Go To Table Of Contents

106 -001 thru -004

Ritter® by MIDMARK

Medical Examination Table

Service and Parts Manual

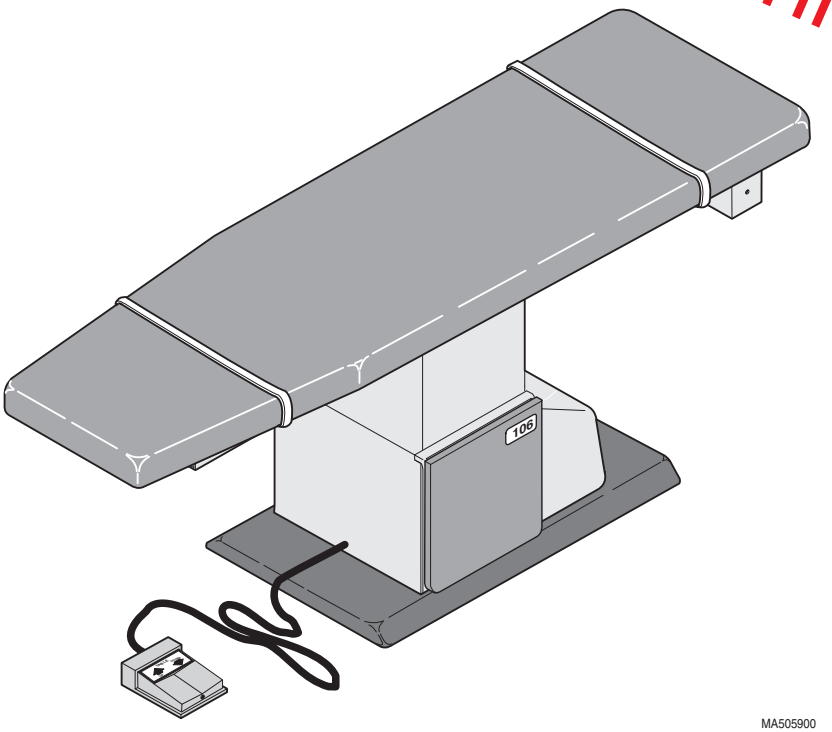
Serial Number Prefix:
J & CC

NO LONGER IN PRODUCTION

Some service parts may not be available for this product!

To purchase a printed copy of this manual, click on the "Place Order" button below.

Place Order



MA505900

FOR USE BY MIDMARK TRAINED TECHNICIANS ONLY

106 -001 thru -004

Go To Table Of Contents

TABLE OF CONTENTS

(*) Indicates that there has been a serial number break for the illustration and that there are additional point page(s) following the original page.

Printed in U.S.A.

General Safety Instructions

Safety First: The primary concern of Midmark Corporation is that this table is maintained with the safety of the patient and staff in mind. To assure that services and repairs are completed safely and correctly, proceed as follows:

(1) Read this entire manual before performing any services or repairs on this table.

(2) Be sure you understand the instructions contained in this manual before attempting to service or repair this table.

Safety Alert Symbols

Throughout this manual are safety alert symbols that call attention to particular procedures. These items are used as follows:

DANGER

A DANGER is used for an imminently hazardous operating procedure, practice, or condition which, if not correctly followed, will result in loss of life or serious personal injury.

WARNING

A WARNING is used for a potentially hazardous operating procedure, practice, or condition which, if not correctly followed, could result in loss of life or serious personal injury.

CAUTION

A CAUTION is used for a potentially hazardous operating procedure, practice, or condition which, if not correctly followed, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

EQUIPMENT ALERT

An EQUIPMENT ALERT is used for an imminently or potentially hazardous operating procedure, practice, or condition which, if not correctly followed, will or could result in serious, moderate, or minor damage to unit.

NOTE

A NOTE is used to amplify an operating procedure, practice or condition.

Warranty Instructions

Refer to the Midmark "Limited Warranty" printed in the Installation and Operation Manual for warranty information. Failure to follow the guidelines listed below will void the warranty and/or render the 105 Medical Examination Table unsafe for operation.

- In the event of a malfunction, do not attempt to operate the table until necessary repairs have been made.
- Do not attempt to disassemble table, replace malfunctioning or damaged components, or perform adjustments unless you are one of Midmark's authorized service technicians.
- Do not substitute parts of another manufacturer when replacing inoperative or damaged components. Use only Midmark replacement parts.

Printed in U.S.A.

SECTION I
GENERAL INFORMATION

1.1 Scope of Manual

This manual contains detailed troubleshooting, scheduled maintenance, maintenance, and service instructions for the Model 106 Medical Examination Table. This manual is intended to be used by Midmark's authorized service technicians.

1.2 How to Use Manual

A. Manual Use When Performing Scheduled Maintenance.

(1) Perform inspections and services listed in Scheduled Maintenance Chart (Refer to para 3.1).

(2) If a component is discovered to be faulty or out of adjustment, replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

B. Manual Use When Table Is Malfunctioning And Cause Is Unknown.

(1) Perform an operational test on table (Refer to para 2.1).

(2) Perform troubleshooting procedures listed in Troubleshooting Guide (Refer to para 2.2).

(3) If a component is discovered to be faulty or out of adjustment, replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

C. Manual Use When Damaged Component Is Known.

(1) Replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

1.3 Description Of 106 Medical Examination Table

A. General Description (Figure 1-1).

The Model 106 Medical Examination Table is an examination table designed specifically for performing general medical examinations and procedures.

The major serviceable components of the table are the hydraulic base cylinder (1, Figure 1-1), anti-cavitation solenoid valve (2), motor pump (3), down function shuttle valve (4), up function shuttle valve (5), time delay relay (6), down function relief valve (7), up function relief valve (8), capacitor (9), foot switch (10), base slide assembly (11), and chain assembly (12).

There are four different models of the 106 Series Medical Examination Table. Listed below are the model numbers and their serial number prefixes:

106-001 (J)	115 VAC, Easi-Riser
106-002 (J)	115 VAC, Easi-Riser
106-003 (J)	115 VAC, Easi-Riser w / Special 26 in. x 80 in. (66.0 x 203.2 cm) Top
106-004 (CC)	115 VAC, Easi-Riser

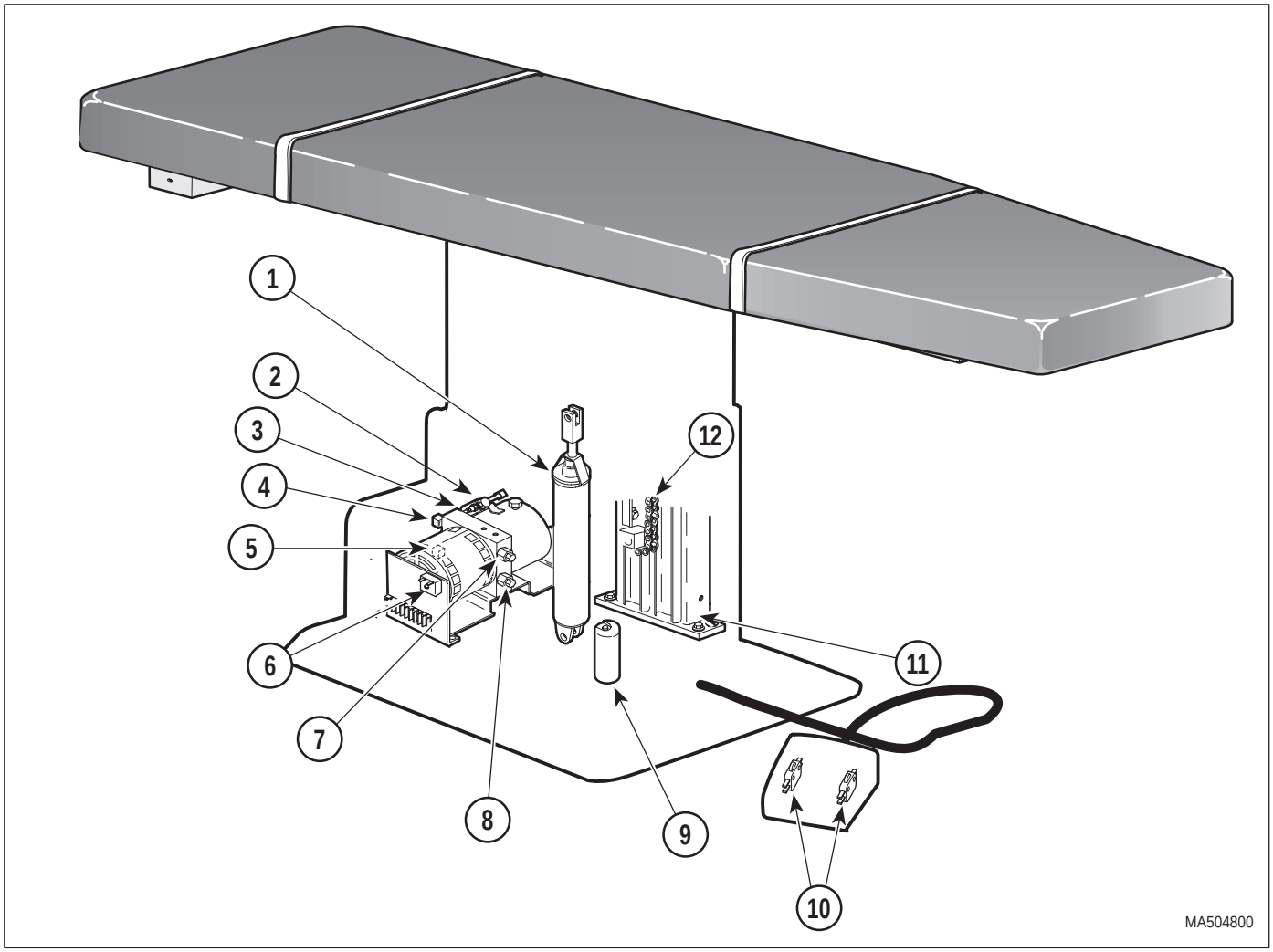
B. Component Description (Refer to Figure 1-1 and Figures 5-5 and 5-6).

Anti-Cavitation Solenoid Valve (2, Figure 1-1).
The purpose of the anti-cavitation solenoid valve (2, Figure 1-1) is to prevent extending the cylinder rod should upward pressure be applied to the table top through manual lifting. It prevents hydraulic fluid from escaping out of the rod end port of the cylinder when the hydraulic system is *not* energized.

Up and Down Function Shuttle Valves (4 & 5, Figure 1-1).
The Shuttle Valves prevent hydraulic fluid from returning to the reservoir during the specific function.
During the "Up" function the check ball in the "Up" function shuttle valve (5, Figure 1-1) seats against the reservoir port, closing the port, preventing the pressurized fluid from entering the reservoir.

Printed in U.S.A.

SECTION I
GENERAL INFORMATION



1. Base Cylinder	7. Down Function Relief Valve
2. Anti Cavitation Valve	8. Up Function Relief Valve
3. Motor Pump	9. Capacitor
4. Down Function Shuttle Valve	10. Foot Switch
5. Up Function Shuttle Valve	11. Base Slide Assembly
6. Time Delay Relay	12. Chain Assembly

Figure 1-1. Major Components

Printed in U.S.A.

At the same time the check ball in the "Down" function shuttle valve (4, Figure 1-1) is repositioned due to the suction and return pressure in the system. This movement opens the reservoir port in the "Down" function shuttle valve (4) to allow fluid to enter the reservoir.
During a "Down" function the position of the check balls in the shuttle valves are reversed with the check ball in the "Down" function shuttle valve (4) closed and the "Up" function shuttle valve (5) check ball opened to the reservoir.

Up and Down Function Pressure Relief Valves (7 & 8, Figure 1-1).
The pressure relief valves prevent the hydraulic motor pump from developing too high of pressures that may damage the hydraulic system components, hoses or the motor. The "Up" function pressure relief valve (8, Figure 1-1) opens at 525 - 600 PSI (36.2 - 41.4 BARS). The "Down" function pressure relief valve (7, Figure 1-1) opens at 250 - 325 PSI (17.2 - 22.4 BARS). The valves are preset at the factory and should never be adjusted.

Reservoir Check Valves (Refer to Figures 5-5, 5-6).
The motor pump also contains two internal reservoir check valves, one for the "Up" function side and another for the "Down" function side. These two check valves work together to supply hydraulic fluid to the system and prevent the fluid from returning directly back to the reservoir before the base cylinder is operated.
When the motor pump starts, a suction pressure is created on one of the reservoir check valves depending on which function "Up" or "Down" is being used.
During a "Down" function the "Up" function check valve will open to supply hydraulic fluid to the system. The "Down" function check valve will be closed due to the system pressure and its own internal spring pressure.
During an "Up" function the "Down" check valve will open and the "Up" check valve will be closed.

Base Cylinder Solenoid Valve (1, Figure 1-1).
The base cylinder solenoid valve (1) allows hydraulic fluid to enter, leave or be retained in the area below the piston of the base cylinder. This allows the cylinder rod to be extended, retracted or held in position depending on which function is being performed.
During the "Up" function the solenoid valve is energized and opened. Pressurized fluid is pumped into the cavity below the piston causing the piston rod to extend which forces fluid out on the rod end side of the piston back to the reservoir.
During a "Down" function the solenoid valve is energized and opened. Pressurized fluid is pumped into the cavity on the rod end side of the piston causing the piston rod to retract and forcing fluid out below the piston back to the reservoir.
As long as the cylinder solenoid valve (1) is not energized it will remain closed, retaining any fluid in the cylinder.

Time Delay Relay (6, Figure 1-1).
The time delay relay (6, Figure 1-1) delays current flow across the coil of the solenoid cylinder valve (1) for 1/10 of a second, causing it to energize 1/10 of a second after the motor pump (3) and anti-cavitation solenoid valve (2) have energized. This allows the motor pump to run and hydraulic fluid pressure to build up before the table cylinder is operated, so the table top will not cavitate.

C. Theory of Operation (See Figures 5-1 thru 5-4 for wiring diagrams and electrical schematics and Figures 5-5 and 5-6 for hydraulic flow diagrams.)

Electrical Power:
115 VAC line voltage is supplied thru the power cord to terminal board (TB). The foot switch "UP" or "DOWN" pedal must be depressed in order to initiate a function.

Raising Table (Depressing the Table "UP" foot switch).
Depressing the Table "UP" foot pedal actuates the SW1 foot switch which causes the normally closed (N.C.) contacts to open and closes the normally open (N.O.) contacts.
Current can flow thru the SW1 N.O. ***closed*** contacts to the terminal board TB6 terminal to one side of the anti-cavitation solenoid valve (ACV) energizing it to the open position. At the same time current flows through TB7 terminal to T2 connector on the motor pump (M1) energizing the "Up" motor winding. Current also flows thru the capacitor (C1) to T3 connector on the motor pump (M1) energizing the "Down" motor winding. The current to the "Down" winding is out of phase with the current at the "Up" winding causing the motor to rotate in the direction for the "Up" function.
Current that passes thru the capacitor (C1) also flows to the solenoid coil of the base hydraulic cylinder. Due to the time delay relay (TDR), wired in series with the solenoid coil, the solenoid energizes 1/10 of a second after the motor pump has been running to prevent cavitation of the cylinder. The table top will raise as long as the foot pedal is being depressed or until it reaches maximum height.

Printed in U.S.A.

SECTION I
GENERAL INFORMATION

Lowering Table (Depressing the Table "DOWN" foot switch).

Depressing the Table "DOWN" foot pedal actuates the SW2 foot switch which causes the normally closed (N.C.) contacts to open and closes the normally open (N.O.) contacts.

Current can flow thru the SW2 N.O. ***closed*** contacts to the terminal board TB8 terminal to T3 connector on the motor pump (M1) energizing the "Down" motor winding. Current also flows thru the capacitor (C1) to T2 connector on the motor pump (M1) energizing the "Up" motor winding. The current to the "Up" winding is out of phase with the current at the "Down" winding causing the motor to rotate in the direction for the "Down" function.

Current that passes thru the capacitor (C1) also flows to the anti-cavitation solenoid valve (ACV) energizing or opening the valve.

Current also flows thru SW1 N.O. closed contacts to TB9 terminal on the terminal board to the solenoid coil of the base hydraulic cylinder. Due to the time delay relay (TDR), wired in series with the solenoid coil, the solenoid energizes 1/10 of a second after the motor pump has been running to prevent cavitation of the cylinder. The table top will lower as long as the foot pedal is being depressed or until it reaches minimum height.

1.4 Standard Torque Specifications

The following standard torque specifications in Table 1-1 apply to the various hardware used on the units unless otherwise noted in service procedures or parts illustrations:

Table 1-1. Torque Specifications

Hardware Size	Torque Values
#6	11 to 21 inch / lbs. (1.2 to 2.3 N•M)
#8	20 to 30 inch / lbs. (2.2 to 3.3 N•M)
#10	32 to 42 inch / lbs. (3.6 to 4.8 N•M)
1/4"	75 to 85 inch / lbs. (8.5 to 9.6 N•M)
5/16"	18 to 22 foot / lbs. (24.4 to 29.8 N•M)
3/8"	31 to 35 foot / lbs. (42.0 to 47.5 N•M)
1/2"	50 to 60 foot / lbs. (67.8 to 81.4 N•M)

1.5 Specifications

Factual data for the 106 Power Examination Table is provided in Table 1-2. Also, see Figure 1-2.

Table 1-2. Specifications

Description	Data
Weight:	
Without Shipping Carton	367 lb (166.5 kg)
With Shipping Carton	450 lb (204.0 kg)
Shipping Carton	76 in. "L" x 30 in. "W" x 38.5 in. "H" (193.0 cm x 76.2 cm x 97.8 cm)
Dimensions (See Figure 1-2):	
Table Top Length	72 in. (182.9 cm)
Table Top Width	24.0 in. (60.9 cm) wide tapered to 16 in. (40.6 cm) wide at the head end.
Table Positioning (Adjustable):	
Table Top Height	23.0 in. (58.4 cm) to 38.5 in. (97.8 cm)
Patient Weight Capacity (Maximum)	325 lb (147.4 kg)
Oil Used In Hydraulic System	light grade medicinal mineral oil
Hydraulic System	
Oil Capacity	Approx. 2.5 quarts (2.4 liters)
Motor Pump Reservoir Capacity	1 quart (.946 liter)
Electrical Requirements:	
115 VAC Unit	100-120 VAC, 60 Hz 12 amps, single phase
Recommended Circuit:	A separate (dedicated) circuit is recommended for this table. The table *should not* be connected to an electrical circuit with other appliances or equipment unless the circuit is rated for the additional load.
Up Function Relief Valve Setting	Valve opens at 525 to 600 PSI (36.2 to 41.4 BARS)
Down Function Relief Valve Setting	Valve opens at 250 to 325 PSI (17.2 to 22.4 BARS)

1.6 Parts Replacement Ordering

If a part replacement is required, order the part directly from the factory as follows:

NOTE
It is ***important*** that the ***entire*** Model ***and*** Serial Number be presented when ordering parts, scheduling a service call or seeking technical advice.

Printed in U.S.A.

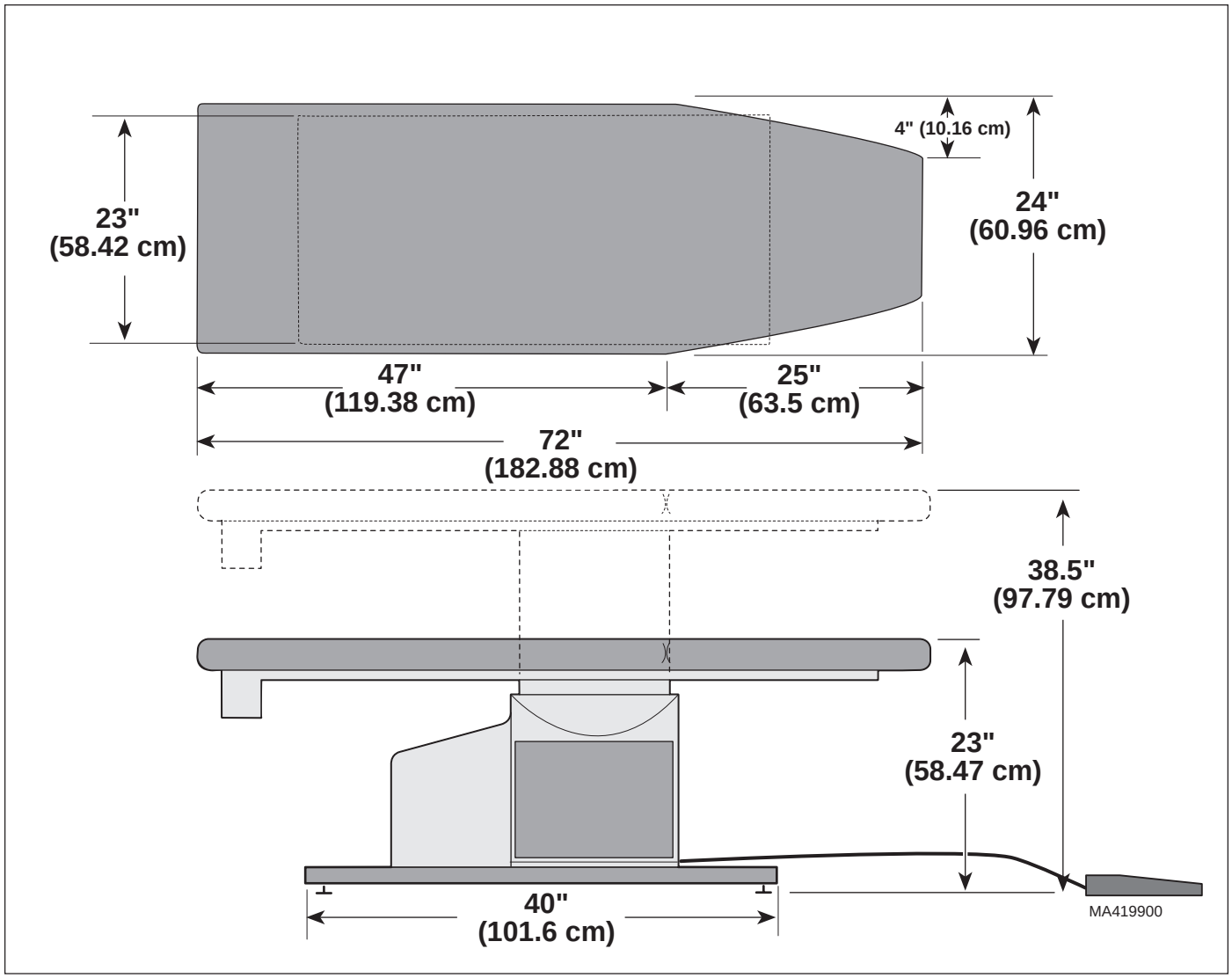


Figure 1-2. Specifications

(1) Refer to Figure 1-3 to determine the location of the model number and serial number of the table and record this data.

(2) Refer to the Parts List to determine the item numbers of the parts, part numbers of the parts, descriptions of the parts, and quantities of parts needed and record this data (Refer to para 6.1).

NOTE
Ask the Purchasing Department of the company that owns the table for this information. Otherwise, this information may be obtained from the dealer that sold the table.

(3) Determine the installation date of the table and record this data.

(4) Call Midmark with the recorded information and ask for the Medical Products Technical Services Department (See back cover of this manual for the phone number) or use the Fax Order Form (See page 7-2 for Fax Order Form).

1.7 Special Tools

Table 1-2 lists all of the special tools needed to repair the table, how to obtain the special tools, and the purpose of each special tool.

Printed in U.S.A.

SECTION I
GENERAL INFORMATION

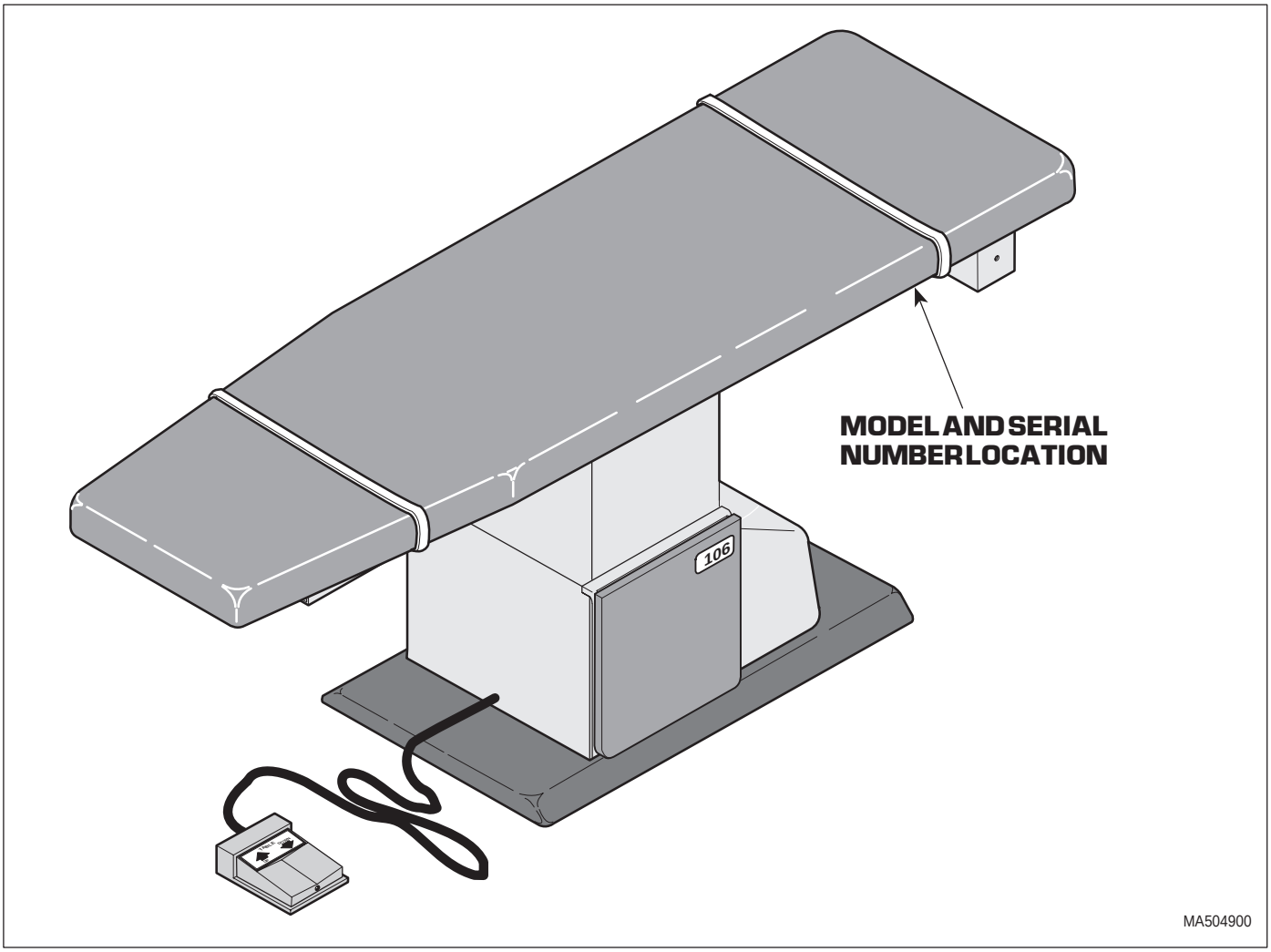


Figure 1-3. Model / Serial Number Location

Table 1-3. Special Tools

Description of Special Tool	Manufacturer's Name / Address / Phone	Manufacturer's Part Number	Purpose of Special Tool
Multimeter (*)	Commercially Available	Any Type	Used to perform continuity and voltage checks.
Torque Wrench (*)	Commercially Available	Any Type	Used to tighten nuts or screws to specified values.

(*) *Tool should be calibrated annually to ensure proper specifications are met.*

SECTION II
TESTING AND TROUBLESHOOTING

2.1 Operational Test

In order to effectively diagnose the malfunction of the table, it may be necessary to perform an operational test as follows:

DANGER
Refer to the Operator Manual for complete instructions on operating the table. Failure to do so could result in personal injury.

NOTE
The Operational Test, for the most part, only describes what should happen when the table is operated. If the table does something other than described, a problem has been discovered. Refer to the Troubleshooting Guide to determine the cause of the problem and its correction.

(1) Plug the table into a grounded, non-isolated, correctly polarized outlet that has the proper voltage output for the table.

(2) Operate the TABLE "UP" foot switch.

Observe. The table top should elevate smoothly without jerky motions from a low of 23.0 inches (58.4 cm) minimum to a maximum of 38.5 inches (97.8 cm).

(3) Operate the TABLE "DOWN" foot switch.

Observe. The table should descend smoothly and without jerky motions.

(4) Place approximately 200 lbs. (90.7 kg.) on the table top and elevate the table to maximum height.

Observe. The table should hold firmly in place without drifting down.

2.2 Troubleshooting Procedures

Table 2-1 is a Troubleshooting Guide which is used to determine the cause of the malfunction.

Table 2-1. Troubleshooting Guide

Problem	Symptom	Probable Cause	Check	Correction
Table UP and DOWN functions do not work.	Motor / Pump or solenoids do not operate.	Table is not plugged into a wall outlet.	Check to insure table is plugged into a wall outlet.	Plug table into a wall outlet.
		Wall outlet is not powered	Check circuit breaker and / or fuse for suspected wall outlet.	Replace fuse or reset circuit breaker if necessary.
		Table power cord has broken wires or loose connections at terminal board (TB1) terminals 1 or 4.	Check for loose connections at the table terminal board, terminals 1 and 4, and check the continuity of the wires in the power cord.	Replace the power cord or repair the loose connection at the terminal board. Refer to para 5.1.

SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide

Problem	Symptom	Probable Cause	Check	Correction
Table UP and DOWN functions do not work. - Continued	Motor / Pump or solenoids do not operate. - Continued	Red, white and/or black wires in cord between footswitch and terminal board (TB1) are broken.	Check continuity of red, white and black wires of foot switch cord.	Replace the cord between the footswitch and terminal board. Refer to para 5.1.
		Microswitches (SW1 and SW2) in footswitch malfunctioning.	Check continuity of SW1 and SW2 microswitches normally closed (N.C.) and normally open (N.O.) contacts in the operated and unoperated positions.	Adjust or replace malfunctioning microswitches. Refer to para 4.17.
	Motor / Pump does not run. Anti-cavitation and cylinder solenoids operate.	Capacitor is blown, has a loose connection or broken lead (white / black) (motor pump may be humming).	Check connections and leads and visually inspect the capacitor for damage. Substitute a known good capacitor for suspected bad capacitor.	Repair or replace leads or connectors. Replace capacitor. Refer to para 4.14.
		Motor thermal overload switch has opened due to overheated motor pump.	Check for continuity of motor windings between yellow to blue and between yellow and red motor leads. A certain resistance reading should be visible on the meter.	Allow motor pump to cool 15 to 20 minutes and then try to operate table. If motor pump does not run now, replace motor pump. Refer to para 4.10 or 5.1.
		Blue wire from motor / pump broken or disconnected from capacitor (C1).	Check continuity of the blue wire coming out of the motor / pump and check the connection at the capacitor (C1).	Repair the blue wire or replace the motor / pump. Refer to para 5.1. Motor / pump is locked up or burned out.
		Motor / pump is locked up or burned out.	Check for excessive or locked rotor amp draw on motor. Check for grounded or open windings on motor.	Replace motor / pump. Refer to para 4.10.
		Wire connections loose.	Check all wire connections from terminal block to motor pump. Use multimeter to check for proper voltage levels.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
	Motor pump runs but table top does not move. Anti-cavitation valve energizes. Hydraulic base cylinder solenoid does not energize.	Time delay relay is malfunctioning.	Use a jumper wire across the terminals of the Time Delay Relay to bypass the relay. If table top operates, time delay relay is malfunctioning.	Replace time delay relay. Refer to para 4.13.

Printed in U.S.A.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Table UP or DOWN functions do not work (continued).	Motor pump does not run. Anti-Cavitation and cylinder solenoids operate (continued).	Up and / or Down function shuttle valve(s) are malfunctioning.	Inspect both shuttle valves for dirt or malfunction.	Clean or replace malfunctioning shuttle valve(s). Refer to para 4.5 and 4.6.
		Hydraulic base cylinder solenoid valve has an open winding in the solenoid coil.	Check continuity of cylinder solenoid valve coil. A resistance reading of 29.45 to 32.55 ohms should be present.	If the coil shows an open winding replace the hydraulic base cylinder assembly. Refer to para 4.12.
		Hydraulic base cylinder solenoid valve lead is broken or disconnected from terminal block.	Check continuity of cylinder solenoid leads and for loose connections at terminal board TB3 or TB6.	Repair loose connections at terminal board or replace hydraulic cylinder if leads are broken. Refer to para 4.12.
	Motor pump runs but table top does not move. Anti-cavitation valve and cylinder solenoids energize. Motor is excessively noisy.	Hydraulic system is low on mineral oil.	Check oil level in reservoir.	If necessary, add oil to reservoir. Refer to para 4.4.
		Suction valves in motor pump clogged with debris not allowing fluid to flow thru the system.	Check for fluid flow in lines at the hydraulic solenoid valves.	Remove reservoir and clean any debris from ports of suction valves. Refer to para 4.10 and 4.11.
		Pump impeller broken loose from motor shaft.	Remove reservoir and inspect pump impeller.	Repair or replace motor pump. Refer to para 4.10.
The TABLE UP function does not work, but TABLE DOWN function works.	Motor pump runs during an UP function, but table does not move. Cylinder solenoid energizes (audible click).	Anti-cavitation solenoid valve is malfunctioning.	Check for slight magnetism on bottom side of anti-cavitation solenoid valve, indicating solenoid is not burned out. Check connections TB3 and TB6 on terminal block and for broken leads from the solenoid.	Repair loose or defective connections or replace anti-cavitation solenoid valve. Refer to para 4.7.
		UP function shuttle valve is malfunctioning.	Check to see if check ball is loose in UP function shuttle valve or adjacent elbow (check ball should be held in shuttle valve by metal ring).	Replace UP function shuttle valve. Refer to para 4.5.

SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
The TABLE UP function does not work, but TABLE DOWN function works.	Motor / pump does not run when the UP function foot pedal is depressed, but does when a DOWN function foot pedal is depressed.	Wire connection in foot control UP (SW1) microswitch disconnected on switch at C or NO terminals.	Check all wiring connections in foot control.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections. Refer to para 5.1.
		Foot control UP (SW1) microswitch out of adjustment.	Check continuity of C - NO and C - NC contacts of SW1 microswitch in the operated position.	Adjust the UP (SW1) microswitch. Refer to para 4.17.
		Foot control UP (SW1) microswitch contacts C - NO will not close.	Check continuity of C - NO and C - NC contacts of SW1 microswitch in the operated position.	Replace the UP (SW1) microswitch. Refer to para 4.17.
The TABLE UP function does not work, but TABLE DOWN function works.	Motor pump runs during an UP function, but table does not move. Cylinder solenoid energizes (audible click).	Anti-cavitation solenoid valve is malfunctioning.	Check for slight magnetism on bottom side of anti-cavitation solenoid valve, indicating solenoid is not burned out. Check connections TB3 and TB6 on terminal block and for broken leads from the solenoid.	Repair loose or defective connections or replace anti-cavitation solenoid valve. Refer to para 4.7.
		UP function shuttle valve is malfunctioning.	Check to see if check ball is loose in UP function shuttle valve or adjacent elbow (check ball should be held in shuttle valve by metal ring).	Replace UP function shuttle valve. Refer to para 4.5.
TABLE DOWN does not work. TABLE UP works.	Motor pump runs when a DOWN function foot pedal is depressed. Table top does not move.	Down function shuttle valve is malfunctioning.	Check to see if check ball is loose in down function shuttle valve or adjacent elbow (check ball should be held in shuttle valve by metal ring).	Replace down function shuttle valve. Refer to para 4.6.
	Motor pump does not run when a DOWN function foot pedal is depressed, but runs during an UP function.	Wire connection in foot control DOWN (SW2) microswitch disconnected on switch at C or NO terminals.	Check all wiring connections in foot control.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections. Refer to para 5.1.
		Foot control DOWN (SW2) microswitch contacts C-NO will not close.	Check continuity of C-NO and C-NC contacts of SW2 microswitch in the operated position.	Replace the DOWN (SW2) microswitch. Refer to para 4.17.
		Foot control DOWN (SW2) microswitch out of adjustment.	Check continuity of C-NO and C-NC contacts of SW2 microswitch in the operated position.	Adjust the DOWN (SW2) microswitch. Refer to para 4.17.

Printed in U.S.A.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Motor shuts off intermittently.	After a short period of operation, the motor / pump shuts off. The cylinder solenoid valve and anti-cavitation valve continue to operate normally.	Motor pump is overheating due to operator running table up and down continuously. Motor over-load (O/L) protector is opening. Motor is an intermittent operational motor.	Check to assure table is being operated properly.	Instruct users on correct operation.
		Capacitor (C1) is weak causing excessive amp draw and over-heating on motor / pump. Motor over-load (O/L) protector is opening.	Substitute a known good capacitor with the same microfarad and voltage rating.	Replace the capactior. Refer to para 4.14.
		Low supply voltage causing excessive amp draw and over-heating of motor.	Using a VOM check the voltage at the terminal board, terminals TB1 and TB4 while raising the table top.	If lower than normal voltage is present inform the operator to contact the Power Company.
Table drifts down.	Table raises and lowers normally but will not hold position.	Dirt particles in cylinder valve or faulty valve.	Operate cylinder by extending and retracting the cylinder about ten (10) times to attempt to flush any dirt particles from valve seat.	If flushing of cylinder did not work and cylinder keeps drifting, replace the cylinder. Refer to para 4.12.
		Cylinder, hydraulic hoses, or connections leaking hydraulic fluid.	Check for hydraulic leaks in system.	Repair or replace any components that are leaking. Recheck hydraulic fluid level in reservoir. Refer to para 4.4.
Table is noisy during operation.	As table raises or lowers a scraping or squealing noise is heard.	Lower shrouds mis-aligned.	Observe the lower shrouds as the table raises and lowers.	Re-align the lower shrouds if they interfere with each other.
		Dry bearing surfaces on the scissors frame of the table.	Check for lubrication on the bearing surfaces of the scissor frame.	Lubricate the bearing surfaces with a light grade machine oil.
Table moves fine for light patient, but will not move or moves slowly for very heavy patient.	Occurs for both the UP and DOWN functions.	Hydraulic system is low on mineral oil.	Check oil level in reservoir.	If necessary, add oil to reservoir. Refer to para 4.4.
		UP and DOWN function relief valves are malfunctioning.	Replace suspect relief valve(s) with known working relief valve(s).	Replace UP function and/or DOWN function relief valve(s). Refer to para 4.8 and 4.9.
		Capacitor on Motor / Pump is weak.	Replace Motor / Pump capacitor with known good capacitor of the same rating.	Replace Motor / Pump capacitor. Refer to para 4.14.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Table moves fine for light patient, but will not move or moves slowly for very heavy patient (continued).	Occurs for UP function only.	UP function relief valve is malfunctioning.	Replace suspect UP function relief valve with known working relief valve.	Replace UP function relief valve. Refer to para 4.8.
	Occurs for DOWN function only.	DOWN function relief valve is malfunctioning.	Replace suspect DOWN function relief valve with known working relief valve.	Replace DOWN function relief valve. Refer to para 4.9.
Excessive side to side movement of table column.	Table is not stable and can be moved from side to side.	Chain assemblies are loose.	Check tension of chain assemblies.	Adjust tension of chain assemblies. Refer to para 4.15.
		Base slide assembly is worn or deformed.	Check condition of base slide assembly.	.Replace base slide assembly. Refer to para 4.16.

Printed in U.S.A.

SECTION III
SCHEDULED MAINTENANCE

3.1 Scheduled Maintenance

Table 3-1 is a Scheduled Maintenance Chart which lists the inspections and services that should be performed periodically on the table. These inspections and services should be performed as often as indicated in the chart.

Table 3-1. Scheduled Maintenance Chart

Interval	Inspection or Service	What to Do
Semi-annually	Obvious damage	Visually check condition of table for obvious damage such as: cracks in components, missing components, dents in components, leaking oil, or any other visible damage which would cause table to be unsafe to operate or would compromise its performance. Repair table as necessary.
	Fasteners/hardware	Check table for missing or loose fasteners/hardware. Replace any missing hardware and tighten any loose hardware as necessary.
	Warning and instructional decals	Check for missing or illegible decals. Replace decals as necessary.
	Pivot points/moving parts/accessories	Lubricate all exposed pivot points, moving parts, and accessories with silicone based lubricant.
	Hydraulic hoses and fittings	Check all hydraulic hoses and fittings for leaks. Replace any components causing leaks. Replace any hoses which have kinks, cuts, holes, or other damage.
	Foot control	Check that foot control works correctly. Make sure foot pedals contact switch properly.
	Hydraulic functions	Check that the hydraulic functions operate properly. If not, refer to the Troubleshooting Guide to determine the cause of the problem. Clean or replace components as necessary.
	Hydraulic cylinder	Inspect the cylinder for signs of internal leaking or for weak operation. Replace the cylinder as necessary. Refer to para 4.12.
	Drift in table	Check the cylinder to see if it drifts. Replace the cylinder if necessary.
	Oil level	Check oil level in motor pump. Add oil to motor pump if necessary. Refer to para 4.4.
	Excessive sideways play of table top	Check that table top does not have excessive side play. Adjust chain assembly if necessary. Refer to para 4.15.
	Anti-cavitation solenoid valve	Check to see if table section may be lifted by hand or if the table function drifts by itself. If so, replace anti-cavitation solenoid valve. Refer to para 4.7.
	Upholstery	Check the upholstery for rips, tears, or excessive wear. Replace as necessary.
	Accessories	Check that all accessories have all of their components and that they function properly. If necessary, repair or replace the accessory.
	Operational Test	Perform an Operational Test to determine if the table is operating within its specifications (Refer to para 2.1). Replace or adjust any malfunctioning components.

Printed in U.S.A.

Return To Table Of Contents

Printed in U.S.A.

SECTION IV
MAINTENANCE / SERVICE INSTRUCTIONS

4.1 Introduction

DANGER
Refer to the Operator Manual for complete instructions on operating the table. Failure to do so could result in personal injury.

NOTE
Perform an operational test on the table after the repair is completed to confirm the repair was properly made and that *all* malfunctions were repaired.

The following paragraphs contain removal, installation, repair, and adjustment procedures for the table.

4.2 Motor Cover Removal / Installation

A. Removal

DANGER
Always disconnect the power cord from the outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from outlet.

(2) Remove six screws (1, Figure 4-1) and motor cover assembly (2) from back outer shroud (3).

B. Installation

(1) Install motor cover assembly (2, Figure 4-1) against back outer shroud (3) and secure with six screws (1), making sure top edge of motor cover assembly is inserted behind lip of back outer shroud (3).

(2) Plug table power cord into outlet.

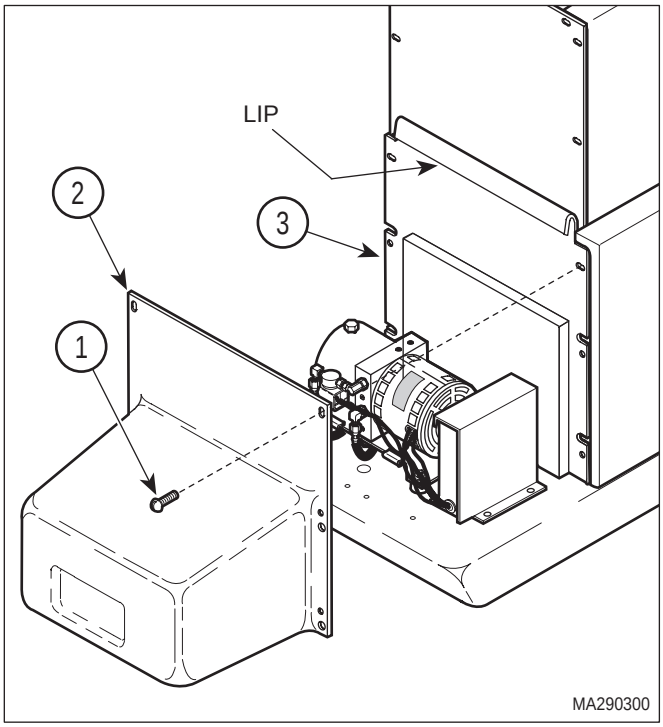


Figure 4-1. Motor Cover Assembly Removal / Installation

4.3 Side Panel Removal / Installation

A. Removal

(1) Raise table to its highest position.

DANGER
Always disconnect the power cord from the outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(2) Unplug table power cord from outlet.

(3) Remove motor cover. (Refer to para 4.2).

NOTE
When referring to shrouds, *rear* indicates the motor end and *front* indicates the foot end.

Printed in U.S.A.

SECTION IV
MAINTENANCE / SERVICE

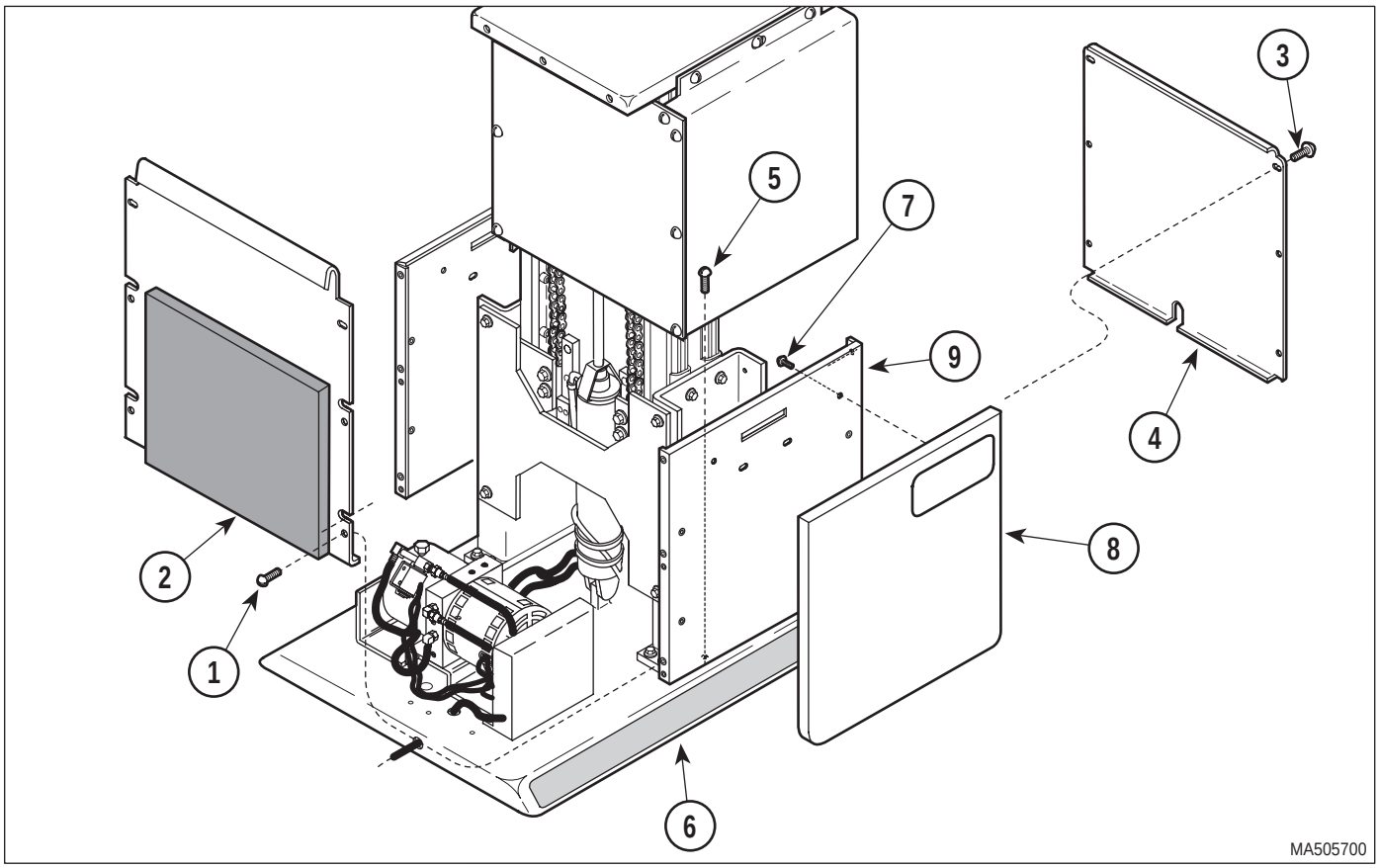


Figure 4-2. Side Panel Removal / Installation

(4) Remove four screws (1, Figure 4-2) and rear outer shroud (2).

(5) Remove six screws (3) and front outer shroud (4).

(6) Remove three screws (5), table panel (6), and metal shroud (7) from table base (8).

(7) Remove four screws (9) and table panel (6) from metal shroud (7).

B. Installation

(1) Secure table panel (6) to metal shroud (7) with four screws (9); then secure table panel and metal shroud to table base (8) with three screws (5).

(2) Install front outer shroud (4) and secure with six screws (3).

(3) Install rear outer shroud (2) and secure with four screws (1).

(4) Install motor cover. (Refer to para 4.2).

4.4 Checking / Adding Oil To Motor Pump

A. Checking / Adding Oil

(1) Move the TABLE DOWN function all the way down.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove filler cap (1, Figure 4-3) from motor pump (2).

(4) Remove screw (3) and gasket (4) from motor pump (2).

(5) Check oil level. If oil level in reservoir is not even with oil level check hole (A), oil must be added.

(6) Place a rag under oil level check hole (A).

Printed in U.S.A.

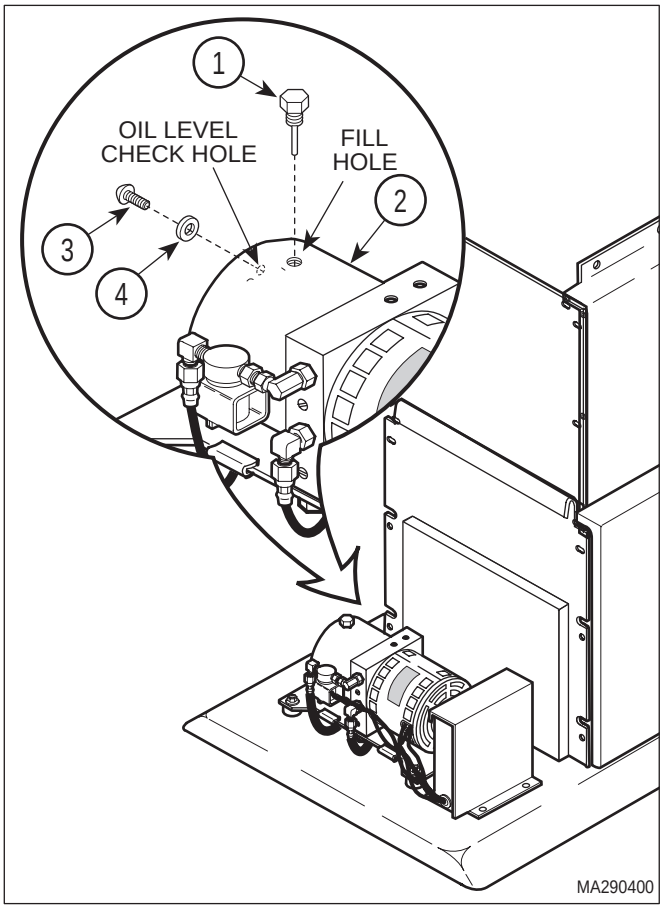


Figure 4-3. Checking / Adding Oil To Motor Pump

CAUTION
Hydraulic system is designed for use with light grade mineral oil only. Failure to comply could result in hydraulic system failure.

(7) Add oil to fill hole (B) until oil starts to run out of oil level check hole (A).

(8) Install gasket (4) and screw (3) on motor pump (2).

(9) Install filler cap (1) on motor pump (2).

(10) Move the TABLE function to its UP and DOWN limit several times. Then repeat steps 1 thru 9.

(11) Install motor cover assembly (Refer to para 4.2).

(12) Dispose of used oil in accordance with local regulations.

4.5 UP Function Shuttle Valve Removal / Installation

A. Removal

DANGER
Always disconnect the power cord from the outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from outlet.

(2) Remove motor cover (Refer to para 4.2).

NOTE
The UP function shuttle valve is lower than the oil level in the motor pump reservoir and oil will flow out of the shuttle valve once the hose assembly is disconnected.

(3) Place a drain pan (1, Figure 4-4) under the UP function shuttle valve (2).

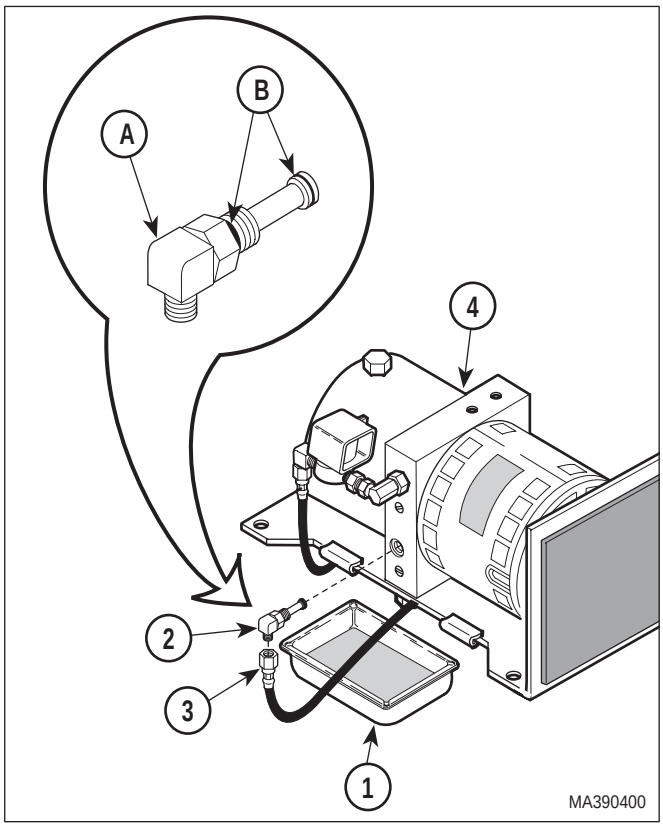


Figure 4-4. Up Function Shuttle Valve Removal / Installation

(4) Disconnect the hose assembly (3) from the elbow (A) of the UP function shuttle valve (2).

(5) Remove the UP function shuttle valve (2) from the motor pump (4).

B. Installation

(1) Coat the two o-rings (B, Figure 4-4) on the UP function shuttle valve (2) with mineral oil.

(2) Install the UP function shuttle valve (2) in the motor pump (4).

(3) Connect the hose assembly (3) to the elbow (A) of the UP function shuttle valve (1).

(4) If necessary, add oil to the motor pump (Refer to para 4.4).

(5) Install the motor cover assembly (Refer to para 4.2).

(6) Plug the table power cord into an outlet.

(7) Dispose of used oil in accordance with local regulations.

4.6 Down Function Shuttle Valve Removal / Installation

A. Removal

DANGER
Always disconnect the power cord from the outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from outlet.

(2) Remove the motor cover assembly (Refer to para 4.2).

NOTE
The DOWN function shuttle valve is slightly lower than the oil level in the motor pump reservoir and oil will flow out of the shuttle valve once the hose assembly is disconnected.

(3) Place rags or a drain pan (1, Figure 4-5) under the DOWN function shuttle valve (2)

(4) Using a wrench to hold male connector (3) stationary, loosen the jam nut (A) of the elbow (4). Disconnect the elbow (4) from male connector (3).

(5) Remove elbow (4) from the DOWN function shuttle valve (2).

(6) Remove the DOWN function shuttle valve (2) from motor pump (5).

B. Installation

NOTE
The DOWN function shuttle valve is sent from the factory with an elbow installed on it. Remove the elbow per step 1.

(1) Remove and discard the elbow from the DOWN function shuttle valve (2).

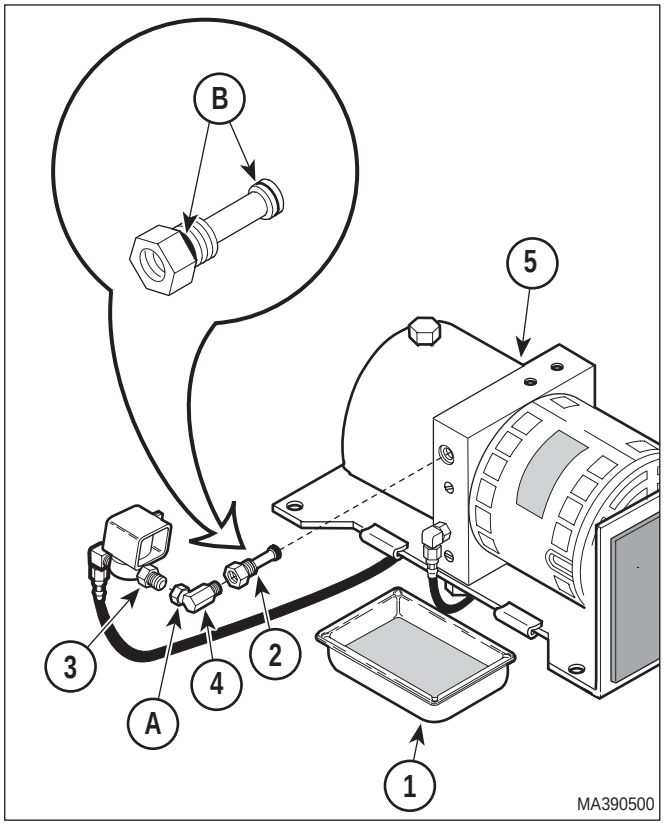


Figure 4-5. Down Functions Shuttle Valve Removal / Installation

(2) Coat the two o-rings (B) on the DOWN function shuttle valve (2) with mineral oil.

(3) Install the DOWN function shuttle valve (2) in the motor pump (5).

(4) Coat the threads of the male connector (3) and elbow (4) with pipe thread tape or sealant.

(5) Install the elbow (4) on the DOWN function shuttle valve (2).

(6) Connect the elbow (4) to the male connector (3) securing it by tightening the jam nut (A).

(7) If necessary, add oil to motor pump (Refer to para 4.4).

(8) Install motor cover assembly (Refer to para 4.2).

(9) Plug table power cord into outlet.

(10) Dispose of used oil in accordance with local regulations.

4.7 Anti-Cavitation Solenoid Valve Removal / Installation

A. Removal

(1) Unplug the table power cord from outlet.

(2) Remove the motor cover assembly (Refer to para 4.2).

(3) Disconnect the anti-cavitation solenoid valve wires (1, Figure 4-6) from the terminal block (2) and pull them thru the wire hole in the control panel.

(4) Disconnect hose assembly (3) from elbow (4).

(5) Using a wrench to hold male connector (5) stationary, loosen jam nut (A) of the elbow (6). Disconnect male connector (5) from elbow (6).

NOTE
On older units, the anti-cavitation solenoid valve is mounted to a bracket with two screws.

(6) Remove the elbow (6), male connector (5) and anti-cavitation solenoid valve (7).

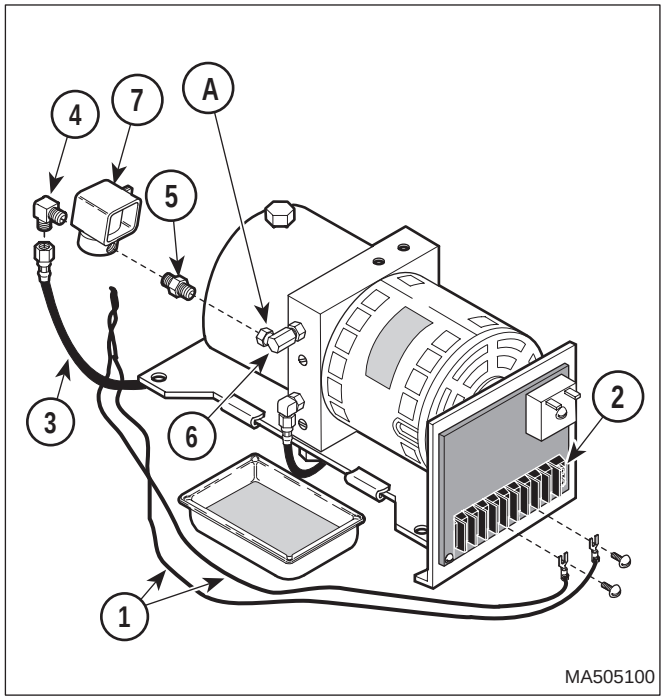


Figure 4-6. Anti-cavitation Solenoid Valve Removal / Installation

B. Installation

EQUIPMENT ALERT
Do not coat last two threads of elbow and male connector with teflon tape or sealant. Otherwise, little particles of the tape / sealant can break loose and can contaminate hydraulic system.

(1) Coat the threads of the elbow (4, Figure 4-6) and male connector (5) with pipe thread tape or sealant and install them on the anti-cavitation solenoid valve (7).

(2) Install anti-cavitation solenoid valve (7) on bracket (9) and secure with two screws (8).

(3) Connect the hose assembly (3) to the elbow (4).

(4) Coat the threads of the male connector (5) with pipe thread tape or sealant.

(5) Connect the elbow (6) to the male connector (5) and secure by tightening the jam nut (A).

(6) Connect the two anti-cavitation solenoid valve wires (1) to the terminal block (2).

Printed in U.S.A.

(7) Install the motor cover assembly (Refer to para 4.2).

(8) Plug the table power cord into outlet.

4.8 Up Function Relief Valve Removal / Installation

A. Removal

(1) If possible, raise TABLE UP function all the way up.

(2) Unplug the table power cord from outlet.

(3) Remove the motor cover assembly (Refer to para 4.2).

(4) Remove the four screws (1, Figure 4-7) and the back outer shroud (2) from the left and right hand outer shrouds (3).

(5) If necessary, for better access, remove the eight screws (4) and the back inner shroud (5) from the left and right hand inner shrouds (6).

NOTE
Oil will flow out of relief valve port when the UP function relief valve is removed. Place a drain pan under the relief valve port to catch any oil that may spill.

(6) Remove the UP function relief valve (7) from the motor pump (8).

B. Installation

(1) Coat the two o-rings (Figure 4-7) on the UP function relief valve (7) with mineral oil.

CAUTION
Make sure the relief valve has **"600"** stamped on its hex head; it ***must not*** be stamped **"L2"**. Failure to install the proper relief valve will result in faulty table performance.

(2) Install the UP function relief valve (7) in the motor pump (8).

(3) If removed, install the back inner shroud (5) on the left and right inner shrouds (6) and secure with eight screws (4).

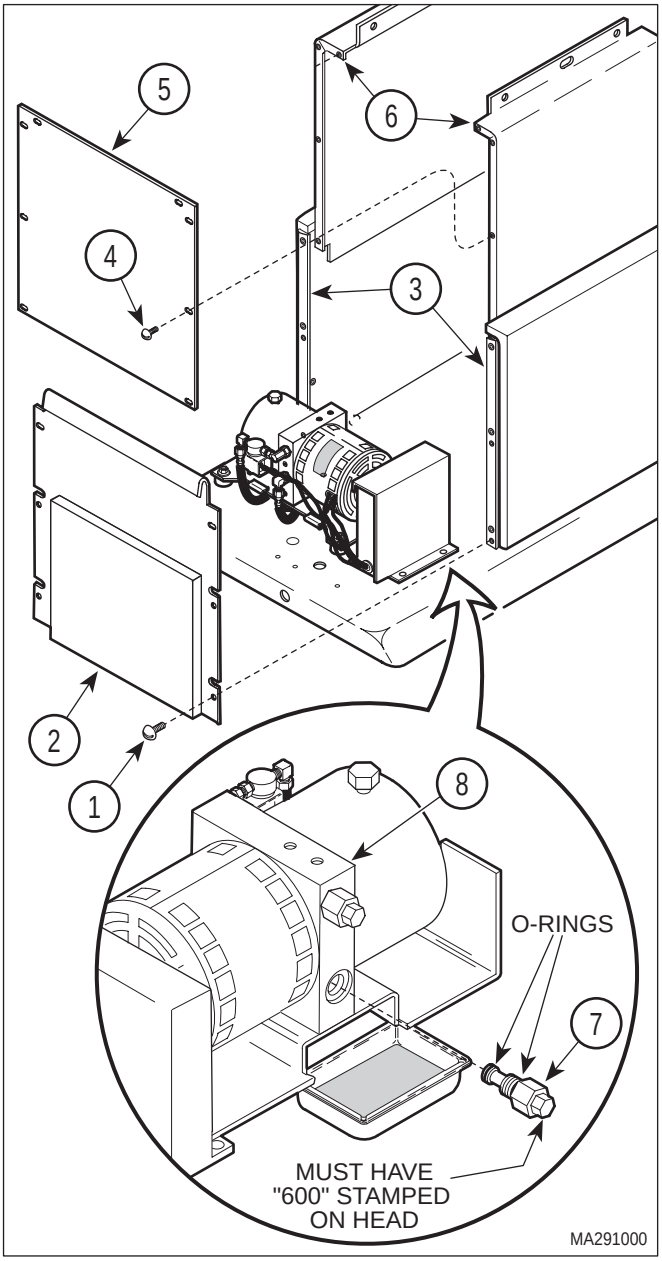


Figure 4-7. Up Function Relief Valve Removal / Installation

(4) Install the back outer shroud (2) on the left and right hand outer shrouds (3) and secure with four screws (1).

(5) If necessary, add oil to motor pump (Refer to para 4.4).

(6) Install motor cover assembly (Refer to para 4.2).

(7) Plug table power cord into receptacle.

(8) Dispose of used oil in accordance with local regulations.

4.9 Down Function Relief Valve Removal / Installation

A. Removal

(1) Unplug the table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove the four screws (1, Figure 4-8) and the back outer shroud (2) from the left and right hand outer shrouds (3).

(4) If necessary, for better access, remove the eight screws (4) and back inner shroud (5) from the left and right hand inner shrouds (6).

NOTE
Oil will flow out of the relief valve port when the DOWN function relief valve is removed. Place a drain pan under the relief valve port to catch any oil that may spill.

(5) Remove the DOWN function relief valve (7) from the motor pump (8).

B. Installation

(1) Coat the two o-rings (Figure 4-8) on the DOWN function relief valve (7) with mineral oil.

CAUTION
Make sure relief valve has **"L2"** stamped on its hex head; it ***must not*** be stamped **"600"**. Failure to install proper relief valve will result in faulty table performance.

(2) Install the DOWN function relief valve (7) in the motor pump (8).

(3) If removed, install the back inner shroud (5) on the left and right inner shrouds (6) and secure with eight screws (4).

(4) Install the back outer shroud (2) on the left and right hand outer shrouds (3) and secure with four screws (1).

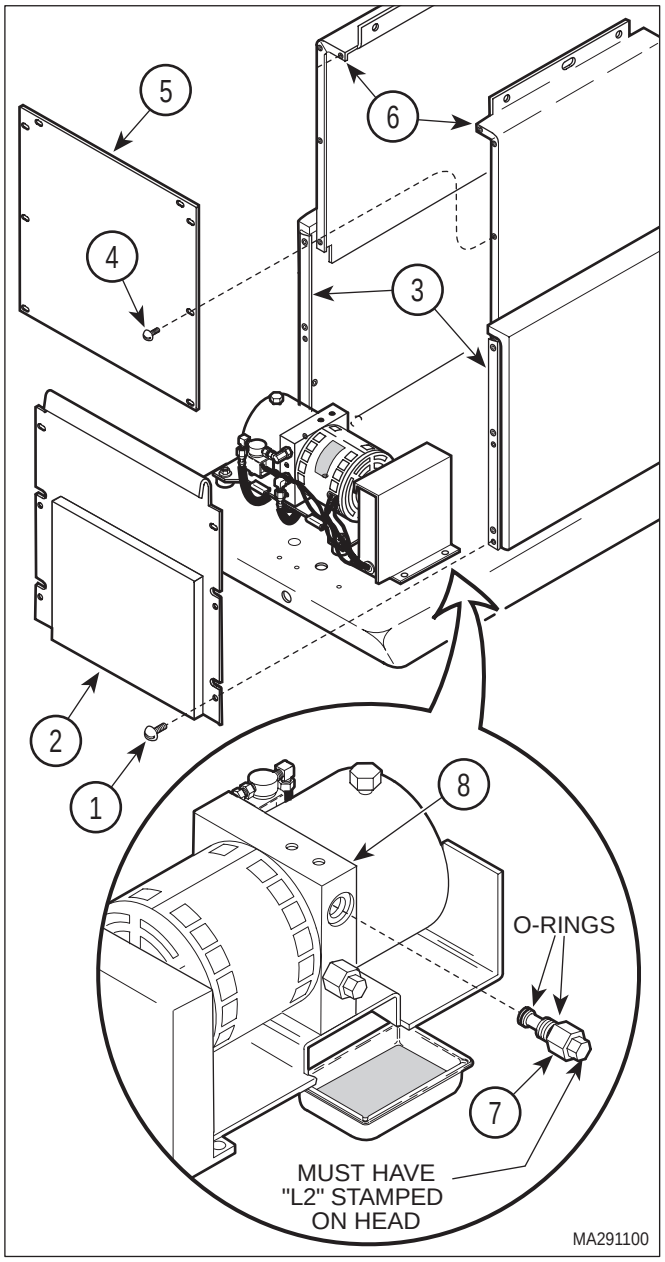


Figure 4-8. Down Function Relief Valve Removal / Installation

(5) If necessary, add oil to motor pump (Refer to para 4.4).

(6) Install motor cover assembly (Refer to para 4.2).

(7) Plug the table power cord into receptacle.

(8) Dispose of used oil in accordance with local regulations.

Printed in U.S.A.

4.10 Motor Pump Assembly Removal / Installation

A. Removal

(1) Unplug the table power cord from outlet.

(2) Remove the motor cover assembly (Refer to para 4.2).

(3) Remove four screws (1, Figure 4-9) and back outer shroud (2) from left and right hand outer shrouds (3).

(4) Tag; then disconnect motor pump and anti-cavitation leads (4) from terminal block (5).

(5) Remove four nuts (6) from four motor mounts (7).

(6) Disconnect hose assembly (8) from male elbow (9).

(7) Place a drain pan under elbow (10) and disconnect hose assembly (11).

(8) Remove motor pump assembly (12) from four motor mounts (7).

(9) Remove filler cap (1, Figure 4-10) and drain any remaining oil into the drain pan.

(10) Using a wrench to hold male connector (A) stationary, loosen jam nut (B) of elbow (2) and disconnect male connector (A) and anti-cavitation solenoid valve (3).

(11) Remove two screws (4), lockwashers (5), and motor base (6) from motor pump (7).

B. Installation

(1) Install motor base (6, Figure 4-10) on motor pump (7) and secure with two lockwashers (5) and screws (4).

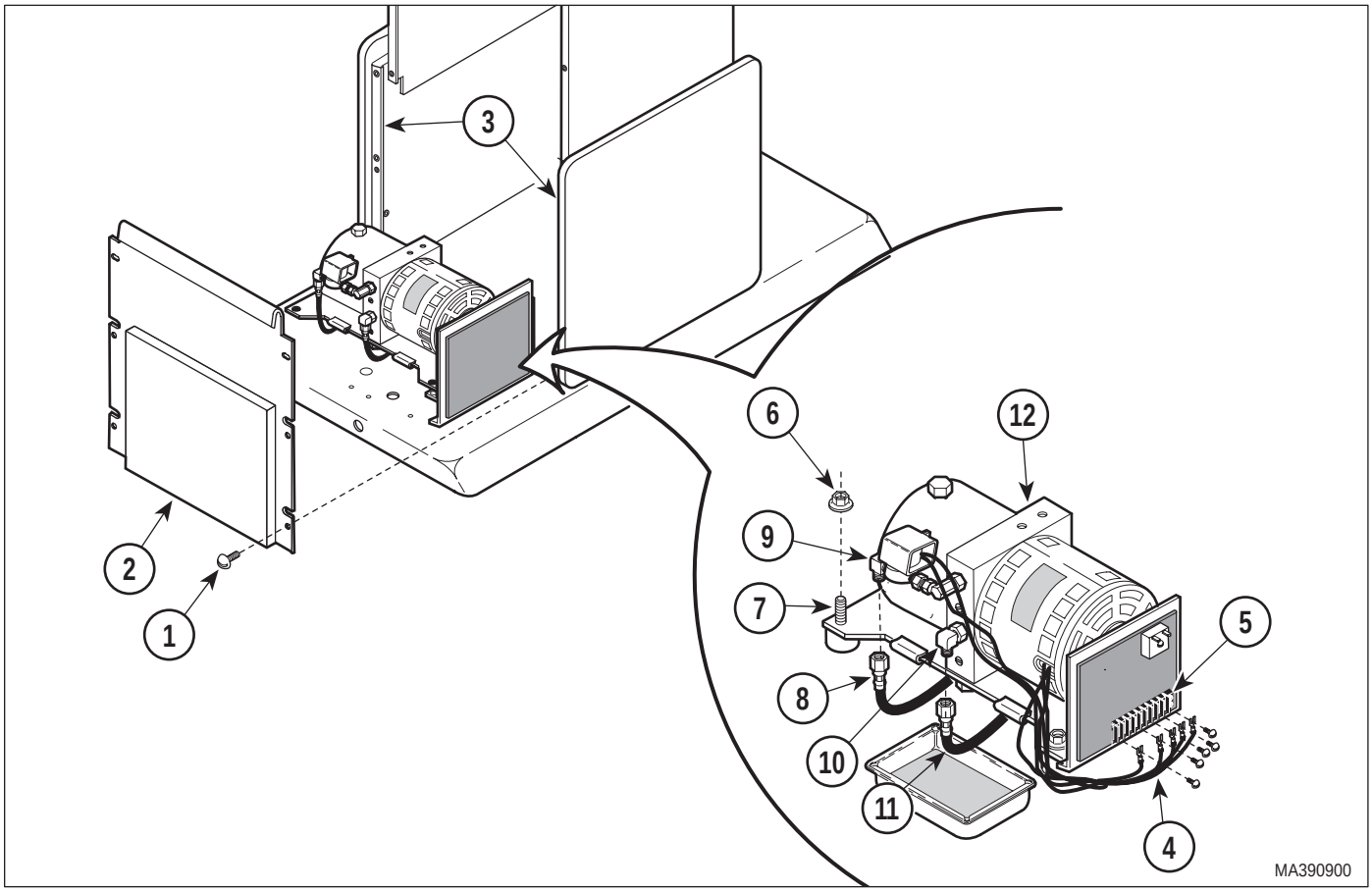


Figure 4-9. Motor Pump Assembly - Complete Removal / Installation

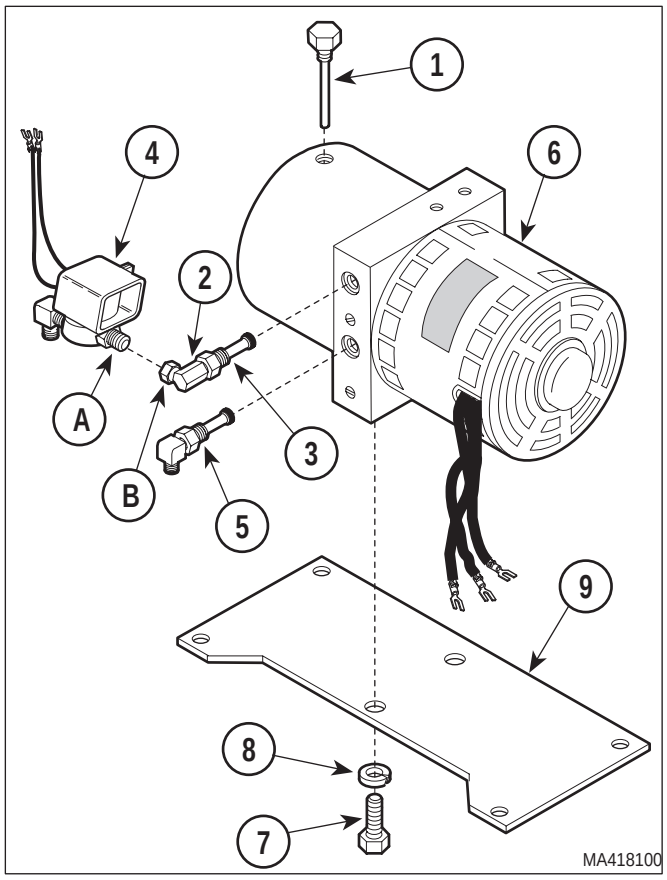


Figure 4-10. Motor Pump Removal / Installation

(2) Coat threads of male connector (A) with pipe thread tape or sealant.

(3) Connect male connector (A) and anti-cavitation solenoid valve (3) to elbow (2) and tighten jam nut (B).

(4) Install motor pump assembly (12, Figure 4-9) on four motor mounts (7) and secure with four nuts (6).

(5) Connect hose assembly (11) to elbow (12).

(6) Connect hose assembly (8) to male elbow (9).

(7) Connect anti-cavitation solenoid valve and motor pump leads (4) to terminal block (5).

(8) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(9) Add oil to motor pump (Refer to para 4.4).

(10) Install motor cover assembly (Refer to para 4.2).

(11) Plug table power cord into outlet.

(12) Dispose of used oil in accordance with local regulations.

4.11 Motor Shaft Seal Removal / Installation (Applies Only To Units With Serial Numbers: J-1476 thru Present & CC-1000 thru Present)

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor pump (Refer to para 4.10).

NOTE
Reservoir will come off hard. Use a screwdriver to pry reservoir off manifold block, but make sure not to damage the reservoir seal o-ring (1, Figure 4-11).

(3) Remove the four screws (2, Figure 4-11) and the reservoir (3) from the manifold block (4).

(4) Remove the magnet (5) from the strainer (6).

(5) Remove the four screws (7) and the pump housing (8) from the manifold block (4).

(6) Remove the pump gear (9) and woodruff key (10) from the shaft (A) of the rotor assembly (11).

(7) Remove the four screws (12) and the motor housing (13) from the manifold block (4).

(8) Push the rotor assembly (11) inward toward the manifold block (4); then remove the retaining ring (14) from end of rotor assembly shaft (A).

(9) Remove the rotor assembly (11) from the manifold block (4).

(10) Using a screwdriver, pry the motor shaft seal (15) out the of manifold block (4).

B. Installation

(1) Clean all metal shavings off of all components.

(2) Coat the motor shaft seal (15, Figure 4-11) with vaseline or mineral oil.

CAUTION
Do not allow the motor shaft seal to become cocked during installation or it will become impossible to install without damaging it.

(3) Using a hammer and 3/4 inch socket, install the motor shaft seal (15) in the manifold block (4).

(4) Slide the shaft (A) of the rotor assembly (11) thru the manifold block (4) and secure in place by installing the retaining ring (14) on the end of the rotor assembly shaft (A).

(5) Install the motor housing (13) on the manifold block (4) and secure with four screws (12).

(6) Install woodruff key (10) and pump gear (9) on the shaft (A) of the rotor assembly (11).

(7) Install the pump housing (8) on the manifold block (4) and secure with four screws (7).

(8) Install the magnet (5) on the strainer (6).

(9) Make sure the o-ring (1) on the manifold block is present and clean. Coat the o-ring (1) with mineral oil.

NOTE
The strainer may get in the way when the reservoir is being installed. If so, rotate the strainer out of the way.

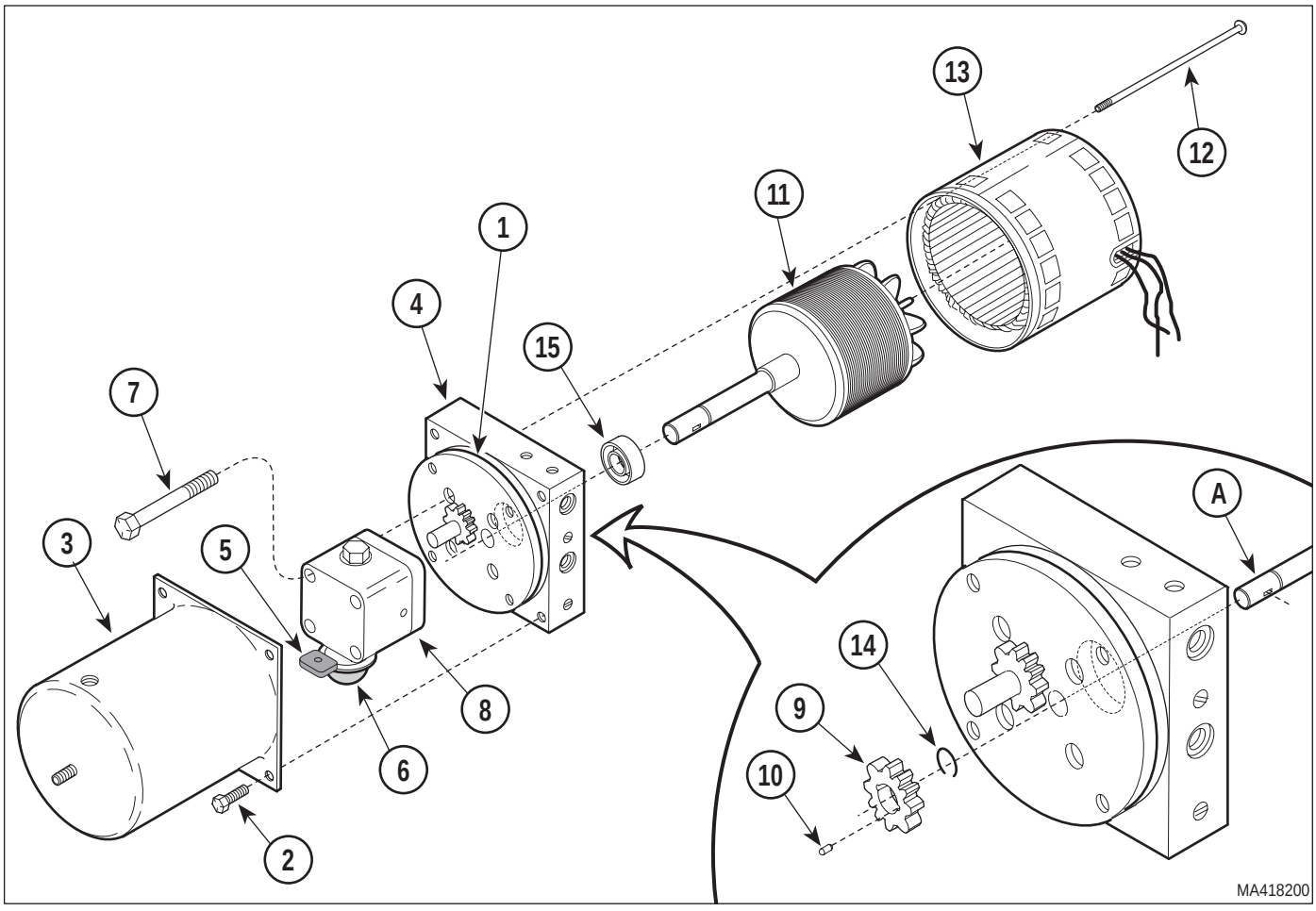


Figure 4-11. Motor Shaft Seal Removal / Installation

(10) Install the reservoir (3) on the manifold block (4) and secure with four screws (2).

(11) Install the motor pump (Refer to para 4.10 or 4.11).

(12) Plug the table power cord into an outlet.

4.12 Base Cylinder Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove four screws (1, Figure 4-12) and back outer shroud (2) from left and right hand outer shrouds (3).

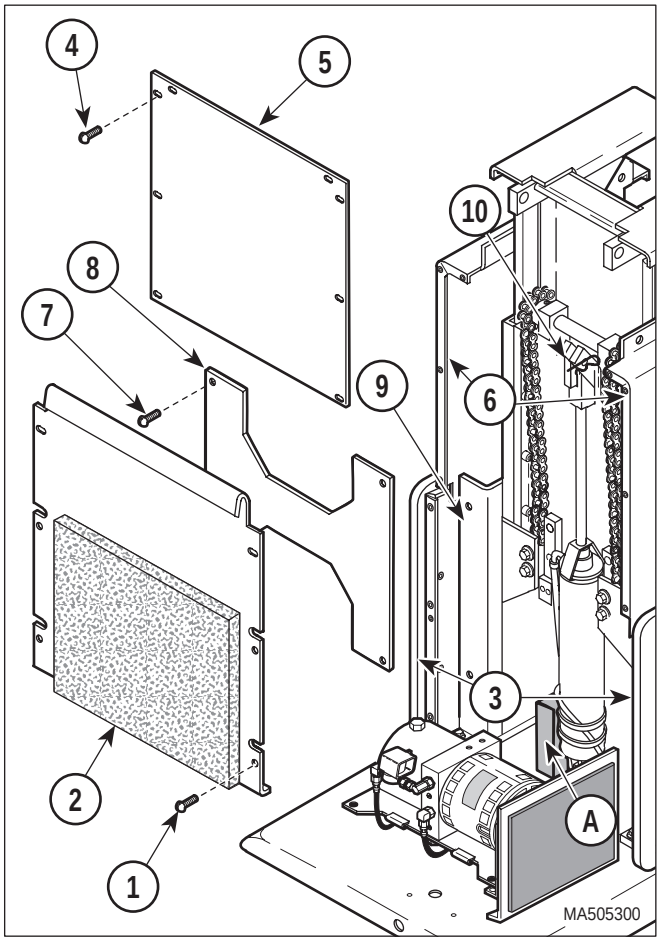


Figure 4-12. Base Cylinder Access

(4) Remove eight screws (4) and back inner shroud (5) from left and right hand inner shrouds (6).

NOTE
The motor pump and control panel can be carefully pushed out of the way to allow a socket and ratchet to be used on the bottom two screws (7).

(5) Remove four screws (7) and brace (8) from base slide assembly (9).

(6) Plug table power cord into outlet.

(7) If BASE DOWN function is operable, place a block (A) under middle slide of base slide assembly (9). Lower the BASE DOWN function until the middle slide of the base slide assembly (9) is resting on the block (A) and pressure is off clevis pin (10).

NOTE
If the BASE DOWN function does not operate, place supports, such as saw horses, under each end of the table.

(8) Tag and disconnect the base cylinder electrical leads from terminal block. (Refer to para 5.1, Electrical Wiring Diagrams and Schematics).

DANGER
Make sure table top is properly secured from lowering or tipping over when base cylinder is disconnected from table top. Clevis pin (2, Figure 4-12) should not have any weight on it if table top is supported properly. Failure to have table top properly secured could result in serious personal injury or death.

(9) Remove hitch pin clip (1, Figure 4-13) and clevis pin (2) from rod end of base cylinder (3).

(10) Remove hitch pin clip (4), clevis pin (5), and partially separate base cylinder (3) from brackets (A).

EQUIPMENT ALERT
Mark the location of the cable ties to assure they are placed back in the same location during installation. Failure to relocate the cable ties in the same location could cause premature failure of the hydraulic hose assemblies.

Printed in U.S.A.

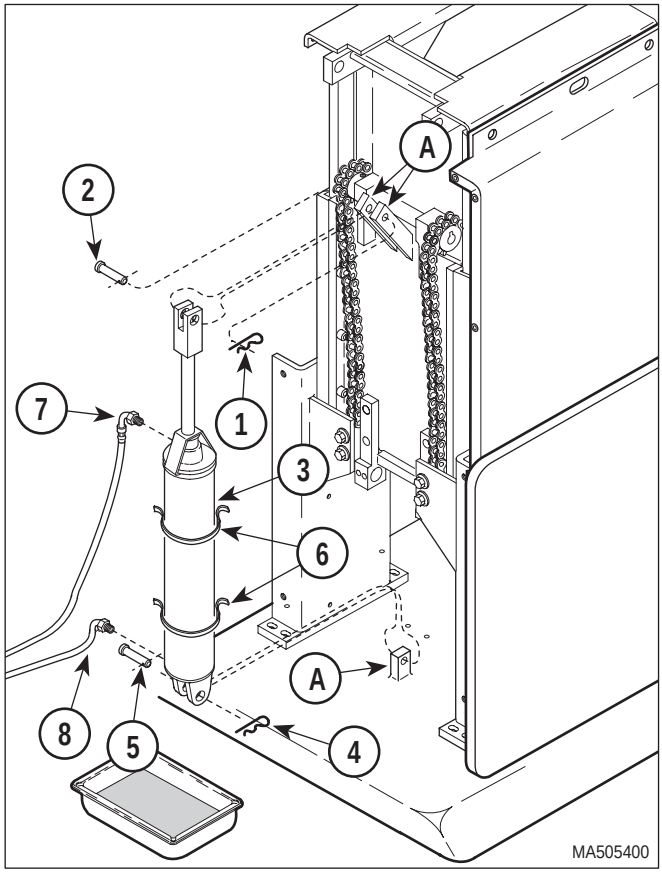


Figure 4-13. Base Cylinder Removal / Installation

(11) Cut the cable ties (6) securing hose assemblies to base cylinder (3).

(12) Disconnect return hose (7) and power hose (8) assemblies from base cylinder (3).

(13) Remove base cylinder (3) from table.

B. Installation

(1) Position base cylinder (3, Figure 4-13) on table.

EQUIPMENT ALERT
Assure the cable ties are placed back in the exact same location from where they were removed. Failure to relocate the cable ties in the same location could cause premature failure of the hydraulic hose assemblies.

(2) Connect return hose (7) and power hose (8) to base cylinder (3) and secure with cable ties.

(3) Install base cylinder (3) on brackets (A) and secure with clevis pins (2 and 5) and hitch pin clips (1 and 4).

(4) Connect base cylinder electrical leads to terminal block. (Refer to para 5.1, Electrical Wiring Diagram and Schematics).

(5) Plug table power cord into outlet.

(6) Raise BASE UP function slightly and remove block (A, Figure 4-12) from under middle slide of base slide assembly (9) or remove supports from under table top.

(7) Lower BASE DOWN function all the way down.

EQUIPMENT ALERT
It is very important that the inner member weldment does not come in contact with the top of the middle slide. Failure to check, and if necessary adjust, may result in equipment damage.

(8) If there *is not* a 1/16 to 1/8 inch (1.6 to 3.2 mm) gap between inner member weldment (A, Figure 4-14) and top of middle slide (B) when the BASE DOWN function is completely lowered perform steps 13 thru 15. If gap is correct when the BASE DOWN function is completely lowered, go to step 16.

EQUIPMENT ALERT
The cylinder rod must be partially ex - tended before performing step 10. If the cylinder rod is fully extended or retracted when step 10 is being performed, damage to seals will occur.

(9) Raise BASE UP function up until cylinder rod (1) is extended halfway.

(10) Place a wrench on adjusting seats (C) of cylinder rod (1) and use it to rotate cylinder rod to adjust clevis (D) up or down as necessary.

(11) Repeat steps 11 thru 15 until there *is* a 1/16 to 1/8 inch (1.6 to 3.2 mm) gap between inner member weldment (A) and middle slide (B) of base slide assembly when the BASE DOWN function is completely lowered.

(12) Install brace (8, Figure 4-12) on base slide assembly (9) and secure with four screws (7).

Printed in U.S.A.

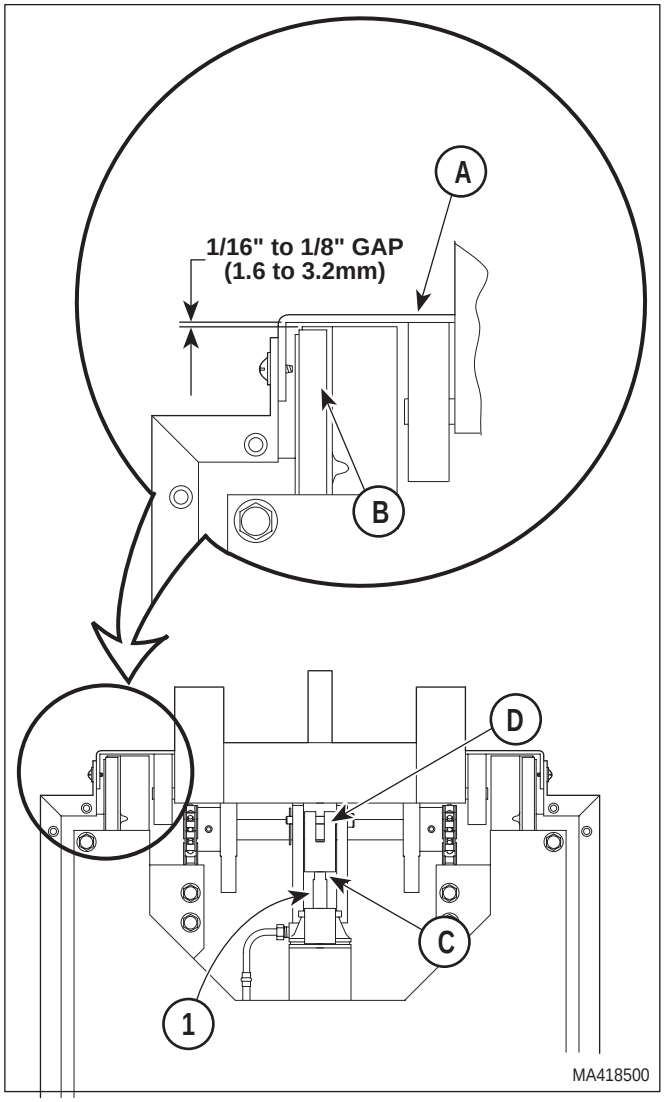


Figure 4-14. Base Cylinder Clevis Adjustment

(13) Install back inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(14) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(15) If necessary, add oil to motor pump (Refer to para 4.4).

(16) Install motor cover assembly (Refer to para 4.2).

4.13 Time Delay Relay Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Tag and disconnect electrical leads from the time delay relay (1, Figure 4-15).

(4) Remove nut (2), screw (3), washer (4), and time delay relay (1) from control panel (5).

B. Installation

(1) Install time delay relay (1, Figure 4-15) on control panel (5) and secure with washer (4), screw (3), and nut (2).

(2) Connect electrical leads to the time delay relay (1).

(3) Install motor cover assembly (Refer to para 4.2).

(4) Plug table power cord into outlet.

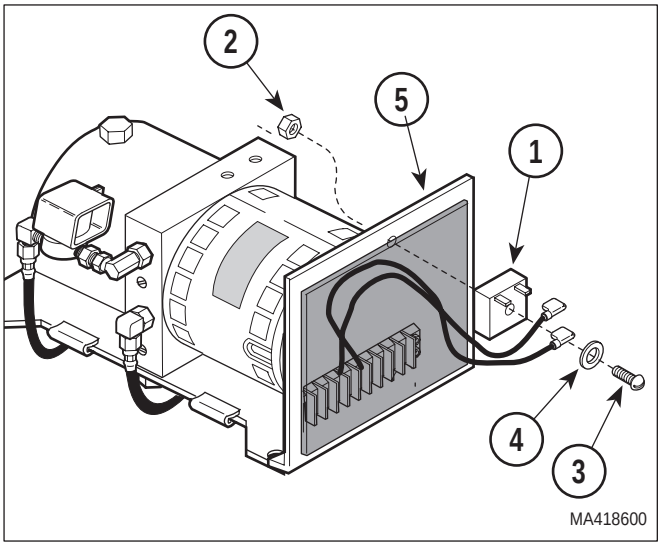


Figure 4-15. Time Delay Relay Removal / Installation

4.14 Capacitors Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove four screws (1, Figure 4-16) and front outer shroud (2) from left and right hand outer shrouds (3).

(3) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(4) Cut the cable tie (7) securing the electrical leads to the capacitor (8).

NOTE
Early units have a second capacitor (not shown) mounted directly above cpacitor (8). The removal / installation procedures remain the same.

(5) Using a screwdriver, pry tab (A) of capacitor mounting bracket (9) upward and remove capacitor (8) from capacitor mounting bracket.

(6) Remove capacitor cap (10) from capacitor (8).

DANGER
A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

(7) Discharge capacitor (8).

(8) Disconnect electrical leads from terminals of capacitor (8).

B. Installation

(1) Connect capacitor electrical leads to terminals of capacitor (8, Figure 4-16).

(2) Install capacitor cap (10) on capacitor (8).

(3) Position bottom of capacitor (8) on capacitor mounting bracket (9) and then push the top of the capacitor in. Using a screwdriver, force tab (A) of capacitor mounting bracket (9) down over catch (B).

(4) Install cable tie to secure wire to capacitor (7).

(5) Install front inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

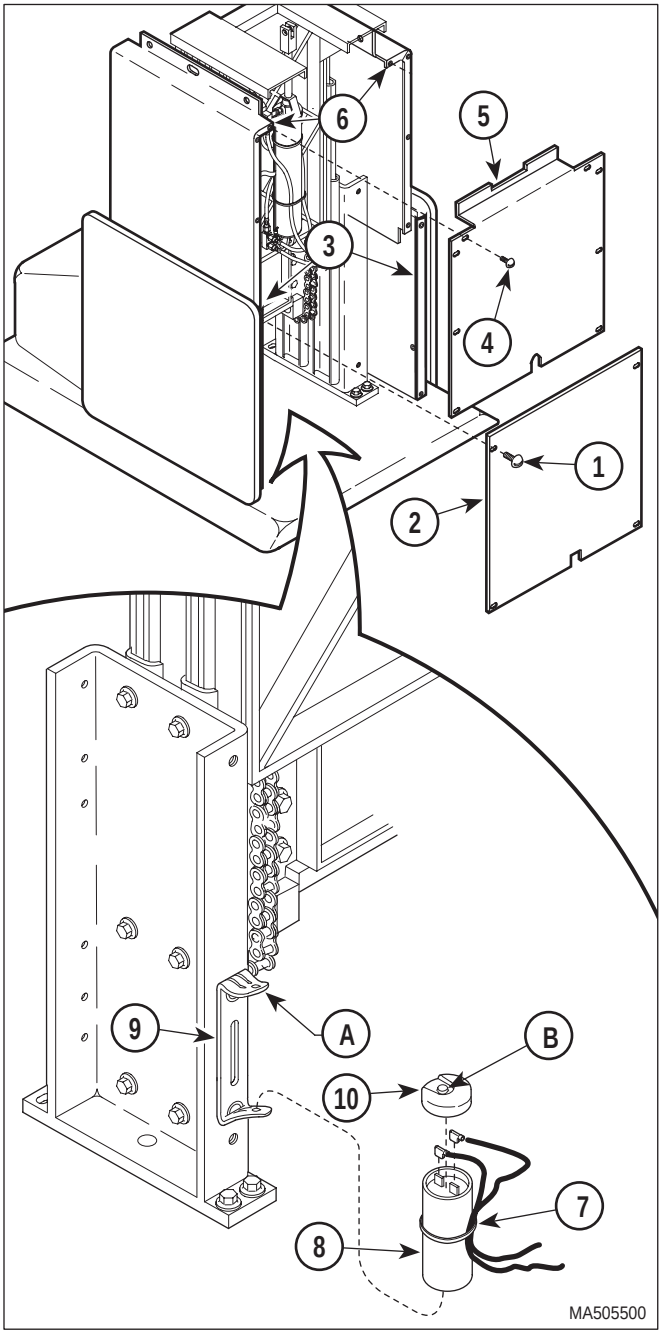


Figure 4-16. Capacitors Removal / Installation

(6) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(7) Plug table power cord into outlet.

4.15 Chain Assembly Adjustment

A. Adjustment

(1) Raise TABLE UP function all the way up.

(2) Unplug table power cord from outlet.

(3) Remove four screws (1, Figure 4-17) and front outer shroud (2) from left and right hand outer shrouds (3).

(4) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(5) Loosen four bolts (7).

EQUIPMENT ALERT
Adjust chains so they are tight, yet have a slight spring back. Also, adjust chains so there is an equal amount of tension on each chain. Failure to do so will result in chains loosening earlier and uneven wear.

(6) Insert a pry bar or large screwdriver into adjustment gap (A) and pry downward on idler adjustment weldment (8) until chains (9) are tight, but not drum tight. Tighten four bolts (7).

(7) Install front inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(8) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(9) Plug table power cord into outlet.

4.16 Base Slide Assembly Removal / Installation

A. Removal

(1) If possible, raise TABLE UP function all the way up.

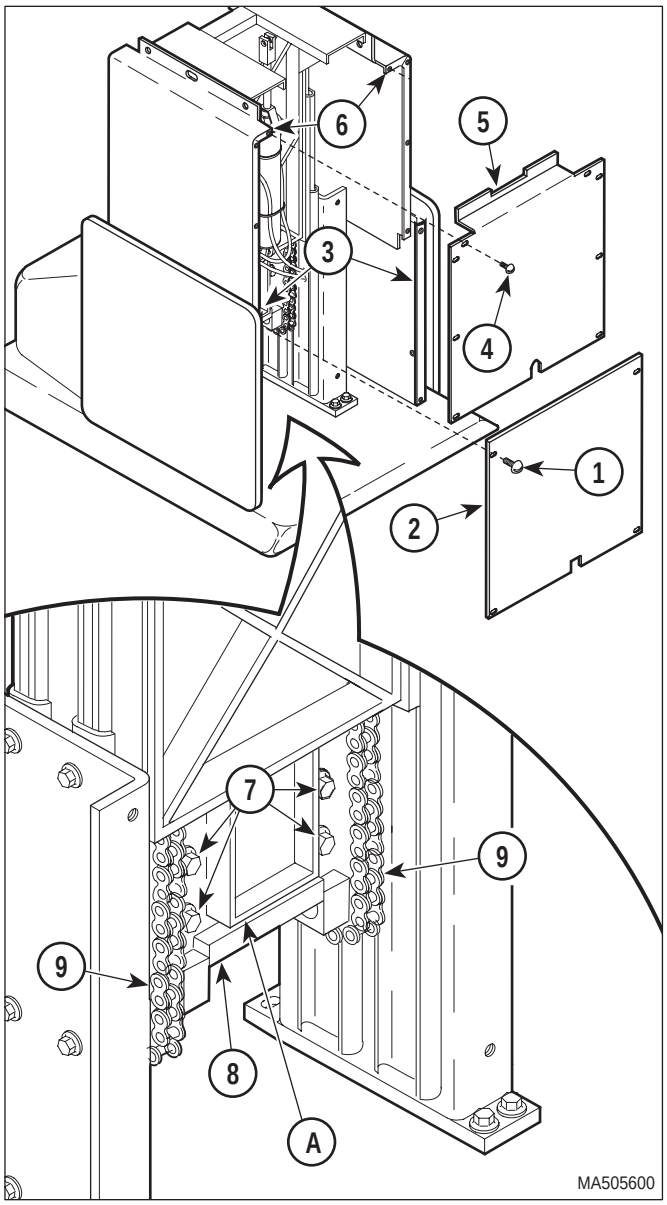


Figure 4-17. Chain Assembly Adjustment

(2) Unplug table power cord from outlet.

(3) Remove motor cover assembly (Refer to para 4.2).

(4) Remove four screws (1, Figure 4-18) and back outer shroud (2) from left and right hand outer shrouds (3).

(5) Remove eight screws (4) and back inner shroud (5) from left and right hand inner shrouds (6).

(6) Remove four screws (7) and front outer shroud (8) from left and right hand outer shrouds (3).

(7) Remove eight screws (9) and front inner shroud (10) from left and right hand inner shrouds (6).

(8) Remove six screws (11), washers (12), and left and right hand inner shrouds (6) from base slide assembly (13).

(9) Remove six screws (14) and left and right hand outer shrouds (3) from base weldment (15).

DANGER

The supports must be capable of holding up table top after table top is disconnected from base slide assembly and the base slide assembly is removed. Failure to support table top properly could result in table top falling out-of-control which could result in serious personal injury or death.

(10) Place supports (1, Figure 4-19) under table top (2), making sure weight of table top is being supported by supports. If necessary, plug table power cord into outlet and lower table top onto supports. Unplug table power cord from outlet.

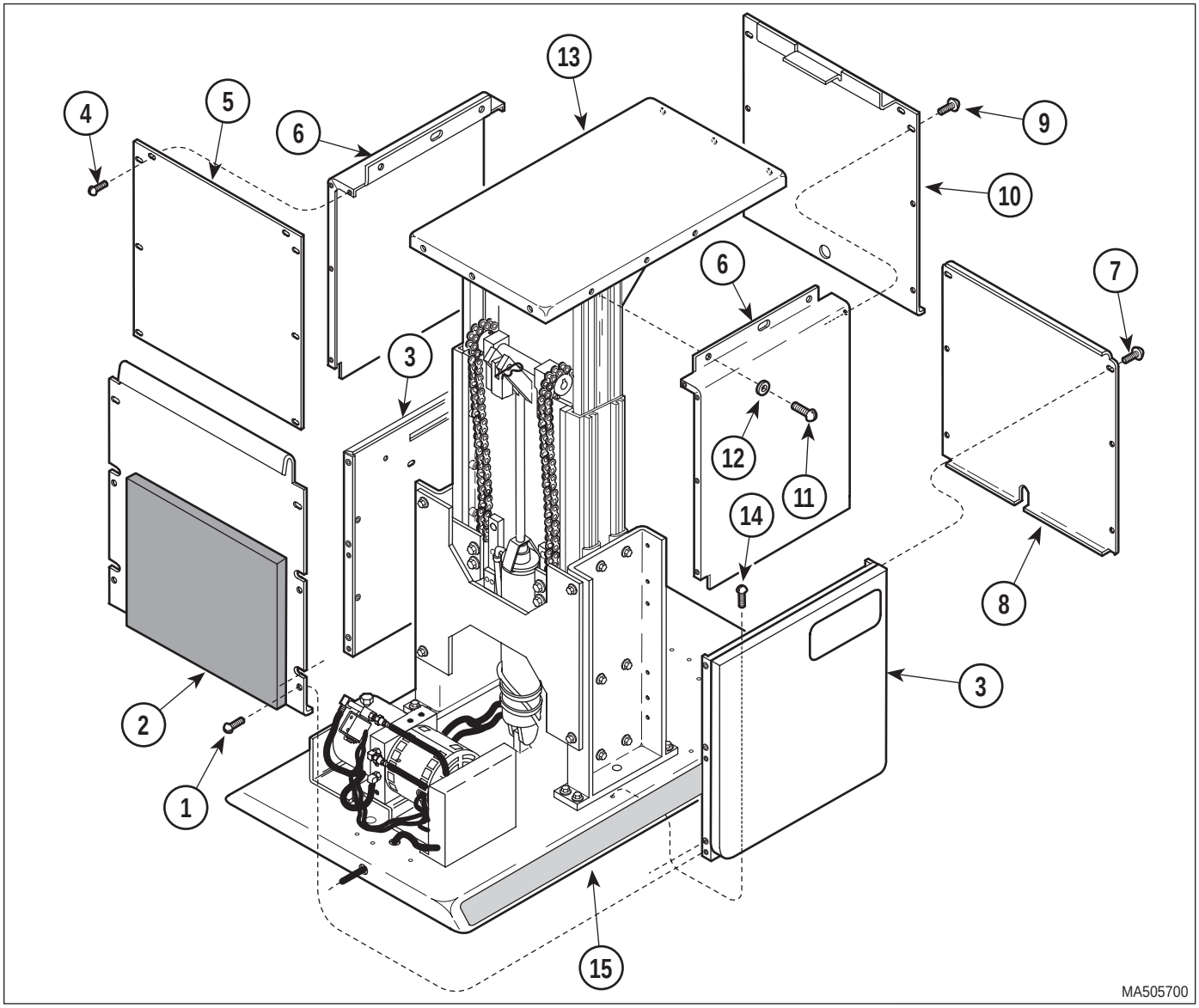


Figure 4-18. Shrouds Removal / Installation

DANGER
Make sure table top is properly supported for the following step. Table top will rest only on supports after this step. Also do not touch any wires inside of table when power cord is plugged in. This could result in electrical shock. Failure to comply with this warning could result in serious personal injury or death.

(11) Plug table power cord into outlet. Lower TABLE DOWN function all the way down. Unplug table power cord from outlet.

DANGER
Make sure base slide assembly is fully retracted (collapsed) before disconnecting base cylinder. Failure to do so will result in base slide assembly collapsing after base cylinder is disconnected which could result in serious personal injury.

(12) Remove hitch pin clip (3), clevis pin (4), and separate rod of base cylinder (A) from bracket (B).

(13) Remove capacitor (5) (Refer to para 4.14).

(14) Remove two nuts (6), two screws (7), and capacitor mounting bracket (8) from base slide assembly (9).

(15) Remove eight screws (10) from base slide assembly (9).

NOTE
If necessary, remove four screws (11) and brace (12) to allow base slide assembly (9) to be pulled over base cylinder (13).

(16) With the help of an assistant, remove base slide assembly (9) from base weldment (14).

B. Installation

(1) With the help of an assistant, install base slide assembly (9, Figure 4-19) on base weldment (14), making sure base cylinder (13) gets inserted between brace (12) and base slide assembly (9).

(2) Secure base slide assembly (9) on base weldment (14) with eight screws (10).

(3) Install capacitor mounting bracket (8) on base slide assembly (9) and secure with two screws (7) and nuts (6).

(4) Install capacitor (5) (Refer to para 4.14).

(5) Install rod end of base cylinder (A) on bracket (B) and secure with clevis pin (4) and hitch pin clip (3).

(6) Remove supports (1) from under table top (2).

(7) Install left and right hand outer shrouds (3, Figure 4-18) on base weldment (15) and secure with six screws (14).

(8) Install left and right hand inner shrouds (6) on base slide assembly (13) and secure with six washers (12) and screws (11).

(9) Install front inner shroud (10) on left and right hand inner shrouds (6) and secure with eight screws (9).

(10) Install front outer shroud (8) on left and right hand outer shrouds (3) and secure with four screws (7).

(11) Install back inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(12) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(13) Install motor cover assembly (Refer to para 4.2).

(14) Plug table power cord into outlet.

Printed in U.S.A.

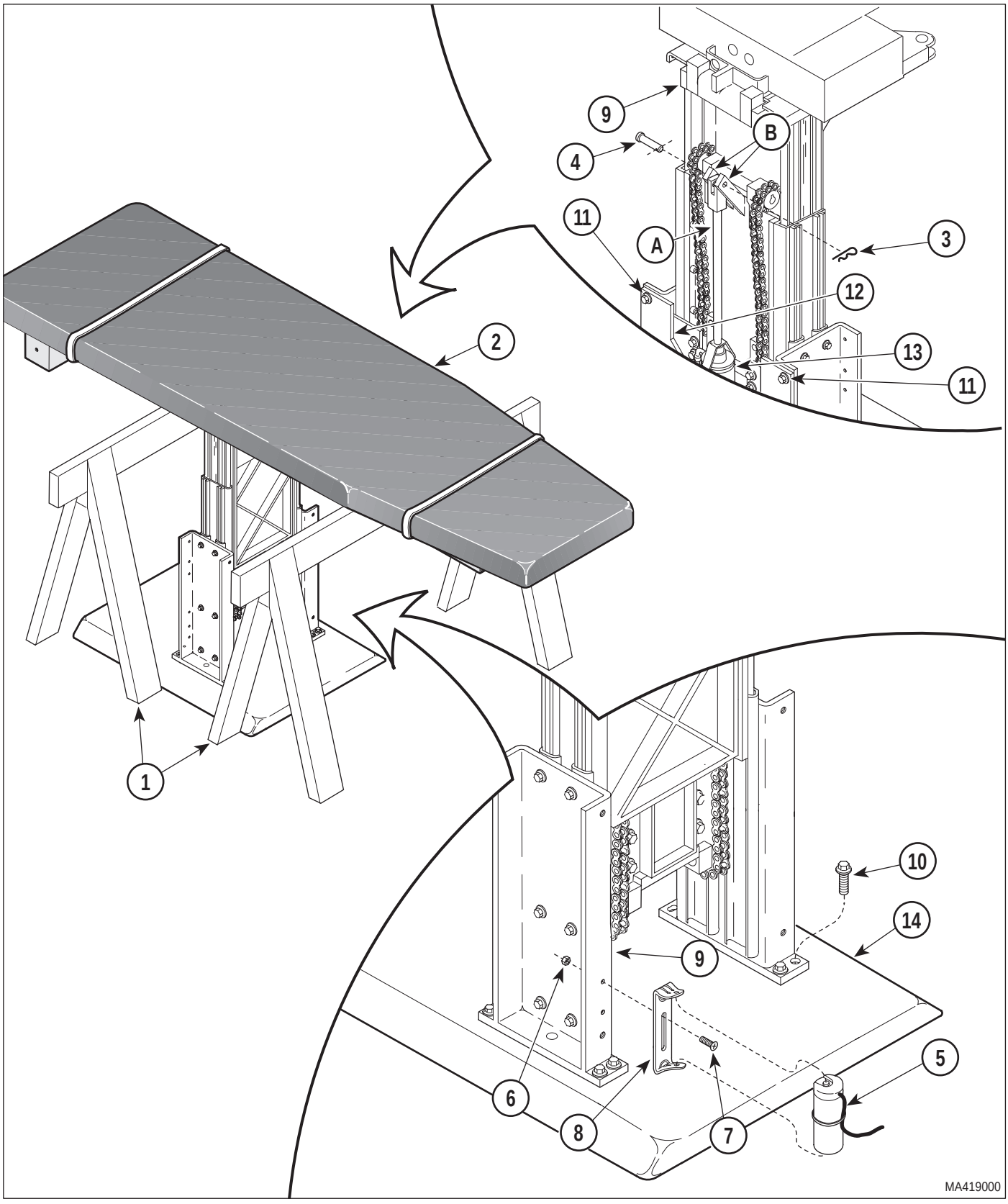


Figure 4-19. Base Slide Assembly Removal / Installation

4.17 Footswitch Microswitch Removal / Installation / Adjustment

A. Removal

WARNING
Always disconnect the power cord from the wall outlet before removing any of the table's covers / shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in personal injury or death.

(1) Disconnect the power cord from the wall outlet.

(2) Remove the pivot screw (1, Fig. 4-20) and lockwasher (2) from the footswitch pedal (3).

(3) Remove the pedal (3) by lifting the end of it upward and pushing back toward the cord end of the footswitch assembly to unhook the pedal (3) from the pivot bracket (A).

NOTE
Place location tags on the electrical leads connected to the malfunctioning microswitch for identification purposes during installation.

(4) Remove the mounting screw (4) and locknut (5) that secures the microswitch (6) to the mounting bracket (B).

(5) Remove the electrical leads from the malfunctioning microswitch (6) and remove the switch.

B. Installation

NOTE
The microswitch has markings on the side to identify the normally open, normally closed and common terminals to assist in making electrical connections.

(1) Using the location tags, previously placed on the electrical leads, connect the electrical leads to the microswitch (6, Fig. 4-20). If necessary, refer to Wiring Diagram, para 5.1.

EQUIPMENT ALERT
Inspect the insulators (7) to assure they are in good condition and replace if necessary. The insulators should be located so that they extend out past the connectors on the electrical leads to prevent possible shorts.

(2) Position the microswitch (6) and insulator (7) on the mounting bracket (B) securing it to the locating tab (C).

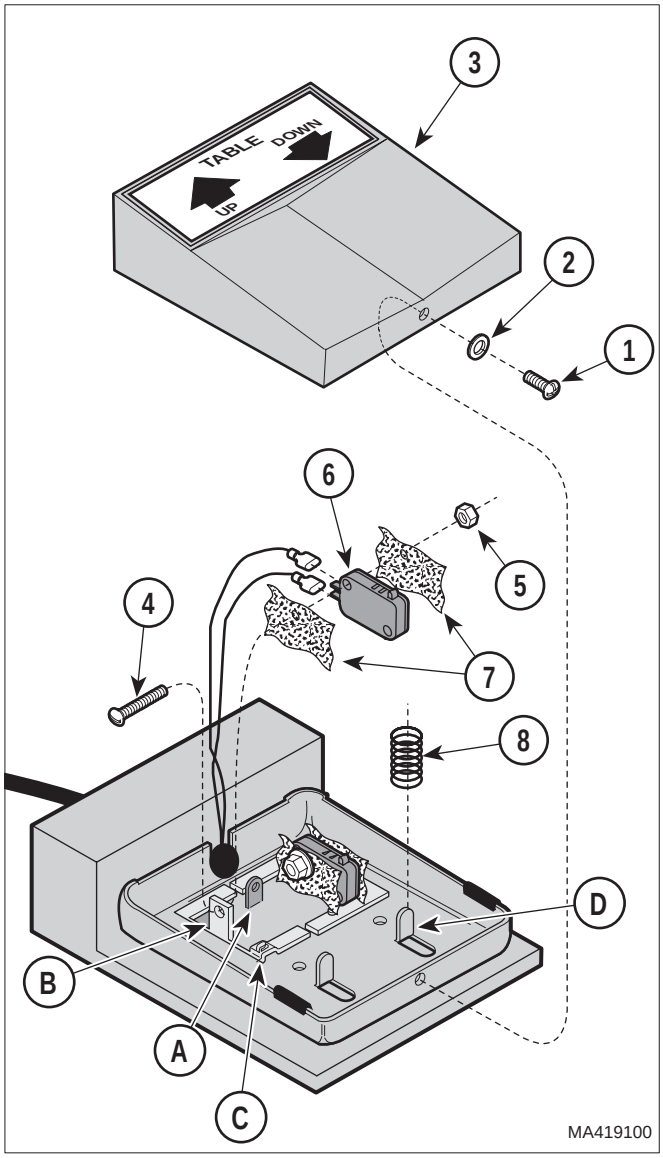


Figure 4-20. Footswitch Microswitch Removal / Installation

(3) Secure the microswitch and insulators to the mounting bracket (B) with the mounting screw (4) and lock nut (5).

NOTE
Assure the pedal springs (8) are in good condition and located on the positioning tabs (D) before installing the pedal.

(4) Install the pedal (3) assuring that it is located properly on the pivot bracket (A) and secure with the pivot screw (1) and lockwasher (2).

(5) Plug the table power cord into the wall outlet.

(6) Check the operation of each pedal function by depressing the pedal and listening and observing the specific function.

4.18 Hydraulic System Flushing Procedure

NOTE
The following procedure is recommended for the following reasons:
- The hydraulic system is excessively contaminated with dirt particles or water, causing repeated malfunctions of hydraulic components.
- An oil other than light weight mineral oil has been added to the hydraulic system, causing the table to malfunction or perform erratically.

A. Flushing Procedure

(1) Lower TABLE DOWN function all the way down.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove filler cap (1, Figure 4-21) from reservoir (2).

(4) Get a suitable drain pan (A) with a capacity of approximately 2 quarts (1.9 liters).

(5) Using a syringe or suction device, remove all oil from the reservoir (2).

(6) Refill reservoir (2) with light grade mineral oil.

(7) Disconnect hose (3) from down function shuttle valve (4) and place end of hose in drain pan (A).

(8) Raise TABLE UP function all the way up, while making sure to keep refilling reservoir (2) with light grade mineral oil as necessary.

(9) Connect hose (3) to down function shuttle valve (4).

(10) Disconnect hose (5) from up function shuttle valve (6) and place end of hose in drain pan (A).

(11) Lower TABLE DOWN function all the way down, while making sure to keep refilling reservoir (2) with light grade mineral oil as necessary.

(12) Connect hose (5) to up functions shuttle valve (6).

(13) Repeat steps 7 thru 12 until oil being removed is clear and contains no dirt particles.

(14) Run the TABLE functions up and down until all air is purged from the hydraulic system.

(15) Lower the table all the way down; then check oil level and add or remove oil as necessary (Refer to para 4.4).

(16) Install motor cover assembly (Refer to para 4.2).

(17) Dispose of used oil in accordance with local regulations.

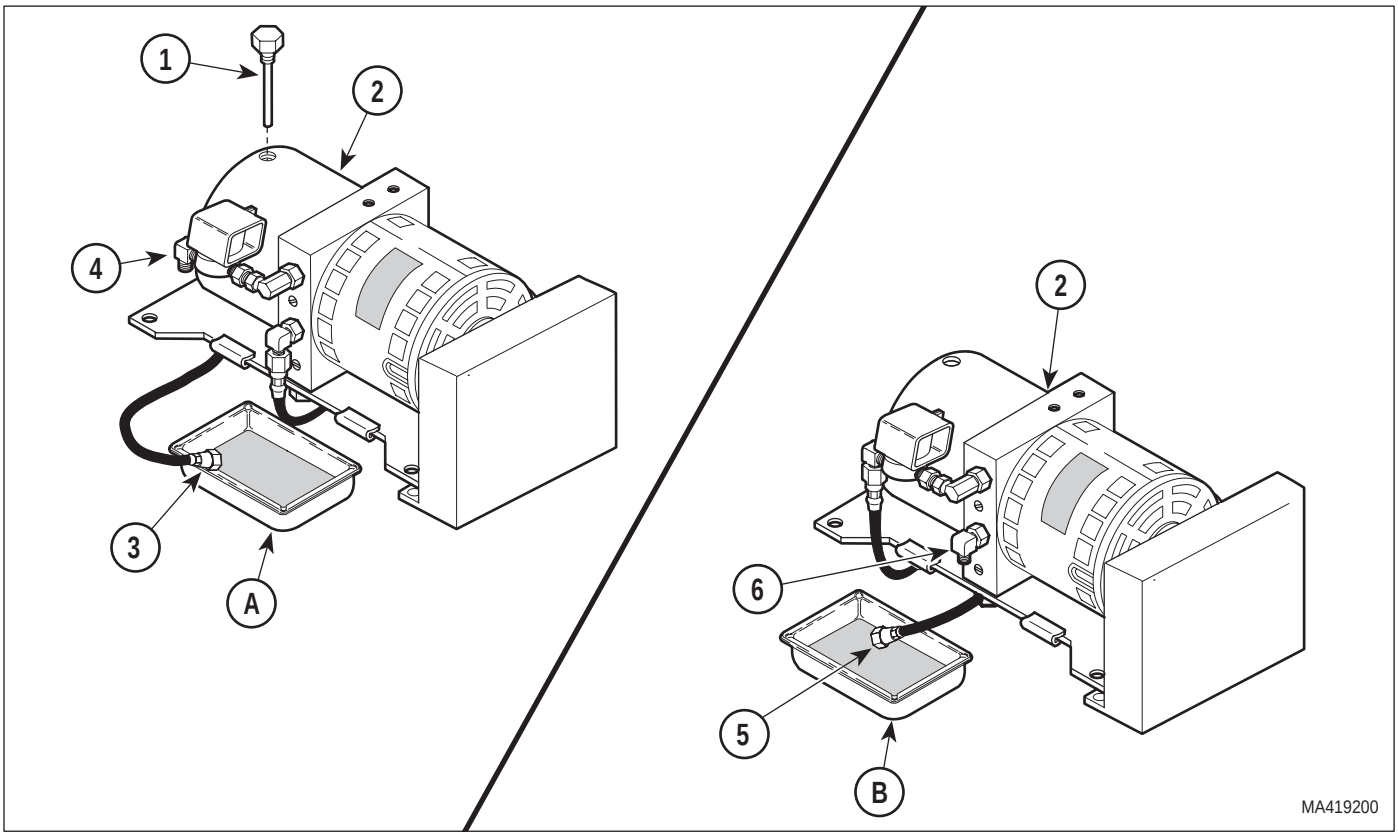


Figure 4-21. Hydraulic System Flushing Procedure

Return To Table Of Contents

SECTION IV
MAINTENANCE / SERVICE

Printed in U.S.A.

SECTION V
SCHEMATICS AND DIAGRAMS

5.1 Electrical Schematics / Wiring Diagrams

Figures 5-1 and 5-2 illustrate the current flow and wiring connections between the electrical components for the 106 Exam Table.

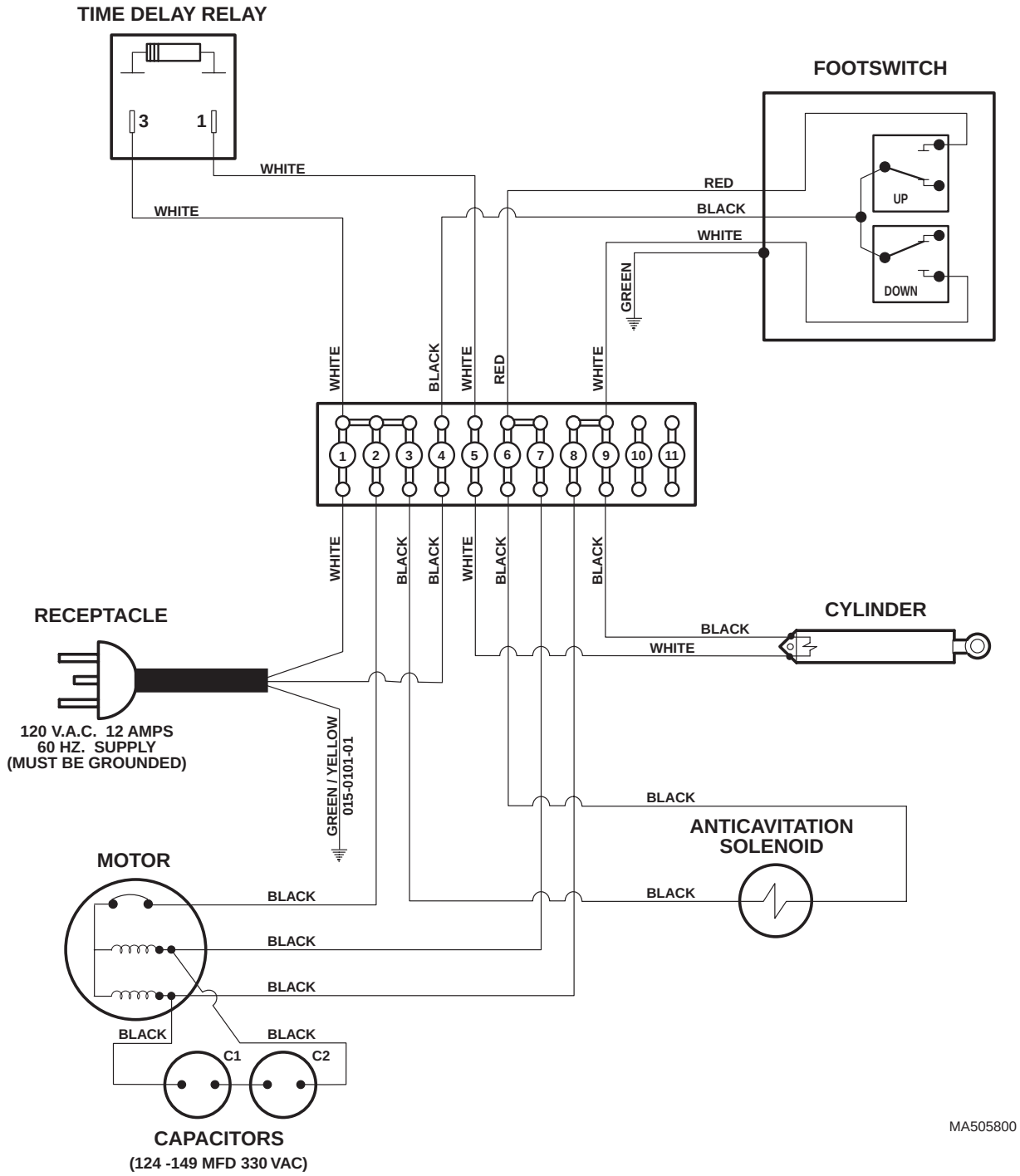
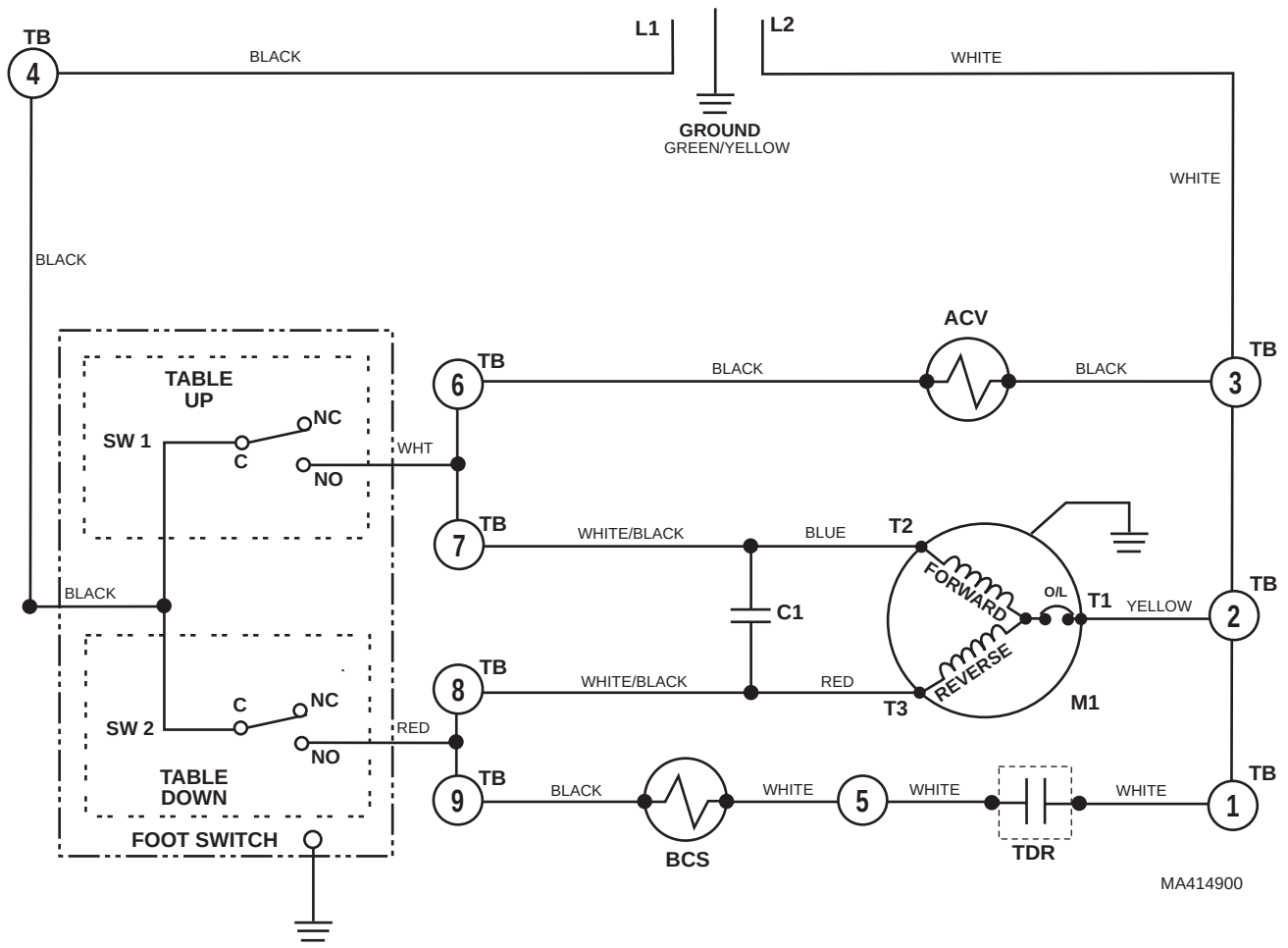


Figure 5-1. Wiring Diagram

SECTION V
SCHEMATICS AND DIAGRAMS



NOTE

All controls are shown in the un-operated or un-energized position.

NO	**=**	**Normally Open Contacts**
NC	**=**	**Normally Closed Contacts**
C	**=**	**Common**
TB	**=**	**Terminal Board**
O/L	**=**	**Overload**
C1	**=**	**Capacitor**
SW	**=**	**Switch**
M1	**=**	**Motor Pump**
TDR	**=**	**Time Delay Relay**
ACV	**=**	**Anti-Cavitation Valve**
BCS	**=**	**Base Cylinder Solenoid**

Figure 5-2. Electrical Schematic

Printed in U.S.A.

5.2 Hydraulic Flow Diagrams.

Figures 5-3 and 5-4 illustrate the hydraulic fluid flow during the TABLE UP and DOWN operations.

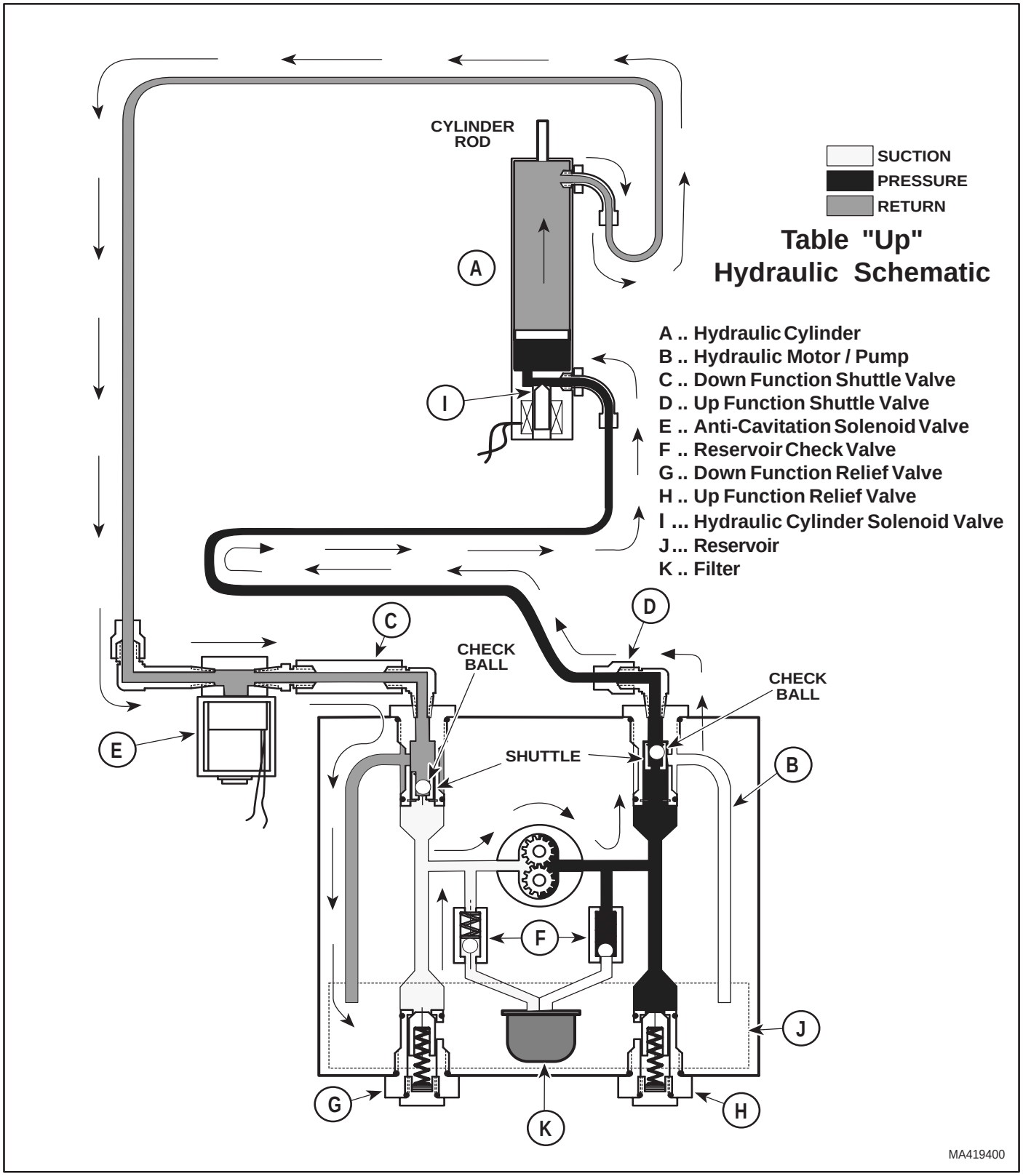


Figure 5-3. Hydraulic Flow Diagram

SECTION V
SCHEMATICS AND DIAGRAMS

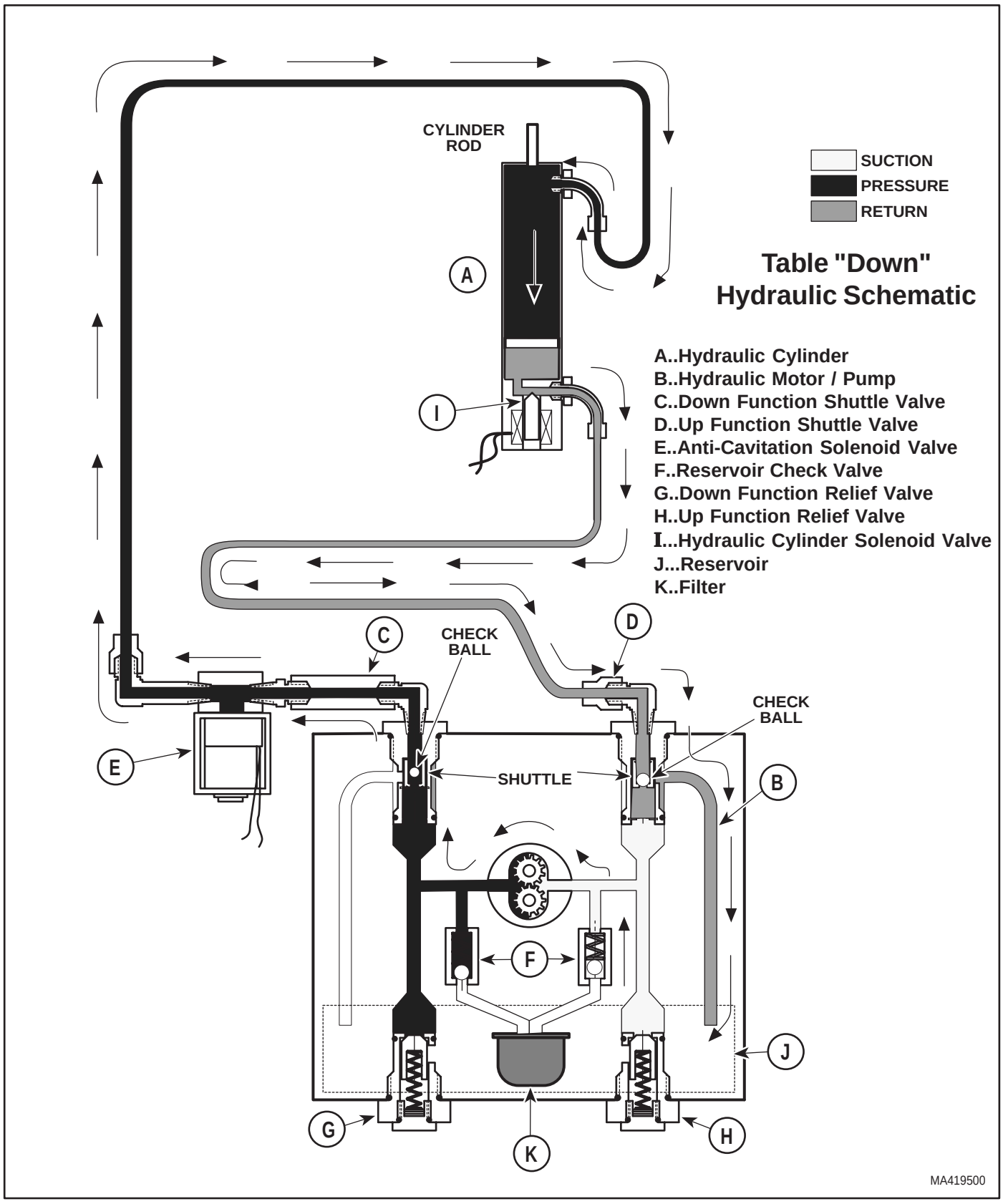


Figure 5-6. Hydraulic Flow Diagram

Printed in U.S.A.

SECTION VI
PARTS LIST

6.1 Introduction

The illustrated parts list provides information for identifying and ordering the parts necessary to maintain the unit in peak operating condition. Refer to paragraph 1.5 for parts ordering information.

The parts list also illustrates disassembly and assembly relationships of parts.

6.2 Description of Columns

The *Item* column of the parts list gives a component its own unique number. The same number is given to the component in the parts illustration. This allows a part number of a component to be found if the technician can visually spot the part on the illustration. The technician simply finds the component in question on the illustration and notes the item number of that component. Then, he finds that item number in the parts list. The row corresponding to the item number gives the technician the part number, a description of the component, and quantity of parts per subassembly. Also, if a part number is known, the location of that component can be determined by looking for the item number of the component on the illustration.

The *Part No.* column lists the MIDMARK part number for that component.

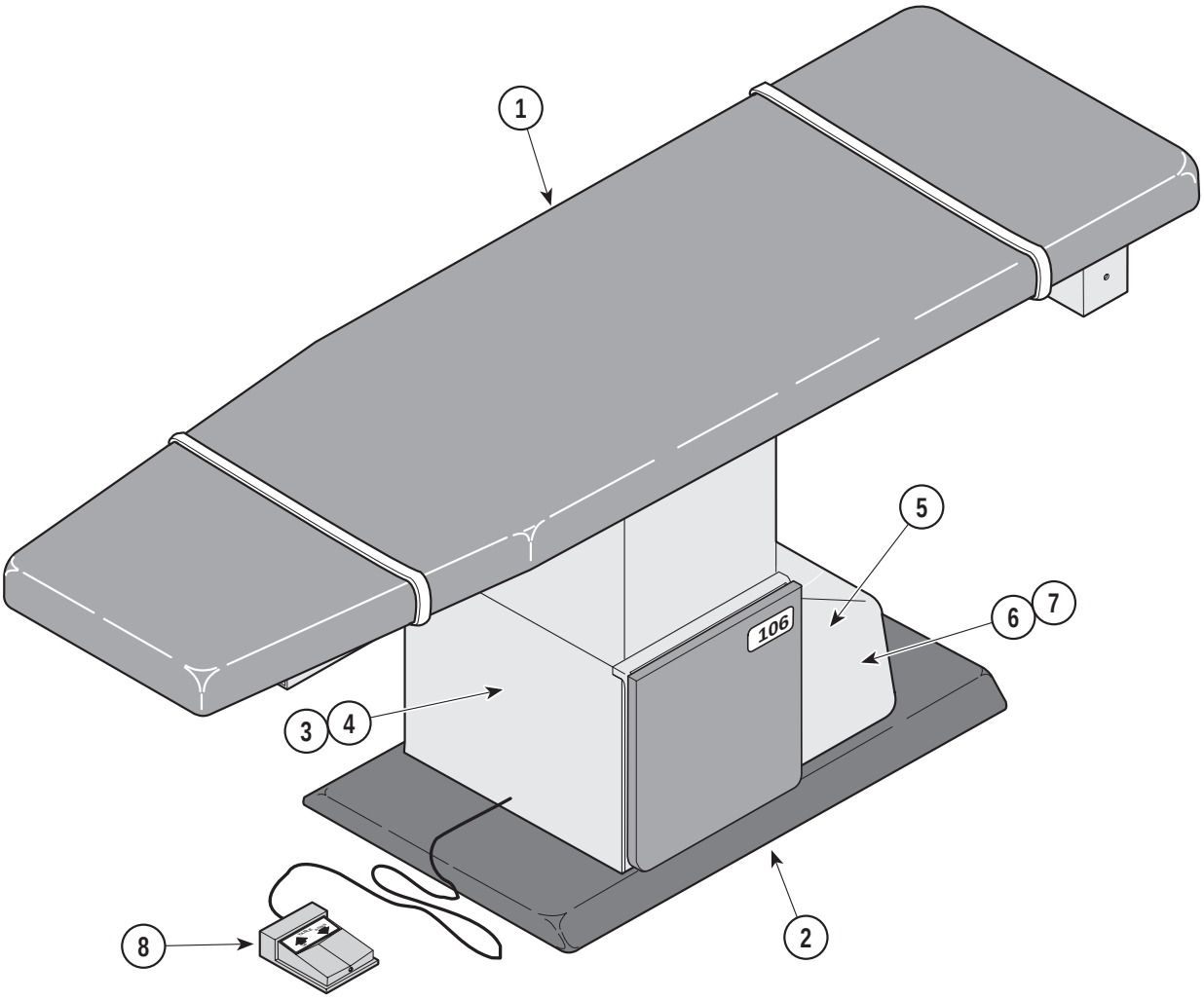
The *Description* column provides a physical description of the component.

The *Qty.* column lists the number of units of a particular component that is required for the subassembly. The letters “AR” denote “as required” when quantities of a particular component cannot be determined, such as: adhesive.

Bullets [•] in the *Part No.* column and the *Description* column show the indenture level of a component. If a component does not have a bullet, it is a main component of that illustration. If a component has a bullet, it is a subcomponent of the next component listed higher in the parts list than itself that does not have a bullet. Likewise, if a component has two bullets, it is a subcomponent of the next component listed higher in the parts list than itself that has only one bullet.

Printed in U.S.A.

Pictorial Index



MA379100

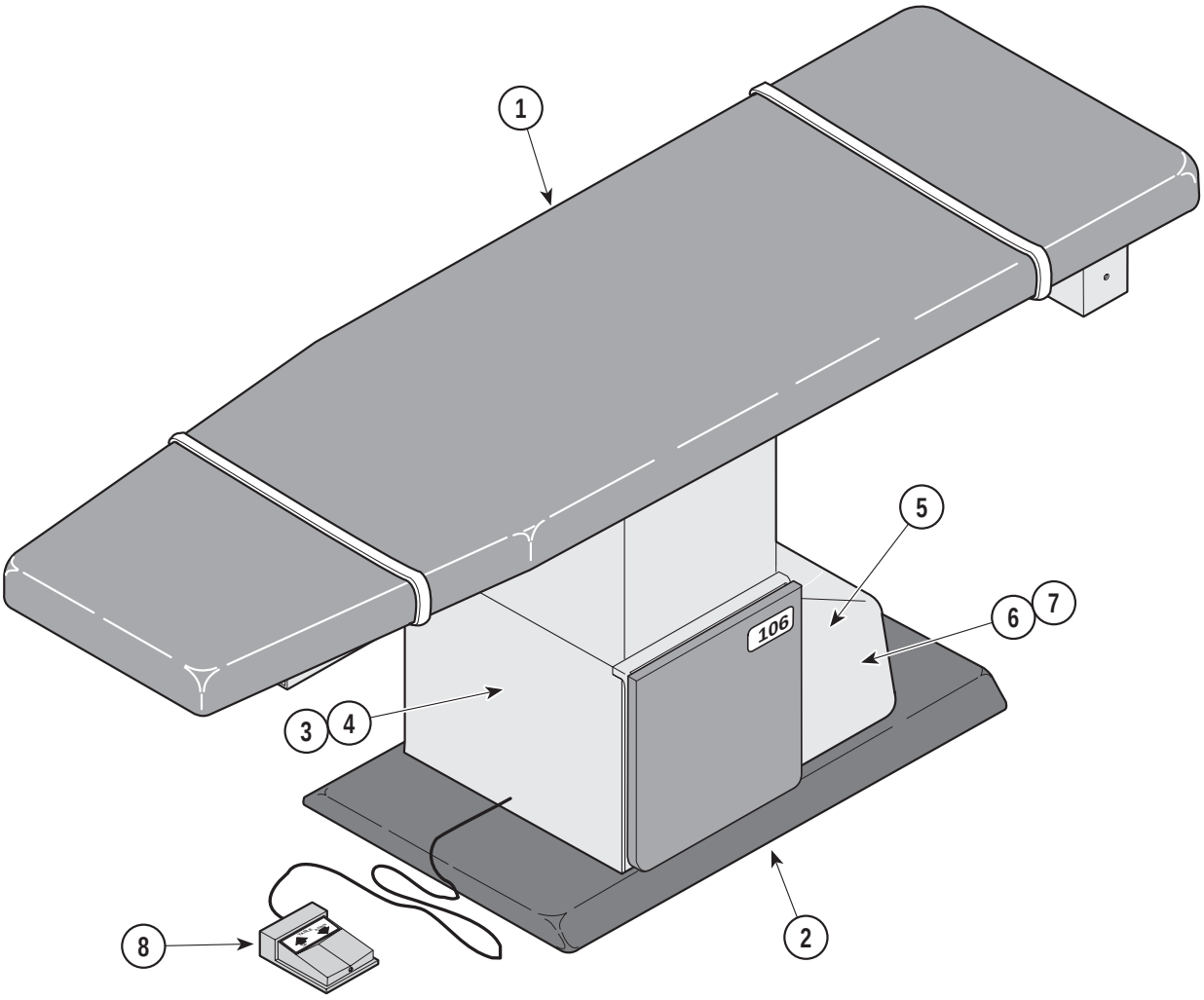
Used on units with Serial Number J-1000 thru J-1049

Item	Part No.	Description	Page
	106-001	106 Easi-Riser Examination Table	
1	•	• Table Top Components	6-4
2	•	• Base Covers And Enclosures	6-5
3	•	• Base Mechanical Components	6-6
4	• •	• • Base Slide Assembly	6-7
5	•	• Base Electrical Components (Prior to S.N. #37940)	6-8
	•	• Base Electrical Comp. (S.N. #37941 to Present & J-1000 to J-1049)	6-8.1
6	•	• Hydraulic System	6-9
7	• •	• • Motor / Pump Assembly (Prior to S.N. #37940)	6-10
	• •	• • Motor / Pump Assembly (S.N. #37941 to Present & J-1000 to J-1049)	6-10.1
8	•	• Foot Control Assembly	6-11
		OPTIONAL ACCESSORIES	
		Refer to MEDICAL ACCESSORY BOOK {004-0096-00}	
9	• 9A60001	• Restraint Belts (Not Shown)	9A60
10	• 9A75001	• Caster Base (Not Shown)	9A75
11	• 9A77001	• Bulk Storage(Not Shown)	9A77
12	• 9A197001	• Swivel Wheel Caster Accessory (Not Shown)	9A197
13	• 003-0288-00	• Installation & Operation Manual (Not Shown)	Ref

Always Specify Model & Serial Number

Printed in U.S.A.

Pictorial Index



MA379100

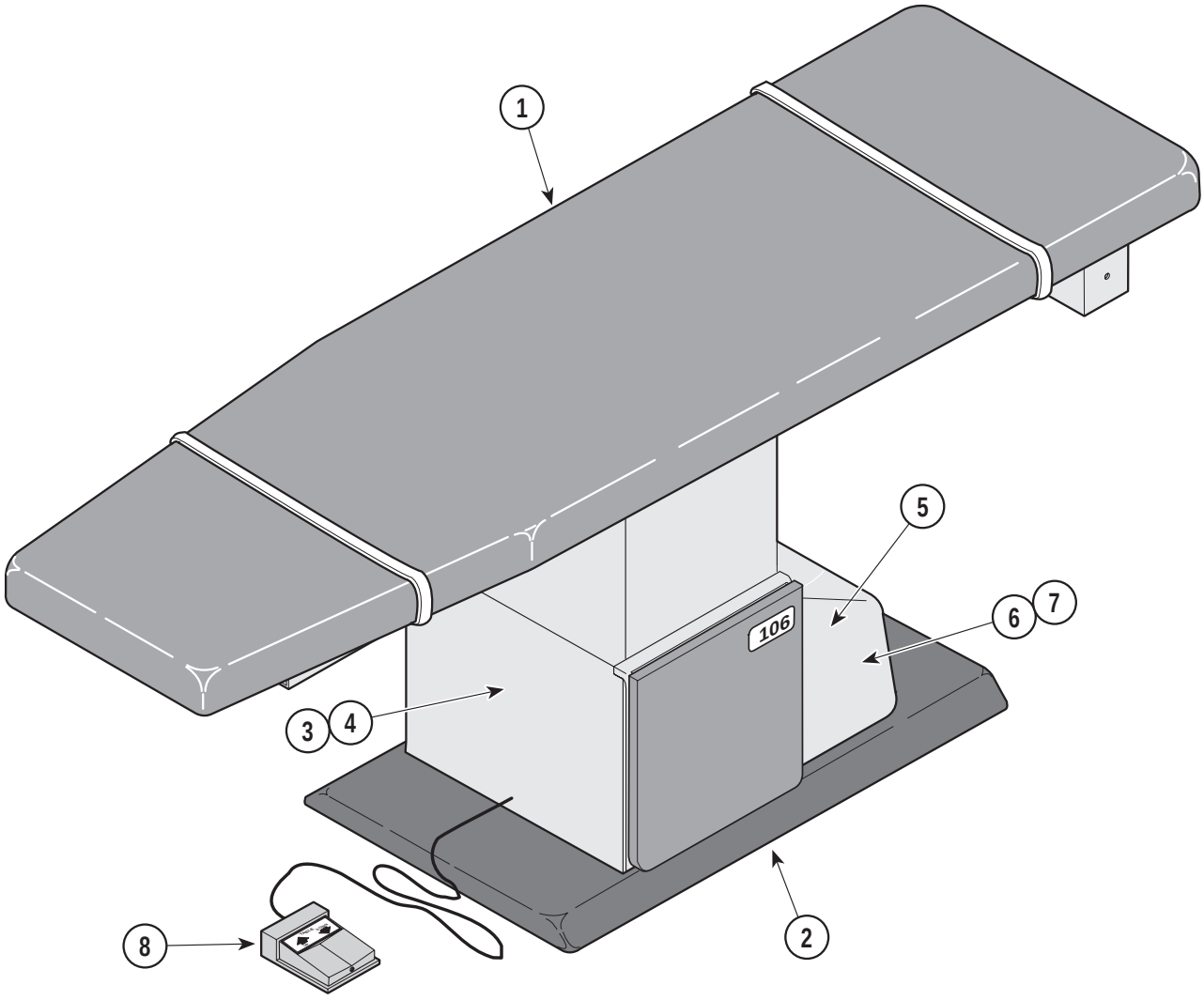
Used on units with Serial Number J-1050 thru Present

Item	Part No.	Description	Page
	106-002	106 Easi-Riser Examination Table	
1	•	• Table Top Components	6-4
2	•	• Base Covers And Enclosures	6-5.1
3	•	• Base Mechanical Components	6-6
4	• •	• • Base Slide Assembly	6-7
5	•	• Base Electrical Components (J-1050 to J-1475)	6-8.1
	•	• Base Electrical Components (J-1475 to Present)	6-8.2
6	•	• Hydraulic System (J-1000 to J-1049)	6-9
	•	• Hydraulic System (J-1050 to Present)	6-9.1
7	• •	• • Motor / Pump Assembly (J-1000 to J-1049)	6-10.1
	• •	• • Motor / Pump Assembly (J-1050 to J-1475)	6-10.2
	• •	• • Motor / Pump Assembly (J-1476 to Present)	6-10.3
8	•	• Foot Control Assembly	6-11
		OPTIONAL ACCESSORIES	
		Refer to MEDICAL ACCESSORY BOOK {004-0096-00}	
9	• 9A60001	• Restraint Belts (Not Shown)	9A60
10	• 9A75001	• Caster Base (Not Shown)	9A75
11	• 9A77001	• Bulk Storage(Not Shown)	9A77
12	• 9A197001	• Swivel Wheel Caster Accessory (Not Shown)	9A197
13	• 003-0288-00	• Installation & Operation Manual (Not Shown)	Ref

Always Specify Model & Serial Number

Printed in U.S.A.

Pictorial Index



MA379100

Used on units with Serial Number CC-1000 thru Present

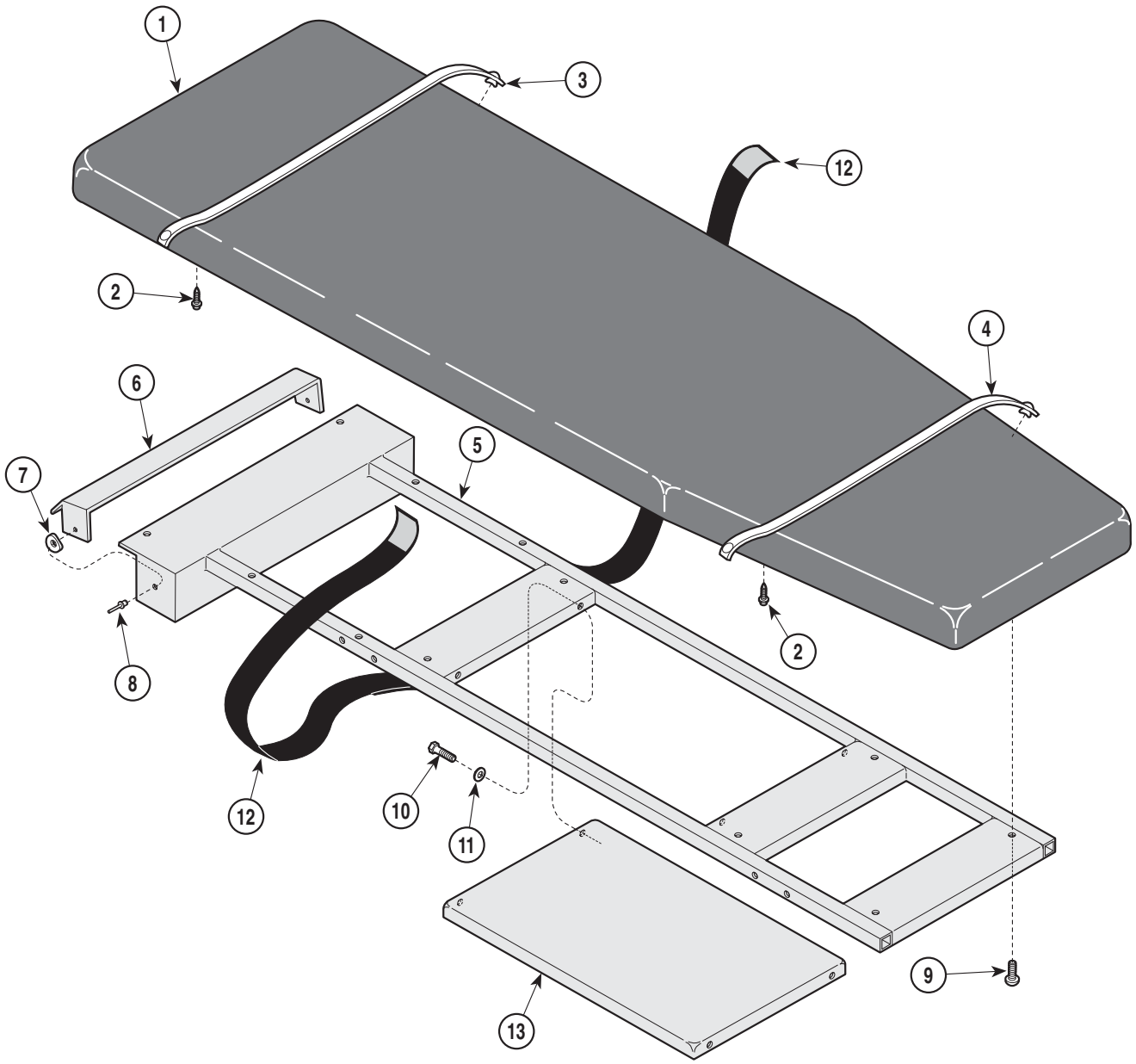
Item	Part No.	Description	Page
	106-004	106 Easi-Riser Examination Table	
1	•	• Table Top Components	6-4.1
2	•	• Base Covers And Enclosures	6-5.2
3	•	• Base Mechanical Components	6-6.1
4	• •	• • Base Slide Assembly	6-7.1
5	•	• Base Electrical Components	6-8.3
6	•	• Hydraulic System	6-9.1
7	• •	• • Motor / Pump Assembly (CC-1000 to CC-1568)	6-10.4
	• •	• • Motor / Pump Assembly (CC-1569 to Present)	6-10.5
8	•	• Foot Control Assembly	6-11

Item	Part No.	Description	Page
		OPTIONAL ACCESSORIES	
		Refer to MEDICAL ACCESSORY BOOK {004-0096-00}	
9	• 9A60001	• Restraint Belts (Not Shown)	9A60
10	• 9A75001	• Caster Base (Not Shown)	9A75
11	• 9A77001	• Bulk Storage(Not Shown)	9A77
12	• 9A197001	• Swivel Wheel Caster Accessory (Not Shown)	9A197
13	• 003-0288-00	• Installation & Operation Manual (Not Shown)	Ref

Always Specify Model & Serial Number

Printed in U.S.A.

Table Top Components



Color Selector.....www.midmark.com

MA373100

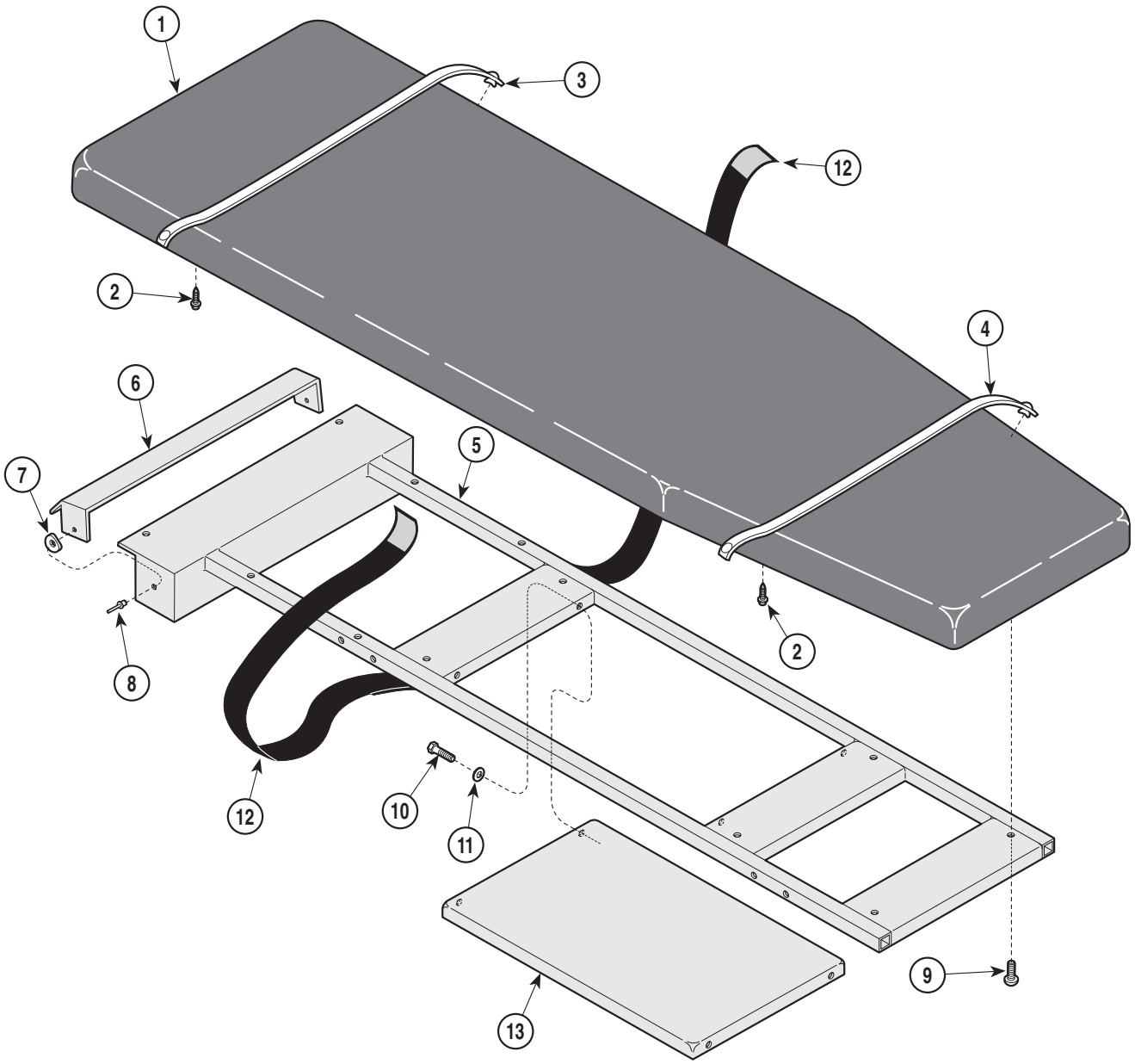
Used on units with Serial Number J-1000 thru Present

Item	Part No.	Description	Qty.
1	002-0051-00	Upholstered Top Kit (Includes Item 2 [Specify Color])	1
2	• 016-0022-00	• Stud	4
3	029-0017-04	Paper Tear Strip (Kit #002-0052-00 Includes Both Item 3 and Item 4)	1
4	029-0017-03	Paper Tear Strip (Kit #002-0052-00 Includes Both Item 3 and Item 4)	1
5	030-0212-00	Frame Weldment	1
6	050-0472-00	Paper Cover	1
7	045-0001-12	Curved Washer	2
8	042-0010-02	Pop Rivet	2
9	040-0250-03	Screw	8
10	040-0312-03	Screw	6
11	045-0001-27	Washer	6
12	9A60002	Restraint Strap	1
13		Inner Member Weldment (Refer to "Base Slide Assembly" Elsewhere)	Ref

Always Specify Model & Serial Number

Printed in U.S.A.

Table Top Components



Color Selector.....www.midmark.com

MA373100

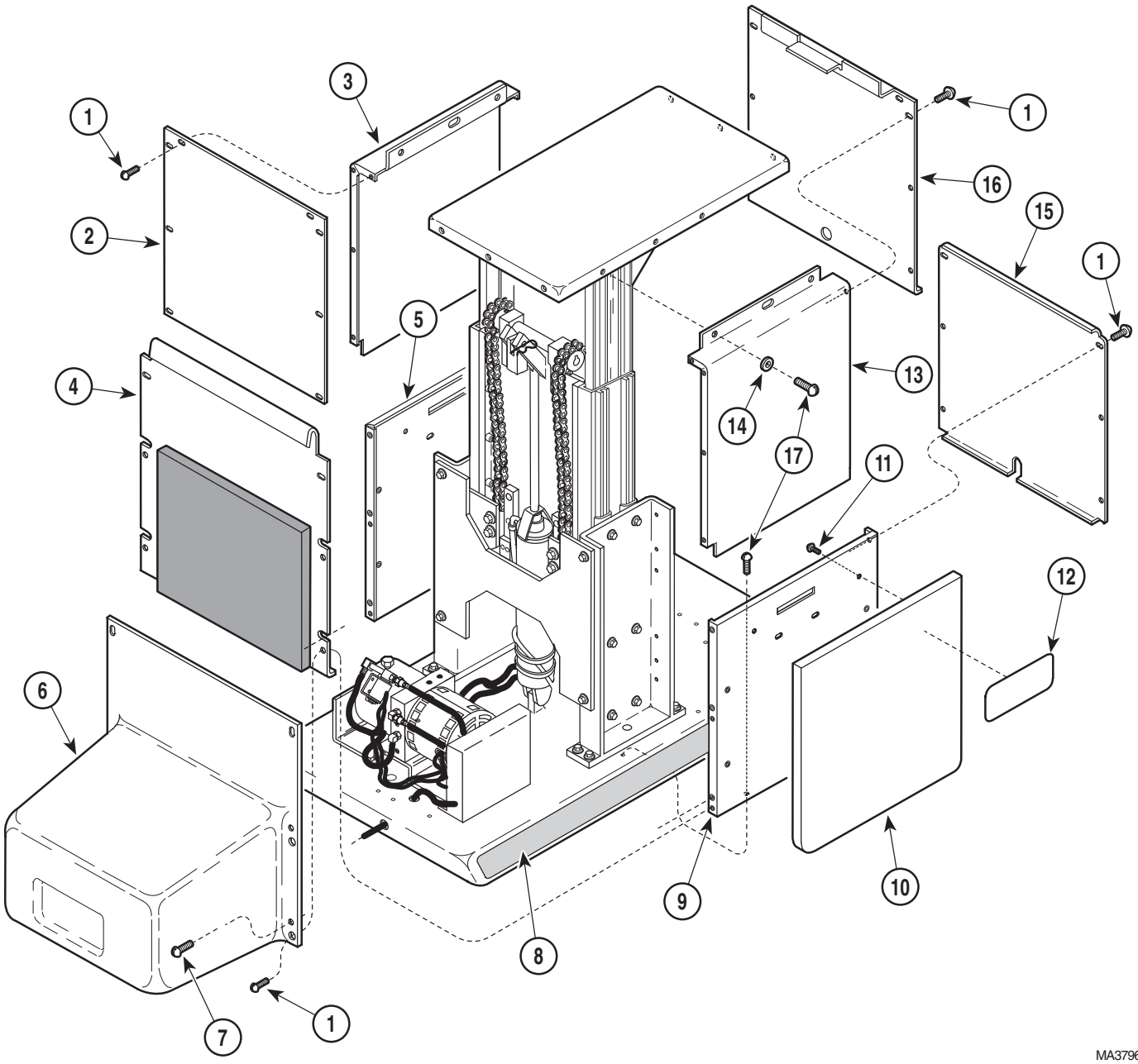
Used on units with Serial Number CC-1000 thru Present

Item	Part No.	Description	Qty.
1	002-0051-00	Upholstered Top Kit (Includes Item 2 [Specify Color])	1
2	• 016-0022-00	• Stud	4
3	029-0017-04	Paper Tear Strip (Kit #002-0052-00 Includes Both Item 3 and Item 4)	1
4	029-0017-03	Paper Tear Strip (Kit #002-0052-00 Includes Both Item 3 and Item 4)	1
5	030-0669-20	Frame Weldment	1
6	050-0472-20	Paper Cover	1
7	045-0001-12	Curved Washer	2
8	042-0010-02	Pop Rivet	2
9	040-0250-03	Screw	8
10	040-0312-03	Screw	6
11	045-0001-27	Washer	6
12	9A60002	Restraint Strap	1
13		Inner Member Weldment (Refer to "Base Slide Assembly" Elsewhere)	Ref

Always Specify Model & Serial Number

Printed in U.S.A.

Base Covers And Enclosures



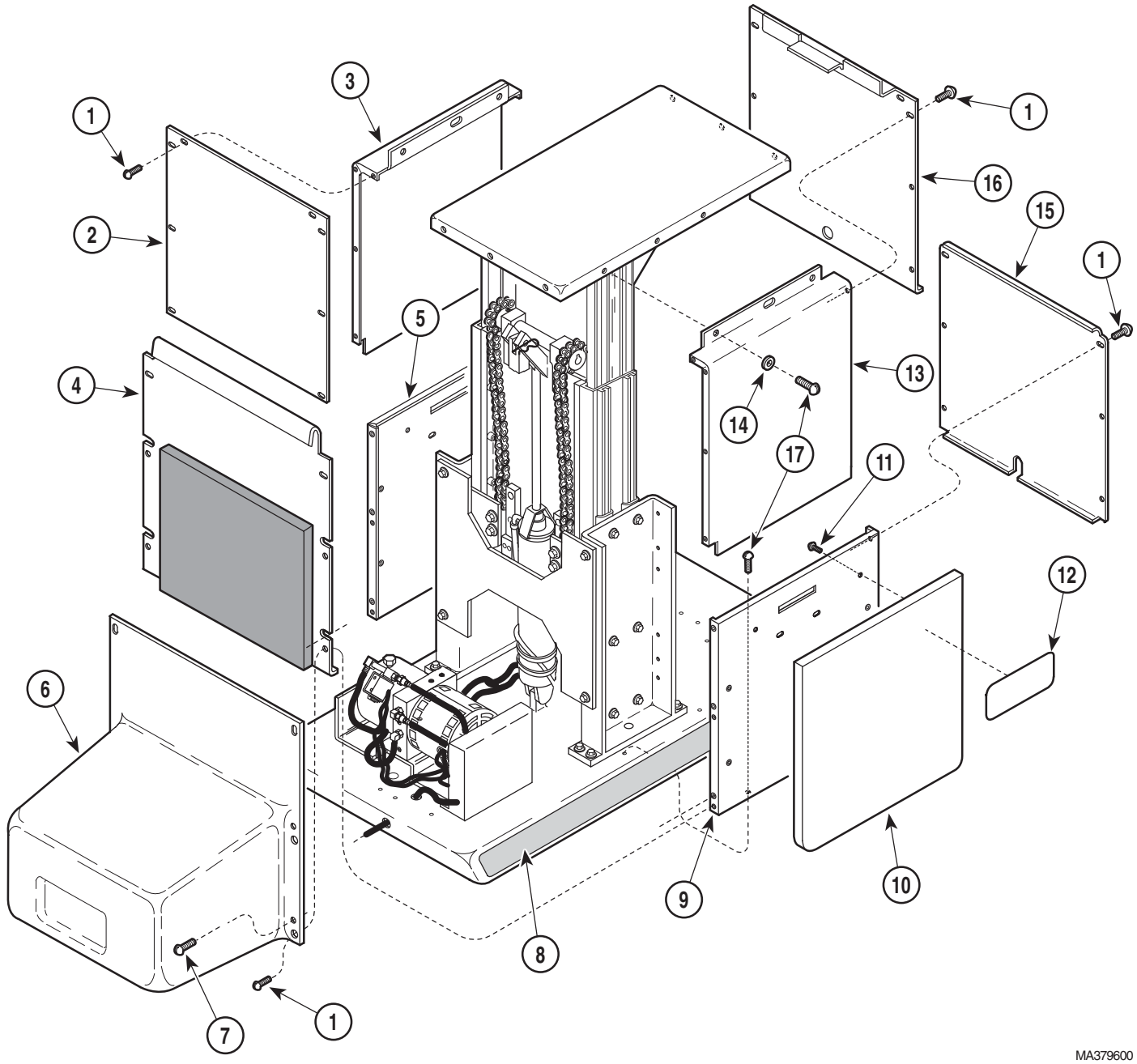
MA379600

Used on units with Serial Number J-1000 thru J-1049

Item	Part No.	Description	Qty.
1	040-0008-29	Screw	24
2	050-0362-00	Back Inner Shroud	1
3	050-0947-01	L.H. Inner Shroud (Less Nutserts)	1
	• 042-045-02	• Nutsert	8
4	~~029-0355-00~~	Back Outer Shroud Assembly	1
5	050-0950-00	L.H. Outer Shroud (Less Nutserts)	1
	• 042-0045-01	• Nutsert	7
	• 042-0045-02	• Nutsert	4
6	029-0354-00	Motor Cover Assembly	1
7	040-0010-34	Screw	6
8	053-0107-00	Scuff Plate	2
9	050-0949-00	R.H. Outer Shroud (Less Nutserts)	1
	• 042-0045-01	• Nutsert	7
	• 042-0045-02	• Nutsert	4
10	055-2900-01	Side Panel (W / Receptacle Cutout [Specify Color])	1
	055-2100-01	Side Panel (Without Cutout [Specify Color])	1
11	040-0006-00	Screw	8
12	061-0215-04	Nameplate Decal	2
13	050-0947-00	R.H. Inner Shroud (Less Nutsert)	1
	• 042-0045-02	• Nutsert	8
14	045-0001-15	Washer	6
15	050-0948-00	Front Outer Shroud	1
16	050-0504-00	Front Inner Shroud	1
17	040-0010-00	Screw	12

Always Specify Model & Serial Number

Base Covers And Enclosures



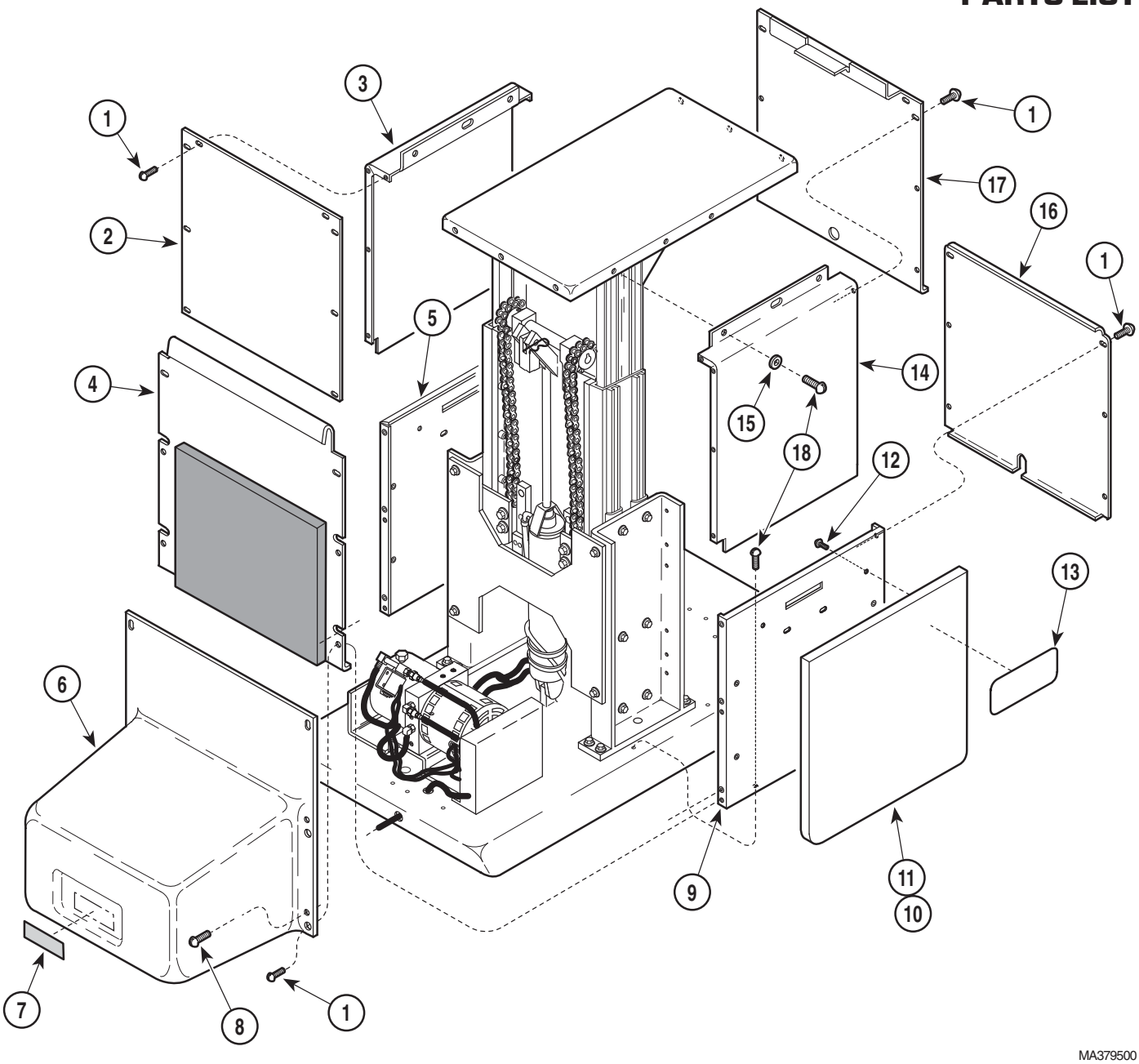
MA379600

Used on units with Serial Number J-1050 thru Present

Item	Part No.	Description	Qty.
1	040-0008-29	Screw	24
2	050-0362-00	Back Inner Shroud	1
3	050-0947-01	L.H. Inner Shroud (Less Nutserts)	1
	• 042-045-02	• Nutsert	8
4	~~029-0355-00~~	Back Outer Shroud Assembly	1
5	050-0950-00	L.H. Outer Shroud (Less Nutserts)	1
	• 042-0045-01	• Nutsert	7
	• 042-0045-02	• Nutsert	4
6	029-0354-00	Motor Cover Assembly	1
7	040-0010-34	Screw	6
8	053-0107-00	Scuff Plate	2
9	050-0949-00	R.H. Outer Shroud (Less Nutserts)	1
	• 042-0045-01	• Nutsert	7
	• 042-0045-02	• Nutsert	4
10	055-5800-00	Side Panel	2
11	040-0006-00	Screw	8
12	061-0215-04	Nameplate Decal	2
13	050-0947-00	R.H. Inner Shroud (Less Nutsert)	1
	• 042-0045-02	• Nutsert	8
14	045-0001-15	Washer	6
15	050-0948-00	Front Outer Shroud	1
16	050-0504-00	Front Inner Shroud	1
17	040-0010-00	Screw	12

Always Specify Model & Serial Number

Base Covers And Enclosures



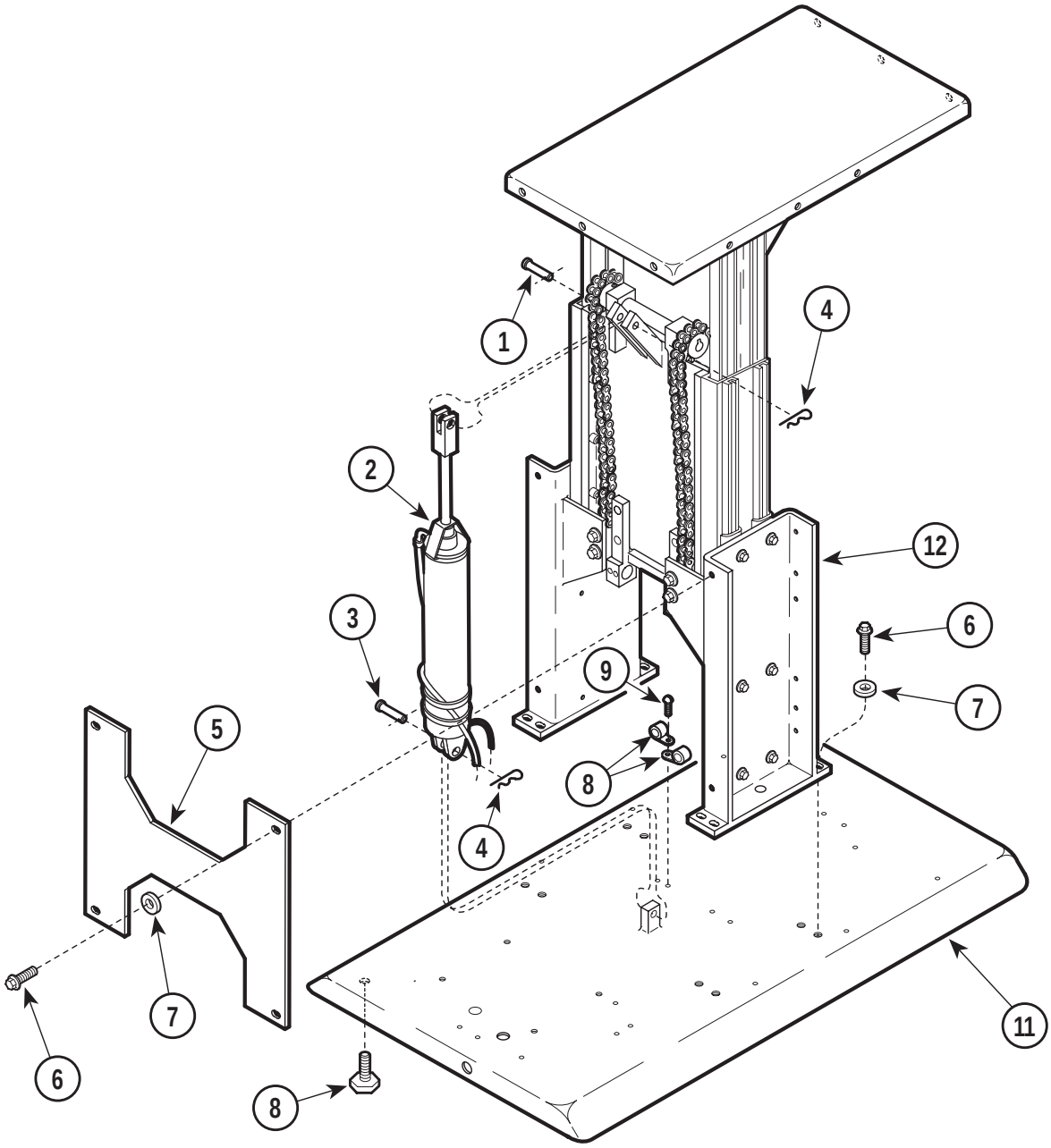
MA379500

Used on units with Serial Number CC-1000 thru Present

Item	Part No.	Description	Qty.
1	040-0008-29	Screw	24
2	050-0362-20	Back Inner Shroud	1
3	050-0947-21	L.H. Inner Shroud (Less Nutserts)	1
	• 042-0045-02	• Nutsert	8
4	029-0355-01	Back Outer Shroud Assembly	1
5	050-0998-21	L.H. Outer Shroud (Less Nutserts)	1
	• 042-0045-01	• Nutsert	3
	• 042-0045-02	• Nutsert	4
6	029-0354-01	Motor Cover Assembly	1
7	061-0293-00	Caution Label	1
8	040-0010-34	Screw	6
9	050-0998-20	R.H. Outer Shroud (Less Nutserts)	1
	• 042-0045-01	• Nutsert	3
	• 042-0045-02	• Nutsert	4
10	*N.L.A.*	Side Panel Assembly (Includes Items 11 &12 [Specify Color])	2
11	055-5800-00	Side Panel (Specify Color)	1
12	040-0006-00	Screw	4
13	061-0237-04	106 Nameplate	2
14	050-0947-40	R.H. Inner Shroud (Less Nutsert)	1
	• 042-0045-02	• Nutsert	8
15	045-0001-15	Washer	6
16	050-0948-20	Front Outer Shroud	1
17	050-0504-20	Front Inner Shroud	1
18	040-0010-00	Screw	12

N.L.A. Denotes "No Longer Available"
Always Specify Model & Serial Number

Base Mechanical Components



MA379700

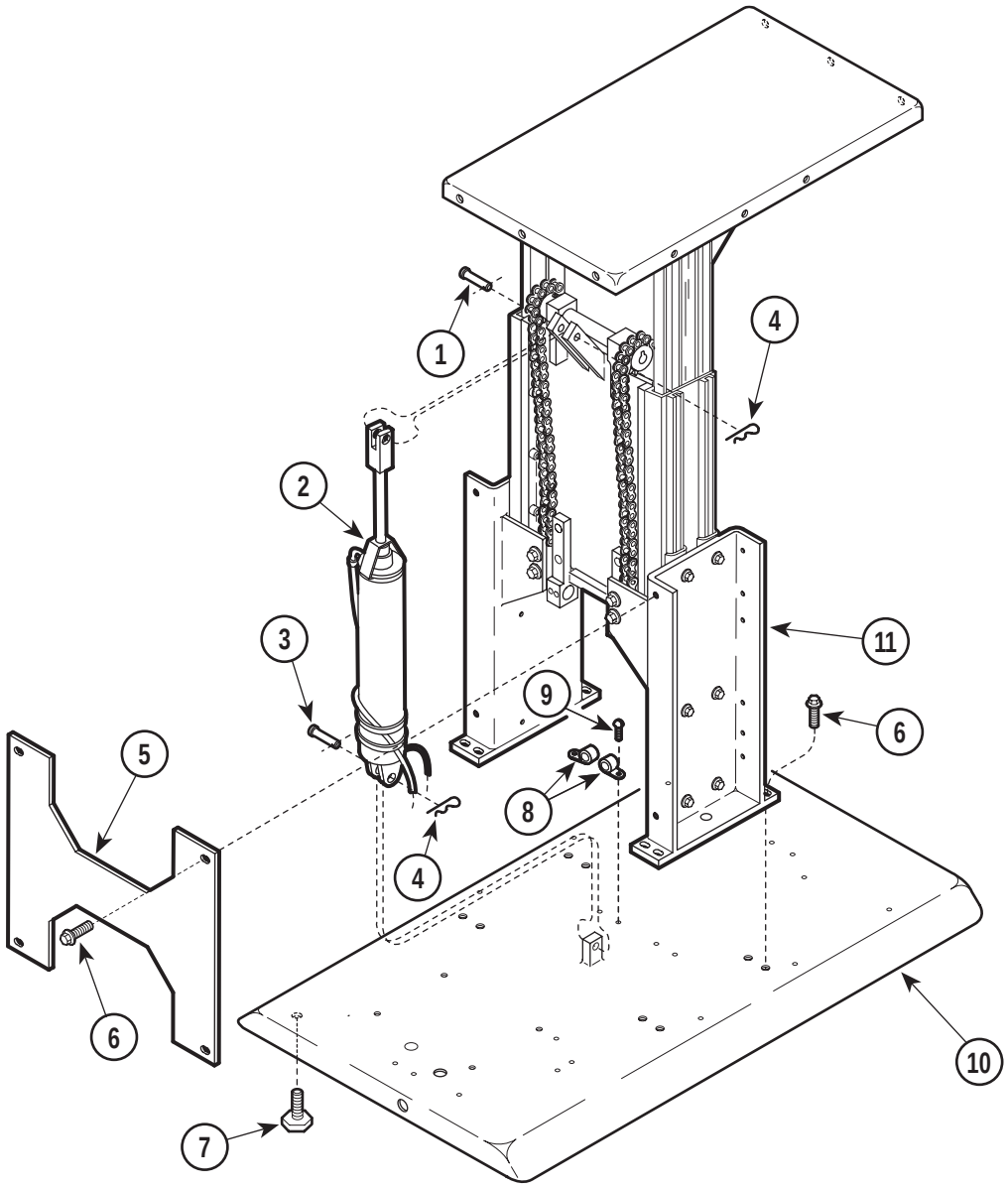
Used on units with Serial Number J-1000 thru Present

Item	Part No.	Description	Qty.
1	042-0005-03	Clevis Pin	1
2		Base Cylinder (Refer to "Hydraulic System" Elsewhere)	Ref
3	042-0005-01	Clevis Pin	1
4	042-0004-00	Hitch Pin Clip	2
5	050-1475-00	Brace	1
6	040-0375-06	Screw	12
7	045-0001-09	Lockwasher	12
8	016-0001-00	Leveling Screw	4
9	015-0014-00	Wire Clip	2
10	040-0010-04	Screw	1
11	030-0605-00	Stationary Base Weldment (Less Nutserts)	1
	• 042-0045-01	• Nutsert	2
12		Base Slide (Refer to "Base Slide Assembly" Elsewhere)	Ref

Always Specify Model & Serial Number

Printed in U.S.A.

Base Mechanical Components



MA373400

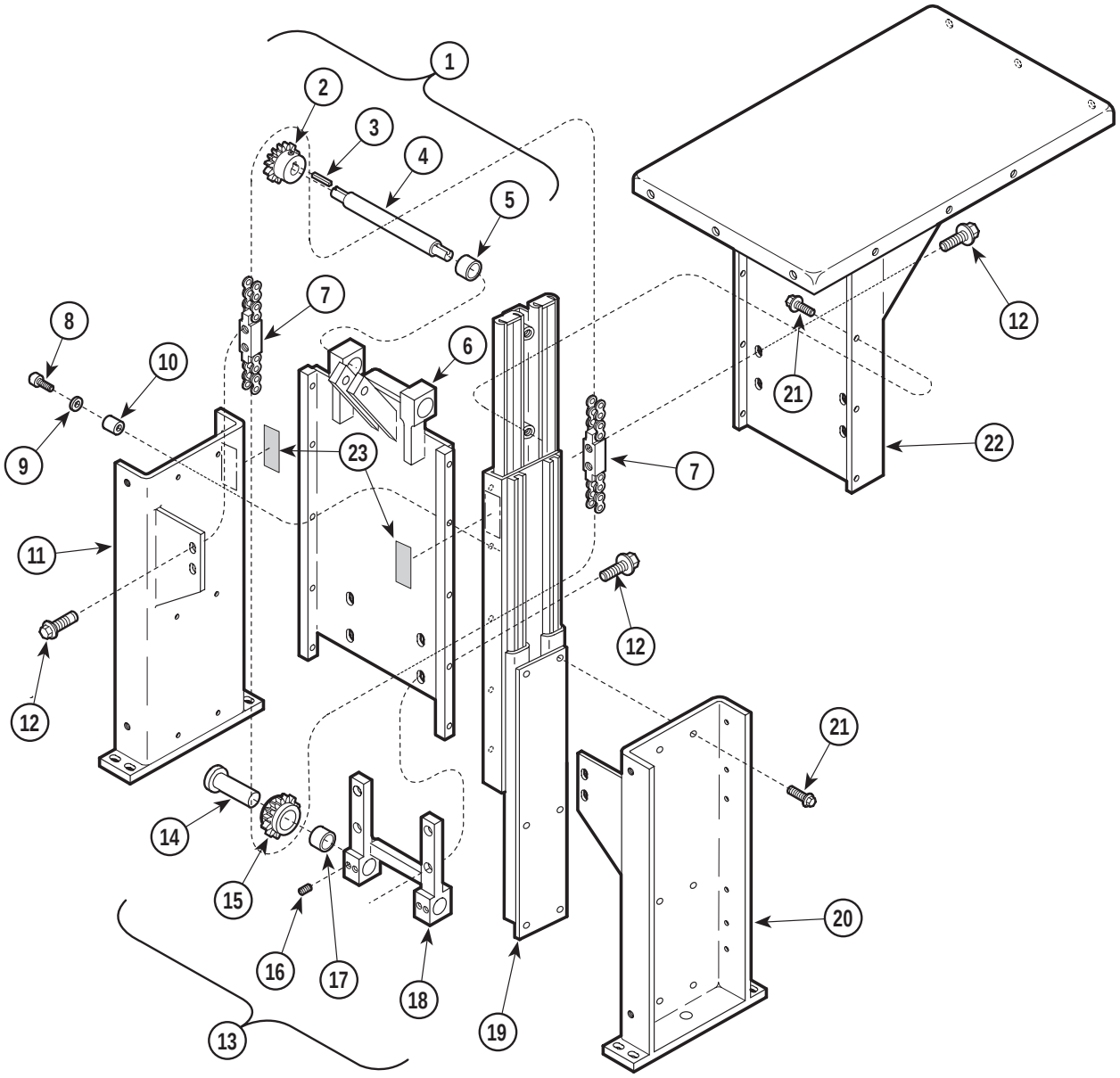
Used on units with Serial Number CC-1000 thru Present

Item	Part No.	Description	Qty.
1	042-0005-03	Clevis Pin	1
2		Base Cylinder (Refer to "Hydraulic System" Elsewhere)	Ref
3	042-0005-01	Clevis Pin	1
4	042-0004-00	Hitch Pin Clip	2
5	050-1475-20	Brace	1
6	040-0375-00	Screw	12
7	016-0001-00	Leveling Screw	4
8	015-0001-00	Wire Clip	2
9	040-0010-04	Screw	2
10	030-0898-00	Base Weldment (Less Nutserts)	1
	• 042-0045-01	• Nutsert	6
11		Base Slide (Refer to "Base Slide Assembly" Elsewhere)	Ref

Always Specify Model & Serial Number

Printed in U.S.A.

Base Slide Assembly



MA379800

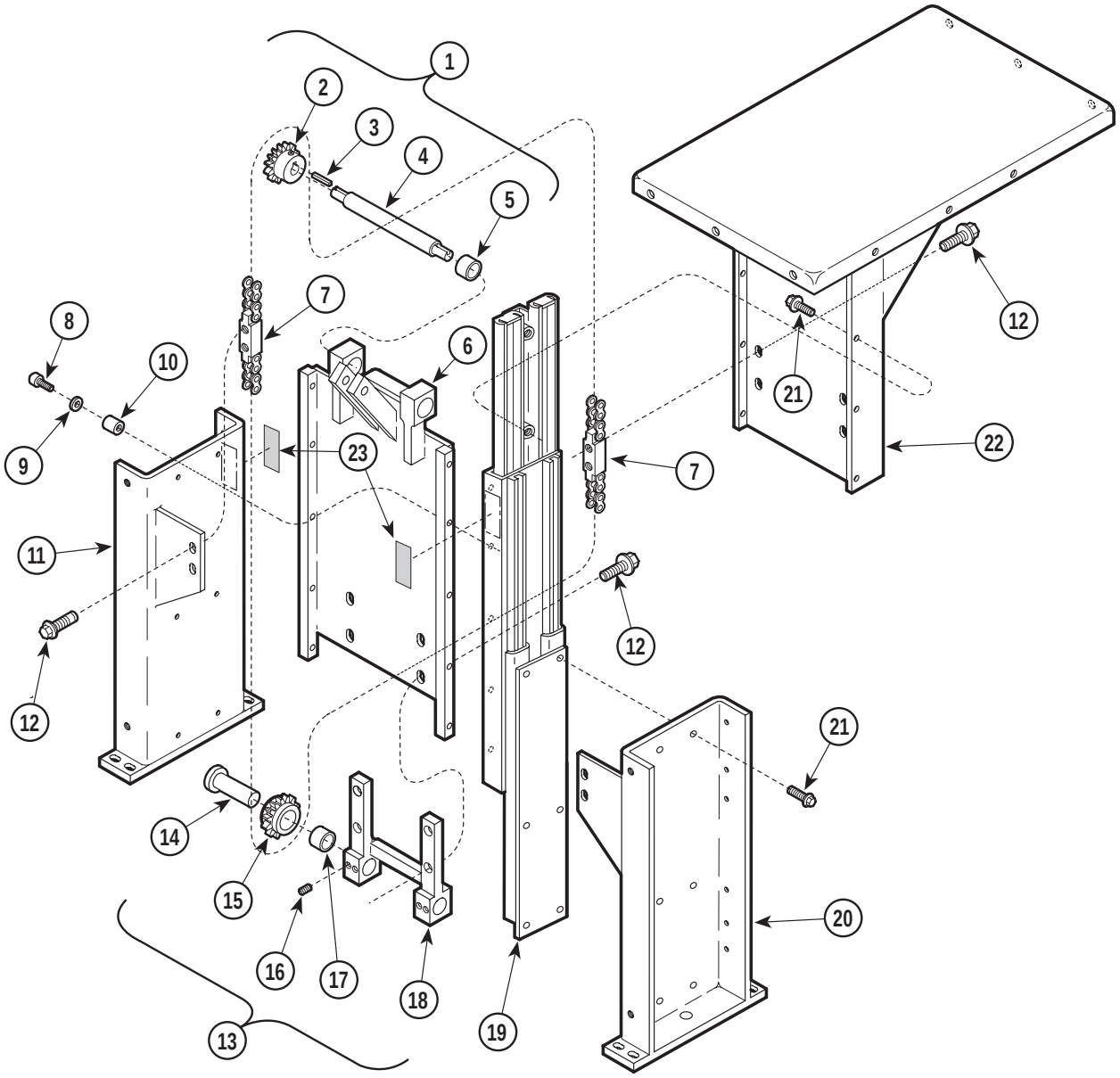
Used on units with Serial Number J-1000 thru Present

Item	Part No.	Description	Qty.
	029-0251-00	Base Slide Assembly (Includes Items 1 thru 22)	1
1	• 029-0072-00	• Middle Member Assembly (Includes Items 2 thru 6)	1
2	• • 016-0151-00	• • Sprocket (Includes Set Screw)	2
3	• • 042-0008-00	• • Machine Key	2
4	• • 057-0105-00	• • Axle	1
5	• • 016-0149-00	• • Bearing	2
6	• • 030-0094-00	• • Middle Member Weldment	1
7	• 029-0070-00	• Chain Assembly	2
8	• 040-0008-30	• Screw	10
9	• 045-0001-10	• Lockwasher	10
10	• 052-0015-00	• Spacer	10
11	• 030-0092-01	• L.H. Support Channel Weldment	1
12	• 040-0375-00	• Screw	12
13	• 029-0071-00	• Idler Adjuster Assembly (Includes Items 14 thru 18)	1
14	• • 030-0274-00	• • Journal Weldment	1
15	• • 016-0152-00	• • Sprocket	2
16	• • 040-0250-04	• • Set Screw	4
17	• • 016-0149-00	• • Bearing	2
18	• • 030-0273-00	• • Idler Adjuster Weldment	1
19	• 016-0234-01	• L.H. Base Slide (Opposite)	1
	• 016-0234-00	• R.H. Base Slide (Shown)	1
20	• 030-0092-00	• R.H. Support Channel Weldment	1
21	• 040-0250-88	• Screw	20
22	• 030-0213-00	• Inner Member Weldment	1
23	061-0045-00	Cover Caution Label	2

Always Specify Model & Serial Number

Printed in U.S.A.

Base Slide Assembly



MA373500

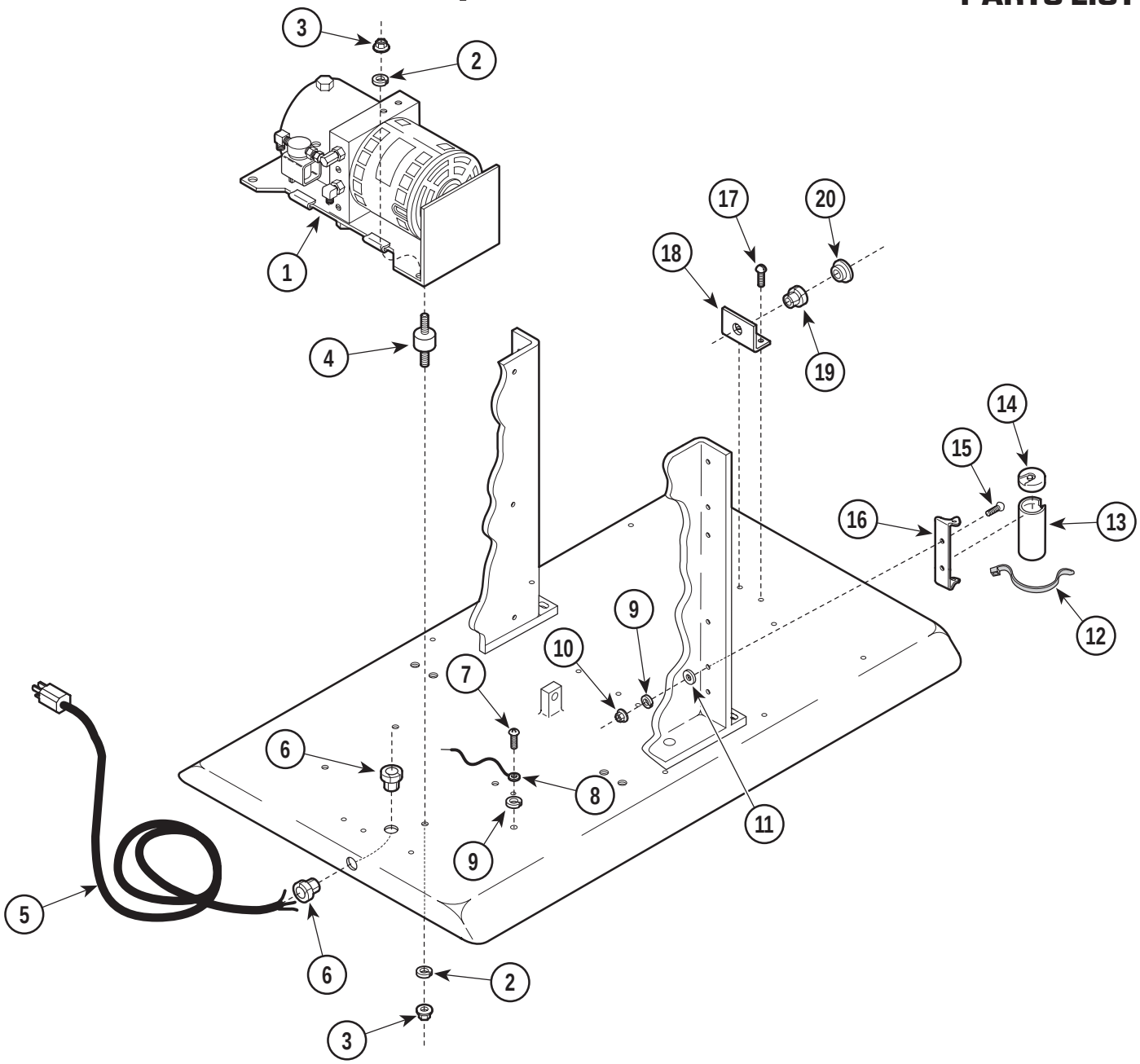
Used on units with Serial Number CC-1000 thru Present

Item	Part No.	Description	Qty.
	029-0251-01	Base Slide Assembly (Includes Items 1 thru 22)	1
1	• 029-0072-03	• Middle Member Assembly (Includes Items 2 thru 6)	1
2	• • 016-0151-00	• • Sprocket (Includes Set Screw)	2
3	• • 042-0008-00	• • Machine Key	2
4	• • 057-0105-00	• • Axle	1
5	• • 016-0149-00	• • Bearing	2
6	• • 030-0094-20	• • Middle Member Weldment	1
7	• 029-0070-00	• Chain Assembly	2
8	• 040-0008-30	• Screw	10
9	• 045-0001-10	• Lockwasher	10
10	• 052-0015-00	• Spacer	10
11	• 030-0092-21	• L.H. Support Channel Weldment	1
12	• 040-0375-00	• Screw	12
13	• 029-0071-03	• Idler Adjuster Assembly (Includes Items 14 thru 18)	1
14	• • 030-0274-00	• • Journal Weldment	1
15	• • 016-0152-00	• • Sprocket	2
16	• • 040-0250-04	• • Set Screw	4
17	• • 016-0149-00	• • Bearing	2
18	• • 030-0273-20	• • Idler Adjuster Weldment	1
19	• 016-0234-01	• L.H. Base Slide (Opposite)	1
	• 016-0234-00	• R.H. Base Slide (Shown)	1
20	• 030-0092-20	• R.H. Support Channel Weldment	1
21	• 040-0250-88	• Screw	20
22	• 030-0213-20	• Inner Member Weldment	1
23	061-0045-00	Cover Caution Label	2

Always Specify Model & Serial Number

Printed in U.S.A.

Base Electrical Components



MA379900

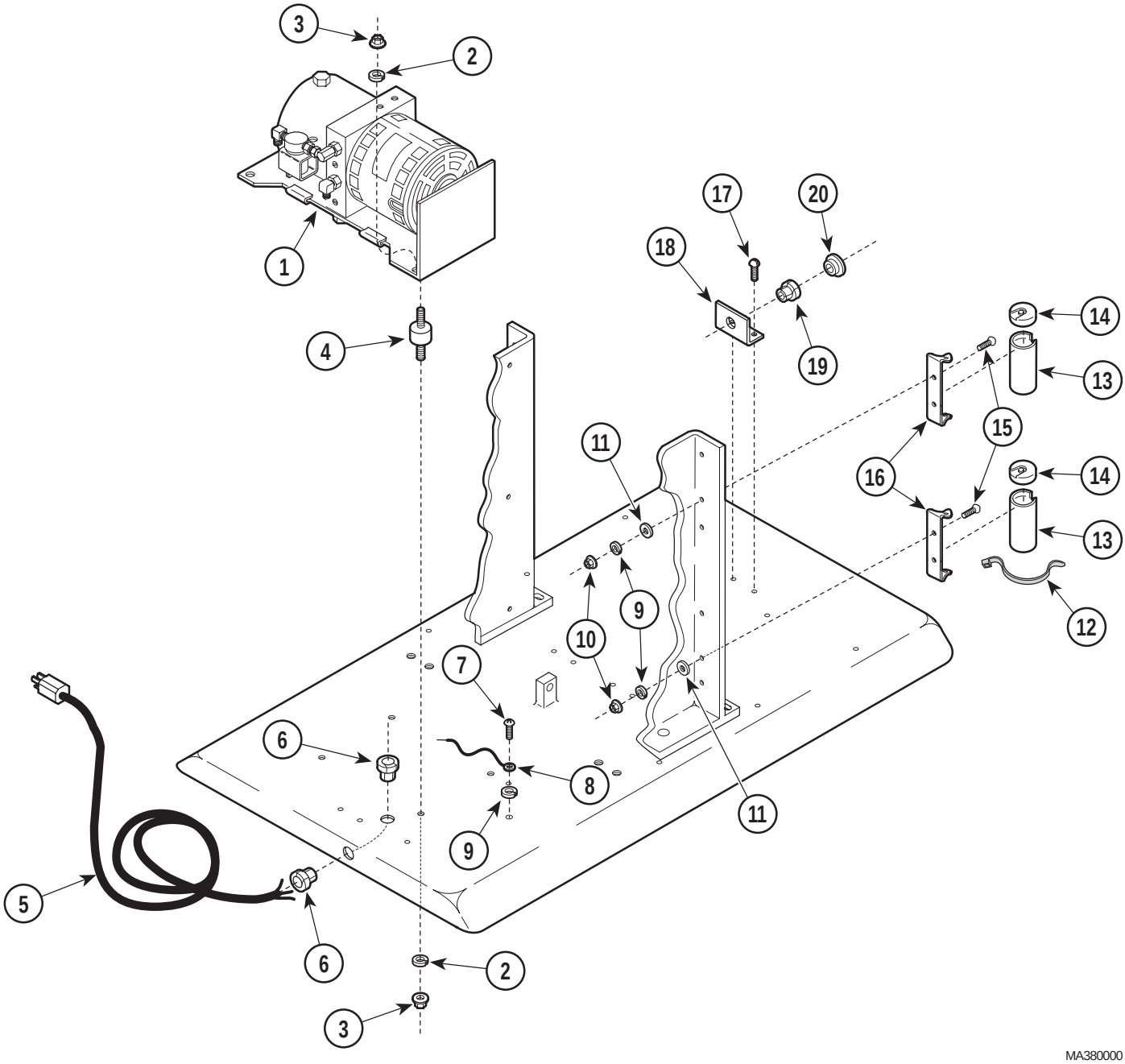
Used on units prior to Serial Number 37940

Item	Part No.	Description	Qty.
1		Motor / Pump Assembly (Refer to "Motor / Pump Components" Elsewhere)	Ref
2	041-0250-00	Nut	8
3	045-0001-03	Lockwasher	8
4	053-0051-00	Motor Mount	4
5	002-0040-00	Power Cord Set Kit	1
6	015-0002-01	Strain Relief Bushing	2
7	045-0001-31	Lockwasher	3
8		Wire Assembly (Refer to "Wiring Diagram" Elsewhere {Section 5})	Ref
9	040-0010-47	Screw	1
10	041-0010-00	Nut	2
11	045-0001-15	Washer	2
12	015-0016-00	Cable Tie	1
13	002-0043-00	Capacitor Kit	1
14	015-0413-00	Capacitor Cap	1
15	040-0010-28	Screw	2
16	015-0412-00	Capacitor Mounting Bracket	1
17	040-0010-04	Screw	2
18	050-0957-00	Strain Relief Bracket	1
19	015-0002-02	Strain Relief Bushing	1
20	053-0068-10	Snap Bushing	1
21	015-0013-00	Cable Tie (Not Shown)	4

Always Specify Model & Serial Number

Printed in U.S.A.

Base Electrical Components



MA380000

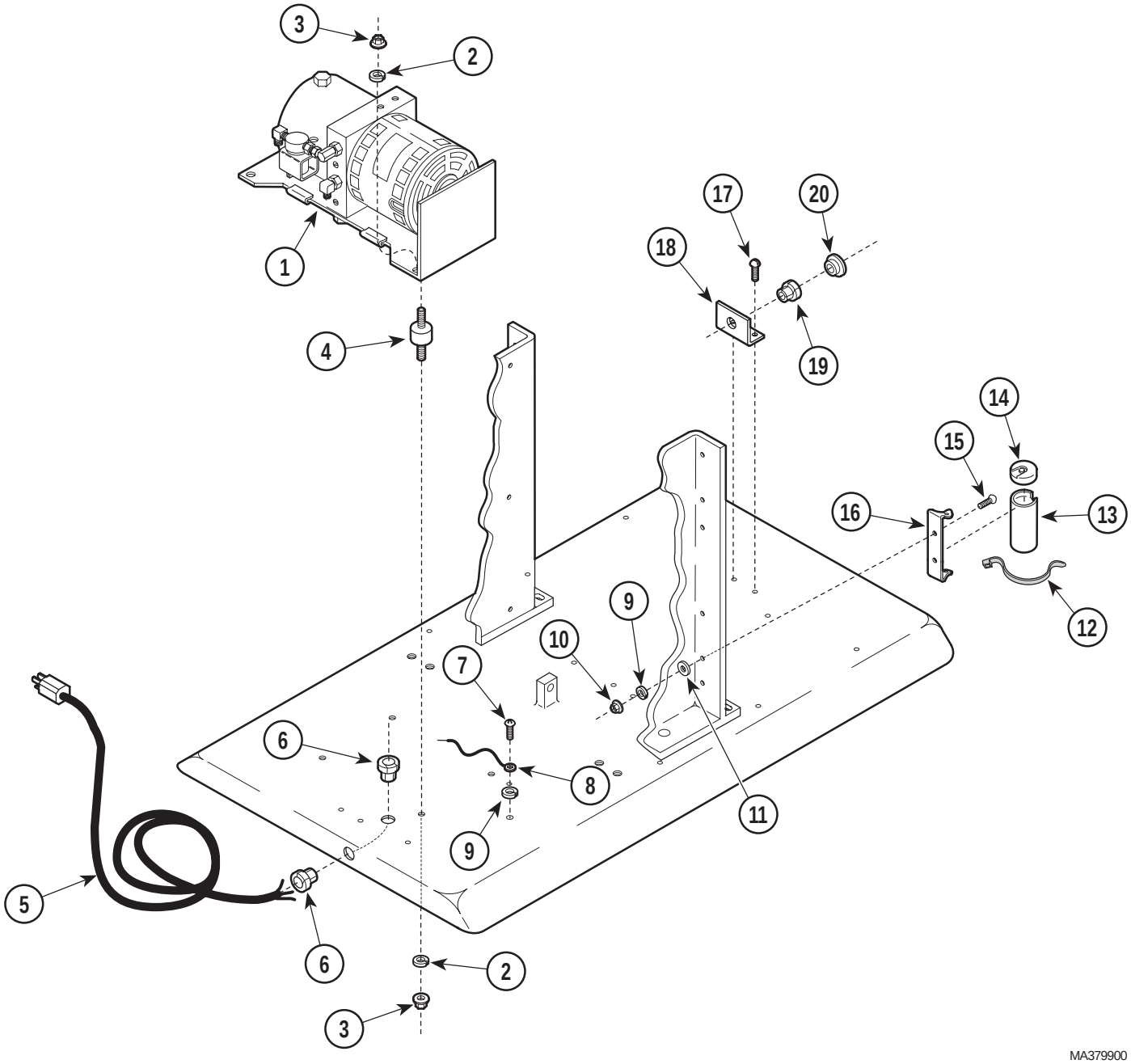
Used on units with Serial Number 37941 thru Present and J-1000 thru J1475

Item	Part No.	Description	Qty.
1		Motor / Pump Assembly (Refer to "Motor / Pump Components" Elsewhere)	Ref
2	041-0250-00	Nut	8
3	045-0001-03	Lockwasher	8
4	053-0051-00	Motor Mount	4
5	002-0040-00	Power Cord Set Kit	1
6	015-0002-01	Strain Relief Bushing	2
7	045-0001-31	Lockwasher	3
8		Wire Assembly (Refer to "Wiring Diagram" Elsewhere {Section 5})	Ref
9	040-0010-47	Screw	1
10	041-0010-00	Nut	2
11	045-0001-15	Washer	2
12	015-0016-00	Cable Tie	2
13	002-0044-00	Capacitor Kit	2
14	015-0413-00	Capacitor Cap	2
15	040-0010-28	Screw	4
16	015-0412-02	Capacitor Mounting Bracket	2
17	040-0010-04	Screw	2
18	050-0957-00	Strain Relief Bracket	1
19	015-0002-02	Strain Relief Bushing	1
20	053-0068-10	Snap Bushing	1
21	015-0013-00	Cable Tie (Not Shown)	4

Always Specify Model & Serial Number

Printed in U.S.A.

Base Electrical Components



MA379900

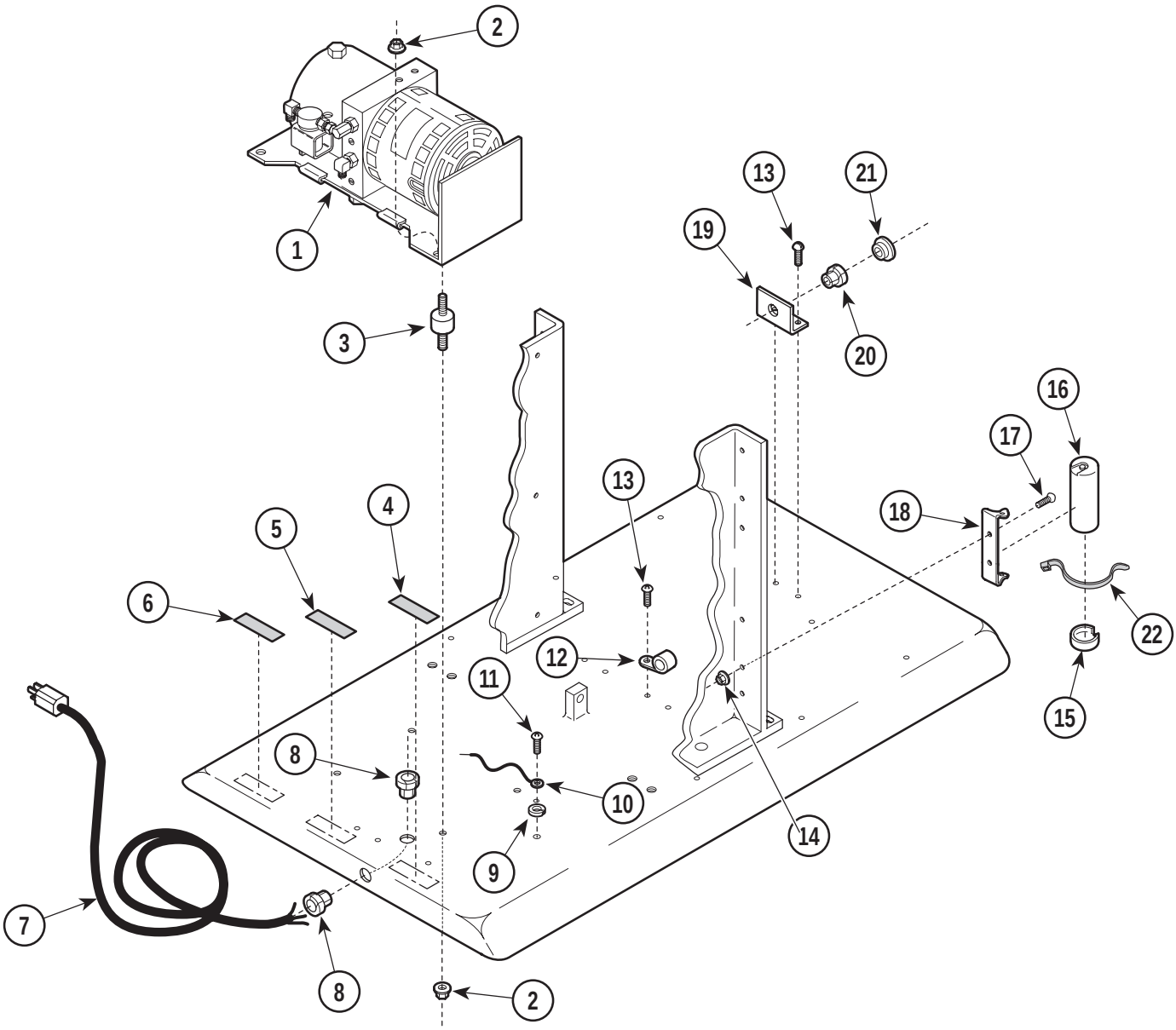
Used on units with Serial Number J-1476 thru Present

Item	Part No.	Description	Qty.
1		Motor / Pump Assembly (Refer to "Motor / Pump Components" Elsewhere)	Ref
2	041-0250-00	Nut	8
3	045-0001-03	Lockwasher	8
4	053-0051-00	Motor Mount	4
5	002-0040-00	Power Cord Set Kit	1
6	015-0002-01	Strain Relief Bushing	2
7	045-0001-31	Lockwasher	3
8		Wire Assembly (Refer to "Wiring Diagram" Elsewhere {Section 5})	Ref
9	040-0010-47	Screw	1
10	041-0010-00	Nut	2
11	045-0001-15	Washer	2
12	015-0016-00	Cable Tie	1
13	002-0043-00	Capacitor Kit	1
14	015-0413-00	Capacitor Cap	1
15	040-0010-28	Screw	2
16	015-0412-00	Capacitor Mounting Bracket	1
17	040-0010-04	Screw	2
18	050-0957-00	Strain Relief Bracket	1
19	015-0002-02	Strain Relief Bushing	1
20	053-0068-10	Snap Bushing	1
21	015-0013-00	Cable Tie (Not Shown)	4

Always Specify Model & Serial Number

Printed in U.S.A.

Base Electrical Components



MA380100

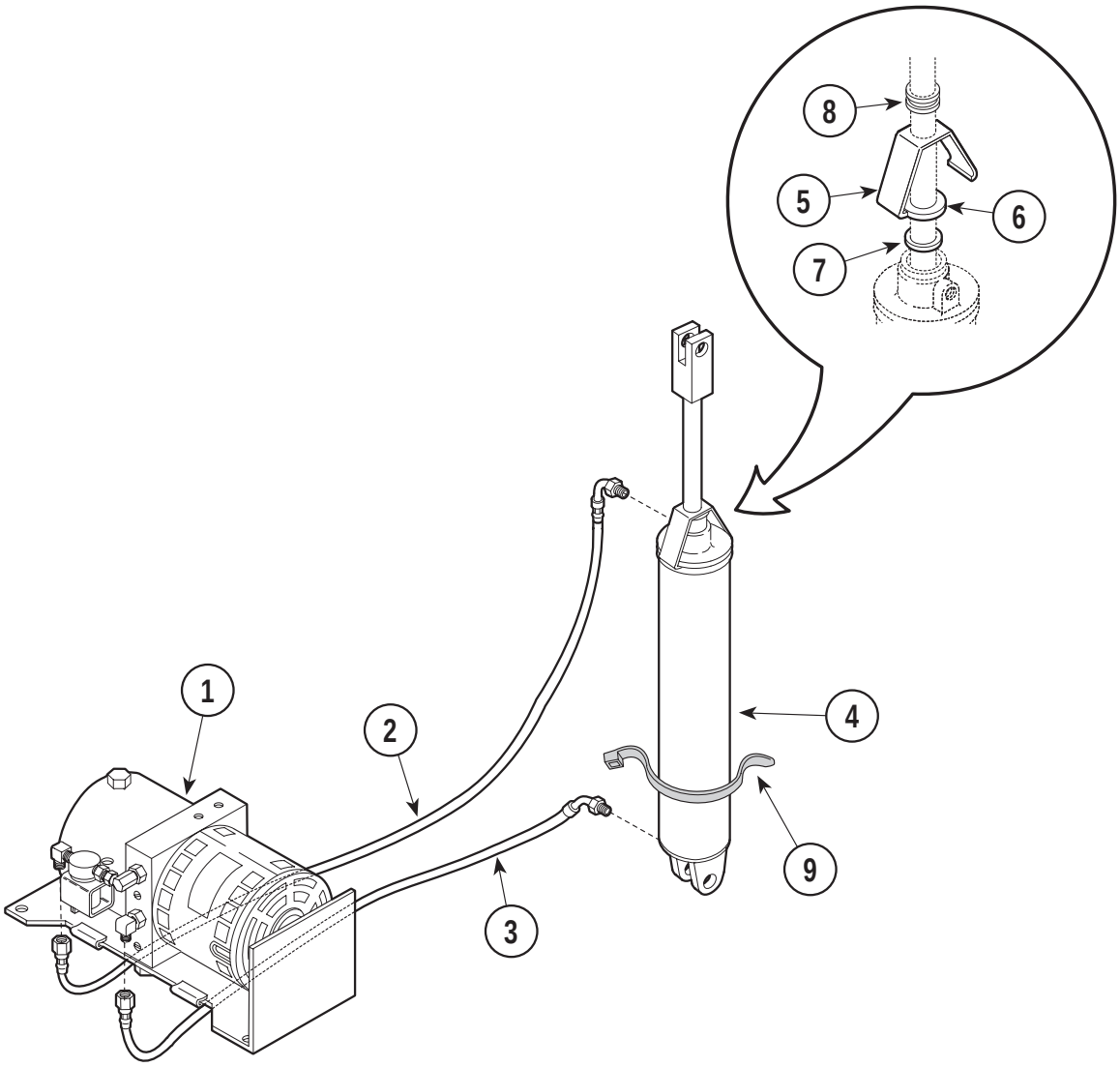
Used on units with Serial Number CC-1000 thru Present

Item	Part No.	Description	Qty.
1		Motor / Pump Assembly (Refer to "Motor / Pump Components" Elsewhere)	Ref
2	041-0250-13	Nut	8
3	053-0051-00	Motor Mount	4
4	061-0620-00	UL/CUL Label	1
5		Serial Number Label	1
6	061-0295-00	Cord Tag	1
7	002-0040-00	Power Cord Set Kit	1
8	015-0002-01	Strain Relief Bushing	2
9	045-0001-31	Lockwasher	1
10		Wire Assembly (Refer to "Wiring Diagram" Elsewhere {Section 5})	Ref
11	040-0010-47	Screw	1
12	015-0014-00	Cable Clamp	2
13	040-0010-04	Screw	3
14	041-0010-02	Nut	2
15	015-0413-01	Capacitor Cap	1
16	002-0043-00	Capacitor Kit	1
17	040-0010-28	Screw	2
18	015-0412-00	Capacitor Mounting Bracket	1
19	050-0957-00	Strain Relief Bracket	1
20	015-0002-02	Strain Relief Bushing	1
21	053-0068-10	Snap Bushing	1
22	015-0013-02	Cable Tie	1
23	015-0013-00	Cable Tie (Not Shown)	4

Always Specify Model & Serial Number

Printed in U.S.A.

Hydraulic System



MA373200

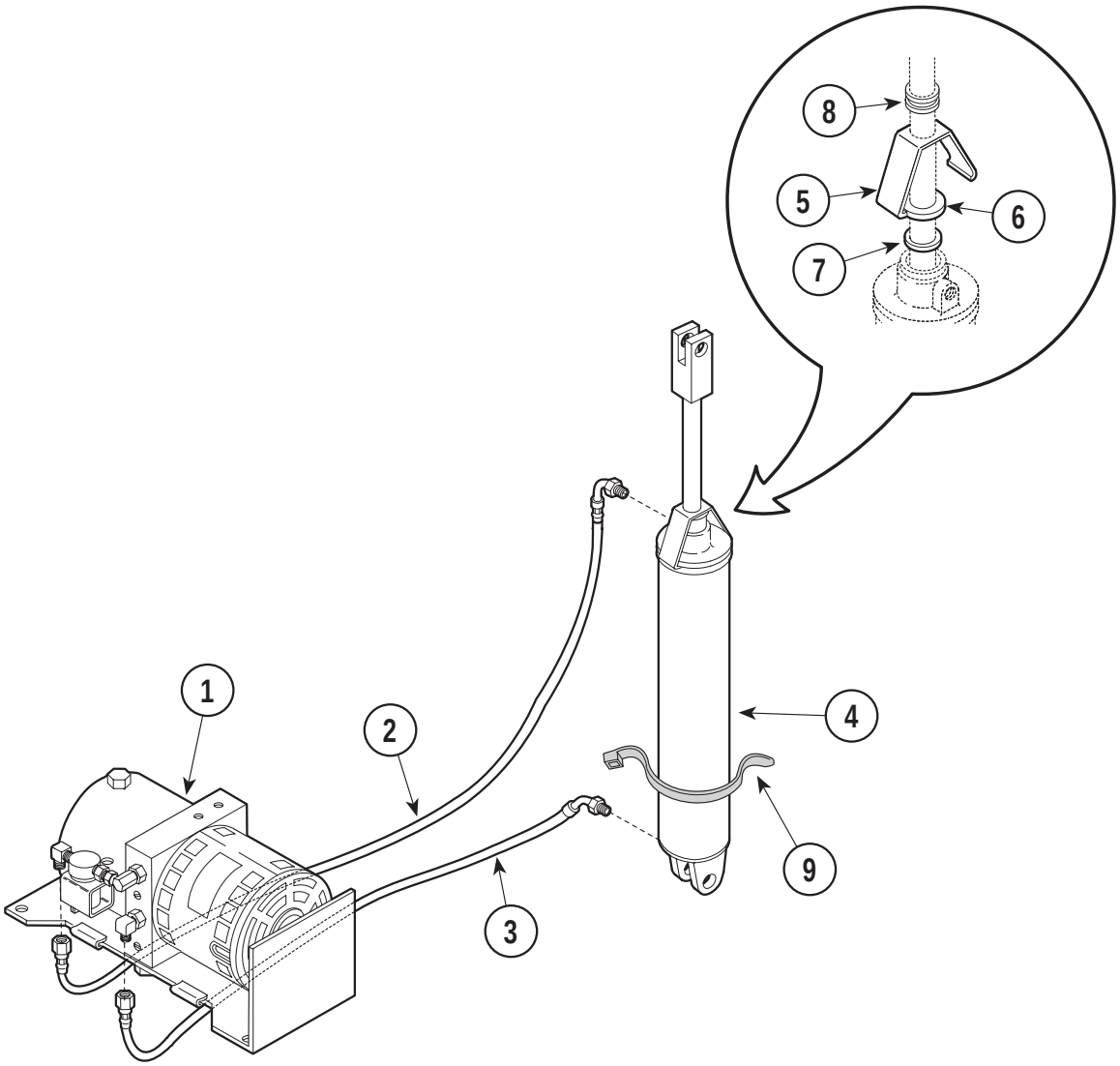
Used on units with Serial Number 37940 thru Present & J-1000 thru J-1049

Item	Part No.	Description	Qty.
1		Motor / Pump Assembly (Refer to "Motor / Pump Components" Elsewhere)	Ref
2	002-0053-00	Return Hose Assembly Kit	1
3	002-0054-00	Power Hose Assembly Kit	1
4	002-0001-00	Base Cylinder Kit	1
5	025-0032-00	Rod Wiper Bracket	1
6	054-0109-00	Felt Wiper (1")	1
7	054-0108-00	Felt Wiper (11/16")	1
8	053-0226-03	Snap-in Nyliner Bearing	1
9	015-0016-00	Cable Tie	3
10	015-0013-02	Cable Tie (Not Shown)	1
11	015-0013-00	Cable Tie (Not Shown)	4

Always Specify Model & Serial Number

Printed in U.S.A.

Hydraulic System



MA373200

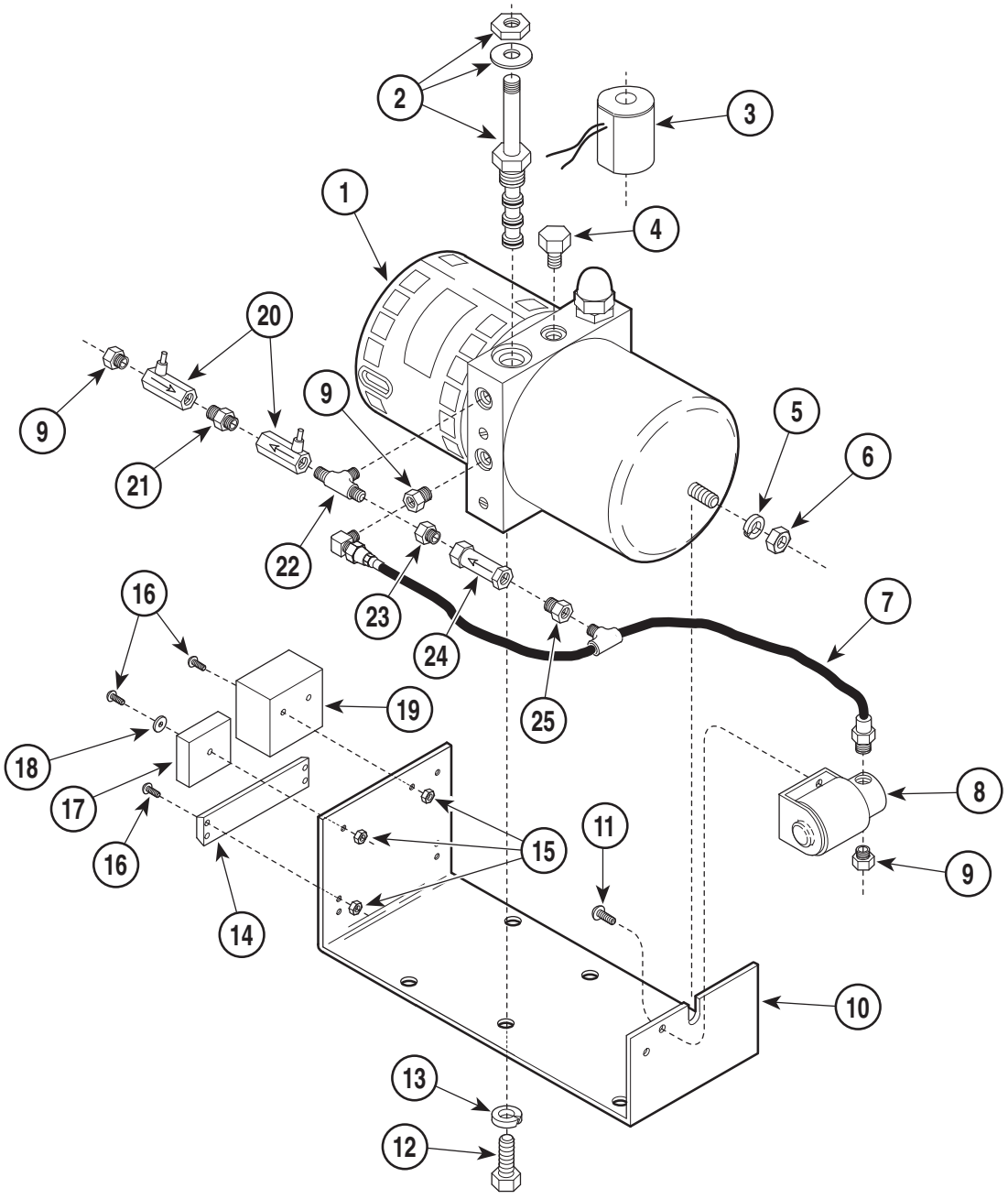
Used on units with Serial Number thru J-1050 & CC-1000 thru Present

Item	Part No.	Description	Qty.
1		Motor / Pump Assembly (Refer to "Motor / Pump Components" Elsewhere)	Ref
2	002-0143-00	Return Hose Assembly Kit	1
3	002-0144-00	Power Hose Assembly Kit	1
4	002-0001-00	Base Cylinder Kit	1
5	025-0032-00	Rod Wiper Bracket	1
6	054-0109-00	Felt Wiper (1")	1
7	054-0108-00	Felt Wiper (11/16")	1
8	053-0226-03	Snap-in Nyliner Bearing	1
9	015-0016-00	Cable Tie	3
10	015-0013-02	Cable Tie (Not Shown)	1
11	015-0013-00	Cable Tie (Not Shown)	4

Always Specify Model & Serial Number

Printed in U.S.A.

Motor / Pump Components



MA379200

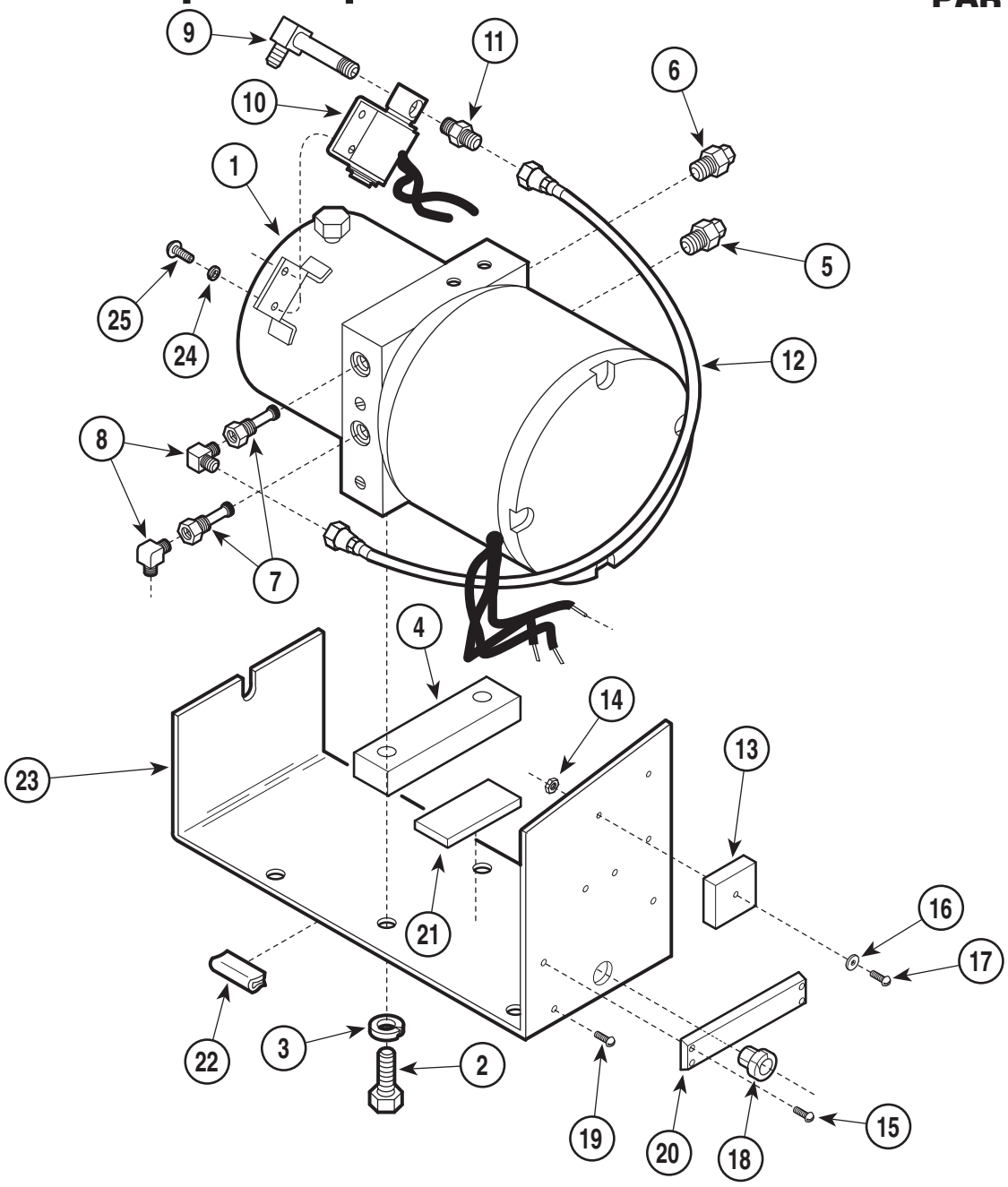
Used on units prior to Serial Numbers 37940

Item	Part No.	Description	Qty.
1	002-0034-00	Motor / Pump Assembly (Includes Items 2 thru 6)	1
2	• 002-0037-00	• Solenoid Valve Body (Less Coil)	1
3	• 002-0036-00	• Solenoid Coil	1
4	•	• Breather	1
5	•	• Washer	1
6	•	• Nut	1
7	~~002-0031-00~~	Pump Hose Kit	1
8	002-0038-00	Anticavitation Valve	1
9	014-0024-00	Half Union	3
10	050-0344-00	Motor Base	1
11	040-0008-04	Screw	2
12	040-0375-07	Screw	2
13	045-0001-09	Lockwasher	2
14	015-0009-00	Terminal Board	1
15	041-0006-01	Nut	5
16	040-0006-11	Screw	5
17	002-0041-00	Time Delay Relay	1
18	045-0001-21	Washer	1
19	015-0023-00	Relay	1
20	~~014-0033-00~~	Flow Control Valve	2
21	014-0045-00	Hex Nipple	1
22	014-0022-00	Male Pipe Tee	1
23	014-0023-00	Bushing	1
24	014-0034-00	Relief Check Valve	1
25	014-0025-00	Half Union	1

Always Specify Model & Serial Number

Printed in U.S.A.

Motor / Pump Components



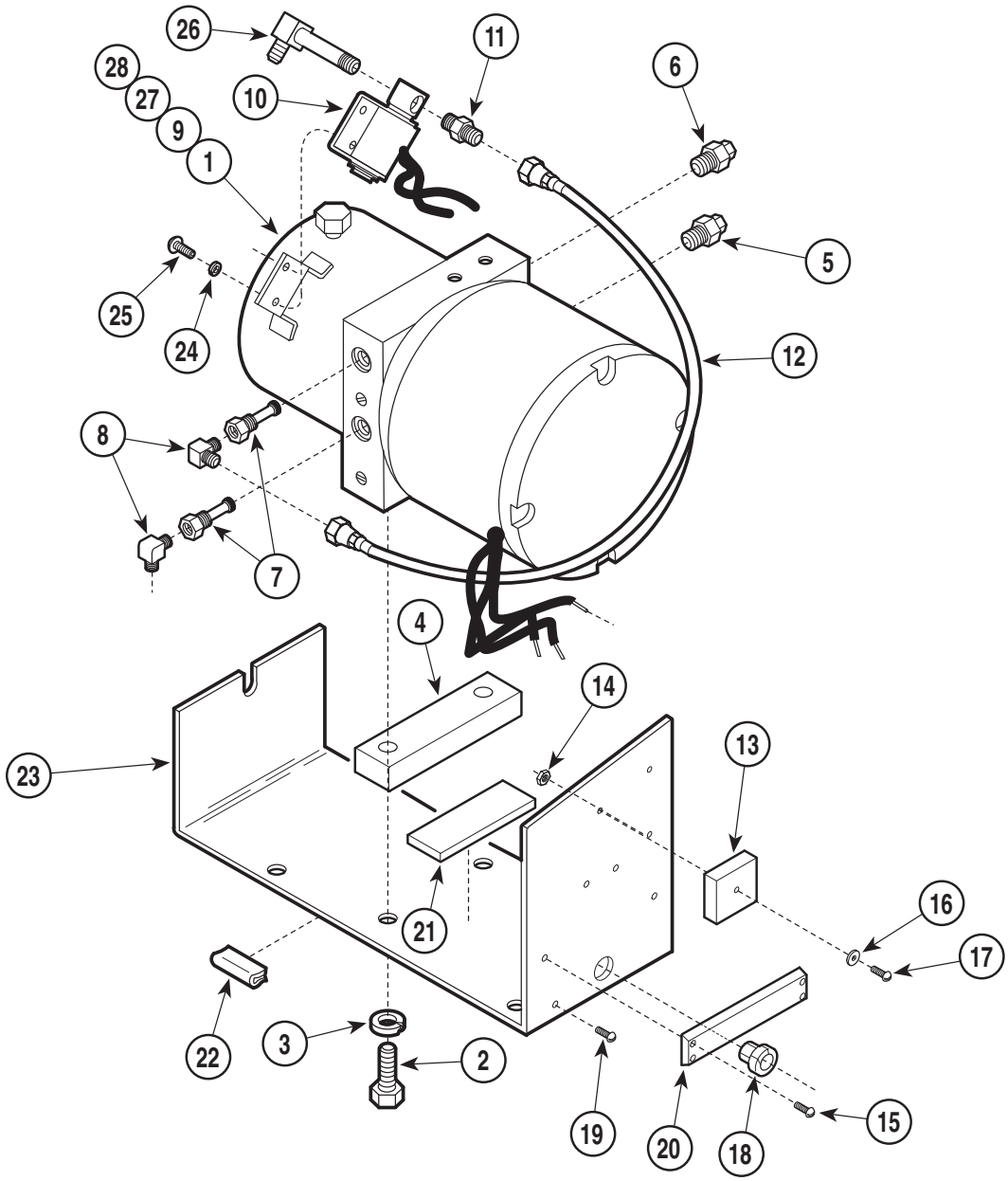
MA379300

Used on units with Serial Number 37940 thru Present & J-1000 thru J-1049

Item	Part No.	Description	Qty.
1	002-0035-00	Motor / Pump Assembly (Includes Items 1 thru 8)	1
2	• 040-0500-01	• Screw	2
3	• 045-0001-33	• Lockwasher	2
4	• 051-0224-00	• Spacer	1
5		• Relief Valve (High Pressure)	1
6		• Relief Valve (Low Pressure)	1
7	•	• Shuttle Valve	2
8	•	• Elbow	2
9	~~014-0114-00~~	Male Elbow	1
10	002-0038-00	Anticavitation Valve	1
11	014-0099-00	Male Connector	1
12	~~002-0032-00~~	Pump Hose Kit	1
13	002-0041-00	Time Delay Relay	1
14	041-0006-01	Nut	3
15	040-0006-07	Screw	3
16	045-0001-21	Washer	1
17	040-0006-11	Screw	1
18	053-0068-00	Strain Relief Bushing	1
19	040-0010-47	Screw	1
20	015-0009-01	Terminal Board	1
21	054-0069-00	Sound Damp	1
22	016-0140-00	Trim Lock (Specify Length - 2")	1
23	050-0741-00	Motor Base	1
24	045-0001-19	Lockwasher	2
25	040-0008-04	Screw	2

Always Specify Model & Serial Number

Motor / Pump Components



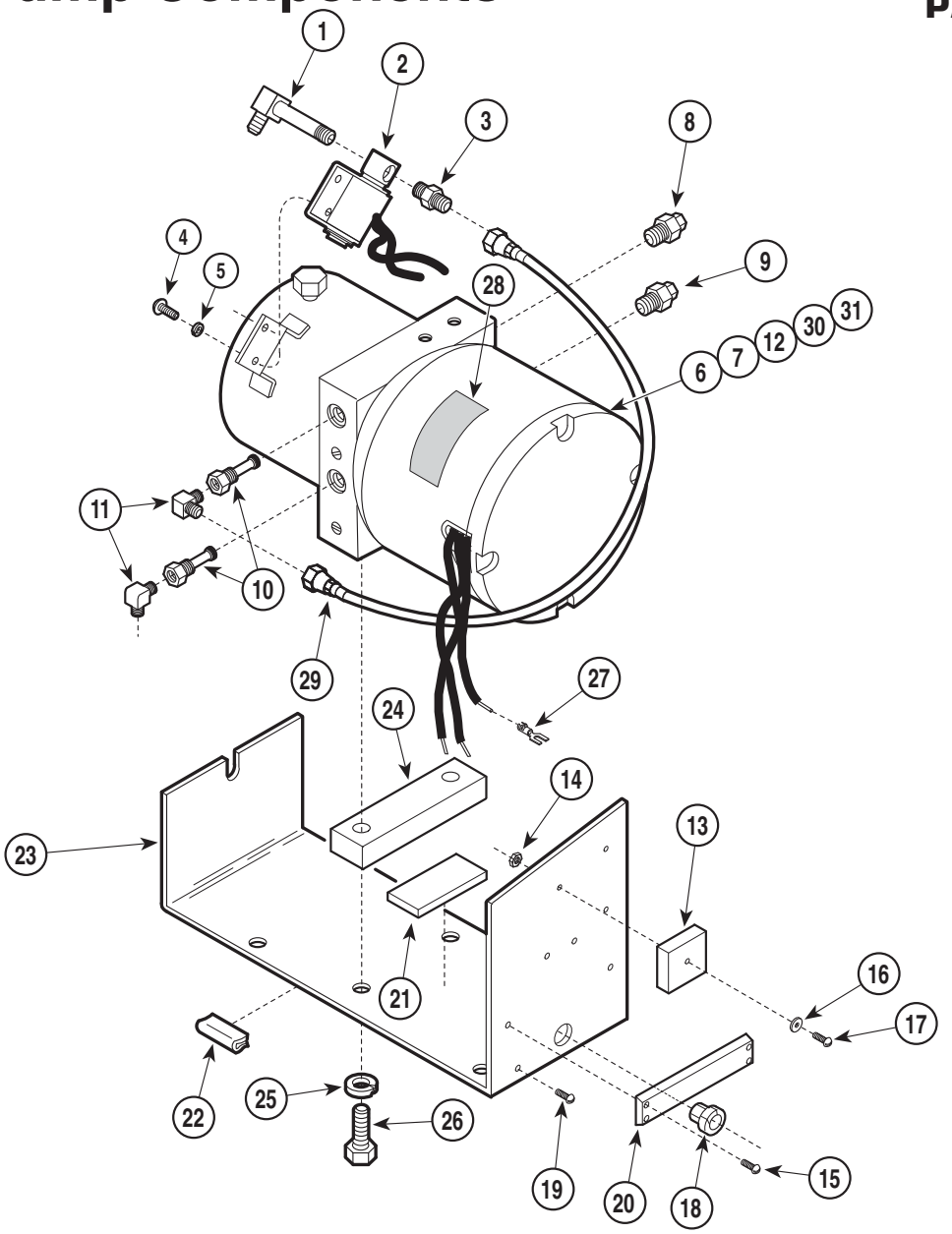
MA531600

Used on units with Serial Number J-1050 thru J-1475

Item	Part No.	Description	Qty.
1	002-0127-00	Motor / Pump Assembly (Includes Items 1 thru 9)	1
2	• 040-0500-02	• Screw	2
3	• 045-0001-33	• Lockwasher	2
4	• 051-0224-00	• Spacer	1
5		• Relief Valve (High Pressure)	1
6		• Relief Valve (Low Pressure)	1
7	• 014-0168-00	• Shuttle Valve (Includes Item 8)	2
8	• • 014-0096-00	• • Elbow	2
9	• 014-0262-02	• Reservoir O-Ring (not Shown)	1
10	002-0038-00	Anticavitation Valve	1
11	014-0099-00	Male Connector	1
12	002-0117-00	Pump Hose Kit	1
13	002-0041-00	Time Delay Relay	1
14	041-0006-01	Nut	3
15	040-0006-07	Screw	3
16	045-0001-21	Washer	1
17	040-0006-11	Screw	1
18	053-0068-00	Strain Relief Bushing	1
19	040-0010-47	Screw	1
20	015-0009-01	Terminal Board	1
21	054-0069-00	Sound Damp	1
22	016-0140-00	Trim Lock (Specify Length - 2")	1
23	050-0741-00	Motor Base	1
24	045-0001-19	Lockwasher	2
25	040-0008-04	Screw	2
26	~~014-0114-00~~	Male Elbow	1
27	014-0020-00	Mineral Oil	AR
28	014-0007-00	Pipe Sealant	AR

Always Specify Model & Serial Number

Motor / Pump Components



MA531500

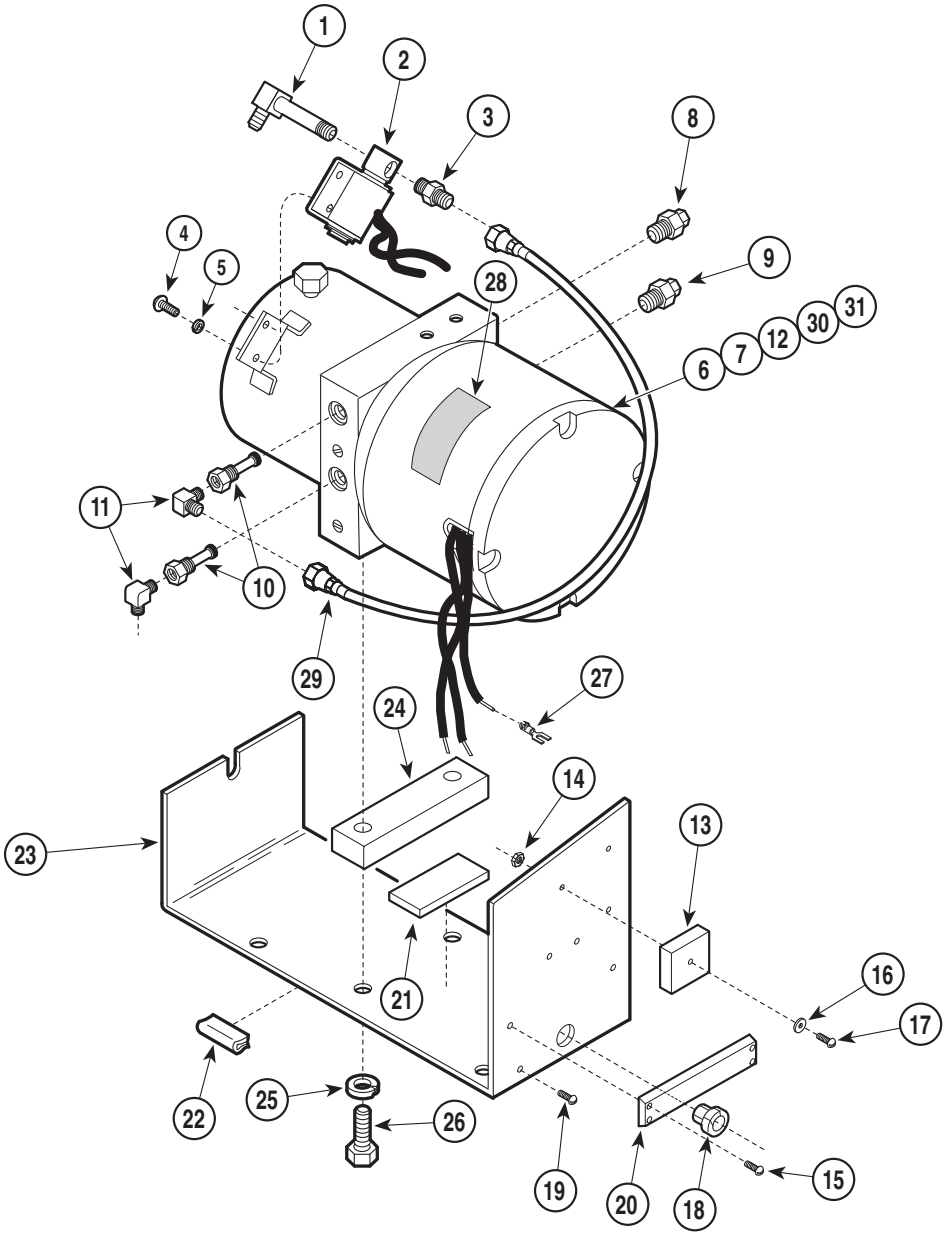
Used on units with Serial Number J-1476 thru Present

Item	Part No.	Description	Qty.
1	~~014-0114-00~~	Male Elbow	1
2	002-0038-00	Anticavitation Solenoid Valve Kit	1
3	014-0099-00	Male Connector	1
4	040-0008-04	Screw	2
5	045-0001-19	Lockwasher	2
6	002-0127-00	Motor / Pump Assembly (Includes Items 7 thru 12)	1
7	• 014-0169-00	• Motor Shaft Seal (Not Shown)	1
8	• 014-0248-00	• Relief Valve (Low Pressure)	1
9	• 014-0249-00	• Relief Valve (High Pressure)	1
10	• 014-0168-00	• Shuttle Valve (Includes Item 11)	2
11	• • 014-0096-00	• • Elbow	2
12	• 014-0262-02	• Reservoir O-Ring (Not Shown)	1
13	002-0041-00	Time Delay Relay	1
14	041-0006-01	Nut	3
15	040-0006-07	Screw	3
16	045-0001-21	Washer	1
17	040-0006-11	Screw	1
18	053-0068-00	Strain Relief Bushing	1
19	040-0010-47	Screw	1
20	015-0009-01	Terminal Board	1
21	054-0069-00	Sound Damp	1
22	016-0140-00	Trim Lock (Specify Length - 2")	1
23	050-0741-00	Motor Base	1
24	051-0224-00	Spacer	1
25	045-0001-33	Lockwasher	2
26	040-0500-02	Screw	2
27	015-0018-03	Spring Spade Terminal	5
28	061-0135-00	Motor Caution Label	1
29	002-0117-00	Hose Assembly Kit	1
30	014-0020-00	Mineral Oil	AR
31	014-0007-00	Pipe Sealant	AR

Always Specify Model & Serial Number

Printed in U.S.A.

Motor / Pump Components



MA531500

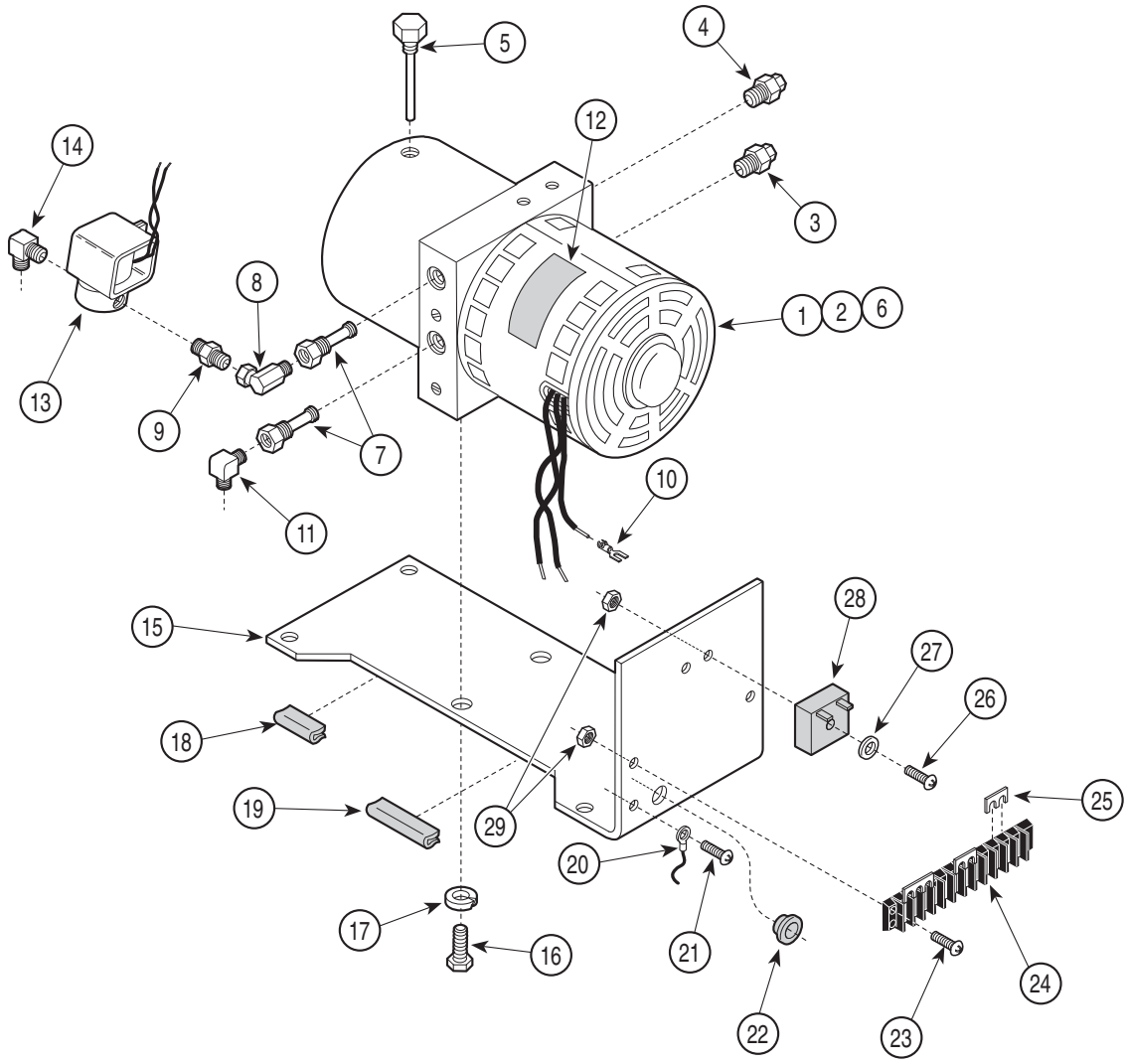
Used on units with Serial Number CC-1000 thru CC-1568

Item	Part No.	Description	Qty.
1	~~014-0114-00~~	Male Elbow	1
2	002-0038-00	Anticavitation Solenoid Valve Kit	1
3	014-0099-00	Male Connector	1
4	040-0008-04	Screw	2
5	045-0001-19	Lockwasher	2
6	002-0133-00	Motor / Pump Assembly (Includes Items 7 thru 12)	1
7	• 014-0169-00	• Motor Shaft Seal (Not Shown)	1
8	• 014-0248-00	• Relief Valve (Low Pressure)	1
9	• 014-0249-00	• Relief Valve (High Pressure)	1
10	• 014-0168-00	• Shuttle Valve (Includes Item 11)	2
11	• • 014-0096-00	• • Elbow	2
12	• 014-0262-02	• Reservoir O-Ring (Not Shown)	1
13	002-0041-00	Time Delay Relay	1
14	041-0006-01	Nut	3
15	040-0006-07	Screw	3
16	045-0001-21	Washer	1
17	040-0006-11	Screw	1
18	053-0068-00	Strain Relief Bushing	1
19	040-0010-47	Screw	1
20	015-0009-01	Terminal Board	1
21	054-0069-00	Sound Damp	1
22	016-0140-00	Trim Lock (Specify Length - 2")	1
23	050-0741-20	Motor Base	1
24	051-0224-00	Spacer	1
25	045-0001-33	Lockwasher	2
26	040-0500-02	Screw	2
27	015-0018-03	Spring Spade Terminal	5
28	061-0135-00	Motor Caution Label	1
29	002-0117-00	Hose Assembly Kit	1
30	014-0020-00	Mineral Oil	AR
31	014-0007-00	Pipe Sealant	AR

Always Specify Model & Serial Number

Printed in U.S.A.

Motor / Pump Components



MA531400

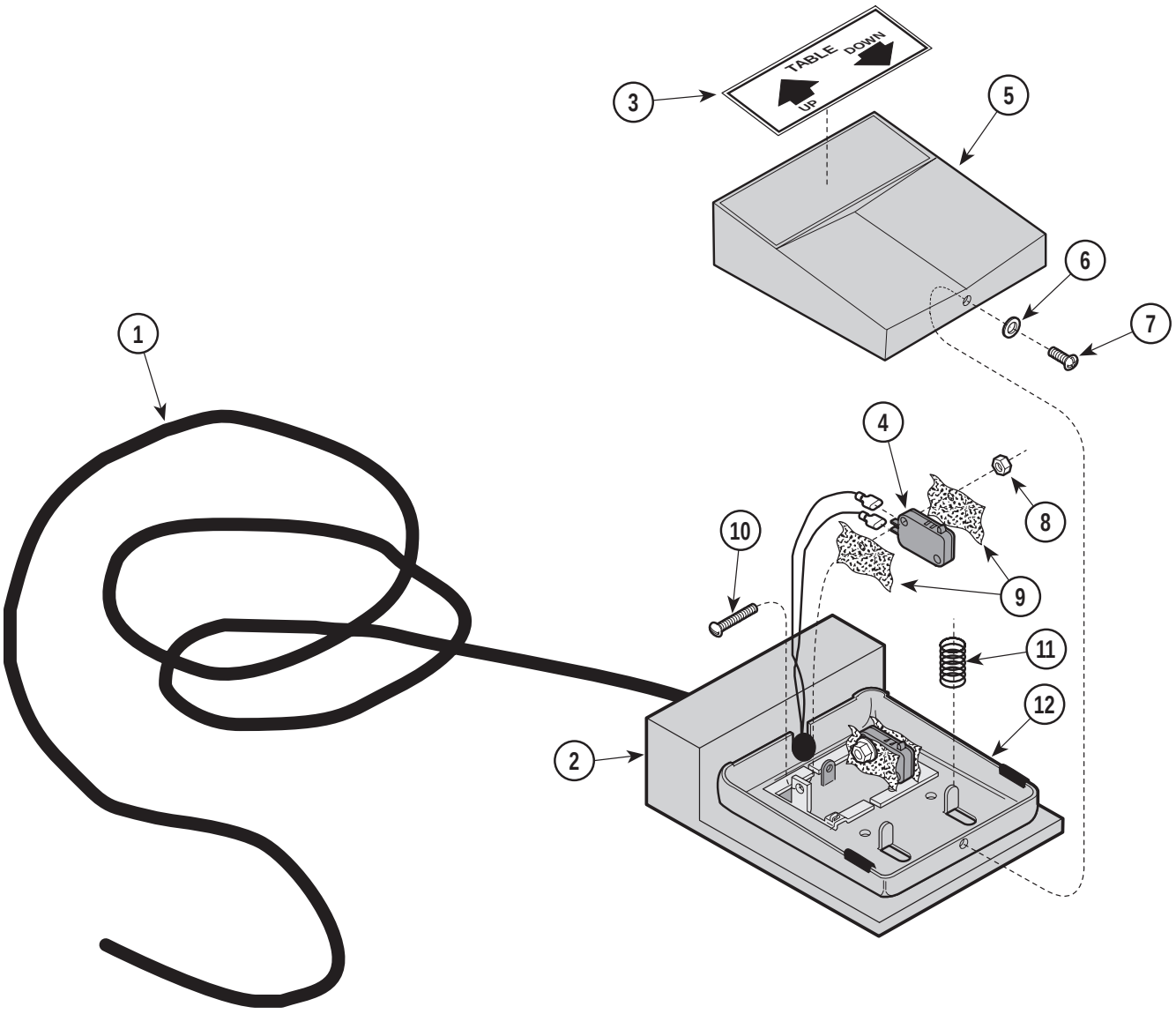
Used on units with Serial Number CC-1569 thru Present

Item	Part No.	Description	Qty.
1	002-0444-00	Motor / Pump Assembly (Includes Items 2 thru 11)	1
2	• 014-0169-00	• Motor Shaft Seal (Not Shown)	1
3	• 014-0248-00	• Relief Valve (Low Pressure)	1
4	• 014-0249-00	• Relief Valve (High Pressure)	1
5	• 014-0262-01	• Filler Cap	1
6	• 014-0262-02	• Reservoir O-Ring (Not Shown)	1
7	• 014-0168-00	• Shuttle Valve	2
8	• 014-0260-00	• Elbow	1
9	• 014-0045-00	• Connector	1
10	•015-0018-03	• Spring Spade Terminal	3
11	• 014-0096-00	• Elbow	1
12	061-0135-00	Motor Caution Label	1
13	002-0038-00	Anticavitation Solenoid Valve	1
14	014-0096-00	Elbow	1
15	050-2662-20	Motor Base	1
16	040-0500-02	Screw	2
17	045-0001-33	Lockwasher	2
18	016-0360-00	Protective Trim (Specify Length - 1")	1
19	016-0360-00	Protective Trim (Specify Length - 2")	1
20		Ground Wire (Refer to "Wiring Diagram" Elsewhere)	Ref
21	040-0010-47	Screw	1
22	053-0068-00	Snap Bushing	1
23	040-0006-33	Screw	2
24	015-0009-01	Terminal Block	1
25		Jumper (Refer to "Wiring Diagram" Elsewhere)	Ref
26	040-0006-52	Screw	1
27	045-0001-21	Washer	1
28	015-0061-00	Time Delay Relay	1
29	041-0006-01	Nut	3

Always Specify Model & Serial Number

Printed in U.S.A.

Footswitch Assembly



MA362900

Item	Part No.	Description	Qty.
	002-0055-00	Footswitch Assembly (Includes Items 1 Thru 12)	1
1	•	• Cable (Refer to "Wiring Diagram" [Section 5] Elsewhere)	Ref
2	•	• Base	1
3	• 061-0096-00	• Label (Table)	1
4	• 002-0101-00	• Foot Control Switch	2
5	•	• Footswitch Pedal	1
6	•	• Lockwasher	1
7	•	• Screw	1
8	•	• Nut	2
9	•	• Insulator	2
10	•	• Screw	2
11	•	• Spring	2
12	•	• Switch Mount	1

Always Specify Model & Serial Number

Printed in U.S.A.

Return To Table Of Contents

COMMENTS

The Technical Publications Department of Midmark Corporation takes pride in its publications. We are sure that our manuals will fill all of your needs when you are performing scheduled maintenance, servicing, or repairs on a Midmark product.

However, if you find any errors or feel that there should be a change, addition, or deletion to a manual, please let us know!

Page(s) and Paragraph(s) Needing Changed:

Description of Error or Desired Change:

Please fax or mail a copy of this completed comment sheet to:

Midmark Corporation
ATTN: Technical Publications Department
60 Vista Drive
Versailles, Ohio 45380
Fax: (937) 526-5542

Printed in U.S.A.

Return To Table Of Contents

FAX ORDERING FORM

(SERVICE PARTS ONLY)

NOTES:

- ALL **BLOCKED** AREAS MUST BE COMPLETED.
- USE FOR NON-WARRANTY FAX ORDERS ONLY. WARRANTY ORDERS MUST BE TELEPHONED IN (1-800-MIDMARK).

ATTENTION: SERVICE DEPARTMENT FAX#: 877-249-1793

ACCT #: ______________ P.O. #: ______________ DATE: ______________

NAME: ______________ SHIP TO: ______________

ADDRESS: ______________

CITY, ST.: ______________

CONTACT: ______________

PHONE: ______________

☐ NON-EMERGENCY ORDER - TO SHIP WITHIN 72 HOURS IF PART(S) IN STOCK.

☐ EMERGENCY ORDER - TO SHIP WITHIN 24 HOURS IF PART(S) IN STOCK (IF ORDER IS RECEIVED BEFORE 1:00 P.M. E.S.T).

SEND NOTIFICATION IF PARTS ARE NOT AVAILABLE TO SHIP WITHIN 24 HOURS VIA E-MAIL OR FAX TO: ______________

METHOD OF SHIPMENT

UPS	FED EX	OTHER
☐ NEXT DAY A.M.	☐ NEXT DAY A.M.	______________
☐ NEXT DAY P.M.	☐ NEXT DAY P.M.	
☐ 2ND DAY	☐ 2ND DAY	
☐ GROUND	☐ ECONOMY	

QTY.	PART #	DESCRIPTION (SPECIFY COLOR OF ITEM IF APPLICABLE)	COLOR CODE	PRICE/PER
			TOTAL COST: $	

Return To Table Of Contents

Return To Table Of Contents

Midmark Corporation
60 Vista Drive
P.O. Box 286
Versailles, Ohio 45380-0286
937-526-3662
Fax 937-526-5542
midmark.com

Because we care.

Subject to change without notice.
Refer to www.Documark.com for latest revision.

Printed in U.S.A.