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# OWNER´S MANUAL

## EDUCT-O-MATIC

Revision : 01.2015

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# WARNING

1. Tool operator and anyone within 50 feet of work area must wear safety goggles.
2. Check for possible silicosis or other toxic hazards.
3. Do not blast with damaged or worn equipment.
4. Point nozzle only toward area being cleaned.
5. Use only abrasives specially intended for blasting.
6. Keep unprotected workers out of the blast area.
7. Before blasting check fittings for wear.
8. Do not substitute for parts from other manufacturers, or modify equipment in any way.

## **NOTICE TO PURCHASERS AND USERS OF OUR PRODUCTS AND THIS INFORMATIONAL MATERIAL**

The products described in this material and the information relating to those products, is intended for knowledgeable, experienced users of abrasive blasting equipment.

No representation is intended or made as to the suitability of the products described herein for any particular purpose or application. No representations are intended or made as to the efficiency, production rate, or the useful life of the product described herein. Any estimate regarding production rates or production finishes are the responsibility of the user and must be derived solely from the user's experience and expertise, and must not be based on information in this material.

The products described in this material may be combined by the user in a variety of ways for purposes determined solely by the user. No representations are intended or made as to the suitability or engineering balance of the combination of products determined by the user in his selection, nor as to the compliance with regulations or standard practice of such combinations of components or products.

It is the responsibility of the knowledgeable, experienced users of the products mentioned in this material to familiarize themselves with the appropriate laws, regulations and safe practices that apply to these products, equipment that is connected to these products, and materials that may be used with these products.

It is the responsibility of the user to insure that proper training of operators has been performed and a safe work environment is provided.

Our company is proud to provide a variety of products to the abrasive blasting industry, and we have confidence that the professionals in our industry will utilize their knowledge and expertise in the safe efficient use of these products.

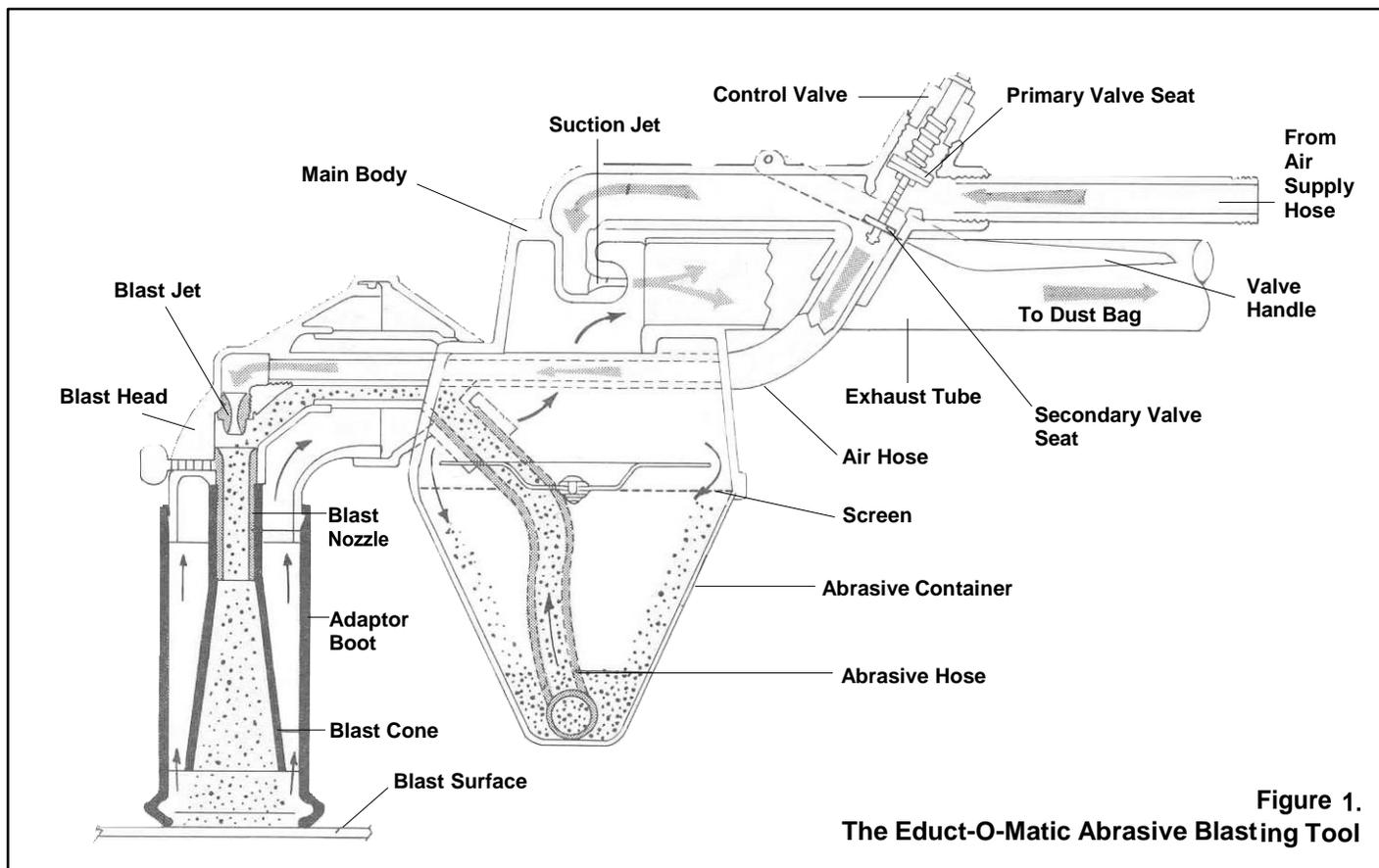


Figure 1.  
The Educt-O-Matic Abrasive Blasting Tool

## 1.1 INTRODUCTION

**1.2 General Description.** The Educt-O-Matic is a light-weight, portable abrasive blasting tool with an integral abrasive recovery system. During blasting, abrasive is continually recycled, while dust and other debris are collected in a slip-on dust bag. Interchangeable adaptor boots for level surfaces, corners, etc. fit over the swivel blast head to assure efficient recovery on any surface.

**1.3 Principles of Operation (Figure 1).** When the dual-seated valve is fully open, compressed air entering the tool is split into two streams. The first rushes through the air hose to the blast jet. A partial vacuum is created in the blast head at the point where this air stream passes from the blast jet to the blast nozzle, and abrasive is drawn up to this point from the abrasive container via the abrasive hose. (This is the principle of eduction which gives the tool its name.) The air/abrasive mixture then passes through the nozzle and strikes the surface being blasted.

The second air stream passes along the tube at the top of the unit to the suction jet, which creates (again by eduction) the vacuum necessary for abrasive recovery. The region surrounding the adaptor boot's blast cone is under vacuum whenever the tool is blasting. Abrasive, dust and debris are drawn up the outer part of the adaptor boot into the main body, where abrasive is separated from lighter particles of debris and dust by cyclonic action. Abrasive falls through a screen into the abrasive container to be reused for blasting. Debris and dust spiral inward to the center of the main body, and from there move out the top and into the dust bag.

## 2.0 SET-UP

**2.1 Air Supply.** The Educt-O-Matic requires 90 c.f.m. at 90 p.s.i. Use a 1/2" or 3/4" air supply line; 3/4" is preferred. The shorter the air supply line, the better. An air filter and moisture separator are recommended to prevent clogging of the tool.

**2.2 Adaptor Boots.** The adaptor boots available for the Educt-O-Matic are shown in figure 5. If you ordered your unit with only the standard adaptor, you may order the others separately, or as a set. (See paragraph 5.0) The standard and master adaptors fit onto the blast head and are held in place by friction. The four special boots fit the master adaptor only. They too are held in place by friction. Make sure that the boots are properly seated before beginning to blast.

**2.3 Abrasive/Abrasive Loading.** Any standard 40 to 100 mesh blasting abrasive may be used. Fragile abrasives such as silica sand are not recommended because of the rapid breakdown of the abrasive particles which cause excessive dust and fines. Extremely sharp abrasives such as aluminum oxide and silicon carbide may be used, however the cutting action of these abrasives will cause excessive wear on the tool. For both efficiency and tool protection, Clemco recommends steel grit or iron grit. To load the Educt-O-Matic unsnap the abrasive container and place a small amount of abrasive into it. Make sure the abrasive hose is still inserted all the way into the main body after you do this. The tool may also be loaded by suction. See paragraph 3.2. Never overload the tool. Use as little abrasive as possible to reduce operational problems and extend tool life.



Figure 2.

### 3.0 OPERATION

**3.1 Handling the tool.** Grip the valve handle with one hand and the adaptor boot with the other as shown in figure 2. The main body of the tool must remain more or less upright, with the abrasive container pointing downward. The Educt-O-Matic has a swivel blast head which permits blasting in any direction (up, down, sideways) without rotating the main body. Hold the adaptor boot firmly against the surface being blasted to insure a proper seal and prevent abrasive from escaping.

## ⚠ WARNING

**NEVER BLAST UNLESS THE ADAPTOR BOOT IS WELL SEALED AGAINST THE SURFACE BEING BLASTED.**

**3.2 Dual Action of the Valve Handle.** Note that the control valve (figure 1) has two seats. The first 3/16" of the valve handle's travel opens the primary seat only, and the Educt-O-Matic functions essentially like a vacuum cleaner. This is because the primary seat supplies air to the suction jet only. Squeezing the handle further opens the secondary seat as well. Air is supplied to the blast jet, and blasting begins.

For best abrasive recovery, hold the valve handle in the "suction only" position for two or three seconds after blasting. This will recapture any abrasive that happens to be in the blast head at the time. The "suction only" position can also be used for loading. Place a handful of abrasive on any level surface and simply suck it into the tool.

### 4.0 MAINTENANCE

## ⚠ WARNING

**ALWAYS TURN THE AIR OFF AT THE SOURCE WHEN THE EDUCT-O-MATIC IS NOT IN USE.**

**4.1 Dust Bag.** Empty the dust bag regularly. The dust bag is held in place by an elastic strap and by a wire-reinforced split seam on the top of the bag. The seam tucks into a metal clip on the exhaust tube. To remove the dust bag, unsnap the elastic strap grab the end of the bag and pull it toward the main body until the place where the split seam joins together clears the end of the metal clip. The bag can then be removed and shaken out.

To reattach the bag, shove the exhaust tube into the bag (figure 3) until the end of the metal clip is beyond the place where the seam joins. Tuck both of the reinforcing wires into the clip and pull the bag away from the main body (figure 4), shoving the reinforcing wires into the clip as you pull. Don't forget to resnap the elastic.

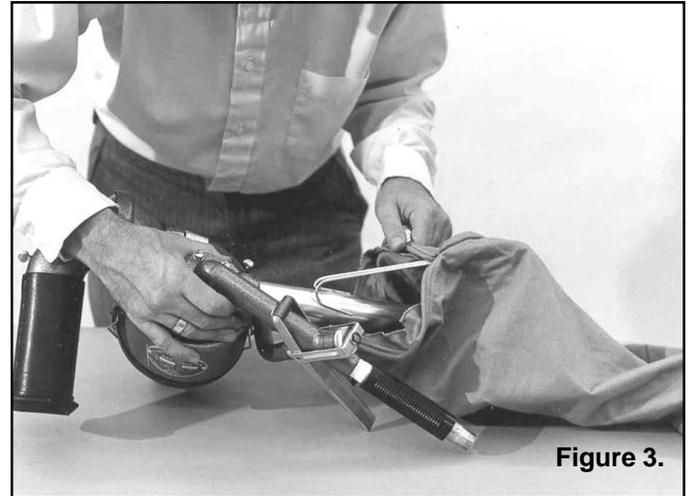


Figure 3.

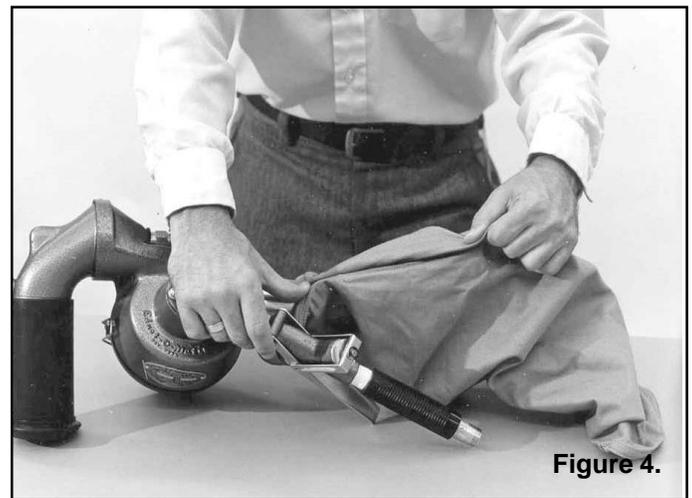


Figure 4.

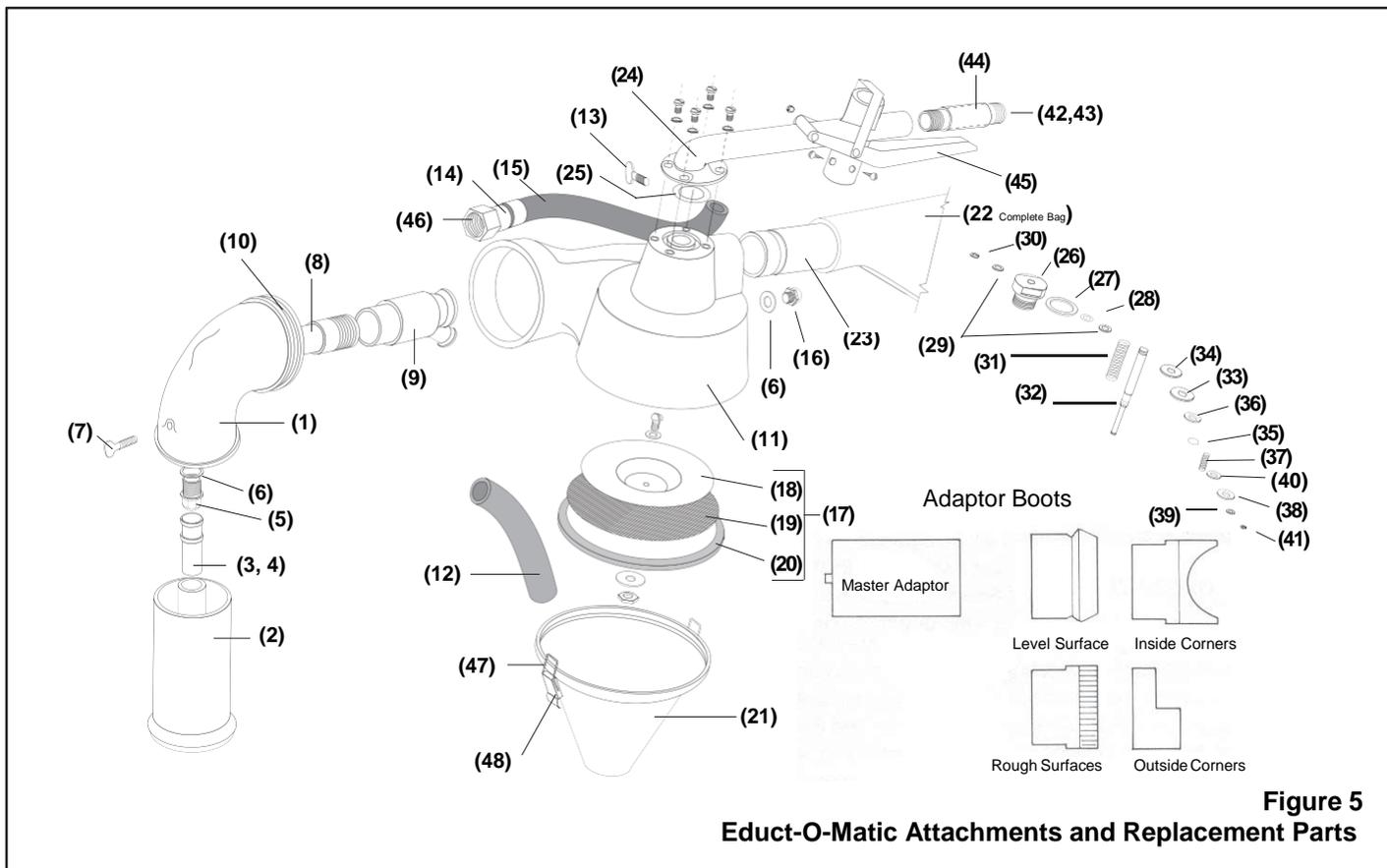
**4.2** Inspecting for Blockages.

## ⚠ WARNING

**NEVER LOOK INTO THE NOZZLE WHEN THE TOOL IS CONNECTED TO A PRESSURIZED AIR SUPPLY LINE.**

The nozzle can be removed for inspection by loosening the thumb screw on the blast head. The interior passages can be inspected by unscrewing the swivel nut which connects the air hose to the blast head.

**4.3 Adaptor Boot.** Inspect the adaptor boot regularly and replace it when excessively worn. Pay particular attention to the sleeve which fits over the blast nozzle. This sleeve protects the outside of the blast nozzle from recycling abrasive and must not be allowed to wear through.



**Figure 5**  
**Educt-O-Matic Attachments and Replacement Parts**

**4.4 Blast Nozzle.** Inspect the blast nozzle regularly and replace it when worn out. The blast nozzle can be removed by loosening the thumb screw on the blast head. Never tighten the thumb screw more than finger tight.

**5.0 ATTACHMENTS (FIGURE 5).**

Item Description	Stock No.
Attachment set (includes all items listed below) ....	00753
Master adaptor (must be purchased with any of the four adaptors listed below) .....	00757
Edge attachment (outside corners) .....	00755
Serrated attachment (rough surfaces) .....	00756
Angle attachment (inside corners) .....	00758
Flat lip attachment (smooth surfaces) .....	00759

**5.1 Replacement Parts (figure 5).**

(-) Educt-O-Matic complete .....	00751
1. Blast head .....	00761
2. Standard adaptor .....	00762
3. Nozzle, 3/8", tungsten carbide .....	00754
4. Nozzle, 3/8", steel .....	00763
5. Blast jet .....	00765
6. Jet gasket, .675 O.D. x .475 I.D. ....	00766
7. Thumb screw, 1/4" NC x 1" .....	03131
8. Blast head nipple, 3/8" x 4" .....	00767
9. Swivel connector .....	00768
10. O-ring .....	00769
11. Main body .....	00770
12. Abrasive hose .....	00771
13. Thumb screw, 10-24 x 1/2" .....	03887
14. Ferrule .....	00774

15. Air hose assy (includes ferrule) .....	00775
16. Suction jet .....	00776
17. Baffle assembly .....	00778
18. Baffle (plastic only) .....	See 00778
19. Screen .....	See 00778
20. Screen gasket .....	See 00778
21. Abrasive container .....	00814
22. Dust bag .....	00785
23. Exhaust tube includes wire form .....	00784
24. Valve body .....	00789
25. O-ring .....	00786
26. Valve bushing .....	00792
27. Valve bushing gasket .....	00793
28. O-ring .....	00794
29. Washer .....	00795
30. Retaining ring .....	00796
31. Spring, 1 1/2" long .....	00797
32. Valve stem .....	00798
33. Washer, 13/16" O.D. x 1/8" .....	00799
34. Washer, brass, .80 O.D. x 1/8" .....	00800
35. Hex nut, 10-32 .....	03885
36. Washer, brass, 9/16" O.D. x 3/64" .....	00802
37. Spring, 1-1/4" long .....	00803
38. Washer, 9/16" O.D. x 5/32" .....	00804
39. Eyelet, brass .....	00805
40. Washer, brass, 1/2" O.D. x 1/32" .....	00806
41. Retaining ring .....	00807
42. Nipple and grip assy .....	00810
43. Pipe nipple, aluminum, 6" long .....	00808
44. Molded handle grip .....	00812
45. Valve handle/yoke assy .....	00811
46. Swivel nut/insert assy .....	00815
47. Container latch hook .....	00782
48. Container latch .....	00781
49. Exhaust tube gasket (not shown) .....	00846