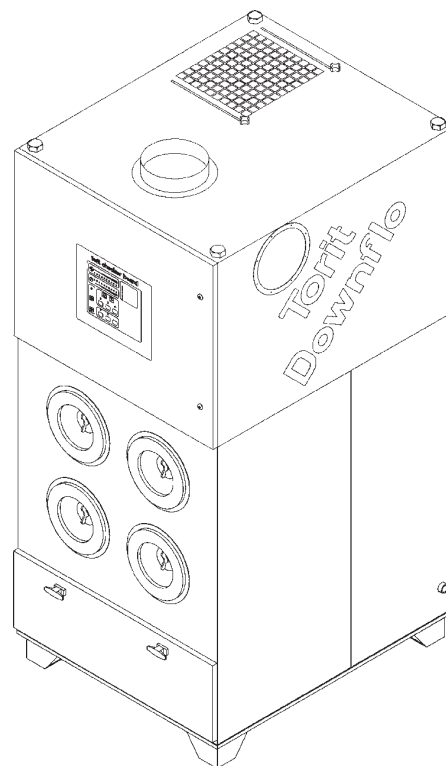
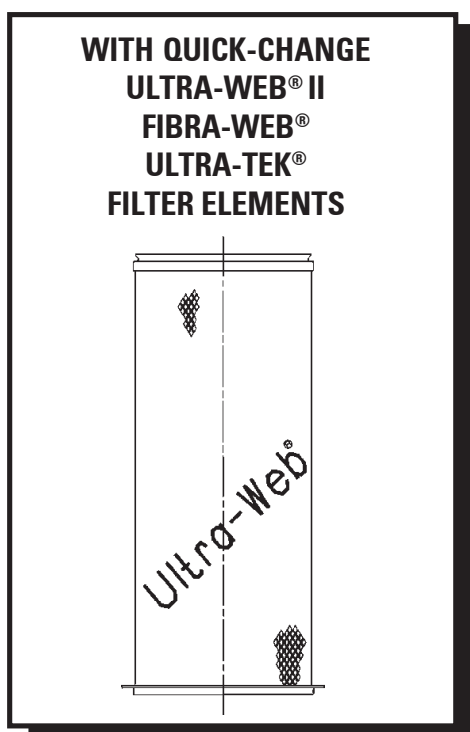


# Torit® Installation and Operation Manual

**FOR TORIT FILTER CARTRIDGE SYSTEM DUST COLLECTORS**

Torit Downflo® Models SDF-2, SDF-4, SDF-6

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. 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.

### NOTE

Statements indicate precautions necessary to avoid potential equipment failure.

### CAUTION

Statements indicate potential safety hazards.

## CAUTION

### Application of Dust Control Equipment:

- Special care must be exercised in the use of dust collection equipment when combustible equipment, such as buffing lint paper, wood dust, aluminum, and magnesium are present. These materials may present a fire or explosion hazard. A prudent user of Torit equipment should consult and must comply with all National and Local Fire Codes and/or other appropriate codes when determining the location and operation of dust collection equipment.
- Under no conditions should anyone, including the machine operator, be allowed to put burning objects or lit cigarettes into the hood or ducting of any dust control system.
- Avoid mixing combustible materials with dust generated from grinding of ferrous metals due to the potential fire hazard caused by sparks being pulled into the dust collection equipment.
- When collection equipment is used to collect flammable or explosive dusts, the dust collection equipment 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 recommendations and installation of the proper fire extinguishing equipment. Torit equipment does NOT contain fire extinguishing equipment.
- Explosion relief vents are required on some applications. Consult with an insurance underwriter or a NFPA Manual to determine proper vent sizing requirements. Vents installed on dust collection equipment within a building must relieve to the outside of the building to minimize chances of a secondary explosion. Consult the proper authority to determine proper method of venting the dust collection equipment. Torit equipment does NOT contain explosion relief vents, except on special order.
- To insure optimum collector performance, always use Torit-Built® replacement filters.

TORIT PRODUCTS is the leading designer and manufacturer of dust collector systems for the control of industrial air pollution. Its systems are designed to help reduce occupational hazards, lengthen machine life, reduce in-plant maintenance requirements, and improve product quality.

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## Data Sheet

\* Magnehelic and Photohelic are registered trademarks of Dwyer® Instruments, Inc..

Customer Name \_\_\_\_\_

Address \_\_\_\_\_

Shipping Date \_\_\_\_\_ Installation Date \_\_\_\_\_

Model Number \_\_\_\_\_ Serial Number \_\_\_\_\_

Filter Medium \_\_\_\_\_

Accessories \_\_\_\_\_

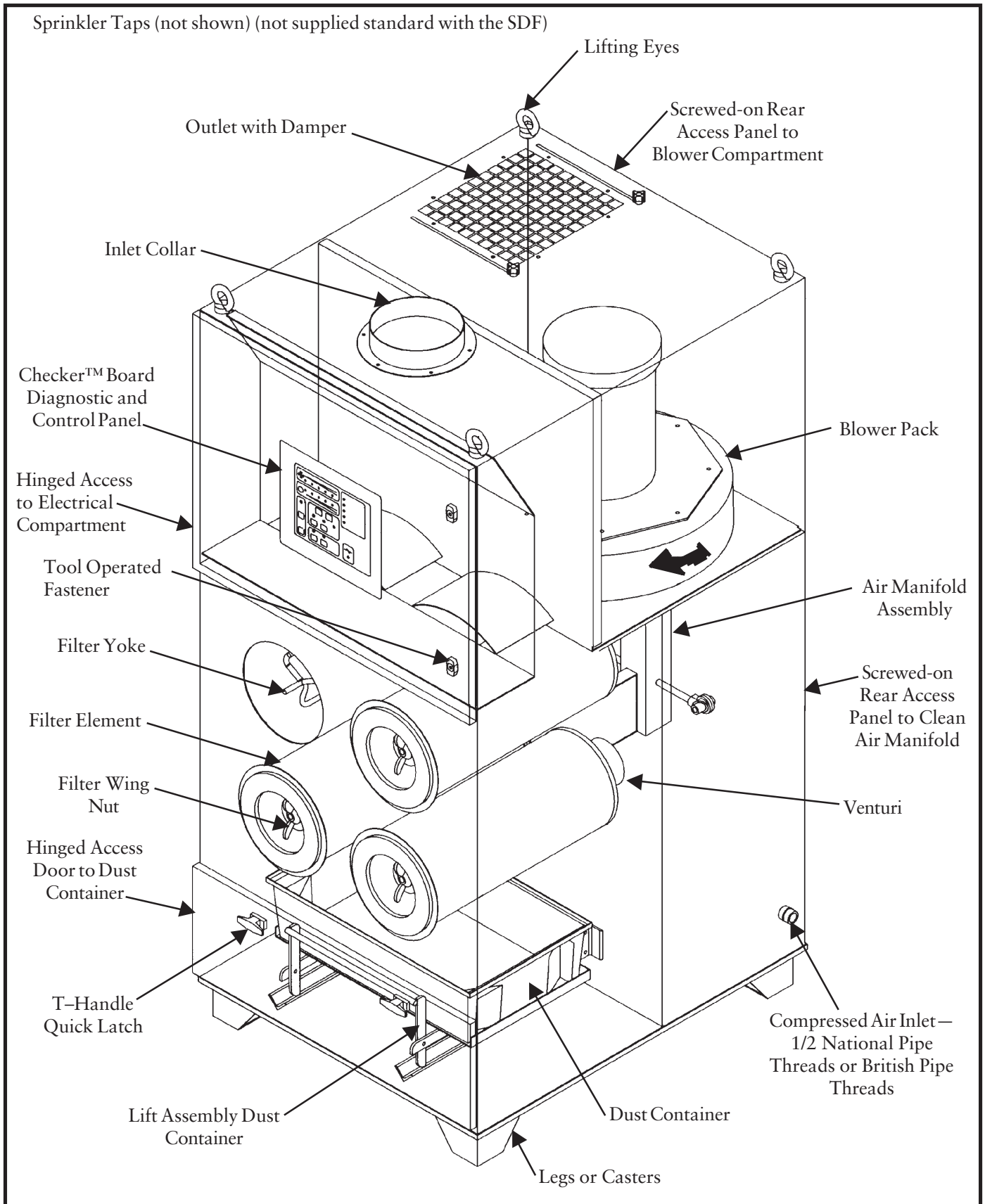
Other \_\_\_\_\_

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**Figure 1**  
**SDF-4 Phantom View**

## 1.0 Introduction

The Torit® Downflo® model SDF dust collector is used for the collection of airborne dust and particulate. The model SDF collector provides highly efficient, continuous, on-line dust collection.

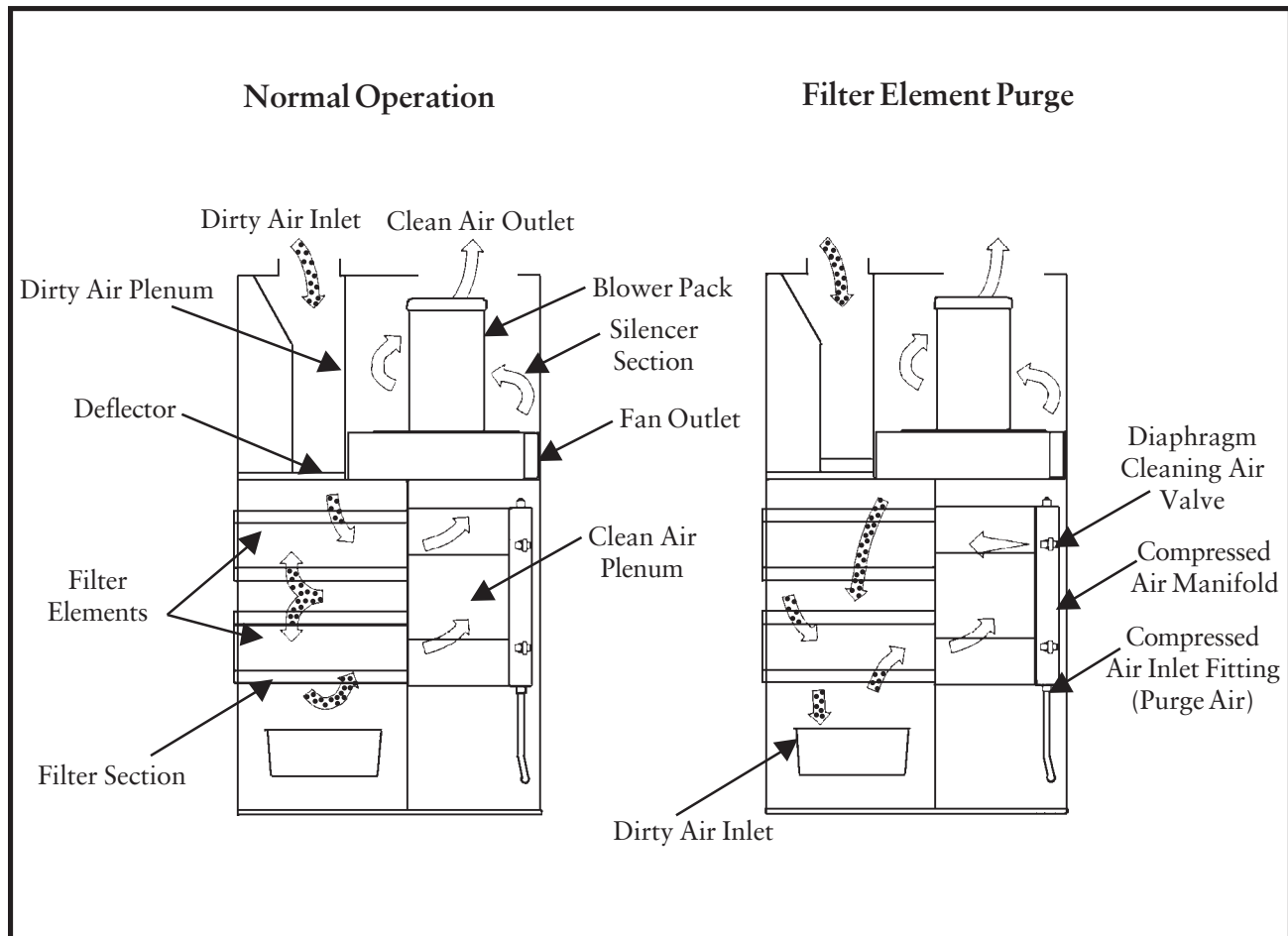
The Torit-Built® filter elements are the heart of the model SDF dust collector. These filter elements help ensure that clean air is returned to the plant environment.

Technical and field support are always available from your local Torit representative and distributors.

## 1.1 Operational Explanation (See Figure 2 Operational Schematic)

### 1.1.1 Normal Operation

During normal operation, contaminated air enters through the top inlet area and passes down and through the filter elements. Dust is collected on the outside surface of the filter elements. The clean, filtered air flows through the center of the filter elements and into the clean air plenum, where it exits through the clean air outlet.



**Figure 2**  
**Operational Schematic**

### 1.1.2 Filter Cleaning

Filter elements are cleaned automatically and sequentially. The result is that only one filter cartridge will be off-line for cleaning at any given time.

During the filter element cleaning purge, a solenoid valve is energized, causing the corresponding diaphragm valve to send a pulse of compressed air through the filter element (from the inside outward), removing the collected dust from the outside surfaces of the filter element. The dust falls into the dust storage container.

## 2.0 Installation

### 2.1 Inspection

The Downflo SDF is normally shipped by common carrier and should be checked for damage that may have occurred en route. Any damage should be noted and the carrier notified immediately.

### 2.2 Ship Loose Items

Items shipped loose with the dust collector may include:

- Bag-out Assembly
- Inlet Collar
- Compressed Air Inlet Adapter
- (4) Leveling Mount Foot Pads
- (4) Metric Hex Bolts
- Hopper
- Legs and Crossbracing
- Outlet Adapters
- Auto-Lok/Ultra-Lok/HEPA/Carbon Filter
- Remote Checker Board/  
Magnehelic Gage/Photohelic Gage
- Slide Gate/55-Gallon Drum Cover Pack
- 5-Gallon Pail Pack
- Flex-Trunk Assembly
- Weather Hood
- Explosion Vents

Most cabinets are shipped completely assembled with the filter cartridges installed.

## 2.3 Equipment/Tools Required

The following is a list of typical tools and equipment required to install and assemble a Downflo SDF unit.

- Crane/Lift Truck
- Pipe Wrenches
- Socket Wrenches
- Pipe Sealant

## 2.4 Assembly of Standard Equipment

### NOTE

A crane or forklift truck is recommended for the unloading of the dust collector.

### CAUTION

- Connect lifting slings to the four lift lugs on top of the dust collector when using a crane to unload the unit.
- Insert the fork under the dust collector between the casters or legs when using a forklift truck to unload the unit.

Remove all crating and strapping from the unit. Remove all miscellaneous parts (bolts, nuts, etc.) before lifting the unit off of the truck. Check the parts received against the packing list. If there are parts missing, the carrier and your local Torit representative should be notified immediately.

### NOTE

If the lift lugs are removed, they must be replaced with the four (4) metric hex bolts (provided) before the dust collector is operated.



## 2.5 Assembly of Optional Equipment

### 2.5.1 Compressed Air Inlet Adapter (See Figure 3 Compressed Air Inlet Adapter)

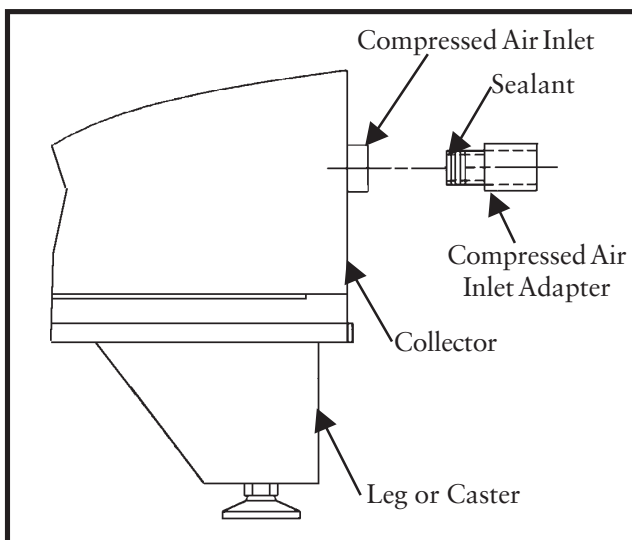
The compressed air inlet adapter is used for converting the compressed air inlet from National Pipe Threads to British Pipe Threads. Install the compressed air inlet adapter as shown in Figure 3 Compressed Air Inlet Adapter. Use thread-sealing tape or pipe sealant on the threaded adapter before screwing it into the compressed air inlet.

### 2.5.2 Leg Levelers (See Figure 4 Leg Levelers)

The leveling mount foot pads screw into the bottom of the collector legs as illustrated in Figure 4 Leg Levelers.

### 2.5.3 Inlet Collar (See Figure 5 Inlet Collar)

Place 1/4" diameter sealant between the cabinet side or top and the inlet collar. Attach the collar using the eight (8) #6-32 thread cutting screws provided.



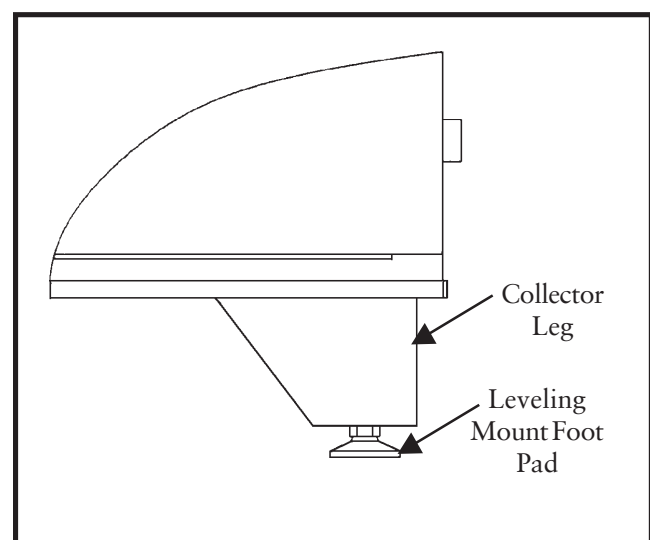
**Figure 3**  
**Compressed Air Inlet Adapter**

### 2.5.4 Adapter to Round Outlet (See Figure 6 Adapter Pack to Round Outlet)

Place the 3/16" x 1/2" rubber seal between the cabinet top and the outlet adapter. Attach the outlet adapter to the cabinet using the clamp hook, wing nut, and washer as shown. The sliding damper will still operate with this adapter.

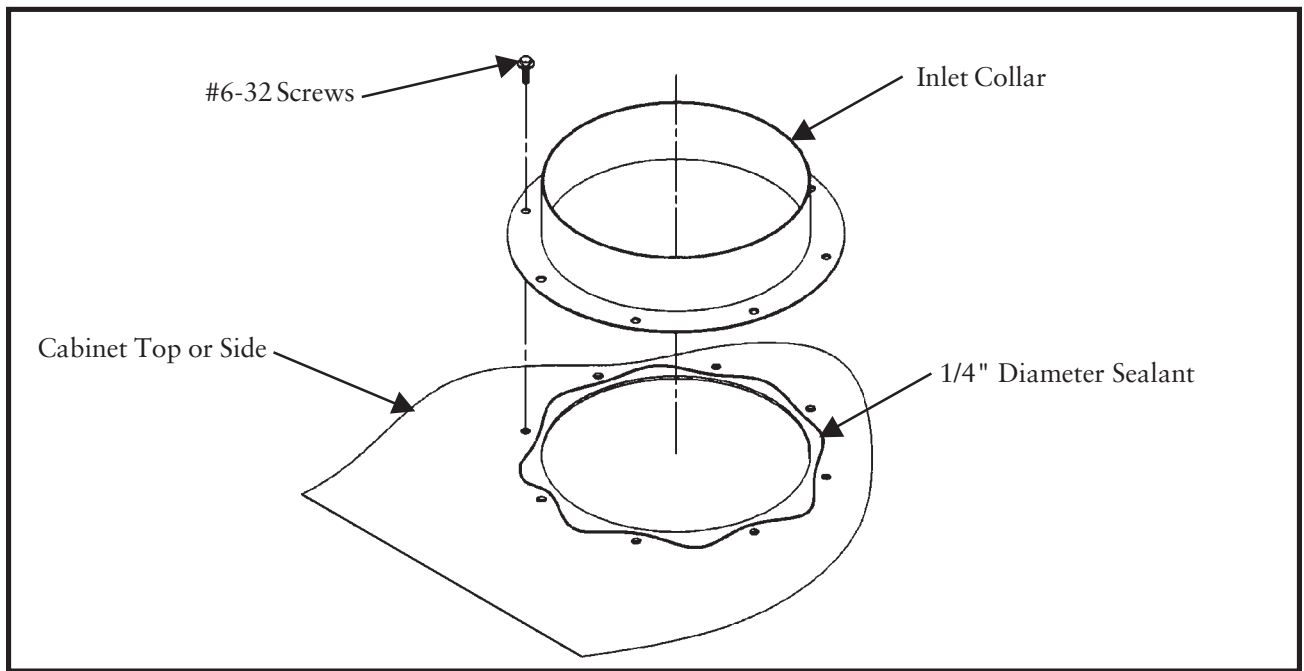
### 2.5.5 Adapter Auto-Lok / Ultra-Lok (See Figure 7 Adapter Pack Auto-Lok / Ultra-Lok )

Remove the lift lug on the cabinet top and replace it with the set screw. Place the 3/16" x 1-1/4" gasket between the cabinet top and the adapter. Attach the adapter to the cabinet top using the clamp hooks, wing nuts, and washers as shown. Place the 3/8" x 1-1/4" gasket between the adapter and the Auto-Lok or Ultra-Lok filter as shown. Use the 10-24 x 7/16 screws to attach the filter to the adapter. The sliding damper will not operate with these adapters.

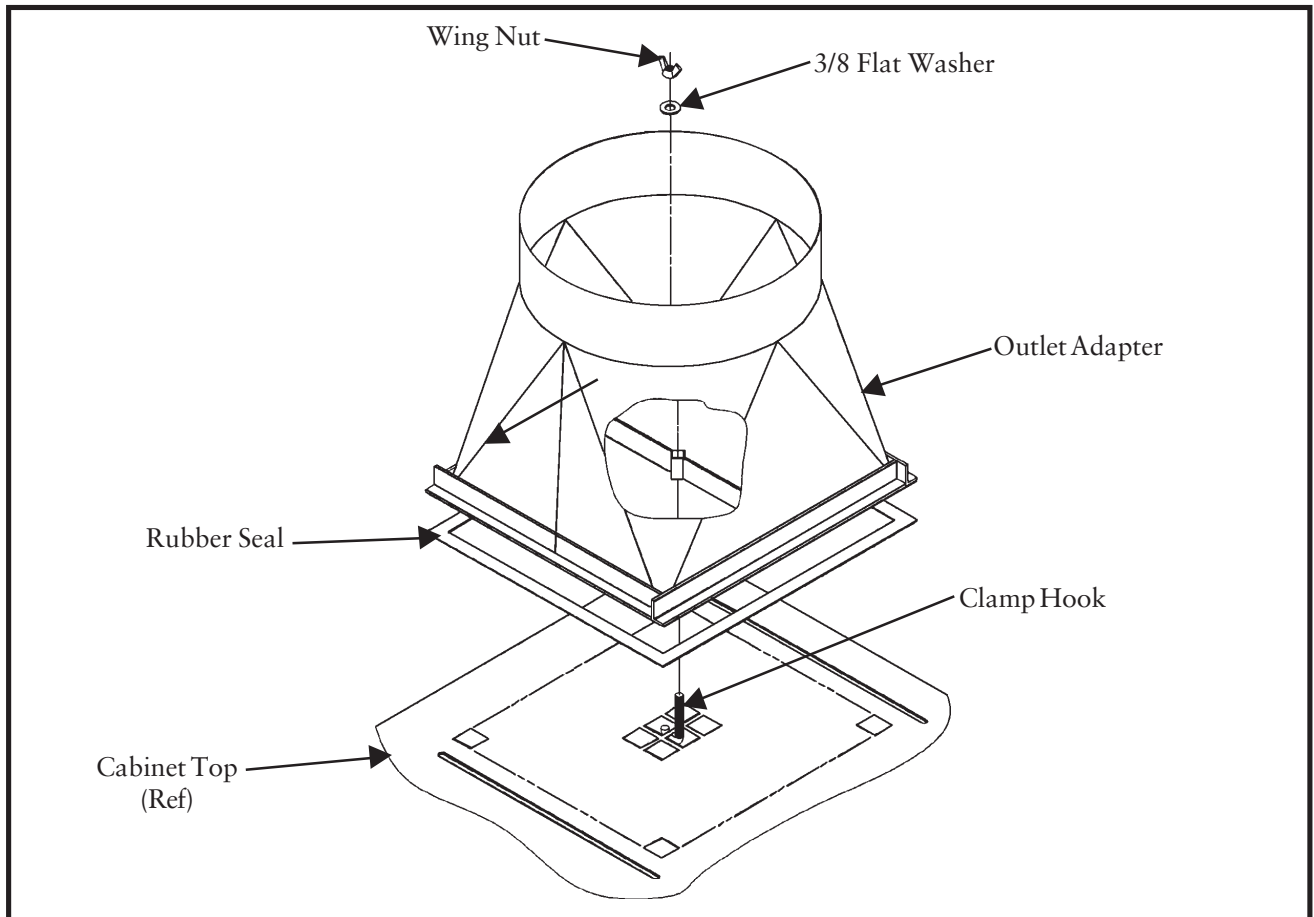


**Figure 4**  
**Leg Levelers**

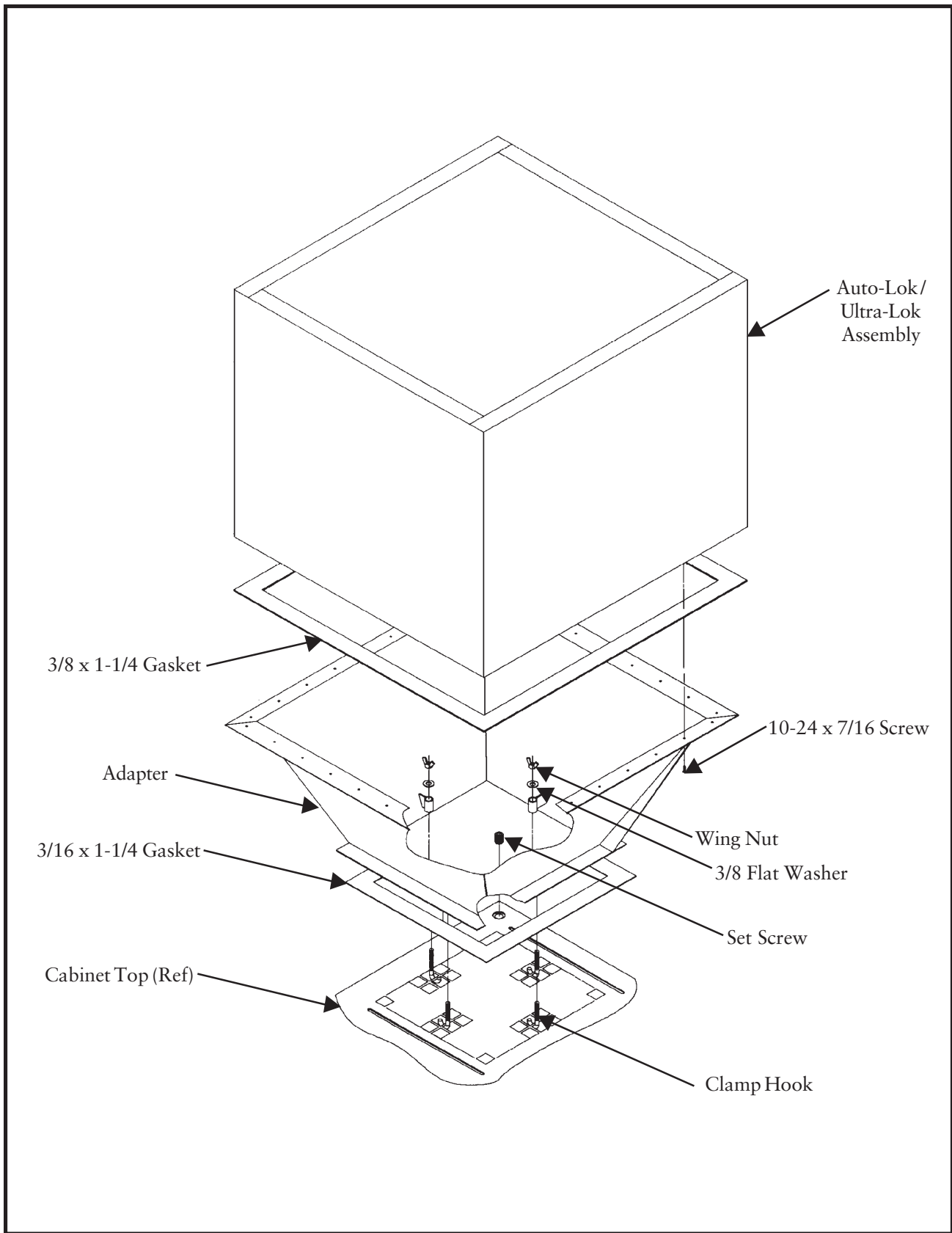




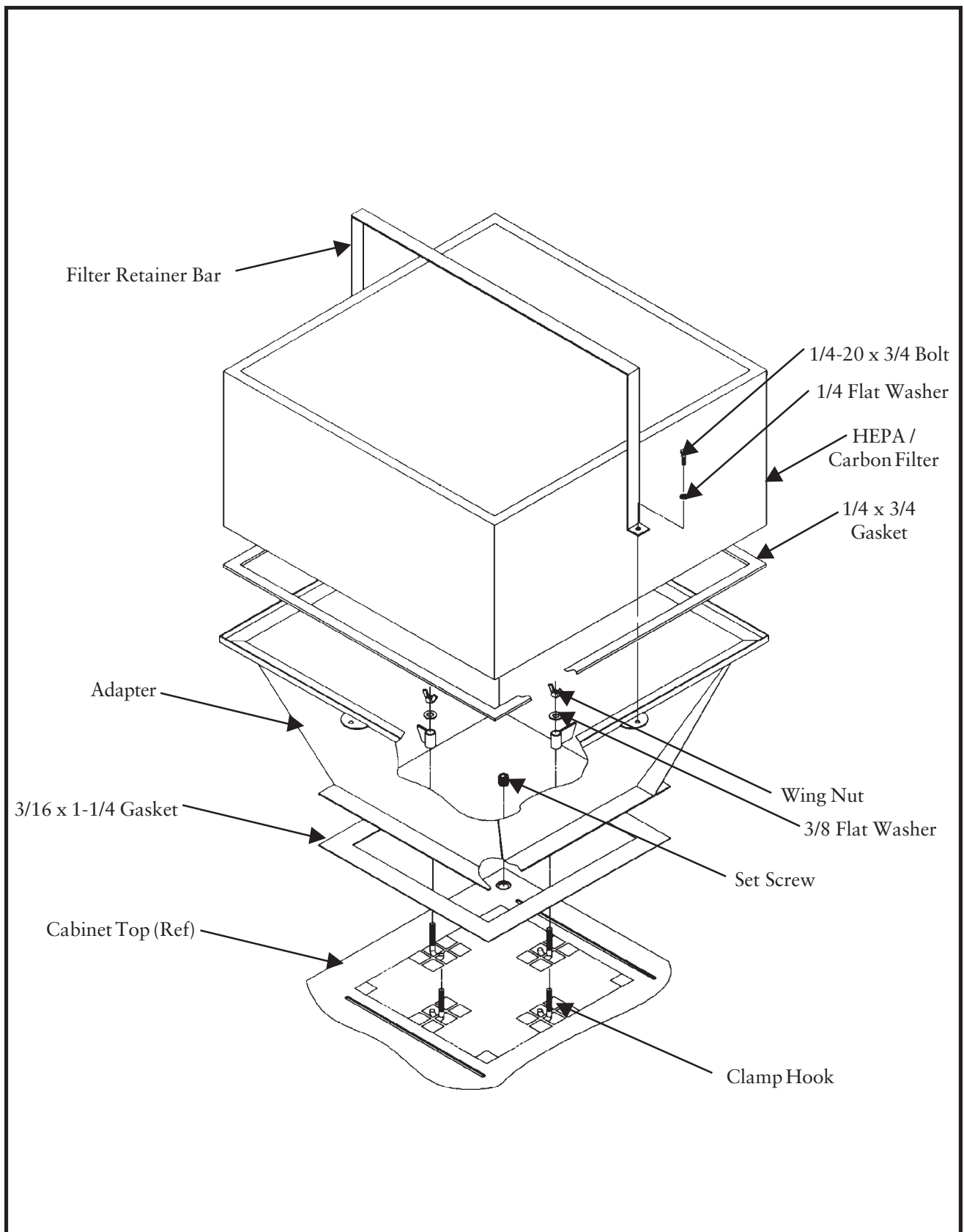
**Figure 5  
Inlet Collar**



**Figure 6  
Adapter Pack to Round Outlet**



**Figure 7**  
**Adapter Pack Auto-Lok / Ultra-Lok**



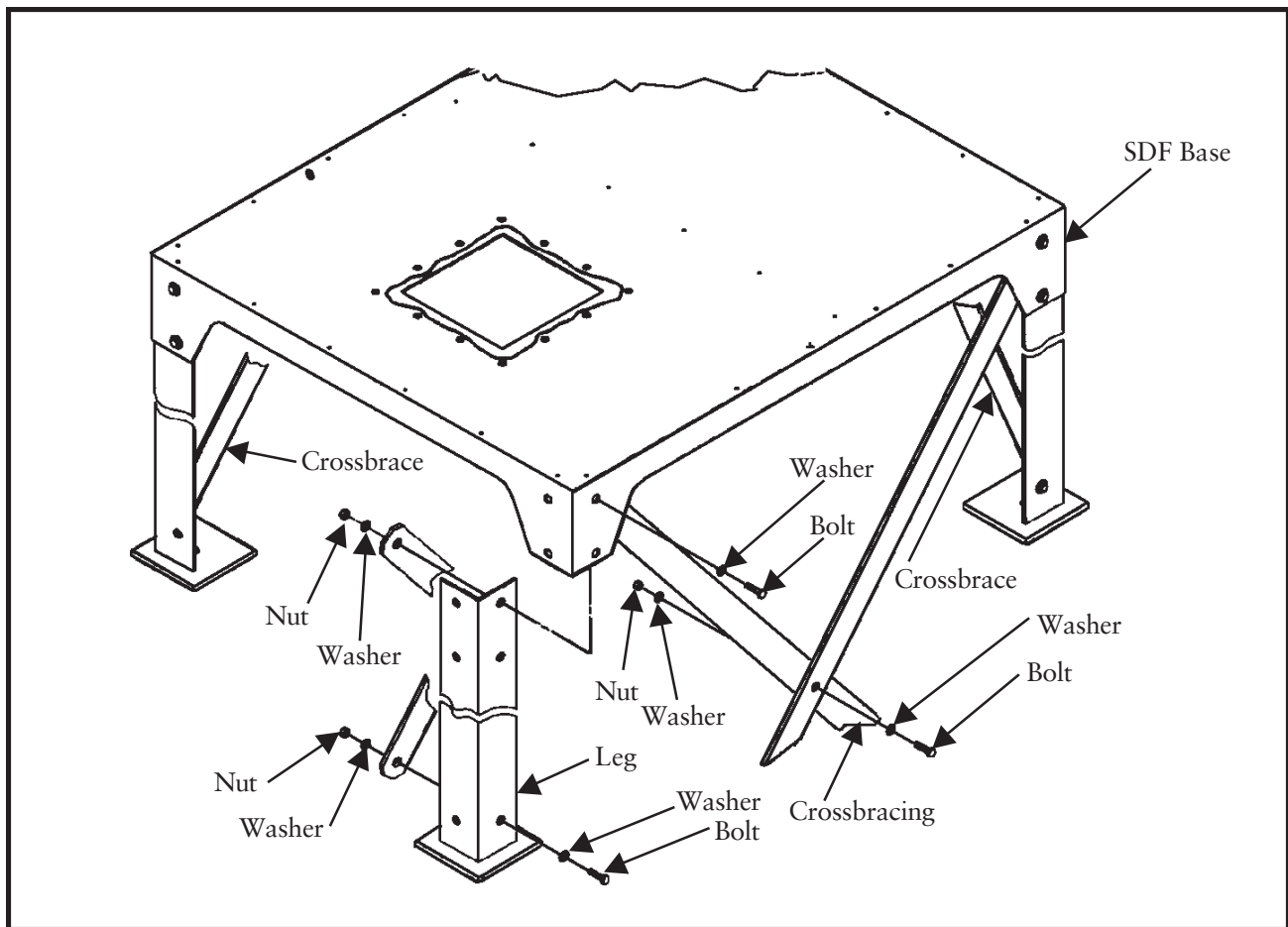
**Figure 8**  
**Adapter Pack HEPA / Activated Carbon**

### 2.5.6 Adapter HEPA / Activated Carbon (See Figure 8 Adapter Pack HEPA / Activated Carbon)

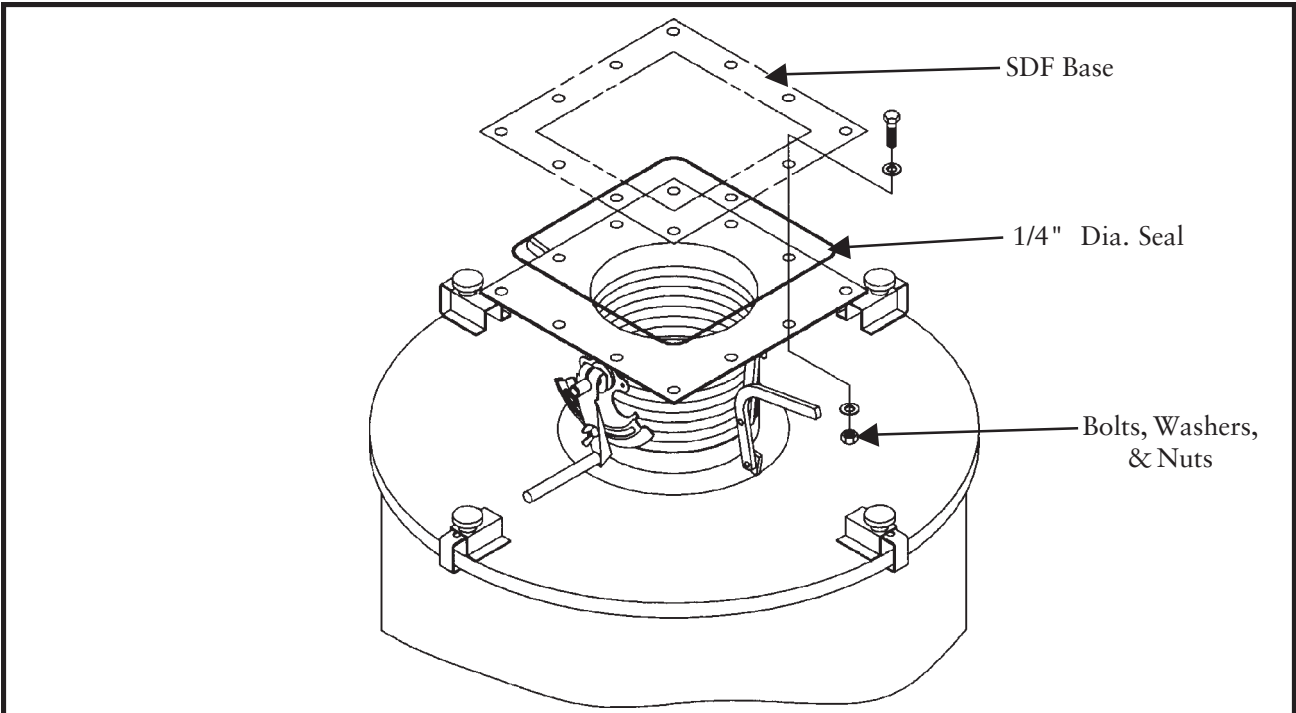
Remove the lift lug on the cabinet top and replace it with the set screw. Place the 3/16" x 1-1/4" gasket between the cabinet top and the adapter. Attach the adapter to the cabinet using the clamp hooks, wing nuts, and washers as shown. Place the 1/4" x 3/4" gasket between the adapter and the HEPA or Activated Carbon filter as shown. Use the filter retainer bar and the 1/4" bolts and washers to attach the filter to the adapter. The sliding damper will not operate with these adapters.

### 2.5.7 Leg Pack SDF (See Figure 9 Leg Pack SDF)

The SDF units that are not furnished with a dust container will have an internal hopper with a base to attach to legs and crossbracing. Assemble the legs and crossbracing to the SDF base as shown in Figure 9 Leg Pack SDF. The 55-gallon drum pack leg crossbraces should be installed on the three sides only, in order to allow access to the drum. The 5-gallon pail pack does not require crossbracing.



**Figure 9**  
**Leg Pack SDF**

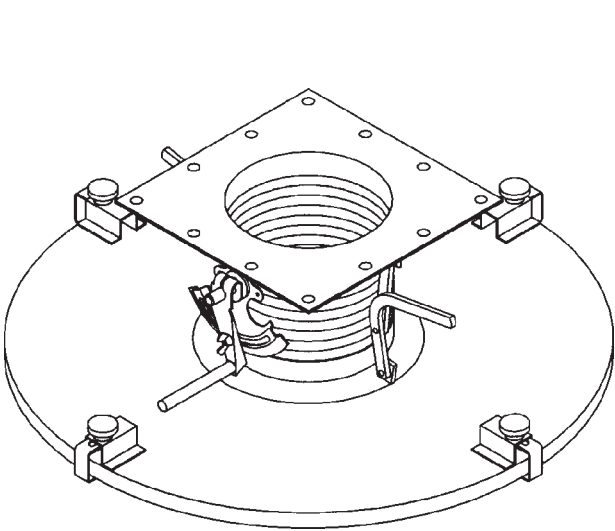


SDF Base

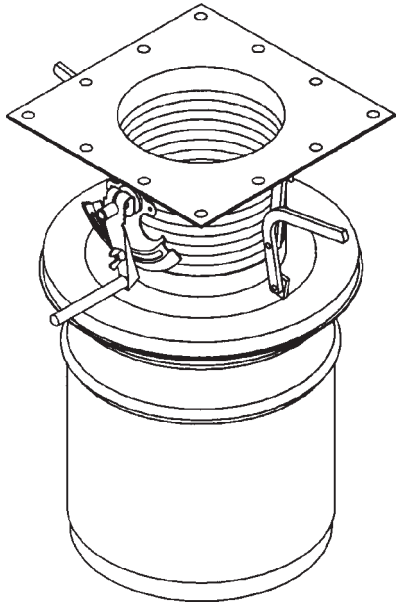
1/4" Dia. Seal

Bolts, Washers,  
& Nuts

Attach to SDF Base as Shown

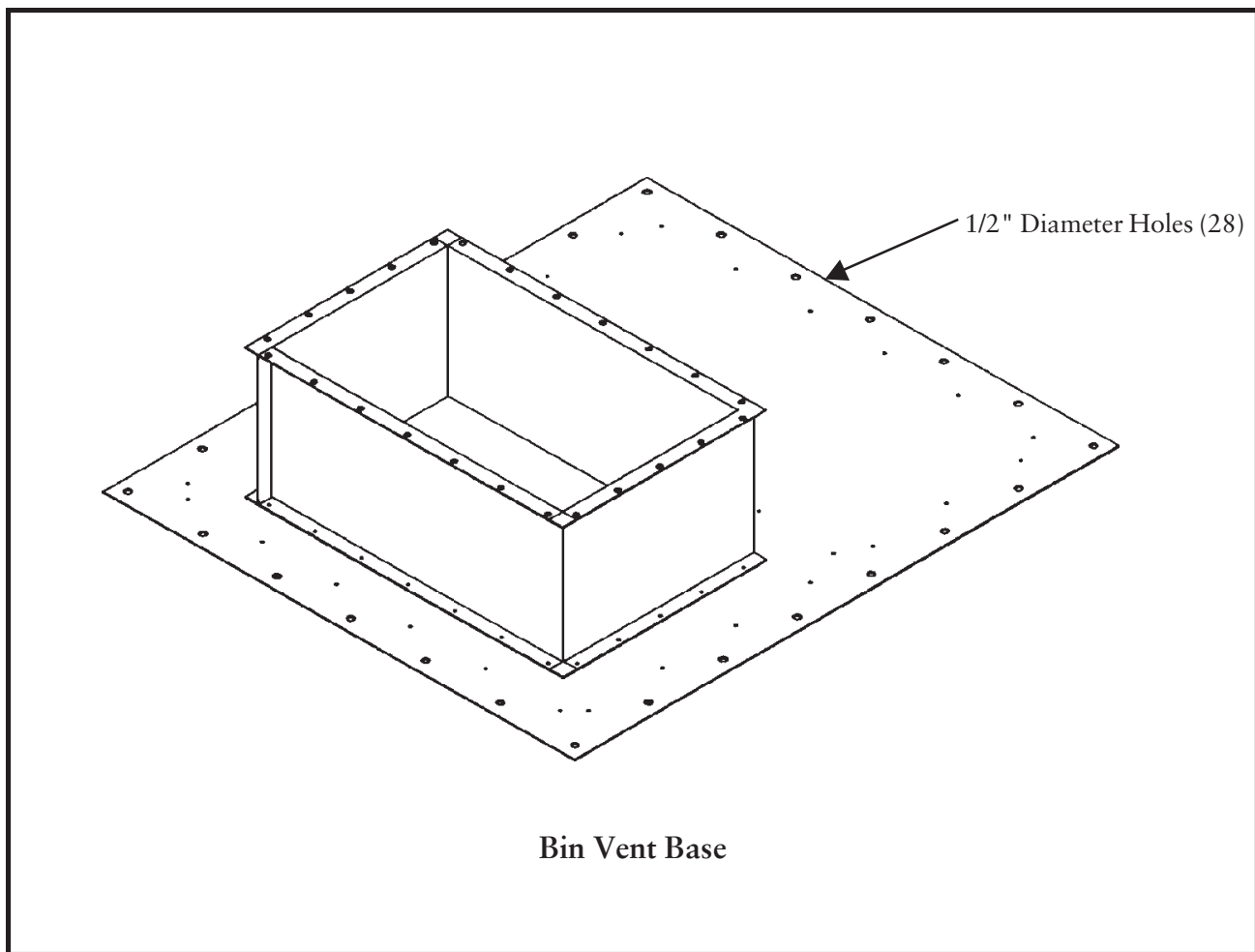


55-Gallon Drum Pack  
With or Without Gate  
With or Without Latches



5-Gallon Pail Pack  
With or Without Gate

**Figure 10**  
**55-Gallon Drum Pack and 5-Gallon Pail Pack**



**Figure 11**  
**Bin Vent Base Pack**

**2.5.8 55-Gallon Drum Pack**  
(See Figure 10 55-Gallon Drum Pack and 5-Gallon Pail Pack)

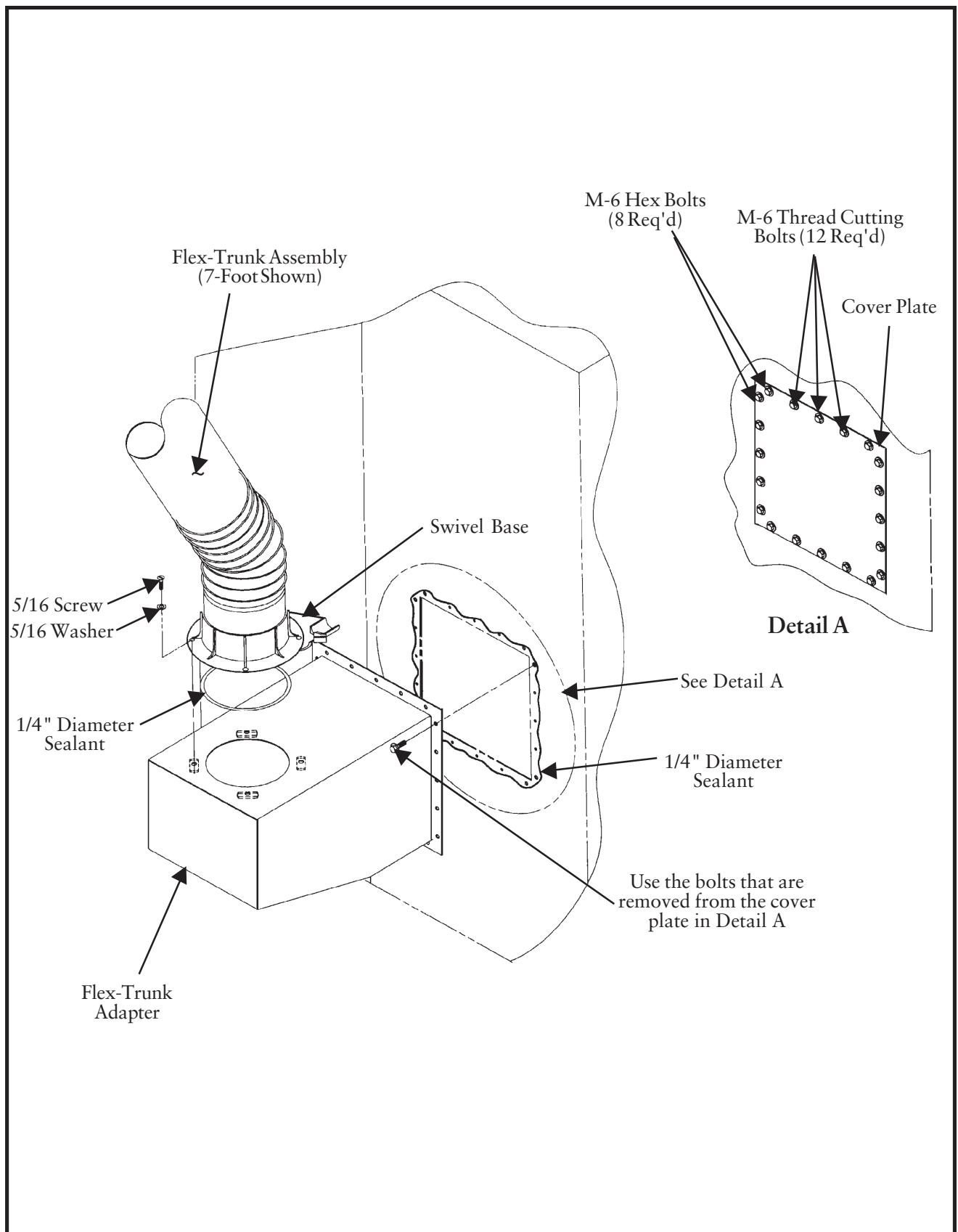
The 55-gallon drum cover and the 55-gallon drum cover with gate can be attached to the base as shown in Figure 10 55-Gallon Drum Pack and 5-Gallon Pail Pack. Use the existing bolts, washers, and nuts that are on the base. Access to the bolts is through the hinged door. Be sure to use sealant to seal between the drum cover and the base.

**2.5.9 5-Gallon Pail Pack**  
(See Figure 10 55-Gallon Drum Pack and 5-Gallon Pail Pack)

Attach the 5-gallon pail cover and the 5-gallon pail cover with gate as shown in Figure 10 55-Gallon Drum Pack and 5-Gallon Pail Pack.

**2.5.10 Bin Vent Base Pack**  
(See Figure 11 Bin Vent Base Pack)

The Bin Vent pack for the SDF consists of a base, as shown in Figure 11 Bin Vent Base Pack. The Bin Vent base has twenty-eight (28) 1/2" diameter holes for attachment in the field.



**Figure 12**  
**Flex-Trunk Assembly 7-Foot/10-Foot SDF**



### 2.5.11 Flex-Trunk Assembly 7 Ft/10 Ft (See Figure 12 Flex-Trunk Assembly)

Remove the cover plate bolts and the cover plate from either the right or left side of the SDF cabinet. Using the same cover plate bolts, attach the Flex-Trunk Adapter to the side of the SDF cabinet. Be sure to place 1/4" diameter sealant between the adapter and the cabinet, as shown in Figure 12 Flex-Trunk Assembly. Next, attach the Flex-Trunk assembly to the adapter, being sure to install more 1/4" sealant between the adapter and the Flex-Trunk assembly. With the swivel base positioned as shown in Figure 12 Flex-Trunk Assembly, secure the Flex-Trunk to the adapter using the four (4) 5/16 slotted screws and lock washers. For the adjustment and operation of the Flex-Trunk, see the Installation and Operation Manual for the Flex-Trunk IOM-40779-00.

### 2.5.12 Weatherhood Pack (See Figure 13 Weatherhood Pack)

Remove the bolts and the rear access panel to the SDF. If the SDF is equipped with an outlet damper (see Figure 1 SDF-4 Phantom View), this damper must be removed. The weather hood cannot be used with the outlet damper. Also, remove the lift lug from the corner of the cabinet and replace it with the M-16 set screw provided. Place 1/4" diameter sealant between the cabinet top and the weatherhood. Position the weatherhood over the cabinet outlet, as shown in Figure 13 Weatherhood Pack, and attach the weather hood to the cabinet using the four M-6 bolts provided. These bolts should be inserted through the slots on the cabinet roof and screwed into the weld nuts on the weatherhood. Replace the rear access panel and bolts.

### 2.5.13 Explosion Vent Cabinet (See Figure 15 SDF-4 with Explosion Vents—Phantom View)

When explosion vents are furnished on an SDF, a special cabinet is required (see Figure 15 SDF-4 with Explosion Vents—Phantom View). Some features on this cabinet include:

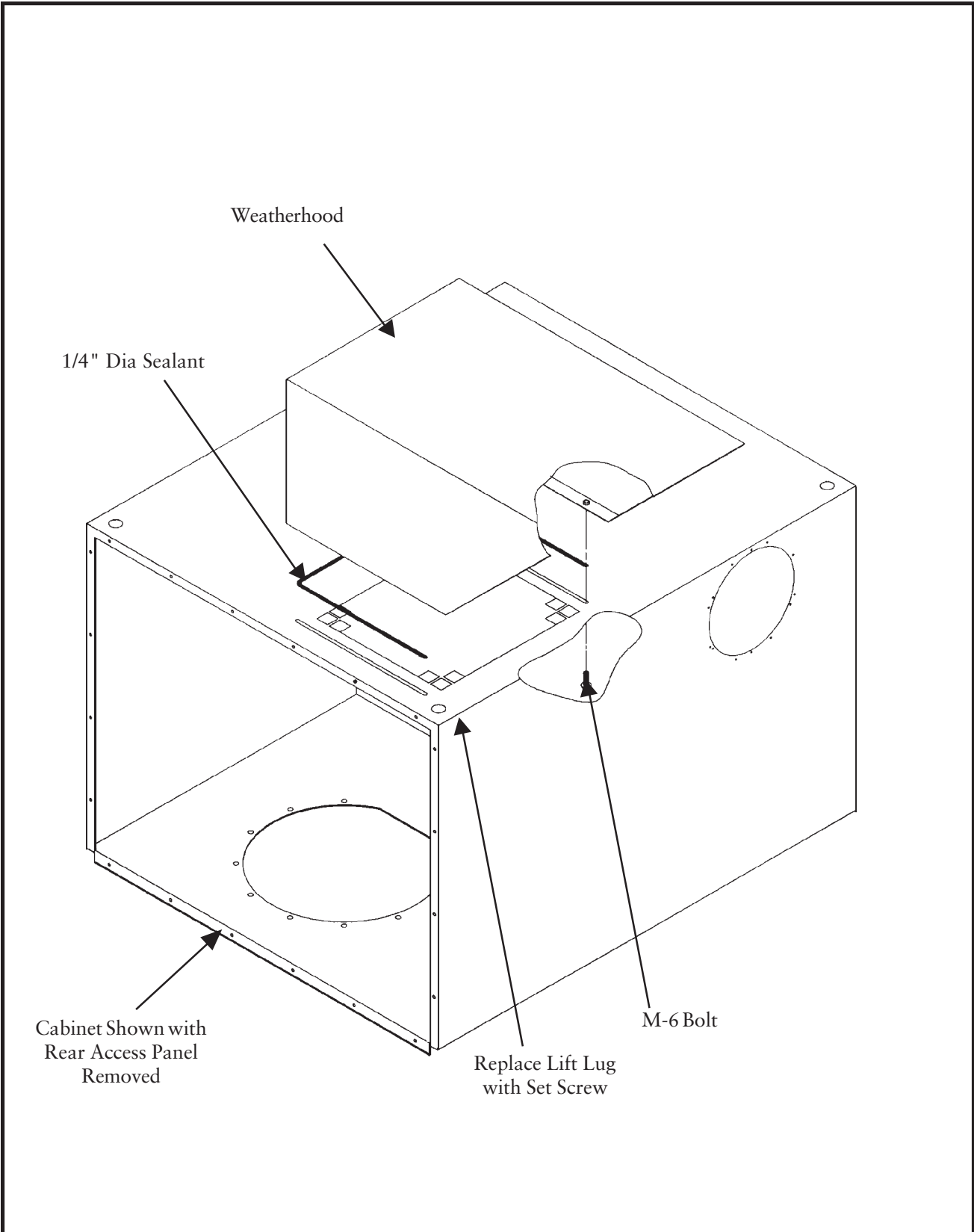
- A hinged access door to the dust container with threaded handles and a reinforcing bar.
- Two 1/8" NPT couplings for dirty air (high pressure) and clean air (low pressure) fittings.
- Two 3/4" NPT couplings for electrical connections.
- Openings for two 12 x 12 explosion vents.

Options available with this SDF cabinet in addition to the 12 x 12 explosion vents include:

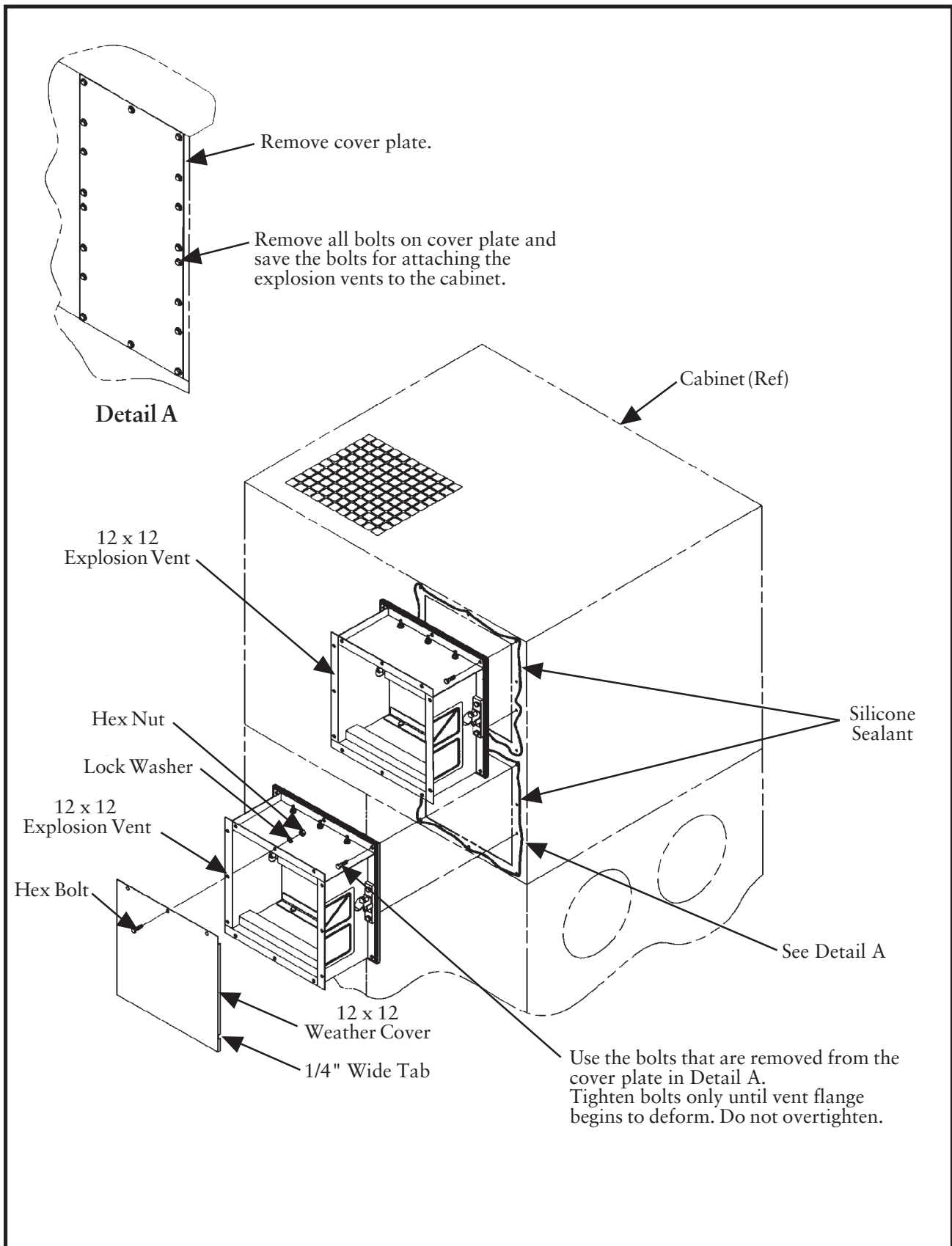
- Explosion-Proof Motors.
- Aluminum Blower Wheels.
- NEMA 9 Explosion-Proof Solenoid Enclosures.
- Checker board in remote enclosure with unwired electrical only.

#### **NOTE**

- **Explosion vent SDF units do not contain an electrical compartment. They are furnished from Torit unwired.**
- **All electrical work must be done by a qualified electrician according to local codes.**

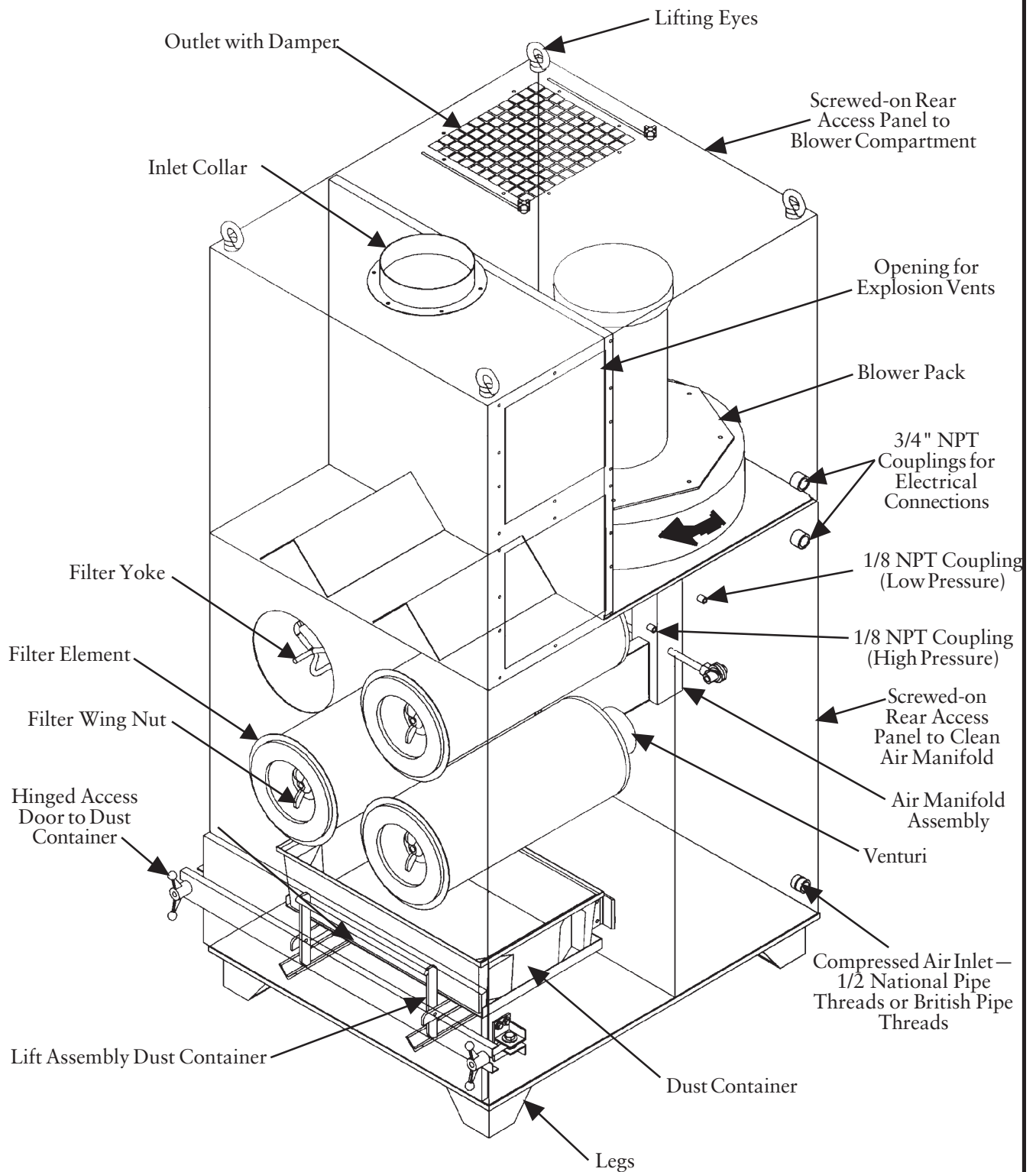


**Figure 13**  
**Weatherhood Pack**



**Figure 14**  
**Explosion Vent Pack**

Sprinkler Taps (not shown) (not supplied standard with the SDF)



**Figure 15**  
**SDF-4 with Explosion Vents Phantom View**

### 2.5.13 Explosion Vent Pack (See Figure 14 Explosion Vent Pack)

Remove the cover plate bolts and the cover plate from the side of the SDF cabinet. Using the same cover plate bolts, attach the 12 x 12 explosion vents to the side of the SDF cabinet. Be sure to apply silicone sealant between the bolted flanges and the cabinet, as shown in Figure 14 Explosion Vent Pack. Tighten the bolts only until the vent frame flange starts to bend. Do not overtighten.

The 12 x 12 weather cover should be used for outside applications. Apply silicone sealant only along the bolted flange of the weather cover. Attach the weather cover to the explosion vent flange using bolts, lock washers and nuts as shown. Also bend the 1.4 inch wide tab 180 degrees over and press firmly against the explosion vent frame. Do this on both sides of the weather cover.

For operating precautions, technical data and rearming instructions for the explosion vents, see the Torit Explosion Vent Manual IOM-72087-01.

#### **CAUTION**

- Explosion relief vents are required on some applications.
- Consult with an insurance underwriter or a NFPA Manual to determine proper vent sizing requirements.
- Vents installed on dust collection equipment within a building must relieve to the outside of the building to minimize chances of a secondary explosion.
- Consult the proper authority to determine proper method of venting the dust collection equipment.
- Torit equipment does NOT contain explosion relief vents, except on special order.

#### **CAUTION**

Remote controls are required for units handling combustible or explosive dusts.

## 2.6 Electrical Installation

The Downsized Downflo dust collector is available with four versions of electrical components:

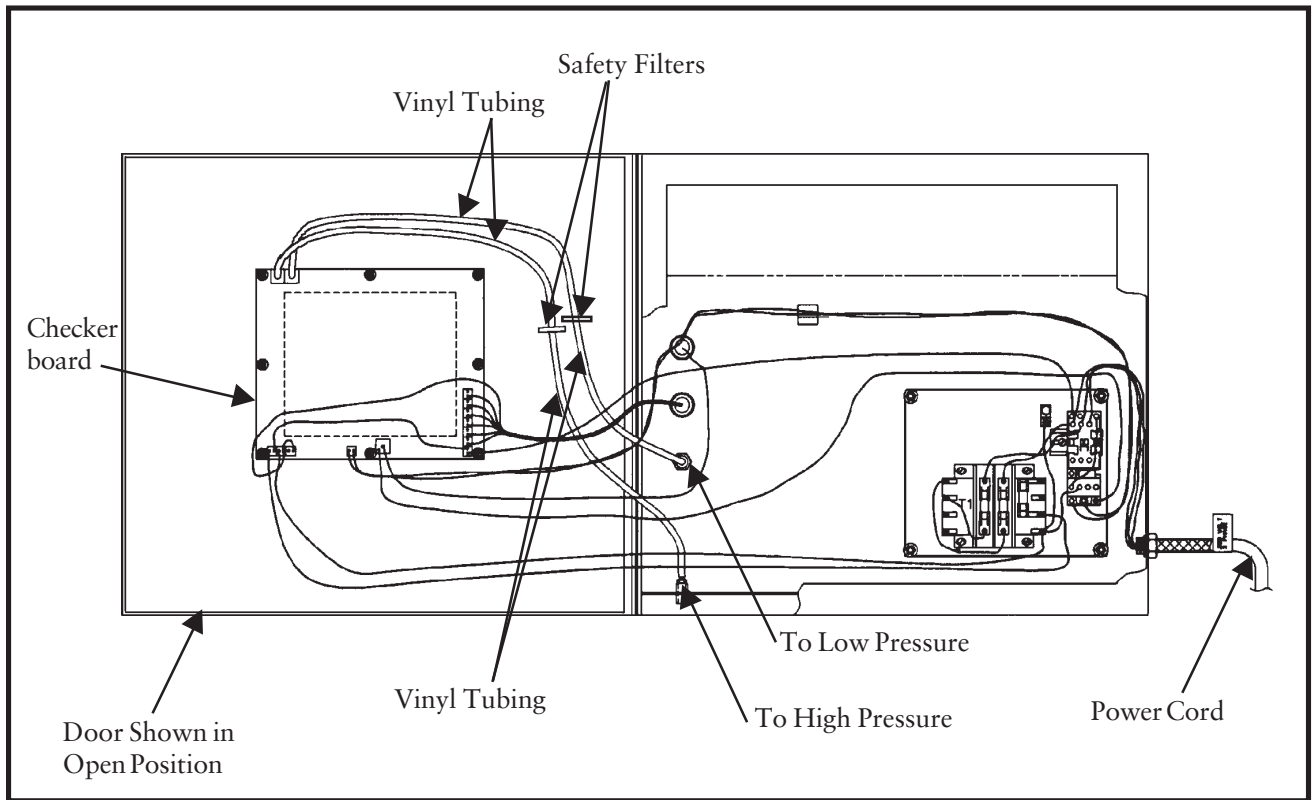
1. Pre-wired with the Checker board on the unit (see Figure 16 Pre-Wired with Checker Board on Unit)
2. Unwired with the Checker board on the unit (see Figure 17 Unwired with Checker Board on Unit)
3. Pre-wired with the Checker board in a remote enclosure (see Figure 18 Pre-Wired with Checker Board in Remote Enclosure)
4. Unwired with the Checker board in a remote enclosure (see Figure 19 Unwired with Checker Board in Remote Enclosure).

The pre-wired version with the Checker board on the unit has been completely wired at the factory. Before it is ready for operation, a plug must be attached to the power cord and the unit must be connected to a duct.

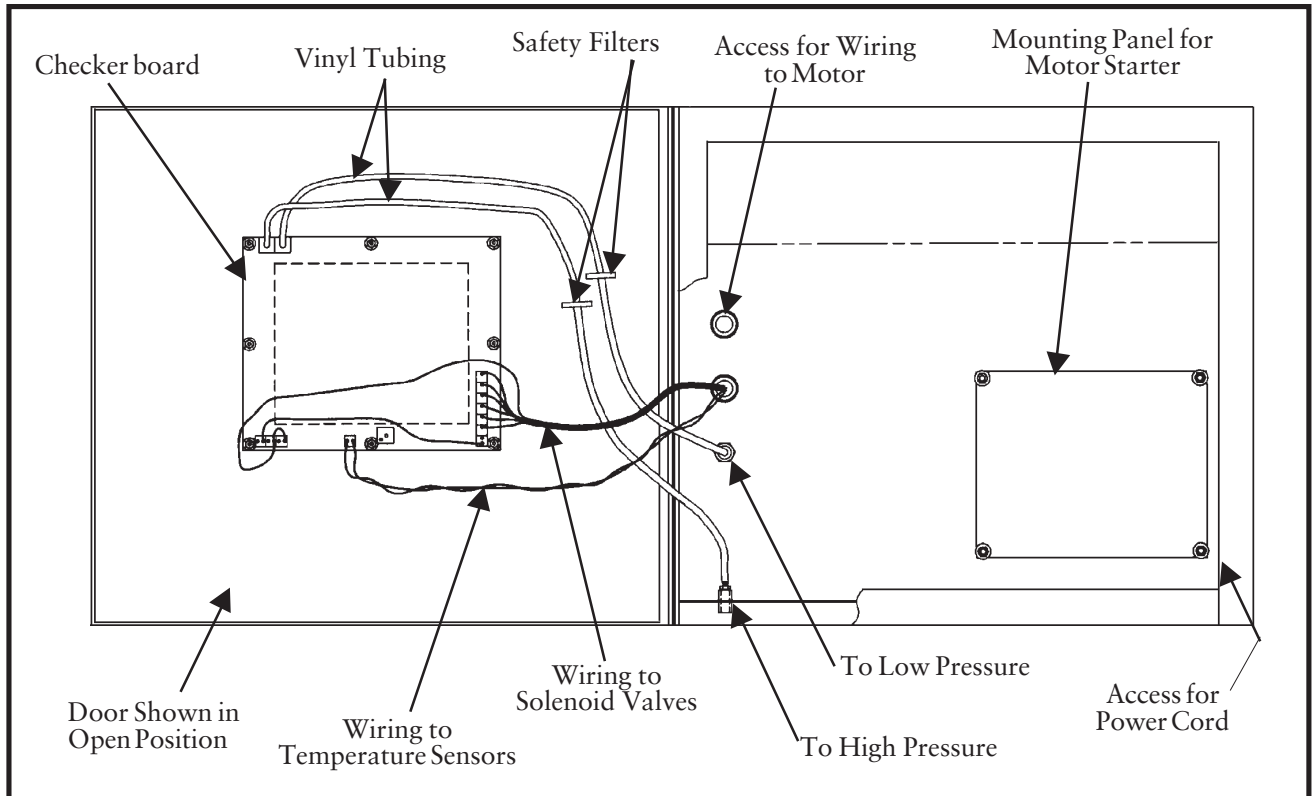
The unwired version with the Checker board on the unit has only the solenoid valves and the temperature sensor wired at the factory. A proper-sized motor starter needs to be mounted externally or in the electrical compartment. A proper-sized power cord and plug also needs to be installed. Using the wiring diagrams (Figures 20 through 27) make the proper connections to the blower motor, blower motor starter, and the Checker board. All electrical apparatus should be properly sized for the required voltage and motor full load amperage.

#### **NOTE**

- All electrical work must be done by a qualified electrician according to local codes.
- The plug attached to the power cord must be for the correct voltage as designated.



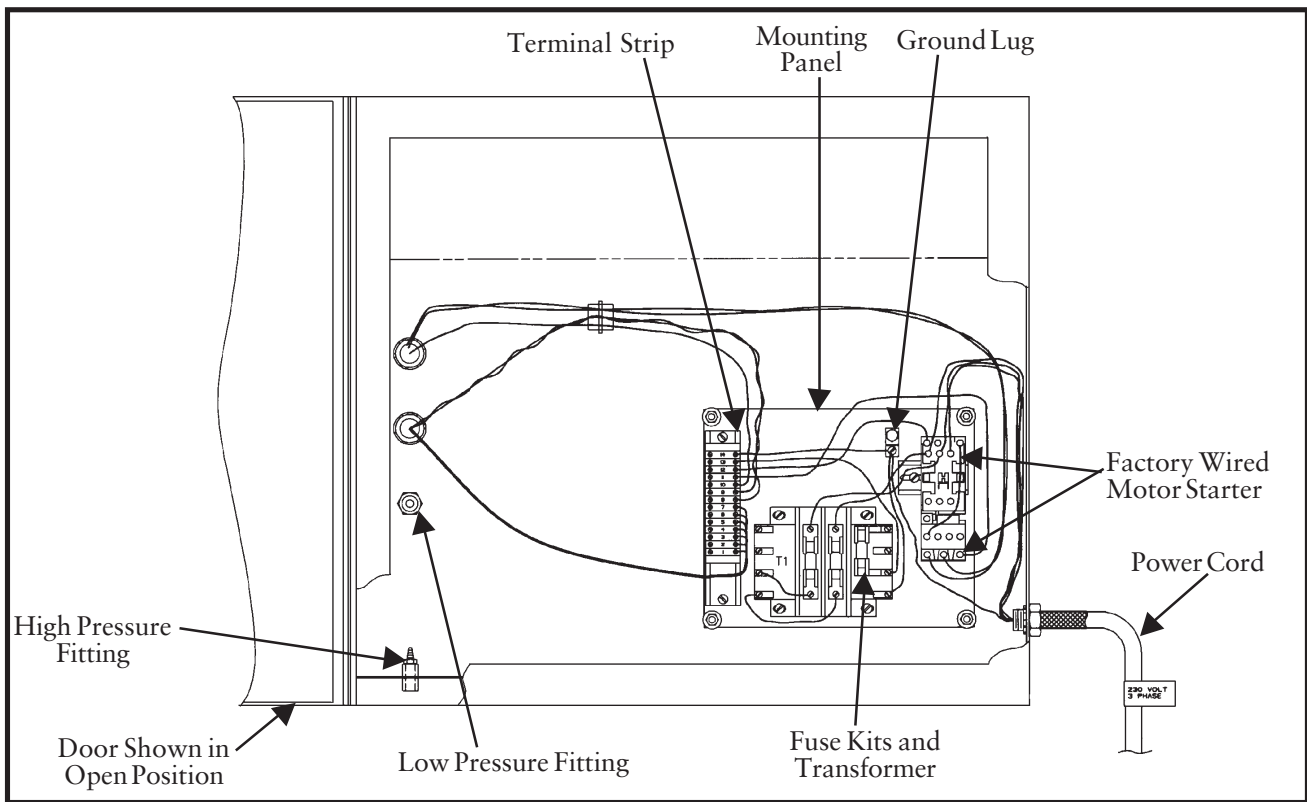
**Figure 16**  
**Prewired with Checker Board on Unit**



**Figure 17**  
**Unwired with Checker Board on Unit**

The pre-wired version with the Checker board in the remote enclosure should be installed according to the following steps.

1. Mount the Checker board enclosure in a location convenient for the machine operator (see Figure 28 Remote Checker Board Assembly).
2. Install conduit between the electrical compartment and the remote enclosure. Use sealed fittings, making all connections leak tight.
3. Wire from the terminal strip in the electrical compartment to the terminal strip in the remote enclosure (see Wiring Diagrams Figures 20 through 27).
4. Drill mounting holes in the electrical compartment to accept the bulkhead pneumatic fittings shipped with the collector. Install them on the most convenient side of the collector, typically adjacent to the conduit. Connect the 1/8" ID vinyl tubing from the pressure taps inside the electrical compartment to the bulkhead fittings, and then from the bulkhead fittings to the mating fittings on the Checker board enclosure. Loosely fasten the vinyl tubing to the conduit for support, being careful not to flatten the tubing.
5. The pneumatic fitting located on the vertical surface of the electrical compartment is the low pressure fitting, and the fitting on the horizontal surface is the high pressure fitting. The Checker board enclosure has the low pressure fitting closest to the front cover and the high pressure fitting located closest to the back of the enclosure.



**Figure 18**  
**Prewired with Checker Board in Remote Enclosure**

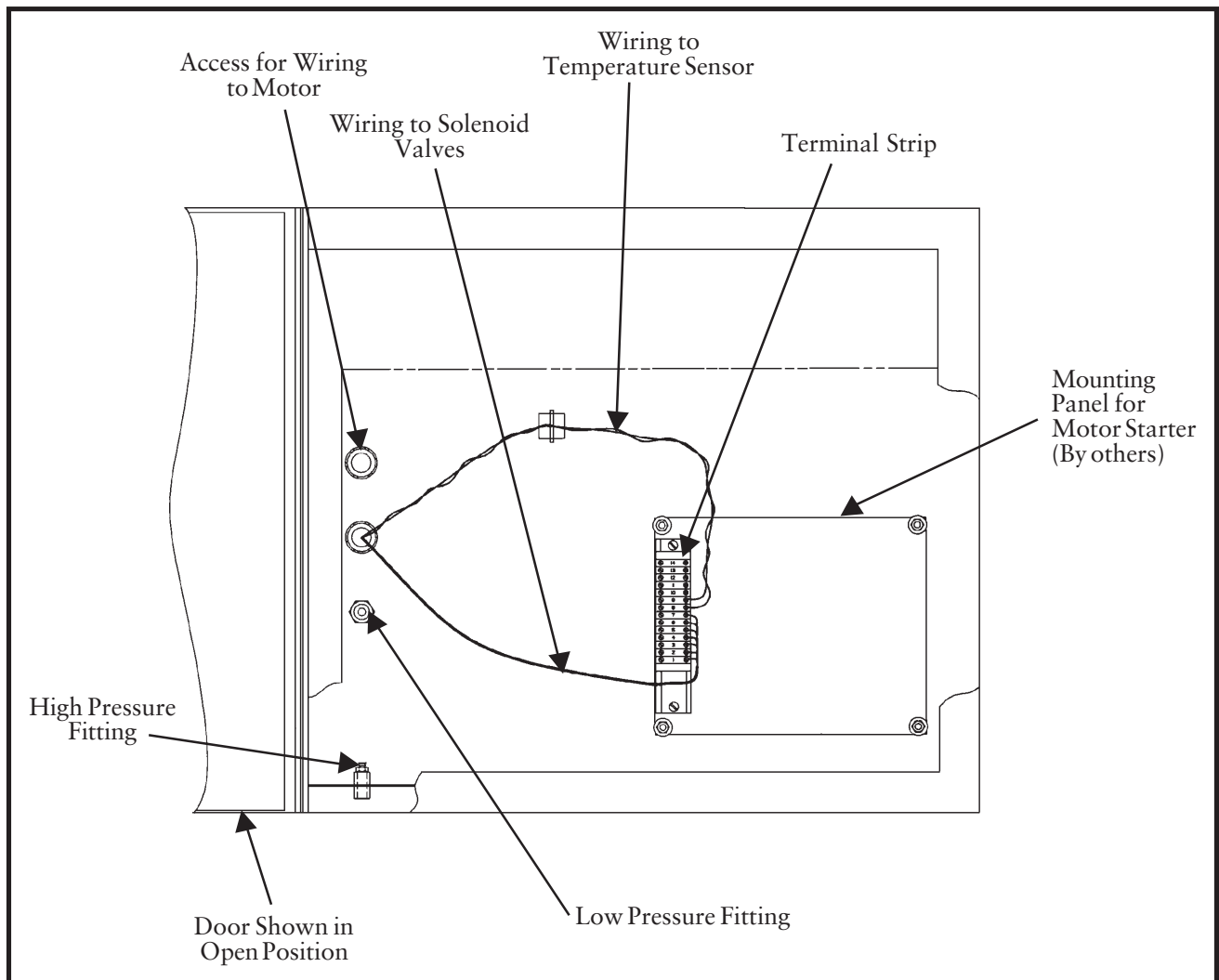


The unwired version with the Checker board in the remote enclosure should be installed according to the following additional instructions.

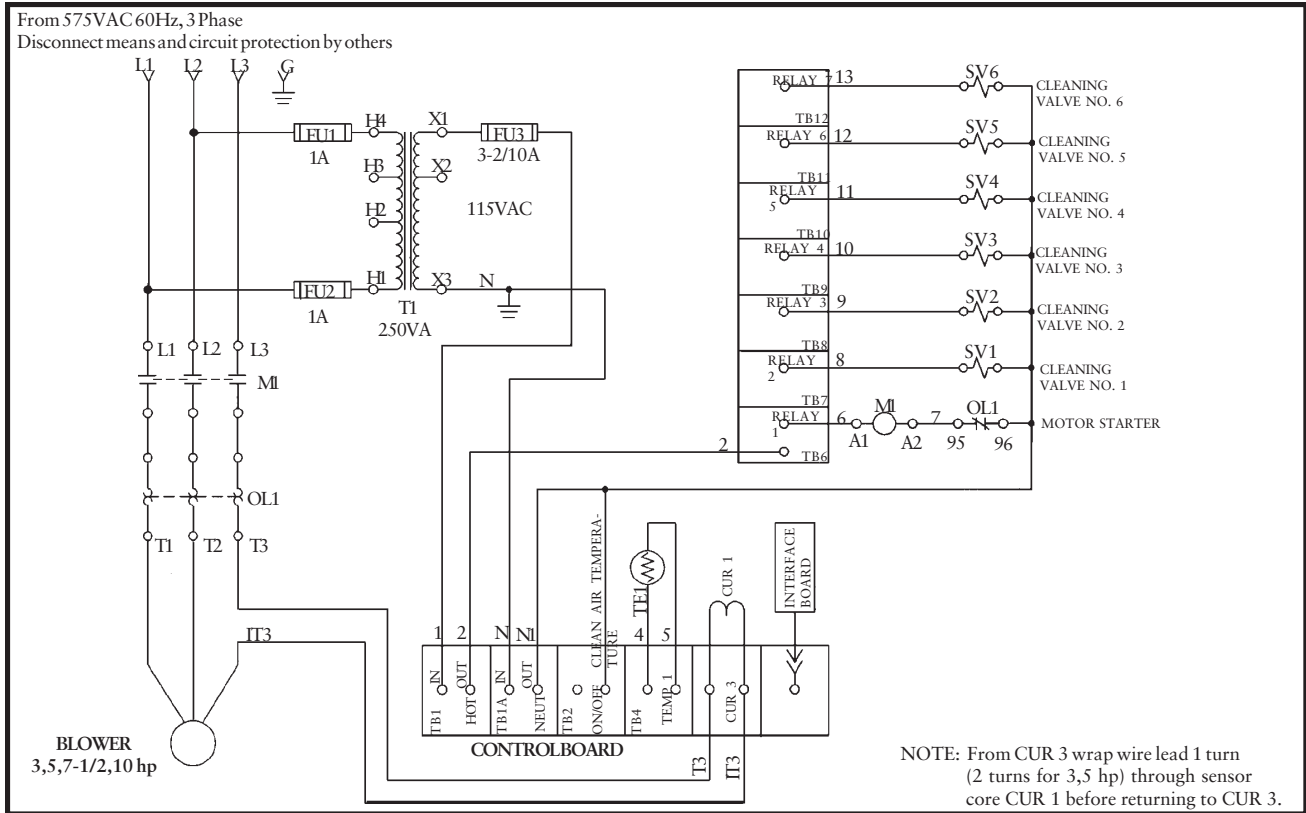
1. Remove the back panel to access the blower motor (see Figure 1 SDF-4 Phantom View).
2. Install and wire the motor starter, control circuit transformer, and other motor control components as required (see Figure 19 Unwired with Checker Board in Remote Enclosure).
3. Wire the motor to the motor starter using the factory installed conduit between the motor connection box and the electrical compartment.

### NOTE

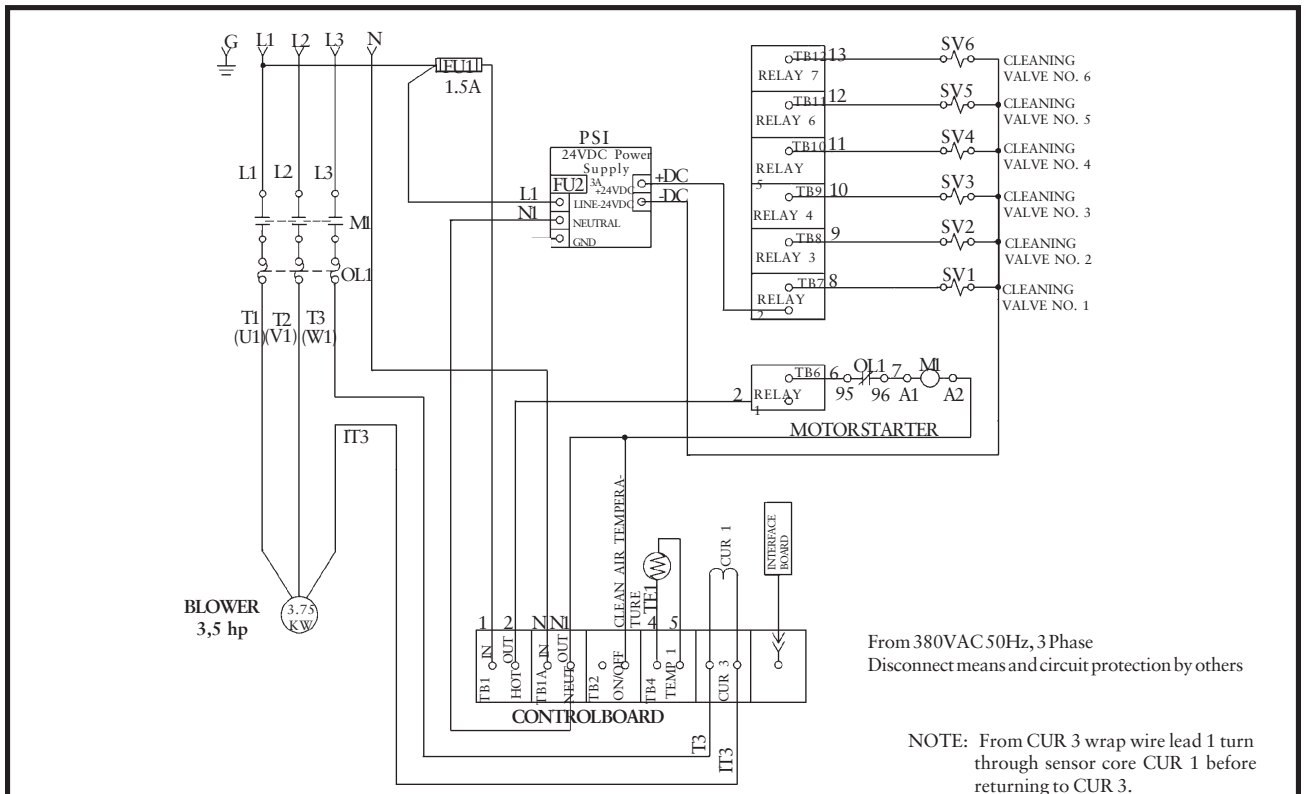
- Explosion vent SDF collectors do not contain an electrical compartment or internal conduit for wiring.
- Two 3/4" couplings are provided on the outside of the collector for electrical wiring access (see Figure 15 SDF-4 with Explosion Vents Phantom View).
- All wiring on these units must be done by a qualified electrician according to local codes.



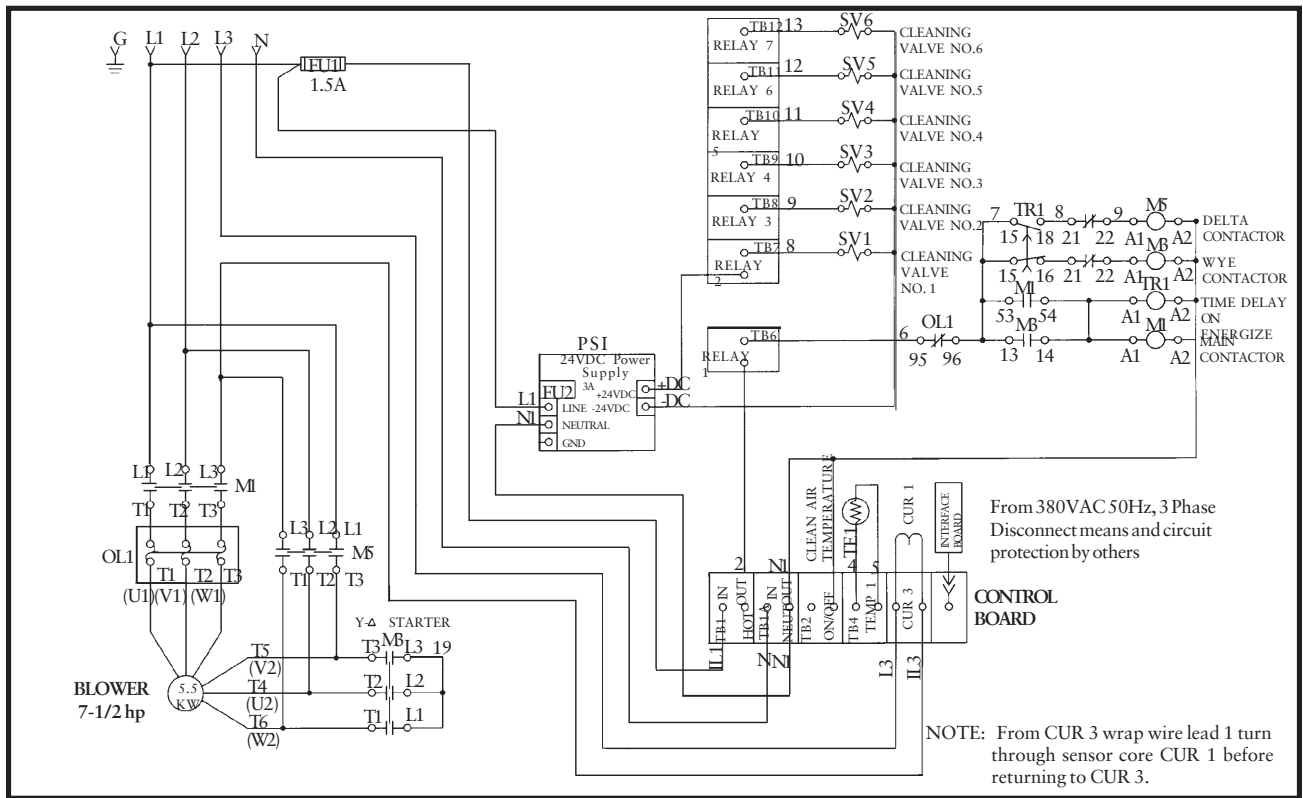
**Figure 19**  
**Unwired with Checker Board in Remote Enclosure**



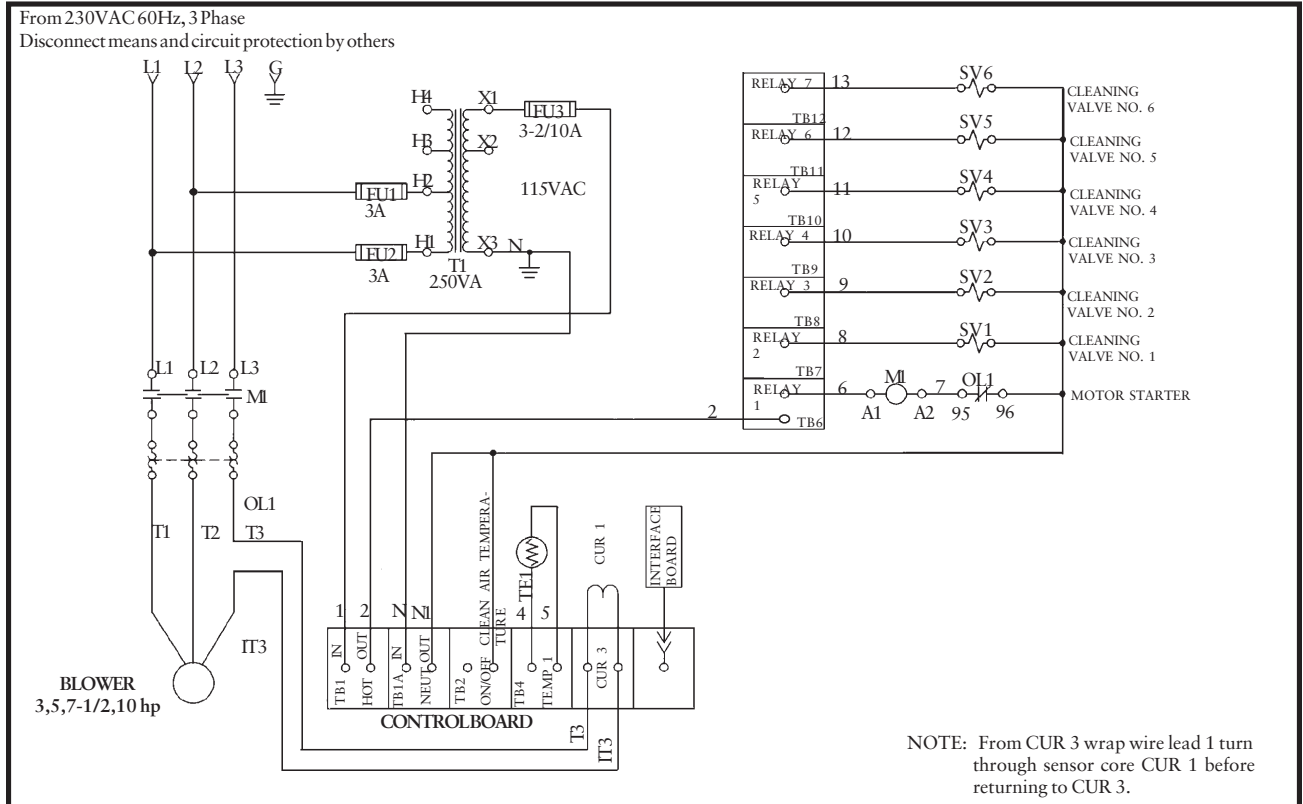
**Figure 20**  
**Wiring Diagram 575 Volt - 60 Hz, 3PH – 3, 5, 7-1/2, 10 hp**



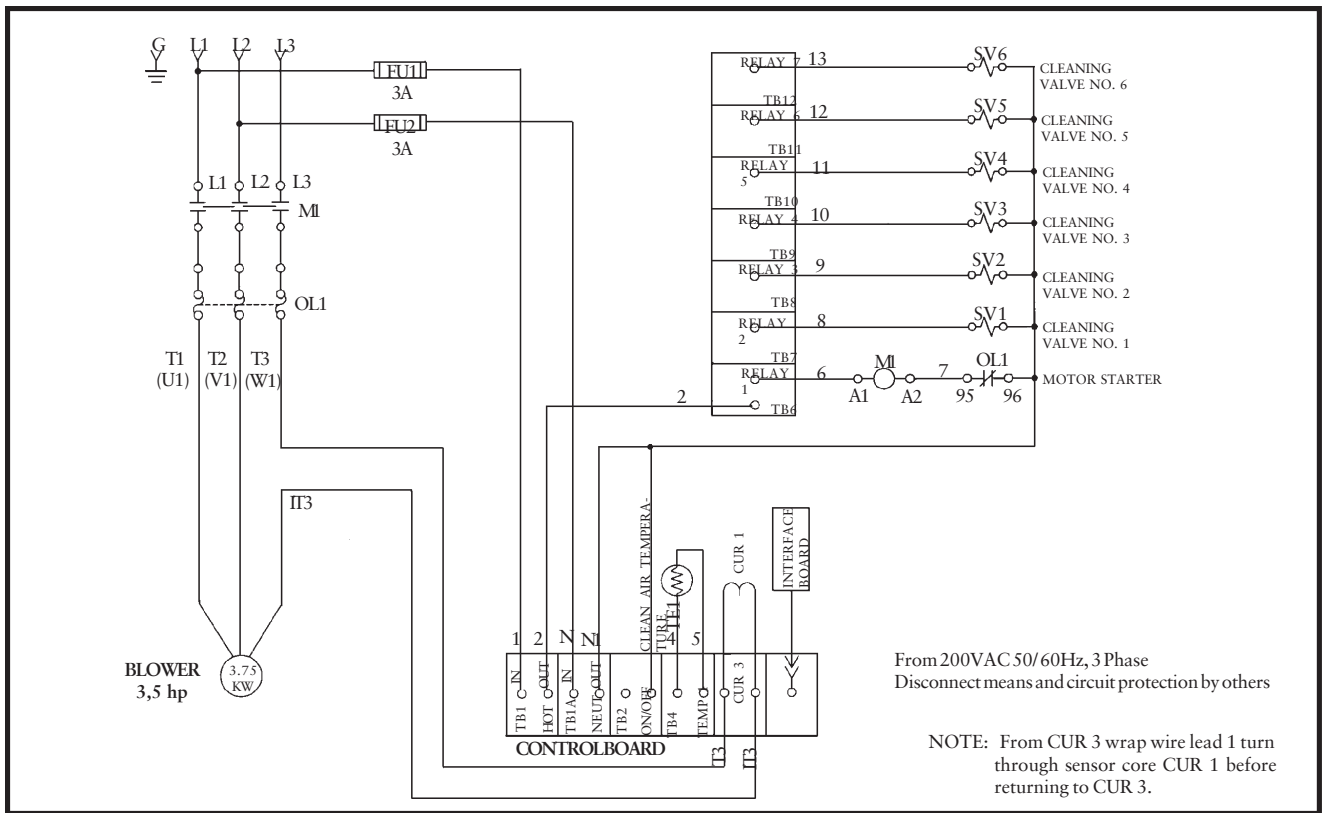
**Figure 21**  
**Wiring Diagram 380 Volt - 50 Hz, 3PH – 3, 5 hp**



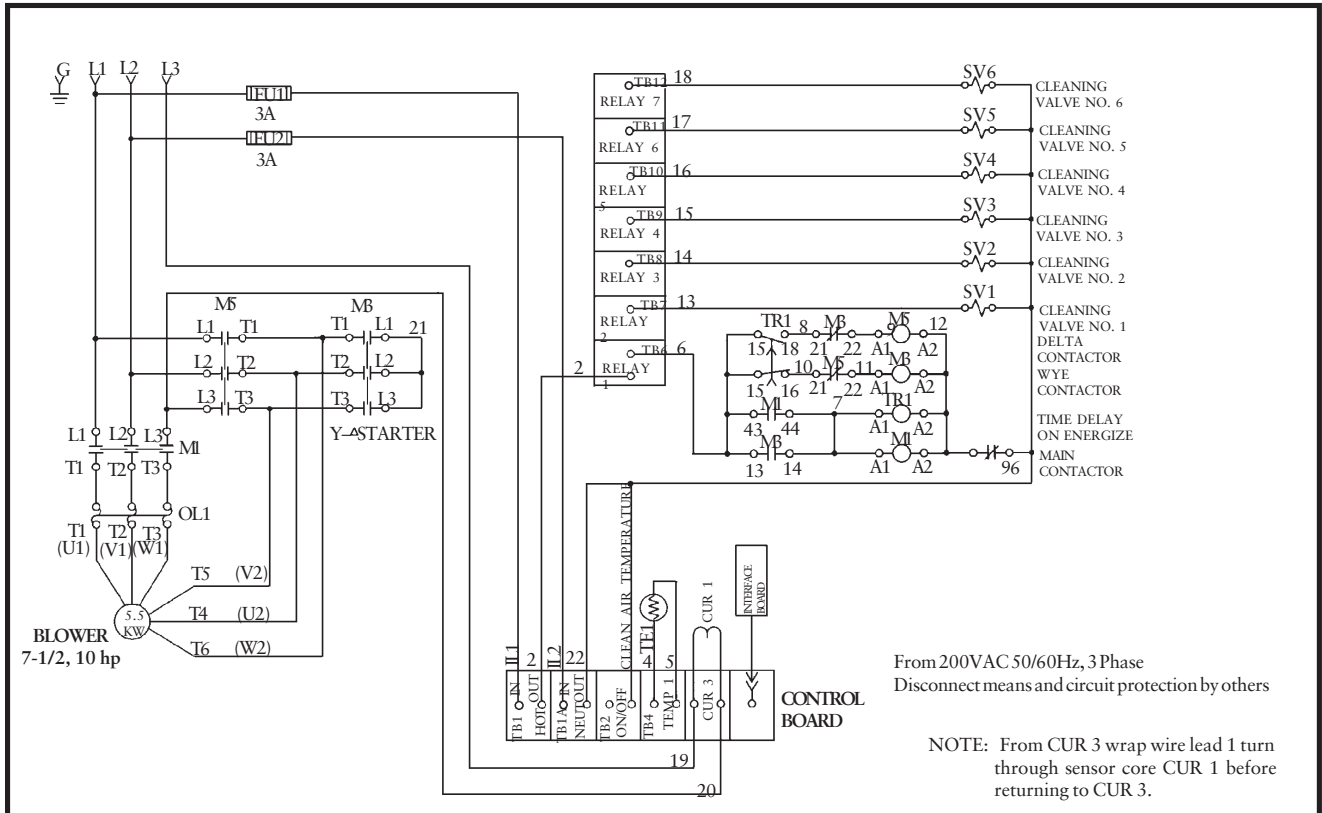
**Figure 22**  
**Wiring Diagram 380 Volt - 50 Hz, 3PH - 7-1/2 hp**



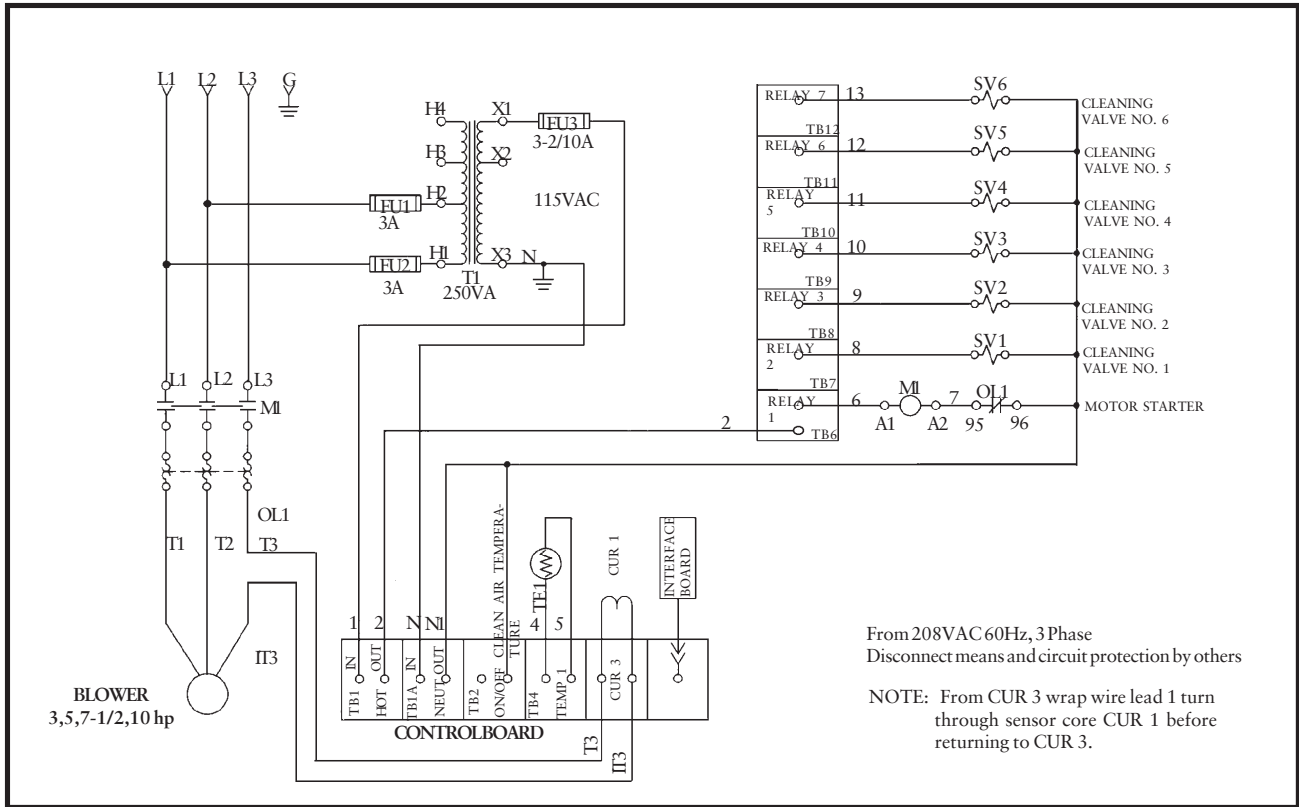
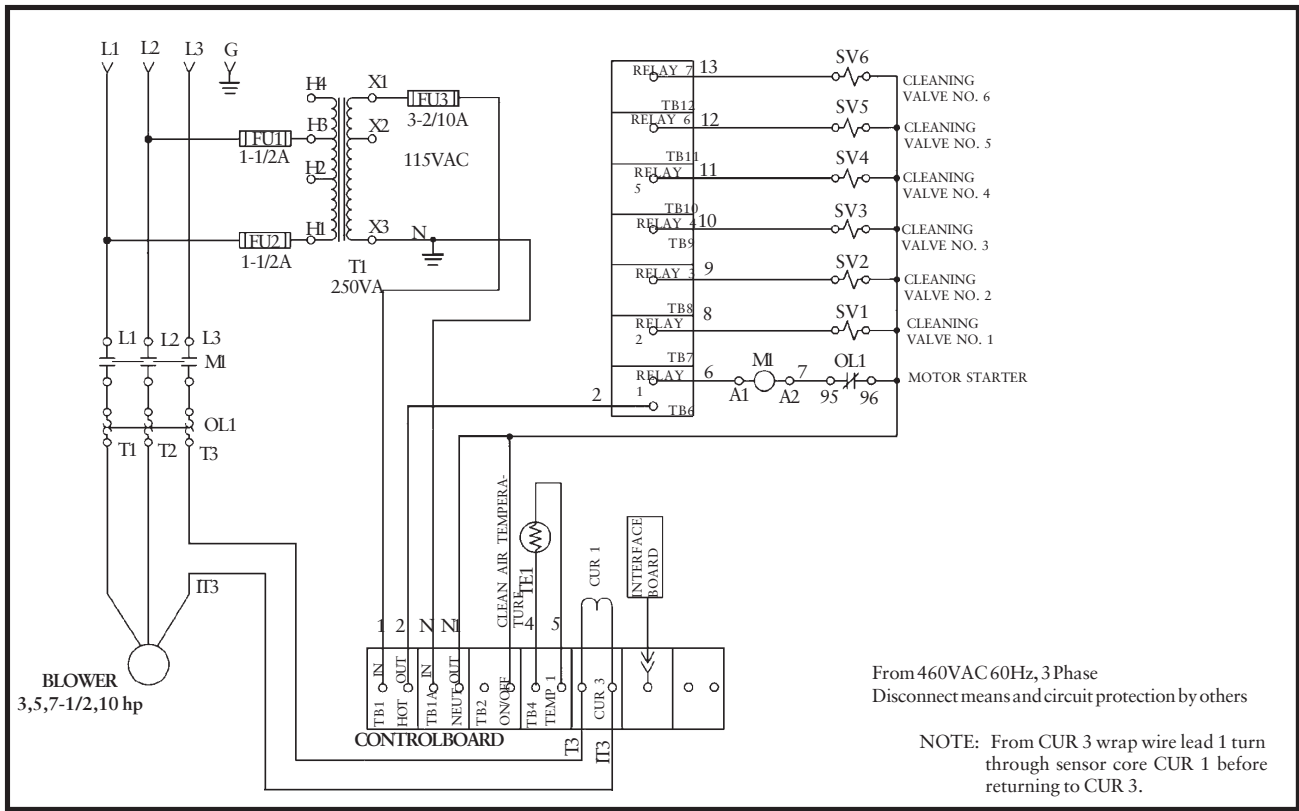
**Figure 23**  
**Wiring Diagram 230 Volt - 60 Hz, 3PH - 3, 5, 7-1/2, 10 hp**

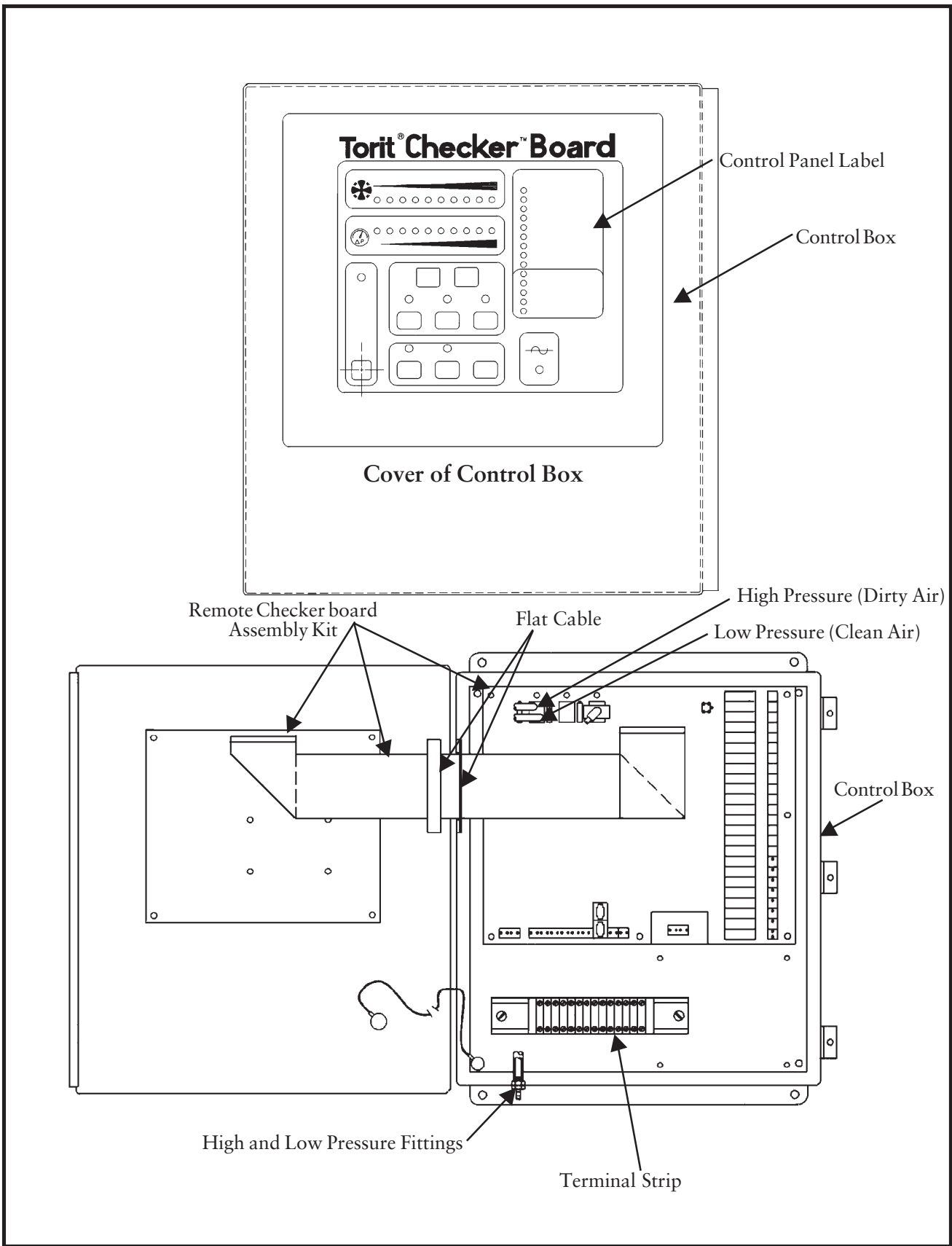


**Figure 24**  
**Wiring Diagram 200 Volt - 50/60 Hz, 3PH – 3, 5 hp**



**Figure 25**  
**Wiring Diagram 200 Volt - 50/60 Hz, 3PH – 7-1/2, 10 hp**





**Figure 28**  
**Remote Checker Board Assembly**

If the model SDF is purchased with a solid state timer in the unit instead of the Checker board, the timer will be wired to the solenoid valves. If the timer is to be remote mounted, it will be furnished unwired. A properly sized motor starter needs to be mounted in addition to the timer. Using the wiring diagram in Figure 29 SDF Solid-State Timer Wiring Diagram, make the proper connections to the blower motor, blower motor starter, and solid state timer.

After attaching the plug and starting the blower motor, check for proper rotation. It should be clockwise when looking down at the top of the blower motor. Also, reference the rotation sticker on the blower housing (see Figure 1 SDF-4 Phantom View). Proper blower rotation is extremely important. If the blower is running in the wrong direction, it will only deliver approximately 40% of its rated air volume. Interchange any two power wire leads (3 phase only) on the plug to reverse rotation.

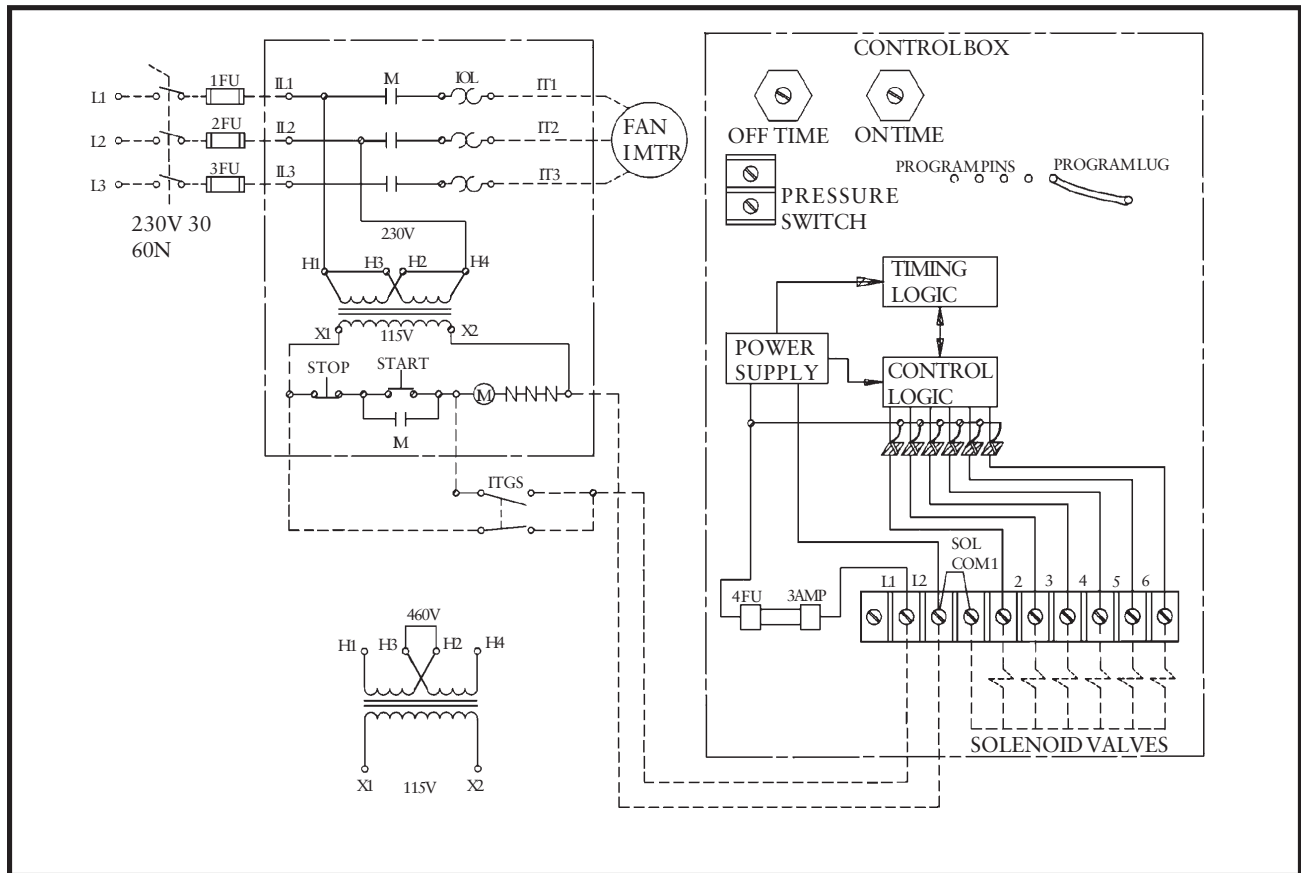
**CAUTION**

Do not interchange a power lead and the ground wire.

**CAUTION**

Disconnect electrical power before servicing any electrical component.

With the blower motor starter turned on, check operation of the solenoid valves. When the Checker board is used, press and hold the CONSTANT CLEAN push button and pulsing will begin. The valves should open and close continuously with a factory set interval time of 10 seconds between each cleaning pulse.



**Figure 29**  
**SDF Solid-State Timer Wiring Diagram**



When the <sup>®</sup> is used on the Checker board diagnostic and control panel, or when the Photohelic gage is used as an internal control of the solid-state timer, the valves will pulse only when the differential pressure reaches the high set point and will continue the pulse sequence until the lowest pressure setting is reached (see Figure 1 SDF-4 Phantom View and Figure 29 SDF Solid-State Timer Wiring Diagram).

### 2.6.1 Electrical Operation

All functions on the Downflo model SDF are controlled from the Checker board diagnostic and control panel (see Figure 1 SDF-4 Phantom View).

#### **NOTE**

**The end user assumes responsibility for providing all necessary disconnecting means and overload protection in accordance with all local codes and regulations governing this installation.**

For starting and operation, refer to the Installation and Operations Manual for the Checker board diagnostic and control panel. For wiring diagrams, see Figures 20, 21, 22, 23, 24, 25, 26, and 27 in this manual.

Each dust collector comes equipped with solenoid valves that control the pulse cleaning valves which clean the filter elements. The solenoids are connected electrically to the Checker board diagnostic and control panel (see Figure 1 SDF-4 Phantom View). A wiring diagram for each size of model SDF is supplied with the unit.

On versions of the Downsized Downflo without the Checker board diagnostic and control panel, the solenoid valves are connected electrically to the solid-state control timer. A wiring diagram for each model is supplied with this version.

### 2.6.2 Checker Board Diagnostics and Control Panel Specifications

See the Installation and Operation Manual for the Checker Board diagnostic and control panel for complete information (IOM-72202-00)

### 2.6.3 Solid-State Timer Specifications (See Figure 29 SDF Solid-State Timer Wiring Diagram)

#### **NOTE**

**The SDF model solid-state timer requires a low voltage (105 to 135 volt AC) control circuit in the fan starter. This is not supplied by Torit.**

**COMPONENTS:** Standard Downflo model SDF dust collectors are equipped with 115 volt AC solenoid valves rated at 19.7 watts each and a solid-state 115 volt AC/50-60Hz/1 timer when ordered.

The timer is factory-adjusted at 100 milliseconds (1/10 second) pulse time and a 10 second duration (elapsed time) between pulses.

Input power to the solid-state timer is applied to L1 and L2 terminals on the timer control circuit board, which is in parallel with the low voltage (115/60/1) coil of the blower fan magnetic starter (see Figure 29 SDF Solid-State Timer Wiring Diagram). Upon fan start-up, power is supplied to the control board and the preset OFF time is initiated. At the end of the OFF time, the control board timer will energize a corresponding solenoid valve to provide the ON time cleaning pulse for one filter element and then step to the next filter element.

This cycle is continuous unless an auxiliary control such as a Photohelic pressure switch or a 1TGS toggle switch is used to control the timer (see Figure 29 SDF Solid-State Timer Wiring Diagram).

When all of the available outputs are not required, programming the control board for fewer outputs is accomplished by resetting the program pin selection wire on the solid-state control board to the correct number of solenoid valves being used (see Figure 29 SDF Solid-State Timer Wiring Diagram).

The 1TGS is an optional switch (not supplied by Torit) and provides a means of control when the pulse sequence is activated. Consult your local Torit representative before using this method.

In grounded systems, neutral to control box must be connected to L2.

**Input:** 105-135 VAC/50-60 Hz/1

**Output Solenoids:** Type—solid-state switch (Triac). The load is carried by and turned on and off by the Triac. Rating—200 watts maximum load per output.

**Pulse Width (ON Time):** Factory set at 100 milliseconds (1/10 second).

#### **NOTE**

**Do not adjust ON time unless the proper test equipment is used. Too much or too little ON time can cause shortened filter element life. Consult with your local Torit representative.**

**OFF Time:** Adjustable—1 to 1.5 seconds minimum, 30 seconds maximum, factory set at 10 seconds.

**Operating Temperature Range:**  
-20°F to 130°F.

**Transient Protection:** 50kW transient of 20ms duration once every 2 seconds.

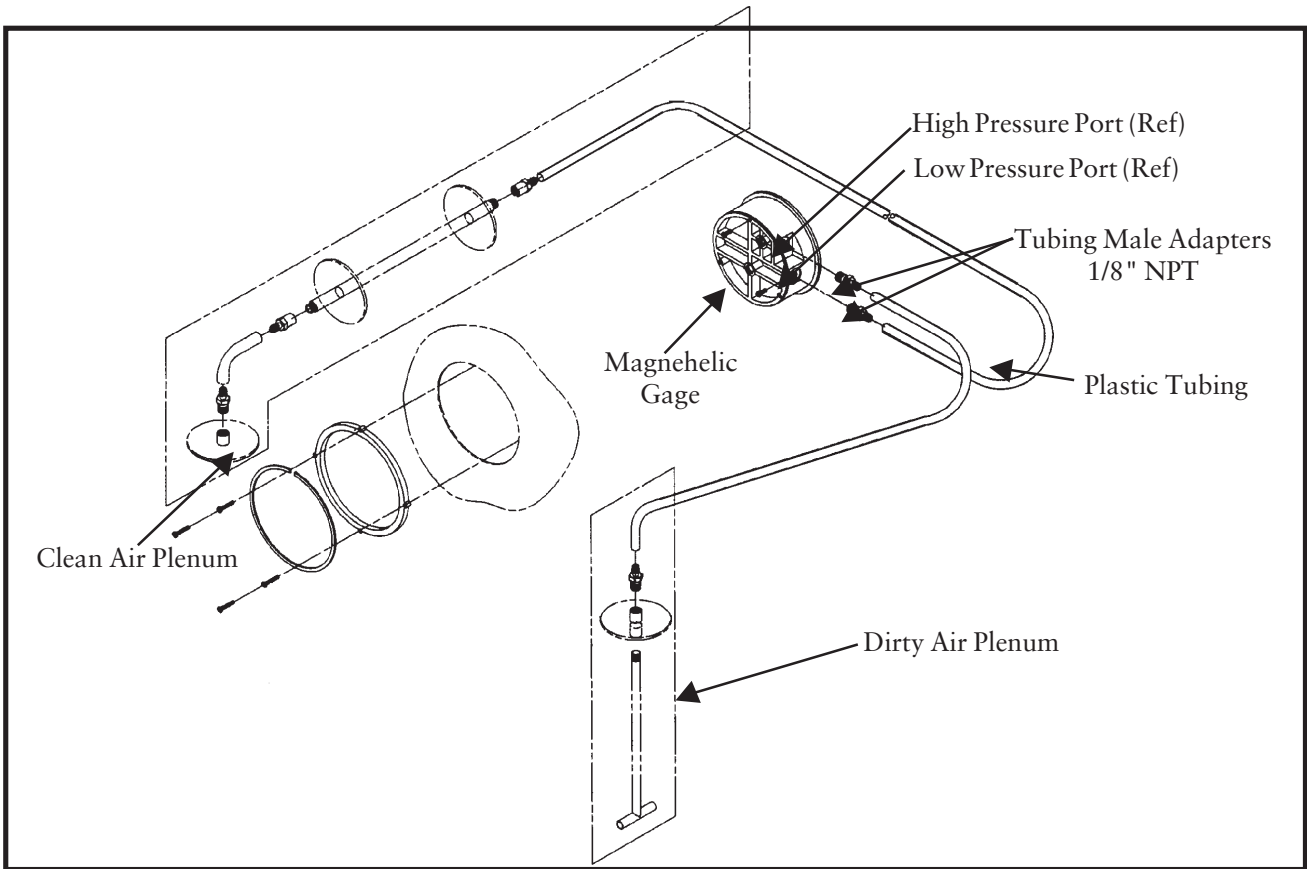
**Solenoid Valves:** 115 volts AC at 19.7 watts each.

#### **2.6.4 Magnehelic Gage (See Figure 30 Magnehelic Gage & Figure 31 Remote-Mounted Magnehelic Gage)**

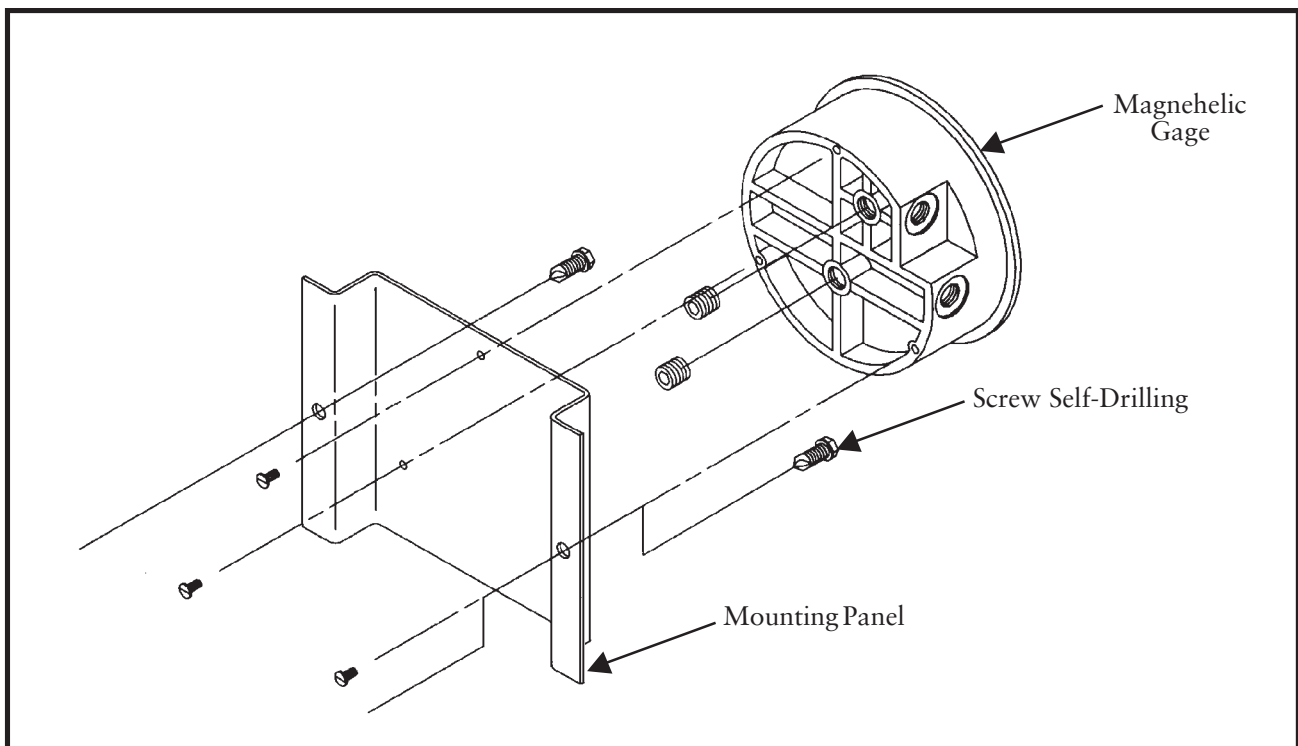
Some units are supplied with an optional Magnehelic gage where the gage, pressure taps, and tubing have been preinstalled in our factory. Zero and maintain the Magnehelic gage per the operating and maintenance instructions provided by the manufacturer of the Magnehelic gage.

For remote-mounted gages, the plastic tubing will determine the distance away from the unit that the gage can be located. If more tubing is required, please contact your local Torit representative.

Mount the remote gages as shown in Figure 31 Remote-Mounted Magnehelic Gage. Make the connections as shown in Figure 30 Magnehelic Gage. The high pressure port is connected to the dirty air plenum. The low pressure port is connected to the clean air plenum. The high and low pressure connections are located in the electrical compartment of the collector. Use bulkhead fittings and mount them through the cabinet to the electrical compartment. Zero and maintain the gage per operating instructions.



**Figure 30**  
**Magnehelic Gage**



**Figure 31**  
**Remote-Mounted Magnehelic Gage**

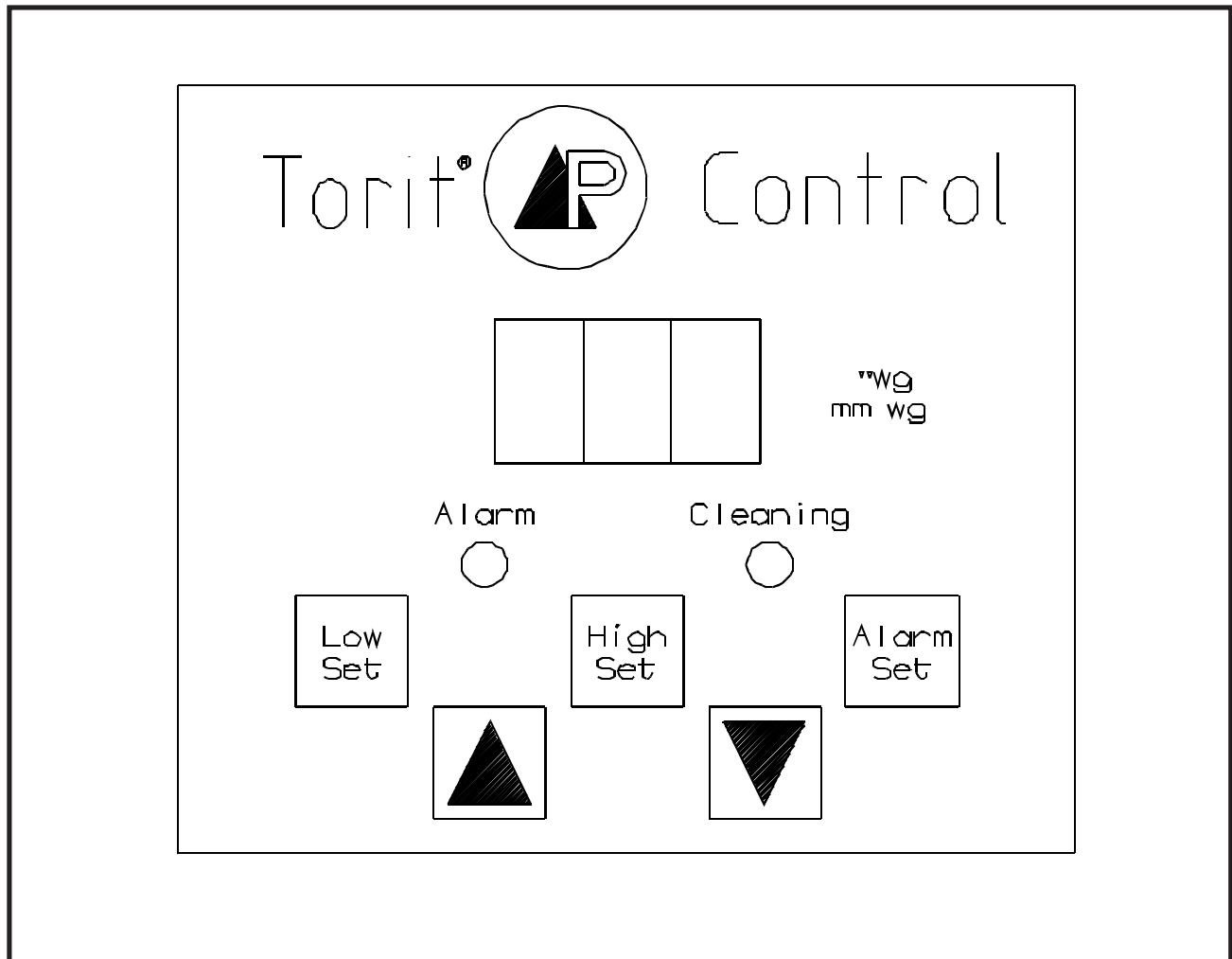
2.6.5 Torit  $\Delta P$  Control (See Figure 32  
Torit  $\Delta P$  Control Wiring Diagram &  
Figure 33 Printed Circuit Board )

**CAUTION**

- All electrical work is to be done by a qualified electrician according to the national and local electrical codes that apply.
- All electrical power must be shut off during installation.
- Do not apply in hazardous (classified) atmospheres.

**NOTE**

- Do not mount controls in a high vibration area without shock mounts.
- Do not mount controls in corrosive atmospheres without an appropriate enclosure.
- Do not operate with the enclosure open.



**Figure 32**  
 **$\Delta P$  Control Display**

## CAUTION

### STATIC-SENSITIVE ELECTRONIC ASSEMBLY

- Use proper grounding and handling procedures to prevent permanent damage to this device.
- If it is necessary to remove the printed circuit board, handle only by the edges.
- Avoid touching the socketed E<sup>2</sup>PROM pins.

Some units are supplied with an optional Torit  $\Delta$ P Control, with the control, pressure taps, and tubing preinstalled in our factory.

1. Using the wiring diagram (Figure 33 Printed Circuit Board), wire all connections for the motor,  $\Delta$ P Control (TB1), the solenoid timer control, and solenoid valves.
2. Wire the alarm circuit labeled AUXILIARY, if desired. When the pressure drop reaches the preset ALARM value, the relay will actuate and the LED light labeled ALARM on the user interface will illuminate. The AUXILIARY relay can be used to actuate visual and/or audible alarms (by others).

## NOTE

This control has a factory default voltage selection of 115 VAC. If you plan to operate at 230 VAC, change the jumper settings as shown on the printed circuit board and as described in OPTIONAL SETTINGS in Section 2.6.5 Torit  $\Delta$ P Control.

3. Apply power to the  $\Delta$ P Control, adjust the setpoints for the High and Low setpoints—the pressure drops that start and stop the cleaning process—and the Alarm setpoint.
4. Press and hold one of the setpoint push buttons. While holding down the push button, use the up and down arrow keys to adjust that setting. The setpoints will always be in the same units as chosen for the pressure display. Adjust the remaining values in the same manner.

### Optional Settings

#### 230 Volt Power Supply

To operate at 230 VAC remove the two jumpers labeled W1 and W3, reinsert one of the jumpers in position W2.

#### Change Units from Inches of Water to Millimeters of Water

To have all units displayed as mm wg, locate the jumper block labeled J1, located just above the PROG DISABLE terminals at the bottom edge of the printed circuit board. Remove the jumper from the center and left pins (numbered 2 & 3), and reinstall on the center and right pins (numbered 1 & 2).

#### Disabling the Setpoint Adjustments

To restrict the ability to change the setpoints, install a jumper wire across the PROGRAM DISABLE terminals on Terminal Block 2 (TB2). This will allow the operator to press the appropriate set keys to determine the current settings, but will not allow any changes until the jumper wire is removed.

Installing a key-operated, normally closed switch through the door of the enclosure that interrupts the jumper wire will provide temporary access to the setting function without opening the control enclosure.

## External Alarm Reset

Locate the terminal block in the lower right quadrant of the printed circuit board labeled ARM. RESET (TB2). Wire this terminal block to a normally open key-operated switch. Closing the switch will turn off the alarm and disable it until the switch is reopened. Momentarily closing the switch will turn off the alarm, but if the alarm conditions still exist, the alarm relay will latch on again in 10 seconds (see Figure 33 Printed Circuit Board).

## Disable the Alarm

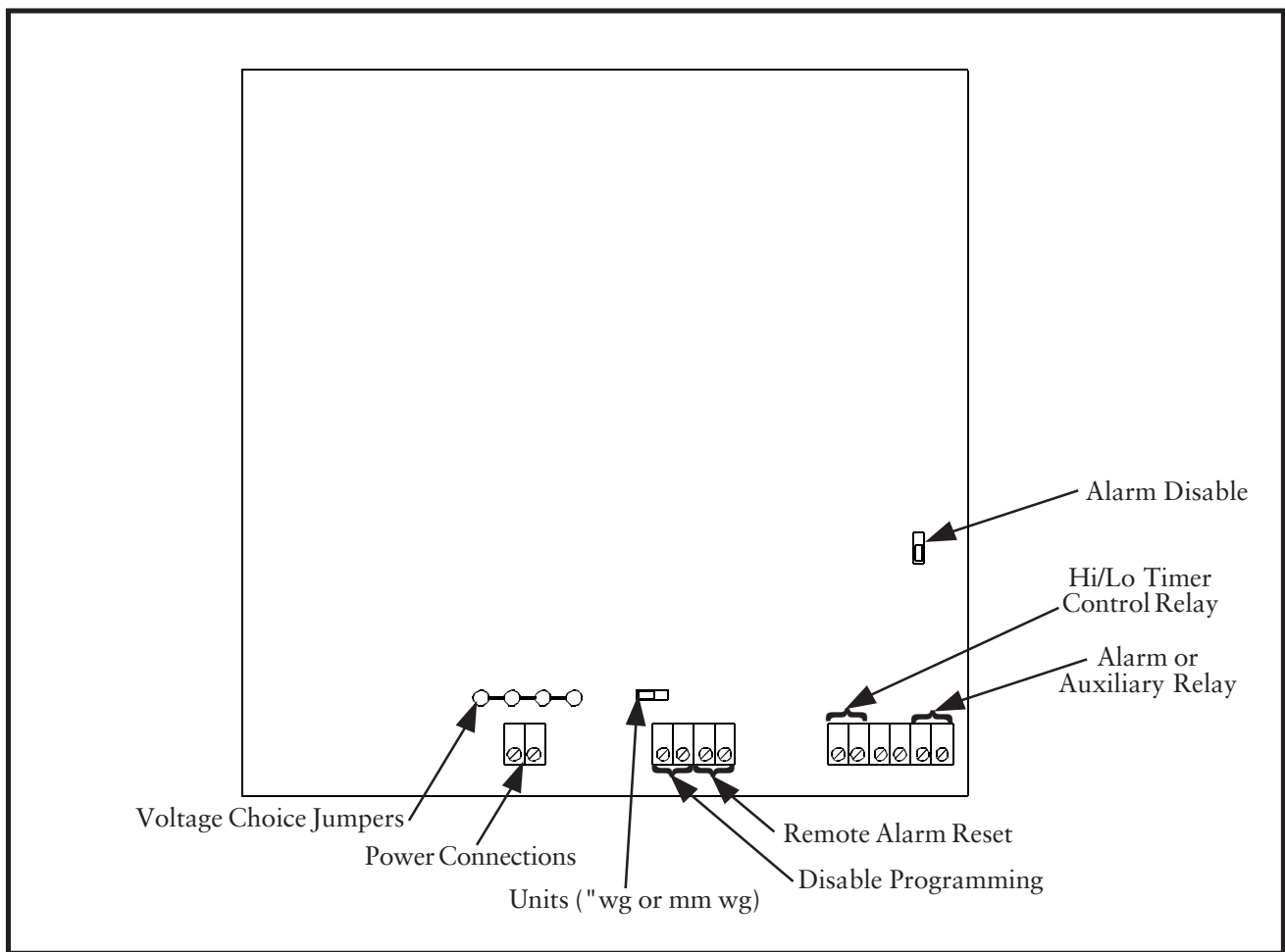
Locate the jumper block in the lower right quadrant of the printed circuit board labeled MODE (J5). Remove the jumper from the ALARM position. Disabling the Alarm Relay reduces the alarm function to lighting the LED on the user interface.

Reinstalling the jumper in the SLAVE position (upper and middle pins) causes the AUXILIARY relay to operate in parallel with the HI/LO CONTROL relay.

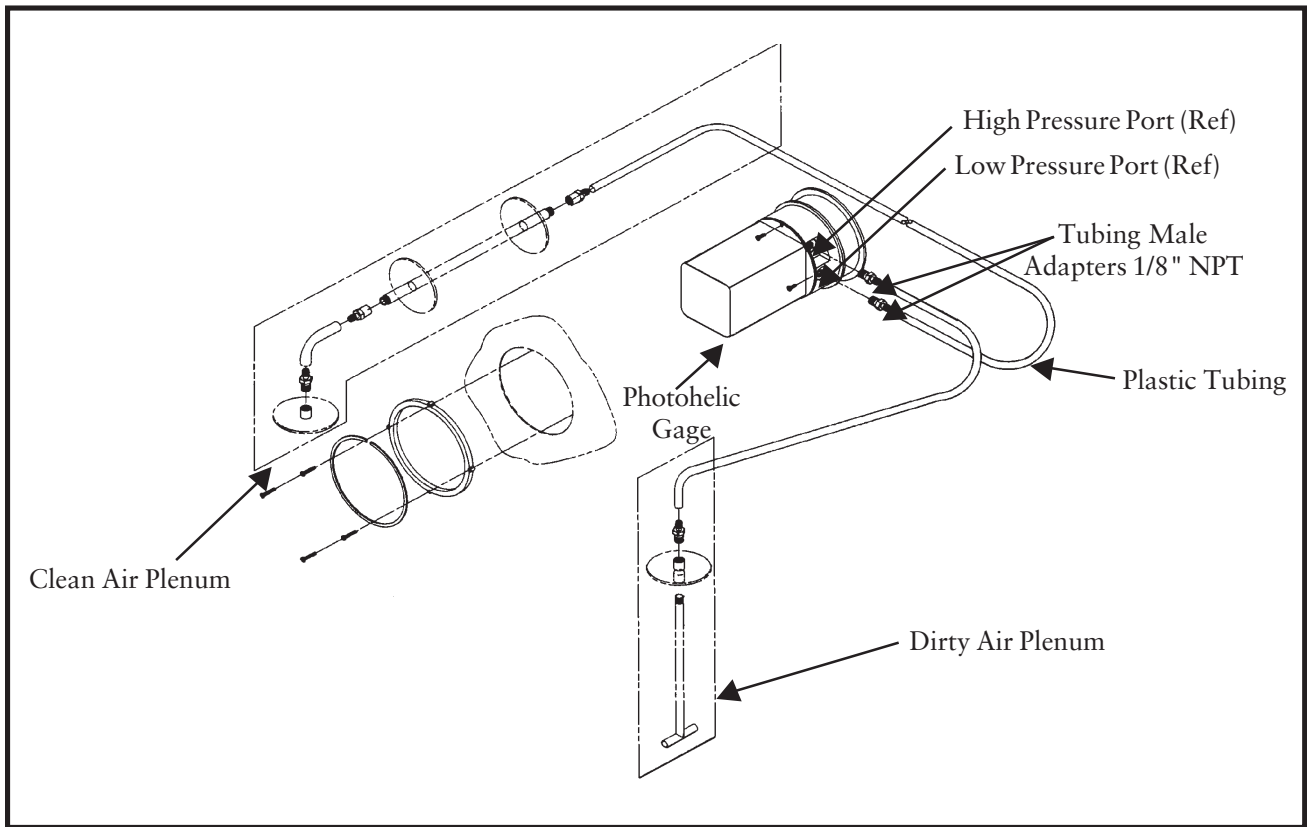
If the jumper is not installed in either position, the AUXILIARY relay does not function.

## Analog Output

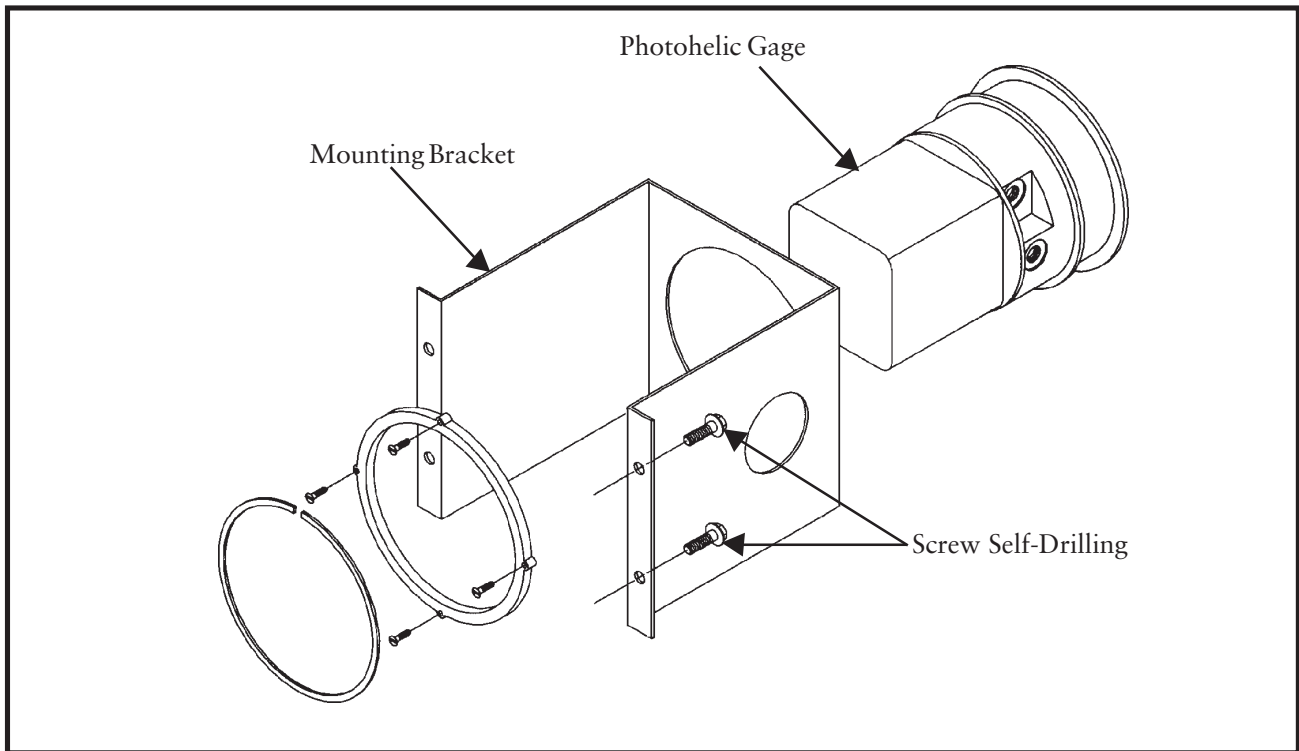
Locate the terminal block in the upper left quadrant labeled SENSOR OUT (TB4). This connector provides a 1-5 VDC output proportional to the 0 to maximum span of the pressure sensor, 10K ohm load minimum (see Figure 33 Printed Circuit Board).



**Figure 33**  
**Printed Circuit Board**



**Figure 34**  
**Photohelic Gage**



**Figure 35**  
**Remote-Mounted Photohelic Gage**



### 2.6.6 Photohelic Gage (See Figure 34 Photohelic Gage & Figure 35 Remote-Mounted Photohelic Gage)

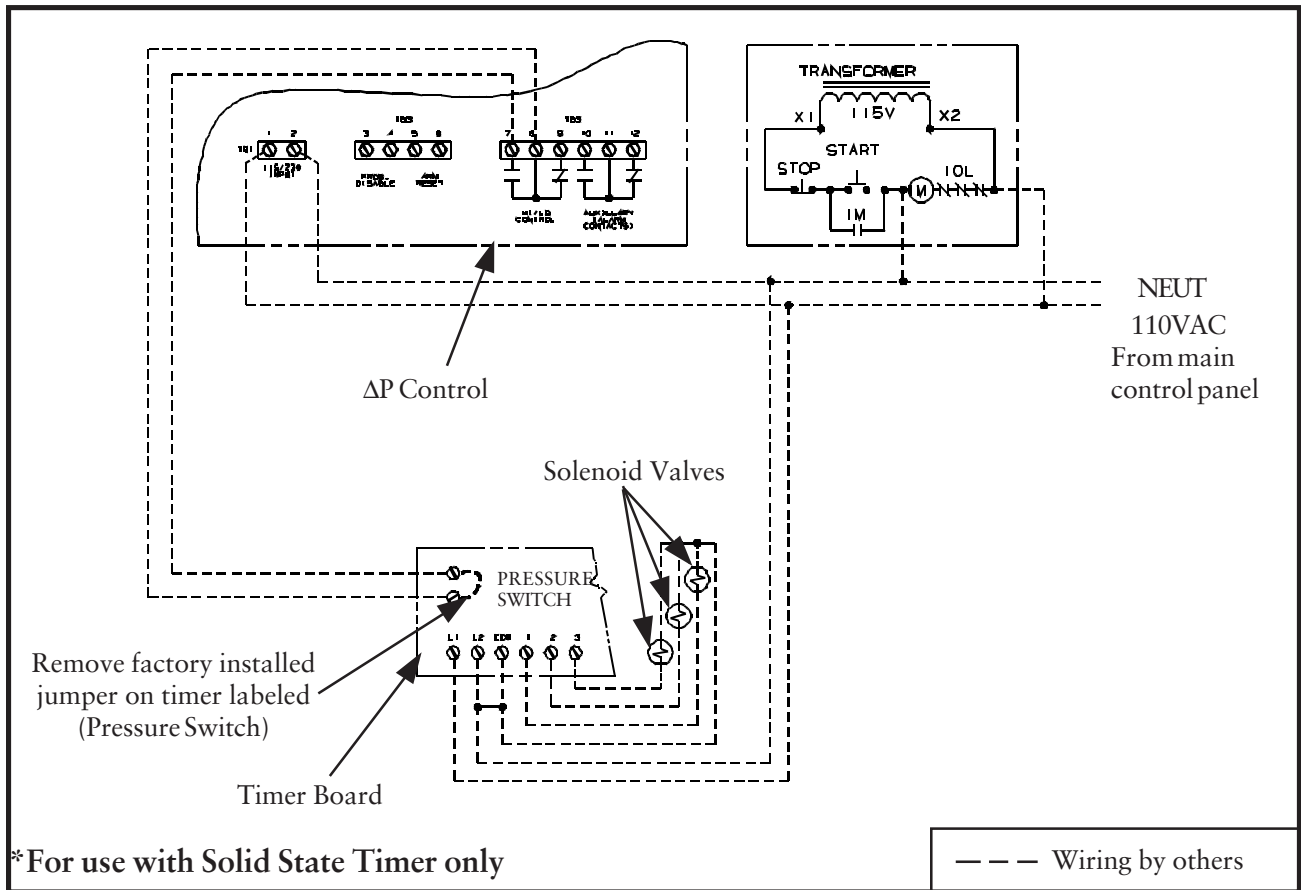
Some units are supplied with an optional Photohelic gage where the gage, pressure taps, and tubing have been preinstalled in our factory. Proper wiring of the gage is necessary.

1. Remove the four (4)#6-32 x 5/16 long screws and plastic enclosure on the back of the Photohelic gage and set aside.
2. Add the two jumper wires (not supplied by Torit) and wire the gage using 3/4" conduit opening, as shown in Figure 36 Photohelic Gage Wiring Diagram.
3. Reassemble the plastic enclosure and fasten securely, using the #6-32 x 5/16" long screws previously removed.

4. Zero and maintain the Photohelic gage per the operating and maintenance instructions provided by the manufacturer of the Photohelic gage.

For remote-mounted gages, the plastic tubing will determine the distance away from the unit that the gage can be located. If more tubing is required, please contact your local Torit representative.

Mount the remote gages as shown in Figure 35 Remote-Mounted Photohelic Gage. Make the connections as shown in Figure 32 Photohelic Gage. The high pressure port is connected to the dirty air plenum. The low pressure port is connected to the clean air plenum. The high and low pressure connections are located in the electrical compartment. Use bulkhead fittings and mount them through the cabinet to the electrical compartment. Wire the Photohelic gage per the instructions previously stated in this section.



**Figure 36**  
**Photohelic Gage Wiring Diagram**

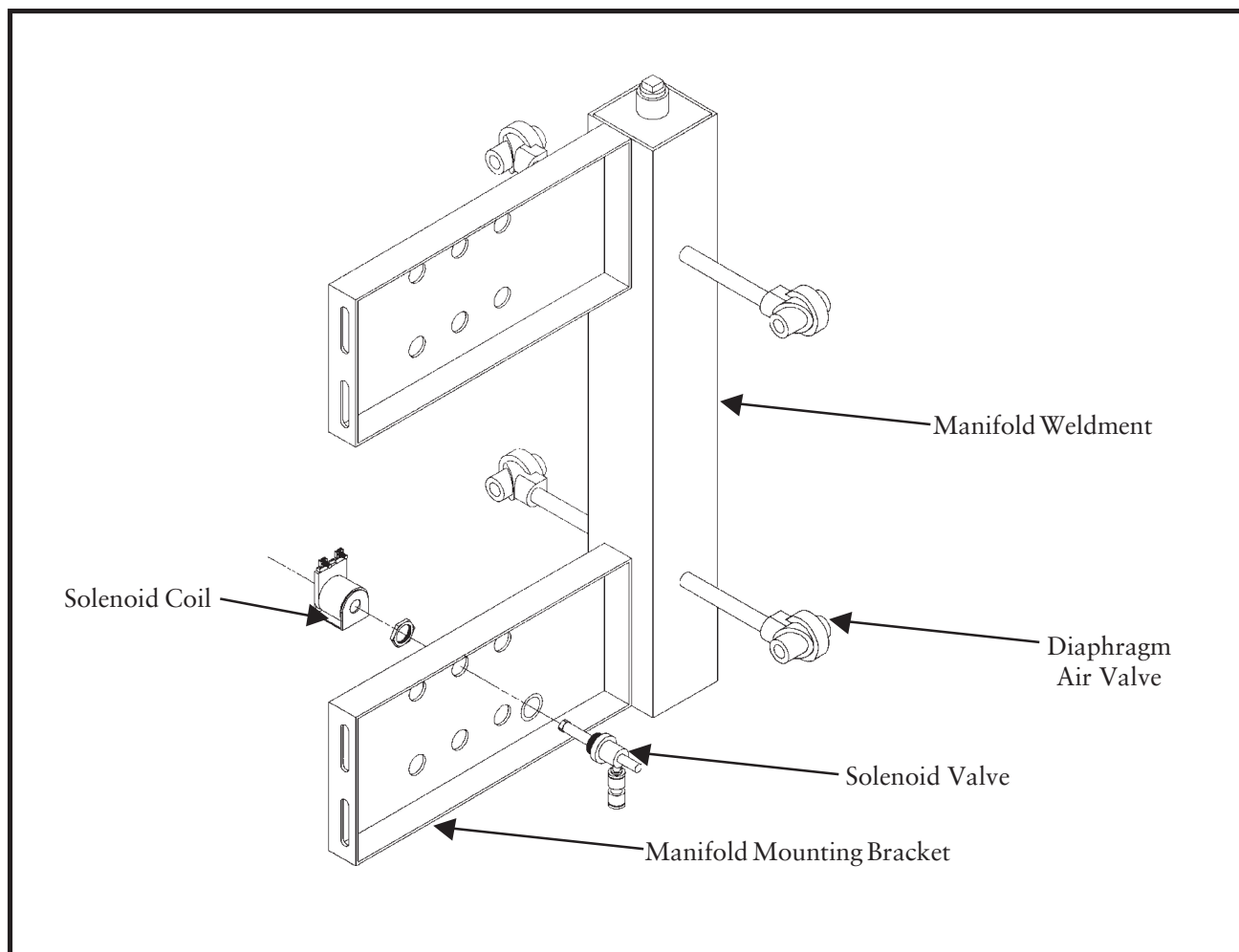
## 2.7 Compressed Air Supply Installation (See Figure 1 SDF-4 Phantom View)

Remove the plastic pipe plug from the compressed air connection at the bottom of the collector (see Figure 1 SDF-4 Phantom View) and connect the compressed air supply line. Use thread-sealing tape or pipe sealant on all compressed air connections. Use quick-disconnect fittings if possible. Be sure that all compressed air components are adequately sized to meet the maximum system requirements of 1.1 scf per pulse at 90-100 psig supply pressure.

If the compressed air inlet adapter is used to convert the NPT threads to British pipe threads, see Figure 3 Compressed Air Inlet Adapters for assembly.

### NOTE

It is important that the compressed air supply be both oil and moisture free. Contamination in the compressed air line that is used to clean filter elements will result in poor cleaning or cleaning valve failure and a reduction in dust collector performance.



**Figure 37**  
**Air Manifold Assembly**

### 2.7.1 Air Manifold Assembly (See Figure 37 Air Manifold Assembly)

To access the air manifold assembly, remove the screws on the back (see Figure 1 SDF-4 Phantom View) and lift the rear access panel off. The manifold assembly contains diaphragm air valves, solenoid valves, the manifold weldment, and the manifold brackets. See the Replacement Parts List for authorized Torit replacement parts.

When replacing the rear access panel, be sure the gasket is not damaged and the screws are tight, or leakage may occur.

### 2.7.2 Blower Compartment (See Figure 1 SDF-4 Phantom View)

Remove the rear access panel as described in Section 2.8.1 Air Manifold Assembly in order to access the blower compartment.

#### **CAUTION**

**Disconnect the SDF from all electrical power sources and compressed air supply and bleed off any residual pressure before performing any service work.**

### 2.7.3 Dust Storage Compartment

Access to the dust storage compartment is through the hinged door on the front of the unit (see Figure 1 SDF-4 Phantom View). The dust container and cover are in the dust storage compartment. The dust container support system is located at the base of the dust storage compartment and is removable. The dust container support system may be lifted from its two mounting pins and removed through the dust compartment door.

#### **NOTE**

**Make sure the dust storage compartment door is closed tightly. Handles should be turned clockwise to seal the door properly.**

## 4.0 START-UP

1. Turn on the compressed air supply to the Downflo model SDF dust collector compressed air manifold. Adjust to 90 psig of pressure, minimum. Pressure of 90-100 psig is the most typical setting for satisfactory cleaning performance (see Section 5.0 Operating Adjustments). The lower the compressed air setting, the lower the pulse valve air consumption.
2. Turn on the blower motor by pressing the green BLOWER ON button on the Checker board diagnostic and control panel.
3. Adjust the blower for the proper system airflow that is desired by adjusting the volume control damper on the blower fan exhaust discharge if applicable (see Figure 1 SDF-4 Phantom View). The outlet damper is not designed to be used when either the outlet adapter for ducting or after filtering, or the weather hood are attached to the cabinet.

#### **CAUTION**

**Stand clear of blower fan exhaust area as debris can be exhausted and cause injury.**

## 5.0 OPERATING ADJUSTMENTS

Compressed air is recommended to be set at 90 psig. The control is factory set to clean one filter element every ten seconds.

### 5.1 Checker Board

Refer to the Start-up Procedure in the Installation and Operations Manual for the Checker board diagnostic and control panel (IOM-72202-00) and follow this procedure for any operating adjustments that may be necessary.

#### NOTE

- Do not increase compressed air pressure beyond 100 psig as component damage may result.
- Do not increase or decrease the pulse ON TIME on the solid state timer. Longer or shorter pulse ON times do not aid in cleaning of filter elements, they just waste compressed air and cause shortened filter element life.

### 5.2 Solid-State Control Timer

The optional solid-state control timer is also set to clean one filter element every ten seconds. Either the Magnehelic or Photohelic gage can be used with the solid-state timer.

If the filter elements are operating at a higher than design  $\Delta P^*$ , it may be lowered by increasing the frequency of cleaning. The minimum off time (elapsed time), between pulses is 1-1.5 seconds. Additional cleaning energy may be obtained by adjusting the pressure upward to a maximum of 100 psig.

Pulse ON TIME can be checked or adjusted by consulting your local Torit representative.

If operating at a low  $\Delta P$ , you may want to raise to a higher pressure drop by increasing the OFF TIME between pulses on the solid state timer board. This will greatly reduce your compressed air consumption. Use of the optional pressure switch control (Photohelic gage) is an alternative to provide compressed air savings. This controls the solid-state timer board to only pulse at the desired high and low  $\Delta P^*$  set needle. The pulse cycle starts when the filter elements obtain that set point and continues the pulse cycle until the low  $\Delta P$  set point is reached, at which time the pulse cycle stops. This method of using the Photohelic gage can save additional compressed air, especially when collecting low levels of contaminants (low loading).

\*  $\Delta P$  = Pressure Drop across filter elements in inches water gage.

### 5.3 $\Delta$ P Control Calibration

The only user calibration is the zero adjustment of the display. Due to either slight changes in electronic components over time or pressure differentials within the plant environment, occasionally the display may show something other than 0.0 while at rest. Use the following procedure to recalibrate the zero point.

1. Power the  $\Delta$ P Control for a minimum of 30 minutes to stabilize the operating temperature.
2. Remove power from the  $\Delta$ P Control so that the display shuts down.
3. **Press and hold** the LOW SET, HIGH SET, and ALARM SET keys while reapplying power to the  $\Delta$ P Control. Continue to hold these keys while the  $\Delta$ P Control goes through a power-up routine. This is indicated by sequentially displaying "8" in each digit, and then displaying "0.0" (see Figure 32  $\Delta$ P Control Display).
4. Release all three keys. The new calibration automatically stores in memory.

### 5.4 Outlet Damper Adjustment

Blower adjustments can be made by testing the duct system flow rate and adjusting the volume control damper to the desired system flow rate.

The airflow through the Downsized Downflo collector may be adjusted by using the outlet damper located on the top of the unit (see Figure 1 SDF-4 Phantom View). Turn the two knobs to loosen them. While still grasping the knobs, slide the damper plate. The more the damper is closed, the more the airflow will be restricted. The damper will give the maximum airflow through the collector when fully open.

#### **NOTE**

**Compare the blower motor amperage draw to the motor manufacturer's nameplate amperage rating. Operating amperage greater than the manufacturer's recommendation will cause damage.**

### 5.5 Operating Checks

Monitor the exhaust visually. Exhaust should remain visually clean. If a leak develops, it will be first noticed as a visual puff of dust immediately after a cleaning pulse. A red light on the Checker board will also indicate that there may be a problem.

Monitor filter element pressure drop by means of the visual display on the Checker board. See the Installation and Operations Manual for the Checker board diagnostic and control panel. Equilibrium pressure drop (stabilized  $\Delta$ P) is generally 3-4 inches water gage for seasoned filters, but 1-6 inches water gage is considered normal.

#### **NOTE**

**At initial start-up or with any new filter elements, the blower may overload because of airflow higher than design level. If this happens, partially close the volume control damper and check blower motor amperage draw.**

## 6.0 SERVICE

### 6.1 Filter Element Removal

#### CAUTION

Disconnect the SDF from all electrical power sources and compressed air supply and bleed off any residual pressure before performing any service work.

1. Loosen filters, beginning with the top row, by unscrewing the wing nuts counterclockwise by hand (see Figure 1 SDF-4 Phantom View).
2. Move the filters to break the gasket seals between the filter and the sealing surface. Rotate the filter slowly 1/2 turn to dump any loose dust off the top of the filter. Slide the filter along the suspension yoke and out the front of the access port.
3. Inspect the sealing surface to make sure that the gasket sealing area is free of dust.
4. Check for an accumulation of dust in the storage area. If cleaning is required, see Section 6.4 Dust Removal/Dust Container.

#### NOTE

- Do not drop or rap element on the floor or other hard surface, as damage to the filter element will occur, resulting in leakage.
- It is necessary to clean the dust off the gasket sealing area to ensure a positive seal of the filter gasket.

### 6.2 Filter Element Installation (See Figure 1 SDF-4 Phantom View)

1. Slide new Torit-Built filter elements onto each suspension yoke.
2. Hand tighten filters by turning wing nut clockwise onto suspension yoke threads until tightened securely.

#### NOTE

Check to make sure that the wing nuts are securely tightened. Excessive compression of the filter gaskets can cause leakage. Hand tighten only.

### 6.3 Bag-Out Filter Element Removal (See Figure 38 Bag-Out Assembly & Figure 39 Bag-Out Filter Removal)

The bag-out option allows removal of filters without exposure to atmosphere. Each filter is removed in its own bag according to the following procedure.

#### CAUTION

This procedure must be followed in order to ensure safe changeover of filters.

1. Attach the polyethylene bag to the bag-out collar using the strap as shown in Figure 38 Bag-Out Assembly.
2. Reaching into the bag collar, using the bag as a rubber glove, loosen the filter by unscrewing the wing nut counterclockwise by hand.

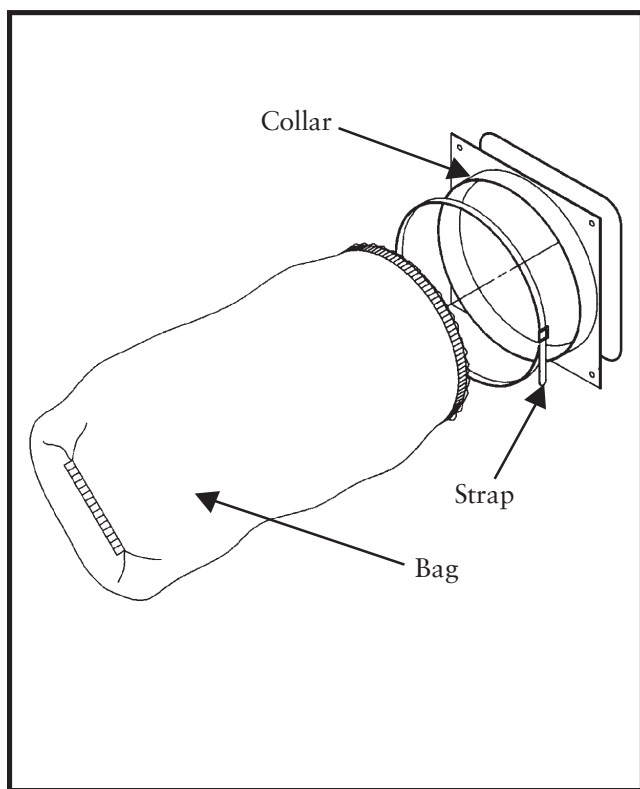
3. Move the filter to break the gasket seal between the filter and the sealing surface. Rotate the filter 1/2 turn to dump any loose dust off the top of the filter. Slide the filter along the suspension yoke and out the access port into the bag as far as possible.
4. Use cable ties or tape to close the bag near the filter in two places about one or two inches apart (see Figure 39 Bag-Out Filter Removal). Cut the bag between the cable ties. Dispose of the filter properly.
5. Remove the strap and the remainder of the bag from the collar. Dispose of properly.

## 6.4 Dust Removal / Dust Container

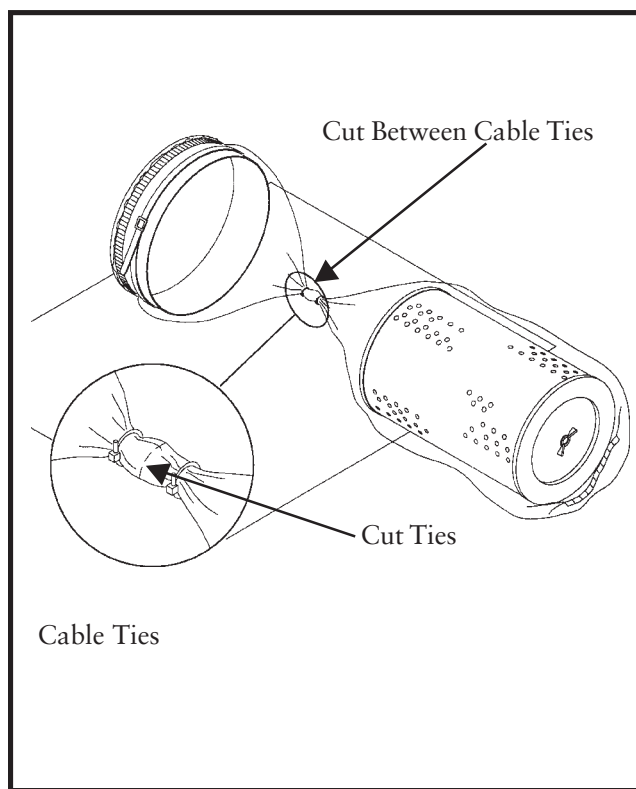
### NOTE

Do not let the dust storage container overflow. It can cause poor collector performance and require an extensive clean-up due to overflow of dust when removing the container.

Turn off the dust collector and empty as necessary keeping the dust in the dust container to a maximum of 2/3 full. See Service Interval setting in the Maintenance Required portion of the Installation and Operations Manual for the Checker board diagnostic and control panel (IOM-72202-00).



**Figure 38**  
**Bag-Out Assembly**



**Figure 39**  
**Bag-Out Filter Removal**

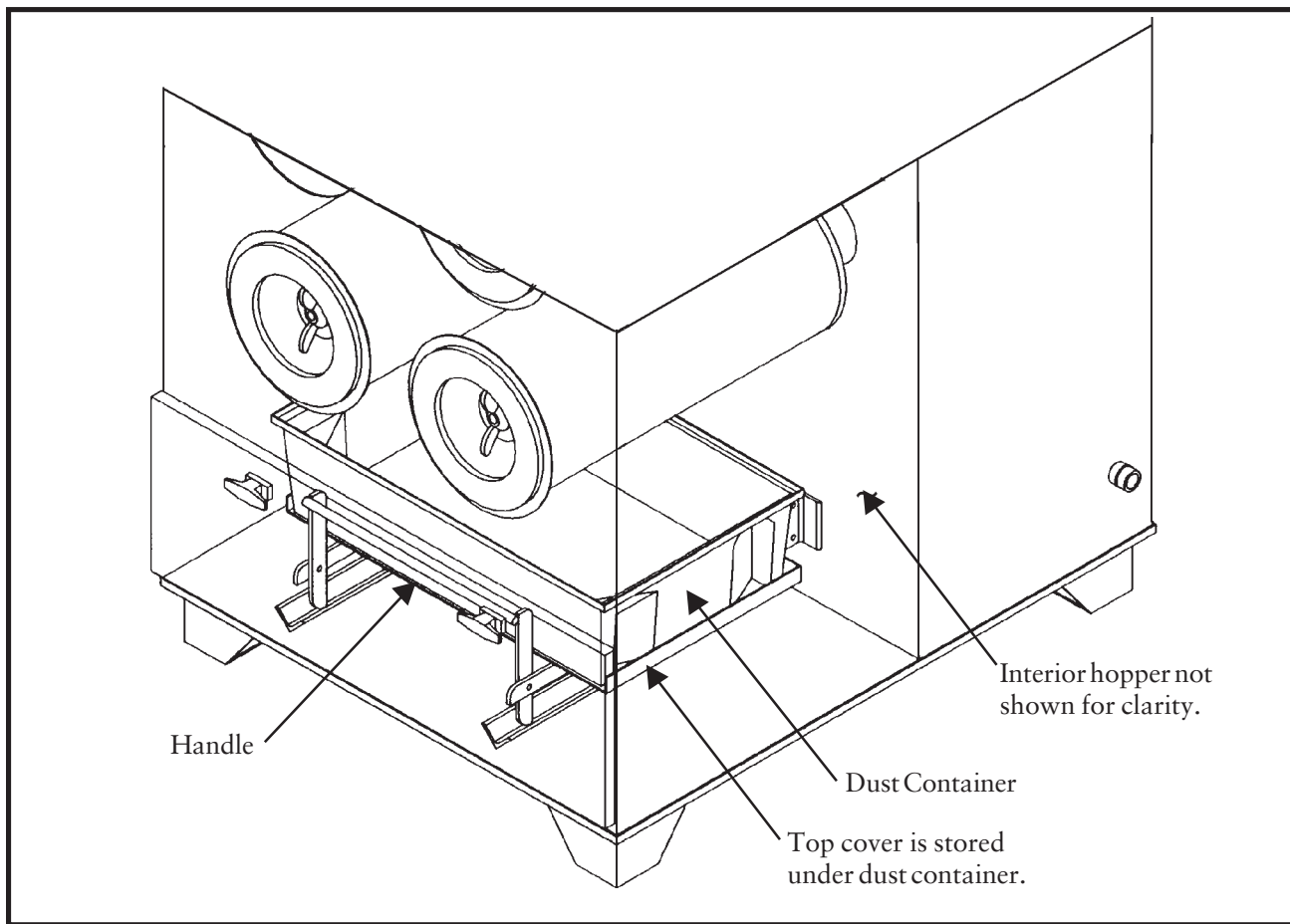


1. Open the hinged access door on the front by turning the two latches counterclockwise (see Figure 1 SDF-4 Phantom View).
2. Reach inside the model SDF and grasp the handle on the dust container support system (see Figure 40 Dust Container Support System). Pull the handle down to loosen the dust container from the gasketed flange. Remove the dust container by grasping the hand holds on the sides and pulling the container forward. Lift the container and dispose of the contents into the proper receptacle.\* Replace the dust container and seal it against the gasketed flange by pulling the handle on the dust container up and in. Close the hinged access door and turn the two latches clockwise to seal the door.

#### 6.4.1 Dust Removal—Hopper Model

1. The hopper, with or without gate, is not for storage. Empty the dust container periodically as necessary to keep dust in the hopper at a minimum. If a drum or pail is used, empty it when 2/3 full. Shut off the collector fan before emptying the drum or pail.
2. When using the hopper with gate, close the gate and empty the drum/pail. Reinstall the drum/pail and open the gate. The collector fan does not need to be shut down if this procedure is followed.

*\*Note: The dust container and its contents may be sealed by placing the top cover on the container and then disposing of the entire container completely. Another dust container may then be placed in the Downsized Downflo.*



**Figure 40**  
**Dust Container Support System**



## 6.5 Compressed Air Components

### CAUTION

Shut off and bleed off residual pressure before performing any service work.

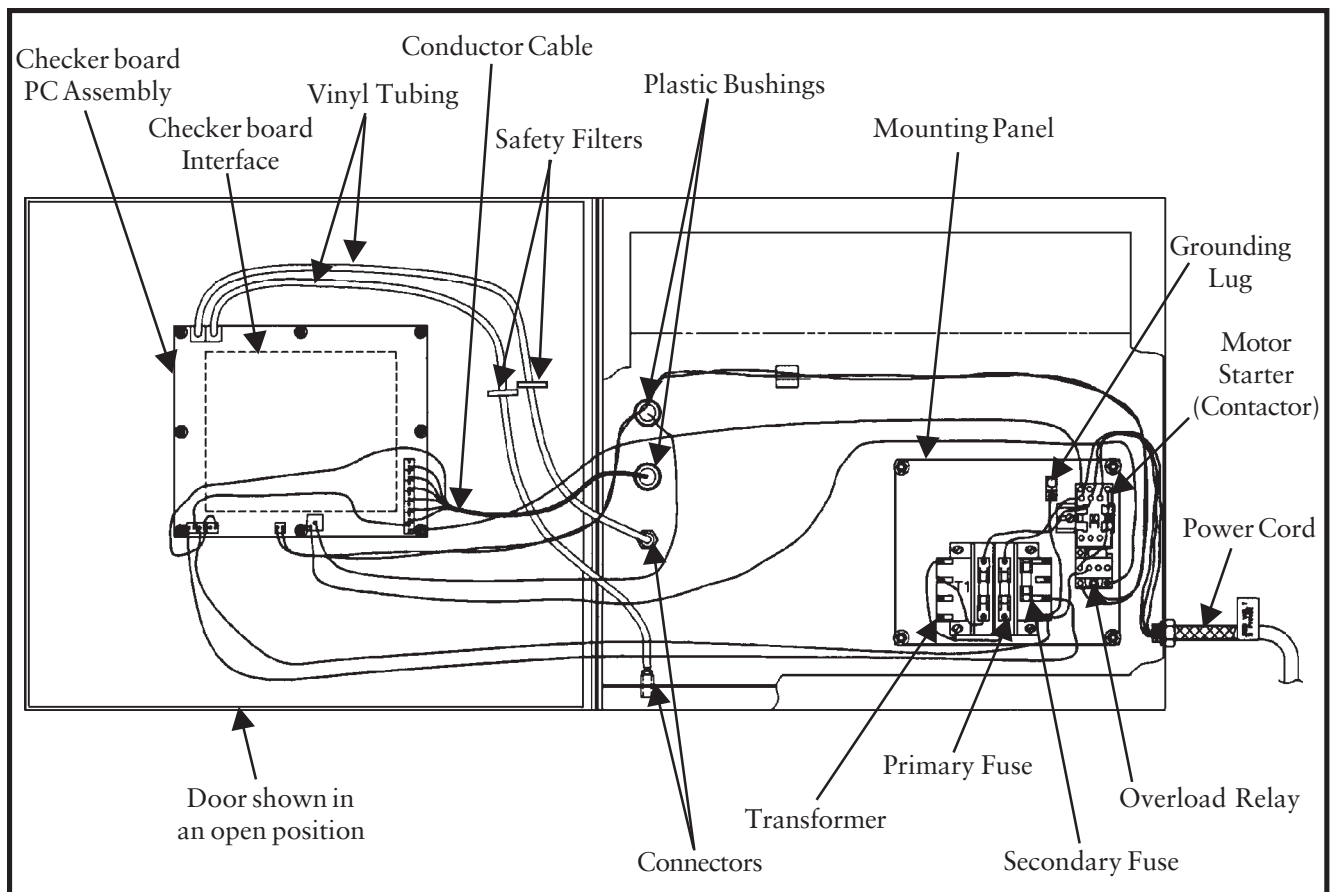
1. Periodically check any compressed air filter/dryer components and service them by installing new compressed air filters and draining any moisture off by following manufacturer's instructions.
2. Check the Downsized Downflo compressed air manifold for contamination, oil and/or water. Clean or drain if necessary.
3. With the compressed air supply turned on, check the cleaning valves, solenoid valves, and tubing for any leakage. Replace any components that are leaking compressed air (reference the Replacement Parts List).

## 6.6 Electrical Service (See Figure 41 Typical Electrical Component Assembly)

### CAUTION

Disconnect the Downflo model SDF from all electrical power sources and compressed air supply and bleed off any residual pressure before performing any service work.

A model SDF dust collector prewired electrical compartment equipped with the Checker board diagnostic and control panel is shown in Figure 41 Typical Electrical Component Assembly. For a detailed description of these parts see the Checker Board Replacement Parts List RPL-46813-00.



**Figure 41**  
**Typical Electrical Component Assembly**

## 7.0 Troubleshooting Guide

TROUBLE	POSSIBLE CAUSE	REMEDY
<p><b>A. Blower motor does not start.</b></p>	<p>1. Wiring.</p> <p style="padding-left: 20px;">a. Proper wire size not used for motor.</p> <p style="padding-left: 20px;">b. Not wired correctly.</p> <p style="padding-left: 20px;">c. Unit not wired for available voltage.</p> <p style="padding-left: 20px;">d. Input circuit down.</p> <p style="padding-left: 20px;">e. Electrical supply circuit down.</p>	<p>1a. Rewire per local and national codes for proper wire size.</p> <p>1b. Check and correct internal motor wiring for proper connections for your voltage (reference Motor Manufacturer Wiring Diagram on motor).</p> <p>1c. Correct wiring for proper input voltage.</p> <p>1d. Check input to motor circuits for voltage on all leads.</p> <p>1e. Check the electrical supply circuit for proper output voltage or fuse, circuit breaker fault. Replace if necessary.</p>
<p><b>B. Blower motor starts, but does not keep running.</b></p>	<p>1. Starter kicks out.</p> <p style="padding-left: 20px;">a. Incorrect starter overload relay is installed.</p> <p style="padding-left: 20px;">b. Collector access panels are off or not closed tight.</p> <p style="padding-left: 20px;">c. Blower damper control not adjusted properly.</p>	<p>1a. Check for proper motor starter overload relay. Replace with proper value overload relay if needed.</p> <p>1b. Tighten access panel(s) by hand securely (see Figure 1 SDF-4 Phantom View and Section 6.2 Filter Element Installation located in this manual).</p> <p>1c. Check airflow in ducting for proper requirements. Adjust the damper control until the proper airflow is achieved and the blower motor amperage draw is within manufacturer motor ratings.</p>

## 7.0 Troubleshooting Guide

TROUBLE	POSSIBLE CAUSE	REMEDY
B. Blower motor starts, but does not keep running (cont.).	1. Starter kicks out (cont.).  d. Electrical circuit overload.	1d. Check that the supply circuit has sufficient power to run all equipment.
C. Dust discharge out of clean air outlet.	1. Filter element damage, dents in the end caps, gasket damage or holes in pleated media.  2. Filter wing nuts are loose.	1. Replace the filter elements. Use only Torit-Built filter elements (see Figure 1 SDF-4 Phantom View and install as in Section 6.2 Filter Element Installation located in this manual).  2. Tighten filter wing nuts securely (see Figure 1 SDF-4 Phantom View and Section 6.2 Filter Element Installation located in this manual).
D. Insufficient airflow.	1. Blower rotation backwards.  2. Collector openings not tight or closed.	1. Check blower rotation. The rotation should be clockwise, looking down on top of the blower motor (see Figure 1 SDF-4 Phantom View and Section 4.0 Start-up located in this manual).  2. Check that access panels are in place and tightened securely (see Figure 1 SDF-4 Phantom View and Section 6.2 Filter Element Installation located in this manual). Also check that access door to dust container is secured properly (see Figure 1 SDF-4 Phantom View and Section 6.4 Dust Removal / Dust Container located in this manual).

## 7.0 Troubleshooting Guide

TROUBLE	POSSIBLE CAUSE	REMEDY
D. Insufficient airflow (cont.).	<p>3. Blower exhaust area is restricted.</p> <p>4. Filter elements plugged with particulate.</p> <p style="padding-left: 20px;">a. Filter elements need to be replaced.</p> <p style="padding-left: 20px;">b. Lack of compressed air.</p> <p style="padding-left: 20px;">c. Pulse cleaning not energized.</p>	<p>3. Check exhaust area for blockage. Remove material or debris that is blocking the exhaust area or adjust damper flow control on exhaust area.</p> <p>4a. Remove and replace using only Torit-Built filter elements (see Figure 1 SDF-4 Phantom View and Section 6.2 Filter Element Installation located in this manual).</p> <p>4b. Check compressed air supply for 90 psig minimum. See Figure 1 SDF-4 Phantom View. Increase pressure as described in Section 5.0 Operating Adjustments located in this manual.</p> <p>4c. Check supply voltage to the timer board with a volt ohm meter. Check the fuse on the timer board. If the fuse is blown, replace it with one of equal value. See Wiring Diagram in Figure 29 SDF Solid-State Timer Wiring Diagram and Section 2.6.3 Solid-State Timer Specifications. Also see the Installation and Operations Manual for the Checker board diagnostic and control panel (IOM-72202-00) Section 7.0 Troubleshooting Guide.</p>

## 7.0 Troubleshooting Guide

TROUBLE	POSSIBLE CAUSE	REMEDY
<p>D. Insufficient airflow (cont.).</p>	<p>4. Filter elements plugged with particulate.</p> <p style="padding-left: 20px;">d. Dust storage area is too full or plugged.</p> <p>5. Pulse valves are not functioning.</p> <p style="padding-left: 20px;">a. Pulse valves are leaking compressed air.</p> <p style="padding-left: 20px;">b. Pulse control solid-state timer board has failed.</p>	<p>4d. Clean out dust storage area as described in the Section 6.4 Dust Removal / Dust Container in this manual, reference Figure 1 SDF-4 Phantom View and Section 6.1 Filter Element Removal and 6.2 Filter Element Installation.</p> <p>5a. Lock out all electrical power to the model SDF and bleed off the compressed air supply. Check for debris, valve wear, or diaphragm failure by removing the diaphragm cover on the pulse valves. Also check for solenoid leakage and/or damage. If pulse valves or solenoid valves and solenoid tubing are damaged, replace part(s).</p> <p>5b. Check supply voltage to the timer board with a volt ohm meter. Check the fuse on the timer board. If the fuse is blown, replace it with one of equal value. If the fuse and input power to the control board are okay, but there is not any output voltage to the solenoid pulse control valves, replace the pulse control timer board (reference Section 2.6.3 Solid-State Timer Specifications and Figure 29 SDF Solid-State Timer Wiring Diagram).</p>

## 7.0 Troubleshooting Guide

TROUBLE	POSSIBLE CAUSE	REMEDY
D. Insufficient airflow (cont.).	5. Pulse valves are not functioning.  c. Pulse control timer board is out of adjustment.	5c. Refer to Section 2.6.3 Solid-State Timer Specifications located in this manual and to Figure 29 SDF Solid-State Timer Wiring Diagram.
E. $\Delta$ P Control shows no display.	1. No power to the control.  2. Fuse blown.	1. Use multimeter to check for voltage at the terminals of TB1.  2. Check the fuse in fuse tower F1. Replace if bad.
F. $\Delta$ P Control display does not read zero when at rest.	1. Out of calibration.  2. Differential pressure present from indoor to outdoor with collector discharging outside.	1. Disconnect pressure tubing. Recalibrate per Section 5.3 $\Delta$ P Control Calibration.  2. Recalibrate with tubing attached per Section 5.3 $\Delta$ P Control Calibration. Ignore if desired.
G. $\Delta$ P Control is on, but does not start the cleaning system.	1. Not properly wired to the timer board.  2. Faulty relay.  3. Pressure tubing disconnected, ruptured, or plugged.	1. Be sure that the Pressure Switch connection on the timer board is connected to terminals 7 & 8 on TB3.  2. Test the relay for proper closure with multimeter. If nonfunctional, replace the $\Delta$ P Control.  3. Check the tubing for kinks, breaks, contamination, and loose connections.

## 7.0 Troubleshooting Guide

TROUBLE	POSSIBLE CAUSE	REMEDY
<p><b>H. Pulse cleaning never stops.</b></p>	<ol style="list-style-type: none"> <li>1. Jumper wire across the Pressure Switch terminals on the timer board.</li> <li>2. Not properly wired to the timer board.</li> <li>3. HIGH SET and/or LOW SET are improperly adjusted for system conditions.</li> <li>4. Pressure tubing is disconnected, ruptured, or plugged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove the Pressure Switch jumper wire before wiring to the <math>\Delta P</math> Control.</li> <li>2. Be sure that the Pressure Switch connection on the timer board is connected to terminals 7 &amp; 8 on TB3.</li> <li>3. Adjust setpoints to usable values.</li> <li>4. Check tubing for kinks, breaks, contamination, and loose connections.</li> </ol>
<p><b>I. Alarm light is on.</b></p>	<ol style="list-style-type: none"> <li>1. Alarm setpoint too low.</li> <li>2. Excessive pressure drop.</li> <li>3. Pressure tubing is disconnected ruptured, or plugged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust alarm setpoint to a higher value.</li> <li>2. Check cleaning system and compressed air supply; replace filter elements if they will not clean down.</li> <li>3. Check tubing for kinks, breaks, contamination, and loose connections.</li> </ol>
<p><b>J. Arrow keys do not work.</b></p>	<ol style="list-style-type: none"> <li>1. Improper operation.</li> <li>2. Programming keys disabled.</li> </ol>	<ol style="list-style-type: none"> <li>1. Press and hold one of the three setpoint keys to use the arrow keys.</li> <li>2. Remove Program Disable jumper from terminals 3 &amp; 4, TB2.</li> </ol>

## 7.0 Troubleshooting Guide

TROUBLE	POSSIBLE CAUSE	REMEDY
<p>K. Control CLEANING light on, but no pulse cleaning occurs.</p>	<ol style="list-style-type: none"> <li>1. Improper wiring.</li>   <li>2. Defective solenoids.</li>   <li>3. Timer board not powered.</li>   <li>4. Possible defective timer board.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check all wiring between the <math>\Delta</math>P Control and timer board and between the timer board and solenoid valve coils.</li>   <li>2. Check all solenoid valve coils.</li>   <li>3. Check the Power On LED on the timer board. If not illuminated, check the supply voltage to the timer board with multimeter. Check the fuse on the timer board. Replace with identical fuse if necessary.</li>   <li>4. If LED is illuminated, observe the output LEDs. Install a temporary jumper across the Pressure Switch terminals. Output LEDs should flash in sequence. Check output using an analog multimeter set to 150 VAC range. Measure from SOL COM to a solenoid output. The meter needle will deflect if voltage is present when LED flashes for that output. Replace the board if either the LEDs do not flash or no voltage is present at the output terminals during flash.</li> </ol>



## **NOTES**

## The Torit® Warranty

Donaldson warrants that it will, at its option, repair or replace the goods, or return the purchase price thereof, which are found to be defective in material or workmanship, or not in conformity with the contract requirements provided that, within one (1) year of shipment thereof, Purchaser gives written notice of such defect to Donaldson, the Purchaser returns the good to a Donaldson Company designated point of manufacture, with transportation charges prepaid by Purchaser, and an examination by Donaldson discloses to its satisfaction the existence of such defect or nonconformity with the contract requirements. In no event shall Donaldson be liable for any incidental, special, or consequential damages resulting from said defects or nonconformity.

The foregoing does not apply to components which were not manufactured by Donaldson, and is expressly in lieu of all other warranties expressed or implied, including any warranty of merchantability or fitness for a particular purpose or use. There are no warranties which extend beyond the foregoing. No agent, employee or representative of Donaldson has any authority to bind Donaldson to any affirmation, representation, or warranty concerning the goods sold under this sales contract and unless affirmation, representation, or warranty made by an agent, employee, or representative is specifically included within this written agreement, it shall not be enforceable by the Purchaser.

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**1-800-365-1331**

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When ordering parts, give model number and serial number of dust collector, part number, description and quantity of parts desired.

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IOM-46740-00  
August 1999 Revision 5  
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