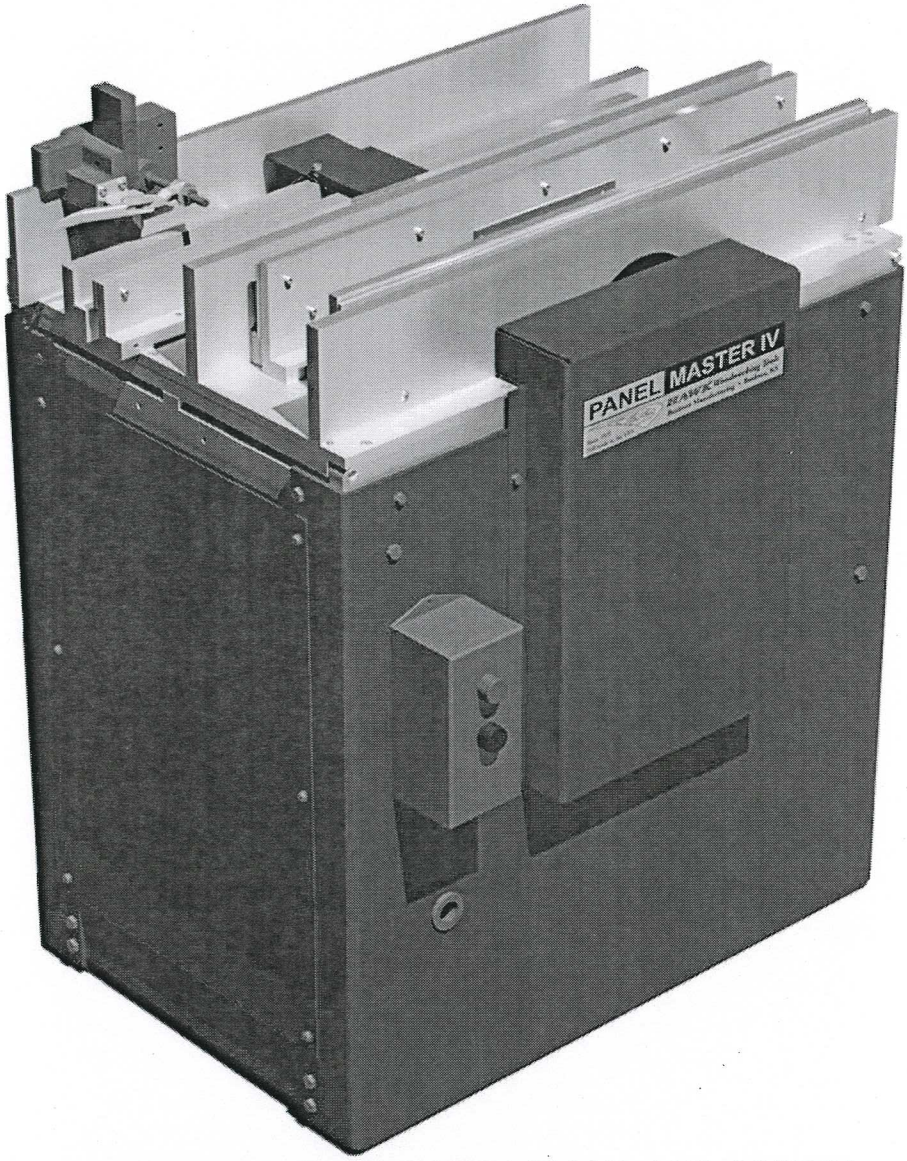
Since 1929
Still made in the USA

HAWK
Woodworking Tools

Bushton Manufacturing, LLC
P.O. Box 127, 319 S. Main St.
Bushton, KS 67427
620-562-3557
www.hawkwoodworkingtools.com

PanelMASTER IV

OPERATORS MANUAL



ALWAYS READ ALL INSTRUTIONS AND SAFETY PROCEDURES BEFORE OPERATE ANY MACHINE

"AMERICAS WOODWORKING MACHINERY MANUFACTURER SINCE 1929"

ALWAYS THINK SAFETY FIRST

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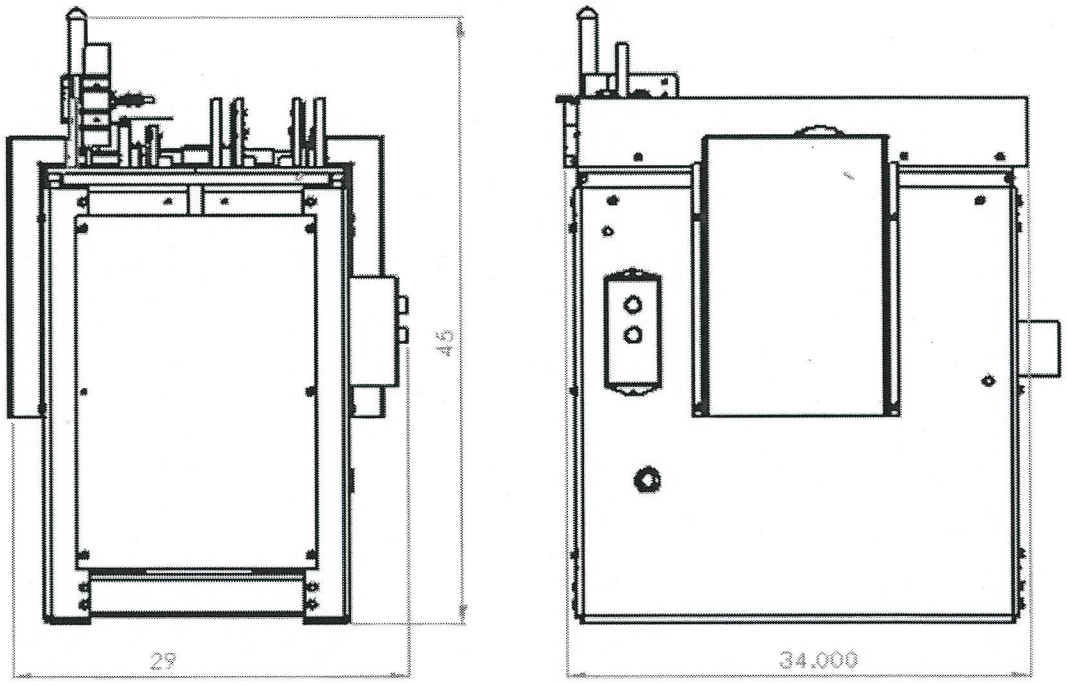
SPECIFICATION



Overall Width	22 1/4"	Feed Type	Manual
Overall Length	31 1/2"	Motor Horse Power	5 Hp
Overall Height	38"	Voltage	220 VAC
Table Length	30 1/2"	Phase	1 Ph or 3 Ph Optional
Number of Cutting Heads	4	Speed	3500 rpm
Maximum Diameter of Cutting Head	6"	Frame	184T
Cutter Bore	1 1/4"	Shipping Dimensions	36 X 42 X 45
Cutting Speed	6800 rpm	Shipping Weight	650#
Stock Width	5/8 to 1-3/4*	Maximun Stock Length	what you can handle
Space Needed on side of machine	3' each side	Space need on ends of machine	3' or length of board which ever is larger

* The PanelMASTER IV is designed for 3/4 stock thickness. To run the wider stocks require spacers on the bottom style rail and the modification or removal of some guards.

CONTACT INFORMATION

You can reach our customer service department Monday thru Friday from 8:00 am to 5:00 pm Central Time.

Customer Service
Bushton Manufacturing, LLC
P.O. Box 127
319 South Main Street
Bushton, KS 67427

Phone: 620-562-3557

e-mail: customerservice@hawkwoodworkingtools.com

LIMITED WARRANTY

We guarantee that all Hawk Products are free from defects in materials and workmanship for one full year from the date of purchase. This warranty is automatically started when we ship your new Hawk Product. The warranty is tied to the original owner and is not transferable. If given as a gift, tell us who it is to and what day the gift will be given so that the warranty can be properly registered. The warranty covers parts only labor and shipping charges still apply.

This warranty does not obligate us to bear the cost of shipping charges in connection with the repair or replacement of the defective parts, nor shall it apply to any machine upon which repairs or alterations have been made unless authorized by us. This warranty is void if damage is the result of misuse or abuse of the machine. This warranty is non-transferable. Tampering with any electrical control components voids this warranty.

When receiving a freight item from a common carrier, the customer must note on the receipt any damage to the carton. This is required for all insurance claims. If you do not note any damage to the shipping carton, you assume the cost of any damages caused by shipping that are not covered by insurance.

We shall in no event be liable for consequential damages or contingent liabilities arising out of the use of any machine, or out of the failure of any machine to operate properly. No express, implied or statutory warranty other than herein set forth is made or authorized to b made by us.

Warranty information will be based on information given at the time of purchase. This warranty is not transferable from one owner to another. Any repairs and or replacement parts must be done by Bushton Manufacturing, LLC. In order for parts to be honored by this warranty, the part must be official Hawk Woodworking Tools parts supplied by Bushton Manufacturing, LLC.

ORDERING INFORMATION

To order you can contact customer service by mail, phone or e-mail as listed on top of this page.

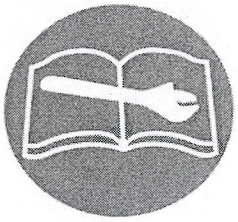
You will need to provide the item number, description and quantity you want.

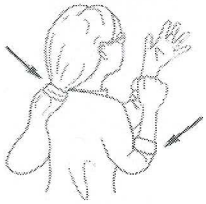
You can pay by check, money order, MasterCard, VISA or Discover Card.

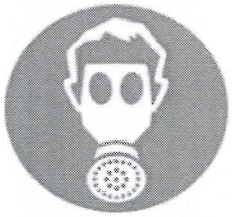
Call for shipping and handling charges.

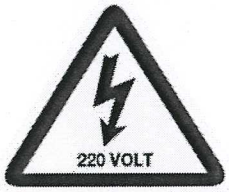
The web page is www.hawkwoodworkingtools.com

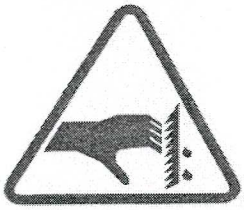
SAFETY











1. Read the operators manual carefully. Be sure to be thoroughly familiar with all operations of the equipment before turning it on. Know where the controls are and how to operate them before starting.
2. Never allow children to operate them. Never let anyone operate the equipment without proper instruction.
3. Keep the work area clear of other persons.
4. Maintain a clean uncluttered work area.
5. Always shut off machine and unplug it before making any adjustments.
6. NEVER ADJUST MACHINE WHILE RUNNING.
7. Keep hand and feet clear of all rotating components. Keep clear of infeed and discharge openings.
8. Remove all tools and equipment before starting the machine.
9. Wear proper clothing. Avoid loose fitting clothing, long sleeves, gloves, neck ties, etc.
10. Do not wear jewelry, (rings, watches, brackets, necklaces, etc.) when operating any machine.
11. Wear proper safety equipment. Safety glasses (eye protection), ear plugs or covers (ear protection) and dust masks (lung protection). Keep in mind the dust of some woods is toxic.
12. To avoid electrical shock, never operate any electrical machine in wet or damp conditions.
13. Always make sure all safety features are installed and are well maintained and in proper working order.
14. Do not operate any machine under the influence of medication, alcohol or drugs.
15. Never leave running machine unattended.
16. Never overload the machine.
17. Keep the equipment in proper working order. Follow the maintenance procedures recommended in the operators manual.
18. Do not use lumber that is splintered, cracked, or has loose knots. These can result in projectiles flying across the shop.

UNPACKING

1. Remove shipping carton and check to see that all parts were received without damage. The manufacturer is not responsible for shipping damage. You must report shipping damage to the manufacturer and the shipping company.

   CONTENTS

   - 1) PanelMASTER III (fig. a)
   - 1) Style Jig (fig. b)
   - 1) Manual (fig. c)
   - 1) Wing Nut Wrench (fig d)
   - 2) Arbor Wrenches (fig. e)
   - 1) V-type Push Stick (fig. f)
   - 1) Table Tilt Hold Pin (fig. g)
   - 1) Door Edge Detail Jig, (contains 1 T-Track rail and 2 Knuckle Clamps) (fig. h)

2. With the standard 5 Hp, single phase motor this machine requires a 230 V, 30 A electrical source and breaker.

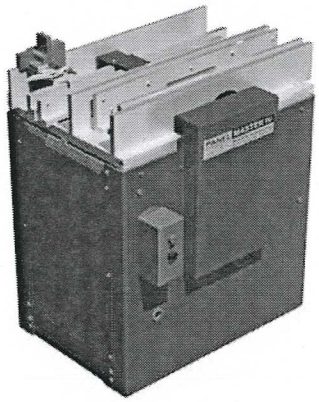


Fig. a

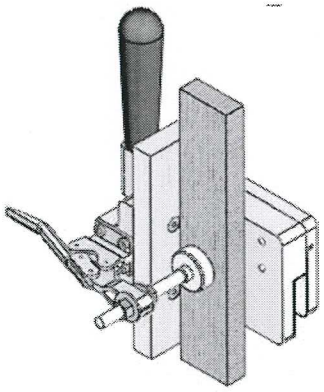


Fig. b

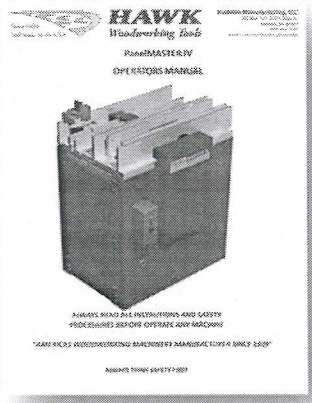


Fig. c

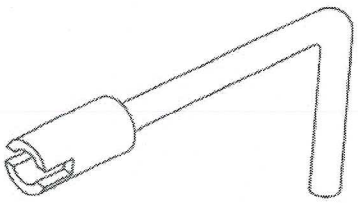


Fig. d

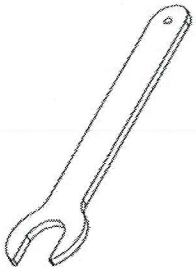


Fig. e

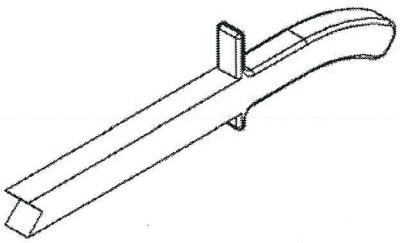


Fig. f

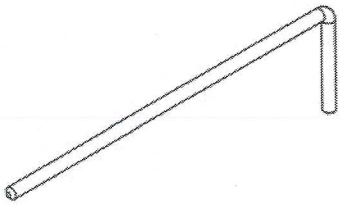


Fig. g

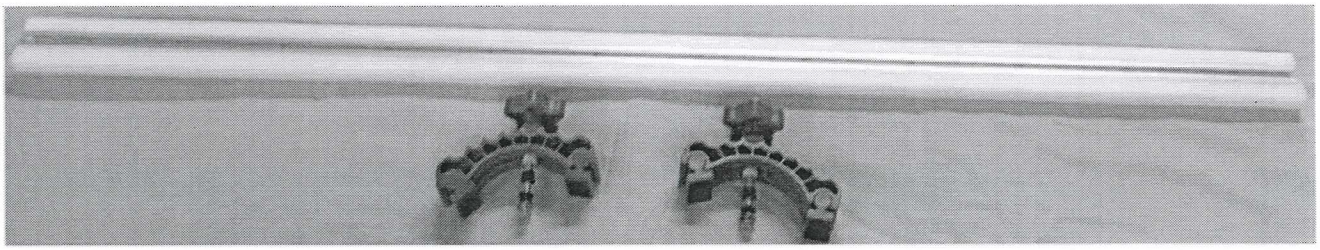


Fig. h

SITE CONSIDERATIONS

FLOOR TYPE

Your Hawk PanelMASTER will operate with less vibration if it is placed on a concrete floor surface, such as a garage or workshop. You will experience excessive vibration if placed on a wooden surface, or surface other than concrete.

WORKING CLEARANCE

Working clearance can be thought of as the distance between machines and obstacles that allow safe operation of every machine without limitation. Consider existing and anticipated machine needs, size of material to be processed through each machine, and space for auxiliary stands and/or work tables. Also, consider the relative position of each machine to one another for efficient material handling. Be sure to allow yourself sufficient room to safely run your machines in any foreseeable operation and keep dust collection hoses off the floor and out of the way.

LIGHTING AND OUTLETS

Lighting should be bright enough to eliminate shadows and prevent eye strain. Electrical circuits should be dedicated or large enough to handle combined motor amp loads. Outlets should be located near each machine so power or extension cords are not obstructing high traffic areas. Be sure to observe local electric cords for proper installation of new lighting, outlets, or circuits.

GROUNDING

In the event of an electrical short, grounding provides electric current a path of least resistance to reduce the risk of electrical shock. This tool is equipped with an electric cord which has an equipment-grounding conductor which must be properly connected to 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.

Improper conditions of the electrical-grounding conductor can result in risk of electrical shock. The conductor with green or green and yellow striped insulation is the electrical-grounding conductor. If repair or replacement of the electrical cord or plug is necessary, do not connect the equipment grounding conductor to a live terminal.

WARNING

This equipment must be grounded. Verify that any existing electrical outlet and circuit you intend to plug into is actually grounded. Under no circumstances should the grounding pin from any three-pronged plug be removed. Serious injury may occur.

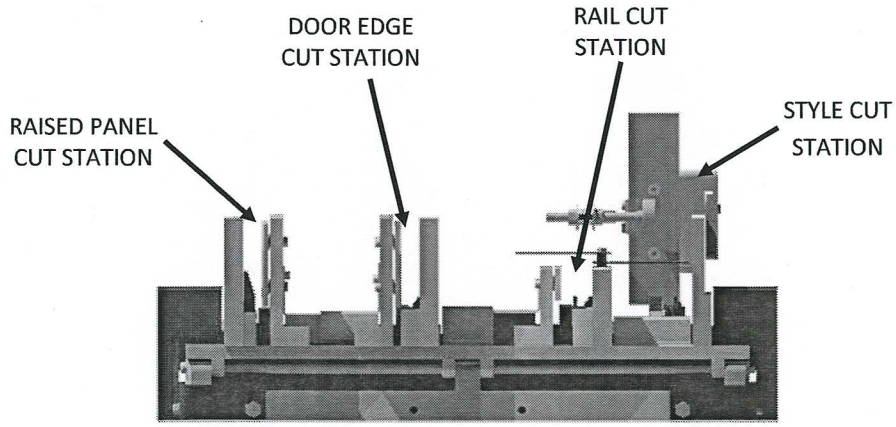
EXTENSION CORD

Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current load your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and over-heating.

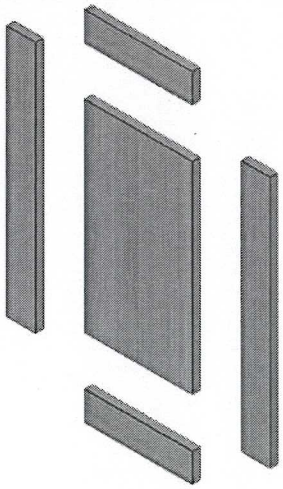
CAUTION

We have covered some basic electrical requirements for the safe operation of your machine. These requirements are not necessarily comprehensive. You must be sure that you comply with local and state codes. Ensure compliance by checking with your local municipality or a licensed electrician.

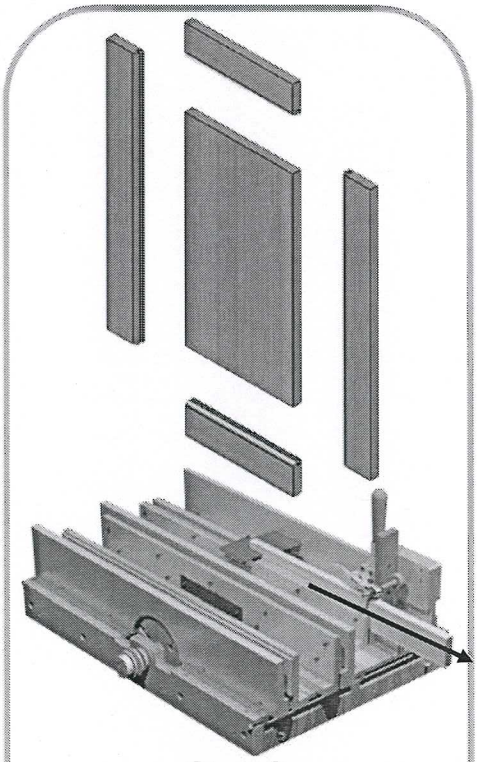
OVERVIEW



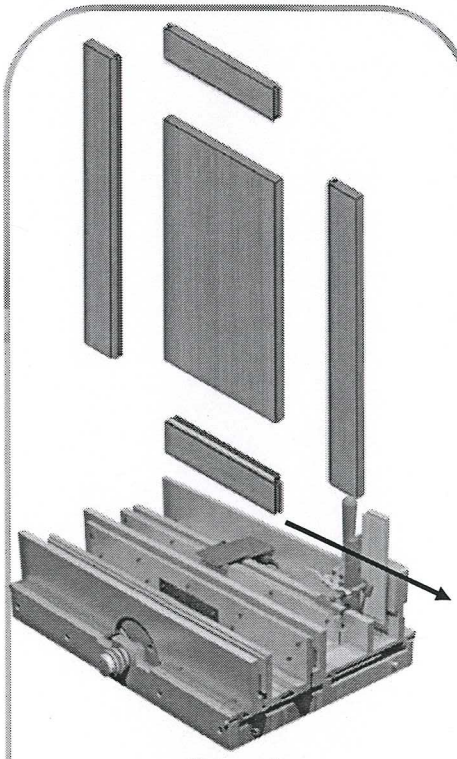
CREATE RAISED PANEL DOORS IN MINUTES



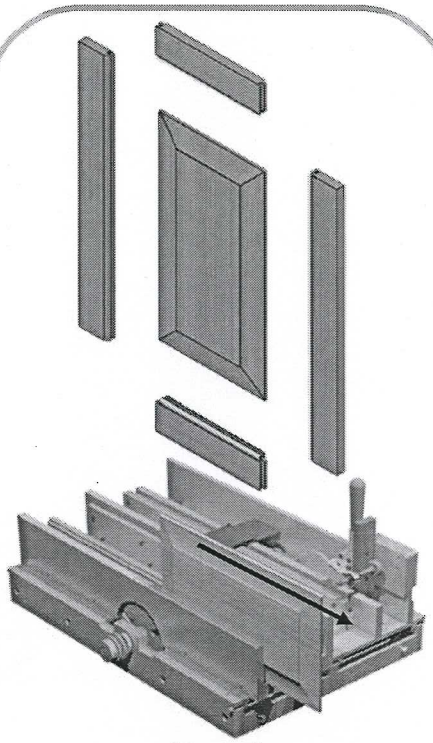
Step 1.
Cut boards to size



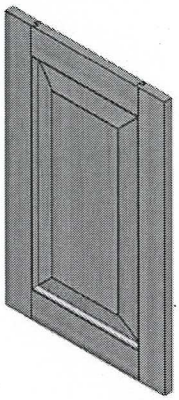
Step 2.
Make rail cuts on sides, top and bottom boards of the frame



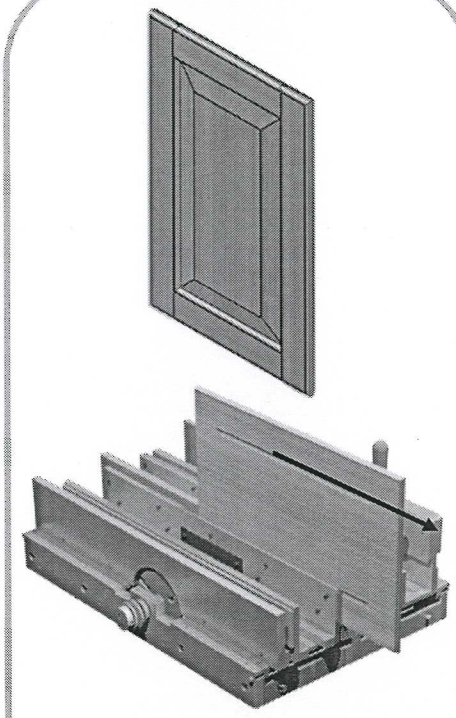
Step 3.
Make rail cuts on the top and bottom boards of the frame



Step 4.
Make raised panel/back cut on all for sides of the raised panel



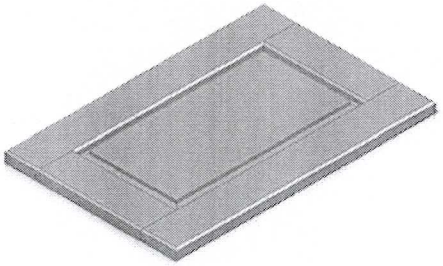
Step 5.
Glue the door together.



Step 6.
Make the outside door cut.

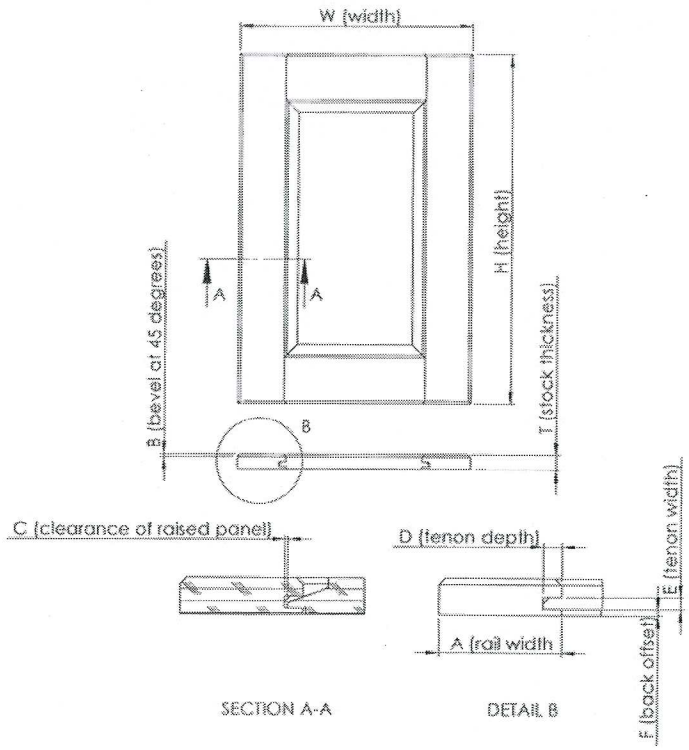
BOARD SIZES

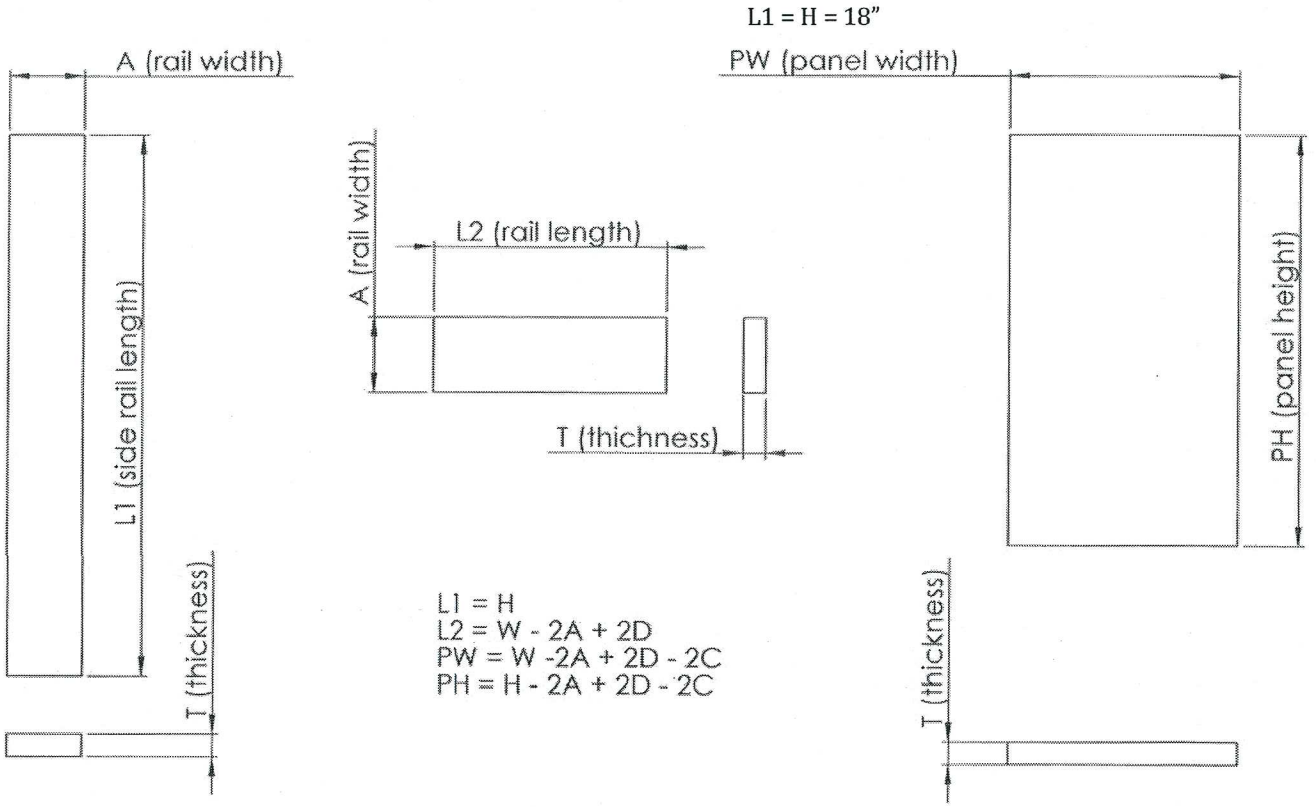
To make a raised panel door as shown here. We need to made the 5 pieces which are 3 different parts. The parts of the raised panel door are:



1. Raised Panel
2. Side Frame Rails (2)
3. Bottom and Top Frame Rail (2)

Now, lets look at what boards we need to make a door. Figure below shows the dimension we need to know about the finished door. Figure to the right shows the dimensions of the parts and how to calculate them.





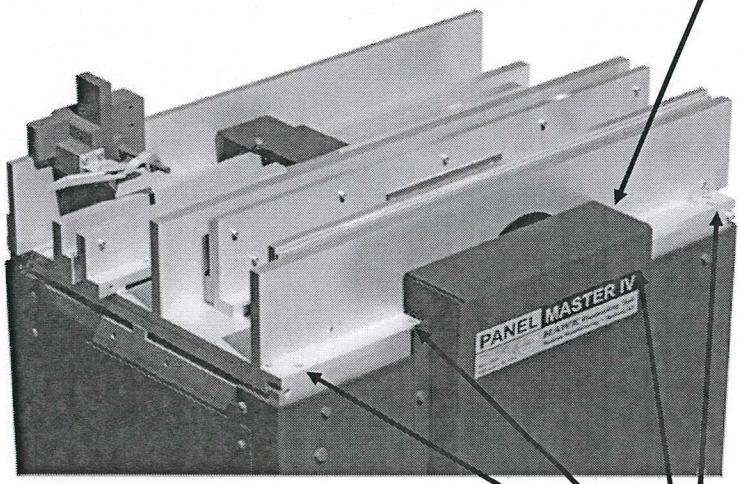
EXAMPLE; To make a raised panel door that is 12" wide by 18" high using 2-1/2" wide rails and a wood thickness of 3/4", with a depth of tenon of 3/8" and a clearance of the raised panel of 1/8" to the frame. Note: 1/8" is minimum for using a space type product like Space Balls. The sizes of the stock is :

L2 = W-2A + 2D - 2C = 12—2*2.5 + 2*.375 = 7.75"
PW = W—2A + 2D—2C = 12—2*2.5 + 2*.375—2*.125 = 7.500
PH = H—2A + 2D—2C = 18—2*2.5 = 2*.375—2*.125 = 13.500

PanelMASTER SETUP

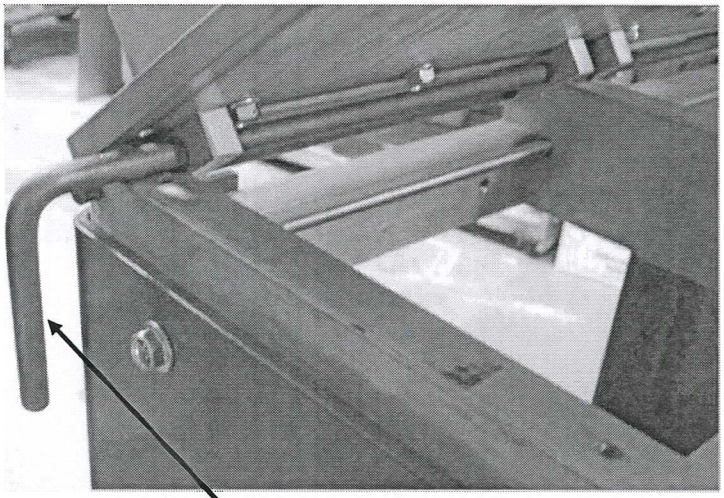
TILT TABLE

Caution: Disconnect from power supply before raising the table or doing any service/adjustment to the machine.



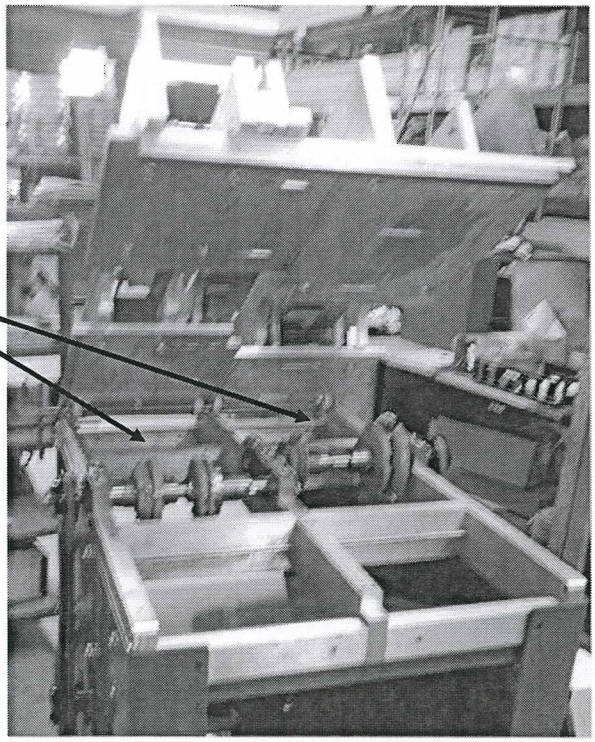
Remove side guards. One on each side

Remove cap screw. Total of 16. In 4 rows of 4.



Raise table and insert pin as shown

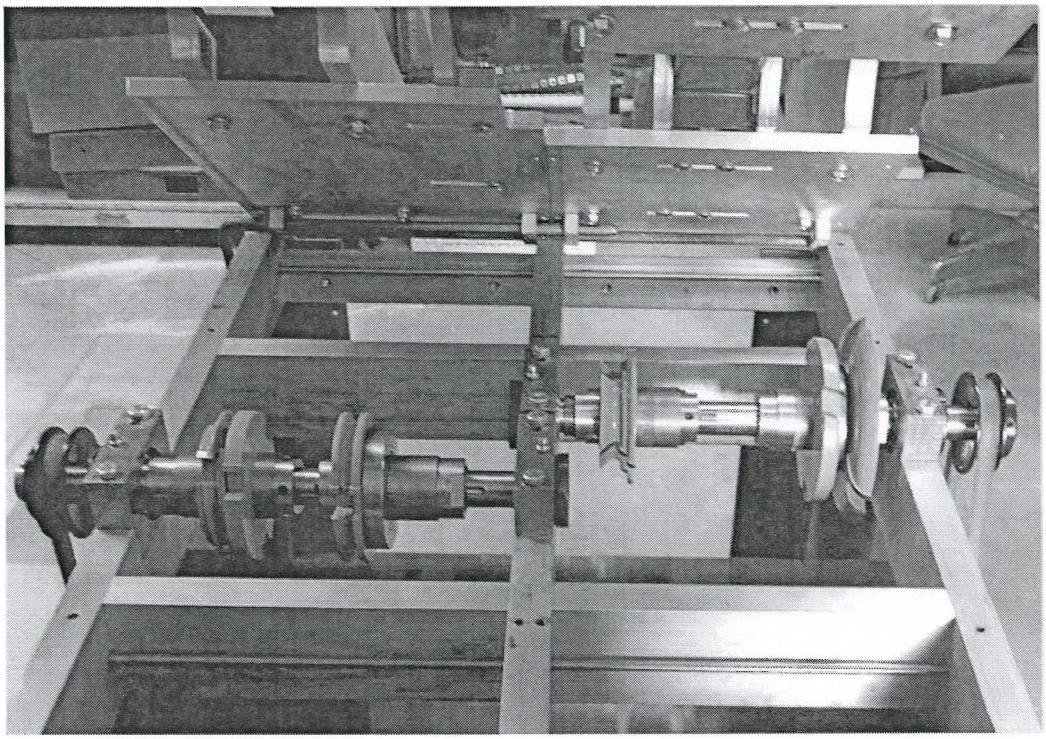
With table raised the cutters can be adjusted side to side. Also the shafts can easily be removed for changing out cutters



CUTTER SHAFT REMOVAL/INSTALLATION

- With the table raised you can remove the cutter shafts by removing the 2 cap screws on each of the 4 bearing housing tops.
- The tops are labelled and the matching label is also on the aluminum frame.
- The grease zerks go to the outside of the shafts on the housing.
- Always return the bearing housing halves to the same lower half and with the zerk on the same side.
- Now you can lift the shaft out by raising the inside of the shaft first.
- With the shaft at an angle the belt can easily be removed.
- To re-install the shaft reverse the steps given.

Note: The bearings have a small pin in them that fits into a hole in the lower bearing block. The cap will not go on properly unless this pin is aligned in the hole.



CUTTERS

The PanelMASTER IV was designed for use with the pro-line freeborn cutters. They are brazed tool cutters that come in two alloys. The Yellow Tantung and the Orange Carbide. The Tantung alloy is the best cutter for most natural woods. It is higher priced but has greater life and better results on natural woods. The Carbide cutters are best for manmade material such as particle board, plywood and fiber boards.

Other cutters that have a 1-1/4 inch bore with 6 inch maximum out side of the raised panel cutter and 4 1/2 inch cutter for the style and rail can be used.

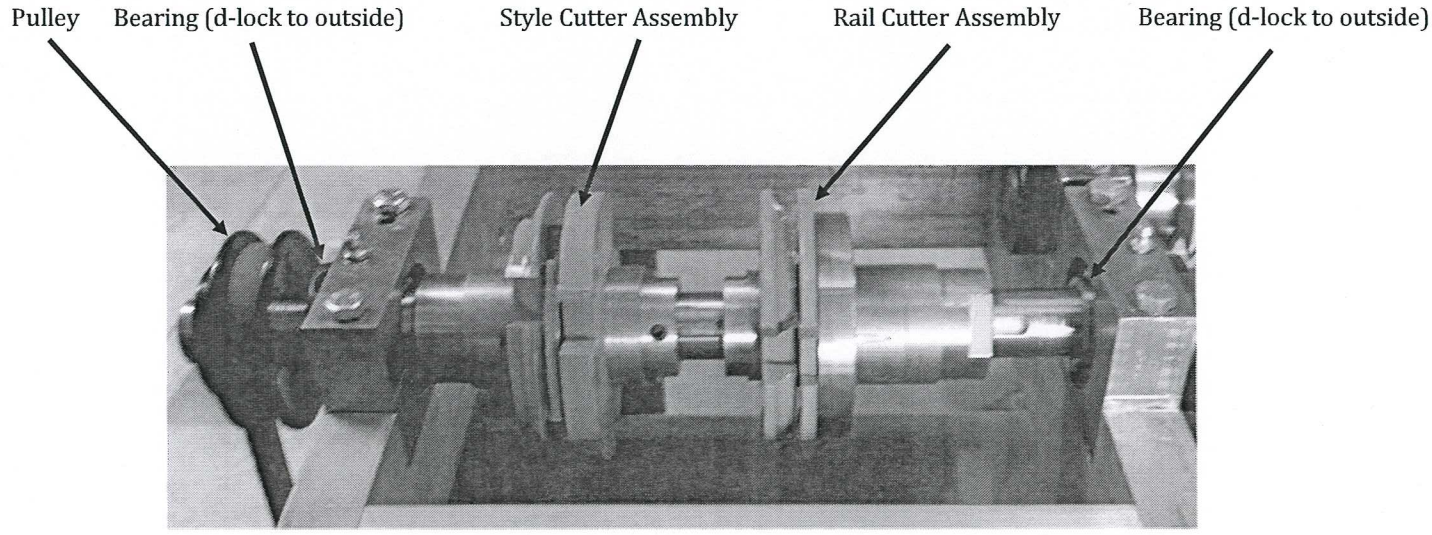
Freeborn cutter use a standard tongue size of 3/8". Cutters are available for the 1/2 inch tongue depth. Please be specific on what tongue depth you want when ordering cutters.

Other cutters with a 1-1/4 inch bore can be used, as long as the out side diameters match the 4-1/2 inch and 6 inch outside diameters of the Freeborn cutters.

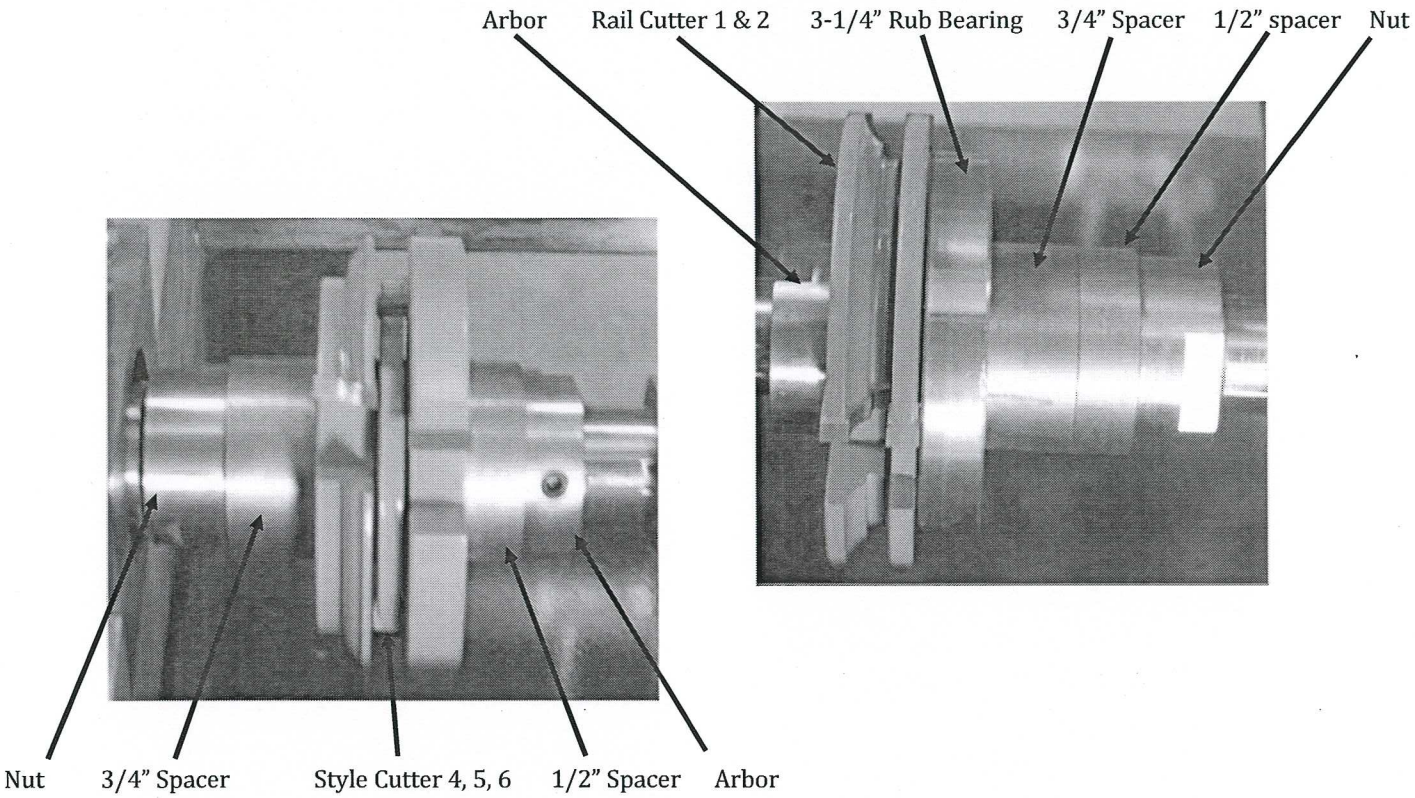
To us other diameters, modifications would have to be made to the fences and guards.

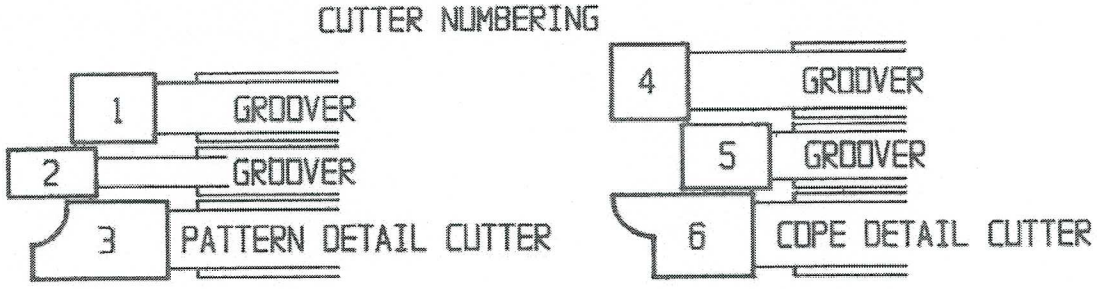
CUTTER SHAFT ASSEMBLY

Style and Rail Shaft



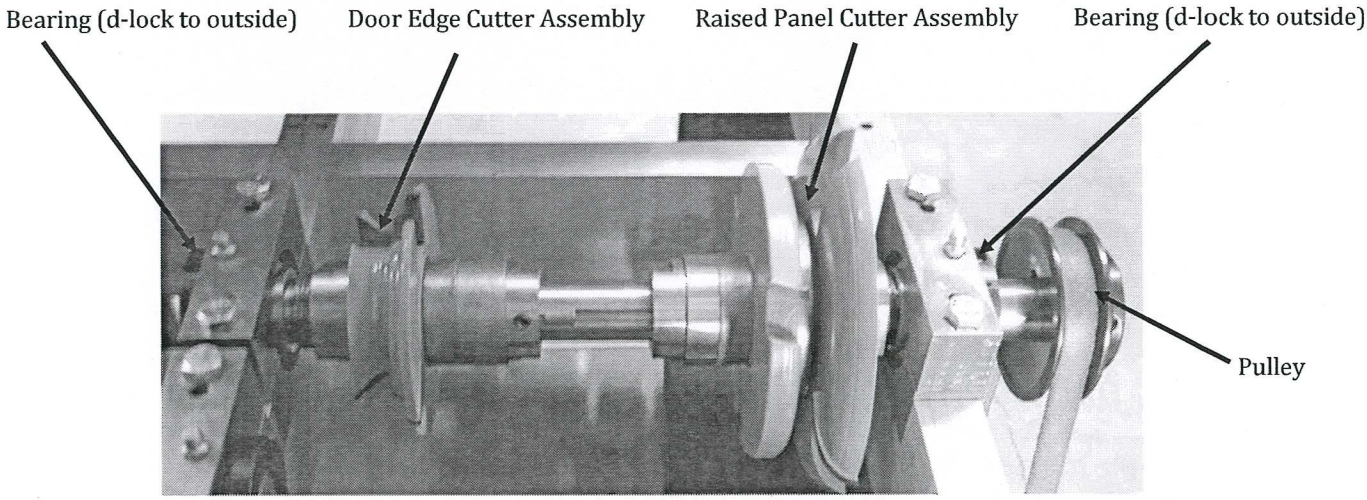
Note: The keys for the two cutter head assemblies should be opposite each other on the shaft.



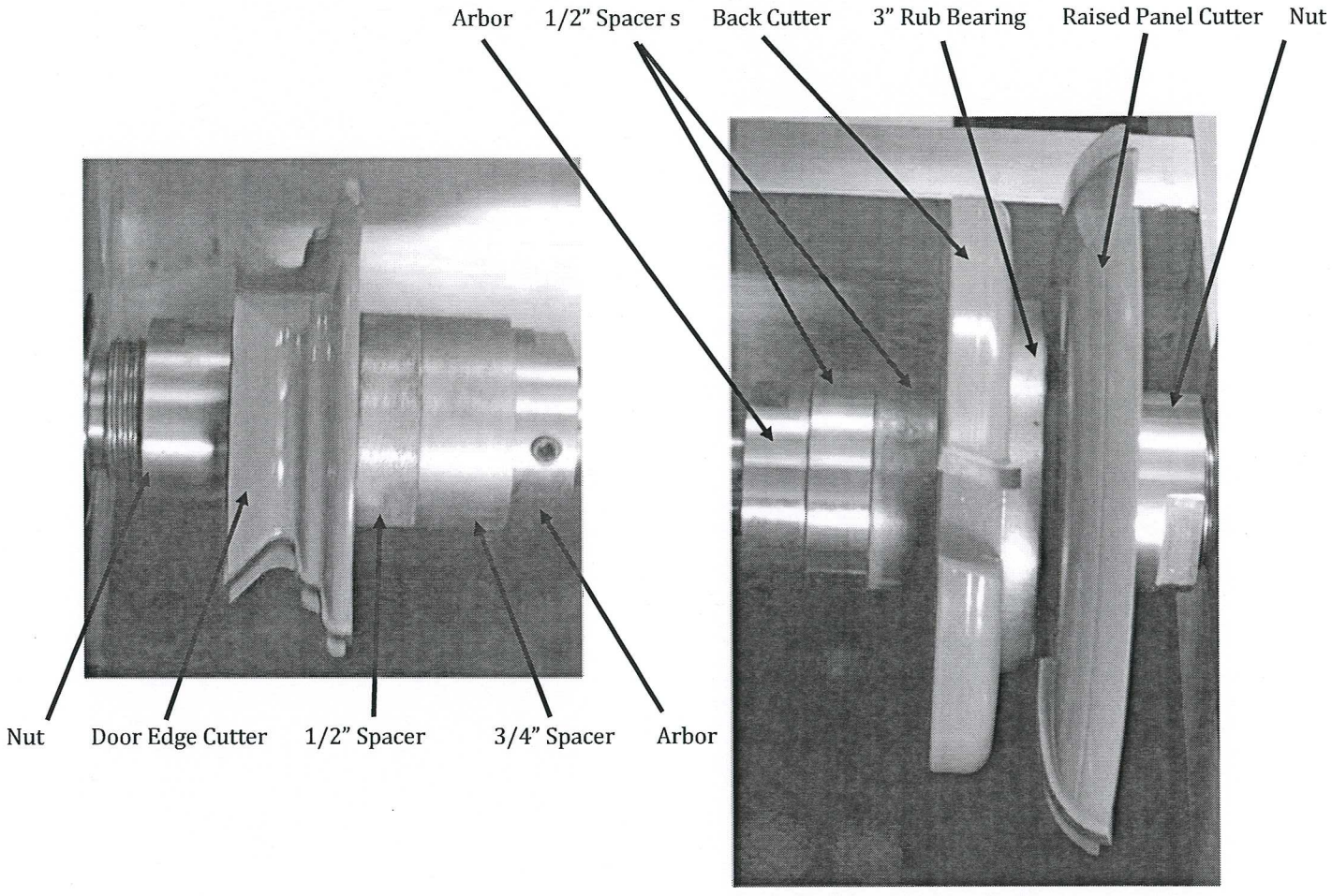


CUTTER SHAFT ASSEMBLY

Door Edge and Raised Panel Shaft

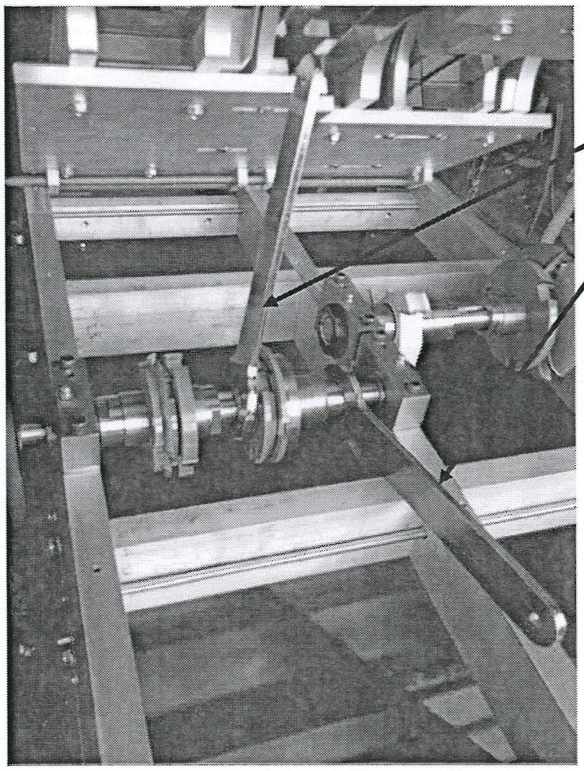


Note: The keys for the to cutter head assemblies should be opposite each other on the shaft.

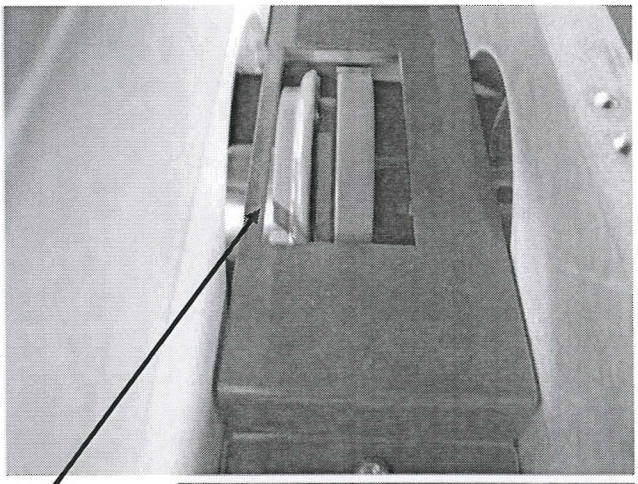


CUTTER SAFETY CHECKS

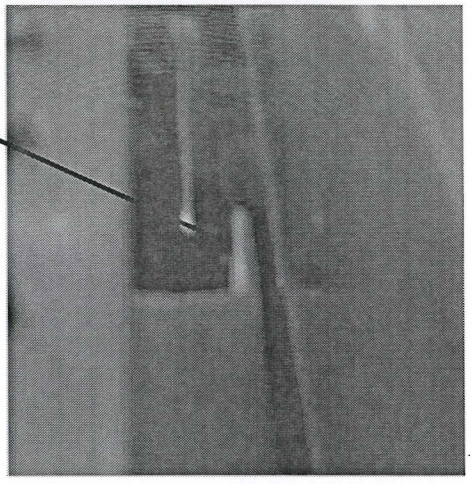
Before closing the cutter table be sure to make the following checks.

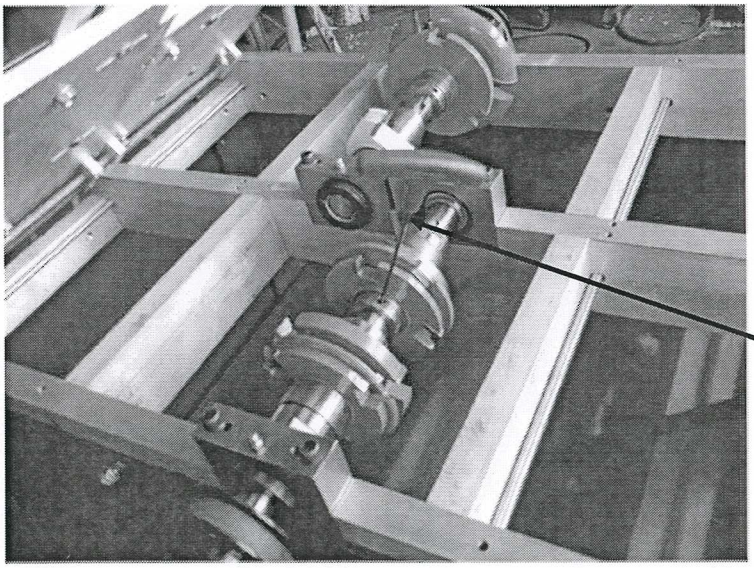


Tighten all arbor nuts by using the included wrenches



Check clearance so that the guards and fences do not damage the cutters when the table is lowered





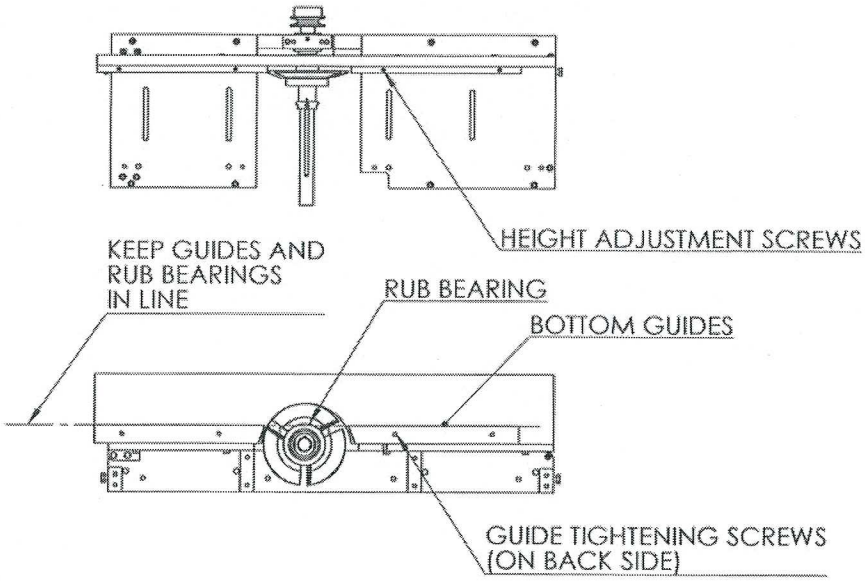
Tighten all arbors to shafts

FENCE ADJUSTMENTS

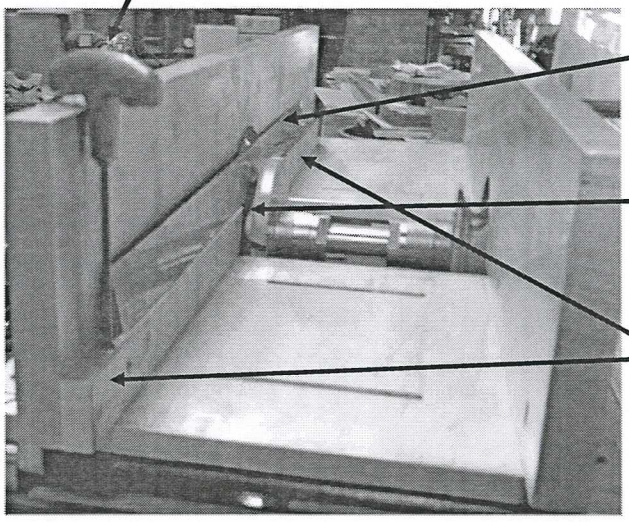
Bottom Rail Adjustment.

The rail and raised panel cutters use rub bearings. The door edge cutter might also use rub bearings.

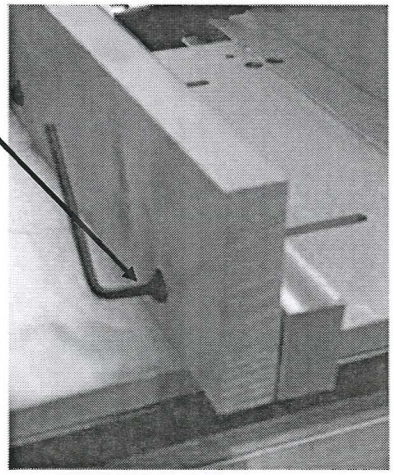
For these cutters the bottom rail is set to the height of the top of the rub bearing. The figure at the right shows this alignment.



With the adjustable fences removed you can see the bottom rail and rub bearing on the raised panel cutter shown. Using a straight edge raise and lower the 4 set screws until they all line up.

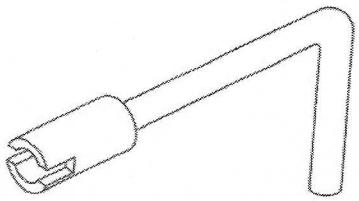


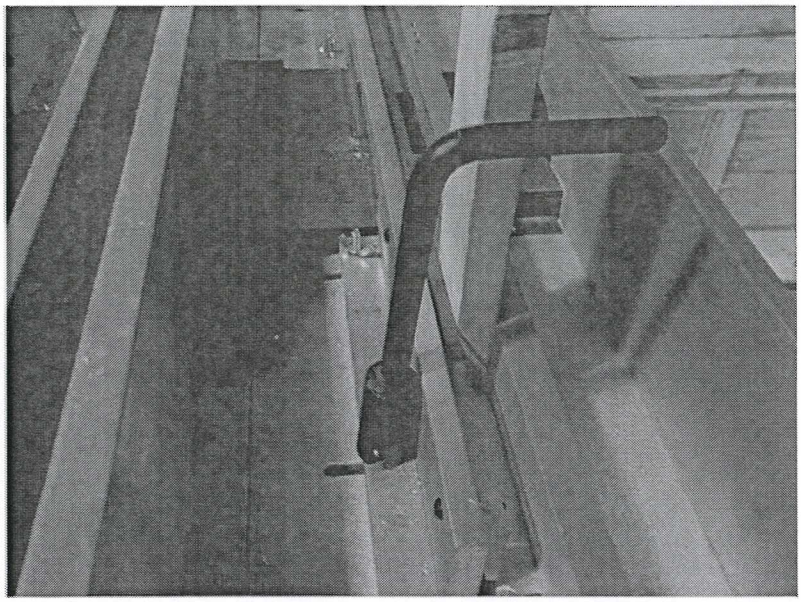
Tighten bottom rail with allen wrench. As shown in the figure.



Movable Fence Adjustment

Using wing nut wrench that came with the machine, loosen the wing nuts on the adjustable fence (rail, raised panel or door edge). Then insert a board of the desired thickness on each end of the fence. Slide the fence until the springs of the spring fence are slightly compressed. Then tighten the wing nuts with the wing nut wrench. Do this on each end of the 3 spring fences (rail, raised panel and door edge detail) before tightening the middle wing nuts.



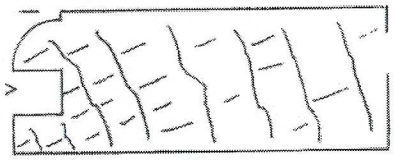


ADJUSTMENTS AND OPERATIONS

RAIL CUTTER

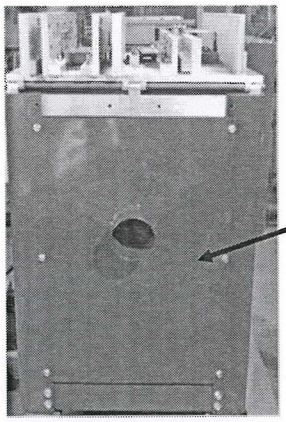
Rail Cutter Adjustment

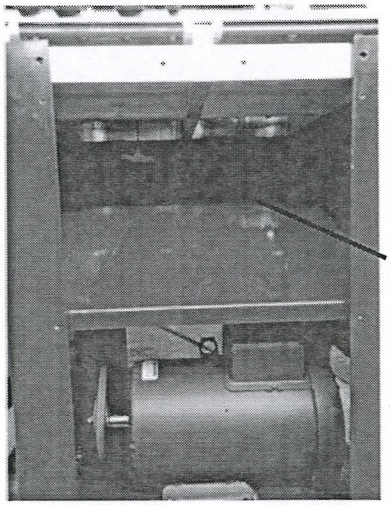
The position of the rail cut on the edge of the board is not critical. You choose how much of a back ledge you want.

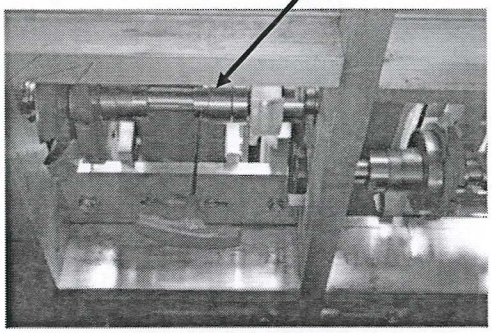


Often time 1/8 to 3/16 inch on a 3/4 door. There should be enough material on both sides of the groove so it will not break out. To set the rail cutter:

1. Unplug the machine.
2. Remove the back panel with the dust collector outlet.
3. Using an allen wrench, loosen the set screw in the rail cutter arbor and slide the cutter on the shaft to the desired position.
4. Retighten the set screw in the rail cutter arbor.
5. Rotate the shaft by hand to make sure the cutter is not hitting anything.
6. Replace back cover.
7. Plug in the machine and run a piece of scrap to see if the cutter is set correctly. If not, repeat until you have the desired cut.





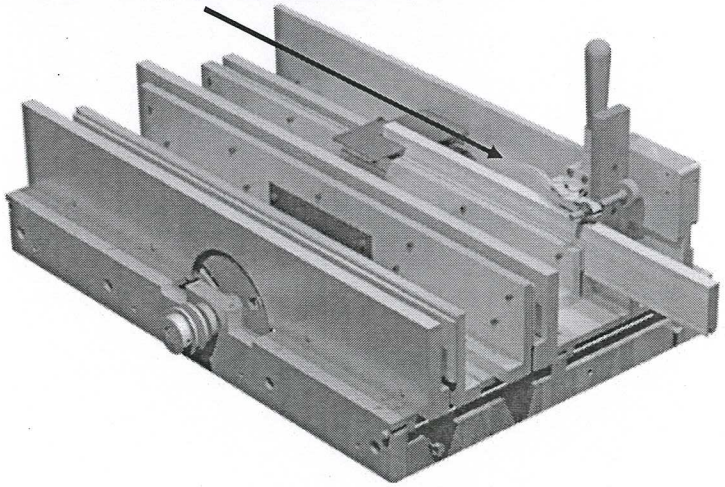


Making the Rail Cut

Insert the rail board and slide it thru the rail cutter fences.

Note: Be sure to use the push stick for safety reasons.

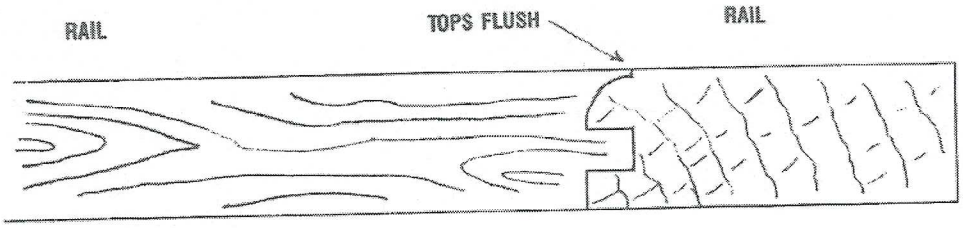
Repeat this for all four rails.



STYLE CUTTER

Style Cutter Adjustment

The style cutter must be adjusted so that the front of the rails are flush.

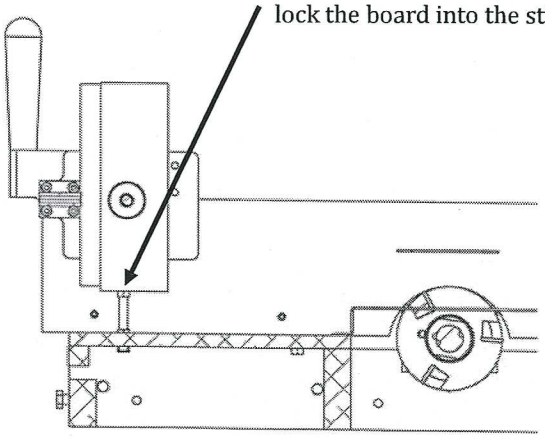


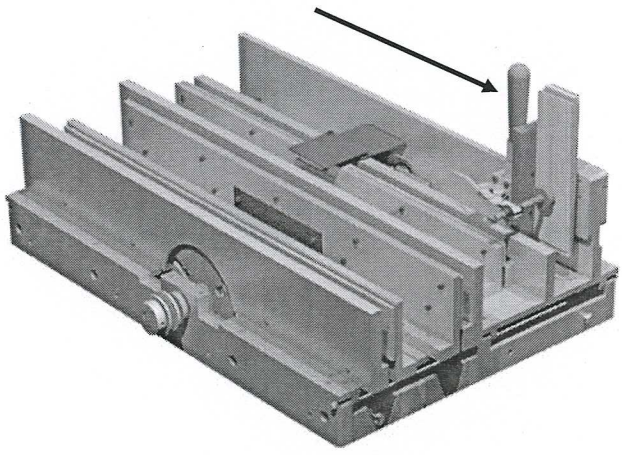
1. Unplug the machine.
2. Remove the back panel with the dust collector outlet.
3. Using an allen wrench, loosen the set screw in the style cutter arbor and slide the cutter on the shaft to the desired position.
4. Retighten the set screw in the style cutter arbor.
5. Rotate the shaft by hand to make sure the cutter is not hitting anything.
6. Replace back cover.
7. Plug in the machine and run a piece of scrap to see if the cutter is set correctly. If not, repeat until you have the desired cut.

Cutting a Style Cut

Lock in the style board into the style fixture as shown in the figure to the right. Then slide the board thru the cutter as shown in the figure below.

Repeat for both ends of both style cut boards.

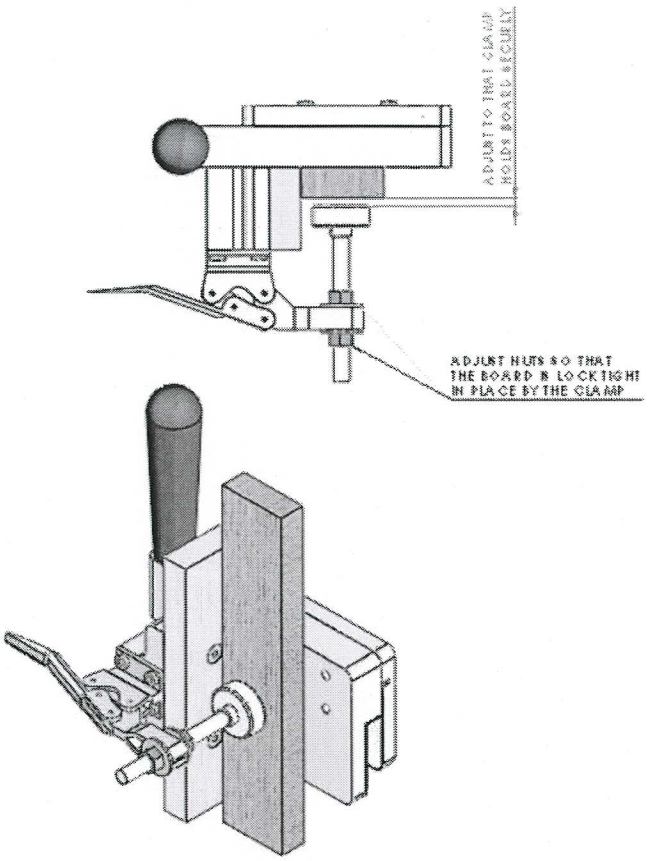


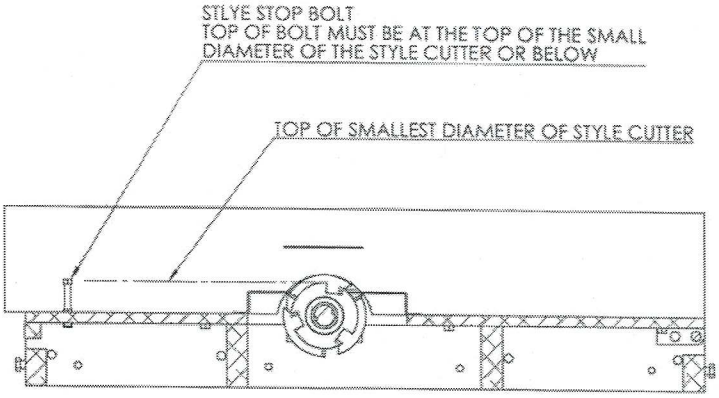


Style Jig Adjustments

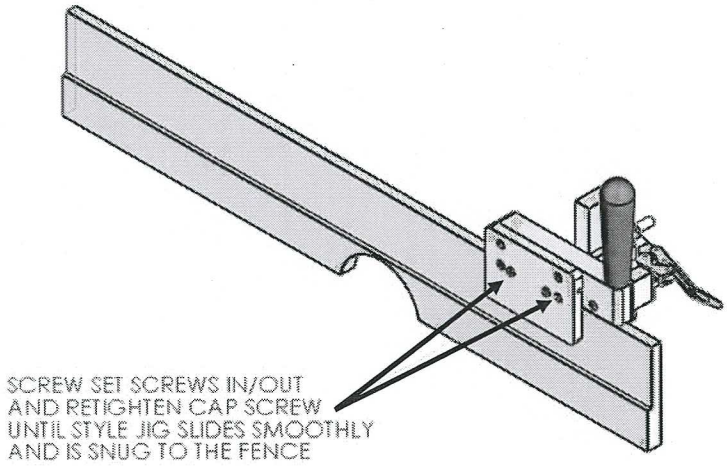
There are two adjustments to make on the style jig.

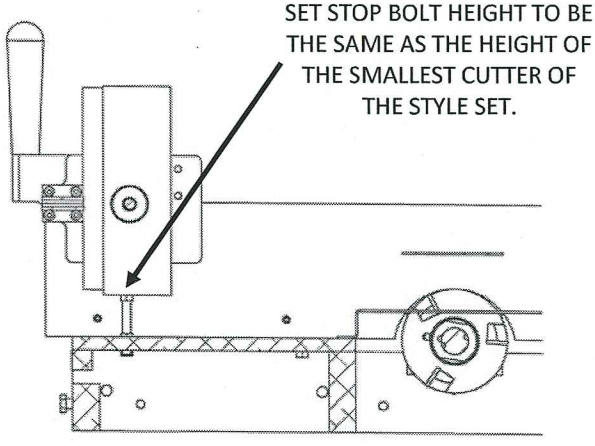
The first adjustment is to lock the board securely in the jig. This is done by adjusting the 2 nuts on the clamp as seen in the figure below. The board must be held tight enough to keep it secure while the cut is being made.



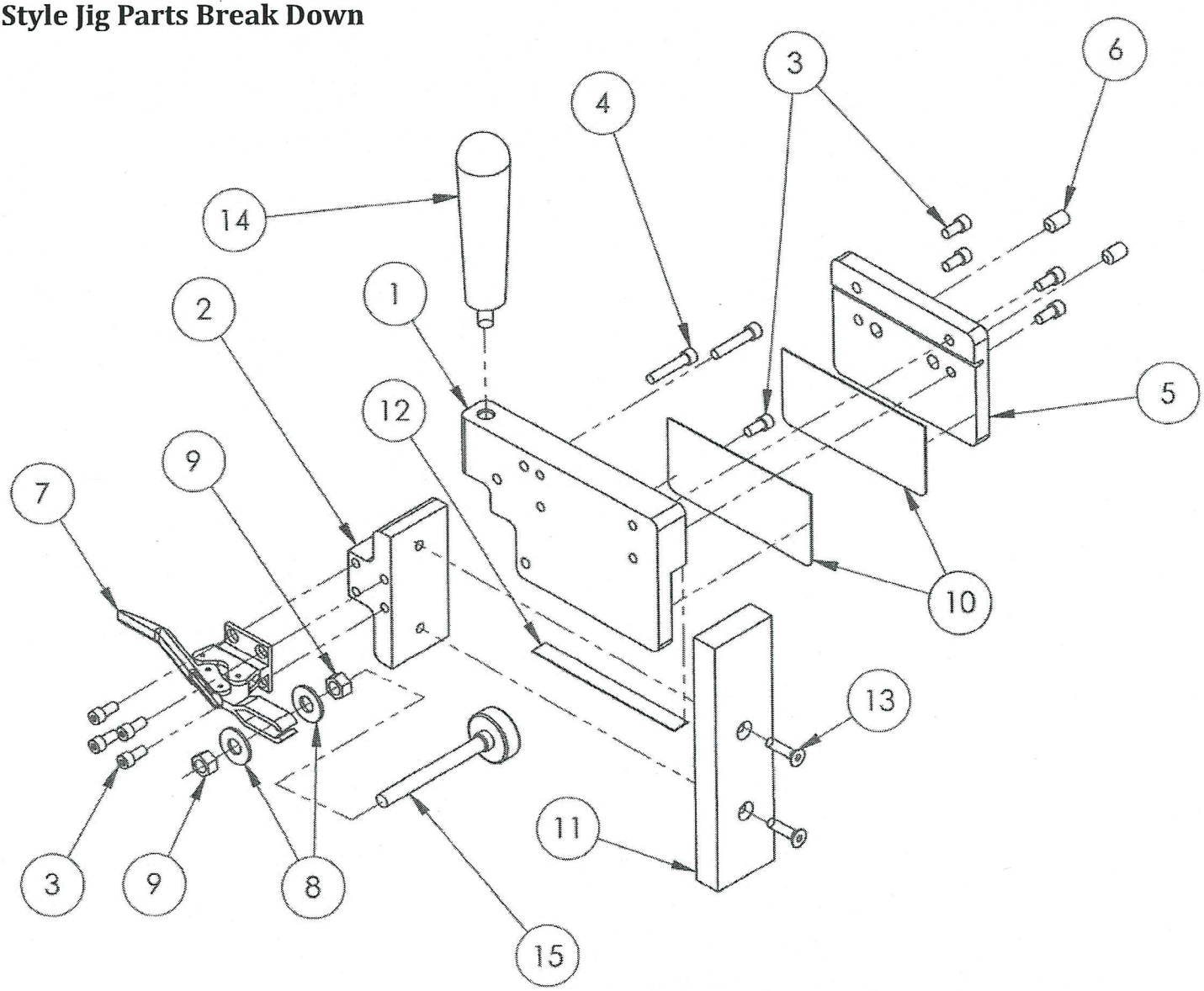


The second is so that the jig slides freely but snugly on the fence. This is done by loosening the cap screw shown in the figure below, adjusting the set screws, then retightening the cap screws. This will have to be done a few times to set it properly.





Style Jig Parts Break Down

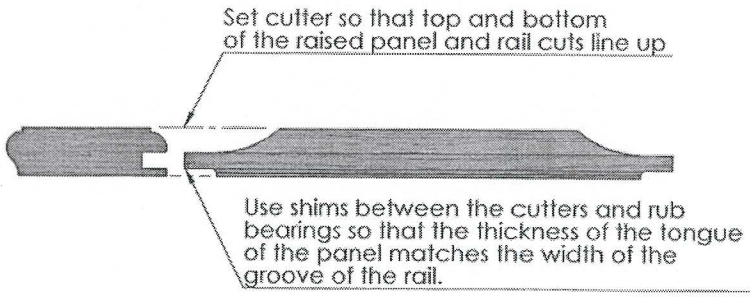


ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	690-0142	STILE JIG, CLAMP PAD	1
2	707-6286	SHCS .25-20 X .500	9
3	790-0059	SHCS .25-20 X 1.25	2
4	690-0143	STILE JIG, LEFT SIDE	1
5	770-0087	SOCKET SET SCREW FT PT .375-24 X .625	2
6	690-0073	TOGGLE CLAMP (STILE JIG CONFIG.)	1
7	770-0050	.375 FLAT WASHER	2
8	770-0058	.375-16 HEX NUT	2
9	790-0078	STILE JIG, 3 X 5 PSA BACKING WEAR STRIP	2
10	690-1041	STILE JIG WOOD BLOCK	1
11	790-0140	STILE JIG, 1 X 7 PSA WEAR STRIP	1
12	715-0072	.25-20 x 1 FLAT HEAD CAP SCREW	2
13	745-1149	JIG HANDLE	1
14	790-0045	GLIDE, STILE JIG, .375-16 X 3.75 LG.	1
15	690-0144	STILE JIG, RIGHT SIDE	1
16	790-0122	FENCE STYLE FIXED	1

RAISED PANEL CUTTER

Raised Panel Cutter Adjustment

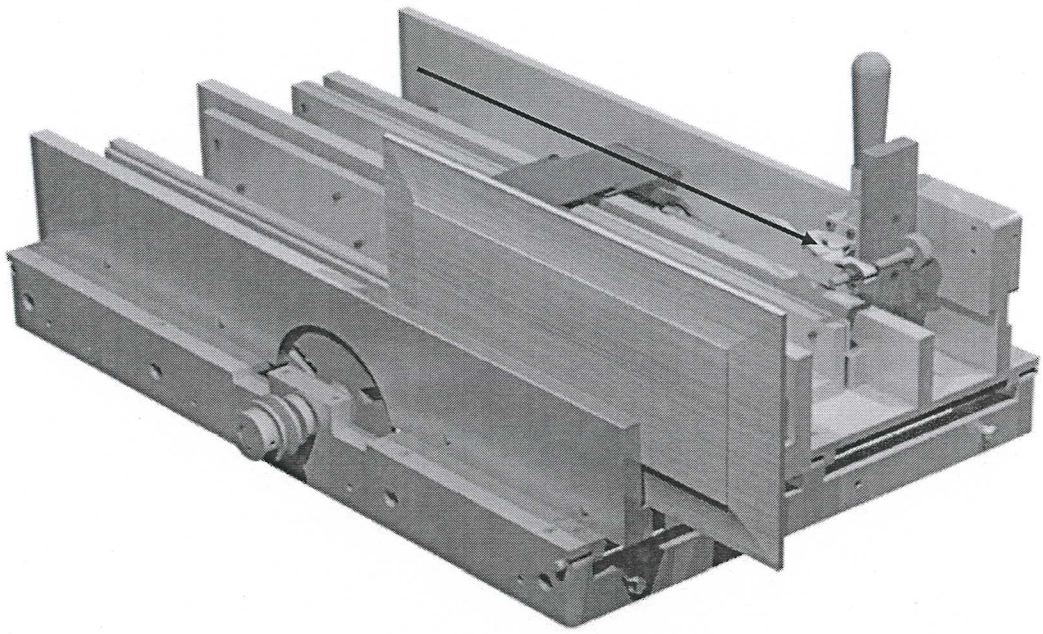
The position of the raised panel cutter is critical and will need to be adjusted so that the top (and bottom if a back cutter is used) will need to line up with the rail cut. To set the raised panel cutter:



1. Unplug the machine.
2. Remove the back panel with the dust collector outlet.
3. Using an allen wrench, loosen the set screw in the raised panel cutter arbor and slide the cutter on the shaft to the desired position.
4. Retighten the set screw in the raised panel cutter arbor.
5. Rotate the shaft by hand to make sure the cutter is not hitting anything.
6. Replace back cover.
7. Plug in the machine and run a piece of scrap to see if the cutter is set correctly. If not, repeat until you have the desired cut.

Cutting a Raised Panel

To cut a raised panel, slide the panel thru the machine between the fixed and movable raised panel fences as shown. Be sure to hold the panel down on to the bottom guide rail and rub bearing while making this cut. Repeat for all four edges of the panel.



DOOR EDGE CUTTER

Door Edge Cutter Adjustment

The position of the door edge cutter is not critical. You adjust it to fit your desired shape. (if you are using a rub bearing and the 8th cutter of the 8 cutter style and rail set then its adjustment is critical since the outside and inside are to match).

1. Unplug the machine.
2. Remove the back panel with the dust collector outlet.
3. Using an allen wrench, loosen the set screw in the door edge cutter arbor and slide the cutter on the shaft to the desired position.
4. Retighten the set screw in the door edge cutter arbor.
5. Rotate the shaft by hand to make sure the cutter is not hitting anything.
6. Replace back cover.
7. Plug in the machine and run a piece of scrap to see if the cutter is set correctly. If not, repeat until you have the desired cut.

Cutting a Raised Panel

Without a rub bearing

Measure down to the door edge cutter from the top of the fence.

Place the door on the T-track of the door edge detail jig.

Measure up from the door edge to the door edge jig bottom.

Clamp the door in place using the Knuckle Clamp of the door edge jig. See next page for Knuckle Clamp instructions.

Setting the door edge detail jig on top of the fence push the door thru the cutter

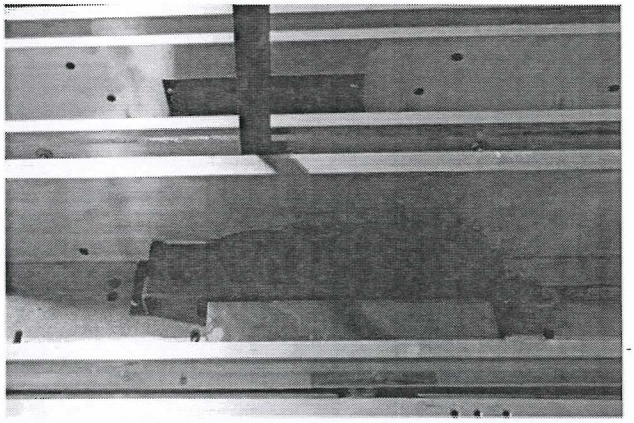
Repeat for all four edges of the door.

With a rub bearing

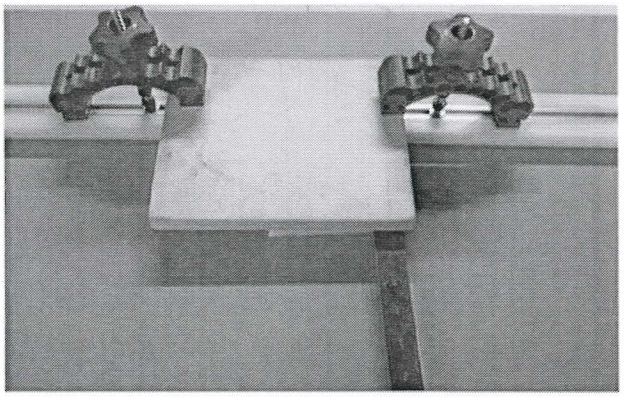
To cut a door edge slide the door thru the machine between the fixed and movable door edge fences as shown. Be sure to hold the door down on to the bottom guide rail and rub bearing while making this cut. Repeat for all four edges of the panel.

TYPICAL DOOR EDGE DETAIL

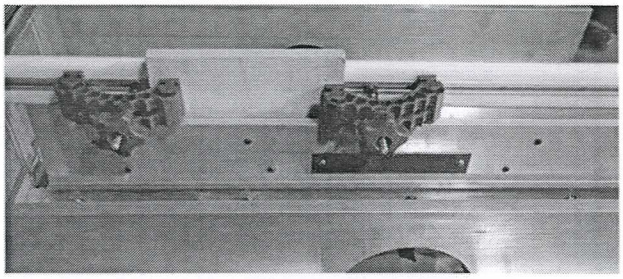
MEASURE FROM TOP OF FENCE
TO LOW PART OF CUTTER

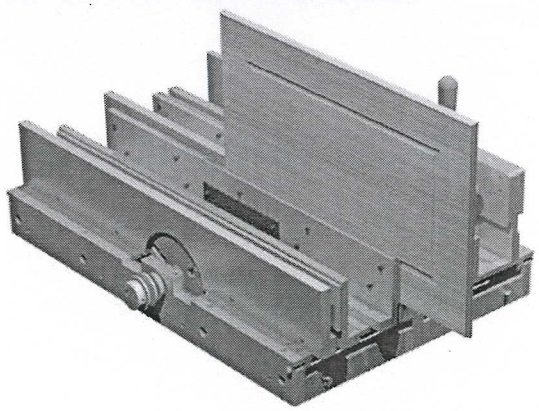


MEASURE FROM OUTSIDE OF DOOR
TO BOTTOM OF DOOR DETAIL JIG

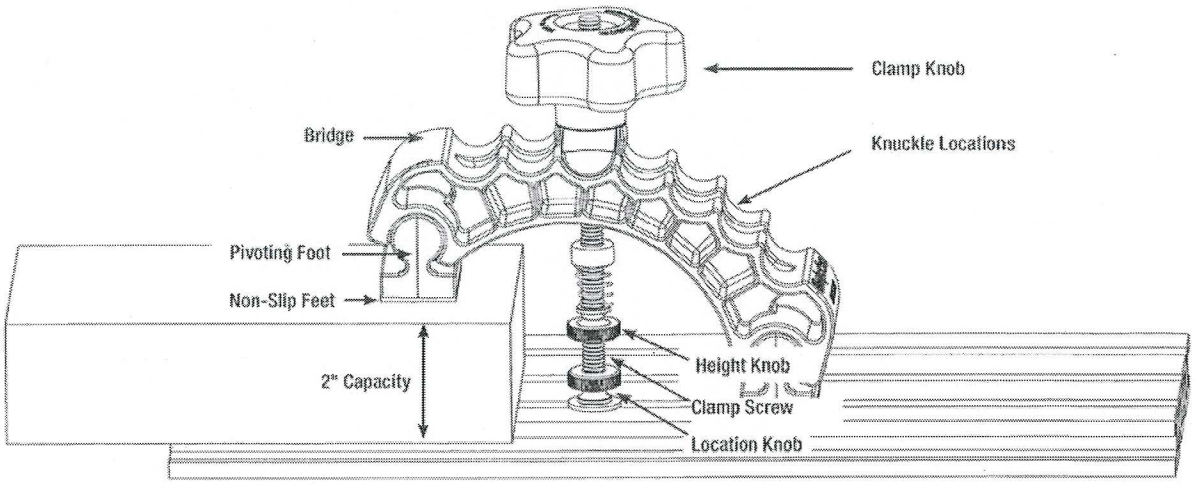


FEED DOOR THRU THE CUTTER
JIG SLIDES ON TOP OF FENCE





Door Edge Cutter Jig; Knuckle Clamp a Woodpeckers Product



The clamping capacity of the Knuckle Clamp is 2".

The knuckle clamp is design for use with the T-Track that is in the door edge jig. In the illustration shown , the head of the bolt is captured in the aluminum T-Track.

The Knuckle Clamp has Non-Slip Feet. That is each pivoting foot has a non-slip molded surface to it. This pad prevents marking of the wood and greatly reduces movement of the work piece being clamped.

The Height Knob and spring is to allow the clamp to rest at a height just above the work piece when the clamping pressure is removed. Thus making it easy to slide work under the foot.

The Location Knob is used to keep the screw vertically oriented and stable. No more than finger pressure is required to keep it in place.

The knuckle location. Although the bridge has seven location only the center five locations should be used. Always us the location that is closest to the work piece. As this will create the maximum clamping pressure.

CROWN DOORS

Crown Rail Jig

The Crown Rail Jig and Templates serve two functions. The first is safety; the jig has two handles that provide excellent control of the jig and stock that is being cut. The second is that the templates provide a profile to mark and saw the crown into the board that the door is made of.

Bushton Manufacturing provides a set of 10 templates to make the rails and panels from widths of 9.5 to 22.5 inches. There is also a set of adjustable width stops. This allows for any width door.

You can also make your own template if you desire a different type of arch than what we provide.

The Hawk templates are made of ABS plastic and run against the rub bearings. For that reason, rub bearings must be used, not solid steel bushings. The rub bearing should also be check to ensure that they spin freely.

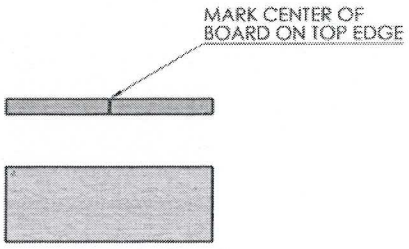
The PanelMASTER IV raised panel templates are designed for a 7/8" rise in the crown rail and a board width of 3-5/8".

SAFETY

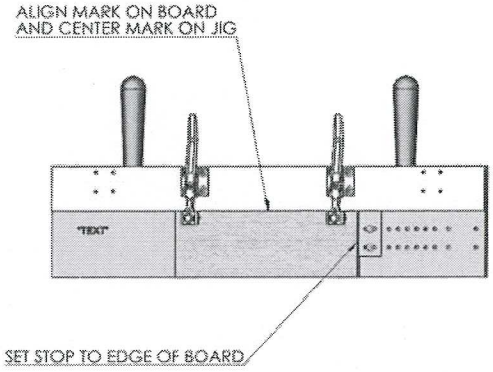
1. Be safety conscious, always follow the safety rules for your PanelMASTER IV as laid out in this manual.
2. Always unplug the machine when servicing or making any adjustments. Turn the machine by hand to be sure that no cutters are hitting any guard or fence before plugging it back in.
3. Be careful when making any adjustments, the cutters are sharp.
4. When making a cut be sure to keep the jig tight against the back fence all the way through the cutter. Even though the wood may be clear of the cutter, the jig might not be.
5. Always make a dry run, with the motor off, after everything is set and before making a cut. Check to see if the toggle clamp pads are hitting the rail fence. If they are, adjust as needed. Check and make sure the board is positioned on the cutter and the template is positioned on the rub bearing.

PROCEDURE

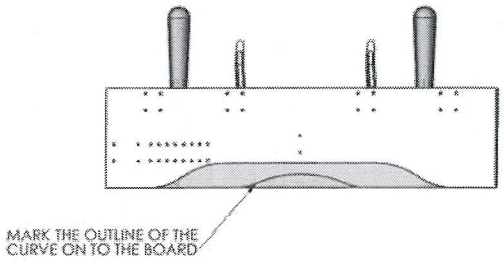
1. Select the proper template and install it in the jig. Select the template for the length of the crown rail not the overall width of the door you will be making. If the length of the crown rail falls between two templates, you can select either template. Place the template on the jig, with the countersunk side of the mounting holes up. Fasten the template to the jig with the two flat head screws provided.
2. Mark the center of the board on top.
3. Place the board into the jig. Align the center mark of the board with the center mark on the jig.



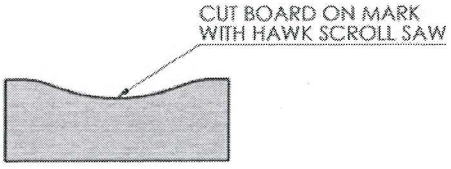
4. Select the proper stop block and install it on the jig against the board.



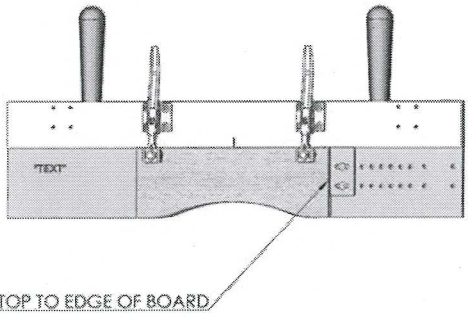
5. Turn the jig over and make the board for trimming.



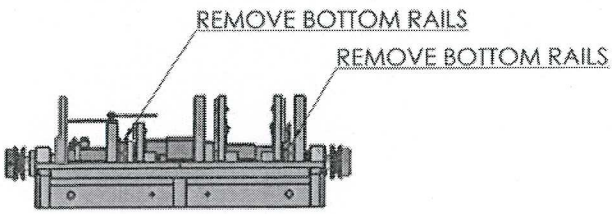
6. Trim the board to size with a HAWK scroll saw or other method. Make a smooth cut as the board will be running on the rub bearing with the template.



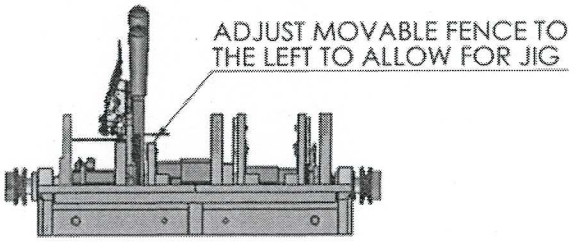
7. Reinstall board onto the crown rail jig.



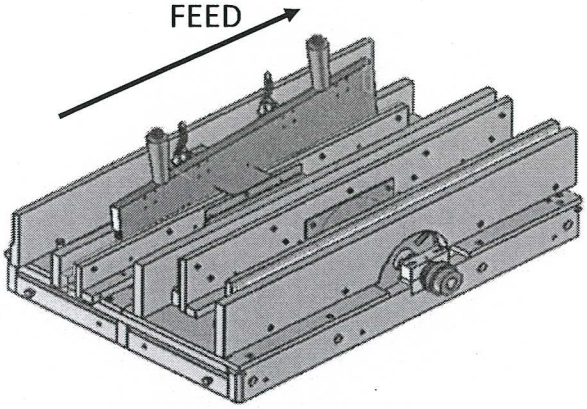
8. Remove bottom guide bars from rail and raised panel cut locations.



9. Adjust movable rail fence to allow for the added thickness of the crown rail jig and template.



10. Make a dry run, with the motor turned off, after everything is set and positioned. Check to see if the toggle clamp pads are going to hit the fence. Make sure the cutters are positioned under the wood and are not going to cut into the template or jig. **If the cutters get into the jig, it will ruin the cutters, template and jig. It will also be a dangerous situation and can result in throwing the jig or parts of it out.**



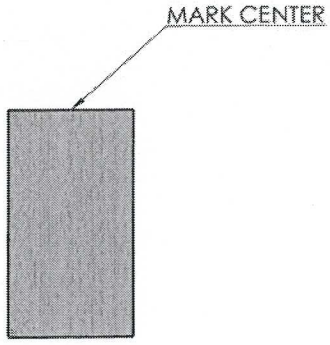
11. Cut the profile. When making a cut be sure and keep the jig tight against the back rail fence all of the way through, the wood may be clear of the cutter but the jig might not be.

Crown Rail Raised Panel

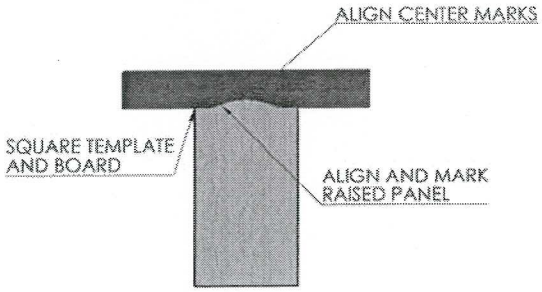
To cut the raised panel of your crown rail door, you will need the template you used to make the rail.

To make the raised panel follow these procedures:

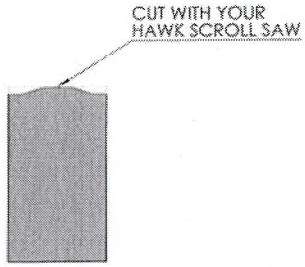
1. Mark the center top of the board.



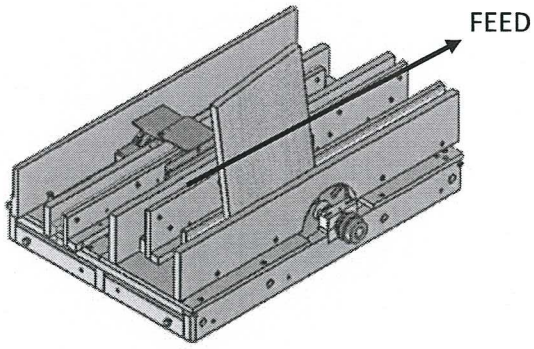
2. Place the template on the board and align the center marks, the to edge of the door and square the template to the door.



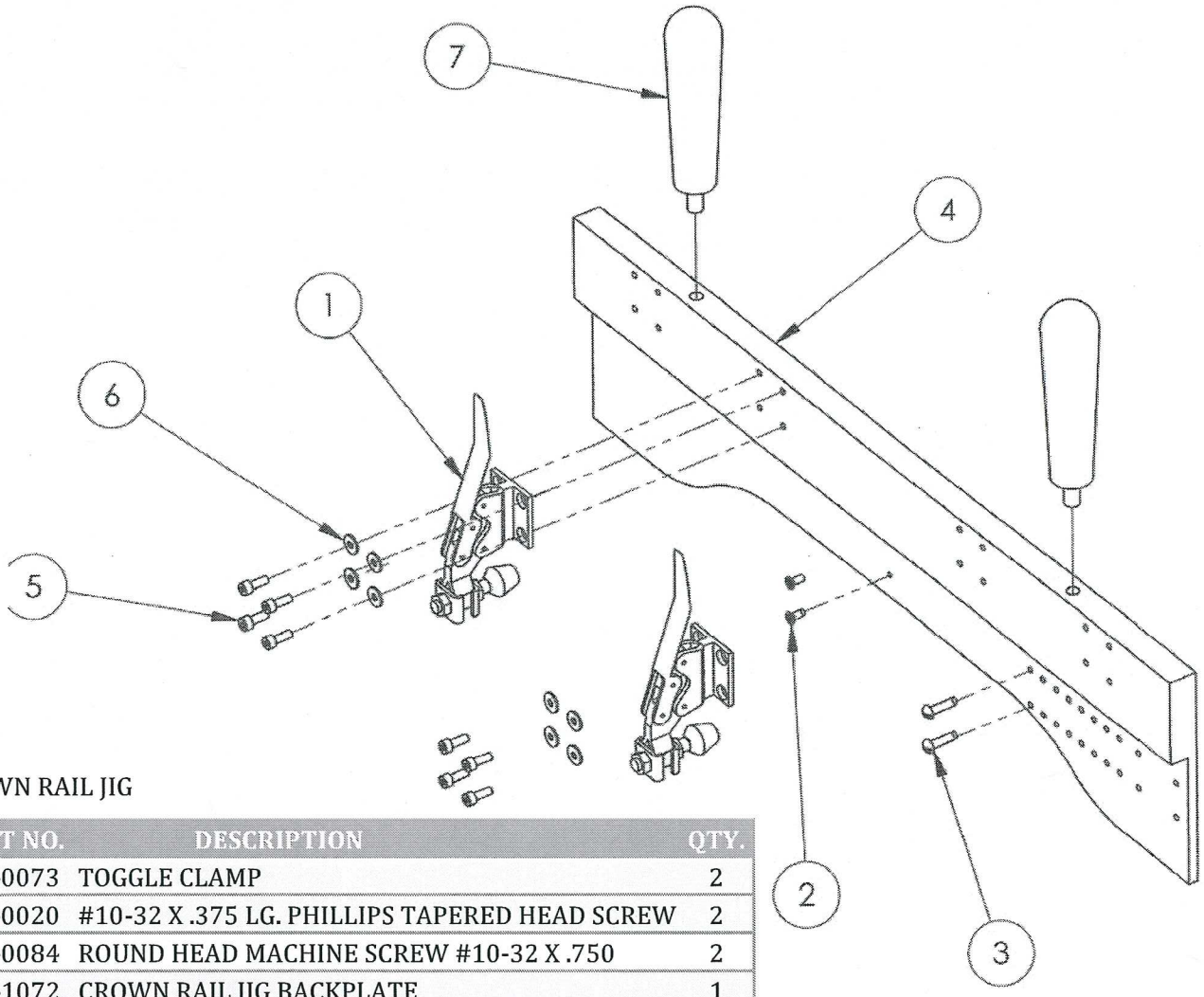
3. Cut the raised panel board to shape using your HAWK Scroll Saw or other similar method.
4. Carefully cut the top of the panel with the bottom rail removed.



5. The other 3 sides are cut with the bottom rail in place.



Crown Rail Jig Parts Break Down



910-0100 CROWN RAIL JIG

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	690-0073	TOGGLE CLAMP	2
2	755-0020	#10-32 X .375 LG. PHILLIPS TAPERED HEAD SCREW	2
3	705-0084	ROUND HEAD MACHINE SCREW #10-32 X .750	2
4	690-1072	CROWN RAIL JIG BACKPLATE	1
5	715-0255	#10-32 X .500 SHCS	8
6	755-0045	10 SAE FLAT WASHER ST Z1	8
7	745-1149	JIG HANDLE	2

910-0200 CROWN RAIL TEMPALTE SET

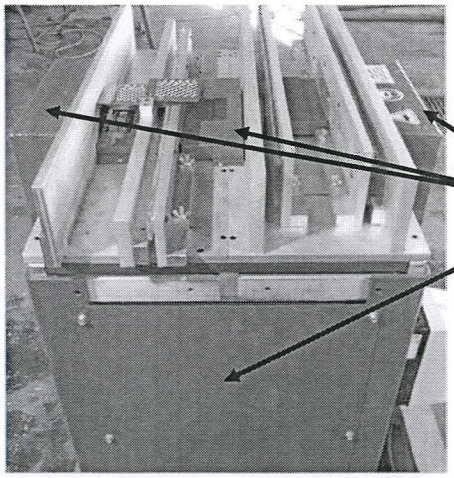
PART NO	DESCRIPTION	QTY
690-1062	TEMPLATE 9-1/2 TO 10-1/2	1
690-1063	TEMPLATE 10-1/2 TO 11-1/2	1
690-1064	TEMPLATE 11-1/2 TO 12-1/2	1
690-1065	TEMPLATE 12-1/2 TO 13-1/2	1
690-1066	TEMPLATE 13-1/2 TO 14-1/2	1
690-1067	TEMPLATE 14-1/2 TO 15-1/2	1
690-1068	TEMPLATE 15-1/2 TO 16-1/2	1
690-1069	TEMPLATE 16-1/2 TO 17-1/2	1
690-1070	TEMPLATE 17-1/2 TO 19	1
690-1071	TEMPLATE 19 TO 22	1
690-0076	STOP	1

MANTAINANCE

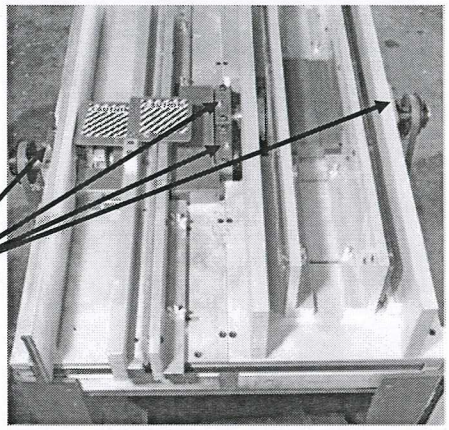
It is important to keep the machine clean.

Make sure the moving guards move freely. Blow dust from them and you can use a dry lubricate.

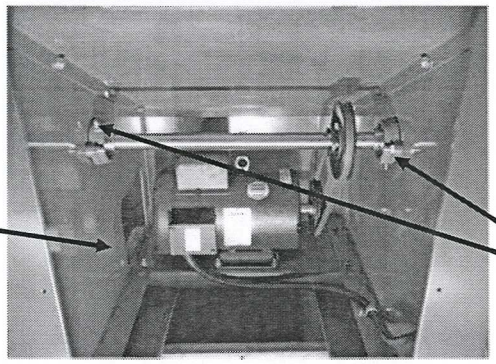
You should use a grease that is for high speed and precision bearing such as Phillips Triton Low Temp grease or similar.



Remove the front, 2 side and center guards to expose the grease zerks



Grease the 4 cutter shaft bearing every month or every 100 hours of operation



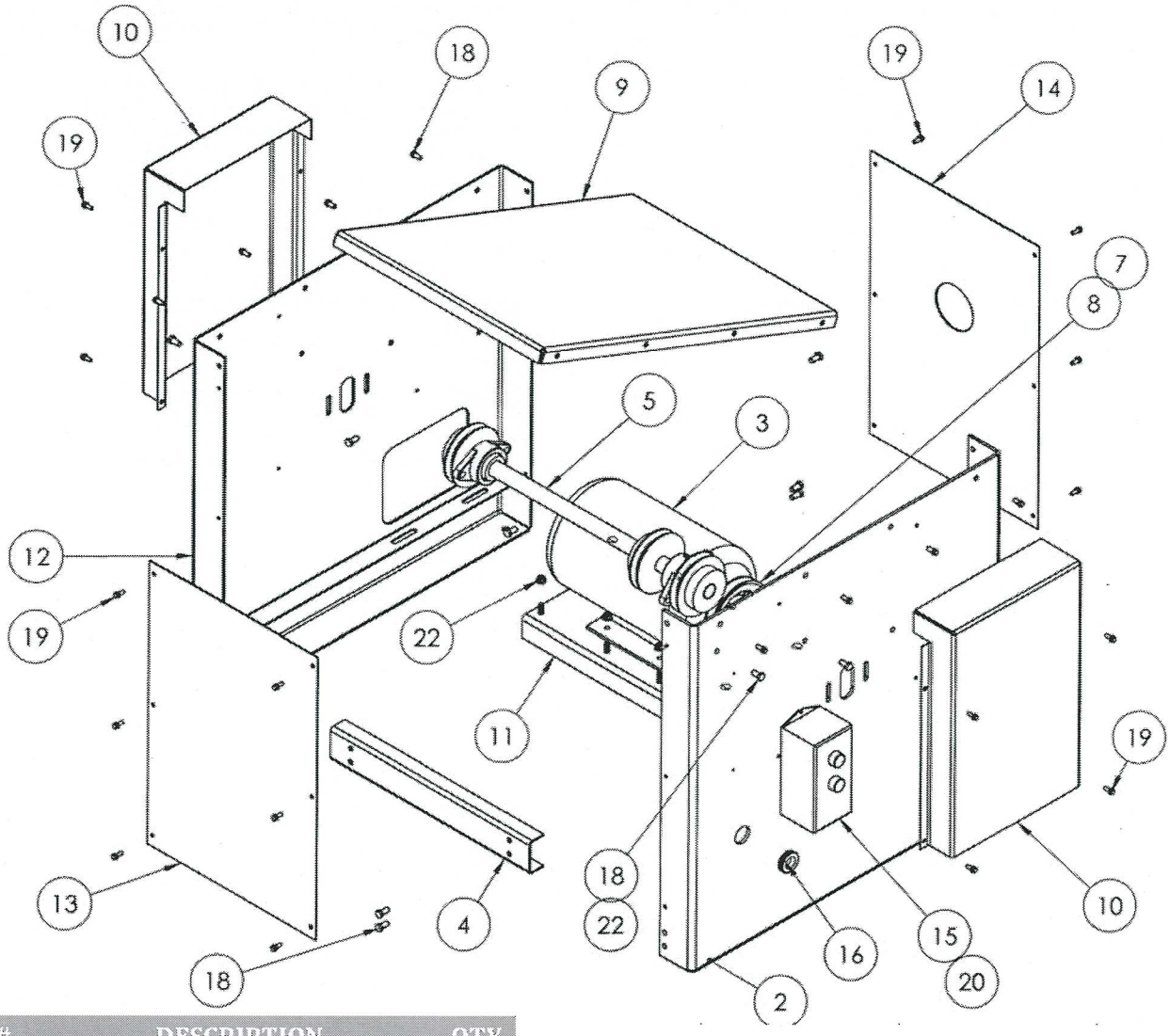
Keep motor compartment clean and free of saw dust

Grease the 2 jack shaft bearings every month or every 100 hours of operation

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Burning of wood.	Dull cutters, sharpen/replace.
Excessive chipping or ripples in cut.	Feeding to fast, feed stock into cutter slower. Replace blowout block on the style cutter.
Burning of board by rub collar.	Wax rub collar.
Vibration. ing	The PanelMASTER IV has been redesigned to reduce vibration. This is done by using shorter cutting shafts and increasing the rigidity of the frame and increas- the mass of the machine. It could still have vibrations which can be caused by: Cutter shaft bent, or bearing going bad, or cutter damage. Bearing should be smooth and quiet. Inspect and replace all bad parts. Cutter chip will put balance off. Do not have all the carbide tips lined up. Offsetting will reduce vibration when running.

ASSEMBLY BREAK DOWNS
BASE ASSEMBLY



ITEM #	PART #	DESCRIPTION	QTY.
2	790-0300	RIGHT SIDE PANEL	1
3	704-0001	5HP 3450 RPM ELECTRIC MOTOR	1
4	790-0306	BOTTOM BRACE	2
5	690-2112	JACK SHAFT ASSEMBLY	1
7	745-0304	PULLEY REDUCER	1
8	790-0152	MOTOR PULLEY	1
9	790-0310	DUST PAN	1
10	790-0401	SIDE GUARD	2
11	790-0307	MOTOR BASE WELDMENT	1
12	790-0302	LEFT SIDE PANEL	1
13	790-0405	FLAT ACCESS PANEL	1
14	790-0407	DUST COLLECTOR ACCESS PANEL	1
15	745-0697	MOTOR STARTER	1
18	715-0920	3/8-16 X 1 LG FLANGED HHMS	28
19	715-0902	1/4-20 X 5/8 LG FLANGED HHMS	20
20	705-0084	10-32 X 3/4 LG MACHINE SCREW	2
22	715-0921	3/8-16 FLANGED NUT	8

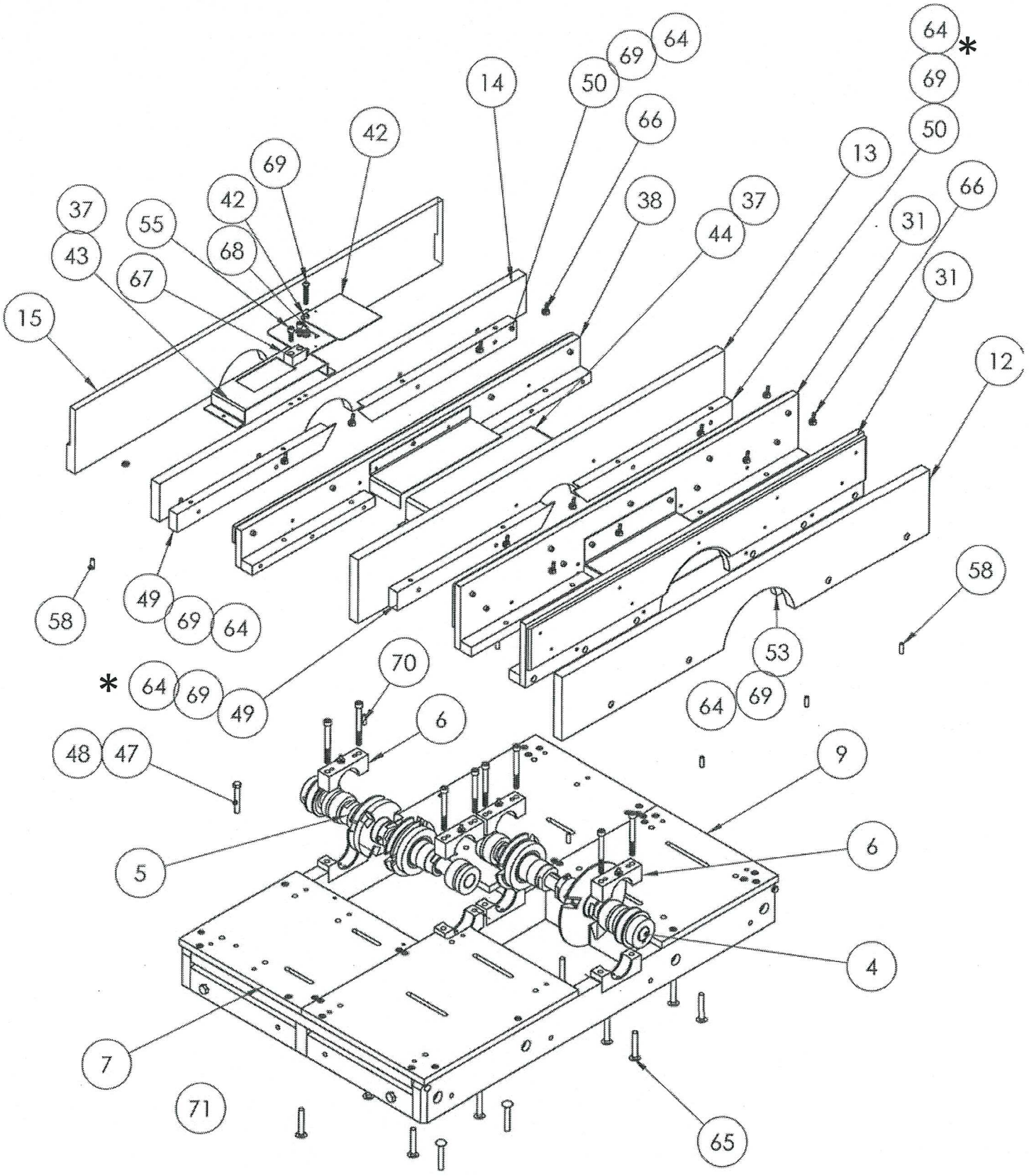
CUTTING TALBE ASSEMBLY PARTS LIST

ITEM #	DESCRIPTION	QUAN
4	CUTTER SHAFT ASSEMBLY RAISED PANEL SIDE	1
5	CUTTER SHAFT ASSEMBLY STYLE/RAIL SIDE	1
6	790-0103 BEARING BLOCK TOP HALF	8
7	690-0203 INFEED TABLE	1
9	690-0201 OUTFEED TABLE	1
12	790-0120 FENCE RAISED PANEL FIXED	1
13	790-0121 FENCE FINISHED DOOR FIXED	1
14	790-0123 FENCE RAIL FIXED	1
15	790-0122 FENCE STYLE FIXED	1
31	690-1094 MOVABLE FENCE LARGE	2
37	715-0255 10-32 X .5 LG SHCS	4
38	690-1096 MOVABLE FENCE SMALL	1
42	690-0501 MOVING GUARD	2
43	690-0503 FIXED STYLE GUARD	1
44	690-0507 FIXED CENTER GUARD	1
47	745-0504 5/16-18 X 2 LG CARRIAGE BOLT	1
48	770-0081 5-16 HEX NUT	1
49	690-0134 RAIL SLIDE BLOCK, INFEED, ADJ.	2
50	690-0135 RAIL SLIDE BLOCK, OUTFEED, ADJ.	2
51	705-0110 10-32 X 1/4 LG BOTTON HEAD MACHINE SCREW	4
53	690-1089 RAISED PANEL SLIDE BLOCK	2
58	705-0036 DOWEL .25 OD X .750 LG.	16
64	745-0161 1/4-20 X 1/2 LG FLAT POINT SET SCREW	6
65	750-0213 1/4-20 X 2 LG CARRIAGE BOLT	12
66	745-0176 FLANGED WING NUT .25-20	12
67	790-0125 MOVING GUARD STOP BLOCK	1
68	790-0033 EXTENSION SPRING, PANELMASTER	1
69	790-0136 1/4-20 X 1 LG BOTTON HEAD MACHINE SCREW	13
70	770-0190 5/16-18 X 3 LG SOCKET HEAD MACHINE SCREW	8
71	715-0196 5/16-18 X 1 LG HEX FLANGE WHIZ BOLT	16

The belts are not shown

745-1130	Cutter Shaft Drive Belt	2
745-1131	Jack Shaft Drive Belt	1

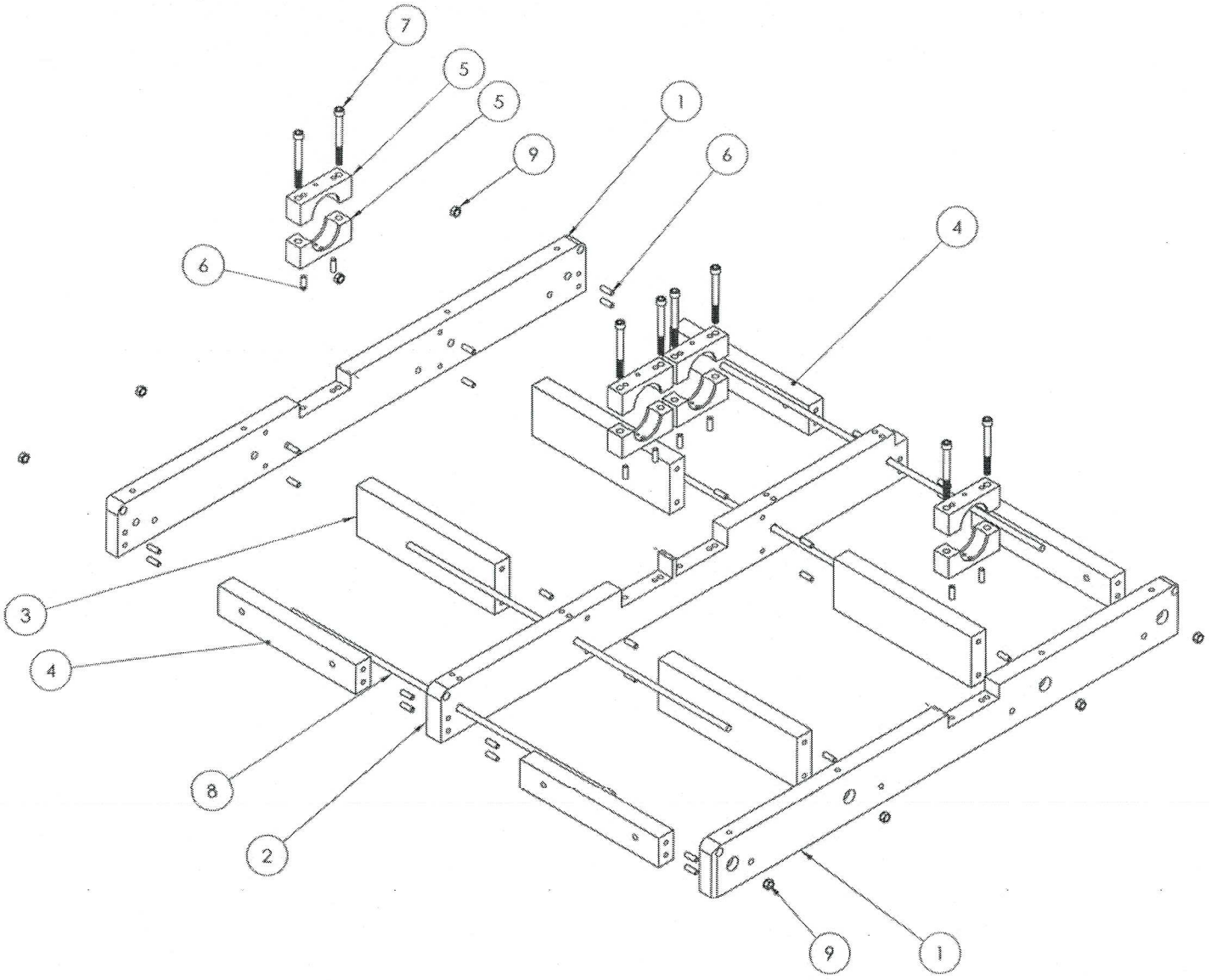
CUTTING TABLE ASSEMBLY



* FOR USE WITH RUB BEARING

NOT TO BE USED WHEN DOOR EDGE DETAIL JIG IS USED

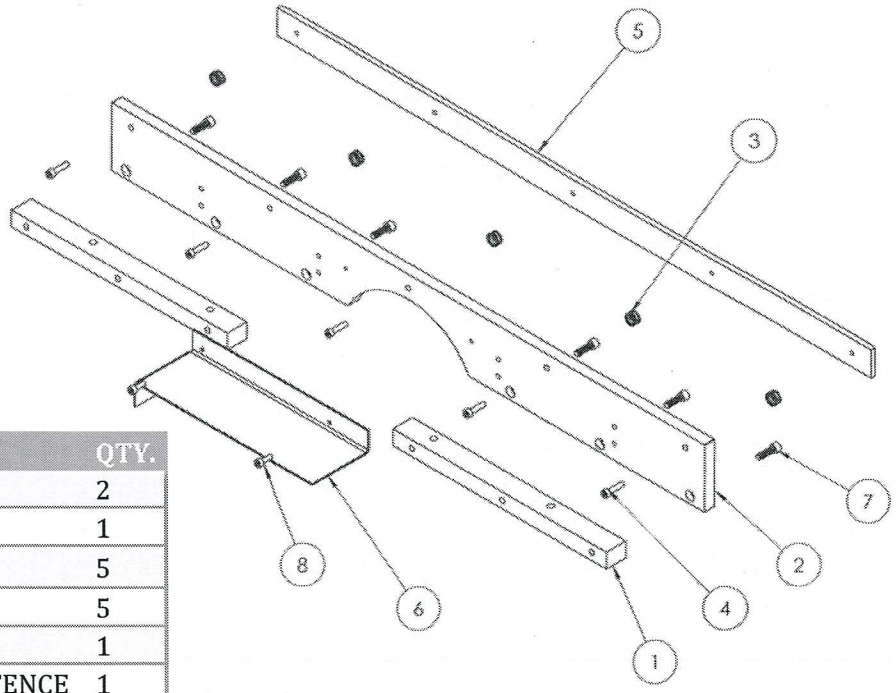
CUTTER HEAD FRAME ASSEMBLY



ITEM #	PART #	DESCRIPTION	QTY.
1	790-0104	SIDE RAIL	2
2	790-0105	CENTER RAIL	1
3	790-0106	CENTER BAR CUTTER HEAD FRAME	4
4	790-0107	END BAR CUTTER HEAD FRAME	4
5	790-0103	BEARING BLOCK HALF	8
6	705-0036	DOWEL .25 DIA X .75 LG	40
7	770-0190	5/16-18 X 3 LG SHCS	8
8	790-0109	CONNECTING ROD	4
9	745-0223	1/4 - 20 FLANGED NUT	8

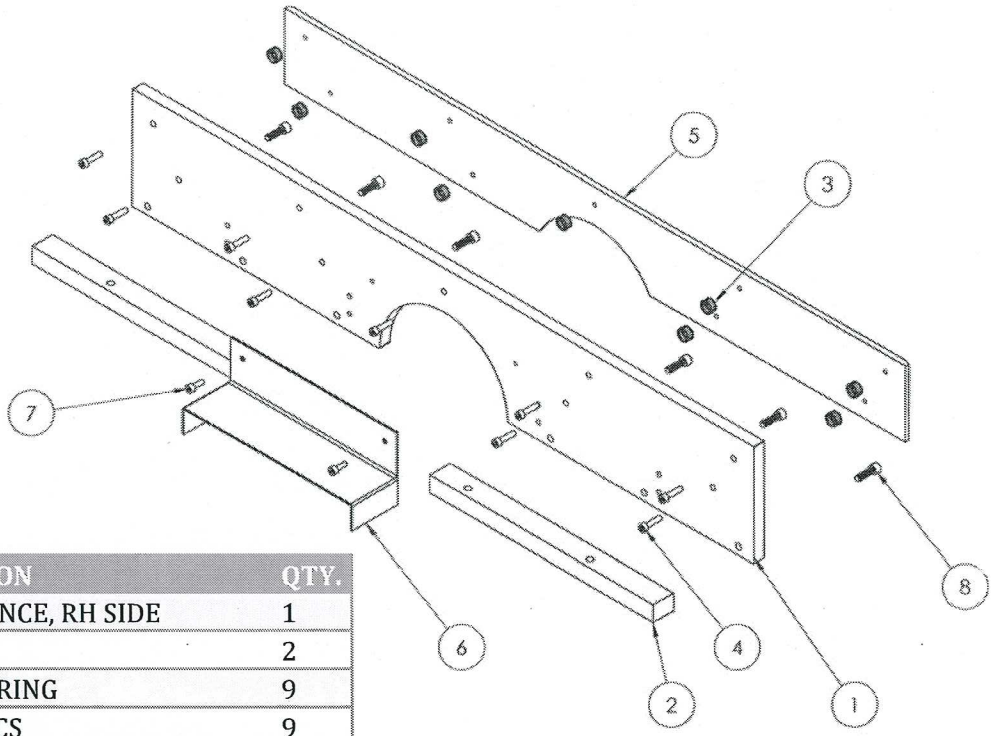
FENCE ASSEMBLY

Small Movable Fence



ITEM #	PART #	DESCRIPTION	QTY.
1	790-0140	MOUNTING BAR	2
2	690-1096	RAIL FENCE, RH SIDE	1
3	790-0098	COMPRESSION SPRING	5
4	791-0091	10-32 X .75 LG SHCS	5
5	690-0100	SPRING FENCE, SMALL	1
6	690-0505	MOVING GUARD SMALL FENCE	1
7	715-0100	1/4-20 X .75 LG SHCS	6
8	715-0255	10-32 X .5 LG SHCS	2

Large Movable Fence



ITEM #	PART #	DESCRIPTION	QTY.
1	690-1094	RAISED PANEL FENCE, RH SIDE	1
2	790-0140	MOUNTING BAR	2
3	790-0098	COMPRESSION SPRING	9
4	791-0091	10-32 X .75 LG SHCS	9
5	690-0141	SPRING FENCE, FULL (RAISED PANEL)	1
6a	690-0509	MOVING GUARD A	1
6b	690-0511	MOVING GUARD B	1
7	715-0255	10-32 X .5 LG SHCS	2
8	715-0100	1/4-20 X .75 LG SHCS	6
	NOTE: ITEM 6a IS ON ONE OF THE FENCES AND 6b IS ON THE OTHER FENCE. THERE ARE 2 MOVABLE LARGE FENCES ON THE PanelMASTER IV		

NOTES