

BUSHTON MANUFACTURING

Makers of



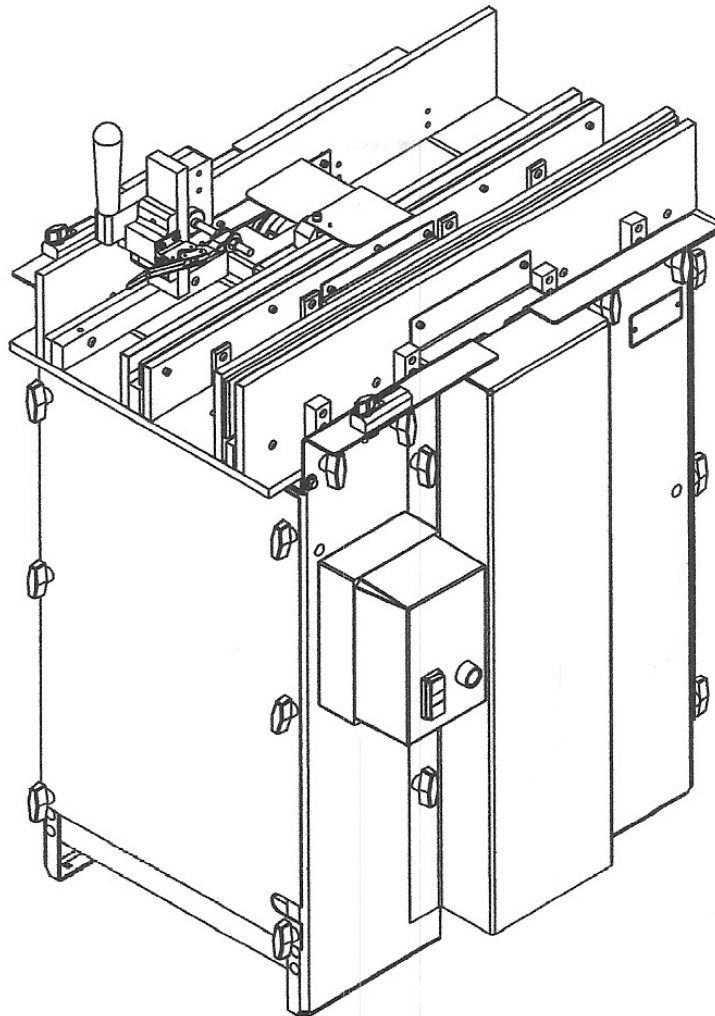
Since 1929

PanelMASTER III

Manual



Made in USA



**READ THOROUGHLY BEFORE
OPERATING THIS MACHINE**

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 be 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

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SPECIFICATION PanelMASTER III

Machine Size	Machine Width	27"
	Machine Length	30-1/2"
	Machine Height (to top of fence)	37"
	Table Height	32
	Machine Weight	350#
	Shipping Weight	400#
Table and Fences	Length of Table and Fences	30-1/2"
	Table Width	17-1/4"
	Rail and Panel Movable Fences	Spring Loaded
Cutters	Number of Cutter Heads	3
	Maximum Diameter of Raised Panel Cutter	6"
	Maximum Diameter of Stile and Rail Cutters	
	Bore of Cutters	1-1/4"
	Cutter Shaft Diameter	1"
Motor	Horsepower	5 Hp
	Frame	
	Voltage	220 V
	Amperage	
	Phase	Single Standard (3 phase Available)
	Motor Starter	Magnetic Contactor
Stock Size	Maximum Width	what you can safely run
	Maximum Length	what you can safely run
	Maximum Thickness	1-3/4"

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 starting to make 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. Ring, watches, brackets, necklaces, etc.
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 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 over load the machine.
17. Keep the equipment in proper working order. Follow the maintain 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) L-type Push Stick (fig. g)

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

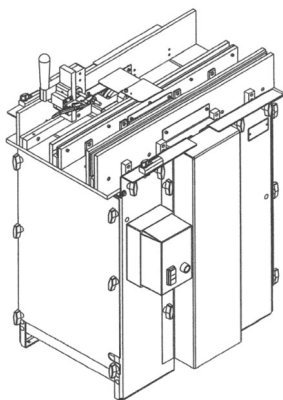


Fig. a

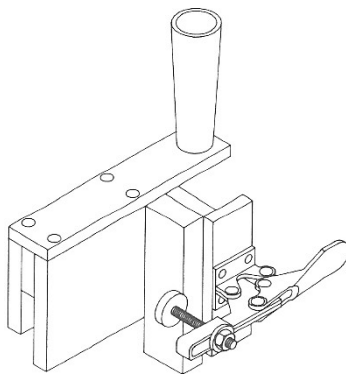


Fig. b



Fig. c

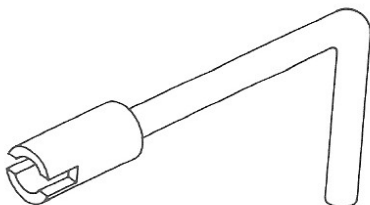


Fig. d

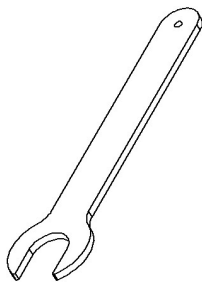


Fig. e

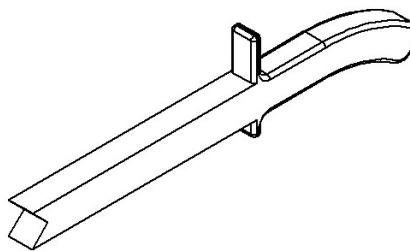


Fig. f

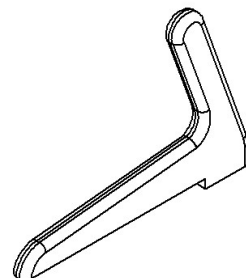


Fig. g

Tools Needed:

- 9/16" Wrench
- 5/32" Allen Wrench
- 1/4" Allen Wrench
- T25 Torx Wrench



ALWAYS UNPLUG THE MACHINE **BEFORE ATTEMPTING TO RAISE THE** **TABLE!**



1. CLEARING THE TABLE

Cut all power to the machine whether it be done by disconnecting it from a power source, flipping a breaker, or simply unplugging it. Also remove any loose items from the tabletop including wood or stile/crown-rail jigs.

2. LOOSENING FASTENERS

Loosen and remove the upper four t-knobs (#47 in Parts Breakdown) on each side of the machine as well as the t-knobs that hold the shaft guard and belt guard in place. (Refer to Fig. 2-1)

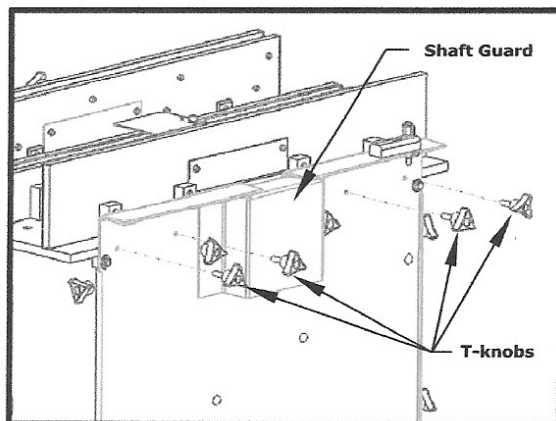


Fig. 2-1

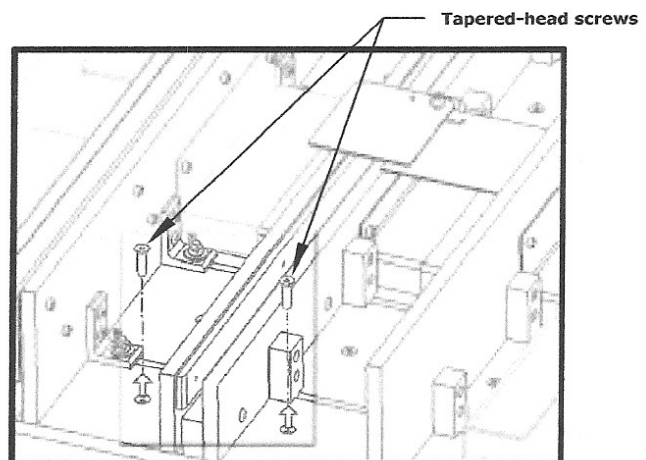
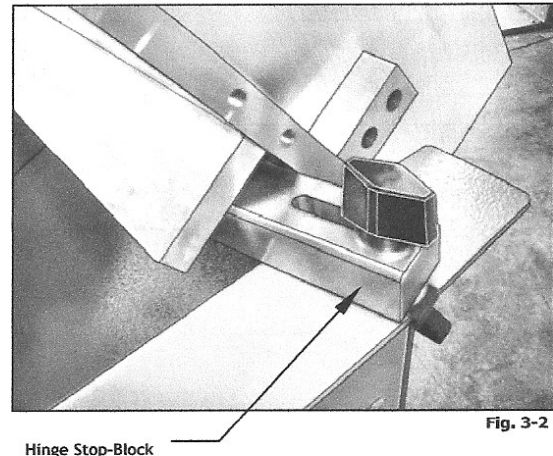
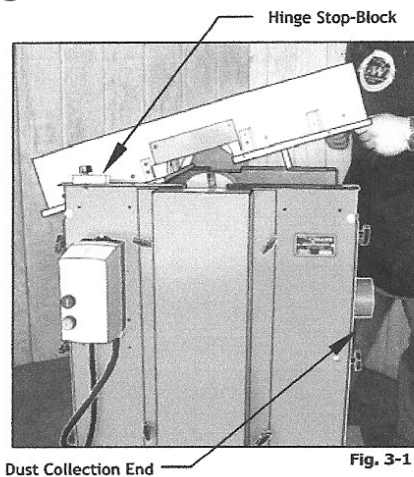


Fig. 2-2

Next, remove the 2 tapered-head screws (#71 in Parts Breakdown) (using a 1/8" allen wrench) that hold the dust-collection end of the table down to the square brace - located just beneath the table. (Refer to Fig. 2-2)

3. OPENING THE TABLETOP

Lift the aluminum tabletop from the dust-collection end of the machine (Refer to Fig. 3-1), and pivot the hinge stop-blocks (#66 in Parts Breakdown) underneath each side of the hinge end of the table (Refer to Fig. 3-2). Make sure that *both* blocks are tightened down before letting go of the table.

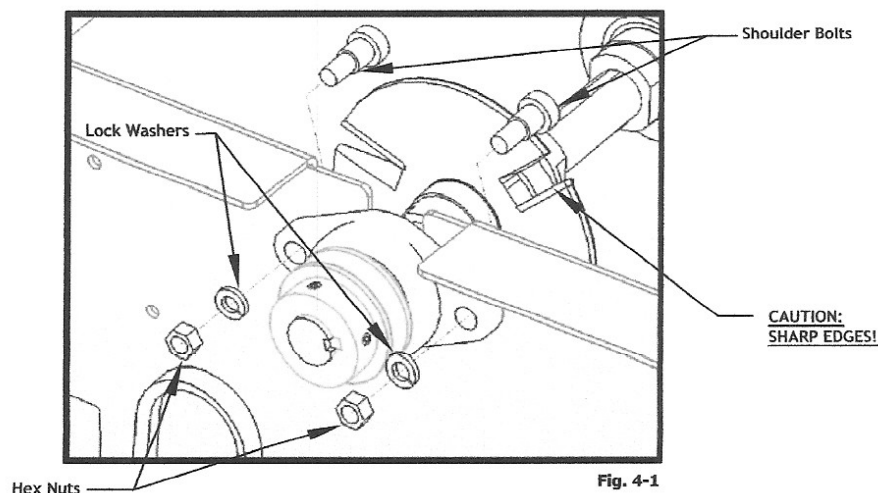


ALWAYS USE BOTH STOP-BLOCKS TO SECURE THE TABLE IN THE UPRIGHT POSITION; NEVER USE JUST ONE. USING ONE BLOCK MAY CAUSE DAMAGE TO THE MACHINE!



4. REMOVING THE SHAFT

Once the table is safely secured in the upright position, slip (or walk) the belt off of the pulley. Once this has been done, remove the 2 shoulder bolts (#94 in Parts Breakdown) (using a 1/4" allen wrench) from the bearing housing on the panel-cutter side of the machine. The hex-nuts (#92 in Parts Breakdown) require a 9/16" wrench. Make sure to use caution while loosening the shoulder bolts to ensure that you do not become injured by the sharp edges of the cutters! (Refer to Fig. 4-1) Remember, *DO NOT* remove or loosen this bearing housing from the shaft, since this is your reference point!



Then loosen the torx socket head cap screw on the bearing lock-collar on the cope-cutter side of the machine using a T25 Torx wrench, and remove the lock collar (Refer to Fig 4-2). Keep in mind that you will not be removing this housing from the machine, only the lock collar.

DO NOT REMOVE THIS
HOUSING FROM THE
MACHINE

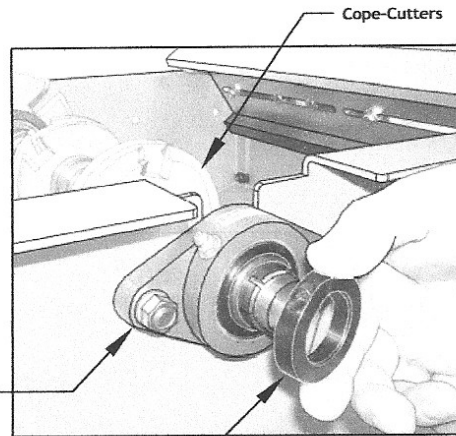


Fig. 4-2

Before attempting to remove the shaft, you will need to rotate the Panel-Cutter side bearing housing 90° to allow for clearance when removing the shaft (Refer to Fig 4-3).

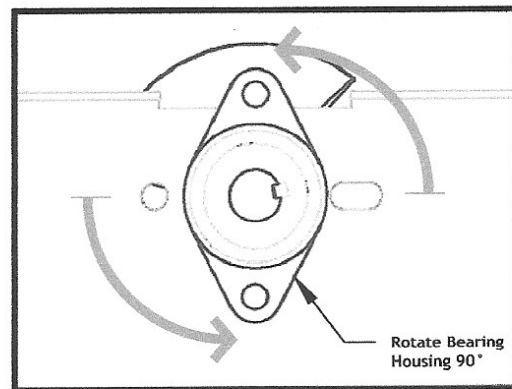


Fig. 4-3

Once the lock collar is removed, lift the shaft by pulling up on the panel-cutter side and pulling the shaft away from the permanent bearing side (cope-cutter side) of the machine. The cope-cutter bearing will allow the shaft to pivot for clearance. (Refer Fig. 4-4)

Lift shaft up and
slide out from
pulley side

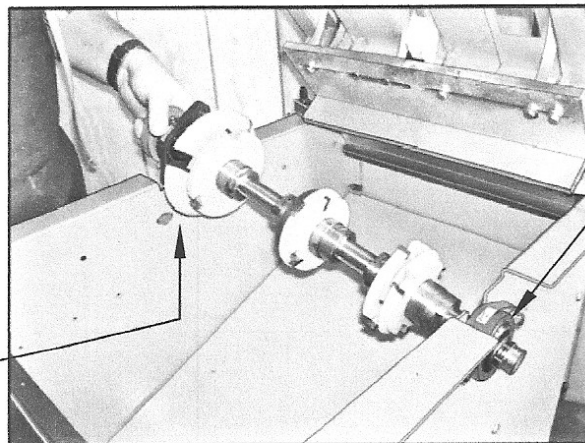


Fig. 4-4

5. INSTALLING THE NEW SHAFT

To install the new shaft, slide the open end of the shaft into the permanent bearing (cope-cutter side). Line up the bearing housing and the precision holes in the panel-cutter side of the machine. Next, install the shoulder bolts and hex nuts on this side and tighten.

Slide the new shaft
into the cope-cutter
bearing

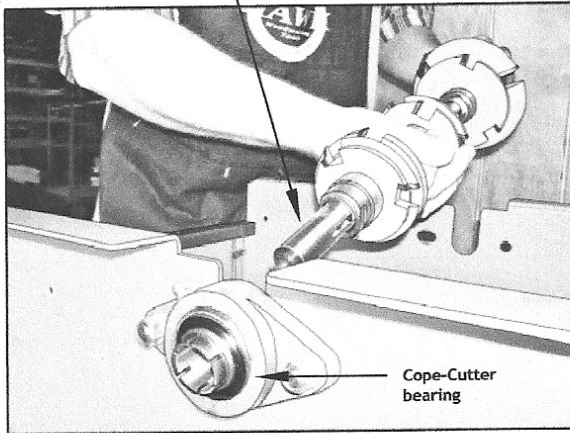


Fig. 5-1

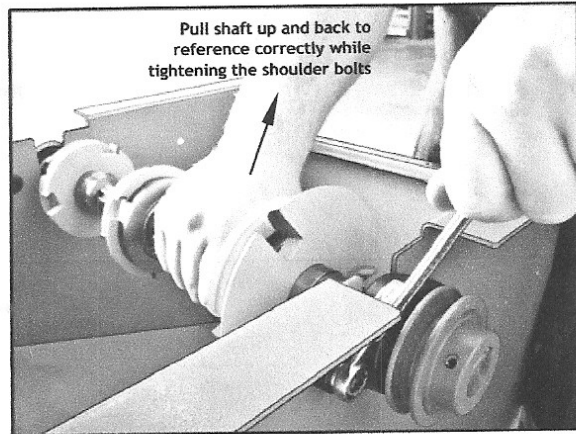


Fig. 5-2

It is very important to tighten the bolts on the bearing housing that is removed from the machine (panel-cutter side) before tightening the bearing lock collar on the permanent bearing side (cope-cutter side) of the machine - this will ensure accurate repeatability of the cuts you make. Also, it is imperative that you pull the shaft up and towards the dust-collection end of the machine while finishing tightening the shoulder bolts, after inserting the new shaft, in order to align the new shaft correctly. (Refer to Fig. 5-2)

Once this has been done, you may now slip the belt back onto the pulley.

6. CLOSING THE TABLETOP

You are now ready to put the table back down. Support the table with one hand while loosening the t-knobs that lock the hinge stop-blocks with the other hand. Gently raise the table a little further, and then pivot the hinge stop-blocks back to their original running position and tighten the t-knobs once again. Gently lower the table. (Refer to Fig. 3-1 and 3-2 from step 3)

7. FASTENING THE FASTENERS

Fasten the 2 tapered-head screws back into the dust-collection end of the tabletop. (Refer to Fig. 2-2 from step 2) Then fasten the 4 side t-knobs on one side of the machine before inserting and tightening the 4 on the opposite side (Refer to Fig. 2-1 from step 2). Next, install the bearing lock collar onto the bearing housing (cope-cutter side) (Refer to Fig. 4-2 from step 4). Once the locking collar is locked in place, tighten the Torx socket head cap screw using a T25 Torx wrench.

Once this is done, you should check to make sure that your cutters are clearing the fences by rotating the shaft one full revolution by pulling on the belt. If there is any contact between the cutters and the fences, adjust the shaft accordingly so that the cutters do not come in contact with any part of the fences or table.

After the main 8 table t-knobs are secure, you may then proceed to put the belt guard and shaft guard back into place and fasten them with their respective amount of t-knobs.

8. FINAL CHECKS

-Ensure that all bolts are tight

-Plug machine back in

FOR TECHNICAL SUPPORT CONTACT:

Customer Service
Bushton Manufacturing
P.O. Box 127
319 S Main St
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CUTTERHEAD ASSEMBLY

Tools Required: (2) 1-3/8 open end (or crescent) wrenches.

There are three arbors with the PanelMASTER II, one for each cut to be made, the raised panel cut, the rail (also called pattern), and the stile (also called cope). Ball bearing rub collars (rub bearings) are available and are recommended in place of solid rub collars to eliminate burning the stock where it touches the rub collar. Each arbor has two solid steel spacers (key# 29 & key# 30 in the parts breakdown), one or both may need to be removed when running thick material such as entry doors.

Assembling the Raised Panel Cutterhead:

1. First install one of the 1/2" long spacers on one of the arbors. Then install the raised panel cutter on the arbor with the flat side of the cutter towards the shoulder of the arbor.
2. Next install the 3" OD (outside diameter) rub bearing next to the raised panel cutter. On the solid rub collar the counter-sunk side goes next to the raised panel cutter. On the rub bearing it doesn't matter which side goes next to the cutter.
3. Install the 3/4" long spacer, than start the arbor nut by hand (see fig. A-10).
4. Use a 1-3/8" wrench to tighten the arbor nut while holding the arbor in a vise or with another 1-3/8" wrench.

Assembling the Rail (or Pattern) Cutterhead:

1. First install one of the 1/2" long spacers on an arbor, so that it is against the shoulder of the arbor (see fig. A-10).
2. Then install the 3-1/4" OD rub bearing on the arbor.
3. Install the 1/4" groover (cutter no. 2 in fig. A-5), such that it would cut while turning clockwise, when looking at the arbor from the threaded end.
4. Next install the rail (or pattern) detail cutter (cutter no. 3 in fig. A-5) on the arbor, with the radius next to the groover.

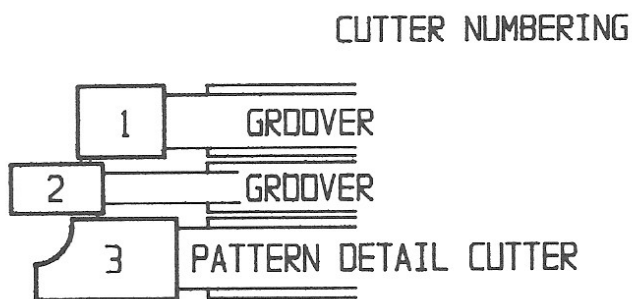


Fig. A-5

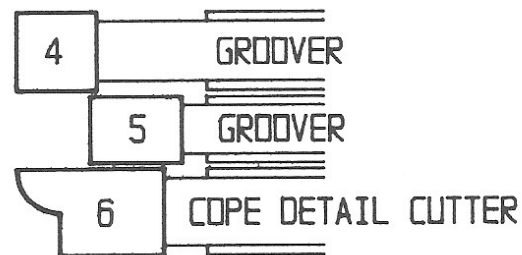
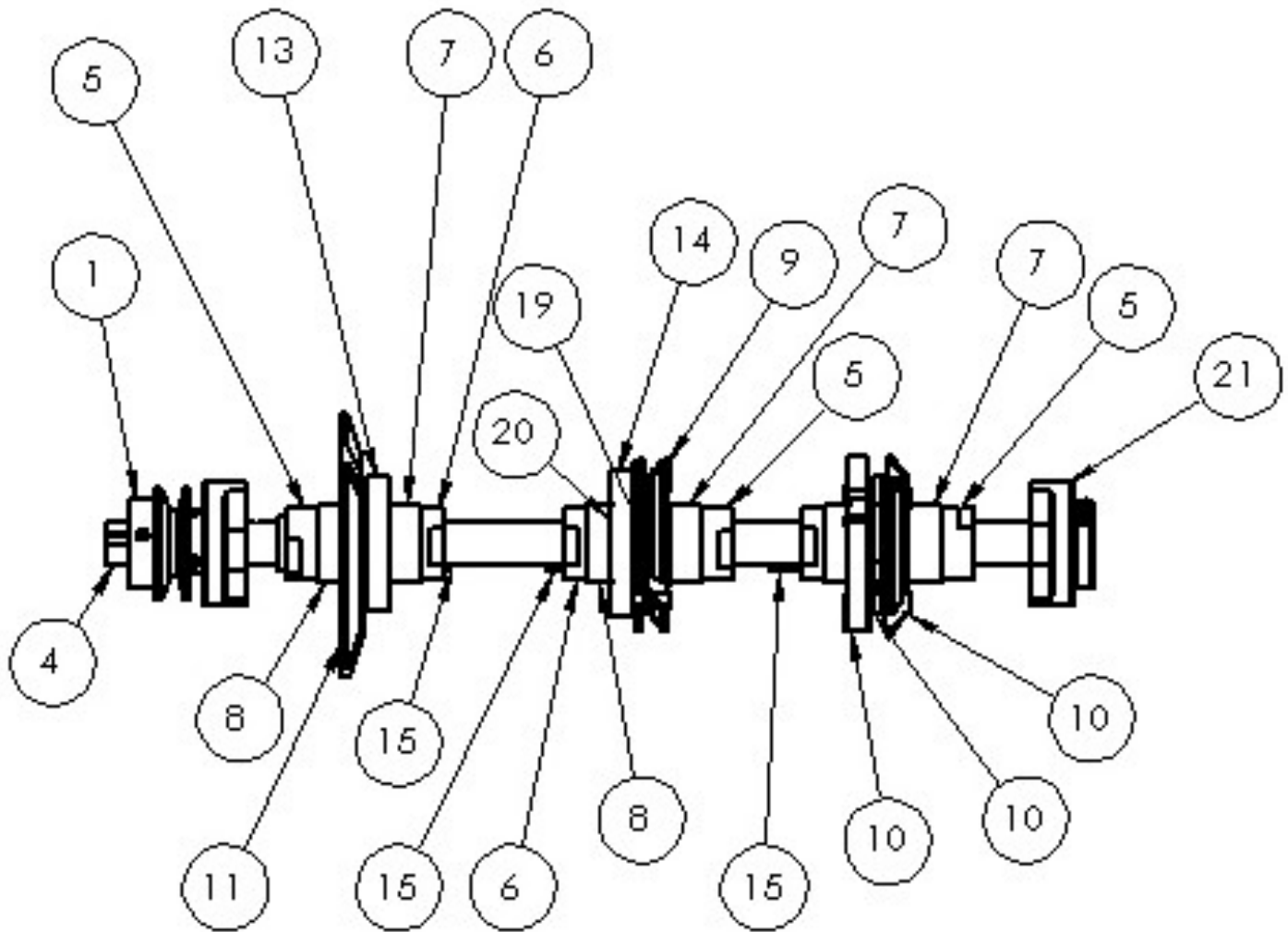


Fig. A-6

Note: When more than one cutter is installed on the same arbor stagger them so the carbide teeth are not lined up, this will help reduce vibration and give a cleaner cut.

5. Install the 3/4" long spacer, than start the arbor nut by hand.
6. Use a 1-3/8" wrench to tighten the arbor nut while holding the arbor in a vise or with another 1-3/8" wrench.

Note: The 33/64" groover (cutter no. 1 in fig. A-5) supplied with the rail (or pattern) set from Freeborn Tool is not used. In our application it is replaced with the 3-1/4" rub bearing.



ITEM NO.	PART #	DISCRIPTION	QTY.
1	690-0112	UPPER MOTOR DRIVE PULLEY	1
3	745-0093	SQ. KEY .25 X .750	1
4	690-2110	CUTTERHEAD SHAFT, PM3	1
5	690-0036	ARBOR NUT	3
6	690-0107	ARBOR, FOR PANELMASTER	3
7	690-0108	ARBOR SPACER, .750 THK.	3
8	690-0109	ARBOR SPACER, .500 THK.	3
9		RAIL CUTTER (cutters 2 & 3 from fig A-5 page 11, cutter 1 is replaced by a rub bearing)	1
10		STILE CUTTER (cutters 4, 5 & 6 from fig A-6 on page 11)	1
11		RAISED PANEL CUTTER	1
13	810-0190	RUB BEARING 3.000 IN	1
14	810-0191	RUB BEARING 3.250 IN	1
15	690-0111	ROUND KEY .25 X 1	3
19	690-0104	ARBOR SPACER 1.250 ID, 1.750 OD X .031 THK	1
20	690-0103	ARBOR SPACER 1.250 ID, 1.750 OD X .005 THK	1
21	790-0101	COLLARED BEARING BLOCK	2

Assembling the Stile (or Cope) Cutterhead:

1. First install one of the 1/2" long spacers on an arbor, so that it is against the shoulder of the arbor.
 2. Then install the 1/2" groover (cutter no. 4 in fig. A-6) such that it would cut while turning clockwise, when looking at the arbor from the threaded end.
 3. Then install the 17/64" groover (cutter no. 5 in fig. A-6), such that it would cut while turning clockwise, when looking at the arbor from the threaded end (the same way as the first one).
- Note: When more than one cutter is installed on the same arbor stagger them so the carbide teeth are not lined up, this will reduce vibration and give a cleaner cut.
4. The third cutter to be installed is the stile (or cope) detail cutter (cutter no. 6 in fig. A-6). Install the stile (or cope) detail cutter on the arbor, with the radius next to the groover (see fig. A-10).
 5. Install the 3/4" long spacer, then start the arbor nut by hand.
 6. Use a 1-3/8" wrench to tighten the arbor nut while holding the arbor in a vise or with another 1-3/8" wrench.

ADJUSTING THE RAISED PANEL AND RAIL FENCES

First the fences are adjusted to the thickness of your stock, then the cutters are adjusted by sliding them on the shaft to get the cut positioned on the boards correctly. Positioning the cut on the boards is done by trial and error on scrap material.

Tools Required: 7/16" wrench, 1/8" allen wrench, wing nut wrench.

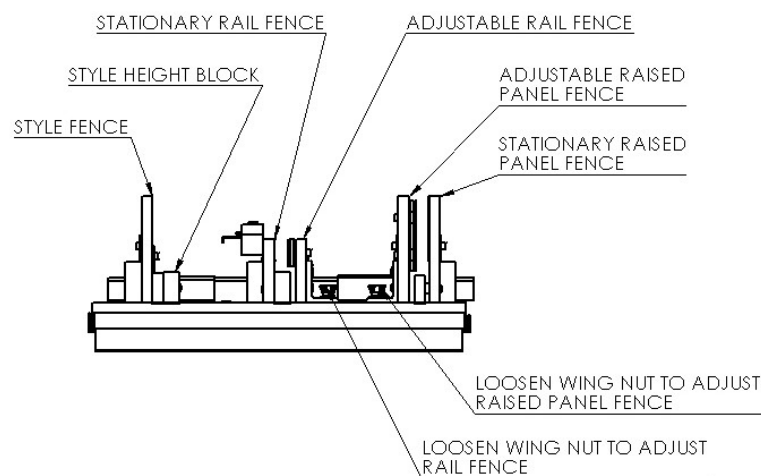


Fig. A-8

1. Unplug the machine. Remove the rear inspection panel.
2. On each pair of fences adjust one side (the side with the wing nuts), and leave the other side tight (see fig. A-8). To adjust the fence loosen the four wing nuts on the fence bracket, there are two wing nuts on each end of the fence.
3. Loosen the slide blocks by loosening the bolts under the table which hold the slide blocks on (see fig. A-8). There are two bolts in each slide block.
4. To set the fence for the thickness of your stock set a piece of the stock between each end of the fences. Slide the loose fence against the board such that there is some tension on the springs in the spring fence. Retighten the wing nuts in the fence brackets.
5. Set the slide blocks and retighten the bolts in them.
6. Slide the stock back and forth to make sure it doesn't bind. If the board binds between the fences, check to see if the board is warped, if so discard it. If the board isn't warped yet binds, repeat procedure with less tension on the springs in the spring fence.

POSITIONING THE RAISED PANEL CUTTERHEAD

Tools Required: 1/8" Allen wrench

The position of the raised panel cutter is critical and will need to be adjusted so the lip on the raised panel will fit in the groove on the rail (see fig A-9), adjusting the raised panel cutter will change the thickness of the lip on the raised panel. You will first need to run a rail from scrap material so you can test the fit of the raised panel lip in the groove of the rail.

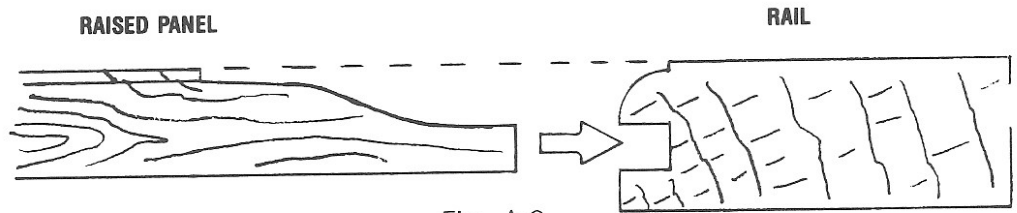


Fig. A-9

1. Unplug the machine.
2. Remove the back inspection panel.
3. Using the Allen wrench loosen the set screw in the cutter arbor and slide the cutter on the shaft to the desired position (see fig A-10).
4. Retighten the set screw in the cutter arbor.
5. Rotate the shaft by hand to make sure the cutters are not hitting on anything.
6. Replace the back cover.
7. Plug the machine in and run a piece of scrap to see if the lip on the raised panel is the right thickness, if not repeat the procedure but remember to unplug the machine first.

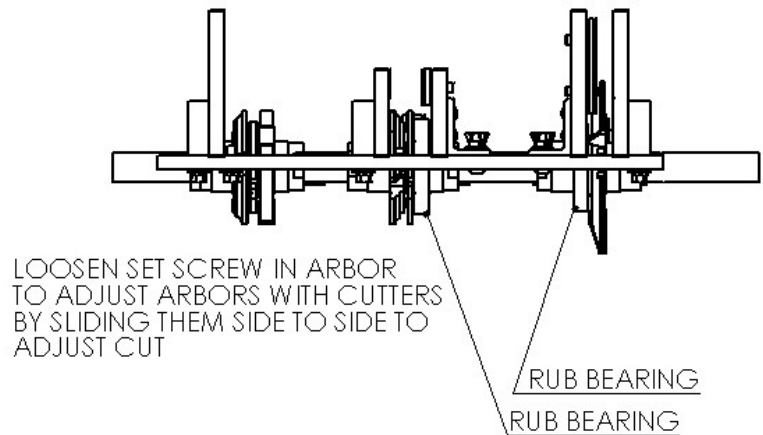


Fig. A-10

POSITIONING THE RAIL CUTTERHEAD

Tools Required: 1/8" Allen wrench, straight edge.

The position of the rail cut on the edge of the board is not critical. There should be enough material on both sides of the groove so it will not break out. Often the rail cut will be positioned so that the front of the raised panel will be flush with the front of the rails (see fig A-9), that way the whole door may be sanded by running it through a drum sander. Some want a true "raised panel" door where the surface of the panel is raised above the surface of the rails. Ultimately though the position of the rail cut on the rail is personal preference.

1. Unplug the machine.
2. Remove the back inspection panel.
3. Using the Allen wrench, loosen the set screw in the rail cutter arbor and slide the cutter on the shaft to the desired place (see fig A-10).
4. Retighten the set screw in the rail cutter arbor.
5. Rotate the shaft by hand to make sure the cutters are not hitting anything.
6. Replace the back cover.
7. Plug the machine in and run a piece of scrap to see if the cut on the rail is in the desired position, if not repeat the procedure but remember to unplug the machine first.

Note: If you want the front of the raised panel flush with the front of the rail, set the raised panel in the groove of the rail and lay a straight edge across the front of the raised panel and the rail to see if it is flush, if not readjust the rail cutter.

POSITIONING THE STILE CUTTERHEAD

Tools Required: 1/8" Allen Wrench.

The position of the stile cut is critical and must be such that the front of the rails are flush (see fig. A-11).

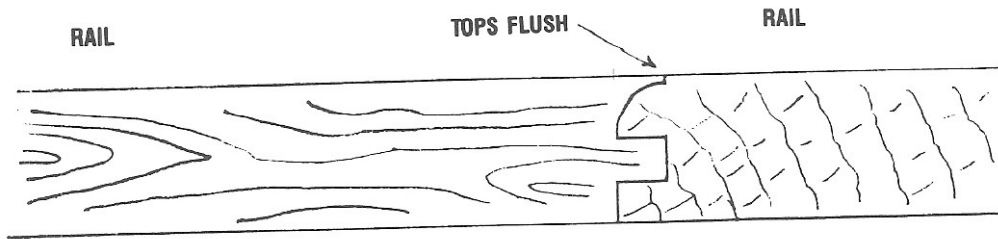


Fig. A-11

1. Unplug the machine.
2. Remove the back inspection panel.
3. Using the Allen wrench, loosen the set screw in the stile cutter arbor and slide the cutter on the shaft to the desired place (see fig A-10).
4. Retighten the set screw in the stile cutter arbor.
5. Rotate the shaft by hand to make sure the cutters are not hitting on anything.
6. Replace the back inspection panel.
7. Plug the machine in and run a piece of scrap to see if the stile cut is in the right position (with the front of the rails flush), if not repeat the procedure but remember to unplug the machine first.

ADJUSTING THE STILE JIG

Tools Required: (2) 9/16" wrenches

Loosen the nuts on the glide, move it in the slide to the center of the rail, and adjust the nuts on the threaded rod so the glide will clamp the rail solidly (see fig. A-12).

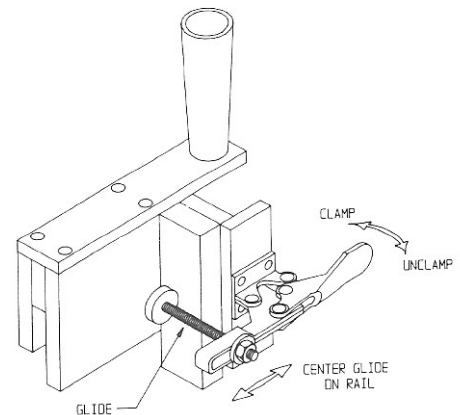


Fig. A-12

OPERATION

Once set up the machine is easy to use. Each cut should require only one pass through the machine. Always feed stock into the rotation of the cutterhead. Don't stand in line with the board, because kickback could occur. Use lumber of uniform thickness, all the rails should be the same thickness and all of the raised panels should be the same thickness.

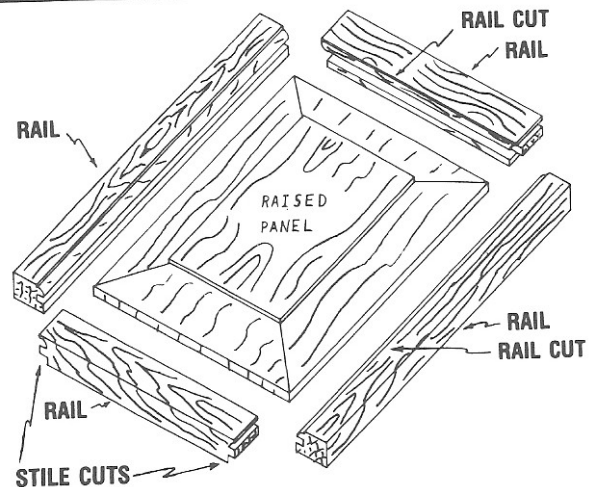


Fig. A-13

Raised Panel: The raised panel will require four passes, one for each side. Make the end cuts first (the cuts across the wood grain), that way if there is some splintering it will most likely be removed by the cut that runs with the grain of the wood.

Rail: Only one side of the rail requires the rail cut therefore the rail will require only one pass through the rail cutter.

Stile: For each door, two of the rails will require two stile cuts (one on each end) and the other two rails will not require any stile cuts. When making a stile cut always use the stile jig. Pulling out on the clamp handle releases it (see fig. A-12) and pushing in engages the clamp (to adjust it see "Adjusting the stile jig"). The rails must be orientated correctly in the jig for the stile cut to match the rail cut. To orientate the rail properly in the stile clamp, always have the rail turned so the clamp foot (glide) is on the front of the rail.

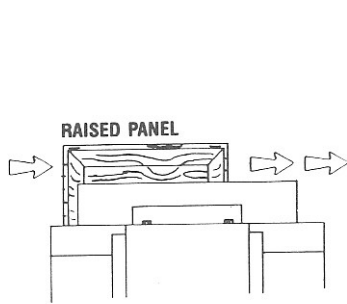


Fig. A-14

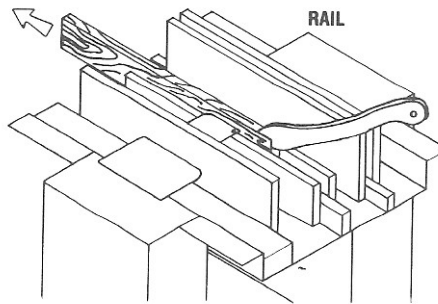


Fig. A-15

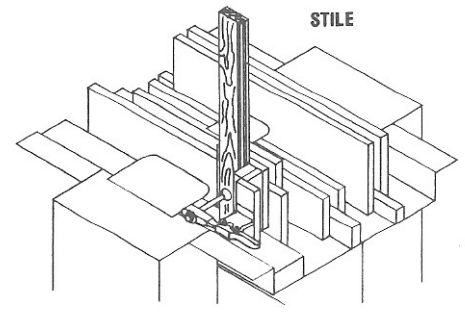


Fig. A-16

1. Remove all wrenches, etc. from machine. Make sure all guards are in place and operating properly.
2. Make sure the electrical switch is in the off position. Connect the electrical supply. Turn the machine on.
3. Feed the stock (with the grain of the board) into the cutter, while maintaining downward pressure on the board and controlling the board to prevent kickback. Use push sticks (for rail cuts) and the stile jig (for stile cuts) as required. Keep hands and clothing away from cutters.

TENSIONING THE DRIVE BELT

CAUTION: A loose drive belt can cause vibration.

1. Unplug the machine.
2. Remove the front inspection panel.
3. Loosen the four belts that mount the motor to the machine.
4. Slide the motor towards one end of the slots to tighten the belt, and retighten the belts that mount the motor to the machine. Replace the front inspection panel.

TROUBLESHOOTING

PROBLEM

Burning on the wood.

Excessive chipping or ripples in cut.

Burning where the stock touches the rub collar.

Vibration

POSSIBLE CAUSE AND SOLUTION

Dull cutters, replace cutters.

Feeding too fast, feed the stock into the cutter slower. Fences not perpendicular with cutterheads, adjust fences.

Wax the rub collar.

Cutterhead shaft bent, or cutterhead bearings going bad. Inspect and replace bad parts. Loose drive belt, readjust. The wings on the individual cutters on a cutterhead are aligned. Stagger so the carbide tips are not lined up.

CROWN RAIL JIG AND PATTERNS

Tools Required: Standard screwdriver, to change the patterns & stops; 5/32" allen wrench, required only if the toggle clamps need moved.

OVERVIEW:

The Crown Rail Jig and Patterns (or Templates) serves two functions. The first is safety, the jig has two strategically placed handles that provide excellent control of the jig and stock. The templates provide the profile to mark and saw the Crown Rail to size.

There are 10 different templates to make crown rails from 9-1/2" to 22-1/2" long. The first 8 come in 1" increments, 9-1/2" to 10 1/2", 10 1/2" to 11 1/2", etc., the 9th template is for 17-1/2" to 19", and the 10th template is for cutting Crown Rails from 19" to 22" long. The stops are included with the templates.

Do not use this jig with solid steel rub collars, use only with rub bearings. The solid steel rub collars will ruin the templates.

The crown rail jig and templates are designed for crown rails 3-5/8" wide and 9-1/2" to 22" long. All of the rails are typically 3/4" thick and Approx. 2-1/4" wide, except for the crown rail, which will be 3-5/8" wide. The raised panel is typically 5/8" thick. The results will be much more pleasing if the stock is of uniform thickness and not warped.

SAFETY TIPS FOR USING THE CROWN RAIL JIG:

1. Be safety conscious, follow the safety rules in your PanelMaster II owner's manual.
2. Always unplug the machine when making adjustments. After making adjustments (and before plugging it back in) roll the motor pulley by hand to make sure the cutters don't hit anything.
3. Be careful when making adjustments, the cutters have sharp edges and corners.
4. When making a cut be sure and keep the jig tight against the back rail fence all of the way through. Even though the wood may be clear of the cutter the jig may not be.
5. Make a dry run (with the motor off) after everything is positioned. Check to see if the rubber pads on the toggle clamps are hitting the rail fence. Make sure you adjusted the correct fence, so the cutters are positioned under the wood, and the Jig and template are above the rub bearing. **If the cutters get into the jig it can ruin the cutters, the template, the jig, and above all be a dangerous situation.**

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 Crown Rail falls between two templates, you may use either one. 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. Select the proper stop and install it. There are 3 different stops provided with the templates. The smallest stop is used with all of the templates from 9-1/2" to 17-1/2". To set the stop for the smallest Crown Rail each template will make, simply slide the stop all of the way left and secure. Use the two round head machine screws provided to secure the stop. For the largest Crown Rail each template will make, slide the stop all of the way right and secure. For Crown Rails between the min. and max. of each template, mark the center of the jig and the center of the Crown Rail, align the center marks. Slide the stop over against the end of the Crown Rail and secure. The middle sized stop is for 17-1/2" to 19" Crown Rails, and the largest stop is for 19" to 22" long Crown Rails.
3. Saw the profile for the Crown Rail in the stock. To do so Clamp the stock in the jig. Turn the jig over and mark the profile on the stock. Remove the stock from the jig and saw out the profile. Saw the profile carefully, the stock will ride on the rub bearing along with the template and any imperfections will show up in the finished Crown Rail.
4. Reclamp the stock in the jig.

5. Adjust the PanelMaster. Remove the slide blocks from between the rail fences (the two fences in the middle). Adjust the right (when standing on the infeed side) rail fence to the right until the Crown Rail Jig (with the stock clamped in it) will fit down between the fences snugly (see fig. B-1). Secure the fence. The cutterhead should not need to be adjusted! Check to be sure you adjusted the correct fence, so the cutters are positioned under the wood, the Jig and template are above the rub bearing.
6. Make a dry run (with the motor off) after everything is positioned. Check to see if the rubber pads on the toggle clamps are hitting the rail fence. Make sure you adjusted the correct fence, so the cutters are positioned under the wood, the Jig and template are above the rub bearing. **If the cutters get into the jig it can ruin the cutters, the template, the jig and above all be a dangerous situation.**
7. Cut the profile. When making a cut be sure and keep the jig tight against the back rail fence all of the way through. Even though the wood may be clear of the cutter the jig may not be.

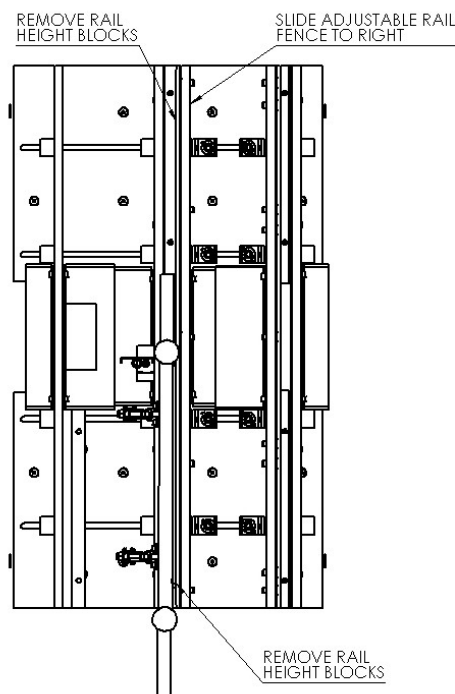
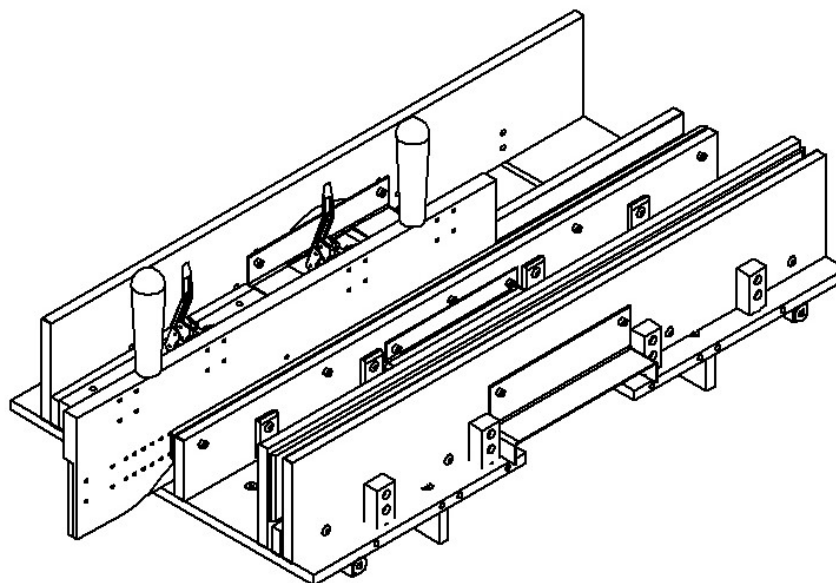


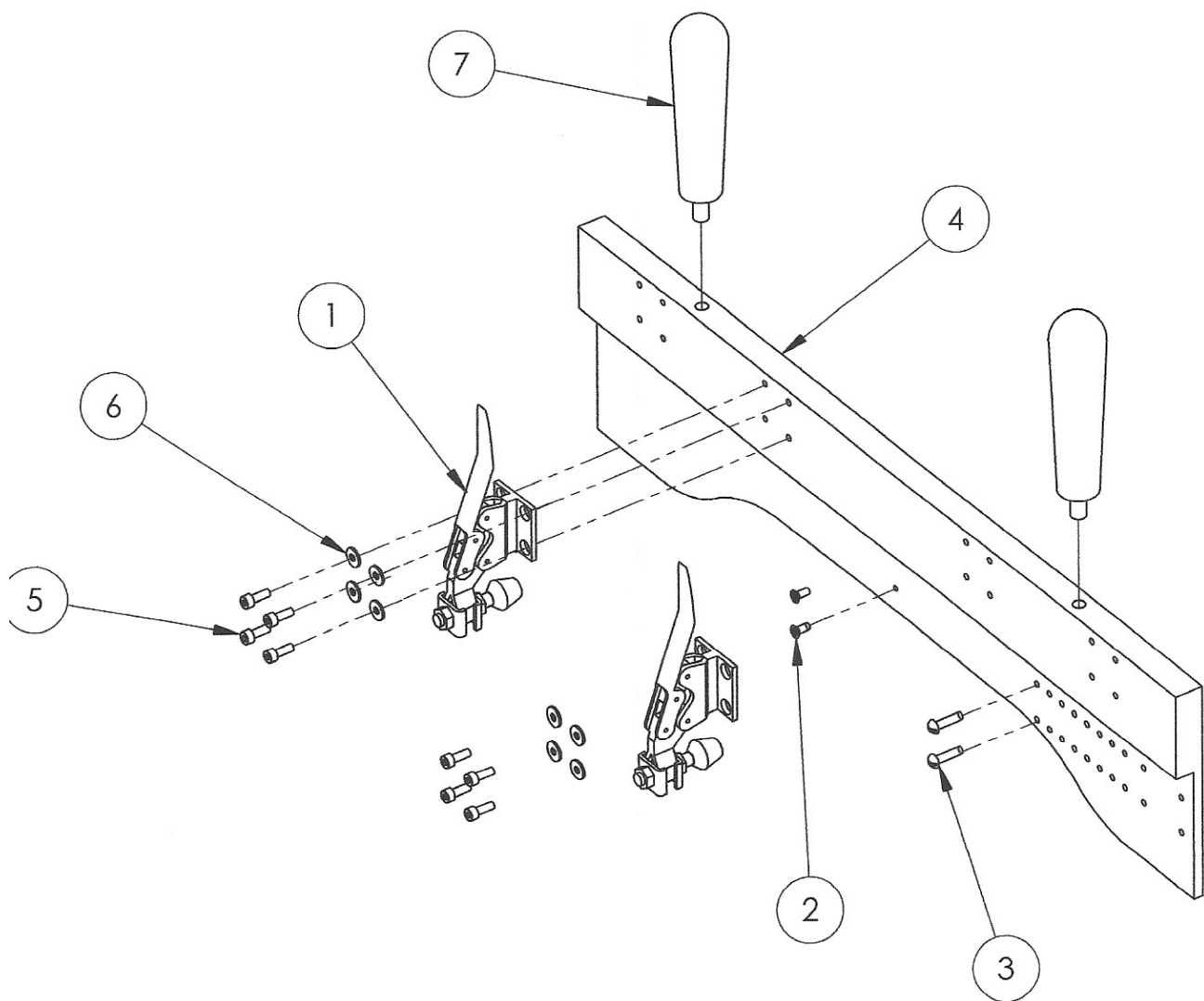
Fig. B-1

Fig. B-2



CROWN RAIL JIG | 910-0100

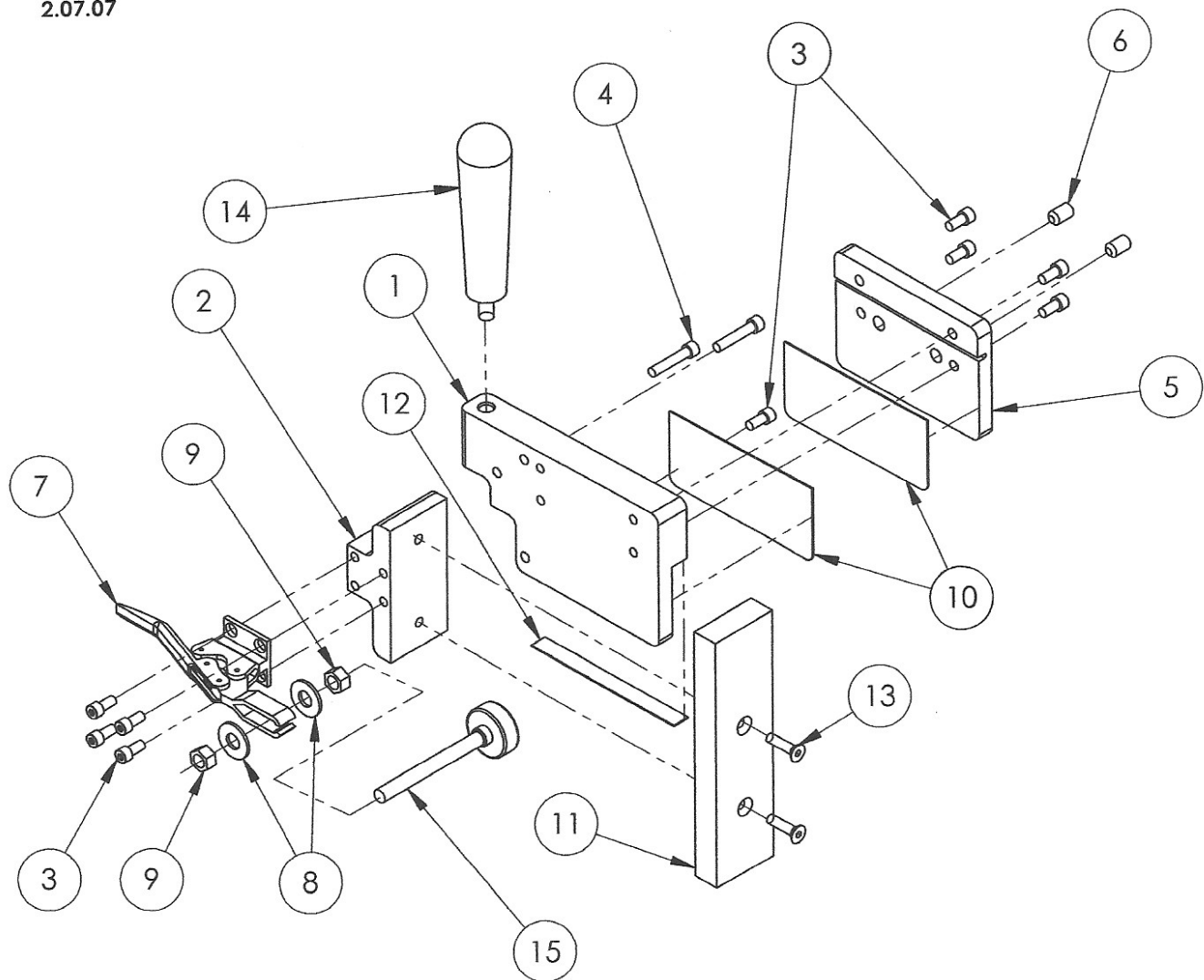
HAWK WOODWORKING IND, LLC.
2.01.07



ITEM NO.	PART NUMBER	QTY.
1	690-0073 TOGGLE CLAMP	2
2	791-0007 FLAT HEAD MACHINE SCREW #8-32 X .375	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

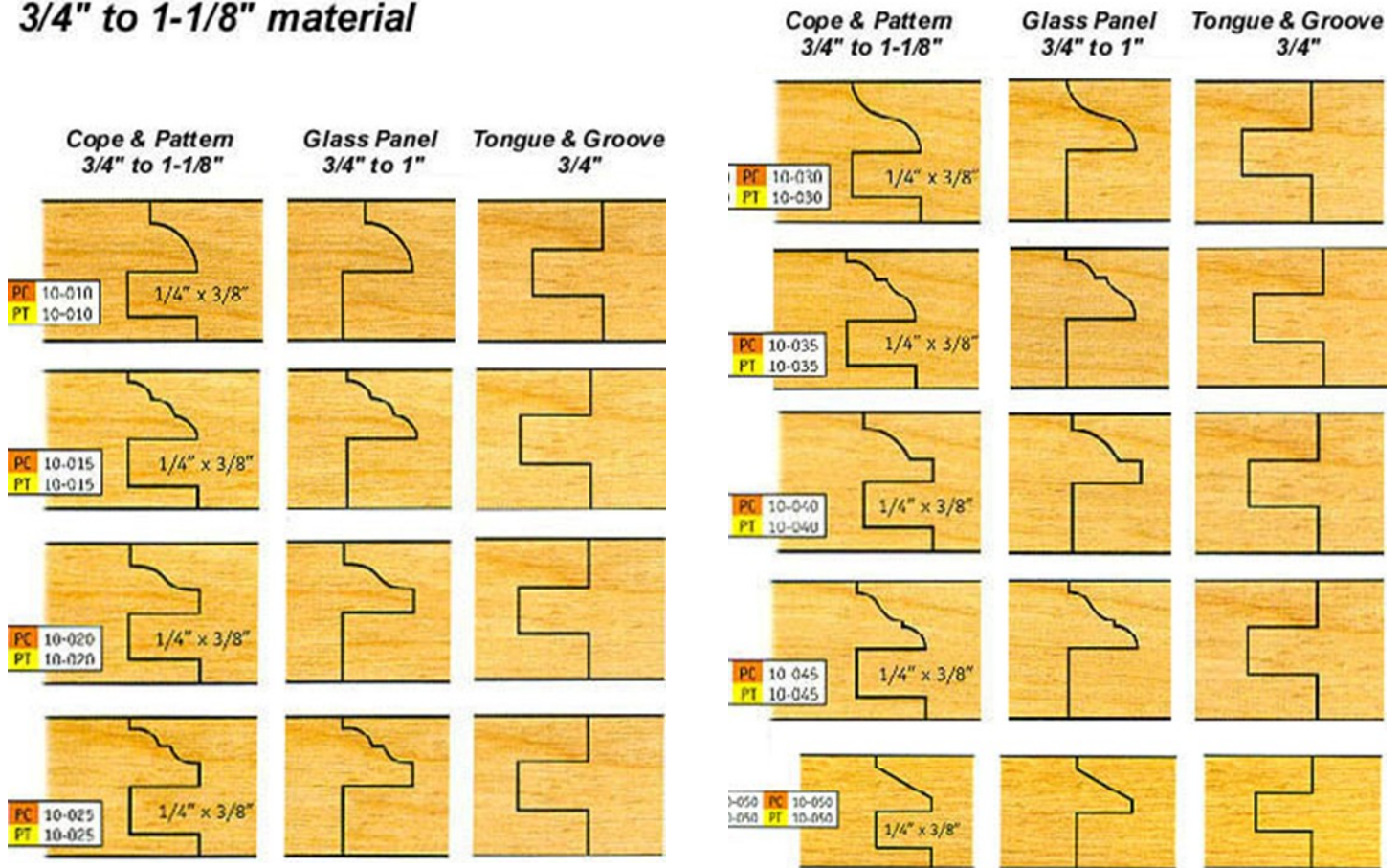
STILE JIG | 690-0146

HAWK WOODWORKING IND, LLC.
2.07.07



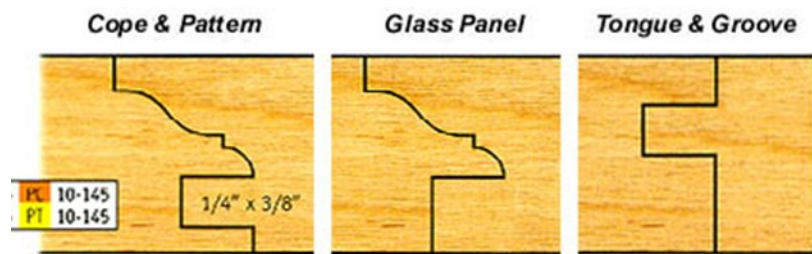
ITEM NO.	PART NUMBER	QTY.
1	690-0144 STILE JIG, RIGHT SIDE	1
2	690-0142 STILE JIG, CLAMP PAD	1
3	707-6286 SHCS .25-20 X .500	9
4	790-0059 SHCS .25-20 X 1.25	2
5	690-0143 STILE JIG, LEFT SIDE	1
6	770-0087 SOCKET SET SCREW FT PT .375-24 X .625	2
7	690-0073 TOGGLE CLAMP (STILE JIG CONFIG.)	1
8	770-0050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

3/4" to 1-1/8" material



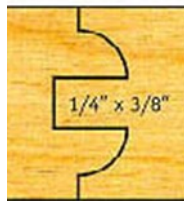
Item #	Freeborn	Cutter Set Type	Material
810 10-010C	PC-10-010	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-010T	PT-10-010	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG
810 10-015C	PC-10-015	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-015T	PT-10-015	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG
810 10-020C	PC-10-020	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-020T	PT-10-020	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG
810 10-025C	PC-10-025	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-025T	PT-10-025	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG
810 10-030C	PC-10-030	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-030T	PT-10-030	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG
810 10-035C	PC-10-035	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-035T	PT-10-035	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG
810 10-040C	PC-10-040	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-040T	PT-10-040	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG
810 10-045C	PC-10-045	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-045T	PT-10-045	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG
810 10-050C	PC-10-050	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-050T	PT-10-050	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG
810 10-060C	PC-10-060	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-060T	PT-10-060	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG
810 10-070C	PC-10-070	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-070T	PT-10-070	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG

7/8" to 1-1/8" material

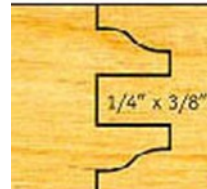


Item #	Freeborn	Cutter Set Type	Material
810 10-145C	PC-10-145	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-145T	PT-10-145	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG

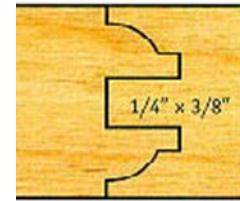
1" to 1-1/4" material



PC-10-310



PC-10-320

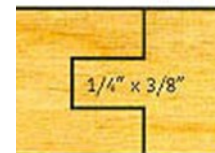


PC-10-340

Item #	Freeborn	Cutter Set Type	Material
81010-310 C	PC-10-310	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
81010-310 T	PT-10-310	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG
81010-320 C	PC-10-320	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
81010-320 T	PT-10-320	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG
81010-340 C	PC-10-340	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
81010-340 T	PT-10-340	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG

3/4" to 1-1/8" material

Item #	Freeborn	Cutter Set Type	Material
810 10-500C	PC-10-500	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-500T	PT-10-500	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG
810 10-550C	PC-10-550	COPE AND PATTERN SETS (6 CUTTERS)	CARBIDE
810 10-550T	PT-10-550	COPE AND PATTERN SETS (6 CUTTERS)	TANTUNG

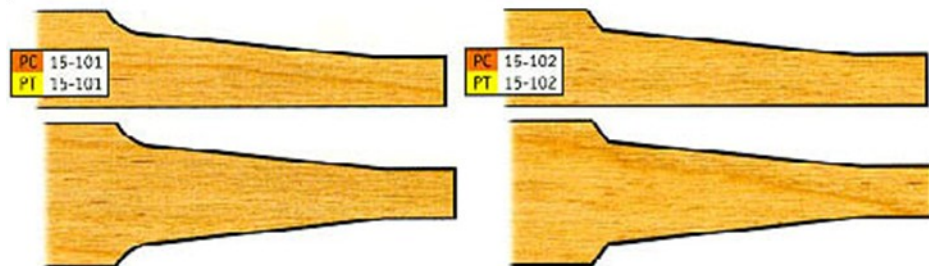


PC-10-310



PC-10-310

1/2" Raised Panel Cutter



Item #	Freeborn	Cutter Type	Material
81015-101 C	PC-15-101	1/2" THICK RAISED PANEL	CARBIDE
81015-101 T	PT-15-101	1/2" THICK RAISED PANEL	TANTUNG
81015-102 C	PC-15-102	1/2" THICK RAISED PANEL	CARBIDE
81015-102 T	PT-15-102	1/2" THICK RAISED PANEL	TANTUNG

INSERT RAISED PANEL CUTTER HOLDERS

Insert tool holders to allow you to design your own custom raised panel are available. Call to request pricing with your custom design.

RUB BEARINGS

Required for making raised panel door.

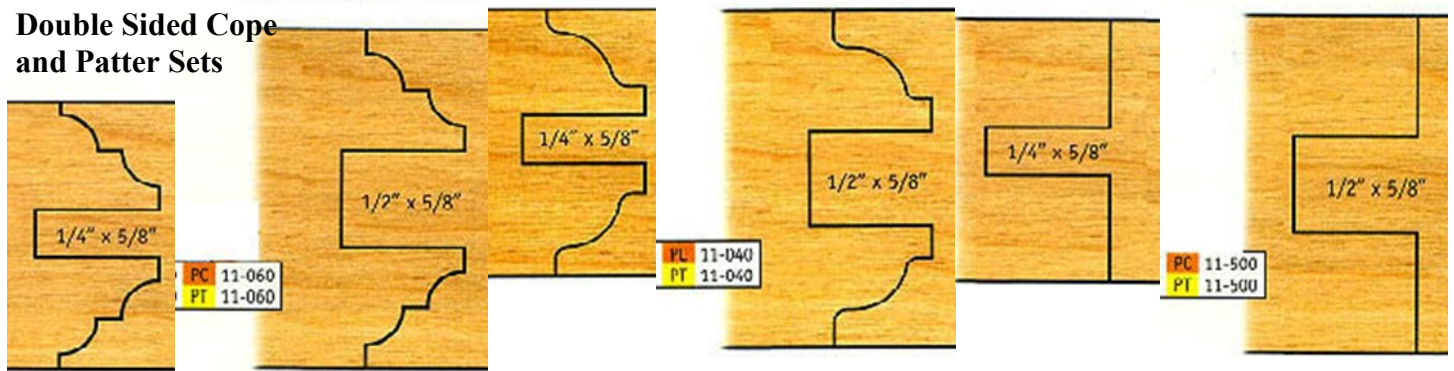
810-0190 3" Rub Bearing

\$61.00

810-0191 3.25" Rub Bearing

\$61.00

Double Sided Cope and Patter Sets



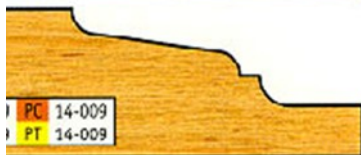
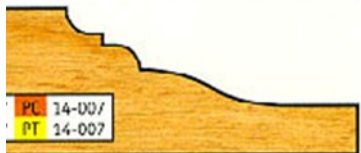
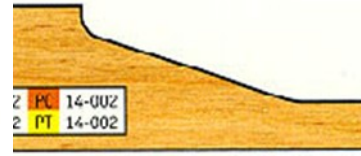
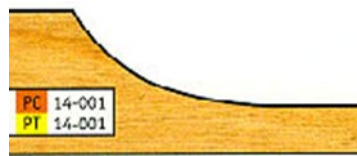
Item #	Freeborn	Cutter Set Type	Material
810 11-010C	PC-11-010	DOUBLE COPE AND PATTERN (8 CUTTERS)	CARBIDE
810 11-010T	PT-11-010	DOUBLE COPE AND PATTERN (8 CUTTERS)	TANTUNG
810 11-020C	PC-11-020	DOUBLE COPE AND PATTERN (8 CUTTERS)	CARBIDE
810 11-020T	PT-11-020	DOUBLE COPE AND PATTERN (8 CUTTERS)	TANTUNG
810 11-030C	PC-11-030	DOUBLE COPE AND PATTERN (8 CUTTERS)	CARBIDE
810 11-030T	PT-11-030	DOUBLE COPE AND PATTERN (8 CUTTERS)	TANTUNG
810 11-040C	PC-11-040	DOUBLE COPE AND PATTERN (8 CUTTERS)	CARBIDE
810 11-040T	PT-11-040	DOUBLE COPE AND PATTERN (8 CUTTERS)	TANTUNG

5/8" Raised Panel Cutters



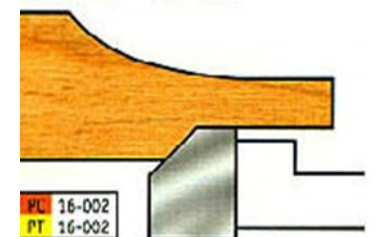
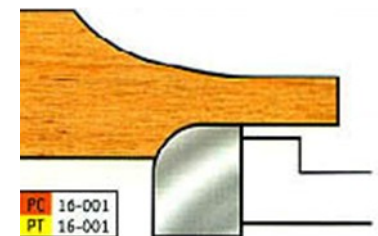
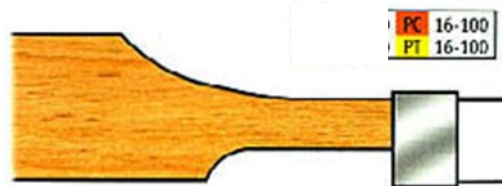
Item #	Freeborn	Cutter Type	Material
810 15-001 C	PC-15-001	5/8" THICK RAISED PANEL	CARBIDE
810 15-001 T	PT-15-001	5/8" THICK RAISED PANEL	TANTUNG
810 15-002 C	PC-15-002	5/8" THICK RAISED PANEL	CARBIDE
810 15-002 T	PT-15-002	5/8" THICK RAISED PANEL	TANTUNG
810 15-003C	PC-15-003	5/8" THICK RAISED PANEL	CARBIDE
810 15-003T	PT-15-003	5/8" THICK RAISED PANEL	TANTUNG
810 15-004C	PC-15-004	5/8" THICK RAISED PANEL	CARBIDE
810 15-004T	PT-15-004	5/8" THICK RAISED PANEL	TANTUNG
810 15-005C	PC-15-005	5/8" THICK RAISED PANEL	CARBIDE
810 15-005T	PT-15-005	5/8" THICK RAISED PANEL	TANTUNG
810 15-006C	PC-15-006	5/8" THICK RAISED PANEL	CARBIDE
810 15-006T	PT-15-006	5/8" THICK RAISED PANEL	TANTUNG
810 15-007C	PC-15-007	5/8" THICK RAISED PANEL	CARBIDE
810 15-007T	PT-15-007	5/8" THICK RAISED PANEL	TANTUNG
810 15-008C	PC-15-008	5/8" THICK RAISED PANEL	CARBIDE
810 15-008T	PT-15-008	5/8" THICK RAISED PANEL	TANTUNG
810 15-009C	PC-15-009	5/8" THICK RAISED PANEL	CARBIDE
810 15-009T	PT-15-009	5/8" THICK RAISED PANEL	TANTUNG
810 15-010C	PC-15-010	5/8" THICK RAISED PANEL	CARBIDE
810 15-010T	PT-15-010	5/8" THICK RAISED PANEL	TANTUNG
810 15-011C	PC-15-011	5/8" THICK RAISED PANEL	CARBIDE
810 15-011T	PT-15-011	5/8" THICK RAISED PANEL	TANTUNG
810 15-012C	PC-15-012	5/8" THICK RAISED PANEL	CARBIDE
810 15-012T	PT-15-012	5/8" THICK RAISED PANEL	TANTUNG
810 15-013C	PC-15-013	5/8" THICK RAISED PANEL	CARBIDE
810 15-013T	PT-15-013	5/8" THICK RAISED PANEL	TANTUNG

3/4" Raised Panel Cut-



Item #	Freeborn	Cutter Type	Material
81014-001 C	PC-14-001	3/4" THICK RAISED PANEL	CARBIDE
81014-001 T	PT-14-001	3/4" THICK RAISED PANEL	TANTUNG
81014-002 C	PC-14-002	3/4" THICK RAISED PANEL	CARBIDE
81014-002 T	PT-14-002	3/4" THICK RAISED PANEL	TANTUNG
81014-003 C	PC-14-003	3/4" THICK RAISED PANEL	CARBIDE
81014-003 T	PT-14-003	3/4" THICK RAISED PANEL	TANTUNG
81014-004 C	PC-14-004	3/4" THICK RAISED PANEL	CARBIDE
81014-004 T	PT-14-004	3/4" THICK RAISED PANEL	TANTUNG
81014-005 C	PC-14-005	3/4" THICK RAISED PANEL	CARBIDE
81014-005 T	PT-14-005	3/4" THICK RAISED PANEL	TANTUNG
81014-006 C	PC-14-006	3/4" THICK RAISED PANEL	CARBIDE
81014-006 T	PT-14-006	3/4" THICK RAISED PANEL	TANTUNG
81014-007 C	PC-14-007	3/4" THICK RAISED PANEL	CARBIDE
81014-007 T	PT-14-007	3/4" THICK RAISED PANEL	TANTUNG
81014-008 C	PC-14-008	3/4" THICK RAISED PANEL	CARBIDE
81014-008 T	PT-14-008	3/4" THICK RAISED PANEL	TANTUNG
81014-009 C	PC-14-009	3/4" THICK RAISED PANEL	CARBIDE
81014-009 T	PT-14-009	3/4" THICK RAISED PANEL	TANTUNG
81014-010 C	PC-14-010	3/4" THICK RAISED PANEL	CARBIDE
81014-010 T	PT-14-010	3/4" THICK RAISED PANEL	TANTUNG
81014-011 C	PC-14-011	3/4" THICK RAISED PANEL	CARBIDE
81014-011 T	PT-14-011	3/4" THICK RAISED PANEL	TANTUNG
81014-012 C	PC-14-012	3/4" THICK RAISED PANEL	CARBIDE
81014-012 T	PT-14-012	3/4" THICK RAISED PANEL	TANTUNG
81014-013 C	PC-14-013	3/4" THICK RAISED PANEL	CARBIDE
81014-013 T	PT-14-013	3/4" THICK RAISED PANEL	TANTUNG

Back and Trim Cut-



Item #	Freeborn	Cutter Type	Material
810 16-001C	PC-16-001	BACK CUTTER FOR RAISED PANNEL	CARBIDE
810 16-001T	PT-16-001	BACK CUTTER FOR RAISED PANNEL	TANTUNG
810 16-002C	PC-16-002	BACK CUTTER FOR RAISED PANNEL	CARBIDE
810 16-002T	PT-16-002	BACK CUTTER FOR RAISED PANNEL	TANTUNG
810 16-100C	PC-16-100	EDGE TRIM CUTTER	CARBIDE
810 16-100T	PT-16-100	EDGE TRIM CUTTER	TANTUNG

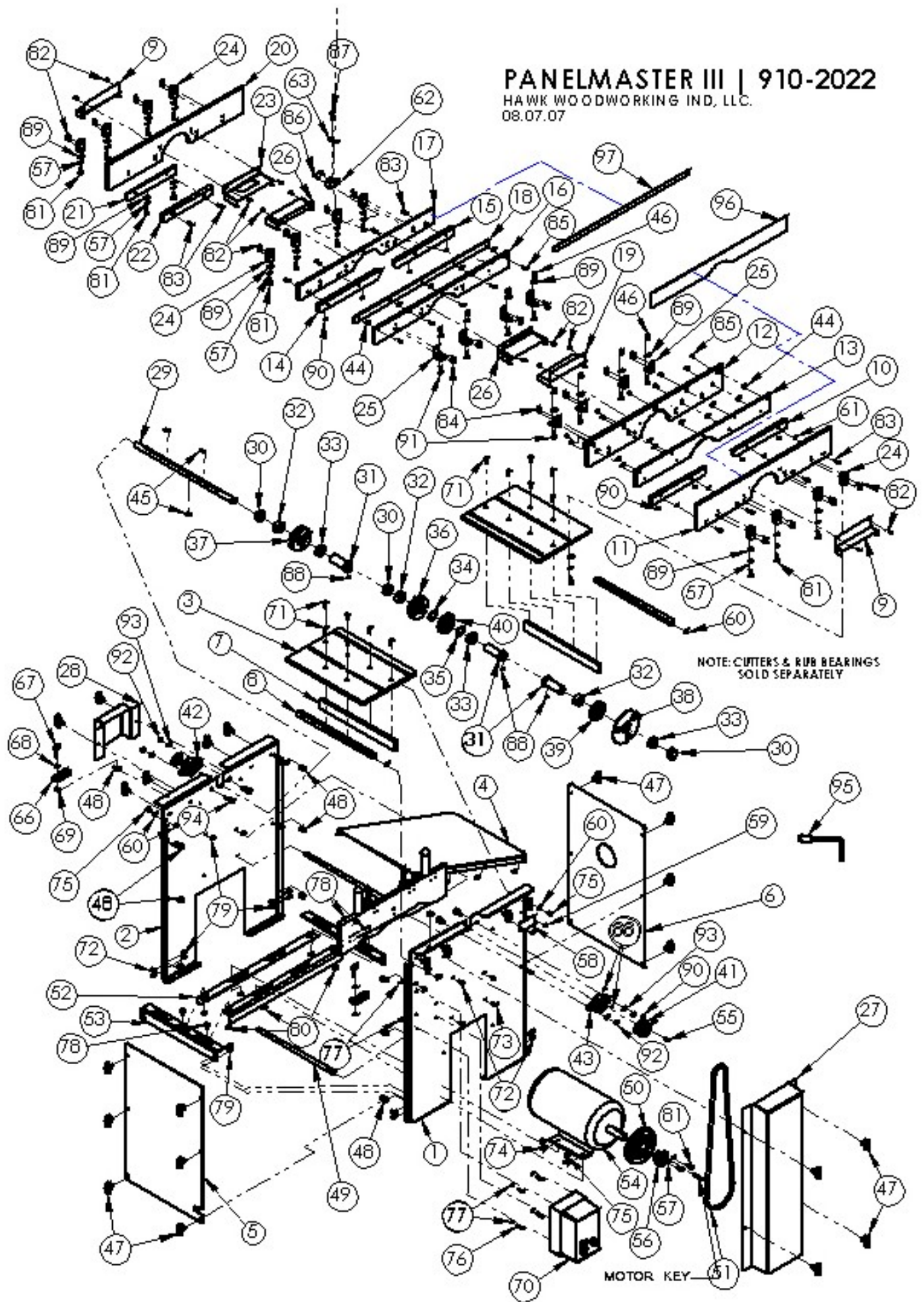
PARTS LIST - PanelMASTER III

To speed delivery and reduce errors when ordering parts always give the name, model number, and serial number of your machine. Use the part number and description as shown in the parts list. Do not use key numbers (the numbers in the circles on the parts breakdown drawing), always use the part number and description given in the parts list.

KEY #	PART NUMBER & DESCRIPTION	QTY.	KEY #	PART NUMBER & DESCRIPTION	QTY.
1	690-3080 RIGHT HAND SIDE, PM3	1	50	790-0152 LOWER PULLEY, 6" DIA.	1
2	690-4081 LEFT HAND SIDE, PM3	1	51	790-1128 PM V-BELT AX58	1
3	690-3082 TABLE, PM3	2	52	690-0115 MOTOR MOUNT BAR	2
4	690-1083 CHIP CHUTE, PM3	1	53	690-0114 MOTOR SUPPORT BRACE	2
5	690-3084 FRONT INSPECTION PANEL, PM3	1	54	704-0001 MOTOR, 5HP	1
6	690-4101 REAR INSPECTION PANEL WELDMENT, PM3	1	55	745-0093 SQ. KEY 1/4" X 3/4" LG.	1
7	690-0139 TABLE BRACE	2	56	745-0304 PULLEY REDUCER	1
8	690-1112 TOP SQUARE BRACE	2	57	750-0207 SPLIT LOCK WASHER 1/4"	16
9	690-0086 RAISED PANEL FENCE GUARD	2	58	790-0056 SERIAL TAG	1
10	690-1089 RAISED PANEL SLIDE BLOCK	2	59	710-0012 #7 X 5/16" RD. HEAD DRIVE SCREW	2
11	690-0093 RAISED PANEL FENCE, LH SIDE	1	60	755-0135 5/16 NYLON WASHER	8
12	690-1094 RAISED PANEL FENCE, RH SIDE	1	61	705-0118 NYLON SPACER 1/4" ID	4
13	690-0141 SPRING FENCE, FULL (RAISED PANEL)	1	62	690-2099 CUTTER GUARD BRACKET	1
14	690-0134 RAIL SLIDE BLOCK, INFEED, ADJ.	1	63	790-0033 EXTENSION SPRING	1
15	690-0135 RAIL SLIDE BLOCK, OUTFEED, ADJ.	1	64	690-2104 RAIL CUTTER GUARD	1
16	690-1096 RAIL FENCE, RH SIDE	1	65	690-2008 STILE CUTTER GUARD	1
17	690-1095 RAIL FENCE, LH SIDE	1	66	690-1113 TABLE HINGE STOP-BLOCK	2
18	690-0100 SPRING FENCE, SMALL (RAIL)	1	67	715-0115 STOP BLOCK T-KNOB	2
19	690-0087 RAIL FENCE GUARD	1	68	755-0049 STEEL WASHER 1/4" ID	2
20	690-0097 STILE FENCE	1	69	705-0112 NYLON WASHER 1/4" ID	2
21	690-0133 STILE JIG BLOCK SPACER	1	70	745-0692 CONTROL BOX	1
22	690-0132 STILE SET BLOCK, ADJ.	1	71	715-0072 1/4-20 X 1 TAPERED HEAD SCREW	10
23	690-0131 STILE CUTTER GUARD	1	72	745-0099 1/4-20 X 5/8 CARRIAGE BOLT	16
24	690-0106 FENCE BRACKET, FIXED	12	73	715-0903 1/4-20 X 3/4 HEX FLANGE WHIZ BOLT	4
25	690-0105 FENCE BRACKET, ADJ.	8	74	745-0150 5/16 FLAT WASHER	4
26	690-0088 FENCE GUARD	2	75	715-0915 5/16-18 X 5/8 HEX FLANGE WHIZ BOLT	8
27	690-1091 BELT GUARD, PM3	1	76	755-0090 #10-32 X 1-1/4 PHILLIPS TRUSS HEAD	4
28	690-2092 SHAFT GUARD, PM3	1	77	755-0055 #10-32 KEPS NUT	8
29	690-2110 CUTTERHEAD SHAFT, PM3	1	78	770-0179 5/16-18 X 3/4 CARRIAGE BOLT	4
30	690-0036 ARBOR NUT	3	79	745-0223 1/4-20 FLANGED LOCK WHIZ NUT	16
31	690-0107 ARBOR	3	80	770-0080 5/16-18 FLANGED LOCK WHIZ NUT	8
32	690-0108 ARBOR SPACER, 3/4" THK.	3	81	735-0052 1/4-20 X 1 HEX HEAD BOLT	16
33	690-0109 ARBOR SPACER, 1/2" THK.	3	82	715-0255 #10-32 X 1/2 SHCS	36
34	690-0104 ARBOR SPACER, .031 THK.	1	83	790-0136 1/4-20 X 1 BUTTON SHCS	10
35	690-0103 ARBOR SPACER, .005 THK.	1	84	746-0046 1/4-20 X 5/8 BUTTON SHCS	16
36	810-0110 RAIL CUTTER	1	85	770-0091 #10-32 X 3/4 SHCS	14
37	810-0110 STILE CUTTER	1	86	770-0093 #10-32 X 7/8 SHCS	2
38	810-0202 RAISED PANEL CUTTER	1	87	755-0120 1/4-20 X 3/4 SHOULDER BOLT	1
39	810-0190 RUB BEARING, 3" DIA.	1	88	791-0053 1/4-20 X 1/4 FT. PT. SOCKET SET SCREW	7
40	810-0191 RUB BEARING, 3.25" DIA.	1	89	745-0177 1/4 FLAT WASHER, STEEL	22
41	690-0112 UPPER PULLEY, 3" DIA.	1	90	770-0083 1/4-20 X 1/4 CUP PT. SOCKET SET SCREW	10
42	790-0101 BEARING BLOCK 1" COLLARED	1	91	750-0211 1/4-20 X 1-1/4 CARRIAGE BOLT	8
43	790-0100 BEARING BLOCK 1" COLLARLESS	1	92	770-0058 3/8-16 HEX NUT	4
44	790-0098 COMPRESSION SPRING FOR FENCES	14	93	770-0071 3/8 SPLIT LOCK WASHER	4
45	690-0111 ROUND KEY 1/4" DIA. X 1" LG.	3	94	725-1033 1/2 x 1/2 SHOULDER BOLT	4
46	745-0176 FLANGED WING NUT 1/4-20	8	95	690-0117 WING NUT WRENCH WELDMENT	1
47	705-1036 QUICK CHANGE T-KNOB	26	96	790-0078 3" X 31-1/2" PSA WEAR STRIP, PANEL FENCE	1
48	738-1041 U-NUT 1/4-20	14	97	790-0140 1" X 31-1/2" PSA WEAR STRIP, RAIL FENCE	1
49	690-0102 LOWER ROUND BRACE	2			

PANELMASTER III | 910-2022

HAWK WOODWORKING IND. LLC.
08.07.07



NOTES:

