

OWNERS
MANUAL

**MODEL 804
PLANER MOLDER**

**MODEL 684
JOINTER
PLANER MOLDER**

— NOTICE —

READ INSTRUCTIONS
AND SAFETY RULES
BEFORE USING.



ONE YEAR GUARANTEE

All Foley-Belsaw equipment is guaranteed to be sturdily constructed and free of defects in workmanship or material. If within one year from date of shipment, any parts should prove defective, replacement parts will be furnished free of charge when defective part is returned postpaid for inspection. Guarantee does not cover damage sustained in transit or caused by misuse. We reserve the right to make changes in design, construction, or materials on all Foley-Belsaw machines without notice.

THE FOLEY-BELSAW CO.

6301 EQUITABLE ROAD • BOX 593

KANSAS CITY, MO. 64141

547000 (7-87)

TABLE OF CONTENTS

Safety Instructions	3
Introduction	4
Why Jointer & Planer?	5
Getting To Know Your Machine	5
How They Work	5
Specifications	8
45-Day No Risk Trial Offer	9
24-Month Buyer Protection Plan	9
How To Order Repair Parts	9
Optional Accessory Items	10
Freight Damages & Shortages	11
Installation	12
Jointing	12
Safety Rules For The Jointer	13
Jointer Guards	13
Using The Hold-Down/Push Block & Safety-Push Stick	14
Making Hold-Down/Push Block & Push Sticks	15
Setting Up For Jointing	16
Jointer Controls	17
Jointing Operations	17
Edge Jointing	18
Surface Jointing	19
End Jointing	19
Cutting Bevels & Chamfers	20
Squaring Stock	20
Knife Maintenance	21
Sharpening Jointer/Planer Blades	21
Removing & Installing Planer Blades	22
Using Sure-Set Knife Gauge	23
Planing	
Explanation of Planing	24
Planing Instructions	25
Planing To Desired Thickness	25
Planing For Finish	26
Molding	
Introduction To Molding	27
Custom Pattern Knives	29
Molding Using 1-Inch Cutter Bit Sets	33
Setting Up For Molding	34
Making A Bed Board For Cutter Bits or Custom Pattern Knives	34
Special Guides for Molding Cuts	35
Feather Boards For Varying-Width Stock	35
Edge Molding	35
Installation of Molding Custom Pattern Knives	36
Installation of Molding Cutter Bits	36
Special Molding Applications	37
Back Relief	37
Rabbet	37
Edge Knife	37
Parting Bits	38
Crowns/Beds/Covers	38
Multiple Cutter Bit Use	39
Interlocks	39
Interlock Switch Testing Procedure	39
Safety On/Off Switch	40
Grounding Instructions	40
Lubrication	41
Controls & Adjustments—Planing & Molding	41
Aligning & Leveling The Jointer Tables	42
Aligning Blades With Outfeed Table Of Jointer	43
Scale Calibration	43
Parts List For 540804 Planer/Molder & 560684 Jointer/Planer/Molder	44
Additional Parts For 560684 Jointer/Planer/Molder	46

SAFETY INSTRUCTIONS

1. **KNOW YOUR POWER TOOL**
Read the owner's manual carefully. Learn its application limitations as well as the specific potential hazards peculiar to this tool.
2. **GROUND ALL TOOLS**
3. **KEEP GUARDS IN PLACE**
Keep guards in place, in working order, and in proper adjustment and alignment.
4. **REMOVE ADJUSTING KEYS AND WRENCHES**
Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
5. **KEEP WORK AREA CLEAN**
Cluttered areas and benches invite accidents. Floor must not be slippery due to wax or sawdust.
6. **AVOID DANGEROUS ENVIRONMENT**
Don't use power tools in damp or wet locations. Keep work area well lit. Provide adequate surrounding work space.
7. **KEEP CHILDREN AWAY**
All visitors should be kept a safe distance from work area.
8. **MAKE WORKSHOP KID-PROOF**
— with padlocks, master switches, or by removing starter keys.
9. **DON'T FORCE TOOL**
It will do the job better and safer at the rate for which it was designed.
10. **USE RIGHT TOOL**
Don't force tool or attachment to do a job it was not designed for.
11. **WEAR PROPER APPAREL**
No loose clothing, gloves, neckties or jewelry (rings, wrist-watches, etc.) to get caught in moving parts. Rubber soled footwear is recommended for best footing. Wear protective hair covering to contain long hair. Roll long sleeves above the elbows.
12. **USE SAFETY GOGGLES**
Safety goggles must comply with ANS Z87-1-1968. Also use face or dust mask if cutting operation is dusty and wear ear protectors, plugs or muffs during extended periods of operation.
13. **SECURE WORK**
Use clamps or a vise to hold work when practical. It's safer than using hands, frees both hands to operate tool.
14. **DON'T OVERREACH**
Keep proper footing and balance at all times.
15. **MAINTAIN TOOLS WITH CARE**
Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
16. **DISCONNECT TOOLS**
Before servicing; when changing accessories such as blades, bits, cutters, etc.
17. **AVOID ACCIDENTAL STARTING**
Make sure switch is in "OFF" position before plugging in.
18. **USE RECOMMENDED ACCESSORIES**
Consult the owner's manual for recommended accessories. Follow the instructions that accompany the accessories. The use of improper accessories may cause hazard.
19. **NEVER STAND ON TOOL**
Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted. Do not store materials above or near the tool such that it is necessary to stand on the tool to reach them.
20. **CHECK DAMAGED PARTS**
Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function — check for alignment of moving parts, binding of moving parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
21. **DIRECTION OF FEED**
Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
22. Use sound lumber, no loose knots, and as few tight knots as possible.
23. Before starting up after changing knives, recheck to make certain all holding screws are tight.
24. Hood should always be DOWN, covering cutterhead when motor is on.
25. Always stop motor before making adjustments of any kind.
26. Do not stand directly in line with ANY cutting knife, either behind or in front of machine.
27. **At first sign of any trouble, stop motor.**
28. After approximately 50 feet of operation, stop machine and recheck gib screws for tightness.
29. Check feed roll bearings occasionally to be sure chips are not between bearings and side pieces. If bearings are not seated firmly down in the side piece, feed rolls will not hold stock firmly against bed and cause kick-back.
30. Before making molding, always plane stock to within $\frac{1}{16}$ " of the finished thickness and width of the molding. If the finished thickness of the molding is to be $\frac{1}{2}$ " you should start with stock no thicker than $\frac{9}{16}$ ". When making patterns requiring the removal of a large amount of wood, it is best to make re-runs.
31. Never leave tool running unattended. Turn power off. Don't leave tool until it comes to a complete stop.
32. Use only cutter bits and custom knives provided by Foley-Belsaw for use with the Jointer/Planer/Molder. Use of other types may lead to risk of injury. Follow the operating and installation instructions provided.

INTRODUCTION

Congratulations on your purchase of Foley-Belsaw Equipment. For well over 50 years, we have been the leading manufacturer of thickness planers. All serious shop and production work requires a machine of this type to hold tolerances of yard-bought wood to an acceptable level. Other advantages include savings in buying rough sawn lumber to obtain the most profit from each product and smoother finishes that cannot be matched by yard-bought lumber.

Considering the higher quality stock and savings, not

only in dollars, but in sanding and hand-planing time, it seems that every craftsman would want a machine of this type. The only draw-back was the high cost of the specialized machines, and most machines were designed only for high speed and high production.

Over 50 years ago, Foley-Belsaw brought the thickness planer into the range of the small cabinet shop with the introduction of the one-man Planing Mill. Versatility was added over the years by making the machines handle a variety of work, such as sawing and molding.

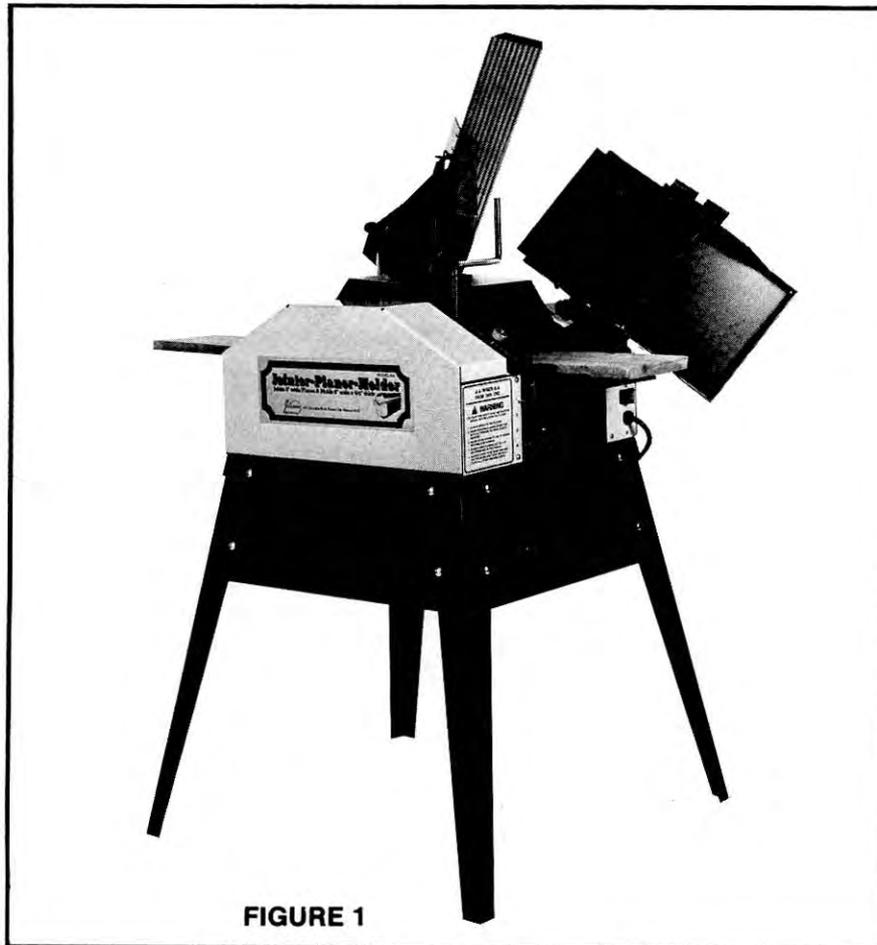


FIGURE 1

With this heritage of equipment, we are proud to introduce the newest in its line of machines, the Foley-Belsaw Jointer/Planer/Molder. A machine for the home workshop, cabinet shop and the wood producer. Combining the three most sought after specialty machines in one design, using one power source, makes the Foley-Belsaw the best buy in the woodworking industry.

In the past, there have been attempts to combine jointers with the various machines, resulting in high cost machines that often use separate motors and shared no more in common than the floor stand. The advanced design eliminated these costly mistakes by designing a jointer/planer/molder that shared main bearings, cutterhead, motor and stand. Our years of experience in the molding industry allowed us to design this valuable feature in the heart of the machine to give you a truly versatile, quality machine.

WHY JOINTER AND PLANER?

Most shops in the past have used saws, drills and sanding equipment as their basic machines. This was fine if you want to spend more money for finished wood and molding, and worked only on simple projects that let you get by using standard dimensioned stock.

As the cost of lumber rose, craftsmen began to look for less expensive ways to build their projects. The answer was to use rough lumber like the big producers and do their own milling. To do this, the first machines required

became the thickness planer and the jointer.

Rough sawn lumber, as the name implies, is rough in finish and size. Some boards are warped and twisted, while others may only vary in thickness. All boards have one thing in common, a rough exterior texture that makes them unsuitable for almost any project.

The undesirability of this wood can account for some of the woodworker's most pleasing time as he mills it into beautiful, finished stock on his jointer/planer/molder.

GETTING TO KNOW YOUR MACHINE

Before attempting to operate your equipment, you should completely read and familiarize yourself with the operator's manual. Also, by getting to know the functions and capabilities of the machine, you will assure yourself of many safe and enjoyable hours of equipment use.

This section is designed as a summary to help you more

thoroughly understand the basic capabilities of the machine.

Both planing and jointing will mill a surface smooth. The planers function is to finish stock to uniform thickness. Boards that are twisted or warped cannot be straightened on a thickness planer. One surface must first be straightened on the jointer.

HOW THEY WORK

A jointer has three primary parts that consist of a stationary outfeed table, a cutterhead below the table with knives extending even to the top surface of the outfeed table and an infeed table that can be adjusted up or down to control the depth of cut. (See Figure 2) A warped or cupped board can be straightened by using a jointer. If you attempt to straighten boards of this type on a thickness planer, pressure from the feed rollers flatten the board before it reaches the cutterhead. When the rollers release the board, the

wood just springs back to its warped or cupped shape. Running these boards through the jointer, the high point of the board rides the infeed table and the knife cuts the high points at the exact level of the outfeed table. As the board passes on to the outfeed table, it is supported so that the cuts are made only to the high points of the board. Continued passes remove wood until the board has a flat, smooth surface with no warp or cup.

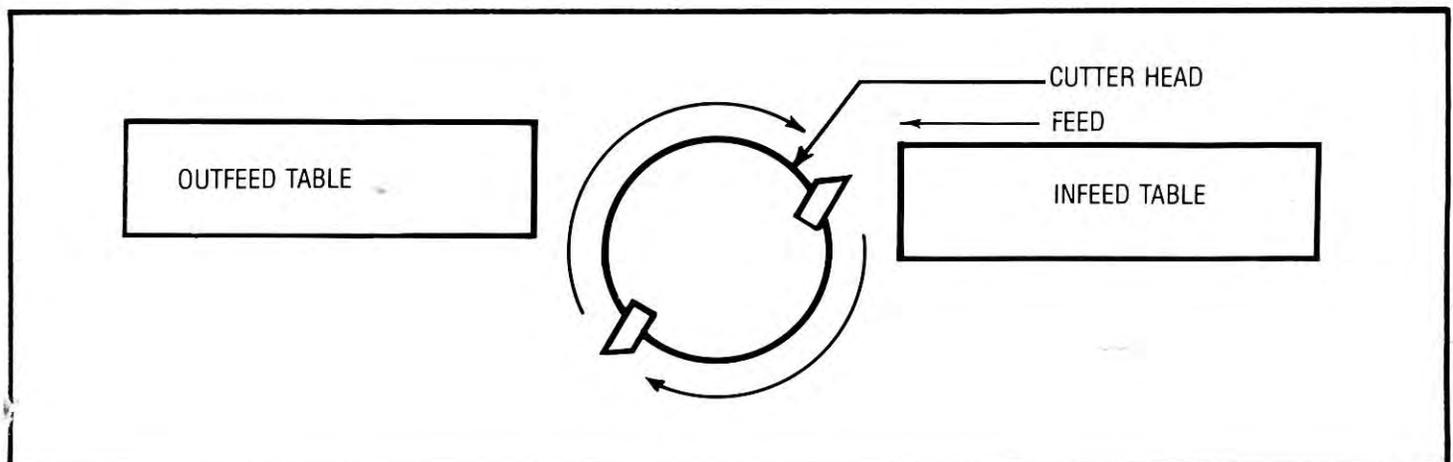
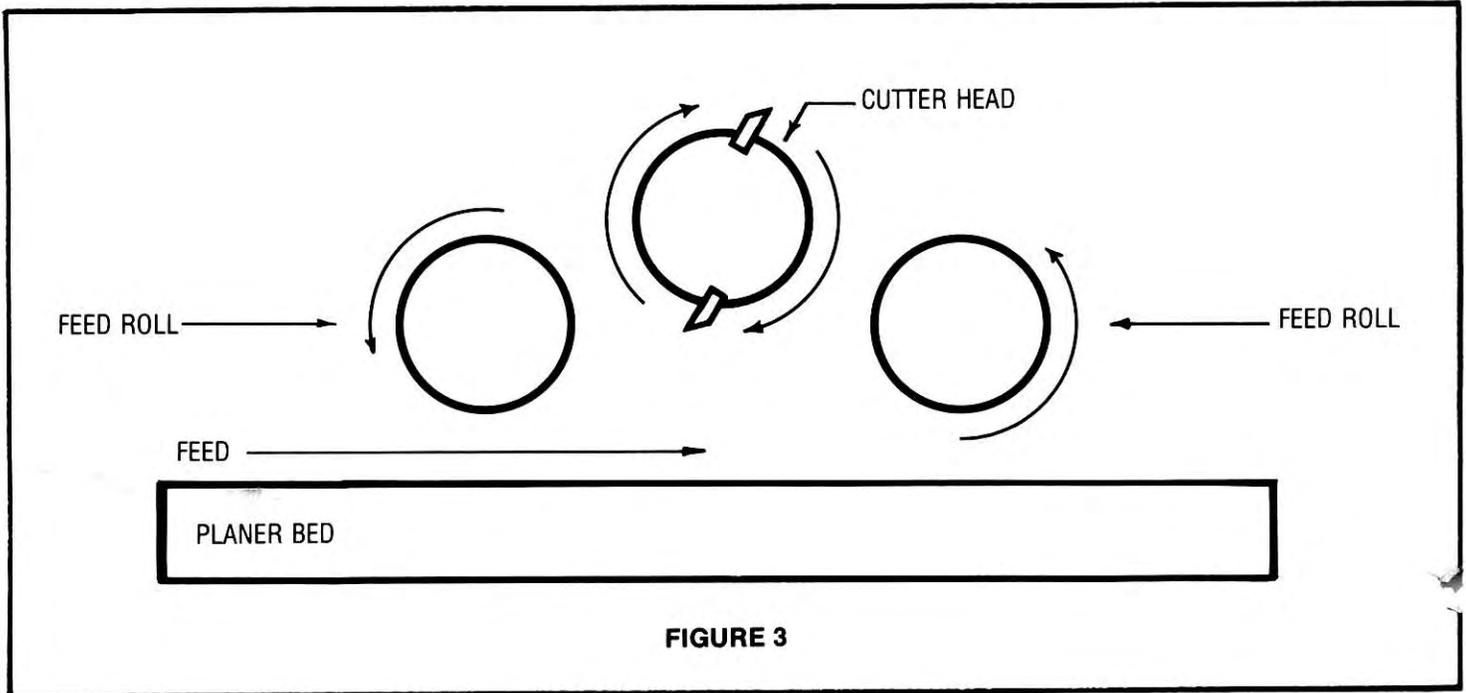


FIGURE 2

Warped or cupped boards are not the only defects you will encounter when you are working with rough sawn lumber. Many boards vary in thickness from end to end, or side to side. When this occurs, the jointer can only reduce one side of the board following the existing defect, not correcting it. (See Figure 3) This is where your thickness planer gets into action. The cutterhead works above an adjustable table so

that the distance between the table and the knives can be controlled. Power feed rolls hold the board flat against the table while the knives work to remove any wood stock above the required thickness. Continued passes until all of the wood surface has been contacted by the knives insure an even thickness of wood through out the length of the boards.



To obtain the perfect board or molding, the following procedure should be followed:

1. Joint — Before a board can be finished to uniform thickness, it must be jointed. A board that is twisted, warped, cupped or bowed, cannot be straightened on a thickness planer. The rollers which feed the board through also compress it while it is being planed and it will come out with its original surface. One surface must first be straightened on the jointer.

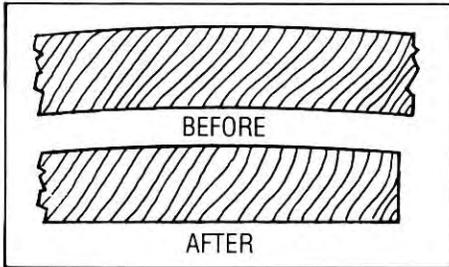


FIGURE 4

2. Plane — Once you have a straight surface, the power feed rollers hold the board flat against the table while the knives work to remove the stock to the required thickness. Continued passes may be necessary until all the wood surfaced has been contacted by the knives. This insures even thickness throughout the length of the board.

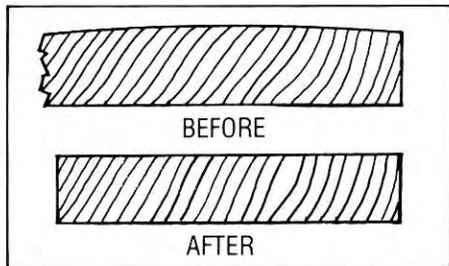


FIGURE 6

3. Mold — Before molding is made, a board should be jointed or planed to within $\frac{1}{16}$ inch of the finished thickness and width. Foley-Belsaw Custom Pattern Knives or cutter bits can be used to mold the wood to the proper shape.

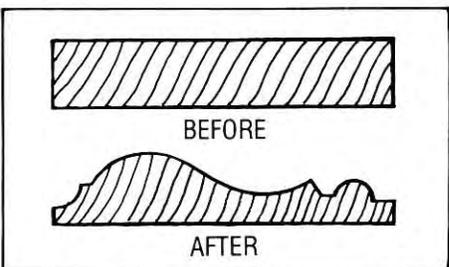


FIGURE 8

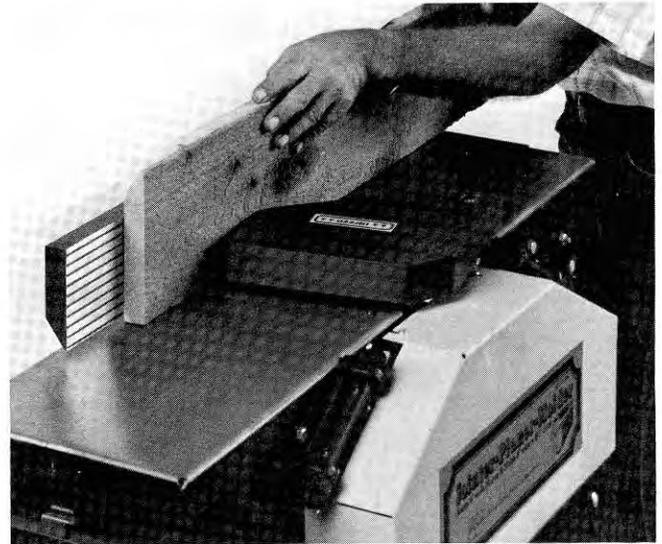


FIGURE 5

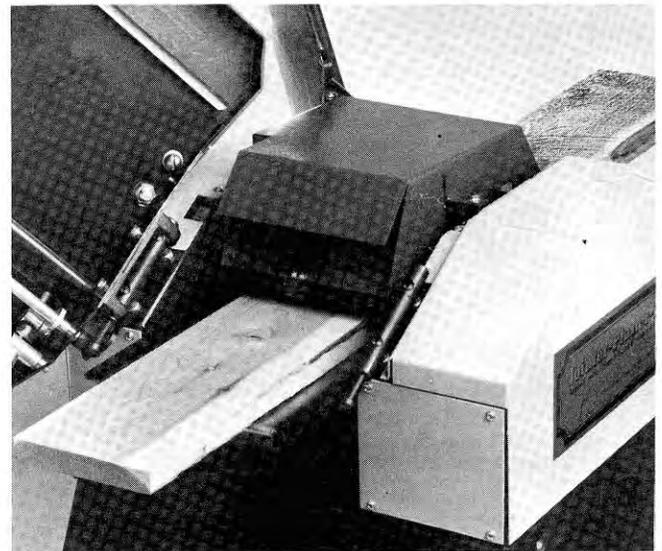


FIGURE 7

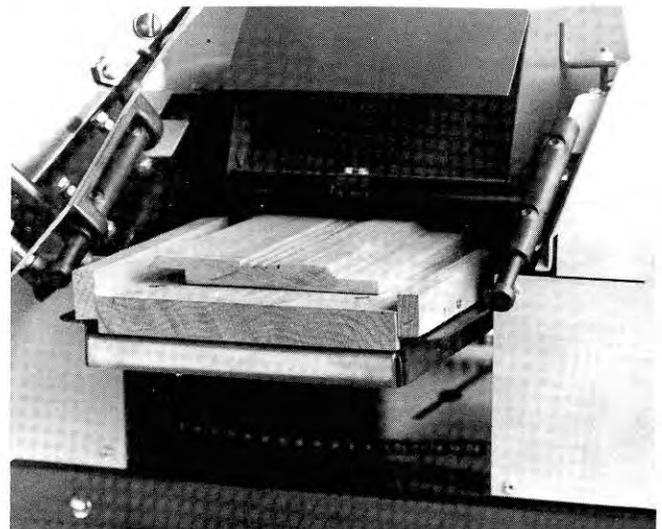
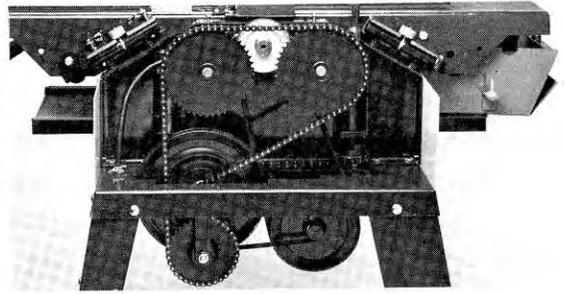


FIGURE 9

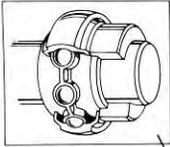
To better understand the functions and operation of your machine, we suggest that you thoroughly familiarize yourself with the specifications listed on the following pages.

Only Foley-Belsaw Performance Engineering Gives You These Quality Features

A marvel of engineering simplicity, the feedworks on the Model 684 are belt-driven direct from the motor. Final drive to the feed rolls is by roller chain to assure synchronized feed roll speed which prevents unsightly washboarding. Best of all, the entire design is simple and sound. There are no expensive, complicated gearing systems to break down and wear out.

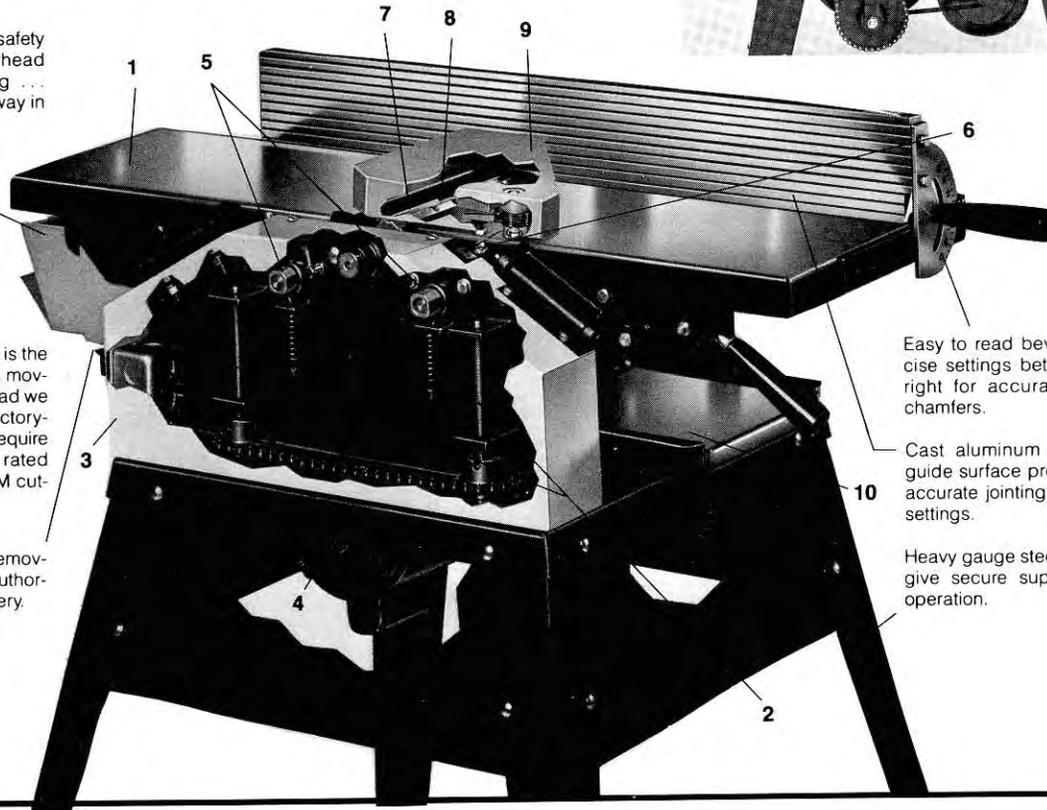


Hood and chipchute with safety interlocks covers cutterhead when planing or molding ... conveniently folds out of way in jointing configuration.



The heart of any machine is the bearings that support its moving parts. On the cutterhead we use only the finest 1" factory-sealed ball bearings that require no lubrication and are rated well above the 6,000 RPM cutter-head speed.

Safety on/off switch has removable key to prevent unauthorized operation of machinery.

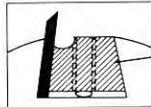


Easy to read bevel gauge assures precise settings between 0 and 45° left or right for accurate bevel jointing and chamfers.

Cast aluminum fence with machined guide surface provides rigid support for accurate jointing operations at all bevel settings.

Heavy gauge steel stand and side plates give secure support for vibration free operation.

- Two piece, formed machine steel jointer bed is a full 36½ inches long to provide support on heavy or long stock.
- Bed is supported at all four corners with synchro-mesh corner screws. Endless roller chain and sprockets provide bed adjustment on each screw for precise accurate planing.
- Hinged side panels provide quick access for adjustment, lubrication and cleaning.
- 1-HP electric motor develops up to 2 HP to handle the big jobs that require extra power.
- Feed roll bearings are oil impregnated bronze bearings specially designed for low RPM feed rolls that require up and down movement.
- Large scale makes setting correct depths for jointing a simple operation.
- 2-knife solid round steel cutterhead is 2¾ inch diameter, machined for jack screws for easy knife adjustment and factory balanced for smooth, quiet operation.

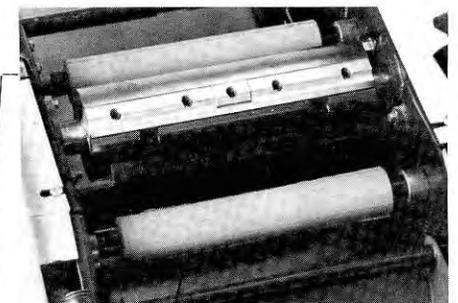


Planer blades are held in place by safety wedge-action gibs. As screws are tightened, gibs wedge upward to hold blades in position.

- High speed hard steel jointer/planer blades are ground at the precise angle for maximum performance in both planing and jointing operations.
- Spring loaded jointer blade guard protects operator from contacting jointer blades, yet spring action allows easy feeding of stock.
- Heavy formed steel planer bed is a full 8 inches wide and 28½ inches long. Angled steel supports serve as guides on each side of bed.

Safety interlock prevents operation of jointer or planer/molder when guards or covers are not in proper position.

Quick-Locks® allow you to rapidly change from jointing to planing or molding in less than 10 seconds ... yet they securely hold the jointing table in place for accurate jointing.



Power feed rolls are made of grey non-marking wear resistant rubber material (SYNMAR) to feed the heaviest of woods without slipping or marking.

JOINTING SPECIFICATIONS Model 684 Jointer-Planer-Molder Only

Maximum width of cut	6½"
Maximum depth of cut	⅛"
Knife cuts per minute	12,000
Bed length	36½"
Bed height	35½"
Height to top of fence	40"

SPECIFICATIONS Model 684 Jointer-Planer-Molder and Model 804 Planer-Molder

Maximum width stock	8"	Planing bed length	28½"
Maximum depth stock	4½"	Shortest piece (not butted)	7½"
Maximum depth of cut	5/32"	Maximum depth of cut, molding	¾"
Minimum thickness	¼"	Maximum width of cut, molding	8"
Feed speed	28-fpm	Motor	1 hp, 3450 RPM, 115v-ac
Cuts per inch	36		

Are Our Tools Quality Built?... You Bet!

If you know power tools (and especially if you don't), we urge you to comparison shop the Foley-Belsaw line against any other brand of power tool. While there are other foreign and domestic imitators on the

market, measure them all *carefully* against the Foley-Belsaw. Check *price*, check *warranty strength* and *check out reputations* with cabinetmakers and other woodcrafters in your locality.

What Do We Mean By 'Warranty Strength'? . . . See For Yourself!

45-Day

No Risk Trial Offer

The Foley-Belsaw 'Hands On' Trial is your assurance that our products will faultlessly perform every function we claim to your complete satisfaction. Simply order the model best suited to your needs and put it to work right in your own shop. You have over SIX FULL WEEKS to use it as much as you wish and put it through its paces. After 45-Days if you aren't 100% satisfied, simply let us know, box it up and return it freight prepaid to our factory for a prompt 'no questions asked' refund of ALL monies you deposited. No gimmicks, no fine print, no hidden 'pro rata' usage, service fees or 'restocking' charges . . . *you simply won't be charged one thin dime*. Our flat guarantee is that *you simply must be 100% Satisfied* or you get your money back.

24-MONTH

Buyer Protection Plan

We guarantee all Model 684 or Model 804 Power Tools to be completely free of defective parts or workmanship at time of delivery to original purchaser for a period of TWO FULL YEARS. Should warranty replacement be required, any defective part will be REPLACED (NOT REPAIRED) with new factory parts at our expense (including shipping costs to customer) for owner installation. This is a Limited Warranty and does not include replacing: (1) parts damaged by obvious owner abuse or negligence; (2) rubber feed rollers worn through normal planing/molding usage; (3) replacing or sharpening of jointing, planing or molding knives nicked, dulled or worn from normal use; (4) MOTOR—Carries manufacturers standard 1-year warranty (write for details).

Belsaw Takes You From 'Timber to Tables'

Starting with our world-famous 'One-Man Sawmill' (and many improvements later, we still manufacture it), we have been providing woodworking and planing/molding equipment to America's craftsmen since 1926. Our products are in commercial use by cabinet-shops and similar ventures, used part-time at home by those making EXTRA CASH INCOME selling molding, millwork and custom planing to others, and by thousands of craftsmen/hobbyists who do their own handcrafted grandfather clocks, furniture, cabinetry, flooring, shiplap or tongue-

and-groove paneling, homebuilding remodeling and restoration. But whether you're falling logs or filling cracks, if you have a woodworking question, a problem, or need expert advice and want to 'talk shop' about techniques or tools with qualified pros, we invite you to write or call our fulltime Customer Service staff. They know woodcrafting from 'A-to-Z' . . . from 'Timber to Tables' — and are always available to assist you.

HOW TO ORDER REPAIR PARTS

Should replacement parts be needed, write our Customer Service Department, Foley-Belsaw Company, 6301 Equitable Road, Box 593, Kansas City, Missouri 64141, or call our Toll-Free Number, 1-800-821-3452. Be sure to specify part number, part description and key number. To assure quick service, please include invoice number and approximate date of purchase.

OPTIONAL ACCESSORY ITEMS

The Molder/Jointer/Planer is one of the most versatile machines now available in the woodworking industry. To make the machine even more versatile and efficient, we have many optional accessories available. Use only accessories, parts, custom knives, cutter bits and jointer knives provided by Foley-Belsaw for use with the Jointer/Planer/Molder. Use of other types may lead to the risk of injury. Follow the operating and installation instructions provided.

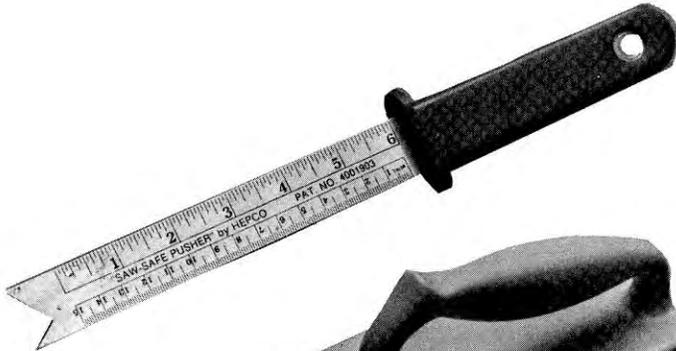


FIGURE 10

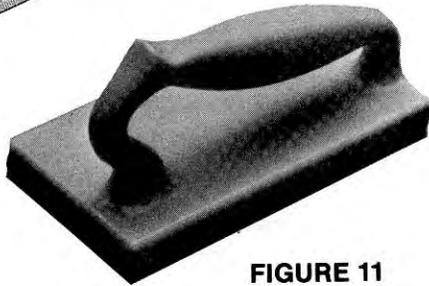


FIGURE 11



FIGURE 12

530363 ... "SAFETY-PUSH STICK"

— For Edge Jointing Narrow Stock

530364 ... HOLD-DOWN/PUSH BLOCK

— For Wider Face Jointing

531283 ... MODEL 283 EXTENSION ROLLER AND STAND

— For Supporting Ends of Long, Heavy Stock

531858 ... Number 858 PLANING AND JOINTING BLADES

— Keep a Spare Set of Sharpened Blades on Hand. Eliminates "Down-Time".

531960 ... MODEL 960 "SURE-SET" KNIFE SETTING GAUGE

— Assures Proper Projection of Jointing and Planing blades.

530365 ... ALUMINUM GIB STOCK — 12 inches Long

— For Special Set-ups, This Gib Stock can Be Cut to Desired Length for Placing One or More 1" Cutter Bits At Any Position Across Cutterhead. Used with 509069 1" Gib and Spacer.

MOLDING CUTTER BITS ... See Cutterbit Section of Manual

CUSTOM PATTERN KNIVES ... See Custom Pattern Knife Section of Manual

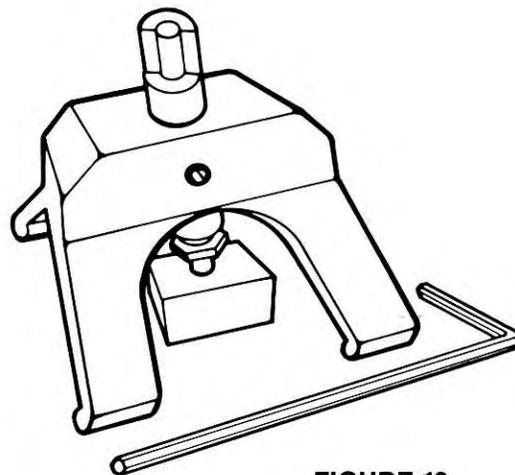


FIGURE 13

FREIGHT DAMAGES AND SHORTAGES

FOR YOUR PROTECTION

The carrier who delivers merchandise to your door is responsible for loss and damages. Acceptance of the shipment by the Transportation Company is acknowledgement that the articles delivered to them were in good condition and properly packed.

HERE'S HOW TO HANDLE DAMAGES AND SHORTAGES:

VISIBLE DAMAGE

1. Have deliveryman note on Freight Bill the nature and extent of damages.
2. Notify the Transportation Company's office to inspect the merchandise.
3. File claim for damages at once. In filing a claim with the transportation company, you may (a) make a cash adjustment for full value, (b) arrange to have repairs made, or (c) replace the merchandise.

CONCEALED DAMAGE

1. If damage is noticed when merchandise is unpacked, notify transportation company's office immediately and ask to have it inspected.
2. Do not destroy packing materials until shipment is inspected and claim settled.

IMPORTANT

All claims for loss or damage should be filed immediately with the transportation company making delivery to your door. Then notify us. We will mark our records accordingly. Should you need assistance with the claim, we will be glad to help.

SHORTAGES

1. Check number of cartons delivered with the quantity shown on your receipt.
2. If quantities do not tally, have driver note shortage and if missing items do not show up in a few days, advise us and we will reship.

NOTE: DO NOT RETURN DAMAGED MERCHANDISE AS TRANSPORTATION COMPANY WILL PICK IT UP AFTER SETTLING CLAIM.

INSTALLATION

Your new Planer/Molder or Jointer/Planer/Molder comes assembled with motor. To complete installation, it is necessary only to install the number 10 Legs and the number 11 Side Panels. For your convenience, all legs and all side panels are identical.

The number 11 Side Panels are designed to fit inside the number 10 legs. For easiest installation, we recommend inserting the number 65 Carriage Bolts through the bottom holes of the legs and side panels, tighten the number 70 Kep Nuts finger tight. (Leave the top two bolt holes open on each leg).

Mount the machine base on top of the four legs. Insert bolts (two per leg) through number 10 legs, number 11 panels and number 12 base. Use a wrench to tighten all number 70 Kep Nuts. (See figure 14)

1. Install lower bolts and nuts first.

2. Mount machine.

3. Install upper bolts and nuts after mounting machine.

Mounting tabs with holes are provided on two of the legs. These legs may be secured to the floor or supporting surface, if during normal operation, there is any tendency for the tool to tip over, slide, or walk on the supporting surface.

Your new Model 684 Jointer/Planer/Molder or Model 804 Planer/Molder has been carefully tested and adjusted at the factory. However, before operating,

thoroughly read the operating instructions provided and familiarize yourself with the adjustments and controls listed in the operator's manual both on the jointing section of the machine, and the planing and molding section. Be sure to read and follow the safety instructions and safety rules before operating your machine. If after testing your machine, further adjustments are necessary, see the individual sections on planing, molding or jointing as required.

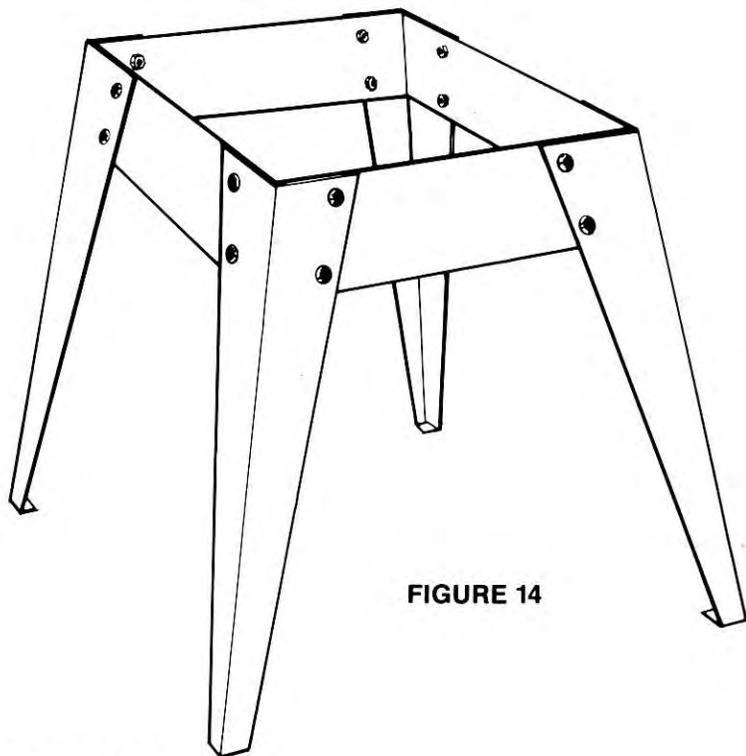


FIGURE 14

JOINTING

This section of your operator's manual covers the use of the jointing table on the Model 684 Jointer/Planer/Molder. (See figure 15)

If you have rough sawn, weathered, or re-cycled stock that is cupped, warped or twisted, just a pass or two on the face and edge prepares it for final thicknessing through the planer. You can take maximum jointing cuts up to $\frac{1}{8}$ inch (as recommended by Underwriters Laboratories). The jointer accepts any stock up to $6\frac{1}{2}$ inches wide and virtually any length if the ends of the stock are supported. The jointer portion of the machine comes with a safety interlock switch to stop the machine automatically if jointing tables are raised before the power switch to the motor is turned off. The solid die cast fence tilts from zero degrees to 45 degrees left or right to produce accurate bevels and chamfers.

When operating the jointer portion of Model 684, you should keep in mind all safety instructions previously listed in the manual as well as the following safety rules specifically for the jointer.



FIGURE 15

SAFETY RULES FOR THE JOINTER

1. ALWAYS UNPLUG THE JOINTER/PLANER/MOLDER WHEN MAKING ADJUSTMENTS, WHEN CHANGING BLADES, OR ANY TIME YOUR HANDS ARE CLOSE TO THE CUTTERHEAD.

2. Always keep both the number 101 Jointer Blade Guard and number 166 Rear Jointer Blade Guard in place.

3. Keep the Jointer/Planer Blade sharp. Dull blades not only consume more power, but can cause kick-back. Check the alignment of the blades on a regular basis.

4. Periodically check to make sure the Jointer/Planer Blades are fastened securely in the cutterhead.

5. Always keep the number 102 Fence securely locked by tightening the number 130 Handle.

6. Never pass your hands directly over the cutterhead. Jointer/Planer Blades are sharp. Keep your hands over the table only. Hold the work piece firmly down on the tables and against the fence. When jointing, keep your hands over the infeed table only for approximately the first $\frac{1}{3}$ of the board. Hold your hand on top of the board on each table during the middle section and both hands on top of the board over the outfeed table during the last section of the board.

7. Always use the hold-down/push block or push-stick for thin stock of less than 3 inches, short stock of less than 12 inches or stock narrower than 3 inches. Always feed with the grain. Feed the work into the blade against the direction of rotation of the Jointer/Planer Blades. (See Figure 16)

8. Do not perform edge jointing operations on materials shorter than 10 inches, narrower than $\frac{3}{4}$ inch or less than $\frac{1}{2}$ inch thick.

9. Do not perform surface jointing operations on materials shorter than 10 inches, narrower than $\frac{3}{4}$ inch, wider than $6\frac{1}{2}$ inches or thinner than $\frac{1}{2}$ inch.

10. Maintain the proper relationship of infeed and outfeed table surfaces and cutterhead knife path.

11. Support the work piece adequately at all times during the jointing operation. Maintain control of the work at all times.

12. Do not back the work toward the infeed table.

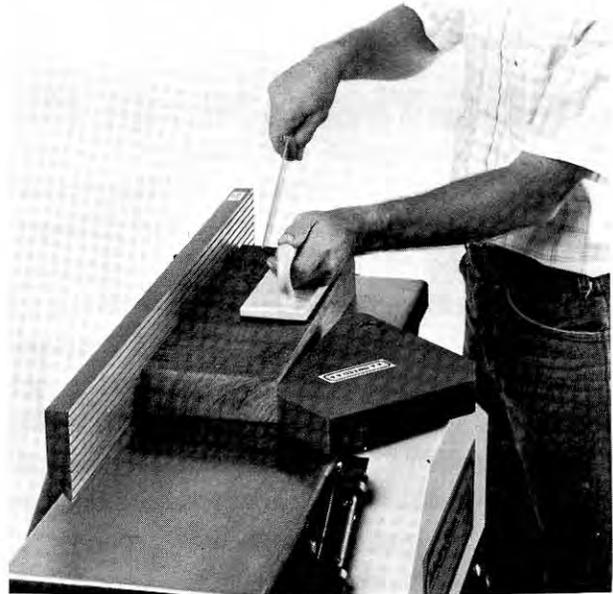


FIGURE 16

13. Do not attempt to perform an abnormal or little used operation without study and the use of adequate hold-down/push blocks, push-sticks, jigs, fixtures, stops, etc . . .

JOINTER GUARDS

Never operate the jointer section without both the front and rear cutterhead guards in place. Number 101 Jointer Blade Guard Front will swing to allow the stock to pass over the cutterhead. The number 166 rear Jointer Blade Guard should always be down over the cutterhead. (Behind the Fence). (See Figure 17)

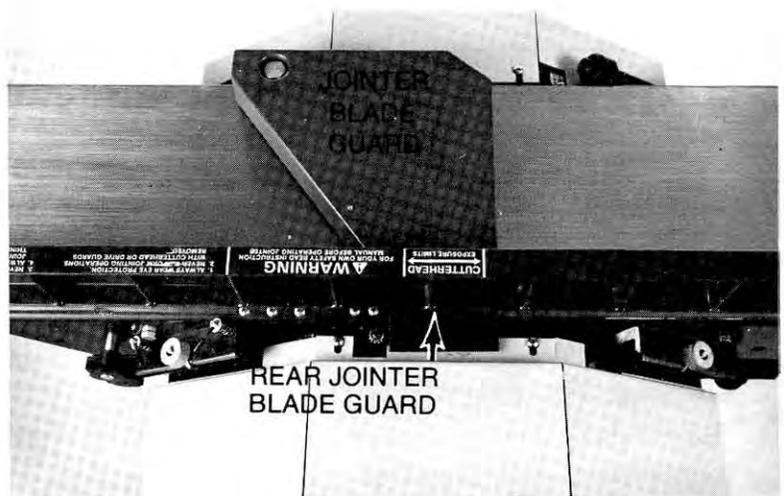


FIGURE 17

BEFORE USING THE HOLD-DOWN/PUSH BLOCKS, READ AND FOLLOW THE SAFETY AND OPERATING INSTRUCTIONS CONTAINED IN THE OWNER'S MANUAL FURNISHED WITH YOUR JOINTER/PLANER/MOLDER.

Jointer/Planer Blades are sharp and dangerous. Never allow your hands to come close to its rotation.

USING THE 530364 HOLD DOWN/PUSH BLOCKS

ALWAYS use the hold down/push blocks when Jointing wood that is **NARROWER** than 3 inches or thinner than 3 inches.

Grasp the hold down/push blocks firmly with the fingers close together and wrapped around the handle. Position push blocks flat on top of workpiece, and push the workpiece down against the table to provide a quality cut and minimize the chance of a kickback. Apply sufficient lateral pressure to keep workpiece against the fence. (See figure 18)

Hold-down pressure must also be sufficient to prevent hold-down/push block sliding or slipping on the top face of workpiece when advancing workpiece over cutterhead.

Use a hand over hand motion with the hold down/push blocks being careful to maintain control over the workpiece at all times.

This means that once the workpiece has been fed past cutterhead onto outfeed table, one hold down/push block must always maintain contact of workpiece with outfeed table.

Hold-down/Push Block may be used in tandem with 530363 Safety-Push Stick. (See Figure 16)

CAUTION: If the HOLD DOWN/PUSH BLOCKS tend to slip while feeding, clean rubber surface immediately with a stiff fiber brush.

When jointing wood $\frac{3}{4}$ inch thick and **NARROWER THAN** the hold down/push block, tilt the hold down/push block so that it clears the top of the cutterguard while feeding. (See Figure 19)

Never joint wood that is thinner than $\frac{1}{2}$ inch . . . because it is apt to split or shatter and thus has a greater tendency to kickback.

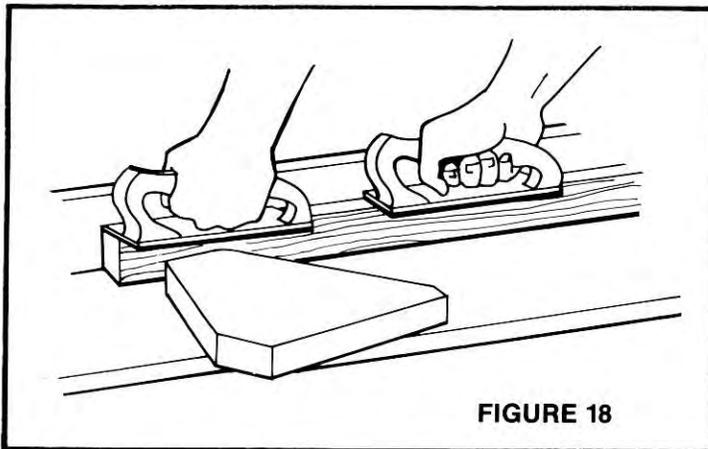


FIGURE 18

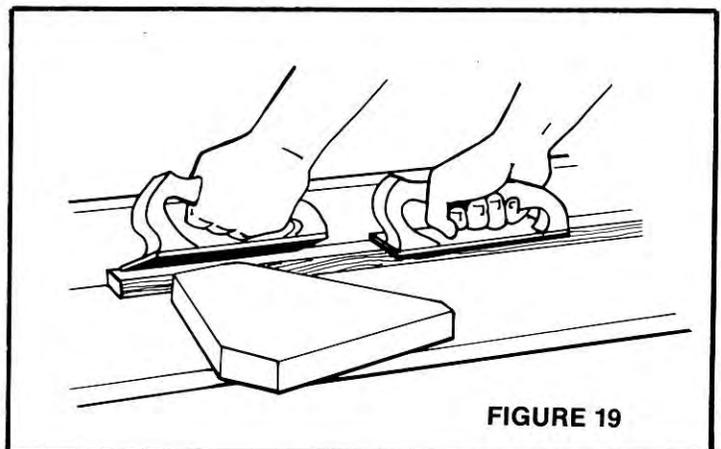


FIGURE 19

530363 SAFETY-PUSH STICK

The 530363 Safety-Push Stick is excellent for edge-jointing narrow stock. As shown, in figure 20 its two angles on the tip allow work on both thick or thin stock. Use the 90 degree angle between the points to push end of board while feeding stock, keeping hands well away from moving cutterhead for safety. Use of safety-push stick does not eliminate the need for hold-down/push blocks, guides, guards, etc. Misuse of any tool is dangerous.

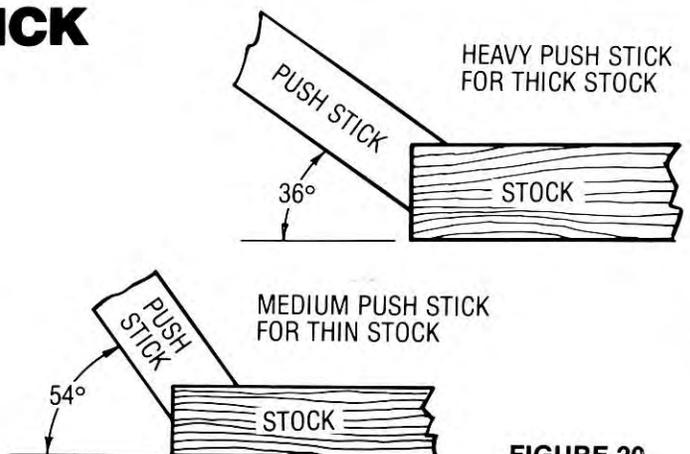


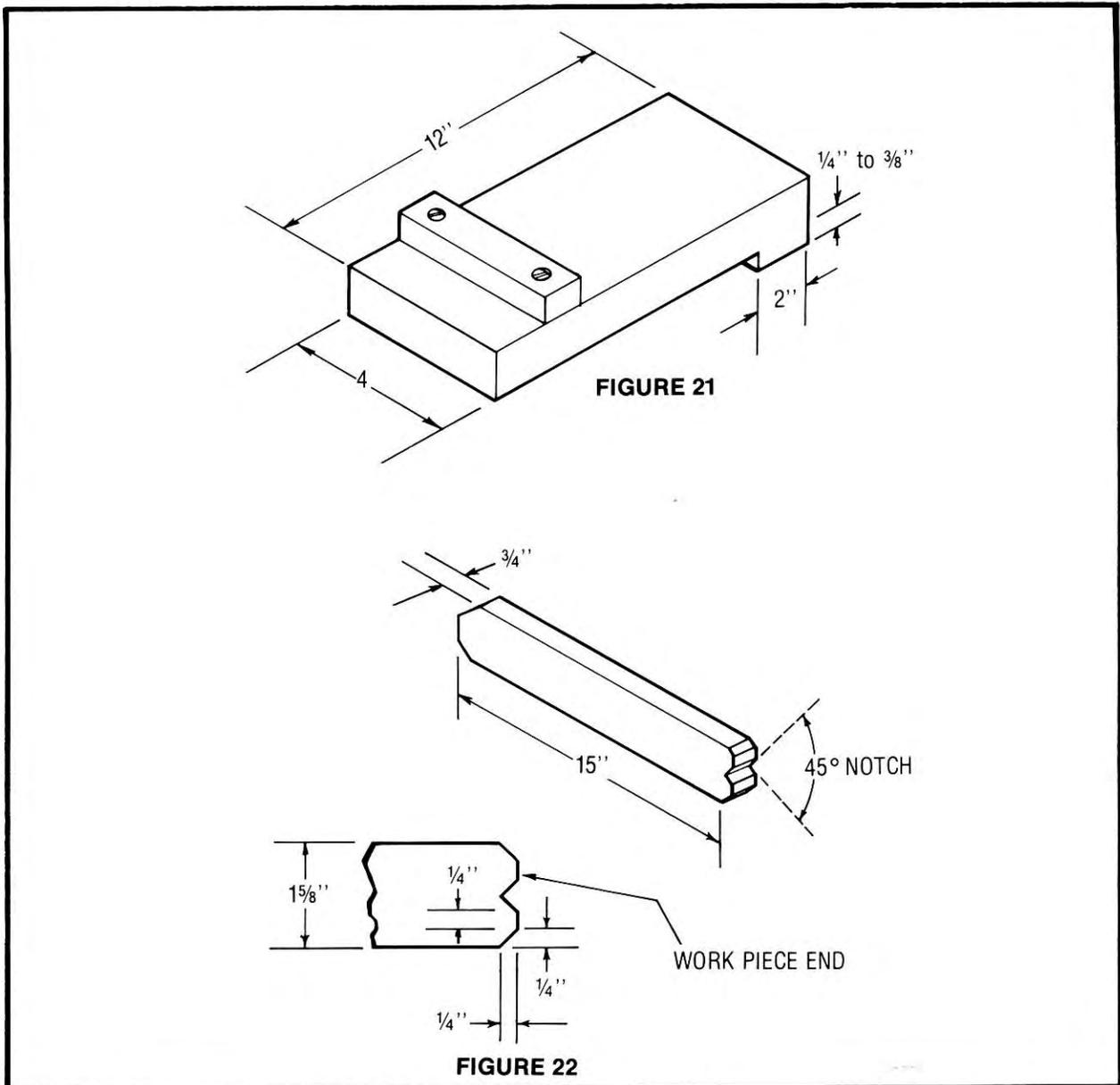
FIGURE 20

MAKING HOLD-DOWN/PUSH BLOCKS AND PUSH STICKS

To safely operate your Jointer/Planer, always use hold-down push-blocks and/or push-sticks when working with narrow or thin material. Foley-Belsaw has available the 530364 Hold-Down/Push-Block and the 530363 Push-Stick for your safety and convenience. Never attempt to work narrow or thin stock on your Jointer without the use of these tools. Should you need

to construct your own push block or push stick, the diagrams below show examples of how you can make these valuable safety aids. Always be sure to construct these out of sturdy knot-free lumber.

If metal fasteners are used to secure parts of the push-block, always make sure they cannot contact cutter knives.



SETTING UP FOR JOINTING

The Model 684 combines a unique new concept of swing-away jointer tables and quick locks to quickly convert from planing to jointing and back to planing. This swing-away concept allows you to perform your planing operation without stooping or bending. You can swing your jointing tables into position and quickly lock them in place with the quick locks. To set up for jointing, simply follow the steps below:

1. Open planer bed to minimum 4 inch thickness.
2. Pivot the number 125 Hood and Chip Chute so that it rests on the end of the number 34 Planer Bed.
3. Swing the number 122 Outfeed Jointer Table into jointing position above the number 34 Planer Bed.
4. Swing the number 112 Infeed Jointer Table into jointing

position above the number 34 Planer Bed.

5. Lock the number 122 Outfeed Jointer Table in position by tightening number 121 Quick-Lock Knob.

6. Infeed Jointer Table may be secured either by spring-loaded number 173 Quick-Locks, or by number 121 Quick-Lock Knob.

We recommend using spring-loaded Quick-Locks for operations requiring changes in depth of jointing cut, turning number 173 Quick-Lock Rollpins toward each other to lock Infeed Jointing Table.

For final jointing cuts and cuts requiring exact, precise surfaces, we recommend tightening the number 121 Quick-Lock Knob.

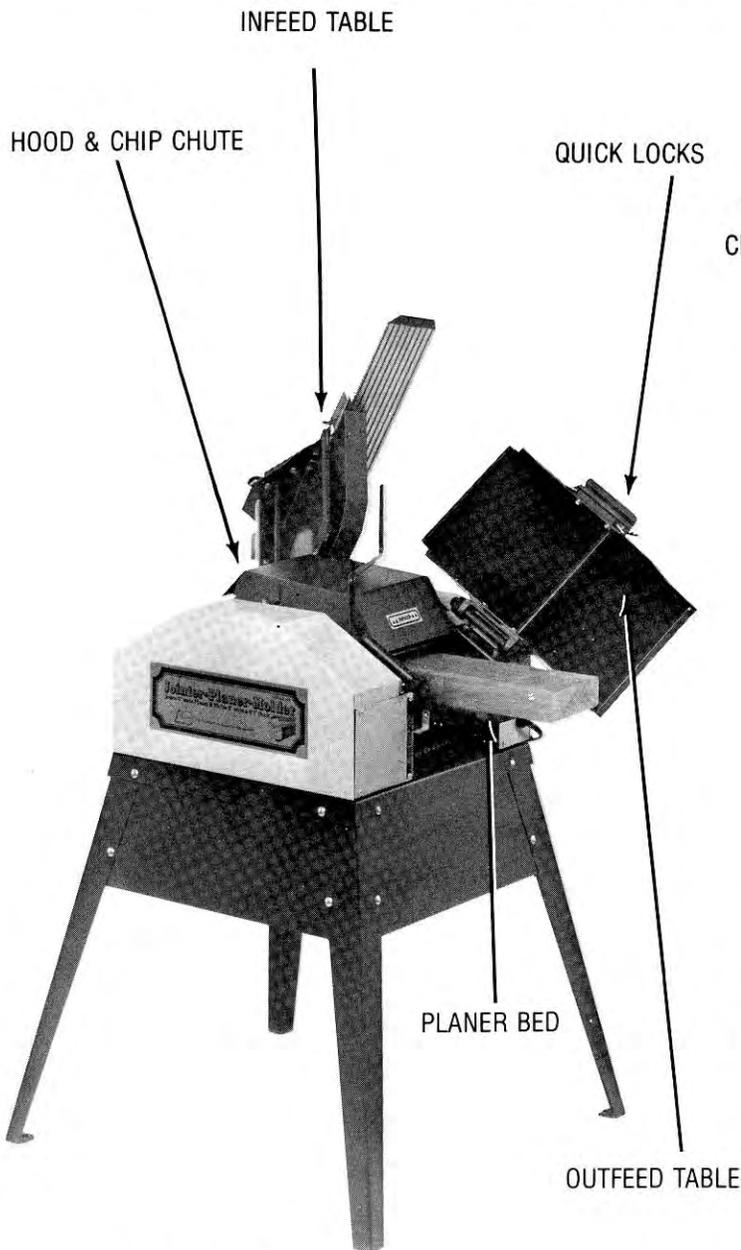


FIGURE 23

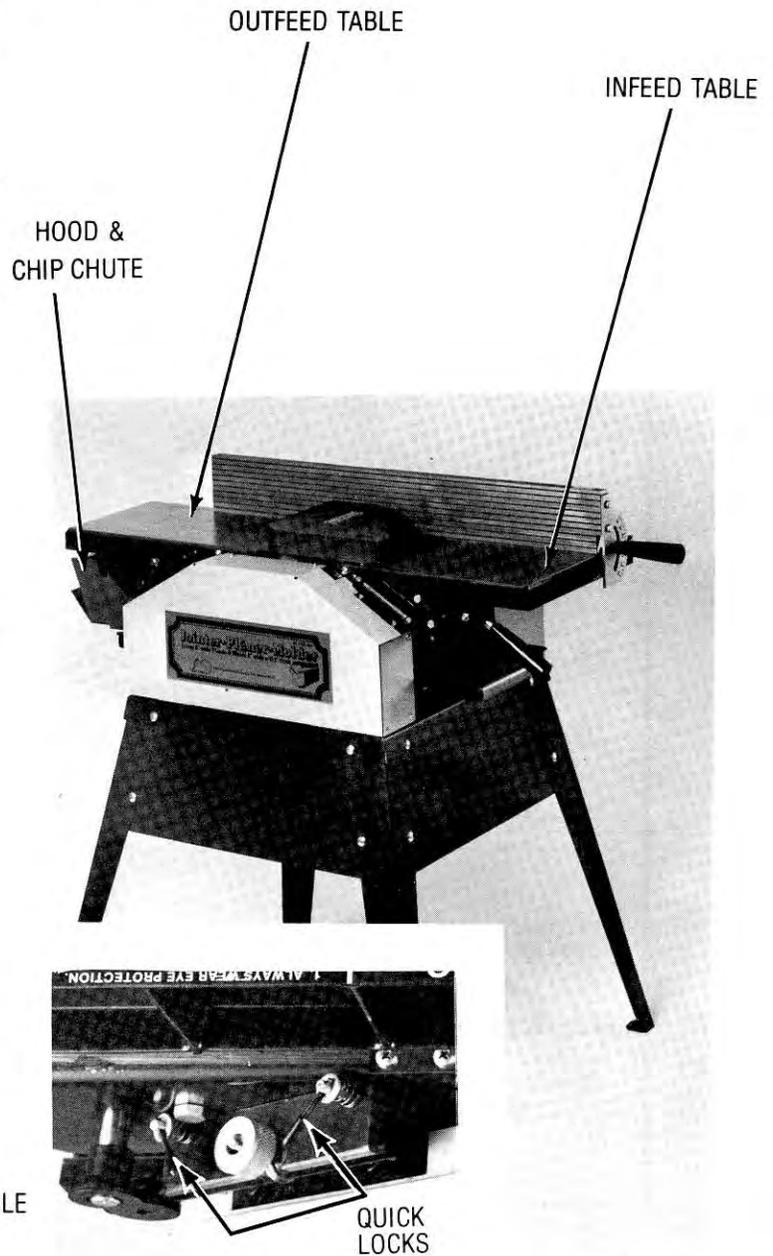


FIGURE 24

FIGURE 25

JOINTER CONTROLS

The jointer section of your Model 684 is designed for ease of operation. There are only two primary controls, the fence angle and the infeed table height. Both are easily controlled by use of easy-to-reach handles.

1. Fence Angle — normal setting is zero degrees for square 90 degree angles. Can be changed from zero to 45 degrees in either direction by loosening the number 130 Fence Angle Handle, moving the fence to the desired angle and retightening the handle.

2. Infeed table height-controls the depth of cut. This should always be lower than the outfeed table. The table is raised by turning the number 130 Infeed Table Handle clock-wise, lowered by turning counter-clock-wise. Raising the table reduces the depth of cut, lowering increases the depth of cut. Normal jointing height is $\frac{1}{16}$ inch. A maximum $\frac{1}{8}$ " depth cut can be obtained (the maximum allowed by Under-

writers Laboratories). An easy to read depth gauge scale indicates the depth of cut. See figure 26 for position of controls.

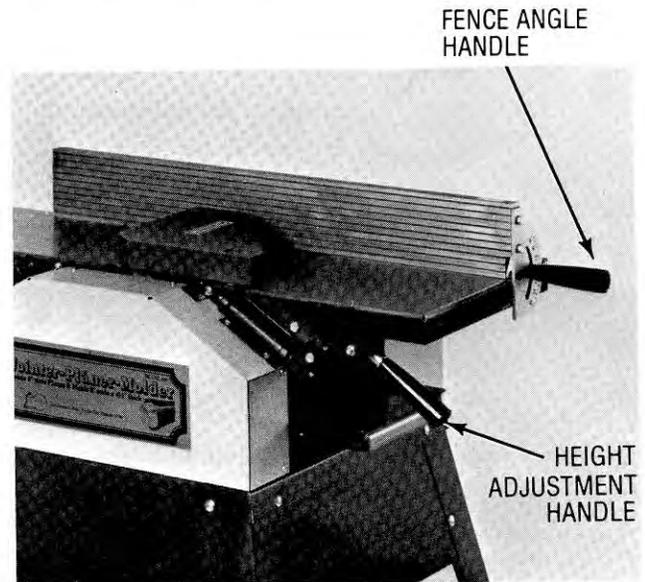


FIGURE 26

JOINTING OPERATIONS

Like any tool, the quality of work you produce on your Jointer is dependent on your skill with the tool. Practice and technique plays an important part in the results you will obtain on your Foley-Belsaw. If you are not familiar with the use of jointers, you should practice on scrap material until you have become comfortable with the machine. After you have mastered the proper techniques, you will be able to produce perfectly flat, straight, true lumber.

The recommended technique is to cut with the grain whenever possible to obtain the smoothest cut. If the grain changes and you should need to cut against the grain, feed your boards across the cutterhead at $\frac{1}{2}$ your normal feed rate. Approach the ends very slowly to avoid splitting and chipping. (See Figure 27)

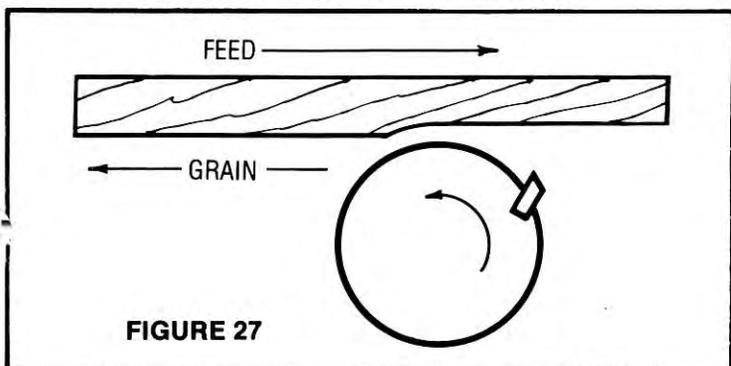


FIGURE 27

The quality of the surface you produce is also greatly dependent on the depth of cut. The effective depth of cut can vary greatly depending on the type of wood being jointed whether you are jointing a surface or an edge and how the wood was cut in the mill. With hard woods, a shallower cut would be more desirable. A smooth surface on a hard wood can best be obtained with a thin cut of $\frac{1}{64}$ to $\frac{1}{32}$ inch. Consequently, more passes may be necessary. The maximum cut for jointing an edge is $\frac{1}{8}$ inch. For maximum efficiency, on a flat surface, $\frac{1}{16}$ inch.

Always maintain proper relationship of the infeed table, jointing blades, and outfeed table to insure proper path of travel.

WHEN FEEDING BOARDS OVER THE JOINTER TABLE, YOUR HANDS SHOULD NEVER PASS DIRECTLY ABOVE THE JOINTER/PLANER BLADES.

Hold the work down with both hands over the front table as you start to feed. Work should be fed from right to left. Your left hand should be at about the middle of the board. The right should be toward the rear of the board. Move the board across the cutterhead. As your left hand approaches the cutterhead, step your left hand from above the infeed table to

the front of the stock on the outfeed table. When your right hand approaches the blades, it is then stepped to the top of the stock over the rear table. This technique is also used with the hold-down push-blocks, stepping each hand over the cutterhead from the infeed table to the outfeed table, while holding the push blocks.

Approximately $\frac{1}{3}$ of the board is surfaced with both hands or push blocks on the infeed table, the middle section, with a hand over the board on each table, and the last section with both hands over the board

on the outfeed table.

Long boards should always be properly supported. Always use push blocks or push sticks on short, thin or narrow boards.

Once you have mastered the proper technique of jointing your Foley-Belsaw, you will be able to produce flawless boards with square corners and smooth surfaces. If sniping or irregular surfaces or edges still occur once you have mastered this technique, see the section of the operator's manual on maintenance adjustments and alignments.

EDGE JOINTING

The most often performed function of the jointer is jointing the edges for gluing. Glued and clamped properly, straight, plain joints on the edges between the side grain surfaces can be almost as strong as the wood itself in most wood species. Two plain flat surfaces, can be placed together, often making better contact than glue joints or tongue and groove joints. The effective holding area and strength of two flat edges together may actually be stronger than tongue and groove joints with poor contact. Edge jointing is most often used by furniture makers and cabinet makers. The 684 Jointer/Planer/Molder makes it easy to perform a true, straight edge to make two or more boards into one wide board. This is especially helpful when making butcher block tables, cutting blocks and similar items. (See figure 28)

When jointing an edge, you should be certain that the fence is square and tight at 90 degrees to the tables and that the guard is in position and properly adjusted. Set the infeed table for the correct depth of cut. The maximum efficient cut on edge jointing is $\frac{1}{8}$ inch.

Step the hands over the cutterhead as the board passes across. When first starting the board, both hands above the board on the infeed table, during the middle section, the hand above the board on both tables and during the last section, both hands on top of the board above the outfeed table. While the first part of the board is being jointed, the pressure is applied above the infeed table. As jointing continues, the downward pressure is shifted from the infeed table to the outfeed table. Keep the edge which has been jointed level with the table. (See Figure 29)

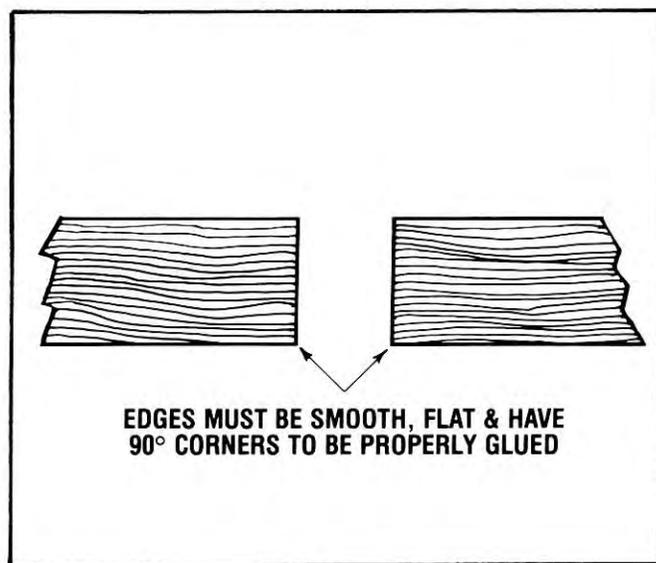


FIGURE 28

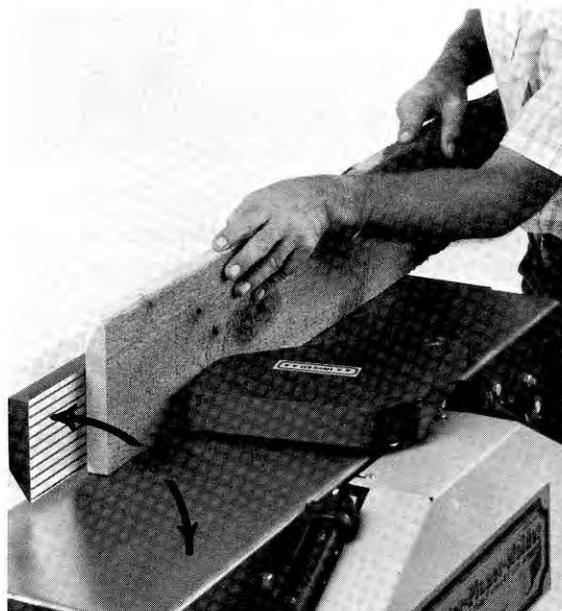


FIGURE 29

SURFACE JOINTING

Surface jointing is the jointing of the wider section of the board. Once one edge and one surface has been jointed and trued, the opposing surface and edge can be made parallel for true, straight lumber using the thickness planing section of the Model 684. Surface jointing creates the true, straight surface necessary to be held flat on the planer bed when surface planing or thickness planing, eliminating cupped, bowed or warped lumber.

When surface jointing, again, always feed with the grain of the wood. If the board is warped, turn the concave section downward so that the stock will not rock on the table. The maximum efficient depth of cut for jointing a surface is $\frac{1}{16}$ inch.

Make sure the guard is in position and that the fence is at a 90 degree angle.

A push-stick and/or push block should be used for surface jointing. (See figure 30) This eliminates slippage, protecting your hands, and greatly increases the safety of the jointing operation. On long boards it is wise to use two push blocks or a push block and push stick in tandem.

Boards with a twist or "wind" create an extra problem, as they have both a concave area and a convex section. When the convex section is passed over the cutterhead, additional pressure should be applied

using a push block to insure that the stock does not rock back and forth.

Thin stock can be surfaced by backing the stock with a heavier piece of material.

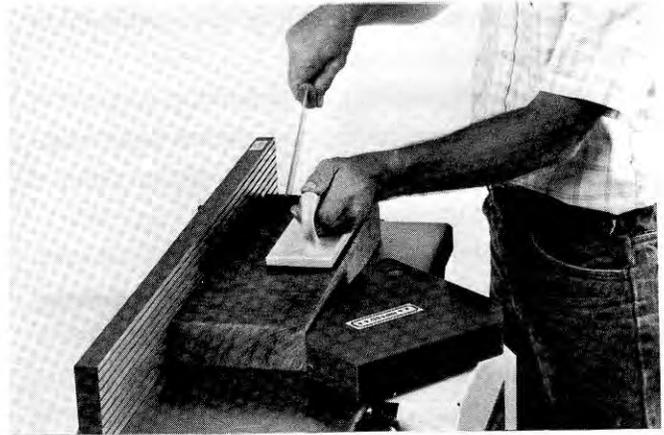


FIGURE 30

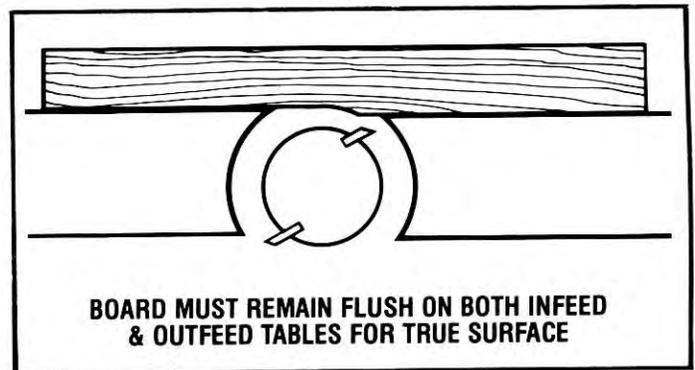


FIGURE 31

END JOINTING

End jointing is not normally recommended because of the difficulty in creating a cut without chipping or splintering. Also, because the end of the board is normally very narrow, it's difficult to control the stock and is easy to have a "snipe" at the very end.

End jointing is a procedure very rarely used since simple end-to-end butting would provide very little strength and because of the ease in which end of the stock tends to splinter and chip. It is practically impossible to make this type of joint sufficiently strong and permanent enough to meet the requirements of normal service.

In the rare event that end jointing should become necessary, joint the end from one edge inward about one inch. Reverse the board and joint from the opposite edge to where the first cut was made. This eliminates or reduces the chipping of the wood fibers at the very edge. (See Figure 32)

End jointing should be done very carefully. The qual-

ity of the joint will depend on your skill and technique developed with experience. Depth of cut should be very light with a slow rate of feed, supporting the wood against the fence and holding it downward against the tables securely.

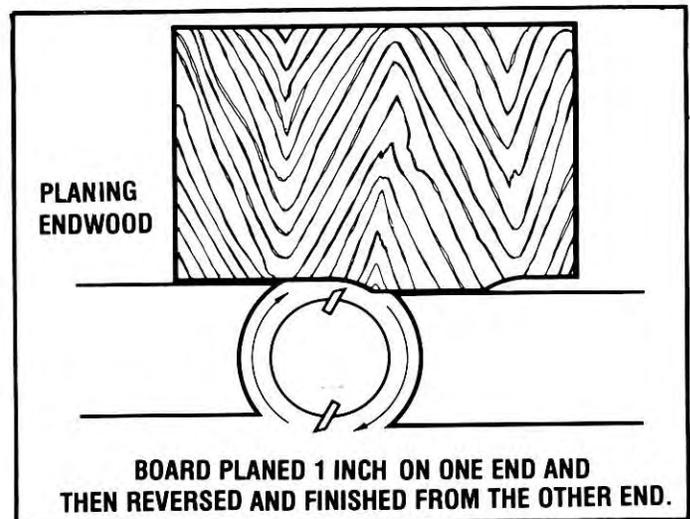


FIGURE 32

CUTTING BEVELS AND CHAMFERS

A bevel (see figure 33) is an edge of a board that is not at a 90 degree angle to the face or surface. This is often used on table edges and decorative shelving, or in specialized applications such as the manufacture of redwood hot tubs.

A chamfer (see figure 33) is the surface performed by jointing at an angle across the corner of an edge and surface. Chamfers are done simply to remove sharp edges and corners.

To make a bevel cut, tilt the fence forward and lock the fence at the desired inward angle. With the fence tilted inward, the board is wedged against the table and the fence. This will hold the work piece securely resulting in cuts more accurate than when the fence was tilted outward. Take cuts of medium thickness until the bevel is nearly planed the full shape. Finish with light cuts. Be sure to hold the side of the board in contact with the fence while holding the board down against the table as you feed it across the machine. Several cuts will be necessary to create the entire bevel.

When cutting chamfers, set up the jointer as for a bevel cut. Use a shallow depth of cut and make one pass only.

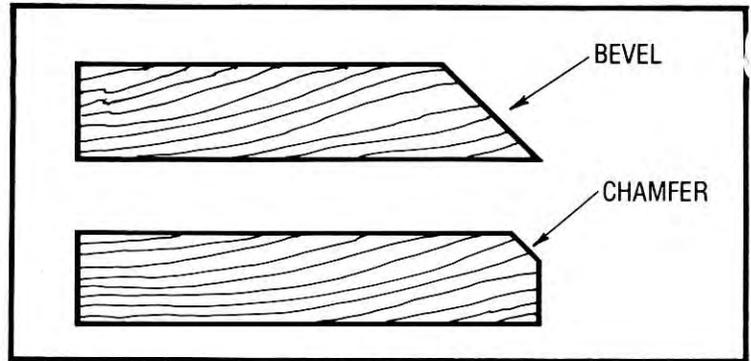


FIGURE 33

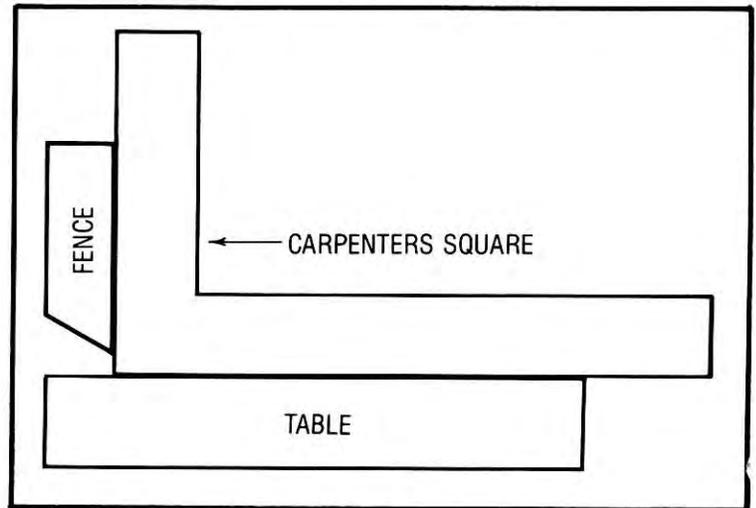


FIGURE 34

SQUARING STOCK

Squaring stock is forming a face and an edge perpendicular to each other. (At 90 degrees) This operation is necessary for the smooth square joints needed when joining boards together to form table tops on fine furniture, cabinets, clocks, and other pieces which require a decorative effect.

When squaring stock, always check the accuracy of the fence of the machine with a carpenter's square

prior to operation, setting the fence at 90 degrees to the infeed table. (See figure 34)

Joint the best surface first. When jointing the edge, hold the jointed surface against the fence securely to insure perpendicular edges. Once you have two sides square, the planing portion of your 684 will square off the opposite surface and opposite edge, making them parallel. (See figure 35)

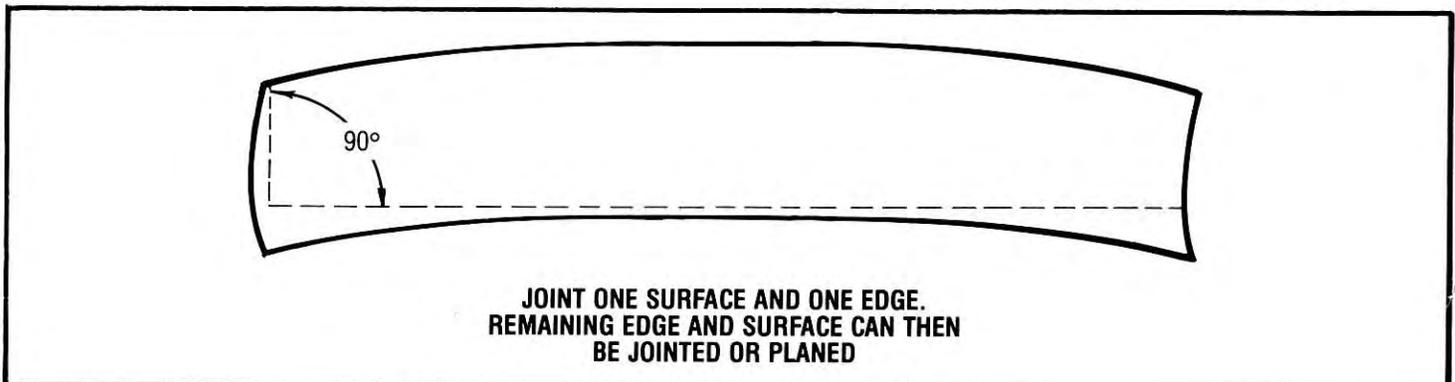


FIGURE 35

KNIFE MAINTENANCE

SHARPENING JOINTER/PLANER BLADES

The quality of the work you have obtained on your new Jointer/Planer/Molder or Planer/Molder will be dependent to a great extent on the sharpness of your jointer/planer blades. After extensive field testing, the finest hard steel was used in the jointer/planer blades which were ground at the precise angle for maximum performance in both planing and jointing operations. The planer blades are held in place by safety wedge-action gibs and are easily removed for replacement or re-sharpening.

We recommend keeping an additional set of 858 Jointer/Planer Blades on hand for quick replacement when are blades are dulled so much or have nicks so large that they must be ground. By replacing the planer blades, using a new or re-sharpened set, while the original set is being re-sharpened, you eliminate suffering through the loss of time and money caused by "down time" when the blades have been removed. We also provide a re-sharpening service for the 858 Jointer/Planer Blades as well as our Custom Pattern Knives, at a nominal charge. Simply return your dull jointer/planer blades to — Foley-Belsaw Company, 6301 Equitable Road, Kansas City, Missouri 64120 with instructions to re-sharpen the jointer/planer blades. We will send a set of factory re-sharpened jointer/planer blades postpaid. To place an order for an additional set of 858 planer blades, or if you have questions in regard to any wood working problem, feel free to call our Customer Service Staff on our toll-free number, 1-800-821-3452.

The jointer/planer blades may be honed on the machine for quick touch-ups of light nicks. For heavier nicks, and extremely dull blades, grinding is recommended.

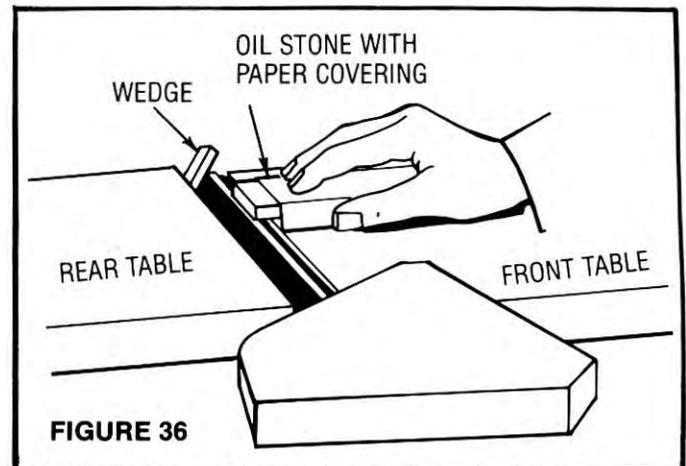
1 — HONING

ALWAYS UNPLUG YOUR JOINTER/ PLANER/MOLDER PRIOR TO HON- ING THE JOINTER/PLANER BLADES.

Quick touch-up of light nicks in the Jointer/Planer blades can be accomplished using a flat oil stone. The knives are not removed from the cutterhead for this operation. Rotate the cutterhead so that the beveled edge is parallel to the infeed table surface. Raise or lower the infeed table so that when you lay the oil stone on the table, the stone will touch the full width of the bevel on the back of the knife. Place a wooden

wedge between the cutterhead and the table fixing the cutterhead so that it can not rotate.

Wrap the oil stone with a piece of paper to protect the infeed table using a light oil or kerosene on the oil stone, slide the stone across the beveled section of the knife from one side to the other. Use even pressure length-wise on the blade so the blade is sharp. Use the same number of strokes on each blade of the cutterhead. If a burr is created, this can be removed on the flat section of the knife with a fine slip-stone or emory paper. (See Figure 36)



2 — GRINDING

After extensive planing and jointing, especially in hard woods or knotty material, the blades may have dulled so much or have nicks so large that the edge cannot be honed. Blades in this condition must be ground, in order to maintain the quality finish expected by cabinet makers and other wood crafters. For grinding, the blades must be removed from the cutterhead & returned to our office for replacement with factory re-sharpened jointer/planer blades or new jointer/planer blades.

If you prefer to maintain your own tools and blades, you should consider the world-famous Model 1055 "Sharp-All" available with the optional 270 Long Knife Holder designed for sharpening of Jointer and Planer Blades up to 12" in length. Do not install resharpened blades less than 1/2" in height.

We also have a complete line of other sharpening equipment available including the versatile Model 1080 Abrasive Belt Grinder. As well as being a versatile tool for any shop for sharpening, the Belt Grinder is also excellent for general shaping and rounding of corners on wood, plastic and other materials.

REMOVING AND INSTALLING PLANER BLADES

When you find that the blades have dulled sufficiently to require replacement with re-sharpened or replacement blades due to extensive operation, the blades may be removed and replaced using the following procedure:

The 531960 Sure-Set Knife Setting is designed to allow convenient simple adjustment of the planer blades without placing yourself in an awkward position or continuous turning of the cutterhead.

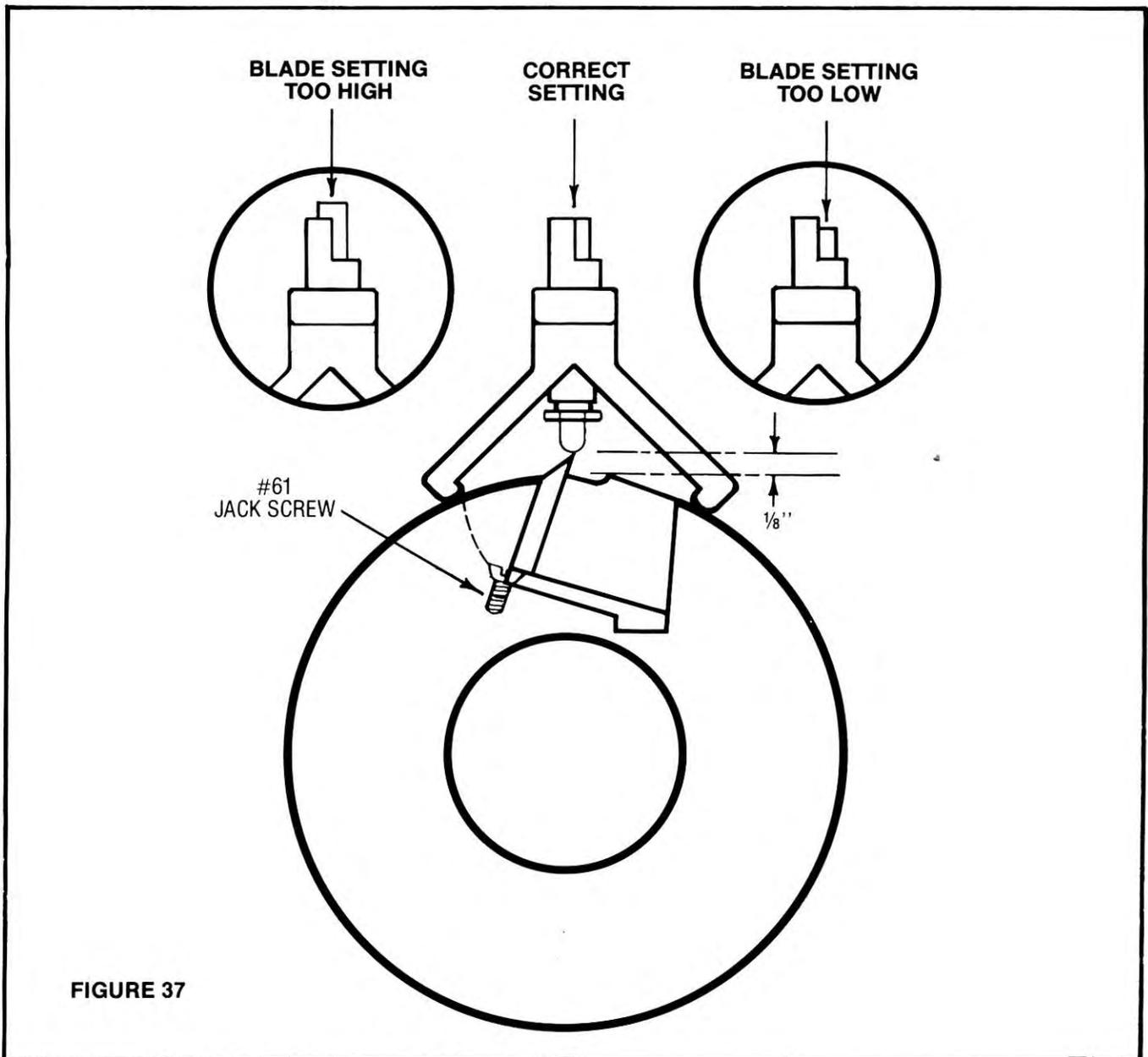


FIGURE 37

1. The high-speed hard steel number 858 Jointer/Planer Blades are held in place by safety wedge-action gibs. When the blades were installed, the gibs were wedged upward by tightening of the set screws to hold the blades in position. As the gib set screws press against the bottom of the cutterhead slot, the gibs raise to form a wedge-type seal.
2. To break the seal and remove the knife, simply

- loosen the number 64 Set Screws with a $\frac{3}{16}$ inch allen wrench until they are flush with the top of the gibs.
3. Tap the number 7 Gibs downward using either a wood block or soft metal as a punch.
4. Once the blades are free, remove the knife first, then the gibs can easily be removed.
5. Mark all gibs and matching slots to be sure they are replaced in their original position.

INSTALLING

1. Replace the gibs in the proper cutterhead slot.
2. Re-install the planer blades in the cutterhead slot using the number 61 Jack Screws as support for the blade. The Jack Screws may be raised or lowered with a $\frac{5}{32}$ inch allen wrench to give both knives a uniform projection of $\frac{1}{8}$ inch.
3. Re-tighten the number 64 Set Screws to raise the gibs upward to form the safety wedge seal.

USING THE 531960 SURE-SET KNIFE GAUGE TO CHECK JOINTER/PLANER BLADE PROJECTION

Included with the optional Sure-Set Knife Setting Gauge is a special checking block for adjusting to proper readings for all Foley-Belsaw Planers. The checking block is for use only with Foley-Belsaw Planers. The $\frac{1}{8}$ inch adjustment is for the Model 684 Jointer/Planer/Molder and 804 Planer/Molder. The thicker $\frac{5}{32}$ inch adjustment is for our larger 12" X 6" Model 910 and 912 Planers. The gauge can also be adjusted for setting knives on many other types of equipment by presetting to knives already set at the proper projection. (See Figure 39)

Although the gauge is preset at the factory, you should double check the adjustment prior to using the gauge.

1. Loosen the number 6 allen set screw in front of the gauge and place the gauge on a flat surface. Place the thinner section of the checking block under the number 3 gauge probe to adjust for $\frac{1}{8}$ inch projection.
 2. Adjust the number 1 probe slide up or down so that it is exactly level with the top of the probe.
 3. Lock the probe slide in position by tightening the allen screw on the front of the gauge. (See Figure 38)
- To use the gauge, simply place it over the knife so that the feet of the gauge rest on the cutterhead and the probe contacts the cutting edge of the knife. If the probe rides above the slide, the knife is too high. If the probe is lower than the top of the slide, the knife is too low. Adjust the knife elevation using the number 61 Jack Screws until the top of the probe is level with the probe slide. Check this setting in two or three positions across each knife and lock the knives in position, rechecking to make sure that adjustments have not slipped.

Proper knife adjustment will insure trouble-free operation from your jointer.

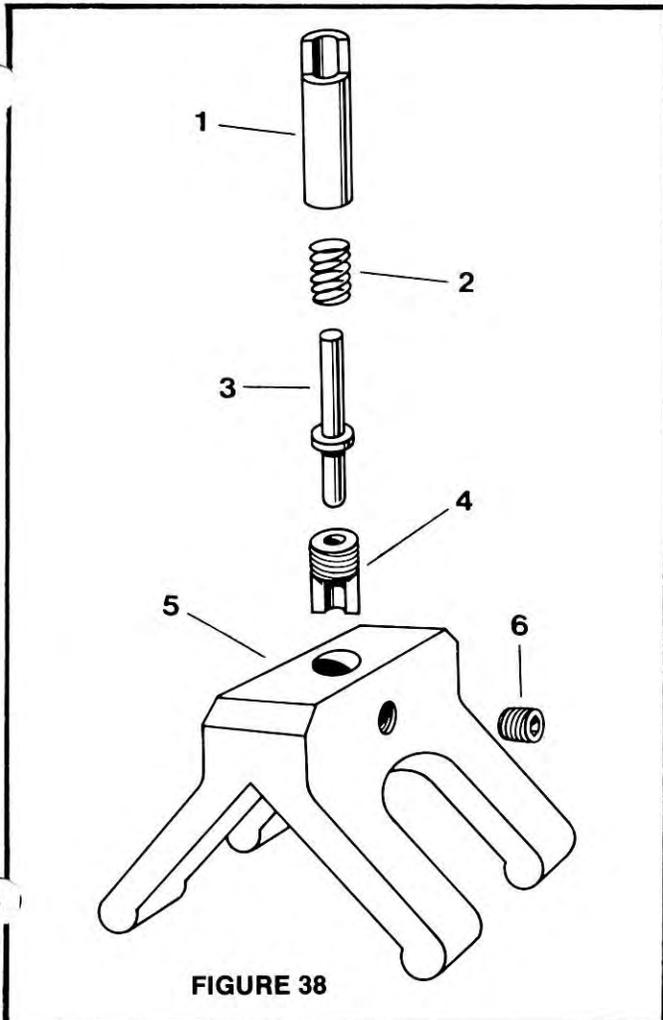


FIGURE 38

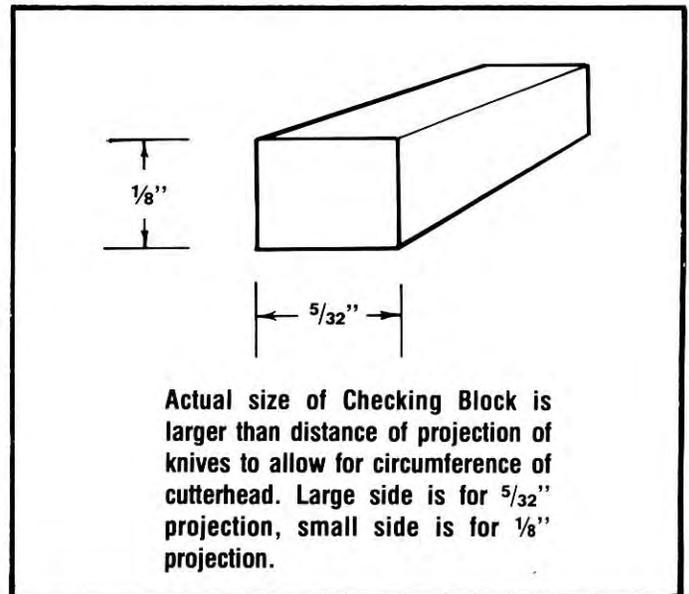


FIGURE 39

PARTS LIST FOR MODEL 531960 SURE-SET		
KEY NO.	PART NO.	DESCRIPTION
—	539100	Checking Block
1	539101	Probe Slide
2	539102	Spring
3	539103	Probe
4	539104	Probe Height Adjustment
5	539105	Base
6	539106	Set Screw

EXPLANATION OF PLANING

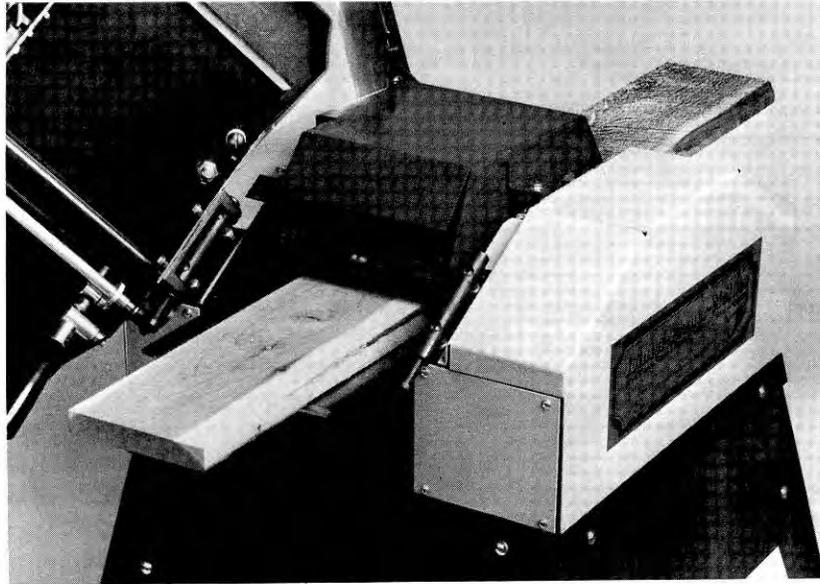


FIGURE 40

Thickness planing is the sizing of material to the proper thickness while creating a smooth surface parallel to the opposite side of the board. Once you have a true, straight surface created by your jointer, the planing section smooths the board to the desired thickness creating a second true straight surface with even thickness throughout the length of the board.

Edges may also be planed after a true straight surface has been created on the jointer on the opposite edge. The art of thickness planing consists mainly of using good judgement about the depth of cut in various situations. You must take into account not only the width of the stock, but also the hardness of the board, its dampness, straightness, grain direction and grain structure.

The effects of these factors upon the quality of the finished work, can only be learned through experience. It is always advisable whenever working with a

new type board, or one with unusual problems, to make test cuts on scrap material if possible, prior to working your finished product. Always start by making a light planing cut. The depth of cut on subsequent passes may be increased, however, remember a light cut creates a finer finish than a heavier cut. Be sure to observe the finished results on each pass as well as the load placed on the planer.

When used as a thickness planer, the Jointer/Planer/Molder can remove stock up to a maximum of $\frac{5}{32}$ nd inch in one pass. Removal of the stock in one pass will not give as fine a finish as lighter cuts. Heavier cuts are only practical when subsequent lighter cuts will be made to produce a fine finish or when only thickness, not finish is the concern. Attempting maximum cuts on wide stock or hard woods could also damage the motor. (See figure 41)

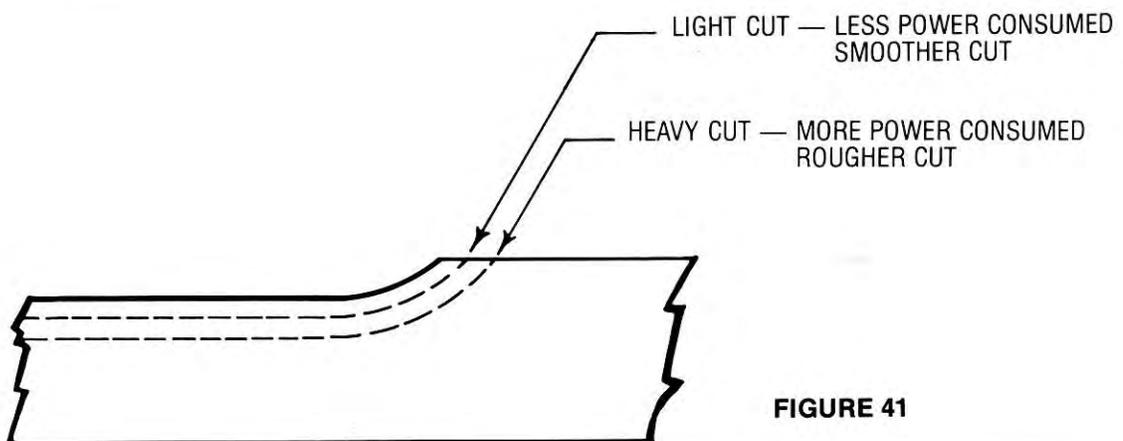
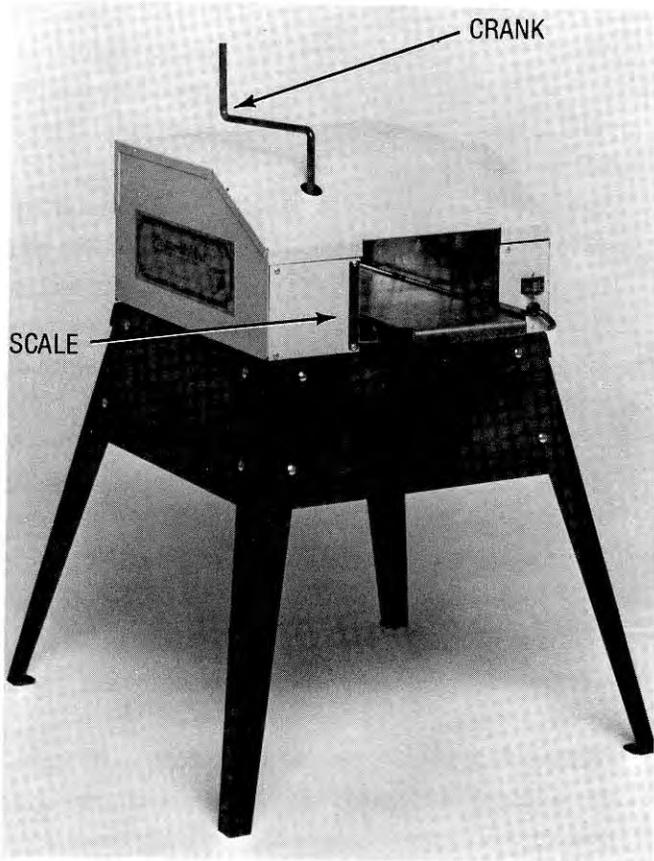


FIGURE 41

PLANING INSTRUCTIONS

PLANING TO DESIRED THICKNESS



MODEL 804

FIGURE 42



MODEL 684

FIGURE 43

The finished thickness of stock run through the planer is controlled by the distance you adjust the bed from the cutting knife. Measure the thick part of the board you wish to plane. To obtain the desired thickness, adjust the bed so that the scale reads $\frac{1}{16}$ th inch lower than the thickest part of the board. For instance, if the board measured $\frac{3}{4}$ inch, or $\frac{12}{16}$, the scale should read $\frac{13}{16}$ ths. Because the feed rollers are lower than the jointer/planer blades, you can feed the board through the machine without the knives contacting all of the board.

Feed the board straight into the planer. As the feed rollers take hold, let go of the board and stand to one side, not in direct line with the board. Raise the bed until the knives just contact the wood. The power

feed completes the travel without further pushing or pulling.

Once the board is passed through the planer, you can re-measure the thickness of the planed area of the board to determine the additional amount of wood to be removed to obtain the desired thickness.

Each turn of the crank raises the bed $\frac{1}{16}$ th inch. Although, a maximum cut of $\frac{5}{32}$ nd inch can be made in one pass, this is only practical on narrow stock or soft wood. Remember that re-runs to desired thickness can give you a much smoother finish and will not overload the motor. See figure 41 on power consumption in the section entitled, "Explanation of Planing".

PLANING FOR FINISH

Always feed the board in a direction that allows the planer blades to cut with the grain. This aids the knife in severing the wood fibers rather than lifting and tearing the fibers. Torn fibers give a fuzzy appearance to the surface. Feeding against the grain can also cause your knife to lift large chips from the board surface causing a very unsightly appearance. Place the best or flattest side down whenever possible.

There are several ways to tell grain direction. Feeding with the grain is feeding so that the grain slants in the same direction in which the knives travel as they emerge from the cut. (See Figure 44)

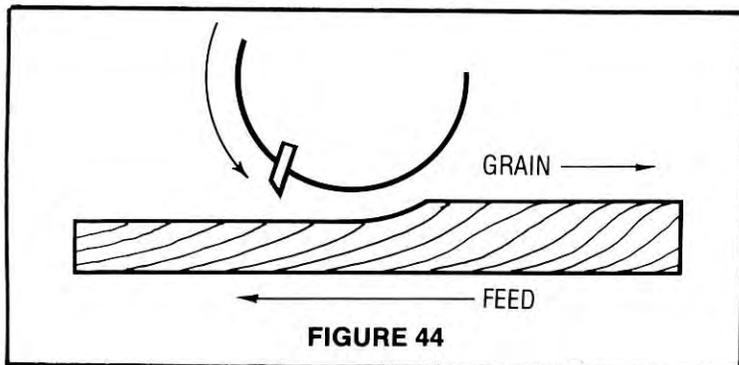


FIGURE 44

Grain patterns often have a "V" shape. The point of the "V" should point in toward the cutterhead while feeding.

Grain direction can also be determined by running your finger tips over the stock. Stock will feel smoother when your finger tips move with the grain. Where grain direction reverses, better results will be obtained if the board is cut in two and each half planed with the grain. (See figure 45)

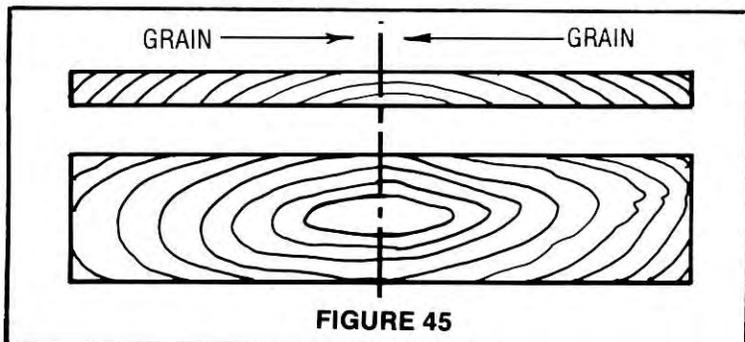


FIGURE 45

An area sometimes overlooked in regard to the finish of the board is the sharpness of the knives and knife projection. The knives can work easier and sever the wood fibers easier creating a much smoother surface when they are sharp. For best results, be sure to maintain the sharpness of the planer blades either by jointing or sharpening (See sections on "Sharpening

Jointer Planer Blades" and "Removal and Installation of Jointer Planer Blades").

Proper knife projection also plays a very important part in the finished thickness and the quality of the finish. If the knife projection is too high or too low, you will not obtain the desired thickness that is read on the scale. Also, if the knife projection is too high or too low, the knives will enter the wood at a different angle and the result of the finish can vary. (See Section on Sure-Set Knife Gauge)

The interior of a board is usually more moist than the surface. If you plane only on one side of the board, you will end up with one dry side and one wet side. This condition will result in warpage as the moist side dries out. Always try to remove the same amount of wood from each side of the board.

When planing wet or resinous stock, keep the feed rollers clean by wiping them with a rag that has been moistened with kerosene.

Do not feed boards shorter than 7½ inches. This can cause kick-back. Butt pieces of stock together whenever possible, especially short pieces. This gives a more positive feed and helps to eliminate "snipe" on long pieces.

"Snipe" is a slightly deeper cut which can occur on the ends of the boards. Snipe can occur on boards that are not properly supported because the weight of the board will not allow the feed rollers to properly hold the stock flat against the table. Keeping the board level throughout the entire travel will minimize snipe. On longer boards, proper support can be obtained by using our 531283 Extension Roller and Stands. This is ideal for supporting the ends of long, heavy stock. It also works on all shop tools such as table saws. The stand height is adjustable from 24 inches to 39 inches.

When forced to plane a board that is bent or bowed, where the ends are higher than the middle section, always start with the ends curving upward, not downward.

Wood working machine operators know the importance of keeping their machines properly oiled and greased. Some make it a regular practice of rubbing a candle or paste wax on the table of the machine such as a planer or jointer. As the work distributes the wax, it closes surface pores. This practice not only reduces friction, but also gives protection against rust.

INTRODUCTION TO MOLDING

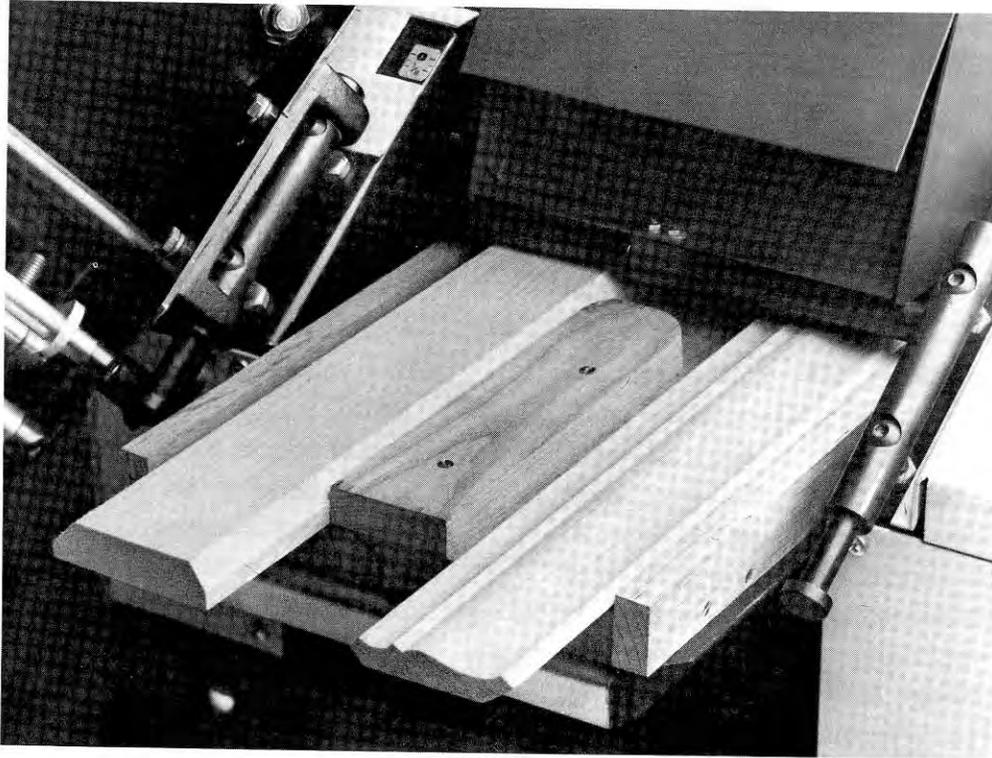


FIGURE 46

Almost everyone has heard of wood molding, but what exactly is it? Also referred to as wood work, finish, mill work or trim, molding can be defined as a decorative recess or relieved surface, a decorative plain or curved strip used for ornamentation, or finishing. It also has been defined as a decorative strip of wood milled with a plain or curved narrow surface which is continuous throughout its length. The term "molding" comes from the fact that it appears to have been cast from a mold.

Historically, molding has been used since the ancient Greeks, as early as 600 B.C. Wood moldings were used in the classic Greek columns to ornament and decorate their classic architecture. Practical functional use of wood molding to cover poorly fitted joints and structural cracks goes back even before the days of ancient Greece. Molding is still being used today for decorative and functional purposes.

In the modern world, molding is used as a decorative feature with patterns such as coves, crowns and beds, mulion casings, picture molding, quarter rounds, dowels, panel molds, and a variety of other

uses. Functionally, it is used for window framing, picture framing, door jams, and many other uses.

Today, even with the modernization of contemporary homes, more molding is being sold than ever. If not used in traditional ways, it is being used in new and imaginative ways.

Molding is also used for decorative effects on cabinets, grandfather clocks, or any time a quality piece of furniture is desired.

The 684 Jointer/Planer/Molder and 804 Planer/Molder were designed with this in mind allowing you to start with rough or scrap lumber and work the material into decorative, functional wood moldings.

Foley-Belsaw Planer/Molders lets you custom design to your own specifications the trim that is used in your projects as "do-it-yourselfer", cabinetmaker or "fine wood worker".

Not only will you save on the high cost of finished molding, but you will save yourself the difficulty and inconvenience of obtaining the finished molding.

With the high cost of materials used in today's new home market, and furniture market, many building

material retailers and lumber yards are finding it uneconomical to stock anything other than the most commonly used molding. If you can find the molding you need, it may not be of the size and quality you desire. By the time the molding is produced by the large molding producer and passed on through the middlemen, the jobbers and distributors, large building contractors, and building material retailers, it can become very uneconomical to purchase ready made molding.

By obtaining rough or scrap material and using your Model 684 or 804 to work the wood into your finished molding, you also receive the satisfaction of working the wood from raw materials to the finished product, as well as your savings in cost and inconvenience.

Although rough lumber normally is readily available, at a great savings compared to finished wood, even greater savings can be obtained by using scrap wood which others might discard. If you have difficulty in locating the material needed for your project, you can often find just the material you are looking for with a little ingenuity. Either free or at very little cost, again, material that might otherwise be destroyed or considered a nuisance by the owner.

Check with companies who import items, especially from oriental countries. Crating used in exporting often can yield exceptionally long and wide stock.

Factories and manufacturing companies who receive raw materials on skids often don't have a way to dispose of their used skids. Quite often, they will be happy to let you have their scrap wood.

Also good are local motor freight, rail road freight and air freight terminals. Quite often, items are unpacked from their crates before they are delivered to their local destination.

Finally, don't forget the scrap materials from your own projects.

Besides using the 684 or 804, for patterns of your own design, the opportunities for resale are virtually unlimited. It is estimated that 75% of all remodeling is done primarily by the home owner himself. With the high cost of materials used in the new home market, and consequently, high selling prices, more and more people are remodeling their present homes rather than purchasing or building new homes. They of course, have the same difficulties in obtaining finished molding at reasonable prices.

As well as the home remodeler, even contractors have

difficulties obtaining good quality molding. By cutting out the middle man, and starting with inexpensive rough or scrap material, finished molding can be resold at reasonable prices.

The following section shows Custom Pattern Knives available for molding. These patterns are used in the building and construction trade. All are listed by the Western Wood Products Association. Over 110 patterns are shown. All knives are designed to entirely complete the exposed portion of the molding in one pass through your Jointer/Planer/Molder.

For special set ups, or small simple moldings, 1 inch cutter bits are shown next. By combining different sets, you can make an infinite variety of molding patterns.

And of course, for special molding patterns not normally stocked by us, we can custom grind knives to your exact specifications. These knives are made from the same 1/4 inch super high speed steel used for our stock Custom Pattern Knives.

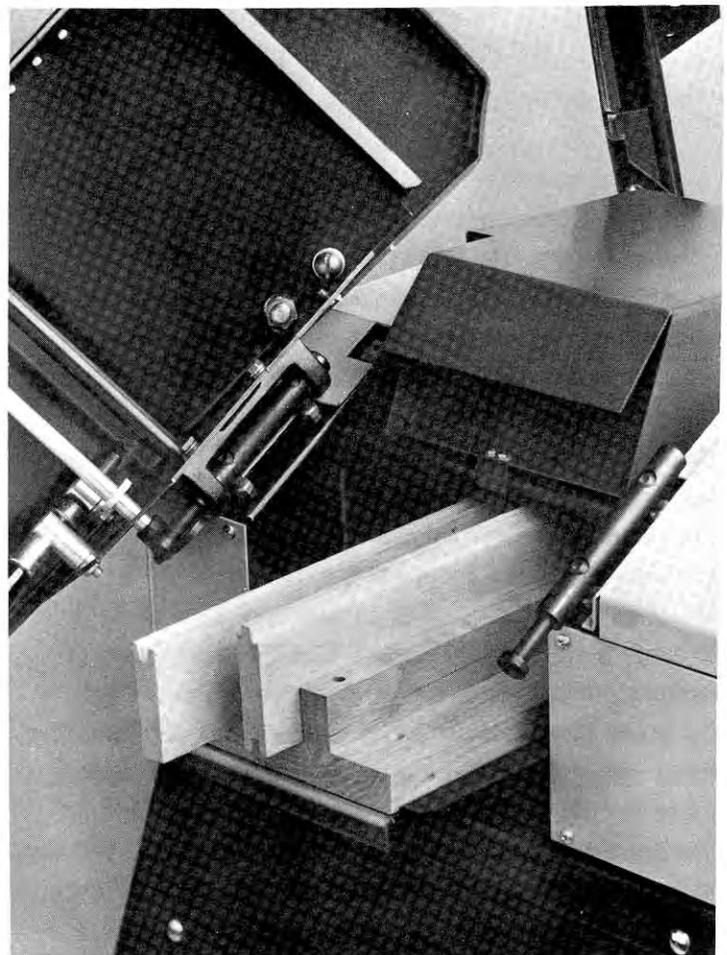


FIGURE 47



Custom pattern knives

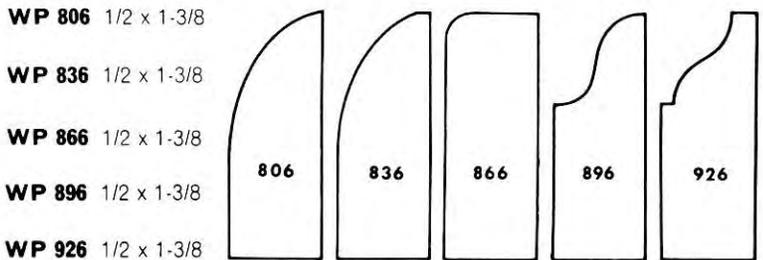
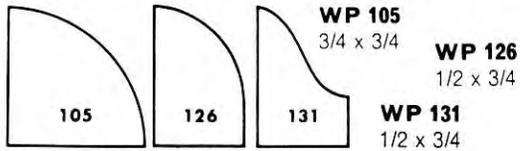
Here is the most complete listing of molding patterns ever offered!

ALL of these popular designs are being used in the building trade and are listed by the Western Wood Products Association. Drawings have been reduced slightly—exact dimensions are listed for each pattern.

Where size and shape permit, most knives have been designed to cut multiples in a single pass. See our price list for details.

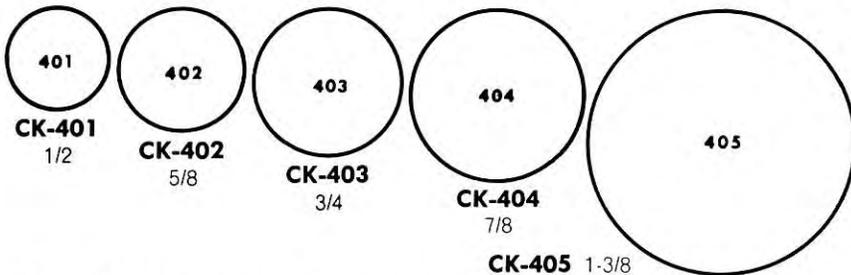
If you wish a knife custom-ground to your specifications, send a DETAILED drawing or stock sample for prompt quotation by return mail.

BELSAW CUSTOM PATTERN KNIVES ARE EXPERTLY GROUND FROM 1/4" THICK HIGH SPEED STEEL.



BASE SHOES Shoe mold covers the joint between the base mold and the finish flooring—the final seal against moisture and dirt. Quarter-Round pattern (105) is standard size 3/4" x 3/4". The ogee shape (131) is highly popular.

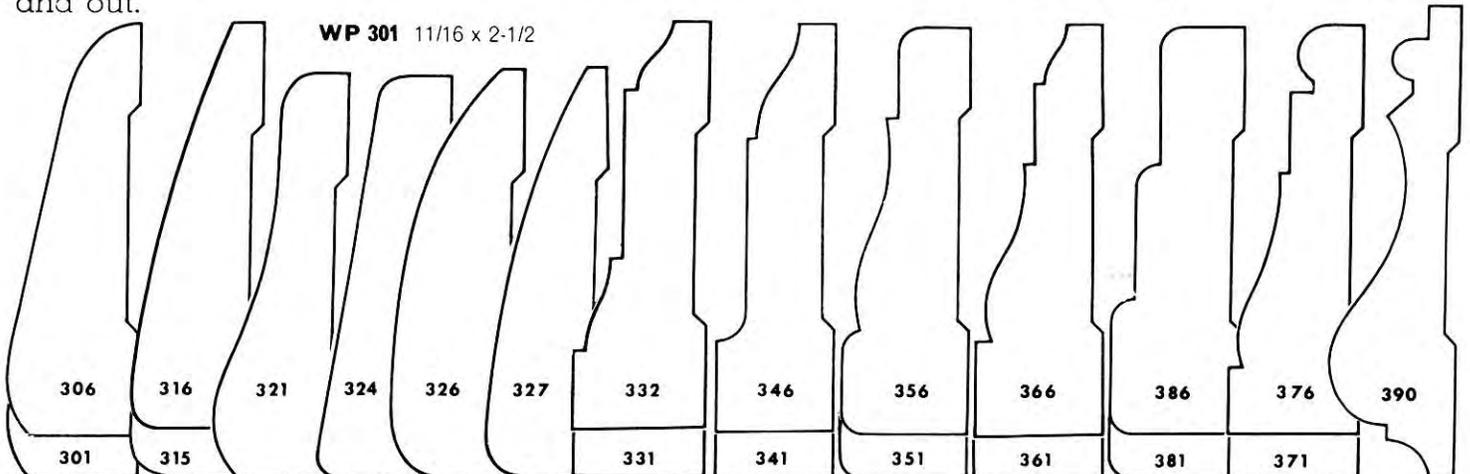
STOPS On window frames, holds the sash in place. On doors, they stop the door in the closed position. We stock the five basic shapes (shown) in their most popular dimensions.



DOWEL Although not truly classified as a molding, these highly useful pattern knives are one of our most popular. Whatever their use, the selection of sizes shown will probably meet your requirements. The same knives are used to produce half-round.

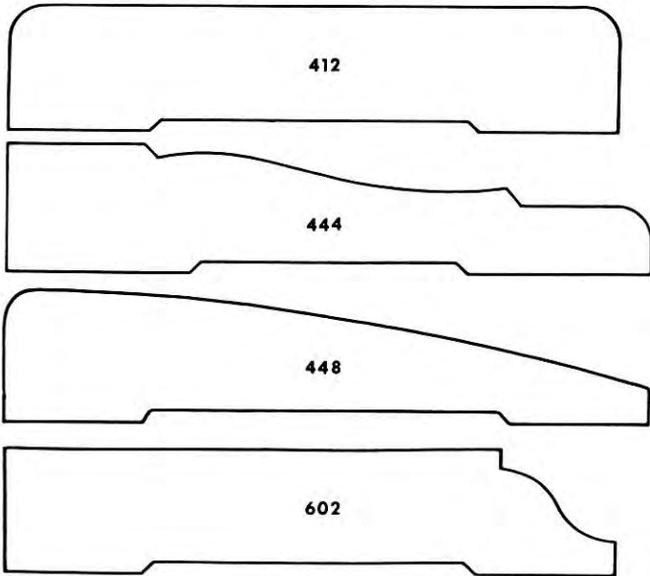
CASING Provides a decorative trim around a doorway, window or other opening. Standard shape for modern trim is the clamshell type (Nos. 301 & 306). Casing is used both inside and out.

- | | | | |
|----------------------|----------------------|----------------------|----------------------|
| WP 306 11/16 x 2-1/4 | WP 326 11/16 x 2-1/4 | WP 346 5/8 x 2-1/4 | WP 371 11/16 x 2-1/2 |
| WP 315 11/16 x 2-1/2 | WP 327 11/16 x 2-1/4 | WP 351 11/16 x 2-1/2 | WP 376 11/16 x 2-1/4 |
| WP 316 11/16 x 2-1/4 | WP 331 11/16 x 2-1/2 | WP 356 11/16 x 2-1/4 | WP 381 11/16 x 2-1/2 |
| WP 321 11/16 x 2-1/4 | WP 332 11/16 x 2-1/4 | WP 361 11/16 x 2-1/2 | WP 386 11/16 x 2-1/4 |
| WP 324 11/16 x 2-1/4 | WP 341 5/8 x 2-1/2 | WP 366 11/16 x 2-1/4 | WP 390 11/16 x 2-5/8 |

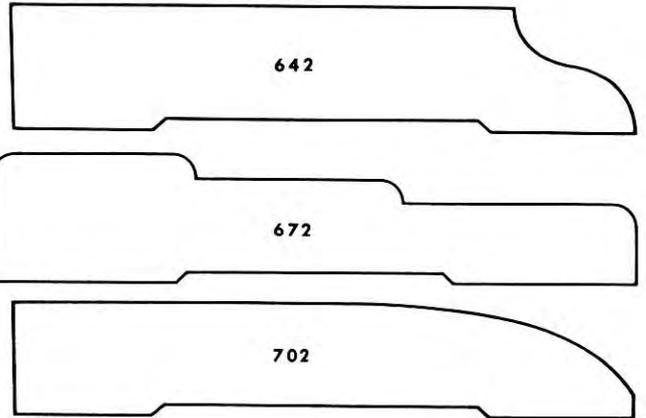


CASING AND BASE

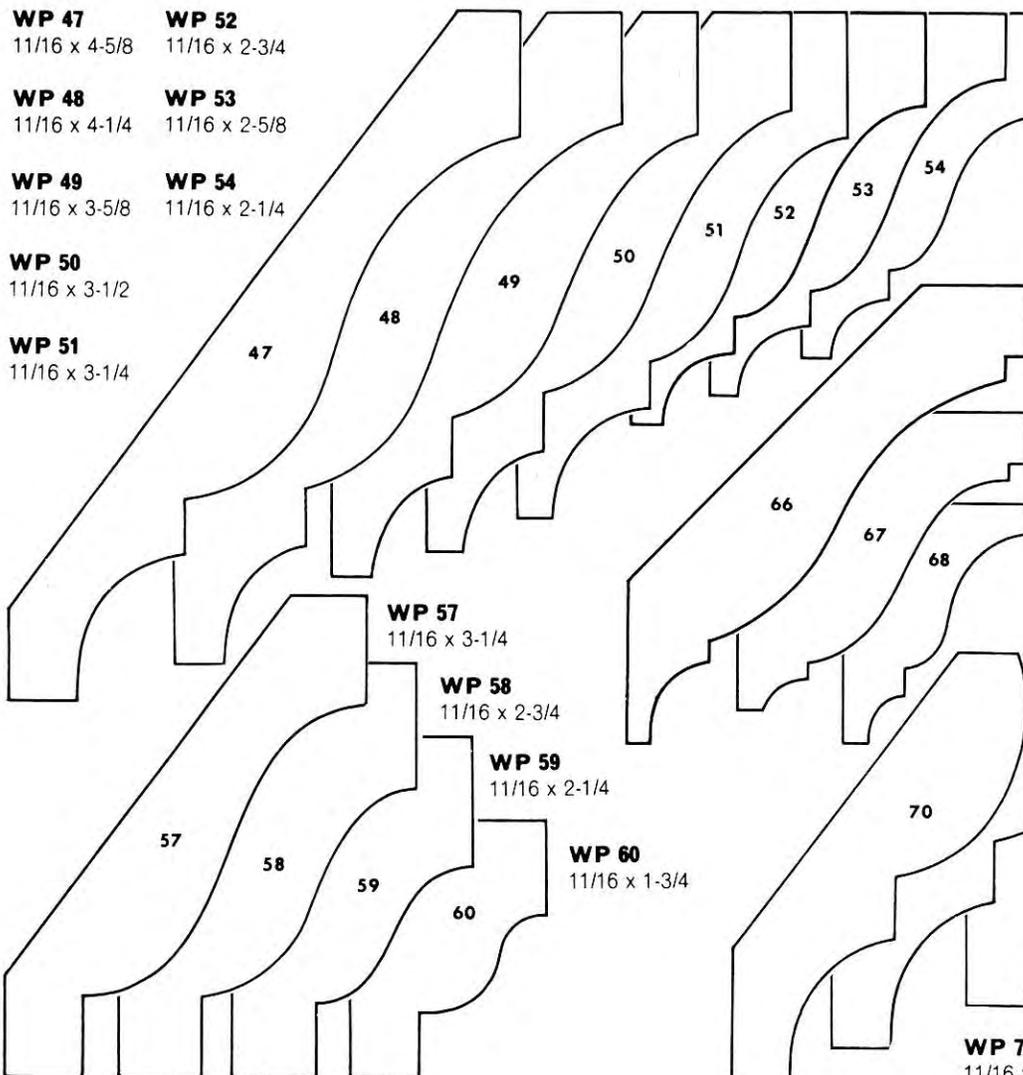
Very similar in shape to standard casing, however these moldings are normally larger. These designs serve either as trim for doors and windows or as baseboard where walls meet floors.



- WP 412** 11/16 x 3-1/2 **WP 642** 11/16 x 3-1/2
- WP 444** 11/16 x 3-1/2 **WP 672** 11/16 x 3-1/2
- WP 448** 11/16 x 3-1/2 **WP 702** 5/8 x 3-1/2
- WP 602** 11/16 x 3-1/2



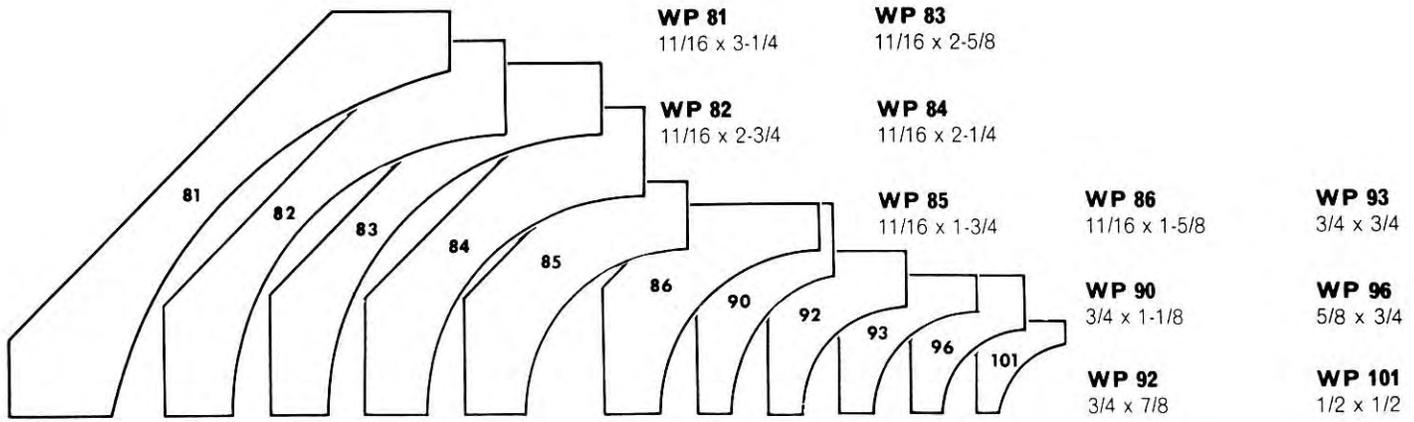
- WP 47** 11/16 x 4-5/8 **WP 52** 11/16 x 2-3/4
- WP 48** 11/16 x 4-1/4 **WP 53** 11/16 x 2-5/8
- WP 49** 11/16 x 3-5/8 **WP 54** 11/16 x 2-1/4
- WP 50** 11/16 x 3-1/2
- WP 51** 11/16 x 3-1/4



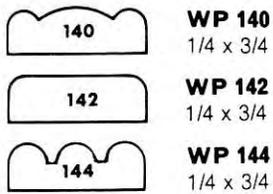
CROWNS/BEDS

The modern shape of these popular moldings are derived from one classic style dating back to the golden age of Greek architecture. Designed to bridge corner between wall and ceiling since few meet at true right angles. Also popular for use under a fireplace mantle and as frames for mirrors and pictures.

- WP 66** 11/16 x 3-1/4
- WP 67** 11/16 x 2-1/4
- WP 68** 11/16 x 1-5/8
- WP 70** 11/16 x 2-3/4
- WP 71** 11/16 x 2-5/8 **WP 72** 11/16 x 2-1/4
- WP 74** 11/16 x 1-3/4 **WP 75** 11/16 x 1-5/8 **WP 76** 11/16 x 1-1/2

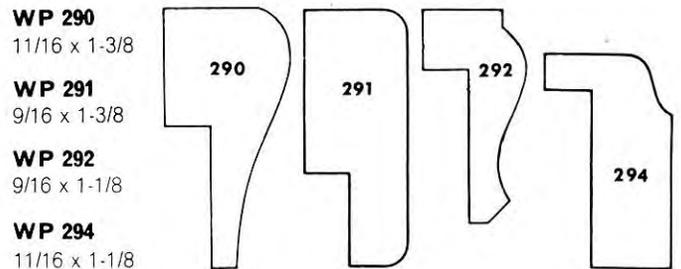


COVES Used much the same as Bed and Crown molding, these are designed for use in a corner as a graceful blend between two right-angle surfaces, as at floor or ceiling. Smaller sizes are often used to clean up corners in paneling or to give a finished look beneath the overhang of a desk top. Because of its simplicity, the cove shape adapts well to stark, modern design.



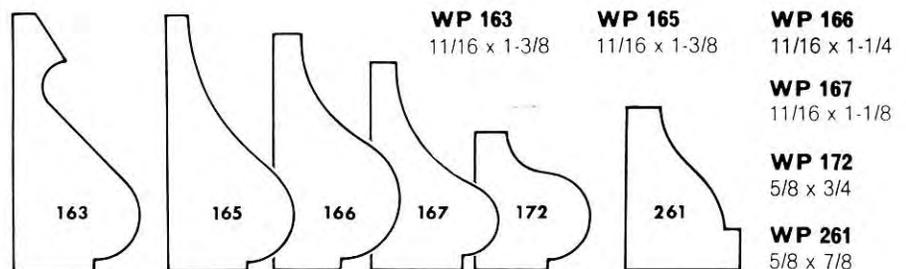
SHELF EDGE/SCREEN MOULD Used as a Shelf Edge, it gives a highly decorative edge to wooden shelves or does a fine job of covering the exposed edges of plywood. Used as Screen Mold, it is used to cover the tacks or staples on window or door screens.

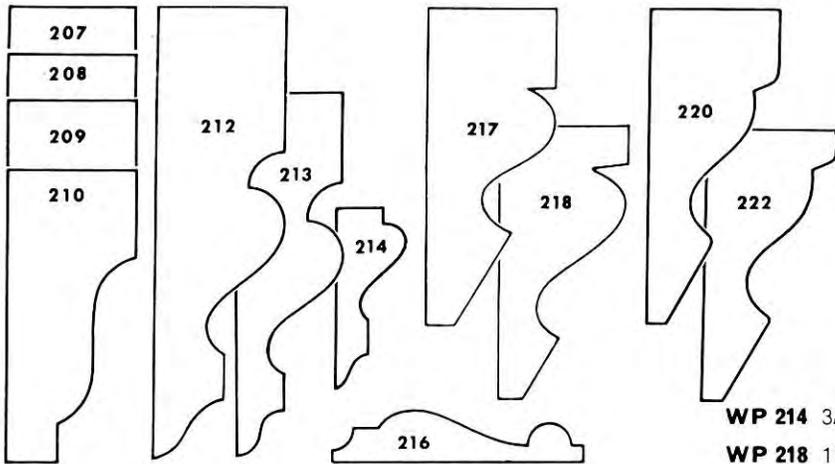
WAINSCOT/PLY CAP A rail-like effect for wainscoting is produced when these highly popular shapes are nailed along the upper edge. Since they cover exposed plies, they are especially effective for edging plywood. Note that the rabbets shown on these moldings accept the highly popular 1/4" veneer paneling.



CAP & BRICK (Base Caps)

Special molding for a special job . . . these caps set on the top edge of a standard flat baseboard to give it a finish and to close any gap caused by an uneven wall. Provides a neat trim where brick or stucco meet wood on exterior walls.

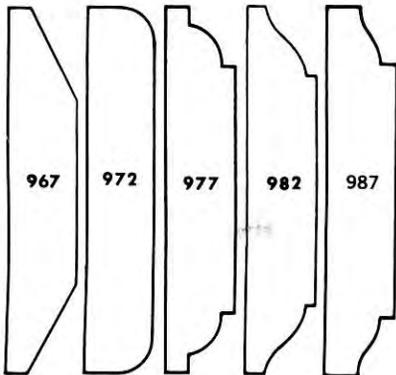




PANEL MOULDINGS Commonly used to top off baseboard and panel wainscoat. Makes an extra good shelf cleat. Mitered and snugged into the corners formed when a flat panel is recessed within a frame, this molding gives the appearance of richly carved paneling. Often used as shingle molding to give a neat, decorative joint where shingles or siding butt against window sills or eaves.

- | | |
|-----------------------------|-----------------------------|
| WP 207 11/16 x 2-1/2 | WP 208 11/16 x 2-1/4 |
| WP 209 11/16 x 2 | WP 210 11/16 x 1-5/8 |
| WP 212 11/16 x 2-1/2 | WP 213 9/16 x 2 |
| WP 214 3/8 x 1 | WP 216 9/32 x 1-3/8 |
| WP 217 11/16 x 1-3/4 | WP 218 11/16 x 1-1/2 |
| WP 220 11/16 x 1-3/4 | WP 222 11/16 x 1-1/2 |

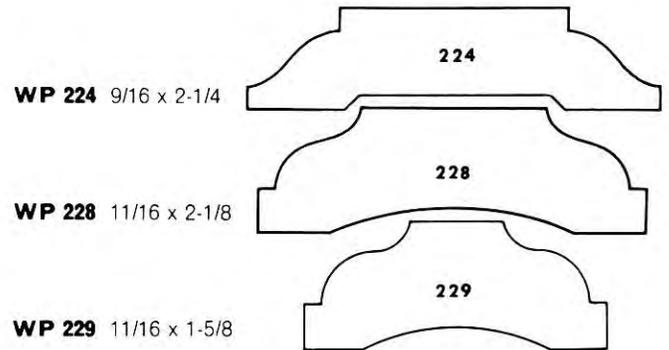
MULLION CASINGS



- | |
|-----------------------|
| WP 967 3/8 x 2 |
| WP 972 3/8 x 2 |
| WP 977 3/8 x 2 |
| WP 982 3/8 x 2 |
| WP 987 3/8 x 2 |

Also called Panel Strips in the new standards, these 3/8" thick moldings are designed to cover vertical

joints between window frames when there is more than one in a series. Their clean, modern lines makes them very popular for use as battens for interior paneling.

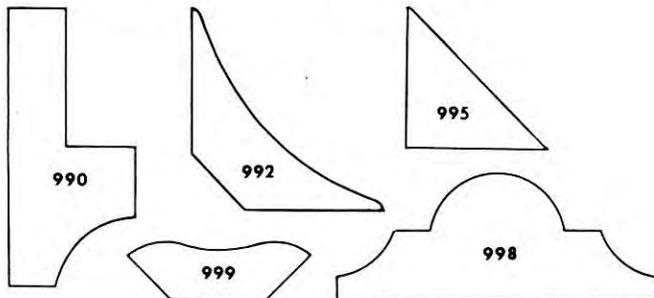


- | |
|-----------------------------|
| WP 224 9/16 x 2-1/4 |
| WP 228 11/16 x 2-1/8 |
| WP 229 11/16 x 1-5/8 |

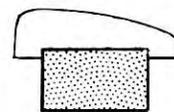
BATTENS

Originally designed to cover joints in board-and-batten siding, these moldings are also applied in mitered frames to flat surfaces, (plywood walls, garage doors) to give the effect of recessed panels.

MISCELLANEOUS MOLDINGS

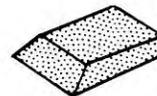


- | | |
|-----------------------------|---|
| WP-990 11/16 x 1-1/2 | SHELF CLEAT —Nailed to wall or side of case to support shelving. |
| WP-992 9/16 x 1-1/2 | LINOLEUM COVE —Used as a Base Shoe in rooms with mopable floor surfaces. |
| WP-995 3/4 x 3/4 | CHAMFER STRIP —Used to finish off inside corners. Gives a bevel effect. |
| WP-998 11/16 x 1-3/4 | ASTRAGAL —Is attached to one of a pair of swinging doors to act as stop for the other. |
| WP-999 5/16 x 1 | INSIDE CORNER —Used same as No. 995 except has a more decorative effect. |

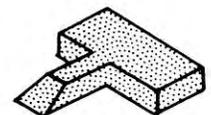


CK-370 Back Relief Knives

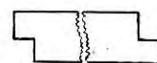
Where Back Relief cut is desired, order 370 Back Relief Knives and specify length. Back Relief Knives are made of 1/8-in. thick steel same as planer knives. Use same gib as used with planer knife.



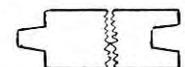
CK-384 Edge Knife—1-in. long



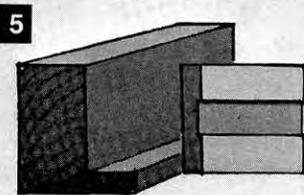
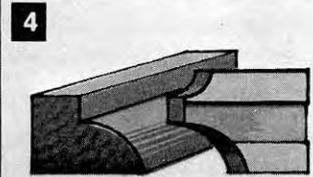
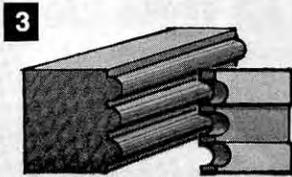
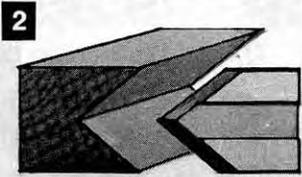
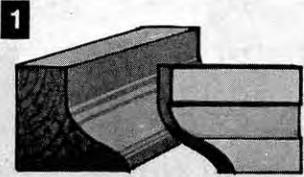
CK-385 Parting Bits—1/4-in.



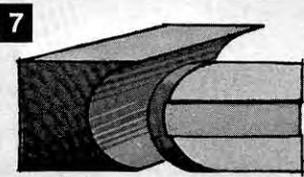
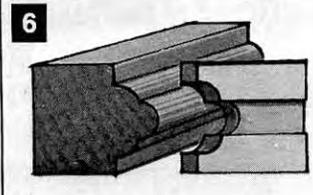
CK-387 Rabbet Knife—1-in. (specify depth of cut)



CK-389 Tongue & Groove (2-in. for 2-in. stock)



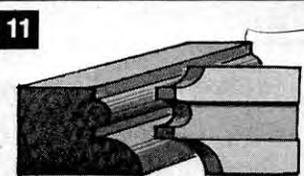
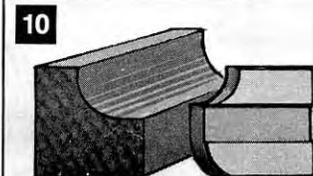
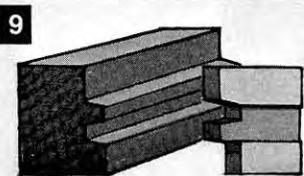
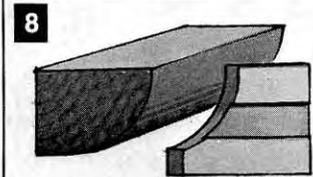
MOLDING USING 1-INCH CUTTER BIT SETS



We've illustrated and described each cutter bits function, but you can make an endless variety of patterns by combining different sets.

Foley-Belsaw Molding Cutter Bits are made of special alloy tool steel, heat treated and tempered to hold sharp edges through long periods of sustained cutting.

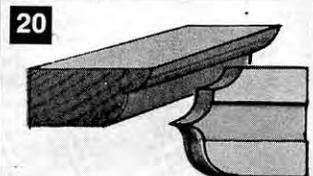
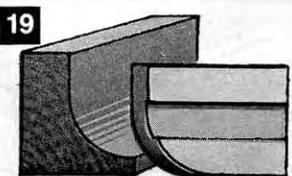
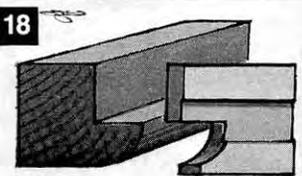
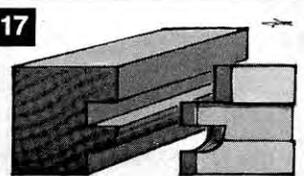
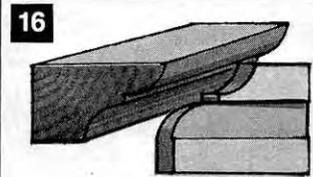
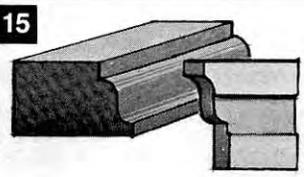
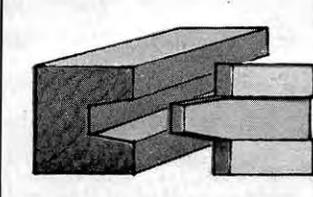
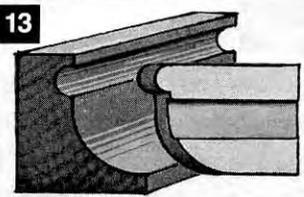
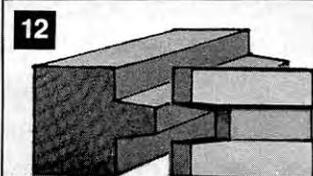
Each set contains three bits except No. 530303 Tongue & Groove which has 6 (3 for tongue and 3 for groove).



ILL.

NO. CAT. NO. DESCRIPTION

- 1 530202 . . . Ogee Stop and Base Cutter
- 2 530204 . . . 90° Flute and V-groove
- 3 530352 . . . 1/4" Three-bead Cutter
- 4 530302 . . . 1/4" and 1/2" Quarter Round
- 5 530302 . . . Rabbet Cutter
- 6 530354 . . . Clover leaf, screen mold, shelf or table edge
- 7 530206 . . . 1" Flute, 1/2" Radius
- 8 530355 . . . Base Mold Cutter
- 9 530201 . . . Glue Joint Cutter
- 10 530207 . . . 5/16" Quarter Round & Cove
- 11 530208 . . . 3/16" & 3/8" Quarter Round, 1/4" Bead Cutter
- 12 530303 . . . Tongue & Groove
- 13 530359 . . . Cove and Flute Cutter
- 15 530357 . . . Window Sash, Base Cap
- 16 530358 . . . 5/16" Cove and Bead
- 17 530361 . . . Panel Cupboard Door Cutter
- 18 530356 . . . Cabinet Door Lip Cutter
- 19 530360 . . . 5/8" Cove Cutter
- 20 530362 . . . Table and Shelf Edge
- 530200 Complete set of all 20 Cutters listed above; set contains only one knife for each pattern shown (not 3 per set).



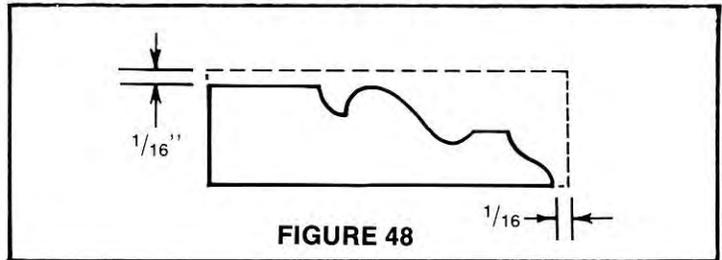
SETTING UP FOR MOLDING

The use of a bed board is extremely critical. Most of the Custom Pattern Knives and Molding Bits are designed to cut below the molding being made to eliminate rough edges and to final size the molding. To keep the moving custom knife or cutter bit away from the metal bed of the machine, a bed board of 1 inch thickness should be added to the bed of the machine by C-clamping or permanently mounting with counter sunk screws and nuts.

For your safety and operation, again, always pre-size your material, add a bed board, set up guides properly, set the proper depth, and before making your finish molding run, make practice runs with scrap material.

The art of creating quality molding requires planning your molding operation prior to starting. Always pre-size your stock to within $\frac{1}{16}$ th inch final thickness before running your molding. If possible, pre-size it to within $\frac{1}{16}$ th inch in width also. (See figure 48)

Always use a bed board when making molding using custom pattern knives or cutter bits.



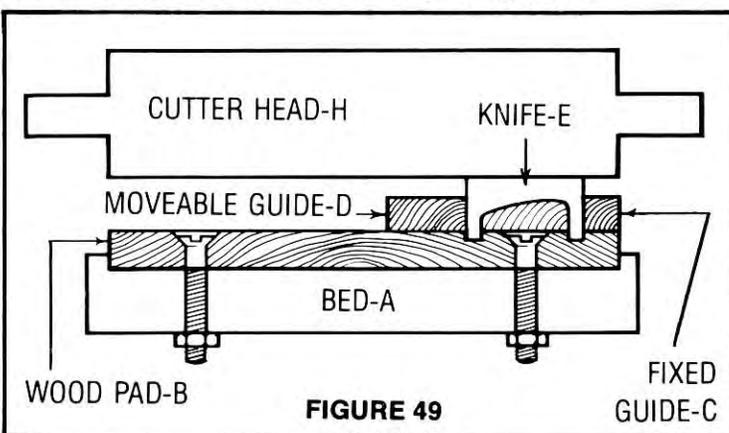
Consider not only the width of the stock but also the hardness of the board, its dampness, straightness, grain direction and grain structure.

Although the majority of moldings can be made in one pass, wider moldings of harder wood will consume considerably greater power and reruns may be necessary. Consequently, the setting-up of your guides is extremely important, so that the stock runs beneath the cutter bit or custom knife, the same on each pass.

MAKING A BED BOARD FOR CUTTER BITS OR CUSTOM PATTERN KNIVES

For convenience in installing guides, and for your safety, always install a 1 inch thick wood pad the entire length of the bed, whenever using molding cutter bits or custom pattern knives. For maximum efficiency, and life of the bed board, use a smooth hard wood such as oak or cherry. This smoothness is evenly maintained by waxing.

Cover the entire Jointer/Planer/Molder Bed (A) with smooth hard wood (B) through the entire length of the machine and C-clamp to the front and rear of the table. For a more permanent installation, drill holes in the front and rear of the table and counter sink holes to bolt the wood bed to the table. (See figure 49)



1. Install Custom Pattern Knife or Cutter Bit. Installation instructions are covered in later sections.

2. Raise the bed carefully and slowly until the knife or bit just grazes the wood bed. The mark left by the custom knife or cutter bit is the reference point for installing the guide.

3. Lay the stock to be cut in line with the knife or bit at the position that the stock will be cut. Nail, screw or clamp a wood guide (C) to the top of the wood pad (B) and line up with the outside edge of the stock to be cut. Make sure the guide is at 90 degrees to the cutterhead. This permanent guide should be approximately $\frac{5}{8}$ inch square. Extend the guide to the number 4 Planer Hood Pivot Rod. Do the same on the rear from the outfeed feed roll to the end of the planer bed. Cut a 45 degree bevel on the rear permanent guide so that there is no tendency for the stock to hang up on the square corner.

4. Nail, screw or clamp the removable guide (D) so stock will travel between it and the permanent guide (C) in a straight line.

5. Raise bed to proper thickness. If you find that the feed rolls, cutterhead, or knife will make contact with the moveable guides, cut out part of the guide to a

minimum depth of ¼ inch, or use the same method used for the permanent guide stopping at the Planer Hood Pivot Rod and continuing after the outfeed feed roll. When running random width stock, the moveable guide is not used. The stock must travel against the permanent guide at all times.

6. NEVER USE KNIVES THAT ARE LONGER THAN 1½ INCHES IN OVERALL LENGTH. ALWAYS BE CERTAIN THAT MOLDING CUTTER BITS AND CUSTOM PATTERN KNIVES ARE SEATED AGAINST THE BOTTOM OF THE CUTTERHEAD SLOTS.

Many operators who have continuous short runs with several different patterns, save set up time by install-

ing more than one set of knives in the cutterhead at the same time. You can change from one cutter to another simply by changing the guides you are running against. This is a great time saver and eliminates removing and installing another set of knives for short runs.

You can also produce useable molding that would otherwise be waste stock. If the width of the pattern being produced is 4½ inches, and the stock is 6 inches wide, you would have a strip of waste stock at least 1 inch wide. This otherwise is unuseable stock and can be molded in a separate run using a smaller pattern knife or cutter bit.

SPECIAL GUIDES FOR MOLDING CUTS

Featherboards for varying-width stock

For face molding, the stock guide and comb and featherboard can be combined to position the stock for desired pattern cuts. (See Figure 50)

Select a straight piece of hardwood for a stock guide. This piece should be 2" X ½" X 28" long. The guide should be at a 90 degree angle to the cutterhead. It can be held with C-clamps on top of your bed board and positioned at any place across the bed.

A "featherboard" as shown, can be of great help in guiding stock. It is quickly made from any piece of 1" thick stock approximately 8" long and 3" wide. Saw parallel slots about ¼" deep into the board, place them about ⅛" apart. The "featherboard" can be C-clamped to exert hold-over spring tension rather than bolting guides to your wooden pad.

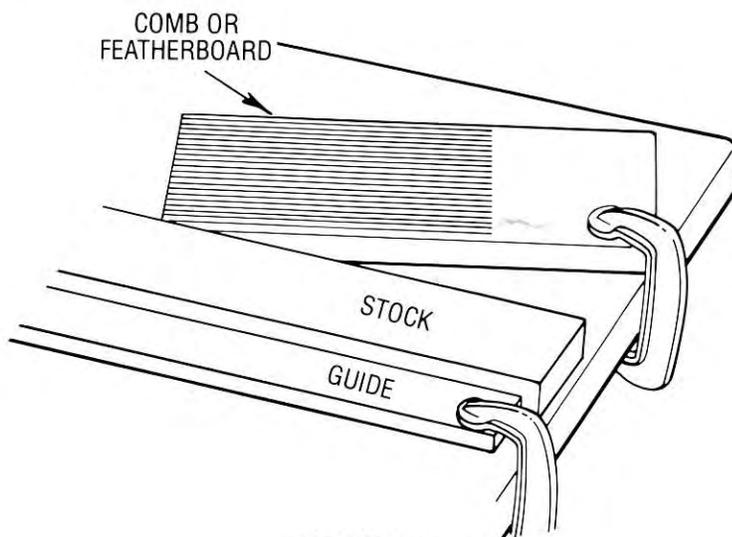


FIGURE 50

Edge molding

When edge molding, it is better to provide C-clamped wooden guide pieces on each side of the stock, up to within ¾" of the top edge. This supports narrow stock so that it will travel straight beneath the knife, and remain upright. (See Figure 51)

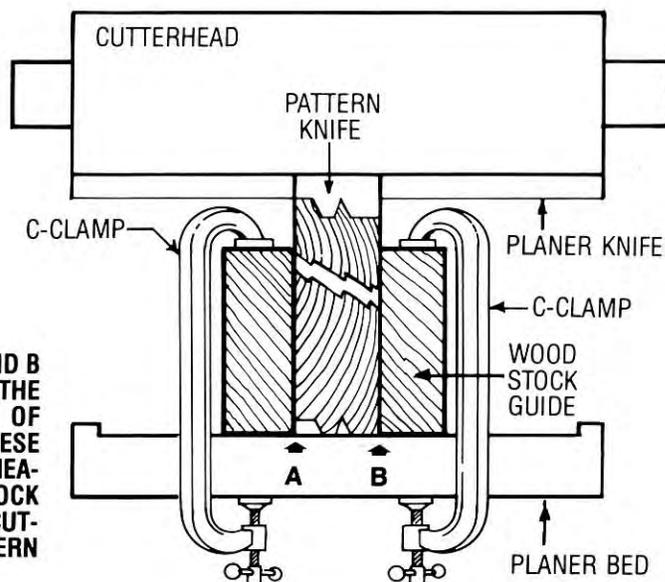


FIGURE 51

MARK REFERENCE POINTS A AND B WITH CENTER PUNCH ON BOTH THE INFEEED AND OUTFEED ENDS OF BED. YOU CAN USE THESE AS CONVENIENT POINTS OF MEASUREMENT FOR SETTING STOCK GUIDE IN RELATIONSHIP TO CUTTER BITS, OR CUSTOM PATTERN KNIVES.

INSTALLATION OF MOLDING CUSTOM PATTERN KNIVES

IMPORTANT: PRESIZE STOCK TO WITHIN $\frac{1}{16}$ INCH FINAL SIZE, BOTH IN WIDTH AND THICKNESS FOR MOLDING. ALWAYS USE BED BOARD WITH CUSTOM KNIVES.

1. Replace Planer Blades, and gibs with pattern knives (E) and the aluminum gib of equal length in one cutterhead slot using the following sequence:

- A. Loosen the gib set screws. Tap all gibs down to release the Jointer/Planer/Blades. Remove the jointer/planer/blades and remove the gibs.
- B. Clean the cutterhead slot, custom pattern knife, aluminum gib and counter balance weight thoroughly to remove all wood, dust, gum and protective coating. Use kerosene or gasoline with care.
- C. Install gib first, then pattern knife in either slot. Tighten gib set screws. Be sure knife does not creep up during tightening. If necessary, tap the knife down with a hard wood block.
- D. Install steel gib, then steel counter balance weight in second slot. Tighten gib set screw. The counter balance set (steel gib and steel weight) is ground to balance the cutterhead when it is running at the recommended speed of approximately 6,100 RPM.
- E. Check knife for clearance with chip breaker by pushing chip breaker toward the knife and rotating the cutterhead slowly by hand. There must be no contact of the knife and chip breaker. If there is, loosen the gib set screw, tap the gib down, and be sure the knife is bottomed in the cutterhead slot. Retighten the gib set screw.
- F. Check all gib screws to be sure they are tight. Run the machine and feed scrap through to check the pattern you are making. Stop the machine, and recheck your gib screws for proper tightness.

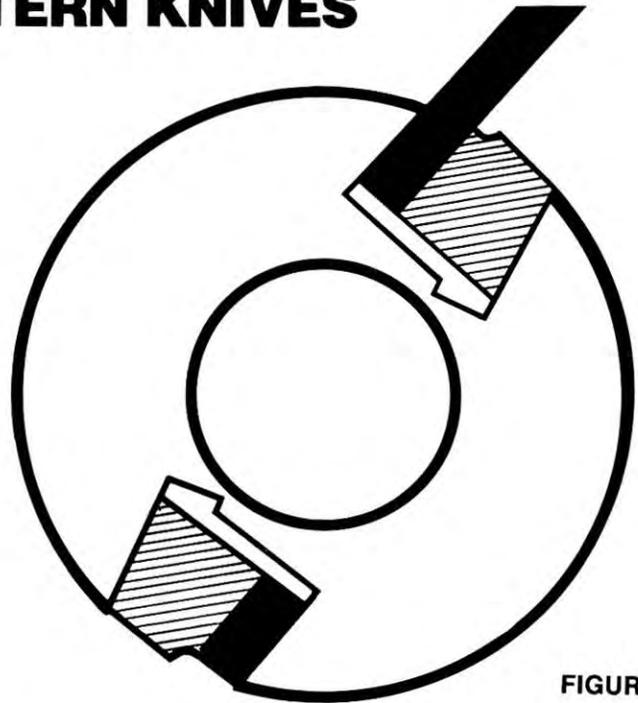


FIGURE 52

2. Knives are made so the extreme cutting tips can cut into the wood table by approximately $\frac{1}{16}$ inch. This is necessary to eliminate rough edges and final sizing. Always use the bed board so the knife doesn't contact the metal bed of the machine.

3. Part of the pattern knife extends inside the permanent guide approximately $\frac{1}{8}$ inch, leaving just enough knife to clean up the right edge of the molding. (See figure 49)

4. Before operation, apply a liberal amount of paste wax on the top of the hard wood pad and rub it into the wood. Use wax occasionally during the operation to facilitate easy feeding of stock.

When you have your custom knife installed, and properly set up, with the bed board and guide checked for proper gib screw tightness and knife clearance and check to set up with scrap material, you are ready to make your finish molding. Feed the stock in, stand aside, out of line with the board and let the power feed rollers do the work pulling the materials through.

INSTALLATION OF MOLDING CUTTER BITS

As with the use of Custom Pattern Knives, always pre-size your stock prior to molding and always use bed board for convenience and safety.

Foley-Belsaw Molding Cutter Bits are made of special alloy tool steel, heat treated and tempered to hold

sharp edges for long periods of sustained cutting. These fit directly in the center of the cutterhead and can be used with the planer blades so that you can actually plane and mold in the same pass.

Easy to install, with ingenuity, you can make an endless variety of patterns of your own design by combining runs of different sets.

Molding Cutter Bits are installed after removing the 1 inch spacer in the cutterhead slot using the following procedure:

1. Loosen the two number 64 Gib Screws in the 1 inch gib number 43 using a $\frac{3}{16}$ inch allen wrench. Use a soft piece of metal as a punch and tap the gibs down into the cutterhead slot. The number 47 Spacer will then be loose and can be removed.
2. Select the desired pattern of molding cutter bit and fit it into the hole left by the spacer so that it has the same cutting direction as the jointer/planer blades.
3. Align the highest cutting edge of the cutter bit with the cutting edge of the jointer/planer blade.
4. Retighten the gib screw on the 1 inch gib with a $\frac{3}{16}$ inch allen wrench forming a wedge-type seal.
5. After setting up your bed board and guide and testing your set up with scrap material, stop the machine, and recheck the set screws for positive tightness. Should the cutter bit crawl up as the gib is

tightened, hold the bit down with a piece of hard wood against the cutting edge.

6. You'll find just enough extra space between the two long gibs to permit easy fitting of the cutter bits. Be sure to keep each cutter bit tight against the gib on the left (pulley) side of the cutterhead. This assures uniform alignment when cutter bits are used in both cutterhead slots.

Most cutter bits come in sets of three. In many cases, you will need only one installed. We recommend using two bits on production runs keeping the third as a spare.

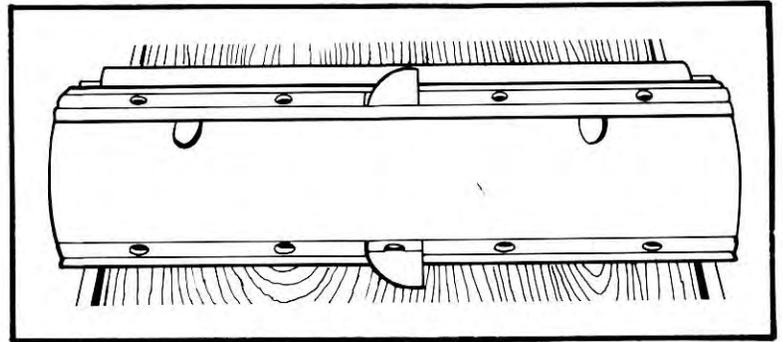


FIGURE 53

SPECIAL MOLDING APPLICATIONS

Practice and experience will effect the quality of the molding you produce. Once you become familiar with the set up for the different molding applications, you'll easily be turning out quality molding on every run. Certain applications, however, require special attention.

BACK RELIEF

A commonly asked question is, "Why do I need a back relief on my molding?" Back reliefs are used simply to create a better fit over irregular surfaces. With less wood contact, the molding matches irregular surfaces more easily. When making back reliefs, always form this section before the exposed side of the molding.

RABBET

A rabbet is a rectangular cut on the corner of a molding. It is commonly used for placing a molding over the corner in applications such as ship lap and beveled siding. Always set your permanent guide against the side being rabbeted. Run the rabbet cut before the exposed side of the molding is finished.

EDGE KNIFE

S-2-S planing can easily be done with your Jointer/Planer/Molder on stock up to $\frac{3}{4}$ inch thick and 7

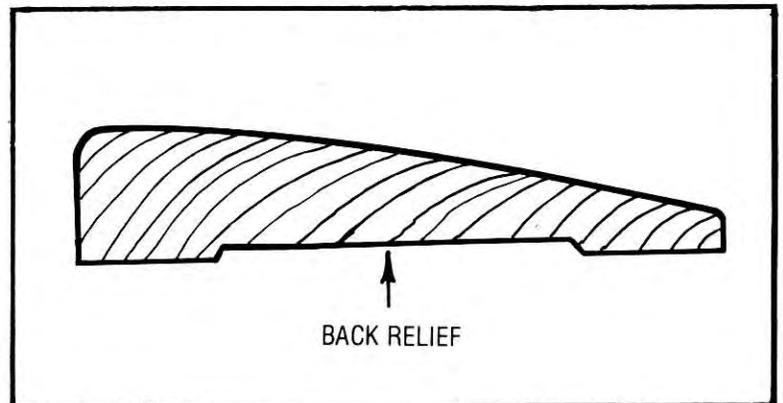


FIGURE 54

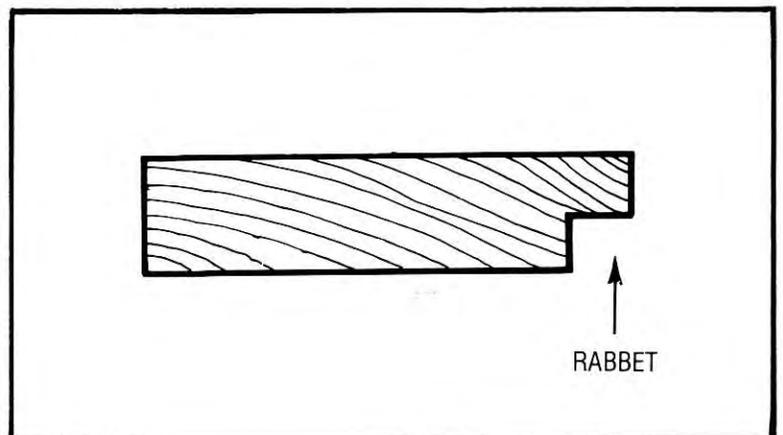
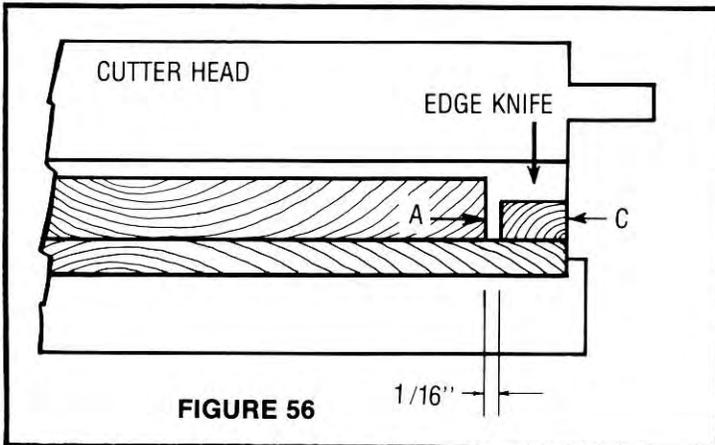


FIGURE 55

inches wide with the following set up:

1. Install CK-384 Edge Knives at right or left side of cutterhead so that point (A) stands inside the wood guide (C) approximately $\frac{1}{16}$ th inch or just enough to clean up the stock. Hold in place with the 1 inch gib provided for each knife. (See figure 56)



2. Install the remaining knife and gib in the same cutting circle following the instructions for installation of custom pattern knives. No counter balance weight is

provided with edge knives. Two knives are used, the third is a spare.

3. Cut 1 inch off the length of the Jointer/Planer Blades. Butt the end of the Jointer/Planer blade against the edge knife. Install the planer blades as you would for normal planing.

4. Set a moveable guide to the desired width if all the stock is the same width.

5. If the stock is random width, a moveable guide is not used. Hold the stock against the permanent guide (C-Figure 56) with a "featherboard" if it has a tendency to move away from the guide.

When edge cutter knives become dull on one side, move them to the opposite side of the cutterhead and butt the Jointer/Planer Blades against the other side. When doing this, it will be necessary to install another permanent guide.

Use of the CK-384 Edge Knife for S-2-S Planing allows you to edge and plane two sides of the board. Flip the board over and edge and plane the remaining two sides.

PARTING BITS

Install the same as Custom Pattern Knives with the planer blades removed. More than one parting bit may be used at a time. Position in the cutterhead for the width of stock desired. CK-385 Parting Bits will do a very smooth job of sawing soft wood up to $\frac{3}{4}$ inch thick. This covers almost all standard lumber yard stock. Bits can be placed as close as $\frac{3}{4}$ inch apart and up to $6\frac{3}{4}$ inch apart. Use a wood bed and permanent wood guide on the planer bed the same as for normal molding runs. A typical set up for sawing with two sets of bits is shown in figure 57.

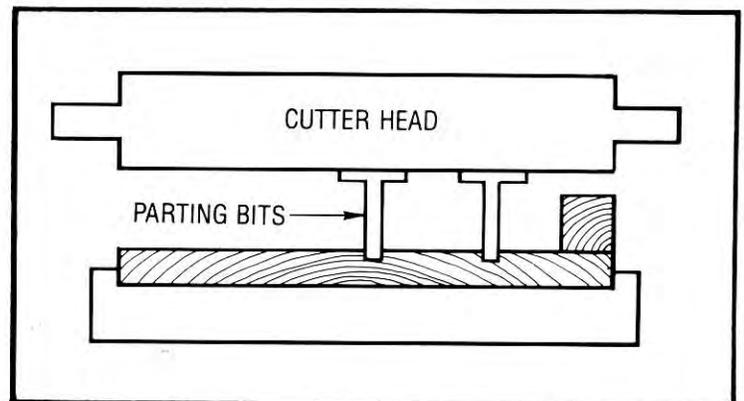


FIGURE 57

CROWNS/BEDS/COVES

Made with Custom Pattern Knives, these moldings are made in two passes. The molding is cut on both top and bottom.

Pass one is for the bottom, the beveled side which mounts against the wall and ceiling. (See Figure 58)

Pass two creates the top, the decorative shape exposed to the eye when the molding has been mounted. (See Figure 58)

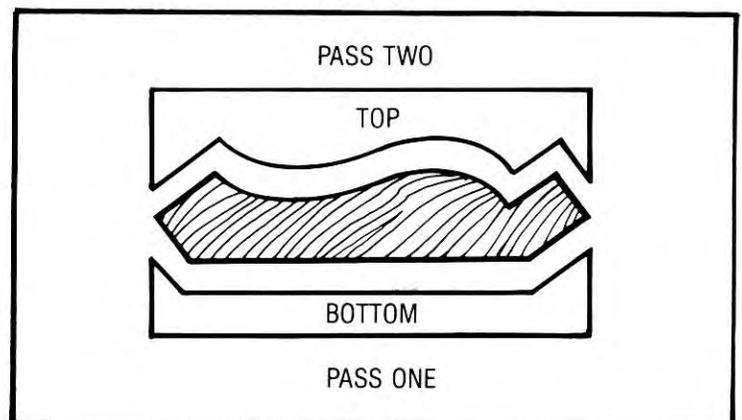


FIGURE 58

MULTIPLE CUTTERBIT USE

To increase production, or to make special or intricate moldings, more than one cutterbit may be used at once. To design and install a set-up of this type, for example, tongue and groove using 530303 cutterbits, use the following steps:

1. Remove the $3\frac{1}{16}$ inch gibs, 1 inch gibs and spacers, and planer blades (see section on removing and installing planer blades).
2. Determine position of tongue knife and of groove knife across cutterhead slot.

3. Cut 530365 aluminum gib stock to desired lengths. (Two pieces of gib stock are used in each cutterhead slot. Total length of both pieces should be $7\frac{1}{4}$ inches to allow for 1 inch gib and spacer to fit between the two pieces).

4. Reinstall 530365 aluminum gib, 1 inch gib and cutterbit, and planer blades. See example of typical tongue and groove set-up below. (See Figure 59)

5. Set-up guides for both cutterbits.

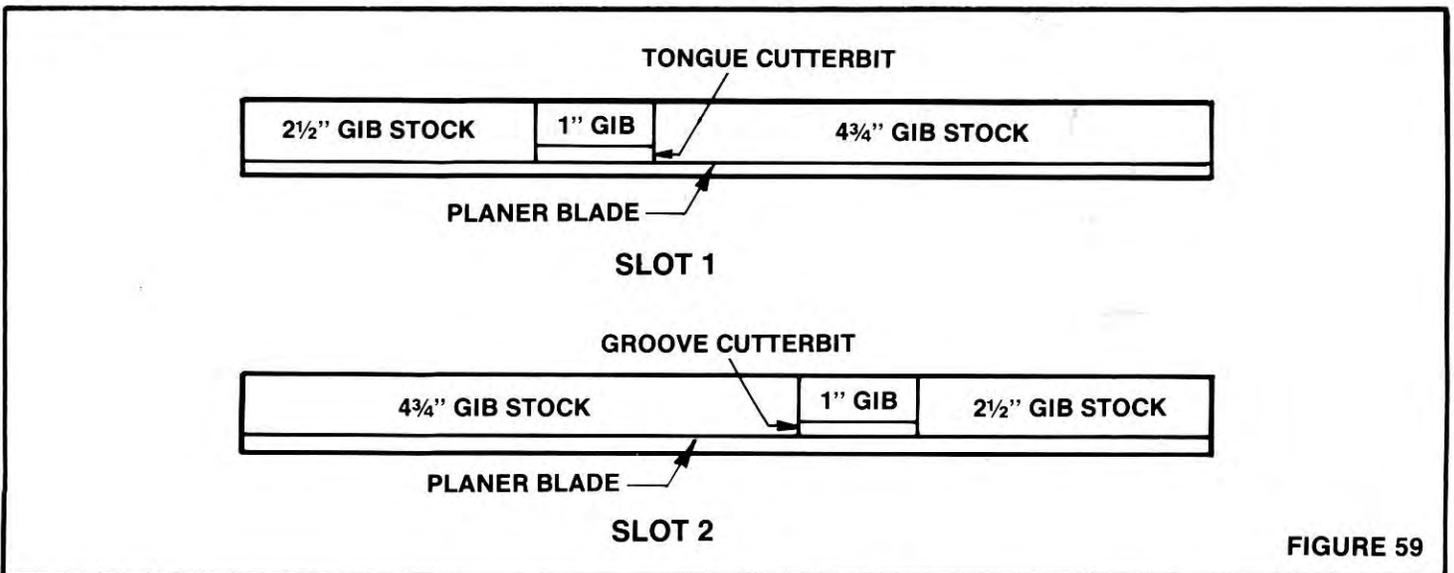


FIGURE 59

INTERLOCKS

The interlock system on your Planer is designed to prevent unintentional starting of the planer when the hood or hood and chip chute are not in proper position.

The number 57 Interlock Switch should be checked for proper operation each time knives are removed from the cutterhead.

INTERLOCK SWITCH TESTING PROCEDURE

Turn number 56 On/Off Switch to "off". Disconnect Planer from power source. Remove all knives, gibs, spacers, and Jack Screws from the cutterhead. Install a shim between interlock switch numbers 83, 160, or 144 Interlock depressing screw so interlock switch is not depressed. (See figure 60)

Close the hood so that the cutterhead is covered. Connect power source. Turn planer on. Machine should not start. This same procedure should be used to check the interlock device on all hoods used with your particular model Jointer/Planer/Molder.

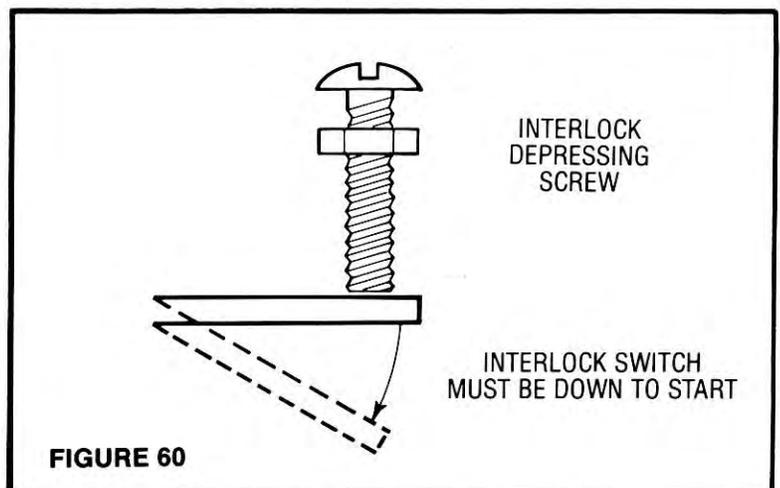


FIGURE 60

SAFETY ON/OFF SWITCH

The Jointer-Planer-Molder has an On-Off switch, number 56, with removable locking key to prevent unauthorized use. If you intend to be away from the machine for a period of time, and there is any chance of its use by others, particularly children, remove the locking key and store it in a safe, inconspicuous place in your workshop. (See Figure 61.)

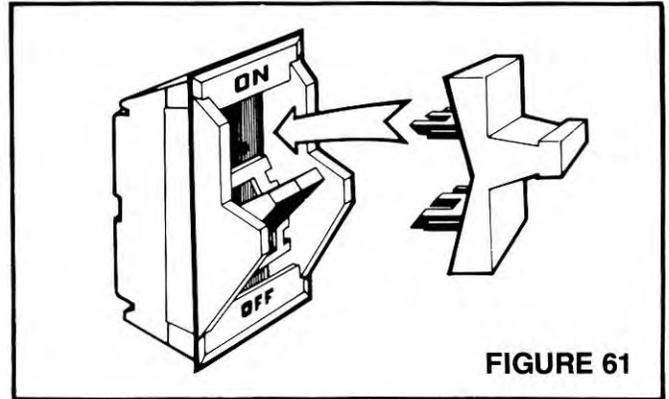


FIGURE 61

GROUNDING INSTRUCTIONS

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Before plugging-in your machine, ensure it will be connected to a supply circuit protected by a circuit breaker or time-delay fuse.

Do not modify the plug provided — if it will not fit the outlet, have the proper outlet installed by a qualified electrician. Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded. Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug. Repair or replace damaged or worn cord immediately. This tool is intended for use on a circuit that has an outlet that looks like the one illustrated in Sketch A. The tool has a grounding plug that looks like the plug illustrated in Sketch A.

A temporary adapter, which looks like the adapter illustrated in Sketches B and C, may be used to connect this plug to a 2-pole receptacle as shown in Sketch B if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. The green-colored rigid ear, lug, etc. extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box. (See Figure 62)

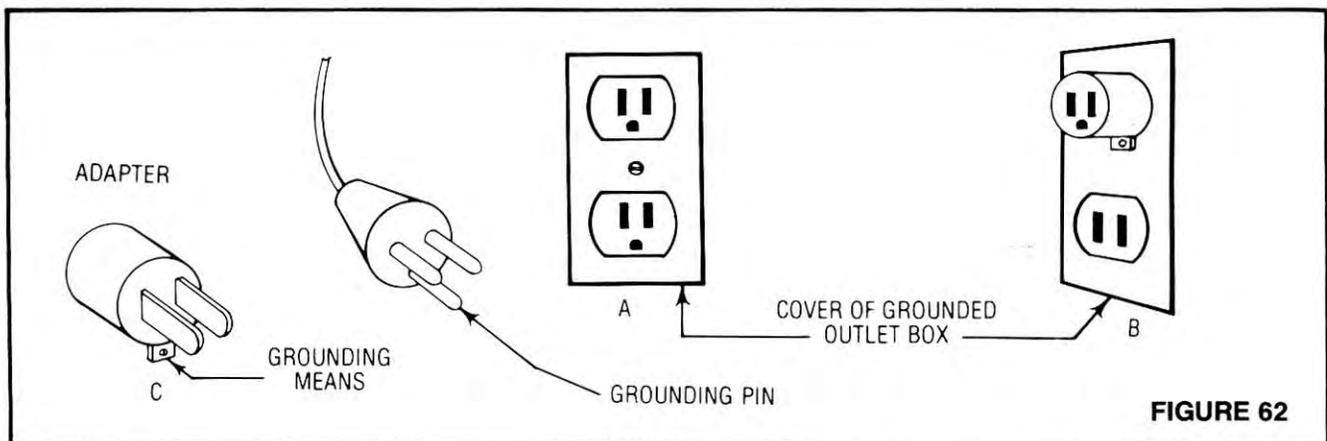


FIGURE 62

LUBRICATION

The heart of any machine is the bearings used to support its moving or rotating parts. There are many kinds of bearings used on modern machinery and the maintenance and lubrication of such bearings are the utmost importance.

1. The motor used has permanently sealed ball bearings. Additional lubrication is not required. For best performance you should operate at temperatures above the ambient temperature specified on the motor nameplate.

2. The recommended lubrication for roller chains used in medium to slow speed operation is to simply wipe the chain clean. When there is an appreciable buildup of dust, dirt, or wood shavings, use an oil cloth but never pour the oil directly on the chain. Over-oiling defeats the purpose of the lubrication,

since it simply tends to hasten the collection of dust, shavings, etc. and works into members of the chain. This hastens wear and leads to premature replacement.

3. Close fitting parts, such as gibs and the planer cutterhead sockets should also be wiped with an oily cloth and freed from clinging foreign matter and then replaced in respective position, slightly damp with oil. Do not soak these parts in oil.

4. Occasional use of paste wax or paraffin on the Bed surface will prevent rust and reduce friction to ease feeding.

5. Remove resin and other accumulations from feed rolls and bed with kerosene.

The bearings on the cutterhead are factory lubricated and sealed. They require no further attention.

CONTROLS AND ADJUSTMENTS — PLANING AND MOLDING

1. Number 39 or number 125 Hoods act as complete machine guard and should always be down when motor is on. The interlock features should not allow operation when either hood is up.

2. The crank is used to set height of planer bed. Each full turn of crank moves the bed $\frac{1}{16}$ inch. Do not take more than $\frac{5}{32}$ inch ($2\frac{1}{2}$ full turns of crank) cut in single pass. For deeper cuts, make re-runs; taking equal amounts of each side.

3. Depth of molding cuts is determined by distance bed is moved upward. Do not raise bed high enough to permit contact with Cutter Bits or Custom Pattern Knives.

4. Feed roll pressure is determined by spring tension. Increase spring tension by turning feed roll spring

nut clockwise. Reduce tension by turning nuts counterclockwise.

Infeed roll needs MORE tension when board does not start under cutterhead smoothly and positively. It needs LESS tension if excessive force must be used to start board through planer. Outfeed roll should exert enough pressure to pull the board on through cutterhead after it leaves infeed roll. Reduce tension if board halts or bumps when it first contacts outfeed roll. Increase spring tension if board stops or does not continue smoothly after starting under outfeed roll.

Keep spring tension even at each end of rolls so boards will travel straight instead of drifting to one side.

ALIGNING AND LEVELING THE JOINTER TABLES

1. Infeed table

- A. Set depth gauge scale at 0. Lay a straight edge across both the infeed and outfeed tables. Check to assure that the infeed table is level with the top of the Jointer/Planer blades and the outfeed table on both sides of the cutterhead.
- B. To adjust table height, loosen the number 147 spherical nuts below the number 108 Infeed Table Adjustment Rods. Then adjust the table up or down by adjusting the number 147 spherical nuts. (See figure 63)

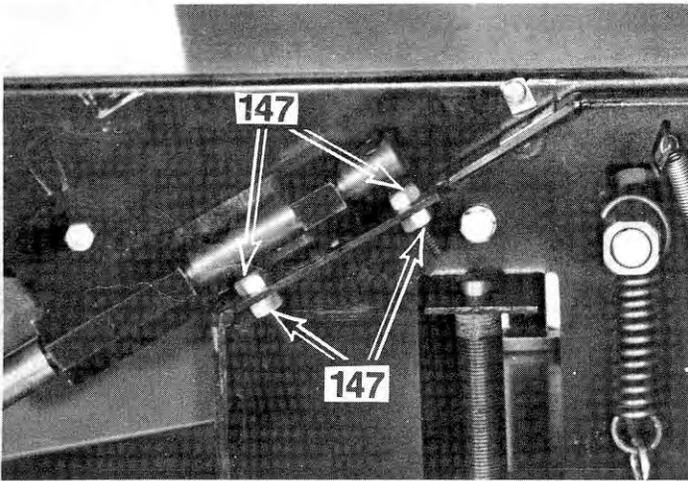


FIGURE 63

2. Outfeed Table

- A. To check levelness, lay a straight edge across the outfeed table over the top of the jointer/planer blades and the infeed table. The right side or operator's side pivots on the number 107 Outfeed Table Pivot Adjustment Rod. The outfeed table is locked into position with the number 119 Outfeed Table Locking Adjustment Rod. Table may be leveled adjusting both rods up or down like the infeed rods, by adjusting number 147 spherical nuts. (See figure 63)
- B. If table is level, but needs to be raised or lowered to maintain proper relationship with Jointer/Planer Blades and infeed table, quick adjustment is made by loosening and tightening the two number 105 Lock Collars mounted on the number 107 Outfeed Table Pivot Adjustment Rod, and by adjusting the number 105 Lock Collar on the number 119 Outfeed Table Locking Adjustment Rod.

The effect of improper table adjustment is shown in figure 64.

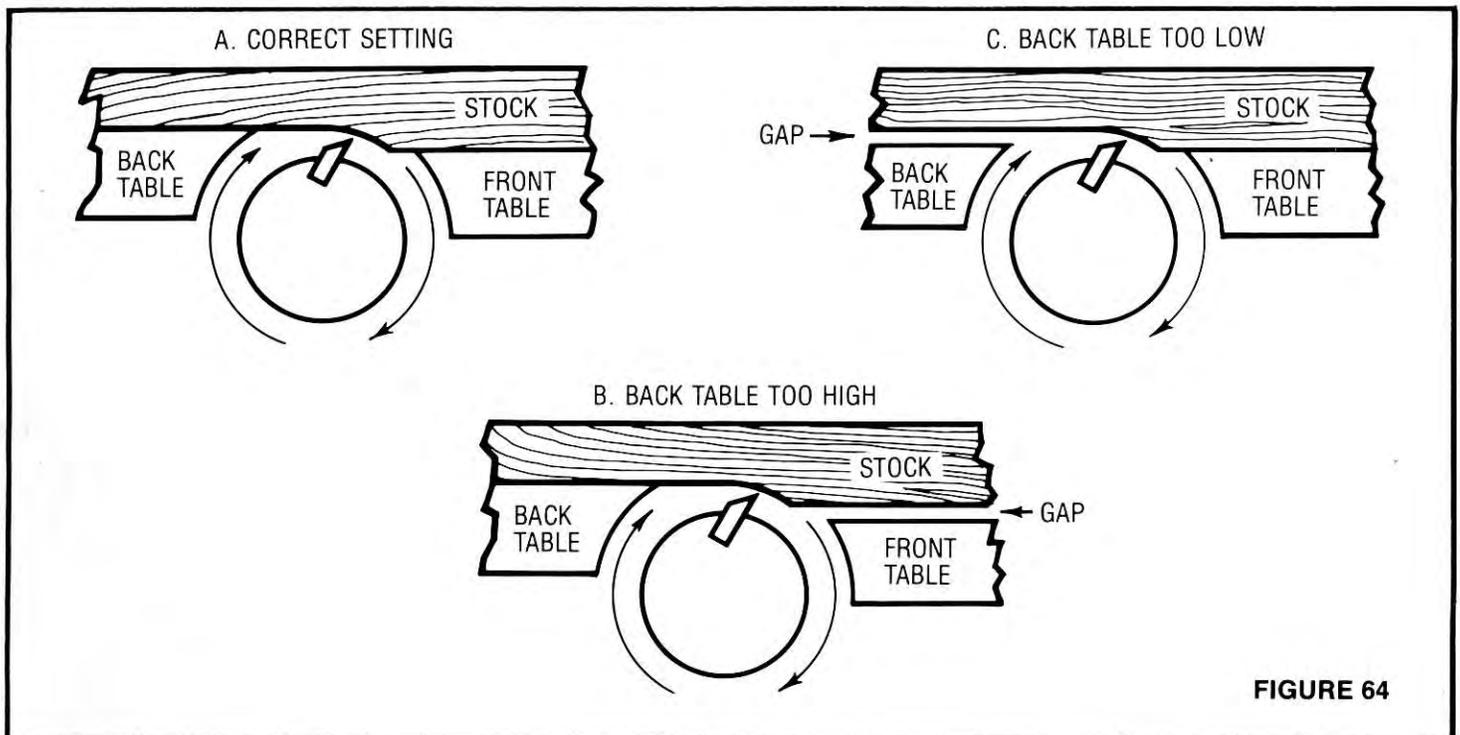


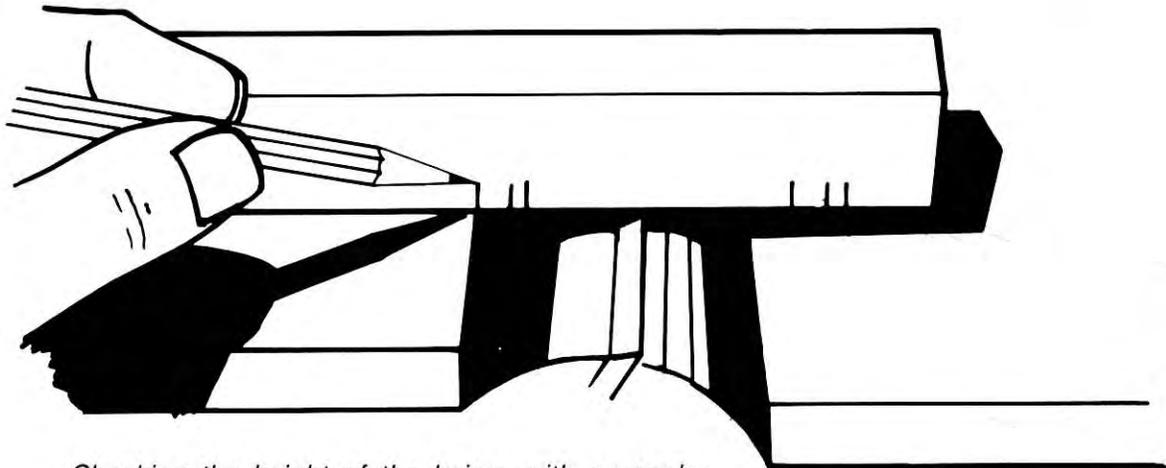
FIGURE 64

ALIGNING BLADES WITH OUTFEED TABLE OF JOINTER

You can also check the height of the planer blades while using a straight edge on the outfeed table so that it extends over the jointer/planer knives. With the outfeed table set a "0", you should be able to turn the cutterhead by hand. The knife should just touch the straight edge without moving it. Lower the outfeed table slightly. With a wooden straight edge, you can roll the cutterhead so that one of the knives will move the straight edge about $\frac{1}{8}$ inch. Make a mark at the

edge of the wooden straight edge for each knife movement, rotate the cutterhead to the second knife and again mark the edge for knife movement. The distance between the marks should be equal. (See Figure 65)

If knife projection needs adjustment, see section on removing and installing Jointer/Planer Blades with 531960 Sure-Set Knife Setting Gauge.



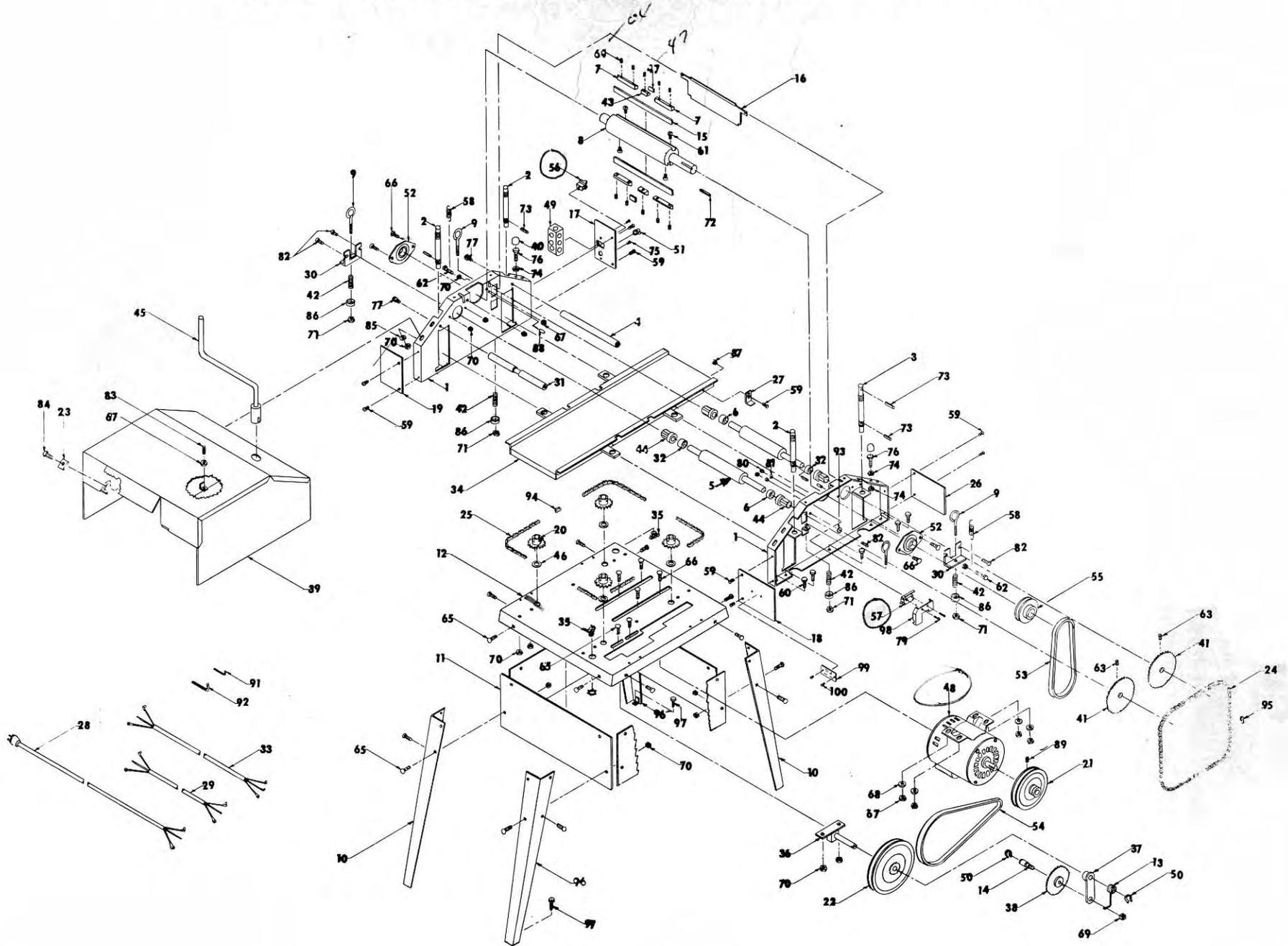
Checking the height of the knives with a wooden straightedge. The cutterhead is turned by hand and each knife should move the straightedge on equal amount. Note that the knife is too high.

FIGURE 65

SCALE CALIBRATION

- 1. Fence Angle** — To insure accuracy of the reading of the fence angle, use a carpenter square to level the fence with the bed. If the number 135 pointer does not read "0", loosen the number 139 Screw holding the pointer in place and adjust to read "0".
- 2. Infeed Table Height** — Raise the infeed table so that it is level with both the outfeed table and the jointer/planer blades. If the number 136 Pointer does not read "0", loosen the number 139 Screw holding the pointer and re-adjust.
- 3. Outfeed Table Height** — Lay a straight edge across the outfeed table and the jointer/planer blades. Adjust outfeed table height so it touches both table and blades at highest point of rotation. If the number 136 Pointer on the outfeed height gauge does not read "0", loosen the number 139 Screw and re-adjust the pointer.
- 4. Planing Thickness** — Run a test piece through machine and measure thickness. If scale needs adjustment, loosen the number 59 Screw and adjust number 27 Scale Indicator to read measured thickness.

PARTS DIAGRAM FOR MODEL 4540804 PLANER/MOLDER AND MODEL 4540684 JOINTER/PLANER/MOLDER



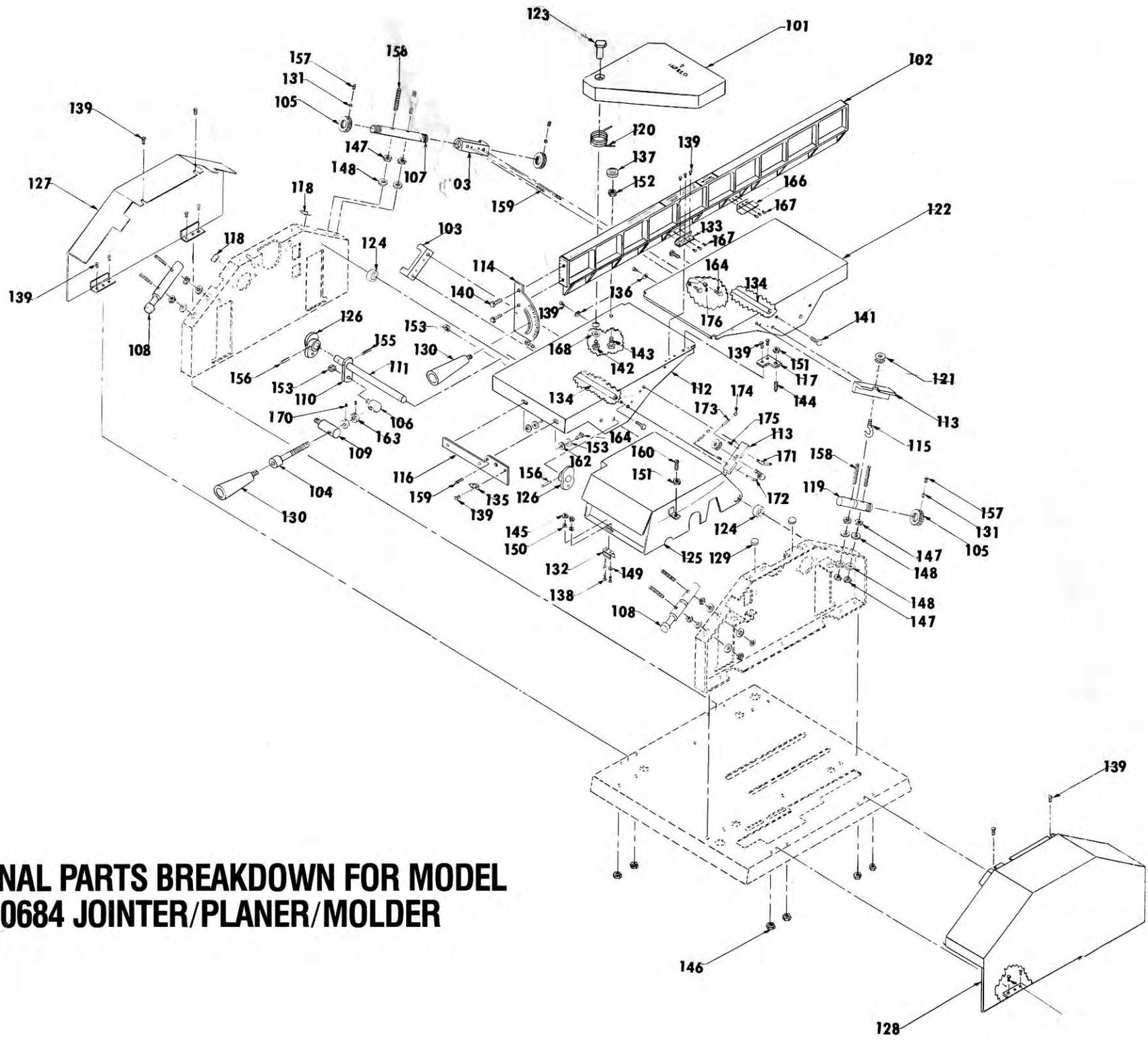
PARTS LIST FOR PLANERS — MODELS(S) 4540804 and 4540684

When ordering repair parts or requesting assistance through our Sales and Service Department, please provide following information: Model Number of your machine and the Part No. and Part Name as listed below. The Diagram No.s are provided only for your convenience in locating the correct part Name and Number.

NOTE: Dia. No.s marked (*) are standard parts supplied only on Model 4540804.

DIA. NO.	PART NO.	PART NAME
1	4549001	Side Frame
2	4549005	Corner Screw
3	4549006	Corner Screw Adjustable
4	4549007	Spacer
5	4549008	Feed Roll
6	4549009	Spacer
7	4549010	Gib 3-11/16
8	4549011	Cutter Head
9	4549012	Eye Bolt
10	4549013	Leg
11	4549014	Side Panel
12	4549015	Base
13	4549019	Spring
14	4549020	Pin
15	4540858	Planing/Jointing Blades (Set of 2)
16	4549025	Chip Breaker
17	4549029	Switch Box Support
18	4549075	Corner Support Bracket
19	4549031	Corner Support Bracket
20	4549033	Corner Sprocket
21	4549034	Pulley-Drive
22	4549536	Pulley-Sprocket
23*	4549040	Stiffner Hinge
24	4549042	Chain #35
25	4549041	Chain #42
26	4549032	Corner Support Bracket (with scale)
27	4549044	Indicator
28	4549045	Cord Set
29	4549046	Cord Set (Motor To Switch)
30	4549047	Roller Cap
31	4549049	Spacer
32	4549055	Spacer
33	4549058	Cord Set (Motor To Interlock Switch)
34	4549502	Table
35	3707976	Flexible Conduit Connector
36	4549517	Bracket Idler Pin
37	4549522	Tensioner Arm
38	4549523	Sprocket Bushing
39*	4549526	Hood
40	4509029	Rubber Tip
41	4509034	Sprocket
42	4509067	Feed Roll Tension Spring
43	4509069	Gib 1"
44	4509076	Feed Roll Bearing
45	4509079	Crank
46	4509246	Base Spacer
47	4509169	Spacer for 1 inch Gib
48	3707898	Motor
49	3707114	Utility Box
50	3709137	Grip Ring

DIA. NO.	PART NO.	PART NAME
51	3707275	Bushing Heyco
52	3709600	Ball Bearing Self-Align
53	3709674	"V" Belt 3L-300
54	3709669	"V" Belt 4L-380
55	3709727	Pulley
56	3707897	Switch
57	3707903	Interlock Switch
58	3709904	Spring — Chip Breaker
59	B190633	Phillips Pan Head Screw 10-32 x 3/8 Long
60	B250801	Hex Cap Screw 1/4-20 NC x 1/2 Long
61	B251223	Flat Head Cap Screw 1/4-28 NF x 3/4 Long
62	B252001	Hex Cap Screw 1/4-20 NC x 1-1/4 Long
63	C310620	Socket Set Screw 5/16-18 NC x 3/8 Long
64	C371061	Socket Set Screw 3/8-24 NF x 5/8 Long
65	E250800	Carriage Bolt 1/4-20 NC x 1/2 Long
66	E311200	Carriage Bolt 5/16-18 NC x 3/4 Long
67*	R000551	Keq Nut 5/16-18 NC
68	R000526	Plain Washer 5/16
69	R000554	Keq Nut 3/8-16 NC
70	R000552	Keq Nut 1/4-20 NC
71	R000497	Hex Locknut 10-24 NC Nylok
72	R000825	Square Key 1/4 Sq. x 1-1/2 Long
73	R000872	Rollpin 1/4 Dia. x 1-1/8 Long
74	R000381	Hex Locknut 5/16-18 NC Nylok
75	A130602	Slotted Round Head Mach. Screw 6-32 NC x 3/8 Long
76	B311601	Hex Cap Screw 5/16-18 NC x 1" Long
77	B310811	Socket Cap Screw 5/16-18 NC x 1/2 Long
79	B132012	Pan Head Cap Screw 6-32 NC x 1-1/4" Long
80	J131000	Hex Nut 6-32 NC
81	R000466	Lockwasher Ext. Teeth #6
82	A250602	Slotted Round Head Mach. Screw 1/4-20 NC x 3/8 Long
83*	C312020	Socket Set Screw 5/16-18 NC x 1-1/4 Long
84*	B251201	Hex Cap Screw 1/4-20 NC x 3/4 Long
85	R000524	Plain Washer 1/4 Saw
86	4549059	Centering Washer
87	R000378	Hex Locknut 10-32 NF Nylok
88	3709131	Vinyl Tip
89	C250560	Socket Set Screw 1/4-28 NF x 5/16 Long
90	B191033	Phillips Pan Head Screw 10-32 NF x 5/8 Long
91	R000859	Allen Key 5/32 Across Flats
92	R000857	Allen Key 5/16 Across Flats
93	R000481	Lockwasher Ext. Teeth 1/4
94	4509058	Master Link No. 42
95	4509057	Master Link No. 35
96	4549513	Leg & Bracket
97	E251603	Lag Screw 1/4 x 1" Long
98	4549038	Interlock Switch Guard
99	4549073	Model 804 Nameplate (Model 684—4549074)
100	R602018	Drive Screw #4 x 3/16 Long



**ADDITIONAL PARTS BREAKDOWN FOR MODEL
4540684 JOINTER/PLANER/MOLDER**

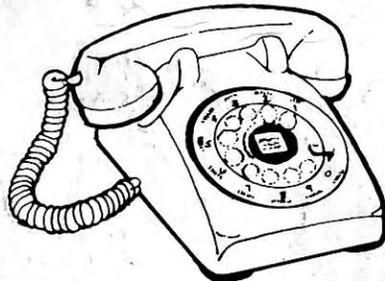
ADDITIONAL PARTS LIST FOR MODEL 4540684 JOINTER/PLANER/MOLDER

DIA. NO.	PART NO.	PART NAME
101	4549504	Jointer Blade Guard
102	4549506	Fence and Warning Decal Ass'y.
103	4549107	Jointer Table Slide
104	4549108	Cam Adjusting Screw
105	4549109	Lock Collar
106	4549110	Pivot Stud-Threaded
107	4549111	Adjustment Shaft
108	4549113	Table Slide Rod
109	4549115	Pivot Stud
110	4549116	Pivot Bracket
111	4549117	Pivot Shaft
112	4549118	Table Jointer
113	4549119	Jointer Table Lock Slide
114	4549120	Miter Quadrant
115	4549158	Eye Bolt Lock
116	4549122	Quadrant Mount
117	4549123	Jointer Table Interlock Bar
118	4549124	Jointer Scale
119	4549125	Adjustment Shaft
120	4549126	Torsion Spring
121	4549159	Knob
122	4549128	Jointer Table
123	4549130	Pivot Bolt
124	4549132	Spacer
125	4549503	Planer Guard
126	4549512	Cam
127	4549251	Cover
128	4549252	Sprocket Cover
129	3709259	Rubber Stop
130	3709514	Handle
131	3709705	Nylon Ball
132	3709874	Guard Clip
133	3709802	Hinge
134	4549135	Jointer Table Spacer
135	3579286	Pointer
136	3579050	Pointer

DIA. NO.	PART NO.	PART NAME
137	3709255	Rubber Washer
138	B130402	Round Head Screw 6-32 NC x 1/4 Long
139	B190633	Phillips Pan Head Cap Screw 10-32 NF x 3/8 Long
140	B251001	Hex Cap Screw 1/4-20 NC x 5/8 Long
141	B310801	Hex Cap Screw 5/16-18 NC x 1/2 Long
142	B371201	Hex Cap Screw 3/8-16 NC x 3/4 Long
143	B372001	Hex Cap Screw 3/8-16 NC x 1-1/4 Long
144	C251625	Socket Set Screw Dog Point 1/4-20 NC x 1" Long
145	J131000	Hex Nut 6-32 NC
146	R000550	Kep Nut 10-32 NF
147	4549160	Spherical Nut
148	4549161	Spherical Washer
149	R000466	Lockwasher Ext. Teeth #6
150	R000525	Plain Washer #6
151	R000380	Hex Nut Nylok 1/4-20 NC
152	R000554	Kep Nut 3/8-16 NC
153	R000469	Lockwasher 1/4
155	R841100	Rollpin 1/8 Dia. x 1" Long
156	R847075	Rollpin 3/16 Dia. x 3/4 Long
157	C250320	Socket Set Screw 1/4-20 NC x 3/16 Long
158	C313220	Socket Set Screw 5/16-18 NC x 2" Long
159	R847050	Rollpin 3/16 x 1/2 Long
160	A252002	Slotted Round Head Screw 1/4-20 NC x 1-1/4 Long
162	R000524	Plain Washer 1/4 SAE
163	4549157	Set Collar
164	B250801	Hex Cap Screw 1/4-20 NC x 1/2 Long
166	4549553	Hinge Weldment
167	A130415	Phillips Flat Head Undercut Screw 6-32 NC x 1/4 Long
168	R000279	Lockwasher 3/8 Ext. Teeth
170	C190320	Socket Set Screw 10-24 NC x 3/16 Long
171	4549121	Right Lock Pin
172	4549137	Left Lock Pin
173	R840125	Rollpin 3/32 Dia. x 1-1/4 Long
174	3709548	Vinyl Tip
175	3709035	Spring
176	R000469	Lockwasher 1/4



**Any Questions?
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