Chapter 18

PRESSURE JERKIN, Mk. 3

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

LEADING PARTICULARS

Pressure jerkin, Mk. 3, complete	*Approx. weight 6 lb. (2·7 kg.)*
Sizes 0 to 6	*Ref. No. 22C/2007 to 2014*
comprising:—	
Garment portion, Sizes 0 to 6	*Ref. No. 22C/2016 to 2022*
Lifeline and toggle	22C/1739
Draw rod (S.A.R.A.H. equip. pockets)	22C/1862
Accessories:—	*Ref. No.*
Stole	22C/1847
CO_2 cylinder, Mk. 4, 34 gr.	6D/9432080
Operating head, Type M	6D/1624
S.A.R.A.H. equipment	10D/20094
Lamp, Type B	5A/4216
Whistle and lanyard	22C/1186
Ground/air emergency code	27C/2366

Introduction

1. The Pressure Jerkin Mk. 3 (*fig.* 1 *and* 2) is provided for the use of aircrew who are normally accommodated in static seats but who move from one position to another in the performance of their duties. The jerkin consists of an inflatable bladder, which provides counter-pressure over the body and upper thighs when the wearer is breathing oxygen at a pressure above that of the surrounding atmosphere, confined between an outer garment made from terylene and a lining made from nylon. The outer garment is fitted with pockets for the carriage upon the person of Search and Rescue and Homing apparatus and other aids to survival. It also acts as a foundation upon which are mounted the covers for an inflatable stole of the same capacity as that fitted to life jackets. The jerkin is worn over an air ventilated suit and an anti-g suit and used with an appropriate type of oxygen mask.

Description

2. The jerkin (*fig.* 1) is a sleeveless garment which covers the trunk and upper thighs. It is open from throat to centre of left thigh and is fitted with a sliding fastener. Inside, and to the left of the opening, is a second sliding fastener which provides access for bladder examination. A transverse opening across the back of the garment is also fitted with a sliding fastener. This opening gives access to lacing adjustments provided at each side and the back to enable the jerkin to be adjusted to the wearer's girth. When making adjustments, all ancillary equipment is to be stowed on the jerkin.

3. A rectangular aperture in the lower part of the front right-hand side affords a passageway for the hoses leading to the anti-g and air ventilated suits. Above this opening, a second aperture, fitted with a flanged connector, enables the jerkin valve to be connected. Beside this aperture is the means of locating the oxygen hose. A patch fitted with two rows of eyelets is sewn to the garment and a loose retainer fitted with two eyelets on each edge is laced to it with the hose so positioned that the Y-piece is close to the patch. The retainer may be laced in either of three positions as necessary. Lacing is with any 100 lb. nylon cord which is securely tied with holding knots having stitches of No. 40 linen thread sewn through to prevent slippage. On its lower right-hand side, the garment is reinforced by an integral fabric patch as protection against abrasion by the personal equipment connector.

Note . . .

The flange connector for the jerkin hose is fitted with a flexible cap. This cap must be removed before the jerkin valve can be connected, but should be replaced at all times when the hose is disconnected.

4. The stole cover is very similar to those fitted to life jackets, having a lobe cover on each side and a back cover in which there is an opening for the insertion of the stole. Inside, at the bottom of each lobe cover, are press studs which mate with the male portions on the lobes of the stole. A large becket is secured to each side of the jerkin and the two are fitted with a press stud so that they can be fastened together to provide a means of lifting the wearer from the water when necessary. A rubber button on the left-hand cover acts as a mounting for the sea-lamp, and a stiffened mounting on the right cover provides an anchorage for the S.A.R.A.H. beacon.

5. Inflation mechanism for the stole is identical with that for the Mk. 4 pressure jerkin, described in Chapter 22.

6. The S.A.R.A.H. battery pocket is fitted with straps and buckles to secure the battery in position. Above the pocket but under the cover flap are two smaller flaps fitted with loops along their edges. These are fastened together by a nylon draw rod which is passed through the loops from front to rear. They provide a storage for the S.A.R.A.H. Beacon Unit.

7. The pocket for the S.A.R.A.H. speech unit, located on the left side of the garment, is also fitted with loops secured by a draw rod, the ring of which is held in position by a snap fastener.

8. The lamp, battery and whistle stowage is a single pocket made into two compartments covered by a single flap. Two eyelets, one located on the top edge of each compartment are provided to enable whistle and battery retaining lanyards and the stud extractor cord to be secured to the garment.

9. A 250 lb. nylon cord life line is secured to the left-hand lifting becket. One end of the cord is attached to a toggle, and its opposite end is sewn to the becket. The hanked line is secured in position by three bands of P.V.C. tape. A non-adjustable

nylon webbing strap on the front left-hand side of the garment terminates in a loop, the loop providing attachment for the lanyard of a personal survival pack.

Sizes

10. Reference should be made to the "Leading Particulars" for details of jerkin sizes, and for the accessories which must be assembled before the jerkin is worn.

SERVICING

11. Servicing is to be carried out in accordance with the instructions contained in Vol. 4.

After immersion in salt water

12. All accessories are to be removed from the jerkin. The lamp and battery and the S.A.R.A.H. units are to be returned to the electrical and the radio servicing bays respectively, with attached labels giving details of the immersion. The screwed flanged connector must be blanked-off to prevent ingress of water to the bladder. All remaining items, together with the jerkin, are to be thoroughly rinsed in successive changes of clean, cold water and allowed to dry naturally away from sunlight and all sources of artificial heat. After drying, the CO_2 cylinder is to be serviced and then returned to the appropriate Maintenance Unit clearly marked "This cylinder has been immersed in salt water". After having been immersed in salt water, the jerkin is to be used for wet drills only.

◀ Removal and charging of inflation mechanism ▶

13. If the cylinder is to be unscrewed from the operating head, whether for check weighing or re-charging, the locking screw on the head should first be released. Failure to observe this precaution will result in damage to the threads on the cylinder. ◀The method of charging the cylinder is in A.P.1182C, Vol. 1, Book 1, Sect. 3, Chap. 5.▶

14. Care should be exercised when removing the cylinder from the stole to prevent damage to the Schrader valve. Both the operating head and the Schrader valve should be held firmly while the coupling nut is unscrewed (using two spanners). It is very easy to pull the Schrader valve out of its mounting.

Testing of stole

15. During periodic servicing, the jerkin stole should be inflated through the oral inflation valve to check for satisfactory inflation and valve operation.

16. For stole pressure testing, the following items of equipment are required:—

Manometer (reading up to 40 in. water pressure)
T-piece ($\frac{1}{4}$ in. dia. bore)
Rubber tubing ($\frac{1}{4}$ in. dia. bore)

(1) Remove the stole from the cover and take out the Schrader valve.

(2) Connect the Schrader valve stem to the manometer.

(3) Inflate the stole through the oral inflation valve to give a reading of 30 cm. (11·75 in.) water pressure.

(4) Leave for 10 min. Pressure will not drop more than 2 cm. if the stole is serviceable.

(5) Disconnect the stole from the manometer and fit the Schrader valve.

(6) Inflate the stole and immerse, first the tip of the Schrader valve and then the oral inflation valve to check for leakage which will be revealed by the presence of bubbles. Renew any valve which leaks.

(7) Check the oral inflation valve for correct functioning by turning the mouthpiece clockwise to unlock it and then depressing and releasing it. It should return under the action of the spring. If it fails to return or is sluggish in action, it is to be renewed.

Oral inflation valve renewal

17. Air leakage through the valve cannot be rectified. The defective valve must be renewed. The procedure to be followed for valve renewal is given in Chapter 22.

Note . . .

French chalk is not to be used to assist in valve insertion in inflation tube.

CO_2 cylinder life

18. Reference should be made to the appropriate chapter in A.P.1182C, Vol. 1 for detailed information on the limitations and tests approved for these cylinders.

Other limitations

19. Until further notice, the following limitations are imposed:—

(1) Stole. Three replacement oral inflation valves.

(2) Oral inflation valve. Four immersions in salt water.

(3) Jerkin. Sixteen immersions in salt water.

When these limitations are reached, the items are to be renewed.

ASSEMBLING

Inserting the stole

20. Insert the stole through the opening in the back stole cover and into the lobe covers. Inflate the stole slightly to ensure the lobes are not twisted. Secure the bottom of the lobes with the snap fasteners. Pass the Schrader valve and oral inflation tube through the appropriate apertures, deflate the stole, ensure that the oral inflation valve is locked in the "closed" position by turning the mouthpiece and insert the tube into the keeper. Close the aperture in the back stole cover.

Fitting the CO_2 cylinder and operating head

21. (1) Screw the cylinder into the operating head hand tight and fasten down the locking screw.

(2) Release the tape attached to the retaining clip in the coupling nut of the operating head and remove the clip.

(3) Remove the coupling nut.

(4) Check to ensure that the lip and threads of the Schrader block stem and the threads and internal seating of the coupling nut are clean and undamaged.

(5) Screw the coupling nut, finger tight, on the Schrader block stem until the end of the stem meets the seating inside the nut and then, using two spanners, tighten the nut another quarter turn.

(6) Push the gas outlet boss on the operating head into the nut with a slight twisting movement.

(7) Check that the alignment of the assembly is correct by feeling to ensure that the flat surface of the Schrader block is in the same plane as the long axis of the gas cylinder and that the stole is not twisted.

(8) Insert the coupling nut retaining clip and wrap the tape round the nut clip once on each side of the clip and tie the ends together tightly with a reef knot.

(9) Check the operating head to ensure that the sealing thread on the cap is intact.

(10) Place the cylinder into its stowage, tie the tapes tightly round the neck of the gas outlet union, using a reef knot, and close the sliding fastener.

Note . . .

It may not be possible to untie the tapes referred to in sub-para (8) *and* (10) *without damaging them. Damaged tapes are to be renewed.*

Stowage of S.A.R.A.H. equipment

22. (1) Place the battery in its pocket with the coding unit facing the front of the suit and secure it in position with the strap and buckles.

(2) Holding the beacon as shown in fig. 4, loop a length of suitable wire or cord through the length of cord on the beacon, thread it between the clip and the beacon and pull it through.

(3) Pass the cord round the beacon and again thread it under the clip. Position it as shown in fig. 5.

(4) Pass the longer end through the loop at the other end (*fig.* 6).

(5) Place the loop at the end of the cord over the beacon switch release pin as shown in fig. 7 and position the pin as shown by the arrow so that it retains the loop of cord.

(6) Raise the switch plunger (*fig.* 8) by lifting the ring with a loop of cord and insert the switch pin into the hole which becomes exposed when the plunger is lifted. Fig. 9 shows how the switch pin is extracted when the beacon is withdrawn.

(7) Place the beacon in its stowage over the battery pocket, draw the edges of the flaps together and secure them

by passing the draw rod through the loops from front to rear using alternate loops.

(8) Pull over the outer flap and secure it with studs.

(9) Stow the loop of cable running between the battery and the beacon under the retaining flap beside the armhole in the suit.

(10) Pass the battery cable through the retaining flaps beside the armhole and behind the neck.

(11) Stow the speech unit and any surplus cable in the speech unit pocket on the left front of the suit and close the pocket by passing the draw rod upwards through the loops.

(12) Secure the finger ring on the draw rod with the snap fastener at the bottom of the pocket.

Stowing the lamp and sea-activated battery

23. Before putting the battery in its pocket ensure that there is a length of cord between the studs on the battery case and the eyelet in the corner of the pocket. This cord should be 3½ in. long which is sufficient to permit the battery to be pulled out of the pocket before the studs are torn out to allow the water to enter. A second length of cord should be knotted to the same eyelet in the corner of the pocket and through the hole in the battery case to act as a retaining lanyard. This cord should be 33 in. long. Both cords should be tied with three half-hitches and have the ends sewn down with No. 40 thread.

◀ **24.** The method of packing new lamps and batteries originally adopted resulted in the cables taking up a permanent set at the point where it emerges from the plug, especially when the equipment had a long shelf life before being issued. As a result, when the equipment has been brought into use or the cable disturbed for examination, there has been a tendency for the insulation to split and open out at the point of set. This tendency has been aggravated by repeated tight wrapping of the cable during periodic servicing. At the intervals given in Vol. 4, special attention is to be given to the examination of the cable to ascertain whether splitting of the insulation has occurred. Lamps with exposed conductors are to be rejected but those with marked or kinked cable may remain in use if there is no splitting of the insulation. When re-stowing the lamps and batteries the cable is to be led away from the plug in a bend of approximately 1 in. across, wrapped round four fingers and secured to the plug side of the battery with a rubber band. The lamp is to be located in a position suitable for stowage flat side up on top of the flex. When stowing the equipment ensure that the loop leading away from the plug is not flattened. ▶

25. Stow the battery in the pocket, studded side forward, with the longer cord looped across the bottom of the case so that it will not snag up when it is withdrawn.

Life line and toggle

26. Wrap the untoggled end of the line around the left-hand lifting becket and secure with knots. Stitch the knotted part of the line to the becket and then hank the line to an approximate length of 2·5 in. Position the hanked line on the becket, near to the edge of the webbing reinforcement, and secure with three bands of ¼ in. wide P.V.C. tape (Ref. No. 32B/769) wrapped tightly round the hanks of cord and the webbing. Each band should be wrapped twice round and then stuck down, the locations of the bands being—one at the centre, adjacent to the toggle, and one at each side, at a position approximately ½ in. in from each end of the hanked cord.

Whistle

27. Pass the end of the whistle lanyard through the eyelet in the hem at the top of the pocket and secure with three half-hitches. Sew the loose end to the standing part of the cord with three stitches of No. 40 linen thread. Hank the lanyard and place it, beside the whistle, in the pocket.

Heliograph and emergency code

28. Insert the heliograph and the ground/air emergency code in the small compartment on the front of the S.A.R.A.H. battery pocket and engage the press stud fastener.

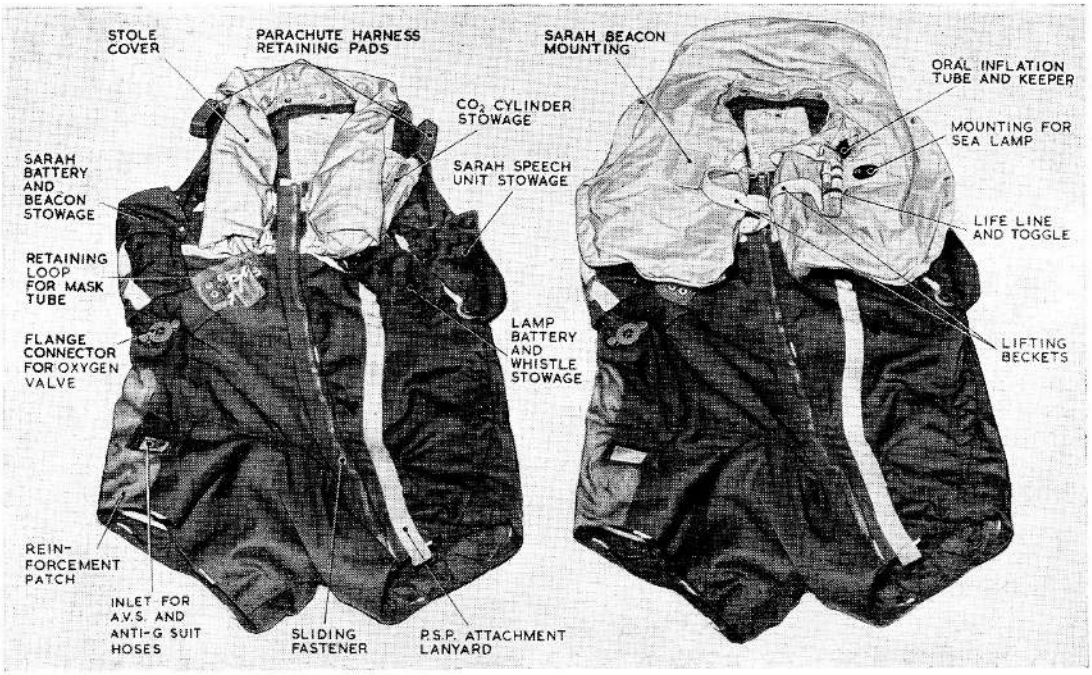

Fig. 1. Jerkin Mk. 3, showing main features

Fig. 2. Jerkin Mk. 3, showing girth adjustment

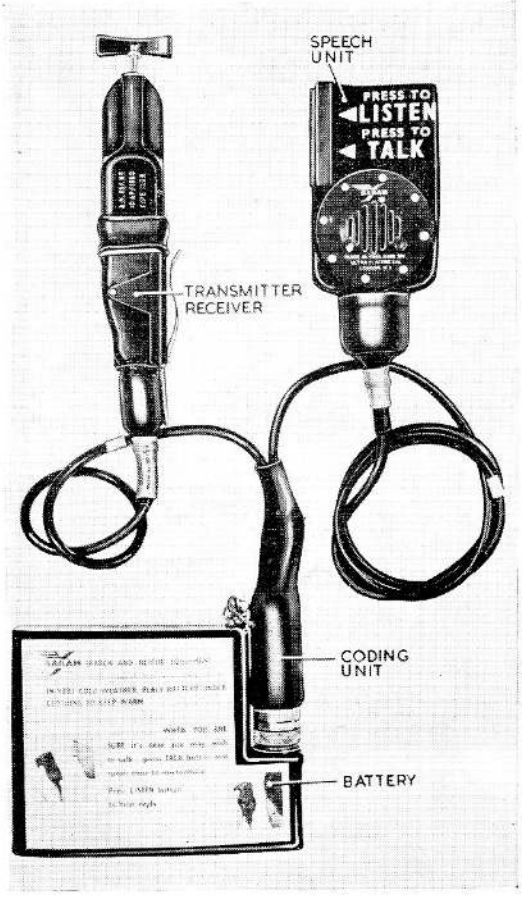

Fig. 3. S.A.R.A.H. equipment

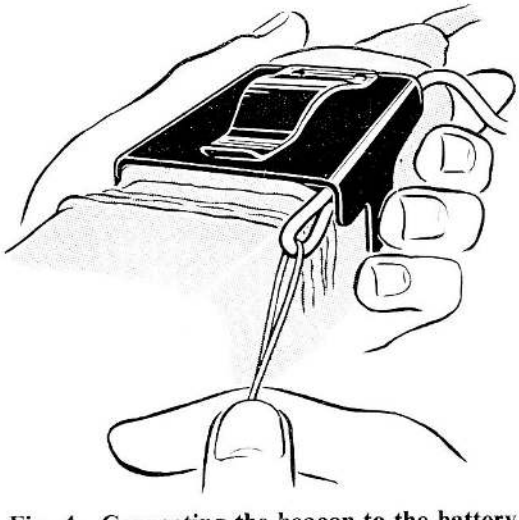

Fig. 4. Connecting the beacon to the battery switch pin: first stage

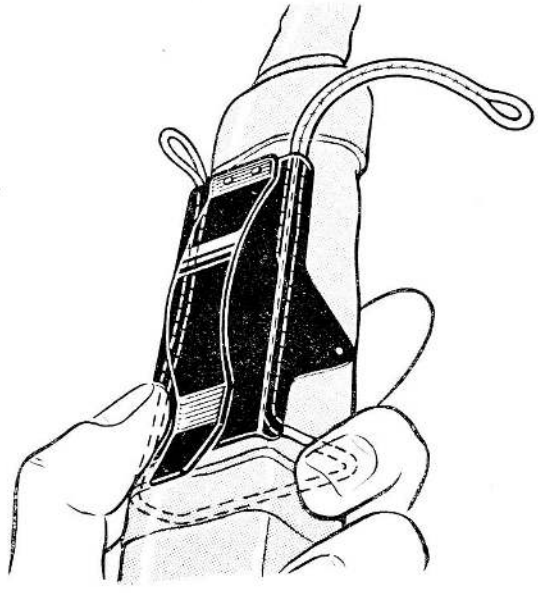

Fig. 5. Connecting the beacon to the battery switch pin: second stage

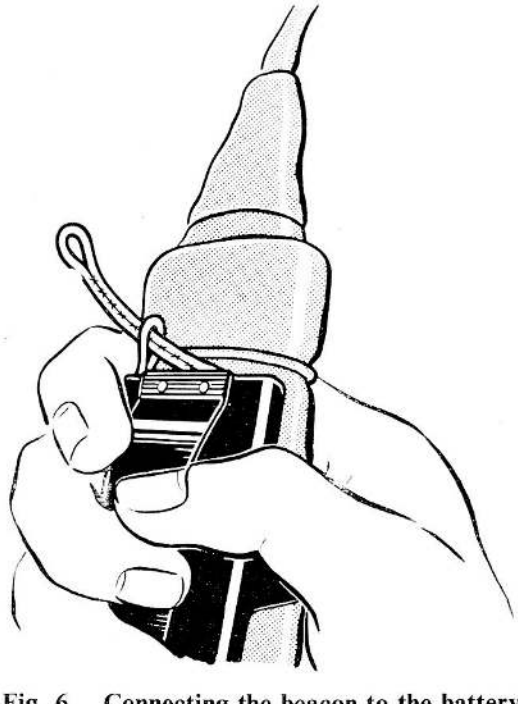

Fig. 6. Connecting the beacon to the battery switch pin: third stage

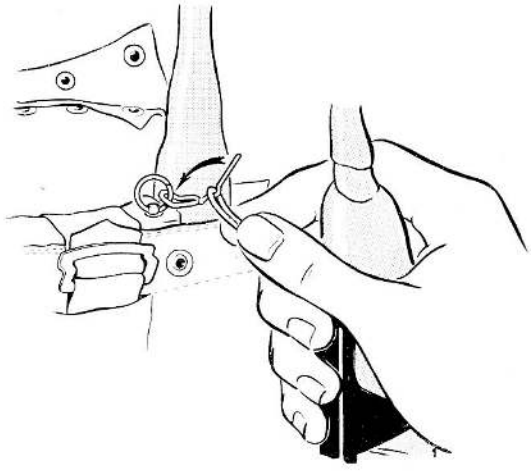

Fig. 7. Connecting the beacon to the battery switch pin: fourth stage

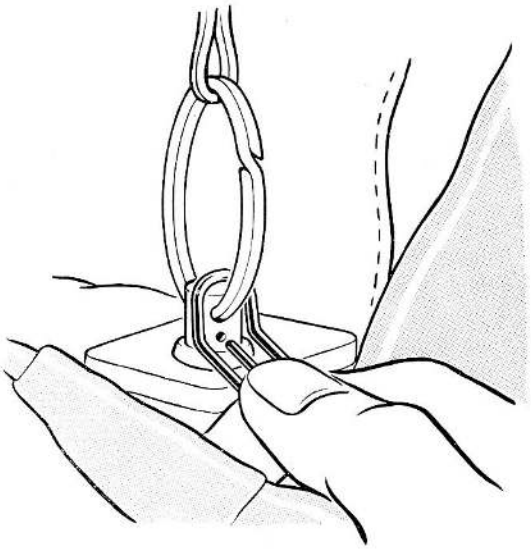

Fig. 8. Connecting the beacon to the battery switch pin: fifth stage

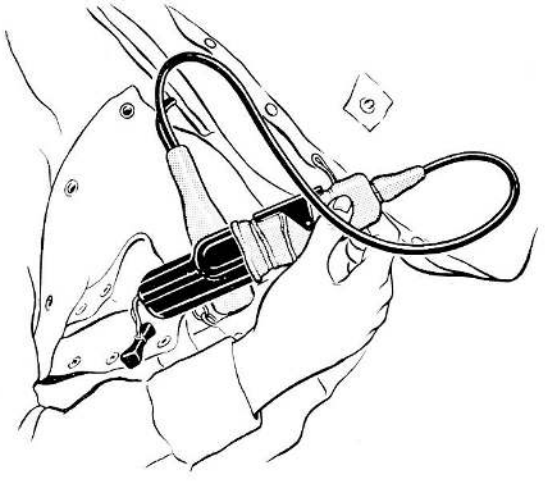

Fig. 9. Automatic extraction of battery switch pin as beacon is withdrawn