

CIVIL DEFENCE ORGANISATION
SOUTH AUSTRALIA

THE REMOTE BREATHING APPARATUS

INTRODUCTION

The remote breathing apparatus (R.B.A.) issued to the Rescue Section has been designed to impose the minimum amount of restriction on the wearers movements; consequently he can effect more speedily the rescue of casualties from localised areas, where there is a high concentration of coal gas, or industrial gases against which the General Service respirator gives inadequate protection, or a deficiency of oxygen, such as may be found in damaged basements or under smouldering debris. Under certain circumstances, the presence of large quantities of irritant smoke may also necessitate the wearing of the remote breathing apparatus.

The equipment consists of:-

- (a) A service respirator facepiece, a haversack, with a long flexible connecting tube coupled by means of a hose union to a 40 ft. length of 1" internal diameter wire bound rubber hose; the flexible connecting tube has a small canvas becket attached to it at mid-length. This is fitted with a hook or cord to enable the connecting tube to be fastened to a buttonhole in the wearers clothing to prevent the tube catching in obstacles with the consequent risk of displacement of the facepiece.
- (b) A 6-ft. length of sash cord is attached for securing the union and of the 40-ft. hose length to the body of the wearer.
- (c) A signalling line for attaching to the wearer.
- (d) A respirator canister connected to the 40-ft. hose.

This equipment calls for a team of three for its operation:-

- No. 1 - the wearer and rescuer
- No. 2 - who holds the signalling line
- No. 3 - who is responsible for the haversacks and pays out the coil of hose.

If possible, a fourth man should be standing by with a second set of R.B.A. equipment at the ready, should the rescuer require assistance. Even if the man is not available the second set of equipment must be kept close handy.

During the rescue operation, No. 2 keeps as close to No. 1 as practicable and assists with the paying out and hauling of the hose. He normally shouts instructions to No. 1 and awaits his signals by pulls on the signalling line. No. 3 is responsible for paying out the hose and seeing that the respirator container is clear of the ground and in fresh air.

ASSEMBLY AND STOWAGE

The flexible connecting tube of the respirator facepiece has a male hose union fitted at the end. This is connected to the female union at one of the 40ft. hose, care being taken to ensure that when assembling, the washer is in place within the female coupling.

The 40ft. hose is secured to the right rear side of the wearer by means of a 6 ft. length of sash cord. The cord is middled and a clove hitch formed around the union, joining the respirator breathing tube to the 40 ft. hose.

A bowline is placed on one end, the other end passing around the waist of the wearer, through the bowline and made off with two half hitches. (The bowline allows apparatus to be rapidly removed, should the need arise.)

The apparatus should be assembled permanently ready for immediate use, the facepiece and the container stowed in the haversack and the length of hose, with the cord attached, coiled.

FITTING

It is important to note that full protection will only be obtained if the facepiece is properly fitted to the face of the wearer. The head harness should therefore be adjusted so that a correct fitting is obtained for the two members of the party who will normally wear the apparatus, and it should be ensured that the correct fitting has been obtained, preferably by testing the apparatus in a gas chamber as a depot routine measure. Operationally the wearer will, immediately after putting on the facepiece, himself test the fit for gas tightness by squeezing the corrugated tube to cut off his air supply.

SIGNALS

Under normal conditions it should be possible for the rescuer to hear orders shouted to him from outside, and in most cases he, by shouting into his facepiece, can communicate with the No. 3 man paying out the hose. It is important, therefore, that this man keeps the container close to his ear.

If this means of communication with the rescuer is not possible, it is imperative that the attendant No. 2 pays careful attention to any pull he may receive on the line. In some cases it may be difficult to distinguish the difference between deliberate signals and normal or accidental pulling on the line during the rescue operation. If in doubt the No. 2 man should shout to No. 1 for a repetition.

The following are the two signals which should be made by No.1:-

Three distinct pulls - haul in air hose.

A series of rapid jerks (not less than 5) - I need assistance.

PRECAUTIONS

Every member of the Rescue Section must be trained in the use of this apparatus. Whenever one man is using a set, a second set must always be held in reserve at instant readiness (two sets are carried on each Rescue Vehicle) with the second rescuer wearing it, apart from putting on the facepiece, in case the first man requires help. If both sets are in use, a third should be obtained from another Rescue Party or sent for as a stand-by.

PRACTICE DRILL

It is suggested that practice in the following drill for utilising the apparatus will enable rescuers to make the best use of the apparatus, if and when the need arises for its use. The team consists of three men, Nos. 1, 2 and 3, whose principal duties have already been outlined.

No. 1 places cord around his waist (assisted by No. 3) and makes it fast. He then removes the facepiece from its haversack and hands the haversack to No. 3. Next he makes fast the flexible connecting tube from the facepiece against his chest by securing the hook or cord (which is found attached to the small canvas bucket half-way down the tube) to a convenient buttonhole of his clothing.

He then secures his signalling line around his waist using a bowline.

No. 3 holds the container and pays out the hose (assisted by No. 2 if possible).

No. 2 ensures that the signalling line is securely tied around the waist of No. 1. He then pays out this line and acts as immediate assistant to No. 1 for the purpose of signalling and communication.

No. 1 receives his instructions from the party leader as to the work involved and puts on his facepiece (by moving his helmet to the back of his head so that the chin-strap remains underneath his chin, adjusting the facepiece, and testing for gas tightness by squeezing the flexible connecting tube, then replacing his helmet on his head and adjusting the chin-strap).

No. 1 takes in with him a hand-lamp and such small items of equipment as may be necessary.

After the rescue has been completed and before the facepiece is returned to its haversack the eye pieces must be anti-dimmed. This should also be done periodically in order that the sets are always ready for immediate use. Normal precautions should also be observed regarding periodical cleansing and disinfection of facepieces.

PROTO REMOTE BREATHING APPARATUS

This is an apparatus widely used in the Forces, mines and various fire services. It is of an advanced nature, being completely self-contained with oxygen cylinders. The endurance limit is two hours, though, due to the weight of the apparatus, the wearer must be of a good physique to work comfortably for that period. Owing to the expense and the difficulty there would be in replenishing oxygen cylinders in times of disaster, it is not envisaged that the equipment would be in wide use with rescue parties. However, it is necessary that rescue personnel know something of this type of equipment.

ACCIDENTAL CASES

Some of the gases which may be encountered in effecting the rescue party are:-

- (a) Coal gas
- (b) Ammonia Fumes
- (c) Sewer Gas
- (d) Carbon Monoxide.

CONCLUSION

The object has been to teach the use of the R.B.A. and the accidental gases encountered in rescue work.

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