

Model 160 16" Planer

ALL MACHINES PERFORMANCE-TESTED BEFORE SHIPMENT

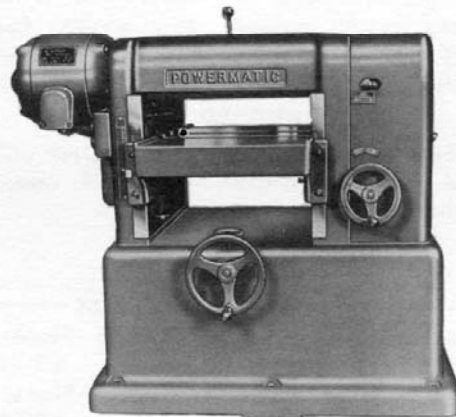
First to Offer Quik-Set Table Roll Adjustment as Standard Equipment!!

Equipped with Powermatic's exclusive micrometer-type Quik-Set table roll adjustment, the 160 adjusts planing from rough to finished stock and back again in seconds. Merely touch the Quik-Set knob to set the planing thickness you want, from 0" to .040". Setting is completely accurate and "stays put" until you re-set.

This is only one reason why the 160 is a sales leader in the entire Powermatic line. It is large enough to surface most common sizes of stock with superior precision and greater speed. It is rugged enough to withstand years of constant use in most cabinet, school, pattern, sample and millwork shops. Too, it's rapidly becoming a favorite in many industrial plants.



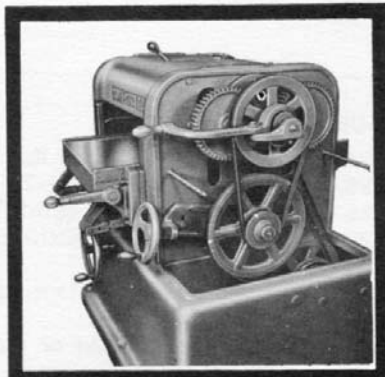
Model 160-D, Direct Drive



Model 160-B, Belted Drive
T.E.F.C. Motor Standard

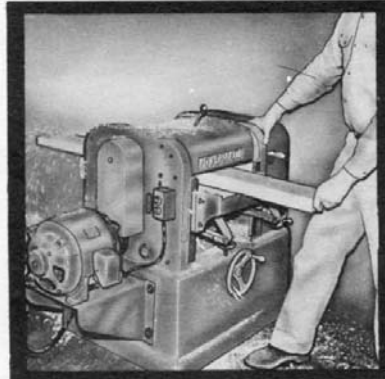
Belted Drive Assembly

is simple, yet completely dependable. Note variable speed feed pulley, lower right, and compound sheaves and V-Belts which eliminate transmissions and gear boxes. Heavy cut gears drive feed rolls.

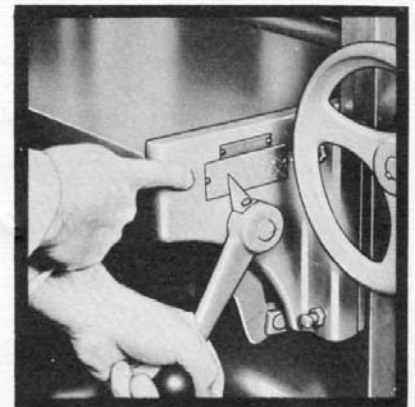


Feed Speed Adjustable

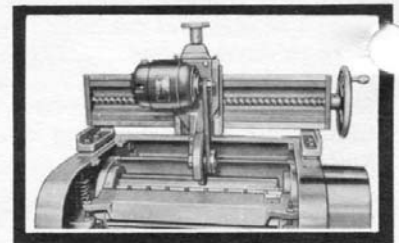
to from 15 to 37 feet-per-minute with variable speed pulley. Sets quickly for every stock or production requirement.



"Rough" to "Finished" in Seconds—Exclusive Quik-Set Table Roll Adjustment offers lever-controlled instant change from 0" to .040". Setting cannot drift.



Knife Grinder and Jointer (optional) bolts directly to frame. Easily removable grinder and jointer assembly glides along extra heavy 6" precision ground bar and is guided by steep-pitch screw which prevents blade burning.



Model 160 16" Planer

FEATURES

FRAME: Precision machined from extra heavy cast iron. Extra wide side panels with gibs offer rigid bed support. One-piece 38" x 28" cast iron base.

BED: 16" x 31½", accurately machined with extra heavy rib-reinforcing for perfect alignment always. Bed raises and lowers on large acme-thread screws mounted on enclosed thrust bearings.

Convenient hand-wheel adjusts bed through full 6" range with 1/16" movement upon each complete turn. Adjacent front-mounted gauge is calibrated for quick, easy reading.

CUTTERHEAD: Safety-type, milled from high carbon steel and fitted with 3 high-speed knives. Mounted in over-size, sealed ball bearings, the entire cutterhead unit may be lifted free by removing drive pulley and three locking screws from flange mounting.

Operating speed is 4600 RPM (belted) with 13,800 cuts-per-minute (50 knife-cuts-per-inch) at 20 feet-per-minute feed rate. Direct drive operating speed of 3600 RPM yields 10,800 cuts-per-minute (40 knife-cuts-per-inch) at 20 feet-per-minute feed rate.

See Knife Adjustment feature on page 38.

FEED ROLLS: Milled from carbon steel, 2 3/16" in diameter with mounting yield of 5/8". Driven through over-size cut gears by V-belts from cutterhead spindle.

PRESSURE BAR: Mounted concentric to cutterhead and fitted

extremely close to knife-cutting circle. The bar has extra wide foot for long wear and can be adjusted for perfect alignment while machine is in operation.

CHIPBREAKER: Swings concentric to cutterhead and mounted just forward of the knife-cutting circle. Extra wide, accurately machined foot assures longer wear and top quality finish.

POWER FEED CONTROL: Variable speed pulley affords a complete range of feed from 15 to 37 feet-per-minute.

STOCK CAPACITY: Surfaces stock up to 16" wide and from ½" to 6" thick.

DRIVES: Belted drive (Model 160-B) cutterhead is driven by V-belts from motor mounted on the side of machine.

Direct drive (Model 160-D) cutterhead is driven by motor mounted directly to the cutterhead shaft.

POWER: 3-HP motor is recommended for light and medium work, such as pattern shops, schools, etc. 5-HP motor is recommended for heavier requirements and production work. 1 or 3-phase motors. **Direct drive (Model 160-D) cannot be furnished with 5-HP 1-phase motor.**

KNIFE GRINDING AND JOINTING ATTACHMENT: (Optional). Mounted on extra heavy 5½" bar, precision ground for extreme accuracy. Grinder and jointer may be easily removed from permanently mounted grinder bar when not in use. ¼-HP, 110V. motor.

PLANER LESS MOTOR: 3 high-speed steel knives, sealed ball bearing cutterhead, Jack screws, cutterhead pulley, motor mount base, set of wrenches and quik set table roll adjustment—Less motor, motor pulley, belts, switches, wiring and belt guard.

PLANER WITH MOTOR: Same as Less Motor Unit, except with motor, motor pulley, belts, belt guard, magnetic controls with overload, low voltage and no voltage protection, and separate push button start station.

STANDARD EQUIPMENT

STANDARD MACHINES

- 160-10**—160-D Powermatic 16" x 6" Single Surface Planer, with three-knife round safety cutterhead mounted in heavy-duty precision ball bearings. Direct Motor Drive. 3-HP, 1-phase, 220-volt 60 cycle motor. (Specify motor characteristics when ordering). Variable speed of 15 to 37 feet-per-minute. Motor includes magnetic starter with under and overload voltage protection and push-button station.
- 160-11**—160-D, same as 160-10 except 3-HP 3-phase 220/440-volt 60 cycle Direct Drive Motor.
- 160-13**—160-D, same as 160-10, except 5-HP 3-phase 220/440-volt 60 cycle Direct Drive Motor.

- 160-01**—160-B, same as 160-10, less cutterhead drive motor, equipped with V-pulley on cutterhead shaft.
- 160-02**—160-B, same as 160-10, except 3-HP 1-phase 220-volt 60 cycle Belted Drive Motor.
- 160-03**—160-B, same as 160-10, except 3-HP 3-phase 220/440-volt 60 cycle Belted Drive Motor.
- 160-04**—160-B, same as 160-10, except 5-HP 1-phase 220-volt 60 cycle Belted Drive Motor.
- 160-05**—160-B, same as 160-10, except 5-HP 3-phase 220/440-volt 60 cycle Belted Drive Motor.
- 160-06**—160-B, same as 160-10 except 7½-HP, 3-phase, 220/440-volt, 60 cycle Belted Drive Motor.

OPTIONAL ACCESSORIES

- 160-20**—Extra set of knives (3), high speed steel. Wt. 2½ lbs.
- 160-21**—Shaving hood (6" outlet size). Wt. 15 lbs.
- 160-22**—Extra heavy duty Knife Grinding and Jointing Attachment with indexing mechanism. Wt. 90 lbs.
- 160-23**—2-Groove B-section Motor Pulley for 3450 RPM motor. Wt. 3 lbs.

- 160-24**—2-Groove B-section Motor Pulley for 1725 RPM Motor. Wt. 2 lbs.
- 160-25**—Belt Guard for 3450 RPM Motor. Wt. 6 lbs.
- 160-26**—Belt Guard for 1750 RPM Motor. Wt. 6 lbs.
- 160-28**—JIC electricals for 5 to 7½-HP

SPECIFICATIONS

Bed.....16" x 31½"
Cutterhead (3-knife) cutting arc.....4"
Recommended cutterhead speed,
Belted drive.....4600 RPM
Direct drive.....3600 RPM
Knives, 3, high speed
steel.....16" x 1¼" x 5/32"
Feed rollers.....2 3/16" dia.
Bed rollers.....2" dia.
Variable speed feed
range.....15 to 37 FPM
Knife cuts per minute,

Belted drive.....13,800
Knife cuts per minute,
Direct drive.....10,800
Maximum depth of cut.....½"
Stock thickness range.....½" to 6"
Widest planable stock.....16"
Shortest planable stock, butted.....4"
Shortest planable stock,
not butted.....13"
Motors recommended for:
Light & medium work.....3 to 5-HP
Heavy duty work.....7½-HP

Weight, net, less motor.....1000 lbs.
Weight, net, with motor.....1100 lbs.
Weight, Domestic crated,
less motor.....1110 lbs.
Weight, Domestic crated,
with motor.....1230 lbs.
Weight, export boxed
less motor (50 cu. ft.).....1225 lbs.
Weight, export boxed
with motor (63.9 cu. ft.).....1360 lbs.

OPERATING INSTRUCTIONS

AND

PARTS LIST

Model 160-16" Planer

POWERMATIC, INC.

McMINNVILLE, TENNESSEE

FOR SERIAL NUMBERS FROM 0-9925 UP

I OPERATING INSTRUCTIONS

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II PARTS LISTS

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I. GENERAL SET-UP AND ALIGNMENT

1. RECEIVING

Uncrate and check for shipping damage. Clean all coated and greased surfaces. Read instructions thoroughly. Locate all lubrication points; adjustment; methods of drive.

2. MOUNTING

Mount machine securely to solid foundation. Concrete base mounting preferred. Locate in clean, dry and well ventilated building if possible. Motor and electrical connections should be protected when not in operation or if exposed to weather elements.

3. EXHAUST SYSTEM

Recommended as a must if efficient production operation is required. Not a necessity where limited amount of operation being performed and machine can be kept clean of shavings.

4. INSPECTION

The above machine requires the minimum amount of attention in service. Periodic or regular inspections are recommended to insure machine is in proper adjustment, positive electrical connections; worn or loose "V" belts and bearings heating or loose.

5. BEFORE OPERATING

Check motor nameplate date or wiring diagram of motor and switch for proper voltage connection before wiring into line. Run motor without load to check the connections and direction of rotation. Always refer to motor nameplate for rotation connections.

II. LUBRICATION

1. The cutterhead and variable speed pulley are mounted in sealed bearings and do not require any lubrication.

2. GREASE LUBRICATION

The clutch, table and feed rollers are equipped with pressure gun fittings and must be lubricated regularly every twenty-five hours of operation with a good grade High Speed Ball Bearing grease. Also, the feed drive gears should be surfaced greased with the same grease.

3. OIL LUBRICATION

The surface fittings, bed ways, handwheel drive shaft gears and thrust screws should be lubricated regularly every ten hours of operation with oil equivalent to SAE 10. A light film of oil on the table when not in use will prevent rusting.

III. OPERATING ADJUSTMENTS

PLANER BED:

The planer bed mounts in the main frame panels and is raised and lowered on acme screws mounted in thrust bearings. The screws are operated through gears by a large handwheel (1) on the front of the Planer.

The planer bed is held rigid between frames by shims on each side of the bed and is adjusted with two jack screws (12) that can be tightened against the shims. These shims should be adjusted tight enough to prevent rocking or moving when material is fed through the Planer but not tight enough to prevent raising or lowering of the table.

If planer bed rocks when the machine is in operation, dips will appear in the material being planed. The planer bed

must be level with the cutterhead. Check this by lowering the bed to permit placing a small jack-screw type gauge (or small square block) between the bed and the cutterhead at the extreme right side of the bed. Raise bed with handwheel (1) until the screw gauge or block just touches the cutterhead. Move the block to the left side of the table and check under the cutterhead. If the bed is not level with the cutterhead, the bed can be raised or lowered by loosening the set screw in bed nut (11) and turning to the right or left to raise or lower the bed to the proper height—lock the bed nut with the set screw.

PLANER BED IDLER ROLLERS:

Adjusting screws (14) for planer bed idler rollers are located directly under the bearings. Adjust from .000 to .010" above bed level for planing smooth or dry material, .010" to .015" for medium rough and .025" to .035" for rough sawed or green material. Keep rollers adjusted to same height at each end. When rollers are set too high, a snipe or bite will appear at the ends of planed material. If set too low feeding will be restricted due to friction on planer bed.

(WITH QUIK-SET ADJUSTMENTS)

Planer bed rollers are adjusted to the proper height with a quik-set handle mounted on the right side of the planer bed. The height of the rollers in relation to the bed surface is indicated by a graduated dial and pointer on the quik-set handle. If table rollers do not correspond with the height indicator scale, adjustments can be made by loosening the set screw (26) fig. 4 in the roller adjusting arms. Set indicator pointer at zero on the gauge and turn adjusting screws (27) until the bed rollers are level with the planer bed. To plane rough lumber, set quik-set indicator on .030", for medium rough .010" to .015" and for finished lumber .000" to .010". Set the rollers high enough so that the lumber will feed through the machine without hesitation.

POWER DRIVEN FEED ROLLS:

The power driven corrugated infeed roller (7) and smooth outfeed roller (25) are gear driven through V-belts arrangement from cutterhead shaft. The feed roller bearing housings are floating type and held against the feed roller adjusting screws (14) by means of adjustable pressure springs (22). The feed rollers should be adjusted to set approximately 1/16" below arc of the cutterhead knives. A gauge or block may be used to assure proper height. To set feed rolls, lower planer bed about 3" below arc of cutterhead. Place gauge or wooden block directly under cutterhead and turn head until one knife is down. Raise planer bed until block is 1/16" below knife edge. Check the roller to see that each end is the same. Too much pressure on infeed corrugated roller will leave markings on material. Too little pressure will restrict feed.

CHIPBREAKER:

The chipbreaker is a three piece type which mounts and adjusts concentric with cutterhead. The chipbreaker adjusting screws (6) should be adjusted to allow chipbreaker to set 1/16" below level of infeed corrugated feed roller.

PRESSURE BAR:

The pressure bar is a three piece type which mounts and adjusts concentric with cutterhead. The pressure bar should be set equal to the arc of the cutterhead. One

method is to feed a wide board about four feet long half way through the machine. Stop the feed with the clutch and set the holddown bar so that it just touches the board. To set the pressure bar, loosen both top and bottom lock nuts on adjusting studs (24), adjusting the bar with the adjusting bar and lock in place with the locking nuts. Remember, the pressure bar is the most IMPORTANT adjustment on the Planer. If the pressure bar is too high, cutterhead knives will snipe beginning end of material; if set too low, the material will not feed through machine.

MATERIAL THICKNESS GAUGE:

To set the indicator on the material thickness scale (11) to indicate properly after changing knives, loosen the screw in the planer bed that holds the brass pointer and set to the thickness the material measures when planed or fed through the machine. The hole that mounts the brass pointer is slotted and will permit proper adjustment.

CUTTERHEAD:

The cutterhead is equipped with three knives held in position with the lock shims and set screws (18). Knives must be adjusted to set evenly and level in the cutterhead. Before removing knives from cutterhead, the knife gauge should be adjusted to the height of the knives so the height of the knives will not be changed relative to the other parts of the head when the knives are replaced. The feed rollers, chipbreaker and pressure bar are adjusted to the arc of the knife cut. If the height of the knives are

raised or lowered, the feed rollers, chipbreaker and pressure bar should be adjusted accordingly. Knives should not protrude more than 3/32" beyond radius of cutterhead. When replacing knives after sharpening, place the "jack screw" studs in place making sure the "step" will act as a seat for the knife. Drop knife and shim into cutterhead slot so that the beveled edge of knife is just below the surface of the head. Tighten the two outside knife shim screws just enough to hold the knives snugly in the head. With knife setting gauge in place over one extreme end of the head, turn the allen screw in "jack screw" plugs, raising knife until knife touches stop on knife setting gauge. Repeat operation on other end of the cutterhead. **Next**, tighten the center knife locking shim bolt. Set the other knives in the cutterhead **before** tightening remainder of the shim bolts. After the knives have been set, final locking of knives should be done by rotating cutterhead and locking all shims uniformly. **CAUTION**—If one knife is locked tightly before the others, it may spring the cutterhead and cause vibration or uneven knife height.

KNIFE CARE:

VERY IMPORTANT—knives must be kept sharp. The knives do all the work and they will not do satisfactory work if they are **DULL**. The sets of knives are matched and balanced at the factory. When the knives are sharpened, care should be taken that they are kept in balance.

SAFETY RULES

1. When setting up planer for operations, make certain knives are sharp and cutterhead is balanced. It is very dangerous to work with dull and improperly set tools.
2. Check to see that knives are locked securely in cutterhead.
3. Planer table should be free from tools or material except stock to be cut.
4. After setting machine for depth of cut and starting planer, stand to left of machine as material is fed into cutterhead. "Kickbacks" are **extremely** dangerous, so **never** stand behind or in line with material being planed.
5. Keep machine and area around machine clean and free of scraps, sawdust, oil or grease. A dust collecting system is highly recommended for proper and safe planer operation.
6. Always stop machine before making adjustments unless they can be made in complete safety without shutting off power.
7. **NEVER** attempt to "clean" machine of dust or shavings while unit is running. This is especially dangerous in the outfeed area of the planer.
8. Do not reach over planer. Have a helper or "tail man," or walk around machine to take away stock.
9. Roll up your sleeves or wear a shop coat with tight fitting and rather short sleeves. Tuck in your necktie and do not wear gloves. Loose-fitting, torn or ragged clothing is dangerous.
10. Never grind knives under 7/8". Trying to "squeeze" another sharpening from an old set of knives may result in serious injury to operator or helper. Knives shatter and fly with bullet force when thrown from cutterhead.
11. Never "horse" around when running this machine. Give it your undivided and uninterrupted attention.
12. If material "stalls" in machine; shut off power and wait for machine to stop before lowering table to remove board.

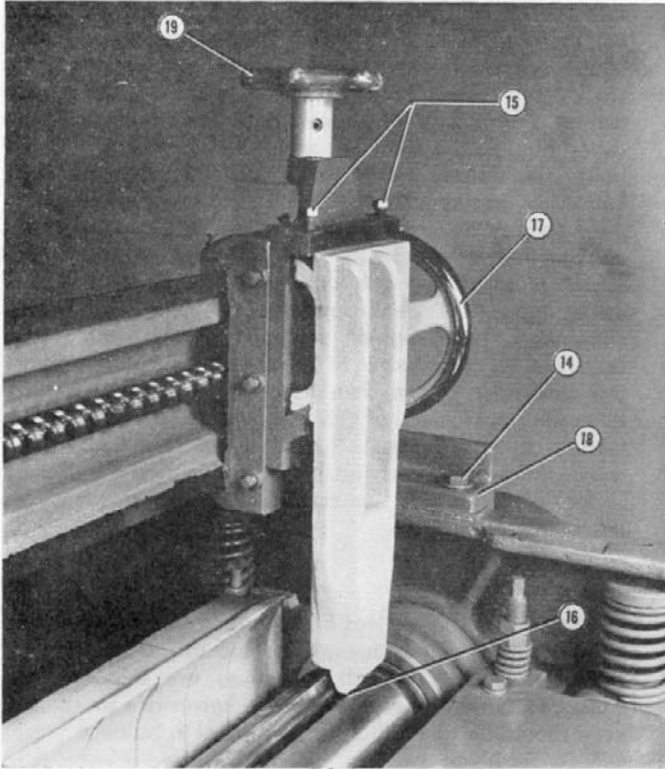


Figure 4

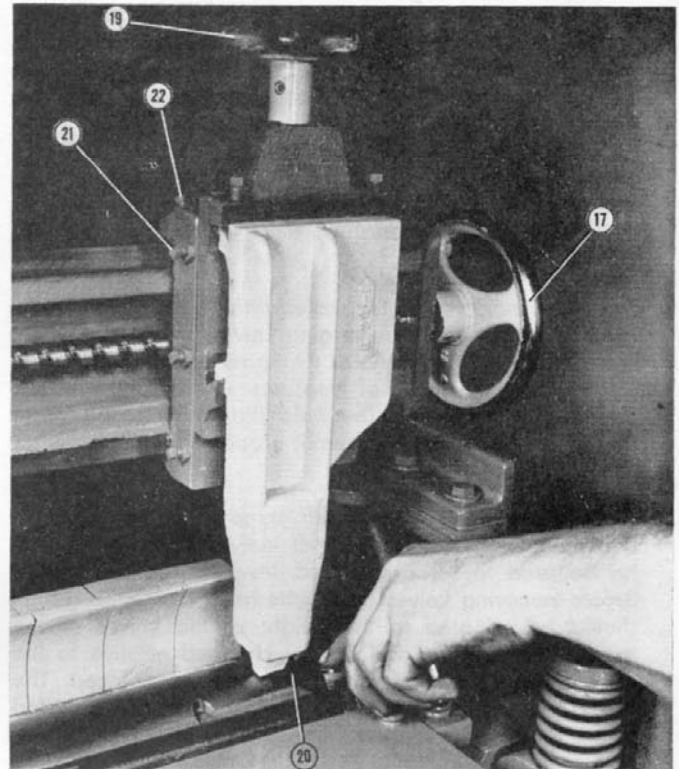


Figure 5

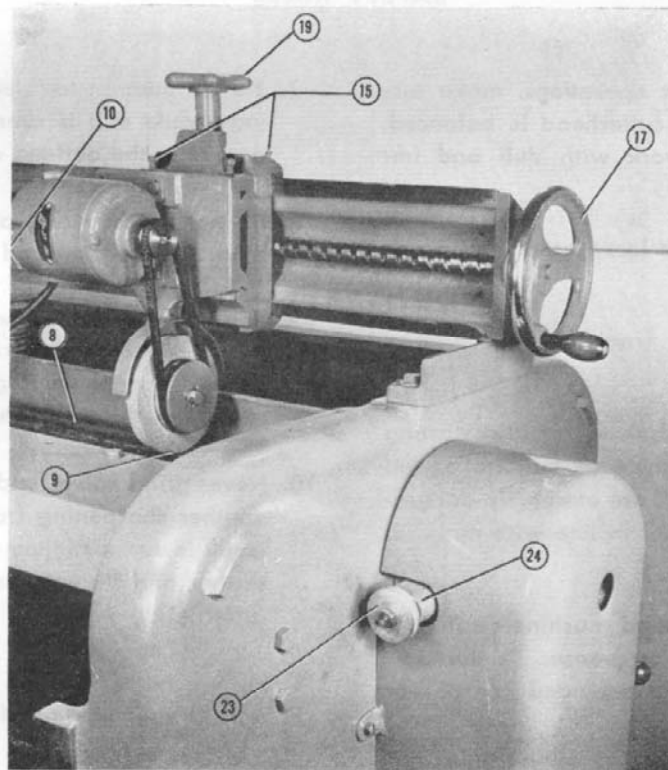


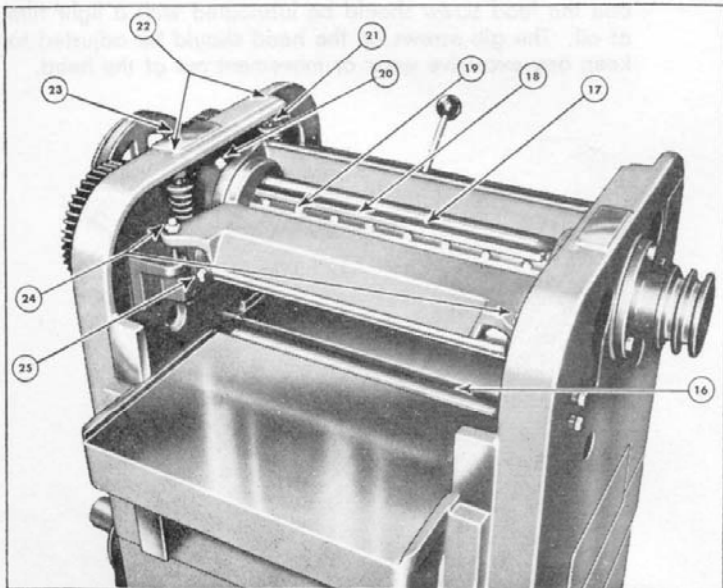
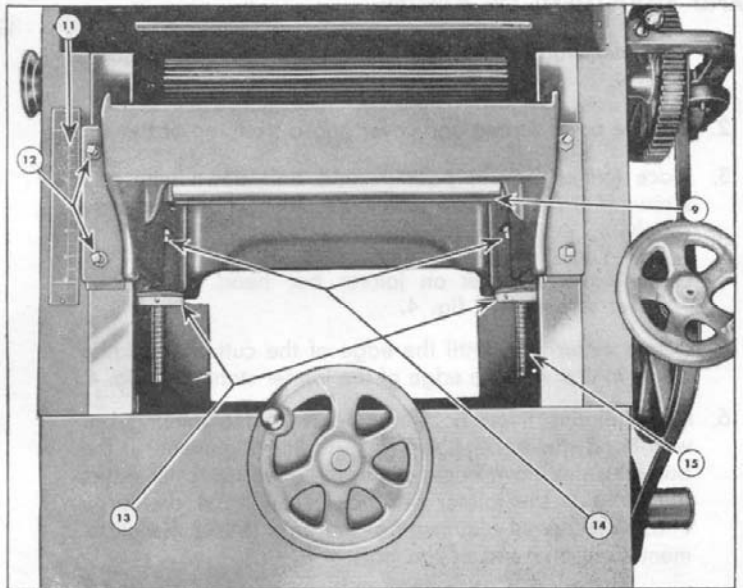
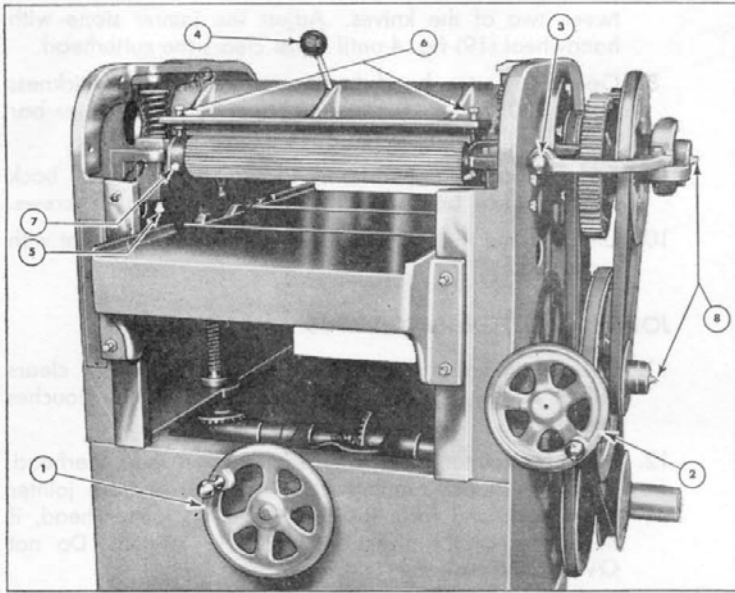
Figure 6

IV. INSTRUCTIONS FOR ADJUSTING AND OPERATING THE 160-16" KNIFE GRINDER AND JOINTER

JOINTING AND GRINDING PROCEDURE

The first and most important step is to JOINT the knives from GRIND them. Jointing knives first assures uniform knife height. The knives are fastened in a round head and the cutting is done in one by the front edge of the knife. Even though knives are installed with a micrometer gauge, an absolute uniformity of height cannot be obtained and maintained. The knives should all be jointed and of edges are uniform. The jointing process actually shapes the knives. After jointing, the jointer head is removed and grinding head installed. The excessive joint is then ground from the level of the knife edge.

INSTALLATION OF GRINDING BAR



IV. INSTRUCTIONS FOR ADJUSTING AND OPERATING THE 160-16" KNIFE GRINDER AND JOINTER

JOINTING AND GRINDING PROCEDURE:

The first and most important step is to **JOINT** the knives, then **GRIND** them. Jointing knives first assures uniform knife height. The knives are fastened in a round head and the cutting is done in an arc by the front edge of the knife. Even though knives are installed with a micrometer gauge, an absolute uniformity of height cannot be obtained and maintained. The knives should all be jointed until all edges are uniform. The jointing process actually sharpens the knives. After jointing, the jointer head is removed and grinding head installed. The excessive joint is then ground from the bevel of the knife edge.

INSTALLATION OF GRINDING BAR AND ADJUSTMENT OF JOINTER:

1. Carefully study illustrated numbers on pictures (Figures 4, 5, 6).
2. Remove cover screws and cover guard from top of Planer.
3. Place jointer bar in position and bolt down with cap screws (14) fig. 4. Cap screws should be tightened very snugly.
4. Place jointer bracket on jointer bar head and fasten with set screws (15) fig. 4.
5. Rotate cutterhead until the edge of the cutterhead knife slot is in line with the edge of the jointer stone (16) fig. 4.
6. Move jointing head back and forth on the jointing bar with handwheel (17) fig. 4 for parallel alignment. If the bar does not move in exact parallel with the knife edge, the holes in the jointer bar base (18) fig. 4 are large enough to permit alignment of the bar. (Make the alignment from one end of the bar).
7. When jointer bar is in alignment, cap screw (14) fig. 4 should be securely tightened. To level jointer bar with cutterhead, rotate cutterhead until jointer stone is be-

tween two of the knives. Adjust the jointer stone with handwheel (19) fig. 4 until it just clears the cutterhead.

8. Operate jointer head back and check with thickness gauge (20) fig. 5, or piece of paper to see if jointer bar is level with cutterhead.
9. To level bar with cutterhead, loosen cap screws on back of jointer bar bracket and adjust with adjusting screws.
10. Check to see if jointing head is in parallel alignment with cutterhead.

JOINTING CUTTERHEAD KNIVES:

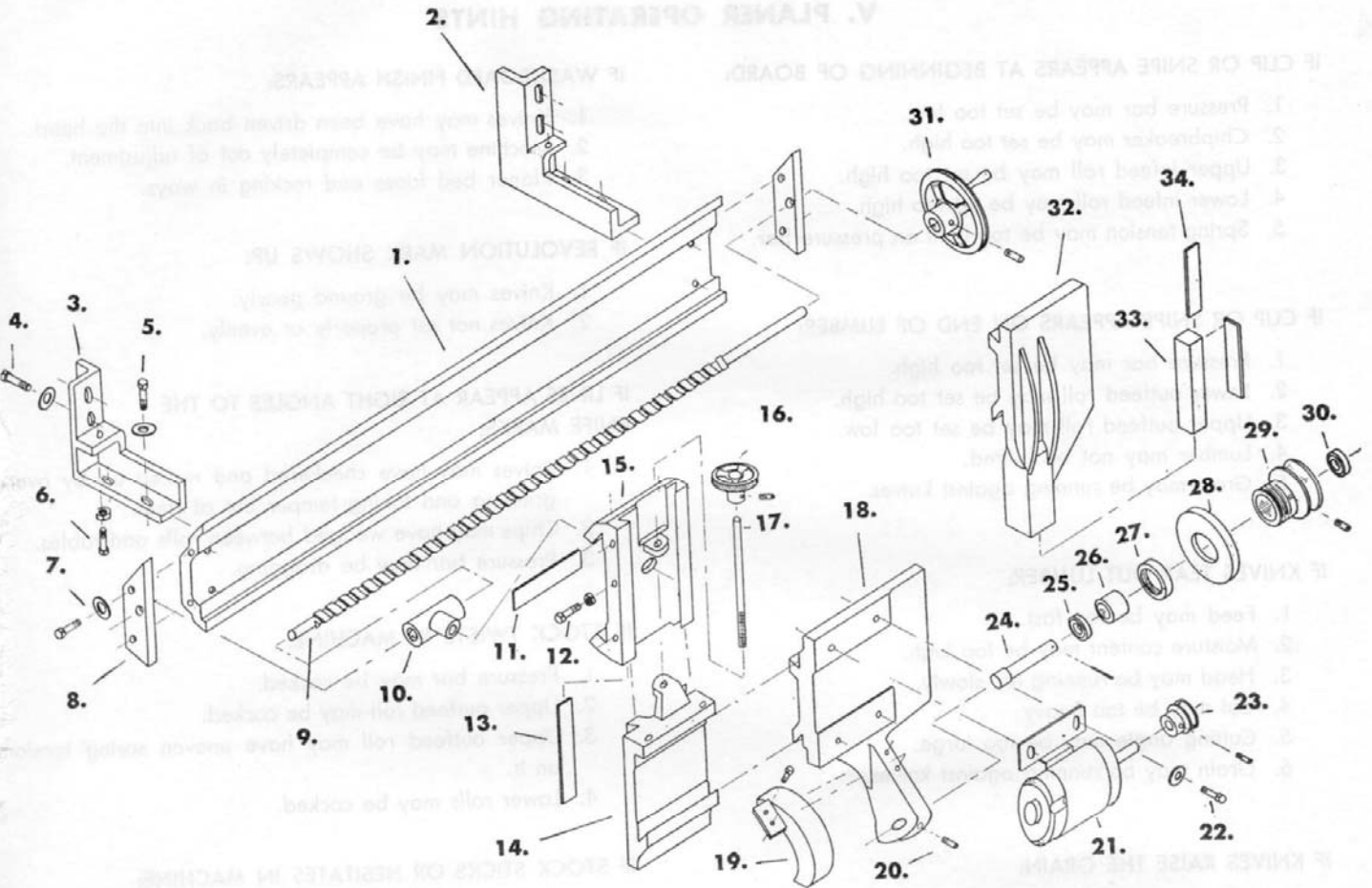
11. To joint knives, adjust jointer stone until it just clears knives evenly, lower jointer stone until it just touches knives.
12. Move the jointer head to a position past the cutterhead. With the Planer running at full speed, operate jointer head back and forth **RAPIDLY** lowering jointer head, if necessary, until knives are properly jointed. Do not **OVERJOINT** knives.

GRINDING CUTTERHEAD KNIVES:

Mount grinding attachment on jointer bar and secure in place with set screws (15) Fig. 4. Lock cutterhead in place for knife grinding with cutterhead lock (23) Fig. 6. Turn the knob (23) until the pin in the casting (24) enters the hole in knob (23). Turn the cutterhead by hand until the cutterhead is locked in place. Turn grinding wheel (9) Fig. 6 until the wheel very lightly touches knife (8) Fig. 6.

Move the grinder (9) to position past the cutterhead knives with handwheel (17). Start grinder motor with switch (10) Fig. 6, set grinding wheel to take cut, and with hand wheel (17) rapidly move grinder back and forth. Be sure to move grinder fast enough to prevent burning of the knives. Knives should always be ground after jointing, leaving a very slight joint on the knife edge. Each knife should be finished before moving to the next knife. Care should be taken to keep all knives the same weight. Knives out of balance will cause excessive vibration of the cutterhead.

Before operating the grinder, the ways on the grinder bar and the lead screw should be lubricated with a light film of oil. The gib screws on the head should be adjusted to keep any excessive wear or movement out of the head.



KNIFE GRINDING AND JOINTING ATTACHMENT PARTS LIST

	No. Required		No. Required
1. Bar, grinder	1	18. Bracket, grinding wheel	1
2. Mounting bracket, grinder bar, L. H.	1	19. Guard, grinding wheel	1
3. Mounting bracket, grinder bar, R. H.	1	20. Set screw, wheel shaft	1
4. Bolt, grinder bar mounting	4	21. Motor	1
5. Bolt, grinder bracket	4	22. Bolt, motor mounting	4
6. Bolt, bar adjusting	2	23. Sheave, motor drive	1
7. Washer, lead screw bearing bracket	4	24. Shaft, grinder	2
8. Bolt, lead screw bearing bracket	4	25. Ball bearing, shaft	1
9. Lead screw	1	26. Spacer, shaft	1
10. Nut, lead screw	1	27. Nut, grinding wheel	1
11. Shim, grinder cross slide	1	28. Grinding wheel	1
12. Screw, gib adjusting	8	29. Wheel hub & pulley	1
13. Shim, grinder vertical slide	1	30. Ball bearing, shaft	2
14. Slide, grinder vertical	1	31. Handwheel, screw	1
15. Slide, grinder	1	32. Head, jointing	1
16. Handwheel, vertical adjusting screw	1	33. Stone, jointing	1
17. Screw, vertical adjusting	1	34. Shim, jointing stone	1

V. PLANER OPERATING HINTS

IF CLIP OR SNIPE APPEARS AT BEGINNING OF BOARD:

1. Pressure bar may be set too low.
2. Chipbreaker may be set too high.
3. Upper infeed 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 CLIP OR SNIPE APPEARS ON END OF LUMBER:

1. Pressure bar may be set too high.
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. Moisture content may be too high.
3. Head may be running too slowly.
4. Cut may be too heavy.
5. Cutting angle may be too large.
6. Grain may be running against knives.

IF KNIVES RAISE THE GRAIN:

1. Feed may be too fast.
2. Cutting angle may be too large.
3. Head may be running too slowly.
4. Moisture content of lumber may be too high.
5. 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 out of level with cutterhead.
2. Knives not set even with cutterhead.

IF UNDESIRE POUNDED GLOSSY FINISH APPEARS:

1. Knives may be dull.
2. Feed may be too slow.

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 not set properly or evenly.

IF LINES APPEAR AT RIGHT ANGLES TO THE KNIFE MARKS:

1. Knives may have checkered and nicked up by over-grinding 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 STOCK STICKS OR HESITATES IN MACHINE:

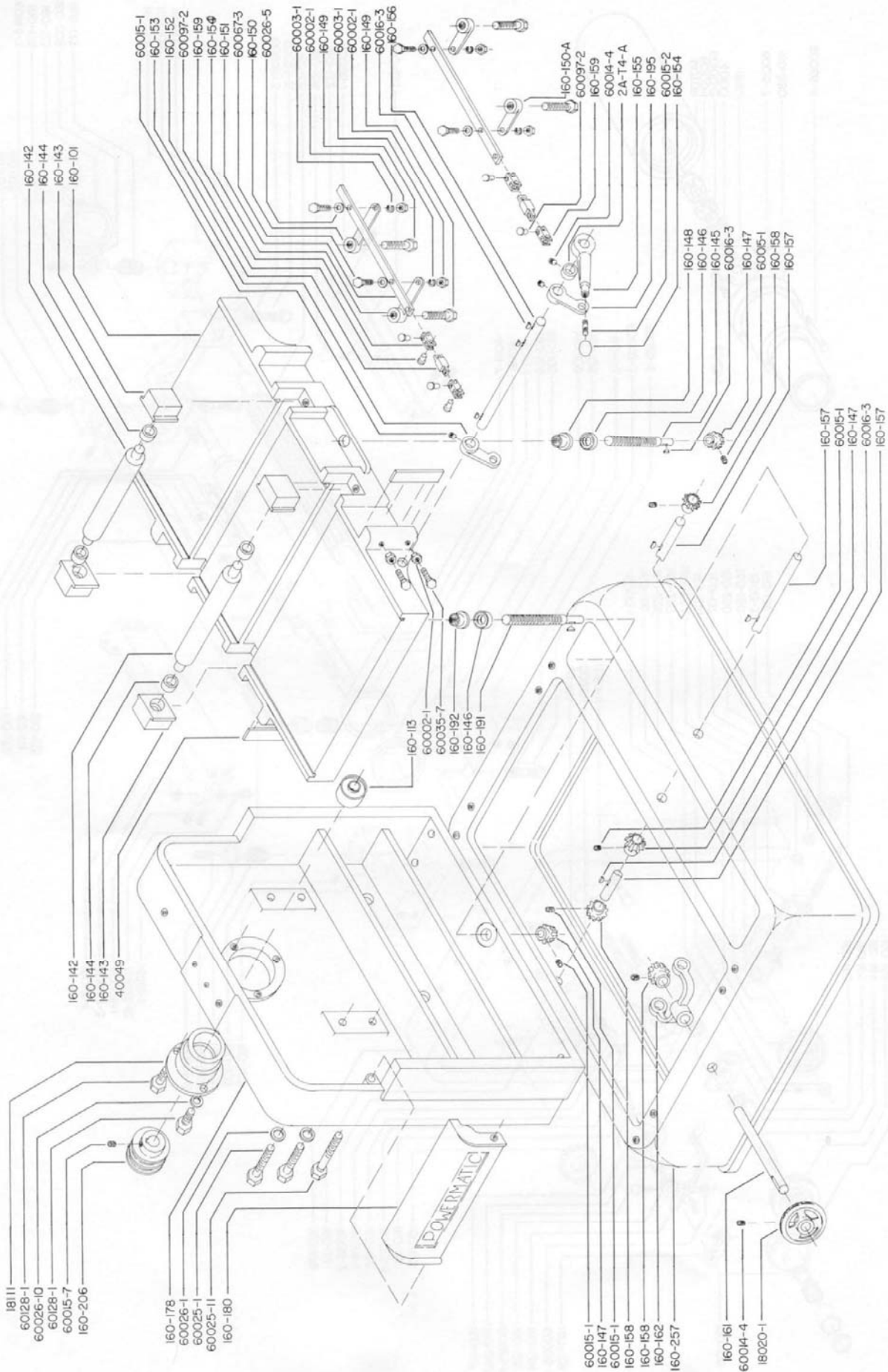
1. Pressure bar may be set too low.
2. Lower rolls may be set too low.
3. Upper rolls may not be set low enough.
4. Cut may be too heavy.
5. Coaxer board may help lumber through machine.

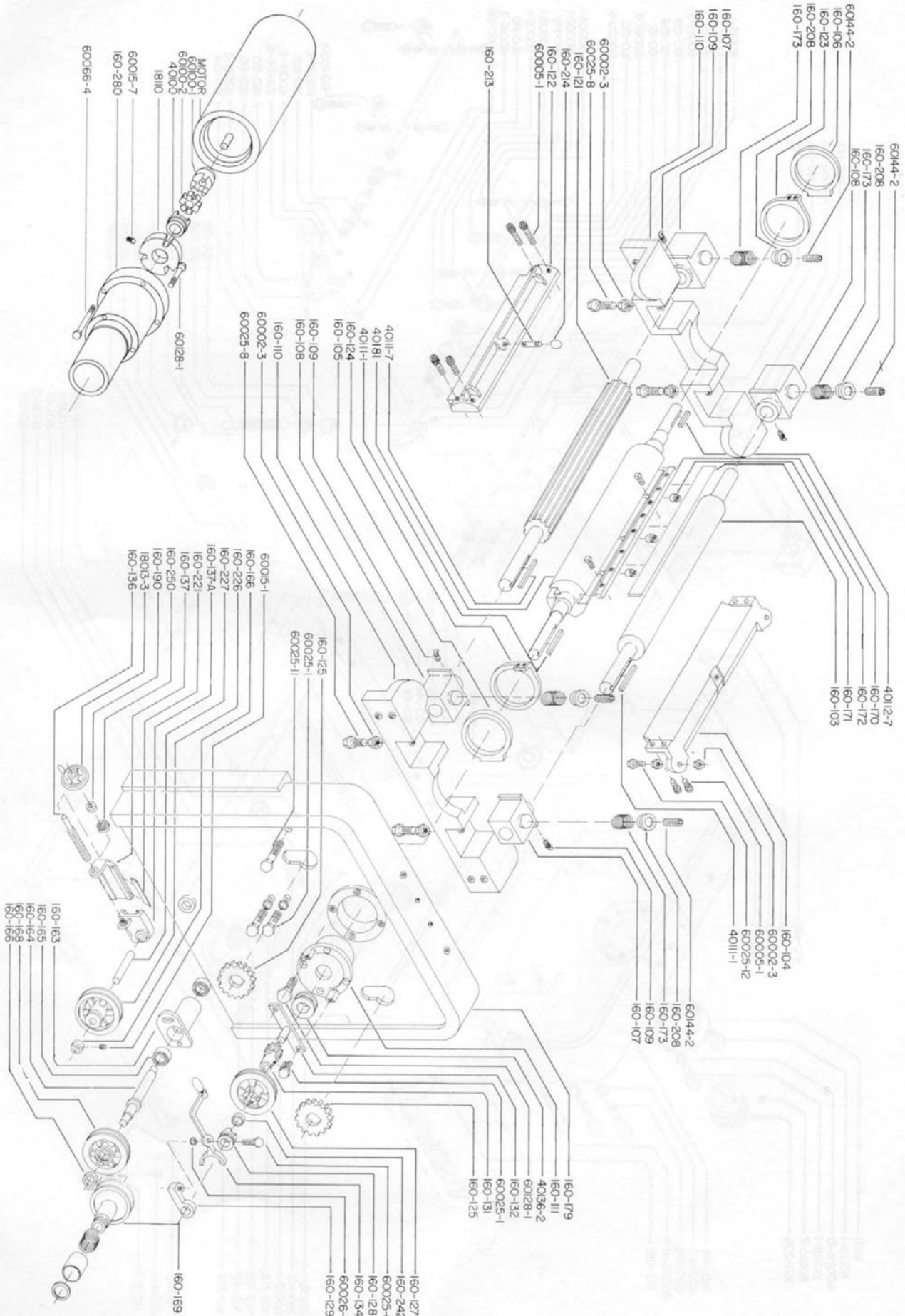
IF MACHINE IS NOISY AND VIBRATES AND POUNDS:

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

IF MOTOR KICKS OUT:

1. Knives may be dull, thus overloading motor.
2. Pressure bar may be set too low, putting drag on motor.
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.





160 PLANER PARTS LIST

PARTS NO.	DESCRIPTION	NO. REQUIRED	PARTS NO.	DESCRIPTION	NO. REQUIRED
160-101	Table, Planer	1	160-161	Shaft, Handwheel	1
160-103	Roller, Outfeed	1	160-162	Hanger, Handwheel	1
160-104	Pressure Bar, Holddown	1	160-163	Bearing Housing, V.S.	1
160-105	Hanger, Pressure Bar, RH	1	160-164	Shaft, V.S.	1
160-106	Hanger, Pressure Bar, LH	1	160-165	Bearing, V.S., Fafnir, 206K11	2
160-107	Bearing Housing, Infeed L Outfeed R	2	160-166	Collar, V.S. Shaft	2
160-108	Bearing Housing, Infeed R Outfeed L	2	160-168	Sheave, V.S. Drive Shaft	1
160-109	Grease Alemite, 1/4-28 x 45°	4	160-169	Pulley, V.S., Lovejoy, 1600 3/4 Bore	1
160-110	Rail, Feed Roller Bearing	2	160-170	Shim, Cutterhead Knife	3
160-111	Bearing Housing, Cutterhead R	1	160-171	Knife, Cutterhead	3
160-113	Bearing, Cutterhead, 462307 SKF	2	160-172	Knife Lifter	9
160-115	Dust Hood, 6"	1 (Not shown)	160-173	Spring, Feed roll Pressure, 1601	4
160-120	Bearing, Infeed Roller	2 (Not shown)	160-175	Guard, Cutterhead	1 (Not shown)
160-121	Infeed Roller	1	160-176	Guard, Feed Drive	1 (Not shown)
160-123	Chipbreaker	1	160-177	Bolt, Feed Drive Guard	2 (Not shown)
160-123	Hanger, Chipbreaker L	1	160-178	Side Panel L	1
160-124	Hanger, Chipbreaker R	1	160-179	Side Panel R	1
160-125	Gear, Feed Roller	2	160-180	Front Panel	1
160-127	Sheave, Clutch Drive	1	160-182	Guard, Cutterhead Pulley	1 (Not shown)
160-128	Clutch	1	160-190	Collar	1
160-129	Hanger, Clutch Handle	1	160-191	Screw, Table Raising	1
160-131	Pinion, Feed Roller Gear	1	160-192	Nut, Table Raising	1
160-132	Mounting Bracket Assy	1	160-195	Lever, Table Roller	1
160-134	Clutch Handle	1	160-197	Handle, Handwheel	1 (Not shown)
160-136	Screw, V.S. Adj.	1	160-206	Pulley, Cutterhead Drive	1
160-137	Mounting Bracket V.S.	1	160-203	Alemite, Grease, 1/4-29 Straight	6 (Not shown)
160-137-A	Slide V.S.	1	160-208	Cap, Pressure Spring	4
160-142	Table Roller	2	160-213	Handle Chipbreaker	1
160-143	Bearing, Housing Table Roller	4	160-214	Knob, Chipbreaker Handle	1
160-144	Bearing, Table Roller, Torrington, B1616-OH	4	160-221	Shim, V.S. Slide	1
160-145	Screw, Table Raising R	1	160-226	Compound Sheave	1
160-146	Bearing, NICE 607	2	160-227	Shaft, Compound Drive Sheave	1
160-147	Gear, Table Raising	3	160-242	Collar, Pinion	1
160-148	Nut, Table Raising Screw R	1	160-250	Bearing, V.S. Screw	1
160-149	Screw, Table Roller Adjusting L	4	160-251	Pulley, Motor	1 (Not shown)
160-150	Arm, Table Roller Adjusting L	2	160-257	Base	1
160-151	Bar, Table Roller Adjusting	2	160-280	Motor End Bell	1
160-152	Linkage Bar, Table Adjusting	2	18013-3	Handwheel V.S.	1
160-153	Lever, Table Roll Adjusting	1	18020-1	Handwheel, Table Raising	1
160-154	Knob	1	18110	Collar, Indexing	1
160-155	Handle	1	18111	Bearing Housing, Belt Drive L	1
160-156	Shaft, Table Roller Adjusting	1	40049	Shim, Table	1
160-157	Counter Shaft, Table Raising	1	40100	Cutterhead Coupling	1
160-158	Gear, Table Raising	3	40111-1	Key	2
160-159	Linkage, Table Roller Adjusting	4	40111-7	Key	4
			40112-7	Key	1
			40136-2	Pulley	1
			40181	Cutterhead	1
			2A-T4-A	Collar Q.S. Shaft	1
			60002-1	Nut, Hex, 5/16-18 Nc	
			60002-3	Nut, Hex, 3/8-16 Nc	
			60003-1	Washer, Lock, 5/16	
			60005-1	Screw, Socket Head Cap, 5/16-18 NC x 1	
			60014-4	Screw, Socket Set, 5/16-18 NC x 5/16	
			60015-1	Screw, Socket Set, 3/8-16 NC x 3/8	

160 PLANER PARTS LIST

PARTS NO.	DESCRIPTION	NO. REQUIRED	PARTS NO.	DESCRIPTION	NO. REQUIRED
60015-2	Screw, Socket Set, 3/8-16 NC x 1		60067-3	Screw, Hex Head, 5/16-18 NC x 1 1/4	
60016-3	Woodruff Key, 608		60097-2	Rivet, 5/16 x 7/8	
60025-1	Screw, Hex Head, 3/8-16 NC x 3/4		60100-1	Lovejoy, Coupling, L-100	
60025-6	Screw, Hex Head, 3/8-16 NC x 1 3/4		60100-2	Lovejoy, Coupling, L-100	
60025-8	Screw, Hex Head, 3/8-16 NC x 2		60128-1	Screw, Hex Head, 7/16-14 NC x 1 1/4	
60025-11	Screw, Hex Head, 3/8-16 NC x 2 1/2		60144-2	Screw, Socket Set, 1/2-13 NC x 1 3/4	
60025-12	Screw, Hex Head, 3/8-16 NC x 1 3/8		60015-7	Screw, Socket Set, 3/8-16 NC x 1/2	
60026-1	Washer, Flat, 3/8		60036-41	V Belt, 4 L 620	(Not Shown)
60026-5	Washer, Flat, 5/16		60036-50	V Belt, 5 L 440	(Not Shown)
60026-10	Washer, Flat, 7/16		60036-51	V Belt, 5 L 450	(Not Shown)
60035-7	Screw, Square Head, 5/16-18 NC		60036-55	V Belt, 5 L 500	(Not Shown)
60066-4	Bolt, Hex Head, 1/4-20 NC x 1 1/2				

PARTS LIST ON MODEL 160-16" PLANER

(EFFECTIVE MARCH, 1965)

PART NO.	DESCRIPTION	NO.	PRICE
160-101	Bed, Planer	1	85.50
160-102	Cutterhead, 3 3/4" Three Knife	1	125.00
160-103	Roller, outfeed 3 3/16"	1	14.00
160-104	Bar, holddown	1	15.00
160-105	Hanger, Holddown R.H.	1	4.00
160-106	Hanger, Holddown, L.H.	1	4.00
160-107	Bearing, outfeed roller, L.H.	1	5.00
160-108	Bearing, outfeed roller, R.H.	1	5.00
160-109	Grease fitting, outfeed roller	4	.25 ea.
160-110	Rails, feed roller bearing, R.H.	1	10.00
160-111	Housing, cutterhead bearing, R.H.	1	12.50
160-112	Housing, cutterhead bearing L.H.	1	12.50
160-113	Bearing, cutterhead (2) New Departure 87607 equivalent	2	7.50 ea.
160-114	Cap screw, cutterhead bearing	7	.10 ea.
160-115	Rail, feed roller, bearing, L.H.	1	10.00
160-116	Cap screw, feed roller bearing rail	6	.10 ea.
160-117	Shim, table adjusting gib	2	1.25 ea.
160-118	Screw & Nut table gib shim adjusting	4	.15 ea.
160-119	Bearing, infeed roll, L.H.	1	5.00
160-120	Bearing, infeed roll, R.H.	1	5.00
160-121	Infeed roll	1	16.00
160-122	Chipbreaker	1	17.00
160-123	Hanger, chipbreaker mounting L.H.	1	4.00
160-124	Hanger, chipbreaker mounting R.H.	1	4.00
160-125	Gear, feed roller driven	2	7.50 ea.
160-126	Pulley, feed drive	1	3.50
160-127	Drive Sheave, clutch	1	8.50
160-128	Clutch, collar driven	1	3.50
160-129	Hanger, clutch handle	1	3.00
160-130	Key, feed drive clutch	1	.10
160-131	Pinion, feed roller gear drive	1	4.00
160-132	Shaft & mounting bracket, feed drive	1	3.50
160-133	Key, feed roller drive gear	1	.10
160-134	Handle, clutch	1	4.50
160-134A	Handwheel, variable speed	1	2.50
160-135	Handwheel, variable speed, collar	1	1.00
160-136	Screw, variable speed	1	2.25
160-137	Mounting bracket, variable speed	1	4.50
160-137A	Slide, variable speed adjusting mounting	1	3.50
160-138	Belt, feed roller var. speed, No. 5L500	1	3.00
160-139	Belt, feed roller drive, No. 5L440	1	3.00
160-140	Belt, variable speed drive, No. 4L620	1	3.00

PARTS LIST ON MODEL 160-16" PLANER

(EFFECTIVE MARCH, 1965)

PART NO.	DESCRIPTION	NO.	PRICE
160-141	Bolt, variable speed slide mounting	2	.20ea.
160-142	Roller, table	2	8.50ea.
160-143	Bearing housing, table roller	4	2.00ea.
160-144	Bearing, table roller	4	1.25ea.
160-145	Screw, table raising (right hand)	1	4.50
160-146	Bearing, table raising screw thrust	1	2.00
160-147	Bevel gear, table raising screw	1	4.50
160-148	Nut, table raising screw (right hand)	1	3.50
160-149	Screw, quick set table roll height adj. left	1	2.25
160-150	Arm, quick set table roll height adjusting (right or left)	1	2.25
160-151	Operating bar, quick set table roll height adjusting	1	1.00
160-152	Link, quick set table roll height adjusting operating	1	.75
160-153	Lever, quick set table roll height adjusting operating bar	1	1.00
160-154	Knob, quick set operating handle	1	.60
160-155	Handle, quick set operating	1	.75
160-156	Shaft, quick set table roll height adj.	1	1.75
160-157	Counter shaft, table raising	1	2.50
160-158	Gear, miter drive shaft	1	3.25
160-159	Bevel gear, counter shaft	1	3.25
160-160	Shaft, miter gear handwheel	1	2.50
160-161	Shaft, table raising handwheel	1	1.50
160-162	Hanger, handwheel gear	1	4.50
160-163	Bearing housing, variable speed	1	10.50
160-164	Shaft, variable speed	1	4.50
160-165	Bearing	1	3.50
160-166	Collar, variable speed shaft	1	.50
160-167	Cap screw, variable speed housing	1	.10
160-168	Sheave, variable speed shaft drive	1	6.50
160-169	Pulley, variable speed	1	22.50
160-170	Shim, knife locking	1	3.00
160-172	Screws, knife lifting "Jack"	6	.35ea.
160-173	Spring, feed roll pressure	4	.50ea.
160-174	Screw, feed roll pressure spring adjusting	1	.10
160-175	Plate, cutterhead cover	1	6.50
160-176	Guard, feed drive	1	15.00
160-177	Bolt, feed drive guard	2	.35ea.
160-180	Front panel E-16-79	1	12.50
160-181	Cutterhead, direct drive	1	150.00
160-183	Bearing housing, direct drive	1	18.50
160-183A	Bearing housing, direct drive	1	18.50

PARTS LIST ON MODEL 160-16" PLANER

(EFFECTIVE MARCH, 1965)

PART NO.	DESCRIPTION	NO.	PRICE
160-190	Collar, V.S. feed drive screw	2	1.50
160-191	Screw, table raising, L.H.	1	4.50
160-192	Nut, table raising screw, L.H. E-16-80	1	3.50
160-193	Key #608, C' Shaft, Woodruff #608 & table raising screw	5	.20
160-195	Lever, table roller ht. adj. bar. R.H.	1	2.25
160-196	Handwheel, table raising TA-11	1	3.00
160-197	Handi., Handwheel, table raising	2	.30
160-198	Pin, 1/4" x 3" rivet (handle)	2	.15
160-206	Pulley, cutterhead drive 16-87 (opt.-belt)	1	6.50
160-208	Cap, spring, feed roll pressure 16-90	4	1.50
160-213	Handle, chipbreaker	1	.50
160-214	Knob, handle, chipbreaker	1	.50
160-221	Shim, Var. speed slide adj.	1	.60
160-225	Splitpin, 1/4" x 1", Mtg. Brkt., V.S.	2	.15
160-226	Compound sheave, var. speed E-16-77	1	12.50
160-227	Shaft, compound drive pulley	1	1.00
160-233	Key, cutterhead 3/16 x 3/16 x 3/4	1	.20
160-233A	Key, cutterhead, drive pulley 1/4 x 1/4 x 2 1/2	1	.20
160-250	Bearing, thrust nice 605	1	1.15
160-251	2 Groove motor pulley 16-88 (opt.-belt)	1	7.50
160-252	Collar, indexing, belt drive. (opt.-belt)	1	4.00
160-253	Collar, indexing, direct drive	1	4.00
160-254	Stud, motor hanger, end bell (opt.) (D.D.)	4	.50
160-255	Spacer, 2 5/8" dir. dr. C'head (opt.) (D.D.)	1	1.50
160-256	Spacer, 1/4" dir. drive C'head (direct dr.) (opt)	1	.80
160-258	Spacer, Brng., dir. drive C'head (opt.) (D.D.)	1	1.50
160-259	Wrench	1	1.50
160-260	Spacer, 3/8" D. Dr. C'head (opt.) (D.D.)	1	1.00
160-261	Spacer, 1 5/8" D.D. C'head (opt.) (D.D.)	1	2.50
160-265	Pointer, depth adjusting	1	.25
160-266	Pointer, table roller height adjusting	1	.25
160-268	Housing, indexing plunger, direct drive	1	2.00
160-269	Handle, indexing plunger	1	1.75
160-270	Plunger, indexing	1	1.75
160-271	Housing, indexing plunger, belted	1	2.00

MINIMUM CHARGE OF \$1.50 ON ALL PARTS ORDERS.