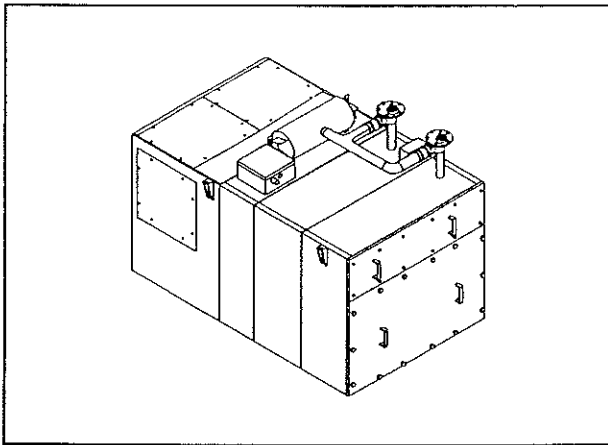


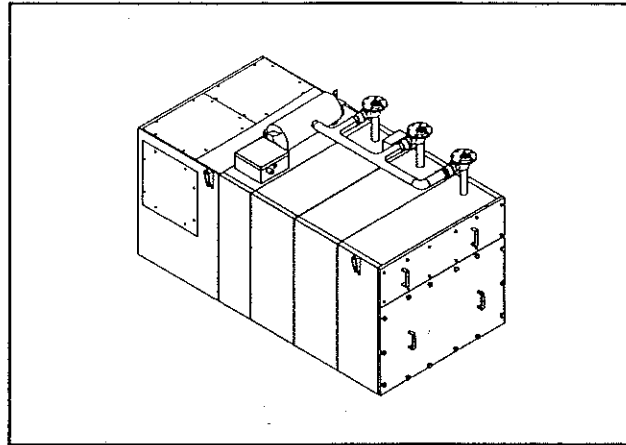
# OWNER'S MANUAL

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## FRED CT-C6/C9



FRED CT-C6



FRED CT-C9

**DIVERSI-TECH inc.**

131 Montée de Liesse  
Montréal (Qué) Canada  
H4T 1V2  
1-800-361-FRED

Document # CT-901

151951-001

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**EQUIPMENT CHECKLIST**

<u>Qty</u>	<u>Description</u>
<input type="checkbox"/> 1	CT OWNER'S MANUAL [Document # CT-901]
<input type="checkbox"/> 1	C6-4000-P or C6-4000-P-HS or C9-6000-P or C9-6000-P-HS Unit
<input type="checkbox"/> 1	17 lbs [7.75kg] precoat material (C6 models) 25 lbs [11.25kg] precoat material (C9 models)

**NOTE:**  
**READ ALL INSTRUCTIONS CAREFULLY  
BEFORE STARTING ANY WORK.**

### MECHANICAL INSTALLATION:

- A) Install equipment in a safe and non-hazardous location
- B) STAND MOUNTED INSTALLATION:
- Assemble and install stand desired location by fastening stand to floor
  - Install stand in desired location and fasten to floor
  - Install unit on stand by positioning foot mount brackets over bolt holes. Place rubber pads between mounting brackets and stand to absorb possible vibrations - not supplied
  - Fasten foot mount brackets to stand by using 11/16" grade 5 bolts. The use of lock nuts to secure bolts is recommended.

#### CEILING HUNG INSTALLATION:

- Install 1/2" eye bolts through all 4 lifting lugs (if chains are used)
- Attach chains or threaded rods to ceiling in appropriate locations. The use of turnbuckles can be useful to level equipment when chains are used
- Attach machine to chains or rods through eye bolts or holes
- The use of lock nuts to secure fasteners are recommended

C) STAND AND CEILING MOUNTED INSTALLATION:

- Install provided gasketing material all around hopper contour flange.
- Install dust hopper beneath cabinet by locating it with the 4 or 6 existing holes in cabinet. Use 5/16" bolts, and secure the contour of the hopper with 5/16" self drilling and tapping screws (teks) - Not supplied
- Make sure of a proper seal between the hopper and the cabinet. If necessary, caulk contour of hopper.
- Place drum on floor or mount on wall directly below cabinet (if used)
- Route flexible hose from hopper to drum and secure with hose clamps - provided
- No leak should occur between drum and hopper

D) DUCTING:

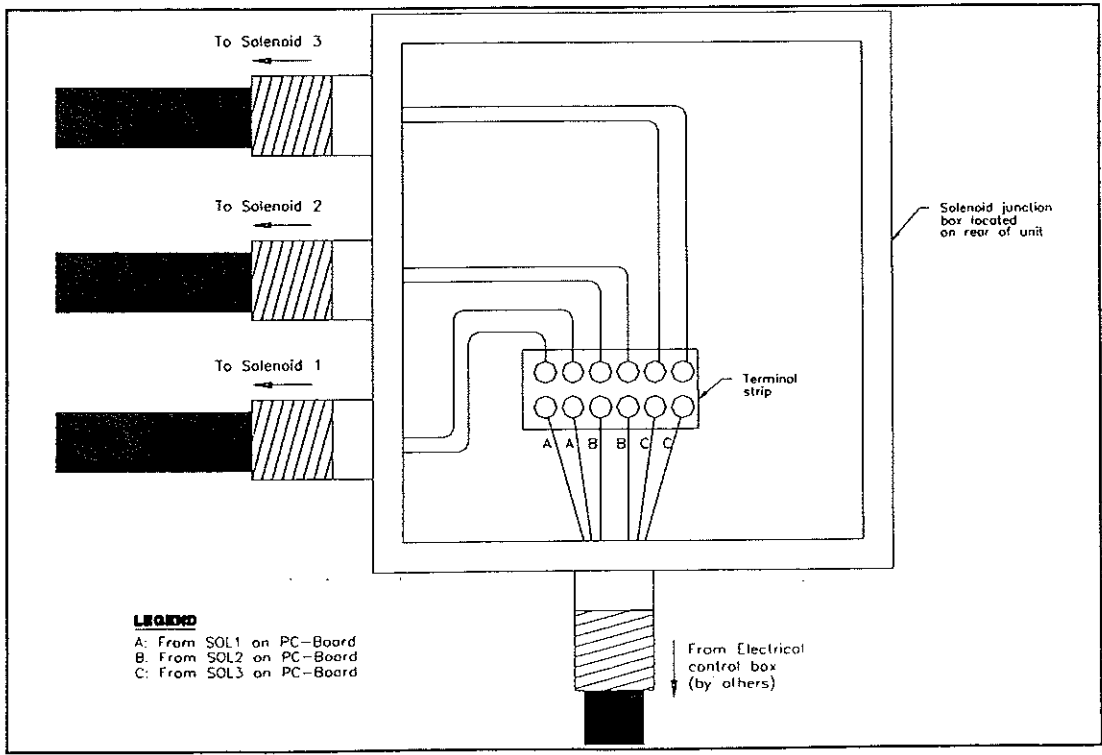
- Connect appropriate ducting to cabinet inlet
- Use smooth metal ducting where possible while reducing the amount of flexible hose (Consult distributor or manufacturer if necessary)
- Elbows should have a center line bending radius of 1.5 times the duct diameter or more (2 x diameter recommended)
- Branch-off's should be at 30° angle (45° max.)
- Seal and caulk every joint or crack to obtain the most hermetic system possible

- E) Make sure that all doors are properly seated and fastened
- F) COMPRESSED AIR: (refer to drawing CT-P41, page 13)
- Compressed air used to SELF-CLEAN the filters.
  - Connect compressed air (80 - 100 psi) to the inlet located on the side of the air tank.
  - The installation of a cut-off valve on the supply line is recommend for safety purposes
  - A regulator might be necessary to step down the supply air if the shop pressure is above recommended rating. NOT complying WILL result in component damage.
  - Clean & dry air is necessary for proper functioning of the SELF-CLEANING SYSTEM

ELECTRICAL INSTALLATION:

**NOTE:**  
**ALL ELECTRICAL CONNECTIONS MUST BE  
 MADE BY A QUALIFIED ELECTRICIAN.**

- A) Electrical information regarding your equipment can be found on the name plate located on the electrical enclosure
- B) Correctly size electrical supply cable according to motor horsepower and voltage
- C) REMOTE CONTROL BOX INSTALLATION ONLY: (refer to drawing CT-P41, page 13)
  - Connect the terminal side of the starter (T1,T2,T3) to the motor through the knock out provided on the side of the blower enclosure.
  - Using a separate conduit, connect the PC-Board solenoid outputs to the solenoid junction box. Connect as many solenoid outputs from the PC-Board as there are solenoids present.  
 i.e.: 2 outputs for C6 models  
 3 outputs for C9 models



CLEANING SYSTEM - DESCRIPTION:

AVP-MODEL ONLY

TERMINOLOGY:

- PULSE: A pulse comprises 1 blast of air through an air valve. Therefore, a unit with 3 air valves will pulse each valve once in sequential order for a total of 3 pulses.
- OFF-LINE: When fan and motor are turned OFF.
- ON-LINE: When fan and motor are turned ON.

OFF-LINE PULSING:

OFF-line cleaning occurs when the unit is turned OFF. A preset number of pulse are initiated 30 seconds after shut down. A pulse of air will fire each air valve in sequential order at 15 seconds interval. For example, an OFF-line pulse setting of 10 means that each valve will pulse 10 times each 15 seconds apart. For a 3-valve unit, this means a total of 30 pulses. Please refer to the table 3 for setting information.

ON-LINE PULSING: [Switch #1]

ON-line cleaning occurs while the unit is in operation. One pulse will be heard every 3 minutes for each valve at 15 seconds intervals if this option is set. This function is set through switch #1 on the DIP switch bank (see fig. 1). Please refer to table 3 for setting information.

PULSE DURATION: [Switches #2 & 3]

The pulse duration setting allows the user to lengthen or shorten the solenoid opening time. This can be usefull when the solenoid is not mounted directly on the air valve. For example, if a solenoid bank is mounted 5-10 ft. from the air valves and connected to the air valves with tubing, the pulse duration should be increased to 80 or 100 ms. This is to allow enough time for the air in the tubing to reach the air valve and open it for pulsing. A pulse length of 60 ms is optimal for solenoids mounted directly on the air valves (As is usually the case for this unit). Table 2 represents suggested pulse duration settings. Adjustment are done through switches #2 & #3 on the DIP switch bank (see fig.1). Please refer to table 4 for setting information.

**NOTE:**

*DIP switches are read on power-up only.  
In order to have a different switch setting  
take effect, the power to the unit must be  
cut off and turned on again.*

Pulse duration	Physical system
60 ms	Solenoids mounted directly on air valves
80 ms	Solenoids mounted 2-5 ft from air valves
100 ms	Solenoids mounted 5-8 ft from air valves
120 ms	Solenoids mounted 8-12 ft from air valves

Table 2: Recommended pulse duration settings

**NOTE:**  
*The shortest pulse duration a system can handle while still opening the air valves is preferable.*

**NUMBER OF PULSES:** (OFF-line) [ Switches #4 & 5]

This adjustment determines the total amount of OFF-line pulse the unit will generate. Please refer to the description OFF-line pulsing in the section above for more details.

This adjustment is done through switches #4 & #5 on the DIP switch bank (see fig.1). Please refer to table 5 for setting information.



CLEANING SYSTEM - SETUP:

This unit is equipped with a Venturi assisted reverse pulse cleaning system. Solenoid operated air valves discharge large blast of air through the filter cartridges. Thus dislodging particulates embedded in the filter media. The self cleaning system is controlled by a microprocessor based PC-board located in the control box. The microprocessor has been programmed to allow for certain parameters to be adjusted in the field. These parameters are:

- 1- ON-LINE PULSING - (YES/NO)
- 2- PULSE DURATION - (Length of pulse)
- 3- NUMBER OF PULSES - (OFF-LINE)

All of the above can be adjusted by different settings on the DIP switch bank located on the pulser board (see fig. 1). Please refer to tables 3, 4 & 5 for specific switch settings.

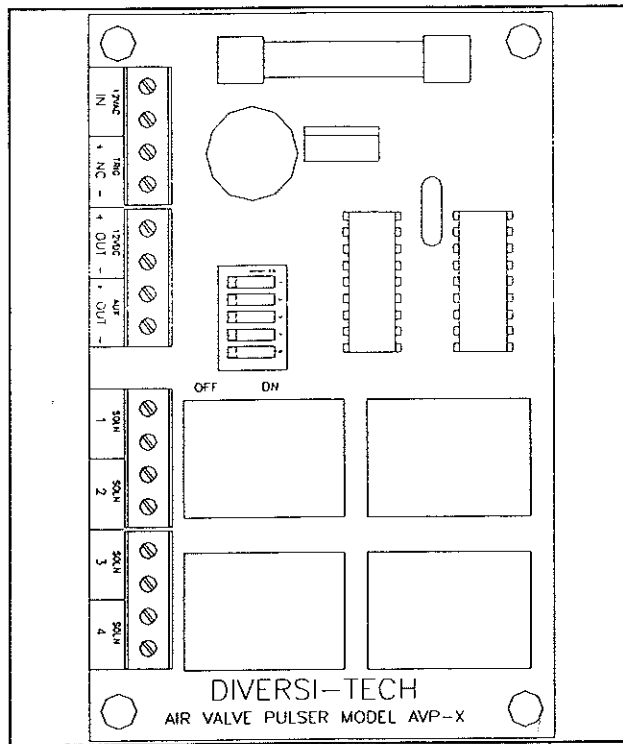


Figure 1: AVP-X PULSER BOARD

AVP-X PULSER BOARD SWITCH SETTINGS

Table 3: CLEANING MODE SETTINGS

CLEANING MODE - M	SWITCH #1
OFF-LINE only	OFF
ON-LINE & OFF-LINE	ON

Table 4: PULSE DURATION SETTINGS

11/12/97  
Tony

PULSE DURATION - T	SWITCH #2	SWITCH #3
60 ms	OFF	OFF
120 <del>80</del> ms	OFF	ON
240 <del>100</del> ms	ON	OFF
360 <del>120</del> ms	ON	ON

Table 5: NUMBER OF PULSE SETTINGS

NUMBER OF PULSES - P (OFF-line)	SWITCH #4	SWITCH #5
5	OFF	OFF
10	OFF	ON
20	ON	OFF
30	ON	ON

**NOTE:**  
*DIP switches are read on power-up only.  
 In order to have a different switch setting  
 take effect, the power to the unit must be  
 cut off and turned on again.*

**START-UP:**

- A) Power-up the unit. (Do not turn unit ON, just supply power to the unit)
- B) **CLEANING CYCLE TEST LOOP:**
- A cleaning cycle test loop is initiated once power has been supplied to the unit. This will begin thirty (30) seconds after power-up. A series of pulses will be heard.
  - Verify that all valves pulse sequentially for the prescribed amount of pulses. Please refer to OFF line pulsing in the "Cleaning System" section for more details.

**CAUTION:**

*Stand clear of the inlet if not yet ducted. Loose components could fly out of the unit and cause injury. Protective eye wear should be worn.*

- C) Press unit START button and check the motor amperage. The amperage should never exceed rated motor amperage for more than a few moments (this can be found on the unit nameplate). Check for adequate suction. If unit is not performing as expected, it could be that the motor is operating in the reverse rotation. Please refer to the "Electrical Installation" section on how to reverse the motor rotation.
- D) If ON-line cleaning is operating, a single pulse per valve will be heard every 3 minutes during the operation. Please refer the "Cleaning System" section for more details about ON-line cleaning.
- E) Turn the unit OFF. Once the unit is turned OFF, the standard OFF-line cleaning cycle will begin after thirty (30) seconds delay. Both compressed air and electrical power must remain supplied for the duration of the pulse cycle. For a detailed description of the cleaning cycle, please refer to the "Cleaning System" section.

**NOTE:**

*It is not absolutely necessary for the proper operation of the unit to have the compressed air installed and on-line. Not doing so will prevent the SELF-CLEANING operation of the machine. This will in turn cause the particles accumulated on the filter cartridge, to remain and deteriorate the performance of the unit.*

- F) If all above is in order, your unit is ready to be put into use.

## MAINTENANCE:

### FILTER CARTRIDGES:

If necessary, the filter cartridges should be removed and manually cleaned every (3) to (6) months.

In order to clean the cartridges they must be taken out. This is done by removing the cartridge access panel; located on the opposite side of the blower housing. Release the cartridge holder mechanism by unscrewing the tensionner 2-3" until the cartridge support bars rest on the side supports. Cartridges can then easily slide out. As a first step, the cartridges should then be turned horizontally and tapped lightly on a solid surface. This can be done directly onto a plastic sheet or a garbage bag.

As a second step, the cartridge should be cleaned with compressed air. The air should travel radially outward (from the inside of the cartridge to the exterior). We suggest that this be done outside or in a well ventilated area.

The cartridge will need to be replaced periodically. This period can hardly be estimated due to the variety of applications this unit can serve. It can vary from 6 months to 18 months depending on many factors such as density of fumes/dust, particle size, humidity of air, oil or grease contents of matter, etc...

### **IMPORTANT:**

*Do not wet or clean this cartridge with any liquid, as it may cause the forming of unwanted blockage on the filter media. Or it may weaken the cartridge which could cause perforation and ultimately damage the blower.*

### PRE-COATING:

When replacing filters, the new filters need to be pre-coated with silicate based powder, cellulose powder or other acceptable pre-coat material available on the market. This is done by turning the machine ON, and feeding the specific amount of pre-coat through a capture arm or hood. The amount of pre-coat required is as follows:

6 - CARTRIDGE UNIT : 17 lbs.

9 - CARTRIDGE UNIT : 25 lbs.

Pre-coat can be obtained through your distributor or from Diversi-tech inc.

**NOTE:**

*When a cyclone is present in the system, by pass the cyclone in order to feed the pre-coat.*

It is recommended that the flow be dampered down somewhat for this operation so that the pre-coat will not impregnate the filter media, but form a cake on the surface of the media. This can be done by partially blocking off 3/4 of the inlet. Before doing so, the cleaning system should be deactivated by disconnecting shop air to the unit. It should also stay disconnected for at least 2 to 4 days, depending on the load to allow the precoat to settle on the filter cartridge.

**AIR FILTER:**

Check the compressed air filter (or filters) periodically and replace the filter media if necessary. If moisture or water is present in the bowl, vent out through bleed valve located beneath bowl while air pressure is ON.

**DRAIN VALVE:**

Periodically open the drain valve attached below the tank to drain the liquid build-up in the air tank.

**SAFETY VALVE:**

Periodically test the air safety valve located on or near the air tank, by pulling on the spring tensioned ring. A short spurt of air will be heard.

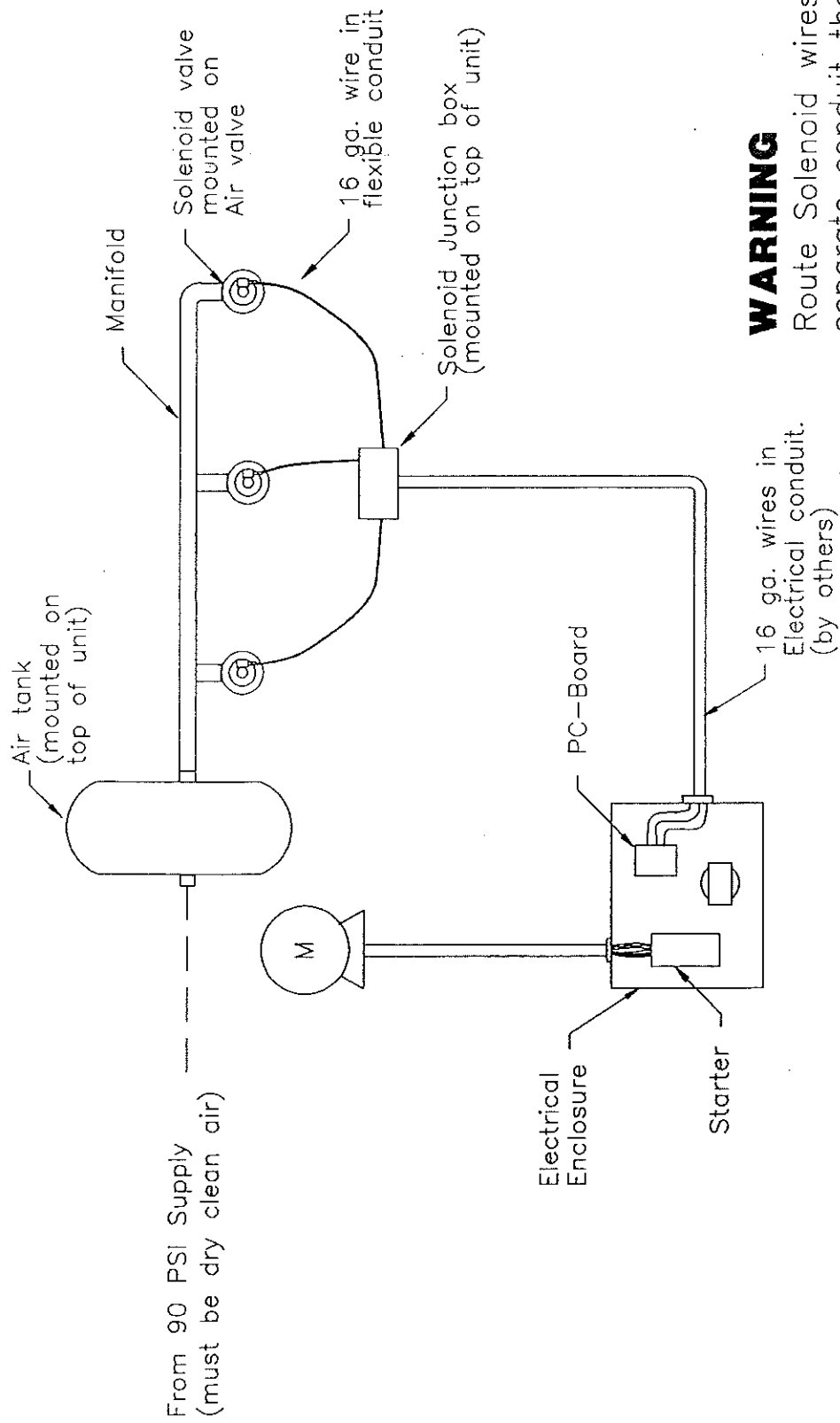
**CAUTION:**

*Wear protective eye glasses when testing safety valve.*

**GAS ADSORPTION FILTER & HEPA FILTER (options only):**

For FRED units equipped with gas or HEPA filters, it is necessary to pay attention to change in emissions if possible. It is difficult to determine a specific time limit for the effectiveness of these filters, but changes in emissions are a definite signal that the filter(s) is (are) in need of replacement. We recommend that the filter(s) be replaced once every six to eighteen (6-18) months, depending on the type of filter or media and loading.

## C. Standard configuration Physical installation

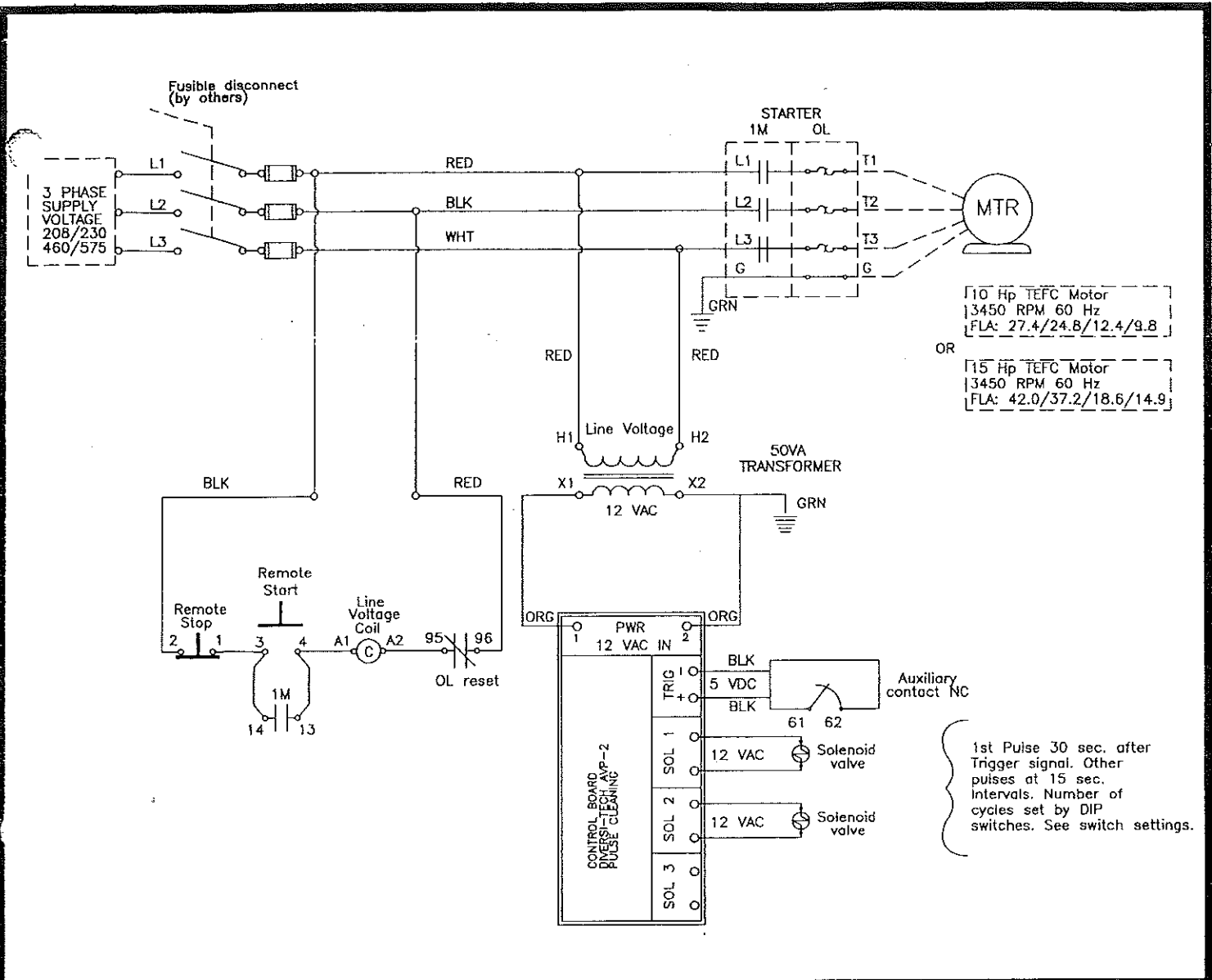


### WARNING

Route Solenoid wires in separate conduit than motor wires

### NOTE

- 3 Solenoid valves for C9 unit
- 2 Solenoid valves for C6 unit



10 Hp TEFC Motor  
3450 RPM 60 Hz  
FLA: 27.4/24.8/12.4/9.8

OR  
15 Hp TEFC Motor  
3450 RPM 60 Hz  
FLA: 42.0/37.2/18.6/14.9

1st Pulse 30 sec. after  
Trigger signal. Other  
pulses at 15 sec.  
intervals. Number of  
cycles set by DIP  
switches. See switch settings.

**WARNING**

DO NOT route auxiliary contact wires in the same conduit as motor cable.

**NOTES**

Specific transformer wiring may differ depending on voltage configuration.

DIP switches are read on power-up only. In order to have a different switch setting take effect, the power to the unit must be cut off and turned on again.

AVP-2 PULSER BOARD SWITCH SETTINGS			
<b>CLEANING MODE - M</b>	<b>SWITCH #1</b>		
OFF-LINE only	OFF		
ON-LINE & OFF-LINE	ON		
<b>PULSE-DURATION - T</b>	<b>SWITCH #2</b>	<b>SWITCH #3</b>	
60 ms	OFF	OFF	
80 ms	OFF	ON	
100 ms	ON	OFF	
120 ms	ON	ON	
<b>NUMBER OF PULSES - P</b>	<b>SWITCH #4</b>	<b>SWITCH #5</b>	
per valve (OFF-LINE)			
5	OFF	OFF	
10	OFF	ON	
20	ON	OFF	
30	ON	ON	

**DIVERSI-TECH** Inc.

Air Pollution Solutions



131 Montee de Liesse  
Montreal, Quebec  
H4T 1V2

DRAWING #: C6-E33

DATE: 96/05/21  
DRAWN BY: L.L.

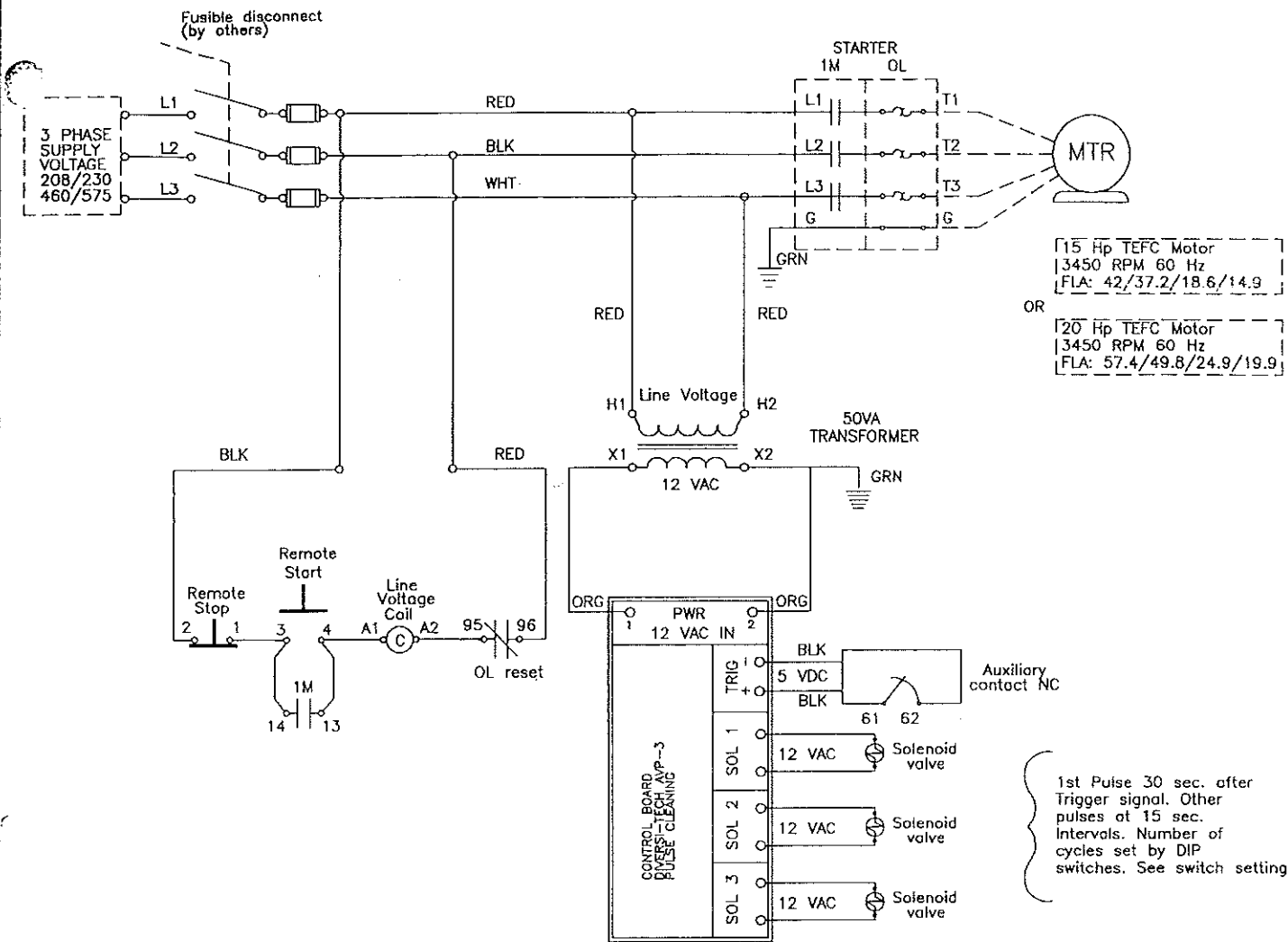
NOTES:  
REVISION 1

**WIRING SCHEMATIC**

EQUIPMENT:  
FRED C6-4000-P & C6-4000-P-HS

CONTROL:  
Push button

PC-BOARD AVP-2	VOLTAGE 208/230/460/575	PHASE 3
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15 Hp TEFC Motor  
3450 RPM 60 Hz  
FLA: 42/37.2/18.6/14.9

OR

20 Hp TEFC Motor  
3450 RPM 60 Hz  
FLA: 57.4/49.8/24.9/19.9

1st Pulse 30 sec. after Trigger signal. Other pulses at 15 sec. Intervals. Number of cycles set by DIP switches. See switch settings.

**WARNING**  
DO NOT route auxiliary contact wires in the same conduit as motor cable.

**NOTES**  
Specific transformer wiring may differ depending on voltage configuration.  
DIP switches are read on power-up only. In order to have a different switch setting take effect, the power to the unit must be cut off and turned on again.

AVP-3 PULSER BOARD SWITCH SETTINGS		
<b>CLEANING MODE - M</b>	<b>SWITCH #1</b>	
OFF-LINE only	OFF	
ON-LINE & OFF-LINE	ON	
<b>PULSE-DURATION - T</b>	<b>SWITCH #2</b>	<b>SWITCH #3</b>
60 ms	OFF	OFF
80 ms	OFF	ON
100 ms	ON	OFF
120 ms	ON	ON
<b>NUMBER OF PULSES - P per valve (OFF-LINE)</b>	<b>SWITCH #4</b>	<b>SWITCH #5</b>
5	OFF	OFF
10	OFF	ON
20	ON	OFF
30	ON	ON

**DIVERSI-TECH** Inc.  
Air Pollution Solutions



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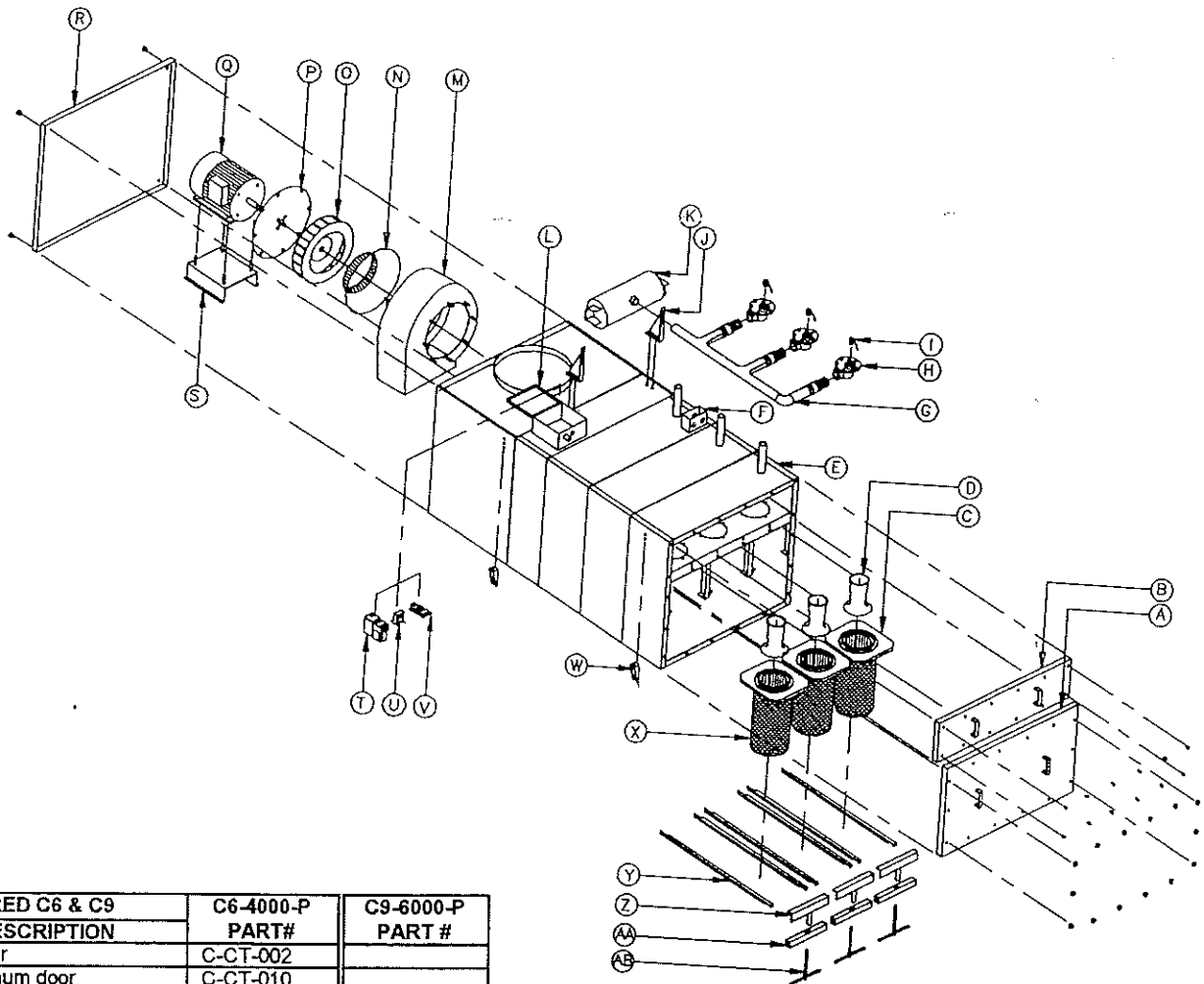
DRAWING #: C9-E33  
DATE: 96/05/21  
DRAWN BY: L.L.  
NOTES: REVISION 1

WIRING SCHEMATIC		
EQUIPMENT: FRED C9-6000-P & C9-6000-P-HS		
CONTROL: Push button		
PC-BOARD AVP-3	VOLTAGE 208/230/460/575	PHASE 3



# UNIT PARTS LIST

MODELS : FRED C6 & C9



ITEM	FRED C6 & C9 DESCRIPTION	C6-4000-P PART#	C9-6000-P PART #
A	Main door	C-CT-002	
B	C.A. plenum door	C-CT-010	
C	Filter cartridge flange	F-CA-010	
D	Venturi	H-VE-001	
E	Bare cabinet	C-CT-001	
F	Junction box	C-CT-011	
G	Blow pipe	C-CT-105	C-CT-205
H	Air valve	P-AV-004	
I	Solenoid	P-SO-001	
J	Tank bracket	C-CT-012	
K	Air tank	C-CT-013	
L	Electrical box	E-BX-003	
M	Blower housing	B-BH-207	B-BH-208
N	Inlet cone	B-BH-207	B-BH-208
O	Blower wheel	B-BH-207	B-BH-208
P	Motor plate	B-BH-207	B-BH-208
Q	Motor	E-MT-1XX	E-MT-JXX
R	Sound enclosure door	C-CT-003	
S	Motor support	C-CT-106	C-CT-206
T	Motor starter	E-ST-1XX	E-ST-JXX
U	Transformer	E-TR-1XX	E-TR-1XX
V	PC board AVP-X	E-PC-008	E-PC-009
W	Lifting lug	C-CT-008	
X	Filter cartridge	F-CA-202	
Y	Cartridge lever	C-CT-014	
Z	Compression bar	C-CT-015	
AA	Gate	C-CT-016	
AB	Crank	C-CT-017	

Note: C6 - 6 Cartridge unit  
C9 - 9 Cartridge unit