

**JOINT SIMULATORS  
FOR USE WITH FMT & TST**



# CONTENTS

<b>Introduction</b>	<b>2</b>
<b>Features and Functions</b>	<b>2</b>
<b>Set Up</b>	<b>3</b>
1. FMT / TST	3
2. Joint Simulator	3
3. Tool	3
<b>Operating Instructions</b>	<b>3</b>
Tightening	3
Releasing	3
<b>Specifications</b>	<b>4</b>
<b>Maintenance</b>	<b>5</b>
Service / Repair	5
Cleaning	5
Disposal (Recycling Considerations)	5

# INTRODUCTION

The joint simulators act as a repeatable bolted joint to enable the consistency of non-impact power torque tools to be measured. This manual covers Norbar Joint Simulators that are designed to be used in conjunction with Norbar Flange Mount Transducers (FMT) and Norbar Torque Screwdriver Testers (TST).

Part numbers covered by this manual:

- 50539 Joint Simulator 2 N·m
- 50540 Joint Simulator 10 N·m
- 50541 Joint Simulator 25 N·m
- 50692 Joint Simulator 150 N·m
- 50819 Joint Simulator 400 N·m

The joint simulators use springs to control the joint rate. The springs are designed to cope with repetitive testing at rated capacity, so the performance remains consistent over the product life.

Joint Simulator Part Number	Capacity	Compatible TST	Compatible FMT (N·m)	Compatible FMT (lbf·in / lbf·ft)	Adaptor included
50539	2 N·m / 20 lbf·in	TST 2 (Part 43212)	2 N·m (Part 50671.IND or 50671.LOG)	20 lbf·in (Part 50677.IND or 50677.LOG)	¼" HEX – ¼" HEX Male/Male (Part 28902)
50540	10 N·m / 100 lbf·in	TST 10 (Part 43213)	10 N·m (Part 50672.IND or 50672.LOG)	100 lbf·in (Part 50678.IND or 50678.LOG)	¼" HEX – ¼" HEX Male/Male (Part 28902)
50541	25 N·m / 250 lbf·in	TST 25 (Part 43214)	25 N·m (Part 50673.IND or 50673.LOG)	250 lbf·in (Part 50679.IND or 50679.LOG)	¼" HEX – ¼" HEX Male/Male (Part 28902)
50692	150 N·m / 100 lbf·ft	-	150 N·m (Part 50674.IND or 50674.LOG)	100 lbf·ft (Part 50680.IND or 50680.LOG)	-
50819	400 N·m / 250 lbf·ft	-	400 N·m (Part 50675.IND or 50675.LOG)	250 lbf·ft (Part 50681.IND or 50681.LOG)	-

# FEATURES AND FUNCTIONS

- A consistent joint for power tool testing.
- Directly compatible with Norbar FMT & TST products.
- For clockwise testing of power tools.

## SET UP

**NOTE:** If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

### 1. FMT / TST

Secure FMT / TST transducer to a flat surface as indicated in the transducer manual.  
Set instrument measurement mode as required (see instrument manual).

### 2. Joint Simulator

Position joint simulator onto FMT / TST transducer.

Ensure the hex / bi-square drive is fully located on transducer.

Attach joint simulator to transducer:

- On 2 N·m / 10 N·m / 25 N·m – Screw joint simulator (shown right).
- On 150 N·m / 400 N·m – Push joint simulator over rubber 'O' ring.



### 3. Tool

Connect up power tool as detailed in power tool manual.



**WARNING: DO NOT USE IMPACT TOOLS.**

Ensure torque setting on power tool is not above maximum rating for transducer.

Ensure torque setting on power tool is not above maximum rating for joint simulator.

Fit required adapter(s) to fix power tool to joint simulator.

## OPERATING INSTRUCTIONS

**NOTE:** Exceeding maximum torque will result in permanent damage to the spring.

**Keep bolt and washers greased with graphite loaded grease. See Maintenance section.**

### Tightening

Run tool in to joint simulator in CLOCKWISE direction.

Read torque value from measurement instrument.

### Releasing

To release joint simulator rotate the socket cap screw in an ANTI-CLOCKWISE direction.

Reset measurement instrument as required.

# SPECIFICATIONS

Part Number	Capacity	Dimensions (without adaptor)	Weight (with adaptor)	Socket cap screw A/F	Interface to transducer
50539	2 N·m (20 lbf·in)	74mm (H) x 34mm(Ø)	0.25 Kg	¼" hex	¼" hex
50540	10 N·m (100 lbf·in)	74mm (H) x 34mm(Ø)	0.27 Kg	¼" hex	¼" hex
50541	25 N·m (250 lbf·in)	74mm (H) x 34mm(Ø)	0.29 Kg	¼" hex	¼" hex
50692	150 N·m (100 lbf·ft)	128mm (H) x 47 (Ø)	1.09 Kg	14 mm	22 BI-Square
50819	400 N·m (250 lbf·ft)	145 (H) x 55 (Ø)	1.77 Kg	17 mm	22 BI-Square

Operating Temperature Range: 0°C to +50°C.

Storage Temperature Range: -20°C to +70°C.

Maximum Operating Humidity: 85% Relative Humidity @30°C.

Environment: Indoor use within a light industrial environment.

**NOTE: Due to continuous improvement all specifications are subject to change without prior notice.**

# MAINTENANCE

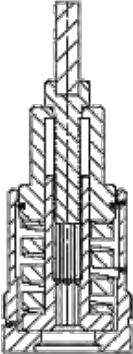
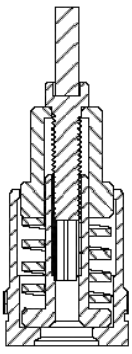
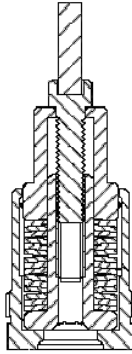
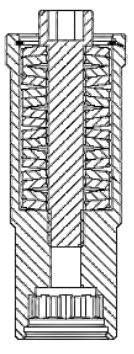
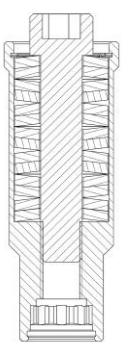
**NOTE:** Always complete maintenance tasks on a clean work area.  
Always wear suitable gloves for your protection.

## Service / Repair

To service or repair the joint simulator complete the following steps:

- Remove joint simulator from transducer:
  - On 2 N·m / 10 N·m / 25 N·m – Unscrew joint simulator.
  - On 150 N·m – Pull joint simulator.
- Unscrew socket cap screw in an anticlockwise direction.

The socket cap screw is the item most prone to wear. It is recommended to grease the socket cap screw regularly with Rocol M204 G Graphite grease or Rocol Tufgear 85. Replace socket cap screw when worn.

	Joint Simulator Part Number				
	50539	50540	50541	50692	50819
Cutaway of joint simulator					
Socket cap screw	25236.20 ( <sup>5</sup> / <sub>16</sub> " UNC x 1 ¼" long)			25357.80 (M14 x 80mm long)	25360.100 (M20 x 100mm long)
Spring(s)	28087 (1 off)	28088 (1 off)	28089 (15 off)	28095 (16 off)	28140 (14 off)

- To access the spring(s):
  - On 2 N·m / 10 N·m / 25 N·m – Pull off the top sleeve, this is held using a rubber seal.
  - On 150 N·m / 400 N·m – Remove internal retaining ring with suitable tool (e.g. Flat blade screwdriver).

**TIP:** It is important to note the orientation of the spring(s) ready for reassembly.

- Clean spring(s) or replace with new spring(s). On 25 N·m, 150 N·m & 400 N·m joint simulators grease springs with Rocol M204 G Graphite grease or Rocol Tufgear 85.
- Replace top sleeve or internal retaining ring.
- Grease and replace socket cap screw.

## Cleaning

Do not use abrasives or solvent based cleaners.

## Disposal (Recycling Considerations)

Component	Material
Joint Simulator Housing	Steel
Socket Cap Screw	Steel

For up to date disposal information, see our web site [www.norbar.com](http://www.norbar.com).



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