Rigging Projects

Internal Lock User Manual

May 2021-1 4/5/2021

Contents

Introduction

This manual provides an overview of the Rigging Projects Internal Lock system 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.

This manual is an essential part of the product and should be kept for reference. Further copies can be made available upon request.

User information

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/crew.

Any persons/crew carrying out service work, repairs, maintenance or equivalent work must read this manual prior to starting any works.

Disclaimer

It is not permitted to modify/alter the product or its parts in any way other than replacing parts subject to wear and tear with Rigging Projects specified and supplied parts as described 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.

Purpose

Ranging from 2.5 to 30T, the Rigging Projects Internal Lock covers the entire range of yachts, from performance driven race yachts, right through to the biggest superyachts.

The Rigging Projects Internal Lock is designed to enable the sail to be locked and unlocked without the need for any trip line or external device. The system allows the user to lock or unlock by simply over hoisting the halyard through the lock.

Use of this product for other than normal sailing vessels applications is not covered by the limited warranty.

Internal Lock key design features:

- No need for internal trip line within the rig.
- A two-pawl system reduces the stress on the body when compared to a single pawl system.
- Coming off lock simply requires a small over hoist on the halyard.
- Cut out within the lock to be able to inspect the mechanism without removal.

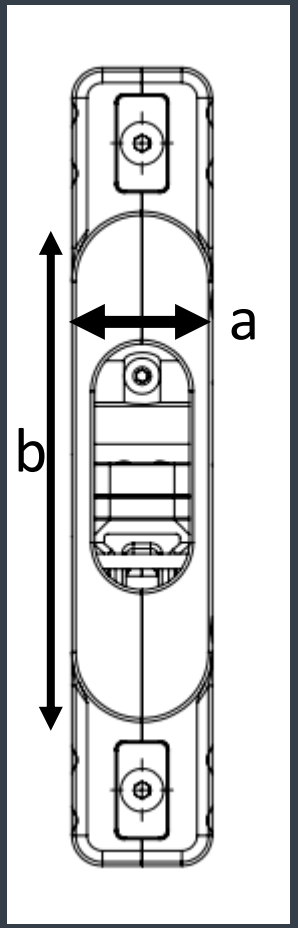
AVAILABLE SIZES

The Internal Lock is available in a range of 2.5 to 30T. Internal Locks can be specified with or without an integrated sheave.

Configurations and Dimensions

Internal Lock sizes and configurations.

Internal Lock Part Ref		Max Working Load	Dimensions (mm)		Total Weight (Including Spigot) (Kg)		Mast Wall Thickness
Without Sheave	With Integrated Sheave	(T)	a	b	Without Sheave	With Integrated Sheave	(mm)
RP1279	RP1592	2.5	37	TBC	0.92	1.08	TBC
RP1219	RP1748	5	41	184	1.34	TBC	19
RP1254	RP1753	8	52	210	2.20	TBC	24
RP1255	RP1758	10	TBC	TBC	TBC	TBC	TBC
RP1256	RP1759	12	TBC	TBC	TBC	TBC	TBC
RP1257	RP1760	15	TBC	TBC	TBC	TBC	TBC
RP1258	RP1761	20	TBC	TBC	TBC	TBC	TBC
RP1259	RP1762	25	TBC	TBC	TBC	TBC	TBC
RP1260	RP1763	30	TBC	TBC	TBC	TBC	TBC



Lock Strop Info

Internal Lock Strop Info

Internal Lock With Sheave				
Lock Size	**Minimum Strop Length (mm)**	**Construction**	**BL (kg) Straight Loop**	**S.F**
2.5T	250	4 x 3mm	9408	3.76
5T	300	3 x 5mm	17220	3.44
8T	400	4 x 6mm	29680	3.71
10T	TBC	TBC	TBC	TBC
12T	TBC	TBC	TBC	TBC
15T	TBC	TBC	TBC	TBC
20T	TBC	TBC	TBC	TBC
25T	TBC	TBC	TBC	TBC
30T	TBC	TBC	TBC	TBC

Internal Lock Without Sheave				
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20T	TBC	TBC	TBC	TBC
25T	TBC	TBC	TBC	TBC
30T	TBC	TBC	TBC	TBC

Installation

Internal Lock Installation into spar

- Installation of a Rigging Projects Internal Lock should only be carried out by a suitably qualified and experienced personnel. If in any doubt, contact Rigging Projects.
- Installation should only be carried out using the router jigs supplied by Rigging Projects.
- **Tube engineering should be checked prior to locks being fitted to any spar – If in any doubt, contact Rigging Projects first.**

1. Working with the spar on the ground, position the router jig in the correct position and secure 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. Angle the top of the lock into the slot in the spar and push through until the lower edge passes through the slot.
4. 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.**

Operations & Procedures

Procedure for Internal Lock

To Lock

1. After connecting the sail to the lock strop, begin hoisting the sail on the halyard.
2. As the bullet reaches towards the entrance of the lock body, reduce the speed at which the line is winched.
3. Keep raising the line until the bullet passes through the snap ring in the lock. For going on lock, there is no limit to the amount the line can be over hoisted.
4. Once the line has been over hoisted sufficiently, ease down slowly on the halyard until the locking pawls engage. Before removing the hoist line from the winch, increase the tack load to ensure that the lock is engaged.
5. Line can now be completely removed from the winch.

Operations & Procedures (cont.)

Procedure for Internal Lock (cont.)

To Unlock

1. Before removing any load on the tack, load the hoist line onto a winch.
2. Once the tack is released, slowly wind the hoist line to take up the tension. Only a small over hoist is required to open the pawls.
3. After a small over hoist, the hoist line can be slowly eased down to ensure the lock has been released. If unlocked, drop the sail as normal.
4. If the over hoist on the hoist line is too much, the mechanism will reactivate and lock. A smaller over hoist is required to open the pawls without reactivation.

Maintenance & Checks

The following maintenance and checks should be carried out on the lock as per the below sheet.

Description	Period	Mileage
Visual inspection of body external to the spar	2 Months	2500 Miles
Check secureness of lock mounting screws		
Through the inspection hole, move pawls by hand to check for any debris or stickiness		
Check the plastic wedges on the snap ring holder for any serious wear		
On versions with integrated sheave, check the sheave is not damaged and spins freely		
Check the surface of the bullet for any wear or damage		
The lock should be removed from the spar and all components inspected, cleaned, re-greased and reassembled using Loctite where required on screws. If in doubt, please contact RP for further information or clarification.	Annually	20000 Miles

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 discoloration around holes and screws. This is not serious and may be removed with a fine abrasive.
IMPORTANT! Exposure to some teak cleaners and other caustic solutions can result in discoloration of part and is not covered under the Rigging Projects warranty.

Maintenance & Checks (cont.)

Strip Down

1. Remove all screws holding one half of the body together **(1)** This can also be done for the other half body at this stage.
2. For locks with built in sheave, remove sheave pin retaining screw **(2).**
3. Remove top half of the body **(3).**
4. Remove sheave and sheave pin **(4)** (On locks with internal sheave).
5. Remove both pawls from the body along with the pawl pins **(5)**, making note of spring and dowel orientation.
6. The bottom ferrule and snap ring holder can also be removed together **(6).** On models without a sheave, the top ferrule can also be removed.

Maintenance & Checks (cont.)

Assembly

1. Starting with one half of the body, fit the snap ring holder and end ferrule **(6).**
2. Fit the pawls and pawl pins **(5)** ensuring that the spring orientation is correct, and the spring legs are the correct side of the dowels in the body.
3. On versions with a sheave, fit the sheave and sheave pin **(4)** into the body. For versions without a sheave, fit the top ferrule.
4. Fit the other half of the body to the lock **(3)**, ensuring that the tapped mounting plates are located in the lock.
5. Fit the sheave retaining screw on models with a sheave **(2)**.
6. Fit all body retaining bolts and secure with Loctite **(1)**.

Maintenance & Checks (cont.)

Replacement of the snap ring

1. Strip down the lock as described in the previous section.
2. Place the snap ring holder (**7**) in a suitable vice.
3. Remove ferrule **(8)** from snap ring holder
4. Remove the plastic ramps **(9)** and then the cover plate by removing the two screws.
5. Fit the new snap ring into the holder.
6. Ensure that the new snap ring is retained in the groove but is free to move around within the housing.

Replacement of the sliding bush

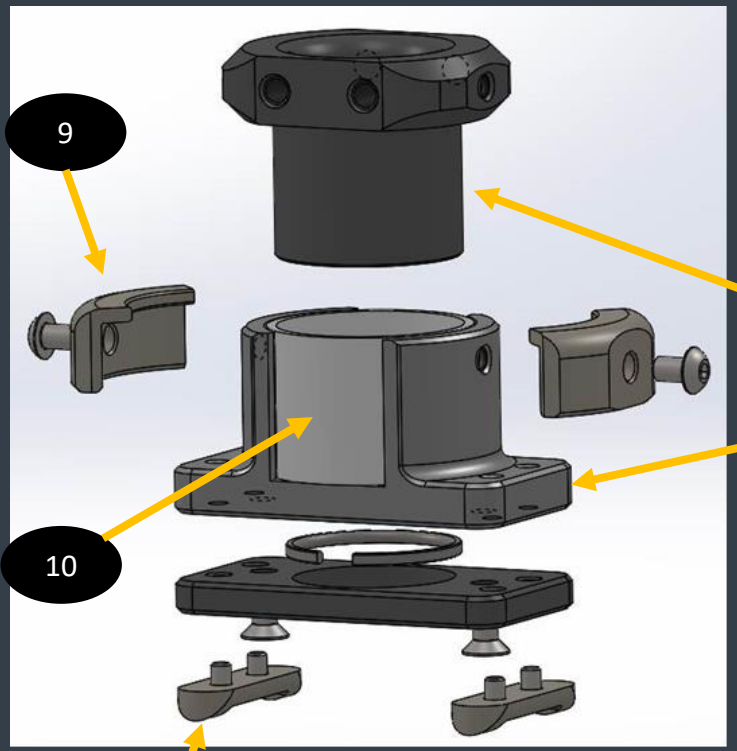
1. Strip down the lock as described in the previous section.
2. Unscrew locking wedges (**9**) from snap ring holder.
3. Withdraw bush from snap ring holder (**10**).
4. Refit locking wedges (**11**) and apply Loctite to screws.

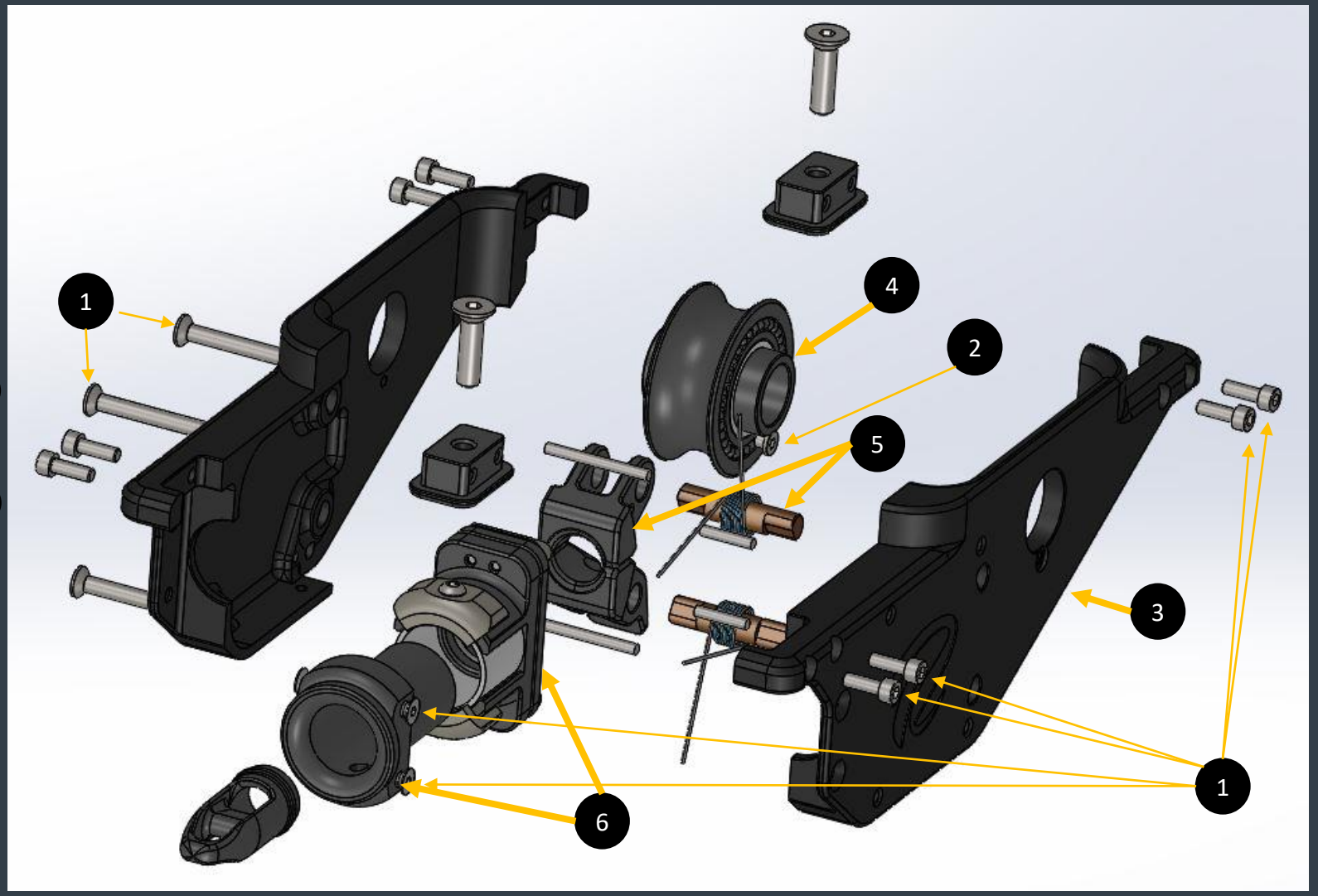
Replacement of the rolling wedges

1. Strip down the lock as described in the previous section.
2. Unscrew rolling wedges (**11**) from snap ring holder.
3. Refit new wedges applying Loctite to retaining screws

Maintenance & Checks (cont.)

Exploded Assembly – Internal Lock





Troubleshooting

Problem	Probable Cause	Solution
The lock mechanism will not unlock to allow the sail to be dropped	-The halyard may not have been raised enough to allow the pawls to open. -The pawl springs may have been damaged resulting in the pawls not flipping open to allow the spigot to pass through. -Try reducing the overhoist as too much overhoist will reset the mechanism.	-Try increasing the amount of halyard taken up to try and unlock. -Look through inspection hole and whilst the halyard is raised, check that the pawls spring open. If not, the pawl springs may need to be changed or there may be debris in the pawl mechanism, in which case a strip down will be required.
The lock mechanism will not activate and therefore won't lock	-The snap ring or bullet may have been damaged. -The force required to close the pawls may be more than normal. -The rolling wedges on the snap ring holder may be worn not closing the pawls	-With the bullet out of the lock, visually check the snap ring is present and not damaged. Check the bullet for damage. Try to operate the pawls through the inspection hole -If the snap ring is damaged, a strip down will be required and ring replaced- contact Rigging Projects for parts -Replace the rolling wedges if after inspection, they appear to be worn.

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