

**TORQUE WRENCH CALIBRATOR (TWC)  
TWC 400 & TWC 1500**





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## SAFETY

- The TWC is heavy. Take care when installing.
- Ensure the operating area is capable of taking the weight of the TWC.
- Trapping hazard - Keep hands and loose clothing away from the torque wrench during use.
- To avoid damage to the torque wrench under test do not exceed the wrench set torque value.
- To avoid damage to the transducer do not exceed the maximum capacity.
- Never exceed the maximum torque capacity of the TWC.
- Do not operate without a torque measurement system connected and working.
- The TWC is designed for testing torque tools, do not use for other purposes.

# INTRODUCTION

This manual covers items 60311 & 60314 only.

## Parts Included

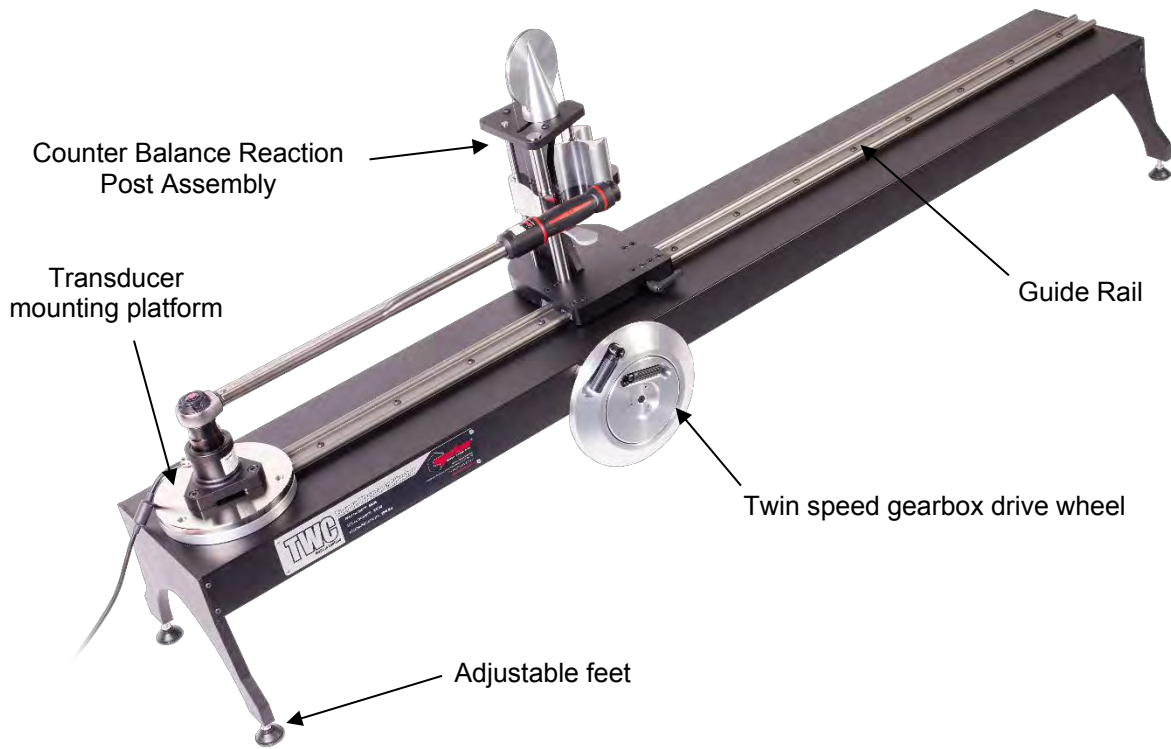
Parts Included	Part Number	Quantity
TWC 400 / 1500	60311 / 60314	1
TWC Counter Balance Reaction Post Assembly	62272	1
Operators Manual	34446	1
Maintenance Grease Kit	60325	1

## Accessories

Accessories Available	Part Number
Norbar torque measurement system	Consult Norbar
Static Transducer Support Kit	60318
Short Length Reaction Post	60319
Quick Release FMT Kit	60322
Pro-Test / Static Torque Block Kit	60323
Hexagon Drive Adapter Kit	60324
Square Drive adapter 1”M to 3/4” F	29214
Square Drive adapter 1”M to 1/2” F	29215
Square Drive adapter 1”M to 3/8” F	29216
Square Drive adapter 1”M to 1/4” F	29217
Maintenance Grease Kit	60325

# FEATURES AND FUNCTIONS

- Allows torque wrenches to be calibrated or tested in accordance with ISO 6789:2017, BS EN 26789:2003 and American military standard GGG-W-686.
- Counter Balance Reaction Post Assembly removes any parasitic forces.
- Twin speed gearbox drive wheel allows for both fast loading of the torque wrench and a slower more precise loading.



**FIGURE 1 – Features**

# SPECIFICATIONS

Specification		TWC 400	TWC 1500
Maximum Output Torque:		400 N·m / 295 lbf·ft	1500 N·m / 1100 lbf·ft
Wrench Length (Torque Radius):	Minimum	135mm	135mm
	Maximum	750mm	1500mm
Wrench Orientation:		Horizontal	Horizontal
Calibration Direction:		Clockwise and Anti-Clockwise	Clockwise and Anti-Clockwise
Operating Temperature:		0°C - 50°C	0°C - 50°C
Dimensions (Maximum):	Length	1010mm	1760mm
	Height	610mm	610mm
	Depth	370mm	370mm
Weight:		35 kg	40 kg

# INSTALLATION



**WARNING: THE TWC IS HEAVY UP TO 40KG. ALWAYS USE TWO PEOPLE WHEN LIFTING THE TWC.**

## Location



**FIGURE 2 – Locating the TWC**

- 1) Ensure location can cope with weight of loader.
- 2) Locate the TWC on a level surface at a comfortable working height.
- 3) Adjust the levelling feet to ensure that the TWC sits level.



**FIGURE 3 – Adjusting the TWC Feet**

## Counter Balance Reaction Post Installation

Unpack the counter balance reaction and assemble the weight carriage over the balance wheel.



**FIGURE 4 – Counter Balance Reaction Assembly**

Slide the “Counter Balance Reaction Post Assembly” on to the reaction rail.



**FIGURE 5 – Sliding the Counter Balance Reaction Assembly onto the Reaction Rail**

Set the locking lever to engage positively when applied. This is done by pulling the lever towards you whilst at the same time winding in the screw with an appropriate screwdriver. When at top dead centre, the lever should start to engage to lock the reaction posts position. Turn the lever to the right and you should start to feel some resistance as the lock is engaged. Before continuing check the reaction post assembly is securely fixed in position.

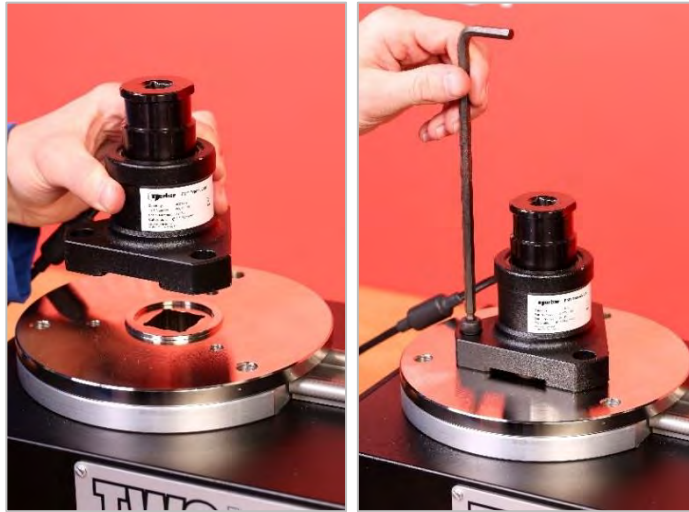


**FIGURE 6 – Adjusting and Setting the Locking Lever**

# OPERATING INSTRUCTIONS

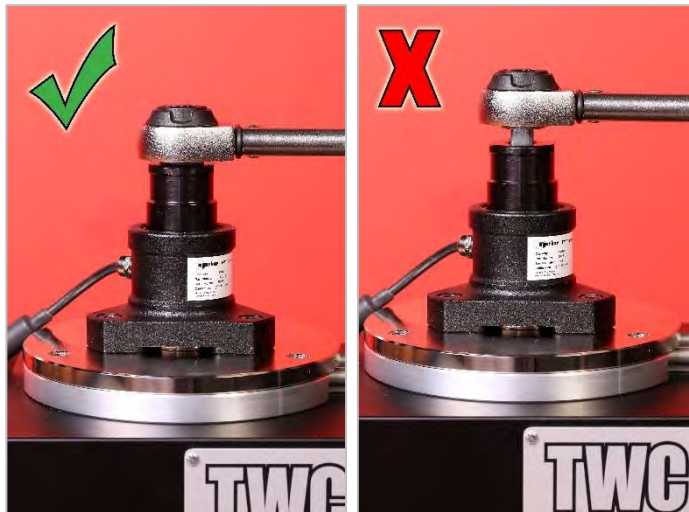
## Locating a Torque Wrench

Select the correct capacity transducer and secure to the platform with socket cap screws.



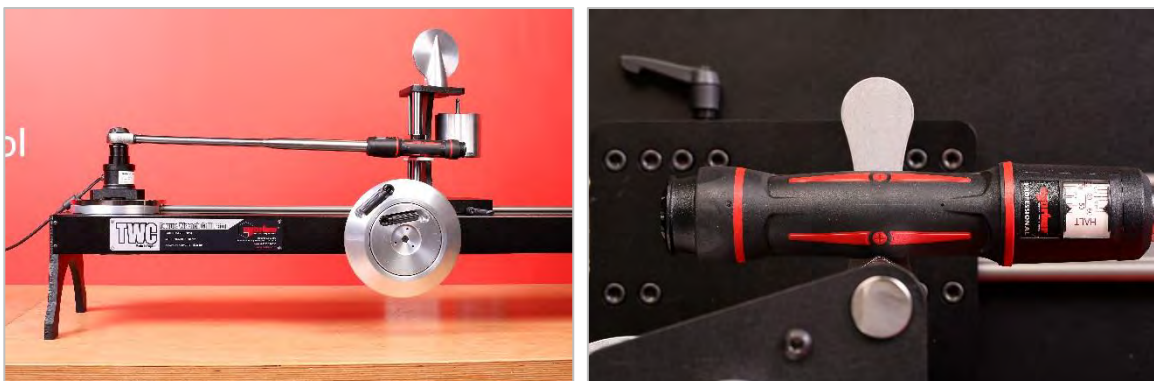
**FIGURE 7 – Attaching a Transducer**

Ensure the transducer has been fitted with the correct adaptor and place the torque wrench drive into the transducer. Ensure that the torque wrench drive is fully engaged (see figure 8).



**FIGURE 8 – Attaching a Torque Wrench**

Set the reaction post position on the reaction arm so it is in the middle of the torque wrench handle (see figure 9).



**FIGURE 9 – Locating a Torque Wrench**

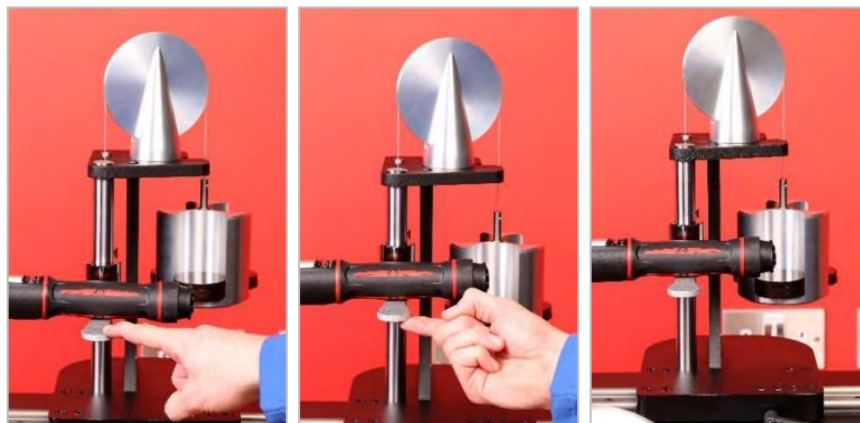


Counter balance the wrench by adding weights to the carriage until the wrench is sat horizontally.



**FIGURE 10 – Adding Weights to the Counter Balance Assembly**

If you force the reaction balancer up or down at the handle end the wrench should return to a true natural horizontal position.



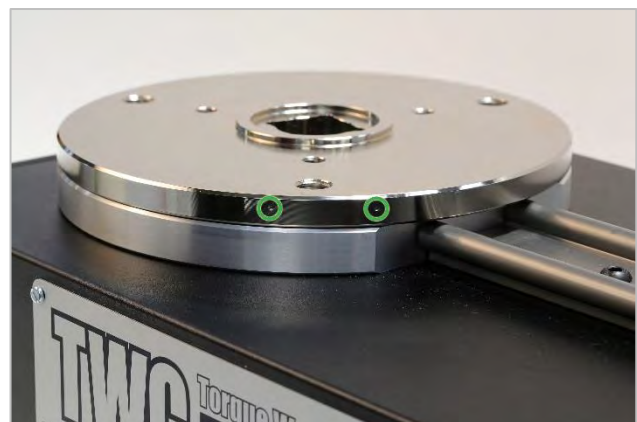
**FIGURE 11 – Ensuring the Torque Wrench is in a Horizontal Position**

Ensure the TWC is at the extreme minimum of start position (see figure 13). The two dots to the edge of the bearing housing denote the full travel.

To find this, wind the large drive handle anti-clockwise until stop (see figure 12).



**FIGURE 12 – Adjusting the TWC to Minimum Position**



**FIGURE 13 – Extreme Minimum Position (Home Position)**

## Gear Box and Drive Wheels

To use the drive wheel, either the outer fast loading handle or inner slow loading handle needs to be pulled out of the recess (see figure 14). Once out the handles will lock into position.

To fold away, the handle must be pulled towards the user and angled away back into the seated position.



**FIGURE 14** – Unlocking the Drive Wheel Handle



**FIGURE 15** – Locking the Drive Wheel Handle



**WARNING:** THERE IS A POTENTIAL TRAPPING HAZARD IF BOTH HANDLES ARE IN THE “USE” POSITION.

(SEE FIGURE 16)



**FIGURE 16** – Trapping Hazard

## Handle Use

The two drive wheels offer two speeds of operation.

- The outer handle offers a fast motion.
- The inner handle offers a slower motion, reducing the outer by 4.5 times. Allowing for more precise adjustments.



**FIGURE 17** – Using the Outer Handle



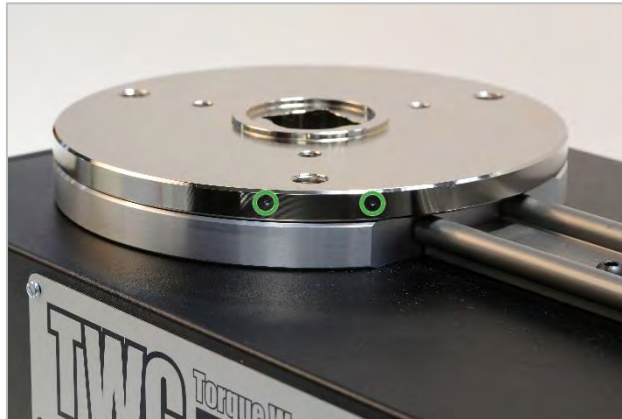
**FIGURE 18** – Using the Inner Handle

# MAINTENANCE

The TWC is engineered to be a low maintenance tool. Under normal operation maintenance is not required. However, at 6 monthly intervals or after 25,000 applications it is prudent to grease the leadscrew located within the box section.

## Greasing Procedure

- 1) Ensure the TWC drive wheel is in home position.



**FIGURE 19 – Extreme Minimum Position (Home Position)**

- 2) Unscrew the button head cap screw in line with the drive wheel.



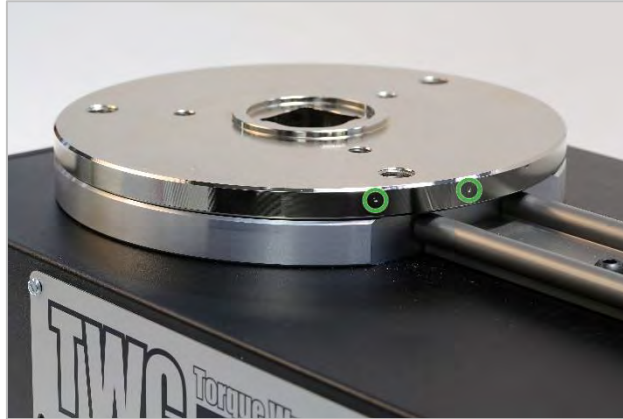
**FIGURE 20 – Removing Button Head Cap Screw**

- 3) Inject 50% of the grease into the hole using a syringe.



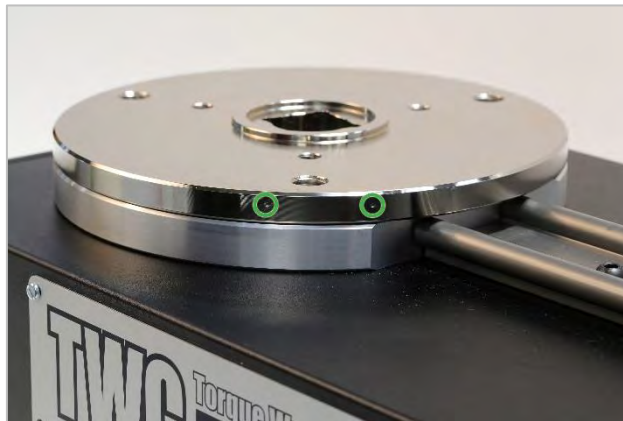
**FIGURE 21 – Applying Grease**

- 4) Wind the drive wheel to the extreme opposite of its current position as depicted in figure 22.



**FIGURE 22 – Extreme Maximum Position**

- 5) Inject the remaining grease.
- 6) Return TWC to the home position.



**FIGURE 23 – Extreme Minimum Position  
(Home Position)**

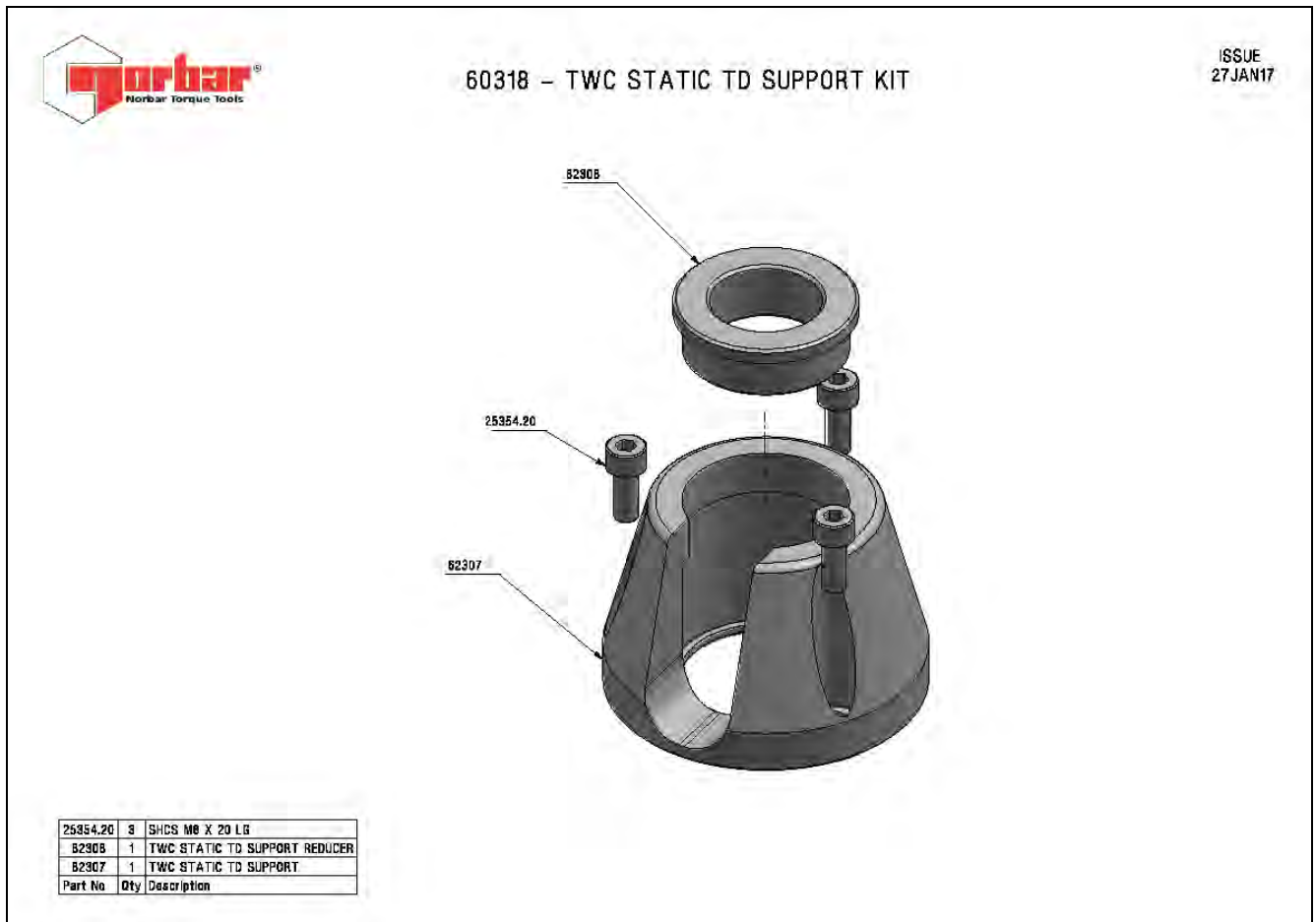
When cleaning the TWC do not use abrasive or solvent based cleaners.

For maintenance and recalibration of the instrument and transducer refer to the operator's manuals.

# ACCESSORY INSTRUCTIONS

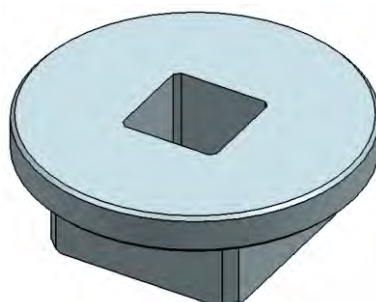
## Static Transducer Support Kit - 60318

- Secure the support upright to the TWC mounting platform using the socket cap screws provided.
- Static transducers are loaded from the top and the transducer's male square drive engages into the 1" female square drive in the TWC mounting plate.
- In some instances, a square drive adapter may be required. Further details below.
- When smaller bodied static transducers are needed, the reducer is used.



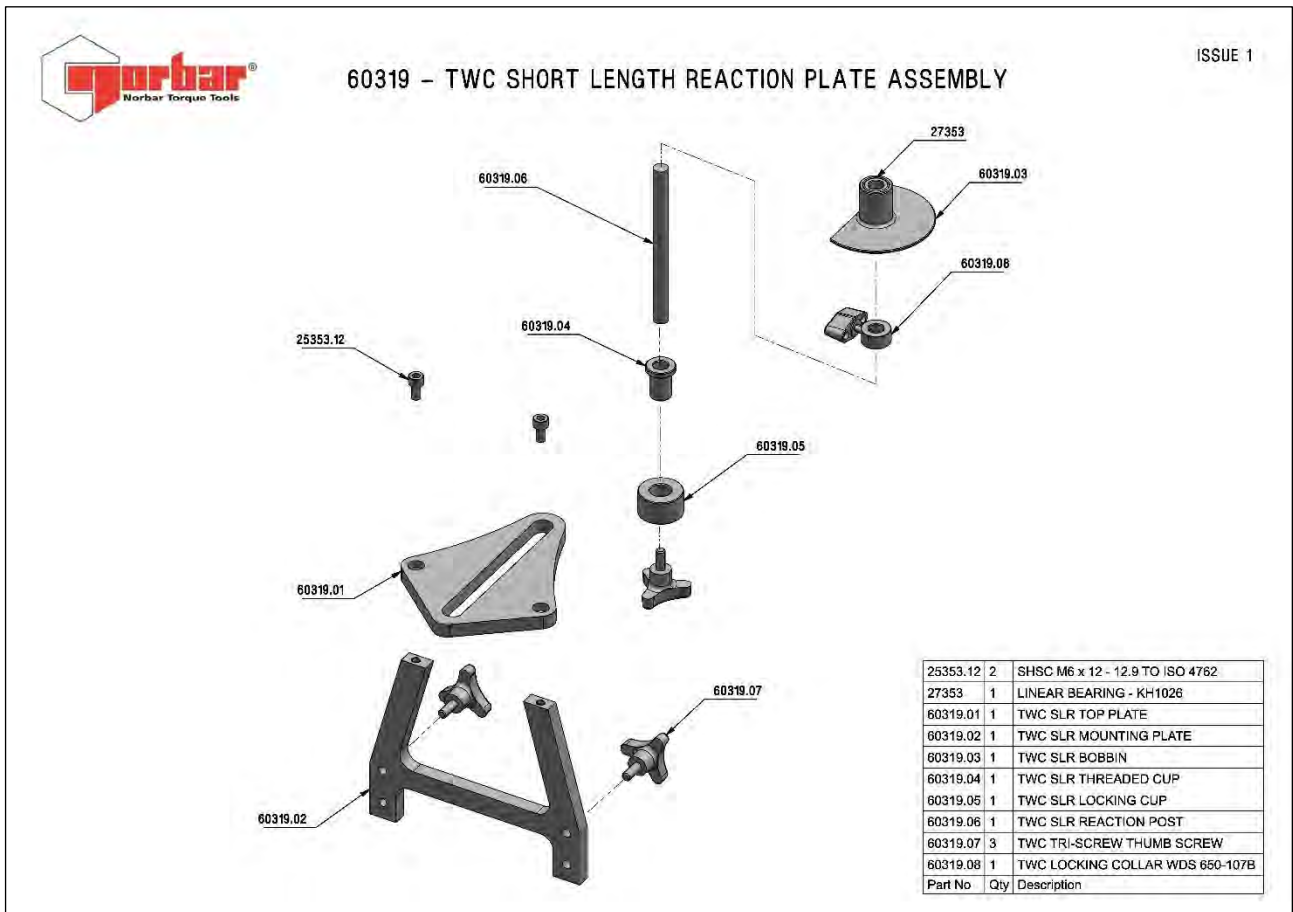
## Square Adapters – 29214, 29215, 29216, 29217

- The square drive adapters are all 1" male to a range of female sizes.
- The manufacturing tolerances have been significantly reduced on these components to ensure a close fit and reduced uncertainties.



## Short Length Reaction Post - 60319

- To calibrate small torque wrenches the use of the “Short Length Reaction Post” maybe required.
- The reaction post assembly simply bolts to the end face of the TWC using the M6 thumb screws provided.
- There are two mounting positions which depend on which style of transducer is being used.

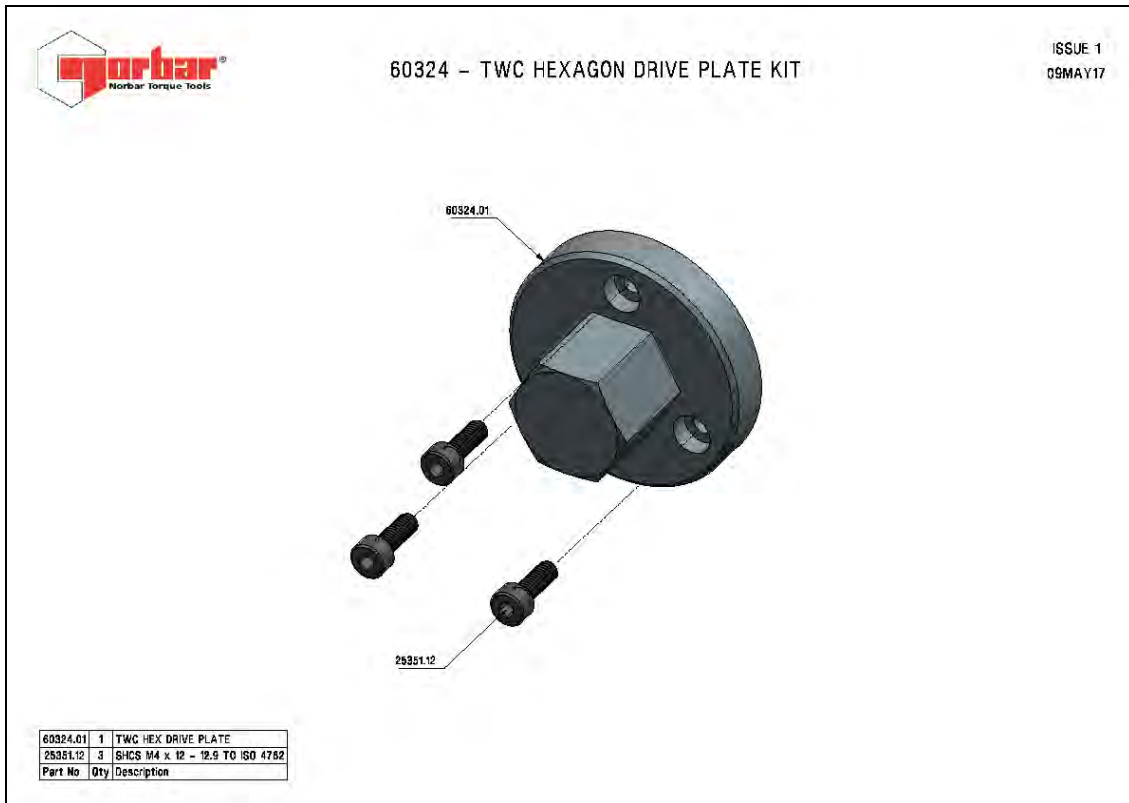


# Hexagon Adapter Kit - 60324

The adapter simply bolts to the front of the small drive wheel.  
Ensure that all drive wheel handles are folded down to avoid striking the user.



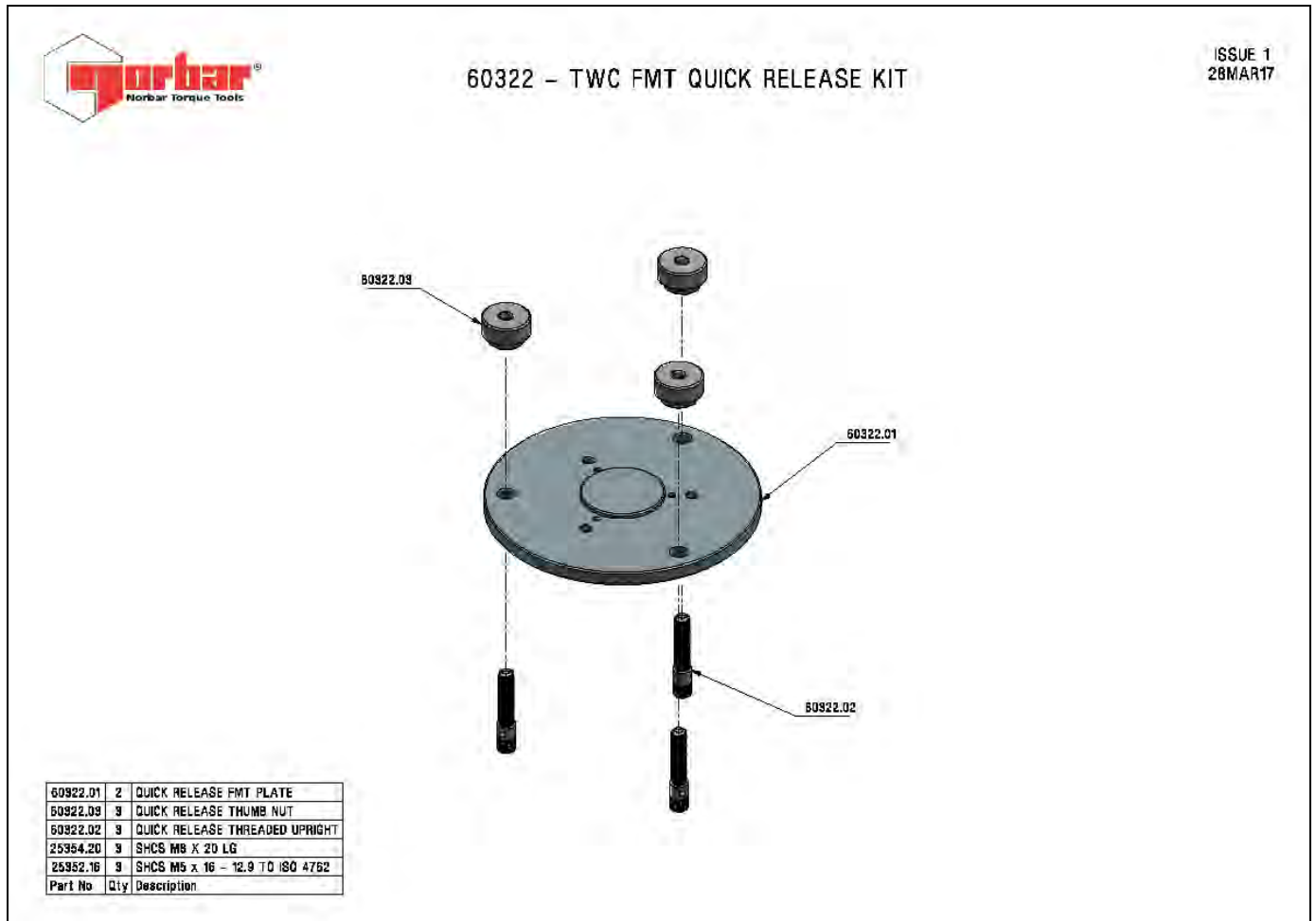
**WARNING: ENSURE BOTH HANDLES ARE BACK IN THE SEATED POSITION BEFORE USE.**



## Quick Release FMT Kit – 60322

The quick release kit allows for quick exchange of FMT transducers.

- Remove all transducers from the TWC.
- Insert the three threaded screws upright in to the TWC mounting platform. Use cross holes to tighten to a pinch.
- Bolt any FMT selection to the two quick release plates.
- Drop the desired transducer and QRP over the top of the uprights and secure with the QR thumb nuts.



## Pro-Test and Static Torque Block Adapter Kit - 60323

Norbar torque transducer to suit capacity of test with suitable torque display instrument.



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