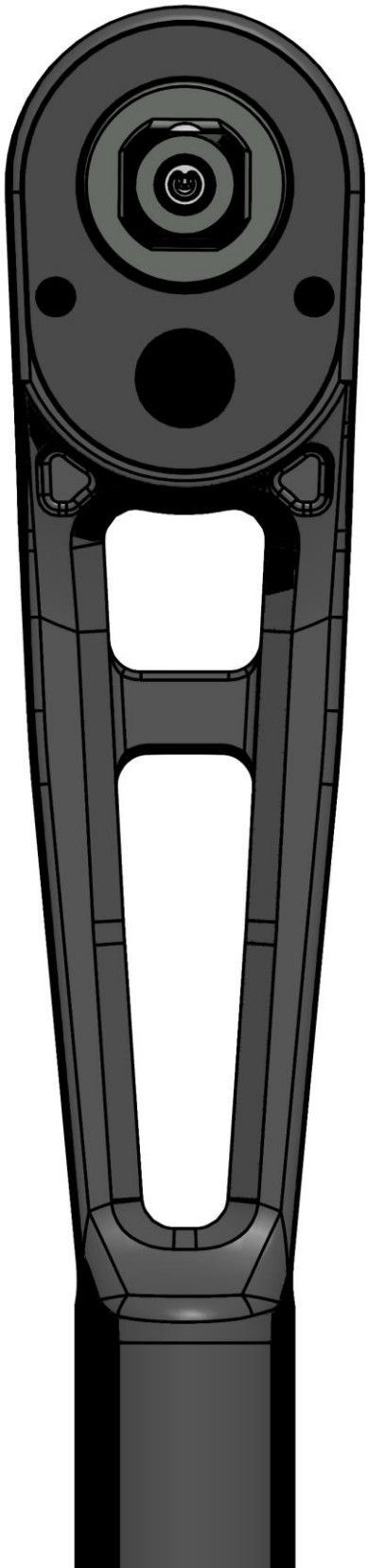
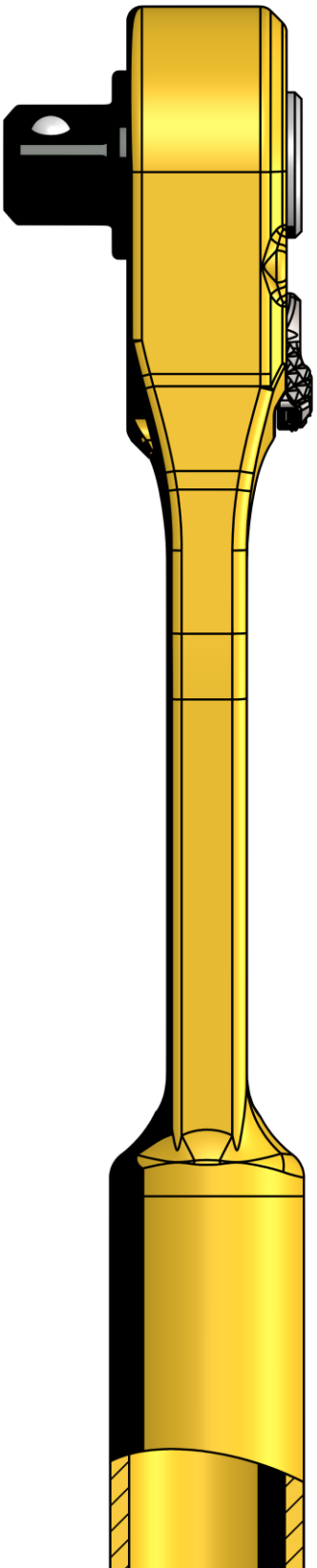
SUPERLEGGERA RATCHET MANUAL





APPLICATIONS:

2023 - 2024
TRO SUPERLEGGERA ¼” DRIVE

TRODesigns.com

TOOLS & MATERIALS NEEDED THROUGHOUT THIS GUIDE:

T8 TORX L-KEY (PB SWISS 3411.8 RECOMMENDED)

T10 TORX L-KEY (PB SWISS 3411.10 RECOMMENDED)

MICROFIBER CLOTH

OPTIONAL MAINTENANCE ITEMS:

****GREASE NLGI 1.5 OR NLGI 2**

(KRYTOX XP2A1 RECOMMENDED FOR LOWEST BACK DRAG)

ABOUT RATCHET LUBRICATION

Molybdenum Disulfide solid film lubricant was applied to the ratchet during assembly to act as a sacrificial layer during break-in. This is a permanent lubricant which will be burnished by the gear over time.

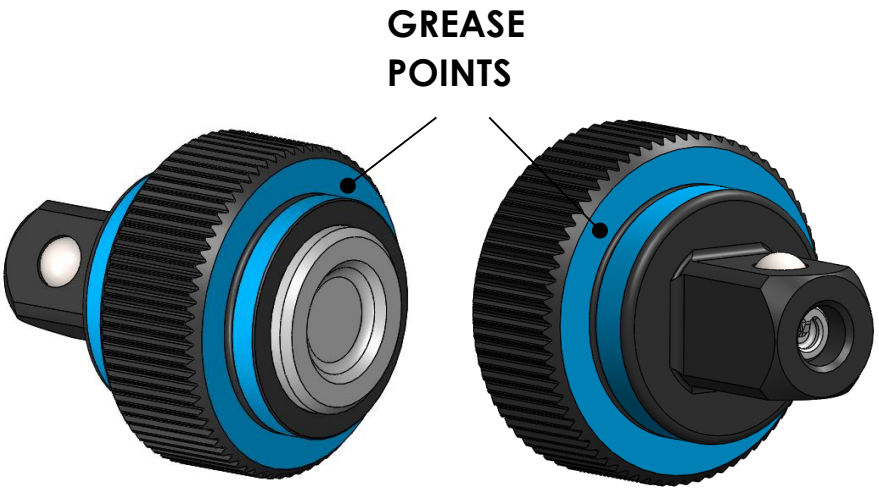
Lubrication of the ratchet is not *necessary*; however, applying lubricant to the areas specified in this manual may provide longer wear life of the PVD coatings (DLC or TiN), with a slight increase in back drag.

****INCORRECT/EXCESS LUBRICATION MAY POSSIBLY LEAD TO RATCHET MECHANISM SKIPPING OR DAMAGE.**

GENERAL INFORMATION

RATCHET LUBRICATION:

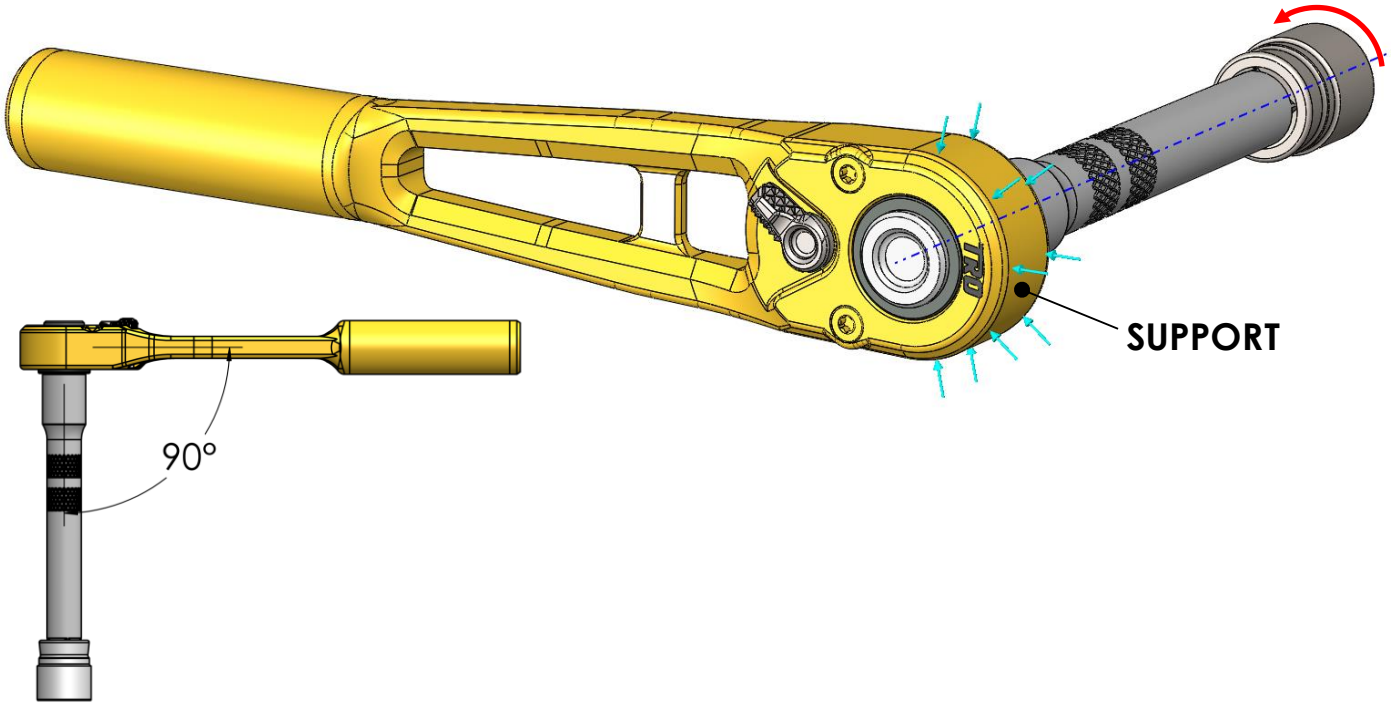
Additional lubrication is not necessary, but may increase wear protection. Grease should be applied thinly, **only** at the points shown - further information is found in this manual.



HIGH TORQUE/EXTENSION USAGE:

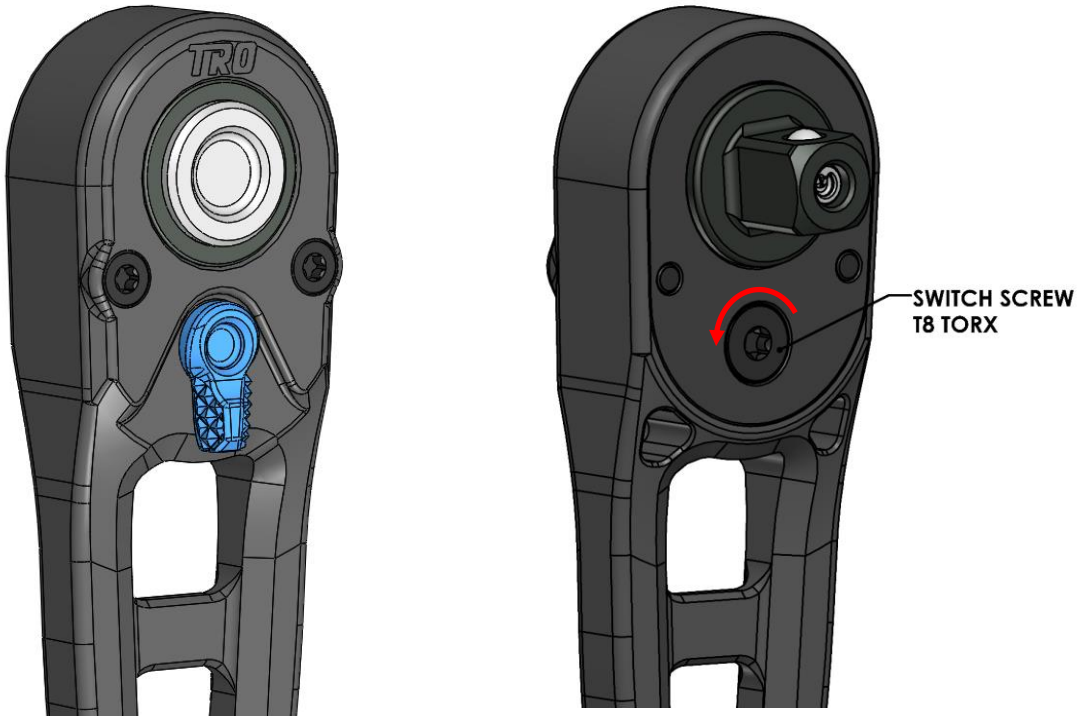
It is best practice to support the head of the ratchet when applying high torque or using extensions. This counteracts twisting or unnecessary side loading of the gear mechanism.

If it is practical, use 1 hand to keep the ratchet head in-line with the fastener.

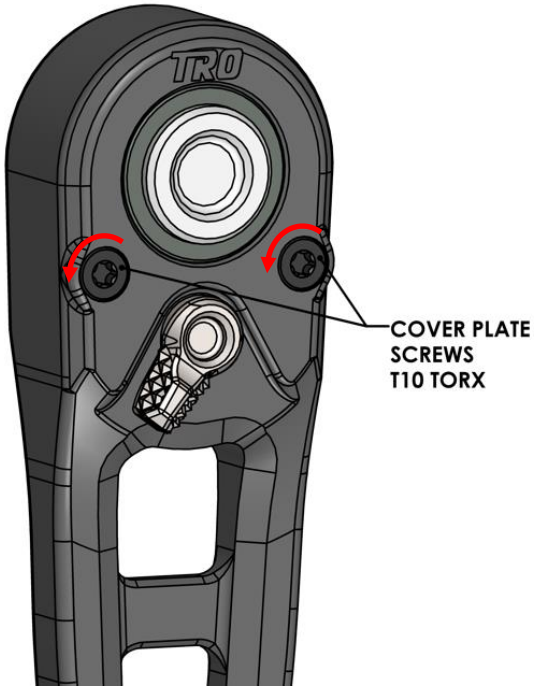


DISASSEMBLY PROCEDURE FOR LUBRICATION

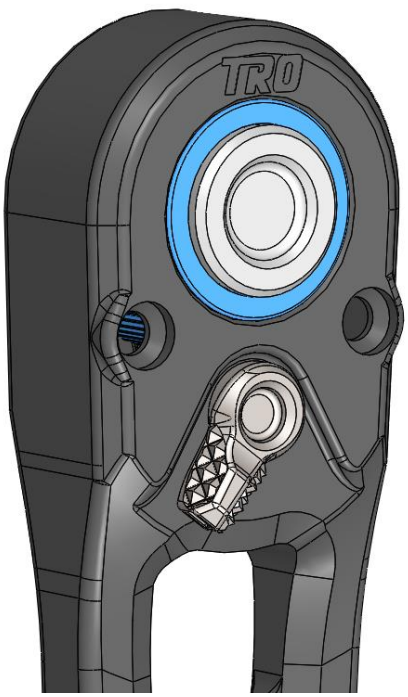
1. Using one hand to hold the switch stationary, loosen and remove the switch screw using a T8 Torx L-key. The direction switch can be left in-place.

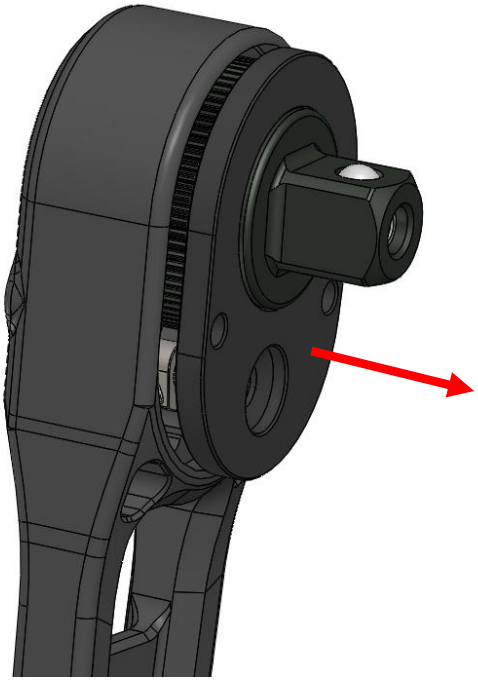


2. Remove both cover plate screws using a T10 Torx L-key.

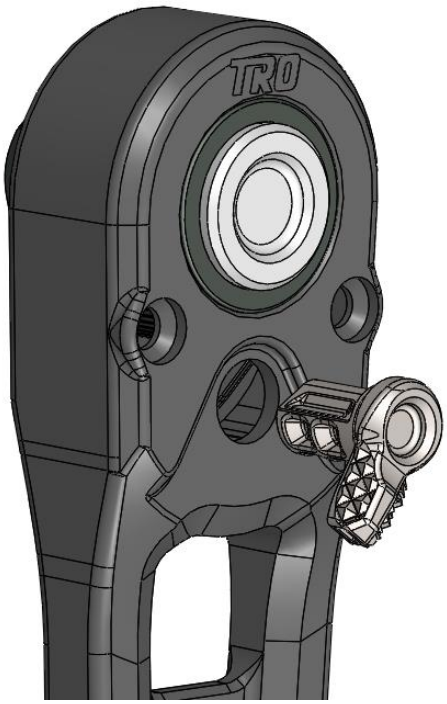


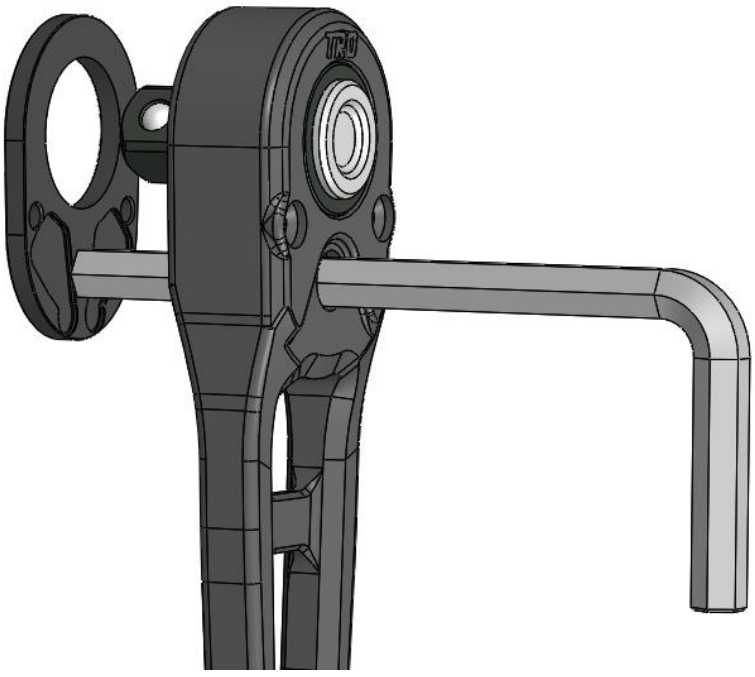
3. Remove the cover plate by applying pressure to the rear face of the gear - the gear will press the cover plate out of it's recess.





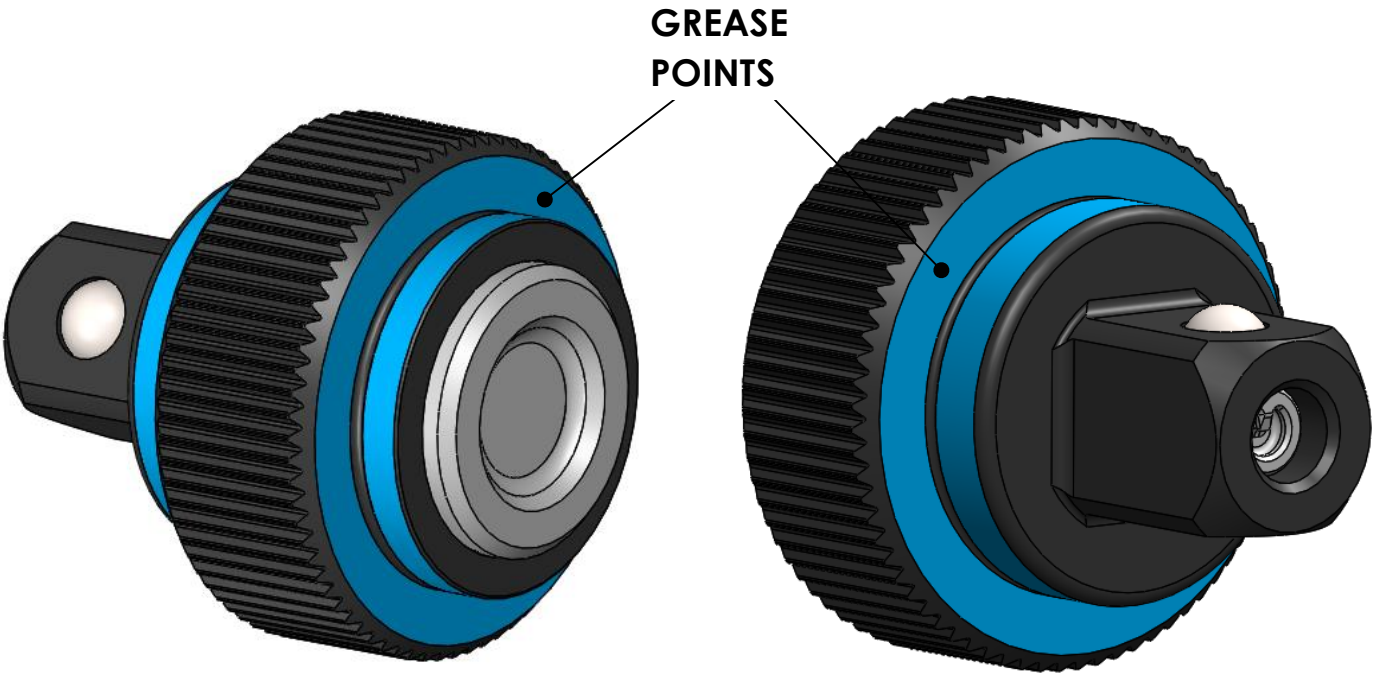
4. For tight fitting cover plates, remove the switch and apply force to the cover plate through the switch screw bore, using a soft tool 5 mm in diameter or smaller. Scratches to this area of the cover plate will not affect ratchet performance.





5. With the cover plate removed, the gear can be removed from the ratchet without interfering with the pawls, springs or switch. Clean the gear, ratchet body and cover plate with a microfiber cloth.

6. Apply an **extremely** thin film of grease to the surfaces of the gear highlighted below **ONLY**. Wipe away any excess lubricant from the gear teeth, ratchet body and cover plate.



IMPORTANT:

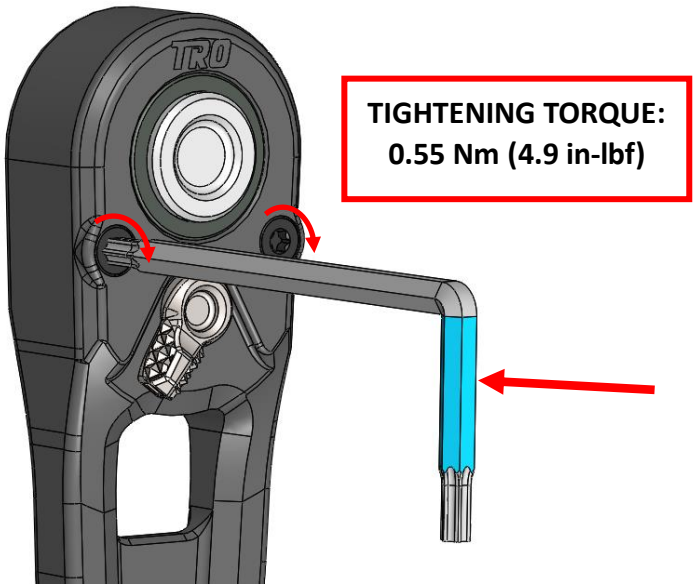
NO GREASE SHOULD BE APPLIED TO THE GEAR TEETH OR PAWLS.

Any high viscosity oil or grease in these areas could lead to gear mechanism damage as a result of improper gear mesh.

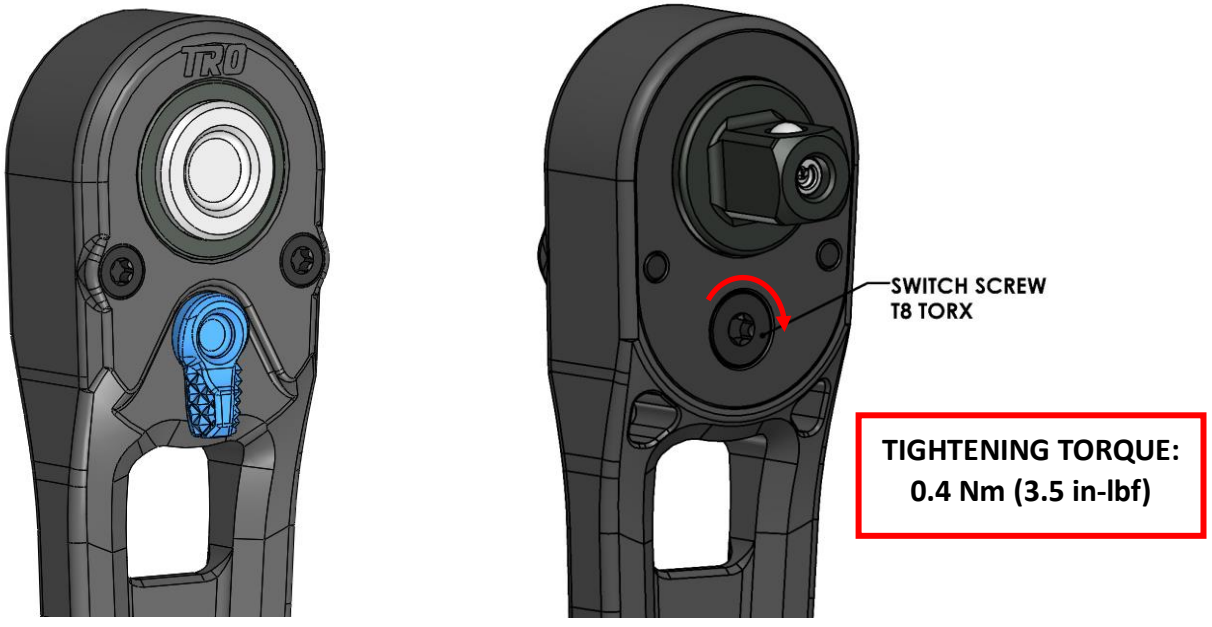
REASSEMBLY PROCEDURE

1. Reinstall components in the reverse order of disassembly. For very tight fitting cover plates, a wood or plastic block may be used to press it into place using body weight. Protect the ratchet by performing this procedure on a soft surface.

2. Install each cover plate screw by first rotating them counter-clockwise until they “drop” into the first thread; this ensures they are not cross threaded. Tighten screws using a T10 Torx L-key. Using light force at the highlighted portion of the L-key will achieve sufficient torque.



3. Using one hand to hold the switch stationary, tighten the switch screw using a T8 Torx L-key. Lightly tighten the screw using the same method as Step #2.



LUBRICANT SELECTION

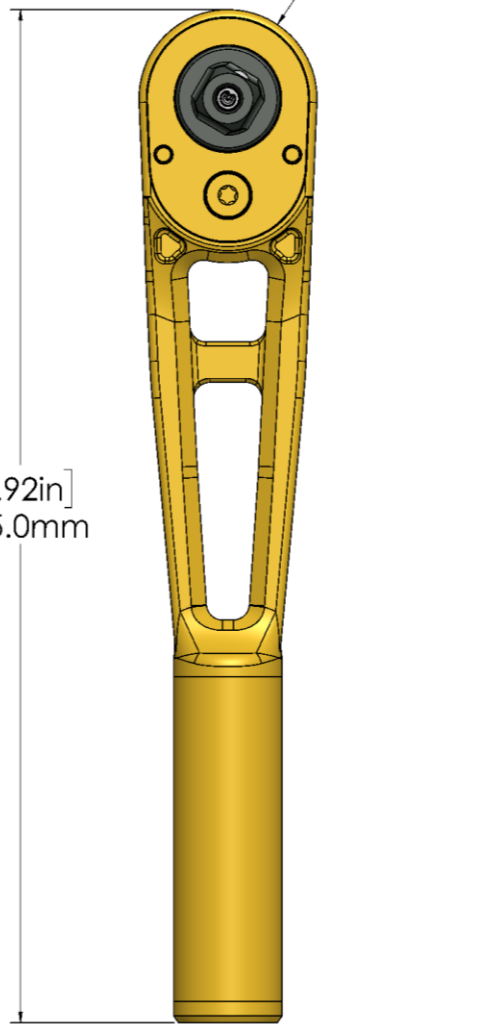
Greases will noticeably increase the ratchet back drag (the stiffness or resistance to motion of the mechanism). This drag is amplified by the very small clearances in the gear housing which in some areas is less than 0.05mm (.002”).

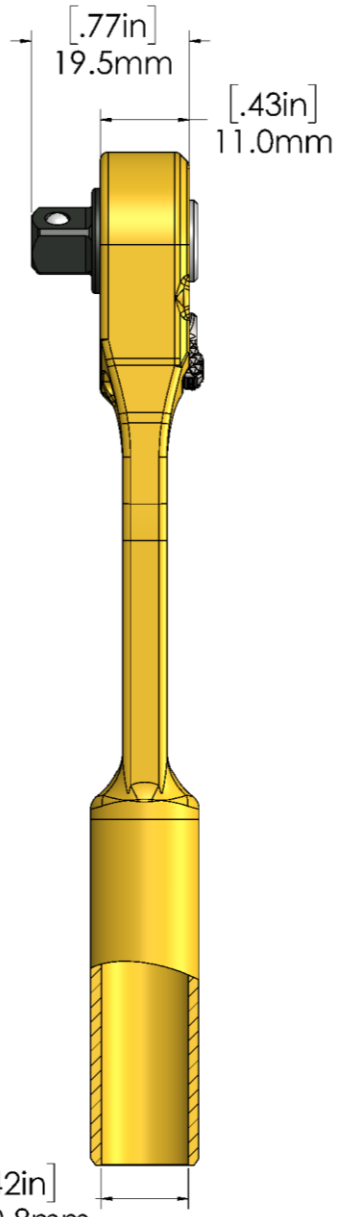
This table shows results from testing greases in the same ratchet and gear mechanism:

	Back drag (oz-in)			
Grease	**Min**	**Max**	**Avg**	**NLGI**
No Grease	0.3	0.55	0.425	
Krytox XP 2A1	0.45	0.65	0.55	
MobilGrease 28	0.5	0.7	0.6	1.5
STA LUBE Assembly Lube SL3333	0.5	0.7	0.6	0.5
Lucas Oil Semi Synthetic Assembly Lube	0.5	0.7	0.6	
Mobilith SHC 100	0.5	0.8	0.65	2
Krytox GPL205	0.5	0.8	0.65	2
Bel Ray Waterproof	0.5	0.8	0.65	2
STA LUBE CV Joint Grease SL3174	0.5	0.8	0.65	1.5
Finish Line Premium	0.8	0.9	0.85	2

If ratchet lubrication is desired, it is advised to use grease with either NGLI 1.5 or NGLI 2 (normal consistency grease which avoids migrating) consistency, or an extremely thin instrument oil which will not impede pawl movement or teeth engagement.

An extreme pressure, Molybdenum Disulfide grease will give the best protection against wear. PTFE based greases such as Krytox will give the lowest increase in back drag.





PROVISION FOR [.42in]
M12 X 1.25 TAP ∅10.8mm

SPECIFICATIONS:

MASS: 51g (1.8 OZ)

MAX TORQUE: 73 FT-LBS (99 Nm)

BACKDRAG: 0.6 OZ-IN (43 g-cm)

HARDNESS DLC: 2800 VICKERS
TiN: 2600 VICKERS

COEF. FRICTION DLC: 0.07 - 0.11
TiN: 0.3 - 0.6

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TITLE: SUPERLEGGERA RATCHET OVERVIEW

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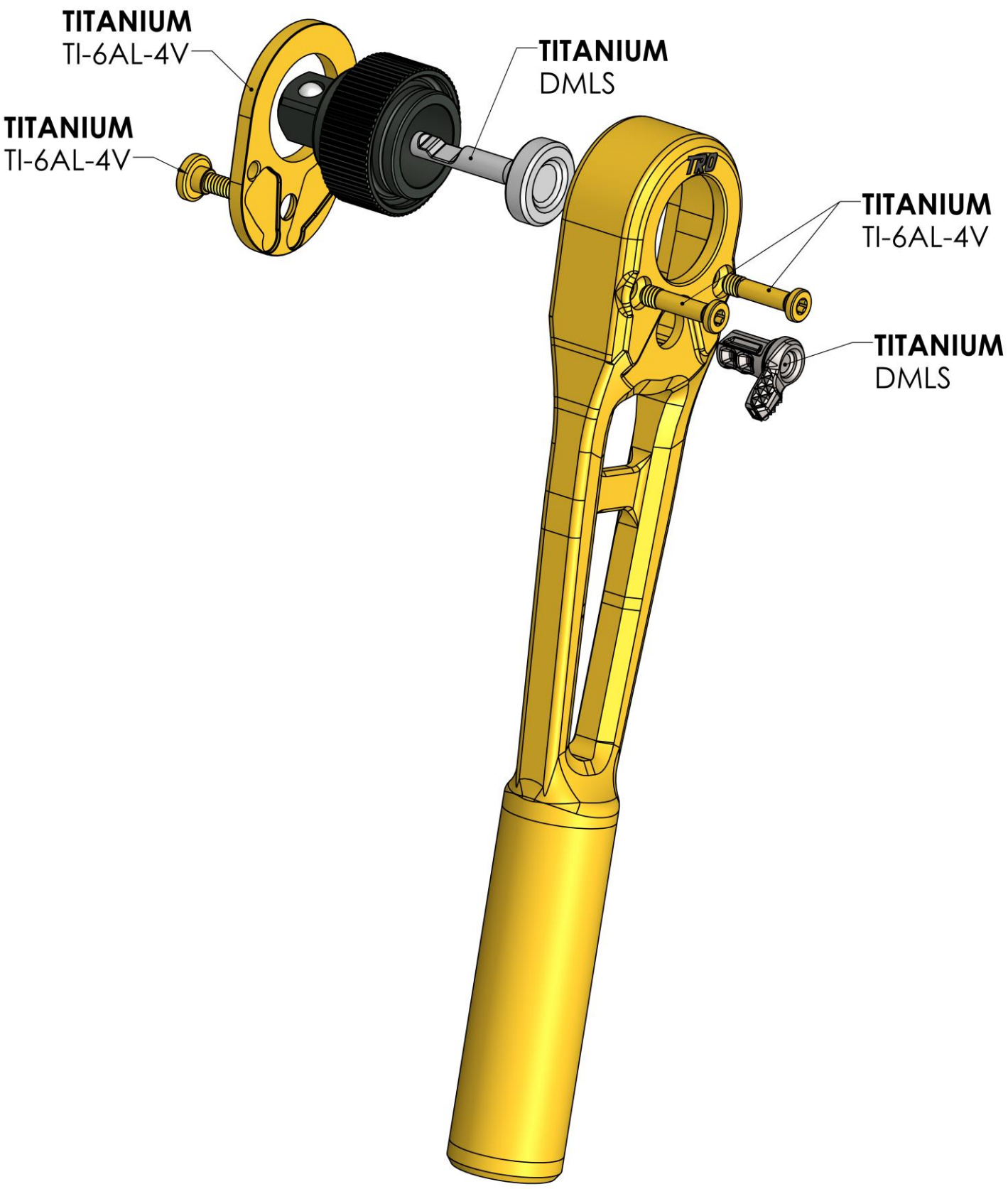
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