#106934

Forney

EASY WELD™

100 ST STICK/TIG ARC WELDER OPERATING MANUAL

FEATURES:

- 90A Output
- 120V Input
- Easy to use
- Portable
- Lift arc TIG capable

SPECIFICATIONS:

- Recommended Electrode Diameter: Up to 1/8"
- Plate thickness range: 16 ga - 5/16"
- Weight: 8.38 Lbs. (3.8 Kg)
- Dimensions: 16.1"(410mm)X 4.8"(122mm) X 10.8"(274mm)
- 6 month warranty

IDEAL FOR:

Do-It-Yourself, Maintenance & Repair, Hobbyist

ENGLISH

REV 08/18/15

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 unequaled. 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.

STEVEN G. ANDERSON, President & CEO

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 Information

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-sup plied 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 Radiation

- 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.

Arc Welding

- 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

Table of Contents

Installation

Welder Specifications

Your new stick (SMAW) welder is designed for maintenance and sheet metal fabrication.

Table 1. Welder Specifications

Primary (input) volts	120 VAC
Welding Range	20-80 Amps
Phase	Single
Frequency	60Hz
Rated Duty Cycle	20%
Electrodes	1/16 – most 1/8

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

Power Requirements

This welder is designed to operate on a properly grounded 120 volt, 60Hz, single-phase alternating current (AC) power source fused with a 20 amp time delayed fuse or circuit breaker.
It is recommended that a qualified electrician verify the ACTUAL VOLTAGE at the receptacle into which the welder will be plugged and confirm that the receptacle is properly fused and grounded. The use of the proper circuit size can eliminate nuisance circuit breaker tripping when welding.

DO NOT OPERATE THIS WELDER if the ACTUAL power source voltage is less than 105 volts AC or greater than 132 volts AC. 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.

Power source connection

Select a properly grounded extension cord that will mate directly with the power source receptacle and the welder power cord without the use of adapters. Make certain that the extension is properly wired and in good electrical condition. Extension cords must be a #12 gauge cord at the smallest. Do not use an extension cord over 25 ft. in length.

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

1. With the On/Off switch in the Off position, connect the welding leads and attach an electrode as follows:

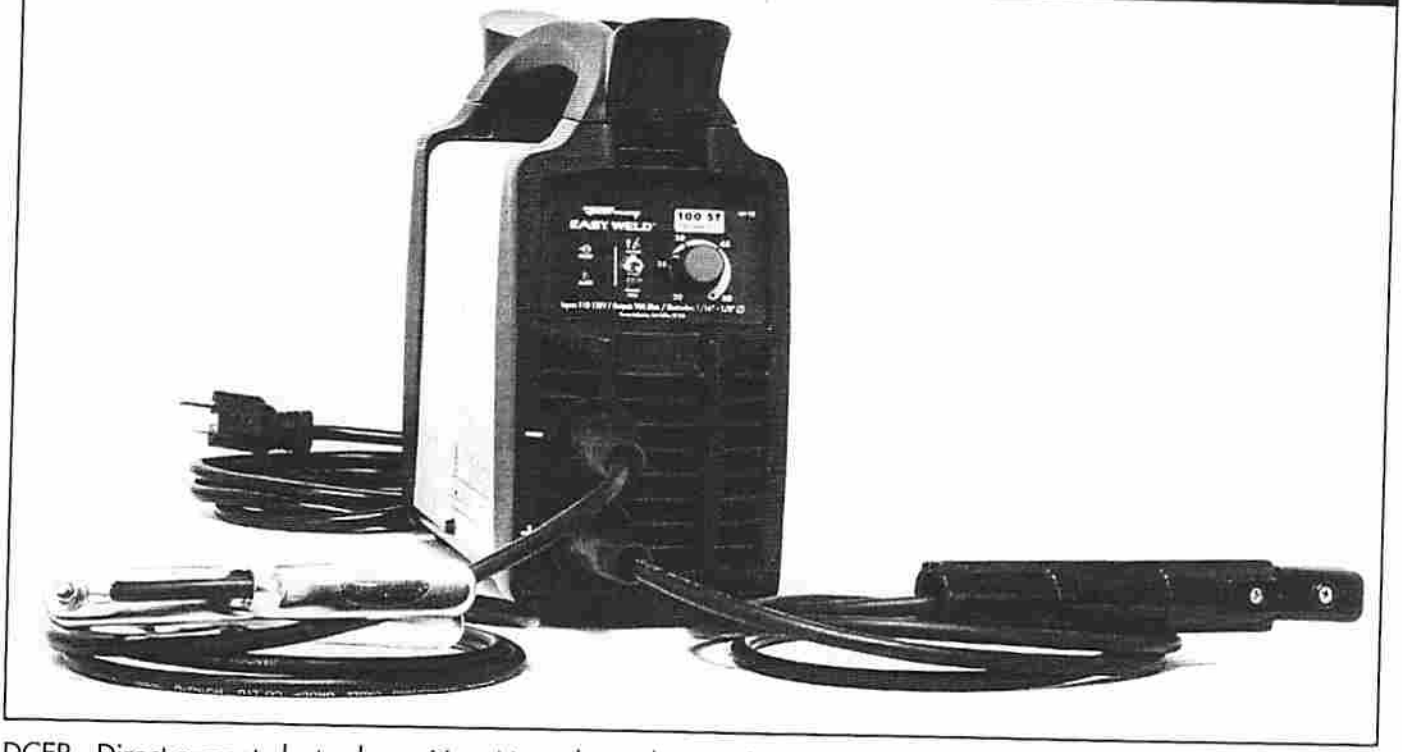
   Clasp the ground clamp to the work piece, and attach the other end usually to the negative terminal. **NOTE:** For good contact the ground clamp must be attached to the clean bare, metal (not painted).

   Attach the electrode holder lead to the opposite terminal (usually the positive terminal).

2. Secure the appropriate welding electrode by its bare end into the jaws of the electrode holder.

   The size (diameter) of welding electrode should be approximately the same thickness of metal to be welded. An appropriate current must be selected by turning the dial on the front panel until the required amperage setting is reached. With practice you will gain a feel for the correct amperage setting for different welding rod diameters.

Typical Stick Welding Setup



DCEP - Direct current electrode positive. Most electrodes use this setup. This is also known as DCRP (direct current reverse polarity)

Typical TIG Welding Setup

DCEN - Direct current electrode negative. This is also known as DCSP (direct current straight polarity)

Operation

Description

Your new single phase inverter ST (Stick/TIG) arc welder is designed for maintenance and sheet metal fabrication. It offers two welding functions in the same power source. These functions can be selected using the selector switch on the front panel.

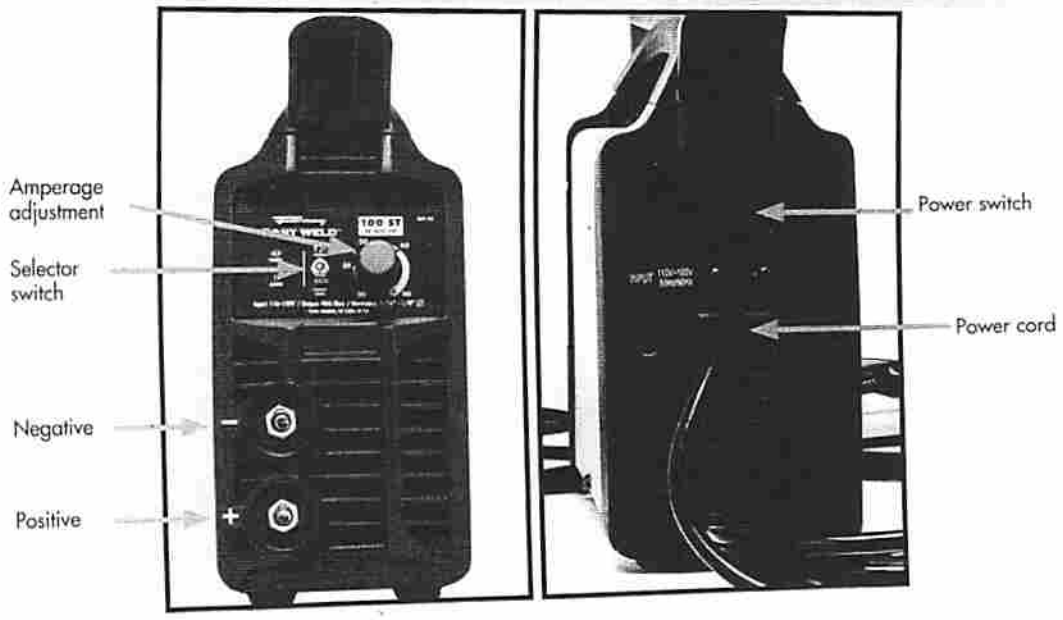
Stick Welding – How it Works
Stick welding is a process by which two pieces of metal are joined together using the heat developed by an electric arc between the work piece and an electrode (welding rod).

The electrode can be connected to the positive or negative terminal, which in effect changes the polarity. Typical polarity is electrode positive. When the electrode comes into contact with the work piece an arc is struck. The high temperature of the arc melts the electrode into the joint of the work piece and fusion occurs.

Gas Tungsten Arc Welding, or Tungsten Inert Gas (TIG) Welding – How it Works
TIG welding is a process by which two pieces of metal are joined together using the heat developed by an electrical arc between the work piece and a tungsten electrode.

The electrode is held in a torch and is connected to the negative terminal since it runs on a DC-only current. When the tungsten electrode comes into contact with the work piece an arc is formed. The high temperature of the arc creates fusion. If needed, a filler metal is added into the weld puddle formed by the arc. This machine is capable of TIG welding steel and stainless steel. It cannot TIG weld aluminum, which requires AC high-frequency current.

Controls and Settings



For beginners the following table gives some useful guidelines:

SIZE OF WELDING ROD/THICKNESS	AMPERAGE SETTING
1/16" – 16 Gauge	30-50
5/64" – 14 Gauge	40-60
3/32"	50-70
1/8"	80

Thermal Overload Protection

CAUTION

If the duty cycle of the welder is exceeded, a thermostat will automatically cut the power to prevent the machine from overheating. If this should happen do not unplug the machine but let it cool down. Then the thermostat will automatically reset itself and you can continue welding. The thermostat is a protective safety device and no harm will normally be done to the welder unless it is frequently over loaded, in which case damage will eventually result. For this model the intervention of the thermostat is indicated by the lighting of the indicator fault light.

Welding Techniques

1. Plug your welder into the correct socket and switch on using the ON/OFF switch. **NOTE:** If the machine stops at any time and the indicator light turns on, the thermostat has intervened. Wait for a few minutes while the welder cools down and when the indicator light goes out again welding can begin. DO NOT turn off the machine, as the cooling fan inside will not continue to run.
2. Particularly for beginners, the most difficult aspect of the arc welding process is striking an arc. We strongly recommend that you practice on pieces of scrap metal to get the feel of the operation before you start on an actual welding job.
3. Hold the electrode about 3/8" from the work piece and at an angle of about 70 degrees to 80 degrees to the work surface; try not to accidentally touch the work piece until you are ready to begin.
4. Put your helmet on, give a short stroke with the electrode on the work piece. As soon as the arc is struck, lightly withdraw the electrode from the work piece and leave a tiny gap of around 1/16". When you strike an arc be sure to withdraw the electrode fairly swiftly to leave the 1/16" gap, otherwise the electrode will weld itself to the work piece. Should this happen give the electrode a short, sharp jerk to free it and, if necessary, strike the arc again. The current will flow across the gap with a crackling noise and brilliant arc. Continue to weld in one direction, maintaining the small gap as you go. At the end of the run, just withdraw the electrode fully from the work piece. **NOTE:** For TIG welding, if needed, feed filler metal rod of the appropriate metal composition into the weld puddle formed by the tungsten electrode. Do not touch the tungsten directly. Doing so will contaminate the electrode and you will need to grind it to the desired point for optimal welds.
5. Inspect the job carefully. With a correct combination of rod size and amperage setting, the area of the weld should be a complete fusion of the electrode and metal being joined. Slag forming on the surface should be chipped away with a hammer. If the weld looks irregular, messy or shows signs of porosity or slag contamination, you have almost certainly failed to achieve the correct combination. Do not worry as practice will soon cure this. The following tips on welding pitfalls should help to improve your technique quite quickly.

WARNING

Never look at a welding arc. It can seriously damage your eyes. Always use a helmet.

HEALTH WARNING

When welding, always make sure there is adequate ventilation in the working area as the welding process gives off toxic fumes.

Welding Pitfalls

1. Arc distance too short - this causes irregular masses of weld to be deposited with slag contamination on the uneven surface.

2. Arc distance too long - this causes poor penetration resulting in a weak weld with excessive spatter and porosity. Surface of weld is rough and the arc makes a hissing sound.

3. Electrode moved over work piece too slowly - this causes a very wide and heavy deposit which overlaps at the sides. It is wasteful in terms of both time and electrodes used.

4. Electrode moved over the work piece too quickly - this causes poor penetration with a "stringy" and incomplete weld deposit. Slag is very difficult to remove.

5. Amperage too low - this causes poor penetration and causes the electrode to stick to the work piece easily. Also results in a very irregular and high weld deposit with difficult slag removal.

6. Amperage too high - this causes excessive penetration with spatter and a deep and pointed crater. It may even cause holes to be burned in the work piece. Burns electrodes very quickly.

7. The perfect weld - with the correct combination of arc length, amperage regulation and inclination of the electrode you will, with practice, produce the perfect weld. This should be regular with uniform ripples and no slag contamination. The arc will make a steady crackling sound.

Maintenance & Servicing

General Maintenance

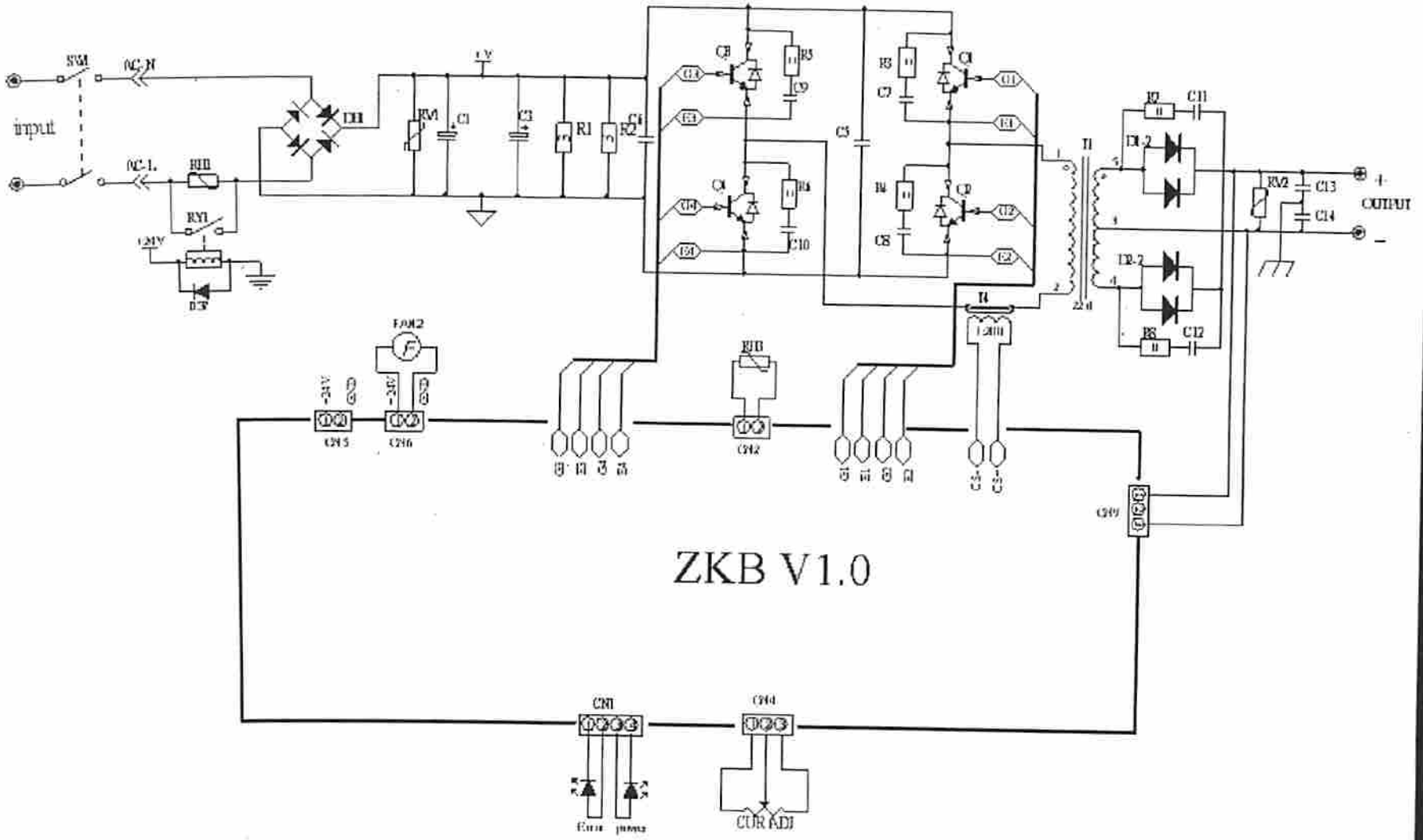
Your arc welder is simple and sturdy, requiring virtually no maintenance other than the guidelines shown below:

- Keep the ventilation holes in welder clean to avoid the build-up of dirt inside the machine, this can reduce machine output.
- Check all cables periodically; they must be in good condition and not cracked.
- Always try to avoid getting particles of metal inside the machine since they could cause short circuits.
- Periodically clean the inside of the welder with compressed air.

Troubleshooting

This chart will assist you in resolving common problems you may encounter. These are not all the possible solutions.

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Yellow Indicator is on	Poor ventilation can cause over-heating	Improve the ventilation
	Ambient temperature is too high	It will automatically recover when the temperature decreases
	Using over the rated duty-cycle	
The adjustment knob on the front panel didn't work	Potentiometer broken (current regulation)	Replace the potentiometer.
Cooling Fan not working or turning very slowly	Switch broken	Replace the switch
	Fan broken	Replace or repair the fan
	Wire broken or falling off	Check the connection
No no-load voltage	Over voltage, under voltage or scarcity of phase	See "Yellow Indicator is on"
	Welder getting overheated	Replace the switch
	Switch broken	
Electrode Holder and Cable getting hot; "+" "-" polarity sockets becoming hot	Electrode holder's capacity is too small	Replace it with a bigger capacity one
	Cable is too small	Replace it with another one in conformity with the requirement
	Socket loosen	Remove the oxide skin and tighten it
	Increased resistance between the electrode holder and the cable	
Power source tripping	Resume power over a long period of time (more than two days)	Trip caused by the main power filter's capacity charging. Switch on the main power source.
	In the process of welding	Contact us
Others		Contact us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