

# Maimin® L and M Series End Cutters

L-205 / L-405 / M-205 / M-405



## End Cutter Manual – Safety, Operation and Maintenance

**Do not discard this document! Make accessible and educate all personnel.**



### WARNING

Read and understand this machine manual before operating your Maimin cutting tool. Follow all safety rules for the protection of operating personnel as well as adjacent areas. Always operate, inspect and maintain this machine in accordance with the American National Standards Institute (ANSI) Safety Code.

## SAFETY LEGEND

### WARNING



Read and understand tool manual before work starts to reduce risk of injury to operator.

### WARNING



Practice safety requirements. Work alert, have proper attire, and do not operate tools under the influence of drugs, alcohol or medication.

### WARNING



Eye protection must be worn at all times. Eye protection to conform to ANSI Z87.1.

### WARNING



Ear protection to be worn when exposure to sound exceeds the limits of applicable Federal, State or Local statutes, ordinances and/or regulations.

### WARNING



Respiratory protection to be used when exposed to contaminants that exceed the applicable threshold limit values required by law.

### WARNING



Sharp blade hazard. Blade is very sharp even when the tool is not in operation. Keep fingers, hands, body parts and clothing away from blade at all times

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## **SAFETY INSTRUCTIONS**

Carefully read all instructions before operating or servicing any Maimin® Cutting Tool. Products offered by Maimin are not to be modified, converted or otherwise altered from the original design.

**Tool Intent:** Maimin L-Series End Cutters are ideal for end cutting lays of woven and non-woven fabrics and synthetic materials.

**Do not use tool for anything other than its intended applications.**

**This power tool is not intended for use in potentially explosive atmospheres and is not insulated against contact with electrical power.**

**Do not leave machine unattended when on and connected to power.**

**Do not leave the machine until it has come to a complete stop.**

**Do not disassemble machine. Take to a qualified serviceperson for repair.**

**Keep hands, fingers and all body parts away from blade and moving parts. Never operate tool without guards.**

**Keep hands dry, clean and free from oil or grease.**

**Keep work area clean – cluttered areas and tables invite accidents.**

**Knife key, hand tools and other wrenches must be removed before starting motor.**

**Training:** Proper care and maintenance of your cutting tools will maximize their performance.

- Employers Responsibility – Provide Maimin L-Series operators with safety instructions and proper training for safe use of tools and accessories.

**Accessory Selection:**

- Blade RPM rating MUST be approved for AT LEAST the tool RPM rating.
- Before mounting blade, visually inspect for defects. Do not use defective blade.
- Use only Maimin original blades and sharpening stones.

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## **ELECTRICAL REQUIREMENTS AND SAFETY**

**Grounding Instructions:**

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electrical currents and reduces the risk of electrical shock. This machine is equipped with an electrical cord that has an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching receptacle that is properly installed and grounded in accordance with all local codes and ordinances.

**DO NOT MODIFY THE PLUG PROVIDED.** If it will not fit the receptacle, have a qualified install a proper receptacle.

**IMPROPER CONNECTION** of the equipment grounding conductor can result in risk of electric shock. The conductor with the green insulation (with or without yellow stripes) is the equipment grounding conductor. If repair or replacement of the electrical cord or plug is necessary, do not connect the equipment grounding conductor to a live terminal.

**CHECK** with a qualified electrician or service person if you do not completely understand the grounding instructions, or if you are not certain the tool is properly grounded.

**USE** only three-wire extension cords that have three-pronged grounding plugs with three-pole receptacles that accept the tool's plug. Repair or replace damaged or worn cords immediately.

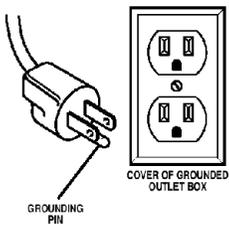
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## ELECTRICAL REQUIREMENTS AND SAFETY (continued)

### Guidelines for extension cords:

**USE THE PROPER EXTENSION CORD.** Make sure your extension cord is in good condition. Use an extension cord heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power, overheating and burning out of the motor. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord. Make sure your extension cord is properly wired and in good condition. Always replace a damaged extension cord or have it repaired by a qualified technician before using it. Protect your extension cords from sharp objects, excessive heat and damp or wet areas. Use a separate electrical circuit for your tool. This circuit must not be less than #12 wire with a 20 A time-lag fuse or a #14 wire with a 15 A time-lag fuse.

**NOTE:** When using an extension cord on a circuit with a #14 wire, the extension cord must not exceed 25 feet in length. Before connecting the machine to the power line, make sure the switch is in the off position and the electric current is rated the same as the current stamped on the machine nameplate. Running at a lower voltage will damage the motor. This tool is intended for use on a circuit that has a receptacle like the one illustrated in Fig. 1



**Fig. 1** shows a three-pronged electrical plug and receptacle that has a grounding conductor. If a properly grounded receptacle is not available, an adapter can be used to temporarily connect this plug to a two-contact grounded receptacle. The adapter has a rigid lug extending from it that **MUST** be connected to a permanent earth ground, such as a properly grounded receptacle box.

Figure 1

**CAUTION:** In all cases, make certain the receptacle is properly grounded. If you are not sure, have a qualified electrician check the receptacle.

**CAUTION:** This tool is for indoor use only. Do not expose to rain or use in damp locations.

**CAUTION:** This tool must be grounded while in use to protect the operator from electric shock.

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## CARTON CONTENTS

Separate all parts from packing materials. Check each part with the "Table of Loose Parts" to make certain all items are accounted for, before discarding any packing material.



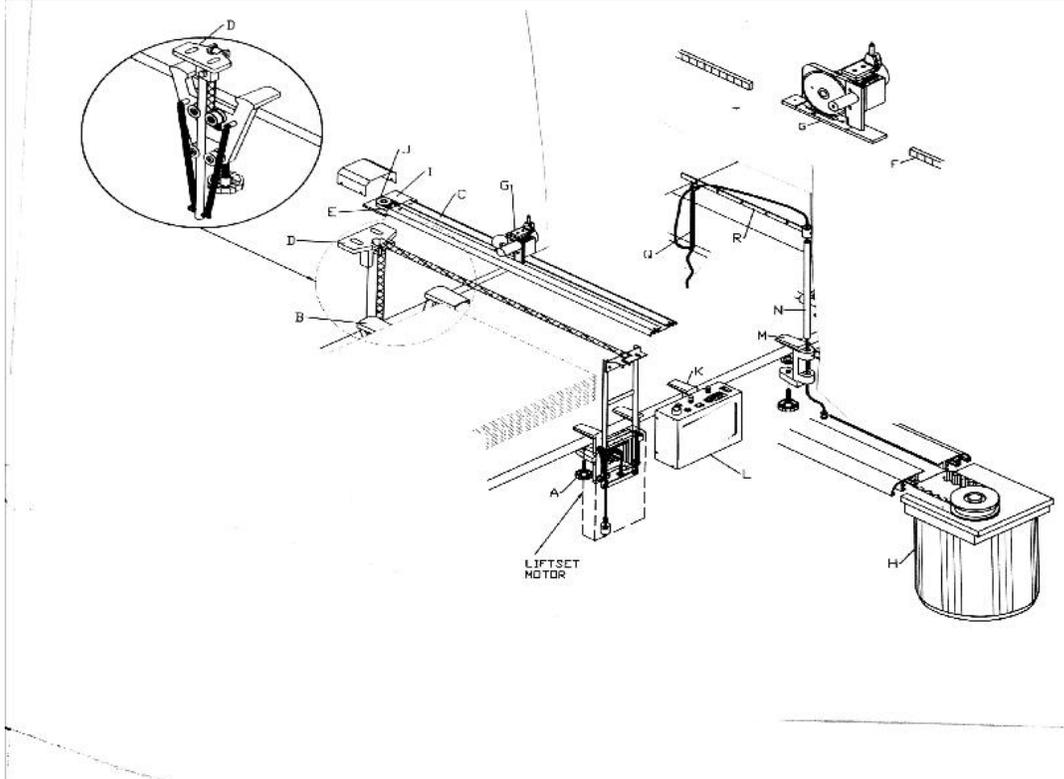
If any part is missing or damaged, do not attempt to assemble the end-cutter or plug in the power cord, or turn the switch ON until the missing or damaged part is obtained and is installed correctly. Call 1-800-243-4645 for missing or damaged parts.

Note: To make assembly easier, keep contents of all boxes together.

## CARTON CONTENTS (continued)

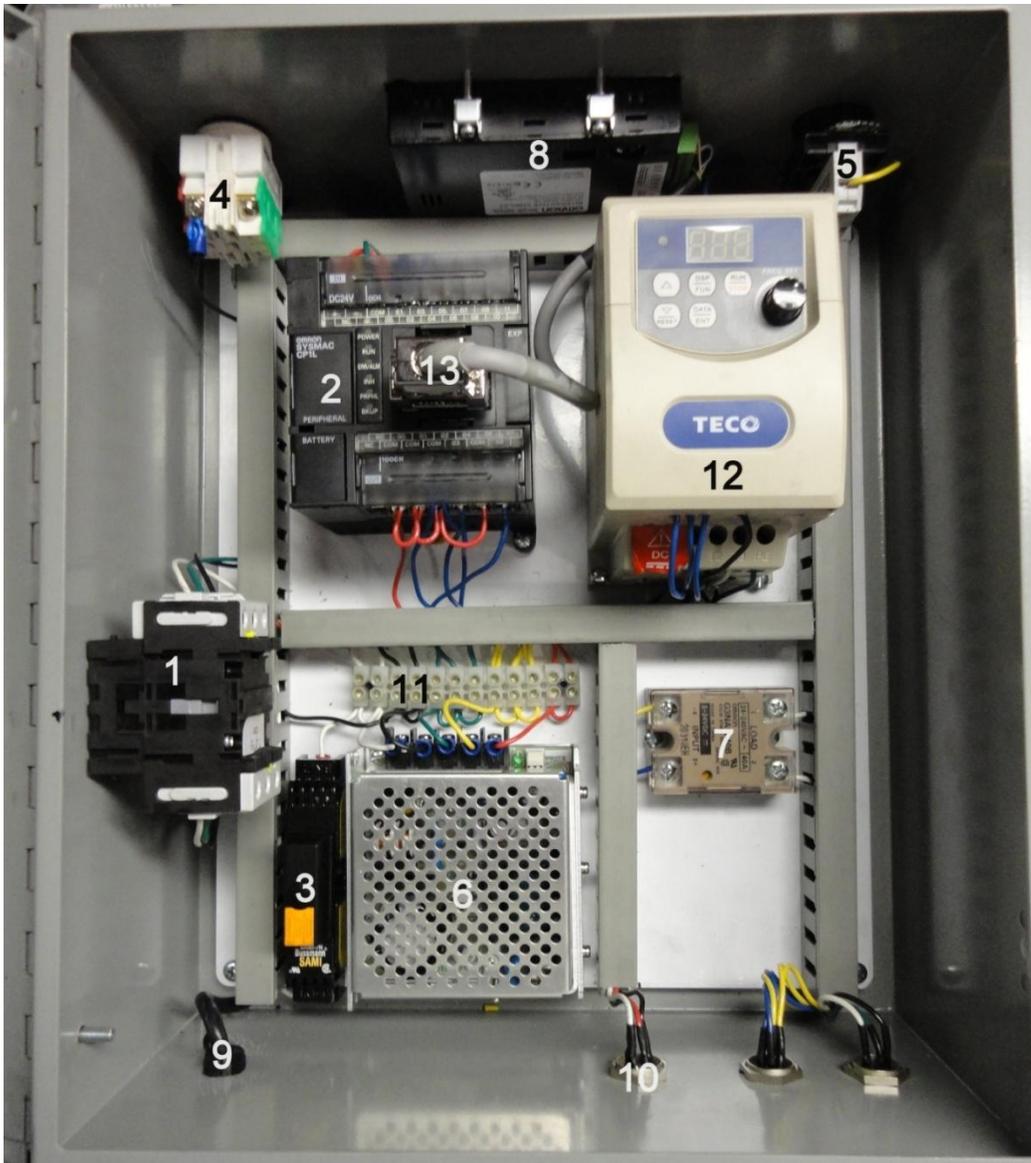
TABLE OF LOOSE PARTS (S-AA are not pictured)

ITEM	DESCRIPTION	QUANTITY
A	Lift Motor Set Clamp Assembly (L-405 Only)	1
A	Near Side Lift Assembly (L-205 Only)	1
B	Far Side Lift Assembly	1
C	Cutting Rail with End Caps	1
D	Track Lifter (included in (B) Far Side Lift Assembly above)	1
E	Rail Holding Bolt, Nut and Washer	4
F	Traverse Belt (toothed)	1
G	Cutter Assembly	1
H	Traverse Motor Assembly	1
I	Belt Pulley Assembly	1
J	Belt Tensioning Screw (included in (I) Belt Pulley Assembly above)	1
K	Control Box assembly with Clamp	1
L	Control Box (included in (K) Control Box Assembly with Clamp above)	1
M	Wiring Pipe Mounting Bracket	1
N	Wiring Pipe	1
O	Traverse Motor / Belt Pulley Bolt, Nut and Washer	4
P	Wire ties	6
Q	Wiring Pipe Extender Spring	1
R	Wiring Pipe Extender	1
S	Cable – 5 Pin Connector for Traverse Motor	1
T	Cable – 8 Pin Connector for Track Sensors	1
U	Cable – 5 Pin Connector for Lift Motor (L-405 Only)	1
V	Cable – 4 Pin Connector for Cutting Head	1
W	Cable – Control Box Power Cord	1
X	Knife Key	1
Y	Power Cord Connector for Cutting Head	1
Z	Lifting Chain	1
AA	Lifting Belt (flat / non-toothed)	1



## TABLE OF CONTROL BOX

Number	Description
1	Master On / Off Switch
2	Programmable Logic Controller (PLC)
3	Fuse Holder and Fuse
4	Emergency Stop Switch
5	Start Cycle Switch
6	Power Supply
7	Relay (there will be three (3) relays on the L-405)
8	HMI Touchscreen Operator Interface
9	Power Cord Inlet
10	Cable Connectors (there will be four (4) connectors on the L-405)
11	Terminal Block
12	Variable Frequency Drive (VFD) – motor speed control
13	Connector Cable
14	(Not Pictured) Remote Control Box mounted on right box wall



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## INSTALLATION AND ASSEMBLY INSTRUCTIONS

1. Following the diagram on page 4, attach the Lift Motor Set Clamp Assembly (A) to the operator's side of the cutting table by tightening the hand clamp under the lip of the cutting table.
2. Attach the Far Side Lift Assembly (B) to the opposite side of the cutting table by tightening the hand clamp under the lip of the table.
3. Fasten one end of the Lifting Belt (AA) into the belt clamp on the Lift Motor Set Clamp Assembly (A). The belt clamp is a flat metal clamp secured by two screws. Feed the other end of the Lifting Belt (AA) through the upper roller on the Lift Motor Set Clamp Assembly (A), across the table, down over the upper roller on the Far Side Lift Assembly (B), around the lower roller and secure into the belt clamp.  
Note: Make sure the belt is not twisted and is lying flat on the table.
4. Remove the bumper brackets from either end of the Cutting Rail (C) using a philip head screwdriver and set aside.
5. Place the Cutting Rail (C) onto the Lift Assemblies (A and B). Note: The end with the power connector should be placed on the operator side of the table.
6. Fasten both ends of the Cutting Rail (C) onto the Lift Assemblies (A and B) using the Rail Holding Bolt, Nut and Washer (E). The bolts will slide into the slots on the bottom of the Cutting Rail (C).
7. Slide the Cutter Assembly (G) onto the Cutting Rail (C) making sure the cutting side (knife side) is facing away from the operator side. For the M-205/M-405 take special care when sliding the ball bearing blocks onto the ball bearing rail as it is very easy to dislodge and lose the individual ball bearings. Leave the ball bearing block guides in the blocks when sliding onto the rail. It is suggested that a box or bucket be used beneath the mounting point to catch any ball bearings that fall out during the installation process.
8. Attach the Traverse Motor Assembly (H) to the Cutting Rail (C) using the Traverse Motor / Belt Pulley Bolt, Nut and Washer (O) on the operator side of the machine. Connect the two plugs together.
9. Attach the Belt Pulley Assembly (I) to the other end of the rail using the Traverse Motor / Belt Pulley Bolt, Nut and Washer (O).
10. If the Traverse Belt (F) is attached to the front and rear of the Cutter Assembly (G), remove the front screw and washer and detach the front side of the belt. If the belt has not been pre-attached, secure the rear side of the Traverse Belt (F) to the Cutter Assembly (G). Stretch the Traverse Belt (F) along the center top groove of the rail and pull it around the pulley on the top of the Lift Motor Set Clamp Assembly (A). Feed the Traverse Belt (F) through the bottom left groove on the Cutting Rail (C) until it comes out the far side of the track. Pull the Traverse Belt (F) out and around the pulley on the top of the Far Side Lift Assembly (B) and feed it back through the top center groove on the Cutting Rail (C) towards the Cutting Assembly (G). Fasten the Traverse Belt (F) to the Cutting Assembly (G) by securing the screw and washer over the belt. Note. Make sure the belt is not twisted through the entire route.
11. Replace the bumper brackets on either end of the Cutting Rail (C) using a philip head screwdriver.
12. Adjust the Traverse Belt (F) tension by using the Belt Tensioning Screw (J) on the top of the Belt Pulley Assembly (I).
13. Attach the Wiring Pipe Mounting Bracket (M) to the table by tightening the hand clamp under the lip of the cutting table. Insert the Wiring Pipe (N) into the Wiring Pipe Mounting Bracket (M) and secure by tightening the screw. Attach the Wiring Pipe Extender to the top of the Wiring Pipe (N) and secure tightening the screw. Attach the Wiring Pipe Extender Spring (Q) to the last hole in the Wiring Pipe Extender (R) using one Wire Tie (P). Note: This assembly will carry the power Cable – 4 Pin (V) to the Cutter Assembly (G) and should be placed on the operator side of the table away from the fabric pulling direction.
14. Attach the Control Box Assembly with Clamp (K) to the table by tightening the hand clamp under the lip of the cutting table. Note: the Control Box is on the operator side of the table and can be mounted (within 4 feet) to either side of the Cutting Rail (C). It is suggested to mount the Control Box on the opposite side of the fabric pulling direction so that it does not get in the operator's way.
15. Connect Cables (S, T, U & V) to the bottom of the Control Box (L) using the larger side connector on the cables (note Cable U will not be present in the L-205). The bottom of the Control Box (L) and all of the cables are clearly marked with number of pins and function.  
**Caution:** Do not attach the wrong Cables (S, T, U & V) to the noted locations as this may cause serious damage to your machine. The pins and functions are noted in the carton contents on the previous page and as follows:
  - The Four Pin Cable (V) is the cable that will provide power to the Cutter Assembly (G). The stripped (wire) end will be fed up through the Wiring Pipe Mounting Bracket (M) and Wiring Pipe (N). Once this wire is fed, attach the Power Cord Connector for Cutting Head (Y) to the Four Pin Cable (V). Note: Use the white and black wires for power and the blue wire for ground. Ground will be the middle connection within the Power Cord Connector for Cutting Head (Y). Plug the Power Cord Connector (Y) into the Cutter Assembly (G) and fasten security clip. Move the Cutter Assembly (G) to the far end (opposite the operator) to properly adjust the length of the Four Pin Cable (V). Secure the Four Pin Cable (V) to the Wiring Pipe Extender (R) using two Wire Ties (P). On the Four Pin Cable (V), locate approximately the half-way point between the end of the Wiring Pipe Extender (R) and the Cutter Assembly and attach the other end of the Wiring Pipe Extender Spring (Q) to that point using a Wire Tie (P). Note: Make sure that when the Cutter Assembly (G) is pushed across the Cutting Rail (C), the Four Pin Cable (V) wire does not contact the blade or any part of the Cutter Assembly (G). If it does come in contact at any point, adjust the location of the Wiring Pipe Extender Spring (Q) to ensure this does not happen. **Caution:** Do not attach the wrong Cable (V) to the noted location as this may cause serious damage to your machine.

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## INSTALLATION AND ASSEMBLY INSTRUCTIONS (continued)

- The Five Pin Cable (S) provides power to the Traverse Motor Assembly (H). The Five Pin Cable (S) should be attached and secured to the five pin receptacle in the grey box on the side of the Traverse Motor Assembly (H) that is marked “5 Pin – Traverse”. **Caution:** Do not attach the wrong Cable (S) to the noted location as this may cause serious damage to your machine.
- The Eight Pin Cable (T) provides power to the track sensors underneath the Cutting Rail (C). The Eight Pin Cable (T) should be attached and secured to the eight pin receptacle in the grey box on the side of the Traverse Motor Assembly (H) that is marked “8 Pin – Sensors”. **Caution:** Do not attach the wrong Cable (T) to the noted location as this may cause serious damage to your machine.
- In the L-405 and M-405 only, there is a second five pin cable. The Five Pin Cable (U) provides power to the Lift Motor Set Clamp Assembly (A). The Five Pin Cable (U) should be attached and secured to the five pin receptacle in the grey box on the side of the Lift Motor Set Clamp Assembly (A) that is marked “5 Pin – Up / Down”. **Caution:** Do not attach the wrong Cable (U) to the noted location as this may cause serious damage to your machine.

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## OPERATING INSTRUCTIONS

**Warning:** Always wear personal protective equipment. Operator of tool is responsible for the following: accepted eye, face, respiratory, hearing and body protection.

**Caution:** Hand, wrist and arm injury may result from repetitive work, motion and overexposure to vibration.

- Keep fingers, hands, body parts, hair and clothing away from working end of machine.
- Be sure that any loose clothing, hair and all jewelry is properly restrained.
- Working end of machine has the potential of cutting and severing.
- After removing or replacing the blade, always replace all guards and inspect to assure proper operation and condition.
- Blade is extremely sharp.

**Caution:** Use only Maimin original blades and sharpening stones as they are manufactured for the allowable maximum RPM. Improper mounting of the blade may cause excessive vibration levels and unsafe conditions. Make sure no one is in the unguarded plane of the blade.

**Caution:** Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired using only identical replacement parts before use.

**Report to your supervisor any condition of the tool, blade, sharpener, or operation you consider unsafe.**

**Caution:** Before turning on the machine, make sure that the work area is clean and uncluttered and that the track is clear of all objects and debris.

### *Understanding how your machine works:*

**Caution:** Do not power up the machine yet. The following descriptions are to educate you on how the machine functions. Please read and understand the entire manual prior to operating your machine.

The Maimin L-Series end cutters utilize a programmable logic controller (PLC), a variable frequency drive (VFD), relay(s) and sensors to enable all of the movement of the machine.

- **PLC:** The PLC (photo on page 5) controls the whole system, regulates movement, and communicates with all of the other components telling them what to do and when to turn on and off. The PLC has led lights built in so that all functions and steps can be viewed and followed allowing for easy troubleshooting of your machine. The top (nearest the HMI - touchscreen) is the input side (sensors and switches) and the bottom is the output side (all motor functions and movement) of the PLC.
- **VFD:** The VFD (photo on page 5) controls the traverse motor which sends the cutter across the cutting rail. The VFD comes optimally programmed from the factory. The black knob on the front of the VFD is a potentiometer that allows the operator to control the speed in which the cutter moves. Turn the knob counter-clockwise to slow the cut speed and clockwise to increase the speed.

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## OPERATING INSTRUCTIONS (continued)

- **Relay(s):** The L-205 utilizes one relay (photo on page 5) and the L-405 utilizes three. Both machines use the top relay which will turn the cutter blade on and off. On the L-405, the bottom two relays control the raising and lowering of the track.
- **Sensors:** The L-205 utilizes three sensors and the L-405 utilizes four. Both machines use three location sensors underneath the track; the near sensor, the far sensor and the home sensor. These sensors are all adjustable and tell the PLC the location of the cutting head. The L-405 also uses a plunge sensor underneath the track to tell the machine when the track is on the table or on the stack of cut goods.

### **Powering-up the machine:**

**Caution: Do not power up the machine yet. The following descriptions are to educate you on how the machine functions. Please read and understand the entire manual prior to operating your machine.**

Check to make sure that the emergency stop button is not depressed. Turn on the main power switch (located on the left side of the control box).

1. The Maimin home screen will appear for a few seconds
2. The red warning screen will appear for a few seconds
3. The home screen will appear and remain until the machine has been sent to the home position.

When the machine is powered on, it has not retained the location of the Cutting Assembly. Determining this location is the reason for the home function. The home sensor is located beyond the near sensor closer to the operator. When the "Start Homing" button is pressed on the PLC:

1. The PLC will tell the VFD to jog the machine slowly towards the operator (*should light 06 on the bottom of the PLC*)
2. The Cutting Assembly will move slowly towards the operator until it contacts the home sensor (*should light 03 on the top of the PLC*)
3. The Cutting Assembly will stop at the home sensor. The machine is now in the home position. Note: when homing the machine, you can save time by manually pushing the Cutting Assembly near the home sensor (leave about two feet from the edge of the track).

**Caution:** if the machine location is beyond the home sensor (towards the operator) when the "Start Homing" switch is pressed, the machine will not home and will continue run to the end of the track (looking for the home sensor). If this occurs, power down the machine and begin again with the machine on the other side of the home sensor.

Once the machine has properly completed the homing function, it is ready to begin operation.

The touchscreen operator interface (HMI) allows the user program certain parameters and to receive feedback from the machine. The green start button and the red emergency stop button are the two other forms of operator input.

When the machine has been properly installed, programmed and adjusted:

1. The operator will press the green start button (*should light 00 on the top of the PLC*).
2. The PLC receives the input from the start button and begins the cutting process.
3. The PLC will turn on the blade (*should light 03 on the bottom of the PLC*)
4. The PLC will tell the VFD to start moving the cutter across the track (*should light 01 on the bottom of the PLC*)
5. The Cutting Assembly moves across the Cutting Rail at the speed determined by the VFD
6. The Cutting Assembly will contact the far sensor (*should light 02 on the top of the PLC*)
7. The PLC will tell the VFD to reverse the Cutting Assembly (*should light 02 on the bottom of the PLC*)
8. The Cutting Assembly reverses and moves back toward the operator
9. The Cutting Assembly will contact the near sensor and stop (*should light 01 on the top of the PLC*)

### **Sharpening the blade:**

Note: The Cutting Assembly must be in the home position for the blade sharpen function to operate. The Cutting Assembly may be sent to the home position using the operator screen on the HMI touchscreen or manually moved to the home position.

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## OPERATING INSTRUCTIONS (continued)

**Caution:** The next step will cause the blade to begin rotating. Keep fingers, hands, body parts and clothing away from blade at all times.

Once the Cutting Assembly has been moved to the home position, the press the sharpen blade button on the operator screen (on the HMI touchscreen). The blade will rotate at full speed for fifteen (15) seconds. Press the sharpener lightly while blade is rotating to grind and hone knife to a sharp edge. **Caution:** The blade is very sharp and protective gloves should be used to protect from injury. Make sure all guards are in place while sharpening the blade. Always keep the blade sharp for clean and accurate cutting.

To adjust the sharpening stone for optimal grinding and honing of the blade, see the "Routine Maintenance" section below.

### *Changing the cutting speed:*

**Caution:** When making adjustments to the speed and/or sensor position, remove power from the Cutting Assembly by detaching the power cord (Cable 4-Pin Connector) from the Cutting Assembly. **Note:** the Cutting Assembly will still move freely across the track, but the blade will not run.

**Caution:** Although power has been removed from the Cutting Assembly, the blade is still sharp and will be moved across the Cutting Rail. Keep hands, fingers and all body parts away from blade and moving parts. Never operate tool without guards.

The Maimin L-Series End cutters feature a variable speed control allowing the operator to optimize cutting by controlling the speed in which the Cutting Assembly moves across the Cutting Rail. This speed is controlled by the black knob on the front of the VFD in the Control Box. The machine is set at the maximum speed from the factory at 60 and the track sensors are set accordingly. **Note:** because the speed is variable, the space and time needed for deceleration of the Cutting Assembly changes. **Caution:** If you increase the speed without moving the sensors, you run the risk of crashing the Cutting Assembly into the end of the Cutting Rail and potentially damaging your machine.

To decrease the speed and properly adjust the sensors:

1. Adjust the knob on the VFD by turning it counter-clockwise to a lower number (speed)
2. Cycle the machine by pressing the start button and note where the Cutting Assembly stops on either end of the Cutting Rail.
3. Measure the distance from where the Cutting Assembly stopped to the desired stopping location.
4. Measure the distance between the near sensor and the home sensor.
5. These measurements are the distances that the far and near sensors will need to be adjusted.

The sensors underneath the track will now need to be adjusted.

**Caution:** To avoid injury from an accidental start, make sure the main power switch is in the OFF position and the plug is not connected to the power source outlet prior to and maintenance or sensor adjustments.

**Caution:** When performing the sensor movement steps, take special care not to cut, pinch or damage the sensors and wires in any way. Damage to the sensors or wires will cause the machine not to run properly.

**Note:** Two people will be needed for the following steps.

To adjust the track sensors, the Cutting Rail will need to be removed from the Lift Assemblies. Review the "Installation and Assembly Instructions" on Page 5 for more information on reversal of this step. Once the Cutting Rail has been removed from the Lift Assemblies:

1. The far and near sensors are located underneath the Cutting Rail inside the aluminum extrusion
2. Turn the Cutting Rail upside down taking care not to damage the Cutting Assembly which remains in the Cutting Rail
3. Locate the wires and note the proper side for the sensor location.
4. The sensors may be taped and/or visible and/or may be underneath the black rubber cushion attached to the Cutting Rail.
5. The home sensor will be the closest sensor to the operator, the near sensor will be in the middle (but in close proximity to the home sensor) and the far sensor will be at the opposite end of the track.
6. Note the location of all three track sensors and measure the distance needed from the previous section.

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## OPERATING INSTRUCTIONS (continued)

7. Remove tape and/or rubber cushion and move the near and far sensors to the measured location.
8. The home sensor does not need to be moved unless the desired location of the near sensor would be in the same location as the home sensor. In this case, move the home sensor towards the operator just enough for it to be out of the way.
9. If the home sensor requires movement, remove tape and/or rubber cushion and move the home sensor to the desired location.
10. Replace tape and/or black rubber cushions.

To increase the speed and properly adjust the sensors:

**Caution:** To avoid injury from an accidental start, make sure the main power switch is in the OFF position and the plug is not connected to the power source outlet prior to and maintenance or sensor adjustments.

**Caution:** When performing the sensor movement steps, take special care not to cut, pinch or damage the sensors and wires in any way. Damage to the sensors or wires will cause the machine not to run properly.

Note: Two people will be needed for the following steps.

When increasing the speed, the sensors should be moved back to the factory maximum position (60 on the VFD) as noted on the bottom of the Cutting Rail. If this is the desired speed, follow the steps above to remove the Cutting Rail and move the sensors back to the factory setting. If the desired speed is faster, yet not as fast as the factory setting (60 on the VFD), move the sensors to the factory setting and then follow the steps above to decrease the speed to the desired setting.

### ***Optional Remote Start***

**Caution:** The remote control start is designed to begin the cutting process remotely as if the start button was pressed. Use proper safety precautions to ensure that the remote is not accidentally pressed. The remote control should never be kept in a pocket or clipped to a belt where it may be accidentally pressed.

The remote start button will start the cutter remotely from up to 50 or more feet from the control box. Make sure that the cutting path is clear and press and hold the button to begin the cutting process.

Replacing the remote start:

The remote control uses 315 MHz security, not DIP switches. When replacing the remote, it must be replaced with the same frequency transmitter for proper operation. To program a new remote, press the PROG-S1 button pictured below. The indicator light will glow steady for 30 seconds. Within 30 seconds, press and hold the button on the handheld remote that you wish to operate the cutter.

**Caution:** Do not accidentally press the S2 button as this will actuate the cutting process.



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## ROUTINE MAINTENANCE

**Caution:** To avoid injury from an accidental start, make sure the main power switch is in the OFF position and the plug is not connected to the power source outlet.

**Important:** To keep tool safe a Preventative Maintenance Program is recommended whenever automated machines are used. The program should include inspection of the cables, power cables and plugs, cleaning of the track, and proper lubrication and repair of the machine.

- Use only genuine Maimin replacement parts to ensure quality. To order replacement parts, specify Model# and Serial# of your tool.
- Maimin recommends adding grease monthly to the gears.
- Any residue in the track shall be cleaned upon build-up. Remove the cutting machine from the track and thoroughly clean the track at least every 30 days of run time.

**Adjusting the blade sharpener:** When the blade becomes worn down (smaller), adjust the grinder position by unscrewing the screw for the grinder arm to ensure a correct distance between the stone and the edge of the blade. After finishing the adjustment, re-tighten the screw.

**Replacing the sharpening stone:** Remove the grinding stone by simply unscrewing it. Mount the new grinding stone and re-tighten the screw.

**Replacing the blade:** Remove the sharpening stone by removing the mounting screws. Remove the guard from the front of the machine. Unscrew the lock nut for the blade. Remove the blade. When mounting the new blade, make sure that the side marked "front side" is towards the operator. After the blade has been replaced, adjust the position of the sharpening stone as described above.

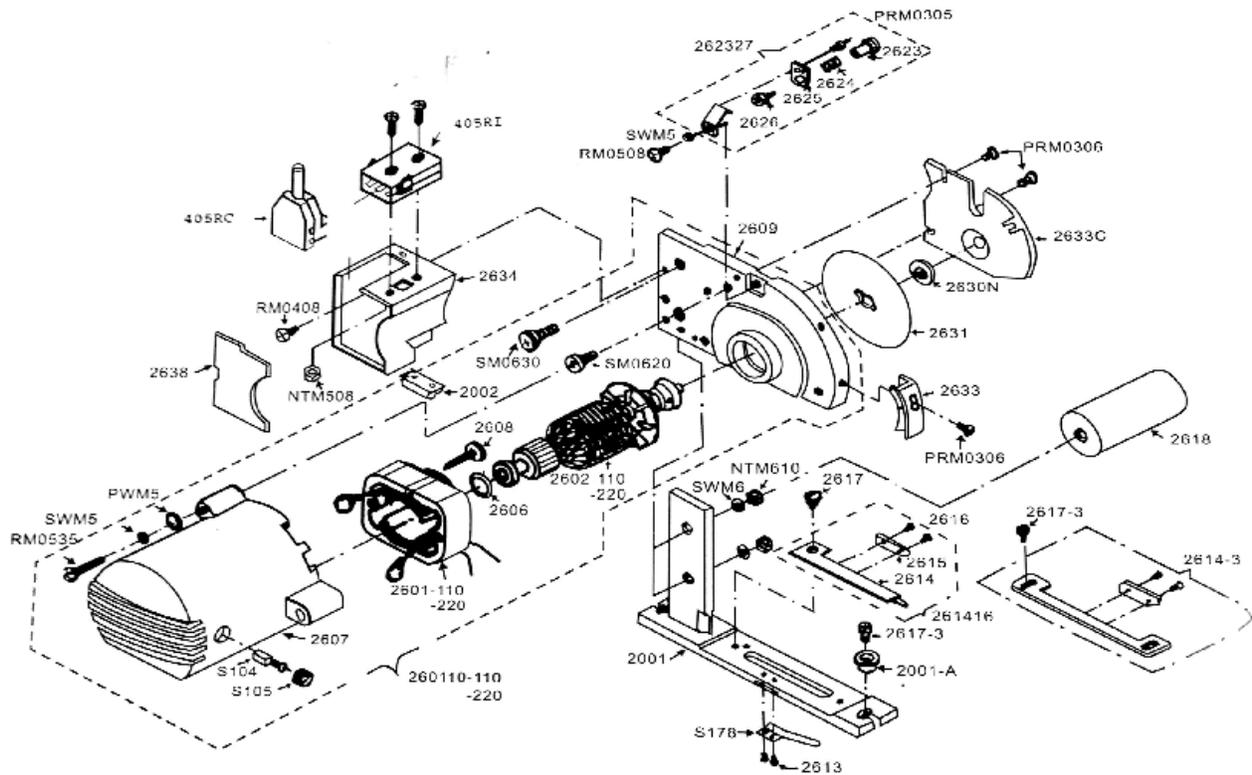
**Replacing the lower blade:** Remove the screw for the lower arm. Remove the lower blade arm and replace parts as needed. Replace the lower blade, ensuring the flat surface of the lower blade is adjacent to the blade edge.

**Replacing the carbon brushes:** The carbon brushes must be replaced when worn to 5-6mm long. Too much wear will cause motor problems. Remove the carbon brush cap by turning it counter-clockwise. Always replace both the right and left carbon brushes at the same time.

### Routine Preventative Maintenance

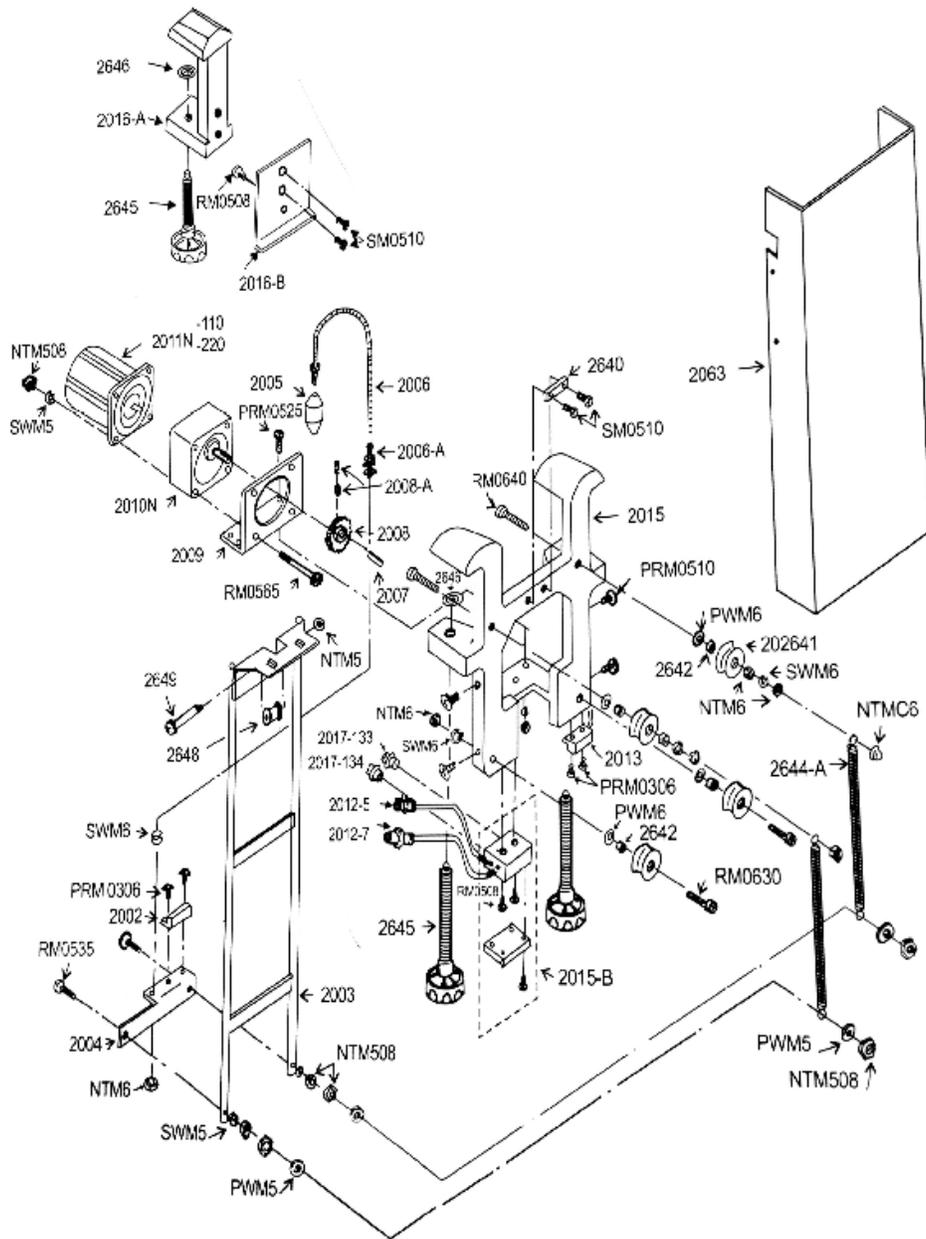
- Inspect blades before mounting. Do not mount blades if damaged or nicked.
- Use only Maimin original blades. Ratings on generic blades may not have adequate speed ratings.
- Mineral spirits are recommended when cleaning the tool and parts. Do not clean tool or parts with any solvents or oils containing acids, esters, ketones, chlorinated hydrocarbons or nitro carbons.
- DO NOT clean or maintain tools with chemicals that have a low flash point.
- Visually inspect cables and cords for visible damage and signs of deterioration. Replace damaged or worn components.

# PARTS LISTING



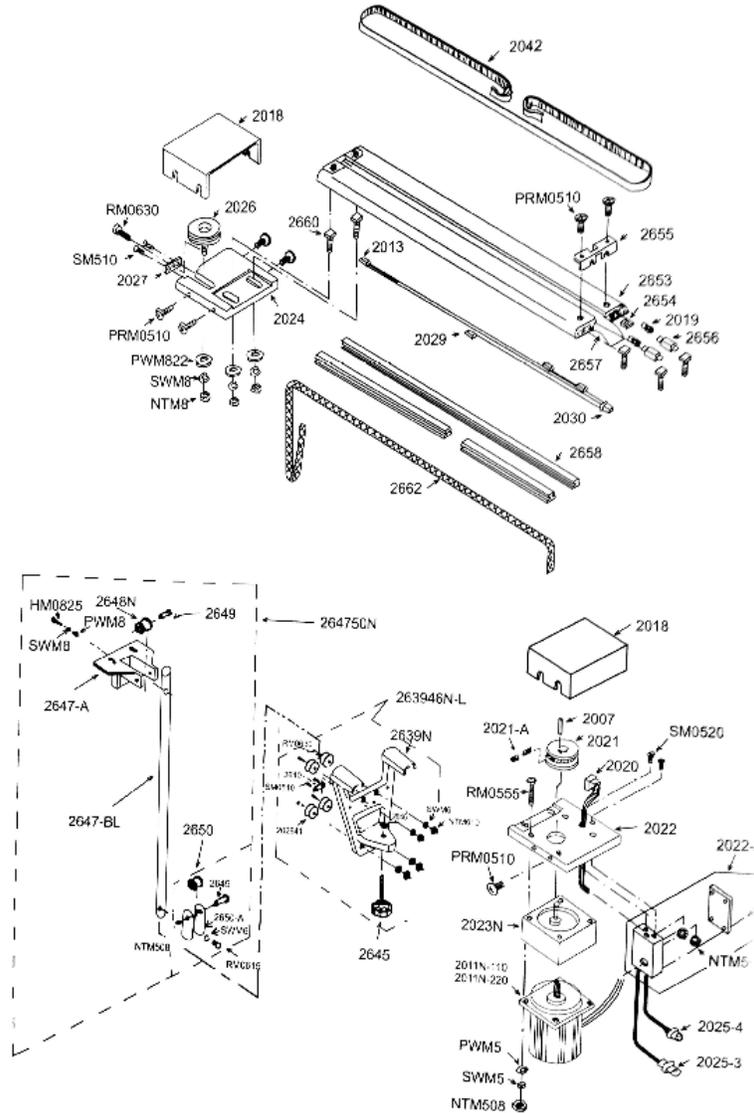
EC260110-110	110v Motor Assembly	EC2618	Balance Iron
EC260110-220	220v Motor Assembly	EC262327	Sharpening Stone Assembly
EC2601-110	110v Stator	EC2623	Sharpening Stone Collar
EC2601-220	220v Stator	EC2624	Spring for Sharpening Stone
EC2602-110	110v Armature	EC2625	Sharpening Stone Top Arm
EC2602-220	220v Armature	EC2626	Sharpening Stone
EC2603	Washer for Armature	EC2630N	Lock Nut for Knife
EC2606	O Ring	EC2631	30331 End Cutter Blade
EC2607	Motor Cover	EC2633	Knife Guard
EC2608	Screw for Stator	EC2633C	Knife Cover
EC2609	Motor Plate	EC2634	Terminal Box
EC2610	Rubber for Bearing	EC2638	Cover for Terminal Box
EC2613	Screw for Pressure Spring	EC2001	Standard
EC261416	Lower Counter Cutting Blade Set	EC2001-A	Link for Timing Belt
EC2614	Lower Counter Cutting Blade Arm	EC2002	Magnet for Track Sensors
EC2614-3	3 <sup>rd</sup> Lower Blade	ECS104	Carbon Brush
EC2615	Lower Counter Cutting Blade	ECS105	Cap for Carbon Brush
EC2616	Screw for Lower Blade	ECS178	Pressure Spring for Lower Blade
EC2617	Screw for Lower Blade Arm	405RC	Connector Single Phase
EC2617-3	Screw for 3 <sup>rd</sup> Lower Blade Arm	405RI	Power Inlet
		405RN	(not pictured) Lock for Power Inlet

## PARTS LISTING (continued)



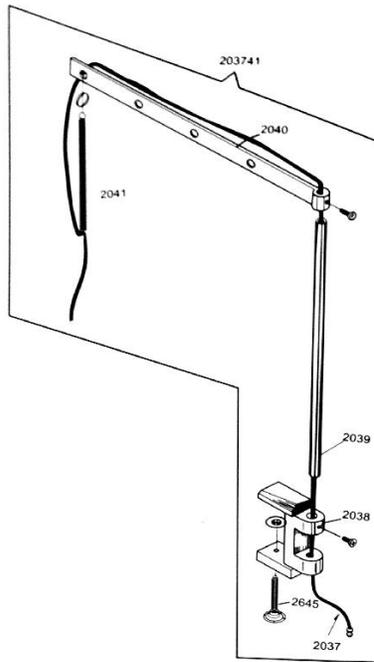
EC2002	Magnet for Sensor	EC2015	Lifting Fixed Clamp
EC2003	Lifter	EC2015-B	Lifting Motor Terminal Box
EC2004	Magnet Base	EC2063	Lift Set Cover
EC2005	Chain Pendant	EC2640	Lift Belt Clamp
EC2006	Chain	EC2642	Wheel Ring
EC2006-A	Chain Screw	EC2644-A	Spring for Lifter
EC2007	Gear Latch	EC2645	Large Clamp Screw
EC2008	Chain Gear	EC2646	Washer for Clamp Screw
EC2009	Motor Plate	EC2648	Large Roller
EC2010N	Lifting Reduction Gear	EC2649	Roller Shaft
EC2011N-110	110v Lifting Motor	ECS121	Switch
EC2011-220	220v Lifting Motor		
EC2012-5	Cable – 5 Pin for Lifting Motor		
EC2012-7	Cable is not used in the model		
EC2013	Sensor Switch		

## PARTS LISTING (continued)



EC263946N-L	Left Clamp Set	EC2018	Transmission Base Cover
EC2639N	A Clamp	EC2019	Spring for EC2656
EC2640	Lift Belt Clamp	EC2020	Rail Plug Socket
EC2645	Large Clamp Screw	EC2021	Transmission Gear
EC264750N	Left Bar Lifter	EC2021-A	Screw for Transmission Gear
EC2647-A	Bar Lifter Plate	EC2022	Motor Base
EC2647-BL	Left Bar	EC2022-A	Motor Terminal Box
EC2648N	Roller for Lift Belt	EC2023N	Reduction Gear
EC2649	Roller Shat	EC202427	Transmission Pulley Set
EC2650	Roller Set	EC2024	Transmission Pulley Base
EC2653	Rail	EC2025-5	Cable – 5 Pin Traverse Motor
EC2654	Square Nut	EC2025-8	Cable – 8 Pin Track Sensors
EC2655	Rail Guard	EC2026	Transmission Pulley
EC2656	Impact Resistant Rubber	EC202641	Guide Roller
EC2657	Steel Piece	EC2027	Pulley Fixed Blade
EC2658	Rubber Rail	EC202830	Cutting Track
EC2660	Screw for Rail	EC2028	Rail
EC2662	Lift Belt	EC2029	Micro Switch
EC2007	Shaft Key	EC2030	Rail Plug Socket
EC2011N-220	220v, 3Phase Traverse Motor	EC2042	Timing Belt
EC2013	Sensor Switch		

## PARTS LISTING (continued)



EC203741	Wiring Pipe Assembly	EC2040	Wire Pipe Extender
EC2037	Cable – 4 Pin Cutting Head	EC2041	Wire Pipe Extender Spring
EC2038	Wiring Pipe Mounting Bracket	EC2645	Large Clamp Screw
EC2039	Wiring Pipe		



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