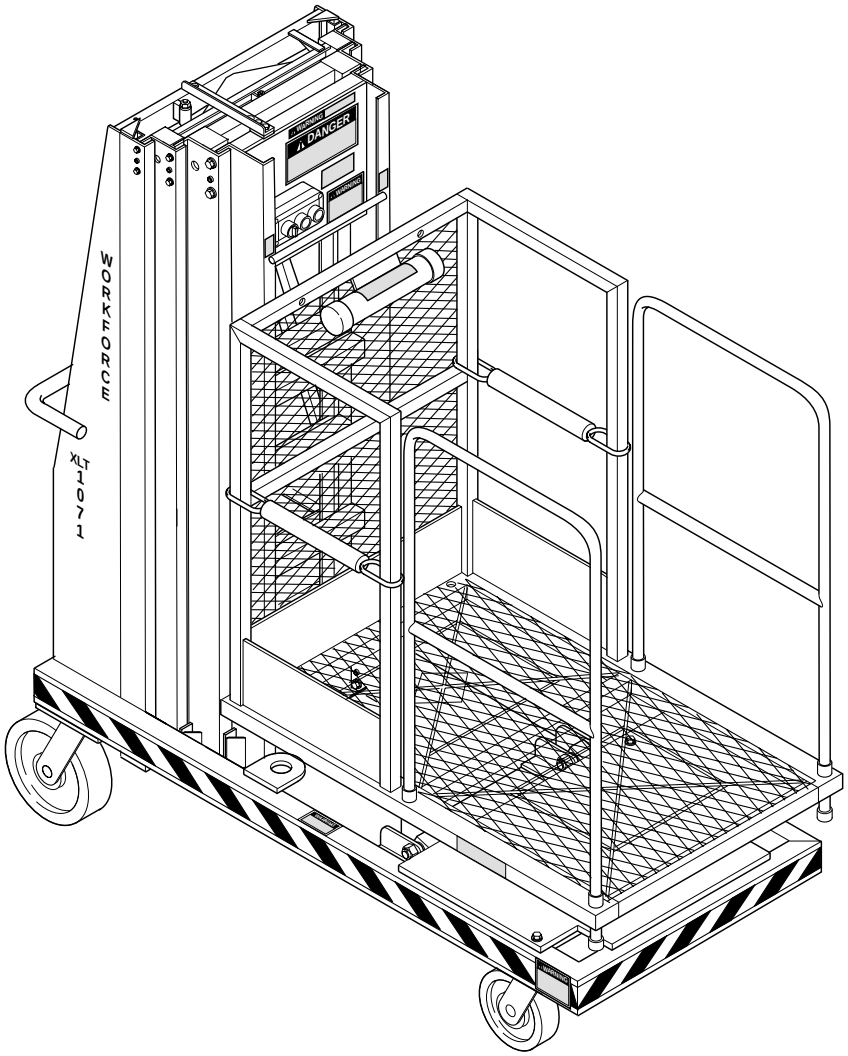
WORKFORCE®

AERIAL WORK PLATFORMS

Model XLT-1071AIR Operation and Maintenance Manual

COUGAR LIFT®

Hydraulic Lift Platform



B33-01-0087

bil-jax®

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TELESCOPIC PERSONNEL LIFT

This equipment is designed and manufactured in compliance with the duties, responsibilities, and standards set forth for manufacturers in the ANSI 92.3 standard in effect at the time of manufacture.

This equipment will meet or exceed applicable OSHA codes and ANSI A92.3 standards when used in accordance with sections 5, 6, 7, 8, 9 & 10 of ANSI A92.3 and all other manufacturer's recommendations.

It is the responsibility of the user of this equipment to follow all applicable ANSI, OSHA, Federal, State, and local codes and regulations that govern the safe operation of this equipment.

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Safety

1-1 INTRODUCTION

Familiarity and proper training are required for the safe operation of mechanical equipment. Equipment operated improperly or by untrained personnel can be dangerous. Read the operating instructions in this manual and become familiar with the location and proper use of all controls. Inexperienced operators should receive instruction from someone familiar with the equipment before being allowed to operate the machine. The use of intelligence and common sense in the operation of mechanical equipment is the best practice in any safety policy. Be professional and always observe the safety procedures set forth in this manual.

All OSHA, ANSI, state and local codes and regulations pertaining to this equipment should be obtained, read, and thoroughly understood before attempting to operate this equipment. Persons under the influence of drugs, alcohol, or prescription medication should not be on or near this equipment. Common sense should be implemented at all times during the use of this equipment. Do not operate this equipment in areas where equipment or user may come in contact with live power source.

The information contained herein is not to be considered as legal advice and is intended for informational purposes only. This information is offered to alert Workforce customers to procedures that may be of concern to them.

This information is not intended to be all inclusive and is to be followed in the use of Workforce equipment only.

For any questions concerning the safe use of this equipment, call 419.445.9675 before operating.

Safety Notes

This manual contains DANGERS, WARNINGS, CAUTIONS, and NOTES that must be followed to prevent the possibility of improper service, damage to the equipment, or personal injury.

DANGER

Dangers warn of equipment operation near electrical power lines that could lead to personal injury or death.

WARNING

Warnings describe conditions or practices that could lead to personal injury or death.

CAUTION

Cautions provide information important to prevent errors that could damage machine or components.

NOTE: Notes contain additional information important to a procedure.

1-2 BEFORE OPERATION

Ensure the following general safety precautions are followed before operating the Cougar Lift.

- ALWAYS survey the usage area for potential hazards such as untampered earth fills, unlevel surfaces, overhead obstructions, and electrically charged conductors or wires. Be aware of any potential hazards and always consider what could happen. Watch for moving vehicles in the operating area.
- ALWAYS read, understand, and follow the procedures in this manual before attempting to operate equipment.
- ALWAYS inspect the equipment for damaged or worn parts. Check for cracked welds, hydraulic leaks, damaged wiring, loose wire connectors, damaged casters, and damaged floor pads. Also check for any improper operation. NEVER operate equipment if damaged in any way. Improperly operating equipment must be repaired before using.
- ALWAYS wear proper clothing for the job. Wear protective equipment as required by federal, state, or local regulations.
- ALWAYS locate, read, and follow all directions and warnings displayed on the equipment.
- ALWAYS inspect the equipment for any “DO NOT USE” tags placed on the equipment by maintenance personnel. NEVER use any equipment tagged in this way until repairs are made and all tags are removed by authorized maintenance personnel.
- ALWAYS make sure the platform and shoes are free of mud, grease, or other foreign material. This will reduce the possibility of slipping.
- NEVER allow improperly trained personnel to operate this equipment. Only trained and authorized personnel shall be allowed to operate this equipment.
- NEVER operate this equipment if you are under the influence of alcohol or drugs or if you feel ill, dizzy, or unsteady in any way. Operators must be physically fit, thoroughly trained, and not easily excitable.
- NEVER modify, alter, or change the equipment in any way that would affect its original design or operation in any way.
- NEVER operate this equipment in ways for which it is not intended.

1-3 DURING OPERATION

Ensure the following general safety precautions are followed during the operation of the Cougar Lift.

⚠ DANGER

This machine is not insulated for use near electrical power lines and DOES NOT provide protection from contact with or close proximity to any electrically charged conductor. Operator must maintain safe clearances at all times (10 feet minimum) and always allow for platform movement such as wind induced sway. Always contact the power company before performing work near power lines. Assume every line is hot. Remember, power lines can be blown by the wind.

Refer to Table 1-1 for minimum safe approach distances between machine and electrical power lines.

Table 1-1. Minimum Safe Approach Distances

Voltage Range (Phase to Phase)	Minimum Safe Approach Distance	
	(Feet)	(Meters)
0 to 300V	Avoid Contact	
Over 300V to 50KV	10	3.05
Over 50KV to 200KV	15	4.60
Over 200KV to 350KV	20	6.10
Over 350KV to 500KV	25	7.62
Over 500KV to 750KV	35	10.67
Over 750KV to 1000KV	45	13.72

- ALWAYS position lift far enough away from power sources to ensure that no part of the lift can accidentally reach into an unsafe area.
- ALWAYS operate only on a firm and level surface. NEVER use on surfaces that do not support the weight of the equipment and its rated load capacity.
- ALWAYS keep yourself and all personnel away from potential pinch or shear points.
- ALWAYS report any misuse of equipment to the proper authorities. Horseplay is prohibited.
- ALWAYS maintain good footing on the platform. NEVER wear slippery soled shoes.
- ALWAYS make certain all personnel are clear and there are no obstructions before repositioning platform.
- ALWAYS cordon off area around the base to keep personnel and other equipment away from it while in use.
- ALWAYS stay clear of wires, cables, and other overhead obstructions.
- ALWAYS disconnect power at the batteries when not in use to guard against unauthorized use.

- NEVER allow electrode contact with any part of the platform if welding is being performed by a worker from the platform.
- NEVER use without the floor pads fully based on the floor.
- NEVER override or by-pass manufacturer's safety devices.
- NEVER release floor locks or move unit with a person or materials on board.
- NEVER stand or sit on guard rails. Work only within the platform guard rail area and do not lean out over guard rails to perform work.
- NEVER attempt to increase working height with boxes, ladders, or other means.
- NEVER operate this equipment when exposed to high winds, thunderstorms, ice, or any other weather conditions that would compromise the safety of the operator.
- NEVER climb up or down masts.
- NEVER allow ropes, electric cords, hoses, etc. to become entangled in the equipment when the platform is being raised or lowered.
- NEVER exceed manufacturer's platform load limits and make sure all materials are evenly distributed over the entire platform.
- NEVER exceed platform load ratings by transferring loads to platform at elevated heights.
- NEVER use guard rails to carry materials and never allow overhang of materials when raising or lowering platform.

1-4 MAINTENANCE SAFETY

Ensure the following general safety precautions are observed when maintenance is performed on the Cougar Lift.

- ALWAYS perform maintenance procedures according to manufacturer's requirements. NEVER short change maintenance procedures.
- ALWAYS check hydraulic system. Make sure all lines, connectors, and fittings are tight and in good condition.
- ALWAYS keep all mechanisms properly adjusted and lubricated according to maintenance schedule and manufacturers specifications.
- ALWAYS perform a function check of operating controls before each use and after repairs have been made.
- ALWAYS locate and protect against possible pinch points prior to performing maintenance and repairs.
- ALWAYS use only factory approved parts to repair or maintain this equipment. If this equipment is rebuilt, retesting is required in accordance with factory instructions.
- NEVER add unauthorized fluids to the hydraulic system or battery. Check manufacturers specifications.
- NEVER exceed the manufacturer's recommended relief valve settings.
- NEVER attempt repairs you do not understand. Consult manufacturer if you have any questions regarding proper maintenance, specifications, or repair.

1-5 DAMAGED EQUIPMENT POLICY

Safety Statement

At Workforce, we are dedicated to the safety of all users of our products. Therefore, all Workforce lifts are designed, manufactured and tested to comply with current applicable Federal OSHA and ANSI codes and regulations.

Damage Policy

There may be occasions when a Workforce lift is involved in an incident that results in structural damage to the lift. This can seriously compromise the ability of the lift to perform in a safe manner. Therefore, whenever a Workforce lift is damaged structurally or when there is the possibility of structural damage (this damage may be internal and is not always visible to the naked eye), Workforce requires that the lift be returned to our facility at 125 Taylor Parkway, Archbold, Ohio, for reconditioning. If you have any questions concerning what constitutes structural damage, please call the Workforce Service Department at 419.445.9675.

Damage Repair Notice

There may be occasions when a Workforce lift is involved in an incident resulting in non-structural damage. When this occurs and repairs are made by the owner or area distributor, please notify Workforce of these non-maintenance repairs and request a repair form to be filled out and returned to Workforce.

2
Introduction

2-1 GENERAL DESCRIPTION

The model XLT-1071 Cougar Lift is designed and manufactured for use as a warehouse stocking and order picking machine. Its unique guard rail design permits the operator to ride on the platform with the load, while transferring it from group level to its overhead storage location. The maximum platform load is limited to 500 lbs.

Platform elevation is accomplished by means of a 1-1/2 inch displacement type hydraulic cylinder. The lower telescoping section is pushed vertically upward by the cylinder while the upper sections are raised by a mechanical motion advantage accomplished through two sets of chains and sheaves. The platform is raised three inches for each one inch of cylinder extension. Platform elevation and descent is controlled by pushbuttons on the upper control box located on the platform.

Safety of operation is assured by proper inspection and maintenance procedures as set forth in this manual. The possibility of platform free-fall is eliminated by proper maintenance and replacement of the chains, sheaves and sheave pins, a properly installed flow restrictor valve, and a clean mast. The non-adjustable restrictor valve controls and fixes the rate of platform descent whether empty or fully loaded to approximately 0.6 feet per second. A hydraulic hose failure will result in the same rate of descent, eliminating free-fall, when the restrictor valve is installed properly.

Emergency lowering of the platform is accomplished by means of a manual control valve located on the hydraulic manifold block assembly, next to the pump/motor unit.

The Cougar Lift features a displacement type of cylinder that will not rust or corrode during storage since the cylinder rod is immersed in oil. It is important that the cylinder rod be kept clean and undamaged for the protection of the cylinder head packing.

The floor lock safety switch prevents the unit from raising until the two floor pads have been properly engaged and helps to make the Cougar Lift a safe, dependable machine.

Carefully read all the safety instructions contained in Section 1 of this manual before operating the Cougar Lift.

2-2 SPECIFICATIONS

Cougar Lift Hydraulic Lift Platform

Model Number XLT-1071AIR Serial Number _____

Manufactured by: bil-jax, Inc.
WORKFORCE AERIAL WORK PLATFORMS
125 Taylor Parkway
Archbold, Ohio 43502
419.445.8915

Table 2-1. Specifications

Rated Platform Load	500 lbs (227 kg) total including operator [1 person + materials not to exceed 500 lbs (227 kg)]
Extended Platform Height	10 ft-6 in. (3.2 m)
Retracted Platform Height	18-1/2 in. (0.47 m)
Platform Dimensions	29 in. w x 50 in. l x 42 in. h (0.74 m x 1.27 m x 1.07 m)
Base Dimensions	30-1/2 in. w x 71 in. l x 77 in. h (0.77 m x 1.8 m x 1.95 m)
Retracted Dimensions	30-1/2 in. w x 73-1/2 in. l x 77 in. h (0.77 m x 1.87 m x 1.95 m)
Gross Shipping Weight	1025 lbs (465 kg)
Full Extension Time	20 seconds empty, 32 seconds loaded
Complete Retraction Time	22 seconds empty, 22 seconds loaded
Platform Extension Rate	0.66 ft (0.3 m)/sec. empty 0.42 ft (0.19 m)/sec. loaded
Hydraulic System Pressure	1200 psi empty, 2100 psi loaded
Power Source	Air – 150 CFM Minimum Supply

2-3 WARRANTY

Bil-Jax warrants its telescopic lifts for one year from the date of delivery against all defects of material and workmanship, provided the unit is operated and maintained in compliance with Bil-Jax's operating and maintenance instructions; structural components are warranted for three years. Bil-Jax will, at its option, repair or replace any unit or component part which fails to function properly in normal use.

This warranty does not apply if the lift and/or its component parts have been altered, changed, or repaired without the consent of Bil-Jax or by anyone other than Bil-Jax or its factory trained personnel, nor if the lift and/or its components have been subjected to misuse, negligence, accident or any conditions deemed other than those considered as occurring during normal use.

Components not manufactured by Bil-Jax are covered by their respective manufacturer's warranties. A list of those components and their warranties is available upon written request to Bil-Jax.

Bil-Jax shall not in any event be liable for the cost of any special, indirect, or consequential damages to anyone, product, or thing. This warranty is in lieu of all other warranties expressed or implied. We neither assume nor authorize any representative, or other person, to assume for us any other liability in connection with the sale, rental, or use of this product.

3
Maintenance

3-1 SCHEDULED SERVICE CHECKS

Daily/Weekly Service Checks

Perform the following daily/weekly service checks as listed in Table 3-1.

Table 3-1. Daily/Weekly Service Checks

Service Check	Daily before use	Weekly
Ensure Operation Manual is located in manual tube.	✓	
Check chain assemblies for split leaves, loose pins, excessive wear, or elongation.	✓	
Check and retighten all nuts and bolts.	✓	
Check cage attachment to the platform is secure and that the cage side midrails slide freely.	✓	
Check to be sure slide blocks and their path are clean and lightly lubricated with a silicone lubricant.	✓	
Check level sensor.	✓	
Check to see that all decals are present.	✓	
Check that all functions at lower and upper control boxes are operating properly.	✓	
Check for wear on chain sheaves, sheave axles, and bearings.		✓
Lubricate chains with 40W oil.		✓
Check casters for wear on axles and swivel raceways.		✓
Check surface of casters for cracks or excessive wear.		✓

Monthly Service Checks

Perform the following monthly service checks as listed in Table 3-2.

Table 3-2. Monthly Service Checks

Service Check	Every month	Every 6 months	Every 12 months	Every 48 months
Check hydraulic raise valve operation.	✓			
Check operation of manual emergency lowering valve.	✓			
Lubricate caster swivels and axles.		✓		
Check battery cables and wiring for loose connections and damaged wires.		✓		
Replace hydraulic oil.			✓	
Check slide blocks for wear.			✓	
Check for mast sway.			✓	
Load test with 500 pounds.			✓	
Replace lift chains.				✓

3-2 LUBRICATION

Lubrication makes operation of the Cougar Lift more efficient and extends the life of the unit. Perform the following lubrication procedures.

1. Oil lift chains with clean 40W oil weekly or as needed. Refer to Figure 3-1.

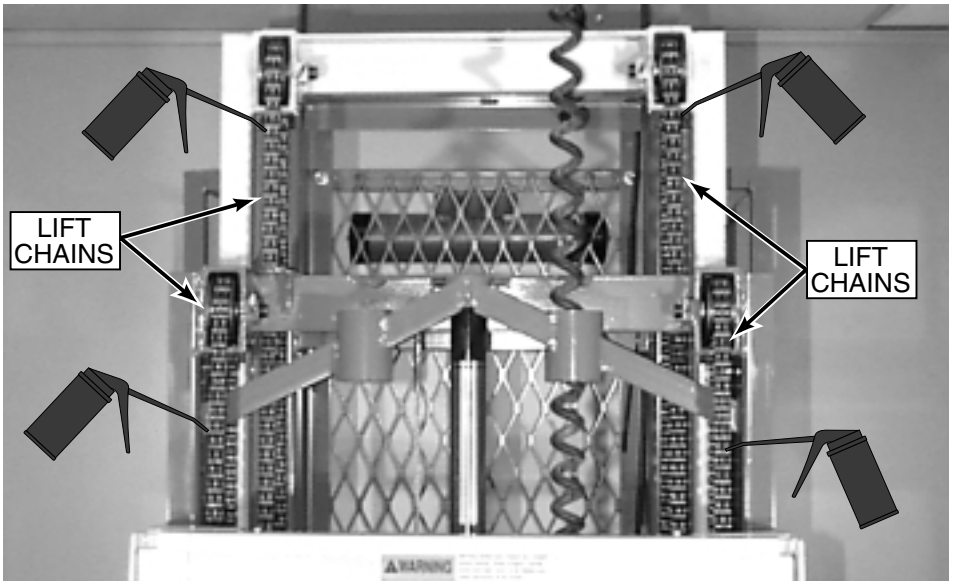


Figure 3-1. Lift Chain Lubrication

2. Grease all caster axles and swivel raceways at the 2 grease fittings on each caster semiannually with wheel bearing grease. Refer to Figure 3-2.

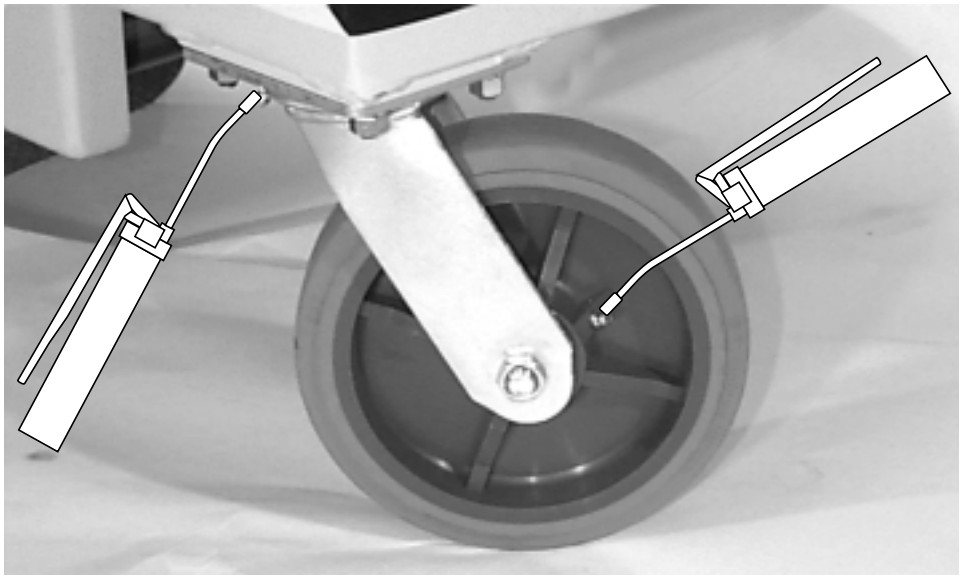


Figure 3-2. Caster Lubrication

NOTE: The plastic slide blocks in the mast are made of a bearing material which has a high degree of lubricity and need only be kept clean. However, precautions should be taken to ensure that the paths along which the blocks move are kept clean and lightly lubricated with a dry type silicon lubricant.

3-3 HYDRAULIC SYSTEM

Hydraulic Cylinder Repair

⚠ CAUTION

Removing the hydraulic cylinder from the Cougar Lift requires major disassembly of the unit. Contact Workforce before removing the hydraulic cylinder from the unit for assistance.

Hydraulic Cylinder Removal

It is recommended that Workforce be contacted for assistance before removing the hydraulic cylinder.

1. Be sure cylinder is completely retracted and pressure is released from the system. Place a pan underneath the hydraulic cylinder to catch the hydraulic oil.
2. Disconnect the hydraulic hose from the bottom of the cylinder and drain the hydraulic oil. Remove the two bolts, washers, and nuts securing the bottom of the cylinder to the base.
3. Remove the plexiglass cover from the base.
4. Remove the mounting bolt, washer, and nut securing the top of the hydraulic cylinder to the lower mast.
5. Disconnect the two lift chains from the base mast.
6. Using a crane with at least one ton of lifting capacity, lift the lower mast section high enough to remove the clamp securing the cylinder to the base, and remove the cylinder from the unit.
7. After maintenance has been performed on the hydraulic cylinder, follow the removal procedure in reverse to reinstall the cylinder in the unit.

Hydraulic Cylinder Repair Procedure

Perform the following procedure to repair and maintain the hydraulic lift cylinder. Refer to Figure 3-3.

1. Remove gland nut (4, Figure 3-7), washer (2), and rod packing rings (3) from the cylinder jacket (1).
2. Remove cylinder rod (6) and wear ring (7). Inspect piston rod (6) and wear ring (7) for gouges, scratches, and wear. Replace if necessary. Wear ring is installed in the grooves at the bottom of the piston rod.
3. Clean inside the cylinder jacket (1).
4. Place piston rod (6) and wear ring (7) back into cylinder jacket (1) and insert washer (2).
5. Grease rod packing rings (3) on the inside and outside diameters. Reinstall one rod packing ring at a time, making sure each rod packing ring lies flat on the ring prior to it.

6. Replace gland nut (4) complete with a new rod wiper (5), if worn. Thread down gland nut until it makes contact with rod packing rings (3).
7. Reinstall the hydraulic cylinder into the unit and reconnect the hydraulic hose. Refill hydraulic fluid reservoir.
8. Stoke the cylinder to allow rod packing rings (3) and wear ring (7) to seat and align, then tighten gland nut (4) an additional 1-1/2 to 2 turns, making sure that the air has been bled from the cylinder. The distance between the top of the threaded collar and the bottom of the large section on the gland nut should be 1/4 in. (0.635 cm) to 5/16 in. (0.794 cm). Do not over tighten the gland nut.

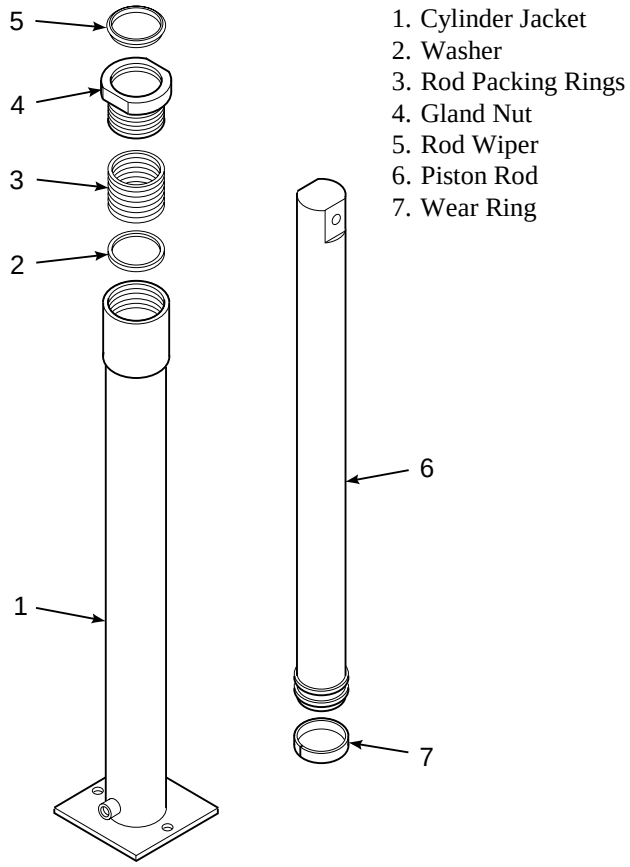


Figure 3-3. Hydraulic Cylinder Exploded View

3-4 LIFT CHAINS AND SLIDE BLOCKS

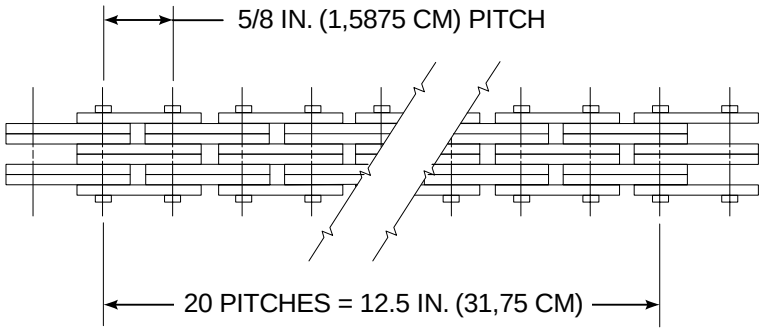
WARNING

Do not operate a unit on which any chain assembly is damaged or in need of replacement. Operating a unit with a damaged chain can cause severe injury or death to personnel and damage to equipment.

Inspect all lift chains daily. Inspect for signs of wear, split leaves, loose pins, clevis damage, and elongation. Replace any chain which is damaged in any way. Chain assemblies may be ordered from your dealer or direct from the factory. Do not operate a unit on which any chain assembly is damaged and in need of replacement.

Chain Elongation Inspection

One pitch of chain should measure 5/8 in. (1,5875 cm). Measure 20 pitches of chain. The ideal measurement for 20 pitches of chain should be 12.5 in. (31,75 cm). Replace the chain if 20 pitches measure over 12.75 in. (32,385 cm). Refer to Figure 3-4.



REPLACE CHAIN IF 20 PITCHES MEASURES OVER 12.75 IN (32,385 CM)

Figure 3-4. Chain Elongation Inspection

NOTE: It is recommended that chains be replaced every four years unless damage or wear requires replacement at a lesser interval.

Lift Chain Adjustment

1. Raise the platform to the maximum extended height and then lower it while someone checks to see that all sheaves are turning and checks for chain damage or wear.
2. After the platform is completely lowered, remove the plexiglass cover from the base.
3. Chains should be tight to the touch with no loose play. Check all four lift chains for snugness. If a chain is loose, tighten the lock nut below the clevis retainer. Refer to Figure 3-5. Adjust any loose chain until it just becomes snug. Do not overtighten any chain so that the platform is raised from its resting position.
4. Make sure the lock nuts are turned onto the threaded clevis ends with at least 1/8 in. of the clevis end extending through the nut. Replace any lock nut which does not stay in position during use. Replace the plexiglass cover.

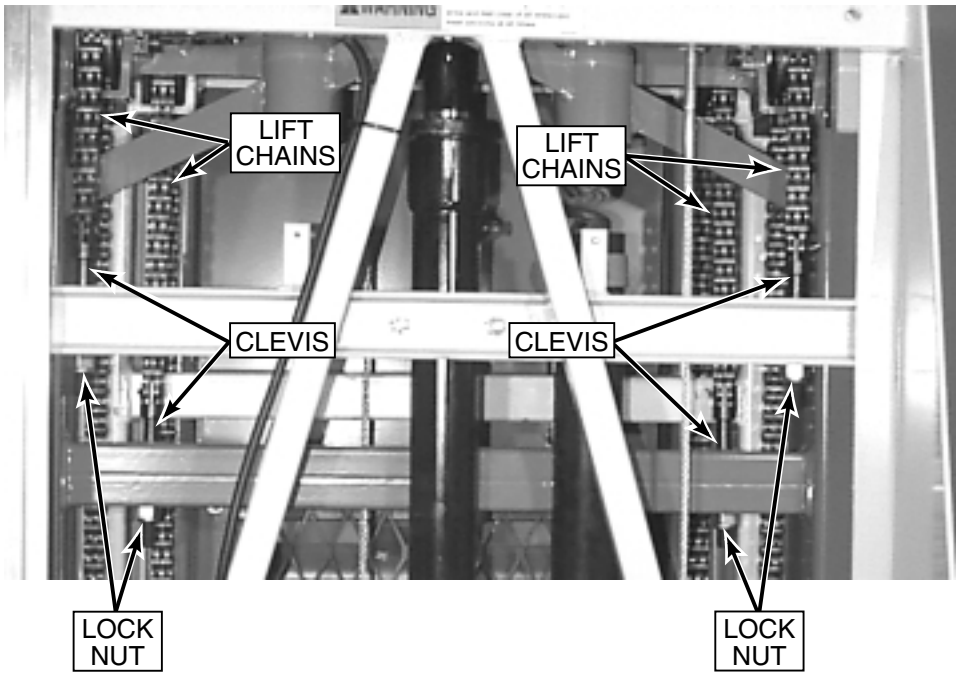


Figure 3-5. Lift Chain Adjustment

Slide Block Adjustment

Annually check for wear on the slide blocks and replace or retighten as necessary. If the lift exhibits excessive mast sway, it is probable that the slide blocks need adjustment. The slide blocks should be adjusted so that there is no air gap between the slide block and the mast the slide block is moving against. There are 12 slide blocks, 6 upper and 6 lower. The adjustment procedure is the same for all slide blocks. Three upper slide blocks are shown in Figure 3-6.

1. Loosen, do not remove, the slotted hex head screw securing the slide block to be adjusted.
2. Using an allen wrench, turn the set screws in (clockwise). This will push the block in against the next mast. Do not overtighten. Tighten the slotted hex head screw to secure the slide block in position.
3. Check all slide blocks and make adjustments as necessary.
4. After all adjustments are made, fully extend the lift. If the platform can be lowered without stopping then the blocks are properly adjusted.

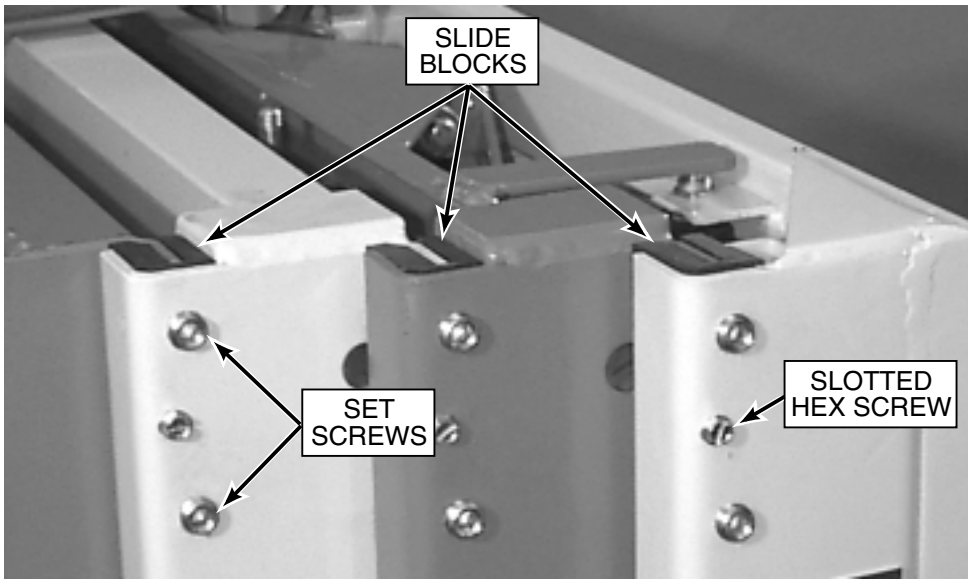


Figure 3-6. Slide Block Adjustment

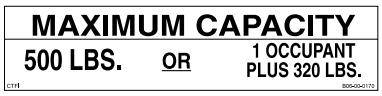
NOTE: The plastic slide blocks in the mast are made of a bearing material which has a high degree of lubricity and need only be kept clean. However, precautions should be taken to ensure that the paths along which the blocks move are kept clean and lightly lubricated with a dry type silicon lubricant.

4
Replacement Decals

Refer to Table 4-1, and Figures 4-1, 4-2, and 4-3 for descriptions and locations of decals on the Cougar Lift.

Table 4-1. Replacement Decals

Decal No.	Description of Decal	Qty
B06-00-0003	Workforce ID Number (Not available as replacement part)	1
B06-00-0009	Warning...Moving telescopic masts will create...	2
B06-00-0034	Danger...During charging, explosive oxyhydrogen gas...	1
B06-00-0105	XLT-1071 (Transfer type decal)	2
B06-00-0137	Workforce (Vertical transfer type decal)	2
B06-00-0138	Warning...(Maintenance decal)	1
B06-00-0146	Danger...(High voltage line warning)	1
B06-00-0167	Striped Safety Tape - On all four sides (per roll only)	4
B06-00-0170	Maximum Capacity...500 lb. Or...	2
B06-00-0173	Safety Belt Lanyard Attachment Point	2
B06-00-0175	Caution...This machine designed and manufactured...	1
B06-00-0192	Operation And Service Manual Inside	1
B06-00-0225	Warning...Stay clear when raising or lowering	2
B06-00-0228	Serial Number Tag (Not available as replacement part)	1
B06-00-0289	Check level with cage fully down	1
B06-00-0291	Warning...Level machine before use	1
B06-00-0295	Danger...Failure To Comply With The Following...	1
B06-00-0296	Battery Charger Receptacle	1
B06-00-0339	Warning...Full Body Harness and Lanyard...	1



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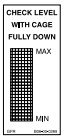

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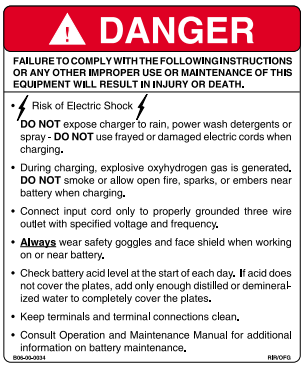

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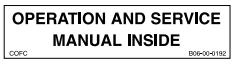

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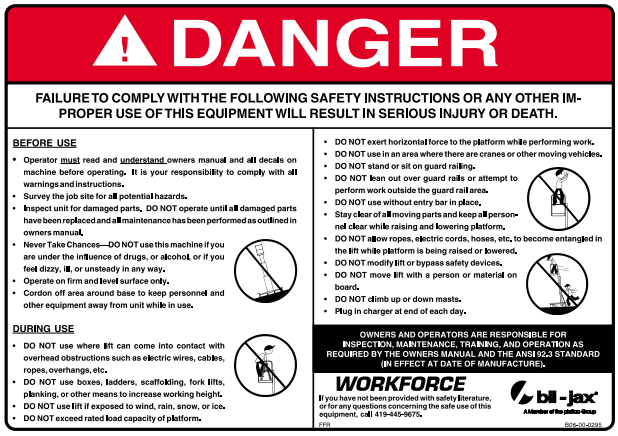

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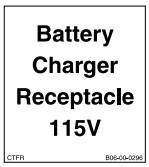

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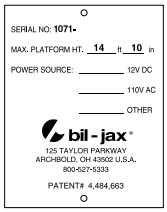

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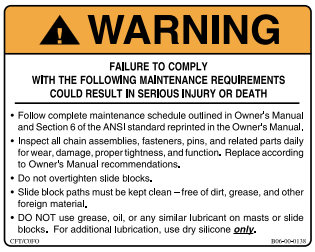

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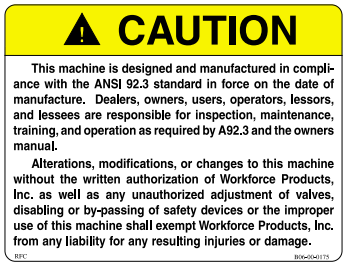
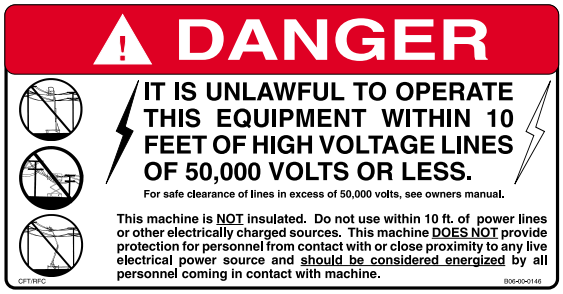


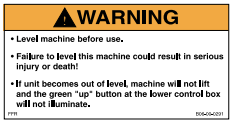
B06-00-0175

B06-00-0105

B06-00-0137



B06-00-0146



B06-00-0291

B06-00-0009

B06-00-0225

Figure 4-1. Replacement Decals

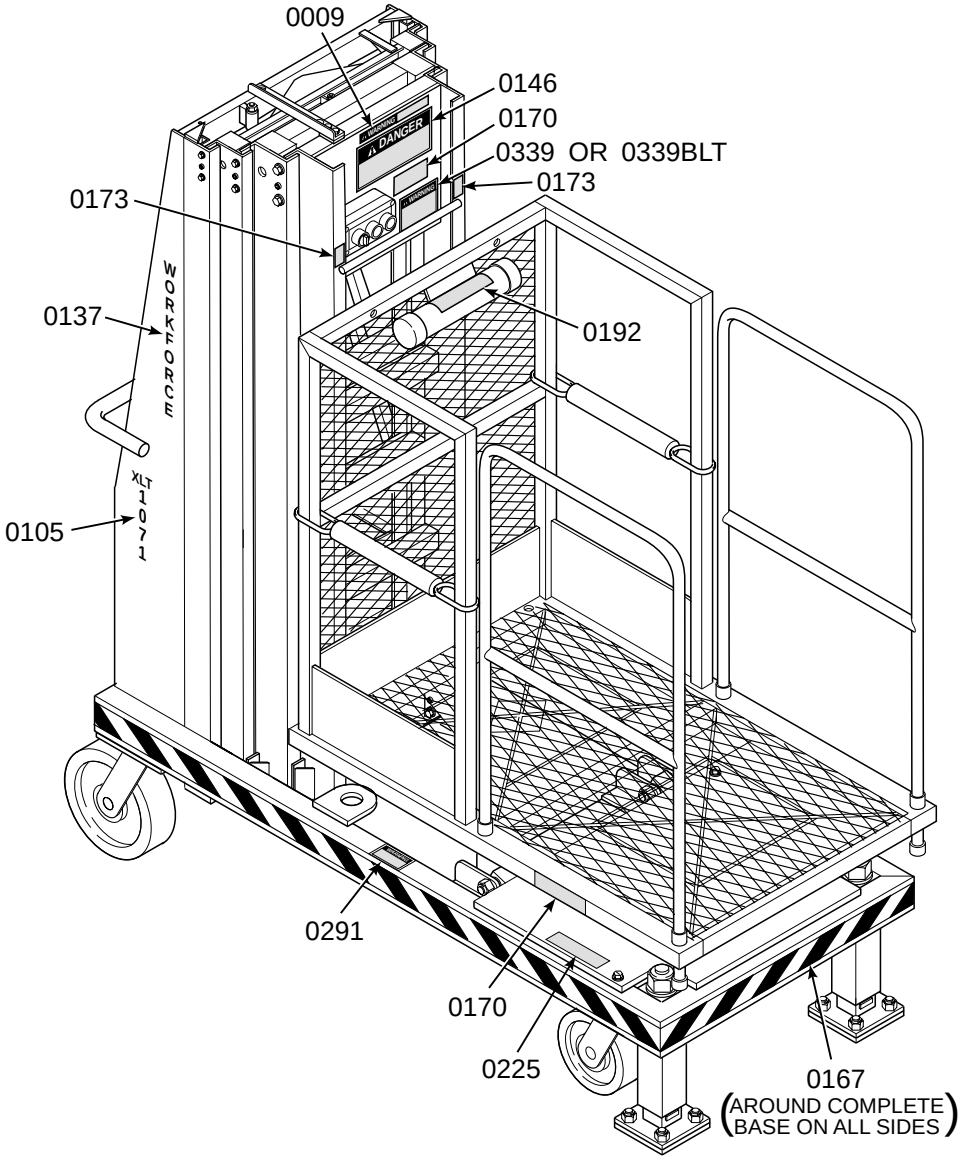


Figure 4-2. Decal Locations, Side View

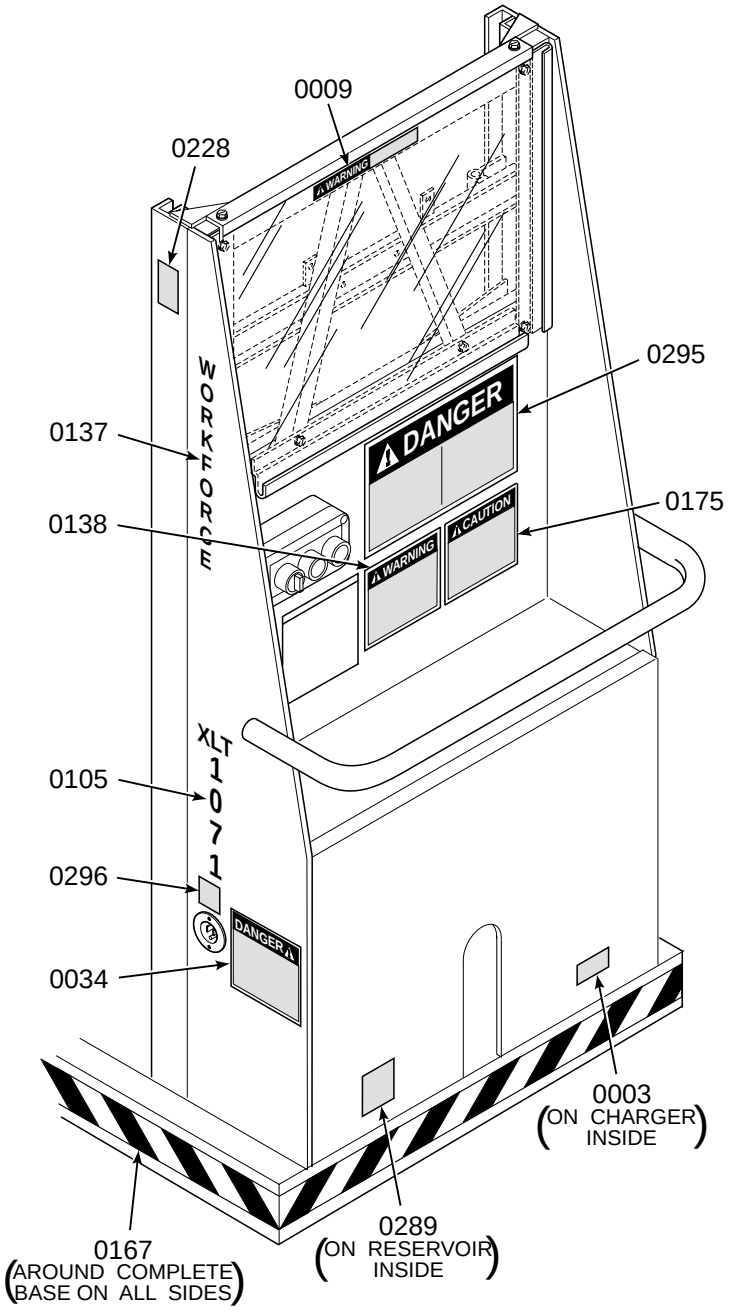


Figure 4-3. Decal Locations, Front View

5
Parts List

5-1 TOP MAST PARTS LIST

Refer to Table 5-1 for the parts list for the top mast.

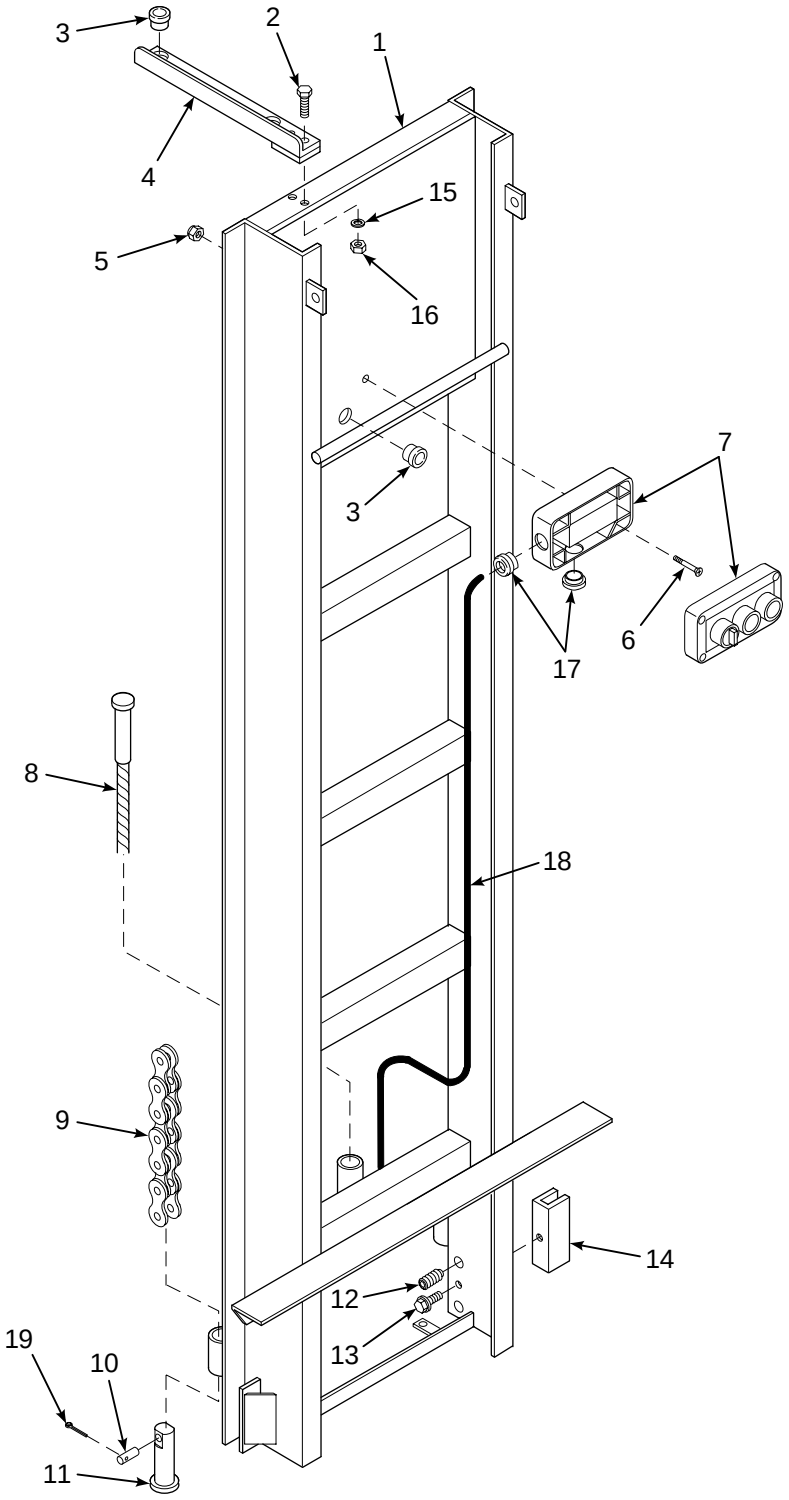


Figure 5-1. Top Mast Exploded View

Table 5-1. Top Mast Parts List

Item No.	Part No.	Description	Qty
1	B16-01-0025	Top Mast Weldment	1
2	0090-0014	Screw, 1/4-20 x 2-1/4 in.	2
3	B01-09-0026	Grommet, Plastic	3
4	B29-00-0160	Bracket, Outreach	1
5	0090-0181	Nut, Lock, 8-32	3
6	0090-0813	Screw, 8-32 x 3/4 in. – **Not Used on Air Unit**	3
7	B01-02-0059	Box, Control, Upper – **Not Used on Air Unit**	1
8	B40-00-0003	Cable, 3/16 in.	1
9	B40-01-0008	Chain, Lift	2
10	B04-07-0078	Pin, Clevis	2
11	B04-07-0087	Clevis, Lower	2
12	0090-0389	Screw, Adjustment, 1/2-20 x 1/2 in.	4
13	0090-0403	Screw, #10 x 1 in.	2
14	B31-00-0001	Slide Block, Plastic	2
15	0090-0206	Washer, Lock, 1/4 in.	2
16	0090-0159	Nut, Hex, 1/4-20	2
17	B01-09-0029	Bushing, Strain Relief – **Not Used on Air Unit**	2
18	B05-01-0034	Cable, SJO, 18-2 – **Not Used on Air Unit**	80 in.
19	0090-0860	Pin, Cotter	2
*	B03-00-0009	Chain Assy, includes items 9, 10, 11, and 19	1

*NOTE: It is recommended that chain parts be purchased as an assembly.

5-2 LOWER MAST PARTS LIST

Refer to Table 5-2 for the parts list for the lower mast.

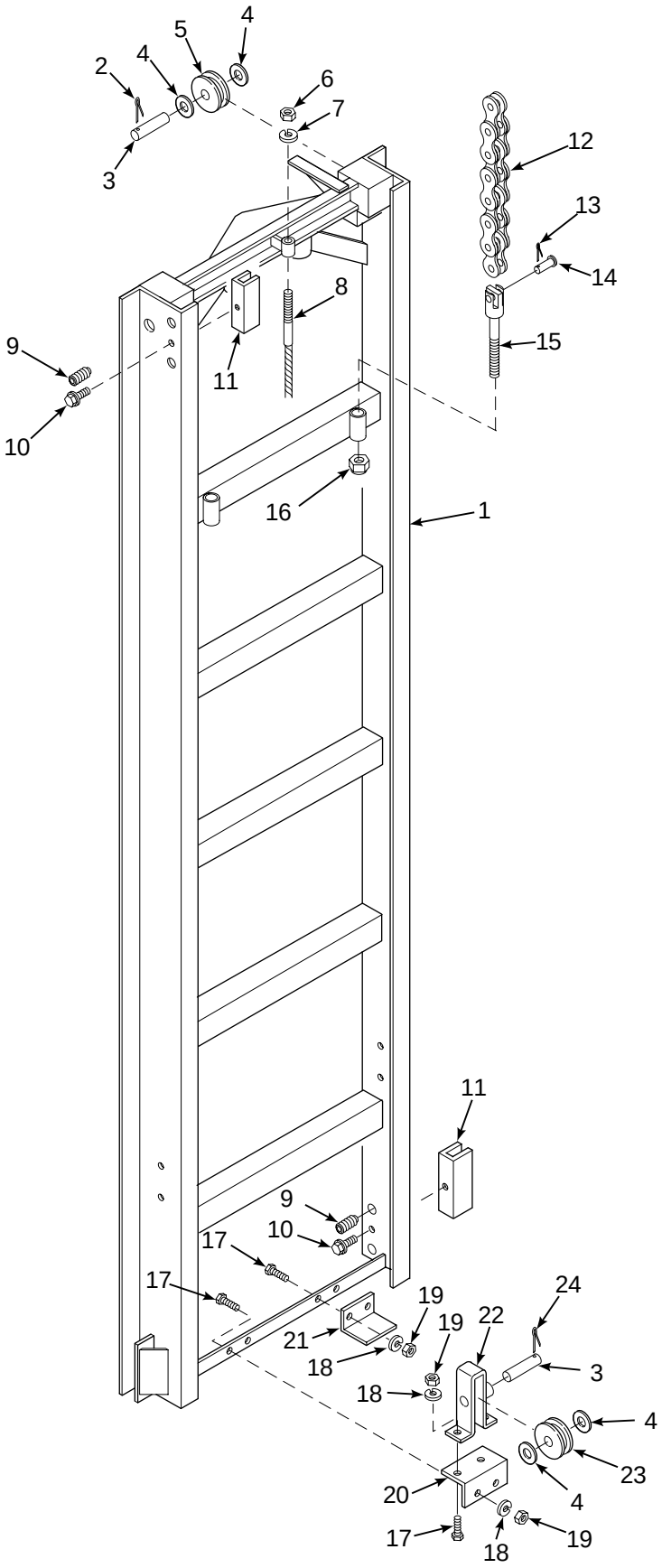


Figure 5-2. Lower Mast Exploded View

Table 5-2. Lower Mast Parts List

Item No.	Part No.	Description	Qty
1	B16-01-0021	Lower Mast Weldment	1
2	0090-0770	Pin, Cotter 3/16 x 1-1/2 in.	2
3	B36-01-0002	Sheave Axle	3
4	0090-0425	Washer, Flat, 5/8 in.	6
5	B26-00-0009	Chain Sheave Assembly	2
6	0090-0188	Nut, Lock, 3/8-16	1
7	0090-0422	Washer, Flat, 3/8	1
8	B40-00-0003	Cable	1
9	0090-0389	Screw, Adjustment, 1/2-20 x 1/2 in.	8
10	0090-0403	Screw, #10 x 1	4
11	B31-00-0001	Slide Block, Plastic	4
12	B40-01-0008	Chain, Lift	2
13	0090-0860	Pin, Cotter	2
14	B04-07-0078	Pin, Clevis	2
15	B04-07-0088	Clevis, Upper	2
16	0090-0192	Nut, Lock, 1/2-13	2
17	0090-0042	Bolt, 3/8-16 x 1 in.	6
18	0090-0210	Washer, Lock, 3/8 in.	6
19	0090-0162	Nut, 3/8-16	6
20	B24-01-0008	Mounting Bracket	1
21	B29-00-0033	Mast Stop	1
22	B29-00-0078	Bracket, Weldment	1
23	B26-00-0001	Sheave, Cable	1
24	0090-0147	Pin, Cotter	1
*	B03-00-0009	Chain Assy, includes items 12, 13, 14, and 15	1

*NOTE: It is recommended that chain parts be purchased as an assembly.

5-3 UPPER BASE PARTS LIST

Refer to Table 5-3 for the parts list for the upper base.

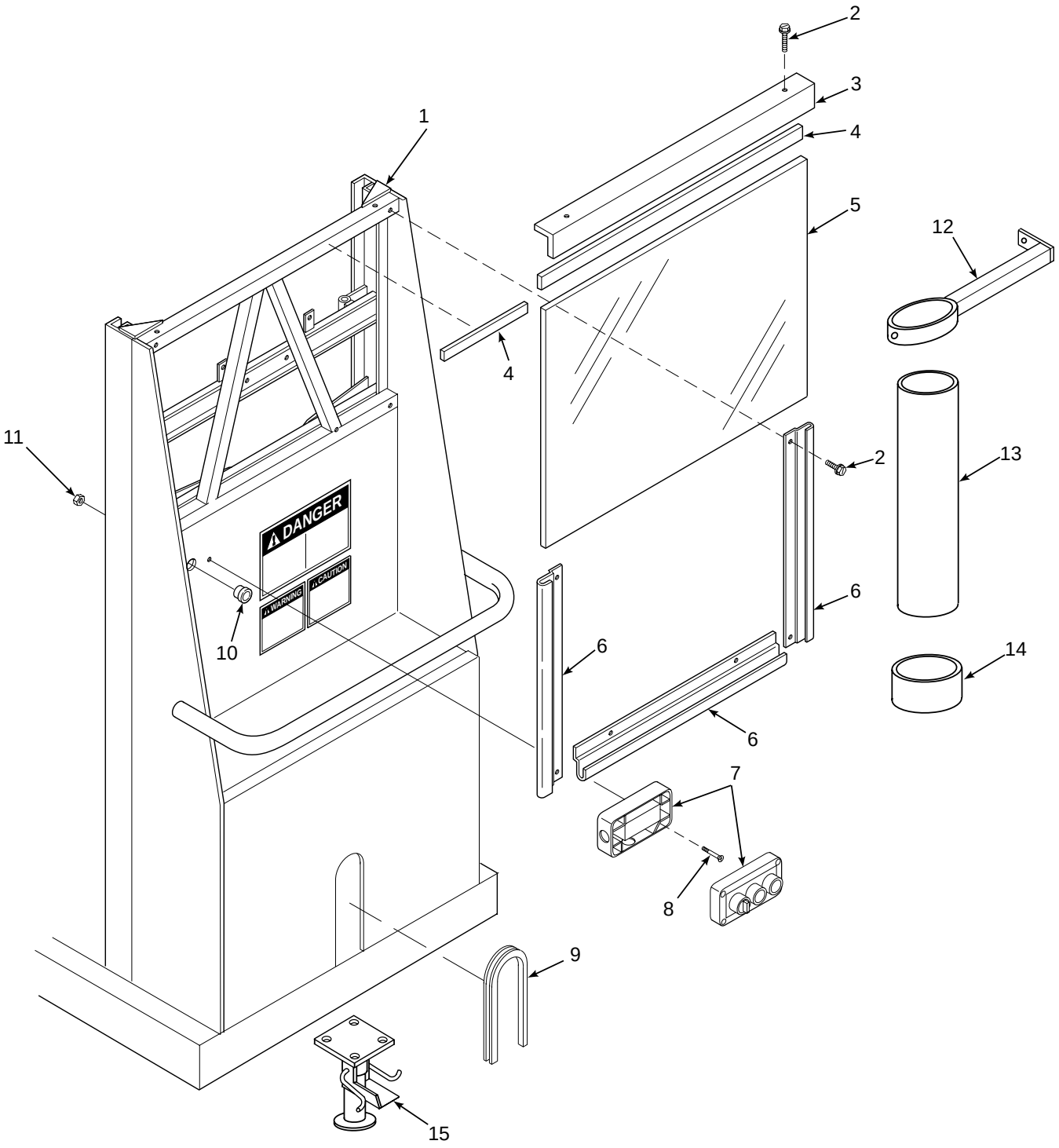


Figure 5-3. Upper Base Exploded View

Table 5-3. Upper Base Parts List

Item No.	Part No.	Description	Qty
1	B11-01-0093	Base Weldment	1
2	0090-0344	Screw, Threadcut, 10-24 x 1/2 in.	8
3	B07-01-2003	Edge, Top Cover	1
4	B05-00-0006	Tape, Foam Adhesive	32 in.
5	B18-00-0108	Plexiglass, 1/8 in.	1
6	B24-01-009	Frame, Aluminum	3
7	B01-02-0058	Box, Control, Lower – **Not Used on Air Unit**	1
8	0090-0813	Screw, 8-32 x 3/4 in. – **Not Used on Air Unit**	2
9	B34-00-0005	Trim, Rubber	1
10	B01-09-0027	Grommet, Plastic	1
11	0090-0181	Nut, Lock, 8-32	2
12	B29-00-0161	Bracket, Air Line Tube	1
13	B00-00-0143	Tube, Air Line Container	1
14	B11-01-0141	Retainer, Air Line	1
15	B08-00-0018	Floor Lock	1

5-4 PLATFORM PARTS LIST

Refer to Table 5-4 for the parts list for the platform.

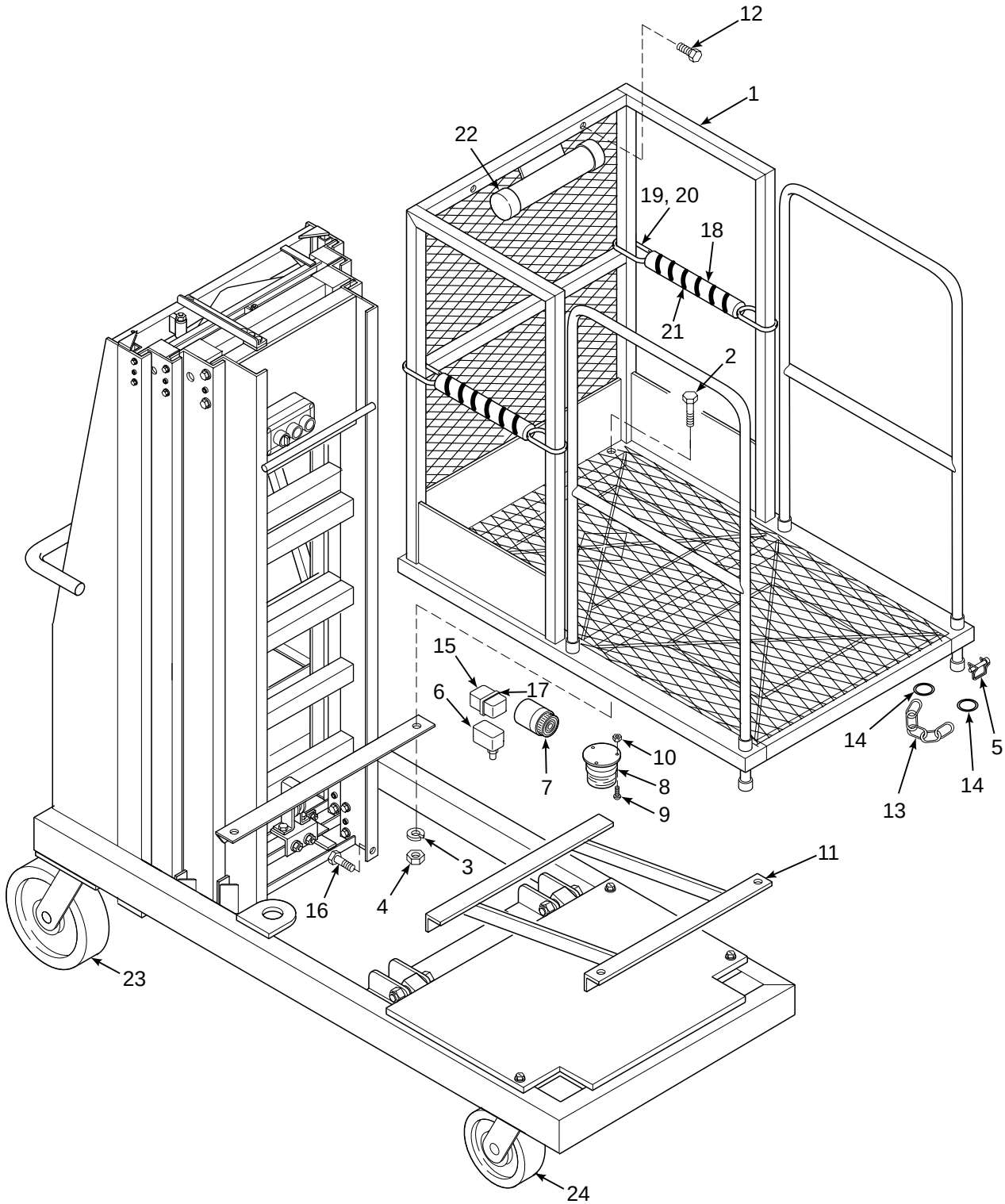


Figure 5-4. Platform Exploded View

Table 5-4. Platform Parts List

Item No.	Part No.	Description	Qty
1	B17-00-0087	Platform Weldment	1
2	0090-0051	Bolt, 3/8-16 x 2-3/4 in.	4
3	0090-0210	Washer, Lock, 3/8 in.	8
4	0090-0162	Nut, 3/8-16	8
5	0068-061	Pin, Snap	2
6	B01-03-0009	Switch, Limit – **Not Used on Air Unit**	1
7	B01-10-0002	Alarm, Audible – **Not Used on Air Unit**	1
8	B01-10-0004	Light – **Not Used on Air Unit**	1
9	0090-0802	Screw, 10-24 x 7/8 in. – **Not Used on Air Unit**	3
10	0090-0182	Nut, Lock, 10-24 – **Not Used on Air Unit**	3
11	B17-00-0066	Support, Platform	1
12	0090-0048	Bolt, 3/8-16 x 2 in.	2
13	B40-00-0019	Chain	2
14	0090-0552	Ring, Key	4
15	B01-03-0002	Cover – **Not Used on Air Unit**	1
16	0090-0042	Bolt, 3/8-16 x 1 in.	2
17	B01-09-0030	TyRap – **Not Used on Air Unit**	1
18	B05-00-0001	Tube, Foam, 13-1/2 in.	2
19	B00-00-0086	Tube, Split, 8-1/2 in.	4
20	B01-09-0030	TyRap	12
21	B06-00-0167	Tape, Strip, 43 in.	2
22	B00-00-0014	Cap, Manual Tube	2
23	B08-01-0002	Caster, Rear, Swivel	2
24	B08-01-0001	Caster, Front, Swivel Lock	2

5-5 AIR PUMP UNIT PARTS LIST

Refer to Table 5-5 for the parts list for the air pump unit.

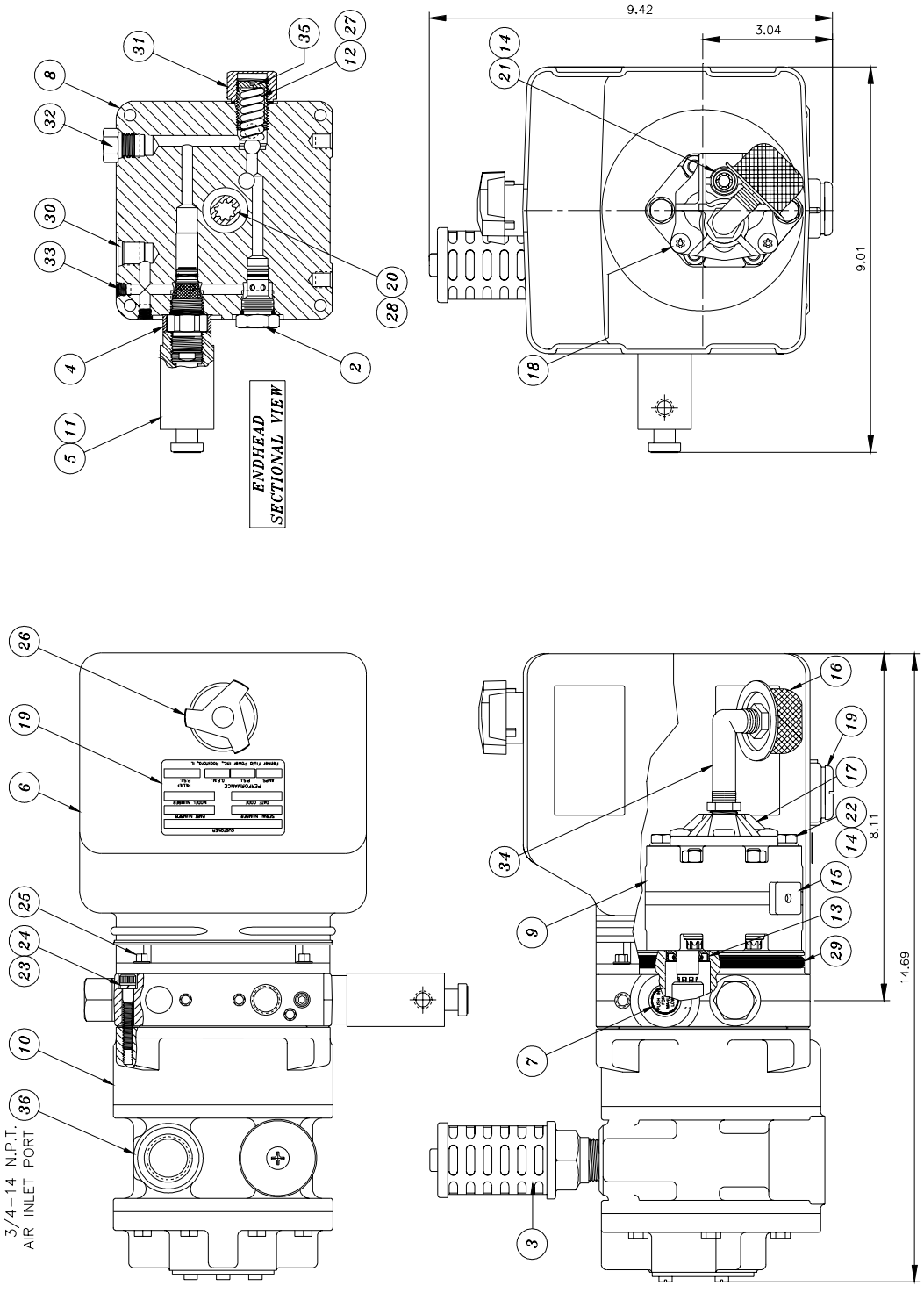


Figure 5-5. Air Pump Unit Drawing

Table 5-5. Air Pump Unit (B02-05-0026, PB-1020) Parts List

Item No.	Part No.	Description	Qty
2	B02-15-0197	Cartridge Check Valve	1
3	B09-00-0011	Silencer	1
4	B02-15-0375	Valve Spacer	1
5	B02-15-0376	Cylinder Air Release	1
6	B02-15-0206	Tank	1
7	B02-15-0377	Decal, Manual Lowering	1
8	B02-15-0378	End Head	1
9	B02-15-0159	Pump Assembly, PS-2.0	1
10	B02-15-0379	V6 SQ Flange	1
11	B02-15-0380	Valve, Manual Release	1
12	B02-15-0128	Steel Ball	1
13	B02-15-0091	Shaft Seal	1
14	B02-15-0093	Washer	3
15	B02-15-0061	Magnet	1
16	B02-15-0121	Filter	1
17	B02-15-0125	Suction Cover	1
18	B02-15-0126	Screw Taptite	2
19	B02-15-0365	Drain Plug	1
20	B02-15-0381	Coupling, SAE-Tang Short	1
21	B02-15-0170	Bolt, 5/16-18 x 1”	1
22	B02-15-0359	Bolt, M8 x 75mm	2
23	B02-15-0382	Bolt, M6 x 1.0 x 35mm	4
24	B02-15-0383	¼” Lockwasher Hi Collar	4
25	B02-15-0199	Bolt, 12-24 x 1/2	4
26	B02-15-0201	Breather Cap	1
27	B02-15-0127	Spring Relief	1
28	B02-15-0384	Spring	1
29	B02-15-0073	O-Ring	1
30		Packaging Plug	
31	B02-15-0030	Relief Cap Assembly	1
32	B02-02-0087	6 ORM Plug	1
33	B02-15-0204	Plug 1/16 NPT Flush	2
34	B02-15-0059	Nylon Elbow	1
35	B02-15-0026	Relief Screw	1
36		Packaging Plug	

5-6 PNEUMATIC PLUMBING PARTS LIST

Refer to Table 5-6 for the parts list for the pneumatic plumbing.

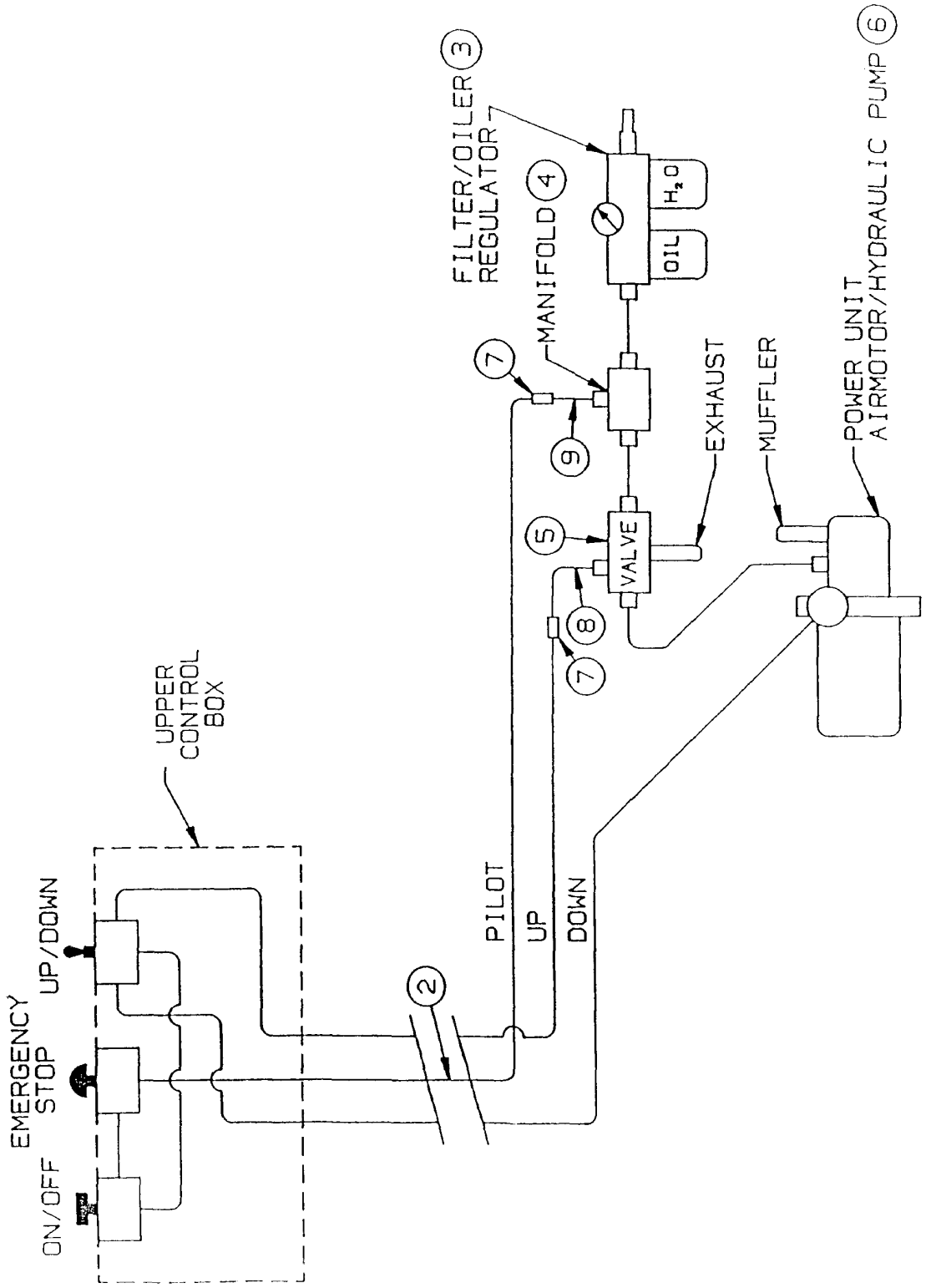


Figure 5-6. Pneumatic Plumbing Diagram

Table 5-6. Pneumatic Plumbing Parts List

Item No.	Part No.	Description	Qty
1	B19-00-0011	Upper Control Box w/o Switches	1
1a	B09-00-0015	On/Off Switch	1
1b	B09-00-0016	Emergency Stop	1
1c	B09-00-0001	Up/Down Toggle Switch	1
2	B09-00-0004	3 Strand Retractile Tubing	1
2a	B00-00-0013	Plastic Pipe	1
2b	B29-00-0046	Top Mounting Bracket w/Screws	1
2c	B29-00-0045	Bottom Mounting Bracket w/Screws	1
2d		Outreach Bracket	1
3	B09-00-0005	Filter/Oiler/Regulator w/Oiler	1
3a	B02-02-0101	Pipe Nip	1
3b	B09-00-0006	Quick Connect	1
4	B09-00-0007	Manifold	1
4a	B09-00-0008	Straight Tube Fitting	1
4b	B11-00-0011	Mounting Stand For Manifold w/Fasteners	1
5	B09-00-0009	Main Valve	1
5a	B09-00-0010	Exhaust Muffler	1
5b	B09-00-0002	90° Tube Fitting	1
5c	B02-02-0102	90° Swivel Elbow Fitting	1
5d	B02-02-0101	Pipe Nip	1
6	B02-05-0026	Air Driven Hydraulic Pump Unit w/Mounting Bolts	1
6a	B09-00-0011	Silencer	1
6b	B02-02-0103	90° Swivel Elbow Fitting	1
6c	B02-01-0058	Hose (Valve to Motor)	1
7	B09-00-0012	Bulkhead Adapter	2
8	B09-00-0013	Plastic Tubing	1
9	B09-00-0014	Plastic Tubing	1

5-7 PNEUMATIC SCHEMATIC

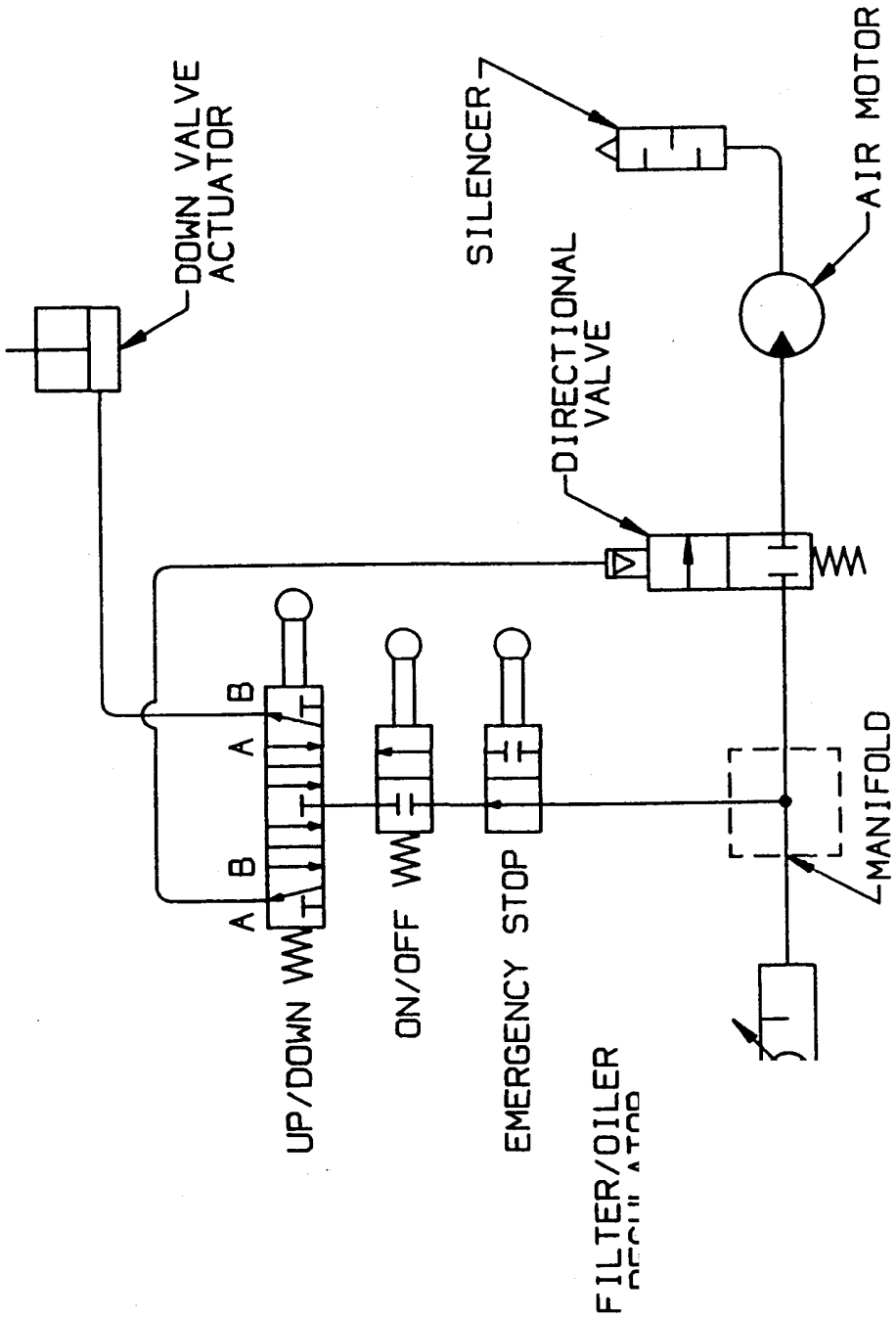


Figure 5-7. Pneumatic Schematic Diagram

5-8 HYDRAULIC SCHEMATIC

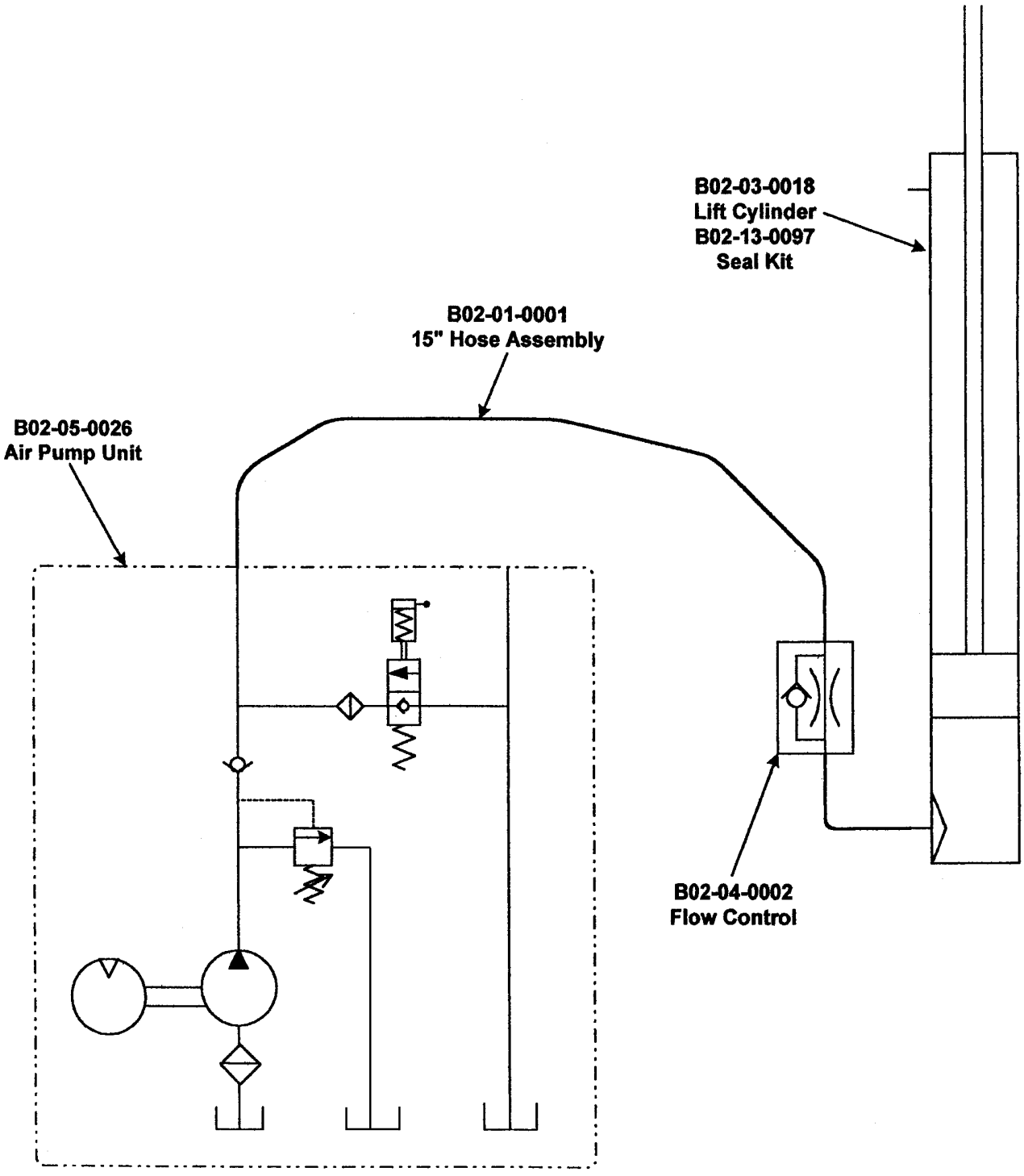


Figure 5-8. Hydraulic Schematic Diagram

5-9 CONTROL BOXES PARTS LIST

Refer to Table 5-7 for the parts list for the control boxes.

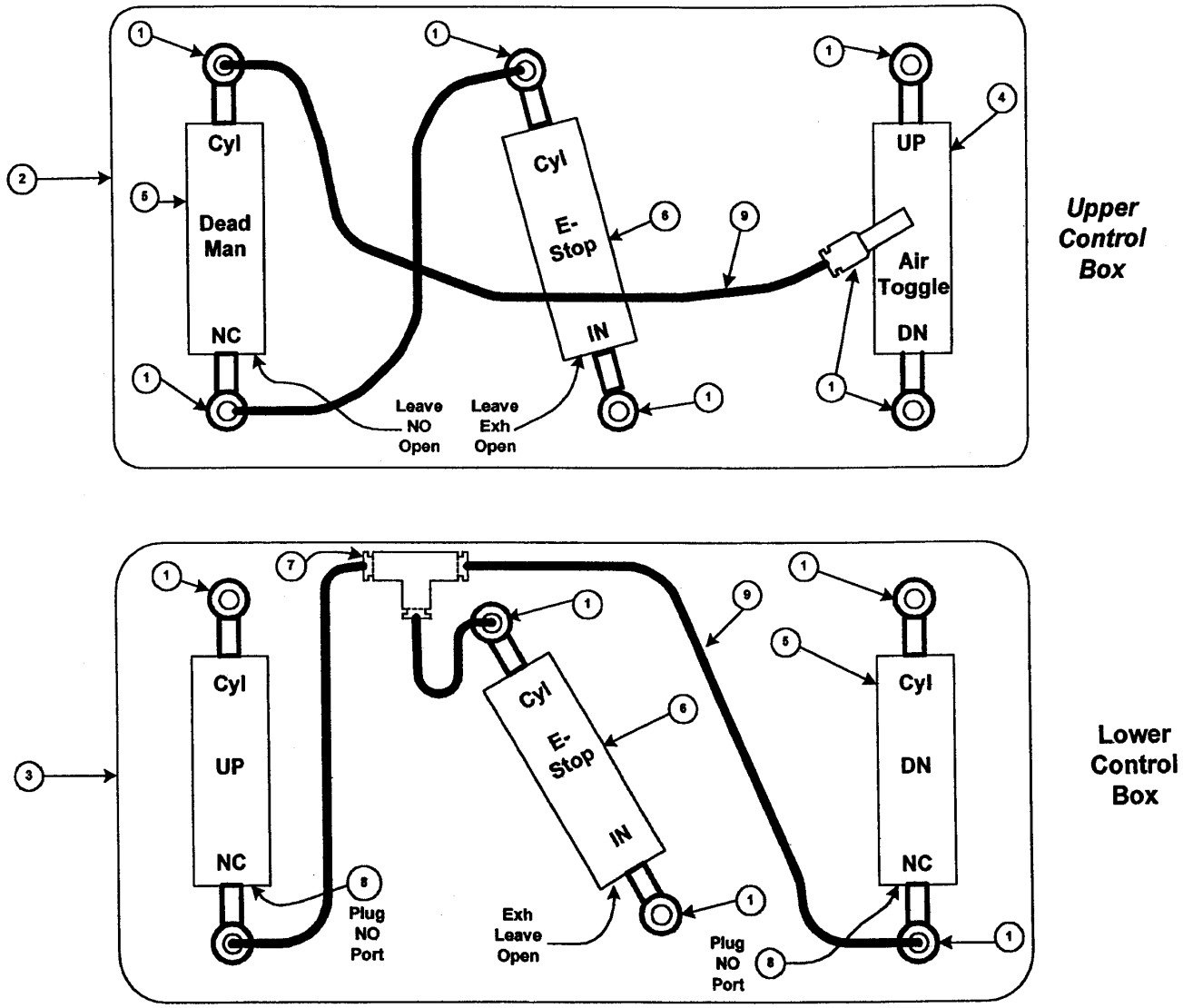


Figure 5-9. Control Boxes Exploded Views

Table 5-7. Control Boxes Parts List

Item No.	Part No.	Description	Qty
1	B09-00-0002	4 Push On-2NPT 90	13
2	B19-00-0020	Upper Control Box	1
3	B19-00-0021	Lower Control Box	1
4	B09-00-0001	Air Switch Toggle	1
5	B09-00-0015	Air Switch Push Button	3
6	B09-00-0016	Air Switch E-Stop	2
7	B09-00-0022	Tee 4-Pushon	1
8	B02-02-0197	2 NPT Plug	2
9	B05-00-0003	Clear Plastic Tube ¼”	

5-10 AIR-REG-LUBE-VALVE ASSEMBLY

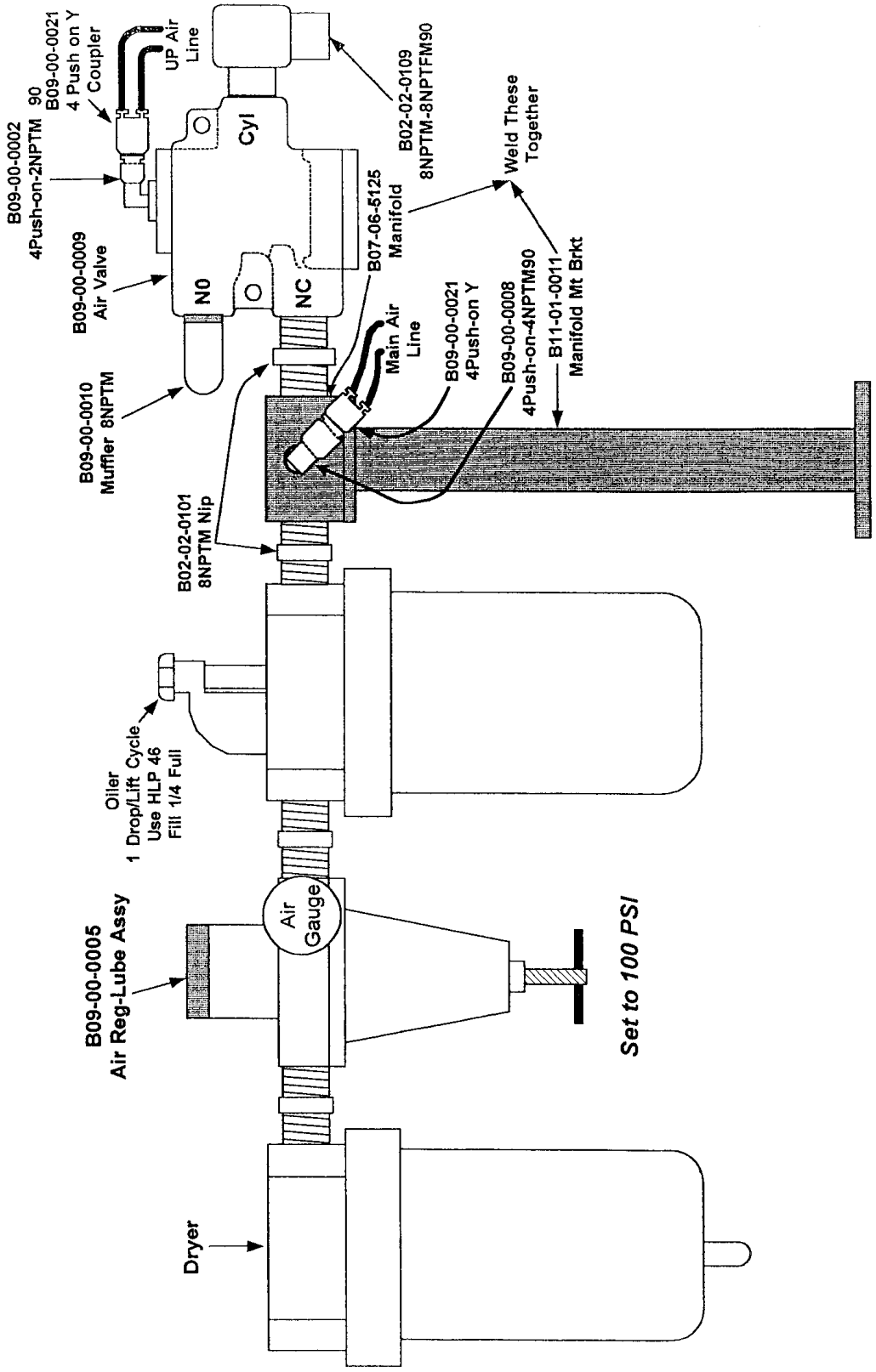


Figure 5-10. Air-Reg-Lube-Valve Assembly Drawing

6
ANSI Reprint

The following sections are reprinted from the ANSI A92.3-1990 code in effect at the time of manufacture. Permission to reprint has been granted by the Scaffold Industry Association.

5. Responsibilities of Dealers

5.1 Basic Principles. Sound principles of safety, training, inspection, maintenance, applications, and operation consistent with all data available regarding the parameters intended use and expected environment shall be applied in the training of operators, in maintenance, application, and operation of the aerial platform with due consideration of the knowledge that the unit will be carrying personnel.

5.2 Manuals. Dealers shall keep and maintain copy(ies) of the operating and maintenance manual(s) required in 4.17. Copy(ies) of operating manual(s) shall be provided upon each rental or lease delivery. Copy(ies) of operating and maintenance manual(s) shall be provided upon each sale delivery. The operating manual(s) shall be stored in the location required by 4.18. These manual(s) are considered an integral part of the aerial platform and are vital to communicate necessary safety information to users and operators.

5.3 Predelivery Preparation. Aerial platforms shall be inspected, serviced, and adjusted to manufacturer's requirements prior to each delivery by sale, lease, or rental.

5.4 Maintenance Safety Precautions. Before adjustments and repairs are started on an aerial platform, the following precautions shall be taken as applicable: (1) All controls in the "off" position and all operating features secured from inadvertent motion by brakes, blocks, or other means. (2) Powerplant stopped and starting means rendered inoperative (3) Platform lowered to the full down position, if possible, or otherwise secured by blocking or cribbing to prevent dropping (4) Hydraulic oil pressure relieved from all hydraulic circuits before loosening or removing hydraulic components (5) Safety props or latches installed where applicable as described by the manufacturer.

5.5 Replacement Parts. When parts or components are replaced, they shall be identical or equivalent to original aerial platform parts or components

5.6 Training. Whenever a dealer directs or authorizes an individual to operate an aerial platform, the dealer shall ensure that the individual has been trained under the direction of a qualified person in accordance with the manufacturer's operating and maintenance manual and requirements listed in Section 8 before operating the aerial platform.

5.6.1 Training on Delivery. Manufacturer's operating instruction and required training on the proper use and operation of the aerial platform shall be provided upon each delivery, by sale, lease, or rental.

5.7 Operation. When a dealer operates an aerial platform in sales demonstrations or for other beneficial use, the dealer shall assume the responsibilities of users as specified in Section 7 and the operating personnel shall assume the responsibilities of operators as specified in Section 8 of this standard.

5.8 Assistance to Owners and Users. If a dealer is unable to answer an owner's or user's question relating to rated capacity, intended use, maintenance, repair, inspection, or operation of the aerial platform, the dealer shall obtain the proper information from the manufacturer and provide that information to the owner or user.

5.9 Record Retention. Dealer(s) shall retain the following records for at least 3 years: (1) Name and address of the purchaser of each aerial platform by serial number and the date of delivery (2) Records of the person(s) trained upon each delivery of an aerial platform (3) Records of the predelivery preparation performed prior to each delivery.

5.10 Modifications. Modifications or alterations of aerial platforms shall be made only with prior written permission of the manufacturer.

5.11 Manufacturer's Safety Bulletins. The dealer shall comply with safety-related bulletins as received from the manufacturer.

6. Responsibilities of Owners

6.1 Basic Principles. Sound principles of safety, training, inspection, maintenance, application, and operation consistent with all data available regarding the parameters of intended use and expected environment shall be applied in the performance of the responsibilities of owners with due consideration of knowledge that the unit will be carrying personnel.

6.2 Manuals. Owners shall keep and maintain copy(ies) of the operating and maintenance manual(s) required in 4.17 of this standard. Copy(ies) of operating manual(s) shall be provided upon each rental or lease delivery. Copy(ies) of operating and maintenance manuals(s) shall be provided upon each sale delivery. The operating manual(s) shall be stored in the location required in 4.18 of this standard. These manual(s) are considered an integral part of the aerial platform and are vital to communicate necessary safety information to users and operators.

6.3 Maintenance. The owner of an aerial platform shall arrange that the maintenance specified in this standard is properly performed on a timely basis. The owner shall establish a preventive maintenance program in accordance with the manufacturer's recommendations and based on the environment and severity of use of the aerial platform. The owner shall arrange that frequent and annual inspections are performed. All malfunctions and problems noted shall be corrected before the aerial platform is returned to service.

6.4 Frequent Inspection. The owner of an aerial platform shall cause a frequent inspection to be performed on an aerial platform: (1) That has been in service for 3 months or 150 hours, whichever comes first (2) That has been out of service for a period longer than 3 months.

The inspection shall be made by a person qualified as a mechanic on the specific make and model of the aerial platform. The inspection shall include all items specified by the manufacturer for a frequent inspection and shall include, but not be limited to, the following: (3) All functions and their controls for speed(s), smoothness, and limits of motion (4) Emergency lowering means (5) All chain and cable mechanisms for adjustment and worn or damaged parts (6) All emergency and safety devices (7) Lubrication of all moving parts, inspection of filter element(s), hydraulic oil, engine oil, and coolant, as specified by the manufacturer (8) Visual inspection of structural components and other critical components, such as fasteners, pins, shafts, and locking devices (9) Placards, warnings, and control markings (10) Items specified by the manufacturer (11) Correction of all malfunctions and problems identified and further inspection, if necessary.

6.5 Annual Inspection. The owner of an aerial platform shall cause an annual inspection to be performed on the aerial platform no later than 13 months from the date of the prior annual inspection. The inspection shall be made by a person qualified as a mechanic on the specific make and model of the aerial platform. The inspection shall include all items specified by the manufacturer for an annual inspection.

6.6 Maintenance Safety Precautions. Before adjustments and repairs are started on an aerial platform, the following precautions shall be taken as applicable: (1) All controls in the "off" position and all operating features secured from inadvertent motion by brakes, blocks, or other means (2) Powerplant stopped and starting means rendered inoperative (3) Platform lowered to the full down position, if possible, or otherwise secured by blocking or cribbing to prevent dropping (4) Hydraulic oil pressure relieved from all hydraulic circuits before loosening or removing hydraulic components (5) Safety props or latches installed where applicable as described by the manufacturer.

6.7 Replacement Parts. When parts or components are replaced, they shall be identical or equivalent to original aerial platform parts or components.

6.8 Maintenance Training. The owners shall train their maintenance personnel in inspection and maintenance of the aerial platform in accordance with 6.3, 6.4, 6.5, 6.6, 6.7 and 6.9 of this standard, and with the manufacturer's recommendations.

6.9 Operator Training. An owner who directs or authorizes an individual to operate an aerial platform shall ensure that the individual has been trained in accordance with the manufacturer's operating manual, and requirements listed in Section 8 of this standard before operating the aerial platform.

Manufacturer's operating instruction and required training on the proper use and operation of the aerial platform shall be provided upon each delivery, by sale, lease, or rental.

6.10 Operation. When an owner operates an aerial platform, the owner shall have the responsibilities of users as specified in Section 7 of this standard, and the operating personnel shall have responsibilities of operators as specified in Section 8 of this standard.

6.11 Assistance to Users and Operators. If an owner is unable to answer a user's or operator's questions related to rated capacity, intended use, maintenance, repair, inspection, or operation of the aerial platform, the owner shall obtain the proper information from the dealer or manufacturer and provide that information to user or operator.

6.12 Record Retention. The owner shall retain the following records for at least 3 years: (1) Name and address of the purchaser of each aerial platform by serial number and date of delivery (2) Records of the person(s) trained upon each delivery of an aerial platform (3) Written records of the frequent and annual inspections performed by the owner. The record shall include deficiencies found, corrective action, and identification of the person(s) performing the inspection and repairs (4) Records of the predelivery preparation performed prior to each delivery.

6.13 Modifications. The owner shall not modify or concur in modifications or alteration to the aerial platform without the modifications being approved and certified in writing by the manufacturer.

6.14 Manufacturer's Safety Bulletins. The owner shall comply with safety-related bulletins as received from the manufacturer or dealer.

7. Responsibilities of Users.

7.1 Basic Principles. The information in this standard must be supplemented by good job management, safety control, and the application of sound principles of safety, training, inspection, maintenance, application, and operation consistent with all data available regarding the parameters of intended use and expected environment. Since the user has direct control over the application and operation of aerial platforms, conformance with good safety practices in this area is the responsibility of the user and the operating personnel, including the operator. Decisions on the use and operation of the aerial platform must always be made with due consideration for the fact that the machine will be carrying personnel whose safety is dependent on those decisions.

7.2 Manuals. Users shall keep and maintain copy(ies) of the operating and maintenance manual(s) required in 4.17 of this standard. The operating manual(s) shall be stored in the location required in 4.18 of this standard. These manuals are considered an integral part of the aerial platform and are vital to communication of necessary safety information to users and operators.

7.3 Inspection and Maintenance. Users shall inspect and maintain the aerial platform as required to ensure proper operation. The frequency of inspection and maintenance shall be determined by the manufacturer's recommendation and be compatible with operating conditions and the severity of the operating environment. Aerial platforms that are not in proper operating condition shall be immediately removed from service until repaired. Repairs shall be made by a qualified person and the repairs shall be in conformance with the manufacturer's recommendations.

7.3.1 Frequent Inspection. An inspection as outlined in 6.4 of this standard shall be conducted.

7.3.2 Annual Inspection. An inspection as outlined in 6.5 of this standard shall be conducted.

7.3.3 Prestart Inspection. Before use each day or at the beginning of each shift, the aerial platform shall be given a visual inspection and function test including but not limited to the following: (1) Operating and emergency controls (2) Safety devices (3) Personal protective devices, including fall protection (4) Air, hydraulic and fuel system leaks (5) Cables and wiring harness (6) Loose or missing parts (7) Tires and wheels (8) Placards, warnings, and control markings (9) Outriggers, stabilizers, and other structures (10) Guardrail system (11) Items specified by the manufacturer.

7.3.4 Maintenance Safety Precautions. Before adjustments and repairs are started on an aerial platform, the following precautions shall be taken as applicable: (1) All controls in the "off" position and all operating features secured from inadvertent motion by brakes, blocks, or other means (2) Powerplant stopped and starting means rendered inoperative (3) Platform lowered to the full down position, if possible, or otherwise secured by blocking or cribbing to prevent dropping (4) Hydraulic oil pressure relieved from all hydraulic circuits before loosening or removing hydraulic components (5) Safety props or latches installed where applicable as described by the manufacturer (6) Precautions specified by the manufacturer.

7.4 Replacement Parts. When parts or components are replaced, they shall be identical or equivalent to original aerial platform parts or components.

7.5 Maintenance Training. The user shall train the maintenance personnel in inspection and maintenance of the aerial platform in accordance with 7.3, 7.4, and 7.6 of this standard and with the manufacturer's recommendations.

7.6 Operator Training. Whenever a user directs or authorizes an individual to operate an aerial platform, the user shall ensure that the individual has been trained in accordance with the manufacturer's operation and maintenance manual, the user's work instructions, and the requirements listed in Section 8 of this standard before operating the aerial platform.

7.6.1 Model Training. The user shall be responsible for the operator being trained on the model of the aerial platform to be operated. Such training shall be in an area free of obstructions, under the direction of a qualified person for a time sufficient to determine that the trainee displays proficiency in knowledge and actual operation of the aerial platform. Only properly trained and authorized personnel shall be permitted to operate the aerial platform.

7.6.2 Trainees Training Record. A record of the trainee's aerial platform instruction shall be maintained by the user for at least 3 years.

7.7 Before Operation. Before authorizing an operator to operate an aerial platform, the user shall ensure that the operator has: (1) Been instructed by a qualified person in the intended purpose and function of each control (2) Read and understood the manufacturer's operating instructions and user's safety rules, or been trained by a qualified person on the contents of the manufacturer's operating instructions and user's safety rules (3) Understood by reading or by having a qualified person explain all decals, warnings, and instructions displayed on the aerial platform (4) Determine that the purpose for which the aerial platform is to be used is within the scope of the intended applications defined by the manufacturer (5) Been provided with approved fall protection devices and other safety gear for all personnel on the platform (see 4.9.5).

7.8 Work Place Inspection. Before the aerial platform is used and during use, the user shall check the area in which the aerial platform is to be used for possible hazards such as, but not limited to: (1) Drop-offs or holes (2) Bumps and floor obstructions (3) Debris (4) Overhead obstructions and high voltage conductors (5) Hazardous locations (6) Inadequate surface and support to withstand all load forces imposed by the aerial platform in all operating configurations (7) Wind and weather conditions (8) Other possible unsafe conditions (9) Presence of unauthorized persons.

7.9 During Operation. The aerial platform shall be used in accordance with this standard. The user shall direct the operator to ensure the following before each elevation of the platform: (1) That the aerial platform is operated on a surface within the limits specified by the manufacturer (2) That the outriggers, stabilizers, extendable axles, or other stabilizing methods are used as required by the manufacturer (3) That guardrails are installed and access gates or openings are closed per manufacturer's instructions (4) That the load and its distribution on the platform and any platform extension are in accordance with the manufacturer's rated capacity for that specific configuration (5) That there is adequate clearance from overhead obstructions (6) That the minimum safe approach distances (MSAD) to energized power lines and parts, as listed in Table One are maintained. See Figure 2 for examples of safe operating procedures (7) That the precautions defined in 7.3.3, 7.6, 7.7, 7.8, 7.9, 7.10 and 7.11 of this standard are followed during operation of the aerial platform.

7.10 Determination of Hazardous Locations. It shall be the responsibility of the user to determine the hazard classification of any particular atmosphere or location according to ANSI/NFPA 505-1987. Aerial platforms operated in hazardous locations shall be approved in accordance with, and of the type required, by ANSI/NFPA 505-1987.

7.11 Warnings and Instruction. The user shall direct his operating personnel and supervise the work to ensure operation in compliance with the requirements in 7.11.1 through 7.11.14.

7.11.1 Personnel Footing. Personnel shall maintain a firm footing on the platform floor while working thereon. Use of planks, ladders, or any other device on the aerial platform for achieving additional height or reach shall be prohibited.

7.11.2 Other Moving Equipment. When other moving equipment or vehicles are present, special precautions shall be taken to comply with local ordinances or safety standards established for the workplace. Warnings such as, but not limited to, flags, roped-off areas, flashing lights, and barricades shall be used.

7.11.3 Reporting Problems or Malfunctions. The operator shall immediately report to the supervisor any problems or malfunctions that become evident during operation. Any problems or malfunctions that affect the safety or operations shall be repaired prior to continued use of the aerial platform.

7.11.4 Altering Safety Devices. Altering or disabling of interlocks or other safety devices shall be prohibited.

7.11.5 Entanglement. Care shall be taken to prevent rope, electric cords, hoses, etc., from becoming entangled in the aerial platform.

7.11.6 Capacity Limitation. Aerial platform rated capacities shall not be exceeded when loads are transferred to the platform at any height.

7.11.7 Work Area. The operator shall ensure that the area surrounding the aerial platform is clear of personnel and equipment before lowering the platform.
7.11.8 Fueling. The engine shall be shut down while fuel tanks are being filled. Fueling shall be done in a well-ventilated area free of flame, sparks, or other hazards that may cause fire or explosion.
7.11.9 Battery Charging. Batteries shall be charged in a well-ventilated area free of flame, sparks, or other hazards that may cause fire or explosion.
7.11.10 Platform Positioning. The aerial platform shall not be positioned against another object to steady the platform.
7.11.11 Misuse as a Crane. The aerial platform shall not be used as a crane.
7.11.12 Operating Areas. The aerial platform shall not be operated from a position on trucks, trailers, railway cars, floating vessels, scaffolds, or similar equipment, unless the application is approved in writing by the manufacturer.
7.11.13 Travel Conditions. Under all travel conditions, the operator shall limit travel speed according to conditions of ground surface, congestion, visibility, slope, locations of personnel, and other factors causing hazards of collision or injury to personnel.
7.11.14 Unauthorized Use. Means shall be used to protect against use by unauthorized person(s).

7.12 Operation of the Aerial Platform. If a user is also the operator of an aerial platform, the user shall have the responsibilities of operators specified in Section 8 of this standard as well as responsibilities of users as specified in Section 7 of this standard.

7.13 Assistance to Operator. If a user is unable to answer any operator's questions relating to rated capacity, intended use, maintenance, condition, or safety of operation of the aerial platform, the user shall obtain the proper information from the dealer, owner, or manufacturer and provide that information to the operator before use of the aerial platform in the application of concern.

7.14 Shutdown of Aerial Platform. The user shall authorize and direct the operating personnel to cease operation of the aerial platform in case of any suspected malfunctions of the aerial platform, or any hazard or potentially unsafe condition that may be encountered, and to request further information as to safe operation from the owner, dealer, or manufacturer before further operation of the aerial platform.

7.15 Record Retention. The user shall retain the following records for at least 3 years: (1) Records of the operator(s) trained on each model of an aerial platform (2) Written records of the frequent and annual inspections shall be kept by the user when performing the inspections. The records shall include the date of inspection, any deficiencies found, the corrective action recommended and identification of the person(s) performing the inspection (3) Written records of all repairs accomplished on the aerial platform, including the date of any such repair, a description of the work accomplished, and the identification of the person(s) performing the repair.

7.16 Modifications. A user shall not modify or concur in modification of an aerial platform without the specific written approval of the manufacturer of the aerial platform.

7.17 Manufacturer's Safety Bulletins. The user shall comply with safety-related bulletins as received from the manufacturer, dealer, or owner.

8. Responsibilities of Operators

8.1 Basic Principles. The information in this standard shall be supplemented by good judgment, safety control, and caution in evaluating each situation. Since the operator is in direct control of the aerial platform, conformance with good safety practices in this area is the responsibility of the operator. The operator shall make decisions on the use and operation of the aerial platform with due consideration for the fact that his or her own safety as well as the safety of other personnel on the platform is dependent on those decisions.

8.2 Manuals. The operator shall be aware that the operating safety manuals, including the manual that defines the responsibilities of dealers, owners, lessors, lessees, users, and operators are stored on the aerial platform and the location where they are stored. The operator shall be familiar with the manuals stored on the aerial platform and consult them when questions arise with respect to the aerial platform.

8.3 Prestart Inspection. Before use each day or at the beginning of each shift, the aerial platform shall be given a visual inspection and functional test including but not limited to the following: (1) Operating and emergency controls (2) Safety devices (3) Personal protective devices, including fall protection (4) Air, hydraulic, and fuel system leaks (5) Cables and wiring harness (6) Loose or missing parts (7) Tires and wheels (8) Placards, warnings, and control markings (9) Outriggers, stabilizers, and other structures (10) Guardrail system (11) Items specified by the manufacturer.

8.4 Problems or Malfunctions. Any problems or malfunctions that affect the safety of operations shall be repaired prior to the use of the aerial platform.

8.5 Training. The operator shall have been trained either on the same model of aerial platform or one having operating characteristics and controls consistent with the one to be used during actual work site operation. The operator trainee shall operate the aerial platform in an area free of obstructions under the direction of the qualified person for a time sufficient to determine that the trainee displays proficiency in knowledge and actual operation of the aerial platform. Only properly trained and authorized personnel shall be permitted to operate the aerial platform.

8.6 Before Operation. Before being authorized to operate the aerial platform, the operator shall have: (1) Been instructed by a qualified person in the intended purpose and function of each of the controls (2) Read and understood the manufacturer's/owner's operating instructions and safety rules, or been trained by a qualified person on the contents of the manufacturer's/owner's operating instructions and safety rules (3) Understood by reading or by having a qualified person explain all decals, warnings, and instructions displayed on the aerial platform.

8.7 Workplace Inspection. Before the aerial platform is used and during use, the operator shall check the area in which the aerial platform is to be used for possible hazards such as, but not limited to: (1) Drop-offs or holes (2) Bumps and floor obstructions (3) Debris (4) Overhead obstructions and high voltage conductors (5) Hazardous locations (6) Inadequate surface and support to withstand all load forces imposed by the aerial platform in all operating configurations (7) Wind and weather conditions (8) Other possible unsafe conditions.

8.8 During Operation. The aerial platform shall be used in accordance with this standard. The operator shall ensure the following before each elevation of the platform: (1) That the aerial platform is operated on a surface within the limits specified by the manufacturer (2) That the outriggers, stabilizers, extendable axles, or other stability enhancing means are used as required by the manufacturer (3) That the guardrails are installed and access gates or openings are closed per manufacturer's instructions (4) That the load and its distribution on the platform and any platform extensions are in accordance with the manufacturer's rated capacity for that specific configuration (5) That there is adequate clearance from overhead obstructions (6) That the minimum safe approach distances (MSAD) to energized power lines and parts, as listed in Table One, are maintained. See Figure 2 for examples of safe operating procedures (7) That he or she and all other personnel on the platform are wearing fall protection devices and other safety gear as required at all times (see 4.9.5).

8.9 Determination of Hazardous Locations. It shall be the responsibility of the user to determine the hazard classification of any particular atmosphere or location according to ANSI/NFPA 505.

8.9.1 Hazardous Location Operating Requirements. Aerial platforms operated in hazardous locations shall be approved and of the type required by ANSI/NFPA 505.

8.10 Warnings and Instructions. The operator and other personnel on the platform shall comply with the requirements in 8.10.1 through 8.10.17.

8.10.1 Personnel Footing. Personnel shall maintain a firm footing on the platform floor while working thereon. Use of planks, ladders, or any other devices on the aerial platform for achieving additional height or reach shall be prohibited.

8.10.2 Other Moving Equipment. When other moving equipment or vehicles are present, special precautions shall be taken to comply with local ordinances or safety standards established for the workplace. Warnings such as, but not limited to, flags, roped off areas, flashing lights, and barricades shall be used.

8.10.3 Reporting Problems or Malfunctions. The operator shall immediately report to a supervisor any problems or malfunctions that become evident during operation. Any problems or malfunctions that affect the safety of operation shall be repaired prior to continued use of the aerial platform.

8.10.4 Reporting Potential Hazardous Locations. The operator shall immediately report to a supervisor any potential hazardous locations (environment) that become evident during operation.

8.10.5 Altering Safety Devices. Altering or disabling of interlocks or other safety devices shall be prohibited.

8.10.6 Entanglement. Care shall be taken to prevent rope, electric cords, hoses, etc., from becoming entangled in the aerial platform.

8.10.7 Capacity Limitation. Aerial-platform rated capacities shall not be exceeded when loads are transferred to the platform at any heights

8.10.8 Work Area. The operator shall ensure that the area surrounding the aerial platform is clear of personnel and equipment before lowering the platform.

8.10.9 Fueling. The engine shall be shut down while fuel tanks are being filled. Fueling shall be done in a well-ventilated area free of flame, sparks, or other hazards that may cause fire or explosion.

8.10.10 Battery Charging. Batteries shall be charged in a well-ventilated area free of flame, sparks, or other hazards that may cause fire or explosion.

8.10.11 Platform Positioning. The aerial platform shall not be positioned against another object to steady the platform.

8.10.12 Misuse as a Crane. The aerial platform shall not be used as a crane.

8.10.13 Operating Areas. The aerial platform shall not be operated from a position on trucks, trailers, railway cars, floating vessels, scaffolds, or similar equipment, unless the application is approved in writing by the manufacturer.

8.10.14 Travel Conditions. Under all travel conditions, the operator shall limit travel speed according to conditions of ground surface, congestion, visibility, slope, location of personnel, and other factors causing hazards of collision or injury to personnel.

8.10.15 Unauthorized Use. Means shall be used to protect against use by unauthorized person(s).

8.10.16 Misuse as a Jack. The platform of the aerial platform shall not be used to jack the wheels off the ground unless the machine is designed for that purpose by the manufacturer.

8.10.17 Snagged Platform. If the platform or elevating assembly becomes caught, snagged, or otherwise prevented from normal motion by adjacent structure or other obstacles such that control reversal does not free the platform, all personnel shall be removed from the platform before attempts are made to free the platform using ground controls.

8.11 Assistance to Operator. If an operator encounters any suspected malfunction of the aerial platform, or any hazard or potentially unsafe condition relating to capacity, the operator shall cease operation of the aerial platform and request further information as to safe operation from management, or from the owner, dealer, or manufacturer, before further operation of the aerial platform.

8.12 Modifications. An operator shall not modify or concur in modification of an aerial platform without the specific written approval of the manufacturer of the aerial platform.

9. Responsibilities of Lessors

9.1 Basic Principles. Sound principles of safety, training, inspection, maintenance, application, and operation consistent with all data available regarding the parameters of intended use and expected environment shall be applied in the performance of responsibilities of lessors with due consideration of the knowledge that the unit shall be carrying personnel.

9.2 Lessor. A lessor is a person(s) or entity who leases, rents, loans, or otherwise provides an aerial platform to another party for the beneficial use of that party (the user). A lessor may also be a dealer, owner, lessee, user, or operator.

9.2.1 Lessor as a Dealer. When a lessor uses the aerial platform as a dealer, the lessor shall have the responsibilities of dealers as specified in Section 5 of this standard.

9.2.2 Lessor as an Owner. When a lessor uses the aerial platform as an owner, the lessor shall have responsibilities of owners as specified in Section 6 of this standard.

9.2.3 Lessor as a User. When a lessor uses the aerial platform as a user, the lessor shall have the responsibilities of operators as specified in Section 8 of this standard.

10. Responsibilities of Lessees

10.1 Basic Principles. Sound principles of safety, training, inspection, maintenance, application, and operation consistent with all data available regarding the parameters of intended use, and expected environment, shall be applied in the performance of responsibilities of lessees with due consideration of the knowledge that the aerial platform carries personnel.

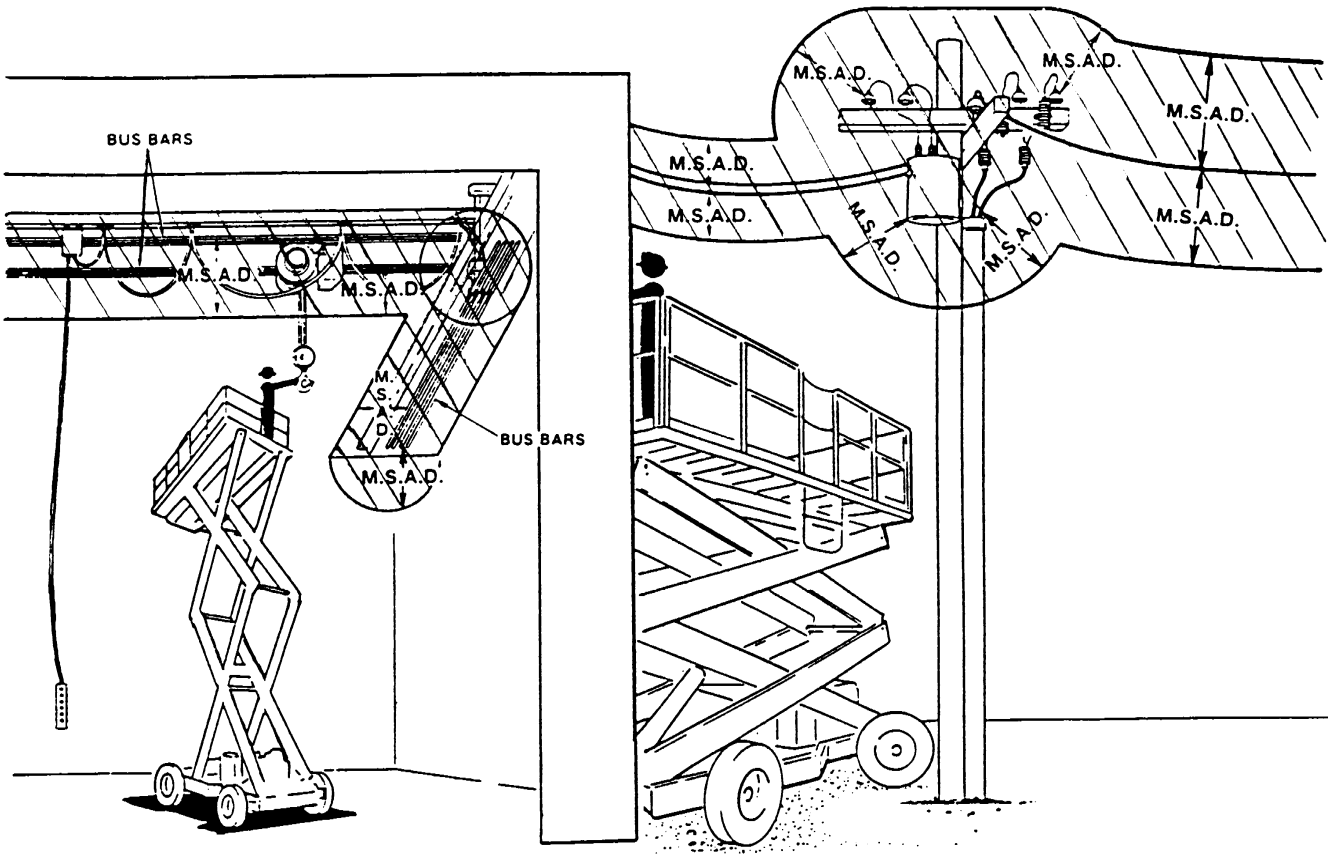
10.2 Lessee. A lessee is a person(s) or entity to whom an aerial platform is provided by lease, rental, loan, or other arrangement. A lessee may also be a user or operator.

10.2.1 Lessee as a Dealer. When a lessee uses the aerial platform as a dealer, the lessee shall have the responsibilities of dealers as specified in Section 5 of this standard.

10.2.2 Lessee as an Owner. When a lessee uses the aerial platform as an owner, the lessee shall have the responsibilities of owners as specified in Section 6 of this standard.

10.2.3 Lessee as a User. When a lessee uses the aerial platform as a user, the lessee shall have the responsibilities of users as specified in Section 7 of this standard.

10.2.4 Lessee as an Operator. When a lessee uses the aerial platform as an operator, the lessee shall have the responsibilities of operators as specified in Section 8 of this standard.



M.S.A.D. = Minimum Safe Approach Distance (See Table 6-1).

DENOTES PROHIBITED ZONE

DANGER

• Do not allow machine, personnel, or conductive materials inside prohibited zone.

• Maintain M.S.A.D. from all energized lines and parts as well as those shown.

• Assume all electrical parts and wires are energized unless known otherwise.

CAUTION

Diagrams shown are only for purposes of illustrating M.S.A.D. work positions, not all work positions.

Table 6-1. Minimum Safe Approach Distance (M.S.A.D.) to energized (exposed or insulated) power lines and parts.

Voltage Range (Phase to Phase)	Minimum Safe Approach Distance	
	(Feet)	(Meters)
0 to 300V	Avoid Contact	
Over 300V to 50KV	10	3.05
Over 50KV to 200KV	15	4.60
Over 200KV to 350KV	20	6.10
Over 350KV to 500KV	25	7.62
Over 500KV to 750KV	35	10.67
Over 750KV to 1000KV	45	13.72

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