

Rigging Projects

Idler Sheave Bullet Lock User Guide

RP4126 - IDLR - UG - 01



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Introduction

This manual provides an overview of the Rigging Projects Idler Sheave Lock and its maintenance. Please read this manual carefully before installation, use or maintenance, to ensure that you have understood and are familiar with all relevant details.

Prior to using this product, all persons should be made aware about the possible hazards associated with its operation and use. Any service work, repairs maintenance or equivalent work carried out on the product should be undertaken by technically qualified persons.

Please Note

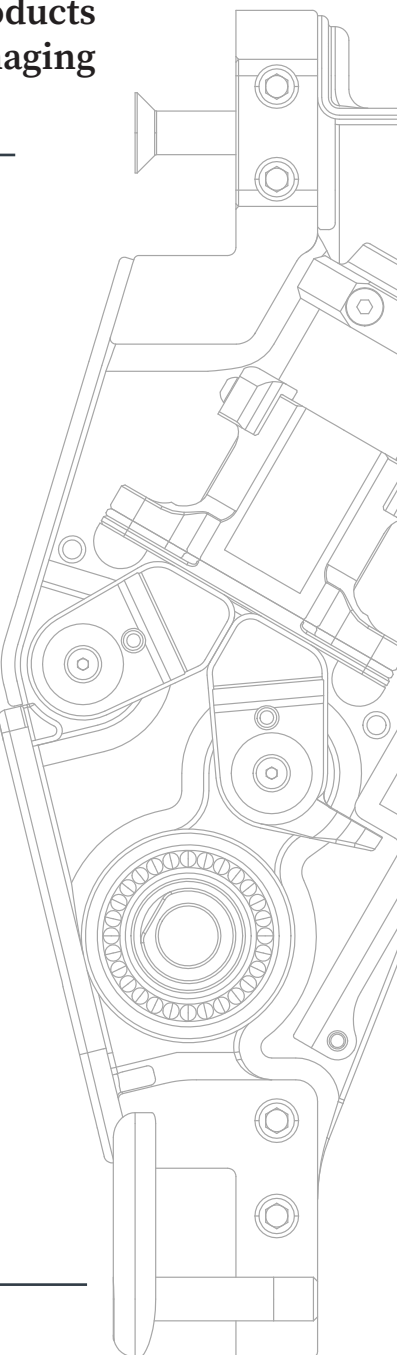
The Rigging Projects Idler Sheave Lock is a unique design. The handling procedures are not similar to other bullet lock products on the market. Please read this manual carefully to avoid damaging the mechanism or causing harm to crew members.

Key Design Features

- Patented auto lock mechanism, no trip line required
- Titanium lower sheave cover to vector load angles from 10° to 35°
- Minimal protrusion from the mast
- Double pawl arrangement reduces reaction load on boxes by 40% and reduces part weights
- Light weight aluminium housing
- Proximity sensor ready

Caution

The Rigging Projects Idler Sheave Lock has been tested extensively to ensure the safety and function of the product. However, it is important for the users to understand the risks involved in the event of a mechanical failure. Care should be taken to stow the halyard appropriately to avoid entanglement should the sail drop unexpectedly. Failure to take safety precautions could lead to severe injury or death.



Forward Lock Range

Part Number	Max Working Load (T)	Max Halyard Ø (mm)	Mast Wall Thickness (mm)	Gate (mm)	
				x	y
RP4096	20	16	AOR	AOR	AOR
RP1259	25	18	AOR	AOR	AOR
RP3084	30	20		84	154.5
RP3141	40	24	AOR	AOR	AOR
RP3142	50	28	AOR	AOR	AOR
RP3085	60	30		127	620

AOR - Available on Request

Running Rigging

Please contact Rigging Projects to stipulate the correct length and working load of lock strop connected to the sail and bullet to ensure the correct safety factors have been met. Ensure the splicing of the halyard and strop on the bullet is carried out by a technically qualified person.

Disclaimer

It is not permitted to modify the product or its parts, other than replacing parts specified in this manual. Rigging Projects Ltd is not liable for any dangerous situation, accidents, damage and consequences thereof caused when deviating from the instructions, guidelines and procedures described in this manual. To retain warranty do not deviate from the instructions, guidelines and procedures described in this manual.

Installation

Before making structural changes to the mast/boom, please contact the original manufacturer to confirm the internal radius of the tube does not result in a point load on the lock body.

In order for safe and effective installation please contact Rigging Projects to check the lock and mast tube interface and to request the router jig to cut the mast.

Step	Instruction
1	Working with the rig on the ground, position the router jig in the correct position on the mast and secure to the rig using the two lock mounting bolts
2	Once happy with the position of the lock, cut out the slot within the jig plate and tidy up with a drum sander to achieve a neat finish
3	Working with the front cover and lower ferrule removed, tie a bowline through the ferrule hole and front cover slot
4	Apply Tef-Gel to mating faces of lock body and mast
5	Angle the top of the lock into the slot in the mast and push through until the lower edge passes through the slot
6	Tilt the lock back to the upright position and pull towards the front of the rig until it seats in the slot. Fit the two mounting bolts and tighten to pull the lock into place. These mounting bolts should be fitted with Loctite
7	Fit the ferrule to the lock and fit the nylon grub screw with blue Loctite to retain it
8	Check the operation of the lock and once happy, secure front cover onto body

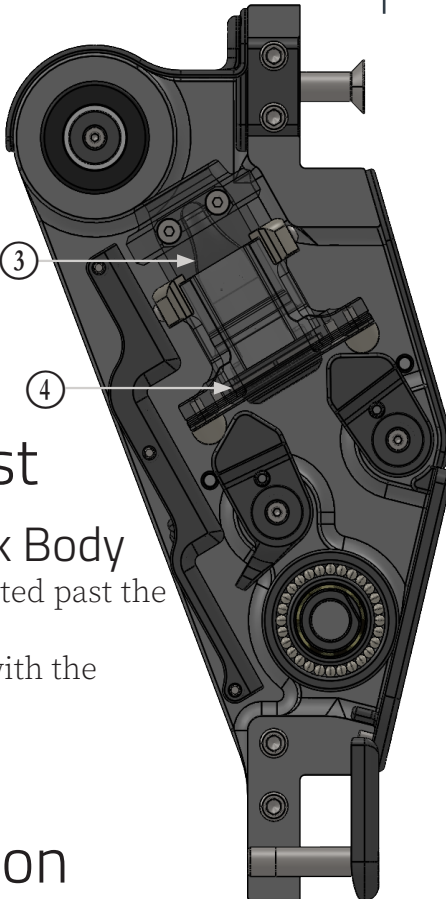
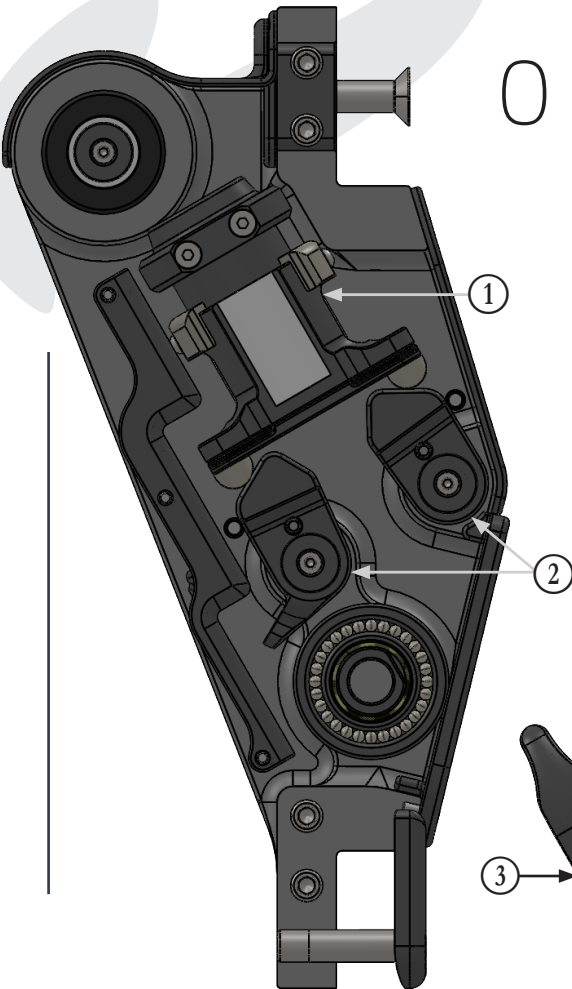
Sensor Kit Installation

Contact Rigging Projects for further information regarding electronic connectivity of the sensor kit. If retrofitting the lock with a sensor kit, please contact Rigging Projects for installation guide.

On The Lock

01 Unlocked

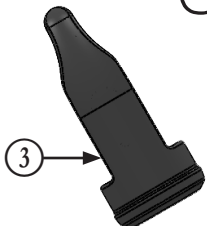
- 1. The pawls ② in default position remain open
- 2. The locking ring carriage ① will rest on the pawls



02 During Hoist

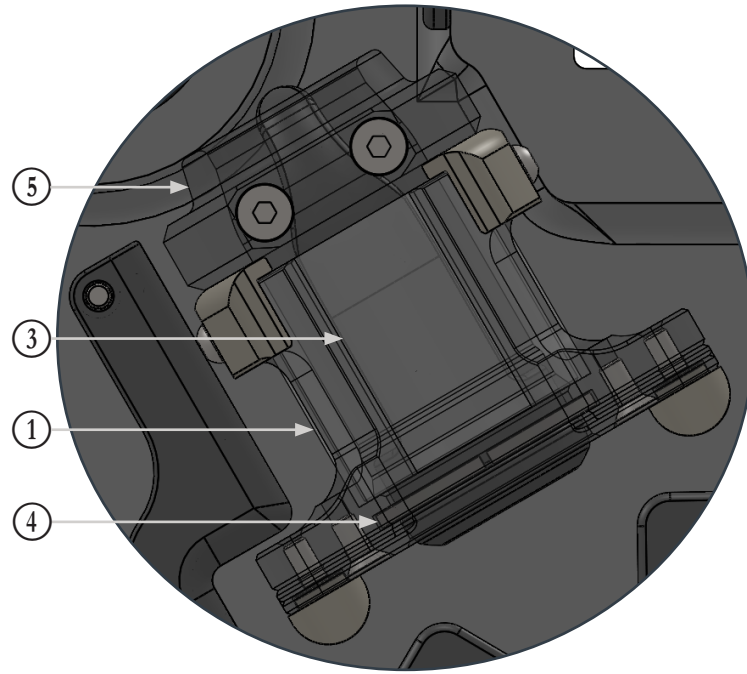
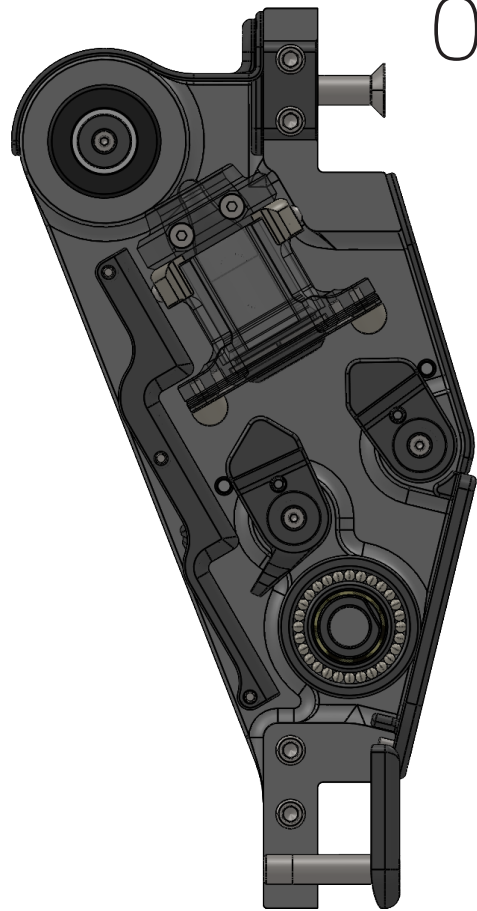
Bullet into Lock Body

- 1. The bullet ③ is hoisted past the pawls ②
- 2. The bullet engages with the locking ring ④



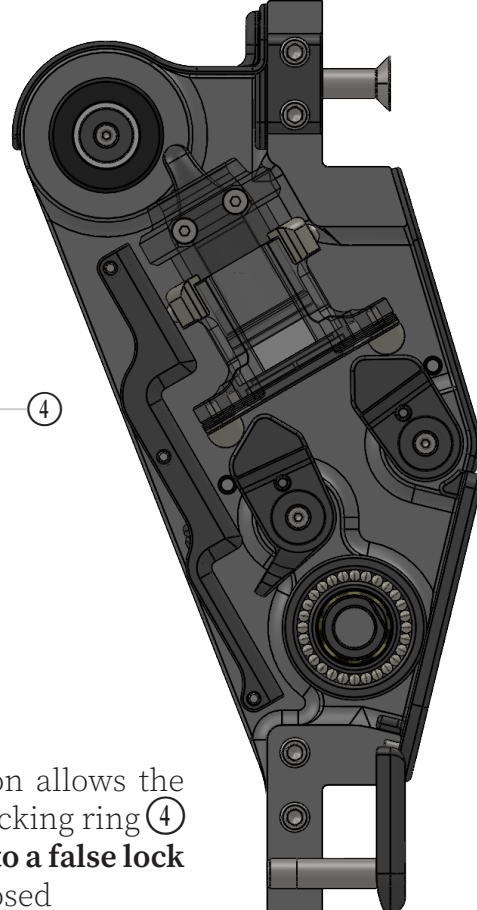
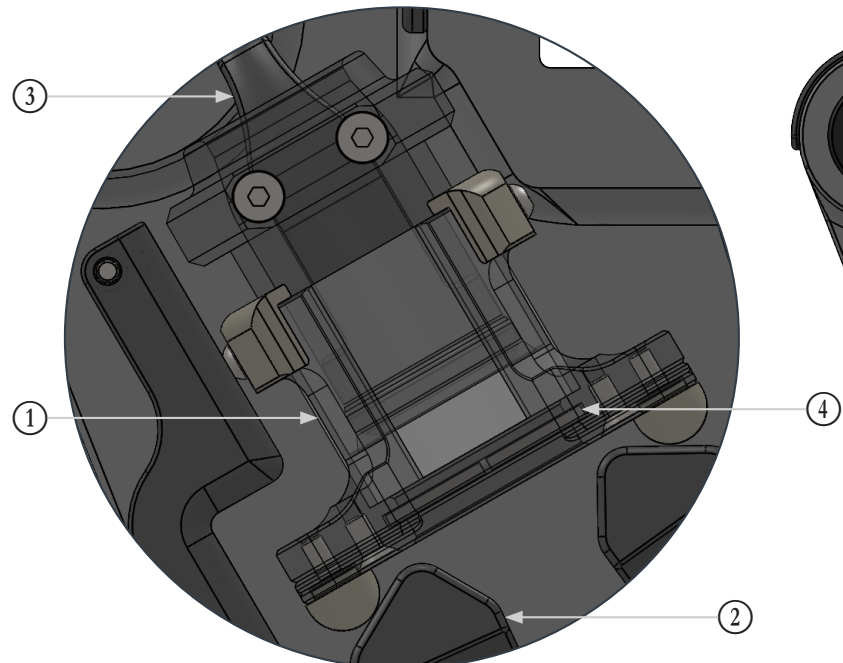
03 Over Hoist Position

- 1. The bullet ③ lifts the locking ring carriage ①
- 2. The locking ring carriage ① hits the end stop ⑤



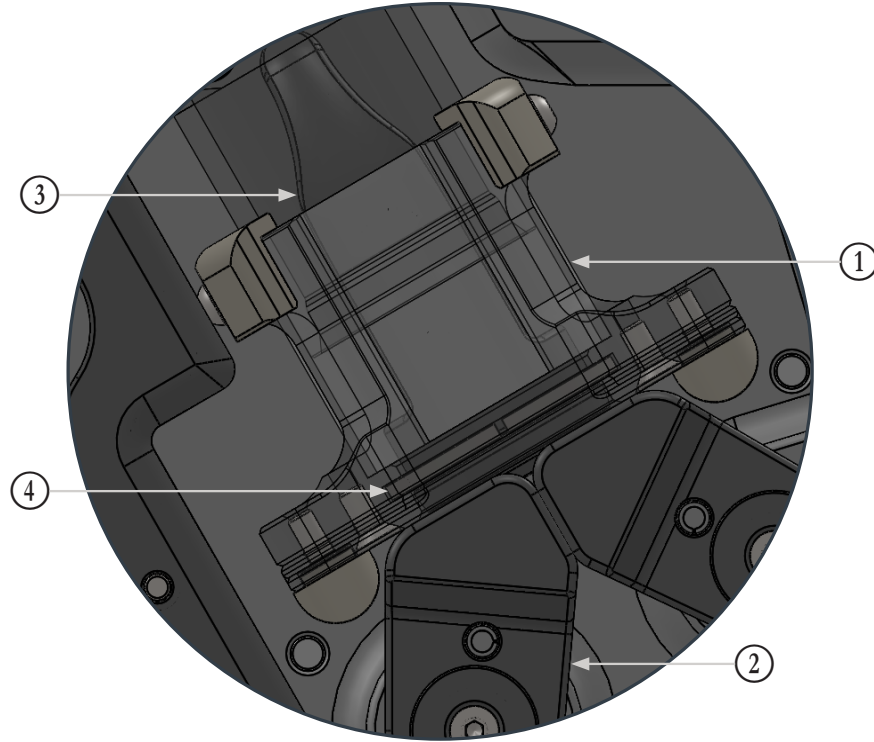
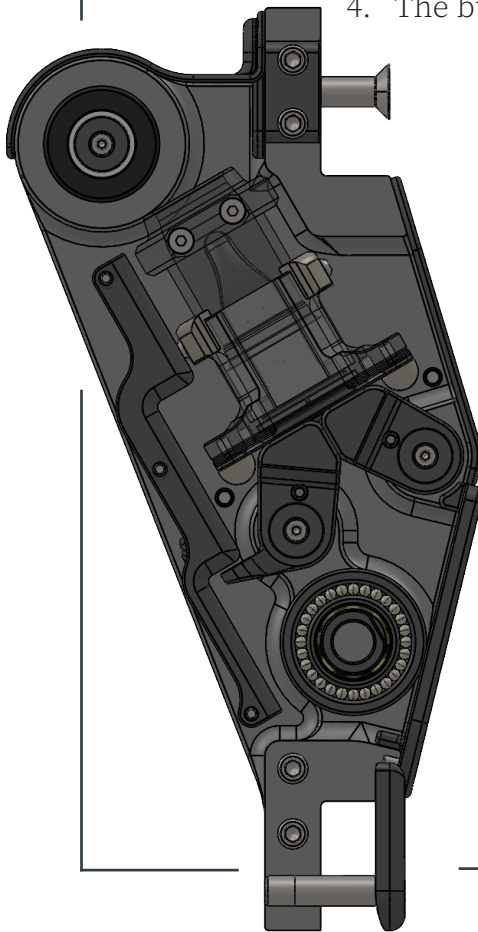
04 Over Hoist through Locking Ring

- 1. With a small over hoist the bullet ③ is force through the locking ring ④
- 2. The locking ring carriage ① is free to drop down onto the pawls ②



05 On to Lock

- 1. A **slow ease** from the over hoist position allows the bullet ③ to engage with the top of the locking ring ④
- A forceful drop on the halyard may lead to a false lock**
- 2. A further ease will force the pawls ② closed
- 3. The bullet ③ will force through the locking ring ④
- 4. The bullet ③ will rest on the pawls ②

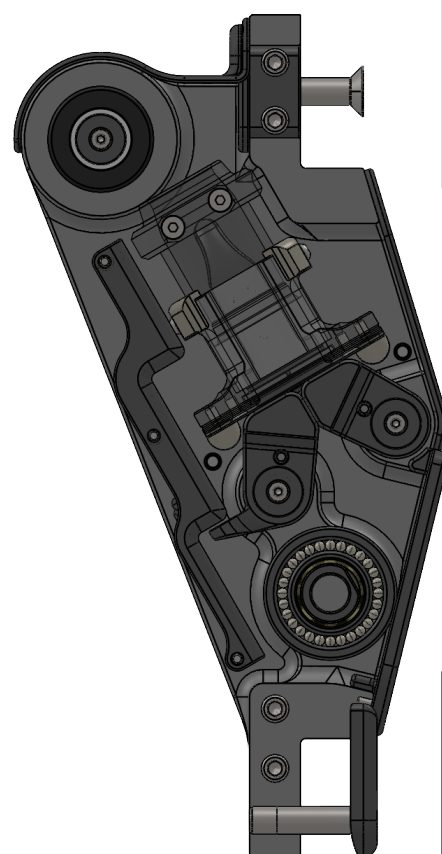
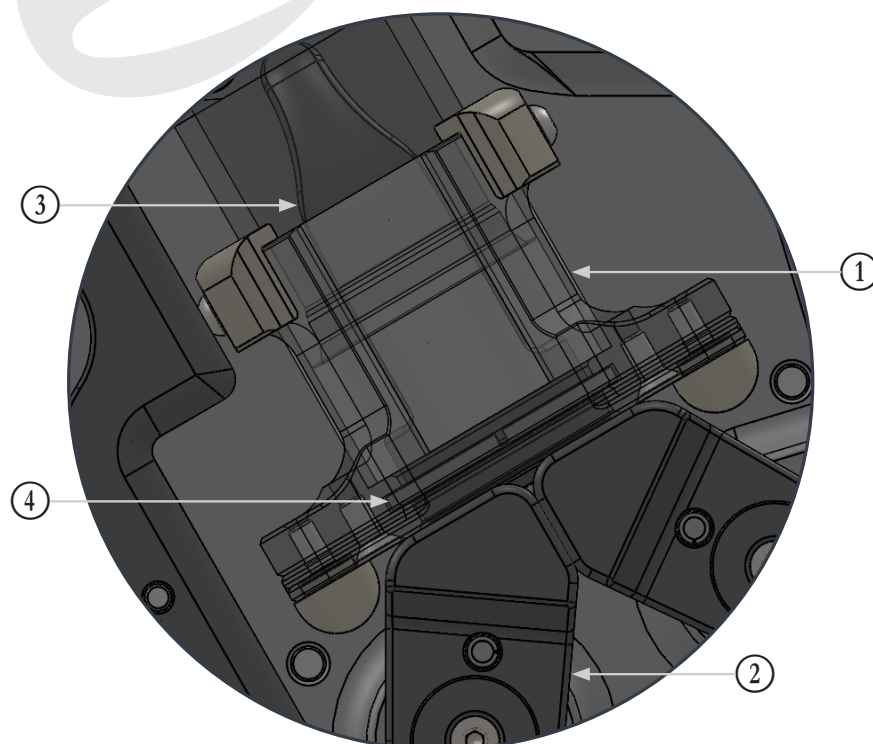


Off The Lock

Prepare to Drop

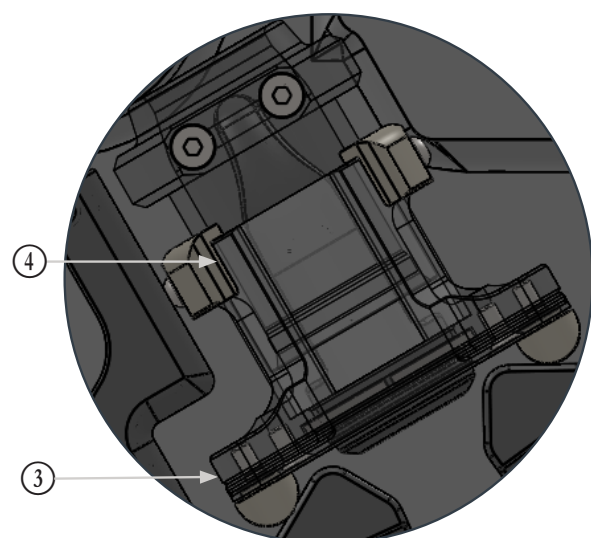
01

1. Ease tack line
2. Take up tension on halyard/reef line to mark



02 Unlocked

1. The pawl springs will return the pawls ② to default (open) position
2. The bullet ③ is now free to pass the pawls ②
3. **Ease halyard to drop the sail**



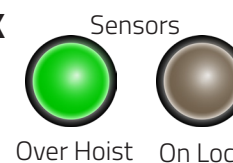
If failing to unlock; return to page 6 and repeat process to fully re-engage the lock before attempting to unlock again

Sensor Kit

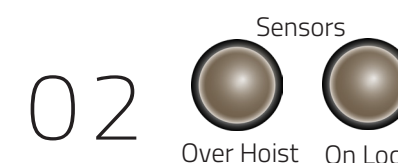
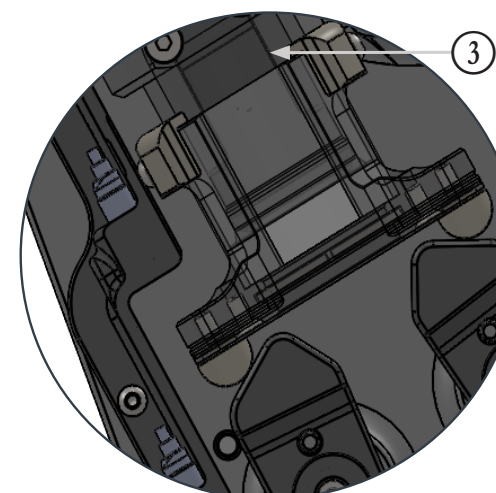
Please read the preceding pages on the function of the lock.

On The Lock

01



1. When the halyard is hoisted and the bullet ③ lifts the locking ring carriage ①, the proximity sensor ⑤ is activated
2. The position sensor signals with a visual and/or audio alarm indicating the carriage is in the over hoist position

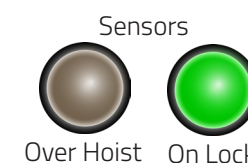


1. The halyard is eased, the bullet is lowered and the over hoist signal is deactivated and the first signal turns off

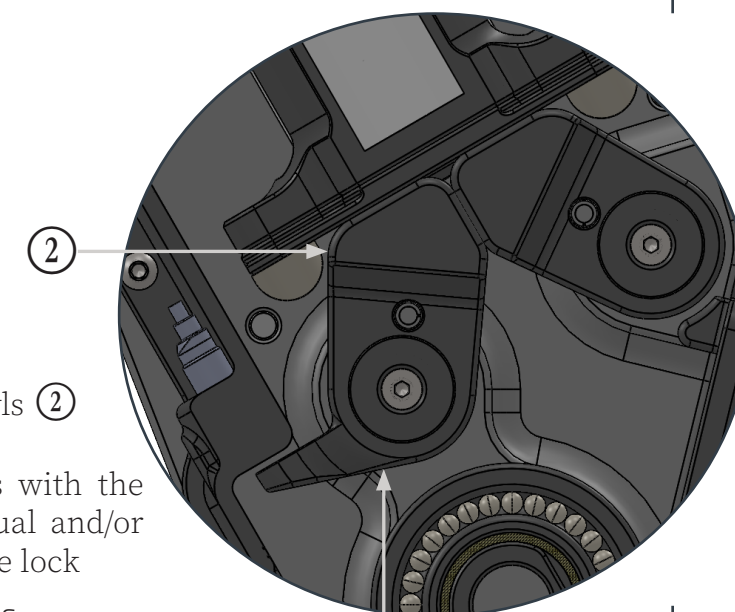


The light must be off before easing the halyard otherwise a false lock will occur

03

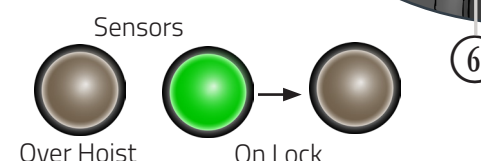


1. The bullet ③ force through the locking ring
2. The locking ring carriage engages the pawls ② and the bullet ③ is on the lock
3. The activator tab ⑥ on the pawl engages with the second proximity sensor and signals a visual and/or audio alarm indicating the bullet ③ is on the lock



Off The Lock

Carry out the procedure as per the page 8.



To disengage the lock it is important to note: only one position sensor signal (audio and/or visual) will disengage and therefore the sail is able to be dropped.

If a second signal (audio and/or visual) engages: this means the bullet has been over hoisted and the lock is not disengaged.

Inspection Intervals

During each interval please carry out preceding inspection advisories

Interval	Advisories
Inshore Racing Daily Check	Visual inspection of the bullet for damage or sharp edges
	Visual inspection of the mast around the lock body for deformation
	Visual inspection of lock body and fasteners for deformation or signs of wear
	Visual inspection of ferrule for damage or sharp edges
	Visual inspection through the ferrule into the lock body for abnormalities
	Manual inspection through the ferrule for debris
Offshore Sailing or 2 Months or 2500nm	Fresh water rinse to remove salt and rope debris
Annual or 20,000nm	Remove lock for full inspection and clean- if you have any doubts please contact Rigging Projects
2 years	Full service by Rigging Projects technician

Serviceable Parts

This product is not designed to be serviced by an unqualified technician. If you are experiencing issues beyond the troubleshoot, please **do not hesitate** to contact Rigging Projects.

Important

Rigging Projects equipment is designed for minimal maintenance, but some maintenance is required for optimum and safest possible operation and to comply with the Rigging Projects limited warranty. In general, the most important aspect of maintenance is to keep your equipment clean by frequently flushing with fresh water. In corrosive atmospheres, stainless parts may show discolouration around holes and screws. This is not serious and may be removed with a fine abrasive.

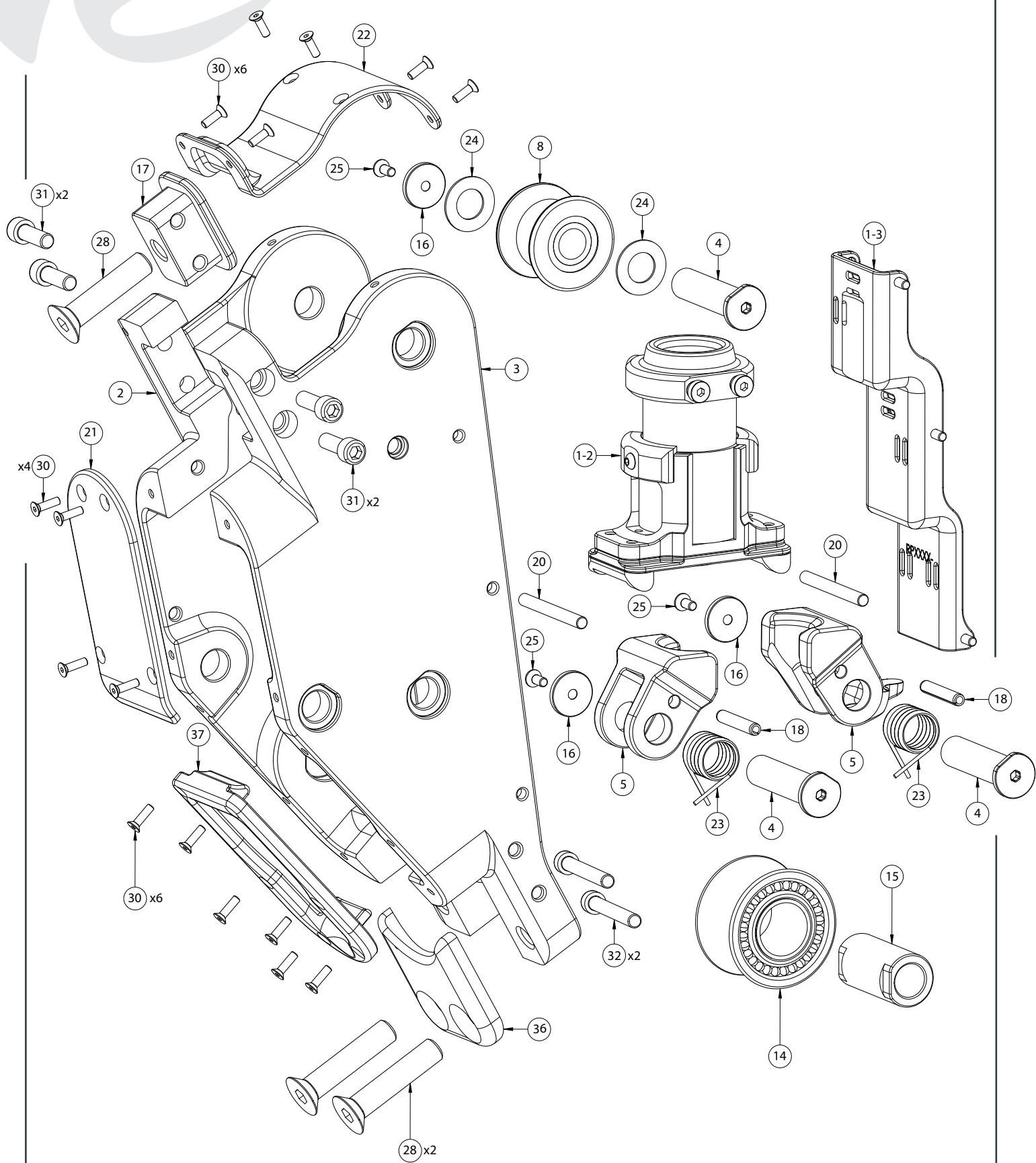
Trouble Shoot

Problem	Probable Cause	Solution
Pawls not retracting into unlock position smoothly	Product or debris has contaminated the pawl springs	Rinse thoroughly with pressurised fresh water first, if unsuccessful use degreaser to clean the mechanism through the ferrule
Attempting to drop: the lock re-activates rather than unlocking	Hoisted through the 'overhoist position' and re-engaged the locking ring	Reset to back on the lock and attempt to unlock procedure more slowly
Not Unlocking	The halyard may not have been raised enough to allow the pawls to open	Increase the amount of halyard hoisted unlock - this will be a very marginal amount
	The pawls are not opening to allow the bullet to pass through	Remove front cover, check that the pawls spring open. The pawl springs may need to be cleaned, rinse with pressurised fresh water
Not Locking	The snap ring or bullet may have been damaged	Try to operate the pawls with the front cover removed. With the bullet out of the lock, visually check the locking ring is present and not damaged. Check the bullet for damage
	The force required to close the pawls is more than normal	If the snap ring is damaged, a strip down will be required and ring replaced- contact Rigging Projects
	The rolling wedges on the snap ring holder may be worn not closing the pawls	Rolling wedges will need replacing, please contact Rigging Projects

Important

This product is design to be self lubricating. Please **do not attempt to lubricate** the pawl springs or apply any product to the internals as you will damage the mechanism.

Global View



Bill of Materials

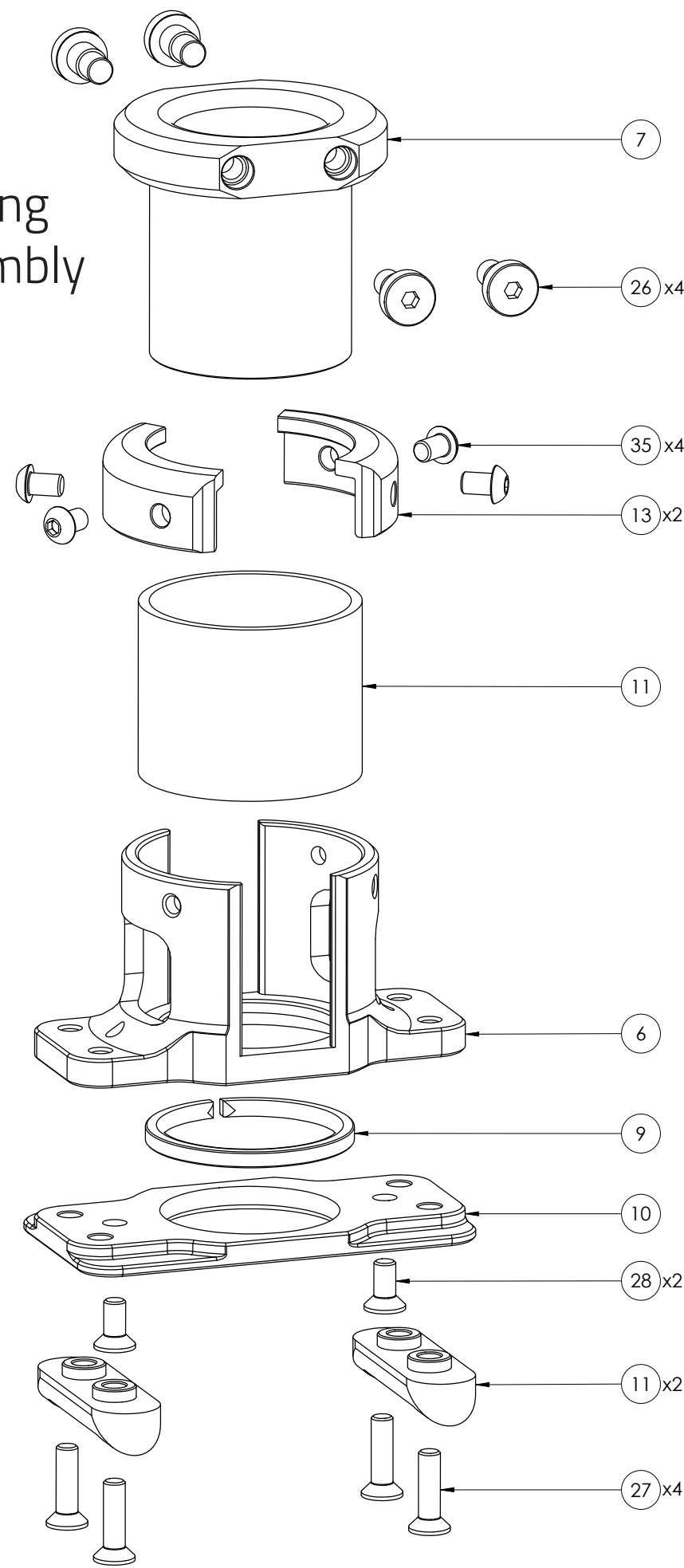
ITEM #	DESCRIPTION	QTY
1-2	SNAP RING CARRIAGE	1
2	BODY - STBD	1
3	BODY - PORT	1
4	PAWL PIN	3
5	PAWL	2
8	HALYARD SHEAVE	1
14	MAIN SHEAVE	1
15	PIN - MAIN SHEAVE	1
16	WASHER - PAWL PIN	3
17	THREADED INSERT	1
18	PIN - TORSION SPRING - PAWL	2
20	PARALLEL PIN	2
21	FRONT COVER	1
22	UPPER COVER	1
23	TORSION SPRING	2
24	THRUST WASHER	2
25	SOCKET CSK HEAD SCREW	3
28	SOCKET CSK HEAD SCREW	3
29	SOCKET CSK HEAD SCREW *	2
30	SOCKET CSK HEAD SCREW	16
31	SOCKET HEAD CAP SCREW	4
32	SOCKET CAP HEAD SCREW	2
36	CHAFE GUARD*	1

Variations

LOCK	ITEM #	DESCRIPTION	QTY
30T-60T	29	CSK Fasteners used to secure sensor tab to Pawl	2
30T-60T		Sensor tab	1
20T & 60T	36	Chafe Guard	1

Global View

1-2 Locking Ring
Carriage Assembly



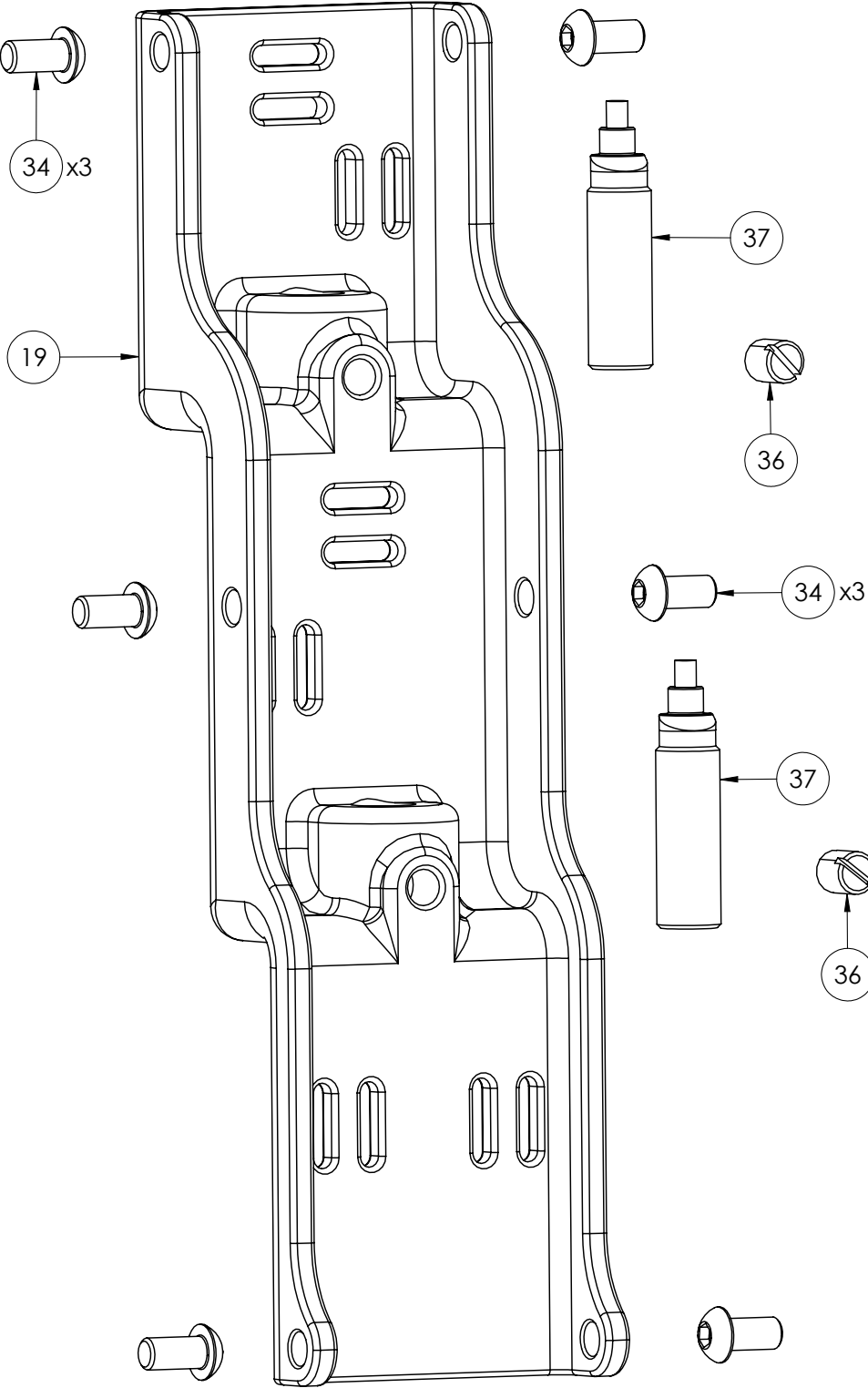
Bill of Materials

ITEM #	DESCRIPTION	QTY
6	LOCKING RING HOLDER	1
7	END STOP FOR BULLET	1
9	LOCKING RING	1
10	LOCKING RING PLATE	1
11	ROLLING WEDGE - Mk2	2
12	SLEEVE	1
13	SLEEVE HOLDER	2
26	SOCKET CSK HEAD SCREW	4
27	SOCKET CSK HEAD SCREW	4
28	SOCKET CSK HEAD SCREW	2
35	SOCKET BUTTON HEAD SCREW	4*

Variations

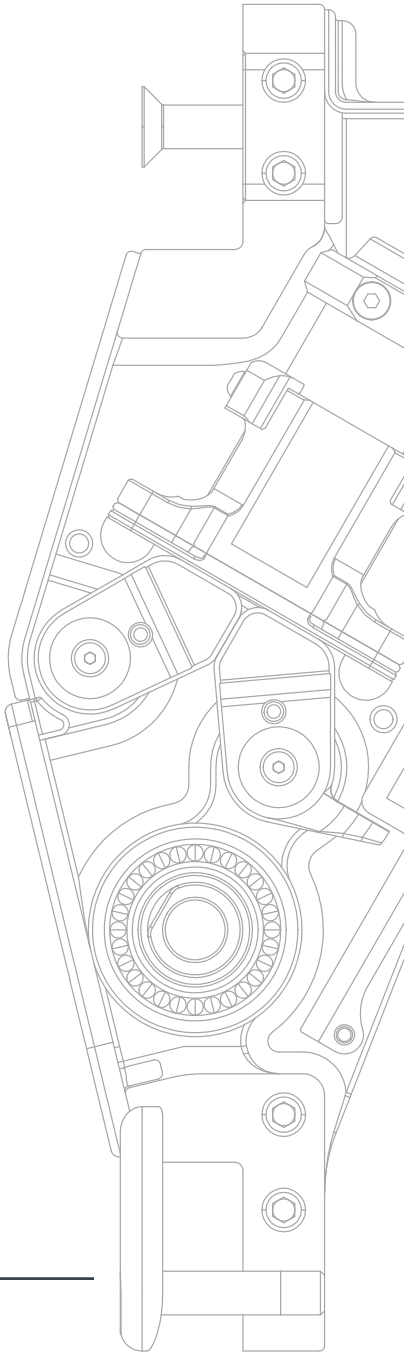
LOCK	ITEM #	DESCRIPTION	QTY
20T	35	SOCKET BUTTON HEAD SCREW	2

Global View
1-3 Sensor Kit
Assembly



Bill of Materials

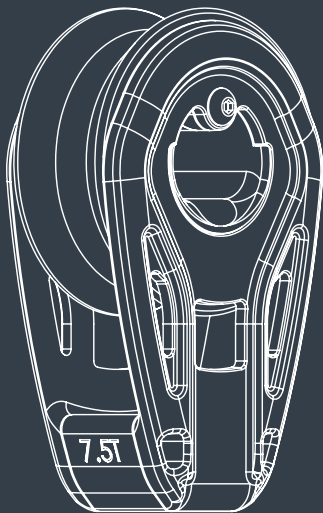
ITEM #	DESCRIPTION	QTY
19	SENSOR HOLDER COVER	1
34	SOCKET BUTTON HEAD SCREW	6
36	SLOTTED SET SCREW FLAT POINT- GRUB SCREW	2
37	INDUCTIVE SENSOR	2



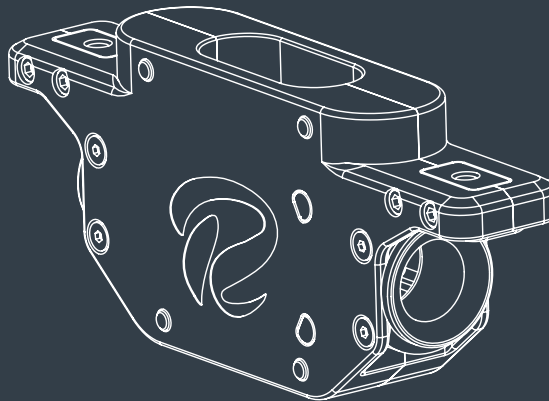
Customer Support

Info@riggingprojects.com

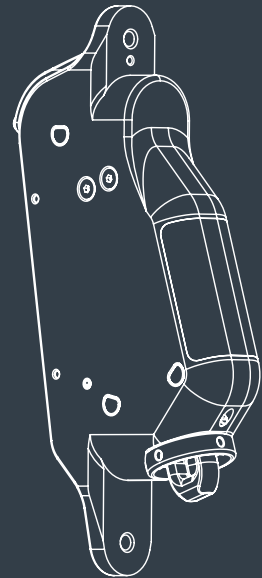
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X- Glide Range



Internal Lock Range



Fwd Lock Range

Project Management

Sail Handling

Hardware

Textile Solutions

Service

Custom

AHEAD OF THE CURVE