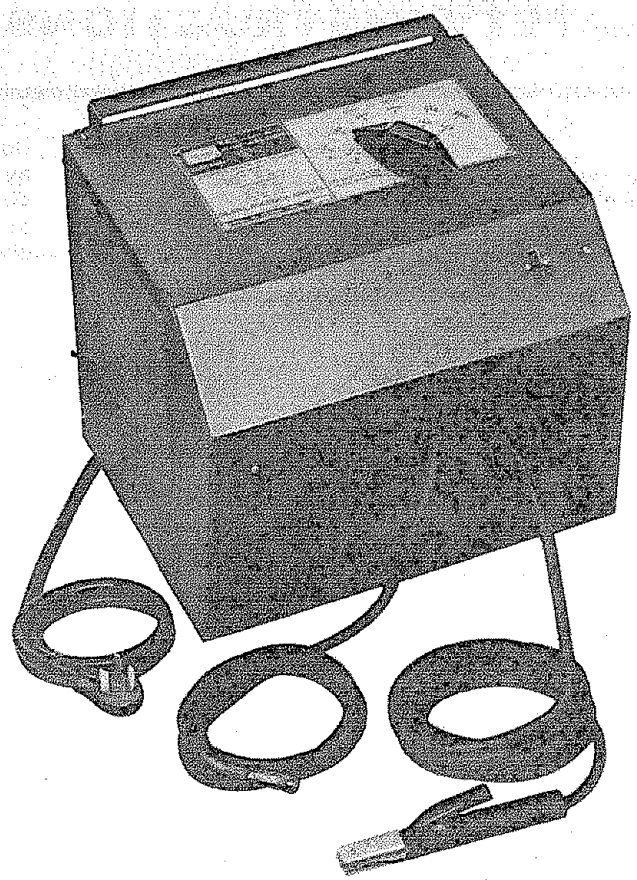
Sears

owners manual

CAUTION:

Read SAFETY RULES and INSTRUCTIONS carefully



CRAFTSMAN

225 AMP A.C. ARC WELDER

MODEL NO. 113.207910

assembly • operating • repair parts

SEARS, ROEBUCK AND CO., Chicago, IL 60684 U.S.A. and SIMPSONS-SEARS LIMITED, Toronto

Part No. 61222

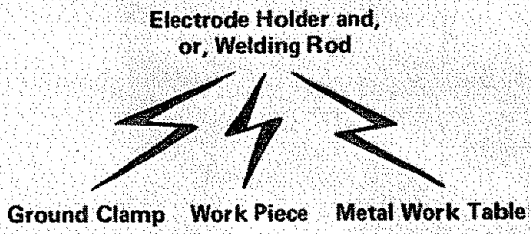
Printed in U.S.A.

SAFETY INSTRUCTIONS TO OPERATOR

For your own protection, read and observe all instructions included in this manual as well as the following specific safety precautions:

1. PROTECTION FROM ELECTRICAL SHOCK

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



80 volts exist between these parts when welder is on!!!

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

b. Take special care to insulate yourself from ground using dry insulation (such as dry wood) of adequate size when welding in damp locations, on metal floors or gratings, and in positions (such as sitting or lying) where parts or large areas of your body can be in contact with possible grounds.

c. Maintain the electrode holder, ground clamp, welding cable and welding machine in good, safe operating condition.

d. Do not use welding rod as a cigarette lighter.

2. EYE AND BODY PROTECTION

a. Use helmet, filter, and cover plate complying with ANSI Z87.1 to protect your eyes and face from sparks and the rays of the arc when welding or observing open arc welding.

b. Always wear safety goggles with side shields complying with ANSI Z87.1 when in a welding area, or when near slag chipping operation.

c. Wear oil free protective garments, such as leather gloves, heavy shirt, cuffless trousers and high shoes.

d. Protect other near-by personnel with suitable non-flammable screening.

e. Provide adequate ventilation in the welding area, particularly when welding on galvanized, lead or cadmium plated steel, and other metal which produce toxic fumes.

f. When working above floor level, protect yourself from a fall should you get a shock. Never wrap the electrode cable around any part of your body.

g. Do not weld in locations close to chlorinated hydrocarbon vapors coming from degreasing, cleaning, or spraying operations. The heat of the rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.

3. FLAMMABLE AND EXPLOSIVE MATERIALS

a. Remove flammable and explosive material at least 35 feet from the welding arc to prevent welding sparks or molten metal from starting a fire. Keep a charged type ABC fire extinguisher within easy reach.

b. Welding on or near containers which hold combustibles can cause an explosion, even when they have been cleaned. For information purchase "Safe Practices for Welding and Cutting Containers that Have Held Combustibles" (A6.0-65) from the American Welding Society AWS, 345 East 47th Street, New York, New York 10017.

c. When not welding, place the electrode holder where it is insulated from the ground system. Accidental grounding can cause overheating of the cables and welder, creating a fire hazard.

d. Never connect the ground cable or clamp to any object but the work piece or metal work table. Connecting to other objects such as building ground can create a fire hazard.

e. Never weld anything on or to the welder cabinet, as a burn through may cause transformer failure.

4. PREVENTATIVE MAINTENANCE

a. Never apply power to the welder with any part of the "cabinet" removed. Position on-off switch in "Off" position and disconnect power supply at the circuit breaker or fuse box before doing maintenance work inside the machine.

b. Before connecting the welder power cord to the receptacle, check the following:

1. Inspect the power cord and welding cables for cuts or burns and make sure blades and ground pin on the plug are straight.

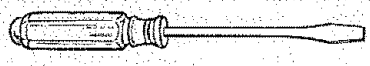
2. Inspect "On-Off" switch lever for cracks or broken parts.

3. Inspect electrode holder jaw insulators for cracks or broken parts.

4. For additional safety information, purchase copies of "Practice for Occupational and Educational Eye & Face Protection" (ANSI Z87.1) and "Safety in Welding and Cutting" (ANSI Z49.1) from the American Welding Society or the American National Standards Institute ANSI, 1430 Broadway, New York, New York 10018.

installation

TOOLS NEEDED



Screwdriver (medium)

3/8-inch wrench 7/16-inch wrench

UNPACKING AND CHECKING CONTENTS

This Craftsman welder is shipped complete in one carton. In order to facilitate packaging, certain items have been removed at the factory, and must be assembled when received by the purchaser. Remove all items from the loose parts bag and identify them by referring to figure 1. These "Loose" parts are listed below and should be accounted for before discarding any packing material. (See figure 1.)

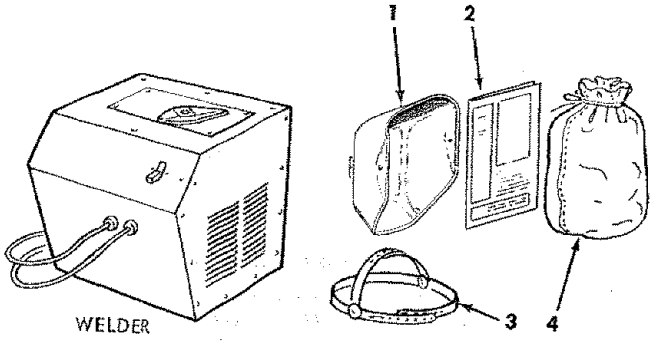


Figure 1

LOOSE PARTS LIST

Key No. (Fig. 1)	Part Name	Qty.
1	Welding Helmet (Partially assembled)	1
2	Owner's Manual	1
3	Helmet band assembly	1
4	Loose Parts Bag	
	—Containing the following items:	
	Electrode Holder	1
	Ground clamp	1
	Receptacle	1
	Screw, Hex.-Hd., 1/4-20 x 3/4 in.	1
	Nut, Hex., 1/4-20	1
	Washer, Flat, 17/64 in.	1
	Lockwasher, 1/4 in.	1

ATTACHING ELECTRODE HOLDER TO ELECTRODE CABLE

1. Grasp the electrode holder and locate the slotted-head, handle locking screw near the mid-point of the insulating handle tube. (See figure 2.) Loosen this screw approximately two turns, until the handle can be slipped off the electrode holder.

2. Slide the handle off electrode holder and insert end of electrode cable assembly through the handle as shown in figure 2. The electrode cable is the one with approximately 1/2-inch of the insulation stripped from one end.

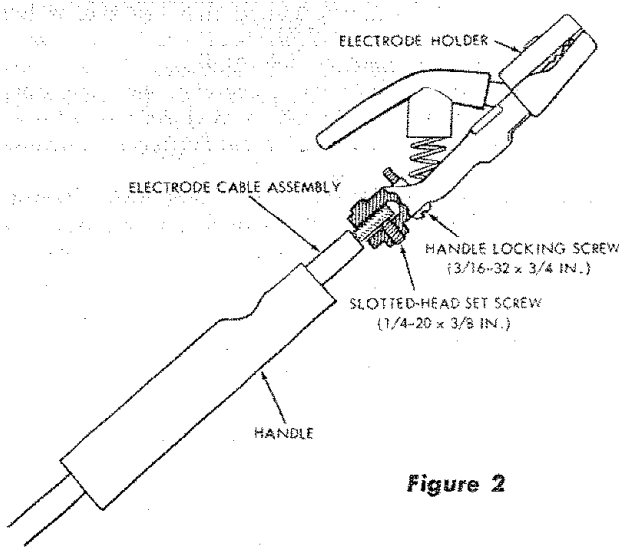


Figure 2

3. Using a screwdriver, back out the slotted-head set screw, located near the end of electrode holder until the end of screw does not protrude into the wire socket in the end of holder.

4. Make sure the wire strands on stripped end of electrode cable have not been "frayed". Twist together with fingers if necessary.

5. Insert stripped end of electrode cable into the electrode holder and tighten the slotted-head set screw firmly.

6. Slide the handle back into place on electrode holder and position it until the hole in handle is directly over the head of handle locking screw. Tighten the screw just enough to secure the handle on electrode holder.

ATTACHING THE GROUND CLAMP TO THE GROUND CABLE

1. Attach the terminal on end of ground cable to the ground clamp, at the hole near the nose of the clamp, with the 1/4-20 x 3/4-inch screw, 1/4-20 nut, 17/64-inch flat washer and 1/4-inch lockwasher furnished in the loose parts bag. (See figure 3.)

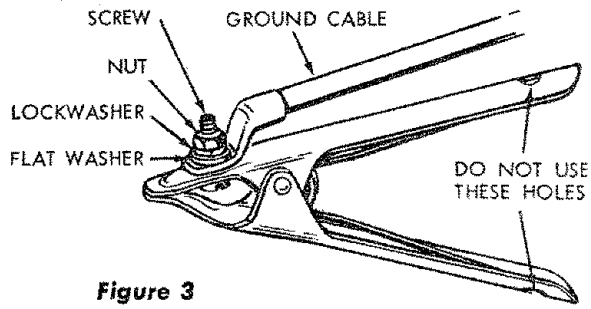


Figure 3

2. Do not use either of the holes in handle ends of ground clamp.

3. Tighten the screw firmly enough to insure good contact and prevent the cable terminal from slipping on the clamp.

operation

CONNECTING WELDER TO POWER SOURCE

This Craftsman Arc Welder is designed for operation on the a-c voltage indicated on the selector plate on top of the cabinet. The welder is a sturdily constructed, thoroughly tested machine, engineered to give many years of efficient trouble-free service. Read the connection and operating instructions carefully, and follow them closely in order to obtain the high satisfactory results this Craftsman Welder is capable of providing.

Electrical connections between the welder and 230-volt, single-phase, 60-cycle a-c power source should be made by a qualified electrician. All wiring must comply with the local electrical code.

NOTE: Make sure the welder is located at least 12-inches from a wall, or other obstruction (at both sides) in order to provide an unobstructed flow of air for adequate cooling.

1. It is recommended that an individual (separate) line be installed for the welder with a fuse block in the line. For best results, this circuit should be as short as possible. For power leads use armored cable or non-metallic sheathed cable, in accordance with the local electrical code. The size of the leads will depend upon their length as shown in the table below.

Power Lead Length	Power Lead Size
Up to 30 feet	No. 8 AWG
30 to 50 feet	No. 6 AWG
Over 50 feet	No. 4 AWG

CAUTION: Do not attempt to connect this welder to a regular household outlet.

2. Install 50 ampere fuses, of the delayed-action type such as "Fustat" or "Fusetron", in the fuse block or a 50 amp, 240 volt circuit breaker.

3. Connect the two power leads (see table above for size) and a ground lead (No. 10 AWG, or larger) to the terminals in receptacle as shown in figure 4.

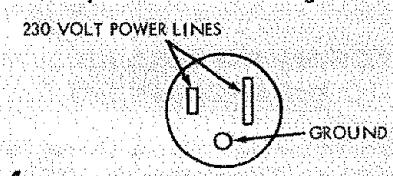


Figure 4

SLOT CONFIGURATION FOR
50 AMPERE, 250 VOLT RECEPTACLE

4. Check the "ON-OFF" switch on cabinet to make sure it is "OFF" (figure 3) and connect the plug on welder cord to the receptacle.

EXPLANATION OF CONTROLS

1. **Pointer Positions —**
Twelve welding heats (ampere settings) are made with a single control knob. (See figure 5.) When the long end of the knob, which serves as a pointer, is pointed to the ampere scale, the end, will line up with the upper row of figures which is labeled the "HI" scale. When rotated 180 degrees, the short end of the knob will line up with the lower row of figures labeled the "LO" scale.

2. **Selecting the Desired "Heat" —**
A detent inside the welder holds the desired ampere selection securely. To change the ampere selection, push down on the knob, rotate to the new position, then release it. Always make sure the mechanism "snaps" into a detent when the knob is released. If downward force on the knob is released when the pointer is between two current settings, slight rotation of the knob will cause it to "snap" into a detent and line up with a number on the scale.

3. **Changing from One Scale to the Other —**
Simply press down on the pointer and rotate it until the proper end of the knob is aligned with the desired scale. Remember the long end is used with the upper scale and the short end with the lower scale.

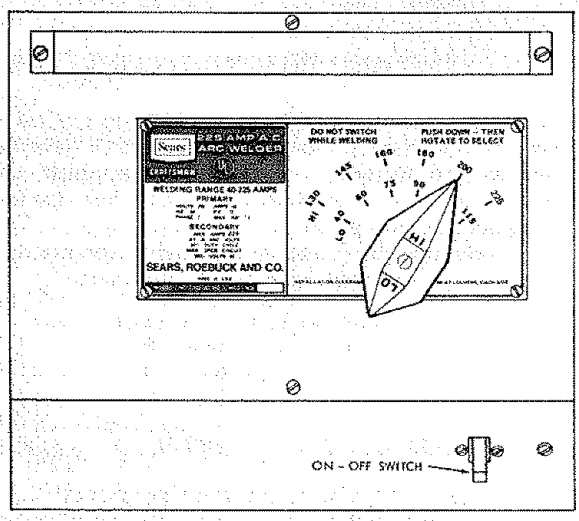


Figure 5

WELDER OPERATION

1. Before actually performing any welding operations, make sure the following safety suggestions are observed.
   a. Wear the helmet for protection of face and eyes.
   WARNING: NEVER WELD WITHOUT WEARING THE HELMET IN CORRECT POSITION IN FRONT OF THE FACE.
   b. It is advisable to wear heavy gloves, with cuffs long enough to protect any exposed portion of the arms against the "sun-burning" effect of the welding arc.
   c. On certain welding jobs it may be desirable to wear additional protective clothing such as a safety apron, safety leggings and/or safety spats.

2. Refer to the following table and select a welding rod having a diameter corresponding to the current selected for the particular welding job to be performed. For each welding current there is a corresponding diameter welding rod that will provide best results. These are recommended settings for Craftsman "mild steel" rods.

ROD SIZE	3/32	1/8	5/32	3/16
	HEAT SETTING			
Mild Steel	40-75	75-145	100-160	145-225
Machinable Cast Iron	40-75	75-115	100-145	130-180
Hard Surfacing	60-90	100-130	130-145	160-225
Contact Rod	60-115	130-160	180-225	

3. Insert the bare end of welding rod selected into the electrode holder on end of electrode cable.

4. Connect the ground cable to the piece to be welded with the ground clamp. Make sure the contact area is clean in order to insure a good electrical connection.

5. Place the "ON-OFF" switch in the "ON" position. The fan inside the welder should be running and the welder is ready for operation.

trouble shooting

REMOVAL OF POINTER FOR DISASSEMBLY OF CABINET

1. If for any reason the cabinet top (Key No. 1) has to be removed, set the pointer to the 225 amp setting.
2. Remove screw securing pointer to shaft (see Fig. 6).
3. Pull pointer straight up to remove.
4. Remove screws (Key Nos. 9 and 10) and lift cabinet top off.
5. If the moveable contact (Key No. 11) requires replacement, be sure that it is positioned on the 225 amp setting before reassembly of the cabinet top.
6. After replacing the cabinet top place a 1/8" or 3/32" diameter welding rod (or something similar) into the threaded hole in the top of the shaft. Note the direction the rod has to be moved sideways in order to bring the shaft to the center of the hole in the cabinet. Do not remove rod.
7. Place the free end of the rod through the hole in the pointer and slide the pointer down the rod until it rests on the water lip around the hole in the cabinet.
8. Rotate the pointer on the rod so that the "HI" end of the pointer is set to the 225 amp setting.
9. Now move the rod sideways as in paragraph 6 until the hub of the pointer slips through the hole in the cabinet and rests on top of the shaft.
10. While keeping the hub of the pointer centered in the hole in the cabinet, slightly rotate the knob back and forth until you feel the hex hole in the bottom of the pointer engage the hex shaft; then gently push straight down. Release the knob and remove the rod. The pointer should now be indexed at the 225 amp setting.
11. Install the screw through the pointer into the hex shaft.

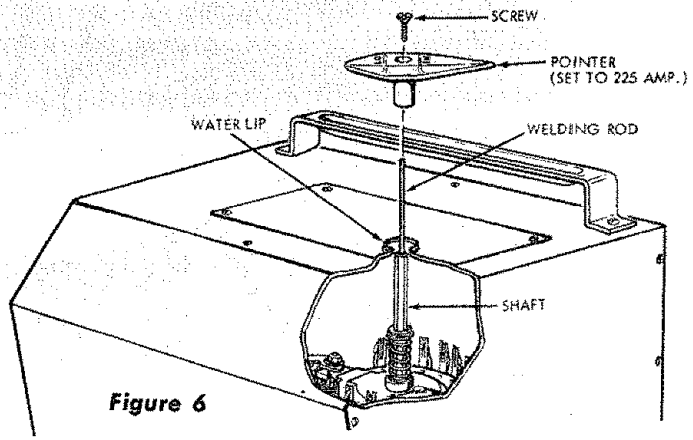


Figure 6

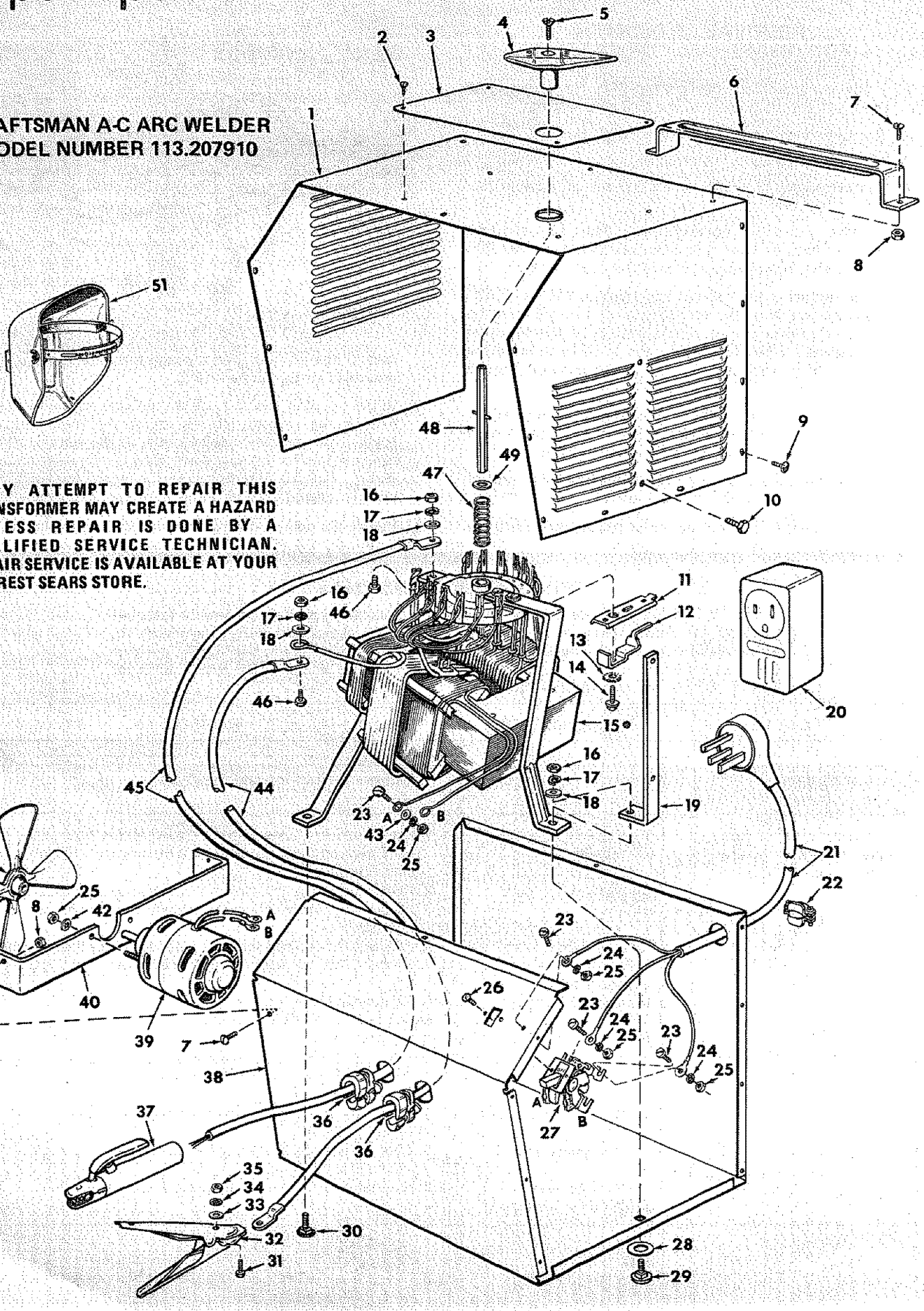
TROUBLE SHOOTING CHART

WARNING: Make sure the branch circuit main disconnect switch or circuit fuses are removed (or welder plug and cord removed from its receptacle) before removing the welder cabinet or lid. Placing the "ON-OFF" switch on the welder in the "OFF" position does not remove voltage from the power leads inside the welder — BE SAFE AND BE ALIVE, OPEN THE BRANCH CIRCUIT.

TROUBLE	PROBABLE CAUSE	REMEDY
Fan does not run, but welder operates.	1. Tight fan motor shaft. 2. Loose or broken motor leads.	1. Replace motor. 2. Remove cabinet top and repair leads.
Fan and welder do not operate, or continually blow fuses.	1. Improperly fused or protected. 2. Short-circuited coil. 3. Shorted leads. 4. Blown fuse, or open circuit breaker. 5. Open or loose leads. 6. "ON-OFF" switch not closed.	1. Use 50 ampere fuses of the delayed action type such as "Fusetron" or "Fustat"; or a 50 ampere 240 volt circuit breaker. 2. Remove the top and look for charred, burned or blackened coils. Replace the transformer and switch assembly. 3. Remove the top and separate leads that touch each other. 4. Replace fuse, or reset the circuit breaker. 5. Remove cabinet top and repair. 6. Turn switch "ON". If switch fails to toggle "ON", replace it.
Welding current low or weak.	1. Low line voltage. 2. Welding current setting too low. 3. Poor connections. 4. Welding cable too long, or too small.	1. Have a voltage check performed by the local power company. 2. Check current recommended for the electrode being used. 3. Check electrode holder, ground and electrode cable connections. 4. Shorten length, or increase size of cable.
Can't hold an arc.	1. Using a D.C. welding rod. 2. Low hydrogen rod.	1. Use AC or AC-DC rods. 2. Use rods of 1/8-inch maximum diameter, or smaller on 130 amperes, or less.

repair parts

CRAFTSMAN A-C ARC WELDER
MODEL NUMBER 113.207910



*ANY ATTEMPT TO REPAIR THIS TRANSFORMER MAY CREATE A HAZARD UNLESS REPAIR IS DONE BY A QUALIFIED SERVICE TECHNICIAN. REPAIR SERVICE IS AVAILABLE AT YOUR NEAREST SEARS STORE.

PARTS LIST FOR CRAFTSMAN A-C ARC WELDER
MODEL NUMBER 113.207910

WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION AS SHOWN ON THIS LIST:

1. THE PART NUMBER
2. THE PART DESCRIPTION
3. THE MODEL NUMBER 113.207910
4. THE CODE NUMBER
5. THE NAME OF ITEM – ARC WELDER

Always order by Part Number – not by Key Number

Key No.	Part No.	Description
1	61224	Cabinet, Top
2	9426307	*Screw, Type BA, No. 8 x 1/2, Pan Hd. Slotted
3	61225	Plate, Selector
4	61226	Pointer
5	61227	Screw, Nylon
6	61119	Handle
7	448035	*Screw, Mach., No. 10-32 x 1/2, Pan Hd. Slotted
8	60012	Nut, Hex Lock
9	9426106	*Screw, Type BA, No. 10 x 1/2, Pan Hd. Slotted
10	273229	*Screw, Hex Ind. Washer Hd., 1/4-20 x 1/2
11	61228	Contact, Movable
12	61229	Guide
13	115109	Lockwasher, External 1/4
14	9422329	*Screw, Hex.Ind. Washer Hd. 1/4-20 x 3/4
15	61223	•Transformer Asm., Switch
16	134556	*Nut, Hex., 5/16-18 x 9/16 x 7/32
17	116120	*Lockwasher, 5/16
18	60141	*Washer,Plain, 11/32 x 7/8 x 1/16
19	61251	Bracket, Support
20	61107	Receptacle
21	61143	Plug and Cord
22	30307	Connector, Cable
23	436695	*Screw,Mach.,No. 8-32 x 1/2, Pan Hd. Slotted
24	116118	*Lockwasher, No. 8

Key No.	Part No.	Description
25	115998	*Nut,Hex,No.8-32 x 11/32 x 1/8
26	193255	*Screw, Mach.No. 6-32 x 3/16, Pan Hd. Slotted
27	30254	Switch
28	110969	*Washer,Plain,1/2 x 1-1/4 x 3/32
29	60237	*Bolt, Carriage, 5/16-18 x 1
30	126218	*Bolt,Carriage,5/16-18 x 3/4
31	9415477	*Screw, Mach., 1/4-20 x 3/4, Ind.Hex Hd.
32	51439	Clamp, Ground
33	9414920	*Washer, 17/64 x 5/8 x 1/16
34	138167	Lockwasher 1/4
35	115120	*Nut,Hex.,1/4-20 x 7/16 x 3/16
36	61017	Relief, Cable Strain
37	30284	Holder, Electrode
38	61230	Cabinet, Bottom
39	61161	Motor
40	61231	Bracket, Fan
41	37005	Blade, Fan (w/Set Screw)
42	138166	Lockwasher,Int.Tooth No. 8
43	60136	*Washer,Plain 13/64 x 5/8 x 1/32
44	61234	Cable Asm.,Ground
45	61233	Cable Assembly,Electrode
46	60033	*Screw,Mach.,5/16-18 x 3/4 Hex.Hd.
47	61235	Spring
48	61236	Shaft, Asm.
49	9422149	Washer,Plain,15/32 x 3/4 x 1/16
51	37952	†Helmet Assembly, Welding (Partially Assembled)
	61222	Owners Manual (Not Illustrated)

* Standard Hardware Item. May be Purchased Locally.

† Stock Item. May be secured through the Hardware Departments of most Sears or Simpsons-Sears Retail Stores or Catalog Order Houses.

• Any attempt to repair this transformer may create a hazard unless repair is done by a qualified service technician. Repair service is available at your nearest Sears Store.

POWER TOOL GUARANTEE

Craftsman power tools (or welders) are unconditionally guaranteed for one year to give complete satisfaction or the tool will be repaired free of charge.

This guarantee service is available through any of our stores, or service centers throughout the United States or Canada.

SEARS, ROEBUCK AND CO • SIMPSONS-SEARS LIMITED

Sears

owners manual

MODEL NO. 113.207910

Sears
SERVICE is at YOUR SERVICE wherever YOU live or move in the U.S.A.

How to ORDER Repair Parts

The Model Number will be found on the selector plate attached to the top of the welder cabinet. Always mention the Model Number when requesting service or repair parts for your ARC WELDER.

All parts listed herein may be ordered through SEARS, ROEBUCK AND CO. or SIMPSONS-SEARS LIMITED. When ordering parts by mail, selling prices will be furnished on request or parts will be shipped at prevailing prices and you will be billed accordingly.

WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION AS SHOWN IN THIS LIST.

1. The PART NUMBER
2. The PART DESCRIPTION
3. The MODEL NUMBER 113.207910
4. The CODE NUMBER
5. The NAME of ITEM – ARC WELDER

Your Sears merchandise takes on added value when you discover that Sears has over 2,000 Service Units through out the country. Each is staffed by Sears-trained, professional technicians using Sears approved parts and methods.

SEARS, ROEBUCK AND CO., Chicago, IL 60684 U.S.A. and SIMPSONS-SEARS LIMITED, Toronto

Part No. 61222 Form No. SP3775-3 Printed in U.S.A. 5/74