TYPHOON™

PIPE BLASTING SYSTEM BY PIRATE BRAND®

PRODUCT OPERATING MANUAL

1.0 **STANDARD CONDITIONS AND SAFETY PRECAUTIONS**

1.1 **Pirate Brand® Notice to Purchasers and Users**

1.1.1 All products and equipment designed and manufactured by Pirate Brand® are intended for use by experienced users of abrasive blasting equipment and its associated operations and abrasive blasting media.

1.1.2 It is the responsibility of the user to:

- Determine if the equipment and abrasive media are suitable for the users' intended use and application.
- Familiarize themselves with any appropriate laws, regulations and safe working practices which may apply within the users working environment.
- Provide appropriate operator training and a safe working environment including operator protective equipment such as, but not limited to, safety footwear, protective eye wear and hearing protection.

1.1.3 Contact your Pirate Brand® Distributor should you require any further information or assistance.

1.2 **WARNING! – READ THIS SECTION CAREFULLY BEFORE USING THIS EQUIPMENT**

1.2.1 Heavy metal paint, asbestos and other toxic material dusts will cause serious lung disease or death without the use of properly designed and approved air supplied respiratory equipment by blast operators and all personnel within the work site area.

1.2.2 The compressor must have adequate output and the plumbing between the compressor and the point of attaching the air supply hose must have sufficient capacity to supply the volume of air at the pressure required.

1.2.3 Do not exceed 150 PSI when using the Typhoon Spin Tool.

1.3 **Standard Safety Precautions**

1.3.1 Approved safety eye wear, hearing and footwear protection should be worn at all times by the operator and anyone else in the immediate area that may be ex posed to any hazards generated by the blasting process.

1.3.2 Suitably approved respiratory protection should also be worn when handling abrasive media, abrasive refuse dust and when carrying out any service/maintenance work where any dust may be present.

1.3.3 Any work performed on electrical wiring or components must only be carried out by suitably qualified and registered electrical tradesmen.

1.3.4 Under no circumstances should any safety interlocks or features be altered or disabled in any way.

1.3.5 All equipment must be isolated from the compressed air supply and electrical power prior to any service or maintenance work being carried out.

1.3.6 All care must be taken by the operator when lifting or moving equipment or components in order to prevent injury. Blast pots must always be emptied of abrasive media before any attempt is made to move them.

1.3.7 Any modification of the equipment or use of non-genuine Pirate Brand® replacement parts will void warranty.

1.3.8 Always check the Material Data Sheet on the abrasive being used to ensure that it is free of harmful substances, in particular, free silica, cyanide, arsenic or lead.

1.3.9 Test the surface to be blasted for harmful substances, taking the appropriate measures to ensure the safety of the operator and others.

1.3.10 The operator should carry out a daily inspection before start up of all wearing and safety items to ensure they are in correct operating order. In particular check all hose couplings and nozzle holders, ensuring that all couplings have engaged correctly, the safety pins are fitted and in good order, always install safety cables at every connection. Ensure that the nozzle has been securely screwed into the holder and the holder has been secured to the hose correctly and all screws are engaged.

2.0 **INTRODUCTION**

2.1 The Typhoon Spin Tool is designed to clean the internal surfaces of pipes from 200mm (8") to 900mm (36") I.D. (and up to 60" I.D. pipe with optional 36" leg set and large rotating head. The tool is connected to a lance which is coupled to the standard blast hose in place of the nozzle. A carriage fitted to the tool supports the tool and centers it in the pipe, the tool is positioned at the far end of the pipe and slowly withdrawn, as the tool travels down the pipe abrasive is thrown from a twin nozzle rotating blast head. The speed of the rotating head is controlled by a centrifugal speed limiter. There are five types of carriages

available to suit small, mid and large diameter pipes. Refer to the charts below for the carriage assembly, nozzle and air requirements for various applications.

2.3 **Application Table**

Carriage		Pipe ID	Nozzle X2	Air Req.
Scissor Carriage (015100)		8"-12" (200mm-300mm)	**1/4"** 1348-780 (Tungsten Carbide) **1/4"** 1348-114 (Boron Carbide)	190 CFM (@125 PSI)
		12"-17" (300mm-450mm)	**5/16"** 1348-515 (Tungsten Carbide) **5/16"** 1348-2515 (Boron Carbide)	380 CFM (@125 PSI)
Mid-Range Carriage Set (016400)	4" Legs	12"-14" (300mm-350mm)	**5/16"** 1348-515 (Tungsten Carbide) **5/16"** 1348-2515 (Boron Carbide)	380 CFM (@125 PSI)
	8" Legs	14"-20" (350mm-500mm)		
	17" Legs	24"-36" (600mm-900mm)	**3/8"** 1348-516 (Tungsten Carbide) **3/8"** 1348-2516 (Boron Carbide)	550 CFM (@125 PSI)
36"Long Leg Set (016500) *Requires Optional Large Rotating Head (013700)		40"-60" (100cm-150cm)	**1/4"** 888-5000-004PB (1-1/4" Threads) ***Requires Optional Large Rotating Head (013700)**	190 CFM (@125 PSI)
			5/16" 888-5000-005PB (1-1/4" Threads) ***Requires Optional Large Rotating Head (013700)**	380 CFM (@125 PSI)
			3/8" 888-5000-006PB (1-1/4" Threads) ***Requires Optional Large Rotating Head (013700)**	550 CFM (@125 PSI)

Table 2.2

Note: For practical purposes we recommend a minimum field air supply of at least 50% higher than the nozzle requirement listed above.

2.3.1 **Abrasive Recommendations**
GENERAL ABRASIVES - do not exceed US sieve size 20
STEEL GRIT - do not exceed SAE G25
STEEL SHOT - do not exceed SAE S230

3.0 **INITIAL SET UP INSTRUCTIONS**

3.1 The Typhoon Spin Tool requires the same basic blast equipment as any other abrasive blast cleaning operation, utilizing a compressor and abrasive blast pot system (pressure hold blast pots are preferred, but not required), the only difference is that the nozzle is replaced by the tool, carriage and lance. The lance (customer supply) should be the same length as the pipe to be cleaned. Two (2) Couplings are supplied to fit the lance to the tool and an existing blast hose coupling.

3.2 Check the air requirement for the blast nozzles used in your application, the unit is supplied with 2 x 1/4" (1348-780) Tungsten Carbide Aluminium Jacket nozzles as standard, ensure you have the proper air capacity in your compressor.

3.3 The Typhoon is also supplied with the small rotating head, (013400) that suits 3/4" NPSM thread nozzles. Should it be necessary to run larger 1-1/4" thread nozzles you must switch to the large rotating head (013700)
Note: In order to run the 1-1/4" thread nozzles with the large rotating head a minimum pipe diameter of 24" (600mm) is recommended.

3.4 **Fitting of the Small Range Scissor Carriage**

3.4.1 Slide the back end of the tool into the expanded carriage, through the front collar and into the rear collar, the rear collar should be located in front of the breather vent holes on the seal retainer body, do not block the vent holes. Now tighten the two (2) set screws on the rear collar.

3.4.2 Adjust the carriage to suit the internal diameter of the pipe by expanding the carriage scissor mechanism and tighten the two (2) socket set screws on the front collar.

3.4.3 Check that the rotating head spins freely.

3.5 **Fitting the Large and Mid Range Carriages**

3.5.1 The mid range carriage set (016400) is supplied with a front carriage body, a rear lance carriage body and 9 leg assemblies. The large range carriage set (016500) is supplied with a front carriage body, a rear lance carriage body and 3 leg assemblies.

3.5.1 Slide the back end of the tool into the larger front carriage body, position the front of the body flush with the front face of the centrifugal speed limiter housing, ensure that the body is located in front of the breather vent holes on the seal retainer body, **do not block the vent holes**. Now snug the two (2) screws on the body to fix the body to the tool. **DO NOT overtighten as you will deform the body of the tool into an oval shape.**

3.5.2 Fit the smaller lance carriage body to the lance pipe which should be positioned to prevent excess bowing of the lance pipe and angular misalignment of the coupled connections.

3.5.3 Now fit the appropriate leg assemblies to the front carriage body and rear lance carriage body, adjust so that the tool and the lance are centered in the pipe, and also check that the wheels are in line with the direction of travel.

Note: The large and mid range carriages track best when set up in a "Y" configuration, one leg pointing down.

3.6 Fitting of the Pipe Lance to the Tool

3.6.1 Fit the threaded hose coupling to the rear entry nozzle of the Typhoon.

3.6.2 Fit the other threaded hose coupling to the end of the lance and ensure that the lance has 1-1/4" NPT thread cut on both ends.

3.6.3 Couple the lance to the Typhoon ensuring that the safety pins are properly connected and secure.

3.6.4 Now thread the nozzle holder end of the blast hose to the supply end of the lance.

4.0 **OPERATING INSTRUCTIONS**

4.1 Push the Typhoon/Lance assembly to the far end of the pipe to be blasted.

4.2 Now start the blast operation. For pressure release systems, **START WITH AIR ONLY**, then open the metering valve to the desired setting once the Typhoon head is spinnig. For pressure hold systems, **AVOID USING AN OVER-RICH ABRASIVE FEED** which can clog the Typhoon.

4.3 Pull the lance back at a steady and even speed, the speed of the retrieval determines the surface coverage achieved.

4.4 Continue with the blast until the lance has been fully retracted, we recommend the use of a docking pipe section to ensure the full length of the pipe can be cleaned and the lance safely extracted, docked and then turned off.

5.0 **MAINTENANCE INSTRUCTIONS**

WARNING: Before disassembling the Typhoon, create an alignment mark across the base, seal retainer and body. These 3 components MUST be reassembled in their original clocked position or the wear sleeve may not be reused and MUST be replaced.

5.1 **Flanged Wear Sleeve**

5.1.1 Uncouple the tool/carriage assembly from the lance.

5.1.2 Remove the tool from the carriage.

5.1.3 Remove the four screws holding the rear base assembly to the body.

5.1.4 Remove the rear base assembly from the tool body.

5.1.5 Check the front wearing face of the flanged wear sleeve for heavy grooving and abrasive particles embedded in the face, change if either is evident.

5.1.6 Check that the sleeve moves freely in and out in the base housing recess, remove and blow out any dust that may have built up.

5.1.7 Visually check the spring to ensure it is in working order.

5.2 **Entry Nozzle**

5.2.1 Follow steps 5.1.1-5.1.3

5.2.2 Loosen the rear 1-1/4" lock nut and then unscrew the entry nozzle from the base.

5.2.3 Inspect the entry nozzle for wear at the discharge end, and change if worn to less than a 5/64" (2mm) wall thickness.

5.2.4 Check condition of the rear sealing washer, replace if damaged.

5.2.5 Reassemble.

5.3 **Rear Seal Assembly**

5.3.1 Follow steps 5.1.1-5.1.3

5.3.2 Remove the seal retainer.

5.3.3 The rear U-seal and felt seal are located in the seal retainer.

5.3.4 Remove both seals, it is advised to change both seals if either is worn.

5.3.5 Clean the outer face of the rear bearing of any dust residue before reassembly.

5.4 **Centrifugal Speed Limiter Housing Assembly**

5.4.1 Using a spanner to hold the spindle tube at the two flats located behind the rotating head, unscrew the rotating head from the spindle tube.

5.4.2 Unscrew the four (4) retaining screws holding the centrifugal speed limiter housing.
Note: The centrifugal speed limiter housing can become very hot if the unit has been running for any length of time, use heat resistant gloves when working on the centrifugal speed limiter in such a situation.

5.4.3 Remove the centrifugal speed limiter housing.

5.4.4 Inspect the centrifugal speed limiter shoe linings for wear and ensure that the shoes pivot freely, replace the shoes if worn.

5.4.5 Inspect the internal braking surface of the housing for grooving and machine or replace if badly grooved.

5.4.6 Check the front U-seal and felt while the centrifugal speed limiter assembly is dismantled, it is advised to change both seals if either is worn.

5.4.7 Clean the outer face of the front bearing of any dust residue.

5.4.8 Reassemble.

5.5 **Spindle Tube and Bearings**

NEVER grease the bearings - replace only.

5.5.1 Remove both the rear base/seal retainer assembly and the centrifugal speed limiter housing assembly.

5.5.2 Remove the rear circlip

5.5.3 Drive or press the spindle tube forward through the body.

5.5.4 Drive or press the bearings from the body.

5.5.5 Reassemble.

6.0 **TROUBLE SHOOTING GUIDE**

6.1 **Head will not rotate or rotates slowly.**

6.1.1 Insufficient air pressure, check supply.

6.1.2 Blocked nozzles, inspect and clear obstruction.

6.1.3 Flanged wear sleeve has abrasive particles embedded, remove and replace.

6.1.4 Damaged bearings, replace bearings.

6.1.5 Check rear compression spring, if damaged replace.

6.2 **Head rotates too fast.**

6.2.1 Centrifugal speed limiter shoes are worn out, replace.

6.2.2 Check rear compression spring, if damaged replace.

6.3 **Vibration**

6.3.1 One nozzle is plugged, inspect and clear.

6.3.2 Nozzles out of balance, i.e.: one nozzle has worn more than the other or nozzles not of the same type, inspect and replace.

6.3.3 Tool is loose in carriage, inspect and tighten.

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7.0 PRODUCT PARTS LISTING

7.1 Product Assembly - Typhoon Spin Tool & Carriages

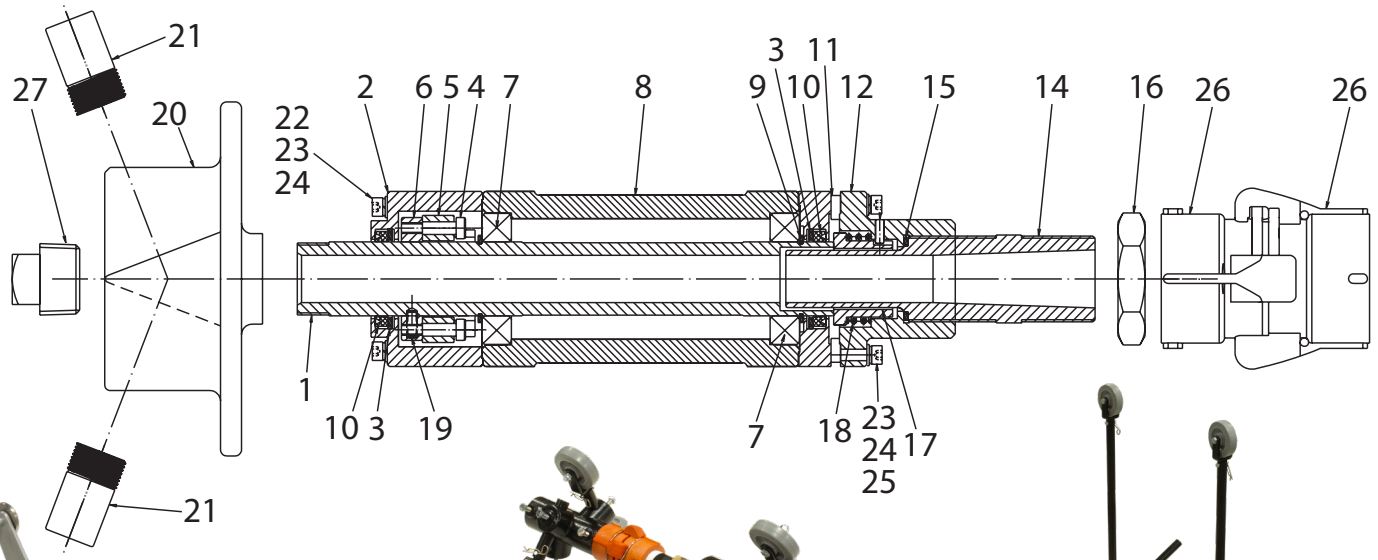
Part Number	Description
017000	TYPHOON PIPE BLASTER, TOOL COMPLETE, INCLUDES SMALL ROTATING HEAD & (2) 1/4" TUNGSTEN CARBIDE NOZZLES
015100	TYPHOON PIPE BLASTER, OPTIONAL SMALL RANGE SCISSOR CARRIAGE, 8" TO 17"
016400	TYPHOON PIPE BLASTER, OPTIONAL MEDIUM RANGE CARRIAGE SET, 12" TO 36"
016500	TYPHOON PIPE BLASTER, OPTIONAL LARGE RANGE CARRIAGE SET, 40" TO 60"

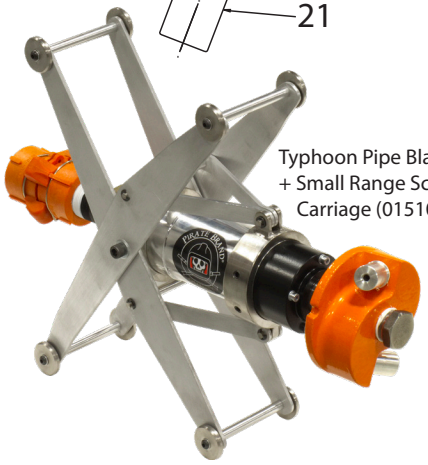
7.1.1 Product Parts Listing - Typhoon Spin Tool

No.	Part Number	Description	Qty.
	019000	TYPHOON PIPE BLASTER, ENTRY NOZZLE CONVERSION KIT, **CONVERTS PREVIOUS MODELS TO CURRENT**, INCLUDES FLANGED ENTRY NOZZLE, LOCK RING & THREADED BASE	1
1	019500	TYPHOON PIPE BLASTER, TUBE	1
2	021700	TYPHOON PIPE BLASTER, CENTRIFUGAL SPEED LIMITER HOUSING	1
3	018900	TYPHOON PIPE BLASTER, FELT SEAL, 41 OD x 35 ID x 2.5W	1
4	036600	**TYPHOON PIPE BLASTER, UNBRAKO SHOULDER SCREW, 6 OD x M5 x 16**	**2**
5	021800	TYPHOON PIPE BLASTER, CENTRIFUGAL SPEED LIMITER SHOE (PAIR)	1PR
6	021900	TYPHOON PIPE BLASTER, CENTRIFUGAL SPEED LIMITER SUPPORT RING	1
7	019100	TYPHOON PIPE BLASTER, BEARING, 35 ID x 62 OD	2
8	019200	TYPHOON PIPE BLASTER, BODY	1
9	032100	TYPHOON PIPE BLASTER, EXTERNAL CIRCLIP, 35mm DIA	2
10	020800	TYPHOON PIPE BLASTER, U-SEAL	2
11	020700	TYPHOON PIPE BLASTER, SEAL RETAINER	1
12	018500	TYPHOON PIPE BLASTER, BASE, THREADED INSIDE AND OUT, INCLUDES PIN **(FITS CURRENT AND PREVIOUS MODELS)**	1
14	019602	TYPHOON PIPE BLASTER, ENTRY NOZZLE, **FLANGED (FITS CURRENT MODELS)**	1
	019601	TYPHOON PIPE BLASTER, ENTRY NOZZLE **WITHOUT FLANGE (FITS 2018 AND PREVIOUS MODELS WITH ENTRY NOZZLES WITHOUT FLANGE)**	1
15	019700	TYPHOON PIPE BLASTER, REAR SEALING WASHER	1
16	018401	TYPHOON PIPE BLASTER, LOCK RING, 1-3/4" BSP, LEFT HANDED THREADS **(FITS CURRENT MODELS WITH FLANGED ENTRY NOZZLE)**	1
	018400	TYPHOON PIPE BLASTER, NUT, 1-1/4" BSP **(FITS 2018 AND PREVIOUS MODELS WITH ENTRY NOZZLES WITHOUT FLANGE)**	1
17	019900	TYPHOON PIPE BLASTER, FLANGED WEAR SLEEVE	1
18	019800	TYPHOON PIPE BLASTER, SPRING	1
19	036700	TYPHOON PIPE BLASTER, SCREW SOCKET SET M5 x 12mm	2
20	013400	TYPHOON PIPE BLASTER, SMALL ROTATING HEAD, SUITS 3/4" NPSM THREAD NOZZLES	1
	013700	TYPHOON PIPE BLASTER, LARGE ROTATING HEAD, SUITS 1-1/4" NPSM THREAD NOZZLES **(OPTIONAL)**	1
21		SEE TABLE 2.2 IN THIS MANUAL FOR LIST OF COMPATABLE NOZZLES	2
22	036800	TYPHOON PIPE BLASTER, BOLT, HEX HEAD M5 x 60mm	4
23	003800	TYPHOON PIPE BLASTER, BOLT, WASHER, FLAT, 5mm	8
24	0051-00	TYPHOON PIPE BLASTER, BOLT, WASHER, SPRING, 5mm	8
25	036900	TYPHOON PIPE BLASTER, BOLT, HEX HEAD, M5 x 50mm	4
26	SB-1S-IR	THRD CPLG, STD NPS, IRON, 1-1/4"	2
	SB-1S-BR	HRD CPLG, STD NPS, BRASS, 1-1/4", 175 PSI MAX **(OPTIONAL)**	2
27	035200	TYPHOON PIPE BLASTER, PLUG, 1" NPT	1

7.1.2 Product Exploded View - TYPHOON SPIN TOOL

RECOMMENDED SPARE PARTS: 3, 10, 14, 15 & 17





Typhoon Pipe Blaster (017000)
+ Small Range Scissor Carriage (015100)

Typhoon Pipe Blaster (017000)
+ Mid Range Carriage Set (016400)

Typhoon Pipe Blaster (017000)
+ Optional Large Rotating Head (013700)
+ Large Range Carriage Set (016500)
+ (2) 1-1/4" Nozzles