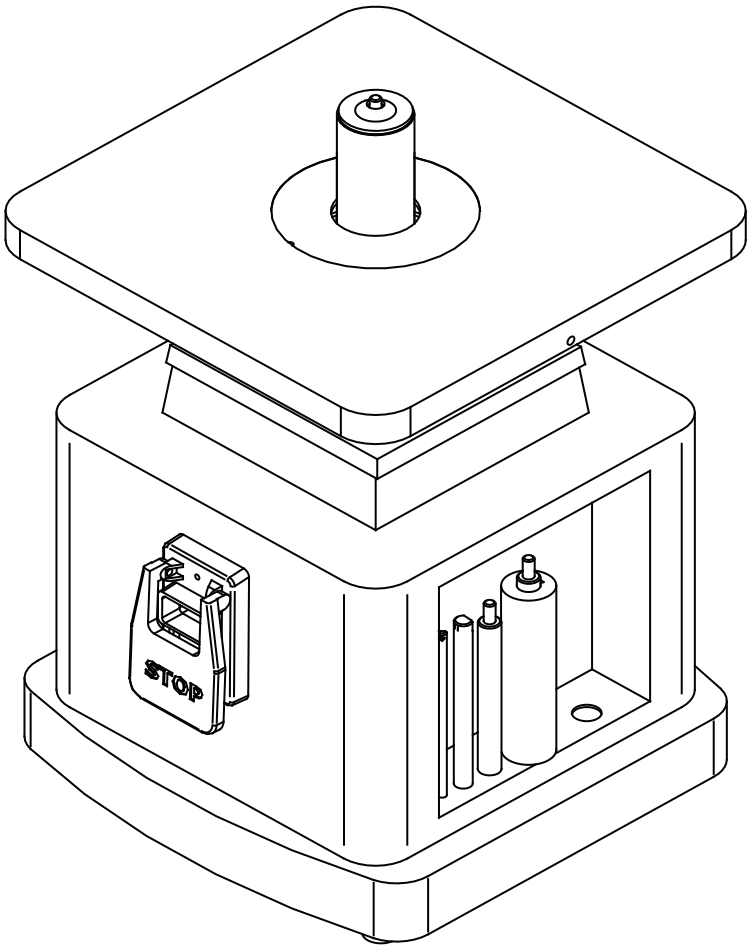
MAGNUM
INDUSTRIAL

MODEL NO.: MI-16100



OPERATING MANUAL

MOUNTING SPINDLE DRUM

1. The following warning or equivalent wording also appears on the Instruction Manual as well as on the tool per UL987. French equivalent of warning markings also appear on tool for Canada.
   "WARNING: For Your Own Safety Read Instruction Manual before Operating Sander
   1. Wear eye protection.
   2. Support work piece with work table.
   3. Maintain 1.6 mm clearance between table and sanding belt. The word "WARNING" shall be not less than 2.4 mm high.
2. An Instruction Manual warning user against of injury and precautions, grounding instructions, use of extension cords and important safeguards etc., per UL987 is provided with each tool.
3. The instruction manual for a scroll saw shall include the marking information as above and explanation of the use and construction of fixtures, including why and when they are needed.

SAFETY RULES

The safety instructions shall be as illustrated below or employ equivalent wording.

1. KEEP GUARDS IN PLACE and in working order.
2. REMOVE ADJUSTING KEYS AND WRENCHES. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
3. KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.
4. 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.
5. KEEP CHILDREN AWAY. All visitors should be kept safe distance from work area.
6. MAKE WORKSHOP KID PROOF with padlocks, master switches, or by removing starter keys.
7. DON'T FORCE TOOL. It will do the job better and safer at the rate for which it was designed.
8. USE RIGHT TOOL. Don't force tool or attachment to do a job for which it was not designed.
9. 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 A 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.
10. 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.
11. 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.

12. SECURE WORK. Use clamps or a vise to hold work when practical. It's safer than using your hand and it frees both hands to operate tool.
13. DON'T OVERREACH. Keep proper footing and balance at all times.
14. MAINTAIN TOOLS WITH CARE. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
15. DISCONNECT TOOLS before servicing; when changing accessories, such as blades, bits, cutters, and the like.
16. REDUCE THE RISK OF UNINTENTIONAL STATING. Make sure switch is in off position before plugging in.
17. USE RECOMMENDED ACCESSORIES. Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury to persons.
18. NEVER STAND ON TOOL Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
19. CHECK DAMAGED PARTS. Before further use of the too., 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.
20. DIRECTION OF FEED. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
21. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF. Don't leave tool until it comes to a complete stop.

GROUNDINGINSTRUCTIONS

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 between 150-250V, 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 1.2. The tool has a grounded plug that looks like the plug illustrated in Sketch D in Figure 1.2. 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 used 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.

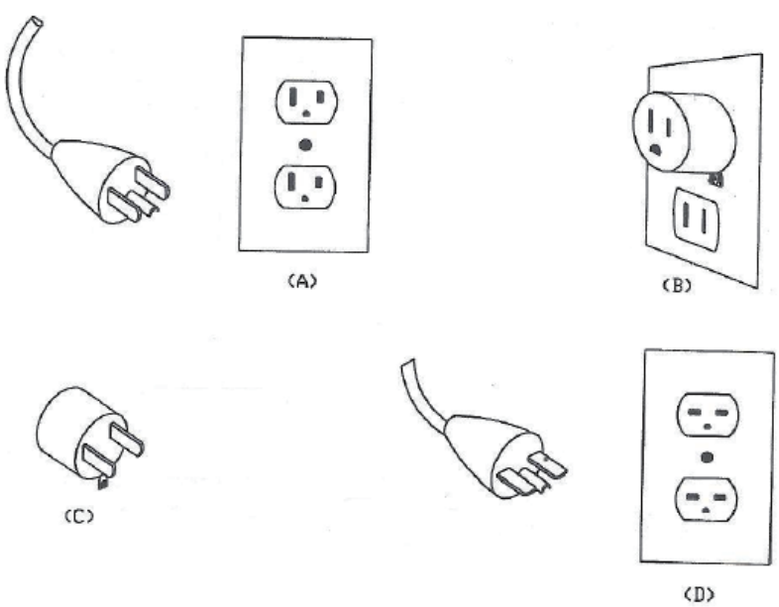


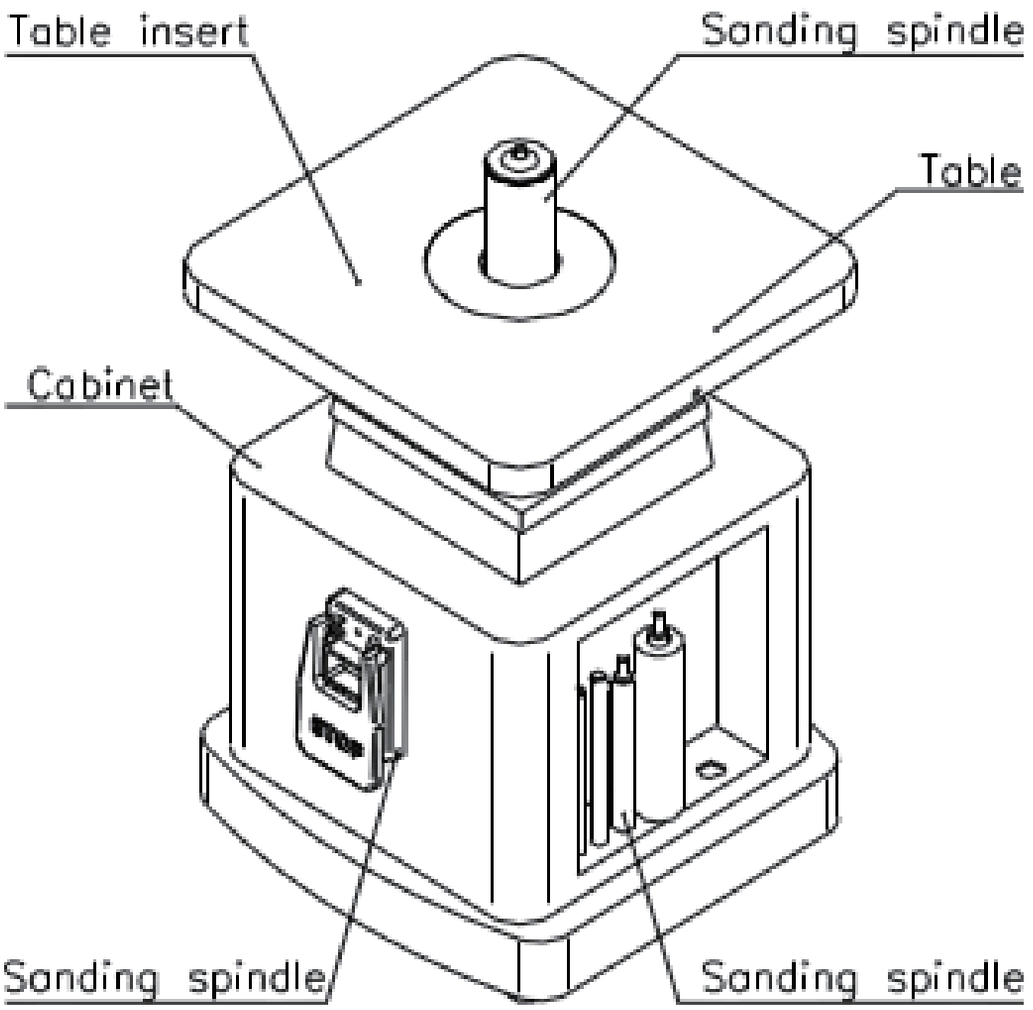
Fig.1.2

Table A						
Ampere Rating		Volts	Total length of cord in feet			
		120	25	50	100	150
		240	50	100	200	300
More Than	Not More Than		Minimum gage for cord			
0	6		18	16	16	14
6	10		18	16	14	12
10	12		16	16	14	12
12	16		14	12	Not Recommended	

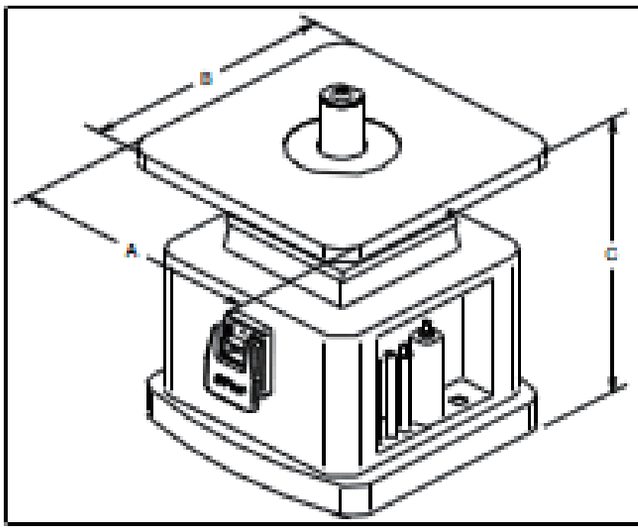
SPECIFICATIONS

MODEL	MI-16100
Table size (L x W)	370x370mm
Table tilt	0~45°
Spindle speed	1720rpm
Oscillations per minute	29
Oscillation stroke	24mm
Sanding sleeve length	141mm
Max. workpiece height	80mm
Dust port diameter	50.8mm
Motor	1/2HP/115V/60Hz/1ph
Overall (L x W x H)	370x370x480mm
Net weight	35kgs

MACHINE LEGEND



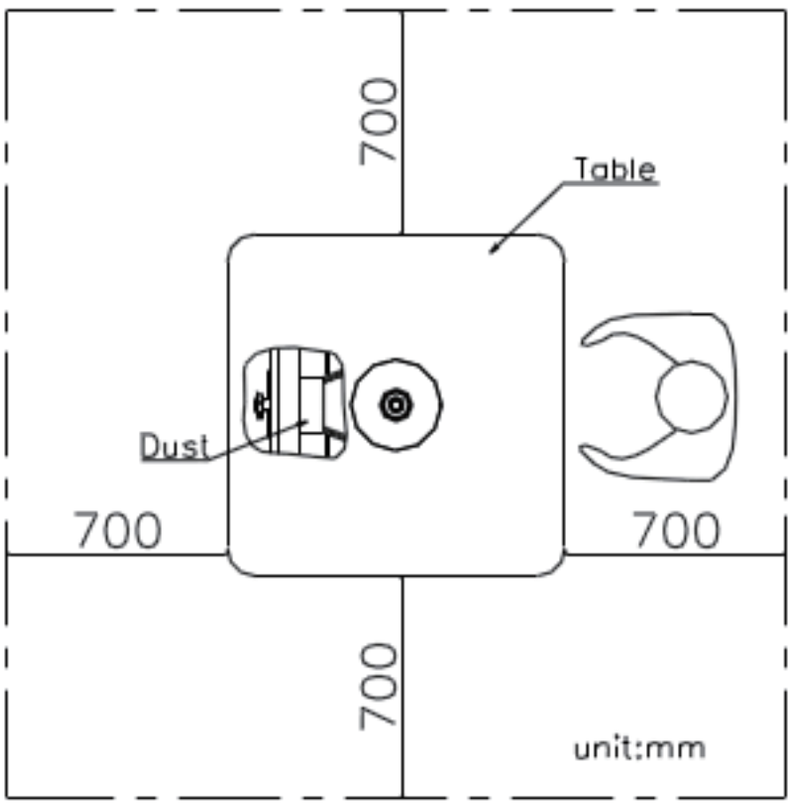
MACHINE DIMENSION



Model	A	B	C
OVS-T	370	370	480

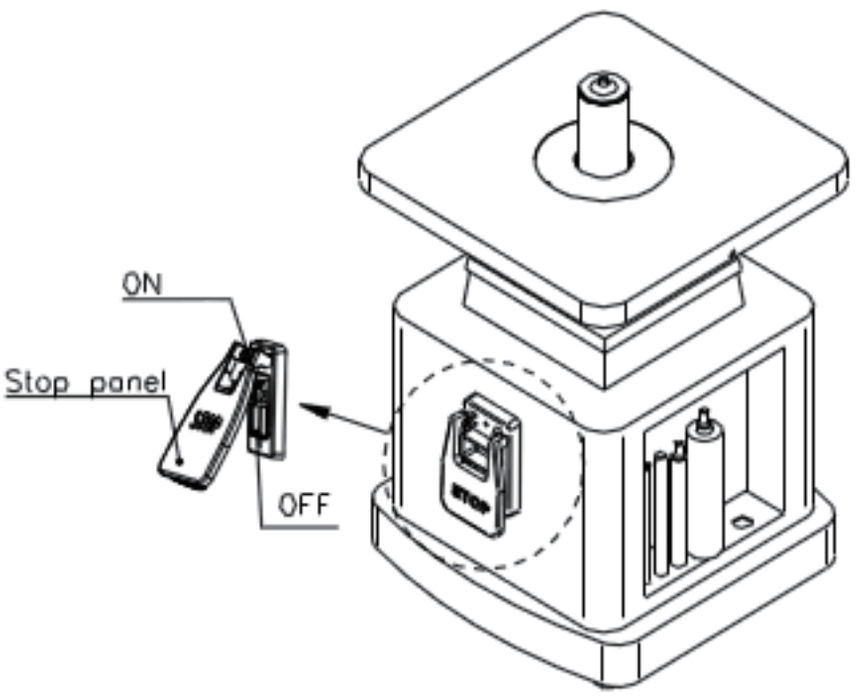
unit:mm

SAFE OPERATING POSITION



POWER SWITCH ON / OFF

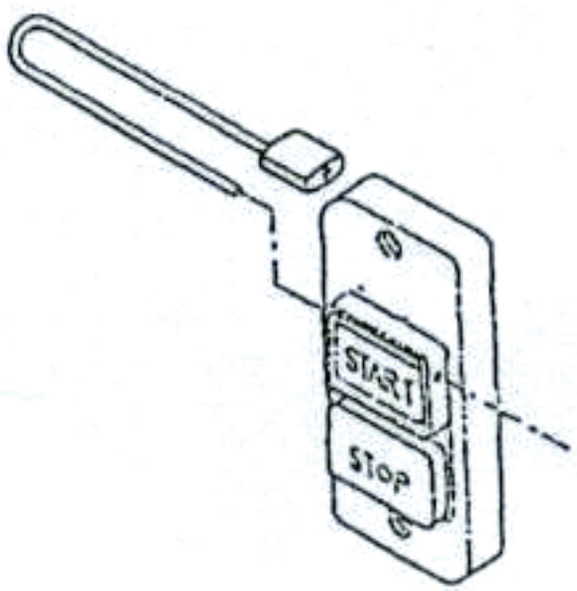
Sanding machine assembly - magnetic switch which to start and stop the machine. The switch locations on the cabinet. When starts the machine the cover needs to be opened and press the button”ON“. If you want to stop the machine, please press the button”OFF”.



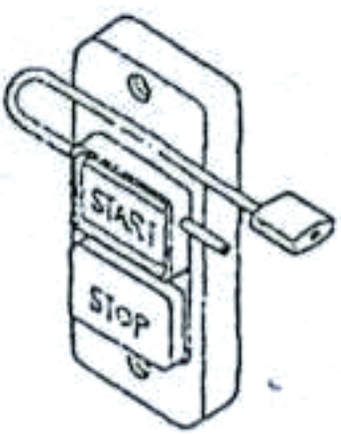
ON/OFFSWITCH PADLOCK

To avoid accidental staring by young children or others not qualified to use the tool, the use of a padlock is required.

To lock out an on/off switch:
1. open the padlock. See fig.A
2. insert through hole in the star button. See fig.B
3. close the padlock.
4. Place the key in a safe place out of the reach of children.



(A)



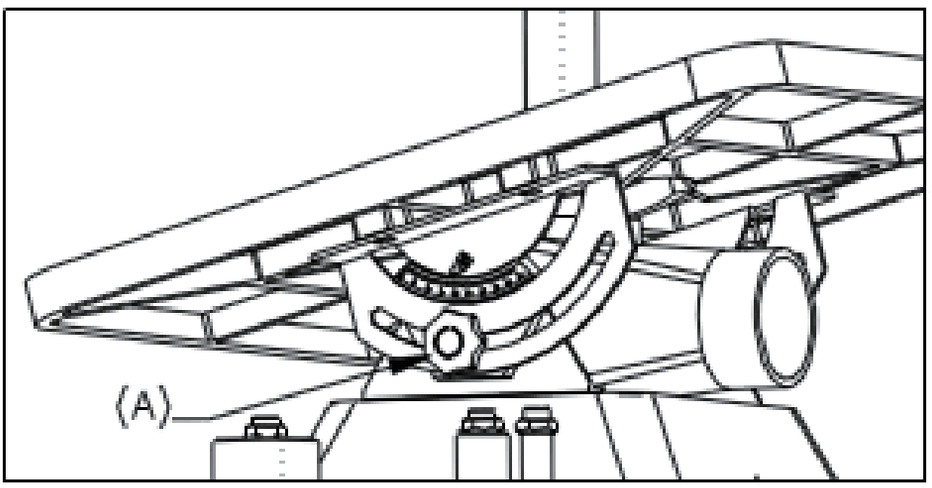
(B)

INSTRUCTIONS FOR OPERATIONS

1. Select spindle that is smaller than the curve to be sanded.
2. Use an insert plate that comes closest to the spindle without touching it.
3. Make sure that spindle is properly positioned in taper sleeve socket. With thewrench provided , tighten the nut. NOTE: Never over tighten; it may be difficult to remove the spindle later.
4. When table is set at a 90° angle, sanding may be done from any corner, orlocation on table around spindle.
5. When table is positioned at any angle other than 90°, it is necessary to positionthe work piece over the centerline, as shown on table surface.
6. Always lock the table with the hand nut when setting at any angle, also toprevent movement lock the tilting gear shaft.
7. Always loosen both table lock and tilting gear lock before changing the angleposition of the table. Never force the table if it does not tilt easily, reason may be that the locks are still engaged. Never attempt to over ride the stop locks, this will cause damage to the tilting performance.
8. A backing board is recommended when sanding thin pieces of metal or anyother material. A backing board can be easily constructed by using a piece of wood the length of the table, pushing it into the spindle until a half circle is formed. Clamp each end of the board to the table and proceed to sand the thin material.
9. Before leaving the machine remove any particles or pieces left over, make sure the table in 90°.

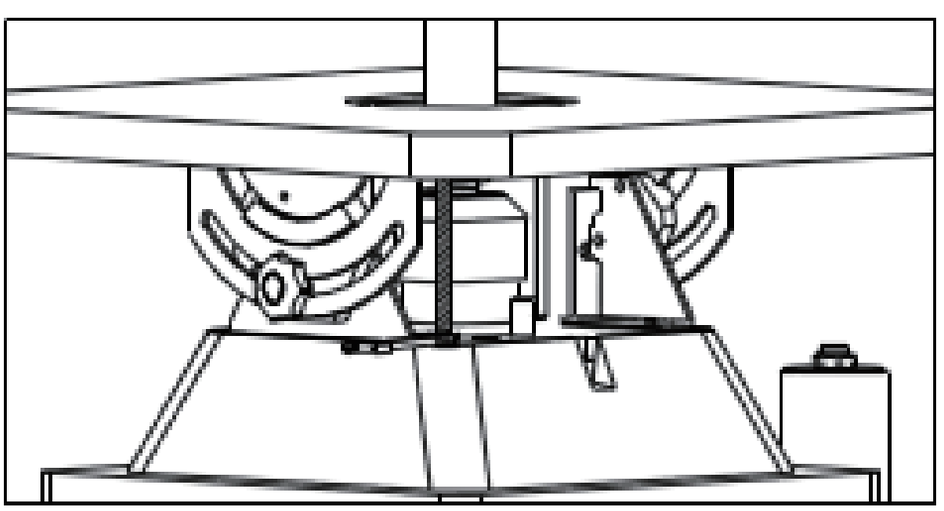
TILTING THE TABLE

1. Loosen the two table lock knobs (A), located under the table at both sides ofthemachine
2. Tilt the table forward to the desired angle with your hands.
3. An angle scale is provided at the right side of the trunnion to indicate the degreeof table tilt.
4. Tighten the two table lock knobs securely after the table degree has beenadjusted.



ADJUST THE VERTICALITY BETWEEN THE TABLE AND DRUM

1. The verticalitybetween the table and drum has been adjusted by factory beforeshipment. However, after a long period of operation, the verticality may become inaccurate.
2. To adjust the verticality, set the table to a flat horizontal position. The tabletilting scale should read zero degrees.
3. Place a 90°combinative square on the table and against the drum.
4. If the table is not 90° from the drum, adjust the angle of the table by changing theheight of the resting post as shown.
5. If the table is 90° from the drum, but the scale does not read zero degree, setthe scale to read zero degree by loosening the screw on the angle indicator and setting the arrow to zero.

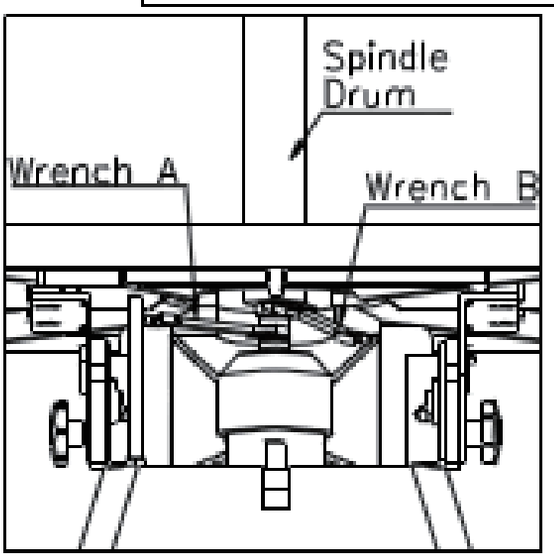


MOUNTING SPINDLE DRUM

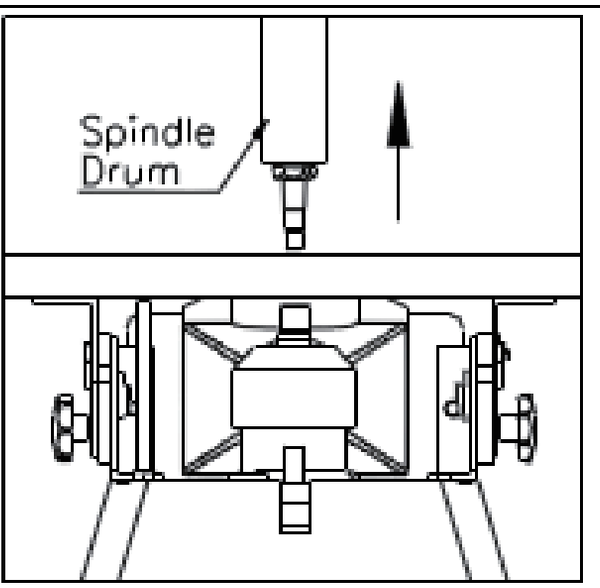
1. Disconnect the sander from the power source.
2. Select the proper diameter of spindle drum.
3. Clean the taper part of the spindle drum and of the spindle before mounting it into the spindle.
4. Use an open-end wrench to lock the spindle by holding its flat surface. At thesame time, use another open-end wrench to tighten the spindle drum.
5. Do not over tighten the spindle drum or it will be causing removable problem.

⚠ WARNING!

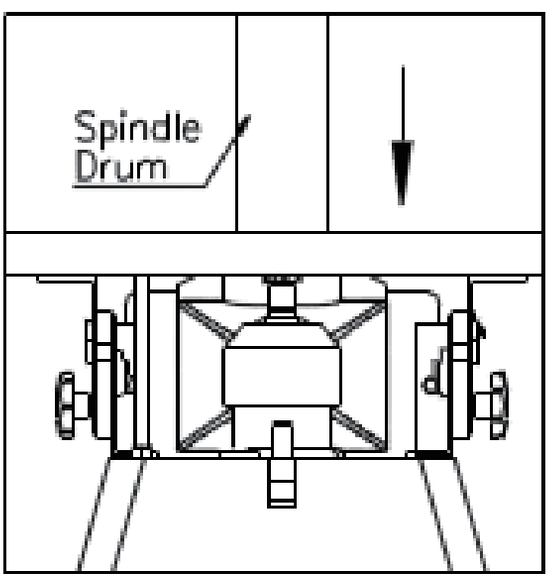
Disconnect the power source before removing the drum.



Use a wrench to lock the spindle.Use another wrench to loose the spindle drum.



Removing an old spindle drum.



Fitting a new spindle drum.

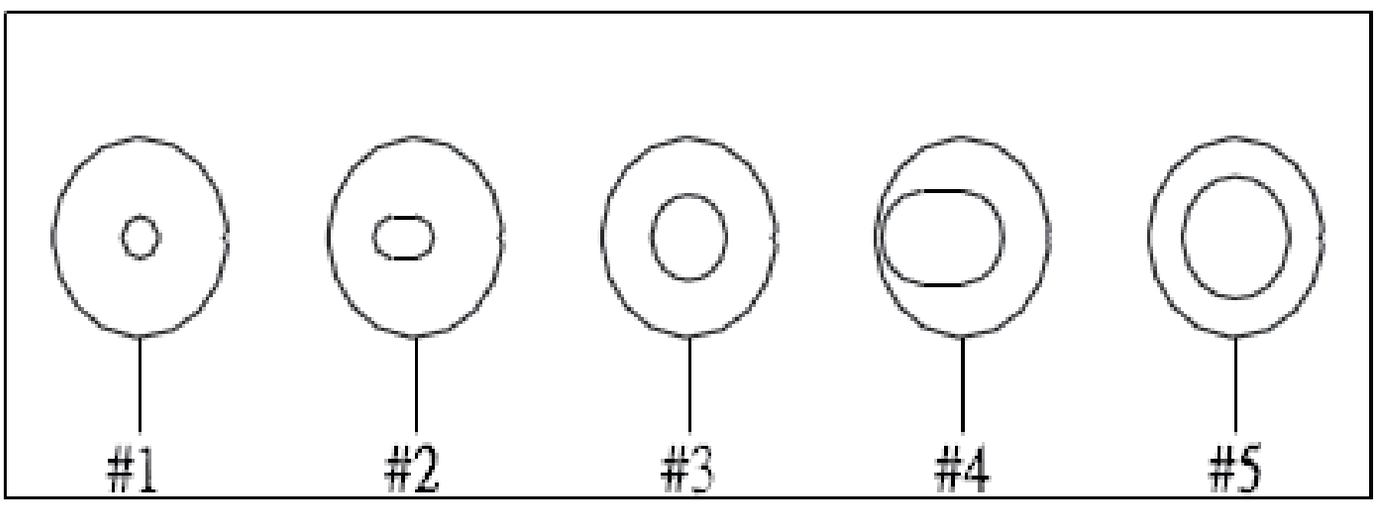
SELECTION GUIDE FOR DRUM TO TABLE INSERT

This machine is furnished with 5 drums. The range of drum diameter is from 1/4” to 2”. If the drum diameter is changed, the table insert needs to be changed to the proper size. The table below shows which table insert to use for various drum diameters.

WARNING!

Failure to use the correct insert with the corresponding drum may result in injury!

Drum diameter	Table insert
# 1 1/4” Dia. x 6” long	# 1 , # 2
# 2 1/2” Dia. x 6” long	# 1 , # 2
# 3 5/8” Dia. x 6” long	# 1 , # 2
# 41 1/2” Dia. x 5.6” long	# 3 , # 4
# 5 2” Dia. x 5.6” long	# 3 , # 4
# 63” Dia. x 5.6” long(Optional)	# 5

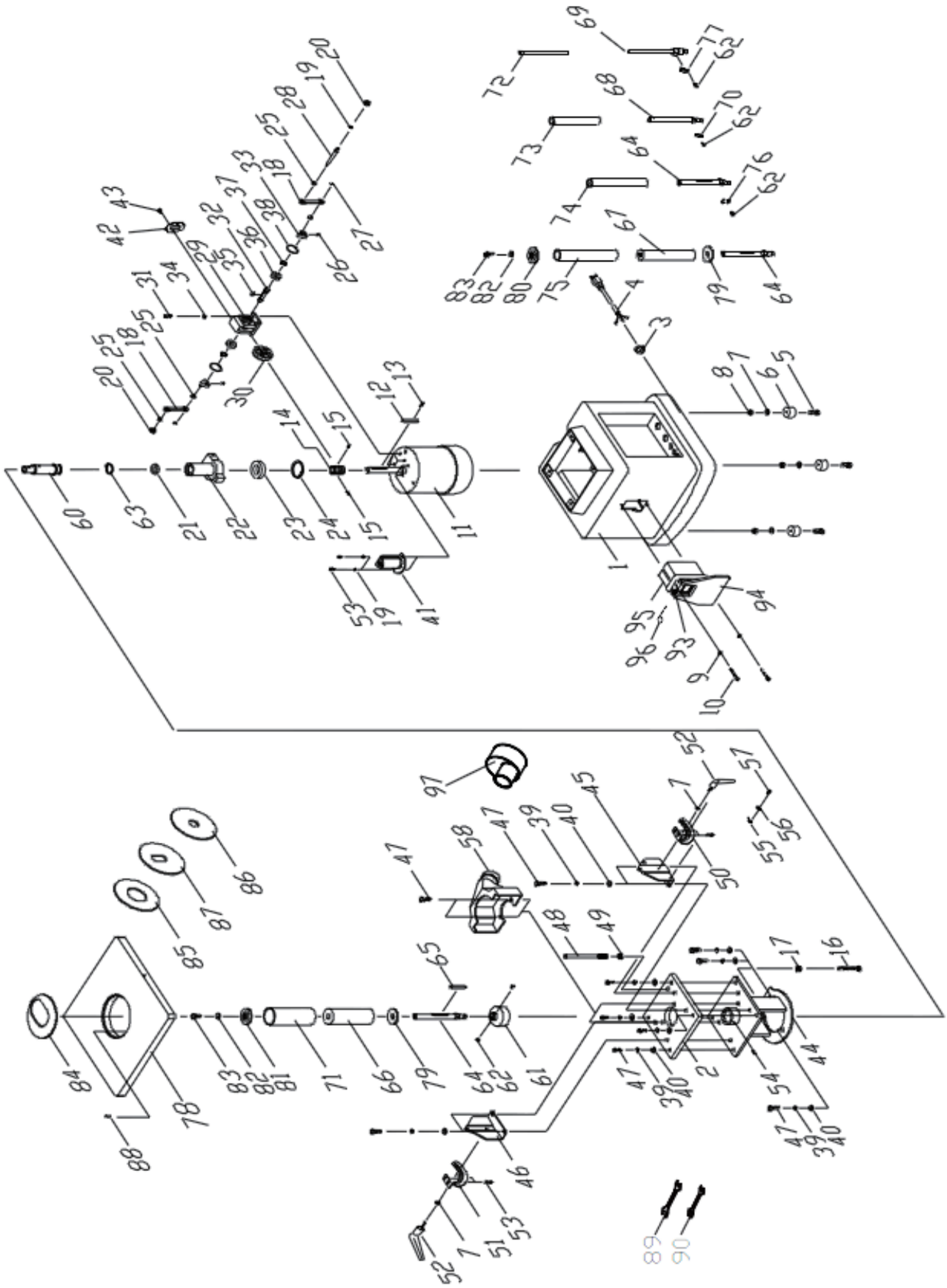


MAINTENANCEOF SPINDLE SANDER

1. To keep spindle sander in perfect condition, clean machine and attachments at all times.
2. Clean tapered sleeves and tapered socket before use, this will protect spindle sleeves from nicks.
3. Bent sleeves are easily straightened by placing them in the tapered socket and slipping a small pipe over the steel shaft. Using a dial indicator check that it is in correct position.
4. Check gearbox for proper oil level (Approx. 1/4 up on sight glass).
5. We recommend that a small amount of grease be applied to table tilting screw once a month.
6. No lubrication is required for the bearings, they are permanently lubricated.

TROUBLESHOOTING

TROUBLE	CAUSES	CORRECTION
Motor does not run when power switch is turned “ON”.	1. Switch is burned out. 2. Connection wire is loose or damaged.	1. Replace the switch. 2. Tighten or replace the wire.
Motor does not run at full speed.	1. Power voltage is too low. 2. Motor is damaged.	1. Test voltage. . Checkand repair motor.
Motor does not reach full power.	1. Incorrect power wiring. 2. Overload.	1. Replace with the correct size power wiring. 2. Reduce sanding load.
Motor overheating	1. Motor is dirty. 2. Motor is damaged.	1. Clean motor. 2. Check and repair motor.
Excessive machine vibration	Machine is incorrectly leveled.	Adjust machine leveling
Mark on workpiece	1. Sanding drum is damaged. 2. Sanding cloth on drum is worn in some areas.	1. Replace the sanding drum. 2. Replace sanding cloth
Sanding drum turns in wrong direction	Wrong phase or voltage	Make sure the phase and voltage comply with machine requirement.
Burns on workpiece	Wrong abrasive grit on sanding cloth	Use coarser grit to remove more material from workpiece.



PARTS LIST FOR MI-16100

PART NO.	DESCRIPTION	SPEC.	Q'TY
MI-16100-01	BASE		1
MI-16100-02	TOP PLATE		1
MI-16100-03	STRAIN RELIEF	22M 18A 3C 1R 2T	1
MI-16100-04	POWER CORD		1
MI-16100-05	PHILLIPS HEAD SCREW	M6 X 1 X 22L	4
MI-16100-06	RUBBER FEET		4
MI-16100-07	WASHER	1/4" X 19MM	6
MI-16100-08	LOCKING NUT	M6 X 1.0	4
MI-16100-09	SPRING WASHER	3/16"	2
MI-16100-10	PHILLIPS HEAD SCREW	3/16"-24UNC X 3/4"	2
MI-16100-11	MOTOR		1
MI-16100-12	KEY	6 X 6 X 50	1
MI-16100-13	SET SCREW	M4 X 0.7 X 15L	2
MI-16100-14	WORM GEAR		1
MI-16100-15	SET SCREW	M6 X 1.0 X 10L	2
MI-16100-16	TRANSMISSION ROD	M8 X 1.25 X 75L	1
MI-16100-17	HEX. NUT	M8 X 1.25	1
MI-16100-18	CONNECTING ROD		2
MI-16100-19	WASHER	1/4" X 19MM	4
MI-16100-20	HEX NUT	M5	2
MI-16100-21	BEARING	6804 ZZ	1
MI-16100-22	SPINDLE SEAT		1
MI-16100-23	BEARING	6006 ZZ	1
MI-16100-24	RETAINING RING	C TYPE	1
MI-16100-25	CONNECTION ROD NUT		4
MI-16100-26	SET SCREW	M5 X 0.8 X 6L	2
MI-16100-27	RETAINING RING	E TYPE	2
MI-16100-28	CONNECTING SPINDLE		1
MI-16100-29	WHEEL SEAT		1
MI-16100-30	WHEEL		1
MI-16100-31	HEX. SCREW	M6 X 1.0 X 10L	4
MI-16100-32	WHEEL ARBOR		1
MI-16100-33	ARBOR COVER		2
MI-16100-34	SPRING WASHER	1/4"	4
MI-16100-35	KEY	4 X 4 X 15	1
MI-16100-36	BEARING	6001 ZZ	2
MI-16100-37	RETAINING RING	C TYPE STW-12	2
MI-16100-38	RETAINING RING	C TYPE R-28	2
MI-16100-39	SPRING WASHER	5/16"	11
MI-16100-40	FLAT WASHER	5/16" X 18 X 2T	11
MI-16100-41	OIL CAP		1
MI-16100-42	REAR OIL CAP		1
MI-16100-43	PHILLIPS HEAD SCREW	3/16"-24UNC X 1/4"	2
MI-16100-44	MAIN CASTING		1
MI-16100-45	BRACKET (RIGHT)	L TYPE	1
MI-16100-46	BRACKET (LEFT)	L TYPE	1
MI-16100-47	CAP SCREW	M8 X 1.25 X 20L	11
MI-16100-48	90 DEGREE TABLE STOP ROD		1

PARTS LIST FOR MI-16100

PART NO.	DESCRIPTION	SPEC.	Q'TY
MI-16100-49	HEX. NUT	3/8"-16UNC	1
MI-16100-50	TABLE TILT GUIDE BRACKET WITH SCALE	RIGHT	1
MI-16100-51	TABLE TILT GUIDE BRACKET WITH SCALE	LEFT	1
MI-16100-52	LOCKING LEVER		2
MI-16100-53	PHILLIPS HEAD SCREW	M5 X 0.8 X 16L	4
MI-16100-54	SET SCREW	M6 X 1.0 X 6L	1
MI-16100-55	ANGLE POINTER		1
MI-16100-56	SPROCKET WASHER	1/4"	1
MI-16100-57	PHILLIPS HEAD SCREW	M5 X 0.8 X 10L	1
MI-16100-58	DUST PORT		1
MI-16100-59	SCALE		1
MI-16100-60	SPINDLE	22 X119	1
MI-16100-61	COVER		1
MI-16100-62	SET SCREW	M5 X 0.8 X 8L	2
MI-16100-63	SNAP RING		1
MI-16100-64A	5/8" SPINDLE SHAFT ASS'Y		1
MI-16100-64	5/8" SPINDLE	5/8 X 193L	3
MI-16100-65	KEY	5 X 5 X 50	1
MI-16100-66A	2" SPINDLE SHAFT ASS'Y		1
MI-16100-66	DRUM	2"	1
MI-16100-67A	1-1/2" SPINDLE SHAFT ASS'Y		1
MI-16100-67	DRUM	1-1/2"	1
MI-16100-68A	1/2" SPINDLE SHAFT ASS'Y		1
MI-16100-68	SPINDLE	1/2"	1
MI-16100-69A	1/4" SPINDLE SHAFT ASS'Y		1
MI-16100-69	SPINDLE	1/4"	1
MI-16100-70	1/2" CLAMP	1/2"	1
MI-16100-71	SANDING SLEEVES	2"/100#	1
MI-16100-72	SANDING SLEEVES	1/4"/100#	1
MI-16100-73	SANDING SLEEVES	1/2"	1
MI-16100-74	SANDING SLEEVES	5/8"	1
MI-16100-75	SANDING SLEEVES	1-1/2"	1
MI-16100-76	5/8" CLAMP	5/8"	1
MI-16100-77	1/4" CLAMP	1/4"	1
MI-16100-78	MAIN TABLE		1
MI-16100-79	LOWER FOLLOWER PLATE	1-1/2" & 2"	2
MI-16100-80	UPPER FOLLOWER PLATE	1-1/2"	1
MI-16100-81	UPPER FOLLOWER PLATE	2"	1
MI-16100-82	WASHER	5/16" X 16	1
MI-16100-83	5/16" HEX. HEAD BOLT	5/16" (LEFT THREAD)	1
MI-16100-84	TABLE INSERT (OBLONG)	2"	1
MI-16100-85	TABLE INSERT (ROUND)	2"	1
MI-16100-86	TABLE INSERT (ROUND)	3/4"	1
MI-16100-87	TABLE INSERT (OBLONG)	3/4"	1
MI-16100-88	ALIGNMENT SPRING PIN	3X12 M/M	1
MI-16100-89	OPEN WRENCH	14-17MM	1
MI-16100-90	OPEN WRENCH	10-12MM	1
MI-16100-93	SWITCH WITH RED STOP COVER		1

PARTS LIST FOR MI-16100

PART NO.	DESCRIPTION	SPEC.	Q'TY
MI-16100-94	RED STOP COVER		1
MI-16100-95	SWITCH BOX		1
MI-16100-96	SAFETY LOCK-OUT PIN W/CHAIN		1
MI-16100-97	2" TO 4" DUST HOSE ADAPTOR		1