hose in welding and cutting operations

1 Do not use unnecessarily long hose—it's hard to purge properly When long hose must be used, see that it does not become kinked or tangled and that it is protected from being run over by trucks or otherwise damaged Where long hose must be used in areas exposed to vehicular or pedestrian traffic, suspend it overhead, high enough to permit unobstructed passage On construction work it is sometimes advisable to use long hose rather than to hoist cylinders and fasten them to building structures

2 Repair leaks at once Besides being a waste, escaping fuel gas may become ignited and start a serious fire, it may also set fire to the welder's clothing Repair hose leaks by cutting the hose and inserting a splice Don't try to repair leaky hose by taping

3 Examine hose periodically and frequently for leaks and worn places, and check hose connections Test for leaks by immersing the hose under normal working pressure in water

4 Protect hose from flying sparks, hot slag, other hot objects, and grease and oil Store hose in a cool place

5 A single hose having more than one gas passage, a wall failure of which would permit the flow of one gas into the other gas passage, is not recommended When parallel links of oxygen and acetylene hose are taped together for convenience and to prevent tangling, not more than 4 in of each 8 in of hose should be taped

6 The use of hose with an external metallic covering is not recommended In some machine processes and in certain types of operations, hose with an inner metallic reinforcement, which is exposed neither to the gas passage nor to the outside atmosphere, is acceptable Short lengths of metal covered hose which are a part of the machine or the plant are acceptable

7 If a flashback occurs and burns the hose, discard the burned section Purge new hose before connecting it to the torch and regulator

Torches

Torches are constructed of metal castings, forgings, and tubing Usually, they are made of brass or bronze, but stainless steel may also be used They should be of substantial design to withstand the rough handling they sometimes receive It is best to use only those torches listed (or approved) by an agency such as Underwriters' Laboratories, Inc , or Factory Mutual

The gases enter the torch by separate inlets, go through valves to the mixing chamber, and then to the outlet orifice, located in the torch tip Several interchangeable tips are provided with each torch and have orifices of various sizes according to the work to be done

The cutting torch, unlike the welding torch, uses a separate jet of oxygen in addition to the jet or jets of mixed oxygen and fuel gas The jets of mixed gases are for preheating the metal, and the pure oxygen jet is for cutting The flow of oxygen to the cutting jet is controlled by a separate valve

There are two types of torches in general use the "injector" or low pressure type, and the "pressure" or medium pressure type In the injector torch, the acetylene is drawn into the mixing chamber by the velocity of the oxygen The acetylene may be supplied either from a low pressure generator or a medium pressure generator or from cylinders In the medium pressure torch, the gases enter under pressure, therefore, the acetylene is supplied from cylinders or from a medium pressure generator

In the operation of torches several precautions should be observed

1 Select the proper welding head or mixer, tip or cutting nozzle (according to charts supplied by the manufacturer), and screw it firmly into the torch

2 Before changing torches, shut off the gas at the pressure-reducing regulators and not by crimping the hose (Also see Fig 29-4)

3 To discontinue welding or cutting for a few minutes, closing only the torch valves is permissible If the welding or cutting is to be stopped for a longer period (during lunch or overnight), proceed as follows
   a) Close oxygen and acetylene cylinder valves