

# METAL MAN<sup>®</sup>

## ARC 80T

### OWNER'S MANUAL



3/2018



#### **WARNING:**

Read carefully and understand all **ASSEMBLY AND OPERATION INSTRUCTIONS** before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

# WARRANTY

## METAL MAN WORK GEAR CO

EFFECTIVE JANUARY 1, 2013

### LIMITED WARRANTY

This warranty applies to the original purchaser and is subject to the terms and conditions listed below. This Limited Warranty is for new equipment sold after the above date, providing coverage for defects in material and workmanship at the time it is shipped from the factory.

Limited to the warranty periods below, Metal Man Work Gear Co will repair or replace the item under warranty that fails due to defects in material and workmanship. Metal Man Work Gear must be notified within 30 days of the failure, so as to provide instructions on how to proceed with the repair of your welder and warranty claim processing. Warranty period begins at the time the welder is purchased from and Authorized Reseller of Metal Man Work Gear Co. products. **Keep your receipt as proof of purchase.**

### Warranty Periods

Limited Warranty is divided into three categories. No Warranty, 90 days and 2 year.

#### No Warranty

Normal wear items, MIG gun parts (contact tips, nozzle, contact tip adapter, MIG gun liner), drive roll, electrode holder, ground clamps, Plasma torch parts (nozzle, electrode, diffuser, cover) are considered consumable items and are not covered under warranty.

#### 90 days

Parts for Metal Man Work Gear welding carts and welding cabinets. This warranty covers the absence of or defective parts.

#### 2 year

This 1 year warranty covers parts and Labor on items such as: transformer, reactor, rectifier, solenoid valve, PC Board, switches, controls, gas valve, drive motor, drive system other than drive roll and any other component that requires the removal of the sheet metal to access. Any shipping related to warranty repair is the responsibility of the customer.

### Voiding Warranty

Warranty does not apply to: Shipping Damage, Misuse and abuse of the unit, alteration of the unit in any way.

### Warranty Claim

This is a parts and labor warranty. **Do not return your unit to the retailer you purchased it from.** Retain your receipt in the case a warranty claim is needed. No warranty will be provided without the original receipt from an authorized reseller of Metal Man Work Gear Products. To make a warranty claim, call our welder help line at 888-762-4045, M-F 8:00 am to 5:00 PM Central time or email sales@metalmangear.com.

## GENERAL SAFETY RULES



**WARNING:** Read and understand all instructions. Failure to follow all instructions listed below may result in serious injury or death.



**CAUTION:** Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of how this unit works.



**WARNING:** The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions or situations that could occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

## SAVE THESE INSTRUCTIONS

### IMPORTANT SAFETY CONSIDERATIONS

#### 1.1 Your Welding Environment

- Keep the environment you will be welding in free from flammable materials.
- Always keep a fire extinguisher accessible to your welding environment.
- Always have a qualified person install and operate this equipment.
- Make sure the area is clean, dry and ventilated. Do not operate the welder in humid, wet or poorly ventilated areas.
- Always have your welder maintained by a qualified technician in accordance with local, state and national codes.
- Always be aware of your work environment. Be sure to keep other people, especially children, away from you while welding.
- Keep harmful arc rays shielded from the view of others.
- Mount the welder on a secure bench or cart that will keep the welder secure and prevent it from tipping over or falling.

#### 1.2 Your Welder's Condition

- Check ground cable, power cord and welding cable to be sure the insulation is not damaged. Always replace or repair damaged components before using the welder.
- Check all components to ensure they are clean and in good operating condition before use.

#### 1.3 Use of Your Welder

##### **CAUTION**

Do not operate the welder if the output cable, electrode, torch, wire or wire feed system is wet. Do not immerse them in water. These components and the welder must be completely dry before attempting to use them.

- Follow the instructions in this manual.
- Keep welder in the off position when not in use.
- Connect ground lead as close to the area being welded as possible to ensure a good ground.
- Do not allow any body part to come in contact with the welding wire if you are in contact with the material being welded, ground or electrode from another welder.
- Do not weld if you are in an awkward position. Always have a secure stance while welding to

prevent accidents. Wear a safety harness if working above ground.

- Do not drape cables over or around your body.
- Wear a full coverage helmet with appropriate shade (see ANSI Z87.1 safety standard) and safety glasses while welding.
- Wear proper gloves and protective clothing to prevent your skin from being exposed to hot metals, UV and IR rays.
- Do not overuse or overheat your welder. Allow proper cooling time between duty cycles.
- Keep hands and fingers away from moving parts and stay away from the drive rolls.
- Do not point MIG gun at any body part of yourself or anyone else.
- Always use this welder in the rated duty cycle to prevent excessive heat and failure.

#### 1.4 Specific Areas of Danger, Caution or Warning



##### Electrical Shock

###### **▲ WARNING**

Electric arc welders can produce a shock that can cause injury or death. Touching electrically live parts can cause fatal shocks and severe burns. While welding, all metal components connected to the wire are electrically live. Poor ground connections are a hazard, so secure the ground lead before welding.

- Wear dry protective apparel: coat, shirt, gloves and insulated footwear.
- Insulate yourself from the work piece. Avoid contacting the work piece or ground.
- Do not attempt to repair or maintain the welder while the power is on.
- Inspect all cables and cords for any exposed wire and replace immediately if found.
- Use only recommended replacement cables and cords.
- Always attach ground clamp to the work piece or work table as close to the weld area as possible.
- Do not touch the welding wire and the ground or grounded work piece at the same time.
- Do not use a welder to thaw frozen pipes.



##### Fumes and Gases

###### **▲ WARNING**

-Fumes emitted from the welding process displace clean air and can result in injury or death.

- Do not breathe in fumes emitted by the welding process. Make sure your breathing air is clean and safe.
- Work only in a well-ventilated area or use a ventilation device to remove welding fumes from the environment where you will be working.
- Do not weld on coated materials (galvanized, cadmium plated or containing zinc, mercury or barium). They will emit harmful fumes that are dangerous to breathe. If necessary, use a ventilator/respirator with air supply or remove the coating from the material in the weld area.
- The fumes emitted from some metals when heated are extremely toxic. Refer to the material safety data sheet for the manufacturer's instructions.
- Do not weld near materials that will emit toxic fumes when heated. Vapors from cleaners, sprays and degreasers can be highly toxic when heated.



##### UV and IR Arc Rays

###### **▲ DANGER**

The welding arc produces ultraviolet (UV) and infrared (IR) rays that can cause injury to your eyes and skin. Do not look at the welding arc without proper eye protection.

- Always use a helmet that covers your full face from the neck to top of head and to the back of

each ear.

- Use a lens that meets ANSI standards and safety glasses. For welders under 160 amps output, use a shade 10 lens; for above 160 amps, use a shade 12. Refer to the ANSI standard Z87.1 for more information.
- Cover all bare skin areas exposed to the arc with protective clothing and shoes. Flame-retardant cloth or leather shirts, coats, pants or coveralls are available for protection.
- Use screens or other barriers to protect other people from the arc rays emitted from your welding.
- Warn people in your welding area when you are going to strike an arc so they can protect themselves.



### Fire Hazards

#### **▲ WARNING**

Do not weld on containers or pipes that contain or have had flammable, gaseous or liquid combustibles in them. Welding creates sparks and heat that can ignite flammable and explosive materials.

- Do not operate an electric arc welder in areas where flammable or explosive materials are present.
- Remove all flammable materials within 35 feet of the welding arc. If removal is not possible, tightly cover them with fireproof covers.
- Take precautions to ensure that flying sparks do not cause fires or explosions in hidden areas, cracks or areas you cannot see.
- Keep a fire extinguisher close in the case of fire.
- Wear garments that are oil-free with no pockets or cuffs that will collect sparks.
- Do not have on your person any items that are combustible, such as lighters or matches.
- Keep work lead connected as close to the weld area as possible to prevent any unknown, unintended paths of electrical current from causing electrical shock and fire hazards.
- To prevent any unintended arcs, cut wire back to stick out ¼" after welding.

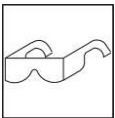


### Hot Materials

#### **▲ CAUTION**

Welded materials are hot and can cause severe burns if handled improperly.

- Do not touch welded materials with bare hands.
- Do not touch MIG gun nozzle after welding until it has had time to cool down.



### Sparks/Flying Debris

#### **▲ CAUTION**

Welding creates hot sparks that can cause injury. Chipping slag off welds creates flying debris.

- Wear protective apparel at all times: ANSI-approved safety glasses or shield, welder's hat and ear plugs to keep sparks out of ears and hair.



### Electromagnetic Field

#### **▲ CAUTION**

- Electromagnetic fields can interfere with various electrical and electronic devices such as pacemakers.
- Consult your doctor before using any electric arc welder or cutting device.
- Keep people with pacemakers away from your welding area when welding.
- Do not wrap cable around your body while welding.

- Wrap MIG gun and ground cable together whenever possible.
- Keep MIG gun and ground cables on the same side of your body.



### Shielding Gas Cylinders Can Explode

#### **▲ WARNING**

High pressure cylinders can explode if damaged, so treat them carefully.

- Never expose cylinders to high heat, sparks, open flames, mechanical shocks or arcs.
- Do not touch cylinder with MIG gun.
- Do not weld on the cylinder.
- Always secure cylinder upright to a cart or stationary object.
- Keep cylinders away from welding or electrical circuits.
- Use the proper regulators, gas hose and fittings for the specific application.
- Do not look into the valve when opening it.
- Use protective cylinder cap whenever possible.

### 1.5 Proper Care, Maintenance and Repair

#### **▲ DANGER**

- Always have power disconnected when working on internal components.
- Do not touch or handle PC board without being properly grounded with a wrist strap. Put PC board in static proof bag to move or ship.
- Do not put hands or fingers near moving parts such as drive rolls of fan.

## USE AND CARE

- **Do not modify this unit in any way.** Unauthorized modification may impair the function and/or safety and could affect the life of the equipment. There are specific applications for which this unit was designed.
- **Always check for damaged or worn out parts before using this unit.** Broken parts will affect the operation. Replace or repair damaged or worn parts immediately.
- **Store idle.** When this unit is not in use, store it in a secure place out of the reach of children. Inspect it for good working condition prior to storage and before re-use.

## TECHNICAL SPECIFICATIONS

Item	Description
Power Supply	120V, 20A, 60 HZ, Single Phase
No-Load Voltage	70 Volts DC
Output Range	20 - 75 Amp DC
Duty Cycle	40% @ 75A
Suggested Electrodes	E6013, E7014, E7018, Stainless Steel
Electrode Diameters	1/16" to 3/32"
Dimensions	12-3/8" x 4.25" x 7"
Weight	6.6 lbs.

## DESCRIPTION

The Metal Man Arc 80T is a DC-only inverter stick welder with an exceptionally smooth stick welding performance in an extremely small package. It is intended for use for welding steel, stainless steel, cast iron, and hard surfacing, using electrodes from 1/16 inch to 3/32 inch.

The Arc 80T is super portable allowing the operator the flexibility to use this welder for mobile and outdoor applications. This unit is equipped with a cooling fan and thermal overload protection. Quick connect weld cable connections make set-up and tear down quick and easy. This unit is intended to be used on a 20 amp, 120V AC circuit without the use of an extension cord. If an extension cord is necessary for your application, use the appropriate size and length of extension cord that will handle 20 amps the entire length of the extension. We highly recommend talking with a qualified electrician for cord size recommendations.



## **CARRYING STRAP**

A convenient carrying strap makes this light weight welder super portable.

## **THERMAL OVERLOAD INDICATOR**

If the duty cycle of the welder is exceeded, the internal temperature will exceed safe temperatures and the machine will shut down. The thermal overload light will come on indicating this. Leave the unit on and allow 15 minutes for cool down before the light will go off and the temperature to fall into an allowable operating range.

## **WELDING AMPERAGE CONTROL**

This front panel adjustment allows you to adjust the welder amperage output

## **NEGATIVE WELD OUTPUT CONNECTOR**

This is the connector for the ground cable and clamp, most often, when STICK welding.

## **POSITIVE WELD OUTPUT CONNECTOR**

This is the connector for the electrode holder and cable, most often, when STICK welding.

## **POWER INDICATOR LIGHT**

In the "OFF" position no power is being supplied to the electrode holder. In the "ON" position power is supplied to the main transformer, control circuit and weld output is being supplied to the electrode holder.

## **ELECTRODE HOLDER AND CABLE**

The Electrode Holder holds the stick welding electrode. The cable most often connects to the Positive (+) weld output connection for stick welding.

## **GROUND CABLE AND CLAMP**

The ground cable and clamp are attached to the work piece to complete the circuit allowing the flow of current needed to weld.

## **120V POWER CORD**

This welder plugs directly into standard 120V, 20A household power.

# **.INSTALLATION**

## **Electrical Shock**

### **▲ WARNING**

- ***High voltage danger from power source! Consult a qualified electrician for proper installation of receptacle. This welder must be grounded while in use to protect the operator from electrical shock.***
- ***Do not remove grounding prong or alter the plug in any way. Use only the supplied plug between the welder's power cord and the power source receptacle. Make sure the POWER switch is OFF when connecting your welder's power cord directly to a properly grounded 120 VAC, 60 Hz, single phase, 20 amp input power supply.***

POWER REQUIREMENT 120V - AC single phase 120V (110-130V) 50/60 Hz fused with a 20 amp time delayed fuse or circuit breaker is required. DO NOT OPERATE THIS UNIT if the ACTUAL power source voltage is less than 110 volts AC or greater than 130 volts AC.

EXTENSION CORD - We do not recommend an extension cord because of the voltage drop they produce. This drop in voltage can affect the performance of the welder. If you need to use an extension cord, it must be a size #12 or larger. Check with a qualified electrician and your local electrical codes for your specific area. Do not use an extension cord over 25 ft. in length.



## DC STICK OPERATION

### **⚠ WARNING**

- *High voltage danger from power source! Consult a qualified electrician for proper installation of receptacle. This cutter must be grounded while in use to protect the operator from electrical shock.*
- *Do not remove grounding prong or alter the plug in any way. Use only the supplied plug between the welder's power cord and the power source receptacle. Make sure the POWER switch is OFF when connecting your welder's power cord directly to a properly grounded 120 VAC, 60 Hz, single phase, 20 amp input power supply.*

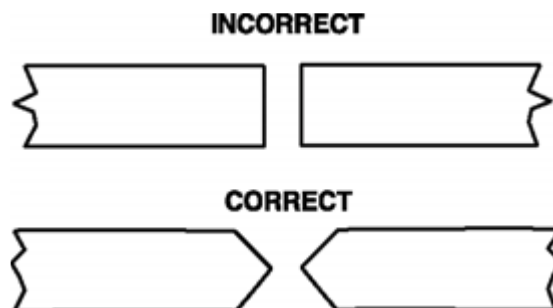
### 1. SETTING UP THE WORK PIECE

#### 1.1 Welding positions:

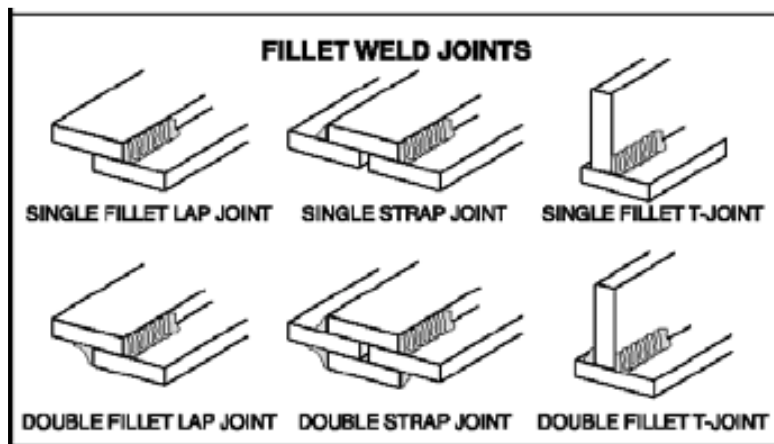
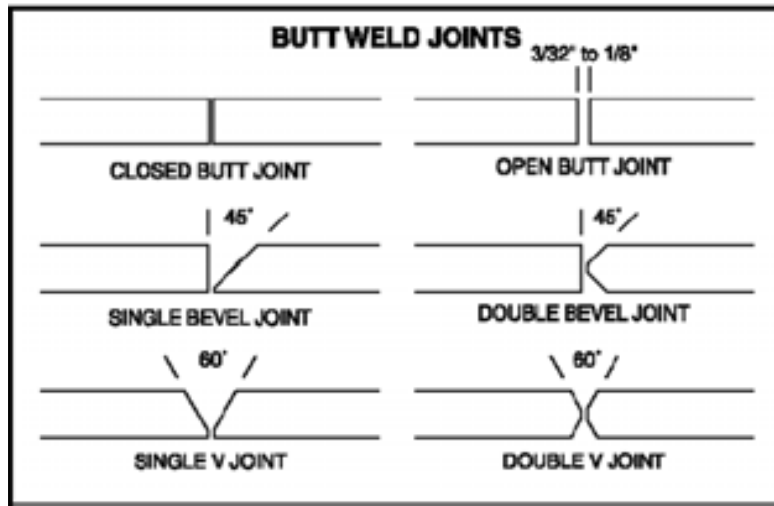
There are two basic positions, for welding: Flat and Horizontal. Flat welding is generally easier, faster, and allows for better penetration. If possible, the work piece should be positioned so that the bead will run on a flat surface.

#### 1.2 Preparing the joint:

Before welding, the surface of work piece needs to be free of dirt, rust, scale, oil or paint or it will create brittle and porous welds. If the base metal pieces to be joined are thick or heavy, it may be necessary to bevel the edges with a metal grinder. The correct bevel should be around 60 degrees. See following picture:



Based on different welding positions, there are different welding joints. See following images for more information.



## 2. GROUND CLAMP CONNECTION

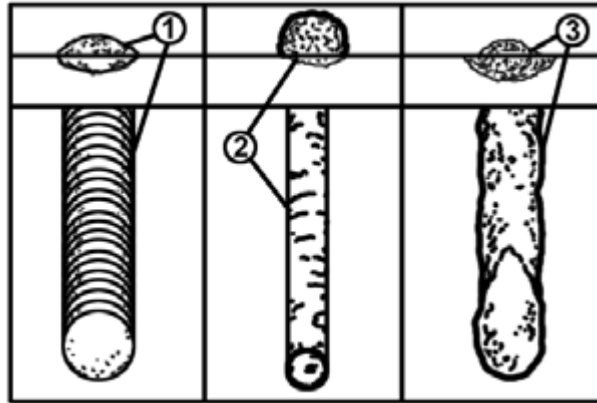
Clear any dirt, rust, scale, oil or paint on the ground clamp. Make certain you have a good solid ground connection. A poor connection at the ground clamp will waste power and heat. Make sure the ground clamp touches the metal.

## 3. ELECTRODE

The welding electrode is a rod coated with a layer of flux. When welding, electrical current flows between the electrode (rod) and the grounded metal work piece. The intense heat of the arc between the rod and the grounded metal melts the electrode and the flux.

## 4. SELECTING THE PROPER ELECTRODE

There is no golden rule that determines the exact rod or heat setting required for every situation. The type and thickness of metal and the position of the work piece determine the electrode type and the amount of heat needed in the welding process. Heavier and thicker metals required more amperage. It is best to practice your welds on scrap metal which matches the metal you intend to work with to determine correct heat setting and electrode choice. See the following helpful trouble shooting tips to determine if you are using a correct electrode.



**4.1. When proper rod is used:**

- 4.1.a. The bead will lay smoothly over the work without ragged edges
- 4.1.b. The base metal puddle will be as deep as the bead that rises above it
- 4.1.c. The welding operation will make a crackling sound similar to the sound of eggs frying

**4.2. When a rod too small is used:**

- 4.2. a. The bead will be high and irregular
- 4.2. b. The arc will be difficult to maintain

**4.3. When the rod is too large:**

- 4.3. a. The arc will burn through light metals
- 4.3. b. The bead will undercut the work
- 4.3. c. The bead will be flat and porous
- 4.3. d. Rod may freeze or stick to work piece

**Note:** Rate of travel over the work also affects the weld. To ensure proper penetration and enough deposit of rod, the arc must be moved slowly and evenly along the weld seam.

**5. SETTING THE AMPERAGE CONTROL**

The welder has current control that is infinitely adjustable within its range. It is capable of welding with electrodes up to 3/32" diameter. There is no golden rule that determines the exact amperage required for every situation. It is best to practice your welds on scrap metal which matches the metals you intend to work with to determine correct setting for your job. The electrode type and the thickness of the work piece metal determine the amount of heat needed in the welding process. Heavier and thicker metals require more voltage (amperage), whereas lighter and thinner metals require less voltage (amperage). Consult the welding electrode packaging for recommended welding amperage range.

**6. WELDING TECHNIQUES**

The best way to teach yourself how to weld is with short periods of practice at regular intervals. All practice welds should be done on scrap metal that can be discarded. Do not attempt to make any repairs on valuable equipment until you are satisfied that the appearance of your practice welds are of good appearance and free of slag or gas inclusions.

**6.1 Holding the electrode**

The best way to grip the electrode holder is the way that feels most comfortable to you. Position the electrode to the work piece when striking the initial arc, it may be necessary to hold the electrode perpendicular to the work piece. Once the arc is started, the angle of the electrode in relation to the

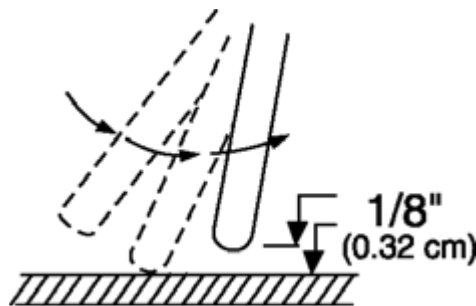
work piece should be between 10 and 30 degrees. This will allow for good penetration, with minimal spatter.

### 6.2 Striking the arc:

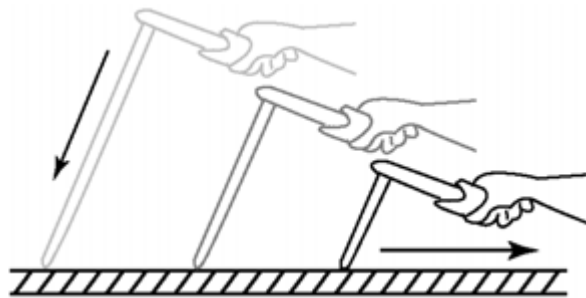
**▲ WARNING**

**EXPOSURE TO A WELDING ARC IS EXTREMELY HARMFUL TO THE EYES AND SKIN! Prolonged exposure to the welding arc can cause blindness and burns. Never strike an arc or begin welding until you are adequately protected. Wear flame-proof welding gloves, a heavy long sleeved shirt, trousers without cuffs, high topped shoes, and an ANSI approved welding helmet.**

Scratch the work piece with the end of electrode to start arc and then raise it quickly about 1/8 inch gap between the rod and the work piece. See following picture



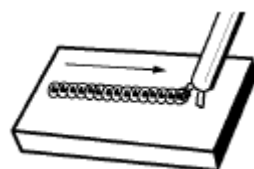
It is important that the gap be maintained during the welding process and it should be neither too wide nor too narrow. If too narrow, the rod will stick to the work piece. If too wide, the arc will be extinguished. It needs much practice to maintain the gap. Beginners may get stuck or arc will be extinguished. When the rod is stuck to the work piece, gently rock it back and forth to make them separate. If not, a short circuit will occur and it will break the welder. A good arc is accompanied by a crisp, cracking sound. The sound is similar to that made by eggs frying. To lay a weld bead, only 2 movements are required; downward (as the electrode is consumed) and in the direction the weld is to be laid, as in following figure:



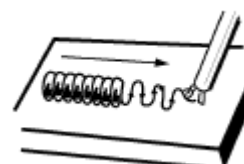
### 6.3 Types of weld bead:

The following paragraphs discuss the most commonly used arc welding beads.

The stringer bead: Formed by traveling with the electrode in a straight line while keeping the electrode centered over the weld joint.



Stringer Bead

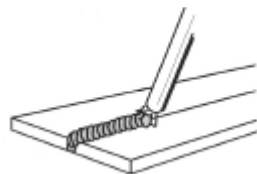


Weave Bead

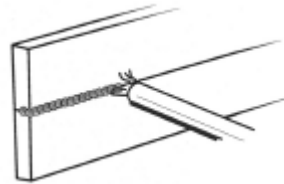
The weave bead: Used when you want to deposit metal over a wider space than would be possible with a stringer bead. It is made by weaving from side to side while moving with the electrode. It is best to hesitate momentarily at each side before weaving back the other way.

#### 6.4 Welding position

Flat position: It is easiest of the welding positions and is most commonly used. It is best if you can weld in the flat position if at all possible as good results are easier to achieve.



Flat Position

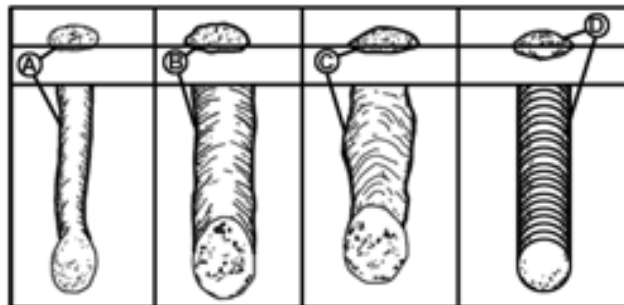


Horizontal Position

The horizontal position: it is performed very much the same as the flat weld except that the angle is different such that the electrode, and therefore the arc force, is directed more toward the metal above the weld joint. This more direct angle helps prevent the weld puddle from running downward while still allowing slow enough travel speed to achieve good penetration. A good starting point for your electrode angle is about 30 degrees DOWN from being perpendicular to the work piece.

#### 6.5 Judge the good weld bead:

When the trick of establishing and holding an arc has been learned, the next step is learning how to run a good bead. The first attempts in practice will probably fall short of acceptable weld beads. Too long of an arc will be held or the travel speed will vary from slow to fast (see following).



- A. Weld speed is too fast
- B. Weld speed is too slow
- C. Arc is too long
- D. Ideal weld

A solid weld bead requires that the electrode be moved slowly and steadily along the weld seam. Moving the electrode rapidly or erratically will prevent proper fusion or create a lumpy, uneven bead.

#### **▲ WARNING**

**ELECTRIC SHOCK CAN CAUSE INJURY OR DEATH! To prevent ELECTRIC SHOCK, do not perform any welding while standing, kneeling, or lying directly on the grounded workpiece.**

#### 6.6 Finish the bead

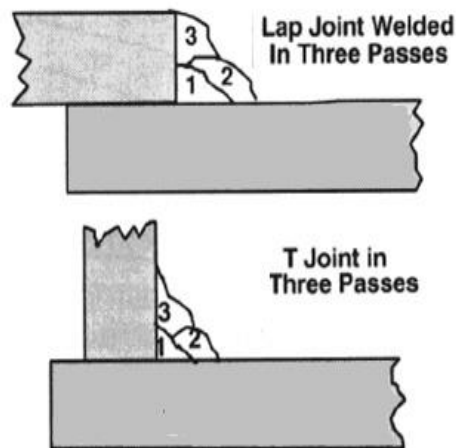
As the coating on the outside of the electrode burns off, it forms an envelope of protective gases around the weld. This prevents air from reaching the molten metal and creating an undesirable chemical reaction. The burning coating, however, forms slag. The slag formation appears as an

accumulation of dirty metal scale on the finished weld. Slag should be removed by using a chipping hammer.

**▲ WARNING**

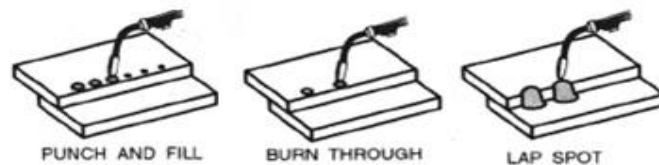
**PEENING THE SLAG FROM A WELD JOINT CAUSES SMALL CHIPS OF METAL TO FLY THROUGH THE AIR! Metallic chips flying through the air can cause eye injury or injury to other parts of the head, hands or exposed portions of the body. Wear goggles or safety glasses with side shields and protect the hands and other exposed parts of the body with protective garments, or if possible, work with a shield between the body and the work piece.**

The intense heat produced at the arc sets up strains in the metal joined by welding. Peening the weld not only removes the scale left behind in the welding but relieves the internal strains developed by the heating and cooling process.



### 8.5 Spot welding

There are three methods of spot welding: Burn-Through, Punch and Fill, and Lap. Each has advantages and disadvantages depending on the specific application as well as personal preference.



1. The BURN-THROUGH METHOD welds two overlapped pieces of metal together by burning through the top piece and into the bottom piece. With the burn-through method, larger wire diameters tend to work better than smaller diameters. Wire diameters that tend to work best, with the burn-through method are 0.035 inch self-shielding flux-core wire. Do not use 0.030 inch self-shielding flux core wires when using the burn-through method unless the metal is VERY thin or excessive filler metal build-up and minimal penetration is acceptable. Always select the HIGH heat setting with the burn-through method and tune in the wire speed prior to making a spot weld.

2. The PUNCH AND FILL METHOD produces a weld with the most finished appearance of the three

spot weld methods. In this method, a hole is punched or drilled into the top piece of metal and the arc is directed through the hole to penetrate into the bottom piece. The puddle is allowed to fill up the hole leaving a spot weld that is smooth and flush with the surface of the top piece. Select the wire diameter, heat setting, and tune in the wire speed as if you were welding the same thickness material with a continuous bead.

3. The LAP SPOT METHOD directs the welding arc to penetrate the bottom and top pieces, at the same time, right along each side of the lap joint seam. Select the wire diameter, heat setting, and tune in the wire speed as if you were welding the same thickness material with a continuous bead.

## **MAINTENANCE**

- **Maintain your welder.** It is recommended that the general condition of any welder be examined before it is used. Keep your **unit** in good repair by adopting a program of conscientious repair and maintenance. Have necessary repairs made by qualified service personnel.
- Periodically clean dust, dirt, grease, etc. from your welder.
- Every six months, or as necessary, remove the cover panel from the welder and air-blow any dust and dirt that may have accumulated inside the welder.
- Replace power cord, ground cable, ground clamp, or electrode assembly when damaged or worn.

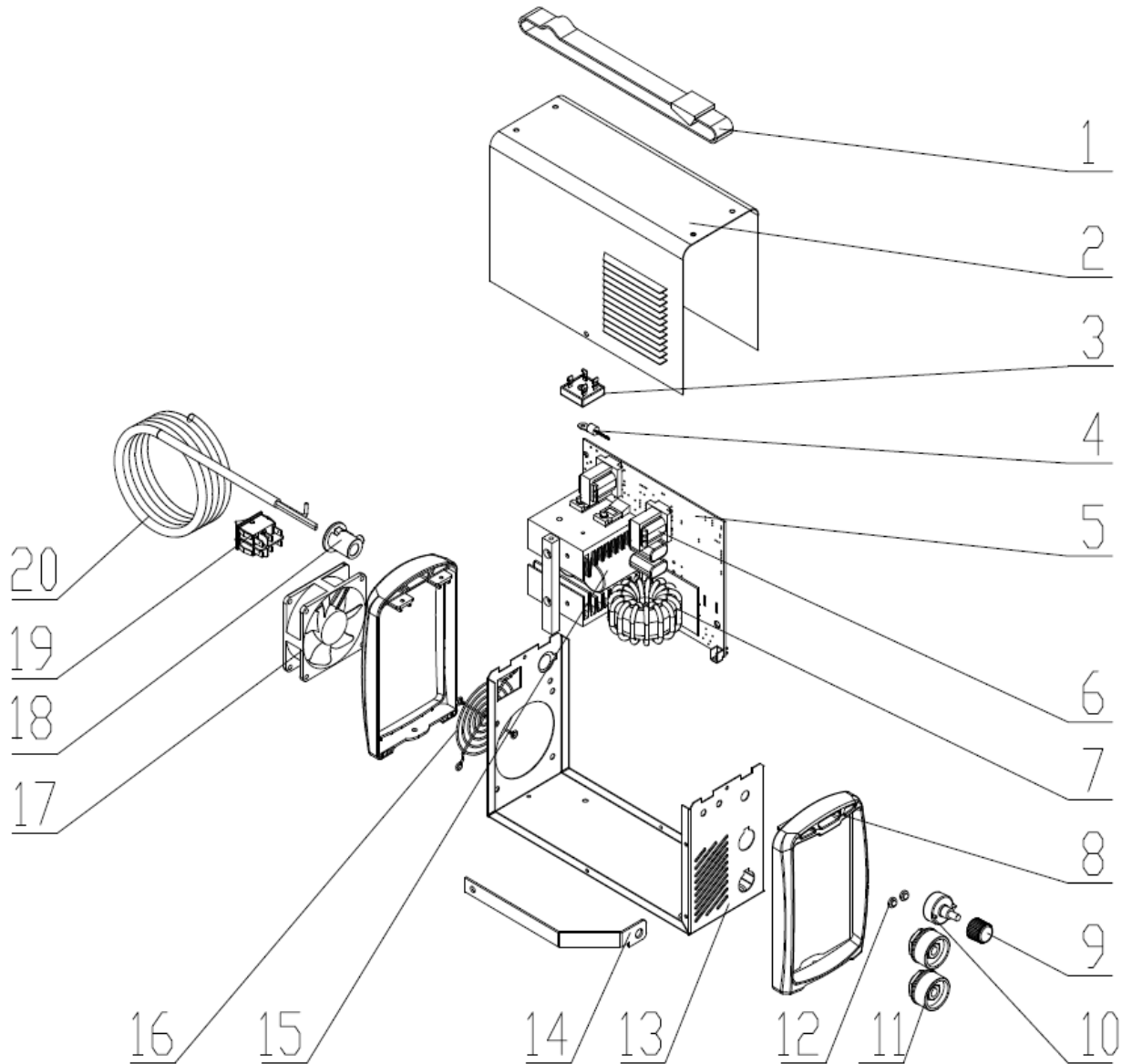
# TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Unit does not power up	Unit is not plugged in	Plug in unit
	Input power circuit breaker is not on	Reset input power circuit breaker
	The main power switch is not working	Replace main power switch
Protection indicator is on	The internal temperature is too high	Leave power on and let the fan cool the unit. Output will continue when the unit has cooled
	Input power voltage is high or too low	Meter input power voltage. This unit must be used with input voltage that ranges from 230V AC plus or minus 15%
	Cooling fan is damaged	Replace the cooling fan
Can not create an arc	Work piece is painted or rusty	Remove all paint and rust
	Ground clamp is connected where there is paint or rust	Remove all paint and rust so ground clamp is connected to bare metal
	Ground clamp is not electrically connected to the work piece	Make certain the ground clamp is connected to the work piece
Electrode holder or ground cable is getting hot. Output connections are getting hot	Weld cable connections are loose	Check to make certain weld cables are tight
	Weld cable connections have corroded	Clean weld connections and reinstall
Poor welding performance, excessive spatter	Damp electrode	Use fresh and dry electrodes
Electrode sticks	The electrode is kept in contact with the work piece for too long while striking an arc	This will take practice. Keep trying
Welding bead is too thin	The welding travel speed is too fast	Reduce the welding travel speed. Maybe incorporate a slight weave over the joint
Welding bead is too thick	The welding travel speed is too slow	Increase the welding travel speed
<b>For Assistance, Contact The Welder Helpline at 888-762-4045</b>		





# DIAGRAM & PARTS LIST



Reference number	Description	Part number	Qty
1	CARRYING STRAP	105300139	1
2	ENCLOSURE	145300001	1
	NEED HELP LABEL	145200001	1
	WARNING LABEL	105700025	1
3	BRIDGE RECTIFIER	105300140	1
4	NTC WIRING HARNESS	105300141	1
5	MAIN PC BOARD	105300142	1
6	POWER TRANSFORMER	105300143	1
7	MAIN TRANSFORMER	105300144	1
8	FRONT BEZEL	105300145	2
9	POTENTIOMETER KNOB	105300146	1
10	POTENTIOMETER	105300147	1
11	WELD OUTPUT TERMINAL	105300148	2
12	LED	105300149	2
13	BOTTOM	145300003	1
14	BUS BAR	105300150	1
15	CAPACITOR	105300151	4
16	FAN COVER	105300152	1
17	FAN	105300153	1
18	STRAIN RELIEF	105300154	1
19	POWER SWITCH	105300155	1
20	POWER CABLE	105300156	1
	ELECTRODE HOLDER AND WELD CABLE	105300009	1
	GROUND CABLE AND CLAMP	105300008	1
	OWNER'S MANUAL	145200002	1

For replacement parts or technical questions, please contact our welder help line at **1-888-762-4045**.

# METAL MAN<sup>®</sup>

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