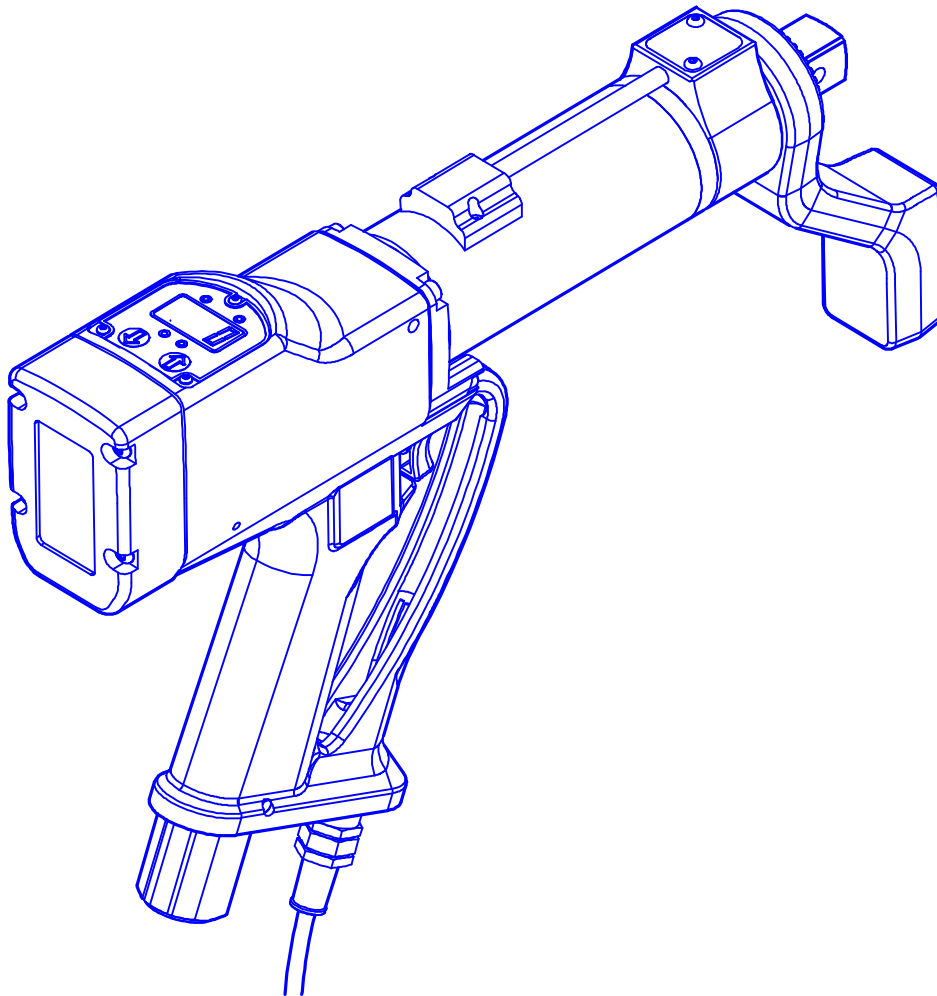




**PNEUTORQUE<sup>®</sup>**  
**PTM-IC SERIES**  
**INTERNAL CONTROL SHUT-OFF TOOLS**  
**OPERATORS HANDBOOK (PART NUMBER 34282) Issue 4**  
(ENGLISH)





## CONTENTS

	<u>PAGE</u>
<b>Models Covered by Manual</b>	<b>1</b>
<b>Safety</b>	<b>2</b>
<b>Introduction</b>	<b>3</b>
<b>Features and Functions</b>	<b>4</b>
<b>Set Up Instructions</b>	<b>4</b>
<b>Operating Instructions</b>	<b>10</b>
<b>Maintenance</b>	<b>12</b>
<b>Specification</b>	<b>14</b>
<b>Declaration of Conformity</b>	<b>15</b>
<b>Trouble Shooting</b>	<b>16</b>
<b>Glossary of Terms</b>	<b>16</b>

**MODEL NUMBERS COVERED BY MANUAL:-** \_\_\_\_\_

PART NUMBER	DIRECTION	MODEL	CAPACITY	TOOL TYPE
18058.F06	Forward (Clockwise) only.	PTM-52-600-IC	600 N.m	Shuts off air supply at a user set torque
18058.B06	Bi-directional.			
18059.F06	Forward (Clockwise) only.	PTM-52-1000-IC	1000 N.m	
18059.B06	Bi-directional.			

The '06' suffix in the part number indicates a  $\frac{3}{4}$ " A/F drive square size.

## SAFETY

**IMPORTANT: DO NOT OPERATE THE TOOL BEFORE READING THESE INSTRUCTIONS. FAILURE TO DO SO MAY RESULT IN PERSONAL INJURY OR DAMAGE TO THE TOOL.**

This tool is intended for use with threaded fasteners, any other use is not recommended.

The use of ear protectors is recommended.

Do not use tool in potentially explosive atmosphere as these tools contain grease, which may cause an explosion hazard in the presence of pure oxygen. These tools also contain aluminium alloy components which may cause a hazard in certain explosive environments.

Unexpected tool movement due to reaction forces or breakage of inserted tool or reaction bar may cause injuries.

Isolate tool from all energy sources before changing or adjusting the inserted tool.



There is a risk of crushing between the reaction bar and work piece.

Keep hands away from reaction bar.

Keep hands away from tool output.

Keep loose clothing, hair, etc. from being caught in any rotating part of the tool.

These tools require a reaction bar. See section on Torque Reaction.

Ensure all hoses are correctly fitted, before switching on the mains air supply, to avoid the risk of injury by whipping air hoses.

Unexpected direction of inserted tool movement can cause a hazardous situation.

Use only sockets and adaptors which are in good condition and are intended for use with power tools.

Pneutorque® Wrenches are non impacting, torque controlled bolt tightening tools and must always be operated with the following:-

- Clean dry air supply with a minimum flow of 19 litres/sec (40 CFM).
- Lubro Control Unit or similar Filter, Regulator and optional Lubricator Unit 1/2" Bore (12 mm).
- Impact or high quality sockets.
- Reaction Arm.

## INTRODUCTION

The Pneutorque® PTM series are air driven power tools designed for applying torque to threaded fasteners. These models are available in 3 types:

### Internal Torque Control Shut off

A target value is set on the tool. When the measured torque reaches this target the tool's control system shuts off the air supply for accurate and repeatable torque applications.

### External Torque Control with Internal Shut off

The tool is controlled from an external controller. When the measured torque reaches target the external controller sends a signal to the tool to operate the internal shut off device. This tool is not covered by this handbook.

### Stall Tool

The tool is controlled by setting the air pressure to the tool against an air graph. The air pressure setting controls the stall torque. This tool is not covered by this handbook.

### **PARTS INCLUDED:-** \_\_\_\_\_

PART NUMBER	DESCRIPTION	QUANTITY
180**.*06	Pneutorque®	1
18646	Cranked Reaction Plate	1
18747	Lifting Bracket Hanger	1
26588	Reaction Plate Retaining Circlip	1
34282	Operators Handbook	1
60251	Power Supply	1
60252	Power Supply Extension Lead	1

### **ACCESSORIES:-** \_\_\_\_\_

PART NUMBER	DESCRIPTION
16036	Lubro Control Unit
18298	Reaction Plate for use with 18558
18544	¾" Drive Square
18545	1" Drive Square
18558	Reaction Plate Adaptor (must be used with 18298)
18576	Single-sided Reaction Plate
18590	Double-sided Reaction Plate
18591	Silencer
18594.006	6" Nose Extension
18594.009	9" Nose Extension
18594.012	12" Nose Extension

## FEATURES AND FUNCTIONS

### REPLACEABLE DRIVE SQUARE

All tools are fitted with a ¾" (19mm) drive square that can easily be replaced. A 1" drive square is also available as an accessory.

### TORQUE TRANSDUCER

All tools are fitted with an integrated torque transducer. The transducer forms part of the tool and cannot be removed. The applied torque is accurately shown on the display mounted on the top of the handle. The display captures the peak torque and holds this value for a user defined period before refreshing. The tool is set to read both clockwise and counter-clockwise torque (if fitted) and can be displayed in Newton metres (N.m) or pound force feet (lbf.ft.).

### TRIGGER

The trigger controls the flow of air. The more the trigger is pressed the more air flows into the tool. This allows for slow positioning of socket and reaction plate. Once positioning is complete, the trigger must be fully depressed for correct torque application.

### CLOCKWISE / COUNTER-CLOCKWISE SELECTOR

Tools fitted with this option can be used for releasing bolts as well as tightening.

### HANGER

The hanger can be used to suspend the tool from a balancer.

## SET UP INSTRUCTIONS

The set-up of this tool covers the following items:-

1. **TOOL CONNECTIONS.**
2. **TORQUE REACTION.**
3. **SETTING CLOCKWISE/COUNTER-CLOCKWISE OPERATION.**
4. **SETTING ELECTRONIC CONTROL VALVES.**

### 1. **TOOL CONNECTIONS** \_\_\_\_\_



**WARNING: TO AVOID HAZARD FROM WHIPPING AIR HOSES MAKE ALL CONNECTIONS TO THE TOOL BEFORE TURNING ON THE AIR SUPPLY.**

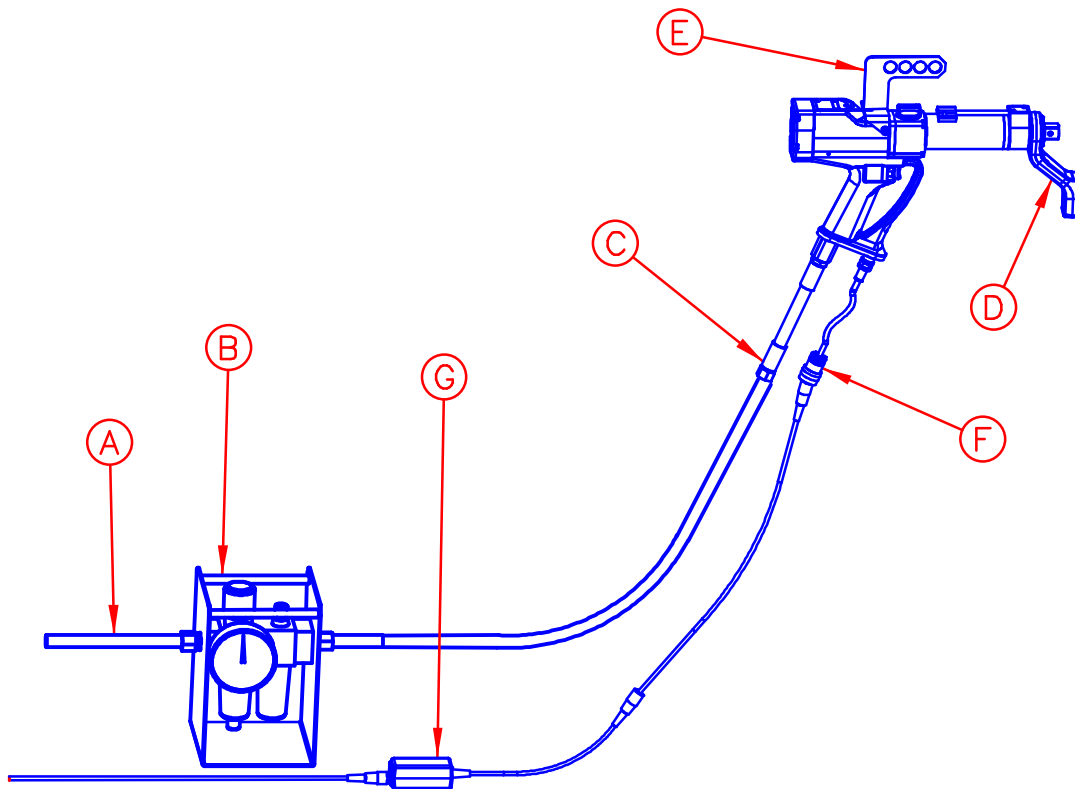
1.1 If the power cord has no plug fitted, wire as follows:

BROWN-LIVE

BLUE-NEUTRAL

GREEN / YELLOW-EARTH

1.2 Make sure all hoses are clean and free from dirt.



**Figure 1 – Tool set up.**

- 1.3 Connect the tool air inlet hose (C) to the outlet side of the lubro control unit (B) (not supplied), observing air flow direction arrows.

**TIP.** To connect the air inlet hose to a 1/2" bore hose use a 1/2" BSP Male/Male connector. A pair of spanners will be required to perform this task (22mm (7/8") A/F and 24mm (15/16") A/F open-ended spanners)

- 1.4 Connect the inlet side of the lubro control unit (B) to the mains air supply (A) using a minimum hose size of 1/2" bore (12mm). Avoid using 1/2" bore hoses of longer than 5 meters from the supply to the pressure regulator unit as this will reduce the performance of the tool.
- 1.5 Check the oil level in the lubricator and fill to the correct level as required. (see MAINTENANCE section)
- 1.6 Fit cranked reaction plate (D) over drive square to engage reaction splines.  
Fit circlip (Part number 26588) supplied.
- 1.7 Fit hanger (E) in the 2 holes on the side of the handle. The hanger is fitted using the 2 special screws provided and a 5mm hexagon wrench. Once fitted torque the screws to 5 N.m.

**TIP.** The hanger should be used only in conjunction with a suitable balancer. If the tool is to be used without a balancer or hanging device there is no need to fit the hanger to the tool.

- 1.8 Attach the power supply extension lead between the power tool lead (F) and the power supply (G).
- 1.9 Fit the mains power lead to the power supply (G) and check the display is illuminated.

## 2. TORQUE REACTION

When the Pneutorque® is in operation the reaction arm rotates in the opposite direction to the output drive square and must be allowed to rest squarely against a solid object or surface adjacent to the bolt to be tightened. (See figure 2).

**WARNING: ALWAYS KEEP HANDS CLEAR OF THE REACTION ARM WHEN THE TOOL IS IN USE OR SERIOUS INJURY MAY RESULT.**

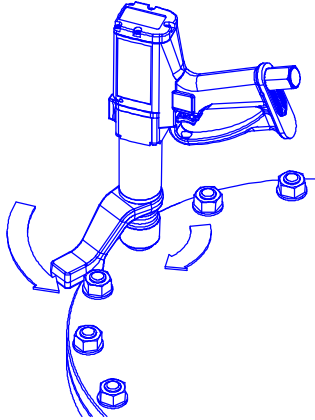


Figure 2a – Torque reaction (Clockwise).

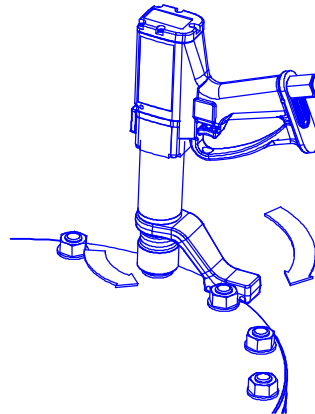


Figure 2b – Torque reaction (Counter-clockwise).  
Bi-directional tools only.



**WARNING: CARE MUST BE TAKEN TO ENSURE THAT THE REACTION ARM IS ONLY USED WITHIN THE LIMITATIONS SHOWN IN FIGURE 3.**

For special applications or where extra deep sockets must be used the standard arm may be extended but only within the limitations shown on Figure 3.

Alternative reaction devices are available.



**WARNING: FAILURE TO OBSERVE THE LIMITATIONS SHOWN IN FIGURE 3 WHEN MODIFYING STANDARD REACTION ARMS MAY RESULT IN PREMATURE WEAR OR DAMAGE TO THE TOOL.**

Standard drive square extensions MUST NOT be used as these will cause serious damage to the tool output drive. A range of nose extensions is available for applications where access is restricted; these are designed to support the final drive correctly.

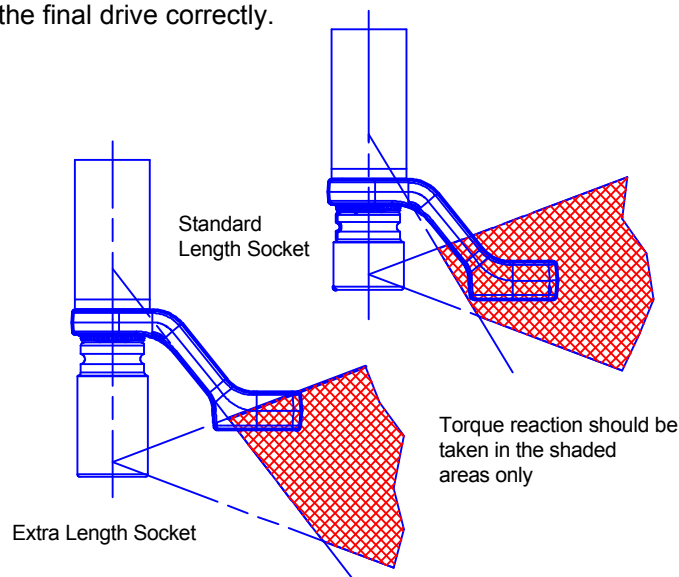
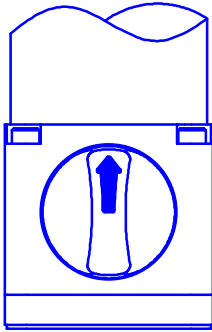


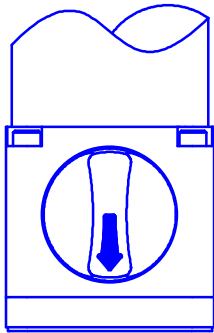
Figure 3 – Safe reaction window.

### 3. SETTING CLOCKWISE/COUNTER-CLOCKWISE OPERATION \_\_\_\_\_

**NOTE: THIS SETTING ONLY APPLIES TO BI-DIRECTIONAL TOOLS.**

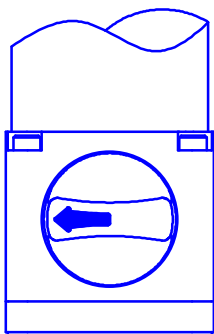


**Figure 4a – Clockwise operation.  
(Arrow towards drive square).**



**Figure 4b – Counter-clockwise.  
(Arrow away from drive square).**

**Tip:** To help set the clockwise / counter-clockwise operation run the tool in *neutral* position before re-engaging.



**Figure 4c – Neutral position.**



**WARNING:** FAILURE TO FULLY ENGAGE THE CLOCKWISE/COUNTER-CLOCKWISE OPERATION SELECTOR WILL RESULT IN DAMAGE TO THIS PART OF THE GEARBOX.

#### 4. SETTING ELECTRONIC CONTROL VALUES

- 4.1 Decide the target value and torque units for the joint to be tightened.
- 4.2 Calculate the high tolerance ('Hi' limit) and low tolerance ('Lo' limit) in torque units.
- 4.3 Decide how long the tool will display the final torque value before resetting the display and resetting the tool ready for the next torque application.

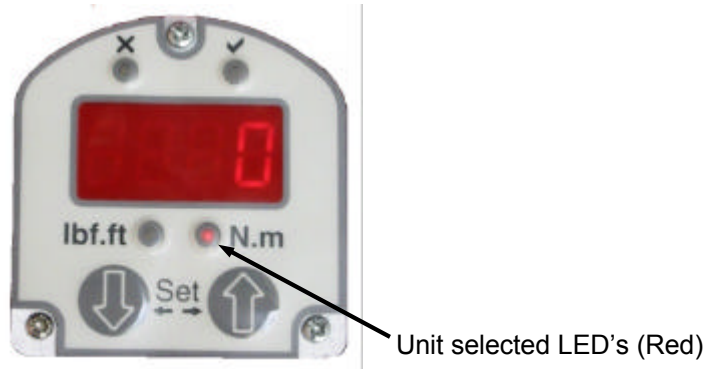


Figure 5 – Display panel.

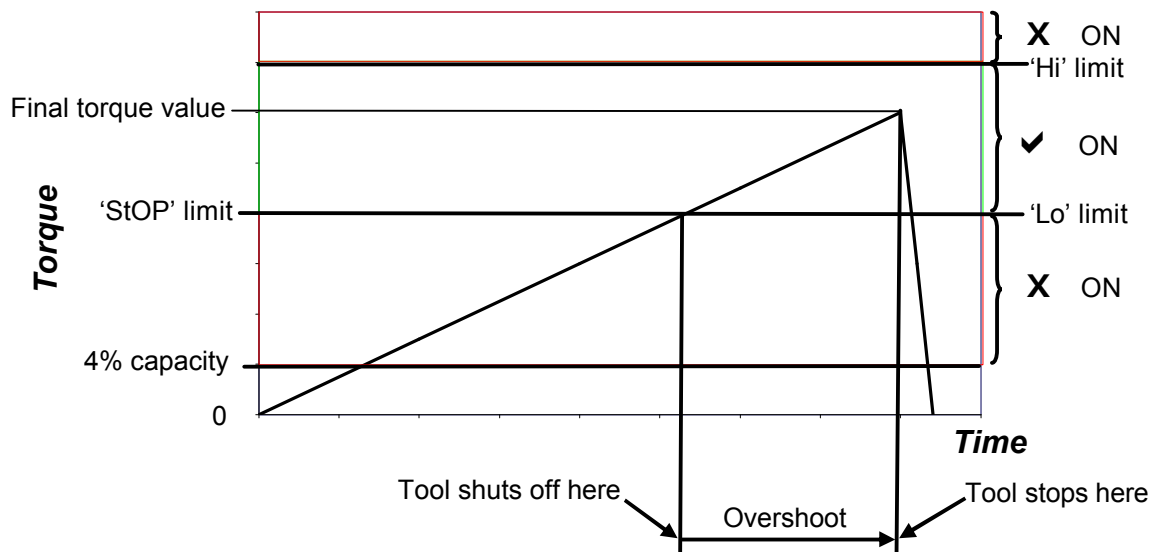



















Figure 6 – Typical torque application.



4.4 Enter the values into the electronic control. 'StOP' limit is initially set to 'Lo' limit.

**NOTE: TOOL WILL NOT OPERATE WHILE SETTING ELECTRONIC CONTROL VALUES.**

Tip: When altering the limit settings press and hold  or  to increase speed of change

<u>Step</u>	<u>Operation</u>	<u>Low setting</u>	<u>Highest Setting</u>
1. Power up tool.	Tool automatically enters operational mode.		
2. Press  and  simultaneously.	<u>UNIT SETTING.</u> 'unit' displayed. Press  to set N.m or lbf.ft.		
3. Press  and  simultaneously.	<u>Hi LIMIT SETTING.</u> 'Hi' and 'torque value' displayed alternately. Press  or  to set.	20% of capacity.	120% of capacity.
4. Press  and  simultaneously.	<u>Lo LIMIT SETTING.</u> 'Lo' and 'torque value' displayed alternately. Press  or  to set.	4% of capacity.	Smaller of: High limit or 100% capacity.
5. Press  and  simultaneously.	<u>SHUT-OFF SETTING.</u> 'StOP' and 'torque value' displayed alternately. Press  or  to set.	4% of capacity.	Smaller of: Mid-point between Hi and Lo limits or 100% capacity.
6. Press  and  simultaneously.	<u>RESET TIME SETTING.</u> 'Sec*' displayed. Tool and display resets after * seconds for next torque application.	1 second.	9 seconds.

Tip: To hold previous reading set to Sec0.  
Tool resets after 3 seconds ready for the next torque application but the display holds until the next torque application reaches 4% capacity.

7. Press  and  simultaneously.	'Fin' displayed. Tool enters operational mode.		
--	---	--	--

Tip: If the final torque value is consistently above the target value then the 'StOP' limit can be reduced to compensate.

Tip: If the final torque value is consistently below the target value then the 'StOP' limit can be increased to compensate.

4.5 In operational mode, trial the tool on the joint to be tightened and check the final torque value.

## OPERATING INSTRUCTIONS



**WARNING: KEEP HANDS CLEAR OF THE REACTION ARM.**

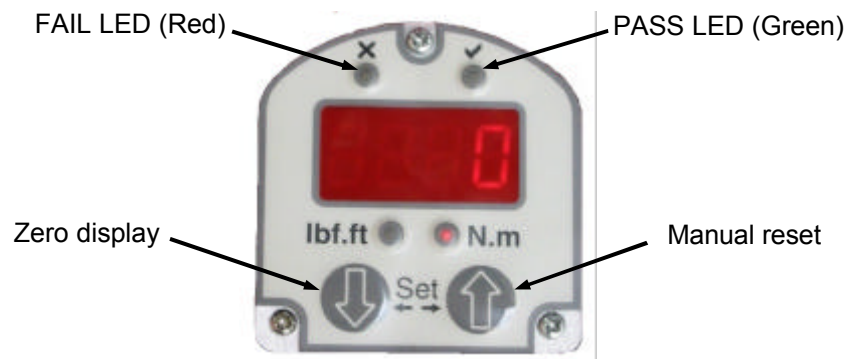


**WARNING: WHEN USING THIS TOOL IT MUST BE SUPPORTED AT ALL TIMES IN ORDER TO PREVENT UNEXPECTED RELEASE IN THE EVENT OF FASTENER OR COMPONENT FAILURE.**


### USING THE TOOL

---

1. Fit Pneutorque® with the correct size impact or high quality socket to suit fastener.
2. Power up the tool. The display and LED's will illuminate for a short period and the tool automatically enters operational mode .
3. Set the electronic control values if not already set.
4. Ensure the Clockwise/Counter-clockwise Selector is correctly set (if fitted).



**Figure 7 – Display panel.**

5. Press  to zero the display if necessary.
6. Rotate the handle into a convenient position relative to the reaction arm. Fit the tool onto the joint to be tightened with the reaction arm adjacent to the reaction point. See Figure 2.
7. Adopt a suitable posture to counteract normal or unexpected movement of the tool due to reaction forces.
8. Squeeze the trigger partially to bring the Reaction Arm into contact with the reaction point.
9. Fully depress and hold trigger until tool shuts off, then release trigger.
10. The trigger must be released before the tool auto-resets to prevent a further torque application.
11. The display captures the peak torque and holds this value for between 1 second and 9 seconds (as set) then the tool and display resets.

12. Note the status of the PASS/FAIL LED's.

LIMIT INDICATOR COLOUR	JOINT INDICATION
NONE	BELOW 4% CAPACITY
RED (x)	FAIL (LOW)
GREEN (✓)	PASS
RED (x)	FAIL (HIGH)

13. Remove tool from the joint to be tightened.

14. Press  to manually reset the tool and display if required.

Tip: The shut-off on the tool is triggered when the 'StOP' limit is reached. The actual torque value achieved will depend on the tool speed when the 'StOP' limit target value is reached. A faster tool speed at the point of shut off may give a slightly higher torque reading. To gain better control of the shut-off torque lower the 'StOP' limit or reduce the speed of the tool. This can be achieved by reducing the mains air supply pressure slightly.

## MAINTENANCE

To maintain optimum performance and safety, regular maintenance needs to be carried out. The only user maintenance required on these tools is the replacement of drive squares and the silencer. Any other maintenance or repairs should be carried out by Norbar or a Norbar approved agent and should form part of a service. Service intervals will depend on the type of usage of the tools and the environment in which they are being used. The maximum time interval should be 12 months or 30,000 cycles whichever is sooner.

### AIR LUBRICATION:-

Add Shell Tellus 15 or equivalent good quality hydraulic oil to the Lubro control unit.

### GEARBOX:-

Under normal operating conditions it is not necessary to re-grease the gearbox. The gearbox contains Lubcon Turmogrease Li 802 EP or equivalent good quality grease.

### SILENCER:-

The silencer (part number 18591) must be changed every 12 months. This may be more frequent for high tool usage or dirty environments.

Tip: Change silencer with tool upside down, as shown, to ensure internal parts (spring & valve) are kept in place.

1. Remove M4 screw (A) (part number 25381.10) using a 2.5mm hexagon key.
2. Remove pin (B) (part number 26284) using a pin punch.
3. Pull out air inlet tube (D) with base plate & silencer.
4. Remove silencer (E) from air inlet tube.
5. Fit new silencer (part number 18591) over air inlet tube.
6. Fit air inlet tube assembly (C, D & E) into handle against spring resistance.
7. Fit pin (B) with a hammer.
8. Fit screw (A) and torque to 0.5N.m. Do not over tighten this screw as it is likely to break the base plate moulding.

Tip: When refitting air inlet tube assembly into handle care should be taken to ensure correct alignment between air inlet tube & spring. It may be easier to fit the spring into air inlet tube first and secure with a small amount of grease.

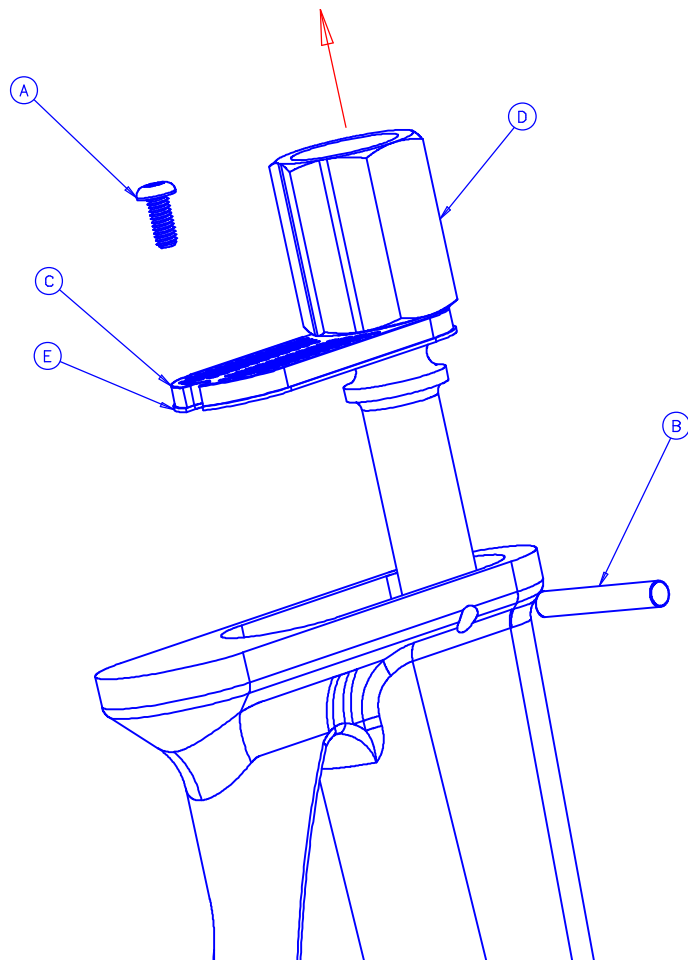
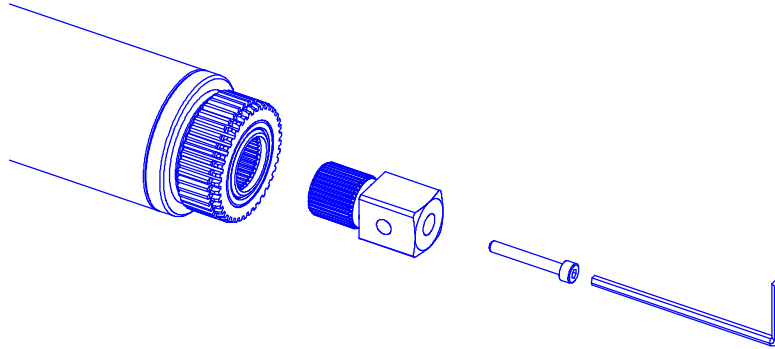


Figure 8 – Silencer replacement.

**DRIVE SQUARE:-** \_\_\_\_\_

To avoid internal damage (especially due to torque overload), the output drive square has been designed to shear first. This saves major internal damage and allows easy square removal.



**Figure 9 – Drive square replacement.**

The drive square can be replaced with either a ¾” drive square (part number 18544), or a 1” drive square (part number 18545). A new retaining screw (part number 25351.30) is supplied with the square.

To replace drive square:

1. Use 3mm hexagon key to remove screw.
2. Remove drive square.
3. Fit new drive square.
4. Fit new screw and tighten to 4 N.m - 5 N.m.

Tip: If the square has sheared it may be necessary to use pliers to remove the broken parts.

**TRANSDUCER CALIBRATION:-** \_\_\_\_\_

To maintain the specified accuracy it is recommended that the tool is recalibrated at least once per year. Re-calibration and repair should be carried out at Norbar or by a Norbar approved agent, where all the facilities to ensure the tool is functioning at maximum accuracy are available.

**CLEANING:-** \_\_\_\_\_

Keep the tool in a clean condition to aid safety. Do not use abrasives or solvent based cleaners.

**DISPOSAL:-** \_\_\_\_\_

**RECYCLING CONSIDERATIONS**

COMPONENT	MATERIAL
Handle	Aluminium casting with epoxy finish.
Direction Gearbox	Aluminium casting with epoxy finish.
Annulus	Alloy steel with nickel plate finish.
Reaction plate	Alloy steel with chemical black finish.

## SPECIFICATIONS

PART NUMBER	CAPACITY		MAXIMUM OVERLOAD	TOOLS SPEED (FREE RUNNING AT MAX. AIR PRESSURE)
	MIN	MAX		
18058.**	120 N.m	600 N.m	660 N.m	200 r/min
18059.**	200 N.m	1000 N.m	1100 N.m	125 r/min

Repeatability:	Shut-off tool: $\pm 2\%$ of reading.
Accuracy:	+/- 2% of reading.
Display:	4 digit LED with refresh rate of 2.5 times per second.
Units of Measurement:	Newton Metres (N.m) or pound force foot (lbf.ft.) (user selectable).
Auto Reset Time:	1, 2, 3, ..... 9 secs.
Air Supply:	Maximum pressure – 6.3 bar (For maximum output speed).
Recommended Lubrication:	Shell Tellus 15 for the Lubro Control Unit.
Temperature Range:	0°C to +50°C (operating). -20°C to +60°C (storage).
Maximum Operating Humidity:	85% Relative Humidity @30°C.
Power Adapter:	100 to 240 Volts +/- 10% AC at 50-60 Hz input.
Power Consumption:	15 W - maximum.
Power Plug Fuse (if fitted):	1 Amp.
Power Cable:	2 meters (6ft 6ins) long minimum.
Extension Cable:	3 meters (9ft 9ins.) long minimum.

TYPE	PART NUMBER	WEIGHT	DIMENSIONS
Forward (Clockwise) only	180**.F06	4.0 kg (8.8lb)	345mm x 55mm wide x 255mm
Bi-directional	180**.B06	4.2 kg (9.3lb)	385mm x 55mm wide x 255mm

Maximum Vibration at Handle:	< 2.5m/ s <sup>2</sup> Tested in accordance with ISO 8662-7 Hand Held portable tools – Measurement of vibrations at the handle.
Sound Pressure Level:	83 dBA measured at 1m equivalent continuous A weighted sound. Tested to BS ISO 3744: 1994 Acoustics – Determination of sound power levels of noise sources using sound pressure – Engineering method in an essentially free field over a reflecting plane. Test conducted in free running condition with a supply pressure of 6.3 bar.
Environment:	Indoor use within a light industrial environment. To environmental conditions Pollution Degree 2 & Installation Category (Over voltage Category) II.

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

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

# Declaration of Conformity

**Manufactured by** Norbar Torque Tools Ltd.,  
Beaumont Road, Banbury, Oxfordshire, OX16 1XJ

## The Directives covered by this Declaration

Safety of Machinery Directive, 98/37/EEC  
Electromagnetic Compatibility Directive, 89/336/EEC, amended by 92/31/EEC & 93/68/EEC.  
Low Voltage Equipment Directive, 73/23/EEC, amended by 93/68/EEC.

## The Equipment Covered by this Declaration

**Equipment:** Pneutorque® Internal Control Shut-Off Tools.

**Model numbers:** PTM-52-\*\*\*\*-\*-IC.  
PTM-72-\*\*\*\*-\*-IC.  
PTM-92-\*\*\*\*-\*-IC.

**Part numbers:** 18\*\*\*.\*\*\*

## The Basis on which Conformity is being Declared

The equipment identified above is in compliance with the protection requirements of the above directives, and the following standards have been applied:-

EN 792-6:2000	Hand-held non-electric power tools – Safety requirements Pt 6: Assembly power tools for threaded fasteners
EN 61326-1:1997	Electrical equipment for measurement, control and laboratory use EMC requirements.
EN 61010-1:2001	Safety requirements for electrical equipment for measurement, control, and laboratory use.

The technical documentation required to demonstrate that the products meet the requirements of the above Directives has been compiled and is available for inspection by the relevant enforcement authorities. The CE mark was first applied in: 2002.

**Signed:**





**Full Name:** Trevor Lester B.Eng.

**Date:** 11th July 2005

**Authority:** Compliance Engineer

## TROUBLE SHOOTING

The following is only a guide, for more complex faults please contact Norbar distributor / manufacturer.

PROBLEM	LIKELY SOLUTIONS
No display when power is switched on.	Check the power supply module is correctly plugged in. Check electrical power supply and fuse in plug (if fitted). Check all connections are secure.
Tool output does not rotate when trigger pulled.	Check air supply is functioning & connected. Check tool is in Operation Mode. Check air pressure setting (at least 1 bar). Check electrical power. Check correct setting of direction knob. Output drive square sheared, needs replacing.
Drive square sheared.	See maintenance section to replace.
Tool stalls – it does not shut off.	Tool has not achieved torque, increase air pressure. Fastener sheared or thread stripped. Gear train or air motor is damaged. NOTE: Press  button to reset display.
Tool switches off but Fail light illuminates and reading is above acceptable limits.	Reduce STOP limit. Reduce air pressure setting.
Tool switches off but Fail light illuminates and reading is below acceptable limits.	Increase STOP limit. Increase air pressure setting.
Torque does not return to zero.	Press  button to zero display.

## GLOSSARY OF TERMS

WORD OR TERM	MEANING
Bi-directional	Tool capable of Clockwise & Counter-clockwise square rotation.
Lubro Control Unit	Unit to provide filtering and lubrication along with pressure regulation. Not supplied with tool.
Pneutorque®	Product name.
Reaction Arm	Device to counteract applied torque.
Shut off	Stop tool at required torque.
Torque Transducer	Device to measure torque.