



ATLANTIC-3000

3000mm diameter Free Standing Polyethylene Ocean Buoy

INSTALLATION & SERVICE MANUAL



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1-0	Manual Launch	October 2018	G.Percy	G.Percy
2-0	Atlantic 3000 revised top design	November 2020	G.Percy	M.Nicholson

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Introduction

Congratulations! By choosing to purchase a Sealite Buoy, you have become the owner of one of the most advanced rotationally-moulded polyethylene marine buoys in the world.

Sealite Pty Ltd has been manufacturing buoys for over 25 years, and particular care has been taken to ensure your buoy gives years of service.

As a commitment to producing the highest quality products for our customers, Sealite has been independently certified as complying with the requirements of **ISO 9001:2015** quality management system.

By taking a few moments to browse through this booklet, you will become familiar with the versatility of your buoy, and be able to maximise its operating function.



Sealite Buoy Division

Sealite marine buoys are manufactured on-site from rotationally-moulded UV-stabilised polyethylene, and are designed to offer a low-maintenance, high visibility solution to marine navigation.

The Sealite buoy division provides turn-key production of navigation buoys. From tooling development, raw materials selection, and production, to final testing and inspection, Sealite guarantees superior quality and fast turn-around times.

Sealite's buoy products are available in a wide range of configurations and sizes, and can be economically shipped worldwide.

Why Choose Polyethylene Buoys?

- No painting
- Inhibits growth
- Increased interval between servicing
- Routine maintenance on location
- Easily repaired in the unlikely event of damage
- Lightweight for ease of deployment and maintenance
- Environmentally friendly – no use of toxic anti-fouling paint

Mooring Requirements & Regulations

Please contact your local authority for any specific requirements regarding the deployment of buoys.

IALA also has guidelines and recommendations that should be followed.

All information given in this manual is advisory only. Please consult with your local authority before deploying your buoy products.

Local conditions that need to be considered include:-

- Water depth
- Maximum currents
- Maximum wind speeds
- Sinker size and weight



ATLANTIC 3000 Ocean Buoy

The ATLANTIC-3000 is a 3m diameter navigation buoy designed for offshore port and coastal applications. This innovative product is manufactured almost entirely from polyethylene, offering significant advantages over steel or hybrid designs.

All Plastic Design

The ATLANTIC-3000 is the only buoy in its class to offer a large 3m diameter float section without the incorporation of a central mooring post. The float section of the ATLANTIC-3000 is built from a large central chamber with a ring of float collars. This design offers several benefits including:-

- Faster, safer and easier to assembly
- Lightweight – up to 60% lighter than competitor models
- Replaceable exterior sections in the event of impact damage
- Multiple buoyancy chambers to provide a higher level of redundancy
- Ability to interchange colours to provide striped combinations such as IALA safe water or wreck marks.

Above the waterline, the polyethylene tower is complemented by day panels to create a large visual area for improved recognition at distance.

10TN Safe Working Load

Large, integrated lifting and mooring eyes offer a safe working load of up to 10T (2-eye lift) which is comparable to traditional steel designs. This is achieved by an innovative strengthened internal bracing design that connects these lifting and mooring points.

Easier to assemble, deploy and service

When compared to other 3m navigation buoys, the ATLANTIC is easier to assemble, deploy and service. The buoy can be easily manoeuvred around site by convenient forklift access points, is lightweight and can sit flat on the deck of a vessel.

The ATLANTIC-3000 can be supplied in all IALA colours, and can carry a significant payload including power supplies, met hydro and telemetric equipment.

Specifications * *

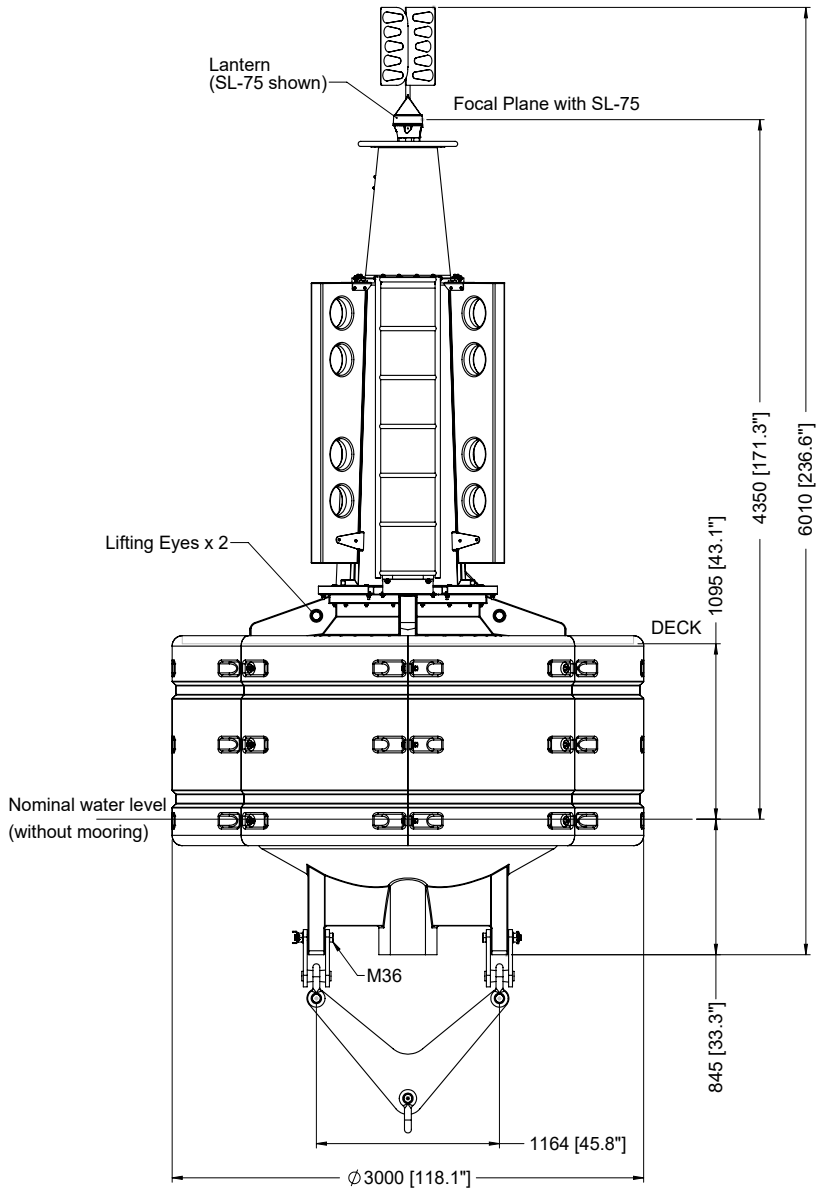
Atlantic-3000	
General Characteristics	
Available Colours	Red, Green, White, Yellow as per IALA Recommendations
Focal Plane Height (mm/inches)	4350 / 171 $\frac{1}{16}$
Total Float Volume (ltrs/US gallon)	9587 / 2532
Nominal Freeboard (mm/inches)	1095 / 43 $\frac{1}{16}$
Nominal Draft (mm/inches)	845 / 33 $\frac{1}{16}$
Total Buoyancy (kgs/lbs)	8000 / 17636
Reserve Buoyancy (kgs/lbs)	2650 / 5842
Maximum Mooring Load (kgs/lbs)	2650 / 5842
Draft, Maximum (mm/inches)	1240 / 48 $\frac{3}{16}$
Freeboard, Minimum (mm/inches)	700 / 27 $\frac{1}{16}$
Safe Working Load, 1pt (kgs/lbs)	5000/ 11023
Safe Working Load, 2pt (kgs/lbs)	10000 / 22046
Submergence (kg/cm, lb/inches)	63 / 352 $\frac{1}{16}$
Visual Area (m2/ft2)	5.9 / 63 $\frac{1}{16}$ 7.2 / 77 $\frac{1}{16}$ (with day marks)
Water Area (m2/ft2)	1.3 / 14
Physical Characteristics	
Material	Rotationally-moulded UV-stabilised virgin polyethylene, 316-grade internal tie bars, lifting & mooring eyes
Wall Thickness (mm/inches)	16 / 0.63 (core) 11.5 / 0.45 (collars)
Ballast (kg/lbs)	500 / 1102 internal concrete
Filling	Closed-cell polyurethane foam (float section)
Height (mm/inches)	ATLANTIC-3000 Standard Model: 6010/ 236.6
Width (mm/inches)	3000 / 118 $\frac{1}{16}$
Mass (kg/lbs)	1825 / 4024
Radar Reflector	Echomax
Product Life Expectancy	>20 years
Certifications	
IALA	Surface colours compliant to IALA E-108
Quality Assurance	ISO9001:2015
Intellectual Property	
Trademarks	SEALITE® is a registered trademark of Sealite Pty Ltd
Warranty *	5 years
Lantern Options	Sealite SL-75, SL-C310 Series, SL-C510 Series
Options Available	<ul style="list-style-type: none"> • Mould-in graphics • Day marks • Monitoring Systems (AIS, GSM, SATCOM)

* Specifications subject to change or variation without notice
 * Subject to standard terms and conditions

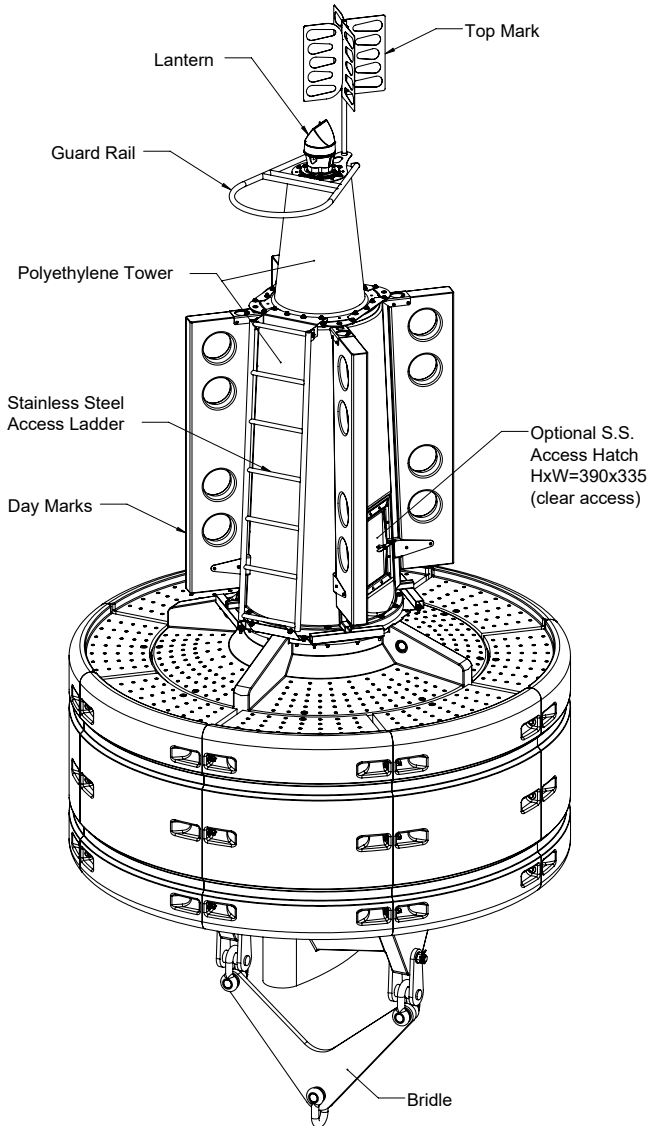




Technical Drawings



Technical Drawings





Assembly Instructions

 Please read all steps before commencing

Check Components

Unpack all components from container. Inspect all components for any damage. Please alert Sealite if any component is missing or damaged.

Central Float & Collar Assembly:-



Please read all steps before commencing. Exercise care when handling buoy components, in particular, take care not to puncture, scrape or otherwise damage polyethylene parts.

Float and Collars

Description	Qty
Central Float	1
Float Collars	8
M16 x 90mm Long SS Bolt	24
Ø16 x 50 SS Flat Washer	48
Ø16 SS Spring Washer	24
M16 SS Plain Nut	48

Assembly Aids

Description	Qty
M10 x 45 Bolt	16
Swivel Link	8

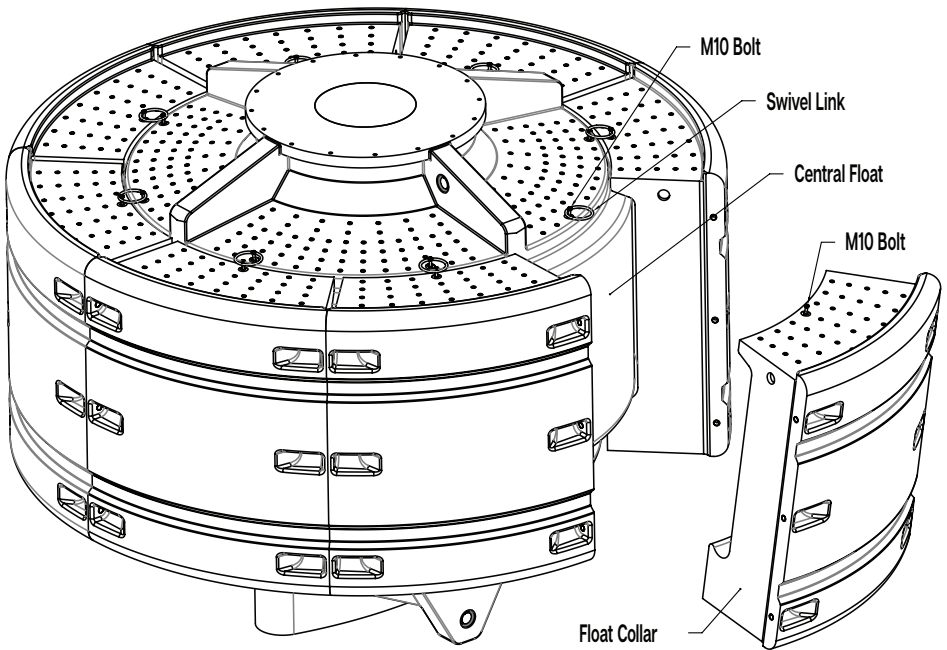


Figure 1 - Central Float & Collar Assembly



Central Float & Collar Assembly:-

1. Position the central float on firm level ground.
2. Fit M10 x 45 bolts into the inserts around the upper perimeter of the central float and on the upper inner edge of each collar. Tighten lightly.
3. Lift each collar up to the central float by first hooking the bottom inner lip of the collar under the circumferential lip of the central float and then rotating the collar (use a suitable lifting method for collar weight of around 65kg).
4. With M10 bolts in the central float and collar aligned, slip a swivel link over the two M10 bolts. This temporarily holds the collar in a position where the upper lip of the collar prevents it from falling.
5. Position all 8 collars similarly then loosely install M16 x 90 SS bolts with washers and nuts (fit a $\text{Ø}16$ flat washer against each polyethylene part and a $\text{Ø}16$ spring washer under the M16 nut).
6. Sequentially tighten all M16 bolts/nuts to 30Nm (22.1 ft. lb). Fit all bolts with a second nut and torque against the first for additional locking. Remove all links and M10 bolts and set aside.

Coat each nut & exposed bolt tail with an anti-seize compound or molybdenum disulphide grease prior to assembly.

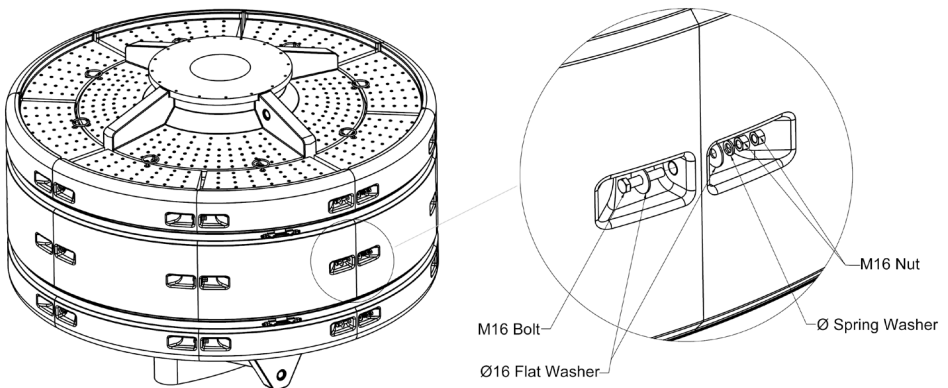


Figure 2 - Central Float & Collar Assembly

Tower Assembly:-

Tower Base and Top

Description	Qty
Tower Base, 1.9m high, assembled with top connecting bolts and SS hatch (option)	1
Tower Top, 0.9m high, assembled with guard rail and upper top mark mount	1
Lower top mark mounting bracket	1
M8 x 60 SS Cap Screw	1
M8 SS Self Locking Nut	1
Upper Ladder Mount Plate (4 fixing holes)	1
Ø10 x 31 SS Flat Washer	12
Ø10 SS Spring Washer	14
M10 SS Plain Nut	14

Day Mark Fixings

Description	Qty
Day Mark Mounting Plate with 3 mounting holes	2
Day Mark Mounting Plate with 4 mounting holes	2
Day Mark Bracket (with Spigot)	4
M10 x 25 SS Bolt	8
Ø10 x 31 SS Flat Washer	16
Ø10 SS Spring Washer	8
M10 SS Plain Nut	8



Tower Assembly:-

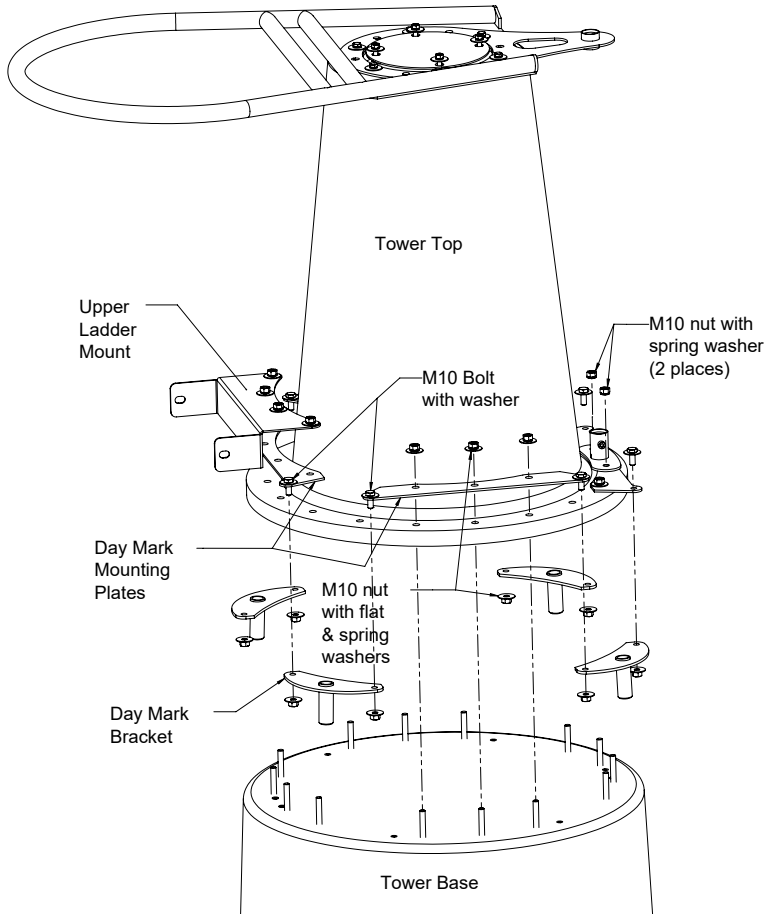


Figure 3 - Tower Assembly

Tower Assembly:-

1. Place the main tower in an upright position on firm level ground.
2. Lift the tower top assembly onto the top of the main tower with the guard rail located at right angles to the hatch on the main tower (weight of the tower top is around 50-60 kg). The M10 bolt tails protruding through the top of the main tower should pass through mating holes in the tower top. If necessary, tap the bolt tails into alignment using a block of wood and hammer.
3. If day marks are to be installed, then fit the four day mark mounting plates over the exposed M10 bolt tails.
4. Fit the ladder upper mount plate (4 fixing holes) over the exposed M10 bolt tails under the guard rail hoop (ladder mounting lugs should be pointing down).
5. Fit the lower top mark mounting bracket over the exposed M10 bolt tails and directly below the upper top mark mount.
6. Place a $\varnothing 10$ spring washer over each of the bolt tails which hold the lower top mark mount (2 places). Also place a $\varnothing 10$ flat & spring washer over each of the remaining bolt tails (12 places).

Coat each nut & exposed bolt tail with an anti-seize compound or molybdenum disulphide grease.

7. Fit an M10 nut over each of the exposed M10 bolt tails and tighten to 10Nm (7.4 ft.lb).
8. If day marks are to be installed then fit the day mark brackets. Take two M10 x 25 SS Cap Screws and fit a $\varnothing 10$ flat washer to each. Insert tail-down through two adjacent holes in the day mark mounting plates and fit a day mark bracket on the under side of the day mark mounting plate with the spigot pointing down.

Coat each cap screw tail with an anti-seize compound or molybdenum disulphide grease.

9. Fit a $\varnothing 10$ flat washer, $\varnothing 10$ spring washer and plain M10 nut to each of the socket screws. Tighten to 35 Nm (26 ft.lb).
10. Repeat for remaining day mark brackets.



Tower Assembly:-

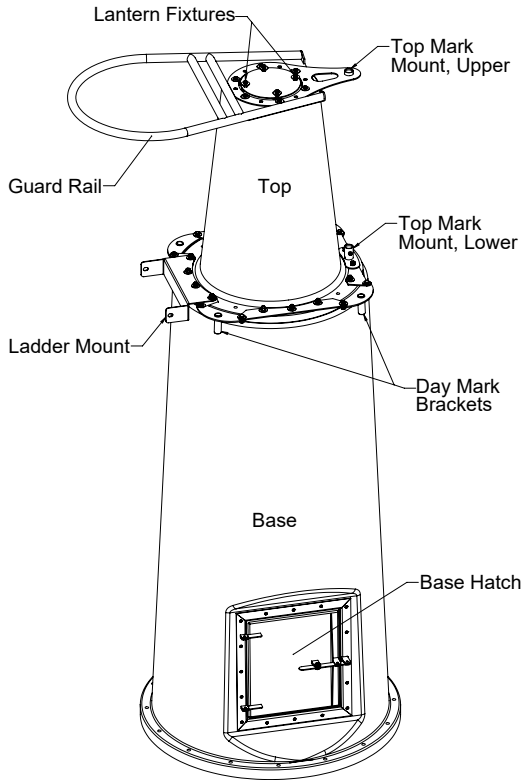


Figure 4 – Main Tower Assembly

Tower to Float Assembly

Description	Qty
Tower Flange Plate	4
M12 x 130 SS Bolt	16
Ø12 x 37 SS Flat Washer	32
Ø12 SS Spring Washer	16
M12 SS Plain Nut	16

Tower Installation:-

1. Position the float assembly on firm level ground.
2. Place all four tower flange plates around the central float flange. There is a 110mm wide bump on the outside edge of each plate which should be positioned over one of the central float webs. (The flange plate doesn't have a top or bottom, however, all four plates should be oriented in the same way).
3. Carefully lift the tower assembly onto the middle of the float assembly (the weight of the tower assembly will be around 110-130 kg).
4. Fit a single $\text{\O}12$ flat washer to each M12 x 130 SS bolt (under the head) and install tail-down through holes in the main tower flange and mating holes in the float tower flange.
Coat each bolt tail with an anti-seize compound or molybdenum disulphide grease.
5. Fit a $\text{\O}12$ flat washer, $\text{\O}12$ spring washer and plain M12 nut to each of the bolts. Tighten to 20Nm (14.8 ft. lb).



The hatch location in the base tower (ie. the flat recess) must be aligned with one of the float webs which incorporates a lifting eye. This avoids potential snagging of lifting equipment with the ladder or guard rail.

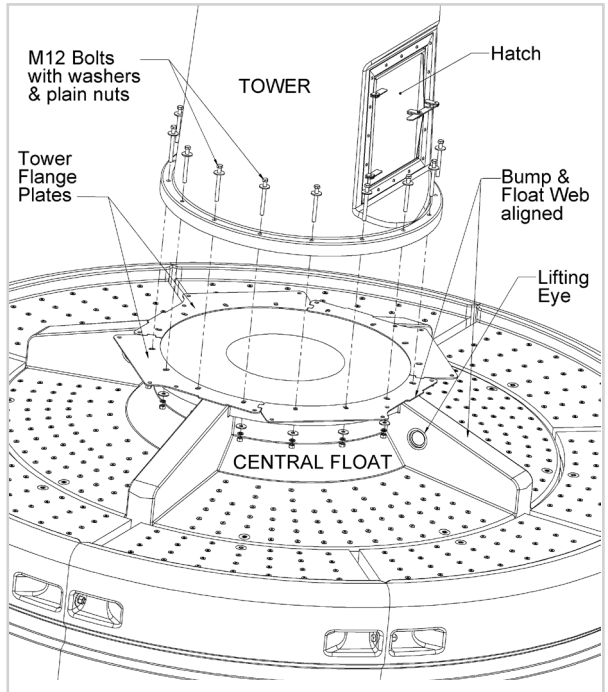


Figure 5 - Tower Installation



Ladder and Top Mark Installation:-

Ladder & Top Mark	
Description	Qty
Ladder, 1.8m	1
Lower Ladder Mount Plate (2 fixing holes)	1
M10 x 25 SS Bolt	6
Ø10 x 31 SS Flat Washer	12
Ø10 SS Spring Washer	6
M10 SS Plain Nut	6
Top Mark Assembly (shape & colour as optioned)	1
M8 x 20 SS Cap Screw	4
Ø8 x 31 Flat Washer	8
Ø8 SS Spring Washer	4
M8 SS Plain Nut	4

1. Fit a Ø10 flat washer to each M10 x 25 SS bolt and use to attach the upper ladder lugs to the upper ladder mount plate.

Coat each bolt tail with an anti-seize compound or molybdenum disulphide grease.

2. Loosely fit a Ø10 flat washer, Ø10 spring washer and plain M10 nut to each of the bolts.
3. Likewise, use two M10 bolts to attach the straight edge of the lower ladder mount plate to the angled lugs on the back of the bottom ladder rung and use another two M10 bolts to attach the curved edge of the lower ladder mount plate to the adjacent tower flange plate. Loosely fit washers & nuts.

If the ladder mountings do not align properly ensure that the tower flange plates have been positioned correctly. Refer previous assembly instructions for Tower Installation.

4. Tighten all 6 ladder attachment bolts to 35 Nm (26 ft.lb).

Ladder and Top Mark Installation:-

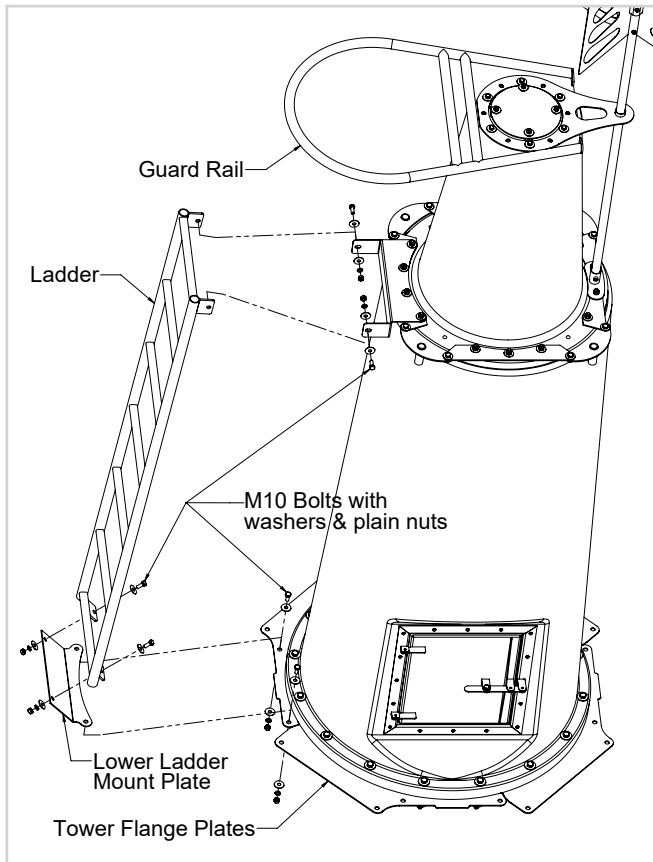


Figure 6 - Ladder Installation



Ladder and Top Mark Installation:-

5. Insert the top mark post through the upper top mark mount and down into the lower top mark mount.
 6. Fix the top mark post in position using the supplied M8 socket screw and self-locking nut. Tighten until firm (5N.m, 3.7 ft.lb).
- Coat each bolt tail and nut with an anti-seize compound or molybdenum disulphide grease.

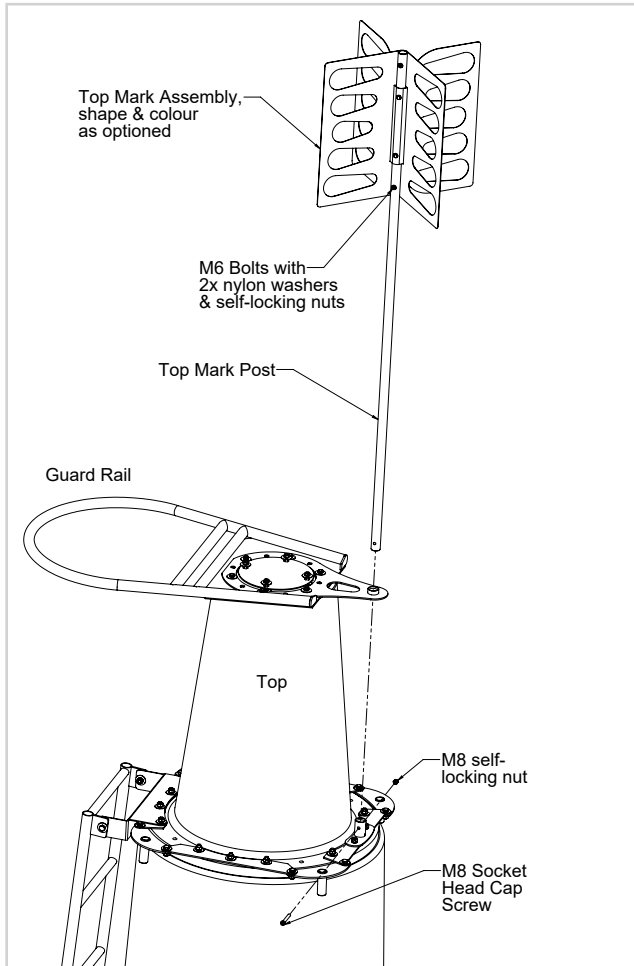


Figure 7 - Top Mark Installation

Day Mark Installation:-

Day Marks	
Description	Qty
Day Mark Assembly	4
M12 x 40 SS Bolt	8
Ø12 x 37 SS Flat Washer	16
Ø12 SS Spring Washer	8
M12 SS Plain Nut	8

1. Fit a day mark to the buoy tower by placing the top end of the day mark frame tube over the day mark mount spigot. Align holes in the bottom beam of the day mark with holes in the adjacent tower flange plate.
2. Fit a Ø12 flat washer to each of two M12 x 40 SS bolts and use to attach the bottom beam of the day mark to the tower flange plate (install tail-down).

Coat each bolt tail and nut with an anti-seize compound or molybdenum disulphide grease.

3. Fit a Ø12 flat washer, Ø12 spring washer and plain M12 nut to each of the bolts and tighten to 61 Nm (45 ft.lb).
4. Repeat for remaining day marks.



Day Mark Installation:-

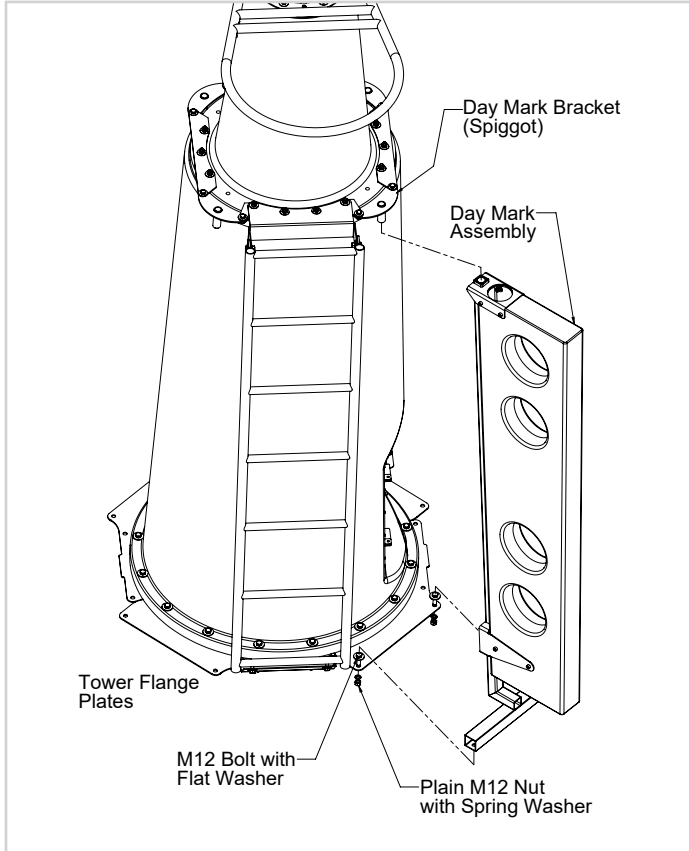


Figure 8 - Day Mark Installation

Mooring Bridle Assembly:-

Mooring Bridle

Description	Qty
Bridle Plate	1
Mooring Wear Bush	4
Mooring Link	2
M36 x 214 SS Bolt	2
Ø36 x 66 Flat Washer	2
M36 SS Slotted Nut	2
Ø6 Locking Pin	2
Ø44mm Grade-S Shackle	3

Assembly Aids

Description	Qty
Locking Pin Tool	1
Timber Props (customer to supply)	As required

1. Prop the bridle securely on some solid timbers (weight of the bridle plate is around 105 kg).
2. Connect the mooring swivel (not shown) to the central mooring point using a Ø44mm Grade S shackle with pin tail down.
3. Connect each of the mooring links to the bridle arms using Ø44mm Grade S shackles with pin tail down.
4. The standard supplied shackle is a Ø44 Grade S of the safety pin type (with nut and cotter pin). It is recommended that each shackle has an additional Ø6.5 hole drilled through the nut and pin and an additional Ø6 locking pin fitted for added connection security (turn the whole bridle assembly over for ease of access).
5. Reposition so that shackle pin heads are on the under-side (turn the bridle assembly over if necessary).

Additional locking pins can be fabricated from Ø6 Round Rod, Grade 316 Stainless Steel or better.



Mooring Bridle Assembly:-

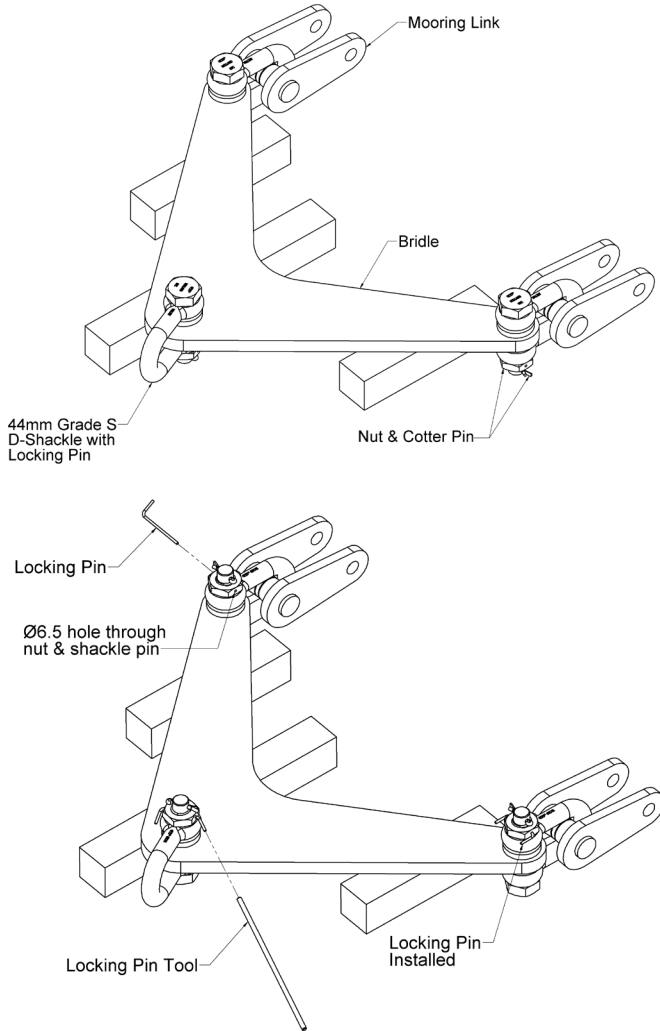


Figure 9 - Safety Shackles

Mooring Bridle Assembly:-

BRIDLE INSTALLATION

6. Use a suitable lifting device such as a pallet lifting trolley to move the bridle assembly into position under the central float.
7. Insert mooring wear bushes into the float mooring points, 4 places.
8. Align the mooring links with the float mooring points and insert M36 mooring bolts pointing tail out (DO NOT FIT ANY WASHERS UNDER THE HEAD OF THE MOORING BOLT).

Lightly coat each bolt tail and nut with an anti-seize compound or molybdenum disulphide grease.

9. Fit a Ø36 flat washer and M36 slotted nut to each of the mooring bolts. Tighten until firm.



Do not over tighten the M36 mooring bolts. Once assembled the mooring links should rotate freely about float mooring points.

10. Fit a Ø6 locking pin through the hole in each M36 bolt tail.
11. Using the locking pin tool, bend the straight end of the locking pin to a right angle.

Apply marine grease over any exposed threads for ease of maintenance.

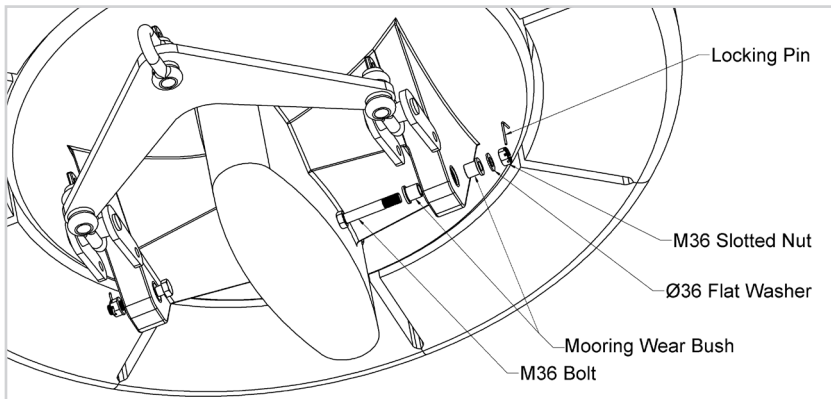


Figure 10 – Buoy Mooring Attachments



Mooring Bridle Assembly:-

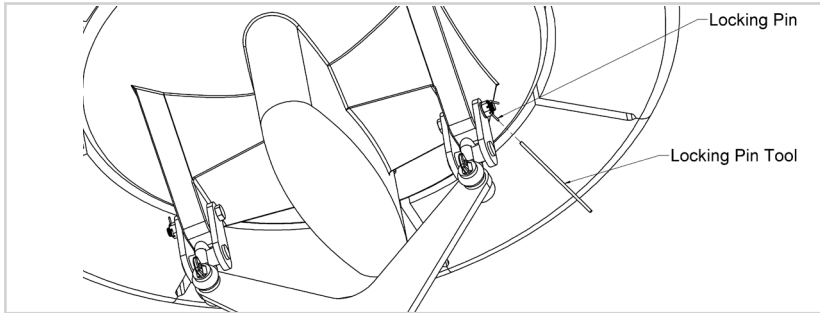


Figure 11 – Stainless Steel Locking Pins

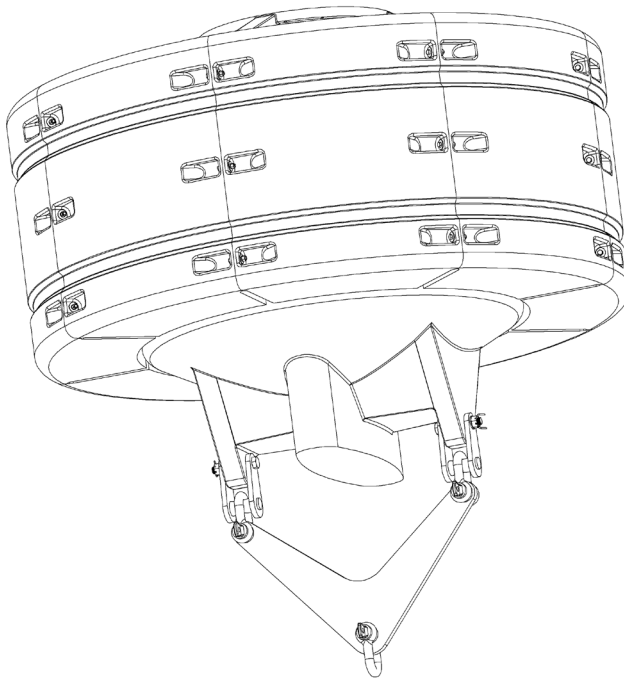


Figure 12 - Mooring Bridle Installed

Collar Replacement:-

Assembly Aids

Description	Qty
M10 x 45 Bolt	16
Swivel Link	8

1. Position the central float on firm level ground.
2. Fit M10 bolts into inserts around the upper perimeter of the central float and on the upper inner edge of each collar. Tighten lightly.
3. Slip a link over each pair of 10mm bolts. This will hold the remaining collars from falling when the collar that needs replacing is removed.



Potential hazard.

Fit supporting links to all float collars prior to removing any collar fixing hardware.

4. Remove M16 bolts from the collar which is to be replaced and set aside (6 sets).
5. Weight of each collar will be around 65kg plus marine growth. See Figure 1. While supporting the collar to be removed remove the link from the M10 bolts and lower the collar to the ground.
6. Lift the replacement collar up to the central float by first hooking the bottom inner lip of the collar under the circumferential lip of the central float and then rotating the collar (use a suitable lifting method for a collar weight around 65kg).
7. Slip a link over the M10 bolts on the replacement collar and on the central float.
8. Replace the previously removed M16 fixing hardware. Tighten until firm.

Coat each bolt tail and nut with an anti-seize compound or molybdenum disulphide grease prior to assembly.

9. Remove all links and M10 bolts and set aside.



Electronic Equipment Installation

Lantern	
Description	Qty
Navigation Lantern	1
Lantern Backing Plate	1
Ø8 S/S Flat Washer	8
Ø8 S/S Spring Washer	4
M8 S/S Plain Nut	4
UV Stabilised Cable Tie	-

1. The navigation lantern is attached using fixed M8 bolts which protrude from the tower top. Begin by fitting a flat washer over each bolt tail.
2. Fit the backing plate on top of the flat washers.
3. Install the Lantern on top of the backing plate and fix using M8 nuts with spring and flat washers. Tighten until firm (5N.m, 3.7 ft.lb).

Lantern Installation

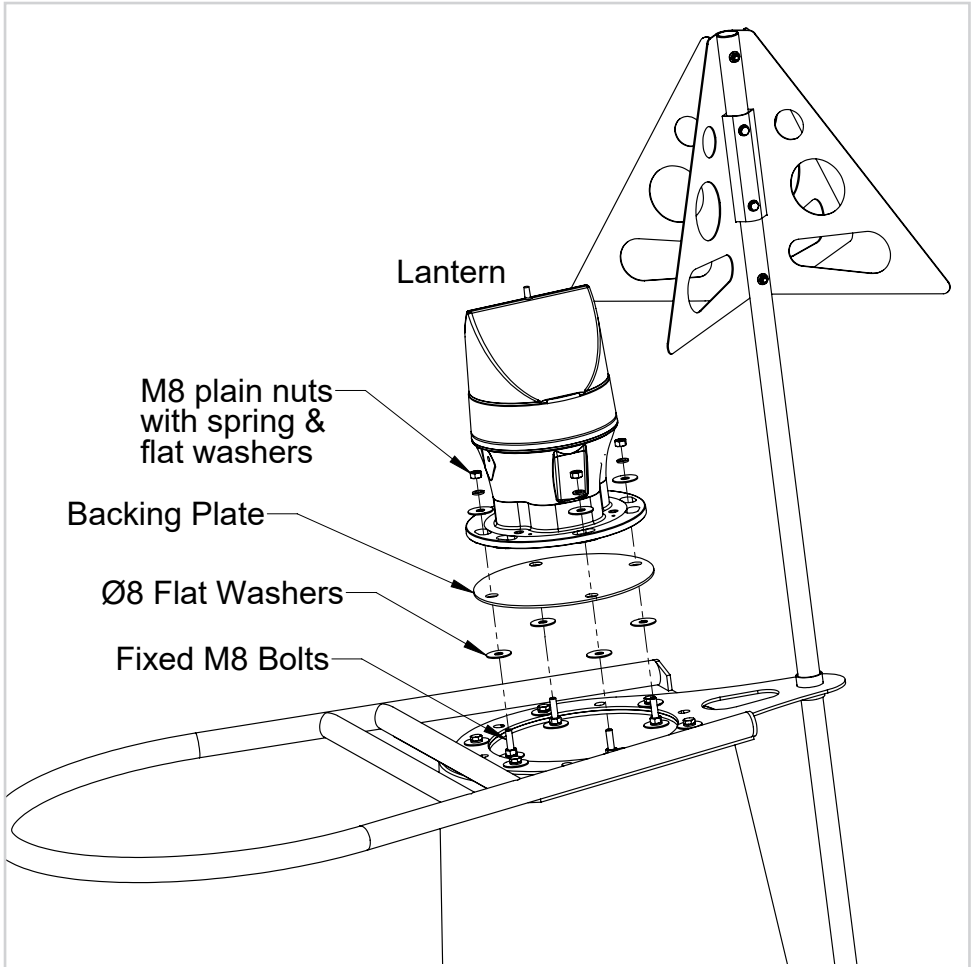


Figure 13 - Lantern Installation



Marine Buoy Maintenance

Sealite Marine Buoys are designed to require very little maintenance. We recommend the buoy be inspected annually. Inspection may need to increase depending on the local conditions and the position of the buoy.

IALA Recommendation AISM E-107 suggests moorings are inspected annually.

Spare Parts Required for annual maintenance

Description	Qty
Mooring Bolt, M36	2
Mooring Wear Bush	4
Locking Pin	2
Washer, Ø36	2
Nut, M36	2

Marine Buoy – Annual Maintenance

- Visually inspect buoy for damage.
- Inspect the top mark for any damage. Repair any broken or damaged section.
- Clean buoy of animal debris.

Marine Buoy – Annual Maintenance

- Check and clear the tail and ride chains from shells and algae.
- Check for wear on any swivel and shackle axis and check the tapered pins. Any worn swivels and shackles must be replaced.
- Check the free movement of each swivel around its head. If any swivel head sticks it must be replaced.
- Check every link of the thrash length of the chain. Check the diameter of the nips and sides and also inspect the welds on every link.
- If depth allows, a worn riding chain may be reversed.
- Change a chain when any link shows excessive wear. Chain must be replaced if any link wears to less than 3/5 of the original diameter.

Mooring – Biannual Maintenance

- Inspect the ground chain and sinker.

Lanterns – Maintenance

- Please refer to the Installation Manual for the specific Marine Lantern fitted to the Buoy.

Notes

Sealite Marine Buoy Warranty

Refer to Sealite website: sealite.com



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We believe technology improves navigation™

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