

# BLAST N' VAC<sup>®</sup> PACKAGE

## BNVP-300/BNVP-600

# OPERATING INSTRUCTIONS

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1.0 GENERAL

1.1 You have been shipped a:

BNVP-300 Single Vacutrans Package  
BNVP-600 Double Vacutrans Package

1.2 In addition to the equipment in the Blast N' Vac Package, you will need to supply a blast pot with deadman control (abrasive flow meter must be in proper working order), a compressed air supply with minimum 1-1/4" I.D. air supply lines and proper fittings to connect to the 1-1/4" pipe nipple on the Vacutrans, a supply of abrasive and OSHA required operator safety equipment. Depending on the package purchased, air supply minimums are:

BNVP-300 300 CFM at 100 PSI

BNVP-600 600 CFM at 100 PSI

2.0 SET-UP PROCEDURE

- a. Unpack drum lids from boxes and remove all material from inside of drums. Lay out all parts for identification.
- b. Position equipment in configuration shown on attached diagrams. When using a BNVP-600 package with double Vacutrans, the two Vacutrans must be piped together using the manifold package supplied.
- c. Attach noise mufflers to Vacutrans(s) using the bolts supplied.
- d. Assemble water bath dust filter lid according to the instructions packed with it. Fill one 55 gallon drum to the 1/3 level with water. During below or near freezing conditions an anti-freeze solution will have to be added to the water. Set lid on drum.
- e. Assemble material recovery drum lid and set it on the second 55 gallon drum.
- f. Hook up vacuum hoses according to attached diagrams via their camlock connectors.
- g. Connect your blast hose to our 12-1/2' of whip hose via a standard 2 prong connector and include safety clips. Extend your remote control lines this extra

distance. Attach your deadman switch where comfortable.

- h. Thread appropriate blast nozzle into holder on end of blast hose. BNV-3 workhead uses specially machined no. 4 nozzle ONLY. Be sure to install a center tube on nozzle. BNV-4 and 6 head accepts either no. 4 or no. 6 blast nozzle, depending on air volume and vacuum available.
- i. Thread workhead onto same holder on end of blast hose. Thread until snug then back off one full turn.
- j. Clamp 3" vacuum hose onto vacuum port of workhead.
- k. Lay out vacuum and blast hoses with workhead attached with attention to minimizing bends.
- l. Be sure workhead center tube (attached to end of blast nozzle in BNV-3 tool and set into tool body on BNV-4 and 6 workhead) and brushes (one in BNV-4 and 6 and two in BNV-3) are installed. NEVER USE BNV-3 TOOL WITHOUT DOUBLE BRUSH ARRANGEMENT.
- m. Connect air supply lines to Vacutrans inlet and blast pot (1-1/4" ID minimum). You must provide the quick connect fitting for the Vacutrans 1-1/4" air inlet. Be sure air supply valve on the Vacutrans(s) is in the closed position.

YOU ARE NOW READY TO BEGIN BLASTING

### 3.0 OPERATING PROCEDURE

#### 3.1 START-UP

- a. Follow your normal method of loading your blast machine. Blast N' Vac will operate successfully with any abrasive on the market. Steel and iron abrasives may experience some recovery problems in certain set-ups or over long distances.
- b. Turn on air compressor, open main air valve.
- c. Open air supply valve on Vacutrans(s). Always turn on Vacutrans before pressurizing blast machine.
- d. Follow your normal procedure for pressurizing your blast machine.
- e. It is recommended that proper eye, ear and

breathing protection be used.

- f. Grasp workhead and place in contact with work surface. BRUSHES MUST MAINTAIN CONTACT WITH SURFACE AT ALL TIMES AND ENTIRE AREA BETWEEN BRUSH I.D. MUST BE COVERED BY WORK SURFACE TO ENSURE COMPLETE RECOVERY.
- g. Close deadman control and blasting and recovery will begin. Depending on the type of remote control system on your blaster, a slight delay of varying time length will occur before blasting actually begins.
- h. Adjust the abrasive metering valve on your blast machine to the point that cleaning seems to be maximized and full abrasive and dust recovery is occurring.

### 3.2 ROUTINE INTERMITTENT SHUTDOWN

Simply release remote control switch and blasting will stop. Vacuum runs constantly, remote switch controls blasting only. Depending on the type of remote control system and hose lengths, there is a slight delay in actual start-up and shut-down of abrasive flow when actuating the switch. Keep workhead in contact with surface while delay is taking place.

### 3.3 SHUTDOWN FOR RE-LOADING BLAST MACHINE

- a. Release remote control switch.
- b. Close blast machine air supply valve.
- c. Close Vacutrans(s) air supply valve.
- d. Follow your normal procedure for depressurizing and loading your blast machine.
- e. Open Vacutrans air supply valve and pressurize blast machine when refilled.
- f. During this shut-down is a good time to check brushes and center tube in workhead for wear and replacement. Replace brushes when excessive abrasive loss or wear is noted. Check center tube for wear each time brushes are replaced and change it when end begins to flare. Also, periodically check water level in water bath dust filter as water loss will occur over time.

### 3.4 FINAL SHUT-DOWN

It is wise if final shut-down is timed to coincide with the blast pot being empty of abrasive.

- a. Proceed as in 3.3 a, b, c & d.
- b. Close air supply valve on compressor and shut down according to manufacturer's instructions.
- c. Bleed off air in supply line from compressor to Vacutrans by opening air supply valve until pressure is released, then close again. Release pressure in blast machine air supply line through blaster.
- d. System is now completely de-pressurized.

### 3.5 MISCELLANEOUS

- a. The center tubes in all Blast N' Vac models are high wear items. On the BNV-3 tool the center tube slides over the end of the blast nozzle. In the BNV-4 & 6 the center tube slides into the body of the workhead and is secured with set screws. These center tubes should be checked on an hourly basis and replaced when they show excessive wear. PROLONGED BLASTING WITH A DETERIORATED CENTER TUBE WILL DESTROY CRITICAL PARTS OF THE WORKHEAD.
- b. The BNV-4 & 6 workhead utilizes a single brush. The BNV-3 uses a two brush set-up. As the interior brush on the BNV-3 nears destruction be sure to replace it before destroying the outer brush. Brushes should generally be replaced when abrasive loss at the blast point is noticed. NEVER USE BNV-3 WITH ONLY ONE BRUSH. AN INNER AND OUTER BRUSH SHOULD ALWAYS BE USED IN TANDEM.
- c. For optimum operation and abrasive recovery, try to keep the workhead as perpendicular to the work surface as possible. With a little practice, your technique and efficiency will improve by the hour. ON BNV-3 AVOID PUTTING TOO MUCH FORWARD PRESSURE ON BRUSHES CAUSING THEM TO BEND INTO BLAST AREA AS YOU MOVE.
- d. Abrasive blasting can produce harmful levels of respirable dust. Accident or improper handling of this equipment can create such dust. Breathing protection is recommended. Eye and ear protection is recommended during operation.

\* \* \* CAUTION \* \* \*

When changing workheads on BNV packages be certain to remember to change to the proper center tube and blast nozzle. The BNV-3 workhead (no wheels) uses only the specially sized no. 4 nozzle and the center tube slides directly onto the end of the nozzle. The BNV-6/BNV-4 workhead (with wheels) uses a no. 6 or no. 4 nozzle and the center tube slides into the body of the tool and is held in place with set screws.

4.0 TROUBLESHOOTING

There are two basic types of problems you may encounter when using a Blast N' Vac, one being lack of sufficient abrasive and dust 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.

4.1 VACUUM RECOVERY INSUFFICIENT

- a. Abrasive flow too heavy - Cut back at meter on blast pot.
- b. Not enough air - Gauge on Vacutrans(s) should read a minimum of 90 PSI for most 100 lb./cu. ft. abrasives.
- c. Vacuum leak in system - Check drum lid gaskets, hose connections, drums and hose body for breaks or holes.
- d. Improper use of workhead - Brushes should be in direct contact with the work surface.
- e. Brushes worn out - Replace.
- f. Center tube worn out - Replace.
- g. Too small air supply hose to Vacutrans - 1-1/4" I.D. minimum required.
- h. Obstruction in hoses.
- i. Obstruction in Vacutrans(s) - Check for good exhaust air flow.
- j. Damp abrasive.
- k. Material recovery drum full.

- l. Blast nozzle worn out - Letting too much abrasive through.
- m. Blast pot pressure too high - Should read same pressure as air gauge(s) on Vacutrans(s).
- n. Hoses not laid straight - Bends in the hose reduce flow capability.

4.2 ABRASIVE FLOW PROBLEMS

- a. Improper abrasive meter valve adjustment or worn out abrasive meter valve on blast pot.
- b. Damp abrasive.
- c. Too much moisture in compressed air supply.
- d. Obstruction in pot, hoses or nozzle.
- d. Worn out nozzle.

\* \* \* NOTE \* \* \*

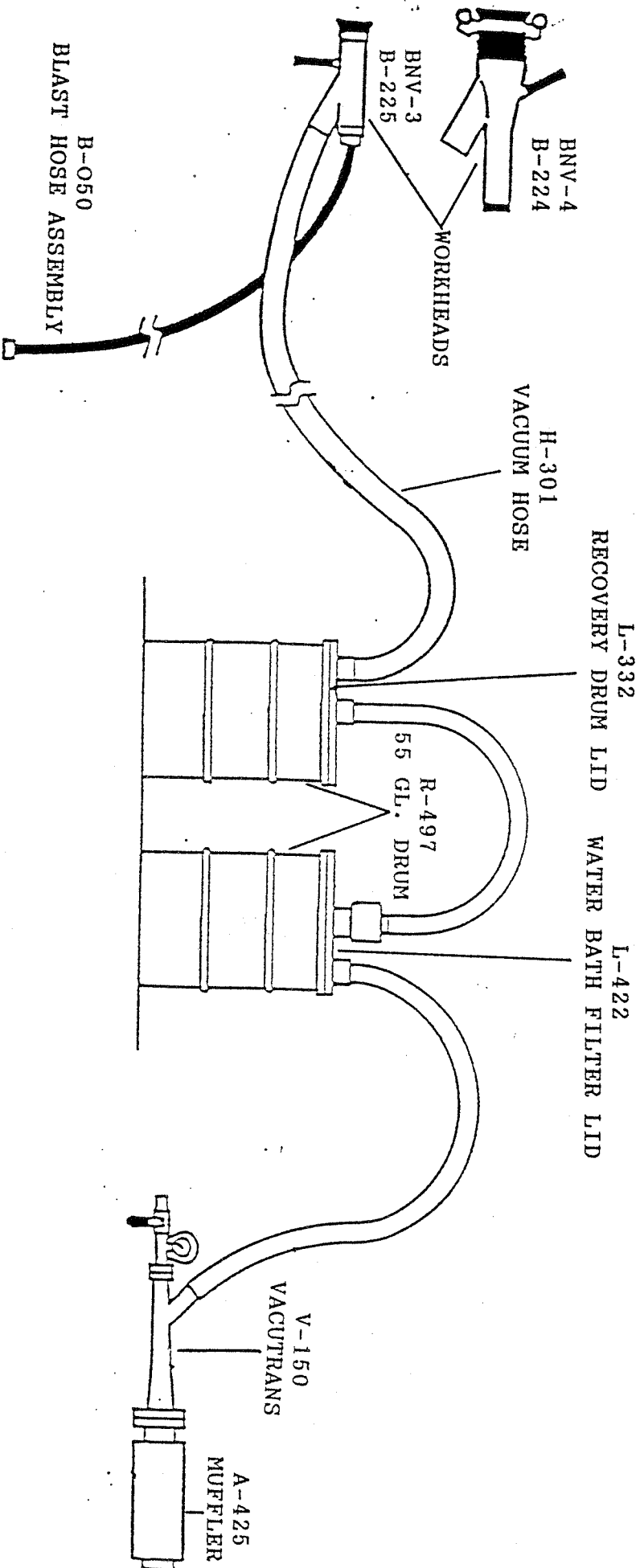
We estimate that 90 percent of any problems will occur in four areas insufficient air supply, too small air supply hose, moisture in the abrasive or a worn out or improperly adjusted abrasive flow meter. Please consider these first.

We also encourage you to keep an eye on the major wear items in the blast head such as the brushed, center tubes and wear sleeves as use of the tool with these components not replaced when deteriorated will result in performance problems and eventually in destruction of more expensive components.

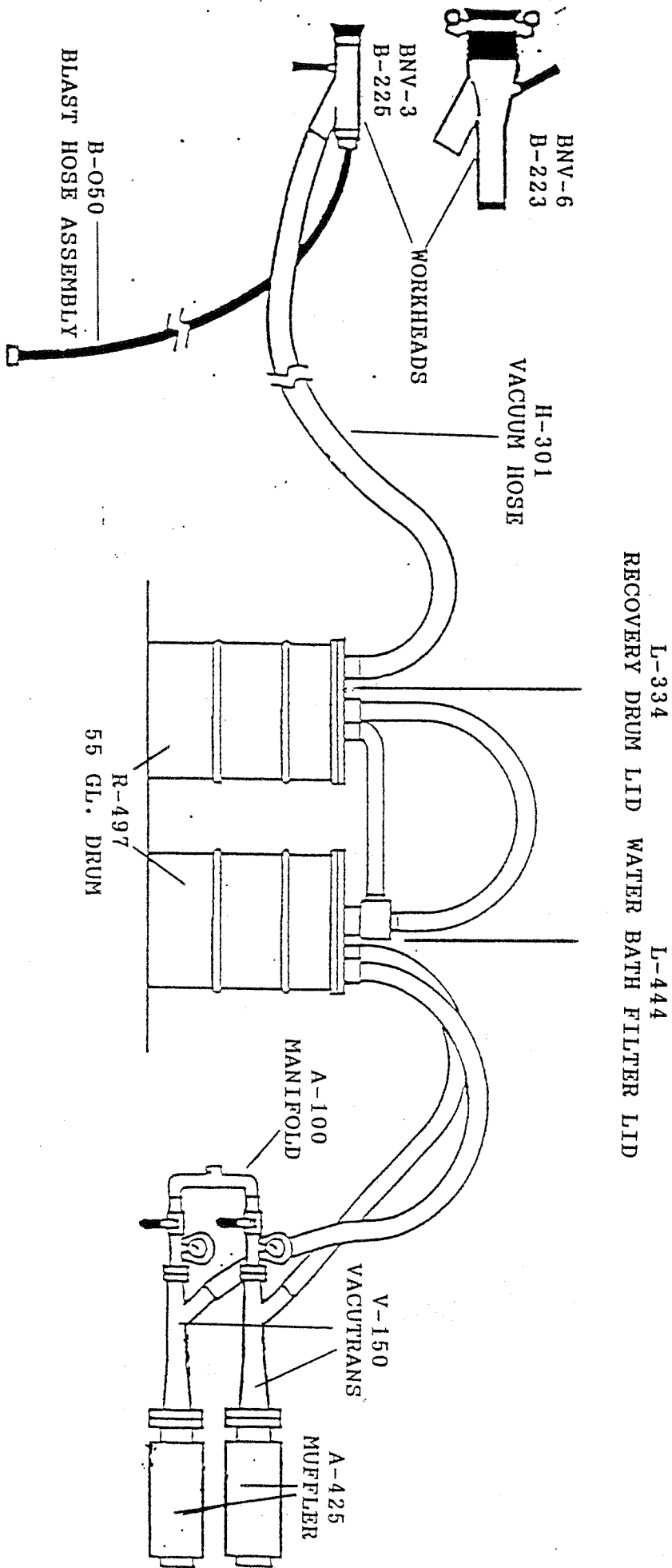


# BNVP-300

## SINGLE VACUTRANS PACKAGE

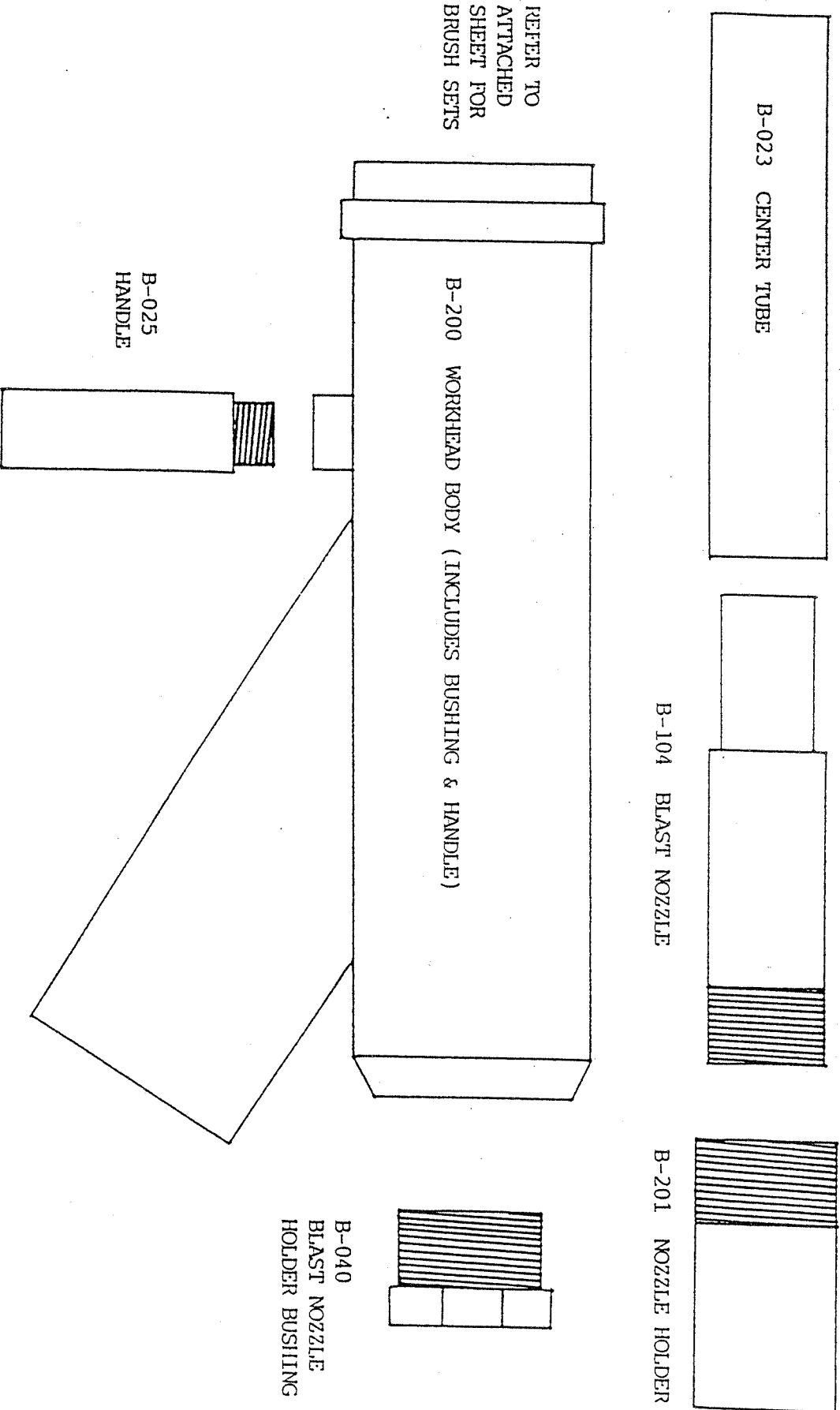


# BNVP-600 DOUBLE VACUTRANS PACKAGE



# BNV-3 WORKHEAD COMPONENTS

FIGURE 1

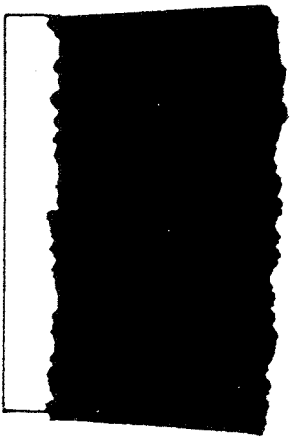


CONSUMABLE PARTS FOR THIS WORKHEAD INCLUDE THE BRUSHES OUTLINED ON THE FOLLOWING SHEET AND THE B-023 CENTER TUBE. AN INNER BRUSH SHOULD LAST 2-3 HOURS OF BLAST TIME AND THE CENTER TUBE SHOULD LAST 4-6 HOURS. OUTER BRUSH USAGE WILL BE AT A FRACTION OF INNER BRUSH RATES DEPENDING ON OPERATOR.

# BNV-3 BRUSH SET USE GUIDE

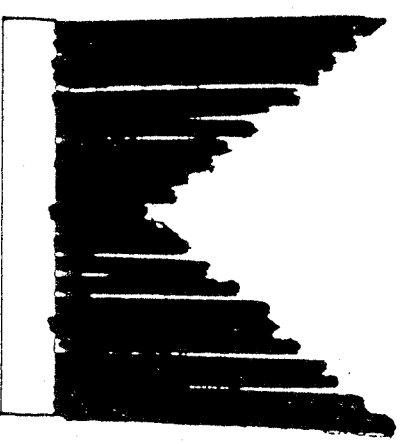
FIGURE 2

FOR USE ON  
FLAT SURFACES

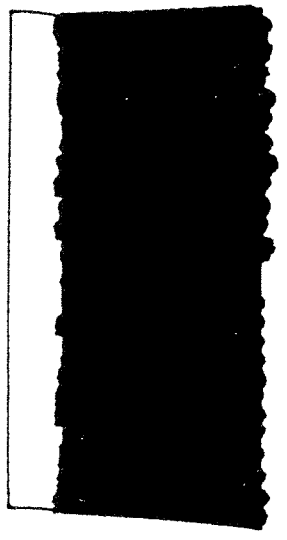


B-255  
FLAT INNER BRUSH

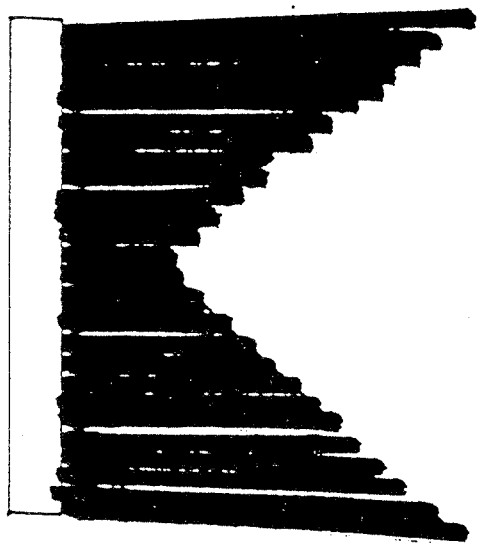
FOR USE ON  
OUTSIDE 90°  
CORNERS



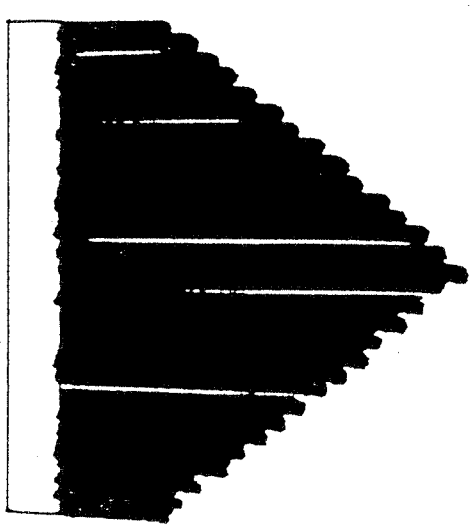
FOR USE ON  
INSIDE 90°  
CORNERS



B-250  
FLAT OUTER BRUSH



B-2705  
OUTSIDE CORNER BRUSH SET

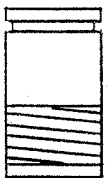


B-2605  
INSIDE CORNER BRUSH SET

# BNV-2.5 WORKHEAD COMPONENTS

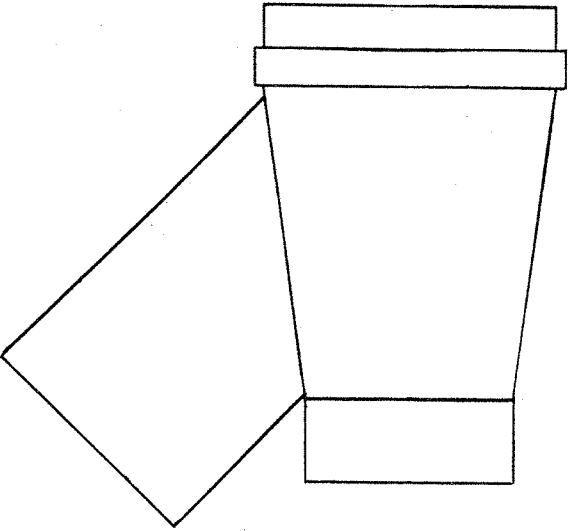


B-026 CENTER TUBE

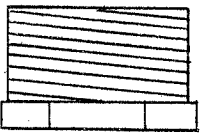


B-1064 BLAST NOZZLE

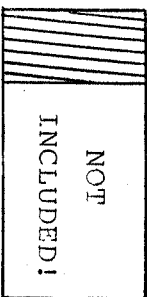
B-125 WORKHEAD BODY  
(INCLUDES BUSHING)



REFER TO  
ATTACHED  
SHEET FOR  
BRUSH SETS



B-041  
BLAST NOZZLE  
HOLDER BUSHING



B-198 NOZZLE HOLDER

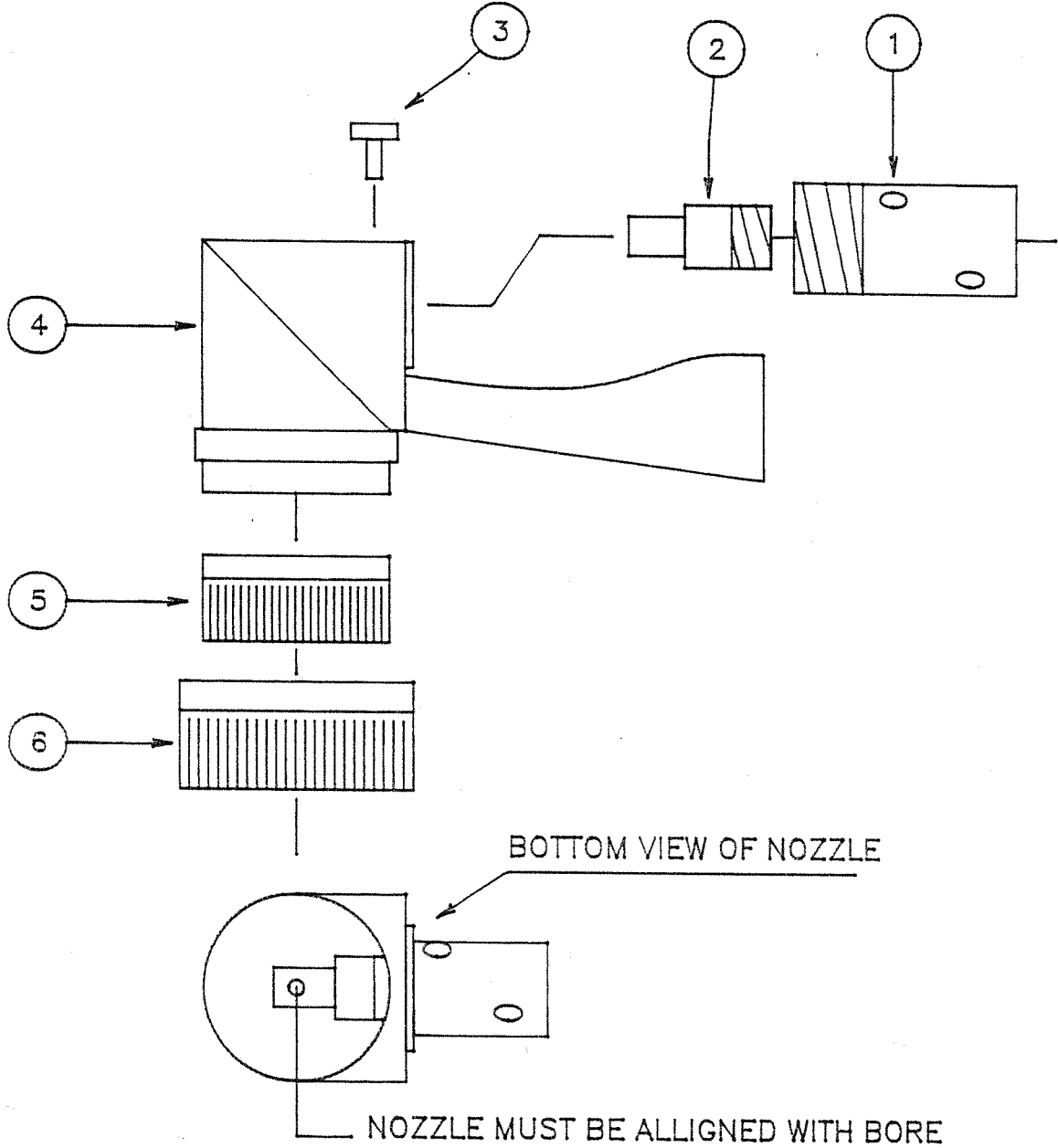
PART OF  
BLAST HOSE ASSEMBLY

NOT  
INCLUDED!

CONSUMABLE PARTS FOR THIS WORKHEAD INCLUDE THE BRUSHES OUTLINED ON THE FOLLOWING SHEET AND THE B-026 CENTER TUBE. AN INNER BRUSH SHOULD LAST 2-3 HOURS OF BLAST TIME AND THE CENTER TUBE SHOULD LAST 4-6 HOURS. OUTER BRUSH USAGE WILL BE AT A FRACTION OF INNER BRUSH RATES DEPENDING ON OPERATOR.

# RIGHT ANGLE WORKHEAD

## B-229



8	
7	
6	B-250 BRUSH, FLAT OUTER
5	B-255 BRUSH, FLAT INNER
4	B-120 ANGLE WORK HEAD
3	A-493 BOLT 5/16-24 X 1/2"
2	B-090 BLAST NOZZLE 1/4 90DEG.
1	B-198 NOZZLE HOLDER

INVENTIVE MACHINE CORP.	
ANGLE WORK HEAD ASSY.	
CODE B120ASSY	PART B-120
DRAWN BY BMc	DRAWING NO.
DATE 8/19/96	A-0819961

# PARTS BREAKDOWN

<u>PART NUMBER</u>	<u>DESCRIPTION</u>
B-100	COMPLETE BODY ASSEMBLY - INCLUDES ALL PARTS ON DIAGRAM EXCEPT B-104 OR B-106 BLAST NOZZLE
B-001	UPPER BODY ASSEMBLY - INCLUDES B-040 BUSHING AND 3 THUMBSCREWS FOR HOLDING CENTER TUBE IN PLACE AND B-030 VACUUM PORT WEAR SLEEVE
B-080	LOWER BODY ASSEMBLY INCLUDING GIMBLE RING AND MISC HARDWARE NOT SHOWN ON DRAWING
B-011	BELLOWS ASSEMBLY INCLUDING TWO CLAMPS
B-006	CENTER TUBE
B-070	BRUSH HEAD WHEEL KIT - INCLUDES WHEEL MOUNT BRACKETS, TENSION SPRINGS, ADJUSTING BOLT, AXLES AND WHEELS
B-280	BRUSH
B-501	BRUSH SPACER
B-030	VACUUM PORT WEAR SLEEVE
B-040	PVC BUSHING - 2" x 1½"
B-201	NOZZLE HOLDER

CONSUMABLE PARTS ON THIS WORKHEAD INCLUDE THE B-280 BRUSH WHICH SHOULD 2-3 HOURS OF BLAST TIME AND THE B-006 CENTER TUBE WHICH SHOULD LAST ABOUT 4-6 HOURS OF BLAST TIME.