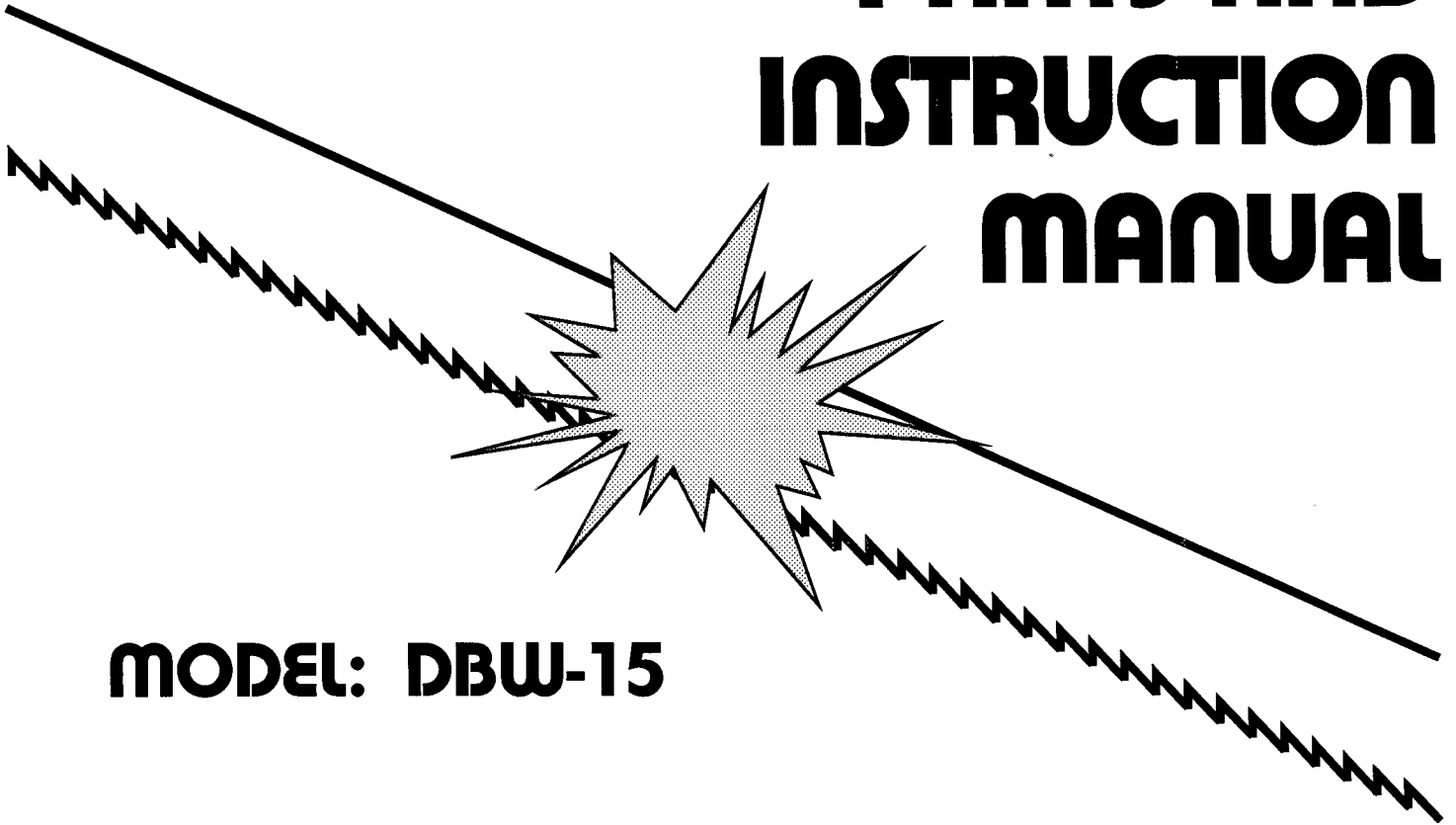




PARTS AND INSTRUCTION MANUAL



MODEL: DBW-15

SERIAL NO: 290-69101 to 290-8614180

BUTTWELDER

DAMAGE CLAIM PROCEDURE

VISIBLE DAMAGE AT TIME OF DELIVERY:

1. Note damage on carrier's delivery receipt. Accept the shipment. It can be returned later if repairs are not possible in the field.
2. Request a "damage inspection" from the delivery carrier:
 - a. The carrier will send his own people or contract an independent agency to make the inspection.
 - b. The inspector will request a signature on the report and leave a copy.
 - c. The carrier "damage inspection" report is not final. If additional damage is found when repairs are started, contact the carrier for another inspection; or at least give them the details of the damage.
3. Do not move the equipment from the receiving area and keep all shipping materials until the carrier "damage inspection" report is complete.
4. If possible, take photographs of the damage and keep them for your file. Photos could possibly prove a claim at a later time.
5. Keep a record of all expenses and be sure they are documented.
6. Repair damage in the field whenever possible. Carriers encourage this to keep expenses down.
7. You have nine (9) months to file a claim.

CONCEALED DAMAGE:

1. You have fourteen (14) days to report damage not noted at time of delivery.
 - a. Report damage as soon as possible. This makes it easier to prove that it did not happen cosignee's plant.
 - b. Inspect machines carefully before moving from the receiving area. Again if machine is not moved it is easier to prove your case.
2. Request a "damage inspection" from the delivery carrier:
 - a. The carrier will send his own people or contract an independent agency to make the inspection.
 - b. The inspector will request a signature on the report and leave a copy.
 - c. The carrier "damage inspection" report is not final. If additional damage is found when repairs are started, contact the carrier for another inspection; or, at least give them the details of the damage.
3. Do not move the equipment from the receiving area and keep all shipping materials until the carrier "damage inspection" report is complete.
4. If possible, take photographs of the damage and keep them for your file. Photos could possibly prove a claim at a later time.
5. Keep a record of all expenses and be sure they are documented.
6. Repair damage in the field whenever possible. Carriers encourage this to keep expenses down.
7. You have nine (9) months to file a claim.

FOREWORD

Always include the model and serial numbers in parts orders or correspondence concerning your welder. Be sure to give the complete model number.

The specifications contained herein were in effect at the time this book was approved for printing. The DoALL Company, whose policy is one of continuous improvement, reserves the right, however, to change specifications or design at any time without incurring obligations.

NOTICE!

This welder has been redesigned and some parts have been altered or eliminated. These changes have no impact on the function or operation described herein.

This Instruction and Parts Manual provides necessary information for operating/ordering parts for all welders with a "290" prefix.

April 1986

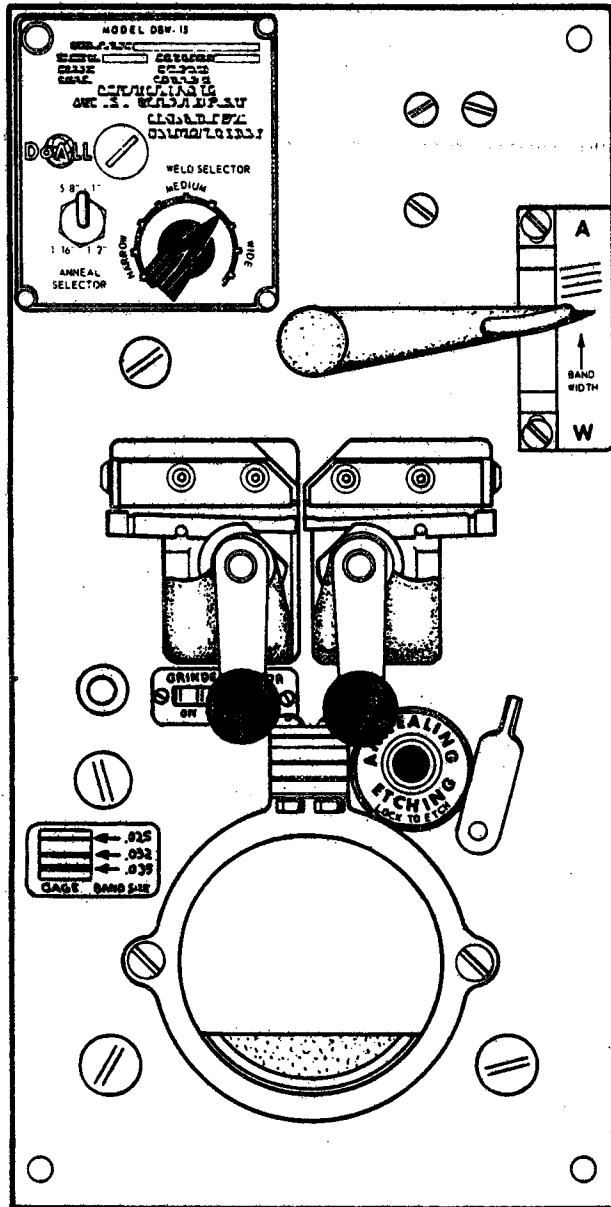
The following registered
trade marks of the DoALL Company
are used in this handbook:
DoALL, Dart and IMPERIAL BI-METAL.



CMI® CONTINENTAL
MACHINES, INC.
5505 W. 123rd ST. • SAVAGE, MN U.S.A. 55378-1299

DISTRIBUTED BY:
DoALL COMPANY
254 NORTH LAUREL AVENUE
DES PLAINES, IL U.S.A. 60016

OPERATOR'S INSTRUCTION MANUAL



DBW-15

Please read this manual carefully
before operating your machine.



DoALL COMPANY
254 NORTH LAUREL AVENUE
DES PLAINES, ILLINOIS 60016

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CHAPTER 1

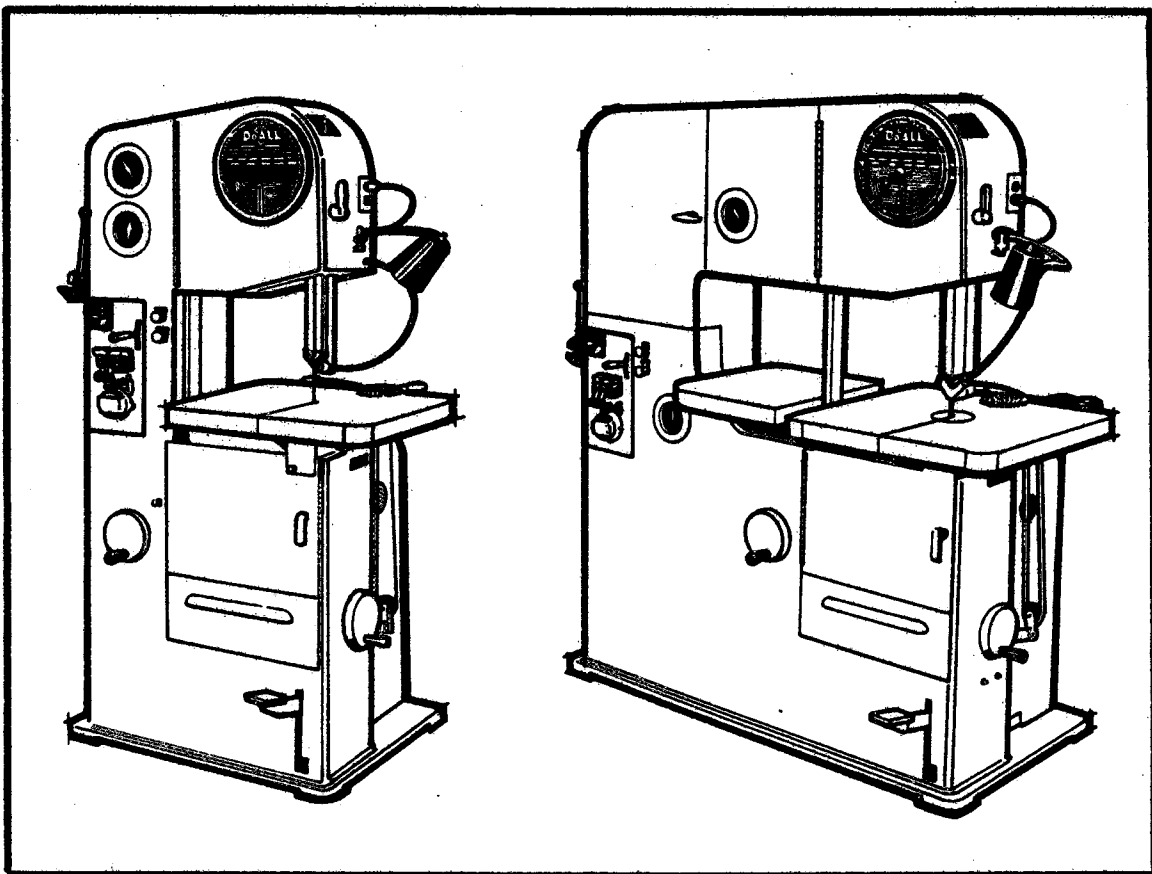
INSTALLATION

LOCATION

Locate the welder so that the operator will have sufficient room for handling and welding saw bands. Space should be allowed so that the coiled band will not injure persons passing nearby. The welder should also be located so that the welding sparks will not ignite flammable material.

ELECTRICAL CONNECTIONS (PORTABLE ONLY)

The welder must be connected to an electrical power line of sufficient capacity to provide for the instantaneous load specified on the data plate. The welder should be fused according to the amperage on the data plate. Refer to the wiring diagram supplied with the welder. The welder will not operate on direct current.



The welder may be installed on DoALL sawing machines. The location is convenient for welding bands to fit over two or three band wheels of saw. Correct band length for the machine is stamped on a data plate attached to the rear of the machine column.

CHAPTER 2

OPERATING FEATURES

GENERAL DESCRIPTION

The DoALL Model DBW#15 is a "resistance - type" butt welder. The two clamping jaws of the welder hold the butted band ends together. When the welding switch lever is pressed, an electric current is induced through the butted band ends, creating enough heat to soften and join them.

Pressing the welding lever also releases a spring which causes the jaws to force the band ends together. The electrical current is shut off before the movable jaw completes its movement. Final upset or "forging" occurs when the band is still hot, but is no longer being heated by its electrical energy source.

JAW GAP AND UPSET FORCE CONTROLS

The initial gap between the welder jaws and the spring upset force must both be adjusted in proportion to the cross-sectional area of the band being welded. A greater jaw gap will allow a wider or thicker band to reach its proper welding temperature. A greater upset force produces the same unit pressure in welding a wider or thicker band.

A jaw upset force selector is used to provide a variable control of upsetting force. Initial jaw gap is set by adjusting the position of the weld lever before making the weld.

ANNEALING

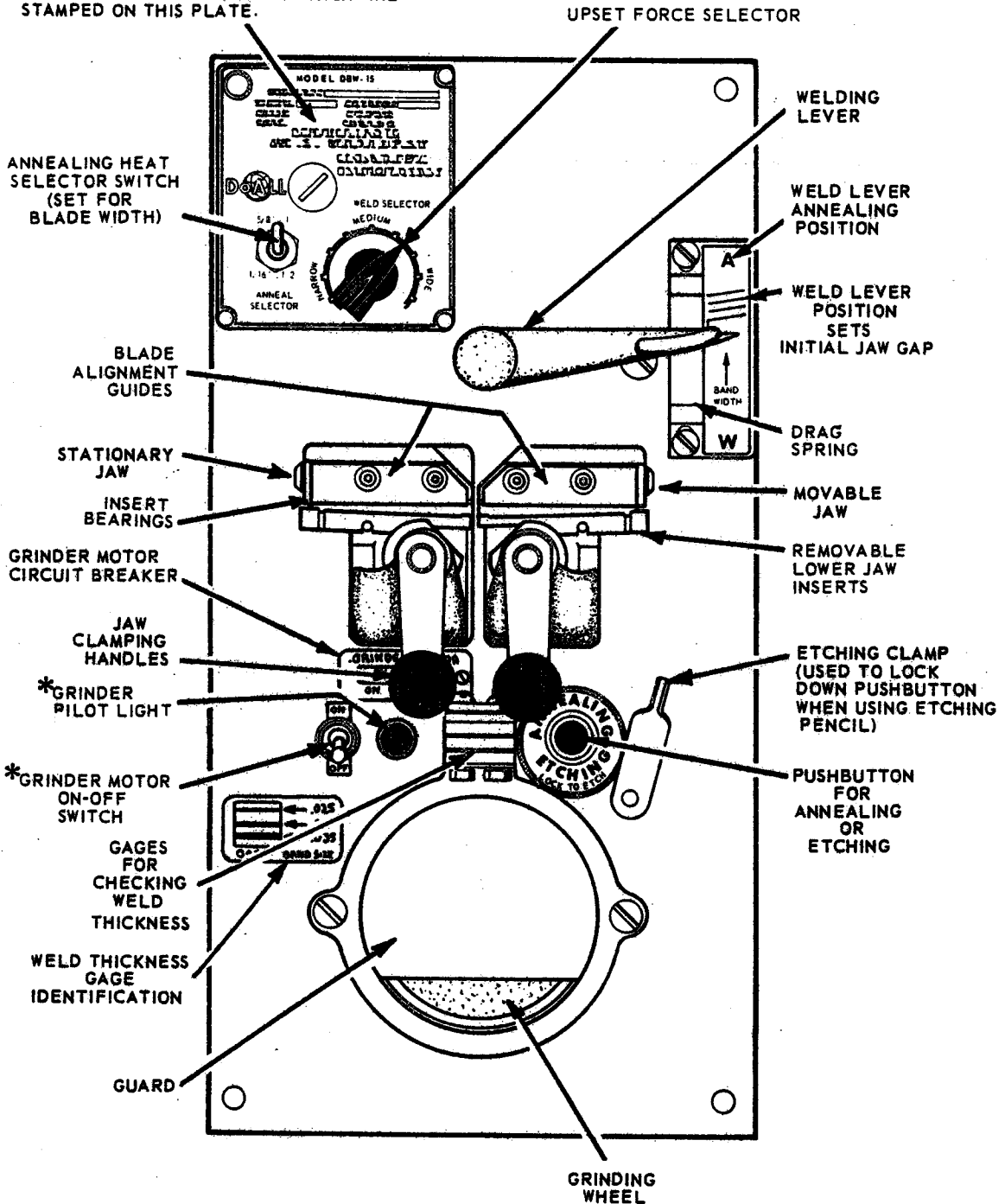
When the band is heated in the butt welding process, the steel at the point of weld "air-hardens" and becomes brittle. The annealing push button is used to "anneal" the weld by reheating it. This returns the band to an approximation of its original condition. A selector switch is provided for choosing the correct annealing heat, depending upon the width of the saw blade.

WELD GRINDER

The grinding wheel is used to prepare the blade for welding and to remove flash from the weld. Flash on both sides of the weld must be ground off to blade's thickness. The gage at the top of the wheel guard is used to check for complete removal of the flash. After grinding, the weld should pass freely through this gage.

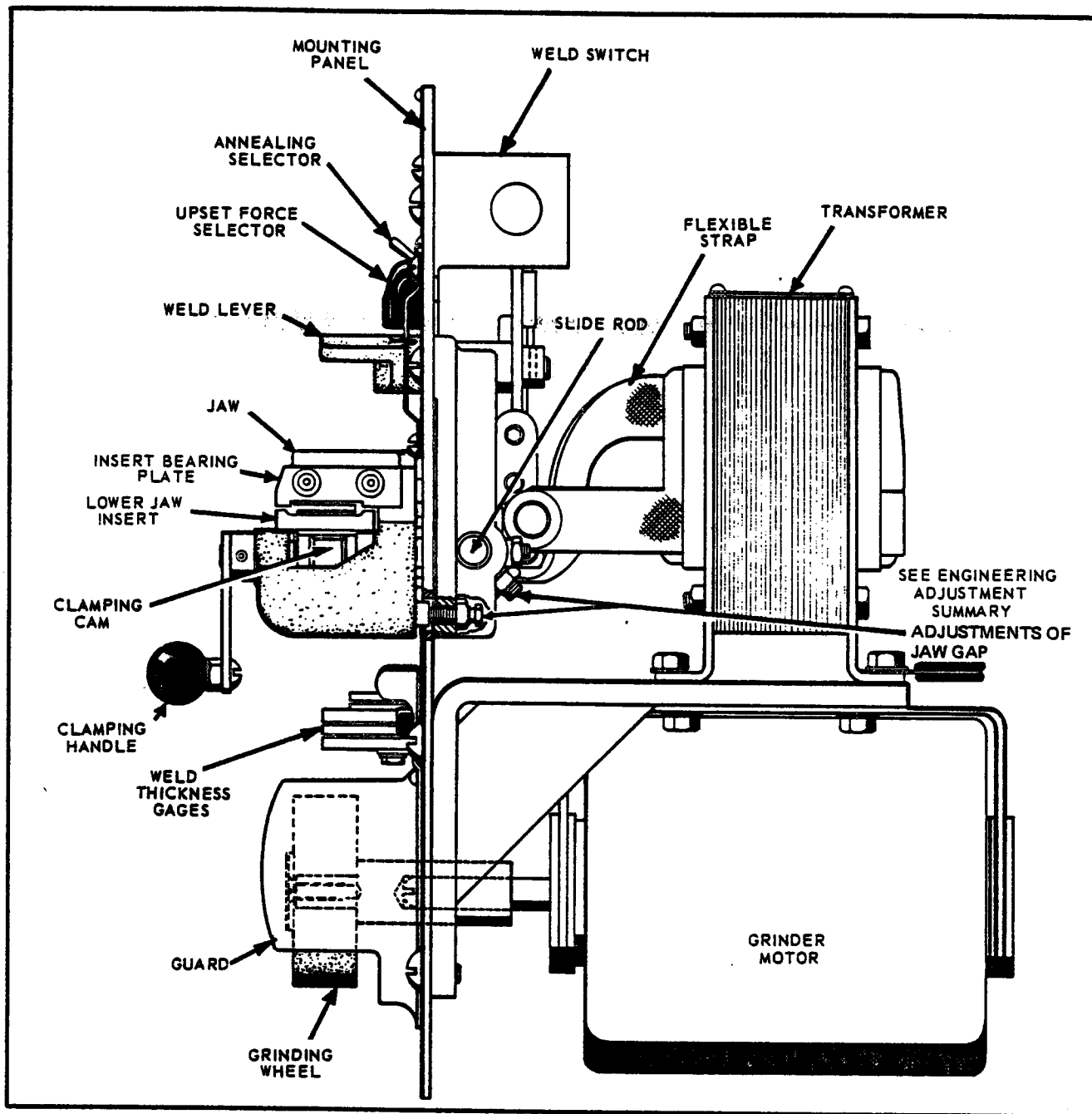
Since it may be difficult to see if the grinding wheel is rotating, a pilot light is provided as a safety feature. This light is "on" when the grinding motor is running.

DATA PLATE, IN ANY CORRESPONDENCE OR PARTS ORDERS, BE SURE TO GIVE WELDER MODEL AND SERIAL NUMBERS WHICH ARE STAMPED ON THIS PLATE.

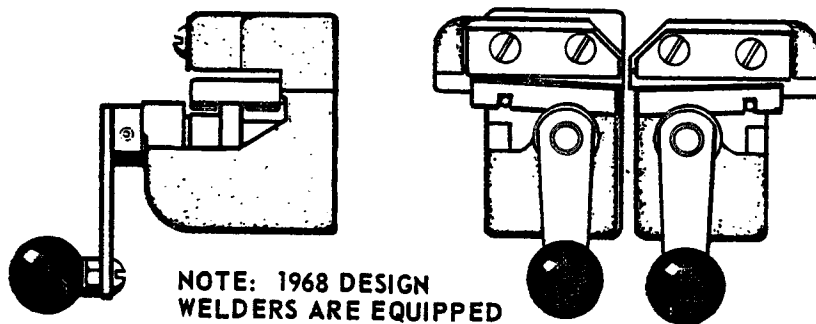


*OLDER MODELS OF THE WELDER WERE EQUIPPED WITH A GRINDER MOTOR PUSHBUTTON OR TOGGLE SWITCH OR DID NOT HAVE AN OPERATION PILOT LIGHT.

Model DBW-15 Welder controls and features, front view.



Side View of the welder, showing features and controls.
(Current design shown)



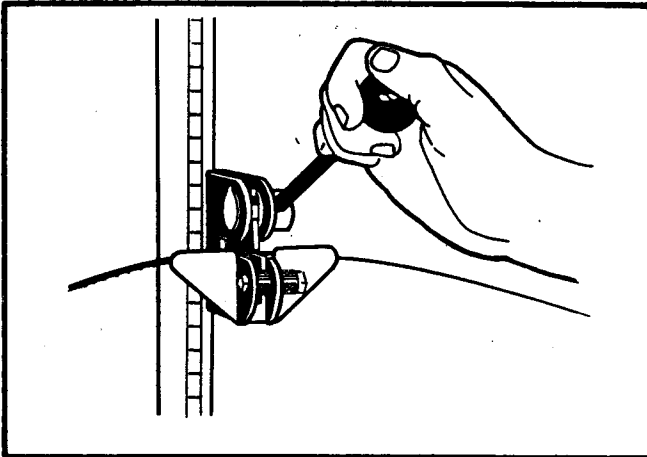
NOTE: 1968 DESIGN WELDERS ARE EQUIPPED WITH SLIGHTLY DIFFERENT JAWS AND INSERTS, AS SHOWN HERE.

CHAPTER 3

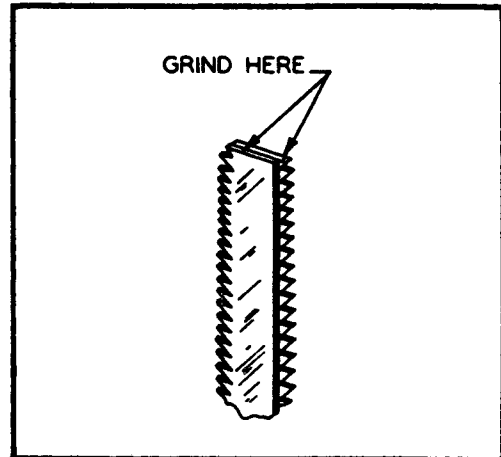
OPERATION

PREPARING THE BLADE

- (1) Cutting the Blade: Cut the saw blade to length. Use the blade shear if it is available. Using the blade shear will insure that the blade ends are flat, square and smooth.
- (2) Tooth Spacing: In fine pitched bands, one or more teeth on each side of the cut must be removed by grinding, so that the cross section of the weld area of the band is uniform. This will also insure proper tooth spacing at the weld area and that the set pattern of the teeth will be retained.



Using the Blade Shear.

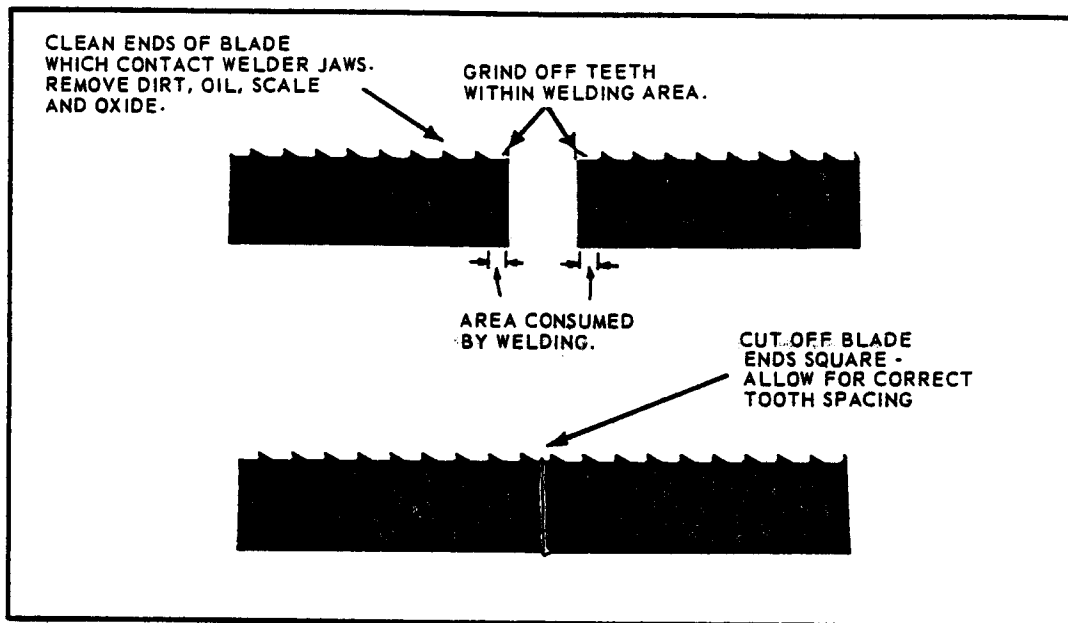


If snips are used to cut blade, grind ends square as shown.

NOTE

If the Blade Shear has not been used to cut the blade, square the ends of the blade before welding. Grind both ends of the saw blade in one operation as shown in the sketch. Hold the ends so that the teeth point in opposite directions. Regardless of the angle of grinding, the two ends will match perfectly when turned over.

- (3) Clean the band: Use No. 120 grit emery cloth or equivalent for this operation. Care must be taken so that the teeth are not touched with the emery cloth, because the set or sharpness of the teeth could be damaged. The part of each end of the band that comes into contact with the inserts must be sanded. Any dirt, oil, oxide or scale that is not removed will prevent good electrical contact. The oxide on Dart Blade must be removed.



Points to remember in preparing the blade for welding.

PREPARING THE WELDER

- (1) Clean the welder jaws.
- (2) Remove and clean the lower jaw inserts.
- (3) The jaw upset force selector control should be set to the correct position for the width of saw blade being welded.
- (4) Set the "initial jaw gap" by adjusting the position of the weld lever, according to the blade width.

NOTE

The jaw upset force and initial gap between the welder jaws must both be increased in proportion to the increase in cross-sectional area of the blade being welded. In other words, the upset force and initial jaw gap must be increased for a thicker blade as well as a wider blade. A greater jaw gap and upset force will allow a wider or thicker blade to reach its proper welding temperature.

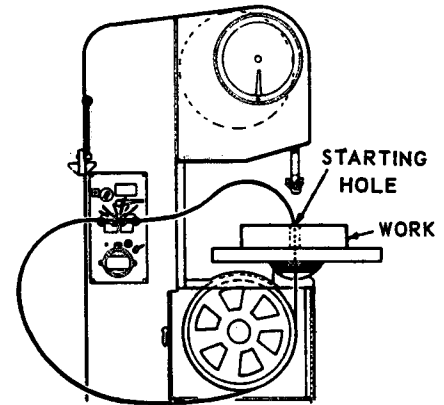
Because there are so many variables involved (such as the different widths, types and gages of blades, as well as variations between welders), it is difficult to establish recommended jaw gap and upset force settings. The settings that provide the best welds for each width, gage and type of blade should be determined by experience and noted for future use.

SAW BLADE ALIGNMENT BEFORE WELDING

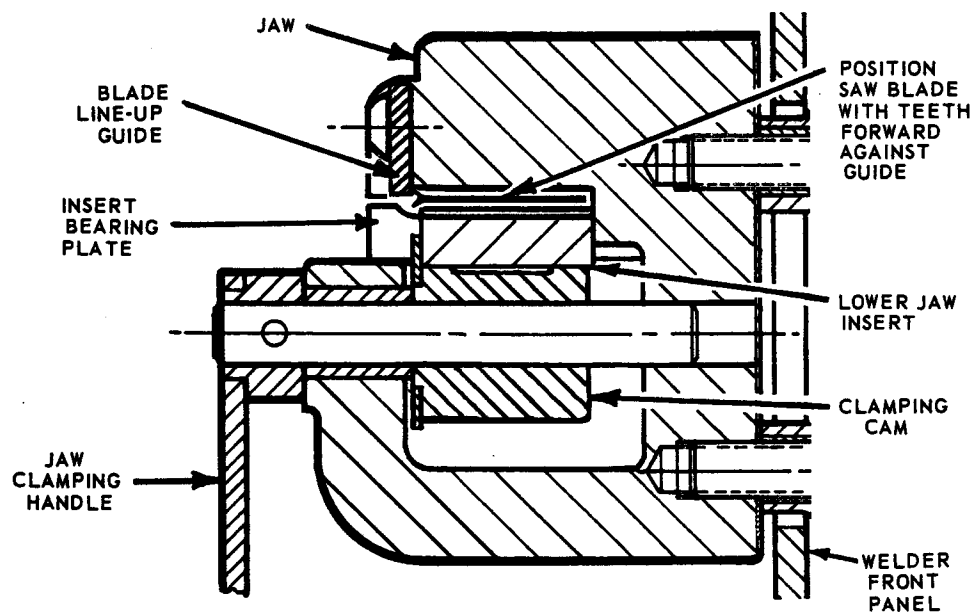
- (1) For internal sawing, the blade is inserted through the starting hole in the work. The ends of the saw blade are then brought together to be clamped into the jaws.

When rewelding a used band - cut out the old weld - it is recommended that the saw band contain only one weld.

NOTE: When welding band which passes through hole in workpiece - be sure to insulate band from contact with workpiece or table, this will insure a better weld.



- (2) Place the band ends between the jaws with the teeth against the line-up guides which are attached to the front edge of the jaws, see sketch. **NOTE:** Blades which are 1/8 inch or less in width are too narrow to be clamped correctly when they are placed against the line-up plates. Move these narrow blades back slightly from the line-up plates and align them by eye, then clamp them in place.



- (3) The jaws are clamped by moving the handles upward.
- (4) Check to be sure that the band ends meet in the center of the jaw gap without any offset either in thickness or across the width. If the contact across the width is not complete, remove one end and recut it. A misaligned joint will cause an incomplete weld.

MAKING THE WELD

WARNING

STEP TO ONE SIDE TO AVOID WELDING SPARKS.

- (1) Press (using a smooth and steady motion - not too fast or slow) and hold down the weld lever to make the weld. The lever should be held down until the weld has cooled.
- (2) Release the stationary jaw clamping handle before releasing the weld lever. This will prevent scoring the welder jaw surface.
- (3) Release the weld lever. When the lever is released, the welder mechanism and electrical switches are automatically recocked.

CAUTION

Special note only for IMPERIAL BI-METAL Saw Band or very narrow carbon band: In order to protect the weld from accidental breakage, it is recommended that the weld be annealed before it is removed for grinding, as well as after grinding. Follow the annealing instructions given on a following page.

- (4) Remove the welded saw band. Inspect the weld as described on the next page. If weld is poor, see the Trouble Shooting Chapter for possible causes.

CLEAN-UP WELDER JAWS AFTER WELDING

It is important that the welder jaws be kept clean at all times. The jaws and inserts must be wiped or scraped clean after every weld. Doing this will insure better welds by:

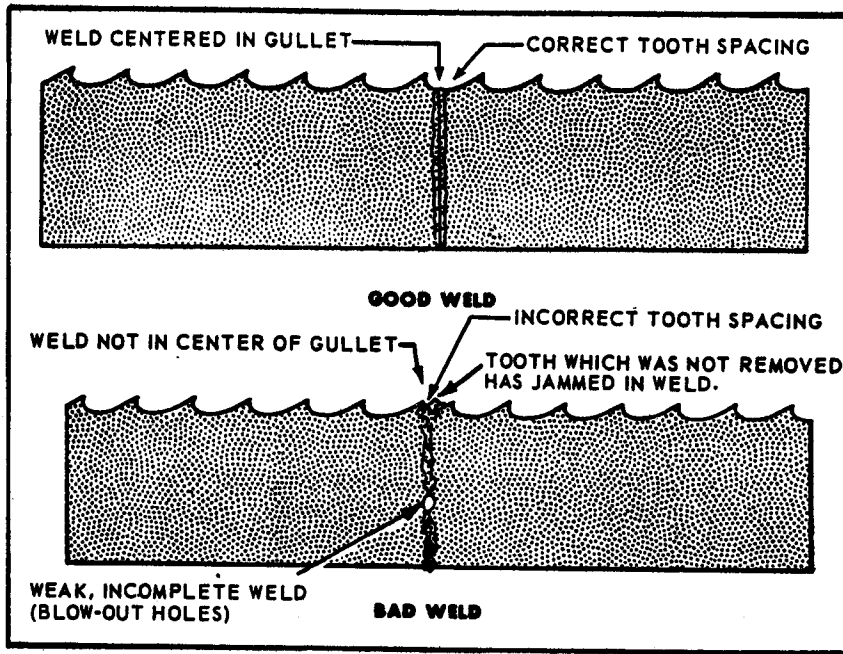
- (1) Holding proper alignment.
- (2) Preventing flash from becoming embedded in the band.
- (3) Preventing shorts or poor electrical contact.

CAUTION

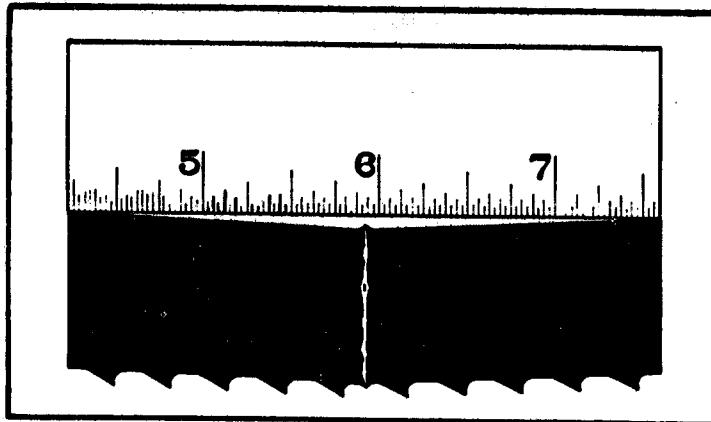
This welder is designed for intermittent use. Repeated welding within a short period of time may cause the welder to overheat.

INSPECTION OF THE WELD

When the band is removed from the welder it should be inspected carefully. The spacing of the teeth should be uniform and the weld should be located in the center of the gullet. Major jaw misalignment is easily noted at this time from the weld appearance. See the Trouble Shooting Chapter if the weld is imperfect.



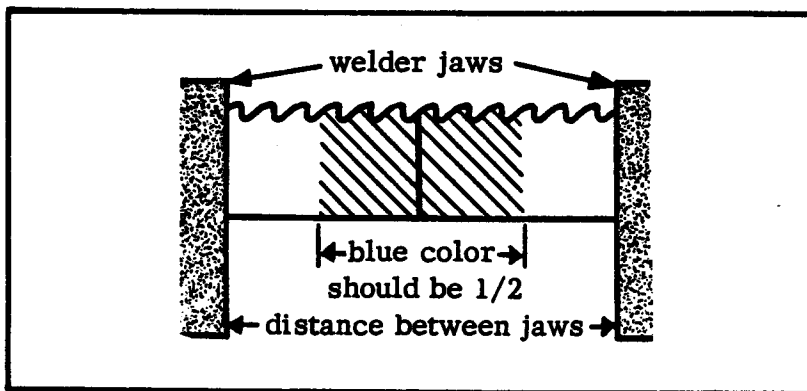
Some of the characteristics of good and bad welds.



Hold a straight edge to the back edge of the band to check for misalignment.

ANNEALING THE WELDED BAND

- (1) Swing the weld lever up all the way to the "anneal" position which is marked by the letter "A". The lever will be held in place by the bend in the drag spring.
- (2) Clamp the band just as in welding.
- (3) Set the "anneal heat" selector switch for the width of the band.
- (4) Anneal the band as explained below. CAUTION: Follow these instructions carefully.
 - (a) For Carbon Blade: Press and jog the annealing switch button until the weld is a "dull cherry" to "cherry red" color. Allow the blade to cool slowly by decreasing the jogging frequency.
 - (b) For Dart Blade: Heat the blade slowly until the weld becomes a deep blue color. Continue to heat by jogging the anneal button until the width of the blue color is one-half the length of the band exposed between the jaws. Do not overheat or the temper of the band will be damaged. CAUTION - Do not heat beyond the "blue" stage - if the band begins to show any red color, it is too hot. Cool quickly by releasing the anneal button.



Correct annealing of Dart Blade.

- (c) For IMPERIAL BI-METAL Blade: Heat the band slowly by jogging the annealing switch button until the weld just begins to emit light (this would be the dull red color). The desired color may not be visible in normal room light. Always shade the weld area with your hand. Cool the weld quickly by releasing the annealing button. NOTE: This procedure should be followed both before and after grinding IMPERIAL BI-METAL Blades.

CHAPTER 4

MAINTENANCE

LUBRICATION

The slide rod, upset force selector cam, and all miscellaneous pivot points should be lubricated every six months. The interval between lubrication may be shortened or lengthened, depending upon how much dust and dirt are in the area. If the slide rod sticks, then the rod should be cleaned and greased more often. The grinder motor will not normally require lubrication for several years. Use ASTM Grade 215 Union 76 UNAX RX 215, or equivalent oil on all lubrication points except the slide rod.

SLIDE ROD MAINTENANCE

The slide rod should be kept clean and greased. Rust or dirt may cause rod to stick and "burn out" the weld.

Check movable jaw for freedom of movement. If it binds, apply a drop of oil to slide rod and work it in by repeatedly pressing the lever. If this does not free the jaw movement, remove slide rod and clean and grease it. Before removing slide rod, clamp a piece of saw band securely between welder jaws to maintain correct spacing. Use UNION 76 UNOBA EP2 grease, or equivalent on slide rod.

The slide rod stop screw should not bind slide rod. Turn screw in, then back off 3/4 turn.

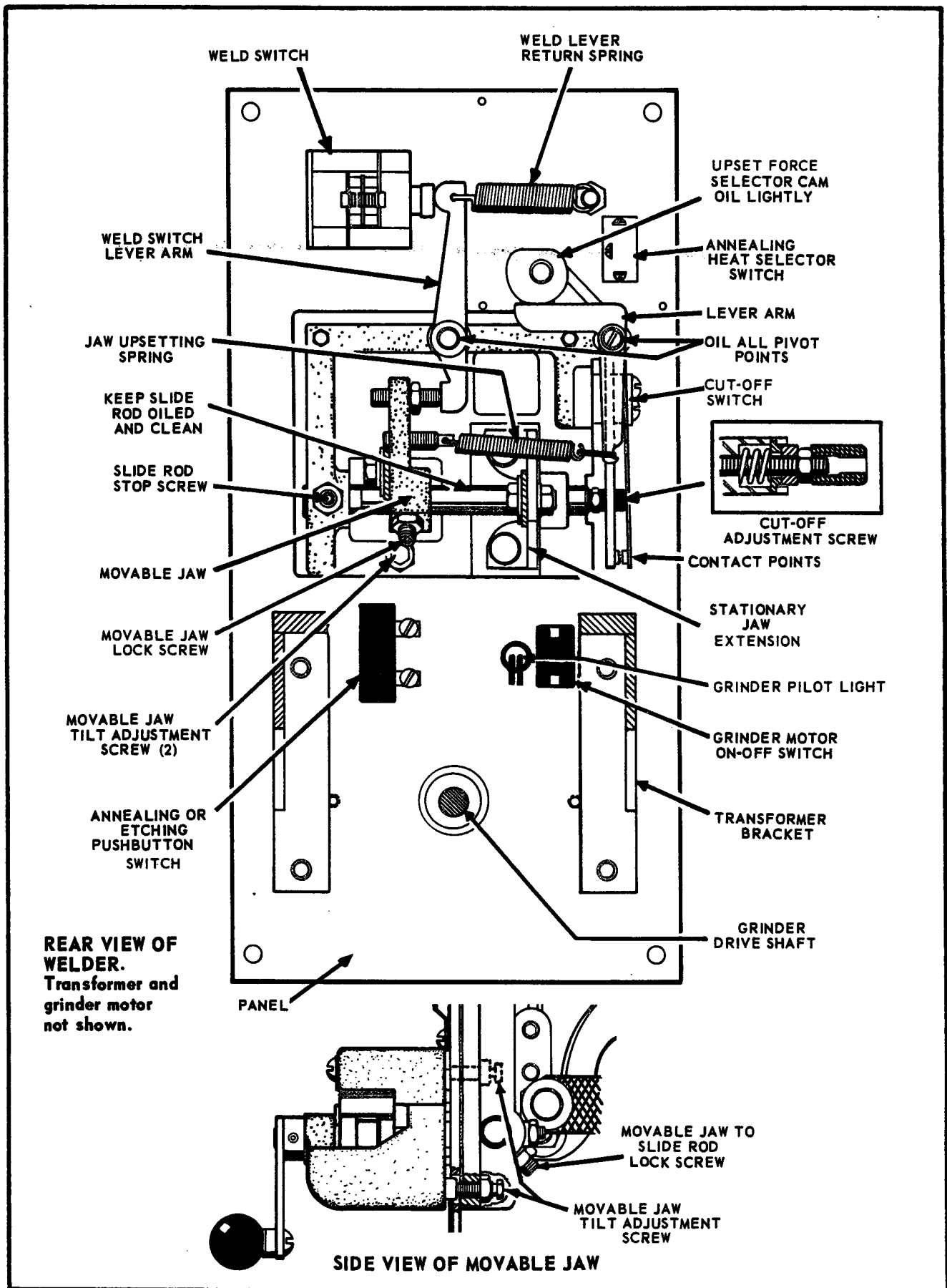
WELDER JAWS MAINTENANCE

To secure consistent results, the welder jaws must be kept clean. During the welding cycle, excess metal in the form of incandescent particles is blown out of the weld, causing a scale or flash to build up on the welder jaws. The welder will not weld properly unless the jaws are wiped clean after every weld.

Misalignment of the weld is usually caused by worn or dirty jaws. However, if the welder jaws are clean and not worn and the welds are out of line, then the jaws are not aligned properly. This misalignment can be determined by inspection of the weld after the flash has been removed. After determining which jaw is not in alignment, the jaws can be adjusted as desired. Jaw alignment instructions are given in a separate "Engineering Adjustment Summary". Replace lower jaw inserts that are worn excessively.

CUT-OFF SWITCH AND WELD SWITCH CONTACT POINTS

If the cut-off and weld switch contact points are welded together, pitted, corroded, or covered by oxide, they must be replaced. If the points are only dirty, clean them with a commercial point cleaner and clean, lintless cloth (such as linen tape).



Maintenance and adjustment locations.

JAW ALIGNMENT

The importance of accurate jaw alignment cannot be overemphasized. The jaws have been carefully aligned during assembly at the factory; however, it may be necessary to align the jaws if they are bumped or damaged. The easiest and most effective way to see if misalignment exists is to actually inspect the weld joint. A misaligned weld is usually caused by worn or dirty welder jaws.

- (1) Check with a straight edge to see if the jaws are in alignment with each other with respect to elevation, inclination, and twist.
- (2) The stationary jaw can be moved slightly on its mounting screws by loosening the screws and tapping the jaw.
- (3) The movable jaw tilt is adjusted with two set screws as shown in drawing.

Detailed alignment instructions are given in a separate "Engineering Adjustment Summary".

ADJUSTMENTS (Jaw Gap, Electrical Cut-off, Upset Force)

"Incomplete" and "burned out" welds are a result of incorrect adjustments. If the weld cycle is cut off too soon, the weld will be incomplete (low heat produces a weak weld which may be only partly joined). Too long a weld cycle will produce excessive heat which will result in a "burned out" weld (excess molten metal around a discontinuous joint).

For adjusting the cut-off point, a hole in the outside leaf of the cut-off switch permits insertion of an Allen wrench into the end-knob of the slide rod (see drawing).

For all adjustments, follow the procedures given in the "Engineering Adjustment Summary".

WARNING

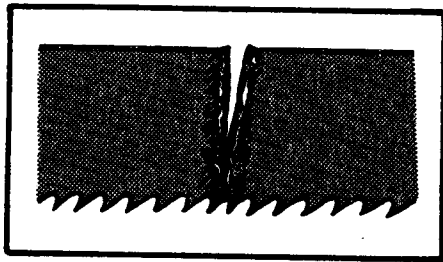
DISCONNECT ELECTRIC POWER TO THE WELDER BEFORE
MAKING ADJUSTMENTS.

CHAPTER 5

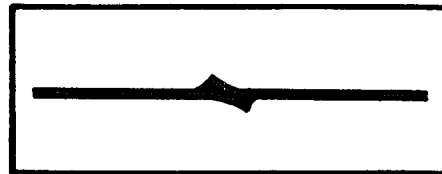
TROUBLE SHOOTING

MISALIGNED WELD

- (1) Dirt or scale on jaws or blade.
- (2) Blade ends not cut off square.
- (3) Blade ends not correctly aligned when clamped in jaws.
- (4) Worn jaws or inserts.
- (5) Jaws are not aligned correctly.



Misaligned weld.



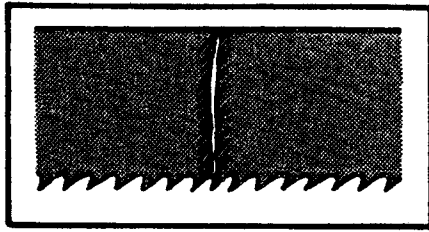
"Overlapped" weld.

MISALIGNED WELD-BLADE ENDS ARE OVERLAPPED

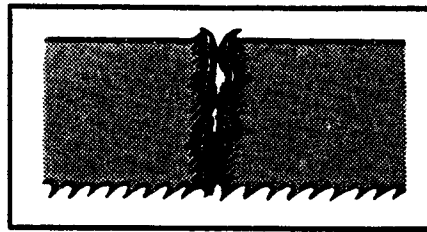
- (1) Jaw upset force control set for wider blade than used, adjust correctly.
- (2) Blade ends or jaws not aligned correctly.

WELD BREAKS WHEN USED

- (1) Weld not annealed correctly.
- (2) Weld has been ground too thin.
- (3) Weak "Incomplete" weld.



Incomplete weld.



"Blown-out" weld.

INCOMPLETE WELD (joint is not complete, "blow holes" in joint)

- (1) Incorrect Initial Set-Up:
 - (a) Initial jaw gap (weld lever position) not set correctly.
 - (b) Upset force control not set correctly.
- (2) Improper clamping procedures.
- (3) Defective cut-off switch may not break the circuit at end of welding operation.
- (4) Cut-off switch not adjusted correctly.
- (5) Points of cut-off switch welded together.
- (6) Slide rod sticking because of rust or dirt. Clean and oil rod - see Maintenance.
- (7) Slide rod movement obstructed because stop screw too tight on rod.
- (8) Jaw movement obstructed by kinked jaw cable or tangled wires. Bend cable and untangle wires.
- (9) Movable jaw binding on jaw bearings because of tilt adjustment screw turned in too far.

BRITTLE WELDS

- (1) Weld has not been annealed correctly, see "Annealing" in Operation Chapter. Poor annealing can be caused by:
 - a. Incorrect annealing heat. Bring weld up to correct color as described under "Annealing" in Operation Chapter.
 - b. Scale or oil on weld can cause poor annealing.

CHAPTER 6

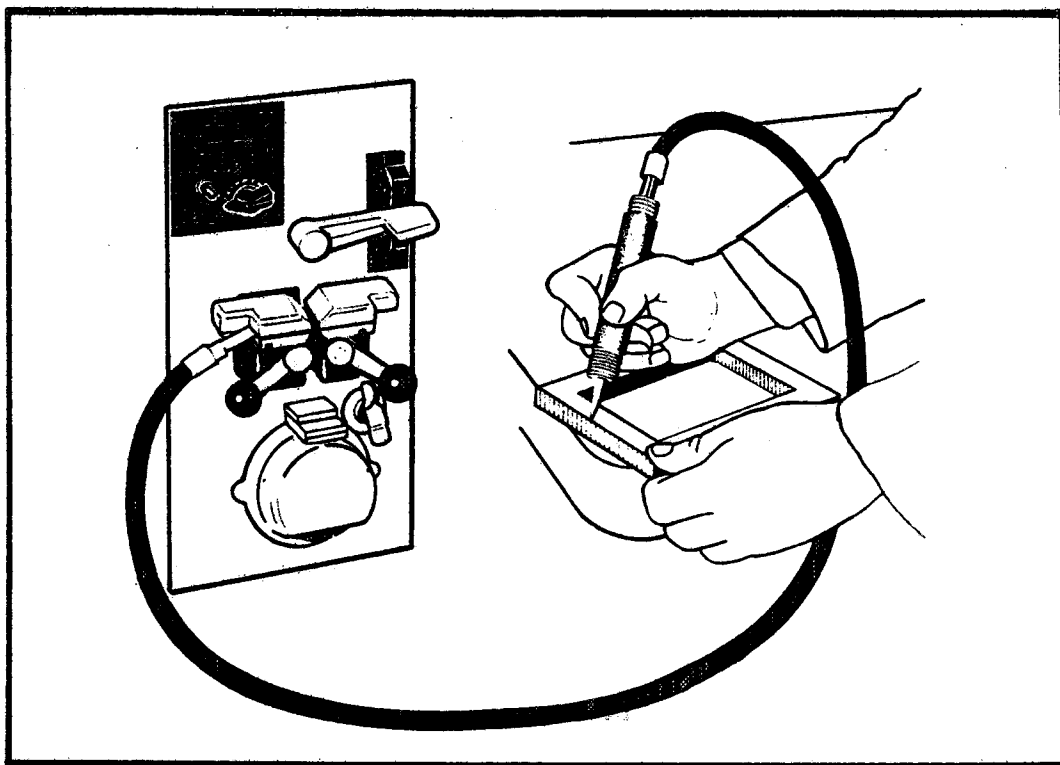
ACCESSORIES

ETCHING PENCIL

The Etching Pencil is used with the butt welder to mark tools, jigs, fixtures, templates, etc.

To use the etching pencil:

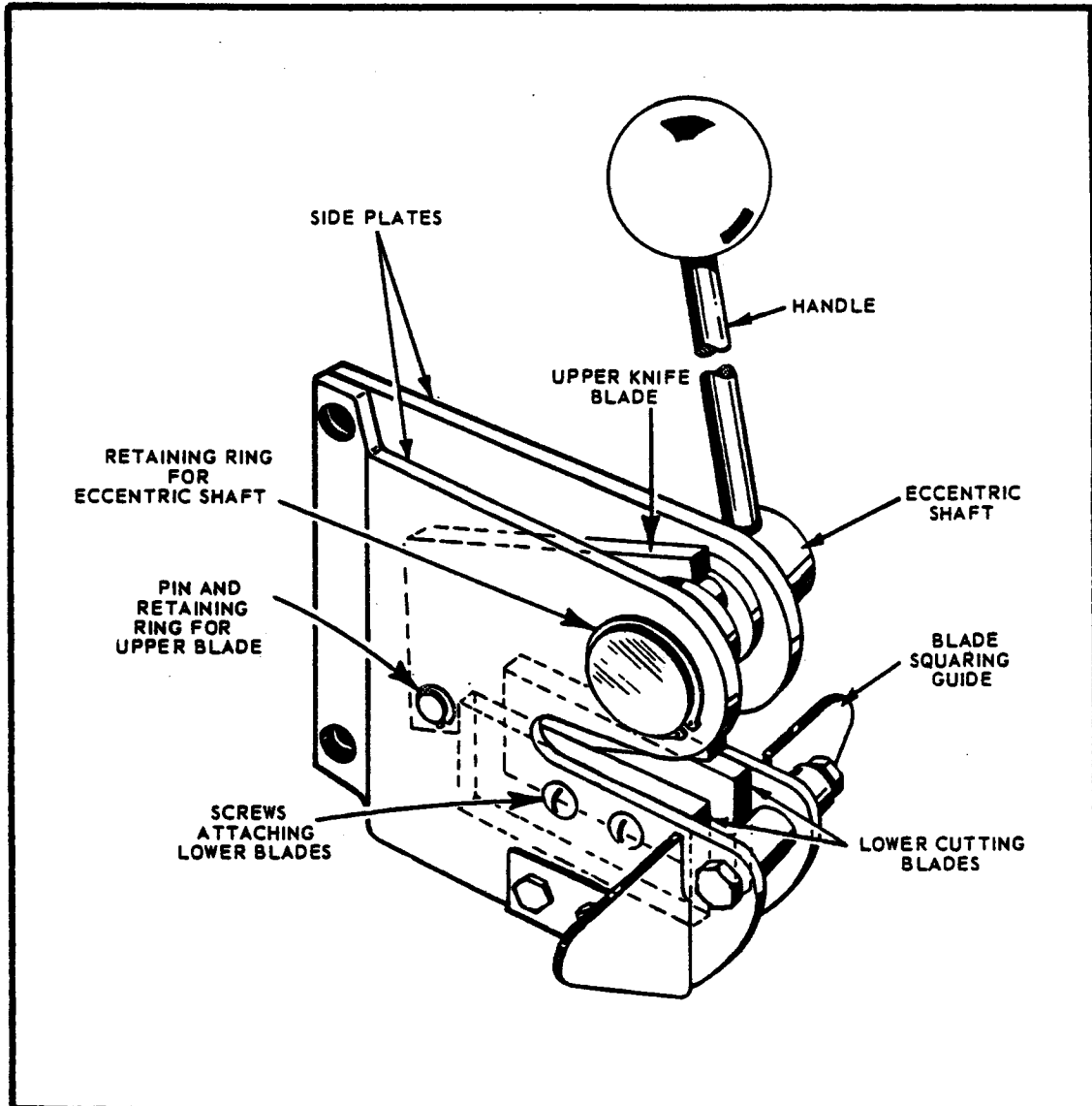
- (1) Clamp cable end of etching pencil in welder stationary jaw. Move weld lever up to "anneal" position.
- (2) Press the anneal and etching pushbutton and clamp the button down with the etching pencil clamp. This closes the circuit through the welder and also grounds the etching current through the machine.
- (3) Place the work to be marked on the table of the machine. Since the machine is "grounded" there is no second lead required to the work.
- (4) Etch with sufficient pressure to prevent the point from arcing, but not great enough to destroy the copper point. The copper point should be kept sharp to secure best results.



Using the Etching Pencil.

BLADE SHEAR

The cutter blades can be easily replaced. Disassemble by removing the snap rings from the pivot pin and eccentric disk. Then remove the retaining screws on the bottom blades.

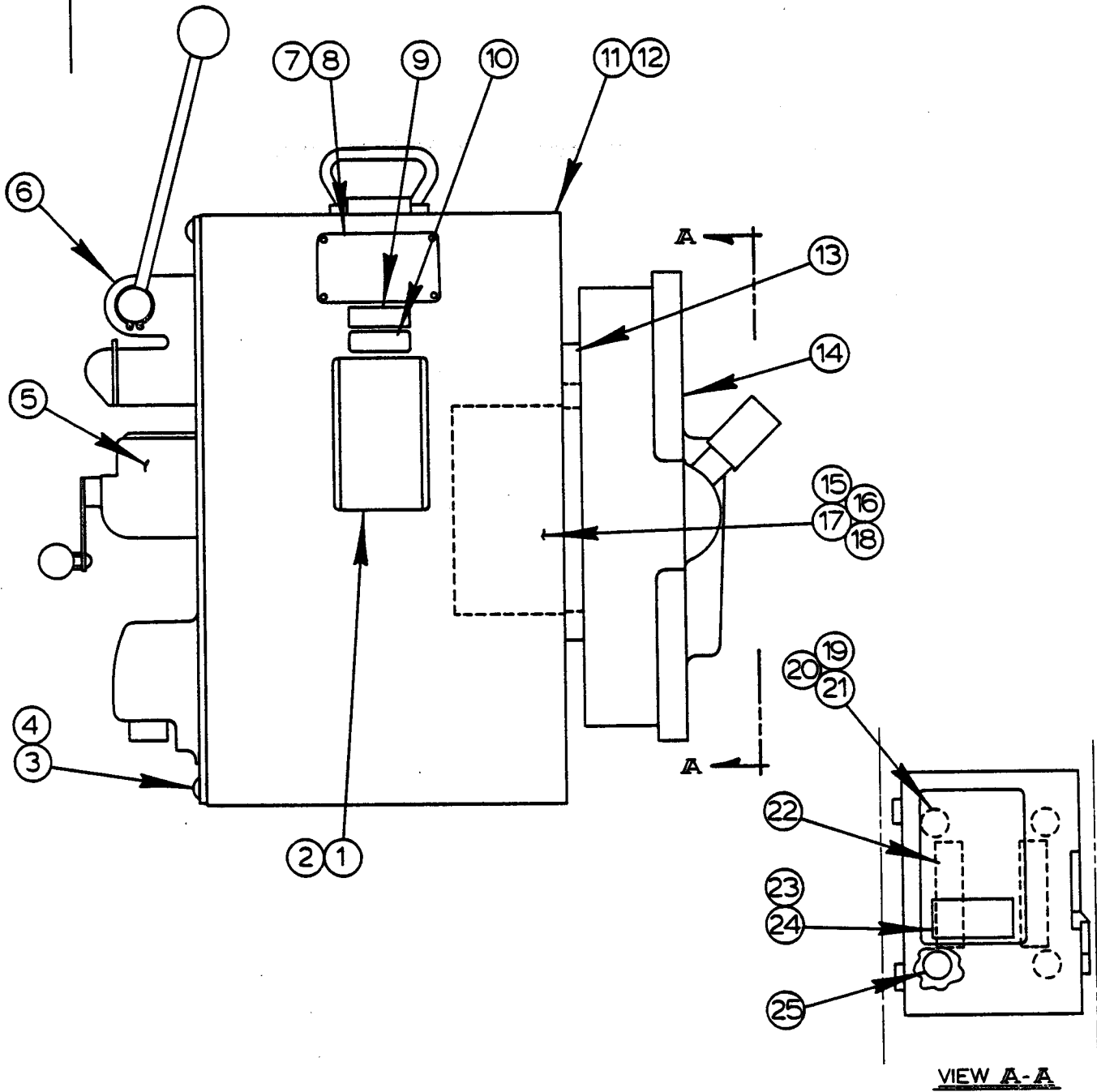


The Blade Shear Assembly.

REPLACEMENT PARTS CATALOG

*You can avoid unnecessary delay
and inconvenience by specifying
correct model and serial numbers
on all parts orders.*

REVISED AND
 REDRAWN
 S.C.L. 4-20-83
 S.C.L. 4-18-86



MODEL FIRST MACH. LAST MACH.
 DBW-15 290-69101

BUTTWELDER ASSEMBLY
 (PORTABLE)

BUTTWELDER ASSEMBLY

INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASS'Y
Ref.	091-496364	DBW-15 Buttwelder Assembly (Portable) (208 V)	
Ref.	091-496687	DBW-15 Buttwelder Assembly (Portable) (240 V)	
Ref.	091-496745	DBW-15 Buttwelder Assembly (Portable) (Voltages Above 240 V)	
Ref.	091-900142	DBW-15 Buttwelder Assembly (Portable) (Canadian)	
*1	090-156167	. Manual Motor Starter.....	1
*2	091-988931	. Screw, Rd. Hd. Mach. 1/4-20NC x 3/8.....	2
3	091-990192	. Screw, Truss Hd. Mach. 1/4-20NC x 3/8.....	4
4	091-993568	. Washer, Lock 1/4 Shakeproof Int.....	4
5		. DBW-15 Buttwelder Assembly (See Detail).....	1
6	135-084408	. Blade Shear Assembly (See Detail).....	1
7	091-165522	. Data Plate.....	1
8	091-993961	. Screw, Rd. Hd. Drive #2 x 3/16.....	A.R.
*9	091-006668	. Escutcheon (Company Logos).....	1
*10	091-214114	. Escutcheon (Grinder Motor Reset) (English).....	1
	091-312033	. Escutcheon (Grinder Motor Reset) (International).....	1
11	091-328146	. Buttwelder Box Assembly (208 V, 240 V).....	1
	091-328153	. Buttwelder Box Assembly (Voltages Above 240 V).....	1
12	106-063423	. . Buttwelder Box (208 V, 240 V).....	1
	090-505280	. . Buttwelder Box (Voltages Above 240 V).....	1
13	090-075060	. . Grommet (208 V, 240 V).....	1
	091-074294	. . Grommet (Voltages Above 240 V).....	2
14	091-328211	. . Safety Switch (208V, 240V).....	1
	090-161803	. . Safety Switch (Voltages Above 240V).....	1
**15	094-083839	. . Transformer (Voltages Above 240 V).....	1
16	091-988956	. . Washer, Rd. Hd. Mach. 1/4-20NC x 1/2 (Voltages Above 240 V).....	4
17	091-993212	. . Washer, Lock 1/4 Std. (Voltages Above 240 V).....	4
18	091-991158	. . Nut, Hex. 1/4-20NC (Voltages Above 240 V).....	4
19	091-988972	. . Screw, Rd. Hd. Mach. 1/4-20NC x 3/4.....	4
20	091-993212	. . Washer, Lock 1/4 Std. (208 V, 240 V).....	4
21	091-991158	. . Nut, Hex. 1/4-20NC (208 V, 240 V).....	4
22	091-338483	. . Fuse (10 Amp) (208 V, 240 V).....	2
	091-338616	. . Fuse (5 Amp) (Voltages Above 240 V).....	2
23	091-331603	. . Escutcheon (Warning).....	1
24	091-993961	. . Screw, Rd. Hd. Drive #2 x 3/16.....	4
25	091-047704	. . Ground Tag.....	1

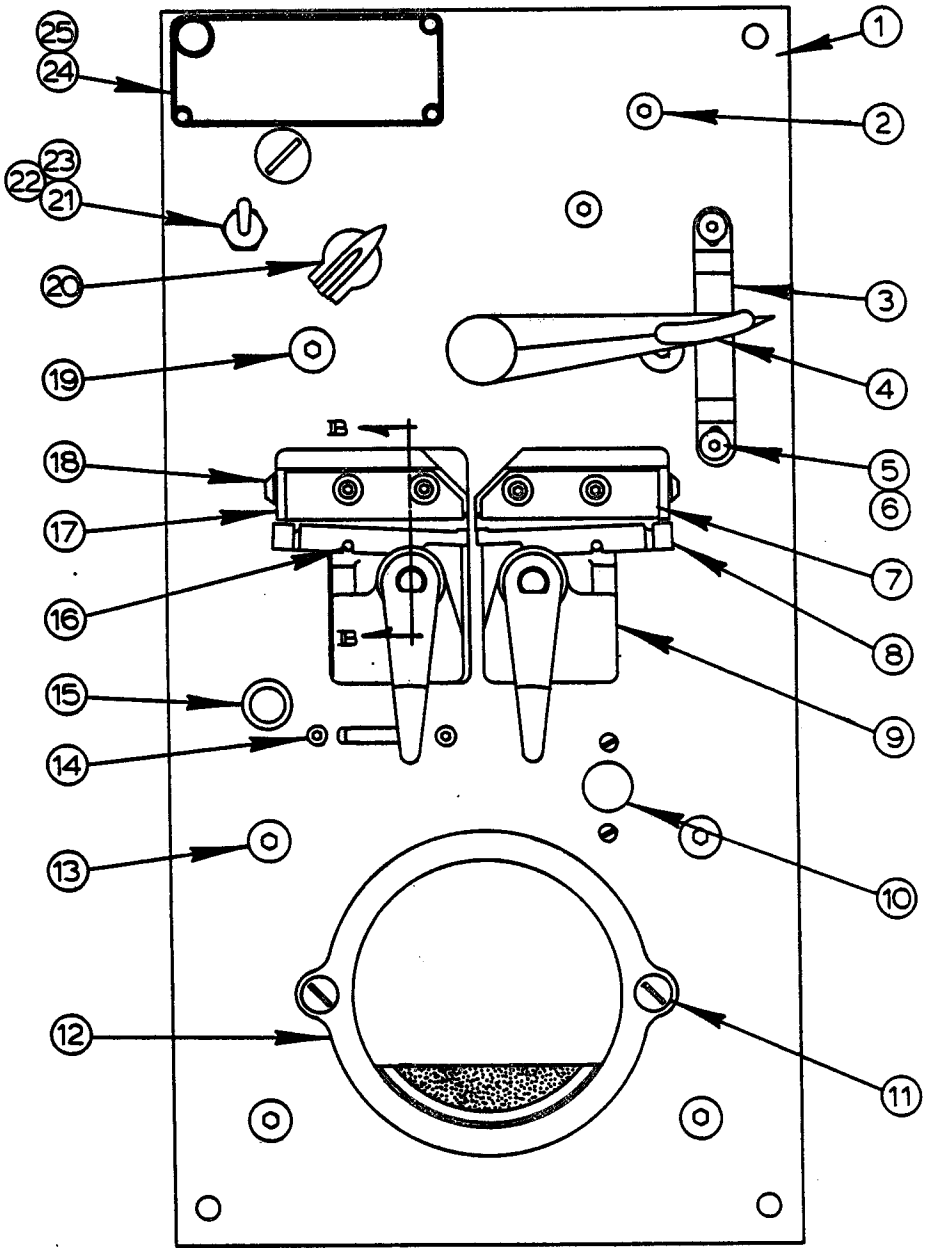
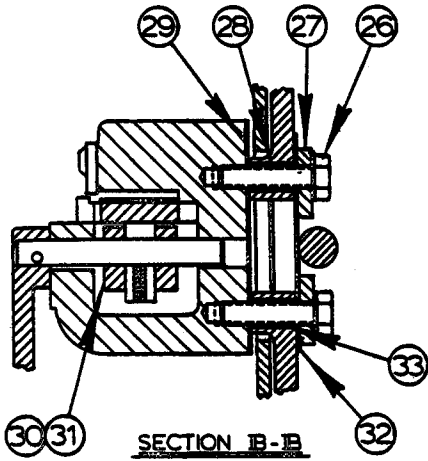
FOLLOWING NOT SHOWN:

091-211276	. Nutsert 5/16-18NC.....	2
091-989061	. Screw, Rd. Hd. Mach. 5/16-18NC x 3/4.....	2
091-488866	. U.L. Decal.....	1
071-327050	. Parts And Instruction Manual.....	1
091-972430	. . Wire, #10 Green/Yellow.....	A.R.
091-971853	. . Wire, #12 Black (Nylon Jacket).....	A.R.
091-391854	. . Escutcheon (Copper Wire).....	1

*NOTE: Items #1, #2, #9, #10 Used On Canadian Buttwelders Only.

**NOTE: Item #15 Was 094-052594 Before Serial #290-778039.

NEW DRG.
S.C.L. 4-18-86
REVISIONS



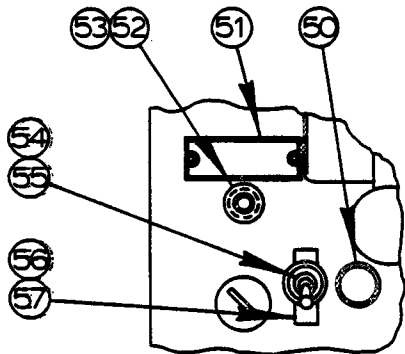
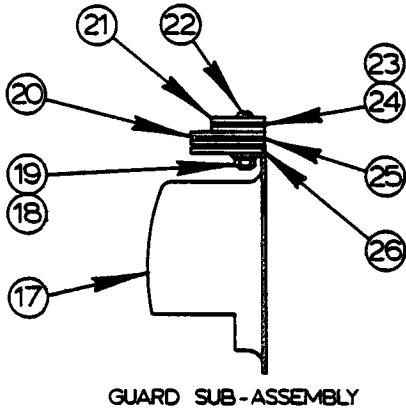
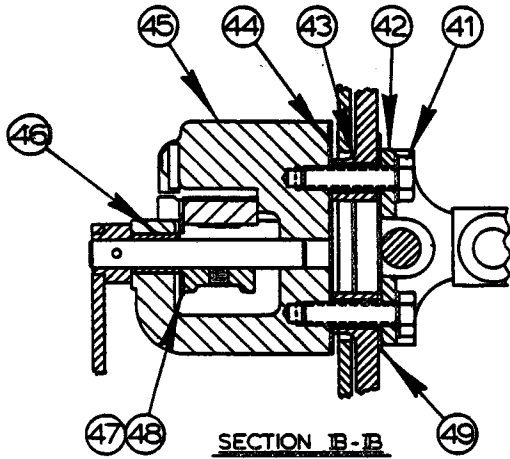
MODEL FIRST MACH. LAST MACH.
DBW-15 290-8614181

BUTTWELDER ASSEMBLY

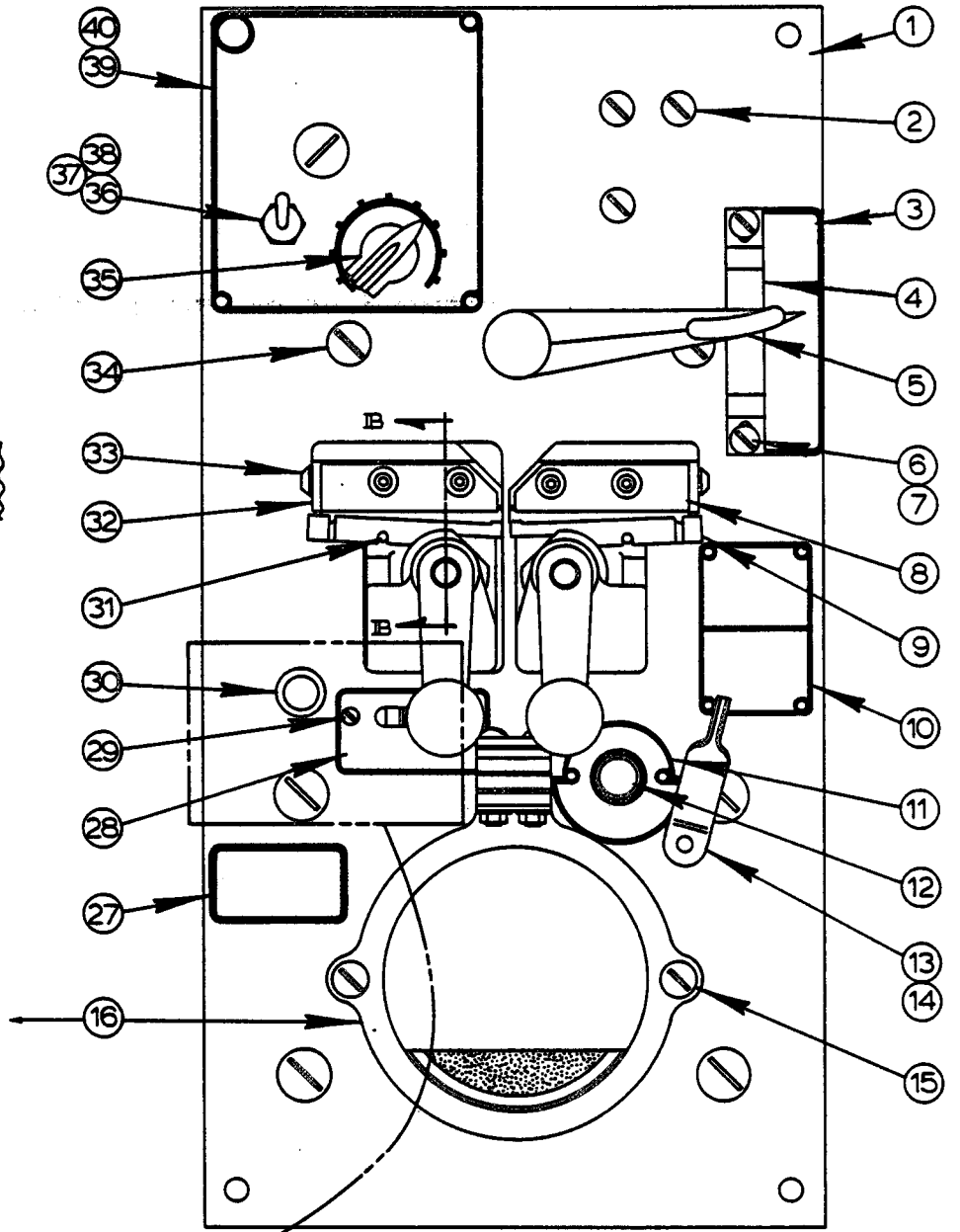
BUTTWELDER ASSEMBLY

INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASS'Y
Ref.	091-718775	DBW-15 Buttwelder Assembly	
1	095-131314	. Panel.....	1
2	091-983213	. Screw, Button Hd. Soc. #10-24NC x 3/8.....	2
3	091-198804	. Drag Spring.....	1
4	091-198838	. Handle Sub-Assembly.....	1
	091-195644	. . Handle.....	1
	091-198796	. . Shaft.....	1
	091-198846	. . Welding Lever Assembly.....	1
	090-042318	. . Roll Pin.....	1
	091-051169	. . Hardened Washer.....	2
5	091-983212	. Screw, Button Hd. Soc. #10-24NC x 3/8.....	2
6	091-992909	. Washer, Brass #10-L.....	A.R.
7	091-210666	. Line-Up Guide.....	2
8	090-386608	. Jaw Insert.....	2
9	095-130548	. Welder Jaw Set.....	1
10	134-065036	. Switch.....	1
11	091-988907	. Screw, Rd. Hd. Mach. 1/4-20NC x 1/4.....	2
12	094-143658	. Guard.....	1
13	091-997528	. Screw, Button Hd. Soc. 5/16-18NC x 5/8 (Nylloc).....	2
14	091-983767	. Screw, Button Hd. Soc. #6-32NC x 3/8.....	2
15	091-562470	. Indicator Light.....	1
16	091-199067	. Pin.....	2
17	091-210674	. Insert Bearing.....	2
18	091-983213	. Screw, Soc. Hd. Button #10-24NC x 3/8.....	8
19	091-983684	. Screw, Button Hd. Soc. 1/4-20NC x 3/4.....	2
20	134-065184	. Knob.....	1
21	091-084509	. Toggle Switch.....	1
22	091-145680	. Nut, Hex. 15/32-32NC.....	1
23	091-071712	. Washer, Lock.....	1
24	091-724799	. Escutcheon.....	1
25	091-994004	. Screw, Rd. Hd. Drive #6 x 1/4.....	3
26	090-031725	. Screw, Hex. Hd. Cap 5/16-18NC x 1-1/4.....	2
27	090-027483	. Stationary Jaw Connector.....	1
28	135-096147	. Insulator Bushing.....	2
29	091-198630	. Insulator.....	1
30	091-726125	. Cam.....	2
31	091-984179	. Screw, Soc. Set #10-32NF x 1/4.....	2
32	090-027616	. Insulator.....	1
33	091-353151	. Adhesive (Sealant Silicate).....	A.R.

REVISED AND
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SCL 4-21-83
SCL 4-18-86



MACHINES WITH SERIAL *290-69183 THRU *290-745445



BUTTWELDER ASSEMBLY

MODEL	FIRST MACH	LAST MACH
DBW-15	290-69101	290-8614180

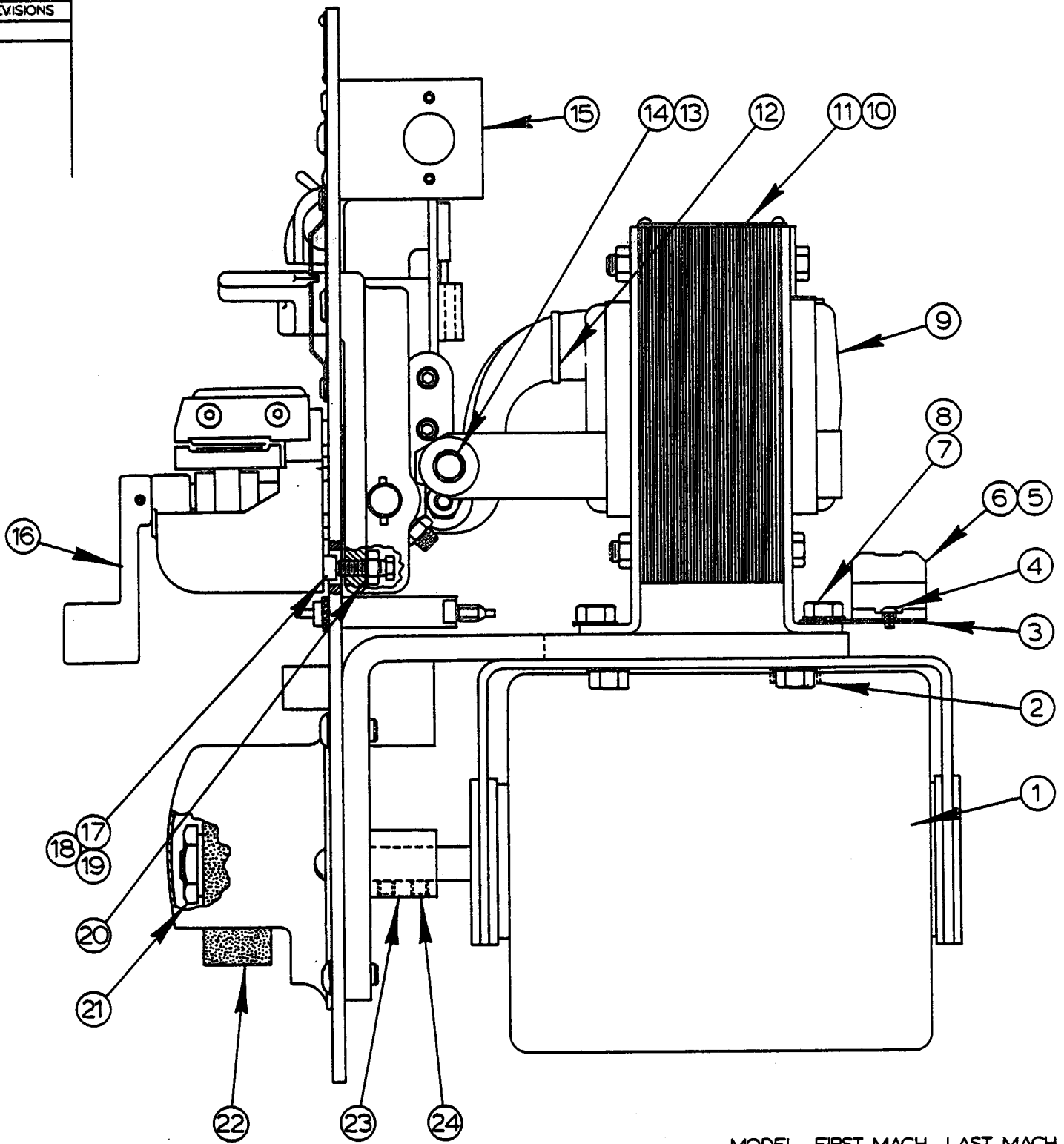
BUTTWELDER ASSEMBLY

INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASS'Y	INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY
Ref.	095-076972	DBW-15 Buttwelder Assembly (English) (208V)		**28	091-361857	. Escutcheon (English).....	1
Ref.	095-076964	DBW-15 Buttwelder Assembly (International) (208V)		**	091-361865	. Escutcheon (International).....	1
Ref.	095-073805	DBW-15 Buttwelder Assembly (Portable) (208V)		**29	091-988402	. Screw, Rd. Hd. Mach. #6-32NC x 3/8.....	2
Ref.	090-597881	DBW-15 Buttwelder Assembly (English) (240V)		30	091-562470	. Indicator Light.....	1
Ref.	095-067096	DBW-15 Buttwelder Assembly (International) (240V)		31	091-199067	. Pin.....	2
Ref.	095-063962	DBW-15 Buttwelder Assembly (English/Metric) (240V)		*32	091-210674	. Insert Bearing.....	2
Ref.	095-030326	DBW-15 Buttwelder Assembly (Canadian)		*33	091-983460	. Screw, Soc. Hd. Button #8-32NC x 3/8.....	8
1	090-597675	. Panel.....	1	34	091-990234	. Screw, Truss Hd. Mach. 1/4-20NC x 3/4.....	2
2	091-990150	. Screw, Truss Hd. Mach. #10-24NC x 3/8.....	3	35	134-065184	. Knob.....	1
3	091-198622	. Escutcheon (English).....	1	36	091-084509	. Toggle Switch.....	1
	091-254623	. Escutcheon (International).....	1	37	091-145680	. Nut, Hex. 15/32-32NC.....	1
	091-637124	. Escutcheon (English/Metric)....	1	38	091-071712	. Washer, Lock.....	1
4	091-198804	. Drag Spring.....	1	39	091-198614	. Escutcheon (English).....	1
5	091-198838	. Handle Sub-Assembly.....	1		091-254615	. Escutcheon (International).....	1
	091-195644	. . Handle.....	1		091-637116	. Escutcheon (English/Metric)....	1
	091-198796	. . Shaft.....	1	40	091-993972	. Screw, Rd. Hd. Drive #2 x 1/4....	9
	091-198846	. . Welding Lever Assembly.....	1	41	090-031725	. Screw, Hex. Hd. Cap 5/16-18NC x 1-1/4.....	2
	090-042318	. . Roll Pin.....	1	42	090-027483	. Stationary Jaw Connector.....	1
	091-051169	. . Hardened Washer.....	2	43	135-096147	. Insulator Bushing.....	2
6	091-988667	. Screw, Rd. Hd. Mach. #10-24NC x 5/16.....	2	44	091-198630	. Insulator.....	1
7	091-992909	. Washer, Brass #10-L.....	A.R.	*45	094-018710	. Stationary Welder Jaw.....	1
*8	091-210666	. Line-Up Guide.....	2	46	091-039479	. Bearing.....	2
*9	090-386608	. Jaw Insert.....	2	47	091-214775	. L.H. Cam Sub-Assembly.....	1
10	091-068411	. Escutcheon (International).....	1		090-389453	. . L.H. Cam.....	1
11	135-007789	. Escutcheon (English).....	1		091-317966	. . Loctite (#311).....	A.R.
	091-067371	. Escutcheon (International).....	1		091-207373	. . Cam Washer.....	1
12	134-065036	. Switch.....	1	48	091-984237	. Screw, Soc. Set 1/4-20NC x 5/16..	2
13	135-020105	. Pushbutton Clamp.....	1	49	090-027616	. Insulator.....	1
14	091-995381	. Rivet, Rd. Hd. 1/8 x 1/2.....	1				
15	091-988907	. Screw, Rd. Hd. Mach. 1/4-20NC x 1/4.....	2				
16	093-038866	. Guard Sub-Assembly.....	1	**50	091-562470	. Light.....	1
17	094-057353	. . Guard.....	1	**	091-562488	. Clip.....	1
18	091-991133	. . Nut, Hex. #10-32NF.....	2	51	091-214114	. Escutcheon (English).....	1
19	091-993196	. . Washer, Lock #10 Std.....	2		091-312033	. Escutcheon (International).....	1
20	113-063068	. . Gage Block (.036).....	3	52	091-132621	. Circuit Breaker.....	1
21	106-063068	. . Gage Block (.12).....	2	53	091-214106	. Wire Terminal.....	2
22	091-988881	. . Screw, Rd. Hd. Mach. #10-32NF x 1.....	2	**54	091-109538	. Toggle Switch.....	1
23	091-337980	. . Spacer (.015).....	1	**55	091-071712	. Washer, Lock.....	1
24	091-337998	. . Spacer (.012).....	1	**56	090-107764	. Plate (English).....	1
25	113-063044	. . Spacer (.0359).....	1		091-312025	. Plate (International).....	1
26	113-063077	. . Spacer (.040).....	1	**57	091-111233	. Wire Terminal.....	A.R.
**27	091-134478	. Escutcheon (English).....	1				
**	091-312066	. Escutcheon (International).....	1				
**	091-254607	. Escutcheon (English/Metric)....	1				

FOLLOWING ITEMS USED ON MODELS WITH SERIAL #290-68183 THRU #290-745445:

*NOTE: Before Serial #290-69396, Order All Starred Items Together Plus 094-018728 Movable Welder Jaw.
 **NOTE: #27, #28, #29, #50, #55, #56, #57 Are Omitted For Canadian Buttwelders And Replaced With:
 135-058188 . Plug Button..... 1

NEW DRG.
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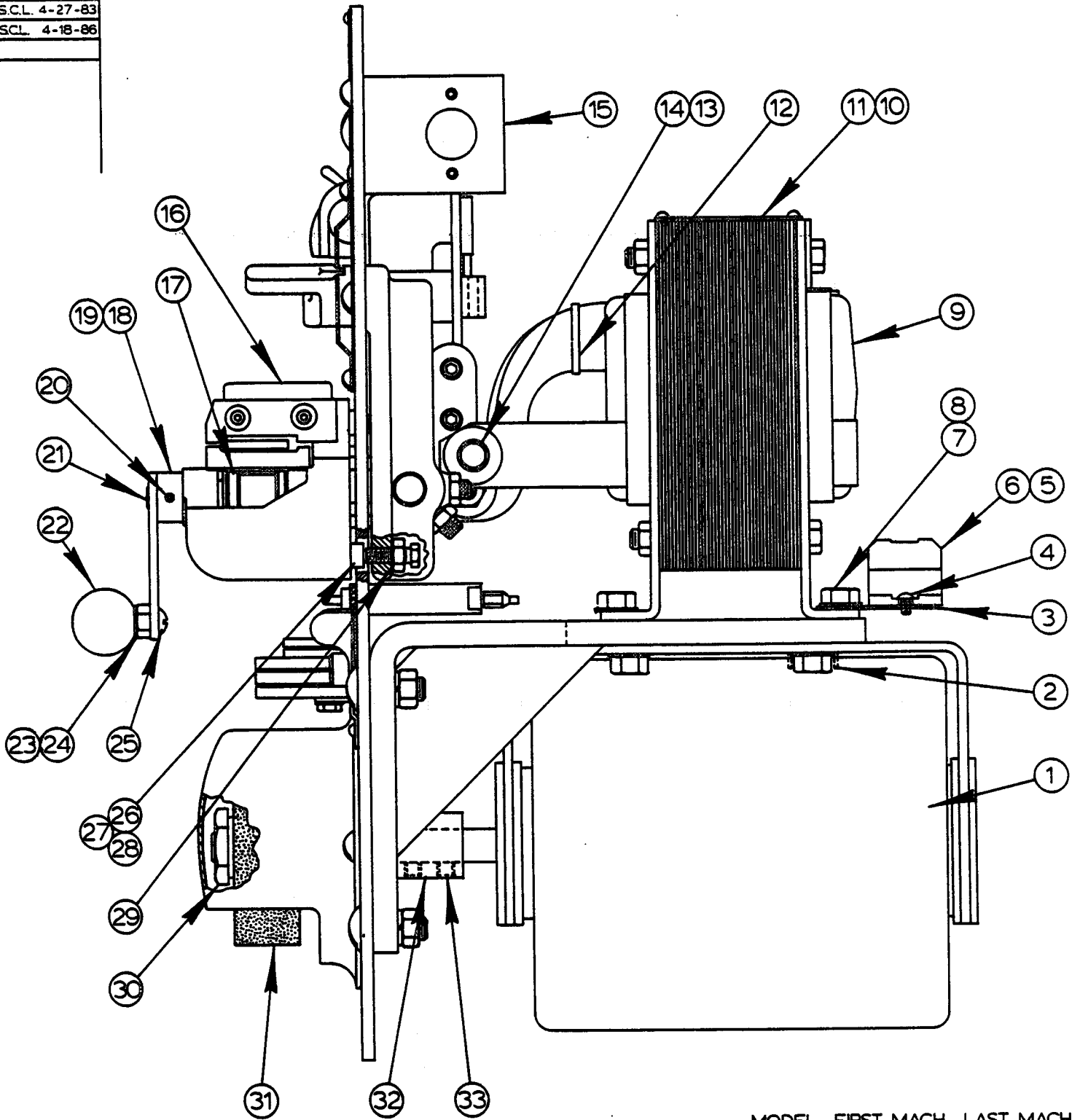
MODEL FIRST MACH. LAST MACH.
 DBW - 15 290 - 8614181

BUTTWELDER ASSEMBLY

BUTTWELDER ASSEMBLY

INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASS'Y
Ref.	095-718775	DBW-15 Buttwelder Assembly	1
1	091-355107	. Electric Motor (50/60 Hz).....	1
2	090-124421	. Stop.....	2
3	135-096170	. Conduit Anchor.....	2
4	091-994616	. Screw, Rd. Hd. Self-Tap #6-32NC x 3/8.....	2
5	091-349720	. Terminal Block.....	1
6	091-349738	. Terminal Block End Section.....	8
7	091-980250	. Screw, Hex. Hd. Cap 5/16-18NC x 1/2.....	12
8	091-993238	. Washer, Lock 5/16 Std.....	1
9	094-054228	. Transformer Assembly.....	1
10	091-995639	. Hex. Key (3/32").....	1
11	106-065022	. Tag.....	1
12	091-076372	. Cable Tie.....	1
13	091-980391	. Screw, Hex. Hd. Cap 5/16-24NF x 3/4.....	2
14	090-127366	. Washer.....	1
15	135-095453	. Switch Bracket.....	1
16	093-153278	. Handle and Pin Assembly.....	1
	093-153260	. . Handle.....	1
	091-726117	. . Pin.....	2
17	090-010067	. Bearing Stud.....	2
18	106-064173	. Jaw Bearing.....	2
19	091-991158	. Nut, Hex. 1/4-20NC.....	1
20	091-993568	. Washer, Lock 1/4 Shakeproof Int.....	1
21	093-038164	. Front Adaptor.....	1
22	113-065015	. Grinding Wheel.....	1
23	093-038156	. Rear Adaptor.....	1
24	091-984229	. Screw, Soc. Set 1/4-20NC x 1/4.....	2
FOLLOWING NOT SHOWN:			
	091-038489	. Terminal.....	10
	091-338269	. Wire Connector (Yellow).....	A.R.
	091-338277	. Wire Connector (Red).....	A.R.
	091-111237	. Wire Terminal.....	4

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S.C.L. 4-27-83
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MODEL FIRST MACH. LAST MACH.
 DBW-15 290-69101 290-8614180

BUTTWELDER ASSEMBLY

BUTTWELDER ASSEMBLY

INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASS'Y
Ref.	095-076972	DBW-15 Buttwelder Assembly (English) (208V)	
Ref.	095-076964	DBW-15 Buttwelder Assembly (International) (208V)	
Ref.	095-073805	DBW-15 Buttwelder Assembly (Portable) (208V)	
Ref.	090-597881	DBW-15 Buttwelder Assembly (English) (240V)	
Ref.	095-067096	DBW-15 Buttwelder Assembly (International) (240V)	
Ref.	095-063962	DBW-15 Buttwelder Assembly (English/Metric) (240V)	
Ref.	095-030326	DBW-15 Buttwelder Assembly (Canadian)	
1	091-355107	. Electric Motor (50/60 Hz).....	1
2	090-124421	. Stop.....	1
3	135-096170	. Conduit Anchor.....	2
4	091-994616	. Screw, Rd. Hd. Self-Tap #6-32NC x 3/8.....	2
5	091-349720	. Terminal Block.....	2
6	091-349738	. Terminal Block End Section.....	1
7	091-980250	. Screw, Hex. Hd. Cap 5/16-18NC x 1/2.....	8
8	091-993238	. Washer, Lock 5/16 Std.....	16
9	094-054517	. Transformer Assembly (208V).....	1
	094-054228	. Transformer Assembly (240V).....	1
10	091-995639	. Hex. Key (3/32").....	1
11	106-065022	. Tag.....	1
12	091-076372	. Cable Tie.....	1
13	091-980391	. Screw, Hex. Hd. Cap 5/16-24NF x 3/4.....	1
14	090-127366	. Washer.....	2
15	135-095453	. Switch Bracket.....	1
*16	094-018728	. Movable Welder Jaw.....	1
17	091-214783	. R.H. Cam Sub-Assembly.....	1
	090-389461	. . R.H. Cam.....	1
	091-317966	. . Loctite (#311).....	A.R.
	091-207373	. . Cam Washer.....	1
18	091-198598	. L.H. Cam Lever And Pin Assembly (Far Side).....	1
	091-207381	. R.H. Cam Lever And Pin Assembly.....	1
19	091-198572	. . Cam Lever Sub-Assembly.....	1
20	090-042292	. . Roll Pin.....	1
21	091-198580	. . Pin.....	1
22	091-339713	. . Knob.....	1
23	091-991158	. . Nut, Hex. 1/4-20NC.....	1
24	091-993568	. . Washer, Lock 1/4 Shakeproof Int.....	1
25	091-990234	. . Screw, Truss Hd. Mach. 1/4-20NC x 3/4.....	1
26	090-010067	. Bearing Stud.....	2
27	106-064173	. Jaw Bearing.....	2
28	091-991158	. Nut, Hex. 1/4-20NC.....	2
29	091-993568	. Washer, Lock 1/4 Shakeproof Int.....	1
**30	091-038164	. Front Adaptor.....	1
31	113-065015	. Grinding Wheel.....	1
**32	093-038156	. Rear Adaptor.....	1
33	091-984229	. Screw, Soc. Set 1/4-20NC x 1/4.....	2

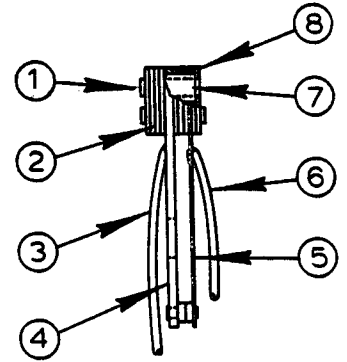
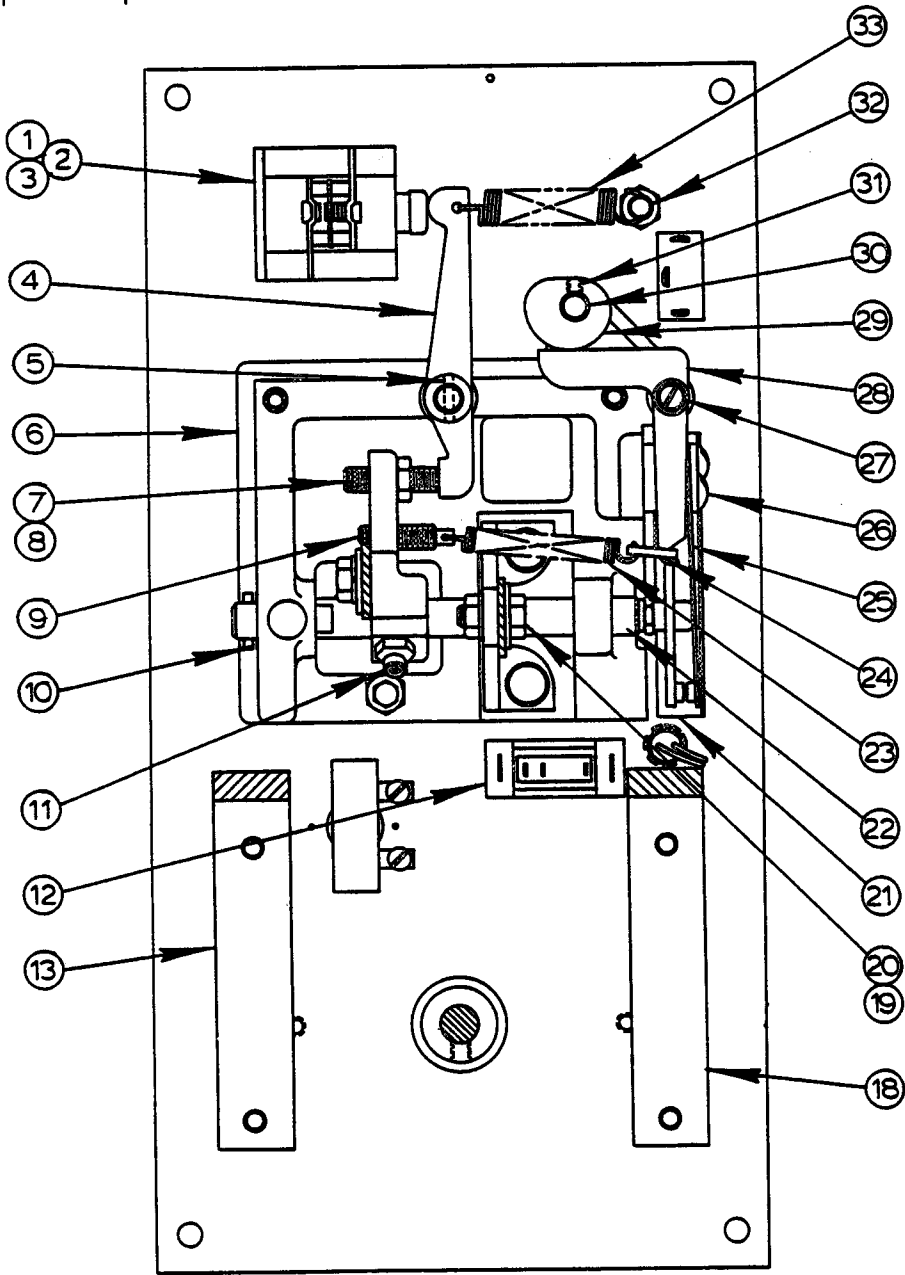
FOLLOWING NOT SHOWN:

091-038489	. Terminal.....	10
091-338269	. Wire Connector (Yellow).....	A.R.
091-338277	. Wire Connector (Red).....	A.R.
091-111237	. Wire Terminal.....	4

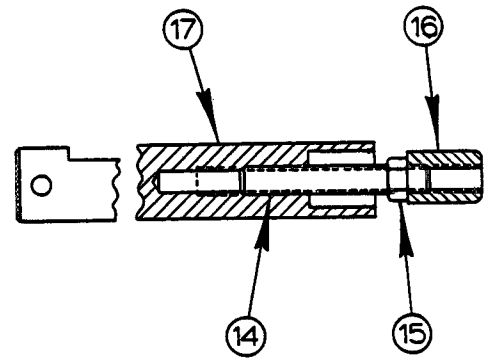
*NOTE: When Ordering #16, You Must Also Order The Single Starred Items On Previous Page (H1-13.2) #8, #9, #32, #45.

**NOTE: Item #30 Was 134-124023 Washer And 106-064298 Screw And Item #32 Was 135-006146 Before Serial #290-745446.

NEW DRG.
S.C.L. 4-18-86
REVISIONS



CUT OFF SWITCH ASSEMBLY



SLIDE ROD DETAIL

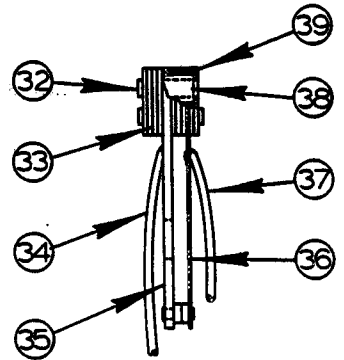
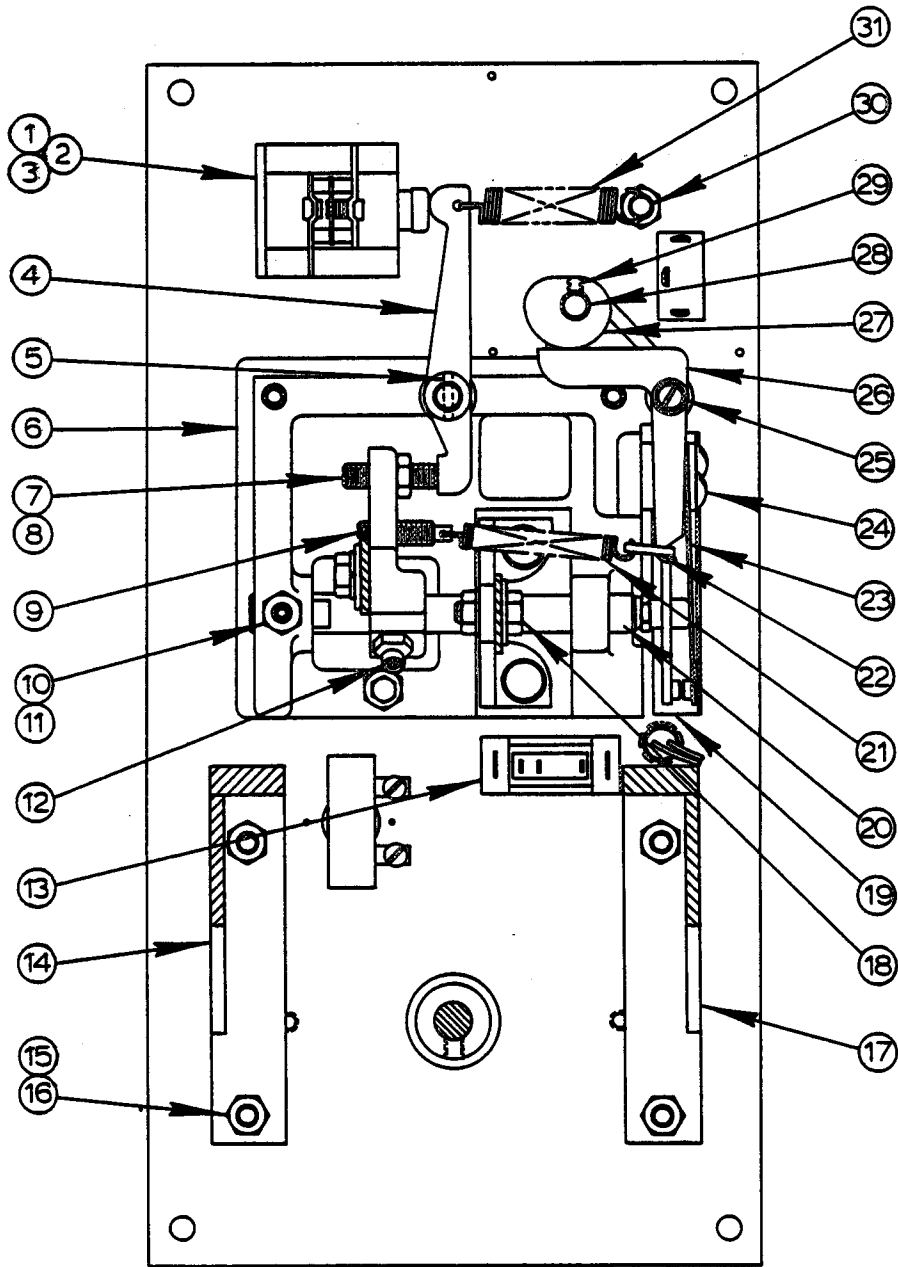
BUTTWELDER ASSEMBLY

MODEL FIRST MACH. LAST MACH.
 DW-15 290-8614181

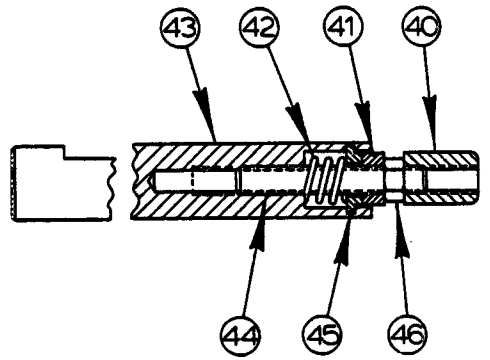
BUTTWELDER ASSEMBLY

INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASS'Y
Ref.	091-718775	DBW-15 Buttwelder Assembly	
1	106-065063	. Welder Switch.....	1
2	091-993188	. Washer, Lock #8 Std.....	2
3	091-971911	. Wire, #14 Black (Nylon Jacket).....	A.R.
4	091-198846	. Welding Lever Assembly (Part of Handle Sub-Assembly)....	1
	091-198788	. . Welding Lever.....	1
	091-222059	. . Collar.....	1
5	090-042276	. Roll Pin.....	1
6	135-095578	. Buttwelder Frame.....	1
7	091-984476	. Screw, Soc. Set 5/16-24NF x 1-1/4.....	1
8	091-991257	. Nut, Hex. Jam 5/16-24NF.....	2
9	135-095495	. Spring Stud.....	1
10	090-042292	. Roll Pin.....	1
11	091-984468	. Screw, Soc. Set 5/16-24NF x 3/4.....	1
12	091-359448	. Circuit Breaker.....	1
13	093-152635	. L.H. Bracket.....	1
14	091-985291	. Screw, Soc. Set #10-32NF x 1 (Nyloc, Cup Pt.).....	1
15	091-991133	. Nut, Hex. #10-32NF.....	1
16	106-064181	. Knob.....	1
17	090-165416	. Slide Rod.....	1
18	093-152627	. R.H. Bracket.....	1
19	091-980268	. Screw, Hex. Hd. Cap 5/16-18NC x 5/8.....	1
20	091-991224	. Nut, Hex. 5/16-18NC.....	2
21	091-485086	. Insulator.....	1
22	090-165416	. Slide Rod.....	1
23	106-063399	. Tension Spring.....	1
24	106-063134	. Insulator.....	1
25	090-200171	. Cut-Off Switch Assembly (See Detail).....	1
26	091-983304	. Screw, Button Hd. Soc. #10-24NC x 1.....	2
27	090-010059	. Tension Arm Pivot.....	1
28	135-095503	. Tension Adjusting Lever.....	1
29	106-063241	. Cam.....	1
30	135-095487	. Tension Control Shaft.....	1
31	091-984104	. Screw, Soc. Set #10-24NC x 1/4.....	1
32	135-095925	. Spring Stud.....	1
33	091-040303	. Spring.....	1
Ref.	090-200171	Cut-Off Switch Assembly	
1	090-010877	. Pin.....	2
2	135-007532	. Insulator Pad.....	7
3	091-331983	. Wire.....	1
4	090-200197	. Stationary Leaf Assembly.....	1
5	090-200189	. Movable Leaf Assembly.....	1
6	091-331975	. Wire.....	1
7	090-010885	. Switch Bushing.....	2
8	134-063593	. Insulator Pad.....	2

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S.C.L. 4-28-83
S.C.L. 4-18-86



CUT OFF SWITCH ASSEMBLY



SLIDE ROD ASSEMBLY

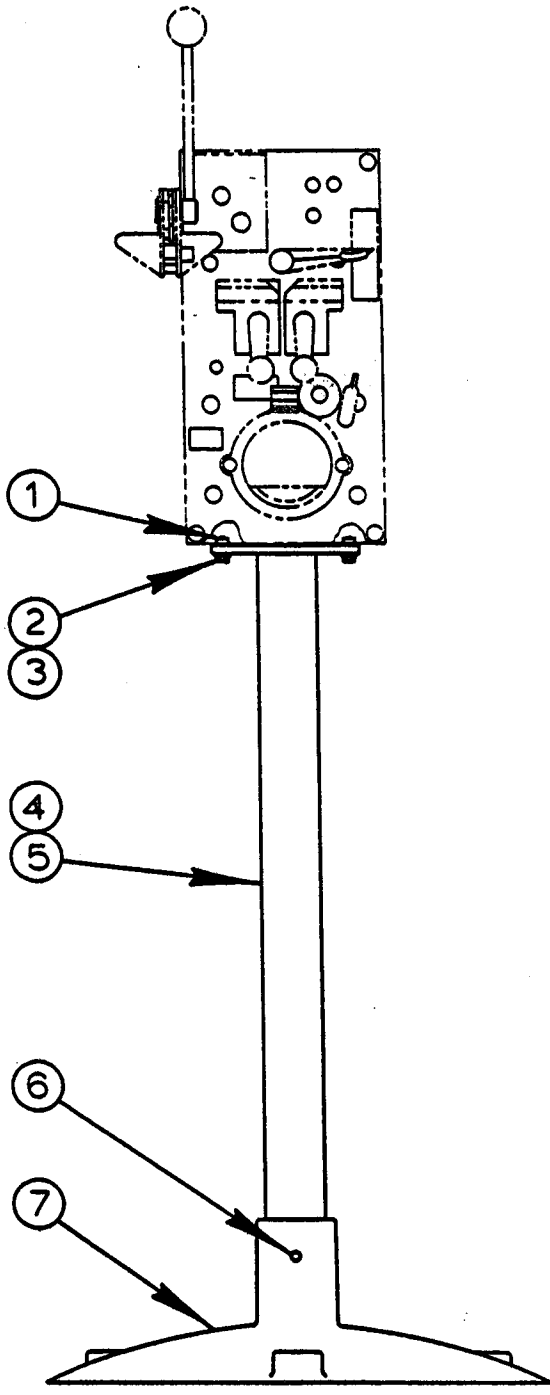
BUTTWELDER ASSEMBLY

MODEL	FIRST MACH.	LAST MACH.
DBW-15	290-69101	290-8614180

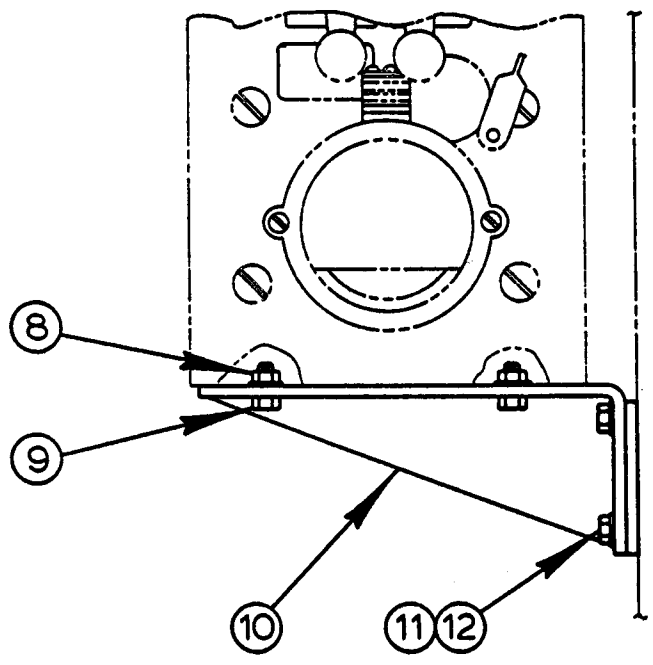
BUTTWELDER ASSEMBLY

INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASS'Y
Ref.	095-076972	DBW-15 Buttwelder Assembly (English) (208V)	
Ref.	095-076964	DBW-15 Buttwelder Assembly (International) (208V)	
Ref.	095-073805	DBW-15 Buttwelder Assembly (Portable) (208V)	
Ref.	090-597881	DBW-15 Buttwelder Assembly (English) (240V)	
Ref.	095-067096	DBW-15 Buttwelder Assembly (International) (240V)	
Ref.	095-063962	DBW-15 Buttwelder Assembly (English/Metric) (240V)	
Ref.	095-030326	DBW-15 Buttwelder Assembly (Canadian)	
1	106-065063	. Welder Switch.....	1
2	091-993188	. Washer, Lock #8 Std.....	2
3	091-971911	. Wire, #14 Black (Nylon Jacket).....	A.R.
4	091-198846	. Welding Lever Assembly.....	1
	091-198788	. . Welding Lever.....	1
	091-222059	. . Collar.....	1
5	090-042276	. Roll Pin.....	1
6	135-095578	. Buttwelder Frame.....	1
7	091-984476	. Screw, Soc. Set 5/16-24NF x 1-1/4.....	1
8	091-991257	. Nut, Hex. Jam 5/16-24NF.....	2
9	135-095495	. Spring Stud.....	1
10	091-385856	. Screw, Soc. Set 1/4-20NC x 5/8 (Full Dog).....	1
11	091-991141	. Nut, Hex. Jam 1/4-20NC.....	1
12	091-984468	. Screw, Soc. Set 5/16-24NF x 3/4.....	1
13	091-359448	. Circuit Breaker.....	1
14	090-280918	. L.H. Bracket Assembly.....	1
15	091-990291	. Screw, Truss Hd. Mach. 5/16-18NC x 1.....	4
16	091-991224	. Nut, Hex. 5/16-18NC.....	6
17	090-280900	. R.H. Bracket Assembly.....	1
18	091-980268	. Screw, Hex. Hd. Cap 5/16-18NC x 5/8.....	1
19	091-485086	. Insulator.....	1
20	091-031476	. Slide Rod Assembly (See Detail).....	1
21	106-063399	. Tension Spring.....	1
22	106-063134	. Insulator.....	1
23	090-200171	. Cut-Off Switch Assembly (See Detail).....	1
24	091-988675	. Screw, Rd. Hd. Mach. #10-32NF x 1.....	2
25	090-010059	. Tension Arm Pivot.....	1
26	135-095503	. Tension Adjusting Lever.....	1
27	106-063241	. Cam.....	1
28	135-095487	. Tension Control Shaft.....	1
29	091-984104	. Screw, Soc. Set #10-24NC x 1/4.....	1
30	135-095925	. Spring Stud.....	1
31	091-040303	. Spring.....	1
Ref.	090-200171	Cut-Off Switch Assembly	
32	090-010877	. Pin.....	2
33	135-007532	. Insulator Pad.....	7
34	091-331983	. Wire.....	1
35	090-200197	. Stationary Leaf Assembly.....	1
36	090-200189	. Movable Leaf Assembly.....	1
37	091-331975	. Wire.....	1
38	090-010885	. Switch Bushing.....	2
39	134-063593	. Insulator Pad.....	2
Ref.	091-031476	Slide Rod Assembly	
40	106-064181	. Knob.....	1
41	106-063365	. Collar.....	1
42	106-063384	. Spring.....	1
43	090-165416	. Slide Rod.....	1
44	091-984203	. Screw, Soc. Set #10-32NF x 1-1/4.....	1
45	106-063373	. Key.....	1
46	091-991133	. Nut, Hex. #10-32NF.....	1

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PEDESTAL ASSEMBLY



BUTTWELDER MOUNTING BRACKET ASSEMBLY
(ZEPHYRS ONLY)

MODEL FIRST MACH. LAST MACH.
DBW-15 290-69101

BUTTWELDER ASSEMBLY

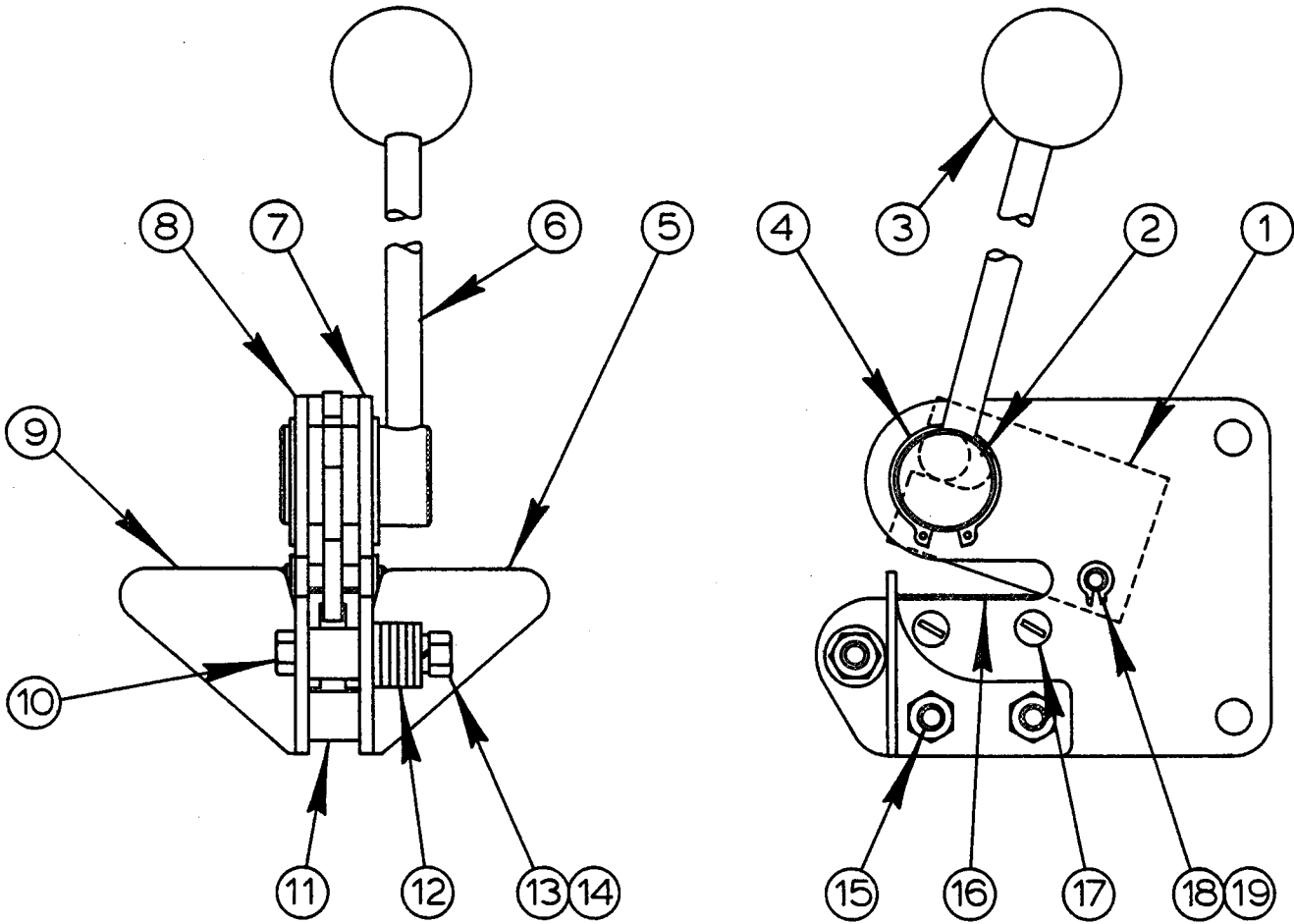
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BUTTWELDER ASSEMBLY

INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASS'Y
Ref.	081-622755	DBW-15 Buttwelder Pedestal Assembly	
1	091-211276	. Nutsert 5/16-18NC.....	4
2	091-980276	. Screw, Hex. Hd. Cap 5/16-18NC x 3/4.....	4
3	091-993238	. Washer, Lock 5/16 Std.....	4
4	094-025202	. Pedestal Assembly.....	1
5	090-396532	. . Pedestal Top Weldment.....	1
6	091-984641	. . Screw, Soc. Set 1/2-13NC x 3/8.....	3
7	095-031175	. . Pedestal Base.....	1
Ref.	084-095256	Buttwelder Mounting Bracket Assembly (Zephyrs Only)	
8	091-991224	. Nut, Hex. 5/16-18NC.....	4
9	091-980276	. Screw, Hex. Hd. Cap 5/16-18NC x 3/4.....	4
10	093-007052	. Bracket Weldment.....	1
11	091-981001	. Screw, Hex. Hd. Cap 5/16-18NC x 1.....	4
12	091-993238	. Washer, Lock 5/16 Std.....	8

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BLADE SHEAR ASSEMBLY

BLADE SHEAR ASSEMBLY

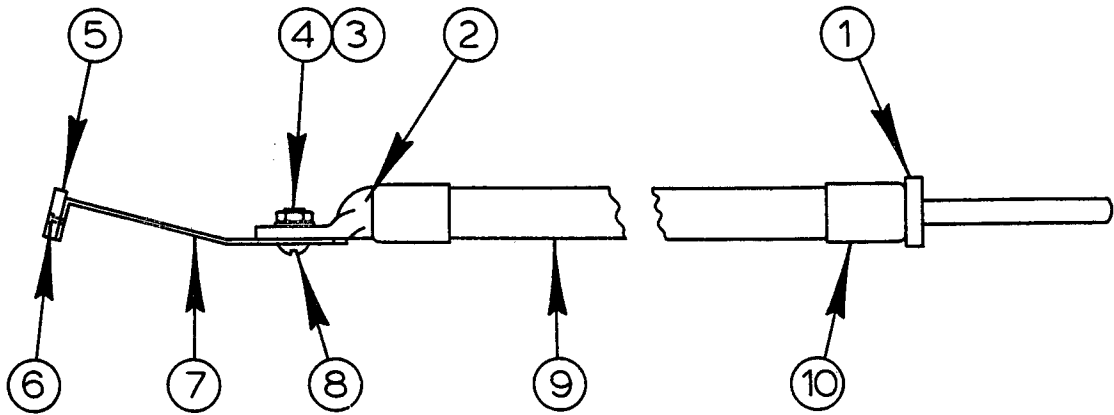
INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASS'Y
Ref.	135-084408	Blade Shear Assembly	
Ref.	*094-082120	L.H. Blade Shear Assembly (Wire Bands)	
1	135-084374	. Knife.....	1
2	*135-084416	. Eccentric.....	1
3	134-135086	. Knob.....	1
4	135-075588	. Retaining Ring.....	2
5	135-084465	. R.H. Square.....	1
6	135-084382	. Handle.....	1
7	*135-084481	. R.H. Side Plate.....	1
8	*135-084473	. L.H. Side Plate.....	1
9	135-084457	. L.H. Square.....	1
10	*091-980128	. Screw, Hex. Hd. Cap 1/4-20NC x 1-1/2.....	1
11	091-000166	. Spacer.....	3
12	*091-992610	. Washer, Flat 1/4 S.A.E Std.....	6
13	*091-991158	. Nut, Hex. 1/4-20NC.....	3
14	*091-993212	. Washer, Lock 1/4 Std.....	3
15	*091-980110	. Screw, Hex. Hd. Cap 1/4-20NC x 1-1/4.....	2
16	091-000158	. Blade.....	2
17	091-988659	. Screw, Rd. Hd. Mach. #10-24NC x 1/4.....	4
18	135-085827	. Retaining Ring.....	2
19	135-084515	. Pin.....	1

FOLLOWING NOT SHOWN AND USED FOR MOUNTING. SELECT WHAT APPLIES TO YOUR MACHINE:

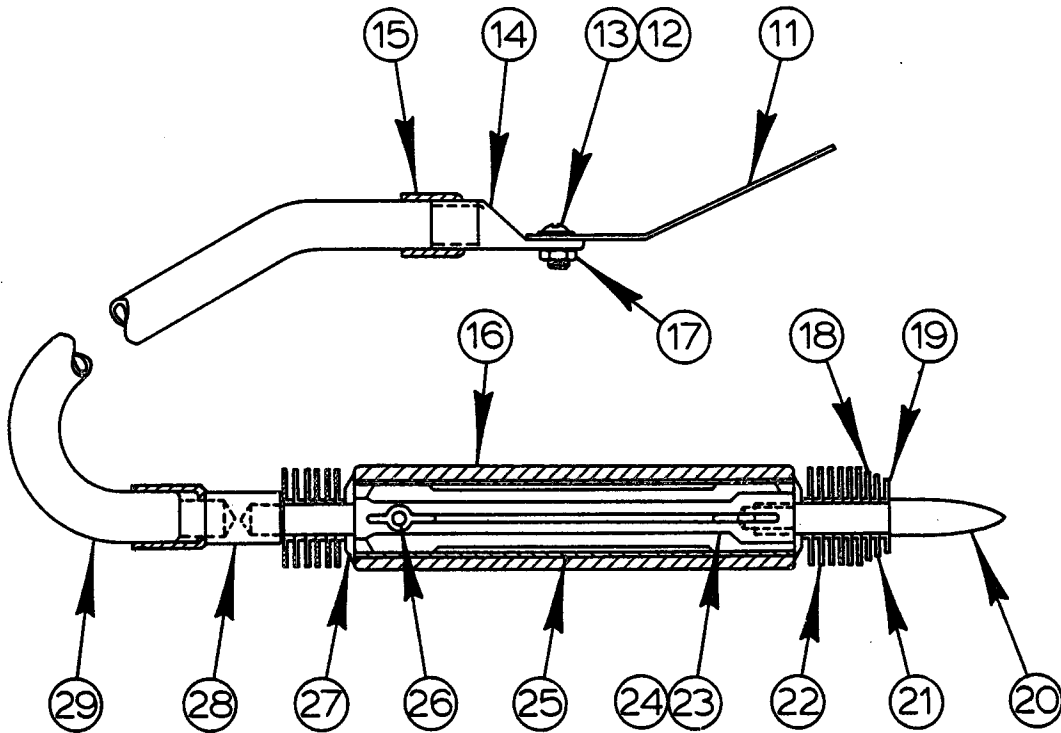
091-211276	. Nutsert 5/16-18NC.....	2
091-980276	. Screw, Hex. Hd. Cap 5/16-18NC x 3/4.....	2
091-993238	. Washer, Lock 5/16 Std.....	2
091-467209	. Bracket.....	1
091-989061	. Screw, Rd. Hd. Mach. 5/16-18NC x 3/4.....	2

*NOTE: For L.H. Blade Shear Assembly, Starred Items Are On Opposite Side Than What Drawing Indicates. This Assembly Is A Mirror Image Of 135-084408.

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ETCHING PENCIL SHORT END ASSEMBLY



ETCHING PENCIL ASSEMBLY

ETCHING PENCIL ASSEMBLY

INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASS'Y
Ref.	113-070031	Etching Pencil Assembly	
*Ref.	135-051092	. Etching Pencil Short End Assembly.....	1
1	106-074206	. . Plug.....	1
2	090-195454	. . Terminal Lug.....	1
3	091-991091	. . Nut, Hex. Jam #8-32NC.....	1
4	091-992925	. . Washer, Flat #8-S Brass.....	1
5	113-073035	. . Welder Jaw Insulator.....	1
6	134-184076	. . File Rivet.....	2
7	113-073027	. . Terminal Strip.....	1
8	091-988527	. . Screw, Rd. Hd. Mach. #8-32NC x 5/16.....	1
9	091-359943	. . Cable.....	A.R.
10	090-021544	. . Ferrule.....	2
Ref.	113-070049	. Etching Pencil Assembly.....	1
11	113-073043	. . Terminal Strip.....	1
12	091-988527	. . Screw, Rd. Hd. Mach. #8-32NC x 5/16.....	1
13	091-992909	. . Washer, Flat #10-L Brass.....	1
14	090-195454	. . Terminal Lug.....	1
15	090-021544	. . Ferrule.....	2
16	106-075039	. . Tube.....	1
17	091-991091	. . Nut, Hex. Jam #8-32NC.....	1
18	106-073083	. . Fin.....	1
19	106-073109	. . Fin.....	1
20	106-074248	. . Point.....	1
21	106-073091	. . Fin.....	1
22	106-073075	. . Fin.....	12
23	135-050771	. . Etching Pencil Stem Assembly.....	1
24	106-072010	. . Stem.....	1
25	106-074212	. . Brass Tube.....	1
26	106-074255	. . Pin.....	1
27	106-073117	. . Washer.....	2
28	106-074230	. . Connector.....	1
29	091-359943	. . Cable.....	A.R.

*NOTE: This Assembly Used For Buttwelders With Ground Bushing On Panel Before 6-23-44.

NAME ENGINEERING ADJUSTMENT SUMMARY MODEL DBW-15	PROJECT 1434	NUMBER 120789-2
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This welder is a "resistance type" butt welder capable of welding 1/16 x .025" up to 1" x .035" Carbon, Dart and Imperial band.

WARNING: All adjustments must be made with the power-off, except where specifically instructed otherwise.

WELDER JAW ALIGNMENT:

There are three basic adjustments for the alignment of the welder jaws. They are "Elevation", "Inclination" and "Twist". They are all dependent on one another. Any adjustment of one may require a re-adjustment of one or both of the others. The welder jaws shall be aligned to result in a finish weld which is within 4% of the band gage. The blade alignment guides shall insure that the tooth edge of the band be straight within .004" per 4", measured 2" on either side of the weld.

The initial line up of the welder jaws is accomplished with a straight edge. The final adjustment is made so that the weld produced in a 1" x .035" Imperial band will meet the above specifications.

In order to make the initial adjustment with the straight edge, it is necessary to remove the lower jaw inserts, the insert bearings, and the blade alignment guides. It is advisable to remove the transformer straps from the jaws, the jaw upset spring, the weld lever return spring, and space the jaws approximately 1/8" apart.

Prepared by: Roger Harris Approved: *[Signature]* Date: 7-31-69

	REVISIONS REVISED & REDRAWN FOR CLARIFICATION SMUTKA 8-1-69 MAX. JAW GAP PAR. WAS ON SHT 100-F11 WELD LEVER PAR. WAS ON SHT. 8 OF 11 SMUTKA 2-24-70	2	2	NUMBER
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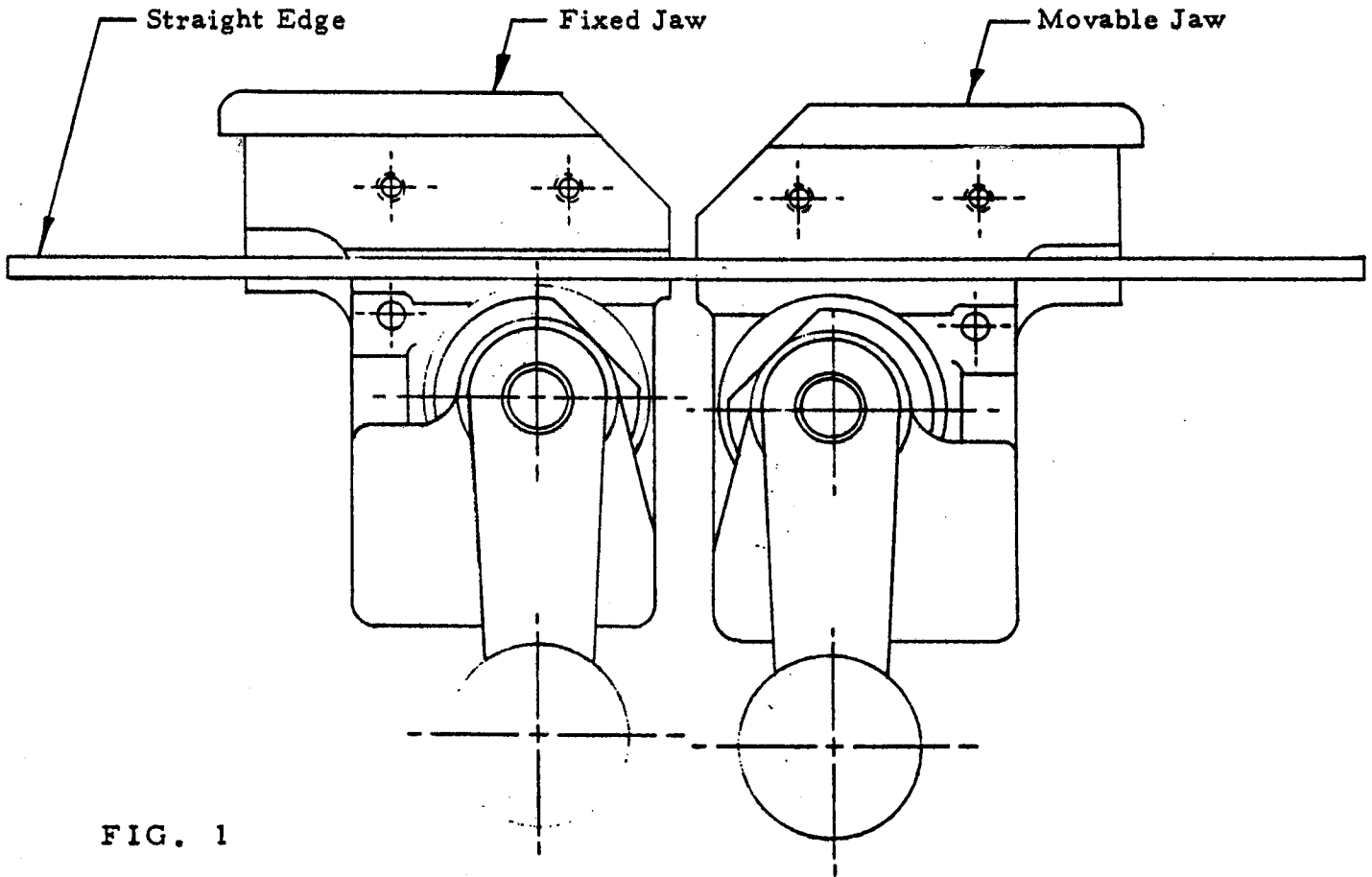


FIG. 1

1. Fig. 1 is an example of jaw elevation misalignment. It is checked with a straight edge. The fixed jaw must be moved to correct this problem. Loosen the mounting screws and move the jaw as required. The mounting screws are located inside the welder case and behind the fixed jaw.

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Approved: *[Signature]*

Date: 7-31-69

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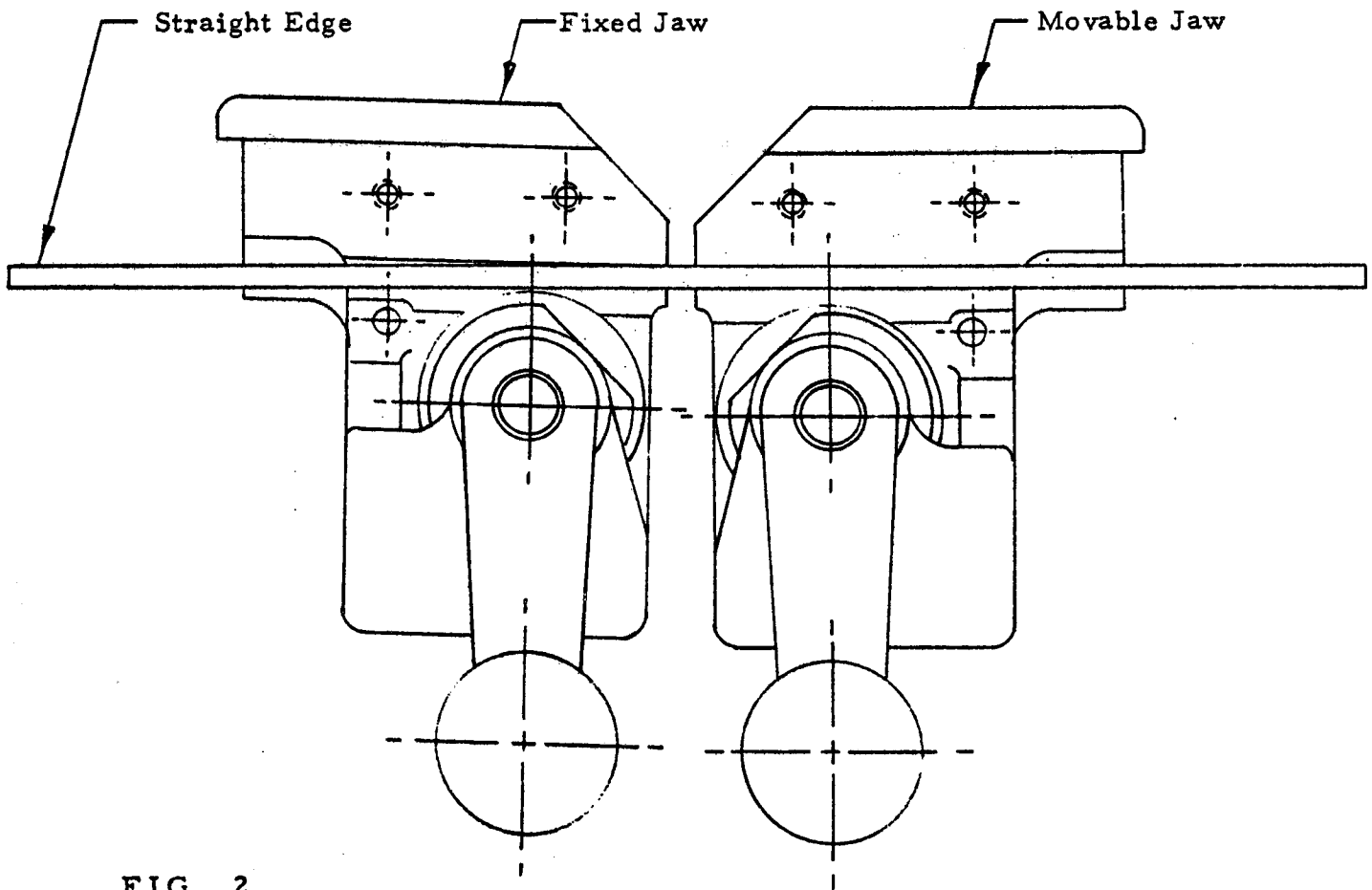


FIG. 2

2. Fig. 2 is an example of inclination misalignment as checked with a straight edge. The fixed jaw must be moved to correct this problem. Loosen the mounting screws and move the jaw as required. The mounting screws are located inside the welder case - behind the fixed jaw.

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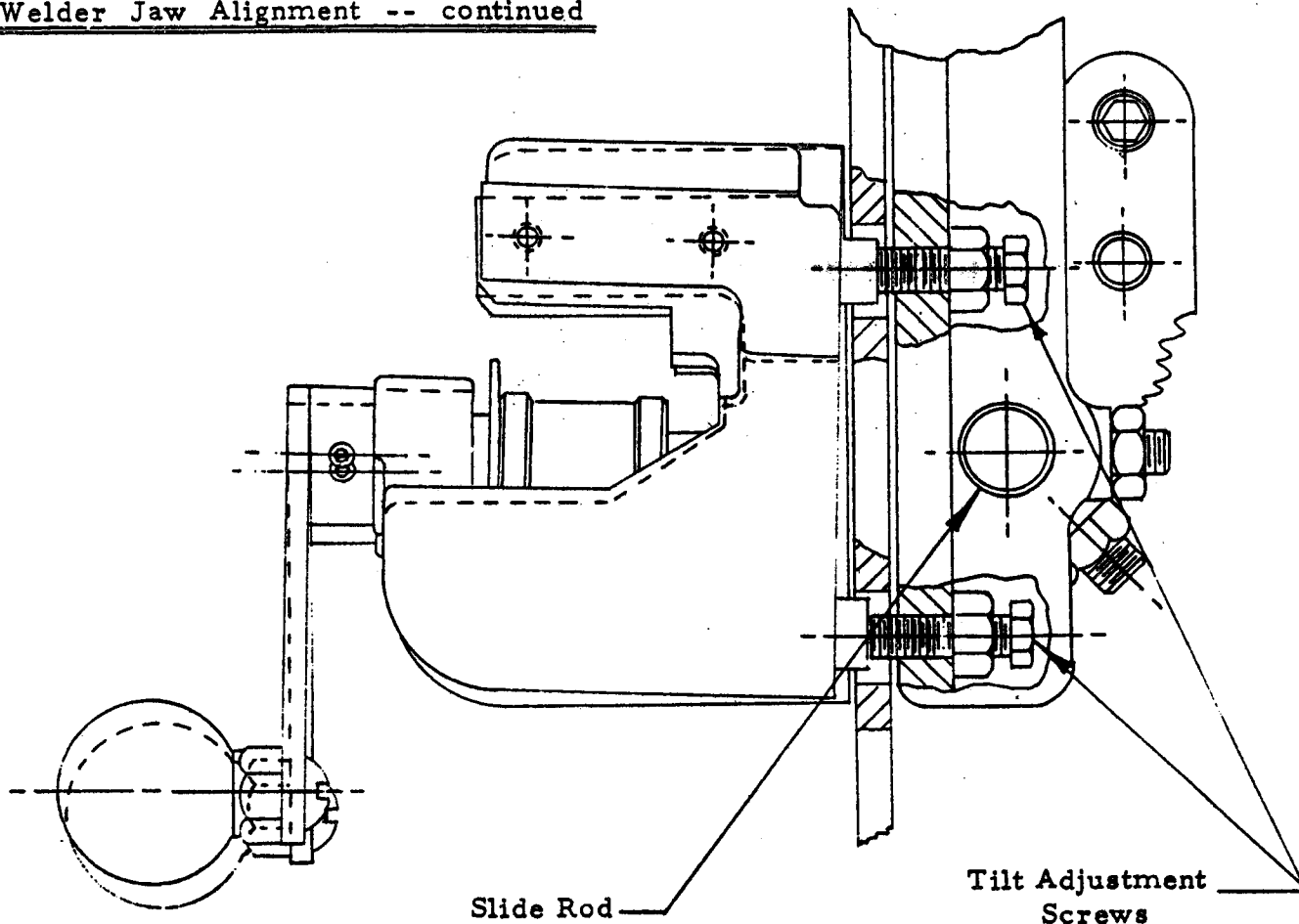
Welder Jaw Alignment -- continued

FIG. 3

3. Fig. 3 is an example of twist misalignment. The movable jaw must be adjusted to correct this problem. Two adjustment screws are provided. Both of them must be used when making a correction. Care must be taken to prevent any binding on the slide rod.
4. Verify the proper setting of the slide rod stop screw (Item 2, Fig. 4). It is adjusted to maintain 1/4 turn clearance between the end of the stop screw and the milled flat on the slide rod. The movable jaw must move freely with both tilt adjustments bearing on the jaw.

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Approved: *[Signature]*

Date: 7-31-69

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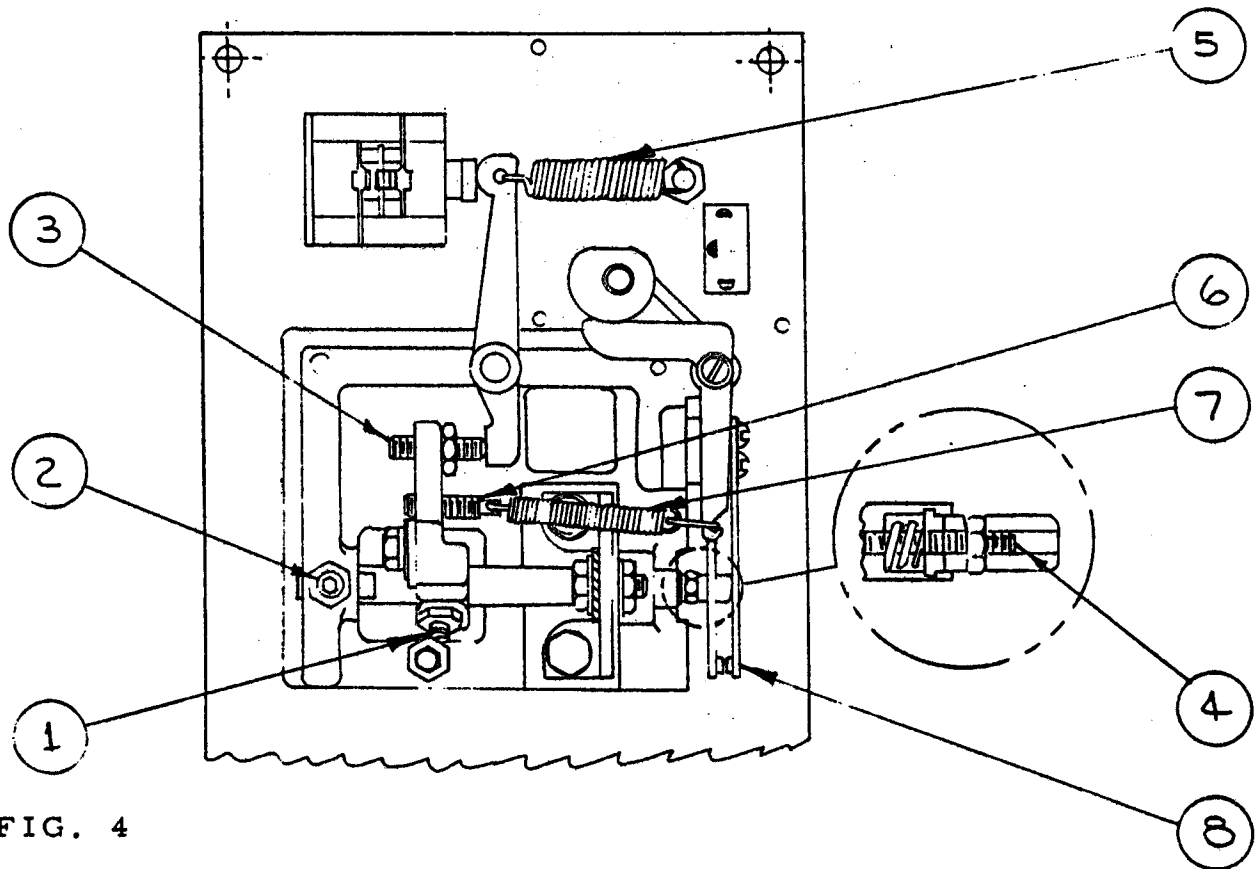


FIG. 4

1. Movable jaw lock screw
2. Slide rod stop screw
3. Jaw gap adjustment screw
4. Cut-off adjustment screw
5. Weld lever return spring
6. Upset force adjustment screw
7. Jaw upset spring
8. Cut-off switch

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Date: 7-31-69

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Welder Jaw Alignment -- con't.

5. The final jaw alignment cannot be finished until all of the steps in this Adjustment Summary have been completed. Only then can a weld be made that is suitable for alignment purposes.

FINAL JAW GAP

The final jaw gap shall be .075" with the weld lever fully depressed. It is set in the following manner:

1. Loosen the lock screw (Item 1, Fig. 4) that holds the movable jaw to the slide rod.
2. Place a .075" gage between the jaws. The jaws must hold the gage in place.
3. Push the slide rod toward the fixed jaw until the shoulder of its milled flat contacts the slide rod stop screw (Item 2, Fig. 4).
4. Tighten the lock screw (Item 1, Fig. 4) and lock the jam nut on it.
5. Re-check the final jaw gap dimension.

JAW GAP AT ELECTRICAL CUT-OFF

The jaw gap at the electrical cut-off shall be .140". Adjust the electrical cut-off in the following manner, with the power "OFF":

1. Connect a continuity meter to the wires on the cut-off switch.
2. Place a .140" gage between the jaws. The jaws must hold the gage in place.
3. Turn the adjustment screw (Item 4, Fig. 4) as required to just break the circuit with .140" gap. (CW reduces the gap; CCW increases the gap.)

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WELD UPSET FORCE:

The upset force shall be from 10 to 12 lbs. when measured at the movable jaw with the upset force selector set for the narrowest width band. The approximate locations of the upset force adjustment screw (Item 6, Fig. 4) is with the back end of the screw flush with the cast jaw surface. The final adjustment is made in the following manner:

1. Disconnect the weld lever return spring (Item 5, Fig. 4.)
2. Disconnect the jaw upset spring.
3. Bend the transformer lead that attaches to the movable jaw so that when it is connected it will just urge the jaw to its final jaw gap position.
4. Reconnect the jaw upset spring.
5. Attach a spring scale to the movable jaw and with it, manually pull the jaw to its maximum open position, (approximately 15/32").
6. Gradually release the pull on the scale. Note the reading when the jaw just starts to move.
7. If the spring scale reading at this point does not fall in the required range (10 to 12 lbs.) the upset force adjustment screw must be reset, (Item 6, Fig. 4.)
8. To re-set the screw, disconnect the jaw upset spring (Item 7, Fig. 4) and turn the screw, as required.
9. Replace the jaw upset spring and re-check as in steps 5 and 6.
10. Replace the weld lever return spring.

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WELD LEVER DRAG SPRING

The weld lever drag spring (item 1, Fig. 5) serves two functions: First, the upper corner acts as a detent to locate the movable jaw for annealing band; and second, the force exerted by the spring against the weld lever provides the frictional drag to hold the lever at any of the several required initial jaw gap settings for welding. This allows the operator to clamp a blade in the welder or adjust the upset force selector without disturbing jaw gap setting.

The spring is mounted on the band width escutcheon, (item 2, Fig. 5). (Both are secured by two screws.) It is adjusted by shimming between the escutcheon and the spring. Shim as required to obtain both objectives. Shims under either top or bottom screws will affect function, however, the top shim (item 3, Fig. 5) usually is used to establish detent, and the bottom shim (item 4, Fig. 5) to establish frictional drag.

MAXIMUM JAW GAP

With the weld lever in the anneal position, (as located by the detent of the drag spring) and the upset force selector in its widest position, turn the jaw gap adjustment screw (item 3, Fig. 4) to obtain 15/32" jaw gap. Lock the adjustment in place.

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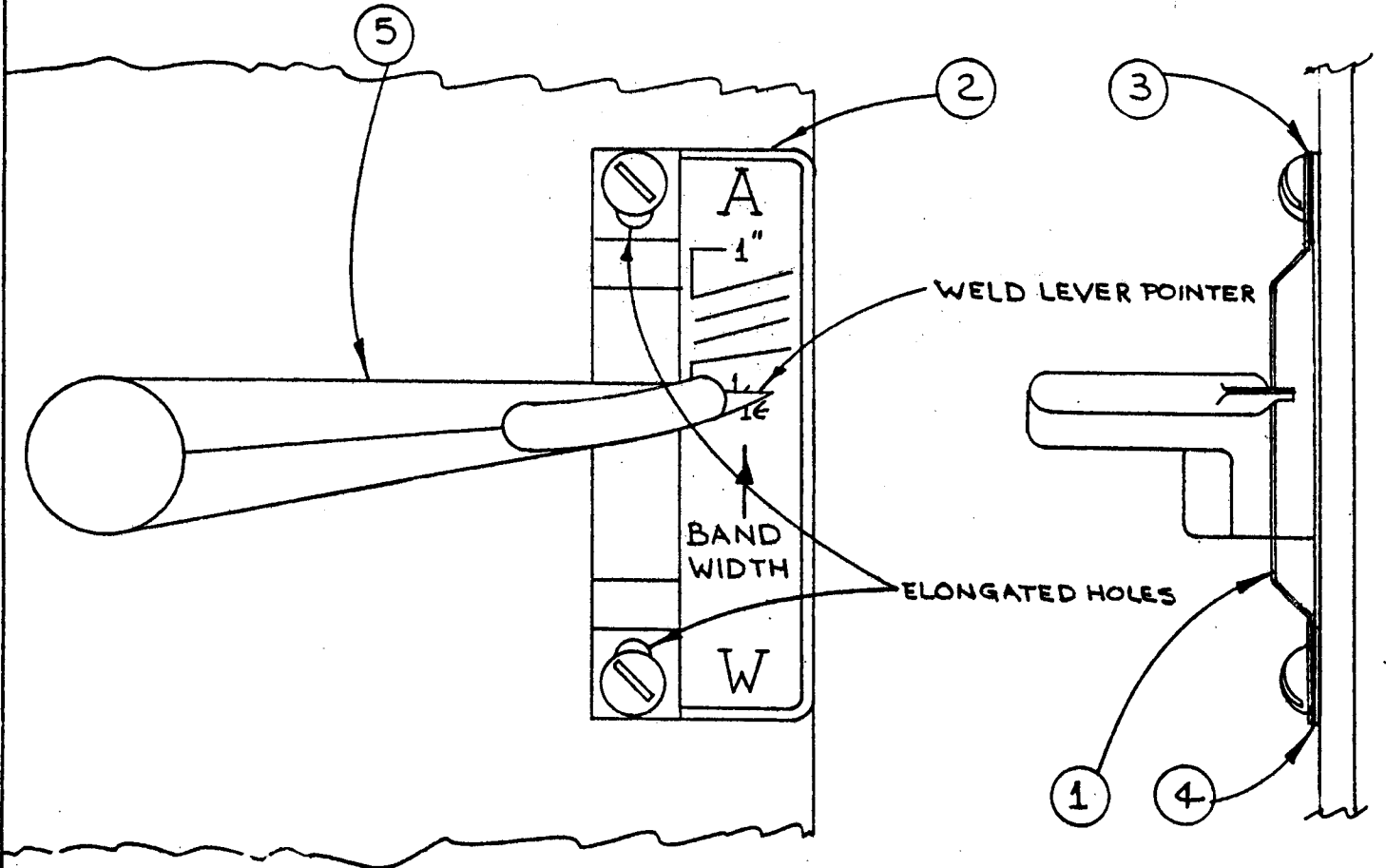


FIG. 5

- 1. Drag spring
- 2. Escutcheon
- 3. Top shim
- 4. Bottom shim
- 5. Weld lever

Prepared by: Roger Harris

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Date: 7-31-69

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WELD LEVER must be calibrated in the following manner:

1. The weld lever drag spring must be properly shimmed as described above.
2. Loosen but do not remove the two screws that secure the spring, shims and escutcheon.
3. Place a .150" gage between the jaws and bring the weld lever down, so the jaws just touch the gage.
4. Move the escutcheon (note elongated holes Fig. 5) so the weld lever pointer indicates the narrowest position (the bottom line on the escutcheon that also corresponds with 1/16" band - note Fig. 5) and then tighten the two screws.

BLADE ALIGNMENT GUIDES

The blade alignment guides are used to maintain tooth edge alignment of the ends of the band being welded. Before installing the band guides, check their mounting surfaces on the welder jaws. These surfaces must be in line within .004", when checked with a straight edge. A file may be used to bring the surfaces in line. The guides are aligned to protrude below the band clamping surface of the welder jaws by .025" (Fig. 6). Adjust in the following manner:

1. Loosen the screws holding the "Band Guides" to the jaws.
2. Insert a section of 1" x .035 ga. band into the welder jaws. The band must be out of the jaws (teeth extend in front of alignment guides by at least 3/16") as shown in Fig. 6.
3. Place a .025" shim on top of the band, but within the jaw clamping area.
4. Clamp the jaws.
5. Adjust the "Band Guides" so they touch the side of the 1" x .035 band and lock in place.

Prepared by: Roger Harris

Approved: *[Signature]*

Date: 7-31-69

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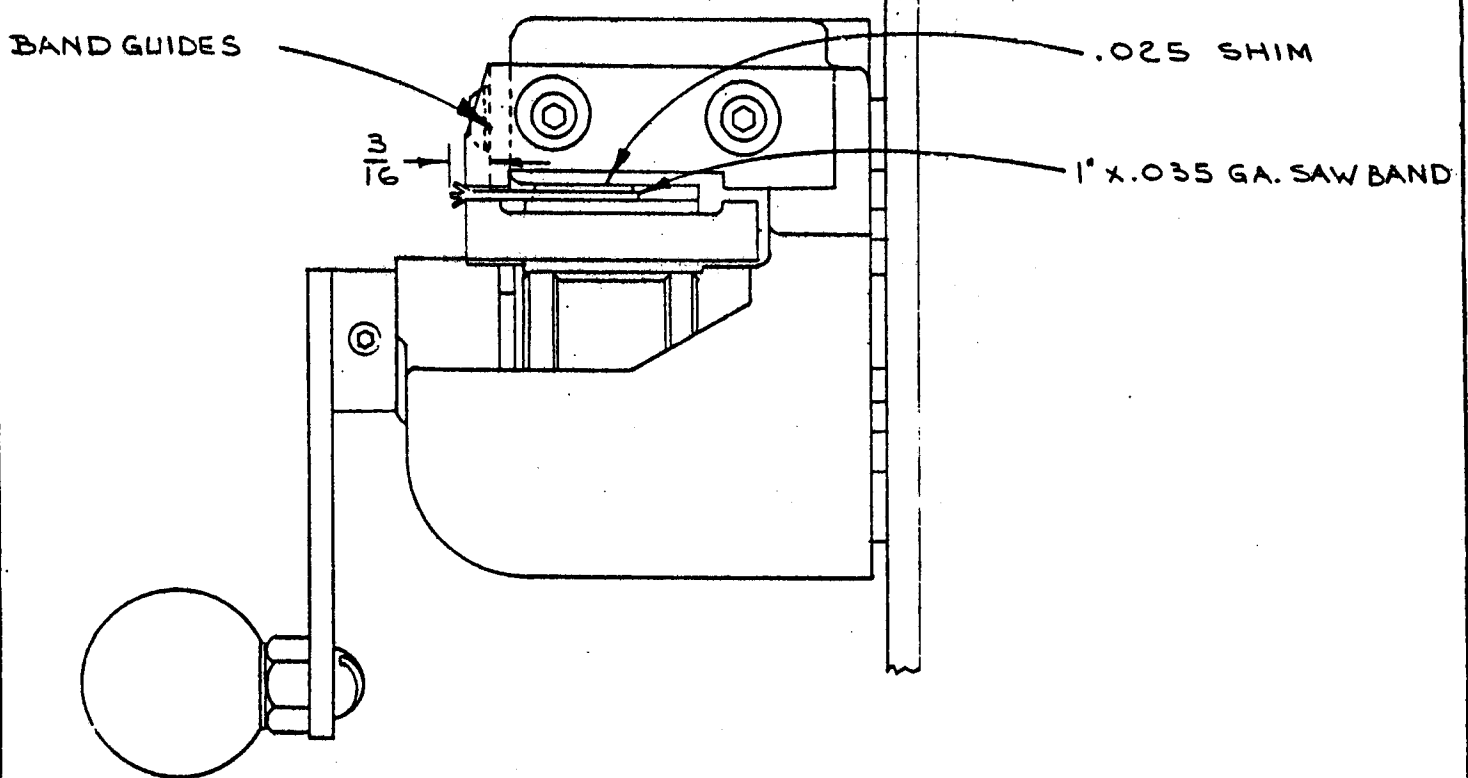


FIG. 6

FINAL JAW ALIGNMENT

A weld must be made in 1" x .035 ga. Imperial band in order to check the final alignment. The finished weld must be within 4% of the band gage. The tooth edge of the band must be straight within .004" in 4" measured 2" on either side of the weld. To make this weld:

1. Set the jaw upset force knob to its maximum wide position.
2. Set the initial jaw gap by adjusting the position of the weld lever. It must be set to the line indicating the widest width.
3. Make the final jaw alignment adjustment as required to result in the tolerances listed.

Prepared by: Roger Harris

Approved: *[Signature]*

Date: 7-31-69

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