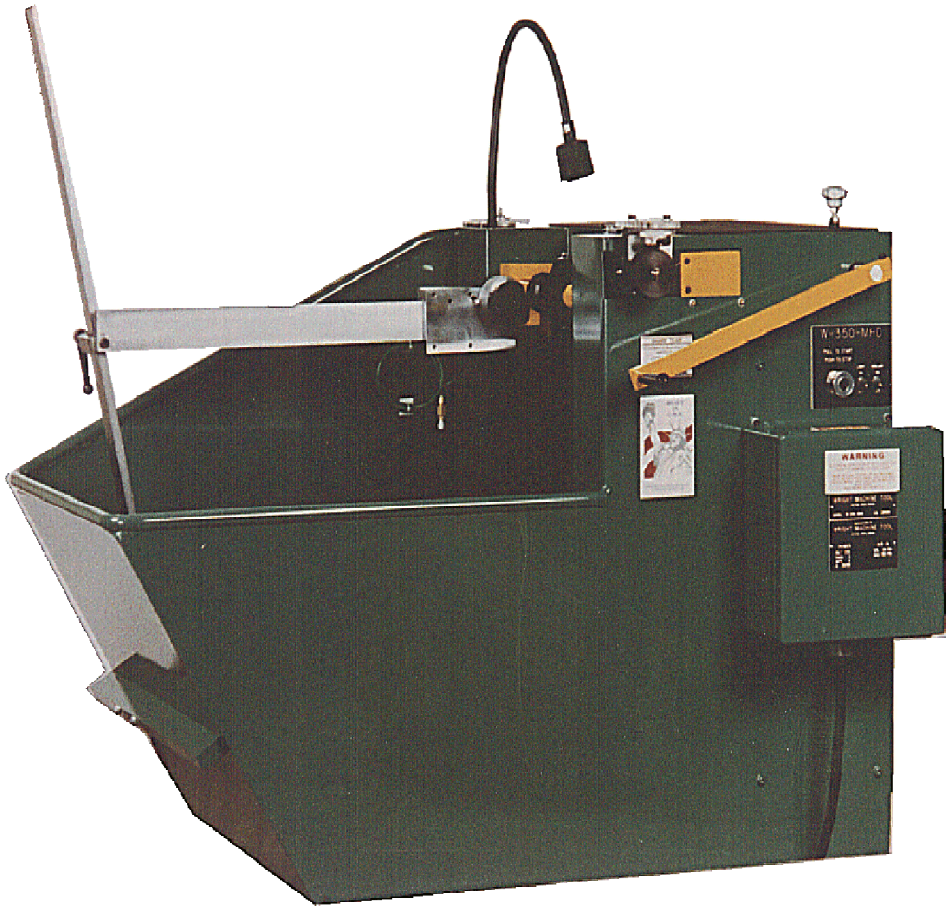
WRIGHT MACHINE

W-350 M HD

Manual Dual Side Sharpener



OPERATOR'S MANUAL

MADE IN THE U.S.A.

W-350 M HD DUAL SIDE SHARPENER

LIMITED WARRANTY

This machine is warranted against defects in workmanship and materials under normal use and proper maintenance, for one year after date of purchase from WRIGHT MACHINE TOOL CO. Any part which is determined to be defective in material or workmanship and returned to WRIGHT MACHINE TOOL CO., shipping costs prepaid will be repaired or replaced, at WRIGHT MACHINE TOOL CO. option.

Contents

WRIGHT MACHINE TOOL CO., INC.
365 Palmer Avenue
Cottage Grove, Oregon 97424

Phone (541) 942-3712
Fax (541) 942-0730

W-350 M HD DUAL SIDE SHARPENER

GENERAL SAFETY RULES

Failure to follow the Safety Rules and other basic precautions, may result in serious injury.

Always use eye protection: When operating this machine, eye protection should be worn. Grinding particles and the possibility of wheel breakage make eye protection necessary. Also face or dust mask if operation is dusty. Use adequate ventilation.

Use ear protection: If operation is creating excessive noise.

Disconnect power: To machine when NOT in use.

Keep clear: Of grinding wheels and pinch points when machine is running.

Saws are sharp: Wear appropriate personal protective equipment when handling saw blades.

Mounting of wheels: Should only be done by persons with mechanical aptitude and good knowledge of mounting, care, and inspection of grinding wheels. Wheels must be rated for the RPM of the machine.

Dress properly: Do not wear loose clothing or jewelry. Nonskid foot wear is recommended. Wear protective hair covering to contain long hair.

Avoid dangerous environments: Don't use in wet location. Keep work area well lit. Do not use this machine in the presence of flammable liquid or gasses.

Keep children away: Do not let VISITORS contact this machine.

Keep work area clean: Cluttered areas invite accidents.

All electrical covers: Must be in place before applying electrical power to this machine. Electrical service must be locked out prior to removing any electrical covers or machine guards. Access to electrical components must be restricted to trained personnel only to avoid possible electrical shock.

GENERAL SAFETY RULES (CONTINUED)

Voltage greater: Than specified on name plate can result in serious injury to user.

Never stand on this machine: Serious injury could occur if the machine is tipped or if the grinding wheel is accidentally contacted.

Follow safety precautions: For wheels, coolant and material being ground. These items must also be compatible. This information is available on the Safety Data sheet for each of these products.

W-350 M HD DUAL SIDE SHARPENER

SPECIFICATIONS

W-350 MHD Automatic Dual Side Grinder for Circular Saws, Tapered Peripheral Grind.

STANDARD VOLTAGE:	230 Volt, 3 Phase, 50/60 HZ
OPTIONAL VOLTAGE:	440 Volt, 3 Phase
SHIPPING WEIGHT:	1,000 lbs. / 450 kg
CRATE SIZE:	L 65" X W 49" X H 75" L 145 X 125 X H 135 cm
AIR REQUIREMENTS:	2 CFM at 80 psi / 6 bar
STANDARD SAW SIZE:	6"-48"
OPTIONAL SAW SIZE:	3-3/4" - 4"
SPINDLE MOTORS:	(2) 3/4 h.p. Motors
STANDARD RPM:	5150 RPM
OPTIONAL RPM:	As Requested

*NOTE: 48" saws with less than a 25^{o} hook may require having the base notched out.

W-350 M HD DUAL SIDE SHARPENER

OPTIONS

Large Bore Option	W-50
3 Pin Spline Saw Center	W-450
Spline Bore Saw Center	W-460
Expandable Saw Center with magnets	W-495
Manual Saw Locator	W-761
Small Saw Option (Down to 4") (Includes 2 W-652-1 and 4 bushings - specify size)	W-1320-1A
Bevel Face Stop	W-1220
Borazon Grinding Wheel	B-35 (2 Required)
Diamond Grinding Wheel	D-35 (2 Required)

COMMON REPLACEMENT PARTS

Clamp Jaw strob	W-652
Clamp Jaw Round	W-652-2
Index Finger	W-635

W-350 M HD DUAL SIDE SHARPENER

PRE SET UP

COOLANT

Coolant capacity is 10 to 15 gallons. A rust inhibiting grinding coolant **MUST** be used or severe rust damage to machine can result. Mix coolant according to manufacturer's instructions.

COOLANT FILTERS: Clean coolant will increase grinding wheel life, improve grind finish and increase removal rates. Change coolant filter as necessary. Part # W-589.

RUST DAMAGE IS NOT COVERED BY THE WARRANTY

MOUNTING GRINDING WHEELS

All grinding wheels must be rated for the RPM of this machine. Wheels exposed to higher than rated RPM are dangerous.

Mounting of the grinding wheel should only be done by persons with mechanical aptitude and good knowledge of mounting, care, and inspection of grinding wheels.

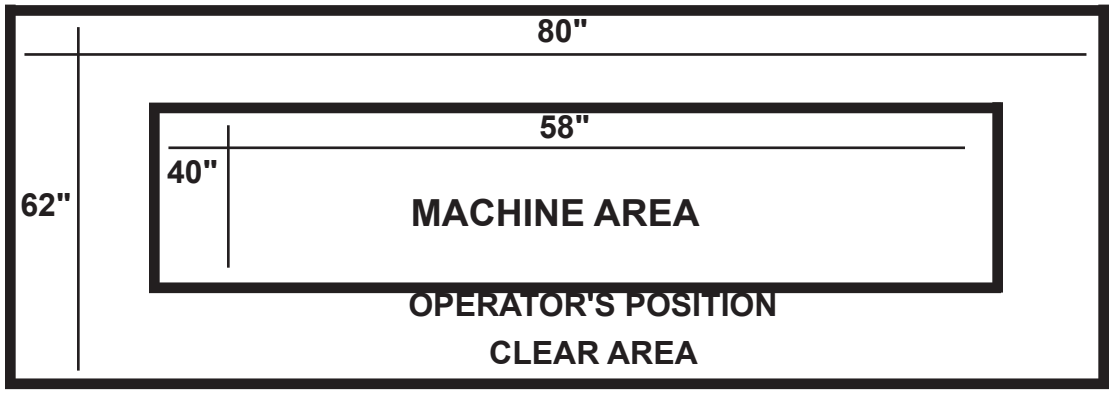
All grinding wheels must be rated for at least 5,150 RPM of the RPM of your machine, whichever is greater. For Carbide, 2 D-35 Diamond Wheels are required. For Stellite(R) / High Speed Steel, 2 B-35 Borazon Wheels are required.

MACHINE INSTALLATION

Lifting this machine should only be done with a fork lift under the Coolant Tank.

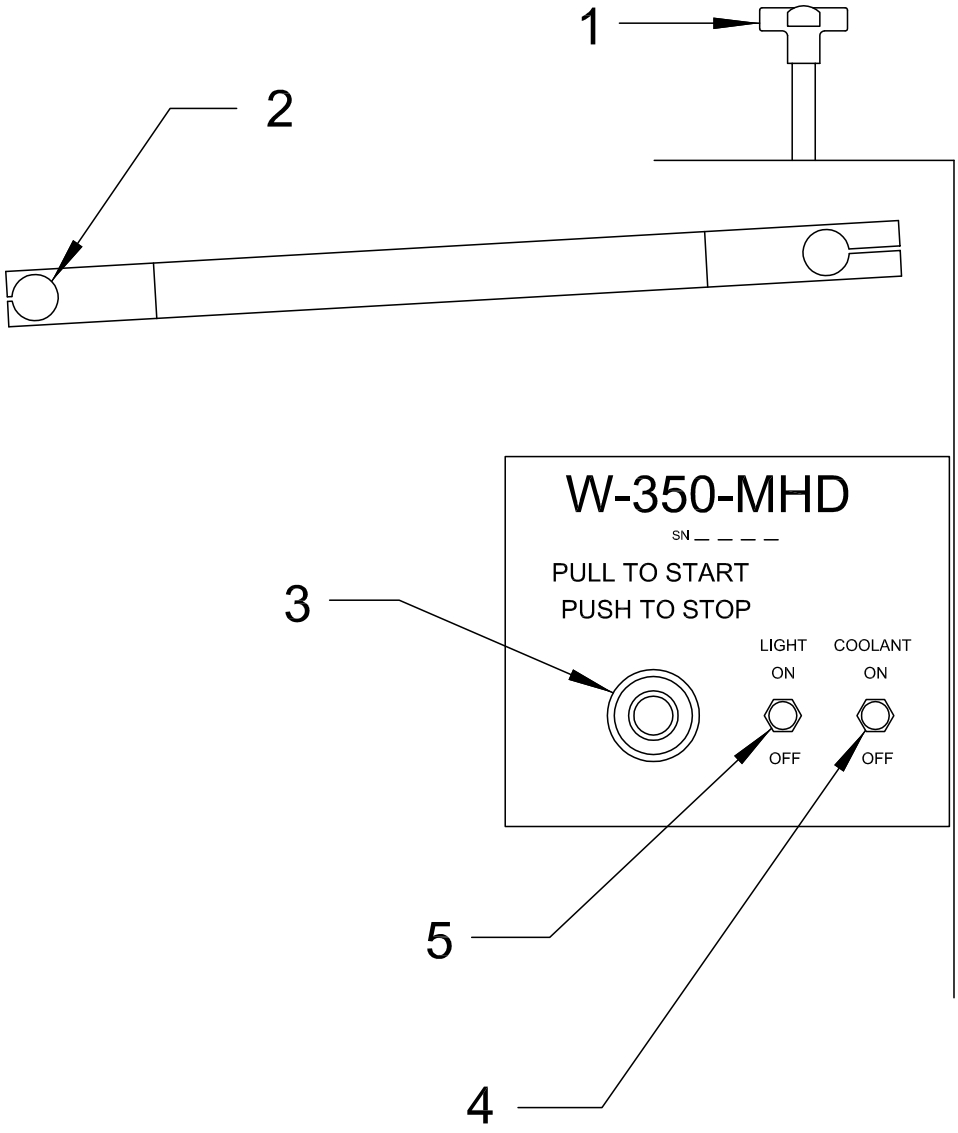
Machine weight is approximately 1,000 pounds.

RECOMMENDED FLOOR SPACE FOR MACHINE AND OPERATOR



W-350 M HD DUAL SIDE SHARPENER

CONTROLS

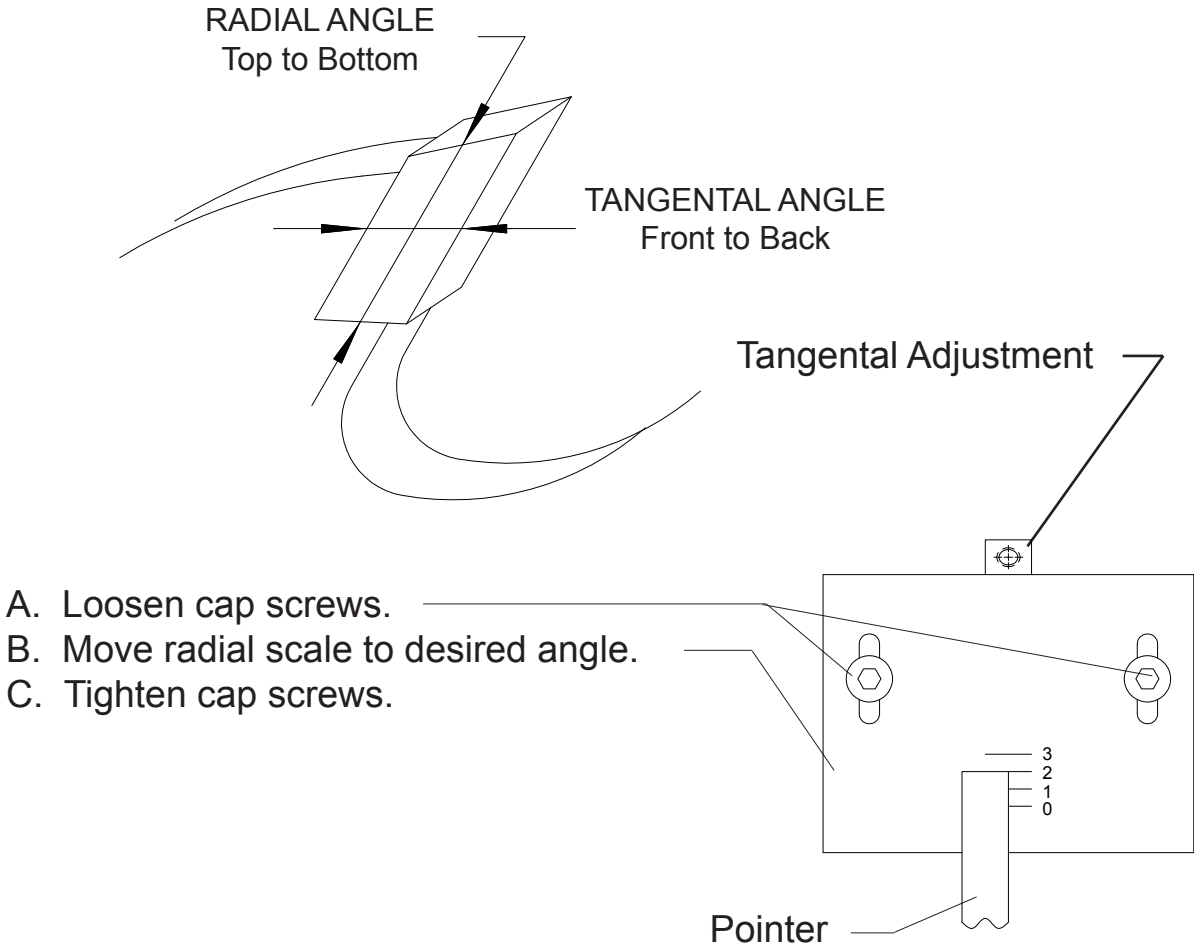


1. FORWARD STROKE STOP
2. FEED HANDLE
3. START / STOP
4. COOLANT SWITCH
5. LIGHT SWITCH

W-350 M HD DUAL SIDE SHARPENER

SET UP

1. Set radial angle if necessary. Loosen the 2 allen screws on the top of the finger plate and slide the finger plate forward or back until the proper radial angle is set on the scale on top of the finger plate.



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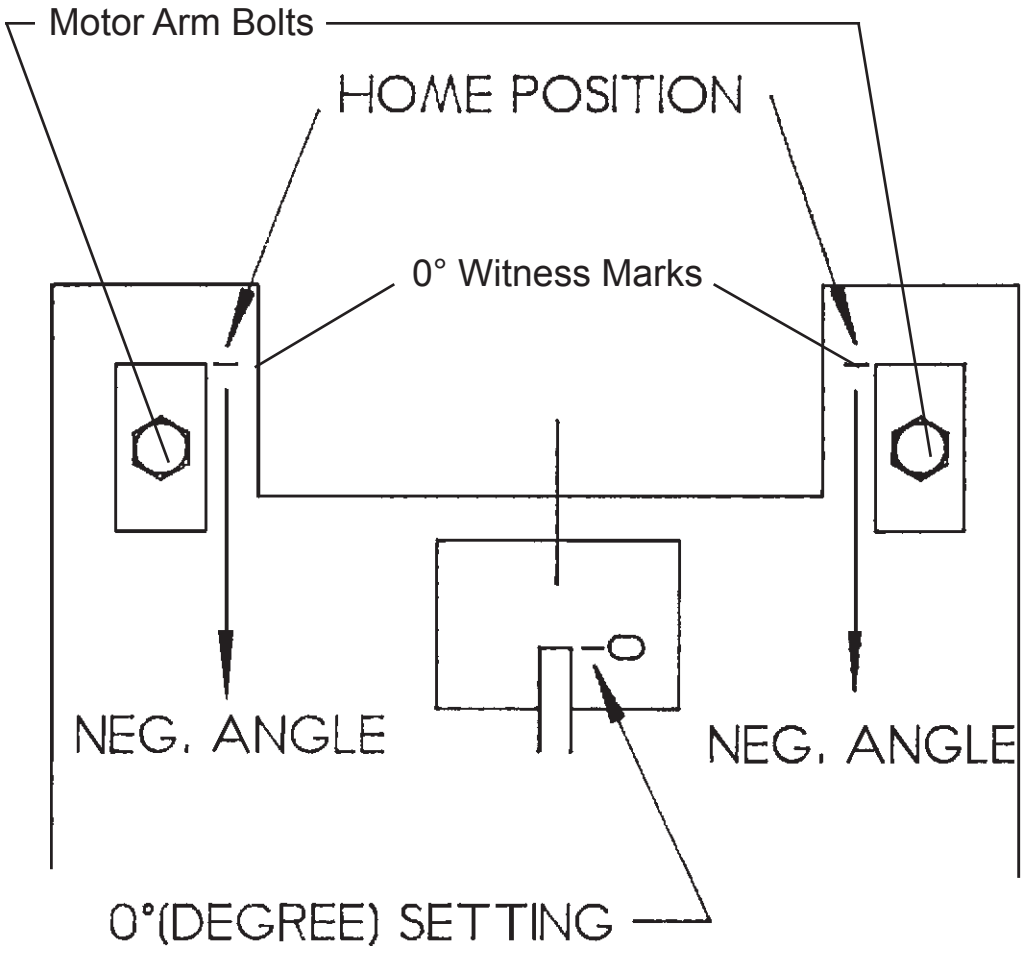
The W-350 M HD is capable of grinding negative radial angles. Use the following procedure to set up for those applications, otherwise continue to the next step on the following page.

Step 1. Set machine on 0° radial.

Step 2. Remove the rear cover, loosen the motor arm bolts and move the motor arms back 7/32", .219 for each degree negative required. Example: 4° neg. x .219 = .876 or 7/8". Support the motor with one hand while making adjustments.



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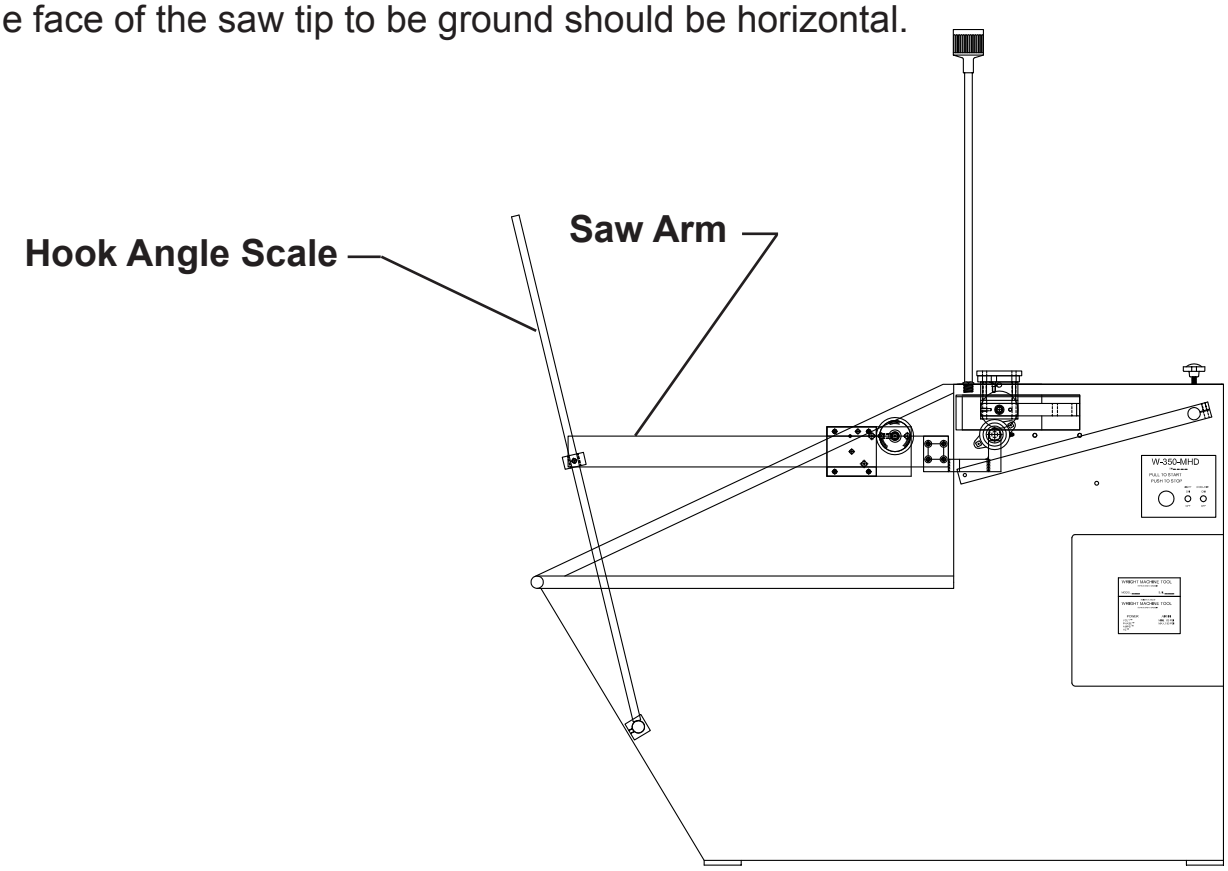
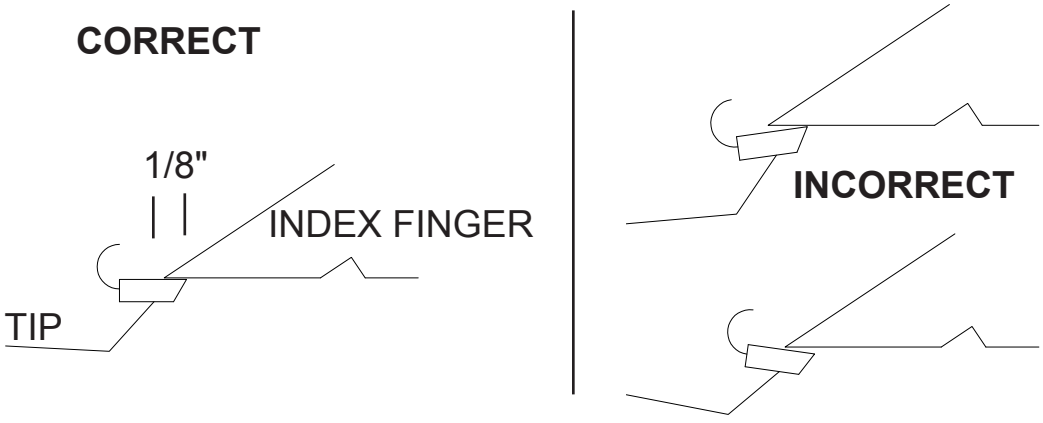
2. Set hook angle. Move the saw arm until the hook angle of the saw matches the hook angle scale at the end of the saw arm. When set properly, the face of the saw tip to be ground should be horizontal.



3. Mount the saw on the centering device. Place the saw tip so that the index finger overlaps it by 1/8". The face of the tooth should be flat against the index finger to prevent excess wear and chipping.



W-350 M HD DUAL SIDE SHARPENER

4. Pull up on the feed handle (#2) to move the heads out untill they pass beyond the carbide tooth. Set the forward stroke stop (#1) so the heads will travel no further. The forward stop adjustment knob is on the top of the machine just above the feed handle shaft. Return the heads to the start position.

5. Start the machine by pulling the Start/Stop Switch (#3) out.

6. Pull up on the feed handle (#2) to move the heads out untill they cross over the front edge of the carbide tip. Turn the infeed untill it grinds across the entire surface of the tooth. The tooth should clean up and shine across it's entire width where the grinding wheel is contacting it. Do this for both sides, then zeo the dial indicators.

7. Check the tip that was ground. Measure the side clearance of the tip after it is ground and make any necessary adjustments to the infeed wheels to give the tooth the proper side clearance, then grind it and recheck it.

NOTE: All adjustments of infeed must be made with the hand wheel being turned in. If necessary to move out, turn at least one half turn further out than necessary, then adjust it back into the proper position. This removes the backlash in the lead screw threads.

8. After step 7 is completed it may be necessary to adjust the Tangental Angle. If the Tangental Angle is changed it will be necessary to recheck the hook angle to ensure that the tooth face is still flat against the index finger. The procedure for setting the Tangental Angle is on the following page.

NOTE: Teeth must have flat tops (0° Top Bevel) in order for side tolerances to be accurate. For grinding alternate tops the procedure on the following page is recommended.

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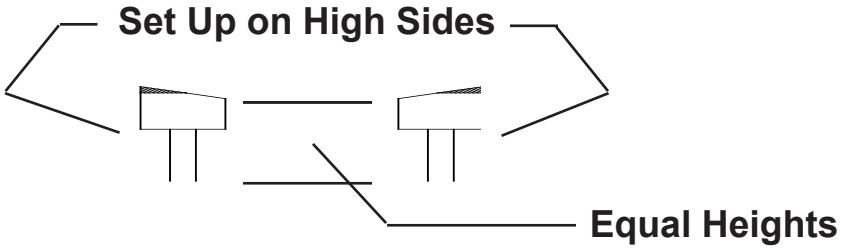
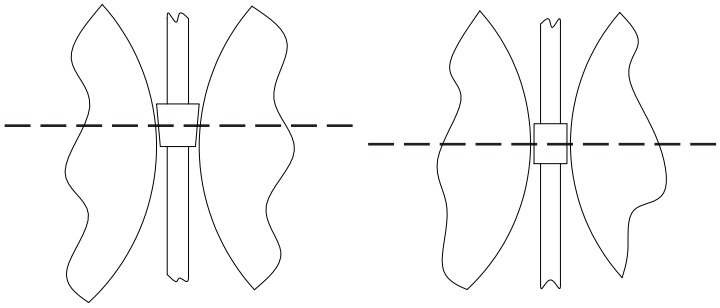
Alternate Tops:
When setting alternate top bevels you should grind small 0° flats on the tops of two set up teeth, making them the same height. Then set up each side so that it grinds correctly on the "high" side of each tooth.

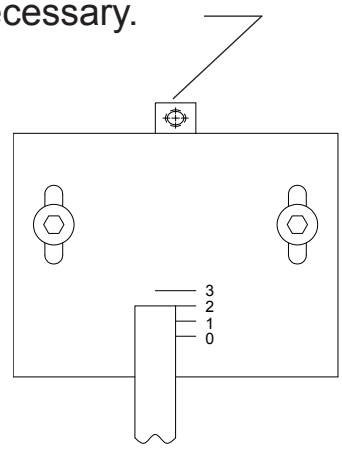


TANGENTAL ANGLE ADJUSTMENT

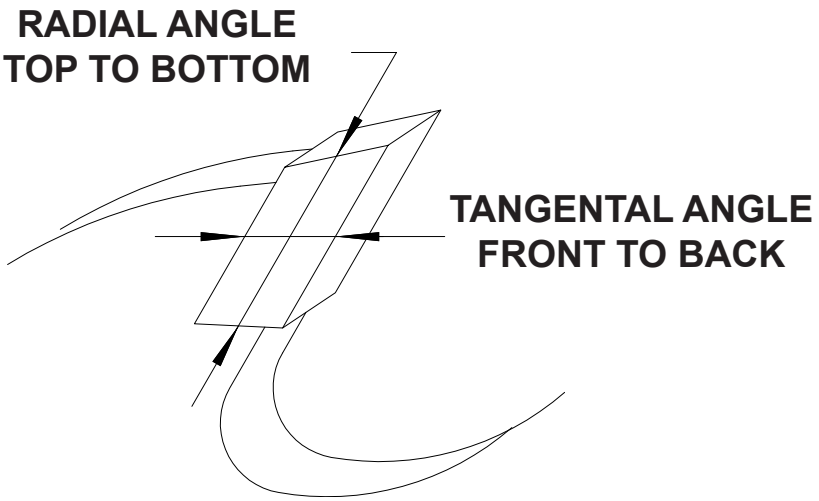
Note: The finger location vertically sets the tangental angle.



Step 1. Loosen set screw nut and adjust finger as necessary.
Step 2. Check tangental angle.



W-350 M HD DUAL SIDE SHARPENER



CONVERSION CHART

DEGREES OF ANGLE CONVERTED TO DROP OFF IN THOUSANDTHS X DISTANCE.

To convert degrees to thousandths, select degrees required on line (A). Example: 3.5 degrees. On line (B) select length of measurement. Example: .375 for a 3/8 tip. Where 3.5 degrees and .375 intersect is drop off in thousandths of an inch.

Line (A)	.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
.125	1	2	3	4	5	6	7	8	9	10	11	12
.250	2	4	7	9	11	13	15	18	20	22	24	26
.312	3	5	8	11	14	16	19	22	25	27	30	33
.375	3	7	10	13	16	20	23	26	30	33	36	39
.437	4	8	11	15	19	23	27	30	34	38	42	46
.500	4	9	13	17	22	26	31	35	39	44	48	52
Line (B)												

W-350 M HD DUAL SIDE SHARPENER

MAINTENANCE

The useful life of this machine can be dramatically extended if the following rules of operation are followed.

1. Clean the machine regularly to avoid carbide buildup.
2. Leave all inspection covers closed and in place. Only open inspection covers during maintenance.
3. A good rust inhibiting coolant must be used in the correct ratio. Too weak a mix will cause rust problems and too thick will damage the paint and load the Diamond wheels.
4. When not in use leave the enclosure door open. This eliminates humidity build up in the enclosure. (Enclosure optional)
5. Do not clean the machine with high pressure air or water. This can blow grit into the internals of the machine and cause rusting problems which is not covered by warranty.

MAINTENANCE

DAILY	1. Check coolant level and filter. 2. Clean interior of machine.
WEEKLY	1. Check coolant tank for carbide buildup. 2. Replace coolant filters.
MONTHLY **or 100,000 CYCLES**	1. Grease all zerk fittings. 2. Inspect finger for wear. 3. Inspect drive belts for wear. 4. Inspect saw clamp jaws for wear.
EVERY 6 MONTHS **or 500,000 CYCLES**	1. Clean coolant tank completely
EVERY 24 MONTHS **or 1,000,000 CYCLES**	1. Replace spindle drive belt . 2. Inspect pulleys for wear.

TROUBLESHOOTING

1. Coolant does not flow when switch is on:

a. Check to be certain coolant is in the tank.
b. Is valve open.
c. Blow air through the nozzle to clean obstruction.
d. Coolant pump defective.

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TROUBLESHOOTING

2. Machine does not grind accurately:

Possible problems:

Kerf is uniform but side clearance varies between tips. This problem is usually caused by saw teeth that are bent or the body of the saw has lumps. When using a side dial indicator to measure side clearance, keep in mind that it can give false readings if the saw plate is not perfectly flat. The readings from a side dial indicator should be used only to set side clearances, not to check the accuracy of the machine.

3. Kerf and side clearance varies:

a. Diamond wheels are glazed or loaded. Dress diamond wheels to correct the problem, or switch them from side to side. (Don't turn them over.)

b. Operating machine at too fast a speed for the amount of carbide to be removed.

c. Carbide tips were installed excessively off center causing the bend away from the heavy grind pressure on that side.

NOTE: If silver solder is allowed to flow onto sides of carbide when tipped, the diamond wheels will be clogged by it. This will cause erratic nonuniform grind.

HELPFUL HINTS

All saws should be measured with a micrometer to determine the saw plate thickness. Then each plate thickness should be marked on the plate with a marking pen.

When ready to grind the first saw be sure that the finger is 1/8" beyond the top of the carbide tip when the tip is pulled back against the index finger.
If the next saw is approximately the same hook angle, the outside grinding head will not have to be changed unless a different side clearance is needed.

The inside grinding head will have to be moved to compensate for difference in saw plate thickness. Example, if the second saw is .003 thinner than the first saw, the inside head would have to be moved .003 in to give the same clearance as the first saw, starting with thickest saws first.

If the next saw to be ground is slightly larger or smaller in diameter it will affect the side clearance unless you reset the diameter adjustment so the finger is 1/8" below the top of the carbide tip. A 1/16" change in this adjustment will change the side clearance approximately .005.

W-350 M HD DUAL SIDE SHARPENER

ACCURACY PROBLEMS

Our W-350 M HD Manual Side Grinders can easily hold a tolerance of + or -.0003. If the saws you are grinding exceed acceptable side clearance tolerances one or more of the following problems exist.

Is your saw plate clean?
If any pitch, flux or saw dust is on the sides of the saw plate, it can become lodged between the saw and the clamp jaw. This will force the saw to move away from the fixed clamp jaw. This will shift the side clearance which will add side clearance from the opposite side.

Are your diamond wheels cutting freely?
If the diamond wheels are loaded or dull, the saw will bend away from the loaded wheel and the accuracy of the side clearance and kerf will be erratic. Diamond wheels will not remove large amount of silver solder. The solder will melt and stick to the diamond particles in the grinding wheel. This makes it impossible for the wheel to cut freely.

To determine if the wheel is loaded, feel the back edge of the wheel with your fingernail. If there are any chips on this surface of the wheel, it indicates that the wheel is not cutting freely and therefore the grinding pressure is high enough that the rear of the wheel chips out.

To clean and sharpen the wheel, reverse the left wheel with the right. This will reverse the rotation of the cutting load and will easily clean the wheels.

If large amounts of silver solder are on the side of the tip, remove it with a 4-1/2 inch hand held grinder with paper grinding disk. This will remove the solder but leave the carbide undamaged. Grinding with loaded diamond wheels is very similar to shaving with a very dull razor.

ACCURACY PROBLEMS
(Continued)

Are your clamp jaws adjusted as close as possible to the tooth that is being ground?
Use the U shaped clamp jaws only if you are grinding strob saws. If you are using these strob jaws, rotate them until they are set at the 2 o'clock position. This can be done by loosening the allen screw in the center of each clamp jaw. The round clamp jaws part number W-652-2 support the saw plate much closer to the tip and therefore there will be less saw plate deflection which means closer tolerances.

On saws with a plate thickness of .095, 5 pounds of side load will bend the saw plate .0025 and 10 pounds of side load will bend it .005. Due to the lateral flexibility in a saw, uneven grinding forces will cause the plate to bend during the grind, which will cause erratic grinding tolerances. On the W-350 M HD Side Grinder it would take a grind side load of 25 pounds to deflect the grinding wheels .001. Therefore any deflection always occurs in the saw plate not in the grinding machine.

If there is more than .005 difference in the amount of carbide to be removed from opposing sides of the top, a slower feed rate may become necessary to keep the lateral grinding forces from bending the saw plate sideways.

Are the proper diamond wheels being used?
Not all diamond wheels are the same. The type of wheel used must match the recommended width of 1/8". If the wheel is wider, it can bend the saw plate while grinding. The finer grit wheels can only be used if the feed rate is slowed so the wheel cutting capacity is not exceeded. For most applications 150 grit with no more than 75 concentration should work well. If the wheel bond is too hard, the wheel will not cut freely. Use a quality brand of wheel. Bargain wheels may not work well.

ACCURACY PROBLEMS
(Continued)

Are the saw's other critical dimensions accurate?
There are many things that effect side grinding tolerances in the saw plate such as O.D. run out, dubbed faces, hook angle variation, plate thickness variation, bumps, uneven tension, and bent teeth. You can not make an inferior saw into a quality saw by side grinding. To be extremely accurate on side grinding requires the rest of the saw to be at least reasonably accurate. Uneven face and top bevel (other than 0°) is not recommended.

Any dual side grinder can grind accurately if reasonably maintained. Even the most expensive grinder will grind erratically if any of the preceding problems are encountered. In our experience less than 1/4 of the side grinding tolerances can be attributed to the side grinding machine.

If your side grinding tolerances are still unacceptable, please call Wright Machine Tool Company and we will assist you with this problem.

W-350 M HD DUAL SIDE SHARPENER

REPLACEMENT OF W-350 M HD SPINDLE (P.N. W-1166).

1. Loosen one end of the feed linkage on the side of the spindle being replaced.

2. Remove the drive belt.

3. Take the pulley off of the spindle shaft, taking note of location.

4. Remove the wheel guard on the spindle housing.

5. Loosen the bolts on the spindle housing.

6. Move the head all of the way back and slide the spindle out the front.

7. Slide the new spindle in.

8. Tighten bolts on the spindle housing (snug). **IMPORTANT: DO NOT OVERTIGHTEN.**

9. Install the wheel guard, being sure that the spindle moves freely.

10. Put the pulley on in the same location as on the old spindle.

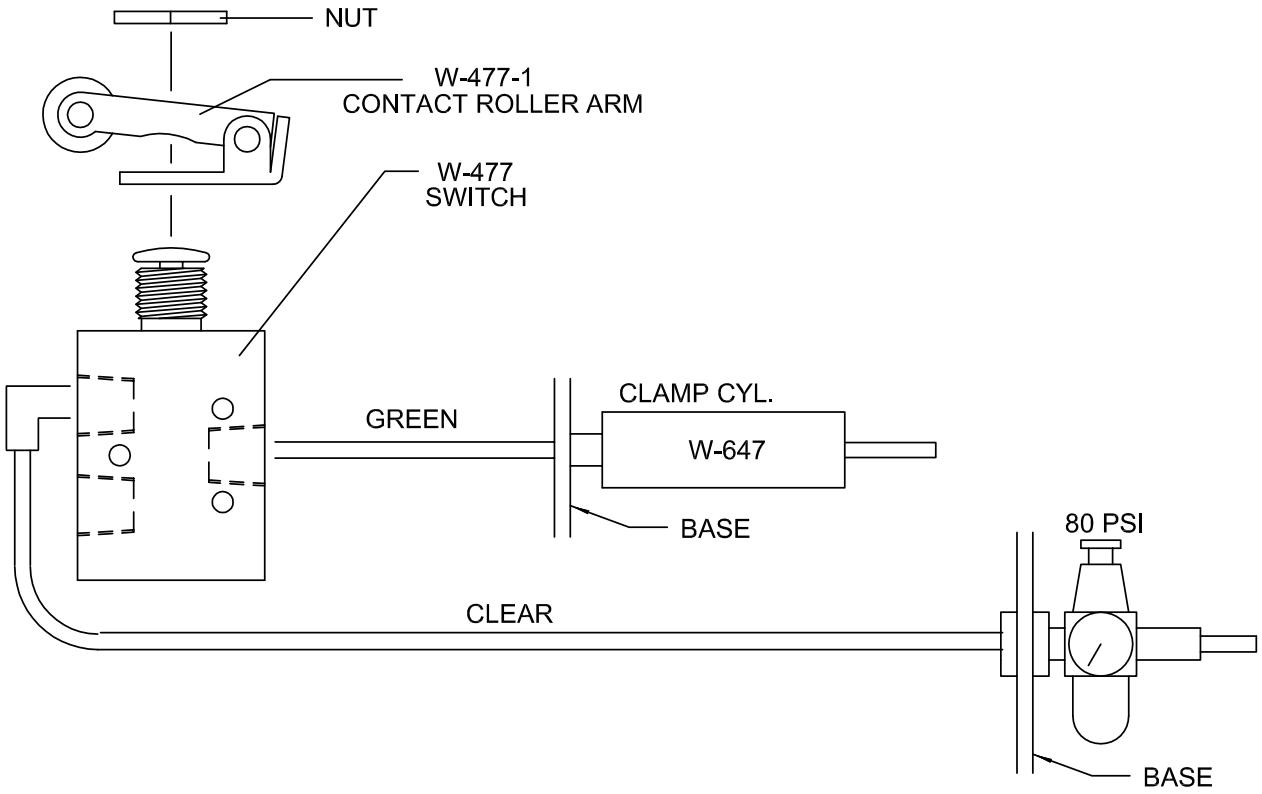
11. Reinstall the drive belt.

12. Fasten the feed linkage.

Note: If the motor arm hits on the guide, loosen and turn to the side.

W-350 M HD DUAL SIDE SHARPENER

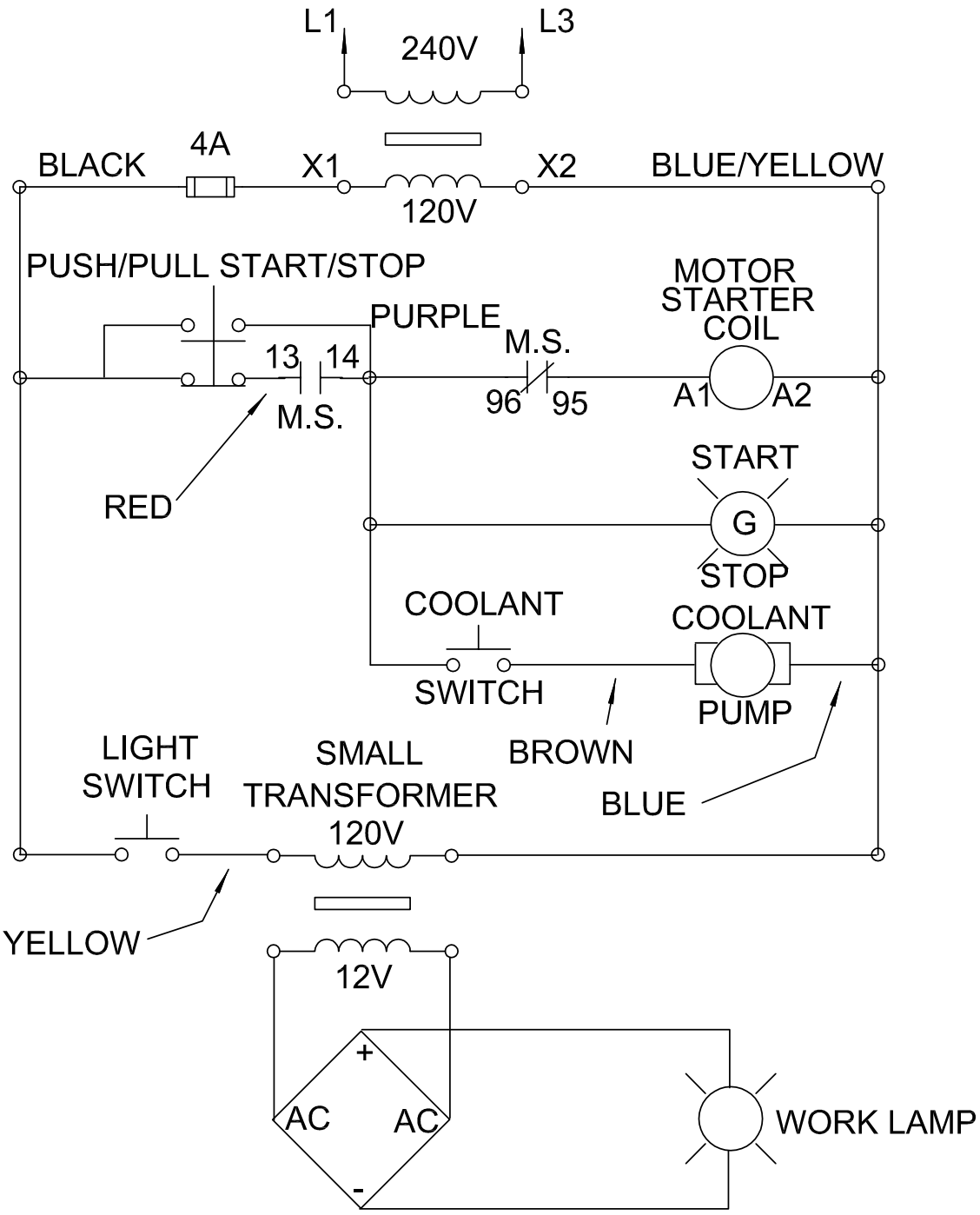
AIR SYSTEM



CAUTION: Use of some types of synthetic lubricants in the air system can break down the plastic in the sediment bulb, ultimately resulting in failure. For safety purposes always keep the metal cover in place over the plastic sediment bulb. If your air system uses synthetic lubricants contact Wright Machine Tool to order a metal replacement bulb.

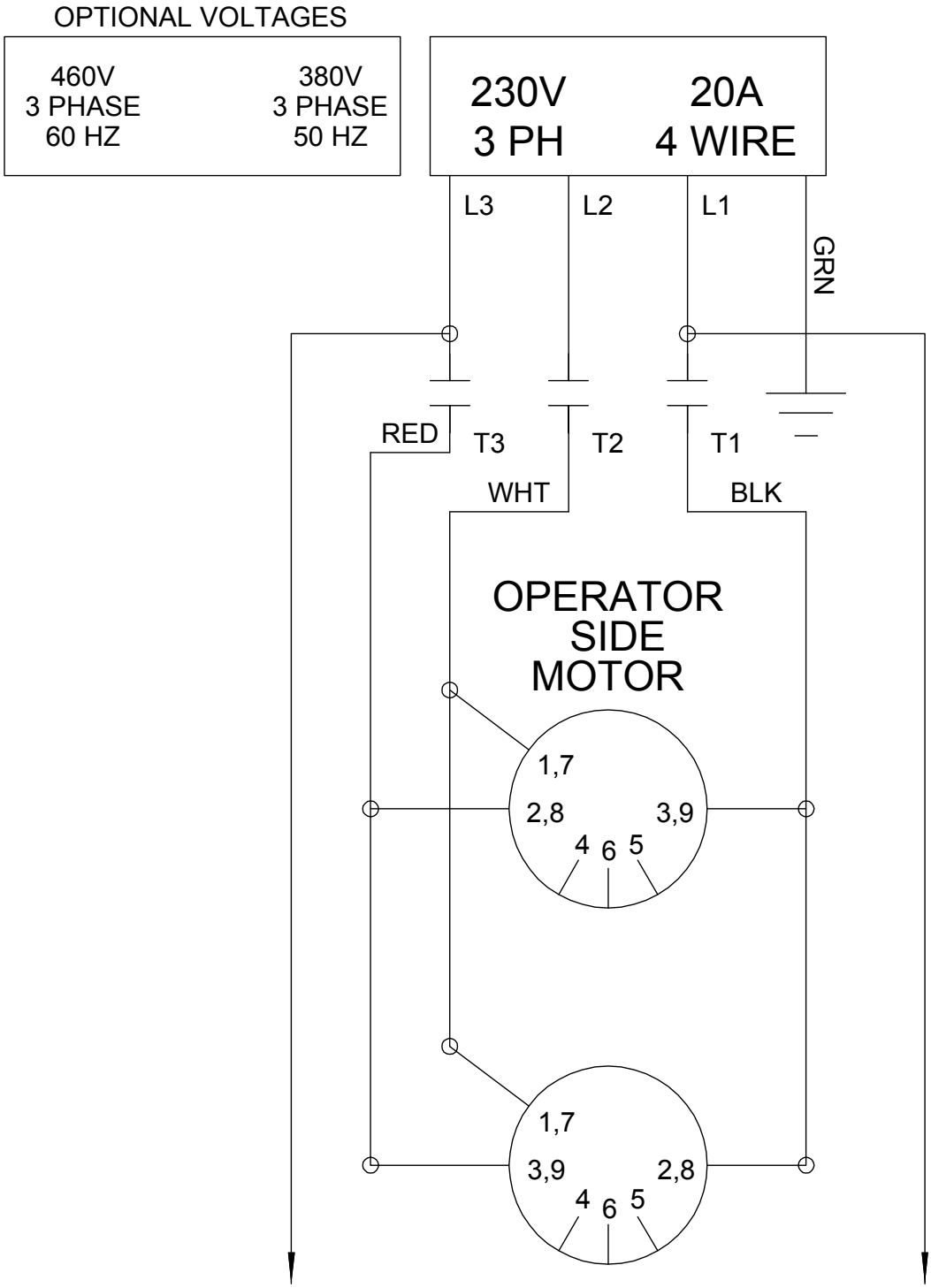
W-350 M HD DUAL SIDE SHARPENER

ELECTRICAL SCHEMATIC



W-350 M HD DUAL SIDE SHARPENER

ELECTRICAL SCHEMATIC CONT.



W-350 M HD DUAL SIDE SHARPENER

INSTRUCTIONS FOR CONVERTING W-350MHD TO 440v

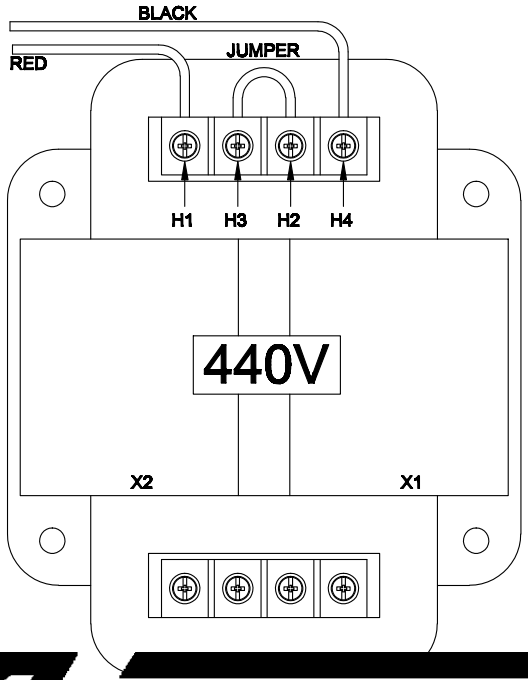
LEFT MOTOR	RIGHT MOTOR	
RED - 2	WHITE - 1	
BLACK - 3	RED - 3	7-4
WHITE - 1	BLACK - 2	8-5
		9-6

EVERTHING ELSE IS THE SAME AS SHOWN:

MOTOR STARTER
SWITCH AND WIRE UP THE SAME. SHOULD BE SET ON AUTO AND SET AT 3 AMPS ON THE DIAL.

CORD END
WIRE UP THE SAME AS EXISTING ONE AND IF MOTOR RUNS BACKWORDS, SWITCH THE RED AND BLACK WIRES.

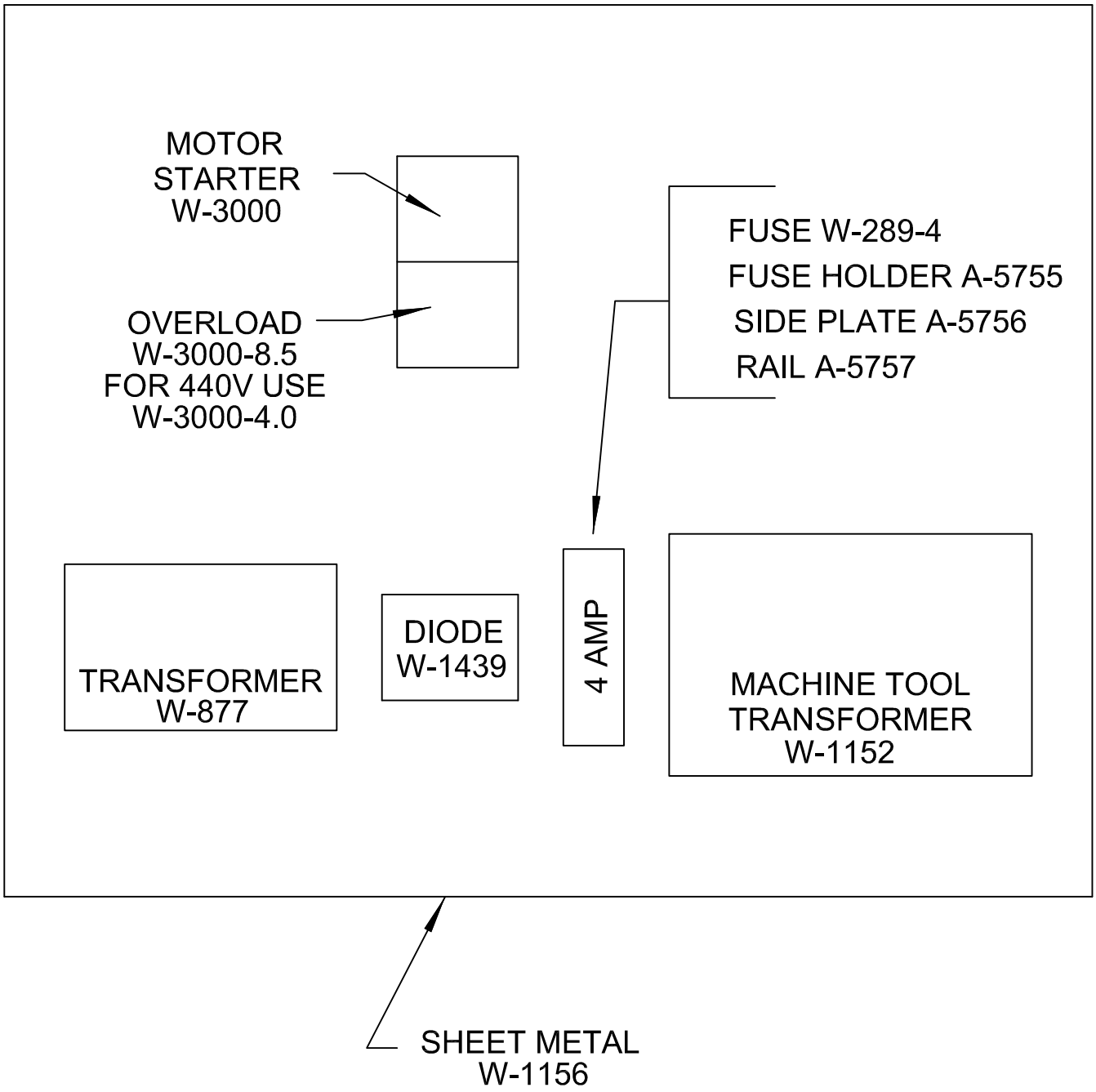
TRANSFORMER
TAKE JUMPER OFF OF H1 AND H3, H2 AND H4. PUT A JUMPER ON H2 AND H3 SO THAT THE RED AND BLACK WIRES ARE THE ONLY WIRES IN CONNECTION. PLACE THE 440v STICKER OVER THE EXISTING 230v/240v STICKER ON THE ELECTRICAL NAME PLATE.



W-350 M HD DUAL SIDE SHARPENER

SUB PANEL

W-350 HEAVY DUTY MANUAL SUB PANEL



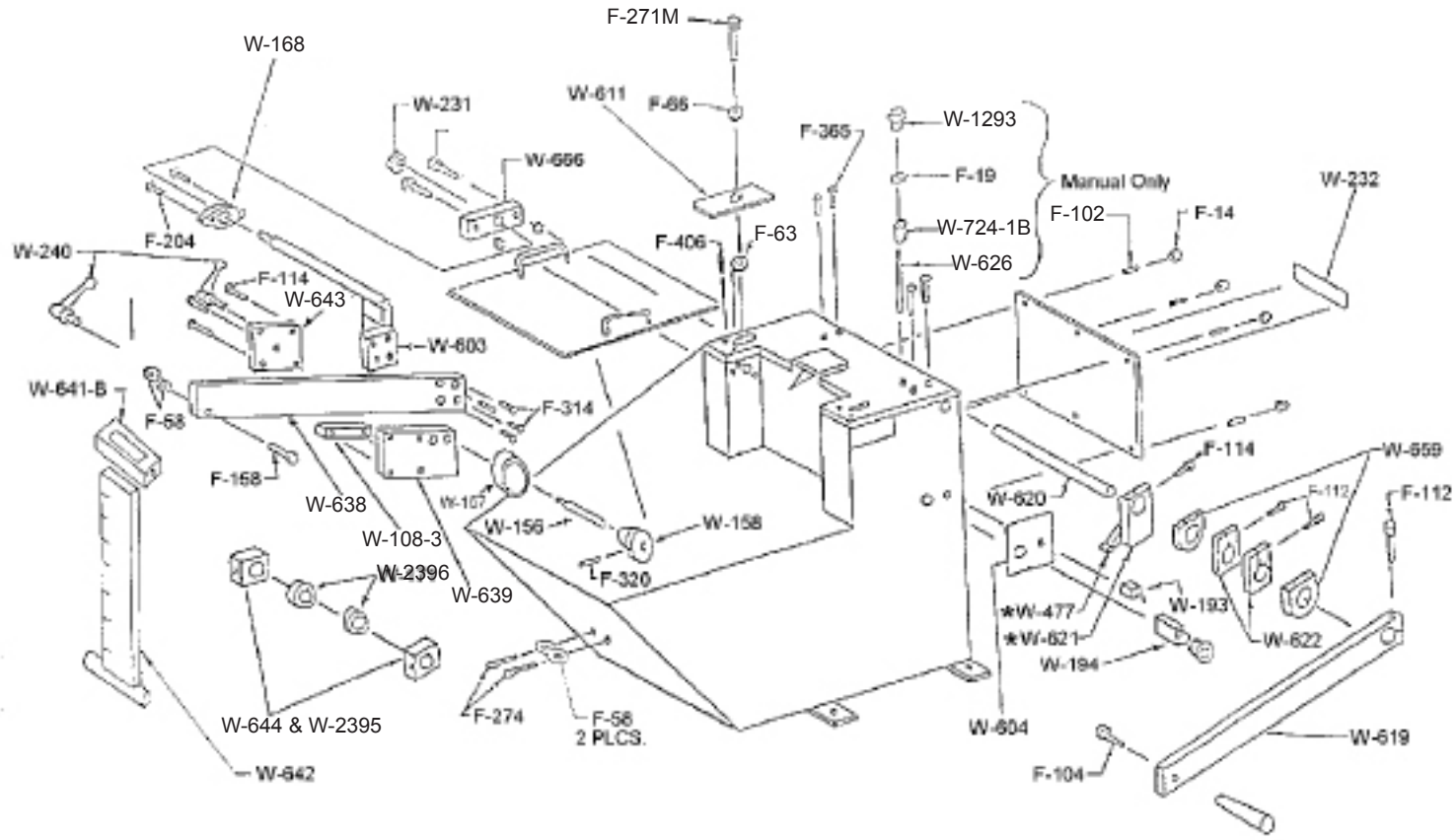
W-350 M HD DUAL SIDE SHARPENER

BASE ASSEMBLY

PART #	DESCRIPTION	PART #	DESCRIPTION
W-108-3	SAW SLIDE PLATE	F-14	NUT
W-156	CONE BOLT	F-19	NUT
W-157	CUP	F-58	WASHER
W-158	CONE	F-63	WASHER
W-168	FACE MT BEARING	F-102	SET SCREW
W-193	COOLANT SWITCH	F-104	SCREW
W-194	STOP/START SWITCH	F-109	SCREW
W-202	COVER	F-112	SCREW
W-204	HAND WHEEL	F-114	SCREW
W-231	COLLAR	F-158	BOLT
W-240	HANDLE	F-204	BOLT
W-603	SAW ARM PIVOT	F-271M	SCREW
W-604	FACE PLATE	F-359	SCREW
W-611	RADIAL ANGLE SCALE	F-365	SCREW
W-619	FEED HANDLE	F-384	SET SCREW
W-620	FEED SHAFT	F-390	SET SCREW
W-621	CLAMP SWITCH ARM	F-406	ROLL PIN
W-626	MANUAL FEED STOP		
W-638	SAW ARM		
W-639	SAW SLIDE FRONT		
W-640	SAW SLIDE REAR		
W-641-B	HOOK LOCK		
W-642	LARGE HOOK SUPPORT ARM		
W-643	HOOK ARM PIVOT		
W-643	HOOK ARM PIVOT		
W-644	HOOK PIVOT BEARING		
W-659	BEARING		
W-666	PIVOT PLATE		
W-724-1B	INDEX BUMPER		
W-1293	KNOB		
W-2395	PLASTIC BUSHING		

W-350 M HD DUAL SIDE SHARPENER

BASE ASSEMBLY



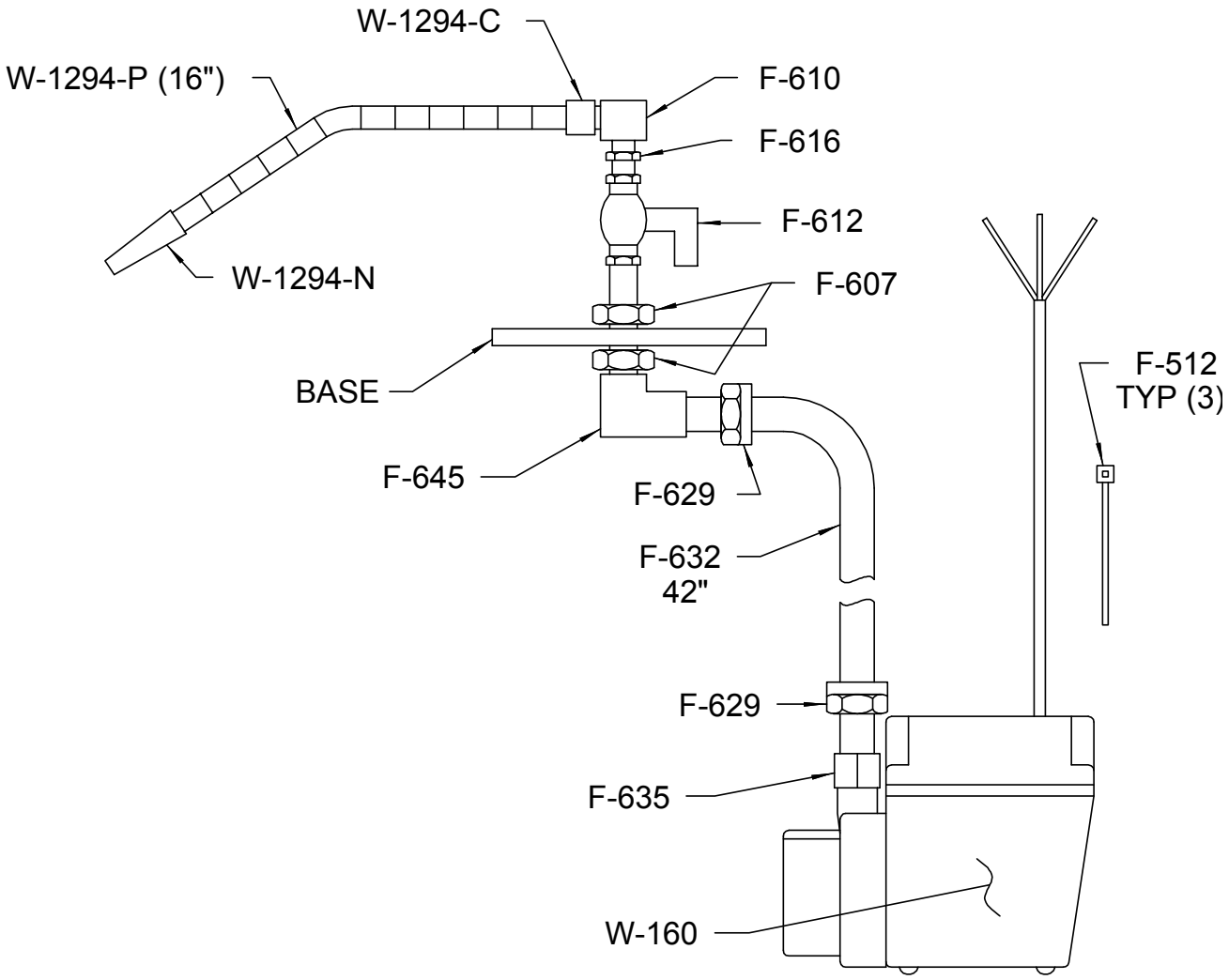
W-350 M HD DUAL SIDE SHARPENER

COOLANT PART DIAGRAM

QTY	PART NUMBER	DESCRIPTION
1	W-160	COOLANT PUMP
1	W-1294-C	CONNECTOR
1	W-1294-N	NOZZEL
16	W-1394-P	COOLANT NOZZLES
3	F-512	CABLE TIE
2	F-607	BULK HEAD FITTING
1	F-610	1/8 NPT STREET ELBOW
1	F-612	SHUT OFF VALVE
1	F-616	1/8 TO 1/4 BUSHING
2	F-629	1/4 WEDDING BAND
1	F-632	3/8 TUBING
1	F-635	FITTING
1	F-645	FITTING

W-350 M HD DUAL SIDE SHARPENER

COOLANT PART DIAGRAM



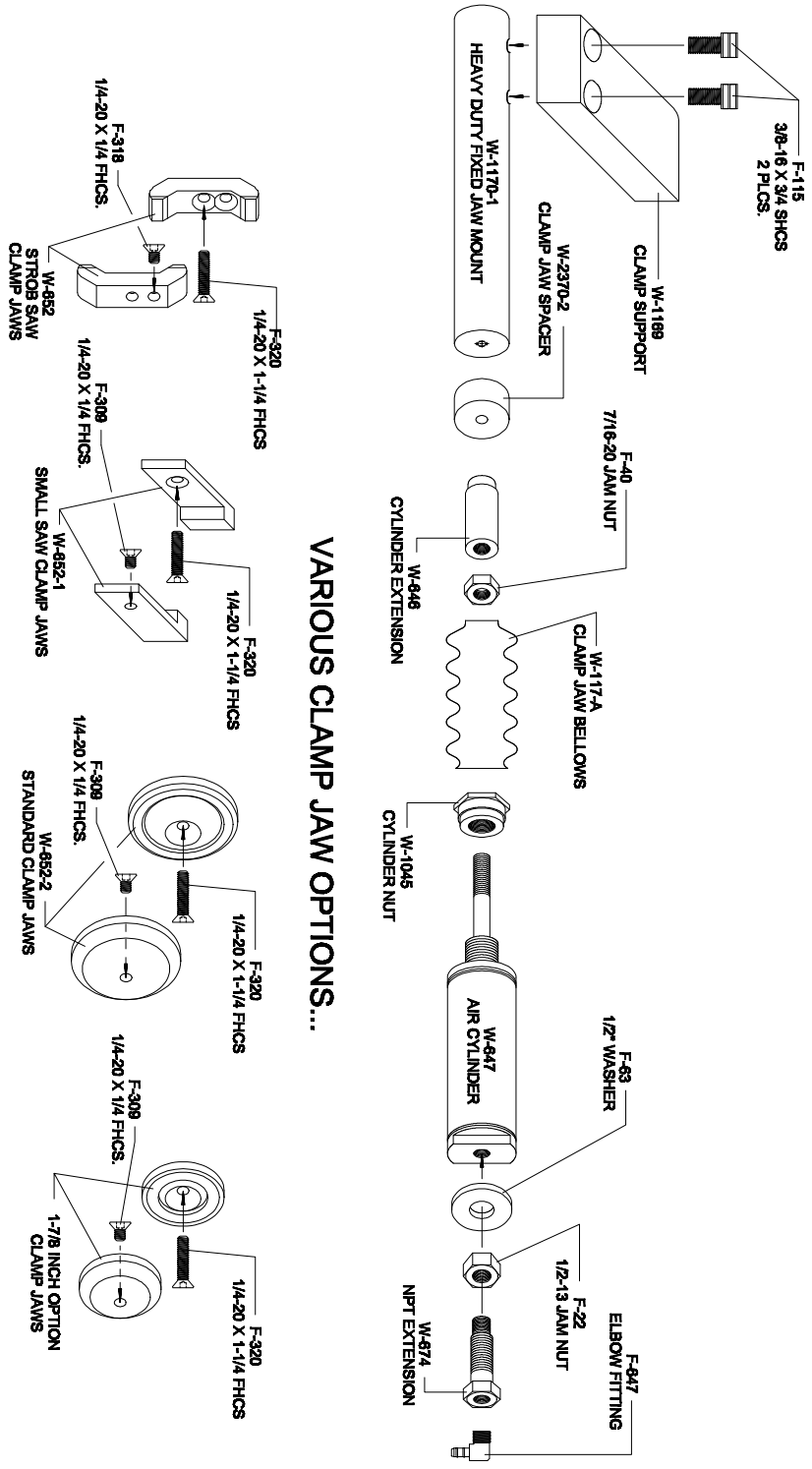
W-350 M HD DUAL SIDE SHARPENER

SAW CLAMP CYLINDER

QTY	PART NUMBER	DESCRIPTION
1	W-117-A	CLAMP JAW BELLOWS
1	W-646	CYLINDER EXTENSION
1	W-647	AIR CYLINDER
1	W-674	NPT EXTENSION
1	W-1170	HEAVY DUTY FIXED CLAMP JAW MOUNT
1	F-22	1/2-13 JAM NUT
1	F-40	7/16-20 JAM NUT
1	F-63	WASHER
1	F-647	ELBOW FITTING
2	F-115	3/8-16 SHCS
1	W-1169	CLAMP SUPPORT
1	W-1045	CYLINDER NUT
1	F-66	1/2" WASHER

W-350 M HD DUAL SIDE SHARPENER

SAW CLAMP CYLINDER



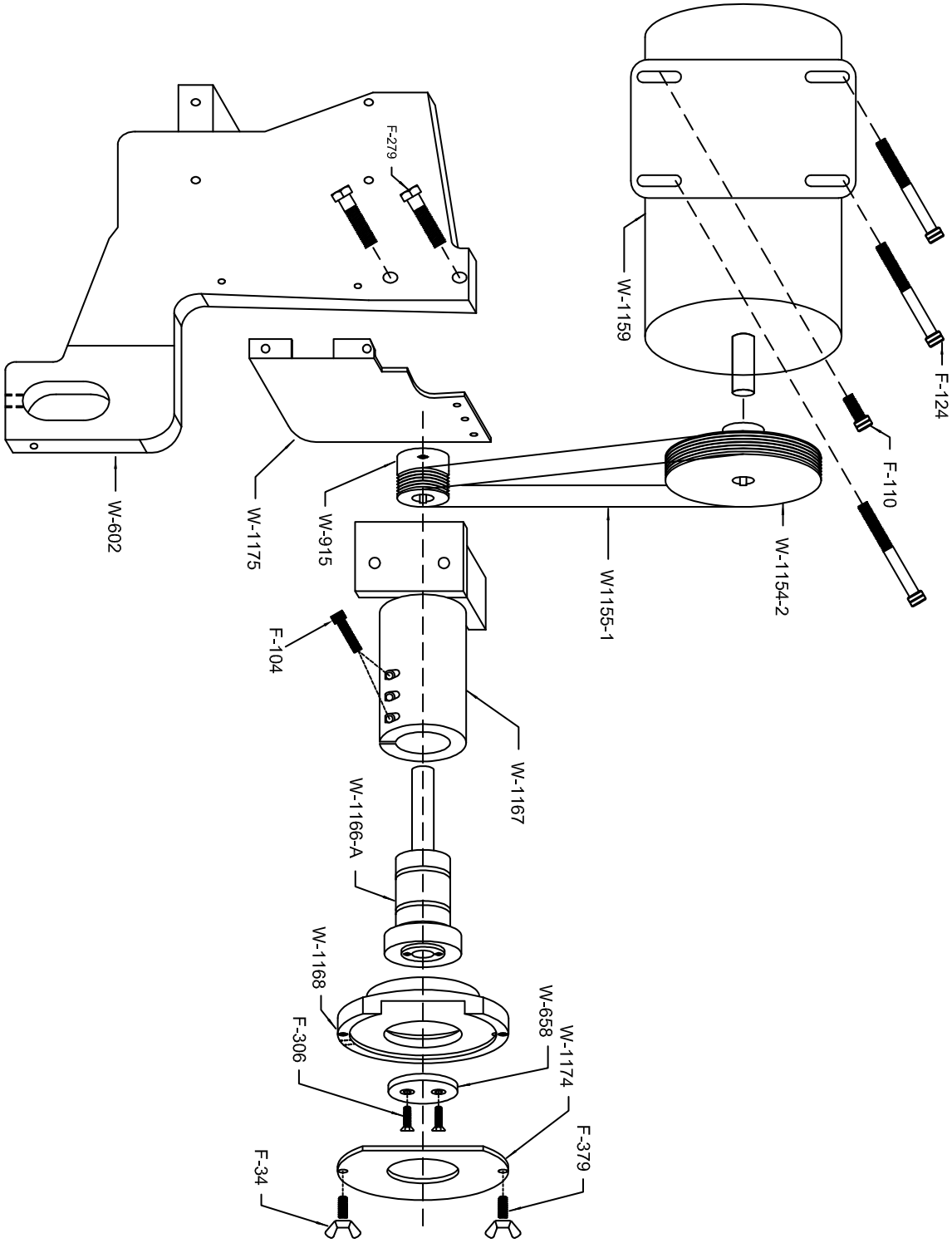
W-350 M HD DUAL SIDE SHARPENER

MOTOR ARM ASSEMBLY

QTY	PART NUMBER	DESCRIPTION
1	W-602	MOTOR ARM
1	W-658	SPINDLE NUT
1	W-915	SPINDLE PULLEY
1	W-1154-2	MOTOR PULLEY
1	W-1154-3	SHIVE
1	W-1155-1	BELT (AFTER S.N. 383)
1	W-1159	MOTOR
1	W-1166-A	SPINDLE ASSEMBLY
1	W-1167-L/R	SPINDLE HOUSING
1	W-1168-L/R	WHEEL GUARD
1	W-1174	WHEEL COVER
1	W-1175	BELT GUARD
2	F-34	1/4-20 WING NUT
2	F-104	1/4-20 SHCS
1	F-110	5/16-18 SHCS
3	F-124	5/16-18 SHCS
1	F-279	3/8-16 HHCS
2	F-306	10-24 FHCS
2	F-379	1/4-20 SET SCREW
1	F-380	1/4-20 SET SCREW

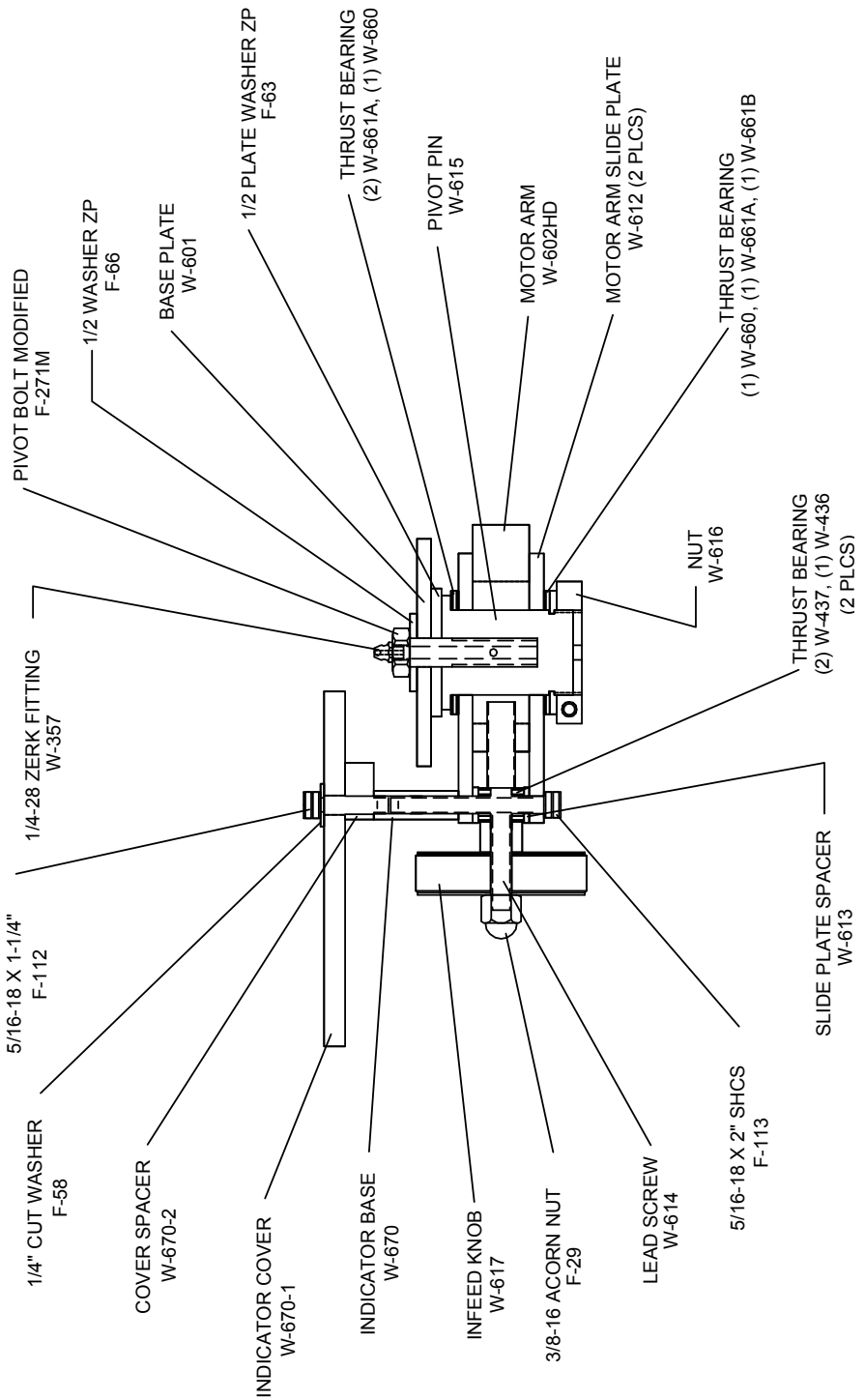
W-350 M HD DUAL SIDE SHARPENER

MOTOR ARM ASSEMBLY



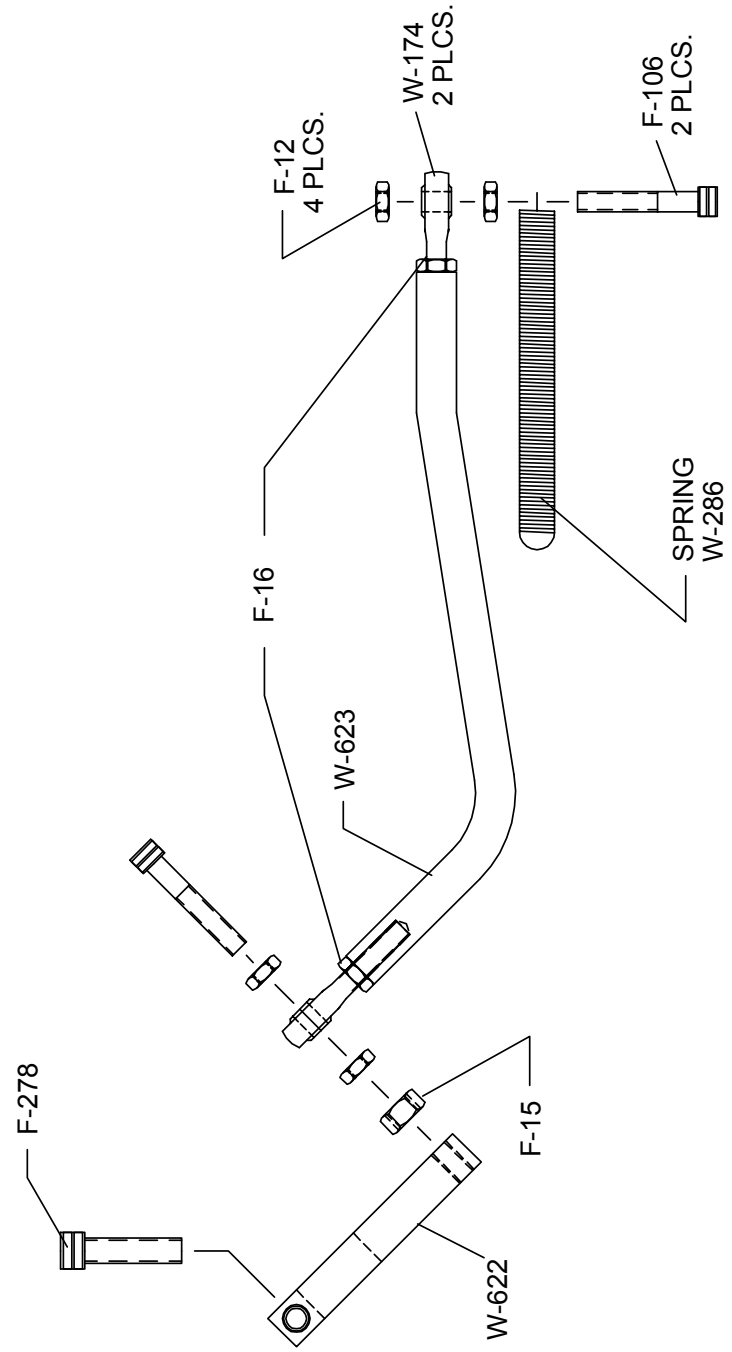
W-350 M HD DUAL SIDE SHARPENER

MOTOR ARM ASSEMBLY CONT.



W-350 M HD DUAL SIDE SHARPENER

MOTOR ARM ASSEMBLY CONT.



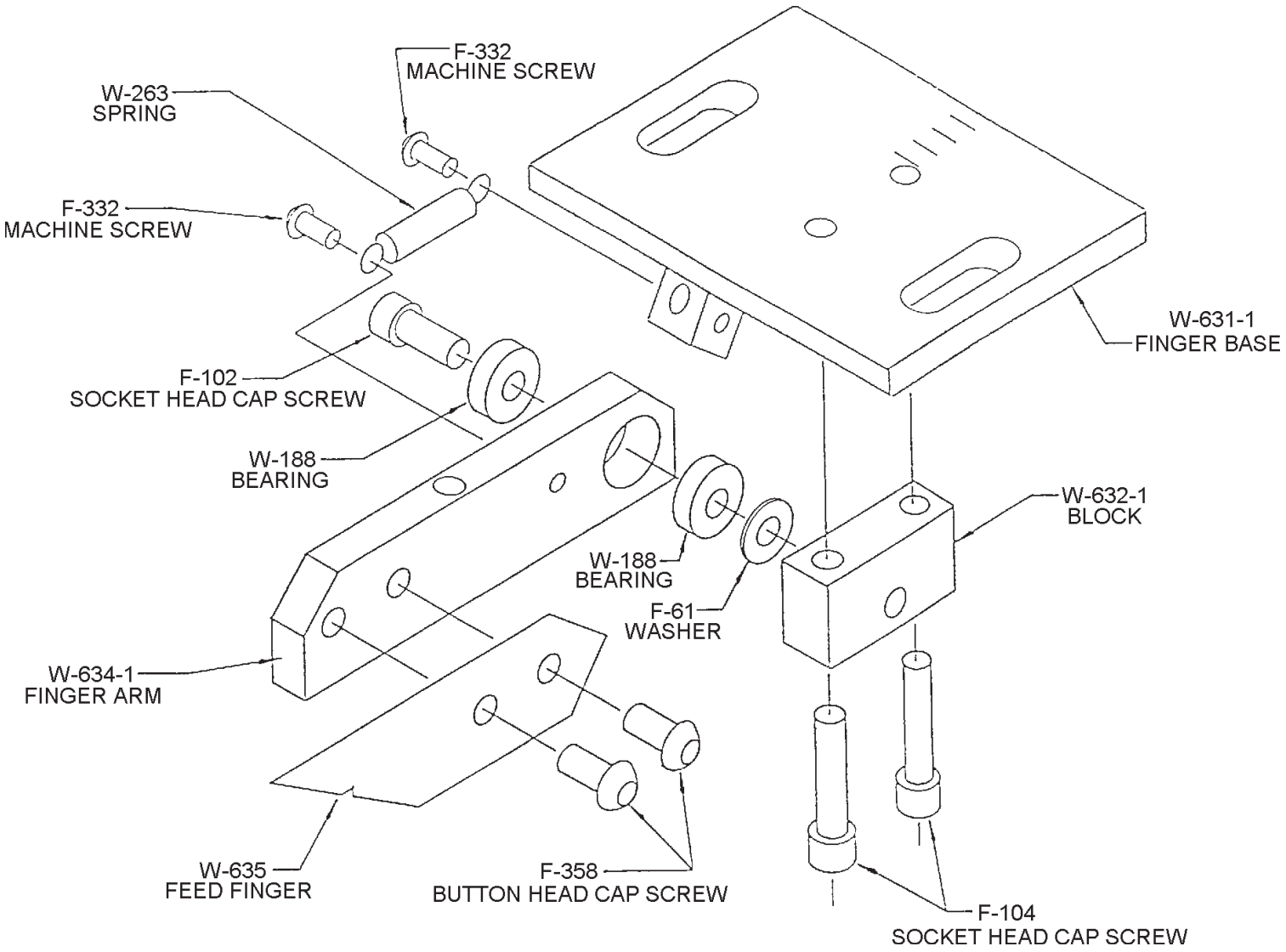
W-350 M HD DUAL SIDE SHARPENER

FINGER ARM ASSEMBLY

QTY	PART NUMBER	DESCRIPTION
2	W-188	BEARING
1	W-263	SPRING
1	W-631-1	FINGER BASE
1	W-632-1	BLOCK
1	W-634-1	FINGER ARM
1	W-635	FEED FINGER
2	F-12	1/4-20 JAM NUT
1	F-37	1/4-20 NUT
1	F-61	#12 WASHER
1	F-102	1/4-20 SHCS
2	F-104	1/4-20 SHCS
2	F-345	8-22 RHCS
2	F-379	1/4-20 SET SCREW
1	F-391	1/4-20 SET SCREW

W-350 M HD DUAL SIDE SHARPENER

FINGER ARM ASSEMBLY



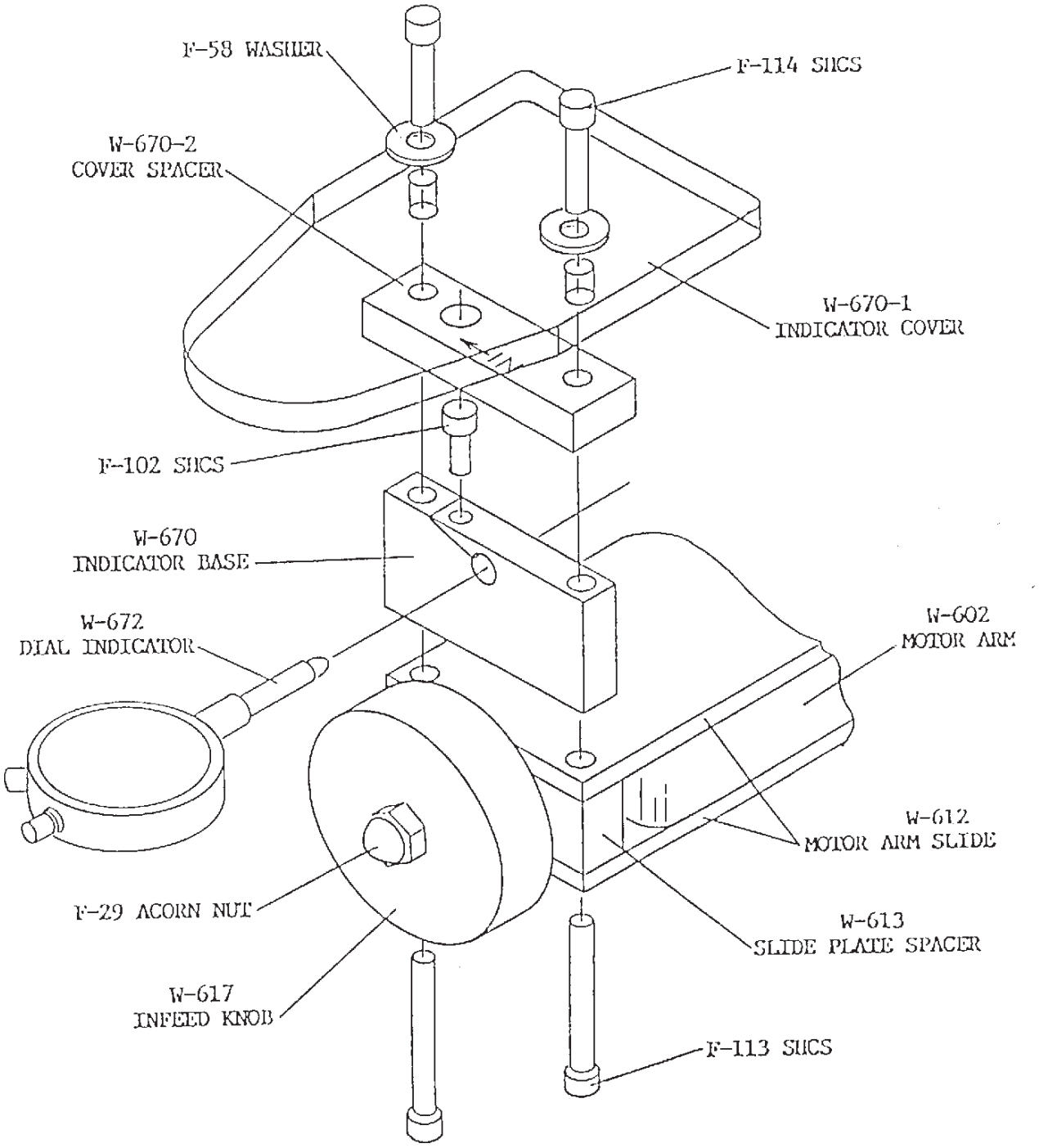
W-350 M HD DUAL SIDE SHARPENER

DIAL INDICATOR & COVER ASSEMBLY

QTY	PART NUMBER	DESCRIPTION
1	W-602	MOTOR ARM
1	W-612	MOTOR ARM SLIDE PLATE
1	W-613	SLIDE PLATE SPACER
1	W-617	INFEED KNOB
1	W-670	INDICATOR BASE
1	W-670-1	INDICATOR BASE
1	W-670-2 L/R	COVER SPACER
1	W-672	DIAL INDICATOR
1	F-29	3/8-16 ACORN NUT
2	F-58	1/4 CUT WASHER
1	F-102	1/4-20 SHCS
2	F-113	5/16-18 SHCS
2	F-114	5/16-18 SHCS

W-350 M HD DUAL SIDE SHARPENER

DIAL INDICATOR COVER ASSEMBLY



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