

Chapter 7

RESPIRATOR, AIRCREW, TYPE A.R.3

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Introduction

1. The respirator is intended to be used by aircrew engaged on missions, the nature of which renders its use essential or desirable. Respirators are made of a standard size but the design enables a correct fit to be achieved on a wide range of face sizes. ◀ Two variants are in use, the later having a circlip fitted in the valve mount to secure the valve outlet unit under the correct compression. ▶ The respirators are issued on a personal basis and are not to be transferred from one individual to another without being properly disinfected and refitted. Other equipment worn at the same time as the respirator is not to be allowed to interfere with the fit of the respirator on the face.

Fitting instructions

2. (1) Support the weight of the container by using the clip, hanging it from some convenient part of the clothing, with the microphone and socket hanging loose.
- (2) Hold the two bottom straps of the harness between the thumbs and forefingers and push the chin well into the lower portion of the facepiece with the nose and mouth in the nose-cup.
- (3) Pull the harness over the top of the head and position the pad centrally on the head.
- (4) Check that the straps are not twisted and are in even tension.

(5) Blow out hard and then breathe normally.

(6) Adjust the harness as necessary to eliminate any escape of air occurring after initial fitting. Achieve correct fit by adjusting all the straps, not any one.

(7) Correct adjustment is such that the respirator will not slip as the wearer moves his head when his face is warm and moist.

Removing the respirator

3. Insert two fingers between each side of the facepiece and the chin and remove the respirator with an upward and outward movement and then unclip the container from the clothing.

Servicing

4. *After use.* Wipe the inside of the facepiece and nose cup dry with a piece of soft, non-fluffy cloth, taking care not to disturb the disc valve and microphone assembly inside the nose cup. Apply anti-dimming compound to the internal surface of the perspex visor in accordance with the instructions printed on the cylinder holding the compound and cloth. Ensure that the rubber of the nose cup and mask are kept free from the compound.

5. *Periodic* (after each 10 hr. use).

- (1) Remove the four rubber washers

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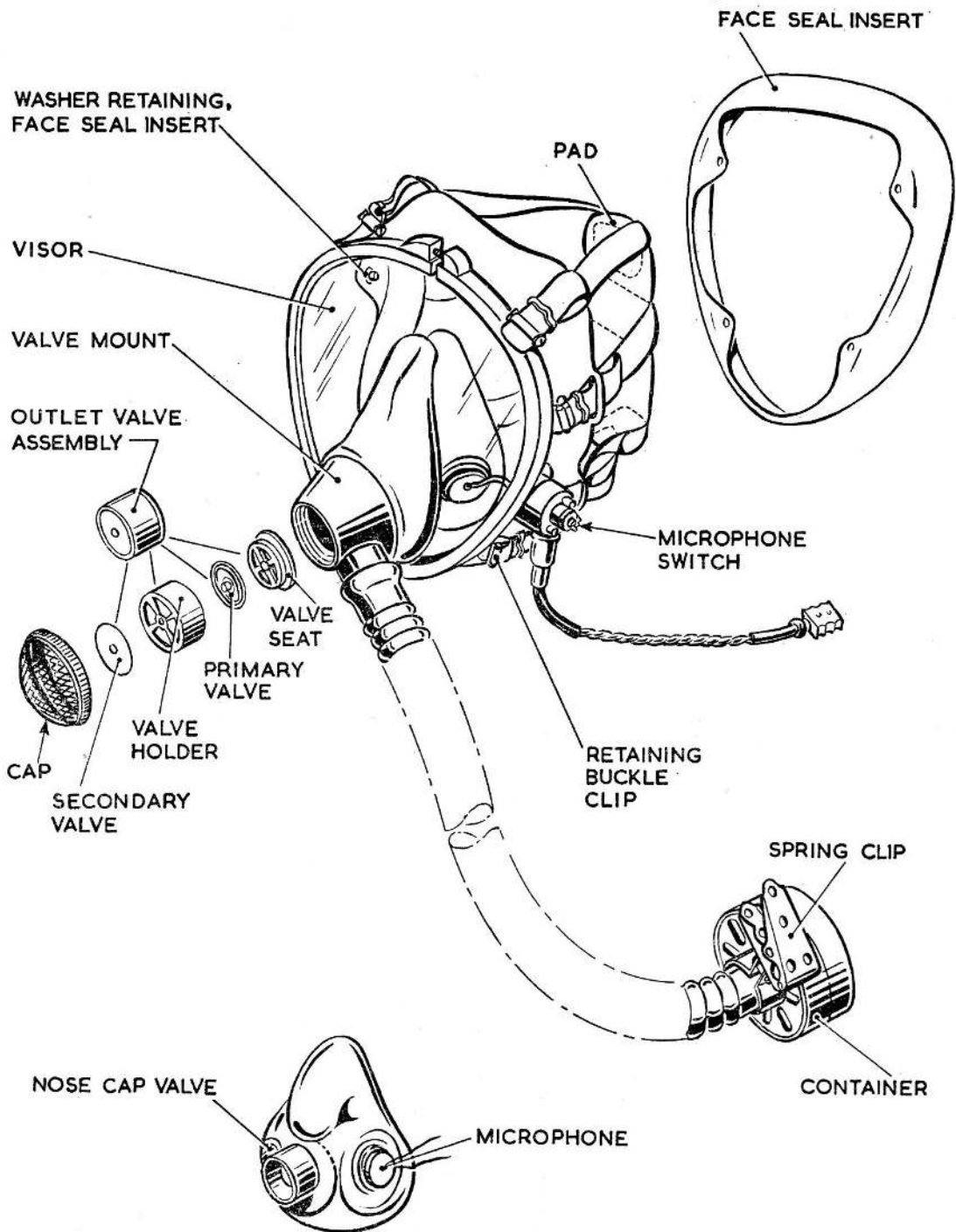


Fig. 1 Respirator, aircrew, Type A.R. 3

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which retain the face-seal insert and pull the insert over the heads of the four rubber studs. Withdraw the insert from the mask fitting channel. Wash the insert in soapy water, rinse in clean water until all signs of soap are removed, squeeze out as much water as possible and allow the insert to dry naturally on a flat surface away from artificial heat.

(2) Unscrew the metal cap from the valve mount and withdraw the valve outlet assembly. Remove the secondary (disc) valve and the valve seat from the metal holder and pull the primary (stepped) valve off the pin in the valve seat. Wash each component in soapy water, rinse in clean water and allow to dry naturally on a flat surface away from all sources of artificial heat.

◀ **Note . . .**

When dismantling respirators fitted with the circlip, this must be removed before the metal cap can be unscrewed. ▶

(3) Detach the disc valve from the metal holder in the inside of the nose cup and wash and dry it as described in sub-para. (2).

(4) Wipe the interior of the facepiece, including the face-seal channel and nose cup with clean water, taking care not to disturb the microphone components and leads, and allow to dry naturally.

(5) When the components are completely dry, replace the face-seal insert in the mask channel, re-assemble the valve outlet components in the correct order (fig. 1), replace the assembly in the valve mount and screw the metal cap firmly into the mount. Replace the disc valve on the rivet holder in the nose cup.

◀ **Note . . .**

When reassembling respirators fitted with the circlip, the metal cap must be screwed into the valve mount until the circlip locating holes are in line. The white markings on the milled edge of the cap are provided as a guide. ▶

(6) Apply anti-dimming compound ready for the next operational use of the respirator.

Protection of the respirator

6. When not in use the respirator should be kept in the plastic bag in which it was received, inside the haversack and folded as follows:—

- (1) Harness folded inside the facepiece.
- (2) The connecting tube lying round the left side of the facepiece.
- (3) The container on its side on top of the harness and cushioned from contact with the nose cup by resting on the two bottom elastic straps.
- (4) The spring clip with the finger grip portion over the right-hand edge of the mask.
- (5) The microphone cable lying round the facepiece and passed under the two elastic straps, between the harness retaining slot and buckle, on the right-hand side of the facepiece so that the microphone socket is prevented from coming into contact with the perspex visor.

7. The container must be kept screwed up tightly against the rubber washer in the container mount and should not be allowed to become dented or suffer any other damage which would reduce its efficiency or interfere with the screw fit in the mount. The elastic webbing straps must not be stretched more than is necessary and the visor must be protected at all times from becoming scratched, chipped or otherwise damaged. The respirator is to be kept away from hot pipes and other sources of heat and once a month is to be removed from the haversack and bag and unfolded for a short time to ensure that the facepiece and connecting tube do not become distorted.

Test for gas tightness

8. The overall test can only be conducted efficiently in a gas chamber and this should normally be undertaken as soon as possible after initial fitting to the wearer. The following test should, however, be completed first:—

- (1) Fit the respirator as described in para. 2.
- (2) Place the base of the thumb over the inlet hole of the container.
- (3) Ask the wearer to inhale.

If the wearer is unable to breathe in and the

facepiece is drawn tightly on to the face, the fit is correct. If, however, air enters the facepiece through the side, further fitting is necessary.

9. If the gas chamber is not available, the following test should be conducted after the test described in para. 8 has been completed:—

(1) Moisten a small pad of cotton wool or other absorbent material with amyl acetate.

(2) Without touching the respirator or the skin of the wearer, pass the moistened pad round the periphery of the facepiece. If the smell of the amyl acetate is detected by the wearer, further adjustment is necessary.

If a gas tight fit cannot be obtained, another facepiece should be fitted.

10. In the event of a suspected leak after the facepiece has been correctly adjusted the moistened pad should be passed round:—

(1) The junction of the container mount and the container.

(2) The clip securing the visor.

(3) The joint of the microphone and the mask spigot.

(4) Close to the outlet valve mount. If the smell of the amyl acetate is detected at (1) and it cannot be eliminated by further screwing down the container on to the rubber washer in the mount another container is to be fitted. If the smell is detected at any of the other points the facepiece should be changed.

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