OPERATION AND MAINTENANCE MANUAL

FOR

FIBER HANDLING SYSTEM AND WET END DUST SYSTEM

TRANSITE PIPE PLANT

DENISON, TEXAS

PROJECT: P-DEN-2137

PREPARED BY

GENERAL PLANT ENGINEERING DEPARTMENT

MANVILLE, NEW JERSEY

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FIBER HANDLING SYSTEM

The fiber handling system moves willowed fiber between the willows, the live bottom bins and the cloth filter collector. This manual is concerned only with the following equipment.

1. Cloth filter collector.
2. Fiber handling system fan only.
3. Cyclone dust collectors over live bottom bins.
4. Rotary valves over live bottom bins.
5. Emergency duct switching arrangement.
6. Switch Dampers.
7. Controls.
8. Fan outlet damper control.

Thirteen Foot Pipe Machine Fiber Willow - Air Conveying System

Fiber is fed into the top of Willow #2 by a screw conveyor from a mixer. Air enters the willow through 2 screened openings in the bottom of the willow and may also be bled in through a blast gate above the screw discharge. Fiber and air leave the willow and enter a rectangular duct section where additional air may be bled in through a 10" dia. air bleed.

The fiber is then conveyed through a 16" dia. duct to a cyclone (see J-M Dwg. #12766-3 attached) where the fiber is removed from the air stream and dropped through a rotary valve into the live bottom fiber bin which serves the 13' machine. The air discharged from the cyclone goes to a cloth filter collector where the remaining fines are removed.

Air movement for the system is provided by a Sturtevant "Air Foil" fan located on the clean air side of the collector.

The following design figures may be used as a guide in adjusting and observing this system.

Design Volume - Fan - 12,000 CFM @ 14" S.P.
Design Volume - 13' System - 6000 CFM
Pressure at Collector-8.5 in. WG. (Dirty Air Side)
Collector Pressure Drop -

Clean - 0.2" - 0.4" W.G. (after shaking)
Dirty - 3.0" W.G. (just before shaking)

Adjustment to the air flow may be made at the following places using blast gates provided:

1. At screw discharge to willow.
2. Exhaust line from willow - 10" bleed.
3. 18" diameter line after cyclone - at cloth collector.
   (The principal function of this gate is to isolate the system to permit repairs).

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Balancing of the system should be done with the gates listed as 1 and 2 above to (1) Allow satisfactory willowing of the fiber, (2) Allow the design volume of air to enter the system.

Pitot tube measurements may be made in the ducts to check air flow. These measurements if possible, should be made in a straight run of duct, about 7½ duct diameters from any bends, increasers, dampers or entries into equipment. Design conditions are as follows:

Line Size	Design Velocity	Equiv. Velocity Pressure
16" Dia.	4300 FPM	1.15"
18" Dia.	3400 FPM	0.72"

The basic formula for measuring air velocity is as follows:

$$\text{Air velocity (in feet/min)} = \sqrt{\text{Velocity Pressure (in. W.G.)} \times 4005}$$

For a detailed discussion on the use of the pitot tube, see attached literature.

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10 FOOT PIPE MACHINE FIBER HANDLING SYSTEM & SCRAP HANDLING SYSTEM

Fiber Handling - The fiber handling system for the 10' machine willow system is similar to the willow system for the 13' machine. Air volume adjustments, duct sizes and sequence of operation are the same as the 13' machine.

Scrap Handling - In order to re-use scrap, it must be ground in a hammer mill. The ground scrap may (1) be willowed before being blended with the fiber and then re-willowed with the fiber or (2) be blended with fiber and then willowed with the fiber thus eliminating the pre-willowing of pure scrap. Each of these operations is discussed here.

Option 1

Relatively coarse, ground scrap is lifted by bucket elevator to a reversing screw conveyor and:

1. Screw conveyed to the 10' machine blend mixer.
2. Screw conveyed to the L.B. scrap bin.
3. Bagged for later use.

Regardless of which of the above is chosen, the scrap is eventually conveyed to the 10' blend mixer as in 1 above, passed through the mixer without blending and into the 10' machine willow. After willowing, the scrap is air conveyed to, and collected by, the cyclone over the live bottom scrap bin. The scrap is then dropped through a rotary valve into the live bottom bin. When the willowed scrap is needed for use, it is moved by screw conveyor from the L.B. bin to a ready bin, screw conveyed to a bucket elevator and lifted into the blending mixer. The scrap and new fiber are blended in the desired proportions, then screw conveyed to the 10' machine willow. After the blend of scrap and fiber is willowed, it is air conveyed to, and collected by, the cyclone over the 10' machine L.B. fiber bin. At this point the blend of scrap and fiber is ready for mixing with cement and silex.

Option 2

Relatively fine ground scrap is conveyed to the L.B. scrap bin, then to the 10' machine blend mixer. New fiber is admitted to the blend mixer and blended with unwillowed scrap. The blend of fiber and scrap is then willowed and air conveyed to the 10' machine L.B. fiber bin.

Air Handling System

The air handling system can convey fiber from:

1. The 13' machine willow to the 13' machine L.B. fiber bin.
2. The 10' machine willow to the 10' machine L.B. fiber bin.

The system can also convey willowed scrap from:

1. The 10' machine willow to the L.B. scrap bin.

An emergency switching arrangement is provided whereby either willow can, in an emergency, serve both pipe machines. For details, refer to J-M Dwg. A-13557-3 enclosed.

Switching Arrangement

An arrangement of switch dampers is provided to allow the material leaving the 10' machine willow to be directed to the 10' pipe machine L.B. fiber bin or to the L.B. scrap bin. One damper is located near the outlet of the willow. Another damper is located such that its position determines which cyclone above the aforementioned bins shall be in the flow line. A sketch is enclosed which shows the relationship of damper positions. These dampers are to be electrically interlocked.

It is extremely important that this relationship between the positions of the two dampers be maintained. If either damper is "out of position" when material is fed into the 10' machine willow, there will not be any air moving through the willows.

Fan Outlet Damper

The Bailey Meter Company damper controller modulates the outlet damper. It must be adjusted to maintain 8" S.P. in the dust collector inlet plenum. The S.P. must be 8" and checked periodically on the manometer gauge mounted on the collector wall.

System Equipment West End West Side Fiber

Dust Collector

Manufacturer - Wheelabrator Corporation

Size/Type - No. 24, Model 126-C K.D.

No. of Compartments - 4

Cloth Area/Compartment - 1680 sq. ft.

Net Cloth Area - 3-compartments operating and 1-shaking - 5040 sq. ft.

CFM - 12,000

For maintenance and operation of dust collector see attached "Wheelabrator Corporation" manual.

Fan

Manufacturer - Sturtevant Div., Westinghouse Electric Corp.

Size/Type - Air Foil Fan, Size #4027A

Arrangement - Class IV, Arrangement 1, SWSI, CW Rot, UB Disch.

CFM/SP - 12,000 @ 14" S.P.

RPM - 2360

For maintenance and operation of fan, see attached "Sturtevant" folder on installation, maintenance, and operation of centrifugal fans.

Motor

Type - Drip-Proof

HP - 40

RPM - 1750

Frame - #404

Drive

Manufacturer - Allis Chalmers

Type - V-belt

No. - 5C120 - 130-96

Center Distance - 43.7"

Driven: 13.0" P.D., 2-1/8 Bore, 1/2" x 1/4" Keyway

Driven: 9.6" P.D., 2-7/16" Bore, 5/8" x 5/16" Keyway

Fan Outlet Damper

Manufacturer - Sturtevant Div., Westinghouse Electric Corp.

Size/Type - 2 Leaf Paraflow Outlet Damper

For details see attached "Sturtevant" Dwg. #52-B-3808

Fan Outlet Damper Controller

Manufacturer - Bailey Meter Co.

Size/Type - AC 44D, Model 200

For maintenance, operation and installation, see attached "Bailey Meter Co." manual.

Rotary Valves

A 20" x 18" Sprout Waldron Rotary Valve is located between each of the three Live bottom bin cyclones and the bins. The valves are bolted directly to the bin inlet flange and the cyclone discharge flange. These valves are chain-gearmotor driven.

Maintenance

Gearmotor - Proper lubrication is important for satisfactory operation of gearmotors. The following maintenance table may be used as a maintenance guide:

Operating Schedule	Time Period Drain & Refill Gear Case	Lubricants
1 shift 8 hrs/day	Every 1500 hrs. or 1 every 6 months	Use SAE 40 Automotive Oil.
2 shifts 16 hrs/day	Every 1000 hrs. or 1 every 3 months.	Gulf Refining Co. - Parvis Oil H Socony Vacuum Oil Co. - DTE, Extra Hvy. Sun Oil Co. - Solonus Extra Heavy The Texas Co. - Auriga Oil
3 shifts 24 hrs/day	Every 500 hrs. or 1/month	

Chain Drive

The roller chain must be lubricated periodically in order to prevent excessive chain and sprocket wear. SAE 30 oil may be applied to the chain with a brush or spout type oil can. The chain should be lubricated often enough so that there is no dry contact between sprockets and chain or chain links themselves. Frequent field inspections of the drive chains during start-up will be necessary in order to set up a lubrication schedule.

Rotary Valves

Rotor bearings should be greased semi-annually with a good quality ball bearing lubricant. The valve rotor is a "special" (not "stock" with Sprout Waldron) 6 vane rotor with renewable neoprene wipers. Contact with the inside of the valve body causes wear on the neoprene wipers so that they must be repositioned on the rotor in order to maintain contact with the valve body. Failure to take up wear on the neoprene wipers will cause air leakage through the valve and poor material flow through the valve.

An inspection panel is provided in the valve body which, when removed, permits inspection and adjustment of the wipers. Two shaft packing gland take up bolts are located on either end of the rotor shaft (outside the valve body). These bolts must be tightened until the packing gland fits snug around the shaft. The packing gland must not, however, bind the rotor shaft.

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Equipment Specifications

Live Bottom Bin - Rotary Valve

Manufacturer - Sprout Waldron & Company, Inc. Muncy, Pa.

No. Units - 3

Size/Type - 20" dia. x 18" long

RPM - 36

Capacity - 2.58 ft^3/revolution. At 36 RPM - 5600 ft^3/hr.

Rotor - Type 2, 6 pocket, machined cast iron, with neoprene wipers.

Body - Machined cast iron

Bearings - Outboard, 1-7/16" Fafnir Type LC, cylindrical cartridge.

Wipers - 1/2" thick neoprene

Shaft Packing - Johns-Manville #MX lattice braid packing.

Rotary Valve Gearmotor

Manufacturer - The Master Electric Co.

No. Units - 3

Size/Type - Parallel shaft gearmotor, STD. TENV, 3/4 HP

Output RPM - 190

Elec. Characteristics - 440/3/60

Frame - #7425 SP

Rotary Valve Drive

Driving Sprocket - 11 tooth, 3/4 Pitch, RC Sprocket

Driven Sprocket - 60 tooth, 3/4 Pitch RC Sprocket

Chain - 3/4" Pitch, RC 60 single width roller chain.

For rotary valves under the dust collector see Section A in the Wet End Dust System portion of this manual.

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WET END DUST SYSTEM

The wet end dust system controls cement, silex and asbestos dust arising from the handling of these materials; either manual handling or the action of bucket elevators, screw conveyors, etc.

The dust collector for this system is integral with, and on the east side of, the fiber handling dust collector. Air movement for the system is provided by a Sturtevant "Air Foil" fan located on the clean air side of the collector.

It should be noted here that the fiber handling system and the wet end dust system are entirely separate systems. They serve different purposes (one is a material handling system, the other is required to provide healthful working conditions) and function independently. The only things common to both systems are (1) the fiber handling collector and wet end dust systems collector are together (but separate) in a common housing and, (2) the dust collected by both systems goes to the scrap bin in a common screw conveyor and bucket elevator.

Two main duct headers convey dust to the dust collector. One header serves risers in the fiber preparation area for control of dust at the following places:

1. Bucket elevators-(lifts dust from dust collector to L.B. scrap bin.)
2. Live bottom scrap bin.
3. Scrap grinder.
4. Bucket elevator-(ground scrap)
5. Bagger
6. Ready bin-13' machine system.
7. Ready bin-10' machine system.
8. Bucket elevator-(lifts fiber to blending mixer-13' machine system)
9. Bucket elevator-(lifts fiber to blending mixer-10' machine system)
10. Belt conveyor-(carries fiber to bucket elevator (8) above)
11. Belt conveyor-(carries fiber to bucket elevator (9) above)

Design air volumes and velocities for the above are as follows:

Station No.	Dust Control Point	Riser Size	Design Vol. CFM	Design Vel. FPM	Corresponding Vel. Press Water
1	Bucket elevator	5"Dia.	700	5000	1.89
2	L.B. Scrap Bin	4"Dia.	550	6100	2.32
3	Scrap Grinder	8"Dia.	1750	4900	1.50
4	Bucket elevator	5"Dia.	650	4800	1.44
5	Bagger	6"Dia.	850	4200	1.10
6	Ready Bin-13'	4"Dia.	400	4500	1.26"
7	Ready Bin-10'	4"Dia.	400	4500	1.26"
8	Bucket elevator-13'	5"Dia.	650	4600	1.32"
9	Bucket elevator-10'	5"Dia.	650	4600	1.32"
10	Belt Conveyor-13'	8"Dia.	1600	4500	1.26"
11	Belt Conveyor-10'	8"Dia.	1600	4500	1.26"

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See comments in the fiber handling section of this manual, regarding measurement of velocity pressures.

The other main duct header in the wet end dust system serves risers in the cement handling live bottom fiber bin area and controls dust at the following places:

A. 13' Pipe Machine

12. Live bottom fiber bin.
13. Mixers
14. Bucket elevator-(to mixers)
15. Hand loading station-(near bucket elevator, (3) above.)
16. Weigh hopper
17. Cement bin
18. Cement bin
19. Silex bin

B. 10' Pipe Machine

20. Silex bin
21. Cement bin
22. Cement bin
23. Weigh Hopper
24. Live bottom fiber bin
25. Mixers
26. Hand loading station
27. Bucket elevator

Design air volumes for the above are as follows:

Station No.	Dust Control Point	Riser Size in.	Design Vol. CFM	Design Vel. FPM	
12	L.B. Bin	6 Dia.	1150	5800	
13	Mixers	5 Dia.	850	6100	
14	Bucket elev.	5 Dia.	800	5800	
15	Hand Loading	8 Dia.	1850	5200	
16	Weigh Hopper	6 Dia.	1000	5000	
17	Cement Bin	5 Dia.	850	6100)	Only one
18	Cement Bin	5 Dia.	850	6100)	
19	Silex Bin	5 Dia.	850	6100)	bin vented
20	Silex Bin	5 Dia.	850	6100)	
21	Cement bin	5 Dia.	800	5800)	at one
22	Cement bin	5 Dia.	800	5800)	time.
23	Weigh hopper	6 Dia.	900	4500	
24	L.B. bin	6 Dia.	1000	5000	
25	Mixers	5 Dia.	750	5400	
26	Hand loading	8 Dia.	1600	4500	
27	Bucket elev.	5 Dia.	700	5000	

See comments in the fiber handling section of this manual, regarding measurement of velocities and volumes.

System Equipment

Dust Collector

Manufacturer - Wheelabrator Corporation
Size/Type - No. 48, Model 126-C.K.D.
No. Compartments - 4
Cloth Area/Compartment - 3360 Sq. Ft.
Net Cloth Area - 3 compartments operating and 1 shaking-10,080 sq. ft.
CFM - 22,000

For operation and maintenance of dust collector, see attached "Wheelabrator Corporation" Manual.

Fan

Manufacturer - Sturtevant Div., Westinghouse Electric Company
Size/Type - Air foil fan, size #4037A
Arrangement - Class IV, Arrangement 1, SWSI, CW Rot., UB Disch.
CFM/SP. - 22,000 @ 9" S.P.
RPM - 1493

For maintenance of fan, see attached "Sturtevant" folder on installation, maintenance and operation of centrifugal fans.

Motor

Type - Drip-proof
H.P. - 40
RPM - 1750
Frame - #404

Drive

Manufacturer - Allis Chalmers
Type - V-Belt
No. - 6C128-94-110
Center Distance - 49.4"
Driver: - 9.4" P.D., 2-1/8" Bore, $\frac{1}{2}$" x $\frac{1}{4}$" Keyway
Driven: - 11.0" P.D., 3-7/16" Bore, 7/8" x 5/16" Keyway

Rotary Valves

A. The three rotary valves on the dust collector hoppers are "Day Company", 12" Dia., chain - gearmotor driven. These valves are interlocked electrically with the fiber handling fan and the wet end dust system fan so that the valves must be running continuously whenever the fans are running. The 3 valves receive collected dust from the three 9" Dia. screw conveyors under the hoppers and discharge into a 12" Dia., 2-section screw conveyor which empties the collected dust into the Live Bottom scrap bin, (via bucket elevator). It is to be noted here that two valves serve the wet end dust system collector and one valve serves the fiber handling collector.

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Maintenance

Gearmotor - Chain Drive

For maintenance of gearmotors and chain drives refer to section "A" in the fiber handling system portion of this manual.

Rotary Valve

Rotor bearings should be greased semi-annually with a good quality commercail ball-bearing lubricant.

The valve rotor has 6 blades, each blade having two neoprene wipers which press against the inside of the valve body and form an air-tight seal. The air-tight seal is necessary to prevent air leakage into the dust collector hoppers and back draft against the normal flow of dust in the screw conveyor. Contact with the valve body will cause the neoprene tips or wipers to wear away. These neoprene tips must be replaced before air leakage through the valve develops.

Access to the valve rotor is gained by removing one of the side plates of the valve body (preferably the plate opposite the drive side as will be easier to handle). The procedure for examining the neoprene rotor is as follows:

1. The fan creating suction on the hopper to which the valve in question is attached must be stopped. This, of course, means that this work should be scheduled when production facilities are not operating.

2. The rotary valves, screw conveyors and bucket elevator to the scrap bin must be run until the dust collector hoppers have been emptied of all dust.

3. Stop the rotary valves, screw conveyors and bucket elevator.

4. Loosen rotor bearing set screws.

5. Remove drive chain and valve rotor sprocket.

6. Remove valve body side plate at the same time slipping the bearing off of the rotor shaft. The side plate may then be set aside but only after the bearing has been covered to protect it from grit and dirt.

Rotary Valve & Drive Specifications

Dust Collector - Rotary Valve

Manufacturer	- The Day Company
No. Units	- 2
Size/Type	- 12" Dia., Style A, Type "N"
RPM	- 10
Capacity	- 1.23 Ft^3/Rev (@50% loaded)- @ 10 RPM & 50% load, 738 Ft^3/Hr.
Rotor	- Type "N", steel blades, w/double neoprene wipers

Bearings - Flanged, anti-friction, 1-7/16" bore
Wipers - Double neoprene with steel back-up plates
Shaft Packing - none

Rotary Valve - Gearmotor

Manufacturer - The Master Electric Company
No. Units - 3
Size/Type - Right angle gear motor
H.P. - 1
Output RPM - 20
Elec. Characteristics - 220/440/3/60
Frame - No. 203 RC

Rotary Valve Drive

Driving Sprocket - 32 Tooth, 3/4" Pitch, Rc 60
Driven Sprocket - 16 Tooth, 3/4" Pitch, Rc 60
Chain - 3/4" Pitch, Rc 60, single width roller chain.

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THE DAY COMPANY

ROTARY VALVE

PARTS LIST

TYPE "AI" SERIAL NO. 1234
1235
1236

SIZE: 12"ϕ

ITEM	SPECIFICATIONS
Wipers	Neoprene
Rotor (Includes Shaft)	Std.
Bearings	DODGE "SC" BALL BEARING FLG BRG 1 7/16" ϕ BORE.
Housing	Std.
Gear Motor	1 HP 20 RPM 3/60/230/460 V. T.E.N.V. RT. ANGLE MASTER GEARMOTOR FR. 203 RC. POS. A-1.
Sprocket (Motor)	16 T. RC60 1"ϕ B 1/4 x 1/8" K.W. ϕ S.S.
Sprocket (Valve)	32 T. RC-60 1 7/16"ϕ B. 3/8" x 3/16" K.W. ϕ S.S.
Chain	RC-60 CHAIN.

Customer Order No. ENG. 14778

Job No. M 1342

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REV. 61

This MANUAL Has Been Prepared for

John-Manville Corporation

Manville, New Jersey

To Insure Proper Operation and Service of

MACHINE No.24 Model 126-C KD Collector

SERIAL NO. A-103851

CUSTOMER ORDER NO. ENG-14252 DATE SHIPPED 8-8-57

50 YEARS OF PROGRESS
WHERE PIONEERING LEADERSHIP INSURES PERFORMANCE

WHEELABRATOR
CORPORATION
MISHAWAKA, INDIANA

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INSTRUCTIONS FOR ERECTION & MAINTENANCE

#24 & #48 MODEL 126-C K.D. TYPE, FOUR-COMPARTMENT CONTINUOUS AUTOMATIC WHEELABRATOR DUSTUBE DUST COLLECTOR

at

JOHNS-MANVILLE PRODUCTS CORPORATION
REDDAM, TEXAS

A-103851

GENERAL

This dust collector must be properly installed and receive proper attention, in order to maintain its highest efficiency.

The information and drawings in this catalog are issued to help in proper erection and inspection, as well as to provide a reference for ordering repairs when needed.

PACKING LISTS

A bill of material, covering all items shipped will be found attached to, or placed inside, one of the shipping crates.

All structural and sheet metal parts should be placed near the erection site in an orderly manner, so that individual pieces can be selected without confusion.

FOUNDATION

The customer is supporting this dust collectoron supports of their manufacture. WHEELABRATOR Corporation is furnishing the main base frame members on which the collector is erected. All bolts should be tightened by HAND ONLY until the entire base framework has been assembled and squared. See drawing 57 D 1008 for layout of main frame members.

ERECTION OF COLLECTOR HOUSING

See erection drawings 57 D 1329, 57 D 1287, and 57 D 1288.

HOPPERS

The hoppers are bolted to the main frame members with felt strip and cement between flanges.

Bolt lower seal angles in place as shown on drawing 57 D 1288. Use felt strip and cement at all bolted connections.

WALL SHEETS

Erect air-lock floor panels, air-lock sheets, right hand end wall sheets, cell plate supports, cell plates, walkway and spacers

as shown on erection drawing. Use felt strip and cement between all bolted connections.

Bolt cell plates together in pairs, with the long sides together. Use felt strip and cement between plates, and tighten bolts by HAND ONLY. This can be accomplished at ground level, and the assemblies may then be hoisted into position. Assemble all the cell plates in the collector.

Assemble all of the remaining wall sheets, along with cell plates, so that plates do not extend too far ahead of wall sheets. Use felt strip and cement between all cell plate connections, and between the wall, walkway and cell plate support connections. CELL PLATES SHOULD BE ASSEMBLED WITH FLANGES PROJECTING DOWNWARD. USE ANGLE IRON STIFFENERS ON ALL WALL SHEET JOINTS.

Erect partition sheets by bolting them to the top of the cell plate support members. Use felt strip and cement between all bolted connections.

Watch carefully the felt strip and cement in the cell plate joints. As you know, this is the connection between the dusty and clean air side, and a leak at any of the assembly joints will cause dust to blow out of the fan. It is therefore wise to re-caulk with cement, all joints on the under side of the cell plate floor, working from the inside of the hoppers.

Do not attempt to erect wall sheets first, and then later place the cell plates, as this always causes a leaky connection.

After wall and partition sheets are erected, install shaker and roof support beams, upper seal angles, and support angles. Use felt strip and cement between all these bolted connections.

Do not place roof panels until the shaker mechanism is in place.

ERECTION OF SHAKER MECHANISM

CHANNEL BEARINGS

The channel bearings are bolted to both sides of the shaker support beam and to the inside of the support angles, which, in turn, are bolted on the end wall sheets. These channel bearings are the V-shaped blocks into which the shaker channel brackets fit. Use 1/2" bolts and self-locking type nuts for these connections. Self-locking type nuts should be used for bolting the angle to the wall sheet.

SHAKER DEVICE

Refer to drawing 57 D 1355, showing a typical shaker assembly.

The shaker frame is bolted directly underneath the members which support the V-block, and necessary framework for supporting the eccentric shaft assembly and motor is mounted from this channel framework. Mount the eccentric shaft assembly with the sheave to

the right when facing the framework. The eccentric shaft assembly is shipped complete with V-belt and motor sheave. Layout the holes and drill same for the motor, and line up the eccentric shaft sheave and motor sheave. Mount the guard over the large sheave, bolting same to the shaker frame.

SHAKER CHANNELS

Shaker channels are bolted together in pairs, preferably at ground level, with channel brackets. These are assembled complete with self-locking type nuts. Place the tube hooks with the threaded shank projecting approximately 3/4" above the channel, and tighten in position, with the open end of the hook towards the walkway.

Before proceeding with the remaining shaker channel bearings, it might be well to place one channel assembly in position and install a few Dustubes to check the tube hook adjustment. These tubes should be slack enough to permit lifting vertically about 3/4" without any force being applied. If the tube hook setting is correct, proceed with the assembly of the balance of the shaker channels and hooks.

Drop the shaker channel assemblies in place as completed, to prevent bending of the tube hooks.

CHANNEL SPACERS

The channel spacers, which are placed between the assembled shaker channel assemblies, are bolted to the shaker channel, using socket head cap screws and self-locking type nuts. Note that there are two sets of holes in the channels, and on one side of the eccentric shaft assembly the channel spacer will fit in one set of holes, while on the other side it will fit in the opposite set of holes. This permits the installation of two shaker bars for each eccentric unit, each bar driving an equal number of spacers, or an equal number within one. Use shoulder bolts and self-locking type nuts to attach shaker bar to spacer.

SHAKER BARS

Pair the shaker bars for each eccentric shaft, using bars of equal length, or never more than one foot difference in length. Suspend shaker bars in place, with the shaker bar arm nearest the eccentric shaft assembly. The shaker bar arm is the portion of the shaker bar that has parts welded to it. The arm has a large drill bushing pressed into it. This portion of the shaker bar is fastened to the connecting rod end of the eccentric shaft assembly by means of a shoulder bolt and self-locking type nut.

The shaker bar is held in place on the channel spacer by means of shoulder bolts and self-locking type nuts. Turn the rod end to get the shaker channels level across when the eccentrics are at dead center. Be sure to tighten the lock bolts on the eccentric bearings.

TIE BARS

The tie bars, which are fabricated in 3'-0" and 3'-6" lengths, are a welded up angle and plate assembly, which, in turn, have drill bushings in the upright angle section. This entire assembly should be slid between the cored opening of the spacer, and assembled to the spacer with shoulder bolts and self-locking type nuts. THE TIE BAR IS BOLTED, IN TURN, TO BOTH ENDS OF THE HOUSING AND ALSO THE SHAKER FRAME. Use self-locking type nuts at all these bolted connections.

ROOF SHEETS

Roof sheets can now be installed with gasketed joints and reinforcing angles.

SHEET METAL PIPING

Refer to erection drawings furnished with the collector, for location of vent pipe openings.

Necessary holes in housing must be cut with a torch or sheet metal chisel before installing Dustubes.

DUSTUBES: See SD 2132.

Tubes should be suspended from the hook, then inserted in the cell plate. Keep vertical tube seams toward the end wall of the collector. To insert the tube in the cell plate, collapse the bottom spring into a "U" shape, and insert the spring through the top of the cell hole. With one hand see that the bottom of the spring is flush with the bottom of the cast flange. Release the spring slowly, and allow it to snap into shape. Check to see that the spring does not project beyond the cast flange. If springs do not snap in place, either the top of the spring is bound on the bead at top of cell plate, or the flannel is bunched. To remove the bound tubes, carefully slip a small screwdriver between the cell hole and the spring from the bottom side, and pry in on the spring.

TUBES SHOULD BE SLACK ENOUGH TO ALLOW LIFTING 3/4" VERTICALLY WITHOUT ANY FORCE BEING APPLIED. TUBES CAN BE LOOSE TO THE POINT OF BEGINNING TO "FOLD IN" TO THE CELL HOLE.

Tight tubes will not shake clean and will cause breakage of the tube hooks, excess vibration, and excess wear on the shaker device. Probably only a few tubes will have to be changed from the setting explained under "Shaker Channels" but all should be checked. Do not apply too much force to the nuts on the tube hooks.

A tube improperly installed makes the entire installation ineffective; defeats the purpose of the collector. It is not enough to "stuff" the tube into a cell hole in a haphazard manner, or try to pull the expanded spring upward into a cell hole. (This is permissible only to straighten a tube after being installed.)

The tubes next to the shaker device should be turned at a 45° angle to secure proper operative clearance.

WIRING

See wiring drawing 57 B 933 for elementary diagram of this continuous automatic dust collector.

An electric light in the collector is a very helpful accessory.

MANOMETER

Tap two holes for 1/8" standard pipe on the front or end of each compartment, one just above the cell plate level (clean air side) and the other just below the cell plate level (dusty air side). Use tubing connectors (furnished) in these holes with 1/8" pipe elbow screwed over the end of fitting, with elbow pointed downward. Run tubing (furnished) from these connections to the draft gauge.

We recommend that manometers be placed indoors in a position where the operator of the equipment being ventilated can occasionally observe the manometers to determine whether the collector is operating satisfactorily or if there is a malfunction of the unit. It may be necessary to purchase extra tubing to place the manometers in a convenient location. Fill draft gauge according to printed instructions with the gauge.

NOTE: See SD 2703 for details of manometer and fittings.

OPERATION AND MAINTENANCE

GENERAL

This equipment is used for the dry filtration of solids suspended in gas, said gas passing through filter tubes, the solids being collected on the inside of the Dustubes, and shaken down at intervals into hoppers for continuous removal through screw conveyors.

The accumulation of solids raises the filter back pressure, necessitating cleaning by shaking down at intervals. To accomplish this, without shutting down the process, the collector is arranged in independently operating sections, automatically controlled, where one section is valved off for cleaning, while the remaining sections continue to filter.

EQUIPMENT COMPRISING THE FILTER SYSTEM

A. A #24 Model 126-C K.D. type, four compartment, Continuous Automatic WHEELABRATOR DUSTUBE Dust Collector, each compartment having a cloth area of 1680 sq. ft. When three compartments are operating and the other shaking, the net cloth area will be 5040 sq. ft. to handle 12,000 c.f.m. of asbestos dust laden air, at an air to cloth ratio of 2.38 to 1; and a #48 Model 126-C K.D. type, four compartment, Continuous Automatic WHEELABRATOR DUSTUBE Dust Collector, each compartment having

a cloth area of 3360 sq. ft. When three compartments are operating and the other shaking, the net cloth area will be 10,080 sq. ft. to handle 24,000 c.f.m. of asbestos dust laden air, at an air to cloth ratio of 2.38 to 1.

B. System of hoods and piping for transportation of the air and suspended solids to the collector (by customer).

C. Air Mover: To be furnished by customer.

D. Damper Valves: WHEELABRATOR Corporation is furnishing damper valves on the outlet of the collectors. On the #24 Model 126-C Dust Collector, the valves are 18" x 21" damper valves, power operated by a Logan 2" x 6" air cylinder. For assembly of the damper valves see drawing 57 D 1202. For arrangement of air cylinder and solenoid valves see drawing 55 C 312. On the #48 Model 126-C Dust Collector, the valves are 24" x 30" damper valves, power operated by Logan 3" x 6" air cylinder. For assembly of the damper valves see drawing 57 D 2141. For arrangement of air cylinder and solenoid valves see drawing 54 C 733. The operation of these damper valves is controlled by the program timer through ASCo. 3-way solenoid valves. The damper valves are arranged to "valve off" one compartment at a time in each collector to "shake down" the Dustubes without shutting down the process.

E. Shaker Device: For general arrangement of typical shaker mechanism assembly, see drawing 57 D 1355. Each compartment of the collector is equipped with one shaker mechanism, being driven by one motor, which is located on the inside of the collector housing. This is used for shaking down the Dustubes.

These shaker motors are controlled by the program timer, which is arranged to start the shaker only after the compartment damper is closed, and to stop the shaker before the damper is opened.

F. Dustubes: The Dustubes are used for filtering the solids from the gas; obviously, these tubes must be intact (free from holes), and properly installed, or seated in the cell plates to avoid any leakage of dust into the dust collector. (See heading "Dustubes" in erection instruction section of this manual.)

G. Program Timer: The program timer for this unit controls the shaker and damper valves, so that the shaker motor starts only after the compartment damper is closed, and stops the shaker before the damper is opened. The timer for this collector is an Eagle Signal Corp. Bulletin 330 Program Timer, 110 volts, 60 cycle, 8 circuit, 30 minute total time cycle, in Nema 1A enclosure to operate as follows:

Contacts 1A-1B: Close 0 - open at 5 minutes.
Contacts 2A-2B: Close 1½ minutes - open at 4 minutes.
Contacts 3A-3B: Close at 7½ minutes - open at 12½ minutes.

Contacts 4A-4B: Close at 9 minutes - open at 11½ minutes.
Contacts 5A-5B: Close at 15 minutes - open at 20 minutes.
Contacts 6A-6B: Close at 16½ minutes - open at 19 minutes.
Contacts 7A-7B: Close at 22½ minutes - open at 27½ minutes.
Contacts 8A-8B: Close at 24 minutes - open at 26½ minutes.

H. Wiring: See drawing 57 B 933.

I. Hopper Valve: The hoppers for this dust collector are trough type. A 9" screw conveyor is attached to the bottom flange of the hoppers for continuous removal of the collected dust. The customer is to furnish an air lock on the screw conveyor discharge and the drive for the screw conveyor.

NOTE: Customer is to furnish all materials and labor not listed on Sales Order, but required for erection of the dust collector.

PROCEDURE FOR ENTERING COLLECTOR

When equipment is put into operation, access to collector is as follows: enter 18" x 48" two-way door, which leads to the man-lock in each compartment of the collector. Close door and open 3" slide gate in compartment wall to equalize pressure in air lock plenum and compartment. Enter through 18" x 48" door for inspection of compartment. When departing from the compartment, DO NOT FORGET TO CLOSE DOOR AND 3" SLIDE GATE. Entry to all compartments is made in the manner described above.

PRELIMINARY INSTRUCTIONS BEFOREOPERATION

1. Check all Dustubes from the hopper side for sealing.

2. Make sure that all bolts are tightened.

3. Roll the shaker devices over by hand, seeing that no parts are binding and that all bolts are tight.

4. See that all pipes are tightly fastened to the housing.

5. Customer should familiarize himself with the construction and function of the multiple circuit program timer. He should then follow through the cycle of damper valve operation and shaker motor operation, in order to ensure that these are operating properly.

6. Check the shaking cycles, and make the necessary adjustments, if any.

SCHEDULE OF INSPECTION AND MAINTENANCE

INSPECTION AT START OF OPERATION

1. Check the housing for air leaks. These can be generally located by the air noise. Definite location can be determined by applying soap suds to the joint with a brush.

2. After the first day's operation, inspect the cell plate floor for dust accumulation. If dust is found, re-check the Dustubes and cell plate joints in the area.

3. Watch operation of shaker device for final check on alignment and adjustment.

OBSERVATIONS DURING OPERATION

To check on the operation of continuous automatic dust collectors while running, observe the manometer gauges (leave petcock open). A fairly uniform pressure loss reading (difference in level of liquid columns) in the operating compartments, generally indicates normal functioning of the unit.

The proper situation with all manometers should be as follows:

1. One manometer should have both legs equal (at zero) showing that the compartment to which it is attached is "out" for cleaning. A reading on this gauge indicates a leaky outlet damper, which may result in difficulty #1 outlined below.

2. The other manometers should show a differential pressure of approximately the same magnitude.

If there is any great differential between the manometer readings in the operating compartments, then it may indicate the following:

1. Outlet dampers for this compartment have not been closing during shaking cycle, which, in turn, prevents discharge of collected dust during shaking cycle.

2. Dust has bridged over hopper outlet (or outlet is clogged with foreign matter) preventing discharge of collected dust.

3. Shaker device is inoperative.

4. Electrical timer is inoperative.

5. Manometer lines are clogged.

DAILY INSPECTION

1. Read manometer gauges. This will give an indication of the condition of the dust collector as described.

2. Check damper valves for synchronization and operation.

WEEKLY INSPECTION

1. Inspect interior of dust collector for leaky bags (when plant is shut down).

2. Inspect shaking mechanism for operation.

3. Inspect Dustubes on dirty air side for abrasion or wear.

MONTHLY INSPECTION

1. Inspect for loose bolts in shaking mechanism.

2. Inspect V-belt drives.

3. Lubricate shaker mechanism bearings with a good grade ball bearing grease, such as Standard Oil Superla 2X, Gulf H.M., Texas Marfak No. 3, Gargoyle BRB No. 2.

SEMI-ANNUAL PERIODS OF INSPECTION

1. Lubricate all electric motors, speed reducers, exhaust fans, and similar equipment.

GENERAL ATTENTION

An inspection of tubes takes but a little time, and will prevent a worn out tube from cutting out those adjacent. The only tool required is a flashlight, or extension light, enabling one to see down the row of tubes. An accumulation of dust surrounding a tube is evidence of a leak. A leaky tube may be unhooked and rolled down to the tube plate until a new tube can be installed, but do not forget to put in the new one.

RECOMMENDED GOOD MAINTENANCE PRACTICE

Once a dust collection system is placed in satisfactory operation, the continuation of such satisfactory performance depends almost entirely on the care with which the system and the equipment is maintained. It is the intent of these recommendations that critical portions and mechanical items of the installation shall be maintained in first-class operating condition. Other portions of the system, such as ductwork, equipment housings, etc. require sufficient maintenance to permit them to perform the function for which they were installed. In the following are specific recommendations which we feel will ensure continued satisfactory performance.

DUCTWORK

1. A weekly inspection of the duct system should be made and any settled material therein be removed before it creates interference with air flow.

2. The duct system should be protected against external forces. Any sections damaged sufficiently to interfere with air flow or to cause air leakage should be replaced.

3. All portions of duct system should be painted at regular intervals with a suitable paint to guard against corrosion.

4. Any sections of the duct system which fail due to chemical or heat corrosion should be patched or replaced.

AIR MOVING EQUIPMENT

1. The exhaust fans should be mounted on rigid foundations or supports. The anchorage should be checked at regular intervals to see that vibration has not damaged the fittings.

2. Fans are driven by electric motors through V-belt drives. Belt tension should be maintained to prevent both undue slippage and unnecessary stress on the fan bearings. Worn belts should be replaced and for this purpose, spare V-belts of all sizes required for the fume collection system should be maintained in stock. V-belt sheaves should be replaced when wear of the grooves becomes sufficiently great to interfere with efficient functioning of the drive.

3. Exhauster bearings should be periodically lubricated in accordance with your plant standards for rotating equipment. Care should be taken not to over-lubricate to the extent of damaging the grease retainer rings. Bearings should be removed, inspected, and replaced if necessary as soon as undue fan shaft vibration becomes apparent.

4. Fan impellers should be inspected at regular intervals for imbalance due to deposited material on the blades. Critical clearance between impellers, inlet rings, and fan housings should be checked and maintained the same as when the fan was installed. In this connection, the condition of keyways and set screws should be checked.

DUST COLLECTOR

The dust collector is the heart of the dust control system. Here, in particular, it is necessary that maintenance procedures of the highest order be instituted. Neglect of one portion of the collector may adversely affect the entire unit. The following portions of the collector require care.

1. Housing: The dust collector housing must be maintained in an air and water-tight condition. At least once a year, all flange bolts should be tightened and seams re-caulked whenever leaks are detected. Protection against corrosion is required, usually in the form of periodic paint jobs as indicated. Mechanical damage to the collector housing or other portions of the system must be avoided.

2. Collector Supports: An annual inspection and tightening of all bolts and a periodic repainting of structural members is required.

3. Doors: Access and inspection doors must be kept tightly closed except when the collector is being worked upon. Threaded members in clamps, etc., must be lubricated and protected from corrosion. Door seals or gaskets should be maintained in good condition and replaced when they lose resiliency or become damaged.

4. Automatic Damper Valves: Automatic air operated outlet damper valves are provided to interrupt the flow of air through each compartment in turn to permit shaking the Dustubes. Any passage of air upward through the filter bags during shaking will seriously interfere with the efficiency of the shaking process and will result in unduly high back pressure. These valves are manufactured with neoprene rubber seals to ensure tight closing. These seals must be maintained in first class condition to prevent leakage. A periodic inspection should be made for broken linkage, etc., which would permit the air operator to function, yet not necessarily produce equivalent motion of the damper wafer.

5. Damper Valve Operators: The damper valves on this unit are operated by the air cylinders. An adequate supply of clean, compressed air is required for satisfactory operation of the air cylinder. A filter, dripwell, and oiler should be installed in the line with a manually operated pressure regulator between filter and air cylinders. Service to the air cylinders is kept to a minimum if the above suggestions are followed. It would be wise to check air cylinders for air leaks at monthly or bi-monthly periods. An air leak can usually be detected by the noise. The filter and dripwell should be drained on the weekly inspection of the collector and the filter material replaced when necessary. The pressure regulator requires no attention except the cleaning of the exhaust vent as long as satisfactory operation continues. As a semi-annual maintenance, check air lines for moisture, oil, or dirt. The normal position of air cylinder shafts should be retracted in order to minimize corrosion.

6. Solenoid Valves: These are three-way solenoid operated valves having three pipe connections and two valve ports satisfactory for handling air, gas, water and oil up to 212° F. The pipe connections are identified by the letters "A", "B", and "C" cast on the side of the valve body.

When the solenoid is de-energized, the flow passage is between connections "A" and "C" with the "B" port closed. When energized, the flow passage is between ports "A" and "B" with "C" closed. The forms of flow conditions through the valve are identified by the letters "F" and "G". The valves are adjusted at the factory for the intended flow conditions. The valves cannot be used for a different form of flow than supplied without installing new top and bottom springs, and by changing the pressure and exhaust connections accordingly.

Install valves so that the solenoid is in a vertical position and pointing upward as illustrated on the drawing. Pipe connections "B" and "C" are for horizontal pipe lines and the "A" connections is vertical and at the bottom of the valve. Important: Pipe lines must be connected for proper diredtion of flow through the valves. For example, form "F" valve is connected, pressure is at "B", exhaust at "C", and cylinder at "A". Form "G" valve is connected, pressure is at "C", and

exhaust at "B", and cylinder at "A". One form "F" and one form "G" valve is required to operate each double acting air cylinder. If any other type of operating is required, consult the home office. Electrical connections must be made to the proper voltage and frequency for A.C. as specified on the name plate.

Leakage through the seats and discs is gernerally caused by lodgment of foreign matter on the valve seating surface. Even if not present upon examination, a temporary lodgment often damages the seating surface enough to cause leakage. Leakage through the stainless steel seats and discs can be corrected by regrinding, whereas for resilient seats, a new valve seat assembly should be installed. NOTE: Disc and springs are not interchangeable and must be returned to the original location. If leakage still continues, the seats and discs may be worn to such an extent that they cannot be corrected by regrinding and new ports should be ordered and installed. Also, the springs may have weakened from repeated flexing and should be replaced. New seats and discs cannot be installed without making adjustments.

Noise: Two types of noises are present in the solenoid valves. One is due to opening and closing, which produces a clicking noise and is seldom objectionable. The other noise is a straight magnetic hum such as a small transformer. When operated on alternating current, it is not noticeable unless amplified by the pipe lines or other attachments. A rattling or chattering noise when the solenoid is energized is usually due to foreign matter lodged around the core and on the seating surface of the core. If a bad rattling noise still exists, inspect shading coil and make sure it has not cracked or broken.

Coils: All valves are supplied with continuous duty coils in accordance with underwriters' requirements, unless otherwise indicated for intermittent service, by the abbreviation "INT" at the voltage marking on the name plate and the side of the coil. When the valves have been energized for long periods, the coil housing becomes quite hot, so much so that it cannot be touched by the bare hand except for an instant. This is a perfectly safe operating temperature, and any overheating will be indicated by smoke and a strong odor from the coil insulation. Important: No valve can be changed from A.C. to D.C. operation, or vice versa, by installing a new coil as the interior solenoid construction is different with each service.

Cleaning: A periodic cleaning approximately once every six months of all solenoid valves is recommended. In general, if current supply is correct, sluggish action indicates that cleaning is required. To clean, remove valve bonnet from the valve body and the two disc cap nuts, and this will allow a thorough cleaning of all parts. The discs, seats, and springs are not interchangeable and must be returned to their original location.

7. Damper Valve Linkage: The linkage between air cylinders and damper valve shafts must be precisely adjusted at start-up and properly secured to prevent slippage. Corrosion should be prevented and binding eliminated.

8. Shaker Mechanism:

   a. Lubrication: The eccentric shaft assembly, including eccentric bearings and all pillow block bearings, should be lubricated monthly, or as indicated, using a good grade of ball bearing grease such as Standard Oil Superla 2X, Gulf H.M., Texas Marfak No. 3, etc. Care should be taken not to over-lubricate to the extent of damaging grease retainer seals.

   b. Lost Motion: This requires a visual weekly inspection and a thorough monthly inspection. V-belt shaker drives should be checked for correct tension and wear and replaced as required. Set screws in drive sheave, bearing collars, flexible couplings, etc., should be checked and tightened. Shoulder bolts and bushings in shaker bars, tie bars, and connecting rods should be checked for perfect seating, correct tension, and wear. Bushings and shoulder bolts should be replaced when the overall clearance reaches .060". Tie bars and shaker bars exhibiting broken welds or other defects should be replaced. All nuts and bolts should be checked and tightened as required at monthly intervals. Wear on knife-edge bearings and channel bearings should be checked monthly and parts replaced when knife-edge wear exceeds 1/8" and V-block grooving exceeds 1/16". Any tendency for knife-edge bearings to ride free of channel bearings should be corrected by re-alignment of shaker mechanism.

9. Dustubes:

   a. Dustube Installation: Dustubes are suspended from tube hooks which are, in turn, suspended from the shaker channels. Adjustment of Dustube tension is easily made by changing the position of the hook in order to produce the slack in the bags required. Spring rings sewn into the bottoms of the Dustubes are expanded into the cell plate holes. It is vital that these expanding rings fit flush and true and that they not be kinked. Care must be taken in removing and installing Dustubes to avoid injury to the spring rings. Any leakage at the bottoms caused by improper installation will affect both Dustube life and collector efficiency.

   b. Dustube Maintenance: Dustubes should be inspected weekly for evidence of holes, and those found to contain holes should be immediately replaced. A complete set of Dustubes for one compartment should be carried in stock as spares. Any accumulation of dust on the cell plates due to holes in one or more Dustubes should be quickly removed in order to prevent wear at the bottom of all remaining Dustubes.

No paint or other coating should be applied to the sides of the cell plate holes and any accumulation of deposited material should be removed when new Dustubes are installed.

Tube hooks should be maintained with prongs exactly parallel to shaker channels and should be replaced when badly corroded or bent. Dustubes should never be drawn up so tightly that the actual filtering surface is carried up over the tube hook prongs. Bags should not be installed in such a manner that they twist between the cell plate and tube hooks.

ELECTRICAL EQUIPMENT

All electrical equipment should be maintained in accordance with instructions for the original manufacturer, which will be supplied at time of shipment.

SPARE PARTS

To avoid loss of operating time due to unexpected and accidental mechanical failures, we have included a recommended list of spare parts which we feel you should maintain at all times in your warehouse. In this list, we have included enough Dustubes to equip one compartment. We have not included in our list certain standard items such as V-belts which you can obtain locally.

GENERAL NOTES ON CORROSION

It is the customer's responsibility to guard against corrosion of various parts of the fume collection system.

FJW:mp

RECOMMENDED SPARE PARTS LIST

24 & #48 MODEL 126-C K.D. TYPE, FOUR-COMPARTMENT
CONTINUOUS AUTOMATIC WHEELABRATOR DUSTUBE DUST COLLECTOR

at

JOHNS-MANVILLE PRODUCTS CORPORATION
REDDAM, TEXAS

A-103851

Quan.	Part #	Description
288	90521	5" x 126" Filter Tubes (untreated)
288	94848	Tube Hooks
2	107548	3'-6" Tie Bar
1	107300	3'-0" Tie Bar
2	123975	3'-0" Shaker Bar
24	94894	Channel Bearing
24	95188	Channel Bracket
12	94901	Channel Spacer
2	133251	Eccentric Shaft Assembly
24	98462	Socket Head Cap Screws
24	123663	3/8"-16 Slotted Hex. Nuts
24		1/8" x 1" lg. Cotter Pins
288		5/16"-18 Self-locking type Nuts
288		5/16"-18 Hex. Nuts
1	172847	18" x 21" Damper Valve
1	172936	24" x 30" Damper Valve
2	130027	1/4" H.P.H. Air Hose - 18" lg.
1		ASCo. 3-way Solenoid Valve, 110 volts, 60 cycle, form "G", pressure at "C"
1		ASCo. 3-way Solenoid Valve, 110 volts, 60 cycle, form "F", pressure at "B"

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INSTRUCTIONS FOR INSTALLING DUSTUBES ON SINGLE PRONG TUBE HOOKS

The Dustubes are used for filtering the solids from the gas. These tubes must be intact (free from holes), and properly seated in the cell plates to avoid any leakage of dust into the dust collector.

A tube improperly installed makes the entire installation ineffective; defeats the purpose of the collector. It is not enough to "stuff" the tube into a cell hole in a haphazard manner, or try to pull the expanded spring upward into a cell hole. (This is permissible only to straighten a tube after being installed.)

For correct installation of Dustubes, use the following instructions.

The tube hooks should be installed so that the threaded shank is projecting approximately 3/4" above the shaker channel, and tightened in position, with the hook parallel with the shaker channel, and with the open end of the hook toward the walkway. Do not apply too much force to the nuts on the tube hook.

Tubes should be suspended from the hook, then inserted in the cell plate. To insert the tube in the cell plate collapse the bottom spring into a "U" shape and insert through the top of the cell hole. With one hand see that the bottom of the spring is flush with the bottom of the steel flange. Release the spring slowly and allow it to snap into shape. Check to see that the spring does not project beyond the steel flange. If springs do not snap in place, either the top of the spring is bound on the bead at top of cell plate, or the flannel is bunched. To remove bound tubes, carefully slip a small screwdriver between the cell hole and the spring from the bottom side and pry in on the spring. A properly installed Dustube will be seated perfectly in the cell hole as described, with the vertical seam straight and not twisted between tube hook and cell hole.

TUBES SHOULD BE SLACK ENOUGH TO ALLOW LIFTING 3/4" VERTICALLY WITHOUT ANY FORCE BEING APPLIED. TUBES CAN BE LOOSE TO THE POINT OF BEGINNING TO "FOLD IN" TO THE CELL HOLE.

Tight tubes will not shake clean and will cause breakage of tube hooks, excess vibration, and excess wear on the shaker device. Adjustment of Dustube tension is easily made by changing the position of the hook in order to produce the slack in the bags required.

When an inside shaker device is used, the tubes next to the shaker device should be turned at a 45° angle to secure proper operative clearance. Care should be used to keep the vertical seams of these tubes straight and not twisted.

When removing and installing Dustubes, use extreme caution to avoid damage to the tubes and spring rings. Any leakage at the bottoms caused by improper installation will affect both Dustube life and collector efficiency. An accumulation of dust surrounding a tube is evidence of a leak.

No paint or other coating should be applied to the sides of the cell plate holes, and any accumulation of deposited material should be removed when new Dustubes are installed.

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REPAIR PARTS

MANUAL

WHEELABRATOR
CORPORATION
MISHAWAKA, INDIANA

100738

REPAIR PARTS SECTION

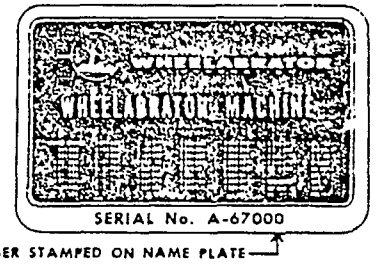
IMPORTANT

PROMPT AND ACCURATE SERVICE ON REPAIR PARTS ORDERS

depends upon your furnishing us with the following information:

1. PART NUMBER of the item wanted

2. SERIAL NUMBER of the machine for which the part is needed (This number is listed below and on the serial number plate attached to the machine)



NOTE: When ordering repair parts for Motors—Speed Reducers—Special Drive Units and Electrical Control Devices it is desirable that you give the serial number stamped on the name plate of the unit.

EXAMPLE FOR ORDERING PARTS BY MAIL

BY TELEGRAPH

PURCHASE ORDER
AJAX FOUNDRY CO.
GALVESTON, TEXAS

ORDER NO. 768

WHEELABRATOR CORPORATION
MISHAWAKA, INDIANA

QUANTITY	DESCRIPTION	AMT.
1 SET	NO. 47130 BLADES	
4	NO. 81856 IMPELLERS FOR Machine Serial—A-78567	

TELEGRAM

WHEELABRATOR CORPORATION
MISHAWAKA, INDIANA

RUSH ONE SET PART NO. 24817 IMPELLER FOR WHEELABRATOR TUMBLAST SERIAL No. A-70500

WHERE TO SEND PARTS ORDERS

All parts orders and correspondence relating to repairs should be addressed to the WHEELABRATOR CORP., Mishawaka, Indiana
District sales representatives do not handle parts orders.

THE DRAWINGS AND DATA IN THIS SECTION COVER REPAIR PARTS FOR:
No.24 Model 126-3 Knocked Down Dustube Dust Collector

SHIPPED TO John-Manville Corporation DATE 8-8-57

Serial Number A-103851 Customers Order No. ENG-14252

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COPY FORM	INITIALS	DATE

BOX NUMBER	SEGMENT NO.	REQUESTING PARTY
4-01907		

NOTES

Filter Bags
Health Survey