M 103 S.A. Dust system

torit

INSTALLATION AND OPERATION MANUAL

FOR TORIT CYCLONE DUST COLLECTORS

MODELS 13 / 19 / 20 / 24 / 30 / 36 / 44

Includes Installation, Operation, and Service Instructions

NOEL SYSTEMS, INC.
8130 Virginia Pine Court
RICHMOND, VIRGINIA 23237
(804) 271-7300

SAWDUST EMISSION SYSTEMS
Camp Lejeune, NC
Contract #62470-86-C-5536
BLDG. # M-103

IMPORTANT

THIS MANUAL CONTAINS SPECIFIC PRECAUTIONARY STATEMENTS RELATIVE TO WORKER SAFETY IN APPROPRIATE SECTIONS. READ THIS MANUAL THOROUGHLY AND COMPLY AS DIRECTED. IT IS IMPOSSIBLE TO LIST ALL OF THE POTENTIAL HAZARDS OF DUST CONTROL EQUIPMENT OR SYSTEMS. IT IS IMPERATIVE THAT USE OF THE EQUIPMENT BE DISCUSSED WITH A TORIT REPRESENTATIVE. PERSONNEL INVOLVED WITH THE EQUIPMENT OR SYSTEMS, SHOULD BE INSTRUCTED TO CONDUCT THEMSELVES IN A SAFE MANNER.

WARNING

APPLICATION OF DUST CONTROL EQUIPMENT:

1. Avoid mixing combustible materials, such as, buffing lint, paper, wood, dust, aluminum and magnesium, with dust generated from grinding ferrous metals; due to the potential fire hazard caused by sparks in the dust collector.
2. Under no conditions, should the machine operator be allowed to put lit cigarettes or any burning object into the hood or ducting of any dust control system.
3. When dust collectors are used to collect fire or explosion risk dust, the dust collector should be located outside the building. Also, an installer of fire extinguishing equipment, familiar with this type of fire hazard and local fire codes, should be consulted for his recommendations and installation of the proper fire extinguishing equipment. Dust collectors do not contain fire extinguishing equipment.
4. Explosion relief vents are required on some applications. Consult with an insurance underwriter or a NFPA Manual to determine proper vent size ratio. Vents installed on dust control equipment within a building, must be vented to the outside to minimize chances of a secondary explosion. Again, consult the proper authority to determine proper method of venting. Dust collectors do not contain explosion relief vents, except on special order.

The Torit Dust Collector is a highly efficient air cleaning device. And by following these directions, you can keep it operating at maximum efficiency, day after day, for years to come.

INSTALLATION INSTRUCTIONS

1. Locate the Dust Collector as near to dust sources as you can, except in cases where dust is explosive or a fire hazard.

2. Assembly

a. Cyclone model number 13 is shipped completely assembled. The larger model Nos. 19, 20, 24 & 30 are shipped in three assembly components: motor, blower wheel and mount plate; blower housing, cone section and top; base section. FB models also include an after-filter manifold and after-filter bag(s). Models 36 & 44 come with the power package assembled to the upper-cylinder assembly, mounted on a skid. The cone is separate, as is the base assembly. Instructions for these units are in separate manuals.

b. Place the base in its desired location. For bases with legs, use shims under leg pads as needed. When base is level, it should be fastened down with anchor bolts.

c. Remove the thread cutting screws from the top of the base. Install the blower housing, top and cone assembly on top of the base.

d. For model Nos. 13 and 19, place the felt gasket ring between the base top and the cone mounting ring. On larger units, use the tube of permagasket to seal this area. Apply a generous ribbon of permagasket to the underside of the cone mounting ring. Secure the assembly with the thread cutting screws.

e. Check the inlet and the discharge to make sure that they are facing in the desired direction. Both are able to be positioned in 45^{o} increments. To rotate the blower housing simply remove the thread cutting screws or the 1/4-20 x 3/4 bolts, whichever applies, turn the housing to the desired position, and resecure. Drilling is required for any positions other than the eight mentioned above.

f. On model Nos. 20-3, 20-5, 24 and 30, remove the thread cutting screws from the top of the blower housing. Apply a ribbon of permagasket to the inside of the bolt circle on the housing top. Drop the power package in place and secure it with the thread cutting screws.

g. On FB models, the filter section is shipped in several containers. The filter section of model Nos. 13FB and 19FB consists of an elbow, a flange assembly and a bag. The larger models come with a plenum manifold, transition, end plate assembly, bags and clamps.

h. On all FB models, use a ribbon of permagasket between the housing discharge flange and the mating part flange to assure air-tightness. And secure the area by using the 1/4-20 x 3/4 bolts, washers and nuts furnished. If required, install the rod ceiling supports for the manifold section. Then secure the filter bags with the appropriate clamps, making sure that the bags and the clamps are both well past the bead on the collar.

i. On models with after-filter enclosures, the side panels will have to be removed to install the filter bags.

j. With FM models, the ductwork must be run from the collector exhaust outlet out through the roof or nearest exterior wall. A ribbon of permagasket should be used between the housing flange and the transition or collar flange that is furnished.

k. If your collector has a belt-driven blower wheel, **do not attempt to make any pulley changes.** Each pulley is sized for proper operation prior to shipment. No changes should be made unless specifically directed by Torit. Individual manuals are furnished with each belt driven Torit Dust Collector.

3. The instructions for making the electrical connections to the proper power supply lines are on the motor instruction plate. This job should be done by a qualified electrician.

4. Visually check to make sure that the blower wheel is turning in the correct direction. This can be done before the discharge equipment is installed, or by removing the inspection cover near the discharge flange on the housing side. On belt driven units, inspection covers are on the top of the housing. Check the rotation against the "rotation arrow" decal on the same side of the housing.

If the motor has been connected backwards during installation, the blower wheel will run in the direction opposite to the arrow on the housing. **But a much smaller than normal airflow will be generated into the ductwork and through the collector.** So be sure to check the rotation VISUALLY.

If the rotation is incorrect, the following must be completed to reverse rotation; on 3 phase motors, switch any 2 leads. On Single phase motors, switch leads as directed on the nameplate wiring instructions.

5. **DO NOT** run the motor for extended periods of time until the ductwork is in place and connected. If you do, you will overload the motor. And **DO NOT** run the collector with the gates open, doors open or drum lids off. This will also overload the motor.

6. Ductwork

a. When installing ductwork, use the shortest possible runs, long radius elbows, and at least 45^{o} branches. Avoid the use of air-flow tees. Connect the piping joints with sheet metal screws, rivets, or solder. Finish with a single wrap of duct tape on each joint. This will assure you of a rigid, airtight duct system.

torit

INSTALLATION AND OPERATION MANUAL

FOR TORIT CYCLONE DUST COLLECTORS

MODELS 13 / 19 / 20 / 24 / 30 / 36 / 44

Includes Installation, Operation, and Service Instructions

IMPORTANT

THIS MANUAL CONTAINS SPECIFIC PRECAUTIONARY STATEMENTS RELATIVE TO WORKER SAFETY IN APPROPRIATE SECTIONS. READ THIS MANUAL THOROUGHLY AND COMPLY AS DIRECTED. IT IS IMPOSSIBLE TO LIST ALL OF THE POTENTIAL HAZARDS OF DUST CONTROL EQUIPMENT OR SYSTEMS. IT IS IMPERATIVE THAT USE OF THE EQUIPMENT BE DISCUSSED WITH A TORIT REPRESENTATIVE. PERSONNEL INVOLVED WITH THE EQUIPMENT OR SYSTEMS, SHOULD BE INSTRUCTED TO CONDUCT THEMSELVES IN A SAFE MANNER.

WARNING

APPLICATION OF DUST CONTROL EQUIPMENT:

1. Avoid mixing combustible materials, such as, buffing lint, paper, wood, dust, aluminum and magnesium, with dust generated from grinding ferrous metals; due to the potential fire hazard caused by sparks in the dust collector.
2. Under no conditions, should the machine operator be allowed to put lit cigarettes or any burning object into the hood or ducting of any dust control system.
3. When dust collectors are used to collect fire or explosion risk dust, the dust collector should be located outside the building. Also, an installer of fire extinguishing equipment, familiar with this type of fire hazard and local fire codes, should be consulted for his recommendations and installation of the proper fire extinguishing equipment. Dust collectors do not contain fire extinguishing equipment.
4. Explosion relief vents are required on some applications. Consult with an insurance underwriter or a NFPA Manual to determine proper vent size ratio. Vents installed on dust control equipment within a building, must be vented to the outside to minimize chances of a secondary explosion. Again, consult the proper authority to determine proper method of venting. Dust collectors do not contain explosion relief vents, except on special order.

The Torit Dust Collector is a highly efficient air cleaning device. And by following these directions, you can keep it operating at maximum efficiency, day after day, for years to come.

INSTALLATION INSTRUCTIONS

1. Locate the Dust Collector as near to dust sources as you can, except in cases where dust is explosive or a fire hazard.

2. Assembly

a. Cyclone model number 13 is shipped completely assembled. The larger model Nos. 19, 20, 24 & 30 are shipped in three assembly components: motor, blower wheel and mount plate; blower housing, cone section and top; base section. FB models also include an after-filter manifold and after-filter bag(s). Models 36 & 44 come with the power package assembled to the upper-cylinder assembly, mounted on a skid. The cone is separate, as is the base assembly. Instructions for these units are in separate manuals.

b. Place the base in its desired location. For bases with legs, use shims under leg pads as needed. When base is level, it should be fastened down with anchor bolts.

c. Remove the thread cutting screws from the top of the base. Install the blower housing, top and cone assembly on top of the base.

d. For model Nos. 13 and 19, place the felt gasket ring between the base top and the cone mounting ring. On larger units, use the tube of permagasket to seal this area. Apply a generous ribbon of permagasket to the underside of the cone mounting ring. Secure the assembly with the thread cutting screws.

e. Check the inlet and the discharge to make sure that they are facing in the desired direction. Both are able to be positioned in 45^{o} increments. To rotate the blower housing simply remove the thread cutting screws or the 1/4-20 x 3/4 bolts, whichever applies, turn the housing to the desired position, and resecure. Drilling is required for any positions other than the eight mentioned above.

f. On model Nos. 20-3, 20-5, 24 and 30, remove the thread cutting screws from the top of the blower housing. Apply a ribbon of permagasket to the inside of the bolt circle on the housing top. Drop the power package in place and secure it with the thread cutting screws.

g. On FB models, the filter section is shipped in several containers. The filter section of model Nos. 13FB and 19FB consists of an elbow, a flange assembly and a bag. The larger models come with a plenum manifold, transition, end plate assembly, bags and clamps.

h. On all FB models, use a ribbon of permagasket between the housing discharge flange and the mating part flange to assure air-tightness. And secure the area by using the 1/4-20 x 3/4 bolts, washers and nuts furnished. If required, install the rod ceiling supports for the manifold section. Then secure the filter bags with the appropriate clamps, making sure that the bags and the clamps are both well past the bead on the collar.

i. On models with after-filter enclosures, the side panels will have to be removed to install the filter bags.

j. With FM models, the ductwork must be run from the collector exhaust outlet out through the roof or nearest exterior wall. A ribbon of permagasket should be used between the housing flange and the transition or collar flange that is furnished.

k. If your collector has a belt-driven blower wheel, **do not attempt to make any pulley changes.** Each pulley is sized for proper operation prior to shipment. No changes should be made unless specifically directed by Torit. Individual manuals are furnished with each belt driven Torit Dust Collector.

3. The instructions for making the electrical connections to the proper power supply lines are on the motor instruction plate. This job should be done by a qualified electrician.

4. Visually check to make sure that the blower wheel is turning in the correct direction. This can be done before the discharge equipment is installed, or by removing the inspection cover near the discharge flange on the housing side. On belt driven units, inspection covers are on the top of the housing. Check the rotation against the "rotation arrow" decal on the same side of the housing.

If the motor has been connected backwards during installation, the blower wheel will run in the direction opposite to the arrow on the housing. **But a much smaller than normal airflow will be generated into the ductwork and through the collector.** So be sure to check the rotation VISUALLY.

If the rotation is incorrect, the following must be completed to reverse rotation; on 3 phase motors, switch any 2 leads. On Single phase motors, switch leads as directed on the nameplate wiring instructions.

5. **DO NOT** run the motor for extended periods of time until the ductwork is in place and connected. If you do, you will overload the motor. And **DO NOT** run the collector with the gates open, doors open or drum lids off. This will also overload the motor.

6. Ductwork

a. When installing ductwork, use the shortest possible runs, long radius elbows, and at least 45^{o} branches. Avoid the use of air-flow tees. Connect the piping joints with sheet metal screws, rivets, or solder. Finish with a single wrap of duct tape on each joint. This will assure you of a rigid, airtight duct system.

b. Ductwork should be of a proper size to permit passage of the air velocities recommended for the material being collected. A complete selection of galvanized steel pipe, elbows, branches, and fittings is available from Torit. If you require any assistance in the design or selection of the ductwork, simply contact our home office or your local Torit Representative.

7. With any air-moving device, a certain amount of noise is created. Normally, the noise level is not as high as that of other machinery in the area. If, however, you require an additional reduction in the noise level, exhaust silencers are available as optional equipment.

ROUTINE MAINTENANCE

1. Before operating, check to be sure that the gates are closed, and that the doors, drum lids and gasketing are firmly in place. The material being collected will not separate from the air if there is any leakage around the base or drum.

2. Empty collector drawers or drums when they are approximately two-thirds full. For hopper models, it is necessary to keep the collected material at least 10" from the cone end in order to prevent bypass to discharge. Specification drawings will give you the specific cone penetration for your model.

3. For FB models, shake after-filter bags whenever the air volume drops below the level required to do a good job collecting the dust at the source.

4. When an adequate air volume cannot be restored by shaking the bags, simply remove them for emptying and cleaning. The after-filter bags may be washed in lukewarm water, using regular household laundry detergent, or dry cleaned. NEVER USE STEAM OR WATER OVER 170°F.

5. Under normal operating conditions, after-filter bags should be replaced every two years for best performance. Be sure to include the model and serial number of your Dust Collector with your order for Torit Replacement After-Filter Bags.

6. For motor maintenance, follow the manufacturer's directions. If your motor requires servicing under the manufacturer's warranty, contact an authorized service center.

TROUBLESHOOTING

Motor Running Hot/Starter Kicking Out

1. Do not accept air movement as an indication of proper fan rotation. A fan that is running backward may deliver as much as 60% of its rated capacity. Visually check the fan wheel. Or remove the bearing cover on the end bell and visually check the motor shaft on the vertical motors.

2. Check for improper wire size. Electrical connections must be up to national and/or local codes.

3. Check starter to make sure it is not undersized.

4. Check heater coils to make sure that they are not undersized.

5. Check for low line voltage. A 10% variation is permissible.

6. Check for loose connections in the starter or line connections. This will cause single phasing on the 3 phase circuits. And often the heater coils are damaged as the motor attempts to reach its rated RPM. Motor hum or growling is an indicator of this condition.

7. Check for a large leak in the storage chamber or, in 55-gallon drum applications, make sure that the drum is under the lid.

8. Check line voltage to make sure it is not overloaded, i.e. 460 volts on a 230 volt motor.

9. In FB units, no dust in filters.

Insufficient Air At Hoods

1. Check for a large leak in the storage chamber or, in 55-gallon drum applications, make sure that the drum is under the lid.

2. Check for a large diameter branch on a long, extended duct system. The first hood takes all of the air. Use blast gates.

3. Check for obstructions in the ductwork.

4. Check the after-filters to make sure they are not plugged.

5. Check the exhaust, in line and at the end, to make sure there are no restrictions.

6. Check ducts and hoods for improper sizing.

7. Rag type grinding or polishing wheels create their own air circulation. More air may be needed to overcome the airflow that they create.

8. Check for improper voltage, i.e. 230 volts to a 430 volt motor will cause it to run at half speed. Motor damage may result.

A Word About Blower Motors

A blower motor is easily overloaded when it is forced to handle TOO MUCH AIR. An insufficient air supply causes few if any problems. Torit Dust Collectors are designed to make maximum use of the motor's horsepower. But they are not underpowered. Any motor that indicates an amperage draw in excess of 10% of the manufacturer's recommendation on the nameplate is overloaded. Overloading may be caused by one or more of the conditions in the previous section titled, "Motor Running Hot/Starter Kicking Out". Or the motor may be faulty. The Torit Division does not assume responsibility for faulty motors. You should contact the manufacturer directly. PLEASE READ, THOROUGHLY, THE GUARANTEE INCLUDED IN THIS BROCHURE.

A Word Of Caution

Using your hand to test the running temperature of a motor can be a very painful experience:

Normal body temperature	98.6°F
Threshold of pain caused by heat	120.0°F
Average temperature of hot tap water	140.0°F
Average temperature of hot coffee	180.0°F
Normal operating temperature of a fully loaded electric motor, open type, 70° ambient temperature.	174.0°F

YOU CANNOT WASH YOUR HANDS IN 140°F WATER!

YOU CANNOT STIR A FRESH CUP OF COFFEE WITH YOUR FINGER!

YOU CANNOT PLACE YOUR HAND ON A MOTOR THAT IS OPERATING PROPERLY WITHOUT BURNING YOUR HAND!

THE TORIT DIVISION WARRANTY

TORIT hereby warrants that it will replace free of charge f.o.b. its factory at Nicholasville, Kentucky, such products furnished by TORIT as were manufactured by TORIT and as are or become defective within one year after date of shipment because of defects of material or workmanship provided, after notice to TORIT and its written consent thereto, the product is shipped prepaid to TORIT at Nicholasville, Kentucky, and provided the parts in question prove to the satisfaction of TORIT, to be defective because of defects of material and workmanship. This warranty does not apply to or include the cost of removal of any part and the cost of installation of any replacement part. This warranty is in lieu of all and other warranties of any kind, expressed or implied, and of any other liability or obligation on the part of TORIT.

Donaldson Company, Inc.
Torit Division
P.O. Box 1299
Minneapolis, Minnesota 55440

TORIT — THE INDUSTRIAL AIR POLLUTION PROBLEM SOLVERS

Form CYC-OIM (2-83)

Printed in U.S.A.

donaldson

TORIT DUST COLLECTORS

CYCLONE MODEL 19

EFFICIENT DESIGN

Long tapering cone design and high inlet velocity place the TORIT Model 19 in the "high efficiency" class of cyclone separators. In lab tests, this model separated 99.2% of steel grindings and 84% of extremely fine corn starch particles by weight. Fines not separated in the cyclone are caught in after-filters on FB models.

Sturdy steel construction provides long-lasting service inside and out. Doors are sealed air-tight with specially designed "Positive Seal" fasteners. And a tough, weather-resistant finish is available for outdoor installations.

RELIABLE FAN

A constant high performance, at a low horsepower requirement (see multiple rating tables on other side of page), is delivered by TORIT's proven material handling fan. You get longer operation at a lower cost. The fan is on the clean air side. So grit, dust, chips, tramp iron and other particles are weighted out and deposited in the base before ever reaching it. You avoid expensive repairs and costly down-time.

EASY CLEANING

Standard Model 19 contains a handy pull-out drawer with 4.8 cubic feet of storage capacity. Extra-capacity bases or hoppers are available, built to order, as are single and double 55-gallon drum collectors (see specifications).

FLEXIBLE USE

End-mounted motor and blower are detachable for easy relocation of outlet duct. Cones may be rotated on base for most convenient inlet location. Model 19 can exhaust outside or be used to recirculate air into the building, where permissible, through use of the after-filter bag included with FB models. FM models do not include an after-filter and are designed for outside exhaust.

donaldson

TORIT DUST COLLECTORS

CYCLONE MODEL 19

High Efficiency Centrifugal Separators

MULTIPLE RATING TABLES

These ratings cover FM Models — a clean after-filter assembly offers no measurable resistance to airflow. However, resistance will increase during operation — due to dust-loading of filtering media — but can be kept at a minimum by cleaning filter media on a regular maintenance schedule.

SPECIFICATIONS

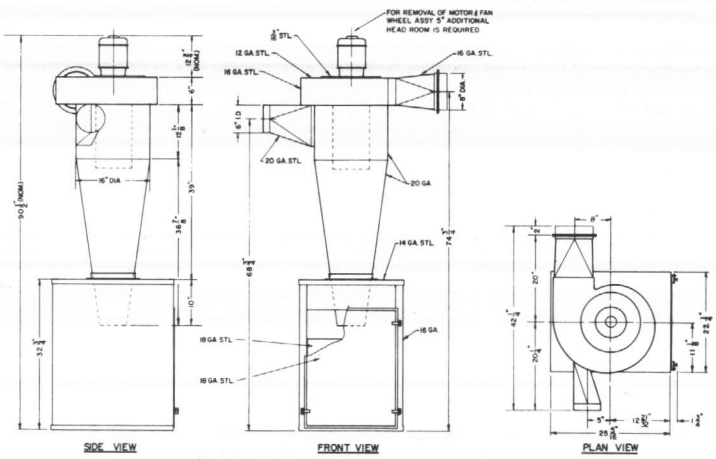
Performance ratings and A-scale sound level readings are available on all TORIT collectors. Ratings are read and verified under standard test conditions in TORIT's laboratories.

MODEL 19	C.F.M.	VELOCITY (F.P.M.)	EXTERNAL STATIC PRESSURE (W.G.)
6″	1200	6135	4.6″
Inlet	1100	5600	5.4″
	993	5066	6.6″
	928	4739	7.5″
	860	4386	7.9″

PERFORMANCE GUARANTEE

MODEL	19 FM	19 FM 55	19 FB	19 FB 55	19 FM-H	19 FB-H
Dust Storage Capacity	4.8 cu. ft.	7.5 cu. ft.	4.8 cu. ft.	7.5 cu. ft.	9 cu. ft.	9 cu. ft.
Inlet Diameter	6″	6″	6″	6″	6″	6″
Outlet Diameter	8″	8″	8″	8″	8″	8″
Height	90½″	111½″	90½″	111½″	130¼″	130¼″
Floor Space	25⁵⁄₁₆″x22¼″	32¾″x32¾″	25⁵⁄₁₆″x22¼″	32¾″x32¾″	24½″x24½″	24½″x24½″
Motor (specify voltage)	2 HP, 3600 RPM, 230-460v/60/3					
Shipping Weight	330 lbs.	390 lbs.	340 lbs.	390 lbs.	410 lbs.	410 lbs.

Specifications subject to change without notice.



NOTES

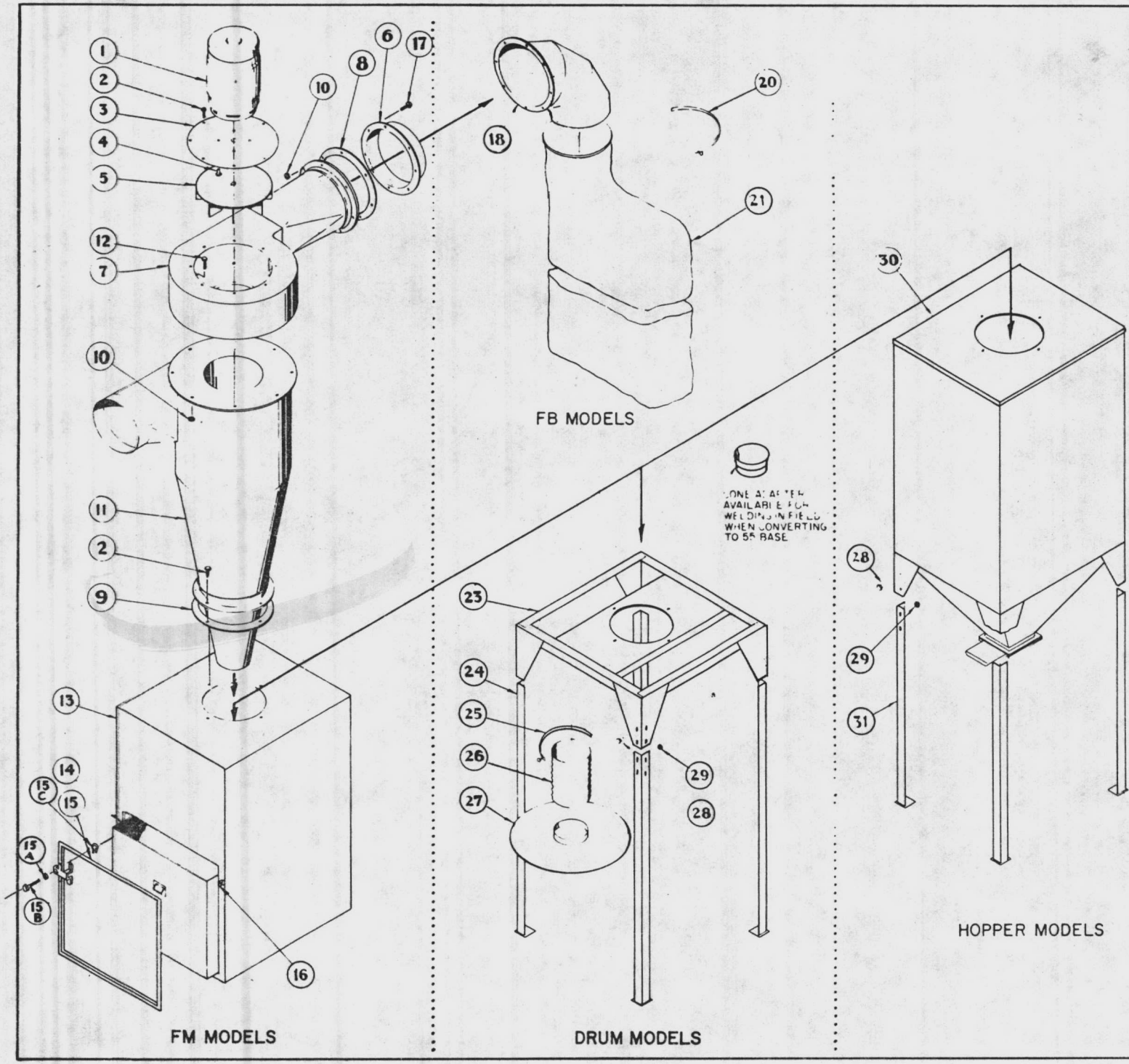
5″ additional headroom required for assembly or removal of motor and fan wheel. Height shown (including motor) is maximum. For special requirements check with factory.

TORIT district sales representatives are conveniently located throughout the United States and Canada. One will gladly work with you on your in-plant air pollution problems, and offer complete recommendations at no obligation to you. Check your Yellow Pages, under "Dust Collecting Systems", for local listing, or write.

donaldson

Donaldson Company, Inc.
Torit Division
P.O. Box 1299
Minneapolis, Minnesota 55440

LEADERS IN CONTROL OF IN-PLANT AIR POLLUTION



PARTS SCHEDULE 19-FM

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	SPECIFY	MOTOR 2 HP 3600 RPM
2	12	8PP-06238-00	DRIVE SCREW 1/4-20X5/8
3	1	8PP-10922-00	PLATE MOTOR MTG
4	4	8PP-09008-03	BOLT HEX 3/8-16X3/4
5	1	4MA-00303-01	WHEEL ASY
6	1	5PM-00112-00	EXHAUST FLANGE
7	1	3EA-00101-01	BLOWER HSG ASY
8	1	8PP-00398-03	GASKET EXHAUST
9	1	8PP-00398-03	GASKET MTG RING
10	15	8PP-09011-08	NUT HEX 1/4-20
11	1	4MA-12413-00	CONE & UPPER CYL ASY
12	7	8PP-09003-03	BOLT HEX 1/4-20X3/4
13	1	2SG-14750-01	CABINET BASE COMPLETE
14	1	4MA-14714-01	DUST DRAWER ASY
15	1	3EA-00157-01	DOOR ASY COMPLETE
15A	4	8PP-09006-06	WASHER FLAT 1/4
15B	4	8PP-18920-00	THUMB SCREW 1/4-20X1 1/4
15C	4	8PP-18921-00	RING RETAINING 1/4
16	4	4MA-11159-00	STRIKE PLTD.
17	8	8PP-09003-02	BOLT HEX 1/4-20X5/8

PARTS SCHEDULE 19-FB

NOTE: 19-FB IS COMPOSED OF THE ABOVE ITEMS (LESS ITEM 6) AND THE FOLLOWING ITEMS

18	1	4MA-00200-02	ELBOW & FLANGE ASY
20	1	8PP-10921-00	CLAMP HOSE
21	1	4MA-12406-01	FILTER BAG

PARTS SCHEDULE 19-FM-55

NOTE: 19-FM-55 IS COMPOSED OF ALL ITEMS ON 19-FM (LESS ITEM 13) AND THE FOLLOWING ITEMS

23	1	2SG-12266-07	55 BASE COMPLETE
			(ITEMS 24 TO 29)
24	4	4MA-10748-00	LEG ASY
25	2	8PP-12418-00	CLAMP HOSE
26	1	8PP-03029-00	FLEXIBLE HOSE 7"
27	1	3EA-10417-00	DRUM COVER ASY
28	16	8PP-09008-04	BOLT HEX 3/8-16X1
29	16	8PP-09011-10	NUT HEX 3/8-16

PARTS SCHEDULE 19-FB-55

NOTE: 19-FB-55 IS COMPOSED OF ALL ITEMS ON 19-FB (LESS ITEM 13) AND ITEM 23

PARTS SCHEDULE 19-FM-H & 19-FB-H

NOTE: HOPPER MODELS ARE COMPOSED OF PARTS SCHEDULE 19-FM OR 19-FB (LESS ITEM 13) AND ITEMS 24, 28, 29 & 30

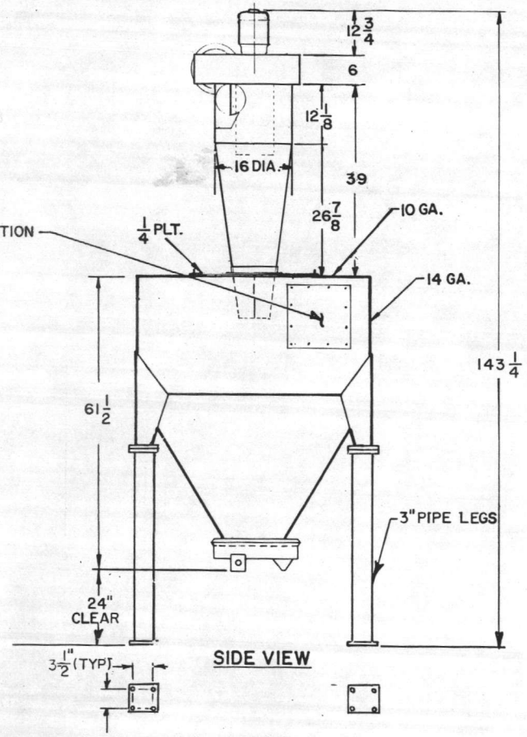
30	1	3EA-00368-01	HOPPER BASE ASY
			(INCLUDES GATE)

TORIT DIVISION, DONALDSON COMPANY, INC.
P.O. BOX 43217 · ST. PAUL, MINNESOTA 55164

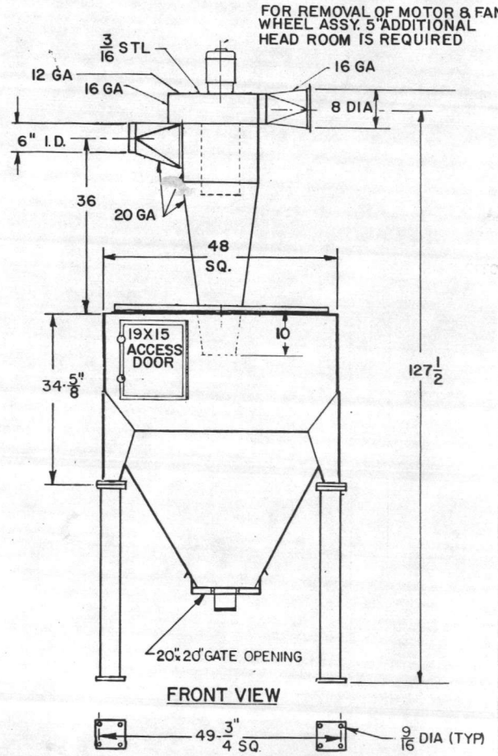
PARTS SCHEDULE COMPOSITE
19 CYCLONE COLLECTORS

DRAWN: T. PLASTER	DRWG. 19-007
APP'D:	NO. REV. F - 5-4-77

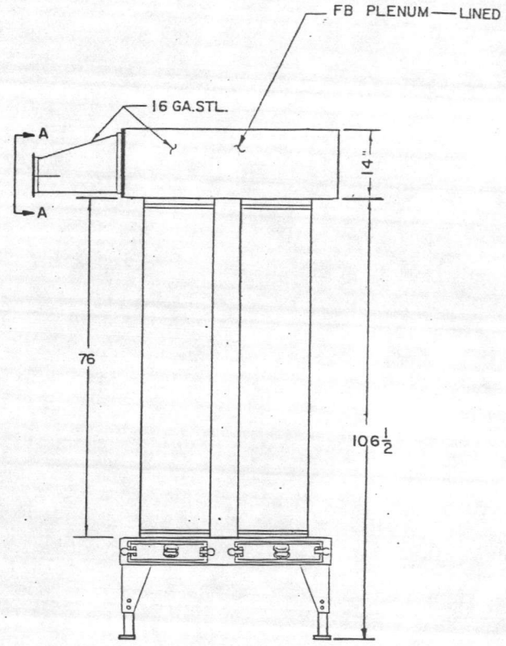
REV	ZONE	REVISION DESCRIPTION	APPROVAL/DATE



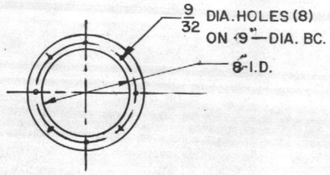
SIDE VIEW



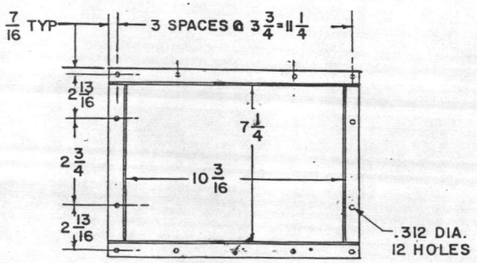
FRONT VIEW



FB SECTION



OUTLET FLANGE



VIEW A-A

CERTIFICATION

THIS DRAWING IS CERTIFIED TO BE CORRECT.

BY: B. Rooker DATE: 11-4-87

TORIT DIVISION
DONALDSON COMPANY, INC.
ENGINEERING DEPT.

MULTIPLE RATING TABLES		
C. F. M.	VELOCITY (F.P.M.)	EXT. S.P.
1200	6135	4.6"
1100	5600	5.4"
993	5066	6.6"
928	4739	7.5"
860	4386	7.9

SPECIFICATIONS

1. MOTOR SHALL BE 2 HP, 3600 RPM, 230-460/60/3 145T FRAME, TEFC
2. HOPPER CAPACITY SHALL BE 54 CU.FT.
3. FILTER AREA SHALL BE — 70 SQ. FT.
4. INLET: 6" I.D.
5. OUTLET: 8" DIA. WITH FLANGED ELL FITTING FOR AFTER FILTER.
6. NET WT. 240#, SHIPPING WT. 340#
7. FAN SIZE 13" x 3 1/2", MATL. HANDLING DESIGN
8. FINISH TO BE BLUE OUTDOOR TEXT.

NOTES

1. INLET MAY BE ROTATED AT 45° INCREMENTS IN FIELD
2. OUTLET MAY BE ROTATED AT 45° INCREMENTS IN FIELD
3. THIS DRAWING IS FOR A CYCLONE COLLECTOR. ANY DEPARTURE FROM THIS DESIGN SHALL REQUIRE SPECIAL FABRICATION & INCREASE IN COST.
4. THIS PRINT IS NOT CERTIFIED FOR CONSTRUCTION PURPOSES UNLESS PROPERLY SIGNED BY TORIT ENG. DEPT.
5. HT. OF MOTOR SUPPLIED OR SPECIFIED MAY VARY FROM NOMINAL HT. SHOWN. TORIT WILL VERIFY WHERE REQD.

MATERIAL	RELEASE NO.	TITLE 19 CYC. FM. WITH 54 CU. FT. HOPPER, 20 FB W/ DRWS.
	DATE	
	EXP DATE	
	DWN W. E. MYERS	NUMBER CD-11825
REFERENCE	DATE NOV. 2, 1987	
	CHK	
	DATE	SCALE / SHEET OF / REVISION
PREVIOUS DRAWING NO.	APVD	C/C
	DATE	SECTIONAL SIZE / OUTLINE SIZE
DO NOT SCALE — TOLERANCES UNLESS OTHERWISE SPECIFIED: 2 PL ±, 3 PL ±, ANGLES ±	THIRD ANGLE PROJECTION	DESIGN CONTROL / DWG LOCATION / VERSION

Donaldson Industrial Group
Minneapolis, MN

D

8 7 6 5 4 3 2 1

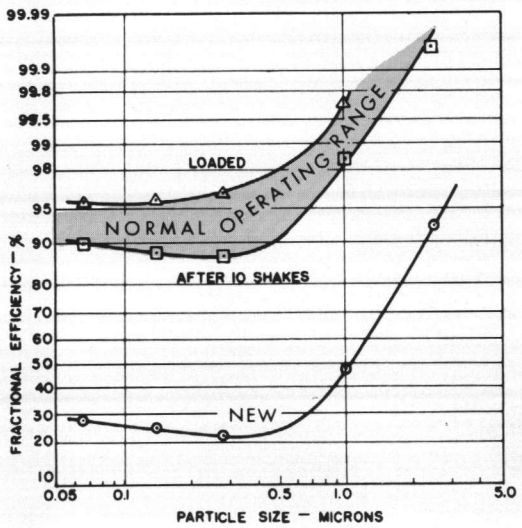
EFFICIENCIES OF TORIT® DUST COLLECTORS IN REMOVAL OF AIRBORNE CONTAMINANTS

TORIT FABRIC FILTER TYPE DUST COLLECTORS–

Fabric filter type dust collectors are being widely used for removing all kinds of airborne contaminating particles.

The particulate removal efficiency of fabric filters has ordinarily been determined on a simple weight basis. The weight efficiency test, using a dust containing a broad range of particle sizes, cannot provide needed accuracy; larger particles, accounting for most of the weight, are easily filtered out, thus indicating a high efficiency on a weight basis. For example, if two particles, one a ten micron particle and the other a one micron particle, are fed to a filter which stops the 10 micron (1 micron = 1/25,400 inch) particle but allows the 1 micron particle to pass through, the filter is rated 99.9+% efficient by weight. If rated on basis of number of particles rather than weight, it would be only 50% efficient; that is, it only stopped one out of the two particles.

A truer measure of efficiency is obtained by testing the filter with a flow of airborne particles of uniform size. The *fractional efficiency curve* obtained by measuring the efficiency on a series of homogeneous airborne particles is much superior to the weight efficiency as an indicator of true filter efficiency. The special homogeneous particulate generation equipment and measurement techniques used in testing Torit equipment were developed under the direction of Dr. Kenneth T. Whitby, world-recognized authority on airborne contamination, under auspices of the United States Public Health Service. The fractional efficiency curves for Torit equipment were determined in tests performed under supervision of Dr. Whitby at the University of Minnesota Mechanical Engineering Dept. (For greater detail write us for copy of "Fractional Efficiency Characteristics" technical report.)



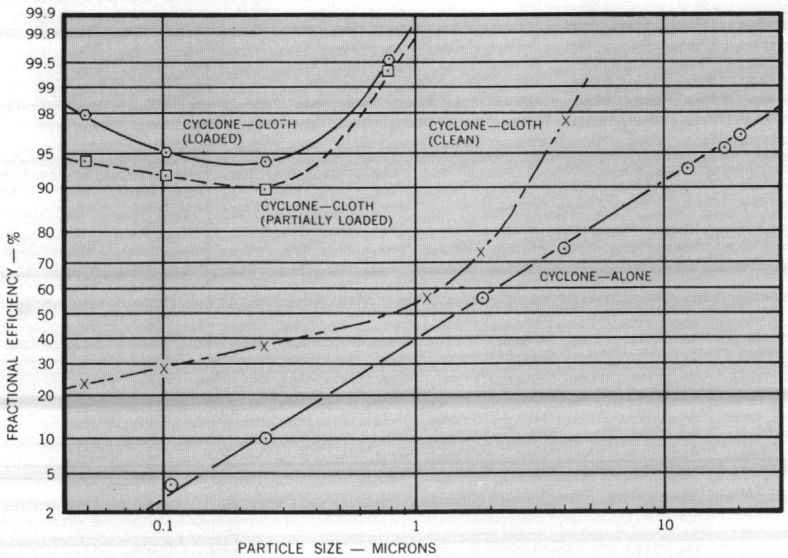
The fractional efficiency curve indicates Torit Fabric Filter type Dust Collectors are 98.4—99.75% efficient in removing uniform flows of 1.0 micron particulate and virtually 100% efficient at 2.0 microns. These Fabric Filters are recognized as the most efficient practical means known to man for removing fine particulate from industrial air or gas streams. The "new" curve is experienced only momentarily with brand-new filters. As soon as the permanent dust mat builds up on the filters, efficiencies reach the "normal operating range."

TORIT® HIGH-EFFICIENCY CYCLONE-TYPE COLLECTORS

Fractional efficiency curves are useful in measuring cyclone collection efficiencies, but are subject to more variable factors than when measuring fabric filter efficiencies. Cyclone efficiencies relate directly to the terminal velocity of the particle. Terminal velocity is defined as the air velocity below which the particle will fall out of the air stream. Size of the particle is only one of the important components of terminal velocity; hence, a comparison of particle sizes does not tell the whole story for cyclones.

Fractional efficiencies shown for fabric filters in chart 1 will apply to virtually any particle of the size indicated, regardless of the material involved. Fractional efficiencies shown for cyclones in chart 2 pertain directly only to particles of the material tested, fluorescent dye particles in this case, and are only approximations of cyclone efficiency on similar sized particles of other materials.

The Torit Engineering Laboratory will gladly analyze samples of any dust and report on expected cyclone efficiency for that material.



Fractional efficiency curves of cyclone-alone and cyclone with fabric after-filters (cyclone-cloth).

Collectors' items

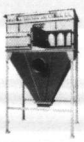
Torit collects airborne particles down to 0.5 microns at 99% efficiency. Your breath of fresh air...for labor, through increased comfort and decreased absenteeism...for you through meeting OSHA standards and...for management through energy savings, by re-cycling conditioned air, a feature available in most applications. For more information, look for Torit in the Yellow Pages under Dust Collection Systems, or write Greg McCormick, Torit Division, Donaldson Company, Inc., Box 1299, Minneapolis, MN 55440.

torit

Torit–leaders in control of in-plant air pollution.

An equal opportunity employer M/F

Welding Fumes. At Bowen-McLaughlin-York the exclusive Torit TD is making the air 60% cleaner and is projected to cut energy cost $70,000 a year. This is based on 27 collectors recirculating 364,000 cfm, and the cost of natural gas in the York, PA area for one heating season. Better yet, the total $1 million system is expected to pay for itself in less than 5 years.

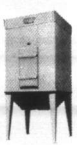


Model TD 6120

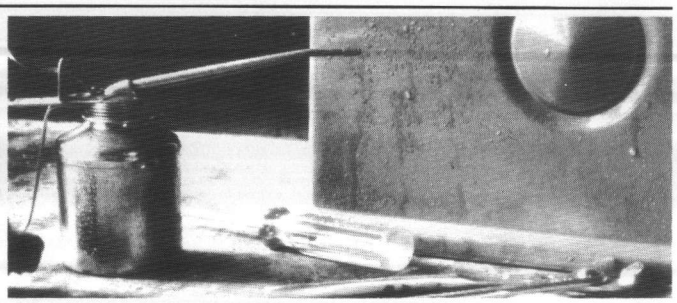
Dust. The Torit cabinet model combines high efficiency, easy portability, and usage flexibility. Only $28^{7}/_{16}$" square, it occupies a small floor space, and can be tucked into a cramped area near the dust source, moved when the dust source moves, and be used to recycle already conditioned air, offering additional operating economies.

Model 84

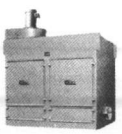
Metal Grindings. Torit Tube House Collectors combine mechanical intermittent self-cleaning with maximum filtering efficiency. Where permitted by law, already heated or cooled air is recirculated in-plant, adding additional operating economies.



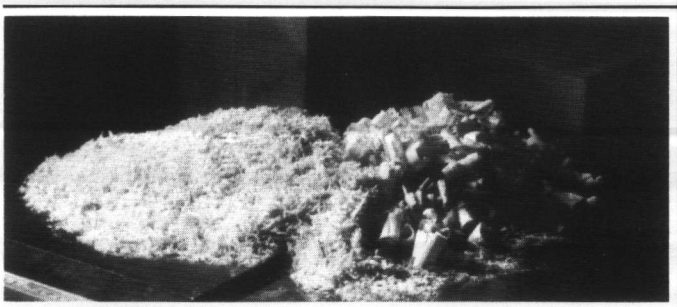
Model MIC 460



Mist. When coolant is used in grinding and polishing, this Torit maximum efficiency system can be a big help. It's designed to control water-soluble and petroleum-based mists that cling to walls, ceilings, floors, and equipment. It helps solve maintenance problems caused by wet-machining conditions, as well as improving work safety conditions.

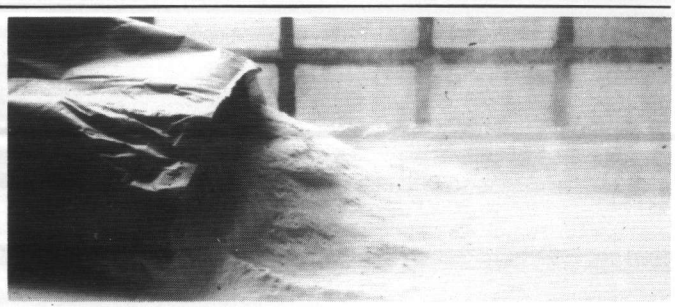


Model MC 4000



Wood Shavings. The Torit long tapering cone design and high inlet velocity makes for high efficiency, high proficiency, for such applications as furniture manufacturing, woodworking, school shops. Long-lasting service from sturdy steel construction. Weather-resistant finish available for outdoor installations.

Cyclone Model 30

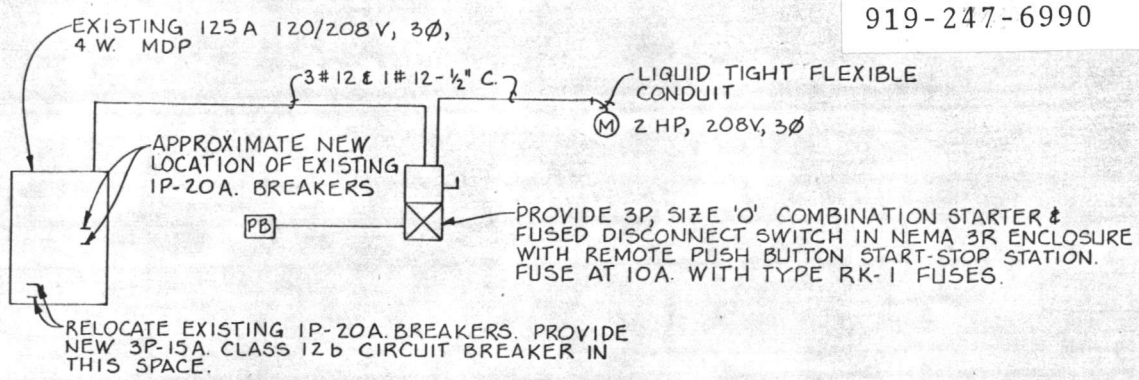


Powder. Where reclamation is important, such as in food and chemical industries, the Torit-Jet does the job. More importantly, it remains on-line while cleaning itself. The timer-solenoid system cleans each row of filter tubes in succession while the collector continues its operation. It also, of course, clears the air of nuisance powder.

Model TJ 1080

RETRAC ELECTRIC
RT. 1 BOX 462-C
NEWPORT, NC 28570

Ben Carter
919-247-6990



A ME-8 ME-8 ELECTRICAL RISER DIAGRAM
NO SCALE

EQUIPMENT SCHEDULE

DUST COLLECTOR

FAN MOTOR	2 HP
ELECTRICAL	208 VOLT, 3 PHASE
FAN DRIVE	DIRECT
AIR QUANTITY	1050 CFM
EXT. STATIC PRES.	4.6 INCHES WATER
HOPPER SIZE	37 CUBIC FOOT

AFTER FILTER

FILTER CAPACITY	1050 CFM
FILTER AREA	70 SQ. FT.
BAG NUMBER	4
BAG SIZE	11.5" DIA. X 70"
DUST BIN SIZE	3.75 CUBIC FOOT
AIR TO CLOTH RATION	15:1

SCHEDULE OF EQUIPMENT TO BE EXHAUSTED

EQUIPMENT NUMBER	DESCRIPTION OF EQUIPMENT	C.F.M.	DUCT SIZE	DETAIL NUMBER
B	10" TABLE SAW	350	5" DIA	C
D	12" RADIAL ARM SAW	350	5" DIA	B
G	6" JOINTER	350	5" DIA	D
K	FLOOR SWEEP	750	6" DIA	G