

24

Ser. 8416
Type N518

"THE DIE-MAKER'S



BEST FRIEND"

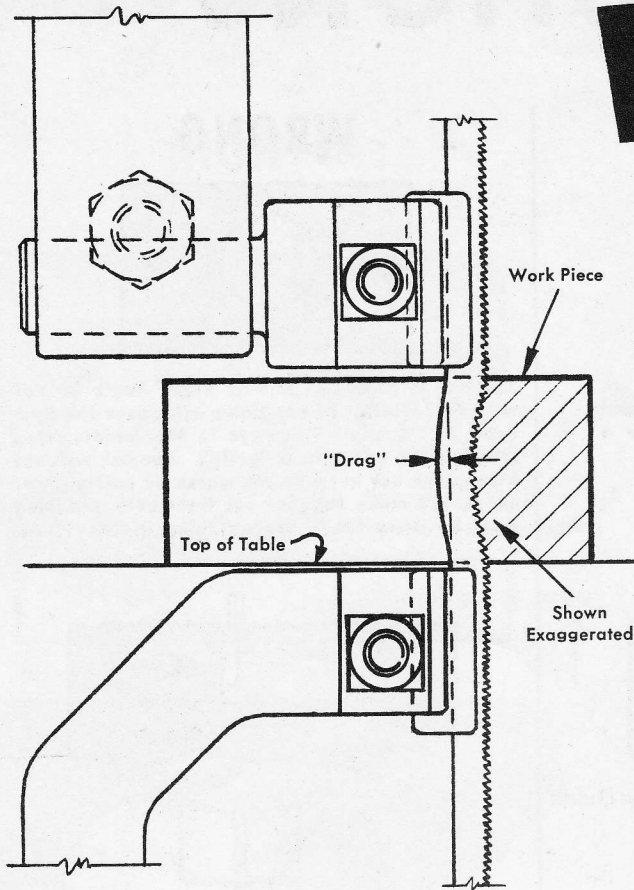
INSTRUCTION BOOK

FOR

**Grob Sawing, Filing
AND Lapping Machines**



SAWING CURVES



IMPORTANT GENERAL RULE

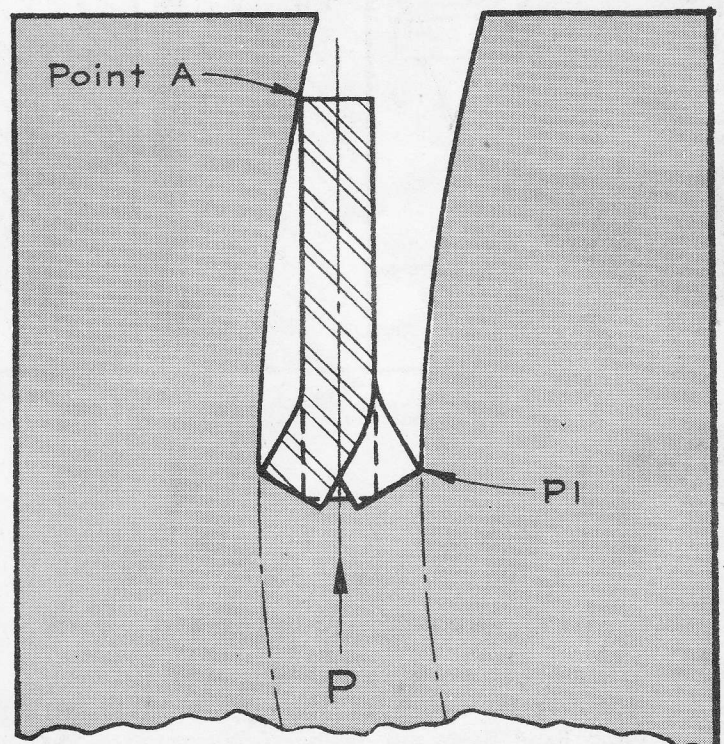
On curve cutting less pressure must be applied than on straight cutting, and the smaller the curve the more care must be exercised. It must be realized that on all flexible band cutting the middle part of the band deflects in accordance with the cutting pressure. This "dragging" of the middle portion will not affect a straight cut, but in curve cutting will cause a so called "belly" in the cut. Reduced pressure greatly reduces "drag", thereby reducing "belly" to a minimum.

LIMIT OF CURVES

The limit of the curve to be sawed depends on the width of the band and the set of the teeth. The sketch shows how to determine the sharpest possible curve for each individual saw band.

As soon as the edge of the saw blade touches the side of the slot indicated by Point A, the limit has been reached. Any further turning of the block will twist the saw blade without actually cutting a sharper curve.

When cutting curves at an angle, a cone like body is developed. It is very important that above mentioned rule is applied to the smaller curve on said cone.



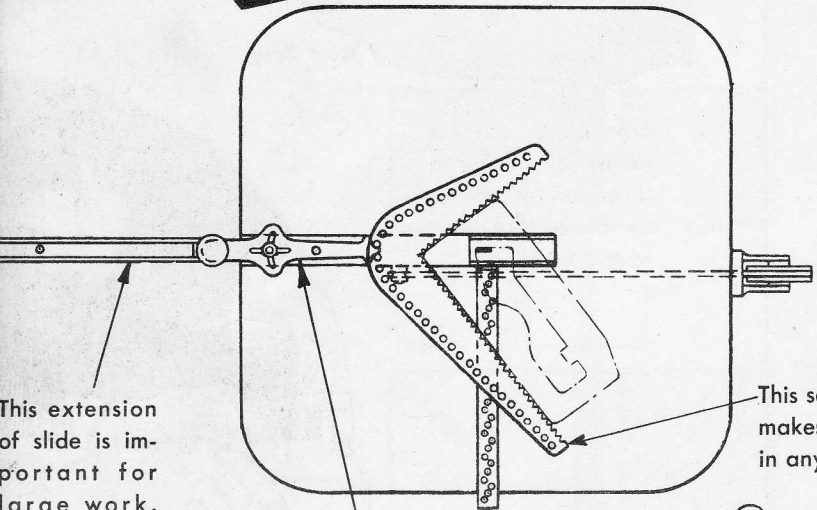
To help cutting curves apply slight side pressure from inside of curve as indicated by arrow P1 thus giving the saw blade the tendency to provide additional clearance at point A.

AUTOMATIC TABLE FEED WITH HYDRAULIC CONTROL

THE FAMOUS GROB HYDRAULIC CONTROL

Increases the life of Saw Blades

The hydraulic check feed used on Grob machines was developed and perfected in 1935. The engineering principle of this feed prevents saw blade breakage and provides simple, easier operation. Gives controlled, even sawing pressure with complete elimination of jump and jerk. A distinct feature in cutting thin walled pipes or similar items. When saw blade completes cut into an opening, saw does not jump forward into work. Work can also be quickly pulled back for changed direction of cut with forward feed always steady and jerkless. See drawings for mechanical details.

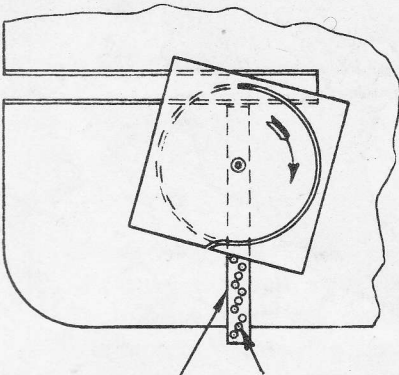


This extension of slide is important for large work. Slide extension can be cut off to any desired length when used for small work only.

Toggle lever arranged so that curves can be cut without releasing feed. (Patent applied for)

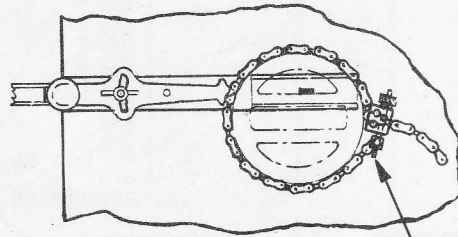
This square work holder makes it easy to feed in any direction.

CIRCULAR CUTTING ATTACHMENT IN USE

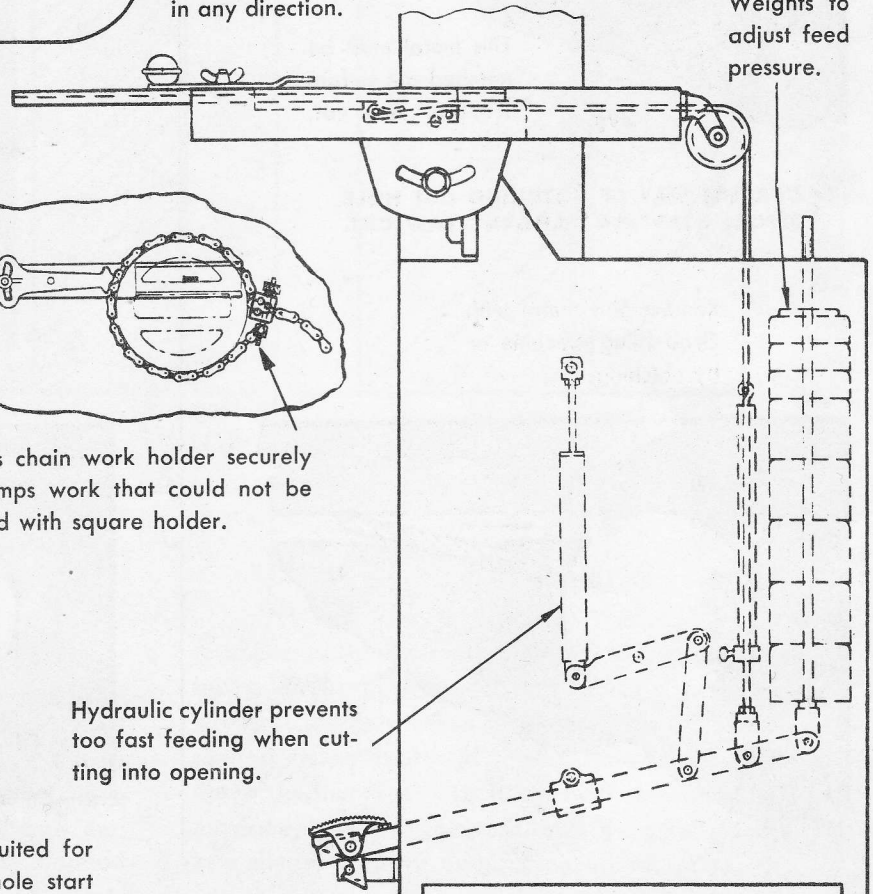


Circular cutting slide adjustable for different diameters.

Use hole in slide best suited for job. To locate proper hole start sawing by hand to establish lead.



This chain work holder securely clamps work that could not be held with square holder.

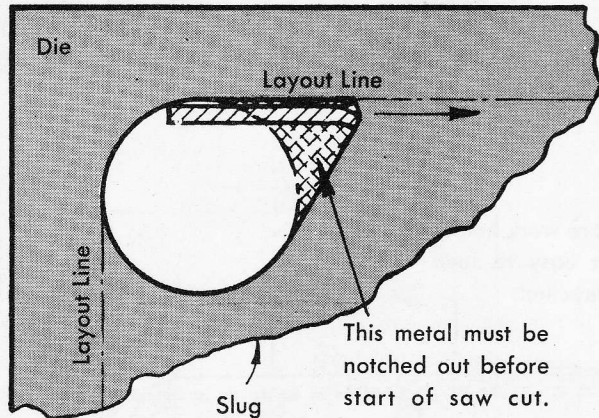
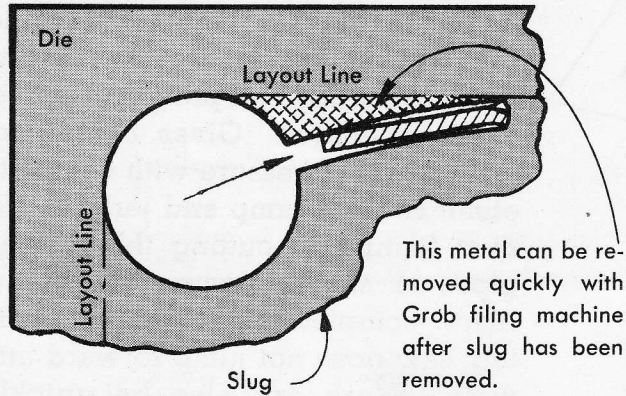


Weights to adjust feed pressure.

Hydraulic cylinder prevents too fast feeding when cutting into opening.

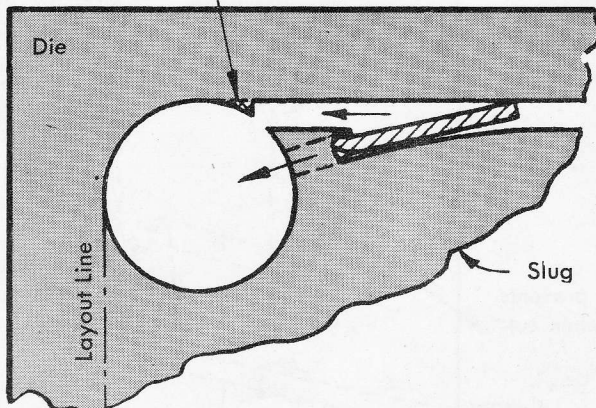
NOTCHING AND SAWING

RIGHT

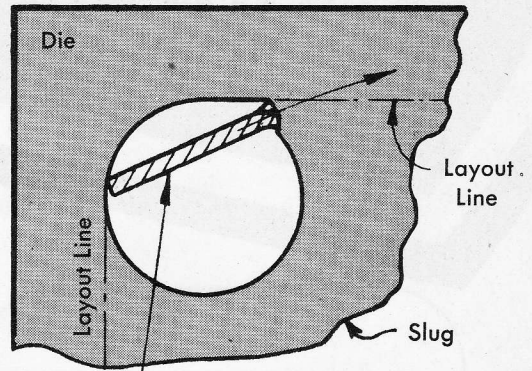


CORRECT WAY OF NOTCHING OUT HOLE BEFORE STARTING TANGENT SAW CUT.

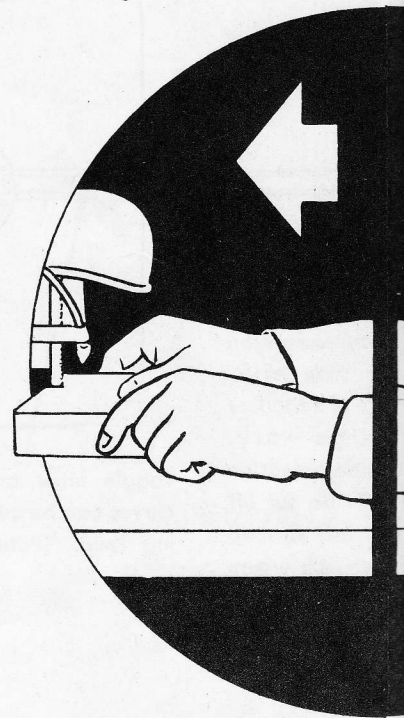
Remove this metal with Grob filing machine or by notching.



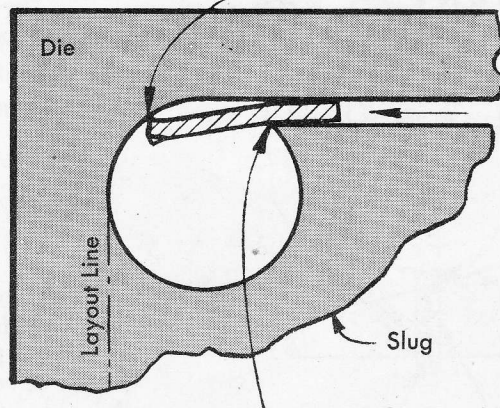
WRONG



Saw blade will cut across layout line in direction of arrow, besides being twisted when forced.



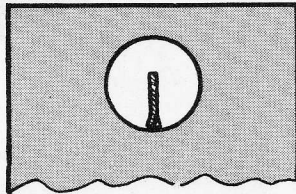
Saw blade will ruin finish of hole.



Saw blade will twist here

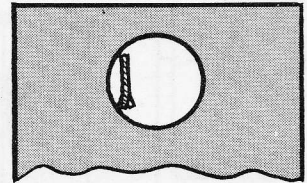
AWING INSTRUCTIONS

RIGHT

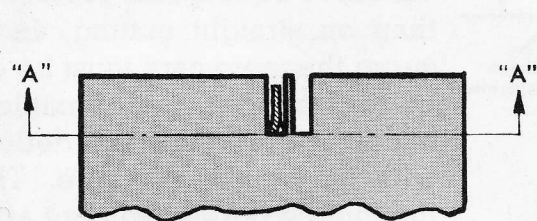
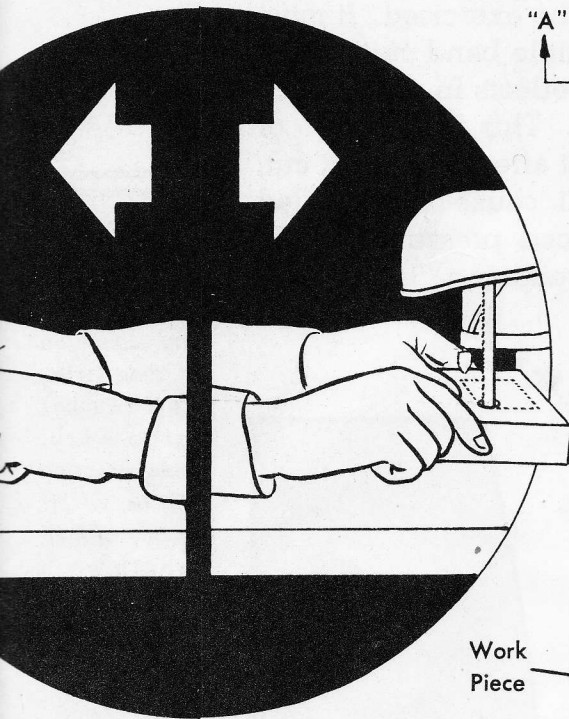


Starting a Saw Cut at Right Angle and with Full Width of Blade Will Produce a Straight Cut.

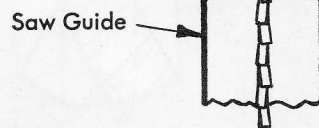
WRONG



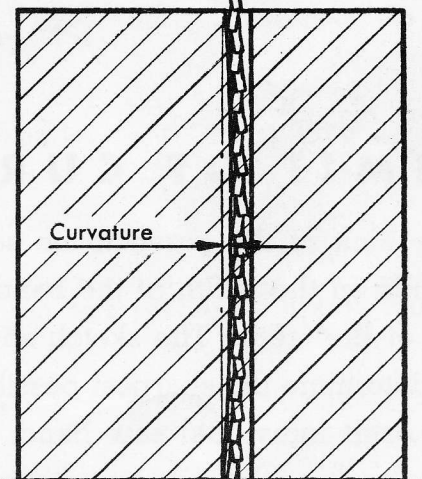
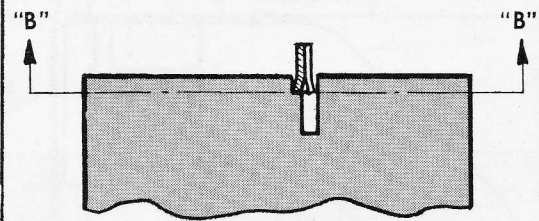
Starting a Saw Cut not at Right Angle or not with Full Width of Saw Blade will cause the Saw Band to "Creep" Sideways in the middle, thus starting the cut with a "belly". The cut will not Straighten out but will get worse as cutting proceeds. To make tangent cut from hole, notching must be done first. See notching instructions.



Work Piece



SECTION "A-A"



SECTION "B-B"

SYNCHRONOUS VIBRATION

When heavy work pressure is applied any band saw may develop synchronous vibration. All Grob Band Saws are designed so synchronous vibration or "chattering" is easily eliminated. Saw guides should be properly adjusted above and below work so work pressure is equally divided

to upper and lower guide. Should vibration occur, move either upper or lower guide away from work. In extreme cases move both guides. When sawing heavy material it may be necessary to move guides 1/2 to 1 inch. In most cases a small movement of the guides allows a "give" in the saw blade, thereby eliminating all vibration.

LUBRICATING INSTRUCTIONS

FOR GROB FILING MACHINES FB 18, FA-18 AND FA-30

Bearings: All ball bearings are factory packed for life with No. 33 Alemite.

Movable Links and Shafts: Oil with SAE 20 oil semi-monthly.

File Chain: Apply SAE 20 oil sparingly with a brush to sides of chain twice weekly. Do not oil front of files.

Motor: Lubricate according to manufacturers recommendations.

FOR GROB BAND SAWS NS-18, NS-24 AND NS-36

Bearings: All ball bearings are factory packed for life with No. 33 Alemite.

Dash Pot of Table Feed: Keep filled with SAE 40 oil.

Movable Links and Shafts: Oil with a few drops of SAE 20 oil semi-monthly.

Saw Blade Lubricator: Soak felt pad in SAE 20 oil semi weekly.

Motor: Lubricate according to manufacturers recommendations.

G R O B B R O T H E R S

GRAFTON, WISCONSIN

G R O B I N C
Grafton, Wisconsin

LUBRICATING INSTRUCTIONS

FOR GROB FILING MACHINES FB-18, FA-18, FA-30,
FAB-18, FAB-30

Bearings: All ball bearings are factory packed for life with No. 33 Alemite.

Movable Links and Shafts: Oil with SAE 20 oil semi-monthly.

File Chain: Apply SAE 20 oil sparingly with a brush to sides of chain twice weekly. Do not oil front of files.

Motor: Lubricate according to manufacturer's recommendations.

FOR GROB BAND SAWS NS-18-10, NS-24-10, and NS-36-10

Bearings: All ball bearings are factory packed for life with No. 33 Alemite.

Dash Pot of Table Feed:

If Grob dashpot, keep filled with SAE 40 oil.

If Delco Rhemy dashpot, no lubrication necessary.

Movable Links and Shafts: Oil with a few drops of SAE 20 oil semi-monthly.

Saw Blade Lubricator: Soak felt pad in SAE 20 oil semi-weekly.

Motor: Lubricate according to manufacturer's recommendations.

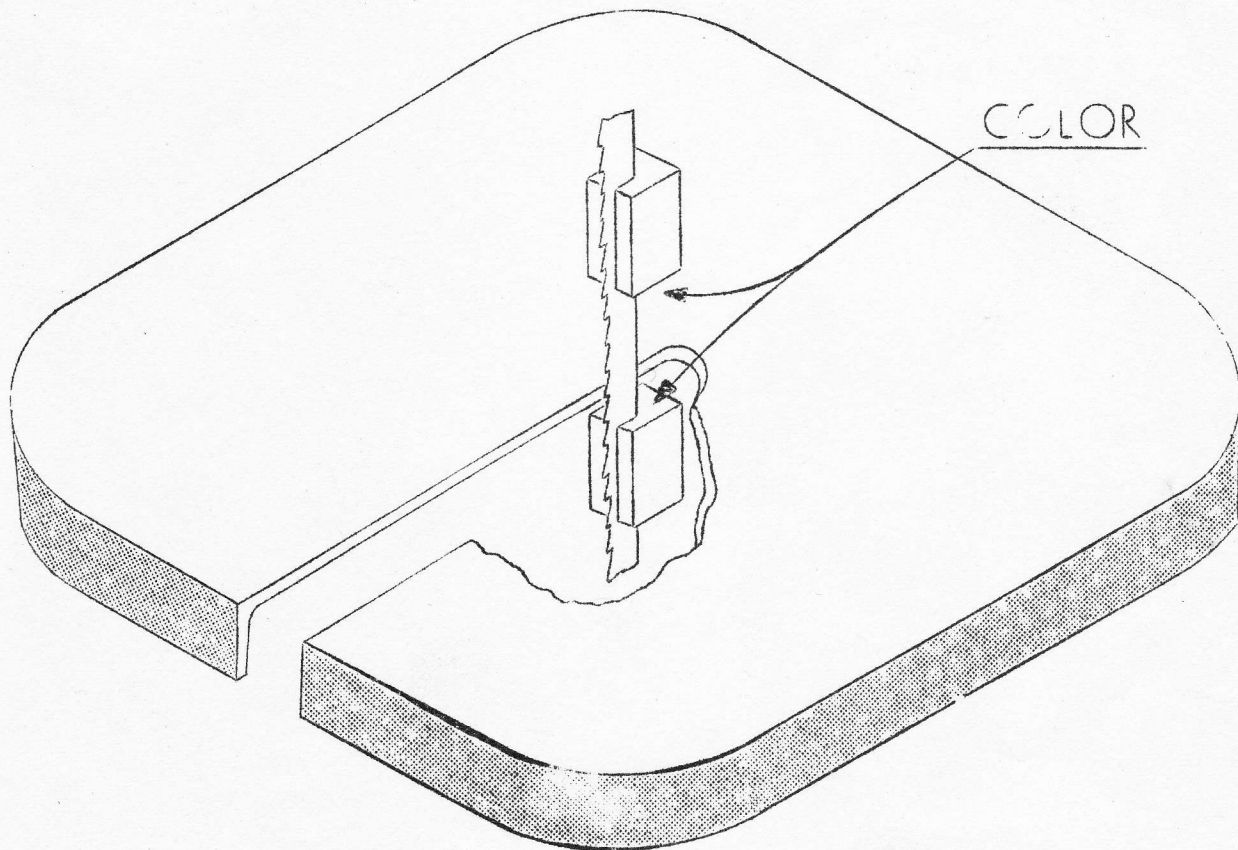
GROB INC

IMPORTANT NOTICE

IDENTIFICATION OF GROB SELF SEATING SAW GUIDES

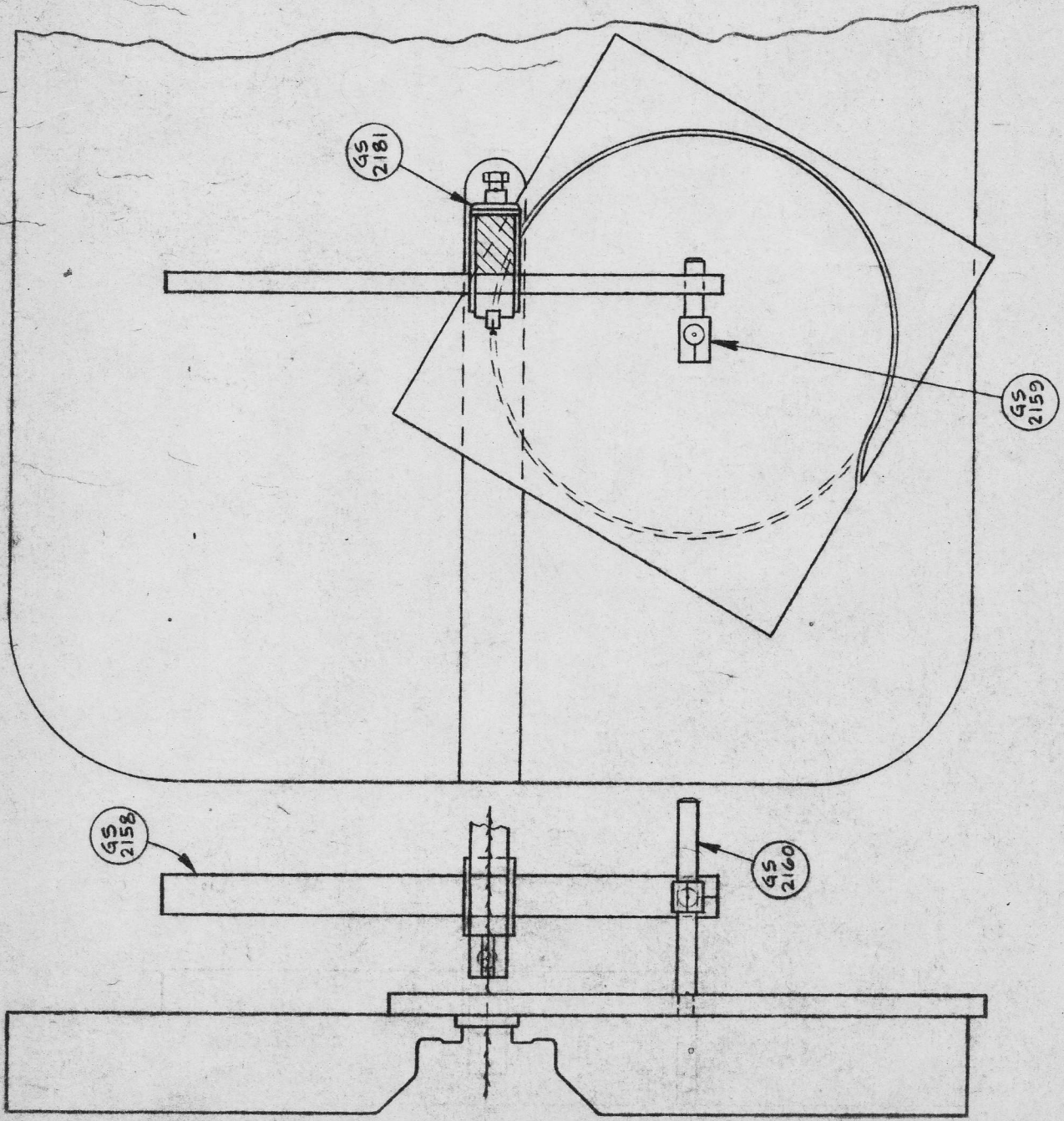
Yellow - - - - -	1/8"	White - - - - -	3/8" - 1/2"
Red- - - - -	3/16"	Black - - - - -	5/8"
Green - - - - -	1/4"	Brown - - - - -	3/4"
Blue - - - - -	5/16"	Orange - - - - -	7/8" - 1"

After saw guides have been seated, they will wear very little. It is important that a "seated" guide is clamped in its previously "seated" position. FOR BETTER SERVICE AND LONGER LIFE OF SAW BLADES, ALWAYS CLAMP GUIDE IN SAME RELATIVE POSITION TO WORK.



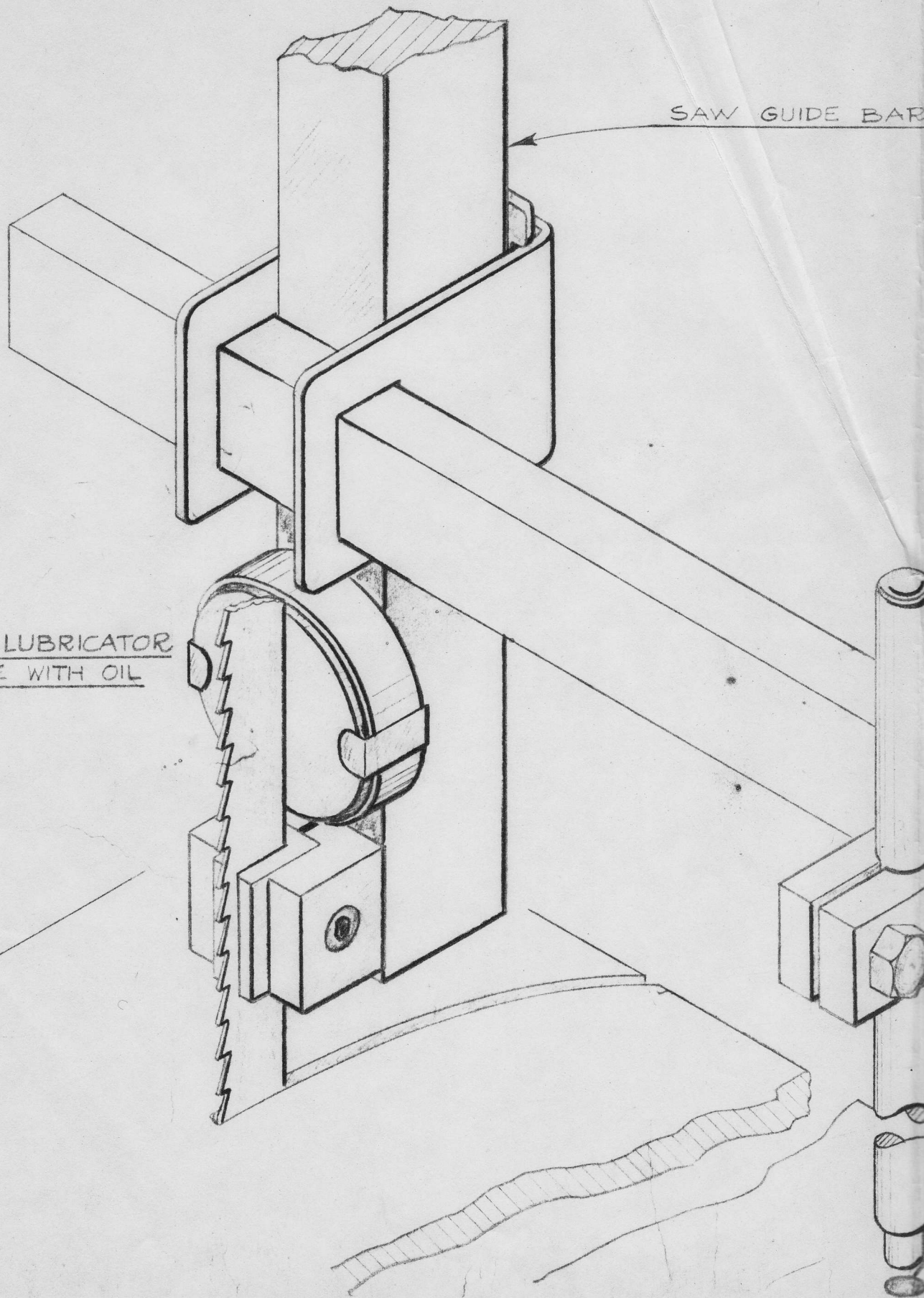
OPERATING INSTRUCTIONS FOR
GROB CIRCULAR CUTTING ATTACHMENT

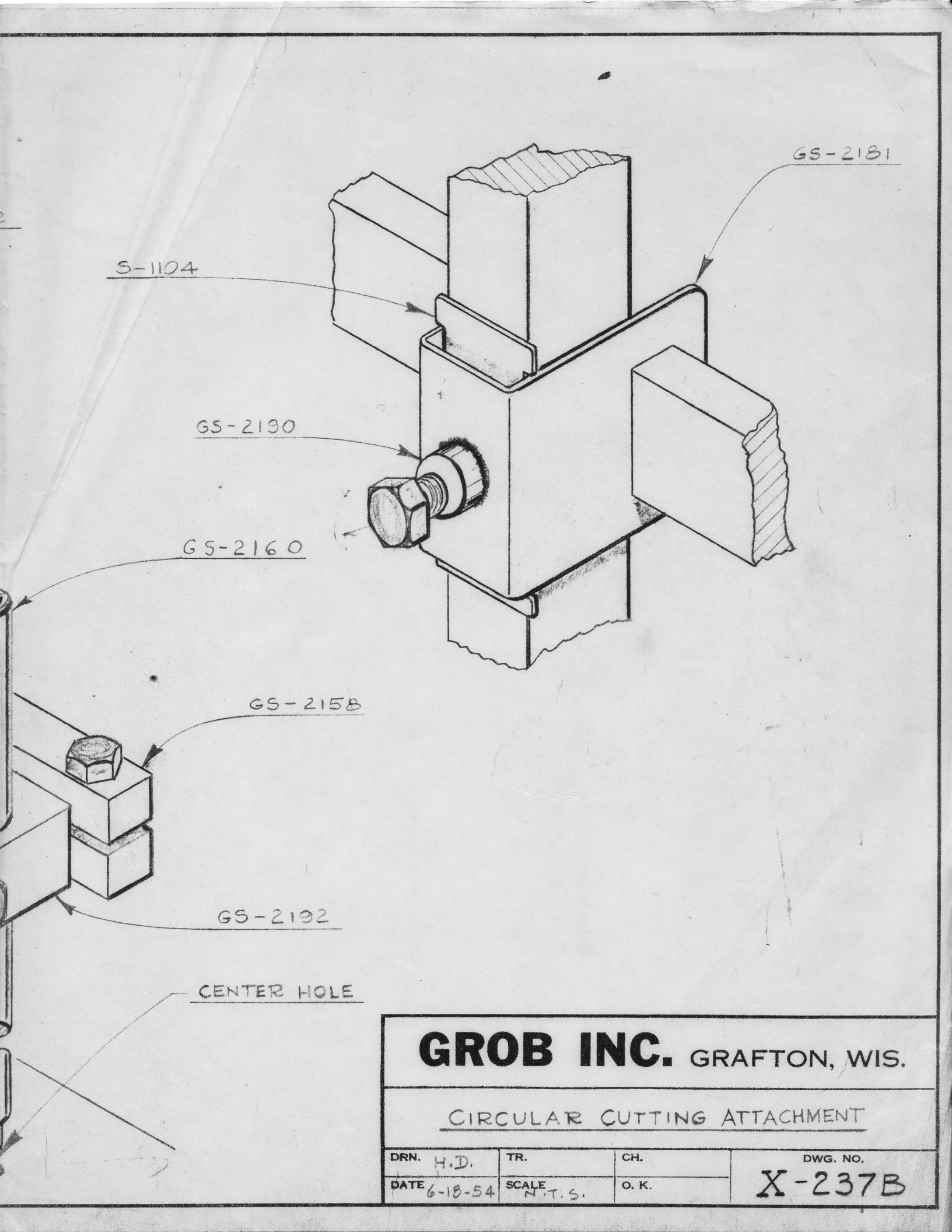
- 1 SCRIBE CIRCLE ON WORK PIECE
- 2 DRILL $\frac{3}{8}$ " HOLE IN CENTER OF CIRCLE
- 3 START SAWING BY HAND TO ESTABLISH LEAD AND GET PROPER LOCATION OF HOLE
- 4 ADJUST CIRCULAR CUTTING ATTACHMENT SO THAT PIN GS-2160 DROPS IN $\frac{3}{8}$ " HOLE
- 5 TIGHTEN CLAMP SCREWS AND COMPLETE SAWING OPERATION



SAW GUIDE BAR

SAW BLADE LUBRICATOR
SATURATE WITH OIL





S-1104

GS-2181

GS-2190

GS-2160

GS-2158

GS-2192

CENTER HOLE

GROB INC. GRAFTON, WIS.

CIRCULAR CUTTING ATTACHMENT

DRN. H.D.	TR.	CH.	DWG. NO.
DATE 6-18-54	SCALE N.T.S.	O. K.	X-237B

Instructions for Operating Grob Butt Welder

Type BW-1

The welding unit is designed practically, and built for long life and efficient operation. The electrical controls or switches are mechanically and electrically interlocked to provide for fool-proof operation. No damage can result from any error of operation.

It is necessary, however, as in the case of many other types of electrical equipment, that certain instructions be followed to obtain the best results.

Before welding, the ends of the saw blade to be welded should be cut off straight. This is especially important for **wide blades**. To avoid dulling the cutter or snips, always cut the saw blade from the rear, not from the tooth side.

Set Tension Indicator (lower right hand corner of panel) on "Clamp" index mark. Place blade in upper clamp first with teeth touching blade gauge with the end in the center between the clamps. Now place other end of blade in lower clamp with teeth against blade gauge, with this end butting against end of blade already in position, and clamp.

After clamping, turn Tension Indicator to width of blade being welded, under "Weld" position. A slight variation is provided because of various thicknesses of blades, and the operator will quickly find, after a little experience, which position works best for the various thicknesses.

IMPORTANT: The Tension Indicator should be turned only to the right. Due to the cam and ratchet arrangement, if the Tension Indicator is moved to a position beyond the point wanted, it must be turned a complete revolution to the right until the exact point wanted is reached.

WELDING—Select the proper welding heat by turning the welding heat switch to "High", "Medium", or "Low" depending on the width of the saw blade.

The correct heat for the various widths of blades as indicated on the Name Plate, applies when the voltage is constant, but due to the fluctuation in voltage which is known to exist in various vicinities or plants, it is suggested that the proper setting be determined by the best results obtained through actual trial.

After setting Welding Heat Switch, press Welding Switch until weld is completed. **Do not let switch snap back when weld flashes because weld is not complete at that moment.** The current shuts off automatically when weld is completed, so no harm is done by holding Welding Switch on too long.

ANNEALING—When weld is completed, release the lower clamp and reset Tension Indicator to "Anneal" position. Release upper clamp and re-clamp saw blade so the weld is again midway between the clamps. It will be noted that when setting the Tension Indicator to "Anneal" position that the space between the clamps increases. This permits annealing the blade the proper distance on each side of the weld. (If "Anneal" index mark is missed by indicator, Tension Indicator must be turned a complete revolution to the right until correct position is reached.)

Set Welding Heat Switch in "Low" position and anneal weld by operating Welding Switch **INTERMITTENTLY** until blade is cherry red. **DO NOT OVERHEAT** by holding switch to the right too long.

GRINDING—Remove blade from clamps, switch on Grinder and grind off flash of weld on each side until welded part of blade is no thicker than the blade itself. Run a file across back edge of blade at weld to remove any rough edges, which will cause wear on saw guides. Check blade in gauge provided.

The welding of 1/16" wide blades requires particular care because of their fineness. They can be welded on this machine however, and with a little practice the operator will be able to obtain good results. A few points to watch are the position of the Tension Indicator both in the "Clamp" setting and "Weld" setting. For 1/16" wide blades the Tension Indicator should be set to the right of the "Clamp" index mark before clamping the blade. After clamping the blade, and only for high voltage (220 volt unit) the "Weld" setting of the Tension Indicator should be past the 1/16 space—somewhere in the 1/8 space. Actual practice will indicate the correct settings to obtain best results.

Some wide blades have a heavy scale and may have to be cleaned with emery cloth to make good electrical contact for best results.

IMPORTANT: Use only Bakelite or Resinoid Bond wheels on grinder. Other bonds will shatter due to the high speed of this grinder—(10,000-20,000 R. P.M. Running Free.)

Manufactured by

GROB BROTHERS

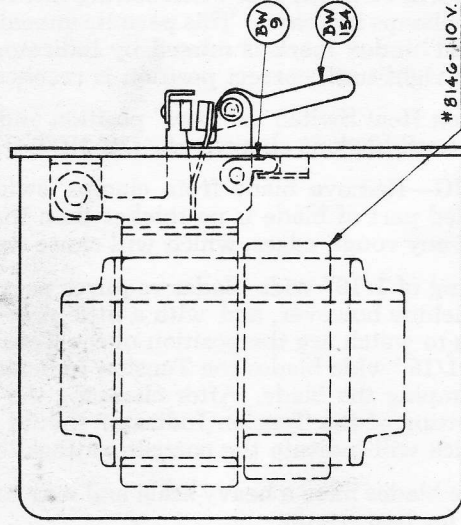
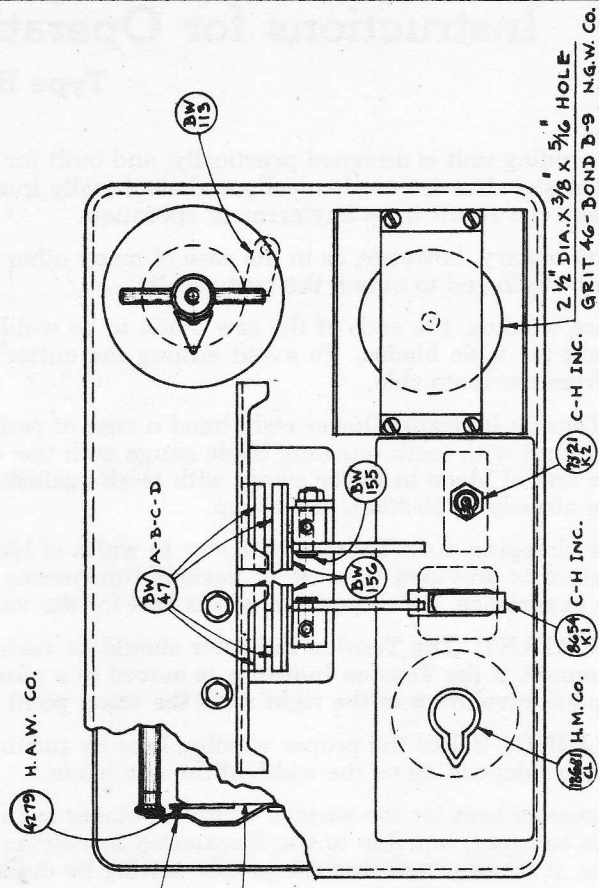
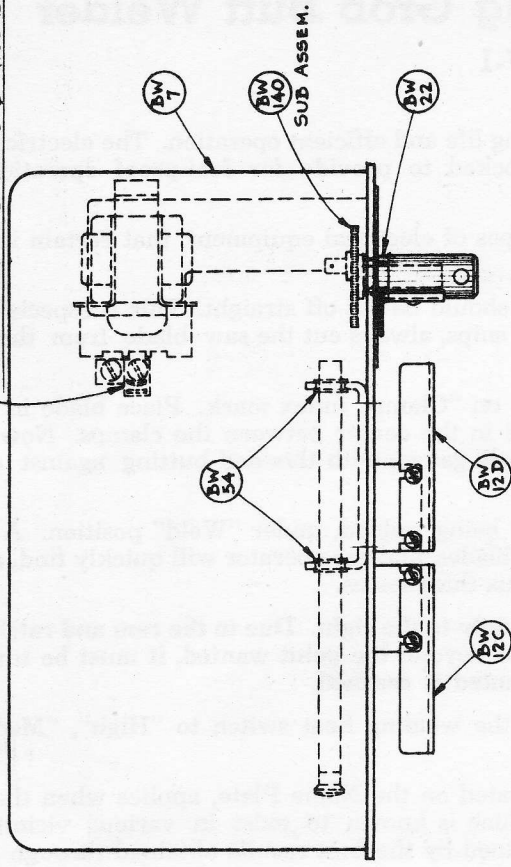
GRAFTON, WISCONSIN, U. S. A.

Printed in U. S. A.

PARTS LIST FOR GROB BW-1 1/16" - 1/2" BUTT WELDER

BW-7	Box	4196	H.A.W. Co. Contact Point—5/16"R
BW-9	Lower Clamp Guide	4279	H.A.W. Co. Contact Point—1/2"R
BW-12C	Upper Saw Band Gage	8146	Primary Coil—110 Volt P.D.C.P. Corp.
BW-12D	Lower Saw Band Gage	8575	Primary Coil—220 Volt P.D.C.P. Corp.
BW-22	Clamp Adj. Handwheel Pin Bearing	7321-K2	C-H Inc. Grinder Switch
BW-47	A, B, C&D Clamp Inserts (Set of 4)	8654-K1	C-H Inc. Welding Switch
BW-54	Clamp Shaft Bearing	18681-CL	H.M. Co.—Heat Switch
BW-113	Brake Latch		2 1/2" Dia. x 3/8" x 5/16" Hole Grinding Wheel—Grit 46, Bond B-9 — N.G.W. Co.
BW-126	Breaker Switch Assem.		
BW-140	Brake Ratchet Wheel Sub Assembly		
BW-154	Clamp Lever		
BW-155	Clamp Lever Pin		
BW-156	Clamp Lever Plate		

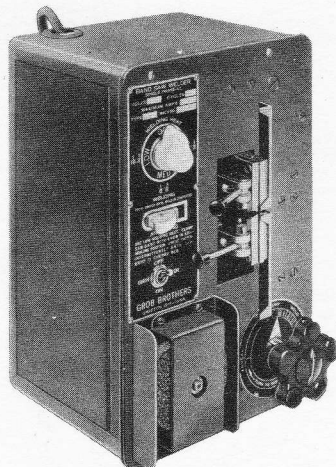
MAGNETIC CONTACTORS-BUL. 100
TYPE A-109 A.B.CO. - SUB ASSEMBLY



8146-110V.-P.D.C.P. CORP.
8575-220V.-P.D.C.P. CORP.

INSTRUCTIONS FOR OPERATING GROB BUTT WELDER

Type BW-1 and BW-2



Overall Dimension —
12" High, 8" Wide, 8 1/4" Deep.

The welding unit is designed practically, and built for long life and efficient operation. The electrical controls or switches are mechanically and electrically interlocked to provide for fool-proof operation. No damage can result from any error of operation.

It is necessary, however, as in the case of many other types of electrical equipment, that certain instructions be followed to obtain the best results.

Before welding, the ends of the saw blade to be welded should be cut off straight. This is especially important for wide blades. To avoid dulling the cutter or snips, always cut the saw blade from the rear, not from the tooth side.

Set Tension Indicator (lower right hand corner of panel) on "Clamp" index mark. Place blade in upper clamp first with teeth touching blade gauge with the end in the center between the clamps. Now place other end of blade in lower clamp with teeth against blade gauge, with this end butting against end of blade already in position, and clamp.

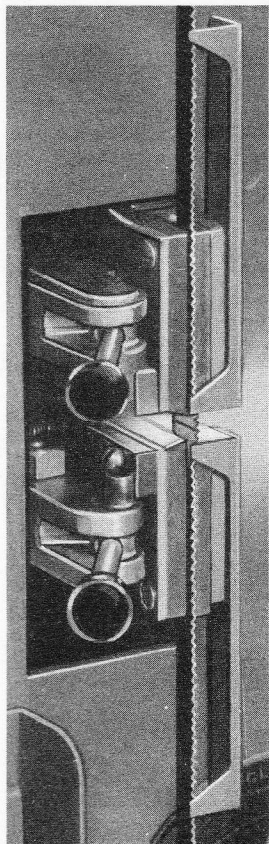
After clamping, turn Tension Indicator to width of blade being welded, under "Weld" position. A slight variation is provided because of various thicknesses of blades, and the operator will quickly find, after a little experience, which position works best for the various thicknesses.

IMPORTANT: The Tension Indicator should be turned only to the right. Due to the cam and ratchet arrangement, if the Tension Indicator is moved to a position beyond the point wanted, it must be turned a complete revolution to the right until the exact point wanted is reached.

WELDING—Select the proper welding heat by turning the welding heat switch to "High", "Medium", or "Low" depending on the width of the saw blade.

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IMPORTANT: Use only Bakelite or Resinoid Bond wheels on grinder. Other bonds will shatter due to the high speed of this grinder—(10,000-20,000 R. P. M. Running Free.)

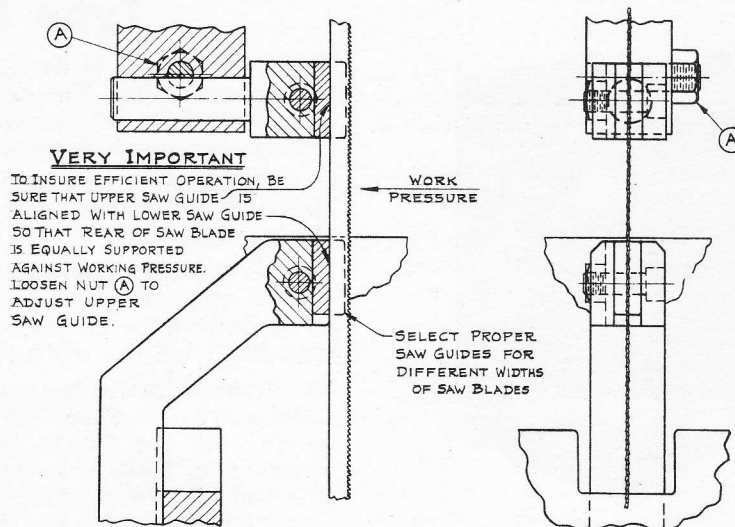
GROB

Manufactured by
BROTHERS
GRAFTON, WISCONSIN

OPERATING INSTRUCTIONS FOR GROB CARBIDE GUIDES

1. Make sure the welded part of the saw blade is dressed down to pass **FREELY** through the guides. Improperly dressed welds **MAY CAUSE BREAKAGE OF GUIDES.**
2. For extra long life of guides keep felt oiler well saturated.
3. Make sure upper and lower guides are properly lined up to receive equal back pressure of saw blade.

ALIGNMENT OF SAW GUIDES



SELECTION OF SAW BLADES

It is most important to select the proper saw blade so machine can perform with maximum efficiency. The tables at the right show width and pitch of saw blades, speed of saw, etc., when cutting various materials. The chart shown at the bottom of this page is attached to all Grob Band Saws so machine operator always has this information available.

Approximate feeds recommended for straight cutting, (curve cutting must not be forced) when using a 1/4" wide saw blade. A wider blade will cut faster and a blade less wide will cut slower.

Thickness	1/4"	1/2"	1"	2"	4"	6"
Cast Iron	15"	8"	4"	1-3/4"	13/16"	3/8"
C. R. S.	6"	2-1/2"	1-3/4"	13/16"	3/8"	3/16"
Tool Steel	4"	2"	1"	7/16"	3/16"	3/32"
H. S. Steel	2-1/2"	1-1/4"	3/4"	5/16"	5/32"	1/16"
High Chrome, high carbon steel	1-3/8"	13/16"	7/16"	3/16"	3/32"	3/64"

SELECTION OF SAW BLADES

WIDTH OF BLADE		STANDARD SPECIFICATIONS	TEETH PER INCH OF BLADES	
WIDTH OF BLADE	SMALLEST RADIUS		THICKNESS OF STOCK	TEETH PER INCH
1/16	1/16	1/16 24-32	0 - 3/32	32 - 24
3/32	1/8	3/32 24-32	3/32 - 3/16	24 - 18
1/8	7/32	1/8 18-24-32	3/16 - 3/8	18 - 14
3/16	3/8	3/16 12-14-18-24-32	3/8 - 3/4	18 - 14 - 12
1/4	5/8	1/4 10-12-14-18-24-32	3/4 - 1 1/4	14 - 12 - 10
5/16	7/8	5/16 10-12-14-18-24-32	1 1/4 - 2	12 - 10 - 8
3/8	1 1/4	3/8 8-10-12-14-18-24-32	2 - UP	10 - 8
1/2	3	1/2 8-10-12-14-18-24-32		

TO FACILITATE CURVE CUTTING APPLY SLIGHT PRESSURE TO WORK FROM INSIDE OF CURVE.

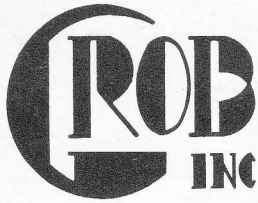
USE RAKER TOOTH FOR ALL METALS

SPEED OF BLADES

SPEEDS	F.P.M.	SPEEDS	F.P.M.	MATERIAL	SPEED	BAKELITE	4-8	MALLEABLE IRON	2-3	STRUCTURAL STEEL	2-3
①	50	⑥	390	ALUMINUM	4-10	CAST IRON	1	METAL WOOD	4-10	STEEL SHEETS	3-4
②	75	⑦	585	AMPCO METAL #16-18	2-3	COPPER	3-4	MATRX METAL	5-8	TUBING-ALUM.	5-10
③	115	⑧	900	AMPCO METAL #18-20	1-2	C. R. STEEL	2-3	MICA	4-8	TUBING-BRASS	4
④	175	⑨	1365	ASBESTOS SHEETS	3-4	DRILL ROD	1-2	MONEL METAL	1-2	TUBING-STEEL	2-3
⑤	260	⑩	2030	BABBITT	4-8	FIBRE	3-4	NICKEL SILVER	1-2	TOOL STEEL-AIR HD.	1
				BRASS CSTGS-HARD	2-3	GOLD	3-4	NICKEL STEEL	1-2	TOOL STEEL-OIL HD.	1-2
				BRASS CSTGS-SOFT	4-6	H. CHR. HIGH CARBON ST.	1	RUBBER-HARD	4-6	TOOL STEEL-WATER HD.	2-3
				BRASS SHEETS	4-8	HIGH SPEED STEEL	1	SILVER	2-3	WROUGHT IRON	3-4
				BRONZE CASTINGS	2-3	IRON SHEETS	3-4	SLATE	1-2	WOOD	5-10
				BRONZE MANGANESE	2-3	MACHINE STEEL	2-3	STAINLESS STEEL	1	ZINC	4-8

GROB BROTHERS

GRAFTON, WIS., U.S.A.



G R A F T O N , W I S C O N S I N

OPERATING INSTRUCTIONS

For

GROB SAW BLADE WELDERS

Model RWA-1" Serial No. 8000 and up

Model RWB-1/2" Serial No. 16000 and up

Read Complete Instructions Before Operating Welders

PLACING WELDER INTO SERVICE:

When connecting welder, check current specification stamped on nameplate. For satisfactory operation, full voltage must be available.

Welders are single phase (A-C) alternating current. Do not connect to (D-C) direct current.

PREPARING SAW BLADE ENDS:

1. Use Grob T-10 cut-off tool to assure a square cut. (See Fig. 4.)
2. To insure good contact between welding jaws and saw blade ends, blade must be straight and free from foreign matter such

as dust, oil, varnish, and scale. If necessary, use sandpaper.

CLAMPING:

Turn T-Crank handle to the right on clamp "Position". (See Fig. 1). Place blade ends between jaws, with teeth against Alignment gauges, and blade ends CENTERED between jaws. Blade ends must butt together in perfect alignment, then clamp blades. (See Fig. 2). With blade ends clamped, turn T-Crank to the right to size of blade indicated on nameplate.

(RWA — ONLY). Set selector knob to size of blade being welded. (See Fig. 1).

SELECTING WELDING HEAT:

Some practice is helpful to select the proper welding heat for each particular saw blade. (See Fig. 1 A and B). High or low voltage of power line also influences selection.

Too much welding heat might overheat the metal and weaken the weld.

WELDING:

Press weld button (See Fig. 1) and **HOLD IN UNTIL WELD IS COMPLETED**. The current passing through the saw blade will heat the ends until hot enough to flow together under welding tension. This reduces the gap between jaws, to where the current is automatically shut off.

As the metal is hot, and the welding jaws are cold, the weld becomes chilled and glass hard. It now must be **ANNEALED** to prevent breaking.

ANNEALING:

Release jaw clamps and move T-Crank to the right on anneal position. Distance between jaws is now approximately $\frac{5}{8}$ ". Reclamp saw blade with weld centered between jaws. This permits annealing the blade the proper distance on each side of the weld. Set heat switch on "LOW" position and anneal weld

by operating weld switch "INTERMITTENTLY" until blade is dull red.

Do not overheat by holding button in too long. This causes weld to become weakened or brittle, and causes blade breakage.

REMOVING WELDING FLASH:

Use Grob R-5 filing fixture for removing welding flash.

Place blade in filing fixture with teeth facing operator, and Clamp securely. (See Fig. 2). Use mill bastard file, moving in line with saw blade. (DO NOT file crossways as this will injure blade teeth).

When weld is filed flush, remove blade and examine weld for any high spots by sliding a Grob single piece saw guide over the weld. **IT MUST SLIDE FREELY.**

Run a file across the back of blade at weld to remove sharp edges.

RE-ANNEALING after flash is removed will assure a stronger weld.

If grinder unit is used to remove weld flash, do not undercut the blade as this will weaken it.

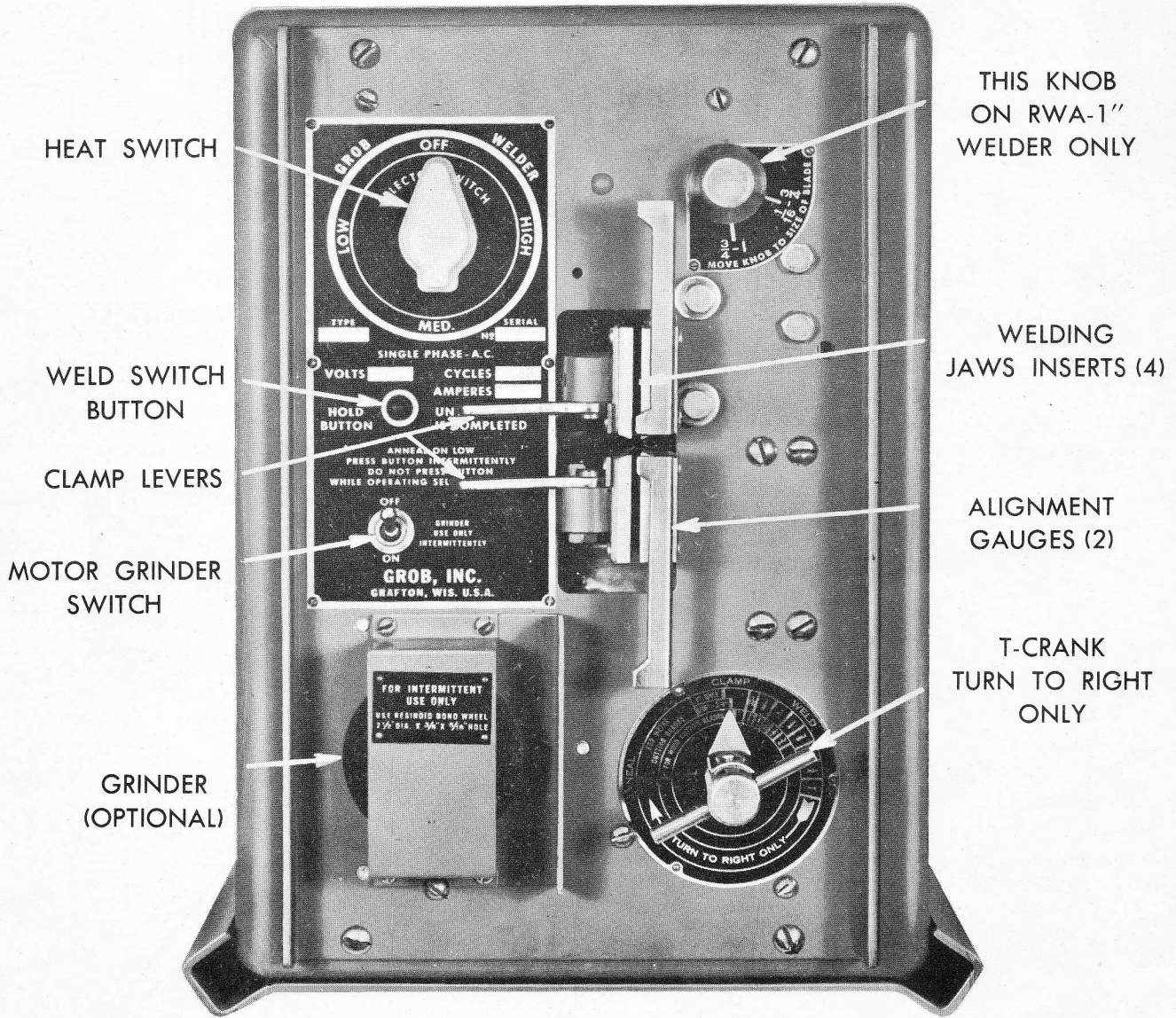
NOTE: Use only bakelite or resinoid bond wheels on grinder. Other bonds will shatter due to the speed of grinder.



(B)

HEAT SWITCH SELECTION FOR VARYING SAW BLADE SIZES ON RWB-1/2"

LOW	— 1/16"	— 3/16"	— BLADE
MED.	— 3/16"	— 3/8"	— BLADE
HIGH	— 3/8"	— 1/2"	— BLADE



(A)

HEAT SWITCH SELECTION FOR VARYING SAW BLADE SIZES ON RWA-1"

LOW	— 1/16"	— 1/2"	— BLADE
MED.	— 1/2"	— 3/4"	— BLADE
HIGH	— 3/4"	— 1"	— BLADE

Fig. 1

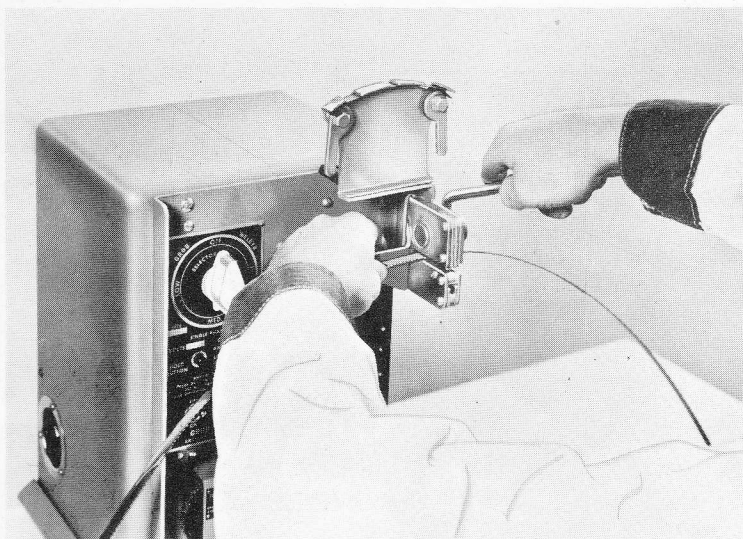


Fig. 4
T-10 CUT-OFF TOOL

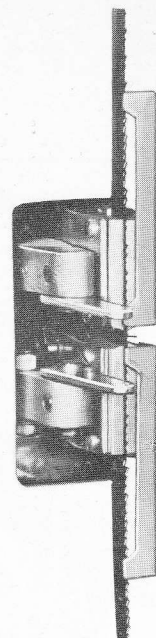


Fig. 2
ALIGNMENT GAUGES

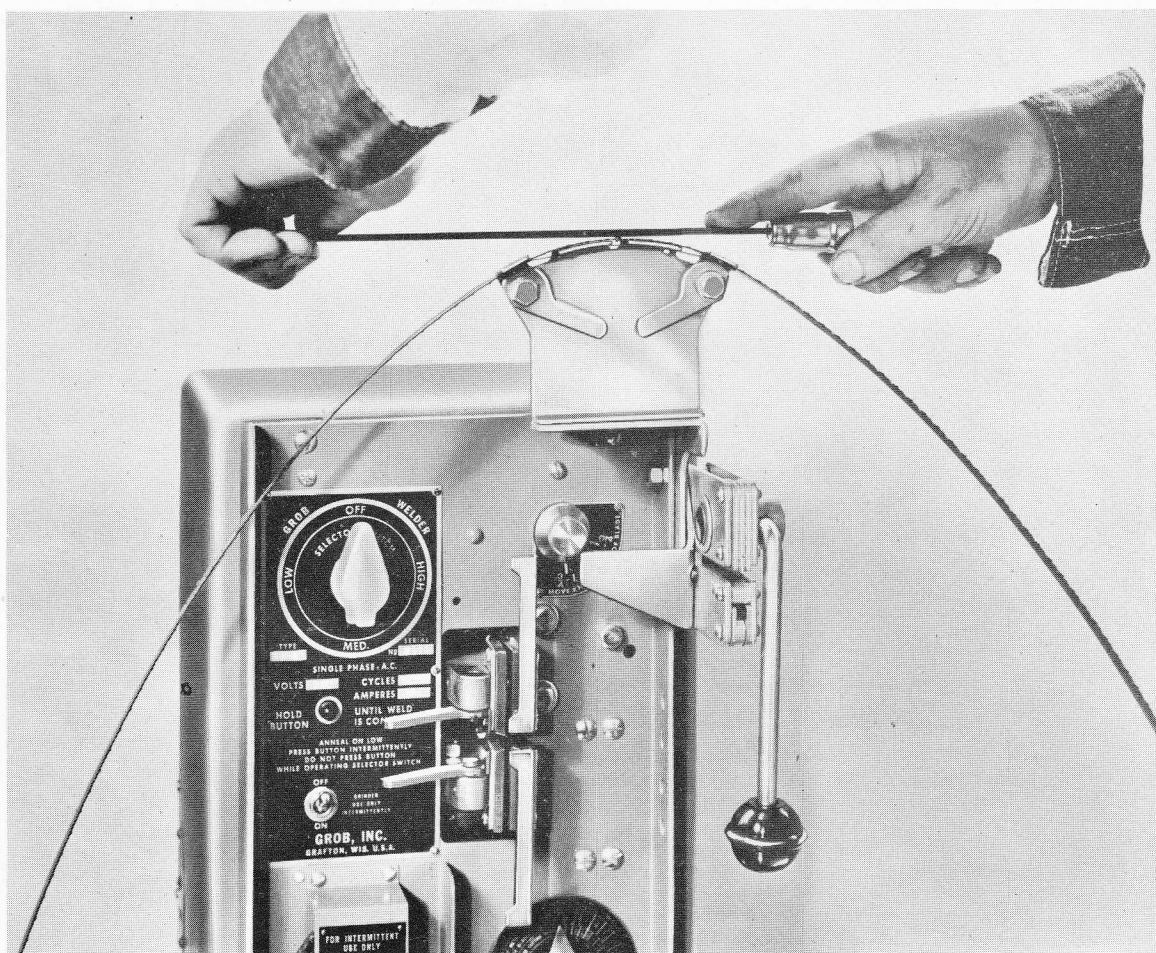
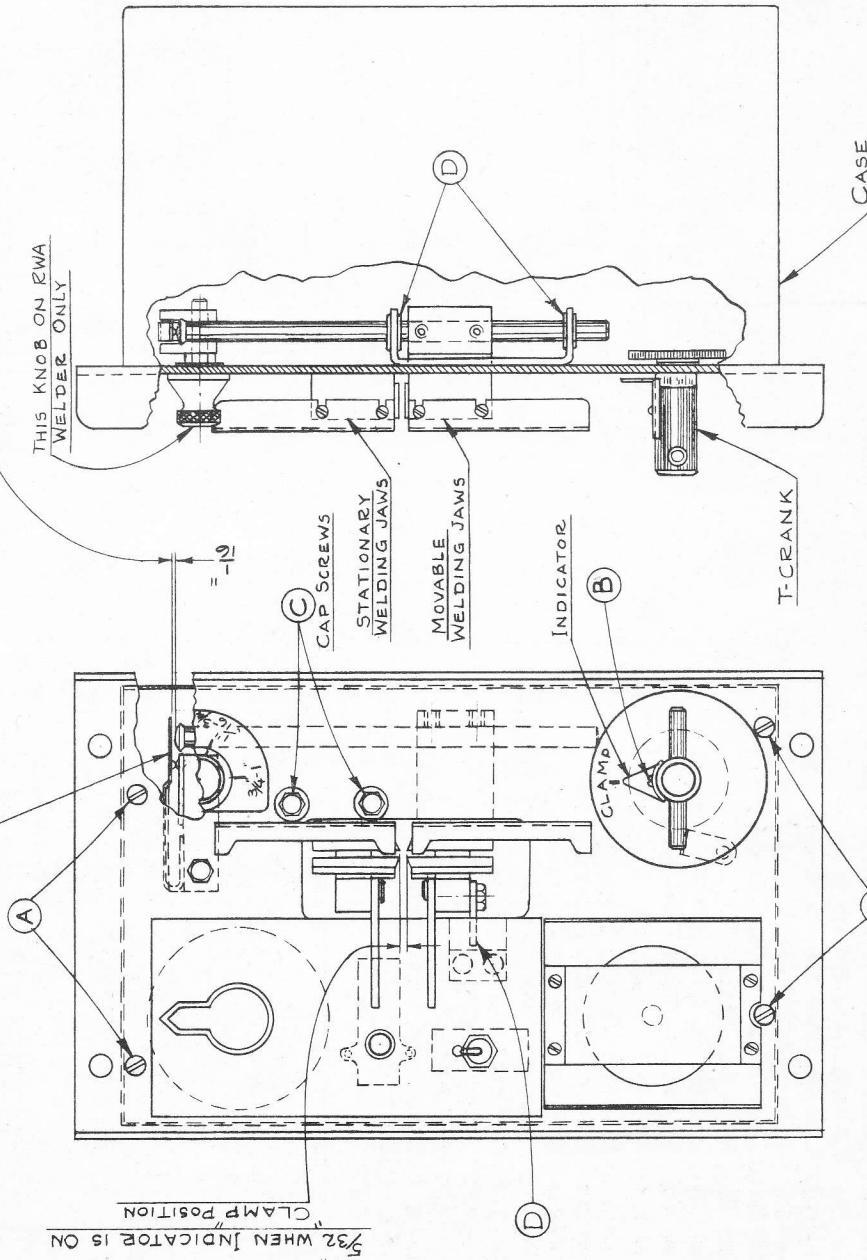


Fig. 3
R-5 FILING FIXTURE

WHEN CLAMPS ARE $\frac{5}{32}$ " APART, THE GAP BETWEEN SHAFT AND SWITCH BREAKER ARM SHOULD BE $\frac{1}{16}$ ". SET ORIGINALLY BY MANUFACTURE AND THE SETTING MUST NOT BE CHANGED.

SWITCH BREAKER ARM



THIS KNOB ON RWA WELDER ONLY

INDICATOR SETTING

ADJUST MOVABLE CLAMP BY MOVING TENSION HANDLE SO THAT SAW BLADE CLAMPS ARE $\frac{5}{32}$ " APART. INDICATOR SHOULD NOW BE ON CLAMP POSITION. IF NOT, PROCEED AS FOLLOWS: LOOSEN INDICATOR SCREW "B", IN T-CRANK AND ADJUST INDICATOR TO CLAMP POSITION. RETIGHTEN SCREW.

SAW BLADE LINE UP

IF SAW BLADES DO NOT LINE UP ACCURATELY SIDEWAYS, WITH TENDENCY TO OVERLAP, CLAMPS MUST BE ADJUSTED. LOOSEN THE TWO CAP SCREWS "C" (BUT DO NOT REMOVE), ACCURATE ALIGNMENT CAN NOW BE MADE BY USING SUITABLE STRAIGHT EDGE, AFTER WHICH RETIGHTEN CAP SCREWS.

OILING MOVABLE CLAMPS

IF MOVABLE CLAMP DOES NOT SLIDE FREELY, OIL 3 PLACES "D" AS SHOWN

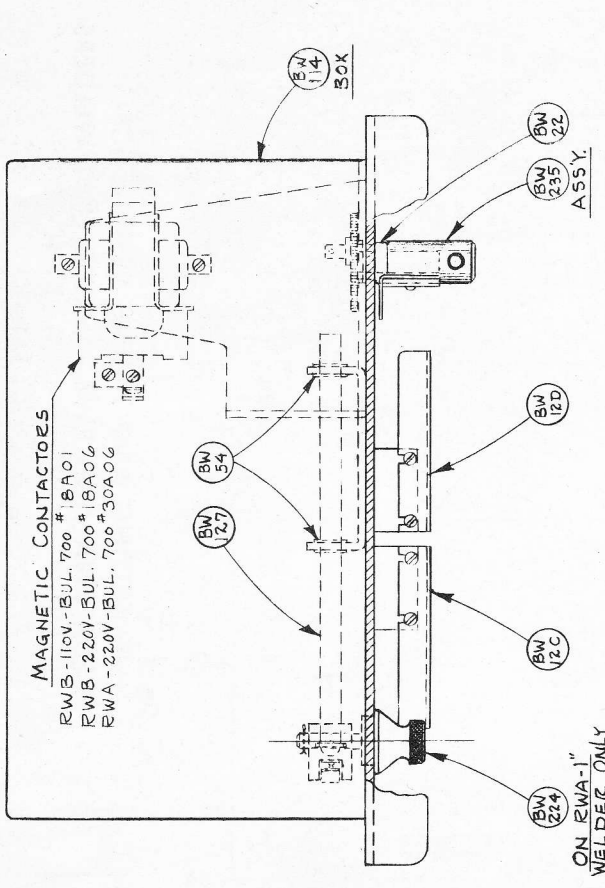
**SETTING AND TIMING INSTRUCTIONS
FOR RWA AND RWB — GROB BUTT WELDERS**

TO REMOVE CASE FROM WELDER,
REMOVE 4 SCREWS "A"

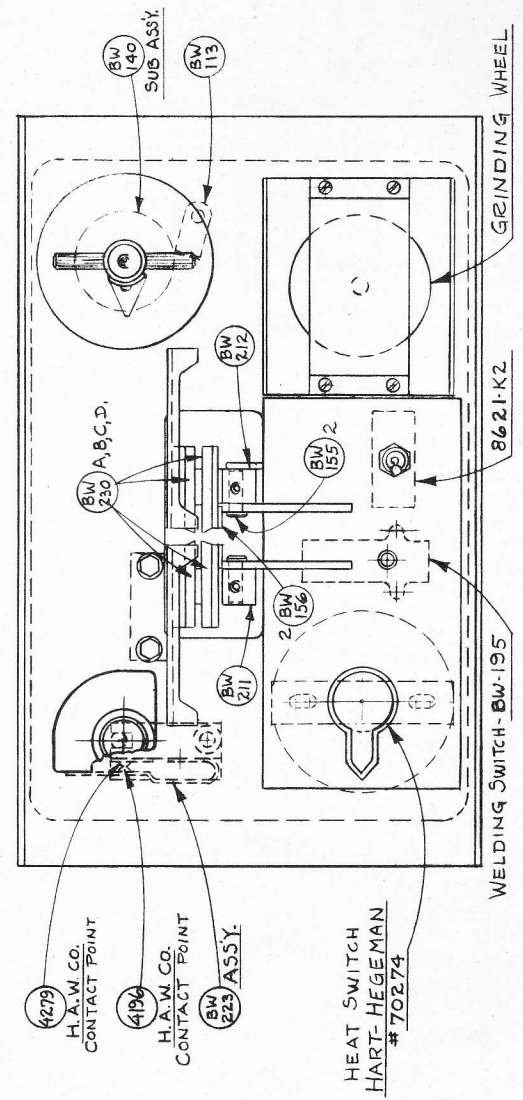
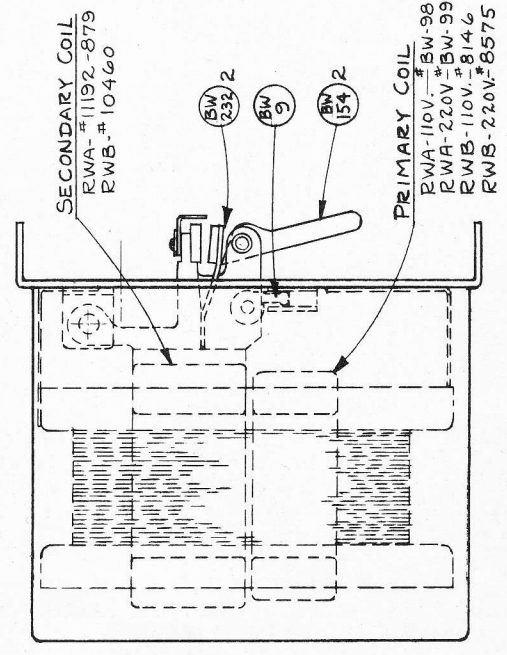
PARTS LIST FOR GROB WELDERS

RWA-1" AND RWB-1/2"

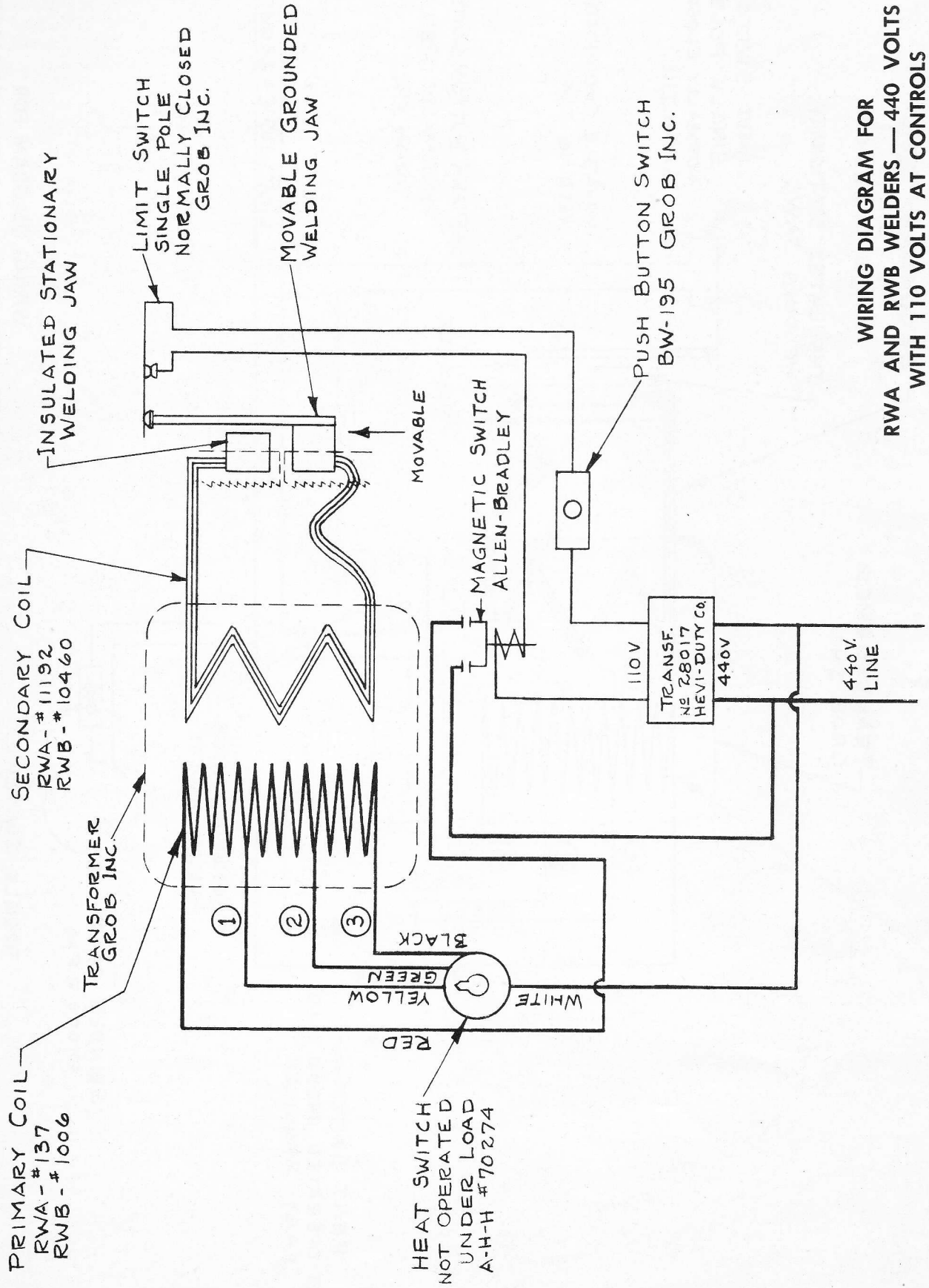
- BW-9 LOWER CLAMP GUIDE
- BW-12C UPPER SAW BAND GAGE
- BW-12D LOWER SAW BAND GAGE
- BW-22 CLAMP ADJ. HANDWHEEL PIN BEARING
- BW-54 CLAMP SHAFT BEARING
- BW-113 BRAKE LATCH
- BW-127 LOWER CLAMP SHAFT
- BW-140 BRAKE RATCHET WHEEL
- BW-154 CLAMP LEVER
- BW-155 CLAMP LEVER PIN
- BW-156 CLAMP LEVER PLATE
- BW-211 UPPER CLAMP
- BW-212 LOWER CLAMP
- BW-224 ECCENTRIC KNOB ASSY.
- BW-230 JAW INSERTS
- BW-232 CLAMP INSERT HOLDER
- BW-235 T-CRANK SUB. ASSY.
- BW-223 LIMIT SWITCH ASSY.



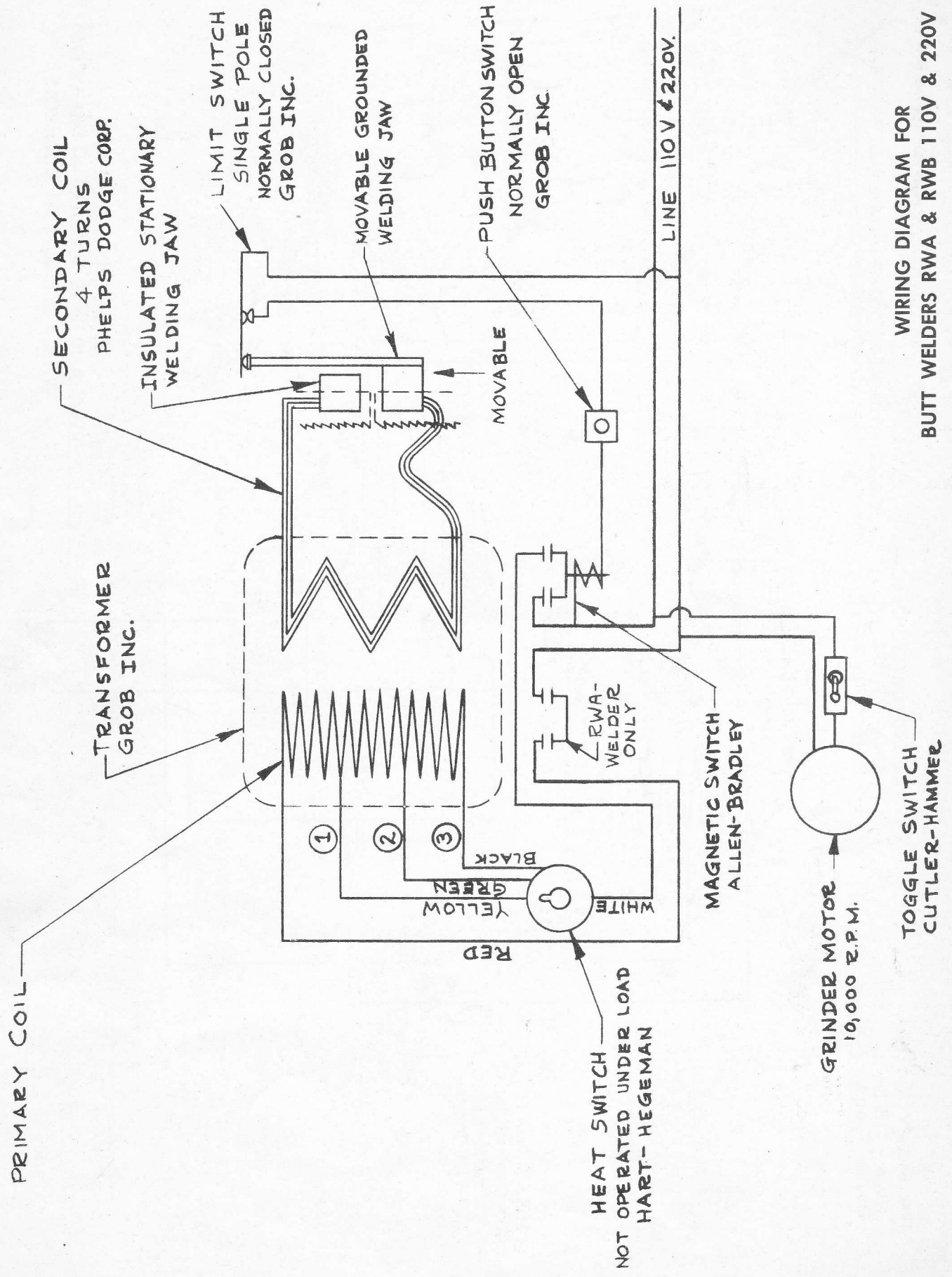
ON RWA-1" WELDER ONLY



GRINDING WHEEL



WIRING DIAGRAM FOR
 RWA AND RWB WELDERS — 440 VOLTS
 WITH 110 VOLTS AT CONTROLS



WIRING DIAGRAM FOR
 BUTT WELDERS RWA & RWB 110V & 220V