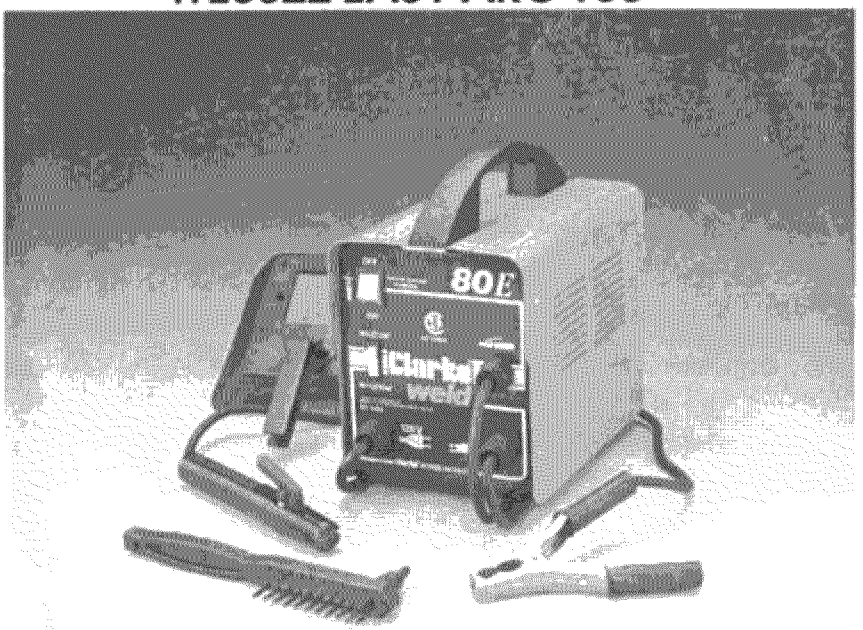
Clarke® weld

WE6485 80E - WE6490 95E
WE6519 131E - WE6534 240TE
WE6522 EASY ARC 150



OPERATING & MAINTENANCE INSTRUCTIONS

Congratulations on the purchase of your new **Clarke** welder. Before attempting to operate this machine, please read this manual thoroughly and follow all instructions carefully. By doing so you will help to ensure the safety of both yourself and others around you, and at the same time, you should look forward to long and trouble free service from your **Clarke** welder.

GUARANTEE

For 12 months from the date of purchase, Clarke warranties this welder against failures due to defects in material or workmanship. This warranty does not cover expendable parts such as contact tips or nozzles, which are consumed during normal welder operation. If the welder fails within 12 months from the date of purchase, you must contact Clarke Power Products at 1-800-227-9603 to acquire a Return Authorization Number. Once you have acquired a Return Authorization Number from Clarke, return the product to the following address - postage or UPS paid:

Clarke Power Products, Inc.
28740 Glenwood Road
Perrysburg, OH 43551
Attn: Warranty Repair

We will examine the product. If the problem is due to a manufacturing defect, we will repair or replace the product at no charge and return it to you postage or UPS paid. If the problem is due to misuse, abuse, the product has been modified, or is out of warranty, we will contact you with a repair estimate and ask for a credit card number for payment. After the product has been repaired, it will be returned postage or UPS paid. This warranty applies only while this product is used in the United States. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

1.0 SAFETY PRECAUTIONS

1.1 GENERAL INSTRUCTIONS

Make sure this manual is carefully read and understood by the operator.

1.2 LOCATION

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.
These are the main precautionary measures to observe:

- Operators should protect their body by wearing closed, non-flammable protective clothing, without pockets or turned up trousers.
- The operators should wear a non-flammable welding helmet designed so as to shield the neck and the face. It is necessary to keep the protective lens always clean and to replace it when broken or cracked. It is advisable to put a transparent glass between the lens and the welding area. Welding should be done in a close area that does not open into other working areas.
- The operators should never look at the welding arc without the correct protection for the eyes. They should always wear safety glasses with side shields to protect from flying particles.
- The welding process must be performed on metal coatings thoroughly cleaned from layers of rust or paint to avoid production of harmful fumes. The parts degreased with a solvent must be dried before welding.
- Welding should never be done on metals or coated metals containing zinc, mercury, chronium, graphite, lead cadmium or beryllium unless the operator and the people standing in the same area use an air-supplied respirator.

1.3 SAFETY INSTRUCTIONS

For your safety, before plugging in the welder, closely follow these instructions:

- When working in a confined space, the welder must be kept outside the welding area and the ground cable should be fixed to the workplace. Never work in a damp or wet area, in these conditions.
- Do not use damaged input or welding cables.
- The welding torch should never be pointed at the operator's or another person's body.
- The welder must never be operated without its panels as this could cause serious injury to the operator and could damage the equipment.

1.4 FIRE PREVENTION

Make sure that appropriate fire prevention devices are available near to the welding area;
All combustible material must be removed from the welding area.

1.6 ELECTRIC SHOCK

DANGER - ELECTRIC SHOCK CAN BE FATAL

If a person is found unconscious and electric shock is suspected, do not touch the person if they are in contact with any electrical wires. Disconnect power from the machine and then use First Aid. Dry wood, and other insulating material can be used to move electrical cables, if necessary, away from the person.

1A.0 NORMES DE SÉCURITÉ

1A.1 INSTRUCTIONS GÉNÉRALES

Assurez-vous que l'opérateur lit et comprend ce manuel.

1A.2 LIEU D'UTILISATION

Si les normes de sécurité et d'utilisation ne sont pas soigneusement respectées, les opérations de soudage peuvent devenir dangereuses non seulement pour l'opérateur, mais aussi pour les personnes se trouvant à proximité du lieu où le soudage a lieu.

Précautions principales à suivre:

- Les opérateurs doivent se protéger en portant des combinaisons de protection fermées et non inflammables, sans poches ni revers.
- Les opérateurs doivent utiliser un casque de soudage, non inflammable, réalisé de façon à protéger le cou et le visage. Les verres de protection doivent toujours être propres et il faut les remplacer dès qu'ils sont cassés ou fissurés. Il convient d'insérer un verre transparent entre le verre inactinique et la zone de soudage. L'opération de soudage doit être effectuée dans un lieu isolé des autres zones de travail.
- Les opérateurs ne doivent jamais, pour aucune raison, regarder un arc voltaïque sans porter une protection adéquate pour les yeux. Il faudra toujours utiliser des lunettes de protection avec des verres transparents afin d'éviter les éclats et d'autres corps étrangers qui pourraient blesser les yeux.
- Le soudage doit être effectué sur des surfaces métalliques sans couches de rouilles ou de peinture, afin d'éviter la formation de fumées nuisibles. Avant de souder, il faut essuyer les parties ayant été dégraissées avec des solvants.
- Il ne faut jamais souder des métaux ou des métaux vernis contenant du zinc, du mercure, du chrome, du graphite, du plomb, du cadmium ou du béryl, si l'opérateur et les personnes à proximité ne portent pas un respirateur adéquat.

1A.3 INSTRUCTIONS POUR LA SÉCURITÉ

Pour sauvegarder votre sécurité, suivez attentivement ces instructions avant de brancher le générateur à la ligne:

- Si le lieu de travail est exigu, l'appareil doit être placé en dehors de la zone de soudage et le câble de masse doit être fixé à la pièce en travail. Dans ces conditions, il ne faut pas travailler dans des zones humides ou mouillées.
- Ne jamais utiliser des câbles d'alimentation ou de soudage endommagés.
- La torche de soudage ne doit jamais être dirigée contre l'opérateur ou une autre personne.
- Le générateur ne doit jamais être utilisé sans ses panneaux, cas ceci pourrait provoquer de graves blessures à l'opérateur et des dommages à l'appareil.

1A.4 PRÉVENTIONS CONTRE LES INCENDIES

- S'assurer que des dispositifs antiincendie sont disponibles près de la zone de soudage.
- Éliminer de la zone de soudage et des alentours toutes sortes de matériau inflammable.

1A.7 DÉCHARGE ÉLECTRIQUE

ATTENTION! UNE DÉCHARGE ÉLECTRIQUE PEUT ÊTRE MORTELLE!

Si on trove une personne sans connaissance et si on a le suspect d'une décharge éléctrique, il ne faut pas toucher la personne en question si elle est encore en contact avec les commandes. Couper l'alimentation à la machine et prêter les premiers soins. Pour éloigner les câbles du blessé, on peut utiliser, si nécessaire, du bois sec ou un autre matériel isolant.

2.0 ARC WELDING - HOW IT WORKS

Arc welding is a process by which two pieces of metal are joined together using the heat developed by an electric arc between the workpiece and an electrode (welding material).

The electrode is connected to one output side of the same transformer. When the electrode comes into contact with the workpiece an arc is struck. The high temperature of the arc melts the electrode into the joint of the work piece and fusion occurs.

MODEL	80E	95E	131E	240TE	270TE	EASI ARC 150
MIN/MAX AMPS	55-90	30-90	40-100	40-200	45-250	60-150
ELECTRODES	1/16-5/64	1/16-5/64	1/16-3/32	1/16-3/16	5/64-15/64	3/32-1/8
OPEN CIRCUIT VOLTS	37	37	48	48	52	48
VOLTS/PHASE	120/1	120/1	120/1	220/1	220/1	220/1
MAX INPUT POWERAMPS	13	13	14	23	32	13
DIM.	15X9X11	17X10X12	17X10X12	22X11X15	32X16X16	17X12X10
WEIGHT	28LBS	29LBS	34LBS	75LBS	150LBS	31LBS
PART NUMBER	WE6485	WE6490	WE6519	WE6534	WE6537	WE6522

3.0 THERMAL OVERLOAD PROTECTION

If the duty cycle of the welder is exceeded, a thermostat will automatically cut the power to prevent the machine from burning out. If this should happen you will have to wait approximately 30 minutes until the transformer cools 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 transformer unless it is frequently over loaded, in which case damage will eventually result. For the modesl 80E, 95E and EasiArc 150 the intervention of the thermostat is indicated by the lighting of the ON/OFF switch.

4.0 ELECTRICAL CONNECTION

The wires in the input cable of this machine are colored in accordance with the following code:

	120V.		230V.
Green	Ground	Green & Yellow	Ground
White	Neutral	Blue	Live
Black	Live	Brown	Live

120 Volts 20 Amp grounded plug: Model 80E - 95E - 131E.
230 Volts grounded plug: Model 240TE

WARNING: This machine must be grounded.

If you intend on using an extension cord make sure the wire cable size is adequate in diameter.
If you are in doubt about electrical connections consult a qualified electrician. Do not attempt electrical repairs yourself.

5.0 PREPARATION FOR WELDING

1 With the On/Off switch (item B) in the Off position, connect the welding leads as follows. (Does not apply to models 80E , 95E and Easi Arc 150 which have fixed leads):

- Connect the ground lead (item N) to the ground terminal which is the black knob (item F) identified by the ground symbol (see diagram 1), and secure the ground clamp (item M) to the workpiece (item L). Note: For good contact the ground clamp must be attached to the clean bare metal, not painted.
- Connect the welding lead (item G) to the electrode terminal, which is the black knob (item E) identified by the electrode holder symbol (diagram 1) and secure an appropriate welding rod (item I) by its bare end into the jaws of the elctrode holder (item H). Note: All connections should be a good metal contact. Clean with a wire brush where necessary.

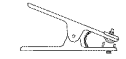
2 The size (diameter) of welding rod should be approximately the same as the thickness of metal to be welded. An appropriate current must be selected by turning the large handwheel (itemC) until the sliding indicator (item D) in the top of the machine shows the required amperage setting. With practice you will gain a feel for the correct amperage setting for different welding rod thicknesses.
For beginners the table below gives some useful guidelines.

SIZE OF WELDING ROD / THICKNESS OF METAL	AMPERAGE SETTING
1/16 (16 SWG) 1/16"	40-55
(14SWG) 5/64"	50-70
(12SWG) 3/32"	75-95
1/8 (10SWH) 1/8"	100-140
5/32"	140-180
3/16"	180-240
15/64"	240-250

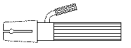
3 To assemble face shield, first place the darkened plastic window in the recessed window area in the body. Secure in place using the two plastic screws fasteners provided. Locate the handle fixing into the slot in the shield body, press firmly and rotate through 90 degrees until the lug locates into the hole in the shield body.

DIAGRAM 1

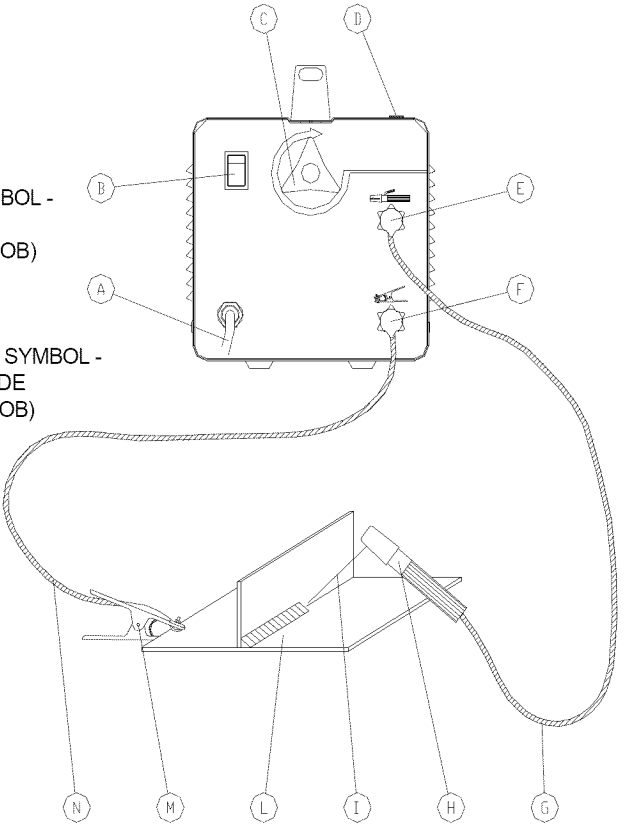
A Power Cable
B ON/OFF Switch
C Handwheel
D Amperage Indicator
E Electrode Terminal
F Ground Terminal
G Welding Lead
H Electrode Holder
I Electrode
L Workpiece
M Ground Clamp
N Ground Cable



GROUND CLAMP SYMBOL - IDENTIFIES GROUND TERMINAL (BLACK KNOB)



ELECTRODE HOLDER SYMBOL - IDENTIFIES ELECTRODE TERMINAL (BLACK KNOB)



6.0 WELDING TECHNIQUE

1 Plug your welder into the correct socket and switch on using the ON/OFF switch (Item B). NOTE (for models 80E, 95E and Easi Arc 150): If the machine stops at any time and the ON/OFF switch lights, the thermostat has intervened. Wait for a few minutes while the transformer cools down and when the ON/OFF switch goes out again welding can begin.

2 Particularly for beginners, the most difficult aspect of the arc welding process is that of striking an arc. We strongly recommended 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 workpiece and at an angle of about 70 degrees to 80 degrees to the work surface; take care not to accidentally touch the workpiece until you are ready to begin.

4 Holding the welding mask close to your face , give a short stroke with the electrode on the workpiece. As soon as the arc is struck, lightly withdraw the electrode from the workpiece to leave a tiny gap of around 1/16". 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 workpiece.

NOTE: 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 workpiece. Should this happen give the electrode a short sharp jerk to free it and, if necessary strike the arc again.

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 metal being joined. Slag forming on the surface should be chipped away with a hammer.

If the resulting weld looks irregular or 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, and the following tips on welding pitfalls should help to improve your technique quite quickly.

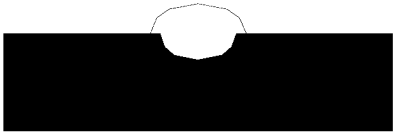
WARNING: Never look at welding arc, it can seriously damage your eyes. Always use the face shield provided or any proper welding mask.

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

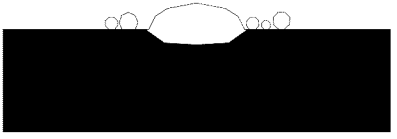
7.0 WELDING PITFALLS

The arc welding technique is an acquired skill and will almost certainly require considerable practice before perfect results are obtained. The diagrams below should help to explain pitfalls in your technique and how to overcome them.

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.

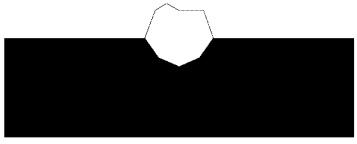


3 Electrode moved over workpiece too slowly - this causes a very wide and heavy deposit which overlaps at the sides. It is wasteful in terms of both time and electrodes used.

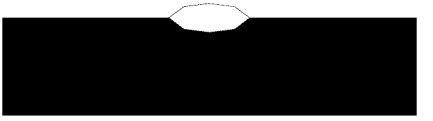
4 Electrode moved over the workpiece too quickly - this causes poor penetration with a “stringy” and incomplete weld deposit. Slag is very difficult to remove.

5 Amperage too low - this causes poor penetration and causes the electrode to stick to the workpiece 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 burnt in the workpiece. 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.



8.0 MAINTENANCE AND SERVICING

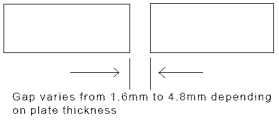
Your CLARKE arc welder is a simple and robust unit, requiring virtually no maintenance other than the guidelines shown below:
Keep the ventilation holes in welder clean to avoid the build up of dirt and oxides inside the machine, this can reduce machine output.
Check all cables periodically; they must be in a good condition and free of cracks or cuts.
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
IMPORTANT: unplug the welder before cleaning.
Should you have a problem with your machine contact your local service agent or CLARKE POWER PRODUCTS, Inc. at (800)227-9603

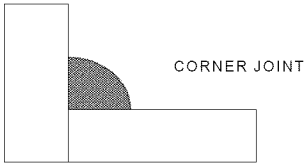
9.0 WELDER DOESN'T WORK?

PROBLEM	PROBABLE CAUSE	POSSIBLE SOLUTION
Power source stops.	Thermostatic overload activated due to overload.	The thermostatic overload automatically resets when the transformer has cooled (approx. 15 minutes).
Power switch light on but no weld current.	Bad connection between ground clamp and workpiece.	Clean or wire brush the work surface.
Unstable arc.	Impurities on base metal.	Clean with wire brush.
Porous weld.	Dirty base metal.	Clean with wire brush.

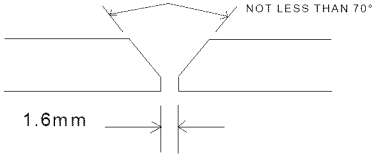
10.0 TYPES OF JOINTS

OPEN SQUARE BUTT JOINT

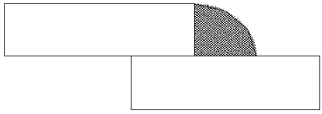




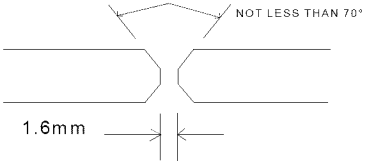
SINGLE VEE BUTT JOINT



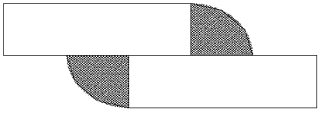
SINGLE FILLET LAP JOINT



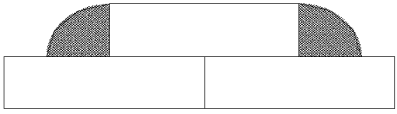
DOUBLE VEE BUTT JOINT



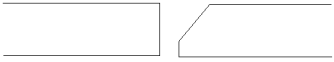
DOUBLE FILLET LAP JOINT



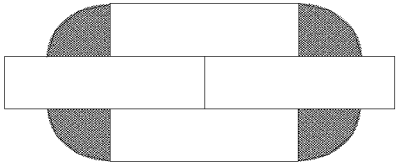
SINGLE STRAP JOINT



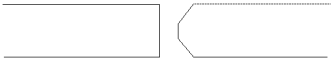
SINGLE BEVEL JOINT



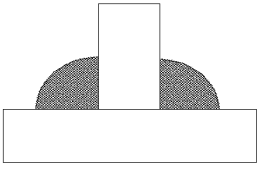
DOUBLE STRAP JOINT



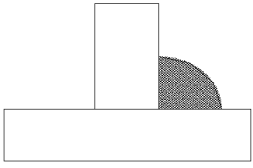
DOUBLE BEVEL JOINT



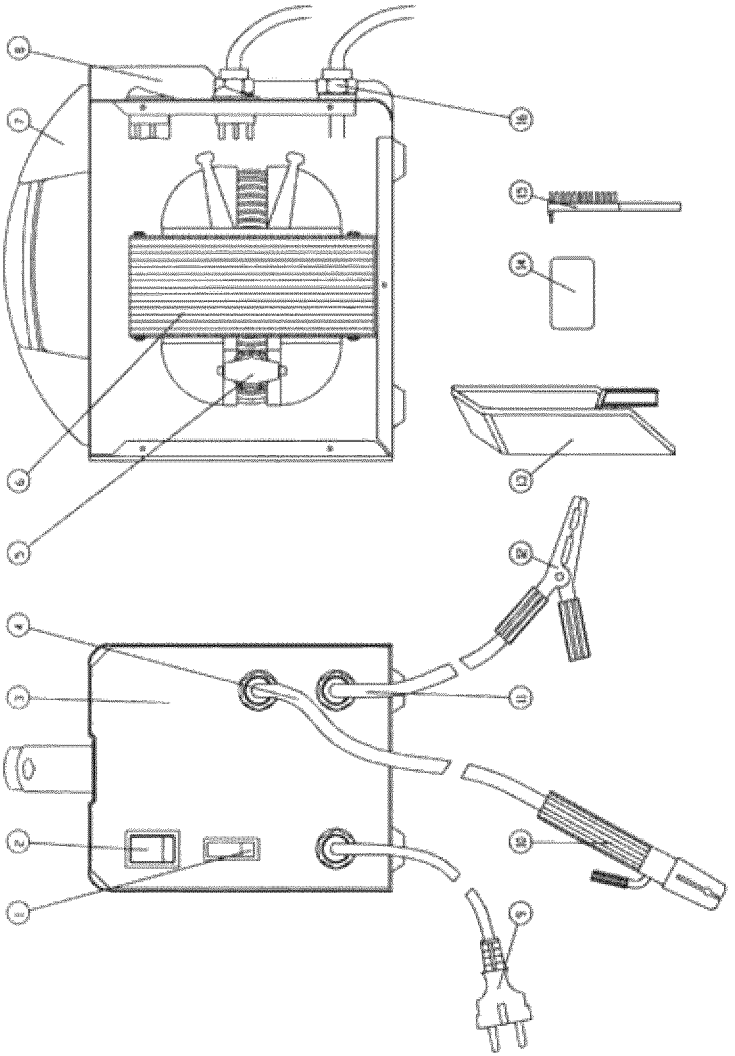
DOUBLE FILLET TEE JOINT



SINGLE FILLET TEE JOINT

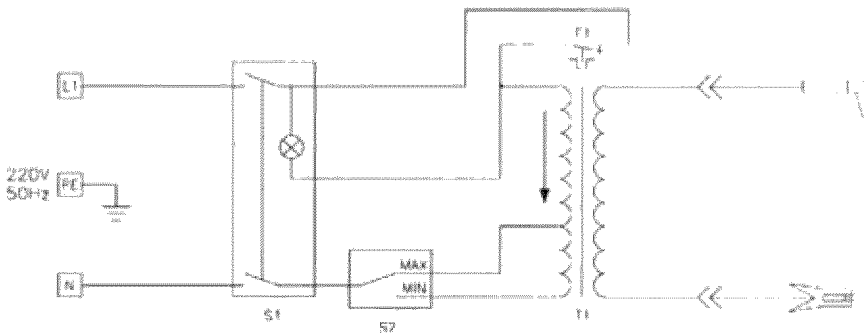


WE6485 - PARTS DRAWING

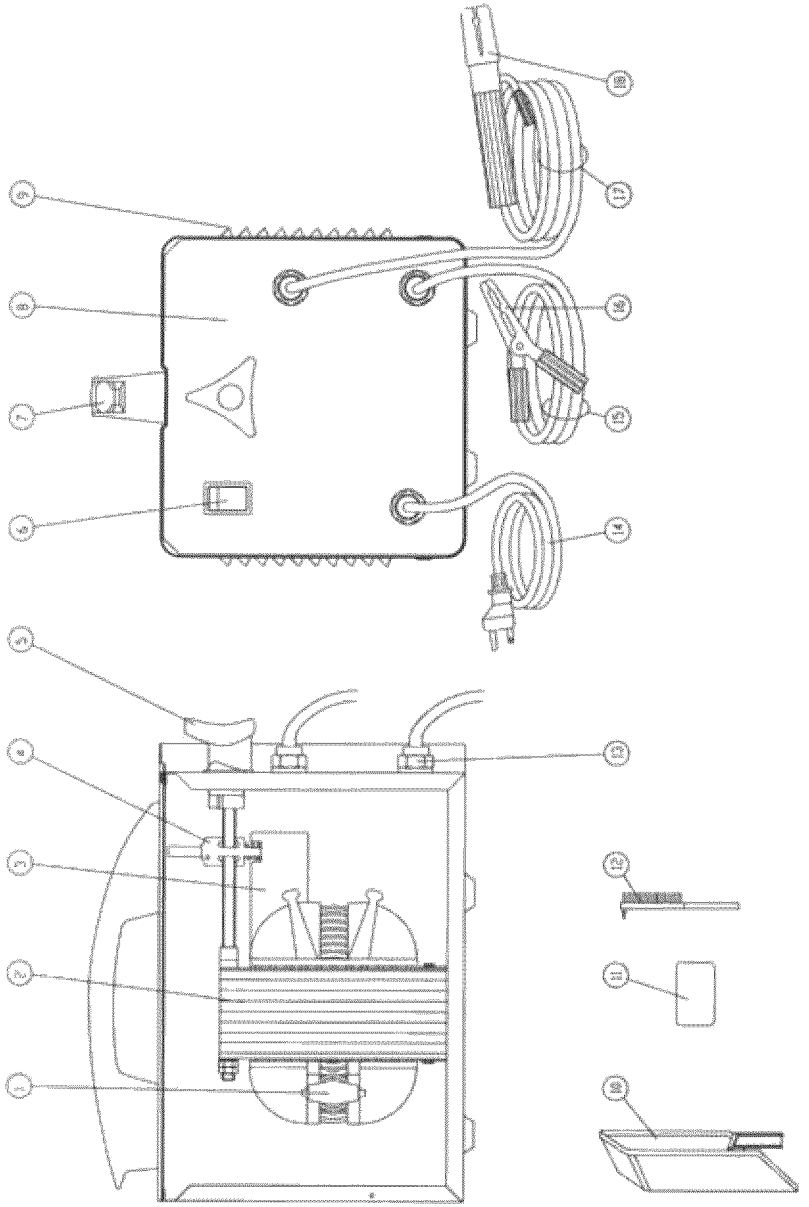


WE6485 - ARC WELDER CLARKE WELD 80E					
1	WE22200006	Welding Current Switch	9	WE20220018	Power Cord 2.5m + American Plug
2	WE22200022	Yellow-Pilot Light Switch	10	WE22110011	Electrode Holder
3	WE33700160	Rear Panel	11	WE43210121	Earth Cable 25sqmm m2
4	WE43205045	Welding cable	12	WE22110005	Earth Clamp 120A
5	WE22210016	Thermostat 127° 16A	13	WE21905002	Plastic Mask
6	WE44110212	Transformer 60Hz 120V	14	WE21905007	Dark Glass
7	WE21600036	Handle	15	WE21905011	Hammer-Brush
8	WE33705290	Upper Panel	16	WE21605010	Cable Clamp

WE6485 - WIRING DIAGRAM

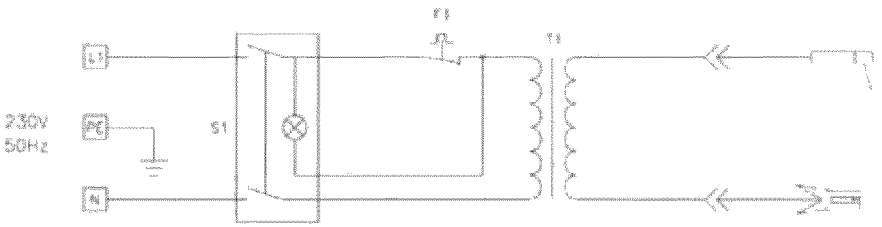


WE6490 - PARTS DRAWING

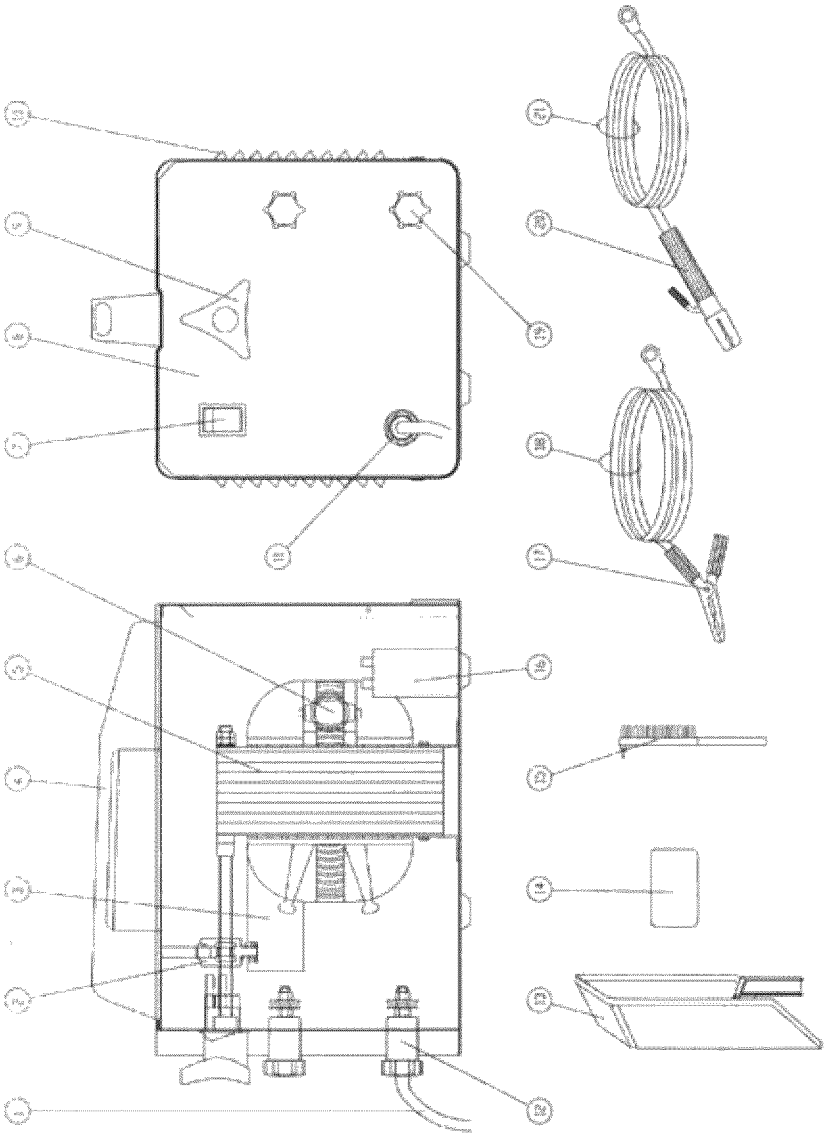


WE6490 - ARC WELDER CLARKE WELD 95E					
1	WE22210016	Thermostat 127° 16A	10	WE21905002	Plastic Mask
2	WE44110202	Transformer 60Hz 120V	11	WE21905007	Dark Glass
3	WE41415910	Shunt	12	WE21905011	Hammer-Brush
4	WE33815001	Shunt Yoke	13	WE21605010	Cable Clamp
5	WE21800047	Hand-wheel	14	WE20220018	Power Cord m2.5 + American Plug
6	WE22200022	Yellow Pilot-Light Switch	15	WE43210021	Earth Cable 10mm² m1.6
7	WE21600035	Handle	16	WE22110005	Earth Clamp 120A
8	WE05000068	Front / Lower Panel	17	WE43205069	Welding Cable 10mm² m2.4
9	WE05000069	Upper Panel	18	WE22110029	Electrode Holder

WE6490 - WIRING DIAGRAM

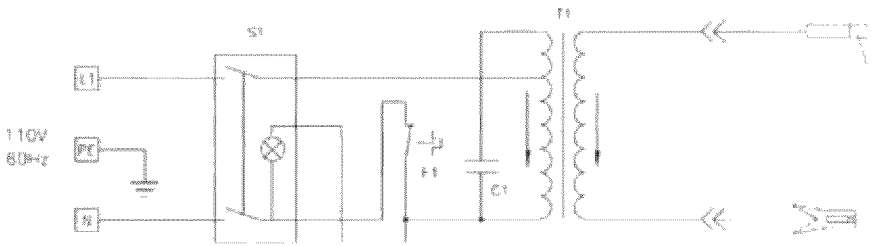


WE6519 - PARTS DRAWING

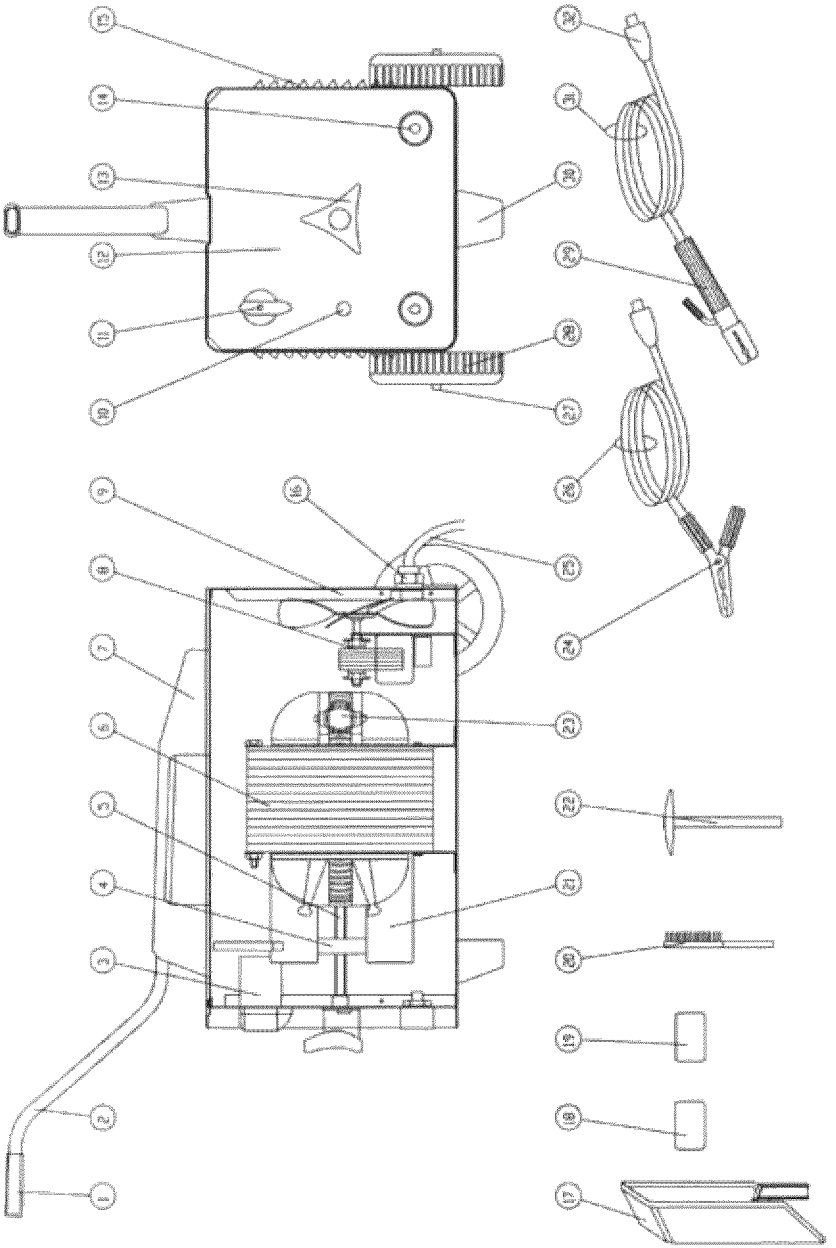


WE6519 - ARC WELDER CLARKE WELD 131E					
1	WE20220018	Power Cord m2.5 + American Plug	12	WE21615012	Insulating Washers
2	WE33815001	Shunt Yoke	13	WE21905002	Plastic Mask
3	WE41415910	Shunt	14	WE21905008	Dark Glass
4	WE21600003	Handle	15	WE21905011	Hammer-Brush
5	WE44110127	Transformer 120V	16	WE22315006	Capacitor 20MF 450V
6	WE22210016	Thermostat127° 16A	17	WE22110017	Earth Clamp
7	WE22200022	Yellow Pilot Light Switch	18	WE43210090	Earth Cable 10mm² m1.6
8	WE33700104	Lower Panel	19	WE21800042	6 Lobes Handdwheel
9	WE21800046	3 Lobes Handwheel	20	WE22110011	Electrode Holder
10	WE33705015	Upper Panel	21	WE43205046	Welding Cable m2.4
11	WE21605010	Cable Clamp			

WE6519 - WIRING DIAGRAM

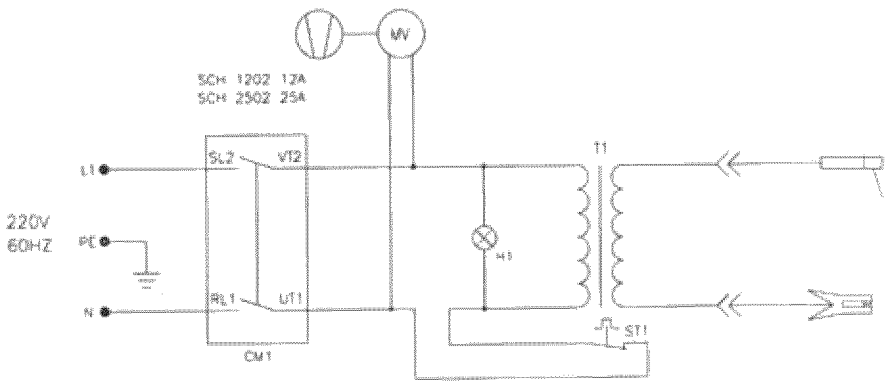


WE6534 - PARTS DRAWING

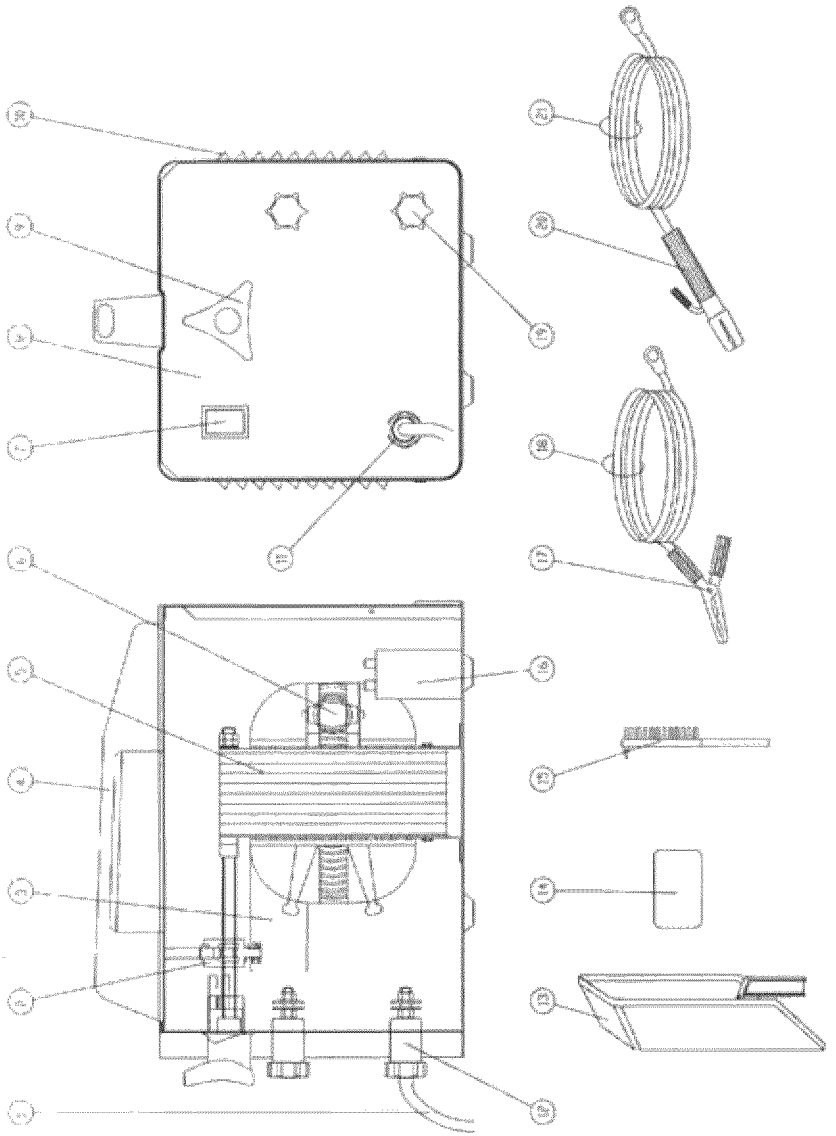


WE6534 - ARC WELDER CLARKE WELD 240TE					
1	WE21600006	Handle Extension Knob	17	WE21905004	Carton Mask
2	WE33725015	Handle	18	WE21905006	Transparent Glass
3	WE22205078	Switch	19	WE21905007	Dark Glass
4	WE33815005	Shunt Yoke	20	WE21905009	Wire Brush
5	WE33810031	Regulator Screw + Washer	21	WE41415901	Shunt
6	WE44110064	Transformer 230V	22	WE21905010	Hammer
7	WE21600003	Handle	23	WE22210021	Thermostat 127° 45A
8	WE22800035	Fan	24	WE22110007	Earth Clamp
9	WE33700035	Lower Panel	25	WE20220070	Input Cable m3
10	WE22610017	Green Pilot Lamp	26	WE43210014	Earth Cable 25mm²
11	WE21690015	Switch Knob	27	WE55200014	Wheels-axle
12	WE33710061	Front Panel	28	WE21625016	Rear Wheel
13	WE21800015	3 Lobes Handwheel	29	WE22110010	Electrode Holder
14	WE22100002	Dinse Plug 25mm²	30	WE21610009	Plastic Foot
15	WE33705021	Upper Panel	31	WE43205014	Welding Cable 25mm² m3
16	WE21605010	Cable Clamp	32	WE22100001	Dinse Plug 25mm²

WE6534 - WIRING DIAGRAM

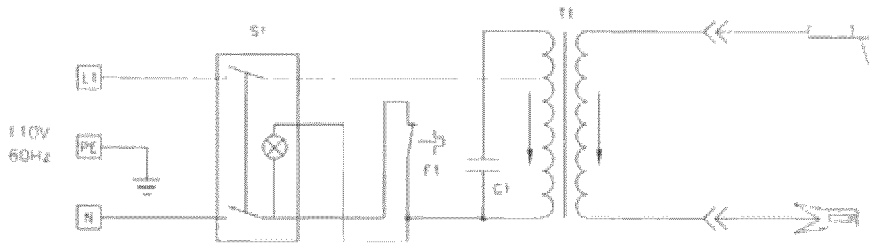


WE6522 - PARTS DRAWING



WE6522 - ARC WELDER EASI ARC 150 SGS					
1	WE21800046	Handwheel	10	WE21605010	Cable Clamp
2	WE33815001	Shunt Yoke	11	WE41415911	Shunt
3	WE21600003	Handle	12	WE21905002	Plastic Mask
4	WE44110114	Transformer 230V	13	WE21905008	Dark Glass
5	WE22210016	Thermostat 127° 16A	14	WE21905011	Hammer-Brush
6	WE22200002	Green Pilot Light Switch	15	WE20220018	power Cord m2.5 + American Plug
7	WE33700104	Lower Panel	16	WE22110011	Electrode Holder
8	WE43205045	Welding Cable 10sqmm m2.4	17	WE22110017	Earth Clamp
9	WE33705015	Upper Panel	18	WE43210088	Earth Cable 10mm² m1.6

WE6522 - WIRING DIAGRAM



WE6485 80E - WE6490 95E
WE6519 131E - WE6534 240TE
WE6522 EASY ARC 150
OPERATING MANUAL