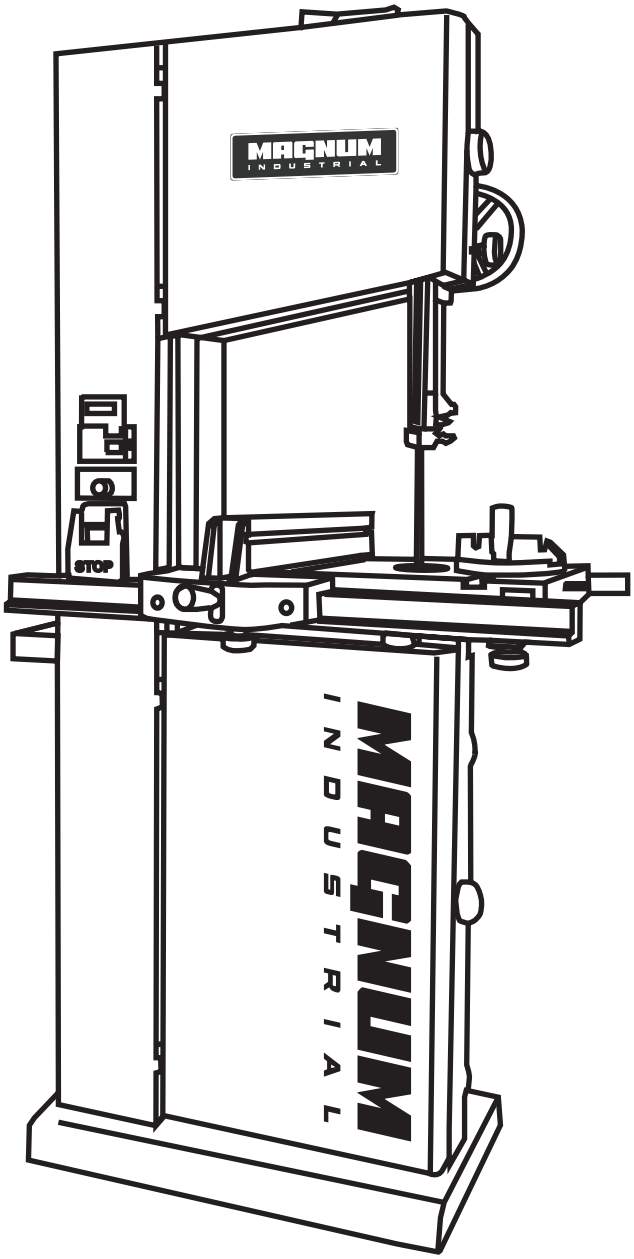
MAGNUM INDUSTRIAL

MODEL NO.: MI-92100



OPERATING MANUAL

SAFETY RULES

WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY.

1. **FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE TOOL.** Learn the tool's application and limitations as well as the specific hazards peculiar to it.
2. **KEEP GUARDS IN PLACE** and in working order.
3. **ALWAYS WEAR EYE PROTECTION.** Wear safety glasses. Everyday eyeglasses only have impact resistant lenses; they are not safety glasses. Also use face or dust mask if cutting operation is dusty. These safety glasses must conform to ANSI Z87.1 requirements. Note: Approved glasses have Z87 printed or stamped on them.
4. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
5. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
6. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.
7. **KEEP CHILDERN AWAY.** All visitors should be kept safe distance from work area.
8. **MAKE WORKSHOP KID PROOF** with padlocks, master switches, or by removing starter keys.
9. **DON'T FORCE TOOL** it will do the job better and safer at the rate for which it was not designed.
10. **USE RIGHT TOOL.** Don't force tool or attachment to do a job for which it was not designed.
11. **USE PROPER EXTENSION CORD**. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one 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 and overheating. Table 1 shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord.
12. **WEAR PROPER APPAREL** Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
13. **ALWAYS USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
14. **SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your

16. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
17. **DISCONNECT TOOLS** before servicing; when changing accessories, such as blades, bits, cutters, and the like.
18. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure switch is in off position before plugging in.
19. **USE RECONNENDED ACCESSORIES.** Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury or persons.
20. **NEVER STAND ON TOOL** Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
21. **CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function-check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
22. **DIRECTION OF FEED.** Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
23. **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.** Don't leave tool until it comes to a complete stop.
24. **MAME SURE TOOL IS DISCONNECTED** from power supply while motor is being mounted, connected or reconnected.

SAVE THESE INSTRUCTIONS

ADDITIONAL SAFETY RULES FOR BAND SAWS

1. If you are not thoroughly familiar with the operation of band saws, obtain advice from your supervisor, instructor or other qualified person.
2. Follow all wiring codes and recommended electrical connections. Make certain that the tool is properly grounded.
3. Make all adjustments with the power "OFF"
4. Always maintain proper adjustment of blade tension, blade guides, and blade support bearings.
5. Avoid awkward hand positions. A sudden slip could allow the hand to contact the blade.
6. Do not attempt to saw stock that does not have a flat surface, unless a suitable support is used.

10. Made sure that the saw blade teeth point downward toward the table.
11. Adjust upper guide to just clear work piece.
12. Disconnect machine from the power source when making repairs.
13. Replace all guards after servicing.
14. Turn off band saw if the material is to be backed out of an uncompleted cut.
15. Make relief cuts before cutting long curves.
16. Do not cut material that is too small to be safely supported.
17. Support long heavy work from the floor.
18. Before leaving the machine, make sure the work area is clean.
19. Important: When the tool is not in use , the switch should be in the "OFF" position and the power cord disconnected.
20. Do not remove jammed cutoff pieces until blade has stopped.

ON-OFF SWITCH PADLOCK – To safeguard the band saw from unauthorized operation and to avoid accidental starting by children or other not qualified to use, the use of padlock is required. To lock out the on – off switch, open the padlock, insert through the hole of the switch on button and close the padlock. Place the key in a location that is inaccessible to children and other not qualified to use the tool.

SWITCH WITH KEY – The switch key must be inserted into the switch before saw can operate. To lock the switch in the OFF position, remove the switch key from the switch. Place the key in a location that is inaccessible to children and others not qualified to use the tool.

GROUNDING INSTRUCTIONS

1. All grounded, cord-connected tools:

   In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug.

   The plug must be plugged into a matching outlet 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 outlet, have the proper outlet installed by a qualified electrician.

   Improper connection of the equipment-grounding conductor can result In a risk of electric shock.

The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug.

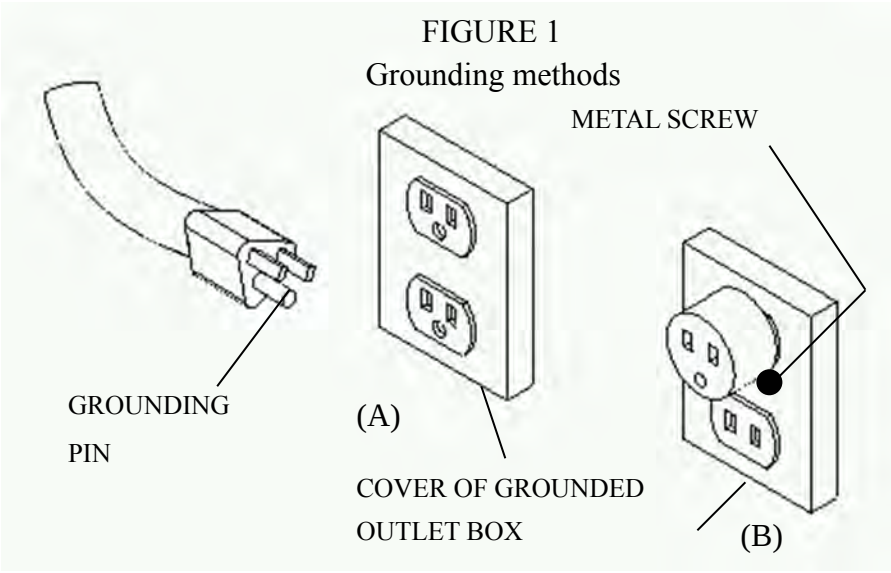
Repair or replace damaged or worn cord immediately.

2. Grounded, cord-connected tools intended for use on a supply circuit having a nominal rating less than 150 volts:
   This tool is intended for use on a circuit that has an outlet that looks like the one illustrated in Sketch A in Figure 1. The tool has a grounding plug that looks like the plug illustrated in Sketch A in Figure 1. A temporary adapter, which looks like the adapter illustrated in Sketches B and C, may be used to connect this plug to a 2-pole receptacle as shown in Sketch B if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. The green-colored rigid ear, lug, and the like, extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box.

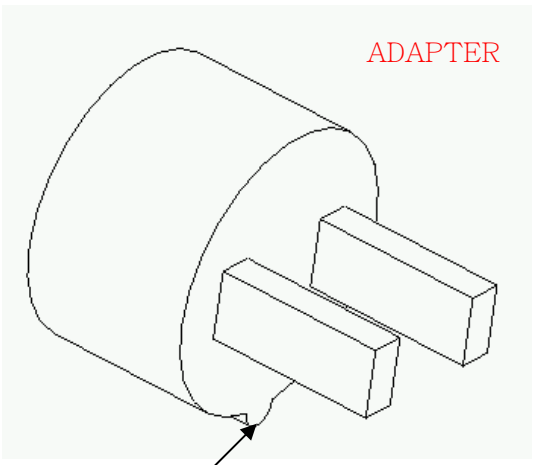
3. Grounded, cord-connected tools intended for use on a supply circuit having a nominal rating between 150-250 volts, inclusive:
   This tool is intended for use on a circuit that has an outlet that looks like the one illustrated in Sketch D in Figure 1. The tool has a grounding plug that looks like the plug illustrated in Sketch D in Figure 1. Make sure the tool is connected to an outlet having the same configuration as the plug. No adapter is available or should be used with this tool. If the tool must be reconnected for use on a different type of electric circuit, the reconnection should be made by qualified service personnel; and after reconnection, the tool should comply with all local codes and ordinances.

NOTE: SUPPLY VOLTAGE NEEDS TO BE 220 VOLT SINGLE PHASE, EVEN THOUGH THE MOTOR IS 220 VOLT THREE PHASE

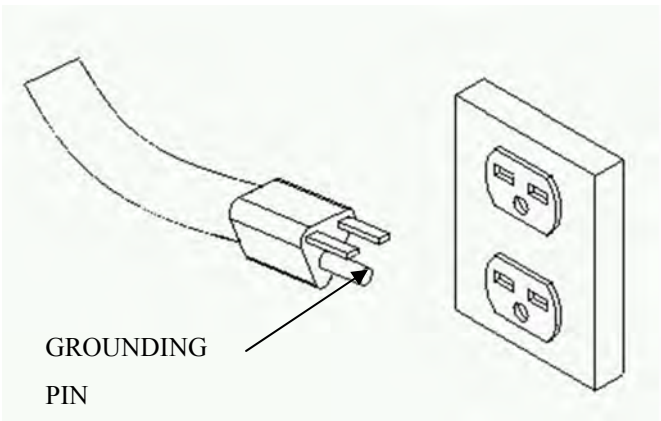
FIGURE 1
Grounding methods



Note : In Canada, the use of a temporary adaptor is not permitted by the Canadian Electrical Code.



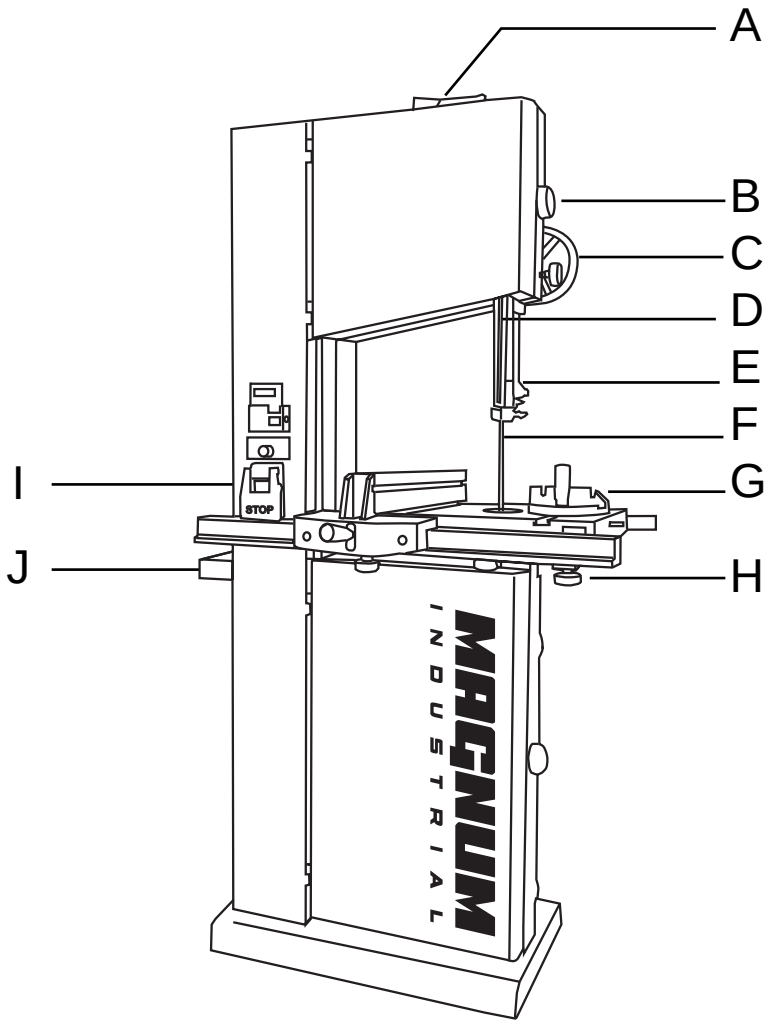
(C)



(D)

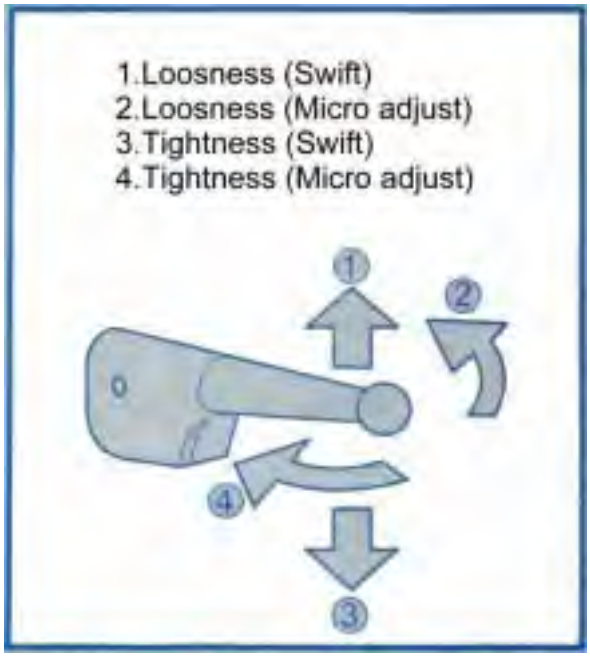
Table 1
Minimum gage for cord

Ampere Rating		Volta	Total length of cord in feet			
		120V 240V	25ft. 50ft.	50ft. 100ft.	100ft. 200ft.	150ft. 300ft.
Not More Than	More Than	AWG				
0	6		18	16	16	14
6	10		18	16	14	12
10	12		16	16	14	12
12	16		14	12	Not	Recommended



A.Adjusting Handle
B.Cross Knob
C.Guide Bar Handle
D.Guide Bar
E.Blade Guide Support (Upper)
F.Blade
G.Working Table
H.Blade Gukde Support (Lower)
I.Switch
J.Tool Box

Quick release / blade tensioning



Lifting the quick release handle to release blade tension. Remove blade and replace with new one. Turn down the handle to tighten blade.

Turn the handle clockwise to minor tighten blade tension and counterclockwise to release blade tension. A blade under tension may also pull drive wheel out of alignment. Adjust alignment of drive wheel with tracking knob.

Adjusting blade support

Whenever changing a blade or adjusting tension and tracking, the upper and lower blade support bearings and guide blocks must be re-adjusted. Always adjust the assemblies away from the blade before installing a new blade or making blade tracking adjustments. After blade tension and tracking are set correctly, re-adjust the upper and lower support bearings and guide block assemblies into position. See **Figure 8-1** for upper blade guide and **Figure 8-2** for lower blade guide.

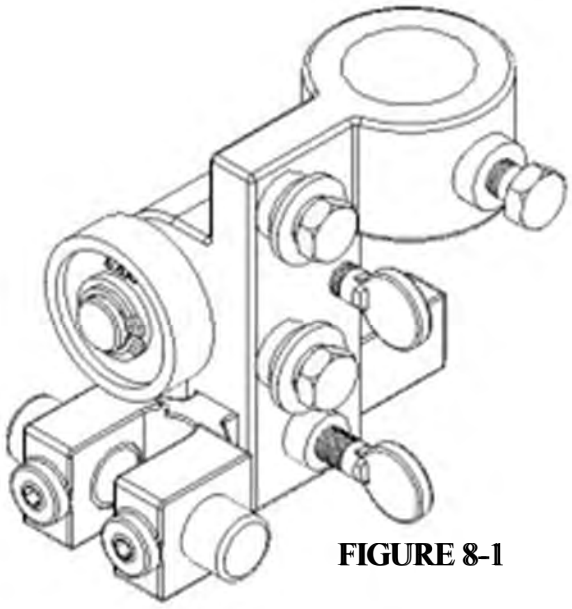


FIGURE 8-1

The support bearings back-up the blade during the sawing operation. To adjust the support bearings, loosen the screws the support bearing shafts. See **Figure 8-3.** Adjust the shafts in or out so that the upper and lower support bearings are within 1/64" of the back edge of the blade. Retighten the screws.

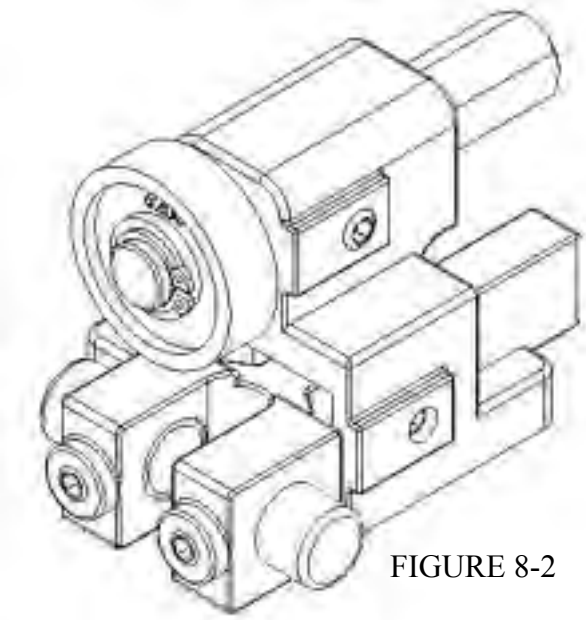


FIGURE 8-2

For optimum support, the guide block assemblies should be adjusted so they are just behind the gullet line (the hollow points) of the blade. To adjust the guide block assemblies, loosen the screws securing the guide block yoke assemblies. Move in or out in relation to the blade gullets. Once adjusted, retighten the screw.

Now adjust the guide blocks. Loosen the guide block screws and adjust each block so it is about 0.004" from the blade. This is about the same thickness as a piece of typing paper. Retighten the screws and turn the upper wheel by hand through a complete revolution for the blade length to ensure that the blade weld passes through the guide blocks unhindered.

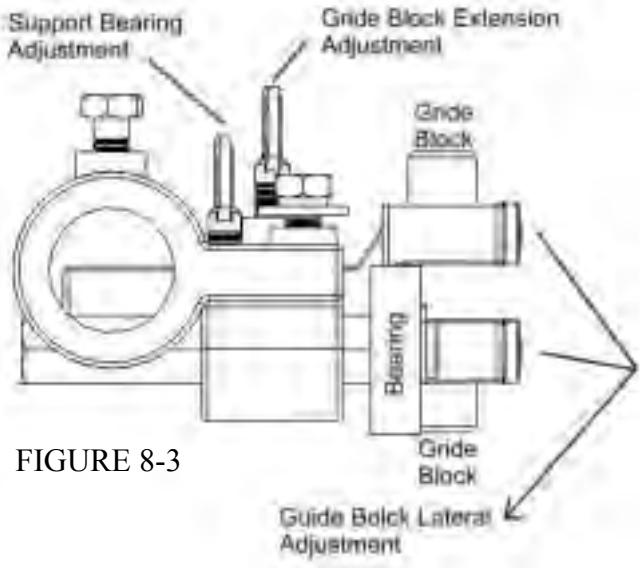
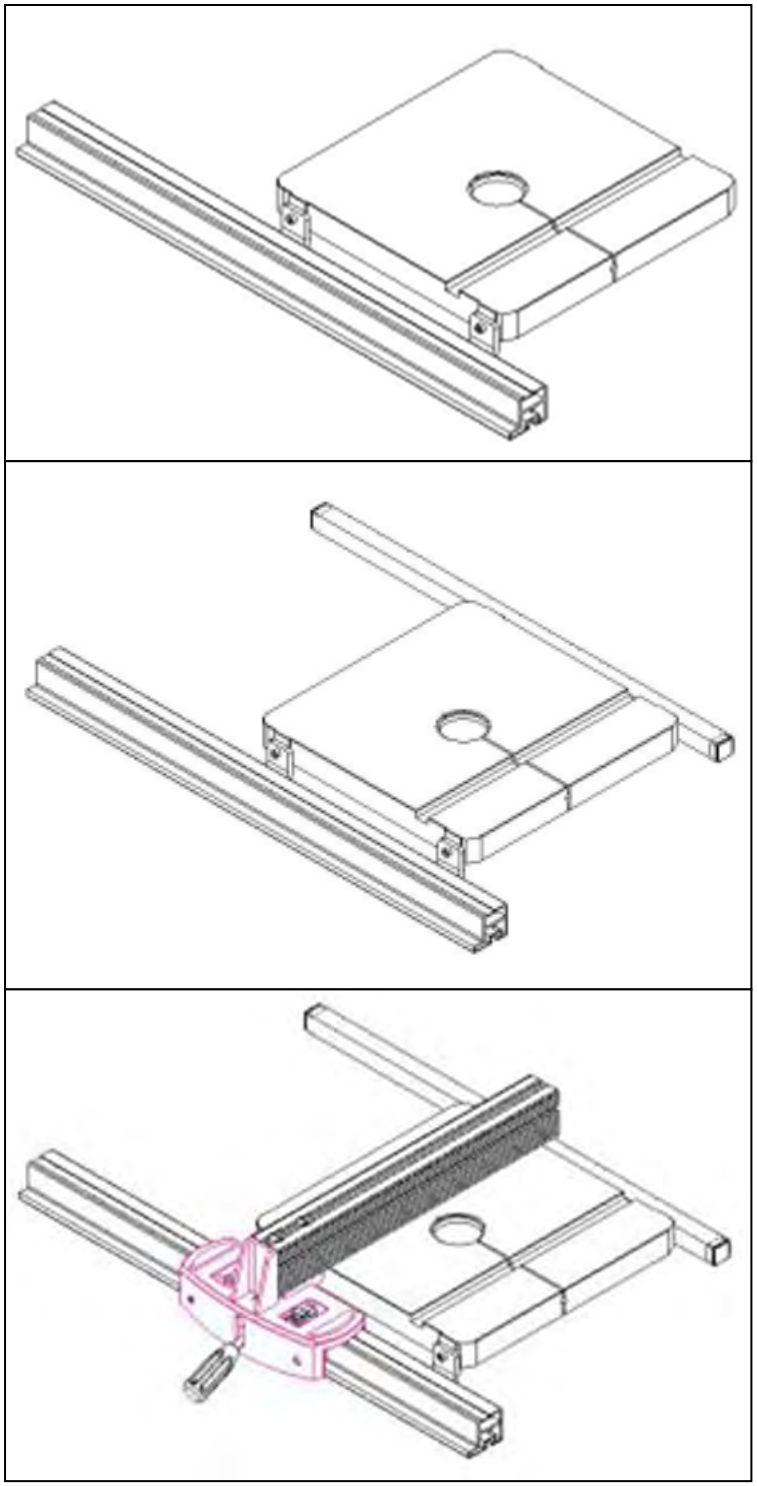
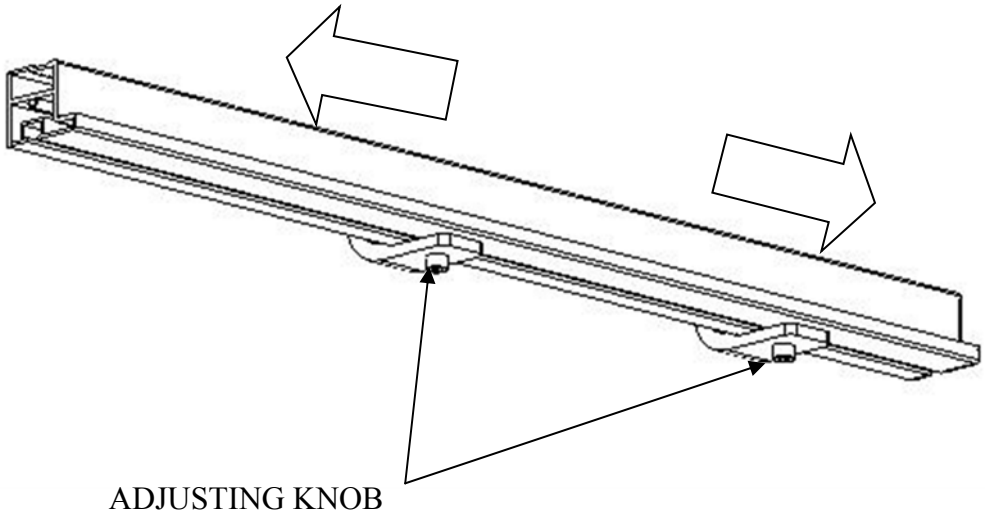


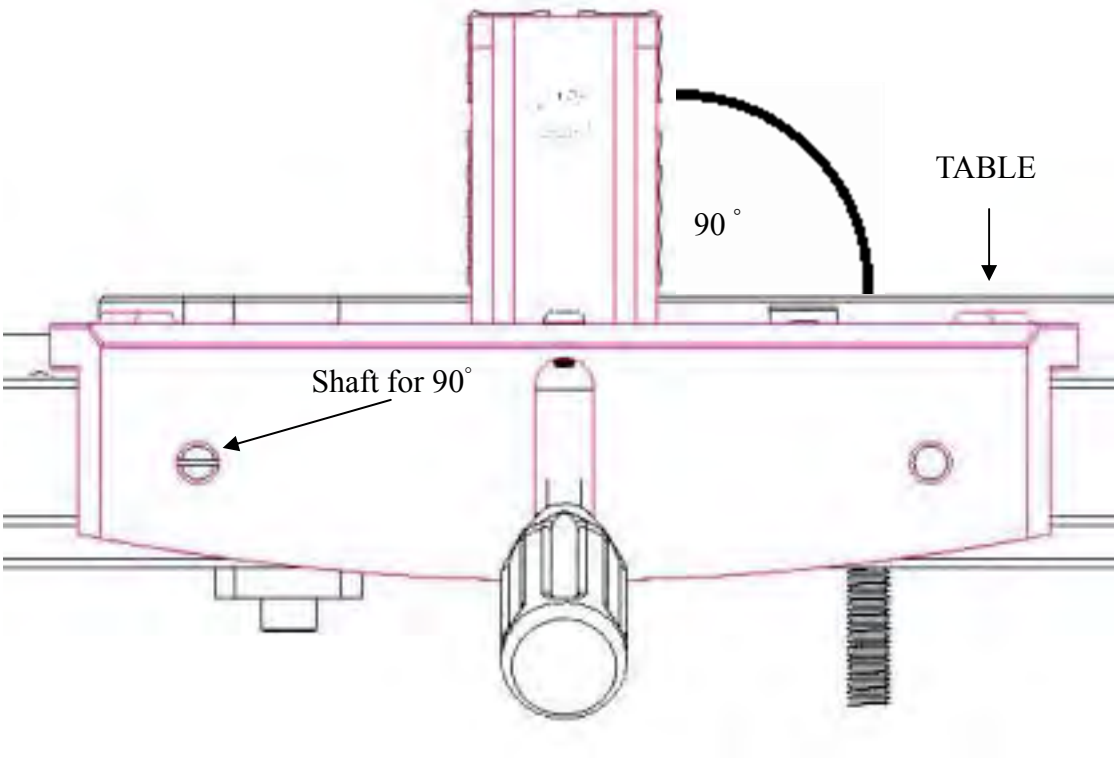
FIGURE 8-3

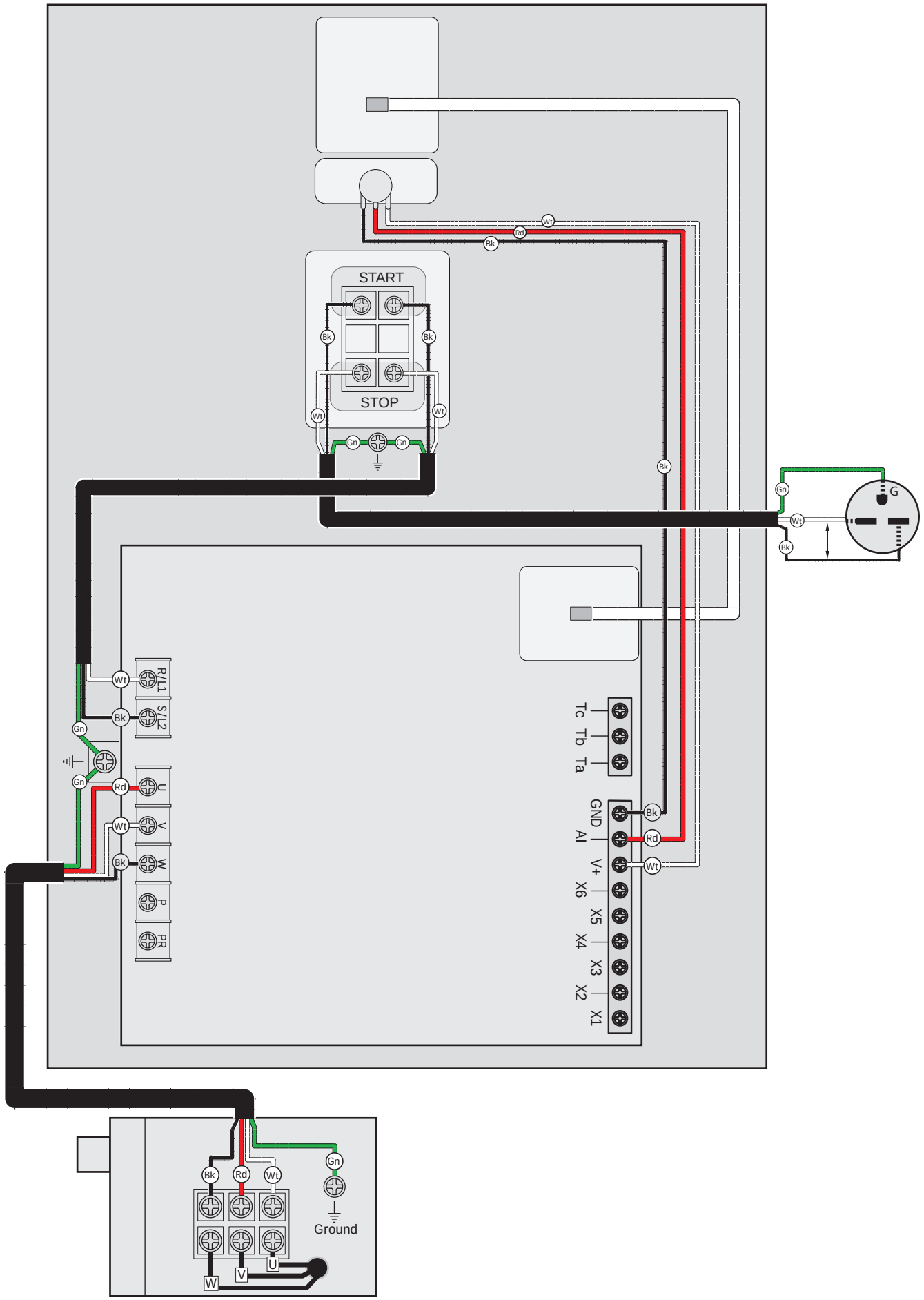
Fence install



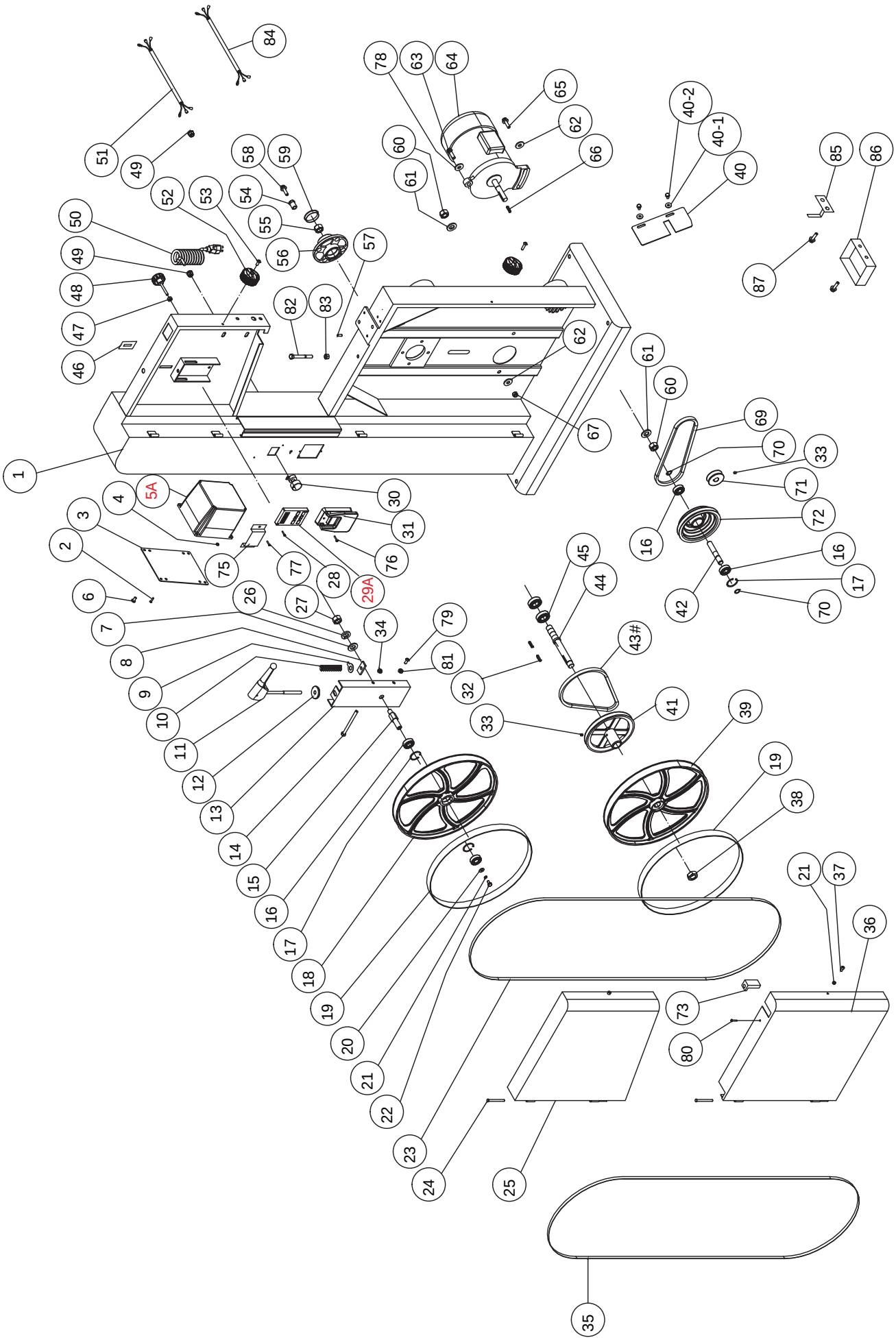
ADJUSTMENTS






START
STOP
Wt
Rd
Bk
Gn
G
R/L1
S/L2
U
V
W
P
PR
Tc
Tb
Ta
GND
AI
V+
X6
X5
X4
X3
X2
X1
Ground

Parts List For MI-92100



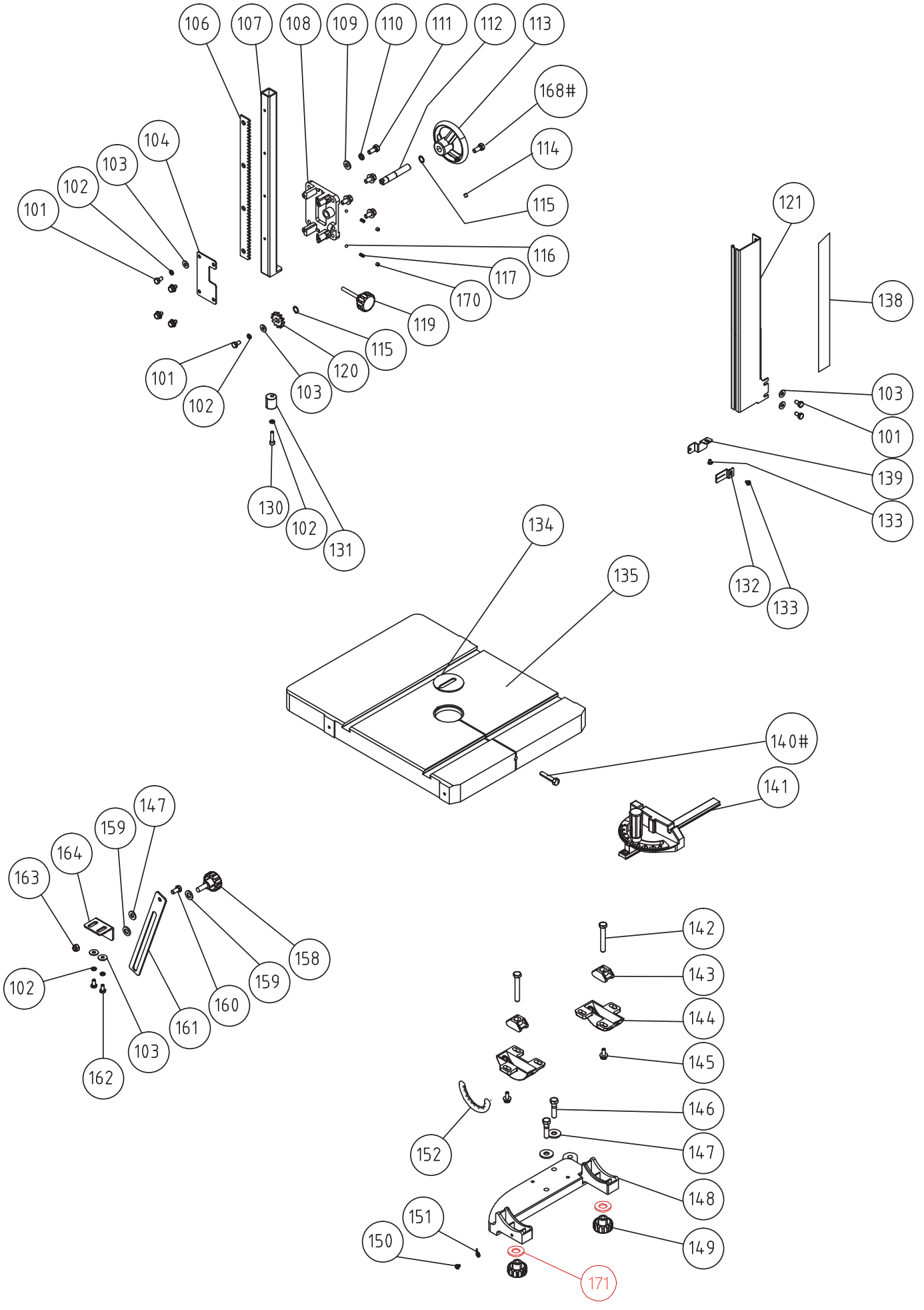
Parts List For MI-92100

REF.NO.	DESCRIPTION
MI-92100-1	BODY
MI-92100-2	PHILLIPS FLAT HEAD SCREW 3/16*1/2"
MI-92100-3	CONTROLLER COVER PLATE
MI-92100-4	HEX NUT 3/16"
MI-92100-5A **	INVERTER *see special note*
MI-92100-6	PHILLIPS FLAT HEAD SCREW 1/4*1/2"
MI-92100-7	FLAT WASHER 1/2"
MI-92100-8	TOP WHEEL MOUNT NUT 3/8-16 (SPECIAL
MI-92100-9	BLADE TENSION POINTER
MI-92100-10	SPRING 4.2 X 76
MI-92100-11	QUICK HANDLE BAR
MI-92100-12	SPECIAL WASHER
MI-92100-13	BODY
MI-92100-14	HEX BOLT-M8*110mm
MI-92100-15	UPPER WHEEL SHAFT
MI-92100-16	BEARING 6202ZZ
MI-92100-17	INTERNAL RETAINING RING R35
MI-92100-18	Upper Wheel - Cast Iron
MI-92100-19	TIRE RUBBER
MI-92100-20	FLAT WASHER 1/4-16*1.2mm
MI-92100-21	LOCK WASHER 1/4"
MI-92100-22	HEX BOLT 1/4-20P*3/8"
MI-92100-23	SAWBLADE 0.65*13*4T*2900mm
MI-92100-24	HINGE PIN
MI-92100-25	BODY
MI-92100-26	LOCK WASHER 1/2"
MI-92100-27	RETAINER NUT 1/2"-P12
MI-92100-28	PHILLIPS HEAD SCREW M3*18
MI-92100-29A**	CONTROL BOARD *see special note*
MI-92100-30	SPEED DIAL
MI-92100-31	SWITCH W/LARGE STOP
MI-92100-32	KEY 5*5*25MM
MI-92100-33	SET SCREW 1/4-20P*1/4"
MI-92100-34	NYLON NUT M8-P1.25
MI-92100-35	SAWBLADE 0.65*19*14T*2900mm
MI-92100-36	BODY
MI-92100-37	CAP SCREW 1/4"-20P*3/8"
MI-92100-38	HEX NUT 3/4"-16P(L.H.)
MI-92100-39	LOWER WHEEL -CAST IRON
MI-92100-40	BRACKET
MI-92100-40-1	HEX BOLT 1/4-20P*3/8"
MI-92100-40-2	FLAT WASHER 1/4-16*1.2mm
MI-92100-41	PULLEY

REF.NO.	DESCRIPTION
MI-92100-42	SHAFT
MI-92100-43	BELT
MI-92100-44	SHAFT
MI-92100-45	BEARING
MI-92100-46	TENSION LABLE
MI-92100-47	HEX NUT 5/16"-18P
MI-92100-48	KNOB 5/16-18X2"
MI-92100-49	STRAIN RELIEF
MI-92100-50	CORD
MI-92100-51	MOTOR CORD
MI-92100-52	GUARD LOCKING KNOB
MI-92100-53	SPECIAL HIGH CAP SCREW 7x19-1/4"
MI-92100-54	ADJUSTING SCREW
MI-92100-55	HEX NUT 5/8"
MI-92100-56	BEARING HOUSING
MI-92100-57	PIN 6*16mm
MI-92100-58	HEX BOLT 5/16-18P*1-1/2"
MI-92100-59	BEARING COVER
MI-92100-60	NUT 5/8
MI-92100-61	FLAT WASHER 5/8"
MI-92100-62	FLAT WASHER 3/8"
MI-92100-63	HEX BOLT 3/8*2"
MI-92100-64	MOTOR 1.25HP 220V 3-PH
MI-92100-65	HANDLE LOCK
MI-92100-66	KEY 5*5*35MM
MI-92100-67	LOCK NUT 3/8"-16P
MI-92100-69	V-BELT A30
MI-92100-70	EXTERNAL RETAINING RING S15
MI-92100-71	MOTOR PULLEY
MI-92100-72	PULLEY
MI-92100-73	BRUSH
MI-92100-75	SWITCH COVER
MI-92100-76	PHILLIPS HEAD SCREW 3/16*3/4
MI-92100-77	PHILLIPS FLAT HEAD SCREW M4*6
MI-92100-78	FLAT WASHER 3/8"
MI-92100-79	HEX BOLT 1/4-20P*3/4"
MI-92100-80	PHILLIPS FLAT HEAD SCREW 3/16*3/8"
MI-92100-81	HEX NUT 1/4"-20P
MI-92100-82	HEX BOLT 3/8-16P*4"
MI-92100-83	HEX NUT 3/8"-16P
MI-92100-84	CORD
MI-92100-85	HOLDER
MI-92100-86	TOOL TRAY
MI-92100-87	HEX BOLT 1/4-20P*3/4"

****SPEICIAL NOTE MANUFACTURERS UPGRADE**
FOR MACHINE WITH SN#<92013121
YOU MUST REPLACE 29A AND 5A TOGETHER

Parts List For MI-92100

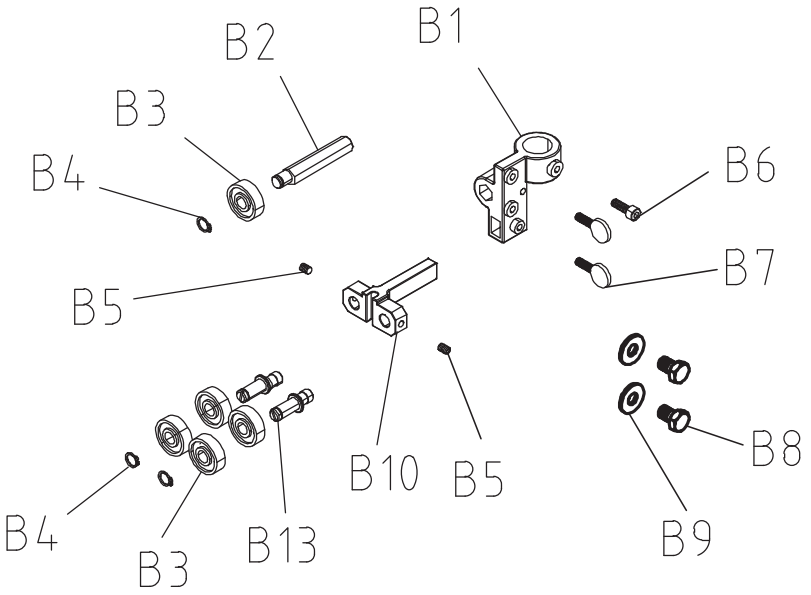


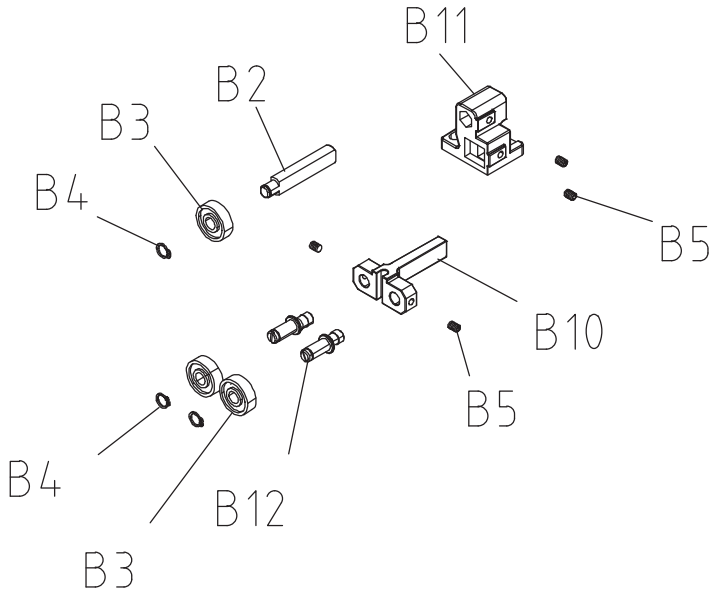
Parts List For MI-92100

REF.NO.	DESCRIPTION
MI-92100-101	HEX BOLT 1/4-20P*3/8"
MI-92100-102	LOCK WASHER 1/4"
MI-92100-103	FLAT WASHER 1/4-16*1.2mm
MI-92100-104	GUIDE BAR COVER
MI-92100-106	RACK
MI-92100-107	GUIDE BAR
MI-92100-108	BRACKET
MI-92100-109	FLAT WASHER 5/16"
MI-92100-110	LOCK WAWHER 5/16"
MI-92100-111	HEX BOLT 5/16-18P*3/4"
MI-92100-112	PINION SHAFT
MI-92100-113	6" HANDWHEEL
MI-92100-114	SET SCREW 5/16*3/8"-18P
MI-92100-115	EXTERNAL RETAINING RING S12
MI-92100-116	BALL
MI-92100-117	COMPRESSION SPRING
MI-92100-119	KNOB 5/16-18X2"
MI-92100-120	PINION GEAR
MI-92100-121	BLADE COVER
MI-92100-130	CAP SCREW 1/4*7/8"-20P
MI-92100-131	GUIDE POST
MI-92100-132	POINTER
MI-92100-133	PHILLIPS FLAT HEAD SCREW 3/16*3/8"
MI-92100-134	TABLE INSERT
MI-92100-135	TALBE
MI-92100-139	POINTER PLATE
MI-92100-140	TABLE PIN
MI-92100-141	MITER GAUGE -19m/m-T
MI-92100-142	HEX BOLT 3/8-16P*2-1/2"
MI-92100-143	TRUNNION CLAMPSHOE
MI-92100-144	TRUNNION
MI-92100-145	HEX BOLT 1/4-20P*3/4"
MI-92100-146	HEX BOLT 5/16-18P*1-1/4"
MI-92100-147	FLAT WASHER 5/16"
MI-92100-148	TABLE BRACKET
MI-92100-149	LOCK KNOB F/TABLE
MI-92100-150	PHILLIPS HEAD SCREW 3/16"-24P*1/4"
MI-92100-151	POINTER
MI-92100-152	SCALE (GAUGE)
MI-92100-158	KNOB BOLT 3/8"*1 1/4"
MI-92100-159	FLAT WASHER 3/8"
MI-92100-160	HEX BOLT 5/16-18P*1"
MI-92100-161	ANGLE ADJUSTMENT BAR
MI-92100-162	HEX BOLT 1/4-20*1/2"
MI-92100-163	NYLON NUT 5/16"

REF.NO.	DESCRIPTION
MI-92100-164	ADJUSTMENT BAR BRACKET
MI-92100-168	HEX BOLT 3/8*3/4"
MI-92100-170	SET SCREW 1/4-20P*1/4"
MI-92100-171	FLAT WASHER 3/8"-19

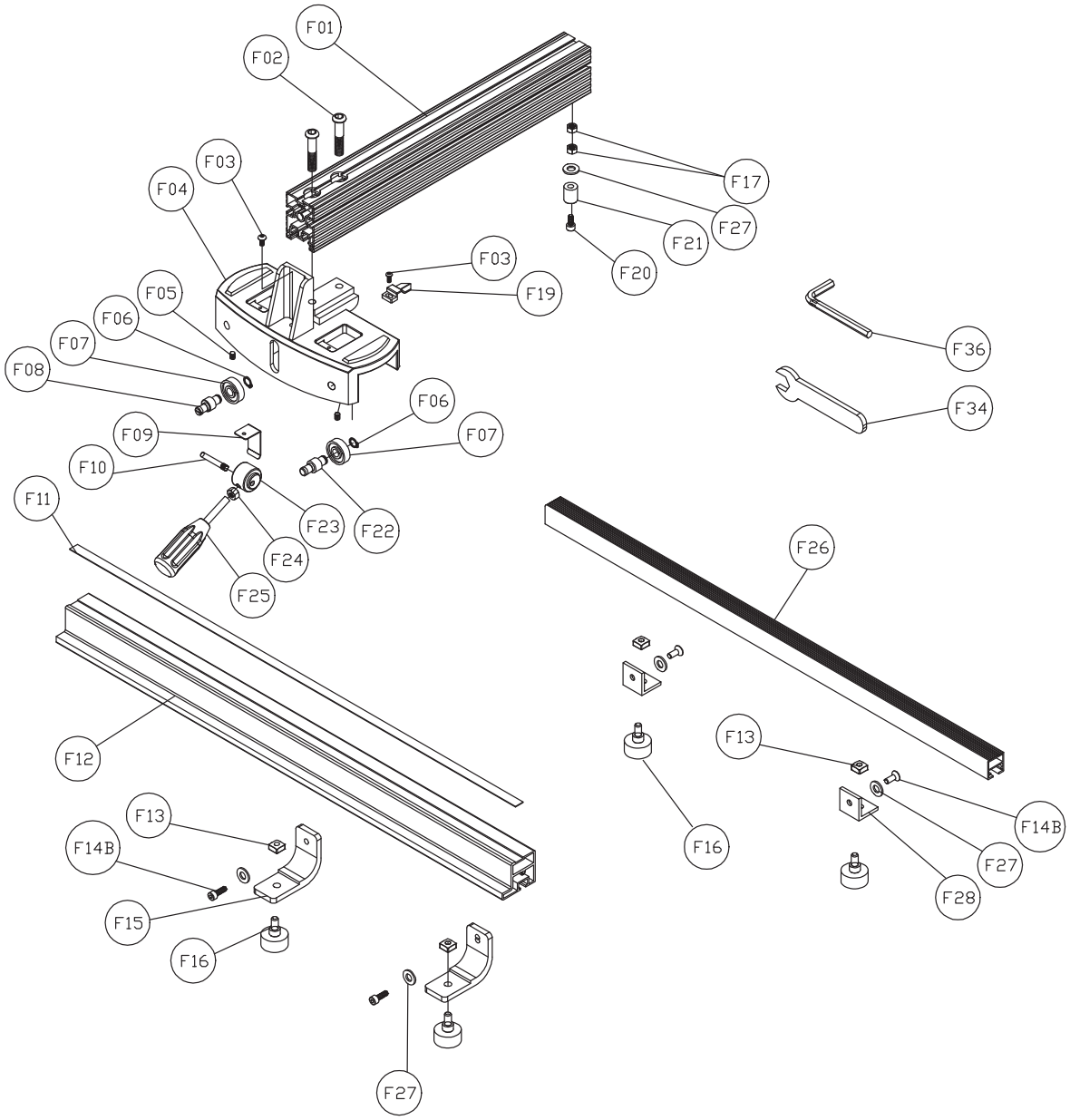
Parts List For MI-92100





REF.NO.	DESCRIPTION
MI-92100-B1	SUPPORT BRACKET CAST IRON 7/8" ID
MI-92100-B2	SUPPORT BEARING SHAFT
MI-92100-B3	BEARING 6200ZZ
MI-92100-B4	EXTERNAL RETAINING RING S10
MI-92100-B5	SET SCREW 1/4-20P*1/4"
MI-92100-B6	HEX BOLT 1/4-20*1/2"
MI-92100-B7	THUMBSCREW 1/4*3/4"20P
MI-92100-B8	HEX BOLT 1/4-20P*3/8"
MI-92100-B9	FLAT WASHER 1/4"-25
MI-92100-B10	SUPPORT
MI-92100-B11	LOWER SUPPORT BRACKET
MI-92100-B12	BEARING SHAFT (BEARING SUPPORT
MI-92100-B13	GUIDE SHAFT (L)

Parts List For MI-92100



REF.NO.	DESCRIPTION
MI-92100-F01	FENCE BODY
MI-92100-F02	FLAT HEAD CAP SCREW M10*25mm
MI-92100-F03	FLAT HEAD CAP SCREW M5*10mm
MI-92100-F04	FENCE BASE
MI-92100-F05	SET SCREW 1/4"*1/4"
MI-92100-F06	EXTERNAL RETAINING RING S10
MI-92100-F07	BEARING 6200ZZ
MI-92100-F08	ECCENTRIC SHAFT
MI-92100-F09	PRESSURE PLATE
MI-92100-F10	PIN
MI-92100-F11	FENCE SCALE
MI-92100-F12	FRONT FENCE RAIL
MI-92100-F13	SQUARE NUT
MI-92100-F14B	HEX BOLT

REF.NO.	DESCRIPTION
MI-92100-F15	L TYPE PLATE
MI-92100-F16	KNOB 5/16"*5/8"
MI-92100-F17	HEX NUT M6
MI-92100-F19	POINTER
MI-92100-F20	SOCKET HEAD CAP SCREW M6*16mm
MI-92100-F21	RUNNER
MI-92100-F22	BEARING SHAFT
MI-92100-F23	LOCK MECHANISM
MI-92100-F24	HEX NUT 8mm
MI-92100-F25	FENCE HANDLE
MI-92100-F26	REAR RAIL
MI-92100-F27	FLAT WASHER 1/4"
MI-92100-F28	L BRACKET
MI-92100-F34	OPEN-END WRENCH 10-12MM
MI-92100-F36	ALLEN WRENCH 3MM

Appendix G Fault Display

Error Trip Messages of Drive

Display	Description	Display	Description
(EEr) 	EEPROM error	(OH) 	Drive overheating
(AdEr) 	A/D converter error	(OL) 	Motor overload
(SC) 	Fuse open	(OL1) 	Drive overload
(LE1) 	Under voltage during operation	(OLO) 	System overload
(OC) 	Drive over current	(thr) 	External fault
(GF) 	Grounding fault	(ntCF) 	NTC Thermistor sensor fault
(OE) 	Over voltage	(PAdF) 	Keypad interruption during copy
(Cot) 	Communication overtime		

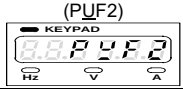
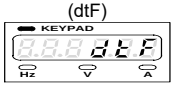
Error Trip Messages of Drive at close-loop Control

(no Fb) 	PID feedback signal error	(OP) 	Over pressure

Appendix G Fault Display

Warning Messages of Drive

*When the drive displays below messages, drive will stop output. If the abnormal condition is removed, the drive will auto-restarting.

Display	Description	Display	Description
(LE) 	Power source under voltage	(Cot) 	Communication overtime
(bb) 	Drive output interruption	(OP) 	Over pressure
(Fr) 	Coast to stop	(Ht) 	Drive overheating
(db) 	Dynamic brake transistor over voltage	(PrEr) 	Software fault
(Err_00)  (Err_01) 	Err_00: Keypad cable trip before connecting Err_01: Keypad cable trip during operation	(Wr_F) 	Different software version inter-copy
(LOC) 	Parameter Password Unlock	(PUF1) 	First time you enter wrong
(ULOC) 	Parameter Password Unlock	(PUF2) 	Second time you enter wrong
(dtF) 	Direction command error	(PUF3) 	Third time you enter wrong

a: Description:

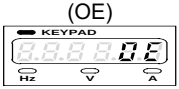
The drive has well protection functions to protect drive and motor when faults occur. When the fault occurs, the drive trips by the protection functions and display fault message on keypad. After the fault is troubleshooted, reset the drive by pressing OFF/RESET of keypad or command the drive to reset through multi-function input terminals by an external reset signal

b: Protection and Troubleshooting List:

Error Trip Messages of Drive

Display	Description	Cause	Troubleshooting
(EEr) 	**EEPROM error**	●EEPROM_data write fault. ●EEPROM component defected.	●Please reset all parameters to default value and restart the drive. ●Return the drive to repair, when the fault cannot be eliminated.
(AdEr) 	**A/D converter error**	A/D_converter broke down	Call out customer service rto repair
(SC) 	**Fuse open**	●Drive internal fuse open. ●IGBT power module damage.	Call out customer service rto repair
(LE1) 	**Under voltage during operation** The internal DC bus voltage level is below 70%.	●Phase failure of input power. ●Instantaneous power off. ●Voltage variation of power source is too high. ●Motor with instant overload causing the high voltage drop.	Increase the power capacity.

Error Trip Messages of Drive

Display	Description	Cause	Troubleshooting
(OC) 	**Drive over current** The output current of drive during operation exceeds 220% of drive's rated current.	●Output terminals are short circuit. ●Motor load overburden. ●The acceleration time is too fast. ●Drive starts at 0 while the motor is running in rotation. ●Wrong wiring or poor insulation. ●Overtop Starting voltage. ●Ouput side with power capacitor or filter capacitor.	●Check U/T1,V/T2,W/T3 terminals to verify if terminals are short. ●Check motor correspond to drive. ●Check if the motor operated in over-rated condition. ●Check overload condition of motor. ●Check if the acceleration time is too fast.
(GF) 	**Grounding fault** ●The three-phase output current is unbalance and exceeding the detection level of grounding fault. ●Grounding fault protection:F_098	Check for possible bad insulation at motor's output side or wire.	Check the insulation of motor's wire and motor.
(OE) 	**Over voltage** ●The internal DC bus voltage of drive is over the protection level. ●200V series: About DC410V. ●400V series: About DC820V.	●The deceleration time is too fast ; regenerative voltage makes DC bus voltage overtop. ●Overtop power supply voltage. ●Surge voltage occurs in drive's input power side.	●Increase deceleration time. ●Add DUB. ●Check input voltage is in the range of rated voltage. ●Add AC reactor at power input terminal.

Error Trip Messages of Drive

Display	Description	Cause	Troubleshooting
(OH) 	**Drive overheat** The temperature of drive's heat sink reaches the trip level.	●The surrounding temperature is too high. ●The heat sink has foreign body. ●The cooling fan of drive is fault.	●Improve the system ventilation. ●Clean the foreign body on the heat sink. ●Return the drive to replace the cooling fan.
(OL) 	**Motor overload** Operation current exceeds 150% of motor's rated current and reaches the motor overload protection time.	●Motor overloaded. ●The voltage setting of V/F pattern is too high or too low. ●The current setting of motor's rated current is invalid.	●Check the load of motor. ●Check if the acceleration or deceleration time is too short. ●Check if V/F setting is proper. ●Check if the rated current setting is valid.
(OL1) 	**Drive overload** Operation current exceeds 150% of drive's rated current for 1 minute.	●Motor overload. ●The voltage setting of V/F pattern is too high or too low. ●Drive capacity is too small.	●Check if the load of motor overload. ●Check if the acceleration or deceleration time is too fast. ●Check if V/F setting is proper. ●Select the higher capacity of drive.
(OLO) 	**System overload** ●Load system is overload and the operation current reaches the active level. ●Detection level: F_068. ●Detection time: F_069.	_ _ _	Check the usage of mechanical equipment

Error Trip Messages of Drive

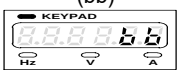
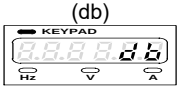
Display	Description	Cause	Troubleshooting
(thr) 	**External fault**	The multi-function terminal receives the external fault signal.	Clear the external fault and then press RESET key.
(ntCF) 	**NTC thermistor sensor fault**	NTC thermistor sensor is fault.	Please call customer service for drive repair.
(PAdF) 	**Keypad interruption during copy**	●The connecting wire of the keypad is loosen. ●The keypad jack of the drive is oxidized.	Check the connecting wire of keypad.

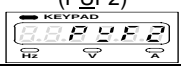
Error Trip Messages of Drive at close-loop Control

Display	Description	Cause	Troubleshooting
(no Fb) 	**PID feedback signal error**	Under closed loop control,the feedback signal wire is loosen/ tripped.	Check the feedback signal wire.
(OP) 	**Over pressure**	Under_closed-loop control,the feedback limit is abnormal.	●Check the setting of functions are adaquate (F_190~F_194) ●Check if the pressure is normal.

Warning Messages of Drive

*When the drive displays below messages, drive stops output. If the abnormal condition is removed, the drive auto recovers the normal operation.

Display	Description	Cause	Troubleshooting
(LE) 	**Power source under voltage** The internal DC bus voltage level below 70%	The voltage of power source is too low.	Check if the voltage of power source is valid.
(bb) 	**Drive output interruption**	Drive stops the output when the output interruption command is activated.	Clear drive output interruption command.
(Fr) 	**Coast to stop**	Drive stops the output when the coast to stop command is activated.	Clear “Coast to stop” command.
(db) 	**Dynamic brake over voltage** The internal DC bus voltage of drive is over the protection level.	DC bus voltage is too high.	Check if the input power is within drive’s rated input range.
(PrEr) 	**Program fault**	— — —	Check the software version of drive.
(Ht) 	**Drive overheat** The temperature of drive’s heat sink reaches warning levelF_142.	●Surrounding temperature is too high. ●The heat sink has foreign body. ●The cooling fan of drive is fault.	●Improve the system ventilation. ●Clean the dust on the heat sink. ●Return the drive to replace the cooling fan.
(Err_00)  (Err_01) 	**Err_00: Keypad cable trip before connecting Err_01: Keypad cable trip during operation**	●Thecconnecting wirecofcthe keypad is loosen. ●The keypad jack of the drive is oxidized.	Check the wire between the keypad and drive.
(OP) 	**Over pressure**	Undercclosed_loop control,feedback_limit alarm.	●Check the setting of functions are adequate (F_190~F_194) ●Check if the pressure is normal.

Display	Description	Cause	Troubleshooting
(dtF) 	**Direction command error**	Forward/reverse commands input at the same time.	Check the direction command.
(Wr_F) 	**Different software version inter-copy**	The software version of drives are different.	Check up the software version.
(LOC) 	**Parameter locking**	Password protection of parameters at the same time.	-
(ULOC) 	**Parameter Password Unlock**	Enter wrong password	-
(PUF1) 	**First time you enter wrong**	Enter wrong password	Please enter the correct password
(PUF2) 	**Second time you enter wrong**	Enter wrong password	Please enter the correct password
(PUF3) 	**Third time you enter wrong**	Enter wrong password	Enter the wrong password more than three times, please turn off and restart the power on to enter the correct password.
(Cot) 	**Communication overtime** ●Detection time: F_113 ●F_114=0	●Communication wire is loosen or connecting wire is incorrect. ●Host and receiver Communication setting are different. ●Communication signal is disconnect	●Check the wiring of communication wire. ●Check the communi-cation setting. ●Check if the F_113 Communication detect time is appropriate.