



PNEUTORQUE[®]
STANDARD & SMALL DIAMETER SERIES
STALL TOOLS



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PART NUMBERS COVERED BY THIS MANUAL

This manual covers all Pneutorque® Standard and Small Diameter series tools; including the following:

Model (Standard Series)	Part Number			Square	Maximum Torque
	Single Speed	Manual Two Speed	Automatic Two Speed		
PT 1	16031	16031.MTS	16031.AUT	¾"	680 N·m
PT 1	16011	16011.MTS	16011.AUT	1"	680 N·m
PT 1A	16098	16098.MTS	16098.AUT	¾"	1200 N·m
PT 1A	16097	16097.MTS	16097.AUT	1"	1200 N·m
PT 2	16008	16008.MTS	16008.AUT	¾"	1700 N·m
PT 2	16013	16013.MTS	16013.AUT	1"	1700 N·m
PT 5	16015	16015.MTS	16015.AUT	1"	3400 N·m
PT 6	16017	16017.MTS	16017.AUT	1 ½"	3400 N·m
PT 7	16066	16066.MTS	16066.AUT	1 ½"	6000 N·m
PT 7 SD	16087	16087.MTS	16087.AUT	1 ½"	6000 N·m
PT 9	16072	16072.MTS	16072.AUT	1 ½"	9500 N·m
PT 11	16046	16046.MTS	-	2 ½"	20000 N·m
PT12	18086	18086.MTS	-	2 ½"	34000 N·m
PT 13	16052	16052.MTS	-	2 ½"	47000 N·m
PT 14	16045	16045.MTS	-	3 ½"	100000 N·m
PT 15	18089	18089.MTS	-	Note A	150000 N·m
PT 16	18090	18090.MTS	-	Note A	200000 N·m
PT 17	18088	18088.MTS	-	Note A	250000 N·m
PT 18	16054	16054.MTS	-	Note A	300000 N·m

NOTE A: The output drive and reaction components must be engineered specifically for each customer application. Consult Norbar.

Model (Small Diameter Series)	Part Number			Square	Maximum Torque
	Single Speed	Manual Two Speed	Automatic Two Speed		
PT 2700	18027	18027.MTS	18027.AUT	1"	2700 N·m
PT 5500	18028	18028.MTS	18028.AUT	1 ½"	5500 N·m

Pneutorque® Standard and Small Diameter series tools are also supplied in a 'remote' form without a handle. These are given a part number suffix 'X' (e.g. *****.X***) and are covered by operators manual part number 34318.

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[®] tools are reversible, 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 ft³/m [CFM]).
- Lubro Control Unit or similar Filter, Regulator and Lubricator Unit ½" Bore (12 mm).
- Impact or high quality sockets.
- Reaction Arm.

INTRODUCTION

The Pneutorque® Standard Series and Small Diameter Series are air driven power tools designed for applying torque to threaded fasteners. An external Lubro control unit is needed; this allows the air pressure to be adjusted so the stall torque can be determined from the graph provided. There are models to cover torque capacities of 680 N·m to 300000 N·m.

Parts Included

Model	Part Number					
	Reaction Plate / Arm	Reaction Foot	Lifting Ring	Lubro Control Unit	Torque Wrench	Transporting Trolley
PT 1 & PT 2	16420	-	-	-	-	-
PT 5 & PT 6	16544	-	-	-	-	-
PT 7	16263	16344	-	-	-	-
PT 7 SD	16433	16344	-	-	-	-
PT 9	16387	16394	-	-	-	-
PT 11	16322	-	16348	16074	-	-
PT 12	18994	-	19030/1	16074	-	-
PT 13	16330	-	16311	16074	13049	16326
PT 14	16308	-	16311	16074	13049	16326
PT 15	Note A	-	-	16074	-	-
PT 16	Note A	-	16311	16074	13050	-
PT 17	Note A	-	16311	16074	13050	-
PT 18	Note A	-	16311	16074	13050	-
PT 2700	16672	-	-	-	-	-
PT 4500	16673	-	-	-	-	-

All tools include Operators Manual (Part number 34317), Calibration Certificate & Air pressure graph (Part number 34208)

NOTE A: The output drive and reaction components must be engineered specifically for each customer application. Consult Norbar.

Accessories

Nose Extensions	PT1	PT2	PT5
6" Nose Extension (¾" drive)	16480.006	-	-
9" Nose Extension (¾" drive)	16480.009	-	-
12" Nose Extension (¾" drive)	16480.012	-	-
6" Nose Extension (1" drive)	16542.006	16542.006	16694.006
9" Nose Extension (1" drive)	16542.009	16542.009	16694.009
12" Nose Extension (1" drive)	16542.012	16542.012	16694.012

Other Parts	Part Number
Replacement drive square	See Maintenance
Air Filter	18280
Silencer	16457
Lubro Control Unit	16074
Straight 350mm Reaction Plate (PT 2700 only)	16686
Straight 350mm Reaction Plate (PT 5500 only)	16687
Transducers	Consult Norbar

FEATURES AND FUNCTIONS

Replaceable Drive Square

To avoid internal damage (especially due to torque overload), the output drive square has been designed to shear first. Tools are fitted with a drive square that can easily be replaced, alternative drive sizes are also available.

Trigger

The trigger controls the flow of air, it must be held in to operate the tool. If the operator is not present the tool will stop.

Forward / Reverse Collar

All tools can be used for tightening as well as releasing bolts. A collar for FWD (Forward or clockwise) and REV (Reverse or anti-clockwise) is located next to the trigger for easy access.

Gearbox

For safety the gearbox and handle can turn independently, so torque reaction is never transmitted back to the operator.

Lifting Handle

The lifting handle allows comfortable and safe use of the tool.

The PT 11 – PT 18 are supplied with a lifting ring for easy handling. In addition the PT 13 & PT 14 are supplied on a transporting trolley (Figure 1).

Low Operator Fatigue

The tools are quiet and do not operate with an impacting or pulsing action.

Optional Transducers

Electronic torque transducers can be directly fitted for precise torque monitoring.



FIGURE 1 – Transporting Trolley

SET UP INSTRUCTIONS

Pneumatic Connections



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

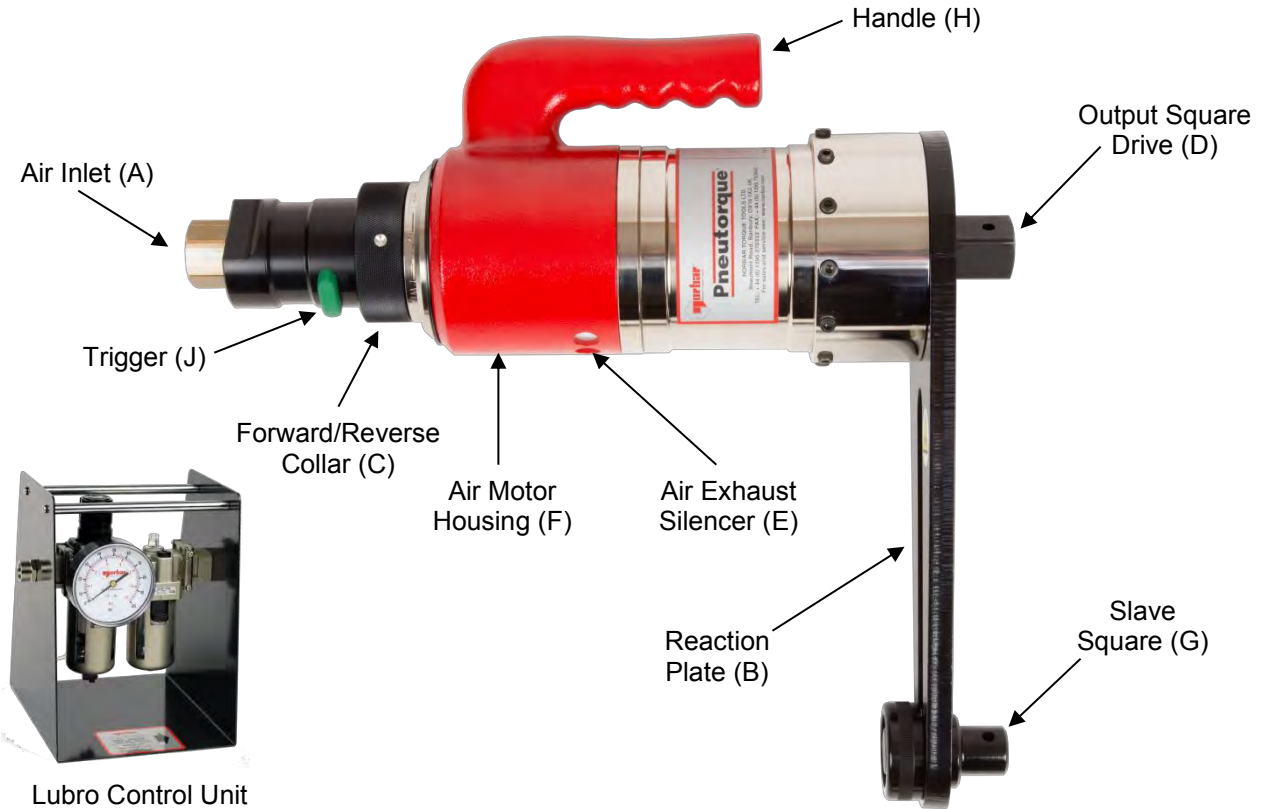


FIGURE 2 – Tool Features

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

Connect the tool air inlet hose (A.) to the outlet side of the lubro control unit, observing air flow direction arrows. Use a minimum 1/2" bore (12mm) hose with a maximum length of 3m.

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).

Connect the inlet side of the lubro control unit to the air supply. Use a minimum 1/2" bore (12mm) hose with a maximum length of 5m (longer hoses will reduce the performance of the tool).

Check the lubro control unit oil level and fill to correct level if required. (see "MAINTENANCE")

Lifting Handle

Fit lifting handle (where supplied) to top of the Air Motor Housing ('F' in figure 2.). Adjust the handle position so the tool can be held comfortably. Tighten the socket screws securely.

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.



WARNING: IF THE REACTION PLATE IS EXTENDED FORWARD OF THE DRIVE SQUARE, LARGER INDUCED BENDING STRESS WILL RESULT, SO THE PLATE MAY NO LONGER BE STRONG ENOUGH.

Standard Series

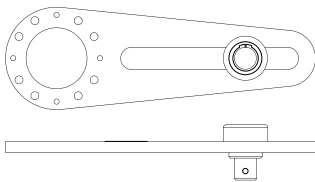


FIGURE 3 – Typical reaction with sliding 'slave square' for PT 1 to PT 5

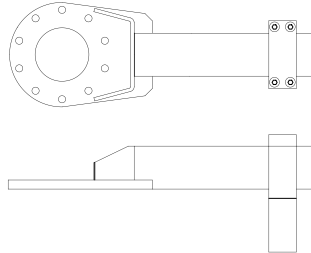


FIGURE 4 – Typical reaction (with adjustable foot) for PT 7 and PT 9

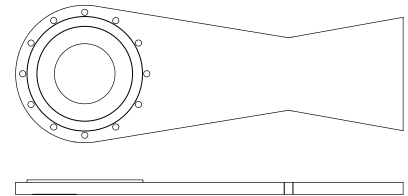


FIGURE 5 – Typical reaction for PT 11

TIP: Take the reaction as far away from the multiplier as practical.

Fit reaction plate ('B' in Figure 2) to tool using bolts provided and torque to value specified on reaction arm. If no torque is specified follow table below:

Model	Reaction Plate / Arm	Fixing Bolt Size	Fixing Bolt Torque
PT 1 & PT 2	16420	2BA	9 N·m
PT 5 & PT 6	16544	¼" BSF	19 N·m
PT 7	16263	M10	83 N·m
PT 7 SD	16433	½" BSW	Hand tight
PT 9	16387	⅜" BSF	75 N·m
PT 11	16322	M10	83 N·m
PT 12	18994	M12	150 N·m
PT 13	16330	M16	310 N·m
PT 14	16308	M16	310 N·m
PT 15	-	-	-
PT 16	-	M20	400 N·m
PT 17	-	M20	400 N·m
PT 18	-	M20	400 N·m

It is recommended to check the reaction plate bolts are correctly tightened every week.

Small Diameter Series

Use circlip to hold reaction arm.

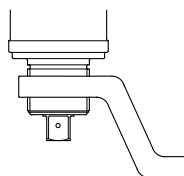


FIGURE 6 – Typical reaction for PT 2700 (Part number 16672) and PT 5500 (Part number 16673)

Length is 350mm and it may be modified to suit the application.

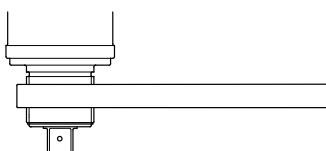


FIGURE 7 – An alternative straight reaction plate is available for the PT 2700 (Part number 16686) and PT 5500 (Part number 16687)

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 8, with the contact area as large as possible.

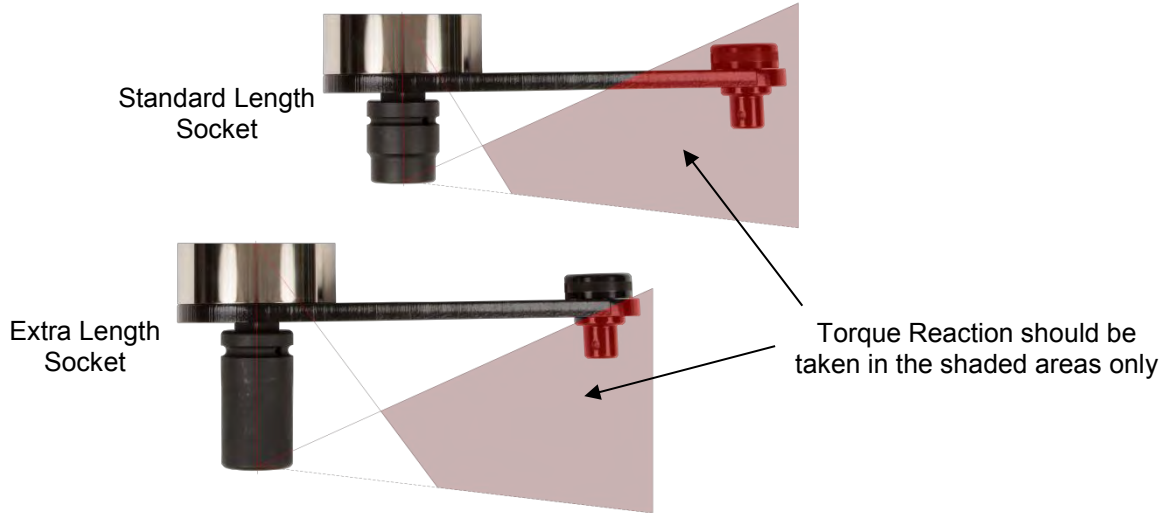


FIGURE 8 – Reaction limitations



WARNING: CARE MUST BE TAKEN TO ENSURE THAT THE REACTION ARM IS ONLY USED WITHIN THE LIMITATIONS SHOWN IN FIGURE 8.

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 8. Alternative reaction devices are available.



WARNING: FAILURE TO OBSERVE THE LIMITATIONS SHOWN IN FIGURE 8 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.

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 9 & 10).



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



FIGURE 9 – Example of clockwise (FWD) reaction



FIGURE 10 – Example of anti-clockwise (REV) reaction

TIP: For an extended tool life ensure the reaction point remains square to the multiplier, this will minimise stress on the output square. If the multiplier tilts under load, the reaction may not remain square.

Setting Forward / Reverse

All tools are fitted with a direction collar, see Figure 11.



FIGURE 11 – Collar for FWD, OFF or REV operation

Rotate collar to select 'FWD' for forward (clockwise), 'REV' for reverse (anti-clockwise) or 'OFF'.



WARNING: FAILURE TO FULLY ENGAGE THE FORWARD/REVERSE COLLAR WILL RESULT IN DAMAGE TO THE SELECTOR VALVE.

Setting Torque for Fastener Tightening

The stall torque of these tools is determined by the air pressure set on an external lubro control unit.

Tools are supplied with an Air Pressure Graph which relates torque output to air pressure. Set the torque output as follows:

1. Turn the collar, Figure 11, to select direction.
2. For Manual two speed tools (Part number *****.MTS) select 'SLOW' speed.
3. Establish the air pressure required using the Air Pressure Graph.
4. Ensure the drive square is able to free run.
5. Press and hold the trigger ('J' in Figure 2) and adjust the lubro control unit pressure until the correct figure 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 tool control system is set for the required rotation.
2. Establish maximum air pressure from the associated 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.



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 the Pneutorque[®] with the correct size impact or high quality socket.
2. Ensure the Forward / Reverse collar is correctly set.
3. Set the air pressure as described in “setting torque for bolt tightening” within the Set Up section.
4. Rotate tool and reaction arm into a convenient position. Fit the tool onto the fastener. Locate reaction arm adjacent to the reaction point.
5. Adopt a suitable posture to counteract normal or unexpected movement of the tool due to reaction forces.



NOTE: Follow the instructions for **SINGLE SPEED, MANUAL TWO SPEED or AUTOMATIC TWO SPEED:**

Single Speed (Part Number with no suffix)

6. Press the trigger in short bursts to bring the reaction arm into contact with the reaction point.
7. Fully press the trigger and keep fully depressed until tool stalls.
8. Release the ‘trigger’ and turn Collar to ‘OFF’.
9. Remove tool from fastener.

Manual Two Speed (Part Number “*****.MTS”)

NOTE: ‘FAST’ speed is for initially running up of the fastener and ‘SLOW’ speed for applying the final torque.

6. Set speed selector to ‘FAST’.

TIP: To change the speed:

- A. Ensure tool is not running.
- B. Pull selection knob out.
- C. Move knob to required speed.
- D. Ensure selection knob is fully engaged in recess.



FIGURE 12 – ‘FAST’ speed above, ‘SLOW’ speed below.



7. Press the trigger in short bursts to bring the reaction arm into contact with the reaction point.
8. Fully press the trigger and keep fully depressed until tool stalls then release the trigger.
9. Set speed selector to 'SLOW'.

NOTE: The air pressure calibration graph is only correct in the 'SLOW' setting.

10. Fully press the trigger and keep fully depressed until tool stalls.
11. Release the trigger and turn collar to 'OFF'.
12. Remove tool from fastener.

TIP: Where there are several fasteners in the joint, eg. a flange, it may be desirable to tighten all of the fasteners with the tool in 'FAST' gear. Then set the gear selector to 'SLOW' and apply final torque.

Automatic Two Speed (Part Number "*****.AUT")

NOTE: These tools operate at a 'FAST' speed (approximately 5 times faster than normal) until torque is detected, then the tool automatically change to 'SLOW' speed for final tightening of the fastener.

6. Press the trigger in short bursts to bring the reaction arm into contact with the reaction point.
7. Fully press the trigger and keep fully depressed until tool stalls.
8. Release the trigger and turn collar to 'OFF' and remove tool from fastener.
9. Remove tool from fastener.

NOTE: If the trigger is released or collar is turned back to the 'OFF' position before the tool stalls, full torque will NOT be applied to the fastener.

TIP: If the tool will not release from the bolt, turn collar to the opposite direction and squeeze the trigger for a fraction of a second.

Releasing

1. Fit Pneutorque® with the correct size impact or high quality socket.
2. Ensure the Forward / Reverse collar is correctly set (in 'REV' for right hand threads).
3. Rotate tool and reaction arm into a convenient position. Fit the tool onto the fastener. Locate reaction arm adjacent to the reaction point.
4. Adopt a suitable posture to counteract normal or unexpected movement of the tool due to reaction forces.
5. Gently press trigger to bring the reaction arm into contact with the reaction point.
6. Fully press the trigger and keep fully depressed until fastener releases.



TIP: If unable to release the fastener increase the air pressure to the tool.
Do not use excessive air pressure.



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

7. Remove tool from fastener.



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

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.

Reaction Plate

Every week check that the bolts fastening reaction plate are tightened to the torque stamped onto the reaction plate.

Air Lubrication

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

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 (#16457) should be changed every 12 months. This may be more frequent for high tool usage or dirty environments.

To change silencer:

1. Remove circlip from end of handle.
2. Slide handle to access silencer.
3. Change silencer.
4. Replace handle and circlip.

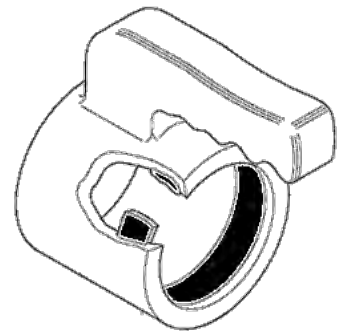


FIGURE 13 – Silencer location

Filter

The air filter (#18280) should be changed every 12 months. This may be more frequent for high tool usage or dirty environments.

To change filter:

1. Remove inlet air hose.
2. Remove filter from inside tool air inlet.
3. Fit new filter.
4. Replace inlet air hose.

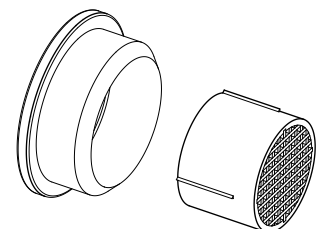


FIGURE 14 – Air filter

TIP: To help removal use a small screwdriver or a pair of internal circlip pliers.

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.

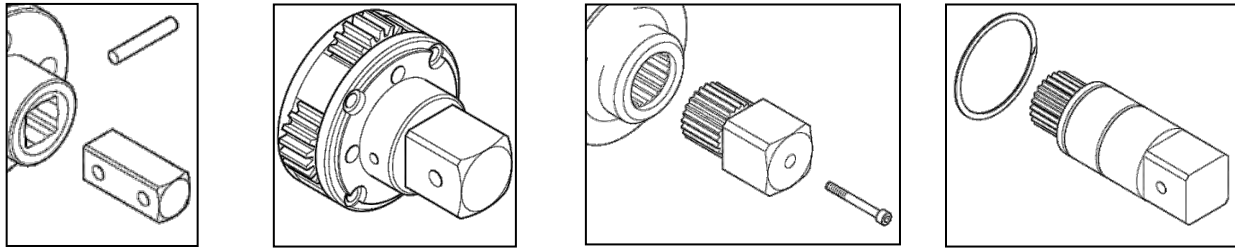


FIGURE 15 – Drive square fixing (left to right): Pin, Carrier Assembly , Screw and circlip.

Tool	Square Size	Drive Square Part Number	Fixing	Screw Torque (N·m)
PT 1 / PT 2	¾"	# 16424	Pin (# 26228)	-
PT 1 / PT 2	1"	# 16425	Pin (# 26228)	-
PT 5	1"	# 16549	Pin (#26242)	-
PT 6	1 ½"	# 16548	Carrier assembly.	-
PT 7 / PT 7 SD	1 ½"	# 16295	M5 screw (# 25352.45)	8 – 9
PT 9	1 ½"	# 16611	M5 screw (# 25352.40)	8 – 9
PT 11	2 ½"	# 16323	M6 screw (# 25353.60)	16 – 18
PT 12	2 ½"	# 16310	M6 screw (# 25353.60) + Circlip (# 26432)	16 – 18
PT 13	2 ½"	# 16310	M6 screw (# 25353.60) + Circlip (# 26432)	16 – 18
PT 14	3 ½"	# 16309	M6 screw (# 25353.60)	16 – 18
PT 15	-	-	M6 screw (# 25353.60)	-
PT 16	-	-	M6 screw (# 25353.60)	-
PT 17	-	-	Application specific	-
PT 18	-	-	Application specific	-
PT 2700	1"	# 16661	Circlip (# 26490)	-
PT 5500	1 ½"	# 16446	Circlip (# 26482)	-

NOTE: The drive squares are designed to be replaced by a competent service engineer with standard tools, only the PT 5500 needs specialist equipment (including a press) to replace the drive square. A new fixing screw is recommended on reassembly.

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
Handle	Aluminium casting with epoxy finish.
Annulus	Alloy steel with nickel plate finish.
Reaction plate	Alloy steel with epoxy powder finish.

SPECIFICATIONS

General

Repeatability:	± 5%.
Air Supply:	Maximum pressure 6.0 bar (For maximum torque capacity). Air consumption 19 litres / sec (40 ft ³ /m [CFM]).
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 at 30°C.
Maximum Vibration at Handle:	< 2.5m/s ² . Tested in accordance with ISO 8662-7 Hand Held portable tools – Measurement of vibrations at the handle.
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.

Small Diameter

Model	Torque		Free Speed (At maximum air pressure)	
	Minimum	Maximum	Single speed	MTS / AUT
PT 2700	880 N·m (650 lbf·ft)	2700 N·m (2000 lbf·ft)	5 rev/min	25 rev/min
PT 5500 / PT 5500 MTS	1200 N·m (885 lbf·ft)	5500 N·m (4000 lbf·ft)	2.5 rev/min	12.5 rev/min
PT 5500 AUT	1762 N·m (1300 lbf·ft)	5500 N·m (4000 lbf·ft)	-	12.5 rev/min

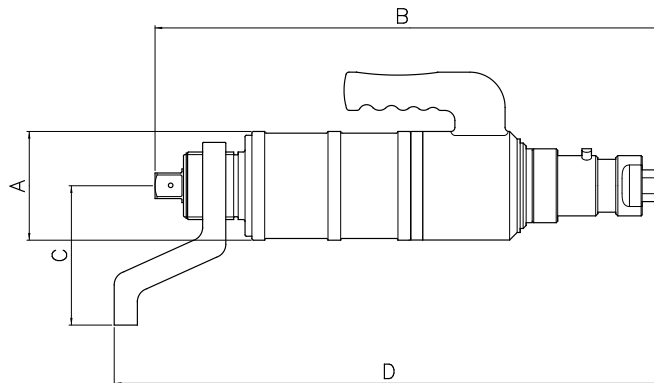


FIGURE 16 – Small diameter tool

Model	Dimensions (mm)					Weight (kg)	
	A	B	C	D minimum	D maximum	Tool	Reaction
PT 2700	108	437	140	469	498	14.5	2
PT 2700 MTS	108	524	140	556	585	18.0	2
PT 2700 AUT	108	506	140	538	567	18.0	2
PT 5500	119	512	154	566	592	17.9	4
PT 5500 MTS	119	598	154	652	678	21.4	4
PT 5500 AUT	119	581	154	635	661	21.4	4

Standard Series

Model	Torque		Free Speed (At maximum air pressure)		Weight (kg)		
	Minimum	Maximum	Single speed	MTS / AUT	Tool		Reaction
					Single speed	MTS / AUT	
PT 1	160 N·m (120 lbf·ft)	680 N·m (500 lbf·ft)	30 rev/min	150 rev/min	10.6	14.1	2.2
PT 1A	270 N·m (200 lbf·ft)	1200 N·m (900 lbf·ft)	15 rev/min	75 rev/min	11.1	14.6	2.2
PT 2	515 N·m (380 lbf·ft)	1700 N·m (1250 lbf·ft)	9 rev/min	45 rev/min	11.1	14.6	2.2
PT 5	880 N·m (650 lbf·ft)	3400 N·m (2500 lbf·ft)	5 rev/min	25 rev/min	14.0	17.5	2.5
PT 6	880 N·m (650 lbf·ft)	3400 N·m (2500 lbf·ft)	5 rev/min	25 rev/min	14.0	17.5	2.5
PT 7	1762 N·m (1300 lbf·ft)	6000 N·m (4500 lbf·ft)	2.5 rev/min	12.5 rev/min	19.7	23.2	6.3
PT 9	2710 N·m (200 lbf·ft)	9500 N·m (7000 lbf·ft)	1.8 rev/min	9 rev/min	24.4	27.9	8.3
PT 11	4400 N·m (3250 lbf·ft)	20000 N·m (14700 lbf·ft)	1.2 rev/min	6 rev/min	38.6	42.1	13.3
PT 12	9500 N·m (7000 lbf·ft)	34000 N·m (25000 lbf·ft)	0.5 rev/min	2.5 rev/min	49.8	53.3	6.5
PT 13	13550 N·m (10000 lbf·ft)	47000 N·m (35000 lbf·ft)	0.3 rev/min	1.5 rev/min	102.2	105.7	6.9
PT 14	22375 N·m (16500 lbf·ft)	100000 N·m (73500 lbf·ft)	0.2 rev/min	1 rev/min	119.4	122.9	10.4
PT 15	35000 N·m (25825 lbf·ft)	150000 N·m (110500 lbf·ft)	0.1 rev/min	0.5 rev/min	-	-	-
PT 16	46500 N·m (34400 lbf·ft)	200000 N·m (147500 lbf·ft)	0.08 rev/min	0.4 rev/min	266.5	270	-
PT 17	58250 N·m (42990 lbf·ft)	250000 N·m (184500 lbf·ft)	0.07 rev/min	0.35 rev/min	281.5	285	-
PT 18	70000 N·m (51630 lbf·ft)	300000 N·m (221270 lbf·ft)	0.06 rev/min	0.3 rev/min	376.5	380	-

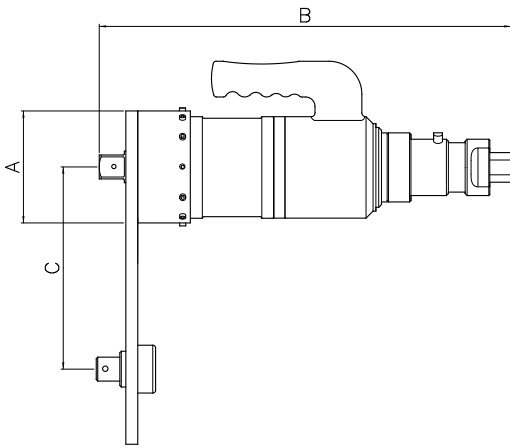


FIGURE 17 – Standard series tool (smaller)

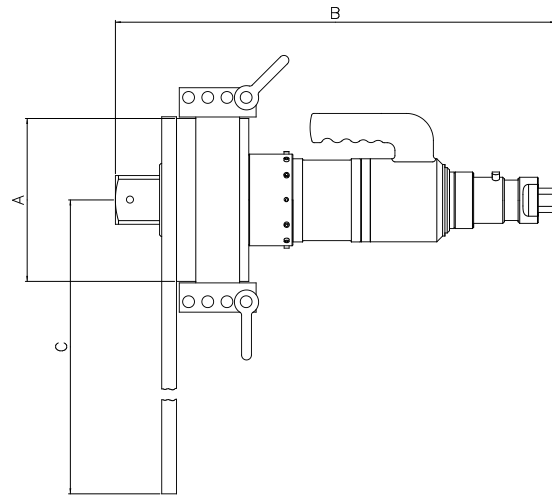


FIGURE 18 – Standard series tool (larger)

Model	Dimensions (mm)						
	A	B			C minimum		C maximum
		Single speed	MTS	AUT	Single speed	MTS / AUT	
PT 1 (3/4")	108	368	454	437	83	83	217
PT 1 (1")	108	373	459	442	83	83	217
PT 1A	108	373	459	442	83	83	217
PT 2	108	373	459	442	83	83	217
PT 5	119	424	510	493	83	86	264
PT 6	119	430	516	499	83	86	264
PT 7	144	457	543	526	146	146	333
PT 9	184	452	538	521	169	169	351
PT 11	212	555	641	-	-	-	500
PT 12	240	593	679	-	Blank plate		
PT 13	315	636	716	-	Blank plate		
PT 14	315	724	810	-	Blank plate		
PT 15	-	-	-	-	Application specific		
PT 16	410	780	866	-	Application specific		
PT 17	410	853	939	-	Application specific		
PT 18	520	850	936	-	Application specific		

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.

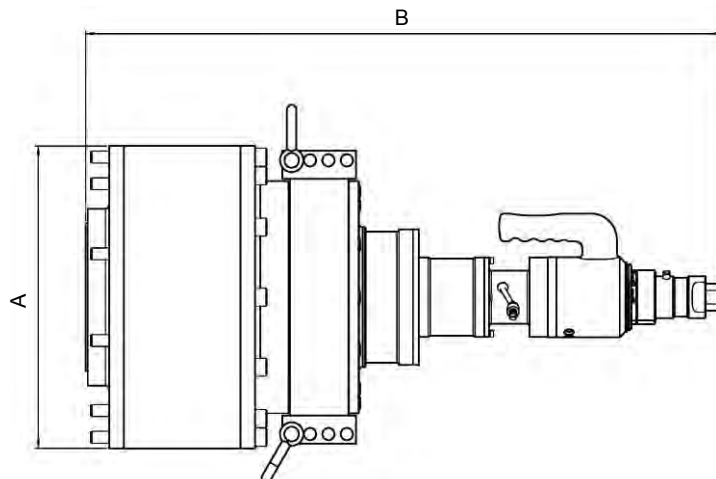


FIGURE 19 – PT 15 – 18



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Declaration of Conformity

The following apparatus:

Pneutorque[®] Standard Series Tools & Small Diameter Series Tools.

Model Names (Part Numbers): PT 1 (16011.*** & 16031.***), PT 1A (16097.*** & 16098.***),
PT 2 (16008.*** & 16013.***), PT 5 (16015.***), PT 6 (16017.***),
PT 7 (16066.*** & 16087.***), PT 9 (16072.***), PT 11 (16046.***),
PT 12 (18086.***), PT 13 (16052.***), PT 14 (16045.***),
PT 15 (18089.***), PT 16 (18090.***), PT 17 (18088.***),
PT 18 (16054.***), PT 2700 (18027.***) & PT 5500 (18028.***).

Is in compliance with the protection requirements of the following directives:

Machinery Directive 2006/42/EC

The following standards have been applied:

Model Name	Standard
PT 1, PT 1A, PT 2, PT 5, PT 6, PT 7, PT 2700 & PT 5500	EN 792-6:2000+A1:2008 Hand-held non-electric power tools – Safety requirements. Assembly power tools for threaded fasteners.
PT 9, PT 11, PT 12, PT 13, PT 14, PT 15, PT 16, PT 17 & PT 18	BS EN ISO 12100:2010 Safety of machinery. General principles for design. Risk assessment and risk reduction

The basis on which conformity is being declared:

The technical documentation required to demonstrate that the apparatus meet the requirements of the above Directives has been compiled by the signatory below and is available for inspection by the relevant enforcement authorities. The CE mark was first applied in: 1995.

Signed: *T.M. Lester* **Full Name:** Trevor Mark Lester B.Eng.

Date: 6th June 2013 **Authority:** Compliance Engineer

Place: Norbar Torque Tools Ltd., Beaumont Road, Banbury, Oxfordshire. OX16 1XJ

United Kingdom | Australia | United States of America
New Zealand | Singapore | China | India



Registered in England No 380480 | VAT No GB 110 1000 05

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 trigger pushed.	Check air supply is functioning & connected. Check air pressure setting (at least 1 bar). Check correct setting of direction knob. 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.	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 supplied with Stall only tool to show air pressure setting against required torque.
AUT	Auto Two speed.
CFM	Cubic Feet per minute (ft ³ /m), a 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. Included with some tools.
MTS	Manual Two Speed.
Pneutorque®	Product name.
Reaction Arm	Device to counteract applied torque.

NOTES

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