

INSTRUCTION MANUAL

WL-46A

Electronic Variable Speed Wood Lathe 462mm Swing x 1194mm Between Centres



W387

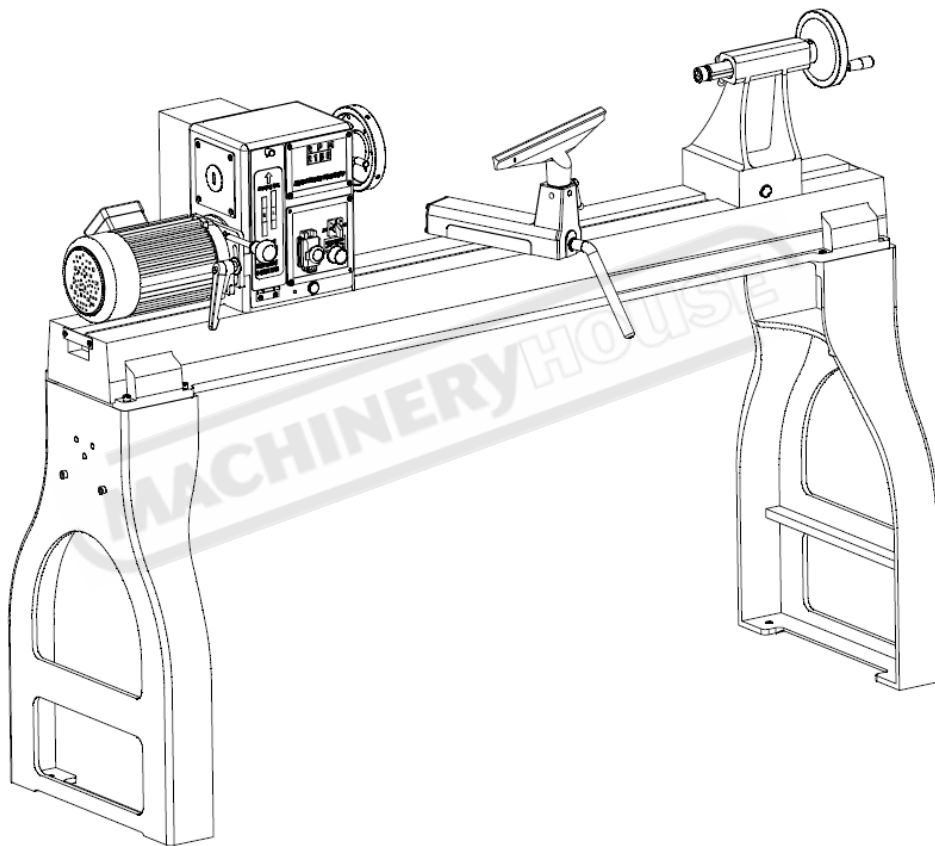
W387 WL-46A

23/10/19

(DELTA MC-300 INVERTER)

Variable Speed Wood Lathe

Model : MC1200F



OWNER'S MANUAL

We reserve the right of the amendment addition and deletion of the specifications, explanatory wording, etc. printed in this manual

WOODLATHE MANUAL

SAFETY GUIDELINES - DEFINITIONS

This manual contains information that is important for you to know and understand. This information relates to protecting YOUR SAFETY and PREVENTING EQUIPMENT PROBLEMS. To help you recognize this information, we use the symbols to the right. Please read the manual and pay attention to these sections.

GENERAL SAFETY RULES

1. FOR YOUR OWN SAFETY, READ THE INSTRUCTION MANUAL BEFORE OPERATING THE MACHINE.

Learning the machine's application, limitations, and specific hazards will greatly minimize the possibility of accidents and injury.

2. WEAR EYE PROTECTION. ALWAYS USE SAFETY GLASSES. Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses are NOT safety glasses. USE CERTIFIED SAFETY EQUIPMENT.

3. 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.

4. DO NOT USE THE MACHINE IN A DANGEROUS ENVIRONMENT. The use of power tools in damp or wet locations or in rain can cause shock or electrocution. Keep your work area well-lit to prevent tripping or placing arms, hands, and fingers in danger.

5. MAINTAIN ALL TOOLS AND MACHINES IN PEAK CONDITION. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories. Poorly maintained tools and machines can further damage the tool or machine and/or cause injury.

6. CHECK FOR DAMAGED PARTS. Before using the machine, check for any damaged parts. Check for alignment of moving parts, binding of moving parts, breakage of parts, and any other conditions that may affect its operation. A guard or any other part that is damaged should be properly repaired or replaced. Damaged parts can cause further damage to the machine and/or injury.

7. KEEP THE WORK AREA CLEAN. Cluttered areas and benches invite accidents.

8. KEEP CHILDREN AND VISITORS AWAY. Your shop is a potentially dangerous environment. Children and visitors can be injured.

9. REDUCE THE RISK OF UNINTENTIONAL STARTING. Make sure that the switch is in the "OFF" position before plugging in the power cord. In the event of a power failure, move the switch to the "OFF" position. An accidental start-up can cause injury.

10. USE THE GUARDS. Check to see that all guards are in place, secured, and working correctly to prevent injury.

11. REMOVE ADJUSTING KEYS AND WRENCHES BEFORE STARTING THE MACHINE. Tools, scrap pieces, and other debris can be thrown at high speed, causing injury.

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12. **USE THE RIGHT MACHINE.** Don't force a machine or an attachment to do a job for which it was not designed. Damage to the machine and/or injury may result.
13. **USE RECOMMENDED ACCESSORIES.** The use of accessories and attachments not recommended by Delta may cause damage to the machine or injury to the user.
14. **USE THE 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. See the Extension Cord Chart for the correct size depending on the cord length and nameplate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.
15. **SECURE THE WORKPIECE.** Use clamps or a vise to hold the workpiece when practical. Loss of control of a workpiece can cause injury.
16. **FEED THE WORKPIECE AGAINST THE DIRECTION OF THE ROTATION OF THE BLADE, CUTTER, OR ABRASIVE SURFACE.** Feeding it from the other direction will cause the workpiece to be thrown out at high speed.
17. **DON'T FORCE THE WORKPIECE ON THE MACHINE.** Damage to the machine and/or injury may result.
18. **DON'T OVERREACH.** Loss of balance can make you fall into a working machine, causing injury.
19. **NEVER STAND ON THE MACHINE.** Injury could occur if the tool tips, or if you accidentally contact the cutting tool.
20. **NEVER LEAVE THE MACHINE RUNNING UNATTENDED. TURN THE POWER OFF.** Don't leave the machine until it comes to a complete stop. A child or visitor could be injured.
21. **TURN THE MACHINE "OFF", AND DISCONNECT THE MACHINE FROM THE POWER SOURCE** before installing or removing accessories, before adjusting or changing set-ups, or when making repairs. An accidental start-up can cause injury.
22. **MAKE YOUR WORKSHOP CHILDPROOF WITH PADLOCKS, MASTER SWITCHES, OR BY REMOVING STARTER KEYS.** The accidental start-up of a machine by a child or visitor could cause injury.
23. **STAY ALERT, WATCH WHAT YOU ARE DOING, AND USE COMMON SENSE. DO NOT USE THE MACHINE WHEN YOU ARE TIRED OR UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR MEDICATION.** A moment of inattention while operating power tools may result in injury.
24. **TAKE PRECAUTIONS AGAINST DUST INHALATION.** The dust generated by certain woods and wood products can be injurious to your health. Always operate machinery in well-ventilated areas, and provide for proper dust removal. Use wood dust collection systems whenever possible.

ADDITIONAL SAFETY RULES FOR WOOD LATHES

1. **DO NOT OPERATE THIS MACHINE UNTIL** it is assembled and installed

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according to the instructions.

2. OBTAIN ADVICE from your supervisor, instructor, or another qualified person if you are not familiar with the operation of this machine.
3. FOLLOW ALL WIRING CODES and recommended electrical connections.
4. ROUGH CUT THE WORKPIECE as close as possible to the finished shape before installing it on the faceplate.
5. EXAMINE THE WORKPIECE FOR FLAWS and test glue joints before mounting the workpiece on machine. DO NOT mount a split workpiece or one containing a knot.
6. SECURELY FASTEN THE WORKPIECE to the faceplate prior to faceplate turning. Use the appropriate size faceplate to properly support the workpiece. Do not let the screw fasteners interfere with the turning tool at the finished dimension of the workpiece.
7. NEVER DRIVE THE WORKPIECE into the drive center while the drive center is in the headstock. Set the drive center into the workpiece with a soft mallet prior to installing it on the headstock.
8. SNUG THE TAILSTOCK CENTER against the workpiece and lock it. Lubricate the tailstock center if it is not a ball bearing center.
9. PROPERLY ADJUST THE TOOL REST HEIGHT.
10. ADJUST THE TOOL REST so it is as close to the workpiece as possible.
11. TIGHTEN ALL CLAMP LOCKING HANDLES before operating.
12. ROTATE THE WORKPIECE BY HAND to check clearance before turning the machine "ON".
13. CLEAR THE LATHE BED OF ALL OBJECTS (tools, scraps of wood, etc.) before turning the machine "ON". FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS INJURY.
14. EXAMINE THE SET-UP CAREFULLY before turning the machine "ON".
15. STAND CLEAR, AND KEEP ALL OBSERVERS AND PASSERSBY clear of rotating path of workpiece to avoid injury from flying debris.
16. USE THE LOWEST SPEED when starting a new workpiece. NEVER EXCEED recommended speeds.
17. NEVER ADJUST THE TOOL REST while the workpiece is turning.
18. NEVER LOOSEN THE TAILSTOCK SPINDLE or the tailstock while workpiece is turning.
19. MOVE THE CUTTING TOOL INTO THE WORK-PIECE SLOWLY, and cut small amounts when roughing.
20. REMOVE THE TOOL REST before sanding or polishing.
21. NEVER PERFORM LAYOUT, assembly, or set-up work on the table/work area when the machine is running.
22. TURN THE MACHINE "OFF" AND DISCONNECT THE MACHINE from the power source before installing or removing accessories, before adjusting or changing set-ups, or when making repairs.
23. TURN THE MACHINE "OFF", disconnect the machine from the power source, and clean the table/work area before leaving the machine. LOCK THE SWITCH IN

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THE “OFF” POSITION to prevent unauthorized use.

24. ADDITIONAL INFORMATION regarding the safe and proper operation of power tools.

GROUNDING INSTRUCTIONS

All grounded, cord-connected machines: 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 machine 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 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 machine is properly grounded.

FUNCTIONAL DESCRIPTION

FOREWORD

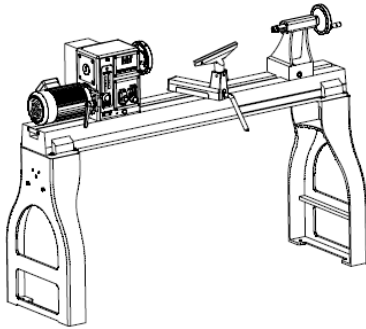
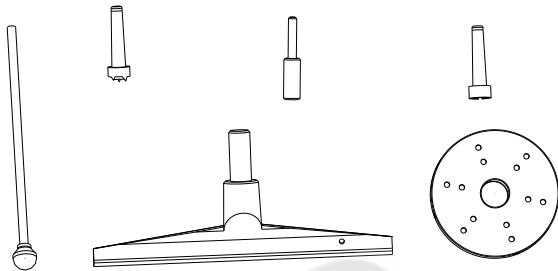
The Woodlathe MC1200 adjustable speed wood lathes is a big capacity machine, designed for industry, commercial shops, and schools, or wherever a demand exists for continued accuracy and long life through safe, heavy-duty operation.

UNPACKING AND CLEANING

Carefully unpack the tool and all loose items from the shipping container(s). Remove the protective coating from all unpainted surfaces, especially on the bottom side of the bedways, the clamp plates under the headstock, the tool rest base, and the tailstock. This coating may be removed with a soft cloth moistened with kerosene (do not use acetone, gasoline or lacquer thinner for this purpose). After cleaning, cover the top surface of the bed with a good quality paste wax.

CARTON CONTENTS

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<p>Contents of the Shipping</p> <p>Containers</p> <ul style="list-style-type: none"> 1. Lathe 1. Tailstock 1. Headstock 1. Tool Rest Body 1. Owner's Manual & Warranty Card 	 <p style="text-align: center;">Fig.1</p>
<p>Accessory Package Box</p> <ul style="list-style-type: none"> 1. Live Center 1. Spur Center 1. Index Pin 1. Face Plate 1. Knockout Rod Headstock 1. Tool Rest 	 <p style="text-align: center;">Fig.2</p>

SPECIFICATIONS

Stock Number.....	MC1200F
Over Bed.....	460mm (18")
Swing Over Tool Rest Base	356mm (14")
Distance Between Centers.....	1200mm (47")
Speeds (RPM)	0-1200 & 0-3200
Spindle Nose	M33x3.5.. (1-1/4" x 8 T.P.I.)
Drive Spindle Through Hole.....	10mm (3/8")
Tailstock Spindle Through Hole.....	10mm (3/8")
Tailstock Spindle Travel	110mm (4")
Tool Rest	355mm (14")
Face Plate	152mm (6")
Headstock Taper	MT-2
Tailstock Taper	MT-2
Spindle Center to Floor (approx.)	1130mm. (44-1/2")
Motor.....	Input.1500kw
Inverter.....	VFD-M-1.5kw Input Power 230V Only
Net Weight (approx.).....	190 kgs.
Shipping Weight (approx.).....	265 kgs

ASSEMBLY

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Secure tool rest (A, Fig. 3) to tool rest body (B, Fig. 3) by tightening handle(C, Fig. 3).

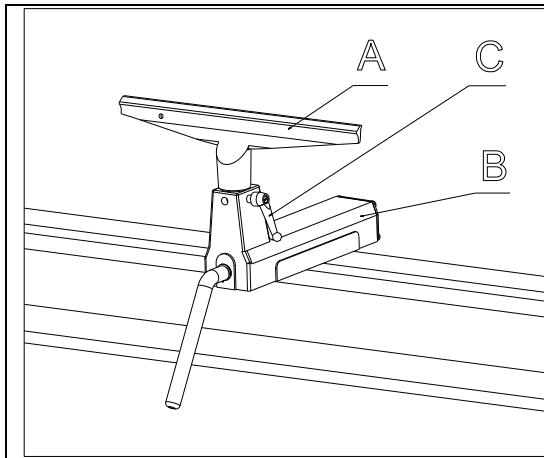


Fig. 3

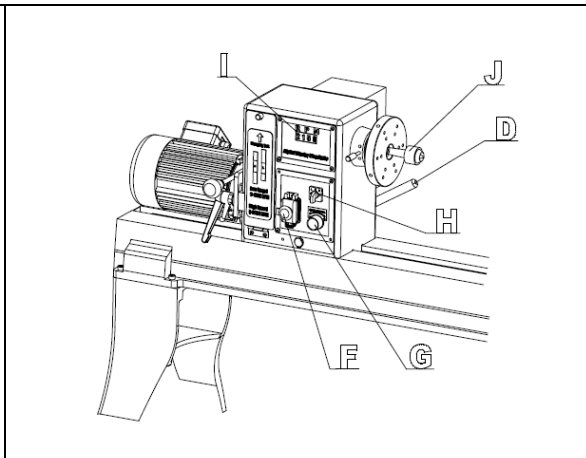


Fig. 4

CONTROLS & FEATURES

- Headstock Lock Handle:** (D, Fig.4) Locks head in position. Unlock handle to position the head along lathe bed. Tighten handle when properly positioned.
- Headstock On/Off Button:** (F, Fig.4) Pull the button out to turn "ON" the lathe. Push the button in to turn the lathe "OFF".
- Headstock RPM Knob:** (G, Fig. 4) Turn knob to desired RPM. There are two speed ranges offering "speed" (330-3200) and "torque" (100-1200).
- Headstock For/Rev Switch:** (H, Fig. 4) Use the toggle switch to change the direction the spindle turns. Only change direction when the spindle has stopped.
- Headstock RPM Readout:** (I, Fig. 4) Displays the spindles RPM, see Figure 5.
- Headstock Spur Center:** (J, Fig. 6) Used for turning between centers. Spindle taper is MT-2. Remove spur center by inserting drift rod through the opposite end of the spindle and knocking spur center out.

Diameter of Work	Roughing RPM	General Cutting RPM	Finishing RPM
Under 2"	1520	3200	3200
2 to 4"	760	1600	2480
4 to 6"	510	1080	1650
6 to 8"	380	810	1240
8 to 10"	300	650	1000
10 to 12"	255	540	830
12 to 14"	220	460	710
14 to 16"	190	400	620

Fig. 5

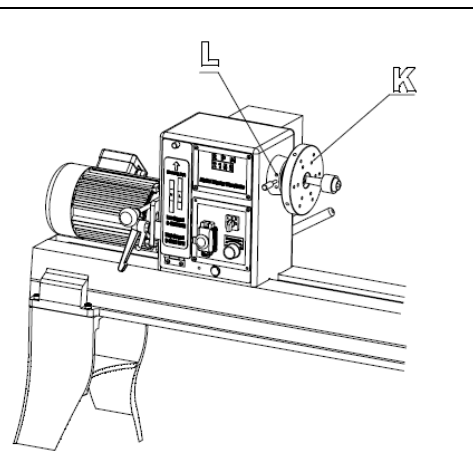


Fig. 6

- Headstock Faceplate:** (K, Fig. 6) Used for turning bowls and plates. There are a number of screw holes for mounting the workpiece. Thread the faceplate onto the spindle in a

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clockwise direction, and tighten two set screws. Remove the faceplate by loosening two set screws. Push in headstock spindle lock and use the provided rod in faceplate holes to unthread the faceplate.

8. **Headstock Indexing Hole:** (L, Fig. 6) Thread indexing pin into the indexing hole making sure that it locates in the spindle hole. There are 12 holes in the spindle 30° apart. There are three holes in the headstock casting that accept the indexing pin. These holes are 20° apart. The combination of holes will allow you to mark your work piece for evenly spaced features.

CAUTION! Never start the lathe with the index pin engaged in the spindle!

9. **Tool Rest Body Lock Handle:** (M, Fig. 7) Locks the tool rest body in position. Unlock handle to position the tool rest in any location along lathe bed. Tighten handle when properly positioned.
10. **Tool Rest Lock Handle:** (N, Fig. 7) Locks the tool rest in position. Unlock the handle to position tool rest at a specific angle, or height. Tighten handle when properly positioned.
11. **Tailstock Lock Handle:** (O, Fig. 8) Locks the tailstock in position. Unlock handle to position the tool rest in any location along lathe bed. Tighten handle when properly positioned.
12. **Tailstock Quill Lock Handle:** (P, Fig. 8) Locks the tailstock quill in position. Unlock handle to position the quill. Tighten handle when properly positioned.
13. **Tailstock Quill Handwheel:** (Q, Fig. 8) Turn the handwheel to position the quill. The tailstock quill lock handle must be loose to position quill.
14. **Tailstock Live Center:** (R, Fig. 8) Used for turning between centers. Quill taper is MT-2. Remove live center by retracting the quill until live center loosens. Remove, or add different tips to the live center by inserting the provided rod through

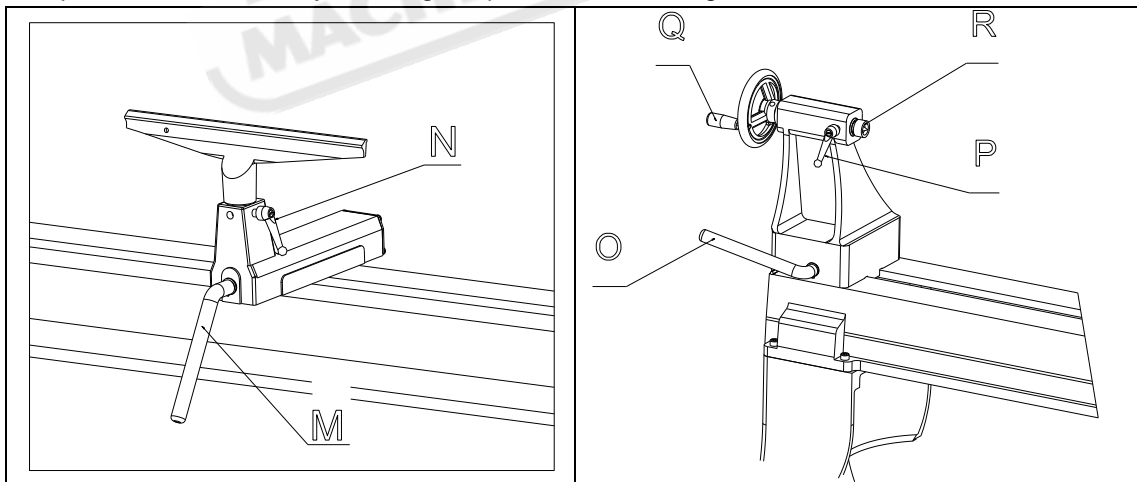


Fig.7

Fig.8

SPEED CHANGE

1. **Disconnect the machine from the power source!**
2. Loosen the locking handle (A, Fig. 9).
3. Lift up on the tensioning handle (B, Fig. 9) to remove tension from the poly v-belt. You can now position the belt in the desired speed range. It is pictured in the low speed pulley range. **Note:** The "High" speed range (330-3200) provides maximum

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- speed, where as the “Low” speed range (100-1200) will provide maximum torque.
4. Lower the tensioning handle so that the weight of the motor provides the needed tension and tighten the locking handle.

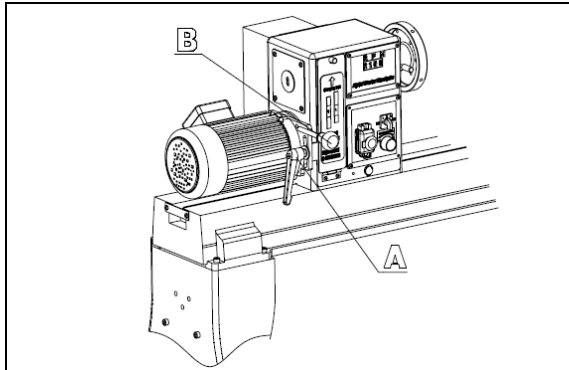


Fig.9

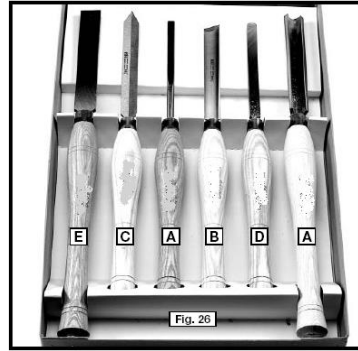


Fig.10

OPERATION

The following directions will give the inexperienced operator a beginning point for common lathe operations. Practice on scrap material before attempting serious work.

LATHE TOOLS

Standard wood turning tools come in several different configurations (Fig. 10). The majority of turnings will require the gouge tool (A) Fig. 10. This round nosed hollow chisel is used for roughing cuts, cove cuts and other operations. The skew chisel (B) is a double-ground flat chisel, with an angled end. This tool is used for smoothing cylinders, for cutting shoulders, beads, vee grooves, etc. The parting tool (C) is a double-ground chisel, used for cutting-off, or for making straight incisions or sizing cuts to any required diameter. The round nose scraper (D) is used for mostly hollowing work, while the square-end scraper is mainly used for the outside of bowls.

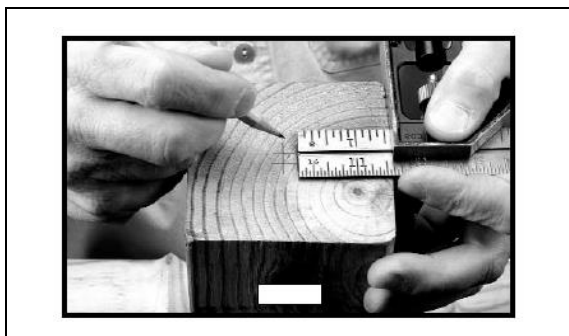


Fig.11



Fig.12

HOW TO TURN SPINDLES

Working with any material that is attached to the lathe centers is called a spindle turning. This is the principal type of wood turning (chair and table legs, lamp stems, etc.) The turning of spindles can be done with either a scraping or cutting technique.

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The cutting technique, by virtue of faster wood removal and a cleaner surface, is the preferred method.

CENTERING THE WORK

Wood stock for any spindle turning should be approximately square, and the ends should be square with the sides. Two common methods of determining the center are shown in Figs. 11 and 12. In Fig. 11, a distance a little more or a little less than one-half the width of the stock is set off from each of the four sides. The small square set off in the center can then be used in marking the true center. The diagonal method, Fig. 12, consists of drawing lines from corner to corner, with the intersection marking the center of the work.



Fig.13

Fig.14

After marking each end, mark the true center with a punch awl or dividers (Fig. 13). If the stock is hardwood, the centers should be drilled to a depth of about 1/8". The spur or live center is then placed against one end of the work and seated by striking with a mallet (Fig. 14). In hardwood, make a starting seat for the spur center by sawing on the diagonal lines, and drilling a small hole at the intersection. After driving the center, hold the center and the work together and fit both immediately to headstock spindle. If you are not using a ball bearing center, the end of work at tailstock center should be oiled. Place the lubricant on the wood either before or after it is put on the lathe. Many turners use beeswax, tallow, or a wax-and-oil mixture as a lubricant. A ball bearing center is ideal because it eliminates lubricating. If the work is to be removed from the lathe before completion, an index mark should be made as a guide for re-centering (Fig. 15). A permanent indexer can be made by grinding off one corner of one of the spurs.

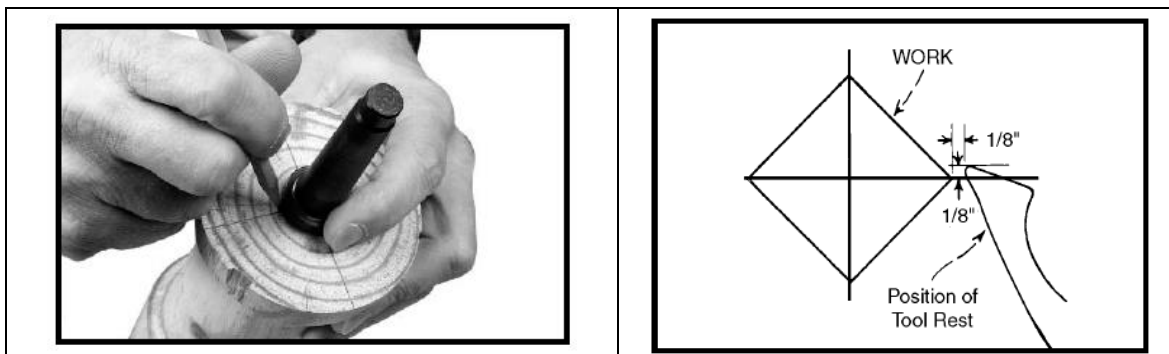


Fig.15

Fig.16

TOOL REST POSITION

Mount the tool rest in place about 1/8" away from the work and 1/8" above the work centerline (Fig. 16.) This position may be varied to suit the work and the operator. Place a guide mark on the tool rest shank as an aid to quick and accurate resetting.



Fig.17



Fig.18

ROUGHING A CYLINDER

The large gouge is used in the first turning operation by smoothing the sharp corners of the work. Run the lathe at low speed and hold the gouge in the manner shown in Fig. 17. The cut starts about 2 inches from the tailstock end and continues from this point to the end of the tailstock. Make the second pass beginning about 2" or 3" to the left of the first cut. Advance again toward the tailstock, and merge with the previous cut. Toward the end of the live center, roll the gouge in the opposite direction (Fig. 18) to carry the final cut off the live center end of the work. The roughing cut should not be carried out with one continuous movement, because this would tear long slivers from the corners of the work. Neither should the cut be started directly at the end of the stock for the same reason. The cut can be safely carried from the center of the stock toward and off either end once the first roughing cuts have been made. The position of the gouge involves two or three important angles. (1) The tool may be advanced along the work either from right to left or from left to right. Left to right (from headstock to tailstock) is preferred since this action throws chips clear of the operator. (2) The gouge is rolled over slightly in the same direction it is advancing. (3) The tool is held well up on the work, with the bevel or grind tangent to the revolving surface (Fig. 19). This position will give a clean shearing cut. When pushed straight into the work (Fig. 19), the gouge has a scraping action, (normally a poor practice in spindle turning). The roughing cut is continued until the work approaches 1/8" of the required diameter. Once a cylindrical form has been obtained, the turning speed can be moved to the second or third speed setting. **NOTE:** Continue to move the tool rest inward toward the work piece to keep the safe distance between the two.

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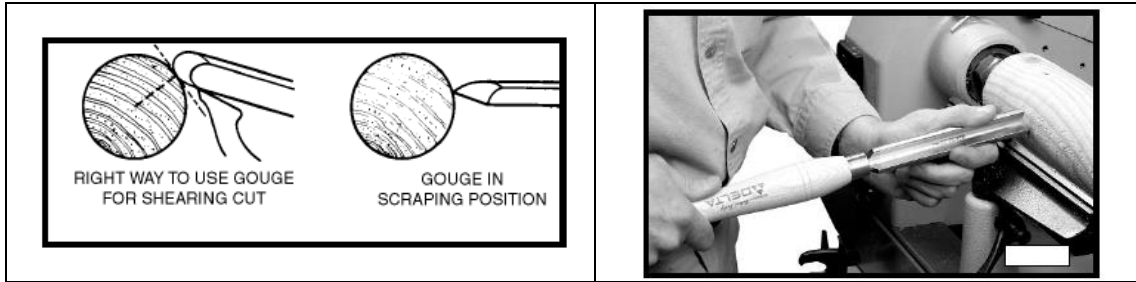


Fig.19

Fig.20

POSITION OF HANDS

While turning, the hand that holds the tool handle should be in a natural position. This hand provides the leverage for the tool by either moving in toward the chisel or moving out. The position of the tool rest hand is more a matter of individual preference, rather than a “set” or “proper” position. However, a palm-up grip (Fig. 20) is generally considered best. In this position, the first finger acts as a guide, sliding along the tool rest as the cut is made. The alternate position is a palm-down grip (Fig. 21). In this position, the heel of the hand or the little finger serves as a guide. The palm-down position is solid and positive – excellent for roughing or heavy cutting. Most beginners start with the palm-down grip, switching later to the palm-up position for better manipulation of the chisel.

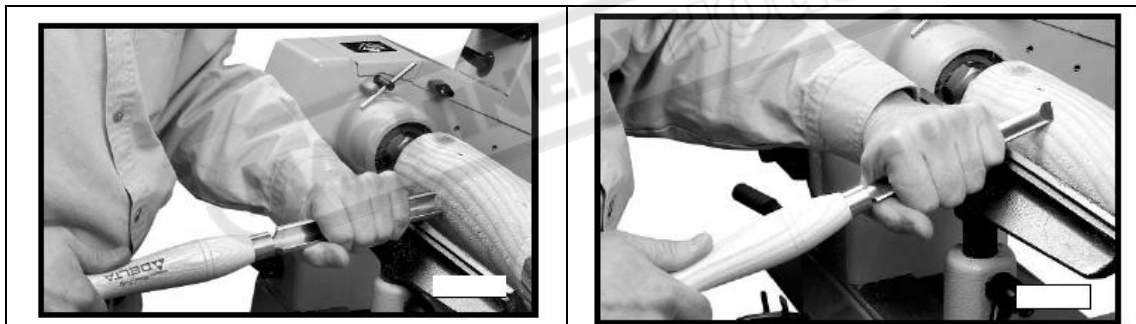
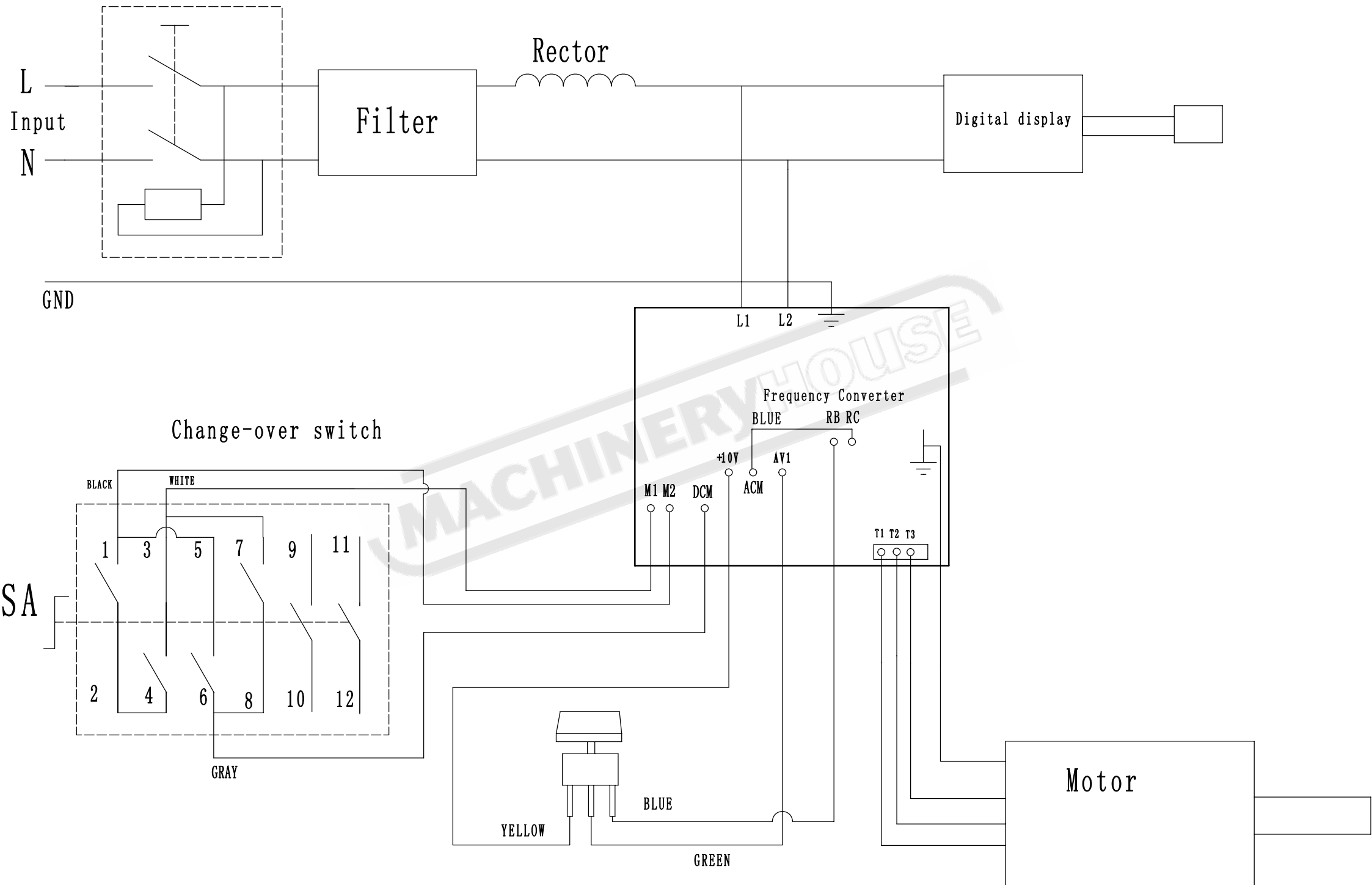


Fig. 21

Fig.22

SMOOTHING A CYLINDER

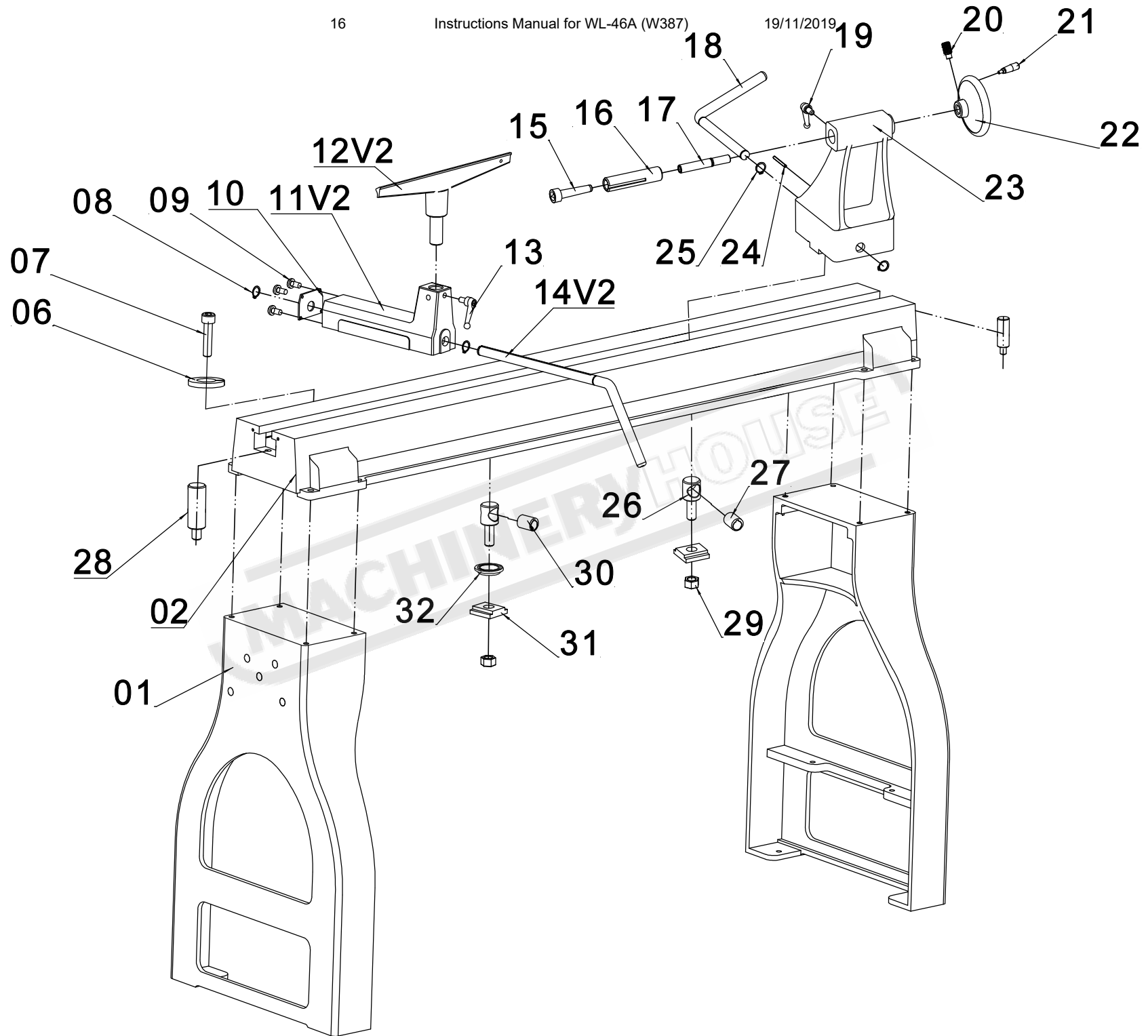
To smooth a cylinder, use a large skew chisel. This requires practice, but experience with this tool is very important. Place the cutting point near the center of chisel and high on the work (Fig. 22). Sometimes, in striving for a certain position in relation to the work, the beginner will often overlook this all-important point. Raising the handle will increase the depth of cut while lowering the handle, of course, does the opposite. As with the gouge, the skew can be advanced in either direction. The center of the skew toward the heel does the actual cutting. The back portion of the grind or bevel supports the tool, while the handle-hand controls the depth of cut by rocking the chisel on this pivot point. Because of this, keep the skew bevel perfectly flat.

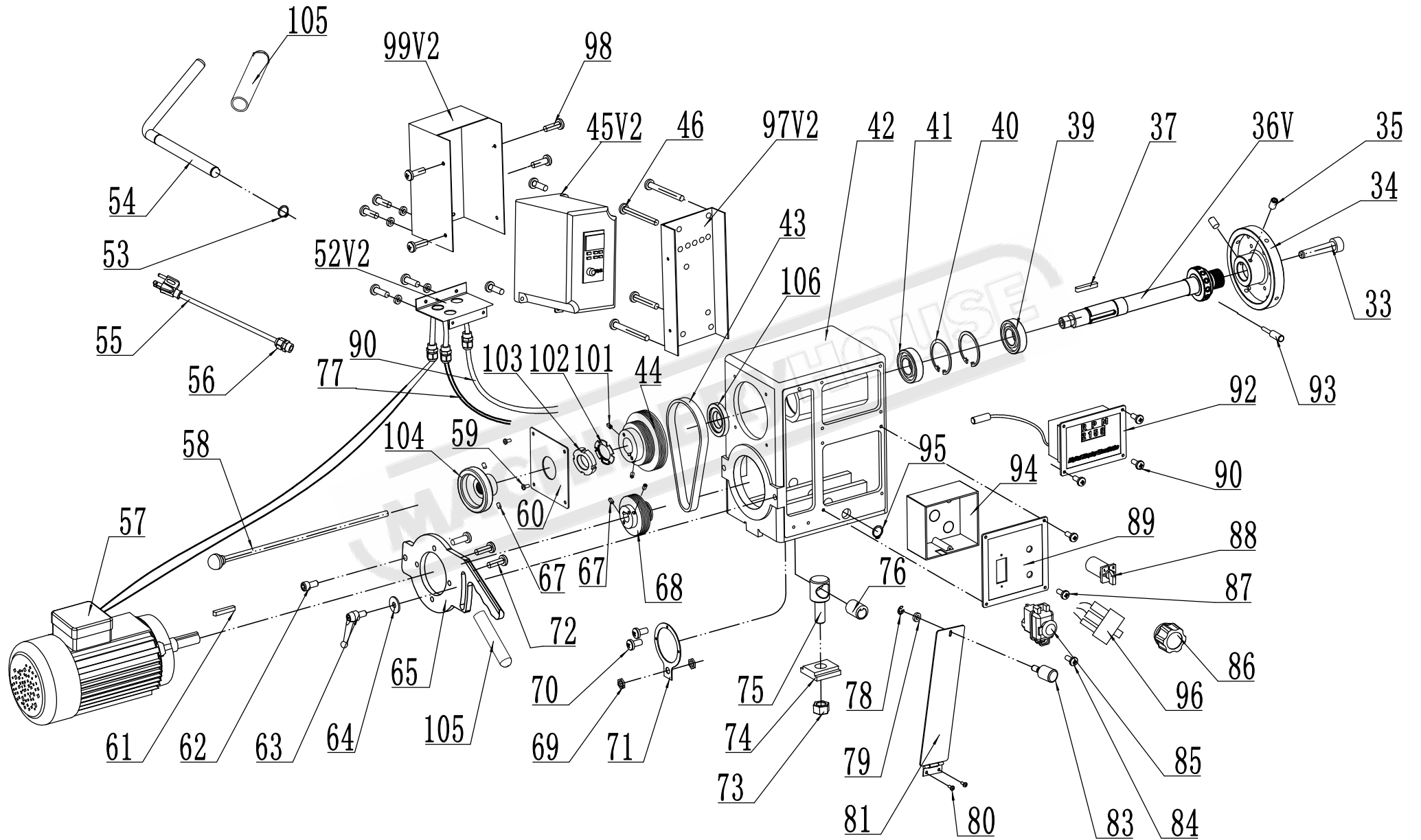


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TROUBLESHOOTING

Problem	Possible Cause	Solution
Excessive Vibration.	<ol style="list-style-type: none"> 1. Work piece warped, out of round, has major flaw, or was improperly prepared for turning 2. Worn spindle bearings 3. Worn belt 4. Motor mount bolt or handle loose 5. Lathe on uneven surface 	<ol style="list-style-type: none"> 1. Correct problem by planing, bandsawing, or scrap workpiece all together 2. Replace bearings 3. Replace belt 4. Tighten bolt or handle 5. Shim lathe bed, or adjust feet on stand
Motor or Spindle Stalls or Will not Start	<ol style="list-style-type: none"> 1. Excessive cut 2. Worn motor 3. Broken belt 4. Worn spindle bearings 5. Improper cooling on motor 	<ol style="list-style-type: none"> 1. Reduce cut depth 2. Replace motor 3. Replace belt 4. Replace bearings 5. Clean sawdust from motor fan
Motor fails to develop full power.	<ol style="list-style-type: none"> 1. Power line overloaded 2. Undersize wires in supply system 3. Low voltage 4. Worn motor 	<ol style="list-style-type: none"> 1. Correct overload condition 2. Increase supply wire size 3. Request voltage check from power company and correct low voltage condition 4. Replace motor
Tools tend to grab or dig in.	<ol style="list-style-type: none"> 1. Dull tools 2. Tool support set too low 3. Tool support set too far from work piece 4. Improper tool being used 	<ol style="list-style-type: none"> 1. Sharpen tools 2. Reposition tool support height 3. Reposition tool support closer to workpiece 4. Use correct tool for operation
Digital readout does not work	<ol style="list-style-type: none"> 1. Digital readout sensor out of position 	<ol style="list-style-type: none"> 1. Open the belt access and position the sensor so that it reads the bolts





PART 1	
No.	Description
1	STAND
2	BED
6	SPRING WASHER 10
7	CAP SCREW M10x35
8	C-RING C-19
9	SET SCREW M5x10
10	BAFFLE
11V2	TOOL REST BODY
12V2	TOOL REST
13	TOOL SUPPORT HANDLE
14V2	TOOL SUPPORT ROD
15	CENTER
16	QUILL
17	LEAD SCREW
18	TAILSTOCK ROD
19	TAILSTOCK QUILL HANDLE
20	SET SCREW M8X12
21	HANDLE
22	HANDLEWHEEL
23	TAILSTOCK
24	PIN
25	C-RING C-19
26	CLAMP BOLT
27	BUSHING
28	SHAFT
29	HEX NUT M18
30	BUSHING
31	CLAMP
32	SUPPORT BRACKET
33	HEADSTOCK SPUR
34	FACEPLATE
35	SET SCREW M6X12
36V2	SPINDLE
37	KEY C 8X7X45
38	C-RING C-30
39	BEARING 6206
40	C-RING C-62
41	BEARING 6206
42	HEADSTOCK
43	POLY-V BELT 530J6
44	SPINDLE PULLEY
45V2	INVERTER
46	SCREW M5x30
50	WASHER
51	SCREW M4x8
52V2	CORD BRACKET
53	C-RING C-19
54	LEVER
55	POWER CORD
56	STRAIN RELIEF

57	MOTOR
58	KNOCKOUT ROD
59	SCREW M5x12
60	PLATE
61	KEY 6X6X48
62	CAP SCREW M10x30
63	HANDLE
64	WASHER 10
65V2	MOTOR ASSEMBLY PLATE
67	SET SCREW M6X12
68	MOTOR PULLEY
69	NUT M12X1
70	SCREW M4x8
71	BRACKET FOR SENSOR
72	SET SCREW M8X20
73	HEX NUT M18
74	CLAMP
75	CLAMP BOLT
76	BUSHING
77	STRAIN RELIEF
78	WASHER
79	WASHER
80	SCREW M5x12
81	BELT DOOR
82	SPEED LABEL
83	KNOB OR SCREW M5X12
84	SCREW M4x10
85	ON/OFF SWITCH KJD17B
86	VARIABLE SPEED KNOB
87	SCREW M4x10
88	FWD/REW SWITCH ZH-A
89	PANEL COVER
90	SCREW M4x10
91	SCREW M4x10
92	DIGITAL READOUT
93	HEX HEAD BOLT
94	SWITCH BOX
95	C-RING C-19
96	VARIABLE SPEED CONTROL
97V2	Base
98	SCREW
99V2	COVER
101	HEX SET SCREW
102	LOCK WASHER
103	NUT
104	REAR HANDWHEEL
105	HANDLE GRIP
106	SLEEVE