

Forney

EASY WELD™

125 FC FLUX CORED WIRE WELDER OPERATING MANUAL



FEATURES:

- 125A Output
- 120V Input
- Easy to use
- No gas required
- Portable
- Torch wrap

SPECIFICATIONS:

- Recommended Wire Diameter: Up to .030"
- Plate thickness range: 24 ga - 1/4"
- Weight: 32.6 Lbs. (14.8 Kg)
- Dimensions: 24.6" (411.48mm) X 12.6" (205.74mm) X 18.5" (314.96mm)
- 6 month warranty

IDEAL FOR:

Do-It-Yourself, Maintenance & Repair, Metal Fabrication, Hobbyist

ENGLISH



REV 12.27.16

STOP!

PLEASE DO NOT RETURN TO THE STORE

**If you have questions or problems with your new welder, please
call customer service at 1-800-521-6038
Monday through Friday from 7 a.m. - 5 p.m. (MST) or at
www.forneyind.com/customer_service.**

**Please take time to register your product at
www.forneyind.com/customer_service/register_your_product/**

Thank you, enjoy your new welder.



FIVE WAYS TO ORDER

Web: www.forneyind.com

Phone: 800-521-6038

Fax: 970-498-9505

Mail: Forney Industries
2057 Vermont Drive
Fort Collins, CO 80525

Email: sales@forneyind.com

U.S. Warehouses:

- Fort Collins, CO
- Tipp City, OH

Forney Promise

We are committed to your success regardless of location, size or needs. We understand it is your goal to get the job done right, and we are ready to help you do just that.

President's Message

We market the highest quality tools, equipment and accessories for the do-it-yourselfer and professional. Our passion and dedication in bringing new products to the industrial and retail market, combined with our personal service, is unmatched in our industry. Our ability to listen to our customers' needs enables us to create solutions to their problems.

Our dedication to the highest quality customer service within our corporate headquarters and the service provided in the field is unequalled. We are committed to creating the best solutions to our customer's needs. Above all, our employees will provide the same respect and caring attitude within the organization as they are expected to share with every Forney customer. Our goal will be to exceed our customers' expectations through empowered people, guided by shared values and commitments.

We work hard so our customers trust us because of our integrity, teamwork and innovation of Forney products, and Forney's 80 years of unmatched product quality and an unwavering commitment to our customers.

When our customers succeed we succeed.

A handwritten signature in black ink, appearing to read "Steven G. Anderson".

STEVEN G. ANDERSON, President & CEO

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Forney 6 Month Warranty

Effective July 1, 2015

- 1) Limited Warranty:** Subject to the terms and conditions below, Forney Industries, Inc., Fort Collins, Colorado, warrants to its original retail purchaser that the new Forney equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by Forney. This is in lieu of all other warranties, express or implied.
- 2) Notification:** Please call **1-800-521-6038** with your warranty questions. You can also visit www.forneyind.com for additional information about your new welder.
- 3) Length of Warranty:** Within the 6 month warranty period Forney will repair or replace any warranted parts or components that fail due to defects in material or workmanship. Warranty is effective from the date of original retail purchase.
- 4) Non-Applicable Parts:** Forney Industries limited warranty shall not apply to consumables such as contact tips, cutting nozzles, felt wire cleaner, drive rollers, gas diffusers, plasma torch tips and electrodes, weld cables, tips and parts that fail due to normal wear. In addition, this warranty does not extend to any damage caused by the untimely replacement or maintenance of any of the previously listed consumable parts.
- 5) Warrantor:**
Forney Industries
2057 Vermont Drive
Fort Collins, CO 80525
1-800-521-6038
www.forneyind.com
- 6) Purchaser / Warranty:** The original purchaser of the Forney Industries product. The warranty is not transferable. Forney Industries products are intended for purchase and use by persons trained and experienced in the use and maintenance of welding equipment.
- 7) What is not covered under the warranty:**
 - A) Implied warranties, including those of merchantability and fitness for a particular purpose are limited in duration to this express warranty. After this period, all risks of loss, from whatever reason, shall be on the purchaser.
 - B) Any incidental, indirect, or consequential loss, damage, or expense that may result from any defect, failure or malfunction of the Forney product.
 - C) Any failure that results from accident, purchaser's abuse, neglect or failure to operate products in accordance with instructions provided in the owner's manual(s) supplied with the product.
 - D) Pre-delivery service, i.e. assembly and adjustment.
- 8) Claim:** In the event of a warranty claim under this warranty, the exclusive remedies shall be, at Forney Industries sole option:
 - A) Repair; or
 - B) Replacement; or
 - C) Where authorized in writing by Forney Industries, the cost of repair or replacement at an authorized Forney Industries Service Center; or
 - D) Payment of or credit for the purchase price less reasonable depreciation based on actual use upon the return of the goods at the customer's risk and expense.
- 9) Purchaser will:**
 - A) Contact Forney Customer Service at **1-800-521-6038** within 30 days of the defect or failure.
 - B) Provide dated proof of purchase (typically a purchase receipt).
 - C) Provide the serial number. Registering your welder at www.forneyind.com/customer_service/register_your_product/ will speed up this process.
 - D) Deliver or ship welder to a Forney authorized Service Center. Freight &/or packaging costs, if any, must be borne by the purchaser.

CAUTION!

BEFORE INSTALLING, OPERATING OR CARRYING OUT MAINTENANCE ON THE MACHINE, READ THE CONTENTS OF THIS MANUAL CAREFULLY, PAYING PARTICULAR ATTENTION TO THE SAFETY RULES AND HAZARDS.

In the event of these instructions not being clear, please contact your
Forney Authorized Dealer or Forney Customer Service 1-800-521-6038

Safety Summary

Principal Safety Standards

- Safety in Welding and Cutting, ANSI Standard Z49.1, from American Welding Society, 8669 Doral Boulevard, Suite 130, Doral, FL 33166 Safety and Health Standards, OSHA 29 CFR 1910, from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.
- Recommended Safe Practices for the Preparation for Welding and Cutting of Containers That Have Held Hazardous Substances, American Welding Society Standard AWS F4.1, from American Welding Society, 8669 Doral Boulevard, Suite 130, Doral, FL 33166
- National Electrical Code, NFPA Standard 70, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.
- Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 1235 Jefferson Davis Highway, Suite 501, Arlington, VA 22202.
- Code for Safety in Welding and Cutting, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3.
- Safe Practices For Occupation And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 1430 Broadway, New York, NY 10018.
- Cutting And Welding Processes, NFPA Standard 51B, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269

California Proposition 65 Warning

This product may contain chemicals known to the State of California to cause cancer, birth defects and other reproductive harm (CA. Prop 65). Wash hands after use.

EMF Information

Welding or cutting current, as it flows through the welding or cutting cables, will cause electromagnetic fields. There has been and still is some concern about such fields. However, after examination the committee of the National Research Council concluded that: "The body of evidence, in the committee's judgment, has not demonstrated that exposure to power-frequency electric and a magnetic field is a human health hazard." However, studies are still going forth and evidence continues to be examined. Until the final conclusions of the research are reached, you may wish to minimize your exposure to electromagnetic fields when welding or cutting. To reduce magnetic fields in the workplace, use the following procedures:

1. Keep cables close together by twisting or taping them.
2. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around your body.
4. Keep welding or cutting power source and cables as far away from operator as practical.
5. Connect work clamp to work piece as close to the cut or weld as possible.

ABOUT PACEMAKERS & HEARING AIDS:

Pacemaker & Hearing Aid wearers consult your doctor first. If cleared by your doctor, then following the above procedures is recommended.

Personal Protection

Welding processes of any kind can be dangerous not only to the operator but to any person situated near the equipment, if safety and operating rules are not strictly observed.



THE WELDING ARC PRODUCES VERY BRIGHT ULTRAVIOLET AND INFRARED LIGHT. THESE ARC RAYS WILL DAMAGE YOUR EYES AND BURN YOUR SKIN IF YOU ARE NOT PROPERLY PROTECTED.

To reduce the risk of injury from arc rays, read, understand, and follow the safety instructions. In addition, make certain that anyone else that uses this welding equipment, or is a bystander in the welding area understands and follows these safety instructions as well. Helmets and filter should conform to ANSI Z87.1 standards.

- Do not look at an electric arc without proper protection. A welding arc is extremely bright and intense and, with inadequate or no eye protection, the retina can be burned, leaving a permanent dark spot in the field of vision. A shield or helmet with a #10 shade filter lens (minimum) must be used.
- Do not strike a welding arc until all bystanders and you (the welder) have welding shields and/or helmets in place.
- Do not wear a cracked or broken helmet and replace any cracked or broken filter lenses immediately.
- Do not allow the uninsulated portion of the wire feed gun to touch the ground clamp or grounded work to prevent an arc flash from being created on contact.
- Provide bystanders with shields or helmets fitted with an appropriate shade filter lens.
- Wear protective clothing. The intense light of the welding arc can burn the skin in much the same way as the sun, even through light-weight clothing. Wear dark clothing of heavy material. The shirt worn should be long sleeved and the collar kept buttoned to protect chest and neck.
- Protect against reflected arc rays. Arc rays can be reflected off shiny surfaces such as a glossy painted surface, aluminum, stainless steel, and glass. It is possible for your eyes to be injured by reflected arc rays even when wearing a protective helmet or shield. If welding with a reflective surface behind you, arc rays can bounce off the surface and off the filter lens. It can get inside your helmet or shield and into your eyes. If a reflective background exists in your welding area, either remove it or cover it with something non-flammable and non-reflective. Reflective arc rays can also cause skin burn in addition to eye injury.
- Flying sparks can injure. Wear proper safety equipment to protect eyes and face. Shape tungsten electrode on grinder wearing proper protection and in a safe location. Keep flammables away and prevent fire from flying sparks.



FUMES, GASSES, AND VAPORS CAN CAUSE DISCOMFORT, ILLNESS, AND DEATH!

To reduce the risk, read, understand, and follow the safety instructions. In addition, make certain that anyone else that uses this welding equipment or is a bystander in the welding area, understands and follows these safety instructions as well.

- Read and understand manufacturers SDS and MSDS.
- Do not weld in an area until it is checked for adequate ventilation as described in ANSI standard Z49.1. If ventilation is not adequate to exchange all fumes and gasses generated during the welding process with fresh air, do not weld unless you (the welder) and all bystanders are wearing air-supplied respirators.
- Do not heat metals coated with, or that contain, materials that produce toxic fumes (such as galvanized steel), unless the coating is removed. Make certain the area is well ventilated, and the operator and all bystanders are wearing air-supplied respirators.
- Do not weld, cut or heat lead, zinc, cadmium, mercury, beryllium, antimony, cobalt, manganese, selenium, arsenic, copper, silver, barium, chromium, vanadium, nickel, or similar metals without seeking professional advice and inspection of the ventilation of the welding

area. These metals produce extremely toxic fumes which can cause discomfort, illness and death.

- Do not weld or cut in areas that are near chlorinated solvents. Vapors from chlorinated hydrocarbons, such as trichloroethylene and perchloroethylene, can be decomposed by the heat of an electric arc or its ultraviolet radiation. These actions can cause phosgene, a highly toxic gas, to form, along with other lung and eye-irritating gasses. Do not weld or cut where these solvent vapors can be drawn into the work area or where the ultraviolet radiation can penetrate to areas containing even very small amounts of these vapors.
- Do not weld in a confined area unless it is being ventilated or the operator (and anyone else in the area) is wearing an air-supplied respirator.
- Stop welding if you develop momentary eye, nose, or throat irritation as this indicates inadequate ventilation. Stop work and take necessary steps to improve ventilation in the welding area. Do not resume welding if physical discomfort persists.

Fire Prevention



FIRE OR EXPLOSION CAN CAUSE DEATH, INJURY, AND PROPERTY DAMAGE!

To reduce these risks, read, understand and follow the safety instructions. In addition, make certain that anyone else that uses this welding equipment, or is a bystander in the welding area, understands and follows these safety instructions as well. Remember: arc welding by nature produces sparks, hot spatter, molten metal drops, hot slag and hot metal parts that can start fires, burn skin and damage eyes.

- Do not wear gloves or other clothing that contains oil, grease, or other flammable substances.
- Do not wear flammable hair preparations.
- Do not touch the hot weld bead or weld puddle until fully cooled.
- Do not weld in an area until it is checked and cleared of combustible and/or flammable materials. Be aware that sparks and slag can fly 35 feet and can pass through small cracks and openings. If work and combustibles cannot be separated by a minimum of 35 feet, protect against ignition with suitable, snug-fitting, fire resistant, covers or shields.
- Do not weld on walls until checking for and removing combustibles touching the other side of the walls.
- Do not weld, cut, or perform other such work on used barrels, drums, tanks, or other containers that had a flammable or toxic substance. The techniques for removing flammable substance and vapors, to make a used container safe for welding or cutting, are quite complex and require special education and training.
- Do not strike an arc on a compressed gas or air cylinder. Doing so will create a brittle area that can result in a violent rupture immediately or at a later time as a result of rough handling.
- Do not weld or cut in an area where the air may contain flammable dust (such as grain dust), gas, or liquid vapors (such as gasoline).
- Do not handle hot metal, such as the work piece or electrode stubs, with bare hands.
- Wear leather gloves, heavy long sleeve shirt, cuffless pants, high-topped shoes, helmet, and cap. As necessary, use additional protective clothing such as leather jacket or sleeves, fire resistant leggings, or apron. Hot sparks or metal can lodge in rolled up sleeves, pant cuffs, or pockets. Sleeves and collars should be kept buttoned and pockets eliminated from the shirt front.
- Have fire extinguisher equipment handy for immediate use. A portable chemical fire extinguisher, type ABC, is recommended.
- Wear ear plugs when welding overhead to prevent spatter or slag from falling into ear.
- Make sure welding area has a good, solid, safe floor, preferably concrete or masonry, not tiled, carpeted, or made of any other flammable material.
- Protect flammable walls, ceilings, and floors with heat resistant covers or shields.

- Check welding area to make sure it is free of sparks, glowing metal or slag, and flames before leaving the welding area.
- Wear garments free of oil or other flammable substances such as leather gloves, thick cotton shirts with no synthetic materials, cuffless trousers, closed toed shoes. Keep long hair pulled back.
- Remove any combustibles such as lighters and matches before doing any welding.
- Follow requirements in OSHA and NFPA for hot work and have an extinguisher nearby.
- High Frequency (H.F) can interfere with radio navigation, safety services, computers and communication equipment.
- It is the user's responsibility to have a qualified electrician promptly correct any interference problem resulting from the installation. Electrician should regularly check and maintain installation.
- Stop using the equipment if notified by the FCC about interference.
- Keep H.F. source doors and panels tightly shut and keep spark gaps at correct setting.
- Computers and computer driven equipment can be harmed with electromagnetic energy.
- Be sure all equipment is compatible with electromagnetic energy.
- Keep welding cables short to reduce interference.
- Follow manual to install and ground machine.
- If interference continues, shield the work area or move the welding machine.

Electric Shock



WARNING: ELECTRIC SHOCK CAN KILL! To reduce the risk of death or serious injury from shock, read, understand, and follow the safety instructions. In addition, make certain that anyone else who uses this welding equipment, or who is a bystander in the welding area understands and follows these safety instructions as well.

IMPORTANT! TO REDUCE THE RISK OF DEATH, INJURY, OR PROPERTY DAMAGE, DO NOT ATTEMPT OPERATION of this welding equipment until you have read and understand the following safety summary.

- Do not, in any manner, come into physical contact with any part of the welding current circuit. The welding current circuit includes:
 - a. the work piece or any conductive material in contact with it,
 - b. the ground clamp,
 - c. the electrode or welding wire,
 - d. any metal parts on the electrode holder, or wire feed gun.
- Do not weld in a damp area or come in contact with a moist or wet surface.
- Do not attempt to weld if any part of clothing or body is wet.
- Do not allow the welding equipment to come in contact with water or moisture.
- Do not drag welding cables, wire feed gun, or welder power cord through or allow them to come into contact with water or moisture.
- Do not touch welder, attempt to turn welder on or off if any part of the body or clothing is moist or if you are in physical contact with water or moisture.
- Do not attempt to plug the welder into the power source if any part of body or clothing is moist, or if you are in physical contact with water or moisture.
- Do not connect welder work piece clamp to or weld on electrical conduit.
- Do not alter power cord or power cord plug in any way.
- Do not attempt to plug the welder into the power source if the ground prong on power cord plug is bent over, broken off, or missing.
- Do not allow the welder to be connected to the power source or attempt to weld if the welder, welding cables, welding site, or welder power cord are exposed to any form of atmospheric precipitation, or salt water spray.
- Do not carry coiled welding cables around shoulders, or any other part of the body, when

- they are plugged into the welder.
- Do not modify any wiring, ground connections, switches, or fuses in this welding equipment.
- Wear welding gloves to help insulate hands from welding circuit.
- Keep all liquid containers far enough away from the welder and work area so that if spilled, the liquid cannot possibly come in contact with any part of the welder or electrical welding circuit.
- Replace any cracked or damaged parts that are insulated or act as insulators such as welding cables, power cord, or electrode holder immediately.
- When not welding, cut wire back to contact tip or remove electrode from electrode holder.

Noise



Noise can cause permanent hearing loss. Welding processes can cause noise levels that exceed safe limits. You must protect your ears from loud noise to prevent permanent loss of hearing.

- To protect your hearing from loud noise, wear protective ear plugs and/or ear muffs.
- Noise levels should be measured to be sure the decibels (sound) do not exceed safe levels.

Additional Safety Information

For additional information concerning welding safety, refer to the following standards and comply with them as applicable.

- ANSI Standard Z49.1 - SAFETY IN WELDING AND CUTTING - obtainable from the American Welding Society, 550 NW Le Jeune Road, Miami, FL 33126 Telephone (800) 443-9353, Fax (305) 443-7559 - www.amweld.org or www.aws.org
- ANSI Standard Z87.1 - SAFE PRACTICE FOR OCCUPATION AND EDUCATIONAL EYE AND FACE PROTECTION - obtainable from the American National Standards Institute, 11 West 42nd St., New York, NY 10036 Telephone (212) 642A900, Fax (212) 398-0023 - www.ansi.org
- NFPA Standard 518 - CUTTING AND WELDING PROCESS - obtainable from the National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101 Telephone (617) 770-3000 Fax (617) 770-0700 - www.nfpa.org
- OSHA Standard 29 CFR, Part 1910, Subpart Q., WELDING, CUTTING AND BRAZING - obtainable from your state OSHA office or U.S. Dept. of Labor OSHA, Office of Public Affairs, Room N3647, 200 Constitution Ave., Washington, DC 20210 - www.osha.gov
- CSA Standard W117.2 - Code for SAFE TY IN WELDING AND CUTTING. - obtainable from Canadian Standards Association, 178 Rexdale Blvd., Etobicoke, Ontario M9W 1R3 - www.csa.ca
- American Welding Society Standard A6.0. WELDING AND CUTTING CONTAINERS WHICH HAVE HELD COMBUSTIBLES. - obtainable from the American Welding Society, 550 NW Le Jeune Road, Miami, FL 33126 Telephone (800) 443-9353, Fax (305) 443-7559 - www.amweld.org or www.aws.org

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Installation

Welder Specifications

Table 1. Welder Specifications

| | |
|-----------------------|------------|
| Primary (input) volts | 120 V |
| Maximum Output | 125 A |
| Welding Range | 65-80 Amps |
| Phase | Single |
| Frequency | 60Hz |
| CSA Rated Output Amps | 60 |
| Duty Cycle Rating | 20% |

Site Selection

Select a clean, dry location with adequate working space around all components. Provide at least two feet of space in front of and behind the unit to allow for free flow of air.

Power Source Connection



WARNING: High voltage danger from power source! Consult a qualified electrician for proper installation of receptacle at the power source.

This welder must be grounded while in use to protect the operator from electrical shock. If you are not sure if your outlet is properly grounded, have it checked by a qualified electrician. Do not cut off the grounding prong or alter the plug in any way and do not use any adapters between the welder's power cord and the power source receptacle.

Make sure the POWER switch is OFF then connect your welder's power cord to a properly grounded 120 Volt AC, 60 Hz, single phase, 20 amp power source. Do not operate this welder if the source voltage is less than 105 Volts or greater than 132 Volts. Contact a qualified electrician if this problem exists. Improper performance and/or damage to the welder will result if operated on inadequate or excessive power.

Extension Cords

For optimum welder performance, an extension cord should not be used unless absolutely necessary. If necessary, care must be taken in selecting an extension cord appropriate for use with your specific welder.

Select a properly grounded extension cord that will mate directly with the AC power source receptacle and the welder power cord without the use of adapters. Make certain that the extension cord is properly wired and in good electrical condition. Extension cords must fit the following wire size guidelines:

- 25 ft. requires #12 gauge
- Do not use an extension cord over 25 ft. in length.

Preparation for Welding

With the On/Off switch in the Off position, connect the ground clamp as follows: Clasp the ground clamp to the workpiece. **NOTE:** For good contact, the ground clamp must be attached to clean, bare metal (not painted).

Assembling the Welder

The following procedures describe the process required to assemble, install, maintain, and prepare to weld with your new wire feed welder.

Selecting the Welding Wire

This welder uses only four or eight inch spools of 0.030 inch (0.8mm) or 0.035 inch (0.9mm) self-shielding flux-core wire. Steel from 24 gauge up to 1/4 inch thick can be welded with this wire.

NOTE:

- If a spool has developed heavy oxidation, the only solution to the problem is to discard the spool of wire.
- If you have an oxidized spool of wire, do not discard it until you have unspooled a few turns of wire to see if the wire farther down on the spool is in usable condition, if not, discard the spool.

Installing the Welding Wire



WARNING: ELECTRIC SHOCK CAN KILL! Always turn the POWER switch OFF and unplug the welder's power cord from the AC power source before installing wire.

1. Remove the nozzle and contact tip from the end of the gun assembly.
2. Loosen the ring nut and remove the wire reel locking bushing.
3. Unwrap the spool of wire and then find the leading end of the wire (it goes through a hole in the outer edge of the spool and is bent over the spool edge to prevent the wire from unspooling) but do not unhook it yet.
4. Place the spool on the spindle in such a manner that when the wire comes off the spool, it will look like the illustration on the inside of the MIG cabinet. The wire should unspool from the bottom, and the spool will thus rotate counter-clockwise.



5. While holding the wire in place, use a wire cutter, cut the bent end of the wire so that only a straight end remains.
6. Hold the drive roll tension arm up off the drive roller and insert the leading end of the wire into the inlet guide tube. Then push it across the drive roller and into the gun assembly about six inches.
7. Line the wire up in the outside groove of the drive roller and allow the drive tension arm to drop onto the drive roller. Lighten (turn clockwise) the tension adjusting screw until the

tension roller is applying enough force on the wire to prevent it from slipping out of the drive assembly.

8. Let go of the wire.
9. Plug the welder's power cord into the AC power source. Adjust the settings on the front panel per the setup chart on the inside panel door of the welding machine.
10. Pull the trigger on the welding gun to feed the wire through the gun assembly. When at least an inch of wire sticks out past the end of the gun, release the trigger.
11. Install the supplied contact tip. **NOTE:** Due to inherent variances in flux-cored welding wire, it may be necessary to use a welding tip one size larger than your flux-core wire if poor feeding or jams occur.
12. Slide the contact tip over the wire (protruding from the end of the gun). Screw the contact tip into the end of the gun and hand tighten securely.
13. Install the nozzle on the gun assembly.
14. Cut off the excess wire that extends past the end of the nozzle.
15. Set the wire drive tension.
 - a. Pull the trigger on the gun.
 - b. Turn the wire drive tension adjustment knob clockwise, increasing the drive tension until the wire seems to feed smoothly without slipping. **NOTE:** If TOO MUCH tension is applied you can crush the wire and create wire feeding problems. If TOO LITTLE tension is applied, the wire will slip on the drive rolls and wire will not feed.
16. When the drive tension is set correctly, there should be no slippage between the wire and the drive roller. But if an obstruction occurs along the wire feed path, the wire should then slip on the drive roller.

Operation

Operation of this welder consists of selecting and adjusting operating controls for optimum voltage (welding heat) and wire speed settings.

Description

Your new flux core (FCAW) wire feed welder is designed for maintenance and sheet metal fabrication. The welder consists of a single phase power transformer and a built-in control/feeder. This welder is capable of welding with 0.030" (0.8 mm) and 0.035" (0.9 mm) self-shielding flux-core wire. The use of 0.030" wire is recommended. Now you can weld sheet metal from 18 gauge up to 3/16 inch thick with a single pass. You can weld 1/4 inch steel with beveling and multiple pass techniques.

Suggested Settings

Variations in input power, welding position, and wire will affect the weld characteristics. Use the voltage settings and wire speed indicated as a starting point, then adjust for variables such as stick out, travel speed, weld angle, cleanliness of metal, etc.

WARNING: Read all instructions and warnings supplied with this welder before attempting to use or service it. Also read all warnings and cautions on the welder.

| Welding Wire (.030") | THICKNESS OF STEEL | | | | | |
|-----------------------------|--------------------|-------------|-------------|------------|------------|------------|
| | 18 gage | 16 gage | 14 gage | 12 gage | 1/8" | 3/16" |
| Thickness Setting (Voltage) | SHEET METAL | SHEET METAL | SHEET METAL | THIN PLATE | THIN PLATE | THIN PLATE |
| Wire Feed Speed | 2 | 4 | 5 | 2 | 4 | 5 |
| VOLTAGE SETTING/WIRE SPEED | | | | | | |

WARNING: After installing new wire spool, make sure welding wire is inserted into torch hose liner and wire tension knob is correctly adjusted before pulling welding torch trigger.

Duty Cycle

The duty cycle rating of a welder defines how long the operator can weld and how long the welder must be rested and cooled. Duty cycle is expressed as a percentage of 10 minutes and represents the maximum welding time allowed. The balance of the 10-minute cycle is required for cooling.

Your new welder has a duty cycle rating of 20% at the rated output. This means that you can weld for two (2) minutes out of 10 with the remaining eight (8) minutes required for cooling. (See Table 2).

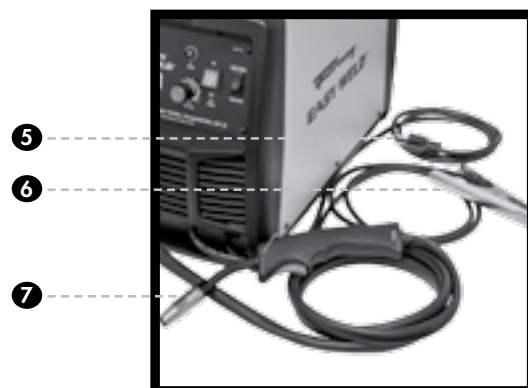
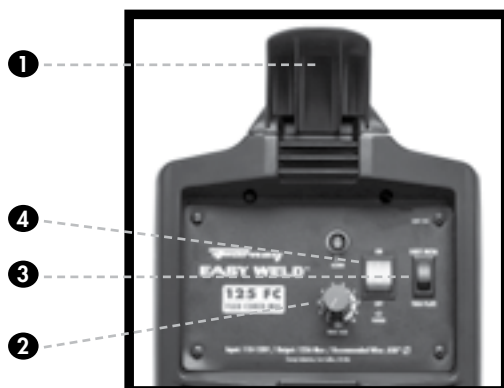
Table 2. Duty Cycle Ratings

| Duty Cycle Rating | Maximum Welding Time | Required Resting Time |
|-------------------|----------------------|-----------------------|
| 20% | 2 minutes | 8 minutes |
| 40% | 4 minutes | 6 minutes |
| 60% | 6 minutes | 4 minutes |
| 80% | 8 minutes | 2 minutes |

Internal Thermal Protection

CAUTION: Do not constantly exceed the duty cycle or damage to the welder can result. If you exceed the duty cycle of the welder, an internal thermal protector will open, shutting off all welder functions. After cooling, the thermal protector will automatically reset and the welder will function normally again. However you should wait at least ten minutes after the thermal protector opens before resuming welding. You must do this even if the thermal protector resets itself before the ten minutes is up or you may experience less than specified duty cycle performance.

Know Your Welder



1. **Handle** - Rugged, top mounted handle allows for easy transport of your welder and a place to wrap your cables.
2. **Wire Speed Control** - Use this dial to adjust the speed at which the welder feeds wire to the gun (1 is the slowest and 10 is the highest). You will need to adjust or "tune-in" your wire speed for different welding conditions (thickness of metals, metal type, wire size, etc.). When the wire speed is properly "tuned-in" the welding wire will melt into the material you're welding as quickly as it is fed through the welding gun.
3. **Voltage Selector** - This two position switch adjusts the voltage or "heat" of your welder. Select "Sheet Metal" setting for lower voltage and "Thin Plate" setting for higher voltage. Different materials and material thickness will require different voltage settings. You will need to adjust your voltage accordingly for different welding conditions. By properly adjusting your voltage settings and wire feed speed, you will produce clean welds. (Refer to the Suggested Settings Chart on the inside panel of the welding machine)
4. **Power Switch** - This switch turns the welder ON and OFF. (Make sure the power switch is in the OFF position before performing any maintenance on the welder.)
5. **Power Cord** - This is a standard, grounded 120 volt power cord. (Make sure you are using a properly grounded 120 Volt AC, 60Hz, single phase, 20 amp power source.)
6. **Ground Clamp and Cable** -Attaching the ground clamp to your work piece completes the welding current circuit. You must attach the ground clamp to the metal you are welding. If the ground clamp is not connected to the metal work piece you intend to weld, the welder will not have a completed circuit and you will be unable to weld. A poor connection at the ground clamp will create an erratic arc. Scrape away dirt, rust, scale, oil or paint before attaching the ground clamp.
7. **Welding Gun and Cable** - The welding gun controls the delivery of the welding wire to the material to be welded. The welding wire is fed through the welding cable and welding gun when the welding gun trigger is pulled. You will need to install a contact tip and welding nozzle to the end of the welding gun prior to welding.

Controls and Indicators



WARNING: ELECTRIC SHOCK CAN KILL! To remove the risk of electric shock, be aware that the POWER switch, when OFF, does not remove power from all internal circuitry in the welder.

The POWER SWITCH controls the main power to the welder and lights up when the welder is ON. When the switch is OFF there is power to some areas of the welder.

When working inside the welder or when removing panels on the welder, make sure the welder is unplugged from the wall outlet.

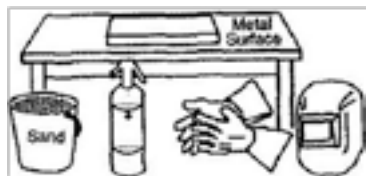
Preparations for Welding


An important factor in making a satisfactory weld is preparation. This includes studying the process and equipment and then practice welding before attempting to weld finished product. An organized, safe, convenient, comfortable, well-lit work area should be available to the operator. The work area should specifically be free of all flammables with both a fire extinguisher and bucket of sand available.

To properly prepare for welding, it is necessary to:

- Prepare an organized, well-lit work area.
- Provide protection for the eyes and skin of the operator and bystanders.
- Set up the work piece and make the ground clamp connection.

- Select the electrode.
- Adjust the heat control.



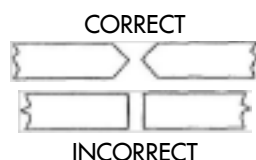
 **EXPOSURE TO A WELDING ARC IS EXTREMELY HARMFUL TO THE EYES AND SKIN. PROLONGED EXPOSURE TO A WELDING ARC CAN CAUSE BLINDNESS AND BURNS. NEVER STRIKE AN ARC OR BEGIN WELDING UNLESS YOU ARE ADEQUATELY PROTECTED. WEAR FLAMEPROOF WELDING GLOVES, HEAVY LONG SLEEVED SHIRT, CUFFLESS PANTS; HIGH TOPPED SHOES AND A WELDING HELMET.**


Setting Up the Work Piece

Once you have prepped the work piece (cleaning, cutting to size, etc.) you can position it in a manner that will produce a solid weld. Ensure the workpiece(s) are securely held in place either with magnets or clamps. Do some practice before welding your workpiece.


Preparing the Joint

For effective welding, the surfaces to be joined must be free of dirt, rust, scale, oil or paint. Welding on metals not properly cleaned will cause a brittle and porous weld. If the base metal pieces to be joined are thick or heavy, it may be necessary to bevel the edges with a metal grinder at the point of contact. The angle of the bevel should be approximately 60 degrees.



 **WARNING:** To help prevent eye injuries when grinding, always wear goggles. The grinder must also be inspected to verify that it is in good condition.

During welding, the work pieces will become hot and will tend to expand. The expansion may cause the pieces to shift from the regular position. If possible, the work pieces should be clamped into the position.

 **ARC RAYS CAN INJURE EYES AND BURN SKIN!** To reduce the risk of injury from arc rays, never strike a welding arc until you and all bystanders in the welding area, have welding helmets or a shield in place and are wearing the recommended protective clothing. **DO NOT CONTINUE** unless you have read, understand and intend to follow the entire SAFETY SUMMARY provided at the front of this manual.

Learning to Weld

Flux core wire welding (FCAW) is the process of uniting metal parts by heating and allowing the metals to flow together through the use of an electrical arc. The electric arc is created between a continuous consumable wire electrode (the welding wire) and the work piece. An atmosphere created by the flux protects the weld puddle from contamination and enhances the welding capabilities of the electrical arc.

Whether you have welded before or not, it is important that you become familiar with your new welder, its controls, and the results achieved at different settings. We strongly recommend that you practice with your new welder on scrap metal trying different heat settings, base metal thicknesses, and welding position for each type and size of wire you will be using. By doing this you will gain a feel for how changes in these welding variables affect the weld. Of course, if you have not welded before, you will need to develop welding skills and techniques as well.

The self-taught welder learns through a process of trial and error. 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 have satisfied yourself that your practice welds are of good appearance and free of slag or inclusions.

Welding Terms

Now that you are familiar with the main parts of the welder, make note of the following terms. You will see them used throughout this manual.

Weld Puddle: The localized volume of molten metal in a weld prior to its solidification.

Weld Angle: The angle of the welding wire, as it extends from the welding gun in relation to the item being welded.

Slag: The protective coating that forms on the surface of molten metal.

Arc: A sustained luminous discharge of electricity across a gap in a circuit.

Welding Bead: The extended buildup of a weld, made by pushing or pulling the weld puddle.

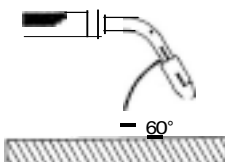
Holding the Gun

The best way to hold the welding gun is the way that feels most comfortable to you. While practicing to use your new welder, experiment by holding the gun in different positions until you find the grip that works best for you.

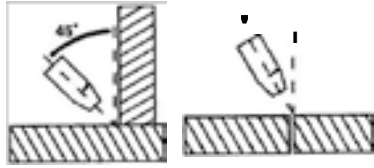
POSITION THE GUN TO THE WORK PIECE

There are two angles of the gun nozzle in relation to the work piece that must be considered when welding.

1. Angle A can be varied, but in most cases the optimum angle will be 60 degrees. The point at which the gun handle is parallel to the work piece. If angle A is increased, penetration will increase. If angle A is decreased, penetration will decrease also.



2. Angle B can be varied for two reasons: to improve the ability to see the arc in relation to the weld puddle and to direct the force of the arc.



The force of the welding arc follows a straight line out of the end of the nozzle. If Angle B is changed, so will the direction of arc force and the point at which penetration will be concentrated.


On a butt weld joint, the only reason to vary angle B from perpendicular (straight up) to the work piece would be to improve visibility of the weld puddle. In this case, angle B can be varied anywhere from zero to 45 degrees with 30 degrees working about the best.

On a fillet weld joint, the nozzle is generally positioned in such a manner so as to split the angle between the horizontal and vertical members of the weld joint. In most cases, a fillet weld will be 45 degrees.

DISTANCE FROM THE WORK PIECE

The end of the welding gun is designed with the contact tip recessed from the end of the nozzle and the nozzle electrically insulated from the rest of the gun. This permits the operator to actually rest the nozzle on the work piece and drag it along while welding. This can be very helpful to beginning welders to steady the gun, allowing the welder to concentrate on welding technique. If the nozzle is held off the work piece, the distance between the nozzle and the work piece should be kept constant and should not exceed 1/4 inch or the arc may begin sputtering, signaling a loss in welding performance.

Welding Techniques

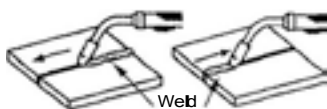
 **WARNING: EXPOSURE TO A WELDING ARC IS EXTREMELY HARMFUL TO THE EYES AND SKIN!** Prolonged exposure to the welding arc can cause blindness and burns. Never strike an arc or begin welding until you are adequately protected. Wear flameproof welding gloves, a heavy long sleeved shirt, cuffless pants, high topped shoes and a welding helmet.

 **WARNING: ELECTRIC SHOCK CAN KILL!** To prevent ELECTRIC SHOCK, do not perform any welding while standing, kneeling or lying directly on the grounded work.

MOVING THE GUN

Gun travel refers to the movement of the gun along the weld joint and is broken into two elements: Direction and Speed. A solid weld bead requires that the welding gun be moved steadily and at the right speed along the weld joint. Moving the gun too fast, too slow, or erratically will prevent proper fusion or create a lumpy, uneven bead.

1. TRAVEL DIRECTION is the direction the gun is moved along the weld joint in relation to the weld puddle. The gun is either pushed into the weld puddle or pulled away from the weld puddle.



For most welding jobs you will pull the gun along the weld joint to take advantage of the greater weld puddle visibility.

2. **TRAVEL SPEED** is the rate at which the gun is being pushed or pulled along the weld joint. For a fixed heat setting, the faster the travel speed, the lower the penetration and the lower and narrower the finished weld bead. Likewise, the slower the travel speed, the deeper the penetration and the higher and wider the finished weld bead.

TYPES OF WELD BEADS

The following paragraphs discuss the most commonly used welding beads.

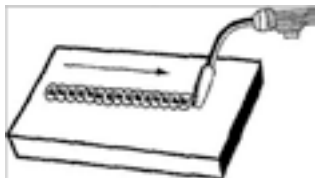
Once you have the gun in position with the wire lined up on the weld joint, lower your helmet, pull the trigger and the arc will start.

In a second or two you will notice a weld puddle form and the base of the bead beginning to build. It is now time to begin to move with the gun. If you are just learning to weld, simply move the gun in a straight line and at a steady speed along the weld joint. Try to achieve a weld with the desired penetration and a bead that is fairly flat and consistent in width.

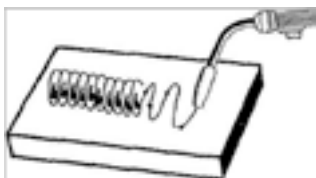
You can begin to try some different weld bead types.

There are two basic types of weld beads, the stringer bead and the weave bead.

1. The **STRINGER BEAD** is formed by traveling with the gun in a straight line while keeping the wire and nozzle centered over the weld joint. This is the easiest type of bead to make.



2. The **WEAVE BEAD** is 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 gun. It is best to hesitate momentarily at each side before weaving back the other way.

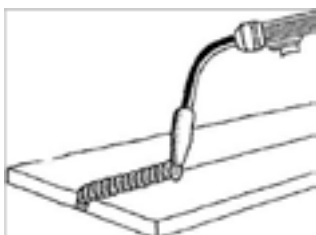


WELDING POSITIONS

Welding with an AC welder can be done in any of three basic positions: flat, horizontal, and vertical.

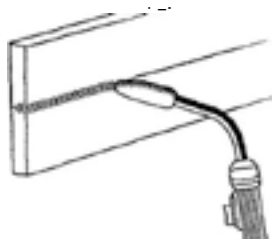
Flat welding is generally easier, faster and allows for better penetration. The heat selections will be affected by the positions. Vertical welding is usually only attempted when using a DC welder. If possible, the work piece should lie positioned so that the bead will run on a flat surface.

1. The **FLAT POSITION** is the easiest of the welding positions and is probably the one you have been using thus far. It is best if you can weld in the flat position if at all possible as good results are easier to achieve.



2. The **HORIZONTAL POSITION** is next in difficulty level. It is performed very much the same as the flat weld except that Angle B (see **POSITION THE GUN TO THE WORK PIECE** - p17)

is such that the wire and therefore the arc force, is directed more toward the metal above the weld joint. This is to help prevent the weld puddle from running downward while still allowing slow enough travel speed to achieve good penetration. A good starting point for Angle B is about 30 degrees down from being perpendicular to the workpiece.



3. The VERTICAL POSITION is the next most difficult position. Pulling the gun from top to bottom may be easier for many people, but in some instances it can be difficult to prevent the puddle from running downward. Pushing the gun from bottom to top may provide better puddle control and allow slower rates of travel speed to achieve deeper penetration. When vertical welding, angle the gun so you have a range from 45 to 60 degrees to provide better puddle control.



MULTIPLE PASS WELDING

Butt Weld Joints

When butt welding thicker materials, you will need to prepare the edges of the material to be joined by grinding a bevel on the edge of one or both pieces of the metal being joined. When this is done, a V is created between the two pieces of metal that will have to be welded closed. In most cases more than one pass or bead will need to be laid into the joint to close the V. Laying more than one bead into the same weld joint is known as a multiple-pass weld. The illustrations below show the sequence for tying multiple pass beads into a single V butt joint.

NOTE: When using self-shielding flux-core wire it is very important to thoroughly chip and brush the slag off each completed weld bead before making another pass or the next pass will be of poor quality.



Fillet Weld Joints

Most fillet weld joints on metals of moderate to heavy thickness will require multiple pass welds to produce a strong joint. The illustrations below show the sequence of laying multiple pass beads into a T fillet joint and a lap fillet joint.

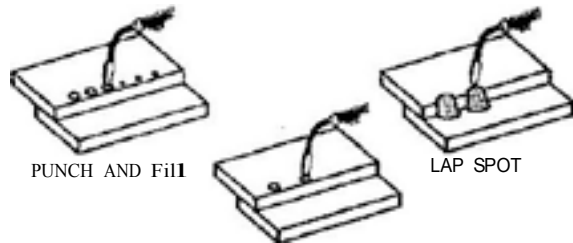


SPECIAL WELDING METHODS

Spot Welding

The purpose of a spot weld is to join pieces of metal together with a spot of weld instead of a continuous weld bead. 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 because they have greater current carrying capabilities allowing the arc to burn through very quickly while leaving a minimal amount of filler metal build up.

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 this 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.
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.

Spot welding instructions

Select the wire diameter and heat setting recommended above for the method of spot welding you intend to use.

1. Tune in the wire speed as if you were going to make a continuous weld.
2. Hold the nozzle piece completely perpendicular to and about 1/4 inch off the work piece.
3. Pull the trigger on the gun and release it when it appears that the desired penetration has been achieved.
4. Make practice spot welds on scrap metal, varying the length of time you hold the trigger, until a desired spot weld is made.
5. Make spot welds on the actual work piece at desired locations.

Maintenance

General Maintenance

This welder has been engineered to need minimal service providing that a few very simple steps are taken to properly maintain it.

1. Keep the wire drive compartment lid closed at all times unless the wire needs to be changed or the drive tension needs adjusting.
2. Keep all consumables (contact tips, nozzles, and gun liner) clean and replace when necessary. See CONSUMABLE MAINTENANCE and TROUBLESHOOTING later in this section for detailed information.
3. Replace power cord, ground cable, ground clamp, or gun assembly when damaged or worn.
4. Periodically clean dust, dirt, grease, etc. from your welder. Every six months or as necessary, remove the side panels from the welder and air-blow any dust and dirt that may have accumulated inside the welder.



WARNING: ELECTRIC SHOCK CAN KILL! To reduce the risk of electric shock, always unplug the welder from its AC power source before removing side panels.

Consumable Maintenance

IT IS VERY IMPORTANT TO MAINTAIN THE CONSUMABLES TO AVOID THE NEED FOR PREMATURE REPLACEMENT OF THE GUN ASSEMBLY.

MAINTAINING THE CONTACT TIP

The purpose of the CONTACT TIP is to transfer welding current to the welding wire while allowing the wire to pass through it smoothly.

Always use a contact tip stamped with the same diameter as the wire it will be used with. NOTE: Due to inherent variances in flux-cored welding wire, it may be necessary to use a contact tip one size larger than your flux core wire if wire jams occur.

1. If the wire burns back into the tip remove the tip from the gun and clean the hole running through it with an oxygen-acetylene torch tip cleaner or tip drill.
2. With extended use over time, this hole will become more worn. The added wear on the hole causes resistance in the welding current transferred from the contact tip to the wire. This will result in less stable arc characteristics and difficult arc starting.

CAUTION: KEEP THE NOZZLE CLEAN!

During the welding process, spatter and slag will build up inside the nozzle and must be cleaned out periodically. Failure to clean and/or replace the nozzle in a timely fashion will cause damage to the front end of the gun assembly, which is not replaceable. The results of the inaction will require the replacement of the entire gun assembly.

1. If the wire burns back into the tip remove the tip from the gun and clean the hole running through it with an oxygen-acetylene torch tip cleaner or tip drill.
2. With extended use over time, this hole will become more worn. The added wear on the hole causes resistance in the welding current transferred from the contact tip to the wire. This will result in less stable arc characteristics and difficult arc starting.

Failure to keep the nozzle adequately cleaned can result in the following problems:

A shorted nozzle results when spatter buildup bridges the insulation in the nozzle allowing welding current to flow through it as well as the contact tip. When shorted, a nozzle will steal welding current from the wire whenever it contacts the grounded work piece. This causes erratic welds and reduced penetration. In addition, a shorted nozzle overheats the end of the gun which can damage the front-end of the gun.

TESTING FOR A SHORTED NOZZLE

Arcing between the nozzle and the work piece always means the nozzle is shorted, but this can be hard to detect through the lens of a welding helmet. The following testing method is another way to tell if a nozzle is shorted.

With the welder unplugged from the AC power source, touch the probes of an ohmmeter or continuity tester to the end of the contact tip and the outside of the nozzle. If there is any continuity at all, the nozzle is shorted. Clean or replace as needed.

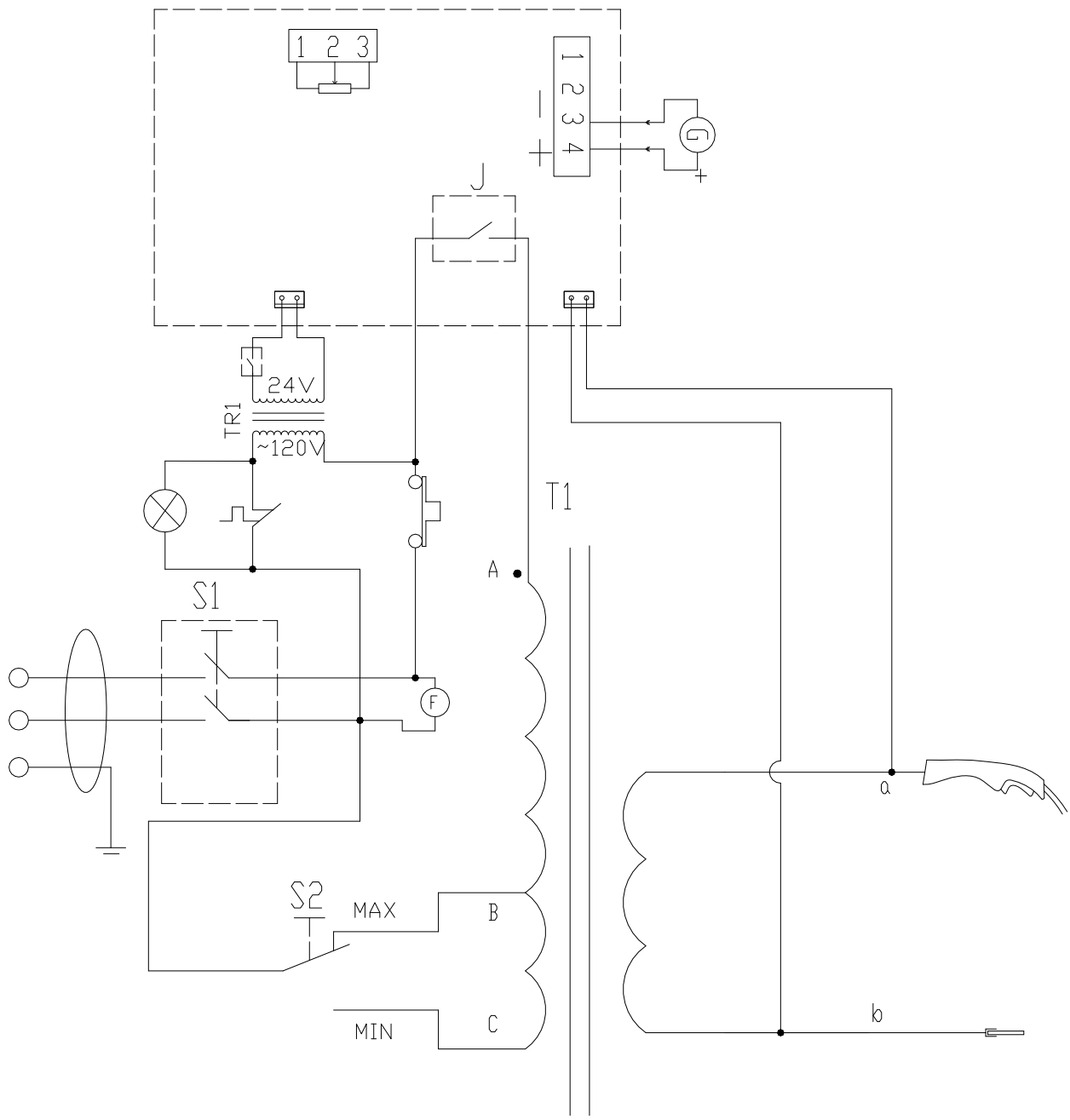
Troubleshooting

The following is a troubleshooting table provided to help you determine a possible remedy when you are having a problem with your welder.

This table does not provide all possible solutions, only those possibilities considered to likely be common faults. The table consists of a problem or symptom, a possible cause for that symptom, and a possible solution for that symptom.

| PROBLEM | POSSIBLE CAUSE | POSSIBLE SOLUTION |
|---|--|---|
| Dirty, porous, brittle weld | Plugged welding nozzle | Clean or replace nozzle |
| Wire feed works but no arc | Bad ground or loose connection | Check ground and connections. Tighten as necessary. |
| | Bad connection to gun or faulty gun | Check connection to gun or replace gun. |
| Arc works but not feeding wire | Faulty wire speed circuit board | Replace wire speed circuit board |
| | No tension on the drive roller | Adjust the drive tension |
| | Faulty drive motor (very rare) | Replace the drive motor |
| Nothing works | Faulty trigger on gun | Replace trigger |
| | Exceeded duty cycle; thermal protector opened | Allow welder to cool at least 10 minutes with machine On (observe and maintain proper duty cycle) |
| | Faulty transformer (rare) | Replace transformer |
| Low output or non-penetrating weld | Loose connection inside machine | Blow inside of machine out with compressed air, clean and tighten all connections |
| | Too long or improper extension cord | See EXTENSION CORDS in this manual |
| | Wrong type or size wire | Use 0.030 inch (0.8mm) or 0.035 inch (0.9mm) E71T-GS self shielding flux-core wire |
| | Poor ground connection | Reposition clamp and check cable to clamp connection |
| | Wrong size contact tip | Use 0.030 inch (0.8mm) or 0.035 inch (0.9mm) contact tip |
| Wire is jamming or "bird-nesting" at the drive roller | Loose gun connection or faulty gun assembly | Tighten gun or replace gun |
| | Too much tension on drive roller | Adjust the drive tension (See INSTALLING THE WELDING WIRE) |
| | Gun liner worn or damaged | Replace gun liner |
| | Contact tip is clogged or damaged | Replace contact tip |
| Wire burns back to contact tip | Liner stretched too long | Trim liner to proper length |
| | Gun liner is worn or damaged | Replace gun liner |
| | Liner stretched or is too long | Trim liner to proper length |
| | Wrong size contact tip | Use correct size contact tip |
| Ground clamp and/or ground cable gets hot | Contact tip is clogged or damaged | Replace contact tip |
| | Bad connection from cable to clamp | Tighten connection or replace cable |
| Gun nozzle arcs to work surface | Slag building inside nozzle or nozzle is clogged | Clean or replace nozzle as needed |

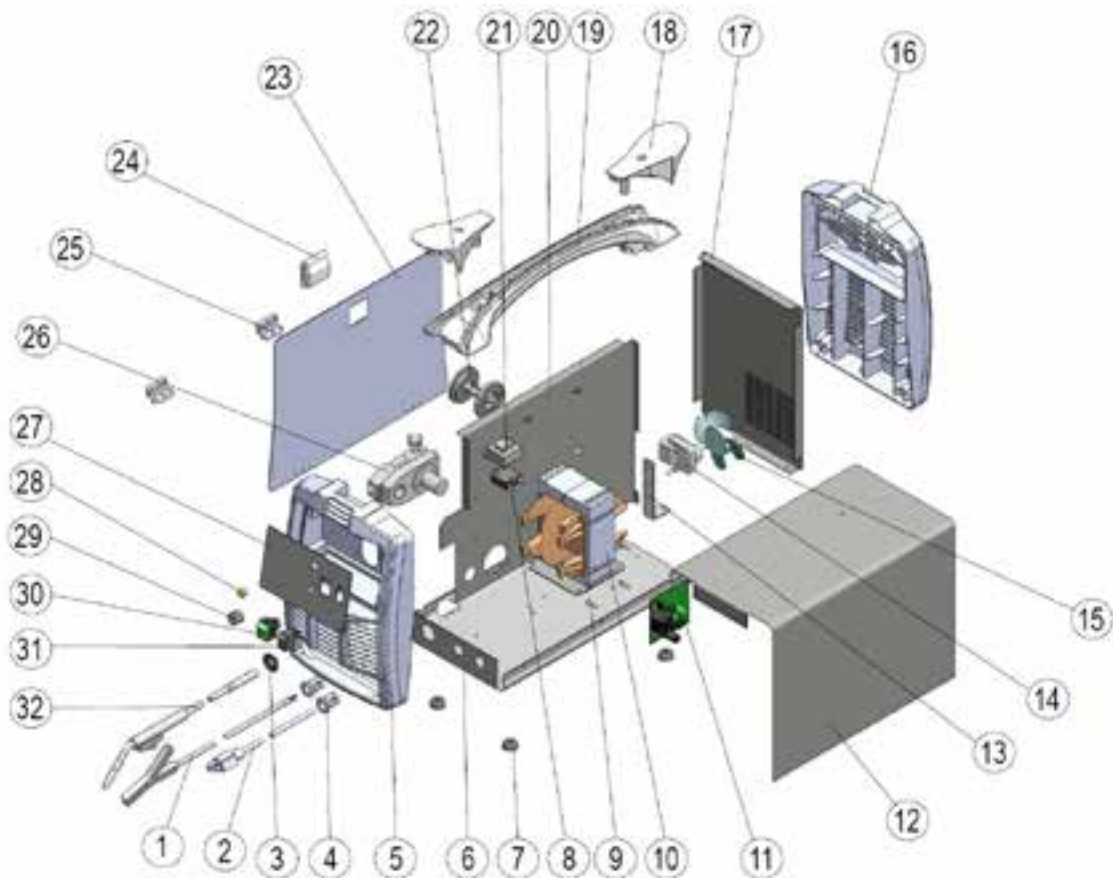
Wiring Diagram



Parts List

| NO. | FORNEY CAT# | PART NUMBER | ITEM DESCRIPTION | QTY. |
|-----|-------------|----------------|-----------------------------|------|
| 1 | | 1.2.08.02.0072 | GROUND CABLE | 1 |
| 2 | | 1.2.07.01.2835 | POWER CORD | 1 |
| 3 | | 2.20.05.401 | PROTECT COVER FOR MIG TORCH | 1 |
| 4 | | 2.05.05.201 | CABLE HOLDER | 1 |
| 5 | | 2.05.05.231 | PLASTIC FRONT PANEL | 1 |
| 6 | | 1.1.01.04.1454 | BOTTOM PANEL | 1 |
| 7 | | 2.05.05.016 | FOOT | 4 |
| 8 | 85585 | 2.07.80.317 | BREAKER | 1 |
| 9 | | 2.07.91.002 | INSULATION PLUG | 4 |
| 10 | 85586 | 1.1.04.01.1717 | TRANSFORMER | 1 |
| 11 | 85587 | 1.1.05.02.0674 | CONTROL BOARD | 1 |
| 12 | | 1.1.01.01.0775 | COVER | 1 |
| 13 | | 1.1.03.01.1513 | FAN SUPPORT | 1 |
| 14 | 85588 | 1.2.07.02.0027 | FAN | 1 |
| 15 | 85589 | 2.07.89.707 | FAN LEAF | 1 |
| 16 | | 2.05.05.232 | PLASTIC BACK PANEL | 1 |
| 17 | | 1.1.01.03.1809 | BACK PANEL | 1 |
| 18 | 85590 | 2.05.05.234 | HANDLE TABS | 2 |

| NO. | FORNEY CAT# | PART NUMBER | ITEM DESCRIPTION | QTY. |
|-----|-------------|----------------|---------------------|------|
| 19 | | 2.05.05.233 | HANDLE | 1 |
| 20 | | 1.1.01.05.3154 | MIDDLE PANEL | 1 |
| 21 | 85591 | 1.2.07.02.4030 | CONTROL TRANSFORMER | 1 |
| 22 | 85592 | 1.2.01.01.0538 | SPOOL AXLE | 1 |
| 23 | | 1.1.01.05.3153 | RIGHT PANEL | 1 |
| 24 | 85593 | 2.08.07.001 | DOOR LOCK | 1 |
| 25 | 85594 | 2.05.05.064 | HINGES | 2 |
| 26 | 85595 | 2.07.40.696 | WIRE FEEDER | 1 |
| 27 | 85596 | 1.1.02.01.9195 | POTENTIOMETER PANEL | 1 |
| 28 | 85597 | 1.2.07.02.4031 | LUMINOUS DIODE | 1 |
| 29 | 85598 | 2.07.11.058 | POTENTIOMETER KNOB | 1 |
| 30 | 85599 | 2.07.80.846 | WAVE SWITCH, GREEN | 1 |
| 31 | 85600 | 2.07.80.031 | WAVE SWITCH, BLACK | 1 |
| 32 | 85601 | 2.20.08.871 | MIG TORCH | 1 |





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