

**SPIN BLAST TOOL
O.M. 06157**

**MC FILE NUMBER: 138-0877
DATE OF ISSUE: 8/15/77
REVISION: I, 03/93**

 **WARNING**

Do not proceed with these instructions until you have READ the orange cover of this MANUAL and YOU UNDERSTAND its content.* These WARNINGS are included for the health and safety of the operator and those in the immediate vicinity.

***If you are using a Clemco Distributor Parts and Maintenance Guide refer to the orange warnings insert preceding the Index before continuing with the following instructions.**

© CLEMCO INDUSTRIES CORP.
One Cable Car Drive
Washington, MO 63090
Phone (636) 239-4300
Fax (636) 239-0788
Email: info@clemcoindustries.com
www.clemcoindustries.com



WARNING

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

1.0 INTRODUCTION

1.1 General Description. The Spin-Blast tool (Figure 3) cleans the interior of pipes up to 40 ft. long and ranging in size from 8" to 36" I.D. with the standard tool or up to 60" I.D. with the use of optional 1-1/4" nozzle head. The tool connects to most abrasive blasting machines in place of a standard nozzle. As the tool passes through the length of 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. A centering carriage holds the tool in position during the pass. Two centering carriages and several sizes of nozzles are available. Recommended choices for various applications are given in the charts below. The standard unit is shipped with two 1/4" orifice x 1-3/4" long nozzles.

NOZZLE, CARRIAGE and COMPRESSOR RECOMMENDATIONS (for standard tool)

Pipe I.D.	Nozzle Size (& Stock No.)	Carriage (& Stock No.)	Compressor Required
8"-12"	1/4" orifice x 1-3/4" (01408)	small (03641)	250 cfm
12"-20"	5/16" orifice x 3" (01410)	large (04971)	365 cfm
24"-36"	3/8" orifice x 4" (01412)	large (04971)	600 cfm

*5/16" x 1-3/4" and 3/8" x 1-3/4" nozzles are also available. See Replacement Parts List.

NOZZLE, CARRIAGE and COMPRESSOR RECOMMENDATIONS (for large diameter tool)

Note: The following requires the use of the optional 1-1/4" nozzle head.

Pipe I.D.	Nozzle Size (& Stock No.)	Carriage (& Stock No.)	Compressor Required
40"-60"	1/4" orifice SSR-4 (04703)	large (10560)	250 cfm
	5/16" orifice SSR-5 (04704)	large (10560)	365 cfm
	3/8" orifice SSR-6 (04705)	large (10560)	600 cfm

2.0 SET-UP AND OPERATION

2.1 Equipment and Materials Required

2.1.1 Use of the Spin-Blast tool requires the same equipment as any other abrasive blast cleaning operation, i.e. an air compressor and an abrasive blast machine. In addition, a pipe lance the same length as the pipe to be internally cleaned, two Clemco CF couplings (Stock No. 00551) and a centering carriage are required.

2.1.2 Consult the chart on this page to determine the proper size carriage for your application. The Spin-Blast uses any 16 to 35 mesh abrasive except aluminum oxide and silicon carbide.

2.2 Large Centering Carriage (for 12" to 36" I.D. pipe): The large carriage (Figure 1) consists of two cast collars, six wheels and three leg sets (six each).

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

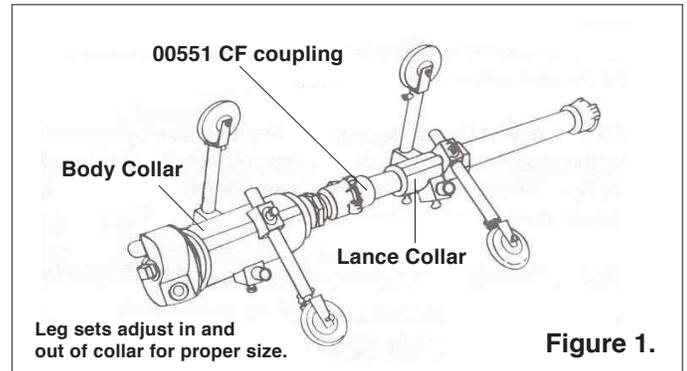


Figure 1.

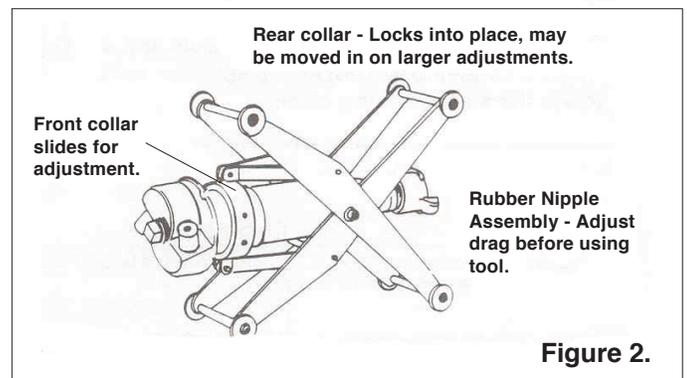


Figure 2.

2.3 Installation

2.3.1 Loosen the lock nut and remove the rubber nipple assembly from the Spin-Blast tool.

2.3.2 Slide the larger body collar over the Spin-Blast

tool approximately 1” back from the rotating head. Secure with two locking screws. Reinstall the rubber nipple assembly. Adjust for proper drag. (See Section 2.6.2.) 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.

2.3.3 Select the appropriate set of legs and attach the wheels using clevis pins. Install on both collars and adjust so the tool is centered 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.

2.4 Small Centering Carriage (for 8” to 17” I.D. pipe): The small centering carriage (Figure 2) fits on the Spin-Blast tool as a single assembly and adjusts to the pipe I.D. by a scissor action.

2.5 Installation

2.5.1 Loosen the lock nut and remove the rubber nipple assembly from the Spin-Blast tool. Slide the back end of the Spin-Blast 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 set screws.

2.5.2 Adjust the carriage to the required size by expanding the scissor action. Allow the front collar to slide back over the Spin-Blast. Lock the carriage in position by tightening the two set screws on the front collar.

2.5.3 Reinstall the rubber nipple assembly. Adjust for proper drag. (See Section 2.6.2.)

WARNING

Do not approach the Spin-Blast from the side when it’s moving. Do not let the spinning nozzles touch the surface being cleaned.

2.6 Operation

2.6.1 Mount the Spin-Blast tool in the appropriate centering carriage.

2.6.2 Before beginning, rotate the Spin-Blast head by hand. IT MUST NOT ROTATE FREELY – THERE MUST BE SOME 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 down the steel locking nut to hold the nipple in place.

2.6.3 Using Clemco CF couplings, couple the blast hose to one end of the pipe lance and the Spin-Blast tool to the other. Secure with safety wires.

2.6.4 Position the pipe in a convenient location. Since the pipe need not be rotated, it can be cleaned in stacks.

2.6.5 With the Spin-Blast tool just inside the pipe to be cleaned, apply AIR ONLY to the tool. Check to make sure that no air or dust 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 Section 2.6.2.) A LOOSE OR WORN DUST SEAL COULD CAUSE SEVERE DAMAGE TO THE SPIN-BLAST TOOL IN A MATTER OF MINUTES.

2.6.6 Using the pipe lance, push the Spin-Blast tool 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.

2.6.7 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.

3.0 TROUBLESHOOTING (SEE CHART BELOW.)

Problem	Probable Cause	Remedy
Abrasive or air escaping through relief holes in rear end plate.	Leather dust seal is loose or worn.	1. Check for wear and replace worn seal if necessary. 2. Tighten rubber-lined nipple (Item 24).
Nozzle head will not rotate or rotates too slowly.	1. Insufficient air pressure. 4. Damaged bearings. 2. Plugged nozzle. 3. Excessive pressure on seals.	1. Increase pressure. 4. Replace bearings. 2. Remove obstruction. 3. Loosen rubber-lined nipple (Item 24).
Nozzle head rotates too fast.	1. Worn-out brake (Item 12). 2. Nozzles are worn out. 3. Drag is too loose.	1. Replace brake. 2. Replace nozzles. 3. Tighten rubber-lined nipple (Item 24).
Vibration	1. One nozzle is plugged. 2. Unbalanced nozzle orifice or length. 3. Loose centering carriage.	1. Remove obstruction. 2. Use identical nozzles (length and orifices.) 3. Tighten all bolts on carriage.
Tool runs hot.	1. Oil accumulation on brake lining.	1. Clean brake lining.

4.0 MAINTENANCE

4.1 Leather Dust Seal (Figure 3)

4.1.1 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 using tool. 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); 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 side toward the bearing seal. After reassembly, check for proper drag on the rotating head.

4.2 Tungsten Carbide Washer (Figure 3)

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

4.3 Nozzles

4.3.1 Rotate both of the blast nozzles (4-8) one quarter turn daily. This will promote even nozzle wear, and assure the longest possible nozzle life.

4.4 Nozzle Head and Plug (Figure 3)

4.4.1 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 screw driver or other similar tool into the hole to prevent the tube casing from turning.

WARNING

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

4.5 Brake Lining (Figure 3)

4.5.1 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 (3).

4.6 Lock Ring/Bearing Seal (Figure 3)

4.6.1 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 retainer ring (26) on to the main body. Remove the retainer ring to expose the tube lock ring (17). Do not reuse lock ring or bearing seal.

4.7 Tube Casting and Bearings

4.7.1 Remove lock ring and bearing seal (See Section 4.6) and nozzle head (See Section 4.4). Remove brake housing (3). Drive or press tube casting out through the front of the main body. To replace bearings, drive or press bearings out each end of the main body and reassemble in reverse order.

5.0 REPLACEMENT PARTS

5.1 Spin-Blast Tool (Figure 3)

Item	Description	Stock No.
(—)	Spin-Blast Tool (complete)	02601
(—)	Spare parts kit (indicated by *, quantities shown in parentheses)	02603
(—)	Spare parts kit for large diameter Spin-Blast. (Includes same items as 02603 except 10546 replaces 02604)	10894
(1)*	Standard pipe plug, 1" (4)	01761
(2)*	Rotating nozzle head (1)	02604
(3)	Brake housing	02606
(4)	Nozzle, tungsten, 1/4" orifice x 1-3/4" long	01408
(5)	Nozzle, tungsten, 5/16" orifice x 1-3/4" long	01409
(6)	Nozzle, tungsten, 3/8" orifice x 1-3/4" long	01411
(7)	Nozzle, tungsten, 5/16" orifice x 3" long	01410
(8)	Nozzle, tungsten, 3/8" orifice x 4" long	01412
(9)	Set screw, 1/4-20 x 1/4"	03071
(10)	Machine screw, round head, 10-24 x 1-1/2"	03892
(11)	Locking pin, brass	02628
(12)*	Brake with lining (1)	02608

(13)*	Tube (casting) (1)	02609
Item	Description	Stock No.
(14)	Set screw, 10-24 x 3/16"	03270
(15)*	Double seal light bearing (2)	02611
(16)	Main body	10899
(17)*	Tube locking ring (2)	02610
(18)*	Bearing seal (1)	02613
(19)*	Leather dust seal (30)	02614
(20)*	Washer, tungsten, carbide (2)	02616
(21)	End plate, rear	02615
(22)	Machine screw, round head, 10-24 x 1"	03891
(23)	Hex nut for rear end plate	02618
(24)*	Rubber lined nipple, 1-1/4" (2)	02617
(25)	Quick coupling, threaded (NPS)	00592
(26)	Retainer ring	10898
(27)	10-24 x 1" flat head screws	10897
(28)	Nozzle head, large diameter for 1-1/4" nozzles	10546
(29)	Nozzle SSR-4, 1/4" orifice	04703
(30)	Nozzle SSR-5, 5/16" orifice	04704
(31)	Nozzle SSR-6, 3/8" orifice	04705

5.2 Small Adjustable Centering Carriage

- (—) Small centering carriage complete 03641

(1)	Wheel	03636
(2)	Bushing kit (each)	03706

5.3 Large Centering Carriage

(—)	Large centering carriage complete	04971
(1)	Front (body collar)	04937
(2)	Rear (lance collar)	04938
(3)	3" Wheel set (6 each) with clevis pin	04899
(4)	3" Wheel (1 each) with clevis pin	04898
(5)	Clevis pin with cotter pin	04897
(6)	Short leg set (6 each, 4" long) for 12" to 14" I.D. pipe	04896
(7)	Medium leg set (6 each, 8" long) for 14" to 20" I.D. pipe	04895
(8)	Long leg set (6 each, 17" long) for 24" to 36" pipe	04894

5.4 Large Diameter Carriage

(—)	Large diameter carriage complete	10560
(1)	36" leg set for 40" to 60" pipe	10559

NOTE: See Section 5.3 for carriage replacement parts.

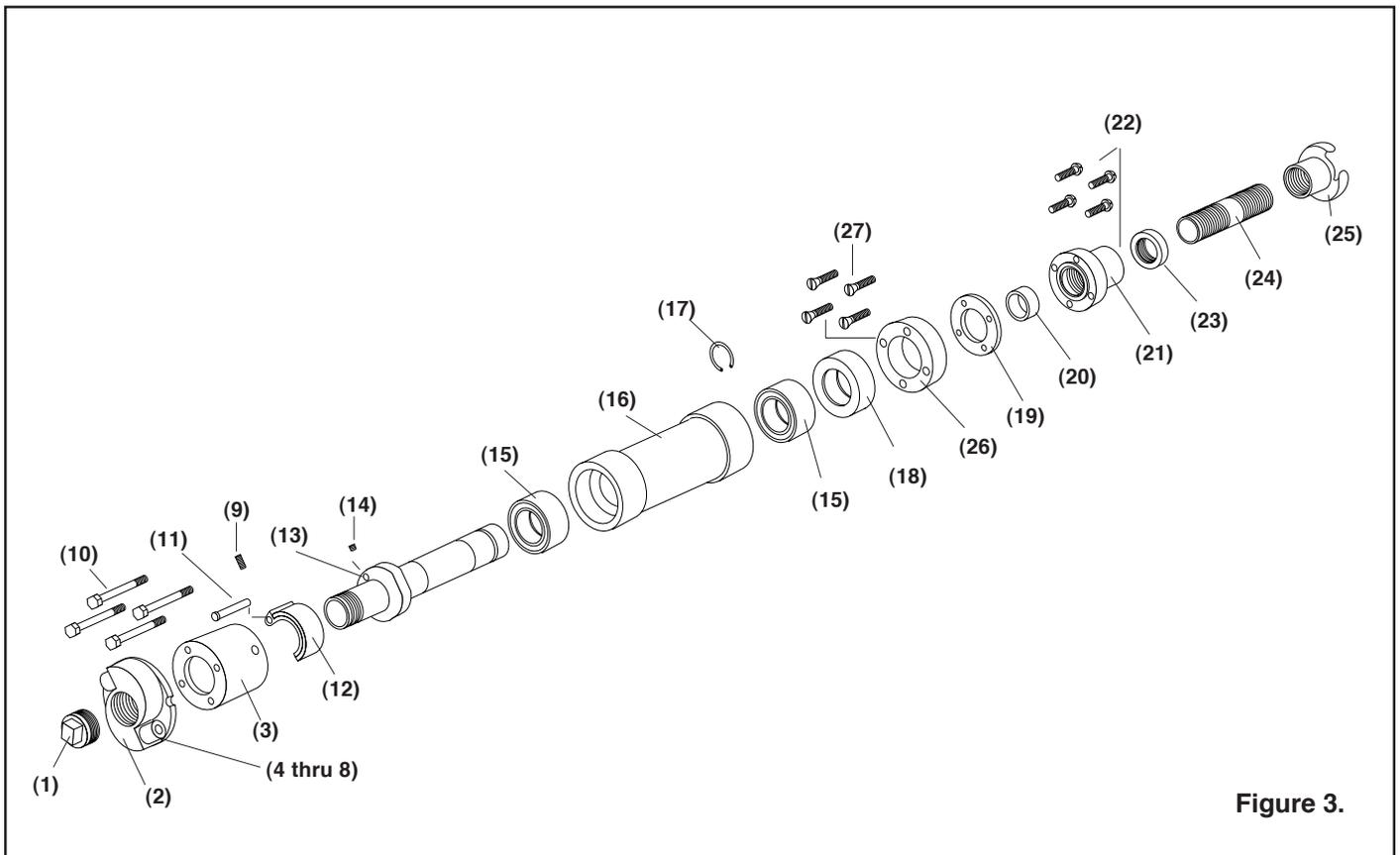


Figure 3.