



## OPERATING INSTRUCTIONS

# ***Blast N Vac System with HF Blast Pot***



**Abraclean® Ltd.**  
**Ann Street, STOCKPORT, SK5 7PP**  
**TEL: 0161 480 8087**

**FAX: 0161 480 4424 BS EN ISO9001**

**E-mail: [sales@abraclean.co.uk](mailto:sales@abraclean.co.uk) Visit Our Web Site at [www.abraclean.co.uk](http://www.abraclean.co.uk)**

## **BLAST N' VAC - HEALTH & SAFETY INFORMATION** **FOR THE OPERATORS**

This customer guide sets out the hazards which may be encountered and the precautions that should be taken in the operation of the **Blast N' Vac** equipment. **Blast N' Vac** is a very useful and controlled tool however, it does involve high-pressure air and the projection of hard particles.

### **1. GENERAL**

Always operate the unit in contact with the surface and always point the work-head away from personnel. When not in use the main air valve should be switched off at the source. The blast pot should always be fitted with a functioning deadman control. Prior to any servicing the air should be switched off at source to ensure non-operation of the system. Some blast pots are fitted with constant pressure system and these should be blown down prior to any servicing.

When operating the unit in removal of hazardous coatings such as asbestos or lead paints the relevant health and safety instructions must be observed accordingly.

### **2. OPERATOR PROTECTION**

Operators should wear long sleeved overalls or heavier type clothing with good footwear not open sandals. Gauntlet type gloves should be worn. **A full-face visor is mandatory**, even though this is a vacuum unit; if the head is removed from the surface grit will escape. **It is mandatory that operators wear ear protection** and this can be in the form of ear defenders or of the small ear plug type, noise levels at the work-head can exceed 100dba depending on blast pressures applied. Personnel in the immediate vicinity should also wear ear and eye protection. When removing paint or other coatings that contain hazardous substances, such as lead paint, it is advisable that the operator wears a ventilated mask drawing air through a filter element. **Blast N' Vac** will recover dust particles to the value of 99% and grit particles to the value of 97% however this is on flat surfaces, with corners and sharp angles this value tends towards 97% dust and 92% grit particle recovery.

### **3. HANDLING**

The work-head should always be in contact with the surface prior to blasting and held in place for a few seconds after switching off to allow the air to vent from the hose lines. Blasting should always be carried out with the vacuum pump running. As this tool uses high pressure air to jet particles at surfaces, operators should be trained and records kept of this.

### **4. STATIC ELECTRICITY**

In certain circumstances static electricity may build up in the equipment due to abrasive passing through the blast and recovery hoses. Atmospheric conditions can vary the amount created. Although this can be unpleasant it will not normally cause any injury. Operators should wear protective gloves.

If static electricity is a problem, earthing the whole system by connecting a bare earth wire from the workhead, around all hoses, connecting to each drum and blast pot and then to a good electrical ground, will normally dissipate any static electricity.

**WHEN WORKING IN THE VICINITY OF FLAMMABLE GASSES OR LIQUIDS, WE WOULD RECOMMEND THE SYSTEM SHOULD BE FULLY EARTHED.**

## **SAFETY INSTRUCTIONS** **BLAST N'VAC SYSTEM**

### **SAFE PRACTICES**

1. **Never attempt to perform any maintenance while the unit is under pressure or is even capable of being pressurised.** This means at a minimum the air supply ball valve should be closed and ideally the air source be disconnected.
2. Furnish all personnel in the area with approved respiratory equipment and ear protection and ensure that these are worn.
3. Never connect the pot to a compressed air supply in excess of the Safe **Working** Pressure as stamped on the machine. **If in doubt or obscured check with the manufacturer.**
4. **DANGER** When using mobile diesel air compressors, always site the compressor away from the blast area and outside in a well ventilated area, to avoid any exhaust fumes being drawn into the compressor air intake. All standard breathing air filters **DO NOT** remove carbon monoxide from the air supply.
5. To prevent delayed lung injury **do not use abrasives containing free silica, e.g. Silica Sand**
6. Wear suitable eye protection when filling the unit. There is a possibility that some abrasive may be blown back as the pop-up valve seats.
7. **Always keep fingers well clear of the working area of the pop-up valve.**
8. Periodically check all hoses to see that they are in good condition. Repair any valves or hoses that show signs of wear or leakage.
9. All blast hose couplings and some air hose couplings are provided with holes through which a wire or a pin should be inserted to prevent accidental disconnection. Hose **whip-checks** should be used on all hose joints, This is especially important on the delivery end of all hose lengths.
10. The interior condition of the vessel should be inspected regularly for corrosion.
11. **ALWAYS** Keep the Blast N' Vac work-head pointing towards the work-piece and away from personnel.

## SET UP

1. Connect 3/4" Airline from compressor to the inlet of the VAM5A Water Separator. (Arrow on one side of the unit shows the direction of the airflow)
2. Connect the short 3/4 whip hose from the VAM5A to the inlet of the Blast Pot.
3. Connect a 1" Airline from the compressor to the Vacutrans Vacuum Eductor.
4. Fit whip-check straps to all airline couplings.
5. Fit a centre tube over the end of the blast nozzle or into the workhead depending on which workhead is in use.
6. Screw the relevant nozzle into the blast hose nozzle holder ensuring it is screwed until it meets the blast hose then screw the blast hose nozzle holder into the back of the Blast N' Vac work-head.
7. Fit the 75mm ID Vacuum hose to the vacuum port on the side of the work-head and secure with tape ensuring a seal between the two.
8. Connect the other end of the vacuum hose to the inlet on top of the material recovery hopper.
9. Connect the 51mm ID Vacuum hose from the material recovery hopper to the top centre of the dust filter unit.
10. Connect the 51mm ID hose from the side outlet on the lid of the filter unit to the vacuum inlet port on the Vacutrans unit.
11. Connect the silencer to the exhaust port on the Vacutrans unit.
12. Ensure that the coalescing filter pad, is fitted in the dust filter unit (level with the upper ring of the drum) and that the water is to the correct level. (to the lower ring of the drum)
13. Fit inner and outer brush to the Blast N' Vac work-head. A choice is available, either straight brushes for flat and curved surfaces or shaped brushes for inside or outside corners.
14. Be sure that the lever on the deadman handle is NOT depressed. Connect the remote hoses to the base of the pot. Red to red. Yellow to yellow. N.B. Colour coding on remote lines may vary, always check before connecting remote lines. In these instructions, RED is the air supply TO the handle and YELLOW is the signal return FROM the handle to the valves.
15. Connect the blast hose coupling to the pot coupling at the outlet of the abrasive metering valve on the bottom of the blast machine, and ensure a safety clip is through the locking holes.

## GENERAL OPERATIONS

When the deadman valve is operated, it provides air pressure to open the normally closed air valve and Thompson abrasive valve. This will allow the abrasive to fall into the air stream. The large orange knob on top of the Thompson abrasive valve controls the volume of grit.

The abrasive/air mix travels down the blast hose, out through the nozzle and onto the work-piece.

The Blast N' Vac head must be held onto the surface being cleaned at all times.

When the deadman valve is released the air supply to the valves stops, and vents the control pressure in the valves, this allows both of them to spring to their "normally closed" position. The blast pot remains under pressure when the air and abrasive valves are turned off and only depressurise when the manual exhaust valve is opened.

The Vacutrans pulls a vacuum through the filter unit and material recovery hopper and onto the work-head. This vacuums the spent media, paint, rust and debris back into the material recovery drum, where it is cyclone separated, and stored for disposal. The dust then enters the filter unit and is percolated through the water entrapping all dust particles; the coalescing filters then ensure the air pulled through the system and discharged to atmosphere are free from excessive water.

**To avoid the danger of the drums imploding never use the vacuum hose on its own. Always use the work-head, a brush head or special vacuum tool.**

## OPERATION PROCEDURE

1. Ensure all hoses and couplings are connected and secure.
2. Ensure the material drum lid is seated correctly.
3. Ensure the water bath filter unit has the coalescing filter fitted correctly, water is at the correct level (to the bottom ring of the drum) and its lid is seating properly.
4. Start the compressor and put "on load".
5. Ensure that the air inlet ball valve on the blast pot is closed.
6. Ensure that the safety ball valve on the remote control valve is 'open'.
7. Ensure that the choke valve on the blast pot is in the open position. (Vertical in line with the pipe-work).
8. Ensure that the air inlet valve on the Vacutrans is closed.
9. Turn on the air supplies on the compressor to both blast pot and Vacutrans.
10. Ensure the bleed off on the bottom of the VAM5A and the moisture separator on the blast pot are both slightly open to permit moisture to drain off. Once each day open them fully to completely blow out any dirt that might have accumulated.
11. Load one bag of abrasive into the loading dish in the top of the blast pot. (Always load using the filter head sieve)
12. ENSURE FINGERS ARE CLEAR OF THE POP-UP VALVE.
13. Set the air pressure regulator valve to desired blasting pressure. (This will depend on the type of work being carried out, always start at low pressure and increase slowly) this will have to be finally adjusted when blasting starts

## OPERATION PROCEDURE cont.

14. Adjust the abrasive control valve by closing fully (clockwise) and the opening four full turns (anticlockwise). This is an approximate setting, the setting can only be finalised once full operation has commenced and is adjusted as per the next section.
15. The abrasive flow can be adjusted by turning the control knob clockwise for less abrasive and anticlockwise for more abrasive. There will be a slight delay in the control of the abrasive due to the length of the blast hose, so allow a few seconds before adjusting further. Adjust gradually, and only to ensure the minimum amount of abrasive is introduced into the air stream to suit the work requirement.
16. Open the air supply ball valve on the Vacutrans.
17. Close the safety ball valve on the remote control valve.
18. Hold the Blast N' Vac work-head on the surface to be cleaned and operate the safety deadman handle. This will start the blasting process. Move the BNV work-head on the surface of the work-piece ensuring the brushes are in contact with the work surface at all time. Different shaped brushes are available for internal and external angles as well as for flat/curved surfaces.
19. Avoid putting too much pressure on the brushes, causing them to bend into the blast area as you move the work-head. Always use both Inner & Outer Brush (Except on BNV6 head where only one brush is required.)
20. Adjustment to the grit flow may be required as per point 17.
21. To stop the blast process release the Deadman's handle. Keep the work-head on the surface for a short time after to ensure the blast process has fully stopped.
22. Replace brushes when abrasive loss or wear is noted. Check centre tube for wear each time brushes are replaced and change it when the end begins to flare.  
**Prolonged blasting with a deteriorated Centre Tube will DESTROY critical parts of the work-head.**

## RE-FILLING THE BLAST POT

1. Open the safety tap on the remote control valve.
2. Refill the blast machine with the required amount of abrasive
3. Close the safety tap and start blasting..

## **SERVICE AND MAINTENANCE**

### **DAILY**

1. Always empty pot completely when not in use. Abrasive left in the pot can become damp and may cause blockages.
2. Make regular checks to all connections. I.e. air line and blast hose replace gaskets or couplings if wear is evident.
3. Replace pop-up valve and sealing ring if there is any evidence of wear.
4. Check wear on nozzle. Replace if necessary.
5. Check brushes and centre tube in BNV work-head. Replace as required.
6. Check water level in the water bath filter unit; change if very dirty or top up if required.

### **WEEKLY**

1. Check for wear or deterioration of blast hose by squeezing firmly by hand.
2. Empty water bath dust filter, and refill

### **REGULARLY**

1. Remove inspection door and clean out machine. Check and if necessary replace door gasket.

### **EVERY 6 MONTHS MAXIMUM**

1. Replace coalescing filters.

### **IMPORTANT**

**A blast pot is a pressure vessel and is subject to inspection as required by legislation. You should advise your insurers of your purchase and ensure that a qualified person carries out, inspections at specified intervals. Your insurers will advise on current legal requirements.**



## **BLAST N' VAC TROUBLESHOOTING**

There are two types of problems you may encounter when using a Blast N' Vac, one being a lack of sufficient vacuum recovery, the other being problems with abrasive flow through the blast nozzle. Some typical causes for these problems follow.

### **Please use this as a check sheet:**

#### Vacuum Recovery Insufficient

1. Abrasive flow too heavy - cut back at abrasive meter valve on the blast pot.
2. Not enough air – the gauge on Vacutrans should read a minimum of 90psi.
3. Vacuum leak in system - check lid gaskets, hose connections, drums and hose body for breaks or holes.
4. Improper use of work-head - brushes should be in direct contact with the work surface.
5. Brushes worn out - replace.
6. Centre tube worn out - replace.
7. Too small air supply hose to Vacutrans - 1" ID minimum required.
8. Obstruction in hoses.
9. Obstruction in Vacutrans - check for goods exhaust airflow.
10. Damp abrasive.
11. Material recovery hopper full.
12. Blast nozzle worn out - letting too much abrasive through.
13. Blast pot pressure too high -
14. Hoses not laid straight - bends in the hose reduce flow capability.

## **TROUBLE SHOOTING**

### ***A - Air Blast but No Abrasive***

1. The pot is empty.
2. The abrasive in the pot is wet. Try closing the choke valve on the vertical pipe on the side of the pot for one or two seconds whilst trying to blast until some abrasive is pumped out. Operating the unit in the "choked" condition greatly accelerates wear in the metering valve. Continuous running in the "choked" position also reduces productivity and therefore should be avoided if possible.
3. Foreign matter is plugging the abrasive metering valve. Try closing the choke valve and fully opening the abrasive metering valve momentarily to see if that will blow the obstruction out. If that does not work then it will be necessary to disconnect the pot from the air supply, remove the abrasive metering valve, clean out the obstruction and re-fill the pot. .

### ***B - Reduced Pressure at the Nozzle (with or without abrasive flow)***

1. Insufficient air compressor.
2. Air hose too small.
3. Abrasive adjustment open too far.
4. Pop-up valve not seating properly.
5. Choke valve partially closed.
6. worn out nozzle

### ***C - Unit is Slow to turn on or Will Not Turn On***

1. Air hose too small.
2. Insufficient air compressor.
3. Couplings on remote hoses loose or leaking.
4. Remote hoses are plugged. If the return hose is disconnected from the pot, there should be air pressure whenever the deadman valve is depressed.
5. Deadman valve is plugged. Only a weak air signal, or none at all, comes from the deadman valve when the return hose is disconnected at the Deadman's handle.
6. Defective diaphragm in the automatic air valve.
7. Defective diaphragm in the Thompson abrasive metering valve.

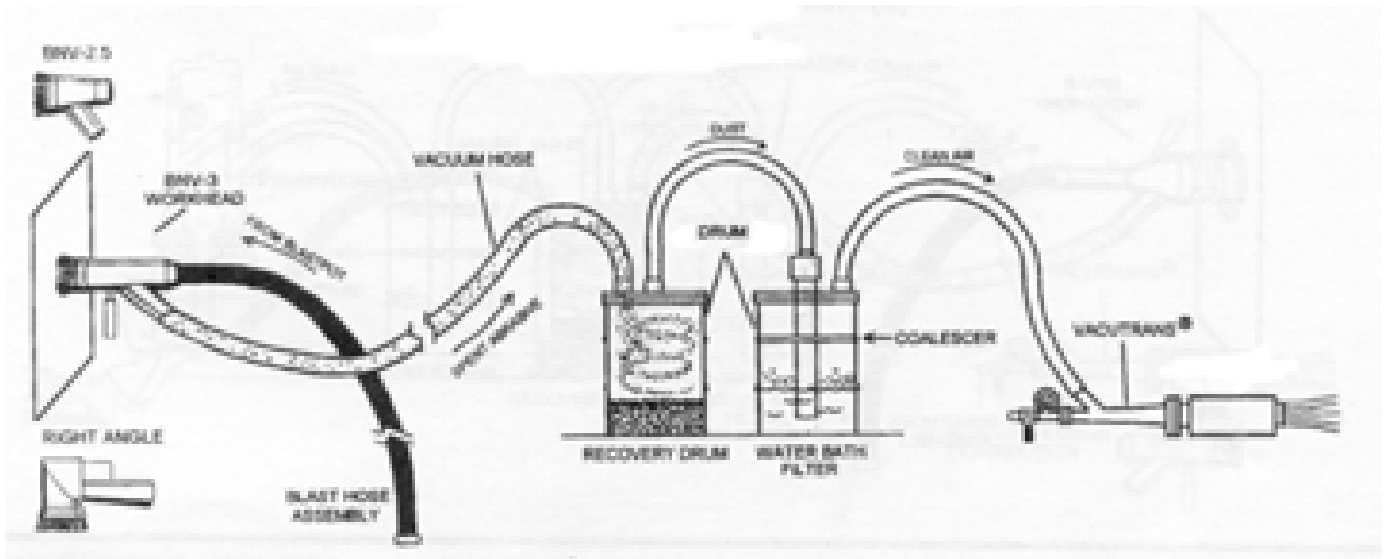
### **We estimate that 90% of any problems will occur in four areas;**

1. Insufficient air supply.
2. Too small air supply hose.
3. Moisture in the abrasive.
4. Worn out or improperly adjusted abrasive flow metering valve

**Consider these first.** We also stress that it is essential to keep an eye on the major wear items in the blast head such as the brushes, centre tubes and wear sleeves. Use of the tool with these components not replaced when deteriorated **will result in performance problems and eventually in destruction of more expensive components.**

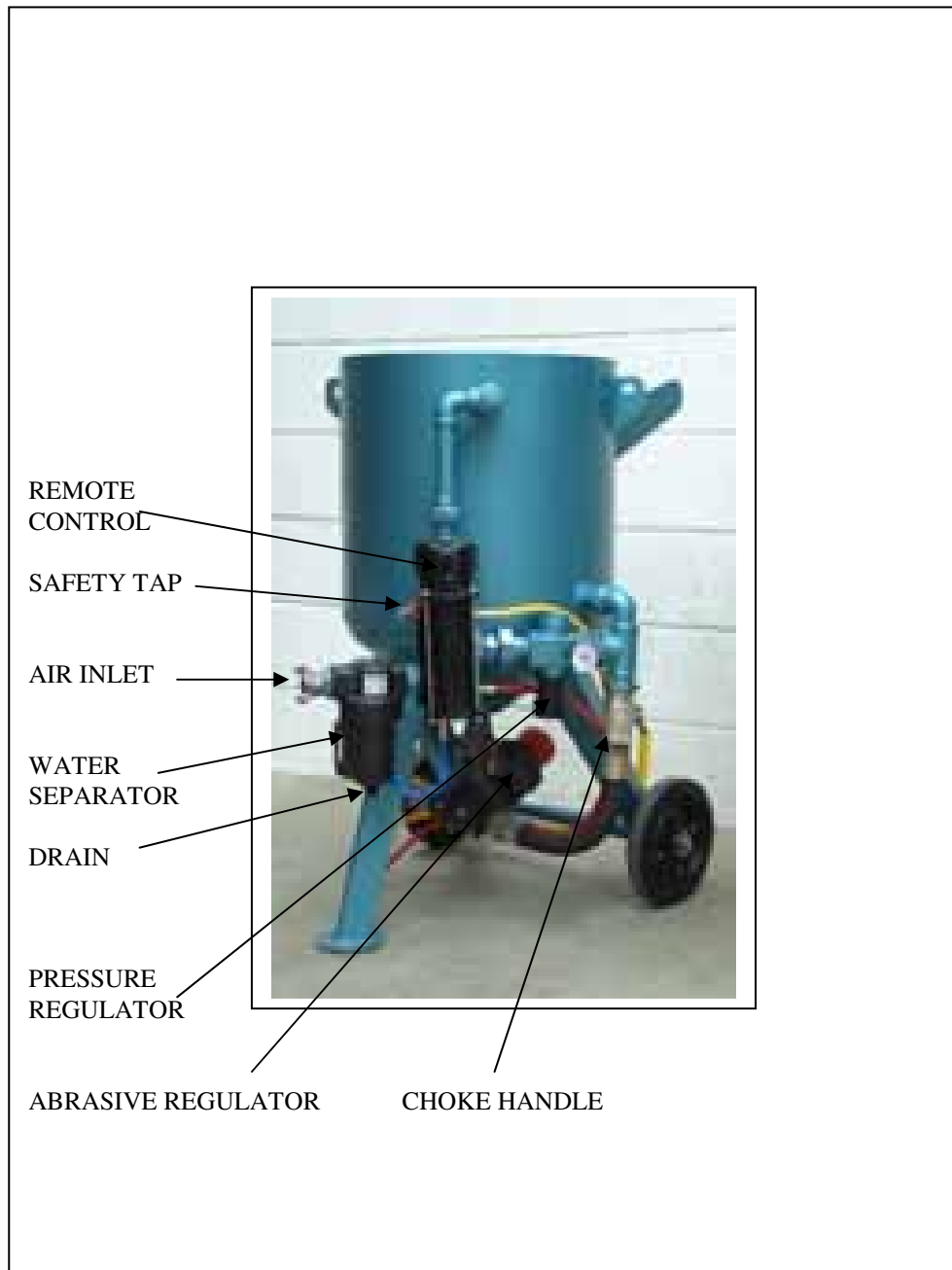
# GENERAL LAYOUT

## Vacuum



# GENERAL LAYOUT

## Blast Pot



## WORKHEADS



2.5 HEAD FOR SMALL AREAS WITH  
DIFFICULT ACCESS

3 HEAD THE MOST  
POPULAR OF ALL  
THE HEADS



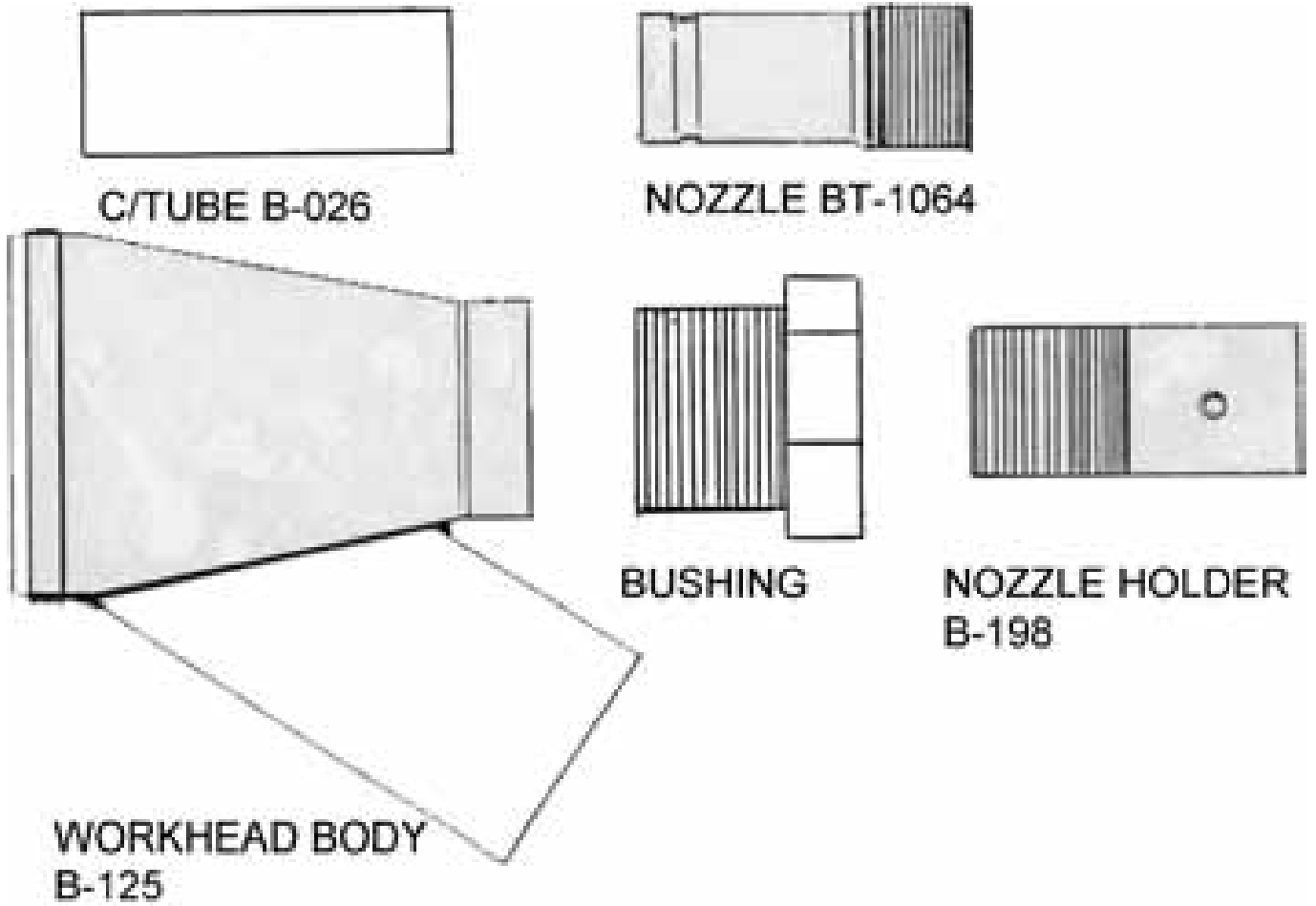
5 HEAD FOR LARGER  
AREAS

ROLLER HEAD FOR  
LARGER FLAT AREAS



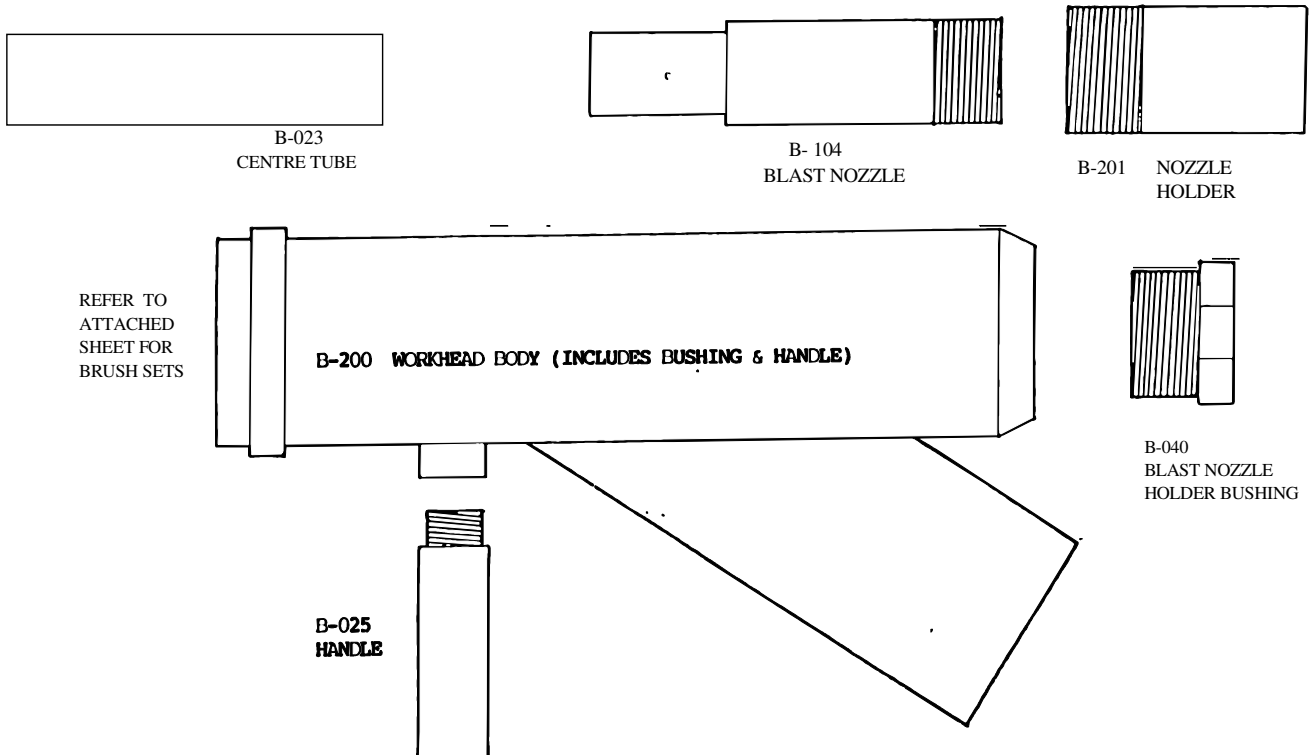
ANGLE HEAD FOR  
CONFINED SPACES

## 2.5 HEAD



**USE 3 HEAD BRUSHES**

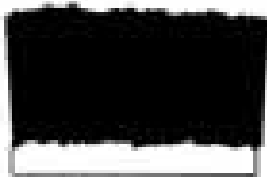
# 3 HEAD



CONSUMABLE PARTS FOR THIS WORKHEAD INCLUDE THE BRUSHES OUTLINED ON THE FOLLOWING SHEET AND THE B-023 CENTRE TUBE. AN INNER BRUSH SHOULD LAST 2-3 HOURS OF BLAST TIME AND THE CENTRE TUBE SHOULD LAST 4-6 HOURS. OUTER BRUSH USAGE WILL BE AT A FRACTION OF INNER BRUSH RATES DEPENDING ON OPERATOR.

## 3 HEAD BRUSHES

FOR USE ON  
FLAT SURFACES



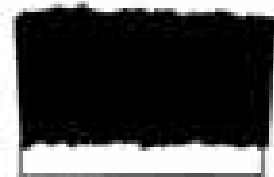
B-255  
FLAT INNER BRUSH

FOR USE ON  
OUTSIDE 90°  
CORNERS



B-276  
OUTSIDE CORNER  
INNER BRUSH

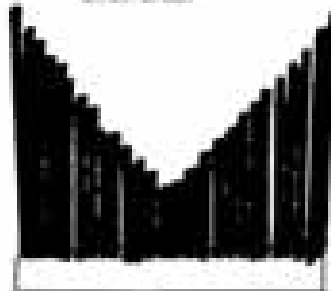
FOR USE ON  
INSIDE 90°  
CORNERS



B-255  
FLAT INNER BRUSH



B-256  
FLAT CORNER BRUSH



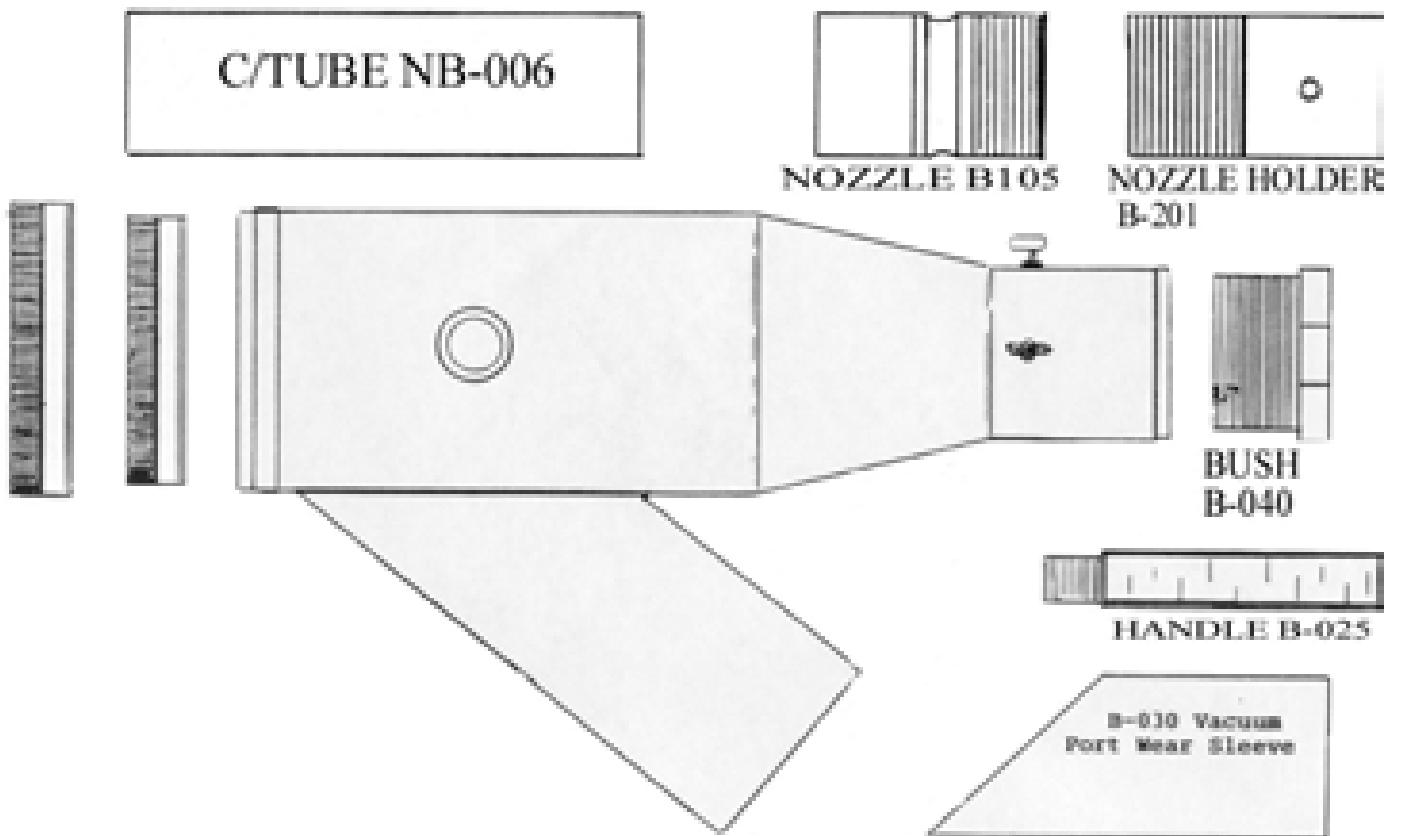
B-276  
OUTSIDE CORNER



B-268  
INSIDE CORNER



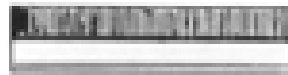
# 5 HEAD



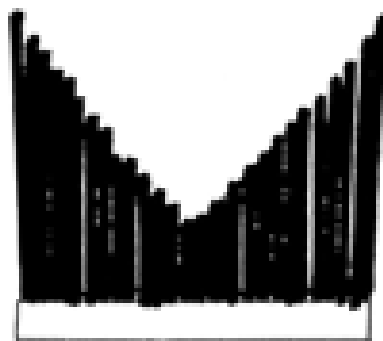
## 5 HEAD BRUSHES



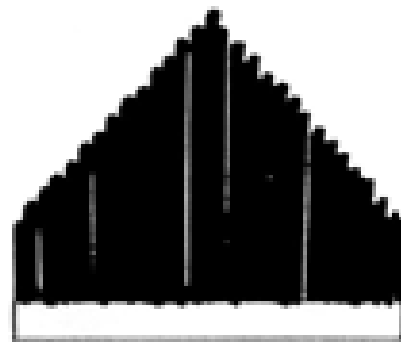
FLAT OUTER BRUSH  
B-256



FLAT INNER BRUSH  
B-257

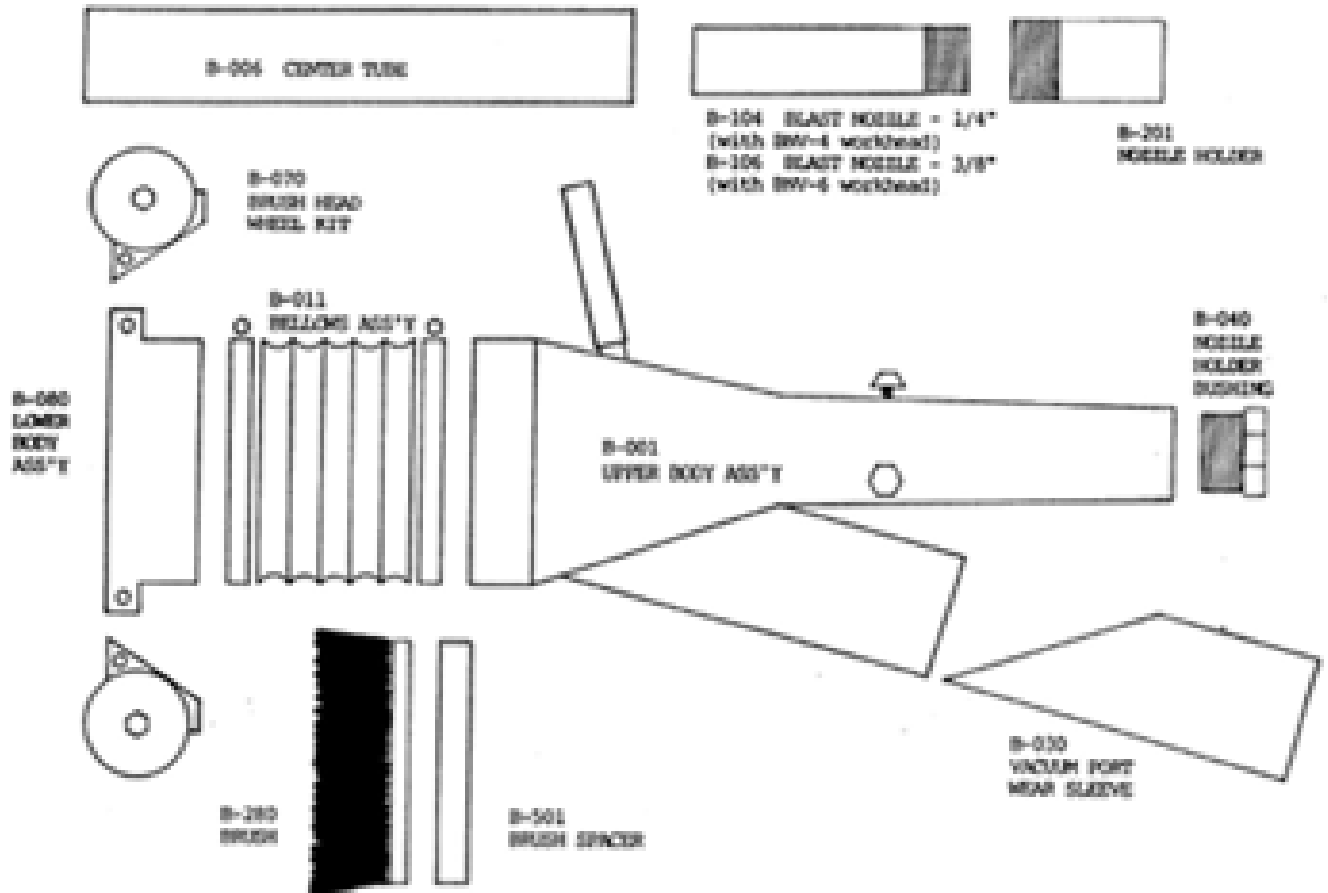


OUTSIDE CORNER  
BRUSH B2707

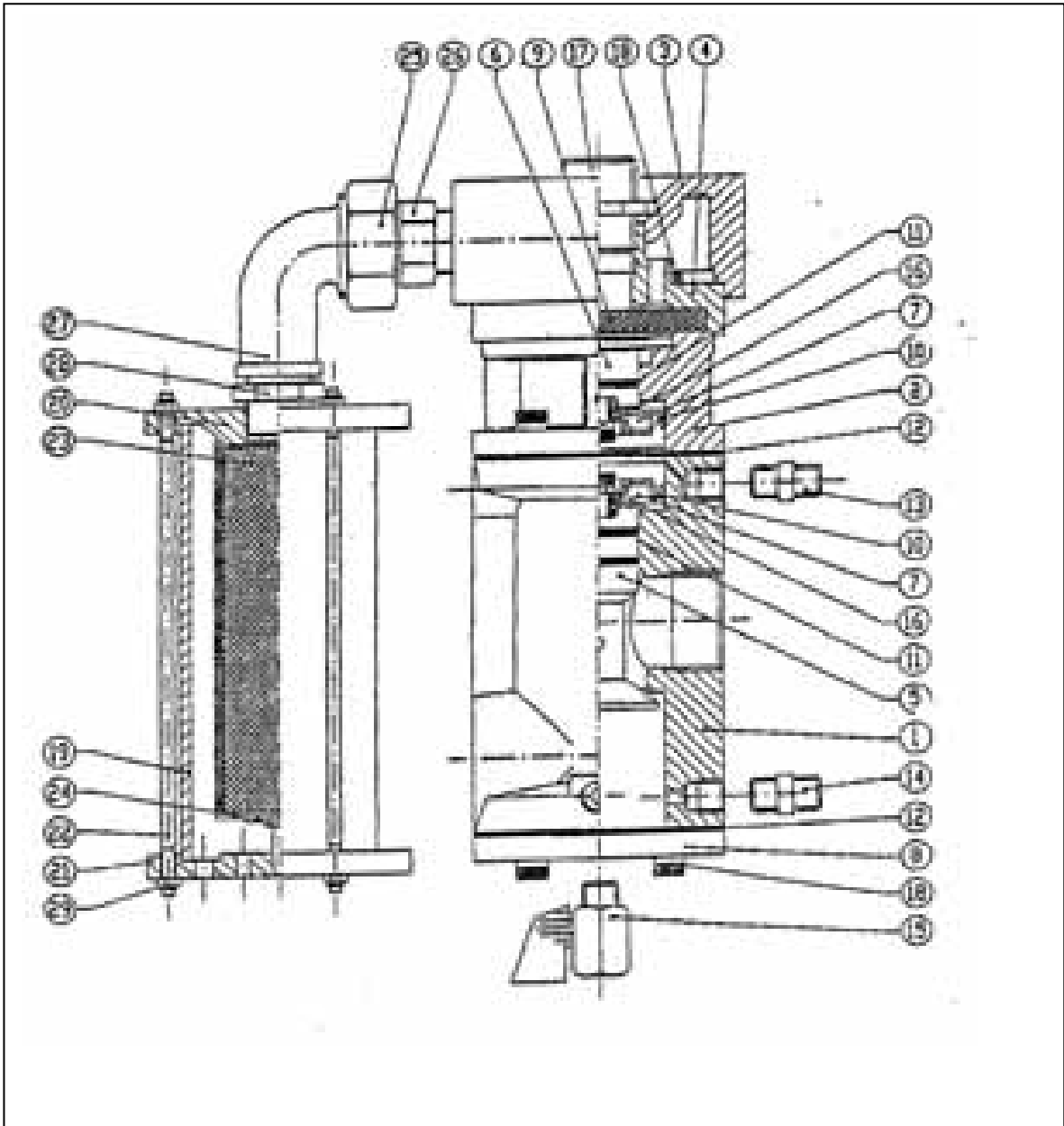


INSIDE CORNER  
BRUSH B2607

# 6 HEAD



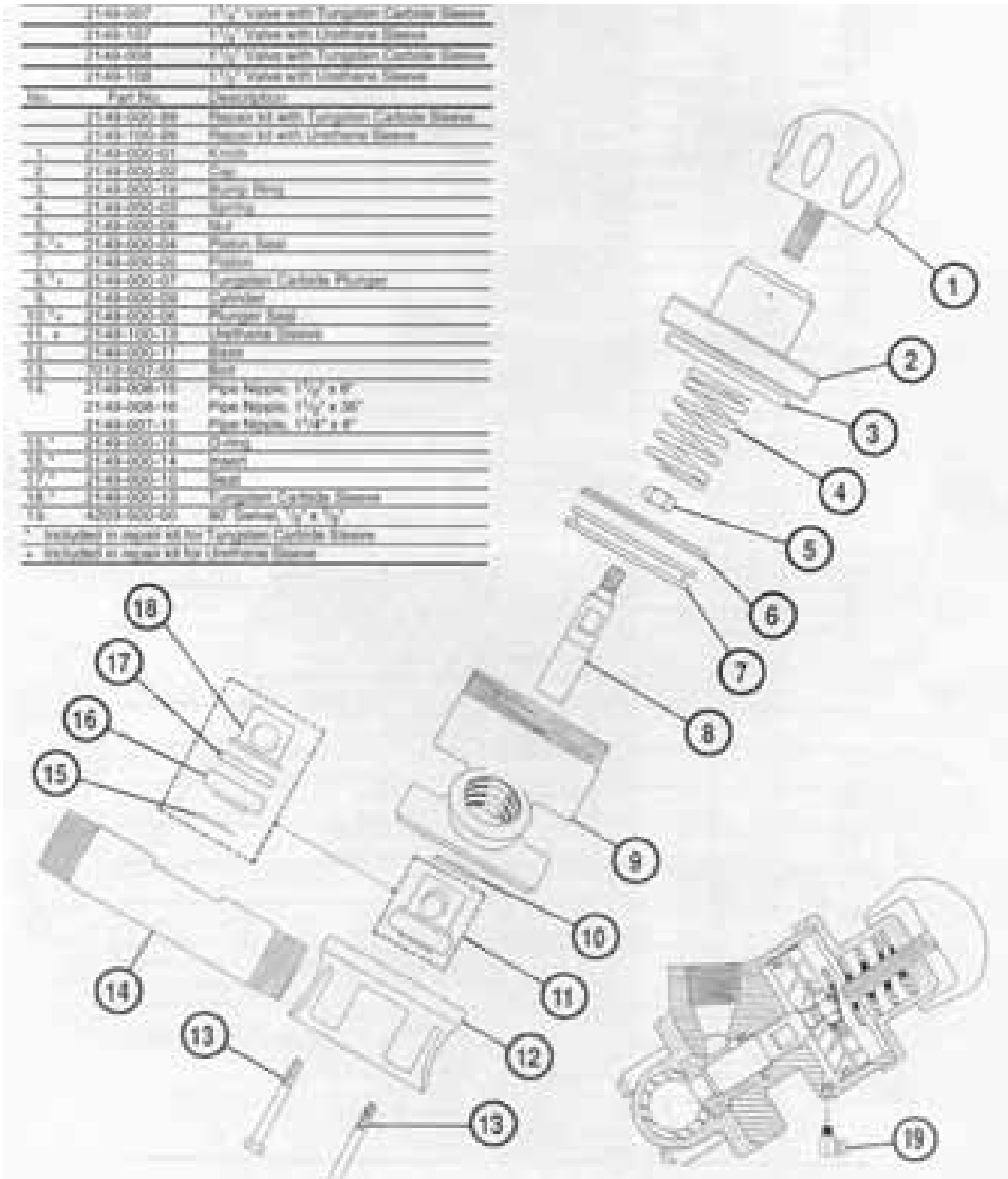
## REMOTE CONTROL VALVE



# THOMPSON VALVE

	2148-007	1 1/2" Valve with Thompson Carbide Sleeve
	2148-107	1 1/2" Valve with Urethane Sleeve
	2148-008	1 1/2" Valve with Thompson Carbide Sleeve
	2148-108	1 1/2" Valve with Urethane Sleeve
<b>No.</b>	<b>Part No.</b>	<b>Description</b>
	2148-000-00	Pressure Kit with Thompson Carbide Sleeve
	2148-100-00	Pressure Kit with Urethane Sleeve
1	2148-000-01	Knob
2	2148-000-02	Cap
3	2148-000-10	Wedge Ring
4	2148-000-03	Spring
5	2148-000-04	Nut
6	2148-000-05	Plunger Seal
7	2148-000-06	Pinion
8	2148-000-07	Thompson Carbide Plunger
9	2148-000-08	Collar
10	2148-000-09	Plunger Seal
11	2148-100-10	Urethane Sleeve
12	2148-000-11	Seal
13	2012-007-00	Kit
14	2148-008-10	Pipe Nipple, 1 1/2" x 6"
	2148-008-10	Pipe Nipple, 1 1/2" x 36"
	2148-007-10	Pipe Nipple, 1 1/2" x 6"
15	2148-000-12	O-ring
16	2148-000-13	Seal
17	2148-000-14	Seal
18	2148-000-15	Seal
19	2148-000-16	Thompson Carbide Sleeve
20	2012-000-00	Kit, 1/2" x 1/2"

<sup>1</sup> Included in report kit for Thompson Carbide Sleeve  
<sup>2</sup> Included in report kit for Urethane Sleeve



## BLAST MACHINE (INTERNAL)

