



DIVERSI-TECH inc.

Fred

OWNER'S MANUAL

MODEL - FRED 01



IMPORTANT

This manual contains specific cautionary statements relative to worker safety. Read this manual thoroughly and follow as directed. Hazards of dust control equipment are not all listed in this manual. It is important that use of the equipment be discussed with a Diversi-tech Representative. Persons involved with the equipment or systems should be instructed to operate in a safe manner.

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Caution

Avoid mixing combustible materials, such as buffing lint, paper, wood, aluminum, and magnesium dust, and with dust generate from grinding ferrous metals due to the potential fire hazard caused by sparks in the dust collector.

All users of Diversi-tech Equipment should comply with all National and Local Fire Codes and / or other appropriate codes when determining the location and operation of dust control equipment.

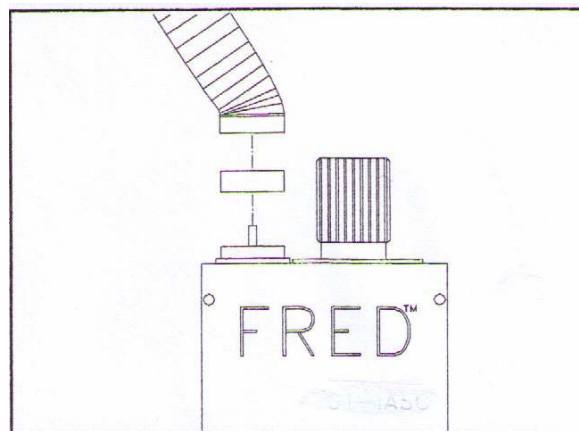
Upon Arrival

The Fred O1 portable is shipped on a crated skid. The skid should be inspected for any visible damage that may have occurred during shipment. If the Fred O1 appears to have been damaged during shipping, please advise Transport Company as soon as possible.

Installations

Mechanical Installation

- 1) Install cabinet in a safe and non-hazardous location
- 2) The unit is equipped with a 8" diameter, 10' long capture arm. Mount capture arm on unit by slipping arm base on the inlet collar's support pin (inlet collar is already mounted on top of the unit). Ensure that the rubber seal is correctly positioned sealing the joint between the inlet collar and arm base.



- 3) Make sure that front and rear doors of the unit are properly sealed.

Electrical Installation

- 1) Electrical information can be found on the unit's serial # sticker and on the motor's nameplate. Please refer to wiring diagram attached with this manual.
- 2) Correctly size electrical supply cable according to motor horsepower and voltage.
- 3) Supply voltage must be connected to the line side of the contactor (L1, L2, L3). The ground wire must also be grounded to the cabinet. The supply cable must be pulled through an air tight connector and tightly secured.
- 4) Blower wheel's correct direction of rotation : Clockwise.
- 5) Switching two of the 3phase connectors will reserve the direction of rotation of the motor. Your unit will be blowing the air at about one third of its efficiency if the blower is turning in the incorrect direction. It will also be making more noise than it should.

Warning: Always disconnect power supply before servicing the blower wheel & motor or working with the unit for any reason. All electrical connections must be made by a qualified electrician.

Compressed Air Installation

Connect compressed air (80-100psi) to the inlet fitting located on the side of the unit. The compressed air is used to SELF-CLEAN the system. It is recommended to install a cut-off valve on the line for safety purposes. A regulator will be necessary to step down the supply air if the shop pressure is above 100psi. NOT complying may result in damage to the unit's components. A ½" NPT supply line is recommended if the distance to the compressor exceeds 50ft.

Start Up

- 1) The unit is equipped with a rotary motor starter, located on top of the unit. To turn on the unit, switch the starter to the ON position.
- 2) Check amperage. Amperage should never exceed the rated motor amperage for more than a few moments.
- 3) Make sure that the main filter cartridge and HEPA after-filter are in the unit and well secured.
- 4) Check the self-cleaning system: Your FRED 01 unit will automatically start cleaning thirty seconds after the machine is turned OFF. In order to accomplish this, both compressed, both compressed air and electrical power supply must remain supplied for the duration of the cleaning cycle. More information on this subject can be found in this manual under "Injection Cleaning System".

Note: It is not absolutely necessary for the proper operation of the unit to have the compressed air connected at all times. Not doing such 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 more rapidly than if the SELF-CLEANING system is active.

- 5) If all above is in order, Your Fred 01 is ready to be put to use.

Maintenance

Filters

Main Paper-Pleated Cartridge

The main paper-pleated cartridge inside the cabinet is equipped with an Injection Cleaning System which is explained in this manual.

As a general maintenance guideline, the filter cartridge should be replaced when the unit has reached a point whereby suction is insufficient.

Do not wet or clean this cartridge with any liquid, as it may cause the forming of unwanted blockage on the filter media. It may also weaken the cartridge, causing breakage and ultimately damage to the blower.

Dust drawer

The dust drawer must be emptied periodically.

Carbon Filter

The carbon filter is located in the rear mesh door panel. This panel aids in absorbing most gases and odors out of the air stream. This panel needs to be replaced every 12-18 months or when the odors become apparent. As a good practice, this filter should be replaced every time the filter cartridge is replaced. To replace, remove mesh door from unit, tear out old carbon panel, and install new panel by applying a couple of dabs of contact cement or other glue on the outside edge of the panel facing the door. The glue is only necessary to hold up the panel when re-installing the mesh door.

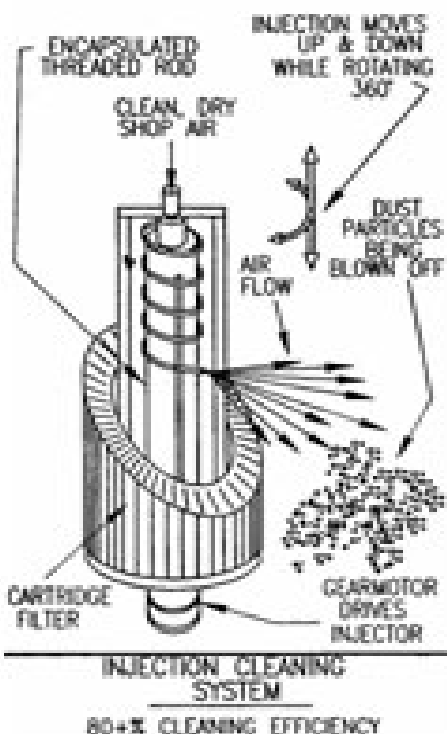
HEPA Filter

It is necessary to pay attention to change in emissions to determine filter efficiency. The filter will need to be changed when its loading capacity will have been reached. This will be apparent when having poor suction at the capture arm even after going through a complete main cartridge cleaning cycle. To make a definite determination of the filter loading, remove the HEPA filter from the unit. If the performance improves, the HEPA filter is at fault. If not, the main cartridge is to be properly cleaned or replaced. **DO NOT CLEAN THE HEPA FILTER.** When completely loaded, this filter must be disposed of carefully. The particulate matter it contains should not be allowed to return back into the atmosphere.

Compressed Air Filter

Check the compressed air filter periodically and replace the filter media if necessary. If moisture or water is present in the bowl, vent out through the bleed valve located beneath bowl while the air pressure is ON. Make visual inspections during the first few weeks of operation to determine proper dumping cycles. Note: The bowl must not be allowed to fill itself to the level of the filter. Not complying will result in water passing through and embedding itself in the filter cartridge, thus damaging the media and blocking the filter pores decreasing the performance of the unit.

Injection Cleaning System:



Principle of Operation:

The Injection Cleaning System (ICS) operates by cleaning the filter cartridge in the reverse direction with an air nozzle blowing compressed air directly through the filter media.

The cleaning mechanism is automatically engaged when the unit is turned OFF. The system has a nozzle rotating inside the main filter cartridge on a threaded rod. As the nozzle spins on the stationary rod, it automatically moves up and down, thus covering the complete inner filter surface. This movement is accomplished by a fractional horsepower gearmotor located below in a dust-tight enclosure.

Engaging the System:

The cleaning cycle is controlled by a microprocessor based PC board located in the control box. The microprocessor has been programmed to turn on the cleaning system 30 seconds after the unit is turned off. The nozzle will travel from its home position (located at the bottom) through the top and back down to home. The home and top positions are sensed by a pair of proximity sensors. Simultaneously, when the gear motor is engaged, an in-line solenoid opens and allows compressed air to reach the nozzle. If for some reason the start button on the unit is pressed before the cleaning system has had a chance to terminate the cycle, the system will shut the air off and will head down to the home position.

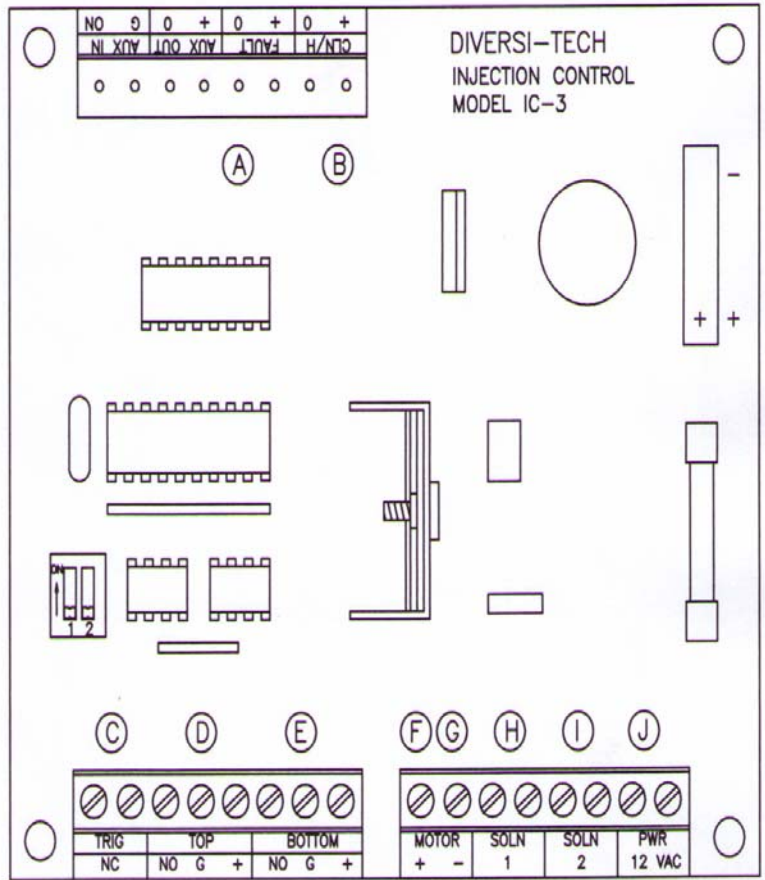
Overload Protection:

If for any reason the cleaning mechanism should jam or is obstructed in any way, a thermal overload sensor located on the control board will prevent any damaged to the electronics or to the gear motor. Approximately 2-2.5 minutes after a stall situation occurs, the thermal overload will activated itself and shut down the system. At that moment, a red light-emitting diode, labeled FAULT, located on the control board will start flashing , thus indicating a false situation. In order to RESET THE SYSTEM, power to the unit must be completely interrupted. It is imperative that the unit be open, the filter taken out and the cause of problem be diagnosed before REOPERATING the cleaning mechanism. If for any reason, the cleaning mechanism must be disabled, simply disconnect the power from the transformer to the control board. It can also be found in the control box, next to the control board.

Note: DIP switches are read on power-up only. In order to change the switch setting, the power to the unit must be cut off and turned on again.

See next page for diagram of the cleaning control board model IC-3...

| STATUS LIGHTS | |
|---------------|---------------------------------------|
| A | Fault Alert |
| B | Solid → Cleaning Flashing → Homing |
| C | Trigger |
| D | Top switch |
| E | Bottom switch |
| F | Motor Up |
| G | Motor Down |
| H | Solenoid 1 |
| I | Solenoid 2 (Certain models only) |
| J | Power 12 VAC |



Troubleshooting List for Injection Cleaning System

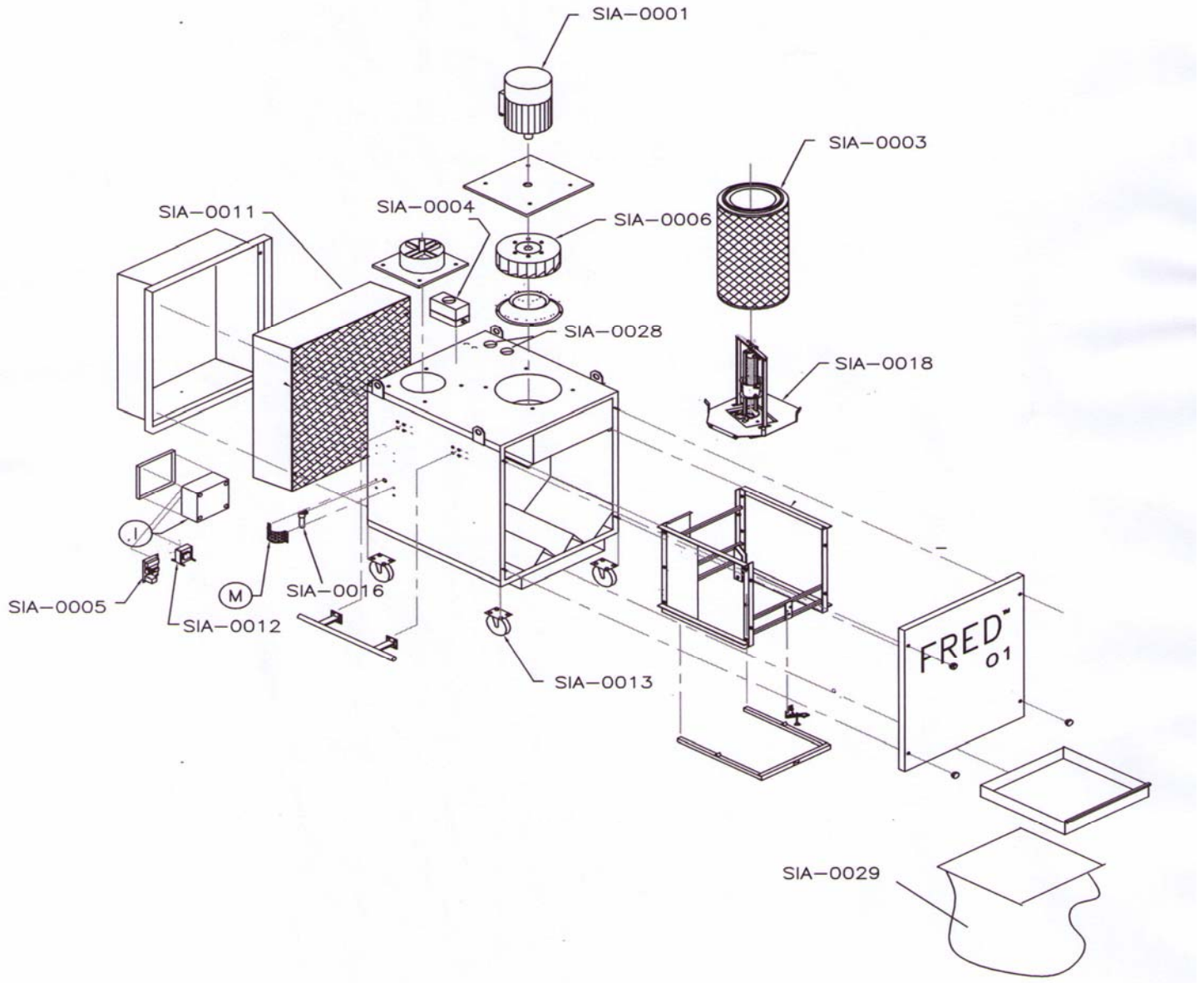
Note: As soon as a malfunction in the cleaning system is discovered, DO NOT disconnect power right away. Verify the red FAULT light on the PC Board located in the electrical control box. If it is flashing, it indicates that there was a complete shut down of the board due to some failure, and that the only way to reset the system is by turning all power OFF and then ON again. Once the status light has been verified, the power can then be turned OFF.

| PROBLEM | CAUSE | SOLUTION |
|---|---|---|
| System is NOT turning AND "FAULT" light is NOT flashing on PC Board. | Power is not supplied to PC board. | Check if power, 12VAC, is supplied to PC board from transformer (secondary side) The power indicator light should be ON. |
| | Trigger contact is not being read. | When the blower motor is OFF the "TRIG" light should be ON. If not, check wiring from the auxiliary contact NC terminal on the starter to the PC board TRIG NC terminal. (Refer to the electrical diagram) |
| | One or both proximity sensors is/are defective. | Check the operation of the proximity sensors, by placing a metal object over the top proximity sensor, the "TOP" light will turn ON momentarily. The same holds for the bottom sensor and "BOT" light. Replace proximity sensors if necessary. |
| | Loose connection between PC board and motor. | Check motor connection. When the "UP" light is ON, the motor should be rotating the nozzle upwards; and downwards when the "DWN" light is ON. (Refer to the electrical diagram) |
| System is NOT turning AND "FAULT" light on PC board is flashing. | Motor was in an overload condition and the PC board shut down all systems. | Turn OFF all power to the unit and turn it ON again. This will reset the system. |
| | This could be a result of the nozzle being jammed, or of something restricting free movement of the nozzle. | Locate and repair the cause of the physical restriction before operating the system. |
| System is NOT turning AND "FAULT" light on PC board is flashing AND Nozzle holder is stuck on proximity sensor. | Proximity sensor is defective. | Check the operation of the proximity sensors, by placing a metal object over the top proximity sensor, the "TOP" light will turn ON momentarily. The same holds for the bottom sensor and "BOT" light. |
| | Proximity sensor needs adjustment. | Loosen proximity sensor locking nuts and move sensor approximately 1/16" up or down. |
| System turns but no air comes out of the nozzle. | Air line is not connected to the unit, or air supply is not ON. | Supply shop air to the unit. |
| | Solenoid is not opening. | Upon a cleaning cycle, the "SOLN1" light turns ON indicating power is being supplied to the solenoid. Check the wiring between the PC board and the solenoid for any possible bad connections. Check if solenoid is operational. This can be done by jumping the solenoid leads to the secondary side of the transformer. (12VAC) If both wiring and solenoid are in order, the PC board might need to be changed. |
| Not enough air coming out of the nozzle. | Low air supply pressure. | Ensure that air pressure is 80-100psi. |
| | The nozzle is blocked by dirt or other contaminant. | Remove blockage from the nozzle. Check if pneumatic filter is filtering air properly. Its filter unit might need to be replaced. |
| | There is an air leak in the pneumatic system. | Verify pneumatic system for leaks and tighten or change hose clamps or hoses. |

Note:

If the unit has been disconnected at any point after the system failure, the red "FAULT" light will have gone OFF, therefore not allowing the operator to diagnose where the problem might have occurred. If this is the case, reconnect the unit and proceed as normal with the cleaning cycle. If the light is to come ON, it will do so approximately 2-2.5 minutes after and indicate an overload condition.

Replacement Parts



Options

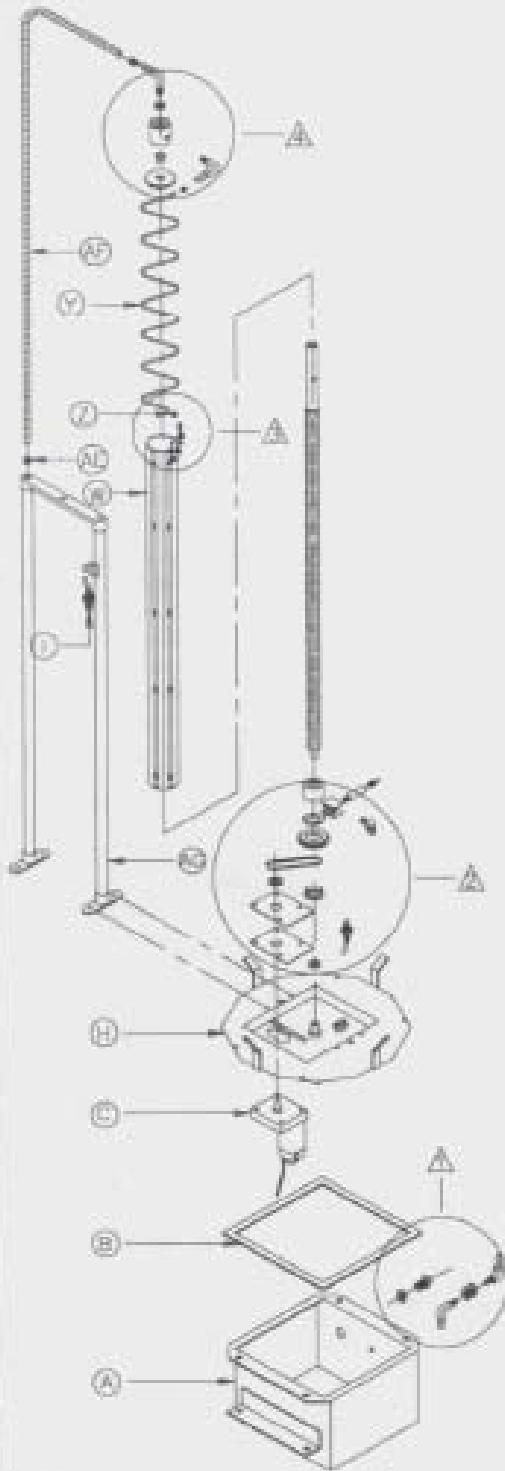
| <u>Part #</u> | <u>Description</u> |
|----------------------|--|
| Fred 01 -3HP | Upgrade to a 3HP 3phase , 1200 cfm |
| O-IA-LK | Upgrade: Halogen Light Kit in Suction Hood |
| O-IA-PC | Pneumatic Castors 6" (with set of 4 spider legs) |
| O-IA-CMP | Carbon Module: Impregnated Panel Type (4 panels) |
| O-IA-HFM | H.E.P.A. Filter (99.97%@0.3micron) & frame |
| O-IA-ARM13 | Upgrade to 13' long capture arm |
| O-IA-RP | Replace ICS Cleaning System with Reverse Pulse Self Cleaning |
| O-IA-POLY | Upgrade to Polyester Spun Bond filter cartridge |

Replacement Parts

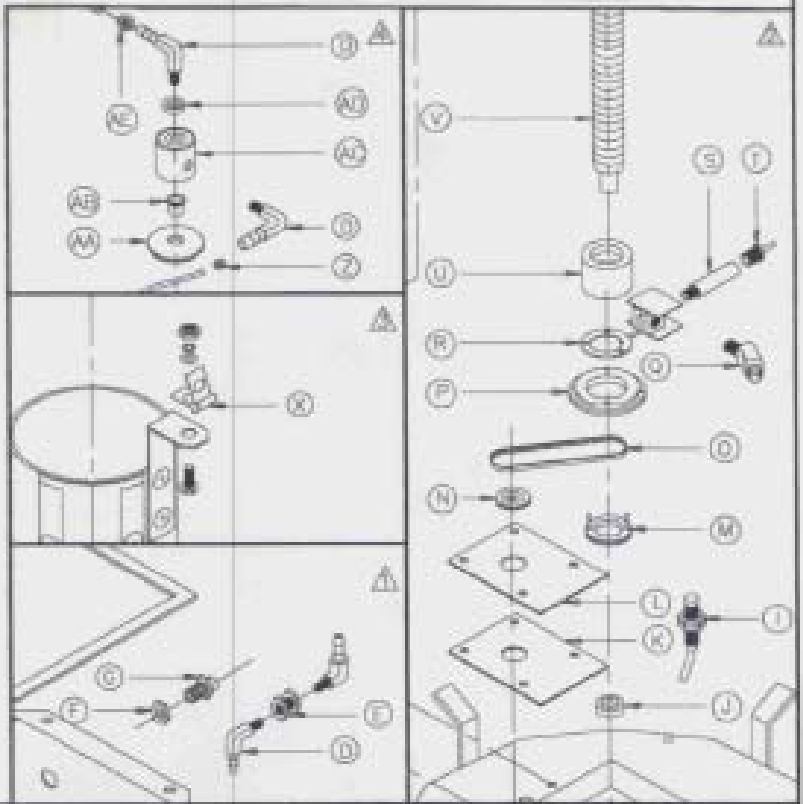
| <u>Part #</u> | <u>Description</u> |
|----------------------|---|
| S-IA-0001 | 1.5HP Motor (120v/1/60) |
| S-IA-0002 | 3HP Motor (specify voltage) |
| S-IA-0003 | Standard 21" Filter Cartridge 280 ft ² (open both ends) |
| S-IA-0003-P | 21" Polyester Filter Cartridge 280 ft ² (open both ends) |
| S-IA-0004 | Starter w/Auxiliary Contact (specify voltage & HP) |
| S-IA-0005 | Cleaning System Controller Board - Model IC-3 |
| S-IA-0006 | 1.5HP Blower Wheel |
| S-IA-0007 | 3HP Blower Wheel |
| S-IA-0009 | Activated Carbon Panel |
| S-IA-0011 | H.E.P.A. Filter 99.97%@0.3micron |
| S-IA-0012 | Step down Transformer (specify voltage) |
| S-IA-0013 | Castors (set of 4) |
| S-IA-0016 | 1/4" Pneumatic Filter |
| S-IA-0018 | Self-Cleaning System (Proximity Sensor Model) |
| S-IA-0027 | Solenoid Valve (12 VAC) |
| S-IA-0028 | Suction hood 8" |

Exploded view diagram of Injection Cleaning Mechanism

CLEANING MECHANISM SPARE PARTS LIST



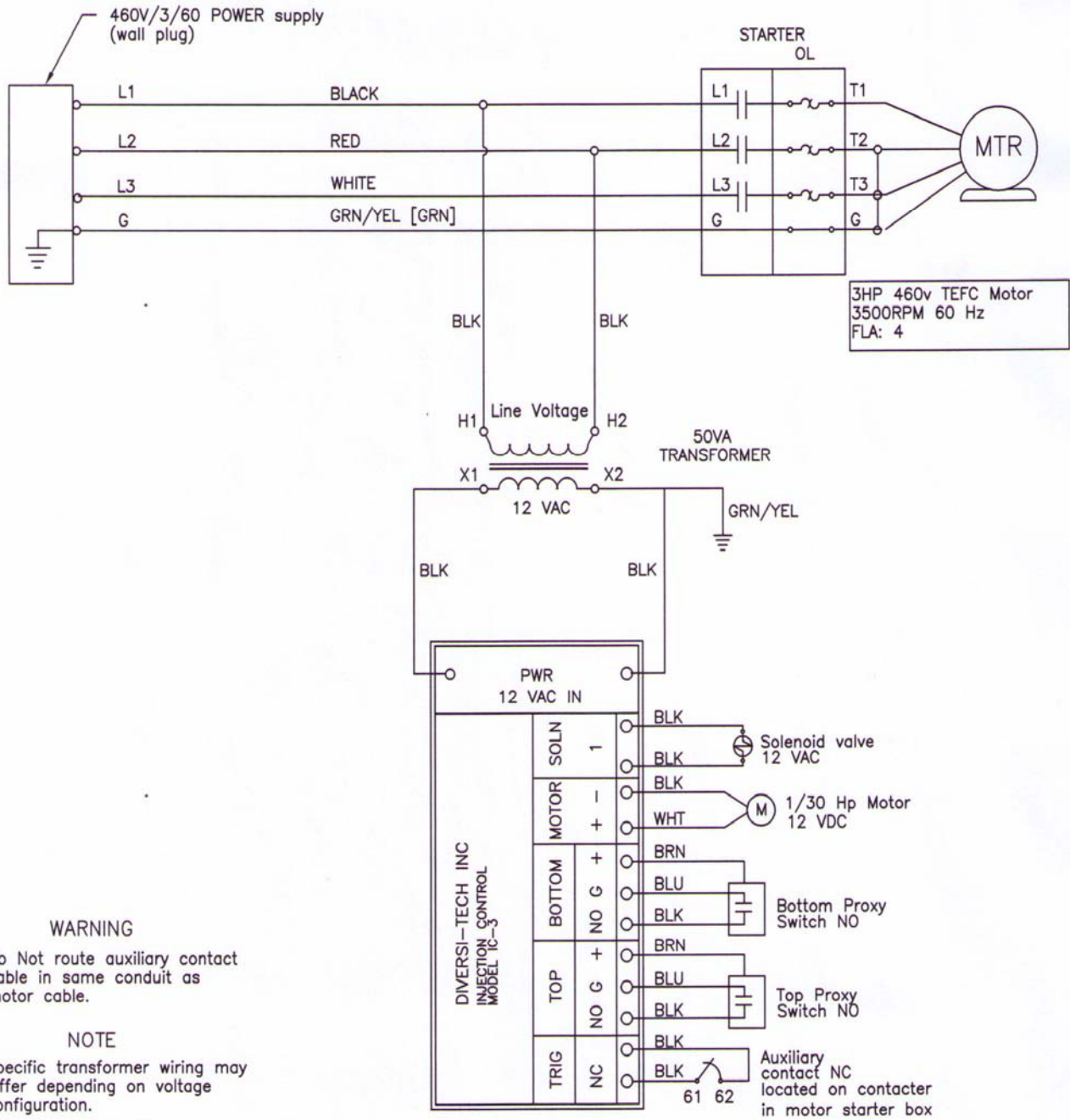
| ITEM | DESCRIPTION | KMA PART # | KMB PART # |
|------|--|------------|------------|
| A | Dual box | C-KA-0310 | C-KB-0310 |
| B | 3/8" X 1/2" Gasketing material | K-GA-0005 | K-GA-0005 |
| C | 1/30HP Gear motor 12VDC | E-GM-0003 | E-GM-0003 |
| D | 1/8" NPT x 1/4" hose barb elbow | P-BB-0001 | P-BB-0001 |
| E | 1/8" NPT Bushhead bushing | P-BH-0001 | P-BH-0001 |
| F | 1/2" Lock nut | E-LN-A005 | E-LN-A005 |
| G | 1/2" Electrical Duaflex connector | E-CT-A005 | E-CT-A005 |
| H | Motor plate assembly | C-KA-0006 | C-KA-0006 |
| I | Proximity sensor | E-SW-0002 | E-SW-0002 |
| J | Bearing | K-BE-0001 | K-BE-0001 |
| K | Rubber gasket | C-KA-0008 | C-KB-0008 |
| L | Gasket plate | C-KA-0007 | C-KB-0007 |
| M | Driver pulley assembly | C-KA-0034 | C-KB-0034 |
| N | Drive pulley | K-PU-0002 | K-PU-0001 |
| O | Timing belt | K-TB-0001 | K-TB-0001 |
| P | Bottom end cap | C-KA-0036 | C-KB-0036 |
| Q | Barb 45° | P-B4-0001 | P-B4-0001 |
| R | Nozzle holder | C-KA-0038 | C-KB-0038 |
| S | Nozzle extension (KMB only) | N/A | C-KB-0019 |
| T | Nozzle (male) (use 1/4" x 28UNF) | P-ML-0001 | P-ML-0001 |
| U | ACME nut | C-KA-0040 | C-KB-0040 |
| V | ACME shaft | C-KA-0041 | C-KB-0041 |
| W | Sleeve assembly | C-KA-0032 | C-KB-0032 |
| X | PVC coated cable clamp | P-CC-0001 | P-CC-0001 |
| Y | 1/4" ID Nylon recoil hose-9 coils | P-HO-0010 | P-HO-0010 |
| Z | 5/16" "D"-clamp 7-9mm | P-CC-0005 | P-CC-0005 |
| AA | Top end cap | C-KA-0035 | C-KB-0035 |
| AB | 5/8" x 3/4" x 1/2" flanged light bushing | K-BU-0001 | K-BU-0001 |
| AC | Pneumatic joint | C-KA-0045 | C-KB-0045 |
| AD | 5/8" ID x 1 1/8" OD shaft collar 1/2" | K-SC-0001 | K-SC-0001 |
| AE | 1/2" "D"-clamp 11-13mm | P-CC-0008 | P-CC-0008 |
| AF | 1/4" PVC re-inforced hose | P-HO-0110 | P-HO-0110 |
| AG | Frame | C-KB-0003 | C-KB-0003 |



DIVERSI-TECH INC.

Date: 05/04/22
 Ref: KM-SP01

Wiring Diagram for 3 H.P 460/3/60



WARNING

Do Not route auxiliary contact cable in same conduit as motor cable.

NOTE

Specific transformer wiring may differ depending on voltage configuration.

Units in brackets [] refer to imperial system values

WARRANTY

Effective immediately, the following policy will apply to all equipment.

LIMITED EQUIPMENT WARRANTY

All Diversi-Tech units are warranted to be free from defects in material for a period of two years from the date of purchase. Diversi-Tech Inc. will repair, at our option, any defective parts returned to the manufacturer's plant in Montreal - Quebec freight prepaid- which fail during the warranty period. This warranty is limited to replacement parts ONLY, subject to on site or in house evaluation of defective materials and does not apply to any personal liability or property loss that occurs due to the use or installation of this equipment.

FREIGHT CLAIMS

All Diversi-Tech units are sold ex-plant, Montreal, Qc., Canada. Therefore, it is the user's responsibility to file any freight claims for obvious or concealed damages which developed in transit from Montreal to your location or when drop shipped.

RETURN MATERIAL POLICY

1. Prior to the return of material, for whatever reason, a return manufacturing authorization number (RMA#) is required from the Diversi-Tech production control department.
This procedure is necessary for proper control and handling of returned materials. Fax us or call to obtain the RMA.
2. All material must be returned prepaid. Credit will be given for returns for warranty replacement. Freight collect shipments will not be accepted.
It is the shipper's responsibility to insure that material being returned to Diversi-Tech is adequately packaged for shipment to preclude damages.

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