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**SHELTER, OPERATIONAL FIELD
CATERING SYSTEM (OFCS)
3.6 M x 3.6 M (12 FT x 12 FT) Mk 2**

NSN 8340-99-147-7464

OPERATING INFORMATION

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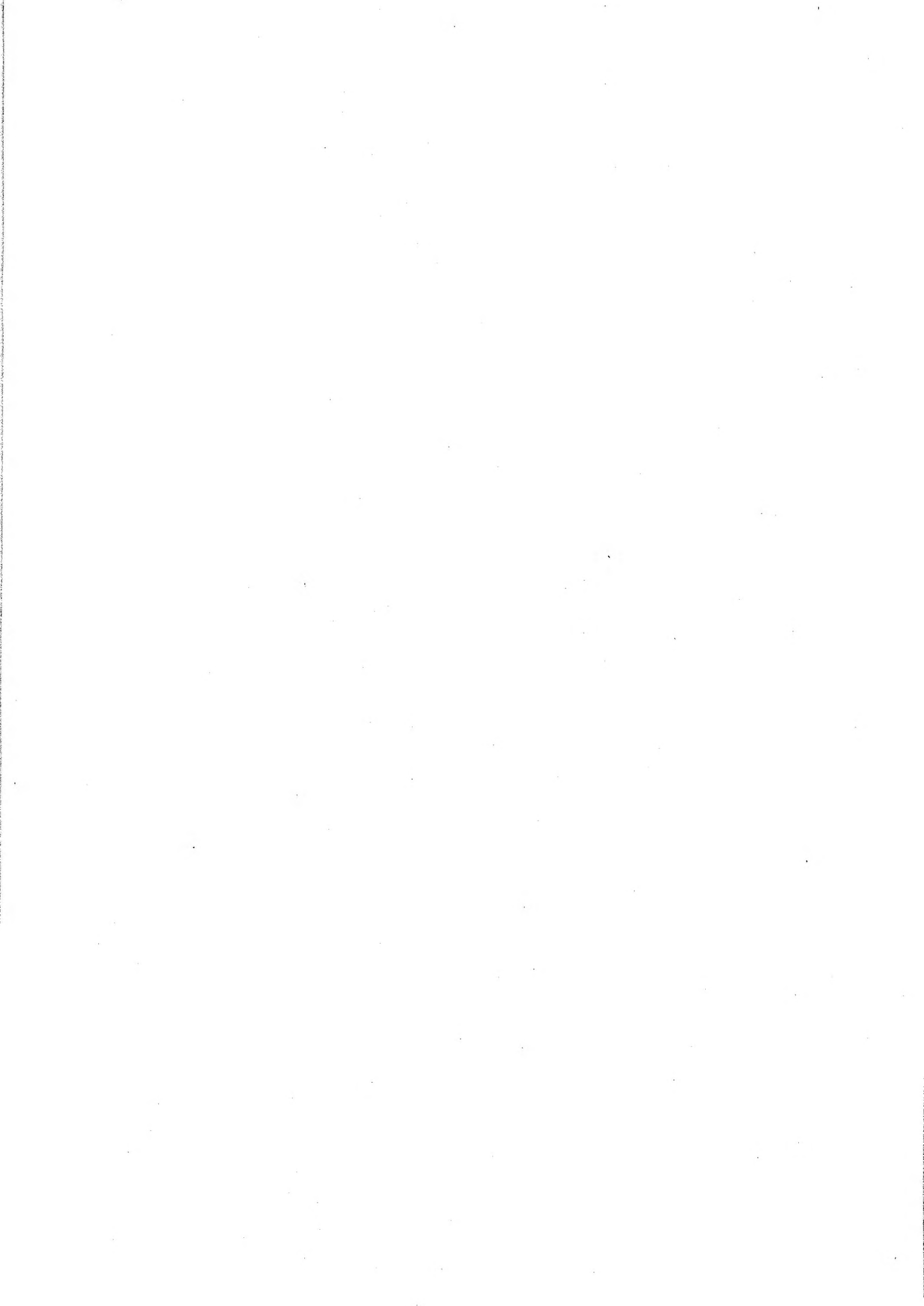
DEFENCE EQUIPMENT AND SUPPORT ORGANISATION



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PREFACE

Sponsor: DEC ELS
Publication Authority: DE&S
ECI IPT

INTRODUCTION

1 Service users should forward any comments on this publication through the channels prescribed in AESP 0100-P-011-013. An AESP Form 10 is provided at the end of the preliminary pages; it should be photocopied and used for forwarding comments on this AESP.

2 AESPs are issued under Defence Council authority and where AESPs specify action to be taken, the AESP will of itself be sufficient authority for such action and also for the demanding of the necessary stores, subject to the provisions of Para 3 below.

3 The subject matter of this publication may be affected by Defence Instruction Notices (DINs), Standard Operating Procedures (SOPs) or by local regulations. When any such Instruction, Order or Regulation contradicts any portion of this publication it is to be taken as the overriding authority.

RELATED AND ASSOCIATED PUBLICATIONS

Related publications

4 The octad for the subject equipment consists of all the categories shown in Table 1. All references are prefixed with the first eight digits of this publication. The availability of the publications can be checked by reference to the relevant Group Index in AESP 0100-A-001-013.

TABLE 1 RELATED PUBLICATIONS

Category/Sub-Category		Information Level				
		1 User/Operator	2 Unit Maintenance	3 Field Maintenance	4 Base Maintenance	
1	0	Purpose and Planning Information	101	*	*	*
	1	Equipment Support Policy Directives	*	*	*	*
2	0	Operating Information	*	*	*	*
	1	Aide Memoire	201	*	*	*
	2	Training Aids	*	*	*	*
3		Technical Description	*	*	*	*
4	1	Installation Instructions	*	*	*	*
	2	Preparation for Special Environments	*	*	*	*
5	1	Failure Diagnosis	*	*	*	*
	2	Repair Instructions	*	*	*	*
	3	Inspection Standards	201	*	*	*
	4	Calibration Procedures	*	*	*	*
6		Maintenance Schedules	*	*	*	*
7	1	Illustrated Parts Catalogues	*	*	*	*
	2	Commercial Parts Lists	711	*	*	*
	3	Complete Equipment Schedule, Production	*	*	*	*
	4	Complete Equipment Schedule, Service Edition (Simple Equipment)		*	*	*
	5	Complete Equipment Schedule, Service Edition (Complex Equipment)	741	*	*	*
8	1	Modification Instructions	*	*	*	*
	2	General Instructions, Special Technical Instructions and Servicing Instructions	*	*	*	*
	3	Service Engineered Modification Instructions (RAF only)	*	*	*	*

* Category/Sub-category not published.

Associated publications

5 The following publications are associated with this AESP octad.

<u>Reference</u>	<u>Title</u>
NONE	

ABBREVIATIONS

6 The following abbreviations are used in this AESP octad.

<u>Abbreviation</u>	<u>Nomenclature</u>
AESP	Army Equipment Support Publication
DIN	Defense Instruction Notices
Fig	Figure
ft	feet (foot)
ft ³	feet cubed
in.	inch
kg	kilogram
lb	pound
m	metre
m ²	metres squared
m ³	metres cubed
mm	millimeters
NATO	North Atlantic Treaty Organisation
NSCM	NATO Supply Code for Manufacturers
NSN	NATO Stock Number
Para	Paragraph
PPE	Personal Protective Equipment
SOP	Standard Operating Procedures

WARNINGS AND CAUTIONS**HAZARDOUS SUBSTANCES**

7 Before using any hazardous substances or material, the user must be conversant with the safety precautions and first aid instructions:

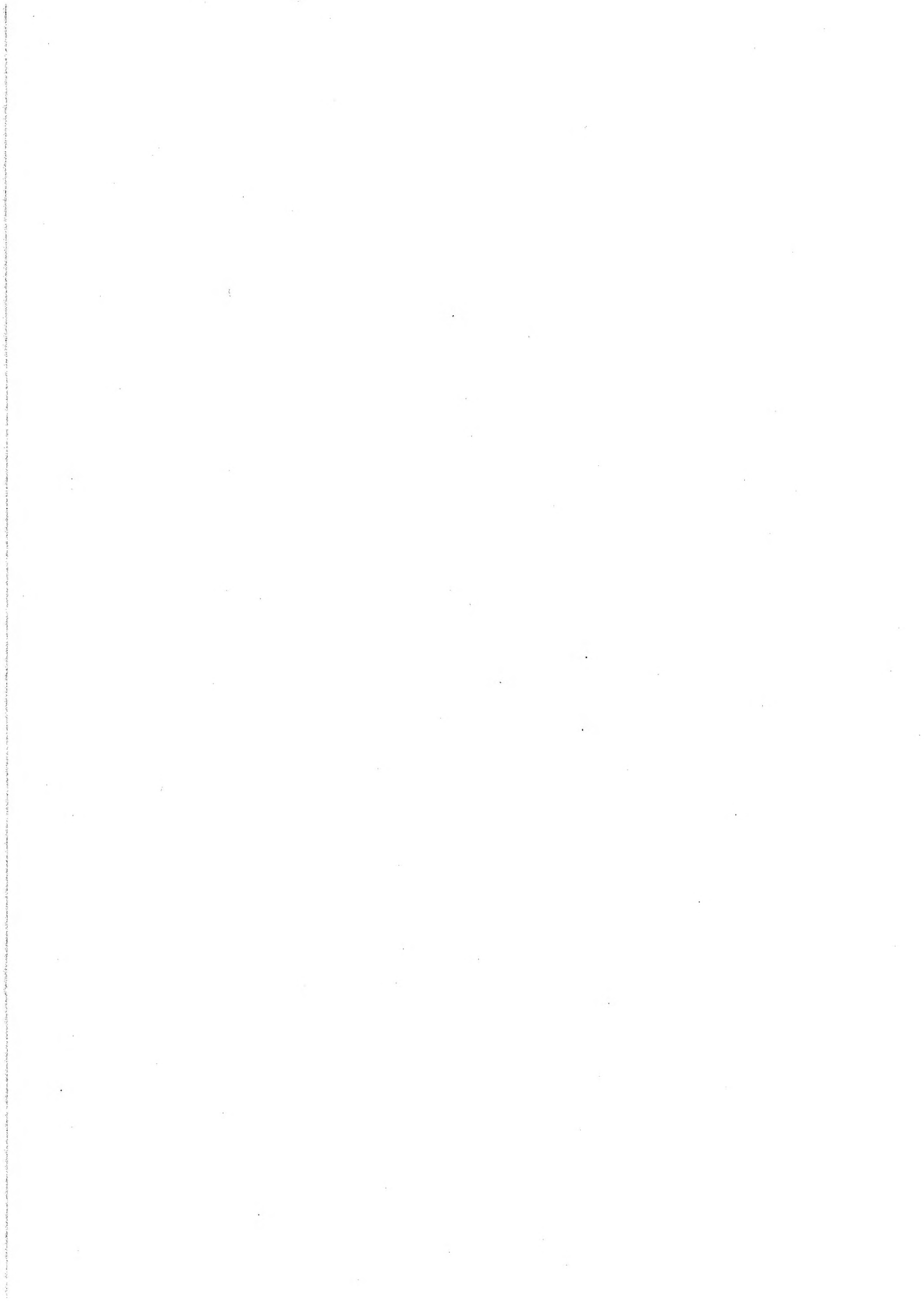
- 7.1 on the label of the container it was supplied in;
- 7.2 on the material Safety Data Sheet;
- 7.3 in local Safety Orders and Regulations.

WARNINGS

- (1) **PERSONNEL INJURY/EQUIPMENT DAMAGE. SUFFICIENT PERSONNEL ARE REQUIRED WHEN LIFTING THE ASSEMBLED ROOF, THE MINIMUM IS ONE PERSON PER WALL MEMBER.**
- (2) **PERSONNEL INJURY/CRUSH HAZARD. EXERCISE CAUTION WHEN ASSEMBLING POLES AND BRACKETS DUE TO THE RISK OF CRUSH INJURY TO FINGERS.**
- (3) **PERSONNEL INJURY. WHEN POLES ARE CURVED UNDER TENSION THERE IS A HIGH RISK THAT THEY MAY SLIP AND SPRING BACK TO THEIR STRAIGHT RELAXED POSITION. PERSONNEL SHOULD NOT POSITION THEMSELVES DIRECTLY IN FRONT OF THE POLES.**
- (4) **PERSONNEL INJURY/HEAVY WEIGHT. A MINIMUM OF FOUR PERSONNEL ARE REQUIRED TO LIFT OR MOVE THE SHELTER.**
- (5) **PERSONNEL INJURY/BURN HAZARD. WHEN BURNING WEBBING TO PREVENT FRAYING, THE WEBBING WILL BECOME EXTREMELY HOT AND MELT.**
- (6) **PERSONNEL INJURY/TOXIC HAZARD. APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT (PPE) INCLUDING GLOVES, GOGGLES OR FACEMASK AND COVERALLS ARE TO BE WORN WHEN USING MYSTOX.**
- (7) **PERSONNEL INJURY/TOXIC HAZARD. IF MYSTOX COMES INTO CONTACT WITH SKIN OR EYES WASH THE AFFECTED AREA IMMEDIATELY WITH WATER AND SEEK MEDICAL ATTENTION. JSP 437 REFERS**
- (8) **PERSONNEL INJURY/TOXIC HAZARD. IF MYSTOX IS SWALLOWED, SEEK IMMEDIATE MEDICAL ATTENTION.**
- (9) **PERSONNEL INJURY/TOXIC HAZARD. ONLY USE MYSTOX IN AUTHORIZED AREAS, DO NOT USE WHERE THERE IS A DANGER OF SPILT MYSTOX ENTERING THE WATER COURSE INCLUDING PONDS, DITCHES OR WATERWAYS.**
- (10) **PERSONNEL INJURY/TOXIC HAZARD. DISPOSAL OF SURPLUS MYSTOX AND EMPTY CONTAINERS IS TO BE ORGANISED BY THE UNIT QUARTERMASTER/SUPPLY OFFICER IN ACCORDANCE WITH UNIT ENVIRONMENT STANDING ORDERS AND/OR LOCAL PUBLIC HEALTH BY-LAWS.**

CAUTIONS

- (1) **EQUIPMENT DAMAGE.** The shelter is to be pitched on firm level ground and it is essential that adequate anchorage or ballast be placed on the coated fabric sod cloths at the bottom of the wall and ends of the shelter. The listed tent pins or spoil from drainage trenches is suitable for this purpose and may be used in sandbags or other flexible containers, if available. Guy lines are also provided to give additional stability under high wind conditions.
- (2) **EQUIPMENT DAMAGE.** Wet canvas should never be folded or packed unless circumstances render this unavoidable. Shelters should therefore be left to dry thoroughly before they are struck. If the shelter is not completely dry the officer in charge of the campsite or receiving unit is to be informed.
- (3) **EQUIPMENT DAMAGE.** All insulation panels can be added after the shelter has been erected EXCEPT the roof panel that must be attached to the frame prior to the canvas. Due to the structure of the insulation it must not be crushed, as this will drastically reduce its effectiveness.
- (4) **EQUIPMENT DAMAGE.** When lifting the roof, the supervisor must ensure that the lift is even along the length of the frame, thus avoiding distortion of the brackets and poles.
- (5) **EQUIPMENT DAMAGE.** The sunshade is to be erected prior to the shelter if possible or alternatively moved into position over the tent after assembly with the base restraint straps being added after it is in its final position. The ratchet straps should not be over tightened and never used if damaged.
- (6) **EQUIPMENT DAMAGE.** The shelter is to be erected on firm level ground, which has been cleared of any large stones or rubble.
- (7) **EQUIPMENT DAMAGE.** A power washer may be used at low pressure with warm water. Use judgement and caution regarding water pressure and temperature.
- (8) **EQUIPMENT DAMAGE.** Do not use solvents or detergents to clean the shelter as they will dissolve the protective coating on the fabric.



OPERATING INFORMATION

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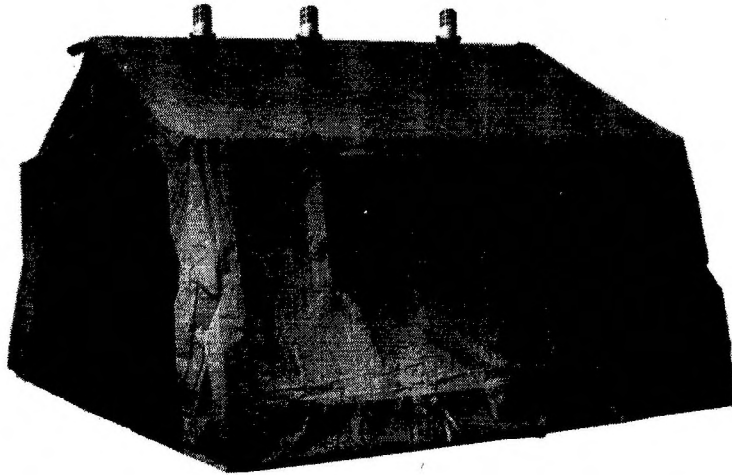


Fig 1 Shelter, Operational Field Catering System (OFCS) 3.6 m X 3.6 m (12 FT X 12 FT)

DESCRIPTION

- 1 The shelter (Fig 1) consists of a metal frame supporting a canvas cover. The frame is constructed of light alloy tubular members that are connected by brackets.
- 2 The frame is built from three different tubular components.
 - 2.1 Aluminium members 1.8 m long OD (32 mm).
 - 2.2 4-way cast light alloy brackets for connecting the members at the eaves and ridge.
 - 2.3 T-brackets for connecting the members at ground level to the wall members.
- 3 The fabric from which the cover is made is woven from cotton covered polyester core yarn. It is of ripstop construction and is given a Flame retardant, Water repellent, Rot Resistant (FWRR) finish.
- 4 The cover is made up by lacing a single sheet, constituting the roof and sidewalls, to two end sections. The two end sections each have, a personnel entrance fitted with slide fasteners, toggles and loops, that can be rolled up and secured with toggles and loops.
- 5 Two windows are incorporated into each sidewall. The apertures are fitted with mosquito netting, clear plastic sheeting and a canvas flap. The plastic sheeting and/or the canvas flap can be fastened in either the open or closed positions, whereas the mosquito netting is stitched closed at all times.
- 6 The sidewall has a snood incorporated into it to allow electric cables and environmental control ducts to enter the interior. This snood can then be secured around the cable/hose or closed off to ensure a closed environment within the shelter.
- 7 The sod cloth is made from coated synthetic fabric that ensures ample strength and rot resistance. It also stops water permeating the canvas by capillary action from the ground.
- 8 The shelter is free-standing, but in order to ensure stability the sod cloth should be anchored with tent pins or weighted with sandbags or other suitable ballast. Under high wind conditions, an overstrap is positioned over the centre of the ridge and anchored with 18 in. pins on both ends. Two end guys are also attached to the ridge brackets on each end of the shelter and are likewise anchored close to the position of the overstrap. All straps are then adjusted and made taut.
- 9 The shelter is designed to be extendable in length by multiples of 3.6 m (12 ft) by using an additional frame and roof and wall components.
- 10 The roof has a heat resistant panel attached at the interior apex that insulates the canvas against the extreme heat of the OFCS chimneys.

11 The roof has six apertures either side of the ridge poles which correspond in location to the chimney bracket that is included with the cooker.

DEPLOYMENT

12 It is possible to link many of the GS types of shelters together, and to extend in length by 12 ft increments, the 12 ft x 12 ft and 18 ft x 24 ft shelters to make composite arrangements such as headquarters layouts, cooking/dining rooms, field hospitals and other specific to requirement temporary shelter facilities. Also, on the newer variations, it is possible to link shelters to vehicles and together, through the medium of zipped connectors.

13 It has been discovered that the canvas tentage can leak when new. The canvas is a 50:50 polyester/cotton blend and when initially erected is not waterproof due to small holes within the textile as well as the stitching holes around the thread. When the tentage is initially soaked the cotton fibres swell as they absorb the water, which in turn plugs the holes in the canvas. After the canvas naturally dries, the cotton fibres do not shrink back but instead remain permanently enlarged thus the canvas becomes permanently water-resistant.

SITING

14 To site shelters, proceed as, follows:

14.1 The ground should be as level as possible, avoiding hollows where water would collect during heavy rain. Dry river beds or wadis, must be avoided as heavy rainfall or flash floods, however infrequent, can jeopardise the integrity of the shelter.

14.2 The ground should also be firm thus ensuring stability for pins and poles.

14.3 The site should be clear from obstacles such as rocks, trees and bushes to avoid the risk of tears in the canvas or ground cloth.

14.4 Drainage may be achieved by cutting channels around each shelter when the gradient and composition of the ground allows it.

14.5 Alternatively, the ground should be broken up between the tent pins and tent walls and a small bank of earth built on the inside of the tent wall.

14.6 Attention should be paid to the direction of the prevailing wind so that the tent is erected with its entrance located on the side facing away from the wind. Consideration should also be given towards minimising the area exposed to the wind, as this will gradually loosen the over straps and guy lines.

14.7 To prevent the propagation of fire between shelters, wherever possible, a spacing of 6 m between shelters or shelter complexes is to be maintained.

PITCHING

WARNING

PERSONNEL INJURY/EQUIPMENT DAMAGE. SUFFICIENT PERSONNEL ARE REQUIRED WHEN (LIFTING THE ASSEMBLED ROOF, THE MINIMUM IS ONE PERSON PER WALL MEMBER.

CAUTIONS

(1) **EQUIPMENT DAMAGE.** The shelter is to be pitched on firm level ground and it is essential that adequate anchorage or ballast be placed on the coated fabric sod cloths at the bottom of the wall and ends of the shelter. The listed tent pins or spoil from drainage trenches is suitable for this purpose and may be used in sandbags or other flexible containers, if available. Guy lines are also provided to give additional stability under high wind conditions.

(2) **EQUIPMENT DAMAGE.** All insulation panels can be added after the shelter has been erected **EXCEPT** the roof panel that must be attached to the frame prior to the canvas. Due to the structure of the insulation it must not be crushed, as this will drastically reduce its effectiveness.

(3) **EQUIPMENT DAMAGE.** When lifting the roof, the supervisor must ensure that the lift is even along the length of the frame, thus avoiding distortion of the brackets and poles.

General

- 15 The pitching space should be marked out in accordance with the ground plan
- 16 The valise or bundle containing the tent canvas should be carried as near as possible to the pitching site.
- 17 To prepare the canvas, proceed as follows:
 - 17.1 Open canvas and lay out with inside uppermost.
 - 17.2 Lace canvas sections together loosely and tie off at eaves as shown in Figs 2 to 9.

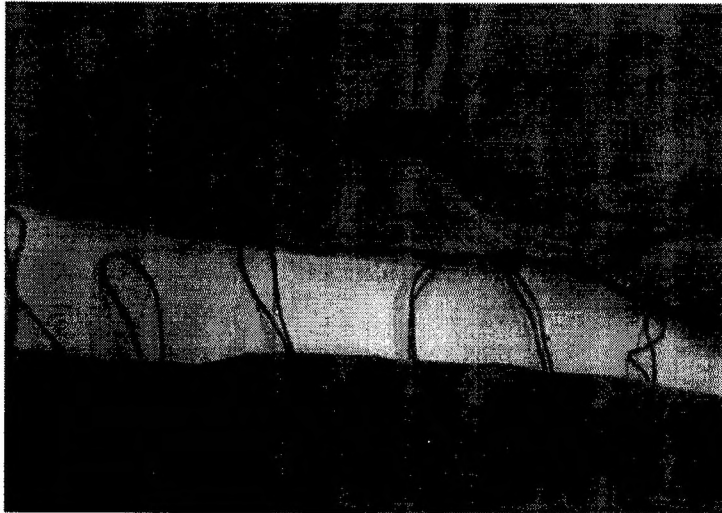


Fig 2 Lacing canvas sections (1)

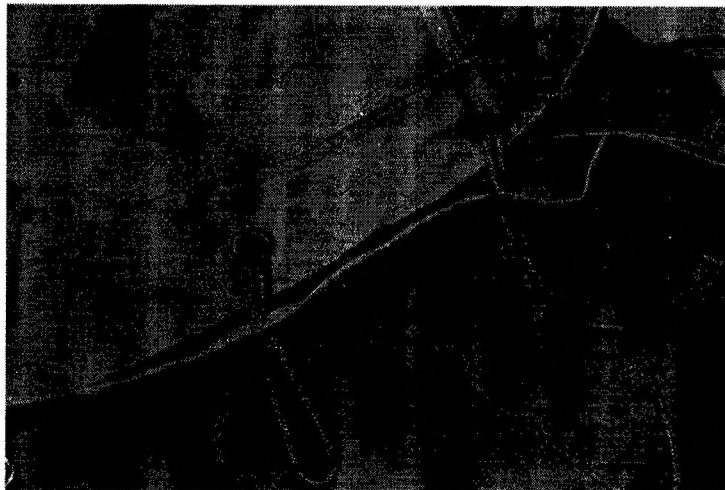


Fig 3 Lacing canvas sections (2)



Fig 4 Lacing canvas sections (3)



Fig 5 Lacing canvas sections (4)



Fig 6 Lacing canvas sections (5)

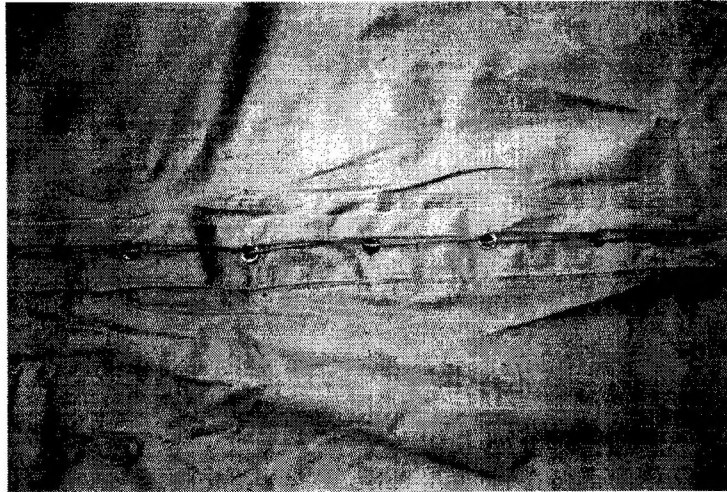


Fig.7 Lacing canvas sections (6)

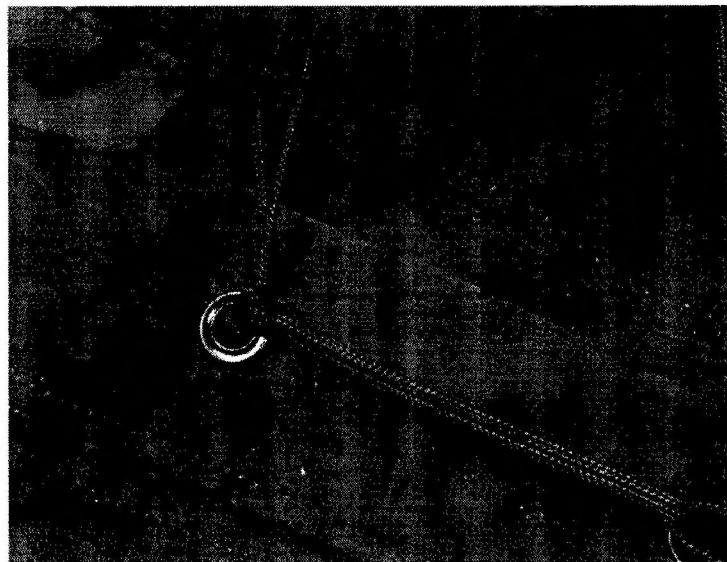


Fig 8 Lacing canvas sections (7)



Fig 9 Lacing canvas sections (8)

18 Tent poles should be fitted together to produce the roof framework with roof restraint straps attached. The roof insulation panel (if provided) should then be attached to the framework. Attach the top of the insulation end sections (if provided) to the framework by using tensionors. Then the canvas should be placed over the roof framework. The overstrap and end guys (if provided) should be placed over to the shelter. The sides should be lifted one at a time and the wall and base members inserted. The remaining lacing on the walls of the canvas should be completed and the end insulation sections (if provided) should be completely attached to the framework. Base restraint straps (if provided) should be attached to the base brackets. Insert insulation side panels (if provided) and attach between the framework and canvas by using tensionors.

19 The sod-cloth should be pinned through the external eyelets using tent-pins at an angle of 90 degrees from the horizontal (J11/8340-99-137-3895) and internal cords using (J11/8340-99-132-0028) at an angle of 60 degrees from the horizontal.

20 When pegging out the shelter, proceed as follows:

20.1 Pins for shelter lines (8340-99-943-9052) should be driven at an angle of 60 degrees from the horizontal approximately four fifths into the ground whereby the bottom of the hook or head of the pin is level with the ground and approximately 300 mm (1ft) from the edge of the sod cloth.

20.2 Hooks on tent pins should face in the opposite direction to the pulling force of the line and any cords should be placed around the pin prior to pegging.

20.3 For ease of driving the pins into the ground and to obtain the correct angle, personnel should try to position themselves behind the pin, facing away from the direction of the pulling force of the line when striking.

20.4 Avoid unequal strain and wear on the canvas by ensuring that:

20.4.1 Weather lines are not twisted and lie flat across the canvas.

20.4.2 Restraint and insulation straps are not twisted and lie flat across the insulation.

20.4.3 Doorways are closed while erection and pegging is carried out.

21 The shelter sod-cloth can be ballasted to restrict the bellowing effect of the wind. Sandbags (F2/5610-99-200-4386) filled with spoil from the drainage trench is recommended for this purpose.

22 To pitch the shelter, proceed as follows:

22.1 The pitching party comprises three personnel and a supervisor.

22.2 Lay out the components and assemble the roof frame as shown in (Fig 12) using the components shown in Fig 10. During assembly, slide the required number of Chimney brackets of the ridge poles as shown in Fig 11.

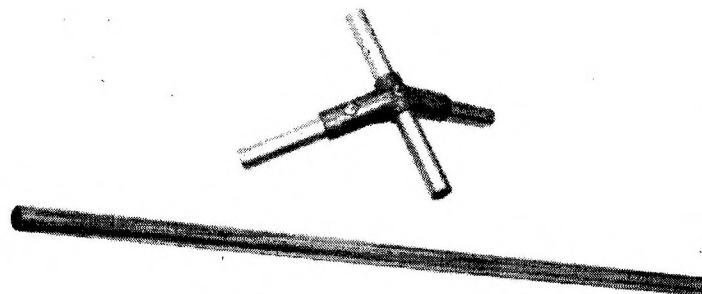
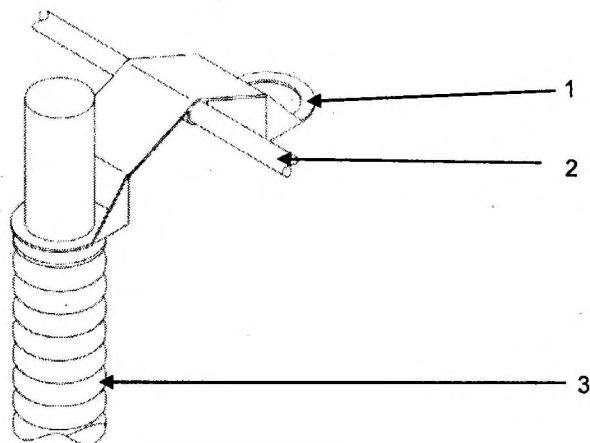
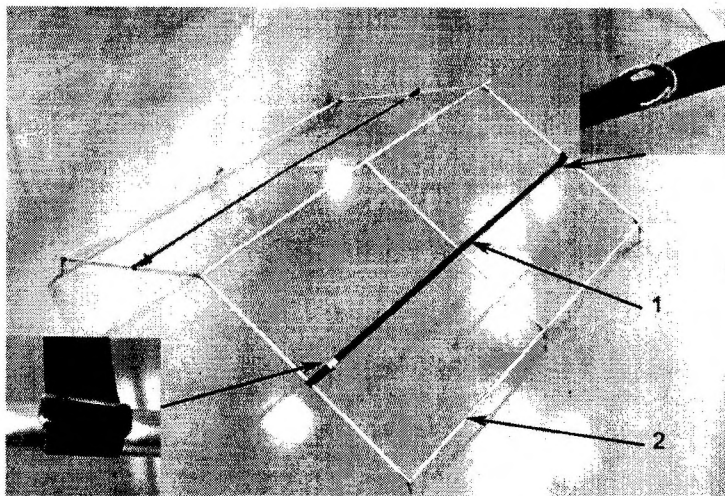


Fig 10 Roof frame components



- 1 Chimney Bracket (Part of OFCS)
- 2 Ridge Pole
- 3 Chimney (Part of OFCS – Shown for illustration purposes only)

Fig 11 Chimney Bracket Installation



- 1 Strap, adjustable roof restraint
- 2 Universal members (assembled)

Fig 12 Universal members assembled

22.3 Fit strap, adjustable roof restraint (Qty 2) (1) horizontally and situate the strap, insulation support (Qty 2) vertically. Ensure the straps are not twisted and the buckles are on the inside of the roof to allow future adjustment.

22.4 Lay the canvas end sections at each end of the roof and wall section and lace them together, starting at the ridge as shown in Figs 2 - 9. Continue lacing down to the eaves and temporarily tie off. Ensure the slide fasteners around the personnel entrances are closed to ensure they are not over-stretched. Insert the end brackets of the assembled roof section into the sleeves on the corners of the canvas end section. The angle of the upright poles are critical if the slide fasteners are to run freely, so therefore the base restraint straps are to be fitted to ensure the correct spacing.

NOTE

Pay particular attention to the canvas roof/end joints at the ridge. If the flaps are incorrectly laced when fitted, the tent will allow water in and light out.

22.5 Place the assembled canvas over the roof frame. Fig 13.

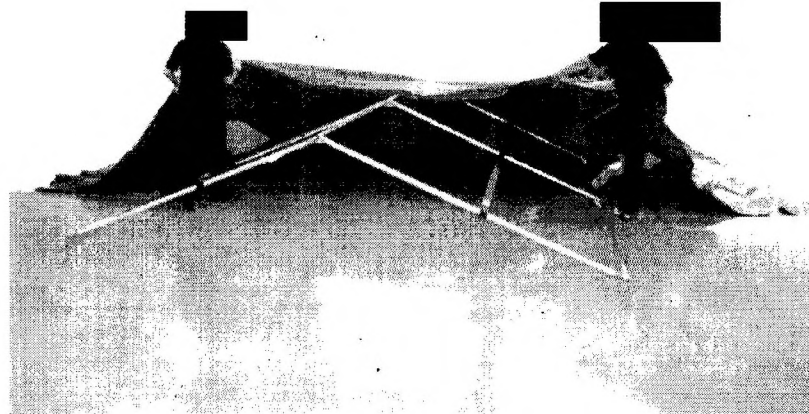


Fig 13 Place Canvas Over Roof Frame (Typical Arrangement)

22.6 Place the centre metallic ring of the end guy, quick release around the exposed part of the ridge brackets at each end, and lay the overstrap over the centre ridge of the shelter. Ensure straps are not twisted and the buckles are facing away from the tent to allow future adjustments.

22.7 Lift one side of the roof to shoulder height and assemble wall and ground members as shown in Fig 16 using the components shown in Fig 15. One person is required for each wall member and the lift must be even to avoid damage to the frame.

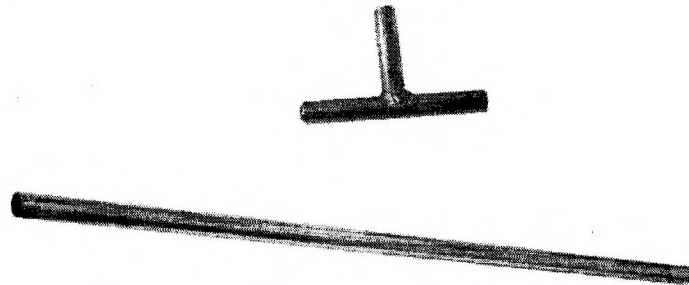


Fig 14 Side frame components

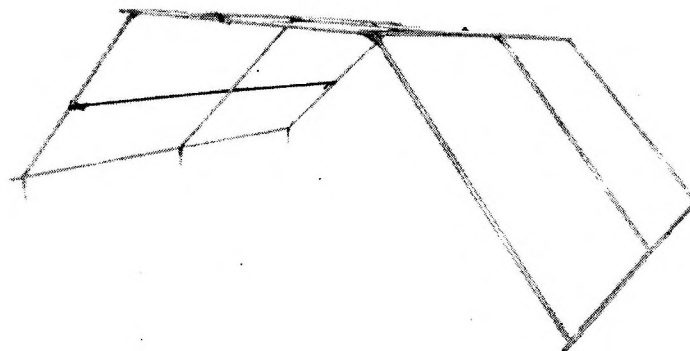


Fig 15 Raise the roof assembly by fitting the two wall members
(Typical arrangement - Canvas not shown for clarity)

22.8 Raise the other side of the roof to shoulder height and fit the wall and ground poles. Push the base of the wall inwards and fit the base straps around the brackets as shown on Fig 17 and 18. Ensure the straps are not twisted.

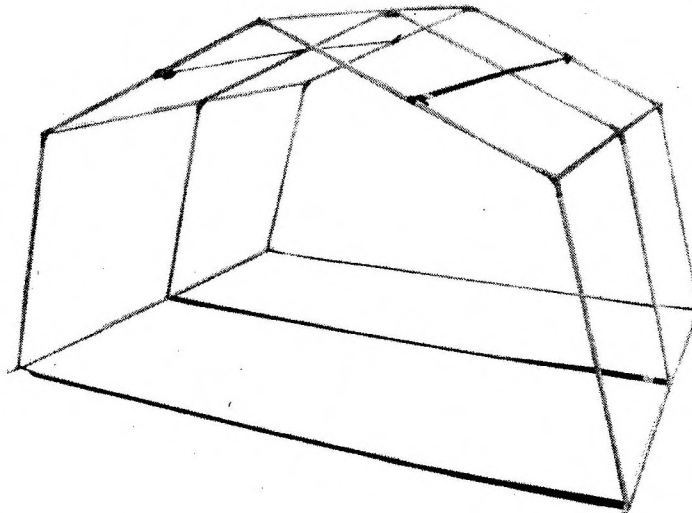


Fig 16 Base restraint straps (Typical Arrangement – canvas not shown for clarity)

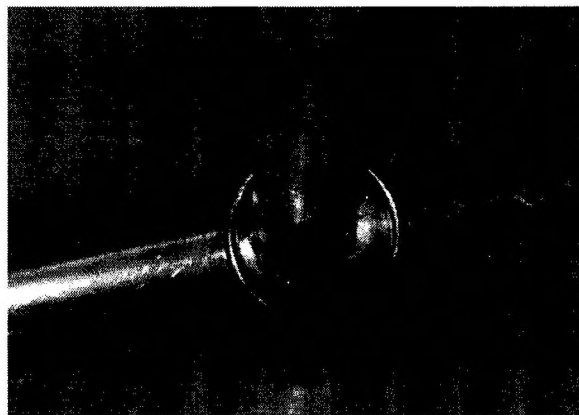
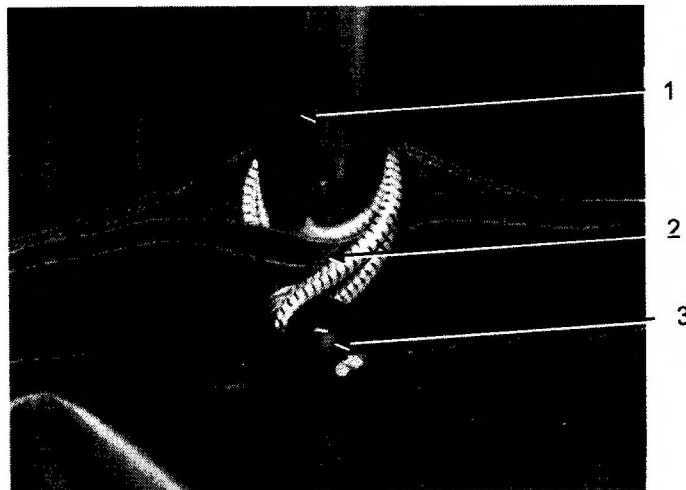


Fig 17 Correct attachment of base restraint strap

22.9 Insert pins to all internal pegging points and secure into the ground. Ensure the pins are placed on the inside of the framework.

22.10 Anchor the sod cloth to the ground. Stake the storm lashings approximately 12 in. (300 mm) away from the tent. Tighten the guys until they are taut.

22.11 Lay the groundsheet (Fig 19) down inside the shelter and attach tensioner (2) to the framework (1).



- 1 Framework
- 2 Tensioner
- 3 Groundsheet

Fig 18 Groundsheet

22.12 Anchor the sod cloth to the ground. Stake the storm lashings approximately 1 ft (300 mm) away from the tent. Tighten the guys until they are taut.

22.13 If required place the hard flooring (Fig 20) over the groundsheet.

TO BE ADDED LATER

- 1 Hard flooring
- 2 Groundsheet

Fig 19 Hard flooring

22.14 Ensure all straps (internal and external) are taut and unable to move from their desired position on the frame.

STRIKING

CAUTION

EQUIPMENT DAMAGE. Wet canvas should never be folded or packed unless circumstances render this unavoidable. Shelters should therefore be left to dry thoroughly before they are struck. If the shelter is not completely dry the officer in charge of the campsite or receiving unit is to be informed.

23 Striking the shelter is the reverse of the pitching procedure.

FOLDING

Shelter canvas roof and wall

24 To fold shelter panels, proceed as follows:

- 24.1 Lay out canvas with outer side uppermost and brush off as much dirt and debris as possible.
- 24.2 Fold walls into ridge.
- 24.3 Fold once more in the same manner.

- 24.4 Fold over at ridge and fold ends to centre.
- 24.5 Finally, roll to form the smallest possible bundle.

Shelter canvas end

- 25 To fold the shelter end, proceed as follows:
 - 25.1 Lay out canvas with outer side uppermost and brush off as much dirt and debris as possible.
 - 25.2 Fold the top and side in to form a square and then fold in half.
 - 25.3 Fold in half to centre of door opening.
 - 25.4 Finally, roll to form the smallest possible bundle.

Insulation panels

- 26 To fold the insulation panels carry out the procedure as detailed in Para 24

NOTE

Do not crush.

PACKING

- 27 To pack the shelter, proceed as follows:
 - 27.1 Whenever it becomes necessary to pack canvas in a wet condition the packages are to be clearly marked NOT DRY to indicate the canvas was packed in a wet condition. If the canvas is being retained in the campsite, the officer in charge is to be notified of the condition of the canvas so he can arrange for it to be dried at the earliest opportunity. If the canvas is to be despatched, the consignee is to be notified by telephone or signal so the canvas can be unpacked and dried as soon as possible after receipt.
 - 27.2 Place the rolled shelter canvas in the valise along with the straps.
 - 27.3 Place the shelter frame components and the tent pins in the bags provided.

MAINTENANCE INSTRUCTIONS**Introduction**

28 The life of tentage can be enhanced considerably if reasonable care is taken whilst in use or in storage. Such care will also help to minimise costs involved in refurbishment after exercises or operations.

Common causes of damage to canvas

- 29 Common causes or damage to canvas are as follows:
 - 29.1 Burns - due to careless smoking or siting shelters near braziers or incinerators.
 - 29.2 Holes - due to careless pitching, stacking or stowage of articles too close to shelter walls. When shelters are used for storage, stacks should be approximately 60 mm (2 ft) from the walls and should not touch the canvas at any point. Gangways are essential in case of fire.
 - 29.3 Tears in canvas can be caused through over-taut weather lines. In wet weather lines directly attached to the canvas should be slackened.

29.4 Tears in the sod-cloth can be caused by walking on it if there is sharp stones or rubble beneath, or if sharp rubble is used to ballast the shelter.

29.5 Damage to the fabric may occur as a result of folding canvas when wet, or on ground contaminated by oil etc.

29.6 Similarly, fabric may be damaged when shelters are used as kitchens or medical theatres if blood, grease or other fats come into contact with the canvas. Canvas should be rinsed off as soon as possible should this occur. Work surfaces that would normally have blood, grease or other fats on them should be kept clear of the canvas. Grease and fats will also become a fire hazard unless cleaned.

29.7 Grease or oil on the hands or clothing of personnel handling or using the tentage will cause damage if in contact with the canvas.

29.8 Care must be exercised when loading or unloading tentage into or from vehicles to avoid damage from contact with projections on the vehicle.

29.9 Vehicles must be examined before loading to check for dirty or contaminated interiors or any oily or dirty items. Unless they can be cleaned prior to loading tentage, such vehicles should not be employed.

29.10 In overseas theatres, where native flora and fauna may damage the canvas, regular checks should be carried out.

29.11 When joining a number of shelters together, care should be taken to avoid abnormal stress being placed on the canvas.

29.12 Exposure to Ultra Violet (UV) light causes damage to all fabrics. To prolong the life of a shelter in areas of high UV an appropriate sunshade should be used.

EFFECTS OF DAMP

30 Wet or damp canvas deteriorates rapidly. If stored in this condition it is liable to catch fire due to spontaneous combustion.

31 All canvas must be thoroughly dry before storing. Stacks should be examined periodically and any damp or suspect canvas removed and examined immediately.

32 Storehouses employed for storing tentage should be inspected regularly for any sources of water ingress.

33 Shelter weather lines and ropes should be dry before storing.

DAMAGE TO POLES AND BRACKETS

34 Common causes of damage to shelter poles are as follows:

34.1 Distortion of alloy shelter frames through misuse and carelessness, i.e. using the alloy poles as bearers or levers, or permitting components to lie where they can be crushed by vehicle tyres/tracks.

34.2 Excessive use of force when fitting framework together. Care should be taken to ensure the hollow ends of the components are free from dirt or other blockages.

34.3 Employing too few people when pitching and striking tentage will result in loss of control over the twisting and bending of the frame and will eventually result in the components becoming unserviceable.

34.4 Excessive loading to the roof such as snow, sand and other debris. Personnel should never climb on or over any shelters.

PROOFING**WARNINGS**

- (1) **PERSONNEL INJURY/TOXIC HAZARD. APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT (PPE) INCLUDING GLOVES, GOGGLES OR FACEMASK AND COVERALLS ARE TO BE WORN WHEN USING MYSTOX. JSP 437 REFERS**
- (2) **PERSONNEL INJURY/TOXIC HAZARD. IF MYSTOX COMES INTO CONTACT WITH SKIN OR EYES WASH THE AFFECTED AREA IMMEDIATELY WITH WATER AND SEEK MEDICAL ATTENTION.**
- (3) **PERSONNEL INJURY/TOXIC HAZARD. IF MYSTOX IS SWALLOWED, SEEK IMMEDIATE MEDICAL ATTENTION.**
- (4) **PERSONNEL INJURY/TOXIC HAZARD. ONLY USE MYSTOX IN AUTHORIZED AREAS, DO NOT USE WHERE THERE IS A DANGER OF SPILT MYSTOX ENTERING THE WATER COURSE INCLUDING PONDS, DITCHES OR WATERWAYS.**
- (5) **PERSONNEL INJURY/TOXIC HAZARD. DISPOSAL OF SURPLUS MYSTOX AND EMPTY CONTAINERS IS TO BE ORGANISED BY THE UNIT QUARTERMASTER/SUPPLY OFFICER IN ACCORDANCE WITH UNIT ENVIRONMENT STANDING ORDERS AND/OR LOCAL PUBLIC HEALTH BY-LAWS.**

Introduction

35 A waterproofing agent Mystox TRP (8030-99-225-1573) is available for the renovation of all canvas tentage. This is a preservative coating that is an olive drab, water solvent emulsion that will restore the Flame resistance, Water resistance and Rot Resistance (FWRR).

Personal protective equipment (PPE) JSP 437

36 Table 1 details some of the NATO Stock Numbers (NSNs) of suitable Personal Protective Equipment (PPE) for personnel using Mystox.

37 Units that do not have sufficient quantities of the items to equip a 4-6 person reproofing team should demand items through the normal supply chain. A team should be sufficient to reproof a battalion's entitlement of shelters.

TABLE 1 PPE

Serial (1)	Item (2)	D of Q:	DMC	NSN (3)	Size (4)
	GLOVES				
1	Chemical & Oil Protective	PR	GL	8415-99-132-1427	Size 7
2	Chemical & Oil Protective	PR	GL	8415-99-132-1428	Size 8
3	Chemical & Oil Protective	PR	GL	8415-99-132-1429	Size 9
4	Chemical & Oil Protective	PR	GL	8415-99-132-1430	Size 10
5	Chemical & Oil Protective	PR	GL	8415-99-978-3706	Size 7
6	Chemical & Oil Protective	PR	GL	8415-99-978-3707	Size 8
7	Chemical & Oil Protective	PR	GL	8415-99-978-3708	Size 9
8	Chemical & Oil Protective	PR	GL	8415-99-978-3709	Size 10

(continued)

TABLE 1 PPE (continued)

Serial (1)	Item (2)	D of Q:	DMC	NSN (3)	Size (4)	
9	Chemical & Oil Protective	PR	GL	8415-99-978-3710	Size 11	
10	Rubber		GL	8415-99-130-8250	Size Small	
11	Rubber		GL	8415-99-130-8251	Size Medium	
12	Rubber		GL	8415-99-130-4729	Size Large	
13	Rubber		GL	8415-99-130-8252	Size Extra Large	
14	Rubber		GL	8415-99-571-3559	Size 7/7 IA	
15	Rubber		GL	8415-99-571-3560	Size 8/8 1/2	
16	Rubber		GL	8415-99-571-3561	Size 9/9 1/2	
17	Rubber		GL	8415-99-571-3562	Size 10/10 1/2	
	GOGGLES, INDUSTRIAL					
18	Goggles		EA	VO47	4240-99-577-3798	
19	Goggles		EA	VO47	8415-99-130-9776	
	COVERALLS					
20	Coverall, disposable			CAS	8415-99-130-8302	Size M
21	Coverall, disposable			CAS	8415-99-130-8303	Size L
22	Coverall, disposable			CAS	8415-99-130-8304	Size XL
23	Coverall, disposable			CAS	8415-99-665-7624	Size XXL
24	Coverall, disposable		CAS	8415-99-665-7625	Size XXXL	
25	Coverall, disposable		CAS	8415-99-978-4772	Size M	
26	Coverall, disposable		CAS	8415-99-978-4773	Size L	
27	Coverall, disposable		CAS	8415-99-978-4774	Size XL	
28	Coverall, disposable		CAS	8415-99-978-4775	Size XXL	
29	Coverall, disposable		CAS	8415-99-978-4776	Size XXXL	
	FACEMASK					
30	Mask, disposable		VO47	4240-99-132-1426		
31	Mask, disposable		VO47	4240-99-257-8006		

Mystox - instructions for use

WARNINGS

- (1) **PERSONNEL INJURY/TOXIC HAZARD. APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT (PPE) INCLUDING GLOVES, GOGGLES OR FACEMASK AND COVERALLS ARE TO BE WORN WHEN USING MYSTOX. JSP 437 REFERS**
- (2) **PERSONNEL INJURY/TOXIC HAZARD. IF MYSTOX COMES INTO CONTACT WITH SKIN OR EYES WASH THE AFFECTED AREA IMMEDIATELY WITH WATER AND SEEK MEDICAL ATTENTION.**
- (3) **PERSONNEL INJURY/TOXIC HAZARD. IF MYSTOX IS SWALLOWED, SEEK IMMEDIATE MEDICAL ATTENTION.**

(4) PERSONNEL INJURY/TOXIC HAZARD. ONLY USE MYSTOX IN AUTHORIZED AREAS, DO NOT USE WHERE THERE IS A DANGER OF SPLIT MYSTOX ENTERING THE WATER COURSE INCLUDING PONDS, DITCHES OR WATERWAYS.

(5) PERSONNEL INJURY/TOXIC HAZARD. DISPOSAL OF SURPLUS MYSTOX AND EMPTY CONTAINERS IS TO BE ORGANISED BY THE UNIT QUARTERMASTER/SUPPLY OFFICER IN ACCORDANCE WITH UNIT ENVIRONMENT STANDING ORDERS AND/OR LOCAL PUBLIC HEALTH BY-LAWS.

38 To apply Mystox, proceed as follows:

38.1 The emulsion is to be applied with a brush only - spray painting is strictly forbidden.

38.2 The emulsion should be well stirred and look like ordinary emulsion paint. If it thickens during application it should be thinned by adding a small amount of water.

38.3 Under cold conditions it may be necessary to stir for a longer period than under warm conditions.

38.4 The emulsion should be stored in a temperature that does not fall below 0°C. If after extended storage, it can be applied with a brush without balling or curdling it should perform satisfactorily.

38.5 Only those parts of the tent which leak (i.e. most worn areas and seams) should be treated.

38.6 If, in spite of wearing protective clothing, any Mystox comes into contact with the skin the affected area should be washed immediately with water.

38.7 Disposal of surplus emulsion and empty containers must be organised by the unit

38.8 Quartermaster/Supply Officer in accordance with the local public health by-laws and advice of local authorities must be sought as regulations may vary from area to area.

38.9 Drying time, with good drying conditions, is between seven and eight hours. However, to ensure the emulsion is absolutely dry, whenever possible drying should be extended over 24 hours in a warm dry atmosphere.

38.10 Application can be made onto a damp canvas if necessary. In such a case, extra care with drying is essential.

38.11 Mystox is issued in 25 kg containers therefore it will probably be necessary to decant the liquid into smaller containers, these are to be suitably labelled and treated for disposal the same as the original containers.

38.12 It is advisable, whenever practicable, to reproof shelters whilst they are erected and to leave them standing during the drying process. This is of course more difficult for the larger shelters that may require their roofs to be reproofed prior to complete erection. Alternatively, a brush on an extended handle can be used, however extra care must be taken to ensure splashes and spillage are kept to a minimum and cleaned as soon as possible.

38.13 After use, all protective clothing should be scrubbed in soapy water and then thoroughly rinsed to aid the removal of residual deposits of Mystox.

38.14 Hands should be washed thoroughly and nails scrubbed with warm soapy water.

38.15 Mystox emulsion paint dries fairly hard, and provided that sufficient drying time is allowed, no problems with sticking (tackiness) should occur.

38.16 If cracking or flaking occurs, the applied layer of Mystoc is too thick, and any excess should be removed and Mystoc re-applied as necessary.

ECI INTERIM GUIDANCE FOR CONDITIONING ITC/GS TENTAGE SYSTEMS

39 Current Tentage. Users must inspect their tent systems forthwith in order to apply the new BIU programme board direction on a condition based approach to service life:

39.1 If Users are content with the fire prevention and fire fighting systems being applied to deployed tent systems, then they may choose to retain the in-service insulation until new insulation is procured and deployed.

39.2 If Users are concerned about the fire prevention and fire fighting systems being applied to their deployed tent systems, then they may choose to remove the in-service insulation. IN this instance, they may choose to remove it from sleeping quarters.

40 ITC/GS Canvas. The ITC/GS canvas retains its fire retardant properties as long as the material remains intact:

40.1 Users must apply a periodic maintenance and inspection regime.

40.2 The minimum expected deployed life for ITC/GS canvas is 3 years of continuous use.

40.3 The actual service life of ITC/GS canvas will be determined by the environmental conditions experienced in storage and when deployed, as well as the nature of usage and the management/maintenance regime being applied by Users. Service life is therefore expected to vary widely.

40.4 There must be **no** open tears in the fabric.

40.5 If the canvas leaks, then Users should apply the Mystox recoating agent in order to improve the waterproof properties, as well as the resistance to rot.

41 ITC/GS Insulation. The condition of the insulation is critical. The ITC/GS insulation must be in A1 condition:

41.1 Users must apply a periodic maintenance and inspection regime.

41.2 The minimum deployed life for ITC/GS insulation is 18 months of continuous use. This assessment is limited by the availability of test samples (none older than 18 months).

41.3 The actual service life of ITC/GS insulation will be determined by the environmental conditions experienced in storage and when deployed, as well as the nature of usage and the management/maintenance regime being applied by Users. Service life is therefore expected to vary.

41.4 There must be **no** damage to the inner foil layer.

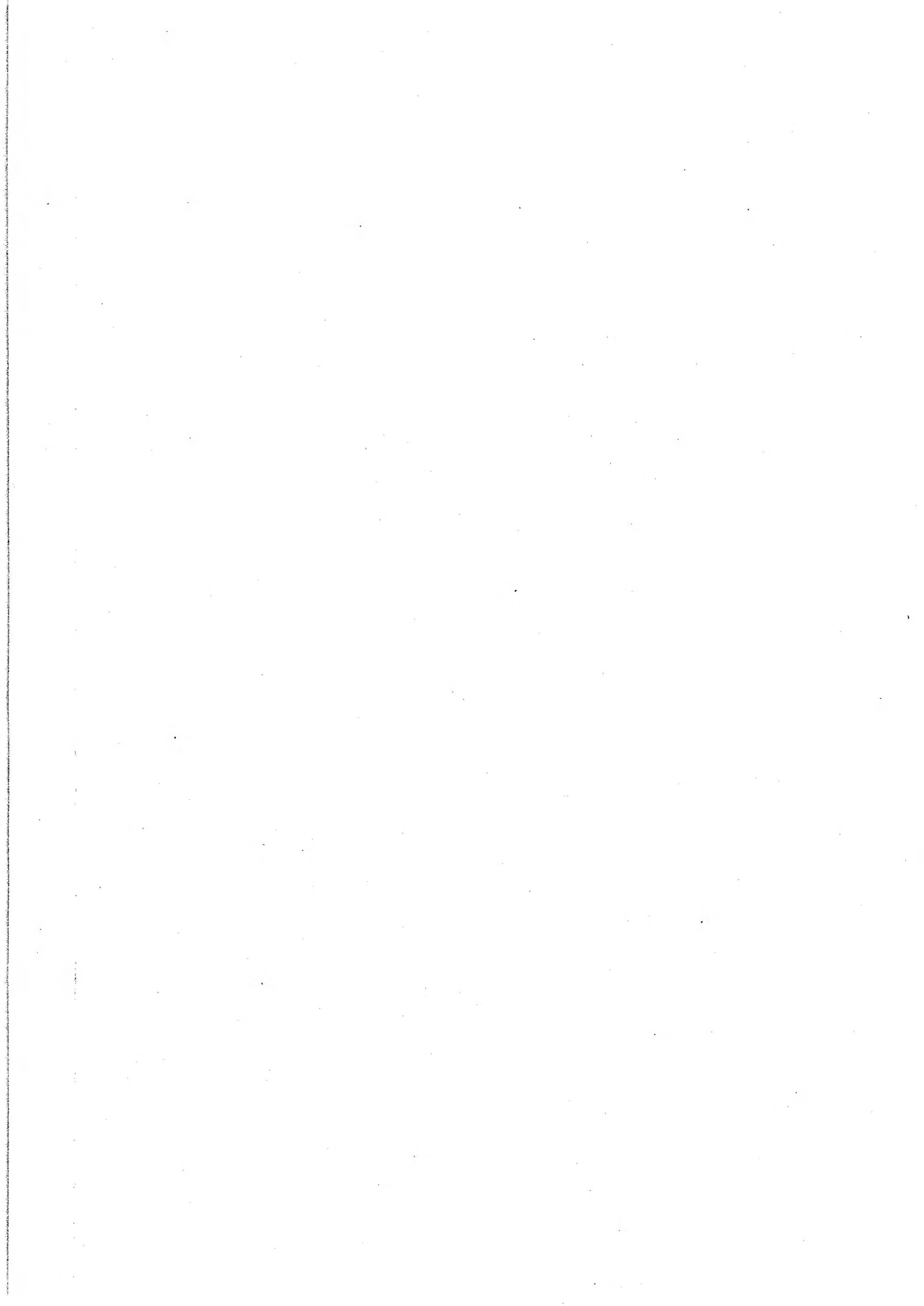
41.5 The outer 'fabrine' layer is a cosmetic layer and some minor damage may be acceptable.

41.6 It is essential that there are **no** holes in the insulation. Cables must be passed under or around the insulation and not through.

41.7 There must be **no** damage to the joints or seams of the insulation.

41.8 The insulation **must** be attached to the tent frame by all available points.

41.9 There must be **no** personal items hung directly from the insulation or canvas.



COMMENT(S) ON AESP*

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