

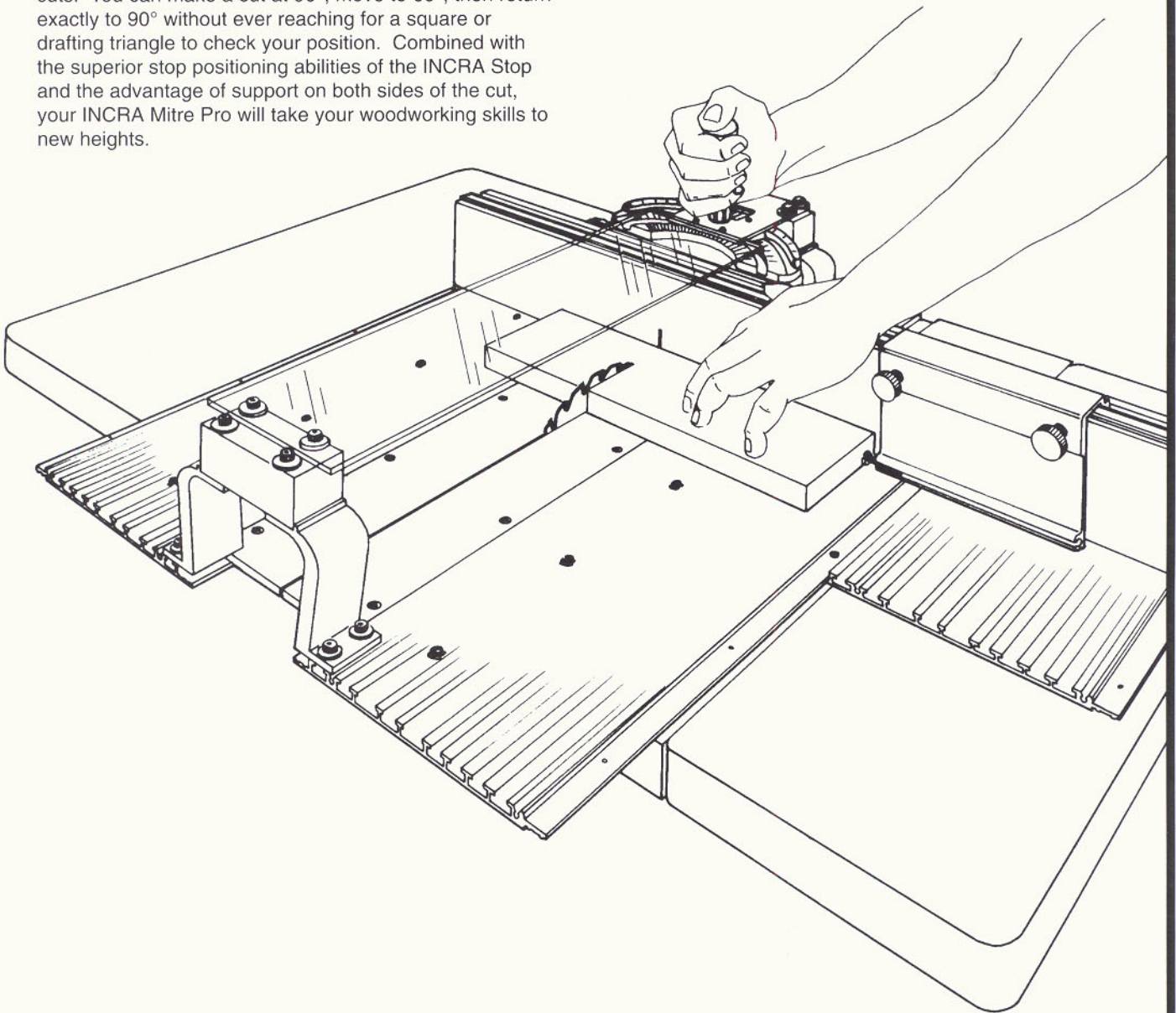
# Incra<sup>®</sup> **MITRE PRO**<sup>TM</sup>

**Crosscutting & Mitering Workstation**

## Owner's Manual

From complex compound miters to simple 90° crosscuts, your new INCRA Mitre Pro is designed to take the guesswork out of cutting angles. The circular saw-toothed positioning racks allow for precise duplication of angled cuts. You can make a cut at 90°, move to 60°, then return exactly to 90° without ever reaching for a square or drafting triangle to check your position. Combined with the superior stop positioning abilities of the INCRA Stop and the advantage of support on both sides of the cut, your INCRA Mitre Pro will take your woodworking skills to new heights.

Please be sure to read this Owner's Manual before use and keep it at hand for future reference.



# Safety

## Important safety instructions for using the INCRA Mitre Pro

- Before using the INCRA Mitre Pro, read and follow all of the instructions and safety information in this manual.
- When using the INCRA Mitre Pro in conjunction with any other tool, first read and follow all instructions and safety information in that tool's owner's manual.
- Never let the saw blade come in contact with the aluminum components of the INCRA Mitre Pro, including the base plates, post assemblies, fence cap, and INCRA Stop.
- Always turn off the power and make sure that the saw blade is fully stationary before changing the setting of any part of the INCRA Mitre Pro or INCRA Stop.
- Wear safety glasses and hearing protection.
- Follow all normal shop safety practices.

- When using your INCRA Mitre Pro, always keep your hands safely clear of the line of cut, and the saw blade.
- **Always** securely tighten the black miter clamping knob before turning on the saw and making any cut.
- **Always** use the black miter clamping knob as a handle to push your INCRA Mitre Pro into a cut. **Never** allow your hands to dangle below the circular saw-toothed positioning racks on the miter assembly.
- **Never** allow any part of your hands to remain on or inside the post assemblies during a cut.
- **Do not** use your INCRA Mitre Pro without the plastic blade guard in place.
- Whenever using the INCRA Stop or Angle Stop to position a piece for a cut, always hold or otherwise clamp the board between the stop and the blade.

# Parts List

## INCRA MITRE

- 1 1 ea. Miter rack assembly
- 2 1 ea. Miter clamp handle
- 25 1 ea. 7/8" o.d. flat washer
- 3 1 ea. aluminum T-nut

## BASE PLATE ASSEMBLY

- 4 2 ea. 7 5/16" x 27" aluminum base panels
- 5 1 ea. 7 5/16" x 13" aluminum base extension wing
- 6 1 ea. Finn form plywood throat plate
- 7 10 ea. #8-32 x 3/8" phillips flat head screws
- 8 3 ea. #8-32 x 1/4" phillips pan head screws
- 9 2 ea. 25" long aluminum guide bars
- 10 10 ea. #10-32 x 1/2" phillips pan head screws
- 11 10 ea. #10 flat washers (small outer diameter)
- 12 10 ea. #10-32 hex nuts

## POST ASSEMBLY

- 13 2 ea. post (pre-assembled)
- 14 8 ea. 1/4-20 x 1/2" socket head cap screws
- 15 4 ea. 1/4-20 rectangular double nuts
- 16 8 ea. 1/4" SAE flat washers

## FENCE ASSEMBLY

- 17 1 ea. aluminum fence cap
- 18 1 ea. 1/2" x 3 27/32" x 35 13/16" Finn form plywood fence
- 19 6 ea. #10-32 x 7/8" phillips flat head screws
- 20 5 ea. 1/32" INCRA racks
- 21 10 ea. #8-32 x 3/8" phillips pan head screws
- 22 10 ea. #8-32 hex nuts
- 23 2 ea. 16" long, 1/32" ruled scale

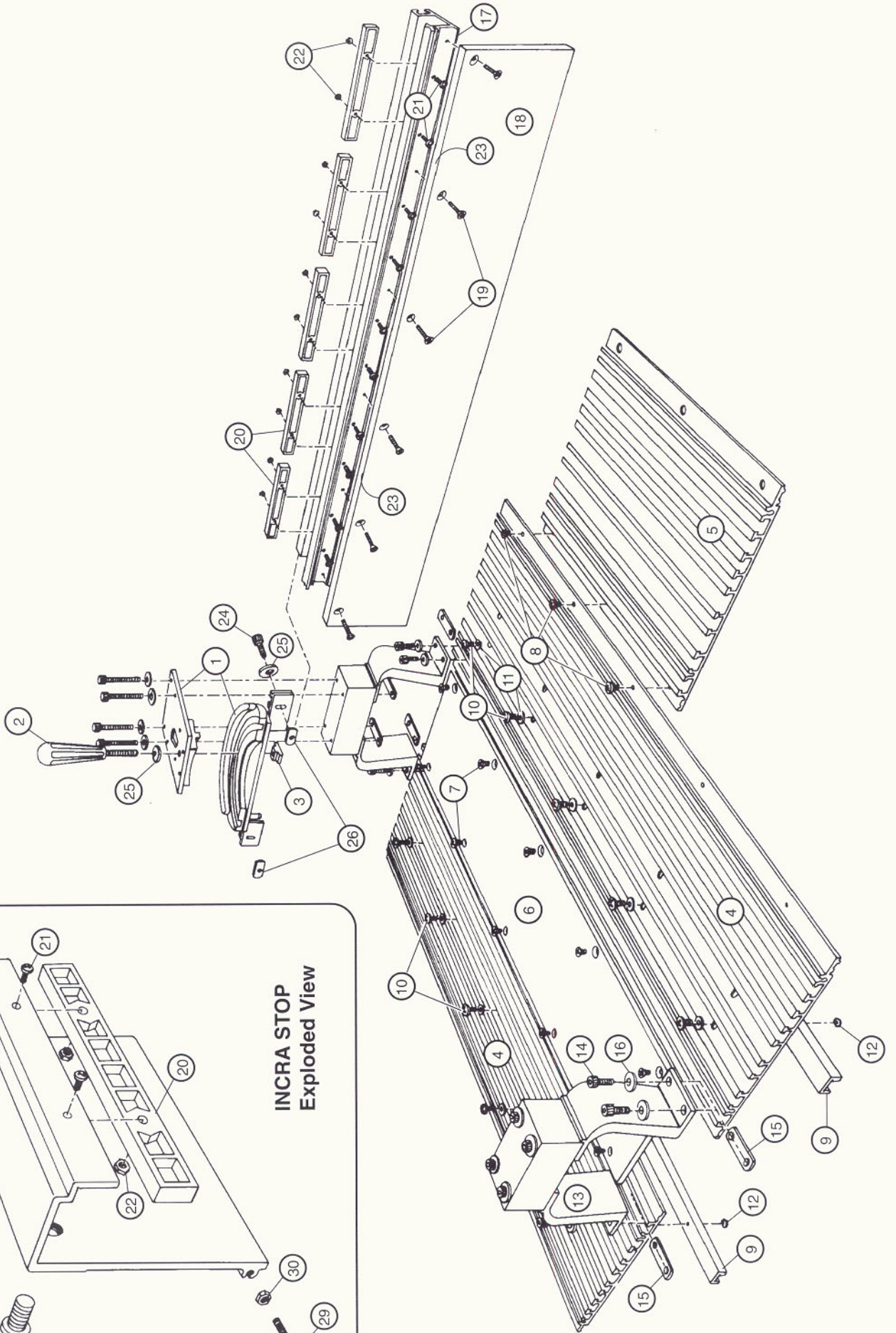
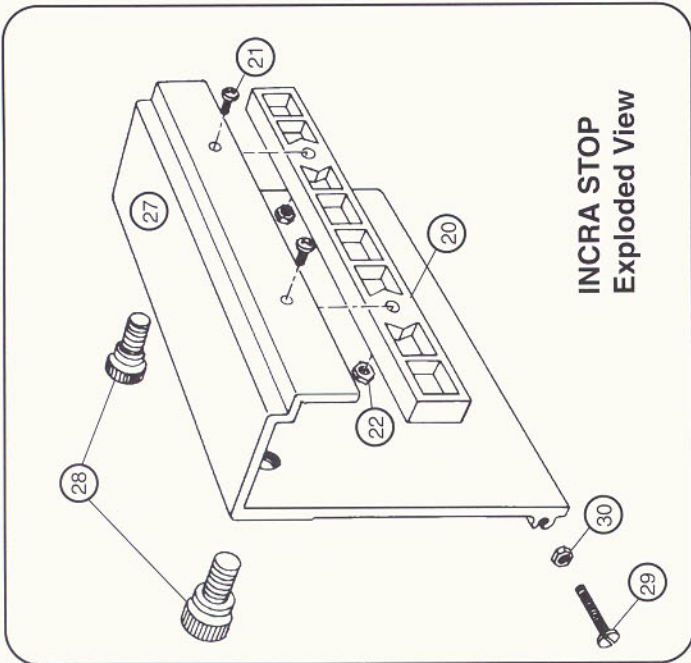
## FENCE ASSEMBLY MOUNTING HARDWARE

- 20 1 ea. 1/32" INCRA rack
- 21 2 ea. #8-32 x 3/8" phillips pan head screws
- 22 2 ea. #8-32 hex nuts
- 24 2 ea. 1/4-20 x 7/8" socket head cap screws
- 25 2 ea. 7/8" o.d. flat washers
- 26 2 ea. 1/4-20 rectangular nuts
- 27 1 ea. aluminum INCRA Stop body
- 28 2 ea. 3/8"-16 x 1/2" nylon thumb screws
- 29 2 ea. #10-32 x 3/4" nylon slotted machine screws
- 30 2 ea. #10-32 nylon hex nuts

## MISCELLANEOUS

- 31 20 ea. 1/20° shims (white) - See page 7, Fig. 13
- 32 4 ea. 1/40° shims (black) - See page 7, Fig. 13
- 33 1 ea. T-handle 3/16" hex key (not shown)
- 34 2 ea. 1/4" x 1 1/4" x 3 3/8" Finn form plywood Angle Stop  
See page 6, Fig. 12
- 14 2 ea. 1/4-20 x 1/2" socket head cap screws for Angle Stop  
See page 6, Fig. 12
- 26 4 ea. 1/4-20 rectangular nuts for Angle Stop  
See page 6, Fig. 12
- 16 2 ea. 1/4" SAE flat washers - See page 6, Fig. 12
- 35 1 ea. plastic blade guard - See page 5, Fig. 7
- 36 1 ea. clip for T-handle hex key - See page 5, Fig. 7
- 37 1 ea. Owner's Manual
- 38 1 ea. Warranty Card

# INCRA MITRE PRO Exploded View



# Assembly

## 1 Assemble base plate and attach guide bars

Attach the two 27" aluminum base panels to the 1/4" red plywood throat plate using the (10) #8-32 x 3/8" phillips flat head screws. Place the base plate assembly (T-slots face up) on your table saw. Several guide bar positions are made available through the various mounting holes machined in the base panels - three on the left and three on the right side of the throat plate. Using the (10) #10-32 x 1/2" phillips pan head screws, #10 washers (small outer diameter), and #10-32 hex nuts, loosely mount the aluminum guide bars (one on each side of the throat plate) in the positions that will locate the approximate center of the throat plate over the center of your saw blade. See Fig. 1. (Center-to-center alignment to within 1/4" is adequate) Do not tighten the guide bar mounting screws at this time.

**Note:** The center of the red plywood throat plate is 2 19/32" measured from either edge.

## 2 Attach post assemblies to base plate

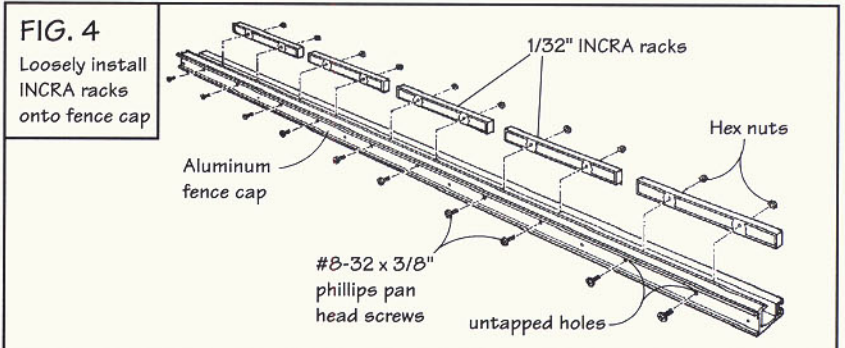
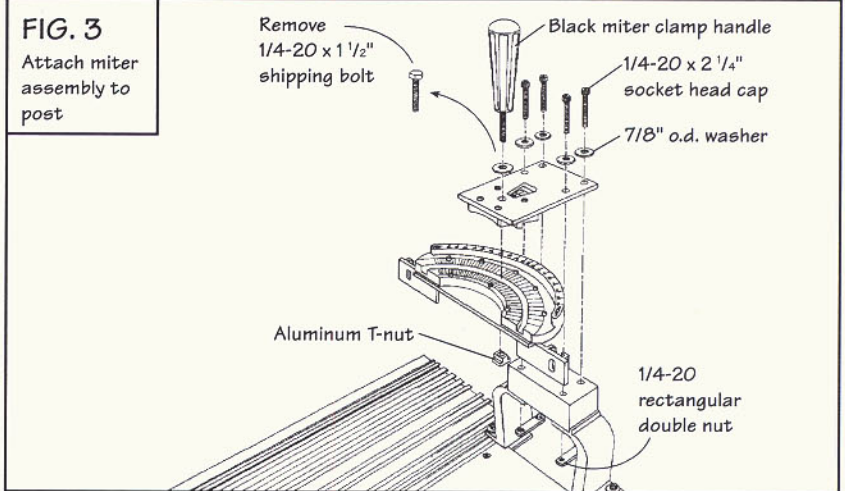
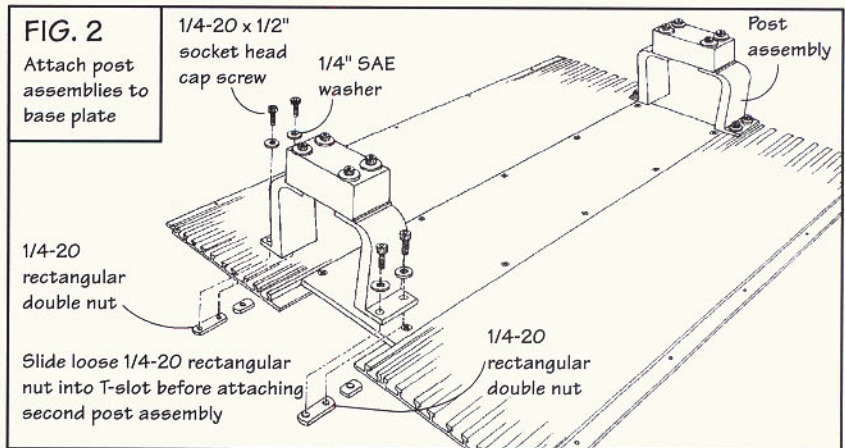
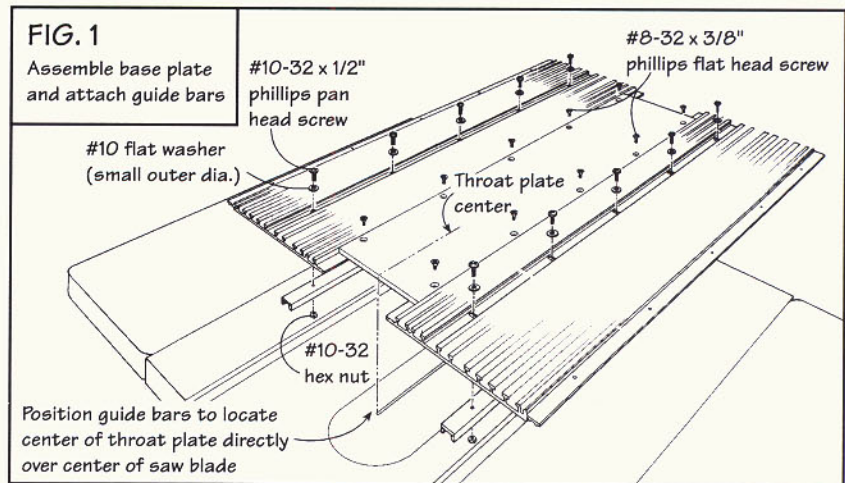
Using (4) 1/4-20 x 1/2" socket head cap screws, 1/4" inner diameter washers, and (2) rectangular nuts, attach one of the post assemblies to one end of the base plate assembled in Step 1. Before attaching the second post assembly, slide (1) 1/4-20 rectangular nut (single threaded hole) into the T-slot adjacent to the left and right side of the throat plate. The raised rim around the threaded hole on each nut should be face up in the T-slot. These loose rectangular nuts can later be used should you wish to place one of the sliding Angle Stops (see page 6, Fig. 12) in these T-slots. Now using (4) 1/4-20 x 1/2" socket head cap screws, 1/4" inner diameter washers, and (2) 1/4-20 rectangular double nuts, attach the second post assembly to the opposite end of the base plate. See Fig. 2. Tighten all of the socket head cap screws using the supplied T-handle hex key.

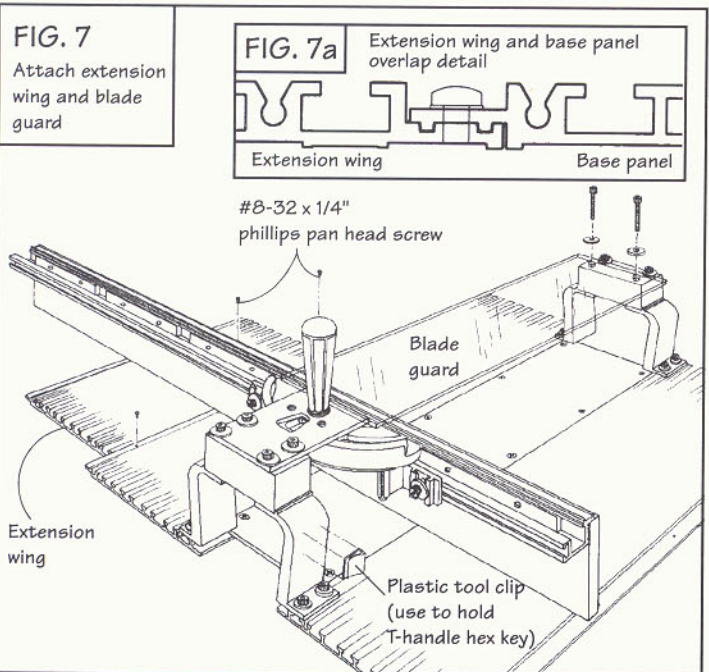
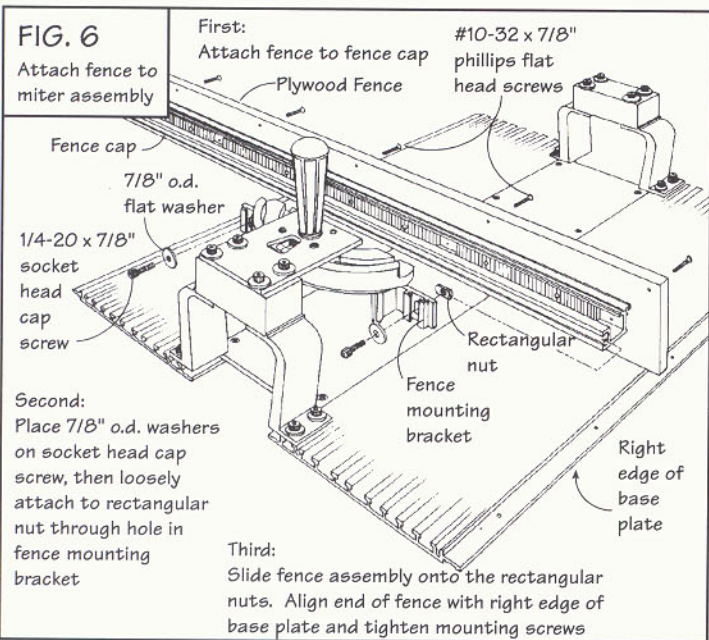
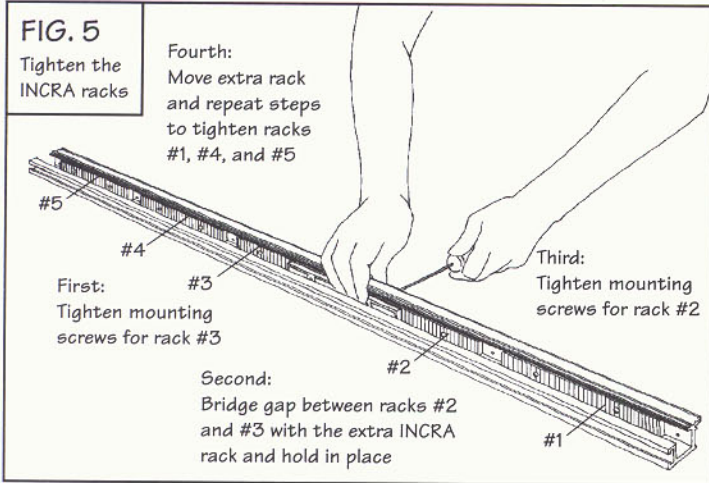
## 3 Attach miter assembly to post

Remove the 1/4-20 x 1 1/2" shipping bolt from the miter assembly and replace it with the black miter clamp handle. Remove the (4) 1/4-20 x 2 1/4" socket head cap screws from the top of one of the two post assemblies. Now using the same socket head cap screws, washers, and rectangular double nuts, attach the miter assembly to the top of the post, then tighten the hardware in place. See Fig. 3. Be sure to place the large washer on each of the socket head cap screws as shown in Fig. 3.

## 4 Assemble fence and attach to miter assembly

Loosely attach each of the (5) 1/32" INGRA racks to the aluminum fence cap using the (10) #8-32 x 3/8" phillips pan head screws and #8-32 hex nuts. Mount the racks through the larger untapped holes drilled through the fence cap. See Fig. 4. With the racks loosely installed, you should be able to easily shift each rack about 1/16" from side to side with your finger.





Tighten the two rack mounting screws for rack #3 (the middle rack) shown in Fig. 5. Now, using the remaining 1/32" INCRA rack to bridge the gap between the ends of racks #3 and #2, tighten the mounting screws for rack #2. Move the spare rack to bridge the gap between the ends of racks #2 and #1 and tighten the mounting screws for rack #1. Repeat the bridging and tightening procedure for racks #4 and #5. This process aligns the racks so that the INCRA Stop will operate accurately along the entire length of the fence.

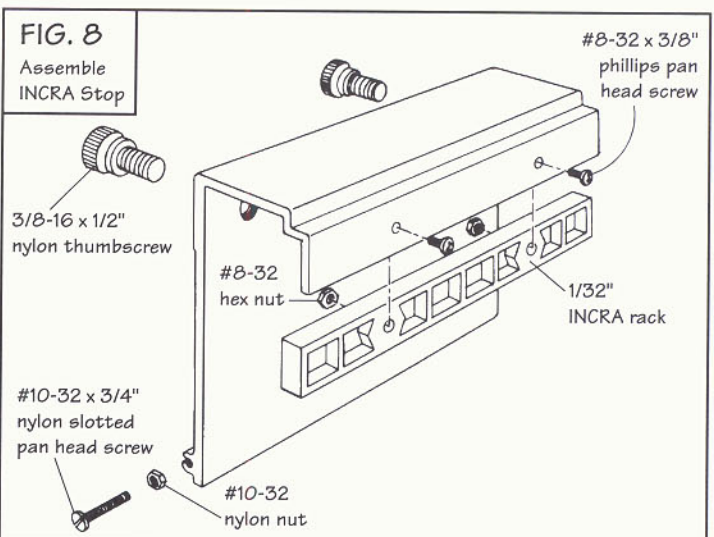
Attach the 1/2" thick red plywood fence to the fence cap using the (6) #10-32 x 7/8" phillips flat head screws. Using the (2) 1/4-20 x 7/8" socket head cap screws, (2) 7/8" outer diameter flat washers and (2) rectangular nuts, attach the fence assembly to the fence mounting brackets. The raised rim around the threaded hole on each rectangular nut should be face out into the neck of the T-slot. Before tightening the mounting screws, align the right end of the fence assembly with the right edge of the base plate, see Fig. 6. After final assembly, this initial fence position can be moved to any desired position

## 5 Attach extension wing and blade guard

Using the (3) #8-32 x 1/4" phillips pan head screws, (screws only, no washers) attach the aluminum base extension wing to the left hand base panel. Use the three mounting holes nearest the operator's end of the base panel. Fig. 7a details the double tongue and groove relationship between the base panel and the extension wing. To install the blade guard, remove (2) of the (4) 1/4-20 x 2 1/4" socket head cap screws from the top of the front post. The two that you remove should be the two on the inside of the post assembly that are closest to the red fence. Reinstall the screws through the holes in the blade guard. See Fig. 7. Be sure that the large washers are placed back on each socket head cap screw. The operator's end of the blade guard rests on top of the gold anodized top rack mounting bracket. Attach the plastic tool clip to the left or right side of the rear post.

## 6 Assemble INCRA Stop

Using (2) #8-32 x 3/8" phillips pan head screws and nuts, fasten the 1/32" INCRA rack to the INCRA Stop and tighten the screws. Install the #10-32 x 3/4" nylon slotted pan head screws and nylon nuts on each end of the INCRA Stop. Thread in place the (2) 3/8-16 x 1/2" nylon thumb screws as shown in Fig. 8.



# Calibrating your INCRA Mitre Pro

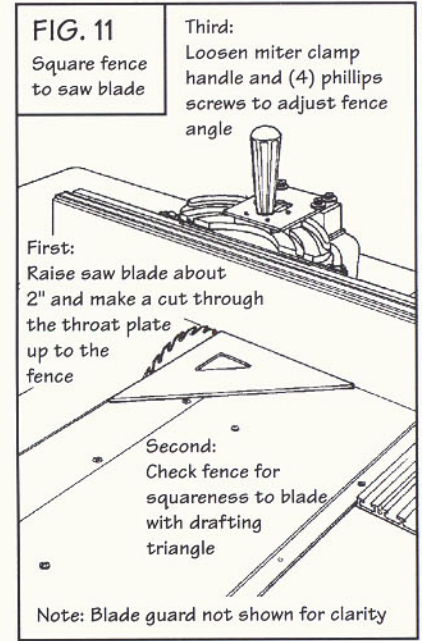
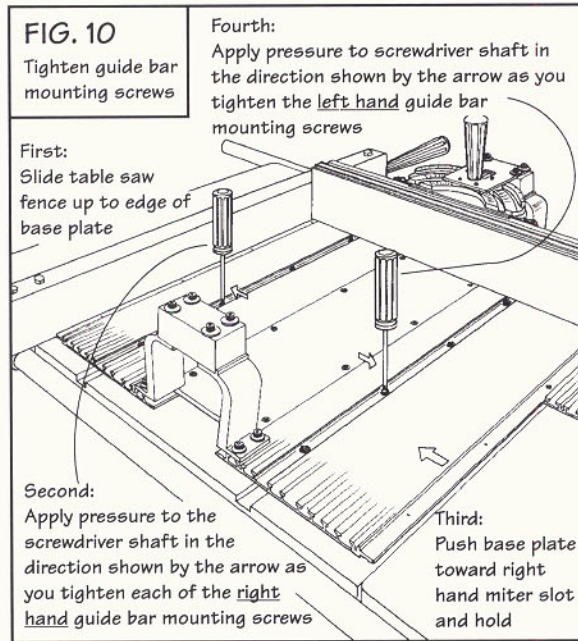
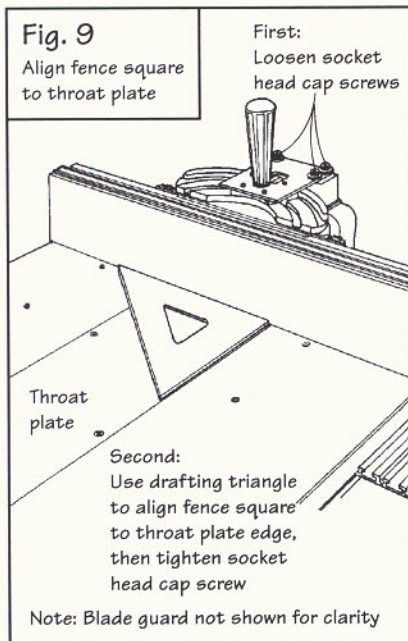
Once your INCRA Mitre Pro is calibrated to cut accurately at 90°, the saw-toothed circular racks take over to provide positive angle control to an accuracy of better than 1/10 of one degree at any position from 45° to 90°. The initial alignment is accomplished in three easy steps:

**1** With the INCRA Mitre Pro locked at 90°, loosen the (4) socket head cap screws that secure the miter assembly to the post and adjust the angle of the fence so that it is square to the edges of the plywood throat plate on the base. Retighten the socket head cap screws, see Fig. 9.

**2** Use your table saw fence to align the base plate parallel to your saw blade, then tighten the guide bar mounting screws. To avoid side play between the guide bar and miter slots, use the following method: As you tighten the right hand guide bar, apply side pressure to the screwdriver shaft to push the guide bar against the outer edges of the miter slot. As you tighten the left

hand guide bar, push the base plate toward the right hand miter slot and gently pull the screwdriver shaft to cinch the guide bar up against the outer edge of the left miter slot. See Fig. 10. Depending on your make and model of table saw, you may find it necessary to cinch both guide bars against the inside edge of the miter slots rather than the outside edge. Either way works well. Adjust as necessary for smooth gliding action.

**3** Raise the table saw blade about 2" and make a cut through the throat plate up to the fence. Turn off and unplug the saw. Using a drafting triangle or an accurate square, check the angle between the fence and the body of the blade. If the carbide teeth on the blade interfere, raise, lower, or rotate the blade as necessary. If you need to adjust the fence angle, loosen the four phillips screws that surround the black miter clamp handle about 1/4 turn. Adjust the fence square to the blade, then tighten the four screws.

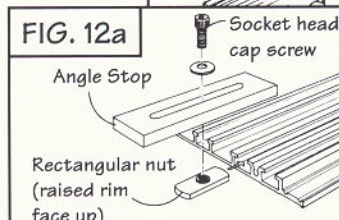
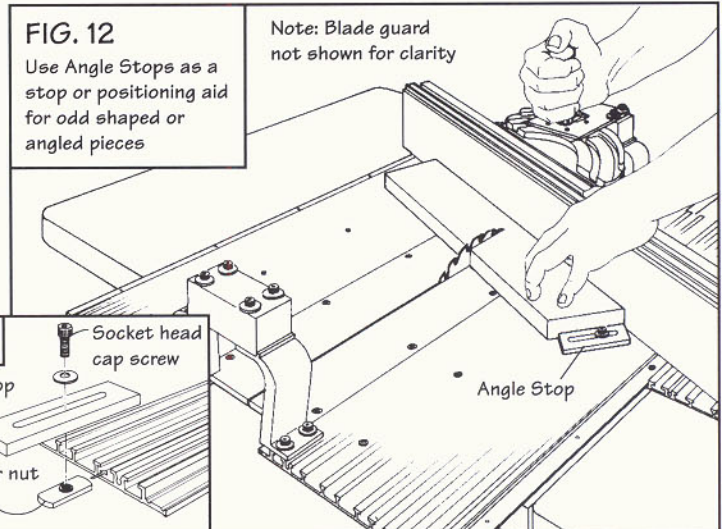


## Angle Stops

The unique T-slot design of your INCRA Mitre Pro base plate provides an efficient means by which to attach a variety of shop-made clamping and positioning devices. The Angle Stops provided with your system can be locked in these T-slots as a stop to match an angled cut on the end of a board. As you become more experienced with your INCRA Mitre Pro, you will find many more uses for these Angle Stops in positioning your work. Secure the Angle Stops using the supplied 1/4-20 x 1/2" socket head cap screws, 1/4" inner diameter washers, and 1/4-20 rectangular nuts. See Fig. 12. Although it is not necessary for most cutting operations, you can also place the Angle Stops against the back side of the red fence for added rigidity.

**NOTE:** The raised rim around the threaded hole on each rectangular nut should be face up in the T-slot.

**CAUTION:** Whenever using any stop, the board between the stop and the blade must be held or otherwise clamped in place.

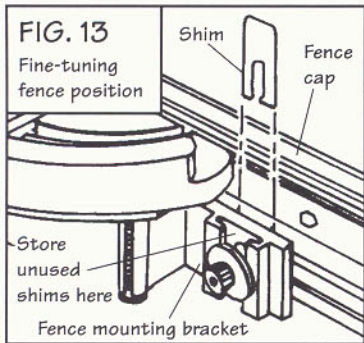


# Fine-tuning the Fence Position

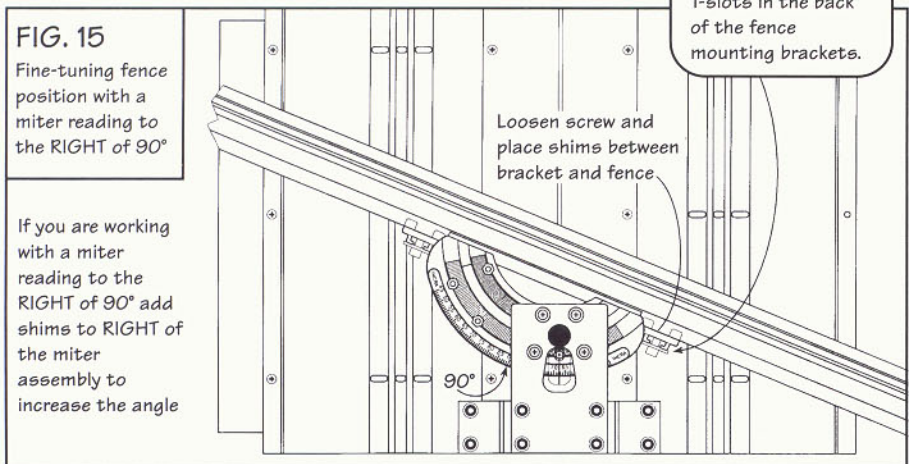
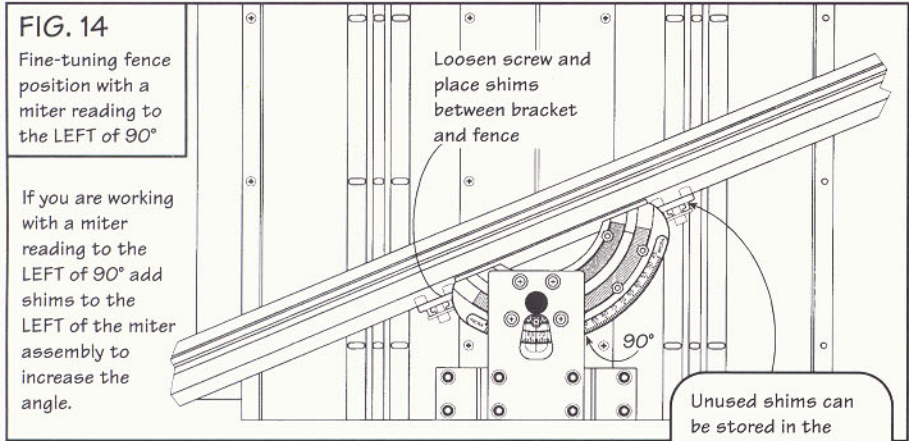
Included with your INCRA Mitre Pro is a set of (20)  $\frac{1}{20}^\circ$  white shims and (4)  $\frac{1}{40}^\circ$  black shims. By placing one or more of these shims between the fence mounting bracket and the fence cap as shown in Fig. 13, you can micro-adjust the angle of your fence in ultra-precise (and ultra-controlled)  $\frac{1}{40}^\circ$  increments. The chart below shows how many shims to use for each fraction of a degree listed. The paragraph and diagrams following describe which side of the miter assembly to shim.

To describe the use of the chart, let's look at a specific example. Suppose, for instance, that you want to make an eight sided frame. An eight sided frame requires a  $67.5^\circ$  cut on each end of the pieces. Set your miter to a reading of  $67^\circ$  to the left of  $90^\circ$  as shown in Fig. 14. The chart shows that .5 deg. or  $\frac{1}{2}^\circ$  requires 10 white shims. Loosen the socket head cap screw on the left side of the miter assembly and slide the 10 shims between the fence and the mounting bracket as shown in Fig. 14. If it is necessary to move your fence angle to  $67.5^\circ$  on the right side of  $90^\circ$  as shown in Fig. 15, you will remove the shims from the left side and move them to the right.

**Note:** If the post assembly restricts access to the socket head cap screw when you wish to micro-adjust the fence angle, simply return the miter to  $90^\circ$ , insert the shims between the fence and the appropriate fence mounting bracket, then return to the original miter setting.



In general, to raise any miter setting to one of the fractions of a degree shown on the chart, add the required shims:  
 on the **left** if the miter is locked to a position to the left of  $90^\circ$ ,  
**OR**  
 on the **right** if the miter is locked to a position to the right of  $90^\circ$ .



Fractions of a degree	Shims Required	
	White	Black
.025		1
.050	1	
.075	1	1
.100	2	
.125	2	1
.150	3	
.175	3	1
.200	4	
.225	4	1
$\frac{1}{4}^\circ$ .250	5	
.275	5	1
.300	6	
.325	6	1
.350	7	
.375	7	1
.400	8	
.425	8	1
.450	9	
.475	9	1
$\frac{1}{2}^\circ$ .500	10	
.525	10	1
.550	11	
.575	11	1
.600	12	
.625	12	1
.650	13	
.675	13	1
.700	14	
.725	14	1
$\frac{3}{4}^\circ$ .750	15	
.775	15	1
.800	16	
.825	16	1
.850	17	
.875	17	1
.900	18	
.925	18	1
.950	19	
.975	19	1

# INCRA Mitre Pro - Spare Parts Order List

ITEM NUMBER (See Exploded View on page 3)	PART DESCRIPTION	PRICE
18	36" Finn form plywood fence	\$14.95
6	Finn form plywood throat plate	\$14.95
33	T-handle <sup>3</sup> / <sub>16</sub> " hex wrench	\$3.95
4	27" aluminum base panel (Includes mounting screws)	\$29.95
5	13" aluminum base extension wing (Includes mounting screws)	\$19.95
26	<sup>1</sup> / <sub>4</sub> -20 rectangular nuts (package of 8)	\$1.50
23	16" long, <sup>1</sup> / <sub>32</sub> " ruled scale	\$2.95
34 (See Fig. 12, page 6)	Angle Stop (set of 2) (Includes hardware)	\$5.95
31, 32 (See Fig. 13, page 7)	Micro Shims package (Includes 20 ea. <sup>1</sup> / <sub>20</sub> ° shims and 4 ea. <sup>1</sup> / <sub>40</sub> ° shims)	\$2.95

**TO ORDER:** Send check, money order or credit card number and expiration date (Visa and Mastercard accepted) along with the Item Number, Part Description, and quantity of each item you wish to order. **Add \$3.50 for shipping and handling to each order.** Texas residents please add 8.25% sales tax.

Mail orders to: **Taylor Design Group, Inc.**  
Attn. Order Department  
P.O. Box 810262  
Dallas, TX 75381

Or for faster service call or fax your order to: (214) 484-5570 **PHONE**  
(214) 243-4277 **FAX**

Please allow approximately 1 to 2 weeks for delivery.

## WARRANTY

Taylor Design Group, Inc. warrants this product for one year from date of purchase. We will repair, without charge, any defects due to faulty material or workmanship, or at our option, replace the product free. Please return the failing part only, transportation prepaid, along with a description of the problem to the address below. This warranty does not apply to parts which have been subjected to improper use, alteration, or abuse. Please fill out and return the registration card within 30 days of purchase to place the warranty in effect.

### LIFETIME WARRANTY ON POSITIONING RACKS

If an INCRA positioning rack in this tool becomes damaged for any reason, Taylor Design Group will replace it free of charge for as long as you own the tool. Return the damaged rack, transportation prepaid, to the address below. Allow 1 to 2 weeks for delivery.

**NOTE:** Replacements cannot be sent unless damaged racks have been received by Taylor Design.

Made in America by:

**TAYLOR DESIGN GROUP, INC.** P.O. Box 810262 Dallas, TX 75381

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