. . BEARING, Mast	4
-36	62159-000-00	. . BEARING, Mast	2
-37	No Number	. . STRAP INSTALLATION, Stage #4. (See Figure 7-14)	REF
-38	62223-000-00	. . BEARING, Mast	4
-39	12553-005-00	. . SCREW, SOC HD 1/4-20 UNC x 5/8.	1
-40	62712-000-00	. MAST ASSEMBLY, Stage #5	1
-41	62166-099-00	. . CHAIN x 141 Pitches, Stage #5	2
-42	12553-006-00	. . SCREW, SOC HD 1/4-20 x 3/4.	8
-43	62635-000-00	. . BEARING, Mast	4
-44	62158-000-00	. . BEARING, Mast	2
-45	62634-000-00	. . BEARING, Mast	2
-46	62635-000-00	. . BEARING, Mast	4
-47	No Number	. . STRAP INSTALLATION, Stage #5. (See Figure 7-14)	REF

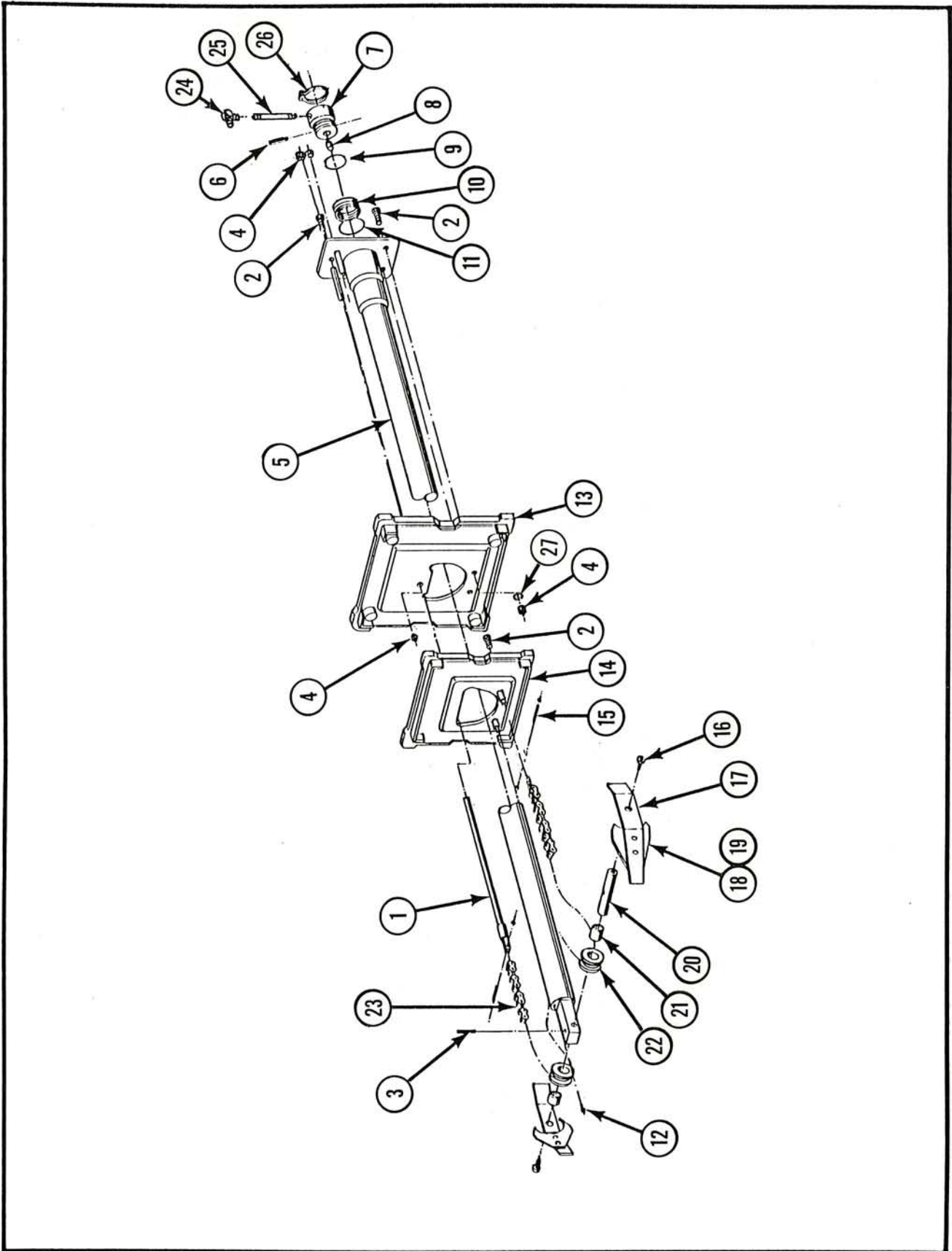


Figure 7-13. Lift Cylinder Assembly/Installation

ITEM	PART	DESCRIPTION	QTY
7-13	62643-000-00	LIFT CYLINDER ASSEMBLY/INSTALLATION . . . (See Figure 7-12 for NHA)	REF
-1	62656-000-00	. TIE ROD	1
-2	11287-012-00	. SCREW, HHC 3/8-16 UNC x 1-1/2	3
-3	11737-010-00	. ROLL PIN.	2
-4	11248-006-00	. LOCKNUT, HEX 3/8-16 UNC	3
-5	62084-000-00	. CYLINDER.	1
-6	11735-006-00	. . ROLL PIN.	1
-7	62083-000-00	. . ROD END	1
-8	62173-000-00	. . VALVE, Poppet	1
-9	13888-050-00	. . O-Ring.	1
-10	62071-000-00	. . SEAL, Retaining Ring.	1
-11	12499-023-00	. . SEAL.	1
-12	62199-000-00	. . VALVE, Bleeder.	1
-13	62591-000-00	. CASTING, 2nd Stage.	1
-14	62593-000-00	. CASTING, 3rd Stage.	1
-15	62660-000-00	. PIN, Clevis	4
-16	11828-005-00	. SCREW, Flat HD SOC 1/4-20 x 5/8	2
-17	62655-000-00	. PLATE, Chain Guard.	2
-18	62339-000-00	. BEARING, Cylinder Guide	2
-19	26553-006-00	. RIVET, Pop 3/16 x 1/2	4
-20	62068-000-00	. SHAFT	1
-21	62642-016-00	. BUSHING	2
-22	62651-000-00	. SHEAVE.	2
-23	62168-099-00	. CHAIN x 105 Pitches	2
-24	12436-006-00	. FITTING, Elbow.	1

ITEM	PART	DESCRIPTION	QTY
7-13	62643-000-00	LIFT CYLINDER ASSEMBLY/INSTALLATION - . . . Continued	REF
-25	20908-005-00	. FITTING, Nipple 1/4-18 NPT x 5.	1
-26	11764-023-00	. WASHER, Flat 3/8 DIA.	3
-27	11764-006-00	. RETAINING RING.	1

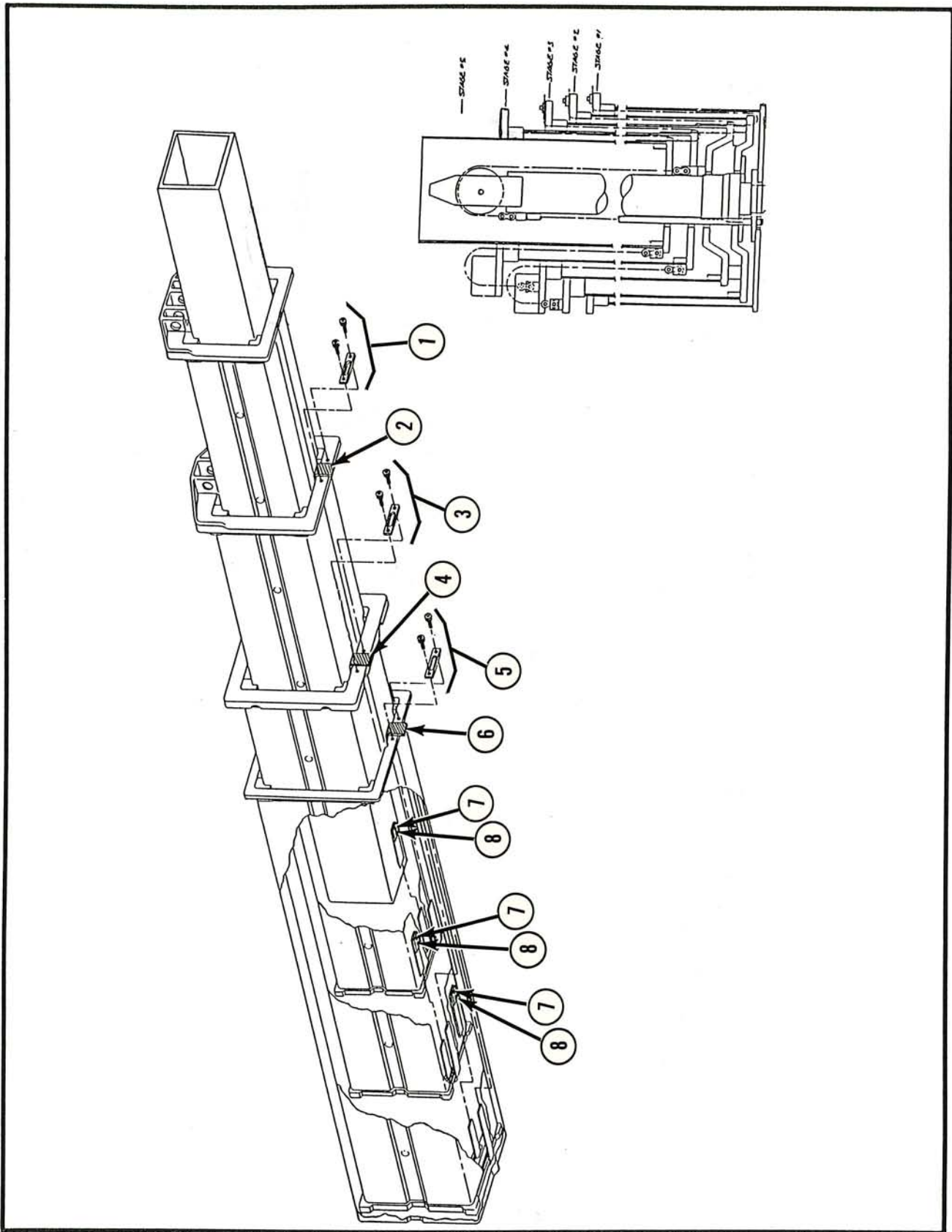


Figure 7-14. Mast Strap Installation

ITEM	PART	DESCRIPTION	QTY
7-14	No Number	MAST STRAP INSTALLATION	REF
-1	No Number	. STRAP RETAINER ASSEMBLY, Stage #3 . . . (See Figure 7-12)	REF
-2	62346-000-00	. STRAP, Stage #5 x 8 FT.	1
-3	No Number	. STRAP RETAINER ASSMEBLY, Stage #2 . . . (See Figure 7-12)	REF
-4	62346-000-00	. STRAP, Stage #4 x 8 FT.	1
-5	No Number	. STRAP RETAINER ASSEMBLY, Stage #1 . . .	REF
-6	62346-000-00	. STRAP, Stage #3 x 8 FT.	1
-7	62239-000-00	. RETAINER, Strap	3
-8	26553-001-00	. RIVET, Pop 3/16 DIA .376-.500 Grip. . .	6

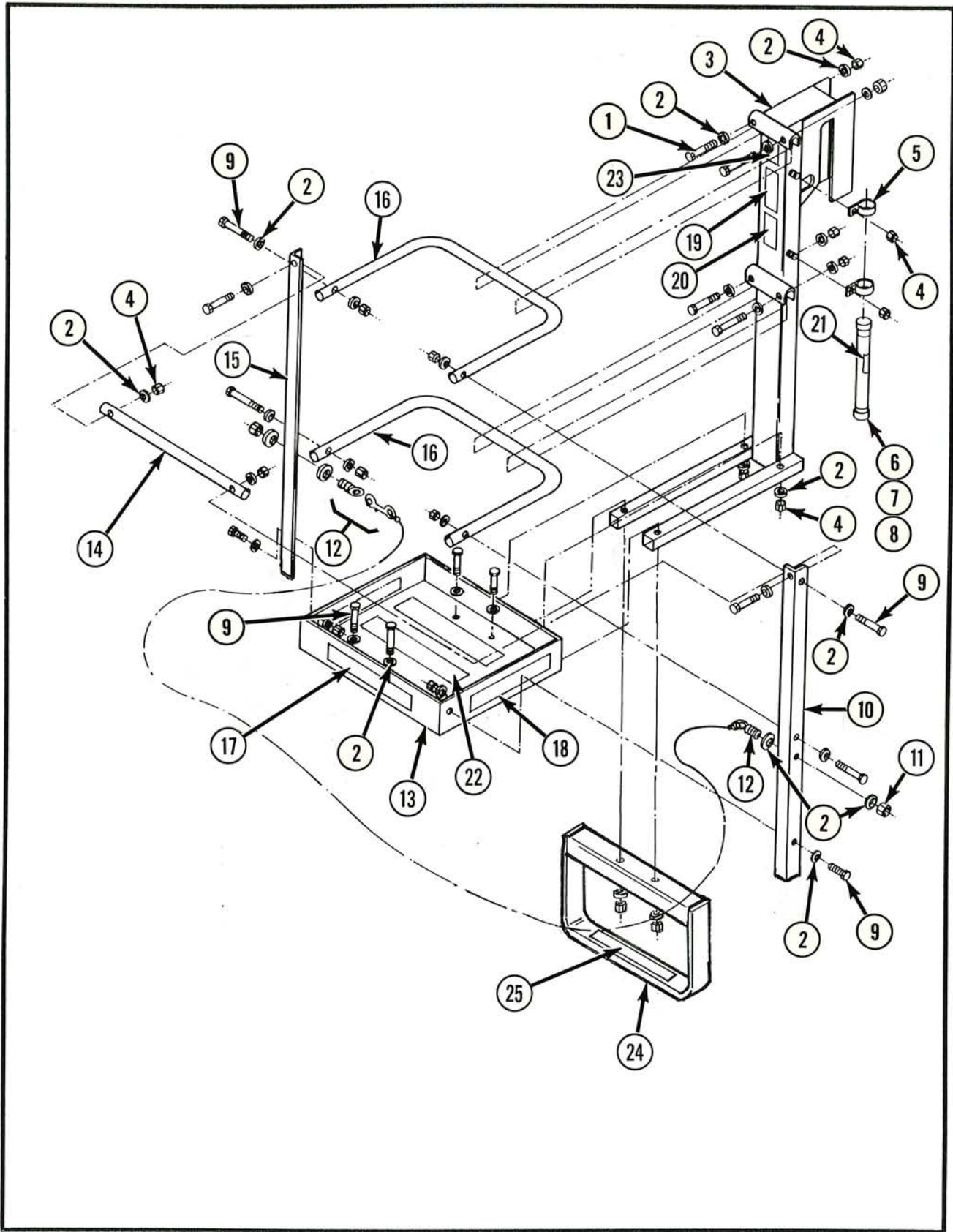


Figure 7-15. Cage Assembly

ITEM	PART	DESCRIPTION	QTY
7-15	62631-000-00	CAGE ASSEMBLY, (See Figure 7-1 for NHA) .	REF
-1	11252-016-00	. SCREW, HHC 1/4-20 UNC x 2	4
-2	11240-004-00	. WASHER, Flat STD 1/4 DIA.	36
-3	62627-000-00	. CAGE SUPPORT WELDMENT	1
-4	11248-004-00	. LOCKNUT, 1/4-20 UNC	18
-5	20398-012-00	. CLAMP	2
-6	03613-002-00	. TUBE, Storage	1
-7	03612-000-00	. CAP	2
-8	62641-000-00	. USERS MANUAL.	1
-9	11252-014-00	. SCREW, HHC 1/4-20 x 1-3/4	8
-10	62404-000-00	. ANGLE, Support-RH	1
-11	11248-006-00	. LOCKNUT, 3/8-16 UNC	2
-12	62499-000-00	. GATE ASSEMBLY	1
-13	62401-000-00	. CAGE PAN.	1
-14	62403-000-00	. FRONT RAIL.	1
-15	62405-000-00	. ANGLE, Support-LH	1
-16	62402-000-00	. CAGE RAIL	2
-17	62216-000-00	. DECAL, Caution Max Load 300 LBS	1
-18	62564-000-00	. DECAL, Up-Right	2
-19	62214-000-00	. DECAL, Danger Before Elevating.	1
-20	62215-000-00	. DECAL, Caution Before Using	1
-21	03610-000-00	. DECAL, Operating INST. Storage.	1
-22	60830-000-00	. SAFETY WALK	2
-23	62574-000-00	. DECAL, Emergency Procedure.	1
-24	62722-000-00	. STEP WELDMENT	1
-25	62723-000-00	. SAFETY WALK	1

SECTION VIII

ILLUSTRATED PARTS BREAKDOWN - OPTIONS

8-1. **INTRODUCTION.** This section lists and illustrates the replaceable assemblies and parts of the Options for the Up-Right Lift, models contained in this manual.

8-2. **EXPLANATION.** Refer to paragraphs 7-2 through 7-7 for explanation of columns in this option illustrated parts breakdown.

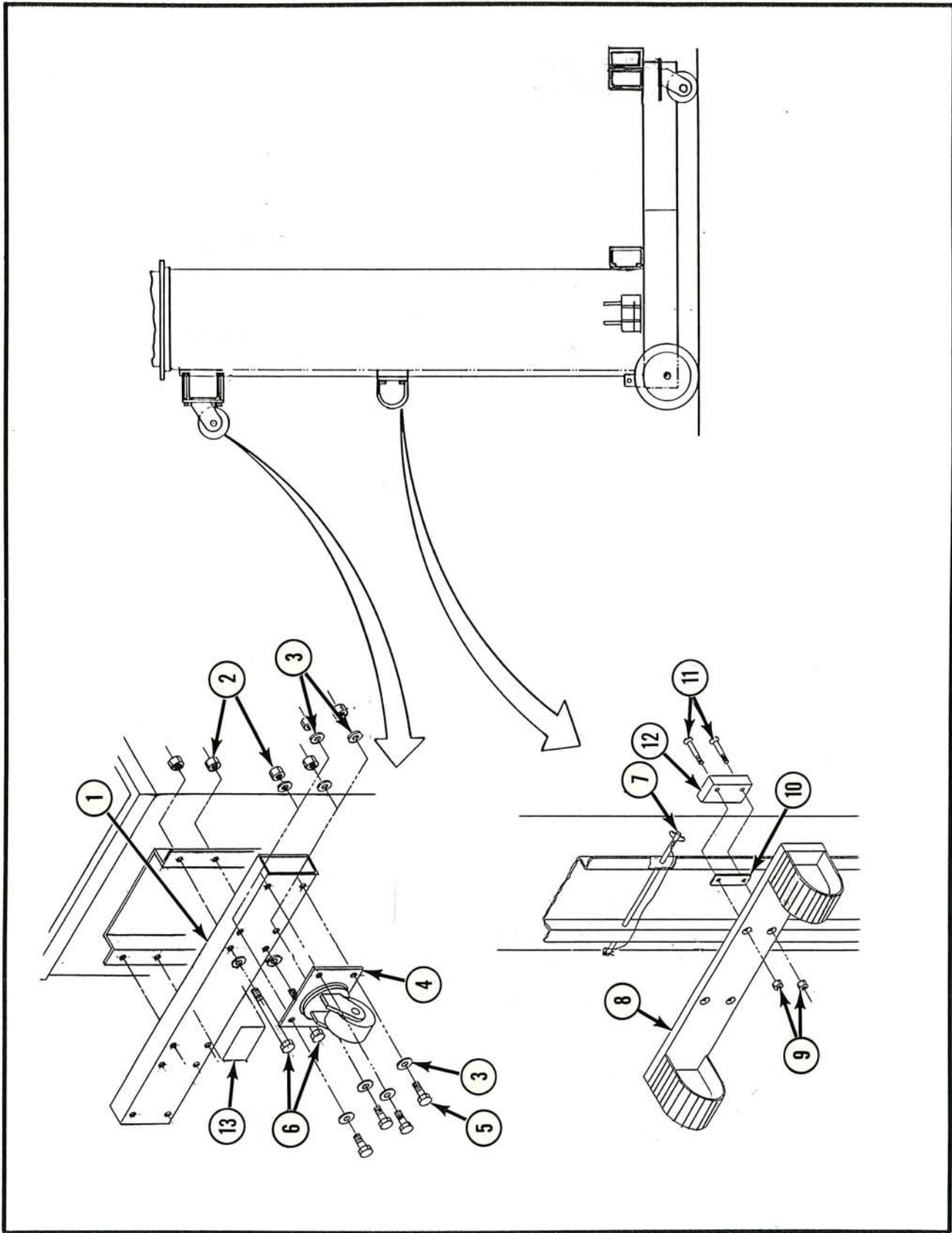


Figure 8-1. Loader Option

ITEM	PART	DESCRIPTION	QTY
8-1	62713-000-00	LOADER OPTION	REF
-1	62193-000-00	. TUBE, Caster Support.	1
-2	11248-006-00	. LOCKNUT, HEX 3/8-16 UNC	12
-3	11239-006-00	. WASHER, Flat ASTM 3/8 DIA	20
-4	62171-000-00	. CASTER, Swivel.	2
-5	11254-008-00	. SCREW, HHC 3/8-16 UNC x 1	8
-6	11254-022-00	. SCREW, HHC 3/8-16 UNC x 2-3/4	4
-7	62330-000-00	. LOCKING PIN ASSEMBLY.	1
-8	62714-000-00	. LOADER BAR.	1
-9	11248-005-00	. LOCKNUT, HEX 5/16-18 UNC.	4
-10	62724-000-00	. RETAINER, Bearing	2
-11	26529-018-00	. SCREW, Flat HD SOC 5/16-18. UNC x 2-1/4	4
-12	62232-000-00	. BEARING	2
-13	62575-000-00	. DECAL, Caution.	1

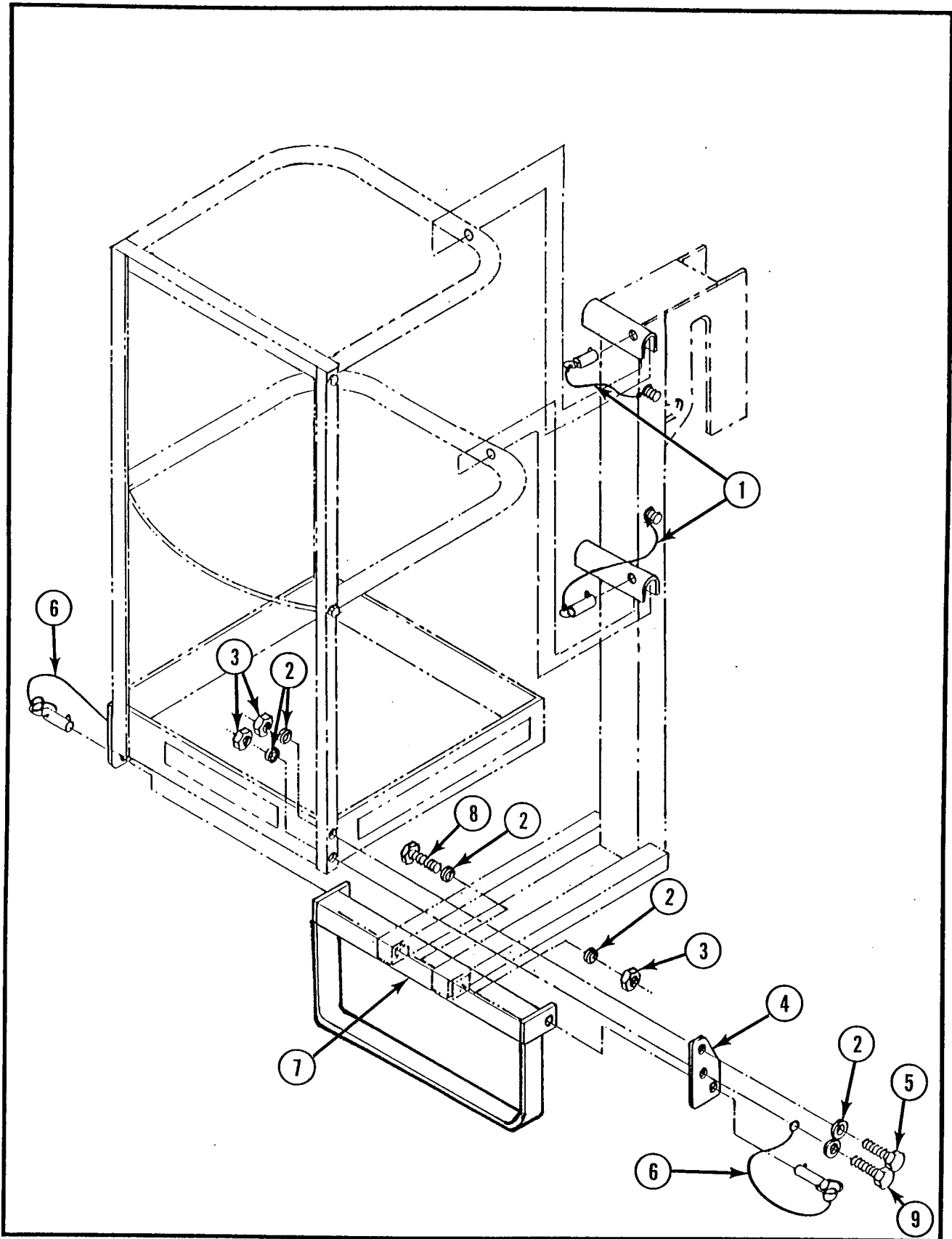


Figure 8-2. Detachable Cage Kit Option¹

ITEM	PART	DESCRIPTION	QTY
8-2	62731-000-00	DETACHABLE CAGE KIT OPTION.	REF
-1	62374-000-00	. PIN AND LANYARD ASSEMBLY, Upper	2
-2	11239-004-00	. WASHER, 1/4 DIA	6
-3	11248-004-00	. LOCKNUT, 1/4-20 UNC	6
-4	62473-000-00	. SUPPORT PLATE	2
-5	11252-008-00	. SCREW, HHC 1/4-20 UNC x 1	2
-6	62375-000-00	. PIN AND LANYARD ASSEMBLY, Lower	2
-7	62730-000-00	. MOUNT WELDMENT, Lower	1
-8	11252-020-00	. SCREW, HHC 1/4-20 UNC x 2-1/2	2
-9	11252-010-00	. SCREW, HHC 1/4-20 UNC x 1-1/4	2

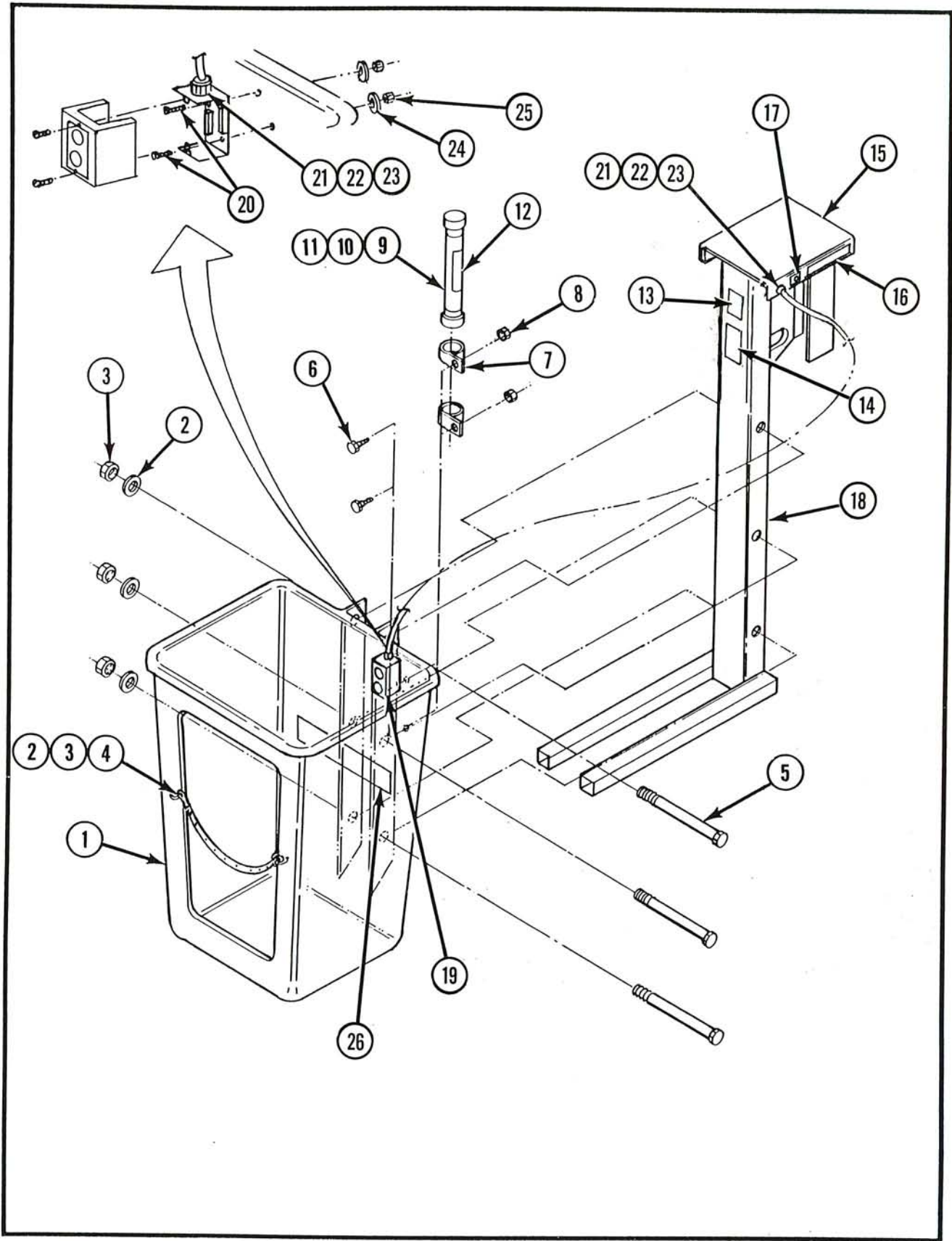


Figure 8-3. Fiberglass Cage Kit Option

ITEM	PART	DESCRIPTION	QTY
8-3	62719-000-00	FIBERGLASS CAGE KIT OPTION,	REF
-1	62543-000-00	. CAGE, Fiberglass.	1
-2	11240-006-00	. WASHER, Flat 3/8.	2
-3	11248-006-00	. LOCKNUT, 3/8-16	2
-4	01199-000-00	. GATE ASSEMBLY	1
-5	11254-052-00	. SCREW, HHC 3/8-16 x 6-1/2 LG.	3
-6	11252-008-00	. SCREW, HEX HD 1/4-20 x 1 LG	2
-7	20398-012-00	. CLAMP	2
-8	11248-004-00	. LOCKNUT, 1/4-20	2
-9	03612-000-00	. CAP	2
-10	03613-002-00	. TUBE.	1
-11	62300-001-00	. USER MANUAL	1
-12	03610-000-00	. DECAL, Operating Instructions	1
-13	62214-000-00	. DECAL, Danger Before Elev..	1
-14	62215-000-00	. DECAL, Caution Before Using	1
-15	62546-000-00	. PINCH SHIELD.	1
-16	62220-000-00	. DECAL, Keep Hands Out	1
-17	62322-000-00	. DECAL, Key Switch	1
-18	62599-000-00	. CAGE SUPPORT WELDMENT,.	1
-19	62558-000-00	. SWITCH.	1
-20	11709-006-00	. SCREW, UNC RD HD 10-24 x 3/4.	2
-21	29620-003-00	. CONNECTOR, Butt	2
-22	29493-099-00	. CONNECTOR, Cable.	2
-23	29929-004-00	. LOCKNUT	2
-24	11240-003-00	. WASHER.	2
-25	11248-003-00	. LOCKNUT	2
-26	62216-000-00	. DECAL, Caution MAX Load 300 LBS	1

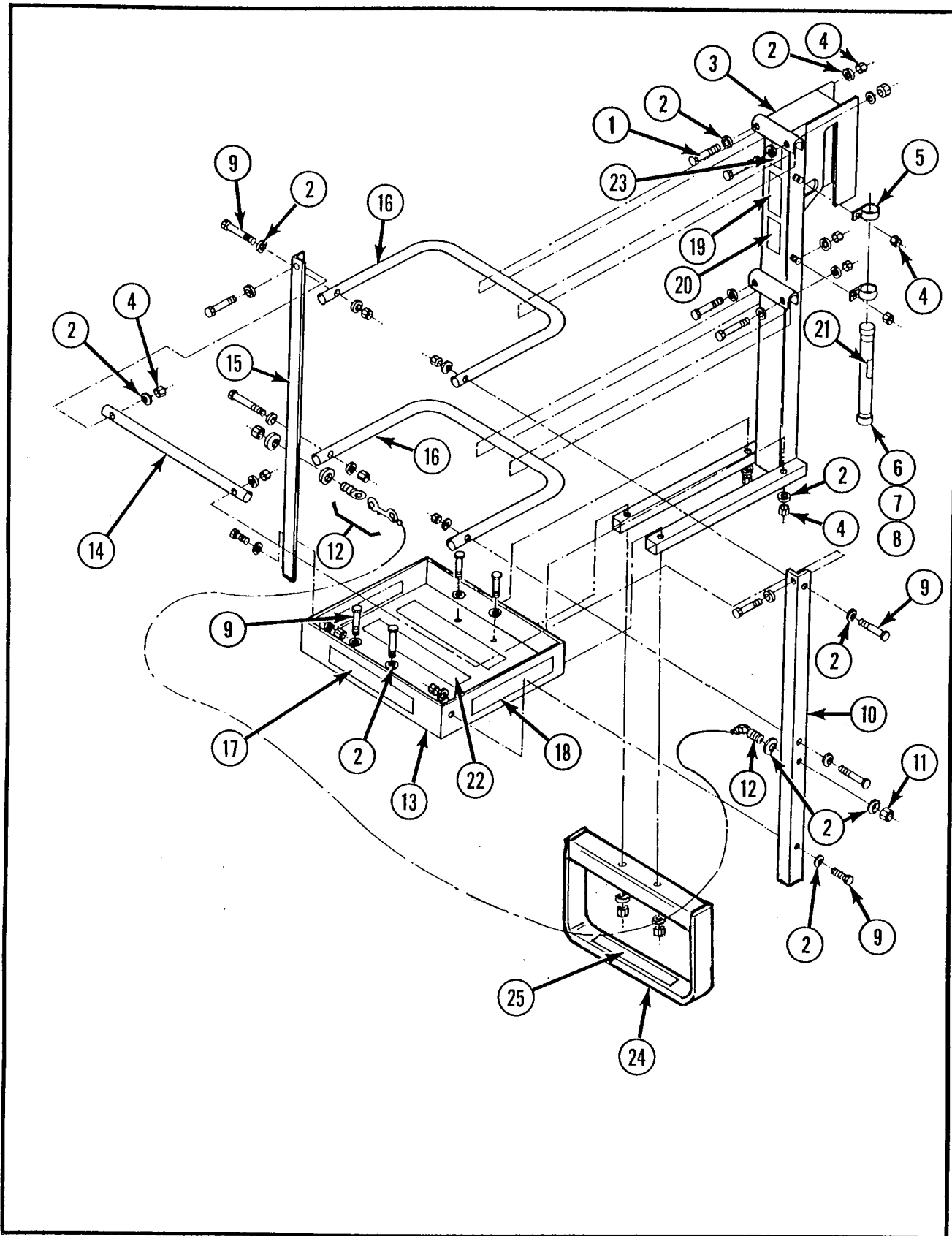


Figure 8-4. Narrow Cage Option

ITEM	PART	DESCRIPTION	QTY
8-4	62486-000-00	NARROW CAGE OPTION.	REF
-1	11252-016-00	. SCREW, HHC 1/4-20 x 3/4	10
-2	11240-004-00	. WASHER, Flat STD 1/4.	36
-3	62627-000-00	. CAGE SUPPORT WELDMENT	1
-4	11248-004-00	. NUT, HEX 1/4-20 UNC	18
-5	20398-012-00	. CLAMP	2
-6	03613-002-00	. TUBE, Storage	1
-7	03612-000-00	. CAP	2
-8	62641-000-00	. USERS MANUAL.	1
-9	11252-014-00	. SCREW, HHC 1/4-20 x 1-3/4	8
-10	62404-000-00	. ANGLE, Support-RH	1
-11	11248-006-00	. LOCKNUT, 3/8-16 UNC	2
-12	01199-000-00	. GATE ASSEMBLY	1
-13	62483-000-00	. CAGE PAN.	1
-14	62485-000-00	. FRONT RAIL.	1
-15	62405-000-00	. ANGLE, Support-LH	1
-16	62484-000-00	. CAGE RAIL	2
-17	62216-000-00	. DECAL, Caution MAX Load 300 LBS	1
-18	62564-000-00	. DECAL, Up-Right	2
-19	62214-000-00	. DECAL, Danger Before Elevating.	1
-20	62215-000-00	. DECAL, Caution Before Using	1
-21	03610-000-00	. DECAL, Operating INST. Storage.	1
-22	60830-000-00	. SAFETY WALK	2
-23	62574-000-00	. DECAL, Emergency Procedure.	1
-24	62722-000-00	. STEP WELDMENT	1
-25	62723-000-00	. SAFETY WALK	1

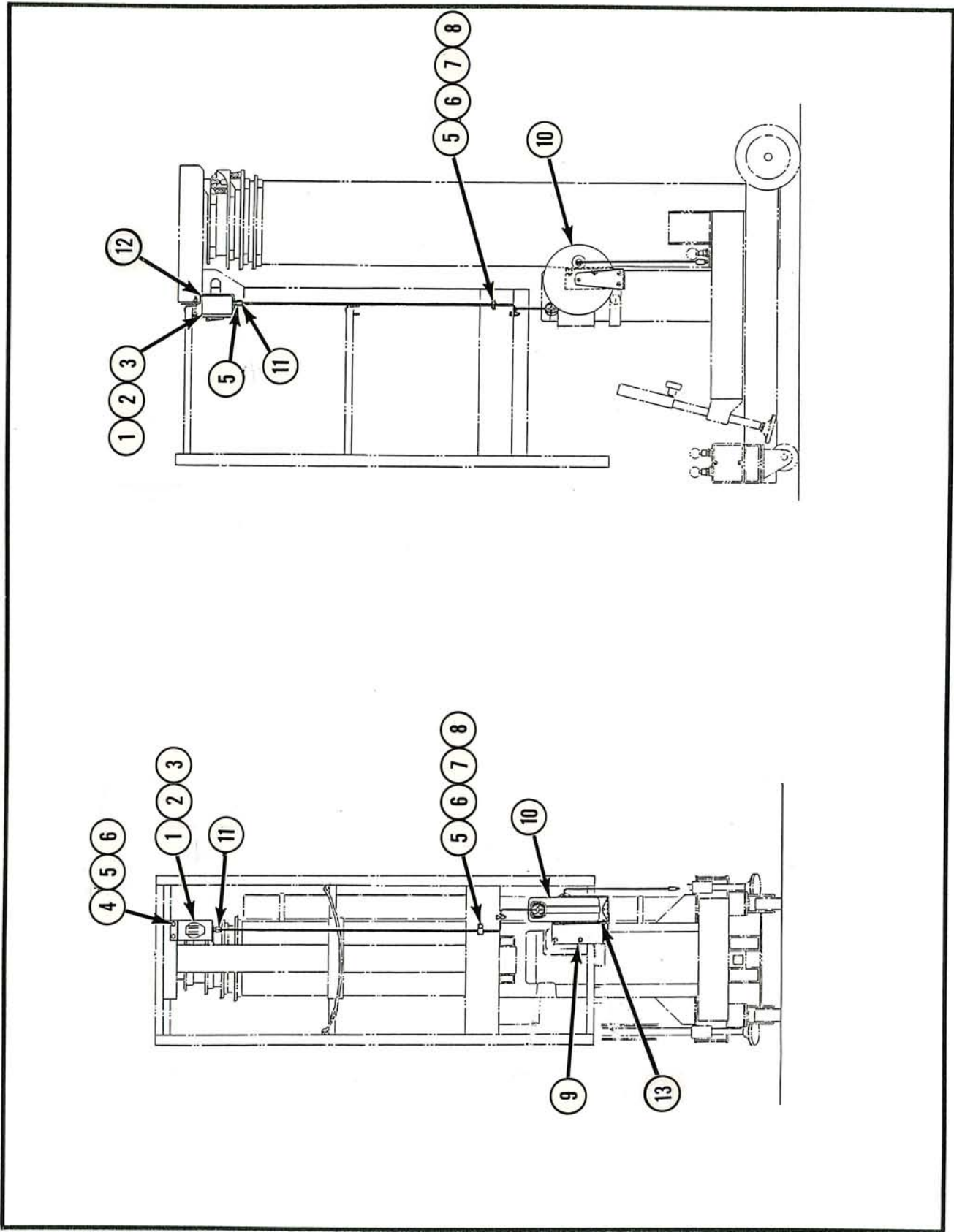


Figure 8-5. Power To Platform
Option/Standard Platform

ITEM	PART	DESCRIPTION	QTY
8-5	62728-000-00	POWER TO PLATFORM OPTION/ STANDARD PLATFORM	REF
-1	15769-000-00	. BOX, Bell	1
-2	26611-002-00	. . COVER, Box, Electric.	1
-3	08942-000-00	. . RECEPTACLE.	1
-4	11252-016-00	. SCREW, Cap HHC 1/4-20 x 2	2
-5	11238-004-00	. WASHER, Flat 1/4 DIA.	4
-6	11248-004-00	. NUT, 1/4-20	4
-7	13919-004-00	. CLAMP	2
-8	11252-006-00	. SCREW, Cap HHC 1/4-20 x 3/4	2
-9	62727-000-00	. REEL MOUNT BRACKET.	1
-10	62500-000-00	. REEL.	1
-11	29925-000-00	. CONNECTOR	1
-12	62516-000-00	. BRACKET, Bell Box Mounting.	1
-13	26554-001-00	. RIVET, 1/4 DIA.	2

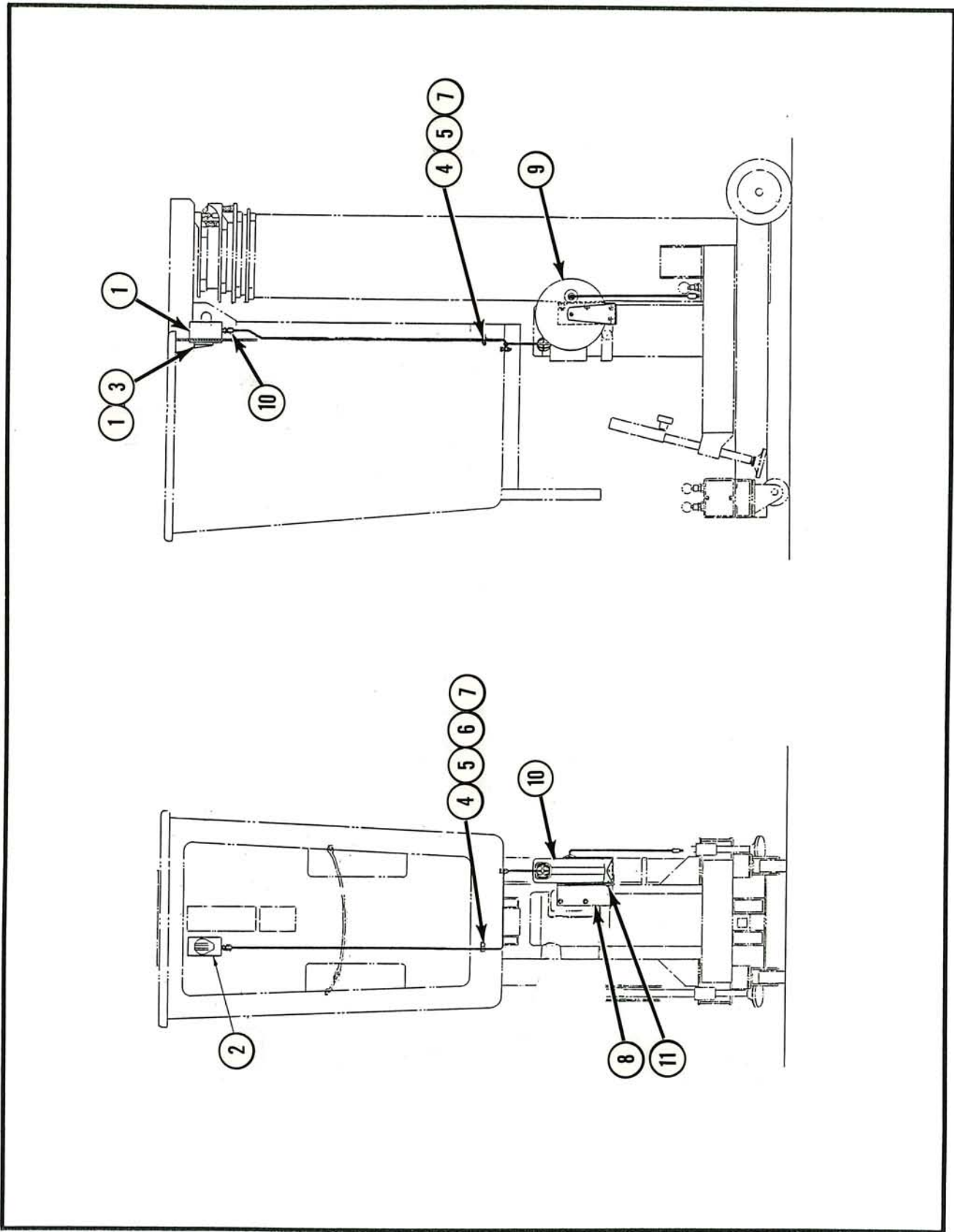


Figure 8-6. Power To Platform
Option/Fiberglass Platform

ITEM	PART	DESCRIPTION	QTY
8-6	62728-000-00	POWER TO PLATFORM OPTION/ FIBERGLASS PLATFORM	REF
-1	15769-000-00	. BOX, Bell	1
-2	26611-002-00	. . COVER, Box, Electric.	1
-3	08942-000-00	. . RECEPTACLE.	1
-4	11238-004-00	. WASHER, Flat 1/4 DIA.	4
-5	11248-004-00	. NUT, 1/4-20	4
-6	13919-004-00	. CLAMP	2
-7	11252-006-00	. SCREW, Cap HHC 1/4-20 x 3/4	2
-8	62727-000-00	. REEL MOUNT BRACKET.	1
-9	62500-000-00	. REEL.	1
-10	29925-000-00	. CONNECTOR	1
-11	26554-001-00	. RIVET, 1/4 DIA.	2

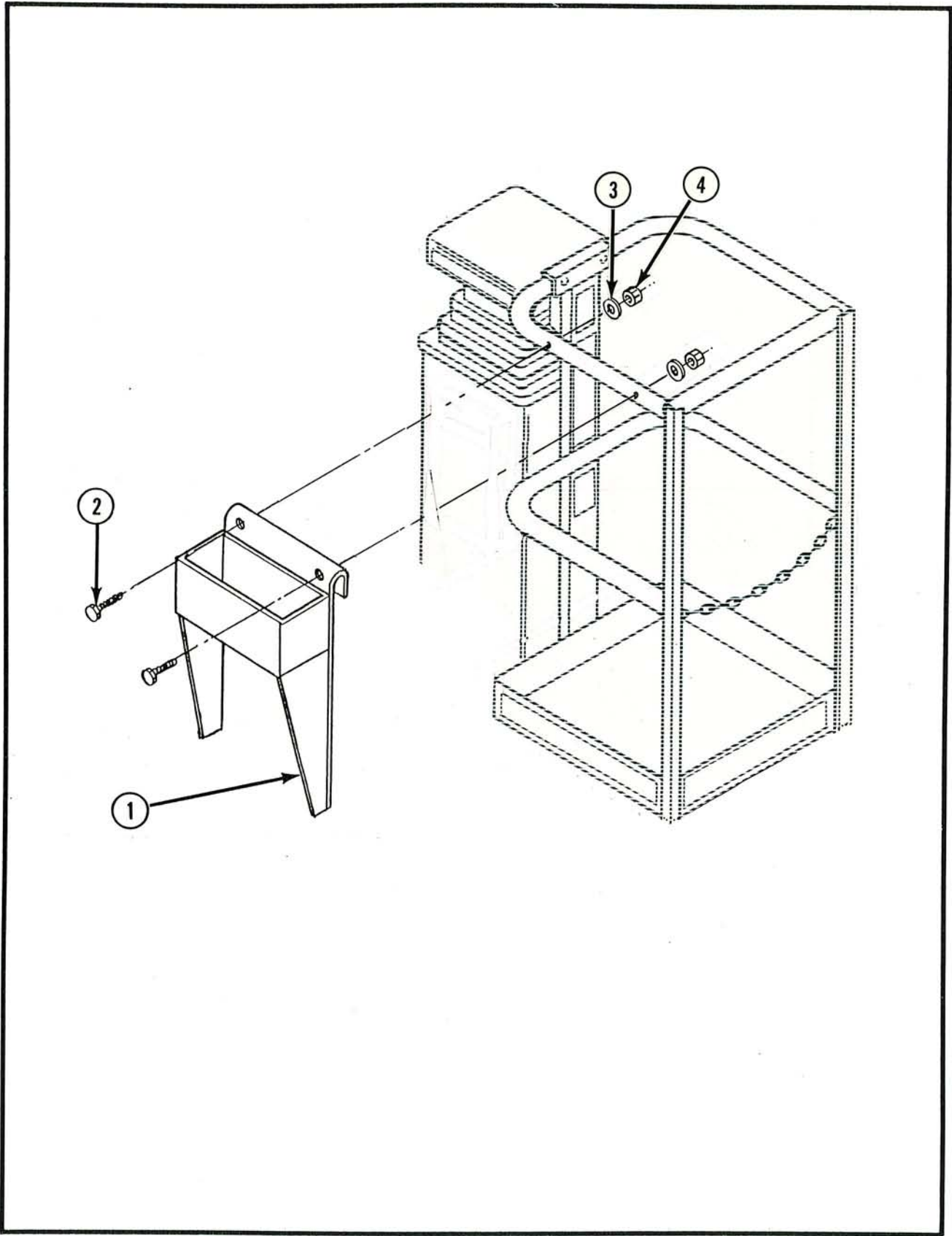


Figure 8-7. Tool Tray Option

ITEM	PART	DESCRIPTION	QTY
8-7	62530-000-00	TOOL TRAY OPTION.	REF
-1	62531-000-00	. TOOL TRAY ASSEMBLY.	1
-2	11252-014-00	. SCREW, HHC 1/4-20 x 1-3/4	2
-3	11240-004-00	. WASHER, Flat 1/4.	2
-4	11248-004-00	. NUT, HEX 1/4-20 UNC	2

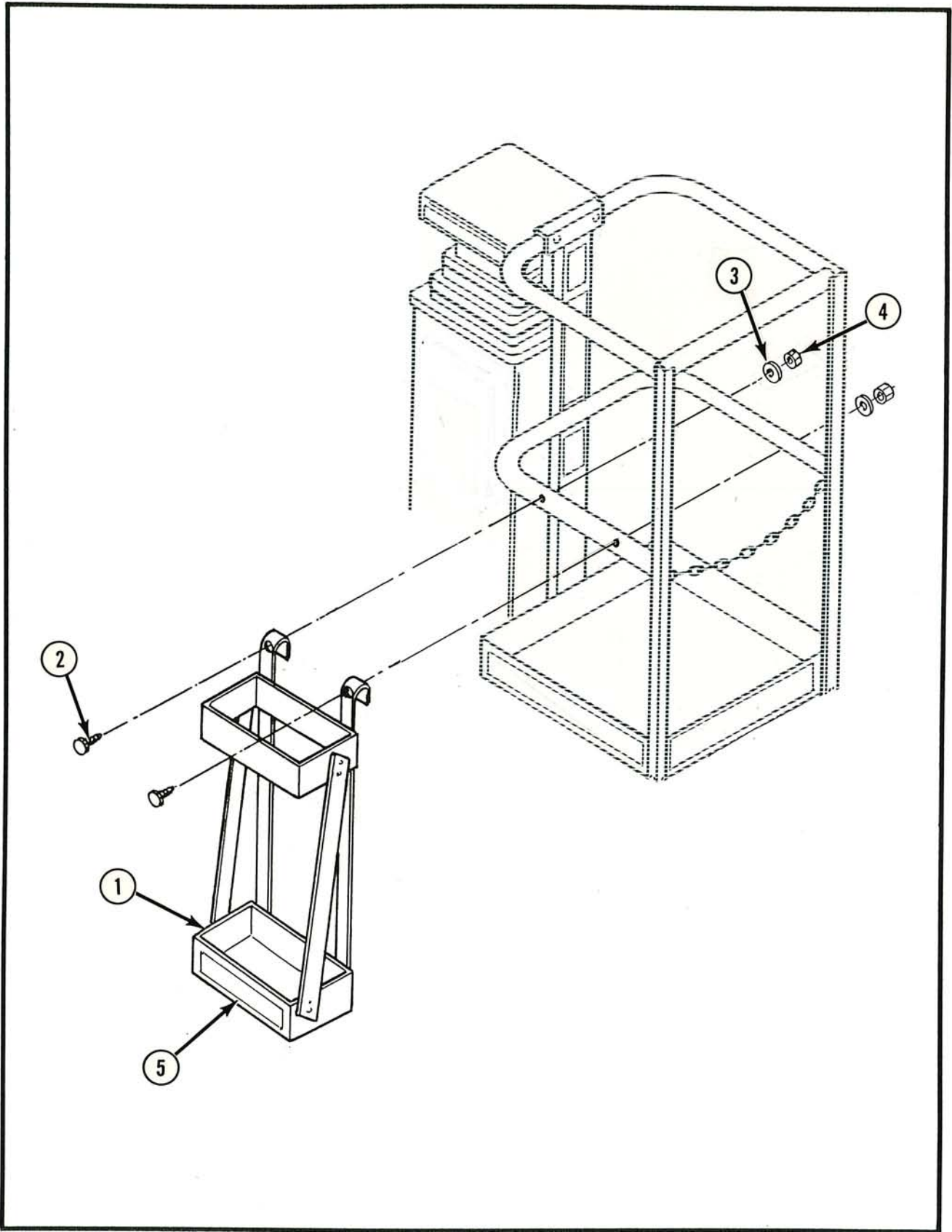


Figure 8-8. Florescent Tube Caddy Option

ITEM	PART	DESCRIPTION	QTY
8-8	62535-000-00	FLORESCENT TUBE CADDY OPTION.	REF
-1	62536-000-00	. TUBE CADDY ASSEMBLY	1
-2	11252-014-00	. SCREW, HHC 1/4-20 x 1-3/4	2
-3	11240-004-00	. WASHER, Flat 1/4.	2
-4	11248-004-00	. NUT, HEX 1/4-20	2
-5	62542-000-00	. DECAL, Caution.	1

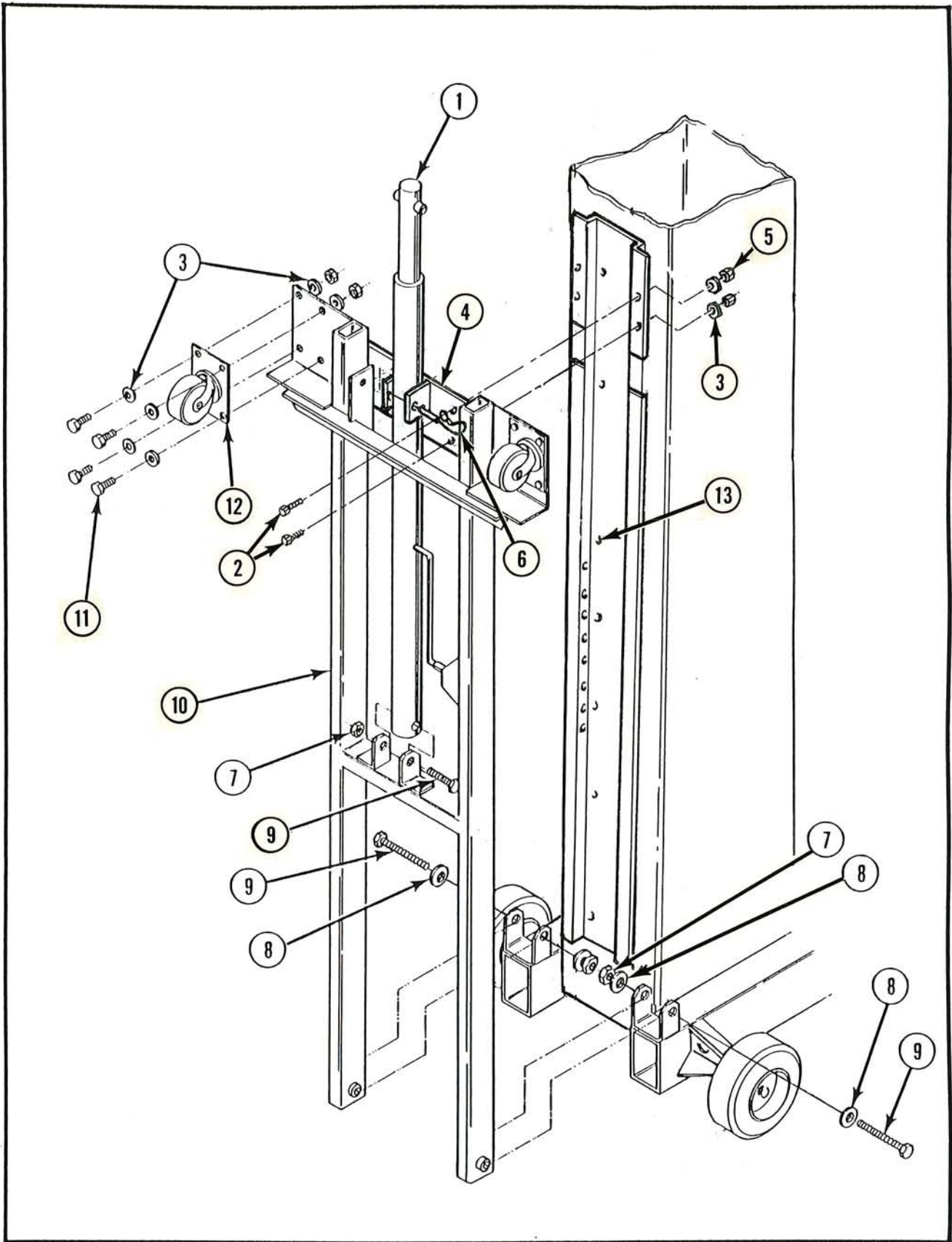


Figure 8-9. Tilt-Back Assembly Option

ITEM	PART	DESCRIPTION	QTY
8-9	62729-000-00	TILT-BACK ASSEMBLY OPTION	REF
-1	62213-000-00	. JACK.	1
-2	11254-010-00	. SCREW, HHC 3/8-16 UNC x 1-1/4	4
-3	11240-006-00	. WASHER, Flat 3/8 DIA.	20
-4	62210-000-00	. BRACKET, Jack Mounting.	1
-5	11248-006-00	. LOCKNUT, HEX 3/8-16 UNC	12
-6	62319-000-00	. LANYARD ASSEMBLY.	1
-7	11248-008-00	. LOCKNUT, HEX 1/2-13 UNC	3
-8	11240-008-00	. WASHER, Flat 1/2 DIA.	4
-9	11256-028-00	. SCREW, HHC 1/2-13 UNC x 3-1/2	3
-10	62203-000-00	. TILT-BACK ROLLING FRAME	1
-11	11254-008-00	. SCREW, HHC 3/8-16 UNC x 1	8
-12	62171-000-00	. CASTER.	2
-13	26554-001-00	. RIVET, 1/4 DIA.	14