



Electrak[®]

Tractor

INSTRUCTIONS

ARC WELDER

Model No. AP90



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WARNING

1. The arc welder must only be plugged into the PTO outlet on the Elec-Trak tractor. To use the arc welder with a power source other than the Elec-Trak tractor may cause the unit to malfunction, and injure the welder.
2. The Elec-Trak arc welder should not be used without adequate protective gloves and helmet as provided in the Welder Accessory Kit, AP92, or equivalent. A protective apron or heavy clothing, not affected by welder sparks, should also be worn. (See Page 5 , Clothing.)
3. Never look at the arc without approved eye protection such as a welder's helmet, which is fitted with at least a No. 10 filter plate. Warn bystanders not to look at the arc. (See the Safe Welding Practices section of these instructions.) Serious personal injury could result from failure to observe these precautions.
4. Use the arc welder only for its intended purpose of welding.
5. To prevent accidental tractor movement while welding, put the range selector in neutral and set the parking brake.
6. Unless you are thoroughly experienced in welding practices, do not weld parts where failure of the weld might result in hazard or injury.
7. Do not weld on parts whose temperature is below 60 F, or on wet material.

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

WELDER DESCRIPTION

The three-heat Elec-Trak Welder, AP90, is designed to give safe and efficient service. The heat ranges are selected by connecting the lead of the electrode holder to one of the three negative terminals on the front of the welder. Figure 1 shows the front of the welder with the protective cover removed. Figure 2 shows the medium range being connected. Make sure connections are tight to prevent arcing.



Figure 1 Welder Front and Back with Protective Covers Opened



Figure 2 Welder and Electrode Holder Cable.

The heavy-duty electrode holder is fully insulated and has jaws which will hold the welding rod in seven different positions. The perpendicular position, being the most frequently used, has duplicate accommodations. The holder can be used in either the left or right hand, which gives additional versatility. The jaws are covered with a high quality of heat-resistant

plastic, but to avoid damaging the protectors and the jaws, never burn the rod any closer to the jaws than 1-1/4 inch.

CAUTION: While welding, make certain that the cable is not beneath the work area where pieces of hot metal may drop and burn its insulation.

Figure 3 illustrates proper connection of the ground clamp cable on the rear side of the welder. This is the positive welder terminal. Although the ground clamp has a heavy jaw spring, it may be necessary to twist the clamp from side to side a few times on dirty or rusty metal so that the jaws will make contact with clean metal.

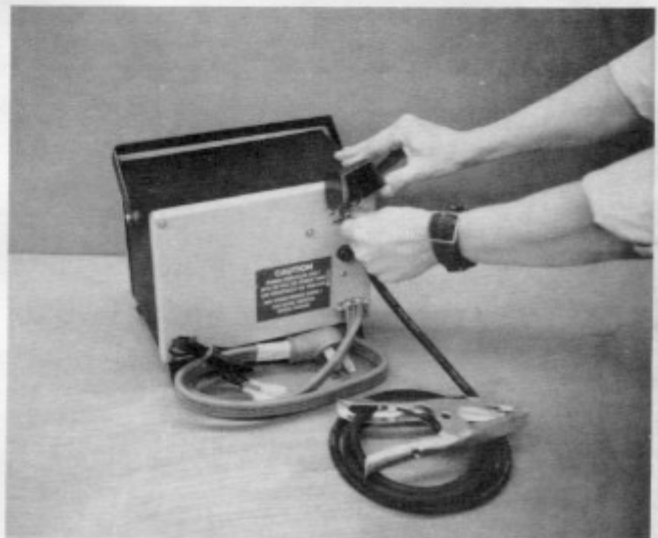


Figure 3 Back View of Welder Showing Ground Clamp Cable and Cord.

CAUTION: The cable on the ground clamp is the same material as on the electrode holder, so the same caution must be used regarding hot metal burning its insulation.

NOTE: Replace cables only with replacement parts listed on page 12. The cables are designed for optimum performance in the total Elec-Trak tractor system.

ACCESSORIES

The Welder Accessory Kit, AP92, contains a high-quality fully adjustable helmet, full-cuffed leather gloves, and an assortment of welding rods suitable for mild steel. (See Fig. 4).



Figure 4 Welder Accessory Kit

HELMET

The helmet is equipped with a No. 10 filter plate which keeps the ultraviolet rays from the arc down to an acceptable level. On the outside of the filter lens is a clear cover plate to protect the filter from the splatter, dirt, and damage brought about by use. This clear plate should be replaced whenever necessary to provide maximum vision.

The helmet head band is adjustable in two directions to give comfort to any operator. The adjustment indicated as letter A in Fig. 5 accommodates various head sizes, while the adjustment at B can be used to adjust the level of the plate in front of the eyes. The nuts referenced as C, adjust the "flip-down" tension of the face shield relative to the head band, which allows a "hands-off" ability to raise and lower the face shield for rapid welding.

WELDING RODS

The electrodes (welding rods) included with your accessories, are a starter supply to be used in gaining experience with the Elec-Trak Welder. These rods are for mild steel. Additional rods should be purchased to meet the job requirements.

NOTE: Welding electrode must be kept dry to prevent poor operation during use. Store welding electrodes indoors in a warm, dry location.

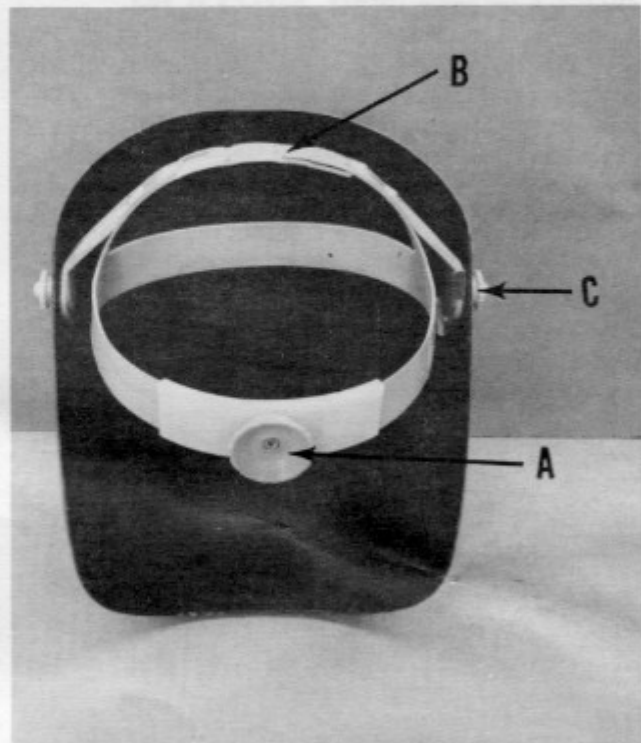


Figure 5 Helmet Headband Adjustment

FUNDAMENTALS OF ARC WELDING

FUSION OF METAL

Welding is the process of uniting metals by melting and fusing them together by heat. In arc welding, this heat is produced by the energy released when an electric current is forced to jump a gap in the circuit. The circuit ground consists of the metals being welded together, known as the "parent" or "base" metals. The other pole is the welding rod, or "electrode". These electrodes are made of steel, cast iron, and special alloys required for various welding jobs. When an arc is produced between the electrode and parent metal, heat is released, which melts down both the parent metal and rod metal, forming the "bead". Penetration is the term used to describe the depth to which the rod metal mixes and fuses with the parent metal. The average welding job requires a medium amount of penetration. The amount of heat produced is controlled by the current applied to the arc, and the length of the arc. The shorter the arc, the higher the temperature, and vice versa. In the case of the Elec-Trak welder, the current is determined by the selection of one of the three taps on the front of the welder (High, Med, Low). Figure 6 illustrates the principles of arc welding.

