

TROUBLE SHOOTING ARC WELDING EQUIPMENT

Problem: Welder will not start (Starter not operating)

Cause: Power circuit dead.

Remedy: Check voltage.

Cause: Broken power lead.

Remedy: Repair.

Cause: Wrong supply voltage.

Remedy: Check nameplate against supply.

Cause: Open power switches

Remedy: Close.

Cause: Blown fuses.

Remedy: Replace.

Cause: Overload relay tripped.

Remedy: Let set cool. Remove cause of overloading.

Cause: Open circuit to starter button.

Remedy: Repair.

Cause: Defective operating coil.

Remedy: Replace.

Cause: Mechanical obstruction in contactor.

Remedy: Remove.

Problem: Welder will not start (Starter operating)

Cause: Wrong motor connections.

Remedy: Check connection diagram.

Cause: Wrong supply voltage.

Remedy: Check nameplate against supply.

Cause: Rotor stuck.

Remedy: Try turning by hand.

Cause: Power circuit single-phased.

Remedy: Replace fuse; repair open line.

Cause: Starter single-phased.

Remedy: Check contact of starter tips.

Cause: Poor motor connection.

Remedy: Tighten.

Cause: Open circuit in windings.

Remedy: Repair.

Problem: Starter operates and blows fuse

Cause: Fuse too small.

Remedy: Should be two to three times rated motor current.

Cause: Short circuit in motor connections.

Remedy: Check starter and motor leads for insulation from around and from each other.

Problem: Welder runs but soon stops

Cause: Wrong relay heaters

Remedy: Renewal part recommendations

Cause: Welder overloaded

Remedy: Considerable overload can be carried only for a short time

Cause: Duty cycle too high

Remedy: Do not operate continually at overload currents

Cause: Leads too long or too narrow in cross section

Remedy: Should be large enough to carry welding current without excessive voltage drop

Cause: Power circuit single-phased

Remedy: Check for one dead fuse or line

Cause: Ambient temperature too high

Remedy: Operate at reduced loads where temperature exceeds 100° F

Cause: Ventilation blocked

Remedy: Check air inlet and exhaust openings

Problem: Welding arc is loud and spatters excessively

Cause: Current setting too high

Remedy: Check setting and output with ammeter

Cause: Polarity wrong

Remedy: Check polarity, try reversing, or an electrode of opposite polarity

Problem: Welding arc sluggish

Cause: Current too low

Remedy: Check output, and current recommended for electrode being used

Cause: Poor connections

Remedy: Check all electrode-holder, cable and ground-cable connections. Strap iron is poor ground return

Cause: Cable long or too small

Remedy: Check cable voltage drop and change cable

Problem: Touching set gives shock

Cause: Frame not grounded

Remedy: Ground solidly

Problem: Generator control fails to vary current

Cause: Any part of field circuit may be short circuited or open circuited

Remedy: Find faulty contact and repair

Problem: Welder starts but will not deliver welding current

Cause: Wrong direction of rotation

Remedy: See INITIAL STARTING

Cause: Brushes worn or missing

Remedy: Check that all brushes bear on commutator with sufficient tension

Cause: Brush connections loose

Remedy: Tighten

Cause: Open field circuit

Remedy: Check connection to rheostat, resistor, and auxiliary brush studs

Cause: Series field and armature circuit open

Remedy: Check with test lamp or bell ringer

Cause: Wrong driving speed

Remedy: Check name plate against speed of motor or belt drive

Cause: Dirt, grounding field coils

Remedy: Clean and reinsulate

Cause: Welding terminal shorted

Remedy: Electrode holder or cable grounded

Problem: Welder generating but current falls off when welding

Cause: Electrode or ground connection loose

Remedy: Clean and tighten all connections

Cause: Poor ground

Remedy: Check ground-return circuit

Cause: Brushes worn worn off

Remedy: Replace with recommended grade. Sand to fit. Blow out carbon dust.

Cause: Weak brush spring pressure.

Remedy: Replace or readjust brush springs

Cause: Brush not properly fitted

Remedy: Sand brushes to fit

Cause: Brushes in backwards

Remedy: Reverse

Cause: Wrong brushes used

Remedy: Renewal part recommendations

Cause: Brush pigtails damaged

Remedy: Replace brushes

Cause: Rough or dirty commutator

Remedy: Turn down or clean commutator

Cause: Motor connection single-phased

Remedy: Check all connections