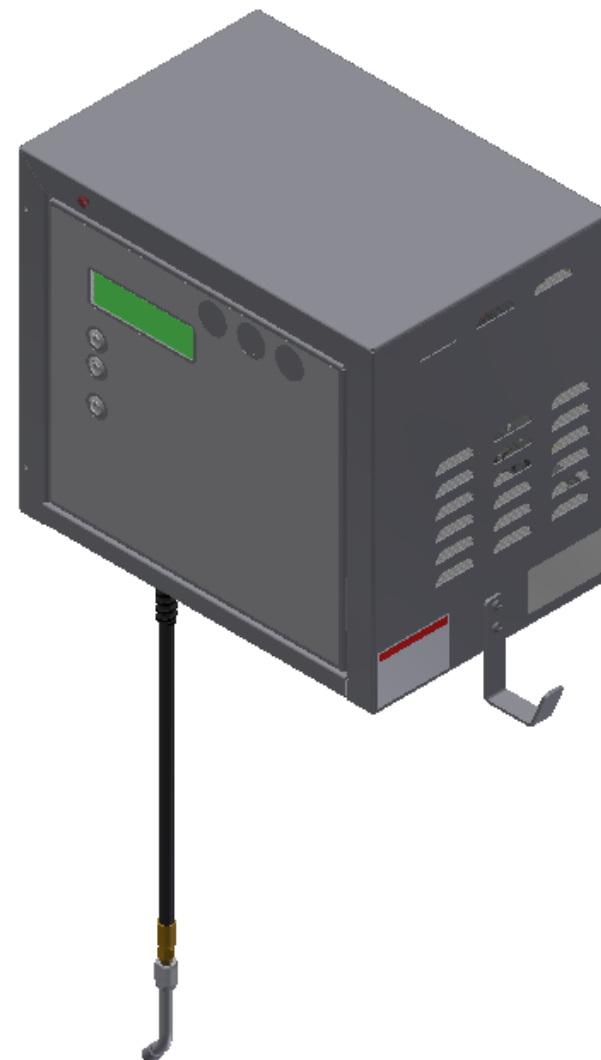




Models – **8670 PROTEL DIGITAL SERIES**

Page 2	Product Information
Page 3	Specifications
Page 4	Important Safety Instructions
Page 5	Product Dimensions
Page 6-9	Installation
Page 10	Timer Set-Up
Page 11	Operating Instructions & Maintenance
Page 12-13	Troubleshooting
Page 14-17	Protel Specific Troubleshooting
Page 18-19	Parts List
Page 20	Wiring Diagram



PRODUCT INFORMATION

Please take a moment to fill out the information below in order to aid us with any future sales or service inquiries. Model number and serial number information can be found on the serial tag located inside the control box and/or on the lower exterior of the can. Key number can be found on the tag that comes attached to the keys. There may be more than one key number depending on unit.

Please keep this information with your records.

MODEL#:_____

SERIAL#:_____

KEY NUMBER(S):_____

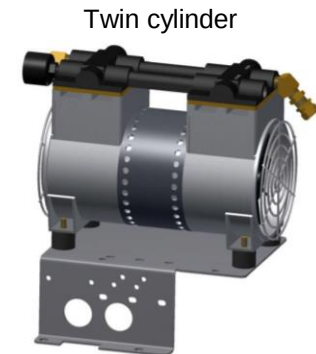
DATE PURCHASED:_____

DISTRIBUTOR:_____

**J.E. Adams Industries
1025 63rd Ave. S.W.
Cedar Rapids, IA 52404
1-800-553-8861
www.jeadams.com**

Specifications

<u>Unit specifications:</u>	8670 "P" SERIES
Voltage:	120vac, 60hz
Amperage:	(1) 15 amp service is required (twin cylinder compressors or compressor less)*
Compressors:	$\frac{3}{4}$ hp, twin cylinder models
Water Solenoid:	120vac, 60hz
Timer:	SSAC (standard – other available on request)
Weight:	77 lbs twin cylinder models, no packaging



DUTY CYCLE: 4 minutes on, 4 minutes off.

NOTE: "UNIT INTENDED FOR COMMECIAL USE ONLY"

IMPORTANT SAFETY INSTRUCTIONS

When using an electrical appliance, basic precautions should always be followed, including the following:

READ ALL INSTRUCTIONS BEFORE USING (THIS APPLIANCE)

WARNING – To reduce the risk of fire, electric shock, or injury:

- Use only as described in manual. Use only manufactures recommended attachments.
- Do not allow to be used as a toy. Close attention is necessary when used by or near children.
- Do not put any object into openings. Do not use with any opening blocked; keep free of dirt and anything that may reduce flow.
- Keep hair, loose clothing, fingers, and all parts of body away from openings and moving parts.
- Do not use near flammable or combustible liquids, such as gasoline, or use in areas where they may be present.
- Do not use near anything that is burning or smoking, such as cigarettes, matches, or hot ashes.
- Products such as "Fix-A-Flat" are highly combustible and cannot be used in conjunction with air machine!

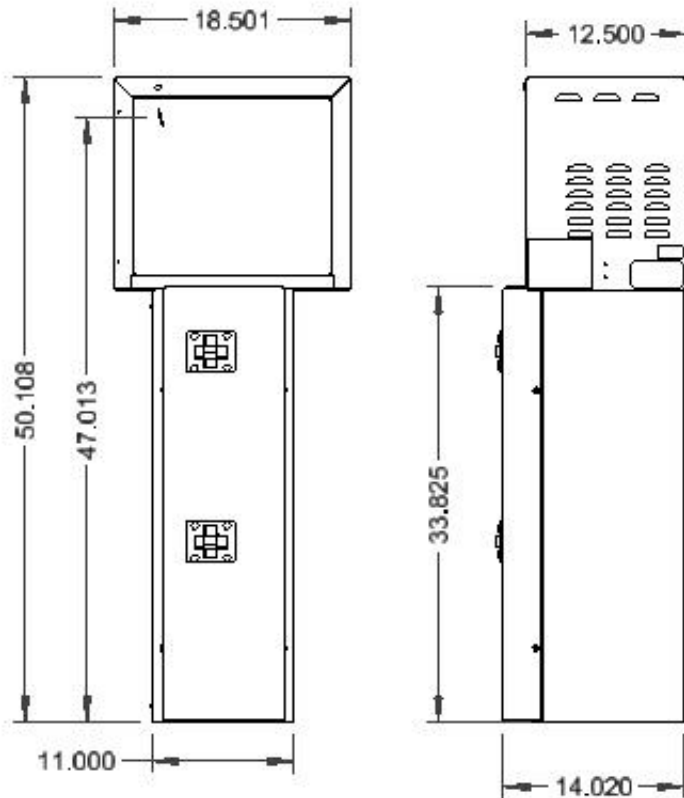


SAVE THESE INSTRUCTIONS

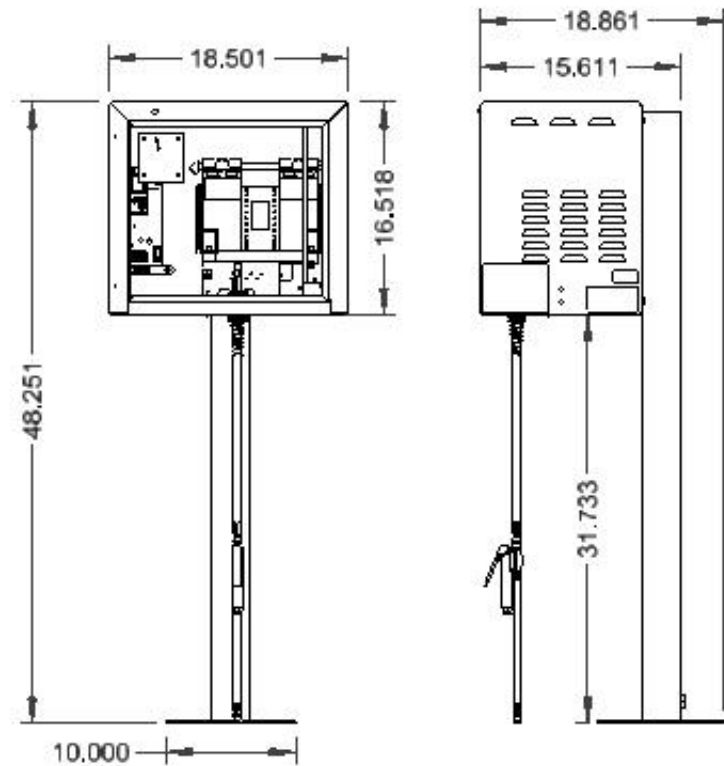


- **Installation Instructions:**
- Determine location to mount unit ("**DANGER**" "**THIS EQUIPMENT INCORPORATES PARTS SUCH AS SWITCHES, MOTORS, OR THE LIKE THAT TEND TO PRODUCE ARCS OR SPARKS THAT CAN CAUSE AN EXPLOSION. WHEN LOCATED IN GASOLINE-DISPENSING AND SERVICE STATIONS INSTALL AND USE AT LEAST 20 FEET (6 M) HORIZONTALLY FROM THE EXTERIOR ENCLOSURE OF ANY DISPENSING PUMP AND AT LEAST 18 INCHES (450 MM) ABOVE A DRIVEWAY OR GROUND LEVEL.**")
- Run electrical service to that location.
- **Grounding Instructions:** This appliance must be connected to a grounded metal, permanent wiring system; or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the appliance.
- All local and national electric codes must be followed for installation and use.
- Licensed electricians are recommended for installation.
- Licensed plumbers are recommended for installation (water machines).

PRODUCT DIMENSIONS



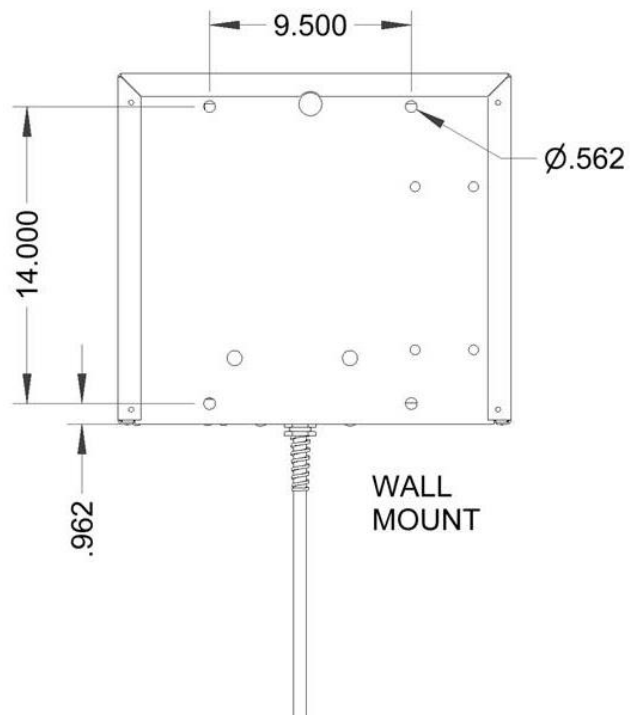
AIR/WATER MACHINE
WITH 6025-DIG BASE.



AIR MACHINE
WITH 8819 BASE.

* For compressor less units air supply to be routed by customer to solenoid inside air machine*

Wall mounting:



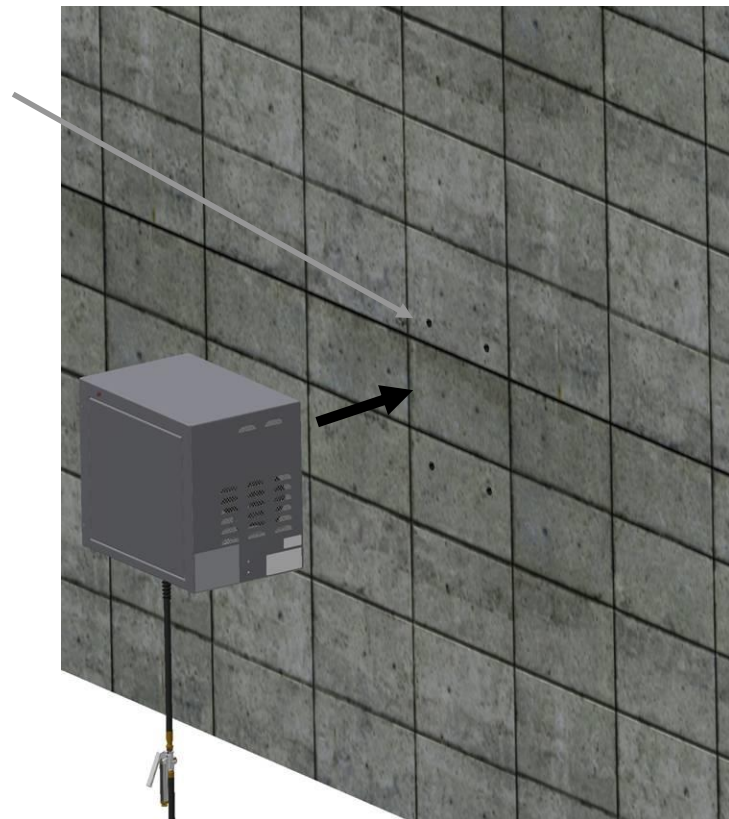
WALL MOUNTING PATTERN, REAR VIEW:

Use minimum 3/8" diameter bolt and drill/anchor at least 4" into block or concrete.

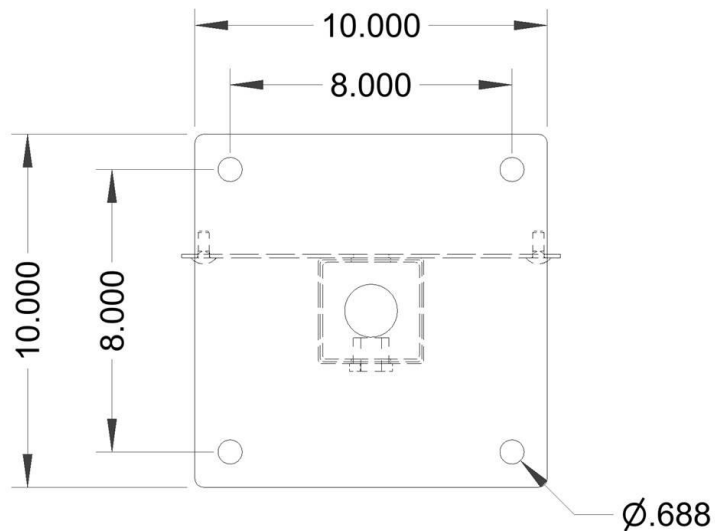
Drill holes according to rear of cabinet 9.5" x 14" bolt pattern.

After drilling holes in concrete wall for mounting, open cabinet door and lift/align cabinet to wall and fasten with customer supplied hardware.

Use two people!!



8819 pedestal mounting:



PEDESTAL MOUNTING PATTERN, BOTTOM VIEW:

Use minimum 3/8" diameter stud and
drill/anchor at least 4" into concrete.

After mounting pedestal to concrete,
open cabinet door and lift/align cabinet to
pedestal with nuts/washers to carriage
bolts on pedestal mounting plate.

Use two people!!



Technical drawing of a rectangular box with dimensions and a plan view.

Dimensions:

- Overall width: 9.500
- Inner width: 4.750
- Overall height: 14.020
- Inner height: 6.000
- Top flange width: 2.750
- Bottom flange width: 11.000

Plan View:

The plan view shows the top of the box, which is a square with a side length of 4.750. It features a central square hole with a diameter of $\phi 6.25$. The text "PLAN VIEW" is centered within the square.

Use minimum 3/8" diameter stud and drill/anchor at least 4" into concrete.

Use two people!!

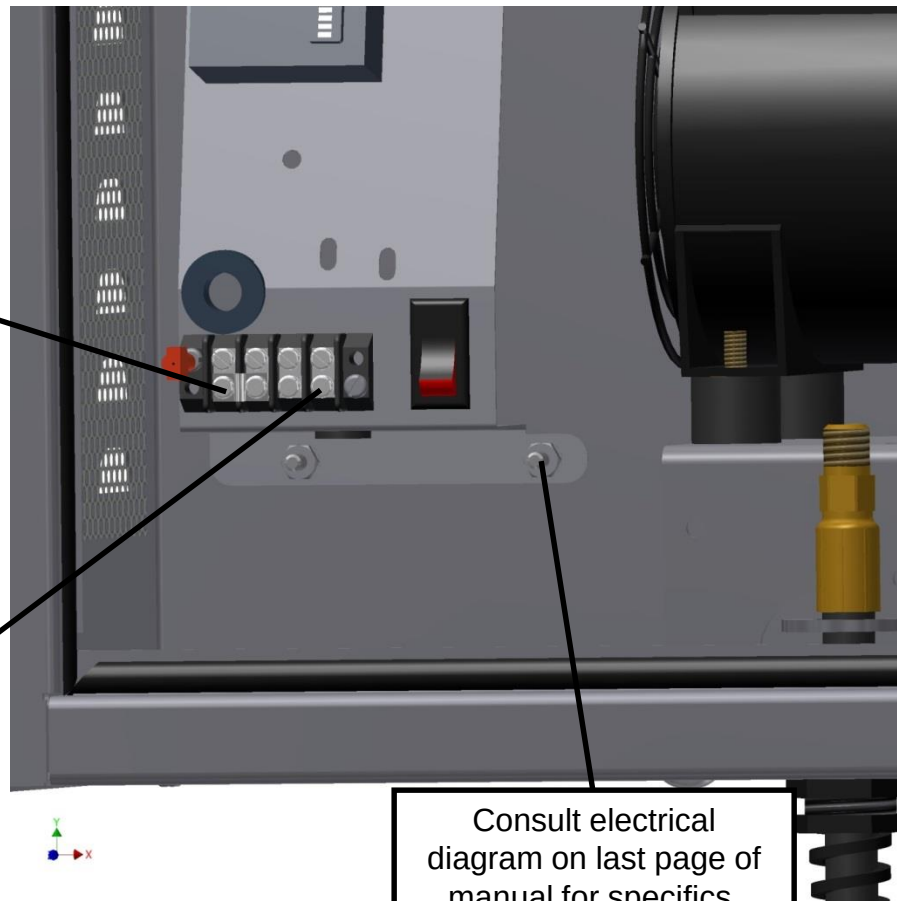
Electrical:

Open door to air machine to access terminal strip.

NOTE: AIR MACHINE SHOULD BE INSTALLED PER LOCAL ELECTRICAL CODES BY QUALIFIED ELECTRICIAN.

Consult electrical diagram on last page of manual for specifics. Connect 120V white "neutral" here.

Consult electrical diagram on last page of manual for specifics. Connect 120V black "hot" here.

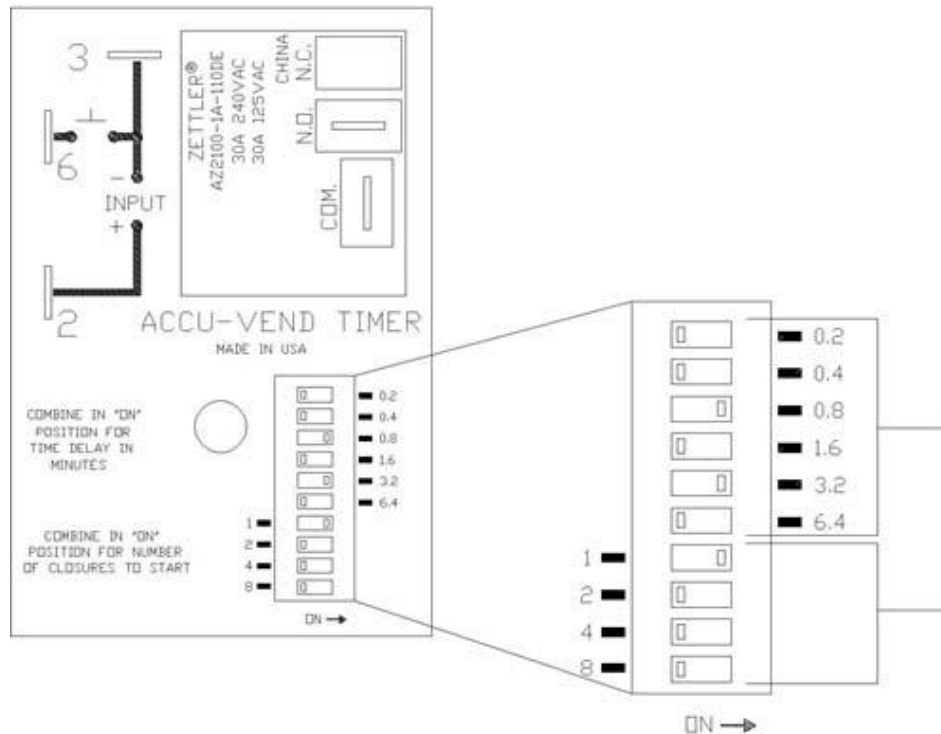


Consult electrical diagram on last page of manual for specifics. Connect green "ground" here.

****Note: A true ground from electrical service must be applied to unit. Failure to use a true ground will result in erratic machine function and failure.****

Programming:

The below timer pictured is the standard SSAC model that allows the end user to select the "coins to start" and the "total time" by settings series of dip switches. The number of "coins to start" dip switch is how many quarters are needed to make the machine come on. In the below example, the "one coin" dip is selected which makes the unit come on with one coin. The "total time" will then need to be set, but a good rule of thumb would be 4 minutes which requires dip switches 3.2 and .8 to be set to on. This scenario means 1 quarter will provide 4 minutes of vacuum time. The total time can always be changed by adding or subtracting time. If the operator would later decide to increase the cost of the unit to "2" quarters, the 2 dip switch would need to be in the on position (all others off) and the time dip switches would still be 3.2 and .8 dips selected for 4 minutes. Timer is non accumulating so "coins to start" setting is just to make the machine come on time and "time" is total time regardless of coins to start.



Time in minutes dip switch settings:

0.2 = 12 seconds

0.4 = 24 seconds

0.8 = 48 seconds

1.6 = 96 seconds

3.2 = 192 seconds

6.4 = 384 seconds

Total time
(non accumulating)

Coins to start

Machine Operating Instructions:

- 1) Read safety instructions on previous pages.
- 2) Insert coins (or bills) to start.
- 4) Using increase or decrease buttons select desired pressure.
- 5) Apply chuck to tire valve stem and fill to desired pressure. NOTE: For best results, remove valve stem covers on all tires before depositing money.
- 6) Hang hose up when finished.

How Does Digital Air Work?

When the compressor is running, the machine will dispense air out the chuck. When air dispensing stops, the system is searching for back pressure from the tire. Once back pressure is sensed, the machine will continue to dispense air out the chuck until the tire is filled to the programmed pressure.

When in doubt, place the air chuck on the tire and see if the machine will start to fill the tire. If not, see the troubleshooting section of the manual.

NOTE: If air is coming out of the chuck and the digital air machine cannot fill a low tire, the tire may need serviced.

Maintenance:

- **All servicing of machine should be conducted by an authorized service representative!**
- Periodically inspect hose, chuck, and chuck washer for wear or fatigue.
- Every month remove filter from compressor and clean.
- Periodically inspect electrical wires and connections for wear or fatigue.
- Clean canister with a stainless steel cleaner as needed.
- Decals can be cleaned with mild soap and water.
- Replacement parts can be ordered through JE Adams or your nearest dealer.

DISCONNECT POWER BEFORE SERVICING OR TROUBLESHOOTING!



Troubleshooting:

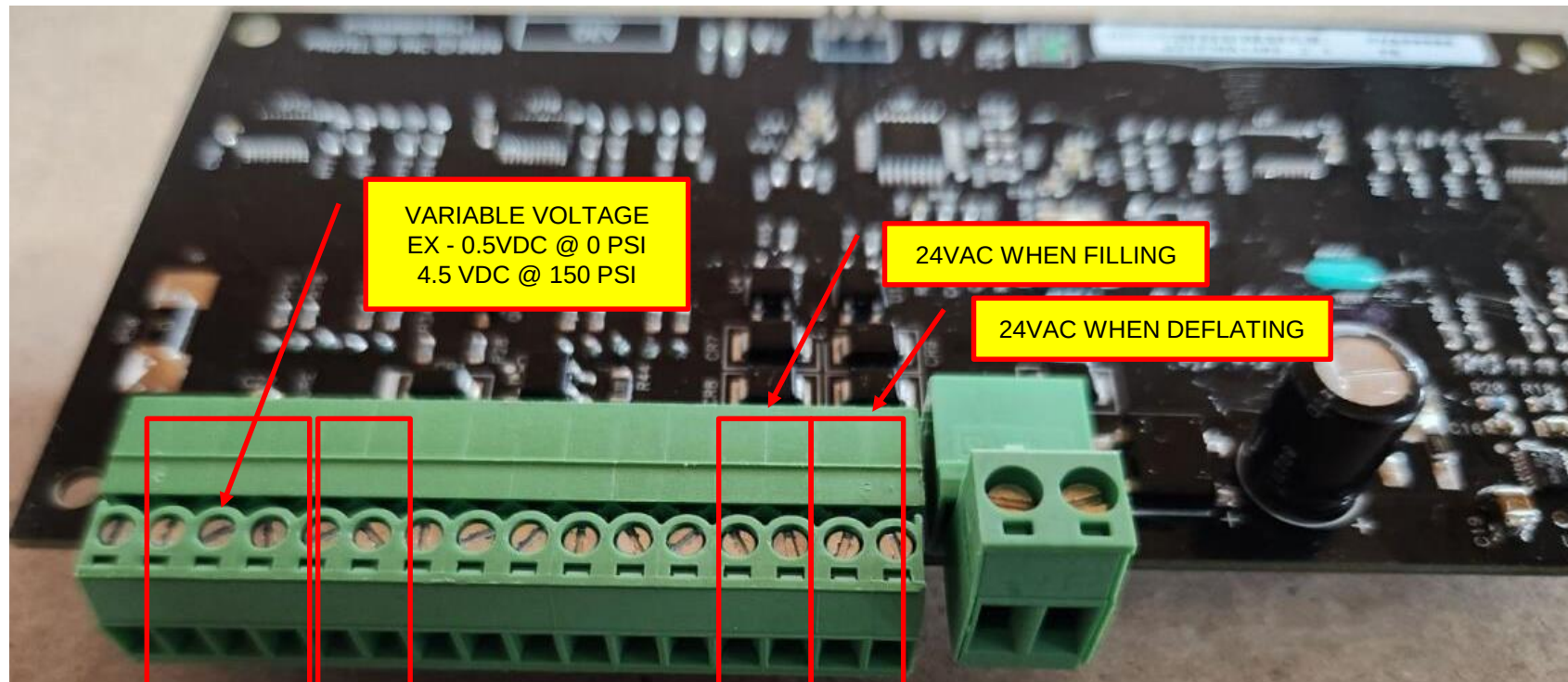
ALWAYS DISCONNECT POWER BEFORE TROUBLESHOOTING!!		
Problem	Possible cause	Solution
Unit is not powered.	Breaker inside fuse panel is not in the on position.	Turn breaker on.
	No power to machine.	Check incoming power line for voltage.
	Machine power switch is not on.	Open cabinet door and flip switch.
	Loose connection.	Check incoming power connection.
Unit runs but will not inflate tire.	Air is leaking from unit somewhere.	Turn power off to unit, apply chuck to air source with at least 30lbs of pressure and listen carefully for leaks inside cabinet or air hose. Use soapy water if needed. Replace faulty component if leaking.
	If no system leaks, is compressor putting out enough pressure?	Run compressor and see if you can easily hold thumb over end of chuck. If compressor cannot force air into tire, the compressor may have exceeded its life span and needs rebuilt (about 1000 hours). Replace (9862) or rebuild (9862-3) compressor.
	Chuck washer is worn out? (very common)	Replace with special JE Adams PN 8533-13CW.
	Temperature is below freezing and condensation off compressor has froze in air hose. (very common)	Remove air hose and chuck and bring into warm area to thaw.

DISCONNECT POWER BEFORE SERVICING OR TROUBLESHOOTING!

Unit will not start	Possible component failure	Check key components to isolate failure:
		Capacitor: it is possible the capacitor has failed and will not start motor. If humming this is probably the issue. Change if necessary.
		Timer: Verify proper input voltage. Activate timer. If no output voltage is present when timer should be active, replace timer.
		Coin mech: If using a mechanical coin mech, remove the wires leading to the timer from the coin mech and tap them together one time for each coin necessary to start the timer. If machine starts, replace the coin mech.
Unit will not dispense water (water machines only).	Is source water turned on and not frozen?	Turn on water to system and make sure temperature is above 32 deg.
	Is water solenoid getting power from timer?	If getting power from timer, replace solenoid.

**WHEN PERFORMING MAINTENANCE OR TROUBLE-SHOOTING, TURN POWER OFF!
QUALIFIED PERSONNEL ONLY!**





GROUND – GRN/YEL --

PRESSURE SENS – RED --

PRESSURE SENS – GRN --

PRESSURE SENS – BLK --

HORN, 12VDC – RED --

HORN, 12VDC – BLK --

PUSH BUTTON DOWN – GRY --

PUSH BUTTON DOWN – GRY --

CURRETN SENSOR LOOP – BLK --

CURRETN SENSOR LOOP – BLK --

PUSH BUTTON UP – WHT --

PUSH BUTTON UP – WHT --

INFLATE, SOL1, 24VAC – BLU --

INFLATE, SOL1, 24VAC – GRN --

DEFLATE, SOL2, 24VAC – WHI --

DEFLATE, SOL2, 24VAC – BRN --

24VAC FROM TRANSFORMER – YEL --

24VAC FROM TRANSFORMER – BLU --

Caution! -lethal voltage is present in all compressed air vending machines. Repair should only be attempted by trained technicians. Note -Tests should be performed in order for proper diagnosis.

1.00 Check for loose connections:

Loose or broken wires can cause misleading symptoms. Check all connections before proceeding.

2.00 Check AC power:

The pressure regulator circuit board and solenoids operate from a 24VAC power transformer. The LCD display should have white LED back-lighting and the unit should indicate a 35 psi set point and 0 psi during idle mode. If the display fails this check, the board is most likely not receiving 24VAC power. If 24VAC power is present at the P2 connection, replace the digital pressure board and/or display. Visually inspect circuit board for burnt components/dark spots.

3.00 Adjust set point :

Adjust the set point with the up and down buttons. The buzzer should beep with every adjustment.

3.01 Potential faults if set point does not increase or decrease:

Loose or broken push button wires
Push button – conduct simple continuity check.
Digital pressure board

3.02 Potential faults if the buzzer does not beep (check for 12VDC when active):

Loose or broken buzzer wiring
Buzzer possibly bad (if 12VDC, but does not respond)
Digital pressure board possibly bad (if no 12VDC)

4.00 Read tire pressure :

With the compressor off, attach the air chuck to a tire. The display should indicate the tire pressure. The buzzer should beep when stable pressure is detected. Note the pressure and remove the chuck. Measure the tire with an accurate, electronic hand-held tire gauge (see section 5.00). Compare the two readings.

Note -stick gauges are notoriously inaccurate, use a quality instrument for this procedure. **Make sure a good seal is achieved for each measurement.** Any air escaping during this procedure will greatly affect accuracy. The test tire should be at 32 to 50 psi for best results.

- 4.01 Potential faults if pressure is not within a few psi of measured tire pressure:**
Tire chuck or tire chuck gasket
Leaks in fittings or hose (if retractable hose reel inspect swivel joint)
Loose or broken pressure sensor cable
Solenoid stuck open – check by applying 24VAC, if does not activate, solenoid is bad.
Pressure sensor

Digital pressure board:

- 4.02 Potential faults if pressure is within a few psi of measure tire pressure:**
Digital pressure board requires calibration
Faults listed under 4.01

- 5.00 Calibration :**
Skip this step if tire accuracy is within acceptable limits.

Tools:

Michelin MN-12279 Tire Gauge recommended (displays pressure to 0.1 PSI resolution).

Notes:

Make sure the compressor is off before entering the calibration mode and remains off during the entire calibration process.

- 5.01** Press PB1 button until unit beeps. Display will now read “CAL” for calibration mode. After a few seconds it is back to 35/00. Machine is now zeroed out/recalibrated.

Tire inflation/deflation

6.01 Deposit the required number of quarters to activate the compressor. Adjust the set point to the desired tire pressure. Attach the tire chuck to the tire and verify a good seal is achieved. The digital pressure board should detect the tire and begin the process. The buzzer should beep several times when the tire pressure matches the set point.

6.02 **Potential faults during inflation/deflation test:**
Loose or broken solenoid wires
Current sensor cable that reads current flow off compressor 120VAC hot lead.
Leaks between compressor and manifold
Foreign debris in solenoid seal area/ manifold block
Solenoid
Weak compressor
Faulty over-pressure relief valve
Digital pressure board

BILL OF MATERIALS

ITEM	PART NUMBER	DESCRIPTION	QTY
43	9862	COMPRESSOR, 3/4 HP TWIN CYL	1
44	9873A	DOOR ASSY, PLD AIR MACH	1
45	5901D2	RED WIRE NUT	1
46	5943E3220	12GA BLK MTW WIRE	8"
47	5900D3	SPADE, 10-12GA, YELLOW	1

BILL OF MATERIALS

ITEM	PART NUMBER	DESCRIPTION	QTY
1	5600D2	5/16-18 x .75 CARR BOLT	2
2	5601D8	1/4-20 x 3/8 HHCS-ZINC PLATED	5
3	5603D2	NUT, NYLOCK, 1/4-20, SS	1
4	5603D5	1/4 Std NC Nylock Nut	3
5	5606D1	#10 SAE WASHER	4
6	5611D2	NUT, 10-24 UNC KEPP- ZINC	4
7	5611D3	NUT, 8-32 UNC KEPP-SS	2
8	5631d1	1/4-20 SCREW, ONE-WAY HEAD	2
9	5636D4	SCREW, #10-24x1.50, PH, PD, SS	2
10	5800D6	ELBOW, STREET, 1/4NPT, 90D, BRS	3
11	5816D1	1/4" STREET TEE	1
12	5871B4	CAPS, VINYL TP-9 .30 X 1" BROWN	2
13	6408	CARDBOARD INSERT	1
14	6409	CARDBOARD BOX	1
15	7128D2	1/4 PIPE PLUG, HEX SOC BRASS	1
16	8036	NUT, 1/4-20 UNC KEPS	2
17	8081	CABLE TIE MOUNTS	2
18	8084	CABLE TIES	10
19	8131-2	TRANSFORMER, 110/220-24 1.66A	1
20	8155A	LOCK ASSY-W/MEDECO CAM LOCK	1
21	8180	WARNING, WIRE TEMP RATING	1
22	8183	DECAL, "DISCONNECT POWER"	1
23	8437D002	ETL DECAL, AIR MACHINES	1
24	8532-25	25' AIR HOSE	1
25	8533-13	AIR CHUCK, OPEN FLOW	1
26	8545-13	HOSE ASSEMBLY 13"	1
27	8549	FLEX STRAIN RELIEF	1
28	8596	NUT, 5/16-18 HEX	4
29	8597	5/16 WASHER	4
30	8598	5/16 LOCK WASHER	4
31	8659-3W-DIGP	WELDMENT, AIR MACHINE, PROTEL DIGITAL	1
32	8659-75-W-PLT	LOCK BAR PLATED	1
33	8670-1000-1W	BRACKET WELDMENT, PROTEL MANIFOLD ASSY	1
34	8670-8DIGP	COMPRESSOR MOUNT, PROTEL DIGITAL	1
35	8670DLP-DKIT	DECAL KIT, DOOR DECAL, LED DIG AIR	1
36	8670KIT745-04	PROTEL DIGI AIR KIT # KIT0000745-04	1
37	8670KIT613-00	PROTEL HEAT KIT, KIT0000613-00	1
38	8673	TIMER ASSEMBLY-TPCR	1
39	8673-9	NEON LIGHT ASSEMBLY	1
40	8678	HOSE HANGER	1
41	8732	NAMEPLATE SERIAL TAG, UL	1
42	8764	DECAL, DANGER EXPLOSION	1

NOTE 1

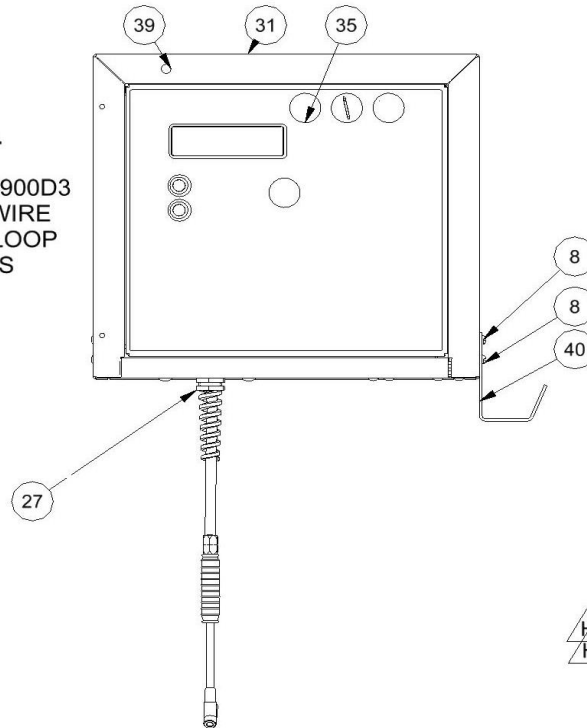
WIRE UNIT AS SHOWN IN
8670 PLD SERIES.

NOTE 2

CUT SPADE CONNECTOR OFF BLUE
AND BLACK WIRE OF COMPRESSOR.
ATTACH 8" 12GA BLACK AND TWIST
NUT ALL 3 WIRES TOGETHER. ADD 5900D3
TO THE 8" 12GA WIRE. THE SINGLE WIRE
THEN IS TO BE RAN THRU SENSOR LOOP
THEN WIRE PLUGGED INTO TIMER AS
SHOWN ON SCHEMATIC.

NOTE 3

DECAL KIT CHANGES BASED
ON IF FLAT TIRE BUTTON IS:
PRESENT USE 8670DIGP-DKIT
NOT PRESENT USE 8670DLP-DKIT

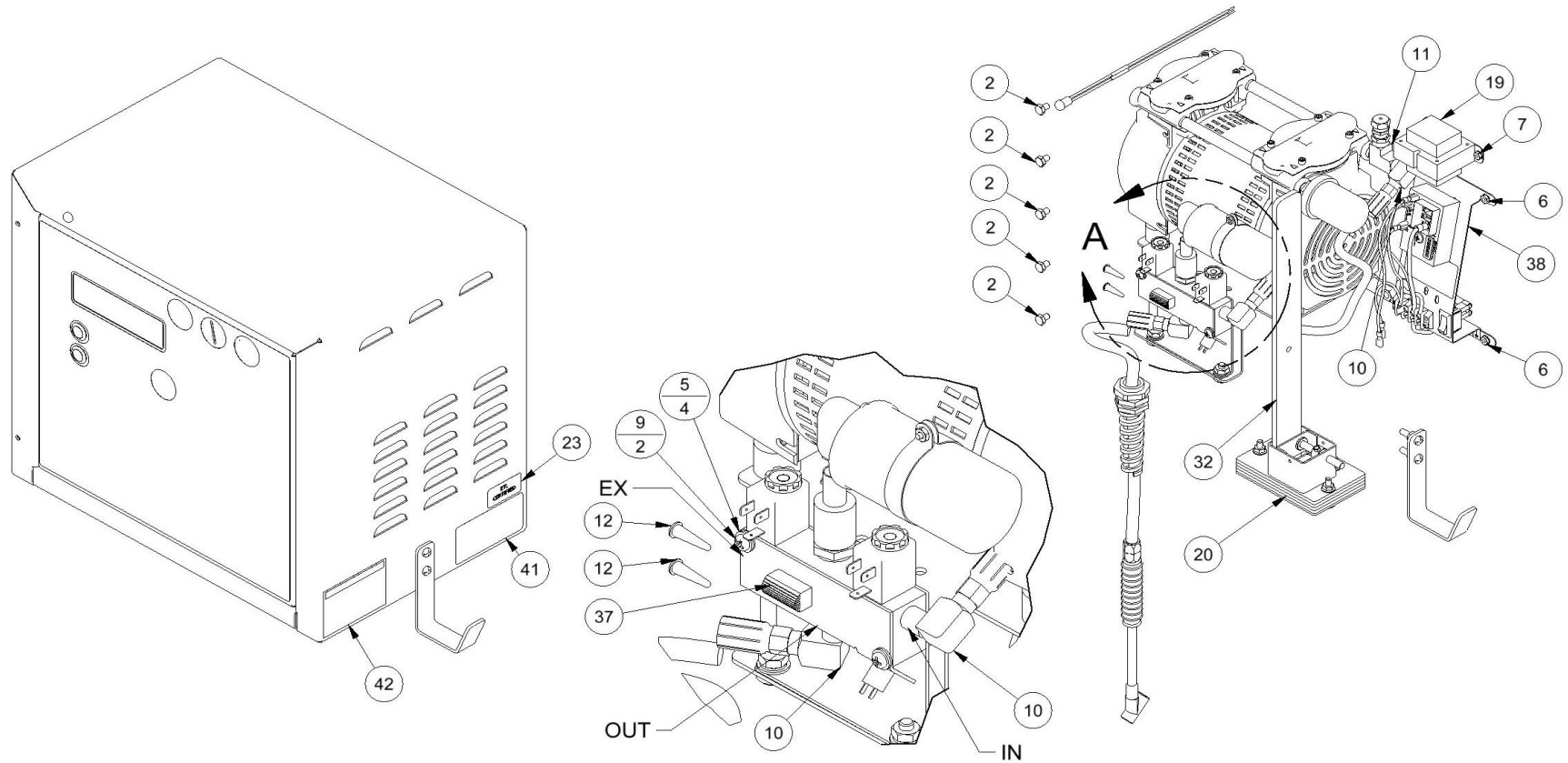


H	8820	ADD 9873A(1) & 8670DLP_DKIT(1) & 8670KIT745-04(1) REMOVE 9871A(1) & 8670DIGP_DKIT(1) & 8670KIT602-03(1)	2/8/22	BJL
G	8229	REMOVED EXTERNAL BRASS FILTERS, MODIFIED NOTE 2 CONCERNING FILTERS.	3/19/2018	CAK
F	8144	ADDED 5901D2, 5943E3220 AND 5900D3; ADDED NOTE 2	12/20/17	CAK
REV	NO.	DESCRIPTION	DATE	BY

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TITLE		ASSEMBLY, AIR MACHINE, PROTEL DIGI AIR	
UNSPECIFIED TOLERANCES	MATERIAL	CEDAR RAPIDS, IOWA	
	DRAWN BY	CHAD K.	
	DATE	8/12/2013	
	SCALE	1 / 2	
3 PL ±.003	SHEET	1 / 2	
ANGLE ± 1°	PART NO.	8670-DIGP	
	REV.	H	

NOTE 2
PROTEL MAIFOLD SUPPLIED WITH
INTERNAL FILTERS ON THE IN AND
OUT PORTS.



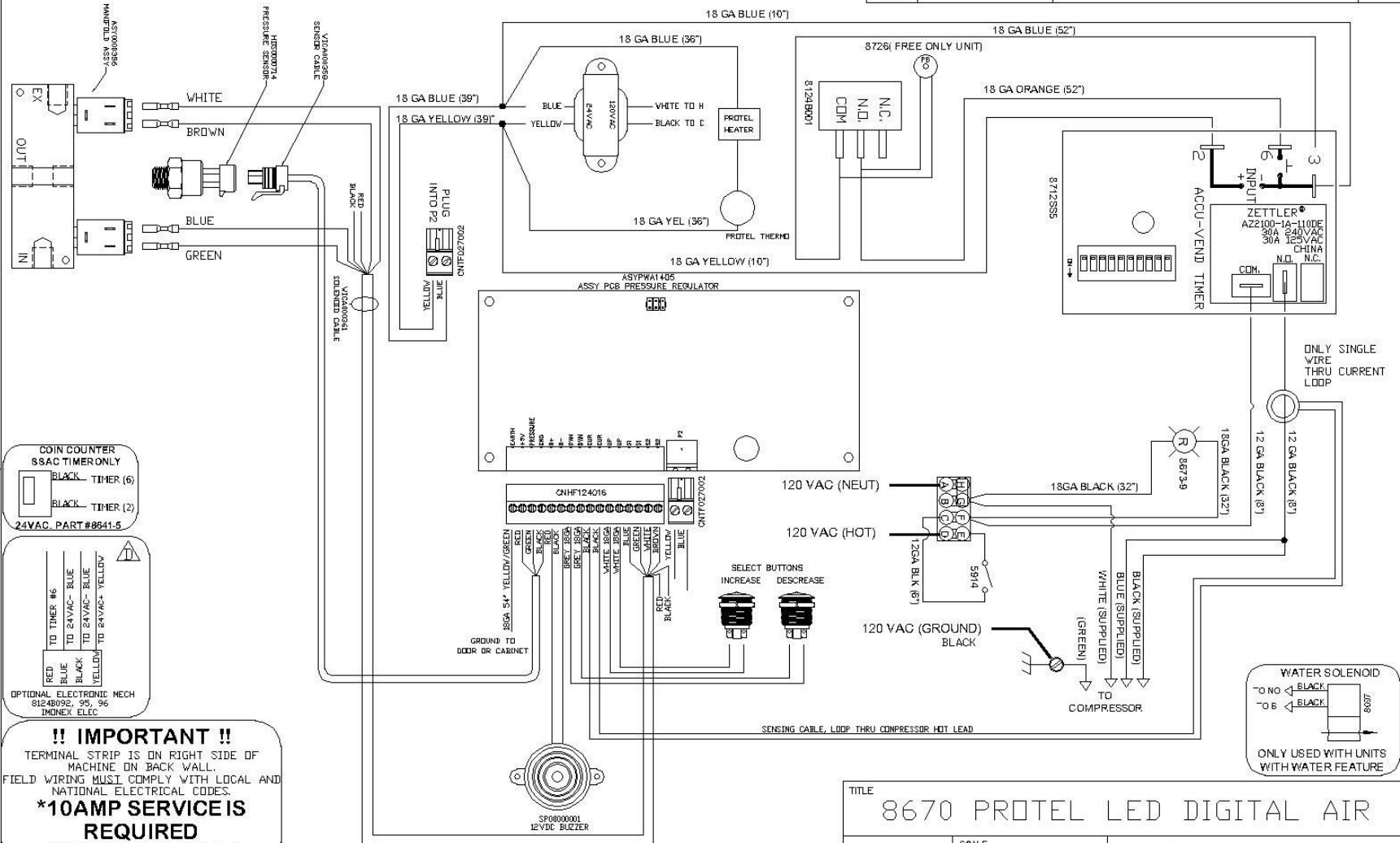
DETAIL A
SCALE 0.30 : 1

TITLE			
ASSEMBLY, AIR MACHINE, PROTEL DIGI AIR			
UNSPECIFIED TOLERANCES	MATERIAL	CEDAR RAPIDS, IOWA	
1 PL ±.030	DRAWN BY CHAD K.		
2 PL ±.020	DATE 8/12/2013		
3 PL ±.003	SCALE		
ANGLE ±1°	SHEET 2 / 2	PART NO. 8670-DIGP	REV. H

REV	NO.	DESCRIPTION	DATE	BY
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ITEM NO.	PART NO.	DESCRIPTION	QTY.
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!! IMPORTANT !!
TERMINAL STRIP IS ON RIGHT SIDE OF
MACHINE ON BACK WALL.
FIELD WIRING **MUST** COMPLY WITH LOCAL AND
NATIONAL ELECTRICAL CODES.
***10AMP SERVICE IS
REQUIRED
FOR GAST UNITS***

A	9114	CORRECT WIRE COLORS TO GREY, WAS WHITE	01/09/24	JRF	FRACT. $\pm 1/32$		REV.
-	8820	RELEASED	02/03/22	BJL	2 PL $\pm .020$		
REV	NO.	DESCRIPTION	DATE	BY	3 PL $\pm .010$	PART NO. 8670 PLD	A
					ANGLE $\pm 1.0^\circ$		