



240V 16 AMP ELECTRIC SPOT WELDER

ITEM: 55010 & 55009



OWNER'S MANUAL AND SAFETY INSTRUCTIONS

SAVE THIS MANUAL: KEEP THIS MANUAL FOR SAFETY WARNINGS, PRECAUTIONS, ASSEMBLY, OPERATING, INSPECTION, MAINTENANCE AND CLEANING PROCEDURES. WRITE THE PRODUCT'S SERIAL NUMBER ON THE BACK OF THE MANUAL NEAR THE ASSEMBLY DIAGRAM (OR MONTH AND YEAR OF PURCHASE IF PRODUCT HAS NO NUMBER).

FOR QUESTIONS PLEASE CALL OUR CUSTOMER SUPPORT: (909) 628-4900 MON-FRI 9AM TO 3PM PST

IMPORTANT SAFETY INFORMATION



GENERAL SAFETY WARNINGS

Read all safety warnings and instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. Save all warnings and instructions for future reference.

SAFETY

The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator. Read carefully and understand all ASSEMBLY AND OPERATION INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

- **Read and understand all instructions.** Failure to follow all instructions may result in serious injury or property damage.
- Do not allow persons to operate or assemble the product until they have read this manual and have developed a thorough understanding of how it works.
- **Do not modify this product in any way.** Unauthorized modification may impair the function and/or safety and could affect the life of the product. There are specific applications for which the product was designed.
- Hold the Welder securely during use. If it falls while plugged in, severe injury, electric shock, or fire may result.
- Stay alert, watch what you are doing, and use common sense when operating the tool. Do not use the tool while you are tired or under the influence of drugs, alcohol, or medication.
- **Do not overreach.** Keep proper footing and balance at all times.
- **Inspect the work area before each use.** Keep work area clean, dry, free of clutter, and well-lit. Cluttered, wet, or dark work areas can result in injury. Using the product in confined work areas may put you dangerously close to cutting tools and rotating parts.
- **Do not use the product where there is a risk of causing a fire or an explosion;** e.g., in the presence of flammable liquids, gases, or dust.
- Avoid unintentional starting. Make sure you are prepared to begin work before turning on the Welder
- **Keep children and bystanders away from the work area while operating the tool.** Do not allow children to handle the product.
- This product, when used for welding and similar applications, contains or produces a chemical known to the State of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code § 25249.5, et seq.)
- Handling the cord on this product will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling. (California Health & Safety Code § 25249.5, et seq.)

- Exposure to welding or cutting exhaust fumes can increase the risk of developing certain cancers, such as cancer of the larynx and lung cancer. Also, some diseases that may be linked to exposure to welding or cutting exhaust fumes are:
 - Early onset of Parkinson's Disease
 - Heart disease
 - Ulcers
 - Damage to the reproductive organs
 - Inflammation of the small intestine or stomach
 - Kidney damage
 - Respiratory diseases such as emphysema, bronchitis, or pneumonia
- Do not use near degreasing or painting operations.
- Keep head out of fumes. Do not breathe exhaust fumes.
- Use enough ventilation or exhaust, or both, to keep fumes and gases from breathing zone and general area. If engineering controls are not feasible, use an approved respirator.
- Work in a confined area only if it is well-ventilated, or while wearing an air-supplied respirator.
- Have a recognized specialist in Industrial Hygiene or Environmental Services check the operation and air quality and make recommendations for the specific welding situation. Follow OSHA guidelines for Permissible Exposure Limits (PEL's) and the American Conference of Governmental Industrial Hygienists recommendations for Threshold Limit Values (TLV's) for fumes and gases.
- Wear ANSI-approved welding eye protection featuring at least a number 10 shade lens rating.
- Wear leather leggings, fire resistant shoes or boots during use. Do not wear pants with cuffs, shirts with open pockets, or any clothing that can catch and hold molten metal or sparks.
- Keep clothing free of grease, oil, solvents, or any flammable substances. Wear dry, insulating gloves and protective clothing.
- Wear an approved head covering to protect the head and neck. Use aprons, cape, sleeves, shoulder covers, and bibs designed and approved for welding and cutting procedures.
- When welding/cutting overhead or in confined spaces, wear flame resistant ear plugs or ear muffs to keep sparks out of ears.
- Never leave the Spot Welder unattended while energized. Turn off and disconnect power when leaving the work area.
- Do not touch energized electrical parts. Wear dry, insulating gloves. Do not touch electrode or conductor tong with bare hand. Do not wear wet or damaged gloves.
- Connect to grounded, GFCI-protected 240V~ power supply only.
- People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure.
- Do not expose welders to rain or wet conditions. Water entering a welder will increase the risk of electric shock.
- Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the Welder. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.
- Insulate yourself from the work piece and ground. Use non-flammable, dry insulating material if possible, or use dry rubber mats, dry wood or plywood, or other dry insulating material large enough to cover your full area of contact with the work or ground.
- Use care not to touch the welding tip to grounded material whenever the unit is plugged in. Electric shock, fire, or burns may happen if appropriate precautions are not taken.

- Clear away or protect flammable objects. Remove or make safe all combustible materials for a radius of 35 feet (10 meters) around the work area. Use a fire resistant material to cover or block all open doorways, windows, cracks, and other openings.
- **Keep ABC-type fire extinguisher near work area and know how to use it.**
- Do not operate welders in atmospheres containing dangerously reactive or flammable liquids, gases, vapors, or dust. Provide adequate ventilation in work areas to prevent accumulation of such substances. Welders create sparks which may ignite flammable substances or make reactive fumes toxic.
- If working on a metal wall, ceiling, etc., prevent ignition of combustibles on the other side by moving the combustibles to a safe location. If relocation of combustibles is not possible, designate someone to serve as a fire watch, equipped with a fire extinguisher, during the cutting process and for at least one half hour after the cutting is completed.
- Do not weld or cut on materials having a combustible coating or combustible internal structure, as in walls or ceilings, without an approved method for eliminating the hazard.
- Do not dispose of hot slag in containers holding combustible materials.
- After welding, make a thorough examination for evidence of fire. Be aware that easily visible smoke or flame may not be present for some time after the fire has started.
- Do not apply heat to a container that has held an unknown substance or a combustible material whose contents, when heated, can produce flammable or explosive vapors. Clean and purge containers before applying heat. Vent closed containers, including castings, before preheating, welding, or cutting.
- Do not use the Welder if the switch does not turn it on and off. Any welder that cannot be controlled with the switch is dangerous and must be repaired.
- Disconnect the plug from the power source before making any adjustments, changing accessories, or storing welders. Such preventive safety measures reduce the risk of starting the Welder accidentally.
- Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source or moving the Welder.
- Maintain welders. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the Welder's operation. If damaged, have the Welder repaired before use.
- Have your Welder serviced by a qualified repair person using only identical replacement parts.
- Maintain labels and nameplates on the Welder. These carry important information.
- Unplug before maintenance. Unplug the Welder from its electrical outlet before any inspection, maintenance, or cleaning procedures.

TO PREVENT ELECTRIC SHOCK AND DEATH FROM INCORRECT GROUNDING WIRE CONNECTION:

Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Have a plug installed by a certified electrician. Do not use the Welder if the power cord or plug is damaged. If damaged, have it repaired by a service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician. Do not apply heat to a container that has held an unknown substance or a combustible material whose contents, when heated, can produce flammable or explosive vapors. Clean and purge containers before applying heat. Vent closed containers, including castings, before preheating, welding, or cutting.

GENERAL INFORMATION

EXTENSION CORDS

1. If an extension cord is used, it must have the following wire size: up to 30 feet, use 10 AWG size wire; 30 to 50 feet, use 8 AWG wire; Over 50 feet, use 6 AWG wire.
2. As the distance from the supply outlet increases, a heavier gauge extension cord must be used. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible Welder damage.
3. The smaller the gauge number of the wire, the greater the capacity of the cord. For example, a 14 gauge cord can carry a higher current than a 16 gauge cord
4. When using more than one extension cord to make up the total length, make sure each cord contains at least the minimum wire size required.
5. If using one extension cord for more than one welder, add the nameplate amperes and use the sum to determine the required minimum cord size.
6. If using an extension cord outdoors, make sure it is marked with the suffix "W-A" ("W" in Canada) to indicate it is acceptable for outdoor use.
7. Make sure the extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified electrician before using it.
8. Protect the extension cords from sharp objects, excessive heat, and damp or wet areas.

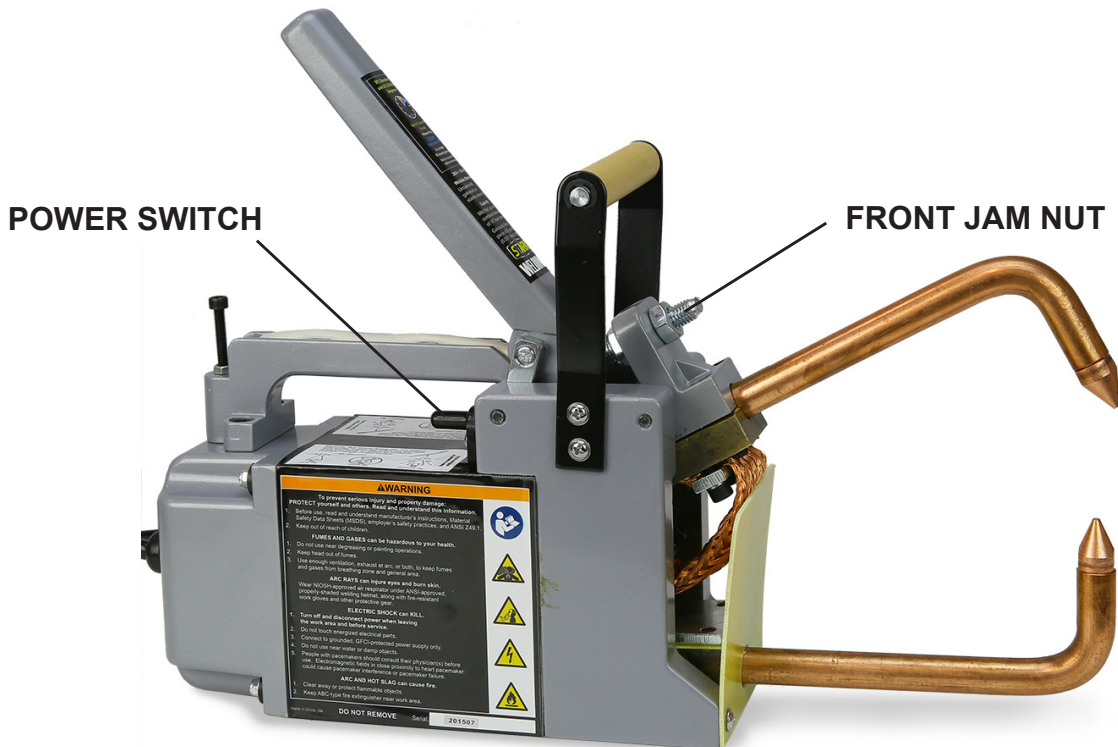
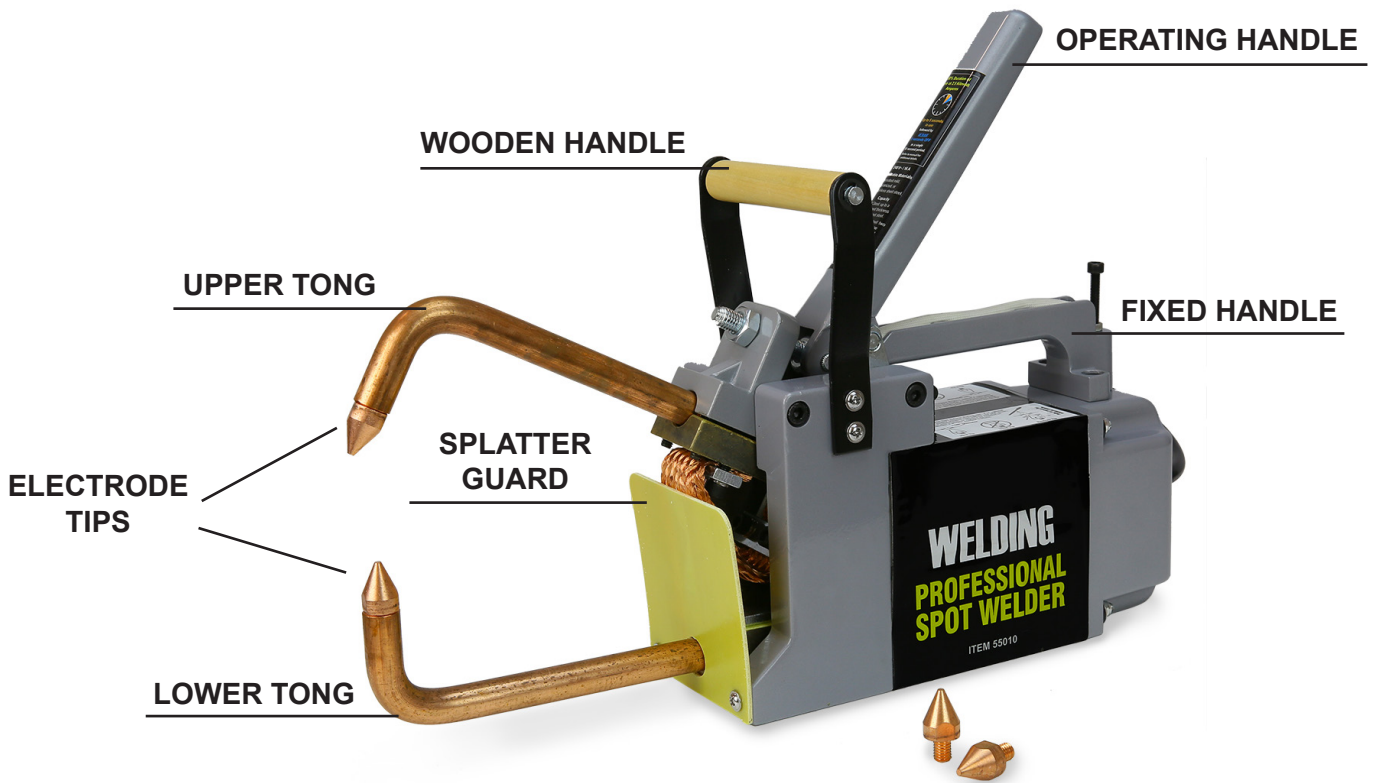
SPECIFICATIONS

Electrical Rating	240V~ / 16A
Rated Output	2.5 kVA @ 50% Duty Cycle
Output Amps ± 10%	6750
Weldable Materials	Uncoated mild, galvanized, or stainless sheet steel Not for welding aluminum, copper or copper alloys
Capacity	Mild Steel: up to a combined thickness of 3/16" sheet steel Galvanized Steel: two pieces of 16 gauge (0.059") sheet steel
Duty Cycle	50% @ 2.5 kVA, based on 10 second time period – unit can weld for 5 seconds out of each 10 second time interval

FEATURES

This air-cooled spot welder is great for strong spot welding in wide range of materials such as steel and cast iron. It is able to weld uncoated mild, galvanized or stainless sheet steel to 3/16 inch. It features 6 tong for locking firmly onto materials.

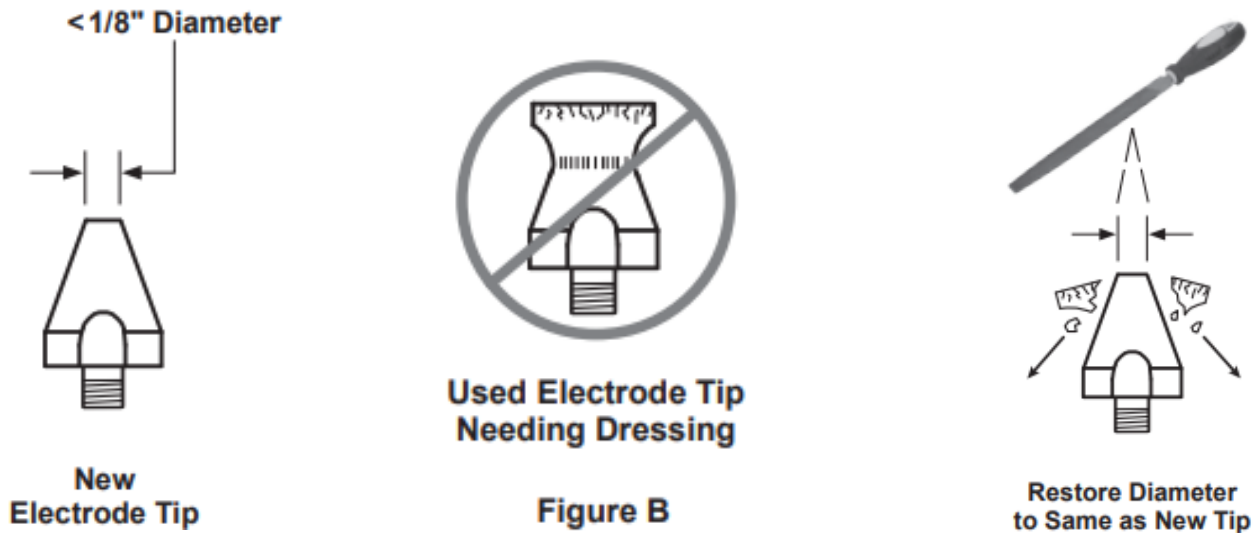
- **Rated Output Voltage: 240V**
- **265 Watts. 22 Amps**
- **No Load Voltage: 1.5 KVA**
- **Throat Depth: 7"**
- **Rated Duty Cycle: 30%**
- **Input Capacity: 6.6 KW**
- **Welds Uncoated Stock As Thick As 3/16"**



ELECTRODES

1. Electrode Tips (24) deform during use. For optimal weld quality, inspect Electrode Tips before use and clean, dress (resurface), or replace as needed to maintain a proper contact surface.
2. Use a file or tip dresser tool (both not included) to dress Electrode Tips and restore the spot diameter and face angle to a condition approximately the same as a new tip. See Figure B.
3. Used Electrode Tips that cannot be restored to a suitable condition by dressing will need to be replaced.

NOTE: When welding thinner materials a smaller tip diameter is required than when welding thicker materials.



ELECTRODE TIP ALIGNMENT

1. Correct Tong/Electrode Tip alignment is necessary to create a proper weld. Check to make sure the Upper Tong (19) is aligned correctly with the Lower Tong (19a) and that the Electrode Tips (24) are centered and touch each other exactly prior to welding operation. See Figure C
2. To adjust the Upper Tong, loosen the four Cap Screws (15) located at the top/front of the tool.
3. To adjust the Lower Tong, loosen the four Cap Screws (30) located at the bottom/front of the tool.
4. Align the Upper and Lower Tongs and Electrode Tips as shown in Figure C.
5. When alignment is complete re-tighten the Cap Screws.

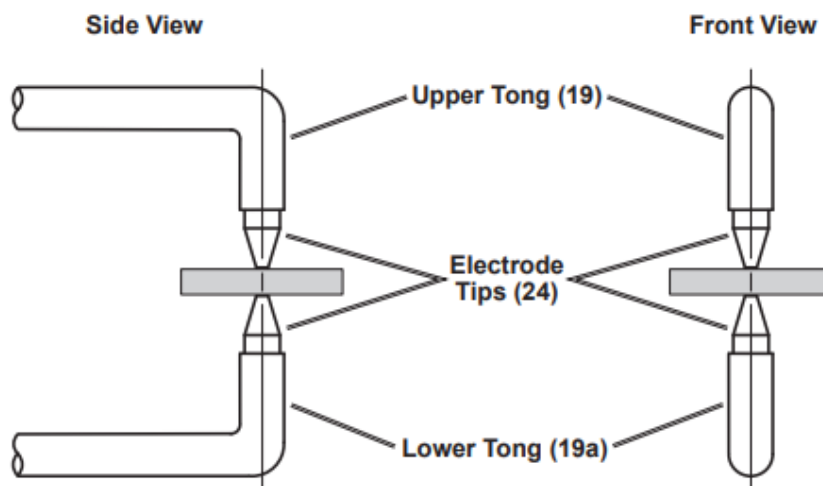
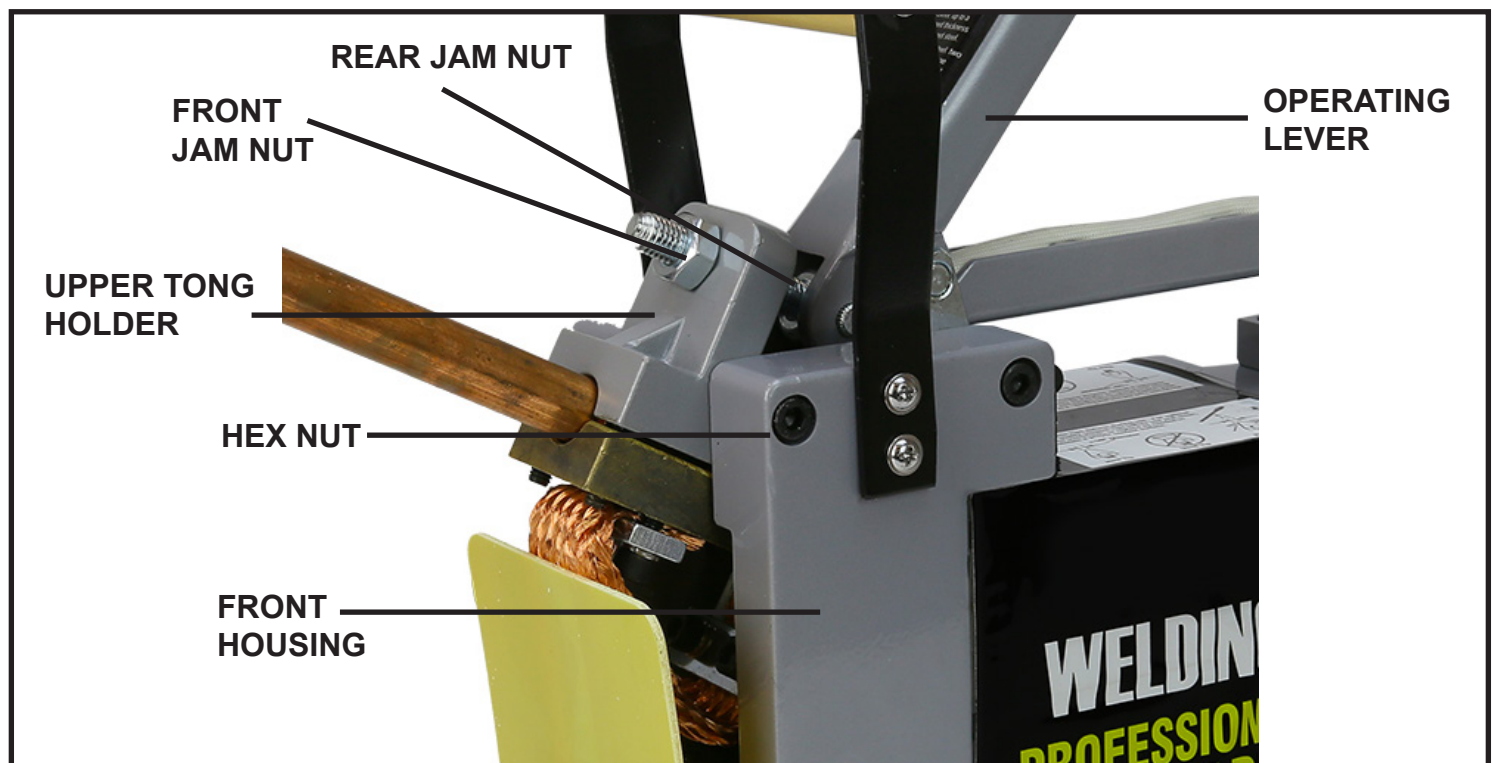


Figure C

OPERATION

ADJUSTING TONG AND LEVER PRESSURE

1. The amount of pressure applied by the Tongs is adjustable, and should be checked and/or set before operation. Correct Tong pressure is necessary to create a proper weld and to prevent damage to the Electrode Tips.
2. If the Tong pressure is too weak, and the work pieces are loose when the Tongs close, severe arcing will occur between the work pieces when current is applied and no weld will be produced. To increase the Tong pressure, loosen the front Jam Nut. The more the front Jam Nut is loosened, the greater the pressure on the Electrode Tips when the Operating Lever is pushed down to close the Tongs. When the desired pressure is achieved, turn the rear Jam Nut toward the Upper Tong Holder to lock in position.
3. If the Tong pressure is too strong, the weld nugget will dimple, and molten material will be forced out around the weld point. To decrease the Tong pressure, loosen the rear Jam Nut and turn the front Jam Nut toward the Upper Tong Holder to lock the desired pressure in position.
4. Adjusting the Cap Screw at the rear of the Fixed Handle will determine how firmly the Tongs apply pressure to the work piece. The farther down the Cap Screw is turned, the farther down the Operating Lever will close and the more Tong pressure will be applied. Adjust the Cap Screw to allow the Operating Lever to be raised easily after completion of the welding process. See Figure E.
5. The pressure required to push down the Operating Lever may be adjusted by turning the Hex Nuts located on each side of the Front Housing clockwise or counter-clockwise to loosen or tighten the Lever action. See Figure D.



WARNING: TO PREVENT SERIOUS INJURY AND ELECTRIC SHOCK: Prior to adjusting the Tong and Operating Lever pressure, make sure the Spot Welder is disconnected from its electrical supply source.

NOTE: Excessive Tong pressure can damage the Electrode Tips. Do not attempt to hold the work pieces together by using the Tongs under high pressure as a clamp or vise. To avoid damage, use separate clamps to hold work pieces together if needed to make good contact at the intended weld point.

OPERATION



TO PREVENT SERIOUS INJURY AND ELECTRIC SHOCK: Never touch the Upper and Lower Tongs when welding a work piece. Allow the Electrode Tips and the work piece to cool before handling.

1. Ensure that materials to be welded are free from scale, oxides, paint, grease, and oil.
2. The Operating Lever allows opening and closing of the Upper and Lower Tongs.
3. To begin welding process, push down on the Operating Lever to close the Tongs and compress the work pieces between the Electrode Tips. Ensure there are no gaps between the work pieces as this will weaken the weld.
4. Push and hold the Power Switch sideways in either direction to apply electric current. Release the Power Switch to shut off current and stop the welding process.
5. When alignment is complete re-tighten the Cap Screws.

NOTE: The spot welding time is determined by the thickness of the work pieces, the type of metals, and the skill of the operator.

ADJUSTING TONG AND LEVER PRESSURE

Avoid damage to the Welder by not welding for more than the prescribed duty cycle time. This Welder has a 50% duty cycle at rated output (2.5 kVA) based on a 10 second time period, meaning unit can weld for 5 seconds out of each 10 second time interval without overheating. Failure to carefully observe duty cycle limitations can easily over-stress a welder's power generation system contributing to premature welder failure.



**50% Rated Duty Cycle
at 2.5 kVA output
5 seconds welding
followed by
5 seconds of rest**

REPLACING ELECTRODE TIPS

1. Used Electrode Tips that cannot be restored to a suitable condition by dressing will need to be replaced.
2. To replace Electrode Tips, remove used Tips from the Upper and Lower Tongs.
3. To attach new Electrode Tips to the Upper and Lower Tongs, coat Tip threads with heat sink compound (not included) and screw the Tips onto the Tongs, Do not over tighten.



TROUBLESHOOTING

Problem	Possible Causes	Likely Solutions
No Weld Output	<ol style="list-style-type: none"> 1. Unit not plugged into electrical outlet. 2. Building's fuse or circuit breaker blown. 3. Power Switch damaged or worn. 	<ol style="list-style-type: none"> 1. Plug Power Cord into electrical outlet. 2. Replace building's fuse or reset circuit breaker. 3. Have a qualified technician inspect Power Switch and replace if necessary.
Poor Welding Occurs	<ol style="list-style-type: none"> 1. Electrode Tips deformed, dirty, oxidized, or pitted. 2. Tongs dirty or oxidized. 3. Poor contact with workpieces. 4. Coatings on workpieces inhibiting good contact. 5. Material too thick for Spot Welder. 	<ol style="list-style-type: none"> 1. Dress or replace Electrode Tips. Refer to Dressing Electrode Tips on page 9 or Replacing Electrode Tips on page 12. 2. Clean or replace Tongs. 3. Adjust Tong pressure. Refer to Adjusting Tong and Operating Lever Pressure on page 10. 4. Remove paint, oxides, chemical compounds including galvanized coating. 5. Ensure that workpiece thickness is within capacity of Spot Welder. Refer to Specifications on page 7.
Longer Than Normal Weld Time Required	<ol style="list-style-type: none"> 1. Electrode Tips deformed, dirty, oxidized, or pitted. 2. Metals to be welded are dirty. 3. Tongs dirty or oxidized. 4. Facility line voltage low. 	<ol style="list-style-type: none"> 1. Dress or replace Electrode Tips. Refer to Dressing Electrode Tips on page 9 or Replacing Electrode Tips on page 12. 2. Clean metals with fine wet-dry sandpaper. 3. Clean or replace Tongs. 4. Check input line voltage with voltmeter.
Burn Through at Weld Point	<ol style="list-style-type: none"> 1. Weld time too long. 2. Tongs out of alignment. 3. Electrode Tips deformed, dirty, oxidized, or pitted. 	<ol style="list-style-type: none"> 1. Shorten weld time. 2. Realign Tongs. Refer to Tong and Electrode Tip Alignment on page 9. 3. Dress or replace Electrode Tips. Refer to Dressing Electrode Tips on page 9 or Replacing Electrode Tips on page 12.
Electrode Tips Overheating	<ol style="list-style-type: none"> 1. Not enough Tong pressure. 2. Weld time too long. 3. Material too thick for Spot Welder. 	<ol style="list-style-type: none"> 1. Increase Tong pressure. Refer to Adjusting Tong and Operating Lever Pressure on page 10. 2. Shorten weld time. 3. Ensure that workpiece thickness is within capacity of Spot Welder. Refer to Specifications on page 7.
Electrode Tips Arcing on Workpieces	<ol style="list-style-type: none"> 1. Not enough Tong pressure. 2. Electrode Tips misaligned. 3. Workpiece material has become welded to Tips. 	<ol style="list-style-type: none"> 1. Increase Tong pressure. Refer to Adjusting Tong and Operating Lever Pressure on page 10. 2. Realign Tips or dress Tips to correct diameter. Refer to Tong and Electrode Tip Alignment and/or Dressing Electrode Tips on page 9. 3. Dress or replace Electrode Tips. Refer to Dressing Electrode Tips on page 9 or Replacing Electrode Tips on page 12.
Hole in Weld	Contact area of Electrode Tips too large.	Dress Electrode Tips to restore spot diameter and face angle to approximate that of new tip. Refer to Dressing Electrode Tips on page 9.
Molten Material Forced Out Around the Weld Point	<ol style="list-style-type: none"> 1. Electrode Tips misaligned. 2. Weld time too long. 3. Too much Tong pressure. 	<ol style="list-style-type: none"> 1. Dress Electrode Tips so they align correctly and lie flat on the workpiece. Refer to Dressing Electrode Tips and/or Tong and Electrode Tip Alignment on page 9. 2. Shorten weld time. 3. Decrease Tong pressure. Refer to Adjusting Tong and Operating Lever Pressure on page 10.

OPERATION

PARTS LIST

Part	Description	Qty
1	Power Cord	1
2	Insulation Spacer	4
3	Rear Cover	1
4	Transformer	1
5	Wire Braid Retainer	1
6	Screw M6x35mm	4
7	Bolt Ø5x165mm	4
8	Screw Ø5x10mm	2
9	Power Switch	1
10	Cap Screw Ø6x45mm	1
11	Screw Ø6x20mm	2
12	Operating Lever	1
13	Connecting Link	2
14	Pin Ø8x32mm	1
15	Screw M6x35mm	8
16	Bolt Ø8x97mm	1
17	Fixed Handle	1
18	Upper Tong Holder	1
19	Upper Tong	1
19a	Lower Tong	1

Part	Description	Qty
20	Lower Tong Insulator	1
21	Upper Tong Clamp	1
22	Lower Tong Clamp Retainer	1
23	Lower Tong Clamp Insulation	1
24	Electrode Tip	2
25	Front Housing	1
26	Wire Braid	1
27	Screw Ø5x10mm	2
28	Spatter Guard	1
29	Lower Tong Clamp	1
30	Screw Ø6x40mm	4
31	Hex Nut M8	2
32	Bolt Ø8x97mm	1
33	Screw Ø5x10mm	4
34	Handle Bracket	2
35	Circlip	2
36	Bolt Ø8x120mm	1
37	Wooden Handle	1
38	Insulating Bushing	4
39	Hex Nut M5	4

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

Record Product's Serial Number Here: _____

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only and are not available individually as replacement parts.



Questions, problems, missing parts?

Before returning to your retailer, our exceptional customer service is available.

Call us Tel: 909 628 4900

Hour : 9am To 3pm PST (Monday to Friday)

Email : info@starktoolsusa.com