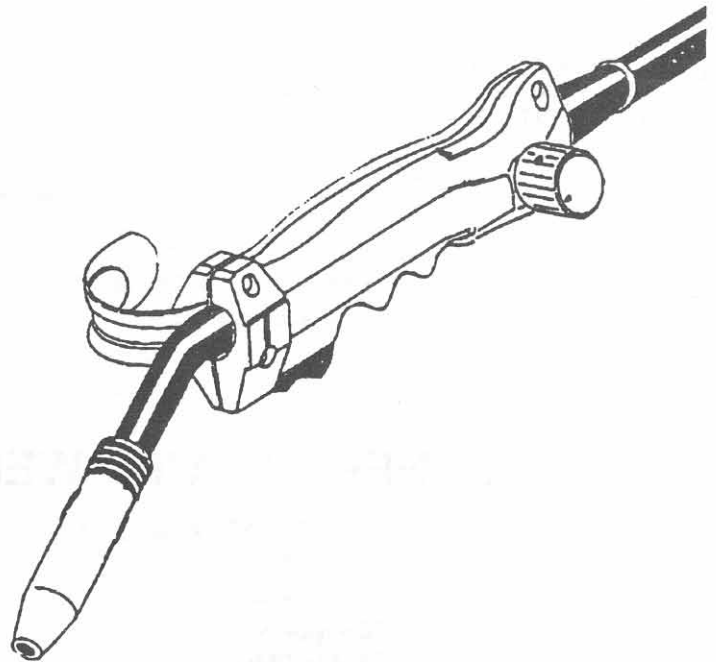
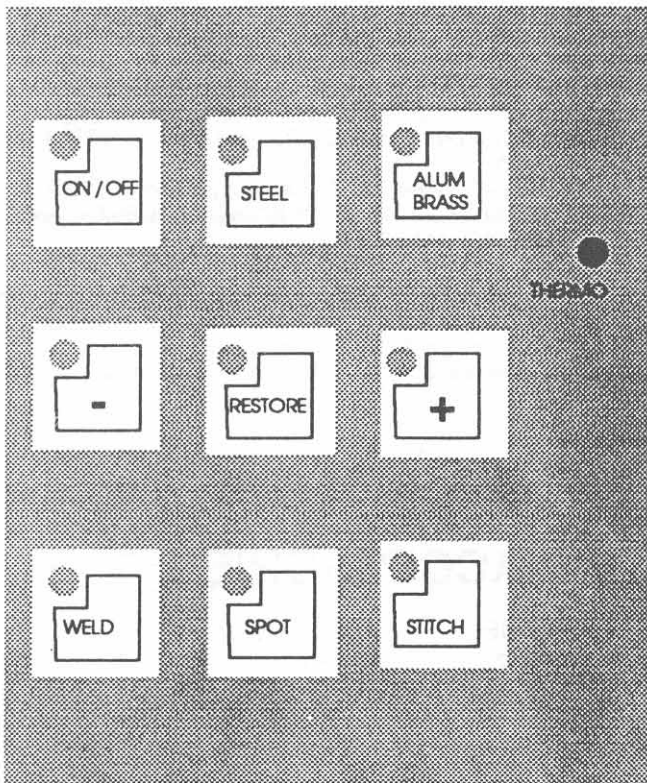


MARQUETTE.

OPERATING INSTRUCTIONS AND PARTS LIST

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SYNERGIC WIRE WELDER

**IMPORTANT OPERATING INSTRUCTIONS
SAVE THESE INSTRUCTIONS**

WARNING

1. READ, STUDY AND UNDERSTAND ALL WARNINGS AND OPERATING INSTRUCTIONS FURNISHED WITH THIS EQUIPMENT PRIOR TO INSTALLMENT OR USE. IF ANY PART OF THIS MATERIAL IS UNCLEAR, CONTACT THE FACTORY FOR CLARIFICATION.
2. ONLY QUALIFIED PERSONS ARE TO INSTALL, OPERATE, AND MAINTAIN THIS EQUIPMENT IN ACCORDANCE WITH APPLICABLE CODES, SAFETY PRACTICES, AND MANUFACTURERS INSTRUCTIONS.
3. ELECTRIC SHOCK CAN BE FATAL, THEREFORE:
 - A. INSTALL AND GROUND UNIT IN COMPLIANCE WITH NATIONAL, REGIONAL AND LOCAL CODES.
 - B. PROTECT YOURSELF WITH DRY, INSULATED GLOVES AND CLOTHING.
 - C. INSURE THAT WORKPIECE IS GROUNDED PRIOR TO ACTIVATING TORCH.
 - D. DO NOT OPERATE IN DAMP OR WET AREA.
4. ARC RAYS CAN INJURE EYES AND BURN SKIN; THEREFORE:
 - A. ALWAYS WEAR WELDING EYE SHIELD WITH PROPER FILTER LENS.
 - B. WEAR APPROPRIATE PROTECTIVE CLOTHING TO COVER EXPOSED SKIN.
 - C. MAKE SURE BYSTANDERS ARE ALSO PROTECTED FROM ARC RAYS WHEN OPERATING THIS UNIT.
5. FUMES AND GASES CAN BE SERIOUSLY HARMFUL TO YOUR HEALTH; THEREFORE:
 - A. OPERATE THIS EQUIPMENT IN WELL VENTILATED AREA. IF THIS IS NOT POSSIBLE, USE AIR-SUPPLIED BREATHING APPARATUS.
 - B. WELDING OF CONTAINERS CAN RESULT IN POISONOUS FUMES. INSURE ALL CONTAINERS ARE EMPTY AND PROPERLY CLEANED PRIOR TO WELDING.
6. HOT METAL SLAG AND SPARKS MAY CAUSE FIRE, BURNS AND EXPLOSIONS; THEREFORE:
 - A. DO NOT OPERATE IN EXPLOSIVE ATMOSPHERE SUCH AS ONE CONTAINING PAINT, SOLVENTS, DEGREASER OR GASOLINE FUMES.
 - B. DO NOT OPERATE NEAR COMBUSTIBLE MATERIALS.
 - C. HAVE APPROPRIATE FIRE EXTINGUISHER AVAILABLE AND KNOW HOW TO USE IT.
 - D. ALLOW WORKPIECE TO COOL BEFORE HANDLING.
 - E. IT IS RECOMMENDED THAT A PERSON OTHER THAN THE OPERATOR BE ASSIGNED TO OBSERVE THE WELDING OPERATION TO WATCH FOR FIRE.
7. REFER TO THE OPERATOR'S MANUAL SUPPLIED WITH THIS EQUIPMENT FOR A LISTING OF ADDITIONAL SAFETY PUBLICATIONS AVAILABLE.
8. IT IS THE OWNER'S RESPONSIBILITY TO KEEP ALL WARNING DECALS LEGIBLE AND INTACT. REPLACEMENT DECALS ARE AVAILABLE FROM THE FACTORY.
9. FAILURE TO HEED THESE WARNINGS MAY RESULT IN PERSONAL OR FATAL INJURY AND/OR EQUIPMENT AND PROPERTY DAMAGE.

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SYNERGIC WIRE WELDER ACCESSORIES

CONTACT TIPS (PACKAGE OF 10)	MODEL
.023" (.6MM)	15522
.030" (.8MM)	15523
.035" (.9MM)	15524
.040" (1.0MM)	15588
NAIL / STUD WELD NOZZLE	15468
SPOT WELD NOZZLE	15521
TAPERED WELD NOZZLE	15520
STEEL LINER	15192
TEFLON LINER (for welding aluminum)	15194
TORCH ASSEMBLY (10' LEAD STD.)	15459
TORCH ASSEMBLY (15' LEAD OPTIONAL)	15463

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Read and observe all instructions included in this manual as well as these following specific procedures.

EYE AND BODY PROTECTION

WARNING: Never look at welding arc without a helmet or shield. Arc rays are extremely dangerous to the eyes.

1. Use helmet, filter, and cover plate complying with ANSI Z87.1 to protect your eyes and face from sparks and the rays of the arc when welding or observing open arc welding.
2. Always wear safety goggles with side shields complying with ANSI Z87.1 when in a welding area, or when near slag chipping operation.
3. To avoid spatter and ultraviolet ray burns wear oil free woolen clothing, keep sleeves and collars buttoned, no pockets in front, cuffless trousers overlapping high shoes, and leather gauntlet gloves.
4. Protect other near-by personnel with suitable non-flammable screening, and warn bystanders as to the potential hazards in the weld area.
5. Provide adequate ventilation in the welding area, particularly when welding on galvanized, lead or cadmium plated steel, and other metal which produce toxic fumes.
6. When working above floor level, protect yourself from a fall should you get a shock. Never wrap the electrode cable around any part of your body.
7. Do not weld in locations close to chlorinated hydrocarbon vapors coming from degreasing, cleaning, or spraying operations. The ultraviolet rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other gases.

PROTECTION FROM ELECTRICAL SHOCK

1. Do not let bare skin or wet clothing come between the following combinations:

Welding Gun
and
Ground Clamp, or Workpiece,
or Metal Work Table

Voltage exists between these parts when welder is on and gun trigger pressed!

Wear dry, hole free, clothing and gauntlet type gloves to protect and insulate the body.

2. Take special care to insulate yourself from ground using dry insulation (such as dry wood) of adequate size when welding in damp locations, on metal floors or gratings, and in positions (such as sitting or lying) where parts or large areas of your body can be in contact with possible grounds.
3. Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition.

FLAMMABLE AND EXPLOSIVE MATERIALS

1. Remove flammable and explosive material at least 35 feet from the welding arc to prevent welding sparks or molten metal from starting a fire. Keep a type ABC fire extinguisher within easy reach.
2. Welding on or near containers which hold combustibles can cause an explosion, even when they have been cleaned. For information purchase "Safe Practices for Welding and Cutting Containers That Have Held Combustibles" (A6-0-65) from the American Welding Society AWS, 2501 N.W. 7th St., Miami, Florida 33125.
3. Electrodes and holders shall be so placed that they cannot make electrical contact with persons, conducting objects, flammable liquids, or compressed gas cylinders.
4. Never connect the work cable or clamp to any object but the work piece or metal work table. Connecting to other objects such as building ground can create a fire hazard.
5. Never weld anything on or to the welder cabinet, as a burn through may cause transformer failure.

PREVENTATIVE MAINTENANCE

1. Never apply power to the welder with any part of the "cabinet" removed. Position on-off switch in "Off" position and disconnect power supply at the circuit breaker or fuse box before doing maintenance work inside the machine.
2. Before connecting the welder power cord to the receptacle, check the following:
 - a. Inspect the power cord and welding cables for cuts or burns and make sure blades and ground pin on the plug are straight.
 - b. Inspect "On-Off" switch lever for cracks or broken parts.
 - c. Inspect electrode holder jaw insulators for cracks or broken parts.
 - d. For additional safety information, purchase copies of "Practice for Occupational and Educational Eye & Face Protection" (ANSI Z87.1) and "Safety in Welding and Cutting" (ANSI Z49.1) from the American Welding Society or the American National Standards Institute ANSI, 1430 Broadway, New York, New York 10018, and "Code for Safety in Welding and Cutting" (CSA Standard W117.2-1574) from the Canadian Standards Association, 178 Rexdale Blvd., Rexdale, Ontario M9W1R3.

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INSTALLATION:

Congratulations on your decision to purchase a synergic wire welder. Upon receiving your welder, you should inspect all contents to assure the following components are included within:

QTY.	DESCRIPTION
1	SYNERGIC WIRE WELDER
1	SUPPORT CART
1	GUN ASSEMBLY (including nozzle & tip)
3	.023 TIP
1	OPERATING MANUAL

CART ASSEMBLY

- 1 Attach casters (28) to bracket (27) using 6 hex head bolts (1/4 X 3/4), leave (*) hole free. (see Fig. 9).
- 2 Assemble brackets (27) and (30) to frames (29) using 8 hex bolts (1/4 -20 X 1 1/2).
- 3 Attach handle (26) to frames (29) using 2 carriage bolts (5/16 -18 X 2 1/2).
- 4 Assemble washers (31), wheels (32), and axle caps (33) to bracket (30).
- 5 Using 4 hex head bolts 1/4 -20 X 1 1/2, attach welder to cart.
- 6 Attach cylinder bracket (36) to welder using 2 hex head bolts (1/4 -20 X 3/4).
- 7 Attach chain (35) to cylinder bracket (36) using key ring and 5/16 eye bolt.
- 8 Attach bottom tank bracket (34) using 2 1/4 X 3/4 hex bolts.
- 9 Lay Item #37 between Items #29 (frames)- No hardware required.

WIRE SPOOL INSTALLATION:

- 1 Mount gun on welder, remove nozzle and tip.
- 2 Check spool container for broken edges, tangled wire, and ends sticking out of spool. These must be trimmed.
- 3 Once spool of wire is properly loaded onto dereeler, hold one hand against the wire before cutting the end of it. This will prevent the wire from suddenly unwinding.
- 4 While still holding your hand against the wire, feed end of wire into the flexible wire guide and push it through until it reaches the drive wheels.
- 5 Press trigger switch on gun and the wire will automatically feed through the drive system. Gun control should be set about one third forward (slow speed). Both ON button and STEEL button on front panel must be selected.
- 6 Once wire is fed into welding cable, go to full speed for a couple of seconds and stop, spool must completely stop after this. If it keeps rotating tighten nut on dereeler.
- 7 Repeat until step 6 is accomplished. CAUTION: DO NOT OVERTIGHTEN AS THIS WILL OVERLOAD MOTOR CIRCUITRY BLOWING THE 8 AMP FUSE.
- 8 Replace tip and nozzle on gun.

TYPICAL WELDING PROCEDURE:

- 1 Plug the welder into a 220 VAC outlet. If the welder is functioning a single beep will be heard.
- 2 Press the **ON/OFF** switch. The lights will flash, indicating that the welder is ready to accept a command.
- 3 Press the **STEEL** button if set up for steel (ie steel wire, and 75/25 gas) or press the **ALUM./BRASS** button if set up for welding aluminum (ie aluminum wire, and argon gas, .040 tip in welding gun). Welder goes automatically into continuous mode when either **STEEL** or **ALUM./BRASS** are selected.

- 4 Spot or stitch welds can be made by pressing either the **SPOT** or **STITCH** button.
- 5 The middle row **-**, **RESTORE**, **+**, touch panels are to be used when initial start up of machine occurs, always have selection in the restore position, then adjust the power from the synergic gun control.
- 6 When making a spot weld the **-**, or **+**, are useful. You can use to control the amount of spot build up of a spot weld. **-**, selection to decrease spot puddle or, **+**, to increase spot puddle.

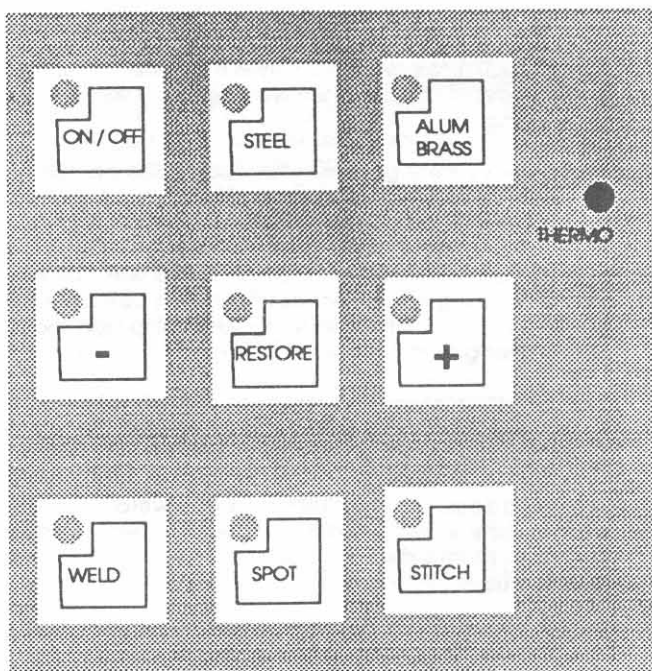
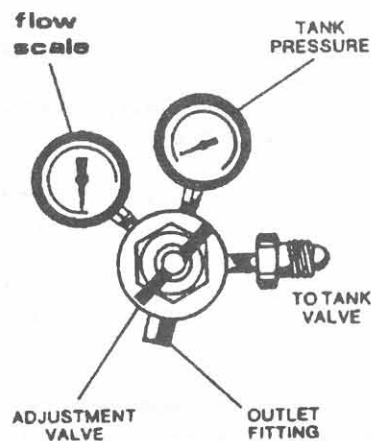


FIG 1. CONTROL PAD
GAS SELECTION:

WELD TYPE	RECOMMENDED GAS	PRESSURE	RECOMMEND WIRE
Steel	75 -25 / C -25	20 CFH	.023 .030 .035 E70S-6
Alum.	100% Argon	40 CFH	.035 5356 composition
Stainless Steel	98 - 2 Argon/co2	20 CFH	.030 .035 Stainless 308
Silicon Bronze	100% Argon	20 CFH	.035 SIL/BRNZ
Flux Core	75-25/C-25	20 CFH	.035 E71T-1 AWS a5.20

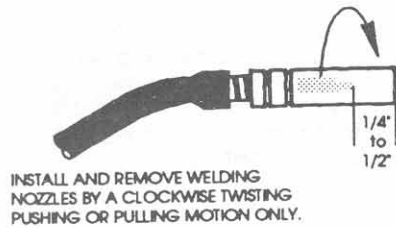


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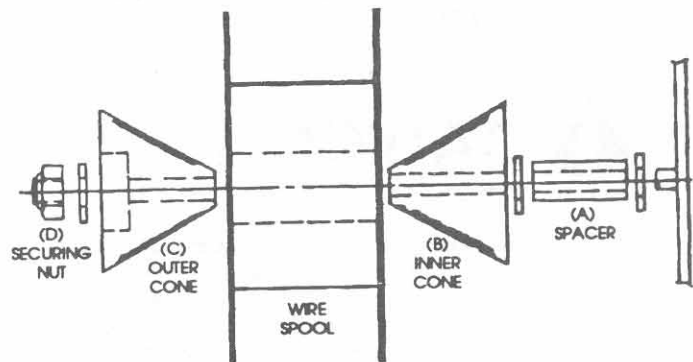
SET - UP PROCEDURES

CONTACT TIP & WELDING NOZZLE SET-UP:

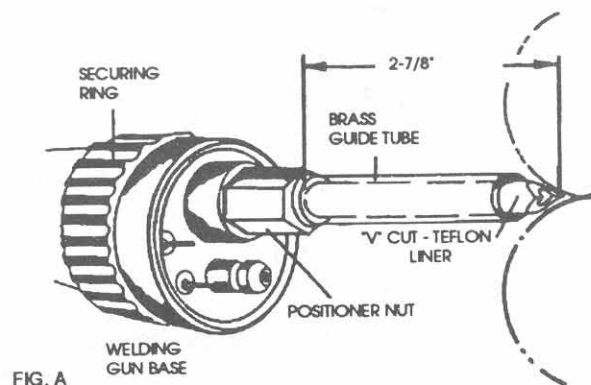
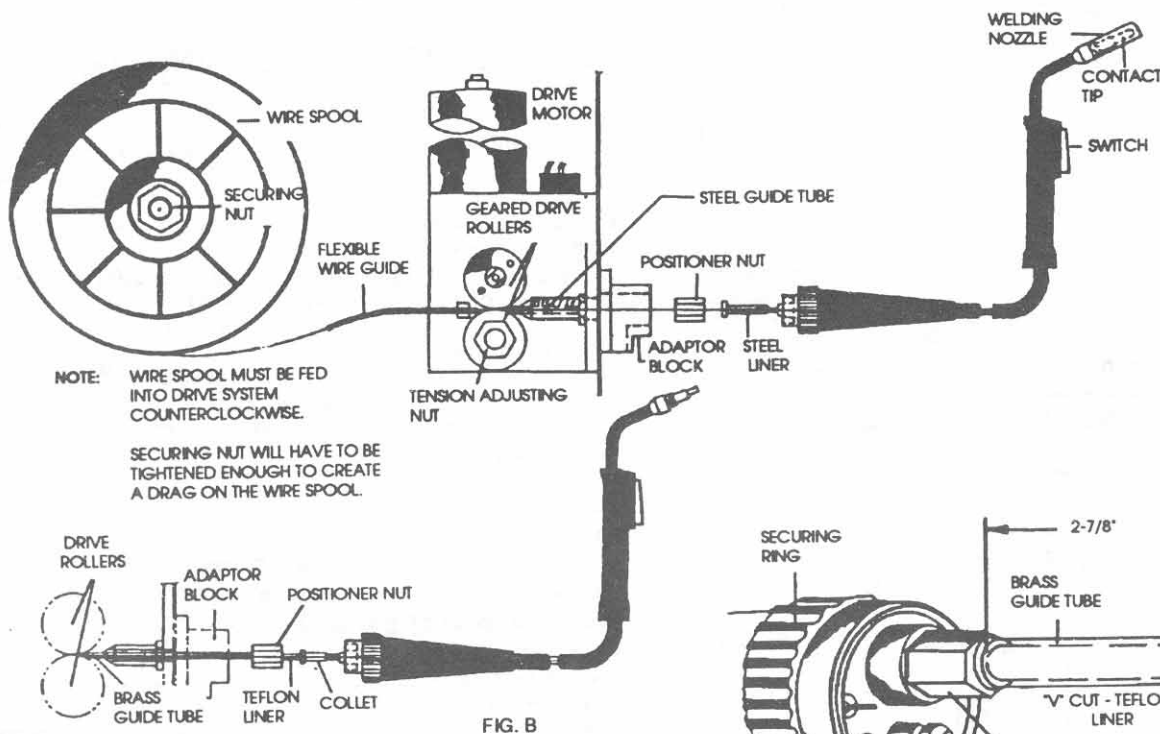
- 1) Contact tip must be recessed 1/4" when welding steel.
- 2) Contact tip must be recessed 1/2" when welding aluminum.



INSTALLING WIRE SPOOL:



INSTALLING OR CHANGING LINERS:



INSTALLATION OF TEFLON LINER FOR ALUMINUM WELDING:

- 1) Remove steel liner & guide tube, weld nozzle & contact tip.
- 2) Make a "V" cut at one end of the teflon liner. (see Fig. A)
- 3) Put the "V" cut end of the teflon liner through the torch cable from the gun end.
- 4) Install collet over the machine end of the liner and install positioner nut with 2 7/8" of liner protruding from machine end of torch. Tighten positioner nut so that "V" cut on end of liner fits into groove made by drive wheels, see Fig. A.

- 5) Place brass guide tube over the exposed part of the liner and insert the back end of the gun assembly into the adaptor block and tighten securing ring.
- 6) From the gun end of the torch cable assembly, push the teflon liner in as far as it will go. Mark and cut 1/4" from the mark toward the machine. Screw on the contact tip and affix the gas nozzle. Use a contact tip .005" larger than the dia. of the wire being used.

SERVICE NOTICE:

If, after reading this manual, you have additional questions regarding the operation of this equipment, they should be directed to your local distributor.

CAUTION

This manual has been designed for knowledgeable welding equipment users and must be read before using this equipment. If you lack experience or are unfamiliar with the practices and safe operation of welding equipment, please consult your supervisor. Do not attempt to install, operate, or perform maintenance on this equipment unless you are qualified. Read and understand the instruction manual. Make sure the information contained in this manual reaches the operator. Extra copies of this manual are available upon request.

RECEPTACLE & GROUND CONNECTION:

This mig welder package includes 10 foot input cable, torch, and ground cable. The importance of proper ground connection cannot be over-emphasized, failure to properly connect ground can result in:

1. Electrical shock when touching metal cabinet of machine
2. Welder becomes inoperative
3. Serious or fatal injury

Your welder comes with a molded plug most commonly used as today's standards. Should your welder require a different plug to suit existing wiring in your building, request an electrician to replace existing plug with a suitable plug. THE COLOR FOR THE GROUND WIRE IS GREEN and improper connection may cause serious damage to your machine if the metal cabinet of the machine becomes electrically live creating a shock hazard.

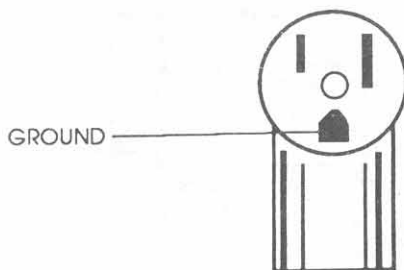


FIGURE 2. TYPICAL FEMALE CONNECTOR FOR 230 VOLTS

OPERATION:

1. Shielding nozzle is removed and replaced by turning clockwise while pulling off or pushing nozzle on.
2. Contact tip should be finger tight only, and should be removed whenever feeding wire through the cable hose.
3. The area inside nozzle should remain free of slag and cleaned when needed.
4. Anti spatter gel or spray should be used occasionally while nozzle and tip are hot.
5. Increase gas pressure when working in drafty areas.

6. The best results will be attained when both surface areas are clean of any debris or protective film on new sheet metal.
7. Stitch welding mode is ideal on thinner metals to minimize warpage while retaining the strength capabilities.
8. Metals to be welded should be as close as possible for best results.

PRINCIPLES OF MIG WELDING:

The mig welding process utilizes an uncoated electrode (welding wire without flux) shielded by a blanket of inert gas (argon / CO₂ or argon) to protect the newly formed weld from contact with the atmosphere. Mig welding is a fast high quality process that eliminates; welding rod changes, flux applications, and descaling of the work piece.

GENERAL:

GMAW (Gas Metal Arc Welding) can be performed with three basic modes of metal transfer; short arc, globular, and spray arc welding techniques. This machine uses only the short arc process. Short arc mig welding is usually used for welding light gauge metal, and for out-of-position welding. Short arc is similar to Spray arc mig welding except that lower currents and smaller diameter electrode wires are used. Molten metal is not transferred across the arc as in spray arc, but is deposited in large size drops as the molten electrode tip makes contact with the weld puddle and the arc shorts out. This automatically occurs from 50 to 200 times or more per second, giving off a sound like frying eggs.

HOLDING THE WELDING GUN:

When approaching the work piece with the welding gun, the following adjustments to handling should be made:

- A. Tilt gun in a 45° to 60° position in the direction of travel.
- B. For best results, operator must adjust to a suitable angle to fit the job application.
- C. DO NOT PULL GUN AWAY WHEN ARC STARTS. This will create alot of sparks and very poor welds.
- D. Two basic techniques can be used when welding:
(See Figure 3.)
- E. Generally, when using most welding techniques, the speed of travel (of the gun) will dictate the type of weld bead produced. The average speed normally used is 15" / 40 cm to 20" / 50 cm per minute. Carbon dioxide is a suitable gas for use on carbon steel, however, Argon mixed with with CO₂ (C - 25)* is good for steel welding, especially where a strong spatter-free weld is required. Argon must be used in its pure form for aluminum welding. This gas cannot be used to weld steel, except when combined with CO₂. Premixed tanks of gas (25% CO₂ and 75% Argon) are available.

You will find the gases are under high pressure (2,000 PSI - 150 Kg/sq cm to 3,000 PSI - 200 Kg/sq cm) and will require a pressure regulator to bring this high pressure to workable values.

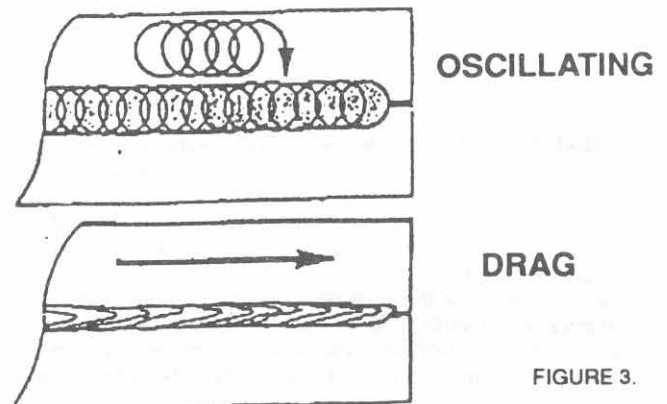
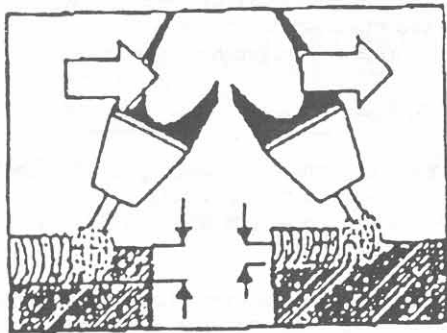
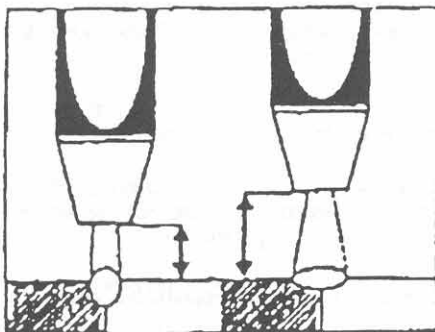


FIGURE 3.



GUN DIRECTION AND WELD DEPTH

FIGURE 4



ARC LENGTH AND WELD DEPTH

FIGURE 5

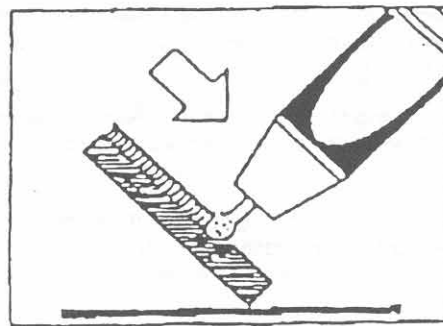
STEEL:

1. Set weld type by pressing the **STEEL** button.
2. Use a gas mixture of 75% argon and 25% CO₂ at 20CFH.
(cubic feet per hour)
3. Use .023 diameter steel wire and .6mm standard tip or use .030 diameter wire and .8mm standard tip.
4. Hold the gun at a 45° angle and 1/4" (6mm) from the surface. If the gun is a little further from the work piece, a wider and more shallow weld will result. (See figure 4.)
5. Start with torch control on the torch fully counter-clockwise, pull the gun trigger and steadily push or drag the gun along the seam. (see figure 5). With your free hand, turn the torch control clockwise slowly until a frying sound is heard and a flat weld is produced (using .023 wire - approx. setting 5).
6. In the case of downhill welding, (figure 6) penetration depth decreases with the increase of the slope. The smallest penetration is attained with vertical downhill welding.
7. It may be advantageous to use larger diameter wire on thicker steels to attain proper penetration levels - larger wire allows increased power output.
8. Increase gas pressure when welding overhead or in dirty areas ie, inside wheel housings, etc.

SPOT WELDING:

Spot welds can be made through two thicknesses of material, but the best results will be obtained if a hole is first punched in the top plate, (about 1/4" Dia.).

1. When spot welding through two pieces of metal, the pieces must be clean and fit closely together.



DOWNHILL WELDING

FIGURE 6

2. Attach the spot welding nozzle.
3. Set the Torch control according to the thickness of the materials to be welded. Turn Torch control clockwise for thicker materials. Always make some test welds on steel samples the same type & thickness of the materials to be welded.
4. Hold the gun straight up and down perpendicular to the work surface.
5. If welding into a punched hole, aim the wire at the center of the hole and fill.
6. If no hole is punched in the top layer of steel, increase power setting so that you can burn through the top layer.
7. If using the standard nozzle to spot, keep 1/4" to 1/2" distance between nozzle and sheet metal.

STITCH WELDING FOR STEEL:

Stitch welding is handy when you weld thin or rusty material where warpage or burnthrough is a problem. Stitch welding is basically a series of spot welds which overlap slightly and which have time to cool between welds.

1. Press **STITCH** button and power control on torch according to material thickness.
2. Pull the trigger and move the gun along the seam slightly between welds.
3. Travel at a speed which will allow the orange color to disappear from the previous weld.

ALUMINUM WELDING:

1. Press **ALUM./BRASS** button.
2. Make certain that you use type 5356 (.030 or .035 diameter wire). Use a .040 tip for .035 wire and a .035 tip for .030 wire. (Oversized tip is used to prevent tips from clogging while welding with soft aluminum wire.)
3. Use .035 diameter aluminum wire for sheet aluminum thickness of 16 gauge to 1/4".
4. Reduce tension by loosening the tension nut to the end of travel. This should provide enough drive to feed the aluminum without damaging it (See figure 7).
5. Use 100% argon as the shielding gas at 40 CFH.
6. Always "push" with aluminum to keep gas "ahead" of the weld puddle.
7. Use a stainless steel brush to clean metal prior to welding.

8. Starting with torch setting fully counterclockwise, increase power until correct bead is achieved (approx. setting 6).

9. Only use a pushing motion with the gun since the argon gas will shield your weld, thus leaving a cleaner appearance.

10. Since aluminum is such a good heat conductor, the power will have to be decreased after about 2" of travel. This is done by turning the knob on the torch.

FILLING IN HOLES:

1. Fully clean the area of the hole.
2. Make a short weld on the inside wall of the hole and let the weld cool.
3. Make another short tack weld on each of the first and let this cool.
4. Make two longer welds overlapping the first three by rotating the gun while welding. Allow these to cool.
5. Repeat the process working across the hole.
6. Holes and wide gaps can be filled easily with stitch welding as well.

BRAZING, SPOTTING, & STITCHING BRASS:

Use the same procedure as you would for steel welding but **USE ONLY ARGON GAS** at 25 CFH and silicone bronze wire.

1. Hold the gun at a 45° angle to the work with the nozzle about 1/4" from the surface. The closer the gun, the deeper the weld.
2. Move the gun smoothly and steadily as you weld.
3. Thicker materials and faster travel speeds require higher setting at the power and speed control knobs.
4. In general the flattest and best welds will be produced at higher gun settings and faster travel speeds. You will burn through the metal if you move the gun too slowly at high gun settings.
5. If burn-through is a problem, turn down the power on the torch or stop occasionally until the orange color disappears.
6. Avoid welding in very drafty areas because a weak, pitted weld will result due to the air blowing away the shielding gas.

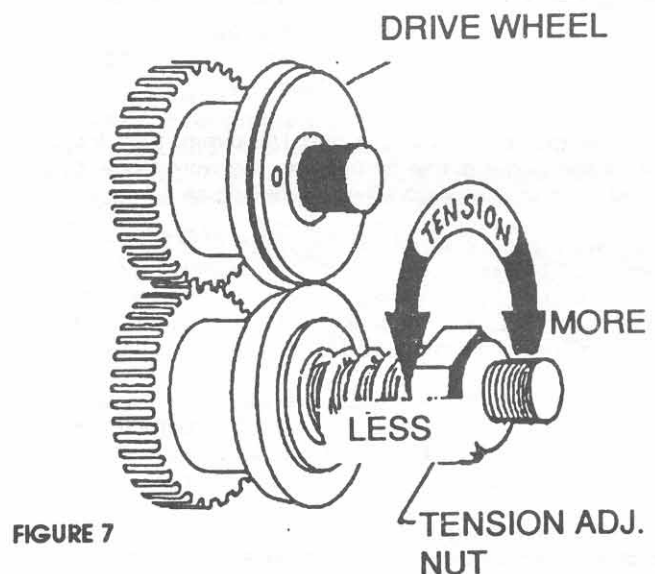
7. When working overhead, drag the gun towards you so that you can see the weld puddle and the seam. Increase the gas pressure to 25 CFH to protect the nozzle from spatter.

MAINTENANCE:

1. ALWAYS apply an antispatter welding spray or gel to the tip and nozzle (when the nozzle is hot). This prevents slag build - up and allows proper gas flow. Antispatter spray or gel is available in the catalog.
2. Sharp bends or kinks in the cable hose must be avoided so that the wire feeds properly. This also promotes longer gun life.
3. The gun liner should be cleaned when you change the wire spool. Through continued use the wire feed liner will gradually build up dirt. Therefore, clean the liner after each roll of wire. Disconnect the gun from the welder, remove positioner nut and pull out the liner. Soak liner in solvent and use compressed air to clean.
4. Using low pressure, blow out the dust from inside the machine often since this keeps the machine running cooler.
5. The torch control & the torch pad are precision devices and should be treated as such. Do not use excessive force on the controls since damage may result.

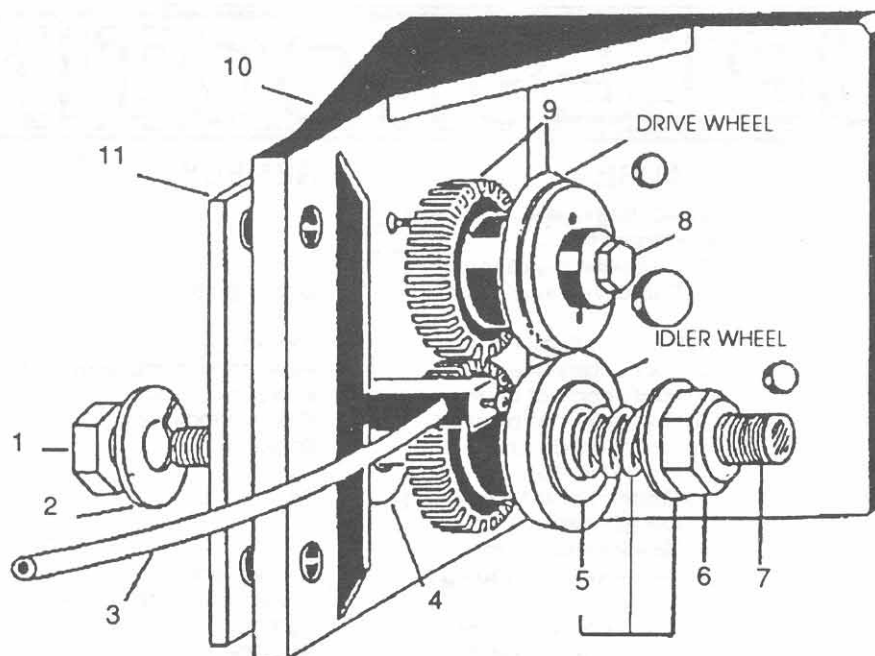
WIRE DRIVE TENSION ADJUSTMENT:

If wire is not coming off the wire spool smoothly, erratic welding will result. The problem could be loose drive wheels or binding in the torch cable. To check torch cable, pull lower drive wheel out slightly, releasing the pressure on the wire and see if the wire is able to move freely in the torch. Refer to Fig. 7 if wire is free in the torch. The tension nut may need to be adjusted.



TROUBLESHOOTING

TROUBLE	CAUSE	REMEDY
On / Off button does not light	1) AC plug replaced & wired incorrectly 2) No power in wall socket 3) Defective Circuit Board	Exchange Board
Wire bunches at motor drive (birdnesting)	1) Wire tension nut too tight 2) Poor quality wire 3) Faulty contact at ground clamp 4) Gun liner or tip blocked 5) Missing guide tube	Loosen nut Replace with approved wire Improve contact Clean or replace Replace
Wire feeds irregularly	1) Obstruction in tip or wrong size tip 2) Wire knotted on spool 3) Wire spool held too tightly 4) Dirty Liner 5) Wire tension nut loose 6) Defective gun switch 7) Guide tube missing	Replace tip Loosen securing nut Clean or replace Tighten Replace Replace
Motor will not turn	1) Fuse 2) Trigger switch faulty 3) Wires to motor disconnected or touching each other	Replace fuse Test by jumping across the two switch wire connections in the adaptor plug-If motor turns, replace trigger switch. switch. Connect wires
Nozzle or swan neck burns or sparks to workpiece	1) Nozzle clogged with spatter 2) Burned insulator	Clean. Do not touch nozzle to workpiece Replace nozzle
Poor weld quality	1) Tip worn, clogged or wrong size 2) Wrong gas or no gas 3) Welding galvanized 4) Tip or swan neck loose 5) Wire feed problem 6) Wire stud on spool short circuiting to cabinet 7) Internal loose connection 8) Defective circuit board	Replace tip Either grind off zinc coating or use silicon bronze wire Tighten See wire feed irregularly Remove spool, cut off stub, reinstall spool Tighten Exchange board
Weld tip clogs & burns	1) Gun tip is not the correct size for wire being used or is loose 2) No shielding gas or wrong gas 3) Gun liner fouled	Use appropriate tip Clean or replace
Red thermal light on	1) Unit is overheated	Wait approx. 15 min. until red thermal light goes out then restart welder by pressing ON/OFF button
Welder overheats	1) End of wire on spool touching case 2) Welding beyond capabilities of machine i.e. max. thickness 1/4" 3) Circuit board	Remove spool, cut off wire Replace



M12207, 83-372

FIGURE 8

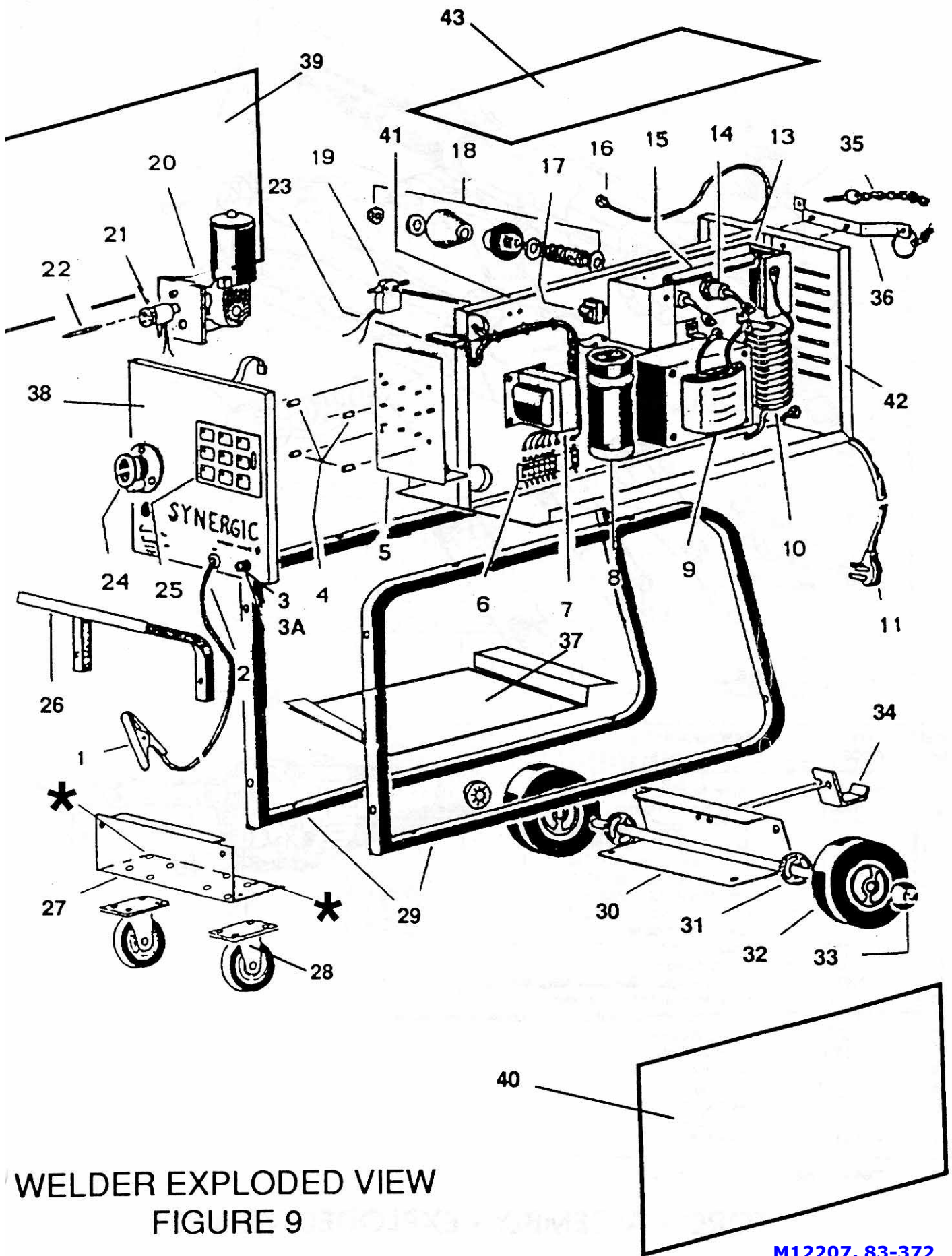
WIRE DRIVE ASSEMBLY (See figure 8)

ITEM NO.	PART CODE	DESCRIPTION
1	B7134370	3/8 HEX NUT
2	B7135370	3/8 LOCKWASHER
3	B7136370	GUIDE CABLE (10")
4	B7199370	5/16 FLAT WASHER
5	B7137370	NYLON WASHER (2) W/ TENSION SPRING
6	B7140370	JAM NUT
7	B7138370	SHAFT
8	B7141370	M12 FILLESTER HEAD SCREW
9	B7142370	DRIVE & IDLE WHEEL ASSEMBLY
10	B7143370	PLASTIC MOTOR BRACKET
11	B7144370	REINFORCING PLATE

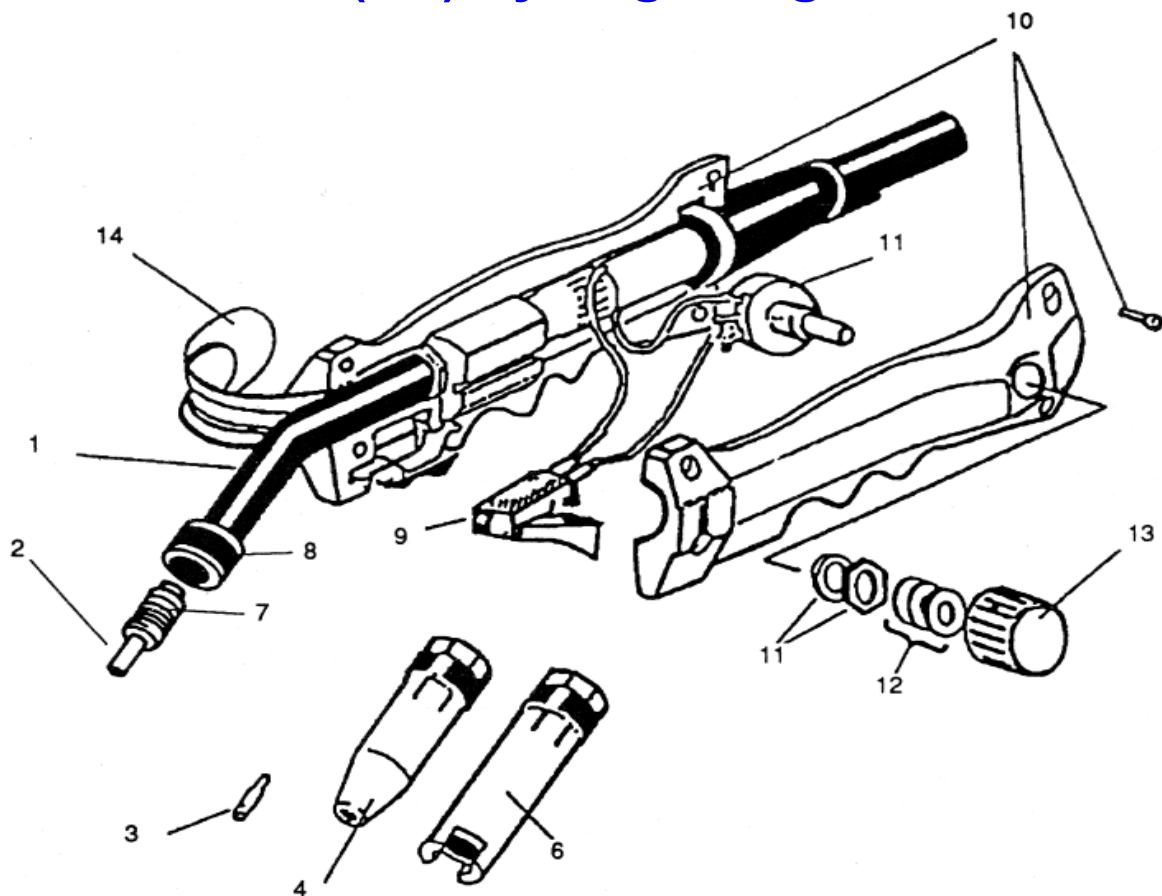
WELDER PARTS LIST (SEE FIGURE 9)

ITEM NO.	PART CODE	DESCRIPTION
1	95081160	Ground Clamp
2	B7145370	Ground Clamp Assembly
3	B7146370	Fuse Holder
3A	B7147370	8 Amp Fuse
4	B7244370	Standoffs
5	860-999-000 (B7148370)	Circuit Board
6	B7149370	Terminal Block
7	B7150370	Control Transformer
8	B7151370	Capacitor 120,000 MFD
9	B7152370	Main Transformer
10	B7153370	Filter Choke
11	B7154370	AC Cable & Plug
13	B7155370	Heat Sink Complete
14	B7156370	Diode 300 U 30 A
15	B7157370	Bleeder Resistor
16	B7158370	Gas Hose w/ Fitting
17	B7159370	Reference Transformer
18	B7160370	Dereeler Cone Set
19	B7161370	Gas Solenoid Assembly
20	B7162370	Complete Motor Assembly
21	B7163370	Adaptor Block
22	B7164370	Steel Guide Tube

ITEM NO.	PART CODE	DESCRIPTION
23	B7165370	Wiring Harness
24	B7166370	Plastic Adaptor
25	B7167370	Membrane Panel
26	B7168370	Cart Handle
27	B7169370	Front Cart Support Bracket
28	B7170370	Front Casters
29	B7171370	Cart Sides
30	B7172370	Rear Cart Support Bracket
31	B7173370	5/8" Flat Washer (special)
32	B7174370	Wheels
33	69940980	Axle Caps
34	B7175370	Bottom Tank Support Bracket
35	B7176370	Chain & Eye Bolt
36	B7177370	Upper Tank Support Bracket
37	B7183370	Shelf Panel
38	B7178370	Front Panel
39	B7179370	Wire Drive Side Panel
40	B7180370	Control Side Panel
41	B7181370	Center Panel
42	B7182370	Bottom / Rear Panel
43	B7184370	Top Panel



M15459 (10') Synergic Mig Gun



Item #	Lincoln #	Old Numbers	Description
1	334-628-000	B7123370	Swan Neck
2	334-632-000	246311	Gas Diffuser
3	KP2052-1	M15522	Contact tip, 0.025
	KP2052-2	M15523	Contact tip, 0.030
	KP2052-3	M15524	Contact tip, 0.035
4	KH721	M15520, 334-164-400	Steel Welding Nozzle
6	KH731	M15521, 334-162-300	Spot Welding Nozzle
7	334-172-000	B7124370	Nozzle Spring
8		B7218370	Head Insulator
9		B7219370	Orange Trigger Switch Assembly
10		B7221370	Blue Handle Parts w/ Screws
11		B7194370	Potentiometer w/ Nut & Lockwasher
12		B7195370	Springwashers
13		B7196370	Control Knob
14		B7188370	Gun Hook
16	411-121-666	M15192	Steel Liner (Not Shown)
	411-123-666	M15194	Teflon Liner (Not Shown)

Used on M12206 & M12207

