



DEPARTMENT OF THE NAVY
NAVAL HOSPITAL
CAMP LEJEUNE, NORTH CAROLINA 28542-5008

IN REPLY REFER TO

6260.3d
371/88-093-3c
15 Dec 87

From: Commanding Officer
To: Commanding General, Marine Corps Base, Camp Lejeune, NC
28542 (Attn: Base Safety)

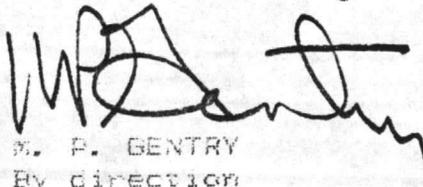
Subj: **ASBESTOS BRAKE AND CLUTCH WORK**

Ref: (a) 29 CFR 1910.1001
(b) OSHA 29 CFR 1910.1001

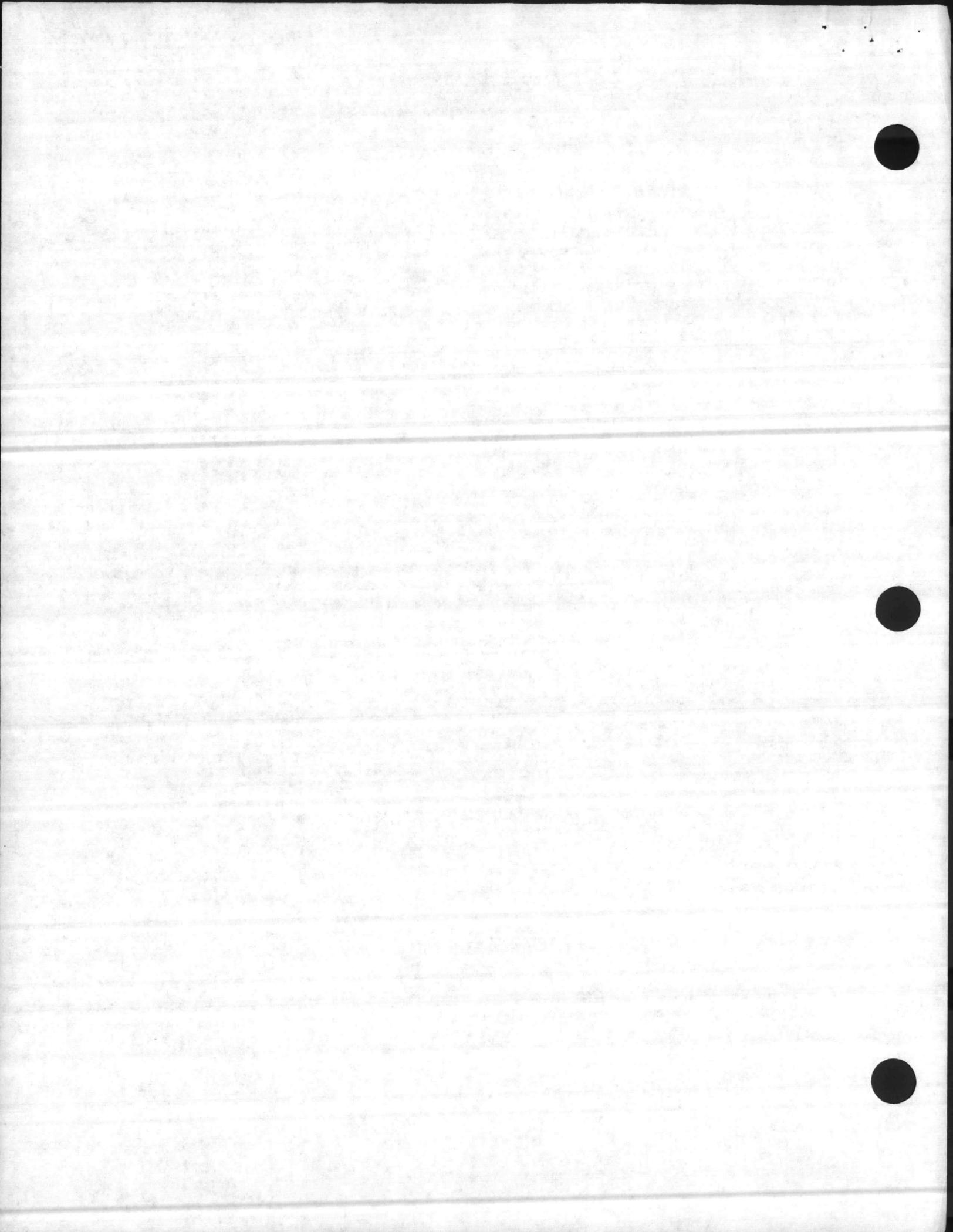
Encl: (1) Brake And Clutch Work Safety and Health Precautions
and Procedures
(2) Equipment List/Information
(3) Occupational Exposure Registry

1. In response to references (a) and (b), the Industrial Hygiene Branch, Occupational Health and Preventive Medicine Department is forwarding enclosures (1) and (2) to assist the appropriate Marine Corps Base and Marine Corps Air Station, New River departments and commands in developing proper safety and health precautions and procedures for asbestos brake/clutch work. All personnel who are performing these operations should have been screened for the Asbestos Medical Surveillance Program and Respiratory Protection Program per references (a) and (b) by the appropriate medical evaluation source such as the Occupational Health Clinic (Bldg 65), MCAS Branch Clinic, BAS, etc. To make sure this has been done, enclosure (3) should be filled out and sent to the appropriate medical evaluation source to see that all employees, both civilian and military, have been properly screened.

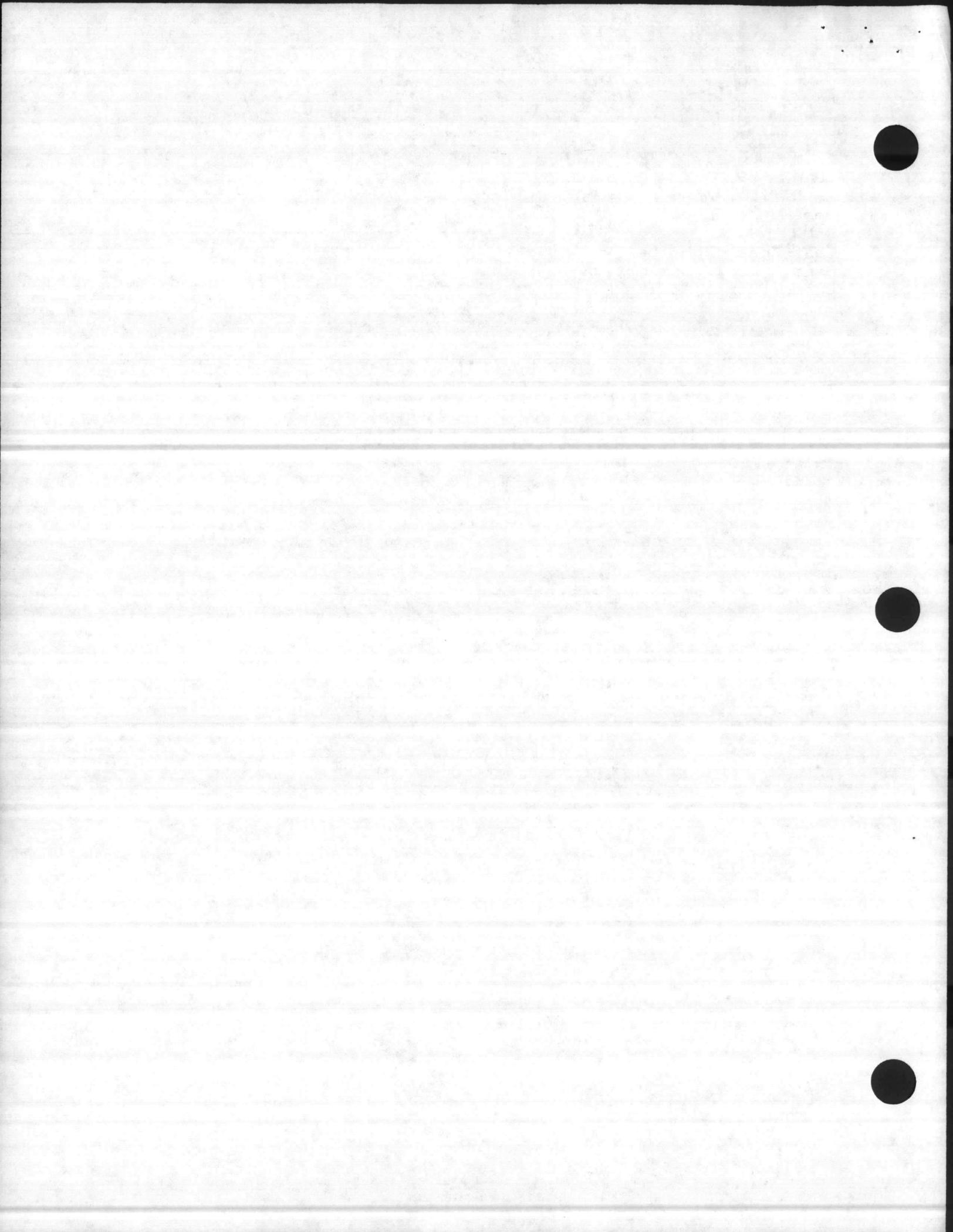
2. All personnel performing this work should also have been properly trained in accordance with references (a) and (b) concerning the hazards of and working with asbestos. Points of contact on this subject are either the Industrial Hygiene Branch, Bldg 65 (extension 2707), the MCAS Industrial Hygiene Office at ext. 6813, or the Occupational Health Clinic, Bldg 65 Marine Corps Base.


W. P. GENTRY
Ev direction

Copy to:
Base Maintenance Officer
CG 2c MarDiv
CG II MAF



CG 6th MAB
CO 22 MAU
CO 24 MAU
CO 26 MAU
CO MCAS
CO MAG-26
CO MAG-29
IH Office, MCAS
Dependent Schools
DRMO
East Coast Commissary Complex
Head, Facilities Mgt, NH
Occupational Health Clinic



Safety and Health Precautions/Procedures for Brake and Clutch Work

Method A. (Brake and Clutch Work): Enclosed cylinder/HEPA vacuum system not used.

1. Prior to removing the brake/clutch assemblies the following items shall be on hand:

a. NIOSH/MSHA-approved half-mask negative pressure respirator with approved HEPA cartridges.

Note: Ensure complete Respiratory Protection Program per EO 6260.5 is implemented and enforced to include Respirator Medical Evaluation, Respirator training and fit-testing prior to use of the respirator.

b. Tyvek and cotton coveralls.

c. Paper towels, rags and water.

d. Polyethylene gloves.

e. HEPA asbestos vacuum cleaner (if available).

2. Place a layer of polyethylene on the floor under the location of the job before disassembly begins. Locate and have available all other equipment and materials necessary to do the job.

3. Don all personal protective equipment (Tyvek and cotton coveralls, safety glasses, gloves, and respirator). Ensure Tyvek coveralls are taped at the wrists.

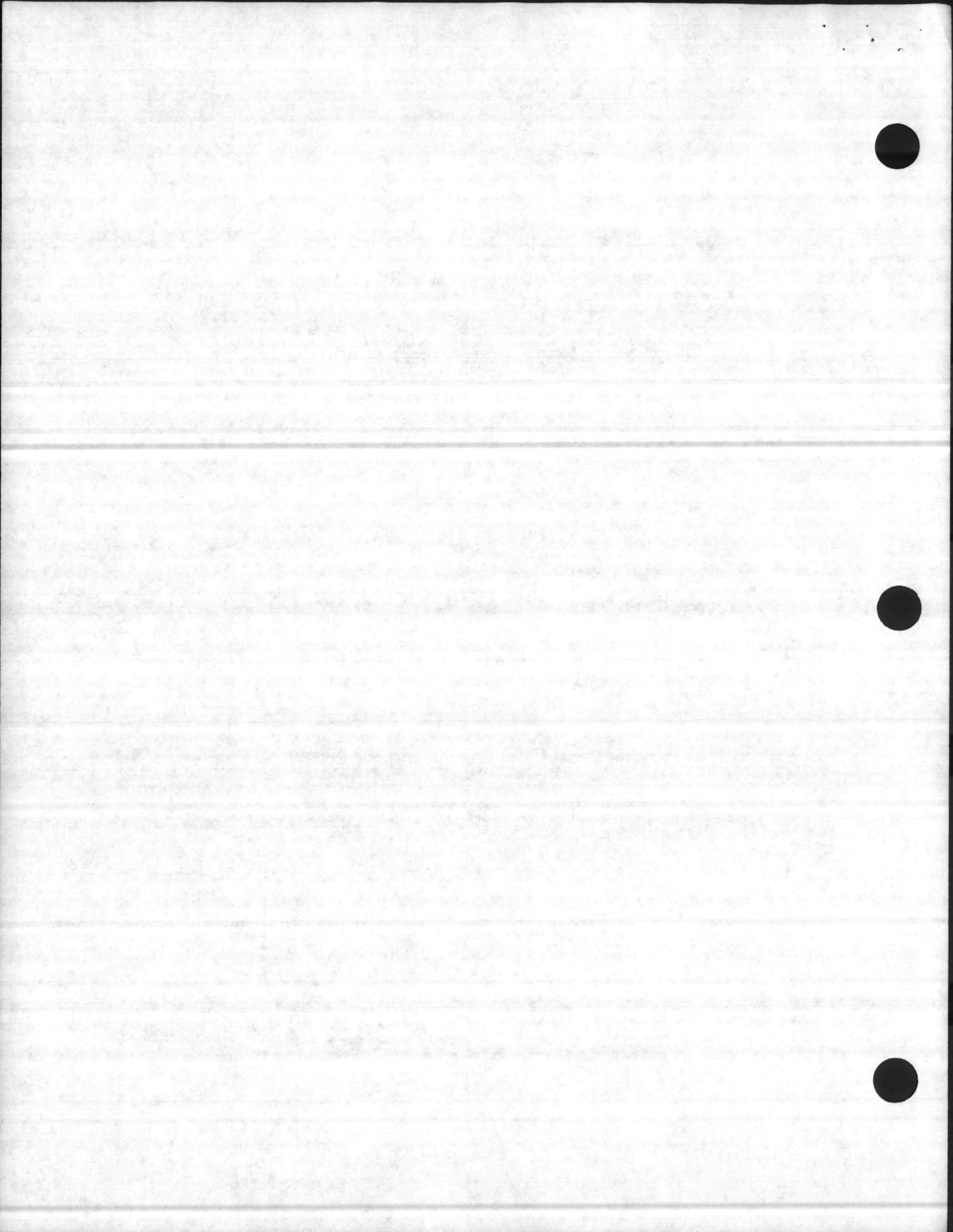
Note: Positive/negative pressure fit test should be performed each time respirators are donned.

4. Plug in HEPA asbestos vacuum cleaner (if available).

5. If the HEPA vacuum cleaner is available, remove the brake drum and vacuum the backing plate, shoes, pads, rotors, calipers, and drum. Vacuum all loose dust up. Ensure that all these parts are dust free. If the HEPA vacuum cleaner is not available, use a low pressure, fine spray of water or other suitable wetting agent on the brake/clutch assembly and drum to prevent asbestos fibers from becoming airborne. Wipe down the brake/clutch assembly and drum with a damp cloth. DO NOT USE COMPRESSED AIR OR DRY BRUSH TO CLEAN THE BRAKE OR CLUTCH ASSEMBLY.

6. Wet the shoes/discs, backing plate and wheel cylinders/calipers.

7. Remove the shoes/clutch disk and place in asbestos

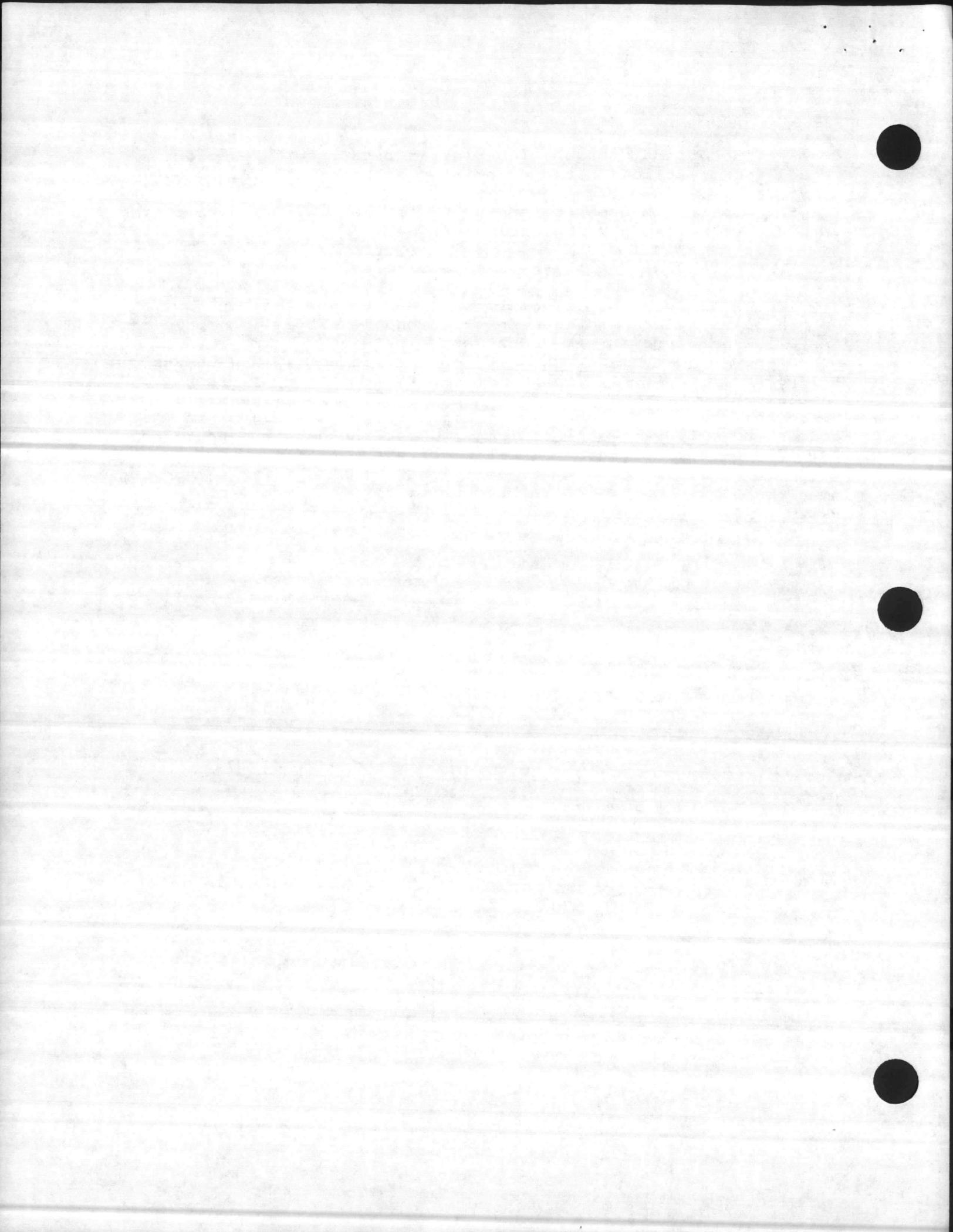


double-lined plastic bags. The plastic bags are to be color coded (red or yellow) with pre-printed asbestos warning labels.

8. Wipe the brake area and drum/disk down with a damp cloth in order to remove any residual dust.

9. Proceed with brake replacement/repair.

10. After the job is complete, clean-up the area by rolling up the polyethylene and placing all asbestos debris in double red or yellow asbestos bags. Vacuum and wipe with a damp cloth all non-disposable equipment such as tools. Vacuum off and remove all personal protective equipment except for the respirator (it should be the last piece of equipment removed). Place all disposable personal protective equipment and rags/cloths in the double red or yellow asbestos bags. Seal the asbestos bags and properly dispose of in an asbestos approved landfill. Place cloth coveralls in double red/yellow asbestos bags for laundering and clean the respirators in accordance with the manufacturer's guidelines.



Method B. (Brake Work Only): Enclosed cylinder/HEPA vacuum system used.

1. Prior to removing the brake drum the following items shall be on hand:

a. NIOSH/MSHA-approved half-mask negative pressure respirator with approved HEPA cartridges. Ensure complete Respiratory Protection Program per BO 6260.5 is implemented and enforced.

b. HEPA vacuum system unit with enclosed cylinder/brake drum cover and any other necessary equipment/materials to do the job.

c. Tyvek and cotton coveralls.

d. Paper towels, rags and water.

e. Polyethylene gloves.

2. Don all personal protective equipment (coveralls, safety glasses, gloves, and respirator). Ensure Tyvek coveralls are taped at the wrists.

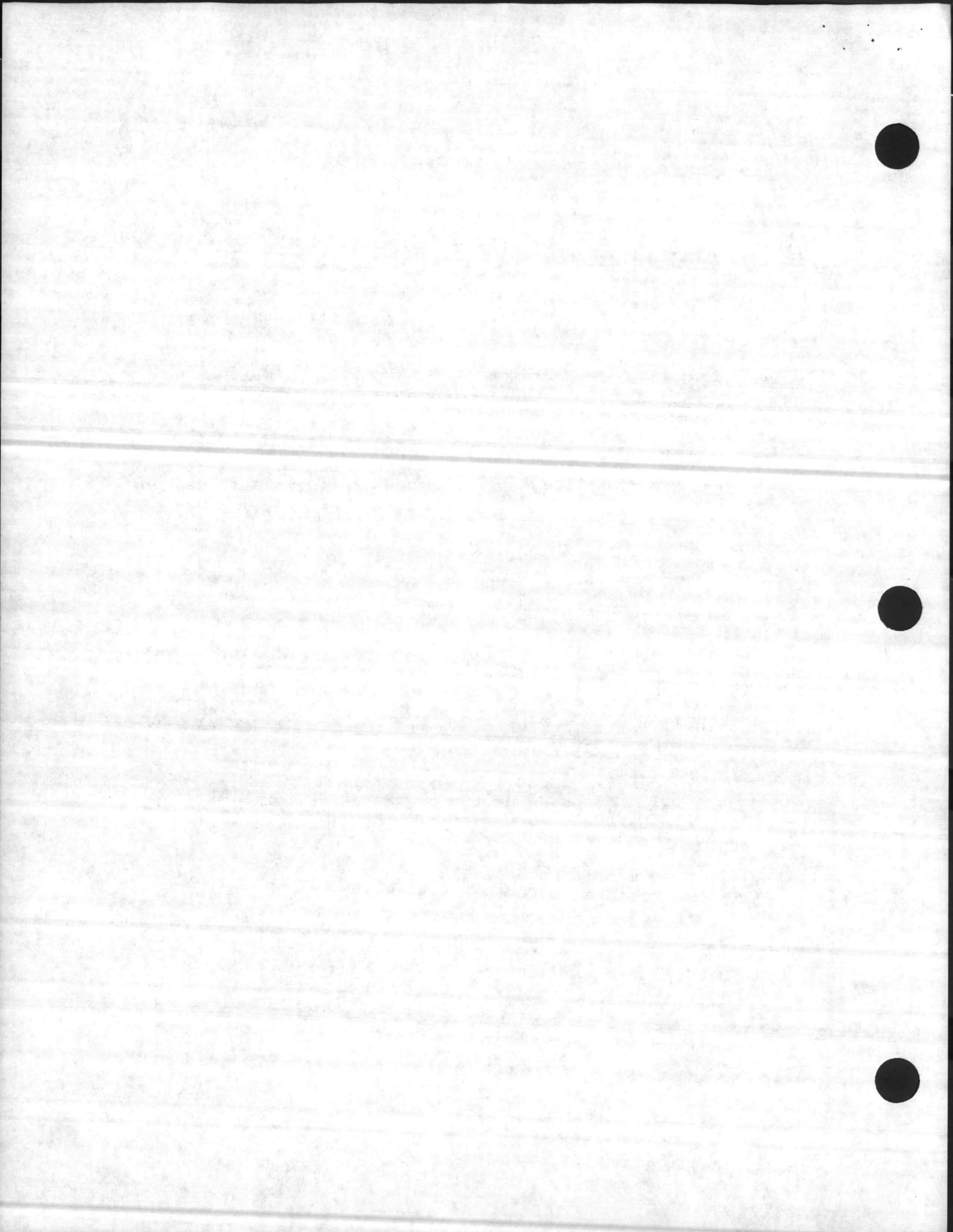
Note: Positive/negative pressure fit test should be performed each time respirators are donned.

3. Plug in the HEPA vacuum unit and hook up the brake cover. Tools should be placed inside of the brake cover chamber before the job begins. The tools should be cleaned before removing them from the vacuum chamber.

4. Follow the manufacturer's instructions for the operation of the "enclosed cylinder/HEPA vacuum system" to perform the brake replacement/repair.

5. After usage of the "enclosed cylinder/HEPA vacuum system" is completed, wipe down the area with damp cloth in order to remove any residual dusts or vacuum. Complete rest of clean-up as appropriate per Method A paragraph 10 and manufacturer's recommendations.

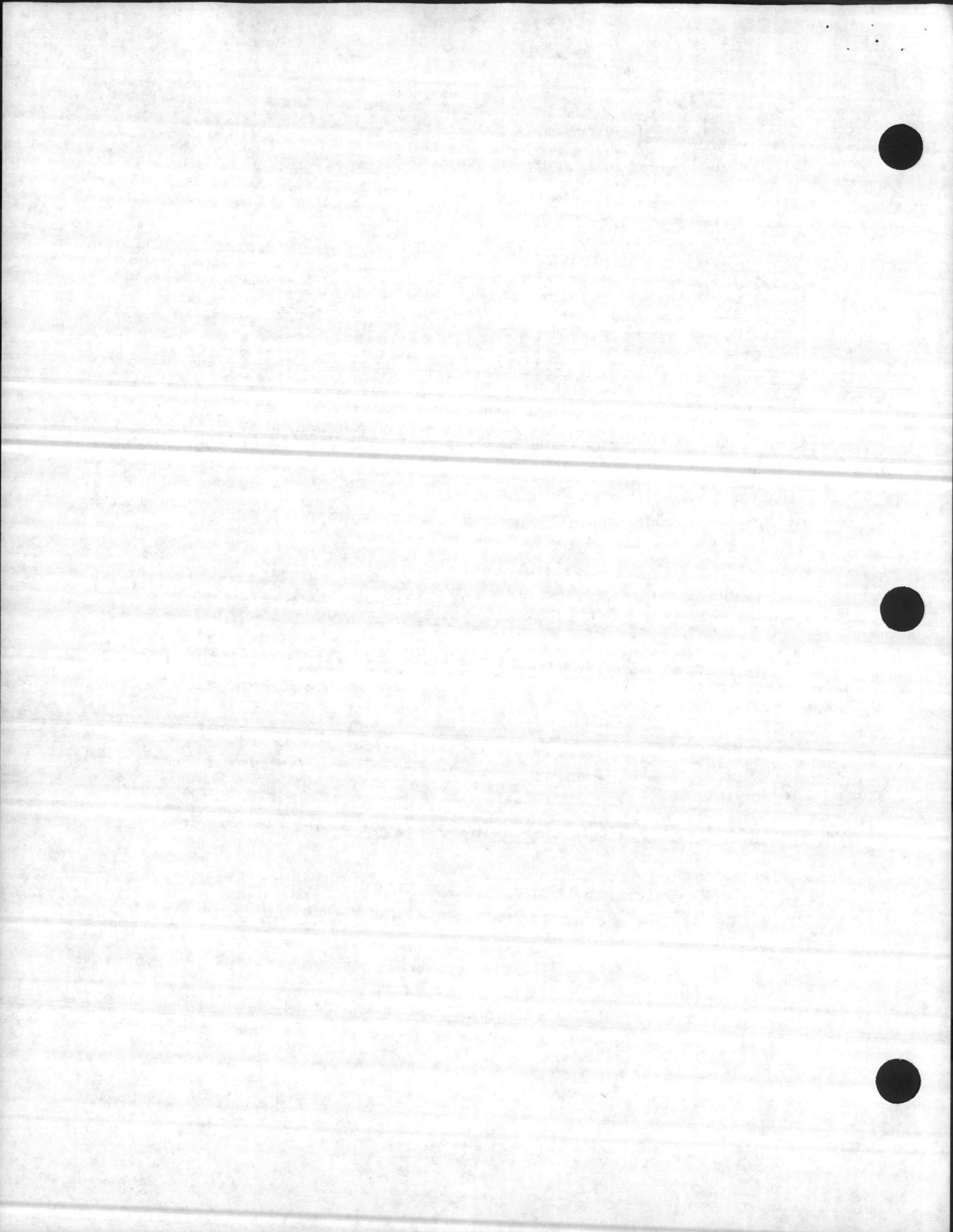
Note: If the brake covering device will not fit over the drum, Method A above must be used.



C. Additional guidelines.

1. Vacuum new brake/clutch linings prior to installation.
2. Compressed air or dry brush shall not be used to blow-out or clean the brake/clutch assembly without the HEPA vacuum/enclosed cylinder.
3. Hand punching, cutting, riveting, sanding and/or machining of brake or clutch linings shall be performed only in a posted, controlled asbestos work area which has been approved by the Industrial Hygiene Branch, OH and PMD in accordance with 29 CFR 1910.1001. Appropriate personal protective equipment shall be worn during the operation.
4. Spray the asbestos-contaminated parts with water or other wetting agent at a sufficient distance and low pressure (fine mist) to ensure that the asbestos particles are not dislodged by the velocity of the solvent spray. After the asbestos particles are thoroughly wetted, the spray may be brought closer to the parts and the parts may be sprayed as necessary to remove grease and other material. The automotive parts sprayed with the mist are then wiped with a rag which must then be disposed of appropriately.
5. Smoking, eating, or drinking shall be prohibited in the area where brakes or clutches are being repaired.
6. Personnel shall wash their hands before smoking, eating, or drinking after handling any brake or clutch linings. In addition, personnel shall shower at the end of the work day prior to changing into street clothes.
7. Warning signs/barriers shall be placed in the area during asbestos brake jobs, etc.; personnel should not be allowed to walk in and out of the area.
8. Industrial hygiene air sampling shall be done at least semi-annually for all brake/clutch operations.

Note: Personal protective equipment requirements may be modified in the future pending the performance of industrial hygiene surveys and review of air sampling data for these operations.



Equipment List

1. Respirators, air filtering, half mask, dual cartridge, type I
4240-00-844-5414 Ea. \$5.50

Obtain HEPA cartridges for each respirator which are from the same company.

2. Coveralls, disposable, white, large, w/hood and boots for use with asbestos and fiberglass.

9D 8415-01-092-7531 Ea. \$3.85

3. Coveralls, cotton, nondisposable, large

9D 8405-00-131-6509 Ea. \$12.00

4. Glove, polyethylene Ea. \$0.12 (\$8.95/100)

9D 8415-00-682-6786

5. Bag, plastic; red, pre-printed warning; asbestos

IHS 8105-01-086-5053 Bx. \$21.50

6. Vacuum, asbestos, HEPA filtered, portable, 9.5 gal, Type II

IHS 7910-01-111-8719 Ea. \$800

7. Vacuum, asbestos, HEPA filtered, portable, 5 gal, Type I

IHM 7910-01-084-8854 Ea. \$600

8. Enclosed cylinder/HEPA vacuum system

Available by GSA contract. Nilfisk, Hako Minuteman, or Clayton Associates, Inc. are three companies which sell this type of unit. (See attached manufacturer's information)

9. Drop Cloth

Cloth, laminated, vinyl nylon, fire resistant, waterproof
Type II, Class II (9-11 oz/yd)

Color	Size	NSN	Cost/yd
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Green	54 inch width	9D 8305-00-351-8346	\$1.39
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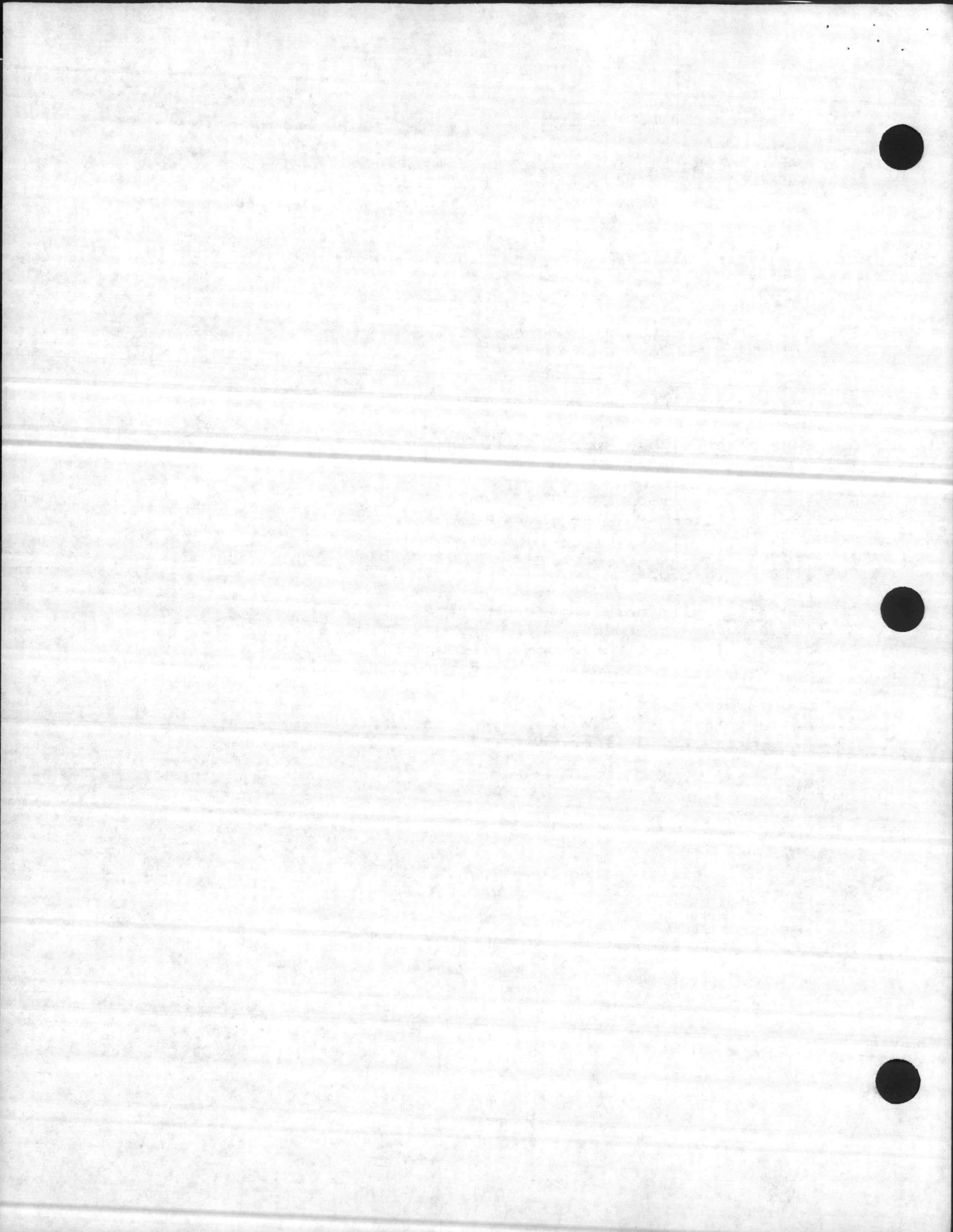
10. Sprayer, 1 gal, Insecticide

Used to wet asbestos prior to removal

9C 3740-01-191-3677 Ea. \$65.40

11. Warning Signs

IHS 0000-LL-CJ7-9362

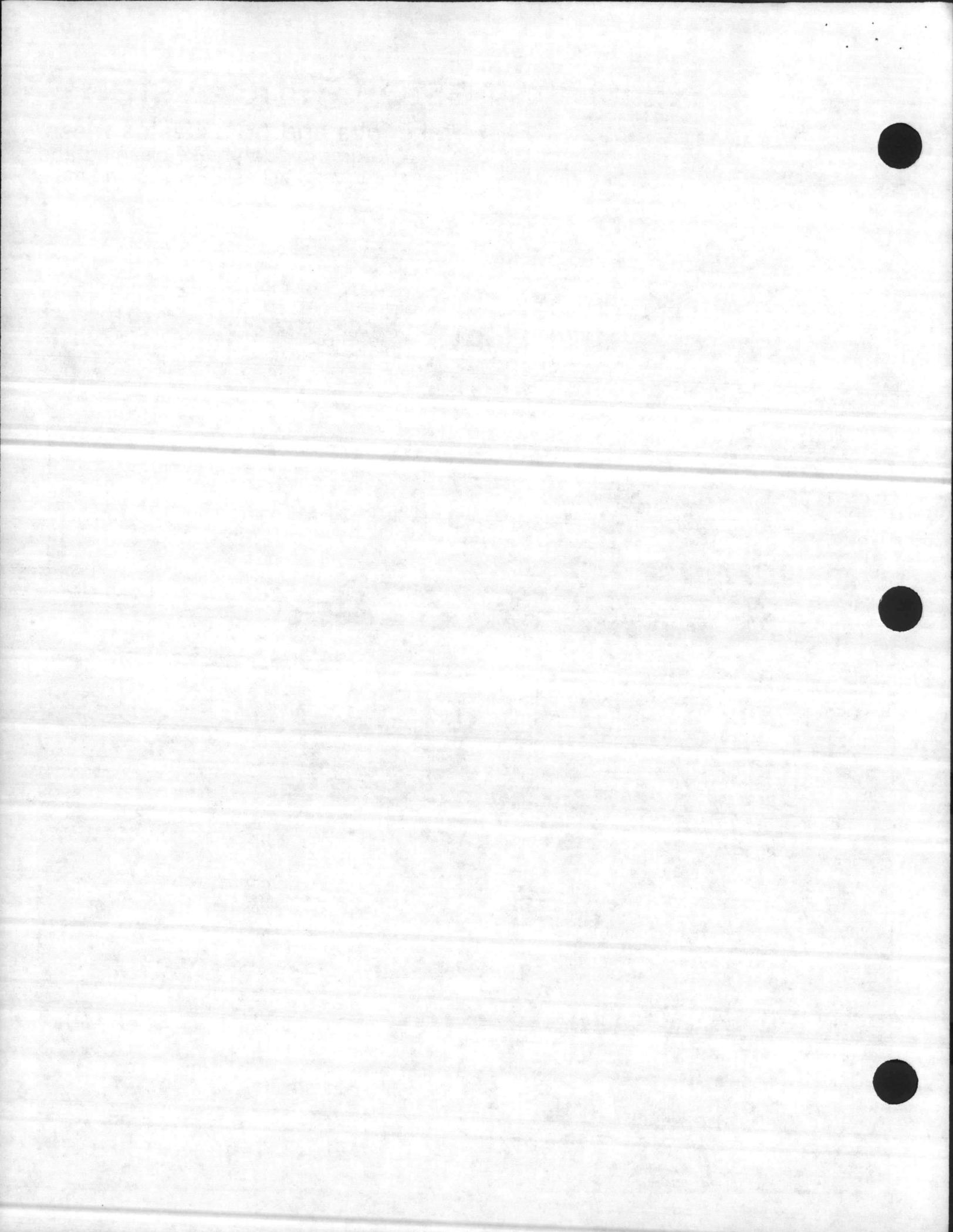




Nilfisk Asbesto-Clene Systems

Fast brake jobs and no asbestos mess.
The only way to do thorough brake cleaning and
still meet federal asbestos exposure limits.





Nilfisk Asbesto-Clene® Systems

All Nilfisk Asbesto-Clene Systems are engineered to meet and exceed OSHA and EPA standards for eliminating exposure to asbestos dust, without sacrificing speed and visibility in brake lining work. A cylinder isolates the brake drum. A Nilfisk vacuum, connected to the cylinder, prevents the escape of airborne asbestos dust liberated during blow-down with the built-in compressed air gun. Filters inside the vacuum assure that none of the dust is exhausted to the workplace. Debris is collected in disposable bags.

Heavy Duty Vacuums. All Nilfisk vacuum dust collectors used in these systems are equipped with both microfilters and HEPA* filters so they return absolutely clean air to the work area. Tested and approved by the Asbestosis Research Council, these same vacuums are widely used in brake lining manufacturing plants to control asbestos dust.

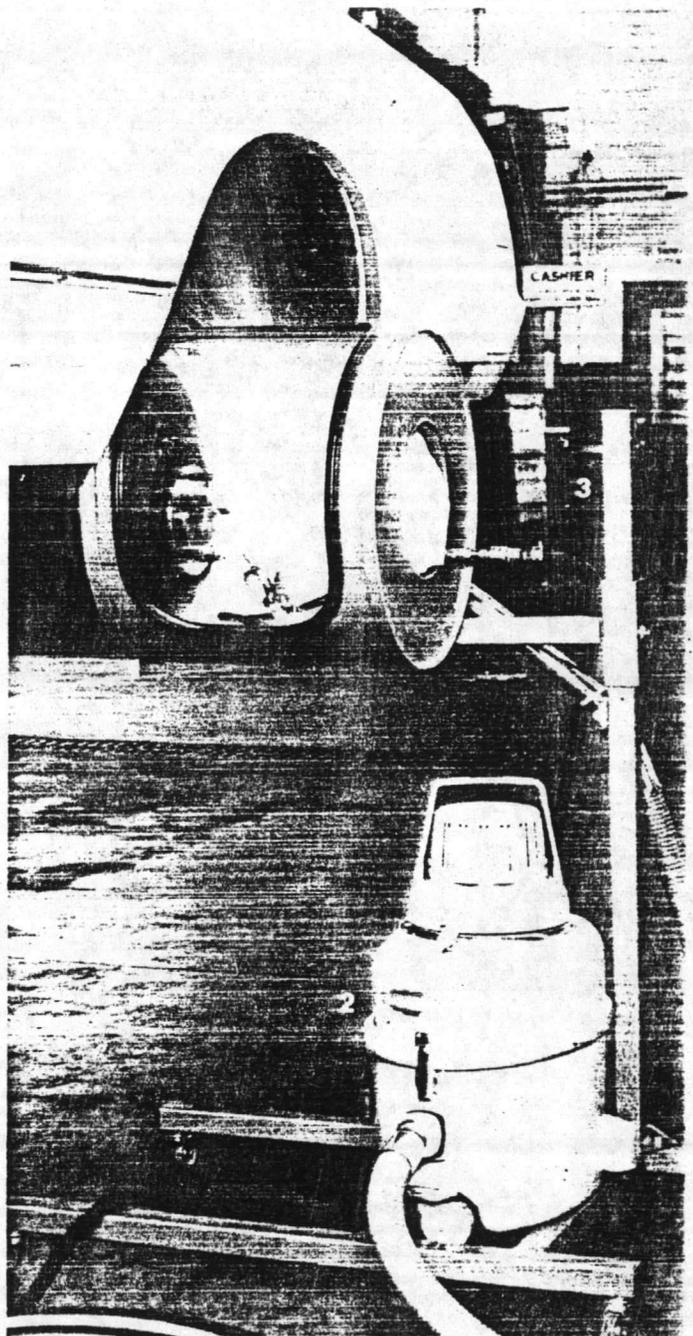
Easy-to-Use Encapsulators. Encapsulator cylinder No. 017400 is used with Systems 400 and 500, and fits passenger cars and light commercial vehicles with brake drums in the 7" to 12" diameter range. Asbesto-Clene System 400 is used with low jacks, while System 500's stand can be adjusted for use with hydraulic lifts. Nilfisk vacuum Model GS 81 is normally used with Systems 400 and 500.

Cylinder No. 017600, used with Asbesto-Clene System 600, fits large commercial vehicles with brake drums in the 12" to 19" diameter range. Its stand is for use with low jacks. Nilfisk vacuum Model GS 83 is normally supplied with System 600.

System 400 has a cotton sleeve which allows a mechanic to reach safely inside to do brake cleaning quickly and comfortably. System 600 has three access points, one on either side and one in front, making work on double-wheel assemblies easy. Both systems have large, shatterproof viewing windows and built-in compressed air guns with quick-connect couplings.

The combination of vacuum with safely enclosed compressed air gun is faster than wet wiping, and eliminates the asbestos dust exposure you get when using an exposed air gun.

When not in use for brake lining work, Nilfisk vacuums can be disconnected from the encapsulator and used separately for clutch-facing work, arc grinders, or routine cleaning around the garage.



Asbesto-Clene System 500. Recommended with vacuum Model GS 81 wherever volume passenger car/light truck brake lining work is done. Comes with stand for use with high lifts.

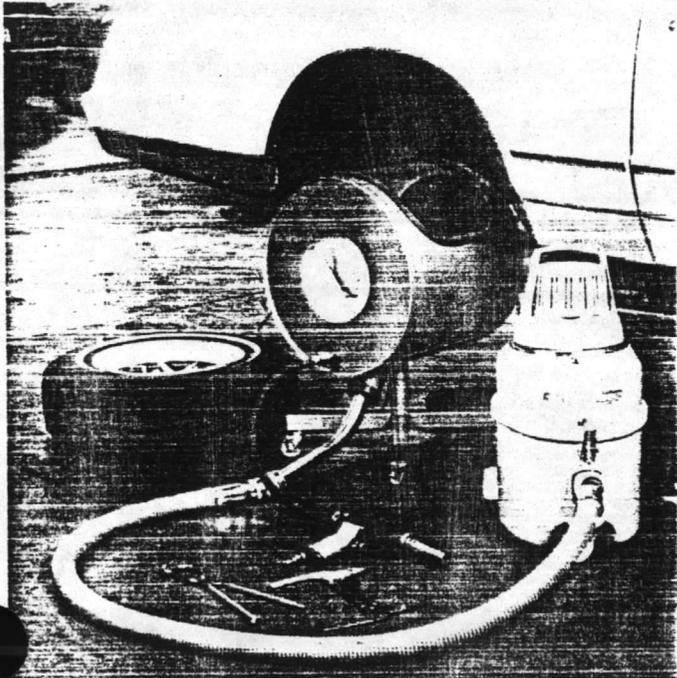
1. **Encapsulator Cylinder** (017400) shown with single access, viewing window, enclosed air gun.
2. **Vacuum** (Model GS 81) shown with HEPA filter, hose, portable tank, and steel wand.
3. **High Lift Stand** (017600) also available on hydraulic lifts (as shown).



*HEPA = High Efficiency Particulate Air
 HEPA Filter
 Model GS 81



Easy disposal of asbestos dust

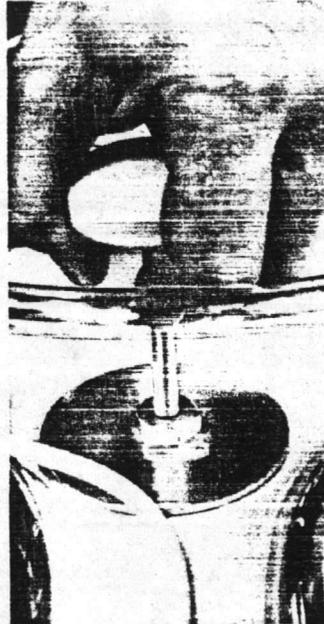


Asbesto-Clene System 400. Recommended with vacuum Model GS 81 wherever volume passenger car/light truck brake lining work is done. Comes with stand for use with low jacks.

801-5100



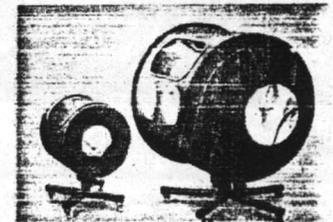
Asbesto-Clene System 600. Recommended with vacuum Model GS 83 wherever volume brake lining work is done on large commercial vehicles. Comes with stand for use with low jacks.



1. External shaking handle releases all debris from filter. Dust collects in enclosed container.



Optional Manometer (on Models GS 82 and GS 83) alerts mechanic when filter needs to be shaken. Cleaning the filter regularly maintains high suction and filtration efficiency and extends filter service life.



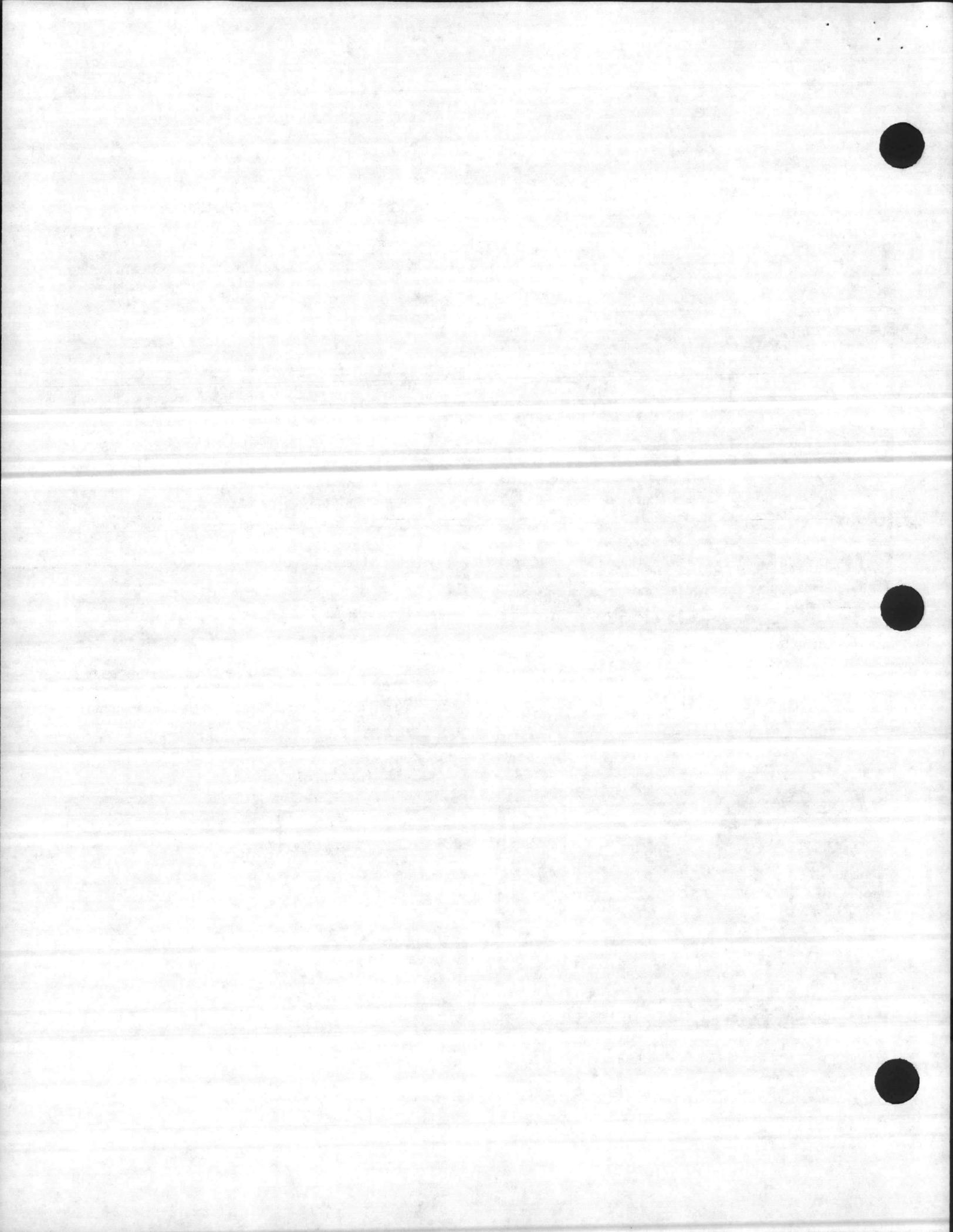
Customized encapsulators, for oversize or off-the-road vehicles, are available by special order.



2. Lower the container which holds either polyliners or disposable bags.



3. Seal polyliner or bag for safe disposal.





ASBESTO-CLENE [®] COMPONENTS	Heavy Duty Systems			Light Duty Systems		
	System 400	System 500	System 600	System 400(80i)	System 500(80i)	System 600(82)
Model GS 80i Vacuum, 2½ gal. capacity						
Model GS 81 Vacuum, 4 gal. capacity						
Model GS 82 Vacuum, 12 gal. capacity						
Model GS 83 Vacuum, 18 gal. capacity						
No. 400 Encapsulator						
No. 600 Encapsulator						
Low Stand						
High Lift Stand						
Microfilters						
HEPA filters						
10' Hose, 1½" ID						
10' Hose, 2" ID						
Disposable Filter Bags						
Sealable Polyliners						
Manometer (Optional)						

Other vacuum cleaner attachments are available for routine cleanup applications.

National Representatives.

Nilfisk has a nationwide network of representatives, all thoroughly familiar with government codes and regulations dealing with the safe cleanup of asbestos dust. For more information or to contact your nearest Nilfisk representative for specific recommendations, call or write: Nilfisk of America, Inc., 224 Great Valley Parkway, Malvern, PA 19355. (215) 647-6420.

Local

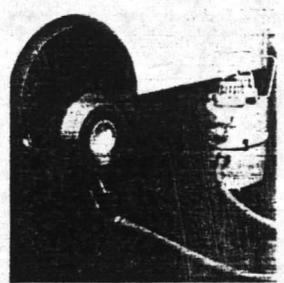


Dust Collection Specialists Since 1910.

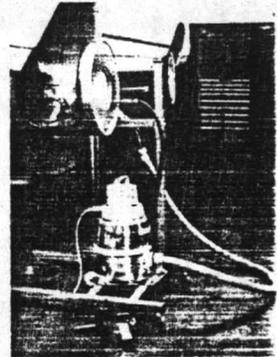
Other Nilfisk Asbesto-Clene Systems for Light Duty



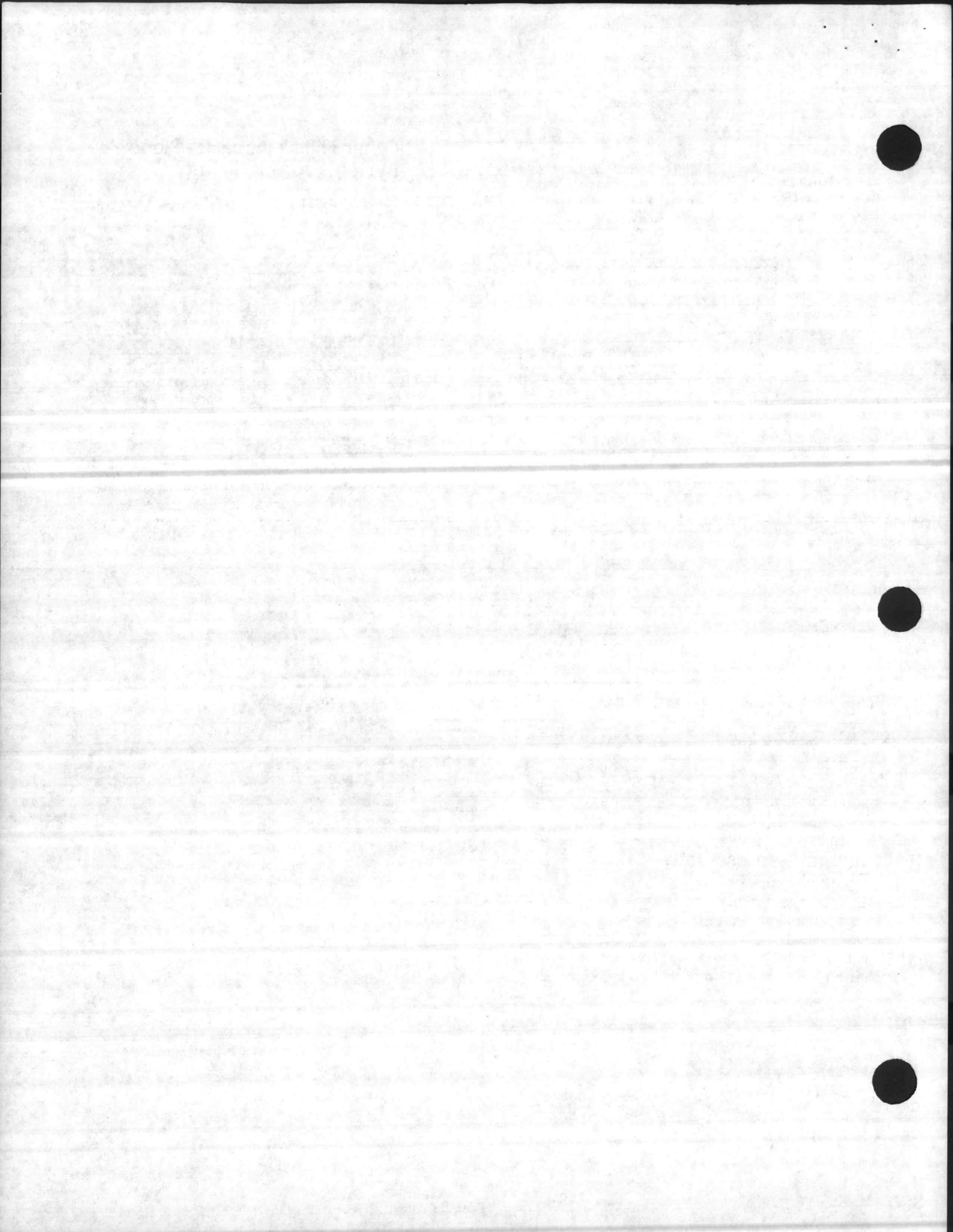
Asbesto-Clene System 400(80i). Recommended with vacuum Model GS 80i for use in garages where only occasional brake lining work is done. Comes with stand for use with low jacks.



Asbesto-Clene System 600(82). Recommended for garages where only occasional brake lining work is done on large commercial vehicles with brake drums in the 12" to 19" diameter range or double wheel assemblies. Comes with stand for use with low jacks.



Asbesto-Clene System 500(80i). Same as system 400 (80i) except encapsulator stand is for vehicles up on hydraulic lifts.





HAKO Minuteman

Series 800 Asbestos Vacuum Systems For Safe Control & Removal of Asbestos and Other Toxic Materials

- Wet or Dry Pick-Up
- Portable or Large Capacity
- Electric or Air-Operated
- Painted or Stainless Steel



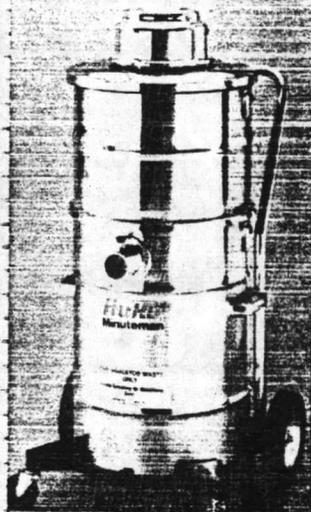
Back Pack Asbestos Vac



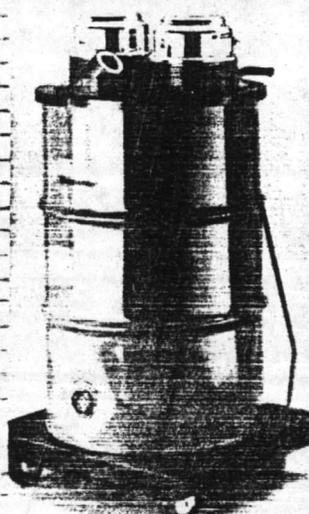
6 Gallon Asbestos Vac



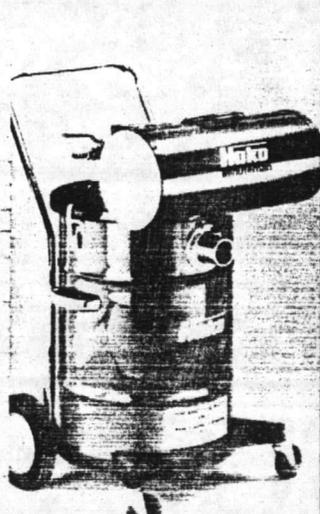
15 Gallon Asbestos Vac



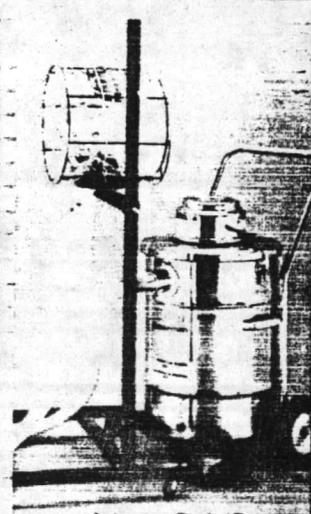
30 or 55 Gallon Asbestos Vac



Twin-Powered Asbestos Vac

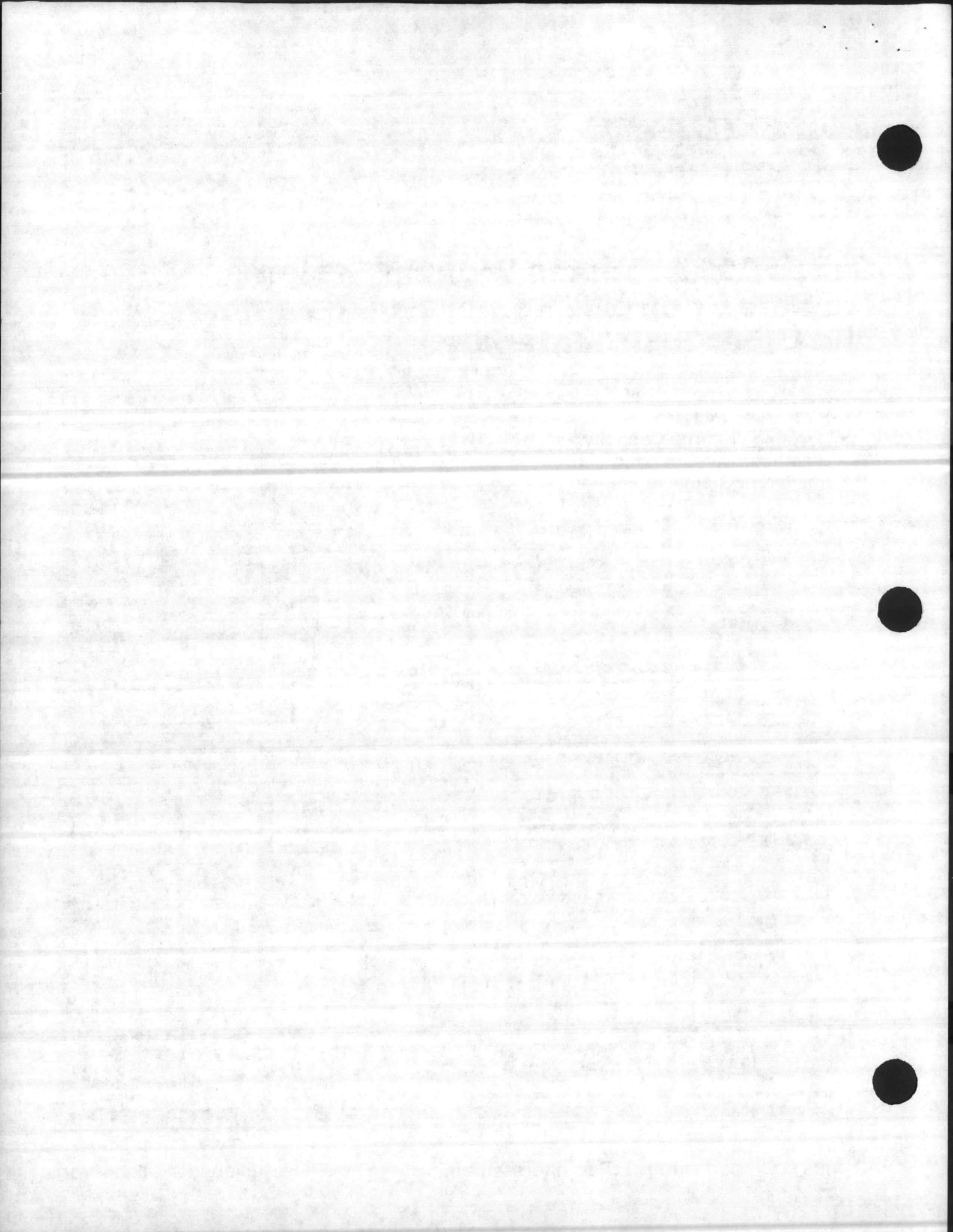


Air-Powered Asbestos Vac



Asbestos Brake Drum
Assembly

All units equipped with H.E.P.A. filters with minimum 99.97% efficiency at 0.3 microns.



Special Features of a Hako Asbestos Vacuum



SELECTION —

Back Pack Asbestos Vac- for hard to reach clean up jobs.

76 Gallon Asbestos Vac- portable with disposable paper collection bag. Wheel bracket optional.

15 Gallon Asbestos Vac- each unit includes front casters, 8" rear wheels and carriage handle. All 15 gallon vacuum motor lid assemblies can be converted with adapter to a standard 30/55 gallon steel or fibre drum for wet or dry disposable recovery.

Wet/Dry Asbestos Vac- a versatile unit, all 15 gallon vacuums have wet/dry recovery capabilities with a 1 to 1 adapter and water shut-off.

30/55 Gallon Asbestos Vac- each unit is equipped with a painted tank, dolly cart and handle for easy maneuverability. Use a disposable 30 or 55 gallon drum and avoid rehandling toxic materials, resulting in labor savings.

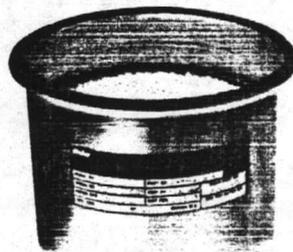
Twin-Powered Asbestos Vac- twin power vacuum on 55 gallon drum for bulk recovery with up to 3" diameter hose.

Air-Powered Asbestos Vac- non-electric, no moving parts, for heavy commercial and industrial applications, may be used in potentially explosive conditions. Maintenance Free. Available in 15, 30 and 55 gallon sizes.

Asbestos Brake Drum Assembly- brake drum cleaner removes asbestos dust from brake assembly before mechanic changes brake shoes.

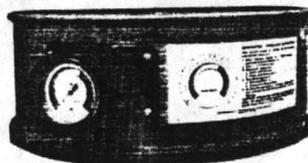
EXCLUSIVE H.E.P.A. FILTER

Hako Minuteman's H.E.P.A. filters feature an exclusive high tensile strength surface membrane laminated to the filter media for increased durability. A seamless lightweight aluminum filter housing eliminates potential leak areas. These Hako H.E.P.A. filters are now more resistant to punctures, tears, leaks, abrasions, and damage from moisture. Plus, H.E.P.A. filters are mounted internally, protecting both the operator and the motor from contamination, and preventing damage to the H.E.P.A. filter when transporting machine.



MANOMETER OPTION

Manometer adapter can be added to any Hako Minuteman H.E.P.A. operated vacuum with 15, 30, or 55 gallon drum capacities. A manometer measures the negative pressure within the vacuum tank unit and alerts the operator when the filters need service.



APPLICATIONS

This vacuum is highly effective in filtering airborne pollutants such as:

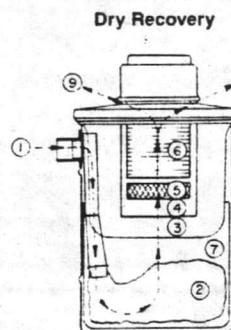
- aluminum
- arsenic
- arsenite
- barium
- cement
- chromium
- coal
- fertilizer
- foundry dust
- fullers earth
- fumigants
- fungicides
- graphite
- herbicides
- insecticides
- iron
- lead arsenate
- mica
- nickel
- nicotine
- pesticides
- silica
- talc
- tin
- titanium
- vinyl chloride
- wood

Hako Minuteman

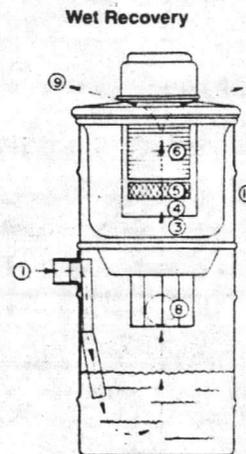
111 South Route 53, Addison, Illinois 60101
Phone (312) 627-6900

OPERATION

Asbestos vacuum is equipped with disposable collector bag, inside plastic bag liner, disposable filter protector, cloth filter bag, impact pre-filter and H.E.P.A. filter. A total of 5 filter media for dry recovery and 4 filter media when used for wet recovery.



1. Intake
2. Disposable Bag
3. Filter Protector
4. Cloth Filter
5. Impact Filter
6. H.E.P.A. Filter
7. Plastic Bag
8. Water Shut-Off
9. Clean Exhaust
10. 1 to 1 Adapter



SPECIFICATIONS

SPECIFICATIONS	Asbestos Back Pack X380-1	Asbestos Vac 4/6	Asbestos Vac 15	Asbestos Vac 30/55	Asbestos Vac X250-TP (2 Motor)	Asbestos Air Vac X703-15	Asbestos Air Vac X703 30/55
Static Lift (inches water)	88	88	88	88	110	185	185
Air Flow (C.F.M.)	99	95	95	95	200	166	166
Power (watts)	930	930	930	930	2960	—	—
Cord & Type Length	16-3 50'	16-3 50'	16-3 50'	16-3 50'	16-3 50'	—	—
Wet Capacity (gallons)	NA	NA	6.3	20/40	NA	6.3	20/40
Dry Capacity (cu. ft.)	.15	.21/.62	.82	4.36/7.15	7.15	.82	4.36/7.15
Filter Area Total Sq. In.	900	1769	2226	4120	2175	4120	4120
Overall Height	24"	25"	36"	48"/54"	54"	33"	45"/51"
Width	10"	14"	21"	25"	25"	21"	25"
Volts Standard	115	115	115	115	115	—	—
Optional	220	220	220	220	220	—	—
Wheels	—	Opt.	Yes	Yes	Yes	Yes	Yes
Wheel Size Front	—	3"	3"	5"	5"	3"	5"
Rear	—	6"	8"	5"	5"	8"	5"
Wet/Dry	—	—	Opt.	Opt.	—	Opt.	Opt.
Dry Only	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weight (pounds)	10	24	51	121/138	138	51	98/113
Air Line	—	—	—	—	—	1/2"	1/2"
Air Pressure (P.S.I.)	—	—	—	—	—	90	90
Compressed Air Flow S.C.F.M.	—	—	—	—	—	42	42

Meets Federal Asbestos Pick-Up and Removal Requirements CM. 1-C.24593LSH H.E.P.A. (High Efficiency Particulate Air) Filters are 99.97% effective at .3 micrometers. H.E.P.A. Filter meets or exceeds the following military and government specifications:

Mil-F-51079A

Mil-F-510680

U/L Class 1 listed

U/L Std. 586 listed

A.E.C.- Regulatory Guide #1.51

Hako Minuteman Canada, Inc.

84 E Brunswick Blvd.

Dollard des Ormeaux, Quebec H9B 2C5

Telephone: (514) 683-3880





GENERAL SERVICES ADMINISTRATION
Authorized Federal Supply Schedule Price List
(Catalog)

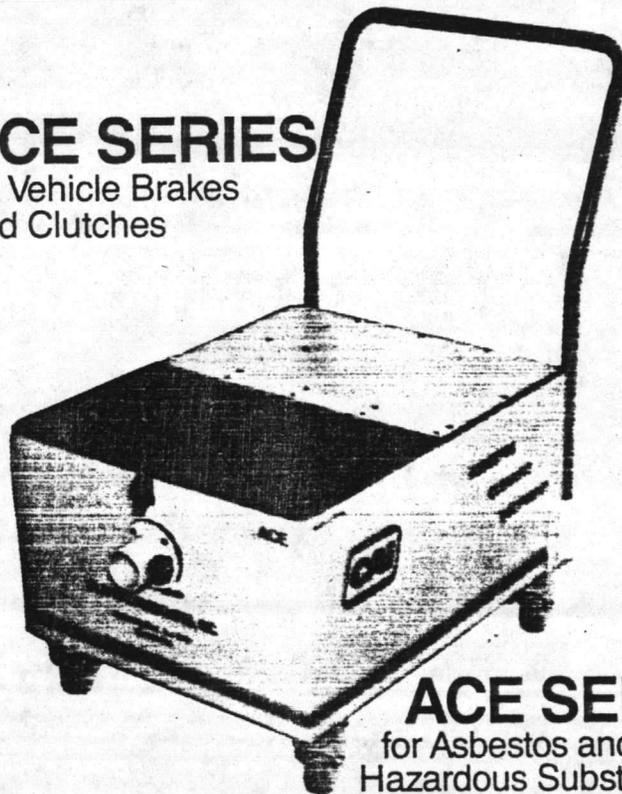


**NEW ITEM
INTRODUCTORY SCHEDULE**

**HEPA* FILTER VACUUM SYSTEMS
FOR ASBESTOS AND
OTHER HAZARDOUS SUBSTANCES**



BCE SERIES
for Vehicle Brakes
and Clutches

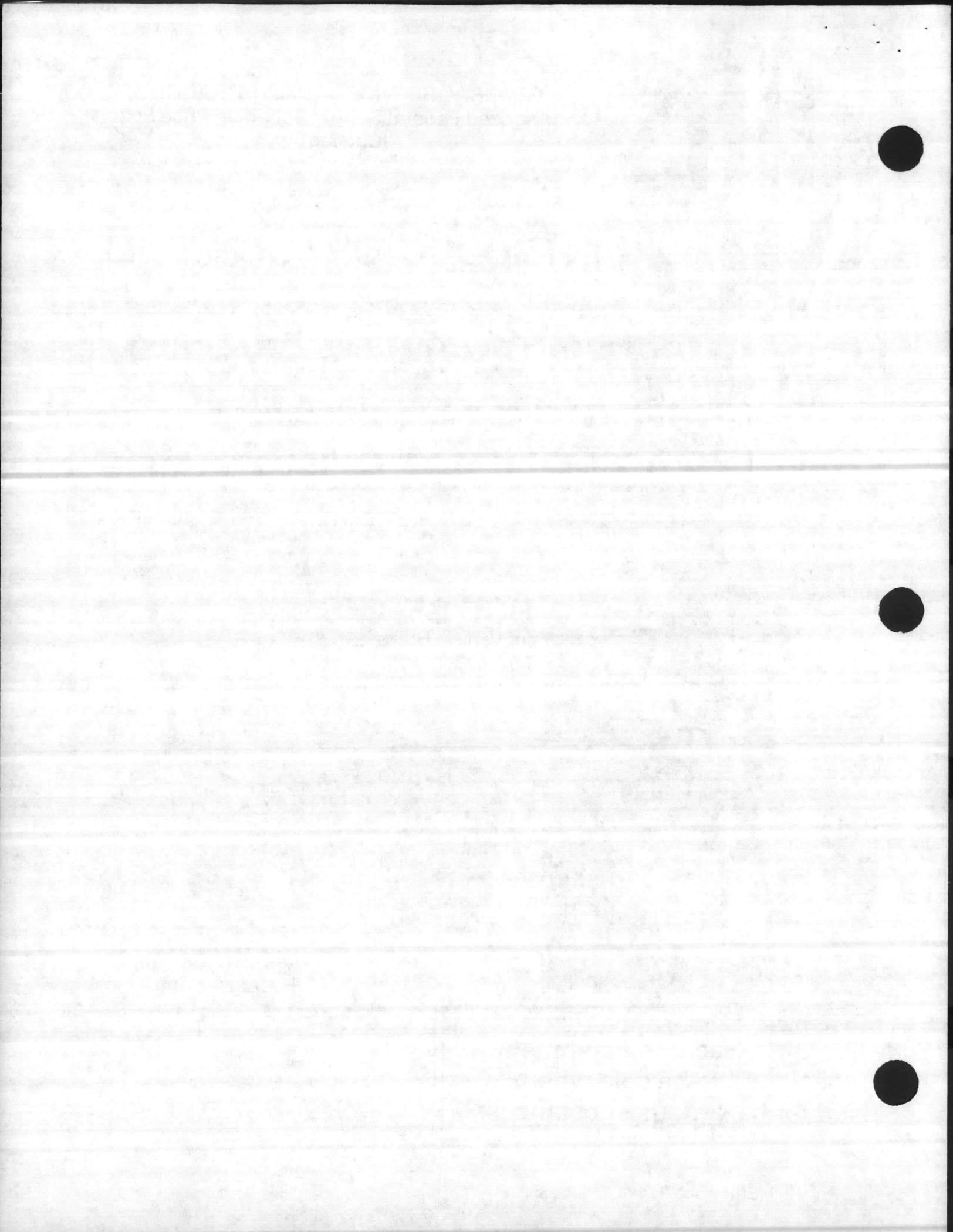


ACE SERIES
for Asbestos and other
Hazardous Substances

The **ONLY** vacuum equipment
designed to be safe when
used for hazardous substances

*High Efficiency Particulate Air

FSC Class: 4940
Contract Number: GS-00F-87560
Contract Period: February 28, 1986 to
February 2, 1988
Company Name: Clayton Associates, Inc.
PO Box 589, 30 Southard Avenue
Farmingdale, N.J. 07727-0589
Telephone Number: 201-938-6700
Size: Small



NIS-G-0221 BRAKE CLEANING EQUIPMENT

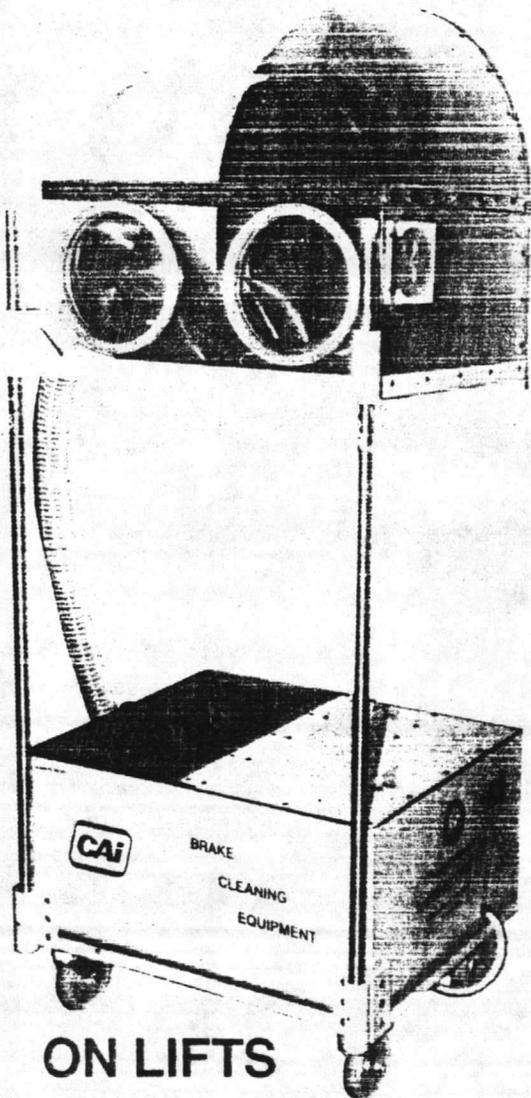
PURPOSE

Permits the mechanic to safely contain and collect deadly asbestos-ridden dust from vehicle brakes and clutches.

DESIGN

Self-contained compact machines consisting of:

1. An enclosure surrounding the brake assembly so the mechanic can safely blow dust from the brake shoes and backing plate.
2. A high performance, vacuum powered, filtration system designed to permit safe collection and disposal of hazardous asbestos dust removed from the enclosure.



ON LIFTS

Readily adjusts to vehicles on lifts or safety stands; no attachments are required to achieve this versatility.

SHATTERPROOF LEXAN enclosure is transparent providing light and excellent visibility for the operator.

NEOPRENE GLOVES protect the mechanic from any hand or arm contact with dust.

REMOVE CAR & TRUCK DRUMS (up to 1¼ ton capacity) within the enclosure.

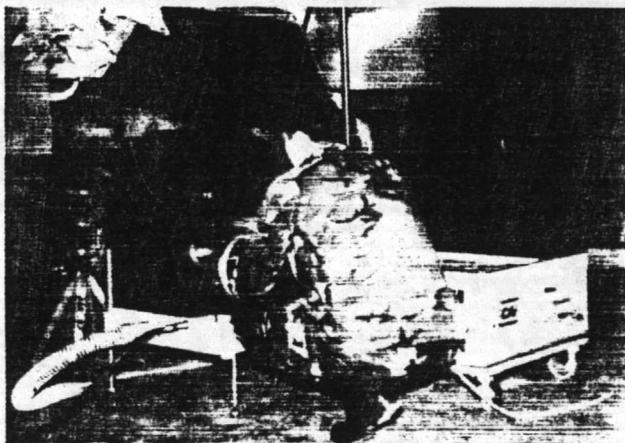
SINGLE COMPACT UNIT for easy handling & storage.

MANOMETER signals time for filter change.

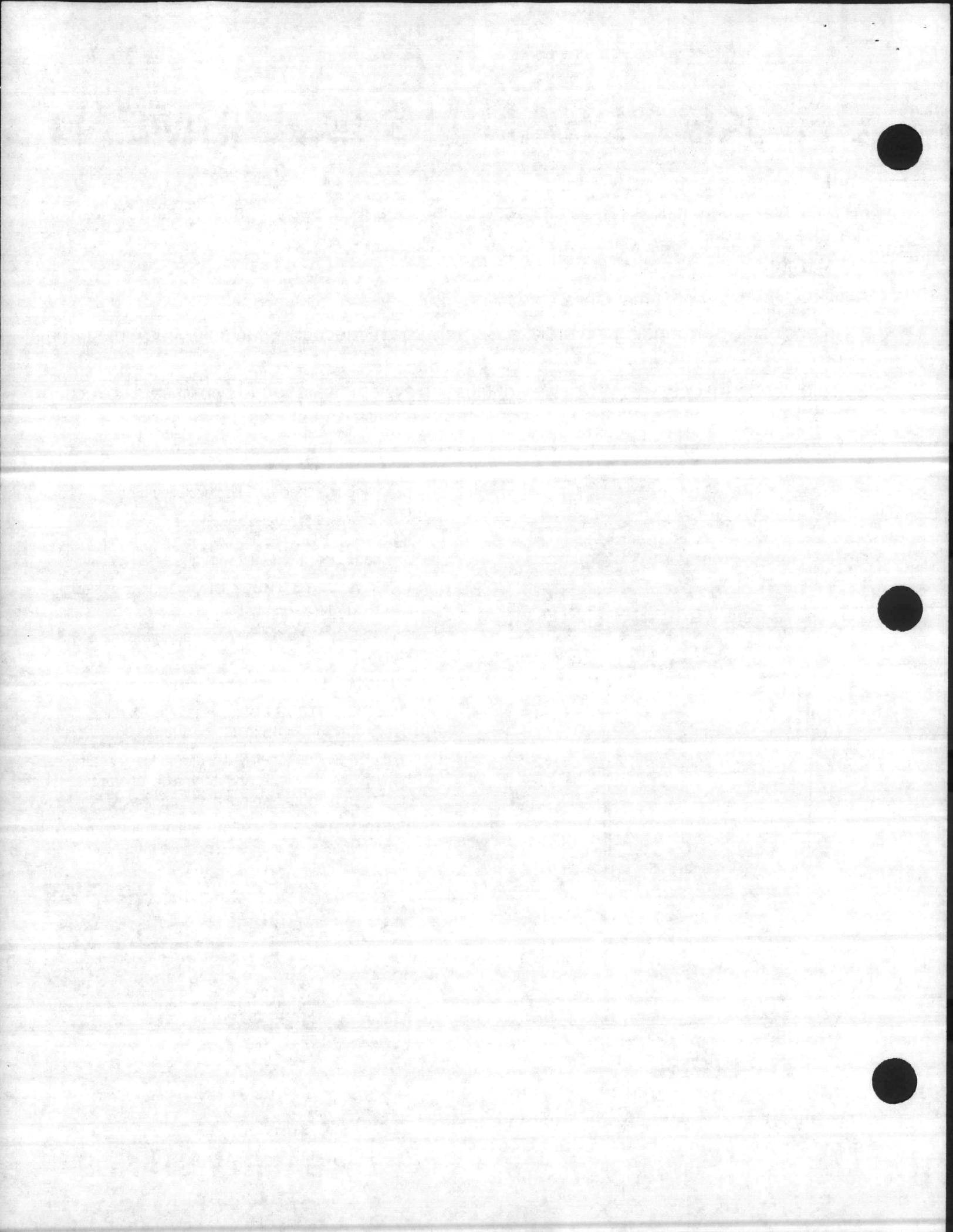
ONE SIZE FITS ALL vehicles, compact cars to heavy duty trucks up to 20" backing plate.

UNIQUE ELASTIC PANEL automatically seals behind backing plate, about the axle, preventing dust from being blown out of the enclosure.

VACUUM RELIEF VALVE maintains minimum vacuum pressure to assure positive seal.

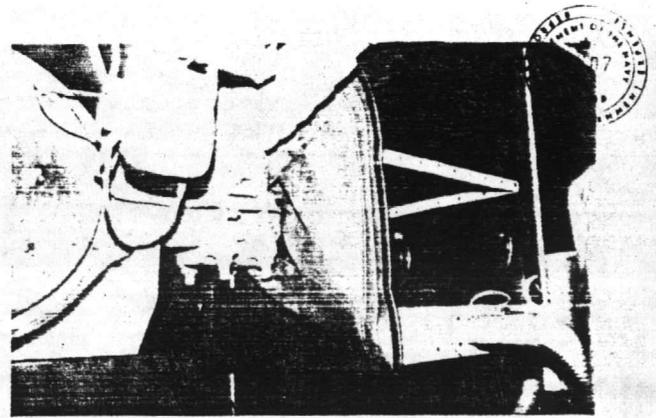


ON SAFETY STANDS



Unique elastic panel automatically seals behind backing plate, about the axle, preventing dust from being blown out of the enclosure.

Vacuum relief valve maintains minimum vacuum pressure to assure positive seal.



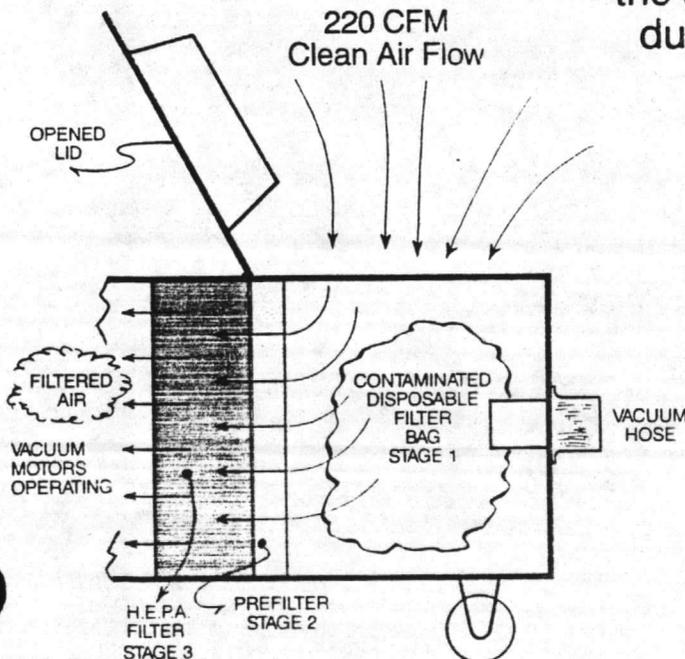
BCE MODELS

- BCE-1000 Recommended for brake work which is generally performed on cars and light trucks serviced on lifts (suitable for occasional use on heavy duty trucks)
- BCE-1000A Same as BCE-1000 except powered by compressed air
- BCE-2000 Slightly larger enclosure providing more room for heavy duty brakes and recommended for work which is generally performed on safety stands
- BCE-2000A Same as BCE-2000 except powered by compressed air

Dust collector models 100 through 1300 are accessory devices for vehicle clutches and transmissions, brake drum lathes, brake riveting and rivet punching tools, forklifts, and other material handling equipment.

SAFE-FILTER-CHANGE™

SAFE-FILTER-CHANGE™, a Clayton Associates' design exclusive, eliminates the substantial risk of exposure to hazardous dust and debris during routine filter change common to all other vacuum cleaners.



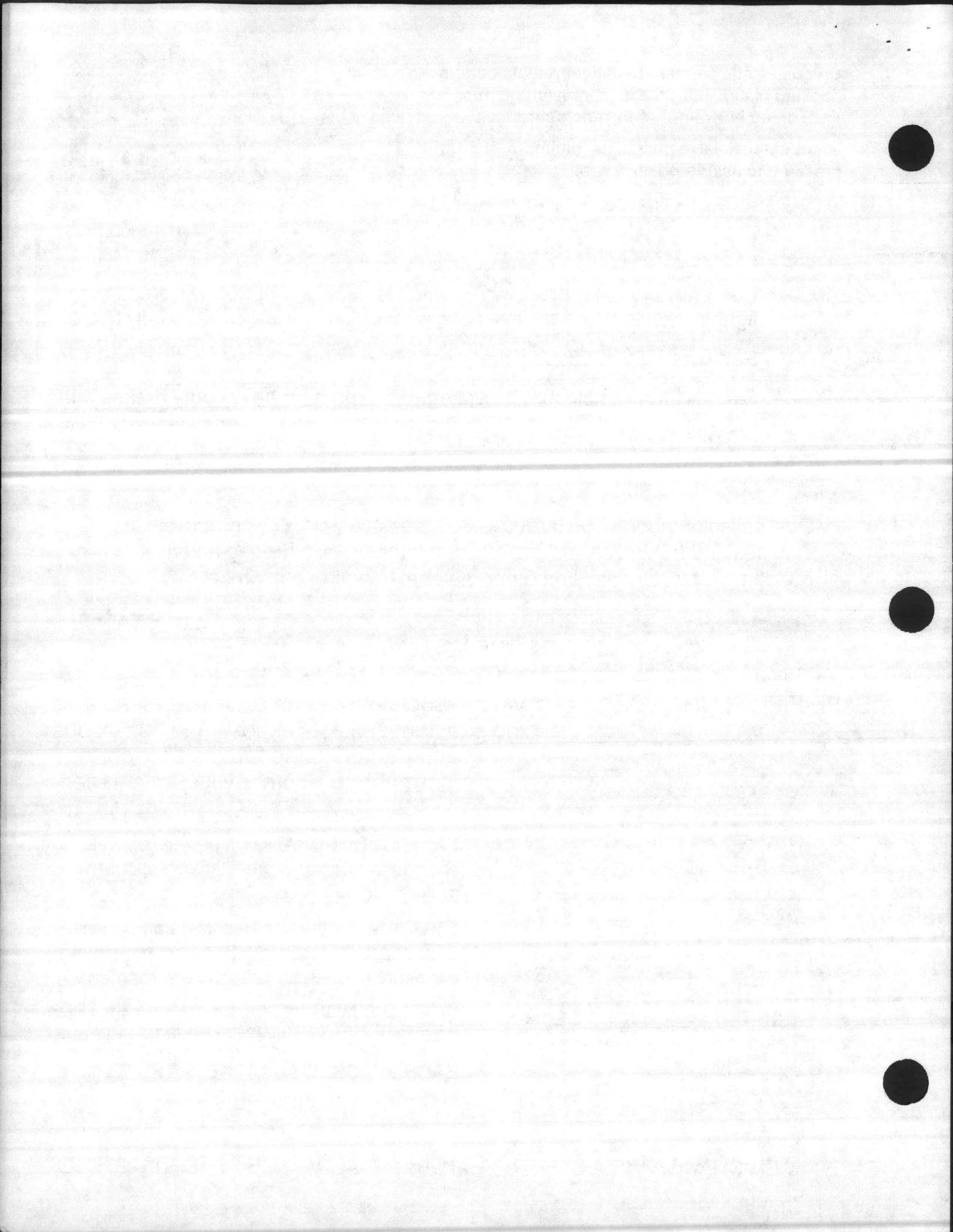
SAFE-FILTER-CHANGE™ permits operator to change the bag and pre-filter with vacuum motors running.

220 C.F.M. air flow into the filter compartment sweeps loose dust into HEPA filter preventing exposure to operator or to the environment.

WORLD'S MOST EFFICIENT HEPA FILTER:
99.999% on particles 0.12 MICRON or larger.

EACH FINISHED MACHINE IS TESTED and certified to be 100% LEAK-FREE.

SAFE-FILTER-CHANGE™ IS A SAFETY FEATURE OF ACE & BCE SERIES MACHINES



NIS-G-0222 VACUUM CLEANING EQUIPMENT FOR ASBESTOS AND OTHER HAZARDOUS SUBSTANCES

ACE MODELS

ACE-1000 Twin flow-through electric motors

ACE-100A Compressed air powered

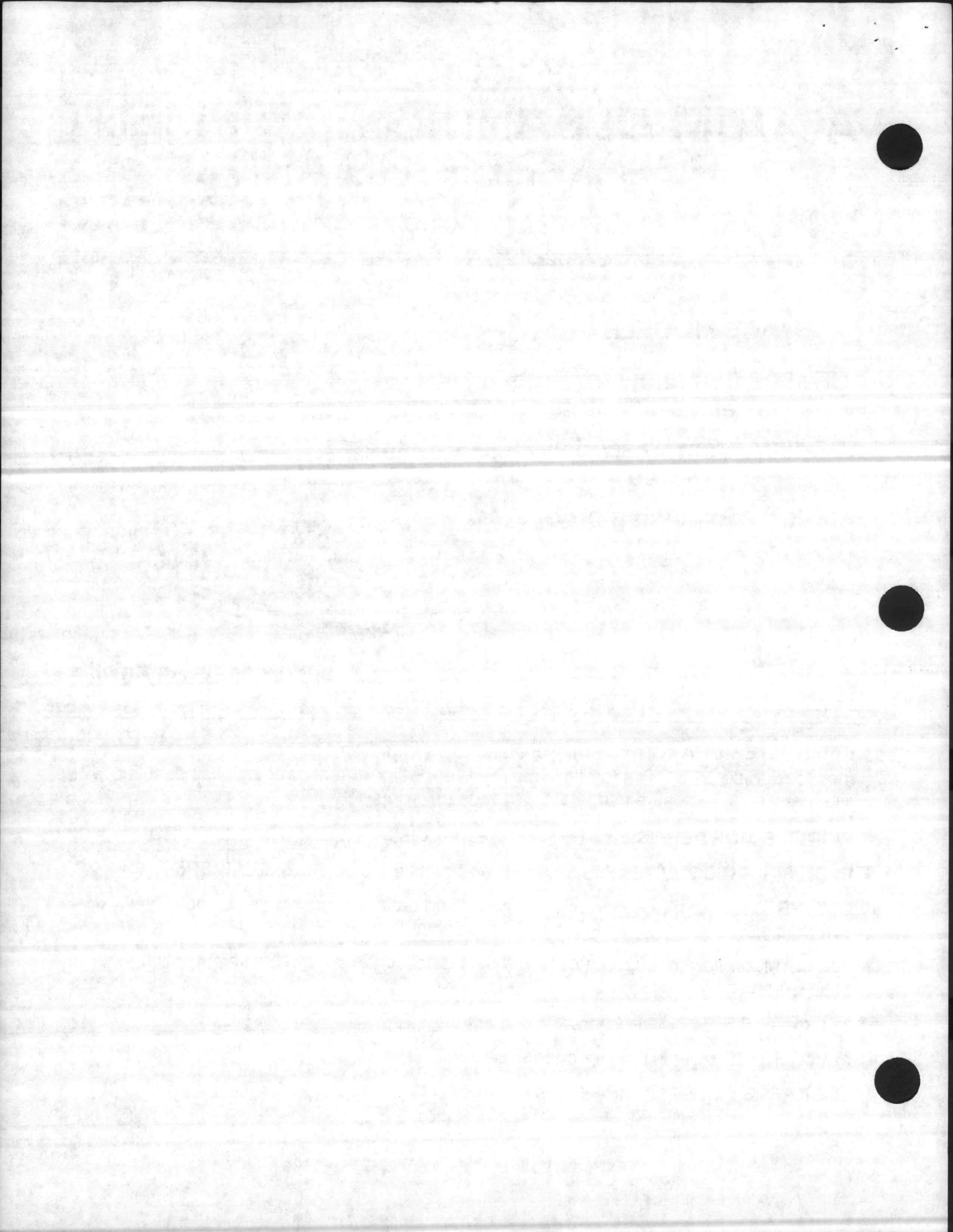
ACE-XP Explosion proof



“Strong As An Anvil”

- **SAFE-FILTER-CHANGE™** permits operator to change filter bag and pre-filter with vacuum motors running. 220 C.F.M. air flow into the filter compartment sweeps loose dust into HEPA filter preventing exposure to operator or to the environment.
- **WORLD'S MOST EFFICIENT HEPA FILTER: 99.999%** on particles **0.12 MICRON** or larger.
- **EACH FINISHED MACHINE IS TESTED** and certified to be **100% LEAK FREE.**
- **LOW PROFILE** for maneuverability and handling ease; great for tunnels and narrow corridors. Low center of gravity prevents accidental tipping.
- **220 C.F.M.** air flow for superior dust and debris collection. Ample suction even when long hose lengths are required.
- **14 GAUGE STEEL** construction; “Strong as an Anvil”.
- **MANOMETER** signals time for changing filters.
- **LOCKABLE FILTER COMPARTMENT** prevents tampering.

“SIMPLY THE BEST”





NAME (LAST, FIRST, M.I.)

SSN

BIRTH DATE

RATE/
RANK

JOB TITLE

'87 DEC 18 AM 10 03



