

Rigging Projects

Geared Steering Hub User Guide



RP4143- GSH - A - UG - 01

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Caution

The Rigging Projects Geared Steering Hub 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 and loss of steerage. Ensure there is a qualified person on active watch during the use of product. Failure to take safety precautions could lead to severe injury or death.

Introduction

This manual provides an overview of the Rigging Projects Geared Steering Hub 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.

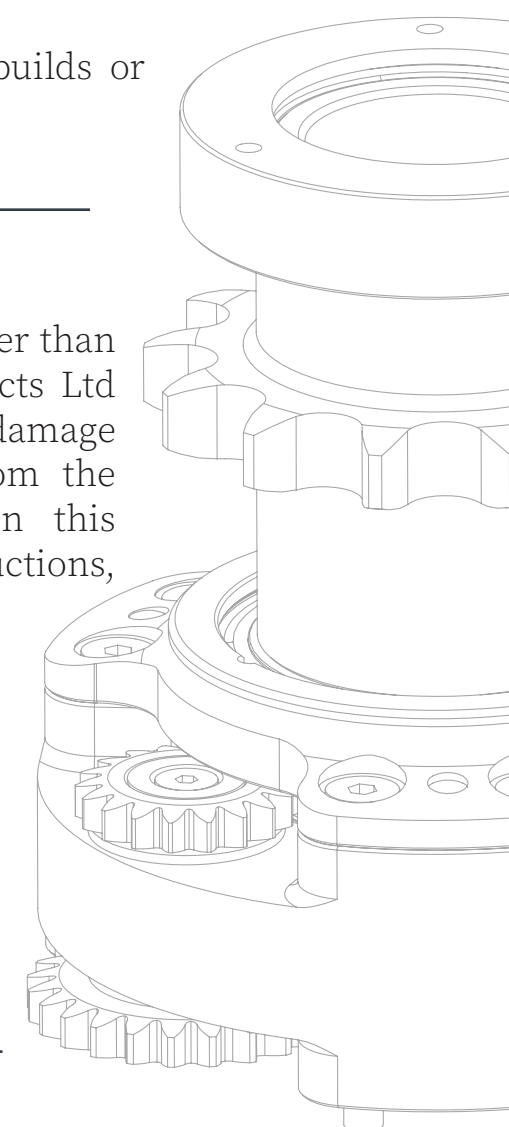
Prior to using this product, all persons should be made aware about the possible hazards associated with its operation and use, see page 6. Any service work, repairs maintenance or equivalent work carried out on the product should be undertaken by a Rigging Projects technician.

Key Design Features

- Patented, clutch less gearing mechanism incorporated in the head sprocket of the steering system
- Seamless transition from one reduction ratio to another with a simple turn of the handle
- Maximise the helmsman’s driving experience by reducing the load by up to 25% in the steering wheel while reaching or running
- The Geared Steering Hub can be installed in new builds or retrofitted into existing vessels

Disclaimer

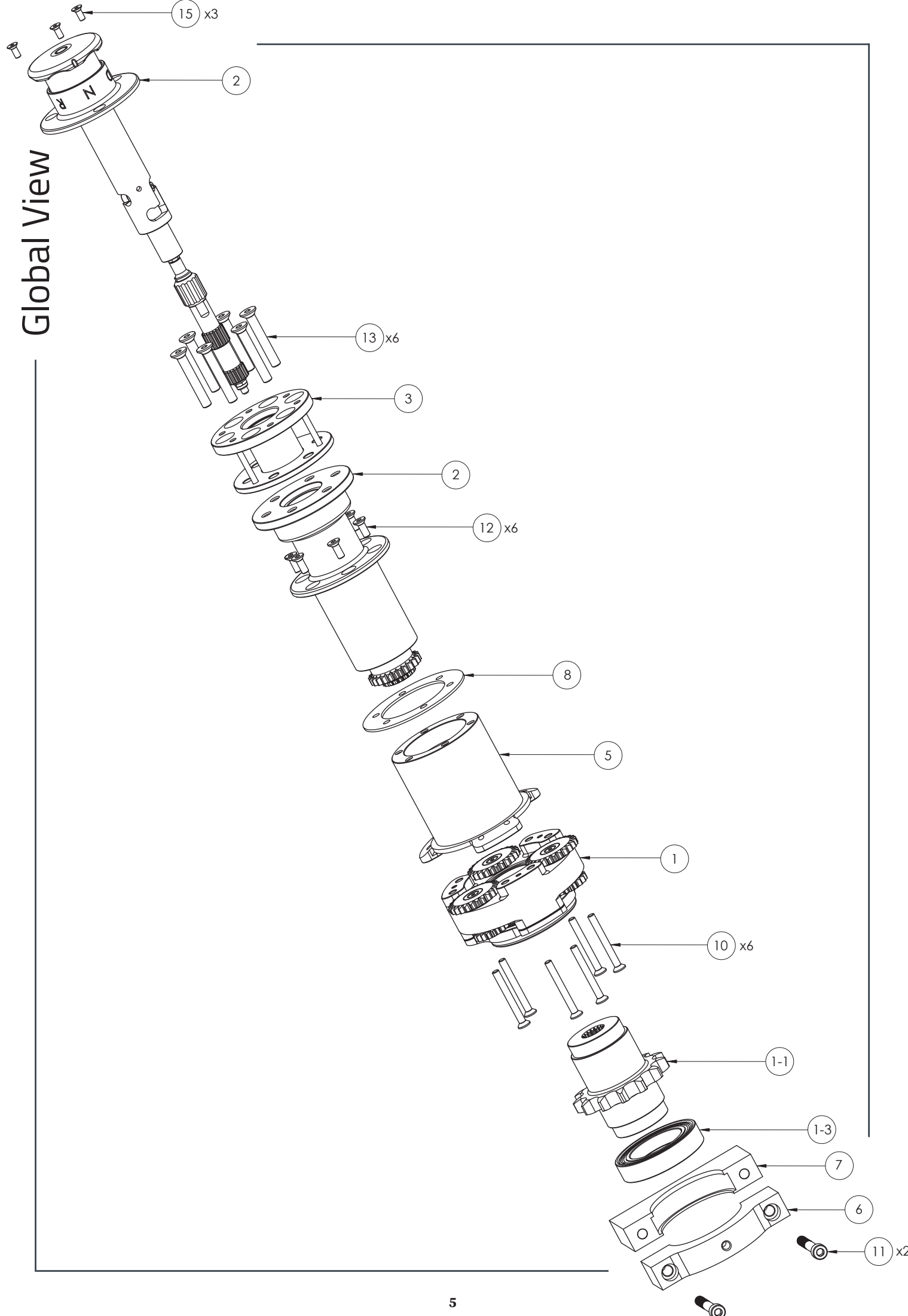
It is not permitted to modify the product or its parts, other than replacing parts specified in this manual. Rigging Projects Ltd is not liable for any dangerous situation, accidents, damage and consequences thereof caused when deviating from the instructions, guidelines and procedures described in this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



Parts List

Diagram #	Part #	Description	Qty
1	RP1589	GEARED STEERING HUB	1
1-1	RP3639	STEERING CHAIN SPROCKET	1
1-2		DEEP GROOVE BALL BEARING	1
1-3	RP1869	FORWARD BEARING MOUNT	1
2	RP1877	HELM SHAFT ASSEMBLY	1
3	RP1882	HELM ASSEMBLY	1
4	RP1894	SHIFTING ASSEMBLY	1
5	RP1885	INSERT	1
6	RP1886	UPPER HOUSING	1
7	RP1887	LOWER HOUSING	1
8	RP1908	GASKET	1
9		PEDESTAL	1
10		M6 x 55 SOCKET CSK HEAD SCREW	6
11		M8 x 90 SOCKET CAP HEAD SCREW	2
12		M6 x 16 SOCKET CSK HEAD SCREW	6
13		M8 x 55 SOCKET CSK HEAD SCREW	6
14		STEERING CHAIN	1

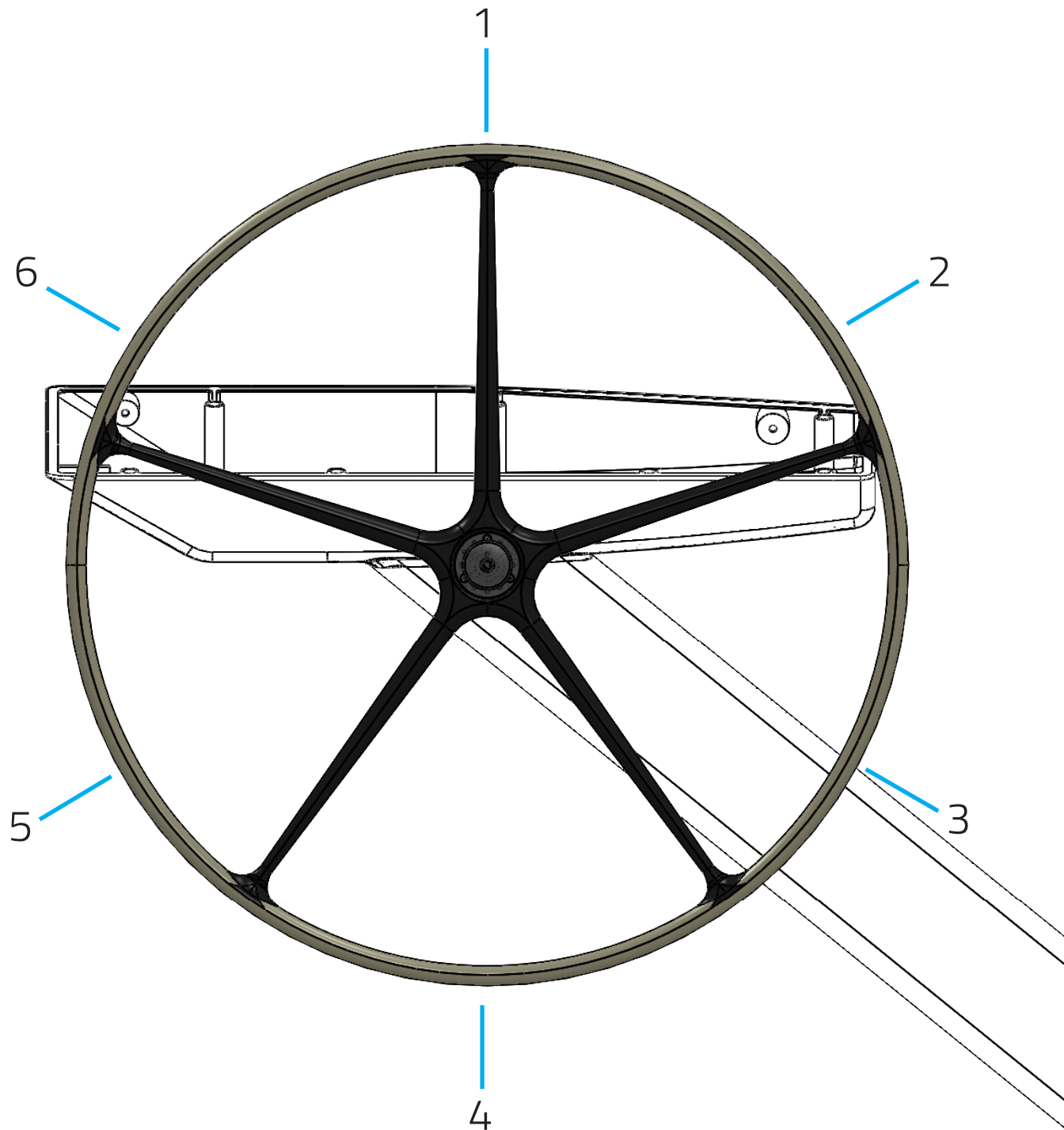
Global View



Engagement Positions

In order for the selector to engage effectively, the wheel must be in one of these six positions. In the process of changing gears, **continue to turn the wheel** to find one of these positions and the selector will self engage.

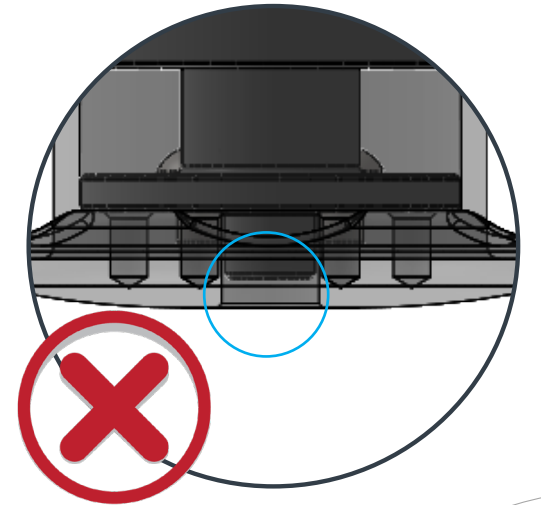
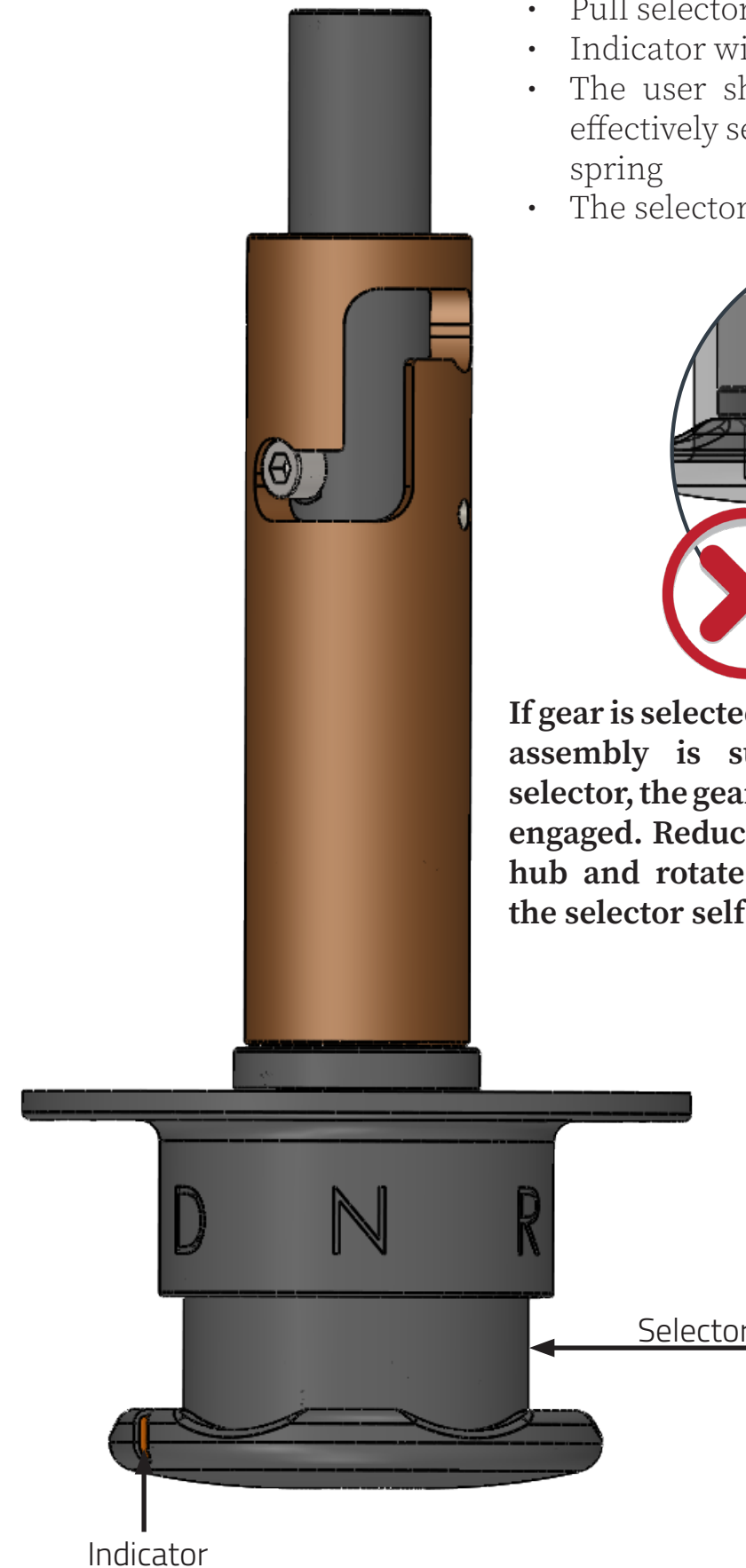
Gear changing will be more effective if there is reduced load on the steering.



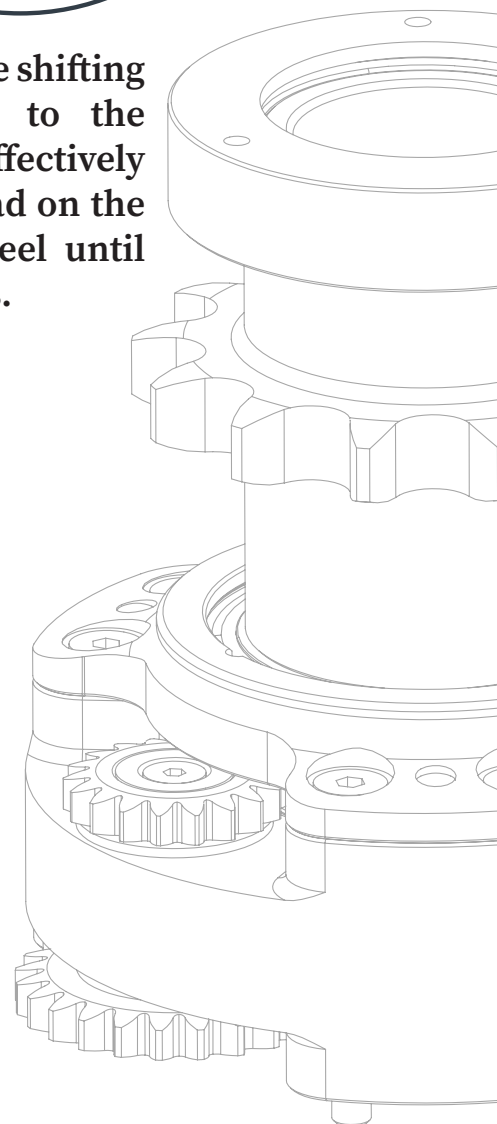
Engagement Positions

Direct 1:1

- Pull selector and rotate counter clockwise
- Indicator will be directly in line with 'D'
- The user should feel the selector being effectively seated towards the wheel by the spring
- The selector will be fully extended



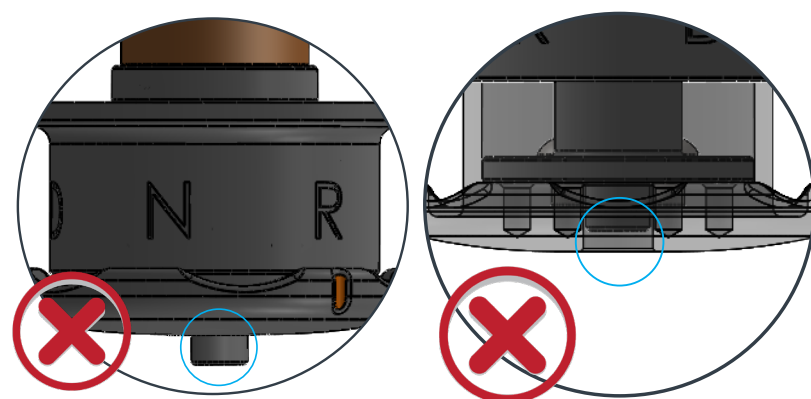
If gear is selected and the shifting assembly is sub-flush to the selector, the gear is not effectively engaged. Reduce the load on the hub and rotate the wheel until the selector self engages.



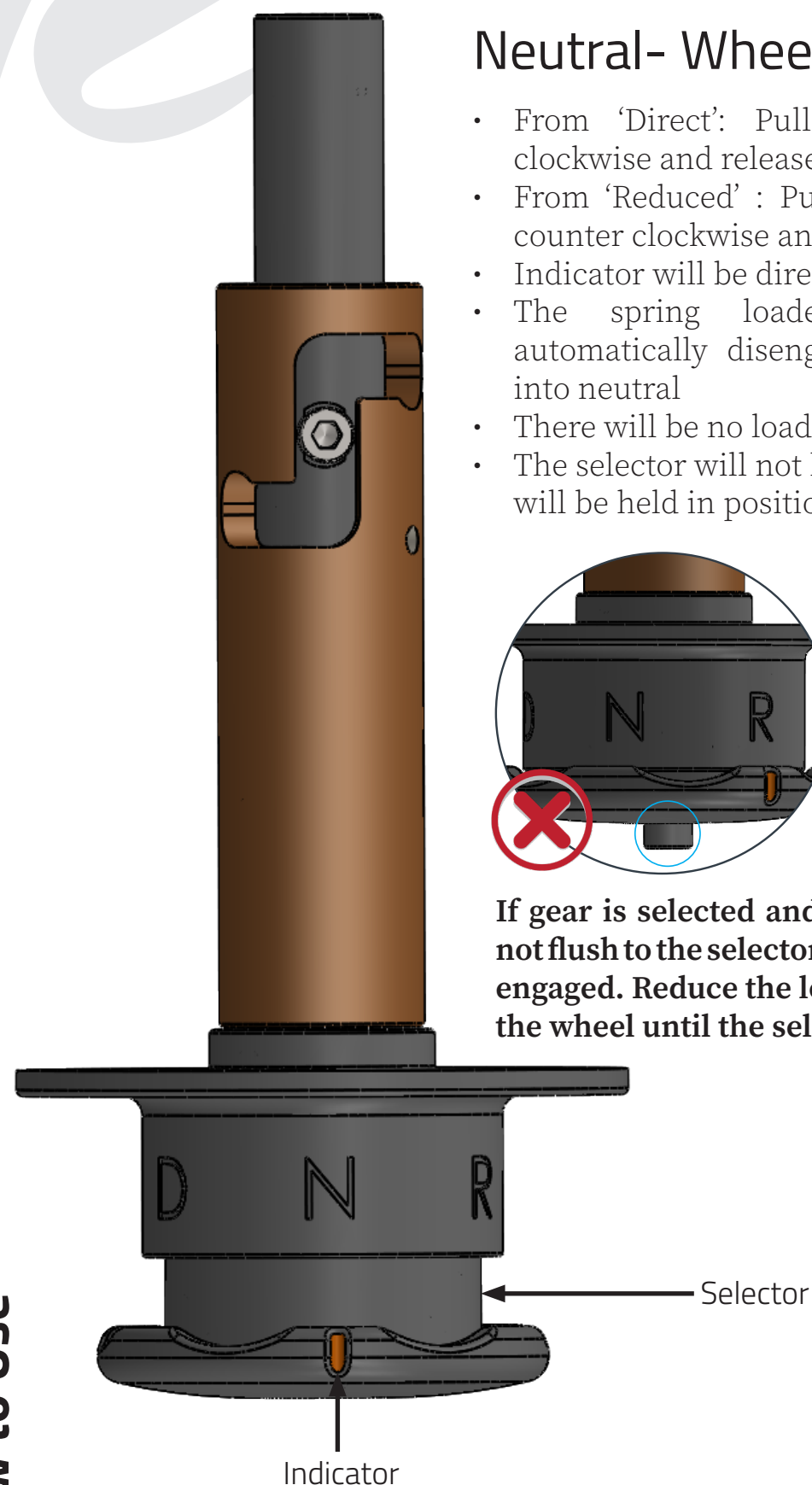
Engagement Positions

Neutral- Wheel Disengaged

- From 'Direct': Pull the selector, rotate clockwise and release
- From 'Reduced' : Push the selector, rotate counter clockwise and release
- Indicator will be directly in line with 'N'
- The spring loaded mechanism will automatically disengage the steering hub into neutral
- There will be no load on the steering wheel
- The selector will not be locked in position, it will be held in position with springs



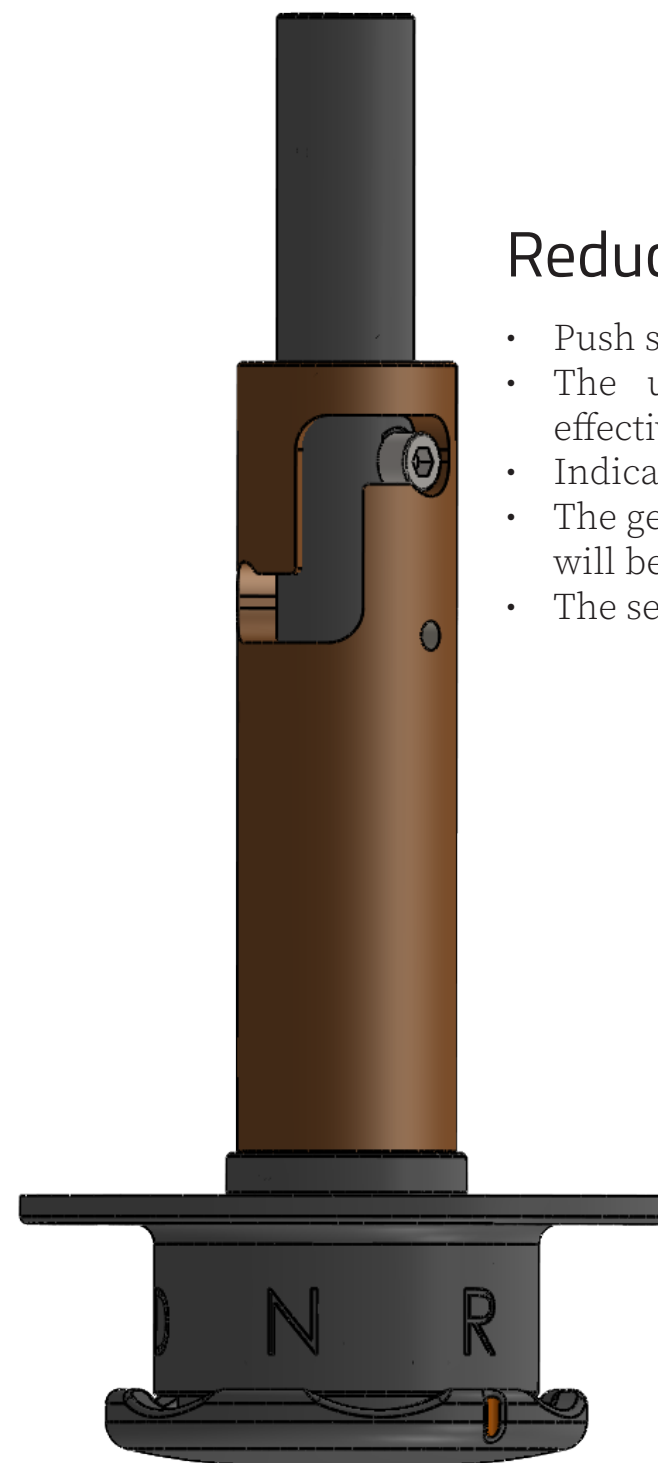
If gear is selected and the shifting assembly is not flush to the selector, the gear is not effectively engaged. Reduce the load on the hub and rotate the wheel until the selector self engages



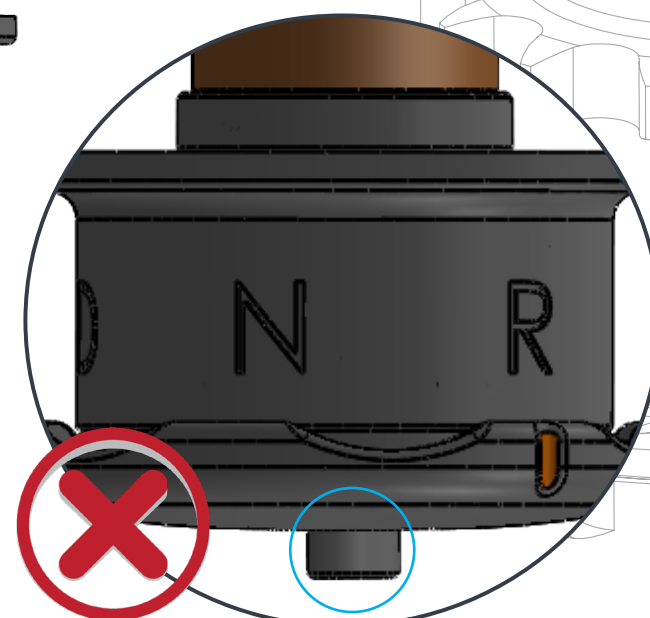
Engagement Positions

Reduced

- Push selector and rotate clockwise
- The user should feel the selector being effectively seated into the hand
- Indicator will be directly in line with 'R'
- The geared steering hub is activated and there will be a reduction in load felt at the wheel
- The selector will be fully compressed

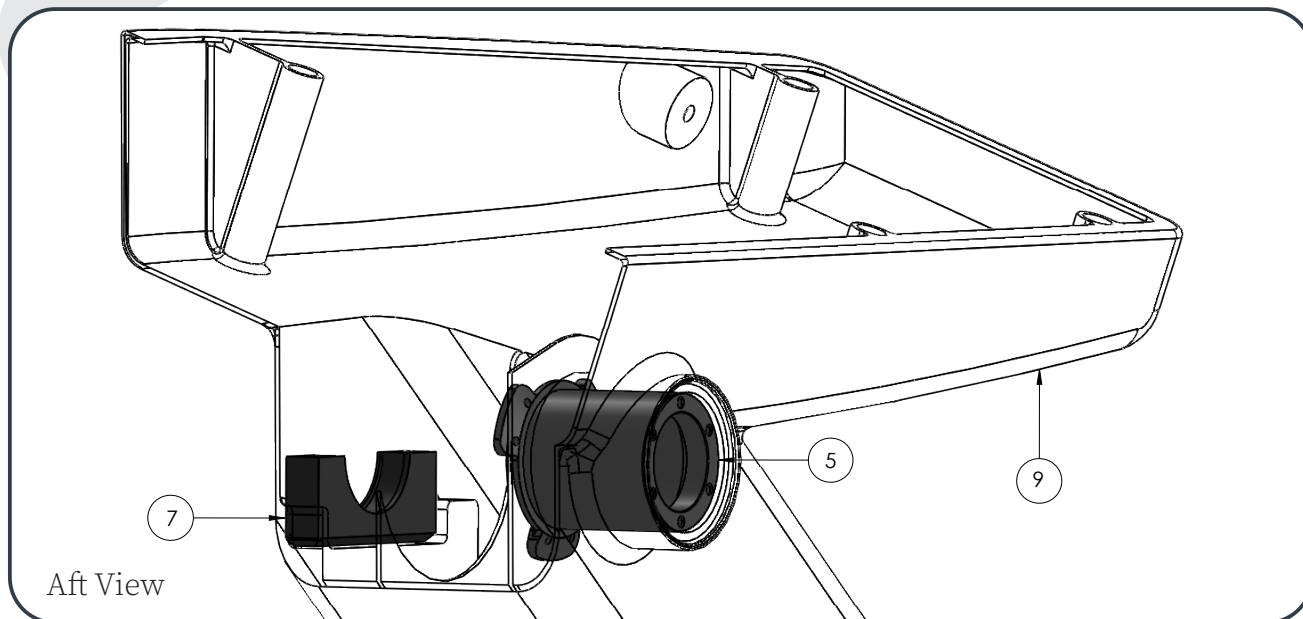


If gear is selected and the shifting assembly is protruding from the selector, the gear is not effectively engaged. Reduce the load on the hub and rotate the wheel until the selector self engages

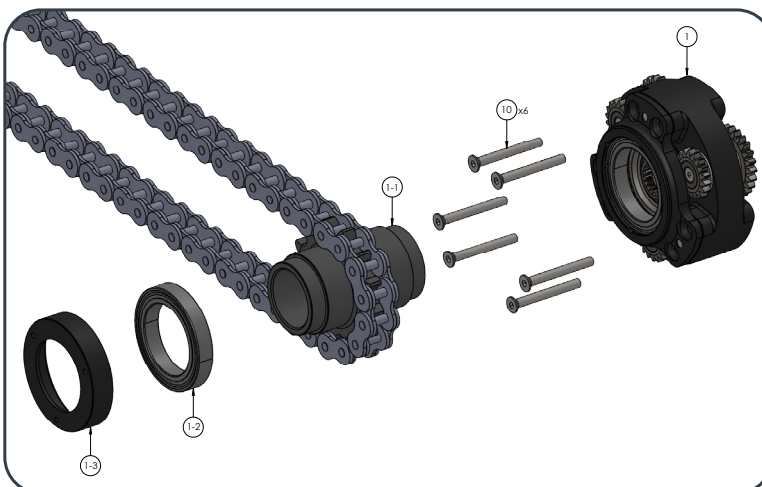


Installation Guide

- 01 The Lower Housing (7) and the Insert (5) will be permanently bonded to the Pedestal (9) by a Rigging Projects technician using installation jig



02



Release chain tension using the steering cable lashing.

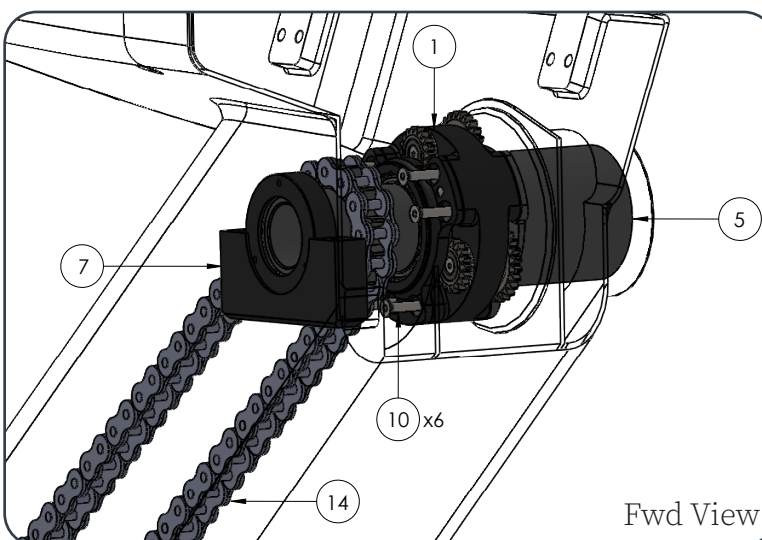
Please note: the Main Sprocket (1-1) is held into position by the Forward Bearing Mount (1-3), please take care when handling components not to drop them into the pedestal.

Install Steering Chain (14) onto the Main Sprocket (1-1)

Install the Forward Bearing Mount (1-3) onto the Main Sprocket (1-1)

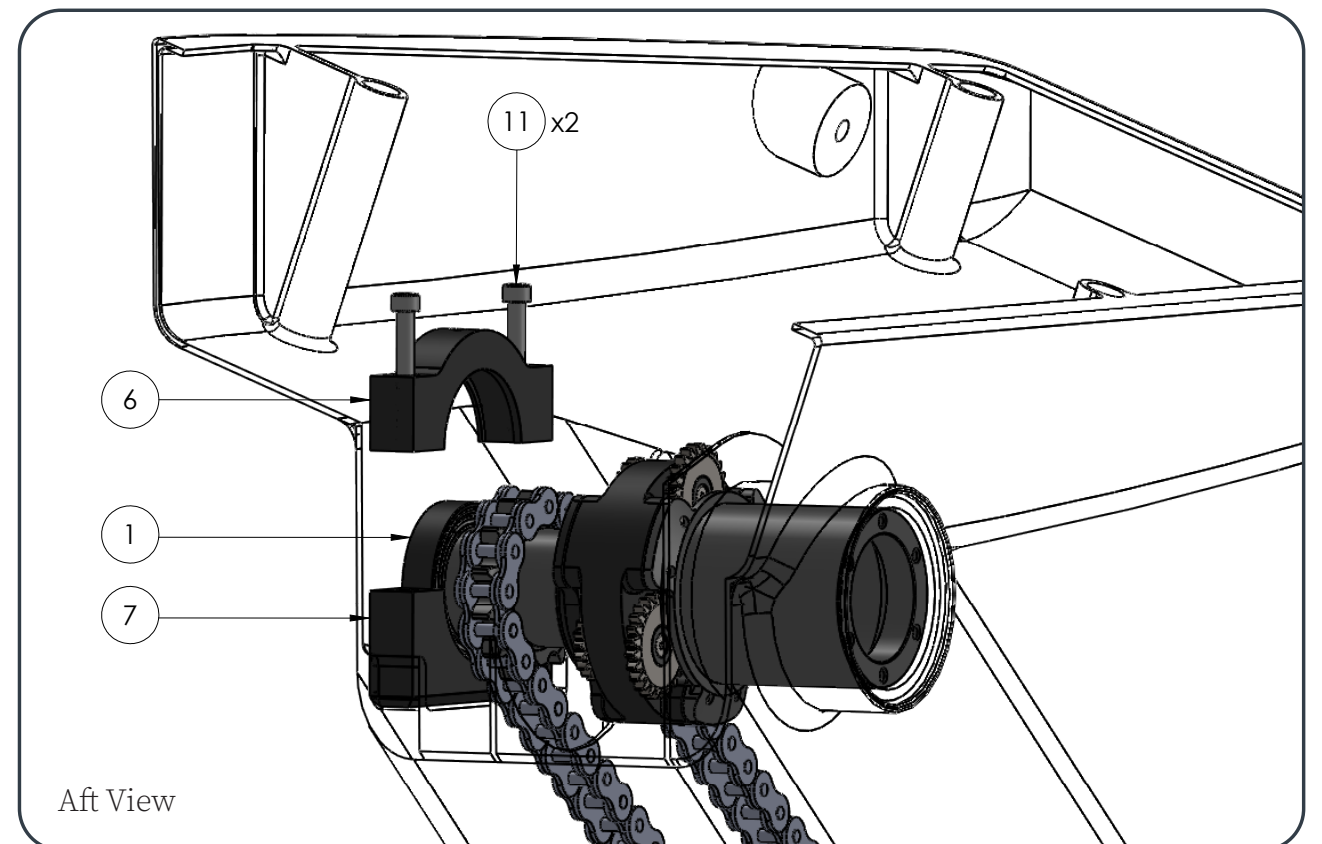
Install Main Sprocket assembly into the Geared Steering Hub (1)

Secure the Geared Steering Hub assembly (1) to Insert (5) with M6 x 55 socket CSK head fasteners (10) x6. With blue Loctite on the first three threads.

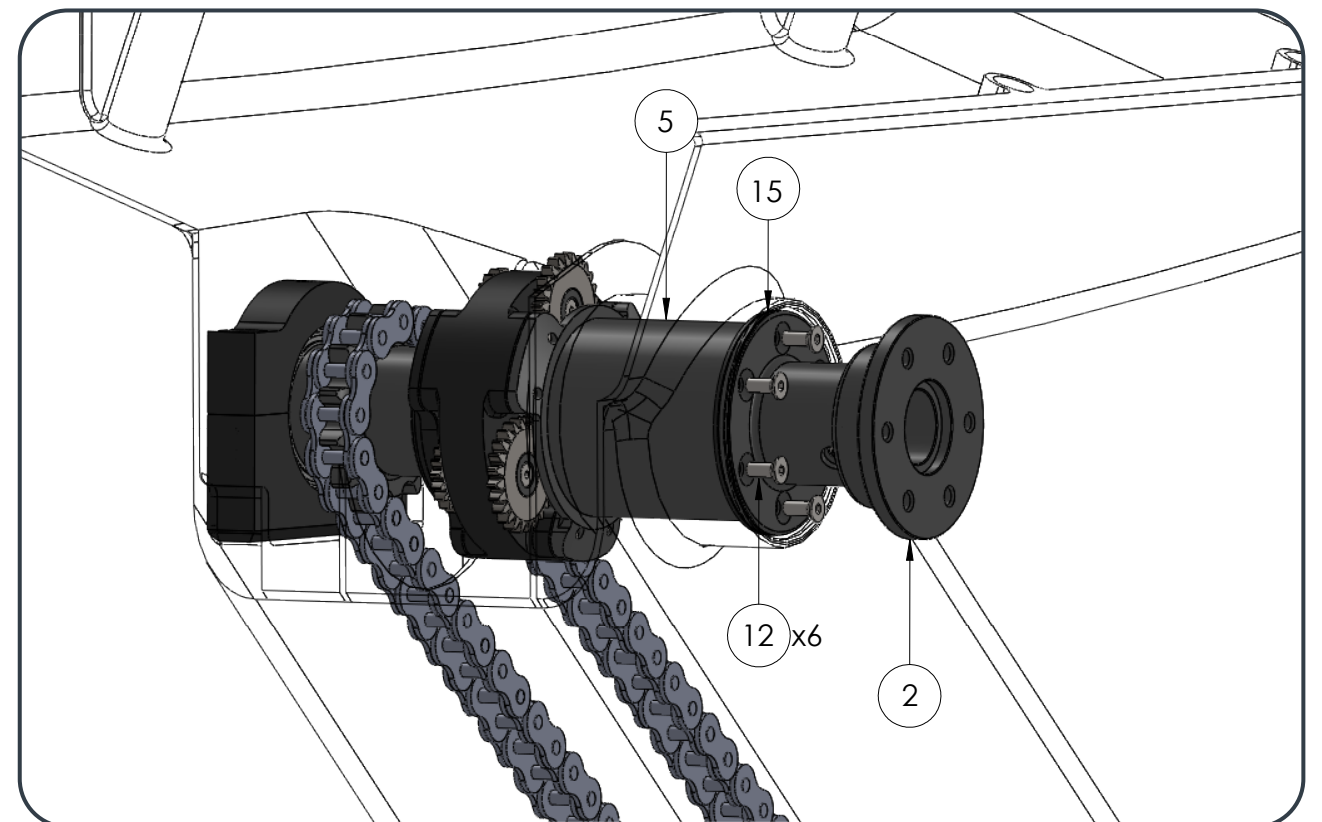


Installation Guide

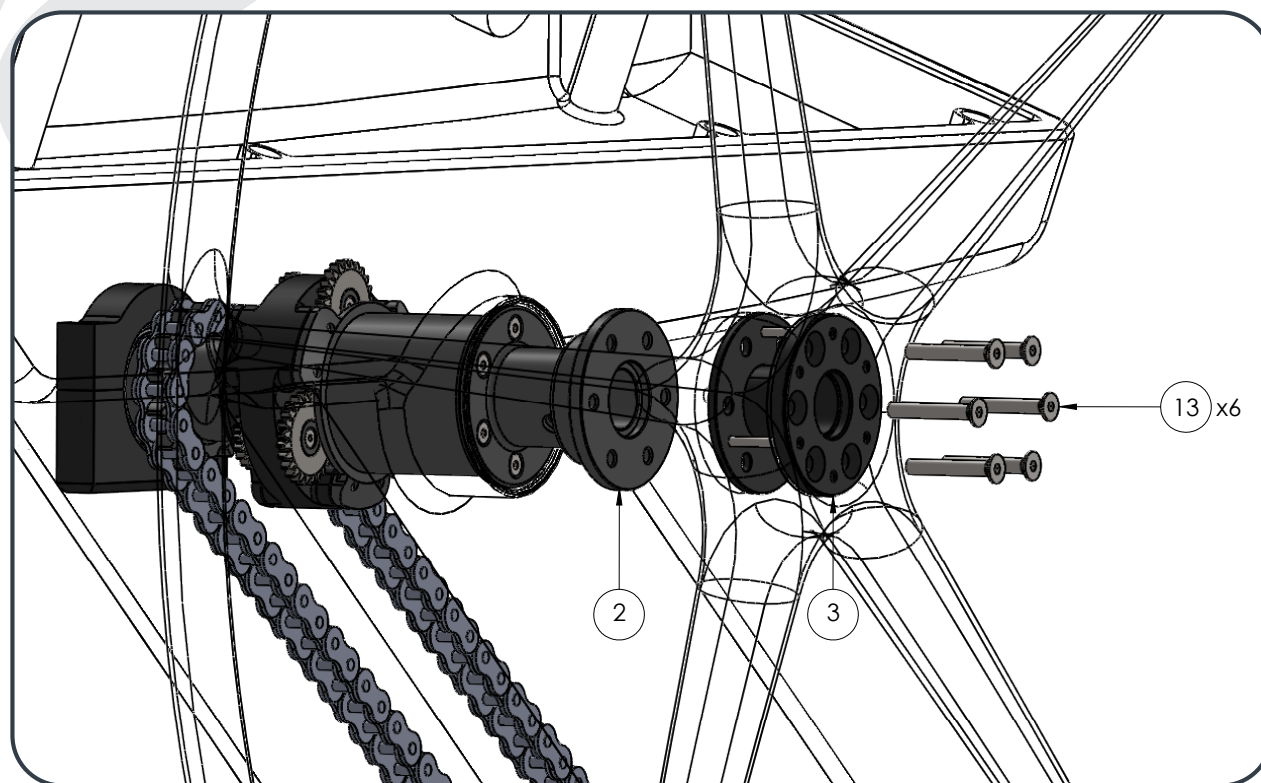
- 03 Secure the Upper Housing (6) to the Lower Housing (7) with cap head fasteners (11) x2, with blue Loctite on the first three threads



- 04 Install the Helm Shaft Assembly (2) onto the Insert (5) and secure with M6 x 16 socket CSK head fasteners (12) x6 with blue Loctite on the first 3 threads. Ensure the Washer (15) is situated between the Helm Shaft Assembly (2) and the Insert (5)

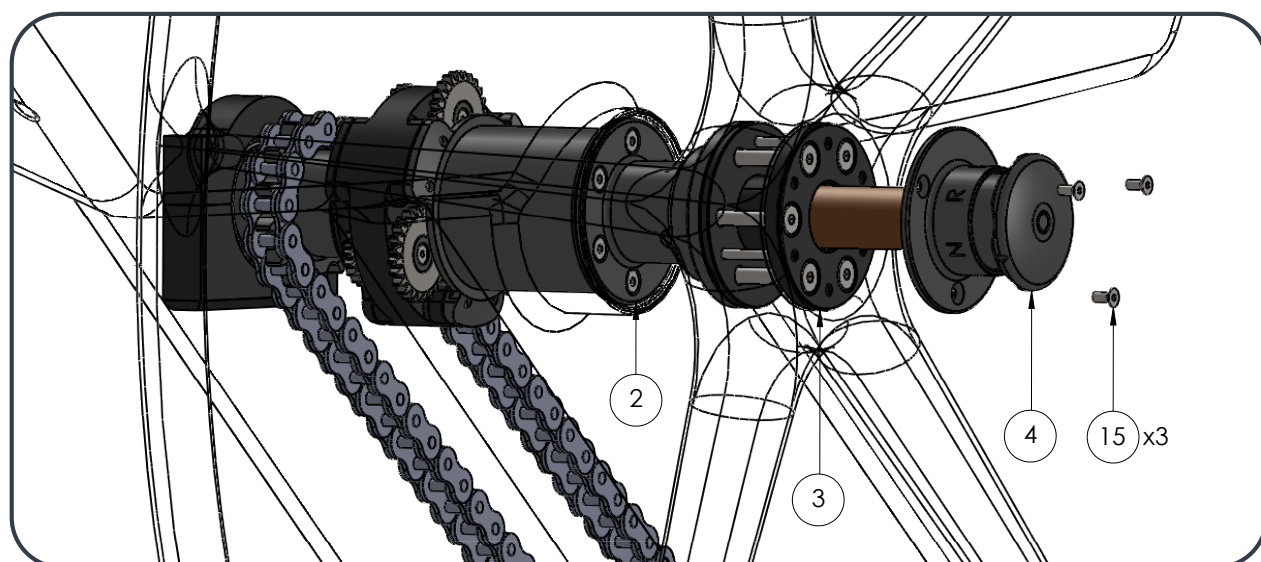


05 Secure helm assembly ③ to helm shaft assembly ② with M8 x 55 socket CSK head fasteners ⑬x6 with blue Loctite on the first three threads.



06 Insert Shifting Assembly ④ into Helm assembly ③ and Helm shaft assembly. Secure with M5 x 12 socket CSK head fasteners ⑮ x3 with blue Loctite on the first three threads.

Be aware that it is possible to install the Shifting Assembly ④ into Helm assembly ③ with the Indicator in the incorrect position. During the installation, ensure the assembly is in Neutral with the Indicator on the 'N' position.



Do not use excessive force when installing/ removing the shifting assembly ④ some alignment may required during the process

Trouble Shoot

Problem	Probable Cause	Solution
Not engaging into selected gear	Helm/ pedestal fasteners have come loose	Remove all fasteners and reapply blue Loctite and torque up to spec (in a star pattern)
	Shifting spring fatigue/ damage	Photograph area of concern and contact Rigging Projects customer services.
Shifting assembly not free to slide under zero load	Shaft has experienced excessive load or damaged and is showing signs of structural vulnerability. Splines are visually deformed or fractured	Photograph area of concern. Using a dye pen where necessary highlight cracks or clearly mark deformation in the shaft. Return to Rigging Projects for service.
Steering feels stiff/ heavy	Inadequate lubrication on the steering chain	Visually inspect, clean and reapply lubrication to steering chain
	Debris in steering hub/chain	
Not shifting gears	Damage to hub or main sprocket	Photograph area of concern. Using a dye pen where necessary highlight cracks or clearly mark deformation in the shaft. Contact Rigging Projects customer services.
	Signs of wear on helm shaft load faces, deformity or bending along the length of the shaft, cracks or fractures on the part.	
Rattling or scraping sound coming from geared steering hub	Excessive grease allowing for debris to contaminate the mechanism	Remove debris and clean the sprocket, chain and sun gears with degreaser and clean rag. Reapply a light covering of grease
Helm shaft or sprocket requires excessive force to rotate	Bearing seal is damaged or no longer preventing the ingress of foreign objects into the ball bearing raceway.	Visually inspect steering cables system for obstructions or abnormalities. Ensure rudders are clear to swing before proceeding
Bearing is not rotating or is making an audible noise while rotating		Disassemble the steering system, photograph the bearing in place. Remove the bearing, if possible, alternatively return complete assembly to Rigging Projects for service.
Excessive off axis movement in the helm	Fractures in the pedestal or bearing supports. Chain or cable routing is rubbing or becoming deflected between the main sprocket and turning block.	Using a dye pen explore the extent of any cracking. Mark visible crack ends to monitor any propagation. If cracking around the bearing supports is propagating remove the steering hub and seek advice from a structural engineer.
		If the chain or cable is being deflected on its path ensure that this object is removed or properly adjusted to avoid contact with the chain or cable. Check the positioning of the turning block and pedestal to ensure there is no movement present

Inspection Intervals

During each interval please carry out preceding inspection advisories

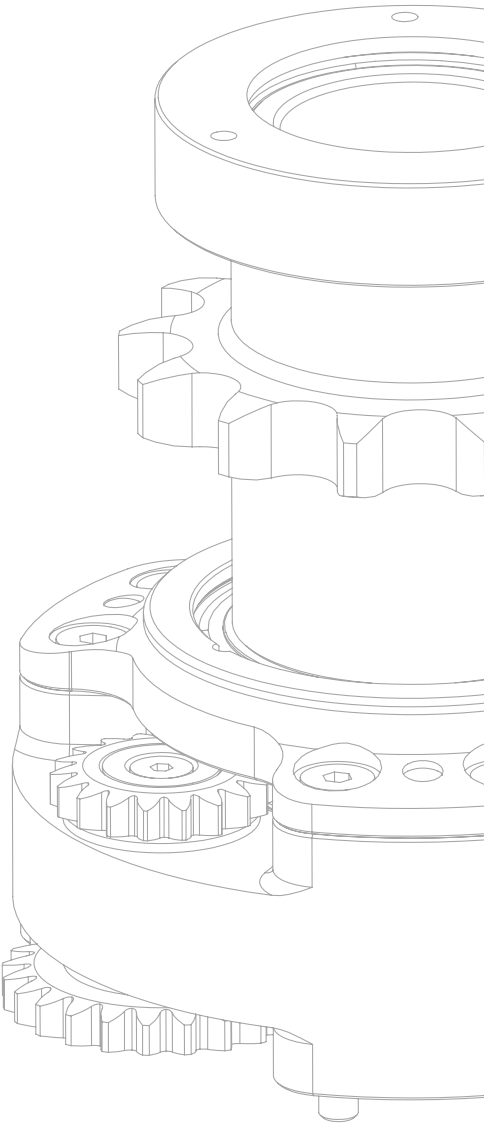
Interval	Advisories
Inshore Racing Daily Check	Check both helms are able to activate direct drive, reduced drive and neutral seamlessly while unloaded
	Operate the gear selector and listen for any signs of roughness or irregularity during movement
	Check the helm load for any indication of cable tension change
Offshore Sailing or 2 Months or 2500nm	Visually inspect the main sprocket. Ensure there is a light covering of grease present on the chain and sprocket. Inspect for any sign of metal filings or deformation on the chain or sprocket. Physically move the sprocket and check for excessive movement in the bearing axis
	Visually inspect the bearing seals for signs of corrosion or structural fatigue. Any bearings that are visible without disassembly should be inspected for structural integrity
	Inspect the fasteners connecting the wheel to the hub
	Inspect the chain for abnormalities
	Inspect the helm shaft assembly for excessive wear on spline teeth
Annual or 20,000nm	Full inspection and service by Rigging Projects technician

Important

Please **do not attempt** to disassemble Geared Steering Hub ①

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. In corrosive atmospheres, stainless parts may show discolouration around holes and screws. This is not serious and may be removed with a fine abrasive.

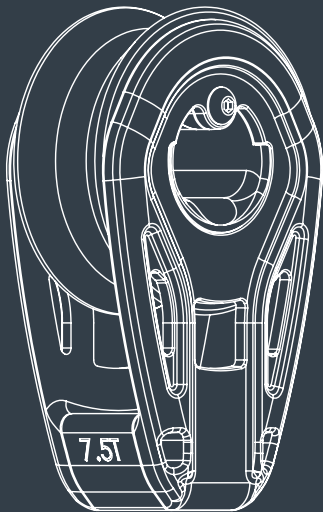
Notes



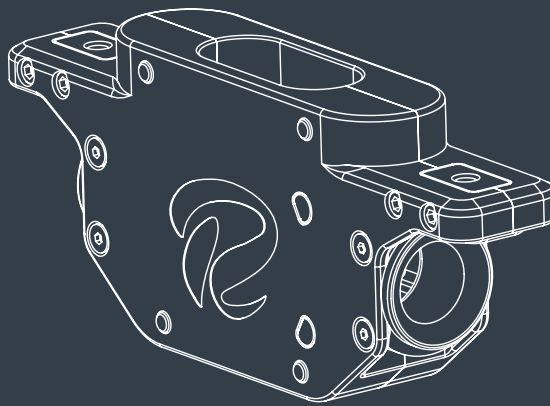
Customer Support

Info@riggingprojects.com

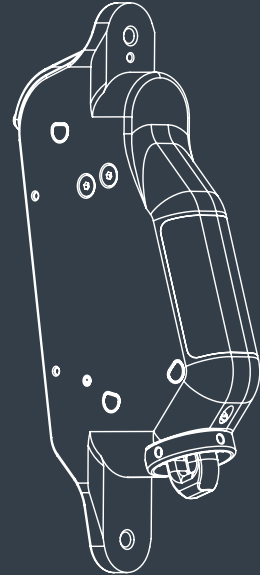
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X- Glide Range



Internal Lock Range



Fwd Lock Range

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Zaandam, Netherlands

Palma de Majorca, Spain

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