

# LPMC-24V

SELF-PROPELLED LIFT TABLE



# LPMC-24V

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**Please fill out and keep this manual on hand for service records**

COMPANY NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_ ZIP \_\_\_\_\_

REPRESENTATIVE \_\_\_\_\_

TELEPHONE \_\_\_\_\_

PURCHASED DATE \_\_\_\_\_

SERIAL NUMBER \_\_\_\_\_

PURCHASED FROM \_\_\_\_\_

TELEPHONE \_\_\_\_\_

## **WARNING**

Do not operate this lift table unless you have been trained and authorized to do so, and have read all warnings and instructions in operator's manual and on the lift table.

Do not operate this lift table until you have checked its condition. Give special attention to electrical system, lift system (including limit switches), guards and safety devices.

Operate lift table only from designated operating position. Never place any part of your body into the structure. Keep feet clear of lift table.

Do not overload lift table. Check capacity plate for load weight and loading information.

Before lifting, be sure load is centered.

Do not handle unstable or loosely stacked loads. Use special care when handling long, high or wide loads.

Watch out for obstructions, especially overhead.

Do not lift personnel.

Do not allow anyone to place any part of their body into or under the lifting mechanism.

When leaving lift table, fully lower lifting mechanism. When leaving lift table unattended, also disconnect power.

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## SECTION 1 DESCRIPTION

### 1-1 INTRODUCTION

Welcome to the LPMC-24V - a member of the Lift Products family of quality mobility products. We know you will be depending on it, so we have taken great care to make it completely reliable. This owner's manual is designed to help you get the most out of your table and includes very important safety and care information. Please read it thoroughly and keep it handy for reference. Thank you for choosing the LPMC-24V.

Information in this manual is based upon specifications in effect at the time of publication. Lift Products reserves the right to make changes at any time without notice.

Be sure to complete the Product Service Information box on the inside front cover. This will be your record of important information, which will help you if your LPMC-24V ever requires service. When seeking repair parts while your LPMC-24V is under warranty, a copy of your bill of sale may be requested to verify warranty status. This publication describes the Self-propelled Lift Table Series manufactured by Lift Products, Inc., Elm Grove, Wisconsin 53122-0349. Included are operating instructions, planned maintenance instructions, lubrication procedures, maintenance instructions, and parts list with parts location illustrations.

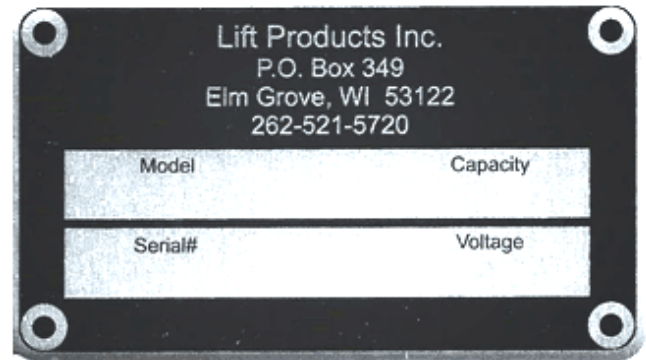
For maintenance instructions not contained in this publication, contact Lift Products Customer Service. Be prepared to give the model number, serial number, lifting capacities and lift travel of your table.

The model number, serial number and lifting capacities are stamped on the name plate (Figure 1-1). The lift travel can be determined by subtracting the lowered height from the elevated height.

**Users shall comply with all requirements indicated in current edition of A.N.S.I. MH29.1. By following these requirements and the recommendations contained in this manual, you will receive many years of dependable service from your lift table.**

Figure 1-2 shows the location and identification of the decals. Also listed is the touch-up paint as well as the location of the name plate. Figure 1-3 shows the locations of lift table main components.

**NOTE:** The user shall see that all name plates and markings are in place and are maintained in a legible condition.



### 1-2 GENERAL DESCRIPTION

The lift tables have been designed primarily for indoor applications. All models are similar in design but differ in capacity, lift height and platform size.

The lift and lower motion is controlled by a control box attached by a cord. The control box is mounted on a magnet for easy attachment to a convenient location.

### 1-3 SAFETY

**SAFETY FIRST!** To prevent accidents which can cause injury to you, damage the LPMC-24V or damage your cargo, observe the following rules:

#### **READ THE OWNERS'S MANUAL BEFORE OPERATING THE LPMC-24V.**

1. Read and understand this owner's/operator's manual before operating the LPMC-24V.
2. Read and understand all safety instructions provided with the LPMC-24V.
3. Only trained personnel should be allowed to use the LPMC-24V. All persons using the LPMC-24V must read this owner's/operator's manual.
4. The LPMC-24V has a maximum load capacity listed on the lift. Do not exceed the rated capacity for your model.
5. Do not travel up or down inclines greater than 6°.
6. Always turn the key switch off before loading or unloading the LPMC-24V.
7. Always take corners slowly and with caution to prevent the load from shifting.
8. Do not travel sideways across inclines.
9. Do not stop the LPMC-24V on an incline.

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10. Always park, load and unload on a flat, level surface.
11. Do not go up and down curbs. Only the operation the LPMC-24V on smooth surfaces.
12. Always unplug the batteries before making any adjustments or repairs to the LPMC-24V.
13. Always load the LPMC-24V evenly, distributing the load to prevent tipping.
14. Do not defeat any safety equipment on the LPMC-24V.
15. Do not use the LPMC-24V to push or pull objects or other lift tables.
16. Do not operate the LPMC-24V in wet environments.
17. Do not expose the LPMC-24V to high temperatures. The LPMC-24V is battery operated. Batteries may be severely damaged if exposed to high temperatures.
18. Do not operate the LPMC-24V with a broken wheel or broken or bent caster.
19. Use extreme caution when operating the LPMC-24V near doorways, in hallways and near stairwells. Reduce speeds in these areas.
20. Do not manually release the electromechanical brake on or near an incline. If you must release this brake, release the brake only when on a level surface and with the LPMC-24V completely unloaded.
21. Instructions for releasing the brake are in the section titled "Pushing Manually".
22. Test the operation of the LPMC-24V in an environment with sensitive electronic equipment prior to the use in that environment. The LPMC-24V has not been tested with all manufacturers' equipment and may react to, or cause a reaction in the electronic equipment.

## 1-3.1 Safety Features

The lift tables are designed and engineered to provide maximum safety for operator and payload. Some of the safety features incorporated into the design are:

- All control functions automatically return to OFF when released.
- Travel limit switch to restrict lift motion above the present limit.
- Pressure compensated flow control valve regulates maximum lowering speed within prescribed limits.
- Maintenance Safety Bars to support lift table during maintenance operations.
- High visibility color scheme of the lift table provides visual alert of its presence.

For proper operation and maintenance instructions of any optional accessories not contained in this manual, contact Lift Products Customer Service. Be prepared to give the model number, serial number, and lifting capacities and lift travel of your table.



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## GENERAL OPERATING INSTRUCTIONS SELF PROPELLED LIFT TABLES

1. The self-propelled lift table is a hybrid lift that uses a motorized cart drive system mounted under one of our standard lift tables. The manual must be read for their general operating and safety instructions. As a unified product, with lift and power travel, additional instructions and precautions must be taken.
2. Do not sit, stand or place any body part on the lift table. No riders.
3. Other than minor repositioning (12" or less) at creep speed, do not travel with the load elevated. Travel must be done in the fully lowered position.
4. Units should be operated at slow speed when making turns or operating other than in a straight line, especially under loaded conditions
5. Do not lift and travel at the same time. Once the cart is in the proper position, turn the key off to inhibit travel and then use the lift button to raise the platform to the desired elevation. If the cart location needs adjustment with the platform raised, it is OK to turn the key back on once elevated. The cart will only operate in creep speed at this point. This should only be used for minor repositioning. The lift must be lowered for any distance traveling. Leaving the travel power key on while trying to operate the lift, especially under loaded conditions, may cause a flashing battery bar (a fault code). Turn the key off for a few seconds and then turn it on again to reset the travel mode.
6. Follow the general charging instructions in the motorized cart manual. In addition, because the unit has both a lift and travel motor, it will put more demand on the batteries. The lift motor consumes more energy than the travel motor. If the battery bar flashes, it may indicate that the batteries are getting too low for lift operation, but may still be adequate for travel operation. The unit is equipped with an automatic on-board charger. For optimum battery life, charge the unit whenever it is not in use – it cannot be over-charged. Allow the unit to charge overnight – six to eight hours for a full charge.
7. For units equipped with an optional ball transfer top, the removable end and side stops must be in their mounted position at all times and removed only to transfer loads on and off the top. Loose stops can get caught in the lift, or come in contact with floor which could result in damage or injury. Never travel, raise or lower the load on top unless all of the stops are in their mounted positions.

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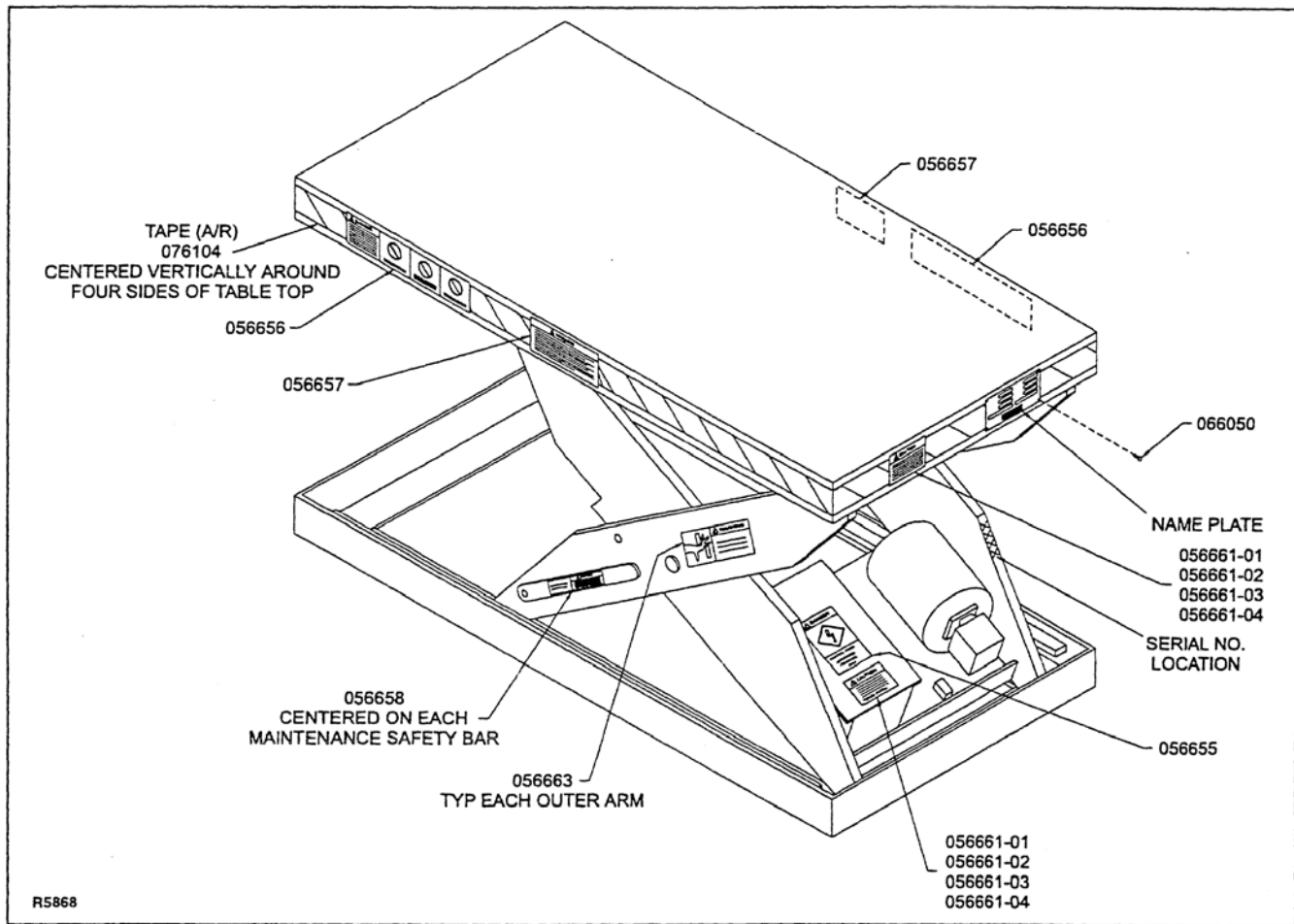


Figure 1-2. Serial Number and Decal Location

TOUCH-UP PAINT	
055824	Blue
908082	Yellow

DECALS		
Part No.	Description	No. Reqd.
506026 *	DECAL KIT	1
056655	DANGER	1
056656	DANGER	2
056657	WARNING	2
056658	WARNING	2
056661-01	CAUTION, 115V, 1Ø, 60HZ	2
056661-02	CAUTION, 230V, 1Ø, 60HZ	2
056661-03	CAUTION, 230V, 3Ø, 60HZ	2
056661-04	CAUTION, 460V, 3Ø, 60HZ	2
076104	STRIPE TAPE	AR
056663	WARNING	2
061331A	NAME PLATE	1
066050	SCREW	4

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\* Do not use decal 056660 contained in decal kit 506026  
Unless lift table is equipped with "Tip Up" top option.

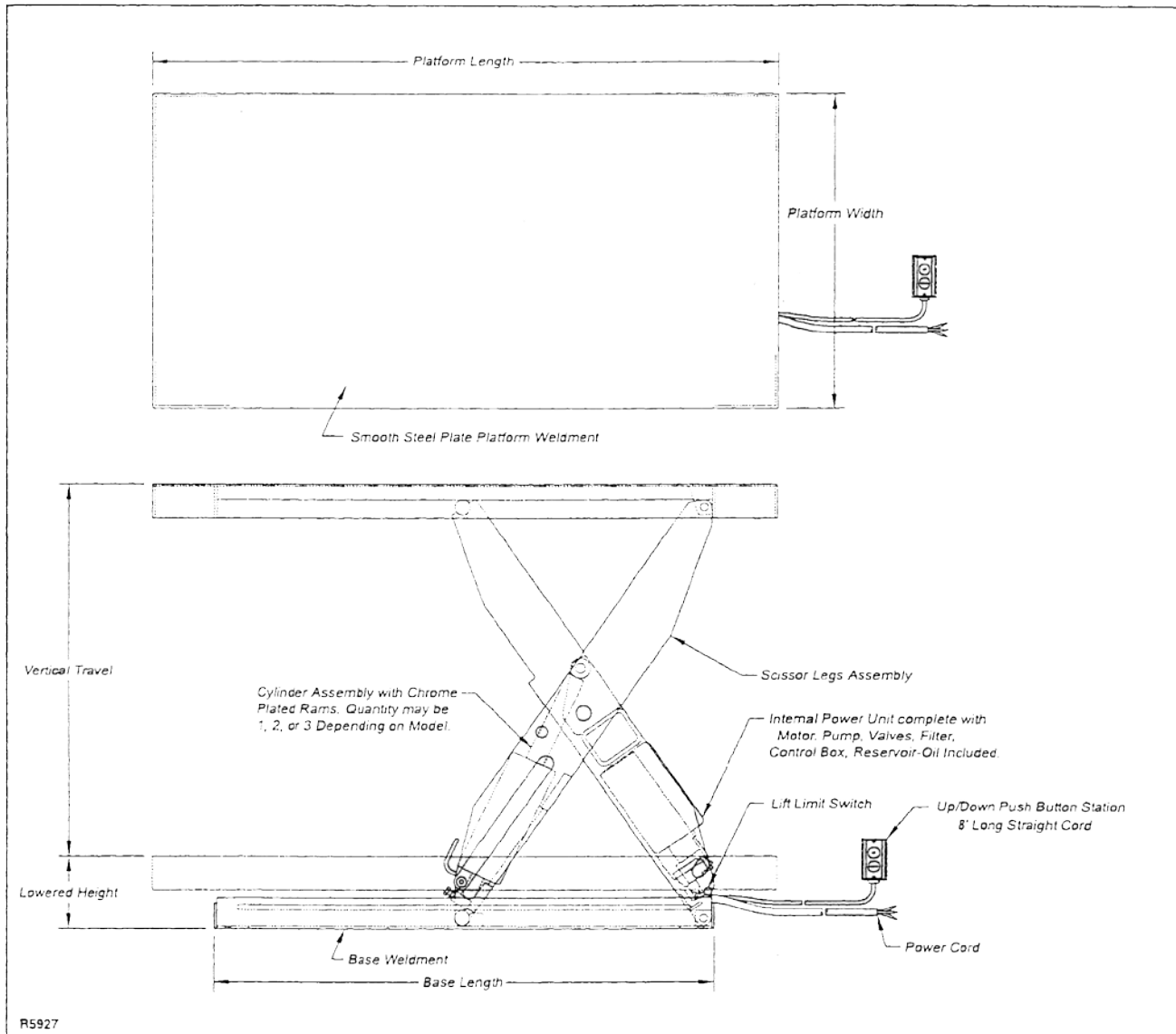


Figure 1-3. Lift Table Main Components

## 1-5 SPECIFICATIONS

- Spring-suspension and center wheel transaxle drive system
- Speed range, 0-3 MPH (0-4.8 km/hr)
- Maintenance free permanent magnet motor
- Non-marking tires
- Variable speed control
- Horn, key switch, emergency stop
- Hi/Low speed switch
- (2) 33AH, 12 volt, AGM maintenance free batteries
- On board 100-240, 50/60 Hz, UL listed battery charger
- Automatic dynamic braking & parking brake
- Deck Height: 11.5" (290 mm)
- Incline Rating: 3°

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## SECTION 2 INITIAL START-UP AND INSTALLATION

### 2-1 RECEIVING INSTRUCTIONS

Upon receipt, visually inspect the lift table. If any damage is found, report it to the carrier and to your Lift Products dealer immediately.

Remove all packing and strapping material. Check the platform size, to be sure the lift table is correct for the intended application. Check State of Charge, charge if not fully charged. **READ MANUALS COMPLETELY**

#### 2-1.1 Before Putting the Unit in Service

**WARNING: Modifications and additions which affect capacity and safe operation shall not be performed by the customer or user without manufacturer's prior written approval.**

**WARNING: Make sure electrical cables and cords are kept clear of moving parts in the lift table mechanism.**

3. Using the control box, check for proper operation. When the UP button is depressed the platform should raise. When the UP button is released the platform should remain stationary. When the DOWN button is pressed the platform should lower.
4. Raise the platform and swivel both maintenance safety bars down against the base. Lower the platform until the safety bars contact the end of the base and the platform does not lower any further.
5. Check for oil in the hydraulic reservoir. Refer to Section 4, Planned Maintenance. (Note: Unit is supplied with oil.)
6. Raise the platform and position the maintenance safety bars in their proper disengaged position.
7. Operate the lift table through several complete cycles and check for pinched hoses or hydraulic leaks from fittings that may have loosened during shipping.

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## SECTION 3 OPERATIONS

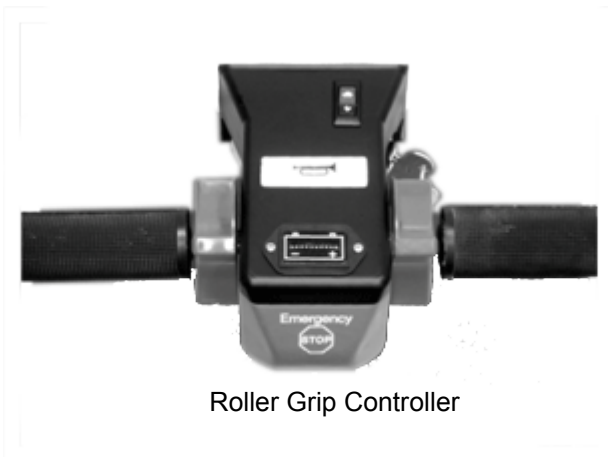
### 3-1 GENERAL

#### OPERATING THE LPMC-24V

We would like you to get the most out of your LPMC-24V. This section gives detailed operating instructions for the lift table. Routine precautions are included for safe operation.

When you use the LPMC-24V for the first time, you must know how to properly operate and care for it to avoid unsafe situations. Please read this manual thoroughly and become familiar with all of the safety information provided.

- Be aware of your surroundings – drive slowly and cautiously.
- Avoid collisions which could cause damage to the LPMC-24V or shift the load, damaging the goods, or injuring you or surrounding people.
- Anticipate and avoid unsafe situations.
- Be courteous of others and let your presence be known.
- Perform first time operation in an open area on a flat surface free of obstacles.
- Have someone familiar with the operation of the LPMC-24V available to assist you.
- First time operators should read and understand all instructions and controls before attempting to operate the LPMC-24V.



#### 3-1.1 On-Off Key Switch

The on-off key switch is located on the side of the roller grip control unit. To turn the power on, fully insert the key into the key switch and turn the key clockwise. When the power is on, the status LED located on the top of the control unit will illuminate.

#### 3-1.2 Forward/Reverse

The forward/reverse direction of the lift table is controlled by the thumb-wheels located on either side of the roller grip control unit. Pushing either of the thumb-wheels forward (clockwise) will move the lift table forward. Pushing either of the thumb-wheels backward (counter-clockwise) will move the lift table in reverse.

#### 3-1.3 Speed Modes

The roller grip control provides two speed modes, “Rabbit” (fast) or “Turtle” (slow). A “Rabbit/Turtle” rocker switch located on top of the unit allows selection of the desired speed mode. Depressing the back of the rocker switch (Turtle icon) selects the slow mode, while depressing the front of the switch (Rabbit icon) selects the fast mode. Always select the Turtle (slow) speed during training, in close quarters, or in circumstances in which you risk damage or injury if the Rabbit (fast) speed is selected.

#### 3-1.4 Emergency Stopping

To stop LPMC-24V in an emergency, press in on the emergency stop button. The emergency stop button is the large red button covering most of the roller grip control unit’s front. To restart the lift table, the key switch must be cycled (turned off and then back on).

#### 3-1.5 Battery Condition

The battery gauge located on top of the roller grip control unit indicates when the lift table’s batteries need to be recharged. If the battery gauge shows red, yellow and green, the batteries are charged. If the battery gauge shows just red and yellow, the batteries need to be charged as soon as possible. If the battery gauge shows just red (either steady or flashing slowly), the batteries need to be charged immediately. The battery gauge reading is more accurate after the power has been on for at least one minute.

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## 3-1.6 Running

The model LPMC-24V lift table is equipped with the ergonomically designed Roller-Grip control unit. To operate the travel of the lift table, follow the steps below:

1. Turn the key switch clockwise to the Drive position. Select the desired speed mode using the "Rabbit/Turtle" switch.
2. Gently push either of the Roller-Grip thumb-wheels forward (clockwise). The lift table will start to move and accelerate forward, away from you.
3. To stop, release the control lever. The LPMC-24V will gently slow down with the aid of dynamic regenerative braking.
4. To go in reverse, gently push either of the Roller-Grip thumb-wheels backward (counter-clockwise). The LPMC-24V will start to move and accelerate toward you. For safety, the maximum speed in reverse is normally set slower than the forward speed.

## 3-1.7 Braking Systems

All LPMC-24V's have two types of braking systems, dynamic regenerative braking and electro-mechanical braking.

1. **Dynamic Regenerative Braking** - Dynamic regenerative braking automatically brings the LPMC-24V to a smooth stop when the thumb-wheel is released. However, it does not lock the wheels in place.
2. **Electromechanical Braking** - After the dynamic braking has brought the table to a stop, the electromechanical brake will lock the drive wheels in place. The electro-mechanical brake is a parking brake and can be applied instantly by pressing the emergency stop switch (located on the front of the Model LPMC-24V Roller-Grip Control Unit). The center, or drive wheels, must be contacting the floor surface for the brake to hold.

## 3-1.8 Charging

The LPMC-24V lift table is equipped with two U-1 Absorbed Glass Mat (AGM) batteries, which require charging on a regular basis. An on-board charging system is integrated into the electronics of the LPMC-24V to make charging easy.

1. Position the LPMC-24V close to an AC power outlet. The lift table can be charged using any voltage between 100 and 240 volts AC 50/60 Hz. LPMC-24V is equipped with an on-board coil cord for charging (if required, use a plug adapter from the country in which the LPMC-24V will be used).
2. Turn the unit off and remove the key.
3. Find the coil cord located just below the frame on the control handle end of the LPMC-24V.
4. Plug the coil-cord directly into the power supply outlet. If needed, connect only an industrial grade grounded extension cord to the coil-cord and then to the AC power supply outlet. Make sure the plug is fully engaged into the supply outlet.

5. Allow the unit to charge overnight – six to eight hours for a full charge. For optimum battery life, charge the LPMC-24V whenever it is not in use – it cannot be over-charged.
6. With the power on, the Battery Gauge shows the charging status. If the Battery Gauge shows red, yellow and green, the batteries are nearly or fully charged. If the Battery Gauge shows red and yellow, or just red, charging needs to be continued.
7. Unplug the cord from the power supply outlet (and if used, the extension cord from the unit) before attempting to turn the unit on.

## 3-2 OPERATING PRECAUTIONS

**WARNING: Improper operation of the lift table may result in injury or load, and/or lift table damage. Observe the following precautions when operating the lift table.**

1. Do not operate this lift table unless you have been trained and authorized to do so. Read all warnings and instructions in this manual and on the lift table.
2. Do not operate this lift table until you have checked its condition. Give special attention to electrical system, lift system, guards and safety devices.

**WARNING: Make certain electrical cables and cords are kept clear of moving parts in the lift table mechanism.**

3. Do not exceed the rated capacity (see name plate). Overloading may result in damage to the hydraulic system and structural components. Refer to paragraph 3-3.
4. Do not handle unstable or loosely stacked loads. Use special care when handling long, high or wide loads to avoid tipping, loss of load, or striking bystanders.
5. Check for obstructions when raising or lowering the lift table.
6. Operate the lift table only from designated operating position. Never place any part of your body into the structure. Keep feet clear of lift table.
7. Watch out for obstructions overhead.
8. Do not lift personnel.
9. Do not allow anyone to place any part of their body into or under the lifting mechanism.
10. When leaving lift table unattended, fully lower lifting mechanism and turn key to off position.

## 3-3 LOAD CAPACITY

The load capacity rating is stamped on the name plate. This load capacity assumes the load is uniformly distributed and centered on the platform.

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## 3-3.1. Static Edge Loads

The lift table is designed for uniformly distributed centered loads. If the load is lifted at the sides or ends of the platform, the static edge load stamped on the name plate should not be exceeded.

## 3-3.2. Axle (Rolling Edge) Loads

When a load is rolled onto the platform, the lift table should be fully lowered. The axle load stamped on the name plate should not be exceeded.

## 3-4 OPERATOR CHECKS

Table 3-1 covers important points on the lift table which should be checked on a daily basis before the table is used. Depending on use, some lift tables may require additional checks. When the lift table is used on a round-the-clock basis, it should be examined before each shift.

Figure 3-1 shows a sample format for an Operator Check List, which can be modified as necessary to fit your operation.

**WARNING:** Periodic maintenance of this lift table by a **QUALIFIED SERVICE TECHNICIAN** is required.

**CAUTION:** A **QUALIFIED SERVICE TECHNICIAN** should check the lift table monthly for proper lubrication, proper fluid levels, motor maintenance and other areas specified in Section 4.

**WARNING:** If the lift table is found to be unsafe and in need of repair or contributes to an unsafe condition, report it immediately to the designated authority. Do not operate it until it has been restored to a safe condition. Do not make any unauthorized repairs or adjustments. All service must be performed by a qualified maintenance technician.

## 3-5 OPERATION

### 3-5.1. Training

Only operators trained to adhere strictly to the operating instructions shall be permitted to operate the lift table.

The user shall ensure that operators understand safe operation is the operator's responsibility. The user shall also ensure that operators are knowledgeable of, and observe the safety rules and practice.

An effective operator training program should center around company policies, operating conditions, and lift tables. The program should be presented completely to all new operators and not condensed for those claiming previous experience.

### 3-5.2 Loading

1. Always center the load on the platform as much as possible. Refer to paragraph 3-3 for load capacity.
2. If the load is lifted at the sides or ends of the platform, refer to paragraph 3-3.1 for static edge load capacity.
3. When a load is rolled onto the platform, the lift table should be fully lowered. Refer to paragraph 3-3.2 for rolling edge load capacity.

### 3-5.3. Raising

**CAUTION:** Do not exceed the rated frequency of operation indicated on the lift table.

Pressing and holding the up push button or optional foot switch activates the pump and motor causing the cylinder(s) to extend and the platform to raise. If the table is overloaded, the relief valve should open, preventing buildup of excessive pressure. When the lift table reaches a preset height, the lift limit switch will cause the lift table to stop. When the up push button or optional foot switch is released, the platform will remain in position.

**CAUTION:** Do not continue to press the up push button or optional foot switch if the lift table has reached the end of its travel or is not raising. The pump and/or motor can be permanently damaged by doing this.

### 3-5.4. Lowering

Pressing and holding the down push button or optional foot switch activates the lower solenoid valve. Oil from the cylinder is directed back to the reservoir, allowing the lift table to lower at a controlled rate.

When the down push button or optional foot switch is released, the platform will remain in position.



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**Table 3-1. Operator Checks**

ITEM	PROCEDURE
Decals & Name Plate	Check that all decals and name plate are in place and legible.
Hardware	Check for signs of loose or missing hardware.
Hydraulic Lines	Check for cut or frayed hose, leaking fittings or damaged lines.
Lift and Lower	Check for proper operation of lift and lower to their maximum positions.
Lift Cylinders	Check for signs of leakage.
Lift Limit Switch	Check for loose or bent mounting. Check that the limit switch shuts off the pump motor at the preset platform height.
Lift Motor	Check for grinding or laboring sounds.
Pivot Points	Check for smooth pivoting action.
Platform	Check for dents or warpage.
Power & Switch Box Cords	Check for cut or frayed cord.
Push Buttons	Check that the push buttons do not stick or malfunction when pressed.
Rollers	Check upper and lower rollers for signs of wear.
Drift	Check for excessive downward drift when controls are in neutral position.

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Figure 3-1. Sample of Operator Check List

<b>ELECTRIC LIFT TABLE DAILY OPERATORY CHECK-OFF LIST</b>		
Date _____	Operator _____	
Truck No. _____	Model No. _____	
Dept. _____	Shift _____	
CHECK	OK (√)	NEED MAINTENANCE
Decals & Name Plate		
Condition of Hydraulic Lines		
Condition of Power & Switch Box Cords		
Lift – Lower Controls		
Lift Limit Operation		
Missing Hardware		
Hydraulic Leaks, Cylinders, Valves, Hoses, etc.		
Pivot Points		
Push Buttons		
Rollers		
Lift Motor		
Platform		
No Excessive Drift		

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## SECTION 4 PLANNED MAINTENANCE

### 4-1 GENERAL

Planned maintenance consists of periodic visual and operational checks, parts inspection, lubrication, and scheduled maintenance designed to prevent or discover malfunctions and defective parts. The operator performs the checks in Section 3, and refers any required servicing to a qualified maintenance technician who performs the scheduled maintenance and any required servicing.

**WARNING: Modifications and additions which affect capacity and safe operation shall not be performed without manufacturer's prior written approval.**

### 4-2 MAINTENANCE SCHEDULE

Your LPMC-24V will give you years of safe and dependable service in return for regular maintenance and early attention to any developing problems. We recommend the following maintenance program.

If you use your LPMC-24V often, you may find it to your advantage to perform this maintenance more frequently.

**CAUTION: Disconnect the batteries before performing any maintenance.**

#### 4-2.1 Monthly and Quarterly Checks

Table 4-1 is an inspection and service chart based on normal usage of equipment 8 hours per day, 5 days per week. If the lift table is used in excess of 40 hours per week, the frequency of inspection and service should be increased accordingly. These procedures must be performed by a qualified service technician or your Lift Products service representative.

#### Every Day or as Needed:

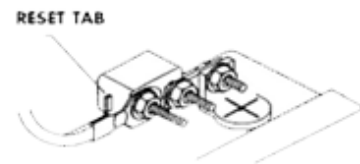
1. Maintain the batteries' charge.
2. Clean debris from the wheels and drive unit assembly.

#### Once Each Month:

1. Check for loose connectors and any signs of unusual wear.
2. Grease caster wheel swivel assemblies. Use only industrial grade grease in the caster wheel swivel assemblies.

#### Once Every Three Months:

1. Clean your LPMC-24V with a damp sponge.
2. Check the wires for wear, fraying or cracking.
3. Check the connectors for wear or cracking.
4. Examine the tires and wheel assemblies for wear or damage.



**DO NOT DEFEAT THE BREAKER!  
DO NOT REMOVE OR BYPASS  
THE CIRCUIT BREAKER!**

**DO NOT TAPE THE TAB DOWN!**

Table 4-1. Inspection and Service Chart

INTERVAL	INSPECTION OR SERVICE
Monthly	Check condition of pump motor.
Monthly	Check condition of hydraulic fittings and hoses.
Monthly	Check caster wheels (if equipped) for wear and proper function.
Monthly	Inspect wiring for loose connections and damaged insulation.
Monthly	Lubricate unit (see Table 4-3).
Quarterly	Check lift cylinder wiper ring and packing
Semi-annual	Replace hydraulic filter assembly.

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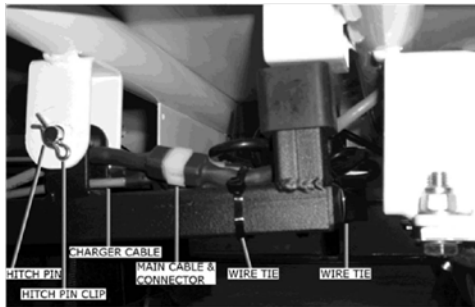
## 4-3 MAINTENANCE PROCEDURES

Refer to Table 4-2 for the recommended types of grease and oil. Table 4-3 in conjunction with Figure 4-1 identifies the items requiring lubrication.

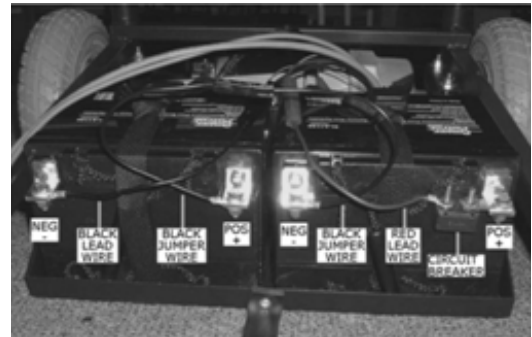
### 4-3.1 Replacing the Batteries

Make sure that the brake is applied (brake handle down).

1. Remove any load from lift table. You may want a second person to help with dropping the drive system.
2. Cut the wire ties holding the main cable and the charger cable to the drive system frame and disconnect the cables.



3. Turn the power off and disconnect the batteries.
4. Remove the hitch pin clips from the hitch pins and remove the hitch pins from the U-brackets that attach the drive system to the lift table. Some downward pressure on the platform may make the pins easier to remove. The drive system frame should then drop away from the lift table frame. Use caution, as the drive system is heavy.
5. Raise the front of the lift table and remove the two suspension springs.
6. Release the brake and roll the drive system out from under the lift table.
7. Undo the battery hold down straps and remove the batteries from the battery tray.
8. Remove the circuit breaker and wires from the old batteries.
9. Install the new batteries by following these steps in reverse order.



Remember to re-apply the brake (push brake handle down).

**WARNING:** Do not touch both the negative and positive terminals of the batteries with a conductive material (e.g., metal) or sparks, burns, or explosion may result.

**Table 4-2. Recommended Lubricants and Oils**

<b>No. 1</b>	Grease: Lithium base, general purpose.
<b>No. 2</b>	Hydraulic oil: Heavy duty with a viscosity of 150 SUS (in temperatures below 32°F use 100 SUS) foam suppressing agent and rust oxidation inhibitors Part No. 900855 (1 gallon) 900893 (1 quart)
<b>No. 3</b>	Moly-Grease: Down Corning Molykote 44 (contains silicone). Part No. 055753

### 4-3.2 Lubrication

All wheel bearings are sealed and permanently lubricated. Spray silicone lubricants (or WD-40\*) may be used on any other moving parts. Apply this lubricant whenever there is "stickiness" in the moving parts.

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\* WD-40 is a registered trademark of the WD-40 Company and is NOT affiliated with Lift Products.

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## 4-3.3. Lift Cylinder

1. Raise the platform.
2. Swivel both maintenance safety bars down against the base.
3. Lower the platform until the safety bars contact the end of the base and the platform does not lower any further.
4. Loosen the bolt securing the bottom of each lift cylinder to the base.
5. Partially collapse the cylinder rod and lift the bottom of the cylinder out of the channel in the base.
6. Apply a light coat of moly-grease to the channel (see Table 4-2, No. 3).
7. Position the cylinder(s) in the channel and secure with the mounting bolt(s).
8. Raise the platform and position the maintenance safety bars in their proper disengaged position.

## 4-3.4. Checking and Adding Hydraulic Reservoir Fluid

**NOTE:** If the pump cavitates (is oil “starved”) near the end of the lift cycle, add hydraulic fluid.

1. With the lift table fully lowered, install lifting eyes in each end of the lift table platform.

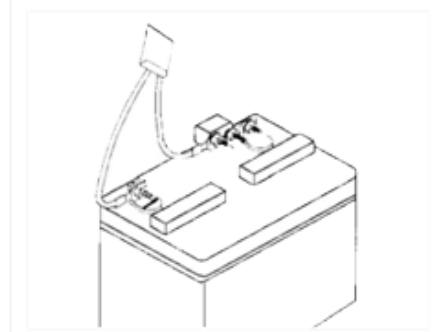
**NOTE:** Do not energize the table power supply. Raise the platform only enough to engage both maintenance safety bars.

2. Raise the platform and swivel both maintenance safety bars down against the base. Lower the platform until the safety bars contact the end of the base and the platform does not lower any further.
3. Remove the breather plug from the hydraulic reservoir.  
**NOTE:** The fluid level should not be higher than 1 inch below the bottom edge of the breather port (measuring straight in through the port).
4. Check and add hydraulic fluid as necessary. Do not overfill.
5. Replace the breather plug.
6. using the lifting eyes, raise the platform enough to place the maintenance safety bars in their proper disengaged position.
7. Lower the platform and remove the lifting eyes.
8. Operate the lift table through several complete cycles and check for oil leaking from the breather plug and cavitation at the end of the lift cycle. Oil leaking from the breather plug indicates overfilling and some oil should be removed from the reservoir. Cavitation at the end of the lift cycle indicates a need for more oil.

## 4-4 BATTERIES

### FOR BEST RESULTS: USE ABSORBED GLASS MATT BATTERIES WITH YOUR LPMC-24V.

1. The batteries supplied with the LPMC-24V are maintenance free sealed AGM batteries. Do not remove the battery caps. Do not attempt to add water. This will ruin your batteries and void your warranty. Liquid- electrolyte batteries are not recommended for use with your LPMC-24V.



2. If a crusty or powdery white substance appears on or around the battery terminals, clean them: Use a solution of baking soda and water with a toothbrush. Do not allow this solution to enter the battery vents. If you do not clean the batteries when this substance appears, or if it is left for prolonged periods, it will reduce the quality of battery connection and affect performance.
3. When replacing the batteries, clean the terminals and battery posts with a wire brush. When reattaching the terminals, be sure all connections are tight. The black wire must be attached to the negative (-) terminal. Failure to connect with proper polarity will damage the control module.

### 4-4.1 Battery Life

Battery life depends upon use and proper care. If you use the LPMC-24V heavily, your batteries will need replacement sooner than if you only use your LPMC-24V at a minimum. Other factors, which can reduce battery life, are: irregular or inefficient charging, extreme temperatures, and cargo weight.

If the distance you travel on a charge becomes noticeably shorter, and ramps once easily climbed become difficult to go up, you may need to replace the batteries. Other signs indicating the need to replace batteries include heating or swelling of the batteries (sometimes accompanied by an acrid odor). If you notice any of these conditions, have your batteries load tested.

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## 4-4.2 Battery Load Testing

A “load test” is a sure test of battery condition, and can be performed by your local Authorized Service Center.

Load testing measures battery voltage under a heavy load. Before the load test, your batteries should be fully charged. The service center will measure the open circuit voltage, or voltage across the batteries, prior to a load test. This open circuit voltage must measure at least 12.6 volts on each battery in order to receive an accurate assessment during a load test.

The service center will set the load tester to 100 amperes and hold the setting for 10 seconds.

At the end of 10 seconds, the service center will read the results while the batteries are still under load, if the load test voltage is below 10.0 volts each, the batteries need replacing.

## 4-4.3 Circuit Breaker

A manually reset circuit breaker is located on one battery attached to the positive (+) terminal. The circuit breaker protects the wiring and batteries against damage in the event of a short circuit. If a breaker opens, reset it by pushing the tab down. If it opens again in a short time, there is a short circuit, which must be found and corrected.

If any additional wiring is added to the LPMC-24V, it must not bypass the breaker.

## 4.5 CLEANING YOUR LPMC-24V

Turn the power off and disconnect the batteries before cleaning your LPMC-24V. Use warm soapy water and a damp sponge to clean your LPMC-24V. Do not pressure-wash or hose your LPMC-24V off. Excessive water may damage electronic components.

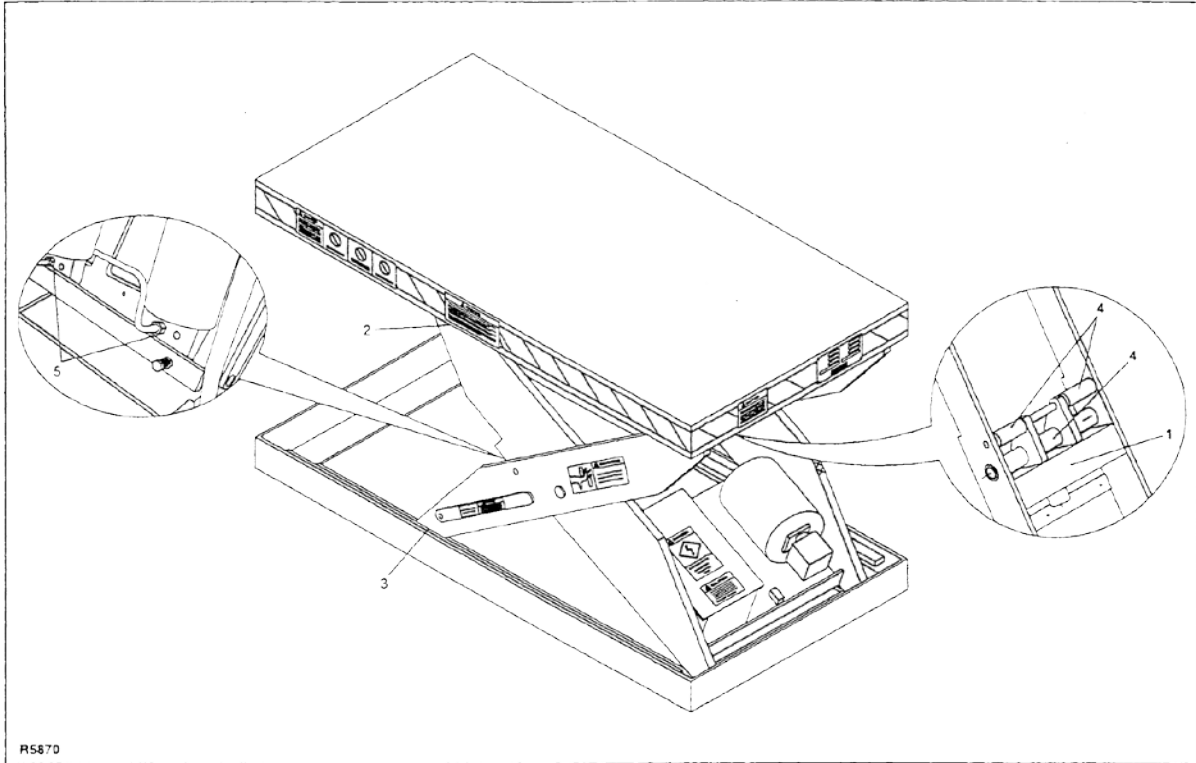
Do not use harsh or abrasive cleansers on the LPMC-24V or its tires. These types of cleansers will damage the finish of your LPMC-24V, and may cause premature tire wear. Clean your tires with a bristle brush dipped in warm water.

**Table 4-3. Lubrication Chart**

<b>FIG. 4-1 INDEX NO.</b>	<b>LOCATION</b>	<b>METHOD OF APPLICATION</b>	<b>TYPE (Table 4-2)</b>	<b>APPLICATION OF LUBRICANT</b>
1	Hydraulic System	--	No. 2	Check and add hydraulic oil to reservoir. Refer to paragraph 4-3.2.
2	Upper Rollers	Gun	No. 1	Pressure lubricate (two fittings).
3	Lower Rollers	Gun	No. 1	Pressure lubricate (two fittings).
4	Pivot Points	Gun	No. 1	Pressure lubricate (three fittings).
5	Lift Cylinder	Brush	No. 3	Refer to paragraph 4.3.1.

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Figure 4-1. Lubrication Diagram



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## SECTION 5 TROUBLESHOOTING

### 5-1 GENERAL

Table 5-1 serves as a guide to determine possible causes of trouble. Refer to Figure 5-1, and hydraulic schematics Figure 5-2, as a supplement to the troubleshooting chart or when tracing an electrical circuit.

**Table 5-1. Troubleshooting Chart**

MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
Does not raise but pump motor is running.	A. Oil level too low. B. Load heavier than capacity. C. Filter is clogged. D. Defective pump or motor.	Add oil to reservoir. Refer to name plate for maximum load capacity. Remove and clean. Replace.
Platform raises slowly.	A. Load heavier than capacity. B. Lack of lubrication. C. Defective rollers. D. Defective pump. E. Defective cylinder. F. Relief valve.	Refer to name plate for maximum load capacity. Lubricate. Replace. Replace. Overhaul cylinder. Adjust or replace.
Does not raise but pump motor not running.	A. No electrical power. B. Defective controls. C. Defective pump motor.	Check power source. Repair as required. Replace.
Platform does not lower.	A. Maintenance safety bar or obstruction blocking movement. B. Defective lowering solenoid valve. C. Defective controls.	Correct condition.  Replace. Repair as required.
Platform creeps downward under load.	A. External leak in hydraulic system.  B. Defective packing in cylinder. C. Defective solenoid valve. D. Defective check valve. E. Defective relief valve.	Look for loose fittings in the hydraulic line. Repair fittings. Look for oil on top of cylinder packing. Overhaul cylinder. Replace. Replace. Replace.

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## 5-2 DIAGNOSTIC CODES

LPMC-24V lift tables equipped with roller grip hand controls provide diagnostics information to assist technicians in troubleshooting drive system problems. The diagnostics information is obtained by observing the fault codes issued by the status LED located on the roller grip control unit. During normal operation, with no faults present, the status LED is steadily on. If the controller detects a fault, the status LED displays a fault identification code. The number of flashes indicates the nature of the fault. The codes are listed in Table 1 below, along with possible causes of the fault indicated.

**Table 1. Diagnostic Codes**

<b>NUMBER OF FLASHES</b>	<b>POSSIBLE CAUSE</b>
<b>1</b>	The battery needs charging or there is a bad connection to the battery. Check the connections to the battery. If the connections are good, try charging the battery.
<b>2</b>	There is a bad connection to the motor. Check all connections between the motor and the control system.
<b>3</b>	The motor has a short circuit to a battery connection. Contact your service agent.
<b>4</b>	Not used.
<b>5</b>	Not used.
<b>6</b>	The controller is being inhibited from driving. This may be because the Emergency Stop Button was pressed. Turn the Key switch Off and On.
<b>7</b>	A throttle fault is indicated. Make sure that the throttle is in the rest position before switching on the LPMC-24V.
<b>8</b>	A controller fault is indicated. Make sure that all connections are secure. Contact your service agent.
<b>9</b>	There is a bad connection to the parking brake. Check all connections between the parking brake and the controller.
<b>10</b>	An excessive voltage has been applied to the controller. This is usually caused by a poor battery connection. Check the battery connections.
<b>Rippling Up &amp; Down</b>	Throttle applied at power up. Release throttle lever.

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## 5.3 PUSHING MANUALLY

The drive system on the LPMC-24V can be disabled to allow you to push the unit manually.

To disable the drive system:

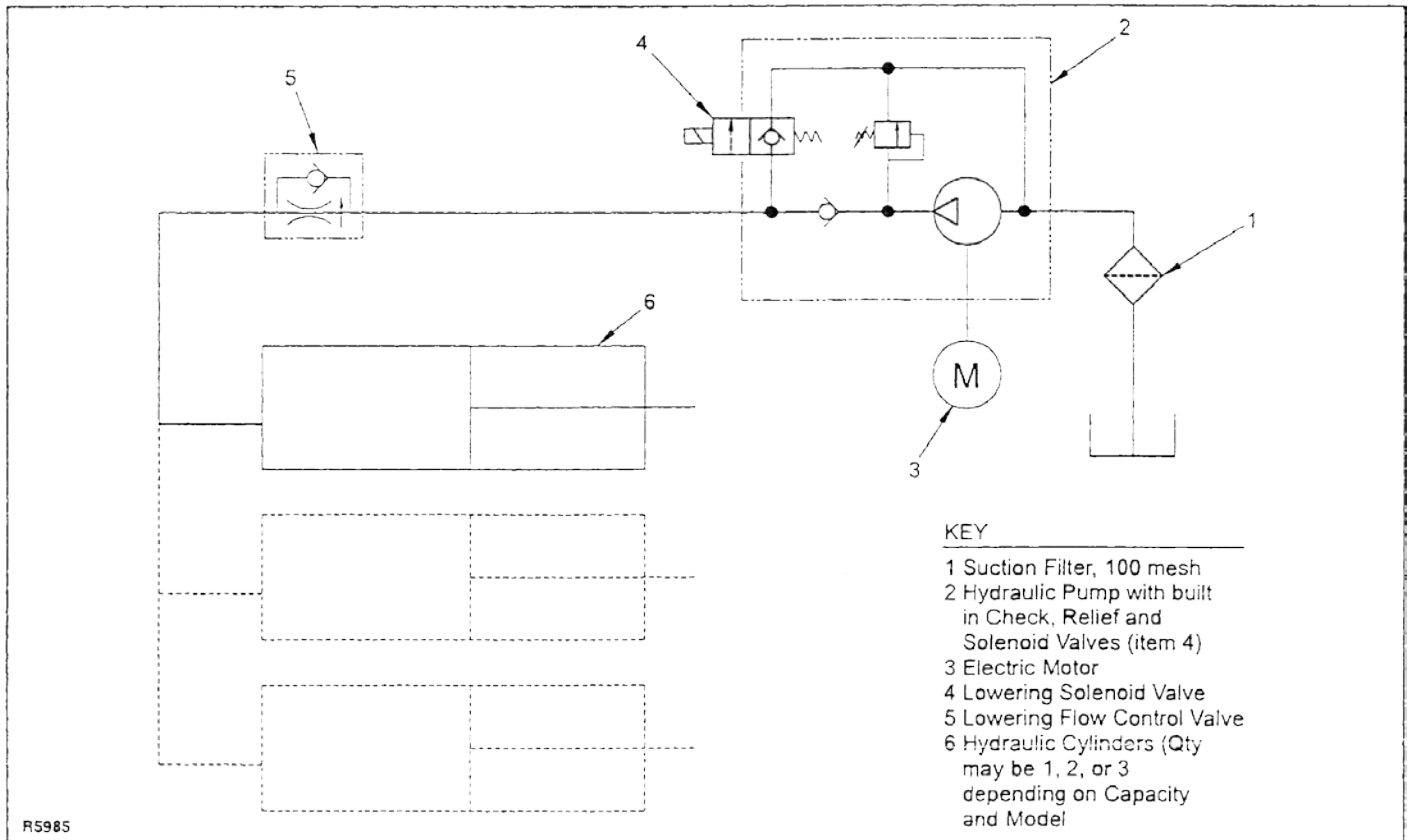
1. On a level surface only, lift up on the brake handle located under the deck near the drive wheels to disable the Electromechanical Parking Brake.
2. Turn the Key Switch to the off position to disable the Dynamic Braking

**AFTER PUSHING, RETURN THE BRAKE LEVER TO THE DOWN POSITION TO PREVENT THE LPMC-24V FROM ROLLING AND TO ENABLE DRIVING.**

**WARNING: DO NOT RELEASE THE BRAKE ON OR NEAR AN INCLINED SURFACE. THE UNIT WILL NOT STOP ON ITS OWN WHEN THE BRAKING SYSTEM IS DISABLED. SEVERE INJURY MAY RESULT IF THE UNIT IS LEFT TO ROLL UNATTENDED.**



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**Figure 6-2 Hydraulic Schematic with External Flow Control Valve**

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## SECTION 6 HYDRAULIC SYSTEM SERVICING

### 6-1 SUCTION FILTER REPLACEMENT

**WARNING: Improper operation of the lift table may result in operator injury or load and/or lift table damage. Refer to Section 3 for proper operational instructions.**

Refer to Figure 6-1 or 6-2 and replace the suction filter as follows:

1. Raise the platform.
2. Swivel both maintenance safety bars down against the base.
3. Lower the platform until the safety bars contact the end of the base and the platform does not lower any further.
4. Place a suitable drain pan at the base of the lift table, underneath the hydraulic oil filter (6).
5. Remove hose clamp and hose (9) from nipple (8).
6. Remove filter assembly (6) from the reservoir and allow the reservoir to drain into the drain pan.
7. Remove adapter (7) and nipple (8) from filter (6).
8. Install nipple (8) and adapter (7) into the replacement filter (6).
9. Install filter assembly (6) into the reservoir.
10. Install hose and hose clamp (9) onto the nipple.
11. Refer to Section 4, Planned Maintenance, for hydraulic oil fill and check procedures.

### 6-2 LOWERING SOLENOID VALVE

Refer to Figure 6-3 and remove the lowering solenoid valve from the pump assembly as follows:

**WARNING: Improper operation of the lift table may result in operator injury or load and/or lift table damage. Refer to Section 3 for proper operational instructions.**

1. Raise the platform.
2. Swivel both maintenance safety bars down against the base.
3. Lower the platform until the safety bars contact the end of the base and the platform does not lower any further.
4. Remove retaining nut on valve, coil should slide off.

**WARNING: Hydraulic system pressure must be relieved before removing hydraulic system components. Ensure that all electrical power is disconnected and locked out prior to performing any wiring service.**



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INDEX NO.	PART NO.	PART NAME	NO. REQD.
1	404069	PLATE, ACTIVATOR, STANDARD	1
2	069480	MACH. SCREW-PHILLIPS, FLAT-HD	2
3	077209	WASHER-LOCK, SPLIT, 1/4	8
4	059421	NUT-HEX, 1/4-20	6
5	063478	SCREW-HEX CAP, 1/4-20 X 3/4	6
6	035114	FILTER	1

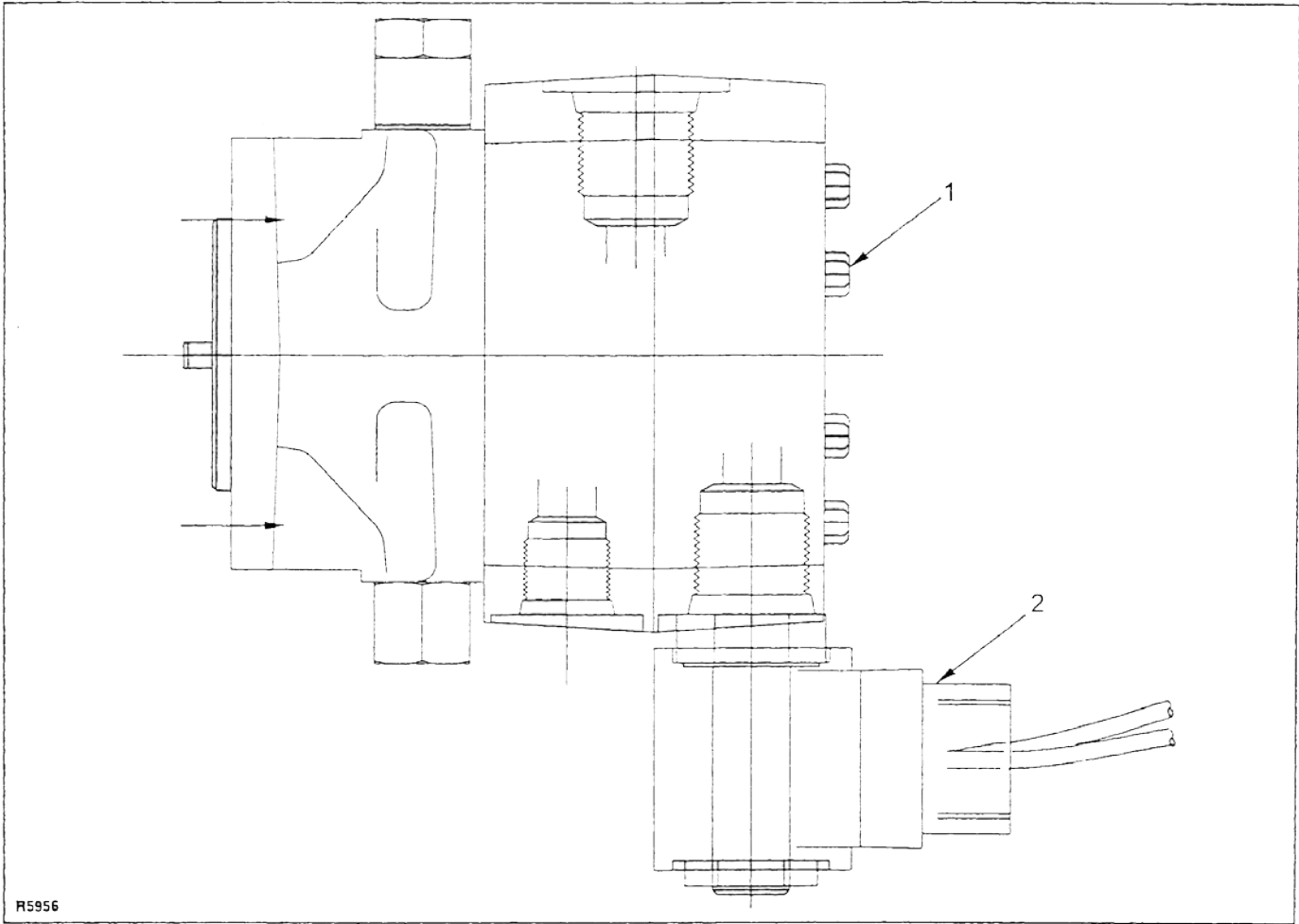
INDEX NO.	PART NO.	PART NAME	NO. REQD.
7	026504	REDUCING BUSING 1/2 TO 3/8 PTR	1
8	026128	NIPPLE, HOSE 3/8	1
9	056110	CLAMP HOSE, SCREW TYPE	2
10	308900	HOSE-LP, RUBBER .906 .625	AR
11	506003-06	HOSE ASSEMBLY, HYDAULIC	1
12	076071	VENT-3/8 NPT	1

Figure 6-2. Hydraulic System (36/48/60" Tables)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
1	404069	PLATE, ACTIVATOR, STANDARD	1
2	069480	MACH. SCREW-PHILLIPS, FLAT-HD	2
3	077209	WASHER-LOCK, SPLIT, 1/4	7
4	059421	NUT-HEX, 1/4-20	7
5	063478	SCREW-HEX CAP, 1/4-20 X 3/4	4
6	035114	FILTER	1
7	026504	REDUCING BUSING 1/2 TO 3/8 PTR	1
8	026128	NIPPLE, HOSE 3/8	1

INDEX NO.	PART NO.	PART NAME	NO. REQD.
9	056110	CLAMP HOSE, SCREW TYPE	2
10	308900	HOSE-LP, RUBBER .906 .625	AR
11	506033-01	HOSE ASSY (36" LIFT)	1
11	506033-02	HOSE ASSY (48" LIFT)	1
11	506033-03	HOSE ASSY (36" LIFT)	1
11	506033-04	HOSE ASSY (48" LIFT)	1
11	506033-05	HOSE ASSY (60" LIFT)	1
12	056139	CLAMP	1
13	076701	VENT-3/8 NPT	1

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Figure 6-3. Pump Assembly (Pump Appearance May Vary)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
-	506042	PUMP ASSEMBLY	1
1	046530	PUMP 1/4 GEAR (506042-01)	1
1	046531	PUMP 3/8 GEAR (506042-02)	1
2	048176-01	RELEASE VALVE	1



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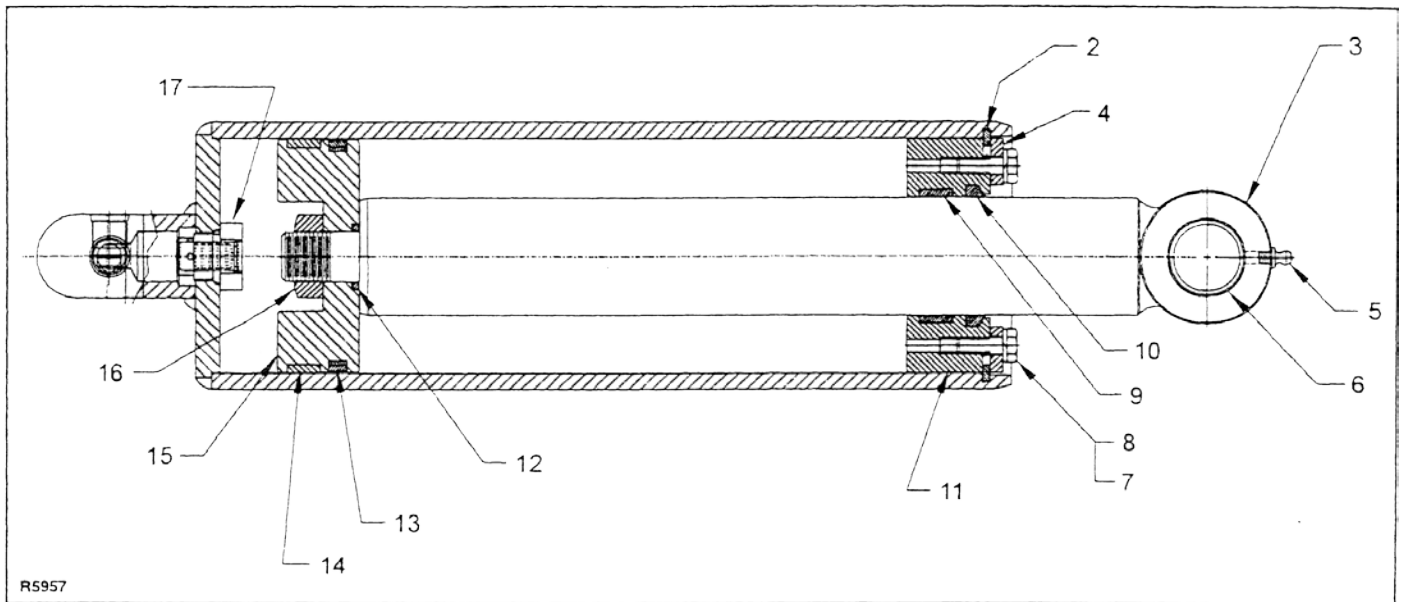


Figure 6-4. Lift Cylinder with Internal Flow Regular

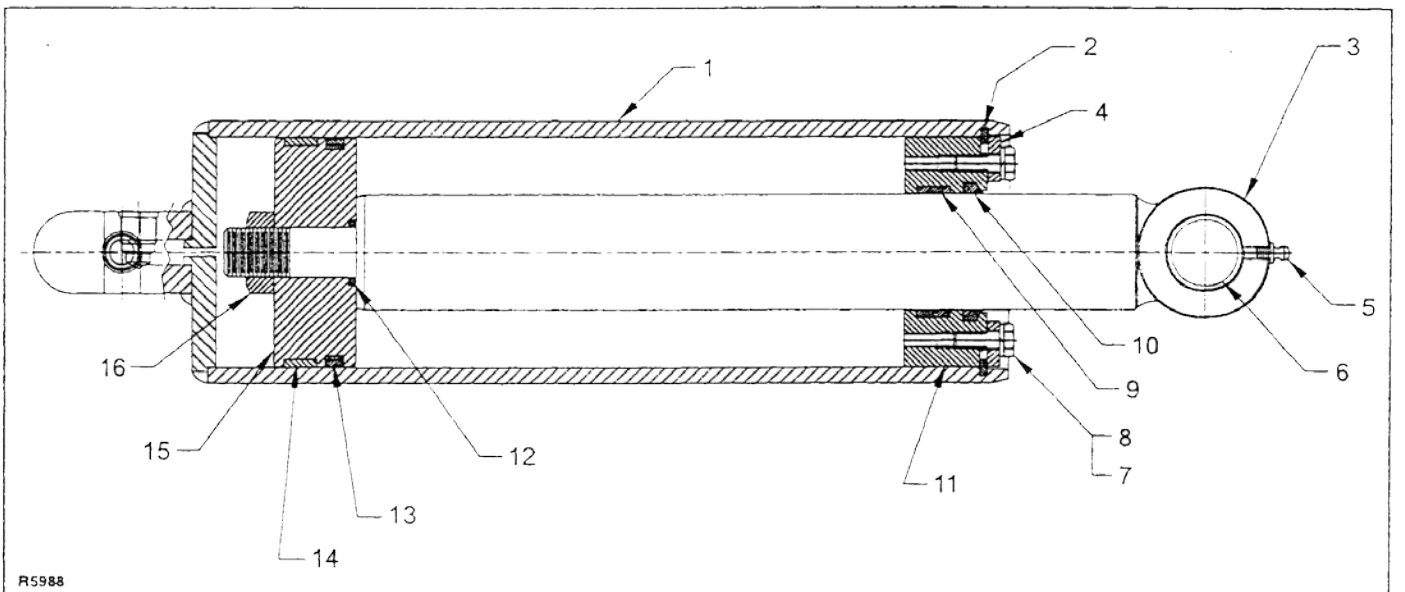


Figure 6-5. Lift Cylinder without Internal Flow Regular

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## SECTION 7 ELECTRICAL COMPONENTS

### 7-1 HYDRAULIC PANEL ASSEMBLY REMOVAL

#### 7-1.1. Hydraulic Panel Assembly Removal (24" Table).

Refer to figure 7-1 and remove the hydraulic panel assembly as follows:

**WARNING: Improper operation of the lift table may result in operator injury or load and/or lift table damage. Refer to Section 3 for proper operational instructions. Hydraulic system pressure must be relieved before removing hydraulic system components. Ensure that all electrical power is disconnected and locked out prior to performing any wiring service.**

1. Raise the platform.
2. Swivel both maintenance safety bars down against the base.
3. Lower the platform until the safety bars contact the end of the base and the platform does not lower any further.
4. Drain the hydraulic oil reservoir into a suitable container.
5. Label and disconnect the lowering solenoid valve wiring harness and drive motor wiring.
6. Remove the oil suction hose (10) and clamp (9) from the pump.
7. Remove pressure hoses (11) from pump outlet fitting.
8. Remove limit switch from pump mounting panel.
9. Remove the hydraulic panel assembly by removing four hex-head cap screws (5), lock washers (3), and hex-nuts (4).
10. After reassembly, refer to this section for limit switch adjustment.
11. Refer to Section 4, Planned Maintenance, for hydraulic oil fill and check procedures.

#### 7-1.2. Hydraulic Panel Assembly Removal (36/48/60" Tables).

Refer to Figure 7-2 and remove the hydraulic panel assembly as follows:

**WARNING: Improper operation of the lift table may result in operator injury or load and/or lift table damage. Refer to Section 3 for proper operational instructions. Hydraulic system pressure must be relieved before removing hydraulic system components. Ensure that all electrical power is disconnected and locked out prior to performing any wiring service.**

1. Raise the platform.
2. Swivel both maintenance safety bars down against the base.
3. Lower the platform until the safety bars contact the end of the base and the platform does not lower any further.
4. Drain the hydraulic oil reservoir into a suitable container.
5. Remove six screws, lock-washer, and the electrical box cover.
6. Label and disconnect the AC-electrical wiring control electrical wiring at the hydraulic panel assembly box.
7. Remove clamp (9) and suction hose (10) from the pump.
8. Remove pressure hose (11) from the pump outlet fitting.
9. Remove the hydraulic panel assembly by removing four hex-head cap screws (5), lock washers (3) and hex nuts (4).
10. After reassembly, refer to this section for limit switch adjustment.
11. Refer to section 4, Planned Maintenance, for hydraulic oil fill and check procedures.

### 7-2 LIFT LIMIT SWITCH REMOVAL

#### 7-2.1 Lift Limit Switch Removal (24" Table).

Refer to figure 7-3 and remove the lift limit switch as follows:

**WARNING: Improper operation of the lift table may result in operator injury or load and/or lift table damage. Refer to Section 3 for proper operational instructions. Hydraulic system pressure must be relieved before removing hydraulic system components. Ensure that all electrical power is disconnected and locked out prior to performing any wiring service.**

1. Raise the platform.
2. Swivel both maintenance safety bars down against the base.
3. Lower the platform until the safety bars contact the end of the base and the platform does not lower any further.
4. Remove screws and cover from the electrical box assembly.
5. Label and disconnect the lift limit switch wires.
6. Remove wire ties (21) securing the limit switch wiring harness.

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7. Loosen the strain relief clamp and remove the limit switch wiring harness from the contactor box.
  8. Remove lift limit switch (9) by removing two hex-head cap screws (23), lock-washers (24), washers (25) and hex nuts (26).
  9. After reassembly, refer to this section for lift limit switch adjustment.
5. Press lever against switch until switch is fully depressed.
  6. While holding arm and lever in position, tighten hex-nut.
  7. Remove jack stands or blocking and operate table normally through a complete lift and lower cycle to check table height. Adjust as necessary.

## 7.2.2. Lift Limit Switch Removal (36/48/60" Tables).

Refer to figure 7-4 and remove the lift limit switch as follows:

**WARNING: Improper operation of the lift table may result in operator injury or load and/or lift table damage. Refer to Section 3 for proper operational instructions. Ensure that all electrical power is disconnected and locked out prior to performing any wiring service.**

1. Raise the platform.
2. Swivel both maintenance safety bars down against the base.
3. Lower the platform until the safety bars contact the end of the base and the platform does not lower any further.
4. Remove screws and cover from the electrical box assembly.
5. Label and disconnect the lift limit switch wires.
6. Remove the strain relief clamp and the limit switch wiring harness from the contactor box.
7. Remove lift limit switch (26) by removing two hex-head cap screws (6), washers (7), lock-washers (8), and hex-nuts (9).
8. After reassembly, refer to this section for lift limit switch adjustment.

## 7-3 LIFT LIMIT SWITCH ADJUSTMENT

At times it is necessary to change vertical travel so that the platform top levels with a surrounding surface or structure. By adjusting the limit switch components, vertical travel can be changed by about six inches. To adjust the lift limit switch, refer to Figure 7-5 and adjust the limit switch as follows:

**WARNING: Improper operation of the lift table may result in operator injury or load and/or lift table damage. Refer to Section 3 for proper operational instructions.**

1. Raise the platform to the desired height.
2. Position jack stands or blocking underneath lift table to prevent injury during the following adjustments.
3. Loosen hex nut.
4. Position arm and roller flat against base activator plate.

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## 7-4 ELECTRICAL BOX REMOVAL

### 7-4.1. Electrical Box Removal (24" Table)

The electrical box is mounted to the upper cross-brace frame. Remove the electrical box as follows:

**WARNING: Improper operation of the lift table may result in operator injury or load and/or lift table damage. Refer to Section 3 for proper operational instructions. Ensure that all electrical power is disconnected and locked out prior to performing any wiring service.**

1. Raise the platform.
2. Swivel both maintenance safety bars down against the base.
3. Lower the platform until the safety bars contact the end of the base and the platform does not lower any further.
4. Remove six screws and the electrical box cover.
5. Label and disconnect wiring harnesses for the lift limit switch, lowering solenoid valve, pump drive motor, AC-electrical, and lift controls.
6. Remove the strain relief clamps and the wiring harnesses from the electrical box.
7. Remove the electrical box by removing two hex-head cap screws from the back of the box.

### 7.4.2. Electrical Box Removal (36/48/60" Tables)

The electrical box is mounted with the pump drive motor on the hydraulic/electrical panel assembly. Remove the electrical box as follows:

**WARNING: Improper operation of the lift table may result in operator injury or load and/or lift table damage. Refer to Section 3 for proper operational instructions. Ensure that all electrical power is disconnected and locked out prior to performing any wiring service.**

1. Raise the platform.
2. Swivel both maintenance safety bars down against the base.
3. Lower the platform until the safety bars contact the end of the base and the platform does not lower any further.
4. Remove six screws and the electrical box cover.
5. Label and disconnect wiring harnesses for the lift limit switch, lowering solenoid valve, pump drive motor, AC-electrical, and lift controls.
6. Remove the strain relief clamps and the wiring harnesses from the electrical box.

7. Remove the electrical box by removing two hex-head cap screws, lock-washers, and hex-nuts from the back of the box.

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## 7.5 ELECTRICAL BOX DISASSEMBLY

### 7-5.1. Electrical Box Disassembly (24" Table)

Disassemble the electrical box as follows:

1. Label and disconnect wiring/terminal rings for the overload relay (30), AC-contactor (31), and capacitor.
2. Using a screwdriver, pry the tab on the overload relay (30) and AC-contactor (31) and remove from the mounting rail (7). Refer to Figure 7-6.
3. Separate overload relay (30) and AC-contactor (31).
4. Remove the screws (5) and lock-washers (6) which fasten mounting rail (7). Remove the mounting rail.
5. Lift and remove the capacitor.
6. After reassembly, adjust the overload relay setting to 22 Amps.

## 7-6 HAND HELD SWITCH ASSEMBLY REMOVAL

Refer to Figure 7 and remove the hand held switch assembly as follows:

**WARNING: Improper operation of the lift table may result in operator injury or load and/or lift table damage. Refer to Section 3 for proper operational instructions. Ensure that all electrical power is disconnected and locked out prior to performing any wiring service.**

1. Raise the platform.
2. Swivel both maintenance safety bars down against the base.
3. Lower the platform until the safety bars contact the end of the base and the platform does not lower any further.
4. Remove two screws (7) and cover (8).
5. Label and disconnect terminal rings (5).
6. Remove strain relief bushing (6).
7. Remove control cable (10) from switch assembly (4).



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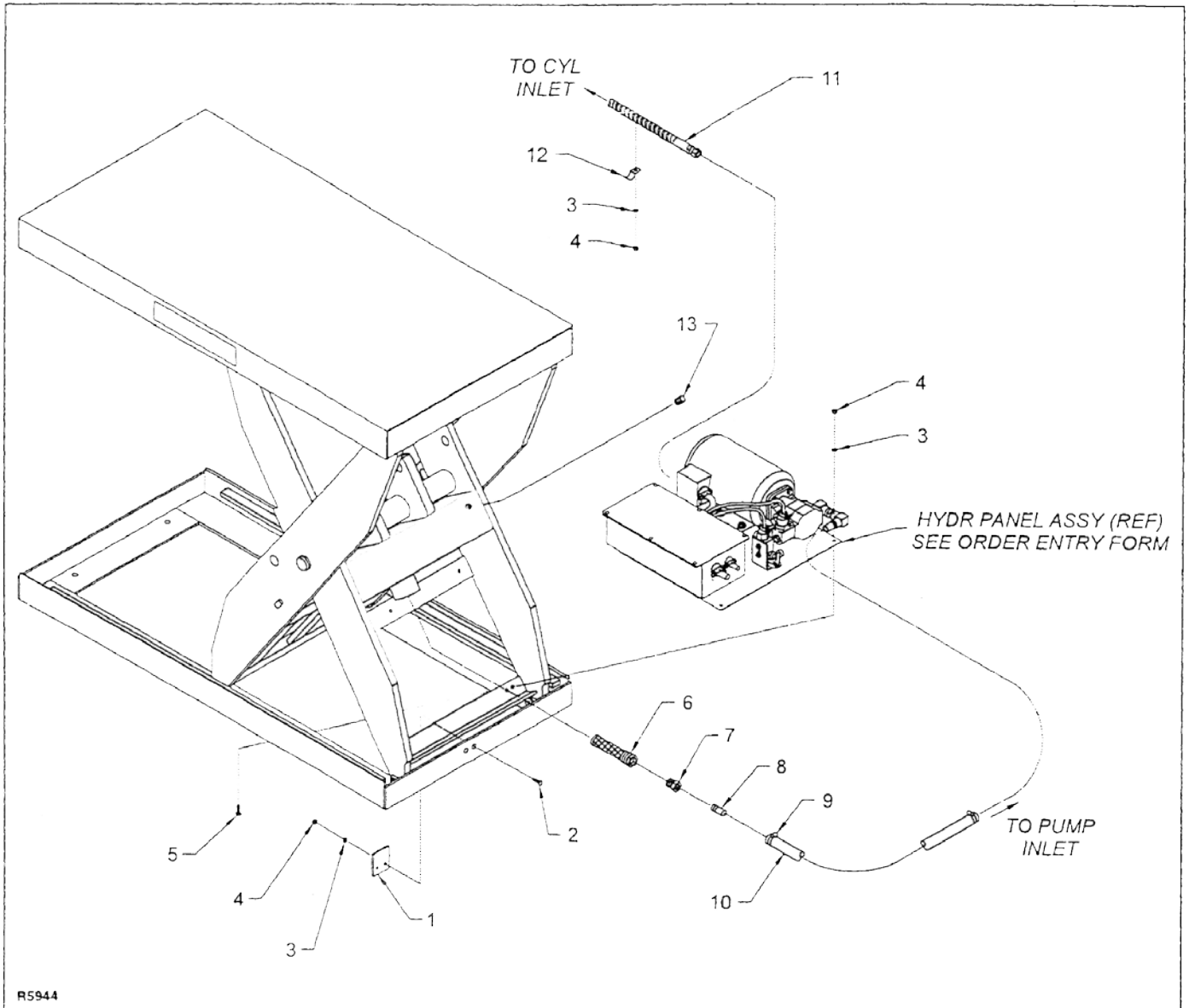


Figure 7-2. Hydraulic System (36/48/60" Tables)

# LPMC-24V

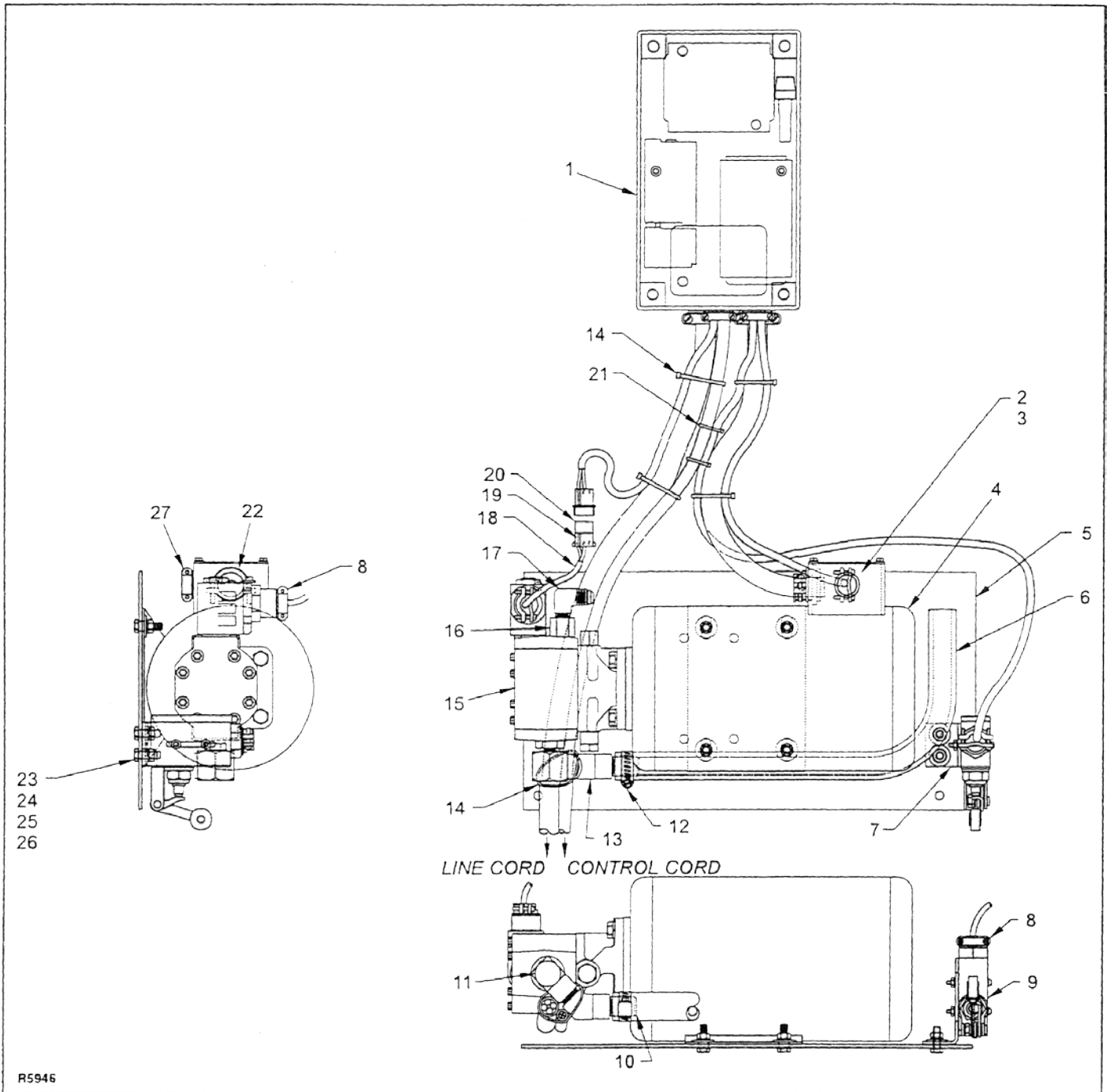


Figure 7-3. Lift Table Panel Assembly (24" Table)



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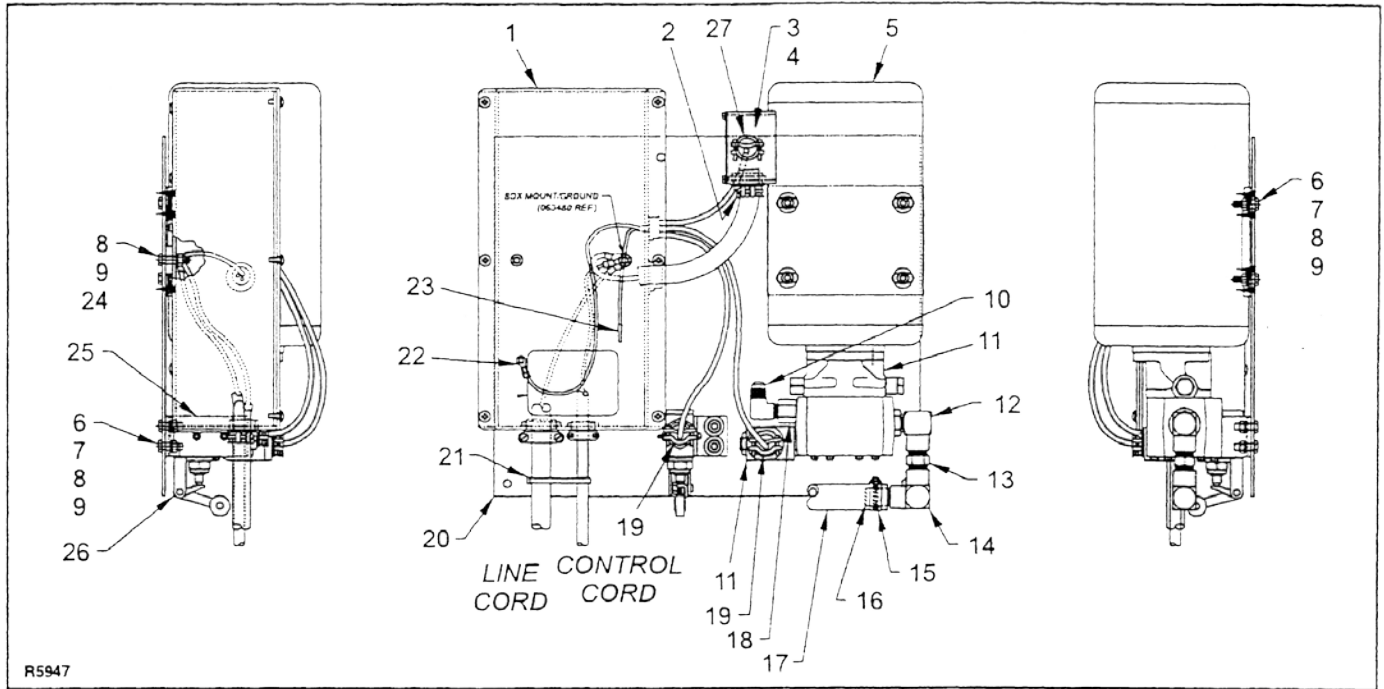


Figure 7-4. Lift Table Panel Assembly (36/48/60" Tables)

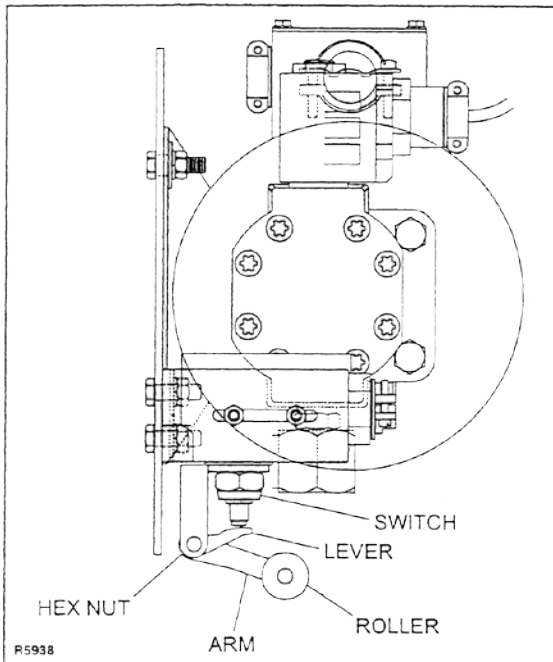


Figure 7-5. Lift Limit Switch Adjustment]

# LPMC-24V

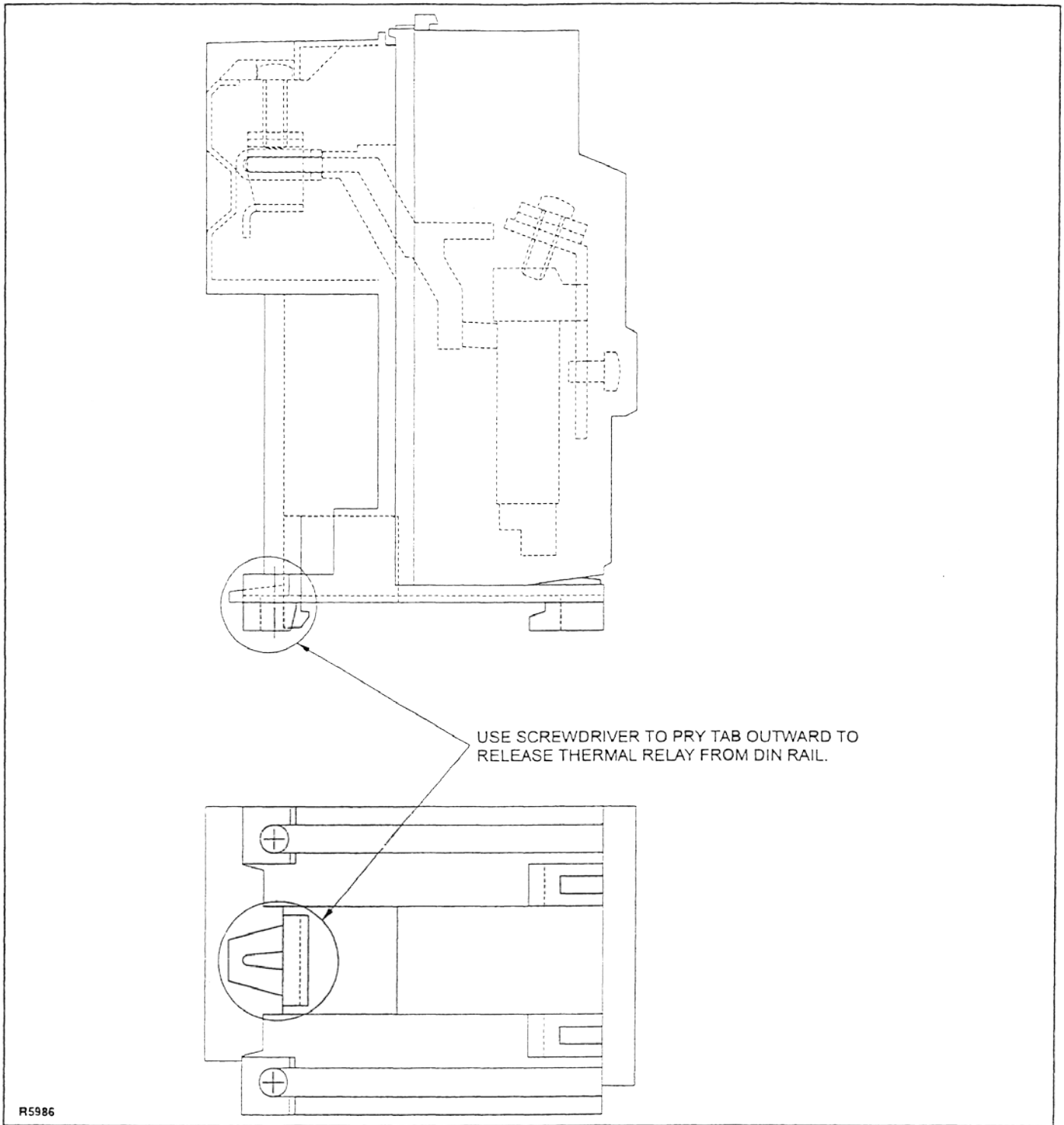


Figure 7-6. Overload Relay

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**Figure 7-7. Hand Held Switch Assembly**

# LPMC-24V

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## SECTION 8 ELEVATION SYSTEM SERVICING

### 8-1 LIFT CYINDER REMOVAL

The removal of lift cylinders is dependent upon the model, size and configuration of the lift table. Lift tables are available with one, two, or three cylinders. Refer to Figure 8-1 and remove the lift cylinders as follows:

**WARNING: Improper operation of the lift table may result in operator injury or load and/or lift table damage. Refer to Section 3 for proper operational instructions. Hydraulic system pressure must be relieved before removing hydraulic system components.**

1. Raise the platform.
2. Swivel both maintenance safety bars down against the base.
3. Lower the platform until the safety bars contact the end of the base and the platform does not lower any further.
4. Drain the hydraulic oil reservoir into a suitable container.
5. Remove pressure hoses and connector (1, 14).
6. Remove any tube assemblies (9, 10, 11, 13).
7. Remove hex-head bolts (15) and jam-nuts (16).
8. Remove socket head cap screws (6) and lock-washers (7).
9. Support cylinders to prevent tipping or falling while completing remainder of removal procedures.
10. Remove set-screws (17) and cylinder shaft (5).
11. Remove cylinders (4) from base assembly.
12. Remove all adapters (8), plugs (3), and fittings (2, 12) for installation into replacement cylinders.

### 8-2 ELEVATION SYSTEM

# LPMC-24V

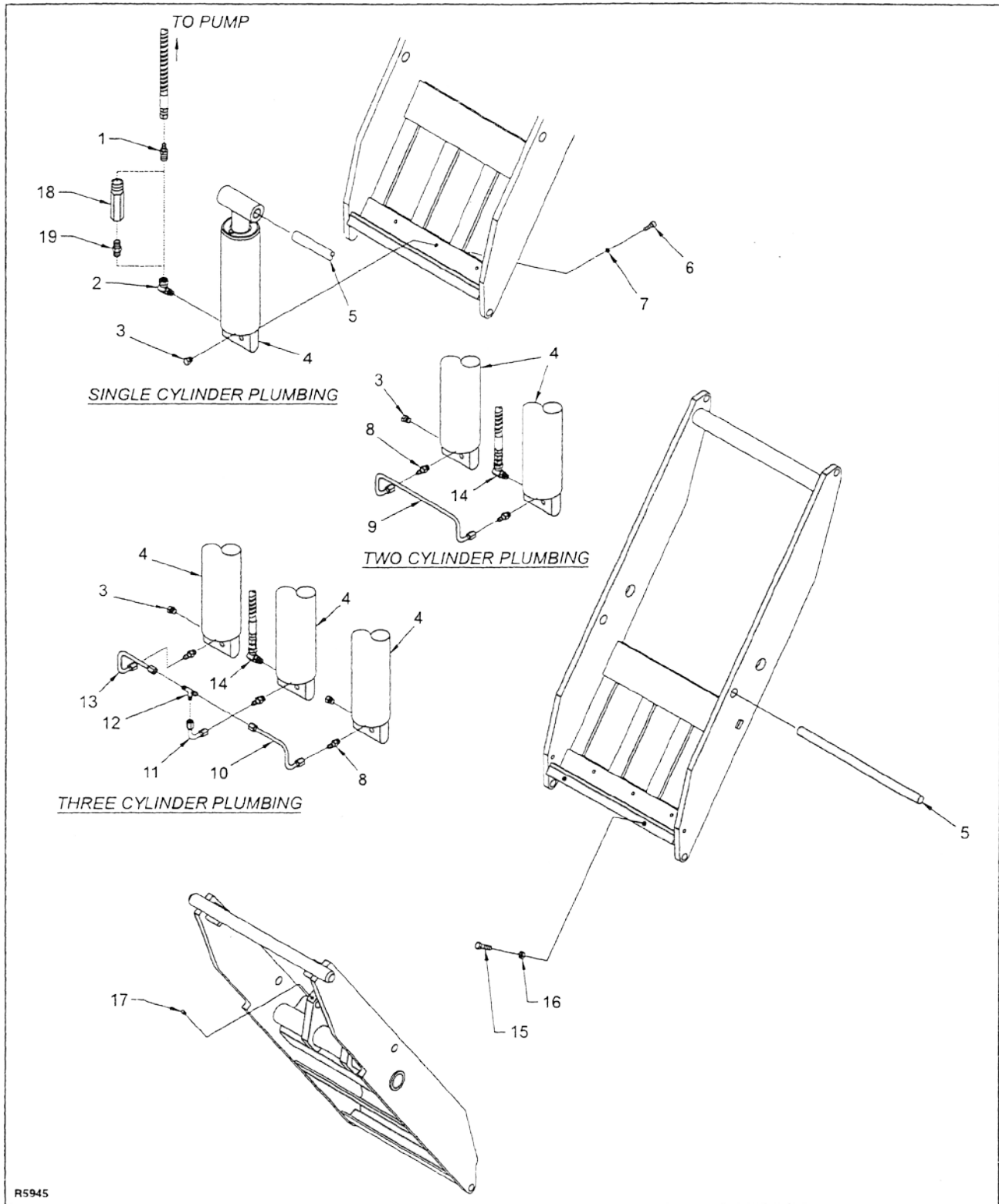


Figure 8-1. Lift Cylinder Installation

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## SECTION 9 ILLUSTRATED PARTS BREAKDOWN

The following is an illustrated parts breakdown of assemblies and parts associated with the lift table.

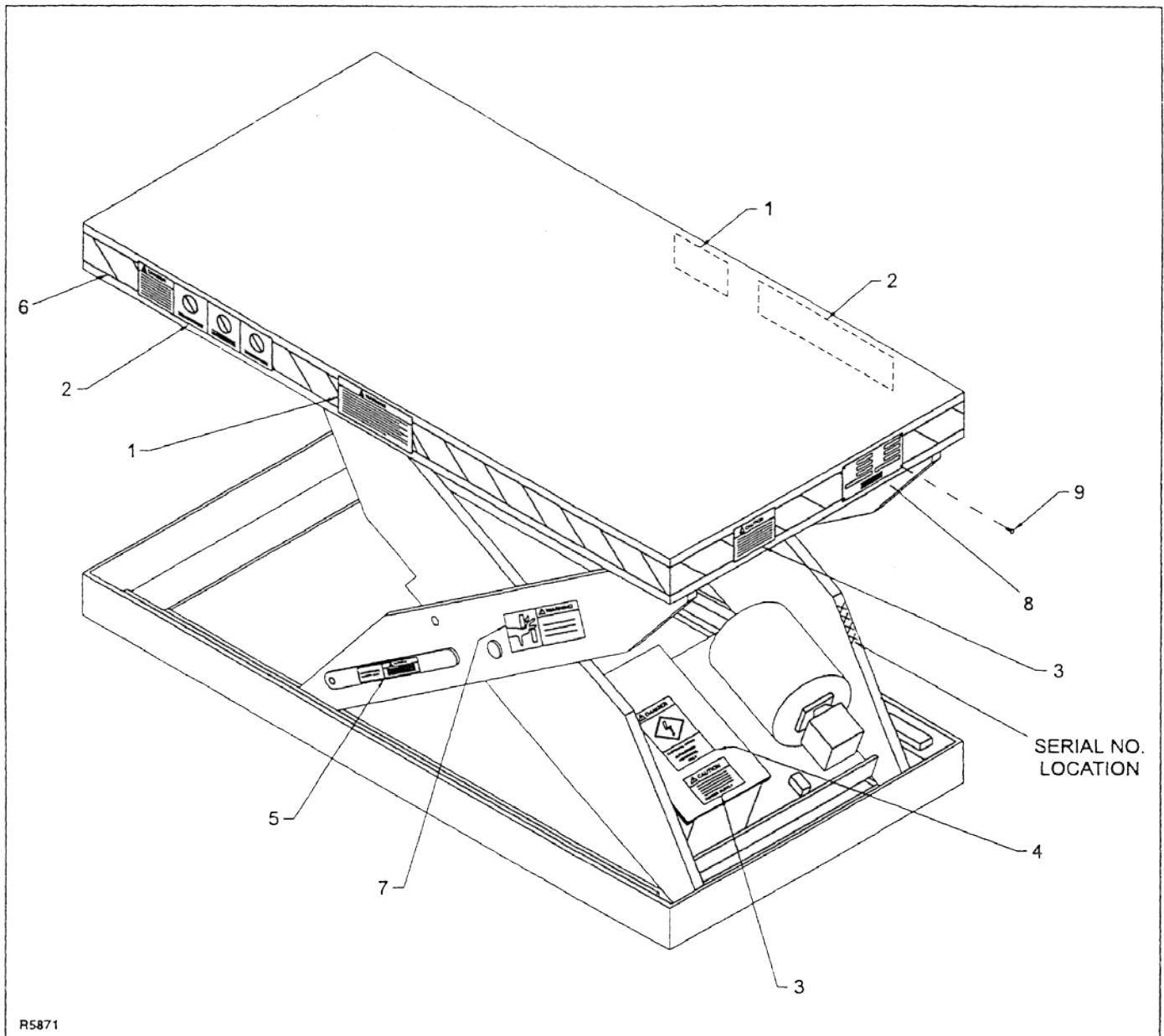
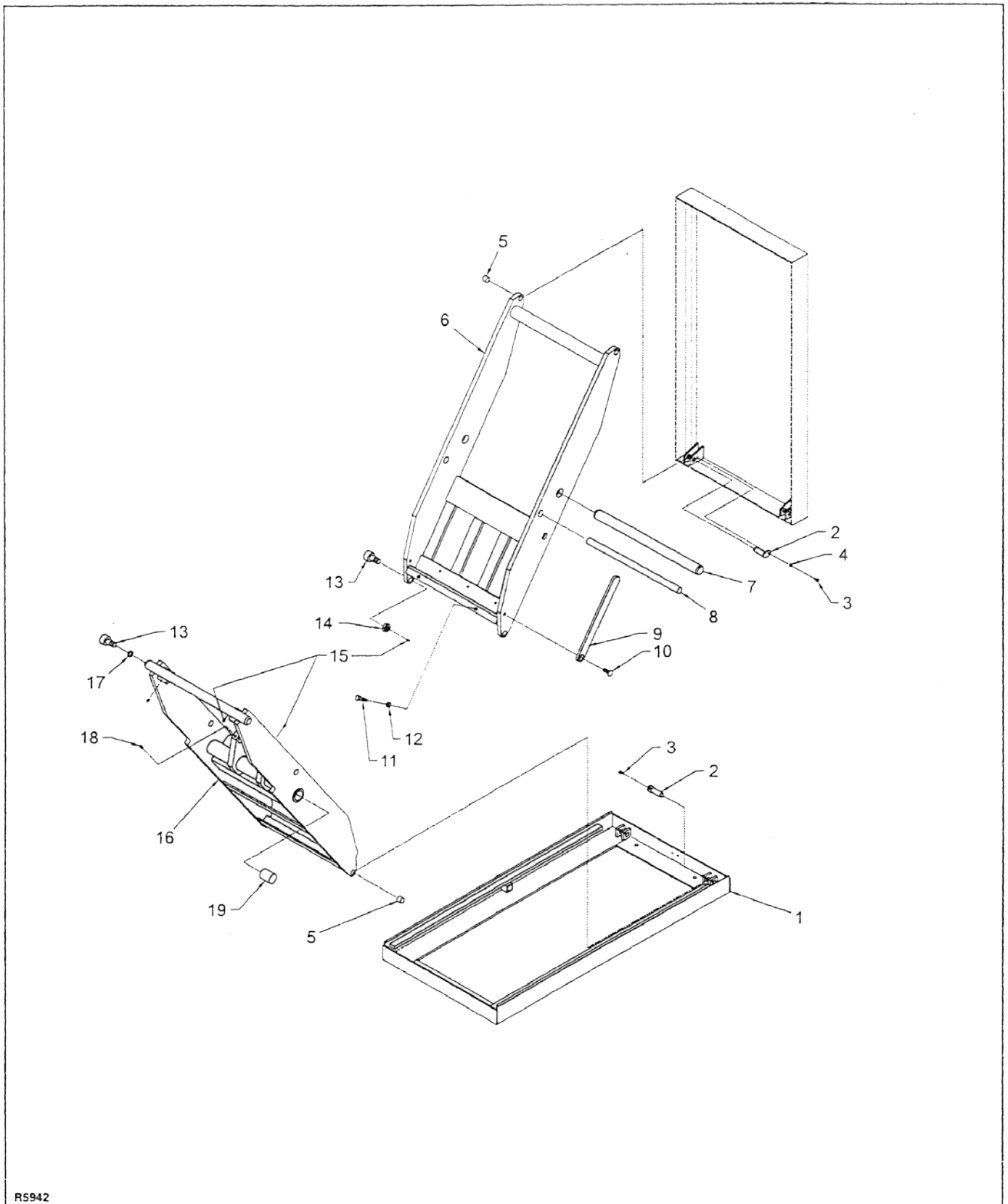


Figure 9-1. Decals and Paint

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Figure 9-2. Elevation System

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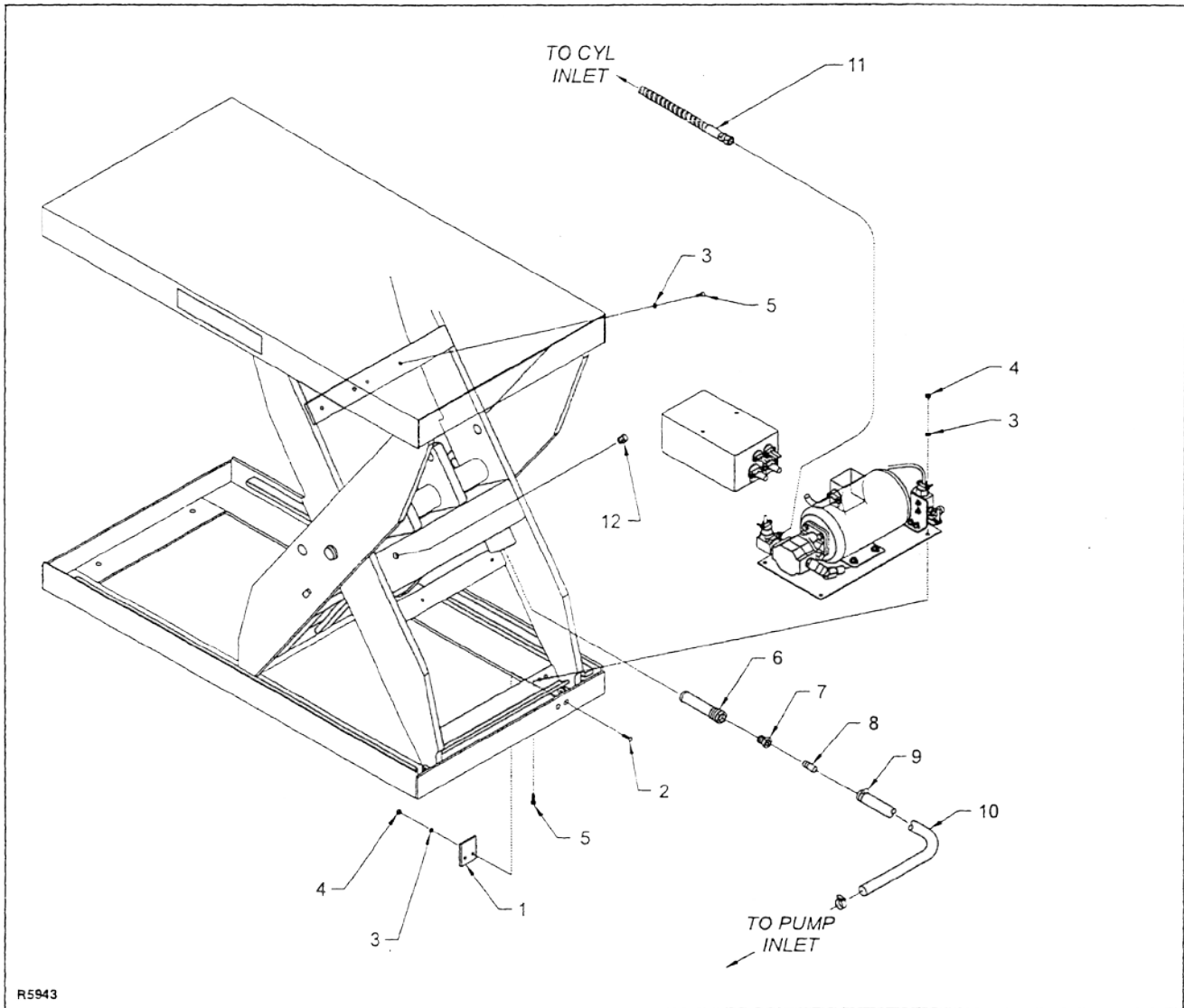


Figure 9-3. Hydraulic System (24" Table)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
1	404069	PLATE, ACTIVATOR, STANDARD	1
2	069480	MACH. SCREW-PHILLIPS, FLAT-HD	2
3	077209	WASHER-LOCK, SPLIT, 1/4	8
4	059421	NUT-HEX, 1/4-20	6
5	063478	SCREW-HEX CAP, 1/4-20 X 3/4	6
6	035114	FILTER	1

INDEX NO.	PART NO.	PART NAME	NO. REQD.
7	026504	REDUCING BUSING 1/2 TO 3/8 PTR	1
8	026128	NIPPLE, HOSE 3/8	1
9	056110	CLAMP HOSE, SCREW TYPE	2
10	308900	HOSE-LP, RUBBER .906 .625	AR
11	506003-06	HOSE ASSEMBLY, HYDAULIC	1
12	076071	VENT-3/8 NPT	1



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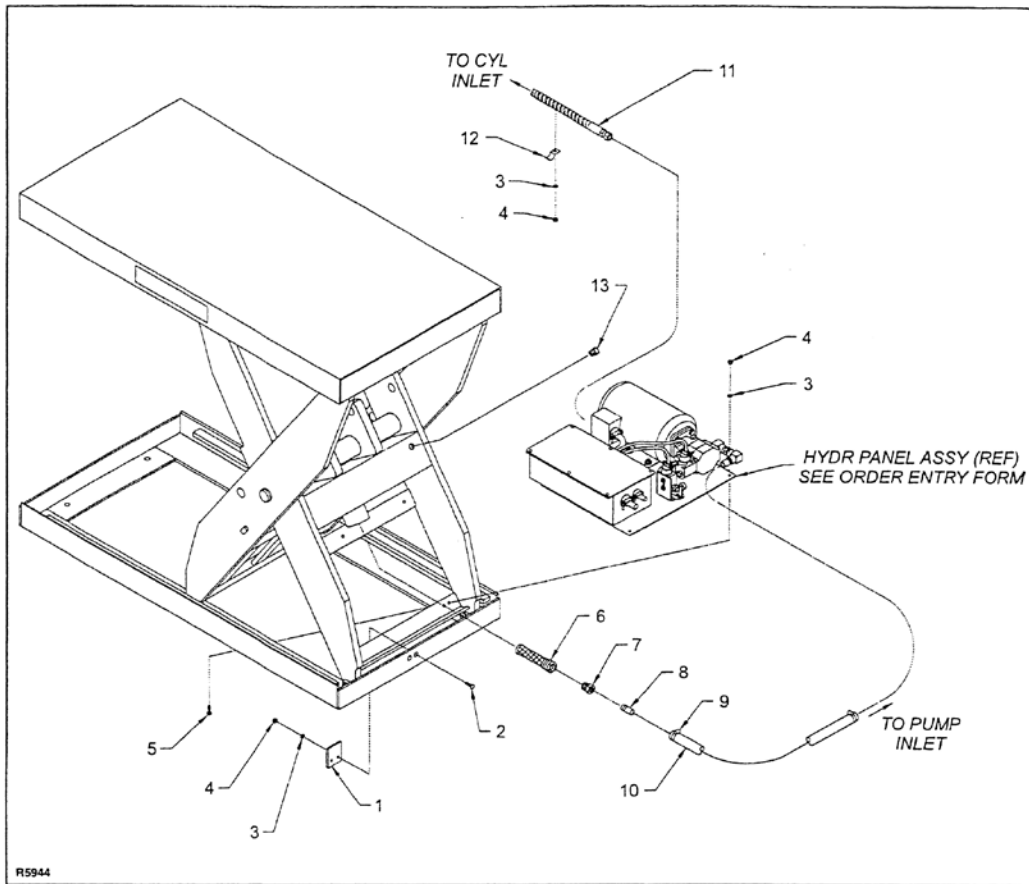


Figure 9-4. Hydraulic System (36/48/60" Tables)

INDEX NO.	PART NO.	PART NAME	NO. REQD.
1	404069	PLATE, ACTIVATOR, STANDARD	1
2	069480	MACH. SCREW-PHILLIPS, FLAT-HD	2
3	077209	WASHER-LOCK, SPLIT, 1/4	7
4	059421	NUT-HEX, 1/4-20	7
5	063478	SCREW-HEX CAP, 1/4-20 X 3/4	4
6	035114	FILTER	1
7	026504	REDUCING BUSING 1/2 TO 3/8 PTR	1
8	026128	NIPPLE, HOSE 3/8	1

INDEX NO.	PART NO.	PART NAME	NO. REQD.
9	056110	CLAMP HOSE, SCREW TYPE	2
10	308900	HOSE-LP, RUBBER .906 .625	AR
11	506033-01	HOSE ASSY (36" LIFT)	1
11	506033-02	HOSE ASSY (48" LIFT)	1
11	506033-03	HOSE ASSY (36" LIFT)	1
11	506033-04	HOSE ASSY (48" LIFT)	1
11	506033-05	HOSE ASSY (60" LIFT)	1
12	056139	CLAMP	1

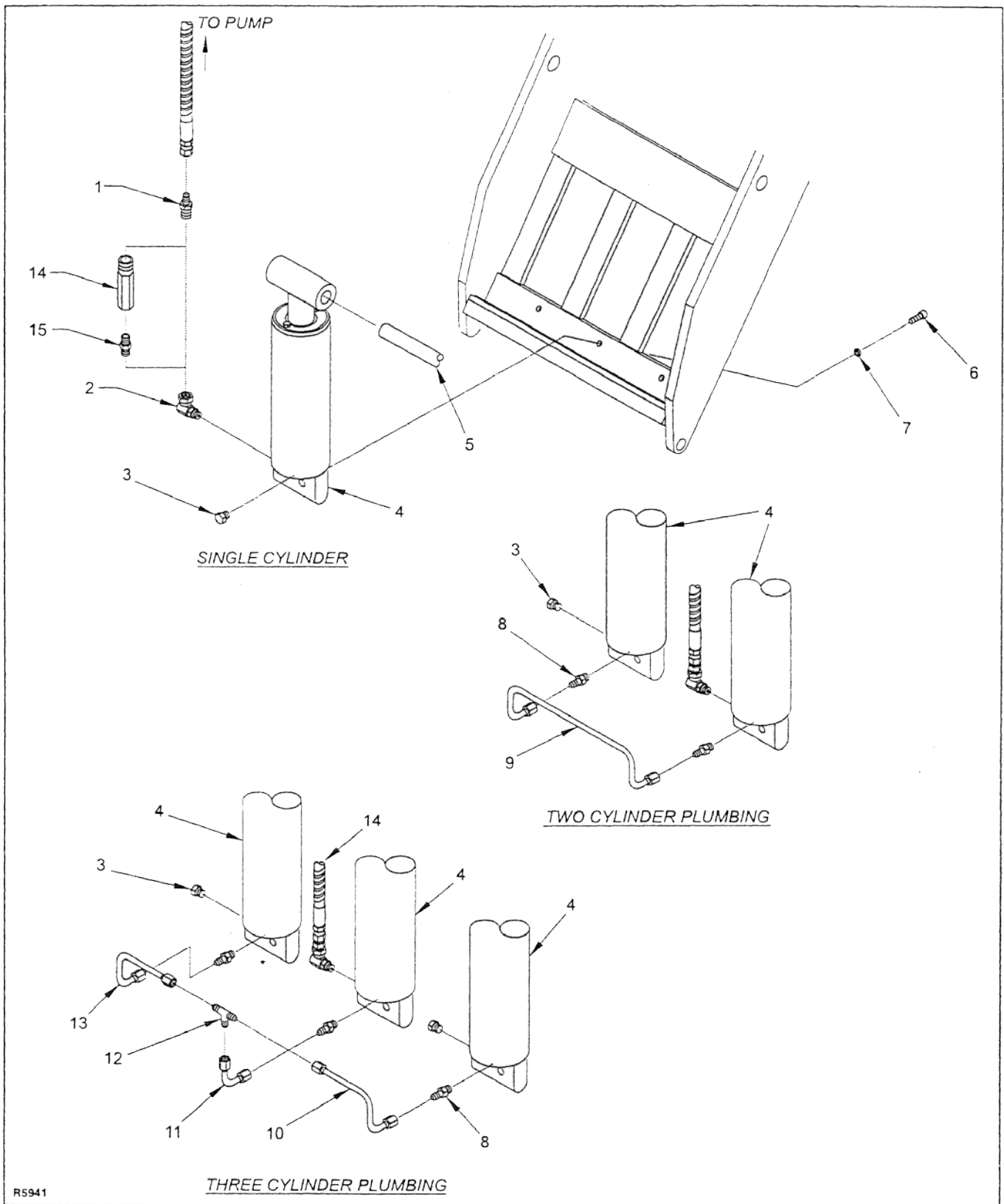
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13	076701	VENT-3/8 NPT	1
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INDEX NO.	PART NO.	PART NAME	NO. REQD.
1	404069	PLATE, ACTIVATOR, STANDARD	1
2	069480	MACH. SCREW-PHILLIPS, FLAT-HD	2
3	077209	WASHER-LOCK, SPLIT, 1/4	7
4	059421	NUT-HEX, 1/4-20	7
5	063478	SCREW-HEX CAP, 1/4-20 X 3/4	4
6	035114	FILTER	1
7	026504	REDUCING BUSING 1/2 TO 3/8 PTR	1
8	026128	NIPPLE, HOSE 3/8	1

INDEX NO.	PART NO.	PART NAME	NO. REQD.
9	056110	CLAMP HOSE, SCREW TYPE	2
10	308900	HOSE-LP, RUBBER .906 .625	AR
11	506033-01	HOSE ASSY (36" LIFT)	1
11	506033-02	HOSE ASSY (48" LIFT)	1
11	506033-03	HOSE ASSY (36" LIFT)	1
11	506033-04	HOSE ASSY (48" LIFT)	1
11	506033-05	HOSE ASSY (60" LIFT)	1
12	056139	CLAMP	1
13	076701	VENT-3/8 NPT	1

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**Figure 9-5. Lift Cylinder Installation**

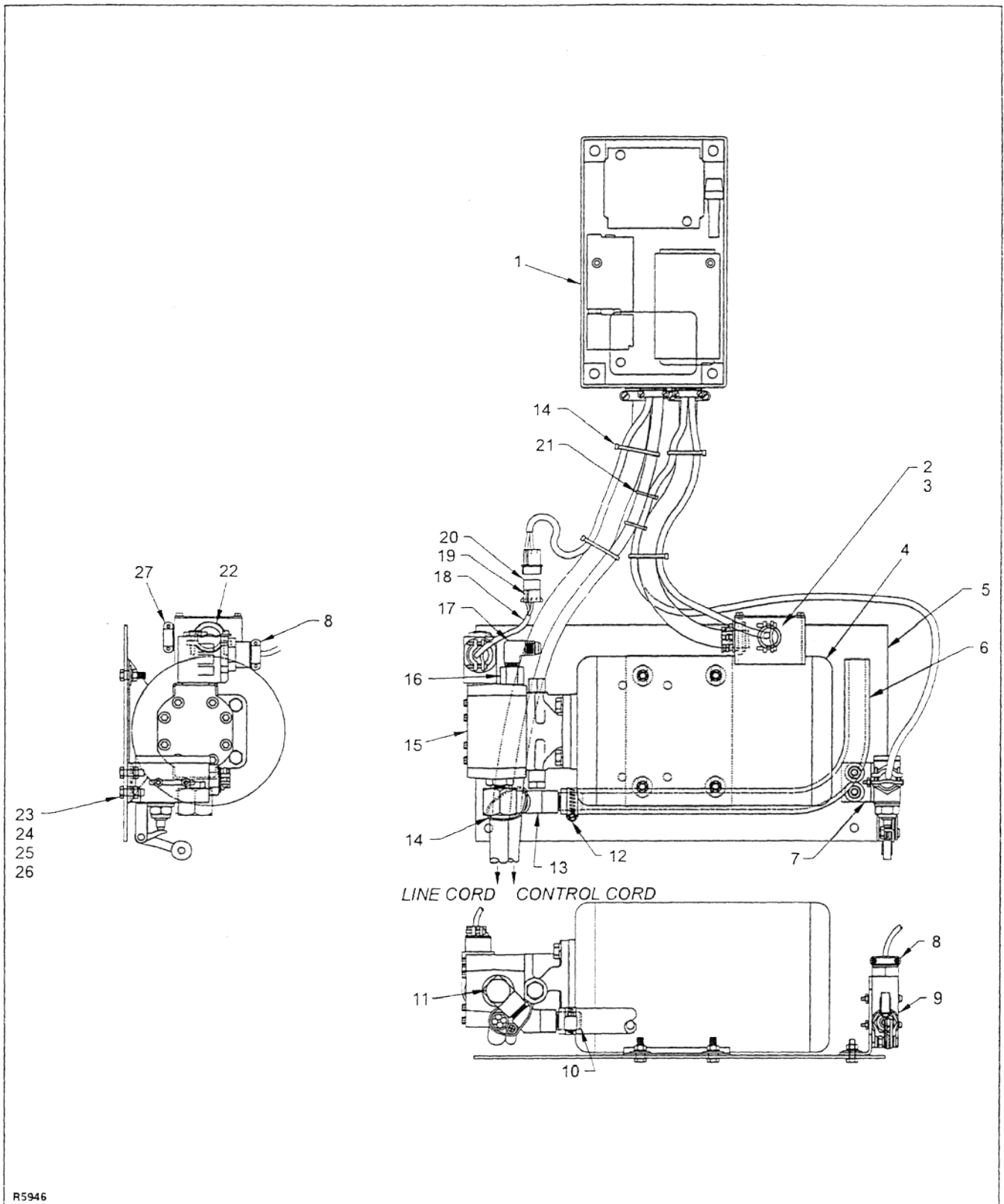
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INDEX NO.	PART NAME	LIFT TABLE (INCHES)				NO. REQD.
		24 PART NO.	36 PART NO.	48 PART NO.	60 PART NO.	
1	CONNECTOR, MALE 3/8 NPT X 3/8 JIC	026912	026912	026912	026912	1
2	ADAPTER, 90 DEGREE	025128	025128	025128	025128	1
3	PLUG, O-RING-TYPE, 9/16-18	026309	026309	026309	026309	AR
4	CYLINDER ( SEE FIG. 9-17A & 9-17B)	-	-	-	-	REF
5	SHAFT-CYLINDER	404068-01	404068-01	404068-02	404068-02	1
6	SOCKET HD CAP SCREW	065605	065605	065605	065605	AR
7	WASHER-LOC, SPLIT, 3/8	077117-04	077117-04	077117-04	077117-04	AR
8	ADAPTER	026922	026922	026922	026922	AR
9	TUBE ASSEMBLY, DUAL	506073	506018	506018	506018	AR
10	TUBE ASSEMBLY, RH	-	-	506020	506020	1
11	TUBE ASSEMBLY, MID.	-	-	506021	506021	1
12	TEE, UNION, JIC 37	-	-	027109	027109	1
13	TUBE ASSEMBLY, LH	-	-	506019	506019	1
14*	FLOW CONTROL VALVE (2.0 GPM)	-	048159-01	048159-01	-	1
14*	FLOW CONTROL VALVE (3.0 GPM)	-	048159-03	048159-03	-	1
14*	FLOW CONTROL VALVE (3.5 GPM)	-	-	048159-01	-	1
15*	CONNECTOR	-	026109	026109	-	1

**Table 9-. Lift Table Components**

INDEX NO.	PART NAME	LIFT TABLE (INCHES)				NO. REQD.
		24 PART NO.	36 PART NO.	48 PART NO.	60 PART NO.	
--	LIFT TABLE ASSY	506070	506030	506040	506050	1
1	BASE-WELDMENT	506003-07	506003-05	506003-04	506003-06	1
2	PIN-WELDMENT	506014-01	506014-01	506014-01	506014-01	4
3	SCREW, HD 1/4-20 X 1/2	063495	063495	063495	063495	4
4	WASHER-LOCK-SPLIT, ¼	077209	099209	077209	077209	4
5	BEARING-SLEEVE	052958-01	052958-01	052958-04	052958-04	4
6	ARM-WELDMENT, OUTER	506008-06	506008-01	506008-04	506008-05	1
7	SHAFT-PIVOT	404071-01	404071-01	404071-02	404071-02	1
8	SHAFT-CYLINDER	404068-01	404068-01	404068-02	404068-02	1
9	BAR, SAFETY	404067-03	404067-01	404067-02	404067-02	2
10	SCREW CAP, HEX, FLT 1/2-13 X 1 1/4	069716	069716	069716	069716	2
11	SCREW-HEX CAP, 1/2-13 X 1 1/2	064709	064709	064709	064709	2
12	NUT, HEX, JAM, 1/2-13	059537	059537	059537	059537	2
13	CAM FOLLOWER	051238	051238	051238	051238	4
14	NUT-LOCK, THIN, 7/8-14	059130	059130	059130	059130	2
15	FITTING-GREASE, 3/16DR, W/CHK	025713	025713	025713	025713	5
16	ARM-WELDMENT, INNER	506055-01	506005-01	506010-02	506047-01	1
17	SPACE-ROLLER	404047	404047	404047	404047	AR
18	SCREW-SET, 5/16-18 X 3/8	073480	073480	073480	073480	2
19	BEARING, SLEEVE	052958-03	052958-03	052958-03	052958-03	2

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**[INSERT Figure 9-9. Hand Held Switch Assembly 506038 (PREVIOUSLY Fig. 9-19)]**

INDEX NO.	PART NO.	PART NAME	NO. REQD.
-	506038	HAND-HELD SWITCH ASSEMBLY	1
1	071376	SCREW-TRUSS, #10-32 X 12	2
2	077207	WASHER-LOCK, SPLIT. # 10	2
3	059416	HEX-NUT, REGULAR 10-32	2
4	020790	BOX-SWITCH, 2 BUTTON, UP/DOWN	1
5	021203	TERMINAL-RING, 3/16, 16 GA	4
6	052905	BUSHING-RELIEF, STRAIN	1
7	0585501	MAGNET	1