

PNEUTORQUE[®] **PT 72mm SERIES** **500/1000/1500/2000** **REMOTE CONTROL AIR MOTOR**



CONTENTS

Part Numbers Covered by This Manual	1
Safety	2
Introduction	3
Parts Included	3
Accessories	3
Features and Functions	4
Set up Instructions	4
Torque Reaction	4
Tool Control Systems	6
Input Ports	7
Exhaust Port	7
Setting Torque for Fastener Tightening	7
Setting Torque for Fastener Loosening	8
Operating Instructions	8
Tightening	8
Releasing	8
Maintenance	9
Air lubrication	9
Gearbox	9
Silencer	9
Drive Square	9
Cleaning	9
Disposal	9
Specifications	10
Trouble shooting	11
Glossary of terms	11
Declaration of Incorporation	12

PART NUMBERS COVERED BY THIS MANUAL

This manual covers all PT 72mm series remote control tools, including the following:

Part Number	Model	Drive Square	Maximum Torque
18031	PT 500 Remote	3/4"	500 N·m
18031.AUT	PT 500 Remote Auto 2 speed		
18030	PT 1000 Remote	3/4"	1000 N·m
18030.AUT	PT 1000 Remote Auto 2 speed		
18032	PT 1000 Remote	1"	1000 N·m
18032.AUT	PT 1000 Remote Auto 2 speed		
18029	PT 1500 Remote	1"	1500 N·m
18029.AUT	PT 1500 Remote Auto 2 speed		
18034	PT 2000 Remote	1"	2000 N·m
18034.AUT	PT 2000 Remote Auto 2 speed		

PT 72mm tools are also available with a pistol grip handle, see operators manual part number 34309.

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.

Be aware of unexpected tool movement due to reaction forces as this may cause injuries. Failure of the drive square may also cause unexpected tool movement.

Isolate the tool from all energy sources before changing or adjusting the drive square or socket.



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 air supply. This avoids 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 reversible, non impacting, torque controlled threaded fastener tightening tools and must always be operated with the following:

- Clean dry air supply with a minimum flow of 11 litres/sec (23 CFM).
- Lubro Control Unit or similar Filter, Regulator and Lubricator Unit 1/2" Bore (12 mm).
- Impact or high quality sockets.
- Reaction Arm.
- Air Control System.
- Tool mounting fixture.

INTRODUCTION

The Pneutorque® 72mm series are air driven power tools designed for applying torque to threaded fasteners. Remote control versions have no direction/shut-off control on the tool but rely on external pneumatic circuitry to provide this function. This opens up numerous application possibilities for the Pneutorque® ranging from simple stall shut-off in a hazardous working environment to sophisticated, multi-spindle torque and angle shut-off systems.

Together with the external pneumatic circuitry an external pressure regulator (Lubro control unit) is needed; this allows the air pressure to be adjusted to determine the stall torque from the graph provided. There are models to cover torque capacities of 500 N·m to 2000 N·m.

Parts Included

Part Number	Description
180***.****	Pneutorque® remote
18290	Reaction Plate
18298	Reaction Arm
26486	Reaction Plate Retaining Circlip
34310	Operators manual
34209	Air pressure graph

Accessories

Part Number	Description
18349.006	6" Nose Extension
18349.009	9" Nose Extension
18349.012	12" Nose Extension
18349.015	15" Nose Extension
18349.018	18" Nose Extension
18221	¾" Drive Square
18220	1" Drive Square
18292	Single-sided Reaction Plate
18293	Double-sided Reaction Plate
28704	Silencer
16074	Lubro Control Unit
****	Annular Transducer

FEATURES AND FUNCTIONS

Replaceable Drive Square

All tools are fitted with a 3/4" (19mm) or 1" (25mm) drive square that can be replaced.

Clockwise / Counter-Clockwise Control

Capable of releasing threaded fasteners as well as tightening.

Compatible With Measurement Products

Torque transducers and angle encoders are available for most models. These form the basis of sophisticated control systems giving repeatability of up to +/- 2%.

Automatic Two Speed (.AUT)

Automatic two speed gearbox versions reduce the run down time.

SET UP INSTRUCTIONS

Torque Reaction

The reaction plate is used to take the torque reaction force (which is equal and opposite to the tool output) and can also be used to mount the tool.

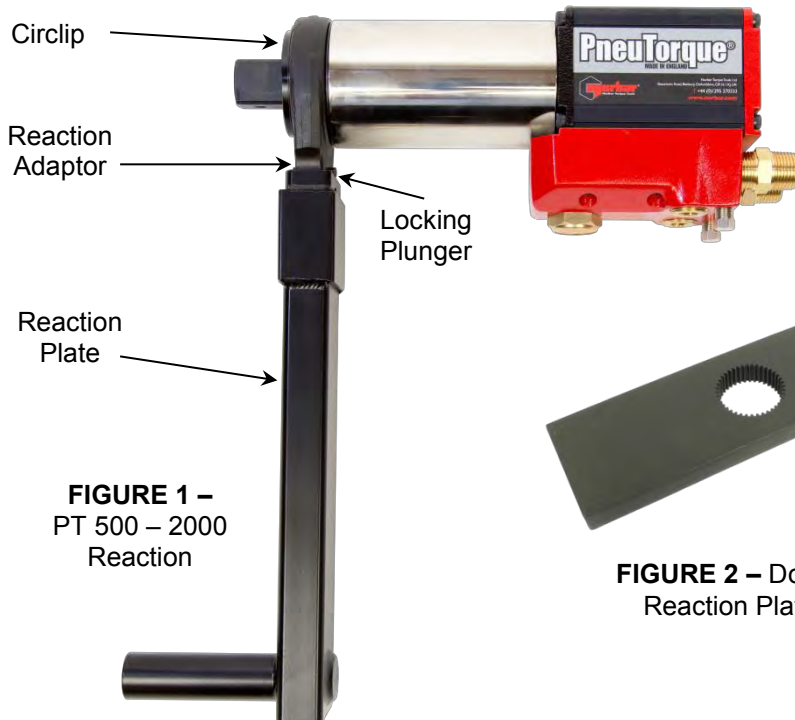


FIGURE 1 –
PT 500 – 2000
Reaction

FIGURE 2 – Double-Sided
Reaction Plate Option

The remote control tools are supplied with a reaction plate/bar as standard (Figure 1). Other types of reaction arm (like the double-sided reaction plate shown in Figure 2) are available.

Fit the Reaction Adaptor to the tool with the sprung plunger pointing towards the handle and secure with the circlip. Mount the Reaction Plate onto the Reaction Adaptor ensuring that the locking plunger is engaged.

It is essential the reaction plate rests squarely against a solid object or surface adjacent to the fastener to be tightened. The contact area must be within the shaded area of Figure 3, with the contact area as large as possible.

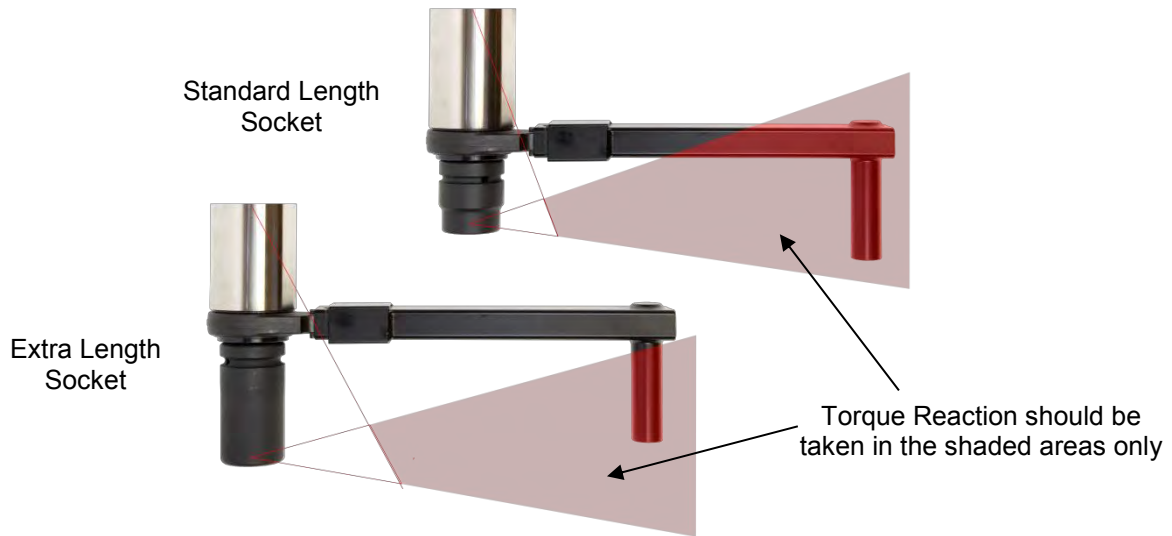


FIGURE 3 – Effect of Long Sockets



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

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



WARNING: FAILURE TO OBSERVE THE LIMITATIONS SHOWN IN FIGURE 3 WHEN MODIFYING STANDARD REACTION PLATES 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.

When the Pneutorque[®] is in operation the reaction plate 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 4).



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

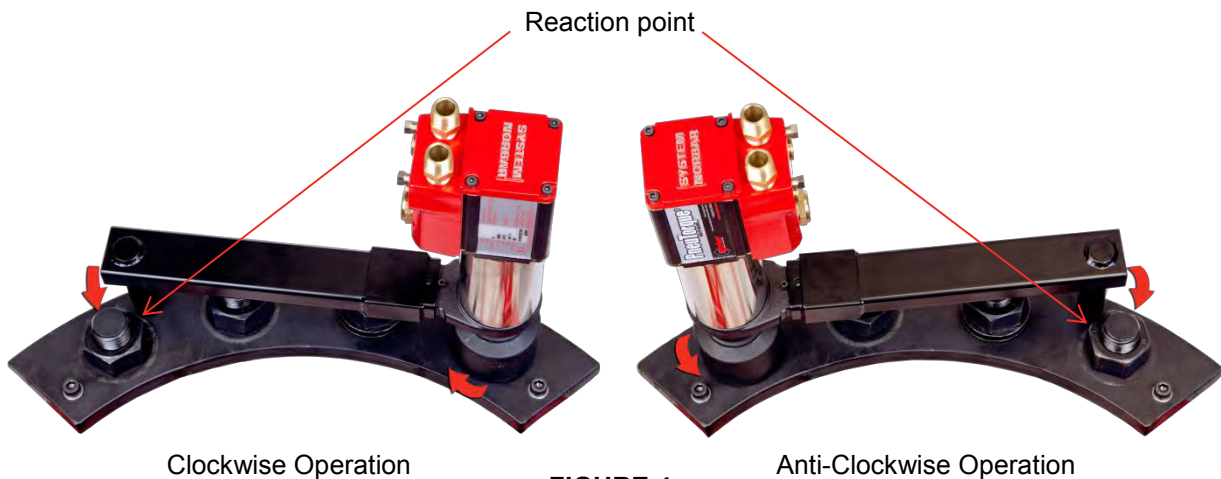


FIGURE 4

Tool Control Systems

The remote control air motor requires a separate external pneumatic circuit (not supplied) for on/off and clockwise / anticlockwise control of the tool. The direction of tool rotation is determined by pressurising either the clockwise or anti-clockwise air inlet ports.

A Lubro Control Unit (Part Number 16074 - not supplied) is required to lubricate the air and control the air pressure so the correct torque is applied. Check the oil level in the Lubro Control Unit and fill to the correct level. (See MAINTENANCE section).

Ensure air hoses are clean and free from dirt before connecting. The air supply hoses and control valves must be 1/2" bore (12mm) and the hose from the supply to the control system must not be longer than 5 metres or the tools performance will be impaired. If the supply hose must be longer than 5 metres then 3/4" bore must be used.

Examples of pneumatic control circuits are shown in Figure 5 and Figure 6.

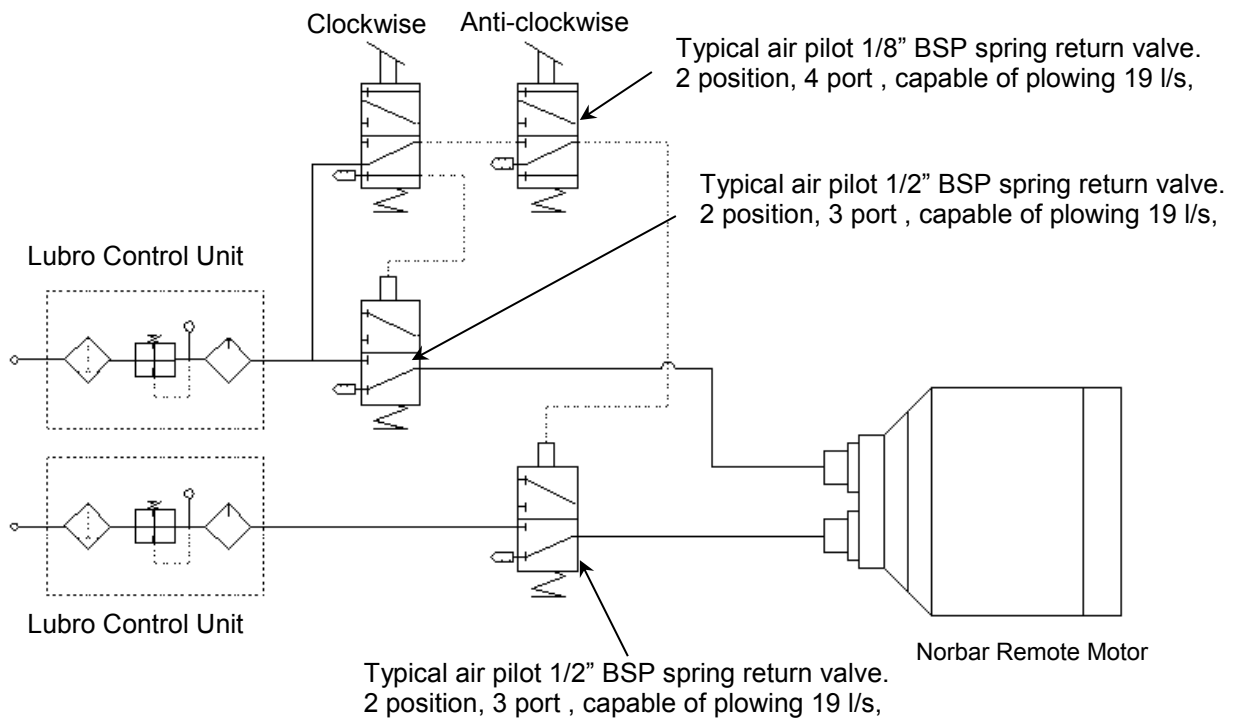


FIGURE 5 – Example of Pneumatic Circuit

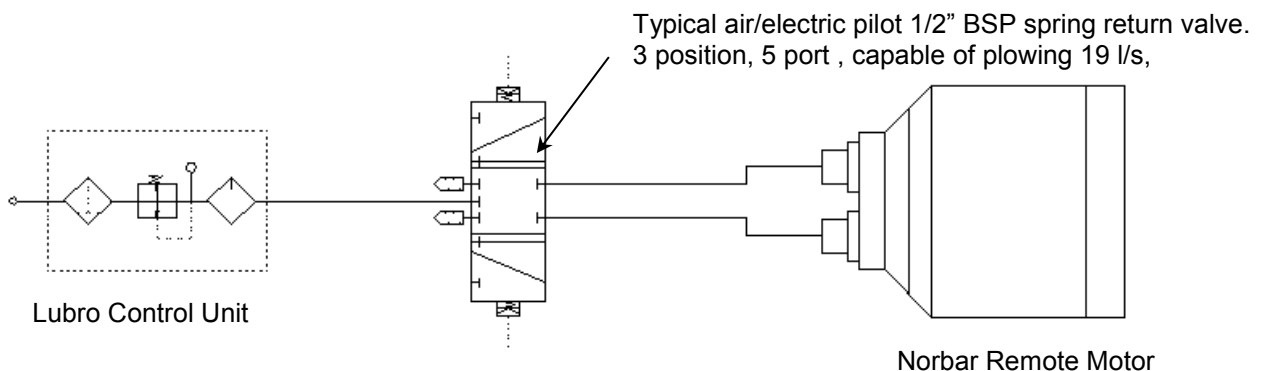


FIGURE 6 – Example of Pneumatic Circuit



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

Input Ports

The input ports are located at the rear of the tool covered by plastic protection caps (# 16199). Connect the clockwise supply and anti-clockwise supply to the 1/2" BSP connectors as shown in Figure 7. Alternative input ports are located under the tool; to use these ports swap the grub screws in the alternative input ports for the 1/2" BSP male/male connectors in the rear input ports.

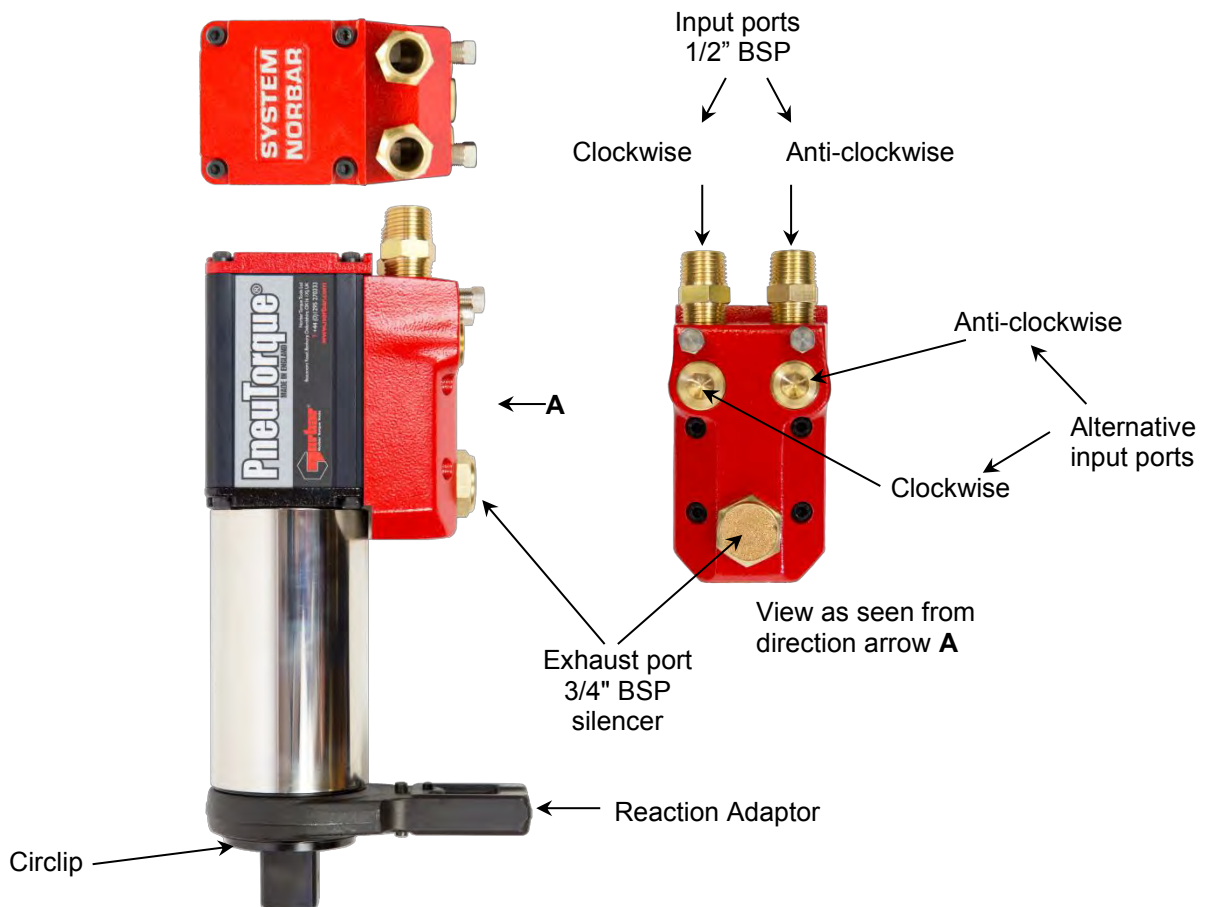


FIGURE 7 – Tool Features

Exhaust Port

The exhaust port, located under the tool, is common to both inlet ports. If required an exhaust hose can be connected, this will reduce the sound pressure level. The exhaust hose size must not be reduced from 3/4" (19mm) or the tool performance will be reduced.

TIP: As with any pneumatic tool a fine oil mist is present in the exhaust air. Please ensure the exhaust air cannot cause a hazard.

Setting Torque for Fastener Tightening

Every Pneutorque® is supplied with an Air Pressure Graph which relates torque output to air pressure. Set the torque output as follows:

1. Ensure the control system is set for the required rotation.
2. Establish the air pressure required using the Air Pressure Graph.
3. With the tool running, adjust the pressure regulator until the correct pressure is shown on the gauge.

IMPORTANT: THE TOOL MUST BE FREE RUNNING WHILE ADJUSTING THE AIR PRESSURE TO GIVE THE CORRECT SETTING.

WHILE THE TOOL IS FREE RUNNING CHECK THAT LUBRO CONTROL UNIT IS SUPPLYING APPROXIMATELY SIX DROPS OF OIL PER MINUTE.

Setting Torque for Fastener Loosening

1. Ensure that the control system is set for the required rotation.
2. Establish maximum air pressure from Air Pressure Graph or tool label.
3. Adjust the pressure regulator until the correct pressure is achieved.



WARNING: EXCEEDING THE MAXIMUM AIR PRESSURE WILL CAUSE OVERLOADING AND MAY LEAD TO SERIOUS DAMAGE.



WARNING: CHANGING THE AIR PRESSURE AFTER SETTING THE PRESSURE REGULATOR WILL CHANGE THE STALL TORQUE VALUE.

OPERATING INSTRUCTIONS



WARNING: KEEP HANDS CLEAR OF THE REACTION ARM AND DRIVE SOCKET.



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.



WARNING: CHANGING THE AIR PRESSURE AFTER SETTING THE PRESSURE REGULATOR WILL CHANGE THE STALL TORQUE VALUE.

Tightening

1. Fit Pneutorque[®] with the correct size impact or high quality socket.
2. Ensure the external control circuit is correctly set.
3. Fit the tool onto the fastener. Locate reaction arm adjacent to the reaction point.
4. Start the tool and allow it to continuously tighten the fastener. Full torque only be applied when the motor stalls.
5. Stop tool and remove from fastener.

Releasing

1. Fit Pneutorque[®] with the correct size impact or high quality socket.
2. Ensure external control circuit is correctly set.
3. Fit the tool onto the fastener. Locate reaction arm adjacent to the reaction point.
4. Start the tool to release the fastener.

TIP: If unable to release the fastener increase the air pressure to the tool. Do not exceed the maximum air pressure.



WARNING: EXCEEDING THE MAXIMUM AIR PRESSURE WILL CAUSE OVERLOADING AND MAY LEAD TO SERIOUS DAMAGE.

5. Remove tool from fastener.

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 recommended maintenance and recalibration interval is 12 months.

TIP: Steps the operator can take to reduce the amount of maintenance required include:

1. Use the tool in a clean environment.
2. Use an air compressor fitted with a dryer.
3. Ensure the Lubro Control Unit has sufficient hydraulic oil.
4. Ensure the Lubro Control Unit delivers hydraulic oil at the correct rate.
5. Ensure the Lubro Control Unit is regularly maintained, see product manual.
6. Maintain the correct torque reaction.

Air Lubrication

Add Shell Tellus S2M 32 or equivalent good quality hydraulic oil to the Lubro Control Unit.

To check the oil consumption run the tool continuously and check the lubro control unit is supplying approximately six drops of oil per minute.

Gearbox

Under normal operating conditions it is not necessary to re-grease the gearbox. The gearbox contains Shell Gadus S2 V220 or equivalent good quality grease.

Silencer

The silencer (#28704) must be changed every 12 months. This may be more frequent for high tool usage or dirty environments.

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.

The drive square can be replaced with either a 3/4" drive square (#18221) or a 1" drive square (#18220). A new retaining screw (#25352.45) is supplied with the square.

To replace drive square:

1. Use 4mm hexagon key to remove screw.
2. Remove drive square.
3. Fit new drive square.
4. Fit new screw and tighten to 8 N·m - 9 N·m.



FIGURE 8 – Square Drive Replacement

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

Cleaning

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

Disposal

Recycling considerations:

Component	Material
Tool body	Aluminium casting with epoxy finish.
Annulus	Alloy steel with nickel plate finish.
Reaction plate	Alloy steel with epoxy powder finish.

SPECIFICATIONS

Model	Torque		Drive Square	Dimensions (mm)
	Minimum	Maximum		
PT 500 Remote	90 N·m (66 lbf-ft)	500 N·m (370 lbf-ft)	3/4"	290.2 x 72 wide x 111
PT 500 Remote Auto 2 speed	203 N·m (150 lbf-ft)	500 N·m (370 lbf-ft)	3/4"	362.2 x 72 wide x 111
PT 1000 Remote	190 N·m (140 lbf-ft)	1000 N·m (740 lbf-ft)	3/4"	290.2 x 72 wide x 111
PT 1000 Remote Auto 2 speed	488 N·m (360 lbf-ft)	1000 N·m (740 lbf-ft)	3/4"	362.2 x 72 wide x 111
PT 1000 Remote	190 N·m (140 lbf-ft)	1000 N·m (740 lbf-ft)	1"	290.2 x 72 wide x 111
PT 1000 Remote Auto 2 speed	488 N·m (360 lbf-ft)	1000 N·m (740 lbf-ft)	1"	362.2 x 72 wide x 111
PT 1500 Remote	300 N·m (220 lbf-ft)	1500 N·m (1110 lbf-ft)	1"	290.2 x 72 wide x 111
PT 1500 Remote Auto 2 speed	760 N·m (560 lbf-ft)	1500 N·m (1110 lbf-ft)	1"	362.2 x 72 wide x 111
PT 2000 Remote	400 N·m (300 lbf-ft)	2000 N·m (1450 lbf-ft)	1"	290.2 x 72 wide x 111
PT 2000 Remote Auto 2 speed	1000 N·m (750 lbf-ft)	2000 N·m (1450 lbf-ft)	1"	362.2 x 72 wide x 111

Repeatability: $\pm 5\%$ (up to $\pm 2\%$ with torque transducer control in system).

Air Supply: Maximum pressure 6.0 bar (For maximum torque capacity).
Air consumption 11 litre per sec (l/s) [23 CFM].

Model	Velocity Ratio		Tool Speed (Free running at maximum air pressure)	
	High Speed	Low Speed	High Speed	Low Speed
PT 500 Remote	29.752:1	162.284:1	170 rev/min	35 rev/min
PT 500 Remote Auto 2 speed				
PT 1000 Remote	66.292:1	361.590:1	75 rev/min	15 rev/min
PT 1000 Remote Auto 2 speed				
PT 1000 Remote	66.292:1	361.590:1	75 rev/min	15 rev/min
PT 1000 Remote Auto 2 speed				
PT 1500 Remote	115.508:1	630.044:1	45 rev/min	9 rev/min
PT 1500 Remote Auto 2 speed				
PT 2000 Remote	162.284:1	885.185:1	30 rev/min	6 rev/min
PT 2000 Remote Auto 2 speed				

Recommended Lubrication: Shell Tellus S2M 32 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.

Model	Tool Weight	Reaction Weight
PT 500 – 2000 Remote	6.4 kg (14.1 lb)	1.7 kg (3.8 lb)
PT 500 – 2000 Remote Auto 2 Speed	8.7 kg (19.2 lb)	1.7 kg (3.8 lb)

Sound Pressure Level: 81 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 6.0 bar.

Environment: Indoor & dry outdoor use within a light industrial environment.

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.

TROUBLE SHOOTING

The following is only a guide, for more complex faults please contact your local Norbar distributor or Norbar directly.

Problem	Likely Solutions
Tool output does not rotate when control system operated.	<ul style="list-style-type: none"> Check air supply is functioning & connected. Check air pressure setting (at least 1 bar). Check correct setting of control system. Output drive square sheared, needs replacing. Gear train or air motor is damaged.
Drive square sheared.	See maintenance section to replace.
Tool does not stall.	<ul style="list-style-type: none"> Tool has not achieved torque, increase air pressure. Fastener sheared or thread stripped. Gear train or air motor is damaged.

GLOSSARY OF TERMS

Word Or Term	Meaning
Air pressure graph	Graph to show air pressure setting for required torque.
AUT	Auto Two speed.
CFM	Cubic Feet per minute, measure of air flow.
BSP	British Standard Pipe, this is a thread size.
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.



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QA57
ISSUE 2
24.1.97

Declaration of Incorporation

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

The Directives covered by this Declaration

Safety of Machinery Directive, 2006/42/EC

The Equipment Covered by this Declaration

Equipment: Pneutorque® Remote Control 72mm Series.

Model Name(s): 500 , 500 AUT,
1000 , 1000 AUT,
1500 , 1500 AUT,
2000 , 2000 AUT,
4500 , 4500 AUT.

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:-

BS EN ISO 12100-1:2003 Safety of machinery. Basic concepts, general principles for design.
Basic terminology, methodology

BS EN ISO 12100-2:2003 Safety of machinery. Basic concepts, general principles for design.
Technical principles

The machine must not be put into service until the machine into which it is to be incorporated has been deemed to conform with the applicable directives.

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.

Signed: *T. M. Lester*

Full Name: Trevor Lester

Date: 25th April 2013

Authority: Compliance Engineer

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