American Lifts™

Hydraulic Scissor Lifts
Operating & Maintenance Instructions

With Illustrated Parts List
Publication Part No. 021887

TorkLifts and DockLifts

Model Number	Vertical Travel (In)	Capacity (lb)
TorkLifts		
T24-022	24	2200
T36-015	36	1500
T36-022	36	2200
T36-044	36	4400
T36-060	36	6000
T1-36-020	36	2000
T1-36-040	36	4000
T1-36-060	36	6000
T1-36-080	36	8000
T1-36-100	36	10000
T1-36-120	36	12000
T1-48-025	48	2500
T1-48-040	48	4000
T1-48-060	48	6000
T1-48-080	48	8000
T1-48-100	48	10000
T1-48-120	48	12000
T1-48-160	48	16000
T1-48-200	48	20000
T1-60-025	60	2500
T1-60-040	60	4000
T1-60-060	60	6000
T1-60-090	60	9000
T1-60-120	60	12000
T1-60-160	60	16000
T1-60-200	60	20000
T1-72-020	72	2000
T1-72-040	72	4000
T1-72-060	72	6000
DockLifts		
DL-48-025	48	2500
DL-59-025	59	2500
DL-59-040	59	4000
DL-59-060	59	6000
DL-59-090	59	9000
DL-59-120	59	12000
DL-59-160	59	16000
DL-59-200	59	20000
DL-59-300	59	30000

DANGER

This manual contains important information for correct installation, operation and maintenance of the equipment described herein. All persons involved in such installation, operation and maintenance should be thoroughly familiar with the contents. To safeguard against the possibility of personal injury or property damage, follow the recommendations and instructions of this manual and keep it for further reference.

Note: **The equipment shown in this manual is for commercial use only.**

Table of Contents

List of Figures

Please record the following information and refer to it when calling your dealer or American Lifts.

Model Number:_____Serial Number: _____Installation Date:_____/____/_____ _____

INTRODUCTION

GENERAL Safety Instructions: To assure maximum safety, optimum performance, and to gain knowledge of the product, it is essential that you or any other operator of this lift read and understand the contents of this manual before it is operated. Pay particular attention to the SAFETY INFORMATION highlighted by this symbol. ⚠ Following this symbol are CAUTION, WARNING or DANGER safety instructions. Failure to comply with the instruction may result in personal injury or death.

Safety statements, are incorporated in this manual in hope of reducing the number of industrial injuries that happen each year. Please read and follow all safety warnings and operate your lifts in a safe manner.

Since scissor lifts are very versatile machines, they are well suited to customization for virtually thousands of different applications. Therefore, the statements set forth in this document are not necessarily all-inclusive, and all conceivable or unique situations may not be considered. In unique applications, the owner may need to supplement the standard statements with application-specific advisories. American Lifts can help address these needs, but will not be responsible for injury or damage caused by neglected or misused equipment.

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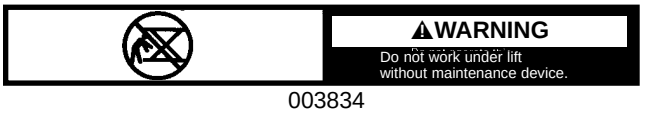

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SAFETY AND INSTRUCTION DECALS: The decals shown on this page are installed on the lift as appropriate. If any become damaged or illegible, replace them.The decal part number is listed below and in your parts catalog. Replacement decals can be ordered from American Lifts.

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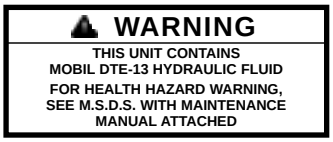

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The serverity of the hazards in the following instructions are identified as per ANSI Z535.4 and MH29.1

"DANGER"- Immediate hazard which will result in severe personal injury or death. (Electrical and Under the Platform.)

"WARNING"- Hazard or unsafe practice which could result in severe personal injury or death. (Top of Platform, Handrails.)

"CAUTION"- Hazard or unsafe practice which could result in minor personal injury or property damage.

⚠ WARNING

Ensure that the path of the lift is free of obstructions and that all personnel are a safe distance away from the lift.

Ensure that all safety devices are in place and inspect for signs of disrepair (frayed wires, leaking hoses, bent members, etc.) If any part is missing or appears to be in disrepair, do not use the lift. Use approved lockout/tagout procedures and contact qualified maintenance personnel immediatetly.

As the lift moves up and down, "pinch points" are formed. **KEEP HANDS, FEET, HAIR, JEWELRY, LOOSE CLOTHING, etc. AWAY FROM THESE PINCH POINTS.** If any of these items become caught, serious personal injury or death could occur.

The **DANGER / CAUTION / WARNING** labels on the lift are there for the safety of the operators. If any label is worn, missing, or has been painted over, **REPLACE IT** before resuming operation.

Ensure that the hydraulic, pneumatic and electrical lines will not be pinched by the lift as it raises or lowers. If a line becomes pinched, the lift may not work properly. A hose may break, the lift table may drop suddenly, and someone may be injured. If an electrical line is broken, severe personal injury or death can occur due to electrical shock.

⚠ WARNING

Read the motor nameplate and record the motor full load current. Consult local electrical codes for power supply fusing requirements. **TO ADVOID FIRE HAZARDS, FOLLOW THESE FUSING REQUIREMENTS.**

DO NOT use the unit to lift people unless it has been specifically equipped in accordance with ANSI MH29.1, OSHA and all local codes. Severe personal injury or death may result from using a lift without appropriate personnel lifting safety equipment.

DO NOT attempt to bypass or disconnect the maximum travel limit switch if installed. Also, do not adjust the switch such that it allows the lift to raise more than its rated vertical travel. If you exceed the rated vertical travel, you could overload the lift. This can cause the lift to fail suddenly, possibly resulting in severe personal injury or death.

Spilled hydraulic fluid is very slippery, and may also present a fire hazard. Clean up all spilled hydraulic fluid to reduce the risk of slipping or fire.

Release of fluids under high pressure can cause personal injury.

DO NOT use any part of your body to check for leaks.

Before opening any part of the hydraulic system or disconnecting hoses or fittings, RELEASE THE HYDRAULIC PRESSURE (see.figure 5). Always use caution when disconnecting any hydraulic components! Assume there may be some residual pressure remaining in the system.

If injured by high pressure fluids, seek emergency medical attention. Failure to do so could result in gangrene in effected area or death.

Load Capacity

To prevent damage to the unit and/or severe personal injury or death, **NEVER EXCEED THE RATED CAPACITY OF THE LIFT.** The nominal capacity is based on a uniformly distributed load. If the load is not uniformly distributed, then edge or axle loads must be considered.

Edge loads:
Edge capacity ratings are the maximum along any edge of the platform. Maximum edge loads are stamped on the serial number plate. If the load is rolled onto the lift in any position other than the **FULLY** lowered, it is considered to be an **axle load.**

Axle Loads:
For axle loads, the edge load rating must be reduced by 33%.

The capacity is displayed on the labels which are attached to the lift, and also on the serial number plate. Note that the serial number plate is only valid for the platform supplied with the unit in an unmodified condition. If you remove, replace or modify the platform, contact American Lifts to obtain a new serial number plate.

⚠ CAUTION

The user must ensure that the unit is installed in accordance with all local codes which may apply.

All servicing must be performed by qualified personnel only. Qualified personnel should be able to read and understand electrical and hydraulic diagrams. They should be able to troubleshoot hydraulic and live electrical circuits safely and in accordance with accepted practice.

Ensure that this manual is available to all personnel installing, using or maintaining the lift table. Require these persons to use this manual prior to installing, operating or servicing the table.

Maintain all information and safety decals on the table and in the proper condition.

Unauthorized modifications to the lift, its hydraulic power unit or its control system may compromise the performance and safety of the system. **UNDER NO CIRCUMSTANCES** should you attempt any repair or servicing that is not covered in this manual.

IF YOU HAVE ANY QUESTIONS ABOUT ANY OF THE INSTRUCTIONS IN THIS MANUAL, PLEASE CONTACT AMERICAN LIFTS.

Section I. General Information

The Hydraulic Scissor Lifts have the load capacity rating and serial number stamped on a metal plate attached to one end of the lift platform. Most lifts also have the serial number stamped in the upper flange of the base frame channel near a corner. The capacity is a gross rated maximum capacity. Where gravity roll sections, special tops, or other options are installed on the lift, deduct the weight of these from the load rating to obtain the net capacity. Lifts should not be overloaded beyond the established capacity, as injury or damage may result.

⚠ DANGER

Insure the lift is mounted on a stable surface! If the lift is mounted on an unstable surface, it may tip over when it is in use. This could result in severe personal injury or death, and damage to the unit and its payload.

Unbalanced Loadings

Stabilization provided is basically for evenly distributed loads. Allowances are not made for special sizes or features. For unbalanced load ratings consult the factory.

Operating Characteristics

The hydraulic system, usually contained in the base of the lift table, consists of a direct coupled motor and pump combination, oil reservoir, solenoid operated lowering valve, and all necessary piping. The pump is a positive displacement type and operates at a design working pressure of less than 2,000 psi. A preadjusted, built-in relief valve protects the hydraulic system from excess pressure.

The operating principle provides that the pump is operated to raise the table, and the pump is stopped when the table attains the desired elevation. A check valve and lowering valve between the pump and ram holds the table at elevation. For lowering to any desired level, the solenoid valve is energized to allow fluid to return from hydraulic cylinder to reservoir. A pressure compensated flow control valve is connected to the hydraulic cylinder to control the down speed at a predetermined rate under all load conditions.

Some units will have continuously operating motors. On these units, both up and down are controlled by solenoid valves.

All automatic controls added to the lift must include provision for shutting off the pumping unit at the end of the lift travel.

⚠ CAUTION

Before operating disengage maintenance device. If maintenance device is engaged and lift is operated, damage to the lift will result.

Raising Blocks Under Lifts

Where it is desired to raise the base of the lift to give a greater collapsed height to the unit, support members can be placed longitudinally or transversely. When longitudinal members are used they should be under all long rails of the base. When transverse supporting is necessary, it is important to provide members beneath the lift arm hinge points and also the areas of stabilizer hinge points and rollers. See Figure 1 below.

Call American Lifts if you have questions.

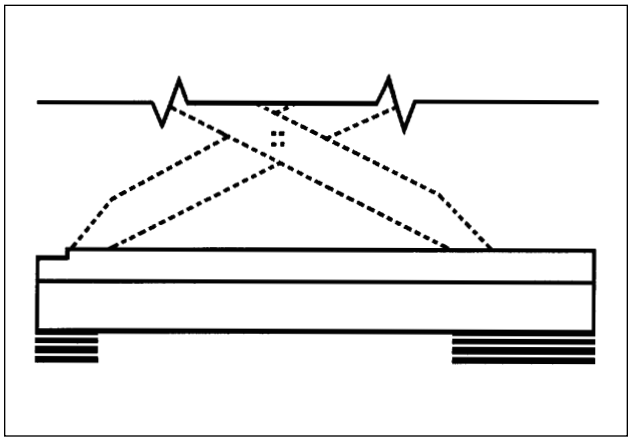


Fig. 1
Proper support of lift base frame

Section II. Installation Information

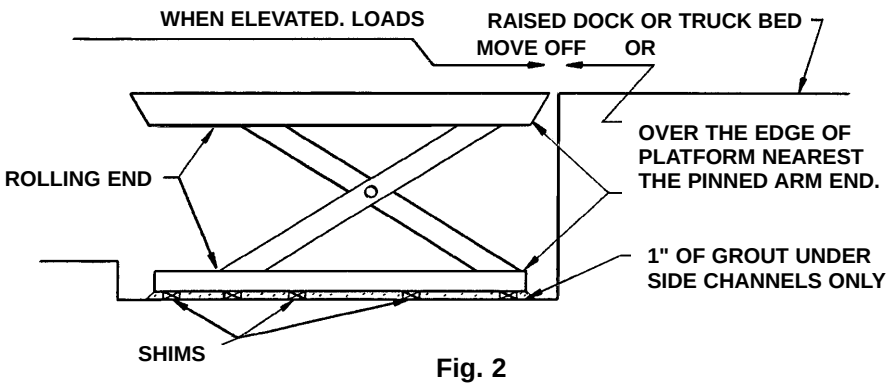


Fig. 2
Typical Pit Mount Installation

Installation of hydraulic lifts may be subject to local codes, rules and regulations, permits and inspections. Check local regulations before you install the lift.

The illustration above shows the most desirable position of the lift for greatest stability when moving loads on and off the platform when in the raised position.

Lifts are shipped on a skid or pallet. If your lift was designed to be pit mounted, the platform or deck can be lifted off of the top frame after removing the screws located on top of the platform or deck. The lift can then be removed from the skid or pallet with slings placed around the base frame or bottom. Be careful not to deform any of the frame structure.

Lifts designed to be surface mounted are built with the decks welded on and should not be lifted by the deck or top frame. **Caution: Doing so may result in damage to the cylinder base mounting straps.**

⚠ WARNING

Pit mounted units must be equipped with beveled toe guards or other ANSI MH29.1 approved toe protection. Without approved toe protection, a shear point can exist which presents an imminent danger of toe injury or severance.

If the lift is pit mounted, position the lift and align the frame carefully so that ½" to 1¼" is maintained between the platform or deck and the pit wall. Level the unit and place solid shims under the base frame as illustrated.

Where anchor clips have been provided, the bolt fit should be close to restrict shifting of lift. This requires careful location of the anchor bolts with consideration of the frame platform and pit. See Fig. (3) for installation procedure.

⚠ DANGER

The lift's electrical components can create sparks. **DO NOT** install the lift, the power unit, or any controls in an area where potentially explosive dusts, gases or vapors may be present. Failure to comply with this warning may result in an explosion!

⚠ DANGER

Protect the power unit and any electrical components from rain or moisture. If electrical components get wet, personnel may be severely injured or killed by electrical shock. Also, electrical parts may fail if they are wet.

To Install Anchor Bolts Refer To Manufacturers Instructions.

Recommended concrete anchor bolts are: HILTI "Kwik-Bolt", Molly Parabolt or similar.

1. Be sure lift is positioned as described above. Drill holes in concrete the same diameter as anchor bolts, using anchor bracket hole as guides. Depth is not critical – drill sufficiently deep.
2. With nut and washer on anchor bolts, drive anchor bolts into holes so that a minimum of six to seven threads are below the top surface of the anchor clips.
3. Tighten nuts securely. Be sure enough force is used to spread anchor bolt wedges (usually 3 or 4 turns beyond 'finger tight'). After lift has been aligned, leveled and shimmed, and anchor bolts have been installed, pour 1" of grout under entire base frame. When set and cured, tighten nuts on anchor bolts. Run hydraulic hose or electrical cord through conduit in pit wall. Replace platform.

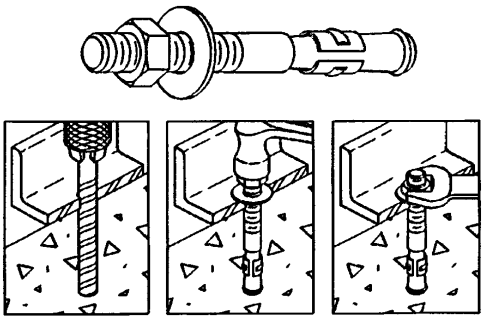


Fig. 3
Anchor Installation

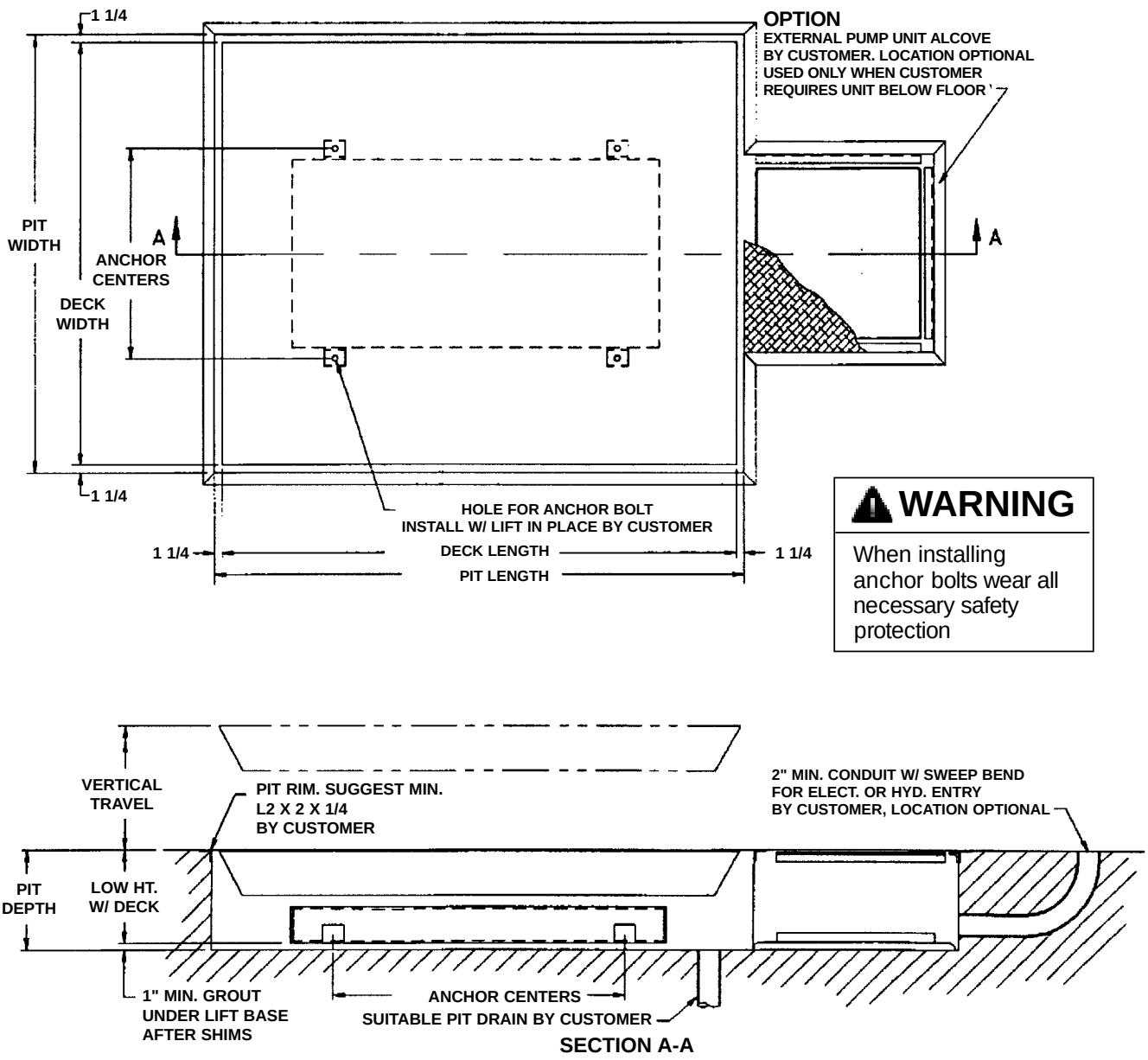


Fig. 4
Typical Pit Drawing

Suggestions for Installation of American Hydraulic Lifts When Permanently Anchored or Placed in Pit

Section III. Trouble Shooting/Service Procedures

⚠ DANGER

Only trained and qualified personnel should perform service procedures. Before performing lubrication or maintenance work on the lift always follow the **PROCEDURE LISTED BELOW**:

1. The maintenance device has been designed for use only when the lift is unloaded. If you engage the maintenance device with load on the platform, the device or structural members could fail suddenly, causing damage to the lift and possibly causing severe personal injury or death.

   A falling lift can cause severe personal injury or death. Before working under the lift, **RAISE THE LIFT AND ENGAGE THE MAINTENANCE DEVICE**, **AS SHOWN IN** (applicable insert, figure 5). Do this every time you work under the lift!

2. Provide appropriate vertical supports or use built in maintenance device if available under lift deck to prevent lift from lowering. **Consult the factory if there are any questions regarding this procedure**.
3. Lower the lift onto support columns or maintenance device until the hydraulic ram no longer supports the lift structure.
4. Follow OSHA lock-out/tag-out procedures. Disconnect and tag all electrical and/or other power sources to preclude untimely actuation of the lift.
5. Inspect the condition of all pivot joints and roller assemblies at each periodic maintenance time for damage or wear.

Provide Appropriate Vertical Support

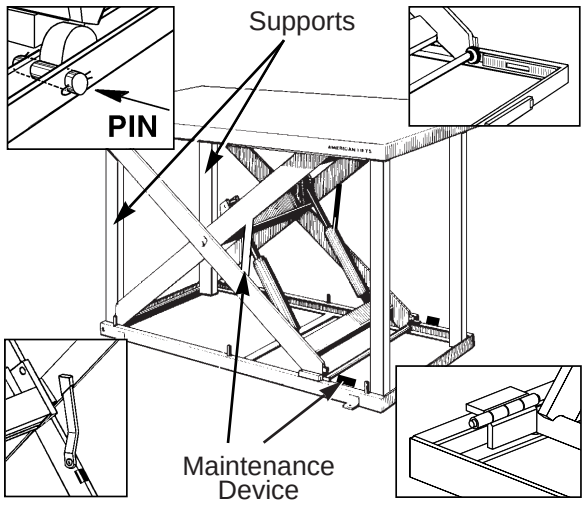


Fig. 5
Typical Built-In Maintenance Device.
Always Engage Both Sides

If lift will not raise:

a. Check electric circuit (See Section VI). On new installations of 3-phase motors, if lifts do not start raising in approximately 10 seconds, reverse two power supply leads to reverse pump rotation.

⚠ CAUTION

DO NOT run pump backwards.

b. Check oil level.

⚠ CAUTION

DO NOT overfill.

With lift in full up position, oil level should be approximately 1¼" above tank bottom.

Lift raises slower than specified rate or will raise only partial load:

Note: Allowance must be made for slight speed variations due to temperature which changes the viscosity of the hydraulic oil.

a. Check line voltage under load condition. Low voltage affects capacity.

b. If foam is visible in tank oil, check for a loose connection in suction line between pump and tank. Tighten connections.

Lift slowly settles with lowering valve not energized:

a. Flush lowering valve by cycling lift up and down. This should be done with no load.

b. If lift continues to settle, replace down valve cartridge.

c. If lift continues to settle, replace pump.

If Lift will not lower:

a. Look for mechanical restrictions.

b. Test valve coil for operation. Check voltage at coil.

c. If voltage is ok, replace coil.

If lift will not raise to full vertical travel:

a. Check for low oil level.

b. If necessary, add oil.

If lift does not lower smoothly:

a. Run lift up and down under load a few times to purge air.

Section IV. Lubrication and Maintenance Instructions

⚠ DANGER

- Lift must be empty (no load) before performing maintenance work.
- Maintenance devices must be engaged on both sides prior to maintenance or lubrication.
- If lift does not have built in maintenance devices, block platform as shown on page 7, Figure. 5.

We recommend that lubrication and preventive maintenance work should be conducted on a regular schedule that is established on the basis of experience gained during the first few months of operation. The need for lubrication and inspection is largely proportional to actual service duty, environment, and application, but it is also advisable to inspect and re-lubricate the lift following a prolonged period of non-use.

Lifts should be lubricated and completely inspected at least once a week during the first month of regular operations. It is likely that such frequent attention will prove unnecessary but will result in the establishment of a realistic schedule. A suitable lubricant, such as Mobilith AW1, should be used.

Inspection should include careful examination of all fastenings, pivot pins, rolling surfaces and rollers, hydraulic connections, electrical systems and general functions. If there is a persistent accumulation of debris, water or other harmful materials present in any part of the lift, resulting from environment or the materials being handled, the lift should be cleaned and consideration given to means for the prevention of such conditions.

The preferred pump unit hydraulic fluid should be Mobil DTE-13 or any equivalent petroleum based fluid with a viscosity index of 90 or higher.

The use of multi-grade motor oil SAE 10W-30 is permissible where the above fluids are not readily available.

Since the viscosity of the hydraulic fluid is reduced by an increase in temperature, frequent use of the lift under conditions of normal ambient temperature, as well as even less frequent usage with ambient temperature above 100°F or over, may result in fluid temperature of 150°F or more. Under these conditions, the lift can be expected to rise more slowly. Avoid temps over 150°F.

When these conditions exist, a fluid of higher viscosity may be required such as Mobil DTE-15. Fluids with a high viscosity index in the range of 140-150 will perform well at these elevated temperatures.

At extremely low ambient temperatures, the pour point of the hydraulic fluid becomes a critical factor. It is recommended that the hydraulic fluid have a pour point at least 30°F lower than the lowest ambient temperature expected. Consult the factory.

Do not use synthetic hydraulic fluids which contain elements that may swell or dissolve seal materials normally used in the systems designed for petroleum based fluids. For special fluids consult the factory.

⚠ WARNING

DO NOT GO NEAR LEAKS

- High pressure oil easily punctures skin causing serious injury, gangrene or death.
- If injured, seek emergency medical help. Immediate surgery is required to remove oil.
- Do not use finger or skin to check for leaks.
- Lower load or relieve hydraulic pressure before loosening fittings.

⚠ WARNING

DO NOT SPILL OR DUMP OIL.

- Oil burns at 350°F.
- Injury could result if not cleaned up.
- Oil is a regulated/hazardous waste.
- Capture oil when repairing or draining systems.
- Disposal must conform to state/federal regulations.
- Do not overfill containers or reservoirs.
- You could be seriously injured or fined for failing to conform to instructions.

⚠ DANGER

Before cleaning or servicing disconnect power supply.

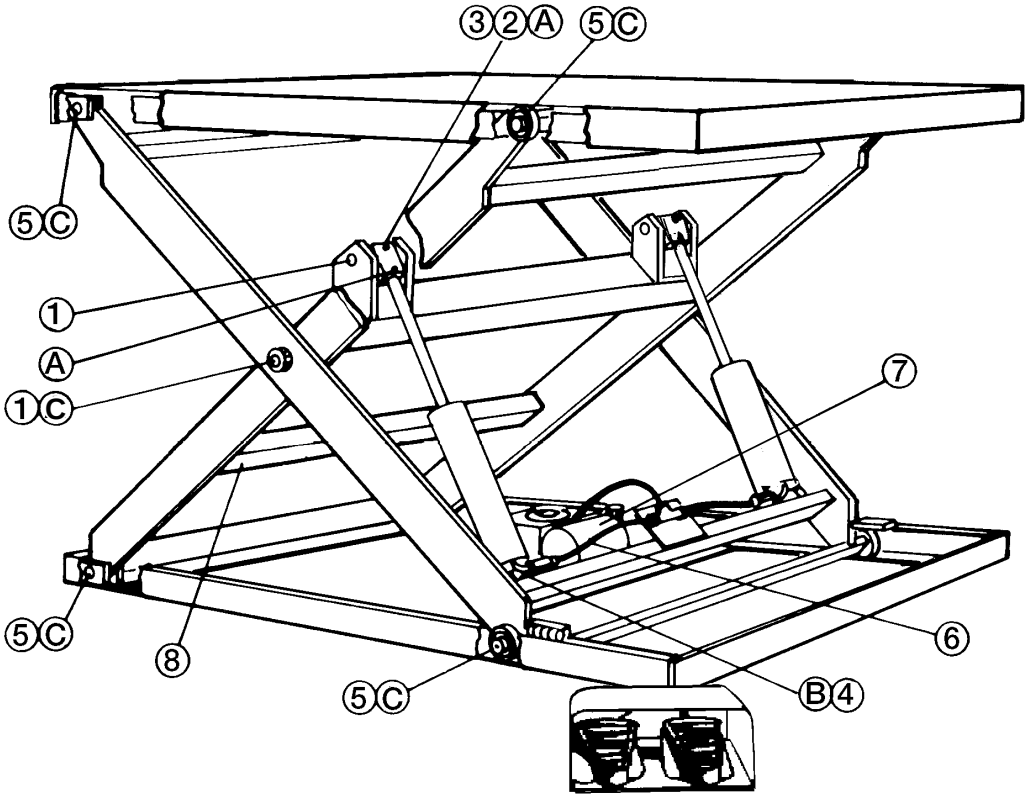


Fig. 6
Lubrication and Inspection Points

Lubrication Points. Lubricate with lift unloaded and meeting requirements in Fig. 5.

A. Points noted, apply pressure grease gun lubrication. Use Mobilith AW1 or equal.
B. Points noted, apply oil can lubrication.
C. Points noted no lubrication required (factory lubricated and sealed)

Inspection Check Points

1. Visually inspect all lift arm pivot pins to ensure that retaining device has not loosened.
2. Visually inspect all ram crank pins, pivot pins to ensure that the set screw has not loosened, allowing pins to move.
3. Visually inspect all ram crosshead roll pins to ensure that roll pin is seated correctly.
4. Visually inspect all ram base thrust pins and keeper bolts to ensure that thrust pin is seated in notch and keeper bolts are tight.
5. Visually inspect all lift arm rolling bearings to ensure that bearing bolts are tight.
6. Visually inspect all hydraulic hoses and fittings to ensure there are no chafed hoses or leaking fittings.
7. Visually inspect all electrical lines to ensure there are no chafed wires or loose cords.
8. Visually inspect the entire lift structure.

Section V. Parts Identification

General Parts Identification
To order parts, you must include with your order the model number and serial number as shown on the nameplate attached to the end of the platform on lift.

Item	Description
1	Base Frame Assembly
2	Top Frame/Deck Assembly
3	Not Used
4	Not Used
5	Not Used
6	Not Used
7	Roller Bearing Assembly
8	Not Used
9	Pivot Pin /Shaft Assembly
10	Not Used
11	Not Used
12	Not Used
13	Hydraulic Cylinder Crosshead Assembly
14	Hydraulic Cylinder Base Pin Assembly
15	Hydraulic Cylinder Assembly
16	Not Used
17	Flow Control
18	Hydraulic Tank
19	Motor
20	Pump
21	Solenoid Valve
22	Foot Switch/Push Button (Not Shown)
23	Inner Lift Arm Assembly
24	Outer Lift Arm Assembly
25	Nameplate/Serial Number Plate (Not Shown)
26	Safety Label Kit (Not Shown)

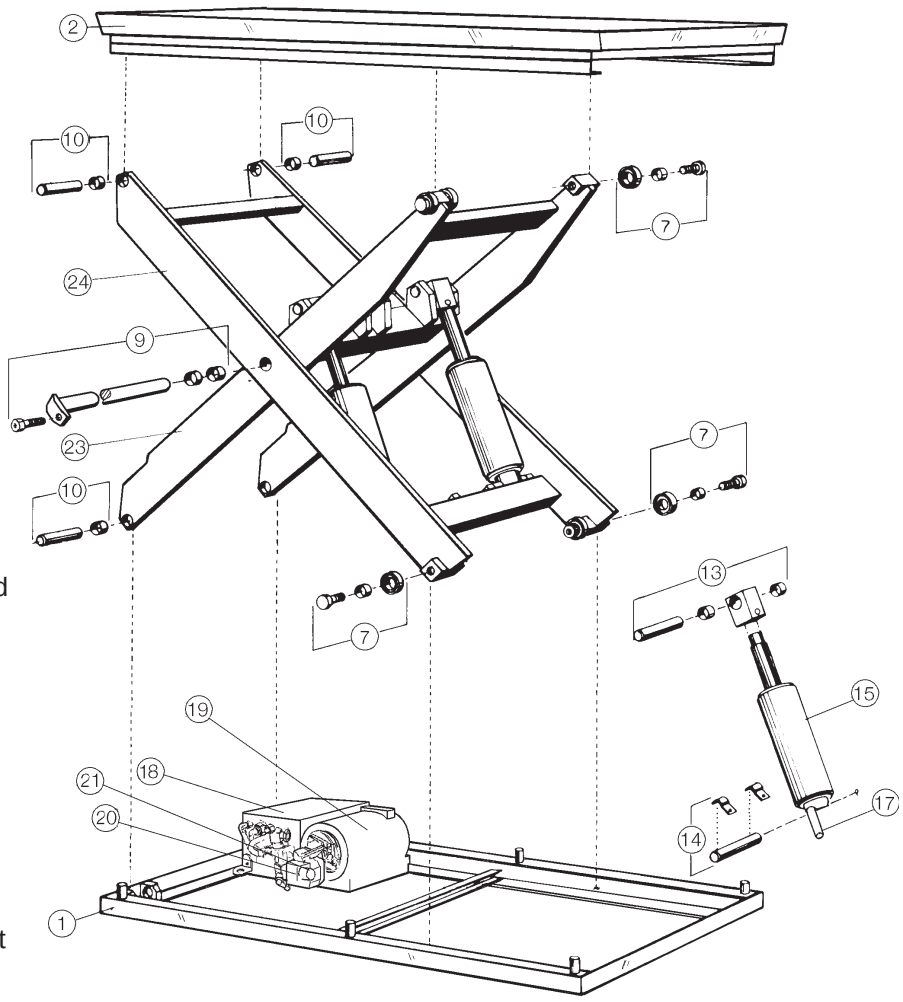


Fig. 7
Exploded Drawing and Parts List
TorkLift

⚠ DANGER

DO NOT ATTEMPT TO REMOVE OR LOOSEN CENTER PIVOT PINS, HINGE PINS OR ARM ROLLERS. Removing or loosening these parts could cause the lift to suddenly collapse, **EVEN IF THE MAINTENANCE DEVICE IS ENGAGED**. If any of these components require service: Remove all loads from the lift platform, lock-out power to the lift and tag as unsuitable for service, clear the area surrounding the unit, contact manufacturer for instructions.

⚠ DANGER

DO NOT remove, adjust or tamper with the flow control valves installed at the base of the hydraulic cylinder. Tampering with them could cause the flow control valve to fail, which would prevent the valves from slowing the descent of the lift in the event of a hose failure. A free-falling lift can cause severe personal injury or death to persons working in its vicinity, as well as causing damage to the lift structure and components.

Section V. Parts Identification continued…

Fig. 8
Standard Pump Unit with Integral Lowering Valve

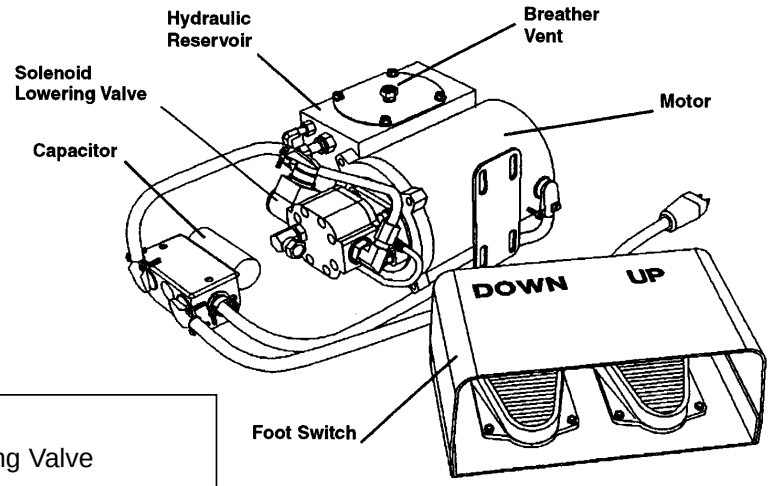


Fig. 9
Standard Pump Unit with External Lowering Valve

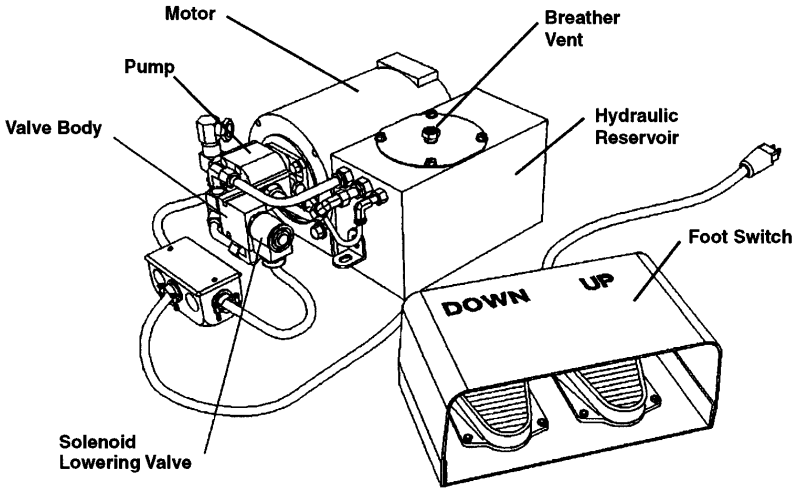
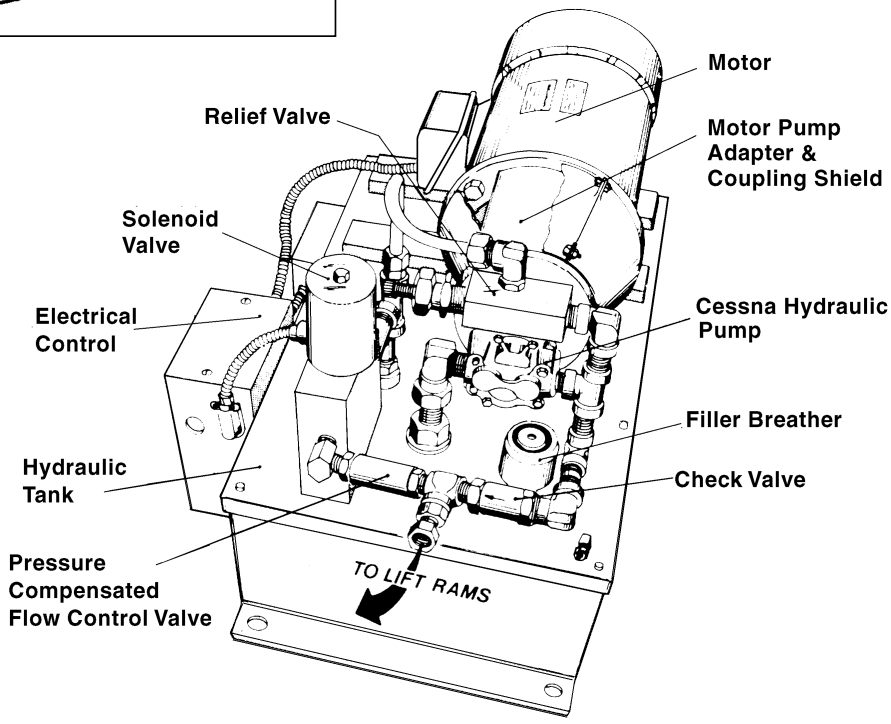


Fig.10
External Pump Unit



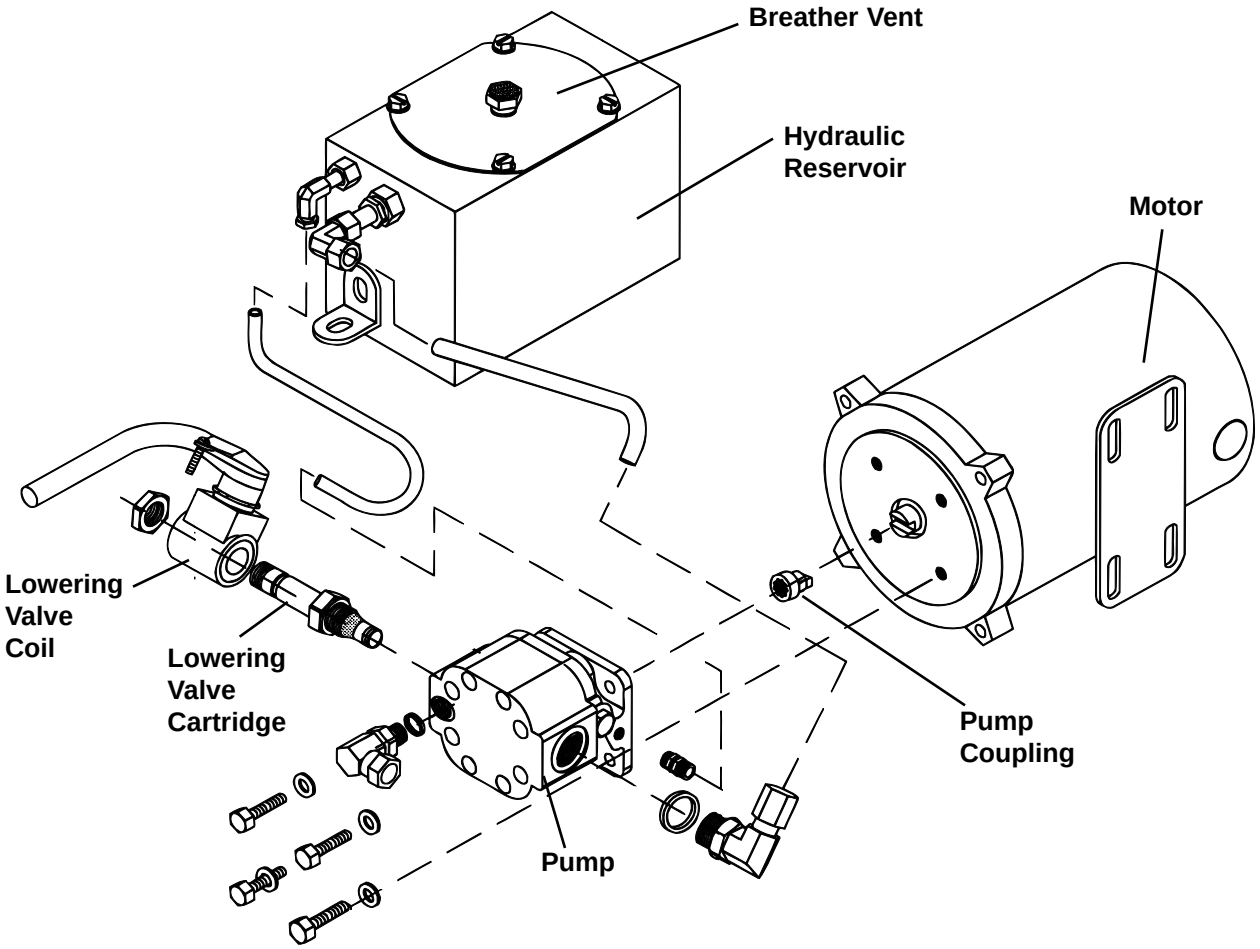


Fig. 11
Parts Identification of Pump with Integral Lowering Valve

Adjustments

⚠ DANGER

DO NOT CHANGE THE SETTING ON THE RELIEF VALVE. If the setting is changed, this may cause the lift to suddenly fail. Severe personal injury or death may result, and/or the lift and the payload may be damaged. The hydraulic and structural components of the lift are designed to handle a certain amount of pressure. The relief valve has been set to relieve this pressure before it becomes too great. The relief valve has been included for the protection of all personnel using the lift.

Service

⚠ DANGER

Built in maintenance device or posts must be in place during service (See fig. 5.)

The pump components are not serviced separately, do not attempt to replace gears, bearings, shafts or other major parts of the pump. Order a replacement pump identified by the lift serial number.

When assembling pump to motor, be sure the intermediate coupling aligns with motor shaft and pump tang.

⚠ CAUTION

DO NOT operate this pump against relief valve by overloading or by holding in the extreme raised position any period greater than five seconds. When “Automatic Return” controls are used, provision must be made to stop the pump immediately upon reaching the raised position.

DO NOT run the standard pumping unit continuously or use on applications requiring more than five starts per minute in continuous service. A special pump unit, externally mounted, equipped with a continuous duty motor and normally open by-pass valve, is available for more than five starts per minute. If the duty cycle exceeds one fully loaded cycle every five minutes, a special pump unit may be required. Contact factory for more information.

Section V. Parts Identification continued…

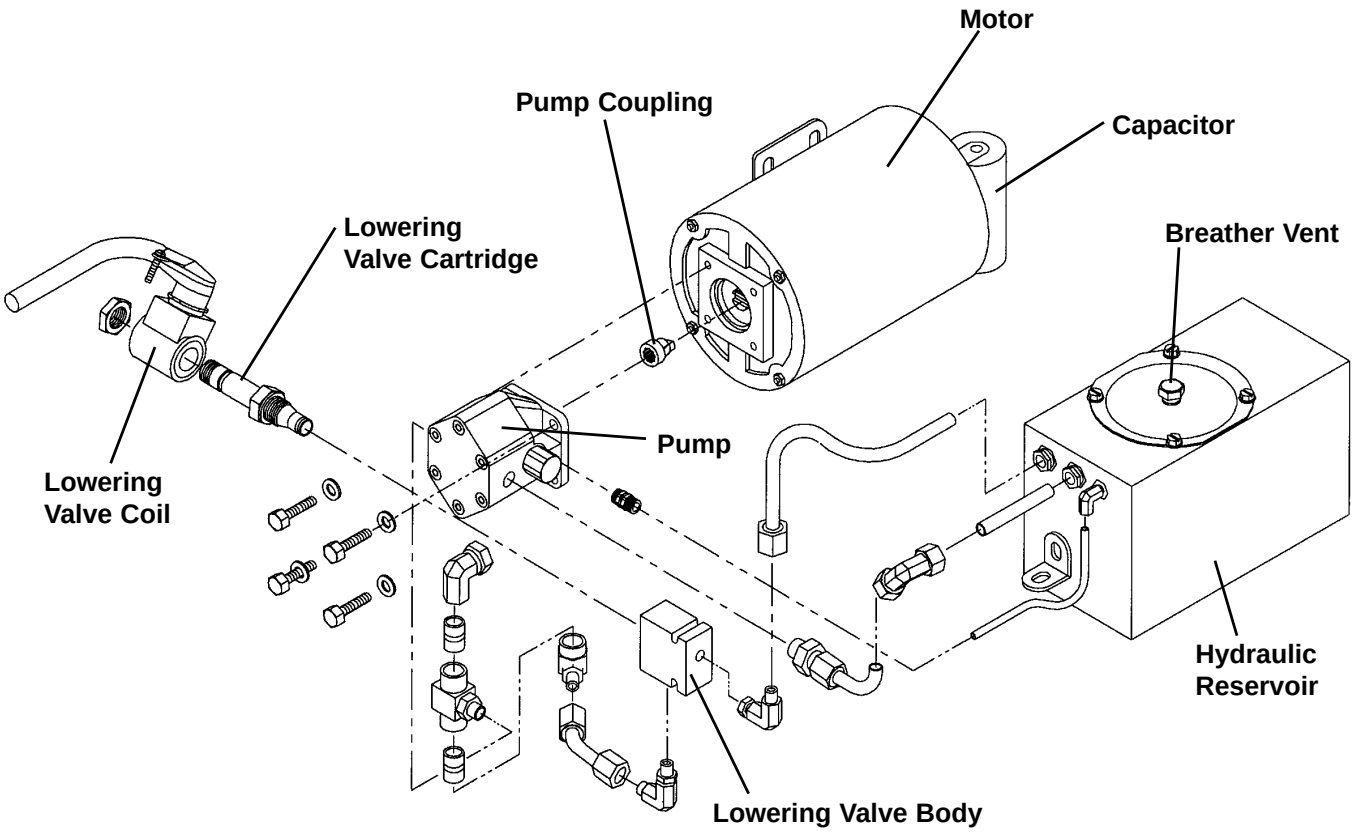


Fig. 12
Parts Identification of Pump with External Lowering Valve

Adjustments

⚠ DANGER

DO NOT CHANGE THE SETTING ON THE RELIEF VALVE. If the setting is changed, this may cause the lift to suddenly fail. Severe personal injury or death may result, and/or the lift and the payload may be damaged. The hydraulic and structural components of the lift are designed to handle a certain amount of pressure. The relief valve has been set to relieve this pressure before it becomes too great. The relief valve has been included for the protection of all personnel using the lift.

Service

⚠ DANGER

Built in maintenance device or posts must be in place during service (See fig. 5.)

The pump components are not serviced separately, do not attempt to replace gears, bearings, shafts or other major parts of the pump. Order a replacement pump identified by the lift serial number.

When assembling pump to motor, be sure the intermediate coupling aligns with motor shaft and pump tang.

⚠ CAUTION

DO NOT operate this pump against relief valve by overloading or by holding in the extreme raised position any period greater than five seconds. When "Automatic Return" controls are used, provision must be made to stop the pump immediately upon reaching the raised position.

DO NOT run the standard pumping unit continuously or use on applications requiring more than five starts per minute in continuous service. A special pump unit, externally mounted, equipped with a continuous duty motor and normally open by-pass valve, is available for more than five starts per minute. If the duty cycle exceeds one fully loaded cycle every five minutes, a special pump unit may be required. Contact factory for more information.

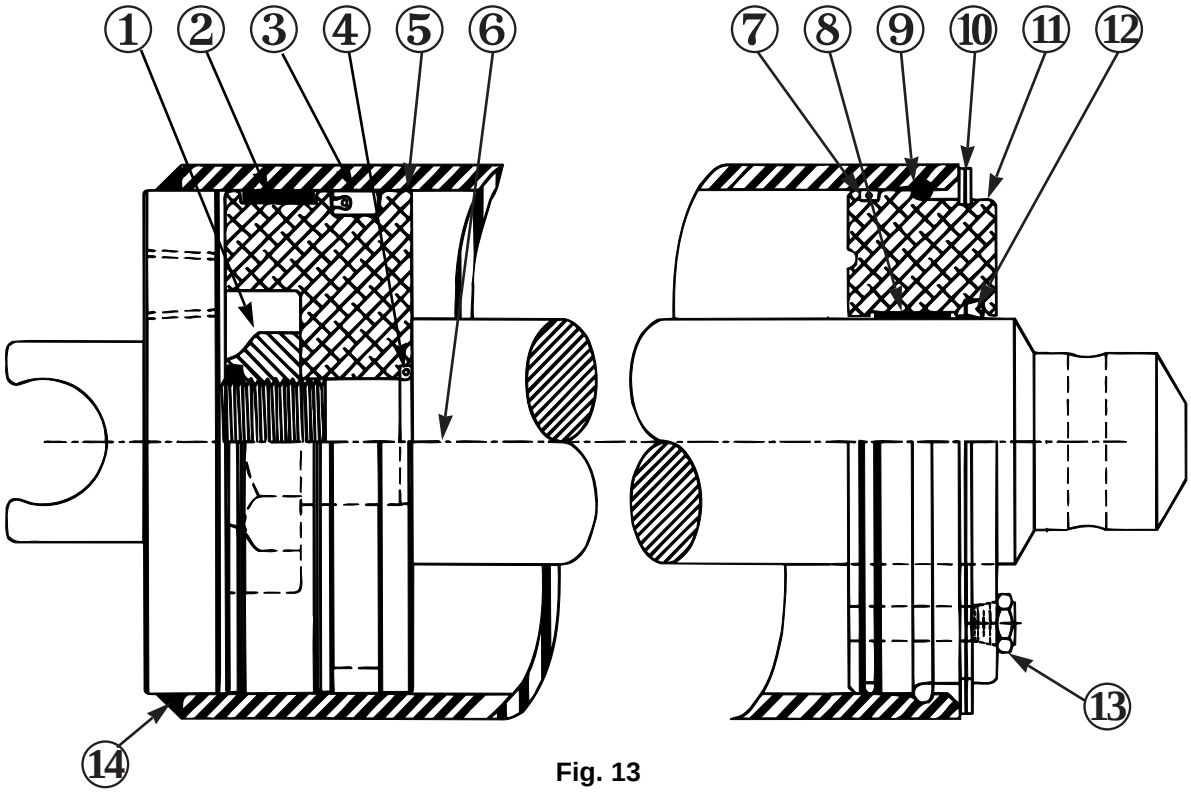


Fig. 13
Parts Identification of Hydraulic Cylinder

Item	Description
1	Thin Nut
* 2	Wear Ring
* 3	Polyseal
* 4	O-Ring
5	Piston

Item	Description
6	Rod
* 7	O-Ring
* 8	Wear Strip
9	Snap Ring
10	Retaining Ring
11	Rod Guide

Item	Description
* 12	Wiper Strip
13	Breather Vent
14	Cylinder Barrel
15	Repair Kit (Includes Items 2, 3, 4, 7, 8 & 12)

* Repair Kit Parts

Repair Parts
When ordering parts specify the Cylinder Model Number stamped on the base of the cylinder. A repair kit is available. Reference item 15 above.

⚠ DANGER

DO NOT use compressed air to push piston out of the cylinder.

Procedure to Disassemble Hydraulic Cylinder
1. Remove the Spirolox ring from the rod guide.
2. Drive the rod guide back into the ram with a soft hammer.
3. When the rod guide is past the wire lock ring, remove the ring from the groove in the cylinder.
4. When the rings are removed pull the whole rod assembly out of the cylinder.
5. Remove lock nut from base of rod.
6. Remove piston.

Procedure to Assemble Hydraulic Cylinder
1. Fit piston on threaded end of rod, make sure static “O” ring is in place between piston and rod.
2. Place self locking nut on rod thread and tighten.
3. Put all of the seals and wear strips on the piston and rod guide.
4. Lubricate the cylinder, piston and rod guide with hydraulic fluid.
5. Place the assembly piston down, rod up and slide the rod guide over the rod down to the piston.
6. Drop the piston and guide down into the cylinder. Rod guide will have to be tapped down past the groove in the cylinder.
7. Insert lock wire in cylinder groove.
8. Force rod guide up against lock wire with compressed air inserted into the guide breather vent.
9. When the guide is in place against the lock wire install the Spirolox ring in the top groove.

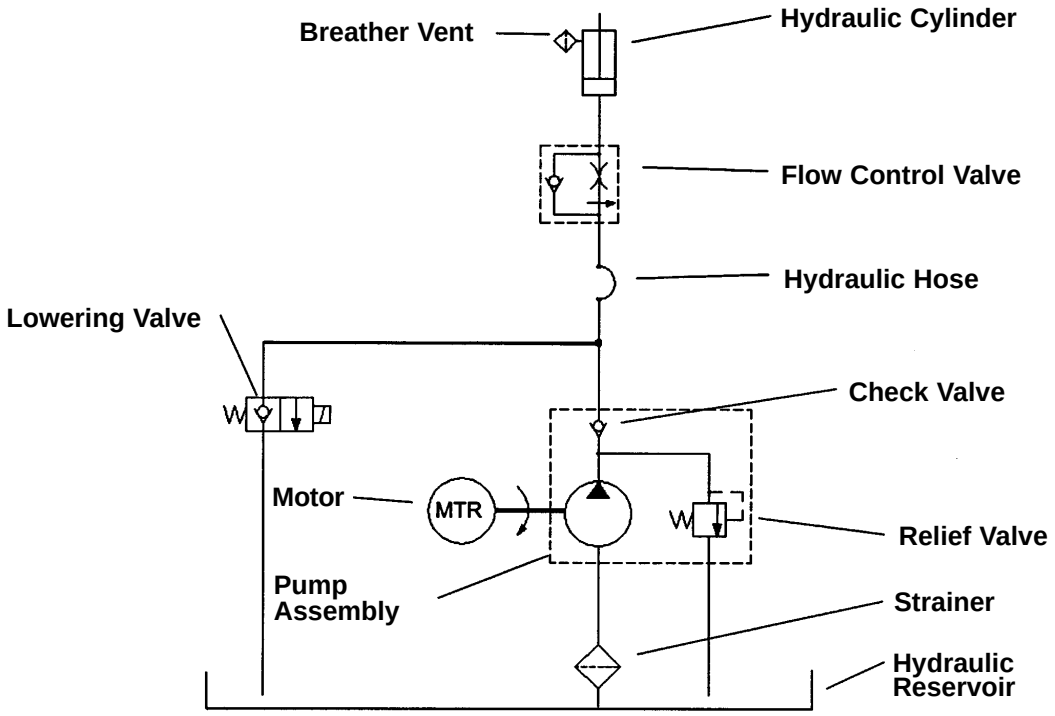


Fig. 14
Typical Solenoid Lowering Valve, Normally Closed. Reference Fig. 9

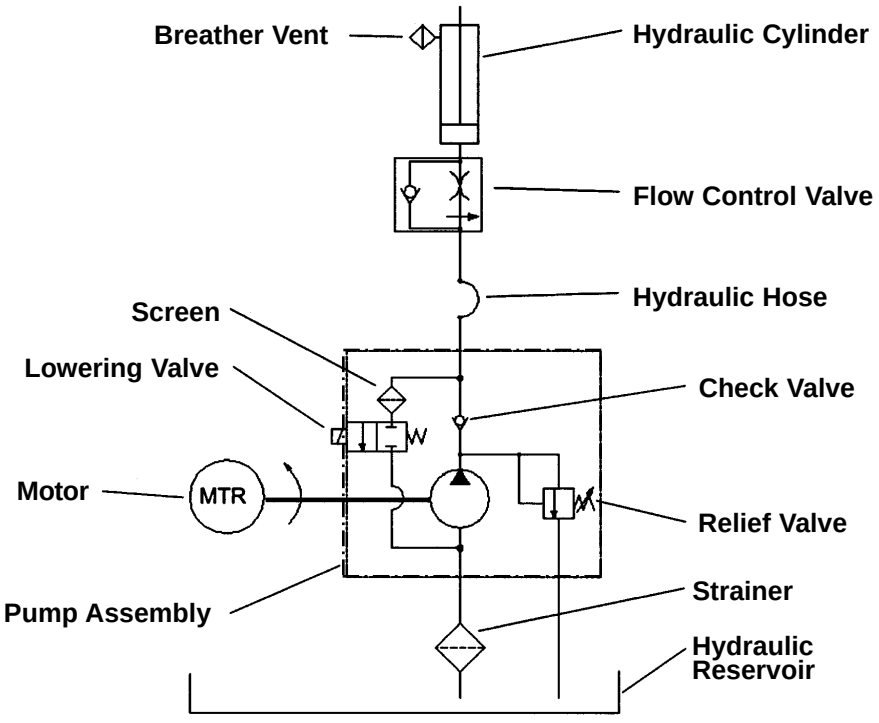


Fig. 15
Integral Solenoid Lowering Valve, Normally Closed. Reference Fig. 8

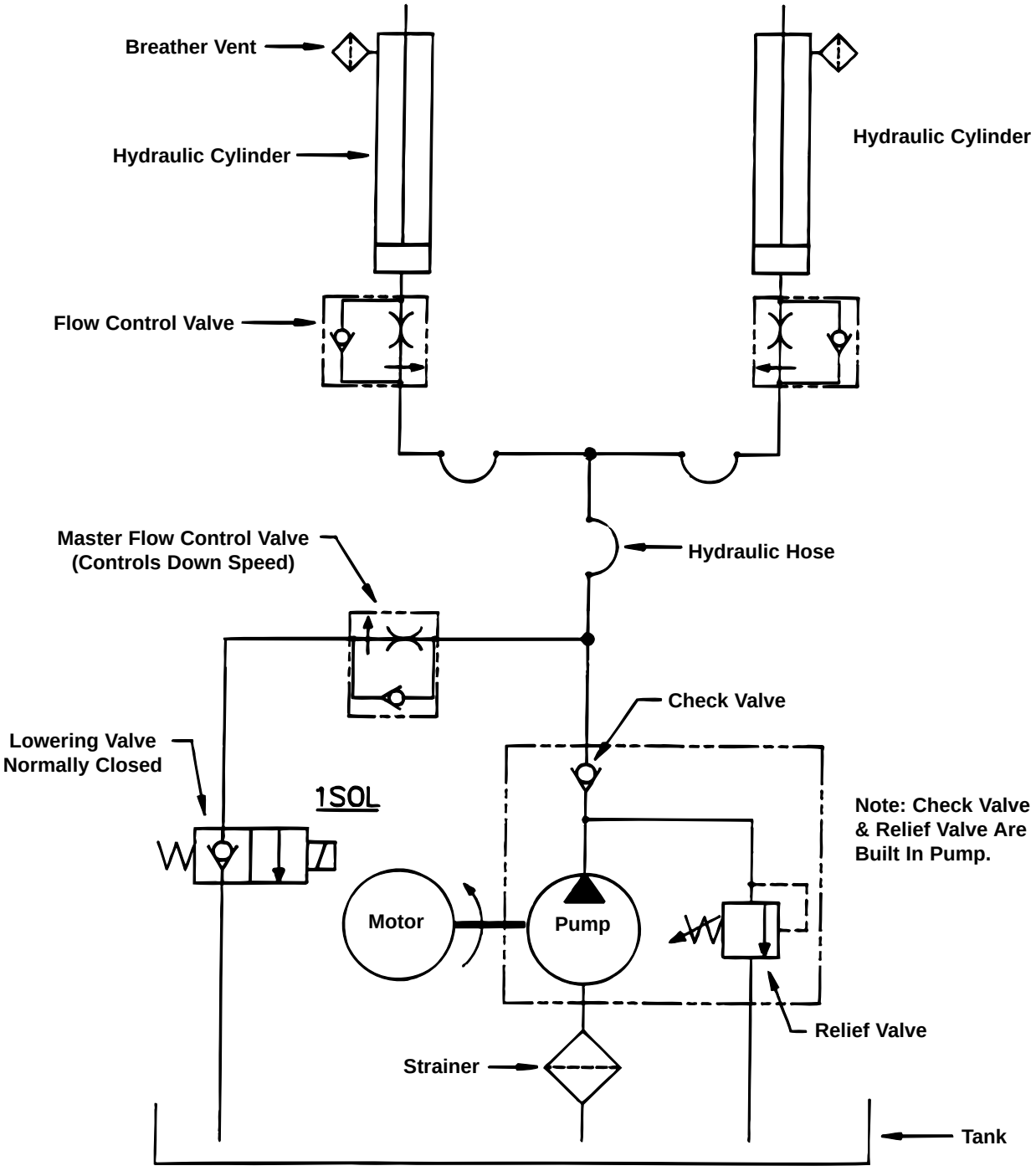
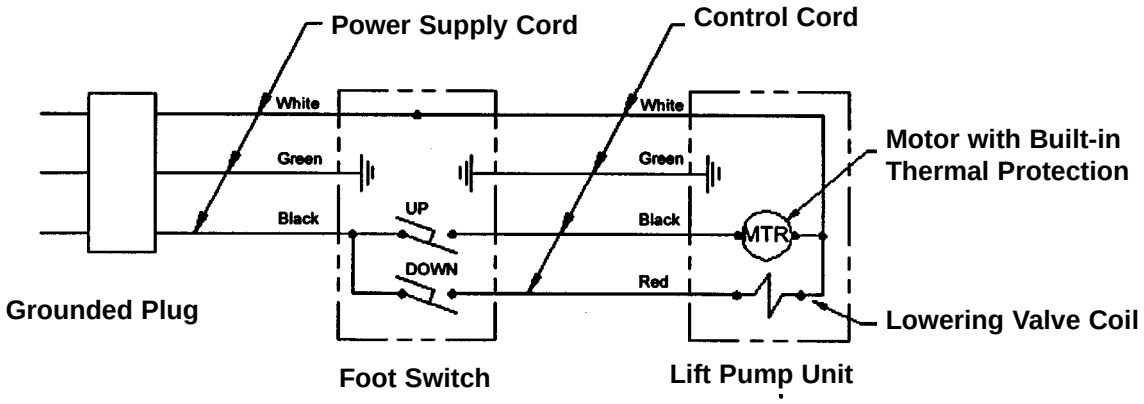


Fig. 16
Hydraulic Schematic–
Typical Two Hydraulic Cylinder System

⚠ DANGER

The lift's electrical circuits use voltages which can cause severe injury or death, **DO NOT WORK WITH THE ELECTRICAL PARTS UNLESS YOU ARE A QUALIFIED ELECTRICIAN!**

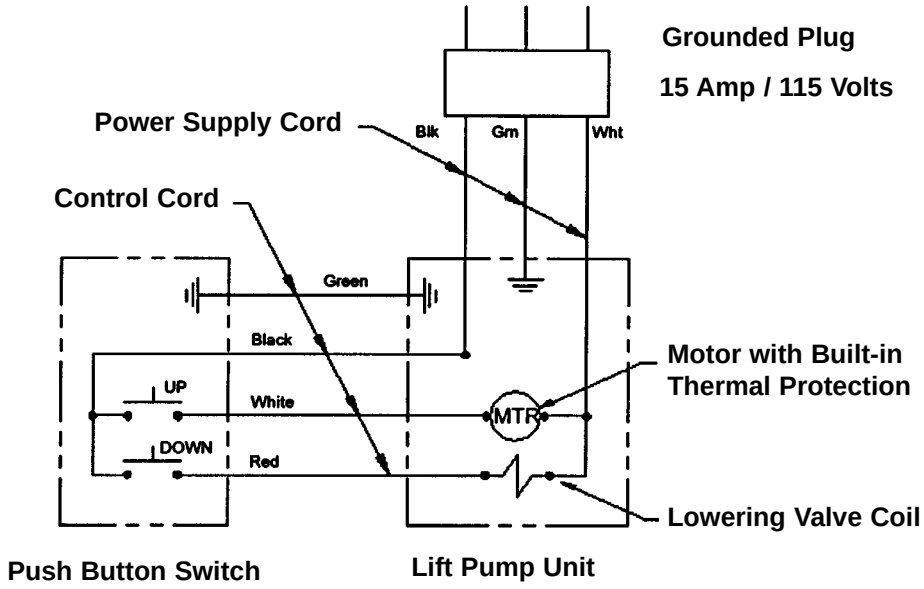


Foot Switch Control

Fig. 17
Intermittent Running Pump Units
Single Phase, 115 Volts

DANGER

The lift's electrical circuits use voltages which can cause severe injury or death, **DO NOT WORK WITH THE ELECTRICAL PARTS UNLESS YOU ARE A QUALIFIED ELECTRICIAN!**

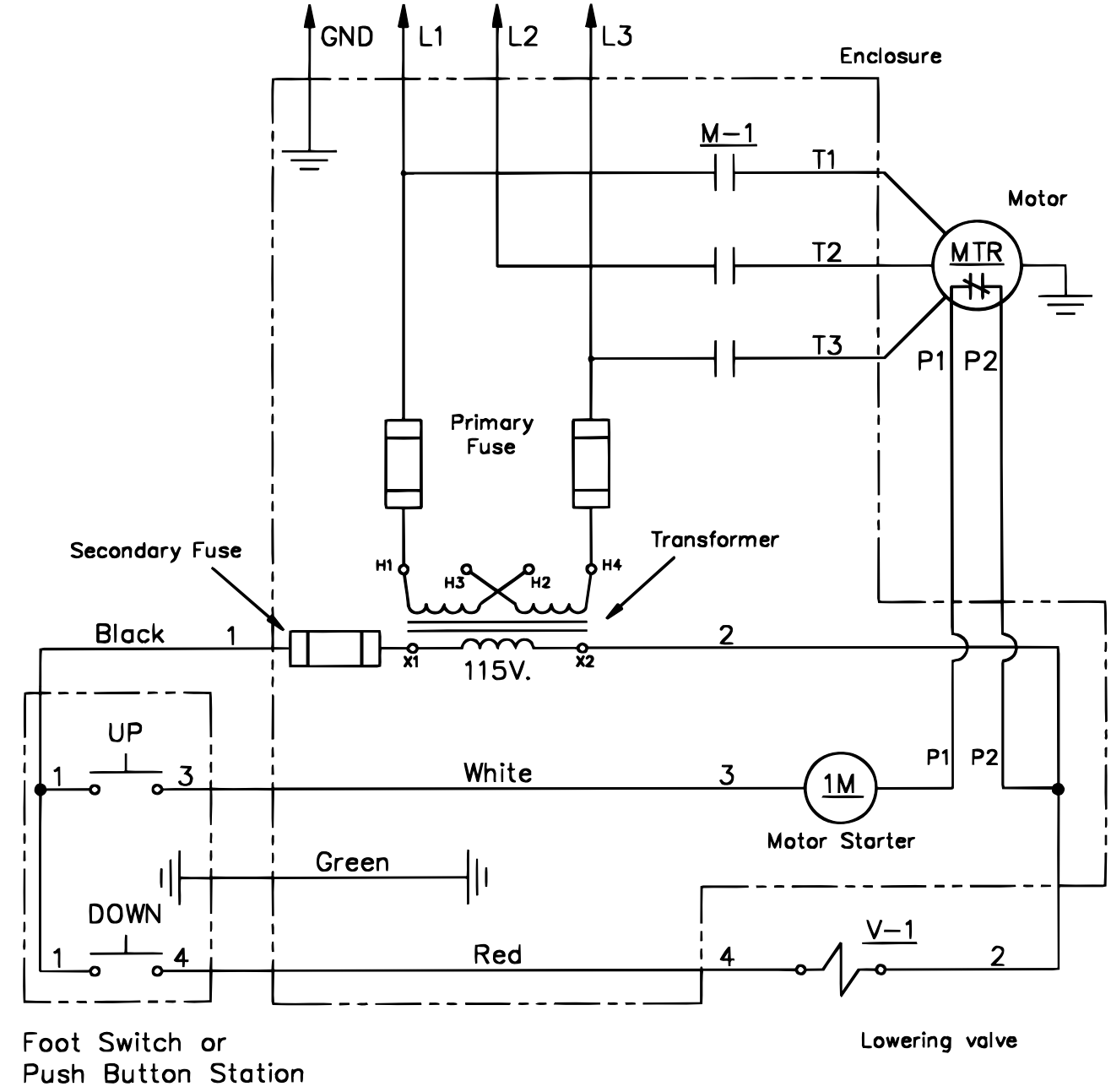


Push Button Control

Fig. 18
Intermittent Running Pump Units
Single Phase, 115 Volts

DANGER

Before cleaning or servicing disconnect power supply.



Foot Switch or Push Button Control

Fig. 19
Intermittent Running Pump Unit
Three Phase, 230/460 Volt with 115V Control.

Limited Warranty

American Lifts warrants that goods shall be free of defects in parts or workmanship for twelve (12) months following receipt of goods. Defective parts shall be replaced by American Lifts, FOB its manufacturing plant. This warranty shall not extend to labor required to repair goods or replace defective parts, or related shipping costs.

Except where stated above, American Lifts makes no other warranties, either express or implied, including the warranty of merchantability, and disclaims the same.

No action by the buyer arising out of this sale shall be commenced later than one year after the cause of action has occured. No consequential damages shall be allowed either in the event of nonconformity or non-delivery of goods.

Rejection of nonconforming goods must be made by buyer in writing within seven (7) days of receipt of goods and all defects ascertainable at time of giving notice shall be stated with particularity or be deemed waived.

If the goods, or any replacement parts are damaged in shipment, the buyer should file a claim immediately with the carrier who delivered the equipment or replacement parts.

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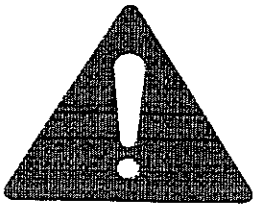

WARNING

FOR SCISSOR LIFTS

1. Do not operate this scissor lift unless you have training and authorization.

2. Read, understand, and follow these instructions, the hazard warnings on the scissor lift, and the warnings / instructions contained in the owner's manual.

3. Never go under the scissor lift unless the maintenance device is engaged in accordance with manufacturer's instructions.

4. Prior to using the scissor lift:
   - Verify that all safety devices supplied with scissor lift (guard rails, restraint chains, toe guards, and warning bells if so equipped), are in place and functioning properly.
   - Operate the scissor list through one complete lift / lower cycle and verify it proper operation. At the same time, inspect scissor lift for any visible or obvious damage. If there is any damage, or unusual vibration or noise, remove the lift from service using approved lockout procedures. Notify maintenance personnel immediately.

5. Do not exceed the lift's capacity as stated on the nameplate and center loads on the lift. Be aware that the lift may have reduced capacity when loads are rolled over the platform sides or ends. Refer to nameplate for reduced capacity under these conditions.

6. If load(s) is mobile, secure load in a fixed position before operating lift.

7. Prior to operating the lift, ensure that all personnel on or near the lift are aware of its imminent operation, and that no person will be in harms way during the use of the lift.

8. Ensure that objects are clear of the areas beneath the platform, and immediately surrounding the perimeter of the lift, while it is in use.

9. Keep area around the lift free of oil, objects, and debris that could cause slipping or stumbling into or under the lift.

10. If lift is equipped with a hinged bridge(s), bridge must overlap truck bed a minimum of 4" (100mm) before use. Do not use bridge if it is supported solely by its lifting chain.

11. If maintenance or service is required:
    - Only authorized service personnel shall provide maintenance / service on the lift.
    - Follow approved lock out procedures.
    - Do not work on or under the lift without properly engaging the lift's maintenance device.
    - The lift shall not be modified or altered without the written permission of the original manufacturer.