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414

-001

Power Podiatry Surgery Table

MIDMARK®

Service and Parts Manual

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414 -001

FOR USE BY MIDMARK TRAINED TECHNICIANS ONLY

Part No. 003-0707-00 Rev. R (4/26/12)

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

IMPORTANT INSTRUCTIONS

General Safety Instructions

Safety First: The primary concern of Midmark Corporation is that this surgery 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.

Warnings

Throughout this manual are Note, Caution, and Danger paragraphs that call attention to particular procedures. These items are used as follows:

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

CAUTION
A CAUTION is used for an operating procedure, practice, or condition which, if not correctly followed, could result in equipment damage.

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

Warranty Instructions

Refer to the Midmark "Limited Warranty" printed on the back cover of the Installation and Operation Manual for warranty information. Failure to follow the guidelines listed below will void the warranty and/or render the 414 Power Podiatry Surgery 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.

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SECTION I
GENERAL INFORMATION

1.1 Scope of Manual

This manual contains detailed troubleshooting, scheduled maintenance, maintenance, and service instructions for 414 Power Podiatry Surgery 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 414 Power Podiatry Surgery Table

A. General Description (See Figure 1-1).

The 414 Power Podiatry Surgery Table is a surgical table designed specifically for performing podiatric surgical procedures (Podiatry - treatment of foot ailments).

The major serviceable components of the table are the arm casting linkage assembly, back actuator capacitor, back actuator assembly, tilt actuator capacitor, tilt actuator assembly, foot actuator assembly, foot actuator capacitor, foot extension brake assembly, foot extension limit switch, base capacitor, base actuator assembly, gas spring(s), base subassembly, base down limit switch, base up limit switch, PC control board, PC program board (a new style PC control board is now being used which combines the PC control board and PC program board together into one board), 0.5 amp fuse & 20 amp fuse for old style PC control board and 0.125 amp fuse & four 5 amp fuses for new style PC control board, control disable switch, foot control which includes foot switches and foot control interface board, and hand control which includes hand control panel and hand control interface board.

B. Theory of Operation (See Figures 5-1 and 5-2 for electrical schematic / wiring diagram)

115 VAC is supplied directly to the PC control board and to the two electrical outlets.

Power:

The 115 VAC that is supplied to the PC control board is applied across a 20 amp or four 5 amp fuses. 115 VAC is applied across the 20 or 5 amp fuse (20 amp fuse is used on old style PC control board and 5 amp fuses is used on new style PC control board) and supplies power to the contacts of the normally open actuator relays (there is one 20 amp fuse on the old style PC control board which protects all eight actuator relays. There are four 5 amp fuses on the new style PC control board; one for each actuator motor). This power is used to run an actuator assembly when its relay is energized. There are two relays per actuator assembly; one for each direction. 115 VAC is also applied across the 0.5 amp fuse or 0.125 amp fuse (0.5 amp fuse is used on old style PC control board and 0.125 amp fuse is used on new style PC control board) to the PC control board transformer. The transformer and some associated follow on circuitry reduce the 115 VAC to a +5 VDC output and a +12 VDC output. Both voltages are used to power circuitry on the PC control board and PC program board. On the new PC control board,

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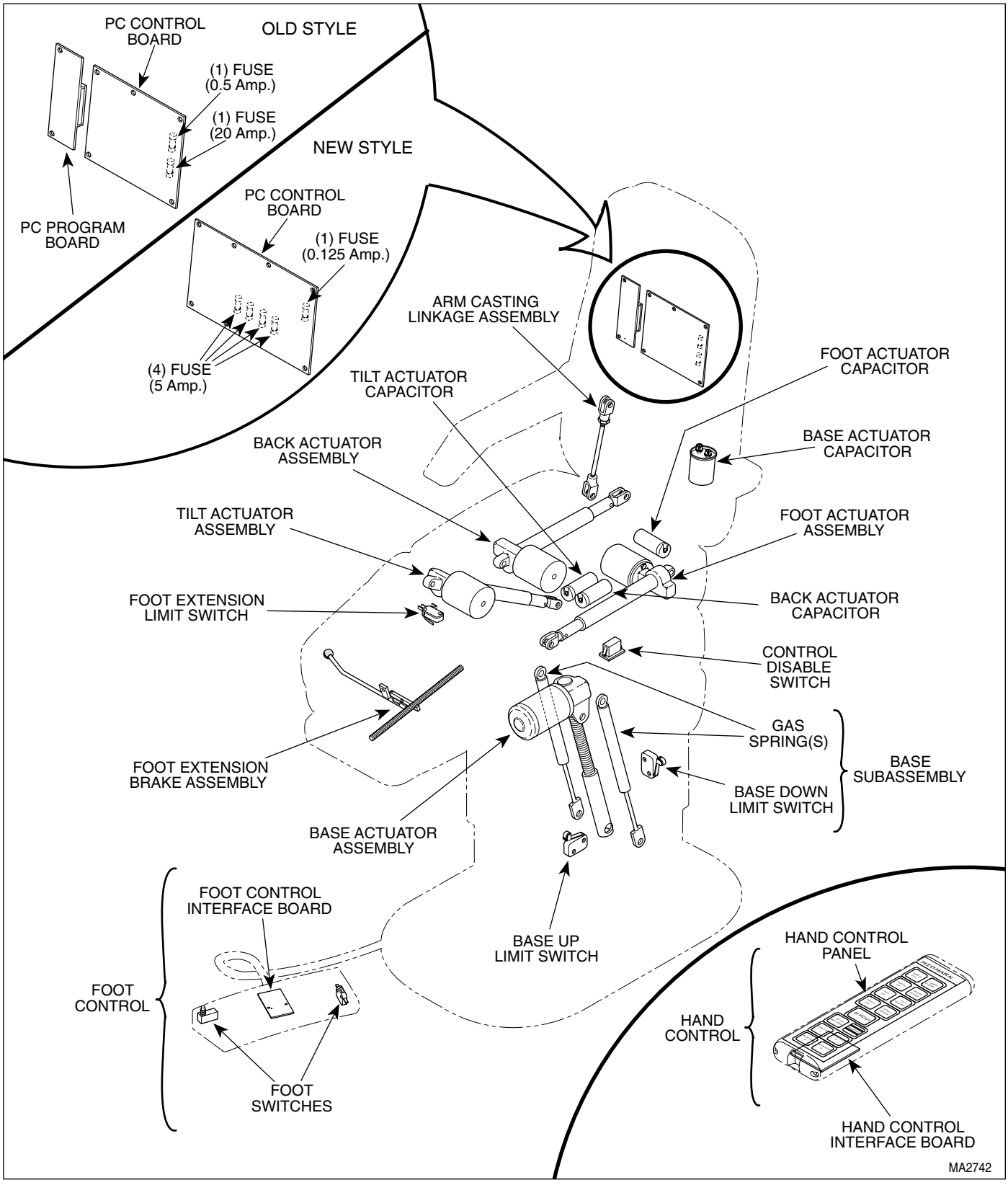

Figure 1-1. Major Components

there is a green "BOARD FAIL L.E.D.". If the L.E.D. is flashing, normal operation is being indicated. If the L.E.D. is not flashing, the PC control board is malfunctioning. Loss of power or blown fuses can also cause the green L.E.D. to not flash.

Actuators:

All four actuator assemblies are ball screw driven. The actuator assemblies contain a pivot point on the end of the ball screw. If an actuator assembly is run to the end of its stroke (mechanical home position), the ball screw shaft spins inside the nut, which allows the actuator assembly to run without damaging or advancing the nut.

All the actuator motors have a thermal overload switch which will activate if the actuator assembly is run continuously. The actuator motor was not designed for continuous operation. The normal cool off period for the thermal overload switches is 10 - 20 minutes.

Normal Operation:

When a function switch is pressed on either the hand control or foot control, an interface board, located in the foot control or hand control, encodes the signal and sends it to the PC control board. The PC control board decodes the information and energizes the relay of the selected function. The 115 VAC that is continuously supplied to the normally open (N.O.) contacts of the relay is now applied across the actuator assembly motor windings, causing the actuator assembly to run. There is a diagnostic L.E.D. in each relay circuit. When a relay coil is energized, an L.E.D. that is in the same circuit illuminates, indicating that there is power at the relay's coil and the PC control board is working properly.

When the PC control board receives a function signal from a hand control or foot control, the microprocessor on the PC control board does several things; it continuously monitors the current draw of the running actuator assembly motor (this is important because different patient loads affect the amount of current drawn by the motor as well as its speed - meaning monitoring current draw can let the PC control board calculate an actuator assembly's speed). The PC control board also keeps track of how long an actuator assembly's relay has been energized (how long actuator assembly motor has been running). By comparing the current draw of the running actuator motor and the time period that an actuator assembly's relay has been energized, against an on-board data base, the PC control board can determine how far, in its range of motion, an actuator assembly has traveled. The PC control board records this positional information in its memory. The PC control board continuously calculates an actuator assembly's position and stores that information in memory for future use. Also, if the current draw of an actuator assembly exceeds a predetermined level for more than 0.5 seconds, the PC control board shuts down the actuator assembly, until the footswitch/button is released and depressed again.

When an operator selects a function, the PC control board calculates the maximum run time that it will take the actuator assembly to reach the end of its travel range. If the operator holds down the function button longer than the maximum run time, the PC control board will de-energize the relay of the actuator assembly when the maximum run time is reached, causing the actuator assembly motor to stop running. This prevents excessive wear on an actuator assembly due to a switch sticking or an operator continuously holding down a function switch.

When a function (this is true for only a few of the functions) is reselected, after its actuator assembly has been stopped by the PC control board because it reached its maximum run time, the PC control board will allow the actuator assembly to run for 2 seconds before de-energizing its relay. This allows the mechanical "home" position of the actuator assembly to be synchronized with the PC control board's software "home" position.

The TABLE UP and TABLE DOWN function works slightly different however; it uses a limit switch to stop the actuator assembly when it reaches its end of travel instead of letting the PC board stop it. This prevents wear of the base actuator assembly by not allowing it to freewheel. The base actuator assembly sees much heavier loads on it than do the other actuator assemblies. If the base actuator assembly were allowed to freewheel, the life of the actuator assembly would be greatly reduced. The base up and down limit switch is a normally closed switch. When either limit switch is tripped, the circuit that provides power to the base actuator assembly for the TABLE UP or TABLE DOWN function is opened, causing the base actuator assembly to stop.

Programmed Positions:

The operator positions the table into a position he/she would like to store into memory. When the PROGRAM button is pressed and held for 0.2 seconds for old style PC control board or 1 second for new style PC control

board, the PC control board is in program mode and is ready to store a position into memory. Then, when one of the two program position buttons ("1" or "2") on the foot control or one of the four program position buttons ("1", "2", "3", or "4") on the hand control is pressed, the position of the table is stored into the PC control board's memory. The operator has five seconds in which to select a programmed position button. After five seconds, the PC control board cancels the program mode. Also, if any buttons other than the program position buttons "1", "2", "3", or "4" are pressed, the program mode is canceled. The PC control board stores the table's position which has been calculated and stored in the PC control boards memory as described in the "normal operation" of a function.

When an operator presses a programmed position button, the PC control board determines which functions need to move and energizes the relays for the actuator assemblies of those functions. The PC control board uses the method described in "normal operation" to determine when an actuator assembly of a function has reached its programmed position. When an actuator assembly of a function reaches its position, its relay is de-energized. This continues until all actuator assemblies of affected functions have reached their position.

If the operator wishes to stop the table, for any reason, before all functions have reached their programmed position, the STOP button may be pressed. When the STOP button is pressed, the PC control board immediately de-energizes all relays, causing the table to stop. The STOP button overrides all other commands.

When a programmed position button is selected, it can be pressed and then released; it does not need to be held down. However, there is a selector switch; S1 on the old style PC control board and SW2-4 on new style PC control board, that can be switched to change this. Then the programmed position button must be pressed and held until the table reaches its programmed position; if the button is released, the table will stop moving. The switch (S1) works as follows: when the switch S1 is pushed in, the programmed position button can be pressed and released. When the switch S1 is pulled out, the programmed position button must be pressed and held. Switch SW2-4 works as follows: when switch is ON, programmed position buttons can be pressed and released. When switch SW2-4 is OFF, programmed position buttons must be pressed and held.

Auto Return Function Operation:

When the operator presses the AUTO RETURN button, the PC control board determines which functions need to move and energizes the relays for the actuator assemblies of those functions. The PC control board uses the method described in "normal operation" to determine when an actuator assembly of a function has reached the mechanical home position. When an actuator assembly of a function reaches its home position, its relay is de-energized. This continues until all actuator assemblies have reached their mechanical home position.

The PC control board adds a slight overrun time to each function during the AUTO RETURN mode to ensure all actuator assemblies reach their mechanical home position and freewheel. This allows the mechanical "home" position of the actuator assemblies to be synchronized with the PC control board's software "home" position, which is important if correct program positioning of table is to be achieved.

If the operator wishes to stop the table for any reason, before all functions have reached their programmed position, the STOP button may be pressed. When the STOP button is pressed, the PC control board immediately de-energizes all relays, causing the table to stop. The STOP button overrides all other commands.

Foot Extension Limit Switch

When the foot extension is in the fully seated position, the foot extension limit switch is tripped. A circuit (12 VDC) to the PC control board is completed, signaling the PC control board that the foot extension is in the seated position. The auto return function, programmed position, and manual functions operate normally. If the foot extension limit switch is not tripped, the auto return function and programmed position functions will not run. Also the BACK UP, BASE DOWN, TILT DOWN, and FOOT DOWN functions will only run for a one second duration at a time. This is a safety feature to help prevent the table's foot extension from crashing into the floor or itself when it is extended.

Re-initialization:

If a PC control board loses power for approximately 3 days or longer or if the table is new, the table must be re-initialized. If the table does not move to correct programmed positions even after an AUTO RETURN has been initiated, the PC control board probably needs re-initialized. To re-initialize the PC control board,

either the PROGRAM, TABLE UP, and TABLE DOWN buttons ***or*** PROGRAM, POSITION "1", and POSITION "2" buttons must be pressed and held for at least 2 seconds (which buttons must be pressed depend on which type of foot control the table has. On a table with a hand control, either group of buttons may be used). This clears all position memory from the PC control board, except for programmed positions. The PC control board makes all buttons inactive, except for the AUTO RETURN button and STOP button. The AUTO RETURN button should now be pressed which will cause the table to run each actuator assembly to its mechanical home position. The reinitialization procedure must be fully completed before normal operation of the table can be resumed.

Audible Alert Tones: (See Table 5-1)

The new style PC control board has audible tones to provide feedback to the operator. SW2-1 controls whether the tones are activated or deactivated; if SW2-1 is ON, tones are activated. If SW2-1 is OFF, tones are deactivated.

General Information:

A capacitor is in each actuator assembly circuit. The capacitor provides start up power and run power for the actuator motor.

The PC control board constantly monitors the control disable switch for +12 VDC. If 0.0 VDC is detected (the control disable switch is ON, meaning the table is disabled), the PC control board disables the relays of all functions and removes power from the foot control or hand control. If +12 VDC is detected (the control disable switch is OFF, meaning the table is enabled), the PC control board operates normally. The control disable switch is located under the left electrical outlet. This function allows the controls to be disabled, preventing unauthorized personnel from operating the table, such as a patient.

The maximum number of buttons that can be pressed at one time is three; if any more than three buttons are pressed at one time, the PC control board forces the STOP function to be executed.

There is either a capacitor or battery on the old style PC control board that provides power to retain the board's memory. The PC control board will retain its memory for approximately 3 days. On new style PC control boards, there is an EPROM chip which retains the board's memory indefinitely.

1.4 SPECIFICATIONS

Factual data for the 414 Power Podiatry Surgery Table is provided in Table 1-1.

Table 1-1. Specifications

Description	Data
Weight:	
Without Shipping Carton	525 lb (238.1 kg)
With Shipping Carton	575 lb (260.8 kg)
Shipping Carton	76 in. "L" x 35 in. "W" x 36 in. "H" (193 cm x 88.9 cm x 91.4 cm)
Dimensions:	
Table Top Length with back reclined and foot section raised (not including headrest)	61 3/4 in. (156.8 cm)
Table Top Length with foot section fully extended (including headrest)	74 in. (188 cm)
Table Top Width (including arms)	27 3/4 in. (70.5 cm)
Table Positioning (Adjustable):	
Table Top Height	23 in. to 41.5 in. (58.4 cm to 105.4 cm)
Back Down to Back Up	0° to 73°
Tilt Down to Tilt Up	0° to 30°
Foot Down to Foot Up	0° to -84°
Table Speed (unloaded):	
Table Down to Table Up	15 seconds
Back Down to Back Up	8 seconds
Tilt Down to Tilt Up	8 seconds
Foot Down to Foot Up	7 seconds
Debris Tray	Extends 8 3/4 in (22.2 cm) beyond foot section
Minimum height at foot section w/o tilt (foot horizontal)	23.0 in. (58.4 cm)
Maximum height at foot section with maximum tilt	39.0 in. (99.0 cm)
Maximum height at foot section with maximum tilt and maximum lift	57.5 in. (146.1 cm)
Maximum height at foot section with maximum tilt, maximum lift, and foot section fully raised and extended	61.5 in. (156.2 cm)

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SECTION I
GENERAL INFORMATION

Electrical Requirements:
115 VAC Unit ..... 110 - 120 VAC, 60 HZ, 15 amp, single phase

Power Consumption:
115 VAC Unit ..... 1440 WATTS, 12 amps @ 120 VAC

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.

1.5 Parts Replacement Ordering

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

(1) Refer to Figure 1-2 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.

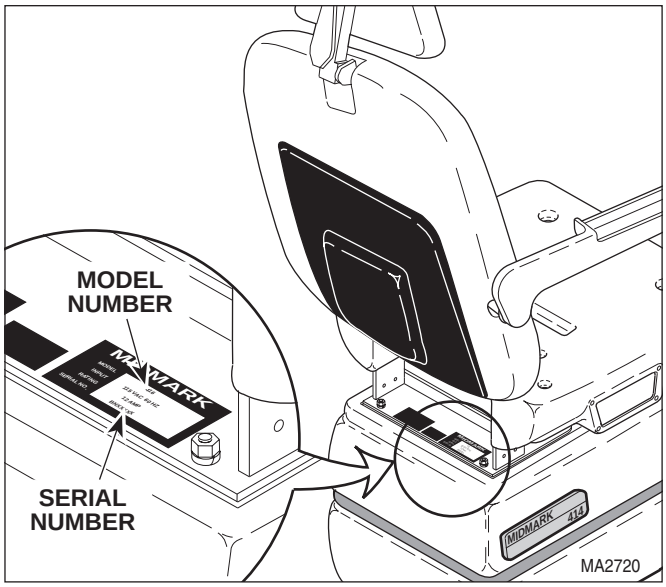

Figure 1-2. Model Number / Serial Number Location

(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).

1.6 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.

Table 1-2. Special Tool List

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 hardware to specified torque values.

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SECTION II
TESTING AND TROUBLESHOOTING

2.1 Operational Test (See Figure 2-1)

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) Depress release lever and push the foot section to its fully seated position, ensuring foot extension limit switch is tripped (See Figure 2-1).

NOTE
To disable the table, the control disable switch must be thrown toward foot end of table.

(3) Switch the CONTROL DISABLE switch to the disable position.

(4) Depress TABLE UP, TABLE DOWN, BACK UP, BACK DOWN, TILT UP, and TILT DOWN, FOOT UP, and FOOT DOWN pedals on foot control.

(5) Observe. No functions should operate.

NOTE
To enable the table, the control disable switch must be thrown toward head end of table.

(6) Switch the CONTROL DISABLE switch to enable position.

(7) Depress TABLE UP, TABLE DOWN, BACK UP, BACK DOWN, TILT UP, TILT DOWN, FOOT UP, and FOOT DOWN pedals on foot control and run each function to its limit.

(8) Observe. The table top should move in the direction corresponding to the pedal which is being depressed. Each function should have the following range of motion:
TABLE UP to TABLE DOWN: 23.0 in. to 41.5 in. (58.4 cm to 105.4 cm)
TILT DOWN to TILT UP: 0° to 30°
BACK DOWN to BACK UP: 0° to 73°
FOOT DOWN to FOOT UP: 0° to -84°

Function speeds should be as follows:
TABLE DOWN to TABLE UP - 15 seconds
BACK DOWN to BACK UP - 8 seconds
TILT DOWN to TILT UP - 8 seconds.
FOOT DOWN to FOOT UP - 7 seconds

When an actuator assembly reaches its limit, the PC control board should automatically stop the function from freewheeling after a short time. The arm rests should be parallel with the seat section of the table top when the back section is all the way up.

(9) Place approximately 300 lbs. (136 kg) on seat section of table top. Run TABLE UP and TABLE DOWN functions all the way up and all the way down.

(10) Observe. The base actuator assembly should be able to raise and lower normally with the 300 lb (136 kg) load. The base actuator assembly should not squeal or make excessive noise when it freewheels at the end of its stroke.

(11) Remove the 300 lb (136 kg) weight.

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

(13) Depress the AUTO RETURN foot switch. After the table top lowers halfway, depress the STOP foot switch.

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SECTION II
TESTING AND TROUBLESHOOTING

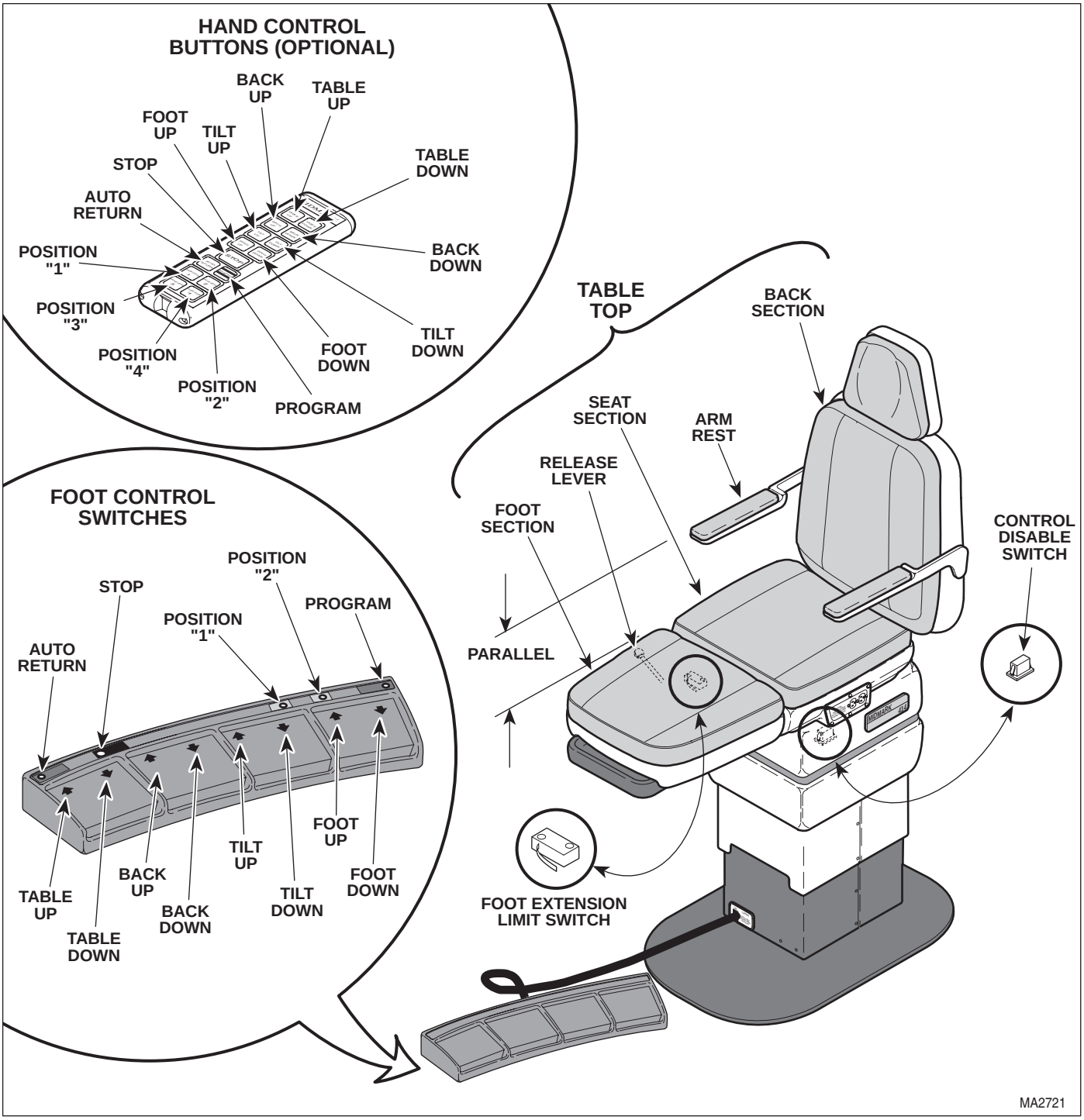

Figure 2-1. Operational Test

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(14) Observe. When the AUTO RETURN foot switch is depressed, the table top should begin to lower. When the STOP foot switch is depressed, the table top should stop lowering.

(15) Depress the AUTO RETURN foot switch and allow the table top to lower completely.

(16) Observe. When the table top is completely lowered, the base actuator assembly should stop running (before the base actuator assembly is allowed to freewheel), indicating that the base down limit switch has been tripped.

(17) Depress the FOOT UP pedal on foot control and raise the foot section all the way up.

(18) Depress the release lever and pull the foot section to its fully extended position.

(19) Depress TABLE UP, TABLE DOWN, BACK UP, BACK DOWN, TILT UP, and TILT DOWN, FOOT UP, and FOOT DOWN pedals on foot control.

(20) Observe. The TABLE UP, BACK DOWN, TILT UP, and FOOT UP functions work properly. The TABLE DOWN, BACK UP, TILT DOWN, and FOOT DOWN functions should run for one second before stopping. If the foot pedal is released and then depressed again, the function should run for one more second. This should continue until the function reaches the end of its travel.

(21) Depress the release lever and push the foot section to its fully seated position, ensuring foot extension limit switch is tripped.

NOTE
A hand control is an optional accessory; not all units have one.

(22) If chair has a hand control, repeat steps 7, 8, and 12 thru 16 using the buttons on the hand control.

(23) Depress the PROGRAM foot switch on foot control - one second for new style board and 0.2 seconds for old style board.

NOTE
A program position foot switch must be depressed within 5 seconds of depressing the PROGRAM foot switch.

(24) Depress the POSITION "1" foot switch.

(25) Use any of the single function foot pedals to move the table top to a new position.

(26) Depress the POSITION "1" foot switch.

(27) Observe. The table top should move back to the position programmed in steps 23 and 24.

NOTE
A hand control is an optional accessory; not all units have one.

(28) If chair has a hand control, repeat steps 23 thru 27 using the PROGRAM button and POSITION "1", "2", "3", and "4" buttons on the hand control instead of foot control.

2.2 Troubleshooting Procedures

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

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SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide

Problem	Symptom	Probable Cause	Check	Correction
Table will not operate when any of the eight up and down functions, program function, or auto return function are selected.	When a foot switch or hand control button is depressed, its actuator does not run or hum.	Power cord is not plugged into facility wall outlet.	Check to see if power cord is plugged in.	Plug power cord into facility wall outlet and/or connector receptacle on table.
		Control disable switch is turned to "OFF" position.	Check to see if control disable switch is in the "OFF" position (located on bottom side of one of the table's two electrical outlets).	Switch the control disable switch to "ON" position.
		Control disable switch is malfunctioning.	Perform a continuity check on the control disable switch.	Replace the control disable switch. Refer to para 4.6.
		Facility circuit breaker providing power to table is tripped.	Check to see if facility circuit breaker is tripped. One way of checking this is to plug a lamp into wall outlet that table was plugged into.	If circuit breaker is tripped, determine what caused circuit breaker to trip, correct the problem, and then reset/replace circuit breaker.
		Wire connections loose.	Check all wiring connections from power cord to connector J1 on the PC control board. Perform continuity check on wires. Use multimeter to check for proper voltage levels.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		0.5 amp fuse or 20 amp fuse on old style PC control board or 0.125 amp fuse on new style PC control board is blown.	Refer to Figure 2-2 for this check. Perform continuity check on fuses.	Replace any blown fuses.
		The supply voltage for PC control board below normal limts.	Check facility power source for voltage between 110 - 120 VAC.	If voltage is below 110 VAC, correct low voltage problem of facility power source.
		PC control board is locked up and needs to be reinitialized.	—	Reinitialize the PC control board. Refer to para 4.2.
		PC control board is malfunctioning.	Replace suspect PC control board with known working PC control board. On new style PC control boards, check if green Board Fail L.E.D. is flashing. Flashing indicates normal operation, while not flashing indicates a malfunction.	Replace PC control board. Refer to para 4.8.
		Hand control, foot control, or coil cord is malfunctioning.	Replace suspect component with known working component.	Replace malfunctioning component.

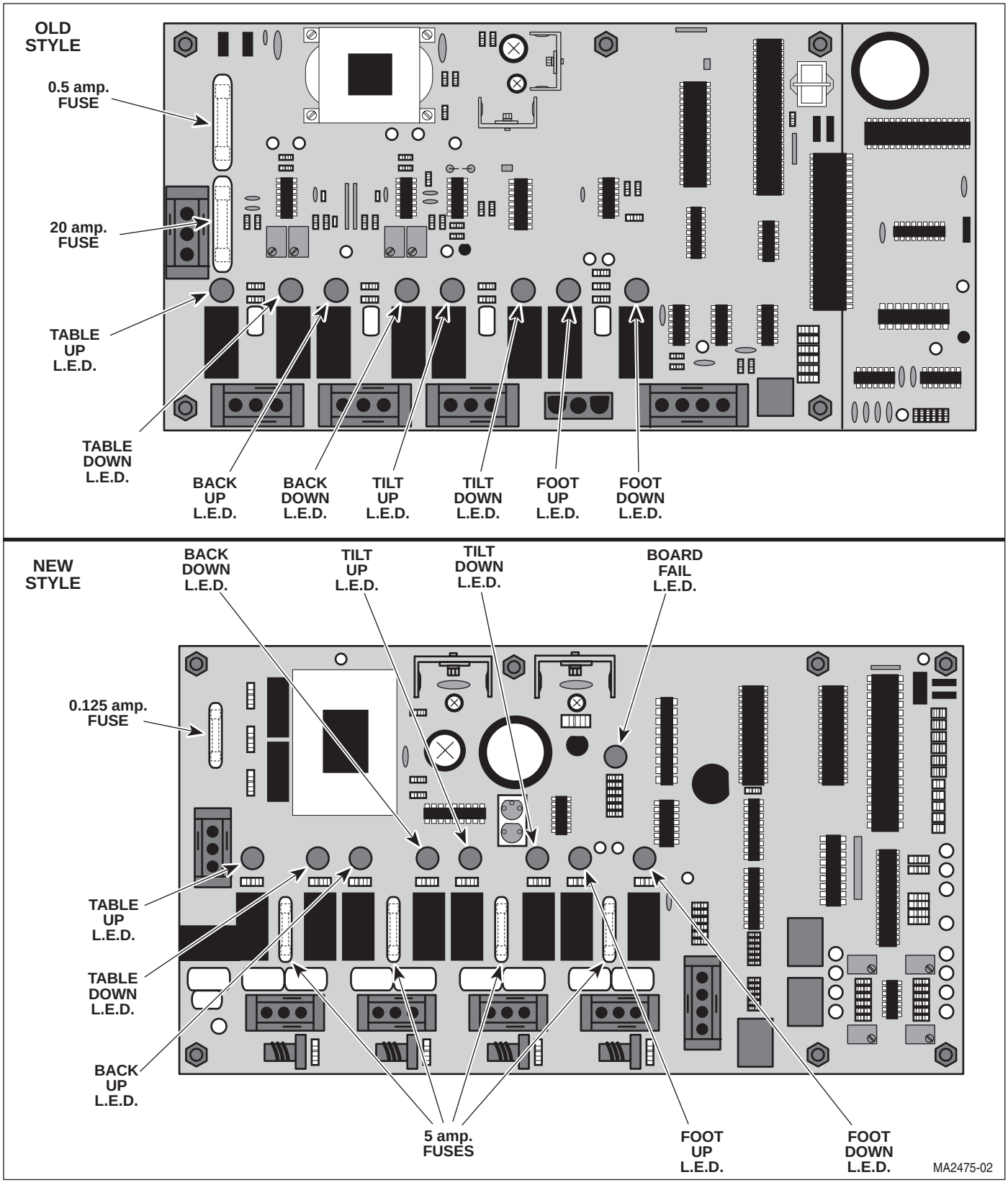

Figure 2-2. Indicator L.E.D.'s For Use With Troubleshooting Guide

SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
No actions can be initiated from foot control.	Table has power, but no functions can be initiated from foot control (hand control functions properly).	Coil cord is not plugged into foot control or plug-in port on table properly.	Check if coil cord is plugged in properly.	Plug coil cord into foot control or plug-in port on table. Clean any dirty connections.
		Coil cord plug-in port on table is malfunctioning.	Plug foot control into plug-in port on other side of table and then attempt to operate table. If works now, plug-in port was malfunctioning.	Replace plug-in port. Refer to para 4.7.
		Coil cord receptacle (is part of foot control interface board) on foot control is malfunctioning.	Replace suspect foot control interface board with known working foot control interface board.	Replace foot control interface board. Refer to para 4.27.
		Coil cord is malfunctioning.	Use a multimeter to perform a continuity check on the coil cord.	Replace coil cord.
No actions can be initiated from hand control.	Table has power, but no functions can be initiated from hand control (foot control functions properly).	Coil cord is not plugged into hand control or plug-in port on table properly.	Check if coil cord is plugged in properly.	Plug coil cord into hand control or plug-in port on table. Clean any dirty connections.
		Ribbon connector from hand control panel has become disconnected from the control interface board.	Check if ribbon connector is connected to the control interface board properly.	Connect ribbon connector of hand control panel to control interface board. Refer to para 4.24.
		Coil cord plug-in port on table is malfunctioning.	Plug hand control into plug-in port on other side of table and then attempt to operate table. If works now, plug-in port was malfunctioning.	Replace plug-in port. Refer to para 4.7
		Coil cord receptacle (is part of control interface board) on hand control is malfunctioning.	Replace suspect control interface board with known working control interface board.	Replace control interface board. Refer to para 4.24.
		Coil cord is malfunctioning.	Use a multimeter to perform a continuity check on the coil cord.	Replace coil cord.
		Hand control is malfunctioning.	Replace suspect control interface board with known working control interface board.	Replace control interface board. Refer to para 4.24.
			Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.24.
		Reinitialization routine was not fully completed.	–	Run another reinitialization procedure. If it doesn't work, unplug all actuator wire harnesses from the PC Board and run a third initialization procedure. Refer to para 4.2.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
One or more functions cannot be initiated from foot control or hand control.	Some functions may be initiated with foot control or hand control, but some may not.	Hand control panel of hand control is malfunctioning (switch membrane is malfunctioning).	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.24.
		A push-button switch in foot control is malfunctioning.	Perform continuity check on push-button switch or replace push-button switch with a known working switch.	Replace push-button switch. Refer to para 4.25 or 4.26.
		Wire connections loose in foot control.	Check all wiring connections from the push-button switch to the control interface board.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
TABLE UP and TABLE DOWN functions do not work.	When TABLE UP and TABLE DOWN buttons are pressed, the table will not move (all other functions work).	Base capacitor is weak or blown.	Replace suspect base capacitor with known working base capacitor.	Replace base capacitor. Refer to para 4.14.
		Thermal overload switch in base actuator assembly is activated.	—	Wait 10 to 20 minutes to allow base actuator assembly to cool.
		Base actuator assembly is malfunctioning.	Replace suspect base actuator assembly or actuator motor with a known working assembly.	Replace actuator motor or base actuator assembly. Refer to para 4.11 or 4.12.
		5 amp fuse for TABLE UP and TABLE DOWN functions is blown (applies to new style PC board only).	Refer to Figure 2-2 for this check. Perform continuity check on fuse.	Replace blown fuse.
		Wire connections loose.	Check all wiring connections to base actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		Gas spring(s) are malfunctioning.	Replace suspect gas spring(s) with known working gas spring(s).	Replace gas spring(s). Refer to para 4.13.
		Base actuator is drawing excessive current for more than 0.5 seconds.	Release all buttons. Then, run base actuator again to see if it stops running again.	If problem repeats, replace base capacitor, actuator motor, or actuator. Refer to para 4.14, 4.11, or 4.12.
		PC control board is malfunctioning.	Refer to Figure 2-2 for this check. Press TABLE UP and then the TABLE DOWN button while observing the PC control board. The TABLE UP L.E.D. should illuminate when the TABLE UP button is pressed and the TABLE DOWN L.E.D. should illuminate when the TABLE DOWN button is pressed. If not, the PC control board is malfunctioning.	Replace PC control board. Refer to para 4.8.

SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
BACK UP and BACK DOWN functions do not work.	When BACK UP and BACK DOWN buttons are pressed, the table will not move (all other functions work).	Back capacitor is weak or blown.	Replace suspect back capacitor with known working back capacitor.	Replace back capacitor. Refer to para 4.18.
		Thermal overload switch in back actuator assembly is activated.	—	Wait 10 to 20 minutes to allow back actuator assembly to cool.
		Back actuator assembly is malfunctioning.	Replace suspect back actuator assembly or actuator motor with a known working assembly.	Replace actuator motor or back actuator assembly. Refer to para 4.11 or 4.17.
		5 amp fuse for BACK UP and BACK DOWN functions is blown (applies to new style PC board only).	Refer to Figure 2-2 for this check. Perform continuity check on fuse.	Replace blown fuse.
		Wire connections loose.	Check all wiring connections to back actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		Back actuator is drawing excessive current for more than 0.5 seconds.	Release all buttons. Then, run back actuator again to see if it stops running again.	If problem repeats, replace back capacitor, actuator motor, or actuator. Refer to para 4.18, 4.11, or 4.17.
		PC control board is malfunctioning.	Refer to Figure 2-2 for this check. Press BACK UP and then the BACK DOWN button while observing the PC control board. The BACK UP L.E.D. should illuminate when the BACK UP button is pressed and the BACK DOWN L.E.D. should illuminate when the BACK DOWN button is pressed. If not, the PC control board is malfunctioning.	Replace PC control board. Refer to para 4.8.
TILT UP and TILT DOWN functions do not work.	When TILT UP and TILT DOWN buttons are pressed, the table will not move (all other functions work).	Tilt capacitor is weak or blown.	Replace suspect tilt capacitor with known working tilt capacitor.	Replace tilt capacitor. Refer to para 4.16.
		Thermal overload switch in tilt actuator assembly is activated.	—	Wait 10 to 20 minutes to allow tilt actuator assembly to cool.
		Tilt actuator assembly is malfunctioning.	Replace suspect tilt actuator assembly or actuator motor with a known working assembly.	Replace actuator motor or tilt actuator assembly. Refer to para 4.11 or 4.15.
		5 amp fuse for TILT UP and TILT DOWN functions is blown (applies to new style PC board only).	Refer to Figure 2-2 for this check. Perform continuity check on fuse.	Replace blown fuse.
		Wire connections loose.	Check all wiring connections to tilt actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
TILT UP and TILT DOWN functions do not work - Continued.	When TILT UP and TILT DOWN buttons are pressed, the table will not move (all other functions work) - Continued.	PC control board is malfunctioning.	Refer to Figure 2-2 for this check. Press TILT UP and then the TILT DOWN button while observing the PC control board. The TILT UP L.E.D. should illuminate when the TILT UP button is pressed and the TILT DOWN L.E.D. should illuminate when the TILT DOWN button is pressed. If not, the PC control board is malfunctioning.	Replace PC control board. Refer to para 4.8.
		Tilt actuator is drawing excessive current for more than 0.5 seconds.	Release all buttons. Then, run tilt actuator again to see if it stops running again.	If problem repeats, replace tilt capacitor, actuator motor, or actuator. Refer to para 4.16, 4.11, or 4.15.
FOOT UP and FOOT DOWN functions do not work.	When FOOT UP and FOOT DOWN buttons are pressed, the table will not move (all other functions work).	Foot capacitor is weak or blown.	Replace suspect foot capacitor with known working foot capacitor.	Replace foot capacitor. Refer to para 4.20.
		Thermal overload switch in foot actuator assembly is activated.	—	Wait 10 to 20 minutes to allow foot actuator assembly to cool.
		Foot actuator assembly is malfunctioning.	Replace suspect foot actuator assembly or actuator motor with a known working assembly.	Replace actuator motor or foot actuator assembly. Refer to para 4.11 or 4.19.
		5 amp fuse for FOOT UP and FOOT DOWN functions is blown (applies to new style PC board only).	Refer to Figure 2-2 for this check. Perform continuity check on fuse.	Replace blown fuse.
		Wire connections loose.	Check all wiring connections to foot actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		Foot actuator is drawing excessive current for more than 0.5 seconds.	Release all buttons. Then, run foot actuator again to see if it stops running again.	If problem repeats, replace foot capacitor, actuator motor, or actuator. Refer to para 4.20, 4.11, or 4.19.
		Wire connections loose.	Check all wiring connections to foot actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		PC control board is malfunctioning.	Refer to Figure 2-2 for this check. Press FOOT UP and then the FOOT DOWN button while observing the PC control board. The FOOT UP L.E.D. should illuminate when the FOOT UP button is pressed and the FOOT DOWN L.E.D. should illuminate when the FOOT DOWN button is pressed. If not, the PC control board is malfunctioning.	Replace PC control board. Refer to para 4.8.
TABLE UP function works, but TABLE DOWN function does not or TABLE DOWN function works, but TABLE UP function does not. All other functions work.	One function runs properly, but the other does not.	Wire connections loose.	Check all wiring connections to base actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		Gas spring(s) are malfunctioning (especially for TABLE UP function).	Replace suspect gas spring(s) with known working gas spring(s).	Replace gas spring(s). Refer to para 4.13.

SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
TABLE UP function works, but TABLE DOWN function does not or TABLE DOWN function works, but TABLE UP function does not. All other functions work - Continued.	One function runs properly, but the other does not - Continued.	PC control board is malfunctioning.	Refer to Figure 2-2 for this check. Press TABLE UP and then the TABLE DOWN button while observing the PC control board. The TABLE UP L.E.D. should illuminate when the TABLE UP button is pressed and the TABLE DOWN L.E.D. should illuminate when the TABLE DOWN button is pressed. If not, the PC control board is malfunctioning.	Replace PC control board. Refer to para 4.8.
		TABLE UP or TABLE DOWN foot switch is malfunctioning.	Perform a continuity check on suspect foot switch.	Replace foot switch. Refer to para 4.25.
		Hand control panel of hand control is malfunctioning (switch membrane is malfunctioning).	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.24.
	TABLE DOWN function will only move for one second before stopping.	Foot extension is not fully seated (this means foot extension limit switch is not tripped).	Check to make sure foot extension limit switch is tripped.	Seat foot extension fully, making sure foot extension limit switch is tripped.
TABLE UP function works properly, but TABLE DOWN function does not.	Actuator motor does not hum when function is selected.	Base down limit switch is malfunctioning - stuck open.	Perform continuity check on base down limit switch. Should be continuity when switch is not tripped.	Replace base down limit switch. Refer to para 4.10.
TABLE DOWN function works properly, but TABLE UP function does not.	Actuator motor does not hum when function is selected.	Base up limit switch is malfunctioning - stuck open.	Perform continuity check on base up limit switch. Should be continuity when switch is not tripped.	Replace base up limit switch. Refer to para 4.33.
	TABLE DOWN works properly, but TABLE UP function will not raise or raises slowly (moves fine for light patient, but will not move or moves slowly for very heavy patient).	Gas spring(s) are malfunctioning.	Replace suspect gas spring(s) with known working gas spring(s).	Replace gas spring(s). Refer to para 4.13.
BACK UP function works, but BACK DOWN function does not or BACK DOWN function works, but BACK UP function does not. All other functions work.	One function runs properly, but the other does not.	Wire connections loose.	Check all wiring connections to base actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		PC control board is malfunctioning.	Refer to Figure 2-2 for this check. Press BACK UP and then the BACK DOWN button while observing the PC control board. The BACK UP L.E.D. should illuminate when the BACK UP button is pressed and the BACK DOWN L.E.D. should illuminate when the BACK DOWN button is pressed. If not, the PC control board is bad.	Replace PC control board. Refer to para 4.8.
		BACK UP or BACK DOWN foot switch is malfunctioning.	Perform a continuity check on suspect foot switch.	Replace foot switch. Refer to para 4.25.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
BACK UP function works, but BACK DOWN function does not or BACK DOWN function works, but BACK UP function does not. All other functions work - Continued.	One function runs properly, but the other does not - Continued.	Hand control panel of hand control is malfunctioning (switch membrane is malfunctioning).	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.24.
	BACK UP function will only move for one second before stopping.	Foot section is not fully seated (this means foot extension limit switch is not tripped).	Check to make sure foot extension limit switch is tripped.	Seat foot section fully, making sure foot extension limit switch is tripped.
TILT UP function works, but TILT DOWN function does not or TILT DOWN function works, but TILT UP function does not. All other functions work.	One function runs properly, but the other does not.	Wire connections loose.	Check all wiring connections to tilt actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		PC control board is malfunctioning.	Refer to Figure 2-2 for this check. Press TILT UP and then the TILT DOWN button while observing the PC control board. The TILT UP L.E.D. should illuminate when the TILT UP button is pressed and the TILT DOWN L.E.D. should illuminate when the TILT DOWN button is pressed.	Replace PC control board. Refer to para 4.8.
		TILT UP or TILT DOWN foot switch is malfunctioning.	Perform a continuity check on suspect foot switch.	Replace foot switch. Refer to para 4.25.
		Hand control panel of hand control is malfunctioning (switch membrane is malfunctioning).	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.24.
	TILT DOWN function will only move for one second before stopping.	Foot section is not fully seated (this means foot extension limit switch is not tripped).	Check to make sure foot extension limit switch is tripped.	Seat foot section fully, making sure foot extension limit switch is tripped.
FOOT UP function works, but FOOT DOWN function does not or FOOT DOWN function works, but FOOT UP function does not. All other functions work.	One function runs properly, but the other does not.	Wire connections loose.	Check all wiring connections to tilt actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		PC control board is malfunctioning.	Refer to Figure 2-2 for this check. Press FOOT UP and then the FOOT DOWN button while observing the PC control board. The FOOT UP L.E.D. should illuminate when the FOOT UP button is pressed and the FOOT DOWN L.E.D. should illuminate when the FOOT DOWN button is pressed.	Replace PC control board. Refer to para 4.8.

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SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
FOOT UP function works, but FOOT DOWN function does not or FOOT DOWN function works, but FOOT UP function does not. All other functions work - Continued.	One function runs properly, but the other does not - Continued.	FOOT UP or FOOT DOWN foot switch is malfunctioning.	Perform a continuity check on suspect foot switch.	Replace foot switch. Refer to para 4.25.
		Hand control panel of hand control is malfunctioning (switch membrane is malfunctioning).	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.24.
	FOOT UP function will only move for one second before stopping.	Foot extension is not fully seated (this means foot extension limit switch is not tripped).	Check to make sure foot extension limit switch is tripped.	Seat foot extension fully, making sure foot extension limit switch is tripped.
Auto return function does not operate properly.	Nothing happens when the AUTO RETURN button is pressed.	Foot section is not fully seated (this means foot extension limit switch is not tripped).	Check to make sure foot extension limit switch is tripped.	Seat foot section fully, making sure foot extension limit switch is tripped.
		PC control board is malfunctioning.	Replace suspect PC control board with known working PC control board.	Replace PC control board. Refer to para 4.8.
		PC control board needs reinitialized.	—	Reinitialize the PC control board. Refer to para 4.2.
		Base down limit switch is tripped.	Table is already lowered all the way down, tripping limit switch or base down limit switch is out of adjustment, causing base down limit switch to remain tripped or to trip earlier than desired.	Adjust base down limit switch. Refer to para 4.10.
		Base down limit switch is malfunctioning - stuck open.	Perform continuity check on base down limit switch (limit switch is N.O. when not tripped).	Replace base down limit switch. Refer to para 4.10.
		AUTO RETURN foot switch is malfunctioning.	Perform a continuity check on suspect foot switch.	Replace foot switch. Refer to para 4.26.
		Hand control panel of hand control is malfunctioning (switch membrane is malfunctioning).	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.24.
	When AUTO RETURN button is pressed, TABLE DOWN function does not stop automatically when it reaches its lowest point.	PC control board needs reinitialized.	—	Reinitialize the PC control board. Refer to para 4.2.
		Base down limit switch is tripped (does not apply to older tables which do not have a limit switch).	Table is already lowered all the way down, tripping limit switch or base down limit switch is out of adjustment, causing base down limit switch to remain tripped or to trip earlier than desired.	Adjust base down limit switch. Refer to para 4.10.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Auto return function does not operate properly - Continued.	When AUTO RETURN button is pressed, TABLE DOWN function does not stop automatically when it reaches its lowest point - Continued.	Base down limit switch is malfunctioning - stuck open (does not apply to older tables which do not have a limit switch).	Perform continuity check on base down limit switch (limit switch is N.O. when not tripped).	Replace base down limit switch. Refer to para 4.10.
The table's PROGRAM function does not work properly.	The PC program board / PC control board does not hold a programmed position.	Incorrect steps taken for entry of position.	Refer to the operator's manual for proper procedure.	Refer to the operator's manual for proper procedure.
		PC program board is not fully seated into PC control board (on units with old style boards only).	Check to see if PC program board is loose.	Seat PC program board fully into PC control board.
		Table has been unplugged or without power for more than three days.	—	Reinitialize the PC control board. Refer to para 4.2.
		PC control board needs reinitialized.	—	Reinitialize the PC control board. Refer to para 4.2.
		PROGRAM button or POSITION "1" or "2" foot switch is malfunctioning.	Perform a continuity check on suspect foot switch.	Replace foot switch. Refer to para 4.26.
		Hand control panel of hand control is malfunctioning (switch membrane is malfunctioning).	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.24.
		PC program board / PC control board is malfunctioning.	—	Replace PC program board / PC control board. Refer to para 4.8.
	Table does not move to its correct programmed position when POSITION "1", "2", "3", or "4" button is pressed.	Foot section is not fully seated (this means foot extension limit switch is not tripped).	Check to make sure foot extension limit switch is tripped.	Seat foot section fully, making sure foot extension limit switch is tripped.
		PC program board is not fully seated into PC control board (applies to units with old style PC control board only).	Check to see if PC program board is loose.	Seat PC program board fully into PC control board.
		Table has been unplugged or without power for more than three days.	—	Reinitialize the PC control board. Refer to para 4.2.
		PC control board needs reinitialized.	—	Reinitialize the PC control board. Refer to para 4.2.
		PROGRAM button or POSITION "1" or "2" foot switch is malfunctioning.	Perform a continuity check on suspect foot switch.	Replace foot switch. Refer to para 4.26.

SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
The table's PROGRAM function does not work properly - Continued.	Table does not move to its correct programmed position when POSITION "1", "2", "3", or "4" button is pressed - Continued.	Hand control panel of hand control is malfunctioning (switch membrane is malfunctioning).	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.24.
		PC program board / PC control board is malfunctioning.	—	Replace PC program board / PC control board. Refer to para 4.8.
	Table will not move to its programmed position unless the programmed POSITION button is held down for the entire move; if the button is released during move, the table stops.	On old style PC control boards, selector switch S1, located on the PC control board, is pulled out (When S1 switch is in pulled out position, the programmed POSITION switch must be pressed and held). On new style PC control boards, selector switch SW2-4, located on the PC control board, is in OFF position (When switch is in OFF position, the programmed POSITION switch must be pressed and held).	Check if Switch S1, on old style PC control board, is in pulled out position or if switch SW2-4 on new style PC control board is in OFF position.	Push switch S1 all the way in or move switch SW2-4 to ON position (this will allow programmed POSITION button to be pressed and released instead of pressed and held).
Table moves fine for light patient, but will not move or moves slowly for very heavy patient.	Occurs for both the up and the down functions.	Low voltage is being supplied to table.	Check voltage at wall receptacle. Should be 115 VAC ± 5 VAC.	Correct low voltage situation at wall receptacle.
		Table overloaded with too heavy of a patient.	Maximum weight capacity for table is 350 lbs. Check if patient exceeded this weight.	Inform table operator of weight limitation of table.
		Capacitor for function is weak.	Replace suspect capacitor with known working capacitor.	Replace capacitor for the weak function. Refer to para 4.14, 4.16, 4.18, or 4.20.
A table function will only run for a short time.	After a 1/2 second run time, the selected function stops running.	Overcurrent draw is being detected by PC control board.	—	Replace actuator motor or capacitor.
		The 110V / 220 V selector switch on the PC control board is set to the 220 Volt setting.	Check to see if the 110V / 220 V selector switch on the PC control board is set to the 220 Volt setting.	Switch the 110V / 220 V selector switch on the PC control board to the 110 Volt setting.
Any of the functions drift by themselves.	Table functions properly otherwise.	Motor actuator brake is malfunctioning for that function.	Replace suspect actuator brake in the motor actuator with known working actuator brake.	Replace actuator brake. Refer to para 4.11.
Whirling or squeaking noise is heard when an actuator is being run.	Noisy actuator.	Foreign matter on ball screw threads and lack of lubricant.	Check for foreign matter on ball screw threads. Check for lack of lubricant on ball screw threads.	Clean all foreign matter off of ball screw threads. Coat ball screw threads with STP treatment oil or equivalent.

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 surgery 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, 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.
	Foot control	Check that foot control works correctly. Make sure all foot switches operate properly. If not, replace foot switches. Refer to para 4.25 or 4.26.
	Hand Control (optional)	Check that hand control works correctly. Make sure all switch membranes work correctly. Replace hand control panel if necessary. Refer to para 4.24
	PROGRAM function	Check the PROGRAM function works properly. Check that programmed positions can be stored and used.
	AUTO RETURN function	Check that the AUTO RETURN function works correctly. Make sure the base actuator assembly does not freewheel when it is lowered all the way; it should be stopped by the base down limit switch. The base actuator should be within 1/4 in. (6.35 mm) of freewheeling when base down limit switch is tripped. If necessary, adjust base down limit switch. Refer to para 4.10.
	Ball screws of actuator assemblies	Extend each actuator assembly and wipe ball screw threads down with a rag to remove foreign matter. Coat as much of the ball screw threads as possible with STP treatment oil or equivalent. Run each actuator assembly to both ends of its travel a couple of times to spread the oil evenly over all of the ball screw threads and then remove excess oil.
	Actuator assemblies	Operate each function and listen for squealing noises, indicating a bad actuator assembly. Coat ball screw of noisy actuator assembly with STP treatment oil or equivalent. If oil does not correct the problem, replace the noisy actuator. Refer to para 4.12, 4.15, 4.17, or 4.19.
	Drift in table	Check each actuator assembly to see if it drifts. Replace actuator assembly brake if necessary. Refer to para 4.11.
	Control disable switch	Check operation of control disable switch. Replace switch if necessary. Refer to para 4.6.
	Arm Rests	Check that arm rests are parallel to the seat section of table when the back section is all the way up. If not adjust arm rests. Refer to para 4.22.
	Foot section	Check operation of foot section and foot section release lever. Make sure release lever holds foot section securely in place when released. Adjust if necessary. Refer to para 4.23. Make sure foot extension limit switch is functioning and adjusted properly. Adjust limit switch if necessary. Refer to para 4.21.
	Base Subassembly	Check the base subassembly for excessive play. The base of the table should not be able to be moved back and forth.
	Electrical receptacles	Check electrical receptacles for proper function. Replace electrical receptacles as necessary.
	Upholstery	Check all upholstery for rips, tears, or excessive wear. Replace cushions as necessary.

SECTION III
SCHEDULED MAINTENANCE

Table 3-1. Scheduled Maintenance Chart - Continued

Interval	Inspection or Service	What to Do
Semi-annually - Continued.	Accessories	Check that all accessories have all of their components and that they function properly. If necessary, repair or replace the accessory.
	Reinitialization	Reinitialize the PC control board. Refer to para 4.2.
	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.

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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 Reinitialization Procedure

A. Reinitialization Procedure #1 (Applies To Table With An Old Style Foot Control)

NOTE
The PROGRAM footswitch must be depressed first, or the table will begin to move.

(1) Simultaneously depress and hold the PROGRAM, TABLE UP, and TABLE DOWN footswitches for at least two seconds; then release footswitches. See Figure 4-1.

CAUTION
When following step is performed, table will move all of its functions. Make sure table is clear of all obstructions. Failure to do so could result in damage to table or surrounding items.

(2) Depress and release the AUTO RETURN footswitch.

(3) Observe. Each actuator assembly will run for approximately 18 seconds to ensure that it reaches its mechanical home position (if the run time is less than 18 seconds, the procedure probably did not work and should be attempted again). The mechanical home position is: BACK UP function all the way up, TABLE DOWN function all the way down, TILT DOWN function all the way down, and the FOOT DOWN function all the way down. When actuator assemblies stop running, the reinitialization procedure is complete.

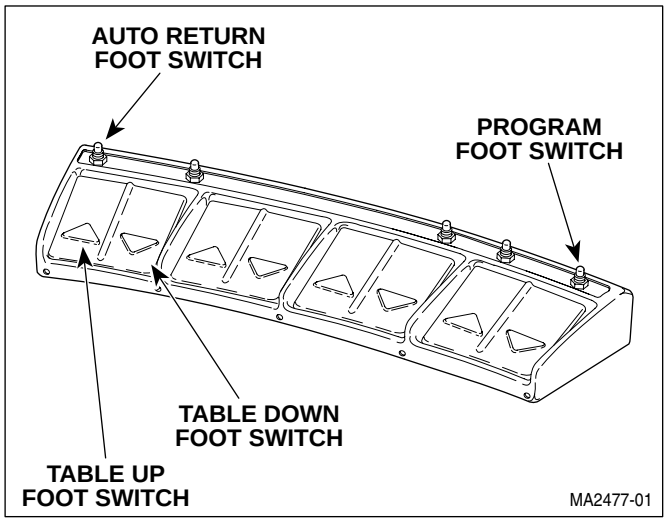

Figure 4-1. Reinitialization Procedure #1

(4) If first reinitialization procedure fails, unplug all actuator wire harnesses from PC board and run another reinitialization procedure. Then, reconnect wire harnesses.

B. Reinitialization Procedure #2 (Applies To Table With An New Style Foot Control or a Hand Control)

NOTE
The PROGRAM switch must be depressed first, or the table will begin to move.

(1) Simultaneously depress and hold the PROGRAM, POSITION "1", and POSITION "2" switches for at least two seconds; then release switches. See Figure 4-2.

CAUTION
When the following step is performed, the table will move all of its functions. Make sure table is clear of all obstructions. Failure to do so could result in damage to table or surrounding items.

(2) Depress and release the AUTO RETURN switch.

(3) Observe. Each actuator assembly will run for approximately 18 seconds to ensure that it reaches its mechanical home position (if the run time is less than 18 seconds, the procedure probably did not work and should be attempted again). The mechanical home position is:

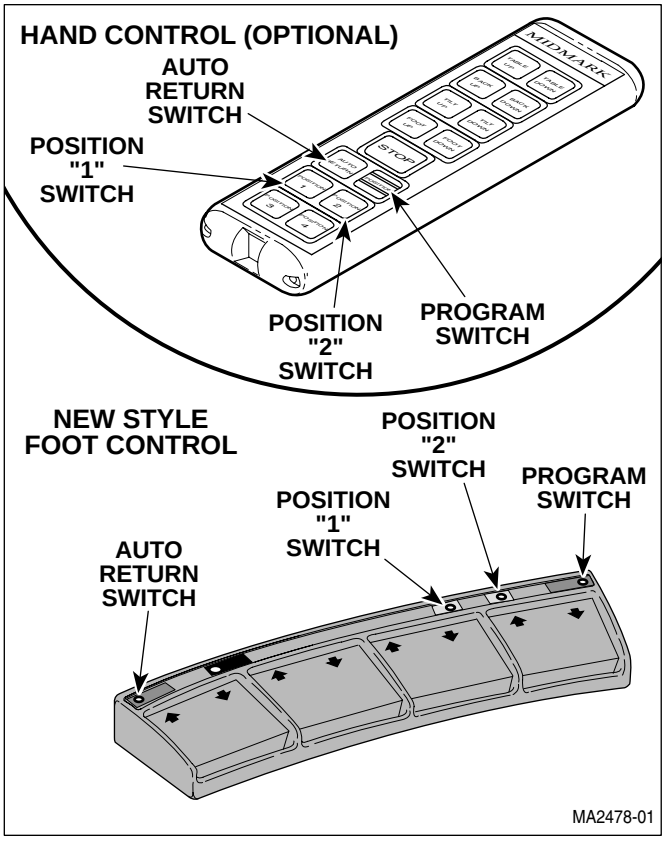

Figure 4-2. Reinitialization Procedure #2

BACK UP function all the way up, TABLE DOWN function all the way down, TILT DOWN function all the way down, and the FOOT DOWN function all the way down. When actuator assemblies stop running, the reinitialization procedure is complete.

(4) If reinitialization procedure fails, unplug all actuator wire harnesses from PC board and run another reinitialization procedure. Then, reconnect wire harnesses.

4.3 Table Top Removal / Installation

A. Removal

(1) Raise BACK UP and TILT UP functions all way up.

DANGER

Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall outlet.

(3) Unplug power cord wire harness (1, Figure 4-3) from wire harness (2).

(4) Disconnect cord set (3) from modular coupler (4).

NOTE

Units with Serial Numbers BM-1000 thru BM-1050 have only three wires to disconnect. This is because these units do not have a base down limit switch.

(5) Tag and disconnect four wires (5) from four wires (6).

(6) Cut cable tie which is securing wires/wire harness to table top.

(7) Remove four nuts (7) and lockwashers (8) from studs (9).

DANGER

Table top weighs approximately 155 lbs (70.3 kg) (without upholstery). Use an assistant to help in removing table top. Use proper lifting techniques to prevent back strain. Failure to do so could result in serious personal injury.

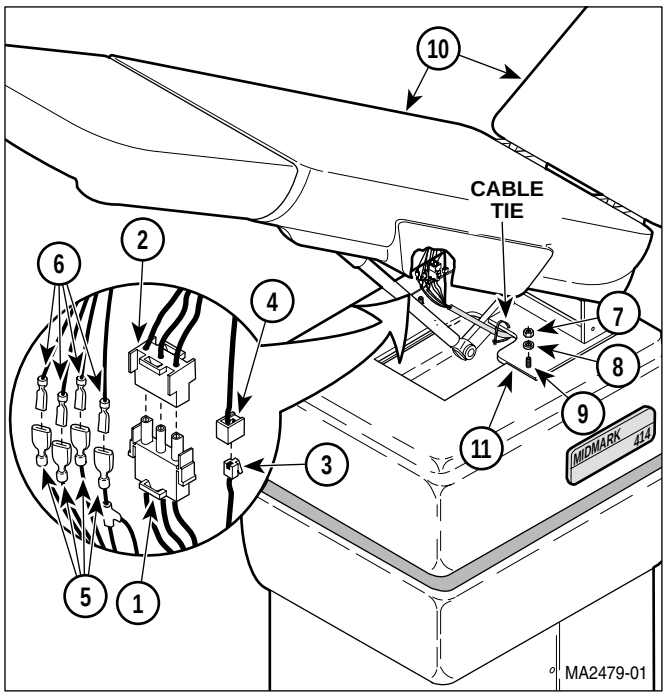

Figure 4-3. Table Top Removal / Installation

(8) With the help of an assistant, remove table top (10) from plate (11).

B. Installation

(1) With the help of an assistant, install table top (10) on plate (11) and secure with four lockwashers (8) and nuts (7).

NOTE
Units with Serial Numbers BM-1000 thru BM-1050 have only three wires to disconnect. This is because these units do not have a base down limit switch.

(2) Connect four wires (5) to four wires (6).

(3) Connect cord set (3) to modular coupler (4).

(4) Connect power cord wire harness (1) to wire harness (2).

(5) Secure wires/wire harness to table top with cable tie.

(6) Plug power cord into wall receptacle.

4.4 Shrouds Removal / Installation

A. Removal

(1) Remove table top (Refer to para 4.3).

(2) Remove four screws (1, Figure 4-4); then remove base outer shroud (2) and outer shroud (3) as an assembly from base subassembly (4).

(3) Remove shims (5), making sure to note number and location of shims for installation.

NOTE
Inner shroud can be raised to gain access to base subassembly components without removing power cord. Only remove power cord if inner shroud is being removed.

(4) Remove power cord (Refer to para 4.5).

(5) Disconnect cord set (6) from modular coupler (7).

(6) Remove four screws (8) and inner shroud (9) from base subassembly (4).

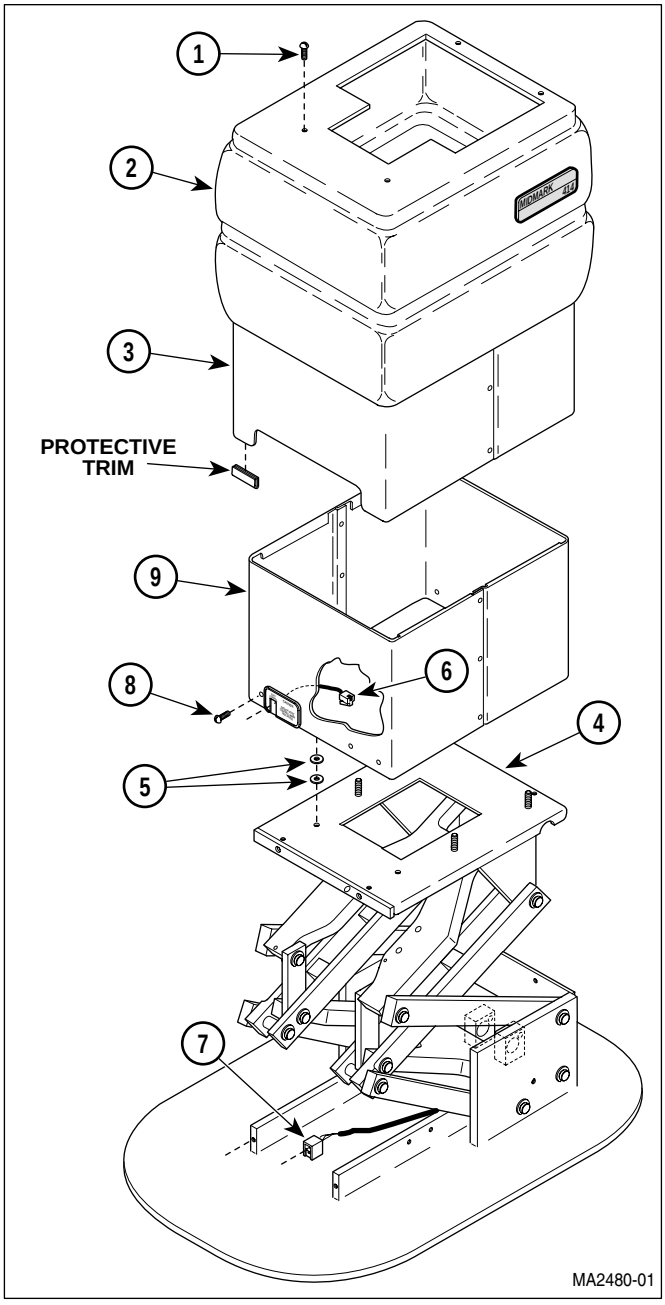

Figure 4-4. Shrouds Removal / Installation

B. Installation

(1) Install inner shroud (9) on base subassembly (4) and secure with four screws (8).

(2) Connect cord set (6) to modular coupler (7).

(3) Install power cord (Refer to para 4.5).

(4) Place shims (5) in same location on base subassembly (4) in which they were removed from.

NOTE
Make sure the shims are held in place by a screw.

(5) Install outer shroud (3) and base outer shroud (2) as an assembly on base subassembly (4) and secure with four screws (1).

(6) Check to make sure there is a piece of protective trim on each corner of the outer shroud (3). If not, find and reinstall.

(7) Install table top (Refer to para 4.3).

4.5 Power Cord Removal / Installation

A. Removal

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

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall outlet.

(3) Disconnect power cord wire harness (1, Figure 4-5) from wire harness (2).

(4) Raise up outer shroud (3) and use a support to hold it there.

(5) Remove three screws (4) and three wire clips (5) from base subassembly (6).

(6) Cut cable ties which are securing all wires/wire harnesses together.

(7) Remove strain relief bushing (7) from inner shroud (8) and then remove power cord (1) from table.

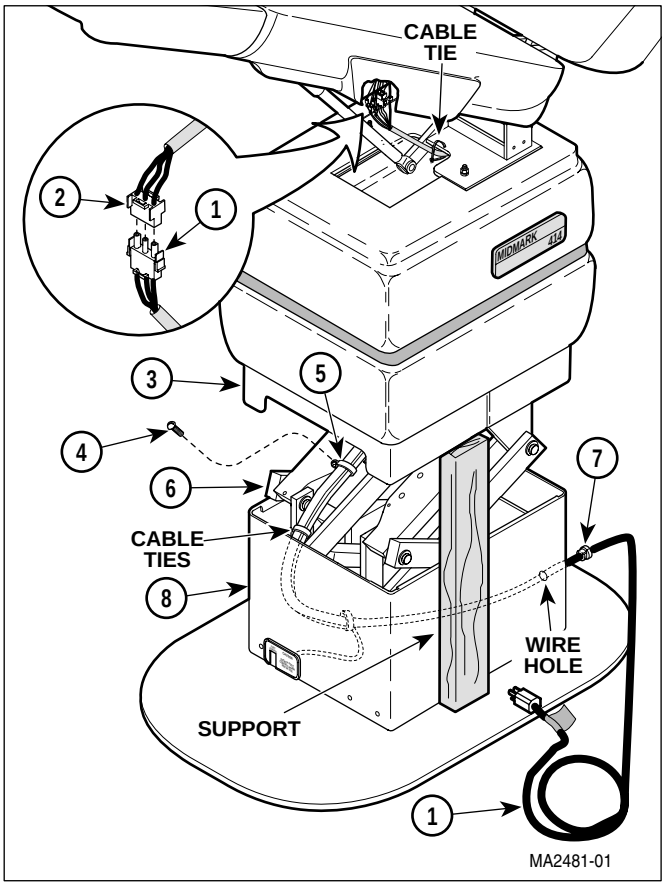

Figure 4-5. Power Cord Removal / Installation

B. Installation

(1) Feed power cord (1) thru wire hole in inner shroud (8).

(2) Connect power cord wire harness (1) to wire harness (2).

(3) Secure wires/wire harness to base subassembly (6) with three wire clips (5) and screws (4).

(4) Secure all wires/wire harnesses together with cable ties.

(5) Install strain relief bushing (7) around power cord (1) and then insert strain relief bushing into wire hole in inner shroud (8).

(6) If table has been without power for more than three days, perform the reinitialization procedure (Refer to para 4.2).

4.6 Control Disable Switch Removal / Installation

A. Removal

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall outlet.

NOTE
Control disable switch can be located on either side of the table. The following procedure shows the switch being removed from the patient's left side of the table.

(2) Remove four screws (1, Figure 4-6) and partially separate control cover (2) from plastic seat section (3).

(3) Disconnect two wires (4) from control disable switch (5).

(4) Press on four tabs of control disable switch (5), while simultaneously pulling control disable switch out of control cover (2).

B. Installation

(1) Push control disable switch (5) into control cover (2) until it "pops" into place, making sure terminals "1" and "2" are pointing toward foot end of table.

(2) Connect two wires (4) to control disable switch (5).

(3) Install control cover (2) on plastic seat section (3) and secure with four screws (1).

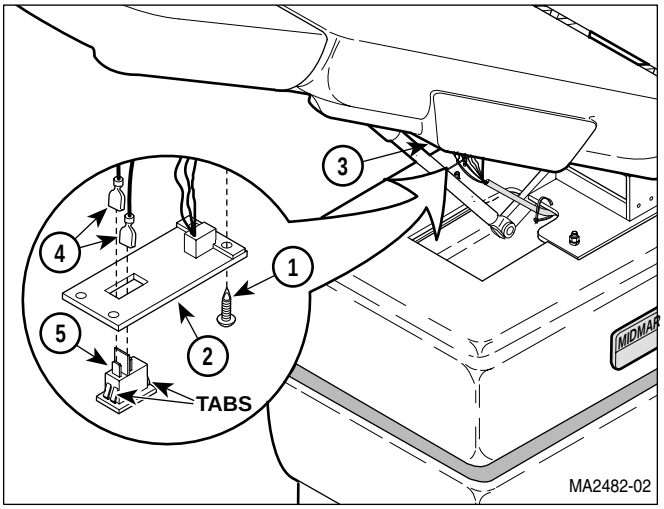

Figure 4-6. Control Disable Switch Removal / Installation

4.7 Hand Control Plug-In Port Removal / Installation

A. Removal

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall outlet.

(2) Remove four screws (1, Figure 4-7) and partially separate control cover (2) from plastic seat section (3).

(3) Remove clip (4) and hand control port (5) from control cover (2).

(4) Remove six screws (6) and partially separate receptacle cover (7) from plastic seat section (3).

(5) Disconnect connector of hand control port (5) from modular coupler (8).

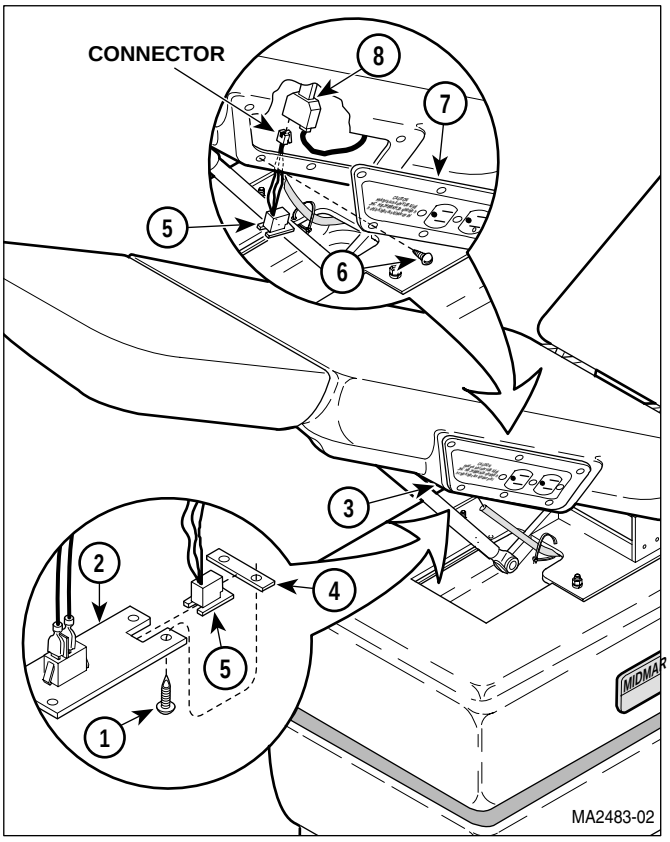

Figure 4-7. Hand Control Plug-In Port Removal / Installation

B. Installation

(1) Connect connector of hand control port (5) to modular coupler (8).

(2) Install receptacle cover (7) on plastic seat section (3) and secure with six screws (6).

(3) Install hand control port (5) on control cover (2) and secure with clip (4).

(4) Install control cover (2) on plastic seat section (3) and secure with four screws (1).

(5) Plug power cord into wall outlet.

4.8 PC Control Board / Program PC Board Removal / Installation

A. Removal

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall outlet.

(2) Remove six screws (1, Figure 4-8) and back cover (2) from plastic back section (3).

(3) Tag and disconnect six wire harnesses (4) from PC control board (5).

NOTE
Units with an old style PC control board have only one cord set (6) to disconnect.

(4) Tag and disconnect three cord sets (6) from PC control board (5).

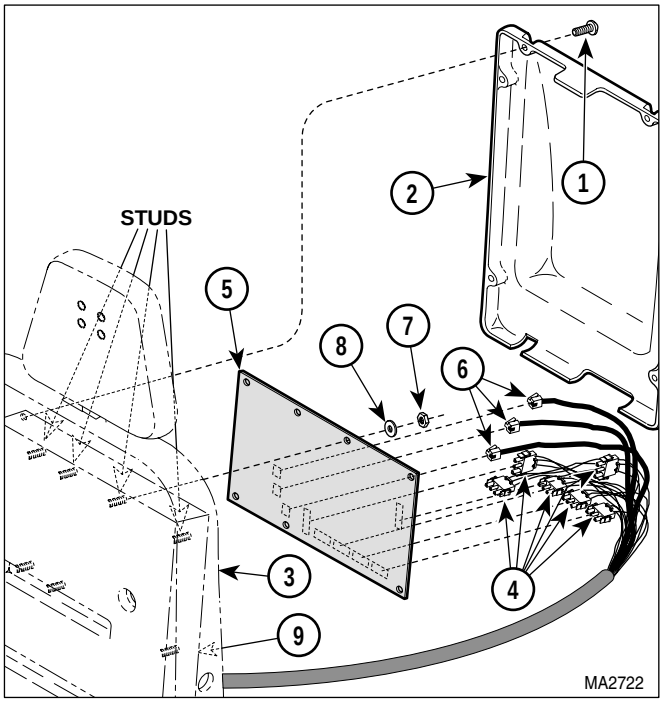

Figure 4-8 PC Control Board / Program PC Board Removal / Installation

(5) Remove seven nuts (7) and lockwashers (8) from studs of back weldment (9).

NOTE
The new style PC control board is a single board which contains both the PC control board and the PC program board. Step 7 does not apply to units with the new style board.

(6) Remove PC control board (5) and PC program board as an assembly from studs of back weldment (9).

(7) If old style board, disconnect PC program board (from right edge) from PC control board (5).

B. Installation

NOTE
The new style PC control board is a single board which contains both the PC control board and the PC program board. Step 1 does not apply to units with the new style board.

(1) If old style board, connect PC program board (to right edge) to PC control board (5).

(2) Install PC control board (5) on studs of back weldment (9) and secure with seven lockwashers (8) and nuts (7).

NOTE
Units with an old style PC control board have only one cord set to connect.

(3) Connect three cord sets (6) to PC control board (5).

(4) Connect six wire harnesses (4) to PC control board (5).

(5) Install back cover (2) on plastic back section (3) and secure with six screws (1).

(6) Plug power cord into wall outlet.

(7) Perform the reinitialization procedure (Refer to para 4.2).

4.9 Foot Control Plug-In Port Removal / Installation

A. Removal

(1) Raise outer shroud (1, Figure 4-9) and prop it up with a support.

(2) Disconnect connector of foot control port (2) from modular coupler (3).

NOTE
To remove cover plate, slide upward until clear of foot control port and then pull outward.

The cover plate is held on by a double sided tape.

(3) Carefully pry cover plate (4) off of inner shroud (5).

(4) Remove foot control port (2) from inner shroud (5), by pulling foot control port upward and then toward inside of inner shroud.

B. Installation

(1) Install foot control port (2) on inner shroud (5) by engaging slot of foot control port with inner shroud.

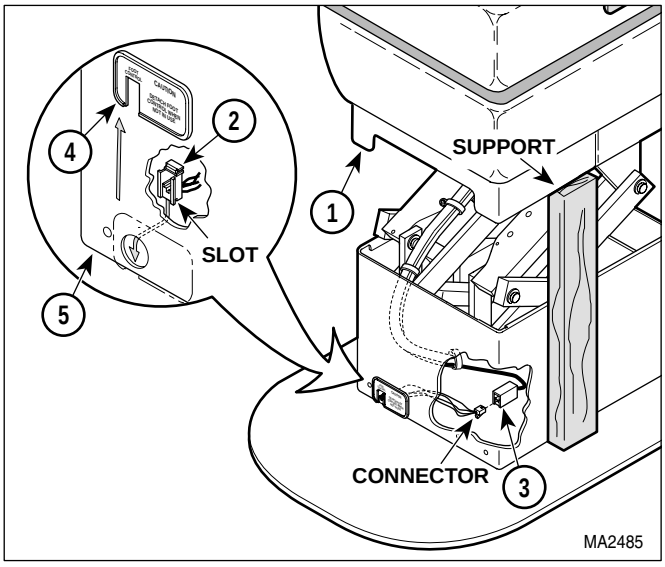

Figure 4-9. Foot Control Plug-In Port Removal / Installation

NOTE
If cover plate does not stick (adhere) properly, add some double sided tape to back side of cover plate.

(2) Install cover plate (4) on inner shroud (5) by sliding cover plate downward into place.

(3) Connect connector of foot control port (2) to modular connector (3).

(4) Remove support and lower outer shroud (1).

4.10 Base Down Limit Switch Removal / Installation

NOTE
Units with Serial Numbers BM-1000 thru BM-1050 do not have a base down limit switch.

A. Removal

(1) Remove table top (Refer to para 4.3).

(2) Remove shrouds; only steps 2 and 3 need to be performed (Refer to para 4.4A).

(3) Disconnect two wires (1, Figure 4-10) from base down limit switch (2).

(4) Using a pencil, trace the outline of the switch mount (3).

(5) Remove two screws (4), lockwashers (5), and switch mount (3) from base subassembly (6).

(6) Remove two nuts (7), lockwashers (8), screws (9), and base down limit switch (2) from switch mount (3).

B. Installation

(1) Install base down limit switch (2) on switch mount (3) and secure with two screws (9), lockwashers (8), and nuts (7).

NOTE
Because of the shrouds, the base down limit switch cannot be adjusted when the base actuator is connnected to power - it is not accessible. Aligning the switch mount with pencil marks ensures that the base down limit switch will be in proper position.

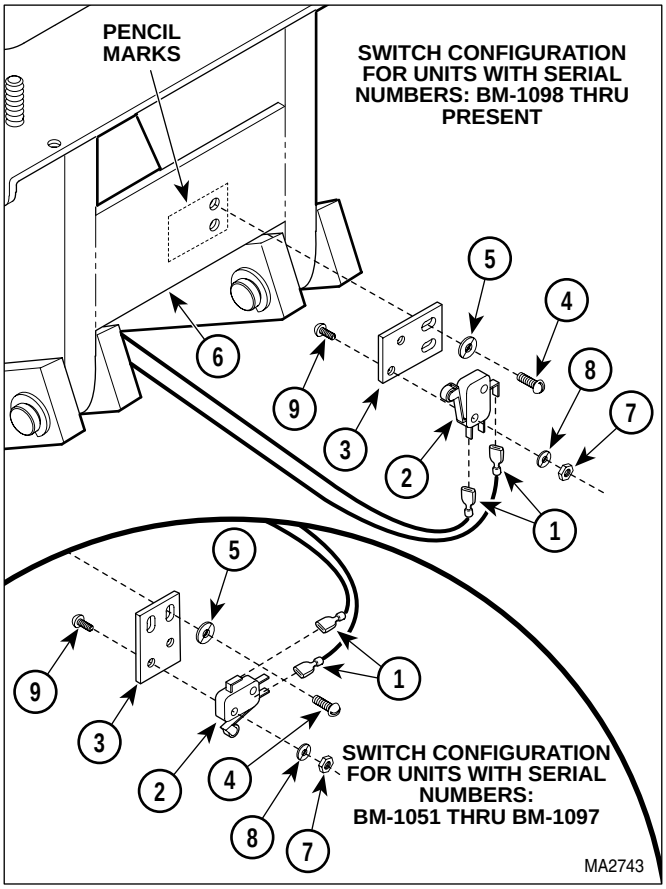

Figure 4-10. Base Down Limit Switch Removal / Installation

(2) Position switch mount (3) on base subassembly (6) and align it with pencil marks; then secure switch mount in position with two lockwashers (5) and screws (4).

(3) Connect two wires (1) to base down limit switch (2).

(4) Install shrouds; only steps 4 thru 6 need to be performed (Refer to para 4.4B).

(5) Install table top (Refer to para 4.3).

4.11 Actuator Motor / Actuator Brake Removal / Installation (Applies To All Four Actuator Assemblies)

A. Removal

(1) Remove malfunctioning actuator assembly: Base actuator assembly (Refer to para 4.12).

Tilt actuator assembly (Refer to para 4.15).
Back actuator assembly (Refer to para 4.17).
Foot actuator assembly (Refer to para 4.19).

(2) Remove two nuts (1, Figure 4-11) and actuator motor (2) from actuator mechanism (3).

(3) Remove two shoulder washers (4) from actuator mechanism (3).

(4) Remove spacer (5) and motor coupler (6) from shaft of actuator motor (2).

NOTE
A needle nose pliers should be used to extract the actuator brake from the actuator mechanism. Grasp the raised round plate of the actuator brake with the pliers and pull.

(5) Remove actuator brake (7) and rubber damper (8) from shaft of actuator mechanism (3).

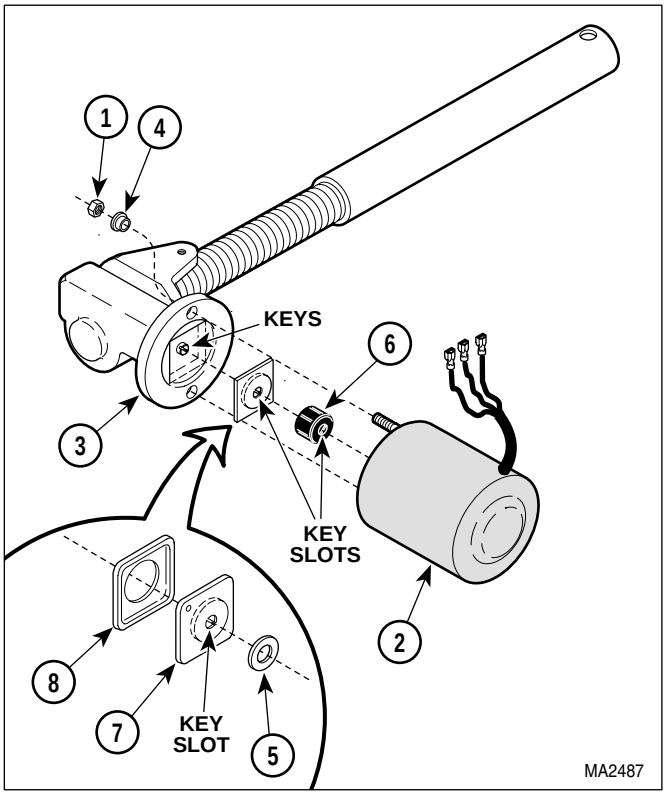

Figure 4-11. Actuator Motor / Actuator Brake Removal / Installation

B. Installation

NOTE
The rubber damper must be installed so its flat side faces the inside of the actuator mechanism. The actuator brake must be installed so its flattest side faces outward. The shaft of the actuator mechanism may be turned with a screwdriver to help align the keys of the actuator mechanism shaft with the key slots in actuator brake.

(1) Install rubber damper (8), actuator brake (7), and spacer (5) in actuator mechanism (3).

(2) Install motor coupler (6) on shaft of actuator motor (2).

(3) Install two shoulder washers (4) in actuator mechanism (3).

(4) Align keys of actuator mechanism (3) shaft with key slots of motor coupler (6) and then install actuator motor (2) on actuator mechanism (3) and secure with two nuts (1).

(5) Install actuator assembly:
Base actuator assembly (Refer to para 4.12).
Tilt actuator assembly (Refer to para 4.15).
Back actuator assembly (Refer to para 4.17).
Foot actuator assembly (Refer to para 4.19).

(6) Check actuator assembly for proper operation. The actuator assembly should run normally and should not make a grinding noise; this indicates that key slots of motor coupler were not aligned properly with keys of actuator mechanism (the grinding noise also indicates that the motor coupler is being damaged). The actuator assembly should brake properly.

4.12 Base Actuator Assembly Removal / Installation

A. Removal

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

(2) Lift & support middle shrouds (1, Figure 4-12).

NOTE
Models w/serial numbers prior to BM1777 do not have Base Up limit switch.

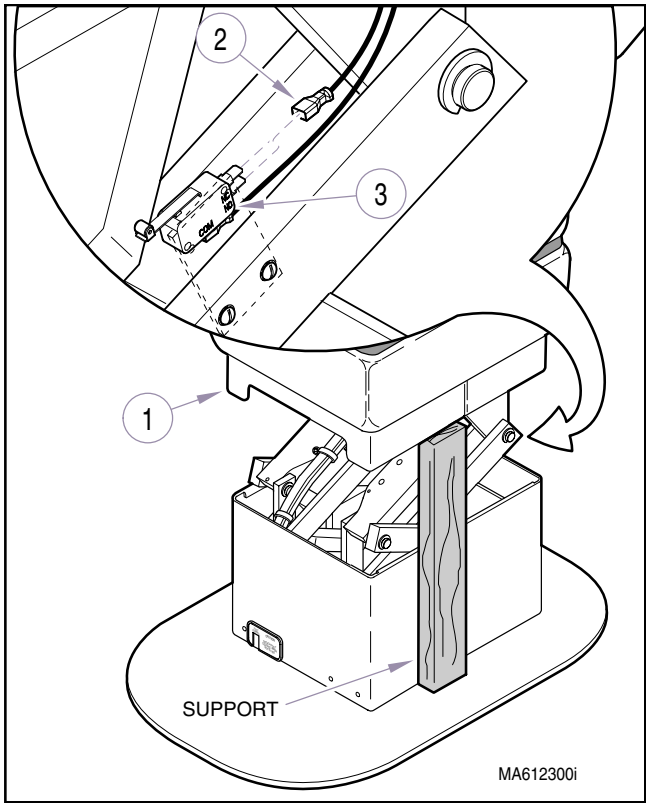

Figure 4-12. Base Up Limit Switch

(3) Move wire (2) from **N.C.** terminal of base up limit switch (3) to **N.O.** terminal as shown.

(4) Depress Base Up foot pedal. *[Table should raise slightly, then stop].*

(5) Remove table top (Refer to para 4.3).

(6) Remove shrouds (Refer to para 4.4).

(7) Remove two e-rings (1, Figure 4-13) from clevis pin (2).

DANGER

Gas spring(s) will cause the base subassembly to extend fully once the clevis pin is removed. Failure to keep base subassembly under control could result in injury to technician.

(8) Have an assistant apply downward pressure on base subassembly (3) while driving out clevis pin (2). Allow base subassembly to extend fully.

(9) Support base subassembly (3) by inserting a safety support (large punch or screwdriver) thru both support holes.

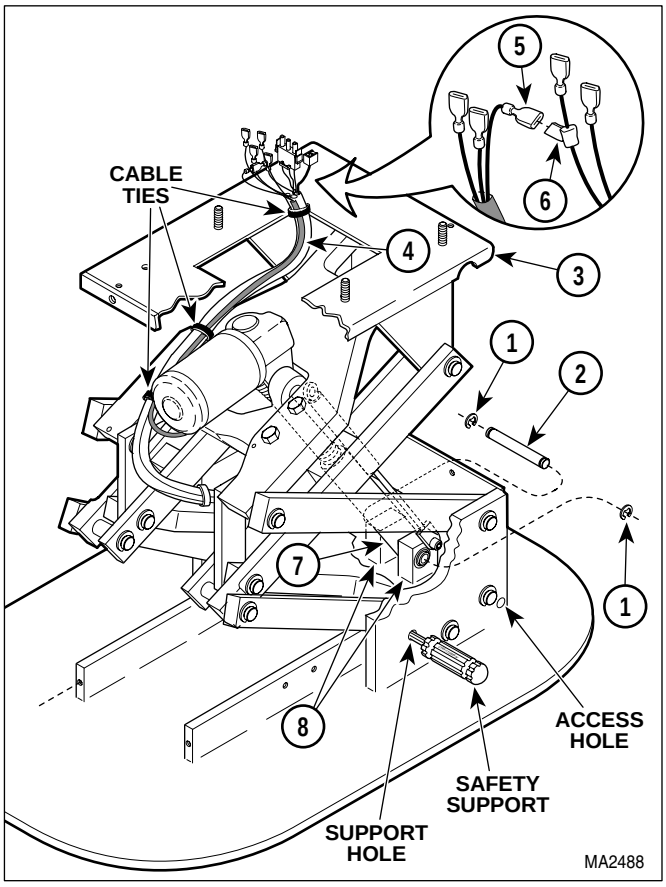

Figure 4-13. Base Actuator Assembly Disconnection / Connection

(10) Cut cable ties which secure the base actuator wire harness (4) to other wire harnesses.

(11) Tag and disconnect wire (5) from wire tap (6), if unit has base down limit switch.

DANGER

Make sure base subassembly is supported as instructed in step 6. Failure to do so will allow base subassembly to collapse which could result in loss of limbs, serious personal injury, or death.

NOTE

Units with Serial Numbers BM-1000 thru BM-1050 will only have one gas spring; later units have two.

(12) Remove two shoulder screws (1, Figure 4-14), four washers (2), and gas spring (3) from brackets (4 and 5). If applicable, repeat step for remaining gas spring.

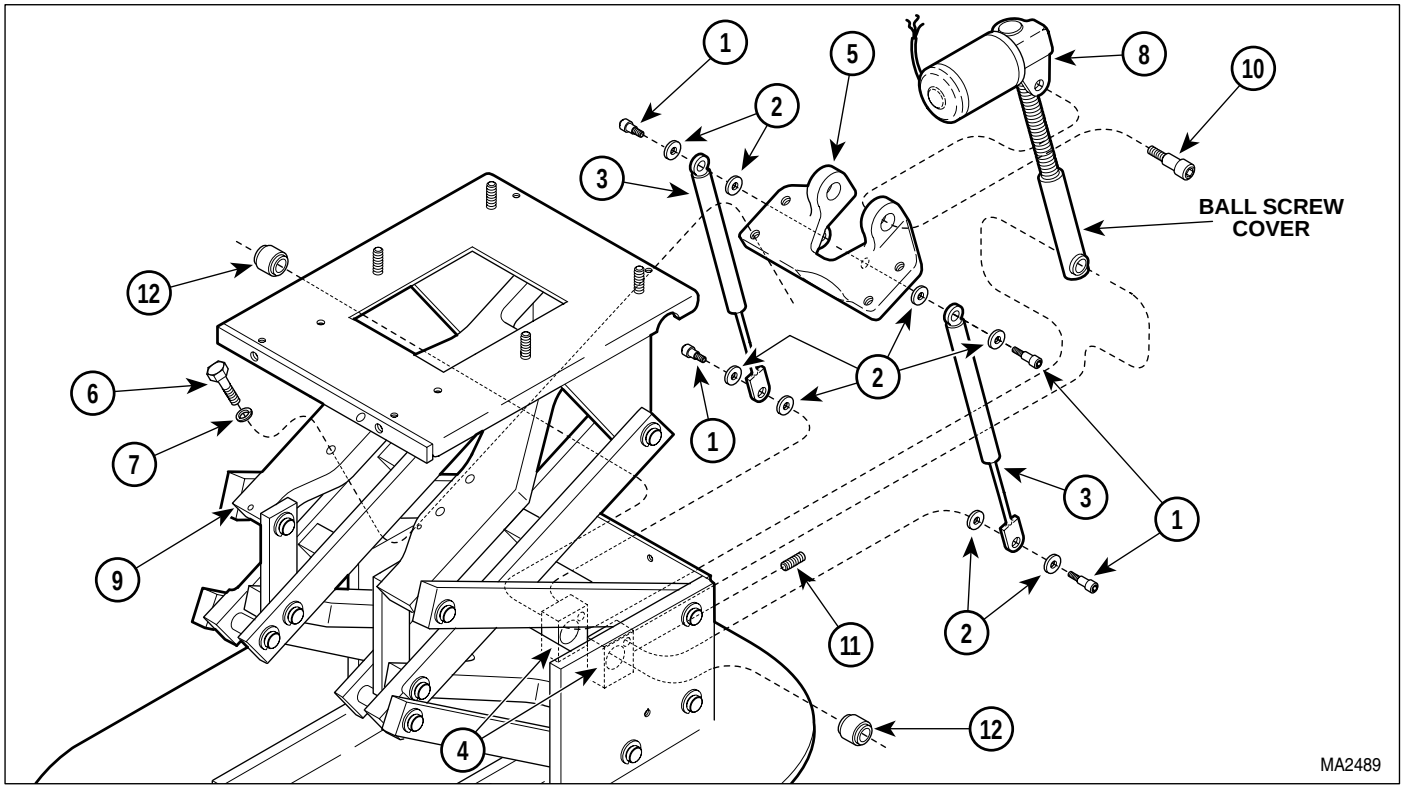

Figure 4-14. Base Actuator Assembly Removal / Installation

NOTE
The ball screw cover may need to be rotated to shorten the actuator length and allow it to be removed.

(13) Remove four screws (6), lockwashers (7), and base actuator assembly (8) from base subassembly (9).

(14) Remove two shoulder screws (10) and actuator bracket (5) from base actuator assembly (8).

(15) If necessary, loosen two setscrews (11) and remove two bearings (12) from brackets (4).

B. Installation

(1) If removed, install one bearing (12, Figure 4-14) in each bracket (4) and secure with a setscrew (11).

(2) Coat threads of two shoulder screws (10) with removable threadlocking adhesive (Loctite 242).

(3) Install actuator bracket (5) on base actuator assembly (8) and secure with two shoulder screws (10).

(4) Install base actuator assembly (8) on base subassembly (9) and secure with lockwashers (7) and four screws (6). Tighten four screws to 23 - 28 ft-lbs (31.2 - 38 N•m).

(5) Coat four shoulder screws (1) and eight washers (2) with grease.

NOTE
The base subassembly may need to be raised (extended) slightly in order to align gas spring with brackets.

Units with Serial Numbers BM-1000 thru BM-1050 will only have one gas spring; later units have two.

(6) Install gas spring (3) on brackets (4 and 5) and secure with four washers (2) and two shoulder screws (1). If applicable, repeat step for remaining gas spring.

(7) Remove safety supports from support holes. See Figure 4-13.

NOTE
The ball screw cover may be rotated to lengthen the actuator length and make installation easier.

Insert a punch thru access hole to assist in installing clevis pin.

(8) Push base subassembly (3, Figure 4-13) downward until base actuator assembly (7) is aligned with brackets (8); then secure base actuator assembly in position with clevis pin (2) and two e-rings (1).

(9) Connect wire (5) to wire tap (6), if unit has base down limit switch.

(10) Secure base actuator wire harness (4) to other wire harnesses with cable ties.

(11) Move wire (2, Figure 4-12) from **N.O.** terminal of base wup limit switch (3) to **N.C.** terminal.

(12) Install shrouds (Refer to para 4.4).

(13) Install table top (Refer to para 4.3).

(14) Plug power cord into wall outlet.

NOTE
The following step is necessary. Otherwise, the PC control board's home position will not match the mechanical home position of the base actuator assembly.

(15) Run the AUTO RETURN function.

4.13 Gas Spring Removal / Installation

A. Removal

(1) Raise TABLE UP function all the way up

(2) Remove table top (Refer to para 4.3).

(3) Remove shrouds (Refer to para 4.4).

DANGER
Make sure base subassembly of table top is completely extended to remove tension from gas springs. Failure to do so could allow gas springs to "fly", which could result in serious personal injury.

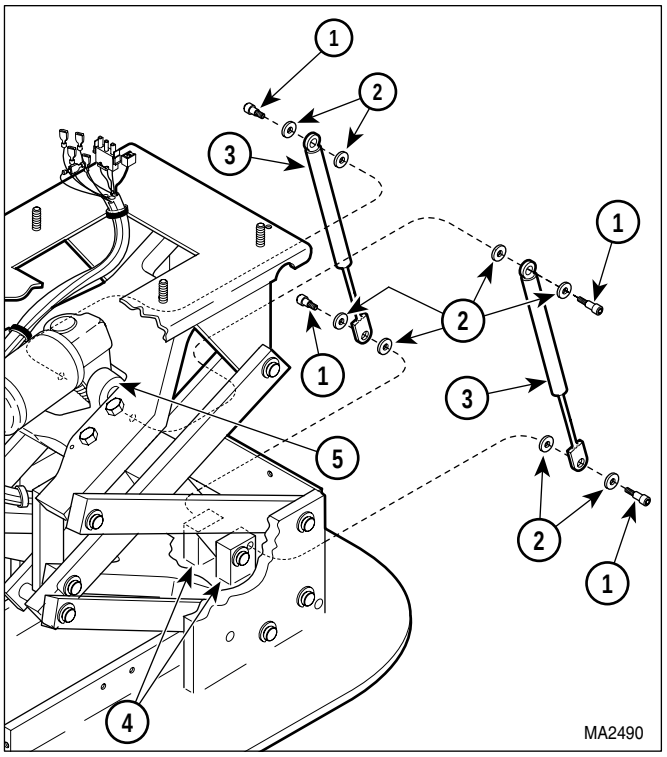

Figure 4-15. Gas Spring Removal / Installation

NOTE
Units with Serial Numbers BM-1000 thru BM-1050 will only have one gas spring; later units have two.

(4) Remove two shoulder screws (1, Figure 4-15), four washers (2), and gas spring (3) from brackets (4 and 5). If removing both gas springs, repeat step for remaining gas spring.

B. Installation

(1) Coat shoulder screws (1) and washers (2) with grease.

NOTE
The base subassembly may need to be raised (extended) slightly, by hand, in order to align gas spring with brackets.

Units with Serial Numbers BM-1000 thru BM-1050 will only have one gas spring; later units have two.

(2) Install gas spring (3) on brackets (4 and 5) and secure with four washers (2) and two shoulder screws (1). If both gas springs were removed, repeat step for remaining gas spring.

(3) Install shrouds and table top.

4.14 Base Capacitor Removal / Installation

A. Removal

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

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall outlet.

(3) Remove six screws (1, Figure 4-16) and back cover (2) from back plastic section (3).

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

(4) Discharge base capacitor (4).

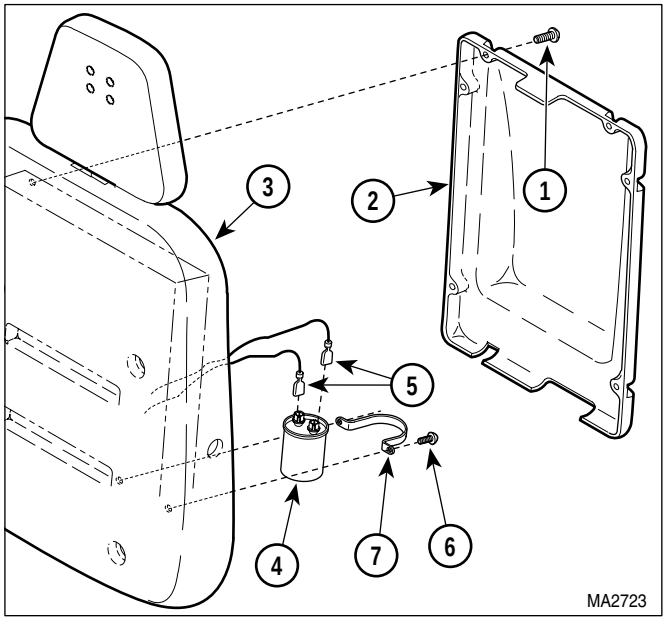

Figure 4-16. Base Capacitor Removal / Installation

(5) Disconnect two wires (5) from terminals of base capacitor (4).

(6) Remove two screws (6), capacitor clamp (7), and base capacitor (4) from back weldment (8).

B. Installation

(1) Install base capacitor (4) on back weldment (8) and secure with capacitor clamp (7) and two screws (6).

(2) Connect one wire (5) to each terminal group of base capacitor (4).

(3) Install back cover (2) on plastic back section (3) and secure with four screws (1).

(4) Plug power cord into wall receptacle.

4.15 Tilt Actuator Assembly Removal / Installation

A. Removal

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

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall outlet.

(3) Cut cable tie securing limit switch wire harness (1, Figure 4-17) to tilt actuator assembly (2).

(4) Cut cable tie securing three wires (3) to motor of back actuator assembly (4).

(5) Tag and disconnect three tilt actuator wires (5) from three wires (3).

NOTE
Clevis pin can only be removed in one direction as shown in illustration.

(6) While supporting foot end of table top, remove two e-rings (6), clevis pin (7), and motor end of tilt actuator assembly (2) from seat weldment bracket (8).

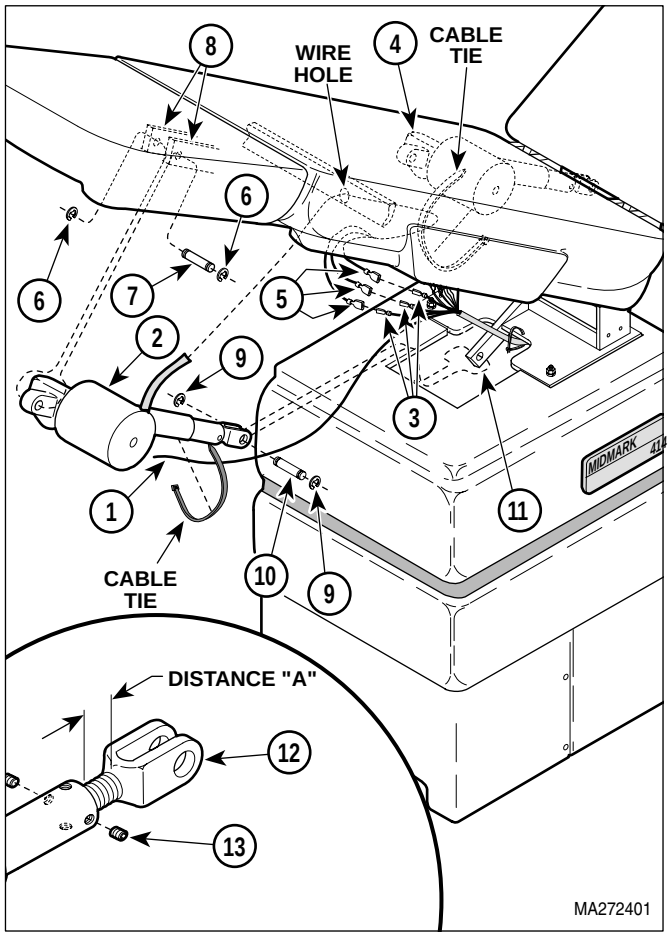

Figure 4-17. Tilt Actuator Assembly Removal / Installation

(7) While supporting foot end of table top, remove two e-rings (9), clevis pin (10), and tilt actuator assembly (2) from bracket (11).

(8) If tilt actuator assembly (2) is being replaced, measure and record Distance "A" on old actuator.

B. Installation

(1) Screw or unscrew clevis (12) on new tilt actuator assembly (2) until Distance A is set.

(2) Secure clevis (12) in position by tightening two setscrews (13).

(3) While supporting foot end of table top, install tilt actuator assembly (2) on bracket (11) and secure with clevis pin (10) and two e-rings (9).

(4) While supporting foot end of table top, install motor end of tilt actuator assembly (2) on seat weldment bracket (8) and secure with clevis pin (7) and two e-rings (6), making sure three wires (5) are fed thru wire hole.

(5) Connect three tilt actuator wires (5) to three wires (3).

(6) Secure three wires (3) to back actuator assembly (4) with cable ties.

(7) Secure limit switch wire harness (1) to tilt actuator assembly (2) with cable tie.

(8) Plug power cord into wall outlet.

NOTE
The following step is necessary. Otherwise, the PC control board's home position will not match the mechanical home position of the base actuator assembly.

(9) Run the AUTO RETURN function.

4.16 Tilt Capacitor Removal / Installation

A. Removal

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

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall outlet.

(3) Using a screwdriver, pry tab of mounting bracket (1, Figure 4-18) outward and separate tilt capacitor (2) from mounting bracket.

(4) Remove capacitor cap (3) from tilt capacitor (2).

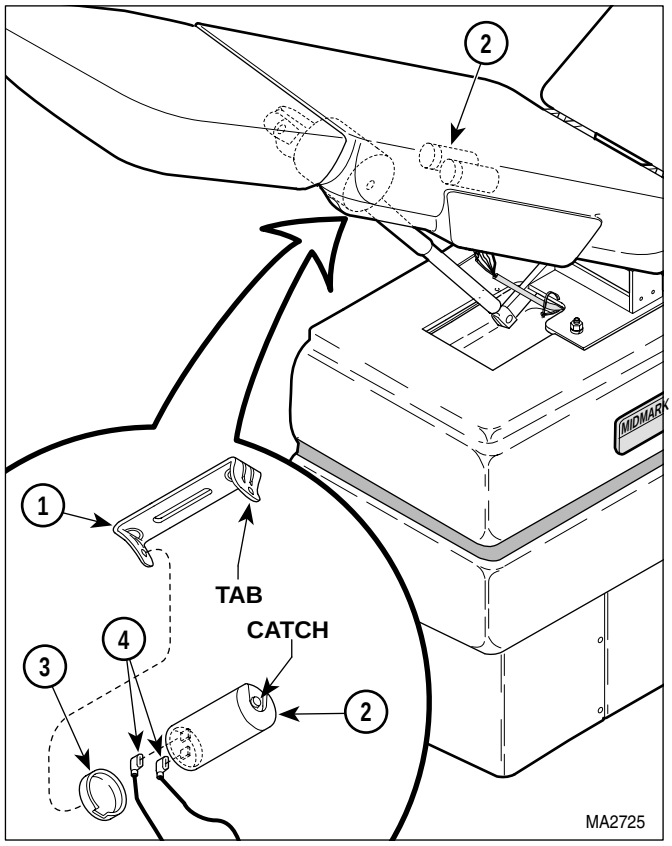

Figure 4-18. Tilt Capacitor Removal / Installation

DANGER

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

(5) Discharge tilt capacitor (2).

(6) Disconnect two wires (4) from terminals of tilt capacitor (2) and remove tilt capacitor.

B. Installation

(1) Connect one wire (4) to each terminal group of tilt capacitor (2).

(2) Install capacitor cap (3) on tilt capacitor (2).

(3) Position the bottom of tilt capacitor (2) on mounting bracket (1) and then push the top of the capacitor inward. Using a screwdriver, force the tab of the mounting bracket (1) down over the catch of the capacitor cap (3). Make sure tilt capacitor (2) is held firmly in place.

(4) Plug power cord into wall outlet.

4.17 Back Actuator Assembly Removal / Installation

A. Removal

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

(2) If possible, raise BACK UP function all the way up.

DANGER

Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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.

(3) Unplug power cord from wall outlet.

(4) Cut three cable ties securing wires to motor of back actuator assembly (1, Figure 4-19).

(5) Tag and disconnect three tilt actuator wires (2) from three wires (3).

DANGER

Support the back section during the next two steps. Failure to support back section could result in injury to technician.

CAUTION

The back section of the table top must be supported during the next two steps. If possible, get an assistant to assist in supporting the back section. Otherwise, use another method to support back section. Failure to do so could result in damage to table.

(6) While supporting back section of table top, remove two e-rings (4), clevis pin (5), and back actuator assembly (1) from seat weldment bracket (6).

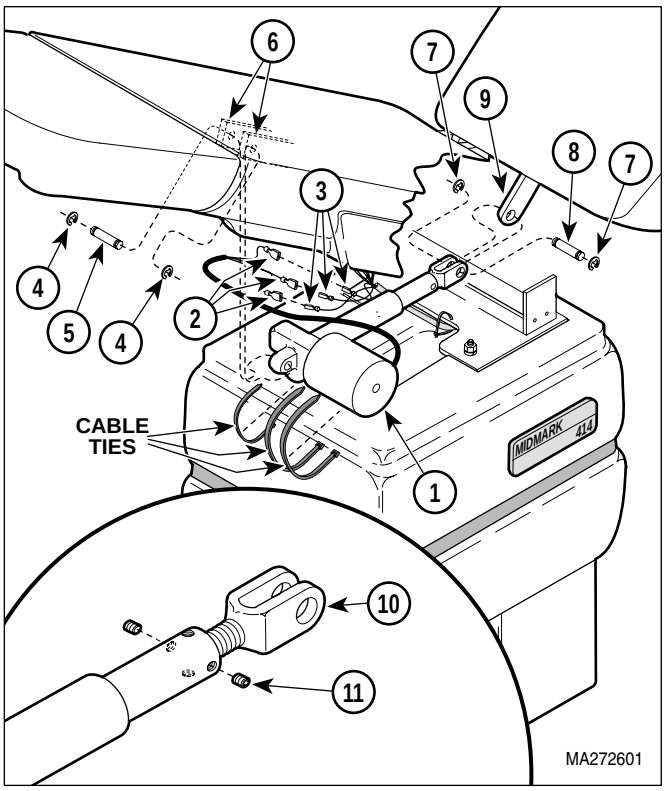

Figure 4-19. Back Actuator Assembly Removal / Installation

NOTE
Clevis pin can only be removed in one direction as shown in illustration.

(7) While supporting back section of table top, remove two e-rings (7), clevis pin (8), and back actuator assembly (1) from back weldment bracket (9).

B. Installation

(1) Screw clevis (10) onto new back actuator assembly (1) as far as possible (until threads run out).

(2) Secure clevis (10) in position by tightening down two setscrews (11).

(3) While supporting back section of table top, install back actuator assembly (1) on back weldment bracket (9) and secure with clevis pin (8) and two e-rings (7).

(4) While supporting back section of table top, install back actuator assembly (1) on seat weldment bracket (6) and secure with clevis pin (5) and two e-rings (4).

(5) Connect three tilt actuator wires (2) to three wires (3).

(6) Secure wires to motor of back actuator assembly (1) with a cable tie.

(7) Plug power cord into wall receptacle.

NOTE
The following step is necessary. Otherwise, the PC control board's home position will not match the mechanical home position of the base actuator assembly.

(8) Run the AUTO RETURN function.

4.18 Back Capacitor Removal / Installation

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

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall outlet.

(3) Using a screwdriver, pry tab of mounting bracket (1, Figure 4-20) outward and separate back capacitor (2) from mounting bracket.

(4) Remove capacitor cap (3) from back capacitor (2).

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

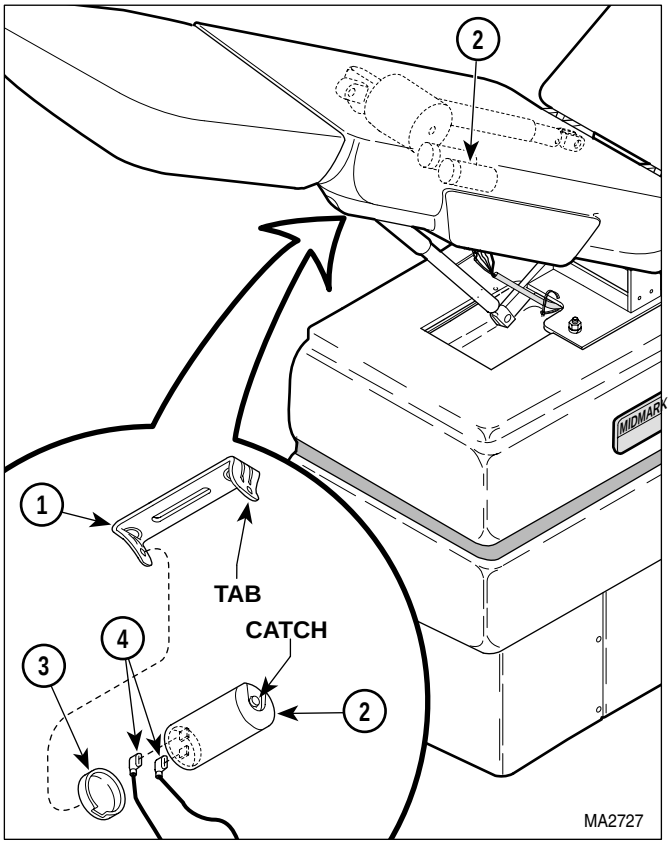

Figure 4-20. Back Capacitor Removal / Installation

(5) Discharge back capacitor (2).

(6) Disconnect two wires (4) from terminals of back capacitor (2) and remove back capacitor.

B. Installation

(1) Connect one wire (4) to each terminal group of back capacitor (2).

(2) Install capacitor cap (3) on back capacitor (2).

(3) Position the bottom of back capacitor (2) on mounting bracket (1) and then push the top of the capacitor inward. Using a screwdriver, force the tab of the mounting bracket (1) down over the catch of the capacitor cap (3). Make sure back capacitor (2) is held firmly in place.

(4) Plug power cord into wall outlet.

4.19 Foot Actuator Removal / Installation

A. Removal

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

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall outlet.

(3) Cut two cable ties securing wires / wire harnesses to motor of foot actuator assembly (1, Figure 4-21).

(4) Tag and disconnect three foot actuator wires (2) from three wires (3).

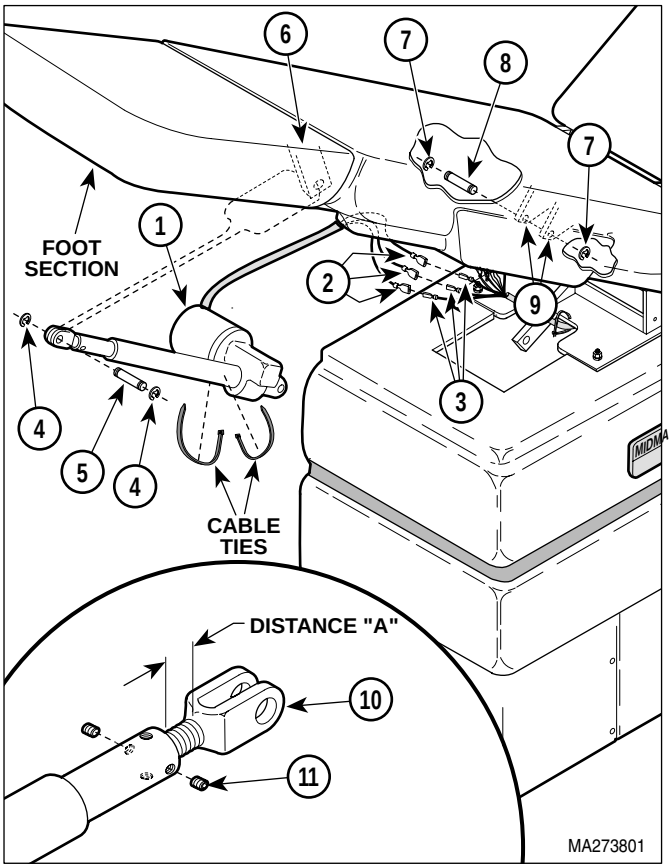

Figure 4-21. Foot Actuator Removal / Installation

(5) While supporting foot section of table top, remove two e-rings (4), clevis pin (5), and foot actuator assembly (1) from foot extension bracket (6).

(6) While supporting foot section of table top, remove two e-rings (7), clevis pin (8), and foot actuator assembly (1) from bracket (9).

(7) If foot actuator is being replaced, measure and record "Distance A" on old actuator.

B. Installation

(1) Screw or unscrew clevis (10) on new foot actuator assembly (1) until "Distance A" is set.

(2) Secure clevis (10) in position by tightening down two setscrews (11).

(3) While supporting foot section of table top, install motor end of foot actuator assembly (1) on bracket (9) and secure with clevis pin (8) and two e-rings (7).

(4) While supporting foot section of table top, install foot actuator assembly (1) on foot extension bracket (6) and secure with clevis pin (5) and two e-rings (4).

(5) Connect three foot actuator wires (2) to three wires (3).

(6) Secure wires / wire harnesses to foot actuator assembly (1) with two cable ties.

(7) Plug power cord into wall outlet.

NOTE
The following step is necessary. Otherwise, the PC control board's home position will not match the mechanical home position of the base actuator assembly.

(8) Run the AUTO RETURN function.

4.20 Foot Capacitor Removal / Installation

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

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall outlet.

(3) Using a screwdriver, pry tab of mounting bracket (1, Figure 4-22) outward and separate foot capacitor (2) from mounting bracket.

(4) Remove capacitor cap (3) from foot capacitor (2).

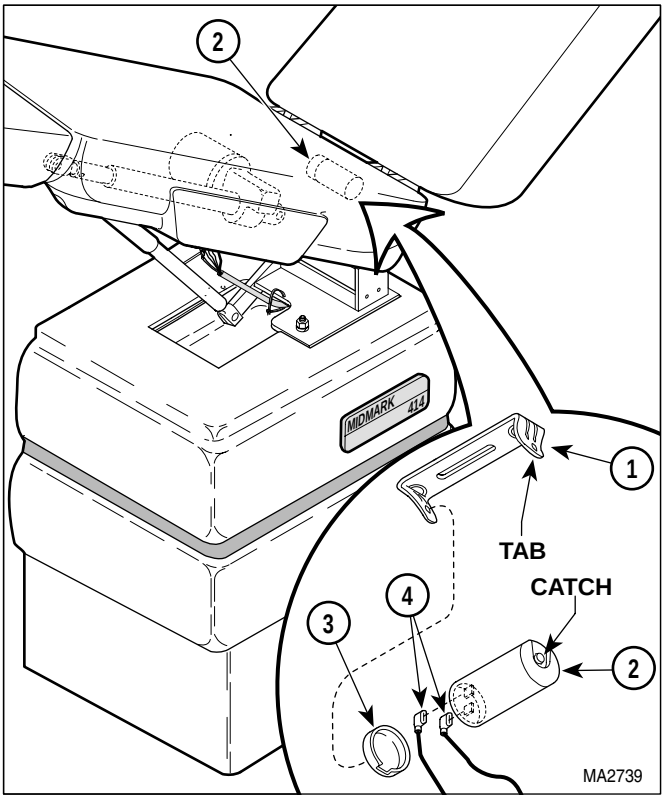

Figure 4-22. Foot Capacitor Removal / Installation

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

(5) Discharge foot capacitor (2).

(6) Disconnect two wires (4) from terminals of foot capacitor (2) and remove foot capacitor.

B. Installation

(1) Connect one wire (4) to each terminal group of foot capacitor (2).

(2) Install capacitor cap (3) on foot capacitor (2).

(3) Position the bottom of foot capacitor (2) on mounting bracket (1) and then push the top of the capacitor inward. Using a screwdriver, force the tab of the mounting bracket (1) down over the catch of the capacitor cap (3). Make sure foot capacitor (2) is held firmly in place.

(4) Plug power cord into wall outlet.

4.21 Foot Extension Limit Switch Removal / Installation

A. Removal

(1) Raise BASE UP, TILT UP, and FOOT UP functions all the way up.

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall outlet.

(3) Tag and disconnect two wires (1, Figure 4-23) from terminals of foot extension limit switch (2).

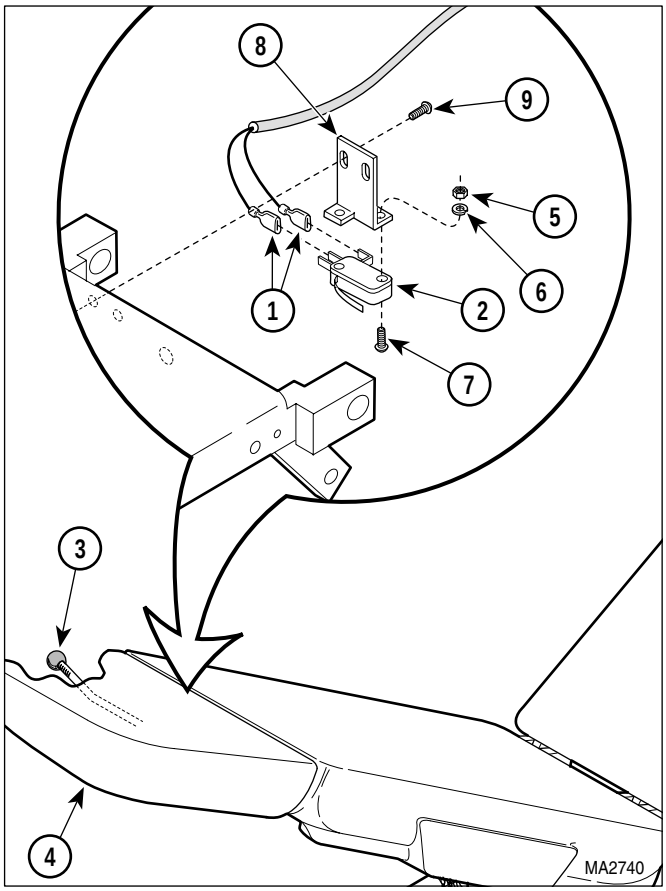

Figure 4-23. Foot Extension Limit Switch Removal / Installation

(4) Depress release knob (3) and extend foot section (4).

(5) Remove two nuts (5), lockwashers (6), screws (7), and foot extension limit switch (2) from switch mount (8).

B. Installation

(1) Install foot extension limit switch (2) on switch mount (8) and secure with two screws (7), lockwashers (6), and nuts (5). Do not tighten nuts at this time.

(2) Connect two wires (1) to terminals of foot extension limit switch (2); one to the COM. terminal and one to the N.O. terminal.

(3) Depress release knob (3) and slide foot section (4) to its fully retracted position.

CAUTION
Make sure foot extension limit switch is tripped by foot extension, however, also make sure limit switch has a slight gap between it and the foot section so that it will not be damaged by contact if the foot section is closed with force.

NOTE
If foot extension limit switch needs adjusted upward or downward, loosen two screws (9), slide switch mount (8) up or down as necessary, and then re-tighten screws.

(4) Slide foot extension limit switch (2) against foot section (4) until limit switch trips; then tighten two nuts (5) to secure foot extension limit switch in position.

(5) Plug power cord into wall receptacle.

4.22 Arm Rest Adjustment

A. Adjustment

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

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall outlet.

(3) Remove six screws (1, Figure 4-24) and back cover (2) from plastic back section (3).

NOTE
Units with Serial Numbers BM-1000 Thru BM-1185 have both locknuts (4 and 5). Units after BM-1185 have only locknut (5).

(4) Loosen locknuts (4 and 5) ***or*** locknut (5).

CAUTION
Make sure BACK UP function is all the way up when performing step 5, or adjustment will not be correct.

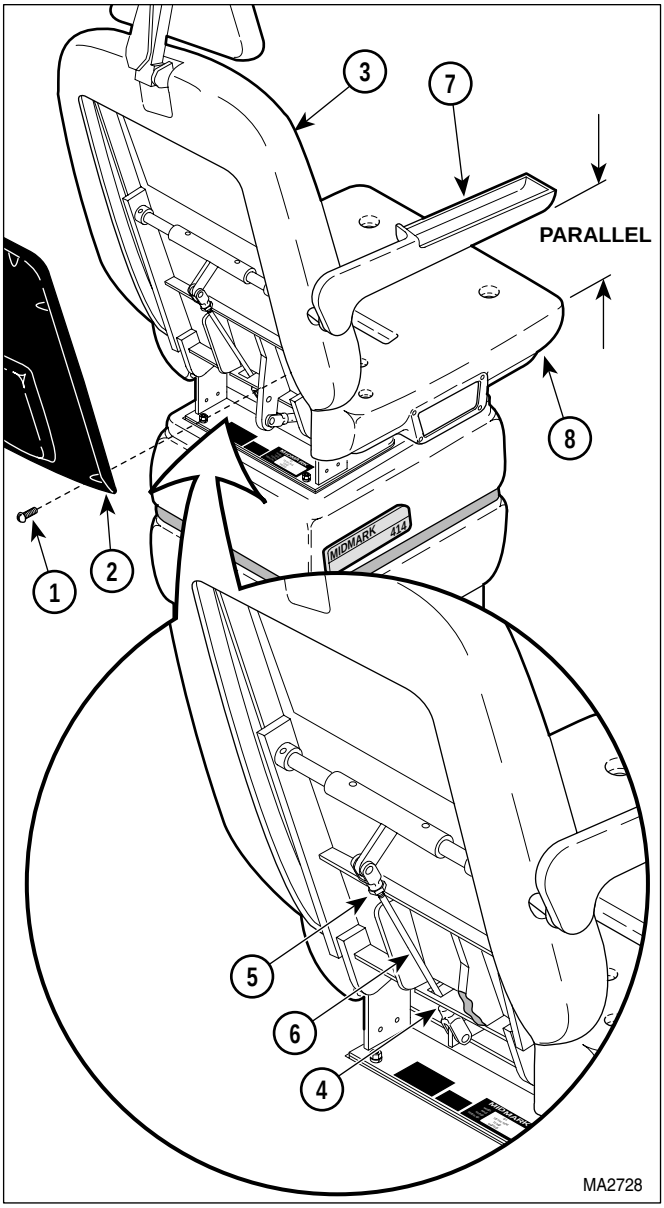

Figure 4-24. Arm Rest Adjustment

(5) Rotate arm rod (6) until flat underside of arm casting (7) is parallel with plastic seat section (8).

NOTE
Units with Serial Numbers BM-1000 Thru BM-1185 have both locknuts (4 and 5). Units after BM-1185 have only locknut (5).

(6) Tighten locknut (5) ***or*** two locknuts (4 and 5).

(7) Install back cover (2) on plastic back section (3) and secure with six screws (1).

4.23 Foot Extension Release Lever Adjustment

A. Adjustment

(1) Loosen jam nut (1, Figure 4-25).

(2) Adjust carriage bolt (2) until there is a 2-3/8 to 2-1/2 in. (6.0 - 6.35 cm) gap between release lever (3) and plastic foot section (4).

(3) Tighten jam nut (1).

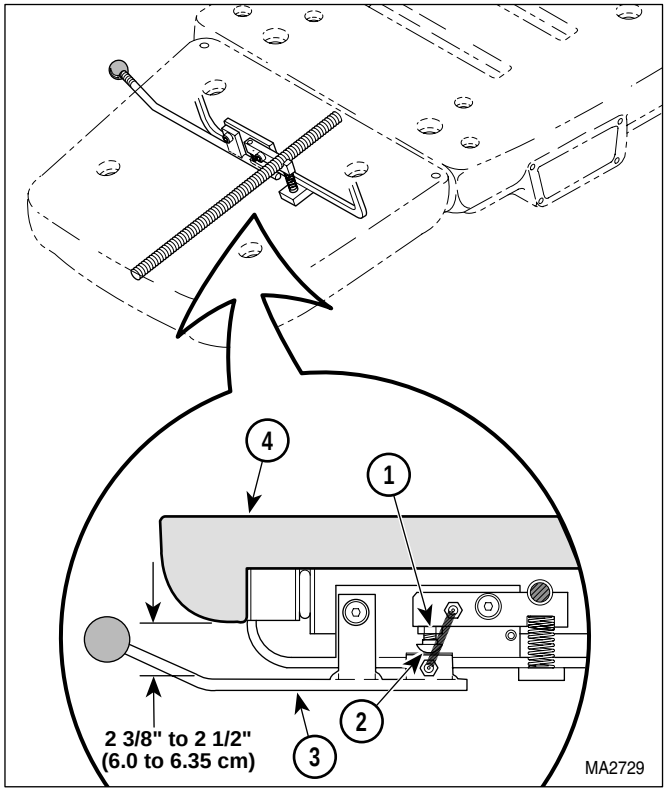

Figure 4-25. Foot Extension Release Lever Adjustment

4.24 Hand Control Panel Or Interface Board Removal / Installation

A. Removal

(1) Disconnect coil cord (1, Figure 4-26) from hand control.

(2) Remove two screws (2) and top end cap (3) from hand control tube (4).

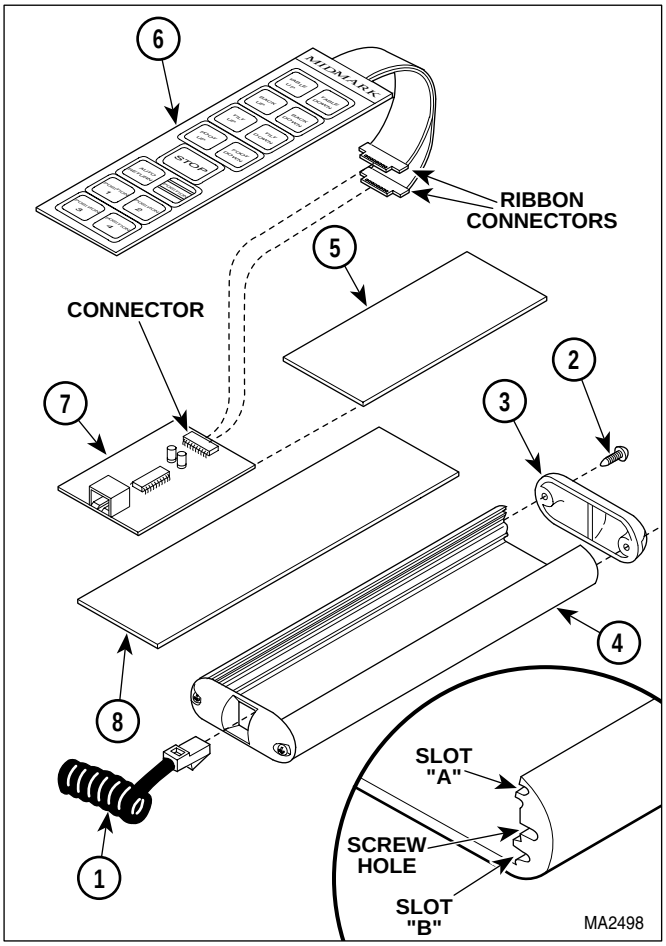

Figure 4-26. Hand Control Panel / Interface Board Removal / Installation

(3) Remove locating plate (5) from hand control tube (4).

CAUTION
Do not pull on ribbon connectors with excessive force or damage to hand control panel or interface board could result.

(4) Remove hand control panel (6) and interface board (7) as an assembly from hand control tube (4).

(5) Disconnect ribbon connectors of hand control panel (6) from connector of interface board (7).

B. Installation

(1) Connect ribbon connectors of hand control panel (6) to connector of interface board (7).

(2) Make sure fishpaper (8) is in the bottom of the hand control tube (4).

(3) Simultaneously, slide hand control panel (6) into Slot A and interface board (7) into Slot B of hand control tube (4).

(4) Install locating plate (5) into Slot B of hand control tube (4).

(5) Install top end cap (3) on hand control tube (4) and secure with two screws (2).

(6) Connect coil cord (1) to hand control.

4.25 Typical Foot Pedal Foot Switch Removal / Installation (New Style Foot Control)

A. Removal

(1) Unplug coil cord of foot control from table.

(2) Remove two screws (1, Figure 4-27) and partially separate foot switch bracket (2) from foot control casting (3).

(3) Remove screw (4), spacer (5), and pedal (6) from foot switch bracket (2).

(4) Tag and disconnect two wires (7) from terminals of foot switch (8).

(5) Remove two nuts (9), washers (10), screws (11), and foot switch (8) from foot switch bracket (2).

B. Installation

(1) Install foot switch (8) on foot switch bracket (2) and secure with two screws (11), washers (10), and nuts (9).

(2) Connect one wire (7) to each terminal of foot switch (8).

(3) Make sure springs and spacers are in position and have not fallen off.

(4) Install pedal (6) on foot switch bracket (2) and secure with spacer (5) and screw (4), making sure pedal is mounted on pivot spacer.

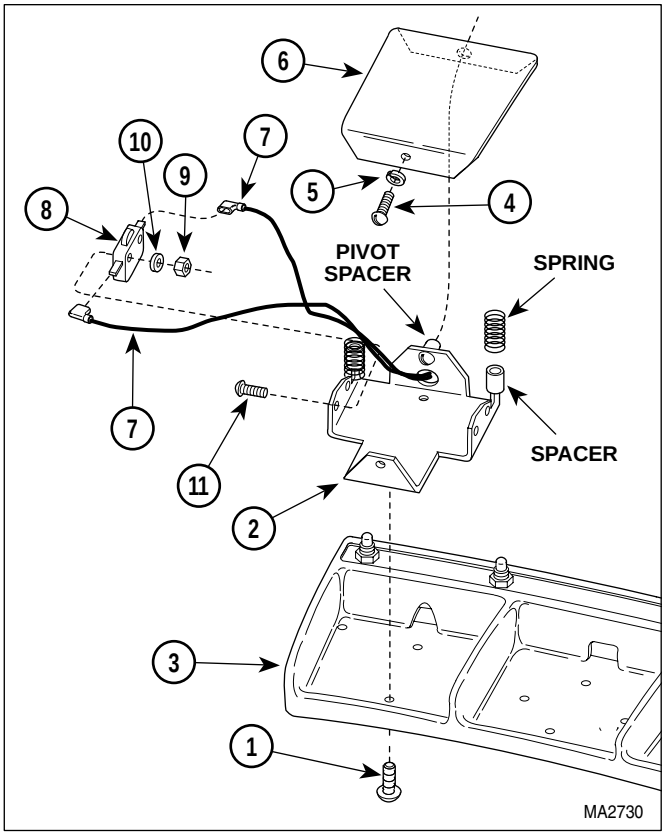

Figure 4-27. Typical Foot Pedal Foot Switch Removal / Installation

(5) Install foot switch bracket (2) on foot control casting (3) and secure with two screws (1).

(6) Connect coil cord of foot control into table.

4.26 Typical Foot Switch Removal / Installation (New Style Foot Control)

A. Removal

(1) Disconnect coil cord of foot control from table.

(2) Remove four screws (1, Figure 4-28), four glides (2), four screws (3), and wire channel cover (4) from foot control casting (5).

(3) Remove nut (6) and lockwasher (7) from foot switch (8).

(4) Partially remove foot switch (8) from foot control casting (5).

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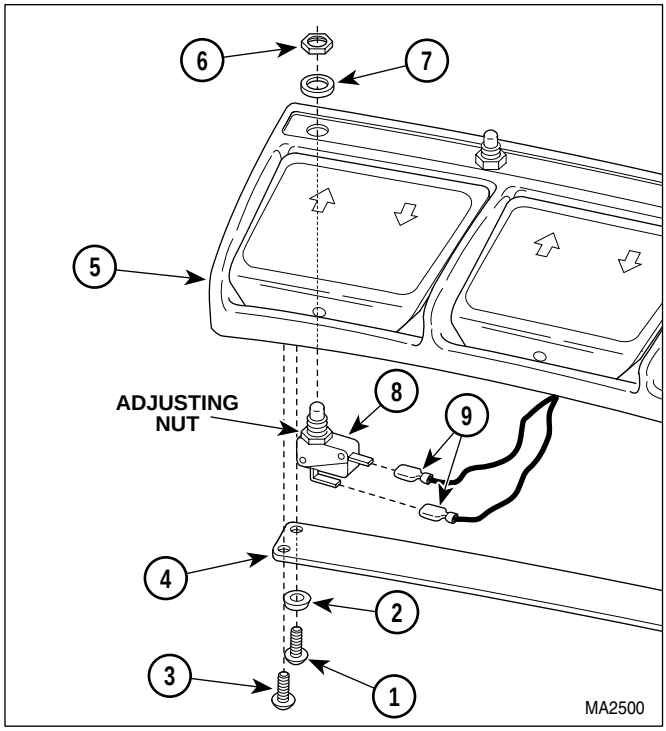

Figure 4-28. Typical Foot Switch Removal / Installation

(5) Disconnect two wires (9) from terminals of foot switch (8) and remove foot switch.

B. Installation

NOTE
One wire must be connected to the N.O. terminal of the foot switch and one wire must be connected to the COM. terminal of the foot switch.

(1) Connect two wires (9) to terminals of foot switch (8).

NOTE
Raise or lower adjusting nut so foot switch protrudes out top end of foot control casting just far enough so lockwasher and nut can be installed.

(2) Insert foot switch (8) into foot control casting (5) and secure with lockwasher (7) and nut (6).

(3) Install wire channel cover (4) on foot control casting (5) and secure with four screws (3), four glides (2), and four screws (1).

(4) Connect coil cord of foot control to table.

4.27 Foot Control Interface Board Removal / Installation (New Style Foot Control)

A. Removal

(1) Disconnect coil cord from foot control.

(2) Remove four screws (1, Figure 4-29), four glides (2), three screws (3), and wire channel cover (4) from foot control casting (5).

(3) Remove two screws (6) and partially separate receptacle bracket (7) from foot control cast- ing (5).

(4) Remove spring retaining clip (8) and recep-tacle (9) from receptacle bracket (7).

(5) Remove two screws (1, Figure 4-29) and partially separate foot switch bracket (2) from foot control casting (3).

(6) Remove screw (4), spacer (5), and pedal (6) from foot switch bracket (2).

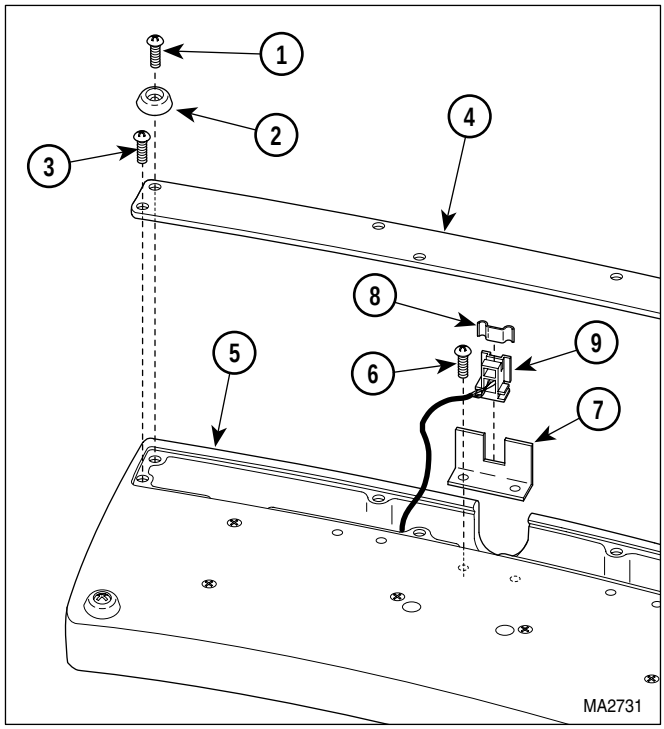

Figure 4-29. Interface Board Disconnection / Connection

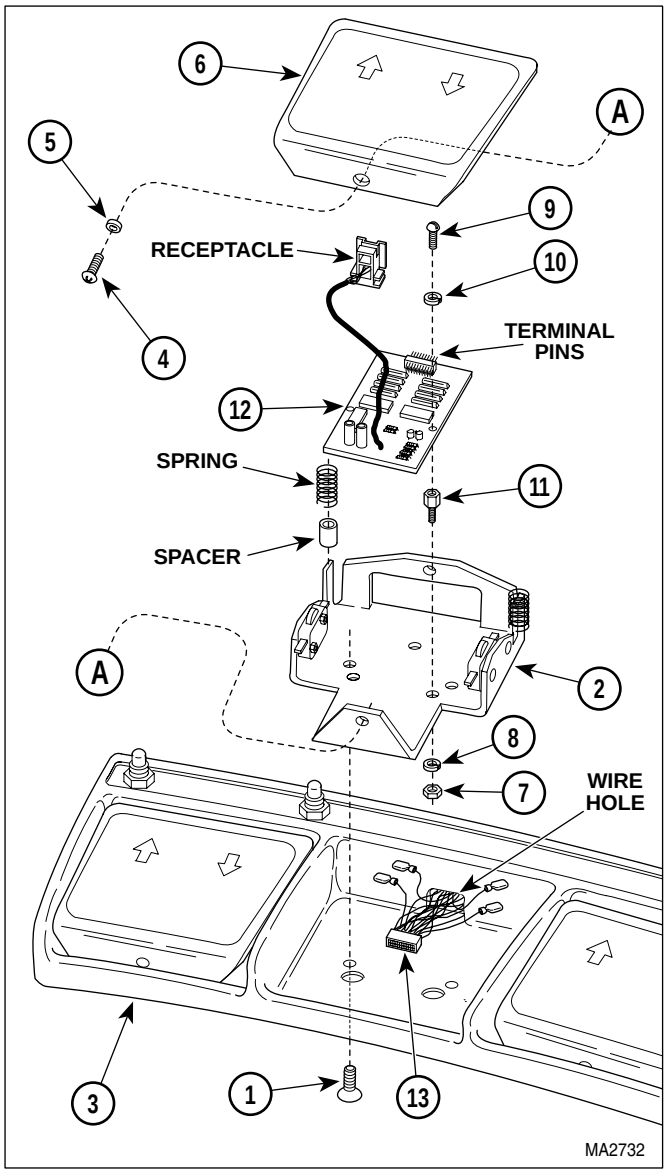

Figure 4-30. Foot Control Interface Board Removal / Installation

(7) Remove two nuts (7), lockwashers (8), screws (9), lockwashers (10), standoffs (11), and interface board (12) from foot switch bracket (2).

(8) Disconnect connector (13) from terminal pins of interface board (12).

B. Installation

NOTE
Components on interface board must be facing upward.

(1) Connect connector (13, Figure 4-30) to terminal pins of interface board (12).

(2) Feed receptacle of interface board (12) thru wire hole.

(3) Install interface board (12) on foot switch bracket (2) and secure with two standoffs (11), lockwashers (10), screws (9), lockwashers (8), and nuts (7).

(4) Make sure springs and spacers are in position and have not fallen off.

(5) Install pedal (6) on foot switch bracket (2) and secure with spacer (5) and screw (4), making sure pedal is mounted on pivot spacer.

(6) Install foot switch bracket (2) on foot control casting (3) and secure with two screws (1).

(7) Install receptacle (9, Figure 4-28) on receptacle bracket (7) and secure by inserting retaining clip (8) in slot of receptacle.

(8) Install receptacle bracket (7) on foot control casting (5) and secure with two screws (6).

(9) Install wire channel cover (4) on foot control casting (5) and secure with three screws (3), four glides (2), and four screws (1).

(10) Connect coil cord of foot control into table.

4.28 Plastic Foot Section Removal / Installation

A. Removal

(1) Remove upholstered foot section (1, Figure 4-31) from plastic foot section (2).

(2) Remove four nuts (3), washers (4), and plastic foot section (2) from foot section weldment (5).

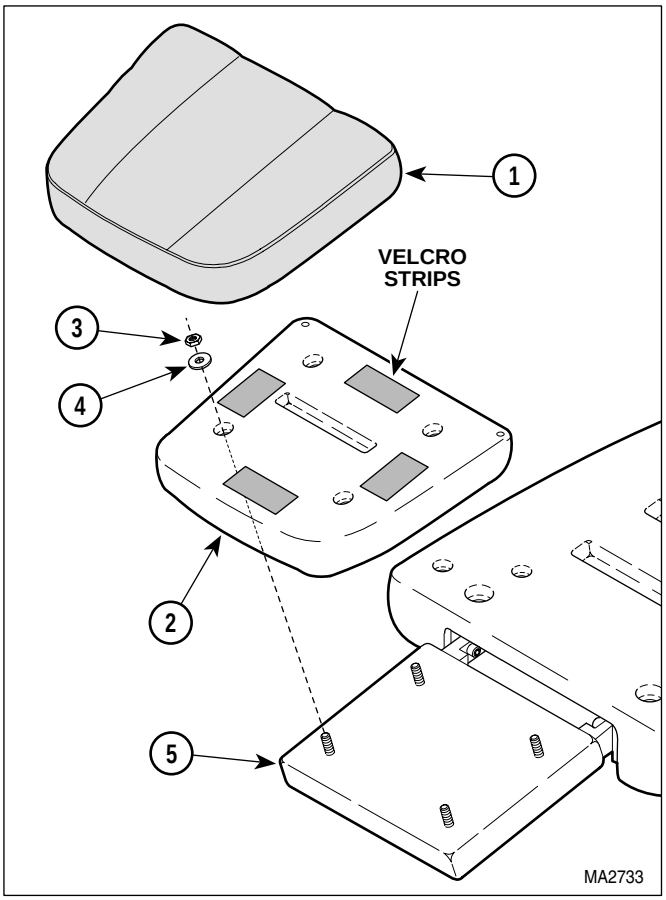

Figure 4-31. Plastic Foot Section Removal / Installation

B. Installation

(1) Install plastic foot section (2) on foot section weldment (5) and secure with four washers (4) and nuts (3). Tighten nuts until firm; then tighten an additional 1/3 turn.

(2) Making sure velcro strips are aligned, install upholstered foot section (1) on plastic foot section (2).

4.29 Plastic Back Section Removal / Installation

A. Removal

(1) Raise TABLE UP and BACK UP functions all the way up and TILT DOWN function all the way down.

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall receptacle.

(3) Remove upholstered back section (1, Figure 4-32) from plastic back section (2).

(4) Remove six screws (3) and back cover (4) from plastic back section (2).

(5) While supporting arm castings (5), remove cotter pin (6), clevis pin (7), and disconnect clevis (8) from arm tube weldment (9). Lower arm castings.

(6) Loosen one setscrew (10) in each arm col- lar (11).

(7) Pull on one of the arm castings (5) until its groove pin (12) can be accessed with a hammer and punch.

(8) Align access hole in arm casting (5) with groove pin (12); then using hammer and punch inserted thru access hole, drive groove pin out.

(9) Remove arm casting (5) from arm shaft (13).

(10) Repeat steps 7 thru 9 to remove remaining arm casting (5).

CAUTION
May need to disconnect some electrical connectors from PC control board to prevent damaging wires or the PC control board.

(11) Using a hammer and punch, drive two groove pins (14) out of arm tube weldment (9).

(12) Matchmark one end of arm tube weldment (9) and arm shaft (13) with back weldment so they can be reinstalled correctly.

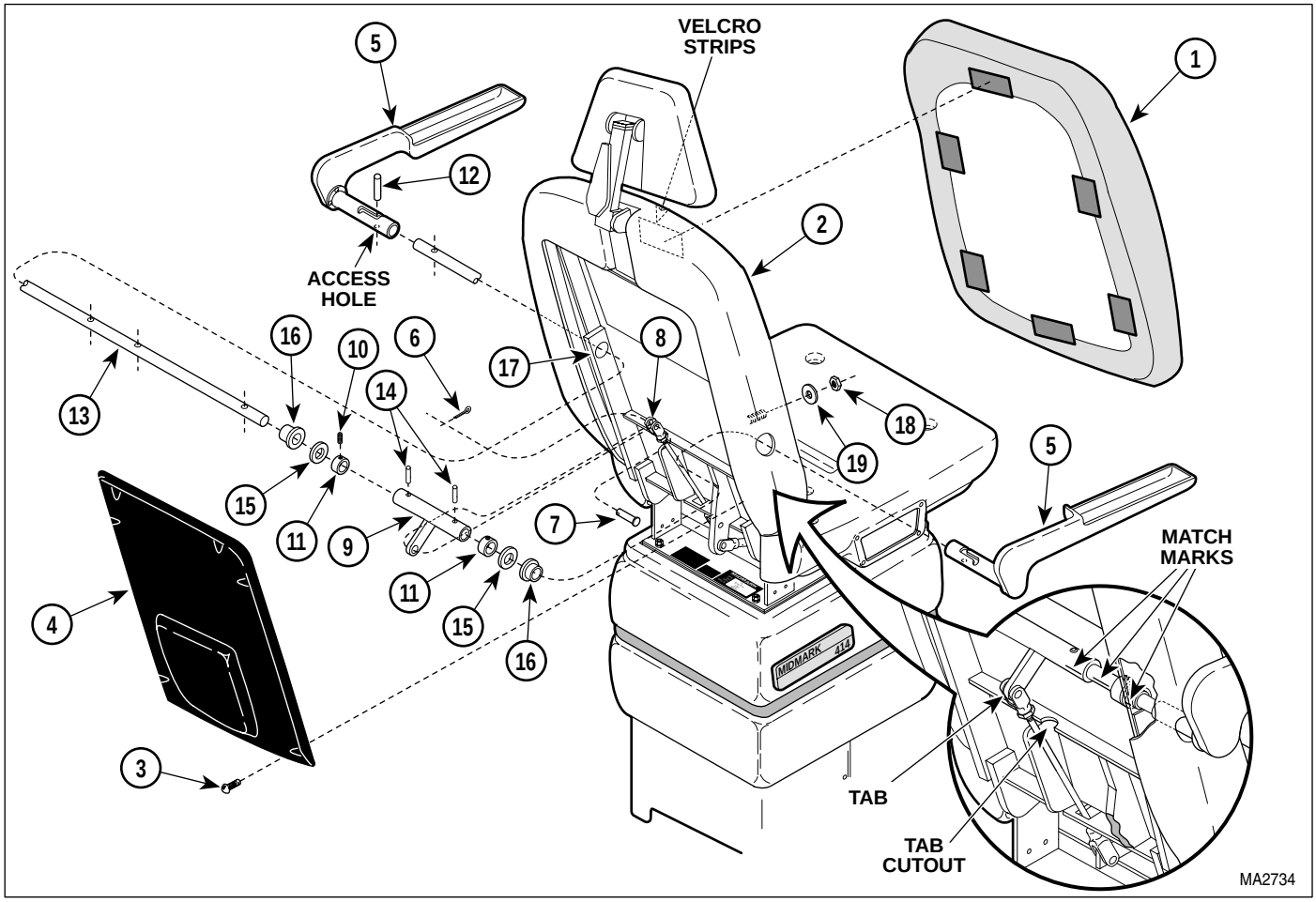

Figure 4-32. Plastic Back Section Removal / Installation

NOTE
Arm tube weldment may be difficult to slide on arm shaft. If necessary, use hammer to assist.

(13) Slide arm shaft (13) sideways and remove two bearing washers (15), arm collars (11), and arm tube weldment (9) from arm shaft.

(14) If worn or damaged, remove one flanged bearing (16) from each side of back weldment (17).

NOTE
The two screws which hold the base capacitor clamp may also be holding the plastic back section. If necessary, loosen these two screws slightly.

(15) Remove four nuts (18), washers (19), and plastic back section (2) from back weldment (17).

B. Installation

NOTE
The screws which hold the base capacitor clamp on the back weldment may stick out and prevent plastic back section from mounting flush. If this is the case, loosen the screws until the plastic back section has been installed and then retighten the screws.

(1) Install plastic back section (2) on back weldment (17) and secure with four washers (19), and four nuts (18). Tighten nuts until firm; then tighten an additional 1/3 turn.

(2) If removed, install one flanged bearing (16) in each side of back weldment (17).

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(3) Using matchmarks, slide one end of arm shaft (13) halfway thru one of the flanged bearings (16); then install two bearing washers (15), arm collars (11), and arm tube weldment (9) on arm shaft.

(4) Slide arm shaft (13) rest of way in.

(5) Secure arm tube weldment (9) in place with two groove pins (14).

(6) Install one arm casting (5) on end of arm shaft (13) and secure in position with groove pin (12). Drive groove pin in just until flush with outside diameter of arm casting.

(7) Repeat step 6 to install remaining arm casting (5).

(8) Pull or push on arm castings (5) until tab of arm tube weldment (9) is centered in tab cutout.

(9) While holding arm tube weldment (9) in this position, push each arm collar (11) up against flanged bearing (16) and secure by tightening setscrews (10).

(10) Connect clevis (8) to arm tube weldment (9) with clevis pin (7) and cotter pin (6). Bend end of cotter pin over.

(11) Adjust arm castings (5) height if necessary (Refer to para 4.19).

(12) Install back cover (4) on plastic back section (2) and secure with six screws (3).

(13) Making sure velcro strips are aligned, install upholstered back section (1) on plastic back section (2).

(14) Plug power cord into wall receptacle.

4.30 Plastic Seat Section Removal / Installation

A. Removal

DANGER
Always unplug the power cord from the wall outlet before removing any of the table's shrouds/covers 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 power cord from wall receptacle.

(2) Remove a hand control plug-in port from each side of table (Refer to para 4.7).

(3) Remove control disable switch (Refer to para 4.6).

(4) Remove upholstered seat section (1, Figure 4-33) from plastic seat section (2).

NOTE
The left side of the table has seven wires to disconnect; the right side of the table has six wires to disconnect.

(5) Loosen terminal screws of electrical receptacles (3); then tag and disconnect six/seven wires (4) from each electrical receptacle. Remove electrical receptacles.

(6) Pull wires thru wire holes on each side of plastic seat section (2) and into center of table.

(7) Remove four nuts (5), washers (6), and plastic seat section (2) from seat weldment (7).

B. Installation

(1) Install plastic seat section (2) on seat weldment (7) and secure with four washers (6) and nuts (5). Tighten nuts until firm; then tighten an additional 1/3 turn.

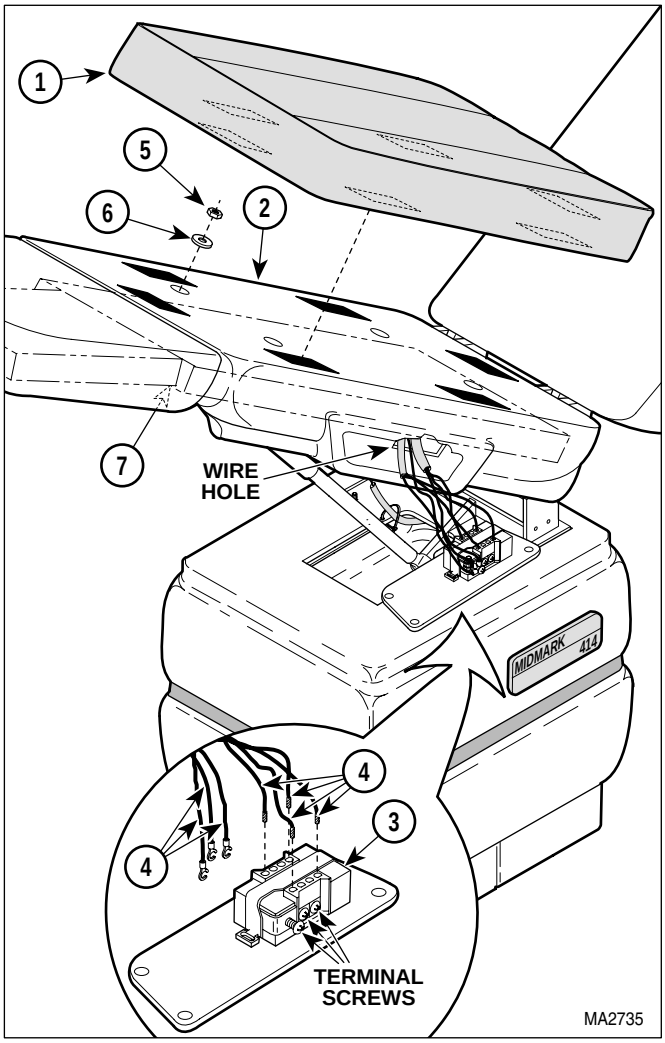

Figure 4-33. Plastic Seat Section Removal / Installation

(2) Feed wires thru wire holes on each side of plastic seat section (2).

NOTE
The left side of the table has seven wires to connect; the right side of the table has six wires to connect.

(3) Connect six / seven wires (4) to terminals of electrical receptacles (3) and secure by tightening terminal screws.

(4) Making sure velcro strips are aligned, install upholstered foot section (1) on plastic foot section (2).

(5) Install control disable switch (Refer to para 4.6).

(6) Install hand control plug-in port on each side of table (Refer to para 4.7).

(7) Plug power cord into wall receptacle.

4.31 Headrest Assembly Adjustment

A. Adjustment

(1) Unlock locking handle (See Figure 4-33).

(2) Loosen setscrew (1, Figure 4-34).

NOTE
The headrest assembly should be capable of supporting approximately 50 lbs (22.7 kg) of static load without movement.

(3) Tighten adjusting screw (2) slightly, then lock locking handle. Repeat this step until axis A and B have the strongest possible holding power, but operation of the locking handle is not too difficult.

(4) Tighten setscrew (1).

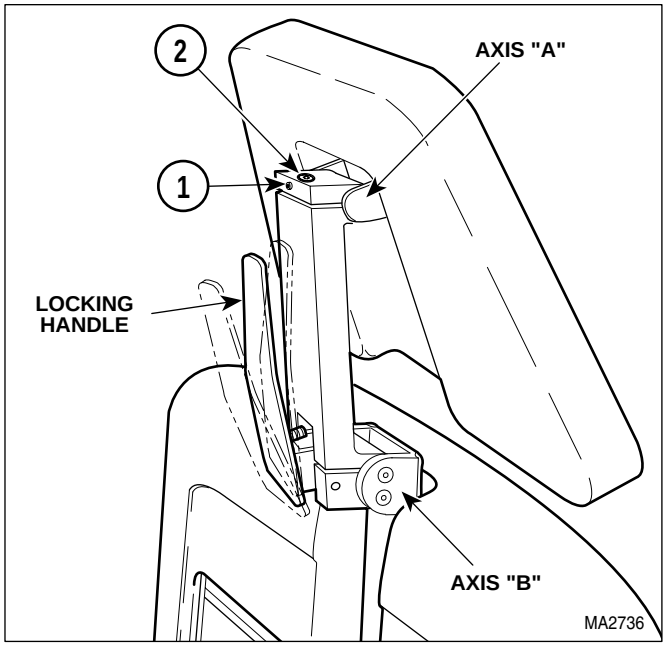

Figure 4-34. Headrest Assembly Adjustment

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4.32 Headrest Locking Handle Stop Adjustment

A. Adjustment

(1) Loosen nut (1, Figure 4-35).

(2) Unlock locking handle. Push on locking handle until it reaches a point where the locking handle wants to lock itself by going over center; then allow locking handle to go over center a few degrees. Hold the locking handle in this position and adjust stop screw (2) so the locking handle will be forced to stop in this position each time it is locked.

(3) Tighten nut (1).

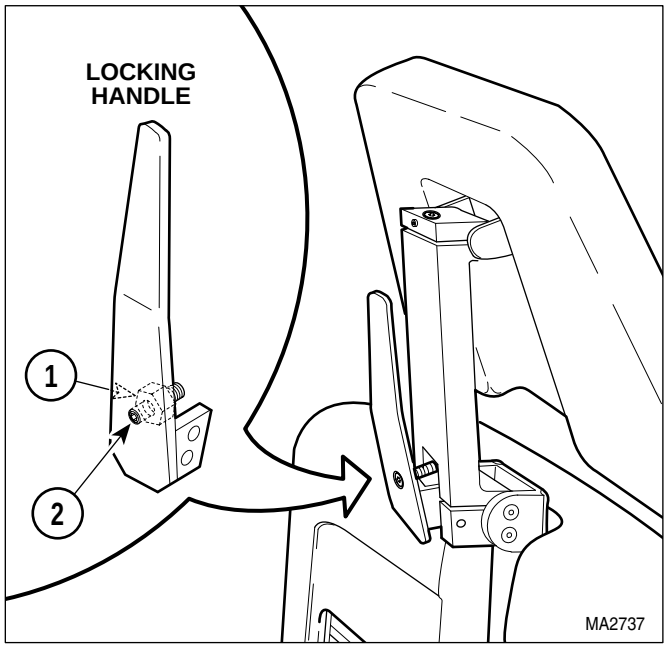


Figure 4-35. Headrest Locking Handle Stop Adjustment

4.33 Base Up Limit Switch Removal / Installation / Adjustment

A. Removal

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

DANGER
Always unplug the power cord from the wall receptacle before removing any of the chair's shrouds / covers 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 power cord from wall receptacle.

(3) Raise up outer shroud (1, Figure 4-36) and use a support to hold it there.

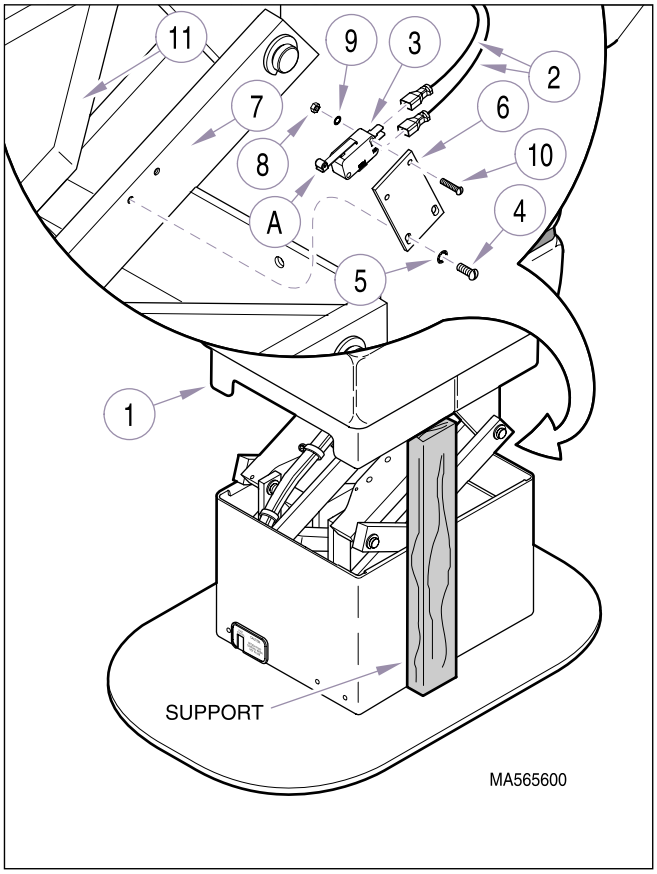


Figure 4-36. Base Up Limit Switch Removal / Installation / Adjustment

(4) Disconnect two wires (2) from base up limit switch (3).

NOTE
If two screws (4) cannot be removed using an offset screwdriver, the table top and shrouds must be removed (Refer to paras 4.3 and 4.4).

(5) Using an offset screwdiver, remove two screws (4), lockwashers (5), and switch mount (6) from column arm (7).

(6) Remove two nuts (8), lockwashers (9), limit switch (3), and two screws (10) from switch mount (6).

B. Installation

(1) Install limit switch (3, Figure 4-36) on switch mount (6) and secure with two screws (10), lockwashers (9), and two nuts (8).

(2) Install switch mount (6) on column arm (7) and secure with two lockwashers (5) and screws (4). Do not tighten screws (4) at this time.

(3) Connect two wires (2) to base up limit switch (3).

C. Adjustment

(1) If not already done, perform steps 1 thru 3 of Removal to gain access to limit switch.

(2) Raise base up function all the way up, then lower base down approximately 1/8 to 1/4 in. (3.2 to 6.35 cm).

(3) Using an offset screwdriver, loosen two screws (4); then slide switch mount (6, Figure 4-36) upward until trip arm (A) of limit switch "just" trips against upper plate (11). Secure switch mount in this position by tightening two screws (4).

(4) Check limit switch adjustment by running base down function all the way down and then base up function all the way up, making sure base up limit switch trips, stopping the base up function, before the base actuator begins to "freewheel".

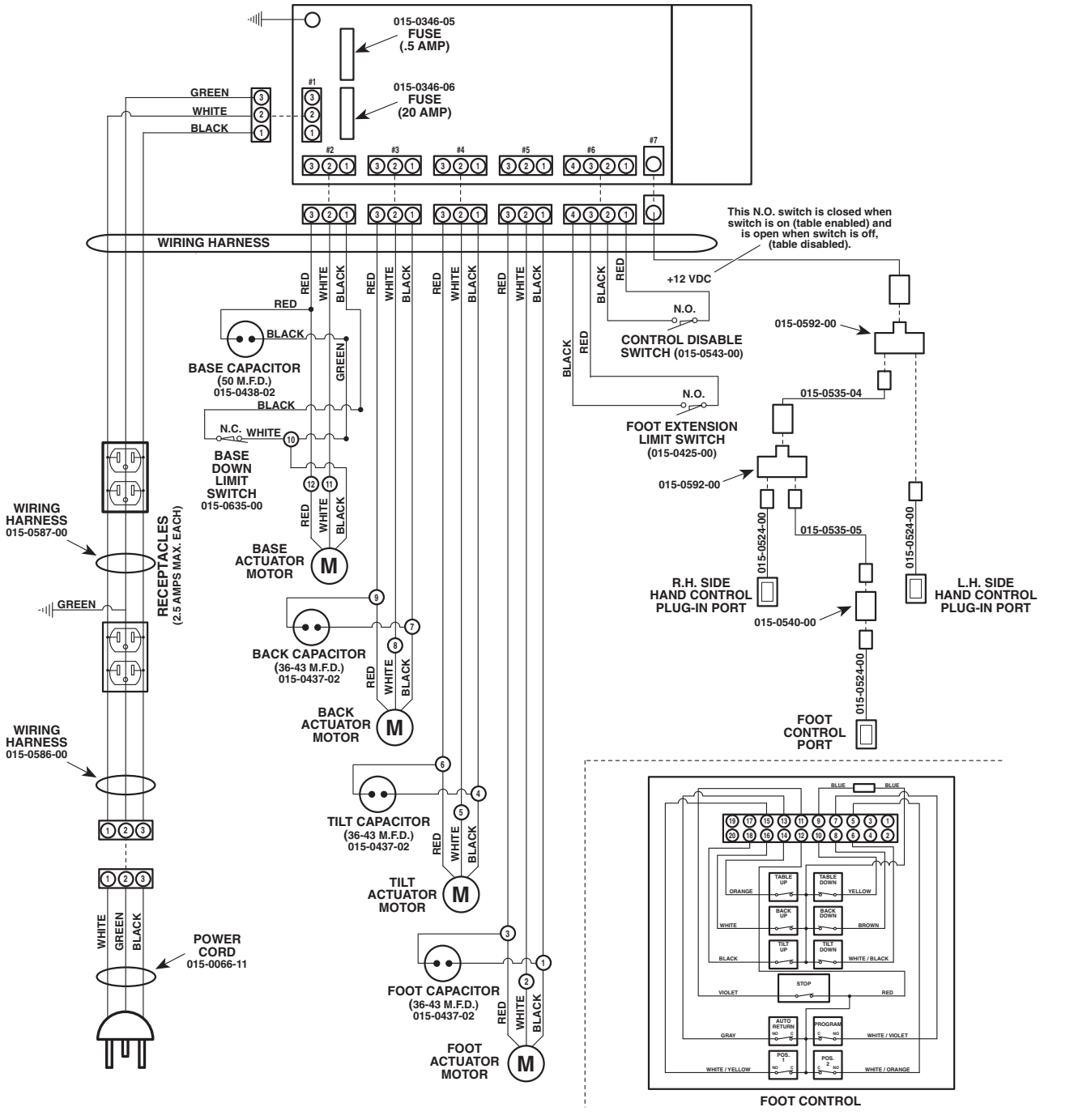
(5) Remove support and lower outer shroud (1) down.

(6) Plug power cord into wall receptacle.

SECTION V
SCHEMATICS AND DIAGRAMS

5.1 Electrical Schematics / Wiring Diagrams

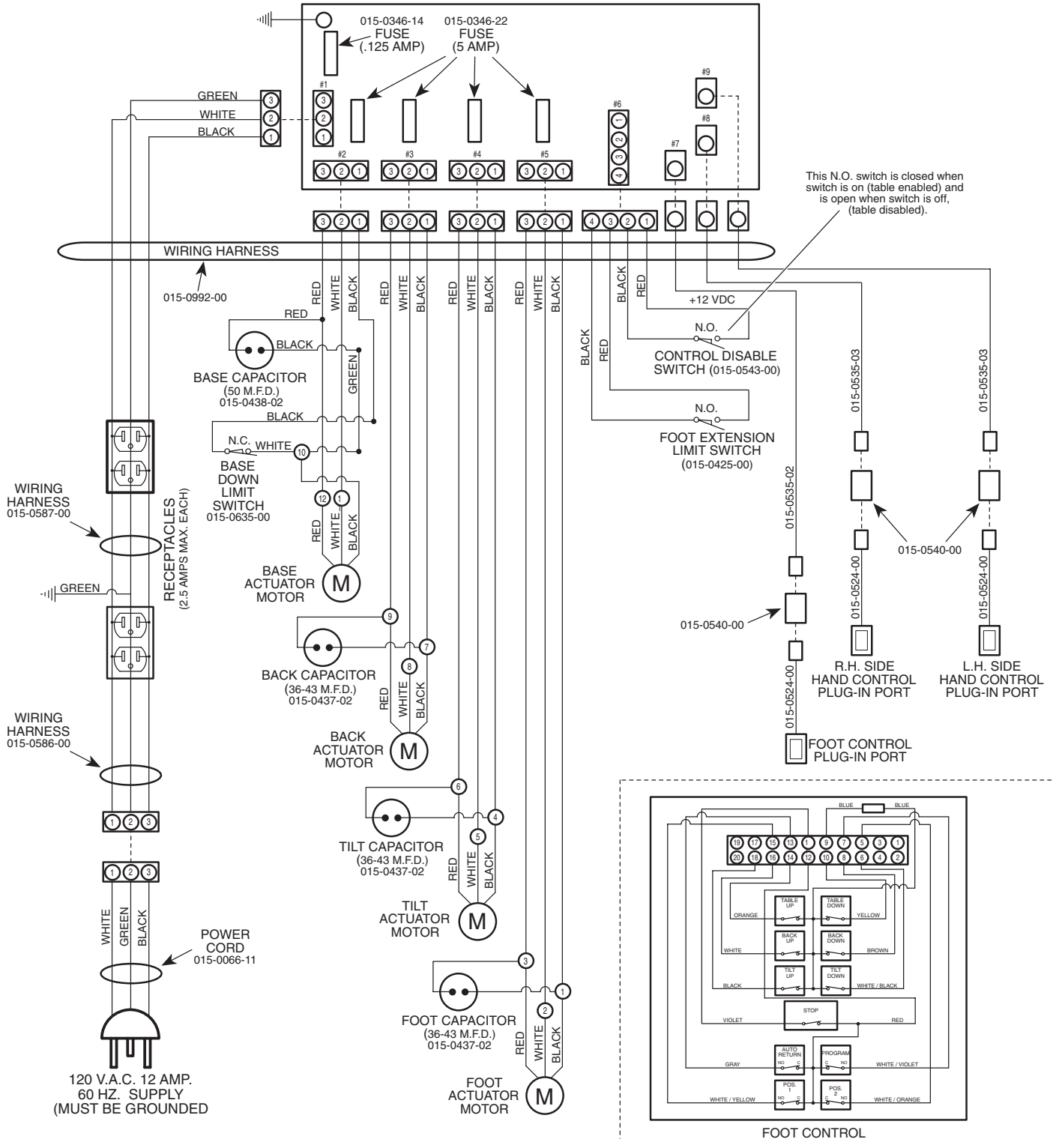
Figures 5-1 and 5-2 illustrate the logic / current flow and wiring connections between the electrical components in the table. Record serial number of table being worked on in order to determine which electrical schematic or wiring diagram to use.



MA2741-00

Figure 5-1. Electrical Schematic / Wiring Diagram - Units With Serial Numbers BM-1000 Thru BM-1405

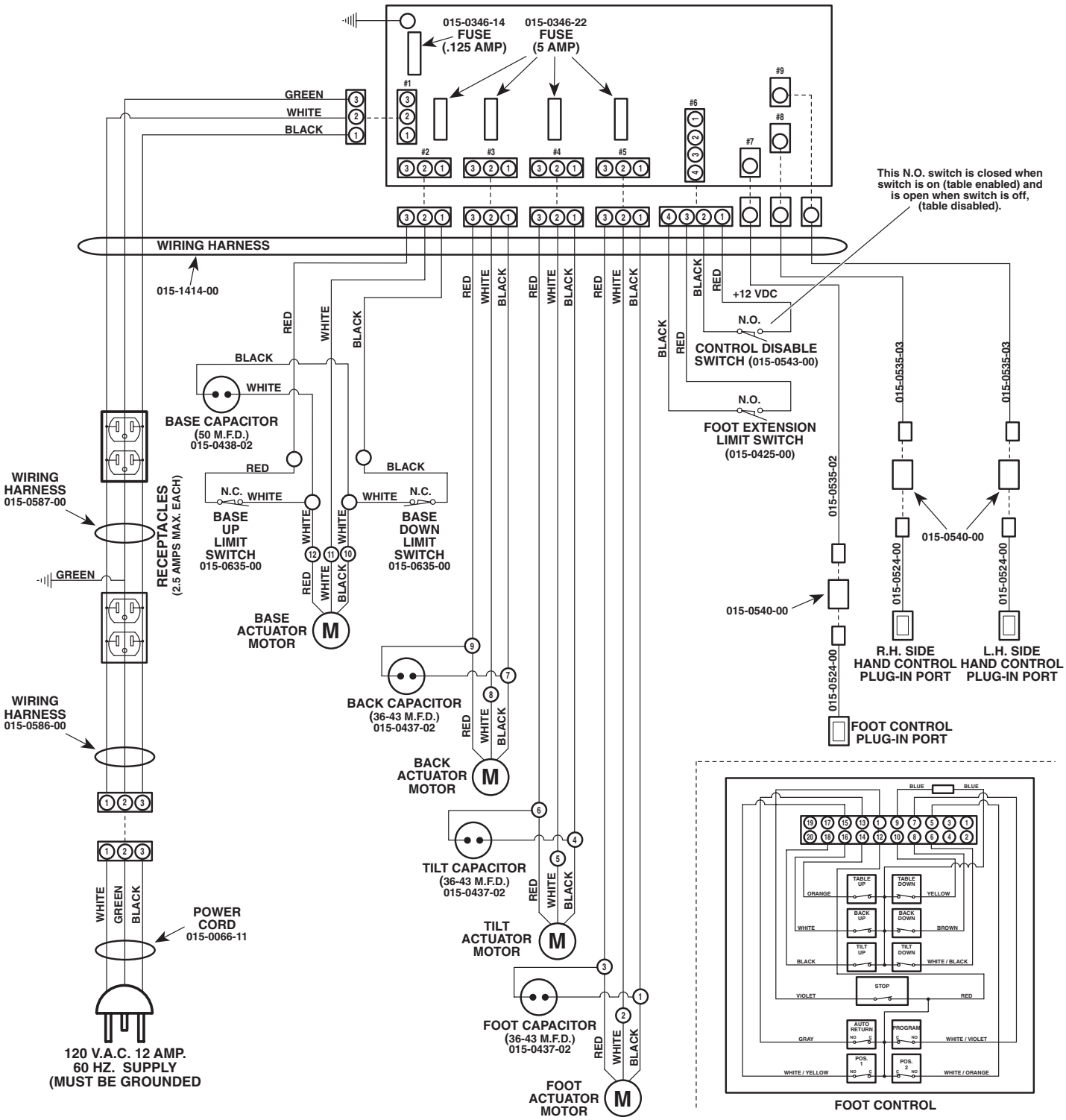
SECTION V
SCHEMATICS AND DIAGRAMS



MA274102

Figure 5-2. Electrical Schematic / Wiring Diagram - Units With Serial Numbers BM1406 thru BM1776

SECTION V
SCHEMATICS AND DIAGRAMS



MA274103

Figure 5-3. Electrical Schematic / Wiring Diagram - Units With Serial Numbers BM1777 thru Present

SECTION V
SCHEMATICS AND DIAGRAMS

5.2 Audible Signal Guide Chart

Table 5-1 lists all of the audible signals that can be emitted by the table's PC control board (new style PC control board only) and the purpose / meaning for each audible signal. Refer to the Theory of Operation section (para 1.3B) to learn how to enable / disable the audible sounds.

Table 5-1. Audible Signal Guide Chart

Audible Signal	Purpose of Audible Signal
Short single beep	When the operator is initiating a reinitialization of the PC control board, a short single beep informs the operator that the three footswitches / buttons have been depressed for the required time.
	When the operator initiates an AUTO RETURN, a short single beep informs the operator that the table's "home" position has been successfully reached.
	When the operator selects one of the programmed positions, a short single beep informs the operator that the programmed position has been successfully reached.
Slow beep	When the operator presses and holds the PROGRAM button for one second, a slow beep, lasting five seconds, informs the operator that the PROGRAM mode is enabled. If one of the program POSITION buttons are pressed within 5 seconds, the table's present position will be stored in memory.
Fast chirping sound	When the operator presses one of the programmed position footswitches / buttons, but the PC control board determines that the programmed position data is invalid or that no position has been programmed for that particular program footswitch / button, a fast chirping sound informs the operator that the programmed position data is invalid or has not been programmed and the function will not be performed.
Slow chirping sound	When the operator selects a single function or a programmed position function and a motor is detected to be drawing excessive current for more than 0.5 seconds, a slow chirping sound informs the operator of the current over-draw condition.
	When the operator selects a single function or a programmed position function and the function is run all the way to its end of travel (screw fully extended), a slow chirping sound informs the operator that the actuator motor's end of travel has been reached.
Intermittent beep (One second on, four seconds off)	Informs the operator / maintenance technician that the voltage levels (+5 VDC and +12 VDC) of the PC control board are below limits.

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.

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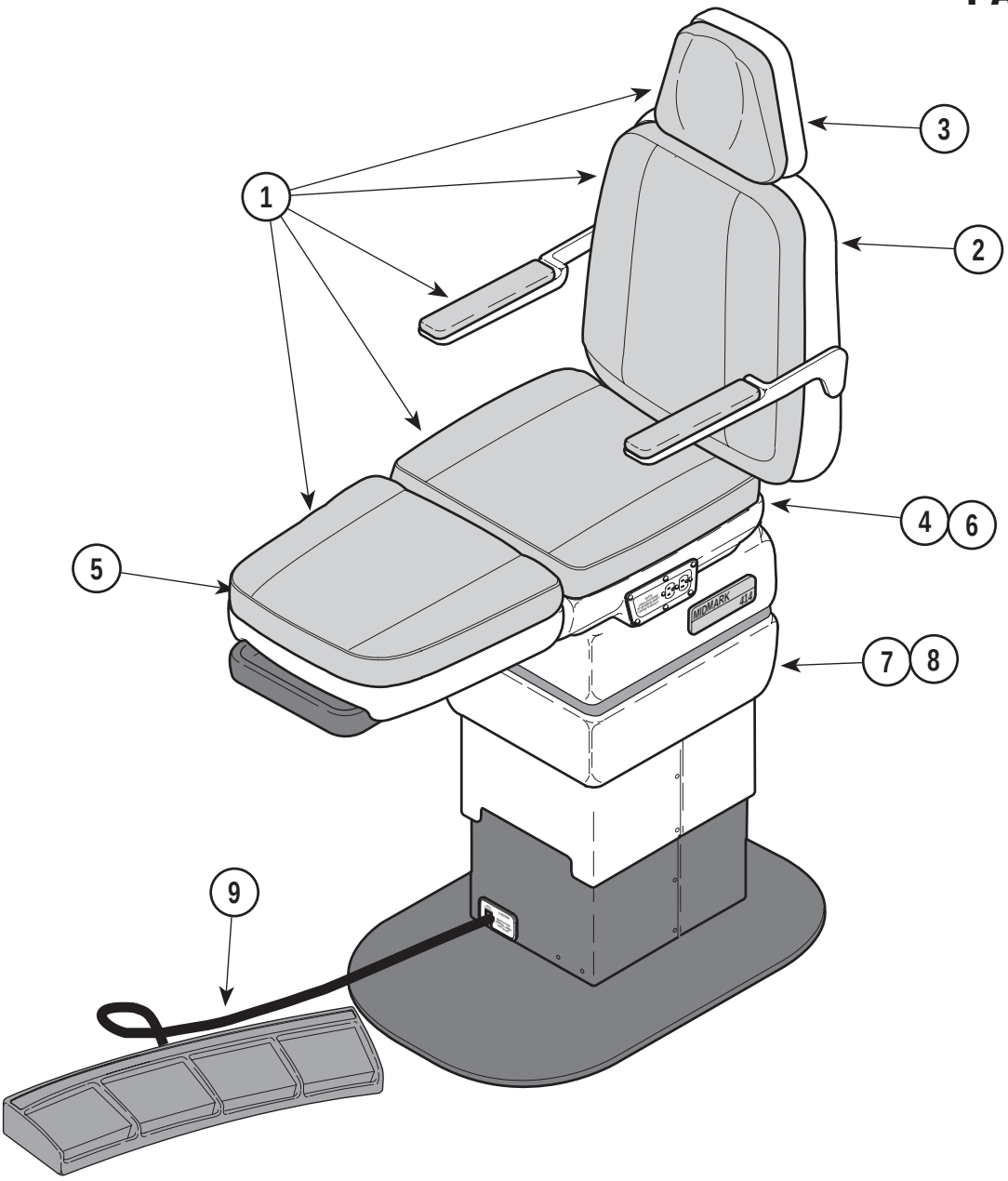
Pictorial Index



MA245300

Used on units with Serial Number BM-1000 thru Present

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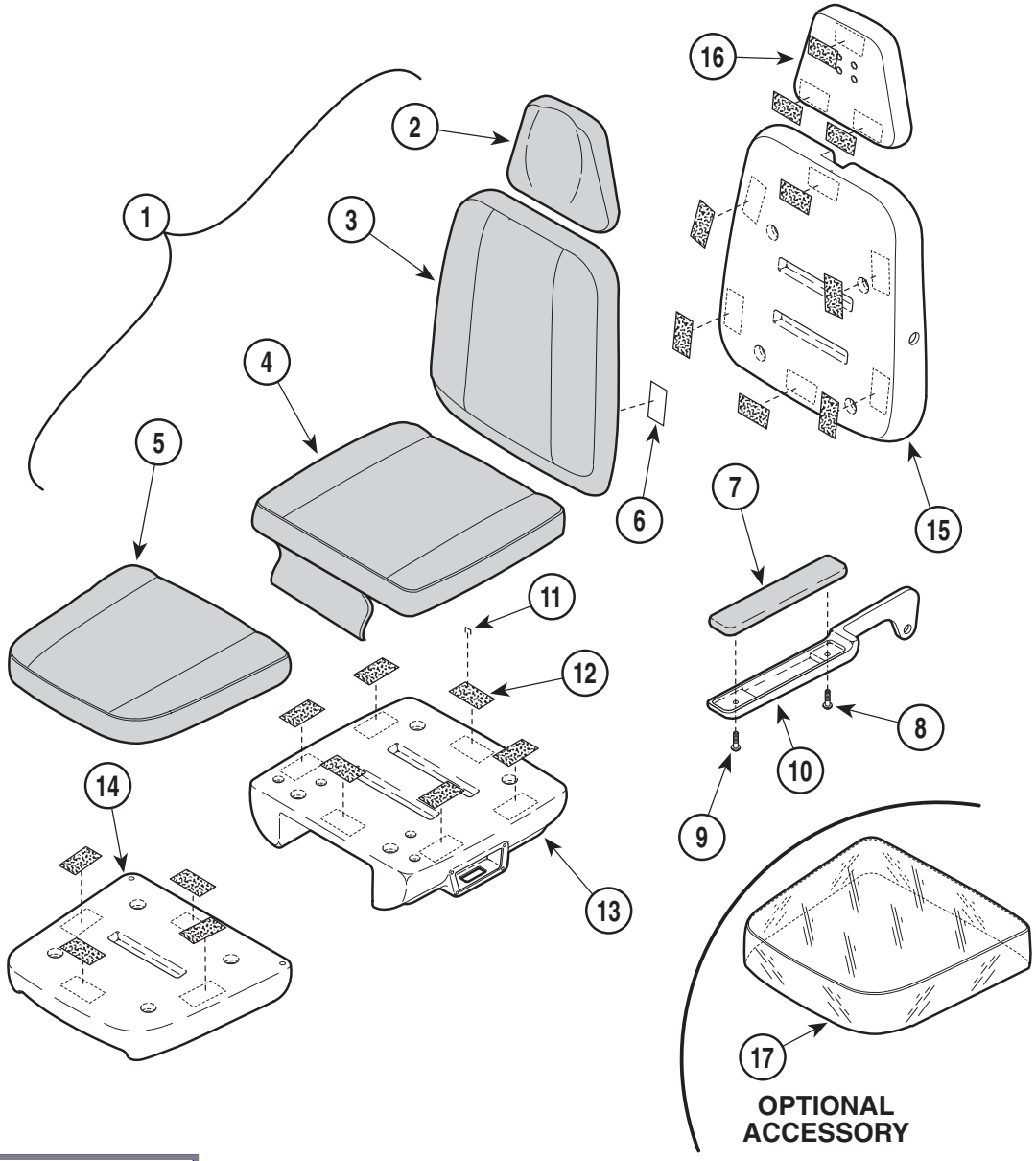
Upholstery Set



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

MA2440

Used on units built prior to May, 1989

Item	Part No.	Description	Qty.
1	002-0259-XX	Upholstery Set (Includes Items 2 thru 7) { * Specify Color}	1
2	• 028-0211-00	• Headrest Section { * Specify Color}	1
3	• 028-0212-00	• Back Section { * Specify Color}	1
4	• 028-0213-00	• Seat Section { * Specify Color}	1
5	• 028-0214-00	• Foot Section { * Specify Color}	1
6	• 061-0041-00	• Law Label	1
7	• 028-0215-00	• Arm Section { * Specify Color}	2
8	042-0059-02	Joint Connecting Bolt	2
9	042-0059-01	Joint Connecting Bolt	2
10		Arm Casting (Refer to "Back Section Components" Elsewhere)	Ref
11	042-0040-00	Staple (3/8")	114
12	053-0328-08	Dual Velcro Lock	16
13		Plastic Seat Section (Refer to "Seat Section Components" Elsewhere)	Ref
14		Plastic Foot Section (Refer to "Foot Section Components" Elsewhere)	Ref
15		Plastic Back Section (Refer to "Back Section Components" Elsewhere)	Ref
16		Plastic Headrest Section (Refer to "Headrest Assenbly" Elsewhere)	Ref
17	9A99001	Foot Section Cover (Optional)	

* Click on the Color Selector link above to see available colors.

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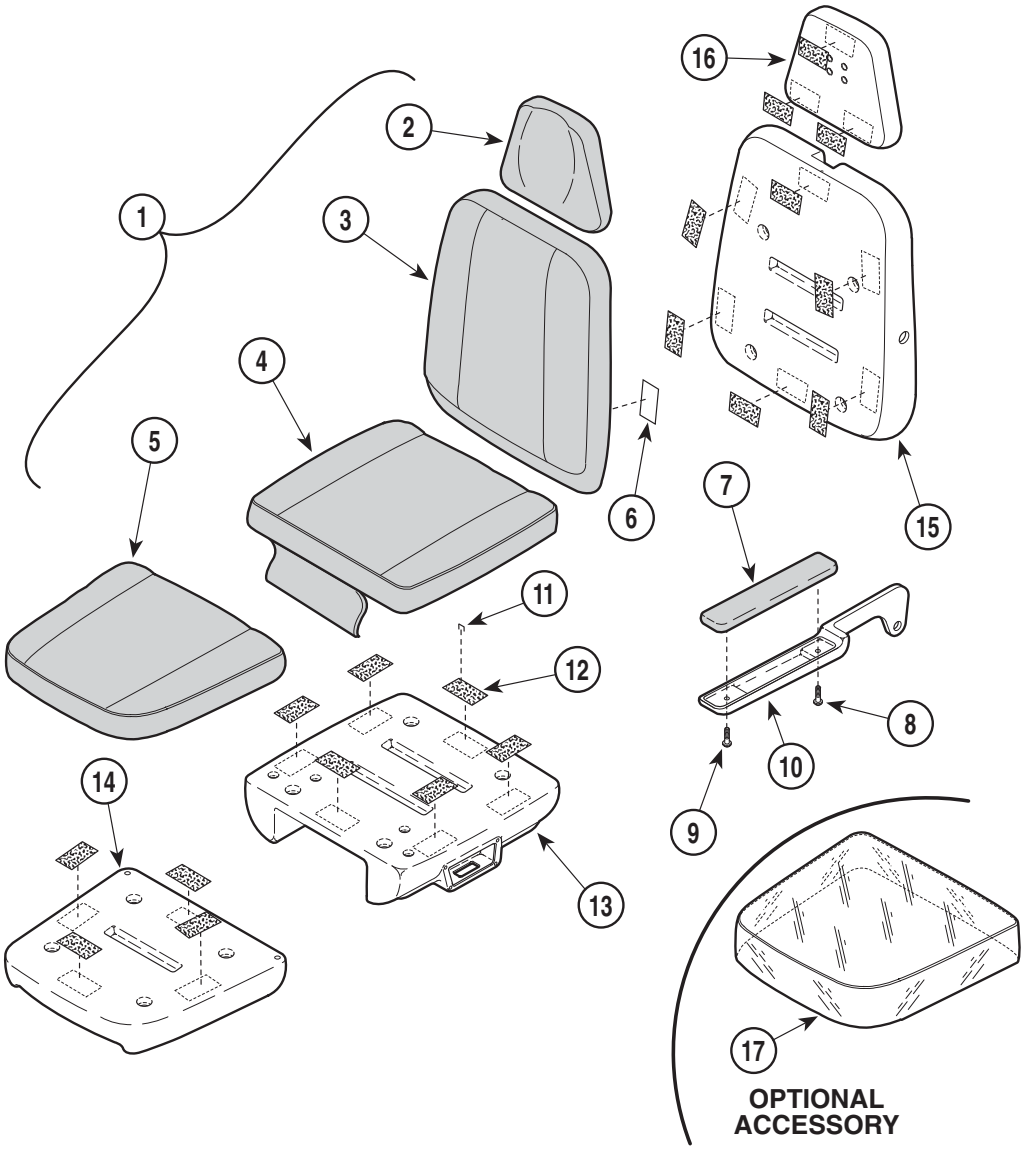
Upholstery Set



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

MA244000

Used on units built after May, 1989

Item	Part No.	Description	Qty.
1	002-0259-XX	Upholstery Set (Includes Items 2 thru 7) { * Specify Color}	1
2	• 028-0211-00	• Headrest Section { * Specify Color}	1
3	• 028-0212-00	• Back Section { * Specify Color}	1
4	• 028-0213-00	• Seat Section { * Specify Color}	1
5	• 028-0214-00	• Foot Section { * Specify Color}	1
6	• 061-0041-00	• Law Label	1
7	• 028-0215-00	• Arm Section { * Specify Color}	2
8	042-0059-02	Joint Connecting Bolt	2
9	042-0059-01	Joint Connecting Bolt	2
10		Arm Casting (Refer to "Back Section Components" Elsewhere)	Ref
11	042-0040-00	Staple (3/8")	114
12	053-0328-08	Dual Velcro Lock	16
13		Plastic Seat Section (Refer to "Seat Section Components" Elsewhere)	Ref
14		Plastic Foot Section (Refer to "Foot Section Components" Elsewhere)	Ref
15		Plastic Back Section (Refer to "Back Section Components" Elsewhere)	Ref
16		Plastic Headrest Section (Refer to "Headrest Assembly" Elsewhere)	Ref
17	9A99001	Foot Section Cover (Optional)	

* Click on the Color Selector link above to see available colors.

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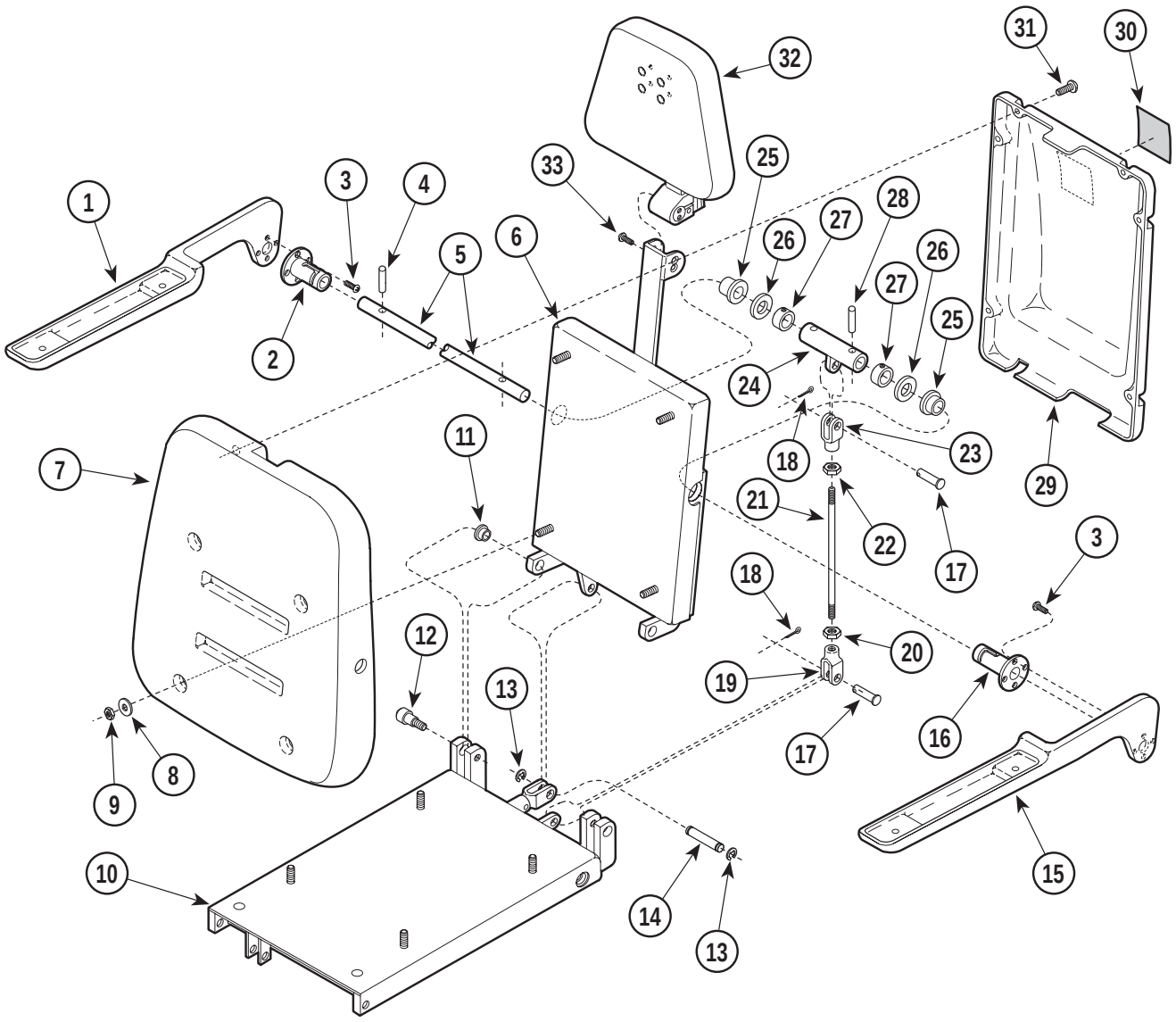
Back Section Components



MA2441

Used on units with Serial Number BM-1000 thru BM-1185

Item	Part No.	Description	Qty.
1	020-0064-03	R.H. Arm Casting	1
2	030-0620-00	R.H. Arm Mount Weldment	1
3	040-0250-79	Screw	8
4	042-0046-01	Groove Pin	2
5	057-0237-00	Arm Shaft	1
6	030-0598-00	Back Weldment	2
7	053-0300-00	Plastic Back Section	1
8	045-0001-02	Washer	4
9	041-0250-00	Nut	4
10		Seat Weldment (Refer to "Seat Section Components" Elsewhere)	Ref
11	016-0131-08	Flanged Bearing	2
12	042-0014-19	Shoulder Screw	2
13	042-0007-02	E-Ring	2
14	042-0048-08	Clevis Pin	1
15	020-0064-01	L.H. Arm Casting	1
16	030-0620-01	L.H. Arm Mount Weldment	1
17	042-0005-07	Clevis Pin	2
18	042-0003-01	Cotter Pin	2
19	042-0099-00	Yoke End (R.H. Threads)	1
20	041-0375-14	Locknut (R.H. Threads)	1
21	057-0255-02	Plated Arm Rod	1
22	041-0375-15	Locknut (L.H. Threads)	1
23	042-0099-01	Yoke End (L. H. Threads)	1
24	030-0621-00	Arm Tube Weldment	1
25	016-0131-07	Flanged Bearing	2
26	045-0007-07	Bearing Washer	2
27	016-0417-00	Arm Collar (Includes Set Screw)	2
28	042-0064-01	Groove Pin	2
29	053-0334-00	Back Cover	1
30	061-0033-00	Caution Label	1
31	040-0006-00	Screw	6
32		Headrest Assembly (Refer to "Headrest Assembly" Elsewhere)	Ref
33	040-0250-54	Screw (Apply Loctite 042-0024-02)	4

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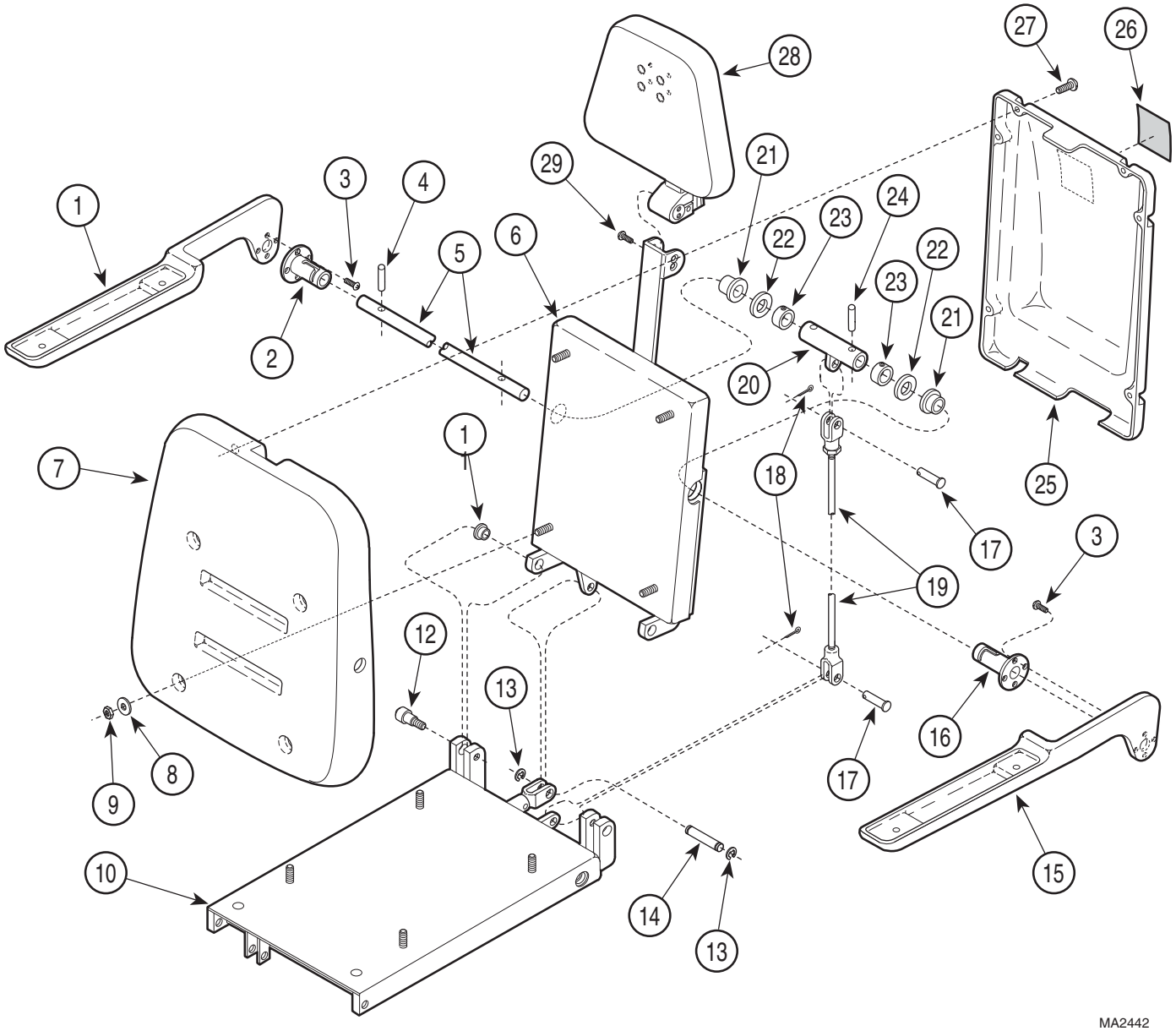
Back Section Components



MA2442

Used on units with Serial Number BM-1186 thru Present

Item	Part No.	Description	Qty.
1	~~020-0064-05~~	R.H. Arm Casting	1
2	030-0620-00	R.H. Arm Mount Weldment	1
3	040-0250-79	Screw	8
4	042-0046-01	Groove Pin	2
5	057-0237-00	Arm Shaft	1
6	030-0598-00	Back Weldment	1
7	053-0300-00	Plastic Back Section	1
8	045-0001-02	Washer	4
9	041-0250-00	Nut	4
10		Seat Weldment (Refer to "Seat Section Components" Elsewhere)	Ref
11	016-0131-08	Flanged Bearing	2
12	042-0014-19	Shoulder Screw	2
13	042-0007-02	E-Ring	2
14	042-0048-08	Clevis Pin	1
15	~~020-0064-04~~	L.H. Arm Casting	1
16	030-0620-01	L.H. Arm Mount Weldment	1
17	042-0005-07	Clevis Pin	2
18	042-0003-01	Cotter Pin	2
19	029-1478-01	Linkage Assembly	1
20	030-0621-02	Arm Tube Weldment	1
21	016-0131-07	Flanged Bearing	2
22	045-0007-07	Bearing Washer	2
23	016-0417-00	Arm Collar (Includes Set Screw)	2
24	042-0064-01	Groove Pin	2
25	053-0334-00	Back Cover	1
26	061-0033-00	Caution Label	1
27	040-0006-00	Screw	6
28		Headrest Assembly (Refer to "Headrest Assembly" Elsewhere)	Ref
29	040-0250-54	Screw (Apply Loctite 042-0024-02)	4

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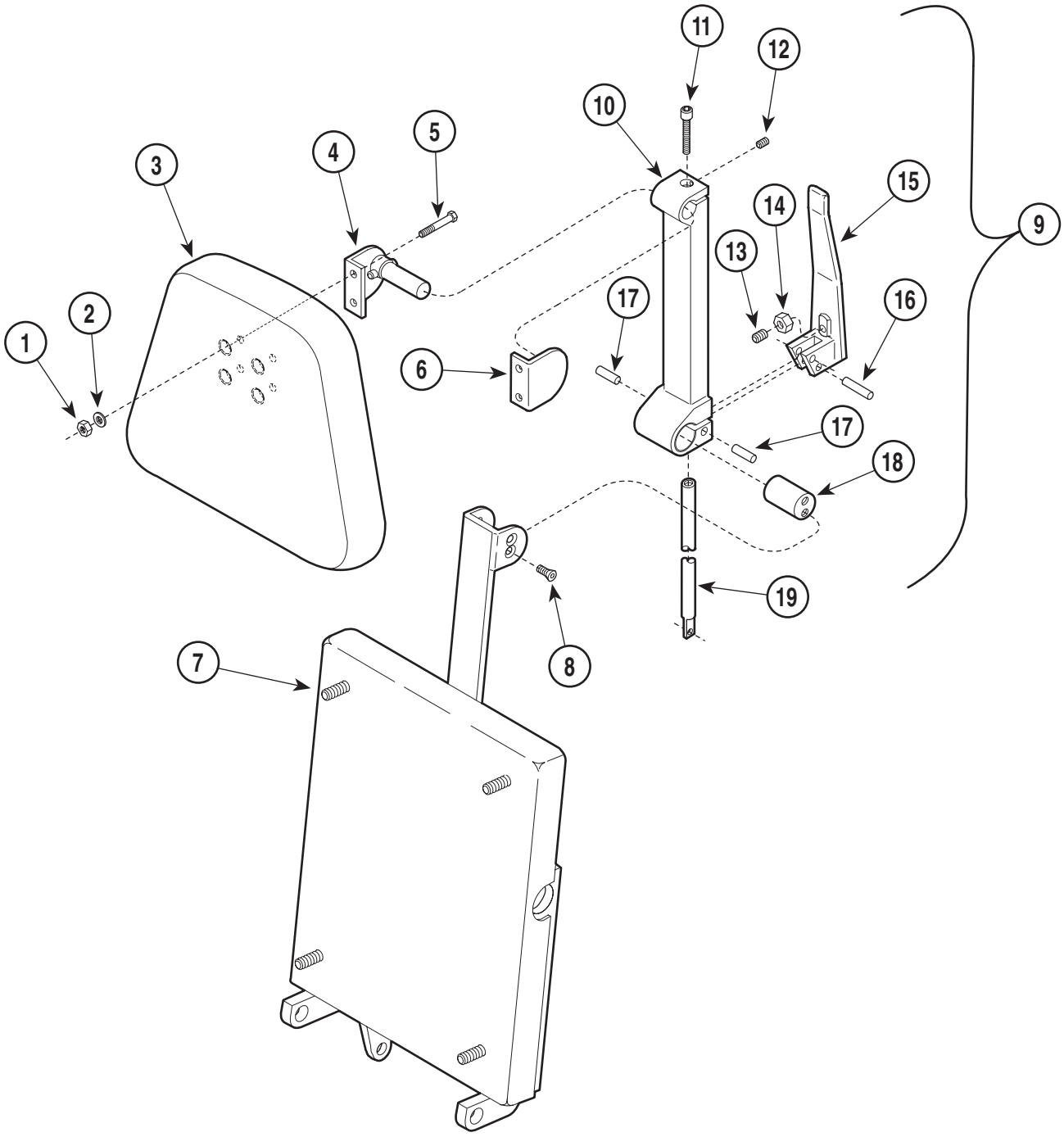
Headrest Assembly



MA2439

Item	Part No.	Description	Qty.
1	041-0250-04	Nut	4
2	045-0001-29	Washer	4
3	053-0301-00	Head Section Plastic	1
4	029-0103-02	Headboard Pivot Assembly	1
5	040-0250-27	Screw	4
6	030-0124-03	Headboard Pivot Assembly	1
7		Back Weldment (Refer to "Back Section Components" Elsewhere)	Ref
8	040-0250-35	Screw	4
9	029-1163-01	Headlock Assembly (Includes Items 10 thru 19)	1

Item	Part No.	Description	Qty.
10	• *(N.S.P.)*	• Podiatry Headlock Weldment	1
11	• *(N.S.P.)*	• Screw	1
12	• *(N.S.P.)*	• Set Screw	1
13	• *(N.S.P.)*	• Set Screw	1
14	• *(N.S.P.)*	• Jam Nut	1
15	• *(N.S.P.)*	• Head Pivot Handle Weldment	1
16	• *(N.S.P.)*	• Dowel Pin	1
17	• *(N.S.P.)*	• Dowel Pin	2
18	• *(N.S.P.)*	• Pivot Bar	1
19	• *(N.S.P.)*	• Draw Bar	1

(N.S.P.) Denotes "Non Servicable Part"
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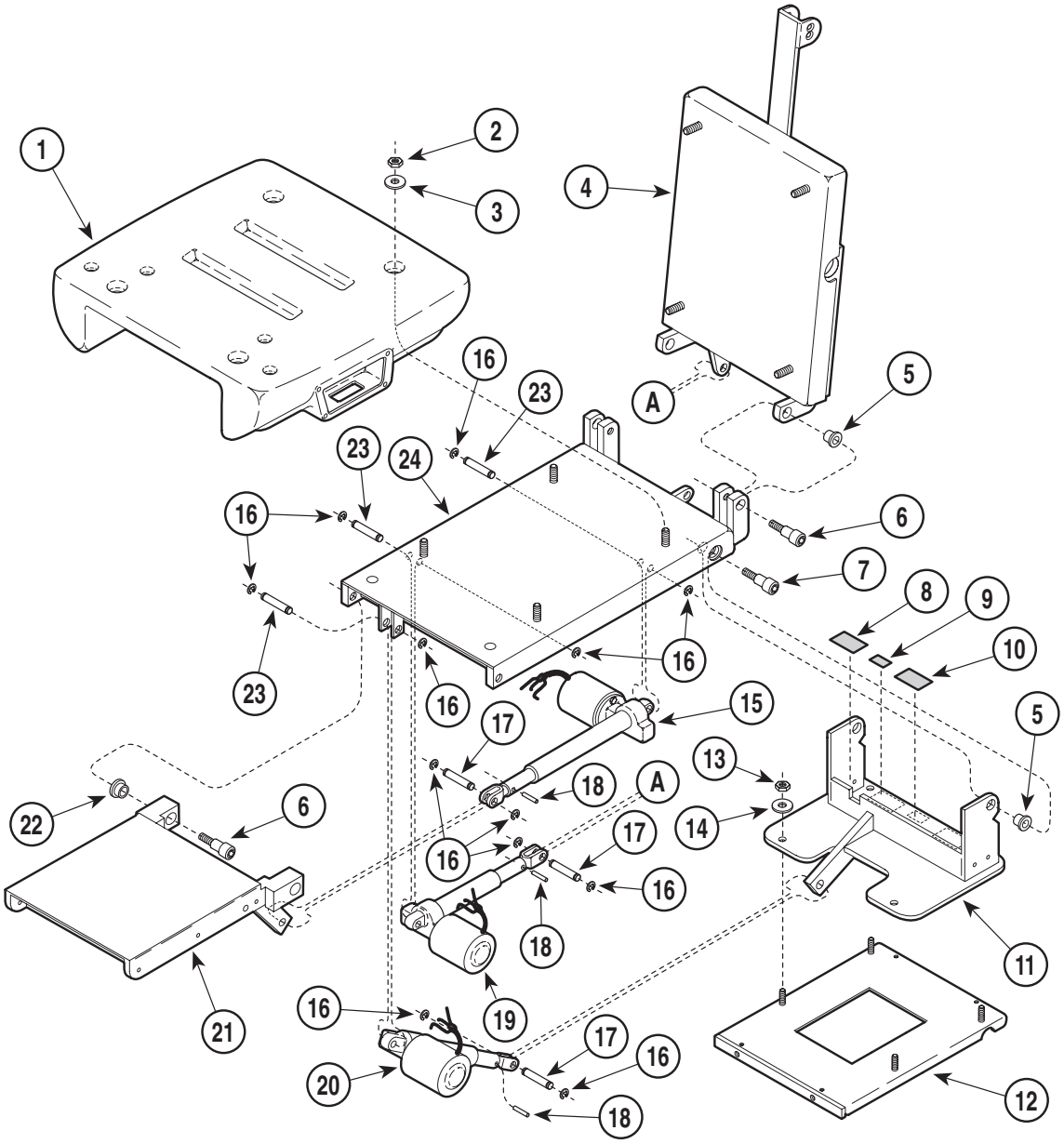
Seat Section Components



MA244300

Used on units with Serial Number BM-1000 thru BM-1600

Item	Part No.	Description	Qty.
1	053-0299-00	Plastic Seat Section	1
2	041-0250-00	Nut	4
3	045-0001-02	Washer	4
4		Back Weldment (Refer to "Back Section Components" Elsewhere)	Ref
5	016-0131-08	Flanged Bearing	4
6	042-0014-19	Shoulder Screw (Apply Loctite #042-0025-00)	4
7	042-0014-27	Shoulder Screw (Apply Loctite #042-0025-00)	2
8		Serial Tag	1
9	561-0016-00	Patient Pending Label	1
10	061-0214-00	Danger Label	1
11	030-0601-00	Upright Weldment	1
12		Base Mounting Plate Weldment (Refer to "Base Sub-Assembly" Elsewhere)	Ref
13	041-0375-01	Nut	4
14	045-0001-09	Washer	4
15	002-0393-00	Foot Actuator Assembly (Refer to "Foot Actuator Assembly" Elsewhere)	Ref
16	042-0007-02	E-Ring	12
17	042-0048-08	Clevis Pin	3
18	042-0001-14	Roll Pin	3
19	002-0392-00	Back Actuator Assembly (Refer to "Back Actuator Assembly" Elsewhere)	Ref
20	002-0564-10	Tilt Actuator Assembly (Refer to "Tilt Actuator Assembly" Elsewhere)	Ref
21		Foot Pivot Weldment (Refer to "Foot Section Components" Elsewhere)	Ref
22	016-0131-12	Flanged Bearing	2
23	042-0048-00	Clevis Pin	3
24	030-0594-00	Seat Weldment	1

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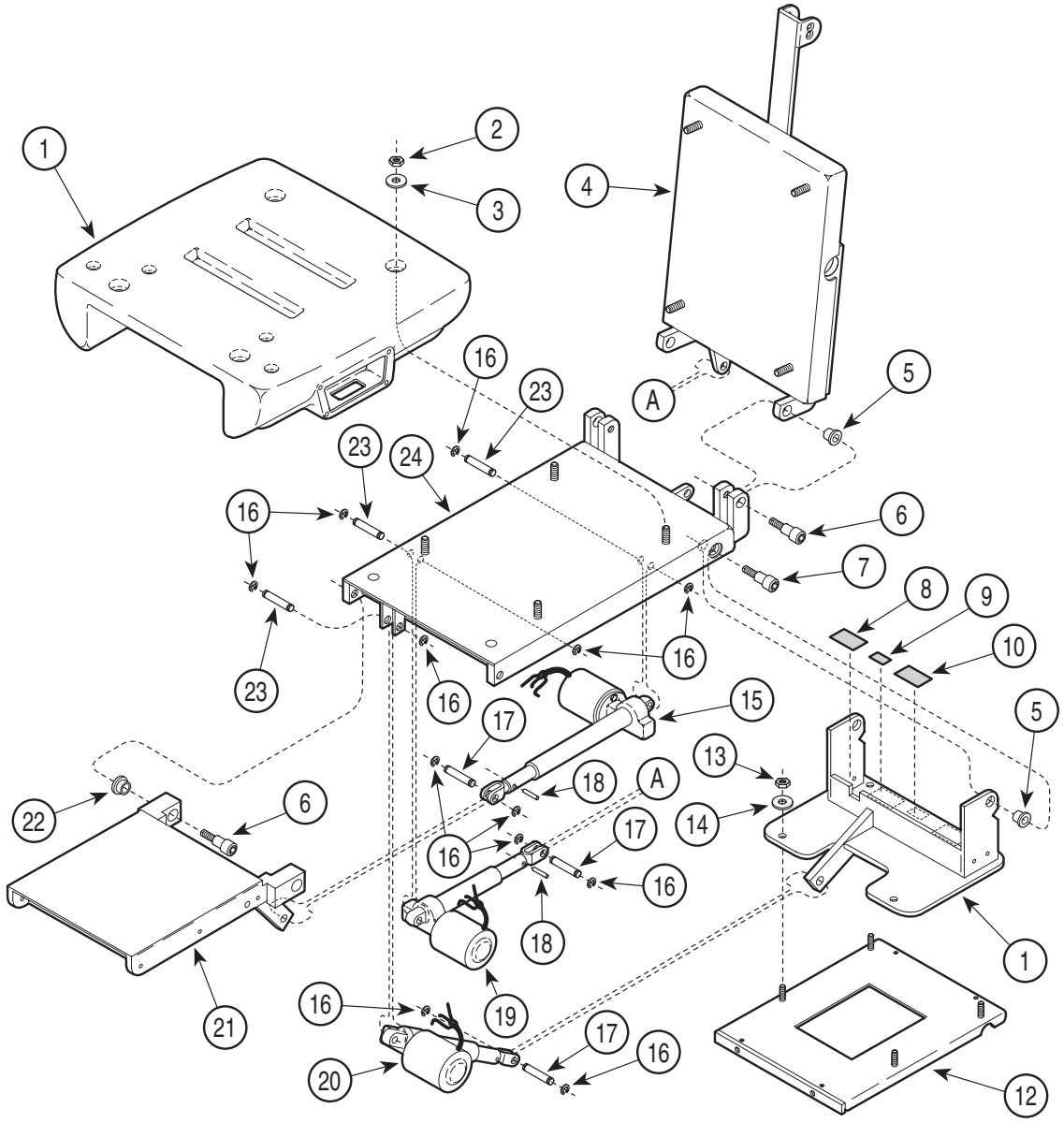
Seat Section Components



MA244301

Used on units with Serial Number BM1601 thru BM1626

Item	Part No.	Description	Qty.
1	053-0299-00	Plastic Seat Section	1
2	041-0250-00	Nut	4
3	045-0001-02	Washer	4
4		Back Weldment (Refer to "Back Section Components" Elsewhere)	Ref
5	016-0131-08	Flanged Bearing	4
6	042-0014-19	Shoulder Screw (Apply Loctite #042-0025-00)	4
7	042-0014-27	Shoulder Screw (Apply Loctite #042-0025-00)	2
8		Serial Tag	1
9	561-0016-00	Patient Pending Label	1
10	061-0214-00	Danger Label	1
11	030-0601-00	Upright Weldment	1
12		Base Mounting Plate Weldment (Refer to "Base Sub-Assembly" Elsewhere)	Ref
13	041-0375-01	Nut	4
14	045-0001-09	Washer	4
15	002-0393-00	Foot Actuator Assembly (Refer to "Foot Actuator Assembly" Elsewhere)	Ref
16	042-0007-02	E-Ring	12
17	042-0048-08	Clevis Pin	3
18	042-0001-14	Roll Pin	2
19	002-0392-00	Back Actuator Assembly (Refer to "Back Actuator Assembly" Elsewhere)	Ref
20	002-0564-10	Tilt Actuator Assembly	1
21		Foot Pivot Weldment (Refer to "Foot Section Components" Elsewhere)	Ref
22	016-0131-12	Flanged Bearing	2
23	042-0048-00	Clevis Pin	3
24	030-0594-00	Seat Weldment	1

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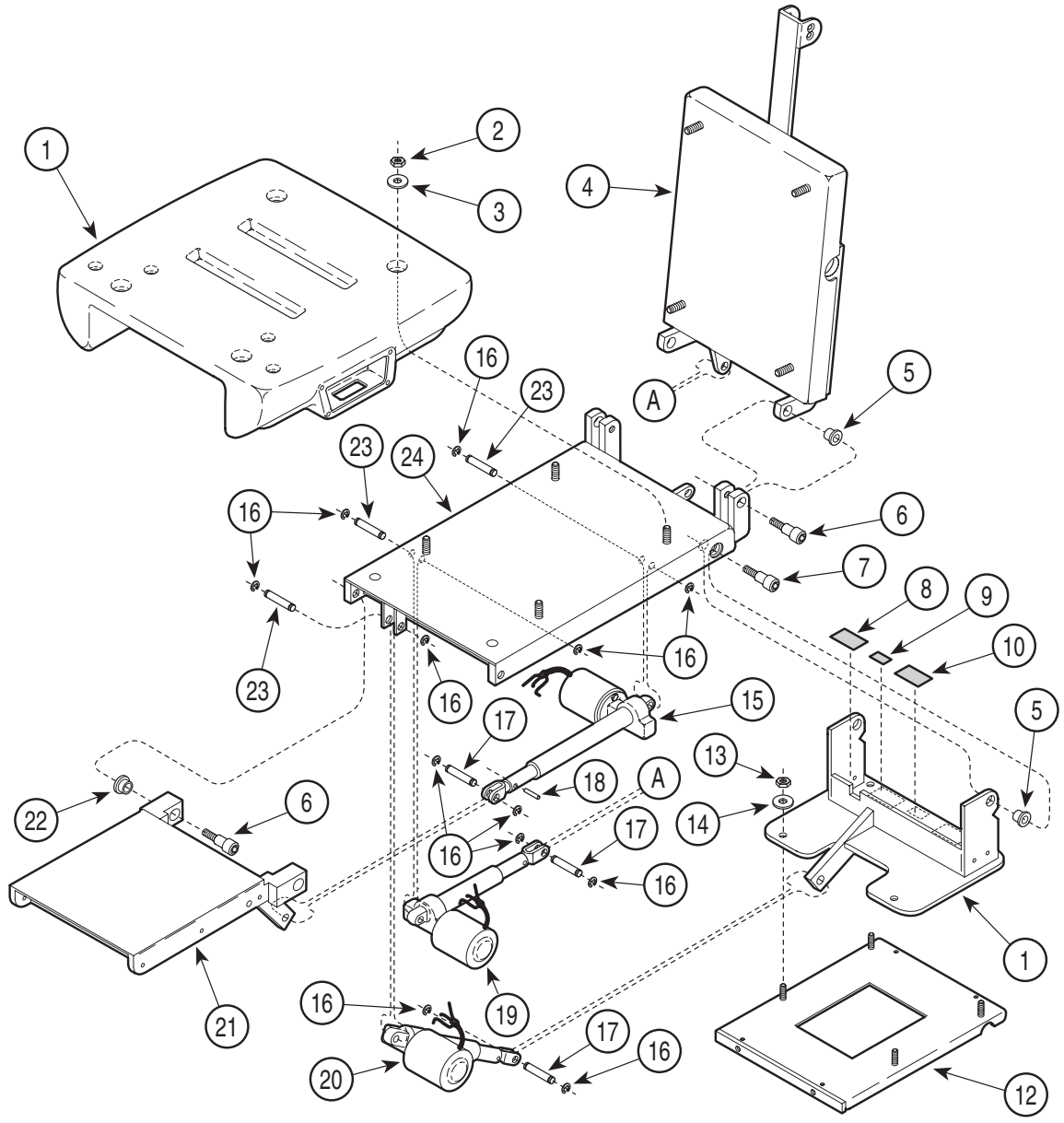
Seat Section Components



MA244302

Used on units with Serial Number BM1627 thru BM1749

Item	Part No.	Description	Qty.
1	053-0299-00	Plastic Seat Section	1
2	041-0250-00	Nut	4
3	045-0001-02	Washer	4
4		Back Weldment (Refer to "Back Section Components" Elsewhere)	Ref
5	016-0131-08	Flanged Bearing	4
6	042-0014-19	Shoulder Screw (Apply Loctite #042-0025-00)	4
7	042-0014-27	Shoulder Screw (Apply Loctite #042-0025-00)	2
8		Serial Tag	1
9	561-0016-00	Patient Pending Label	1
10	061-0214-00	Danger Label	1
11	030-0601-00	Upright Weldment	1
12		Base Mounting Plate Weldment (Refer to "Base Sub-Assembly" Elsewhere)	Ref
13	041-0375-01	Nut	4
14	045-0001-09	Washer	4
15	002-0393-00	Foot Actuator Assembly (Refer to "Foot Actuator Assembly" Elsewhere)	Ref
16	042-0007-02	E-Ring	12
17	042-0048-08	Clevis Pin	3
18	042-0001-14	Roll Pin	1
19	002-0590-00	Back Actuator Assembly	1
20	002-0564-10	Tilt Actuator Assembly	1
21		Foot Pivot Weldment (Refer to "Foot Section Components" Elsewhere)	Ref
22	016-0131-12	Flanged Bearing	2
23	042-0048-00	Clevis Pin	3
24	030-0594-00	Seat Weldment	1

Always Specify Model & Serial Number

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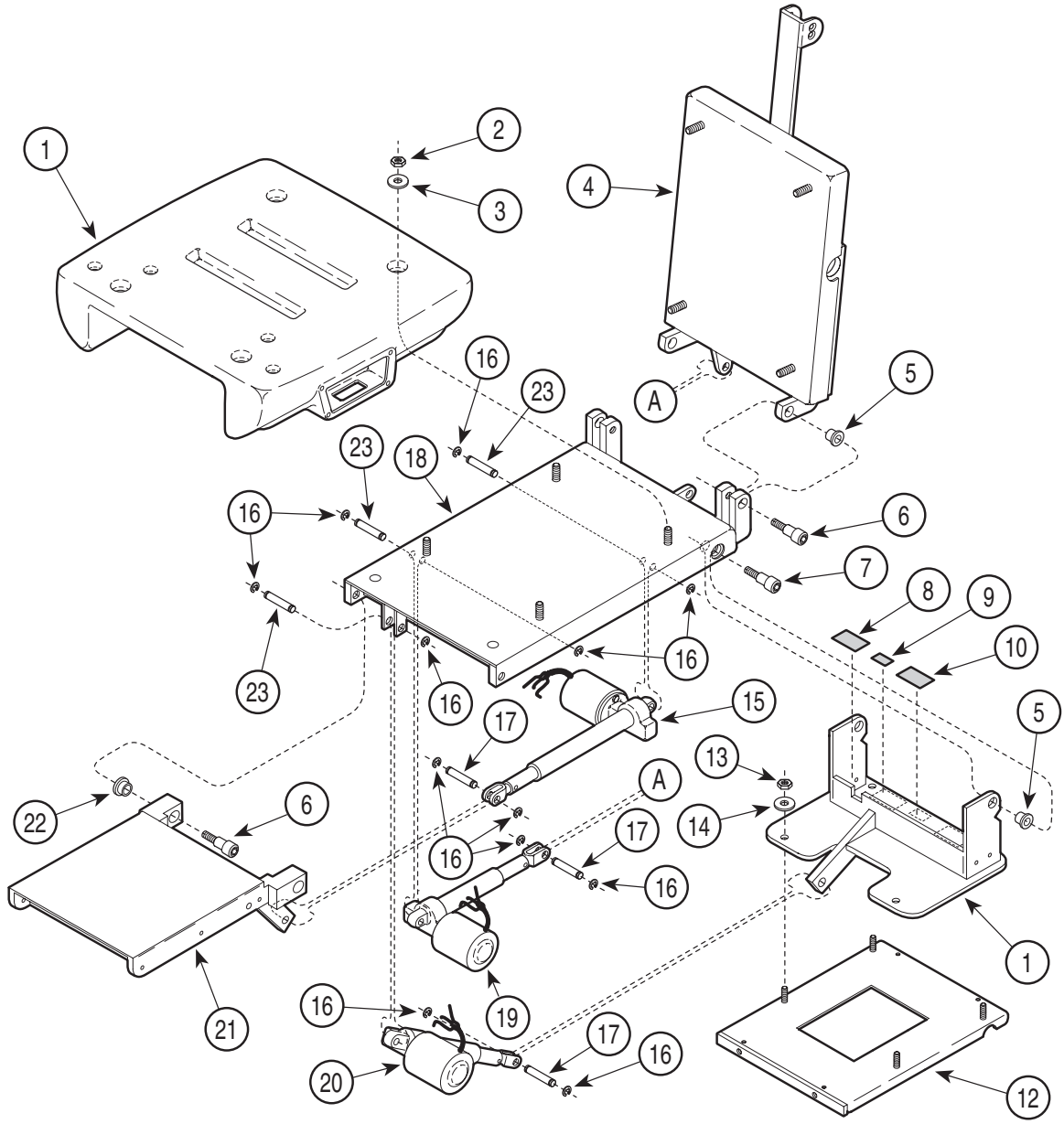
Seat Section Components



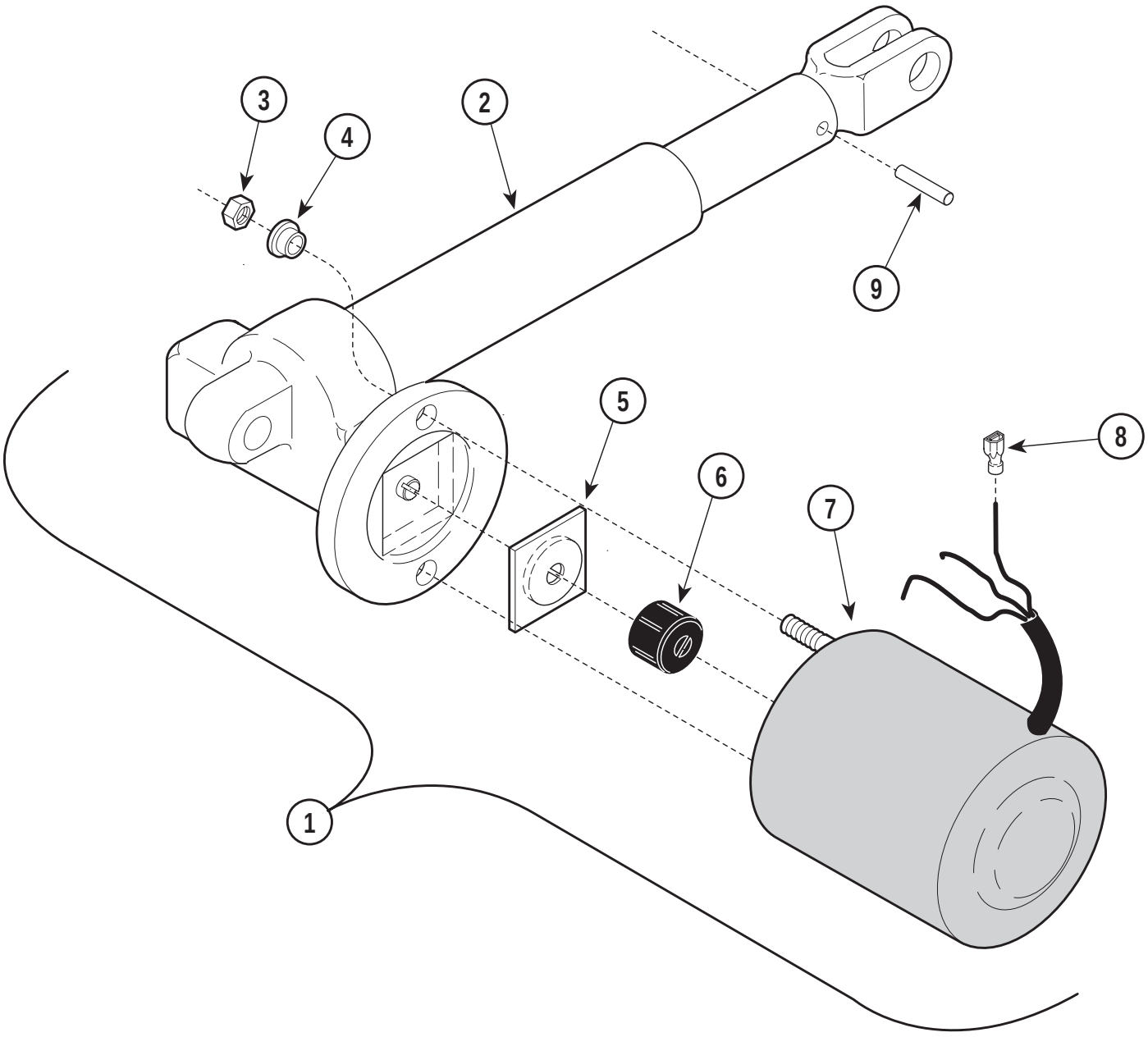
MA244303

Used on units with Serial Number BM1750 thru Present

Item	Part No.	Description	Qty.
1	053-0299-00	Plastic Seat Section	1
2	041-0250-00	Nut	4
3	045-0001-02	Washer	4
4		Back Weldment (Refer to "Back Section Components" Elsewhere)	Ref
5	016-0131-08	Flanged Bearing	4
6	042-0014-19	Shoulder Screw (Apply Loctite #042-0025-00)	4
7	042-0014-27	Shoulder Screw (Apply Loctite #042-0025-00)	2
8		Serial Tag	1
9	561-0016-00	Patient Pending Label	1
10	061-0214-00	Danger Label	1
11	030-0601-00	Upright Weldment	1
12		Base Mounting Plate Weldment (Refer to "Base Sub-Assembly" Elsewhere)	Ref
13	041-0375-01	Nut	4
14	045-0001-09	Washer	4
15	002-0564-05	Foot Actuator Assembly (Refer to Foot Actuator Assembly)	Ref
16	042-0007-02	E-Ring	12
17	042-0048-08	Clevis Pin	3
18	030-0594-00	Seat Weldment	1
19	002-0590-00	Back Actuator Assembly (Refer to Back Actuator Assembly)	Ref
20	002-0564-10	Tilt Actuator Assembly	1
21		Foot Pivot Weldment (Refer to "Foot Section Components" Elsewhere)	Ref
22	016-0131-12	Flanged Bearing	2
23	042-0048-00	Clevis Pin	3

Always Specify Model & Serial Number

Foot Actuator Assembly



MA2451

Used on units with Serial Number BM-1000 thru BM-1749

Item	Part No.	Description	Qty.	Item	Part No.	Description	Qty.
1	002-0393-00	Foot Actuator Assembly (Includes Items 2 thru 8)	1	5	• 016-0237-00	• Actuator Brake	1
2	• 016-0366-01	• Foot Actuator	1	6	• 016-0509-00	• Motor Coupler	1
3	•	• Nut	2	7	• 002-0574-00	• Motor	1
4	• 053-0198-00	• Shoulder Washer	2	8	• 015-0312-00	• Nylon Coupler Terminals	3
				9	042-0001-14	Roll Pin	1

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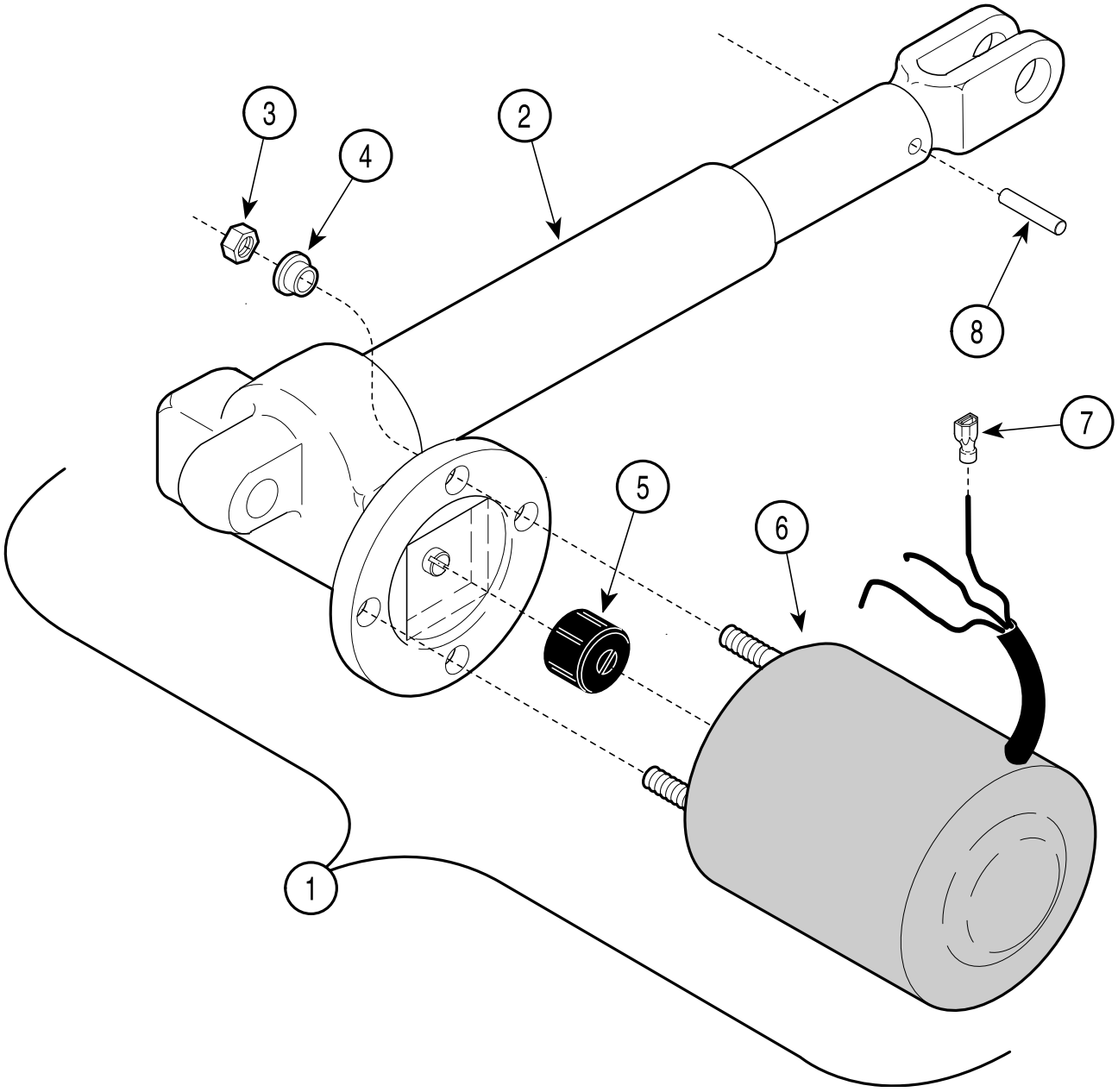
Foot Actuator Assembly



MA245101

Used on units with Serial Number BM-1750 thru Present

Item	Part No.	Description	Qty.
1	002-0564-05	Foot Actuator Assembly (Includes Items 2 thru 8)	1
2	• 016-0366-01	• Foot Actuator	1
3	•	• Nut	2
4	• 053-0198-00	• Shoulder Washer	2
5	• 016-0662-00	• Motor Coupler	1
6	• 015-1085-00	• Motor	1
7	• 015-0315-15	• Nylon Coupler Terminals	3
8	042-0001-14	Roll Pin	1

Always Specify Model & Serial Number

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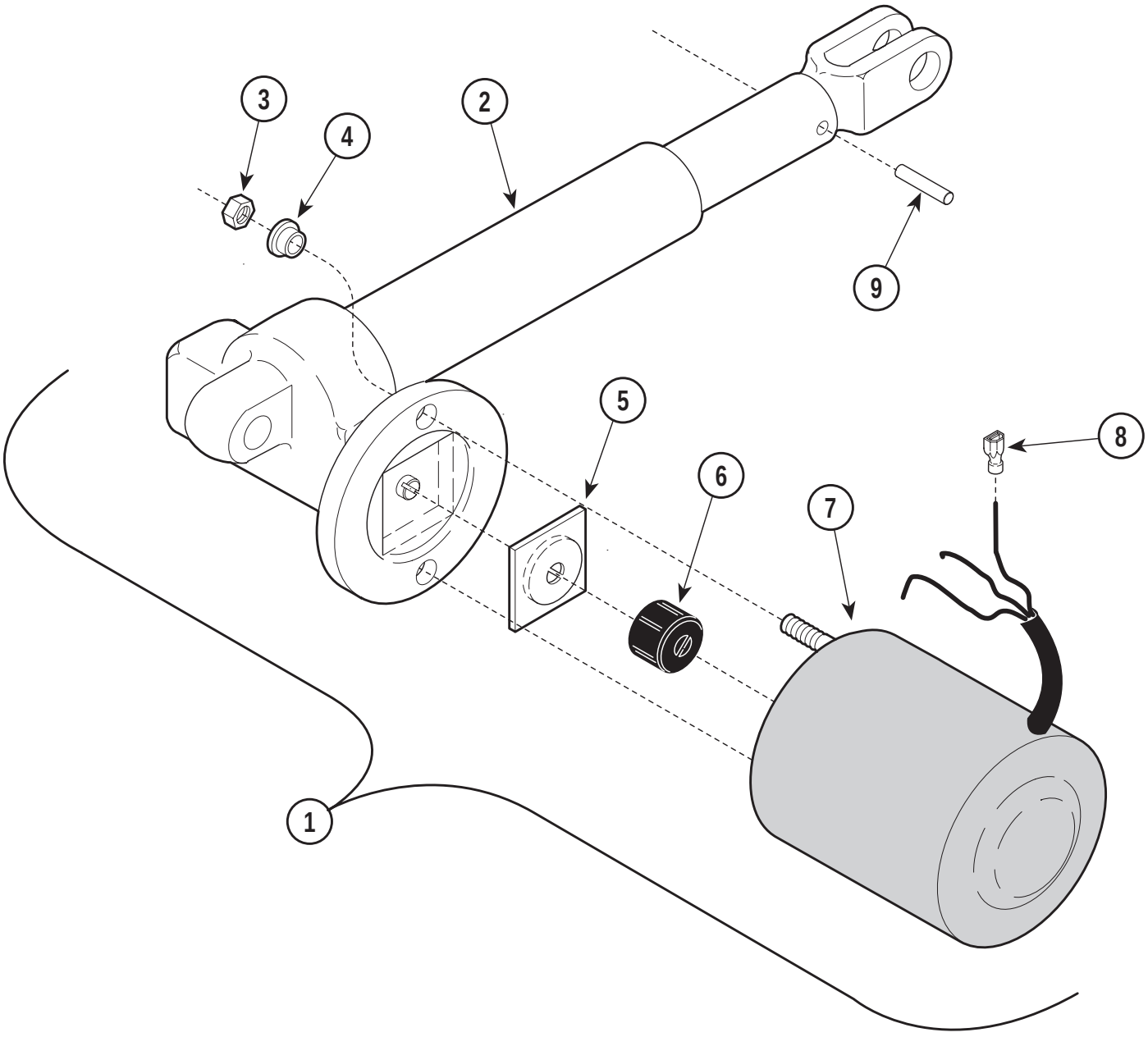
Back Actuator Assembly



MA2451

Used on units with Serial Number BM-1000 thru BM-1626

Item	Part No.	Description	Qty.
1	002-0392-00	Back Actuator Assembly (Includes Items 2 thru 8)	1
2	• 016-0233-04	• Back Actuator	1
3	•	• Nut	2
4	• 053-0198-00	• Shoulder Washer	2
5	• 016-0237-00	• Actuator Brake	1
6	• 016-0509-00	• Motor Coupler	1
7	• 002-0574-00	• Motor	1
8	• 015-0312-00	• Nylon Coupler Terminals	3
9	042-0001-14	Roll Pin	1

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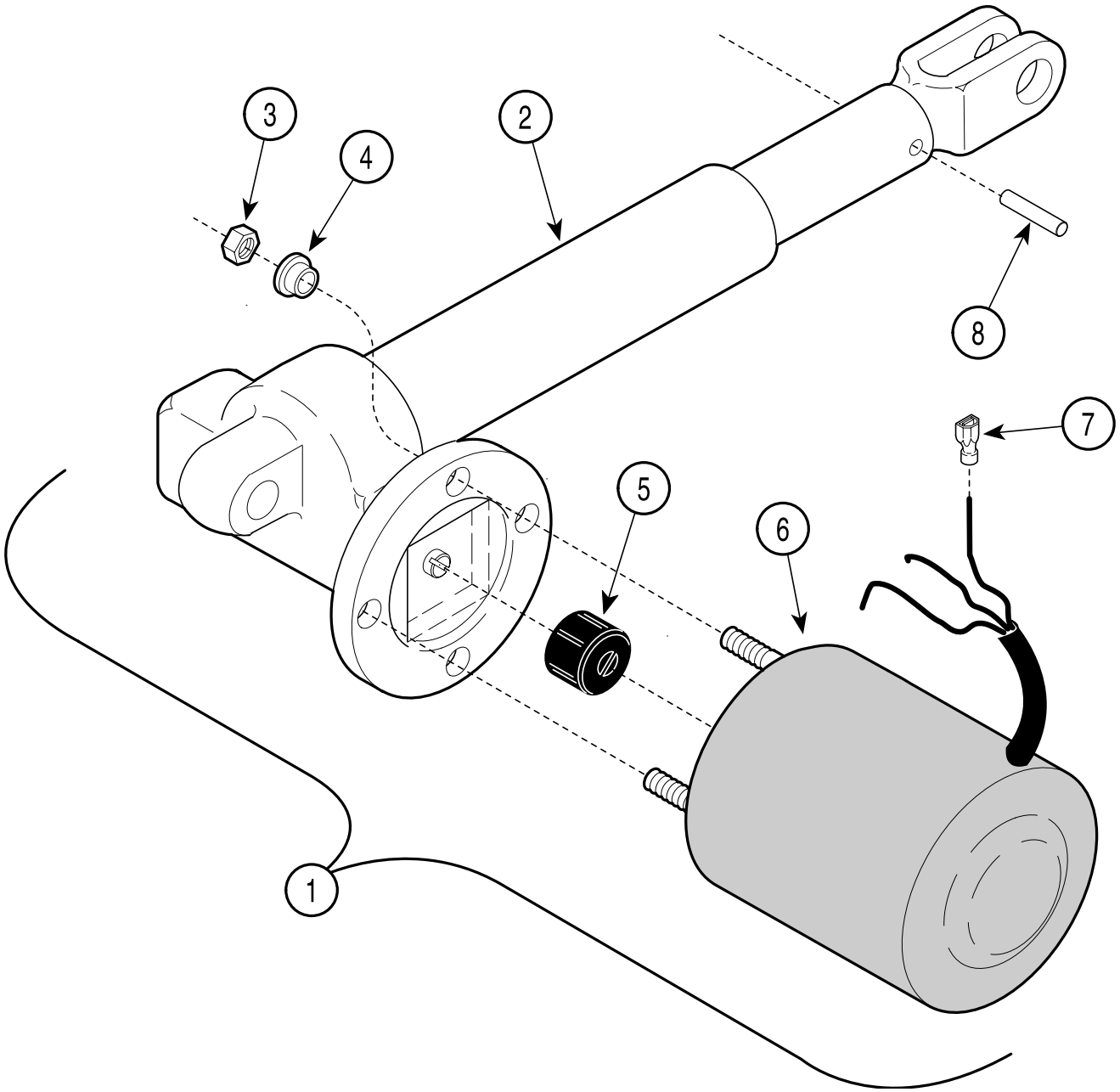
Back Actuator Assembly



MA245101

Used on units with Serial Number BM-1627 thru Present

Item	Part No.	Description	Qty.
1	002-0590-00	Back Actuator Assembly (Includes Items 2 thru 8)	1
2	• 016-0233-04	• Back Actuator	1
3	•	• Nut	2
4	• 053-0198-00	• Shoulder Washer	2
5	• 016-0615-15	• Motor Coupler	1
6	• 015-1085-00	• Motor	1
7	• 015-0315-15	• Nylon Coupler Terminals	3
8	042-0001-14	Roll Pin	1

Always Specify Model & Serial Number

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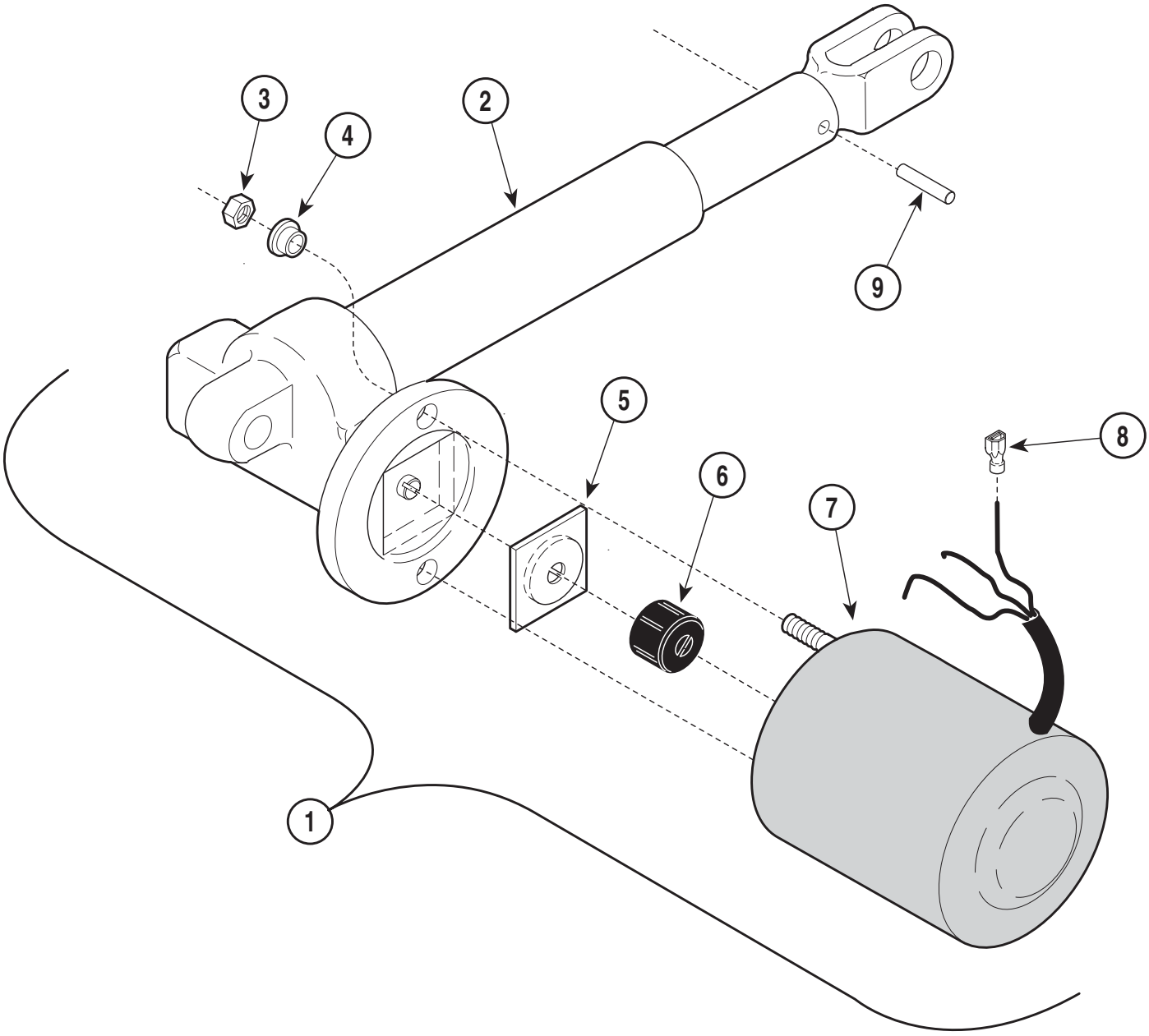
Tilt Actuator Assembly



Note:

The components shown on this page are replacement parts for the "obsolete" Tilt Actuator Assembly" 002-0391-00. If a complete assembly is required, use kit number 002-0564-10.

MA2451

Used on units with Serial Number BM-1000 thru BM-1600

Item	Part No.	Description	Qty.
1	*Not Available*	Tilt Actuator Assembly *[originally 002-0391-00 - see note above]* (Includes Items 2 thru 8)	1
2	• 016-0358-01	• Tilt Actuator	1
3	•	• Nut	2
4	• 053-0198-00	• Shoulder Washer	2
5	• 016-0237-00	• Actuator Brake	1
6	• 016-0509-00	• Motor Coupler	1
7	• 002-0574-00	• Motor	1
8	• 015-0312-00	• Nylon Coupler Terminals	3
9	042-0001-14	Roll Pin	1

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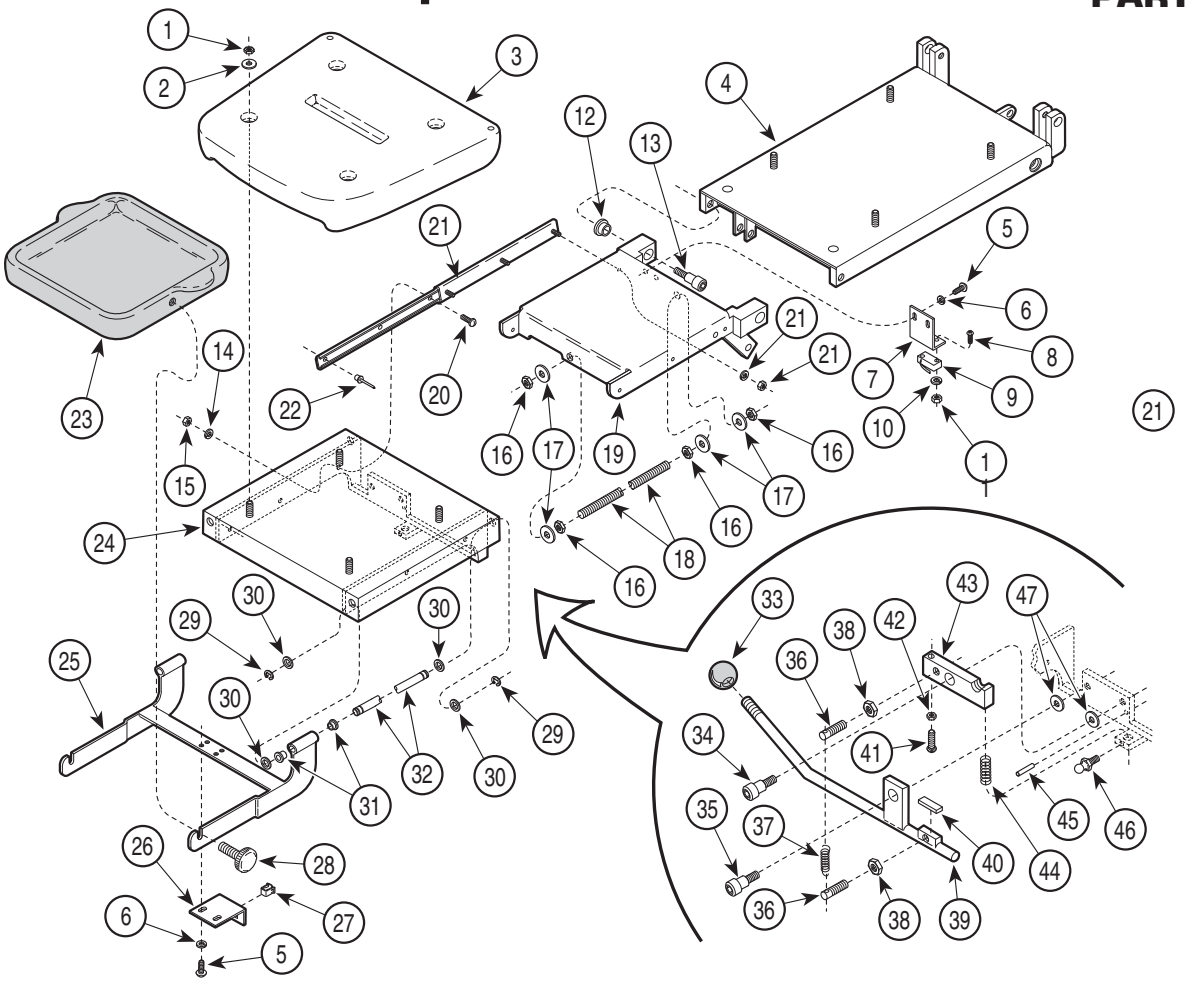
Foot Section Components



MA244401

Used on units with Serial Number BM-1000 thru BM-1385

Item	Part No.	Description	Qty.
1	041-0250-00	Nut	4
2	045-0001-02	Washer	4
3	053-0298-00	Plastic Foot Section	1
4		Seat Weldment (Refer to "Seat Section Components" Elsewhere)	Ref
5	040-0010-00	Screw	4
6	045-0001-08	Lockwasher	4
7	050-1569-00	Switch Mount	1
8	040-0004-08	Screw	2
9	015-0425-00	Switch	1
10	045-0001-38	Lockwasher	2
11	041-0004-01	Nut	2
12	016-0131-12	Flanged Washer	2
13	042-0014-19	Shoulder Screw (Apply Loctite #042-0025-00)	2
14	045-0001-19	Lockwasher	2
15	041-0008-00	Nut	2
16	041-0500-00	Nut	4
17	045-0001-51	Washer	4
18	042-0088-01	Threaded Brake Shaft	1
19	*N.L.A.*	Foot Pivot Weldment	1
20	040-0008-11	Screw	2
21	002-0868-00	Foot Section Slide Kit (Incl. Fasteners)	1
22	042-0010-15	Pop Rivet	4
23	002-0330-00	Debris Tray Kit (Includes Item 28)	1
	053-0292-00	Debris Tray (Less Knob)	1

Item	Part No.	Description	Qty.
24	030-0595-00	Cover Weldment	1
25	030-0596-00	Tray Frame	1
26	050-1568-00	Catch Mount	1
27	016-0376-00	Catch	1
28	016-0343-00	Knob	2
29	042-0007-00	E-Ring	4
30	053-0021-00	Rubber Washer	8
31	053-0226-01	Snap-In-Nyliner Bearing	4
32	057-0219-01	Debris Tray Shaft	2
33	016-0357-00	Knob	1
34	042-0014-20	Shoulder Screw (Apply Loctite #042-0025-00)	1
35	042-0014-06	Shoulder Screw (Apply Loctite #042-0025-00)	1
36	016-0367-00	Spring Anchor	2
37	025-0027-01	Tension Spring	1
38	041-0006-00	Nut	2
39	030-0615-00	Lever Weldment	1
40	053-0018-00	Nyl-O-Tape (1")	1
41	040-0250-78	Carriage Bolt	1
42	041-0250-12	Jam Nut	1
43	051-0566-00	Plated Threaded Lever	1
44	025-0042-00	Compression Spring	1
45	042-0046-00	Groove Pin	1
46	016-0375-00	Catch Strike	1
17	045-0007-06	Bearing Washer	2

N.L.A. denotes "No Longer Available"

Always Specify Model & Serial Number

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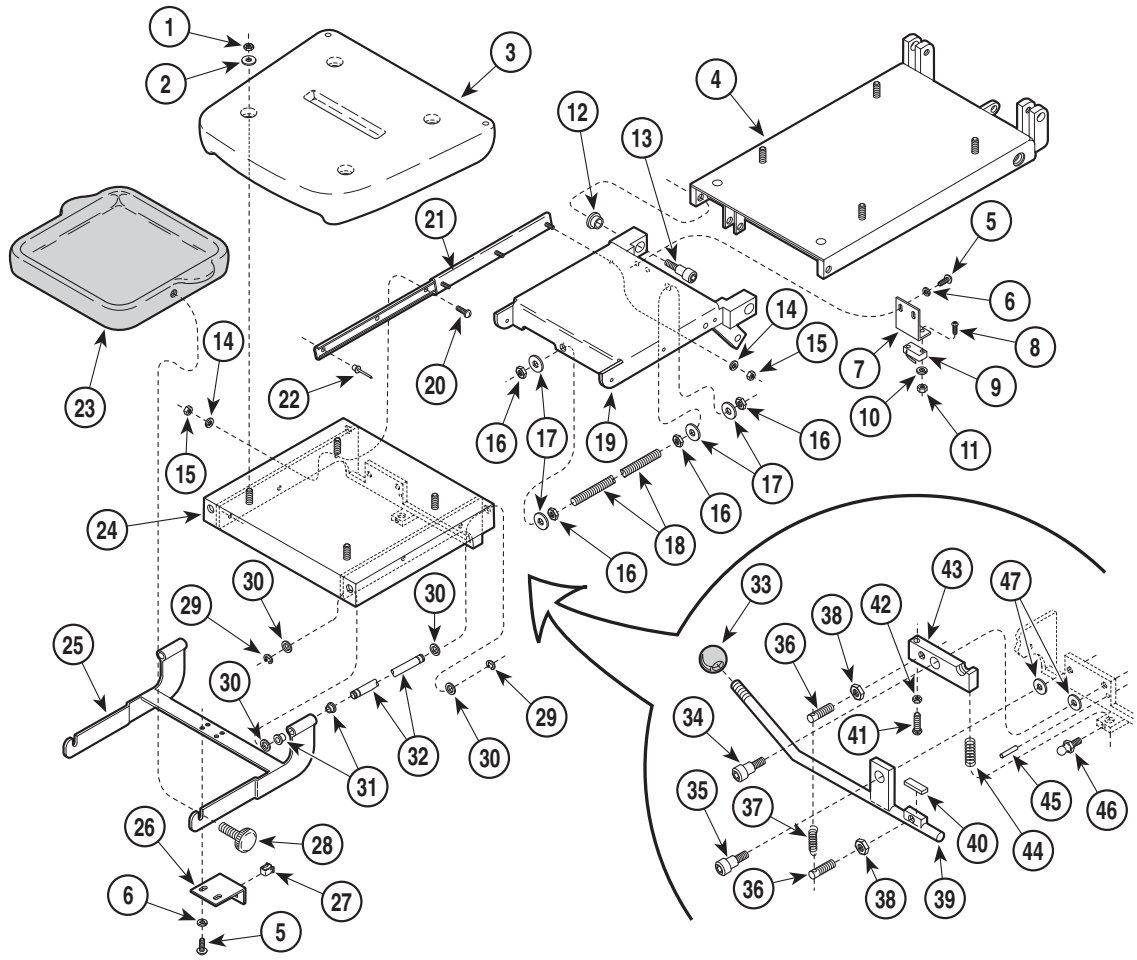
Foot Section Components



MA2444

Used on units with Serial Number BM-1386 thru Present

Item	Part No.	Description	Qty.
1	041-0250-00	Nut	4
2	045-0001-02	Washer	4
3	053-0298-00	Plastic Foot Section	1
4		Seat Weldment (Refer to "Seat Section Components" Elsewhere)	Ref
5	040-0010-00	Screw	4
6	045-0001-08	Lockwasher	4
7	050-1569-00	Switch Mount	1
8	040-0004-08	Screw	2
9	015-0425-00	Switch	1
10	045-0001-38	Lockwasher	2
11	041-0004-01	Nut	2
12	016-0131-12	Flanged Washer	2
13	042-0014-19	Shoulder Screw (Apply Loctite #042-0025-00)	2
14	045-0001-19	Lockwasher	8
15	041-0008-00	Nut	8
16	041-0500-00	Nut	4
17	045-0001-51	Washer	4
18	042-0088-01	Threaded Brake Shaft	1
19	*N.L.A.*	Foot Pivot Weldment	1
20	040-0008-11	Screw	2
21	002-0868-01	Foot Section Slide Kit (Incl. Fasteners)	1
22	042-0010-15	Pop Rivet	4
23	002-0330-00	Debris Tray Kit (Includes Item 28)	1
	053-0292-00	Debris Tray (Less Knob)	1
24	030-0595-00	Cover Weldment	1
25	030-0596-00	Tray Frame	1
26	050-1568-00	Catch Mount	1
27	016-0376-00	Catch	1
28	016-0343-00	Knob	2
29	042-0007-00	E-Ring	4
30	053-0021-00	Rubber Washer	8
31	053-0226-01	Snap-In-Nyliner Bearing	4
32	057-0219-01	Debris Tray Shaft	2
33	016-0357-00	Knob	1
34	042-0014-20	Shoulder Screw (Apply Loctite #042-0025-00)	1
35	042-0014-06	Shoulder Screw (Apply Loctite #042-0025-00)	1
36	016-0367-00	Spring Anchor	2
37	025-0027-01	Tension Spring	1
38	041-0006-00	Nut	2
39	030-0615-00	Lever Weldment	1
40	053-0018-00	Nyl-O-Tape (1")	1
41	040-0250-78	Carriage Bolt	1
42	041-0250-12	Jam Nut	1
43	051-0566-00	Plated Threaded Lever	1
44	025-0042-00	Compression Spring	1
45	042-0046-00	Groove Pin	1
46	016-0375-00	Catch Strike	1
17	045-0007-06	Bearing Washer	2

N.L.A. denotes "No Longer Available"

Always Specify Model & Serial Number

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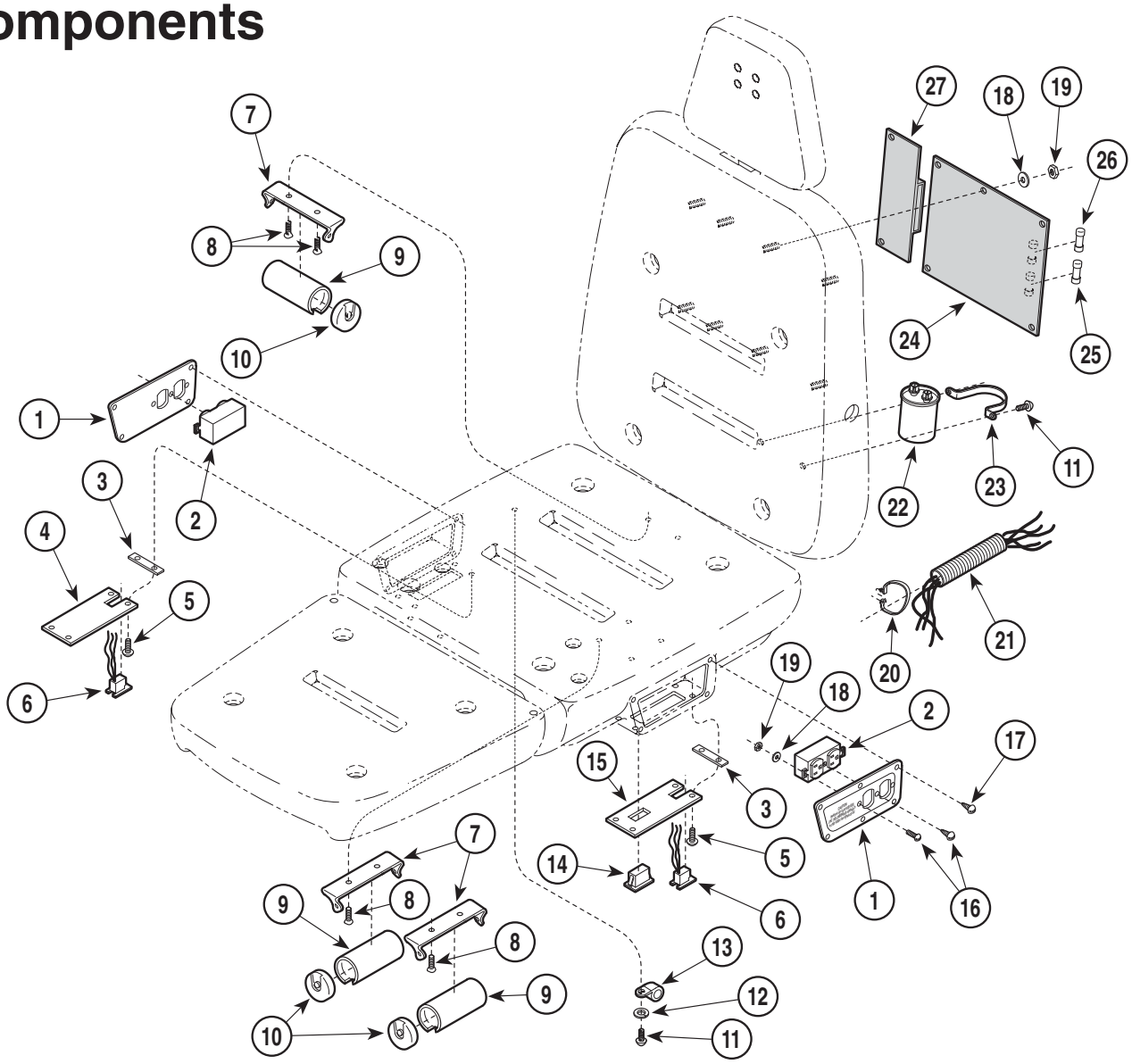
Upper Chair Electrical Components



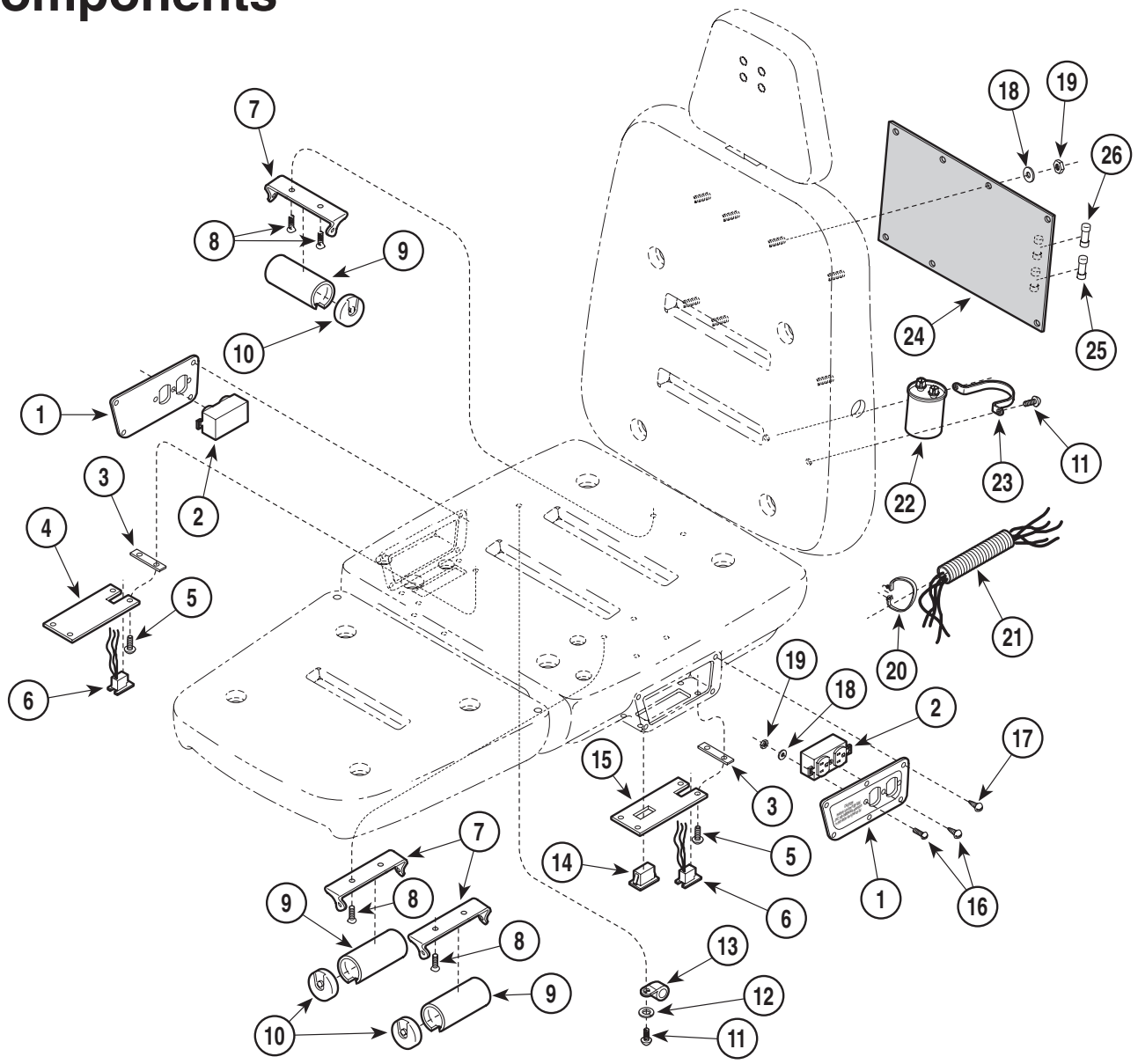
MA2449

Used on units with Serial Number BM-1000 thru BM-1405

Item	Part No.	Description	Qty.
1	053-0305-00	Receptacle Cover	2
2	015-0083-01	Receptacle	2
3	042-0089-00	Clip	2
4	050-1543-01	Control Cover (R.H.S.)	1
5	040-0006-00	Screw	8
6	015-0524-00	Jack Handset Harness (Refer to "Wiring Diagram" {Section 5})	Ref
7	015-0412-00	Mounting Bracket	3
8	040-0010-62	Screw	6
9	015-0437-02	Capacitor	3
10	015-0413-00	Capacitor Cap	3
11	040-0010-42	Screw	3
12	045-0001-35	Lockwasher	1
13	015-0014-01	Wire Clip	1
14	015-0543-00	Switch	1
15	050-1543-00	Control Cover (L.H.S.)	1
16	040-0006-23	Screw	6
17	040-0006-47	Screw	12
18	045-0001-45	Lockwasher	11
19	041-0006-00	Nut	11
20	042-0090-02	Nylatch Clamp	4
21		Upper Chair Wiring Harness (Refer to "Wiring Diagram" {Section 5})	Ref
22	015-0438-02	Polypropylene Capacitor	1
23	015-0461-01	Capacitor Clamp	1
24	002-0293-00	PC Board	1
25	015-0346-06	Fuse (20 Amp.)	1
26	015-0346-05	Fuse (1/2 Amp.)	1
27	002-0347-04	Program PC Board	1
28	015-0013-00	Cable Tie - 7.250" (Not Shown)	4
29	015-0013-02	Cable Tie - 3.875" (Not Shown)	4

Always Specify Model & Serial Number

Upper Chair Electrical Components



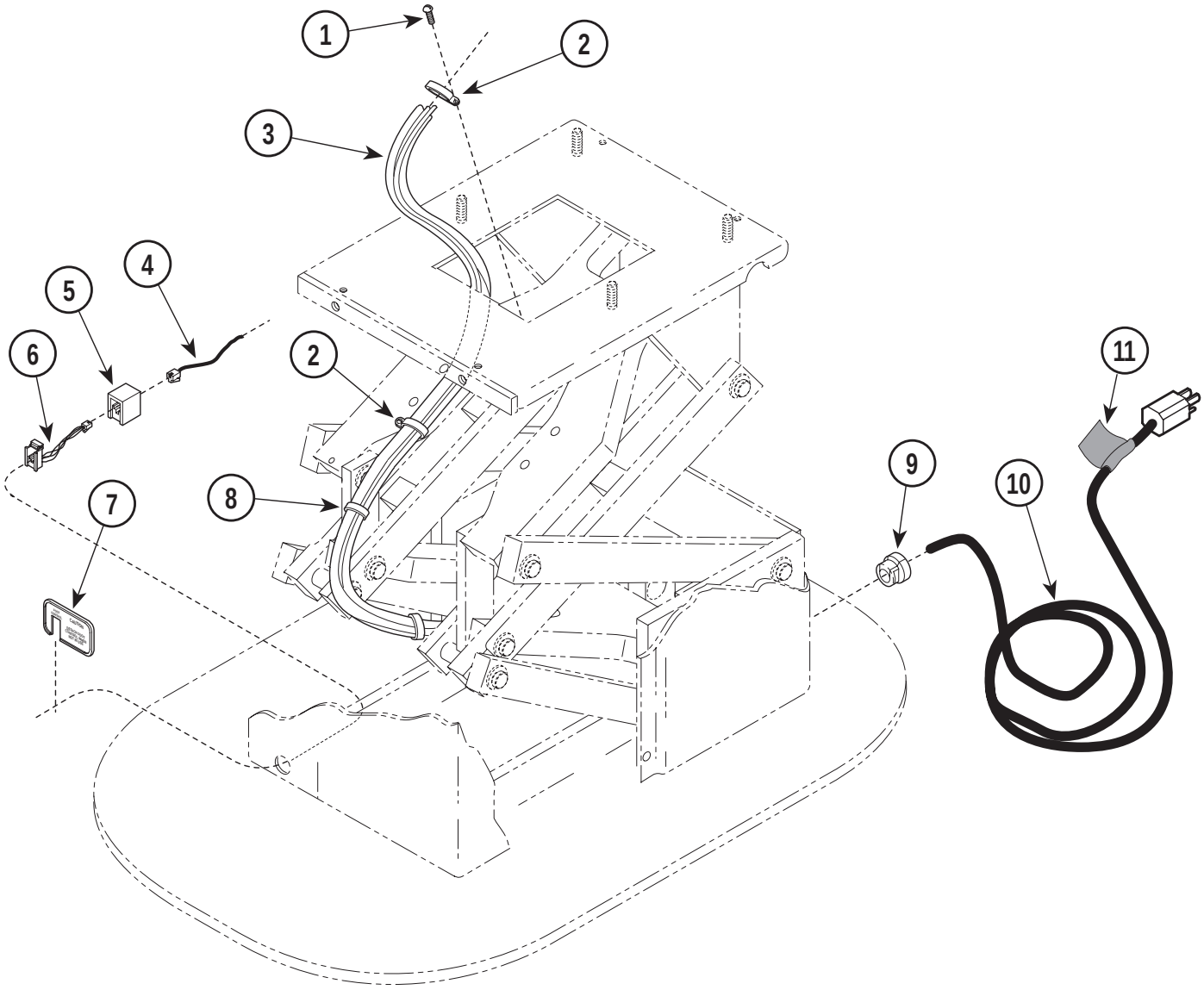
MA245000

Used on units with Serial Number BM-1406 thru Present

Item	Part No.	Description	Qty.
1	053-0305-00	Receptacle Cover	2
2	015-0083-01	Receptacle	2
3	042-0089-00	Clip	2
4	050-1543-01	Control Cover (R.H.S.)	1
5	040-0006-00	Screw	8
6	015-0524-00	Jack Handset Harness (Refer to "Wiring Diagram" {Section 5})	Ref
7	015-0412-00	Mounting Bracket	3
8	040-0010-62	Screw	6
9	015-0437-02	Capacitor	3
10	015-0413-00	Capacitor Cap	3
11	040-0010-42	Screw	3
12	045-0001-35	Lockwasher	1
13	015-0014-01	Wire Clip	1
14	015-0543-00	Switch	1
15	050-1543-00	Control Cover (L.H.S.)	1
16	040-0006-23	Screw	6
17	040-0006-47	Screw	12
18	045-0001-45	Lockwasher	11
19	041-0006-00	Nut	11
20	042-0090-02	Nylatch Clamp	4
21	015-0930-00	Upper Chair Wiring Harness (Refer to "Wiring Diagram" {Section 5})	Ref
22	015-0438-02	Polypropylene Capacitor	1
23	015-0461-01	Capacitor Clamp	1
24	002-0481-02	PC Board	1
25	015-0346-22	Fuse (5 Amp.)	4
26	015-0346-14	Fuse (.125 Amp.)	1
27	015-0013-00	Cable Tie - 7.250" (Not Shown)	4
28	015-0013-02	Cable Tie - 3.875" (Not Shown)	4

Always Specify Model & Serial Number

Lower Chair Electrical Components



MA2445

Used on units with Serial Number BM-1000 thru BM-1050

Item	Part No.	Description	Qty.
1	040-0010-04	Screw	3
2	015-0001-01	Wire Clip	3
3		Wire Harness Assembly (Refer to "Wiring Diagram" {Section 5})	Ref
4	015-0535-04	Cord Set (Refer to "Wiring Diagram" {Section 5})	Ref
5	015-0540-00	Modular Coupler	1
6	015-0524-00	Jack Handset Harness (Refer to "Wiring Diagram" {Section 5})	Ref
7	053-0306-00	Foot Control Cover Plate	1
8	015-0013-02	Cable Tie	6
9	015-0002-01	Strain Relief Bushing	1
10	015-0066-11	Power Cord	1
11	061-0034-00	Cord Tag	1

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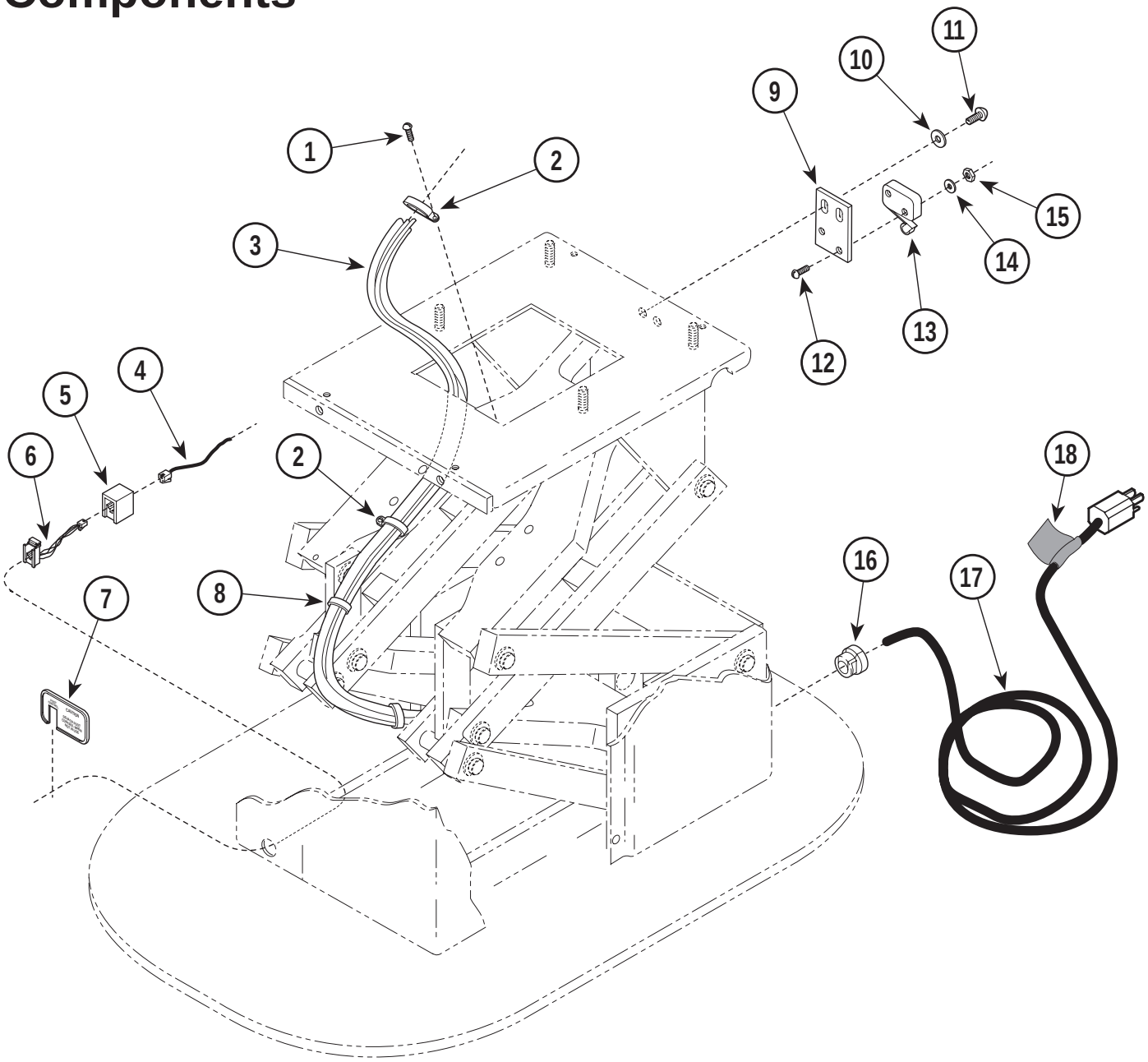
Lower Chair Electrical Components



MA2446

Used on units with Serial Number BM-1051 thru BM-1097

Item	Part No.	Description	Qty.
1	040-0010-04	Screw	3
2	015-0001-01	Wire Clip	3
3		Wire Harness Assembly (Refer to "Wiring Diagram" {Section 5})	Ref
4	015-0535-04	Cord Set (Refer to "Wiring Diagram" {Section 5})	Ref
5	015-0540-00	Modular Coupler	1
6	015-0524-00	Jack Handset Harness (Refer to "Wiring Diagram" {Section 5})	Ref
7	053-0306-00	Foot Control Cover Plate	1
8	015-0013-02	Cable Tie	6
9	050-1858-00	Switch Mount	1
10	045-0001-08	Lockwasher	2
11	040-0010-00	Screw	2
12	040-0004-09	Screw	2
13	015-0635-00	Limit Switch	1
	002-0332-00	Limit Switch Update Kit	1
14	045-0001-38	Lockwasher	2
15	041-0004-01	Nut	2
16	015-0002-01	Strain Relief Bushing	1
17	015-0066-11	Power Cord	1
18	061-0034-00	Cord Tag	1

Always Specify Model & Serial Number

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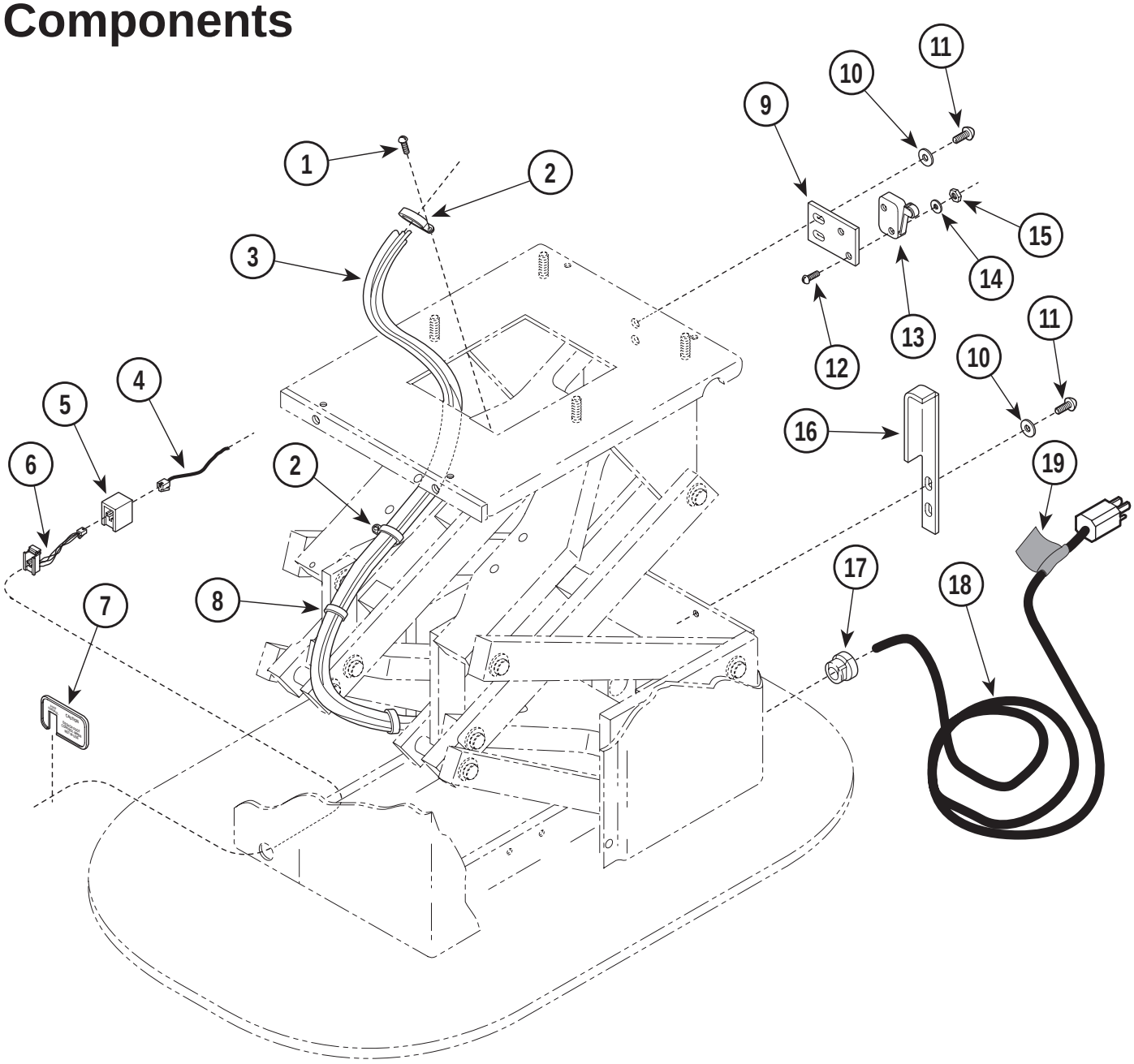
Lower Chair Electrical Components



MA2447

Used on units with Serial Number BM-1098 thru Present

Item	Part No.	Description	Qty.
1	040-0010-04	Screw	3
2	015-0001-01	Wire Clip	3
3		Wire Harness Assembly (Refer to "Wiring Diagram" {Section 5})	Ref
4	015-0535-04	Cord Set (Refer to "Wiring Diagram" {Section 5})	Ref
5	015-0540-00	Modular Coupler	1
6	015-0524-00	Jack Handset Harness (Refer to "Wiring Diagram" {Section 5})	Ref
7	053-0306-00	Foot Control Cover Plate	1
8	015-0013-02	Cable Tie - 3.875"	6
	015-0013-00	Cable Tie - 7.250" (Not Shown)	1

Item	Part No.	Description	Qty.
9	050-1858-00	Switch Mount	1
10	045-0001-08	Lockwasher	2
11	040-0010-00	Screw	2
12	040-0004-09	Screw	2
13	015-0635-00	Limit Switch	1
14	045-0001-38	Lockwasher	2
15	041-0004-01	Nut	2
16	050-1986-00	Bracket	1
17	015-0002-01	Strain Relief Bushing	1
18	015-0066-11	Power Cord	1
19	061-0034-00	Cord Tag	1

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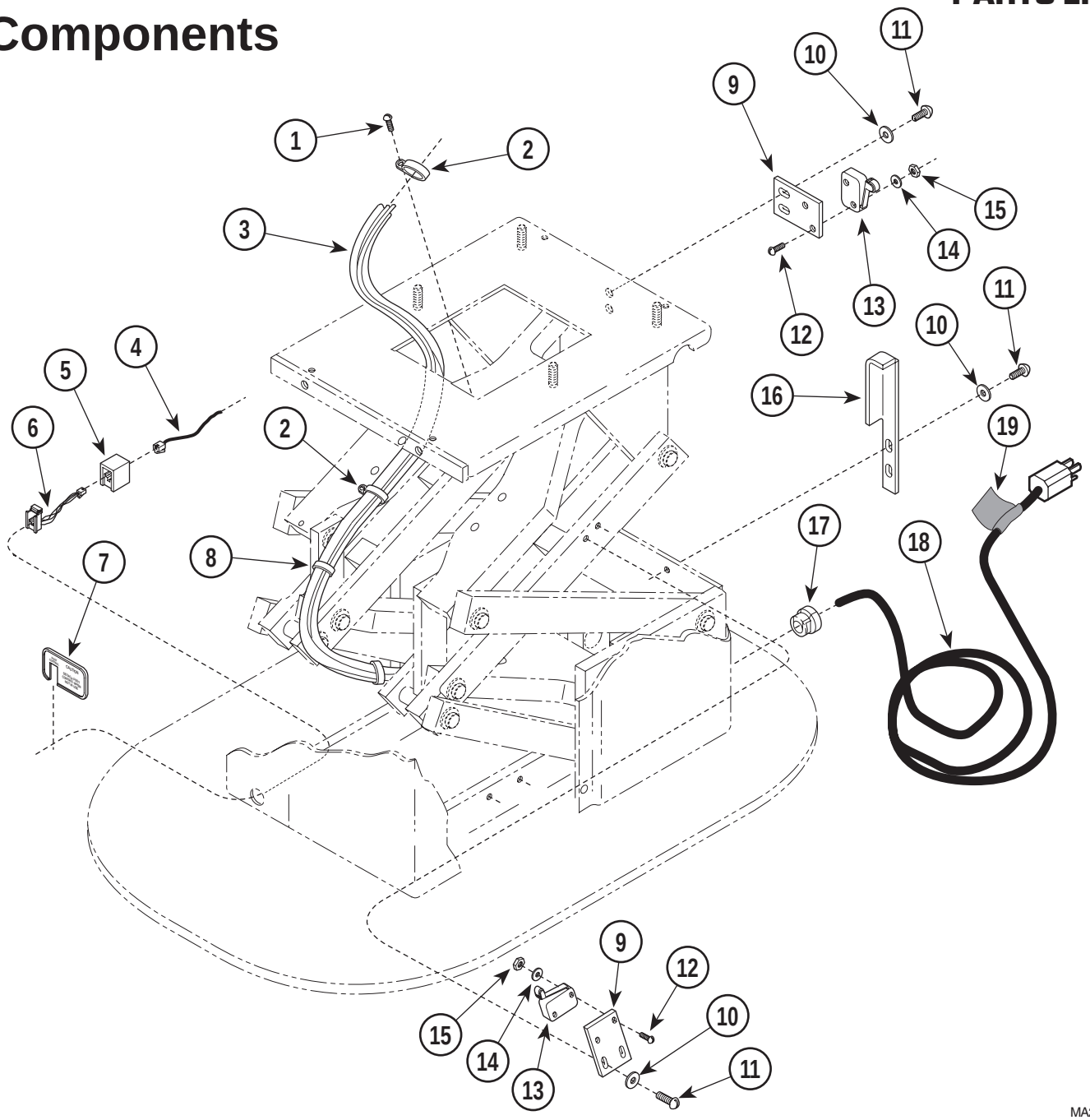
Lower Chair Electrical Components



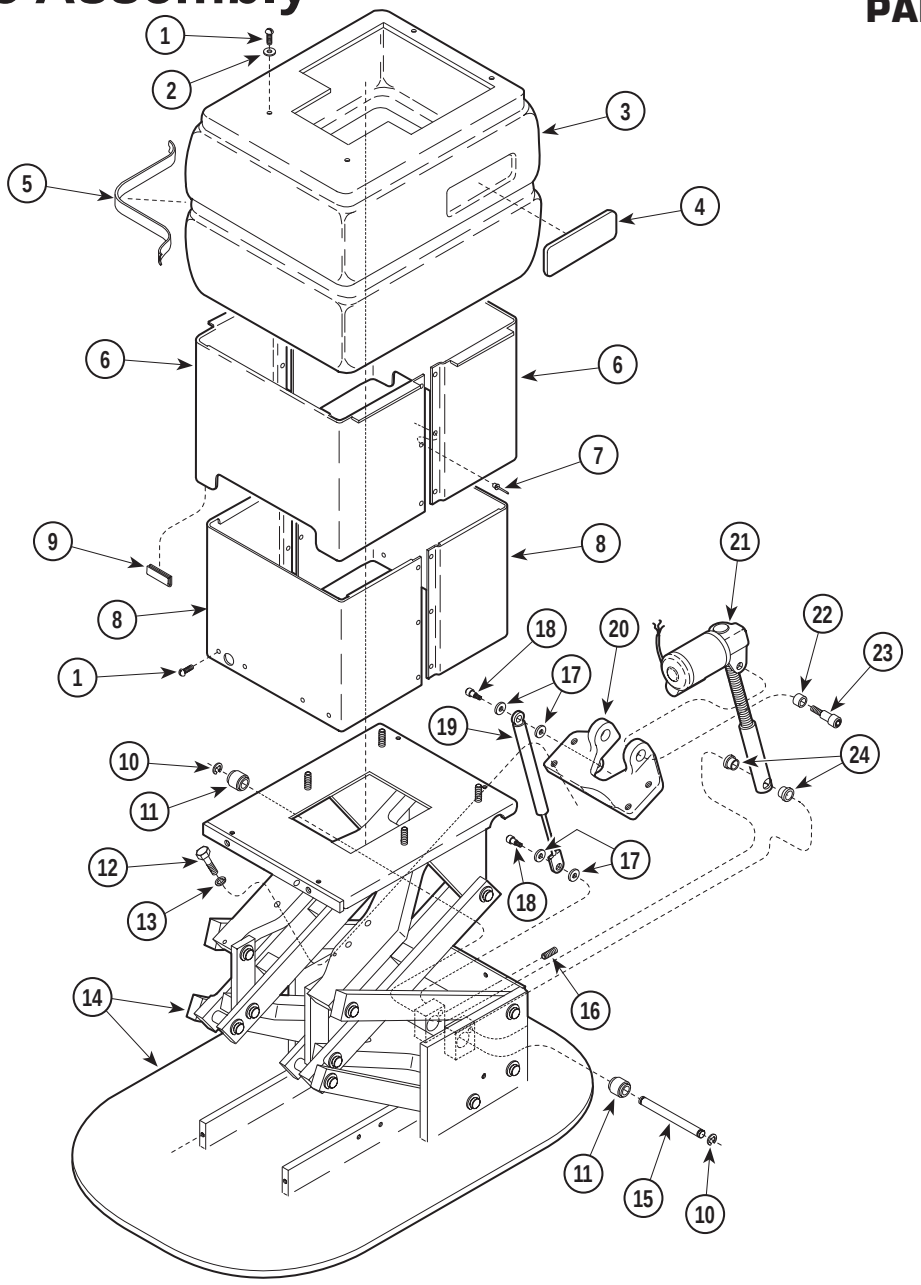
Used on units with Serial Number BM1777 thru Present

Item	Part No.	Description	Qty.
1	040-0010-04	Screw	3
2	015-0001-01	Wire Clip	3
3		Wire Harness Assembly (Refer to "Wiring Diagram" {Section 5})	Ref
4	015-0535-04	Cord Set (Refer to "Wiring Diagram" {Section 5})	Ref
5	015-0540-00	Modular Coupler	1
6	015-0524-00	Jack Handset Harness (Refer to "Wiring Diagram" {Section 5})	Ref
7	053-0306-00	Foot Control Cover Plate	1
8	015-0013-02	Cable Tie - 3.875"	6
	015-0013-00	Cable Tie - 7.250" (Not Shown)	1

Item	Part No.	Description	Qty.
9	050-1858-00	Switch Mount	2
10	045-0001-08	Lockwasher	4
11	040-0010-47	Screw	6
12	040-0004-09	Screw	4
13	015-0635-00	Limit Switch	2
14	045-0001-38	Lockwasher	4
15	041-0004-01	Nut	4
16	050-1986-00	Bracket	1
17	015-0002-01	Strain Relief Bushing	1
18	015-0066-11	Power Cord	1
19	061-0034-00	Cord Tag	1

Always Specify Model & Serial Number

Power Base Assembly



MA2431

Used on units with Serial Number BM-1000 thru BM-1050

Item	Part No.	Description	Qty.
1	040-0010-04	Screw	8
2	045-0001-40	Washer	4
3	053-0291-00	Base Outer Shroud	1
4	053-0297-14	Nameplate (414)	2
5	053-0327-01	Base Shroud Stripe	1
6	050-1486-00	Outer Shroud	2
7	042-0010-03	Pop Rivet	12
8	050-1485-00	Inner Shroud	2
9	016-0360-01	Protective Trim (1 1/2")	4
10	042-0007-02	E-Ring	2
11	016-0346-00	Fabreeka Bushing	2
12	040-0375-36	Screw	4
13	045-0001-24	Lockwasher	4
14		Base Sub-Assembly (Refer to "Base Sub-Assembly" Elsewhere)	Ref
15	042-0048-07	Clevis Pin	1
16	040-0010-33	Set Screw	1
17	045-0001-49	Washer	4
18	042-0014-23	Shoulder Screw	2
19	016-0356-00	Gas Spring	1
20	020-0071-00	Actuator Bracket	1
21		Actuator Assembly(Refer to "Base Actuator Assembly" Elsewhere)	Ref
22	016-0149-02	Bronze Bearing	2
23	042-0014-15	Shoulder Screw (Apply Loctite #042-0024-00)	2
24	016-0131-09	Flanged Bearing	2

Always Specify Model & Serial Number

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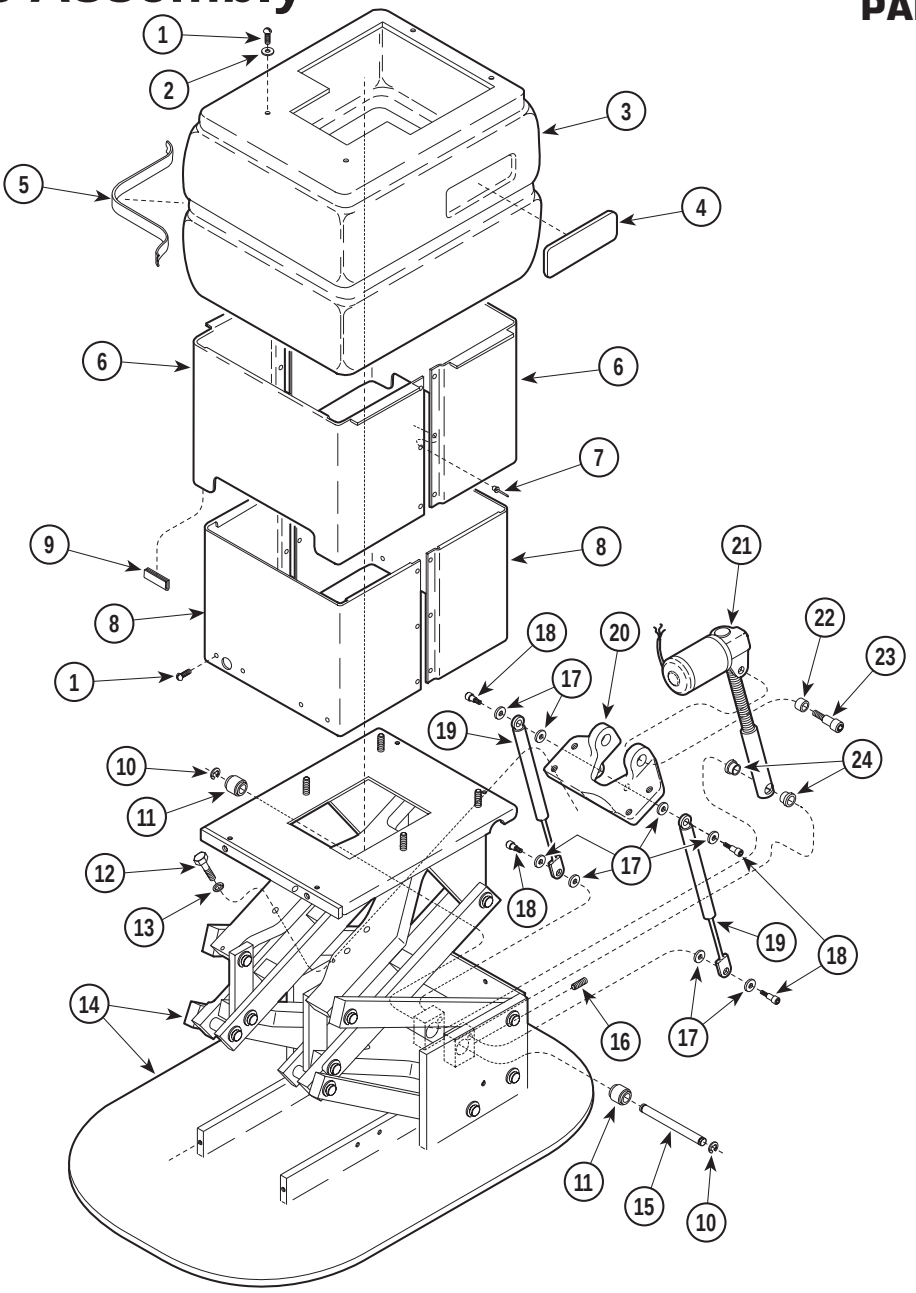
Power Base Assembly



Used on units with Serial Number BM-1051 thru BM-1600

Item	Part No.	Description	Qty.
1	040-0010-04	Screw	8
2	045-0001-40	Washer	4
3	053-0291-00	Base Outer Shroud	1
4	053-0297-14	Nameplate (414)	2
5	053-0327-01	Base Shroud Stripe	1
6	050-1486-00	Outer Shroud	2
7	042-0010-03	Pop Rivet	12
8	050-1485-00	Inner Shroud	2
9	016-0360-01	Protective Trim (1 1/2")	4
10	042-0007-02	E-Ring	2
11	016-0424-00	Silent-lign Bushing	2
12	040-0375-36	Screw	4
13	045-0001-24	Lockwasher	4
14		Base Sub-Assembly (Refer to "Base Sub-Assembly" Elsewhere)	Ref
15	042-0048-07	Clevis Pin	1
16	040-0010-33	Set Screw	1
17	045-0001-49	Washer	8
18	042-0014-23	Shoulder Screw	4
19	016-0356-00	Gas Spring	2
20	020-0071-00	Actuator Bracket	1
21		Actuator Assembly(Refer to "Base Actuator Assembly" Elsewhere)	Ref
22	016-0149-02	Bronze Bearing	2
23	042-0014-15	Shoulder Screw (Apply Loctite #042-0024-00)	2
24	016-0131-09	Flanged Bearing	2

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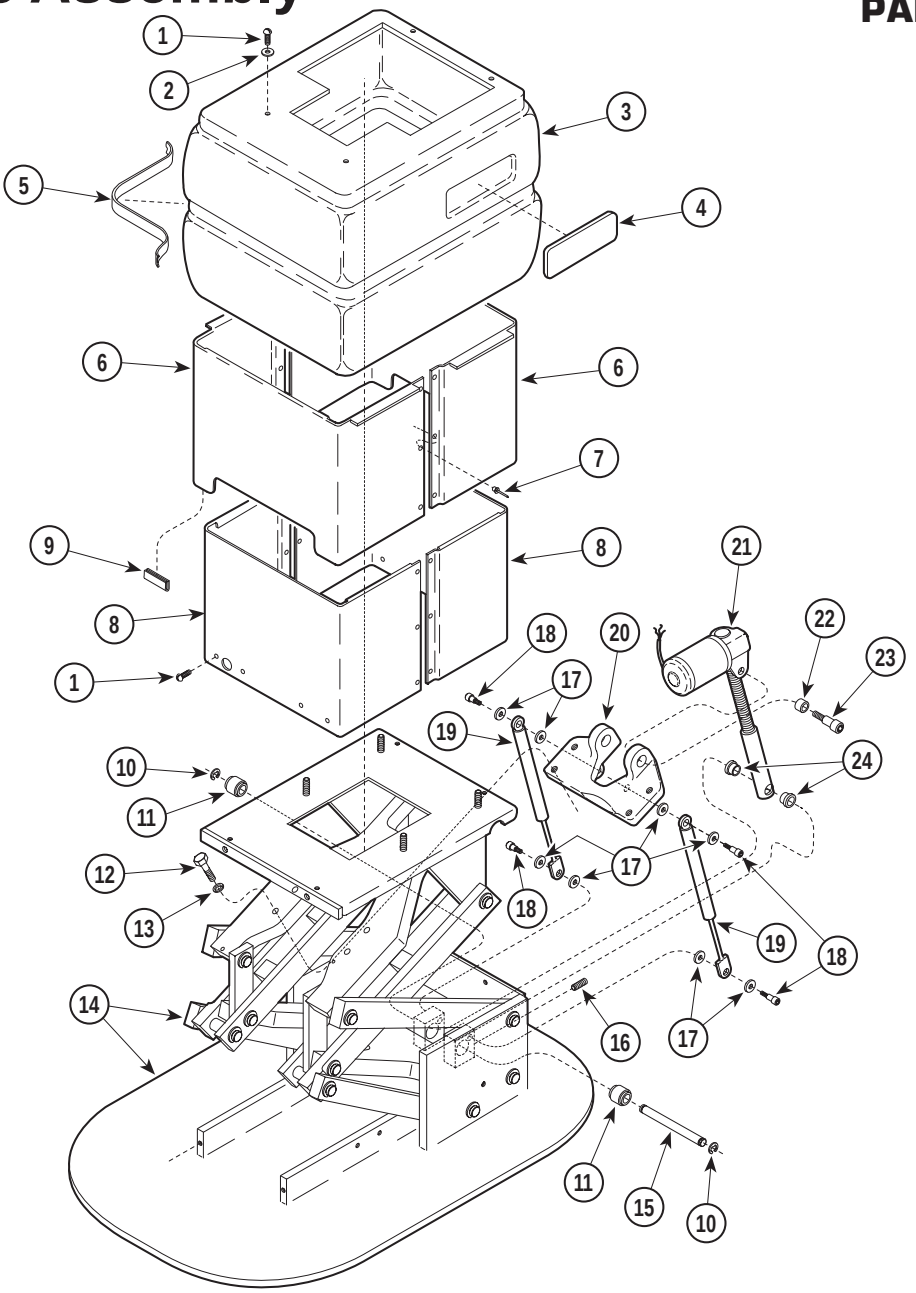
Power Base Assembly



MA2400

Used on units with Serial Number BM-1601 thru Present

Item	Part No.	Description	Qty.
1	040-0010-04	Screw	8
2	045-0001-40	Washer	4
3	053-0291-00	Base Outer Shroud	1
4	053-0297-14	Nameplate (414)	2
5	053-0327-01	Base Shroud Stripe	1
6	050-1486-00	Outer Shroud	2
7	042-0010-03	Pop Rivet	12
8	050-1485-00	Inner Shroud	2
9	016-0360-01	Protective Trim (1 1/2")	4
10	042-0007-02	E-Ring	2
11	016-0424-00	Silent-lign Bushing	2
12	040-0375-36	Screw	4
13	045-0001-24	Lockwasher	4
14		Base Sub-Assembly (Refer to "Base Sub-Assembly" Elsewhere)	Ref
15	042-0048-07	Clevis Pin	1
16	040-0010-33	Set Screw	1
17	045-0001-49	Washer	8
18	042-0014-23	Shoulder Screw	4
19	016-0356-00	Gas Spring	2
20	020-0071-00	Actuator Bracket	1
21	002-0565-00	Actuator Assembly	1
22	016-0149-02	Bronze Bearing	2
23	042-0014-15	Shoulder Screw (Apply Loctite #042-0024-00)	2
24	016-0131-09	Flanged Bearing	2

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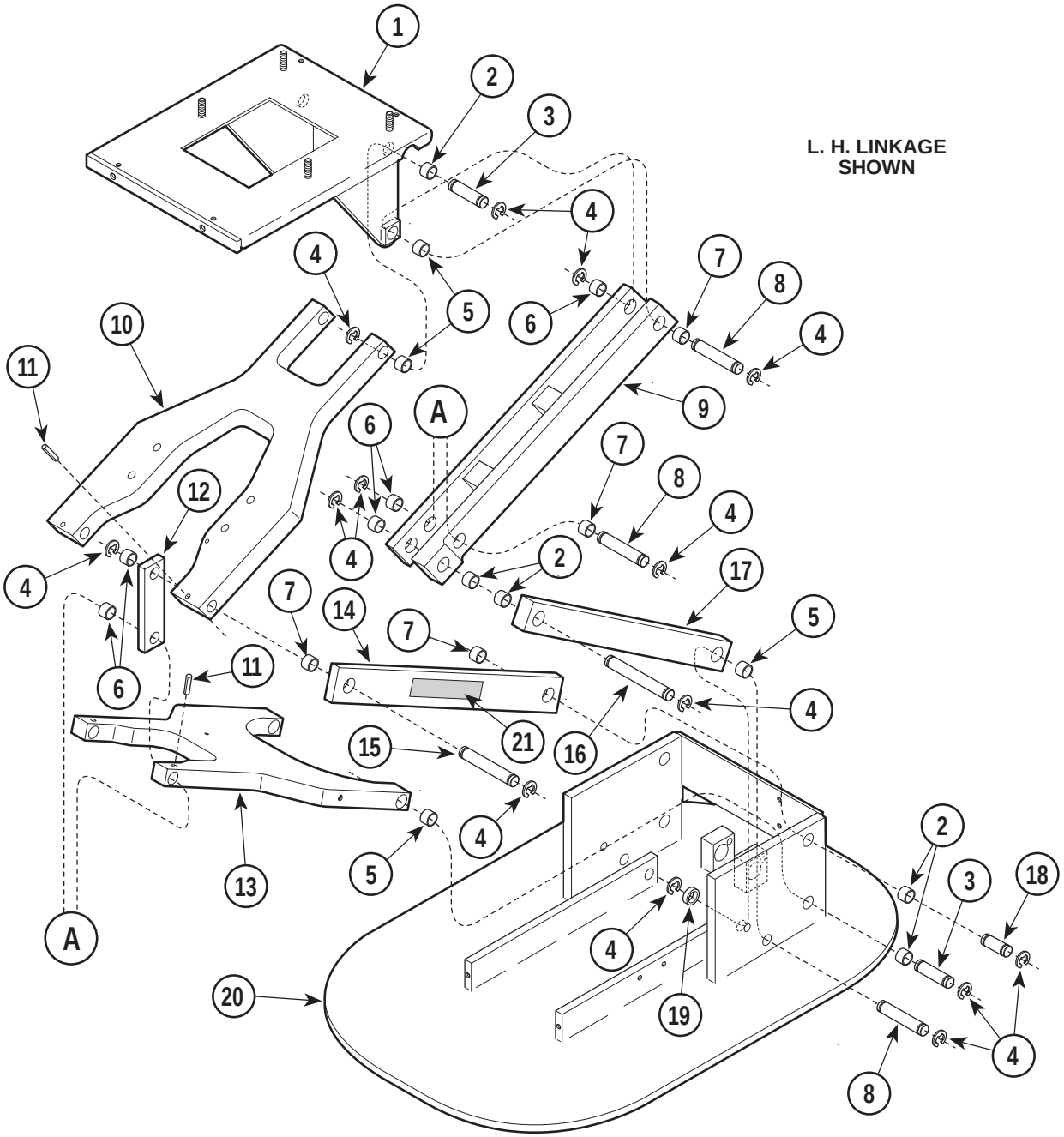
Base Sub-Assembly



Used on units with Serial Number BM-1000 thru BM-1096

Item	Part No.	Description	Qty.
		Base Sub-Assembly (Includes Items 1 thru 21)	1
1	• 030-0764-01	• Base Mounting Plate Weldment	1
2	• 016-0076-10	• DU Bearing	12
3	• 057-0218-01	• Clevis Pin	4
4	• 042-0007-06	• E-Ring	32
5	• 016-0076-11	• DU Bearing	6
6	• 016-0076-02	• DU Bearing	10
7	• 016-0076-09	• DU Bearing	8
8	• 057-0218-02	• Clevis Pin	6
9	• 030-0745-00	• Connecting Bar Weldment	2
10	• 050-1582-00	• Upper Plate	1
11	• 042-0001-00	• Roll Pin	4
12	• 051-0518-00	• Connect Bar	2
13	• 050-1581-00	• Lower Plate	1
14	• 051-0519-00	• Lower Bar	2
15	• 057-0218-03	• Clevis Pin	2
16	• 057-0218-04	• Clevis Pin	2
17	• 051-0521-00	• Control Bar	2
18	• 057-0218-00	• Clevis Pin	2
19	• 052-0144-00	• Spacer	2
20	• 030-0524-00	• Base Weldment	1
21	• 061-0045-00	• Caution Label	2

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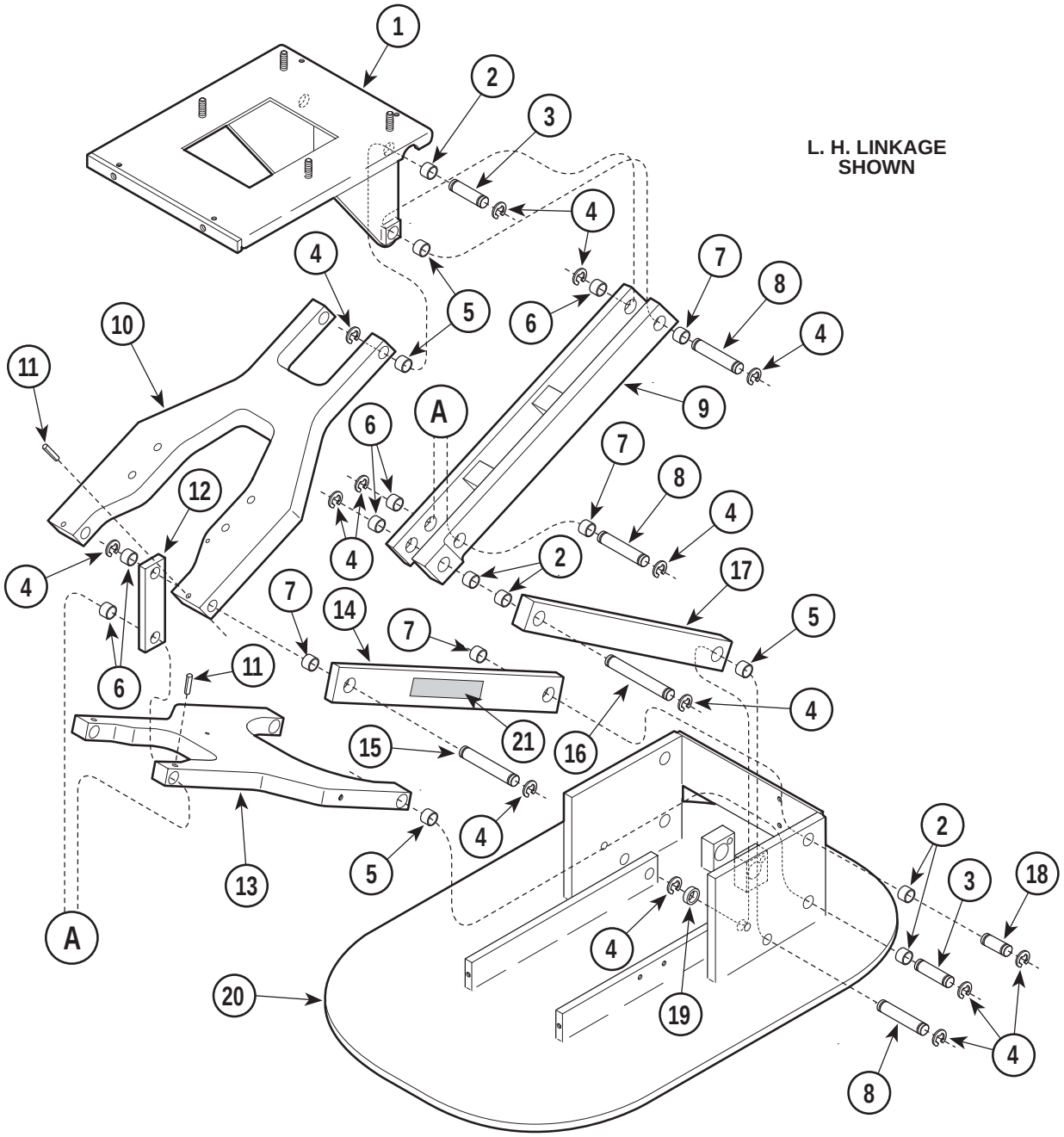
Base Sub-Assembly



MA239900

Used on units with Serial Number BM-1097 thru Present

Item	Part No.	Description	Qty.
		Base Sub-Assembly (Includes Items 1 thru 21)	1
1	• 030-0764-01	• Base Mounting Plate Weldment	1
2	• 016-0076-10	• DU Bearing	12
3	• 057-0218-01	• Clevis Pin	4
4	• 042-0007-06	• E-Ring	32
5	• 016-0076-11	• DU Bearing	6
6	• 016-0076-02	• DU Bearing	10
7	• 016-0076-09	• DU Bearing	8
8	• 057-0218-02	• Clevis Pin	6
9	• 030-1274-00	• Connecting Bar Weldment	2
10	• 050-1582-00	• Upper Plate	1
11	• 042-0001-00	• Roll Pin	4
12	• 051-0518-00	• Connect Bar	2
13	• 050-1581-00	• Lower Plate	1
14	• 051-0519-00	• Lower Bar	2
15	• 057-0218-03	• Clevis Pin	2
16	• 057-0218-04	• Clevis Pin	2
17	• 051-0521-00	• Control Bar	2
18	• 057-0218-00	• Clevis Pin	2
19	• 052-0144-00	• Spacer	2
20	• 030-0927-00	• Base Weldment	1
21	• 061-0045-00	• Caution Label	2

Always Specify Model & Serial Number

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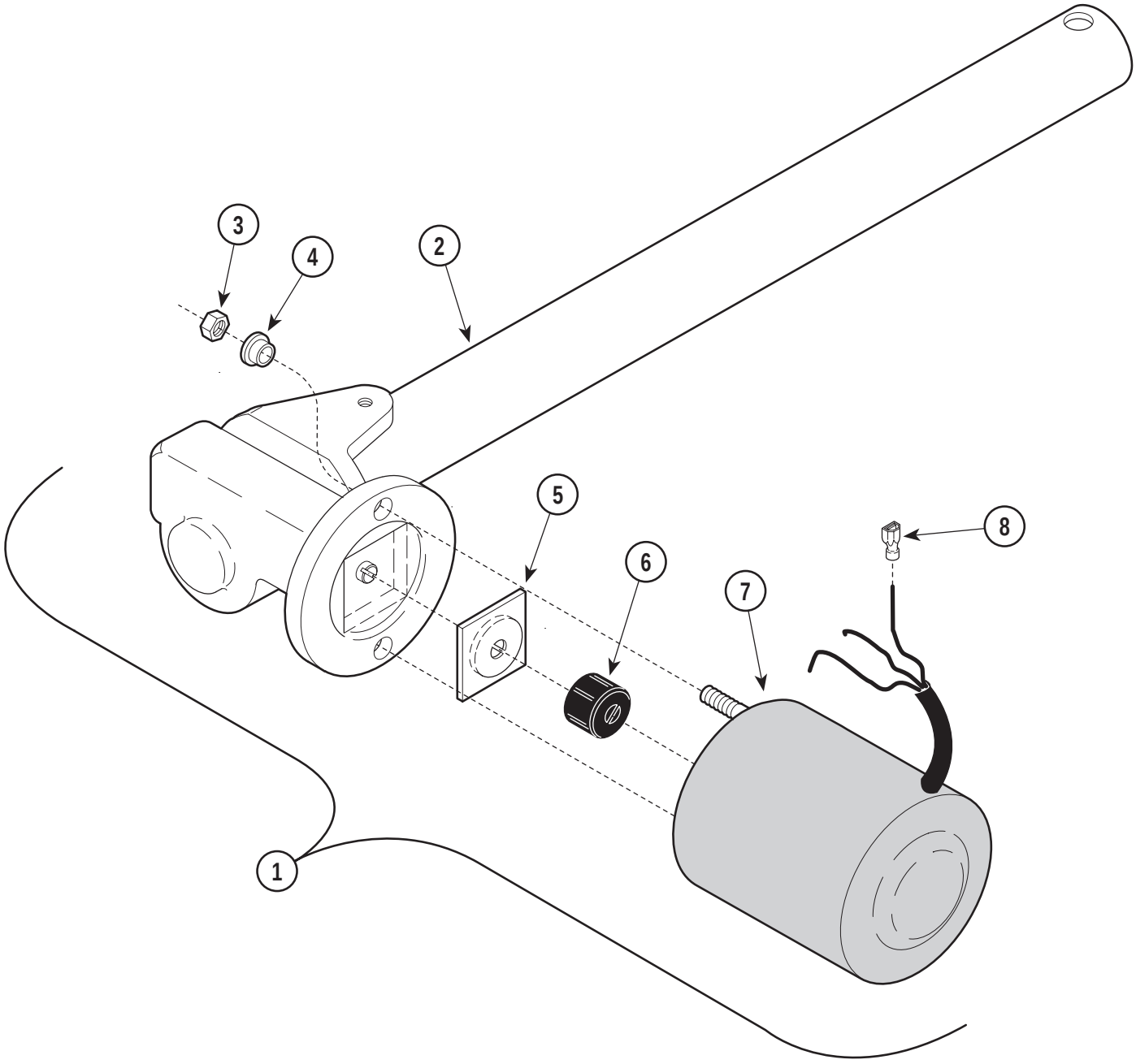
Base Actuator Assembly



MA245200

Used on units with Serial Number BM-1000 thru BM-1600

Item	Part No.	Description	Qty.
1	002-0296-00	Base Actuator Assembly (Includes Items 2 thru 8)	1
2	• 016-0338-01	•Base Actuator	1
3	•	• Nut	2
4	• 053-0198-00	• Shoulder Washer	2
5	• 016-0237-00	• Actuator Brake	1
6	• 016-0509-00	• Motor Coupler	1
7	• 002-0574-06	• Motor	1
8	• 015-0312-00	• Nylon Coupler Terminals	3

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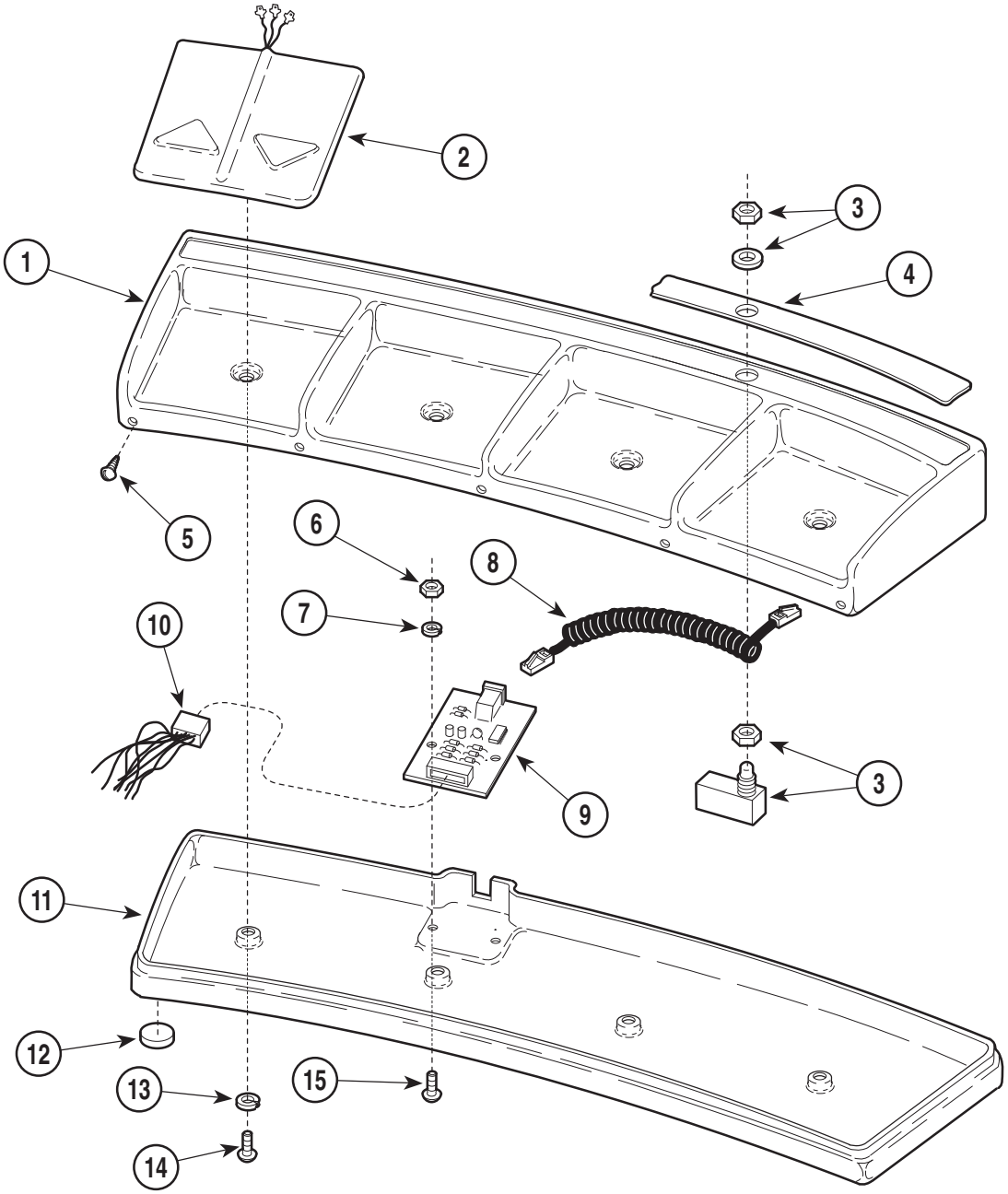
Foot Control Assembly



MA244800

Used on units with Serial Number BM-1000 thru BM-1189

Item	Part No.	Description	Qty.
	N.L.A.	4 Station Foot Control Assembly (Includes Items 1 thru 15)	1
1	• 053-0311-00	• Foot Control Top Housing	1
2	• 015-0570-00	• Tape Switch (No Longer Available)	4
3	• 015-0571-00	• Switch	5
4	• 061-0224-00	• Foot Control Decal	1
5	• 040-0006-00	• Screw	8
6	• 041-0004-00	• Nut	2
7	• 045-0001-43	• Lockwasher	2
8	• 015-0505-03	• Coil Cord	1
9	• *N.L.A.*	• PC Board	1
10	• 015-0572-00	• Wire Harness	1
11	• 053-0312-00	• Foot Control Bottom Housing	1
12	• 053-0013-00	• Self-Sticking Bumper	8
13	• 045-0001-35	• Lockwasher	3
14	• 040-0010-46	• Screw	3
15	• 040-0004-10	• Screw	2

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

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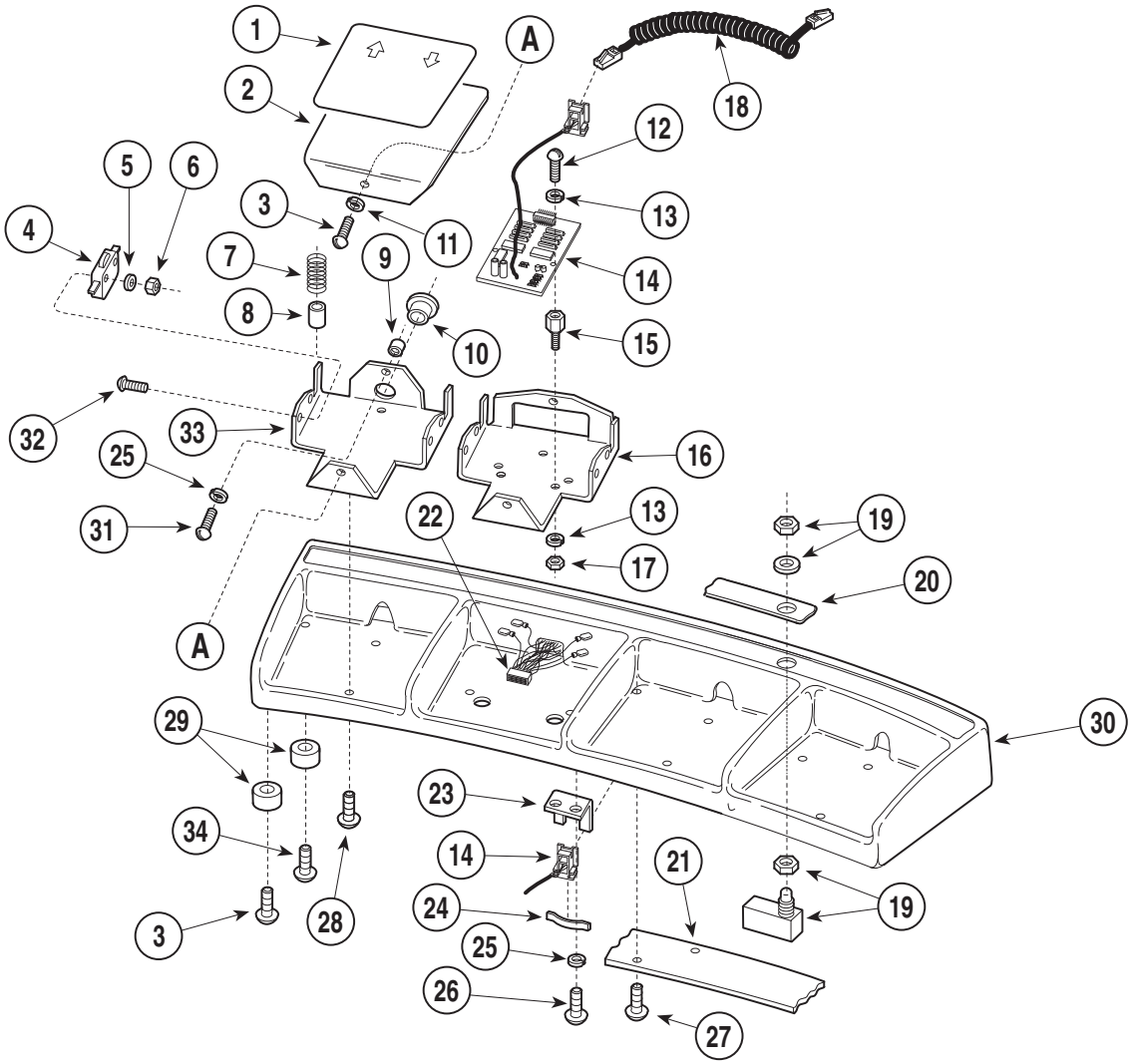
Foot Control Assembly



MA240501

Used on units with Serial Number BM-1190 thru Present

Item	Part No.	Description	Qty.
	N.L.A.	4 Station Foot Control Assembly (Includes Items 1 thru 34)	1
1	• 061-0382-00	• Pedal Decal	4
2	• 050-0941-04	• Footswitch Pedal	4
3	• 040-0010-04	• Screw	6
4	• 015-0479-00	• Switch	8
5	• 045-0001-07	• Washer	16
6	• 041-0003-00	• Nut	16
7	• 025-0009-00	• Spring	8
8	• 052-0010-00	• Spacer	8
9	• 052-0075-00	• Spacer	4
10	• 053-0155-00	• Split Bushing (Early Units Only)	3
11	• 052-0076-00	• Spacer	4
12	• 040-0004-00	• Screw	2
13	• 045-0001-43	• Lockwasher	4
14	• *N.L.A.*	• PC Board	1
15	• 015-0599-01	• Hex Standoff	2
16	• 050-3258-00	• Step Mount	1
17	• 041-0004-00	• Nut	2
18	• 015-0505-03	• Coil Cord	1
19	• 015-0571-00	• Push Button Switch	5
20	• 061-0328-00	• Decal (4 Station)	1
21	• 050-0942-00	• Wire Channel Cover	1
22	• 015-0733-00	• Wire Harness (Does Not Include Blue Jumper)	1
	• 015-0734-00	• Blue Jumper (Not Shown)	1
23	• 050-2072-00	• Receptacle Bracket	1
24	• 050-1544-00	• Spring Retaining Clip	1
25	• 045-0001-08	• Lockwasher	6
26	• 040-0010-04	• Screw	2
27	• 040-0010-47	• Screw	3
28	• 040-0010-52	• Screw	8
29	• 053-0156-00	• Glide	6
30	• 020-0144-01	• Foot Control Casting	1
31	• 040-0010-36	• Screw	4
32	• 040-0003-00	• Screw	16
33	• 050-3258-00	• Step Mount	3
34	• 040-0010-35	• Screw	4
35	002-0398-00	Stabilization Kit (Used on earlier version manufactured with (4) glides)	1
36	002-0491-00	Footswitch Cover Kit (Not Shown)	1

N.L.A. Denotes "No Longer Available"
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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: $	

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