

#### Quality Construction Exclusive Features

- 1. Precision engineered; permanently micro-accurate.
- 2. Single carbide-tipped circular saw blade for all-purpose cutting wood, compo, plastic, metal, shellback.
- 3. Powerful ½ HP ball-bearing motor.
- 4. Quick easy-read, easy-set measuring.
- 5. Patented quick-set, quick-lock clamps for fast, secure hold.
- **6.** Exclusive clamp plate, one of the ingenious patented devices that makes this saw different and superior.
- 7. Feed-control table top, with firmly secured moulding locked in precise position, glides smoothly on oilite bearings.
- 8. Handles mouldings of all shapes, widths and lengths.
- 9. Patented overarm measuring scale for first cut.

# How to operate your



# DELUXE MITRE SAW

Simple and safe to operate, this fine saw is made especially for the professional picture framer and offers certain exclusive features designed to meet the particular needs of the custom frame shop craftsmen. Therefore, it is important that you acquaint yourself with these features and familiarize yourself with what they do and how they do it. It is these features that set the Frame Square Saw apart from ordinary saws, that make it different from — and better than — other saws on the market.

Please take the short time necessary to read the instructions inside this folder. Study the illustrations and captions thoughtfully, refer to the actual saw, try the features and practice a little with them. Make sure you understand how these special devices work before turning on the power and operating the saw.

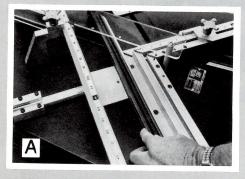
It may seem a bit complicated in the beginning but you will "catch on" quickly and, when you do, you'll find that your Frame Square De Luxe Saw will give you outstanding performance and pleasure.

## MITRE SAW

SIMPLE AND SAFE

### LEFT SIDE INSTRUCTIONS

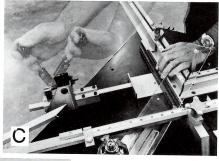
 Using feed handle (# 12), pull table top back to starting position with saw completely under guard.
 NOTE: do this after each cut!



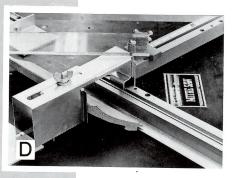
 Place molding with inside edge (rabbet) against left side rabbet stop (#1), allowing enough molding to extend beyond blade for full 45° cut, as shown in Photo A. (Photos A, B and C are common to both left and right sides.)



3. Pull clamp jaw (#2 or #9) against outside edge of molding (Photo B). Double exposure shows sliding action.



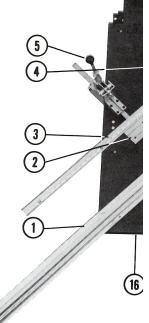
4. Pull locking handle (#5 or #8) as shown in Photo C. Again, double exposure illustrates movement.



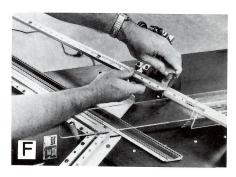
5. Use adjustable backup stop (Optional Photo D) for shell back molding that cannot be clamped securely. Insert as shown and slide free metal bracket against back outside edge of molding. Lock with wing nut. Press down firmly on molding while cutting.



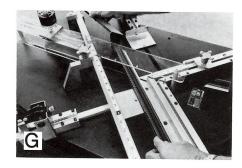
Using feed handle, slide table top forward for first cut (Photo E).



**OVERHEAD VIE** 



 Slide gauge, as shown in Photo F, to correct dimension setting on gauge bar (#3). Tighten locking knob (#4).



 Slide end stop (#7) and molding together so inside bracket corner matches outside corner of precut molding (Photo G). (This 26½° angle compensates for any width molding; allows minimum waste cut when part is switched to right side.)

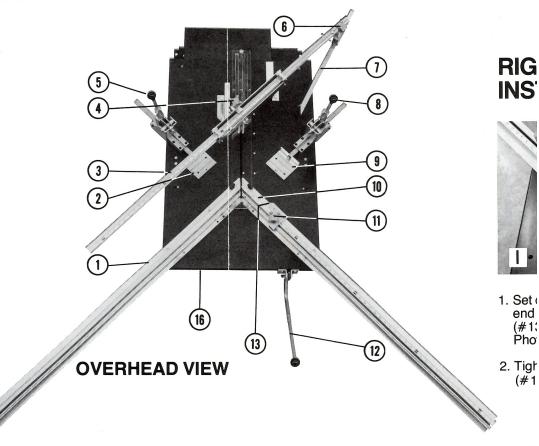
4. Pull locking handle (#5 or #8) as shown in Photo C. Again, double exposure illustrates movement.



5. Use adjustable backup stop (Optional Photo D) for shell back molding that cannot be clamped securely. Insert as shown and slide free metal bracket against back outside edge of molding. Lock with wing nut. Press down firmly on molding while cutting.

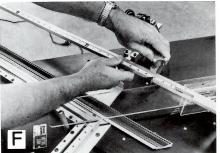


6. Using feed handle, slide table top forward for first cut (Photo E).





to correct dimension setting on gauge bar (#3). Tighten locking knob (#4).



7. Slide gauge, as shown in Photo F,



8. Slide end stop (#7) and molding together so inside bracket corner matches outside corner of precut molding (Photo G). (This 261/2° angle compensates for any width molding; allows minimum waste cut when part is switched to right side.)

#### Parts Identification and Location see Overhead View, above.

- 1. Left side rabbet stop
- Left side rabbet stop
   Left side clamp jaw
   Gauge bar (left side dimension setting)

- auge par (left side dimension sett
   Locking knob for gauge bar
   Left side locking handle
   Left side locking knob for end stop
   Left side end stop and slide bar
   Right side locking handle
   Right side clamping jaw

- 10. Right side rabbet stop
- 11. Right side locking knob for end stop12. Feed handle (for table top movement)

- 13. End stop (right side dimension setting)14. Shell back-up stops. Shown only in Photo D.15. Squaring block. Shown only in Photo L.
- Dust collector drawer beneath table, hidden from view in photo. (Not to be removed while saw is running.)



9. Lock knob (#6) and repeat cut (Photo H) for as many pieces as desired.



end (#1:

Pho

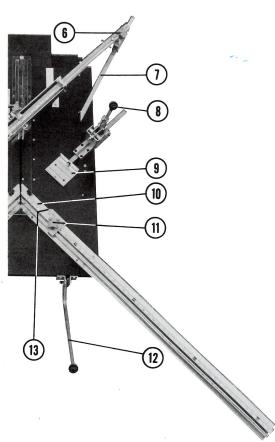
(#1

3. Plac rabl end

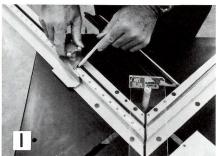




5. Pull (#8 Rep



#### RIGHT SIDE **INSTRUCTIONS:**



- 1. Set dimension with end stop and scale (#13) as shown in Photo I.
- 2. Tighten locking knob (#11).

#### SPECIAL **INSTRUCTIONS:**



For aluminum and narrow high back molding: after setting molding against rabbet stop, use squaring block (Photo L) while adjusting knurled buttonhead screw until it touches molding. (This prevents molding from tilting while clamping.)

#### **Sawing Aluminum**

Particular caution should be exercised in cutting aluminum. Improper use and negligence in following instructions could cause damage to the saw blade, stalling of the motor, and excessive burring. Proceed as follows:

a. Lubricate the blade by applying the wax stick to the rotating saw blade about every 8 cuts. Other lubricants may be used.

b. Securely clamp the moulding at all times. Poor clamping can cause the moulding to slip during cutting and jam the blade.

c. Never feed rapidly during the cutting. This could stall the motor and cause excessive heating. If the overload switch within the motor is activated, wait for the motor to cool then push the red reset button. If the problem persists, it may be necessary to have the motor checked at a winding shop for short out. d. Always allow considerable waste material (not under 1") for the cutoff end. If you allow much under this, the cutoff piece could jam into the table slot and break several teeth in the blade.

e. If you have excessive burring of the aluminum

after having lubricated your blade, the saw needs sharpening. This may be done locally but for the best results, send the blade to the manufacturer listed under maintenance.

#### How to avoid gapping

- a. After making first cut, check for vertical squareness with your squaring block. Also check for the 90° joint match.
- b. Lifting of moulding at the back or at clamping point can be caused by:

  1. applying too much pressure. Adjust pressure to suit. Also use the knurled screw backout to avoid rotation of moulding.
  - 2. trying to clamp against a surface which is tapered or curved. You may back off the pressure to almost zero and apply hand pressure downward; or you may use the shellback adjustable
- stop or apply hand pressure downward.
  c. Warped, twisted or curved moulding will be particularly difficult in matching corners. This will require checking 100% after each cut for squareness at the joint and the dimension on each rabbet.

#### Parts Identification and Location see Overhead View, above.

- 1. Left side rabbet stop
- Left side rabbet stop
   Left side clamp jaw
   Gauge bar (left side dimension setting)
   Locking knob for gauge bar
   Left side locking handle
   Left side locking knob for end stop
   Left side end stop and slide bar
   Right side locking handle
   Right side clamping jaw
   Right side rabbet stop
   Right side rabbet stop

- 11. Right side locking knob for end stop
  12. Feed handle (for table top movement)
- 13. End stop (right side dimension setting)14. Shell back-up stops. Shown only in Photo D.
- 15. Squaring block. Shown only in Photo L.
- 16. Dust collector drawer beneath table, hidden from view in photo. (Not to be removed while saw is running.)



9. Lock knob (#6) and repeat cut (Photo H) for as many pieces as desired.



- 3. Place molding against rabbet stop (#10) and end stop (Photo J).
- 4. Draw clamp jaw (# 9) against back of molding as before.



5. Pull locking handle (#8) as before. Repeat cut (Photo K).

#### DELUXE MITRE SAW MAINTENANCE

ine performance and long-lasting satisfaction are built into your Frame Square saw. Excellence of design and modern engineering have been combined with quality materials and careful manufacture to produce an efficient and dependable piece of precision equipment for the picture framer

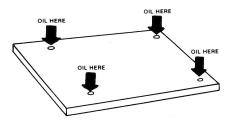
Realistically, however, just how long your saw continues to serve you well depends on factors beyond our control. The amount and nature of its use (or abuse) and how it is cared for, largely determines the length of trouble-free service you may expect. Actually, your Frame Square saw needs no special care or attention . . . nothing more than common sense usage and simple maintenance are required.

Take a few minutes now to read the following maintenance hints. By following these suggestions you will keep your saw in prime operating condition and insure its long life.



#### **LUBRICATE**

Lubricate frequently. Use light oil through the four holes in the table platform after retracting the table top completely toward operator. The top should always glide easily and smoothly; when it moves sluggishly or jerky, lubrication is overdue. Oiling at the end of each day is good practice.

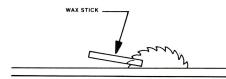


#### 2

#### **KEEP CLEAN**

keeping the saw blade clean is important. Occasionally, as necessary, clean the teeth and sides of blade by manually cutting into a wax stick. This removes resin and also prevents galling when cutting metal. Wax sticks especially made for this purpose may be purchased from your Frame Square distributor or your local mill/hardware supply house. Other lubricants such as sprays, kerosene or pursol may be used. The blade does not have to be removed for cleaning.

Remove sawdust daily from the drawer.





#### **RE-SHARPEN BLADE**

Though your Frame Square saw is equipped with the finest carbide-tipped steel circular saw blade, like all blades it will need to be resharpened periodically depending on how much you use it.

Heavy burring on metal or chipping on wood indicates that your blade needs immediate attention. Frame Square Blades may be reconditioned by any reputable grinding shop or Frame Square Industries.

grinding shop or Frame Square Industries.

To remove the blade: Remove sawdust drawer; loosen the two screws holding plastic guard in place and remove; loosen the flat head screws holding the saw plate adjacent to the blade and remove; scotch the blade with a piece of wood while you remove the nut holding the blade and turn the nut toward you. (If your machine is a "Rabbit Saw" it will also be necessary to remove the rabbet arm.)

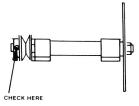


#### **EXCESSIVE NOISE**

Excessive noise is a warning signal. It can develop in four areas, which should be checked:

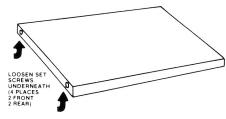
A. **Blade**. The saw blade is calibrated not to exceed 85 decibels, which is within OSHA regulations. Sometimes the harmonic pitch of a blade may change after use and unbalance in the blade. This can only be corrected at the factory.

B. **Unbalanced Belt**. All Frame Square belts originally supplied are special balanced belts. Do not purchase a replacement belt locally unless you can be assured that it has been balanced. The splice on some belts is uneven and will cause a thumping sound and vibration.



C. Loose Part. A rubbing sound or sharp noise can be caused by something loose. The drawer should never be moved while the blade is rotating. Check for a loose screw, particularly on the driving end of pulley. Motor belt guard should be removed to see if the key has slipped. If, after re-tightening the set screw, the noise re-occurs it may be a defective pulley that needs replacing.

D. Bearings. The bearings should last indefinitely; however, occasionally a bearing will "go bad" and cause a noise. This noise may be checked by removing the table top assembly and the saw blade. Remove (4) set screws at the end and beneath each rod and slide the (2) rods through the holes and away from the assembly. The table can then be lifted away and the mandrel assembly totally exposed. After switching the motor on, any noise can be detected as a rough grinding sound and possibly some vibration will occur. If removal is necessary, leave any shims under the mandrel in position. The shaft may be removed by pushing out from the pulley side and the bearing can be removed for replacement. Frame Square recommends return of the arbor assembly to the factory for reconditioning or exchange for a new or reconditioned assembly at modest cost.

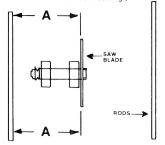


#### 6

#### **RE-SETTING MANDREL**

Re-setting of saw mandrel should be done with exacting precision. The saw blade must be parallel to the sliding rods and approximately centered in the table slot. A special gage may be purchased from Frame Square at nominal cost; however, the mandrel assembly can be properly re-mounted without a gage if extreme care is taken. Frame Square offers quick service in this area when needed.

(Distance "A" at back and front should be parallel within .003" for smooth cutting.)





#### **ADJUSTING SCALES**

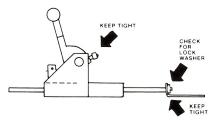
The scales on both sides may be moved in either direction for adjusting accuracy.



#### 7

#### **ADJUSTING CLAMPS**

The quick-acting clamps should be adjusted for light clamping at all times. Heavy clamping will cause breakage on either connecting links. Heavy clamping will also cause excessive gouging or marking on the long rectangular bar with the clamp plate. The newer machines have the spring back slot and hole cut out in the clamp plate; however, regardless, keep nuts and screws tightened at all times. Use heavyweight motor oil or grease on the circular cam surface to prevent galling. Use regular weight oil on all pins and shafts that rotate in holes. Watch for excessive wear if above procedure is not followed. Parts may be removed and rough spots polished.



#### 8

#### **MOTOR**

The ½ HP ball-bearing motor has wattage rating for over "1" horsepower cut and should be ample for sawing any moulding when "not forced." A smooth cut is essential for good gluing. Fast cutting will stall even larger motors, particularly using a planer blade as supplied with the equipment. If you should stall the motor or allow it to become overheated it may not start after switching "0N." In this event remove the motor cover and push the red "RE-SET" button. If this does not start the motor wait for approximately one hour to allow sufficient time for motor to cool off. If this procedure fails, remove the motor and have a local winding shop check for a short.

#### 9

#### **MOUNTING**

The entire unit should be placed on level mounting to prevent binding of the slide rods.



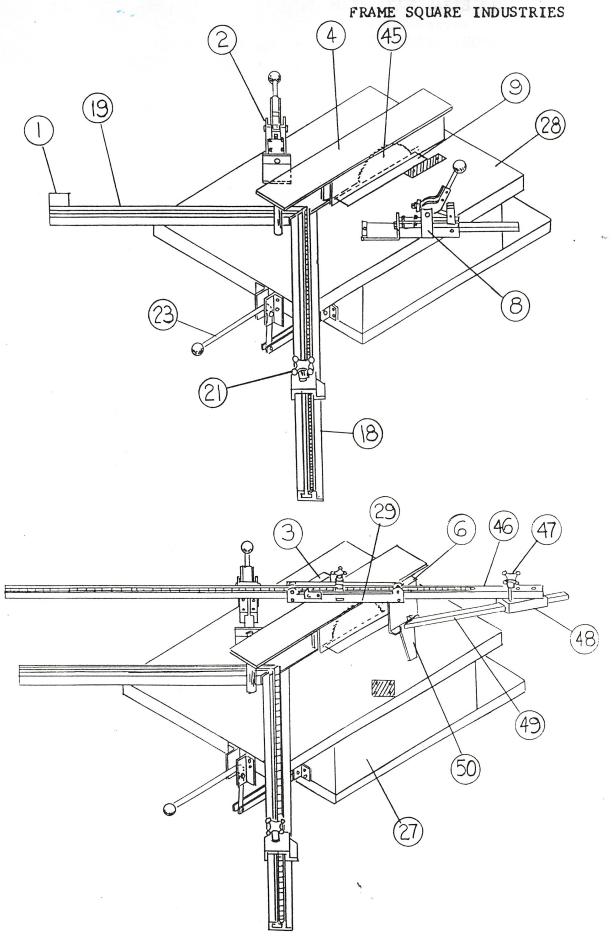
#### **INDUSTRIES**

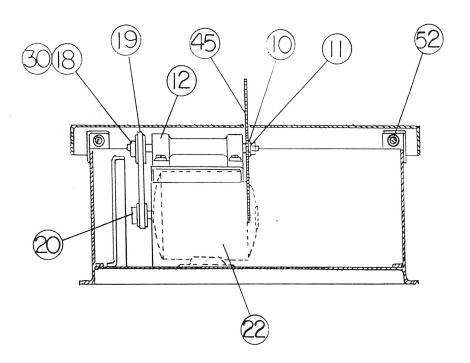
P.O. BOX 2065 314-A DEPOT STREET MONROE, N.C. 28112 PHONE (704) 289-8760 FAX (704) 289-9206

#### FRAME SQUARE INDUSTRIES

ITEM NO.	PART NO.	DESCRIPTION
Par	rts List for Page 2:	
1	BM-4000-009	MATERIAL SUPPORT BRACKET
2	00-1000-049	CLAMP ASSEMBLY
3	00-1000-057	BRACKET
4	00-1000-039	BLADE GUARD
6	00-1000-058	BRACKET
8	00-1000-049	CLAMP ASSEMBLY
9	00-1000-004	SAW PLATE
18	00-1000-046	GUIDE ARM
19	00-1000-045	GUIDE ARM
21	00-1000-147	LOCATION STOP
23	00-1000-076	LEVER
27	00-1000-111	CHASSIS
28	00-1000-014	TABLE ASSEMBLY
29	00-1000-053	LOCATION STOP ASSEMBLY
45		SAW BLADE
46	00-1000-103	SLIDING GAGE BAR
47	00-1000-095	KNOB ASSEMBLY
48	00-1000-105	BLOCK
49	00-1000-402	BAR
50	00-1000-107	LOCATION STOP
Par	ts List for Page 3:	
10	00-1000-069	WASHER
11	00-1000-068	HEX NUT
12	00-1000-067	ARBOR ASSEMBLY
18	#37331 Gates	DIE CASTISHEAVE
19	A33 Gates	BELT CASE SHEAVE
20	AZ37 Browning	DIE CAST SHEAVE
22	#5K597 Grainger	MOTOR
30	00-1000-112	KEY
45		SAW BLADE
52	5/8 x 36 Thompson	TABLE SUPPORT ROD
	J/O X JO Ittompson	TABLE SUPPORT RUD
NOT	SHOWN	
	00-1000-080 #140 (Johnson)	GAGE (SQUARING) BLOCK WAX STICK

MITRE SAW PARTS LIST 1000 Series



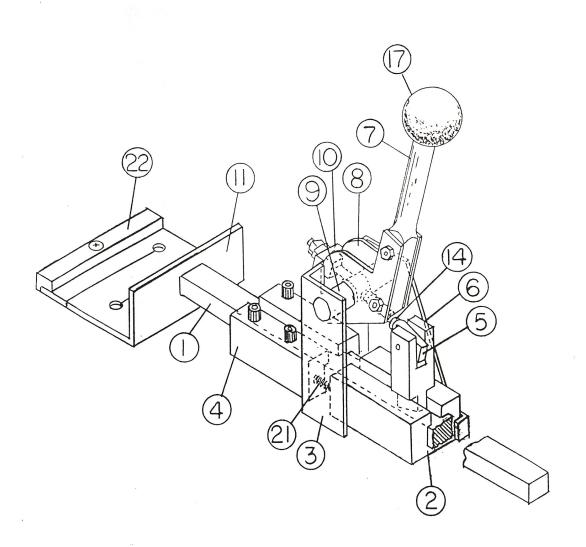


#### Page 4 MITRE SAW 1000 Series Parts List

#### FRAME SQUARE INDUSTRIES

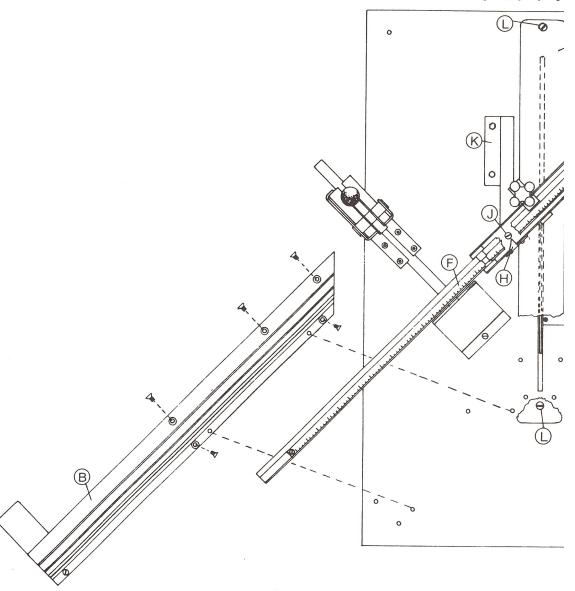
Parts List for Page 5 CLAMP ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION
1	00-1000-048	SLIDE BAR
2	00-0111-000	SPRING BLOCK
3	00-1000-023	CLAMP BRACKET
4	00-1000-026	MOUNTING BLOCK
5	00-1000-019	EYEBOLT
6	00-0110-004	CLAMP STOP
7	00-1000-021	HANDLE
8	00-1000-022	CAM
9	00-1000-020	SHAFT
10	00-1000-017	CAM FOLLOWER
11	00-1000-025	CLAMP PLATE
14	#9-0806-11	SPRING
17	#31305	KNOB
21	#9-0606-11	SPRING
22	00-1000-078	CLAMP ADAPTER



CLAMP ASS'Y.

### ASS INSTR MITE

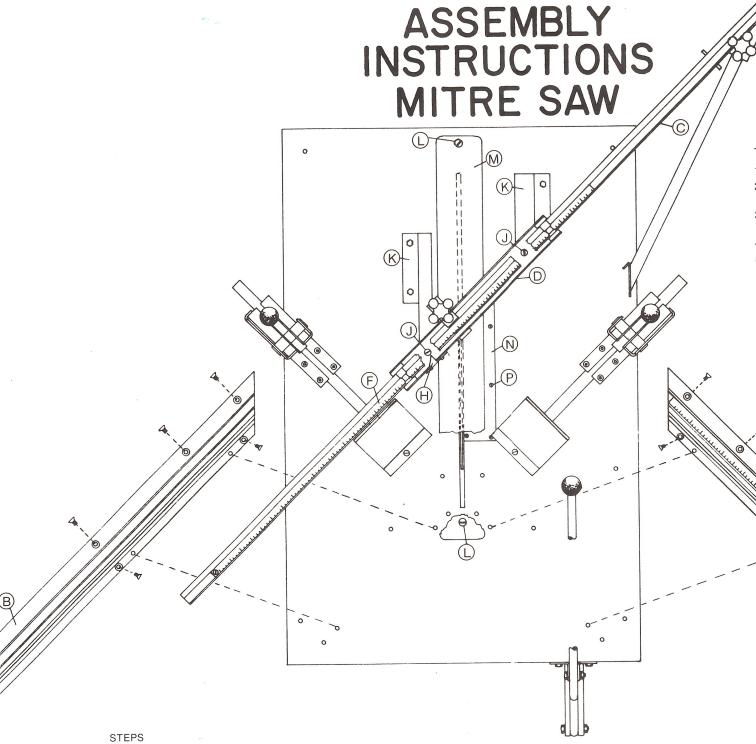


#### STEPS

1. MOUNT SIDE GAGE BARS (A) & (B) TO TABLE TOP BY LOCATING TO SECURE GAGE BARS TO TABLE WITH 1/4 - 20 X 3/8 FLAT HEAD UND 3. INSERT SLIDING GAGE (C) INTO ROLLER BRACKET (D) AS SHOWN . NOTE: SCALES (F) & (G) AND POINTER (H) ARE PRESET AT THE FACTOR. A. ADJUST THE SLIDING GAGE (C) LOOSEN SCREWS IN POINTER B. ADJUST SCALE (G) ON THE RIGHT GAGE BAR, LOOSEN SCREW

SHOULD IT BECOME NECESSARY TO ADJUST CLAMP TENS
TIGHTEN JAM NUTS UNTIL CLAMP OPERATES PROPERLY.

UNDERCUT 1/4 - 20 FLAT HEAD MACHINE SCREW

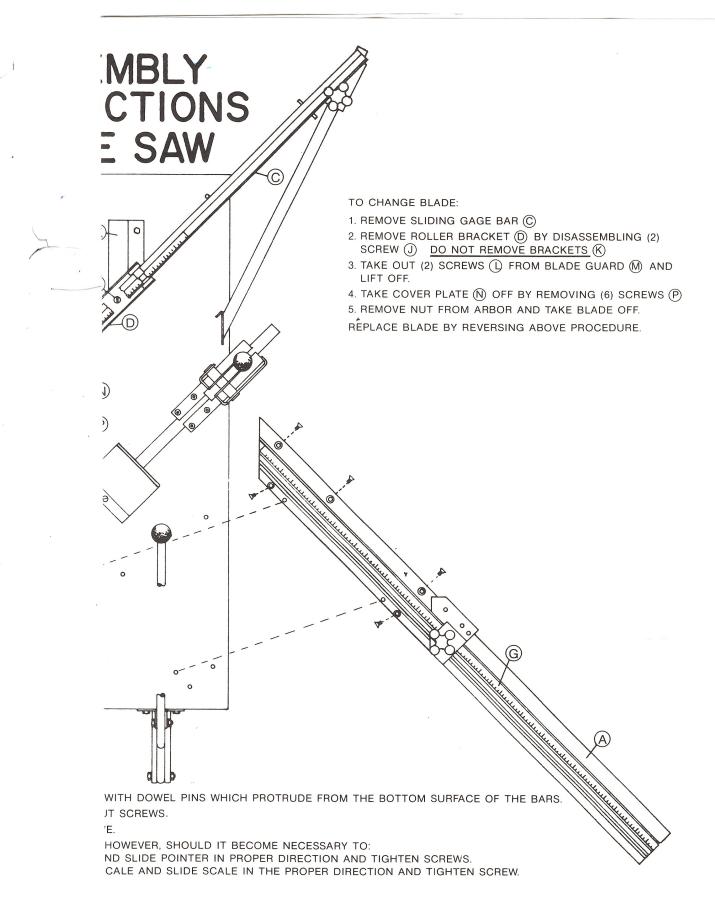


- 1. MOUNT SIDE GAGE BARS (A) & (B) TO TABLE TOP BY LOCATING THEM WITH DOWEL PINS WHICH PROTRUDE FROM
- 2. SECURE GAGE BARS TO TABLE WITH 1/4 20 X 3/8 FLAT HEAD UNDERCUT SCREWS.
- 3. INSERT SLIDING GAGE (C) INTO ROLLER BRACKET (D) AS SHOWN ABOVE.

NOTE: SCALES (F) & (G) AND POINTER (H) ARE PRESET AT THE FACTORY. HOWEVER, SHOULD IT BECOME NECESSAR A. ADJUST THE SLIDING GAGE © LOOSEN SCREWS IN POINTER (H) AND SLIDE POINTER IN PROPER DIRECTION B. ADJUST SCALE (G) ON THE RIGHT GAGE BAR, LOOSEN SCREW IN SCALE AND SLIDE SCALE IN THE PROPER D

SHOULD IT BECOME NECESSARY TO ADJUST CLAMP TENSION, TIGHTEN JAM NUTS UNTIL CLAMP OPERATES PROPERLY. UNDERCUT 1/4 - 20

FLAT HEAD MACHINE SCREW



#### FRAME SQUARE INDUSTRIES

#### MITRE SAW

#### SUPPLEMENT TO ASSEMBLY INSTRUCTIONS

The material support bracket may be shipped unassembled. It is a small plate about 6 inches long by 2 inches wide by inch thick. It should be mounted at the end of guide arm (B) as shown in the drawing on the assembly instructions.



#### FRAME SQUARE INDUSTRIES

P. O. Box 2065 Monroe, North Carolina 28110

(704) 289-8760

314-A Depot St. Monroe, North Carolina 28112

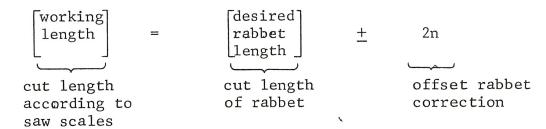
September 19, 1978

A CORRECTION FOR THE CUT LENGTH OF A MOULDING WITH AN OFFSET RABBET

#### Supplemental Bulletin

The Frame Square Mitre Saws have scales which are designed to give the desired length of cut along the rabbet of a piece of frame moulding. The design assumes that the rabbet of the moulding rests firmly against the rabbet stop surface of the guide arm. If the rabbet is offset from the rabbet stop, then a correction must be used so that one ends up with the desired length of cut along the rabbet. This correction is used most frequently with some extruded aluminum mouldings and with some double rabbet mouldings. Figure 1 shows representative cross sections of the types of moulding which are discussed. The rabbet surface of the moulding (normally the surface that the edge of the picture or the glass rests against) is shown. Also, the surface which will rest against the saw rabbet stop is identified. Where there is a difference between the two, it is identified as the distance "n".

The offset rabbet correction is "2n" (twice the measured length of "n"). This correction is either added to or subtracted from the "desired rabbet length" to get a "working length". The moulding is cut to the "working length" using the scales in the normal manner, and the rabbet will have the "desired rabbet length". The correction is either added or subtracted, depending on whether the rabbet is offset to the inside or to the outside of the rabbet stop surface. If the rabbet is offset to the inside (as in double rabbet moulding) then the correction is added. If the rabbet is offset to the outside (as in aluminum extrusion moulding) then the correction is subtracted. In algebra form, the formula will be

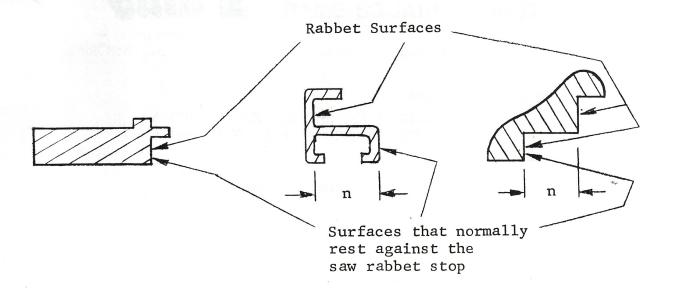


This paragraph is a brief description of the development of the correction. Figure 2 will be used. Figure 2 shows an aluminum extrusion moulding cut to "working length", "L". The cut length, "L", is the length of the moulding along the surface that rests on the rabbet stop. With the aluminum moulding, the rabbet is offset by a distance "n", "outside of the rabbet stop surface. Because the end of the moulding is cut at 45 degrees, and because both sides of a 45 degree triangle are equal, it can be seen in Figure 2 that the length of the offset rabbet surface is increased by the distance "n" on both ends of the moulding. Thus the rabbet length is equal to the working length, "L", plus "2n". Or, as seen before

for the aluminum moulding.

Using the Offset Rabbet Correction Factor With the Double Rabbet Extension

The double rabbet extension sold by Frame Square for use with their saws is a simple device which extends the rabbet stop surface so that double rabbet moulding can be cut. A location stop extension, which comes with the rabbet stop extension, is used so that a correct length of cut is obtained with the rabbet extension. Thus, if the desired rabbet is resting against the extended rabbet stop surface, no length correction is necessary. If it is not, then a correction is made by the rule previously presented. Note that the correction factor distance, "n", must be measured from the offset rabbet stop surface.



Square Back Moulding Aluminum Extrusion Moulding

Double Rabbet Moulding

Figure 1. Cross Sections of Different Mouldings

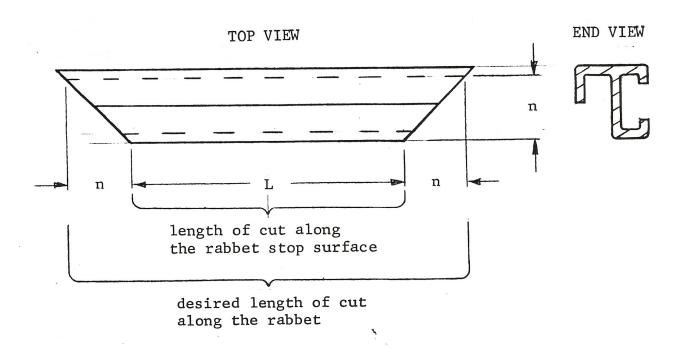
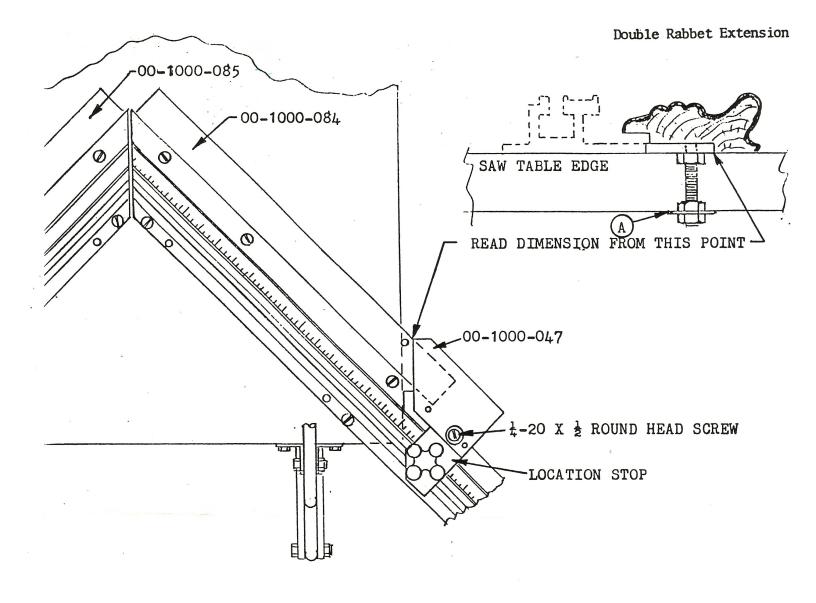


Figure 2. Cut Length of Aluminum Extrusion Moulding

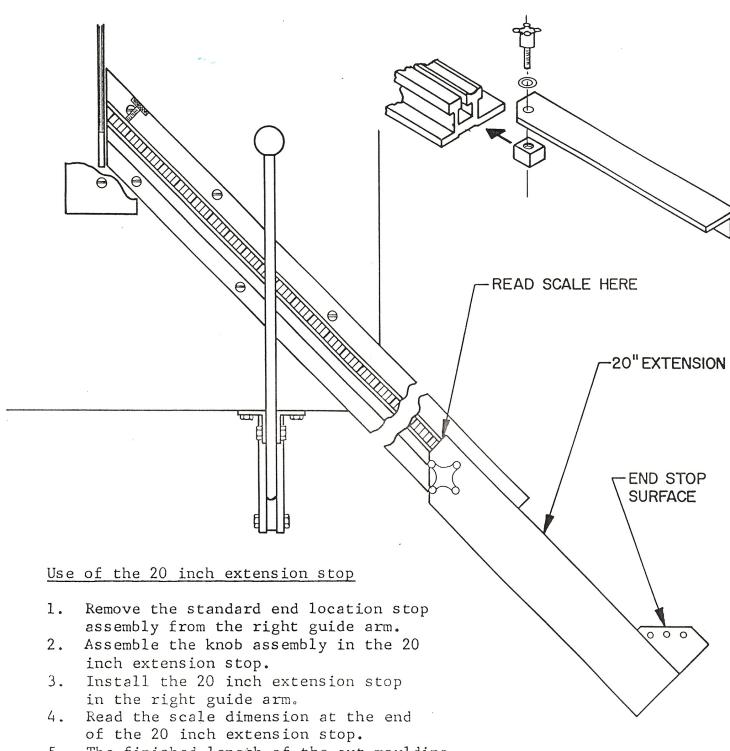


WHEN SAWING FRAMES WITH RABBET DEPTH OF MORE THAN ONE INCH, USE SPACER BARS 00-1000-084 and 00-1000-085 and STOP EXTENSION 00-1000-047.

SNAP BARS INTO POSITION OVER SAW TABLE EDGE AS SHOWN AT A .

ASSEMBLE STOP EXTENSION 00-1000-047 BY INSERTING DOWEL PINS INTO MATCHING HOLES IN LOCATION STOP, THEN SECURE WITH \(\frac{1}{4}-20\) SCREW AND WASHER.

OPERATE SAW IN SAME MANNER AS WITHOUT SPACER BARS AND EXTENSION STOP.



5. The finished length of the cut moulding will be 20 inches plus the scale dimension.

> FLOOR MODEL MITRE SAW FRAME SQUARE INDUSTRIES MONROE, N.C.

#### SAFETY INSTRUCTIONS - MITRE SAW AND RABBIT SAW

- 1. KEEP WORK AREA CLEAN Cluttered areas and benches invite accidents.
- 2. MAINTAIN THE MACHINE WITH CARE
  Keep the machine clean for best and safest performance.
  Lubricate the machine as described in the maintenance instructions.
- 3. SECURE WORK Clamp the work securely before cutting.
- 4. DON'T FORCE THE MACHINE
  Cutting feed should be moderate, not forced. Cutting too
  fast may cause tooth breakage.
- 5. <u>DON'T OVER-REACH</u> Keep proper footing and balance at all times.
- 6. WEAR PROPER APPAREL
  Loose jewelry or clothing may get caught in moving parts.
- 7. <u>USE SAFETY GLASSES</u>
  Safety glasses are recommended.
- 8. WATCH FINGERS AND HANDS
  Fingers and hands should always be clear of the cutting area under the blade guard. Also fingers should be kept clear of the inside bottom edge of the table top.
- 9. RETRACT TABLE TOP Keep the table top in the retracted position, towards the operator, except when cutting.
- 10. STOP THE MACHINE
  The machine should be stopped while removing and replacing the sawdust drawer.
- 11.  $\frac{\text{DISCONNECT THE MACHINE}}{\text{When not in use, before servicing, and when changing blades.}}$
- 12. DON'T ABUSE CORD

  Don't yank on the cord to disconnect it. Keep the cord away from heat, oil, and sharp edges.
- 13. MAINTAIN BLADE GUARD

  The blade guard should never be removed except for changing the blade. If the guard is damaged replace it immediately.
- 14. GROUNDED RECEPTICAL

  Be sure the saw is connected to a grounded receptical.

- 15. MOVING THE SAW

  Before moving the saw, secure the table in the extended position, away from the operator. Lock the handle in place with the safety locking bracket.
- 16. AVOID DANGEROUS ENVIRONMENT

  Don't use the saw in a damp or wet location.
- 17. KEEP CHILDREN AWAY
  All visitors and children should be kept a safe distance from the work area.

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