

Welding and Cutting

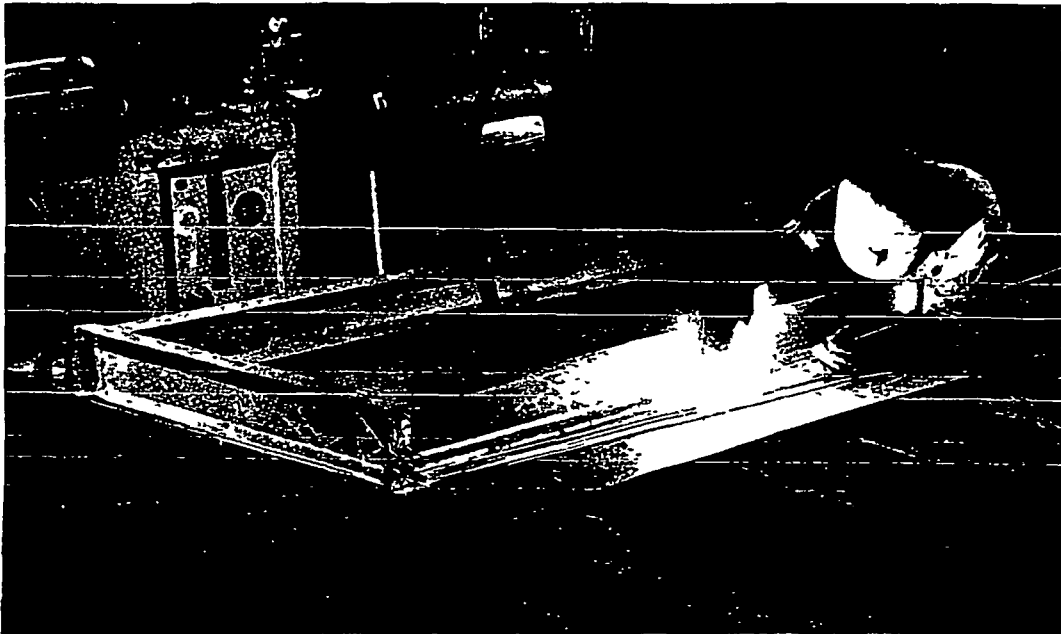


FIG 31-8 – Cable and hose are suspended to keep them clear of work area on this gas-shielded arc welding operation

light, extremely flexible cables are used, holders may be attached directly to the work lead running to the machine. On heavier work, welders generally prefer a short length attached to the holder, which is more flexible than the main work lead. Properly insulated cables of weight and flexibility which will not inconvenience the welder are available.

Machine welding

Arc welding may also be done automatically or semiautomatically to increase the speed of welding and provide more uniform weld quality. Machine welding is especially efficient for long welds or where a high rate of production is involved and the work can be jugged. The rate of electrode feed and arc length are controlled by mechanical or electrical means.

If speed of travel or feed of the work is controlled manually, the operation is semi-automatic. If the work is fed or the arc traverses the work automatically, the operation is automatic.

Insulation of current-carrying parts, cables,

etc., applies to machine welding as well as to manual welding.

Mechanical power-transmission apparatus, such as gears, shaftings, couplings, and clutches, and other moving parts to which operators may be exposed should be guarded (see Chapter 24, "Principles of Guarding and Transmission Guards").

Protection against electric shock

Although open-circuit voltages on standard arc-welding units are not high compared to those of other processes, they cannot be neglected as a potential hazard. Normally, the work setup is such that the work is grounded, and unless care is exercised, the welder or operator can easily become grounded.

The voltage between the electrode holder and the ground, during the "off" arc or "no-load" period, is the open circuit voltage. Unless the welder or operator is properly instructed and uses the equipment provided for his protection, he can become exposed to this voltage while changing electrodes, setting up work, or changing working posi-