

INSTALLATION, OPERATION & MAINTENANCE MANUAL

ROTORBLAST™ INTERNAL PIPE BLASTING TOOL



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GENERAL DESCRIPTION

Internal pipe surface preparation is accomplished easier, faster and more economically by the use of Blastmaster's® RotorBlast™ internal pipe blasting tool. The RotorBlast™ is specially designed to blast clean the interior of pipes ranging in size from 8" to 36" (200mm to 900mm) inside diameter with the standard tool and up to 60" (1525mm) inside diameter with the optional 1 1/4" nozzle head attached (see Owner's Manual for Jumbo RotorBlast™). This is achieved *without the need to rotate the pipe*. Through highly powered abrasive impact, millscale, rust, old paint and any other contaminants are removed from the inside surface better than any other method. Precise surface profiles can be obtained, ensuring proper adhesion for long-life coatings.

Standard abrasive blast machines are used in conjunction with the RotorBlast™, which simply replaces the conventional blast nozzle at the end of the blast hose. As the tool passes through the pipe being cleaned, abrasive is ejected by two special nozzles mounted on a rotation head. A brake retards the rotation of the head to keep it at optimum blasting speed. Two centring devices are available to hold the tool in position during passes, and can be easily adjusted for various pipe diameters (recommended choices for various applications are given in the charts below).

The RotorBlast™ tool is constructed from the finest materials available, and is engineered to provide many hours of productive work. The RotorBlast™ is complemented by the Blastmaster® RotorSpray™ pipe coating tool.

The Blastmaster® RotorBlast™: a highly efficient solution for a difficult job.

NOZZLE, CARRIAGE AND COMPRESSOR RECOMMENDATIONS (FOR STANDARD TOOL)

PIPE I.D.	NOZZLE SIZE (Part No.)	CARRIAGE (Part No.)	COMPRESSOR REQUIRED
8" – 12"	1/4" orifice x 1 3/4" (BN AT4)	small (IP C1100)	250cfm
12" – 20"	5/16" orifice x 3" (BN ASB15)	large (IP C1200)	365cfm
24" – 36"	3/8" orifice x 4 1/8" (BN ASB17)	large (IP C1200)	600cfm

*5/16" x 1 " and 3/8" x 1 " nozzles are also available. See Replacements Parts List.

NOZZLE, CARRIAGE AND COMPRESSOR RECOMMENDATIONS (FOR LARGE DIAMETER TOOL)

(See Owner's Manual for Jumbo RotorBlast™)

EQUIPMENT AND MATERIALS REQUIRED

Use of the RotorBlast™ tool requires the same equipment as any other blast cleaning operation (an air compressor and an abrasive blast machine). In addition, a pipe lance the same length as the pipe to be internally cleaned, two Blastmaster® couplings (HF BTC1) and a centring carriage are required.

Consult the chart on the previous page to determine the proper size carriage for your application. The RotorBlast™ uses any 16 to 35 abrasive except aluminium oxide and silicon carbide. Garnet is highly recommended as the ideal media due to its low cost and high blasting efficiency.

CENTRING DEVICES

Two centring devices are available for the RotorBlast™. The 'Collar and Arm' system (a) will adapt the RotorBlast™ for 8" to 36" (200mm to 900mm) pipe and the 'Scissor Type' Centring Carriage (b) is adjustable to fit diameters between 8" and 17" (200mm and 430mm). See Figure 1.



Figure 1

SET UP

(a) **SCISSOR TYPE ADJUSTABLE CARRIAGE** (Part No. IP C1100). The adjustable centring carriage (Figure 3) fits on the RotorBlast™ tool as a single assembly and adjusts to the pipe I.D. by a scissor action. To mount the RotorBlast™ in the carriage:

- 1) Loosen the lock nut and remove the rubber nipple assembly from the RotorBlast™.
- 2) Slide the back end of the RotorBlast™ through the front collar and into the rear collar so the rear end plate extends out just past the rear collar. Be sure the nozzle head spins free. Secure the rear collar with the two sets screws provided.
- 3) Adjust the carriage to the required size by expanding the scissor action. Allow the front collar to slide back over the RotorBlast™. Lock the carriage in position by tightening the two set screws on the front collar.
- 4) Reinstall the rubber nipple assembly. Adjust for proper drag (see Operation point 2).

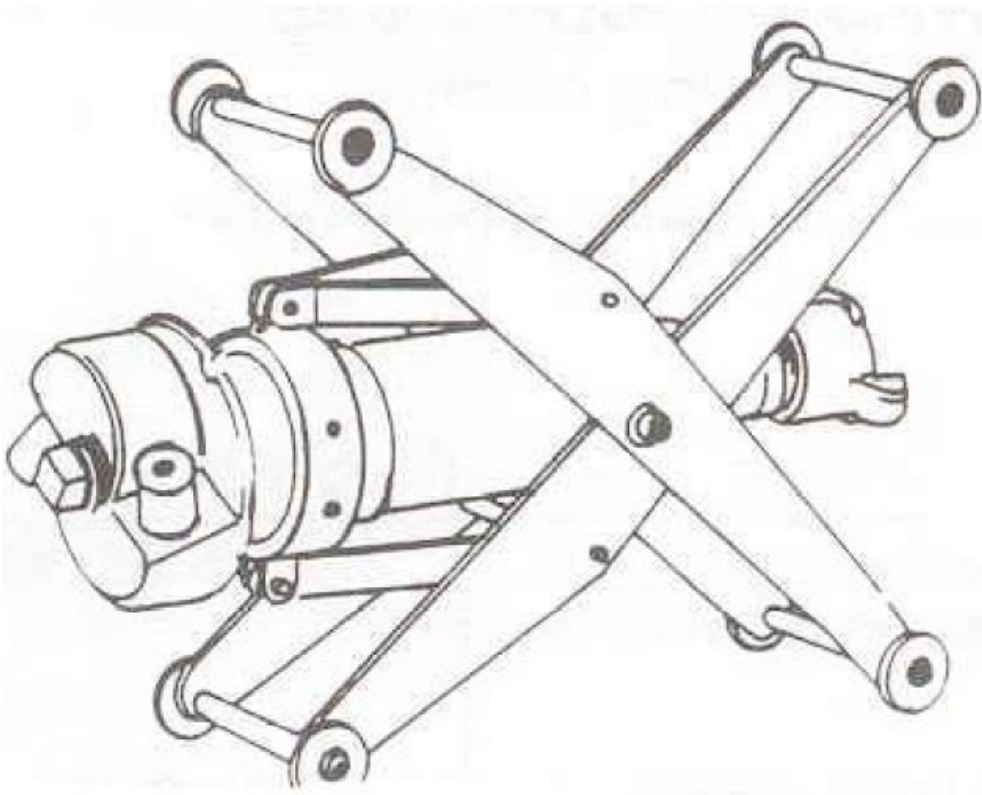


Figure 3

(b) **COLLAR AND ARM SYSTEM** (Part No. IP C1200). This system (Figure 2) consists of two cast collars, six wheels and three leg sets (six each). To mount the RotorBlast™ in the carriage:

- 1) Loosen the lock nut and remove the rubber nipple assembly from the RotorBlast™ tool.
- 2) Slide the larger body collar over the RotorBlast™ approximately 1" back from the rotating head. Secure with two locking screws.
- 3) Reinstall the rubber nipple assembly. Adjust for proper drag (see Operation point 2). The smaller lance collar is for the pipe lance and should be located as far away from the tool as needed to prevent the lance from bowing.
- 4) Select the appropriate set of legs and attach the wheels using clevis pins. Install on both collars and adjust so the tool is centred and on an even plane (wheels must be running in a straight line with the tool). The large carriage tracks best when it is placed in the pipe with one leg facing down, positioning the legs in a 'Y' shape.

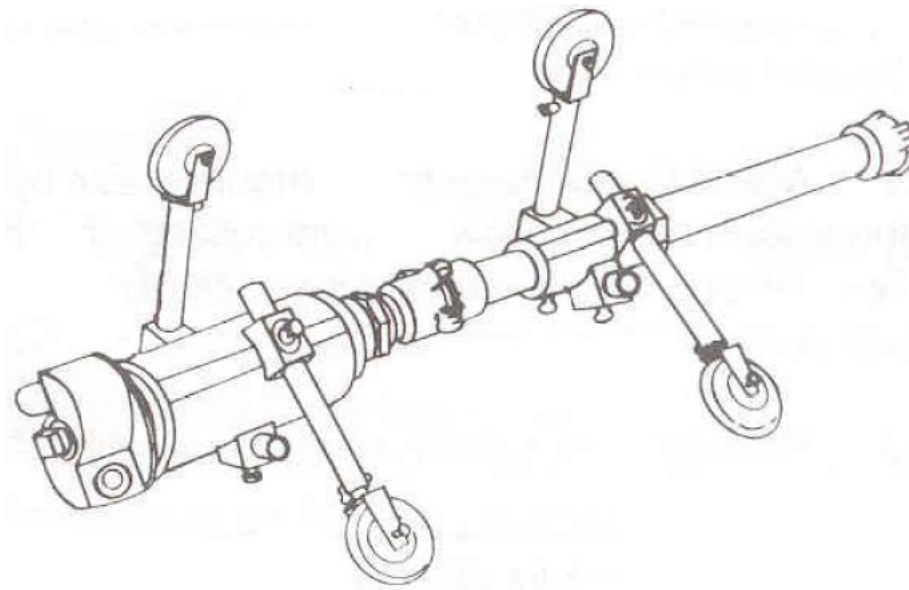


Figure 2

Short leg set	4" long for	12" to 14" I.D. pipe
Medium leg set	8" long for	14" to 20" I.D. pipe
Long leg set	17" long for	24" to 36" I.D. pipe
(Optional) leg set	36" long for	40" to 60" I.D. pipe

WARNING

Do not approach the RotorBlast™ from the side when it is moving. Do not let the spinning nozzles touch the surface being cleaned.

GENERAL INSTRUCTIONS

1. Mount the RotorBlast™ tool in the appropriate centring carriage.
2. Before blasting, rotate the RotorBlast™ head by hand. **IT MUST NOT ROTATE FREELY – THERE SHOULD BE ¼ TO ½ A TURN OF DRAG.** Drag indicates that the leather dust seal which protects the bearings is under adequate pressure, and that the brake will slow the rotating head to optimum blasting speed. If the head rotates freely, tighten the rubber-lined nipple at the rear of the unit. When drag is achieved, tighten the steel locking nut to hold the nipple in place.
3. Using Blastmaster® couplings (HF BTC1), couple the blast hose to one end of the pipe lance and the RotorBlast™ tool to the other. Secure with safety whipcheck cables (HF SCA1).
4. Position the pipe in a convenient location. Since the pipe need not be rotated, it can be cleaned in stacks.
5. With the RotorBlast™ tool just inside the pipe to be cleaned, apply **AIR ONLY** to the tool. **CHECK TO MAKE SURE THAT NO AIR IS ESCAPING FROM THE FOUR PRESSURE RELIEF HOLES ON THE REAR END PLATE.** Escaping dust or air indicates that there is not enough pressure on the leather dust seal, or that it is worn out (see point 2). **A LOOSE OR WORN DUST SEAL COULD CAUSE SEVERE DAMAGE TO THE ROTORBLAST™ TOOL IN A MATTER OF MINUTES.**
6. Using the pipe lance, push the RotorBlast™ to the far end of the pipe. Then add abrasive to the air. Supply a rich air/abrasive mixture. **TOO LEAN A MIXTURE WILL CAUSE PREMATURE WEAR ON THE ROTATING HEAD.**
7. Pull the tool back towards you steadily and evenly. The speed is determined by the desired finish. **CHECK FOR PROPER DRAG AFTER THE FIRST 15 MINUTES OF USE AND AT LEAST EVERY 30 MINUTES THEREAFTER. TIGHTEN THE RUBBER-LINED NIPPLE IF NECESSARY.**

⚠ WARNING ⚠

Failure to perform proper maintenance, particularly when dust seals are involved, will result in severe damage to the RotorBlast™. Read all the instructions carefully.

LEATHER DUST SEAL

The leather dust seal (19) must be kept under adequate pressure, and must never be allowed to wear through. Check for drag on the rotating head (2) after the first 15 minutes of use and at least every 30 minutes thereafter and every time before use. Inspect the leather dust seal for wear every four hours unless your experience indicates a longer life.

To replace the dust seal, back off the rubber-lined nipple (24) and remove the end plate (21). Be careful not to drop the tungsten carbide washer (20) as it is extremely brittle. Clean the exposed bearing seal (18) and the grooved end of the tube (13). Apply a liberal coating of Vaseline or cup grease to the exposed parts and install a new leather dust seal with the smooth (shiny) side toward the bearing seal. The leather dust seal must be totally flat before installation to provide an airtight seal. After reassembly, check for proper drag on the rotating head.

TUNGSTEN CARBIDE WASHER

Replace the tungsten carbide washer (20) before it wears larger than the opening in the tube (13).

NOZZLES

To promote even nozzle wear and ensure the longest possible nozzle life, the blast nozzles (4-8) can both be rotated one quarter turn daily. This is not recommended as it allows for the possibility of the nozzles becoming too loose and possibly falling out. If it is to be practised, then the nozzles should be rotated out one quarter turn the first day and in one quarter turn the next day.

NOZZLE HEAD AND PLUG

Replace the nozzle head plug (1) every eight hours, unless your experience indicates a longer or shorter life (the operating pressure, type of abrasive and type of nozzle affect the wear rate). Replace the nozzle head (2) when it wears out. When removing or replacing either the nozzle head or the plug, remove the set screw (9) in the brake housing (3) and insert a screwdriver or other similar tool into the hole to prevent the casing from turning.

⚠ WARNING ⚠

Make sure the rotating head is tightened down. A head that is only finger tight may fly off during use.

BRAKE LINING

Inspect the brake lining daily. Replace the brake (12) before the lining wears so thin that it damages the brake shoe or the brake housing.

LOCK RING/BEARING SEAL

To replace the bearings (15) or remove the steel tube (13), the rear end plate (21) must be removed to expose four screws holding the retaining ring (26) on to the main body. Remove the retainer ring to expose the tube lock ring (17). Do not reuse the lock ring or bearing seal.

TUBE CASTING AND BEARINGS

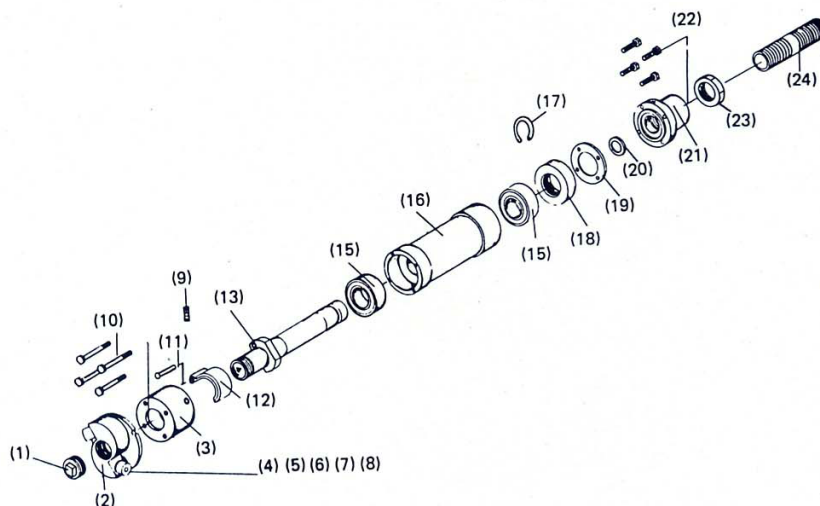
Remove the lock ring and bearing seal (see previous paragraph) and nozzle head (see previous page). Remove brake housing (3). Drive or press tube casting out through the front of the main body. To replace the bearings, drive or press them out each end of the main body and reassemble in reverse order.



ROTORBLAST™

Item	Description	Part No.
-	RotorBlast™ Internal Pipe Blasting tool (does not include centring carriages)	IP C1000

Item	Description	Part No.
1 *	Standard pipe plug, 1" (4)	IP C1001
2 *	Rotating nozzle head (1)	IP C1002
3	Brake housing	IP C1003
4	Nozzle (tungsten) 1/4" orifice x 1 3/4" long	BN AT4
5	Nozzle (tungsten) 5/16" orifice x 1 3/4" long	BN AT5
6	Nozzle (tungsten) 3/8" orifice x 1 3/4" long	BN AT6
7	Nozzle (tungsten) 5/16" orifice x 3" long	BN ASB15
8	Nozzle (tungsten) 3/8" orifice x 4 1/8" long	BN ASB17
9	Set screw, 1/4 - 20 x 1/4"	IP C1004
10	Machine screw, round head, 10 - 24 x 1 1/2"	IP C1005
11	Brake shoe pin, 3/16"	IP C1006
12 *	Brake with lining (1)	IP C1007
13 *	Tube casting (1)	IP C1008
14	Set screw 10 - 24 x 3/16"	
15 *	Double seal light bearing (2)	IP C1009
16	Main body	IP C1010
17 *	Tube locking ring (2)	IP C1011
18 *	Bearing seal (1)	IP C1012
19 *	Leather dust seal (30)	IP C1013
20 *	Washer (tungsten carbide) (2)	IP C1014
21	Rear end plate	IP C1015
22	Machine screw, round head, 10 - 24 x 1"	IP C1016
23	Locking hex nut for rear end plate	IP C1017
24	Rubber-lined nipple, 1 1/4" (2)	IP C1018
*	Included in Repair Kit	IP C1099



REPLACEMENT PARTS

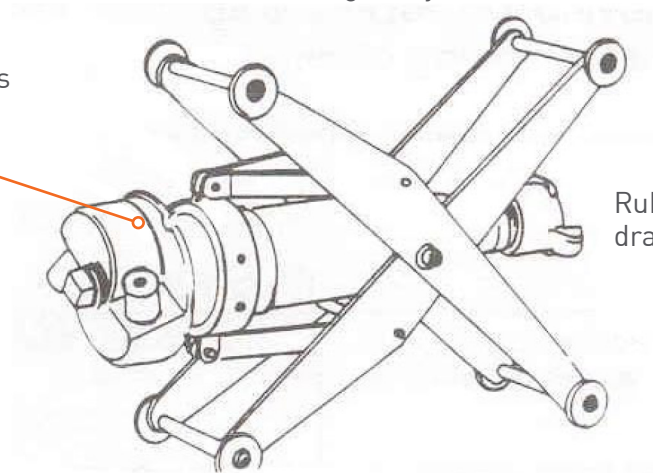
ROTORBLAST™ CENTRING CARRIAGES

Item	Description	Part No.
-	Collar and Arm Centring Carriage 8" – 36" I.D. (includes 2 cast collars, 6 wheels and 3 leg sets - 6 each)	IP C1200
-	Scissor Type Centring Carriage 8" – 17" I.D. (includes adjusting nut)	IP C1100

Item	Description	Part No.
1	Front body collar	IP C1201
2	Rear body collar	IP C1202
3	Adjustable legs (set)	IP C1203
4	Castors, 3"	IP C1204

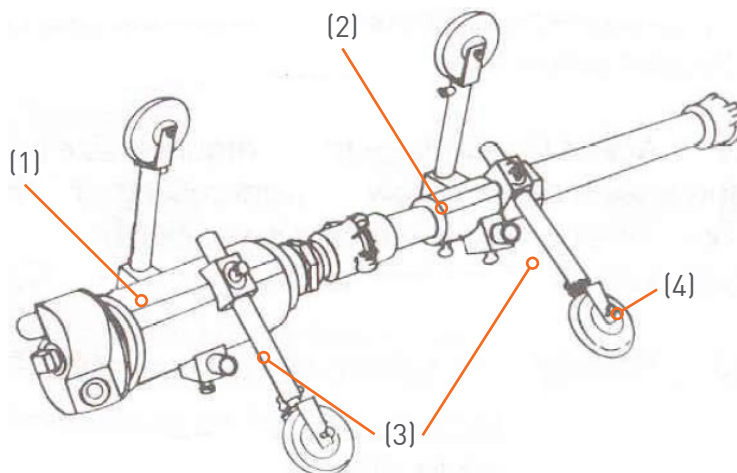
Rear Collar – locks into place, may be moved in on larger adjustments

Front Collar - slides for adjustment



Rubber nipple assembly – adjust drag before using tool

Scissor Type Adjustable Carriage (IP C1100)



Collar and Arm Adjustable Carriage (IP C1200)

PROBLEM	PROBABLE CAUSE	REMEDY
Abrasive or air escaping through relief holes in rear end plate	Leather dust seal is loose or worn	Check for wear and replace worn seal if necessary Tighten rubber-lined nipple (item 24)
Nozzle head will not rotate or rotates too slowly	Insufficient air pressure	Increase pressure
	Plugged nozzle	Remove obstruction
	Excessive pressure on seals	Loosen rubber-lined nipple (item 24)
	Damaged bearings	Replace bearings
Nozzle head rotates too fast	Worn out brake (item 12)	Replace brake
	Nozzles are worn out	Replace nozzles
	Drag is too loose	Tighten rubber-lined nipple (item 24)
Vibration	One nozzle is plugged	Remove obstruction
	Unbalanced nozzle orifice or length	Use identical nozzles (length and orifices)
	Loose centring carriage	Tighten all bolts on carriage
Tool runs hot	Oil accumulation on brake lining	Clean brake lining



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