



**HELLIWELL  
TANK  
OPERATIONS  
MANUAL**

**2018 VERSION D**

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## HELIWELL OPERATIONS MANUAL - Version D

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**PLEASE READ BEFORE USING.**

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**We Engineer Solutions**

**2018 Heliwell Operations Manual (Version D)**

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## Section 1: Overview

### Heliwell Description

This manual covers the installation and use of SEI's Heliwell Tank — a transportable, field-erected water tank of sufficient size that all types of helicopter fire fighting buckets can dip into it or it can be used as a remote water storage tank.

The Heliwell consists of a circular aluminium shell with an internal heavy-duty, waterproof fabric liner. A flange is installed on the liner and locked onto an aluminium panel with the aid of four bolts and nuts. The purpose of the flange is to allow for drainage of the tank after use.



## Heliwell Design

Depending on the Heliwell model, the tank shell is divided into eight or ten panels, rolled from 5' x 10' sheets of 1/8" thick aluminium, reinforced with a bottom channel, angles and tubing. Each panel has a flatbar attached to the outside along one edge, to cover the joint between the panels. Another flatbar runs along the opposite inside edge. The panels are held together by two pairs of assembly brackets positioned on either side of the each panel. For vertical adjustment purposes, the assembly brackets on one side of each panel have a slot. The assembly brackets are used to support the panels during assembly and do not provide the strength needed to support a full tank. Each panel also has two handles to facilitate moving.

The assembly is held together with seven lengths of 5/16" cable around the outside of the tank. The cable is positioned inside the reinforcing angles and the bottom channel, with both ends connected to the turnbuckle. The cables must be adequately tightened as they provide the strength to hold the Heliwell together. The turnbuckles should be positioned where the panels meet.

The liner has handles for lifting the empty liner up and over the edge of the aluminium shell. A length of 2" webbing is then passed through guide loops on the liner and cinched tight to hold the liner in place.

The tank may be equipped with a protective rim, which consists of a set of PVC covers, which can be installed on top of the liner enclosing the Heliwell's top edge.



## Section 2: Safety

### Safety Procedures

Make certain that all cables are tight and that there are no gaps between the panels before filling the tank. Use only the cable assemblies provided. Do not attempt to set up the tank using rope or any other substitute for the hardware provided.

#### Warning

Never enter the inside of the tank without a ladder, whether there is water in the tank or not. The sides are straight and slippery and you won't be able to get out!

#### Important Note

If assembling in windy conditions, extra personnel and care may be required to keep panel sections from being blown down. Also, in windy conditions, it is important to ensure that the liner is as wrinkle-free as possible. Wind can blow out the liner and cause damage if large wrinkles are present.



## Section 3: Tank Specifications

### Specifications by Model Number

| Model # | CAPACITY |        |           | DESCRIPTION   |
|---------|----------|--------|-----------|---|
|         | USG      | Liters | Imp. Gal. |   |
| HW-1000 | 9,425    | 35,674 | 7,848     | Heliwell Tank<br>Diameter: 12'8" (3.9m) / Height: 10' (3m)<br>Weight: 970 lb. (440kg)   |
| HW-1500 | 14,900   | 56,397 | 12,407    | Heliwell Tank<br>Diameter: 16' (4.9m) / Height: 10' (3m)<br>Weight: 15,330 lb. (695 kg) |

### Components

#### HW-1000

| DESCRIPTION  | QTY |
|--|-----|
| Aluminum Panels                                    | 8   |
| Ground Sheet                                       | 1   |
| Liner 10000  | 1   |
| Side Flange fill/drain 3" c/w Ball Valve           | 1   |
| Bolts, Wing Nuts, and Washers                      | Set |
| Cinch cables with Turnbuckles                      | 6   |
| Cinch Strap 2" Webbing (holding folded over liner) | 1   |
| Wrench 1-1/4                                       | 1   |
| Pipe 1/2" Schedule 80                              | 2   |
| Carry Bag  | 1   |

**HW-1500**

| DESCRIPTION  | QTY |
|--|-----|
| Aluminum Panels                                    | 10  |
| Ground Sheet                                       | 1   |
| Liner 15000  | 1   |
| Side Flange fill/drain 3" c/w Ball Valve           | 1   |
| Bolts, Wing Nuts, and Washers                      | Set |
| Cinch cables with Turnbuckles                      | 6   |
| Cinch Strap 2" Webbing (holding folded over liner) | 1   |
| Wrench 1-1/4                                       | 1   |
| Pipe 1/2" Schedule 80                              | 2   |
| Carry Bag  | 1   |

## Section 4: Assembly

### Assembly Procedures

#### *Recommended Tools for Assembly*

Three persons are required to assemble the Heliwell tank using the following tools:

- shovel
- aluminium ladder, 8-ft.
- gloves
- pulaski
- wrench (supplied by SEI Industries)

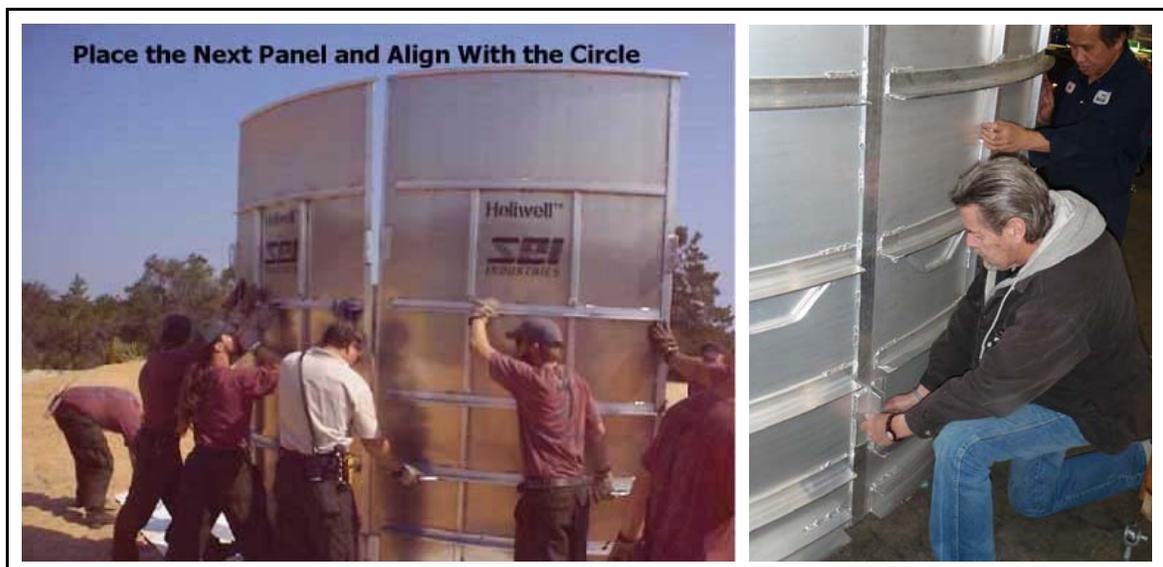
Ten lengths of 2" webbing (15'/4.57 m each) are required to install the waterproof liner (supplied by SEI).



**Assembly Procedure**

The site where the tank will sit should be reasonably flat. The fill/drain port must be easily accessible and on the downward slope, if any, for drainage.

1. Remove any debris from the site which might damage the liner. If the tank is to be filled with retardant, set up a protective berm.
2. Next, spread out the groundsheet. Make sure the side with the circles is up.
3. Make sure the crew is large enough (minimum three people) to be able to support and lift the various panels into place. Windy conditions will require more people.
4. Assemble the first two aluminium panels (starting with the panel with the flange hole) standing up on the circle marked on the groundsheet. Lock the panels together using the bolts, washers and wing nuts provided. Pass the bolt through a washer then through the 5/8" hole on the angle, then through the slot on the angle located on the adjacent panel. The role of the slot is to compensate for any inconsistency in ground level. Use a second washer before attaching the wing nut. **TIGHTEN WING NUT BY HAND.** Do not use a tool to tighten the wing nut.



5. Place the folded liner in the middle of the groundsheet.



6. Unfold the liner and line up the flange with the opening in the tank wall and bolt in place. Stretch out the liner, making sure that the 2" webbing attached to the handles is pulled free and placed against the base of the panels. The seam between the bottom and walls of the liner should be positioned just inside the circle on the ground sheet. Any large wrinkles on the bottom must be eliminated especially around the flange.



7. Fit the other panels in the manner described above. Before placing the last panel, go inside and throw the end of the 2" webbing over the top of the panels.



8. Install the last panel. Install the cables, one at each of the angles. First, attach the turnbuckle to one end of the cable and string the cable around Heliwell panels. Lift it to the lowest angle keeping the turnbuckle at the joint between two panels and attach the other end of the turnbuckle to the cable. Repeat this operation until all cables are attached.



*Nut one end of turnbuckle in gap.*

#### Important Note

Make sure to keep the 2" webbing used to pull the liner up is on top of the cables.

9. Tighten all turnbuckles using the supplied 1-1/4 wrench and the two tubes to hold the eyes on each end of the turnbuckle. After tensioning all turnbuckles, tighten enough that you are unable to get your fingers behind the cables. Then, loosen the wing nuts on the bolts holding the panels together. There should be at least 1/2" gap between the nuts and the assembly brackets.



- The liner can now be pulled up with the 2" webbing straps. Pull the liner up by 2-3 ft. then tie the webbing to a handle. Go all around the Heliwell, pulling the liner up to the same level. If several people are available, position them around the tank pulling the liner up the same amount together. If only 1 or 2 people are available, when you arrive back at the first location, pull it up another 2-3 ft., tie it off, and continue going around the Heliwell again. Repeat until the liner handles come over the top.



- Fold the liner over the top of the tank and insert the cinch strap into the loops and tension the cinch strap as tight as possible.



12. The Heliwell is ready to fill. If you are not using the flange on the side of the tank, check to make sure the plug is installed.



13. Check that all cables are tight and that there are no gaps between the panels. Turnbuckles and shackle points must be laying flat against the tank for maximum strength when installed. The turnbuckles should be positioned between the two ends of each reinforcement channel. If the turnbuckles are not flat, they may bend when the tank is full, thereby reducing their strength and making disassembly difficult.

#### Important Note

It is extremely important that the turnbuckles are set to lay flat against the tank wall. Flat turnbuckles will add to the strength of the cable system.

14. After completing the assembly and as you begin filling the tank, remove the wing nuts and bolts from all the bottom and top stop blocks to eliminate a potential snag hazard.



## Section 5: Accessories

### Installation of Accessories

#### ***Impact Pad and Edge Protector Installation***

Once the turnbuckles have been completely secured, optional accessories such as an *impact pad* or *edge protectors* may be installed.

1. Enter the Heliwell tank and attach the impact pad to the bottom of liner using the straps provided. Always use a ladder when working inside the Heliwell tank.



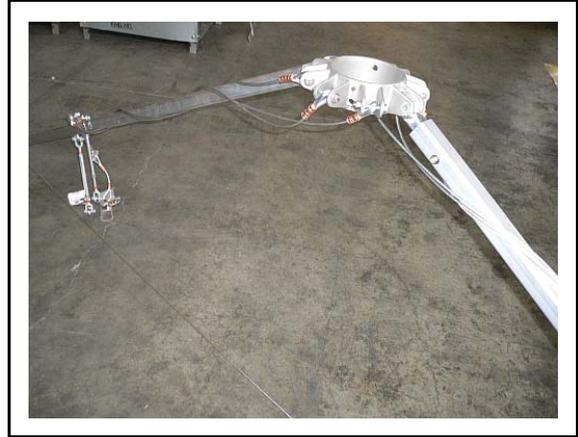
2. Edge protectors are also available from SEI. Install these onto the rim of the Heliwell by fitting them along the top edge of the panels. Edge protectors have a short side and a long side. The short side of the edge protector should face the inside of the tank. The longer edge should be inserted under the black webbing that secures the liner to the Heliwell panels.



**Roof Installation**

Installation of the roof on the Heliwell requires two people.

1. Slide the ends of the roof truss supports into the stubs that are connected to the center hub.



2. Person A should take hold of one end of the truss while person B takes hold of the other end. Using step ladders, position the truss system so that the clamp on the end of the truss is centered on the top of one panel.



3. Move the other truss so that it also centered on the panel that is opposite of the other. Slide the clamps over top of the liner.



4. Position the additional cable supports and clamps around the top edge of the Heliwell. There should be one clamp on each panel. Center the clamp and tension the cable using the turnbuckle.
5. When turnbuckles are tight, slide white PVC covers over them.



6. To pull the roof over top of the center hub and cables, turn the fabric roof inside out and tie ropes about 20 ft. in length to three of the belt loops. Fold the roof in half and place the edge of the roof on the Heliwell.

*Ready for the cover.*



7. Toss the ropes over the roof to the other side of the Heliwell. With one person holding the edge of the roof, the other person pulls on the ropes. Pulling the ropes will pull the folded edge of the fabric roof up and over the center hub. Once the roof has been pulled over the roof supports, pull on the edges of the roof cover until about eight inches of the fabric hangs below the top edge of the Heliwell. Insert the 1.5" strap through the belt loops on the roof cover and tighten. To dismantle the roof, a reverse procedure should be followed.



## Section 6: Dismantling the Tank

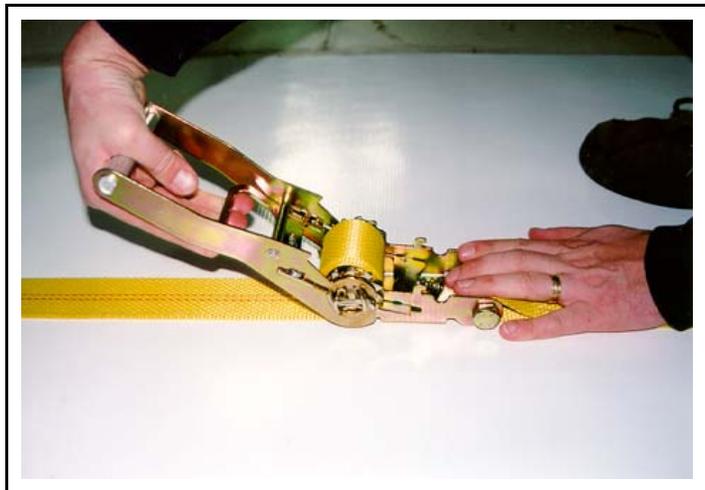
### Dismantling Procedure

Dismantling the tank is the reverse of setting it up (see previous sections for detailed set-up instructions).

#### Important Note

Ensure that the tank has been drained before loosening the load binders.

To help drain the last bit of water from the tank, use the handles on the inside of the liner to pull up one side of the liner. To loosen the strap ratchet, grab onto the ratchet handle and pull the ratchet release with your two middle fingers. Then open the ratchet handle 180 degrees to release the ratchet catch. Pull on the free end of the strap to release tension and unwind the strap.



#### Important Note

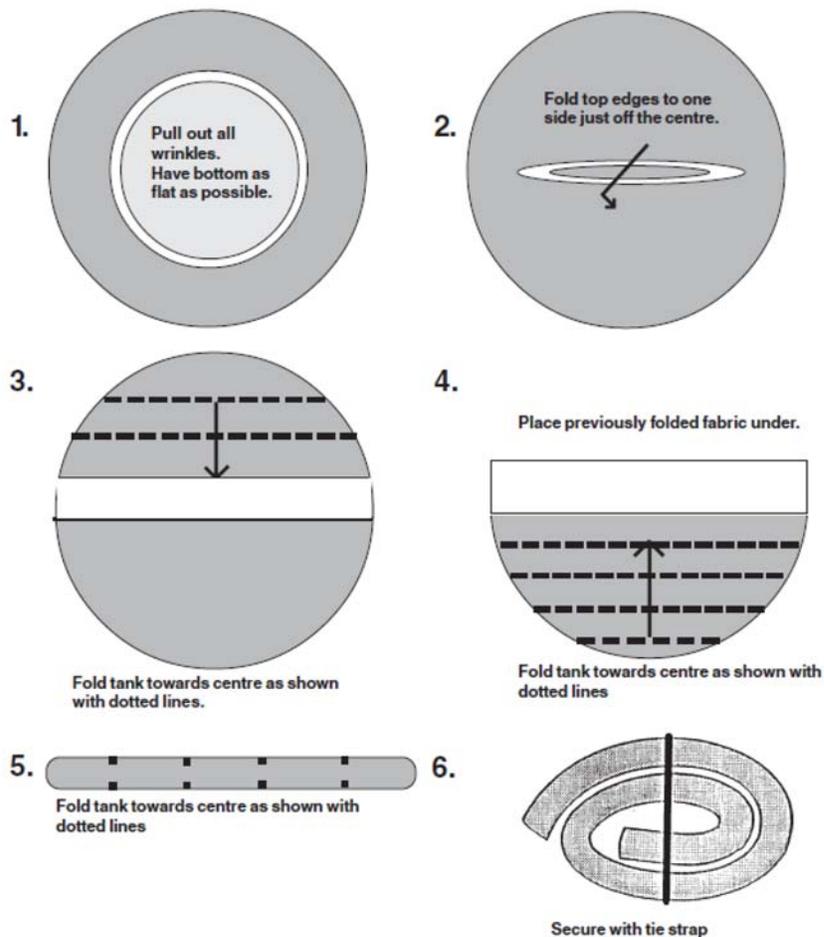
If dismantling in windy conditions, extra personnel and care may be required to keep panel sections from being blown down. Also, in windy conditions, stack the dismantled panels as quickly as possible.

When stacking the panels, stack with the #10 panel on the bottom, finishing with the #1 panel on the top. Stack all panels the same way. Do not alternate top and bottom orientation.

## Section 7: Storing the Tank Liner

### Folding Procedure

1. Remove liner and lay flat. Pull folds out of bottom by pulling material flat.
2. Start folding in 12" - 15" parallel folds from the edge of the tank towards the centre.
3. When your folds reach the centre, stop and begin folding from opposite side to the centre.
4. The tank liner should now look like a long tube. About 4' from an end, make your first fold. Roll the balance into a rolled tube, cinch the rolled tube across the width with the seat belt webbing strap provided.



## Section 8: Parts

## Parts Listings

| PART # | DESCRIPTION  | QTY |
|--------|--|-----|
| 001899 | PALLET, CARRY, HELIWELL, 10000-15000, GAL. ALUMINUM  | 1   |
| 001906 | EDGE, PROTECTOR, HELIWELL, 10000-15000, GAL          | 1   |
| 001915 | GAUGE, FLUID, LEVEL, (Through side)                  | 1   |
| 001918 | PAD, IMPACT, PRIMARY, WITH, BUCKLES, 10000, GAL      | 1   |
| 000041 | PAD, IMPACT, PRIMARY, WITH, BUCKLES, 15000, GAL      | 1   |
| 001929 | PAD, IMPACT, SECONDARY, WITH, BUCKLES, 10000, GAL    | 1   |
| 000042 | PAD, IMPACT, SECONDARY, WITH, BUCKLES, 15000, GAL    | 1   |
| 000527 | GROUND, SHEET, HELIWELL, 10000, GAL                  | 1   |
| 001908 | GROUND, SHEET, HELIWELL, 15000, GAL                  | 1   |
| 001913 | LINER, HELIWELL, HELIWELL, 10000, GAL                | 1   |
| 000050 | LINER, HELIWELL, HELIWELL, 15000, GAL                | 1   |
| 001914 | PANEL, ASSEMBLY, ALUMINUM HELIWELL, 10000-15000, GAL | 1   |
| 001780 | CABLE, ASSEMBLY, KIT HELIWELL 10000, GAL             | 1   |
| 001902 | CABLE, ASSEMBLY, KIT HELIWELL 15000, GAL             | 1   |
| 000755 | COVER, ASSEMBLY, KIT, HELIWELL, 10000, GAL           | 1   |
| 001922 | COVER, ASSEMBLY, KIT, HELIWELL, 15000, GAL           | 1   |
| 004906 | BAG, CARRY (For cables and cinch straps)             | 1   |

## Section 9: Warranty

- a) Warranty is limited to repairing or replacing, at the company's sole discretion, any product approved to be defective.
- b) The company's products are not guaranteed for any specific length of time or measure of service, but are warranted only to be free from defects in workmanship and material for a period of one year to the original purchaser.
- c) To the extent allowable under applicable law, the company's liability for consequential and incidental damages is expressly disclaimed. **The company's liability in all events is limited to, and shall not exceed, the purchase price paid.**
- d) This warranty is granted to the original purchaser of the Heliwell tank and does not extend to a subsequent purchaser or assignee.
- e) The company must receive notification in writing of any claims of warranty from the original which must give details of the claimed defect in the product.
- f) Where the original purchaser is claiming under warranty, the product must be returned to the company for inspection with all transportation and duty charges prepaid.
- g) The warranty does not extend to any product that has been accidentally damaged, abraded, altered, punctured, abused, misused or used for a purpose which has not been approved by the company.
- h) This warranty does not apply to any accessories used with the product such as pumps, filters, hoses, etc., that are not supplied by the company, and any warranty on such accessories must be requested from the manufacturer or dealer of the accessories.
- i) In the event the original purchaser does not give notice of a warranty claim within one year of the original purchase of the product, it is understood that the purchaser has waived the claim for warranty and the purchaser and/or any subsequent purchaser must accept the condition of the product as it may be, without warranty.
- j) Any technical information supplied by the company regarding the product is not a condition of warranty but rather is information provided by the company to the best of its knowledge.
- k) There are no implied warranties nor is there any warranty that can be assumed from any representation of any person, except the company itself.

### **Exclusions**

This warranty is void if the product is not assembled, used and/or maintained in accordance with the operator's manual supplied by SEI.