

Inflatable Shelter System

9508-001/002^(12'x15')

9509-002/003^(15'x20')

Manual P/N: 9533-001



TULMAR
ENGINEERED FOR PROTECTION

Tulmar Safety Systems

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OVERVIEW AND COMPONENTS

TULMAR

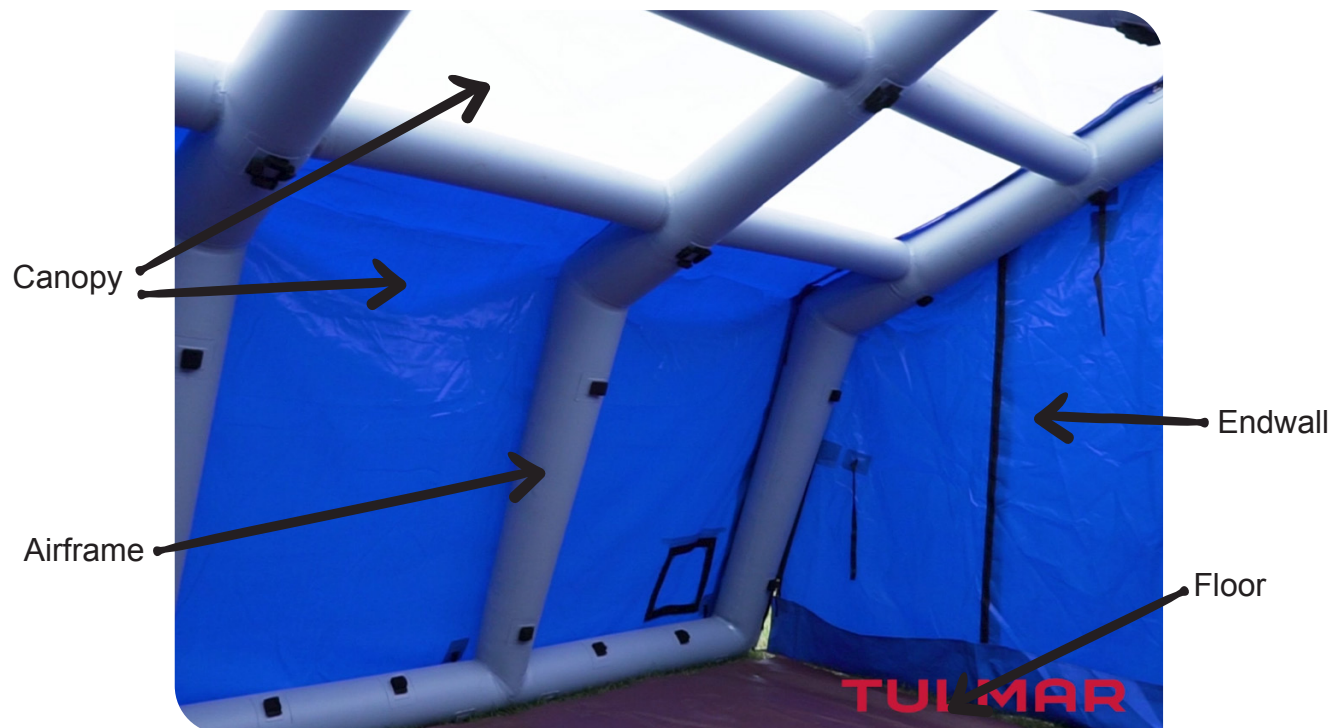


Canopy
(blue or red)

Floor
(brown)

Inflatable Air Frame
(Grey)

End Walls
(blue or red with
translucent ceiling)



Canopy

Airframe

Endwall

Floor

1.1 STANDARD COMPONENTS (INCLUDED)



1.2 TECHNICAL SPECIFICATIONS

Inflatable Shelter System

Temperature Range:	+30°C to -20°C (+86°F to -4°F)
Snow Load	240kg spread evenly across the roof
Wind Range (mild anchoring)	25kph
Wind Range (heavy anchoring)	45kph
Serial Number Location	Printed on Valise & Air Frame

Dimensions

Shelter Footprint	Interior Dimensions	Packed Dimensions	Weight
12'x15' (3.7 m. x 4.6 m.)	180sq.ft. (17 sq. m.)	24"x24"x52" (61cm x 61cm x 135cm)	225 lbs. (102 kg.)
15'x20' (4.5 m. x 6.1 m.)	300sq.ft. (27.5 sq. m.)	28"x28"x60" (71cm x 71cm x 152cm)	370 lbs. (168 kg.)

Air Frame

Internal Volume	Approximate 2500L
Operating Pressure	3 PSI
Material	High strength & durability.

Canopy / Floor

Material	Anti-fungus, anti-mildew, antibacterial & antimicrobial treatments.
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Temperature Caution: Exceeding the temperature range will create premature damages to the materials, structure, & air holding properties of the shelter & its frame.

Wind Caution: Exceeding wind range will create premature damages to the materials, structure, & air holding properties of the shelter. When used in high winds, ensure the shelter system is properly anchored down.

1.3 SHELTER FEATURES

1.3.1 Side Canopy Tie-Up

The full side of each Canopy can be tied-up for easy access, movement of big items, or cool wind flow.



1. Undo the bottom Canopy Tie Down,
2. Roll up the side of the canopy, (can roll up both sides)
3. Secure the webbing straps in the double D-ring locations, and
4. Lace strap in the D-Ring



1.3.2 End walls: Rolling up the center flaps

Two center rectangular drapes are available for rolling up:

1. Unzip and roll-up, and
2. Loop webbing into the double D-rings.



1.3.3 End walls: Rolling up the side flaps

Each side can be completely rolled-up to give further access inside:

1. Roll up the sides, and
2. Loop the webbing into the double D-rings.



1.4 AIR PRESSURE MAINTENANCE, LOW TEMPERATURES & WINTER USE

1.4.1 Maintaining Air Pressure

We recommend a regular (daily) top up of the air frame. Follow the same instructions as those detailed in section 4.0 Inflation, to top up. If topping up is a lengthy task (should take no more than a few minutes), we recommend checking the air frame for leaks. See conditions related to temperature below for additional instances where top up may be required. If the air frame feels soft to the touch, top up immediately and check for leaks and / or tears.

1.4.2 Snow Load Maintenance

It is recommended that occupants inside the shelter tap the ceiling to help dissipate (remove) snow buildup whenever possible.

1.4.3 Effect of temperature on Air Frame Pressure

The airframe's internal pressure will fluctuate as external temperature changes.



If the external temperature increases (rise in temperature), the shelter air pressure will also increase. This will cause the 3 PSI pressure relief valves to open (you will hear a hissing sound) to protect the airframe from over-pressure.



If the temperature decreases (lower temperature), the air pressure inside the air-frame will also decrease, causing the tube structure to soften. This will require manually topping up the air to maintain optimal inflation pressure.

Overnight and Drastic Temperature Drop Caution: If the shelter is required to be standing overnight and / or a substantial drop of temperature is expected, the air pressure could drop below 1 psi. This could potentially result in the shelter collapsing.

We recommend countering this situation with an automatic or systematic manual top up. Ensure to regularly check the pressure before and during use.



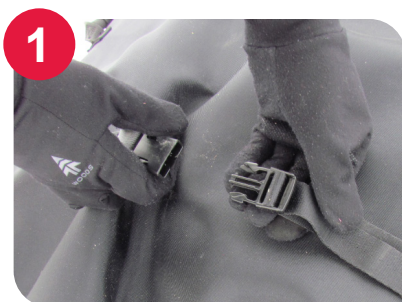
UNPACKING THE SHELTER

2.0 UNPACKING THE SHELTER

Before you begin to unpack, determine a location for the shelter. If possible, determine the wind's direction and place the shelter with the sides facing the wind. Avoid the wind hitting directly at the end walls as this will increase the risk of the shelter lifting. Place the valise where the front entrance of the shelter is meant to be.

Follow these steps to unpack and set up the shelter prior to inflation:

1. Detach the valise straps and buckles.
2. Unfold the valise.



3. Unroll the shelter. The direction in which it unrolls represents the length of the shelter, therefore ensure it is unrolling in the desired direction.



4. Unfold the shelter one side at a time and lay flat on the ground.





**PRE-INFLATION
ANCHORING**



Packing in cold weather: We recommend that if you must pack the shelter in temperature below 0°C (32°F), to do a loose packing, bring the shelter indoors and tightly pack the shelter as per instructions above. Packing the shelter in the cold poses a risk of cracking where material has become stiff and frozen. Giving the shelter time to thaw and warm will negate this risk.

3.0 PRE-INFLATION ANCHORING

Once the shelter is unpacked and unrolled, it must be securely anchored. As an option, you can anchor the shelter with pegs. Every shelter is kitted with 6 pegs to anchor into the ground.



Wind Caution

The anchor pegs should be tied directly to the tube structure to prevent wind from blowing the shelter away.



1. Locate the tie down locations, which are accessible below and between the canopy and tube structure.
2. Pass the peg through the loop (webbing).
3. Secure into the ground until the webbing is tense.
4. Once the floor is securely anchored, proceed with inflation (see section 4.0 below).



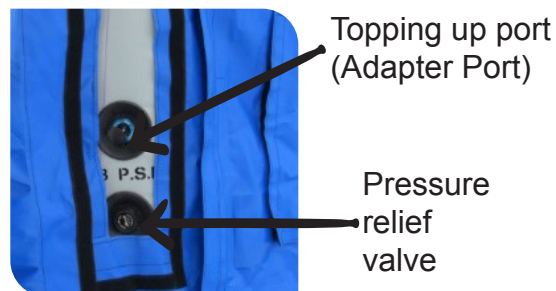
INFLATING THE SHELTER

4.0 INFLATING THE SHELTER

4.1 Inflation Options

Inflation can be achieved through any of the following methods: Cylinder, air compressor, electric blower/inflator, or mobile air compressor / 2x mobile air compressor.

Inflation Method	Inflation times (approx. mins.)
SCBA/SCUBA Cylinder	5
Compressed Air	5
Electric Blower / Inflator	10
Mobile Air Compressor	20
2X Mobile Air Compressor	10



Low Temperature Caution: At temperatures of -20°C (-4°F) or lower, it may be difficult to connect the compressed air or blower fitting. Therefore, it is then recommended to inflate with a cylinder.

Also be cautious to avoid inflation after the shelter has been exposed to cold temperature for an extended period of time.

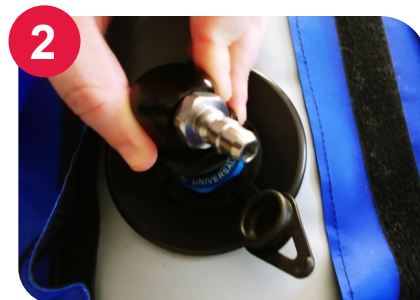
4.2 CYLINDER INFLATION

When inflating through the use of a SCBA or SCUBA cylinder, the High-Pressure Valve Assembly is required. This assembly has a special high pressure quick connector that connects to the “SCBA hose assembly” or “SCUBA hose assembly”.



High-Pressure Caution: Only use high pressure fittings with Cylinder Inflation. Do not use low pressure air fittings with high pressure cylinder fittings.

1. Remove the topping up port with the socket tool.
2. Thread / install the “High Pressure Valve” assembly. Do not over tighten as it may loosen the flange.



4.2.1 SCBA Inflation (Firefighter's Cylinder)

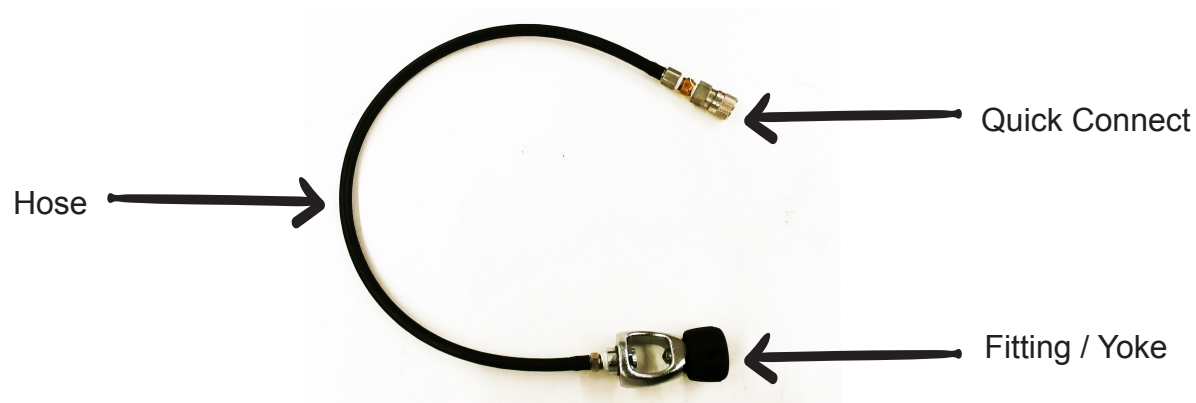
Any SCBA Cylinder is applicable for inflation. Inflation will require the connection of a SCBA hose assembly as seen below:



1. Assemble the hose and fitting as shown in the image above.
2. Attach the quick connect to the high-pressure valve of the shelter.
3. Attach the fitting to the SCBA tank.
4. Open the tank's valve to start inflation.
5. Inflate until relief valve opens indicating minimum operating pressure has been reached.

4.2.2 SCUBA INFLATION (DIVER'S CYLINDER)

Any SCUBA Cylinder is applicable for inflation. Inflation will require the connection of a SCUBA hose assembly as seen below:



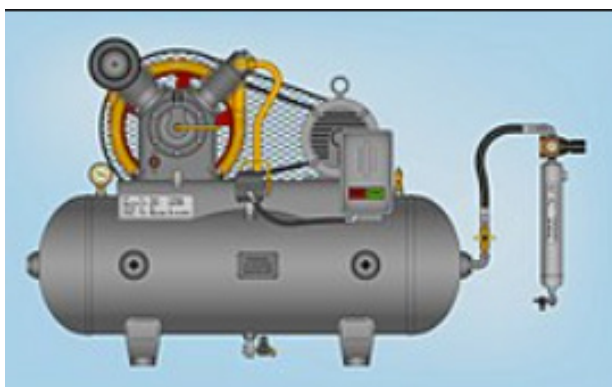
1. Assemble the hose and fitting as shown in the image above.
2. Attach the quick connect to the high-pressure valve of the shelter.
3. Attach the SCUBA yoke to the SCUBA tank and twist knob to engage components.
4. Open the tank's valve to start inflation.
5. Inflate until pressure relief valve opens, indicating minimum operating pressure has been reached.

Warning: Quick connect might become iced up immediately after inflation.
If this is the case, wait 5-10 min. to thaw before re-using.

4.3 AIR INFLATION

The topping-up port is designed for the top-up pump adapter with ¼"-18 NPT fitting, which comes standard with each shelter system.

1. Connect the source air to the quick connector fitting.
2. Press the fitting into the adapter port and turn on the air.
3. When pressure relief valve opens, stop adding air. You may need to tap the area near the pressure relief valve to activate it.
4. Remove the air intake. The topping up port will self-close.



4.3.1 Compressed Air Inflation

The inflatable shelter is suited for inflation with most compressed air systems, as long as the adapter with ¼"-18 NPT fitting is used (as seen above).

4.3.2 Blower Inflation (Inflator)

To inflate with a blower, we recommend using a blower unit operating at 3 psi and 50 cfm to achieve the operating pressure of 3 psi. Using a smaller blower is possible as long as it can reach the operating pressure of 3 psi.

**Smaller blower purchased with Tulmar may vary in appearance or brand. Contact Tulmar's Sales team for details and options.





POST INFLATION ANCHORING

5.0 POST INFLATION ANCHORING

Additional anchoring methods are available to increase the shelter’s stability.

	Standard Component (Included)	Extra Component (Sold separately)
Water Ballast Bag	✓	
Weight Bag Kit		✓

5.1 WATER / SAND BALLAST BAGS

The ballast bags should be used to secure the shelter in windy conditions. To setup the ballast bags:

- 1. Seal the water ballast bags by folding the flap around the ballast bar.
- 2. Slide on the metal clasp.
- 3. Fill the bag using the hole in the center of the flap where it meets the canopy.
- 4. Repeat for the other side.



Low Temperature Caution: These bags should not be filled with water when the temperature approaches 0°C (32°F), as they could freeze, resulting in damages. Use anti-freeze in the water or use alternative anchoring methods.

5.2 WEIGHT BAG KIT

An optional Weight Bag Kit can be used to secure the inflatable shelter. The weight bags are designed to hold a standard 30kg bag of cement commonly found at any hardware store. Each weight bag is available with or without a 30kg cement bag.

See the chart below for recommend placement of weighted bags:

APPLICATION	# BAGS	PLACEMENT
Light Wind	6	1X at each end wall at center. 2X on canopy ends, spread evenly.
Medium Wind	12	2X at each end wall, spread evenly. 4X on canopy ends, spread evenly.
High Wind	24	4X at each end wall, spread evenly. 8X on canopy ends, spread evenly.



Each weight bag (with or without cement bag) comes with a plastic bag in order for the accessory to be water tight and prevent moisture from hardening the cement inside.

Lay weight bags flat onto canopy and / or endwall flap, as per image 2 & 3 above.



DEFLATING AND PACKING

6.0 DEFLATING AND PACKING

After use, the below procedure should be followed to properly deflate and pack the shelter.

If the shelter is dirty, greasy, or wet; first refer to section 7.0 Cleaning and Storage of this manual before continuing with deflation.

1. Attach all end-wall sections and close the doors closest to the air frame by zipping up all zippered sections, except for the center sections.
2. Ensure the shelter is setup properly, with all straps connected between the air frame and the canopy.
3. Begin deflation by pushing the adapter port with a finger. The socket tool may be used to remove one of the valves to speed up deflation. This must be done on both ends of the shelter to ensure air leaves the air frame.

Pressure Caution: When removing a port valve from the shelter, expect a quick blow-back. Keep a firm grip on the socket tool.



Side Socket Tool used to remove a valve for faster deflation

4. To assist deflation after the shelter has exhausted air under its own weight, an air compressor deflation gun attachment may be used.
5. When most of the air is out, close the second topping valve and remove the pegs that anchor the floor. Ensure that you close the correct valve: you want to be able to close the first valve after the shelter has been folded and rolled up.
6. Place the valise in the front center with only the external flap visible.
7. Fold the first $\frac{3}{4}$ overtop in half following marking ends of the valise. Then, roll the other $\frac{3}{4}$ overtop. Squeeze more air out during this procedure.



8. Now roll up the shelter lengthwise. Remember to leave the valve open when rolling up.



TIP 1: In order to fold the shelter compactly, it is necessary to remove as much air as possible during each step. Sometimes it is necessary to roll up a section, unroll it (valve closed when unrolling) and then roll it up again to get all the air out. When rolling is complete, close the valve to prevent air from entering.

9. Connect straps and buckles to secure the valise: begin with sides on the short ends then fold length wise.





**CLEANING AND
STORAGE**

7.0 CLEANING AND STORAGE

Proper care of the shelter will allow it to continue operating at optimal performance levels and will ensure a long service life.

7.1 Cleaning

1. After using the shelter, be sure to clean all debris from the canopy and the floor.
2. If the shelter was used in muddy or sandy conditions, the shelter may need to be rinsed off. Pay special attention to rinsing off the valves and the areas in between the air frame and the canopy.
3. Heavily soiled areas or grease stains can be cleaned with a mild soap and a sponge.

7.2 Drying

1. When storing the shelter for short periods of time (no more than a few days), it is acceptable to pack it up while still wet.
2. When storing for longer periods of time, allow the shelter to dry completely before storing. Although the fabric is mildew resistant, it is preferred to pack dry to extend the life of the shelter.

7.3 Storage

1. The shelter can withstand extreme climate conditions however, service life will be extended by being stored in a climate controlled indoor area. Excessive heat, cold and moisture should be avoided whenever possible.

Important: Store any pressurized tank according to their individual specifications. Keep tanks away from excessive heat.



REPAIRING HOLES AND TEARS

8.0 REPAIRING HOLES AND TEARS

See below for instructions on how to make minor repairs on the Inflatable Shelter, using the standard repair kit.

8.1 Small holes

- Thoroughly dry off the surface to be repaired.
- Thoroughly clean the surface around the damaged area and patch, using the emery paper.
- Apply one coat of rubber solution to the damaged area and patch, then allow it to dry. Apply a second coat of rubber solution to the damaged area and patch, then allow in to dry. Then apply a patch and press firmly to eliminate any air bubble.

8.1 Large holes and small tears

If it is not possible to work on a deflated item, then plug the hole with a suitable leak stopper while preparing the surface as detailed above.

8.2 Topping-up of inflatable

Allow twenty minutes for patch to fully adhere before topping up with air.

8.3 List of content – Repair kit

- Adhesive solution (Qty 1 tube)
- Emery Paper 229 mm x 280 mm (9" x 11") (Qty 1 sheet)
- Fabric Patch - colour blue 150 mm dia. (6" diameter) (Qty 2)
- Fabric Patch - colour brown 150 mm dia. (6" diameter) (Qty 2)
- Fabric Patch - colour white 150 mm dia. (6" diameter) (Qty 2)
- Fabric Patch - colour black 150 mm dia. (6" diameter) (Qty 2)**
- Fabric Patch - colour Grey 150 mm dia. (6" diameter) (Qty 2)
- Fabric Patch - colour blue 102 mm dia. (4" diameter) (Qty 2)
- Fabric Patch - colour brown 102 mm dia. (4" diameter) (Qty 2)
- Fabric Patch - colour white 102 mm dia. (4" diameter) (Qty 2)
- Fabric Patch - colour black 102 mm dia. (4" diameter) (Qty 2)**
- Fabric Patch - colour Grey 102 mm dia. (4" diameter) (Qty 2)
- Fabric Patch - colour red 150 mm dia. (6" diameter) (Qty 2)
- Fabric Patch - colour red 102 mm dia. (4" diameter) (Qty 2)

** Black patches are for Inflatable Shelters purchased before the year 2020, which are built with a black air frame.



COMPONENT PARTS LIST

9.0 COMPONENT PARTS LIST

All Tulmar parts below are available upon request for purchase and/or replacement. Please contact Tulmar Safety System for more details.

9.1 COMPLETE 12' X 15' SHELTER SYSTEM - BLUE

The follow are the standard shelter parts for the 9508-001.

TULMAR P/N	DESCRIPTION
9540-001	Air Frame
9541-001	Canopy (Blue)
9542-001	Endwall (Blue)
9543-001	Valise
9544-001	Floor
3838	6X Hook Stake (Anchor Peg)
9525	Repair kit
9533-001	User manual
6314	Pump adapter, top-up
6418	Adapter
6457	Fitting, quick connect, 1/4"
6366	Socket tool
6454	Pressure Relief Valve
63408	Top-Up Valve
63416-001	High Pressure Adapter
6601-003	Inflation Hose Assembly

9.2 COMPLETE 12' X 15' SHELTER SYSTEM - RED

The follow are the standard shelter parts for the 9508-002.

TULMAR P/N	DESCRIPTION
9540-002	Air Frame
9541-002	Canopy (Red)
9542-002	Endwall (Red)
9543-001	Valise
9544-001	Floor
3838	6X Hook Stake (Anchor Peg)
9525	Repair kit
9533-001	User manual
6314	Pump adapter, top-up
6418	Adapter
6457	Fitting, quick connect, 1/4"
6366	Socket tool
6454	Pressure Relief Valve
63408	Top-Up Valve
63416-001	High Pressure Adapter
6601-003	Inflation Hose Assembly

9.3 COMPLETE 15' X 20' SHELTER SYSTEM - BLUE

The follow are the standard shelter parts for the 9509-002.

TULMAR P/N	DESCRIPTION
9550-001	Air Frame
9546-001	Canopy (Blue)
9547-001	Endwall (Blue)
9548-001	Valise
9549-001	Floor
3838	6X Hook Stake (Anchor peg)
9525	Repair kit
9533-001	User manual
6314	Pump adapter, top-up
6418	Adapter
6457	Fitting, quick connect, 1/4"
6366	Socket tool
6454	Pressure Relief Valve
63408	Top-Up Valve
63416-001	High Pressure Adapter

9.4 COMPLETE 15' X 20' SHELTER SYSTEM - RED

The follow are the standard shelter parts for the 9509-003.

TULMAR P/N	DESCRIPTION
9550-002	Air Frame
9546-002	Canopy (Red)
9547-002	Endwall (Red)
9548-001	Valise
9549-001	Floor
3838	6X Hook Stake (Anchor peg)
9525	Repair kit
9533-001	User manual
6314	Pump adapter, top-up
6418	Adapter
6457	Fitting, quick connect, 1/4"
6366	Socket tool
6454	Pressure Relief Valve
63408	Top-Up Valve
63416-001	High Pressure Adapter

9.3 OPTIONAL INFLATION SYSTEMS

9.3.1 Electrical Blowers & Kits

Standalone Electric Blowers that connected to a regular wall power outlet are available.

TULMAR P/N	DESCRIPTION
3429	Blower, 4 Hp, 110 Volts
3429-220	Blower, 4 Hp, 220 Volts
3429-240	Blower, 4 Hp, 240 Volts

9.3.2 SCUBA HOSE ASSEMBLY INFLATION

The following consists of the inflation system that is commonly used by services having access to SCUBA tanks (cylinders).

TULMAR P/N	DESCRIPTION
6455	YOKE SCUBA Hose Assembly

9.4 OPTIONAL SHELTER ANCHORING KITS

Below are the optional weight bags for the shelter. Note that to save shipping costs, a bag without cement inside is available; end user will be required to purchase a 30kg cement bag and install it inside.

9.4.1 WEIGHT BAGS

TULMAR P/N	DESCRIPTION
9551-001	Bag, weight, grey with 30kg cement bag inside.
9551-002	Bag, weight, grey without 30kg cement bag inside.
9551-003	Bag, weight, red with 30kg cement bag inside.
9551-004	Bag, weight, red without 30kg cement bag inside.

REVISION HISTORY

- April 7, 2021 - REV A
- July 28, 2021 - REV B
- August 18, 2021 - REV C
- December 13, 2023 - REV D



TULMAR

ENGINEERED FOR PROTECTION

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