

American Lifts™

Hydraulic Tilter Series *TM, TML, TM1A, TM2B, TM2E* *Operating & Maintenance Instructions* *With Illustrated Parts* *List Publication Part No. 024850*



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

	Page
Section I General Information	
Introduction	2
Safety Information	2
General Tilter Specifications	3
Unbalanced Loads	4
Operating Characteristics.....	4
Section II Installation and Operation.....	5
Section III Trouble Shooting.....	6
Section IV Lubrication and Maintenance	7
Section V Parts Identification.....	9-17
Section VI Hydraulic Schematics and Wiring Diagrams.....	18-26
 List of Figures:	
Figure 1: Anchor Installation	5
Figure 2: Tilter Block Up	8
Figure 3 & 4: TML Mechanical Components	9
Figure 5: TM-_ -060 Mechanical Components	10
Figure 6: TM1A Mechanical Components	11
Figure 7: TM2B Mechanical Components	12
Figure 8: TM2E Mechanical Components	13
Figure 9: Hydraulic Ram (TM1A, TM2B, TM2E Tilters only) Parts Identification	14
Figure 10: Standard Pump Unit with Integral Lowering Valve.....	15
Figure 11: Standard Pump Unit with External Lowering Valve.....	15
Figure 12: Parts Identification of Pump with Integral Lowering Valve	16
Figure 13: Parts Identification of Pump with External Lowering Valve.....	17
Figure 14: Elec. Schematic TM/TML Three phase, PB control	18
Figure 15: Elec. Schematic TM/TML Three phase, FS control	19
Figure 16: Elec. Schematic TM/TML Single phase, PB control	20
Figure 17: Elec. Schematic TM/TML Single phase, FS control.....	21
Figure 18: Elec. Schematic TM1A, TM2B, TM2E Three phase	22
Figure 19 & 20: Elec. Schematic TM1A, TM2B, TM2E Single phase	23
Figure 21: Hyd. Schematic TML.....	24
Figure 22: Hyd. Schematic TM-_ -060.....	25
Figure 23 & 24: Hyd. Schematic TM1A, TM2B, TM2E.....	26
Limited Warranty Statement.....	27

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

Model Number: _____ Serial Number: _____ Installation Date ___/___/___

Section I. Introduction

Safety First: Read this manual before use of this unit. Important safety information will follow which should be adhered to. Pay particular attention to the SAFETY INFORMATION highlighted by this symbol



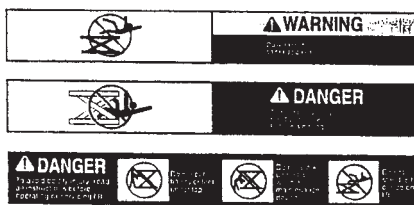
Following this symbol are CAUTION, WARNING or DANGER safety instructions. Failure to comply with safety instructions may result in personal injury or death.

Safety statements are incorporated in this manual to help reduce the number of industrial injuries that occur each year. Please read and follow all safety warnings and operate your tilter in a safe manner.

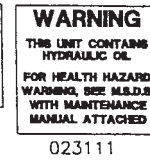
Tilters are primarily designed for tilting of containers. Although customers may visualize other uses for these devices American Lifts will not be held responsible for personal injury or property damage due to misuse or neglect of this equipment. The statements set forth in this document are not necessarily all inclusive, and all conceivable or unique situations may not be considered. If unique applications arise, American Lifts can help address these needs.

Safety Information:

Decals are installed on the tilter to advise the user of important safety information. If any of these decals should become damaged, or illegible, replace them.



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The severity 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 injury or property damage.

WARNING

Ensure that the path of the tilter 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 tilter. Use approved lockout/tagout procedures and contact qualified maintenance personnel immediately.

As tilter 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 result.

Danger, Warning and Caution labels on the tilter are there for safety of the operators. If any label is damaged, missing or obscured, replace it before resuming operation.

Ensure that hydraulic and electrical lines will not be pinched as tilter raises, lowers or is rolled along floor. If a line becomes pinched the tilter will not operate properly. Pinching a hydraulic line may cause a line rupture and the tilter to fall suddenly. If an electrical line is ruptured, personal injury or death may occur.

Section I. Introduction - Continued

WARNING

Read the motor nameplate and record the motor full load current. Consult local electrical codes for power supply fusing requirements. To avoid fire hazards, follow these fusing requirements.

Do not stand on tilter. This unit is not intended for transporting people.

If an hydraulic fluid spill occurs, clean up the fluid immediately. The fluid can present a fire hazard as well as a slipping hazard.

Hydraulic fluid under pressure can cause personal injury. Use care whenever disconnecting hoses or fittings. Release the hydraulic pressure first.

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

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 TILTER. See the specification sheet for load ratings unless rating label on the tilter states otherwise.

DANGER

Do not stand in front of tilter while tilting in case the center of gravity of the load shifts. This could result in serious injury or death. Ensure the container being tilted is capable of supporting the load in the tilted position.

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 tilter. Require these operators to use this manual prior to installing, operating, or servicing the unit.

Unauthorized modifications to the tilter, its hydraulic power unit or its control system may compromise the performance and safety of the tilter system. **Under no circumstances** should anyone attempt any repair or servicing that is not covered in this manual.

Specifications

Capacity:

TM1A-45-020 _____	2000 lbs.
TM2B-45-040 _____	4000 lbs.
TM2E-45-060 _____	6000 lbs.
TML-90-020 _____	2000 lbs.
TML-90-040 _____	4000 lbs.
TM-90-060 _____	6000 lbs.

Tilt Times in Seconds Up Down
(Standard Pump Unit in parenthesis)

TM1A-45-020 (1/2 hp) _____	20	5
TM2B-45-040 (1 hp) _____	25	6
TM2E-45-060 (1 hp) _____	35	10
TML-90-020 (1 hp) _____	45	35
TML-90-040 (1 hp) _____	45	35
TM-90-060 (1 hp) _____	85	60

Pendant push button or Footswitch is standard.

Section I. General Information - Continued

A label stating the load capacity rating and serial number of the tilter is attached to tilter platform. The tilter serial number is stamped on a corner of the base frame also. Overloading the tilter may result in damage to the tilter and possible personal injury to the operator.

DANGER

Ensure the tilter is mounted on a stable surface! If the tilter is mounted on an unstable surface, it may tip over when it is in use. This could result in personal injury or death and damage the unit and load.

Unbalanced Loads

For best stability of the tilter, evenly distributed loads are required. Allowances are not made for special load sizes or features. For unbalanced load ratings consult the factory.

Operating Characteristics

The hydraulic system for single acting systems (models TM1A, TM2B, TM2E) consists of a direct coupled motor and pump combination, oil reservoir, solenoid operated lowering valve and all necessary pipes and hoses. On double acting systems a directional valve replaces the lowering valve. The pump is positive displacement type and operates at a design working pressure of less than 2000 psi. A preadjusted, built-in relief valve protects the hydraulic system from damage due to high pressure.

The operating principle provides that the pump is stopped when the table attains the desired elevation. A check valve and/or lowering valve between the pump and ram holds the tilter at elevation. For lowering to any desired level, the solenoid valve is energized to allow fluid to return from the hydraulic cylinder to the reservoir.

A pressure compensated flow control valve is connected to each hydraulic cylinder to control the down speed at a predetermined rate under all load conditions.

Pump units of double acting hydraulic systems (TML series) have adjustable flow controls located at the manifold.

DANGER

The tilter's electrical components can create sparks. DO NOT install the tilter 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.

Section II. Installation and Operation

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

Tilters designed to be surface mounted are built with the decks welded or bolted on and should not be lifted by the deck or top frame.

Caution: Lifting by the deck may result in damage to the deck.

If shipping damage has occurred, consult the factory on advice as to whether repairs may be made on the site or the unit may need to be returned to the factory for repairs. Inspect all hydraulic lines and electrical lines for damage. The tilter is usually shipped on a pallet. If your tilter was designed to be pit mounted, the platform or deck can be lifted off the top frame after removing the screws located on top of the platform or deck. The tilter 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.

The floor and anchor system must be designed for a tension load of at least three times the tilted load. The installer must take into account floor strength and anchor bolt strength to meet this requirement.

See figure 1 for bolt installation procedure.

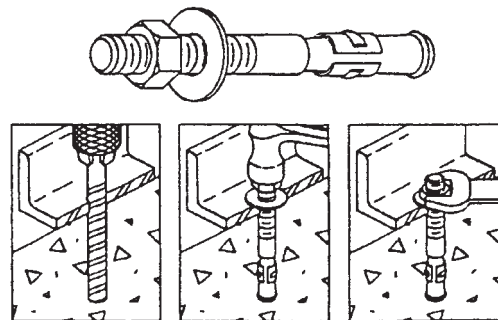
⚠ DANGER

Do not operate the tilter before anchoring to the floor. The tilter may overturn causing severe injury or death.

To Install Anchor Bolts Refer To Manufacturers Instructions.

Recommended concrete anchor bolts are: HILTI “Kwik-Bolt”, Molly Parabolts 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.



Anchor Installation

Figure 1

Section II. Installation and Operation continued...

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 tilter is pit mounted, position the tilter and align carefully so that 1" clearance is maintained between the platform deck and the pit wall of the two sides and the end opposite the pivot end. The pivot end of the pit mounted tilter normally requires extra clearance for the secondary deck (lip) to nest flush to the floor in the tilted up position. Level the unit and place solid shims under the base frame.

Run the unit through several cycles to check for proper unit function.

The load capacity is listed on the unit . Do not exceed this stated load. This tilter is designed for an evenly distributed load. Tilting an uneven load may cause the unit to overturn.

(End of Section II.)

Section III. Troubleshooting/Service Procedures

If unit does not run properly follow this trouble shooting guide:

1. Unit will not tilt up:
 - Check electric circuit (see Section VI.).
On new installations of 3-phase motors, if tilter does not start tilting in approximately 10 seconds, reverse the two power supply leads to reverse pump rotation.

CAUTION

Do not run pump backwards for more than 10 seconds

- Check hydraulic fluid level

CAUTION

Do not overfill reservoir

Fluid level should remain below return line when tilter is in down position.

2. Unit tilts slower than specified rate or tilts only partial load

- Check line voltage under load condition. Low voltage affects capacity
- If foam is visible in tank oil, check for a loose connection in suction line between pump and tank. Tighten loose connections

3. Unit will not lower:

- Check for mechanical restrictions
- Check voltage to directional or lowering valve coil

Section III. Troubleshooting/Service Procedures continued...

4. Tilter slowly settles without energizing directional or lowering valve

- Check for external leaks
- Flush lowering valve by cycling tilter up and down. Run cycles unloaded
- If tilter still slowly settles, cartridges for lowering valve and pilot to open check valve can be removed, cleaned and reinstalled

5. Tilter does not lower smoothly.

- Cycle unit several times to purge air from hydraulic system
- On double acting system only, adjust flow controls located in manifold.

(END OF Section III).

Section IV. Lubrication and Maintenance

 **DANGER**

**BEFORE CLEANING OR SERVICING
DISCONNECT POWER SUPPLY**

 **DANGER**

Before beginning any work on tilter, unload the unit and ensure the unit is completely lowered. Follow lockout and tagout procedures on the controls. If maintenance must be done inside tilter then block top frame up as shown in Figure 2 on page 8.

American Lifts recommends that 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 inspection is largely proportional to actual service duty, environment, and application. It is advisable to inspect the tilter following a prolonged period of idleness under severe environmental conditions. All joints are provided with self lubricating bearings.

Inspection shall include careful examination of all fastenings, pivot pins, 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 tilter, resulting from environment or the materials being handled, the tilter should be cleaned and consideration given to means for the prevention of such conditions.

The preferred pump unit hydraulic fluids are Exxon Univis N-32, Mobil DTE-13 or equivalent.

Section IV. Lubrication and Maintenance (continued)

⚠ 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 all oil from tissues

Do not use fingers or other body parts to check for leaks

Lower load or relieve hydraulic pressure before loosening fittings

Since 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 temperatures over 150°F.

Inspect hydraulic lines and components for leaks.

⚠ 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

If temperatures over 150° F are unavoidable a fluid of higher viscosity may be required such as Mobil DTE-15.

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.

⚠ DANGER

Before beginning any work on tilter, unload the unit and ensure the unit is completely lowered. Follow lockout and tagout procedures on the controls. If maintenance must be done inside tilter then block up the tilter as shown below in figure 2

Below is a **concept** of blocking the tilter top frame. Applications vary and one solution does not fit all. **It is recommended that maintenance personal carefully consider blocking options prior to working inside the tilter.**

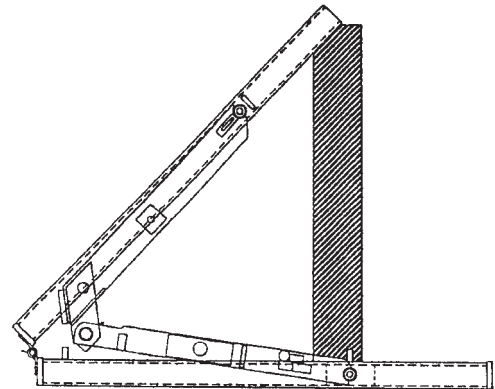


Figure 2: Blocking Concept for Tilters

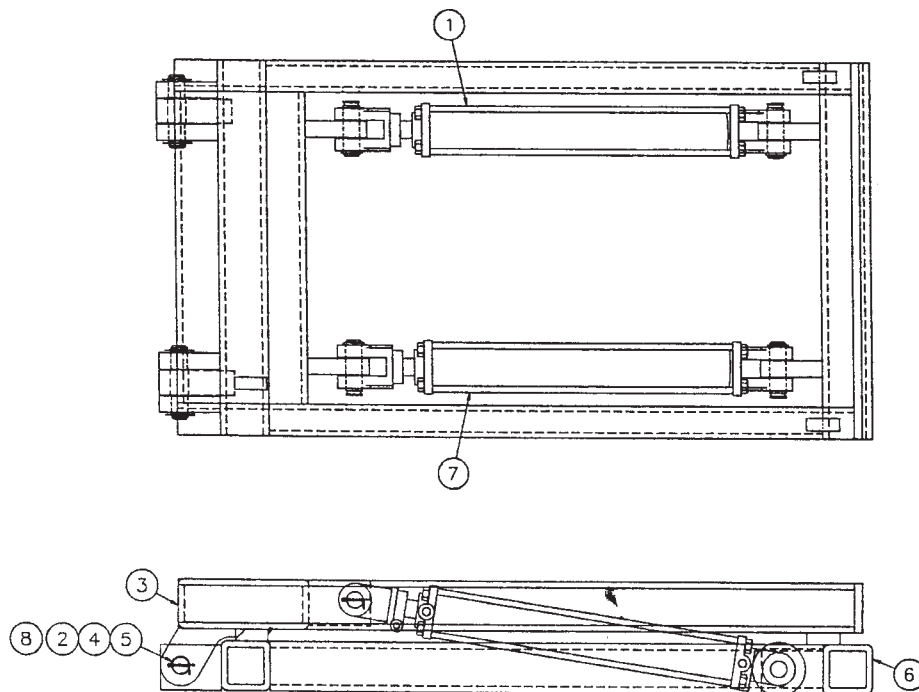
Section V. Parts Identification

⚠ DANGER

If replacing hydraulic cylinder(s), block up the top frame of the tilter to prevent the top frame from falling. If cylinder(s) are removed from tilter and top frame is not blocked up, the top frame will fall causing serious injury or death.

Refer to Figures 3 and 4 below for Item Identification
 Parts List of Major Mechanical Components
 TML-__-040 and TML-__-020

Item#	Description	Part No.	Qty
1	Hyd. Cylinder	020207	1
2	Cotter Pin 3/16 x 1-1/2	002402	4
3	Top Frame	6254402	1
4	Pivot Pin	16045-5	2
5	Bushing	025674	2
6	Base Frame	6254403	1
7	Hyd. Cylinder	021444	1
8	Bushing	025655	4



Figures 3 and 4
 TML Mechanical Components

Section V. Parts Identification continued...

⚠ DANGER

If replacing hydraulic cylinder(s), block up the top frame of the tilter to prevent the top frame from falling. If cylinder(s) are removed from tilter and top frame is not blocked up, the top frame will fall causing serious injury or death.

Parts List of Major Mechanical Components (Reference Figure 5)

TM-__-060

Item#	Description	Part No.	Qty
1	Bushing 1-3/4 x 1	018962	2
2	Bushing 1-3/4 x 1-1/2	001497	2
3	Tilter Pin	TM-04	3
4	Cotter Pin 3/16 x 2-1/2	002404	6
5	Hydraulic Cylinder	023961	1
6	Knuckle Detail	TM-06	1
7	Base Frame	TM-02	1
8	Top Frame	TM-03	1

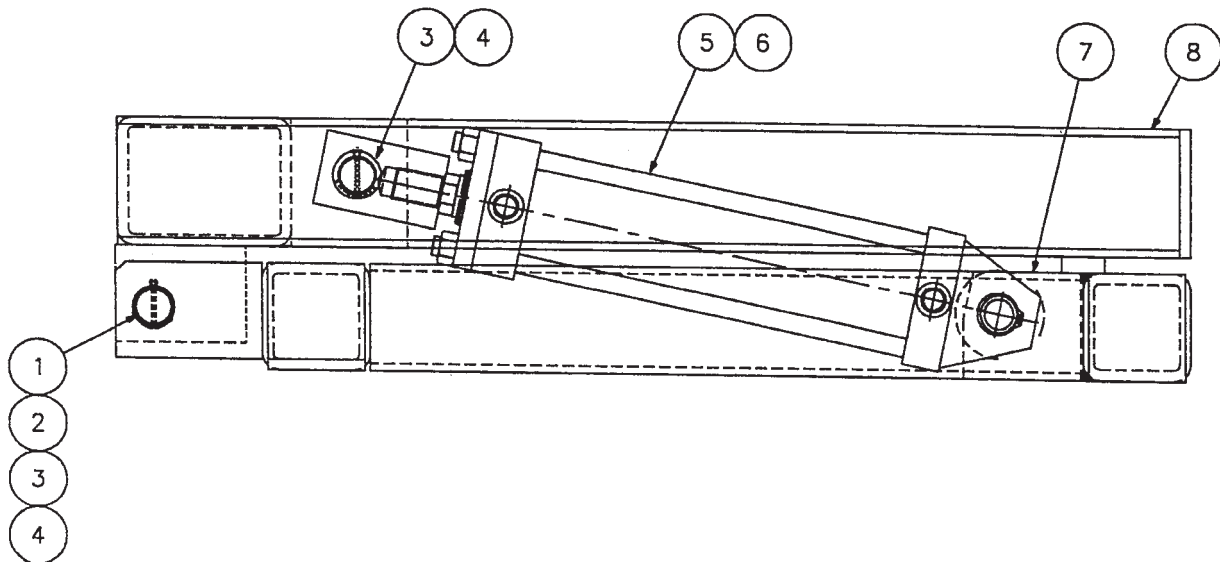


Figure 5
TM-__-060 Mechanical Components

Section V. Parts Identification continued...

Parts List of Major Mechanical Components (Reference Figure 6) TM1A-__-020 Tilter

Item No.	Description	Part No.	Qty.
1	Tilter Assembly w/o Ram	67516	1
2	Roller Chain	002759	2
3	Chain Block	TM1A-02	4
4	Connecting Link	002764	4
5	Hyd. Cylinder	R36-14B29-_____	* 1
6	Cylinder Pin	16065-1	1
7	Pin Keeper	F211-1	2
8	Hex Nut w/washer	003350	2
9	Roll Pin	002358	1

*Note: Cylinder part number depends on degree of tilt of unit. Consult factory for cylinder part number and have degree of tilt ready when ordering the cylinder. The degree of tilt is indicated by the middle number of the tilter model or example, TM1A-45-020 has a 45 degree tilt.

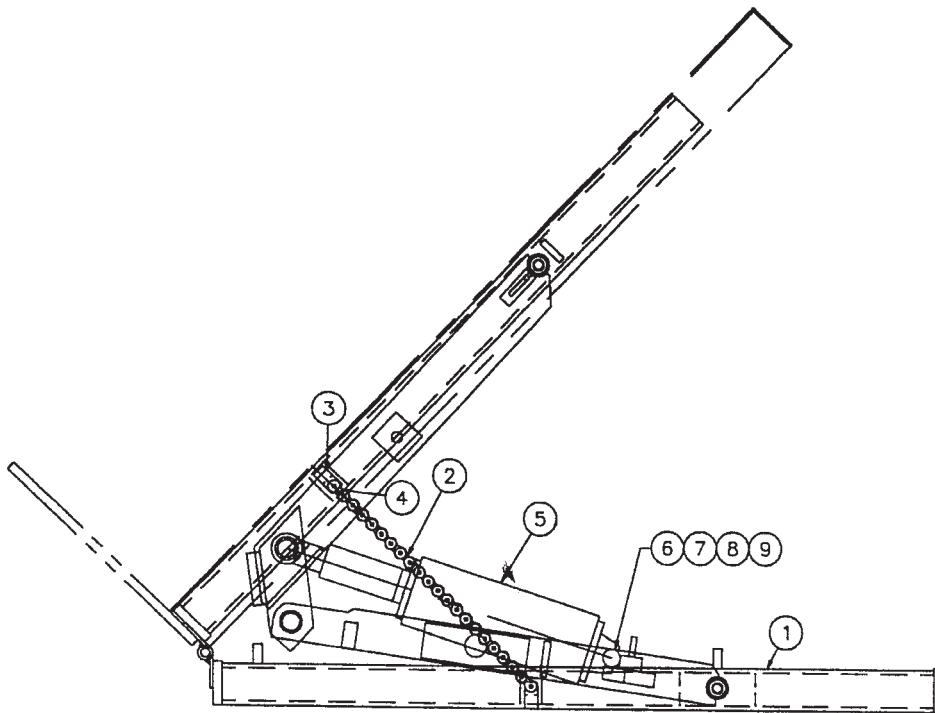


Figure 6
TM1A Mechanical Components

Section V. Parts Identification continued...

Parts List of Major Mechanical Components (Reference Figure 7)
TM2B-__-040 Tilter

Item No.	Description	Part No.	Qty.
1	Chain Block	TM1A-02	4
2	Connecting Link	002764	4
3	Roller Chain	002759	2
4	Hyd. Cylinder	R5618C29-__*	1
5	Bare Tilter w/o Cylinder	67531-01	1
6	Cylinder Pin	20060-1	1
7	Pin Keeper	F111-1	2
8	Hex Nut	003351	2
9	Crosshead Assy	F110-32	1

*Note: Cylinder part number depends on degree of tilt of unit. Consult factory for cylinder part number and have degree of tilt ready when ordering the cylinder. The degree of tilt is indicated by the middle number of the tilter model for example, TM2B-45-040 has a 45 degree tilt.

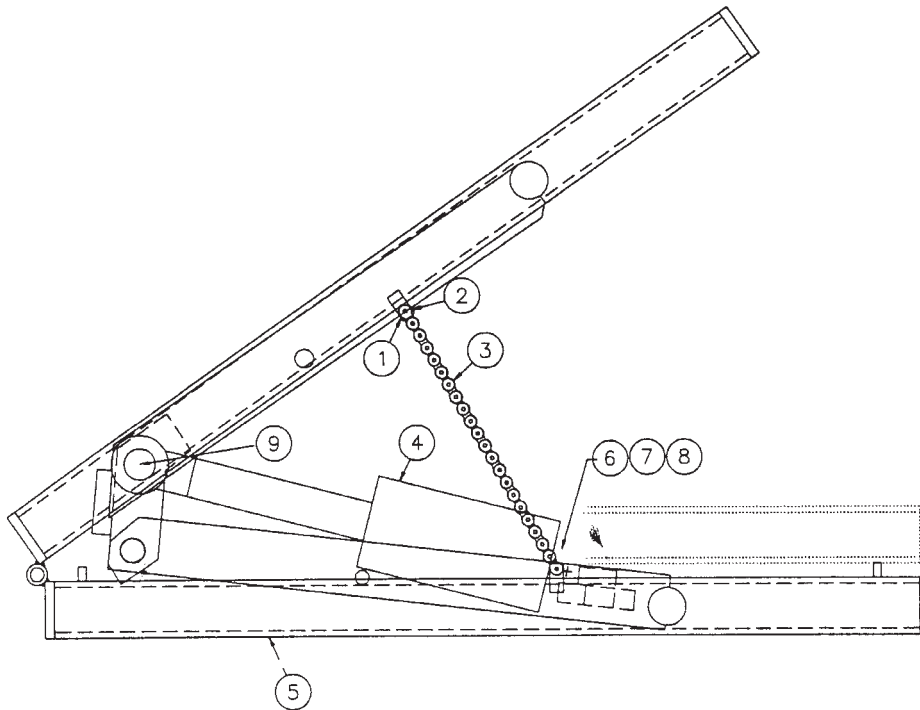


Figure 7
TM1A Mechanical Components

Section V. Parts Identification continued...

Parts List of Major Mechanical Components (Reference Figure 7)
TM2E-__-060 Tilter

Item No.	Description	Part No.	Qty.
1	Chain Block	TM1A-02	4
2	Connecting Link	002764	4
3	Roller Chain	002759	2
4	Hyd. Cylinder	R5919B29-____*	1
5	Bare Tilter Assembly		1
6	Pin Keepers	F111-1	2
7	Pin	20060-1	1
8	Hex nut	003351	2
9	Crosshead Assy	F110-32	1

*Note: Cylinder part number depends on degree of tilt of unit. Consult factory for cylinder part number and have degree of tilt ready when ordering the cylinder. The degree of tilt is indicated by the middle number of the tilter model for example, TM2E-45-060 has a 45 degree tilt.

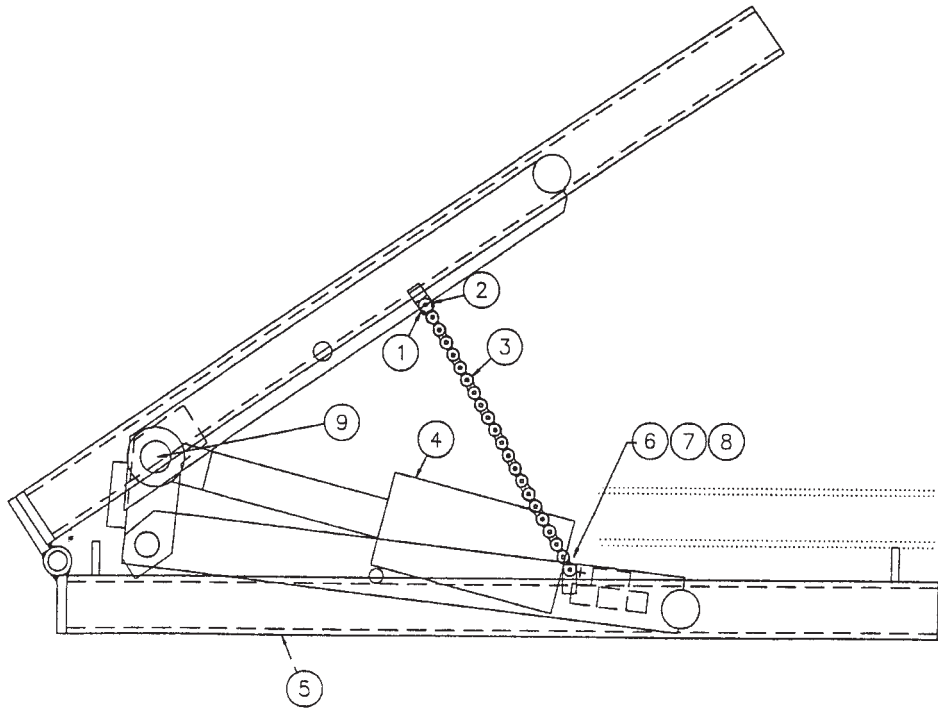


Figure 8
TM2E Mechanical Components

Section V. Parts Identification continued...

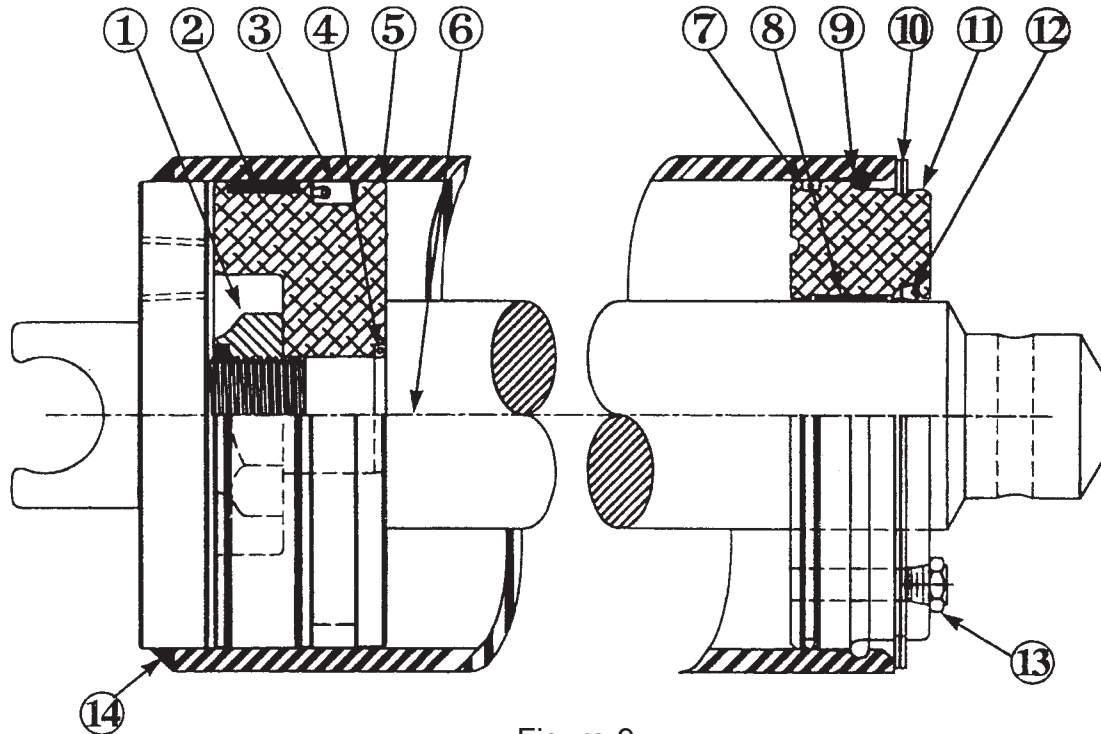


Figure 9

Parts Identification of Hydraulic Ram (Used on TM1A, TM2B, TM2E tilters only)

Item	Description	Item	Description	Item	Description
1	Thin Nut	6	Rod	*12	Wiper Strip
2	Wear Ring	*7	O-Ring	13	Breather Vent
*3	Polyseal	*8	Wear Strip	14	Cylinder Barrel
4	O-Ring	9	Snap Ring	15	Repair Kit (includes
5	Piston	11	Rod Guide		Items 2,3,4,7,8,12)

When ordering parts specify the Cylinder Model Number stamped on the base of the cylinder. A repair kit, reference item 15 above, includes all the items marked by an asterisk.

Procedure to Disassembly Hydraulic Cylinder (single acting only)

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 Assembly Hydraulic Cylinder (single acting only)

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.

Section V. Parts Identification continued...

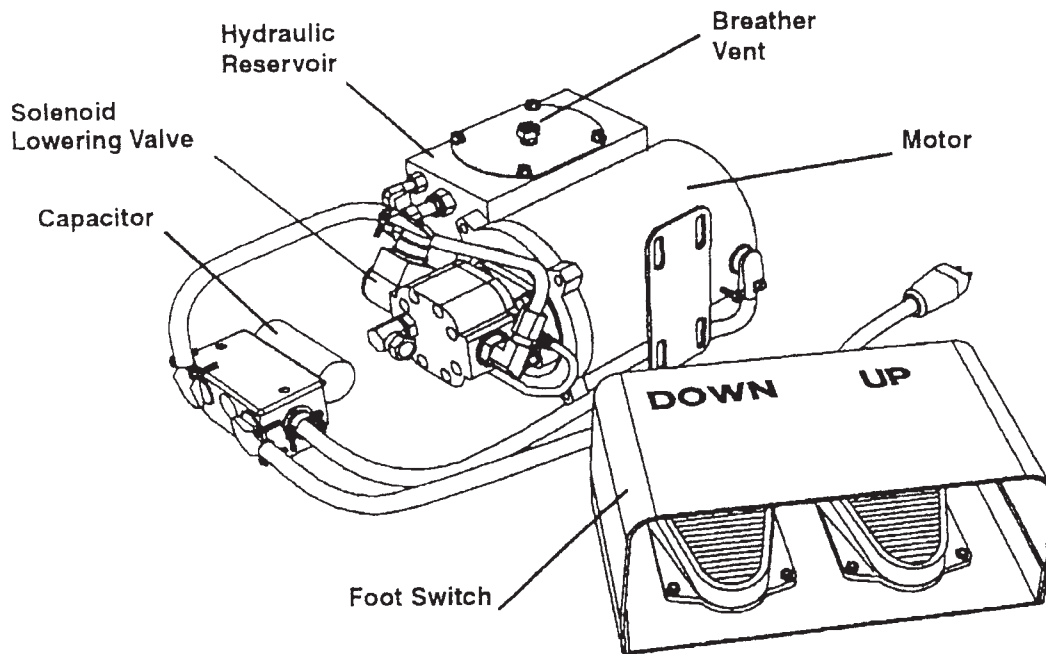


Figure 10
TM1A Series Pump Unit with Integral Lowering Valve

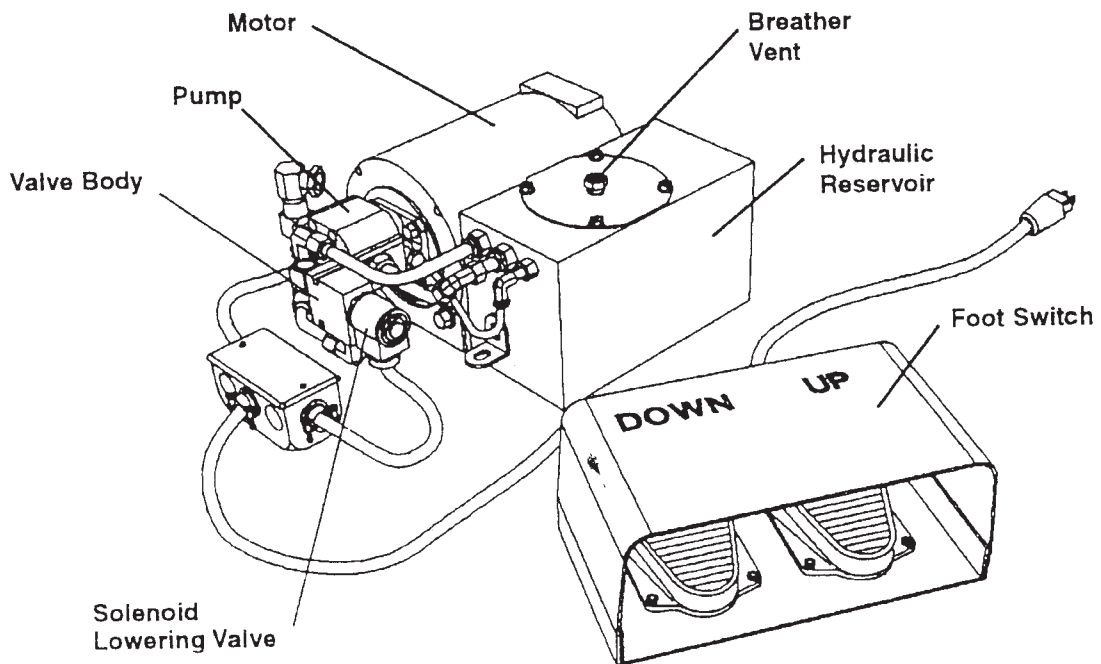


Figure 11
TM2B, TM2E Series Pump Unit with External Lowering Valve

Section V. Parts Identification continued...

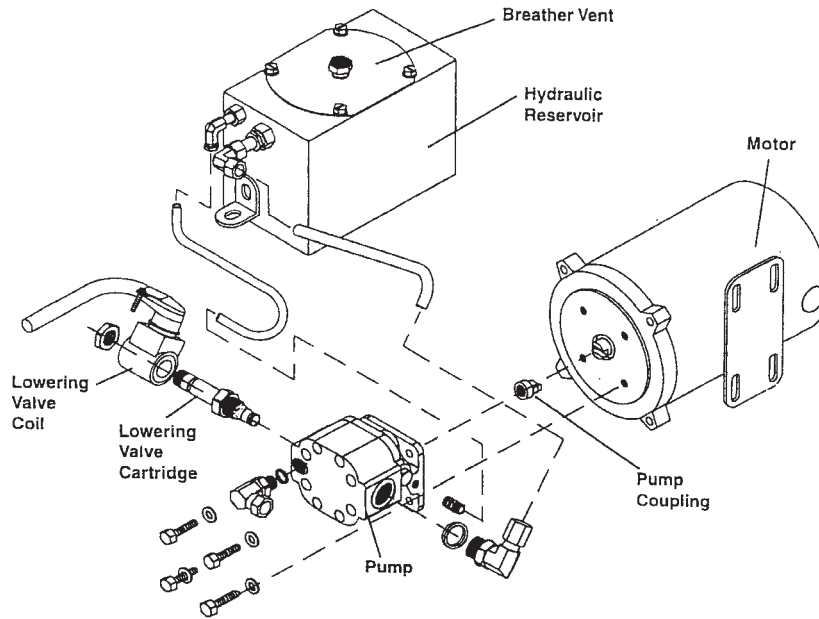


Figure 12
Parts Identification of TM1A Pump Unit with Integral Lowering Valve

Adjustments

⚠ DANGER

DO NOT CHANGE THE SETTING ON THE RELIEF VALVE. If the setting is changed, this may cause the tilter to suddenly fail. Severe personal injury or death may result, and/or the tilter and the payload may be damaged. The hydraulic and structural components of the tilter are designed to withstand 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 tilter.

Service

⚠ DANGER

Block up tilter before servicing the unit.

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

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

⚠ CAUTION

Do not overload 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 up reaching the raise 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, 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 the factory for more information.

Section V. Parts Identification continued...

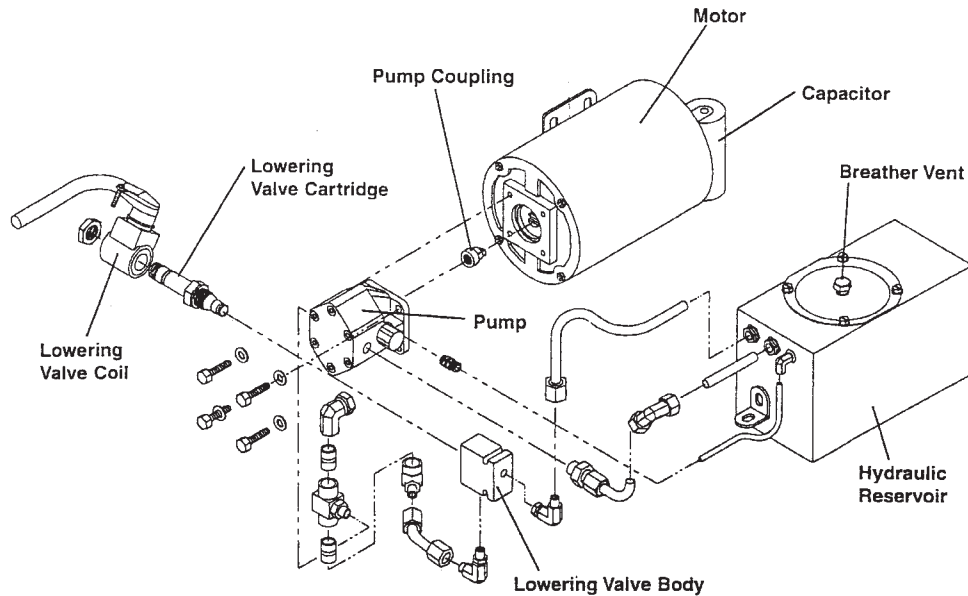


Figure 13

Parts Identification of TM2B, TM2E Pump Unit with Integral Lowering Valve

Adjustments

⚠ DANGER

DO NOT CHANGE THE SETTING ON THE RELIEF VALVE. If the setting is changed, this may cause the tilter to suddenly fail. Severe personal injury or death may result, and/or the tilter and the payload may be damaged. The hydraulic and structural components of the tilter are designed to withstand 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 tilter.

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Do not overload 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 up reaching the raise 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, 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 the factory for more information.

Section VI. Hydraulic Schematics and Wiring Schematics

⚠ DANGER

BEFORE CLEANING OR SERVICING DISCONNECT POWER SUPPLY

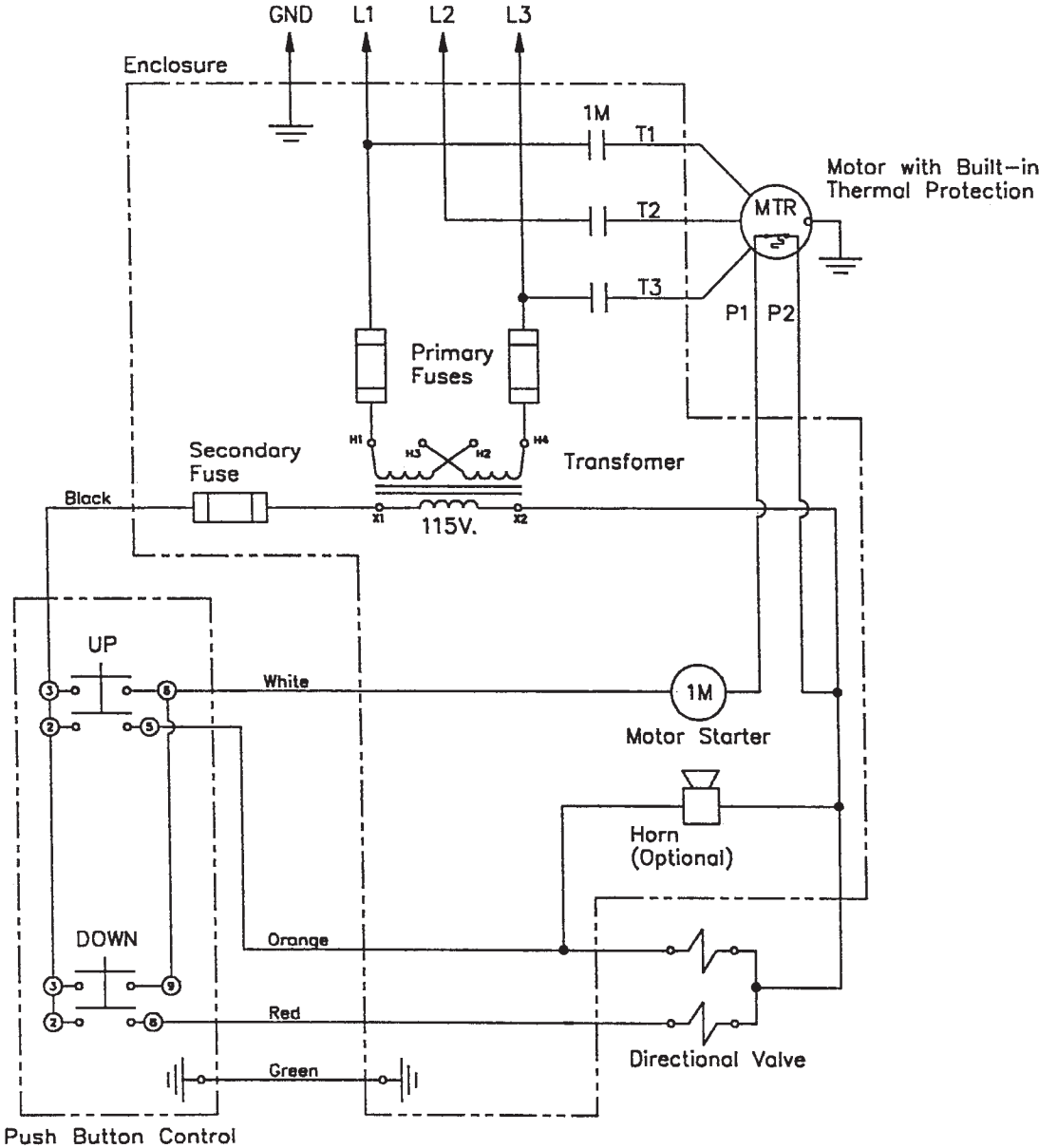


Figure 14
 TM/TML Tilter Series Three Phase, 230/460 Volt
 With 115 Volt Pushbutton Control

Section VI. Hydraulic Schematics and Wiring Schematics continued...

⚠ DANGER

BEFORE CLEANING OR SERVICING DISCONNECT POWER SUPPLY

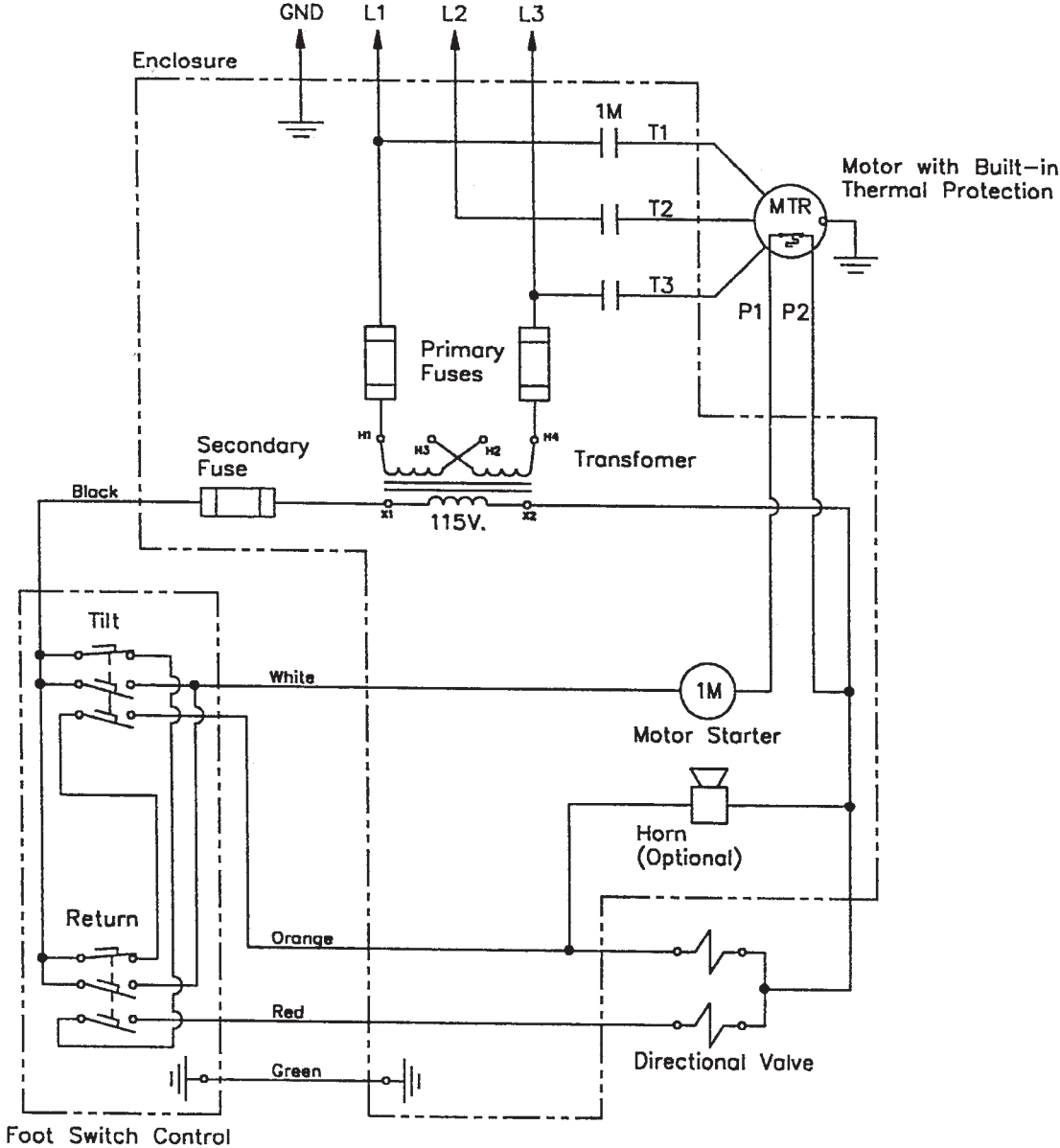


Figure 15
 TM/TML Tilter Series Three Phase, 230/460 Volt
 With 115 Volt Footswitch Control

Section VI. Hydraulic Schematics and Wiring Schematics continued...

⚠ DANGER

BEFORE CLEANING OR SERVICING DISCONNECT POWER SUPPLY

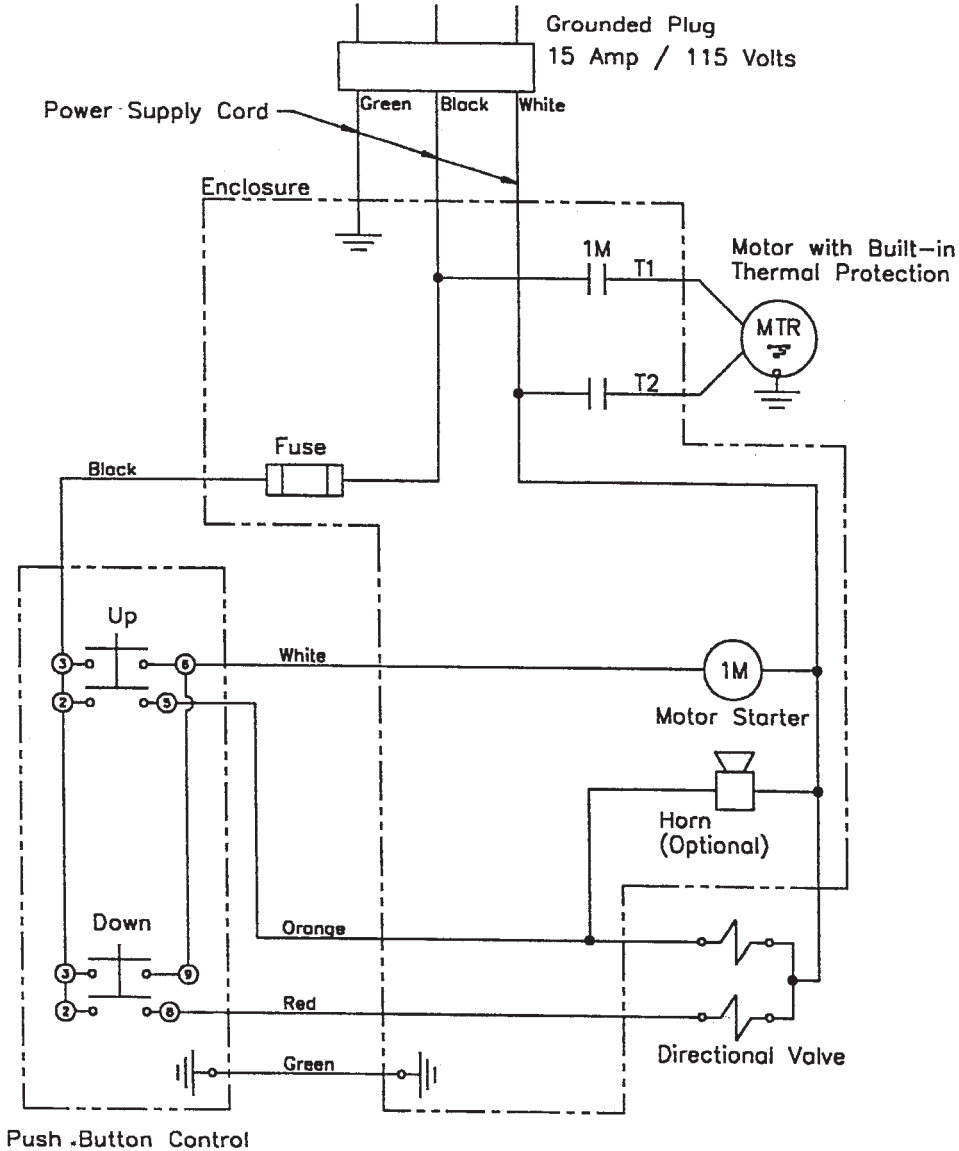


Figure 16
 TM/TML Tilter Series Single Phase
 Pushbutton Control

Section VI. Hydraulic Schematics and Wiring Schematics continued...

⚠ DANGER

BEFORE CLEANING OR SERVICING DISCONNECT POWER SUPPLY

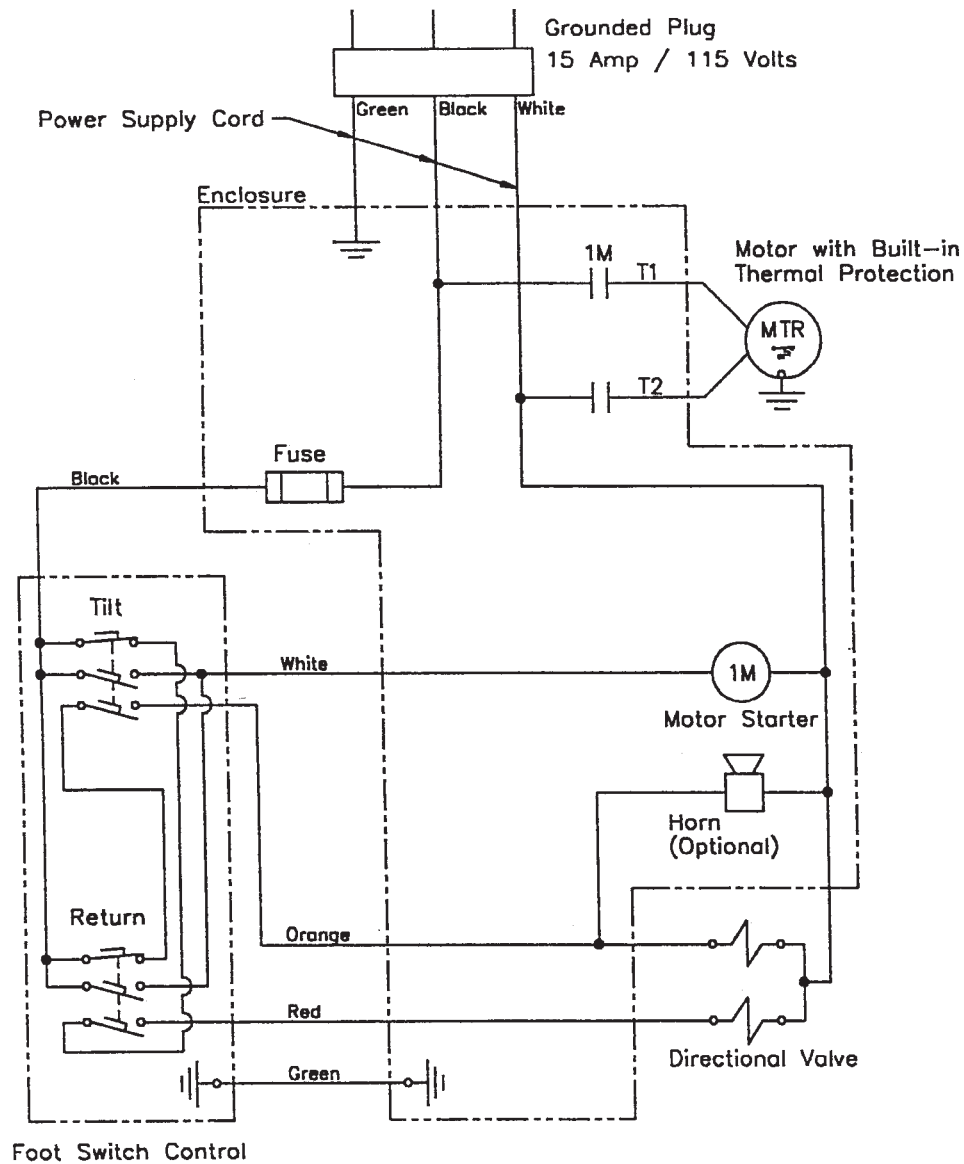


Figure 17
TM/TML Tilter Series Single Phase
Footswitch Control

Section VI. Hydraulic Schematics and Wiring Schematics continued...

⚠ DANGER

BEFORE CLEANING OR SERVICING DISCONNECT POWER SUPPLY

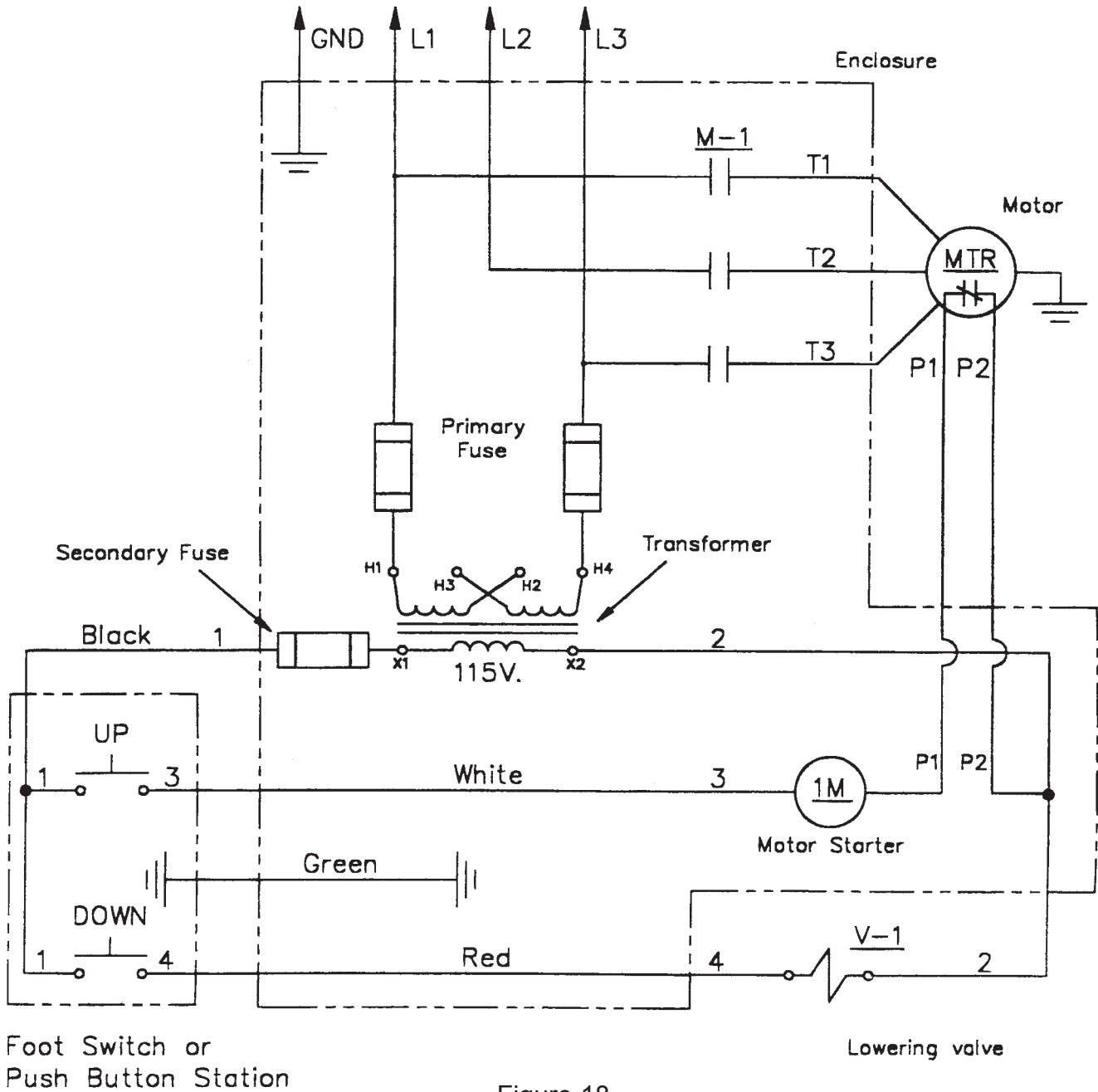
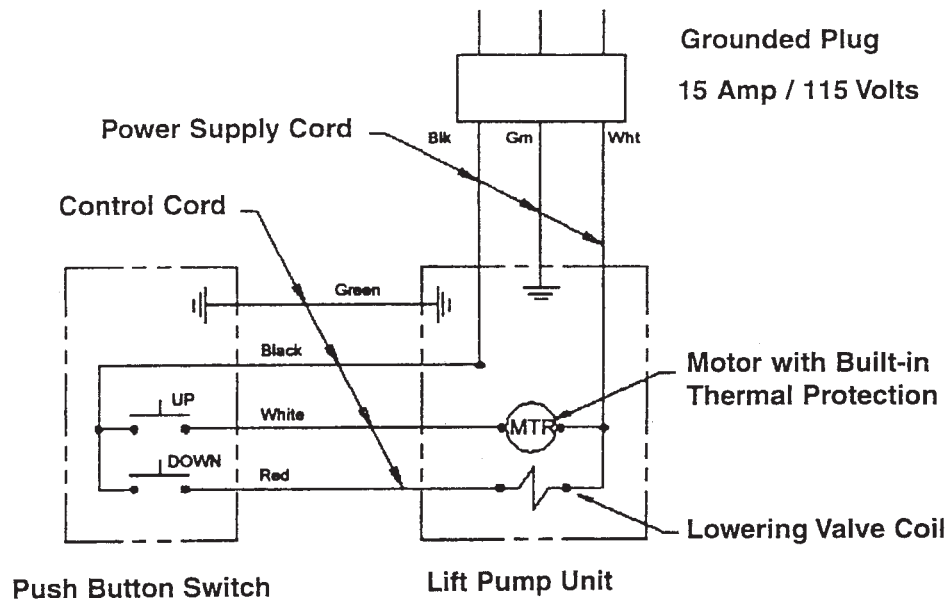


Figure 18
TM1A, TM2B, TM2E Tilter Series Three Phase
Electric Schematic

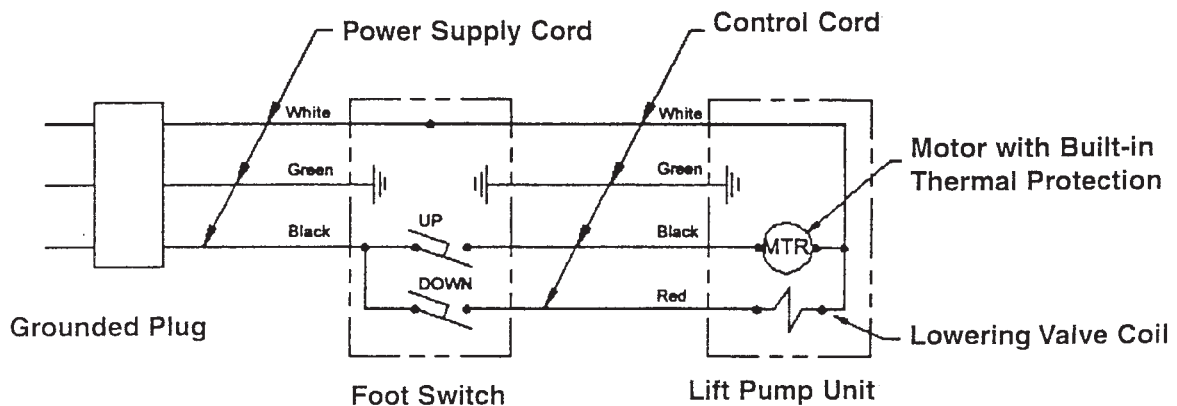
Section VI. Hydraulic Schematics and Wiring Schematics continued...

⚠ DANGER

BEFORE CLEANING OR SERVICING DISCONNECT POWER SUPPLY



Push Button Control



Foot Switch Control

Figure 19 & 20
TM1A, TM2B, TM2E Tilter Series Single Phase
Electric Schematics

Section VI. Hydraulic Schematics and Wiring Schematics continued...

⚠ DANGER

BEFORE CLEANING OR SERVICING DISCONNECT POWER SUPPLY

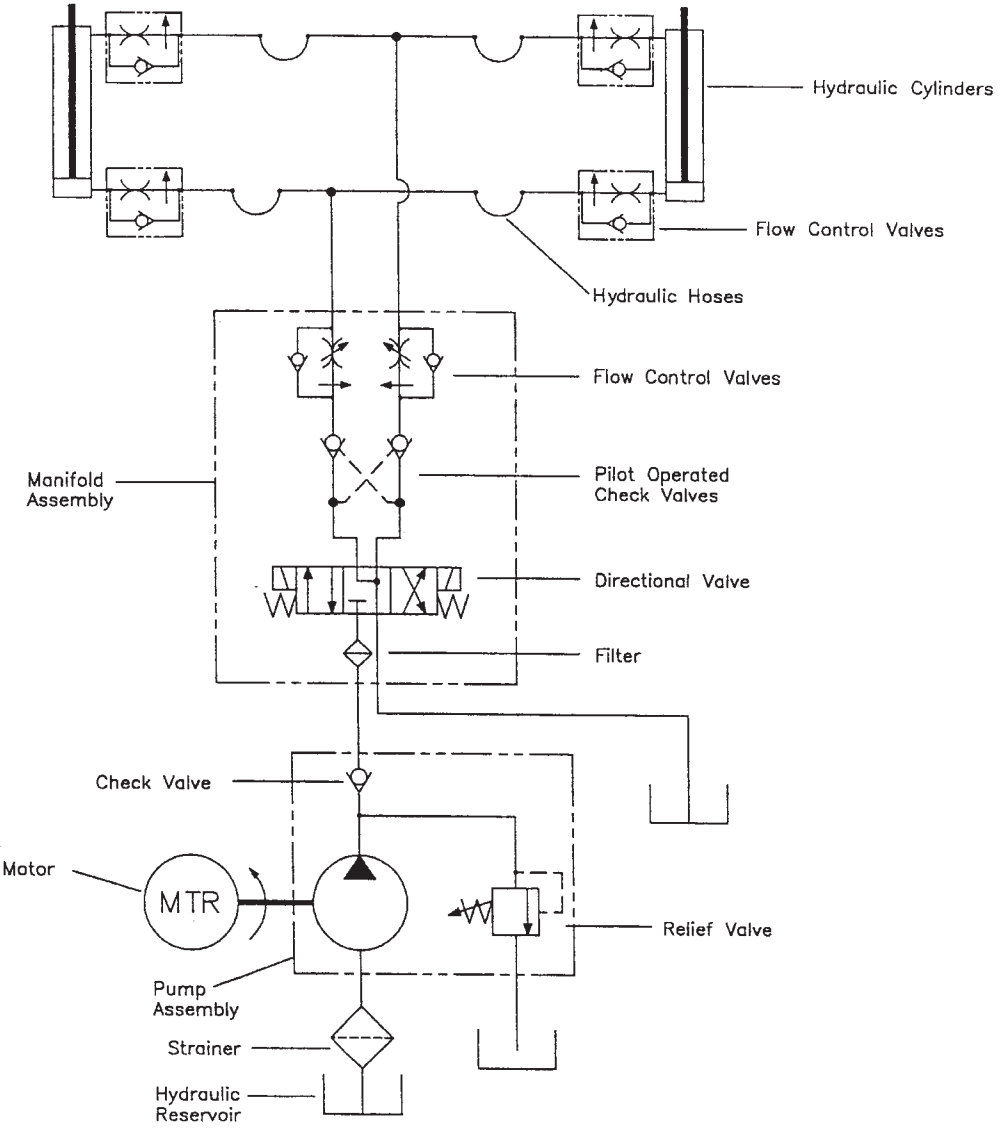


Figure 21
TML Tilter Series
Hydraulic Schematic

Section VI. Hydraulic Schematics and Wiring Schematics continued...

⚠ DANGER

BEFORE CLEANING OR SERVICING DISCONNECT POWER SUPPLY

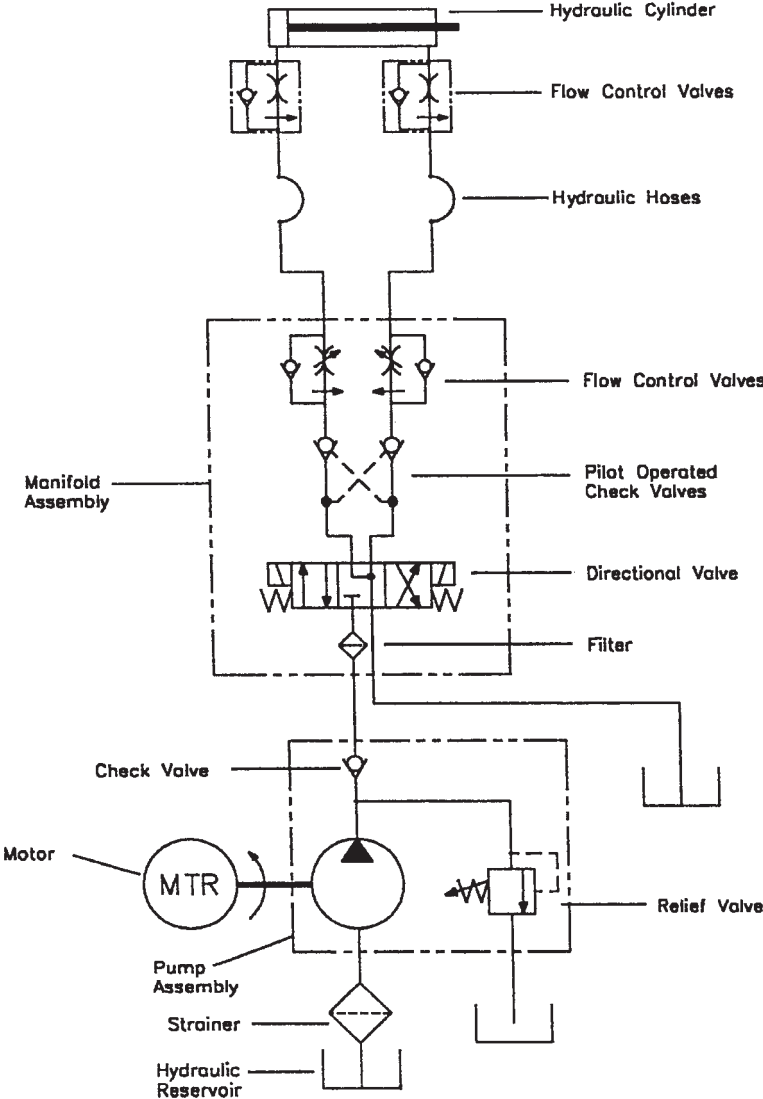


Figure 22
TM-__-060 Tilter
Hydraulic Schematic

Section VI. Hydraulic Schematics and Wiring Schematics continued...

⚠ DANGER

BEFORE CLEANING OR SERVICING DISCONNECT POWER SUPPLY

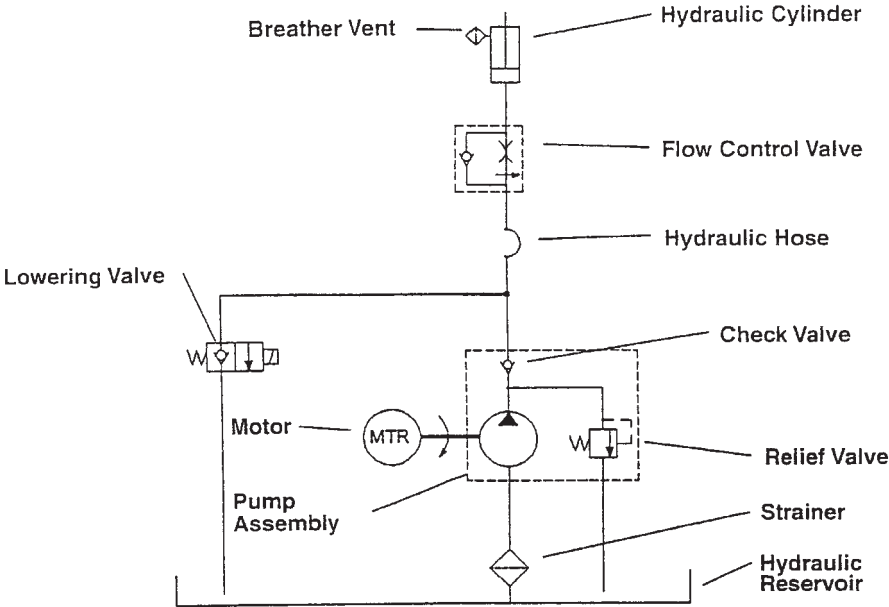


Figure 23: Typical Solenoid Lowering Valve, Normally Closed-TM2B, TM2E Series

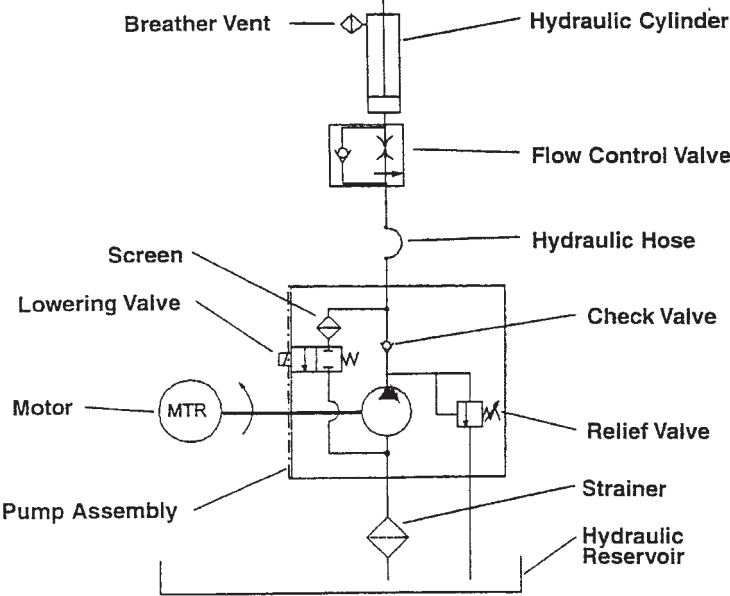


Figure 24: Integral Solenoid Lowering Valve, Normally Closed - TM1A Series Hydraulic Schematic

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 actions has occurred. 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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