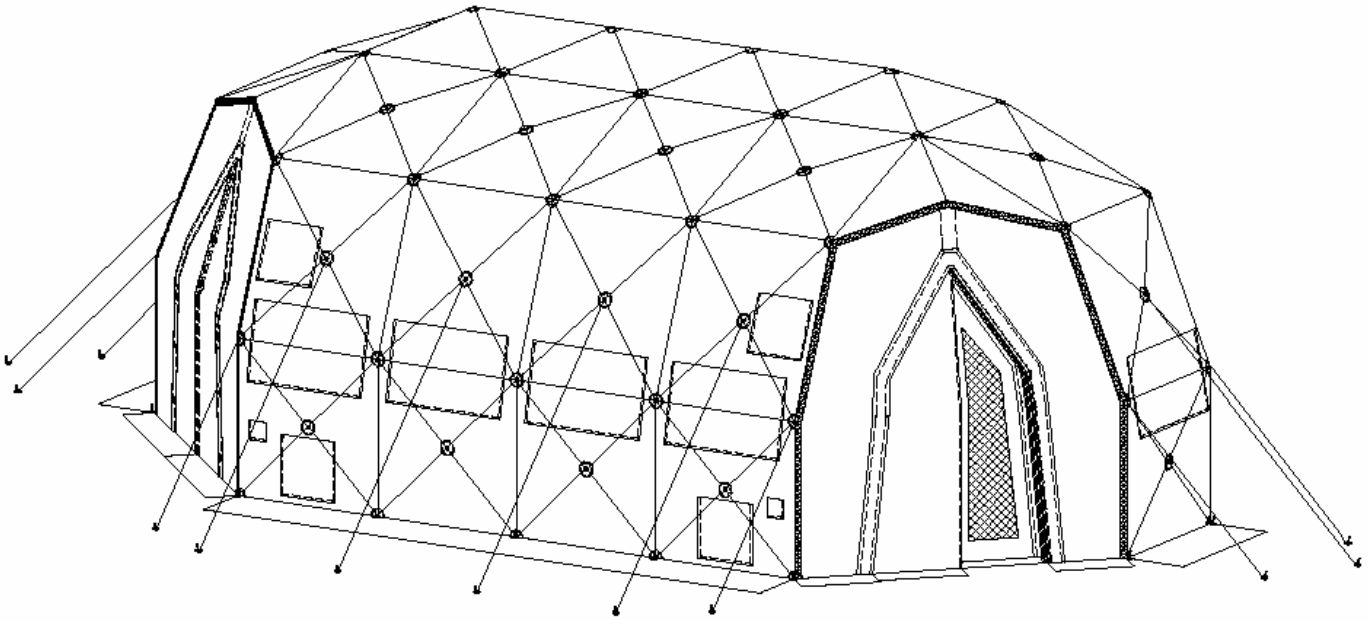
DRASH®

S SERIES SHELTER



OPERATION & MAINTENANCE MANUAL

WARNING: Failure to follow the operating procedures described in this manual may result in damage to the equipment and are not covered under warranty. Please read before proceeding.

DHS SYSTEMS LLC

ISO 9001: 2000 Registered Quality Management System

DHS MANUAL PART NUMBER: 95310-02
Revised July 2006

Hotline: 800-977-3647
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Revision History

Date	Revision	Description
04/08/02	019965-00	Original Issue.
04/19/04	95310-00	Change Part Number. Revise all Sections.
11/09/05	95310-01	Replace Figure 1-3, S Shelter Dimensions. Minor touchups.
07/14/06	95310-02	Deleted Figure 4-3. Changed Figure 4-4 Shelter Strut Pair Identification by Color Pair and Dimensions. Minor touchups in all Sections.

WARNING SUMMARY

This Warning Summary explains the use of general safety Note, Caution, and Warning notices present in this Technical Manual that must be understood and applied during the operation and maintenance of this equipment. Failure to observe these precautions could result in serious injury or death to personnel.

Equipment Specific Safety Issues

General

The cautions and warnings point out known conditions that are potentially hazardous. However, no manual can cover every possible situation. If in doubt, contact DHS.

Service and repair procedures not covered in this manual should be performed only by authorized DHS technicians.

General Precautions

REMEMBER SAFETY FIRST. If unsure of the instructions or proper operating procedures, contact DHS before continuing.

This manual emphasizes the safety precautions necessary during the operation and maintenance of the S Series Shelter. Each section uses caution and warning messages for both the safety of the operator as well as the durability of the equipment. If any of the cautions or warnings is not readily understood, contact DHS before proceeding.

When an abnormal condition is observed and procedures in the manual do not specifically describe the condition, all operations should be stopped and DHS Systems should be immediately contacted for assistance.

DHS SYSTEMS LLC Contact Information

Phone: 800-977-3647
FAX: 845-365-2114
e-mail: drash@drash.com

Qualified Personnel

A qualified person is one who is familiar with this manual, the operation of the S Series Shelter and the hazards involved in its operation and maintenance and who has been certified by the DHS SYSTEMS LLC Training program.

This manual is not intended to be a substitute for proper training. DHS SYSTEMS LLC strongly recommends that operators receive training directly from DHS SYSTEMS LLC.

Warning Boxes

Warning Box Words & Icons

Warning Boxes are provided throughout this Technical Manual and are used to call attention to various details about either the equipment that are important enough to separate from the normal operating descriptions and/or procedures or a safety-related situation that the operator must be aware of. The appearance of the basic Warning Box is shown in Figure a. There are generally four information points provided by each Warning Box that follow a defined pattern. Figure a defines the positions of the information points.

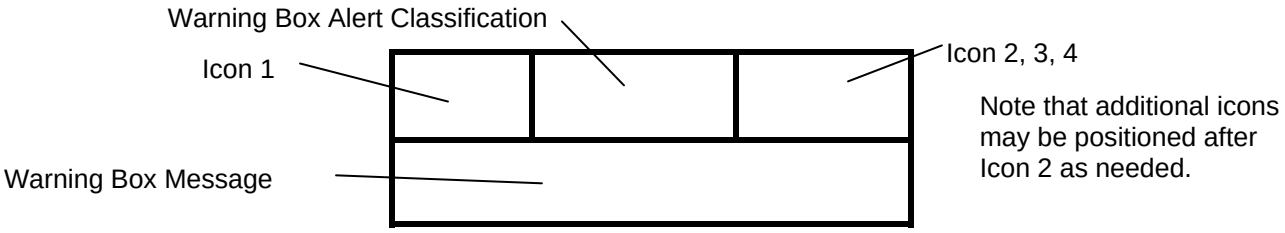


Figure a - Warning Box Definition

Icon 1:

Icon 1 is the primary indication of the contents of the Warning Box. The Icon is meant to visually alert the reader to the level of importance of the Warning.

Icons 2, 3, 4:

The icons that appear to the right of the Warning Box Classification provide a secondary indication of the contents of the Information Box. The position is labeled Icon 2, 3, 4 in Figure a (above) because there may be multiple types of alerts associated with the warning. The types of Icons found in Icon Box 2 are as follows:

When Icon 2 is the same as Icon 1, it means that there is no further specific information about the type of Alert.

If Icon 2 is different than the icon shown in Icon Box 1, it means that there is more specific information available about the type of Alert. An example of an Warning Box where there would be two different Icons shown in Icon Box 1 and Icon Box 2 would be that of a burn hazard. In this case, Icon Box 1 will show an Icon representing a burn hazard. If the burn hazard was created by a particular substance such as gasoline, Icon Box 2 would be an Icon indicating a Flammable Fluid.

In certain instances, additional icons will appear after Icon #2. These icons will either enhance the definition of the warning or they will indicate the presence of additional hazards that may exist either because of the original condition or in addition to the original condition.

Warning Box Alert Classifications

The Warning Box Alert Classification is an indication of the level of importance of the Warning Box. The various levels of Alert Types are defined below, from the most important (Danger) to items of lesser importance.

Danger: Danger refers to immediate hazards that will result in severe personal injury or death.

Warning: Warning refers to a hazard or unsafe method or practice that may result in severe personal injury or death.

Caution: Caution refers to a hazard or unsafe method or practice that may result in personal injury or equipment damage.

Note: Note refers to an important feature that the operator should be aware of for maximum operating efficiency of the equipment.

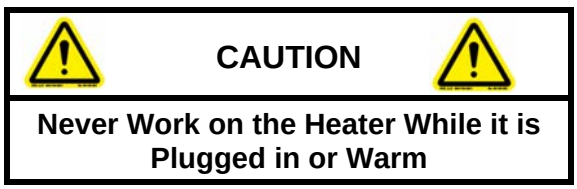


Figure B - Example of a Generic Warning

Common Warning Symbols Definitions

The following symbols are commonly used to indicate that a task requires precautionary measures be understood and practiced during the execution of the task.

Icon	Definition	Notes
	CAUTION The exclamation point is intended to alert the user to the presence of important operating and/or maintenance (servicing) information in the literature accompanying the product.	
	PRESENCE OF ELECTRICITY The lightning bolt is intended to alert the user to the presence of electricity. The electricity can be directly related to the specific operation or it can be in the area of the operation.	This icon is typically used with another, more specific, icon that identifies the nature of the warning.
	HAZARDOUS VOLTAGE The lightning bolt and human figure is intended to alert the user to the presence of voltages that can serious or fatal shock to a person.	
	EXPLOSION The explosion is intended to alert the user to the possibility that something associated with or in the area of the particular operation presents the risk of an explosion.	This icon is typically used with another, more specific, icon that identifies the nature of the warning.
	EXPLOSION The explosion with a face is intended to alert the user that a particular operation or task exposes the individual(s) to a risk of explosion within close proximity to the immediate work location.	This icon is more specific than the previous EXPLOSION icon.
	HOT SURFACE The open flame and heat lines are a generic icon to alert the user that there is or could be an exposed source of flame in the immediate vicinity of the particular operation.	This icon is not the same as the FLAMMABLE icon described below.
	HOT SURFACE w/BURN HAZARD The radiating surface with a hand alerts the user to the risk that there is or could be a potential for being burned by contact with a surface.	Hot surfaces are not always associated with a flame. An engine exhaust pipe is one example of a hot surface with no flame.
	FLAMMABLE The large open flame indicates that the associated operation involves working with fluids and/or gases that are flammable.	Burning gases and liquids can cause severe burns. Keep ignition sources away.

Icon	Definition	Notes
	LIFTING HAZARD The image of a person lifting a box indicates that the object in question is particularly heavy and presents a risk of back injury if not lifted properly or with assistance.	Other warnings that use this same icon include: HEAVY OBJECT TWO-PERSON LIFT
	HAND ENTANGLEMENT The image of a hand being trapped between two rollers indicates that there is a risk of a hand being trapped and possibly injured by one or more pieces of moving machinery.	
	PINCH POINT The image of a hand being crushed between two objects indicates that the particular piece of equipment or the particular operation presents the possibility that a hand or other part of the body can be pinched during the task.	
	STOP The uplifted hand within a red circle indicates that the person should stop and identify all possible risks and hazards associated with the particular operation before proceeding. Failure to observe this warning can lead to serious problems and the risk of injury or death.	Other warnings that use this same icon include: STAY CLEAR
	HAZARDOUS GASSES The image of a person inhaling gasses is intended to alert the user to the possible presence or release of gasses in the immediate area that can be harmful if inhaled.	
	FIRE EXTINGUISHER The image of a fire extinguisher indicates that the person should have an extinguisher ready or be aware of the location of the nearest fire extinguisher during a particular operation or task.	
	FIRST AID The cross in a circle is the international standard icon for a first aid kit. When used within an Operation & Maintenance Technical Manual, the First Aid icon indicates that the person should be aware of the location of such a kit.	

HOW TO USE THIS MANUAL

Work Package Description

This Technical Manual and the procedures within it are organized according to the Work Package numbering format identified in DoD Standard Practice for Preparation of Technical Information for Technical Manuals (MIL-STD-40051A) and DoD Guide to the General Style Format of US Army Work Package Technical Manuals (MIL-HDBK-1222B(TM).

Work Package Numbering

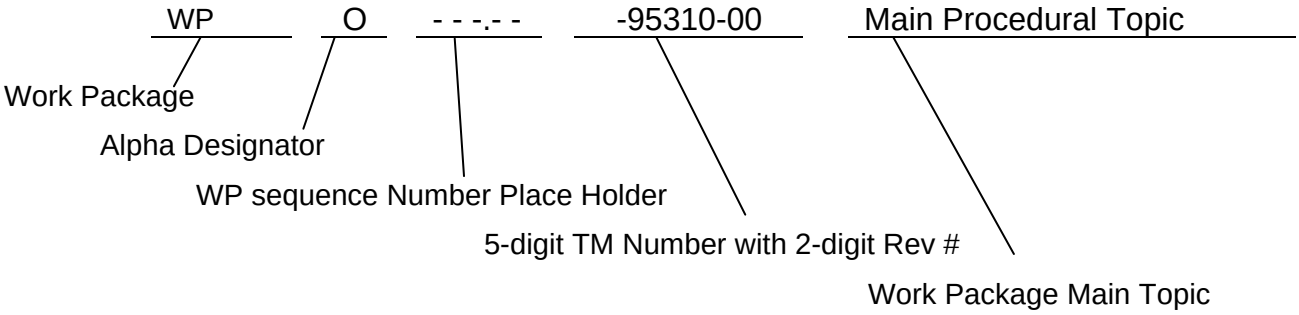
The Work Package numbering and lettering sequence is derived from MIL-STD-40051, page 25, and is explained here for reference.

The following alpha designators describe the specific types of information within this Technical Manual and within the specific Work Packages.

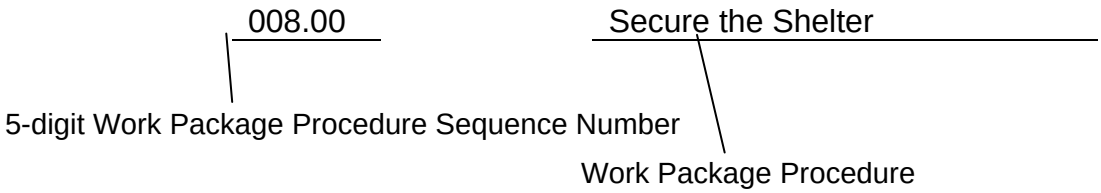
Alpha Designator	Description		Alpha Designator	Description
G	Descriptive information and theory of operation		**R**	Repair parts and Special Tools List (RPSTL)
I	Inspection Procedures		**S**	Supporting Information
M	Maintenance Procedures		**T**	Troubleshooting Procedures
O	Operation Procedures			

This manual uses two methods to present the Work Package numbering sequence:

The first method identifies the Parent Work Package by Alpha Designator, 5-digit Technical Manual number with revision number, and Work Package Main Topic. The Work Package Main Topic identifies the general scope of the Work Package Procedures to follow. An example Parent Work Package number is defined below.



The second numbering method identifies the titles of specific procedures by Work Package Sequence Number and Work Package Procedure. The Work Package Procedure Sequence Numbers will always flow from a lower number to a higher number, indicating the progress towards completing the Main Topic Procedure. An example of a specific Work Package Procedure is defined below.



Note that the first three digits of the Work Package Sequence Number will never change for the life of the product.

The last two digits of the Work Package Sequence Number and the last two digits of the Technical Manual Number are revision numbers and will change from time to time as revisions to either the product or the Work Package occur.

In all instances, the last two digits of the Work Package Sequence Number and the last two digits of the Technical Manual Number must always match. An examination of the Table of Contents page will show how the two numbering systems integrate.

All Work Packages will end with "END **OF WORK PACKAGE**" statement in bold type. The next Work Package will then begin and be identified by a Parent Work Package title described above.

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TABLE OF CONTENTS

Section 1

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1. INTRODUCTION

DRASH is an acronym for **D**EPLOYABLE **R**APID **A**SSEMBLY **SH**ELTER. The shelter can be deployed by a minimum of four people in a matter of minutes. It does not require any assembly in the field and it does not require any special equipment for either erecting or striking.

The major component of the DRASH is a frame with two (2) pre-attached covers. The "FRAME" consists of an arrangement of various sized Titanite™ struts. Struts are connected as pairs and articulate at the "HUBS." These hubs enable the struts to move freely. The unique frame design allows for quick erect and strike.

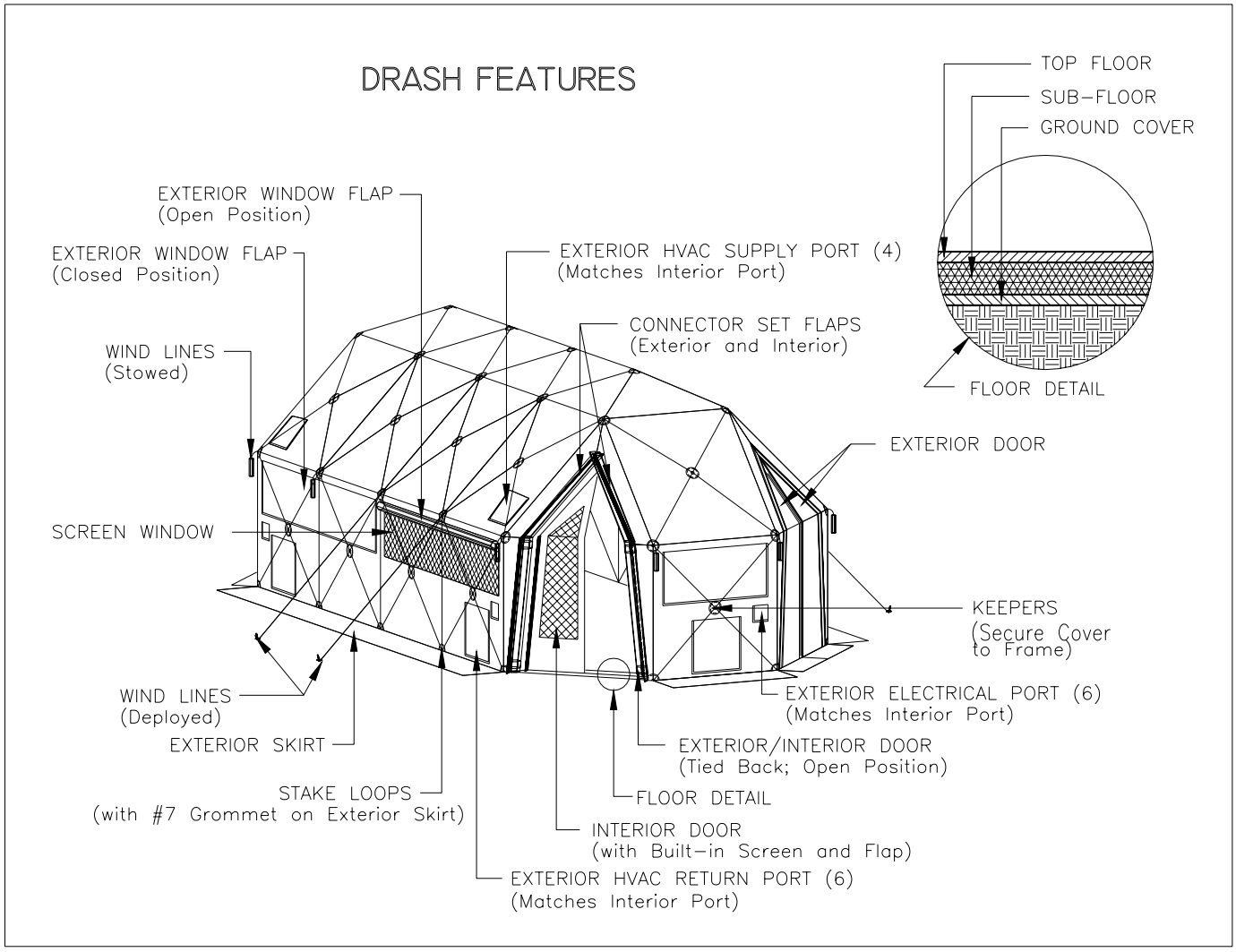

Figure 1-1 - DRASH Shelter Basic Features

1.1 S Series Shelter Features

Both the interior and exterior covers are made with specially coated polyester fabrics named XYTEX®. All fabrics are fire retardant, mildew resistant and water repellent. They have abrasion resistance and are UV resistant. The exterior fabric includes blackout in the visual and near infrared spectrum.

The interior and exterior covers are pre-attached to the frame using "KEEPERS" at the hub points in such a way that there is approximately one foot of dead air space between the two covers that acts as natural insulation. These covers are easily removable in the event of damage or change of venue.

The "GROUND COVER" and "FLOOR" are made from a heavy duty polyester material. The ground cover provides a barrier against insects and vermin, abrasion and ground moisture. The floor acts as an inner lining. All shelters feature screen windows, electrical ports, conditioned air supply and return duct ports, built-in screen doors, wind lines, and ground stake loops.

1.2 S Series Shelter Components

The following list names the primary components of the Shelter. These are the components that will be found in the "bundled" Shelter when it arrives.

1. S Shelter
2. Floor
3. Ground Cover
4. Push Poles (PVC)
5. Field Repair Kit
6. Cinch Belt
7. Transport Bag
8. O & M Manual

There are additional components that will be mentioned within this manual and they will be identified as their use is mentioned.

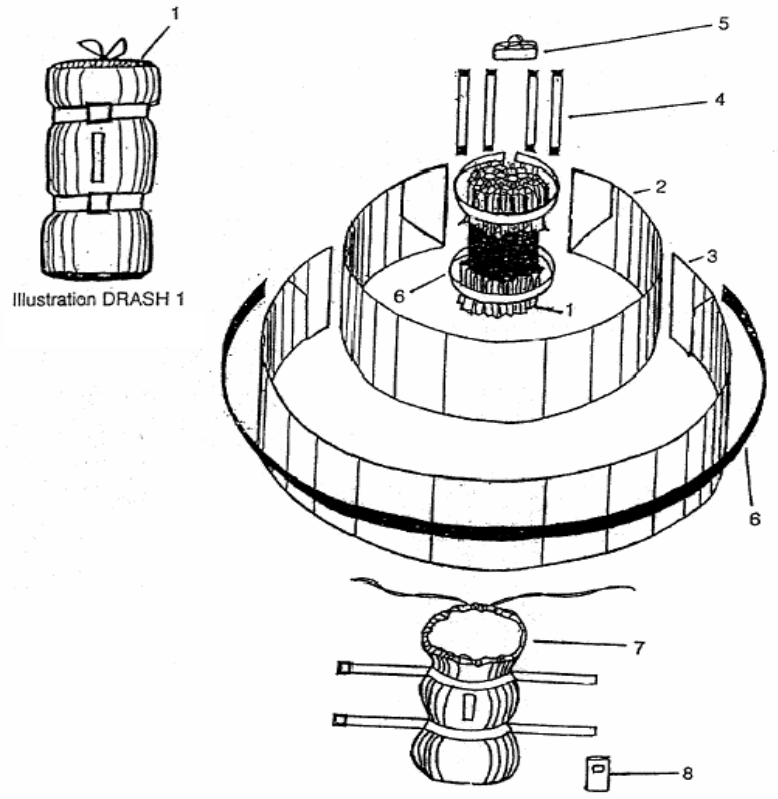

Figure 1-2 - Major Shelter Components

In addition to DRASH Shelters, DHS Systems also manufactures accessories for the S Series that enhance mission capability and function. Accessories include sub-floors, privacy curtains, plenums, connector sets, door boots, plastic storm windows, plastic strip doors, light sets, spare part kits, ground stakes, and trailers which supply air conditioning, heating and electric power to the shelter.

Log on to www.drash.com for more details.

1.3 S Series Specifications

The S Shelter starts as a basic shelter with a ground footprint of 13.5 ft by 13.5 ft (4.1 m by 4.1 m) for the S1 model. Additional S Shelter models S2 through S6 share the original cross section but expand in length in 5 ft (1.5 m) increments. Figure 1-3 and Table 1-1 detail the various S Shelter configurations.

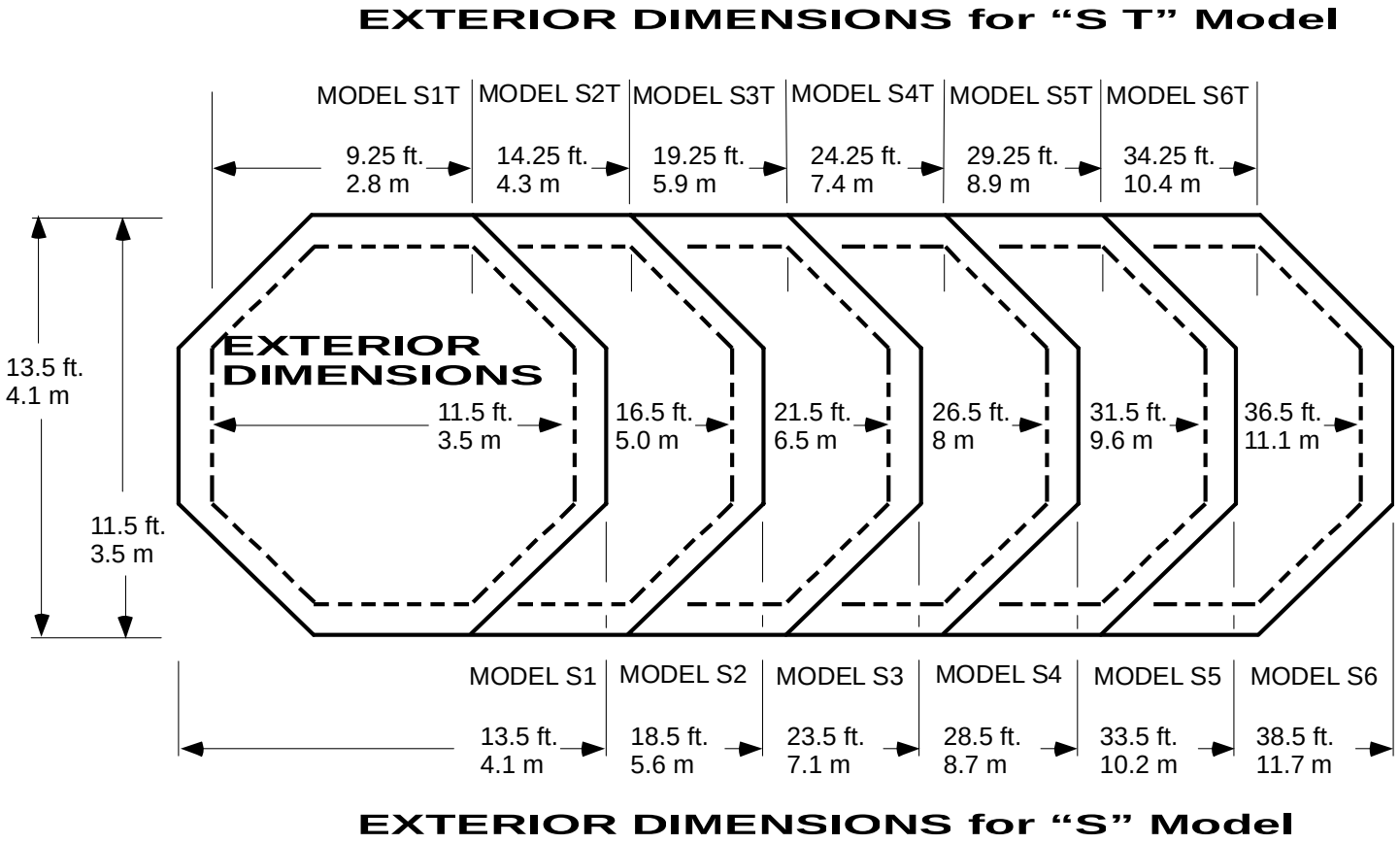

Figure 1-3 - S Shelter Configuration Dimensions

Shelter		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Usable Area*	sq. ft.	112	170	228	286	344	402
	sq. m.	10.5	15.9	21.3	26.7	32.1	37.5
Usable Volume	cu. ft.	772	1,194	1,616	2,038	2,460	2,882
	cu. m.	21.8	33.7	45.6	57.6	69.5	81.4
Packed Volume**	cu. ft.	19	22	30	33	41	44
	cu. m.	0.57	0.66	0.90	0.99	1.23	1.32
Packed Dimensions	in.	66x21x24	66x24x24	66x33x24	66x36x24	66x45x24	66x48x24
	Cm.	168x70x56	168x76x56	168x83x56	168x89x56	168x95x56	168x102x56
Total Weight**	lb.	198	249	318	396	439	498
	kg.	90	113	144	180	199	226

Table 1-1 - S Shelter Specifications

* *For T models subtract 27 sq. ft. (2.5 sq. m.)*

** *Total weight and packed volume includes the ground cover, floor, push poles and repair kit which are packed in the transport bag with the DRASH*

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Section 2

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2. ERECTING THE SHELTER

This manual and a separate video tape or CD-ROM has been prepared to assist you in understanding the correct procedure for deploying and striking the Shelter.

WP M --- . -- -95310-02 Deployment Procedure

Whether the Shelter is to be used in a stand alone (single shelter) application or in a complex configuration (two or more shelters interconnected), the set-up and take-down procedures are the same. THESE PROCEDURES MUST BE FOLLOWED TO INSURE PROPER DEPLOYMENT AND STRIKING OF THE SHELTERS. Failure to follow these simple procedures may hinder optimum performance or result in damage to the shelter.

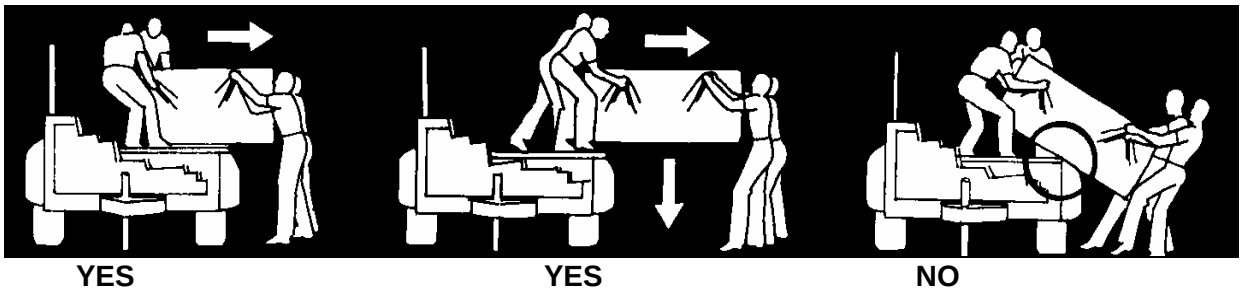
001.01 Offloading the Shelter

To off-load the Shelter package from any platform;

1. Assign one member from the four people (minimum) as the TEAM LEADER to be responsible for coordinating the smooth and uniform motion of the deployment crew.
2. Lift and slide the shelter so that it remains parallel with the ground (see Figure 2-1).
3. Do not rock the shelter when off-loading. Rocking may cause damage to the struts (see Figure 2-1).

CAUTION

THIS STEP REQUIRES FOUR PERSONNEL TO LIFT THE SHELTER PACKAGE FROM THE TRANSPORT VEHICLE AND LOWER IT TO THE GROUND.



YES YES NO

Figure 2-1 - Offloading the Shelter

002.01 Position the Shelter

1. Clear enough space to erect the Shelter.
2. Open the Transport Bag and remove the Field Repair Kit, Push Poles, and cinched Shelter.
3. Unwrap the Ground Cover and Floor. The Ground Cover has coated staking loops around the edge.
4. Identify and remove the floor from the immediate area for later use.
5. Place the ground cover on site (Stenciled side up) and stake down. The stakes **MUST** be flush to the ground.
6. Place the Shelter on the center of the ground cover with the exterior side facing up and the white side down.
7. Orient the long side of the Shelter with the long side of the ground cover. Proper alignment will reduce the possibility of having to reposition the Shelter later.
8. Remove the Shelter cinch straps and place them in the Transport Bag to prevent loss. The Repair Kit should also be returned to Transport Bag.

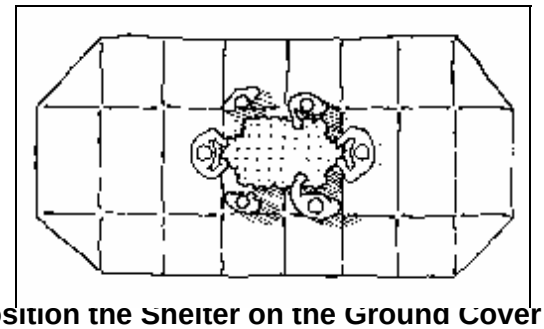
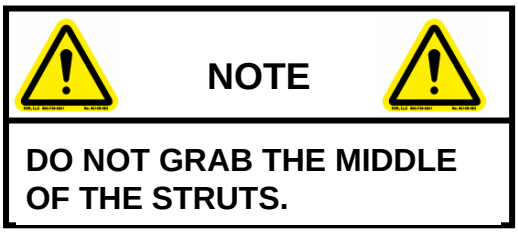


Figure 2-2 - Position the Shelter on the Ground Cover

003.01 Position Personnel & Locate the Exterior Lifting Hubs

1. Locate the outermost hubs. These are the hubs with the coated steel wire looped keepers. The outermost hubs or "lifting hubs" and the top part of the struts are the only places from which the Shelter should be lifted.
2. Check that the wind lines are not snagged on any hubs. Snagged wind lines may prevent the Shelter from spreading.
3. To spread the Shelter;
   a) S MODELS 1, 2, & 3:
   Position one person at each narrow end wall. Center one person on each of the longer sides.
   b) S MODELS 4, 5, & 6;
   Position two people per long wall at each hub point next to the end of the wall. This will help properly distribute the load.



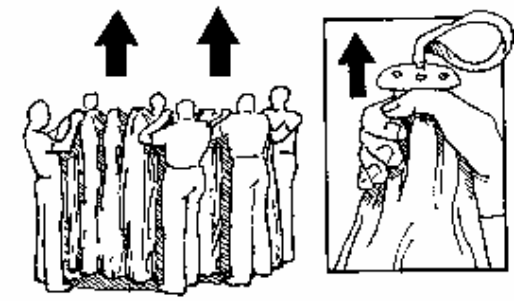


Figure 2-3 - Positioning Lifting Personnel

004.01 Position, Lift, &Spread the Shelter

Before any commands or movements by personnel, the TEAM LEADER must be sure that all team members are in position and alert. All movements must be uniform and coordinated.

1. With both hands, grasp the lifting hubs. The hubs will spread out as the Shelter is spread. The top of the Shelter must be spread out at the same rate as the bottom.

   NOTE: THE SHELTER MUST BE LIFTED OFF THE GROUND. DO NOT STEP ON THE FABRIC LINER.

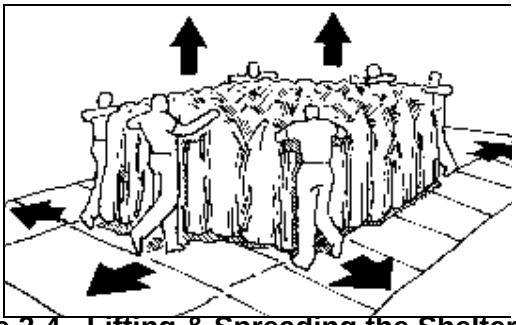


Figure 2-4 - Lifting & Spreading the Shelter

1. On the Team Leader's command ("Ready to lift? Lift") each team member will lift the Shelter off the ground, take two short steps backward and put the shelter down.
   a) If any resistance felt by any team member, immediately yell "STOP", identify the restriction and correct it.

   NOTE: If utilizing a "T" boot, make sure the boot is attached to the shelter. Connect the boot to the shelter by securing the Velcro until you reach the grommets. For a "T" to "T" connection, make sure the "T" boot is detached.
2. Continue to lift, step back, and spread the Shelter.
   a) On command, continue to lift the Shelter at the highest point of the strut, step backward, and spread.
   b) At maximum spread, the Shelter will resist any further expansion and the center of the exterior cover will rise slightly and appear to inflate or "puff". The shelter should be extended beyond the ground cover.

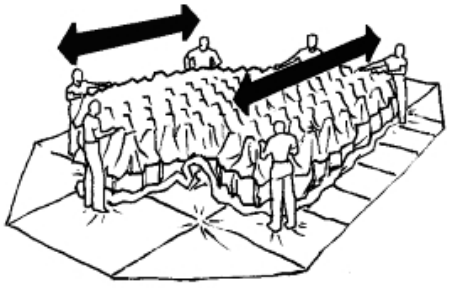


Figure 2-5 - Continue Spreading the Shelter

005.01 Raise Shelter to Pole Height

1. Locate the push poles.

   Locate the red arrow.

   Push up to push pole height

2. Position personnel at the doorways. Looking to the long side of the shelter, locate the red flags between the covers. These flags are the points from which personnel will lift the shelter into position. If deploying a "T" Model, enter through the boot opening, on the "T" side.

3. Place one hand underneath the push point hub. Hold the push pole in the other hand. All personnel should be ready to push up. At this time, the Team Leader should get a verbal signal from each member.

4. On command ("Ready to lift to pole height? Lift"), each team member should simultaneously lift at their push point. When deploying a "T" Model, use caution not to step on the boot when lifting. As quickly as possible, place either end point of the push pole directly underneath the looped keeper with the red flag, keeping the push pole straight.

5. The Shelter should now be resting on four push poles which are in a vertical position.

NOTE

NEVER PUSH ON A HUB THAT DOES NOT HAVE A RED FLAG

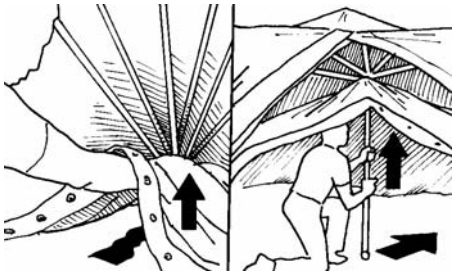


Figure 2-6 - Push Pole Placement

006.01 Final Push To Full Height

1. Locate the red flags at the vertex of the doorway. Personnel should alternately move inward to this new push point. On Models 4, 5 and 6, personnel should continue to move inward to a new push point. These push points are identified by another red flag, one quad closer to the center of the shelter. This action more evenly distributes the weight of the shelter.

2. The push poles should be positioned exactly as before. Personnel are now in a position to push the Shelter to full height.

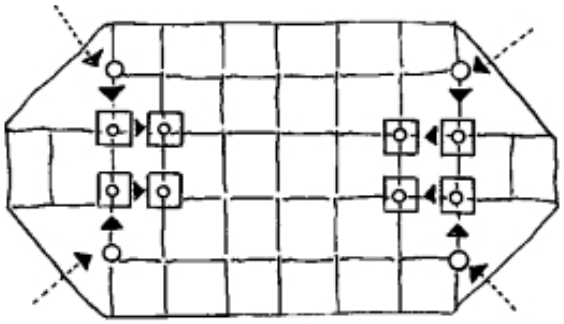


Figure 2-7 - Personnel Positioned for Final Lift

3. Check for obstructions before starting the final push to full height.

4. Prior to the final push, personnel should leave their push pole and check that the doors are not caught on any hubs or between the struts. Fabric that is snagged will prevent the Shelter from easily pushing to full height.

   NOTE: If attaching two shelters via"T" ends, refer to Work Package Procedure 023.01, Page 2-15.

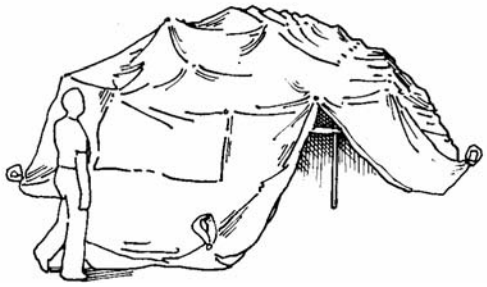


Figure 2-8 - Inspect Shelter for Obstructions

5. Return to the push pole and prepare to lift the Shelter. Note: If setting up during high winds, position additional personnel on windward side along the length of the shelter. Unravel the wind lines on both short ends and at least two wind lines on the windward side. Have personnel hold onto the wind lines while shelter is being erected.

6. On command (“Ready to lift?…Lift”), all personnel should evenly and in a coordinated effort, lift the DRASH until the side walls come to a vertical position and the DRASH is self supporting.

> **NOTE**
>
> IF ANY RESISTANCE IS FELT, IMMEDIATELY YELL STOP TO PREVENT POSSIBLE DAMAGE TO THE FRAME OR MATERIAL.

7. Let the Shelter rest back on the push poles and check for any obstructions.

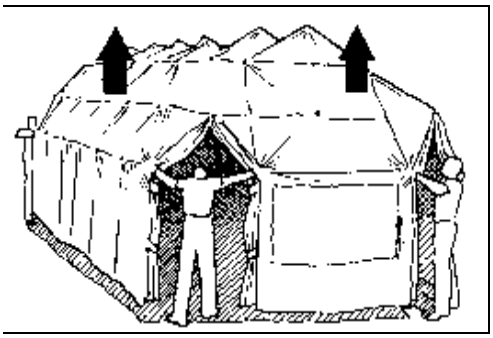


Figure 2-9 - Shelter in Erected Position

8. The Shelter should be properly positioned on the ground cover when fully erect as shown in Figure 2-9.
9. The Shelter is in final position when the Velcro strips on the ground cover are centered in the doorway.

007.01 Repositioning the Shelter

1. On the long side of the shelter, the red tabs on the ground cover should be between the interior and exterior hubs by the doorway. If not, move the Shelter so that it is positioned correctly.
2. There are two methods of moving the shelter:

a) **Push Poles -Models 1, 2, & 3**
Four people are required for this procedure.

- Using the push poles, four personnel should lift at the push points identified by the red flags in each doorway (see Figure 2-10) so that the Shelter is off the ground.
- Move the Shelter so that it is positioned correctly.

Push Poles -Models 4, 5, & 6
Six people are required for this procedure.

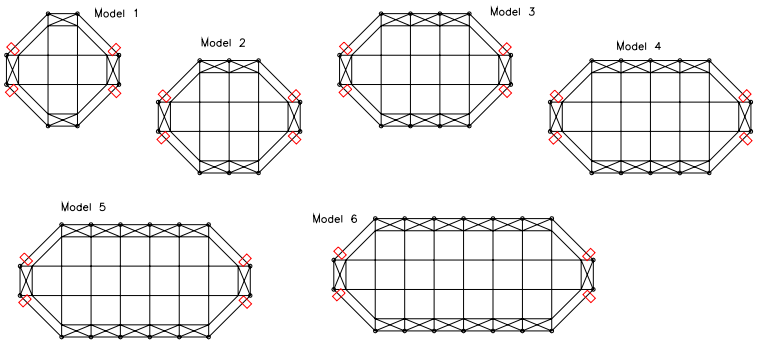


Figure 2-10 - Red Flag Positions on Ground Cover

- Position four personnel at the push points in each doorway identified by the red flags (see Figure 2-10).
- Position the other two personnel in the center of the Shelter.
- All personnel should lift at the push points until the Shelter is off the ground.
- Stop immediately if the bottom of any wall drags on the ground.
- At least one person, called a “SPOTTER”, should observe the proper movement and placement of the Shelter and help guide the Shelter into proper position.
- Move the Shelter so that it is positioned correctly.

b) **Arms & Hands**
For small adjustments, position personnel in the doorways so that they are aligned with the long wall (see Figure 2-10). Place one hand on the exterior looped keeper with a wind line and the other hand on the corresponding interior looped keeper. On command, all four personnel should lift the wall in unison and move the Shelter into the correct position.

c) **NOTE: Make sure that during this process, the end or side walls do not angle inward beyond a vertical position. The SPOTTER should alert personnel if the walls are no longer vertical during movement of the Shelter.**

d) If deploying a "T" Model, finish attaching the Boot to the Shelter by securing the remaining Velcro along both sides.

- Return the Push Poles to the Transport Bag. Make sure all cinch belts and the Repair Kit is also in the bag. Stow the Transport Bag so that it is available for packing and storing.
- Locate the skirt on the interior liner. Detach skirts from the tabs and lay the skirts flat on ground cover. The Velcro on the ground cover and the skirt should form a continuous band around the inside of the Shelter. If the skirt is not attached to the tabs and is underneath the wall, the wall must be raised. To lift the wall and pull the skirt from under the wall, use the Arms & Hands method described above (2-b).
- Bring in the fabric floor and orient it to the Shelter with the stenciled side face up.
- Fold the sides and ends over to expose the Velcro strips.
- Locate a green plastic hook on the underside of the floor.
- Attach the hook to the looped keeper at ground level.
- Working around the base of the Shelter, attach the remaining hooks to the looped keepers while securing the inner line of Velcro on the floor to the Velcro on the skirt.
- If the hook does not reach, DO NOT PULL ON THE LOOPED KEEPER. To correct this situation and make the walls vertical;

e) Position two people in the doorways at both ends of the wall.

f) Lift the wall in unison by placing one hand on the exterior looped keeper with the wind line and the other hand on the corresponding interior looped keeper.

g) Push the wall inward until the wall is vertical.

h) Attach the Velcro on the perimeter of the floor to the Velcro at the base of the interior wall.

i) Verify that the Velcro at the doorway of the floor is attached to the Velcro on the ground cover.

j) When booting a "T" model to a vehicle, back the vehicle into the center of the "T" end.

k) Place the elastic part of the boot over the vehicle.

008.01 Installing Vestibule Curtains

The S Series Shelter comes with one Vestibule Curtain to create an entryway at either end of the Shelter to maintain blackout conditions during ingress/egress without turning off the Shelter lights. It also helps maintain an even temperature within the Shelter when heating and cooling.

1. Remove from the Storage Bag.
2. Locate the hooks on the top of the Vestibule Curtain.
3. Place the hooks on the corresponding looped keepers
4. Secure the Velcro strip on the Vestibule Curtain to the Velcro between the openings of the interior door.

009.01 Installing Face Plate Curtains

1. Remove the face plate curtain from the Storage Bag and locate the six (6) plastic hooks sewn to the connector strip.
2. Starting with the two hooks in the center, begin attaching the hooks to the interior looped keepers on the ceiling of the "T" side. Be sure that the white side of the curtain faces the interior of the Shelter.
3. Use the connector strip as a guide, work along the sides of the curtain, attaching the hooks to the looped keepers.
4. Once all plastic hooks are secured, match the connector strip on the face plate curtain to the Velcro strip on the Shelter.
5. After the face plate curtain is secured, both sides of the face plate curtain can be rolled back and held in place using the hook located above the window and the hook located at ground level.

010.01 Secure the Shelter

1. All wind lines and staking loops must be utilized, especially during inclement and changing weather conditions. This will help stabilize the shelter.
2. Fully unravel all wind lines and stake them down 4-5 feet from shelter.
3. Use the tensioner on the wind lines to keep them taut.
4. Place stakes in all the stake loops around the Shelter base perimeter to insure that the shelter is adequately secured.
5. During adverse weather conditions, the wind lines and stakes should be periodically checked to see that they are properly secured.

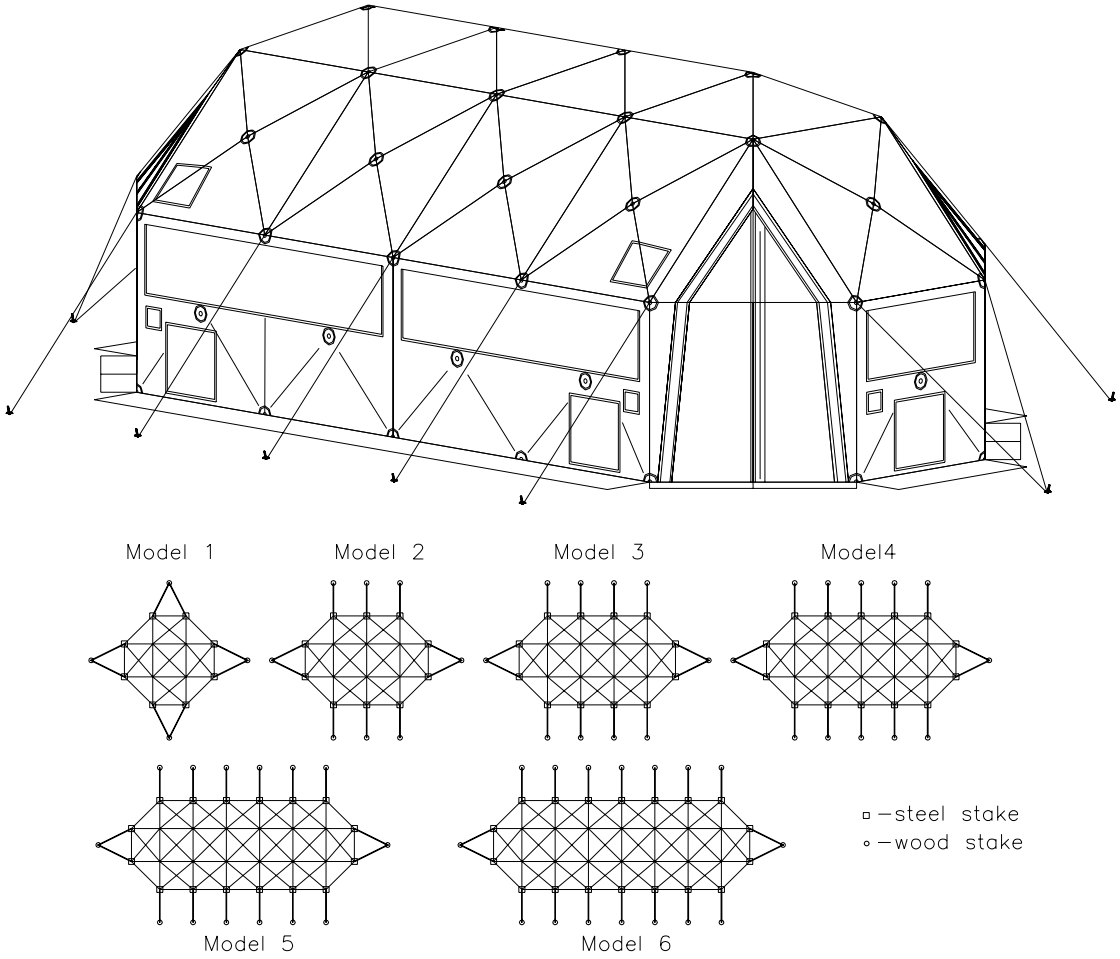


Figure 2-11 - Shelter Staking and Tie-down Diagram

WP M --- . -- -95310-02 Multiple Shelter Deployments

011.01 Complex Shelter Layout Description

A Complex Shelter system is a combination of three S or XB Series shelters supported by the DRASH Utilities Shelter Transporter Trailer. The integration provides electrical power and environmental control to the shelters. Whether the DRASH is used as a stand alone shelter or in a Systems configuration, the Set-up and Take down Procedures for the shelters are the same.

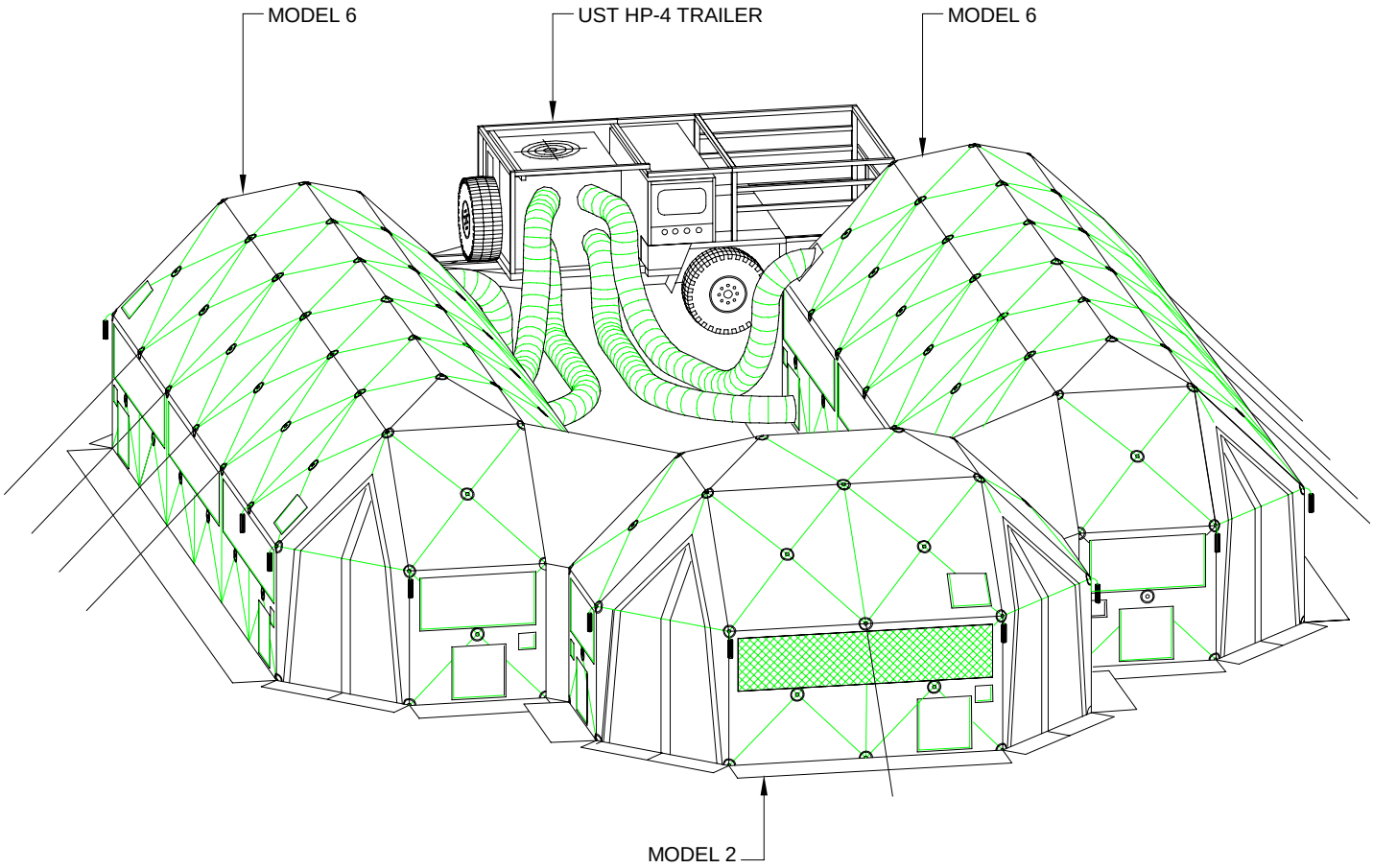


Figure 2-12 - DRASH System 2 Complex System

012.01 Complexing Multiple Shelters

1. Unload the shelters and all accessories from the UST trailer.
2. The recommended layout is a "U" with the trailer positioned at the open end of the "U." This "U" shape permits the most efficient application for heating or cooling as well as power distribution**.** Refer to Figure 2-13**.**
3. To deploy the individual shelters, follow the procedure sequences listed under Deployment Procedures, starting with Work Package WP O 001.01, beginning on page 2-1.
4. To connect the shelters, follow the procedure sequences for **Installing Accessories, starting with Work Package WP O 015.01, beginning on page 2-11-11.**
5. Begin setup of the System with one of the large shelters.

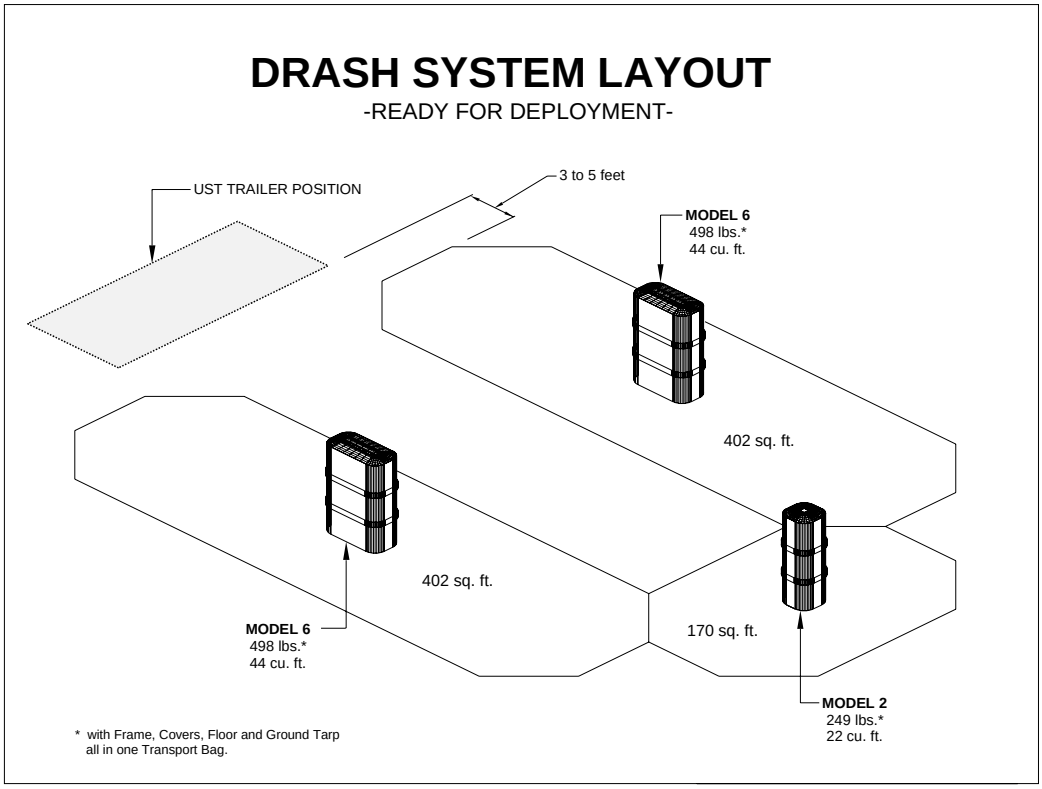


Figure 2-13 - Shelter Complex Layout

The integration of the DRASH System begins with positioning the ducts sets.

To install the shelter duct sets:

6. Remove duct caps from the Environmental Control Unit (ECU).
7. Locate the duct set, consisting of two supply ducts and two return ducts with mesh filter attachments.
8. Attach the supply ducts to the upper ports and the return ducts to the lower ports on the ECU. Secure with attached straps.
9. If cooling shelters, pull supply ducting through upper port of shelter closest to the UST. If heating, pull ducting through lower port. Insure that there are approximately 2 feet of ducting pulled into the shelter.
10. Pull return duct into remaining duct port so that approximately 1 foot of ducting is inside shelter.
11. Attach mesh filter to open end of return duct.

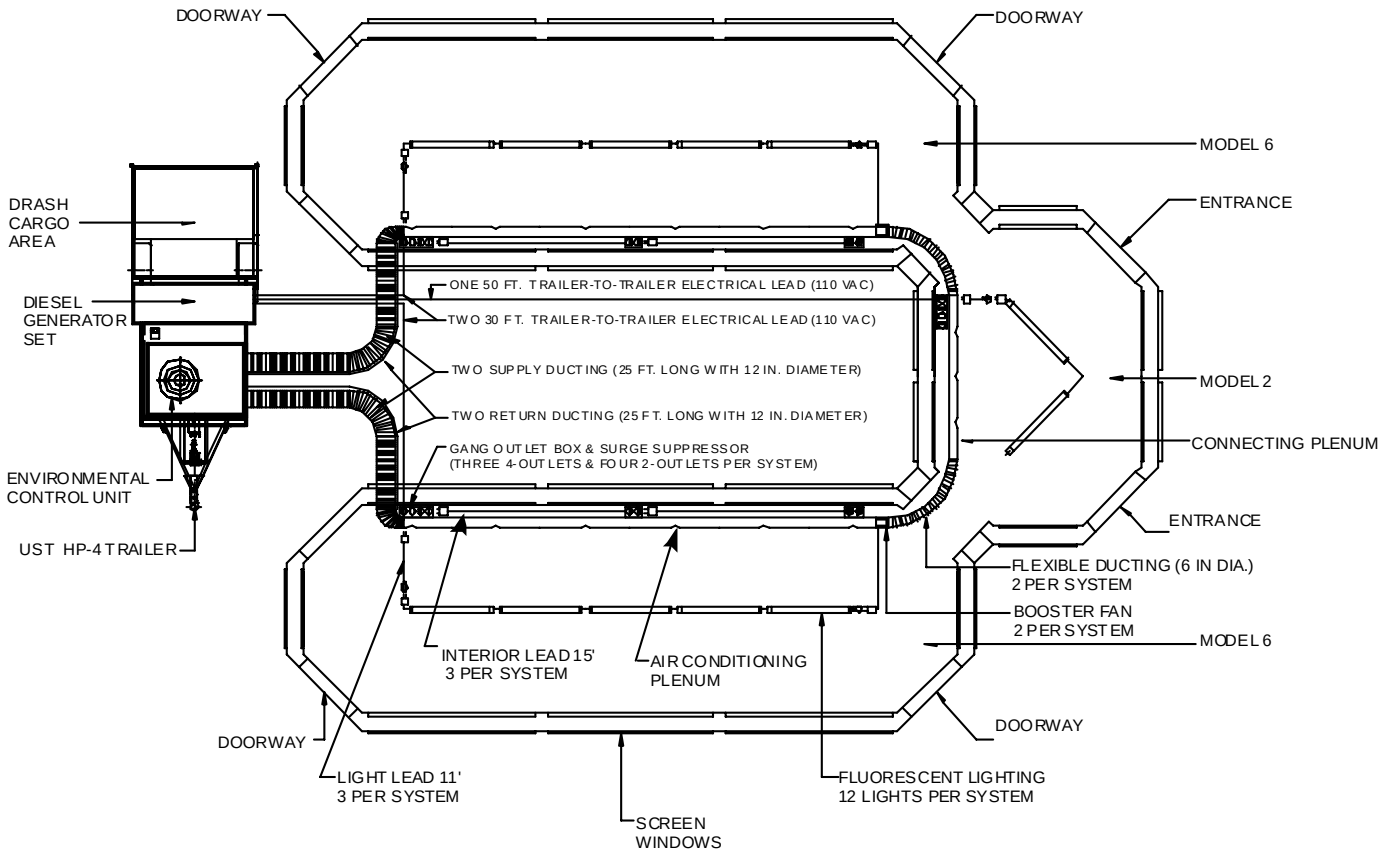


Figure 2-14 - Electrical & Environmental Layout for DRASH Complex

013.01 System Plenum Installation

The DRASH System Plenum provides even distribution of heated or cooled air through the shelter. Refer to the Electrical and Environmental Plan and the System Diagram for complete detail.

A System Plenum includes the following standard components:

- 2 - Plenums
- 2 - Sets flexible ducting with booster fans
- 1 - Connecting plenum

To install the System plenum, perform the following steps:

1. Remove the two larger plenums from the bag.
2. Slip the plenums over the supply duct until the first hook on the plenum reaches the looped keeper closest to the port.
3. Secure the plenum to the duct with the provided cord.
4. Along the length of the plenum there are white hooks. Attach these hooks to the corresponding looped keepers.
5. The air flow through the plenum may be regulated by adjusting the openings with the drawstring.
6. Attach the second plenum using same method.
7. To attach the connecting plenum to the third shelter, attach the white hooks to the corresponding looped keepers.
8. Locate the end of the flexible ducting with the booster fan installed.
9. Use the Velcro strips to secure the open end of the plenum to the fan.
10. Secure the flexible ducting with the two (2) white hooks.
11. Slip the open end of the flexible ducting into the connecting plenum and secure with strap.

12. Repeat Steps 8 through 11 on the other side of the shelter.
13. To complete installation of the system plenum, plug in the booster fan.

014.01 System Wiring Installation

A System Wiring Package includes the following standard components:

1 - 50’ trailer lead	3 - light leads
2 - 30’ trailer leads	3 - GFCI

The number of internal leads and Isobars included with the wiring package varies depending on the System.

To install a DRASH System Wiring Package:

1. Locate the wiring package.
2. Unpack both the 50 foot (1) and 30 foot (2) trailer leads.
3. Unlock and save the clear cable tie.
4. Plug each lead into any three plug receptacle on the trailer. These are located beneath the Control Panel.
5. Extend the 50 foot lead to reach the electrical port of the shelter at the base of the”U” configuration. **(**Refer to Figure 2-14**)**
6. The two 30’ foot leads should be positioned to reach the electrical ports on the long sides of the “U” configuration.
7. Pull trailer leads into shelter through both external and internal electrical ports.
8. In each shelter, plug the GFCI into trailer lead. Continue the connection by plugging the Isobar 4 into the GFCI.
9. Once this connection is made, plug light lead into Isobar 4.
10. Additional outlets can be added by utilizing internal leads and Isobar 2’s included in the wiring package.
11. Optional light sets should be plugged in at this time.

WP M --- . -- -95310-02 Installing Shelter Accessories

NOTE

THE FOLLOWING PAGES DESCRIBE TWO SHELTER-TO-SHELTER CONNECTION PROCEDURES.

WP 016.00 is the Shelter-to-Shelter connection procedure for Shelters manufactured prior to Jan 01, 2003.

WP 015.00 is the Shelter-to-Shelter connection procedure for Shelters manufactured after Jan 01, 2003.

The two figures below show the difference between the old and new styles. Figure 2-15 shows the newer style Shelter in which the entire door has been removed at the outer Connector Strip.

Figure 2-13 shows the older style Shelter in which the door has to be removed at the inner Connector Strip.

015.01 S-Shelter-to-Shelter Connector Procedure

The Shelter to Shelter Connector Set provides a full size weather and light tight passageway between additional S Shelters. The Connector Set consists of an Interior Connector and Exterior Connector that attaches at the doorways of an S Shelter. To connect multiple S shelters together:

NOTES

INDIVIDUAL SHELTERS MUST BE PROPERLY POSITIONED PRIOR TO INTERCONNECTING.

GROUND COVERS SHOULD ABUT EACH OTHER ON THE DOORWAYS.

1. Remove the connector set from the Shelter Storage Bag
   The Interior Connector will be white on the interior and black on the exterior surface.
   The Exterior Connector will be black on the interior and either tan or green on the exterior surface.
2. Remove the existing exterior door and interior door from the Shelter and place both in the Shelter Storage Bag.
3. Match the Brown tab at the peak of the exterior Shelter cover with the Brown tab in the center of the Exterior Connector.
4. Starting at the peak, begin attaching the Velcro strip on the Exterior Connector to the Velcro strip on the Shelter doorway, working from the peak outwards and down towa
5. Repeat the above procedure to join the Exterior Connector
6. To place the Interior Connector, match the Brown tab at the peak of the interior Shelter cover with the brown tab in the center of the Interior Connector.
7. Starting at the peak, begin attaching the Velcro strip on the Interior Connector to the Velcro strip on the interior shelter doorway, working from the crown outwards and down towards each bottom end.

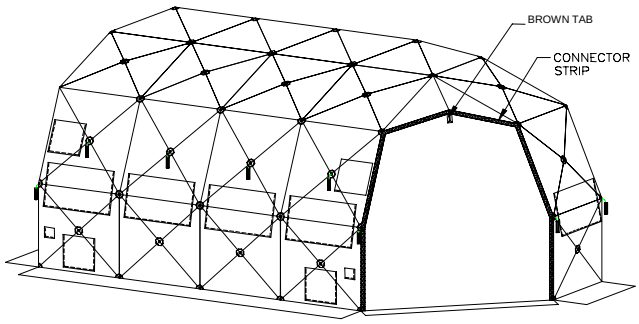


Figure 2-15 - S Shelter with Exterior door removed

016.01 Pre 2003 S Shelter-to-Shelter Connector Set (Prior to 01 JAN 2003)

The Shelter-to-Shelter Connector Set provides a weather and light tight connection between any two Shelters. The Connector Set will attach to any doorway on any Shelter unit. The connector set consists of an interior connector and an exterior connector. To connect multiple Shelters together:

1. Remove the Connector Set from bag.
2. Starting with the exterior connector, locate the peak. The peak of the connector has a grommet and cord. Match the peak of the connector with the peak of the doorway (the peak is the top grommet on the Velcro connector strip). Using the cord, tie the exterior connector to the Shelter. Repeat the process for opposite side of the connector.
3. Once the peaks are attached, position one person outside the Shelters. Starting with the underside, secure the Velcro connector strip to the doorway working from the top to the bottom about 1.5 feet at a time. Complete the connection by securing the topside of the Connector Strip.
4. From inside the Shelter, locate the Velcro strip on the underside of exterior connector floor. Attach this to the Velcro strip on the base of the connector wall.

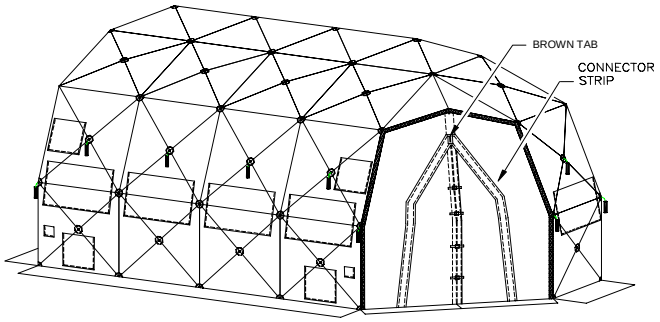


Figure 2-16 - S Shelter Exterior Door

5. To attach the interior connector, locate the peak. This peak has red tabs.
6. Align the red tab with the red tab found on the interior connector strip and secure.
7. Repeat process for other side of the connector. Once both peaks are attached, work your way down 1.5 feet at a time until the strips are fully connected.
8. At the connecting doorways of both Shelters, detach the Floor from the Ground Cover, exposing the Velcro.
9. Attach Velcro strips from the interior connector Floor to the Velcro found on the Ground Cover.
10. Replace the floor

NOTE

IF THE CONNECTOR SAGS, IT MAY BE NECESSARY TO MOVE ONE OF THE SHELTERS AWAY FROM THE OTHER. IT IS EASIER TO MOVE THE SMALLER SHELTER. IT IS ADVISABLE TO INSTALL THE FLOOR OF A SMALLER SHELTER AFTER THE INSTALLATION OF THE CONNECTOR

017.01 Vehicle Door Boot

The Shelter's Door Boot is designed for use with specific vehicles to provide a weather and light tight seal between the shelter and vehicle. A door boot must be attached prior to final erection of shelter. **To attach the door boot:**

1. Spread the Shelter.
2. Identify the door boot which will be installed over one of the doorways. (Shelters manufactured **before** Jan 01, 2003, proceed to step #4).
3. Remove door. (**ONLY** on Shelters manufactured after Jan 01, 2003).
4. Locate the Brown tab on the door boot.
5. Locate the Brown tab under the connector strip on the door.
6. To attach the door boot to the connector strip, start at the red tab and work down on each side to the grommet locations on the door boot.
7. The Shelter can now be erected.
   a) Use caution in the doorway where the Shelter door boot is now attached.
   b) One person should hold the boot while the Shelter is being erected.
8. Continue with the regular Shelter deployment procedures.
9. Finish attaching the Door Boot to the connector strip starting at the grommet location once the Shelter has been erected.
10. Stake down the outside bottom corners of the Door Boot Floor using Stake Loops.
11. Use Velcro strips to attach the Door Boot Floor between the Ground Cover and the Shelter.
12. Back the vehicle squarely into the center of the doorway and place the elastic part of the Boot over the vehicle.
13. Reposition the vehicle for a better fit if necessary.

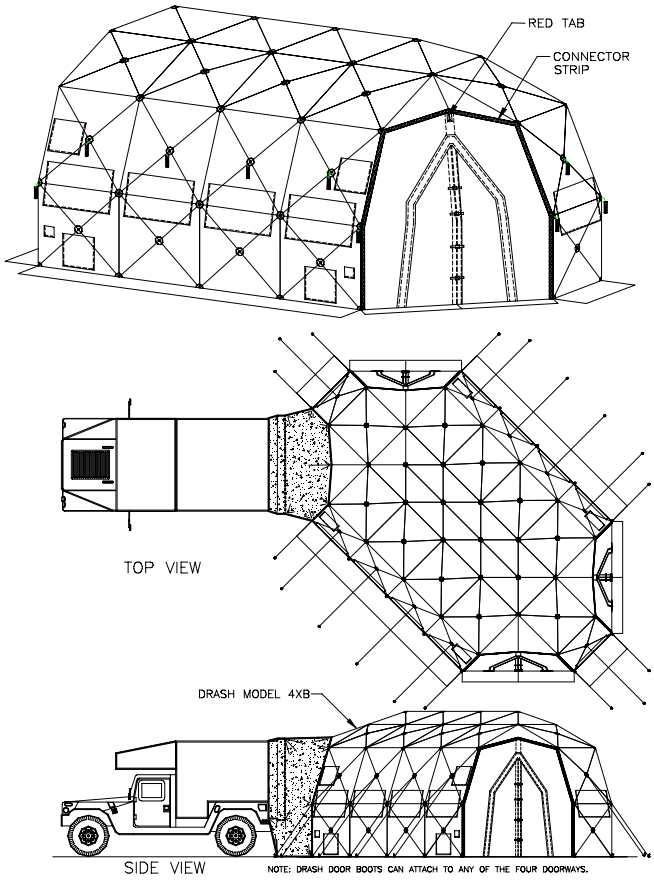


Figure 2-18 - Vehicle Booted to an S Shelter

018.01 Plastic Door Strip

A Plastic Strip Door helps maintain interior climate control during continual ingress/egress. To install the plastic Strip Door:

1. Remove the plastic Strip Door from the bag.
2. Locate the peak of the Strip Door. The peak has a grommet and cord located on the Connector Strip.
3. Match the peak of the connector with the peak of the doorway. Locate the peak of the doorway by locating the grommet on the Velcro connector strip.
4. Tie the Strip Door to the shelter using the cord.
5. Secure the Velcro connector strip by working your way down the Strip Door, 1.5 feet at a time.

019.01 Plenum

A Plenum provides even distribution of heated or cooled air throughout the Shelter. To install the Plenum:

1. Remove the Plenum from the bag.
2. Insure that at least two feet (2') of the supply ducting is pulled inside the Shelter through the duct port located above the window near the doorway.
3. Slip the Plenum over the duct until the first hook on the Plenum reaches the looped keeper closest to the duct port.
4. Secure the Plenum to the duct with the provided cord.
5. Attach the hooks affixed along the length of the Plenum to the corresponding looped keepers.
6. The air flow through the Plenum may be regulated by adjusting the opening(s) with the drawstring.

020.01 Privacy Curtain

A Privacy Curtain provides for semi-private areas within the Shelter. When the curtain is installed, a three-foot (3') corridor remains in the Shelter. To install the Privacy Curtain:

1. Remove the Privacy Curtain from the bag and locate the green plastic hook.
2. Attach the green hook to the looped keepers at the four-foot level.
3. Attach the white hooks to the looped keepers located at the top and in between the windows.

021.01 Sub-floor

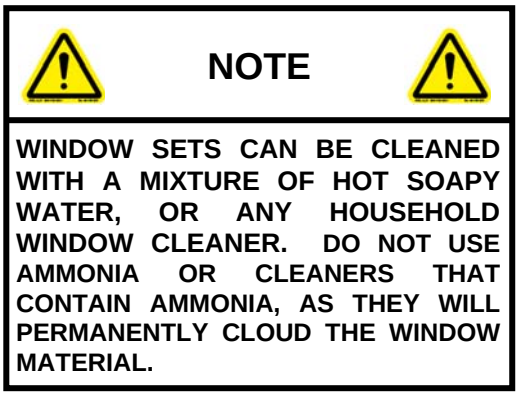
The Shelter Sub-floor provides substantial protection from rough and rocky terrain as well as insulation from ice and snow. The Sub-floor lies between the ground cover and the floor and must be installed prior to laying down the floor. To install the Sub-floor:

1. Remove the two pieces of Sub-floor from the bag and unroll.
2. Lay the Sub-floor so that it follows the footprint of the ground cover. Be sure not to cover any Velcro.
3. Install interior floor over the Sub-floor.

022.01 Window Set

The plastic Window Set covers the Shelters' interior mesh windows and allow ambient light to enter the Shelter while maintaining a controlled environment inside. To install the Window Set:

1. Remove the Window from the Window Set bag.
2. Keep Window flaps open using the Velcro ties.
3. The back of each window has four (4) Velcro strips along the perimeter and the other side has three (3) Velcro strips.
4. Position the Window so that the edge without any Velcro is on top and facing inward.
5. Starting from the narrow end and leaving approximately 1 inch overlap, secure the Velcro from top to bottom.
6. Continue joining the Velcro until the Window is secure.



7. Straighten out any ripples found along the length of the Window.

Window Sets can be cleaned with a mixture of hot soapy water, or any household window cleaner

023.01 "T" to "T" Connection

The length of S Shelters can be extended by joining one or more Shelters together at the ends. To attach "T" shelters to form a longer Shelter:

1. Butt each of the "T" ends together when all of the Shelters are at Push Pole height.
2. Begin securing the Velcro on the exterior cover starting at the center of the "T" end.
3. Open the shorter connector strip.
4. Locate the longer connector strip on the other Shelter and secure the Velcro.
5. Check that each connection has been properly made.
6. Move back to the center of the Shelter. Use the same method to secure the Velcro on the interior cover.
7. To finish setting up, continue to follow manual procedures.

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Section 3

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3. STRIKING THE SHELTER

WP M --- . -- -95310-02 Striking Procedure

024.01 Prepare the Shelter

1. Remove all equipment and accessories from inside the Shelter. If striking a "T" Model, be sure to also remove the face plate curtain.
2. Detach the floor by unfastening Velcro and all green hooks.
3. Remove the floor from the Shelter and fold into quarters lengthwise. Place floor far enough away so as not to interfere with striking the Shelter.
4. Close all interior and exterior windows.
5. If a Vestibule curtain was installed, detach it and place in the Storage Bag.
6. Tie back all doorways with both the upper and lower door ties. When striking a "T" Model, start at ground level and unfasten the connector strips on both sides of the "T" boot. Continue until reaching the grommet on the connector strip.

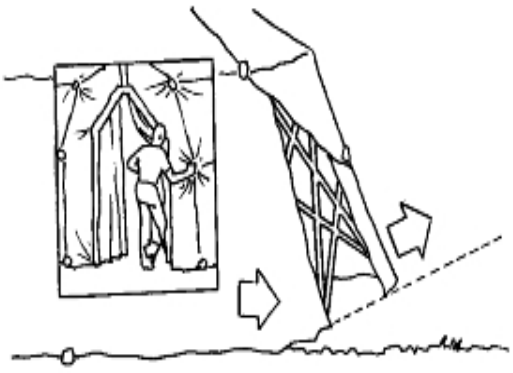


Figure 3-1 - Tie Back Doorways

7. Remove all security stakes.
8. Rewind the wind lines. Unwound wind lines may become tangled when the Shelter is packed.

025.01 First Lift

1. Position one person at each doorway.
2. Start with the long sides. Each person should grip the interior and exterior doorway hubs with two hands at the five foot level.
3. On command, while maintaining visual contact, lift the wall slightly off the ground.
4. Personnel positioned at the doorways should place one foot against the interior hub of the doorway and slide the bottom of the shelter out about six to eight inches. The exterior hubs should now be slightly off the ground.
5. Repeat steps 1 and 2 for the end walls. All walls should now be resting on the interior hubs.

026.01 Second Lift

1. Position the striking team as follows
2. Position one person at each end wall of the Shelter.
   a) For Models 1, 2, & 3
   Center one person on each side of the long walls.
   b) For Models 4,5 & 6
   Position two people per long wall as indicated by the stenciling on the exterior skirt and shown in Figure 3-2.

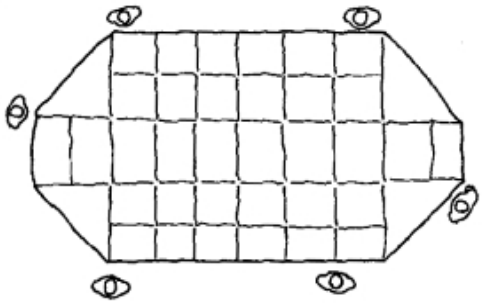


Figure 3-2 - Personnel Positions for Models 4, 5, & 6

CONTINUED ON NEXT PAGE

SECOND LIFT, CONTINUED

3. Position each person so that they can easily grasp the exterior lifting hub. These hubs should be slightly off the ground.

CAUTION

DO NOT PUT FINGERS INTO THE LOOPS OF THE LOOPED KEEPERS.

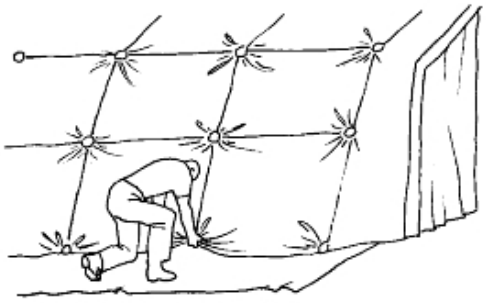


Figure 3-3 - Remove Ground Stakes

4. The team leader should circle the Shelter to verify that each person is in position and ready to execute on command.
5. On command ("Ready to strike? Strike on the count of three"), the team leader will count to three at which time each team member must lift their hub up and out, **in one swift motion.** This action will release the frame walls, allowing them to fall inward.
6. If a "T" to "T" connection was made, now is the time to detach the shelters by unfastening the Velcro on both the interior and exterior covers.

NOTE

WHEN WORKING WITH A "T" TO "T" CONNECTION, TWO TEAMS ARE REQUIRED TO INSURE THAT BOTH SHELTERS ARE STRUCK IN UNISON.

027.01 Third Lift

1. On command, each team member lifts the Shelter off the ground by the hubs and walks toward the center.

NOTE

DO NOT STEP ON THE FABRIC WHICH MAY GATHER AT YOUR FEET.

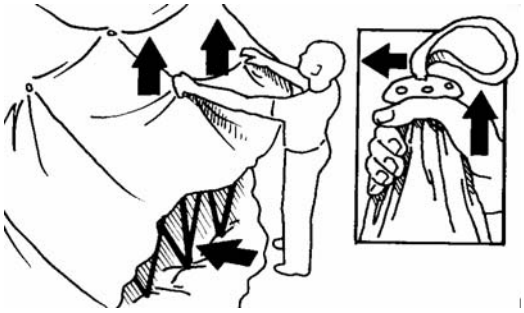


Figure 3-4 - Hold Shelter by Hubs and Walk Forward

2. Before completely compressing, carefully push the exterior cover between the struts so that all keepers are exposed.
3. Check that all wind lines are free and not tangled within the frame or fabric. If tangled, lift the Shelter and walk out one to two steps, untangle and re-compress the Shelter.
4. Place the wind lines on top of the Shelter.
5. Compress further to compact the bundle.

028.01 Securing the Shelter

1. Invert the Shelter so the white side is up.
2. Spread the Shelter approximately one foot.
3. Carefully push the interior liner between the struts so that all looped keepers are exposed.
4. Secure one of the cinch straps around the top section of the collapsed shelter approximately 1.5 feet down from the top interior hubs as shown in Figure 3-5.

Figure 3-5 - Secure First Cinch Strap

5. Invert the Shelter so that the exterior cover is facing up.
6. Compress and secure with a second cinch belt approximately 1.5 feet from the exterior keepers as shown in Figure 3-6.
7. Remove the compressed Shelter from the ground cover.
8. Lay the Shelter on its widest side
9. Lift the Shelter off the ground by the cinch straps or by the hubs closest to the ground. Remember to lift with your legs, and not with your back.

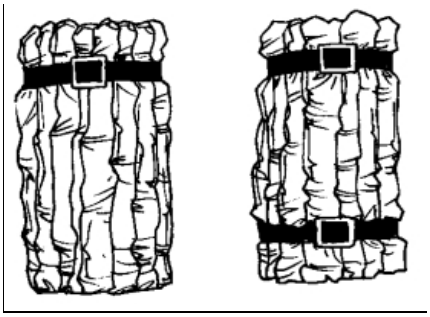


Figure 3-6 - Shelter Secured with Two Cinch Straps

029.01 Secure the Floor & Ground Cover

1. Remove all ground stakes from the ground cover.
2. Fold the Ground Cover into quarters lengthwise.
3. Lay the folded Floor on top of the folded Ground Cover.
4. Place the Shelter on its side at the end of the folded ground cover and floor.
5. Three people are required to wrap the ground cover and floor around the Shelter.
   a) Have two people roll the Shelter.
   b) Have the third person tuck in the ground cover and floor as it is wrapped around the Shelter (tucking the ground cover and floor keeps the wrap tight and further compresses the Shelter).

Figure 3-7 - Rolling Shelter with Ground Cover

6. When complete, stand the Shelter with the white side up, holding the Ground Cover close to the Shelter.
7. Secure the Shelter with the third cinch belt in the center.
8. Remove the Push Poles and Repair Kit from Transport Bag.
9. Place the Transport Bag over the Shelter.
10. Align the carrying straps on the outside of the bag with the end walls. This will allow the Instruction Panels to fall against the wide section when slipped over the Shelter.
11. Push the Shelter over with the instruction panel down.
12. Return the Push Poles and Repair Kit to the Transport Bag.
13. Pull the rope to close the end of the Transport Bag and secure bag with a knot.
14. Fasten the two belts on the Transport Bag.
15. The Shelter is now secure and ready for the next deployment.

030.01 Loading the Shelter for Transport

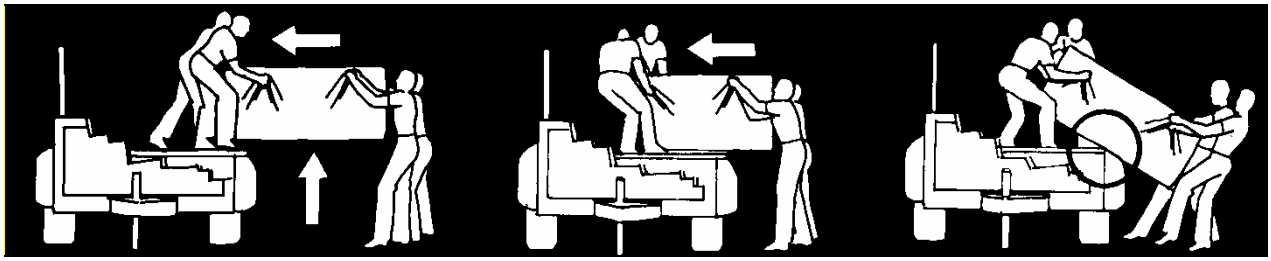
When loading the Shelter onto any platform, lift and slide the entire package so that Shelter remains parallel with the ground.

Note: do not rock the shelter when on-loading. This may cause damage to the struts.

Refer to Figure 3-8.

CAUTION

THIS STEP REQUIRES FOUR PERSONNEL TO LIFT THE SHELTER PACKAGE FROM THE GROUND AND PLACE IT SOFTLY ON THE GROUND.



YES YES NO

Figure 3-8 - Loading the Shelter for Transport

Section 4

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4. FIELD MAINTENANCE OF THE SHELTER

Before initiating repair to any Shelter, identify the nature of the problem. Most repairs can be made with the standard Field Repair Kit, included with the Shelter. Each kit contains the following components:

Duct Tape, 1 Roll	Strut Repair Sleeves, 5
Spanner Wrench, 1	Exterior Looped Keeper, 1
Tube Cutter, 1	Interior Looped Keeper, 2
1 oz Adhesive, 1 Tube	Exterior Keeper, 1
Wind Line, 1	Exterior Swatch Repair Fabric, 1
4” Scissors, 1	Interior Swatch Repair Fabric, 1

WP M --- . -- -95310-02 Shelter Repairs

031.01 Repair of Shelter Struts

Fractured struts are repaired as follows:

1. After identifying the fractured strut or struts, assess whether the exterior cover needs to be removed to reach the fracture. If it is necessary to remove the exterior cover, use the spanner wrench and remove only those keepers necessary to peel back the cover to reach the fractured strut or struts.
2. Locate the tube cutter.
3. Place the strut between the cutter wheel and the rollers and bring the cutter wheel in contact with the strut by turning the feed wheel.
4. Turn the feed wheel an additional one half turn for the first cut.
5. Revolve the cutter wheel around the strut slowly until the cut is complete.
6. Trim off one half inch from each damaged side.
7. Retrieve a repair sleeve.
8. Slide a repair sleeve over the broken strut. Keep the break centered in the repair sleeve.
9. Tape **ONLY** one end of the repair sleeve with the duct tape. This will allow the other broken end to telescope within the sleeve and maintain its critical length (see Figure 4-1).
10. Replace the liner.
11. Insert the keeper and turn by hand until snug.
12. Use the spanner wrench to tighten one-quarter turn past hand tight. **Do not tighten excessively.**
13. All sewn seams should be aligned and fabric reinforced circles around keepers should not be twisted.

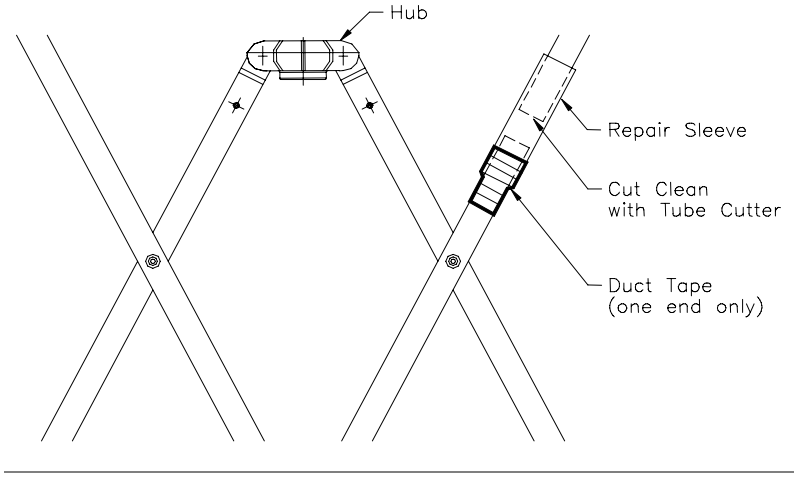


Figure 4-1 - Repairing Shelter Struts

032.01 Replacement of Shelter Strut Pairs

NOTE

REPLACING ONE OR MORE STRUT PAIRS REQUIRES THE ACQUISITION OF A SPARE PARTS KIT CONTAINING THE PARTS LISTED ON THE RIGHT.

CONTENTS OF SPARE PARTS KIT

Interior Looped Keepers, 5	**Ratchet Screwdriver, 1**
Exterior Looped Keepers, 5	**A Side Pair/Blue, 2**
Exterior Keepers, 5	**B Side Pair/Red, 4**
Interior Hub Set, 2	**A Sub Pair/Green, 2**
Exterior Hub Set, 2	**B Sub Pair/Yellow, 4**
Screws, 50	**Spanner Wrench, 1**

If a strut pair(s) is damaged, strike the Shelter and effect repairs as follows: (refer to Figure 4-2, page 4-3, and Figure 4-4, page 4-4).

1. Identify the damaged strut pair.
2. Use a spanner wrench to remove keepers from the exterior cover. Work only in the area where the damaged struts are located (see Figure 4-2, **Frame 1**).
3. Use the ratchet screwdriver to loosen all screws from both exterior hubs where the damaged strut pair is connected. **Do not remove damaged strut pair from hubs at this time** (see Figure 4-2, **Frame 2**).
4. Determine the color code on the damaged strut pair. The color code plug may be located on any one of the four ends of the pair. Select the same color-coded strut pair from the spare parts kit (see Figure 4-3 - S Shelter Strut Pair Identification – by Color Pairs.

   NOTE: S Shelters manufactured before 1998 used colored tags affixed to the struts. Shelters manufactured after 1998 use colored plastic plugs at the end of the struts. **Figure 4-3** shows the locations of both the colored plugs and the colored tags.
5. Orient the replacement strut pair so that it is identical to the damaged pair.
6. Place the replacement pair next to the damaged strut pair making certain that both color coded plugs and scissor pins match exactly (see Figure 4-2, **Frame 3**).
7. When the replacement pair is properly positioned, remove the ends of the damaged strut pair from exterior hubs and insert replacement strut pair (see Figure 4-2, **Frame 4**).
8. After replacement pair is in placed, tighten the screws on the exterior hubs so that it is again secured (see Figure 4-2, **Frame 5**).
9. Replace the liner.
12. Insert the keeper and tighten by hand until snug. Use the spanner wrench to tighten one-quarter turn past hand tight. **Do not over-tighten.** All seams should be aligned and the fabric reinforced circles around the keepers should not be twisted (see Figure 4-2, **Frame 6**).
10. Compress and invert the Shelter.
11. Repeat steps 1 and 2 on the interior liner and interior hubs.
12. Remove the damaged strut pair from the hub and lift out from the frame.
13. Replace the strut pair and tighten the screws on the hub so that it is again secure.
14. Repeat step 9.

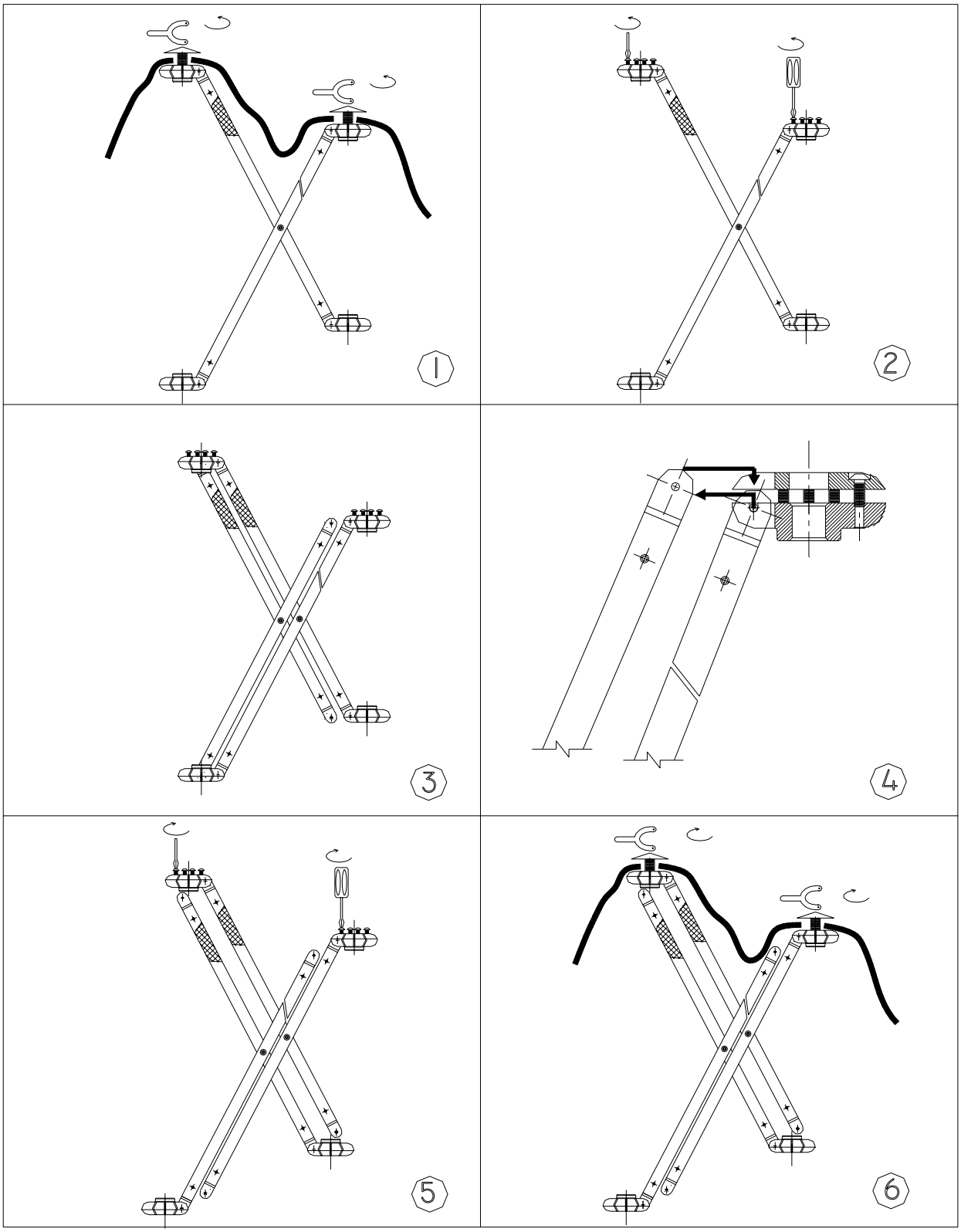
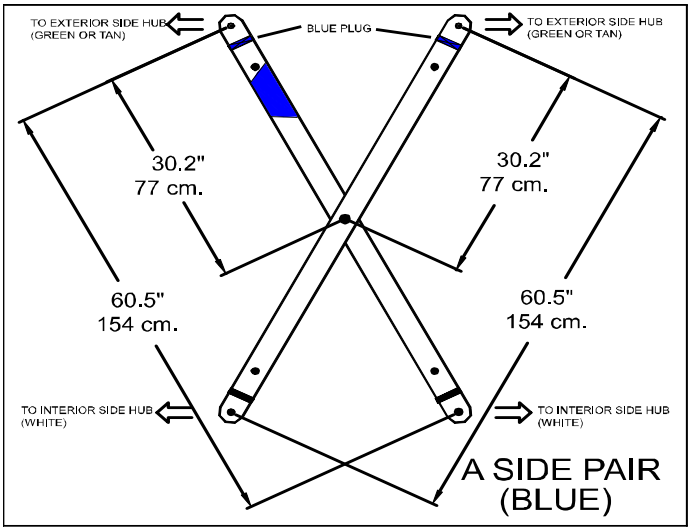
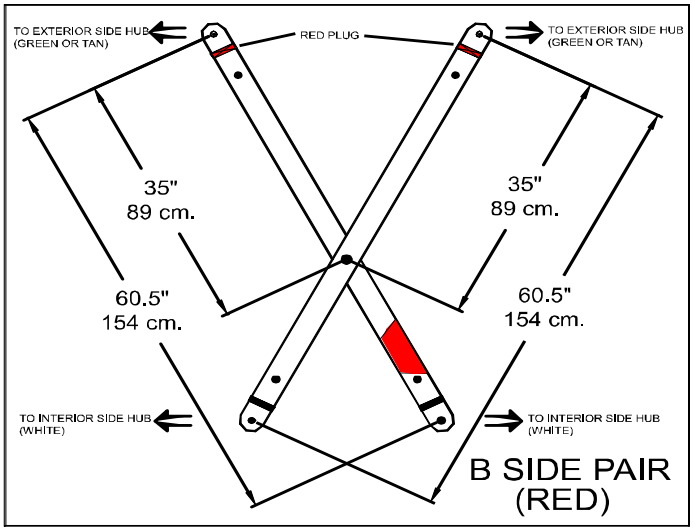
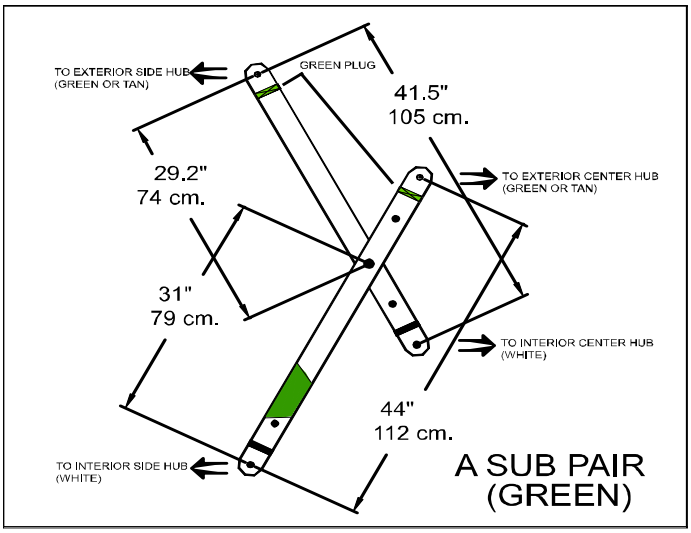
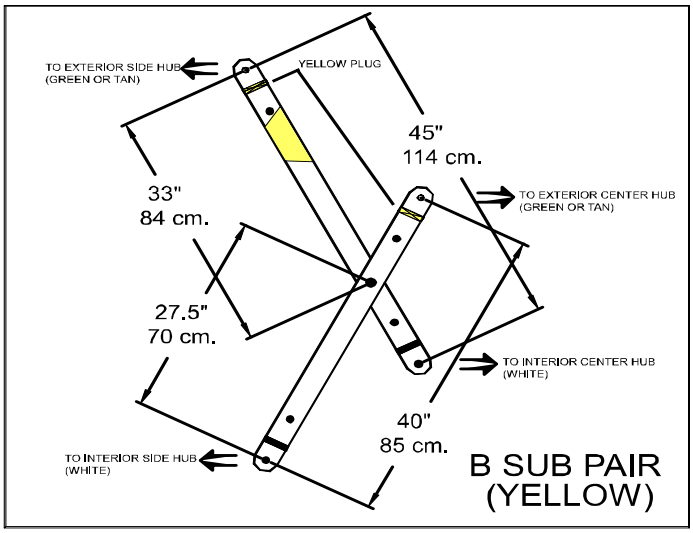


Figure 4-2 - Strut Pair Replacement Frames









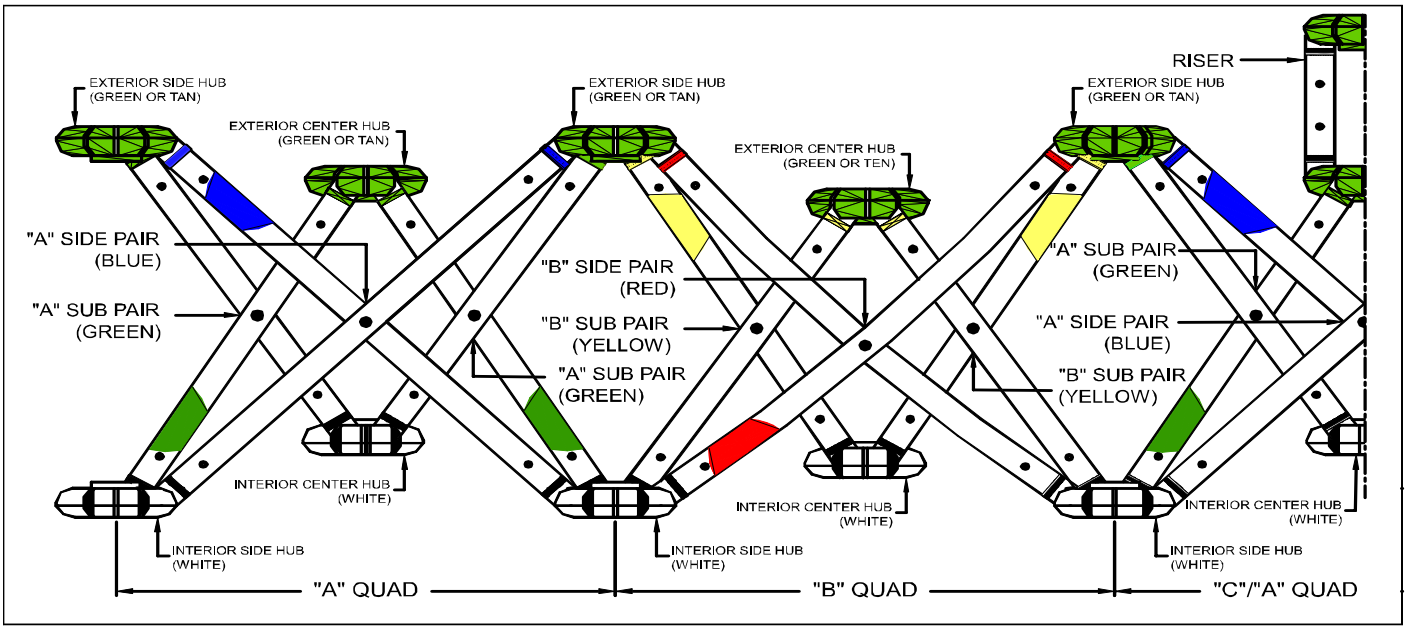


Figure 4-3 - Strut Pair Identification by Color Pairs and Dimensions

033.01 Repair of Shelter Liner

This repair procedure can be accomplished in any weather condition.

1. Cut enough fabric to cover the tear or hole, with approximately ¼" extra on all sides.
2. Apply a thin layer of adhesive to the reverse side of patch.
3. Apply a thin layer of adhesive to the area around the tear or hole in the Shelter to which patch will be applied.
4. Press the patch firmly over the tear.
5. Smooth out any air bubbles from under the patch.
6. The patch will be secure in three hours.
7. Allow the patch to cure for 24 hours.

NOTE

IF TIME DOES NOT ALLOW FOR THE ABOVE PROCEDURE, THE REPAIR CAN BE DONE ON A TEMPORARY BASIS USING DUCT TAPE.

034.01 Shelter Maintenance During Inclement Weather

A snow kit is available for Shelters that may be subject to use in snowy conditions. The kit consists of four or 6 interior support poles to strengthen the Shelter frame. Even with the snow kit, the Shelter can be damaged by snow and ice accumulating on the roof.

To prevent damage to the Shelter due to heavy snow or freezing rain, the roof must be checked periodically for rain puddles or ice/snow accumulation. This can be accomplished by:

1. Shaking the exterior cover from the outside of the Shelter.
2. Place a Push Pole between the interior and exterior covers and gently tap the exterior cover until the Shelter is cleared of the snow or ice accumulation.
3. During adverse weather conditions, routinely check and verify the security of the;
   a) Wind lines
   b) Stakes
   c) Keepers

NOTE

THE SHELTER SHOULD BE STRICKEN IF IT IS TO BE LEFT UNATTENDED FOR AN EXTENDED PERIOD WHEN THERE IS A POSSIBILITY OF INCLEMENT WEATHER.

035.01 Cleaning the Shelter & Accessories

Proper maintenance of the Shelter requires that it be cleaned after every field exercise. To clean the Shelter;

1. Brush off all excess dirt/debris with a soft bristle brush.
2. Using a cloth, sponge or mop, the shelter can be manually cleaned using a mixture of warm water and mild household detergent.
3. Remove grease, oil, or other heavy stains by scrubbing with Simple Green® or equivalent.
4. Rinse with clean water.
5. Allow the Shelter to dry completely before repackaging.

NOTE

A POWER WASHER MAY BE USED AT LOW PRESSURE WITH WARM WATER. USE GOOD JUDGMENT AND CAUTION REGARDING WATER PRESSURE AND TEMPERATURE.

WARNING

DO NOT USE SOLVENTS TO CLEAN THE SHELTER.

THEY WILL DISSOLVE THE PROTECTIVE COATING ON THE FABRIC.

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Section 5

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5. PARTS LISTS

WP R --- . -- -95310-02 Parts Lists

036.01 Basic Shelter Part Numbers

Refer to Figure 5-1, Illustration DRASH 1

Item No.	Description	Part Number	Quantity per DRASH model S1	S2	S3	S4	S5	S6
1	DRASH Model 1	00100*	1	-	-	-	-	-
1	DRASH Model 2	00200*	-	1	-	-	-	-
1	DRASH Model 3	00300*	-	-	1	-	-	-
1	DRASH Model 4	00400*	-	-	-	1	-	-
1	DRASH Model 5	00500*	-	-	-	-	1	-
1	DRASH Model 6	00600*	-	-	-	-	-	1

037.01 S Shelter Package Part Numbers

Refer to Figure 5-1, Illustration DRASH 2

Item No.	Description	Part Number	Quantity per DRASH model S1	S2	S3	S4	S5	S6
1	DRASH Shelter Model S1	00910*	1	-	-	-	-	-
1	DRASH Shelter Model S2	00920*	-	1	-	-	-	-
1	DRASH Shelter Model S3	00930*	-	-	1	-	-	-
1	DRASH Shelter Model S4	00940*	-	-	-	1	-	-
1	DRASH Shelter Model S5	00950*	-	-	-	-	1	-
1	DRASH Shelter Model S6	00960*	-	-	-	-	-	1
2	Model S1 Floor	02110	1	-	-	-	-	-
2	Model S2 Floor	02120	-	1	-	-	-	-
2	Model S3 Floor	02130	-	-	1	-	-	-
2	Model S4 Floor	02140	-	-	-	1	-	-
2	Model S5 Floor	02150	-	-	-	-	1	-
2	Model S6 Floor	02160	-	-	-	-	-	1
3	Model S1 Ground Cover	02210	1	-	-	-	-	-
3	Model S2 Ground Cover	02220	-	1	-	-	-	-
3	Model S3 Ground Cover	02230	-	-	1	-	-	-
3	Model S4 Ground Cover	02240	-	-	-	1	-	-
3	Model S5 Ground Cover	02250	-	-	-	-	1	-
3	Model S6 Ground Cover	02260	-	-	-	-	-	1
4	PVC Push Pole	50011	4	4	4	4	6	6
5	Field Shelter Repair Kit	90225 *	1	1	1	1	1	1
6	Cinch Belt (Small)	C427003	3	3	-	-	-	-
6	Cinch Belt (Medium)	C427002	-	-	3	3	-	-
6	Cinch Belt (Large)	C427001	-	-	-	-	3	3
7	Transport Bag (Small)	09920*	1	1	-	-	-	-
7	Transport Bag (Medium)	09940*	-	-	1	1	-	-
7	Transport Bag (Large)	09960*	-	-	-	-	1	1
8	Operators Manual	09965	1	1	1	1	1	1

*NOTE: To indicate color, add to the end of the part number G for Green, T for Tan.

038.01 Basic "T" Shelter Part Numbers

			Quantity per DRASH model					
Item No.	Description	Part Number	S1T	S2T	S3T	S4T	S5T	S6T
1	DRASH Model S1T	0010T*	1	-	-	-	-	-
1	DRASH Model S2T	0020T*	-	1	-	-	-	-
1	DRASH Model S3T	0030T*	-	-	1	-	-	-
1	DRASH Model S4T	0040T*	-	-	-	1	-	-
1	DRASH Model S5T	0050T*	-	-	-	-	1	-
1	DRASH Model S6T	0060T*	-	-	-	-	-	1

039.01 "T" Shelter Package Components

			Quantity per DRASH model					
Item No.	Description	Part Number	S1T	S2T	S3T	S4T	S5T	S6T
1	DRASH Model S1T	0091T*	1	-	-	-	-	-
1	DRASH Model S2T	0092T*	-	1	-	-	-	-
1	DRASH Model S3T	0093T*	-	-	1	-	-	-
1	DRASH Model S4T	0094T*	-	-	-	1	-	-
1	DRASH Model S5T	0095T*	-	-	-	-	1	-
1	DRASH Model S6T	0096T*	-	-	-	-	-	1
2	Model S1T Floor	0211T	1	-	-	-	-	-
2	Model S2T Floor	0212T	-	1	-	-	-	-
2	Model S3T Floor	0213T	-	-	1	-	-	-
2	Model S4T Floor	0214T	-	-	-	1	-	-
2	Model S5T Floor	0215T	-	-	-	-	1	-
2	Model S6T Floor	0216T	-	-	-	-	-	1
3	Model S1T Ground Cover	0221T	1	-	-	-	-	-
3	Model S2T Ground Cover	0222T	-	1	-	-	-	-
3	Model S3T Ground Cover	0223T	-	-	1	-	-	-
3	Model S4T Ground Cover	0224T	-	-	-	1	-	-
3	Model S5T Ground Cover	0225T	-	-	-	-	1	-
3	Model S6T Ground Cover	0226T	-	-	-	-	-	1
4	PVC Push Pole	50011	4	4	4	4	6	6
5	Field Shelter Repair Kit	90225	1	1	1	1	1	1
6	Cinch Belt (Small)	C427003	3	3	-	-	-	-
6	Cinch Belt (Medium)	C427002	-	-	3	3	-	-
6	Cinch Belt (Large)	C427001	-	-	-	-	3	3
7	Transport Bag (Small)	09920*	1	1	-	-	-	-
7	Transport Bag (Medium)	09940*	-	-	1	1	-	-
7	Transport Bag (Large)	09960*	-	-	-	-	1	1
8	Operators Manual	09965	1	1	1	1	1	1

*NOTE: To indicate color, add to the end of the part number G for green, T for tan and W for white.

Illustration DRASH 1

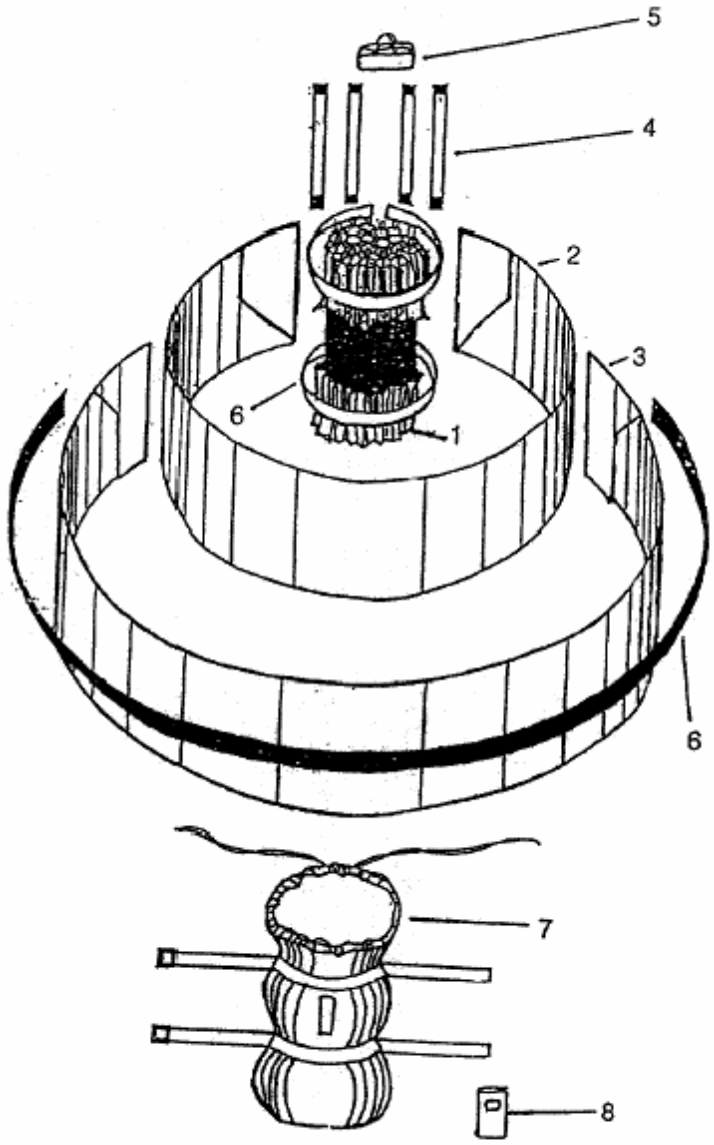

Illustration DRASH 2

Figure 5-1 - DRASH Shelter Component Detail

040.01 S Shelter Accessory Part Numbers

	Description	Part No.	Function
1.	Door Boot (Custom made)	09975	Allows vehicle attachment to shelter at doorway
2.	“T” Boot (Custom made)	09976	Allows vehicle attachment to shelter at truncated end of “T” Models
3.	Connector Set	93144*	Connects two shelters (S –to- S) and (S –to- XB) for shelters manufactured before 01/01/03
4.	Connector Set	93144	Connects two shelters
5.	Privacy Curtain	93057	Provides for semi-private areas
6.	Plastic Strip Doors	90074	Clear Vinyl Strip Door. Maintains interior climate control
7.	Model S2/S2T Plenum	93060	Evenly distributes airflow throughout shelter
8.	Model S3/S3T Plenum	93061	See Item 7 for description
9.	Model S4/S4T Plenum	93062	See Item 7 for description
10.	Model S5/S5T Plenum	93063	See Item 7 for description
11.	Model S6/S6T Plenum	93064	See Item 7 for description
12.	Model S1 Insulated Sub-floor	93067	Provides insulation in sub-zero climates and acts as a cushion in rocky terrain
13.	Model 1SI insulated sub-floor	930671	See Item 12 for description
14.	Model S1T insulated sub-floor	93068	See Item 12 for description
15.	Model S2 Insulated Sub-floor	93070	See Item 12 for description
16.	Model 2SI insulated sub-floor	930701	See Item 12 for description
17.	Model S2T insulated sub-floor	93071	See Item 12 for description
18.	Model S3 insulated sub-floor	93073	See Item 12 for description
19.	Model 3SI insulated sub-floor	930731	See Item 12 for description
20.	Model S3T insulated sub-floor	93074	See Item 12 for description
21.	Model S4 insulated sub-floor	93076	See Item 12 for description
22.	Model 4SI insulated sub-floor	930761	See Item 12 for description
23.	Model S4T insulated sub-floor	93078	See Item 12 for description
24.	Model S5 insulated sub-floor	93080	See Item 12 for description
25.	Model 5SI insulated sub-floor	930801	See Item 12 for description
26.	Model S5T insulated sub-floor	93081	See Item 12 for description
27.	Model S6 insulated floor	93083	See Item 12 for description
28.	Model 6SI insulated floor	930831	See Item 12 for description
29.	Model S6T insulated floor	93084	See Item 12 for description
30.	Spare Parts Kit	90223*	To replace damaged struts
31.	25 Steel Stake 18” Set	09981	For staking down shelters. Additional stake set recommended for Models 4 - 6.
32.	Model S1 Wire Package	T240162	Leads and distributes electrical power inside the shelter
33.	Model S2 Wire Package	T240164	See Item 32 for description
34.	Model S3 Wire Package	T240166	See Item 32 for description
35.	Model S4 Wire Package	T240168	See Item 32 for description
36.	Model S5 Wire Package	T240170	See Item 32 for description
37.	Model S6 Wire Package	T240172	See Item 32 for description

S Shelter Accessory Part Numbers (Cont).

	Description	Part No.	Function
38.	Light Set (2 lights)	H30000-2	Provides fluorescent lighting inside the shelter (120V/60Hz)
39.	Light Set (4 lights)	H30000-4	Provides fluorescent lighting inside the shelter (120V/60Hz)
40.	S Passageway, Green	A612200	Connects shelters MFD after 01/03 to shelters MFD before 01/03
41.	S Passageway, Tan	A612220	Connects shelters MFD after 01/03 to shelters MFD before 01/03
42.	Curtain	93058	Vestibule Curtain for S- series (for shelters MFD before 01/03)
43.	Curtain	A612240	Vestibule Curtain for S- series (for shelters MFD after 01/03)
44.	Curtain	93057	S-Privacy Curtain (3/4 width of shelter)
45.	Curtain	90300S	Privacy Curtain (full width of shelter)
46.	Curtain	90300	Security curtain (acoustic suppressant fabric)
47.	Door	S540610	Interior detachable doors
48.	Door	S540970	Exterior detachable door, tan
49.	Door	S540980	Exterior detachable door, green
50.	Door Canopy	90077	
51.	Vinyl Window, Large	93055	Clear vinyl window for shelters MFD before 01/03
52.	Vinyl Windows (See below for order quantities)	93056	Clear vinyl windows for shelters MFD before 01/03
53.	Vinyl Windows (See below for order quantities)	193056	Clear vinyl windows for shelters MFD after 01/03

Vinyl Windows Order Quantities for S Shelter

Shelter Model	Standard	"T" Version	"I" Version
S1	4	3	2
S2	6	5	4
S3	8	7	6
S4	10	9	8
S5	12	11	10
S6	14	13	12

NOTES: 1) Numbered items are not related to illustration numbers shown in Figure 5-1.
2) Part numbers with * indicates that letter G for Green or letter T for Tan should be added to the end of part number.

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Section 6

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6. WARRANTY

DHS SYSTEMS LLC LIMITED WARRANTY

DHS Systems LLC warrants that all DRASH® (Deployable Rapid Assembly SHelter) products purchased hereunder will be free from defects in materials and workmanship. This warranty shall extend to the ultimate user as well as original equipment purchasers and shall be valid for the elapsed time beginning with the date of shipment according to the following schedule:

WARRANTY SCHEDULE

DRASH Shelters Covers and Shelter Accessories: 24 Months

DRASH Shelter Frames 60 Months

DRASH UST Trailers and Trailer Accessories: 12 Months

DRASH Heaters and Heater Accessories: 12 Months

DRASH Power Distribution Unit (PDU): 12 Months

The liability of DHS Systems LLC under this warranty is limited to the repair or replacement of any defective part or component due to a material defect or substandard workmanship. Damage due to excessive wear and tear, improper use or carelessness is not covered under this limited warranty.

Furthermore, it should be understood that this warranty does not constitute a guarantee that the products under warranty identified in the Schedule above will function without following instructions, including reading of the Operators Manual, and following proper maintenance procedures as well as using reasonable care for the periods stated in the above Schedule. On-site repair without prior discussion and approval from DHS Systems may void the warranty.

Warranty claims must contain a detailed explanation of the defect and be supported by summary extracts of pertinent service and maintenance records if applicable. DHS Systems LLC shall have the right to examine the alleged defect and may require the claimant, at the claimant's expense, to return the product for such an examination. If DHS Systems' personnel are required to visit the claimant's site to confirm any alleged defect, all expenses for travel and accommodations may be charged to the claimant.

Any warranty claims must be filed with DHS Systems LLC within 90 days after the alleged defect has been identified. All claims must be mailed or faxed to the following:

DHS SYSTEMS LLC
33 Kings Highway
Orangeburg, NY 10962-1802
Attn: Customer Service, Dept. C
Phone: 845-359-6066 Fax: 845-365-2114 Email: drash@drash.com

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6.1 S Series Shelter Warranty Registration Form

The product warranty is included with the shipping of your product (s). Additional copies of this manual are available on CD-ROM and may be purchased for the price of $25.00. Please contact us for further information.

DHS SYSTEMS LLC
33 Kings Highway
Orangeburg, NY 10962-1802
Attn: Customer Service, Dept. C
Phone: 845-359-6066. Fax: 845-365-2114. Email: drash@drash.com

To validate the Limited Warranty, you must register the equipment with DHS SYSTEMS LLC. Please fill in the information below, make a copy and mail to the above address, or fax to (845)-365-2114. If you have multiple units, you may list their VIN #, SSN #, and HSN # below.

Warranty Registration

Date:	**Primary POC and Rank:**
Company/Unit Name:	**Secondary POC and Rank:**
Address:	**VIN# (Vehicle Identification Number)**
Address:	**SSN# (Shelter Serial Number)**
City:	**HSN# (Heater Serial Number)**
State:	**DHS Use Only:**
Zip Code:	
Country:	
Phone#:	
Fax#:	
Email:	

VIN#	SSN#	HSN#

(fold)

Return Address:

Place
Stamp
Here

_____
_____
_____

DHS Logistics
33 Kings Highway
Orangeburg, NY 10962

RE: Warranty Registration

(fold)

6.2 S Series Shelter Feedback Form

RECOMMENDED CHANGE(S) TO EQUIPMENT MANUAL

FROM: (PRINT YOUR UNIT'S CORRECT ADDRESS)		**DATE SUBMITTED:**
PUBLICATION TITLE **S Series Shelter Operation & Maintenance Manual**		PUBLICATION DATE **July 14, 2006**
DHS Part: **109965**	MANUAL P/N: **95310-02**	

BE EXACT PIN-POINT WHERE IT IS				**IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:**
PAGE NO	PARAGRAPH	FIGURE NO	TABLE NO	

PRINTED NAME, GRADE OR TITLE, PHONE NUMBER, AND EMAIL ADDRESS	SIGN HERE

(fold)

Return Address:

Place
Stamp
Here

DHS Logistics
33 Kings Highway
Orangeburg, NY 10962

RE: Equipment Feedback Form

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