

GENERAL

20" THICKNESS PLANER OPERATING AND MAINTENANCE INSTRUCTIONS

CARACTÉRISTIQUES

Planing capacity	20" x 8"
Max. Depth of cut	3/8"
Table length	36"
Speed of Cutter-Head	4,000 R.p.m.
Feed (variable)	20-55 F.p.m.
Cutting Circle	4-1/4" dia.
Dia. of Feed Roll	3-1/2" dia.
Feed Rolls	All power driven
Motor required	5 Hp (Optional 7-1/2 Hp)
Floor space	43" x 49"
Net Weight	1850 lbs
Gross Weight	2000 lbs

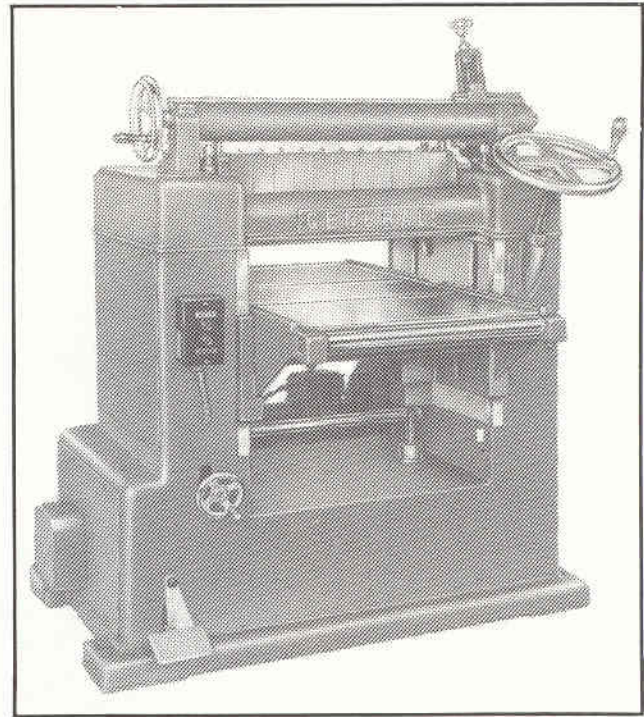
EQUIPMENT INCLUDED WITH THE MACHINE

Magnetic starter, start-stop push button station and wiring.
One set of 4 H.S. knives mounted in the cutter-head.

OPTIONAL EQUIPMENT

Shaving Hood with 6" outlet
Extra Set of H.S. Knives 1/8 x 1" x 20-1/4"
Knife grinding (complete with motor) and jointing attachment.
Sectional chip-breaker and sectional infeed roll.

The General planers are carefully tested and inspected before shipment and if properly used will give perfect results. However, reasonable amount of care and attention are necessary to insure perfect performance and accurate work. It is imperative that you take a few moments to read and familiarize yourself with these instructions and they will probably save you a lot of time and trouble.



MODEL NO.

330

SERIAL NO.

IMPORTANT: When ordering replacement parts, always give model number, serial number of machine and part number. Also give description and quantity of each item.

All replacement parts can be obtained from:

GENERAL MFG. CO. LTD.
835 Cherrier, Drummondville
Quebec, Canada J2B 5A8

GENERAL MFG. CO. LTD.

MANUFACTURER OF CIRCULAR SAW, BAND SAW, WOOD LATHE,
PLANER, JOINTER, MORTISER, DRILL PRESS, SHAPER AND SANDER

INSTALLATION

The machine is shipped in a wooden crate and wrapped with waterproof paper. All machined surfaces are covered with special grease to prevent rusting. This protective covering should be removed with "varsol" or similar product but do not use paint solvent as it will damage the finish.

Foundation: If the floor consists of 4" to 6" concrete, no special foundation is needed to install the machine. A good wooden floor is also satisfactory, in such a case lag screws may be used. Layout of Fig. 1 gives the spacing of the foundation bolts.

Important: It is most important that the machine be very carefully levelled both lengthwise and crosswise before final bolting down. Shims should be placed underneath the machine and the machine levelled by placing a spirit level across the table in both directions. When the machine is level and the four corners are resting firmly, tighten the bolts. Check if the table is free in its slide, and if the cutter-head rotates freely in its bearings; if the cutter-head or the table does not operate normally it is due to faulty levelling of the machine. It is essential that this procedure be carried out to ensure correct alignment between the table, cutter-head and grinding attachment.

Wiring: All wiring is completed at the factory and it is only necessary to bring the power line to the machine to put it in operation. Motor and starter are supplied as per customer requirements and can be 208/220, 440 or 550 volts, 60 cycles. Be sure that the line voltage is the same as stamped on the motor and starter.

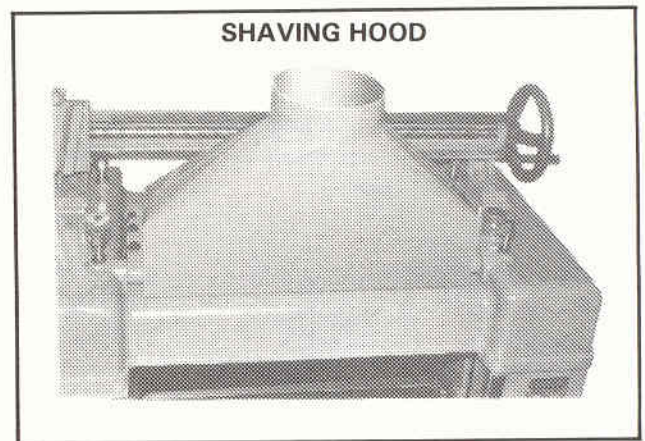
DUST COLLECTOR

It is recommended that the machine should be connected to a shaving exhaust system and a shaving hood can be provided.

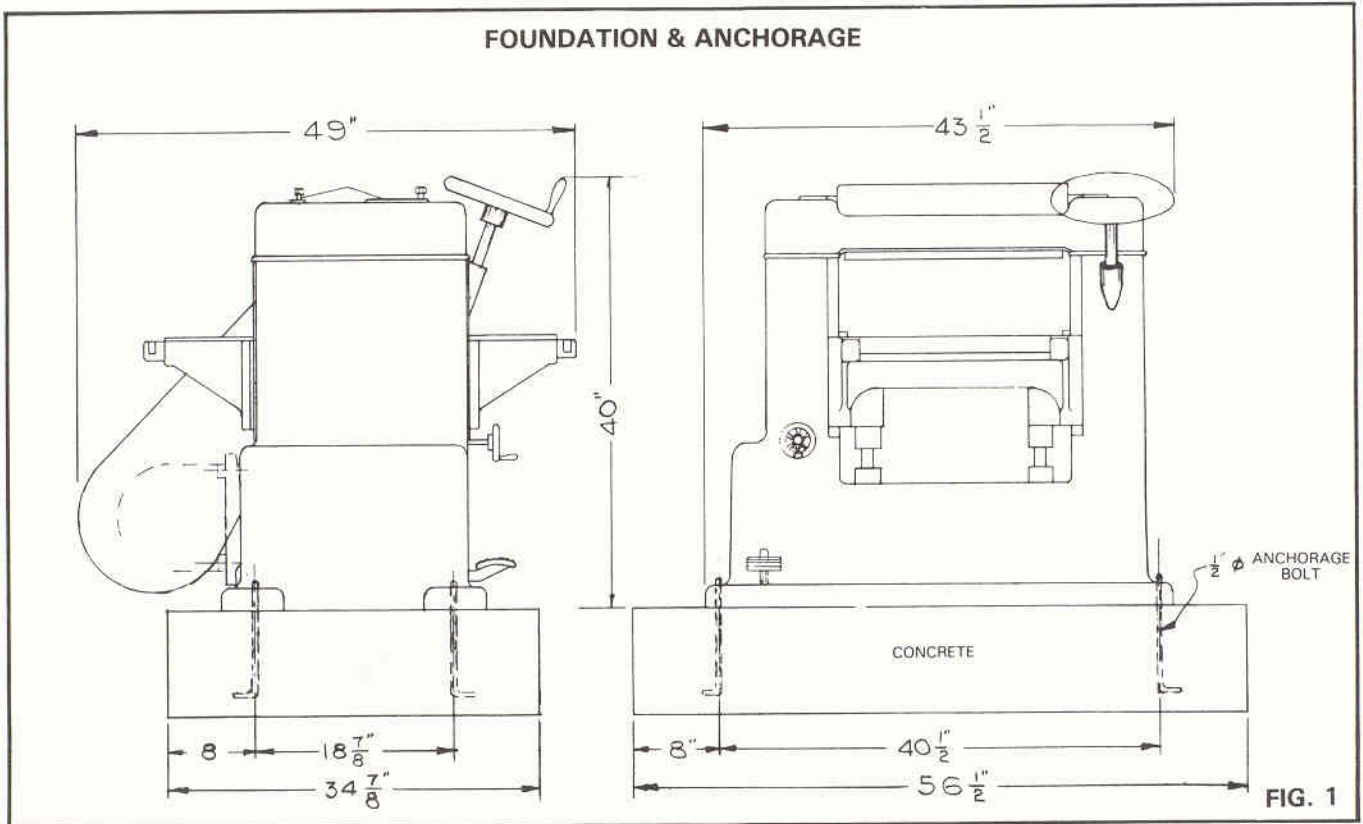
Once a week the machine should be thoroughly cleaned and all machined surfaces should be wiped and a light film of oil applied to prevent rusting.

SHAVING HOOD

Two types of shaving hoods are available on the 330 single surface planer. No. 3404 is required for the planer equipped with a sectional chipbreaker and No. 3304 shaving hood for solid chipbreaker. When this equipment is ordered with the machine, it is already mounted, if ordered later on, proceed as follows: Lay on shaving hood on chipbreaker arms in right position, drill 17/64" diameter holes, and tap 5/16 N.-C. x 3/4" deep, using shaving hood flange holes as a guide. Bolt firmly in place with the H.H. cap screws supplied with it.



FOUNDATION & ANCHORAGE



All moving parts should be oiled every week with a light oil, such as table slides, grinding attachment, slide bar, feed motor slides, feed roll and every places where there are oil holes. Grease bearing of feed rolls every month.

The cutter-head bearings have sufficient grease for 3 months operation when leaving the factory and a small amount of high quality bearing grease should be added every 3 months. **IMPORTANT:** care should be taken that the proper amount of grease be used as too much or too little will cause the bearings to overheat and damage them.

Gear box: The gear box should be kept full to the level of the side plug with No. 90 transmission oil. Drained off and refilled with new No. 90 transmission oil once a year.

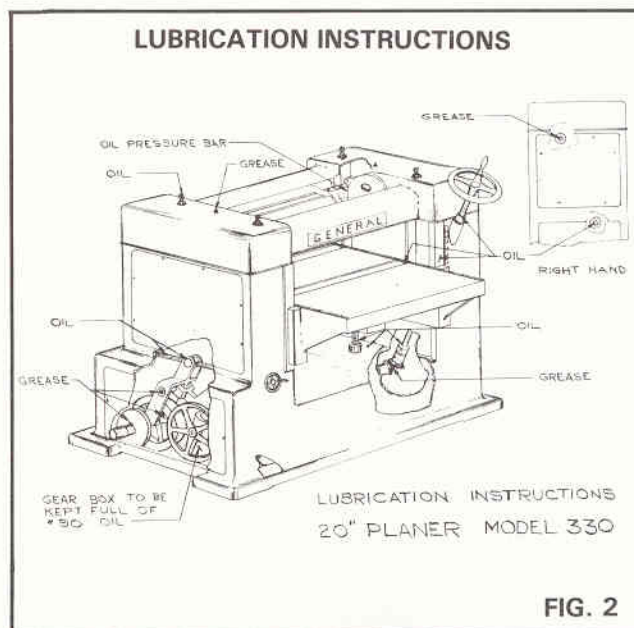


FIG. 2

PLACES TO OIL

Grinding attachment:

Both ends of feed screw (oil holes)
Feed screw, slide bar, grinding bracket slides
adjusting screw (oil before using)

Sectional Chip-breaker

2 pivoting pins (oil every day)

Top:

4 oil cups (feed roll bearings and pressure bar slides) (oil every day)

Left hand side:

Handwheels bearings
Variable feed (oil once a week)

Table:

2 oil cups: 1 each side of raising screw
Raising screws - table slides (oil once a week)

Above table:

4 oil cups (feed rolls)
Idler rolls (4 oil holes)

GENERAL ADJUSTMENTS

Your planer leaves the factory completely adjusted. However, a check up is recommended both to familiarize yourself with the machine and to make sure that everything is in order.

CUTTER HEAD

The cutting circle of the cutter-head is 4-1/2" dia. with 4 knives. It is very important that all the knives be equal otherwise the cutting load will be taken by only one or two knives and the finish will be affected accordingly. The knives are held in place by wedge clamps locked by screws. These clamps also act as chip-breaker. The knives should protrude about 1/16" to 3/32" above the chip-breakers so the knives are adjusted by a screw device to bring them up to a perfect circle, after which they are locked in place. Knives must be perfectly balanced and when more than one set is used, make sure that they are kept together.

PLACES TO GREASE

Top:

2 grease fittings (cutter-head bearing) (every 3 mths)

Left hand side:

1 grease fitting (variable pulley bracket)
All roller chains (once a week)

Right hand side:

Feed roller chains
1 grease fitting (idler sprocket) (once a week)

Sectional Chip-Breaker

10 moving toes (once a week)

The table is adjusted at the factory parallel with the cutter-head. it is supported by two screws resting on trust bearings for easy operation. The table is adjusted with gibs and screws on the rear side of the machine. The table should always slide easily and must never be loose with the machine column, otherwise adjust.

To check the parallelism of the knives, place two pieces of hard wood dressed on both sides and equal thickness on the table under the cutter-head, one on each side. Raise the table until the knife barely touches the wood blocks. Rotate cutter-head in backward motion by hand to make sure all knives protrude equally; if not, readjust and then lock firmly in place.

The cutter-head ball-bearings should last lifetime. If for any reason you have to change a bearing, proceed as follow. Remove side panels, unscrew the corner bolts which secure top to sides, lift the top with a chain block. Remove roller chains and belts, take off H.H. cap screw that holds cutter-head bearing case to sides, then take off cutter-head assembly and bring it to a bench. Remove pulleys and bearing cap, unscrew bearing nuts, take off defective ball bearing, fit the new one, reverse procedure to re-assembly.

SECTION THROUGH CUTTER-HEAD

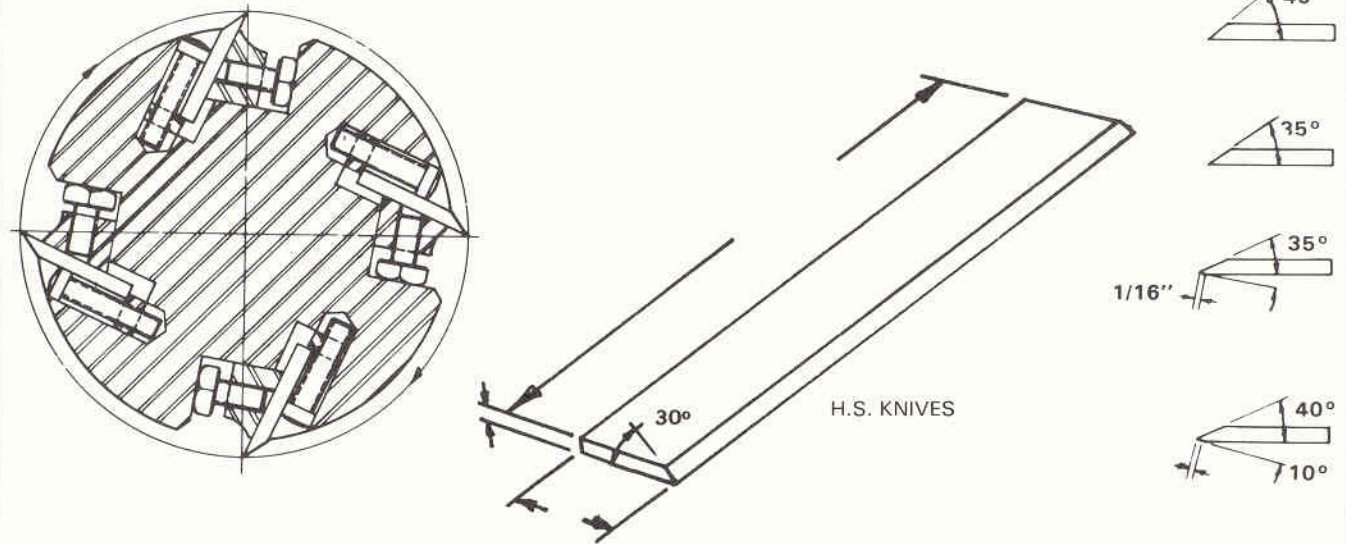


FIG. 3

CUTTER HEAD ASS'Y

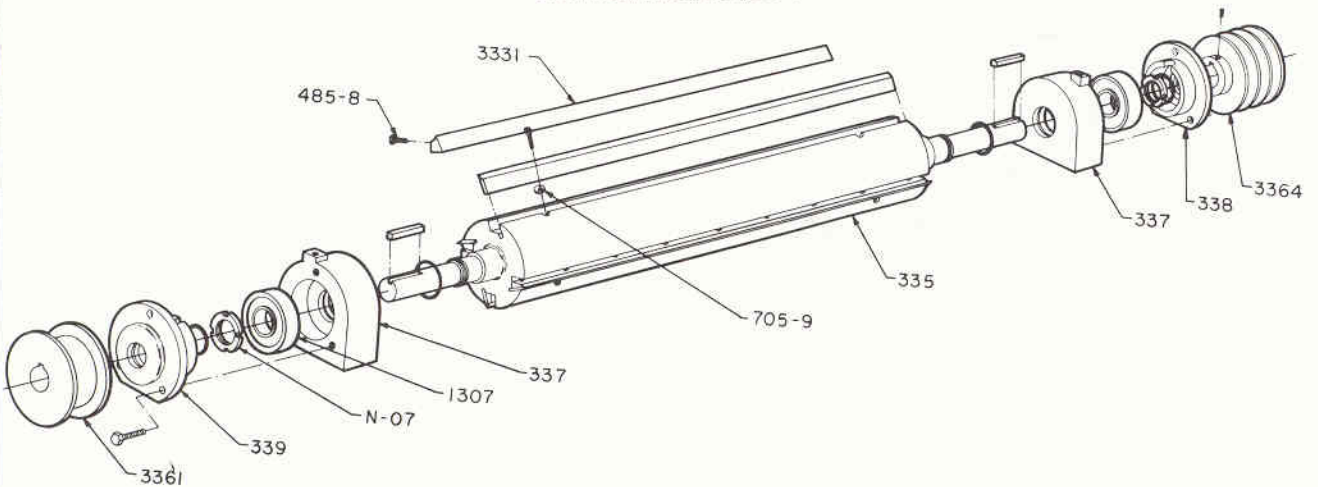


FIG. SA 01

UPPER FEED ROLLS

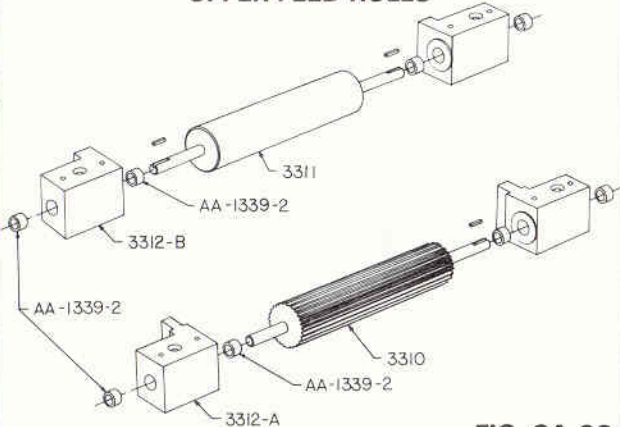


FIG. SA-02

All feed rolls are mounted on oilite bushings, if they are oiled in accordance with the lubrication instructions they'll never have to be changed. Due to a lack of maintenance it could be necessary to replace bushings to do so, remove feed roll bearing pressed out oilite bushing and press in new one.

To remove table feed rolls, raise up table, loosen set screws, remove sprocket and roller chains, take out feed roll assembly by access holes on left hand side of the machine.

The access to top feed rolls is possible by removing the top of the surface planer, feed roll bearing slide freely in top ways.

GEAR BOX AND VARIABLE SPEED

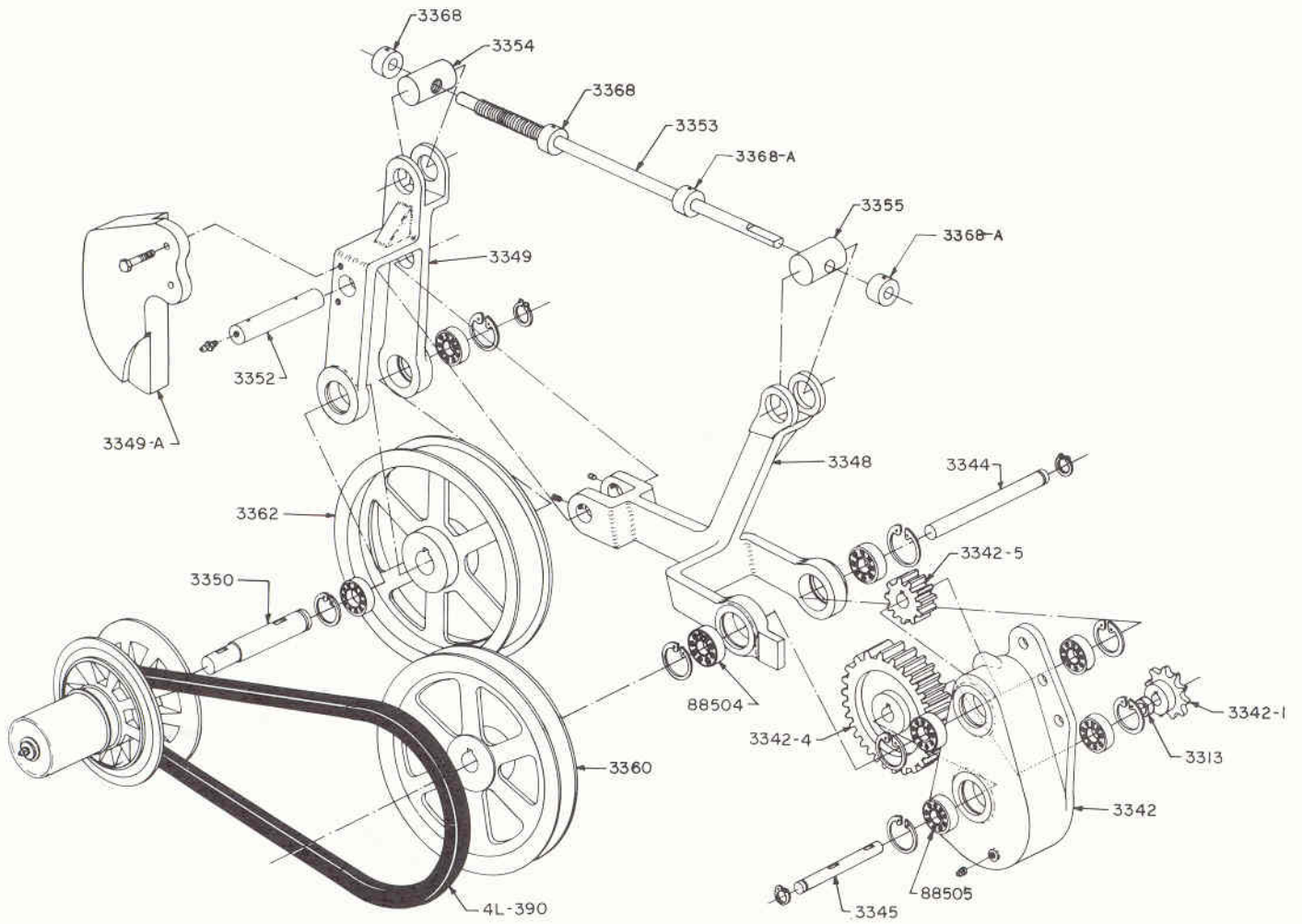


FIG. SA-03

FEED SPROCKET - RIGHT

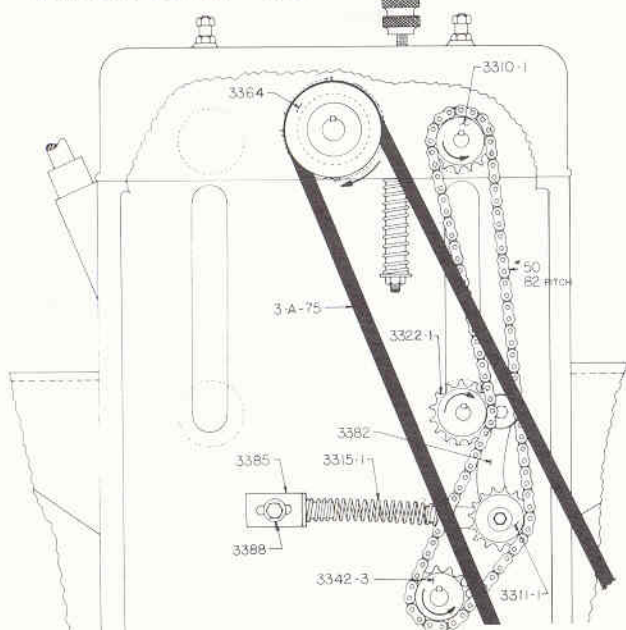


FIG. SA-05

FEED SPROCKET - LEFT

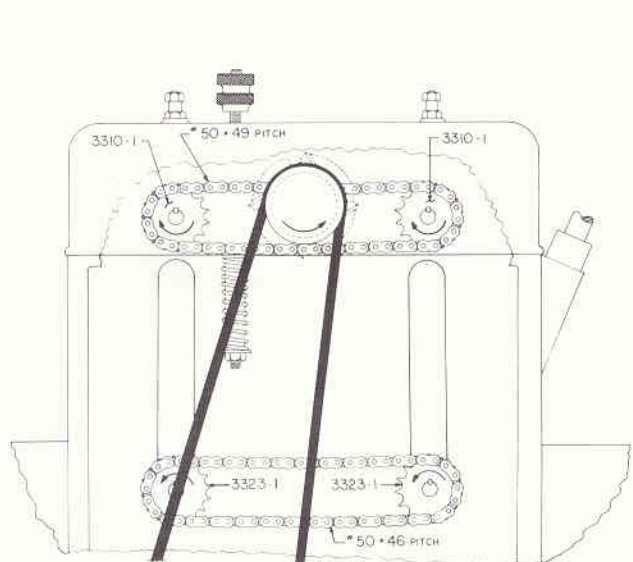


FIG. SA-04

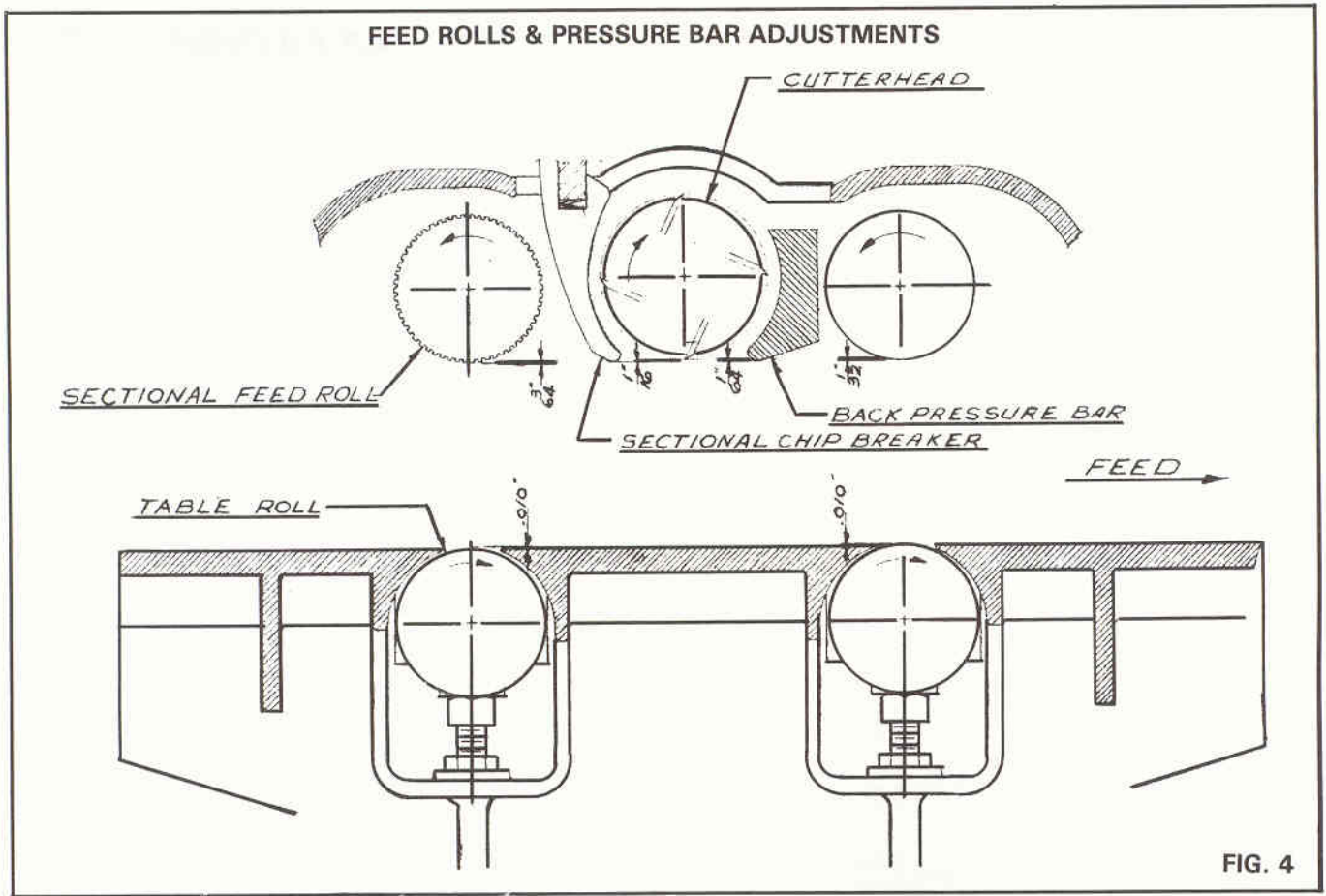


FIG. 4

FEED ROLLS

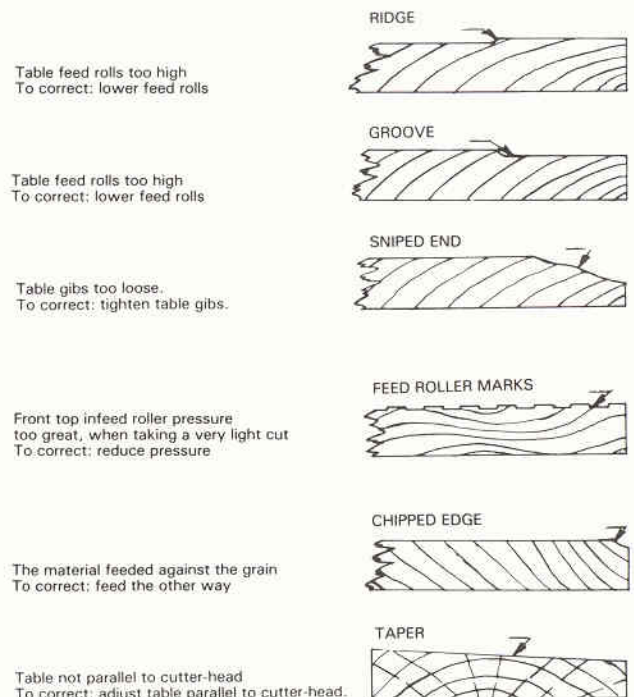
The upper feed rolls: To obtain efficient feeding of wood through the planer the rolls must be adjusted as shown in Fig. 4. **To adjust** proceed as follows: two pieces of wood about 6" wide of exactly the same width are placed on each side of the table. Raise the table until the knives are just touching the pieces. The adjusting screws are placed directly underneath the roll blocks. Adjust the screws until there is 3/64" between blocks and end of screws for in-feed roll and 1/32" for out-feed roll and lock in place. Do not forget to tighten the jam nuts as otherwise the shaft of the lower rolls may be damaged by the loose screws. Also the rolls will be out of adjustments. The pressure of the upper rolls is adjusted by the four screws on top of the planer. Never screw them completely and always keep locked.

The lower rolls are adjusted from underneath the tables. Using a straight edge, on each side of the table, raise or lower each end of the rolls by adjusting the screws under the roll blocks until each end is exactly the same distance above the table then lock each screw. It is very important that the rolls should be set exactly the same above the table. Setting the rolls .010" above the table will give good satisfaction on the majority of soft wood but on hard wood it is preferable and may necessary to lower the rolls to .005" or .006". The bearings of the lower rolls must always be kept tight. This should be checked periodically. These screws are reached from underneath the table.

The pressure bar is adjustable at each end by the knurl on the machine leaving 1/64" between lower knob and tension adjusting screw, then lock in place.

The pressure on the pressure bar has been adjusted at the factory and should be satisfactory for average work. It is adjusted by turning the hex. screw under the knobs and locking in place.

The chip-breaker is now adjusted by the screws at each end leaving 1/16" between the end of the screw and the roll back.

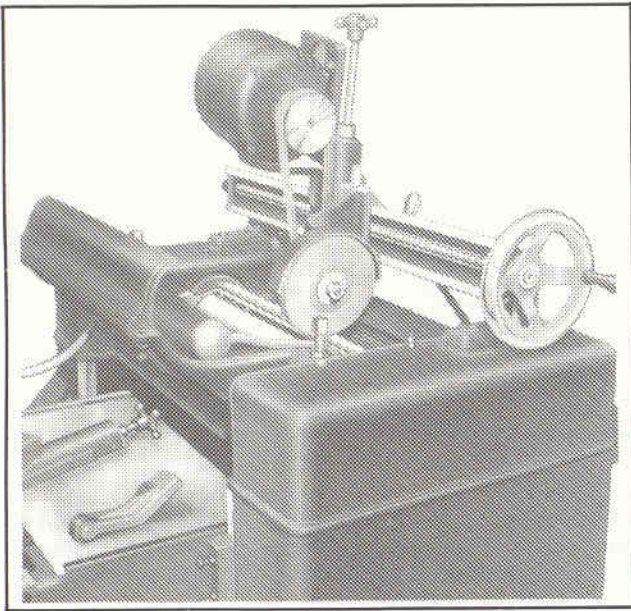


KNIFE GRINDING, JOINTING and SETTING ATTACHMENTS

N° 3310

KNIFE GRINDING, JOINTING and SETTING ATTACHMENTS

In order to insure that all the knives are actually cutting equally per revolution of the cutter-head, it is essential that they all run in one common circle at the cutting edge. This condition can only be obtained by using the knife grinding, jointing and setting attachment. To use, remove the shaving hood and swing back the chip-breaker assembly.



KNIFE GRINDER

The knife grinder allows the knives to be sharpened without being removed from the cutter-head. Arrange the machine as illustrated for grinding. Be sure that the slides are not loose. The horizontal slide should be tight enough to allow a smooth movement across, without looseness. The vertical slides move only enough to take light cut. It should be kept tight to prevent damage to the knives. Place index finger in position as shown in Fig. 6 with the knife resting on the index finger. The counterweight will hold the head stationary while grinding wheel down on the knife until it just starts to grind. Now proceed to grind by taking a light cut. Use every precaution to keep from burning the knife. Do not finish grinding one knife before proceeding to grind the others. In other words take a light cut on one knife and then turn the head to the next knife and continue in this manner. After finishing grinding the knives the next operation is jointing. Now remove the grinder and replace the knife jointer. Be sure to remove the counter-weight and place index finger out of position. The knife grinder should be put away in a safe place to prevent damage. This is a precision attachment and should be treated as such.

KNIFE SETTERS

The knife setting attachment is used to set the knives in the cutter-head. The knife should be located by the roller at both ends and in mid position, using the screws. The wedge clamp should hold the knife sufficiently rigid while it is adjusted. Setting is correct, Fig. 5, when the knife rotates the roller slightly, the cutter-block is turned slowly by hand. After which all the screws should be securely tightened. Proceed in the same way to set the other knives. With this procedure the knives are set accurately for most work but for the finest finish the knives have to be jointed.

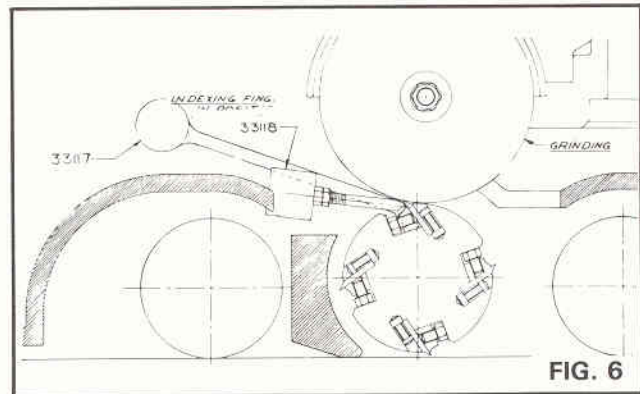


FIG. 6

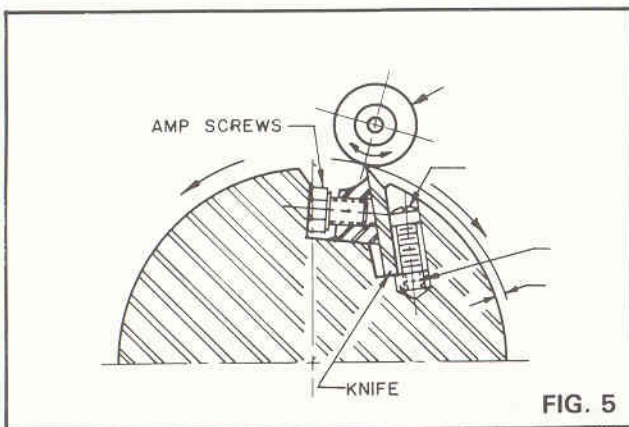
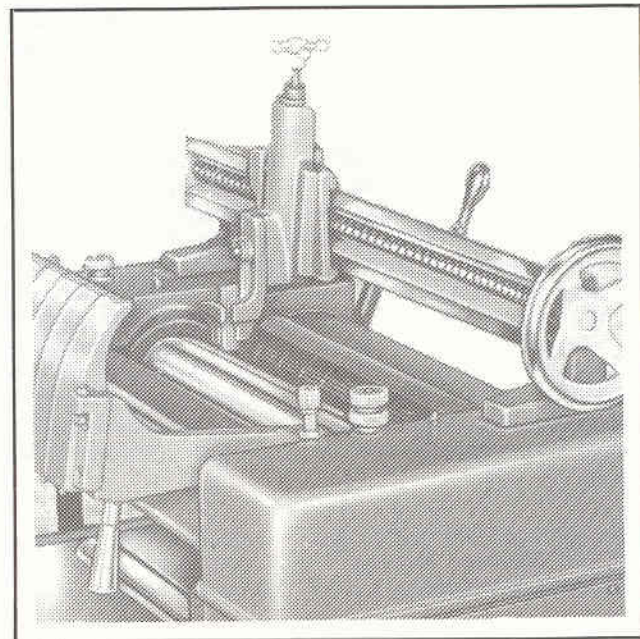
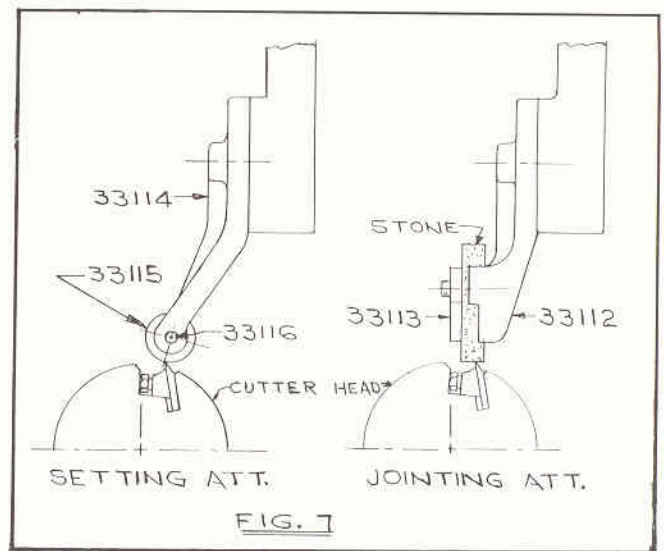


FIG. 5

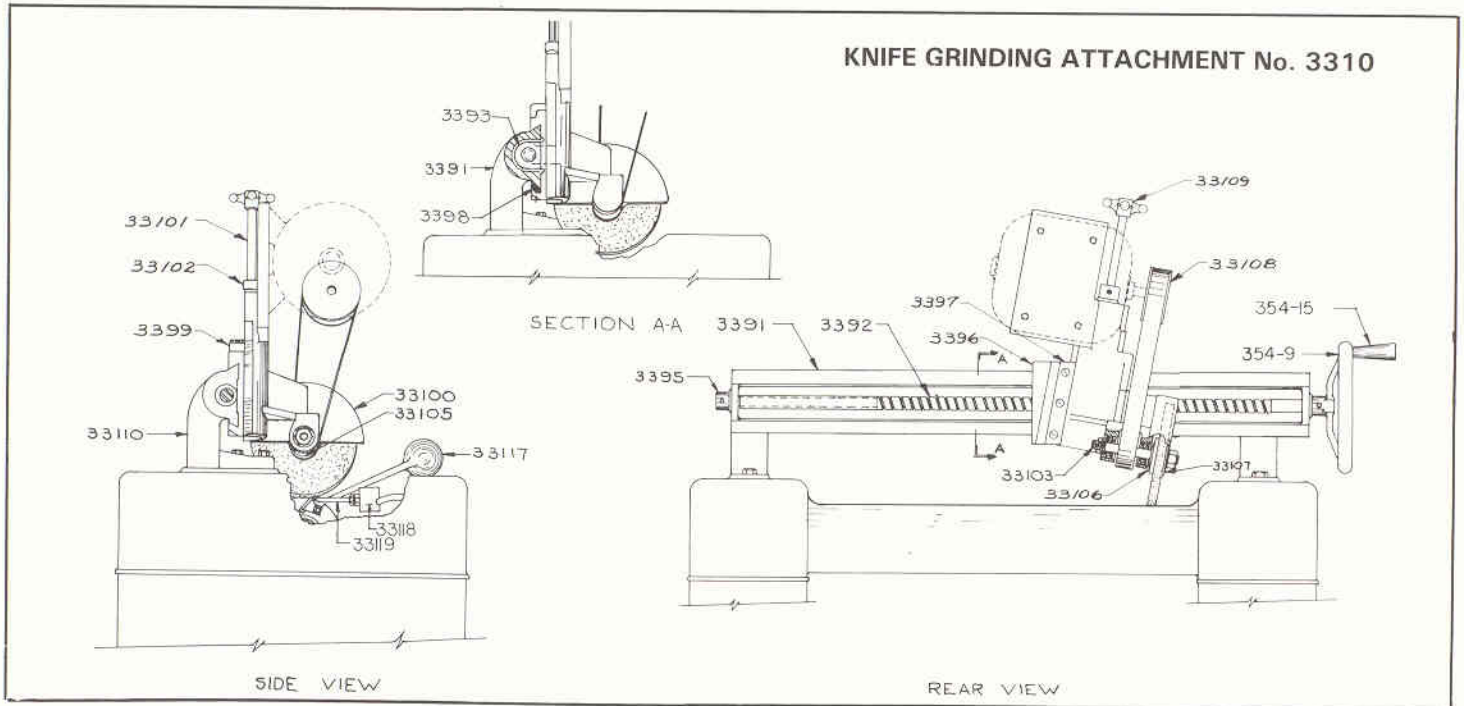


KNIFE JOINTER

The knife jointer is used to true up all the cutting edges to a high degree of accuracy. The stone holder is put in place of the roller holder and adjusted down until the stone is near the edge of the knife. Be sure that the vertical slide is tight to prevent damage to the knives. After making sure that everything is clear start the motor. Slowly and evenly move the stone across the knives, then adjust down the stone until it touches the knives and gives off a light spark. This operation is carried on very delicately until all the knives have been touched. Jointing puts each knife into a perfect circle, thereby making each knife do an equal amount of cutting. A slight flat or heel is produced. Ordinarily, knives can be jointed three to four times between grinding, but never allow a heel greater than 1/32" wide on the cutting edge. Each time the knives are jointed, it is equivalent to a sharp set of knives.



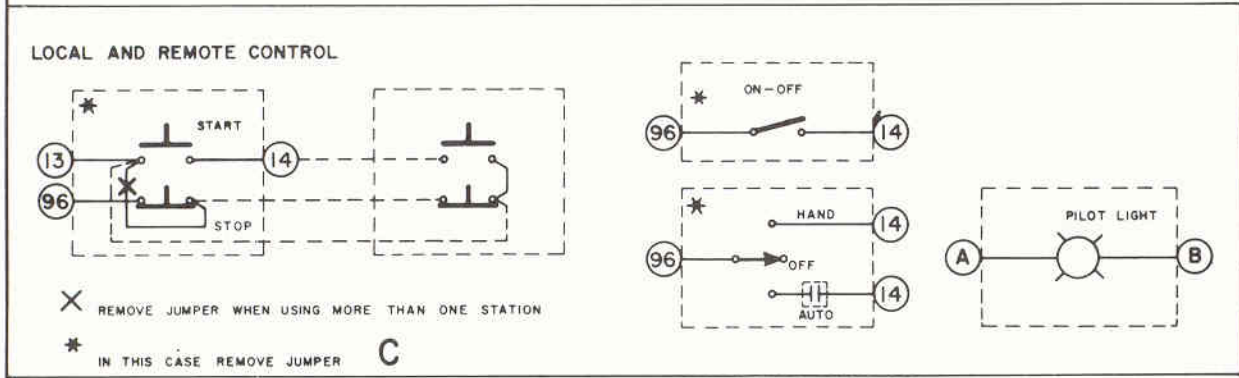
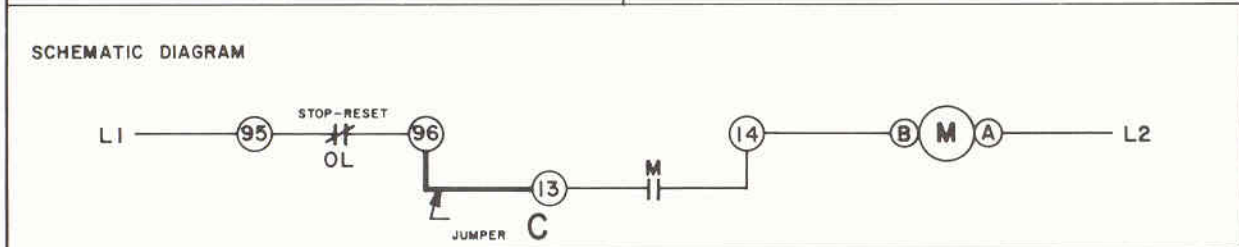
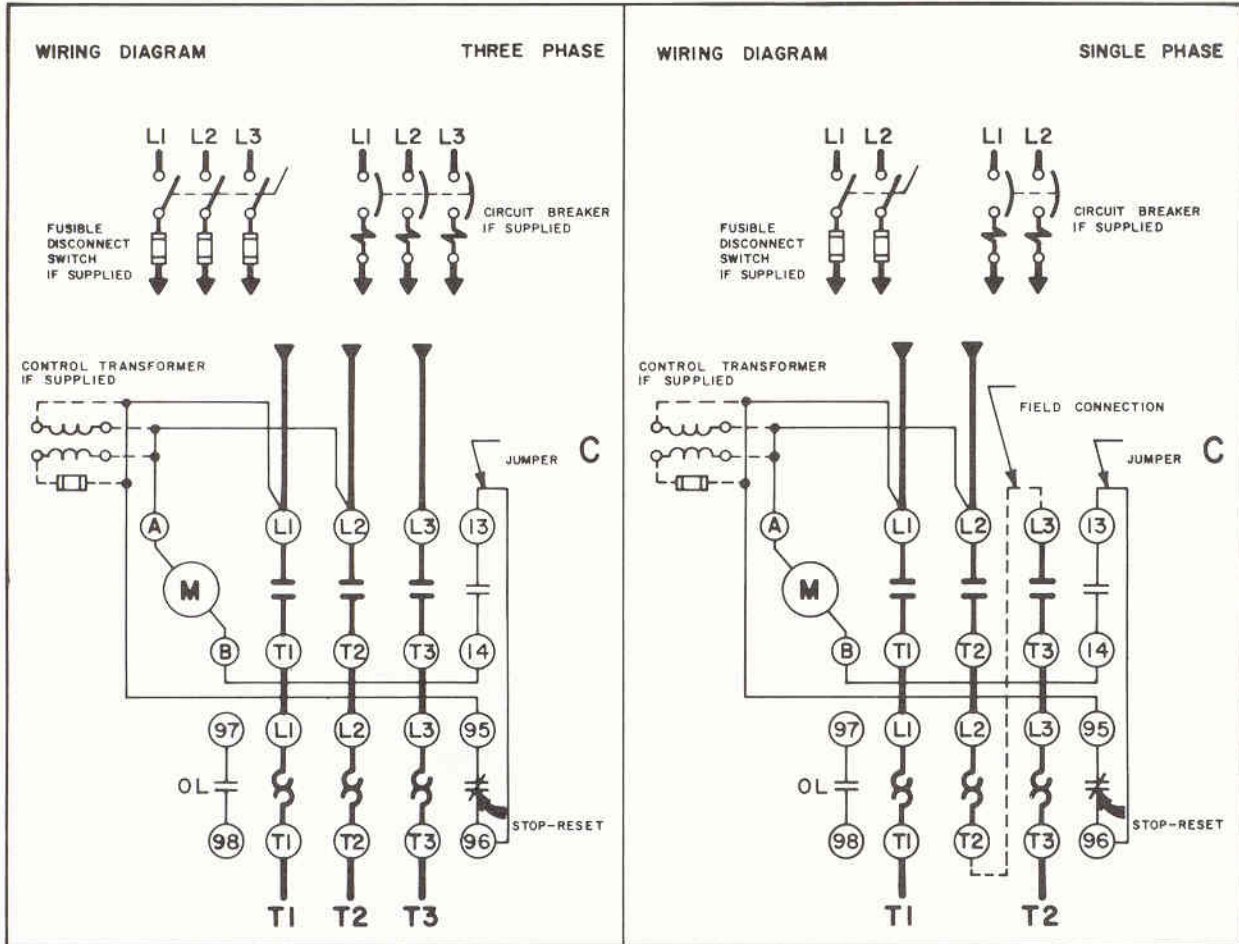
KNIFE GRINDING ATTACHMENT No. 3310



PARTS LIST

Part N°	Description	Qty	Part N°	Description	Qty
GRINDING ATTACHMENT No. 3310					
3310-1			33113	Stone cover	1
3310-2			33114	Setting holder	1
3310-3			33115	Setting wheel	1
3310-4			33116	Setting wheel pin	1
3310-5			33117	Weight	1
3310-6			33118	Stop	1
NO. 3315 (Jointing & setting attachment)					
3391	Rail	1	33119	Pin	1
3392	Feed screw	1	354-9	Handwheel	1
3393	Feed nut	1	354-15	Pin	1
3395	Feed screw collar	1	No. 3310 (Grinding attachment with jointing & setting attachment)		
3396	Apron	1	33100	Wheel housing	1
3397	Apron gib	1	33101	Wheel fed screw	1
3398	Cross slide gib	1	33102	Collar	2
3399	Cross nut	1	33103	Spindle	1
33102	Collar	2	33104	Spacer	2
33109	Knob	1	33105	Spindle pulley	1
33110	Jointing bracket	1	33106	Tight Flange	1
33111	Jointing screw (bracket)	1	33107	Loose Flange	1
33112	Stone holder	1	33108	Motor pulley (Alum.)	1
			33109	Knob	1

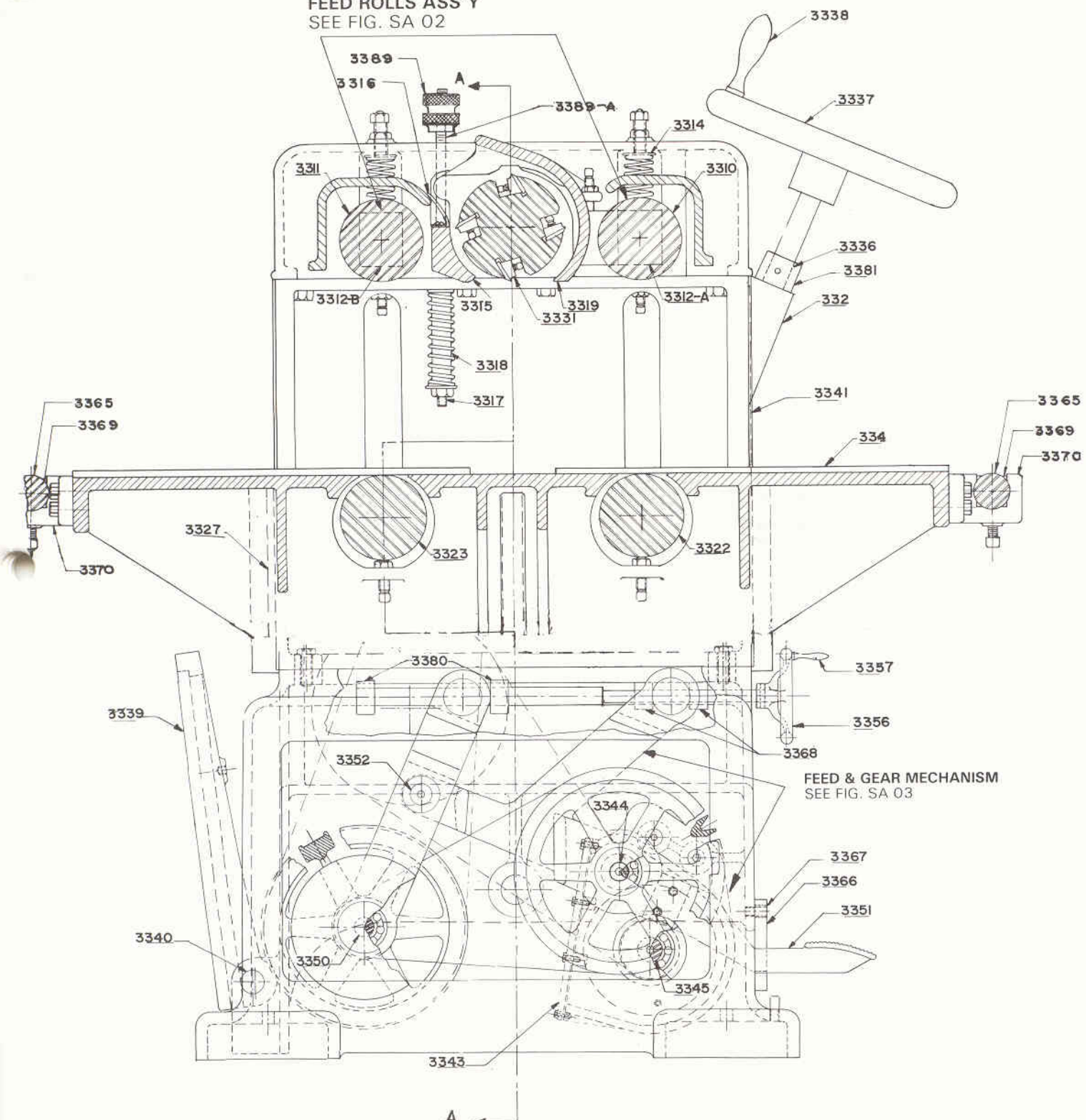
WIRING DIAGRAM



— MAGNETIC STARTER

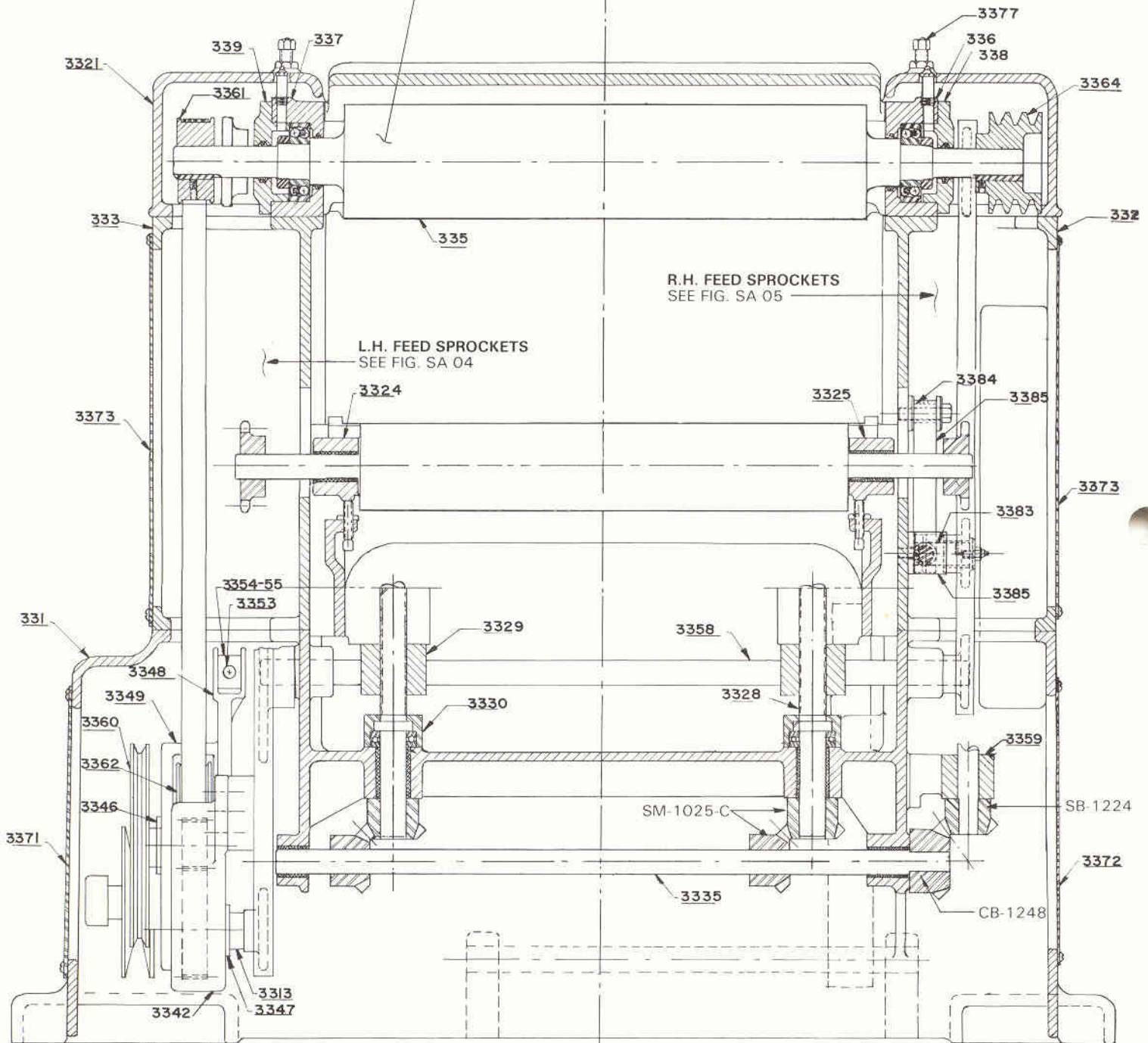
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FEED ROLLS ASS'Y
SEE FIG. SA 02



330 ASSEMBLY

CUTTER HEAD ASS'Y
SEE FIG. 5A 01



SECTION A-A

PLANING FACTS

Many of the problems of modern planing can be understood if a study is made of the heart of the planer, "the cutter-head".

In placing the knives in the cutter-head, a great deal of care must be given to the balancing and securing of these knives. When the knives come in from the manufacturer, they have been balanced in pairs and the balanced pairs are back to back in the package. When these are used, the balanced pairs should be put opposite each other in the cutter-head.

For most work, the knives are set 1/8" from the lip of the chip-breaker with the knife lifters. The knives are held in the head by the jack screws in the chip-breaker.

There is a mistaken idea that the knife lifters serve the purpose of holding the knives in the head and that the tighter they are secured in the head, the more secure are the knives. This is not true. The knife lifters are only for the purpose of lifting or positioning the knives. After the knives are positioned and locked in the head, these lifters should be tightened only with firm pressure. If the operator shears the knife lifters quite frequently, he is either putting too much pressure on them or not securing the chip-breaker tightly in the head with the jack screw.

In setting the knives, the knife projection from the chip-breaker has a visible influence on surface defects. Clipping out is reduced with shorter knife projection, because with the cutting edge closer to the chip-breaker, the chips are broken up faster and the chip is shorter. On the other hand, the more the knife projects from the chip-breaker, the longer the chip, the easier the cutting and less chip marking occurs.

There has always been considerable discussion as to whether plants should use a jointed or unjointed knife. The answer to this depends on the type of job that is to be done. As a general statement, most defects are at a minimum with a light joint than with a heavier joint. Dull, jointed knives hammer and close the wood cell fibres so that glue will not form a bond with the fibre of the wood. The glue acts as if it were placed on a mirrored surface. There is no bond and the glue will not spread properly.

A board with a hammered, glossy finish, when set aside for a period of time, may begin to show raised grain.

This is really a roughened condition of the surface of dressed lumber, in which the hard Summer wood is raised above the softer Spring wood, but not torn loose from it. This condition is brought about because

the knives are over-jointed or dull. The knives pound the lumber down, pressing the hard Summer wood in to the softer Spring wood. After the pressure of the knives is released, the hard Summer wood raises above the pressed down softer wood. A keen cutting edge with a light joint will help overcome this condition.

If the lumber has been kiln dried too quickly, the holding power between the hard and soft grain is lessened, and raised grain may occur. Stratified woods, such as Cypress, are susceptible to raised grain.

If the operators use jointed knives, the question arises whether to grind and then joint or to grind to the joint. Many operators grind knives and then joint until a fine silver line shows on all four knives, telling them they have a true cutting circle. Others put a fairly heavy joint on the knives, and then grind until only a faint silver line is left on all four knives. The operator may find that one knife joints a little heavier than the others. This may show up on the lumber as a knife mark which is a little lighter than the other three knives in the cut. This, however, is of no consequence, as the knife marks are all the same height and distance apart. The light mark is caused by microscopic polishing of the wood.

A planed wood surface consists of microscopic waves, which are at right angles to the direction of the feed. It is commonly assumed that the more knife marks per inch, the better the planing. Actually, it is not the closeness of the marks but the height of the waves which determines the quality of the planing. This is judged by feel and sight.

The use of high cutter-head speeds obtained by V-belt drive allows faster feed rates while still maintaining the same quality of planing.

Experience has taught the woodworking industry that 5-8% is the best moisture content range for most planing. Clipped grain, raised grain, and fuzzy grain increases in proportion with higher moisture content.

Generally speaking, the cutting angle can be reduced as the material increases in hardness and dryness. Woods that have long tough fibres require a greater cutting angle than those with shorter, brittle fibres.

When the operator sees chip printing on the lumber, he can usually look to the blower system as the main source of his trouble. The pipe leading from the the shaving hood to the main trunk line should not have any abrupt turns. Where the pipe connects to the trunk, there should be a "Y" fitting. This will allow the shavings to flow into the trunk much in the same manner as the flow of water into the city mains.

PLANER HINTS

If chip or snip appears at beginning of board:

1. Pressure bar may be set too low.
2. Chip-breaker may be set too high.
3. Upper infeed sectional roll may be set too high.
4. Lower infeed roll may be set too high.
5. Spring tension may be too light on pressure bar.

If chip or snip appears on end of lumber:

1. Pressure bar may be set too high - not even with cutting circle.
2. Lower outfeed roll may be set too high.
3. Upper outfeed roll may be set too low.
4. Lumber may not be butted.
5. Grain may be running against knives.

If knives tear out lumber:

1. Feed may be too fast.
2. Joint on knives may be too heavy.
3. Moisture content may be too high.
4. Cutter-head may be running too slowly.
5. Cutting angle may be too large.
6. Cut may be too heavy.
7. Grain may be running against knives.

If knives raise the grain:

1. Joint may be too heavy - a light joint is the best.
2. Feed may be too fast.
3. Cutting angle may be too large.
4. Head may be running too slowly.
5. Moisture content of lumber may be too high.
6. Cut may be too heavy.

If chip marks appear on lumber:

1. Blower system may not be strong enough.
2. Feed may be too fast.
3. May be loose connection in blower system - no suction.
4. Exhaust pipe may join at too large an angle to main blower pipe.

If panels are tapered across the width:

1. Planer bed may not be set parallel with cutter-head.
2. Grinding bar may not be set parallel with cutter-head.

If undesired pounded-glossy finish appears:

1. Knives may be dull.
2. Feed may be too slow.
3. Joint may be too heavy.

If washboard finish appears:

1. Knives may have been driven back into the head.
2. Machine may be completely out of adjustment.
3. Planer bed loose and rocking in ways.

If revolution mark shows up:

1. Knives may be ground poorly.
2. Knives may need jointing.

If lines appear at right angles to the knife marks:

1. Knives may have checked and nicked up by overgrinding and taking temper out of steel.
2. Chips may have wedged between rolls and tables.
3. Pressure bar may be dragging.

If stock twists in machine:

1. Pressure bar may be cocked.
2. Upper outfeed roll may be cocked.
3. Upper outfeed roll may have uneven spring tension on it.
4. Lower rolls may be cocked.

If knife lifters must be replaced frequently:

1. Jack screws may not be tight in slots and knives drive back, shearing the lifters.

If stock sticks or hesitates in machine:

1. Pressure bar may be set too low.
2. Lower rolls may be set too low.
3. Upper rolls may not be set low enough.
4. Cut may be too heavy.
5. Coaxer board may help lumber through machine.

If machine is noisy, vibrates and pounds:

1. Knives may be too dull.
2. Machine may not be levelled up correctly.
3. Machine may not be on solid foundation.
4. Pressure bar may be set too low.

If motors kick out:

1. Knives may be dull, thus overloading motors.
2. Pressure bar may be set too low, putting drag on motors.
3. Motor may be drawing high current because other machinery in the plant in use has pulled down the voltage.
4. Machine may be out of adjustment.
5. Lower rolls may be set too low.

REPLACEMENTS PARTS

IMPORTANT: Always give part number and description of each item when ordering. Also give serial No. and size of planer.

Part N ^o	Description	Qty	Part N ^o	Description	Qty
BASE & SIDES ASSEMBLY			TABLE ASSEMBLY		
331	Base	1	Oilite Bushing	No. AA-1213 (1" x 1-1/4" x 1-1/2")	1
332	R. Side	1	Bearings	No. W-1 (Fisher)	6
333	L. Side	1	Tinnerman Nut	No. C 9971-1420	2
3328	Table screw	2	Miter gear	No. SM-1025-C	6
3328-A	Collar	2	Bevel gear	No. CB-1248	4
3330	Cover	2	Bevel gear	No. SB-1224	1
3335	Gear Shaft	1			
3336	Handwheel shaft	1			
3337	Handwheel	1	334	Table	1
3339	Motor Base	2	334-1	Table guide	4
3340	Motor pin	1	3322	Front Lower Roll	1
3363	Motor Pulley (1800 Rpm) Deleted	1	3322-1	Sprocket (15 teeth)	1
3363-A	Motor Pulley (3600 Rpm)	1	3323	Rear Lower Roll	1
3371	Cover (Base)	1	3323-1	Sprocket (12 teeth)	2
3372	Cover (Base)	1	3324	Lower Bearing	2
3373	Cover (Slides)	2	3325	Lower Bearing	2
3374	Belt guard	1	3327	Gib	2
3375	Belt guard cover	1	3329	Nut	2
3381	Collar	1	3365	Idler Roll	2
3387	Stud	1	3369	Idler Roll	4
3390	Guard	1	3370	L. Idler Roll Bracket	2
437-13	Handle	1	3370-A	R. Idler Roll Bracket	2
437-14	Handle shaft	1	Oil hole Cover	No. 523	4
Grooved pin			Grooved pin		
Type 1	1/4" x 1-3/4" lg.	4	Type 1	3/16" x 1/2" lg.	4
Bearings	No. R-6 (N.D.)	1	Oilite Bushing	No. AA-1324-1 (1-3/16" x 1-3/8" x 1-1/2" lg.	4
Oil hole cover	(No. 523 (Gits)	4			

