

PERSONAL PROTECTIVE EQUIPMENT

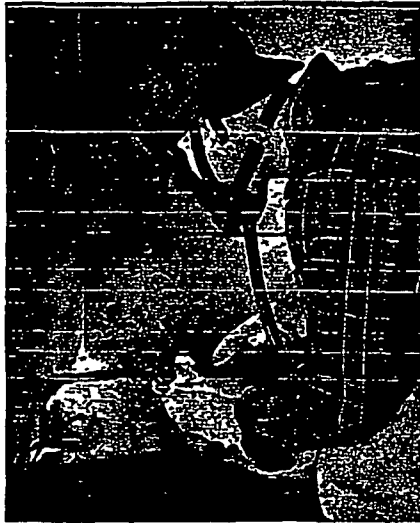


Fig. 36-17a. Welder uses air line respirator for protection against fumes.

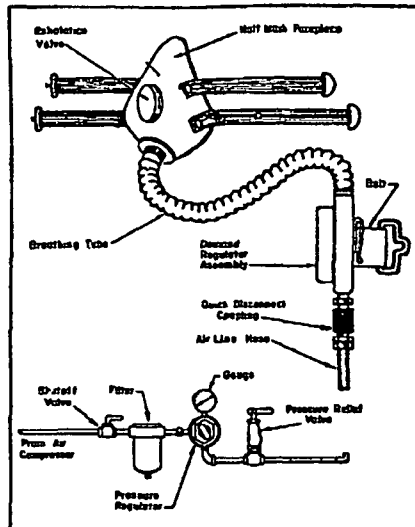


Fig. 36-17b. Diagram shows parts and connections for air line respirator.

The oxygen-generating (rebreathing) apparatus consists of a chemical canister, a breathing bag that acts as a reservoir, a facepiece with tube assembly, and a relief valve and check valves to regulate flow in accordance with respiratory requirements. The chemical in the canister evolves oxygen when contacted by the moisture and carbon dioxide in the exhaled breath, and also retains the carbon dioxide and moisture (moisture retention is important as it permits fog-free lenses). The apparatus is light in weight and contains no intricate parts. One model of this type of apparatus is approved by the US Bureau of Mines for 30 minutes of service life (Fig. 36-16c).

However, the exothermic reaction that generates oxygen evolves significant heat (the canister surface may reach considerably above 200 F) which might act as an auto-ignition source to some gases such as carbon disulfide. The apparatus produces more oxygen than the user requires, so venting must be done periodically. Some models do this automatically but with others it must be done by hand. The apparatus

and canister should normally be stored at above-freezing temperatures and be completely started before being worn and used at subzero temperatures.

A new canister should be used each time the apparatus is worn, for it is dangerous to enter a hazardous atmosphere (or even engage in a drill) with a previously opened canister. Used canisters should be promptly disposed of in accordance with instructions printed on them. Canisters should be kept away from combustibles so that residual oxygen will not have a chance to activate them. Only copious amounts of clean water should be used to destroy a canister.

It is important that no one wear self-contained breathing apparatus unless he is physically fit and well trained. Physical fitness and training are essential because poor physical condition of users and lack of proper training have been responsible for injuries and deaths. After the initial training, men should receive refresher training at least every six months in order to maintain efficiency.

The facepiece or mouthpiece and nose