

Midmark Compressors



Service and Parts Manual

ClassicSeries®

Model Numbers:

CL21

CL22

CL32

CL52

PowerAir®

Model Numbers:

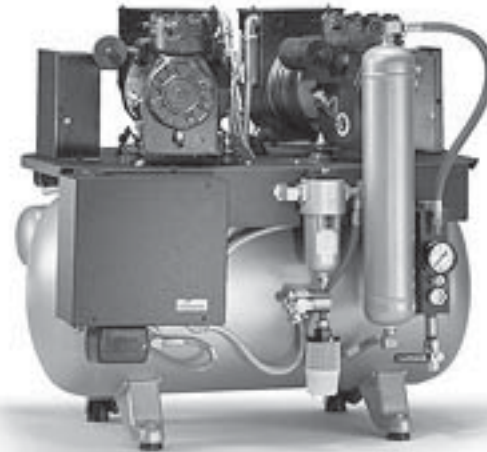
P21

P22

P32

P52

P72



ClassicSeries®

Model CL32

Some Models NO LONGER IN PRODUCTION
Some service parts may not be available for this product.



PowerAir®

Model P22

FOR USE BY MIDMARK TRAINED TECHNICIANS ONLY

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CL21, CL22, CL32, CL52	E-2*
PowerAir® Models <i>(Oil-Less)</i>	
P21, P22, P32, P52, P72,	E-3*

* Indicates multiple pages due to model / serial number break(s)

Symbols



DANGER

Indicates an imminently hazardous situation which **will result in serious or fatal injury if not avoided. This symbol is used only in the most extreme conditions.**



WARNING

Indicates a potentially hazardous situation which **could result in serious injury if not avoided.**



CAUTION

Indicates a potentially hazardous situation which **may result in minor or moderate injury if not avoided. It may also be used to alert against unsafe practices.**



Equipment Alert

Indicates a potentially hazardous situation which could result in equipment damage if not avoided.



In Section A, test the components in the order indicated. (ex. 1st ✓ then, 2nd ✓)

Refer to Section B for component testing procedures.

The symbols below may be used in this manual to represent the operational status of table functions and components.



Indicates the function / component is working properly. No action required.



Indicates the function / component is working, but a problem exists.



Indicates the function / component is not working at all.

Ordering Parts

The following information is required when ordering parts:

- Serial number & model number
- Part number for desired part.

[Refer to Exploded Views / Parts Lists section]

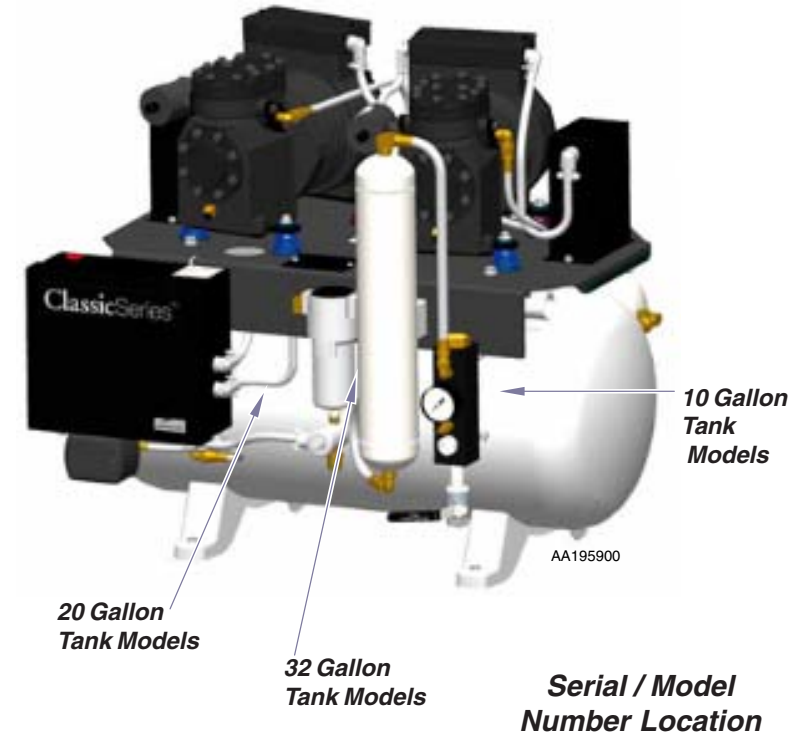
Non-warranty parts orders may be faxed to Midmark using the Fax Order Form in the back of this manual.

For warranty parts orders, call Midmark's Service Department with the required information.

Customer Service: 1-800-643-6275

Technical Service: 1-888-279-1260

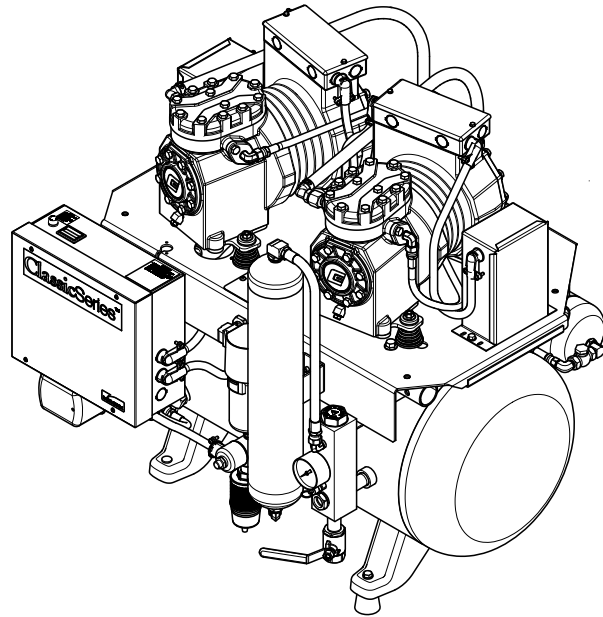
Serial Number Location



General Information

Weights, Dimensions, Electrical Specifications

ClassicSeries[®] Lubricated Compressor Models

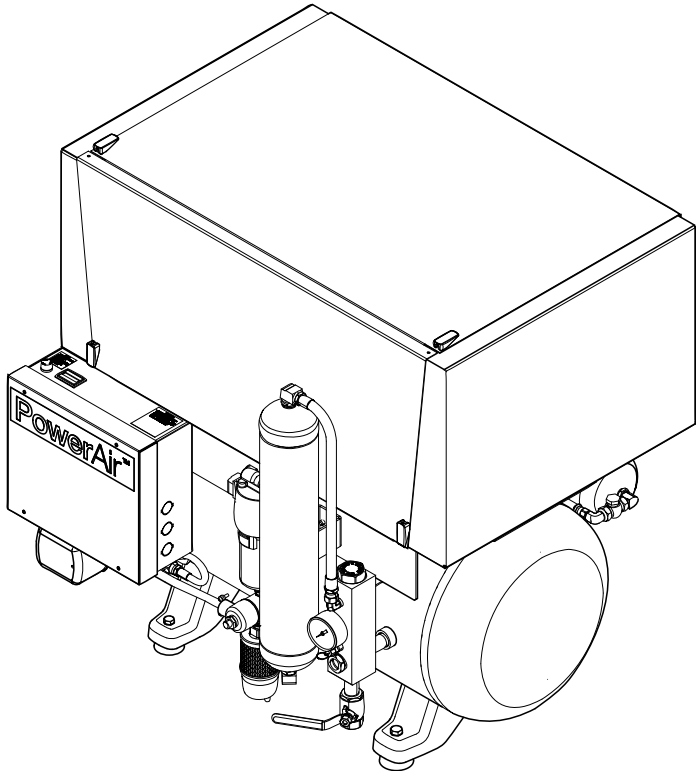


Classifications: Class 1, No Applied Part

Model	# of Users	CFM @ 80 PSI	Total HP	Tank Capacity	Voltage	Total Amps	Breaker Size (Amps)	Sound Level (dbA)	Dimensions H x W x D (IN.)	Product Weight (lbs.)	Fresh Air Intake Pipe Size
CL21	1 - 3	5.3	1.0	10	115	12.4	20	68	29 x 26 x 24	202	2"
CL22	1 - 3	5.3	1.0	10	208-230	6	20	68	29 x 26 x 24	202	2"
CL32	3 - 5	10.6	2.0	20	208-230	12	20	71	31 x 33 x 26	329	2"
CL52	5 - 7	15.9	3.0	32	208-230	18	30	75	32 x 41 x 27	460	2"

Weights, Dimensions, Electrical Specifications

PowerAir® Oil-Less Models



Classifications: Class 1, No Applied Part

Model	# Users	CFM @ 80 PSI	Total HP	Tank Capacity	Voltage	Total Amps	Breaker Size	Sound Level (dBA)	Sound Level (dBA) With Quiet Cover	Dimensions H x W x D (IN.)	Dimensions With Sound Cover H x W x D (IN.)	Product Weight (LBS.)	Fresh Air Intake Pipe Size
P21	1 - 3	5.2	1.5	10	115	16.0	20	65	60	27 x 26 x 24	32 x 26 x 25	225	2"
P22	1 - 3	5.2	1.5	10	208-230	7.0	20	65	60	27 x 26 x 24	32 x 26 x 25	225	2"
P32	3 - 5	7.8	2.25	20	208-230	11.0	20	67	62	29 x 33 x 26	33 x 33 x 28	295	2"
P52	5 - 7	10.6	3.2	20	208-230	20.0	30	70	65	31 x 33 x 26	33 x 33 x 28	345	2"
P72	7 - 10	15.9	4.8	32	208-230	29.0	40	73	68	33 x 40 x 27	39 x 40 x 30	425	2"

General Information

Model Identification / Compliance Chart

Model	Description	Serial Number Prefix	Complies To:		Electrical Supply Requirements:		
			UL 60601-1	CAN/CSA 22.2, #601.1-M90	VAC	Amps	Cycles (Hz)
CL21	ClassicSeries Lubricated Compressor 3 User		X	X	115	12.4	60
CL22	ClassicSeries Lubricated Compressor 3 User		X	X	208-230	6	60
CL32	ClassicSeries Lubricated Compressor 5 User		X	X	208-230	12	60
CL52	ClassicSeries Lubricated Compressor 7 User		X	X	208-230	18	60
P21	PowerAir Oil-Less Compressor 3 User		X	X	115	16	60
P22	PowerAir Oil-Less Compressor 3 User		X	X	208-230	7	60
P32	PowerAir Oil-Less Compressor 5 User		X	X	208-230	11	60
P52	PowerAir Oil-Less Compressor 7 User		X	X	208-230	20	60
P72	PowerAir Oil-Less Compressor 10 User		X	X	208-230	29	60

Warranty Information

LIMITED WARRANTY

Midmark Corporation (“Midmark”) warrants to the original purchaser its new ClassicSeries® and PowerAir® products and components (except for components not warranted under “Exclusions”) manufactured by Midmark to be free from defects in material and workmanship under normal use and service. Midmark’s obligation under this warranty is limited to the repair or replacement, at Midmark’s option, of the parts or the products the defects of which are reported to Midmark within the applicable warranty period and which, upon examination by Midmark, prove to be defective.

APPLICABLE WARRANTY PERIOD

The applicable warranty period, measured from the date of installation for the original user, shall be:

- ClassicSeries® Lubricated Compressors: Two (2) years or 1,500 usage hours (whichever comes first)
- PowerAir® Oil-less Compressors: Five (5) years or 3,500 usage hours (whichever comes first)

EXCLUSIONS

This warranty does not cover and Midmark shall not be liable for the following: (1) repairs and replacements because of misuse, abuse, negligence, alteration, accident, freight damage, or tampering; (2) products which are not installed, used, and properly cleaned as required in the Midmark “Installation” manual and or “maintenance” guide for this applicable product; (3) products considered to be of a consumable nature; (4) accessories or parts not manufactured by Midmark; (5) charges by anyone for adjustments, repairs, replacement parts, installation, or other work performed upon or in connection with such products which is not expressly authorized in writing in advance by Midmark.

EXCLUSIVE REMEDY

Midmark’s only obligation under this warranty is the repair or replacement of defective parts. Midmark shall not be liable for any direct, special, indirect, incidental, exemplary, or consequential damages or delay, including, but not limited to, damages for loss of profits or loss of use.

NO AUTHORIZATION

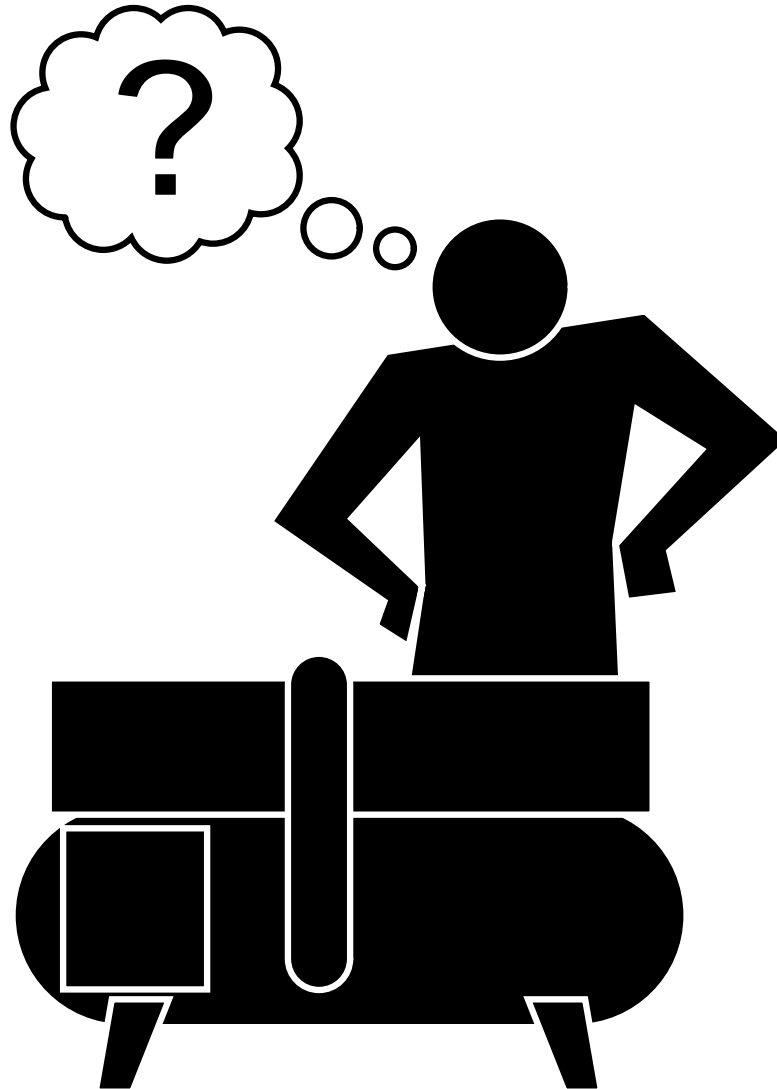
No person or firm is authorized to create for Midmark any other obligation or liability in connection with the products.

THIS WARRANTY IS MIDMARK’S ONLY WARRANTY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. MIDMARK MAKES NO IMPLIED WARRANTIES OF ANY KIND INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS.

Section A

Troubleshooting

<u>Function / System</u>	<u>Page</u>
Compression Cycle	A-2
Purge Cycle	A-4

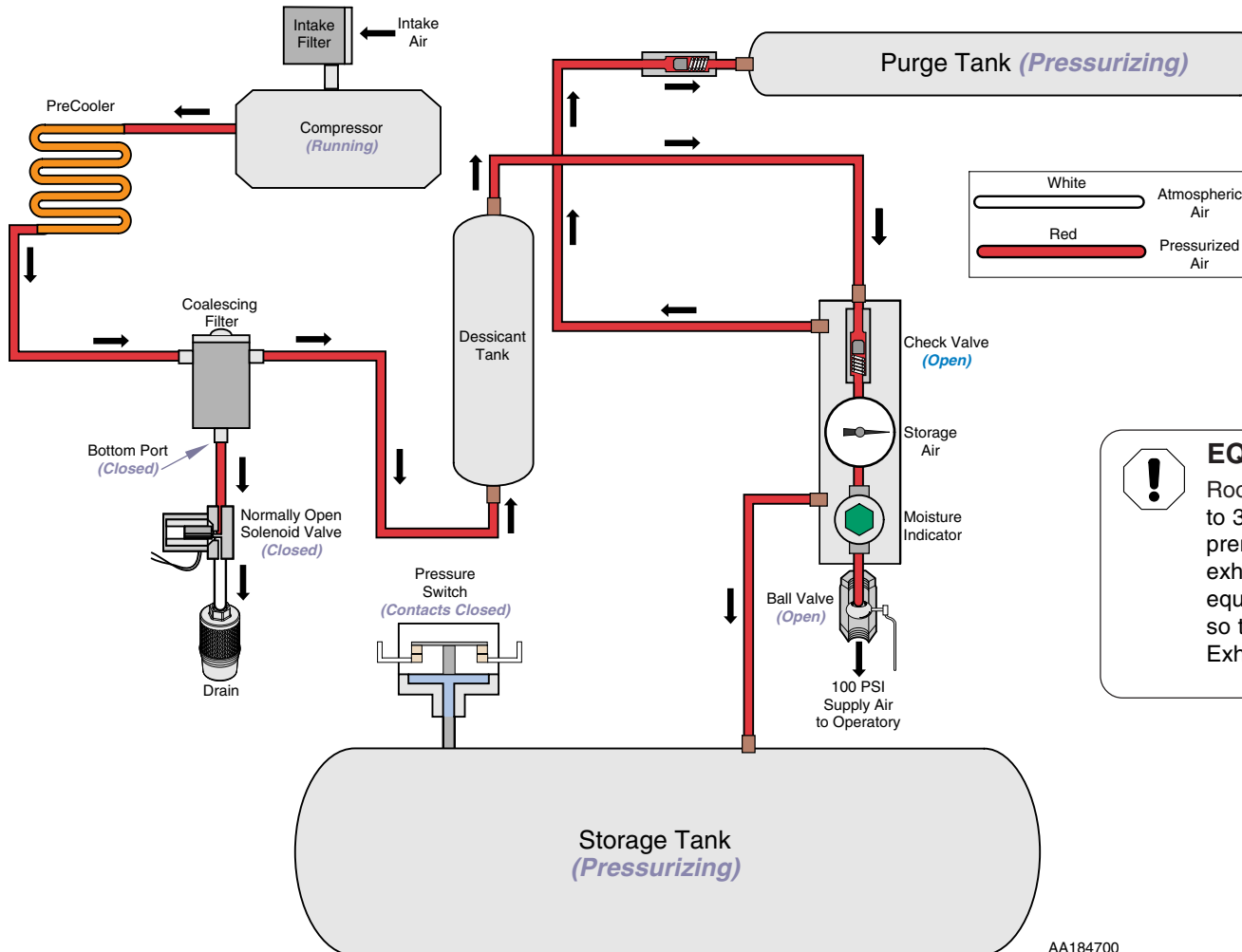


Troubleshooting

Compression Cycle

Atmospheric air is drawn in through intake filters to the compressor head(s) where air is compressed and exhausted. Air travels through the pre-cooler where it is cooled 10 to 15 ° F (-12.2 to -9.4 Celsius) within ambient room temperature. Cool air enters the coalescent filter, which removes 99.9997% of all particulate matter.

As the clean air travels through the desiccant tank it is dried to -25°F (-31.7 Celsius) dew point. The clean dry air flows into the main storage tank through a check valve. Some air is directed to the purge tank. As both tanks fill, the pressure switch opens at preset pressure and stops the compressor.



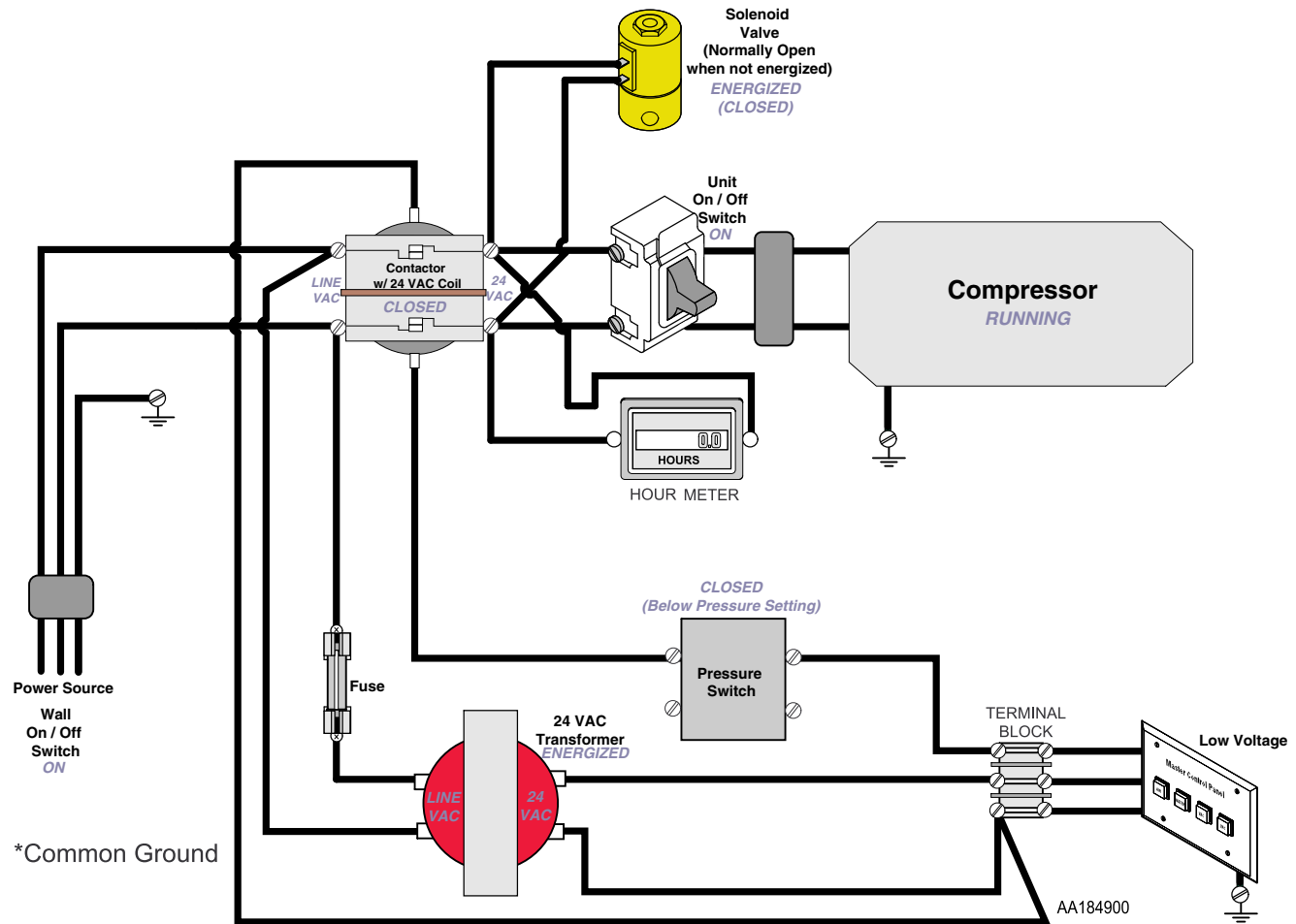
Troubleshooting	Page
Compressor will not Start	A-6
Motor runs Intermittently or "Chugs" <i>ClassicSeries (Lubricated Models)...</i>	A-7
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Element Indicator is Red	A-12
High Pressure	A-13
Excessive Noise	A-14
Overheating	A-15
Compressor runs to Frequently	A-16
Excessive Oil Use (Lubricated Only)	A-17
Compressor Tripping Circuit Breaker	A-18

EQUIPMENT ALERT
 Room temperature should be between 40° and 100°F (4°C to 38°C). Lack of proper ventilation is the main reason for premature compressors failures. Whenever possible, use exhaust fan to bring cool air from dental office to the equipment room, or run fresh air intake lines to the outside so the compressor can breathe in fresh, outside air. Exhaust the stale, hot air out through the roof or side wall.

Compression Cycle Electrical Schematic

- Supply Line Voltage is *always* present on one side of the Contactor contacts.
- Line Voltage is also being supplied to the 240 / 24 VAC transformer energizing it.
- The Transformer supplies 24 VAC to the On/Off switch on the wall and to one side of the 24 VAC Contactor Coil. When the On/Off switch is turned to the on position and the Pressure Switch is closed, the Contactor Coil is energized closing the contacts.
- With the contacts closed, line voltage is supplied to one side on the Vac Unit On/Off switch.
- When the Vac Unit On/Off switch is turned on, line voltage is supplied to the motor.
- If the Pressure Switch is at 80 PSI (+ / - 5 PSI) or below it's contacts are closed.
- If the Contactor is closed, Line voltage is then supplied to the Compressor energizing it and the normally open Solenoid Valve, closing the valve. This prevents the compressed air from being discharged.

The system will continue to run until the pressure inside the system reaches 100 PSI (+ / - 5 PSI).

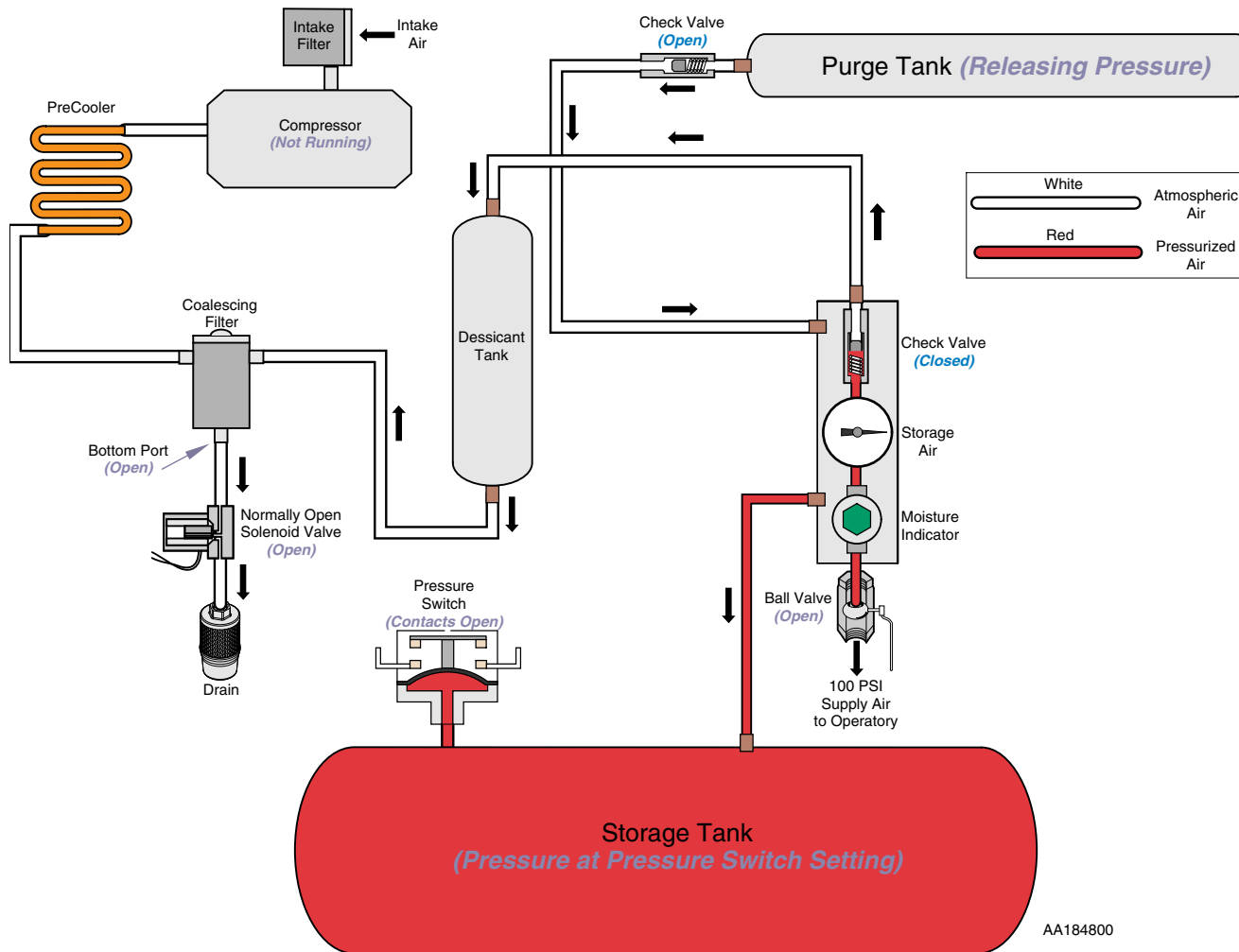


Earlier Low Voltage Single Head Unit Shown

Troubleshooting

Note:

Under normal operation conditions, a small amount of moisture with some oil may be under the unloader exhaust muffler. This is not a malfunction. It is evidence of what the filter on the Desiccant Drying System captured the moisture, and did not permit it to enter the operatory air supply.



Troubleshooting

Page

Motor runs Intermittently or "Chugs"	
ClassicSeries® (Lubricated Models)....	A-7
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Element Indicator is Red	A-12
High Pressure	A-13
Excessive Noise	A-14
Overheating	A-15
Compressor runs to Frequently	A-16
Compressor Tripping Circuit Breaker	A-18

Purge Cycle

The pressure switch will open, shutting off electrical current to compressor head(s) and the solenoid/purge valve.

A mechanical valve on the pressure switch opens up to unload the compressor heads. At the same time the unloader solenoid opens, starting the purge cycle.

Air from the purge tank flows back through the metered orifice.

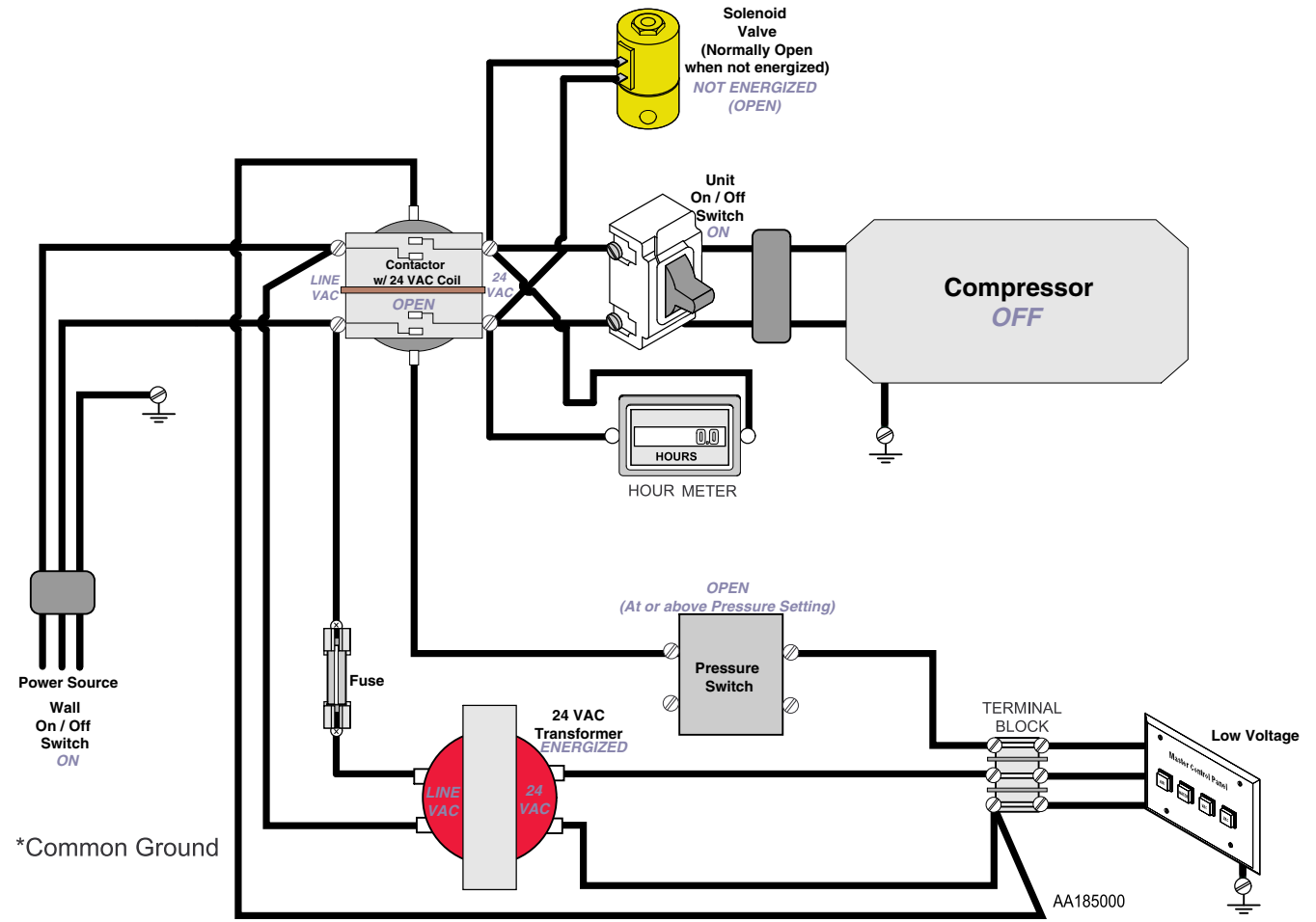
The clean dry air drives out the moisture from the desiccant beads.

AA184800

Purge Cycle Electrical Schematic

- Pressure inside the system reaches 100 PSI (+ / - 5 PSI) causing the Pressure Switch Contacts to open.
- Power is removed from the coil of the Contactor which opens the Contactor, stopping the motor.
- At the same time, power is removed from the Normally Open Solenoid Valve, Opening the valve, allowing pressure to be released from the top of the compressor head to the Exhaust Muffler. It also allows the Purge Tank to release its pressure thru the Desiccant Tank to the Exhaust Muffler.
- As long as the Wall On / Off Switch is On, it is providing power to one side of the Pressure Switch.

Refer to: Wire Diagrams **Page** D-1



Earlier Low Voltage Single Head Unit Shown

Note:
The compression and purge cycles will continue as the pressure inside the system fluctuates between the 80 PSI and 100 PSI pressure settings.

Troubleshooting

Refer To:	Page
Pressure Switch	B-2
ON/OFF Switch	B-23
Capacitor	B-19
Compressor Heads	B-29
Low Voltage	B-16

Compression Cycle

Problem: Compressor will not Start

Lubricated Models Only Check Start Relay

(Motor may hum but not Start)
Tap capacitor box lightly. If unit starts,
relay is sticking and needs replaced.
Check Relay for continuity.
Refer to Section B - Start Relay

3rd ✓

Thermal Overload Cut

Allow compressor to cool, then restart.

5th ✓

Motor/Compressor Frozen

Refer to: Section B Compressor Heads

6th ✓

Check Capacitor

Refer to: Section B Capacitor

4th ✓

Check Low Voltage

Refer to: Section B Low Voltage

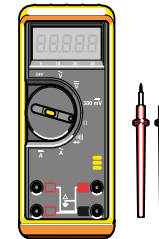
1st ✓

Check voltage at Breaker

Was proper voltage is measured at the breaker and not at motor terminals?
If yes, check the in the following order :

- Check for broken or loose wires.
- If there is Pressure, Perform Pressure Switch Adjustment.
(Refer to: B Pressure Switch)
- Check voltage at On/Off Switch.
(Refer to: B On/Off Switch)

2nd ✓



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Compression Cycle & Purge Cycle

Problem: Motor runs Intermittently or "Chugs" - ClassicSeries[®] Lubricated Models

Refer To:	Page
Start Relay	B-27
Capacitor	B-19
Solenoid	B-12
Check Valve	B-21

Check Voltage in Breaker

Note: If circuit breaker is tripped, measure voltage at the line side of the vacuum switch while the unit is running. Voltage should be in the range of 208-230 (for 230 volt units) and 108-132 (for 120 volt units). Voltage outside this range may result in failure to start and possible damage to unit. Install a buck/boost transformer as required.

1st ✓

Check Capacitor

Refer to: Section B Capacitor

7th ✓

Check Low Voltage

Refer to: Section B Low Voltage

2nd ✓

Check On/Off Switch

Refer to: Section B On/Off Switch

3rd ✓

Check for Stuck Relay

If the start capacitor is warm to the touch, start relay is not releasing. Replace the start relay.

6th ✓

Check Pressure Switch

Refer to: Section B Pressure Switch

4th ✓

Check for Stuck Check Valve

Refer to: Section B Check Valve

9th ✓

Check Ambient Room Temperature.

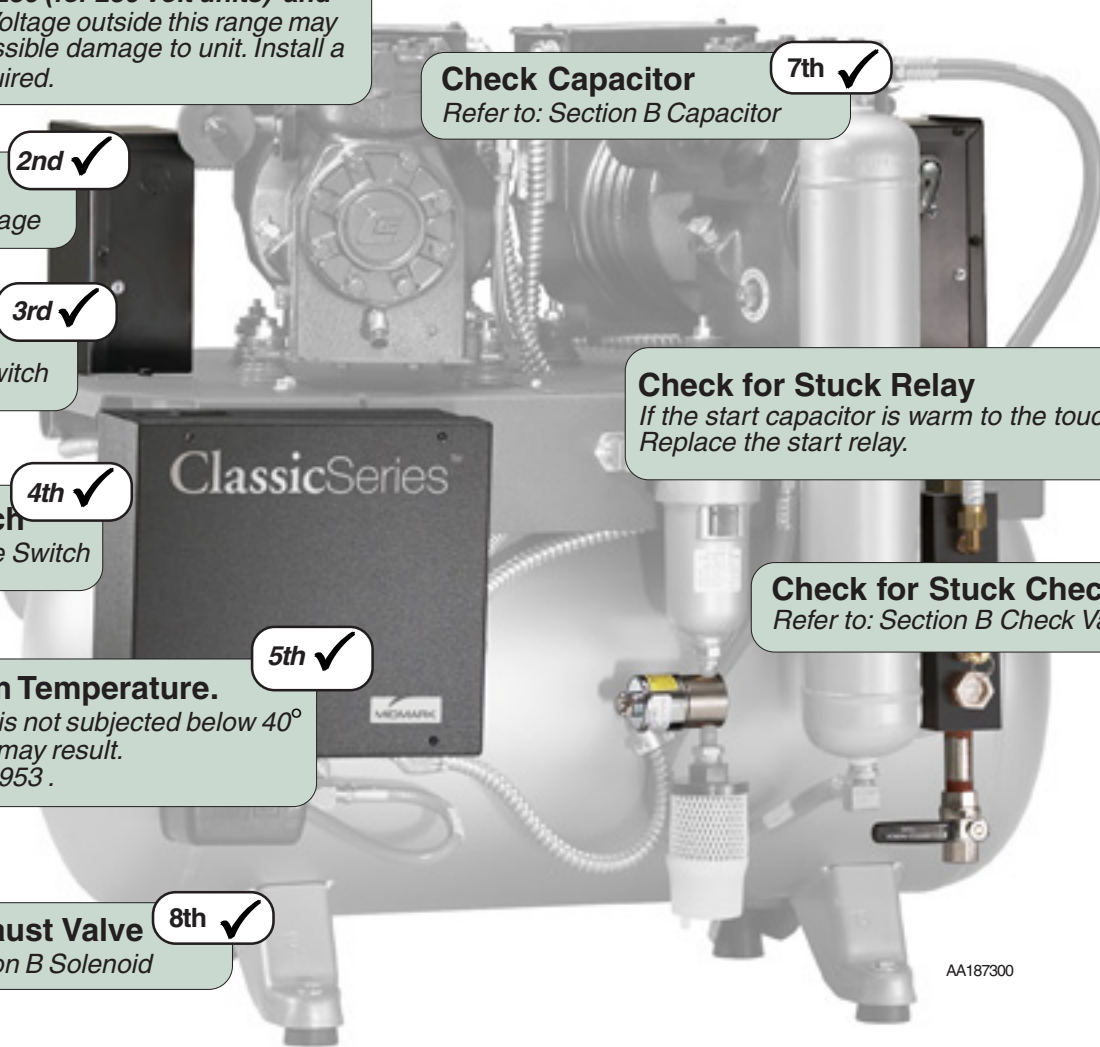
Verify temperature of room is not subjected below 40° Fahrenheit or hard starting may result. Use Midmark Oil, pn 77000953.

5th ✓

Check Exhaust Valve

Refer to: Section B Solenoid

8th ✓



AA187300

Models:
Serial Numbers:

CL21
All

CL22
All

CL32
All

CL52
All

Compression & Purge
Cycle

Troubleshooting

Refer To:	Page
Low Voltage	B-16
On/Off Switch	B-23
Pressure Switch	B-2

Compression Cycle & Purge Cycle

Problem: Motor runs Intermittently or "Chugs" - PowerAir[®] - Oil Less Models

1st ✓
Check Voltage in Breaker
Note: If circuit breaker is tripped, measure voltage at the line side of the vacuum switch while the unit is running. Voltage should be in the range of 208-230 (for 230 volt units) and 108-132 (for 120 volt units). Voltage outside this range may result in failure to start and possible damage to unit. Install a buck/boost transformer as required.

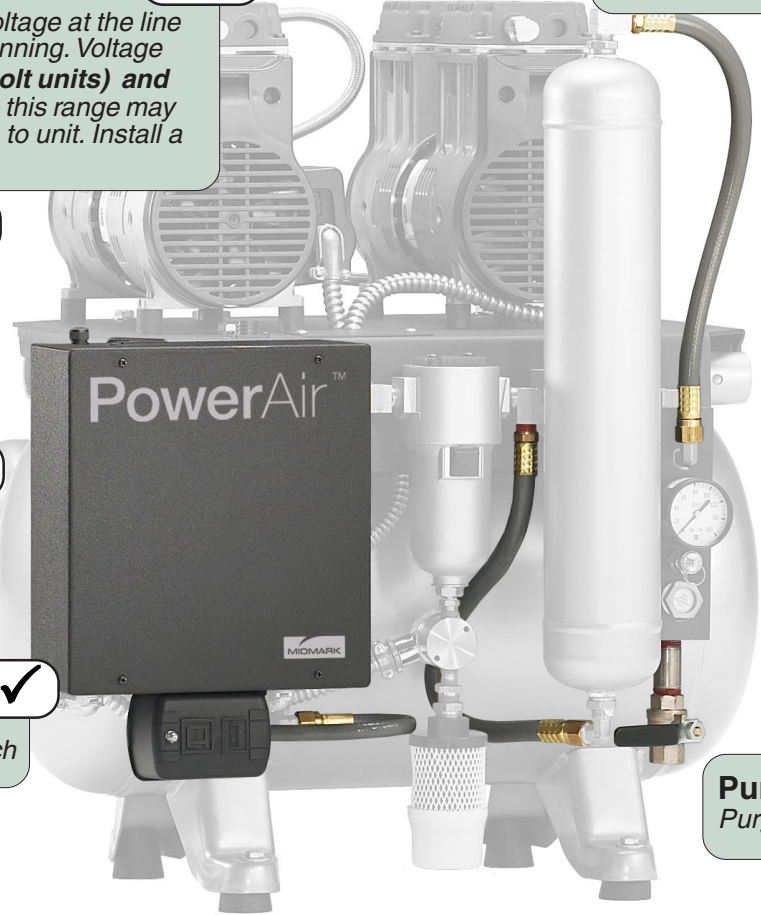
2nd ✓
Check Low Voltage
Refer to: Section B Low Voltage

3rd ✓
Check On/Off Switch
Refer to: Section B On/Off Switch

4th ✓
Check Pressure Switch
Refer to: Section B Pressure Switch

6th ✓
Check for Blockage in Air Line
Remove discharge hose from head and test run. If unit runs correctly check for obstruction in air line to storage tank. Obstruction will be at an orifice or other restriction.

5th ✓
Purge System
Purge system by pulling open the pressure relief valve.



Models:	P21	P22	P32	P52	P72
Serial Numbers:	All	All	All	All	All

Compression Cycle - continued

Problem: Compressor Heads run but will not Pressurize to 100 PSI

Refer To:	Page
Solenoid	B-12
Pressure Switch	B-2
Coalescing Filter	B-11
Intake Filter	B-7
Checking for Leaks	B-10
Compressor Heads	B-29

Lubricated Models Only Check for Pressure Build Up

Remove discharge line, hold finger over fitting.
If low pressure build -up, head(s) are defective and need replaced.

8th ✓

Clean or Replace Intake Filter

Refer to: Section B Intake Filter.

Note: Intake filters on earlier versions are mounted on a "T" manifold.

5th ✓

P21, P22, P32 Models Only Check for Worn Piston Cup

Refer to: Section B Compressor Heads

9th ✓

Check for Blockage in Air Line

Inspect all air lines for restrictions.

6th ✓

Check Coalescing Filter

If indicator is red, change filter.
Check for leaks or cracks.

Refer to: Section B Coalescing Filter

4th ✓

Check Exhaust Valve

Refer to: Section B Solenoid.

2nd ✓

Check Pressure Switch

Refer to: Section B Pressure Switch.

3rd ✓

Check for leaks in Office Air System and in Compressor

- Close the storage tank shut off.
 - Pump up storage tank to 100 PSI.
 - If pressure is maintained at 100 PSI for 15-20 minutes, leak is not in compressor.
- If pressure does not maintain, Refer to: Section B Checking for leaks.

7th ✓

Verify Shut-Off valve is Closed.

1st ✓

Models: All
Serial Numbers:

Compression & Purge
Cycle

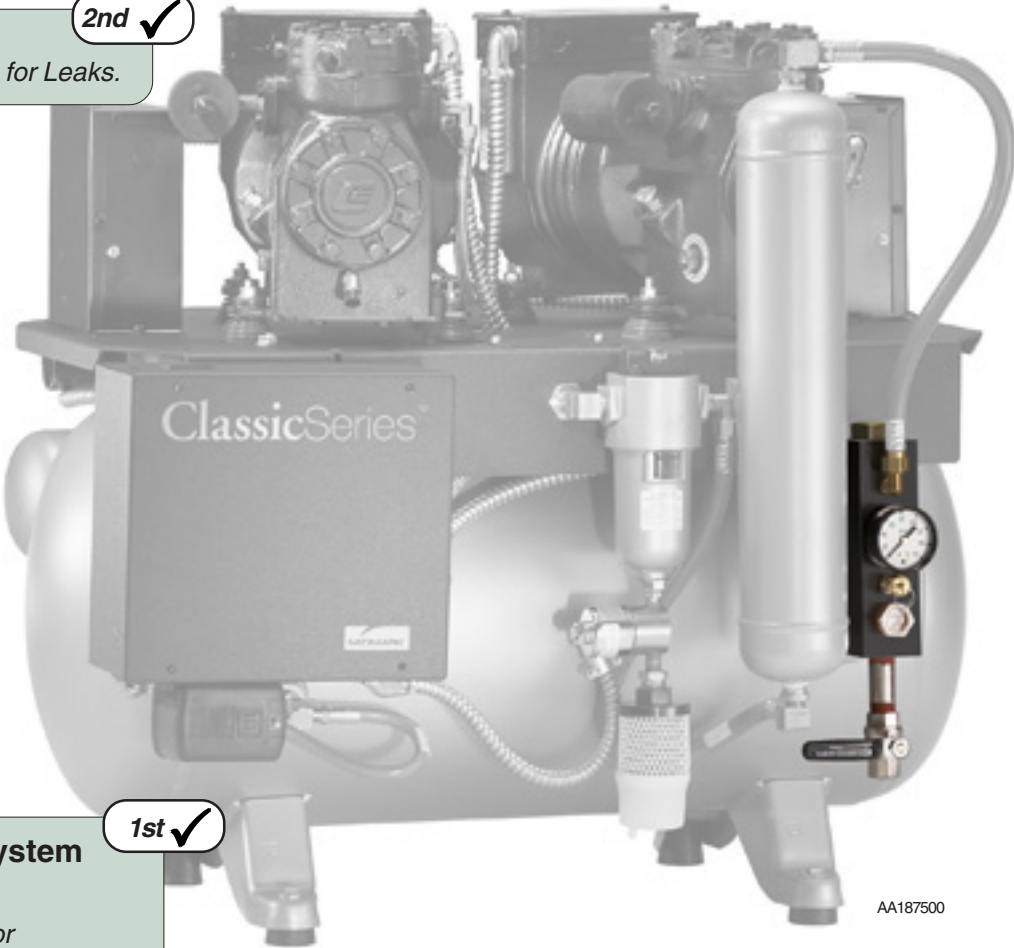
Troubleshooting

Compression Cycle - *continued*

Problem: *Compressor cycles with no air being used*

Refer To: **Page**
Checking for Leaks B-10

2nd ✓
Check for Air Leaks
Refer to: Section B Checking for Leaks.



1st ✓
Check for Leak in Office Air System
Close the storage tank shut off.
•Pump up storage tank to 100 PSI.
•If pressure is maintained at 100 PSI for 15-20 minutes, leak is not in compressor.

Compression Cycle & Purge Cycle- continued

Problem: Moisture Indicator is Pink

Refer To:	Page
Desiccant Tank	B-15
Solenoid	B-12
Compressor runs to frequently	A-16

Is Compressor running too frequently?
Refer to: Section A Compressor runs to Frequently.

3rd ✓

Check Desiccant Drying Chamber
Refer to: Section B Desiccant Tank

2nd ✓

Perform Unloading System Function Test
Refer to: Section B - Solenoid

1st ✓

Purge System
Purge system by pulling open the pressure relief valve.

5th ✓

Check for Condensation in Air Lines
Is there moisture in operatory air?

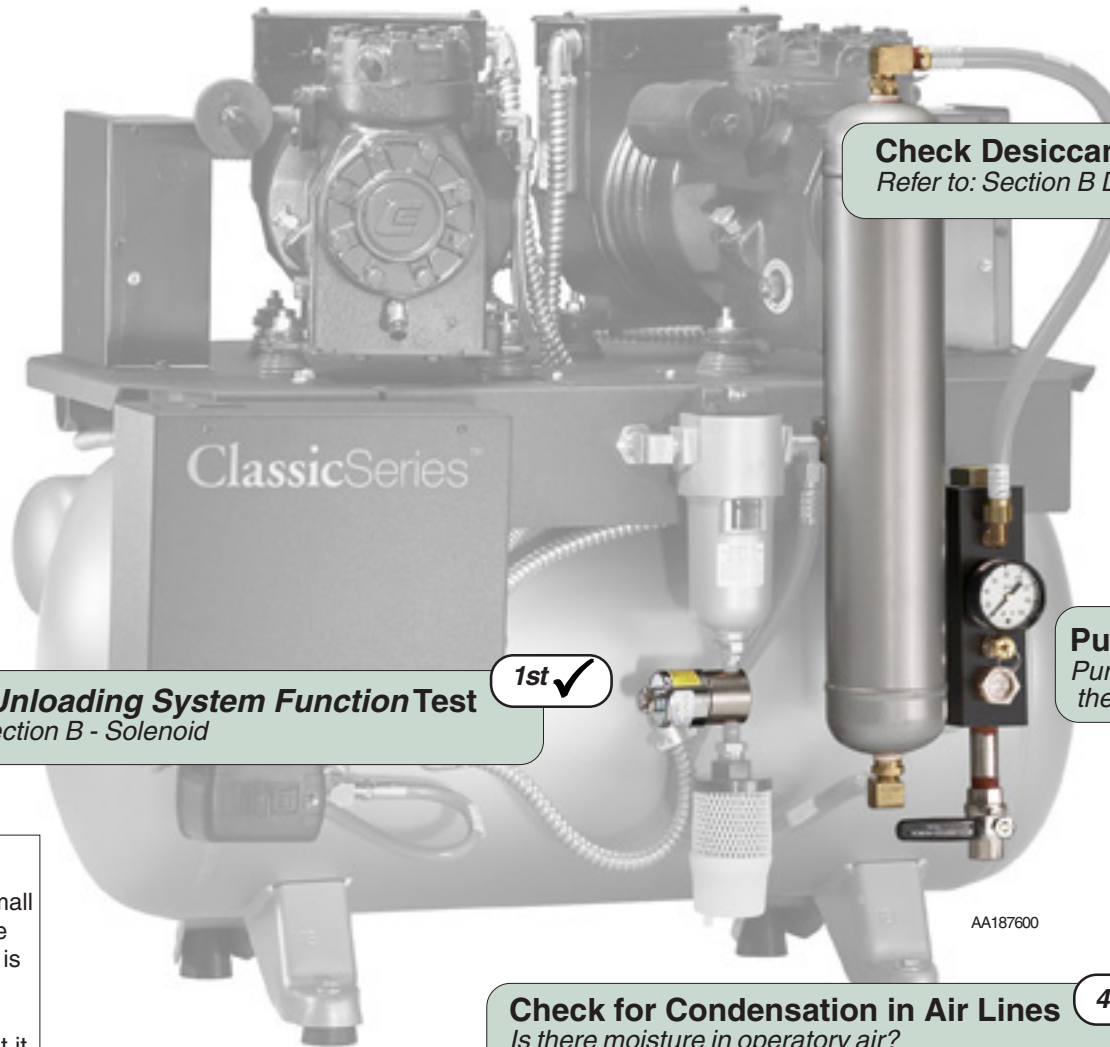
4th ✓

Note:

Under normal operation conditions, a small amount of moisture with some oil may be under the unloader exhaust muffler. This is not a malfunction. It is evidence that the filter on the Desiccant Drying System captured the moisture, and did not permit it to enter the operatory air supply.

Models: All
Serial Numbers:

Compression & Purge Cycle



Troubleshooting

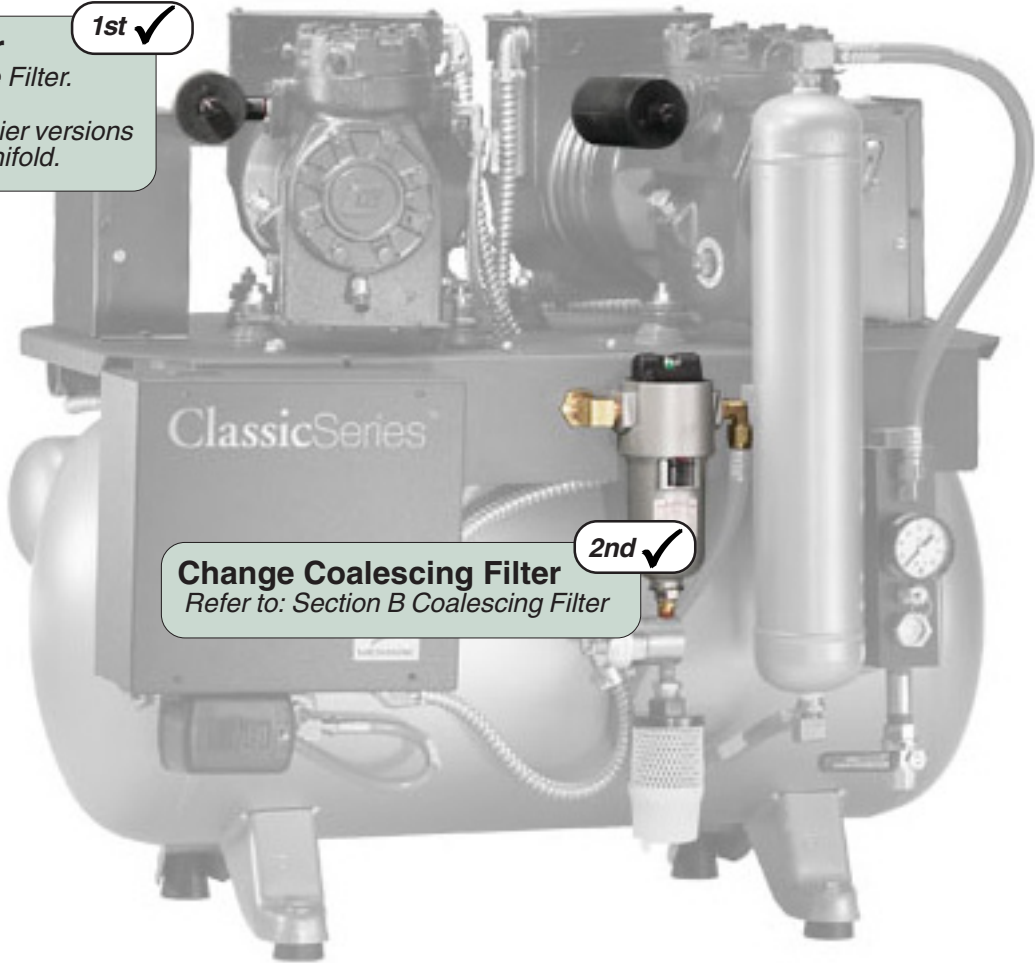
Compression Cycle & Purge Cycle- *continued*

Problem: Element Indicator is Red

Refer To:	Page
Intake Filter	B-7
Coalescing Filter	B-11

1st ✓
Change Intake Filter
Refer to: Section B Intake Filter.

Note: Intake filters on earlier versions are mounted on a "T" manifold.



2nd ✓
Change Coalescing Filter
Refer to: Section B Coalescing Filter

Compression Cycle & Purge Cycle- *continued*

Problem: High Pressure

Refer To:

Page

Check Valves B-21

Check Exhaust

Remove hoses one at a time between Heads and Pressure Relief Valve. Verify exhaust air flow is not obstructed.

1st ✓

Clean or Replace Check Valve

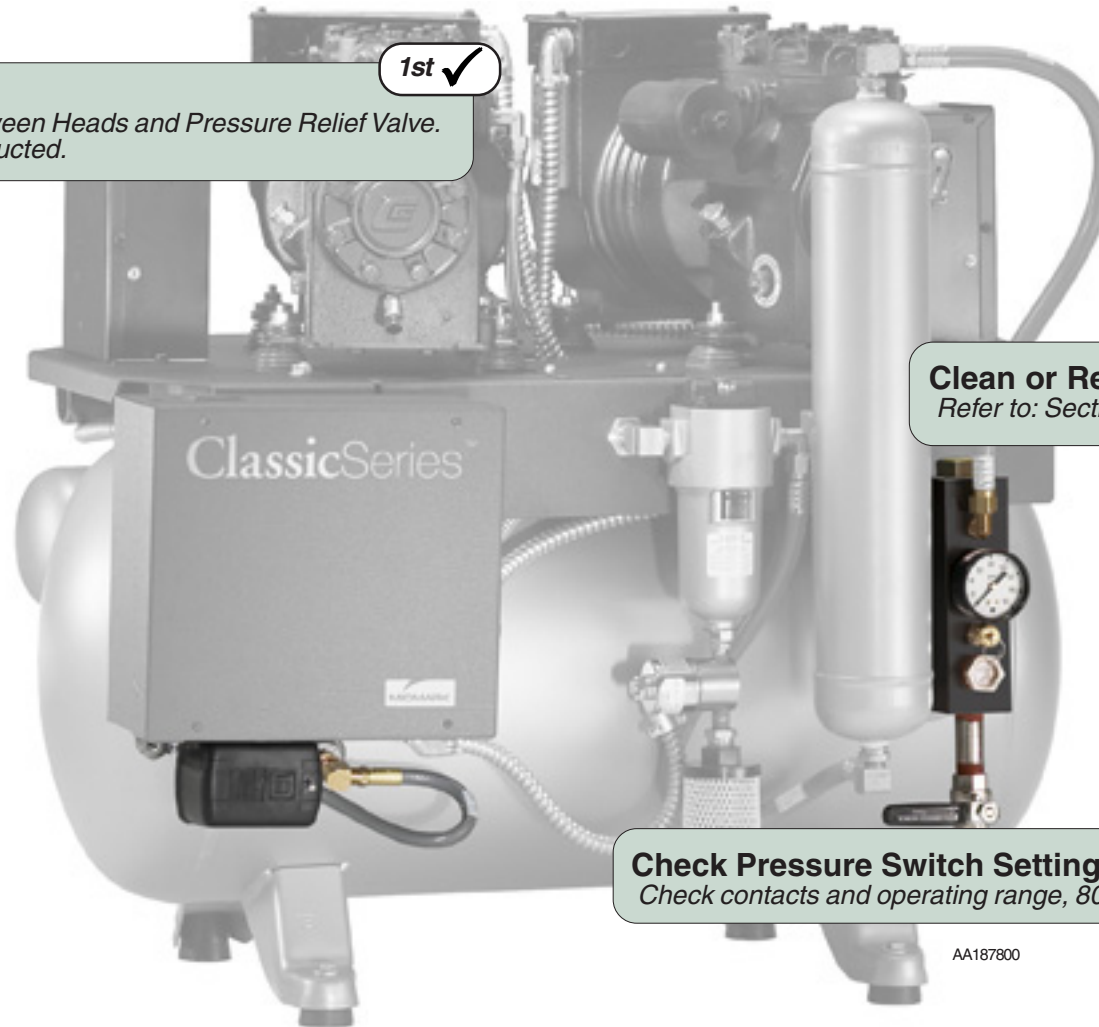
Refer to: Section B Check Valve

2nd ✓

Check Pressure Switch Settings

Check contacts and operating range, 80 - 100 psi.

3rd ✓



AA187800

Models:
Serial Numbers:

All

**Compression & Purge
Cycle**

Troubleshooting

Compression Cycle & Purge Cycle- continued

Problem: Excessive Noise

Refer To:	Page
Checking for Leaks	B-10
Intake Filters	B-7
Quiet Cover / Fans (Oil Less Models) ...	B-38



Replace Intake Filters 2nd ✓
Refer to: Section B Intake Filters.

Note: Intake filters on earlier versions are mounted on a "T" manifold.

Check for Leaky Hose 1st ✓
Refer to: Section B Checking for Leaks

Oil-Less Compressors with Quiet Cover Only 3rd ✓
Check Fans
Refer to: Section B Fans

Compression Cycle & Purge Cycle- continued

Problem: Overheating

Refer To:	Page
Intake Filter	B-7
Solenoid (Exhaust Valve)	B-12
Pressure Switch	B-2
Low Voltage	B-16
Quiet Cover / Fans (Oil Less Models) ...	B-38
On/Off Switch	B-23

Clean Intake Filters

Refer to: Section B Intake Filters.

Note: Intake filters on earlier versions are mounted on a "T" manifold.

1st ✓

Clean or Replace Exhaust Valve

Refer to: Section B Solenoid.

2nd ✓

Oil-Less Compressors with Quiet Cover Only Check Fans

Refer to: Section B Fans

8th ✓

Check Exhaust

Remove hoses one at a time between Heads and Pressure Relief Valve. Verify exhaust air flow is not obstructed.

3rd ✓

Check Voltage in Breaker

Note: If circuit breaker is tripped, measure voltage at the line side of the vacuum switch while the unit is running. Voltage should be in the range of **208-230 (for 230 volt units)** and **108-132 (for 120 volt units)**. Voltage outside this range may result in failure to start and possible damage to unit. Install a buck/boost transformer as required.

4th ✓

Check Pressure Switch

Refer to: Section B Pressure Switch

7th ✓

Check Low Voltage

Refer to: Section B Low Voltage

5th ✓

Check On/Off Switch

Refer to: Section B On/Off Switch

6th ✓

Models:
Serial Numbers:

All

Compression & Purge
Cycle

Troubleshooting

Compression Cycle & Purge Cycle- *continued*

Problem: Compressor runs too Frequently

Refer To:	Page
Solenoid	B-12
Pressure Switch	B-2
Coalescing Filter	B-11

Check for Air Leaks 1st ✓
Refer to: Section B Checking for Leaks

Change Element Indicator 2nd ✓
Refer to: Section B Coalescing Filter

Check Solenoid 3rd ✓
Refer to: Section B Solenoid

Check Pressure Switch 4th ✓
Refer to: Section B Pressure Switch

Note:

More than the 35% duty cycle for Compressors are rated for would be "Running too Frequently".

Compression Cycle & Purge Cycle

Problem: Excessive Oil Use - ClassicSeries® Lubricated Models

Refer To:	Page
Checking for Leaks	B-10
Compressor Heads	B-29

1st ✓ Is Oil Black?

Black oil indicates a worn head. Replace compressor head(s).
Refer to: Section B Compressor Heads

3rd ✓ Check for Leaks

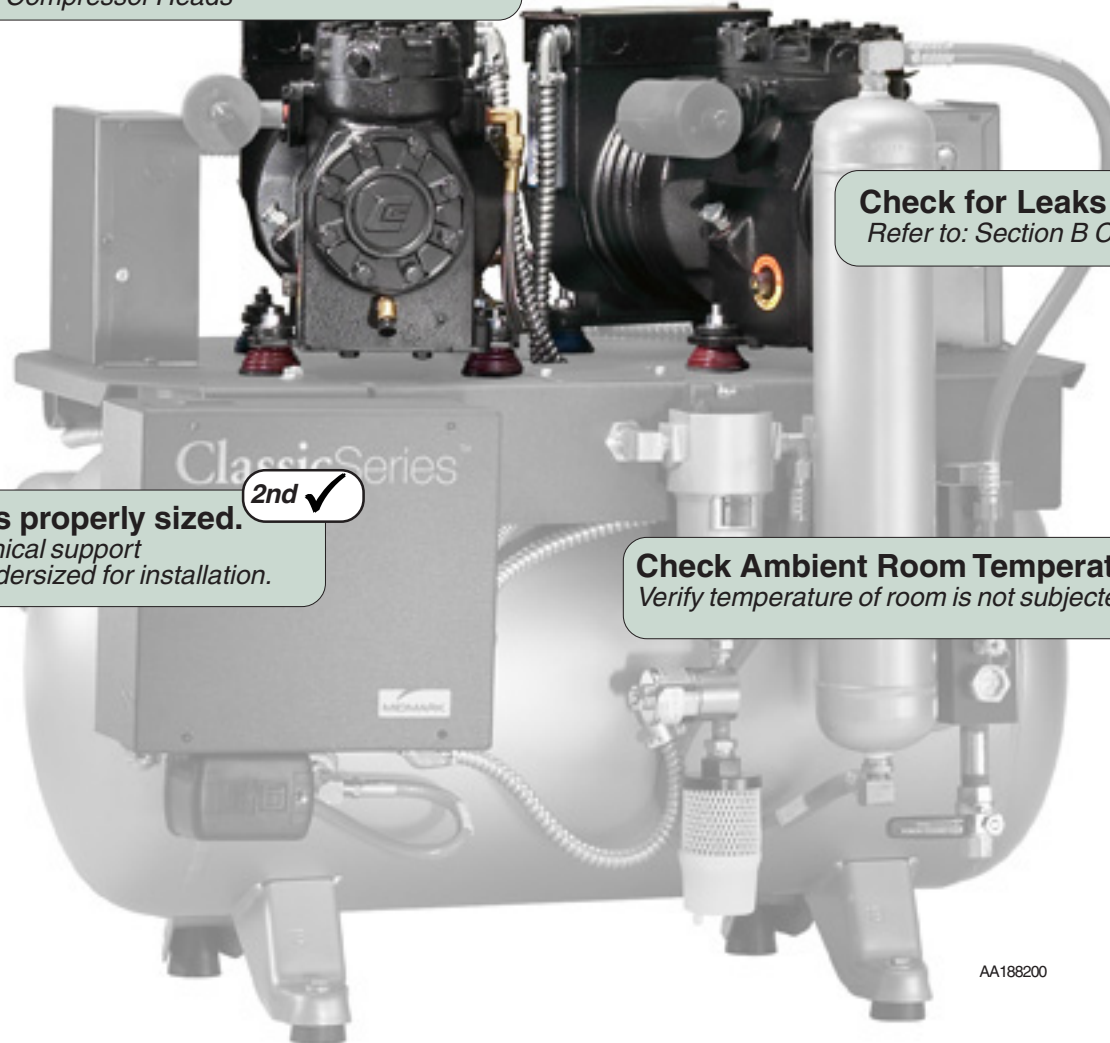
Refer to: Section B Checking for Leaks.

2nd ✓ Verify Compressor is properly sized.

Check with Midmark Technical support
to verify compressor is undersized for installation.

4th ✓ Check Ambient Room Temperature.

Verify temperature of room is not subjected above 100° Fahrenheit.



AA188200

Models:	CL21	CL22	CL32	CL52
Serial Numbers:	All	All	All	All

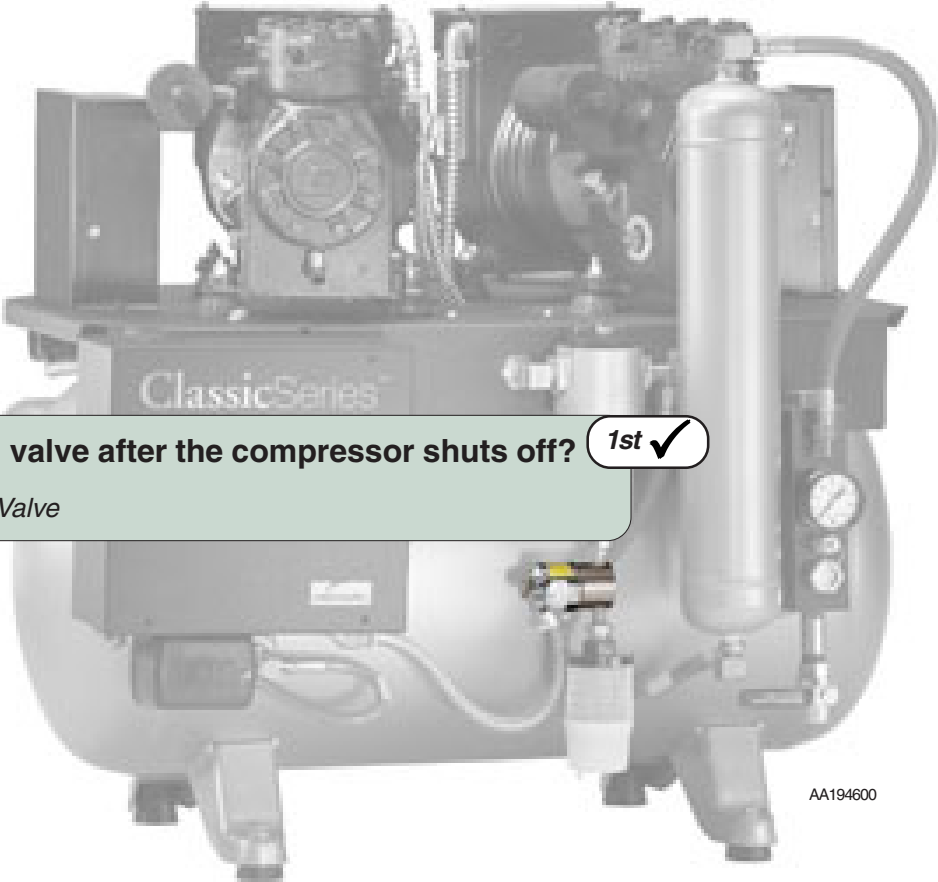
**Compression & Purge
Cycle**

Troubleshooting

Refer To:	Page
Purge Valve	B-34

Compression Cycle & Purge Cycle- continued

Problem: Compressor Trips off the Circuit Breaker



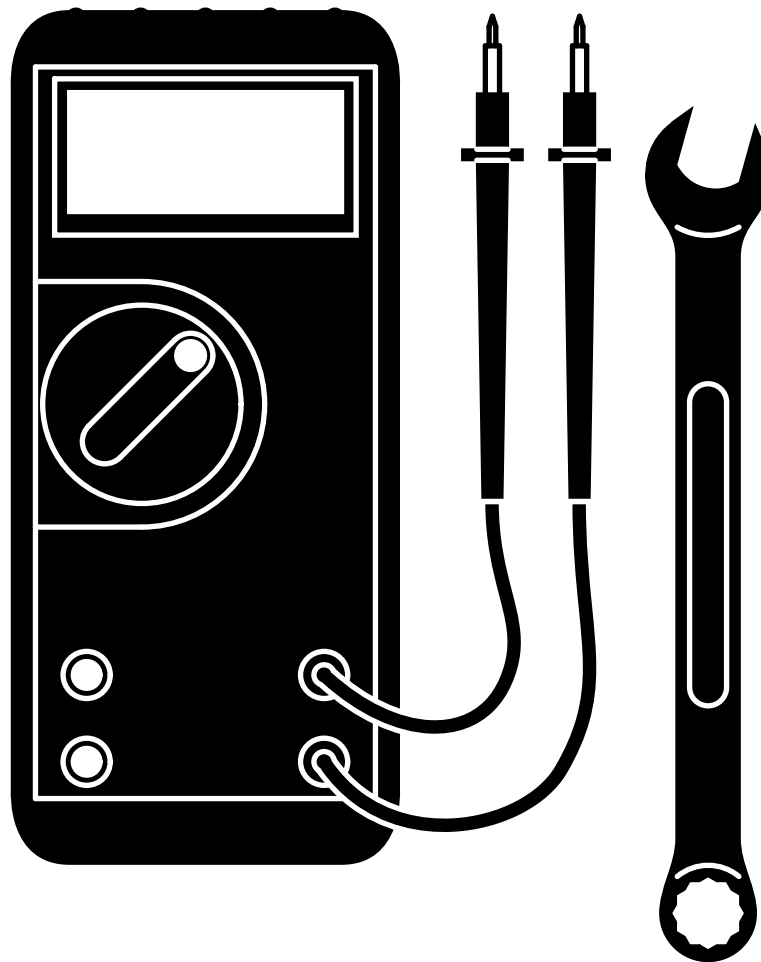
Do you hear air escaping from the solenoid valve after the compressor shuts off? **1st ✓**

If yes, check Solenoid.

If no, check purge valve for obstruction. Refer to: Purge Valve

Section B

Testing & Repair



<u>Components</u>	<u>Page</u>
Pressure Switch	B-2
Intake Filter	B-8
Checking for Leaks	B-11
Coalescing Filter	B-12
Solenoid	B-13
Desiccant Tank	B-16
Low Voltage Control Circuit & Contactor	B-18
Capacitor	B-20
Check Valve	B-22
ON/OFF Switches	B-24
Fuse	B-26
Start Relay (Lubricated Models Only) ..	B-28
Compressor Heads (<i>Listed by Model</i>)	
CL21, CL22, CL32 and CL52	B-30
P21, P22 and P32	B-32
P52 and P72	B-33
Purge Valve	B-35
Thermal Overload Switch	B-37
Fan (Oil Less Models with Quiet Cover)	B-39

Testing & Repair

Pressure Switch

Location and Function

During the Compression Cycle...

When the storage tank is filled to the preset pressure the pressure switch will open and stop the compressor.

During the Purge Cycle...

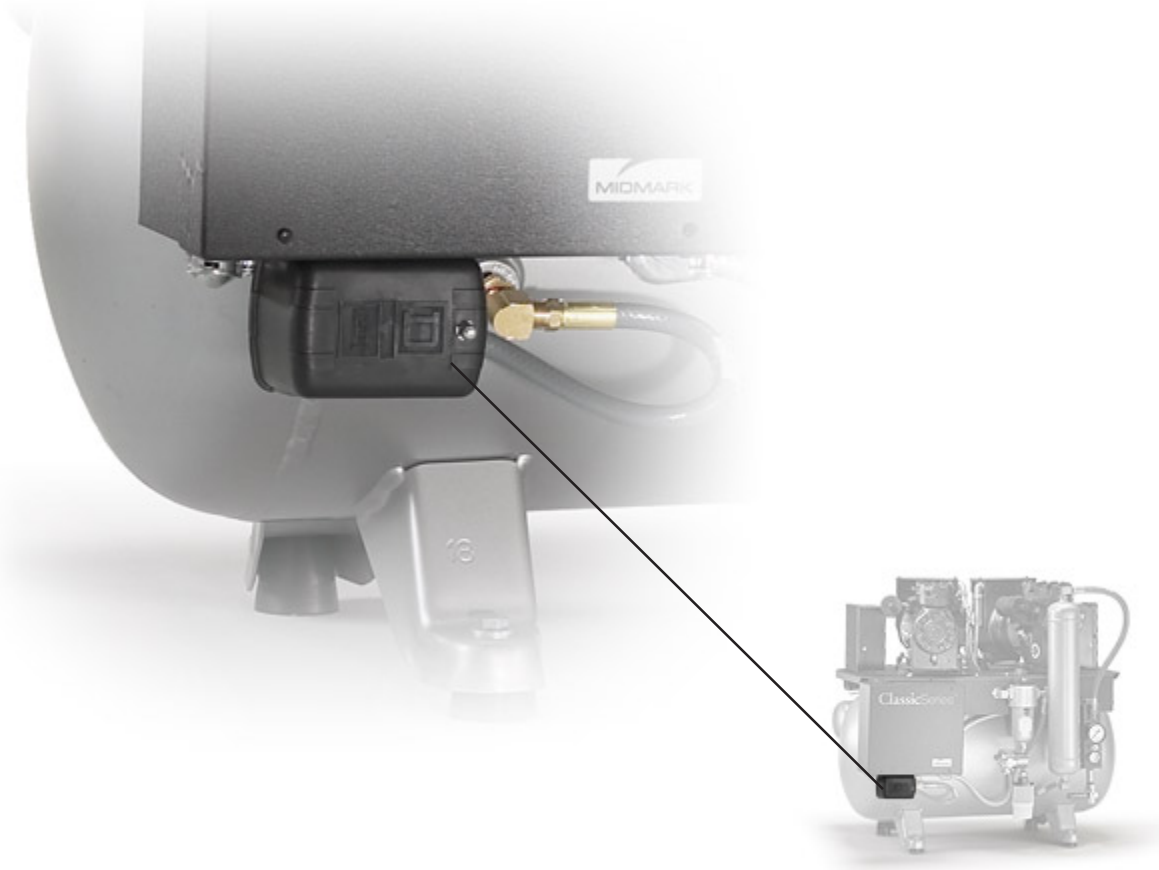
The pressure switch shuts off current to the compressor head(s) and the solenoid / purge valve.

A mechanical valve on the pressure switch opens up to unload the compressor headlines. At the same time the solenoid opens, starting the purge cycle.

Cut-In / Cut-Out time

Cut-In / Cut-Out is the minimum and maximum discharge pressures at which the compressor will switch from unload to load operation (cut-in) or from load to unload (cut-out). The pressure switch controls Cut-In / Cut-Out times.

<u>Refer to:</u>	<u>Page</u>
Testing	B-3
Adjustment	B-5
Wiring Diagrams	D-1
Exploded views	E-1



Pressure Switch - continued

Testing - ***Note - This procedure is only for units with Serial Numbers listed below. Refer to following pages for other Serial Number listings.**

Refer to:	Page
Adjustment	B-5
Access Procedures	C-1

Step 1: Perform Adjustment.
Refer to Section B Pressure Switch Adjustment.

Step 2: Turn power off.

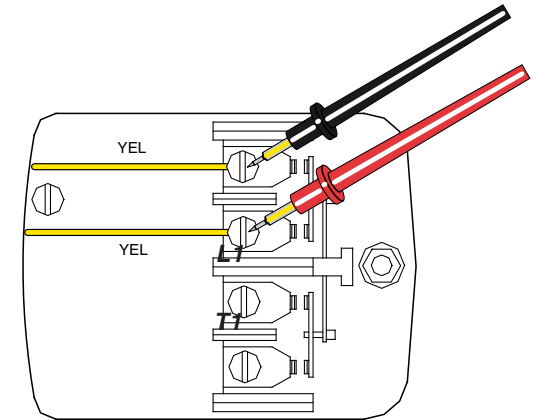
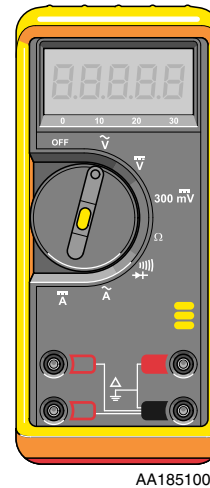
Step 3: Remove pressure switch cover and verify there are no black/burnt melted wires. If there are replace pressure switch.
Refer to Section C Pressure Switch Cover

Step 4: Turn power on.



Caution
When testing components with power on use care to prevent electrical shock.

Step 5: Set meter to \tilde{V} .



Step 6: Place meter probes on both yellow wires.

Attention:
Test Pressure Switch during purge cycle. During compression cycle Pressure Switch is closed and has no voltage.

Meter Reading	Status	Required Action
No Pressure on Gauge Less than 24 Volts on Reading		Replace Pressure Switch.
24 Volt Reading		Pressure Switch - OK

Models:	CL21	CL22	CL32	CL52	
Serial Numbers:	0701L210001 thru 0901L210370	0701L220001 thru 0903L220294	0701L320001 thru 0901L320807	0701L520001 thru 0810CL520124	
Models:	P21	P22	P32	P52	P72
Serial Numbers:	0703P210001 thru 0903P210361	0703P220001 thru 0903P221139	0703P210001 thru 0903P321137	0703P210001 thru 0902P520467	0703P210001 thru 0903P720190

Pressure Switch

Testing & Repair

Pressure Switch - continued

Testing **Note - This procedure is only for units with Serial Numbers listed below.*

Step 1: Perform Adjustment.
Refer to Section B Vacuum Switch Adjustment.

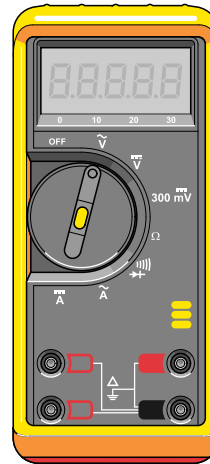
Step 2: Turn power off.

Step 3: Remove vacuum switch cover and verify there are no black/burnt melted wires.
If there are replace pressure switch.
Refer to Section C Vacuum Switch Cover

Step 4: Turn power on.

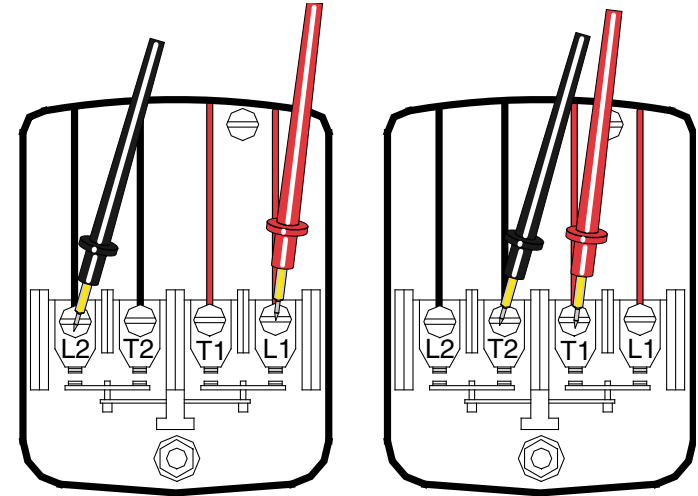
WARNING
High Voltage. When testing components with power on use care to prevent electrical shock.

Step 5: Set meter to \tilde{V} .



AA185101

Refer To:	Page
Function and Location	B-2
Adjustment	B-6
Access Procedures	C-1
Wire Diagrams	D-1
Exploded Views	E-1



Step 6:

- Bleed tank pressure down to less than 80 PSI.
- Pressure switch will make an audible click.
- Check line voltage across L1 and L2.
- Check line voltage across T1 and T2.
- These voltages should be the same.

Meter Reading	Status	Required Action
Voltage Not Equal		Replace Pressure Switch.
T1 & T2 Voltage = L1 & L2 Voltage		Pressure Switch - OK

Models:	CL21	CL22	CL32	CL52	All
Serial Numbers:	0902L210372 thru Present	0903L220296 thru Present	0901L320813 thru Present	0810L520126 thru Present	V785000 thru Present
Models:	P21	P22	P32	P52	P72
Serial Numbers:	0904P210365 thru Present	0904P221146 thru Present	0904P321145 thru Present	0904P520474 thru Present	0903P720191 thru Present

Pressure Switch

Pressure Switch - continued

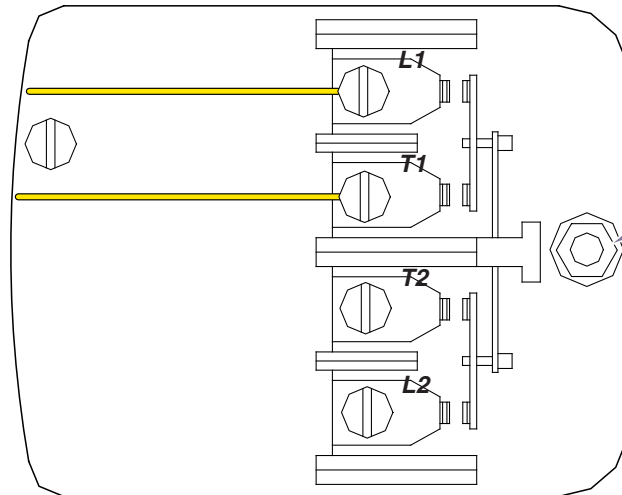
Adjustment - ***Note - This procedure is only for units with Serial Numbers listed below. Refer to following pages for other Serial Number listings.**

Refer To:	Page
Function and Location	B-2
Testing	B-3
Access Procedures	C-1
Wire Diagrams	D-1
Exploded Views	E-1

Cut-In Adjustment

Step 1: Run compressor until pressure reaches 100 lbs.

Note: Compressor should shut off close to 100 lbs.



AA185200

Step 2: If compressor didn't shut down at 100 lbs, turn nut on adjuster to reset gauge.

- Clockwise will increase reading.
- Counter Clockwise will decrease reading.

Models:	CL21	CL22	CL32	CL52	
Serial Numbers:	0701L210001 thru 0901L210370	0701L220001 thru 0903L220294	0701L320001 thru 0901L320807	0701L520001 thru 0810CL520124	
Models:	P21	P22	P32	P52	P72
Serial Numbers:	0703P210001 thru 0903P210361	0703P220001 thru 0903P221139	0703P210001 thru 0903P321137	0703P210001 thru 0902P520467	0703P210001 thru 0903P720190

Pressure Switch

Testing & Repair

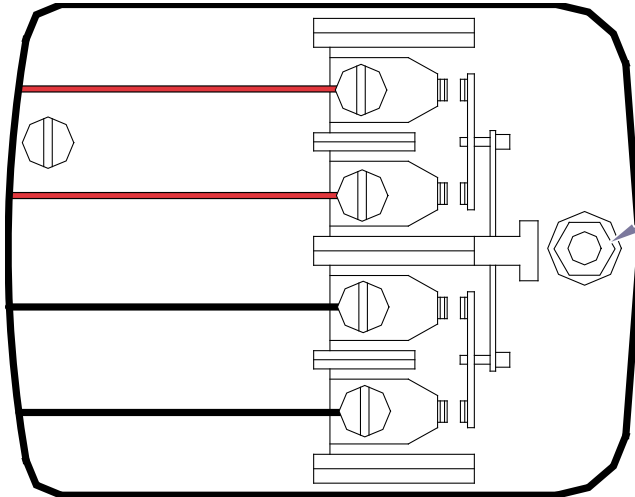
Pressure Switch - continued

Adjustment - ***Note - This procedure is only for units with Serial Numbers listed below. Refer to following pages for other Serial Number listings.**

Refer To:	Page
Function and Location	B-2
Testing	B-4
Access Procedures	C-1
Wire Diagrams	D-1
Exploded Views	E-1

Cut-In Adjustment

Step 1: Run compressor until pressure reaches 100 lbs.
Note: Compressor should shut off close to 100 lbs.



AA185201

Step 2: If compressor didn't shut down at 100 lbs, turn nut on adjuster to reset gauge.

- Clockwise will increase reading.
- Counter Clockwise will decrease reading.

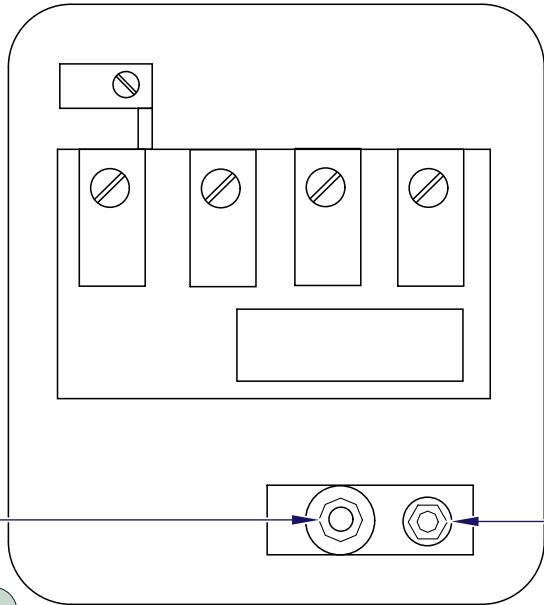
Models: Serial Numbers:	CL21 0902L210372 thru Present	CL22 0903L220296 thru Present	CL32 0901L320813 thru Present	CL52 0810L520126 thru Present	All V785000 thru Present
Models: Serial Numbers:	P21 0904P210365 thru Present	P22 0904P221146 thru Present	P32 0904P321145 thru Present	P52 0904P520474 thru Present	

Pressure Switch

Refer To:	Page
Function and Location	B-2
Testing	B-4
Access Procedures	C-1
Wire Diagrams	D-1
Exploded Views	E-1

Cut-In Adjustment

Step 1: Run compressor until pressure reaches 100 lbs.
Note: Compressor should shut off close to 100 lbs.



Cut-Out Adjustment

Step 1: Run compressor until pressure reaches 100 lbs.
Note: Compressor should shut off close to 100 lbs.
 If not perform a Cut-In adjustment

Step 2: If compressor didn't shut down at 100 lbs, turn nut on adjuster to reset gauge.

- Clockwise will increase reading.
- Counter Clockwise will decrease reading.

Step 2: Compressor should start back up after a 20 lb drop on the gauge. If needed, turn nut to adjust.

- Clockwise will increase reading.
- Counter Clockwise will decrease reading.

NOTE: Pressure Switches on models up to 2 HP have a Preset Cut-In adjuster. Models 2HP and over have Manual adjuster for Cut-In setting. Both Models have Manual Cut-Out Adjusters.

Models:	P72	P72
Serial Numbers:	0903P720191 thru Present	V785000 thru Present

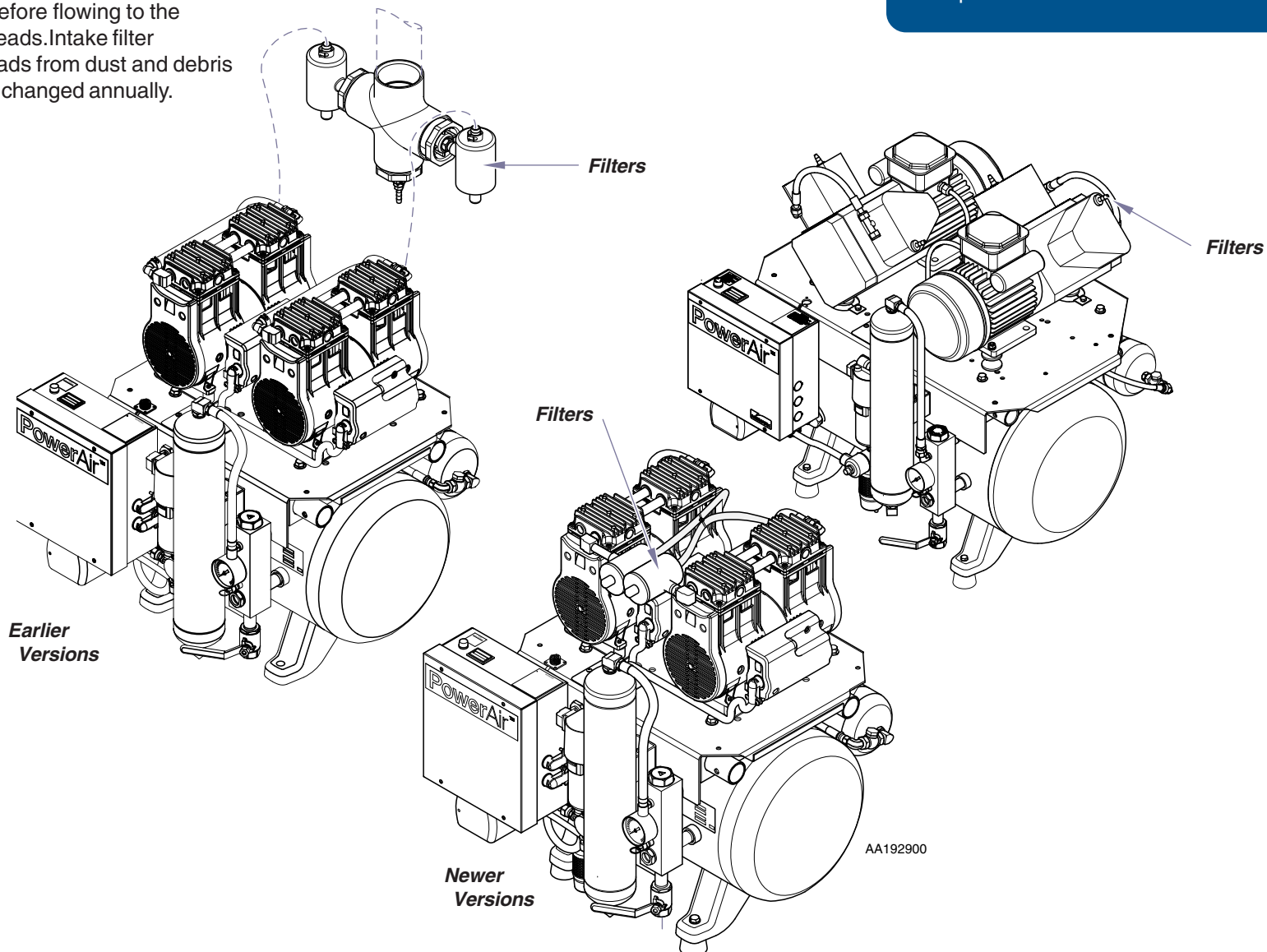
P72 Pressure Switch

Testing & Repair

Intake Filters

Function and Location

Atmospheric air is drawn in through intake filters before flowing to the compressor heads. Intake filter protect the heads from dust and debris and should be changed annually.



Intake Filters

Page

Clean (Rock and Lubricated Heads) B-9

Clean (Cattani Heads) B-10

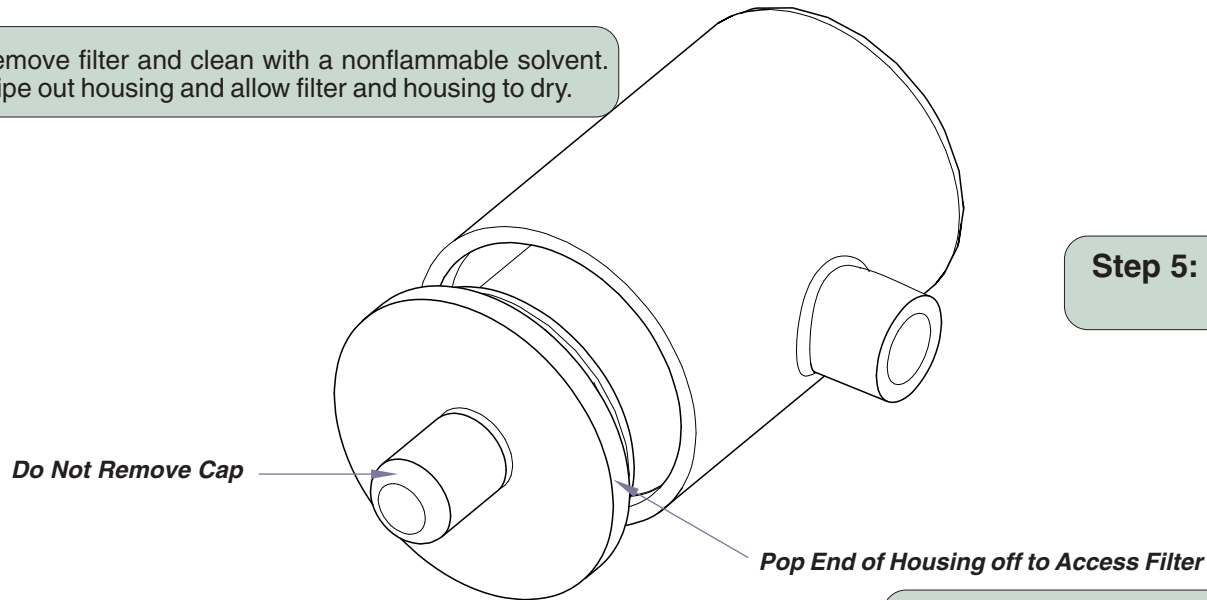
Exploded Views E-1

Intake Filter

Clean

Step 1: Remove exhaust hose from filter housing. Unscrew intake filter from intake manifold assembly or compressor head.

Step 3: Remove filter and clean with a nonflammable solvent. Wipe out housing and allow filter and housing to dry.



Step 5: Screw onto intake manifold assembly. Install exhaust hose onto filter housing.

Step 4: Install filter back into housing. Assemble housing.

Step 2: Pop off one side of filter housing.

Models:
Serial Numbers:

CL21
CL22
All

CL32
CL52
All

P21
P22
All

P32
All

Intake Filter
(Thomas and
Lubricated Heads)

Testing & Repair

Intake Filter

Clean

Step 1: Firmly grab black boot, twist, rock and pull outward.



Step 4: Push boot flange evenly onto filter.

Step 5: Reinstall boot in compressors head and firmly press around boot flange to secure in place.

Step 2: Remove filter from boot.



Step 3: Blow off dust and dirt with a compressor.

Checking for Leaks

Check

Step 2: Turn power on.

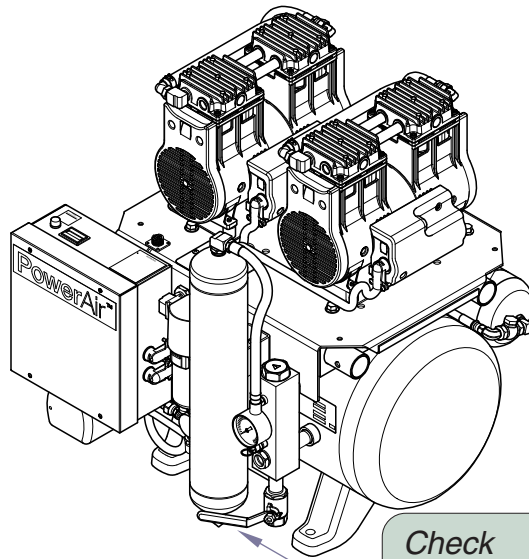
Note: Compressor should run quietly and storage tank will begin to pressurize.

Caution



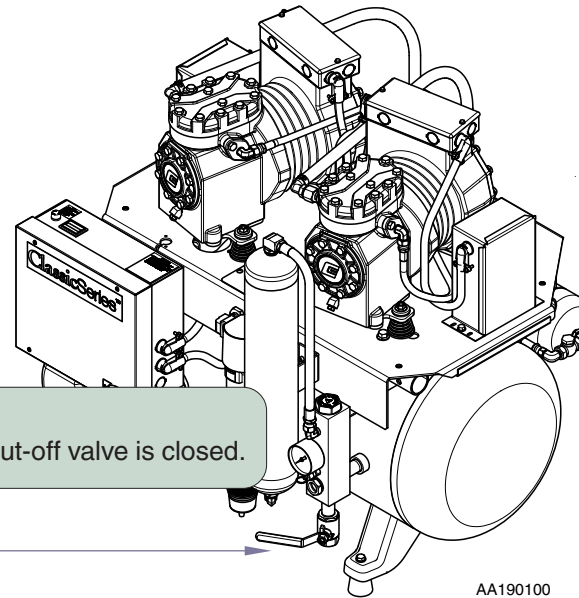
Avoid water contact with electrical parts.

Step 3: Use soapy water to check for compressor plumbing joint leaks.



Check
Step 1: Verify shut-off valve is closed.

Check Valve in Closed Position



AA190100

Models:
Serial Numbers:

All

Checking for Leaks

© Midmark Corporation 2007 SF-1899

Testing & Repair

Coalescing Filter

Function and Location

The Coalescing Filter removes water, oil and other contaminants from compressed air. Coalesced liquids gravitate into the sump bowl where they are discharged through the drain.

On the ClassicSeries® Lubricated models, the filter needs replaced biannually, or every 350 hrs, based on 2000 hour work year times 35 percent duty cycle.

On the PowerAir® Oil-Less models, the filter needs replaced annually, or every 700 hrs, based on 2000 hour work year times 35 percent duty cycle.



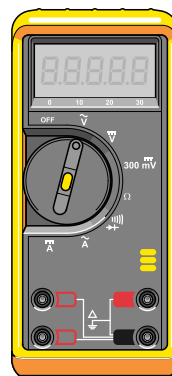
Testing & Repair

Solenoid

Testing - ***Note - This procedure is only for units with Serial Numbers listed below. Refer to following pages for other Serial Number listings.**

Refer to:	Page
Access Procedures	C-1
Wiring Diagrams	D-1
Exploded views	E-1

Step 1: Remove electrical box cover.
Refer to Section C Electrical Box Cover

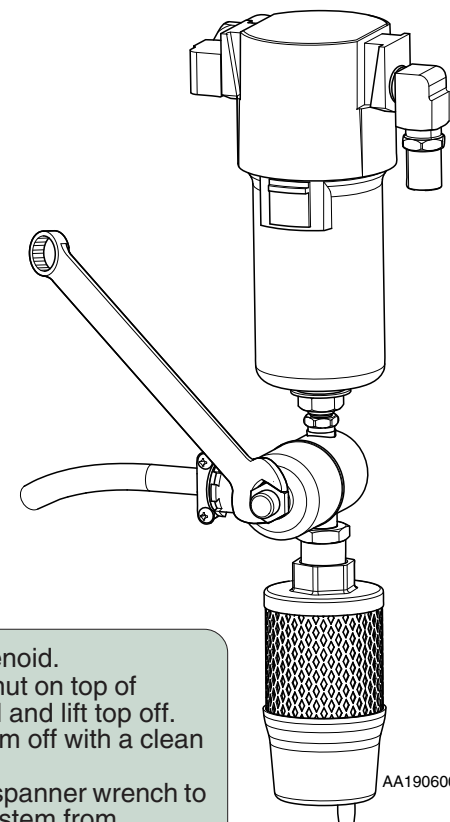
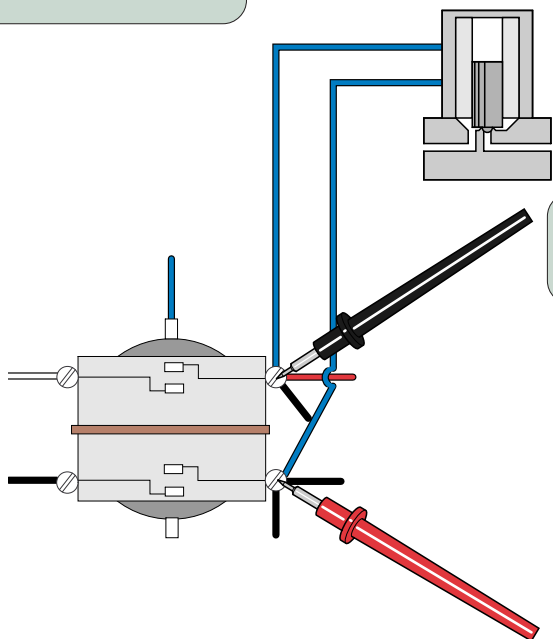


Step 2: Set meter to \tilde{V} .

Step 3: Place meter probes on contactor solenoid wire connections.



Caution
When testing components with power on use care to prevent electrical shock.



Step 4: Clean solenoid.

- Loosen nut on top of solenoid and lift top off.
- Wipe stem off with a clean rag.
- Using a spanner wrench to remove stem from valve body. *(If spanner wrench not available use standard wrench very carefully)*
- Clean internal valve plunger, ports and seat.
- Reassemble.

Meter Reading	Status	Required Action
Less than 230 Volts on 230 Volt units. Less than 115 Volts on 115 Volt units. Doesn't work after cleaning.		Replace Solenoid
230 Volt Reading on 230 Volt units. 115 Volt Reading on 115 Volt units. Works after Cleaning.		Solenoid - OK

Models:	CL21	CL22	CL32	CL52	
Serial Numbers:	0701L210001 thru 0901L210370	0701L220001 thru 0903L220294	0701L320001 thru 0901L320807	0701L520001 thru 0810CL520124	
Models:	P21	P22	P32	P52	P72
Serial Numbers:	0703P210001 thru 0903P210361	0703P220001 thru 0903P221139	0703P210001 thru 0903P321137	0703P210001 thru 0902P520467	0703P210001 thru 0903P720190

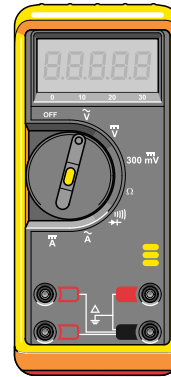
Solenoid

Testing - *Note - This procedure is only for units with Serial Numbers listed below.

Refer to:	Page
Access Procedures	C-1
Wiring Diagrams	D-1
Exploded views	E-1

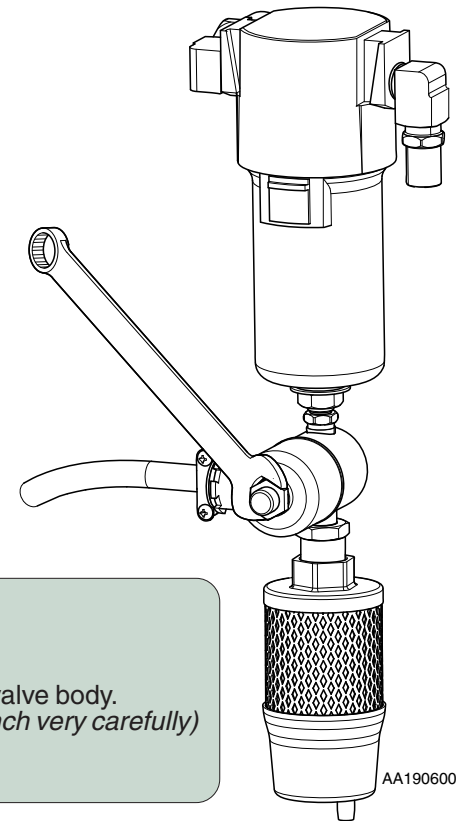
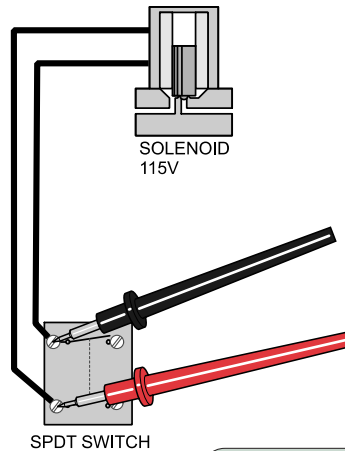
Step 1: Remove electrical box cover.
Refer to Section C Electrical Box Cover

Step 2: Set meter to \tilde{V} .



Step 3:

- Check if line voltage is present at solenoid wires (115 or 230 VAC).
- If you have voltage, then shut power off and clean solenoid.
- If solenoid still doesn't work after cleaning, replace.



To Clean Solenoid...

- Loosen nut on top of solenoid and lift top off.
- Wipe stem off with a clean rag.
- Using a spanner wrench to remove stem from valve body.
(If spanner wrench not available use standard wrench very carefully)
- Clean internal valve plunger, ports and seat.
- Reassemble.

Models:	CL21	CL22	CL32	CL52	
Serial Numbers:	0902L210372 thru Present	0903L220296 thru Present	0901L320813 thru Present	0810L520126 thru Present	
Models:	P21	P22	P32	P52	P72
Serial Numbers:	0904P210365 thru Present	0904P221146 thru Present	0904P321145 thru Present	0904P520474 thru Present	0903P720191 thru Present

All
V785000
thru Present

Solenoid

Testing & Repair

Desiccant Tank

Function and Location

Moisture vapor drying takes place as the air is directed through the silica and alumina gel (desiccant material) from bottom to top in the drying chamber of the desiccant tank.

When the desiccant becomes so saturated with water and oil that the purge cycle fails to regenerate it, the desiccant tank will need to be replaced.



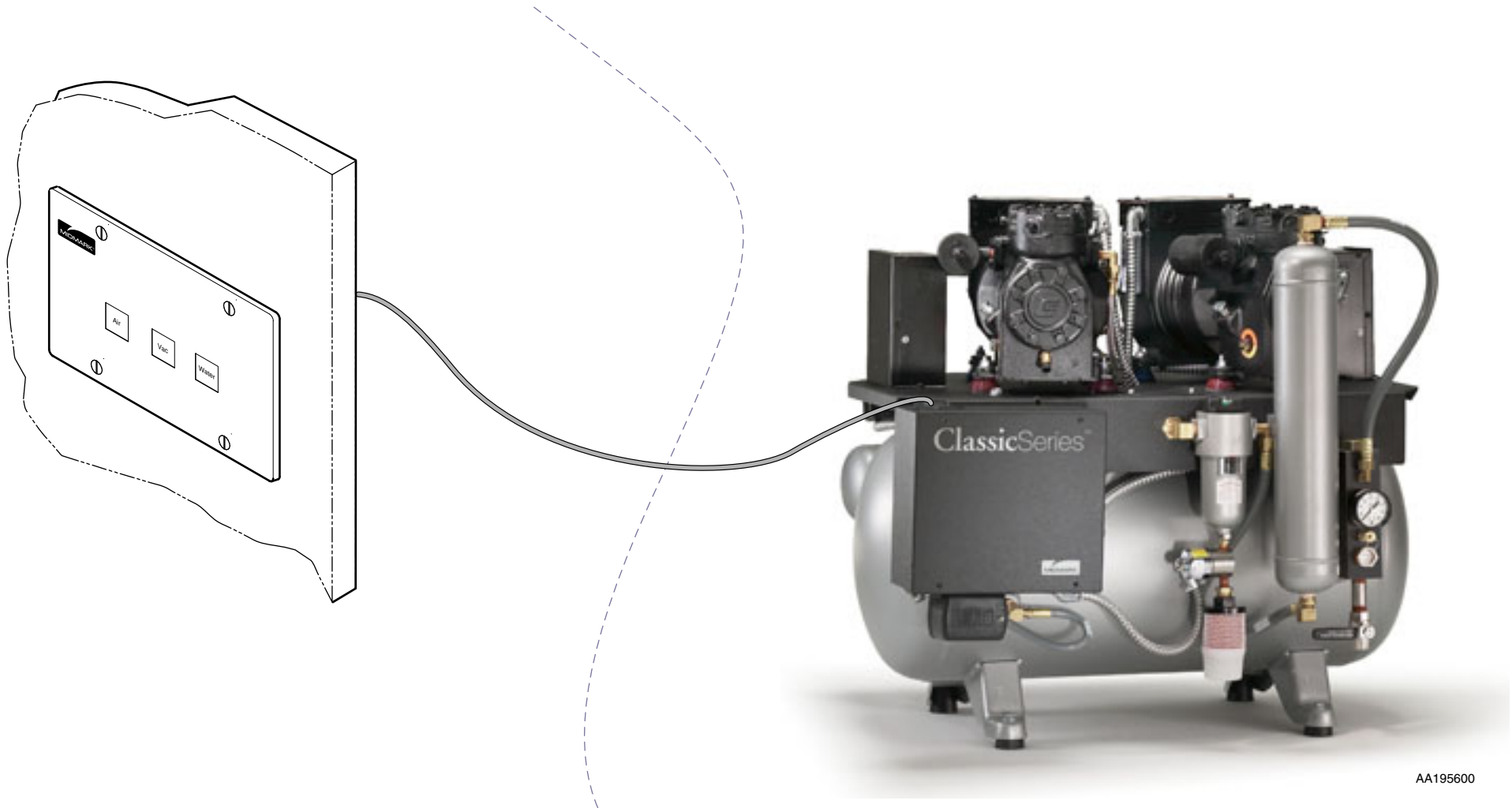
Low Voltage - Master Control Panel

Function and Location

The Master Control Panel will allow the user to control the dental equipment from the office area.
Supplies power to the relay switch.

**Note: Relay Switch is always live unless Low Voltage is turned off.*

<u>Low Voltage Control</u>	<u>Page</u>
Testing	B-18
Wiring Diagrams	D-1
Exploded Views	E-1



AA195600

Models:
Serial Numbers:

All

Low Voltage Contactor

B-17

Testing & Repair

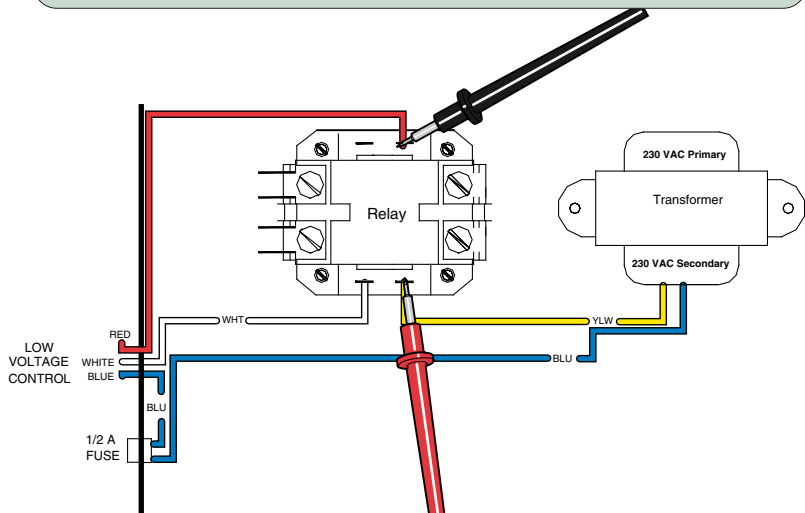
Low Voltage - Control Circuit

Testing

Step 1: Remove electrical box cover.
Check for broken or loose wiring.
Refer to: Section C Electrical Box Cover

Step 2: Check high voltage on contactor relay.
• Set meter to \checkmark .
• Place meter probes on front, black and white wires.

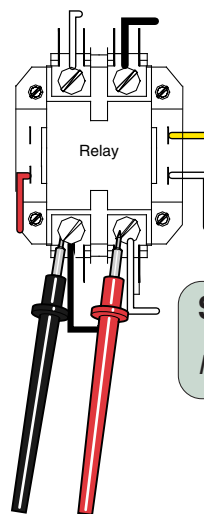
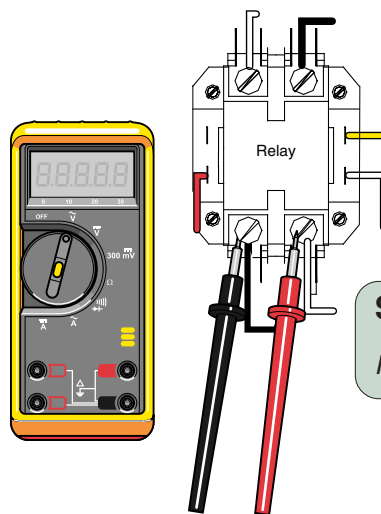
Note: Verify reading is 230 volts.



Step 3: Check Low Voltage from transformer to low voltage wires.
Place meter probes on Yellow and Red wire contactor connections.

Note: Verify reading is 24 volts.

Meter Reading	Status	Required Action
High Voltage = < Line Voltage		Replace Contactor Relay
Low Voltage = < 24 Volts		Replace Transformer
High Voltage = Line Voltage		Contactor Relay - OK
Low Voltage = 24 Volts		Transformer - OK



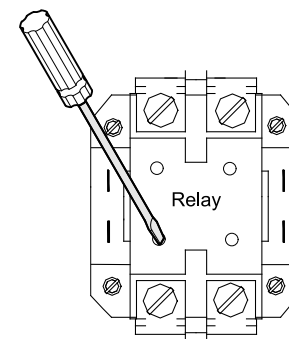
Low Voltage	Page
Fuse	B-26
Access Procedures	C-1
Wiring Diagrams	D-1
Exploded Views	E-1

Step 4: Insert screwdriver into relay to start manually.

Note: if system starts, replace contactor relay.

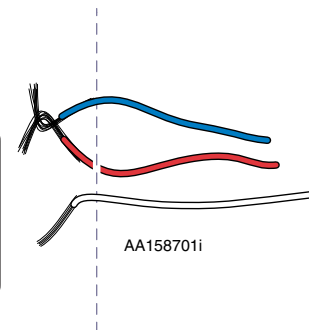


Caution
When testing components with power on use care to prevent electrical shock.



Step 5: Check fuse. Visually check to see if blown.
Refer To: Section B Fuse

Step 6: Bypass the remote switch to verify it is not defective.
Disconnect the Red, White and Blue wires from the remote switch.
Connect the Blue and Red wires together.



Models:	CL21	CL22	CL32	CL52	
Serial Numbers:	0701L210001 thru 0901L210370	0701L220001 thru 0903L220294	0701L320001 thru 0901L320807	0701L520001 thru 0810CL520124	
Models:	P21	P22	P32	P52	P72
Serial Numbers:	0703P210001 thru 0903P210361	0703P220001 thru 0903P221139	0703P210001 thru 0903P321137	0703P210001 thru 0902P520467	0703P210001 thru 0903P720190

*Note - This procedure is only for units with Serial Numbers listed below

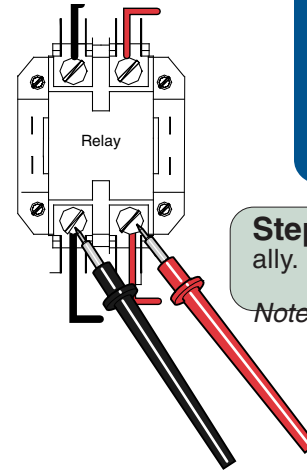
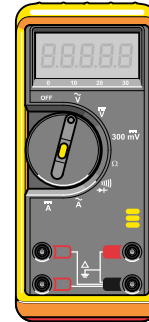
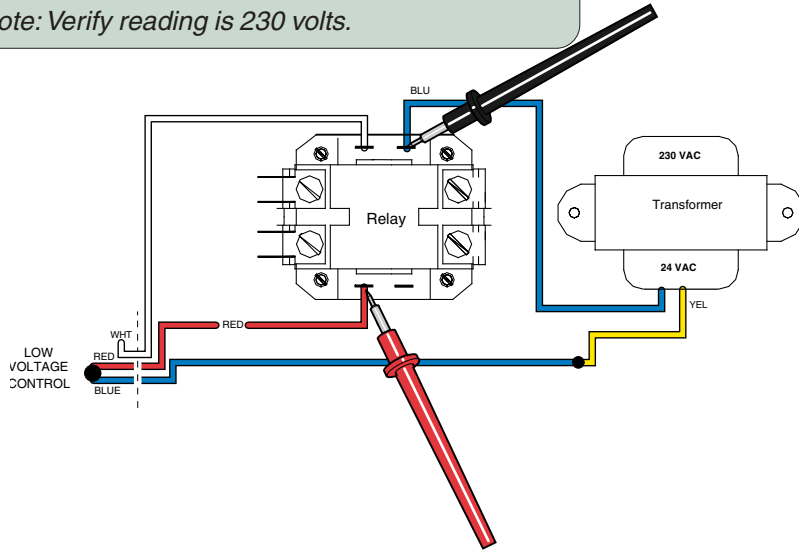
Low Voltage - Control Circuit

Testing

Step 1: Remove electrical box cover.
Check for broken or loose wiring.
Refer to: Section C Electrical Box Cover

Step 2: Check high voltage on contactor relay.
• Set meter to V.
• Place meter probes on indicated wires.

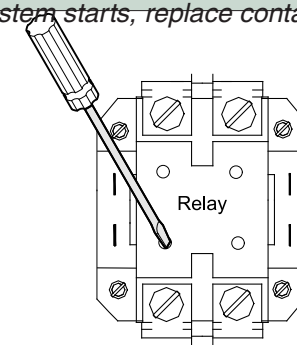
Note: Verify reading is 230 volts.



Refer To:	Page
Fuse	B-26
Wiring Diagrams	D-1
Exploded Views	E-1

Step 4: Insert screwdriver into relay to start manually.

Note: If system starts, replace contactor relay.

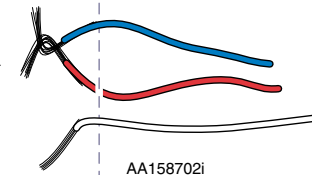


WARNING
High Voltage. When testing components with power on use care to prevent electrical shock.

Step 5: Check fuse.
Refer To: Section B Fuse

Step 3: Check Low Voltage from transformer to low voltage wires.
Place meter probes on blue and red wire contactor connections.

Note: Verify reading is 24 volts.



AA158702i

Step 6: Bypass the remote switch to verify it is not defective. Disconnect the Red, White and Blue wires from the remote switch. Connect the Blue and Red wires together. If the relay and fans work, then replace remote switch or wiring.

Meter Reading	Status	Required Action
High Voltage = < Line Voltage		Replace Contactor Relay
Low Voltage = < 24 Volts		Replace Transformer
High Voltage = Line Voltage		Contactor Relay - OK
Low Voltage = 24 Volts		Transformer - OK

Meter Reading	Status	Required Action
High Voltage = < Line Voltage		Replace Contactor Relay
Low Voltage = < 24 Volts		Replace Transformer
High Voltage = Line Voltage		Contactor Relay - OK
Low Voltage = 24 Volts		Transformer - OK

Models:	CL21	CL22	CL32	CL52	All
Serial Numbers:	0902L210372 thru Present	0903L220296 thru Present	0901L320813 thru Present	0810L520126 thru Present	V785000 thru Present
Models:	P21	P22	P32	P52	P72
Serial Numbers:	0904P210365 thru Present	0904P221146 thru Present	0904P321145 thru Present	0904P520474 thru Present	0903P720191 thru Present

Low Voltage

Testing & Repair

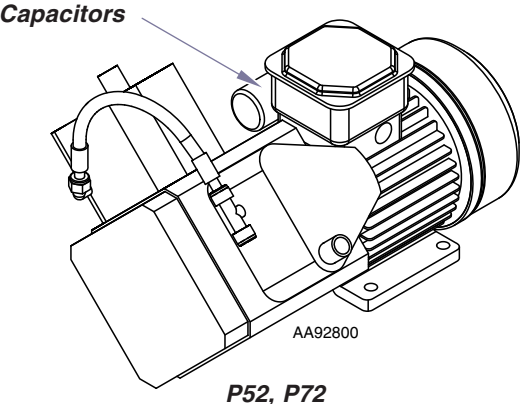
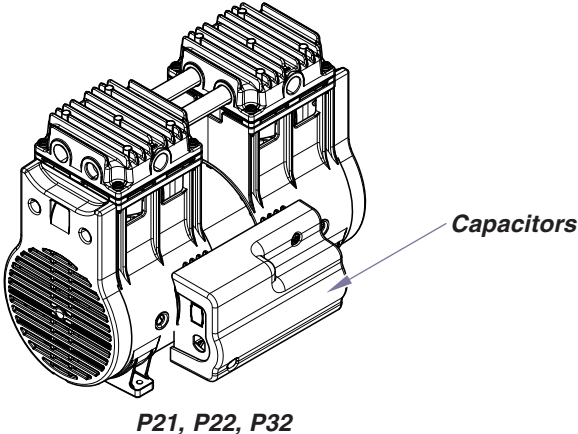
Capacitor

Function and Location

The capacitor's function is to store electricity, or electrical energy. The capacitor also functions as a filter, passing alternating current (AC), and blocking direct current (DC).

Refer to:	Page
Testing	B-21
Wiring Diagrams	D-1
Exploded views	E-1

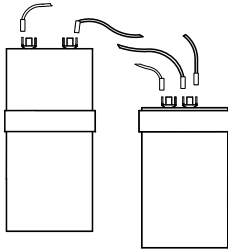
PowerAir® Capacitors are located on Compressor Heads



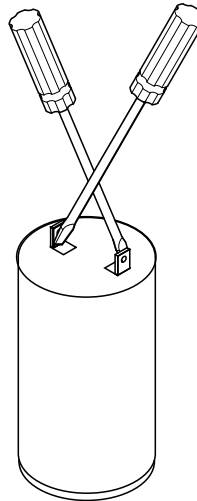
Capacitor

Testing

Step 1: Disconnect power.



Step 2: Access start and run capacitors and disconnect capacitor wiring.



Step 3: Discharge capacitors by touching screwdrivers to two contacts on a capacitor and to each other.

NOTE: The best check is to replace the capacitor with a known good one. The replacement capacitor **MUST** be of the same Mfd and Voltage Ratings or the motor could be damaged.

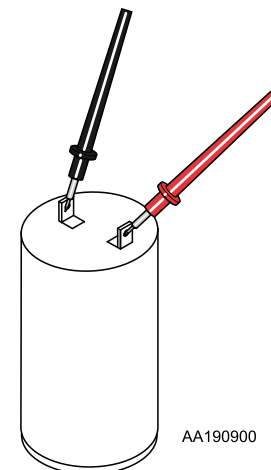
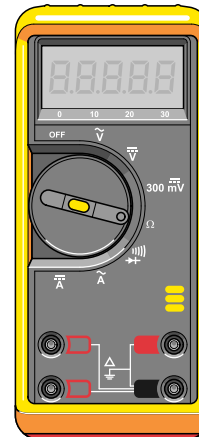
NOTE:

1HP 115V Run Capacitor: 40MFD 370v
 Start Capacitor: 430-516MFD 125v

1HP 208-230v Run Capacitor: 20MFD 440v
 Start Capacitor: 145-174MFD 220v

Step 5: Place meter probes on capacitor connectors. Reverse the leads, this should produce the same reading.

Step 4: Set meter to highest Ω reading.



Meter Reading	Status	Required Action
"O" or "Open" Reading		Replace Capacitor
Start Low and Increases		Capacitor - OK

Models: All
Serial Numbers:

Capacitor

Testing & Repair

Check Valve

Function and Location

The manifold check valve allows pressurized air to flow into the storage tank when the compressors are running. The valve closes and does not allow air flow during the purge cycle. Remove cap on top of manifold block access the check valve.

<u>Refer to:</u>	<u>Page</u>
Cleaning	B-23
Exploded views	E-1

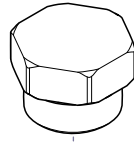
<u>www.midmark.com:</u>	<u>File Name</u>
Manifold Check Valve	
Replacement	10541600



Check Valve

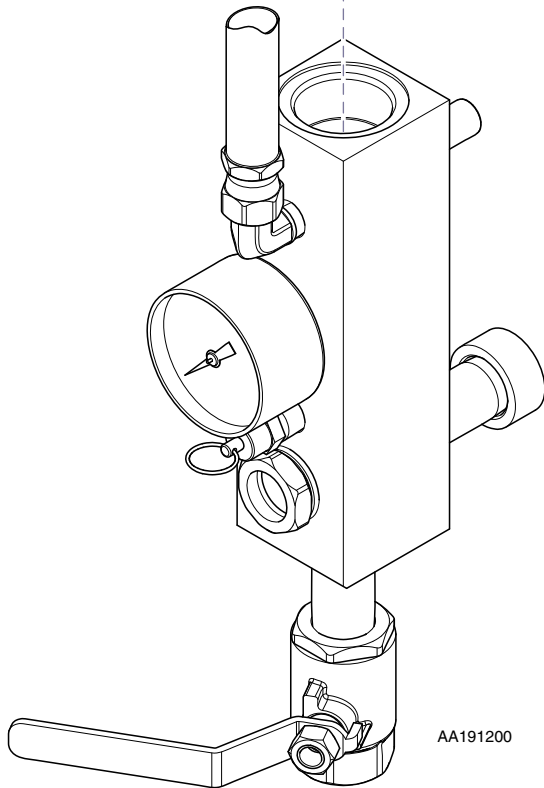
Cleaning

Step 1: Disconnect power.

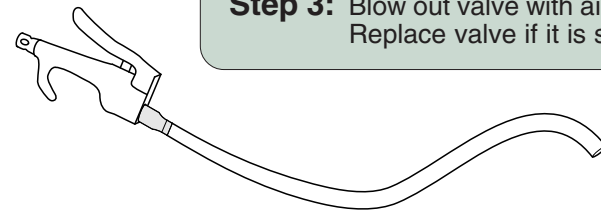


Step 2: Remove manifold cap.
Remove check valve.

*Note: Use Ratchet with extension and 3/4" socket to loosen valve.
Use needle nose pliers to lift check valve out of block.*



AA191200



Step 3: Blow out valve with air to clean.
Replace valve if it is sticking.

Models:
Serial Numbers:

All

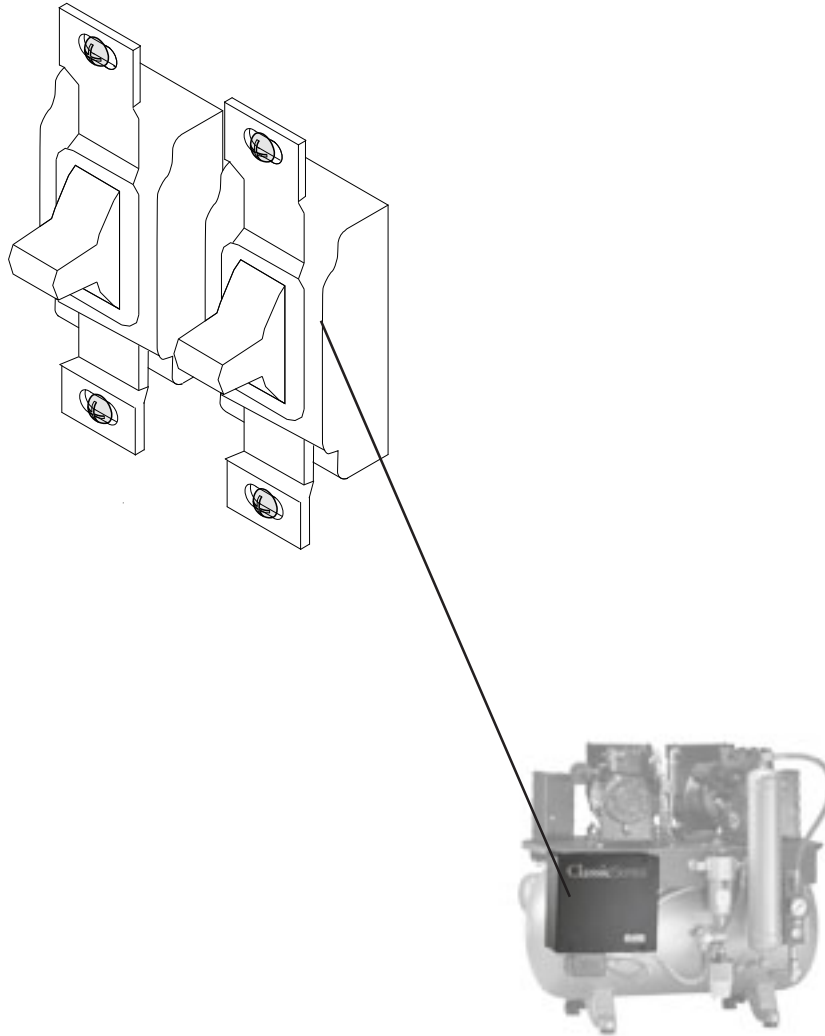
Check Valve

Testing & Repair

On/Off Switches

Function and Location

The On/Off switch send power to the compressor heads.
Each compressor head has an On/Off switch.



Refer to:	Page
Testing	B-25
Wire Diagrams	D-1
Exploded views	E-1

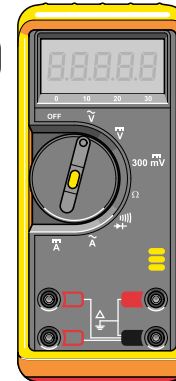
On/Off Switch

Testing

Step 1: Remove electrical box cover.

Refer to: Section C Electrical Box

Step 2: Set meter to \tilde{V} .



Refer to:

Access Procedures C-1

Wire Diagrams D-1

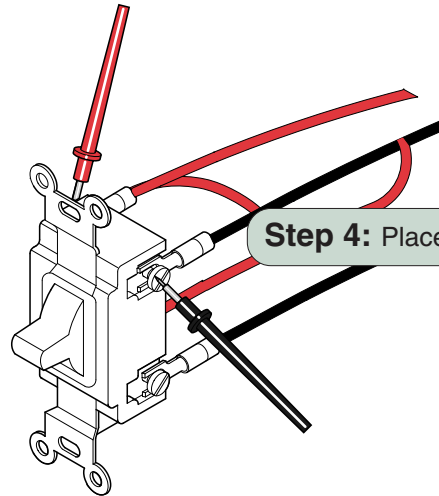
Page



Caution

When testing components with power on use care to prevent electrical shock.

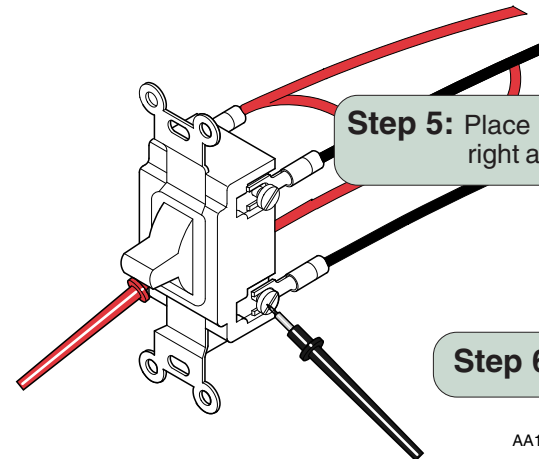
Step 3: Turn switch on.



Step 4: Place meter probes on top right and top left side.

NOTE: If all connections on top but one are reading correct voltage when there is multiple switches, check jumper wire connections.

Step 5: Place meter probes on bottom right and bottom left side.



Step 6: Turn switch off.

AA191300

Meter Reading	Status	Required Action
230 Volt Models: < 230 Volts 115 Volt Models: < 115 Volts		Replace On/Off Switch
230 Volt Models: 230 Volts 115 Volt Models: 115 Volts		On/Off Switch - OK

Models: | **All**
Serial Numbers: |

On/Off Switch

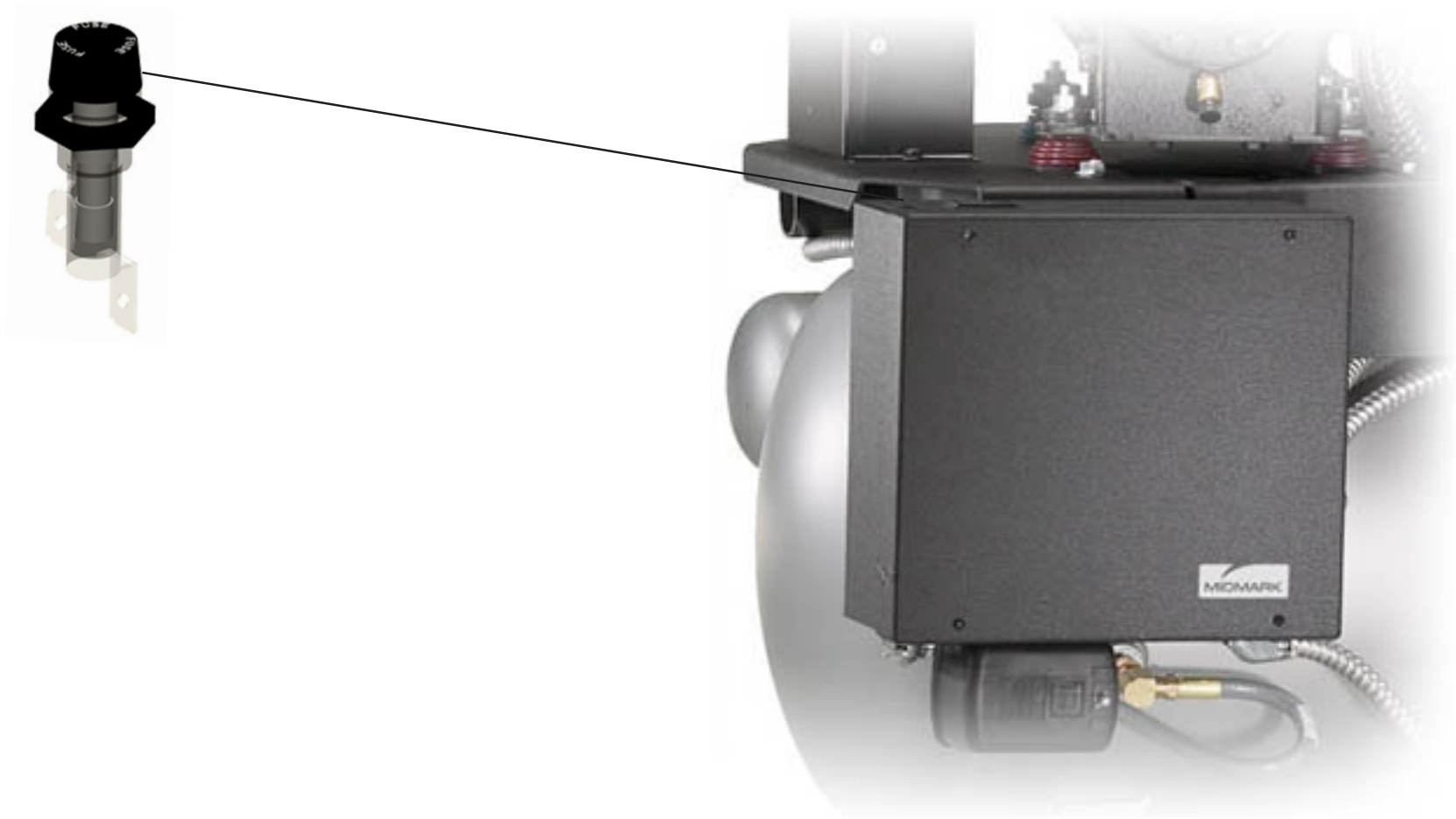
Testing & Repair

Fuse

Function and Location

The fuse protects the low voltage control system against overload failure, mainly short circuits. It is located in the electrical box and accessed on top of the electrical box.

Refer to:	Page
Check	B-27
Exploded Views	E-1



Fuse

Check

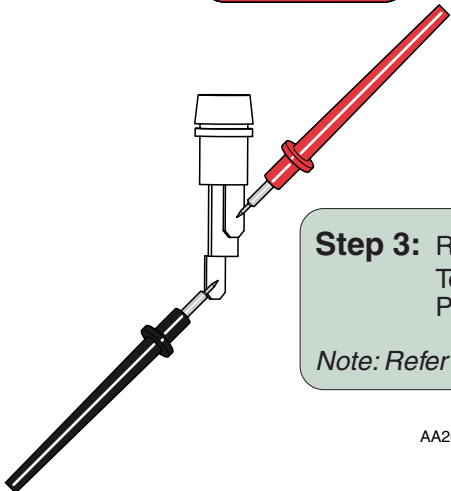
Refer to: Function and Location **Page** B-26



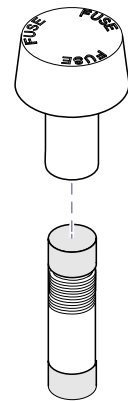
Step 1: Turn power off.

Step 2: Remove electrical box cover.
Refer to: Section C Electrical box cover

Step 4: Remove fuse from electrical box.
Push in and turn cap counter clockwise.



Step 3: Remove terminal leads.
Test continuity. Set meter to Ω .
Place meter probes on both fuse terminals.
Note: Refer to table below.



AA191600

Step 5: Visually check to see if fuse is burnt or broken.
Note: If fuse is burnt or broken replace with a 1/3 amp 250V Slo-Blo fuse.

Step 6: Reinstall into electrical box.
Push in and turn cap clockwise until it locks in place.

AA202500

Meter Reading	Status	Required Action
OL - off line		Replace Fuse 1/3 amp 250V Slo-Blo fuse
Continuity checks ok Visually looks ok		Fuse is Good

Models: All
Serial Numbers:

Fuse

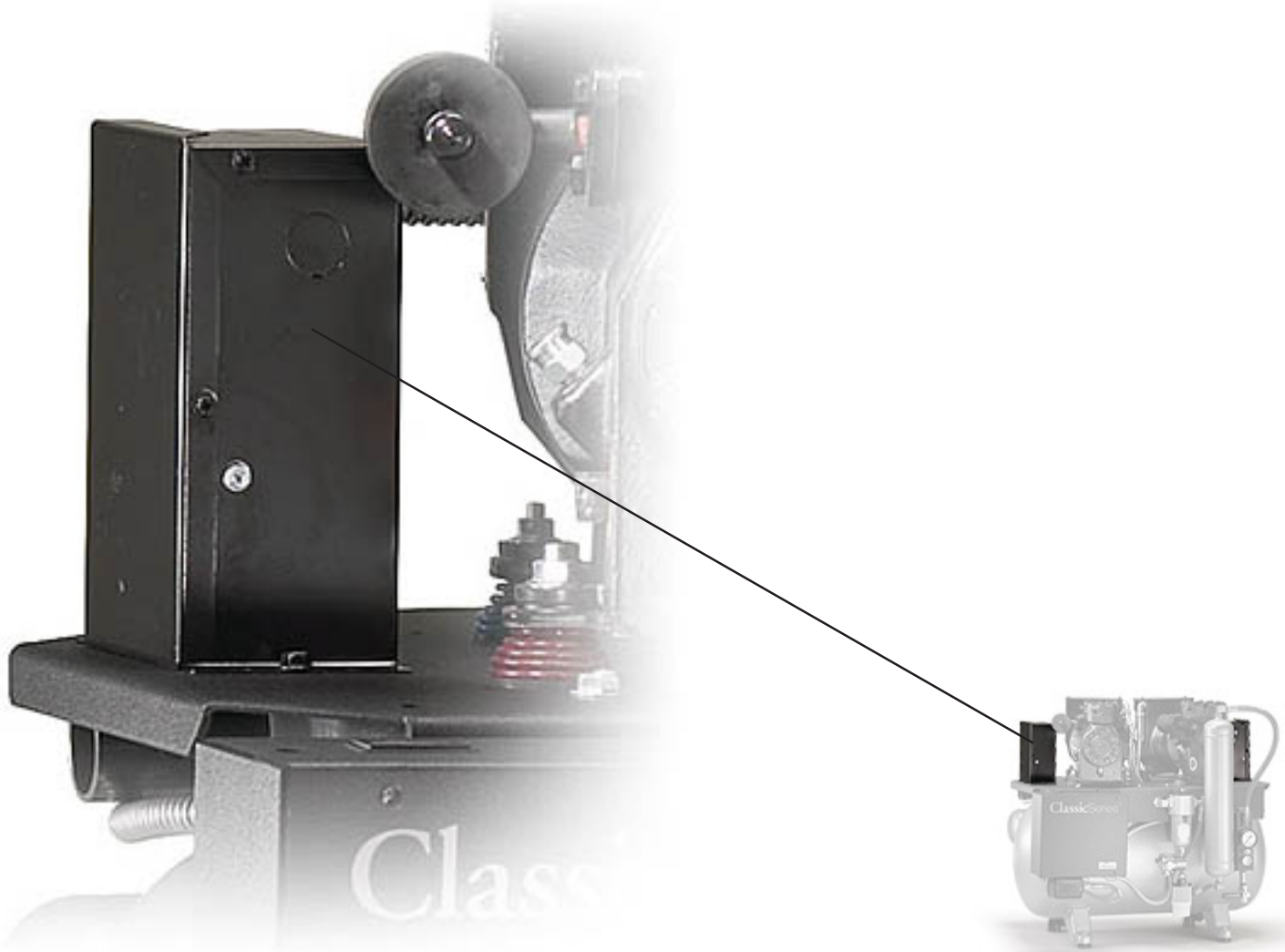
Testing & Repair

Start Relay

Function and Location

The start relay is located in the capacitor box. The start relay switches the load/current/voltage from the start winding to the run winding as the rpm increases and load balance changes as required to optimize the performance characteristics of the electric motor.

<u>Refer to:</u>	<u>Page</u>
Testing	B-29
Wire Diagrams	D-1
Exploded views	E-1



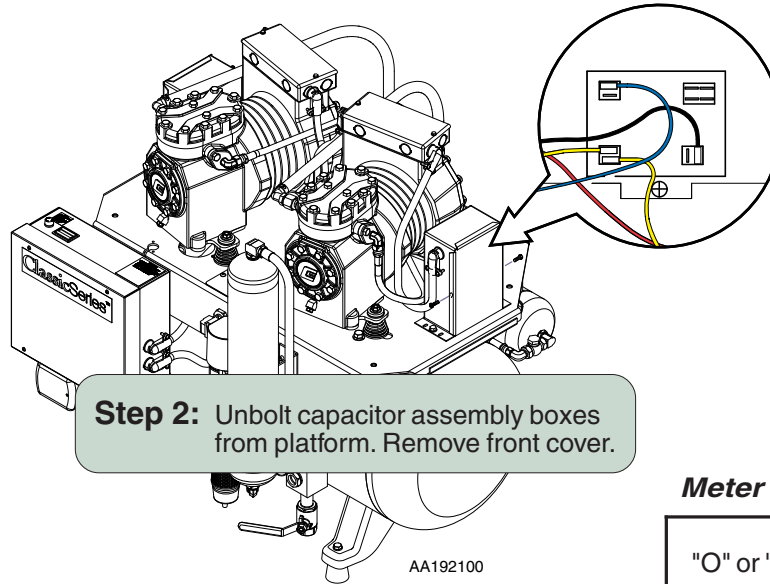
Testing & Repair

Start Relay

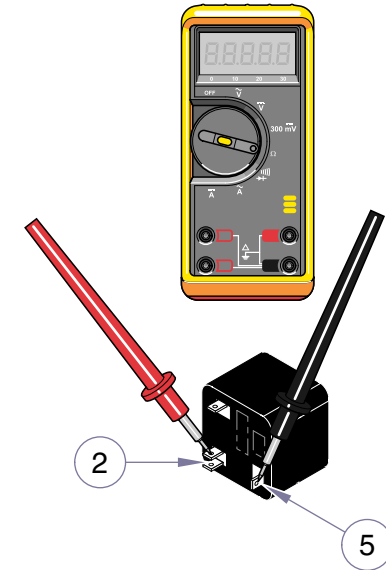
Testing

Step 1: Tap capacitor box.

Note: If motor starts, relay was stuck, replace relay.



Step 2: Unbolt capacitor assembly boxes from platform. Remove front cover.



Relay Test

Step 3: Test continuity. Set meter to Ω . Place meter probes on contacts #2 & 5.

Note: # 2 & 5 are a resistance circuit.

Meter Reading	Status	Required Action
"O" or "Open" Reading		Relay
Start Low and Increases		Relay - OK

Models:
Serial Numbers:

CL32
CL52
All

CL21
CL22
All

Start Relay

Testing & Repair

Compressor Heads

Function and Location

Atmospheric air is drawn in through intake filters to the compressor head(s) where air is compressed and exhausted to the reservoir (tank). Heat is generated from the compression process.

<u>Refer to:</u>	<u>Page</u>
Check	B-31
Wiring Diagrams	D-1
Exploded views	E-1

<u>www.midmark.com:</u>	<u>File Name</u>
Lubricated Head Replacement	10542300



Compressor Heads

Check



Thermal Overload Test

Step 1: Turn power off.

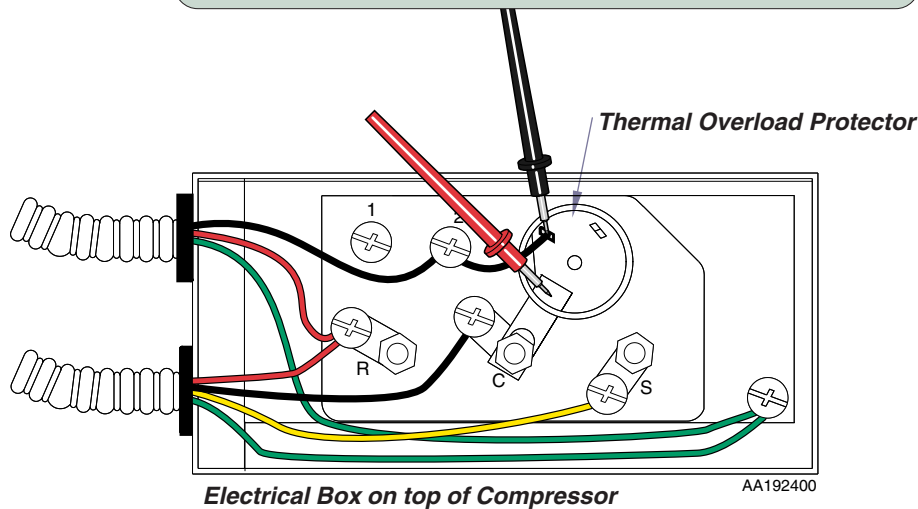
Step 2: Remove electrical cover on compressor head.

Refer to Section C: Compressor Head - Electrical

Thermal Overload Test

Step 3: Test continuity. Set meter to Ω . Place meter probes on **Thermal Overload**.

Note: System is overheated if you have an Open Circuit reading. Allow system to cool down and try to restart. If system does not start, replace compressor heads.



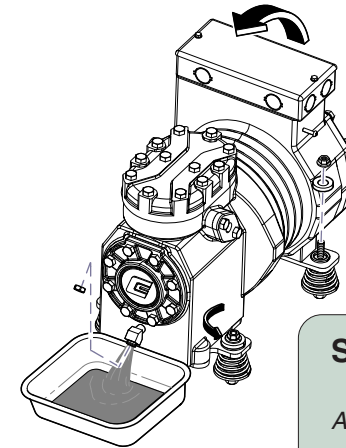
Check Crank Shaft

Refer to:

Access Procedures C-1

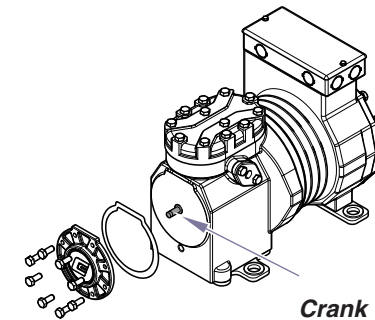
Page

C-1



Step 1: To drain oil from compressor...

- A. Place a pan under the drain plug, then remove drain plug.
- B. Loosen front mounting nuts. Remove rear mounting nuts.
- C. Tip compressor forward to drain all oil.



Step 2: Access Crank Shaft.

Verify crank shaft will turn.

Note: If shaft will not turn, motor needs replaced.

Models:
Serial Numbers:

CL21
CL22
All

CL32
CL52
All

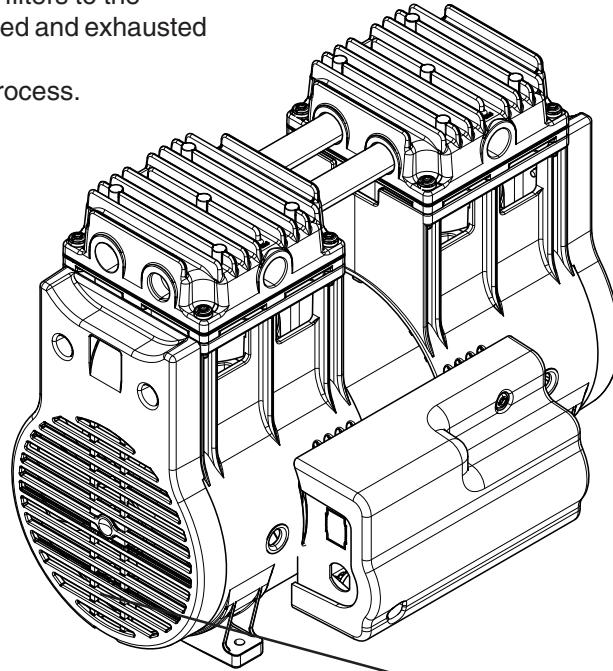
Compressor Head

Testing & Repair

Compressor Heads

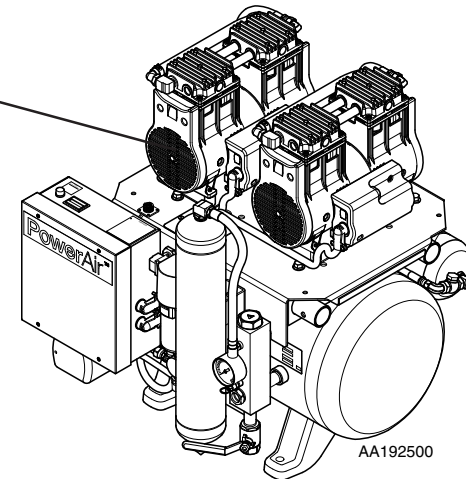
Function and Location

Atmospheric air is drawn in through intake filters to the compressor head(s) where air is compressed and exhausted to the reservoir (tank). Heat is generated from the compression process.



Refer to:	Page
Wiring Diagrams	D-1
Exploded views	E-1

www.midmark.com:	File Name
Oil Less P21, P22 & P32 Head Replacement	10567900



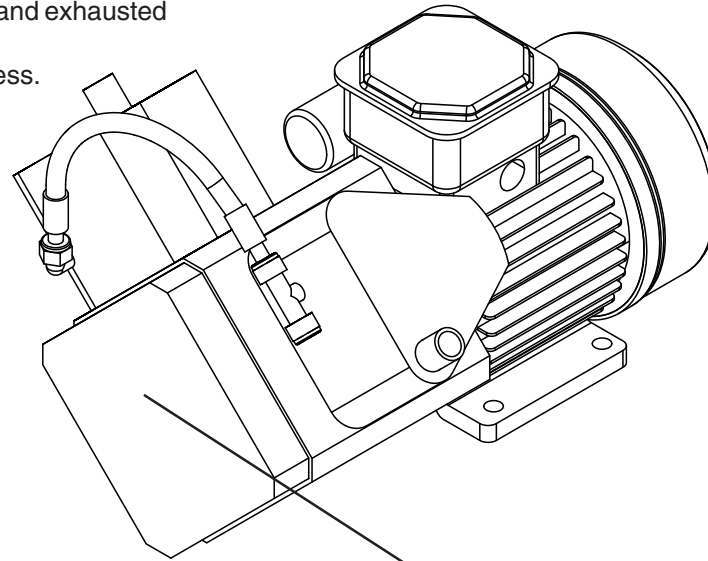
Models:	P21	P32
Serial Numbers:	P22	
	All	All

Compressor Heads

Function and Location

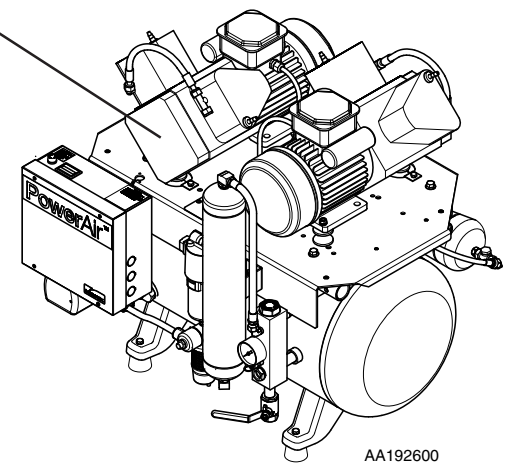
Atmospheric air is drawn in through intake filters to the compressor head(s) where air is compressed and exhausted to the reservoir (tank).

Heat is generated from the compression process.



<u>Refer to:</u>	<u>Page</u>
Check	B-34
Wiring Diagrams	D-1
Exploded views	E-1

<u>www.midmark.com:</u>	<u>File Name</u>
Oil Less P52 & P72	
Replacement	10485200
Reed Valve Replacment	10499600



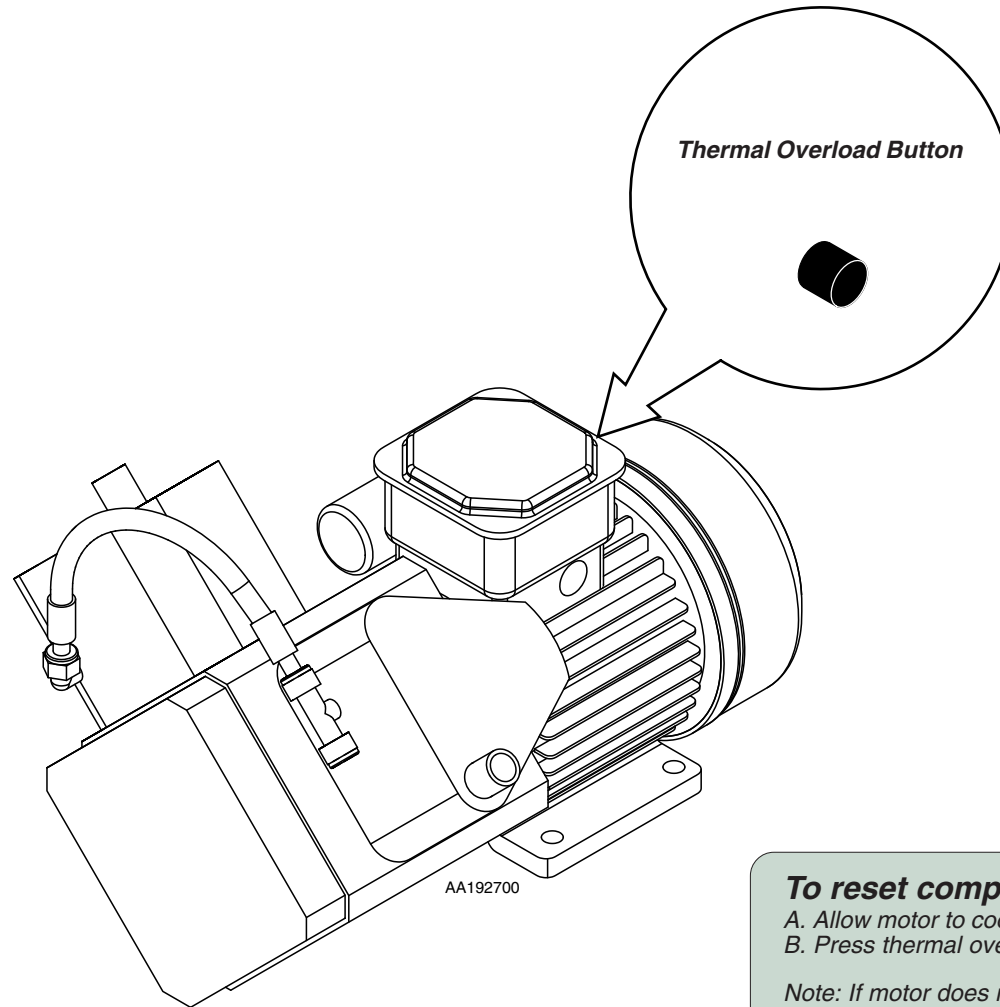
Models:	P52	P72
Serial Numbers:	All	All

Compressor Head

Testing & Repair

Compressor Heads

Check



To reset compressor head...

- A. Allow motor to cool.
- B. Press thermal overload reset button.

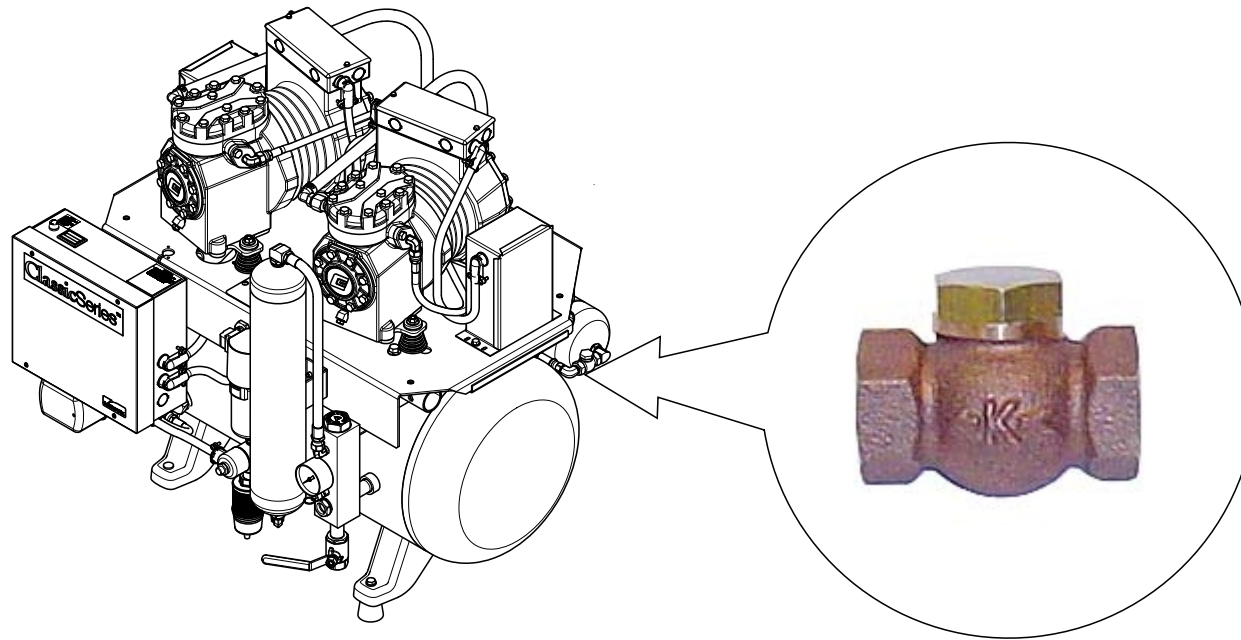
Note: If motor does not start replace compressor heads.

Purge Valve

Location and Function

The purge valve regulates the flow of purged/discharged air from the purge tank to the desiccant tank.

Refer to:	Page
Check	B-36
Exploded views	E-1



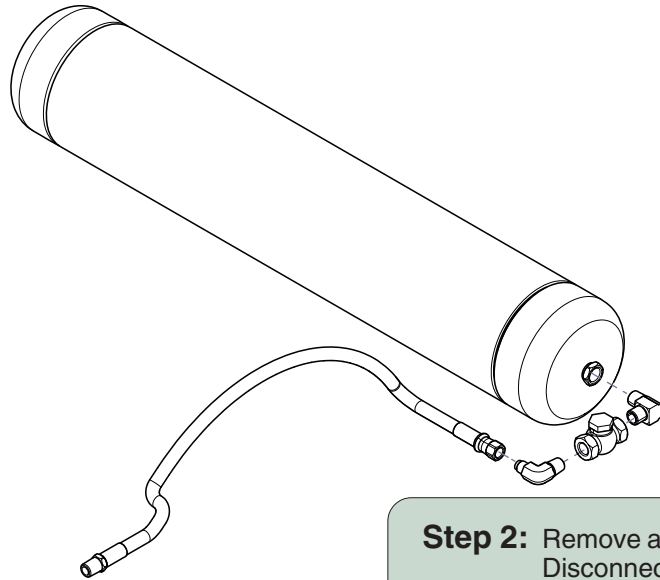
AA194400

Testing & Repair

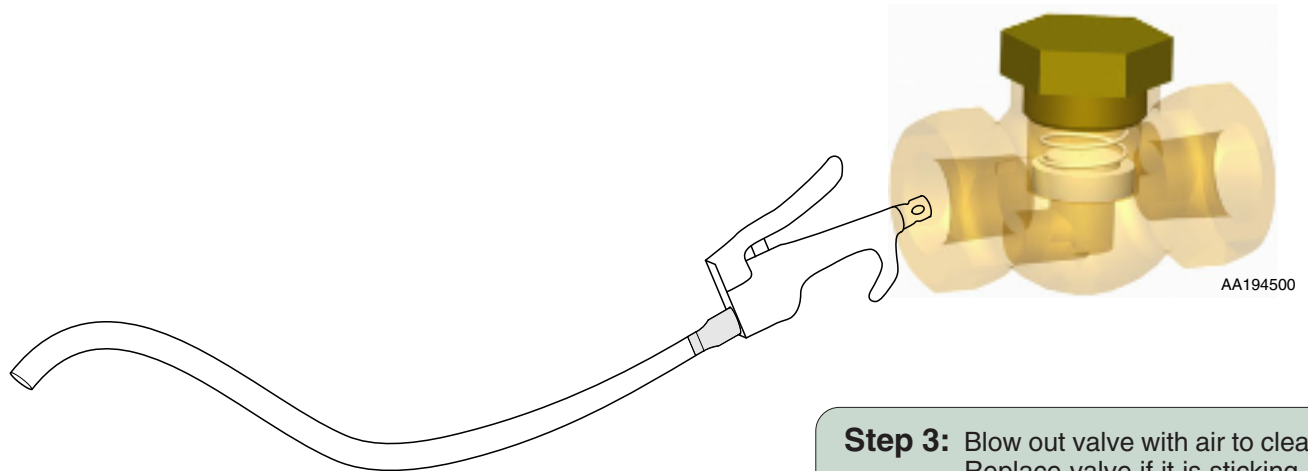
Purge Valve

Check

Step 1: Disconnect power.



Step 2: Remove air line tubing from purge valve.
Disconnect purge valve from purge tank fitting.



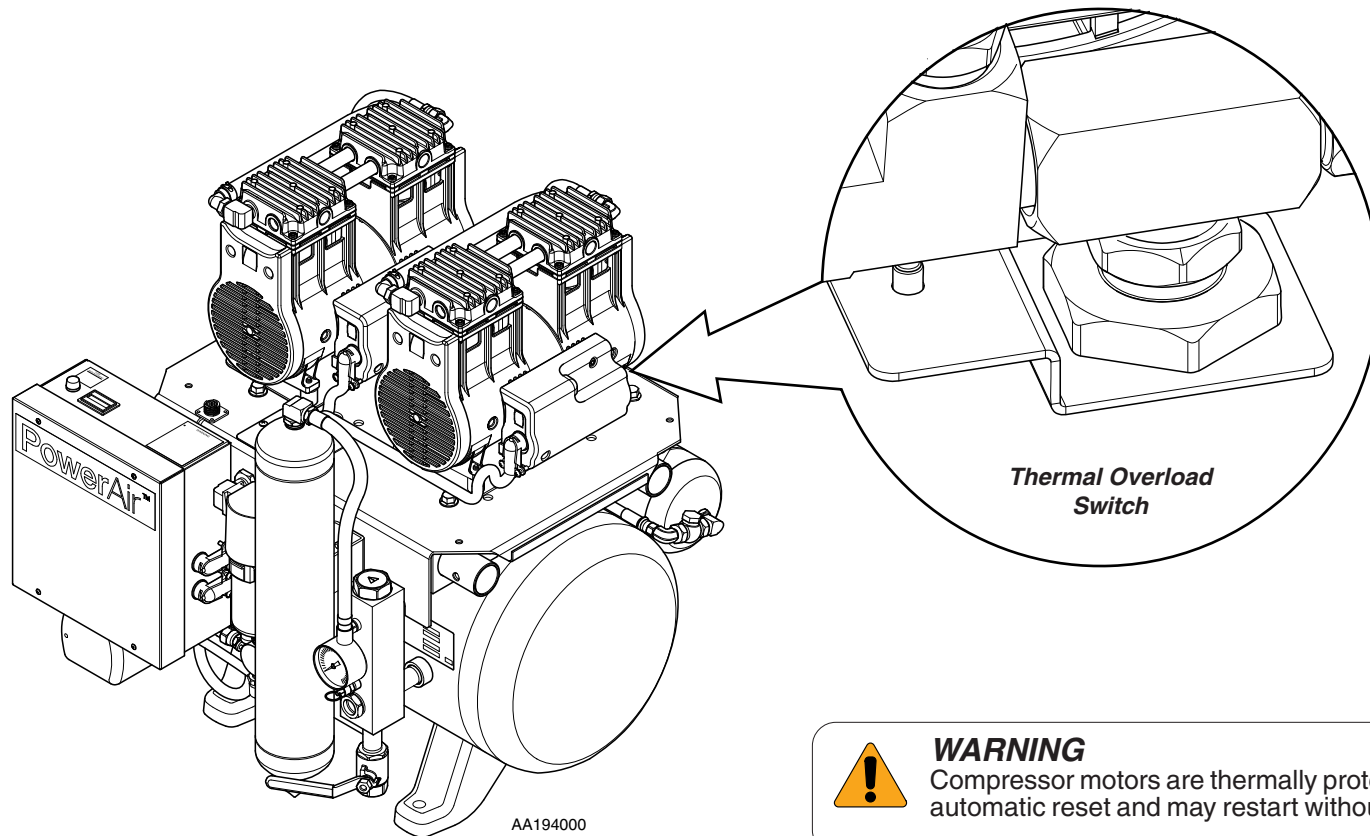
Step 3: Blow out valve with air to clean.
Replace valve if it is sticking.

Thermal Overload Switch

Location and Function

PowerAir® compressor motors are thermally protected also the control circuit contains an automatic reset which shuts motors down if the ambient temperature becomes too high. The switch is located on the saddle behind and below the compressor heads.

Refer to:	Page
Testing	B-38
Wiring Diagrams	D-1
Exploded views	E-1



WARNING
 Compressor motors are thermally protected with automatic reset and may restart without warning.

Models:	P21	P22	P32	P52	P72
Serial Numbers:	All	All	All	All	All

Thermal Overload Switch

Testing & Repair

Thermal Overload Switch

Testing



WARNING

Compressor motors are thermally protected with automatic reset and may restart without warning.

Refer to:	Page
Access Procedures	C-1
Wiring Diagrams	D-1
Exploded views	E-1

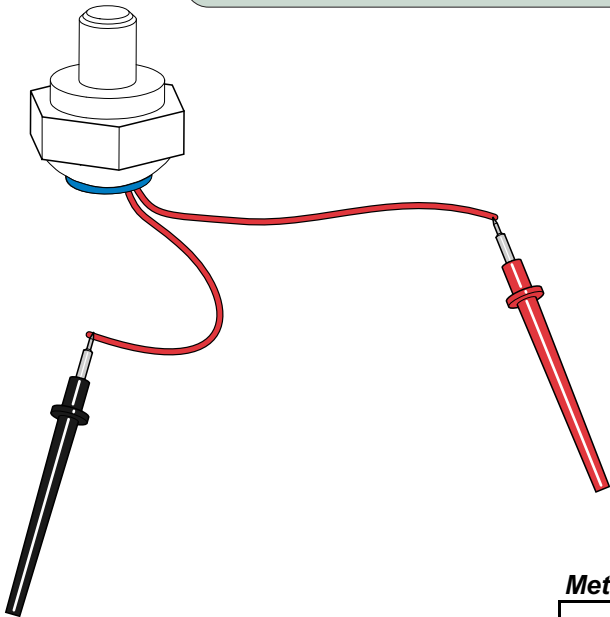
Step 1: Disconnect power to the compressor.

Step 2: Access electrical box.
Refer to: Section C Quiet Cover

Continuity Test
Step 3: Test continuity. Set meter to Ω .
Disconnect switch at Transformer.
Place meter probes on ends of switch.



AA194200



Attention:
To avoid compressor overheating and thermal shutdowns, equipment room must be properly ventilated. Ambient temperature should not exceed 104 ° Fahrenheit / 40° Celsius.

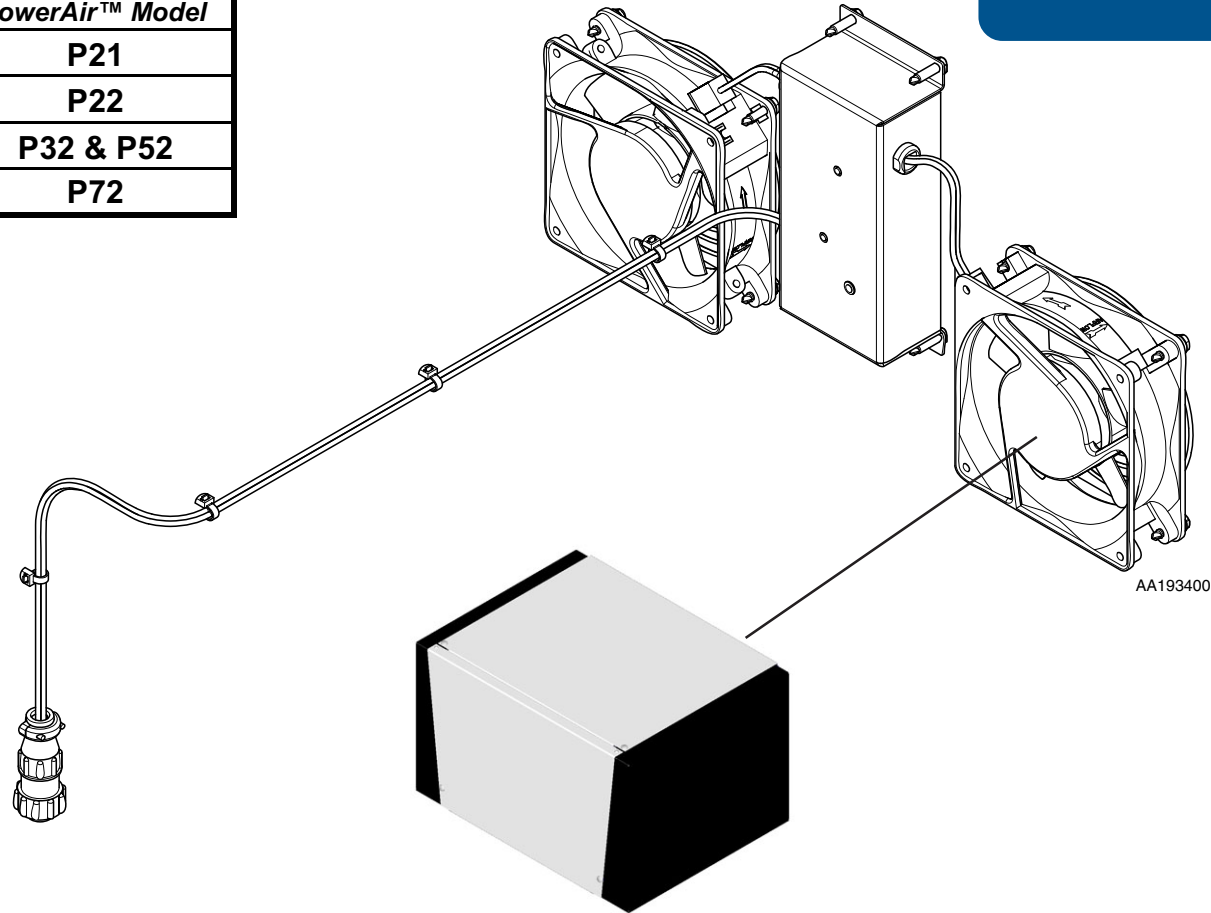
Meter Reading	Status	Required Action
"O" or "Open" Reading		Replace Switch
Start Low and Increases		Switch - OK

Quiet Cover - Fans (Accessory for PowerAir® Models)

Location and Function

The thermostat closes at 95° +/- 7°. The thermostat opens at 70 degrees (+/- degrees).

Sound Cover	Accessory for PowerAir™ Model
77001603	P21
77001604	P22
77001605	P32 & P52
77001606	P72



Refer to:	Page
Testing	B-40
Access Procedures	C-1
Wiring Diagrams	D-1
Exploded views	E-1

NOTE: Quiet Cover assembly instructions are provided with Quiet Cover.

Models:
Serial Numbers:

P21

P22

P32

P52

P72

Accessory

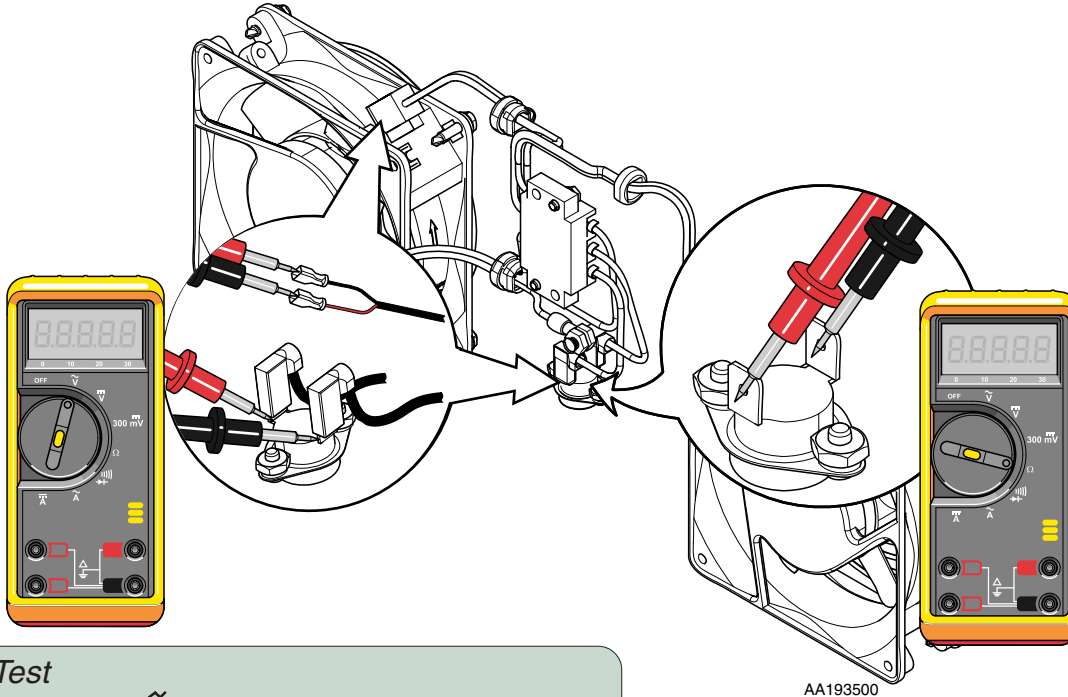
Quiet Cover - Fans

Testing & Repair

Quiet Cover - Fans (Accessory for PowerAir® Models)

Testing

Step 1: Access fan electrical box.
Refer to: Section C Quiet Cover



Refer to: Access Procedures C-1
Page C-1



Caution
When testing components with power on use care to prevent electrical shock.

Continuity Test
Step 3: Test continuity. Set meter to Ω . Place meter probes on switch.

Voltage Test

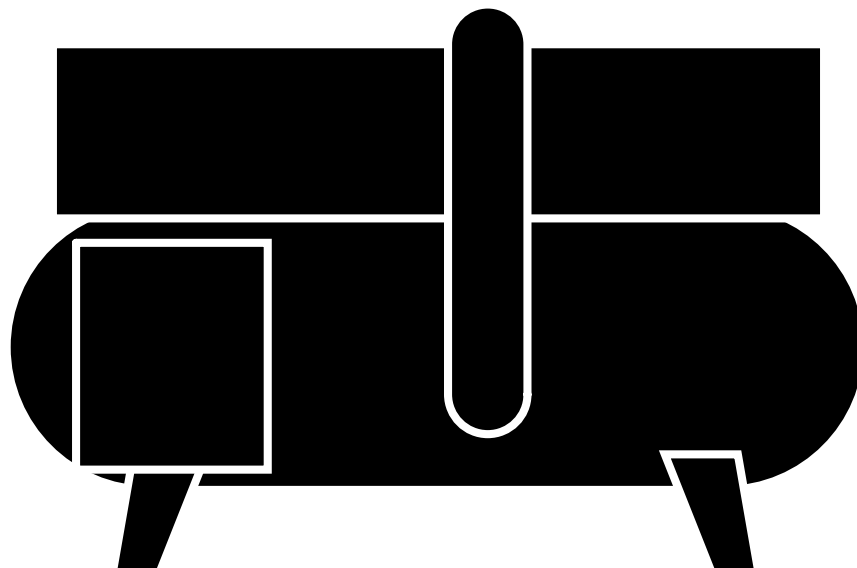
Step 2: Set meter to \tilde{V} .
Check voltage at switch...
Place meter probes at fan connections on switch.
Check voltage at fans...
Unplug fan wires. Place meter probes on fan wires.

Meter Reading	Status	Required Action
230 Volt Models: < 230 Volts 115 Volt Models: < 115 Volts		Replace Fan(s)
230 Volt Models: 230 Volts 115 Volt Models: 115 Volts		Fan(s) - OK
"C" or "Closed" Reading		Replace Switch
Start Low and Increases		Switch - OK

Section C

Access Procedures

Removing & Installing:	Page
Check Valve	C-2
Electrical Box Cover	C-3
<i>Only Models CL21, CL22, CL32, CL52</i>	
Capacitor / Relay Box	C-4
Compressor Head - Electrical Cover	C-5
<i>Only Models P21, P22, P32, P52, P72</i>	
Quiet Cover Electrical Box (accessory) .	C-6
Pressure Switch Cover	C-7



Access Procedures

Check Valve

Removal/Installation

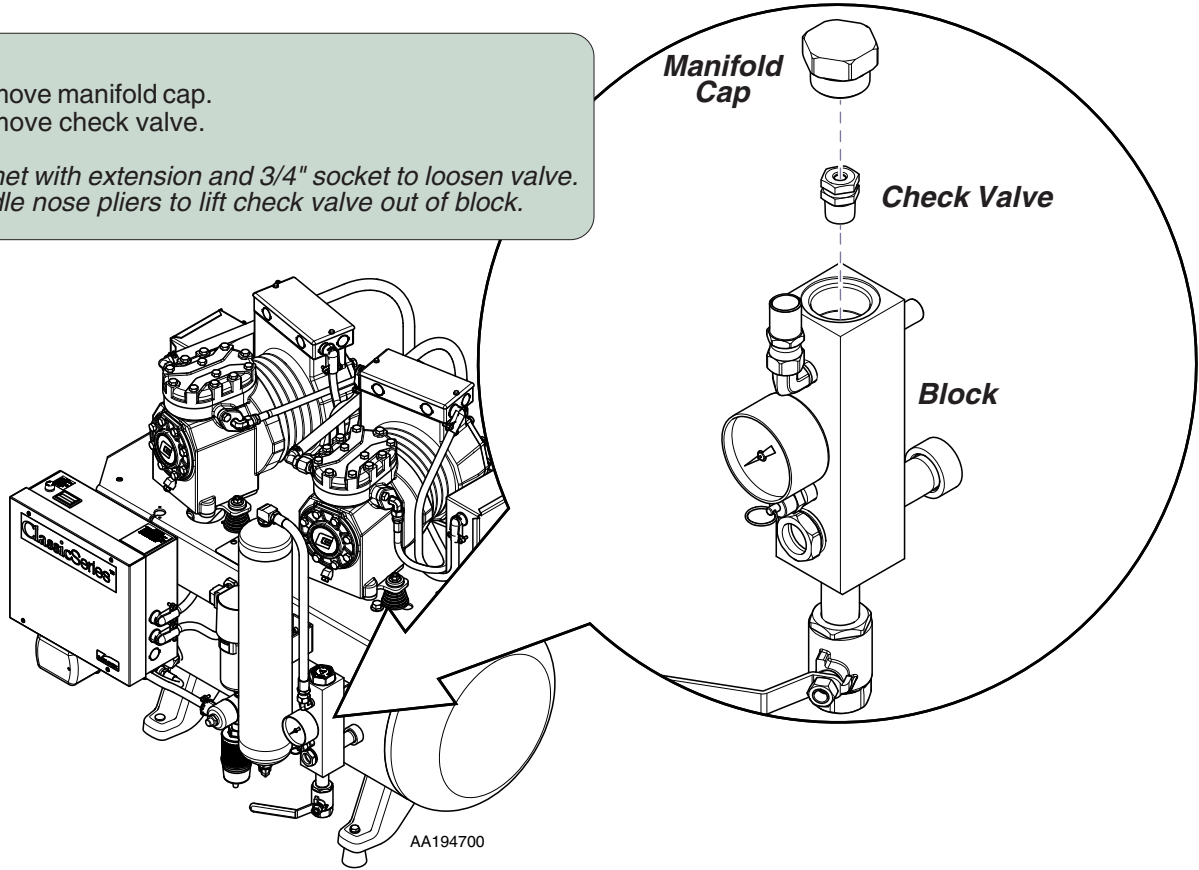
Removal
Step 1: Disconnect power.

Removal
Step 2: Drain air pressure from system.

Removal
Step 3: Remove manifold cap.
Remove check valve.
*Note: Use ratchet with extension and 3/4" socket to loosen valve.
Use needle nose pliers to lift check valve out of block.*

Refer To:	Page
Exploded Views / Part Numbers:	
ClassicSeries® Models	E-2
PowerAir® Models	E-3

Installation
Step 1: Install check valve into block.
Replace manifold cap.
Note: Use ratchet with extension and 3/4" socket to tighten valve.



Electrical Box Cover

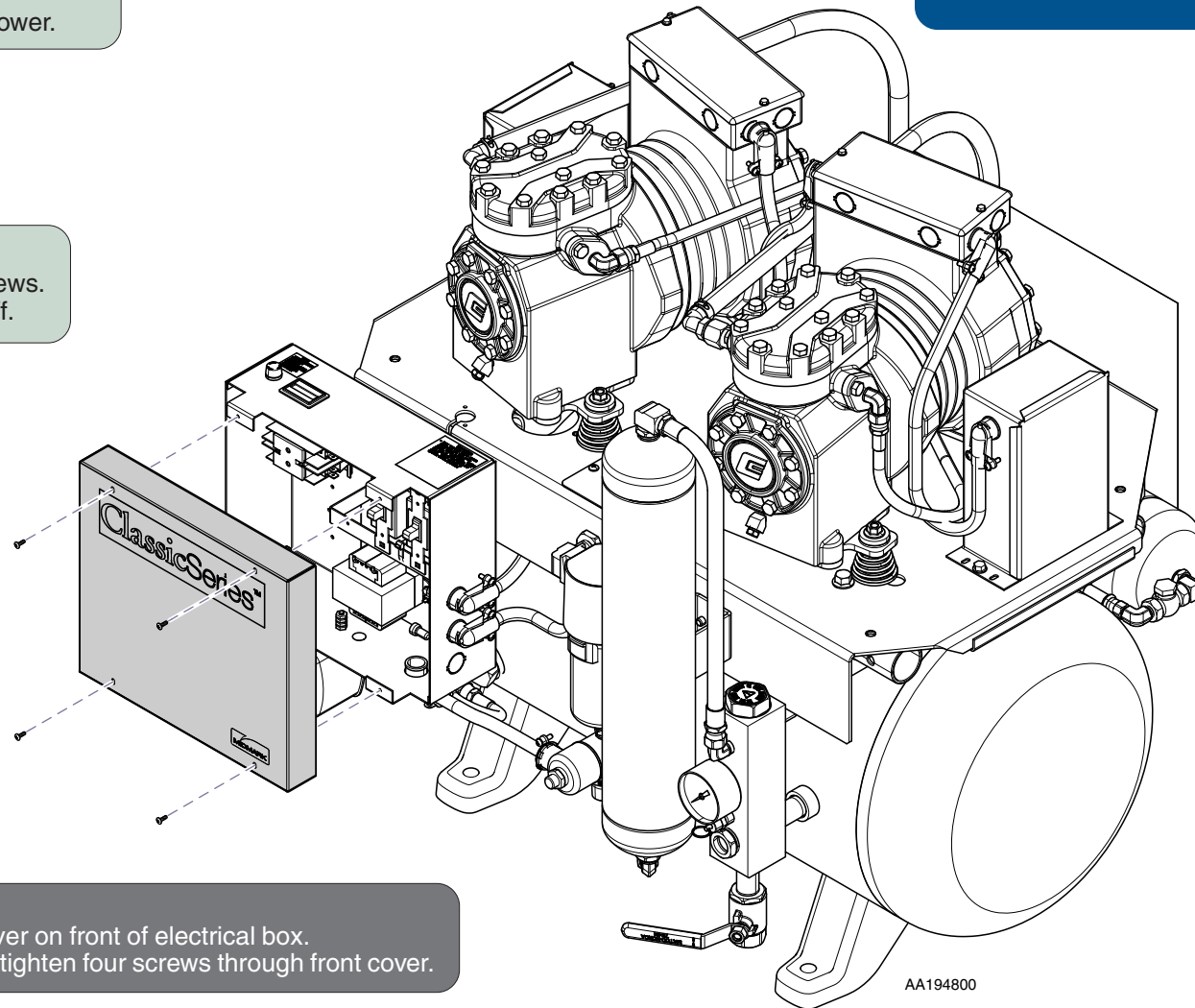
Removal/Installation

Removal

Step 1: Disconnect power.

Removal

Step 2: Remove screws.
Pull cover off.



Installation

Step 1: Secure cover on front of electrical box.
Install and tighten four screws through front cover.

Refer To:

Page

Exploded Views / Part Numbers:

ClassicSeries® Models E-2

PowerAir® Models E-3

Models:
Serial Numbers:

All

Electrical Box Cover

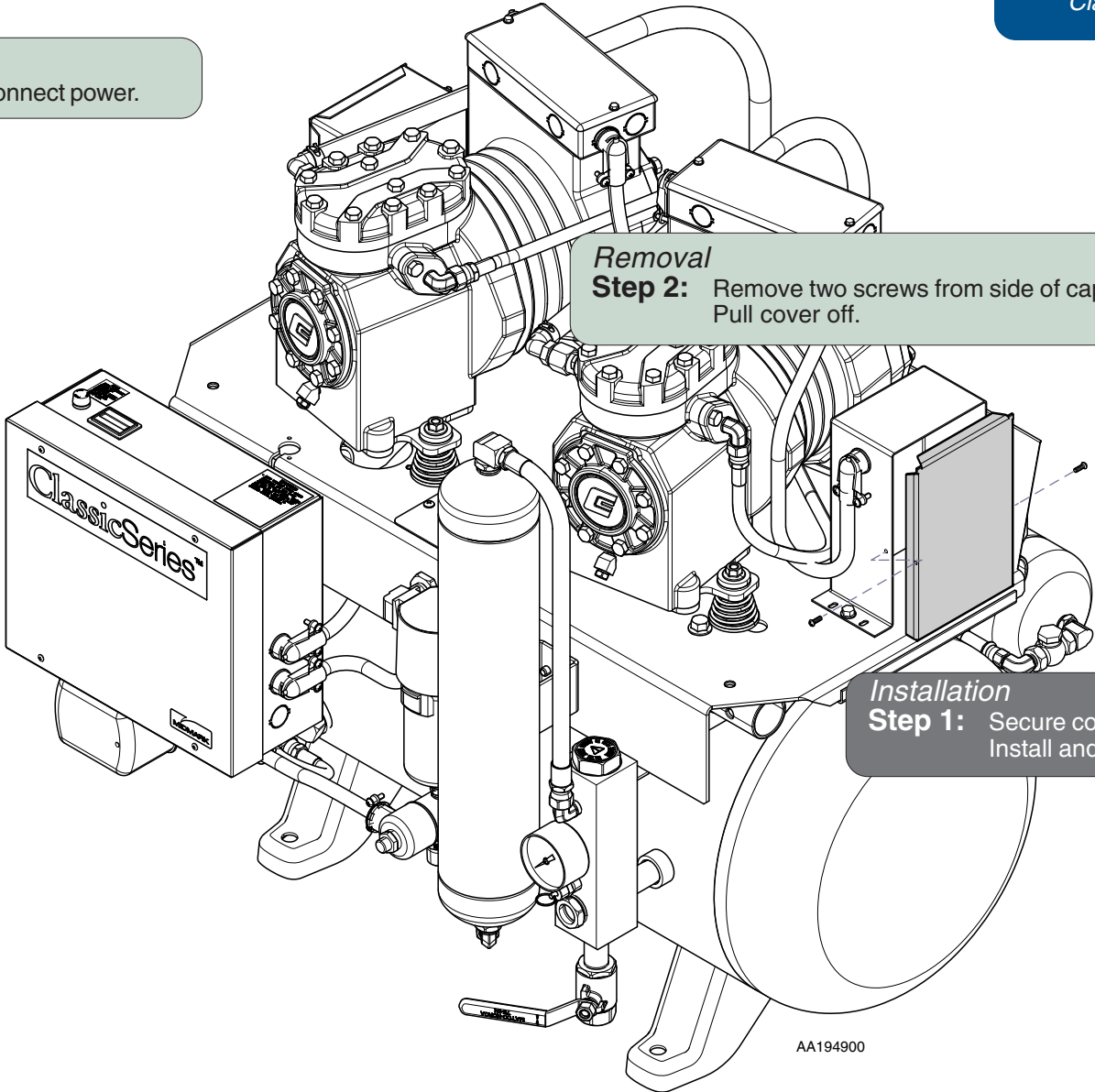
Access Procedures

Capacitor/Relay Box (Lubricated Compressors)

Removal/ Installation

Refer To: Page
Exploded Views / Part Numbers:
ClassicSeries® Models E-2

Removal
Step 1: Disconnect power.



Removal
Step 2: Remove two screws from side of capacitor/relay box. Pull cover off.

Installation
Step 1: Secure cover on front of capacitor/relay box. Install and tighten two screws through side of cover.

Models:	CL21	CL32
Serial Numbers:	CL22	CL52
	All	All

Compressor Head Electrical Cover (Lubricated Compressors)

Removal/ Installation

Removal

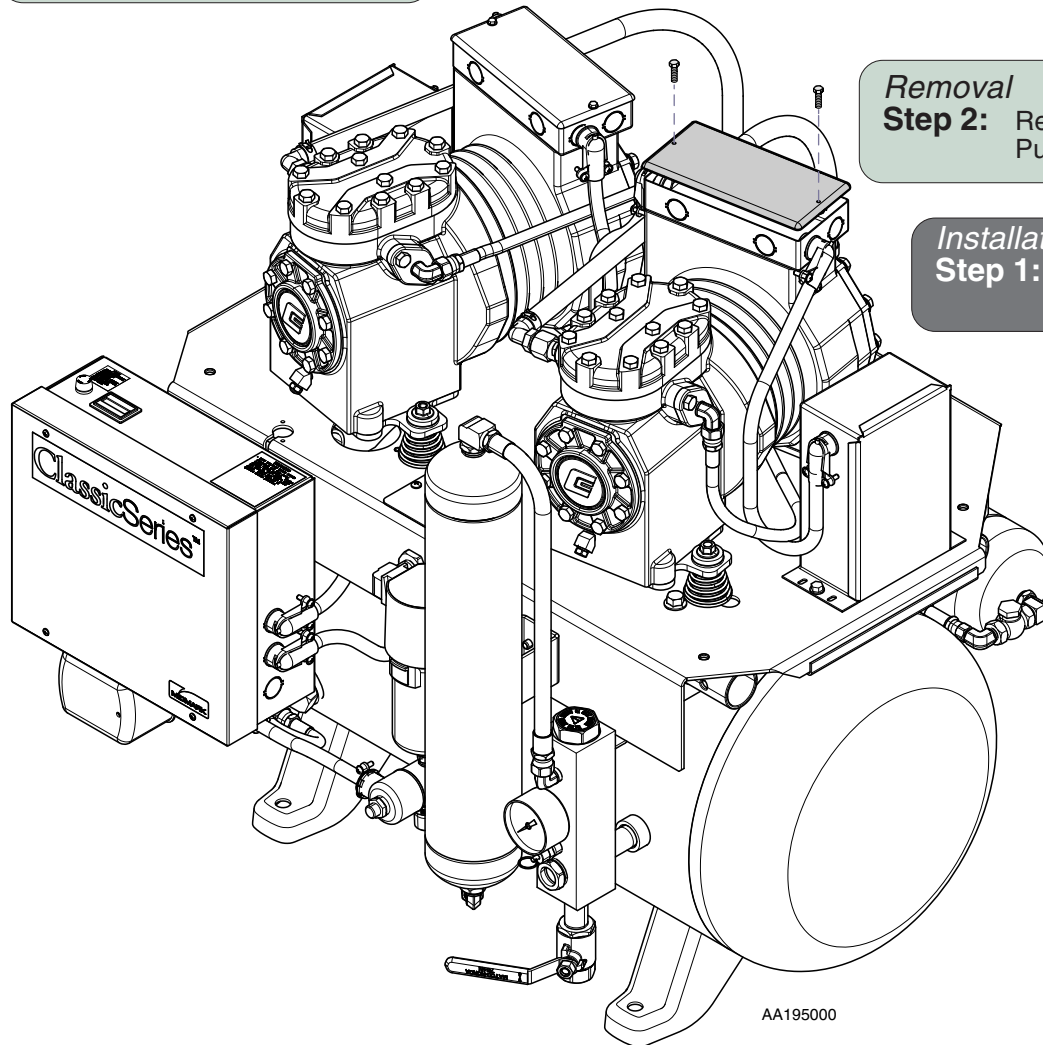
Step 1: Disconnect power.

Refer To:

Page

Exploded Views / Part Numbers:

ClassicSeries® Models E-2



Removal

Step 2: Remove two screws from top of compressor head electrical box. Pull cover off.

Installation

Step 1: Secure cover on top of compressor head electrical box. Install and tighten two screws through top of cover.

AA195000

Models:
Serial Numbers:

CL21
CL22
All

CL32
CL52
All

**Compressor Head
Electrical Box**

Access Procedures

Sound Cover Electrical Box Cover (accessory)

Removal/ Installation

Removal
Step 1: Disconnect power.

Refer To: **Page**
 Exploded Views / Part Numbers:
 PowerAir® Models E-3

Removal
Step 2: Turn screws on top cover 1/4 turn counterclockwise.
 Remove top cover.

Installation
Step 3: Install top panel.
 Tighten by turning screws 1/4 turn clockwise.

Electrical Box Cover

Removal
Step 5: Remove electrical box cover from the front side of back panel.

Installation
Step 1: Install electrical box cover in front of back panel.
 Tighten screws in through back of back panel.

Removal
Step 4: Remove electrical box cover screws from back panel.

Removal
Step 3: Remove back fan cover off back panel.

Installation
Step 2: Install back fan cover onto back panel.

AA194300

**Sound Cover Electrical
 Box Cover**

Models:	P21	P22	P32	P52	P72
Serial Numbers:	All	All	All	All	All

Pressure Switch Cover

Removal/Installation

Removal

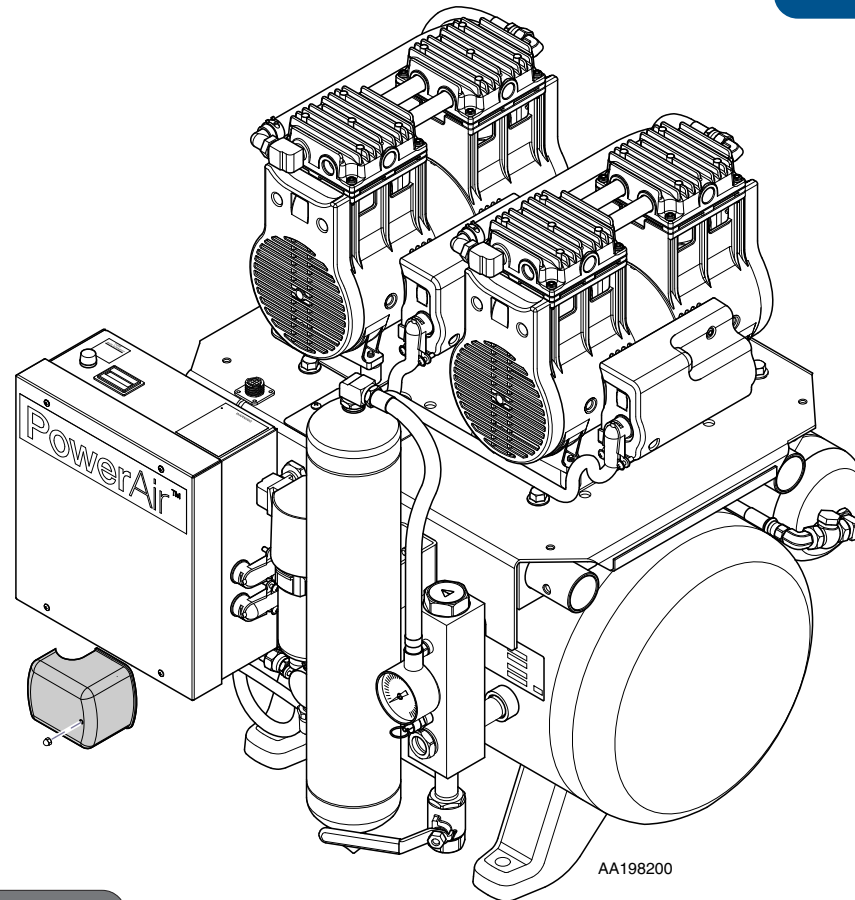
Step 1: Disconnect power.

Removal

Step 2: Remove cap nut.
Pull cover off.

Installation

Step 1: Place cover on pressure switch.
Secure cap nut.



Refer To:

Page

Exploded Views / Part Numbers:

ClassicSeries® Models E-2

PowerAir® Models E-3

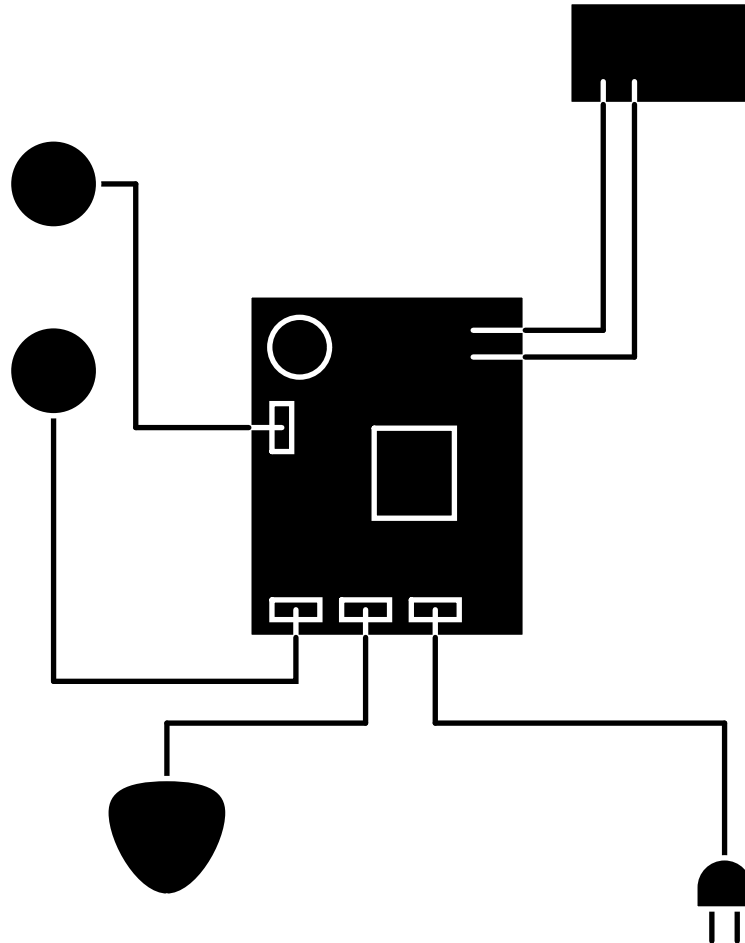
Models:
Serial Numbers:

All

Pressure Switch Cover

Section D

Wiring Diagrams

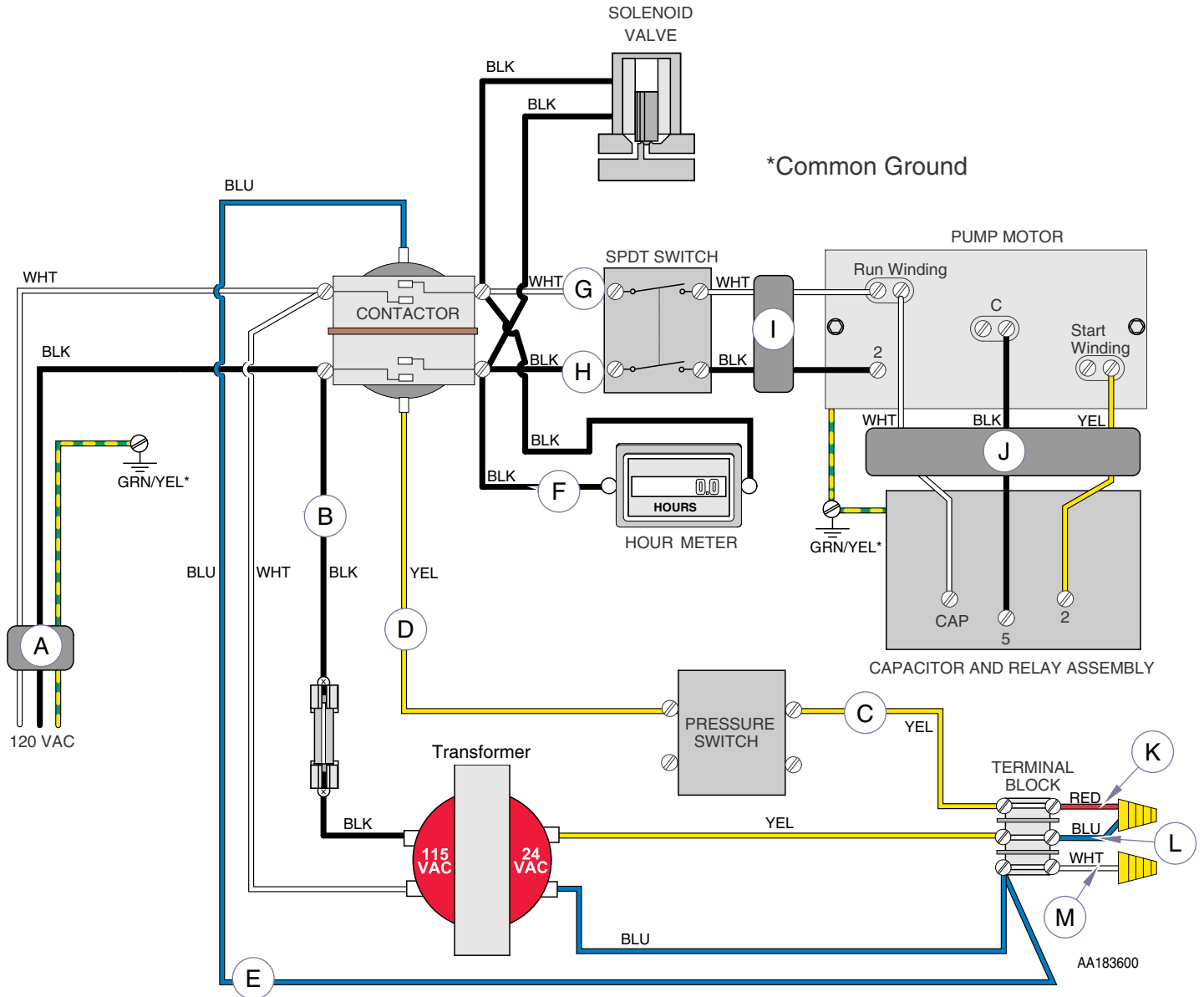


<u>Model</u>	<u>Page</u>
<i>ClassicSeries® Lubricated</i>	
CL21	D-2
CL22	D-5
CL32	D-8
CL52	D-11
<i>PowerAir® - Oil Less</i>	
P21	D-14
P22	D-17
P32	D-20
P52	D-23
P72	D-26

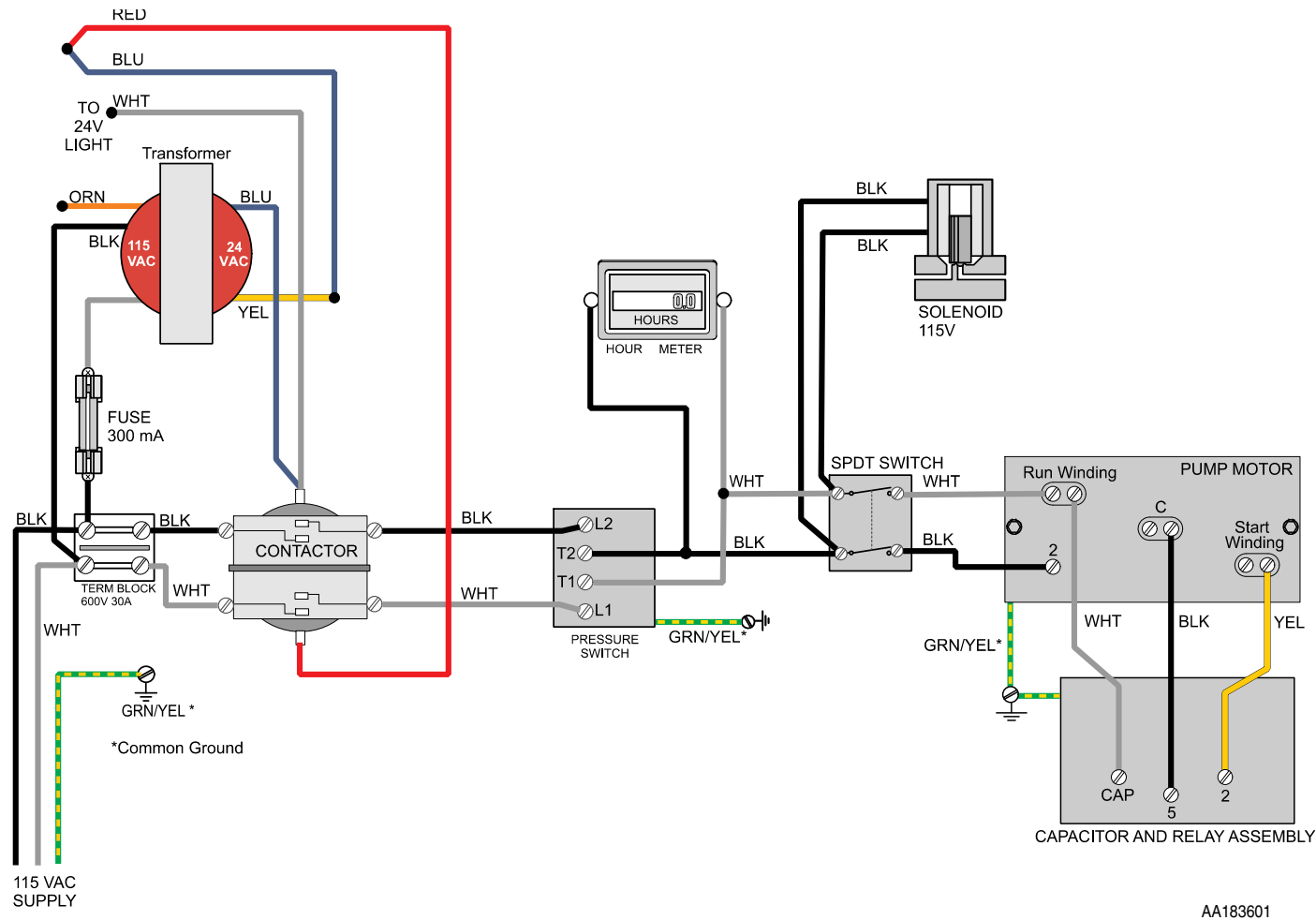
Wiring Diagrams

ClassicSeries® Lubricated Compressor Single - 115 Volts

Wire Harness	From:	To:	Part Number
A	Power Source	Contactors	62983000
B	Contactors	Fuse	62979000
C	Pressure Switch	Terminal Block	62979100
D	Pressure Switch	Contactors	62983700
E	Terminal Block	Contactors	62979200
F	Hour Meter Cable	Contactors	62979300
G	Contactors	SPDT Switch	62982300
H	Contactors	SPDT Switch	62982400
I	SPDT Switch	Motor	62982900
J	Motor	Capacitor and Relay	64884701
K	Terminal Block	Low Voltage	62983500
L	Terminal Block	Low Voltage	62983600
M	Terminal Block	Low Voltage	62983400



ClassicSeries® Lubricated Compressor Single - 115 Volts



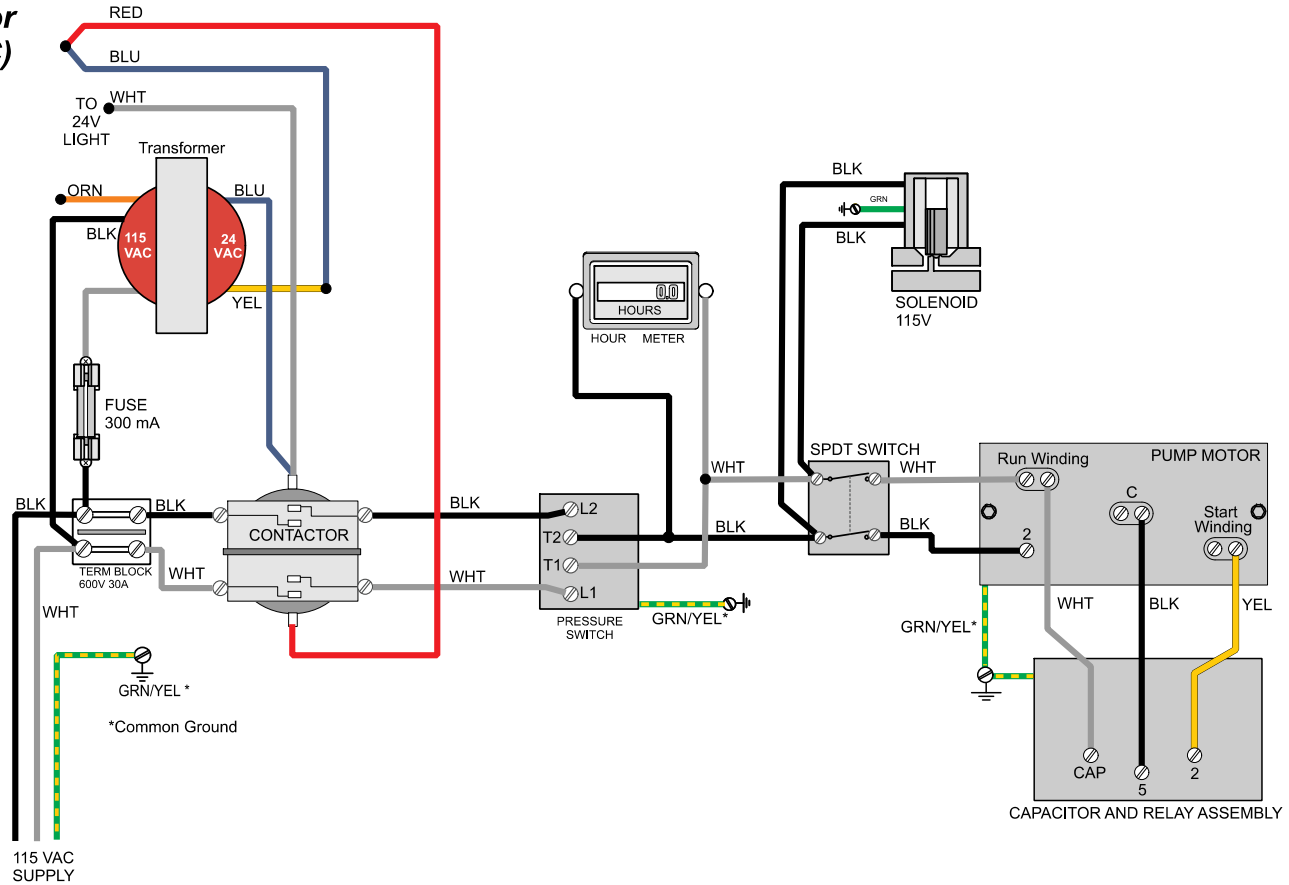
Models: CL21
Serial Numbers: 0902L210372 thru Present

Models: CL21
Serial Numbers: V785000 thru V795263

Wiring Diagrams

Wiring Diagrams

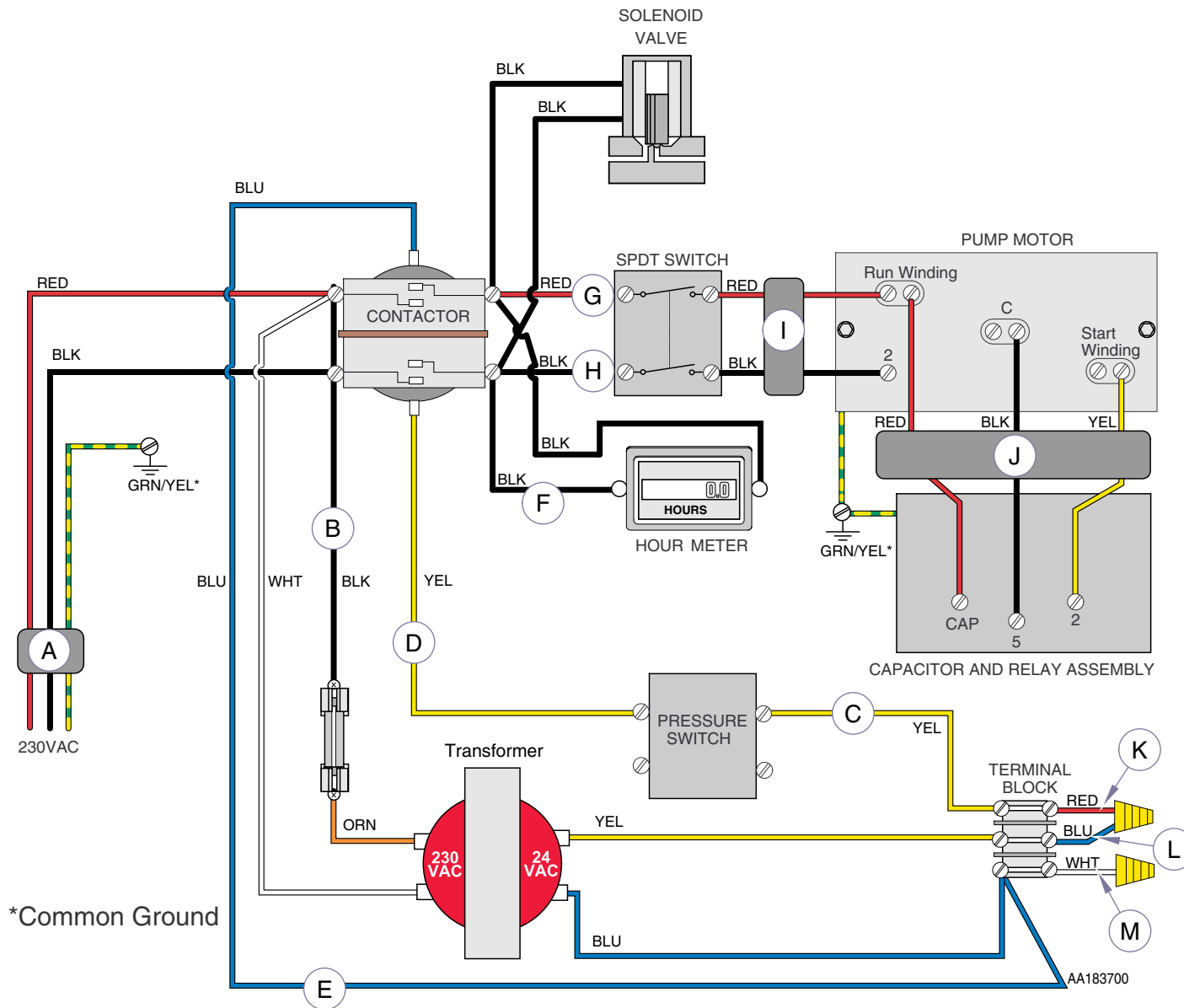
ClassicSeries™ Lubricated Compressor CL21 (Single - 115 VAC)



20228900 Rev B

Wiring Diagrams

ClassicSeries® Lubricated Compressor Single - 230 Volts



Wire Harness	From:	To:	Part Number
A	Power Source	Contactor	62978900
B	Contactor	Fuse	62979000
C	Pressure Switch	Terminal Block	62979100
D	Pressure Switch	Contactor	62983700
E	Terminal Block	Contactor	62979200
F	Hour Meter Cable	Contactor	62979300
G	Contactor	SPDT Switch	62982500
H	Contactor	SPDT Switch	62982400
I	SPDT Switch	Motor	62982600
J	Motor	Capacitor and Relay	64884702
K	Terminal Block	Low Voltage	62983500
L	Terminal Block	Low Voltage	62983600
M	Terminal Block	Low Voltage	62983400

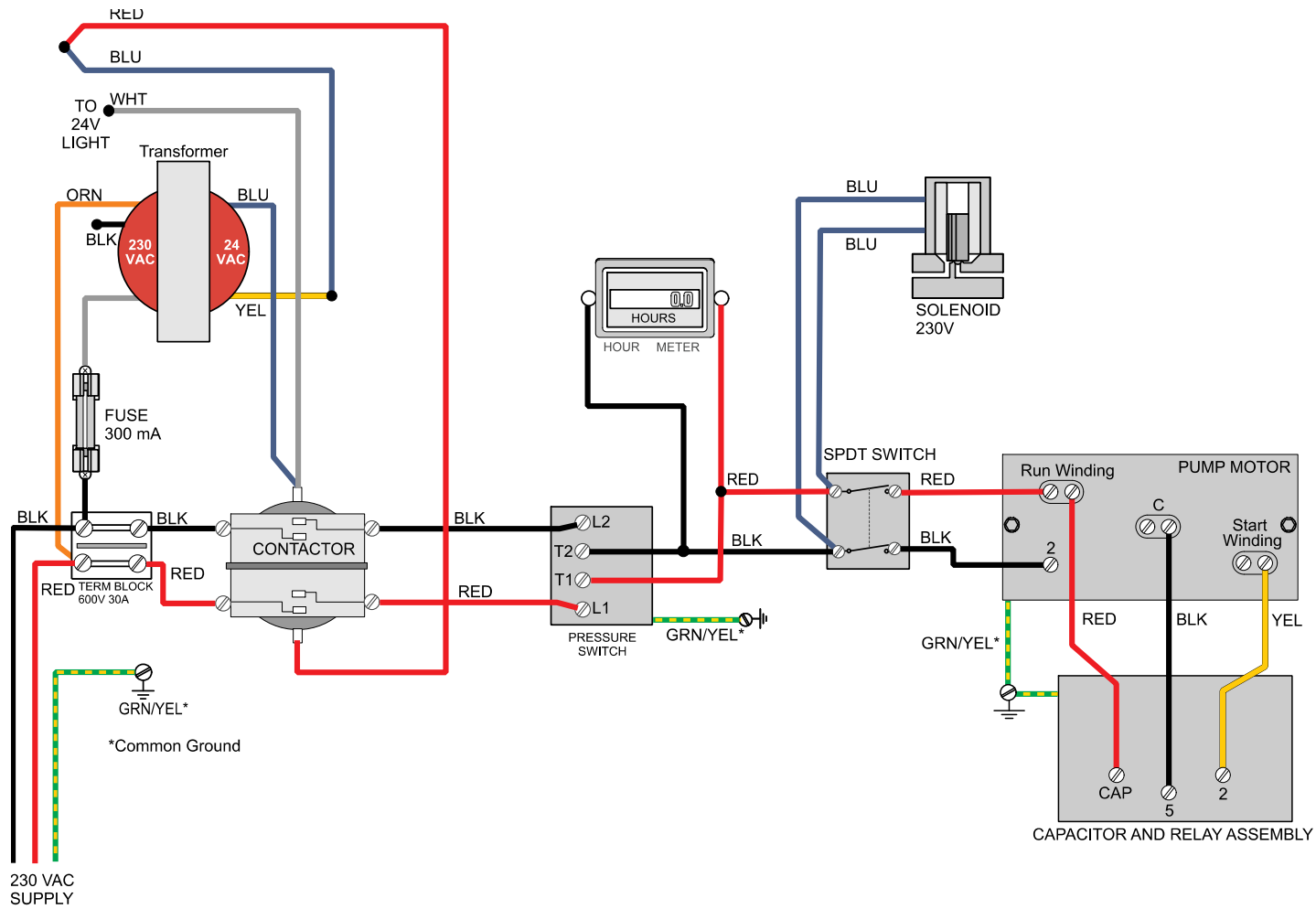
Models: **CL22**
Serial Numbers: 0701L220001 thru 0903L220294

Wiring Diagrams

D-5

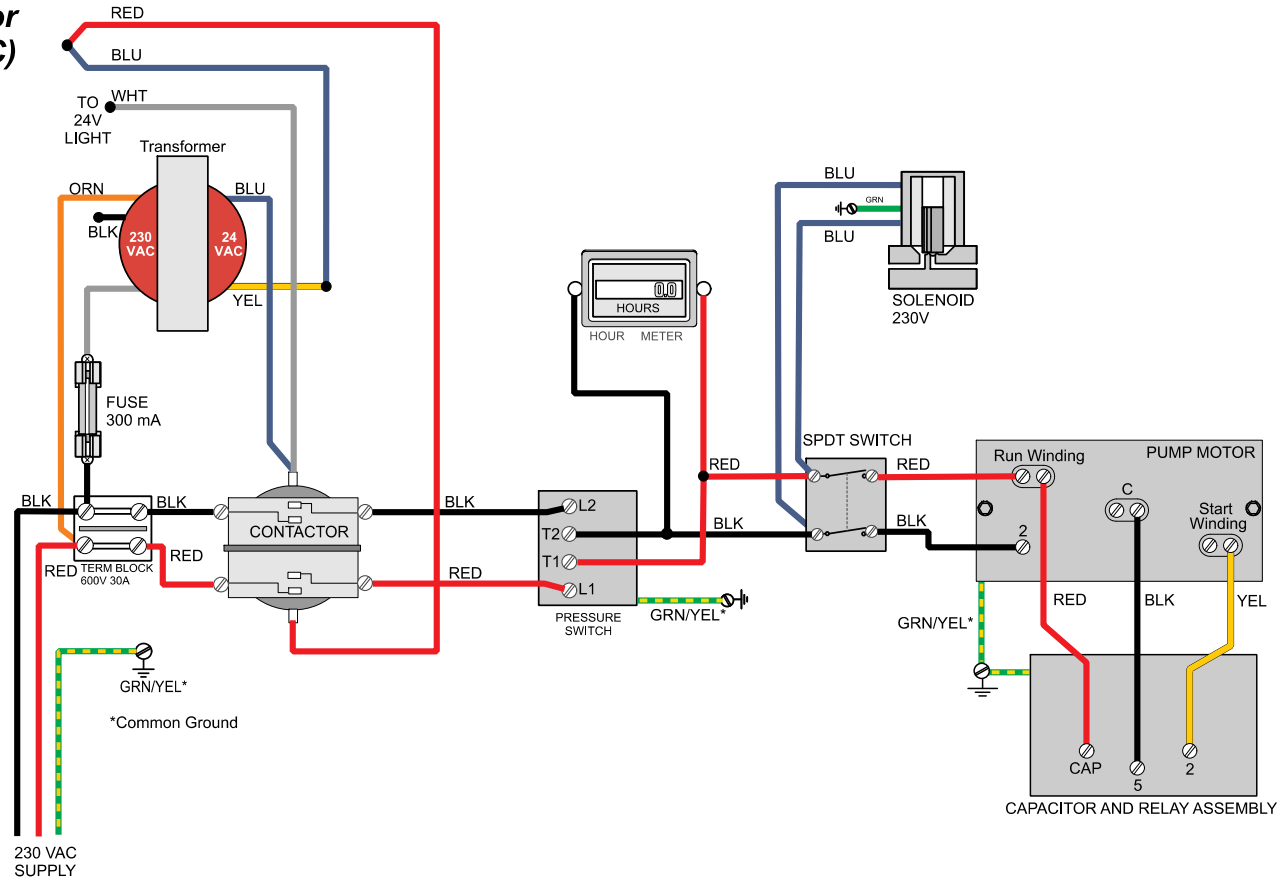
Wiring Diagrams

ClassicSeries® Lubricated Compressor Single - 230 Volts



AA183701

**ClassicSeries™
Lubricated Compressor
CL22 (Single - 230 VAC)**



20229000 Rev B

Models:
Serial Numbers:

CL22
V795559 thru Present

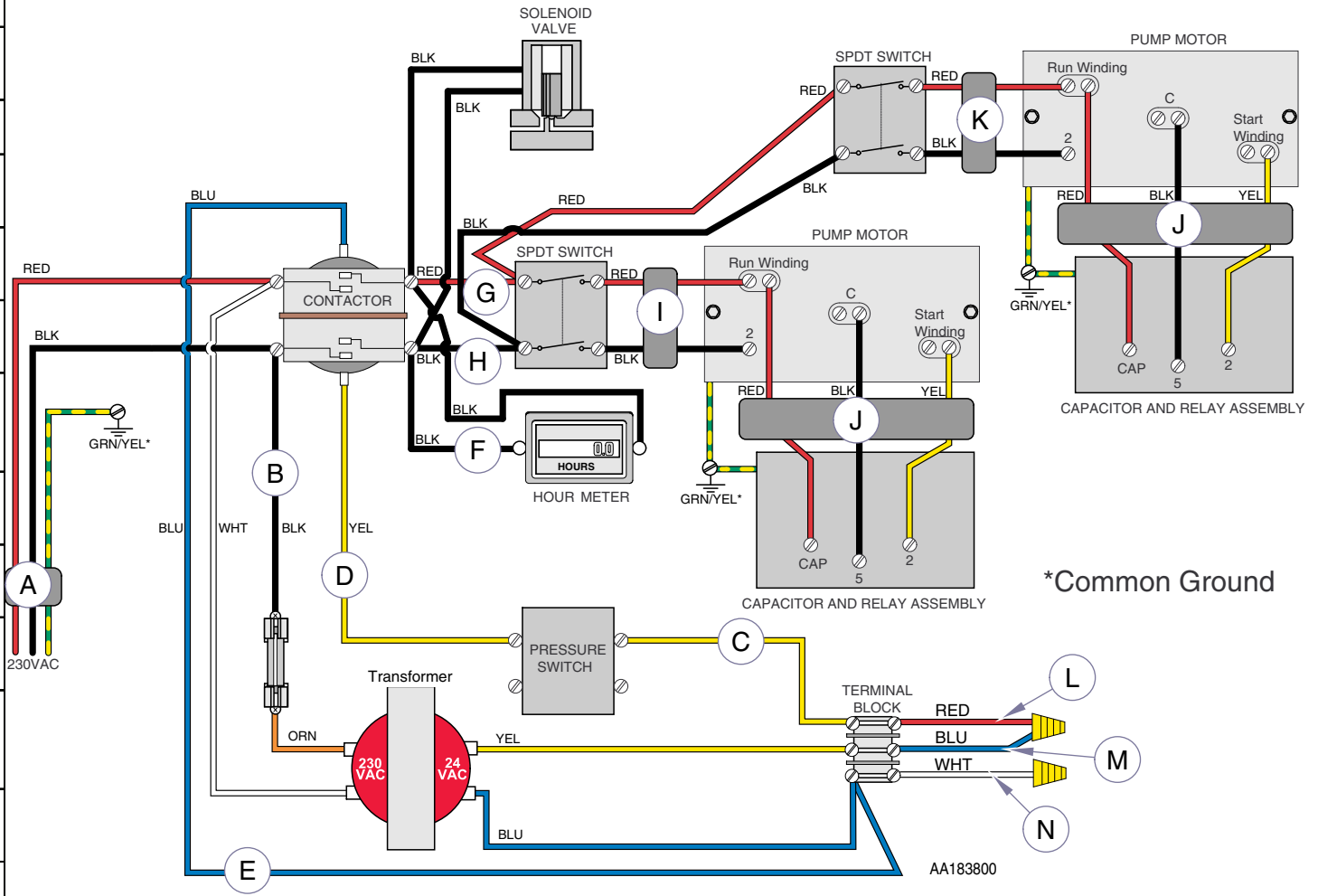
CL22
0907L220319 thru Present

Wiring Diagrams

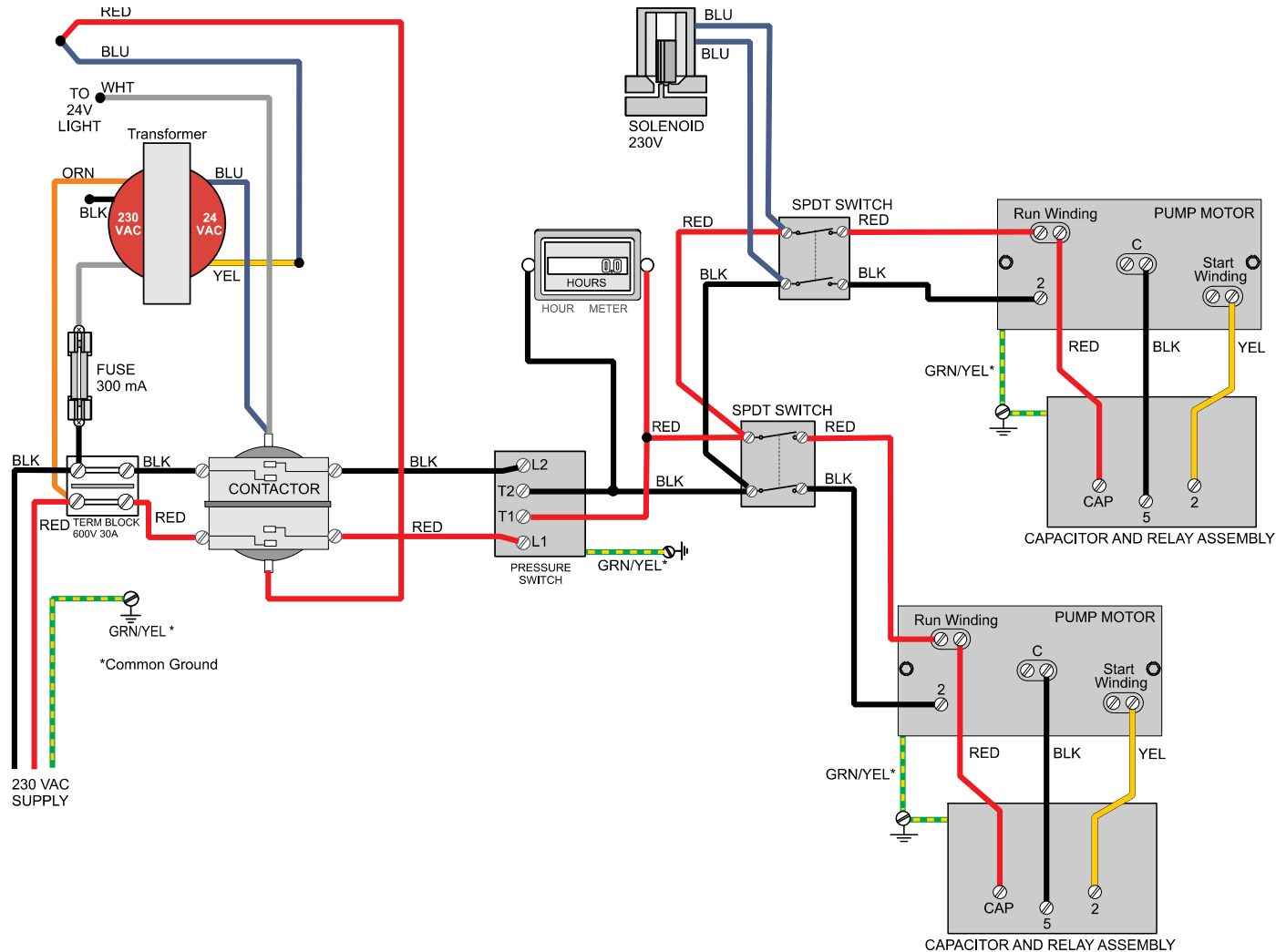
Wiring Diagrams

ClassicSeries® Lubricated Compressor Dual - 230 Volts

Wire Harness	From:	To:	Part Number
A	Power Source	Contacteur	62978900
B	Contacteur	Fuse	62979000
C	Pressure Switch	Terminal Block	62979100
D	Pressure Switch	Contacteur	62983700
E	Terminal Block	Contacteur	62979200
F	Hour Meter Cable	Contacteur	62979300
G	Contacteur	SPDT Switch	62982500
H	Contacteur	SPDT Switch	62982400
I	SPDT Switch	Motor	62982600
J	Motor	Capacitor and Relay	64884702
K	Motor	SPDT Switch	62982700
L	Terminal Block	Low Voltage	62983500
M	Terminal Block	Low Voltage	62983600
N	Terminal Block	Low Voltage	62983400



ClassicSeries® Lubricated Compressor Dual - 230 Volts



AA183801

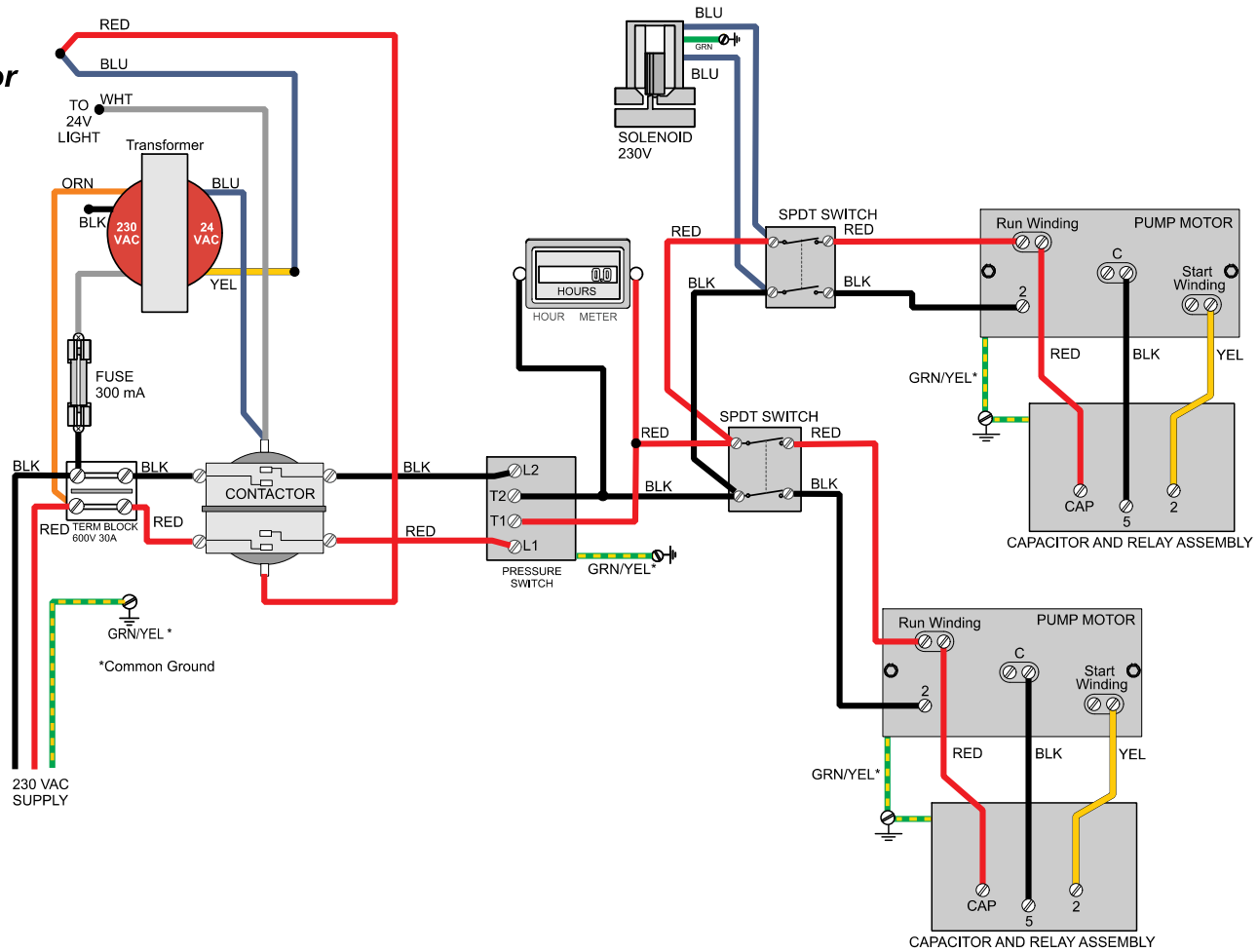
Models: CL32
Serial Numbers: 0901L320813 thru 0906L320846

Models: CL32
Serial Numbers: V785000 thru V795281

Wiring Diagrams

Wiring Diagrams

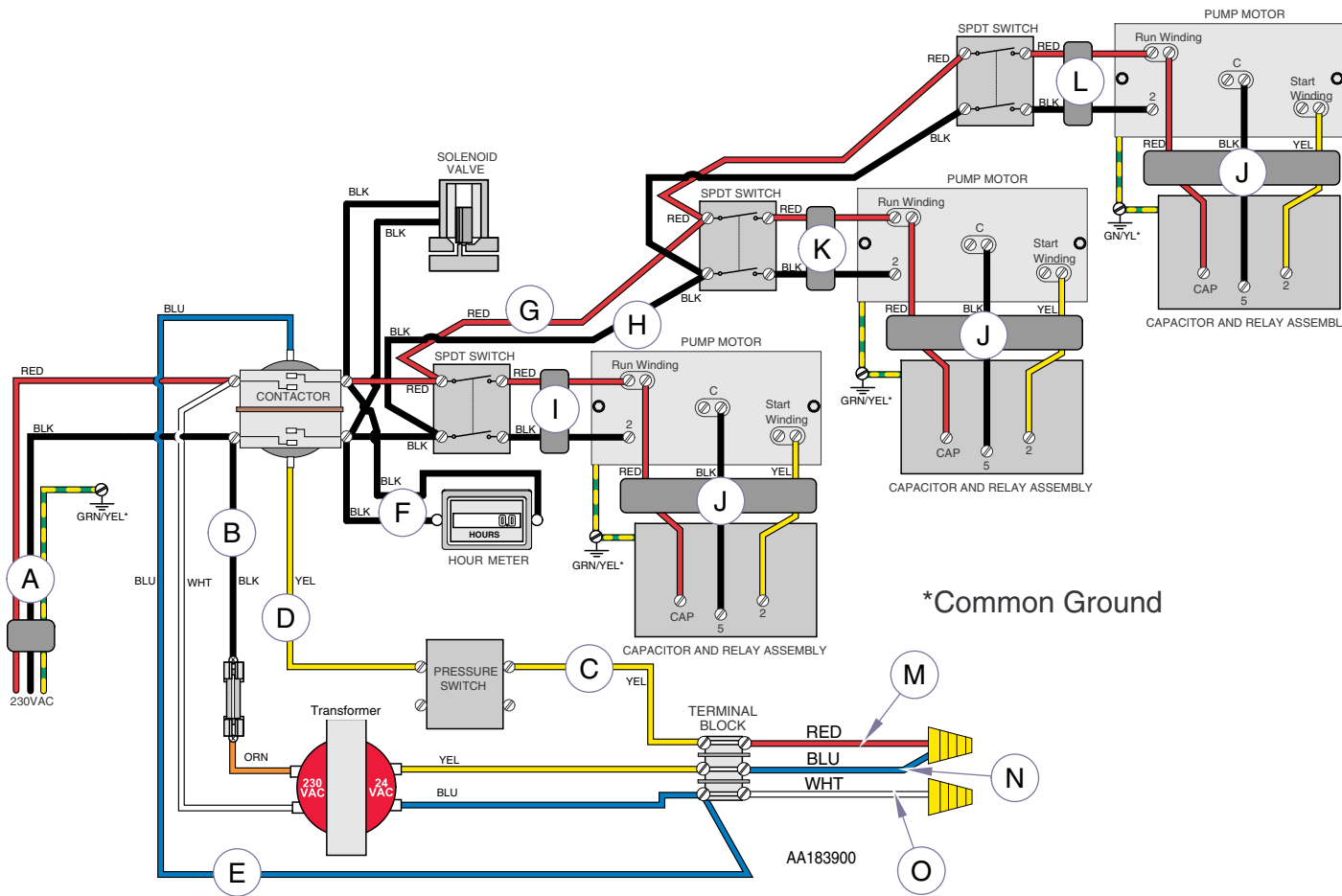
ClassicSeries™ Lubricated Compressor CL32 (Twin - 230 VAC)



20229100 Rev B

Wiring Diagrams

ClassicSeries® Lubricated Compressor Triple - 230 Volts



Wire Harness	From:	To:	Part Number
A	Power Source	Contactor	62978900
B	Contactor	Fuse	62979000
C	Pressure Switch	Terminal Block	62979100
D	Pressure Switch	Contactor	62983700
E	Terminal Block	Contactor	62979200
F	Hour Meter Cable	Contactor	62979300
G	Contactor	SPDT Switch	62982500
H	Contactor	SPDT Switch	62982400
I	SPDT Switch	Motor	62982600
J	Motor 1	Capacitor and Relay	64884702
K	Motor 2	SPDT Switch	62982700
L	Motor 3	SPDT Switch	62982800
M	Terminal Block	Low Voltage	62983500
N	Terminal Block	Low Voltage	62983600
O	Terminal Block	Low Voltage	62983400

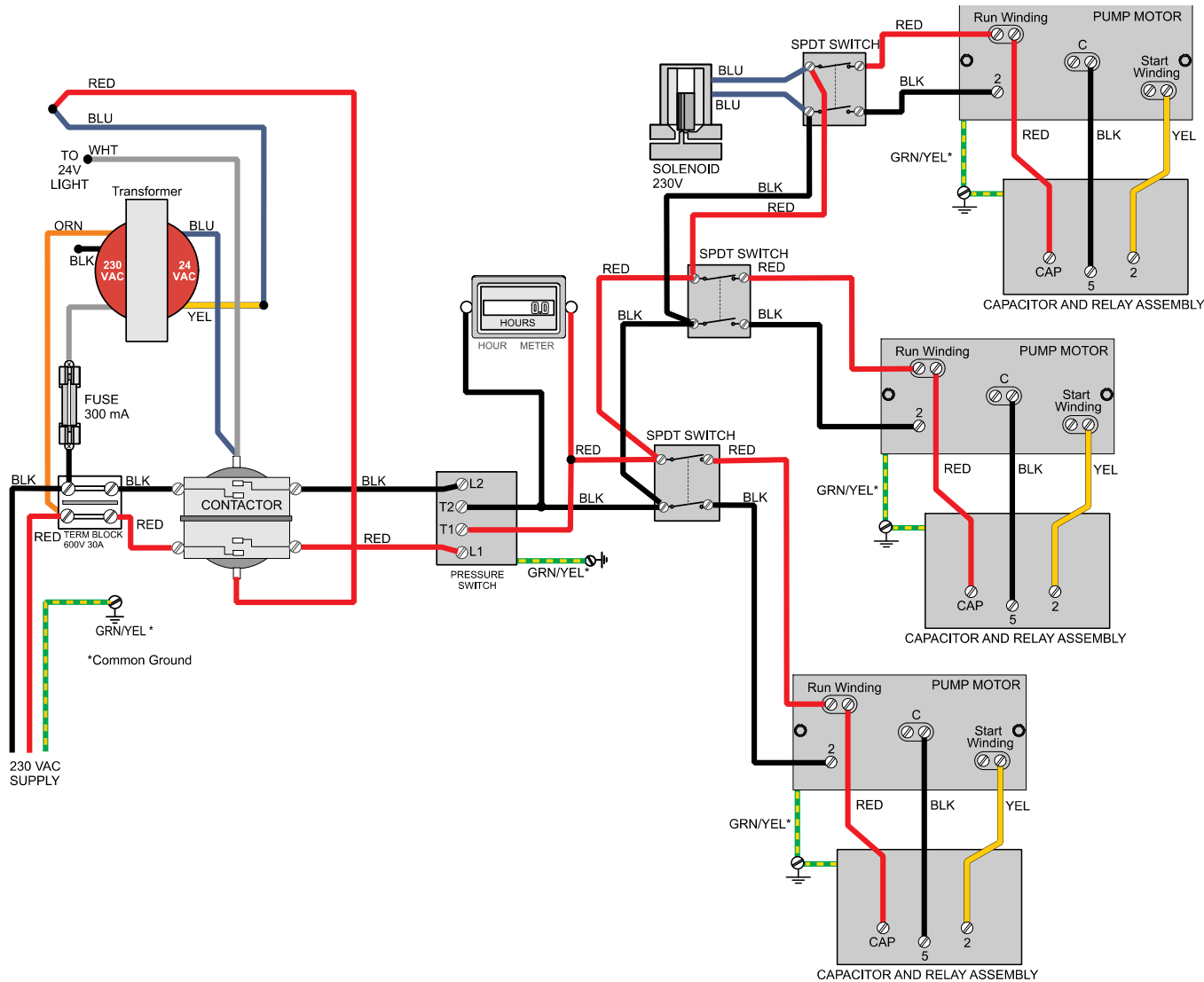
Models: **CL52**
Serial Numbers: 0701L520001 thru 0810CL520124

Wiring Diagrams

D-11

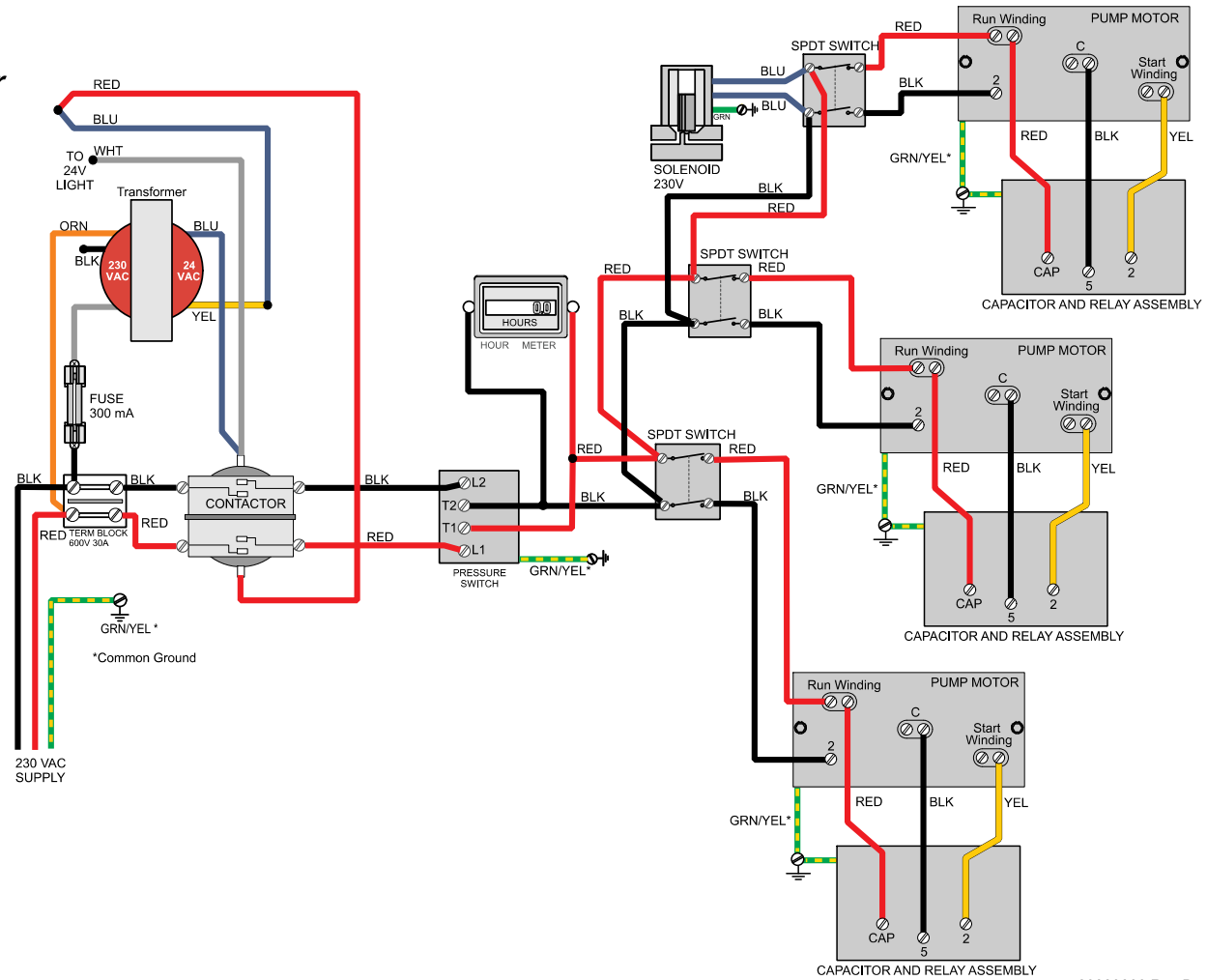
Wiring Diagrams

ClassicSeries® Lubricated Compressor Triple - 230 Volts



AA183901

**ClassicSeries™
Lubricated Compressor
CL52 (Triple - 230 VAC)**



20229200 Rev B

Models:
Serial Numbers:

CL52
V795342 Thru Present

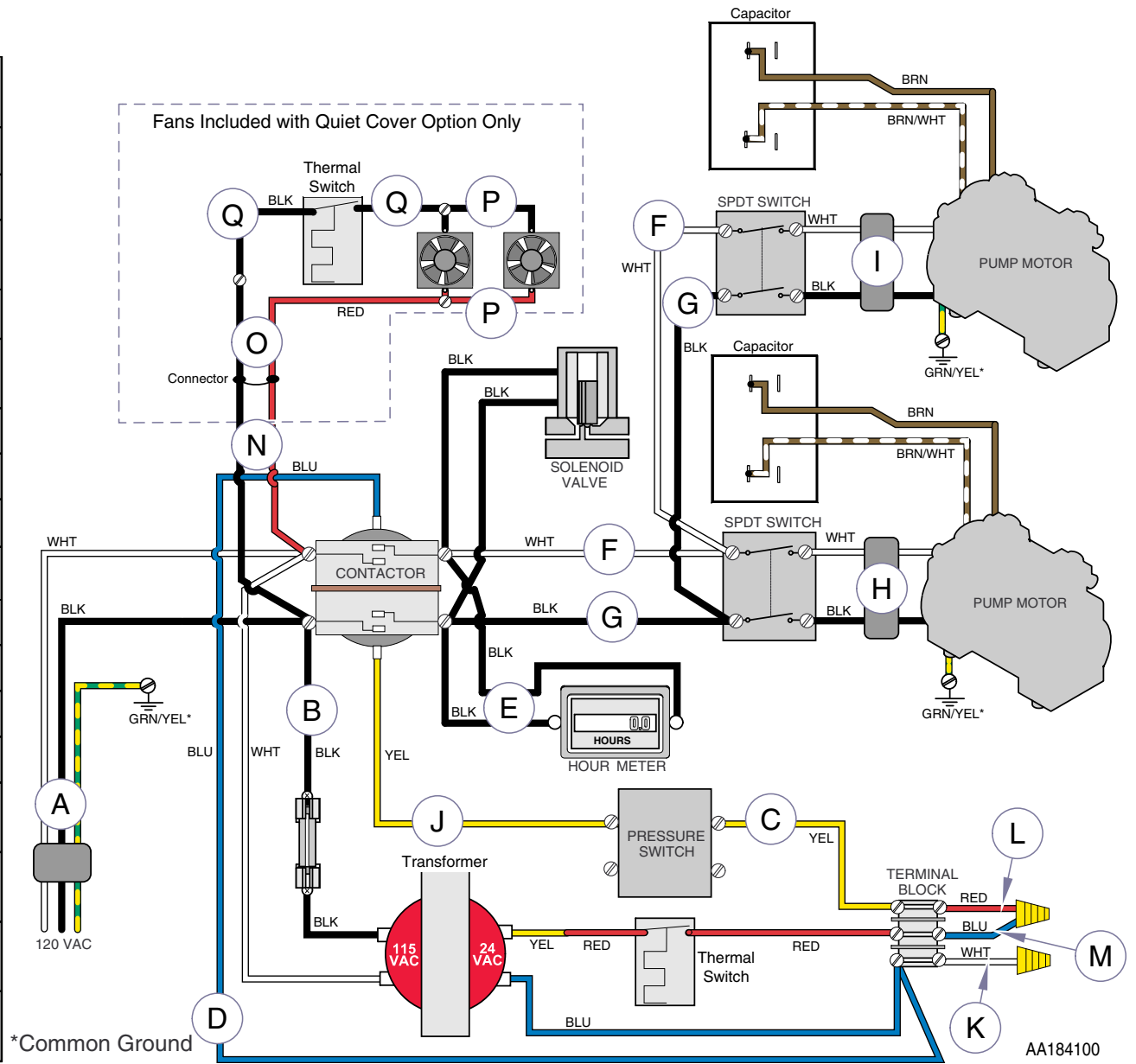
CL52
0907L520143 thru Present

Wiring Diagrams

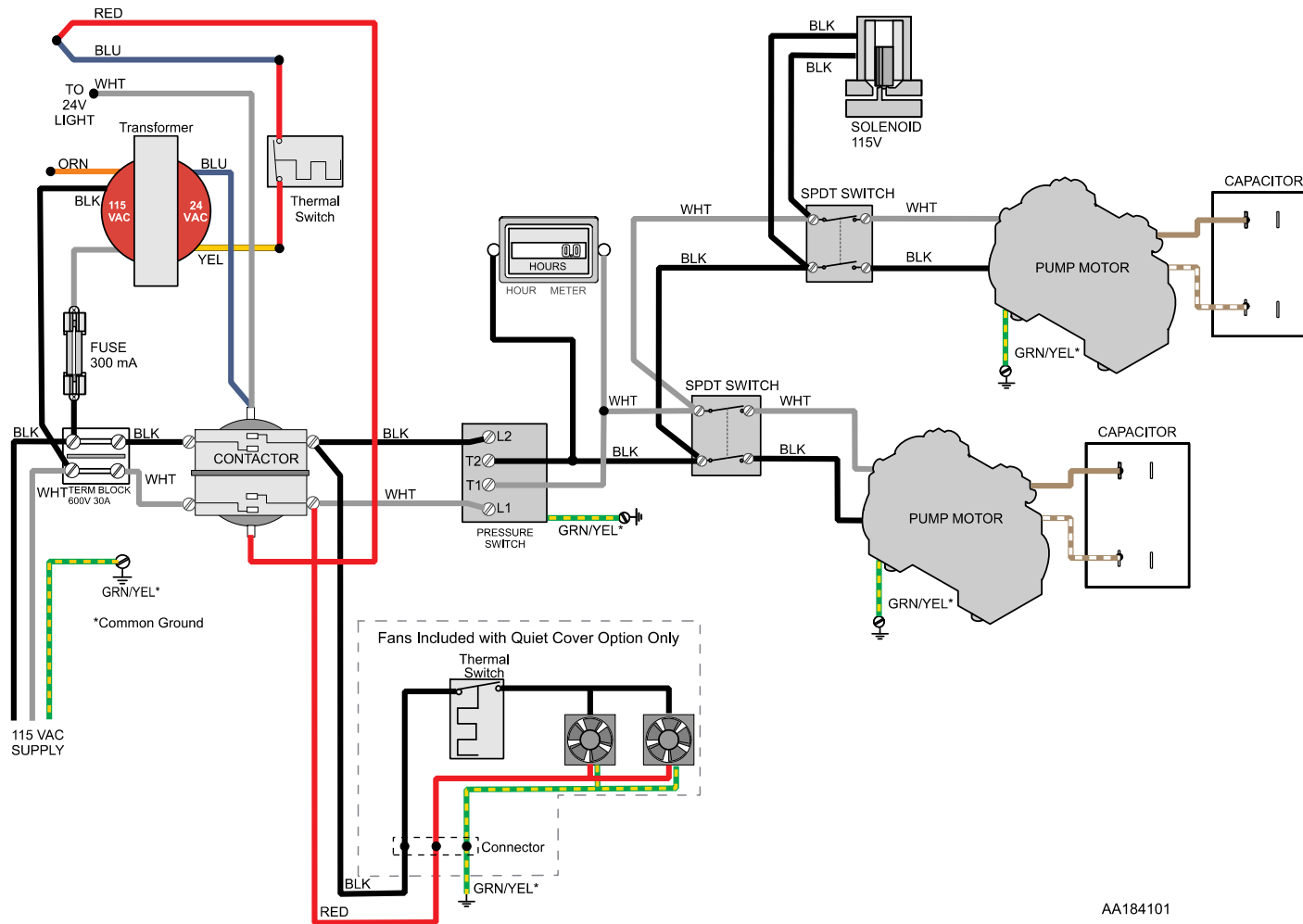
Wiring Diagrams

PowerAir® Oil Less Compressor Dual - 115 Volts

Wire Harness	From:	To:	Part Number
A	Power Source	Contactora	62983000
B	Contactora	Fuse	62979000
C	Pressure Switch	Terminal Block	62979100
D	Contactora	Terminal Block	62979200
E	Hour Meter Cable	Contactora	62979300
F	SPDT Switch	SPDT Switch	62982300
G	SPDT Switch	SPDT Switch	62982400
H	Motor (Single)	SPDT Switch	62985000
I	SPDT Switch	Motor (Dual)	62984700
J	Contactora	Pressure Switch	62983700
K	Terminal Block	Low Voltage	62983400
L	Terminal Block	Low Voltage	62983500
M	Terminal Block	Low Voltage	62983600
N	Compressor Plug	Contactora	62984000
O	Quiet Cover Plug	Terminal Block & Thermal Switch	62984500
P	Fan Power Cord	Terminal Block	62984600
Q	Thermal Switch	Terminal Block	62983900



PowerAir® Oil Less Compressor Dual - 115 Volts



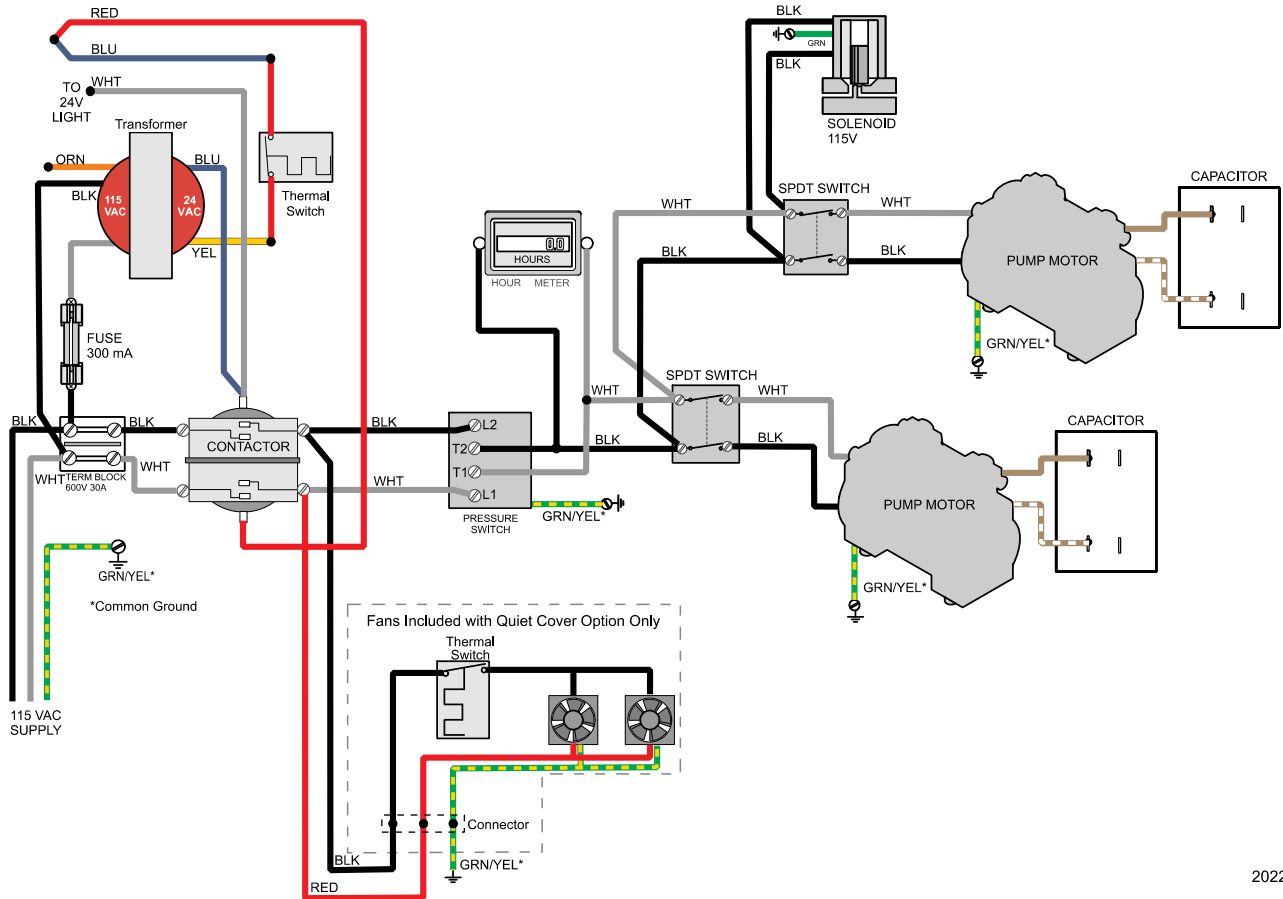
AA184101

Models:	P21	P21
Serial Numbers:	0904P210365 thru Present	V785000 thru V795263

Wiring Diagrams

Wiring Diagrams

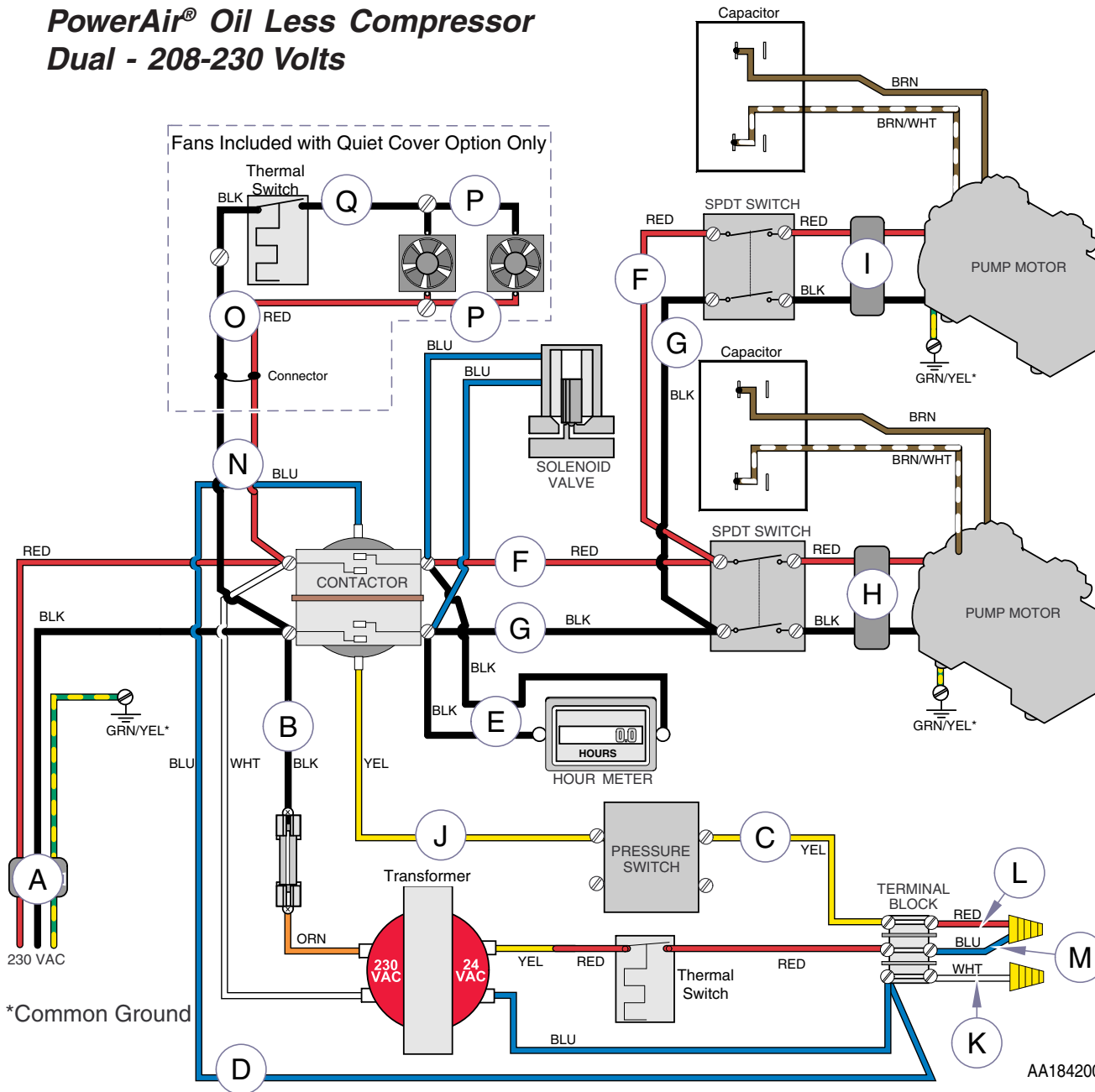
PowerAir™ Oil-Less Compressor P21 (Twin - 115 VAC)



20229300 Rev B

Wiring Diagrams

PowerAir® Oil Less Compressor Dual - 208-230 Volts



Wire Harness	From:	To:	Part Number
A	Power Source	Contactor	62978900
B	Contactor	Fuse	62979000
C	Pressure Switch	Terminal Block	62979100
D	Contactor	Terminal Block	62979200
E	Hour Meter Cable	Contactor	62979300
F	SPDT Switch	SPDT Switch	62982500
G	SPDT Switch	SPDT Switch	62982400
H	Motor (Single)	SPDT Switch	62985100
I	SPDT Switch	Motor (Dual)	62984800
J	Contactor	Pressure Switch	62983700
K	Terminal Block	Low Voltage	62983400
L	Terminal Block	Low Voltage	62983500
M	Terminal Block	Low Voltage	62983600
N	Compressor Plug	Contactor	62984000
O	Quiet Cover Plug	Terminal Block & Thermal Switch	62984500
P	Fan Power Cord	Terminal Block	62984600
Q	Thermal Switch	Terminal Block	62983900

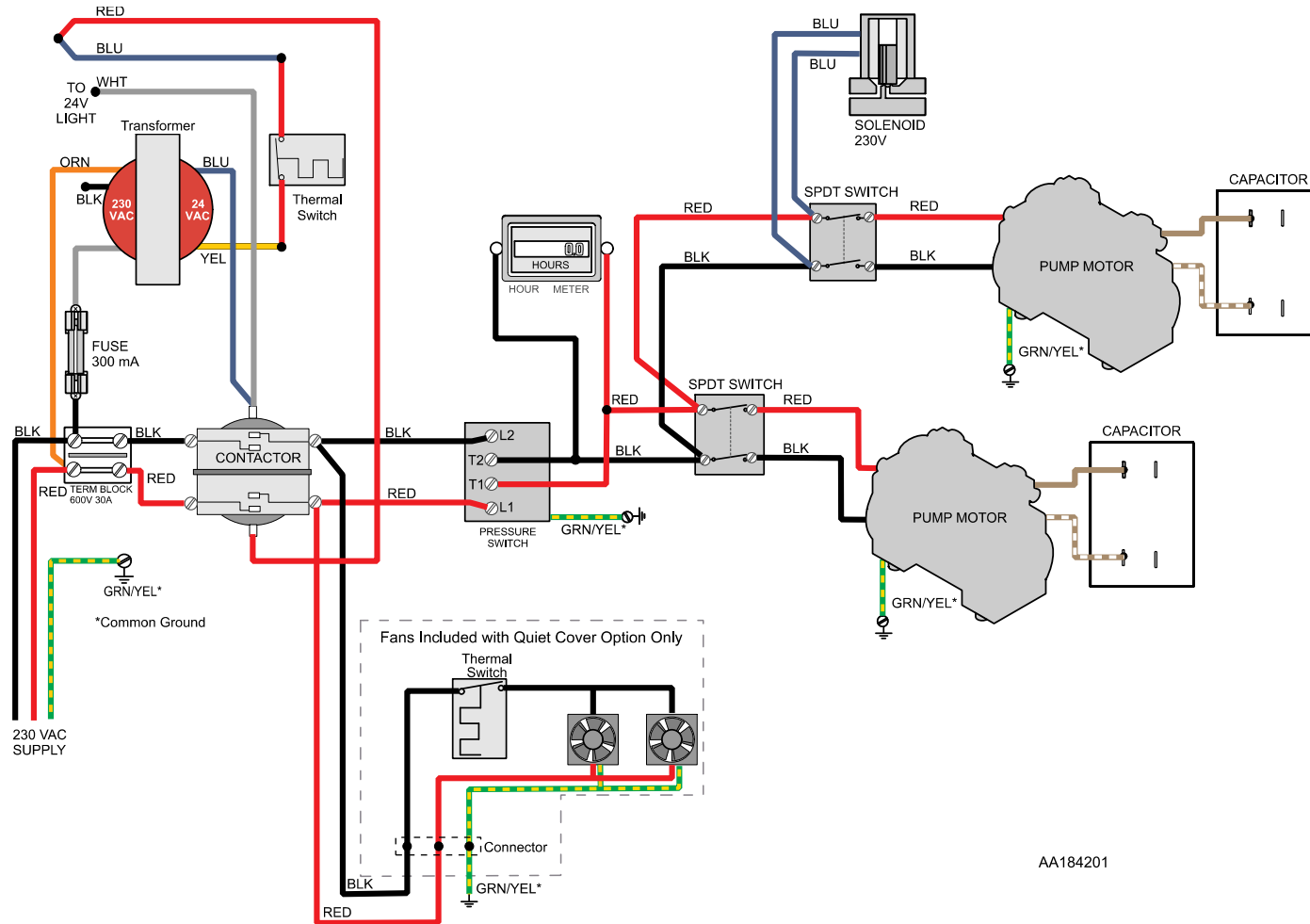
Models: P22
Serial Numbers: 0703P220001 thru 0903P221139

Wiring Diagrams

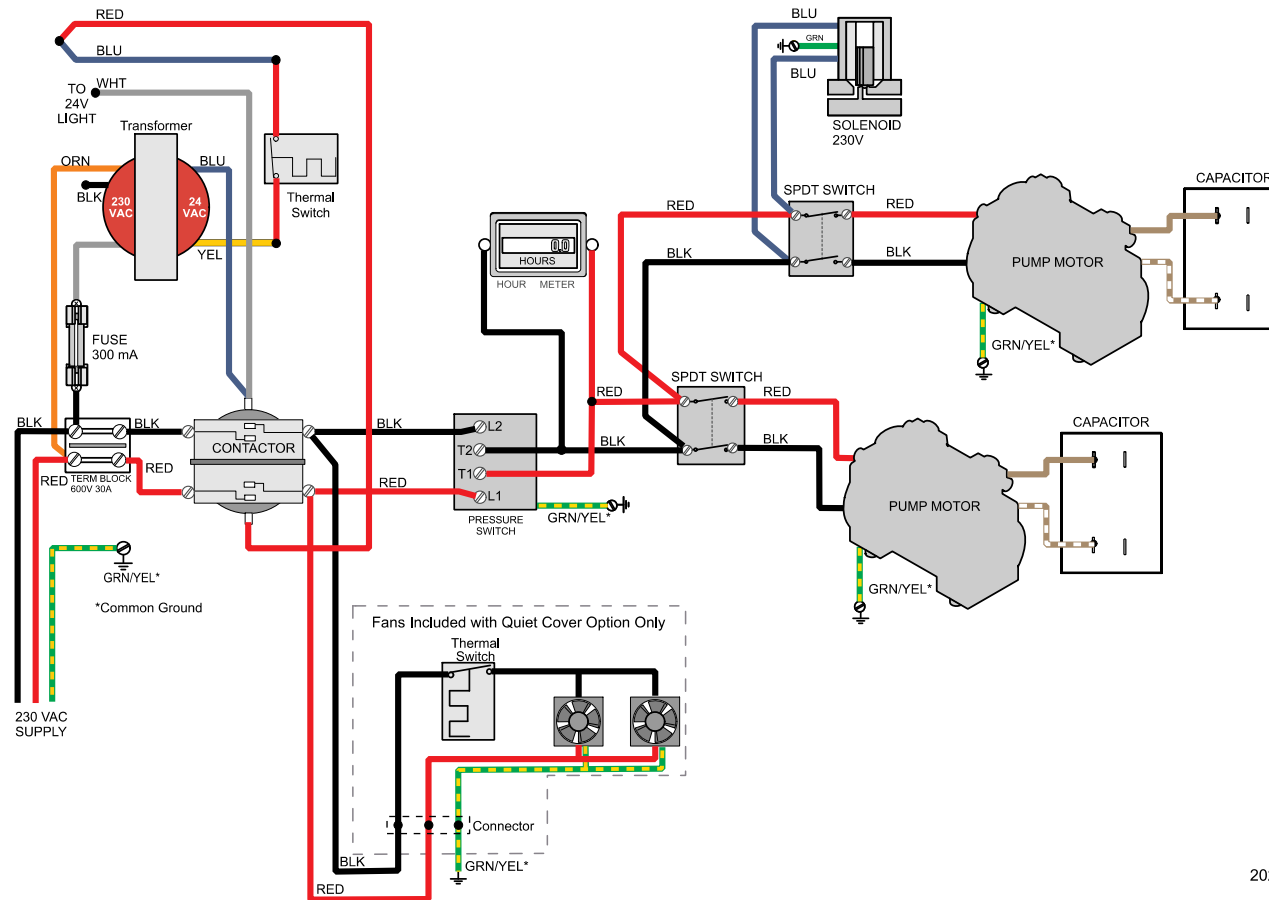
D-17

Wiring Diagrams

PowerAir® Oil Less Compressor Dual - 208-230 Volts



PowerAir™
Oil-Less Compressor
P22 (Twin - 208-230 VAC)



20229400 Rev B

Models:
Serial Numbers:

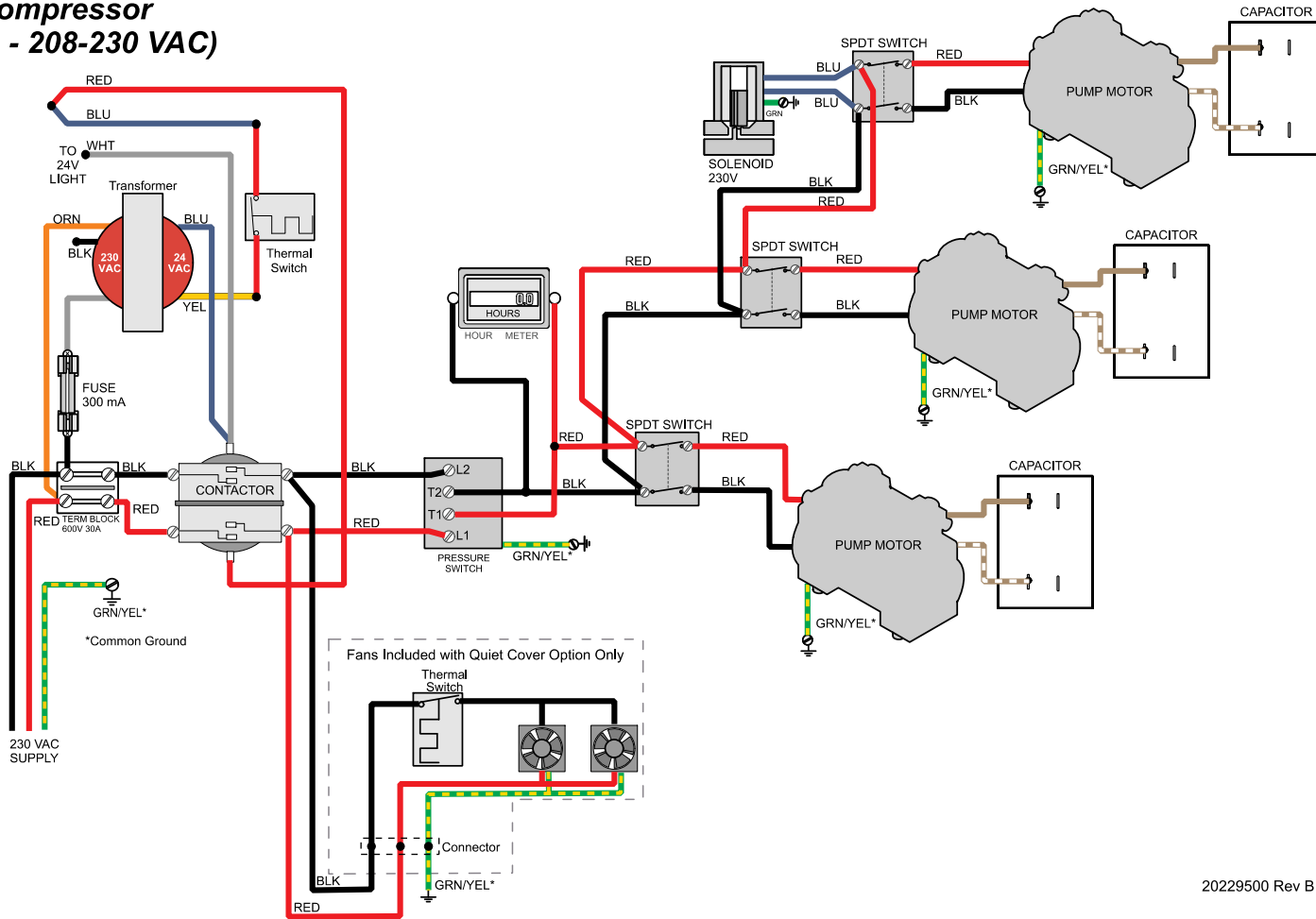
P22
 V795264 thru Present

P22
 0908P221309 thru Present

Wiring Diagrams

Wiring Diagrams

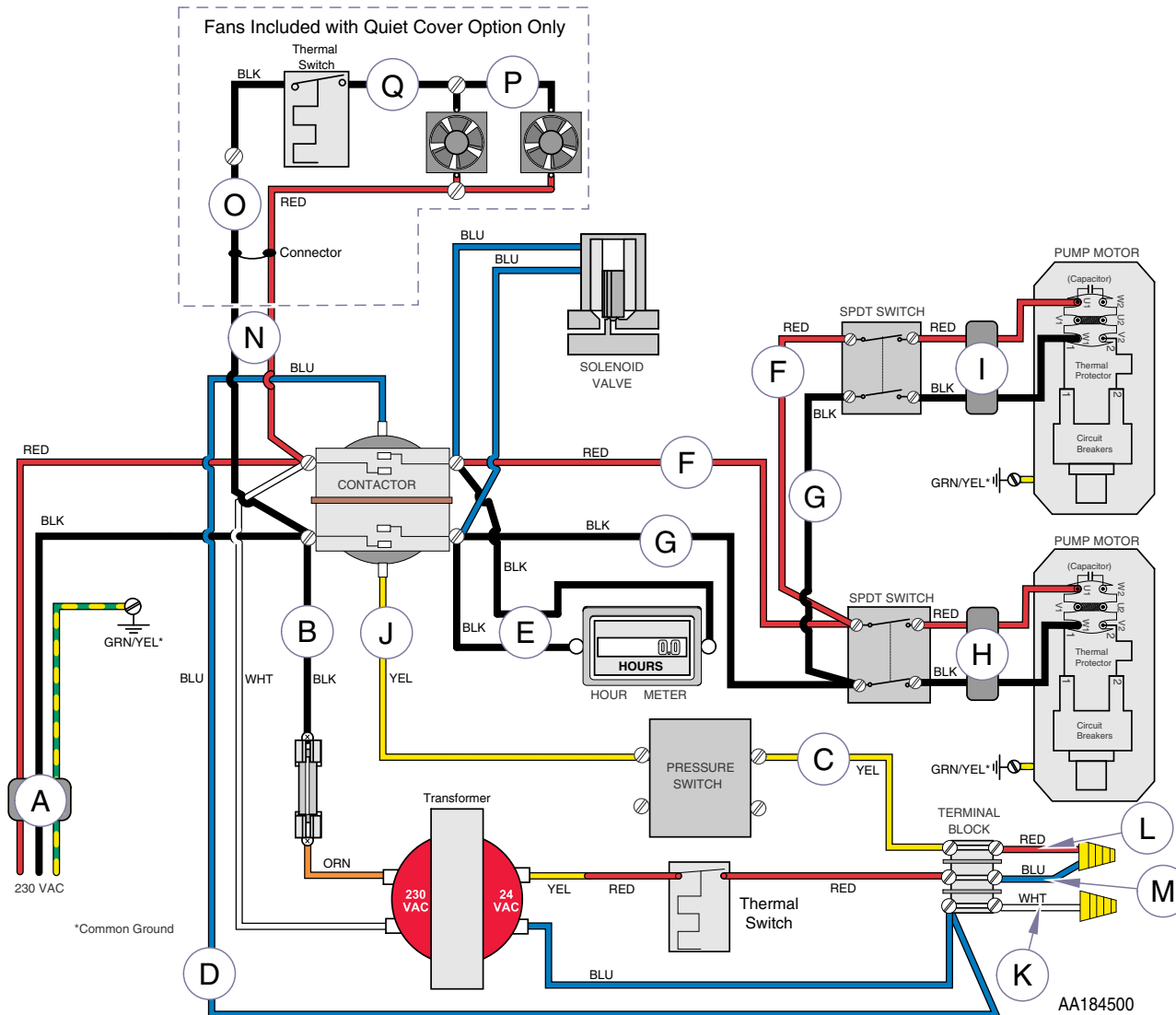
PowerAir™ Oil-Less Compressor P32 (Triple - 208-230 VAC)



20229500 Rev B

Wiring Diagrams

PowerAir® Oil Less Compressor Dual Cattani Head - 208-230 Volts



Wire Harness	From:	To:	Part Number
A	Power Source	Contactors	62978900
B	Contactors	Fuse	62979000
C	Pressure Switch	Terminal Block	62979100
D	Contactors	Terminal Block	62979200
E	Hour Meter Cable	Contactors	62979300
F	SPDT Switch	SPDT Switch	62982500
G	SPDT Switch	SPDT Switch	62982400
H	Motor (Single)	SPDT Switch	62982600
I	SPDT Switch	Motor (Dual)	62982700
J	Contactors	Pressure Switch	62983700
K	Terminal Block	Low Voltage	62983400
L	Terminal Block	Low Voltage	62983500
M	Terminal Block	Low Voltage	62983600
N	Compressor Plug	Contactors	62984000
O	Quiet Cover Plug	Terminal Block & Thermal Switch	62984500
P	Fan Power Cord	Terminal Block	62984600
Q	Thermal Switch	Terminal Block	62983900

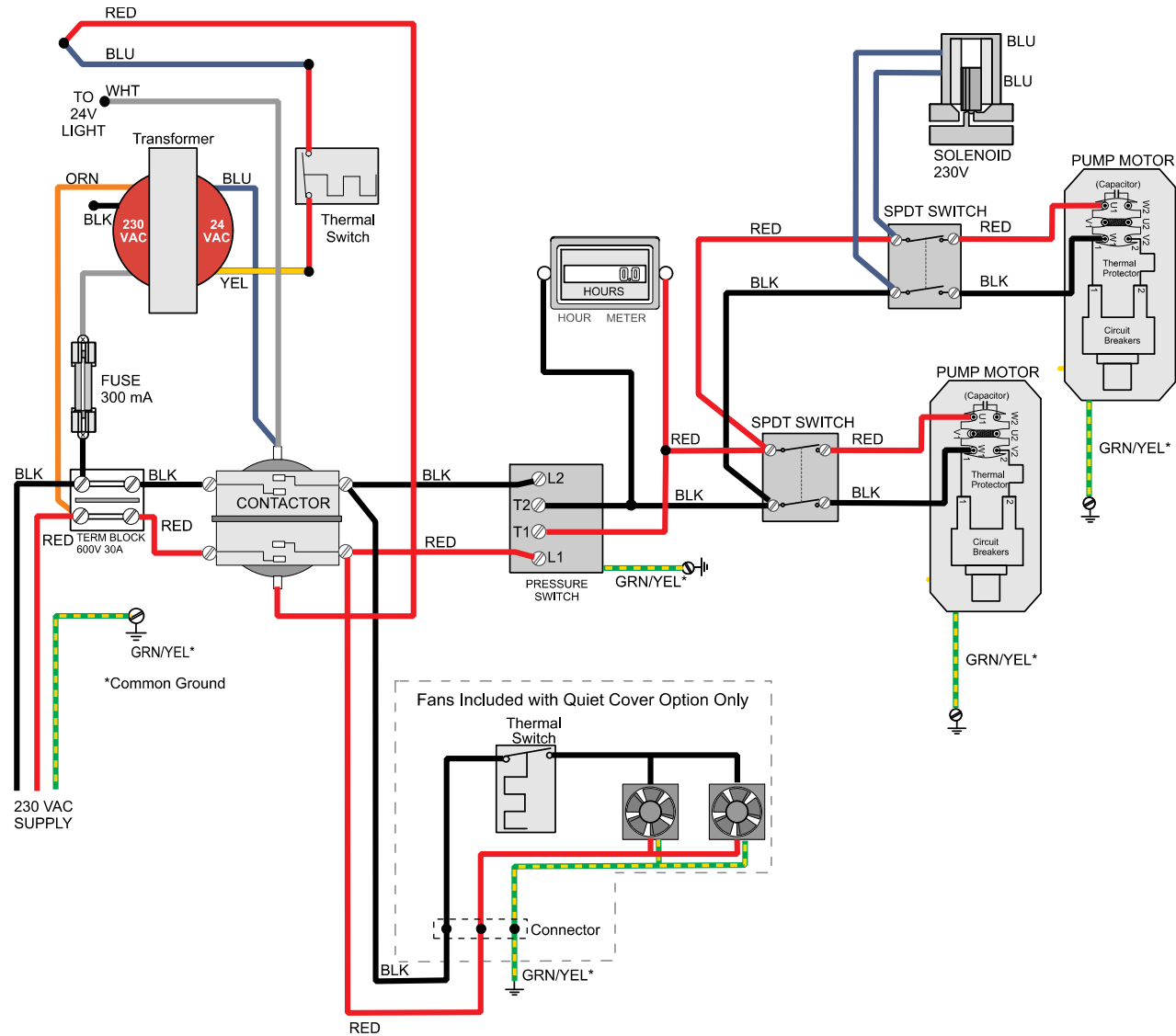
Models: **P52**
Serial Numbers: 0701P520001 thru 0902P520467

Wiring Diagrams

D-23

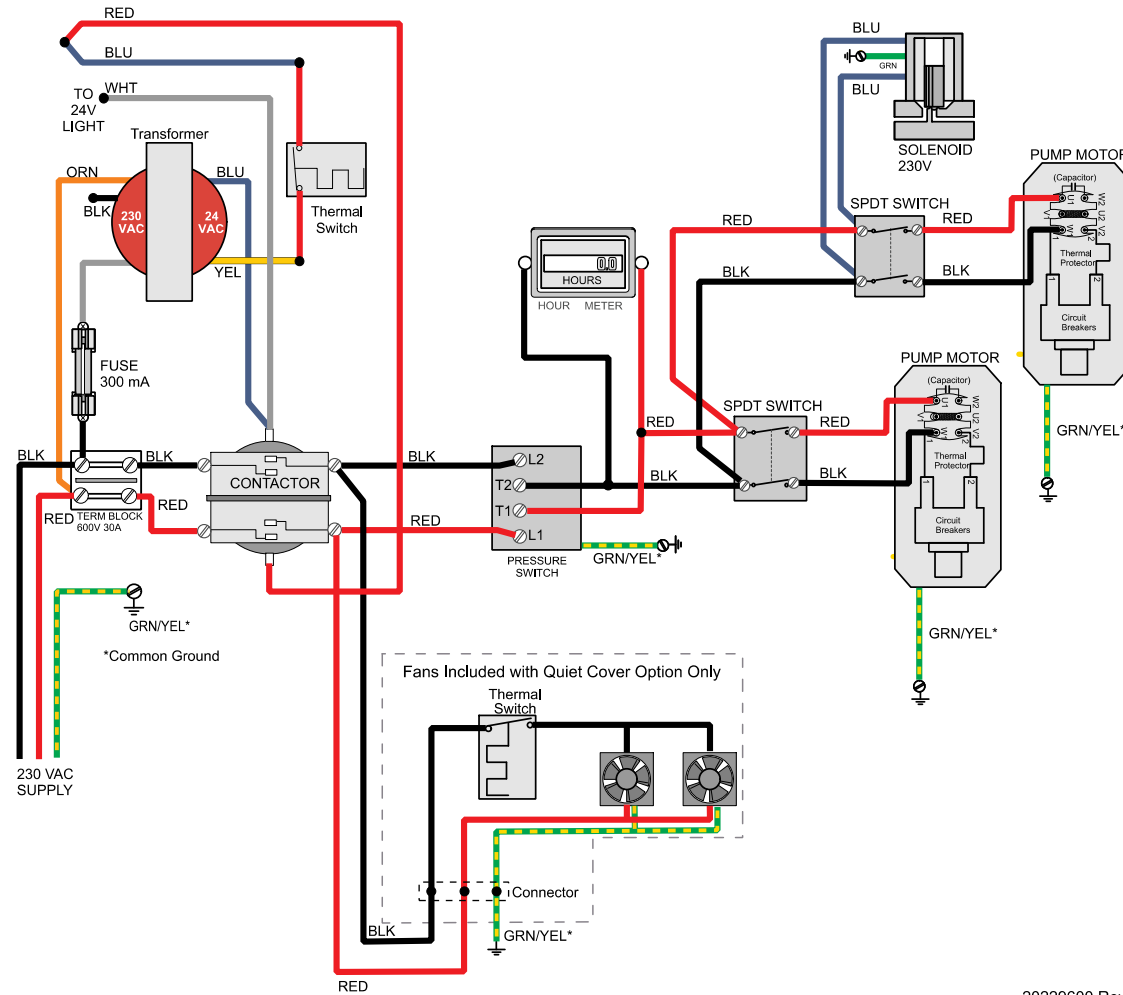
Wiring Diagrams

PowerAir® Oil Less Compressor Dual Cattani Head - 208-230 Volts



AA184501

**PowerAir™
Oil-Less Compressor
P52 (Twin - 208-230 VAC)**



20229600 Rev B

Models:
Serial Numbers:

P52
V795562 thru Present

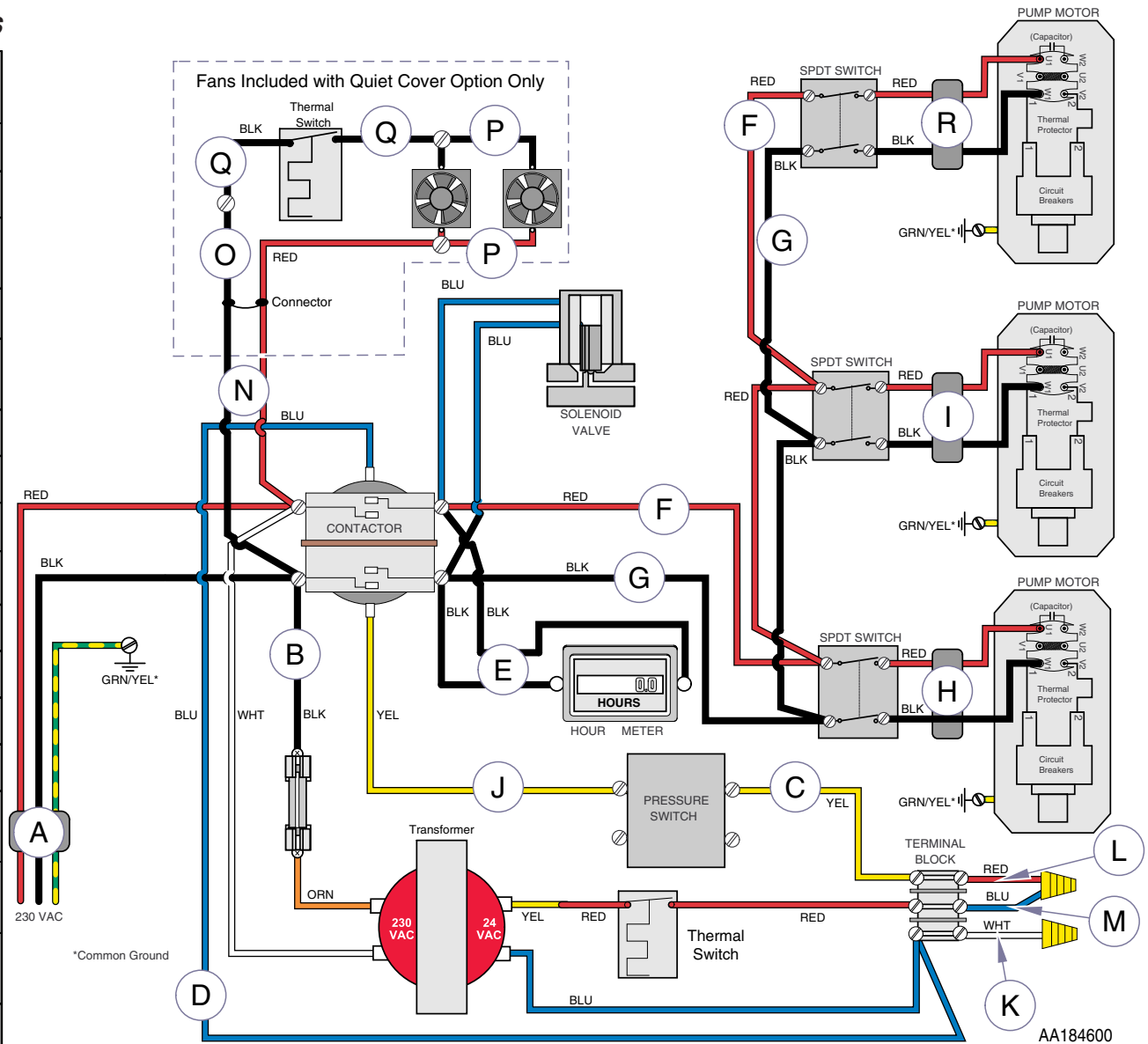
P52
0908P520573 thru Present

Wiring Diagrams

Wiring Diagrams

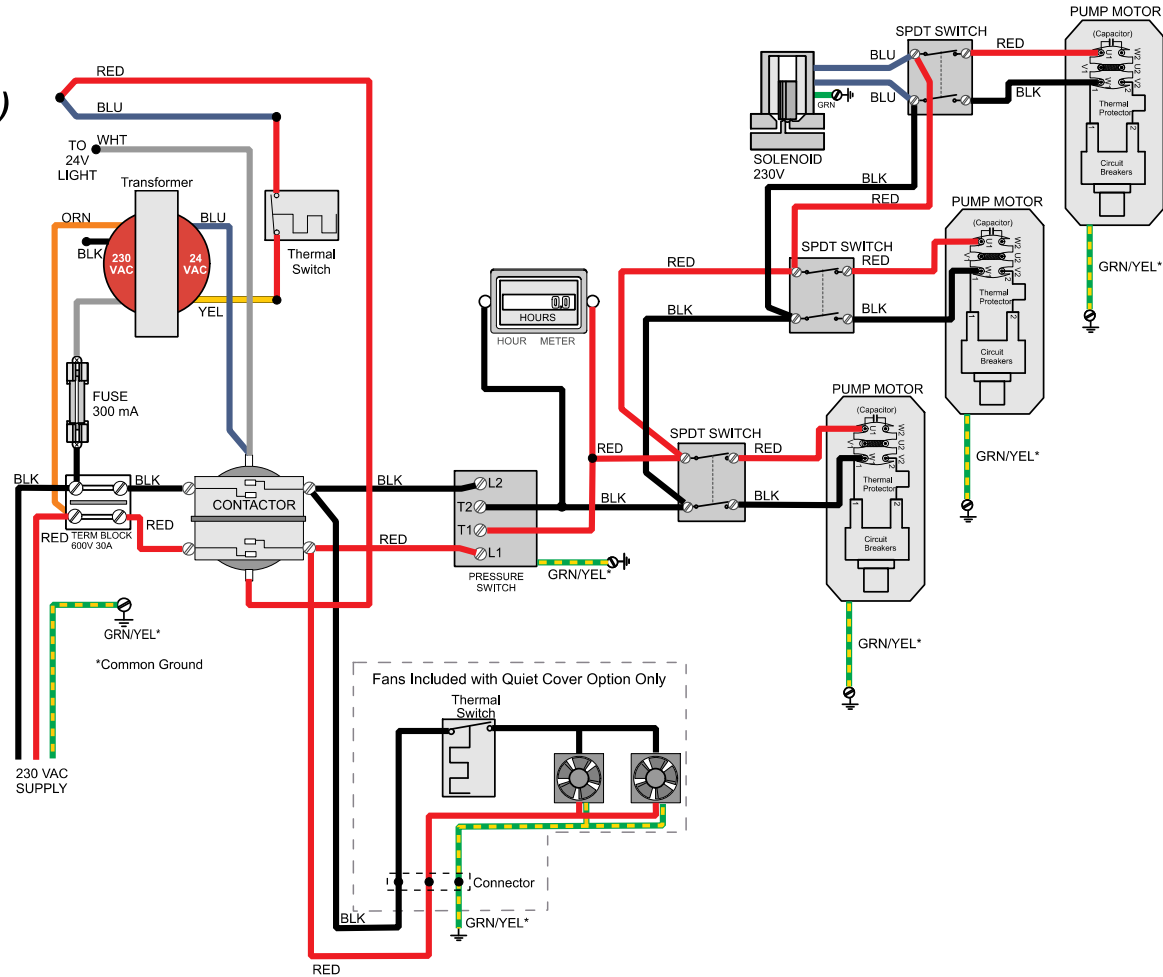
PowerAir® Oil Less Compressor Triple Cattani Head - 208-230 Volts

Wire Harness	From:	To:	Part Number
A	Power Source	Contactors	62978900
B	Contactors	Fuse	62979000
C	Pressure Switch	Terminal Block	62979100
D	Contactors	Terminal Block	62979200
E	Hour Meter Cable	Contactors	62979300
F	SPDT Switch	SPDT Switch	62982500
G	SPDT Switch	SPDT Switch	62982400
H	Motor (Single)	SPDT Switch	62982600
I	SPDT Switch	Motor (Dual)	62982700
J	Contactors	Pressure Switch	62983700
K	Terminal Block	Low Voltage	62983400
L	Terminal Block	Low Voltage	62983500
M	Terminal Block	Low Voltage	62983600
N	Compressor Plug	Contactors	62984000
O	Quiet Cover Plug	Terminal Block & Thermal Switch	62984500
P	Fan Power Cord	Terminal Block	62984600
Q	Thermal Switch	Terminal Block	62983900
R	Motor (Triple)	SPDT Switch	62982800



Wiring Diagrams

PowerAir™ Oil-Less Compressor P72 (Triple - 208-230 VAC)

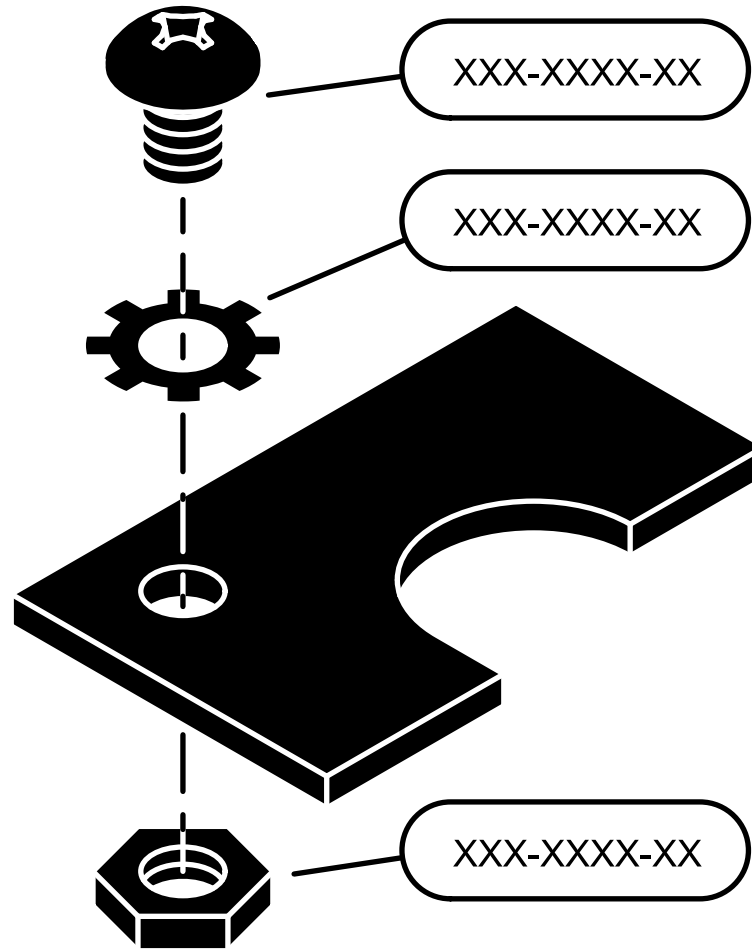


20229700 Rev B

Section E

Exploded Views & Parts Lists

Model:	Page
ClassicSeries®	E-2
PowerAir®	E-3



ClassicSeries®

CL21

CL22

CL32

CL52

Installation Kit
CL21, C22 E-4*
CL32, CL52 E-5*

Label Locations E-26*

Pneumatic Tubes and Hoses
CL21, CL22 E-16
CL32 E-17
CL52 E-18

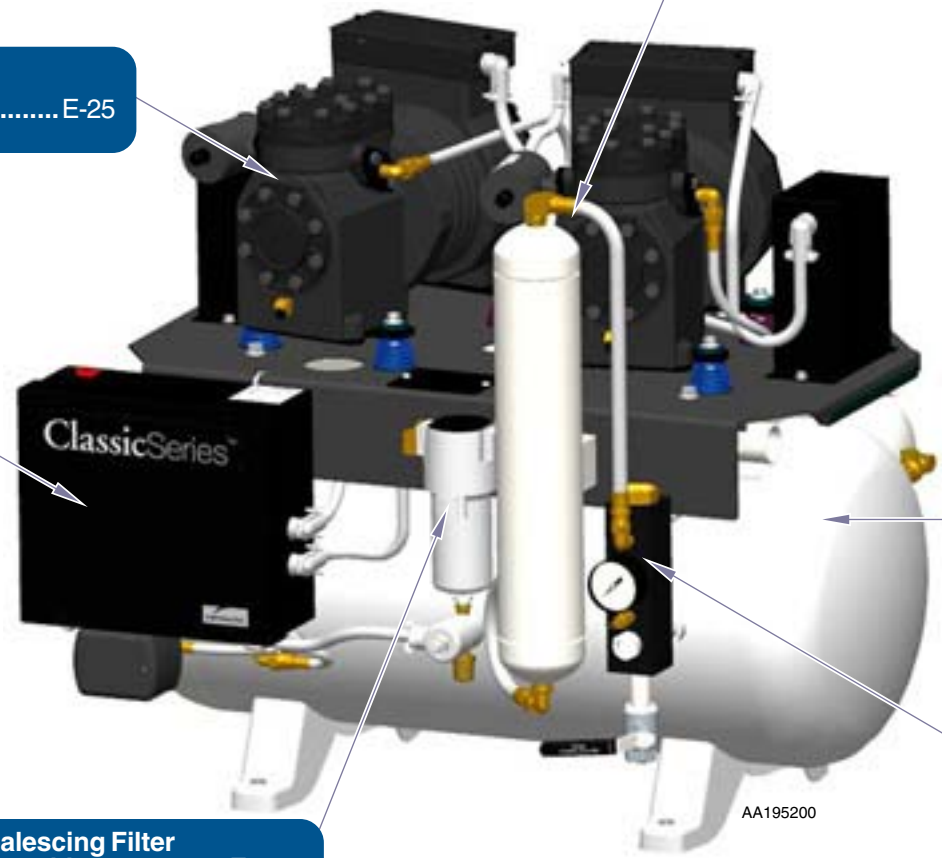
Compressor Heads E-25

Electrical Control Box E-15*

Tanks & Main Components E-12

Check Valve Manifold Assembly. .E-13

Coalescing Filter Assembly E-14



PowerAir®

P21

P22

P32

P52

P72

Label Locations E-26*

Sound Covers (Accessory)...E-27

Installation Kit
P21, P22, P32 E-7*
P52 E-9*
P72 E-10*

Compressor Heads
P21, P22, P32 E-23
P52, P72 E-24

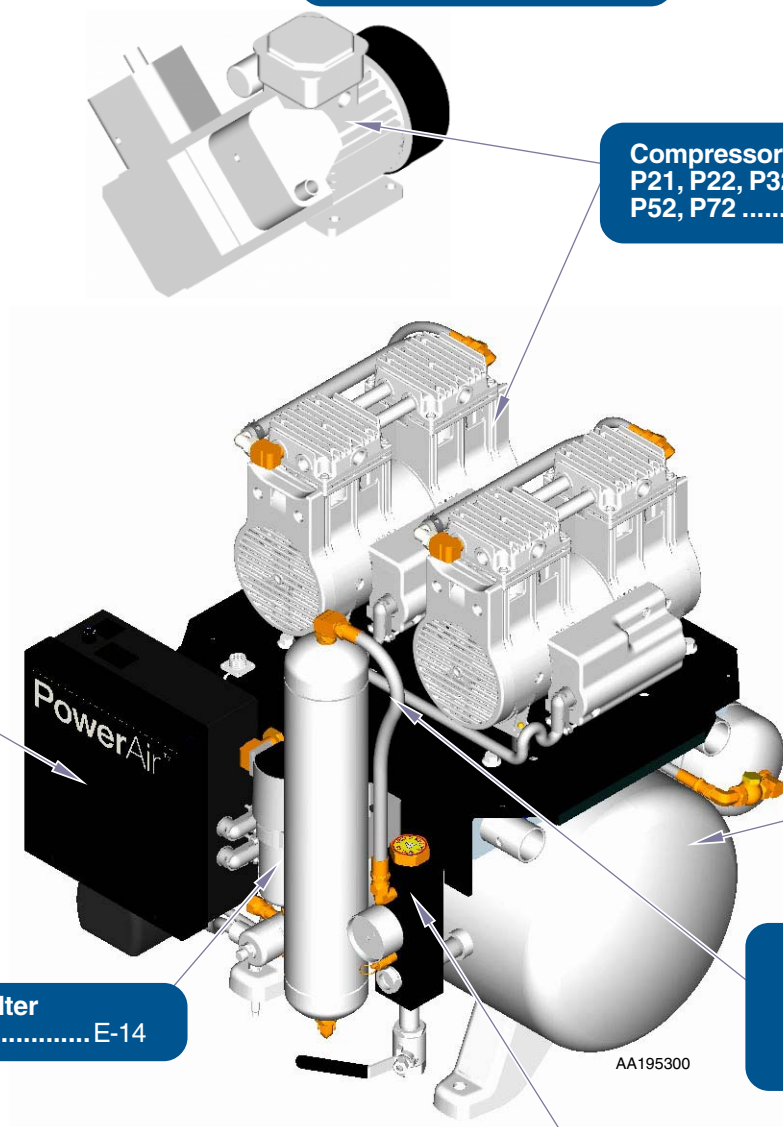
Electrical Control Box E-15*

Tanks & Main Components E-12

Coalescing Filter Assembly E-14

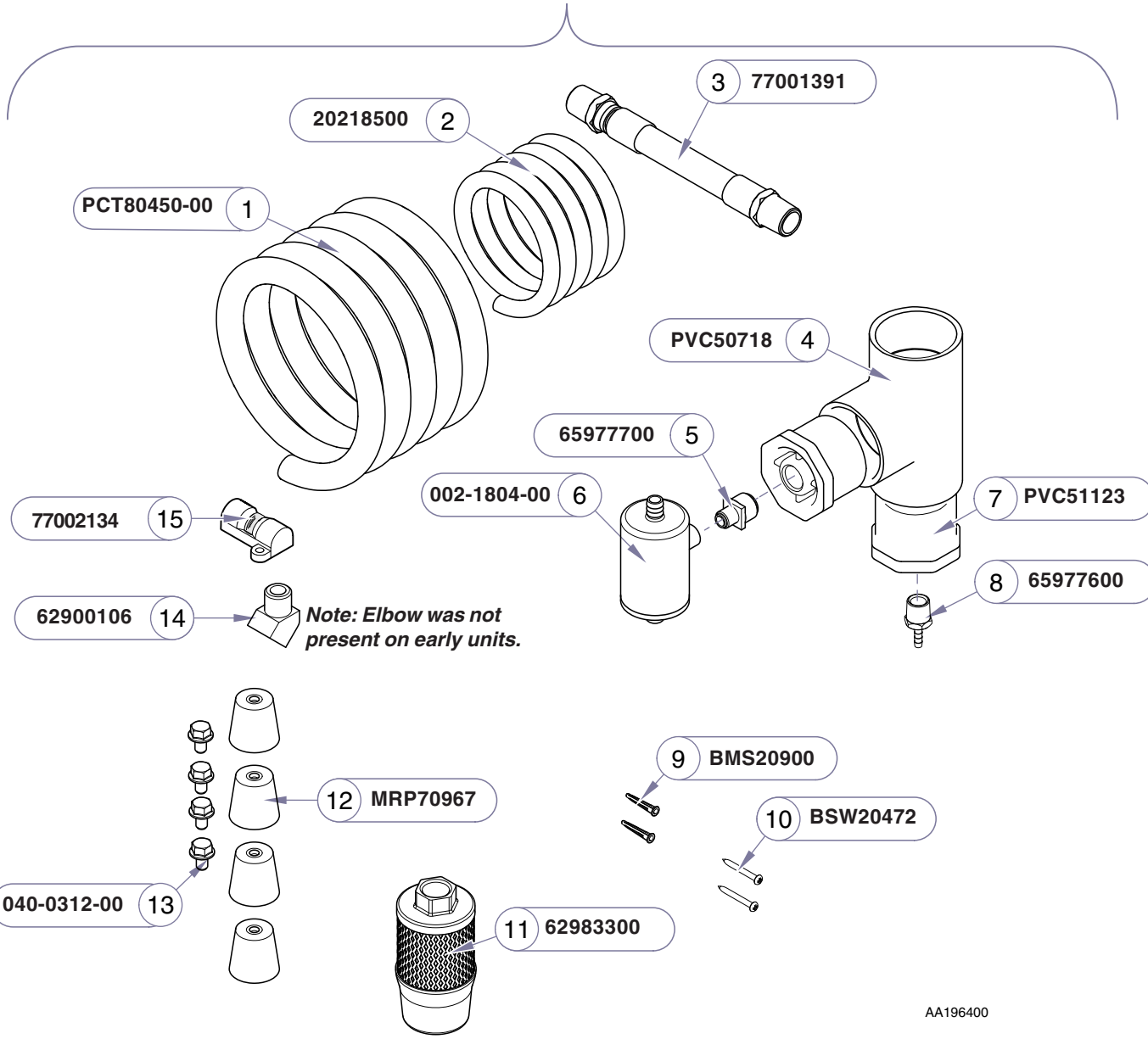
Pneumatic Tubes and Hoses
P21, P22 E-19
P32 E-20
P52 E-21
P72 E-22

Check Valve Manifold Assembly . E-13



* Indicates multiple pages due to a model / serial number break for the parts illustration

20199000



Note: Refer to Date listed below. Must use Kit # 20221000 for any Units built August of 2008 to Present.

Items # 4, 5, 7, 8, 9, and 10 are only available through Midmark for compressors under warranty. If compressor is out of warranty these items are available at your local hardware store, if needed for service.

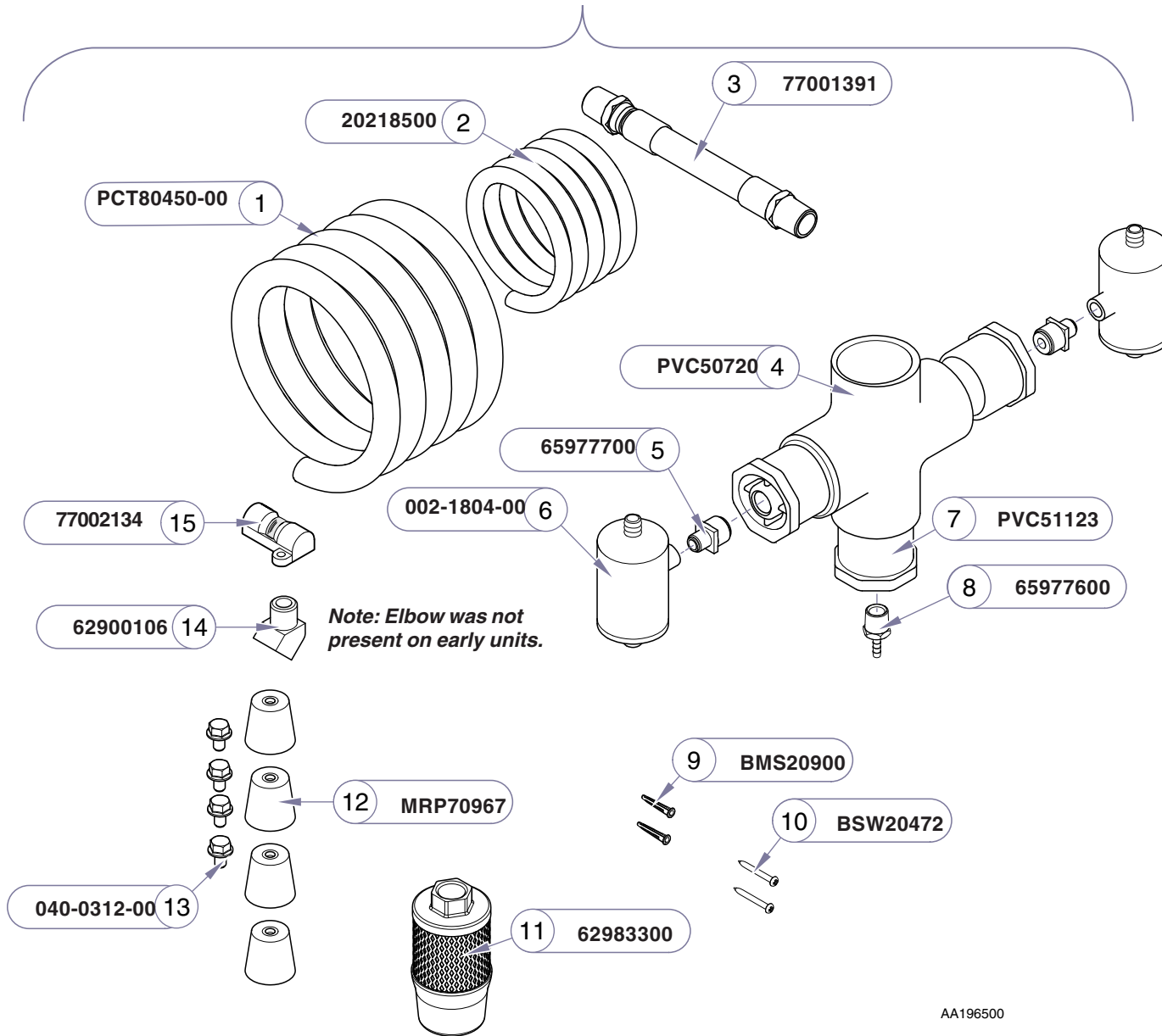
Note: Elbow was not present on early units.

Item	Description	Qty.
	20199000 Kit (includes items 1 - 18)	
1	• Fresh Air Intake Hose (1/2") (no fittings) (per in.).....	1
2	• Drain Hose (16' [sold by the inch])	AR
3	• Operatory High Pressure Hose Assy	1
4	• SL PVC Tee (2").....	1
5	• Nipple (1/2" MNPT x 1/4" NPT)	1
6	• Filter Assembly Kit	1
7	• PVC Bushing (2" x 1/2").....	2
8	• Brass Hose, Barb (1/2" MPT x 1/4")	1
9	• Wall Anchor (3/16" x 1-1/4")	2
10	• Screw (#8 x 1 1/2")	2
11	• Exhaust Silencer	1
12	• Rubber Foot	4
13	• Bolt (5/16-18" x 1/2")	4
14	• Elbow (45 Deg Street (1/2" NPT)	1
15	• Indicator	1
	Not Shown - 62988004	
16	• Pipe Hanger (2")	1
17	• Oil	1

Always Specify Model & Serial Number

AA196400

20199100



Note: Refer to Date listed below. Must use Kit # 20221000 for any Units built after the listed.

Items # 4, 5, 7, 8, 9, and 10 are only available through Midmark for compressors under warranty. If compressor is out of warranty these items are available at your local hardware store, if needed for service.

Item	Description	Qty.
	20199100 Kit (includes items 1 - 18)	
1	• Fresh Air Intake Hose (1/2") (no fittings) (per in.).....	1
2	• Drain Hose (16' [sold by the inch])	AR
3	• Operatory High Pressure Hose Assy	1
4	• SL PVC Cross (2")	1
5	• Nipple (1/2" MNPT x 1/4" NPT)	2
6	• Filter Assembly Kit	2
7	• PVC Bushing (2" x 1/2")	3
8	• Brass Hose, Barb (1/2' MPT x 1/4")	1
9	• Wall Anchor (3/16" x 1-1/4")	2
10	• Screw (#8 x 1 1/2")	2
11	• Exhaust Silencer	1
12	• Rubber Foot	4
13	• Bolt (5/16-18" x 1/2")	4
14	• Elbow (45 Deg Street (1/2" NPT)	1
15	• Indicator with O-Rings	1
	Not Shown - 62988004	
16	• Pipe Hanger (2")	1
17	• Oil	1

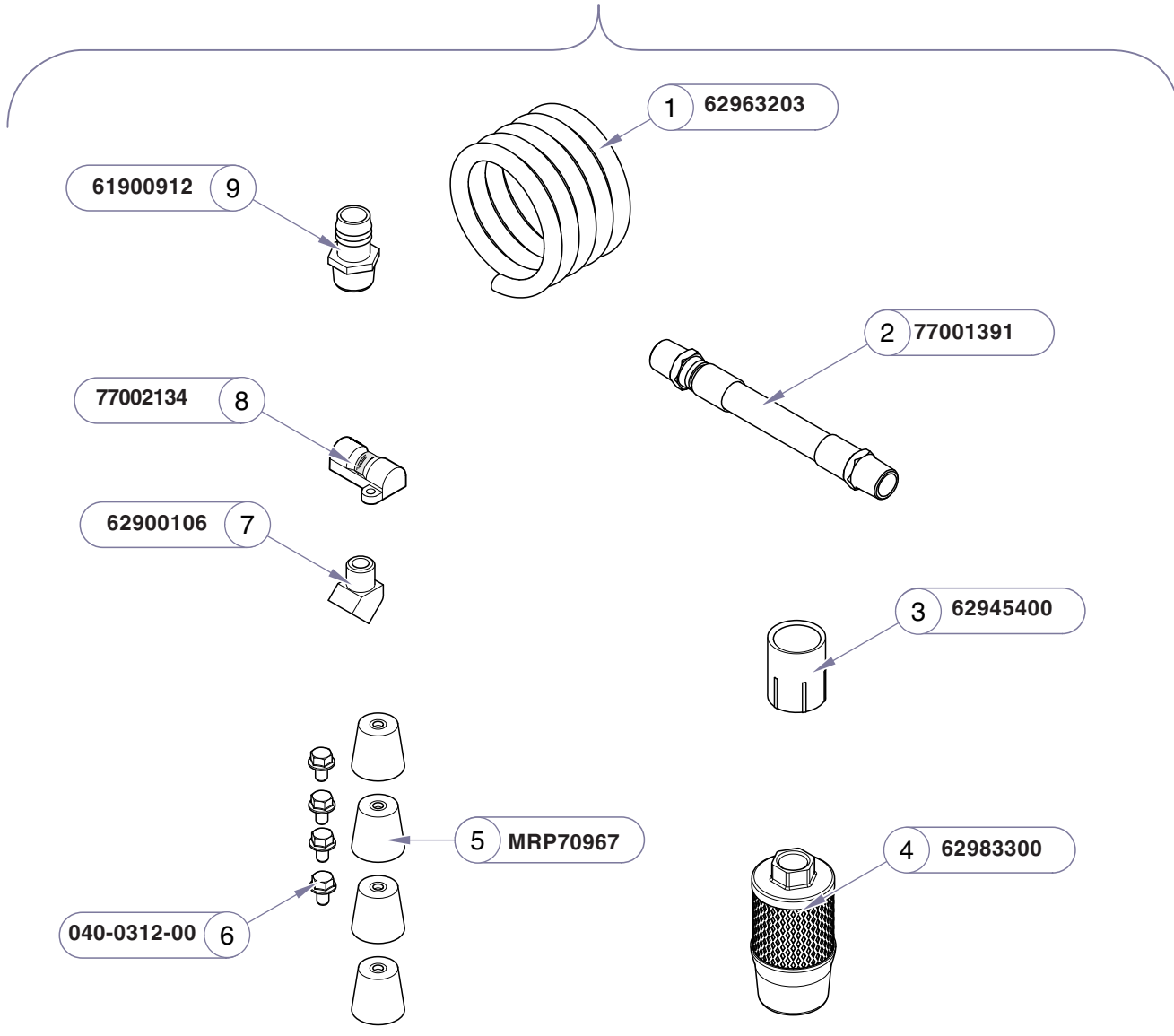
Always Specify Model & Serial Number

AA196500

Models: **CL52** | **CL32**
Serial Numbers: Up to July 2008 | Up to July 2008

Installation Kit

20221000

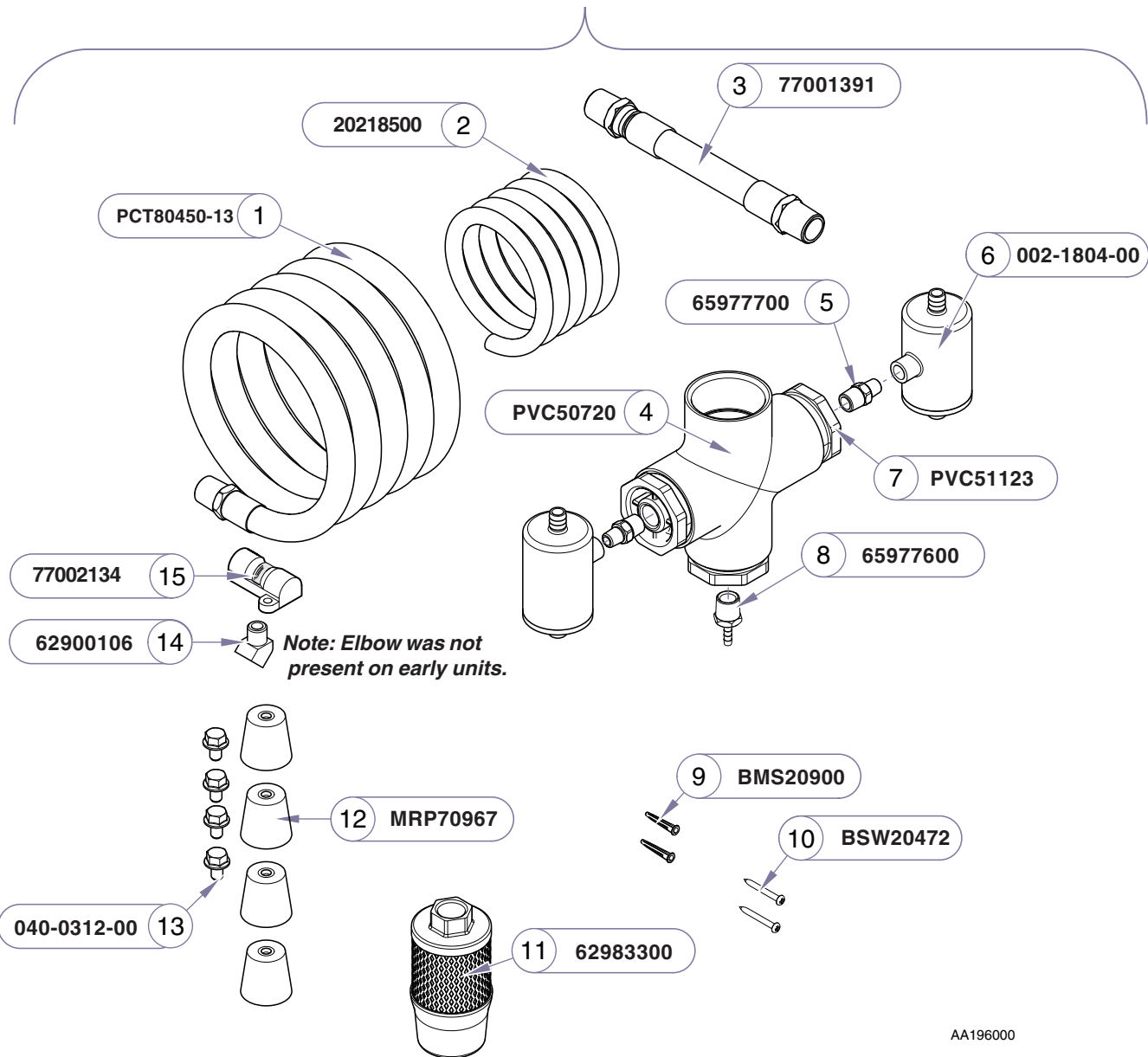


AA223100

Item	Description	Qty.
	20221000 Kit (includes items 1 - 10)	
1	• Hose x (1") MPT, Conn (3/4")	1
2	• Operator High Pressure Hose Assy	1
3	• Adapter, Female (1" ID x 1" NPT)	1
4	• Exhaust Silencer	1
5	• Rubber Foot	4
6	• Bolt (5/16-18" x 1/2")	4
7	• Elbow 45 Deg Street (1/2" NPT)	1
8	• Indicator with O-Rings	1
9	• Conn, (3/4" Hose x 1" MPT)	1
	Not Shown - 77000955	
10	• Oil	1

Always Specify Model & Serial Number

20199600



Note: Refer to Date listed below. Must use Kit # 20220900 for any Units built August of 2008 to Present.

Items # 4, 5, 7, 8, 9, and 10 are only available through Midmark for compressors under warranty. If compressor is out of warranty these items are available at your local hardware store, if needed for service.

Item	Description	Qty.
20199600 Kit (includes items 1 - 17)		
1	• Fresh Air Intake Hose (1/2") (no fittings) .	1
2	• Drain Hose (16' [sold by the inch])	AR
3	• Operator High Pressure Hose Assy	1
4	• SL PVC Cross (2")	1
5	• Nipple (1/2" MNPT x 1/4" NPT)	2
6	• Filter Assembly Kit	2
7	• PVC Bushing (2" x 1/2")	3
8	• Brass Hose, Barb (1/2" MPT x 1/4")	1
9	• Wall Anchor (3/16" x 1-1/4")	2
10	• Screw (#8 x 1 1/2")	2
11	• Exhaust Silencer	1
12	• Rubber Foot	4
13	• Bolt (5/16-18" x 1/2")	4
14	• Elbow (45 Deg Street (1/2" NPT)	1
15	• Indicator with O-Rings	1
Not Shown - 62988004		
16	• Pipe Hanger (2")	1

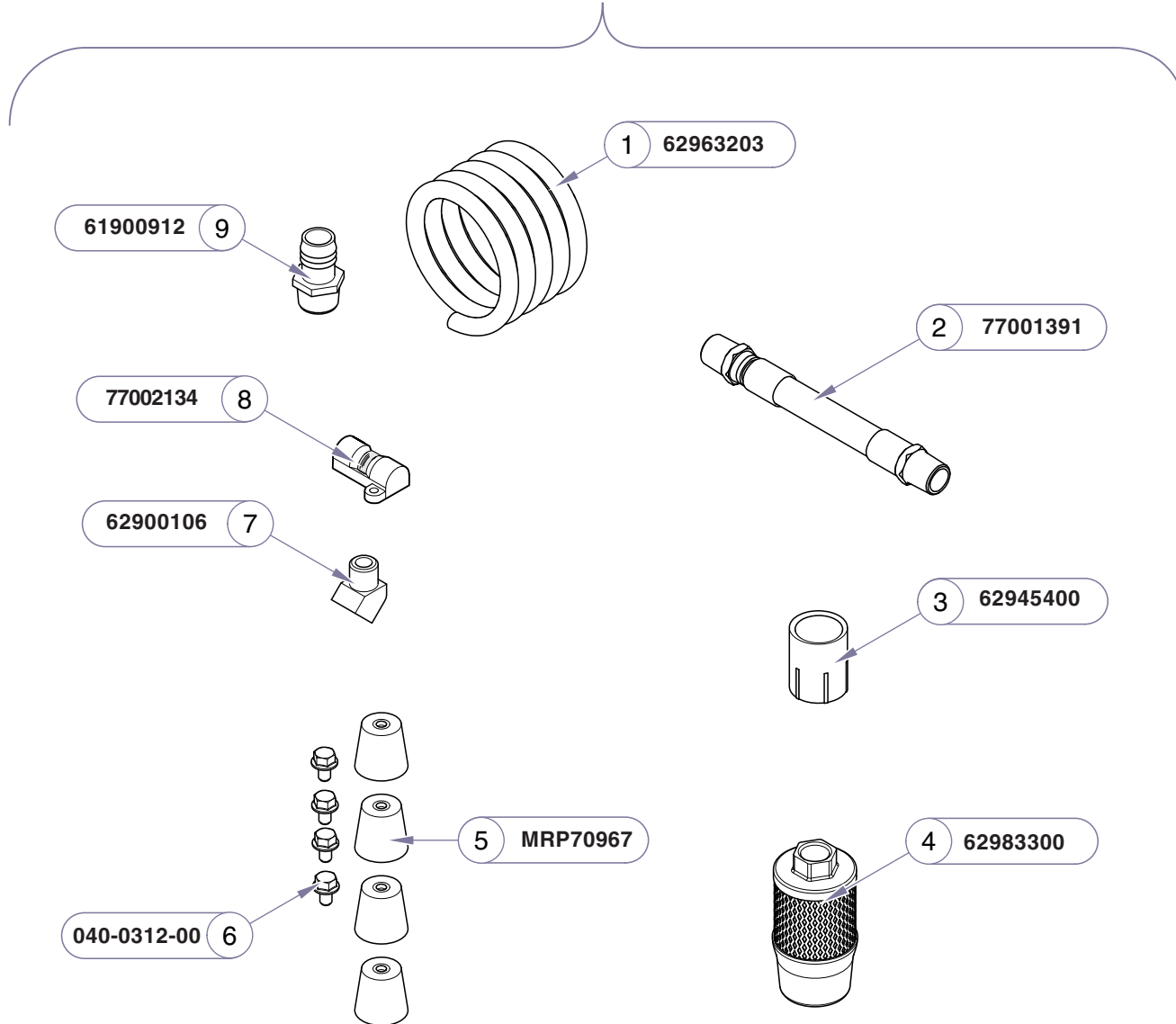
Always Specify Model & Serial Number

AA196000

Models:	P21	P22	P32
Serial Numbers:	Up to July 2008	Up to July 2008	Up to July 2008

Installation Kit

20220900

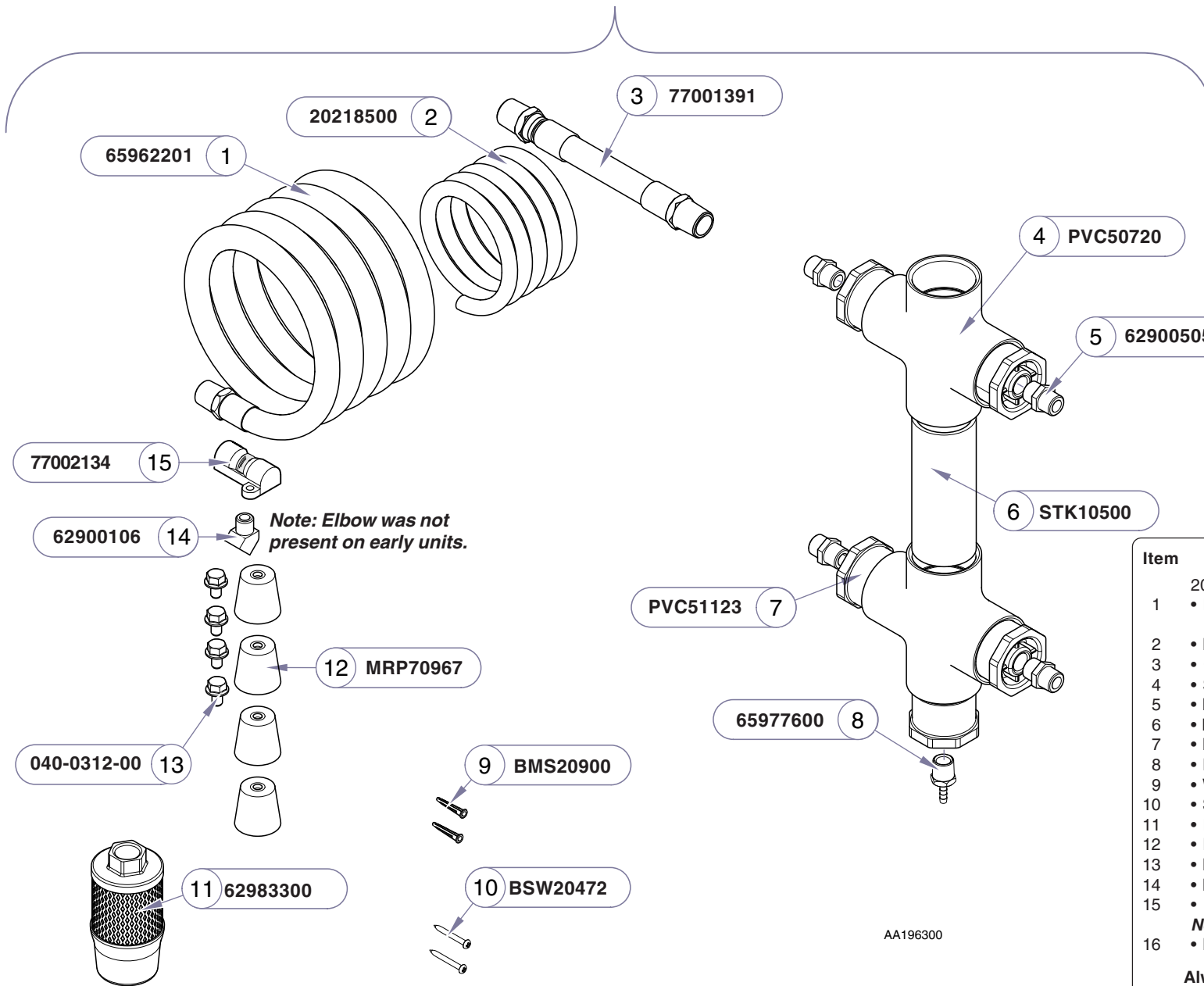


AA223200

Item	Description	Qty.
220220900 Kit (includes items 1 - 9)		
1	• Hose x (1") MPT, Conn (3/4")	1
2	• Operatory High Pressure Hose Assy	1
3	• Adapter, Female (1" ID x 1" NPT)	1
4	• Exhaust Silencer	1
5	• Rubber Foot	4
6	• Bolt (5/16-18" x 1/2")	4
7	• Elbow (45 Deg Street (1/2" NPT)	1
8	• Indicator with O-Rings	1
9	• Conn, (3/4" Hose x 1" MPT)	1

Always Specify Model & Serial Number

20199300



Note: Refer to Date listed below. Must use Kit # 20220800 for any Units built August of 2008 to Present.

Items # 4, 5, 7, 8, 9, and 10 are only available through Midmark for compressors under warranty. If compressor is out of warranty these items are available at your local hardware store, if needed for service.

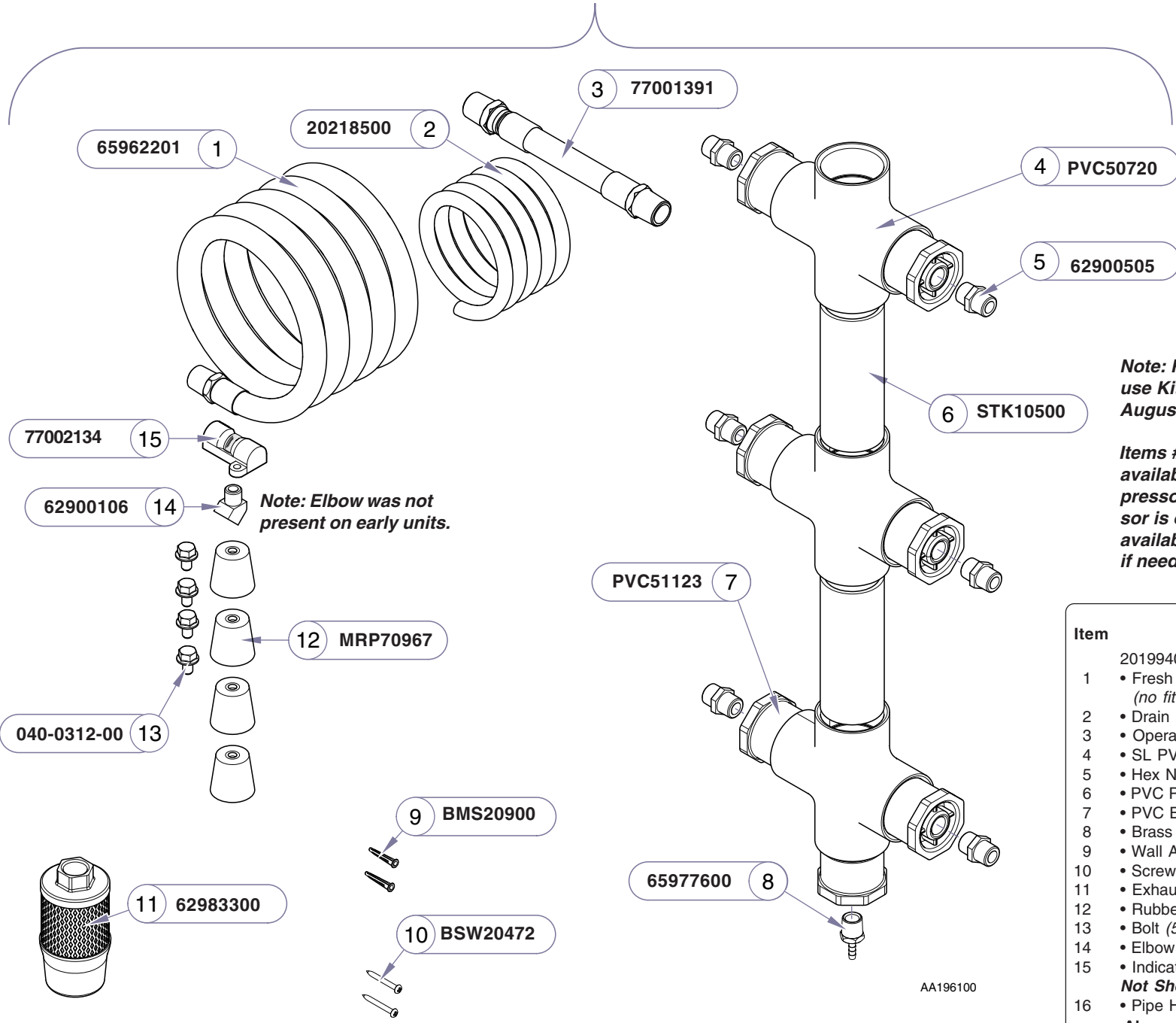
Item	Description	Qty.
	20199300 Kit (includes items 1 - 16)	
1	• Fresh Air Intake Hose (3/4" ID Corrugated) (no fittings)	1
2	• Drain Hose (16' [sold by the inch])	AR
3	• Operator High Pressure Hose Assy	1
4	• SL PVC Cross (2")	2
5	• Hex Nipple (1/2" NPT x 1/2" NPT)	4
6	• PVC Pipe (2", SCH 40, 6" L)	1
7	• PVC Bushing (2" x 1/2" X FPT)	5
8	• Brass Hose, Barb (1/2" MPT x 1/4")	1
9	• Wall Anchor (3/16" x 1-1/4")	2
10	• Screw (#8 x 1 1/2")	2
11	• Exhaust Silencer	1
12	• Rubber Foot	4
13	• Bolt (5/16-18" x 1/2")	4
14	• Elbow (45 Deg Street (1/2" NPT)	1
15	• Indicator with O-Rings	1
	Not Shown - 62988004	
16	• Pipe Hanger (2")	1

Always Specify Model & Serial Number

Models: P52
Serial Numbers: Up to July 2008

Installation Kit

20199400



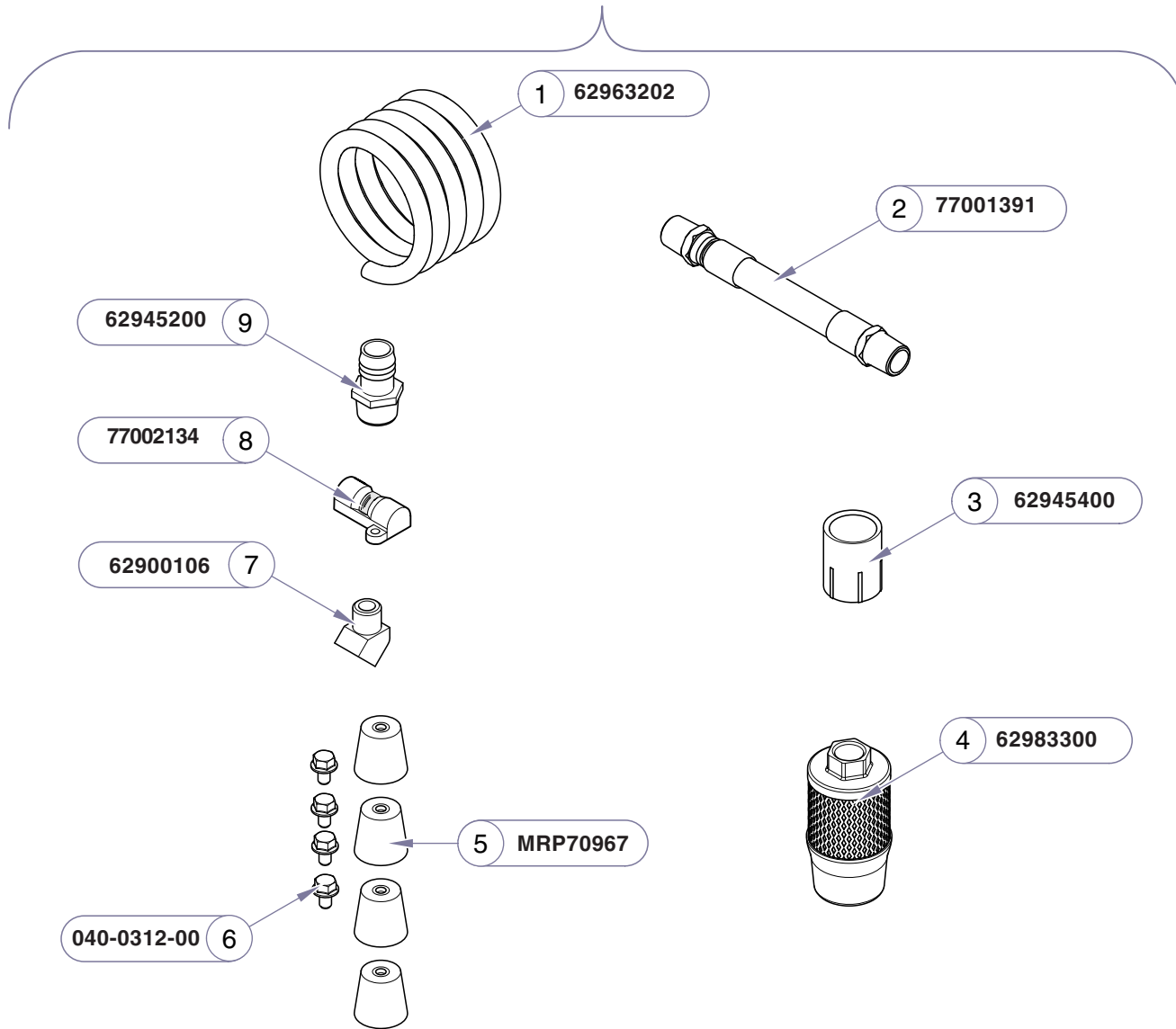
Note: Refer to Date listed below. Must use Kit # 20220800 for any Units built August of 2008 to Present.

Items # 4, 5, 7, 8, 9, and 10 are only available through Midmark for compressors under warranty. If compressor is out of warranty these items are available at your local hardware store, if needed for service.

Item	Description	Qty.
	20199400 Kit (includes items 1 - 16)	
1	• Fresh Air Intake Hose (3/4" ID Corrugated) (no fittings)	2
2	• Drain Hose (16' [sold by the inch])	AR
3	• Operator High Pressure Hose Assy	1
4	• SL PVC Cross (2")	3
5	• Hex Nipple (1/2" NPT x 1/2" NPT)	6
6	• PVC Pipe (2", SCH 40, 6" L)	2
7	• PVC Bushing (2" x 1/2" X FPT)	7
8	• Brass Hose, Barb (1/2" MPT x 1/4")	1
9	• Wall Anchor (3/16" x 1-1/4")	2
10	• Screw (#8 x 1 1/2")	2
11	• Exhaust Silencer	1
12	• Rubber Foot	4
13	• Bolt (5/16-18" x 1/2")	4
14	• Elbow (45 Deg Street (1/2" NPT)	1
15	• Indicator with O-Rings	1
	Not Shown - 62988004	
16	• Pipe Hanger (2")	1

Always Specify Model & Serial Number

20220800



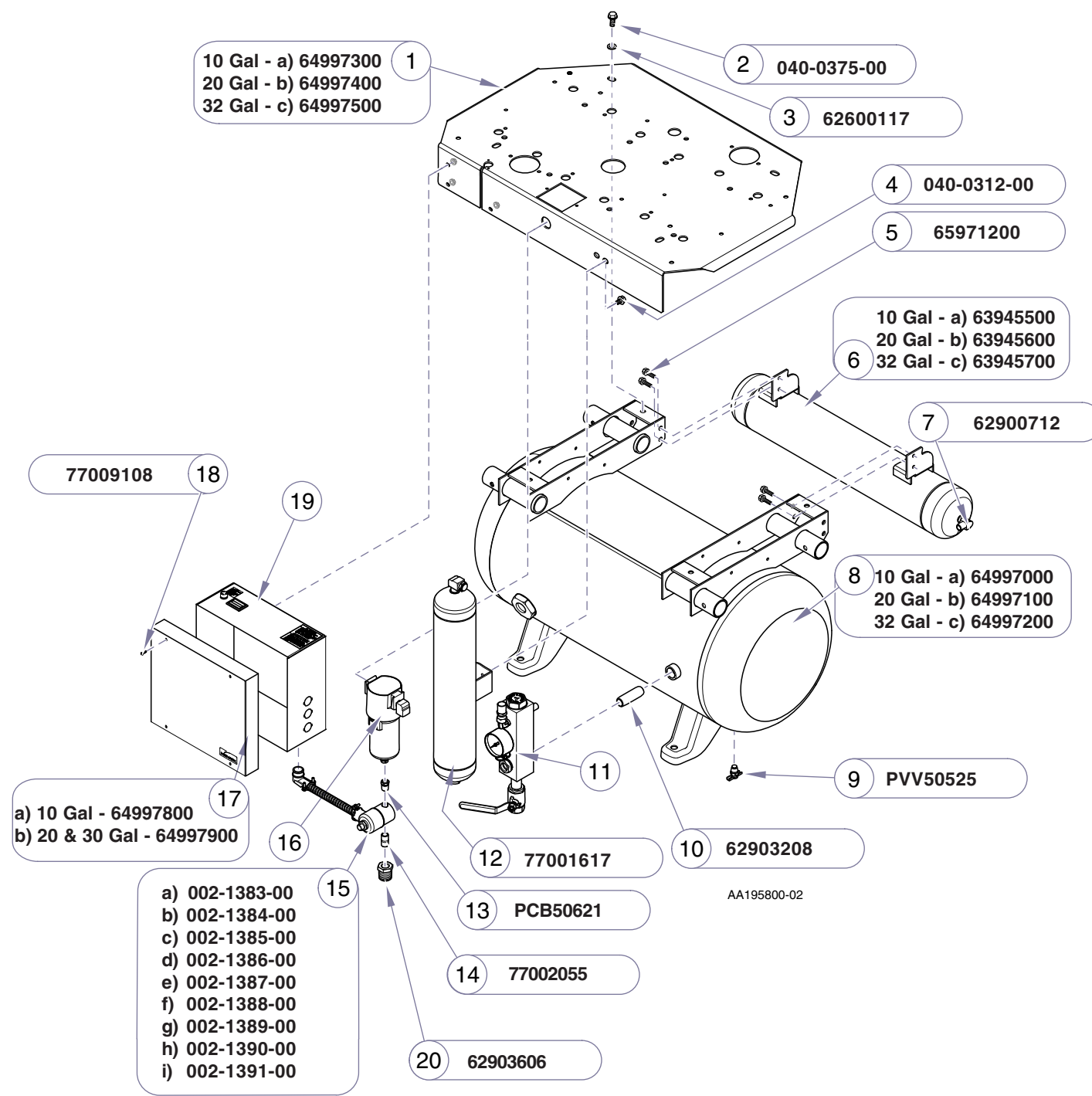
AA223300

Item	Description	Qty.
20220800 Kit (includes items 1 - 9)		
1	• Hose Flex, PVC (10')	1
2	• Operator High Pressure Hose Assy	1
3	• Adapter, Female (1" ID x 1" NPT)	1
4	• Exhaust Silencer	1
5	• Rubber Foot	4
6	• Bolt (5/16-18" x 1/2")	4
7	• Elbow (45 Deg Street (1/2" NPT)	1
8	• Indicator with O-Rings	1
9	• Adapter, Male (1"H x 1"NPT)	1

Always Specify Model & Serial Number

Models:
 Serial Numbers: | **P52** Built August 2008 thru Present | **P72** Built August 2008 thru Present

Installation Kit



Refer To: **Page**
 ClassicSeries® Specifications iv
 PowerAir® Specifications v
 Check Valve Manifold Assy E-13
 Coalescing Filter Assy E-14
 Electrical Control Box E-15*

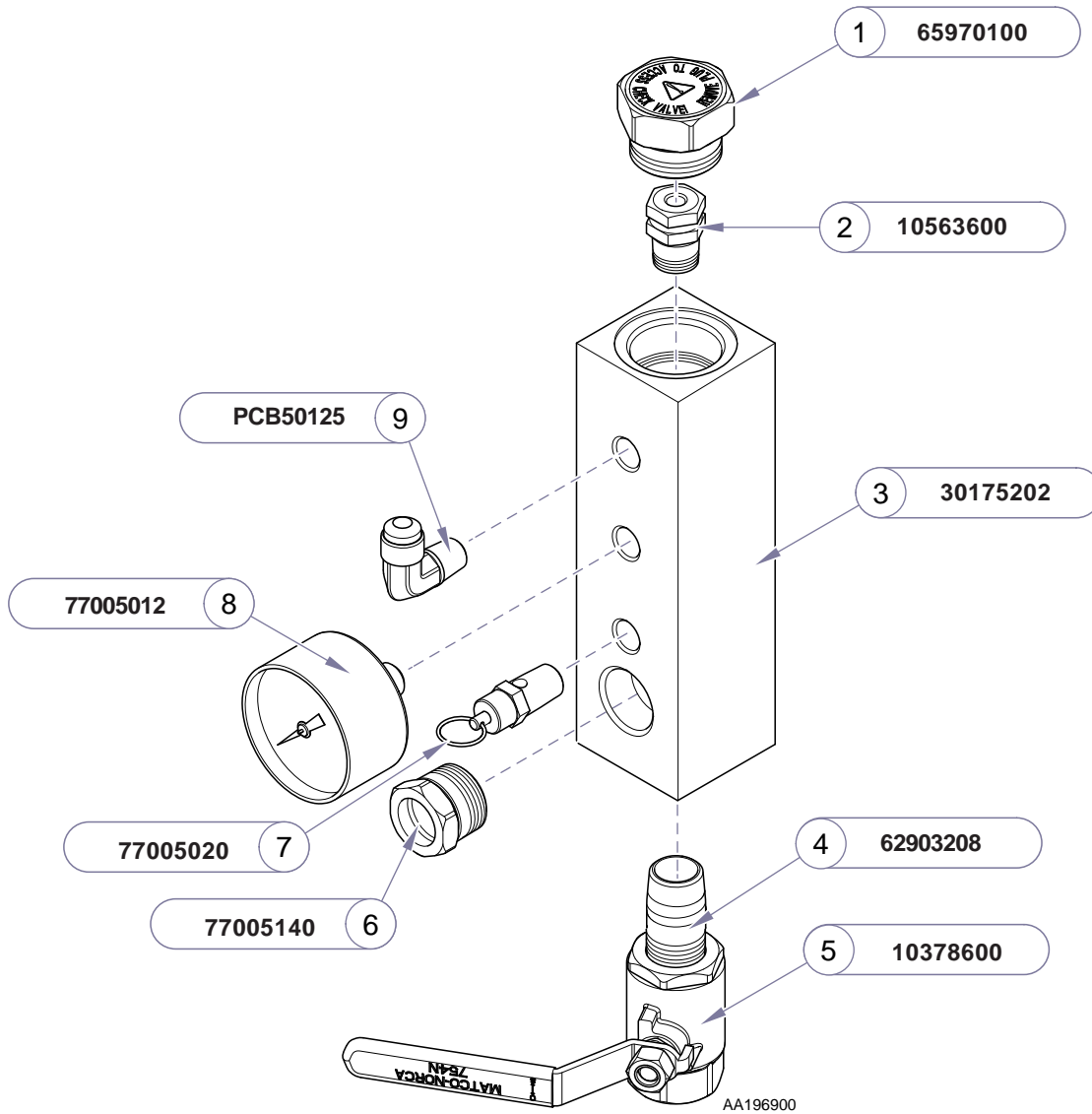
Note: Refer to Specification Charts for each Models Gallon and Voltage.

Item	Description	Qty.
1	Saddle	1
2	Hex Flange (3/8"-16 x 3/4")	4
3	Flat Washer (5/16")	4
4	Hex Flange (5/8"-16 x 1/2")	2
5	Hex Flange (5/8"-18 x 1/2")	4
6	Purge Tank	1
7	Street Elbow (1/4" Short)	1
8	Tank Assembly	1
9	Petcock	1
10	Nipple LG (1/2" NPT x 2 1/2" LG, SS Seal) .	1
11	Manifold Refer to "Check Valve Manifold"	
12	Desiccant Dryer Tank	1
13	Bushing (1/4" x 1/8")	1
14	Nipple, Close (1/4" NPT)	1
15	Solenoid Assembly (Listed by Model)	
	a) CL22	
	b) CL32	
	c) CL52	
	d) P22	
	e) P32	
	f) P52	
	g) P72	
	h) CL21	
	i) P21	
16	Coalescing Filter Refer to: " Filter Assy"	
17	Electrical Box Cover	1
18	Phillips Pan HD Screw (6-32 x 1/2")	4
19	Control Box Refer to: "Electrical Control Box"	
20	Bushing (RDC 1/2M X 1/4F SEAL)	1

Always Specify Model & Serial Number

Tank & Main Components

Models: All
Serial Numbers:

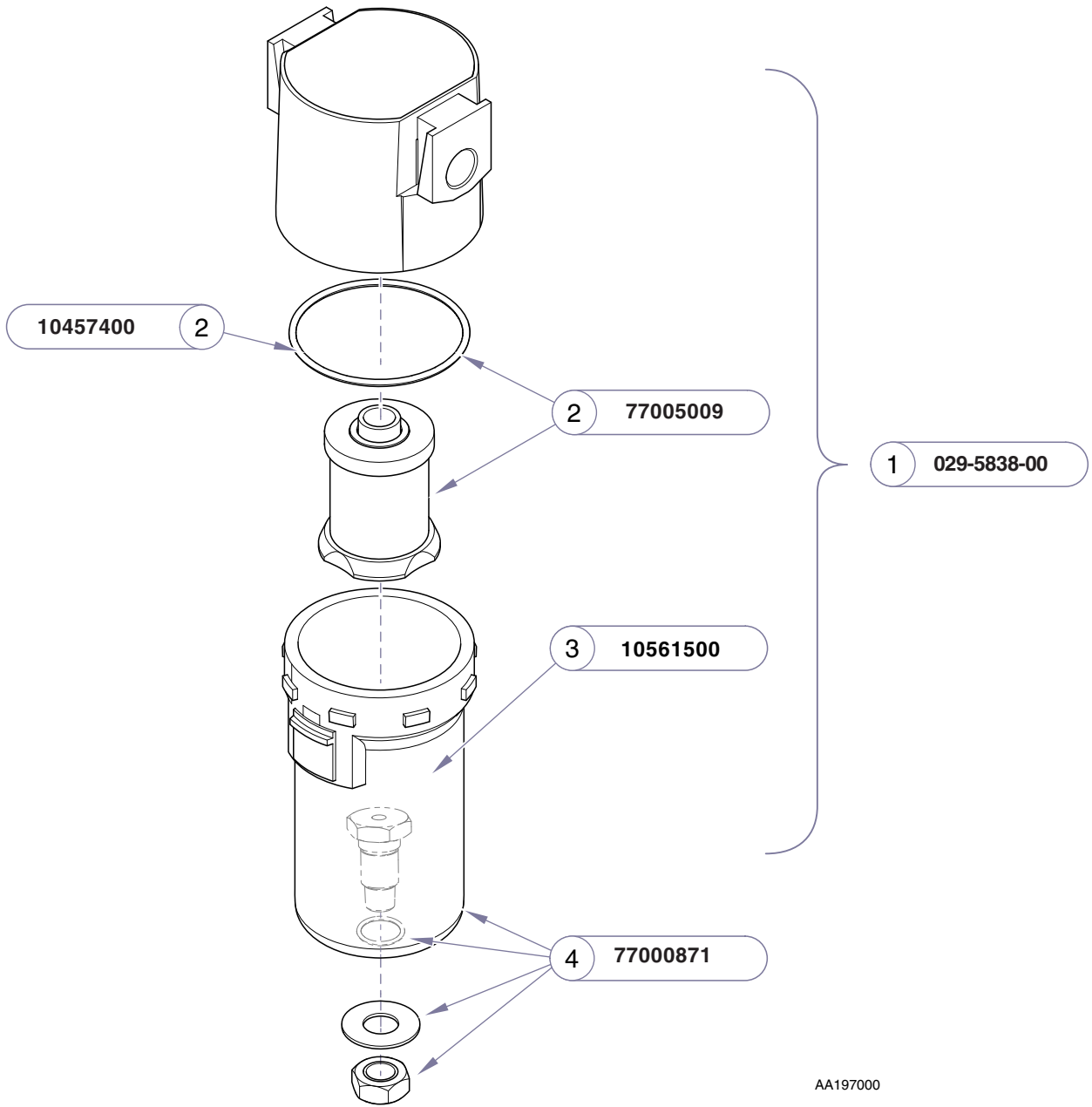


Item	Description	Qty.
1	Straight Thread Plug	1
2	Check Valve (Replacement kit)	1
3	Manifold Block	1
4	Nipple LG (1/2" NPT x 2 1/2" LG)	1
5	Ball Valve	1
6	Humidity Indicator	1
7	Air Safety Valve	1
8	Gauge, 0 - 160 psi	1
9	Elbow (5/8"-18 x 1/4" MPT)	1

Always Specify Model & Serial Number

Models: All
Serial Numbers:

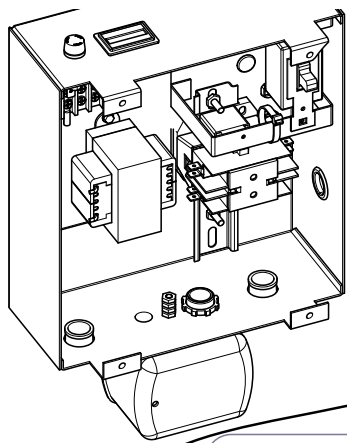
**Check Valve
 Manifold Assembly**



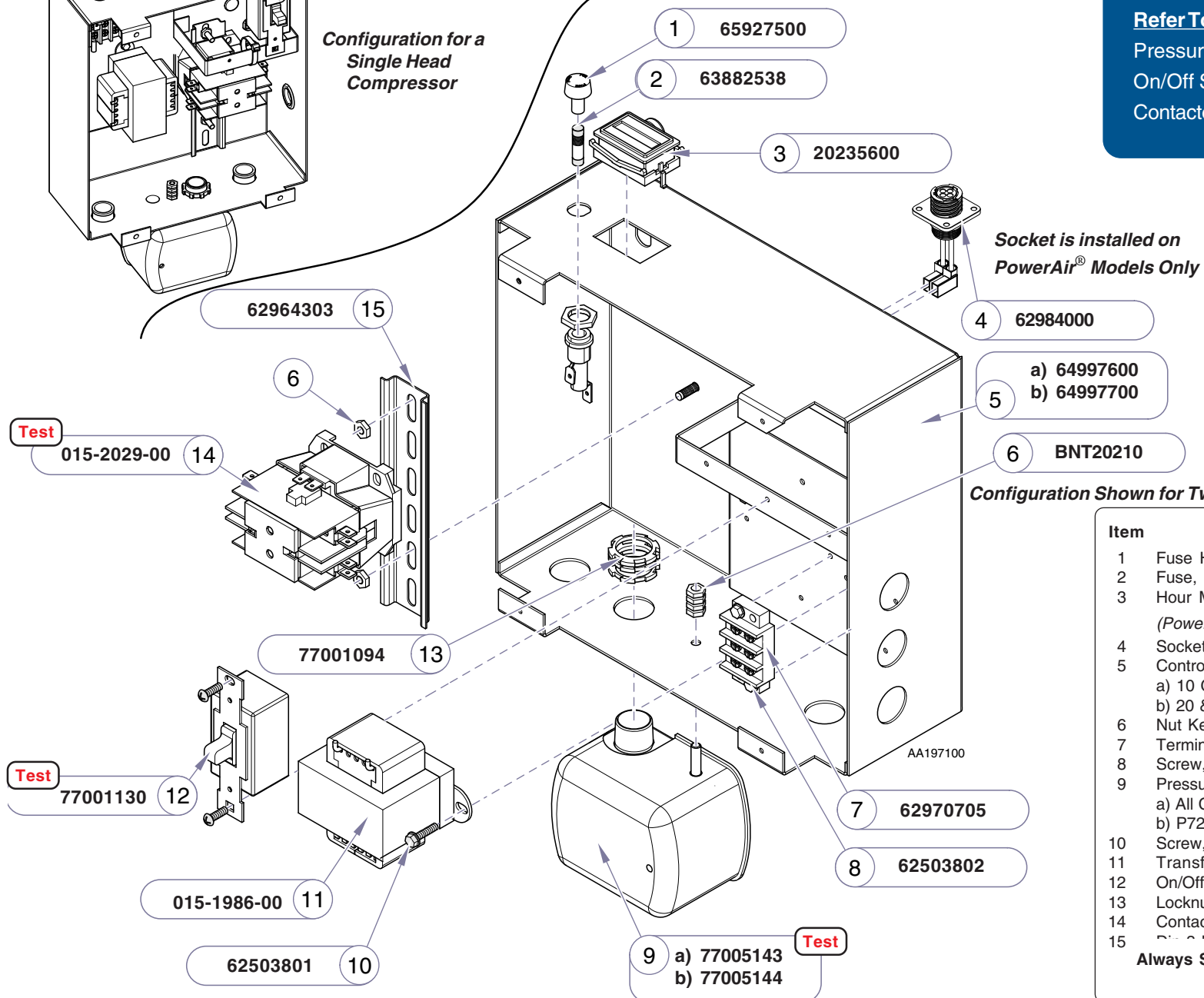
AA197000

Item	Description	Qty.
1	Coalescing Filter Replacement Kit • Includes Items 2 and 4	
2	Filter and O-ring Kit (77005009)	
	• Filter	1
	• O-Ring (By itself - 10457400)	1
3	Replacement Bowl	1
4	Replacement Fitting Kit	
	• Fitting, Filter Bowl	1
	• Hex Jam Nut (1/2"-20 x 5/16" High)	1
	• Washer, Flat (.515 ID x 1.125 OD x .5) ...	1
	• O-Ring (2-015) Viton (V884-75)	1

Always Specify Model & Serial Number



Configuration for a
Single Head
Compressor



Refer To:	Page
Pressure Switch Test	B-2
On/Off Switch Test	B-23
Contactor	Test B-16

Socket is installed on
PowerAir® Models Only

- 4 62984000
- 5 a) 64997600
b) 64997700
- 6 BNT20210

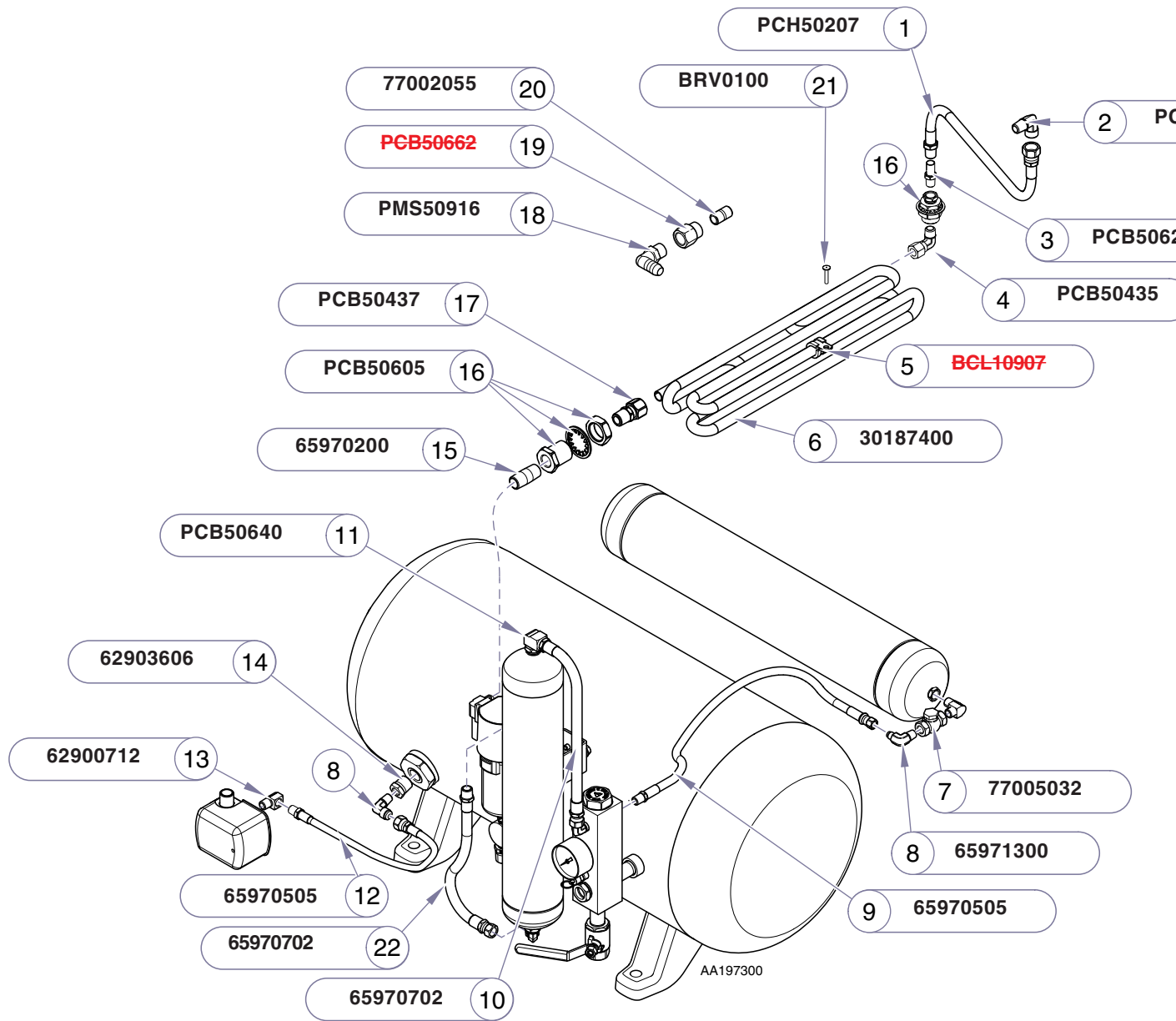
Configuration Shown for Twin and Triple Head Compressors

Item	Description	Qty.
1	Fuse Holder	1
2	Fuse, 1/3 amp	1
3	Hour Meter	1
	(PowerAir® only)	
4	Socket with Wire Harness	1
5	Control Box	
	a) 10 Gal. Tank Models	1
	b) 20 & 30 Gal. Tank Models	1
6	Nut Keps (10/32)	6
7	Terminal Block	1
8	Screw, Hex Head (#8 x 5/8")	2
9	Pressure Switch	
	a) All CL models & P21, P22, P32, P52	1
	b) P72	1
10	Screw, (#8-32 x 5/16")	2
11	Transformer	1
12	On/Off Switch	1
13	Locknut (1/2")	1
14	Contactor Relay	1
15	Pressure Switch (1/2")	1

Always Specify Model & Serial Number

Models:	CL21	CL22	CL32	CL52	All
Serial Numbers:	0902L210372 thru Present	0903L220296 thru Present	0901L320813 thru Present	0810L520126 thru Present	V785000 thru Present
Models:	P21	P22	P32	P52	P72
Serial Numbers:	0904P210365 thru Present	0904P221146 thru Present	0904P321145 thru Present	0904P520474 thru Present	0903P720191 thru Present

Electrical Control Box

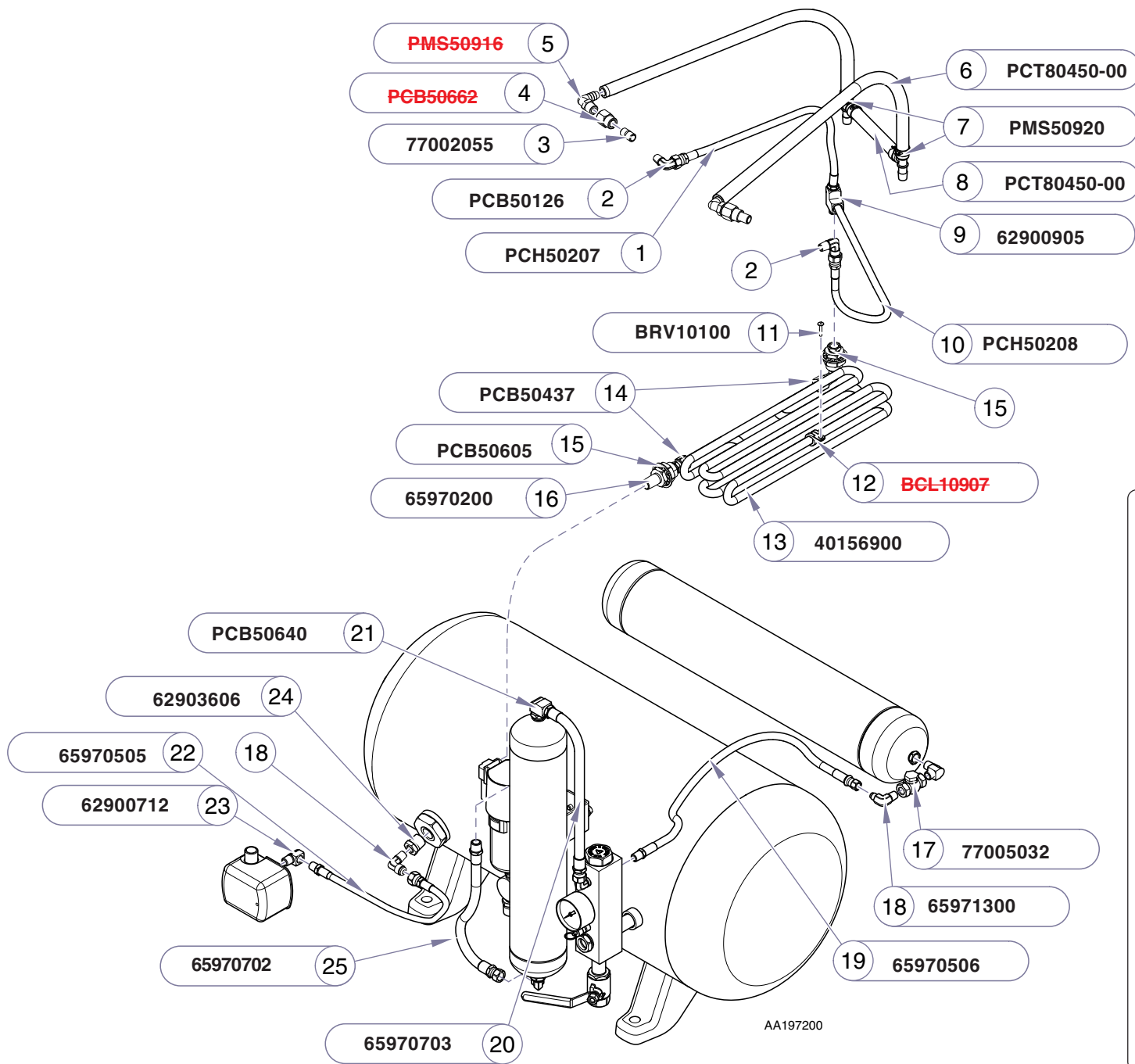


Item	Description	Qty.
1	Air Hose	1
2	Elbow (5/8"-18 x 3/8" MPT)	1
3	Bushing (3/8" x 1/4")	1
4	MPT EL (1/2" CA x 3/8")	1
5	Manifold Clamp	1
6	Pre-Cooler Tube	1
7	Purge Valve	1
8	Elbow (7/16"-20 x 1/4" MPT).....	2
9	Hose Assembly (1/4" NPT, 16" L)	2
10	Hose Assembly (3/8" NPT, 16" L)	1
11	Street Elbow (3/8")	1
12	Hose Assembly (1/4" NPT, 16"L)	1
13	Street Elbow (1/4" NPT with Sealant)	1
14	Bushing (1/2" MNPT x 1/4"FNPT, Seal)	1
15	Nipple (3/8" NPT x 1 1/2" Brass)	1
16	Anchor Bulkhead	2
17	MPT ST (1/2" CA x 3/8")	1
18	Elbow (1/2" Hose Con x 3/8" MPT)	1
19	Reducer (3/8" x 1/4")	1
20	Nipple Close (1/4" NPT)	1
21	Pop Rivet (.150 x .860)	1
22	Hose Assembly (3/8" NPT, 16" L)	1

Always Specify Model & Serial Number

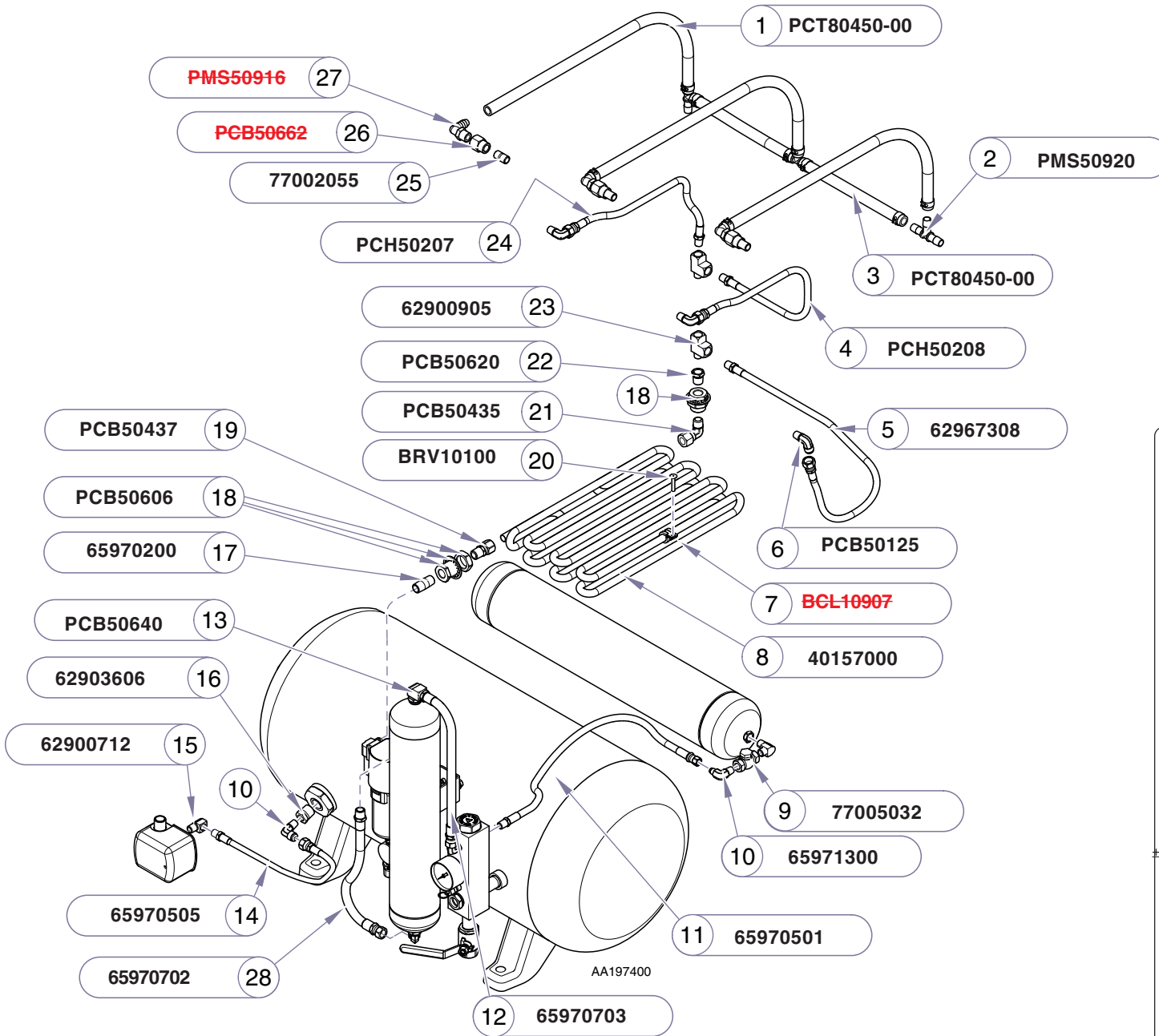
Models:	CL22	CL21	CL21
Serial Numbers:	0701L220001 thru Present	0701L210001 thru Present	V785000 thru Present

Pneumatic Tubes and Hoses



Item	Description	Qty.
1	Air Hose	1
2	Elbow (5/8"-18 x 1/4"MPT)	2
3	Nipple Close (1/4" NPT)	1
4	Reducer (3/8" x 1/4")	1
5	Elbow (1/2" x 3/8"MPT)	1
6	Clear Hose (1/2" Dia x 26" L)	1
7	Tee Hose Connector (1/2")	2
8	Clear Hose (1/2" Dia x 9 3/4" L)	1
9	Pipe Tee (1/4"M x 1/4"F x 1/4"F)	1
10	Air Hose	1
11	Pop Rivet (.150 x .860)	1
12	Manifold Clamp	1
13	Pre-Cooler Tube	1
14	MPT ST (1/2" CA x 3/8")	2
15	Anchor Bulkhead	2
16	Nipple (3/8" NPT x 1 1/2" Brass)	1
17	Purge Valve	1
18	Elbow (7/16"-20 x 1/4"MPT)	2
19	Hose Assembly (1/4"NPT, 21" L)	1
20	Hose Assembly (3/8" NPT, 21" L)	1
21	Street Elbow (3/8")	1
22	Hose Assembly (1/4" NPT, 16" L)	1
23	Street Elbow (1/4" NPT with Sealant)	1
24	RDC Bushing (1/2" x 1/4", Seal)	1
25	Hose Assembly (3/8" NPT, 16" L)	1

Always Specify Model & Serial Number

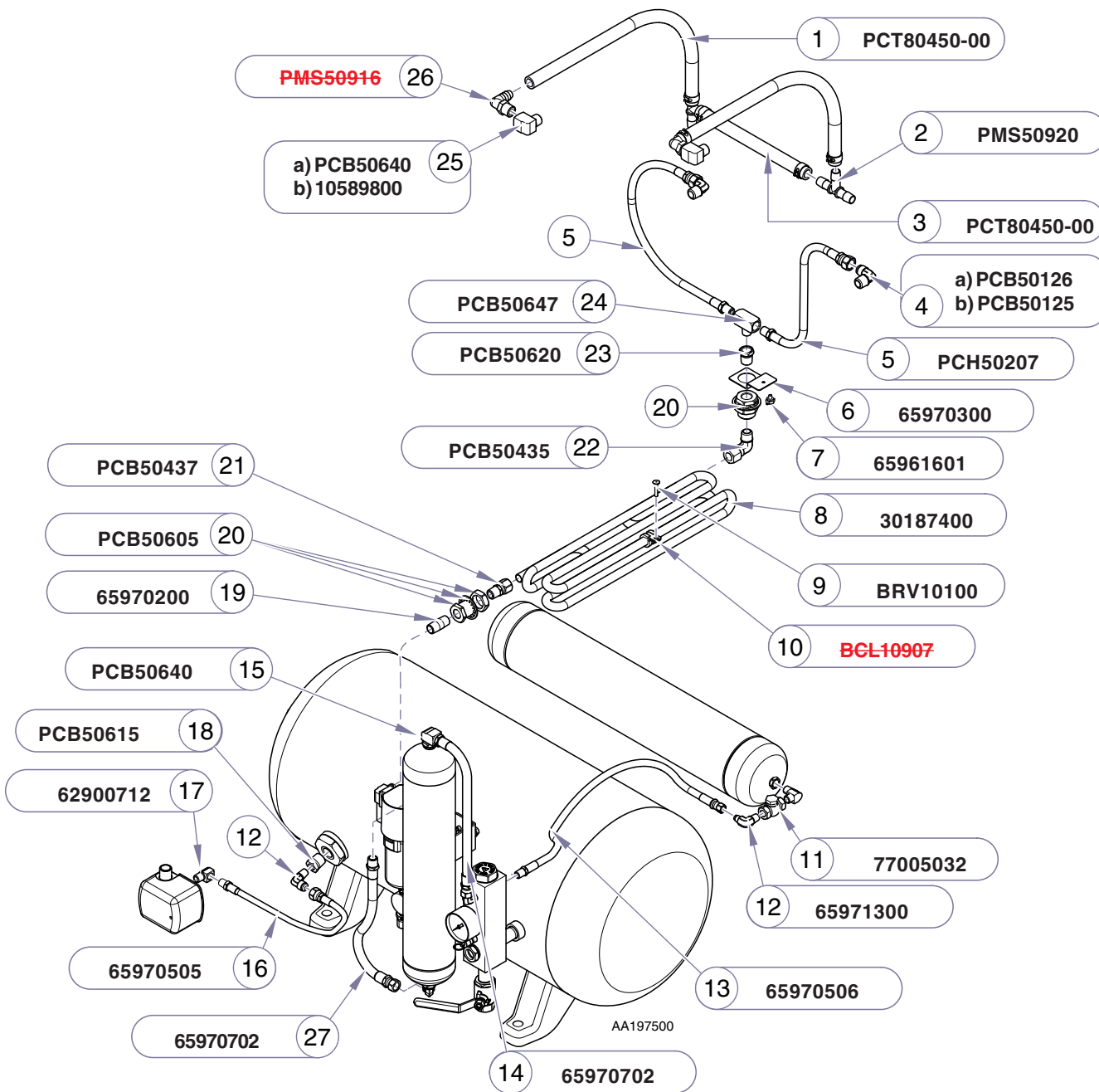


Item	Description	Qty.
1	Hose (1/2" x 26" L)	3
2	Hose Tee Connector (1/2")	3
3	Hose (1/2" x 9 3/4")	2
4	Air Hose	1
5	Hose Assembly (1/4" MNPT, 28" L)	1
6	Elbow (5/8"-18 x 1/4" MPT)	3
7	Manifold Clamp	1
8	Pre-Cooler	1
9	Purge Valve	1
10	Elbow (7/16"-20 x 1/4" MPT)	2
11	Hose (1/4" NPT, 5/16"-18 ST THD, 26" L)	1
12	Hose Assembly (3/8" MPT x 1 1/2" L)	1
13	Street Elbow (3/8")	1
14	Hose Assembly (1/4" NPT, 16" L)	1
15	Street Elbow (1/4" NPT with Sealant)	1
16	Bushing (1/2" MNPT x 1/4" FNPT with Seal) ..	1
17	Nipple (3/8" NPT x 1 1/2" Brass)	1
18	Anchor Bulkhead (1/4")	1
19	MPT ST (1/2" CA x 3/8")	1
20	Pop Rivet (.150 x .860)	1
21	MPT EL (1/2" CA x 3/8")	1
22	Bushing (3/8" x 1/4")	1
23	Pipe Tee (1/4" M x 1/4" F x 1/4" F)	2
24	Air Hose	1
25	Nipple Close (1/4" NPT)	3
26	Reducer (3/8" x 1/4")	3
27	Elbow (1/2" CON x 3/8" MPT)	3
28	Hose Assembly (3/8" NPT, 16" L)	1

Always Specify Model & Serial Number

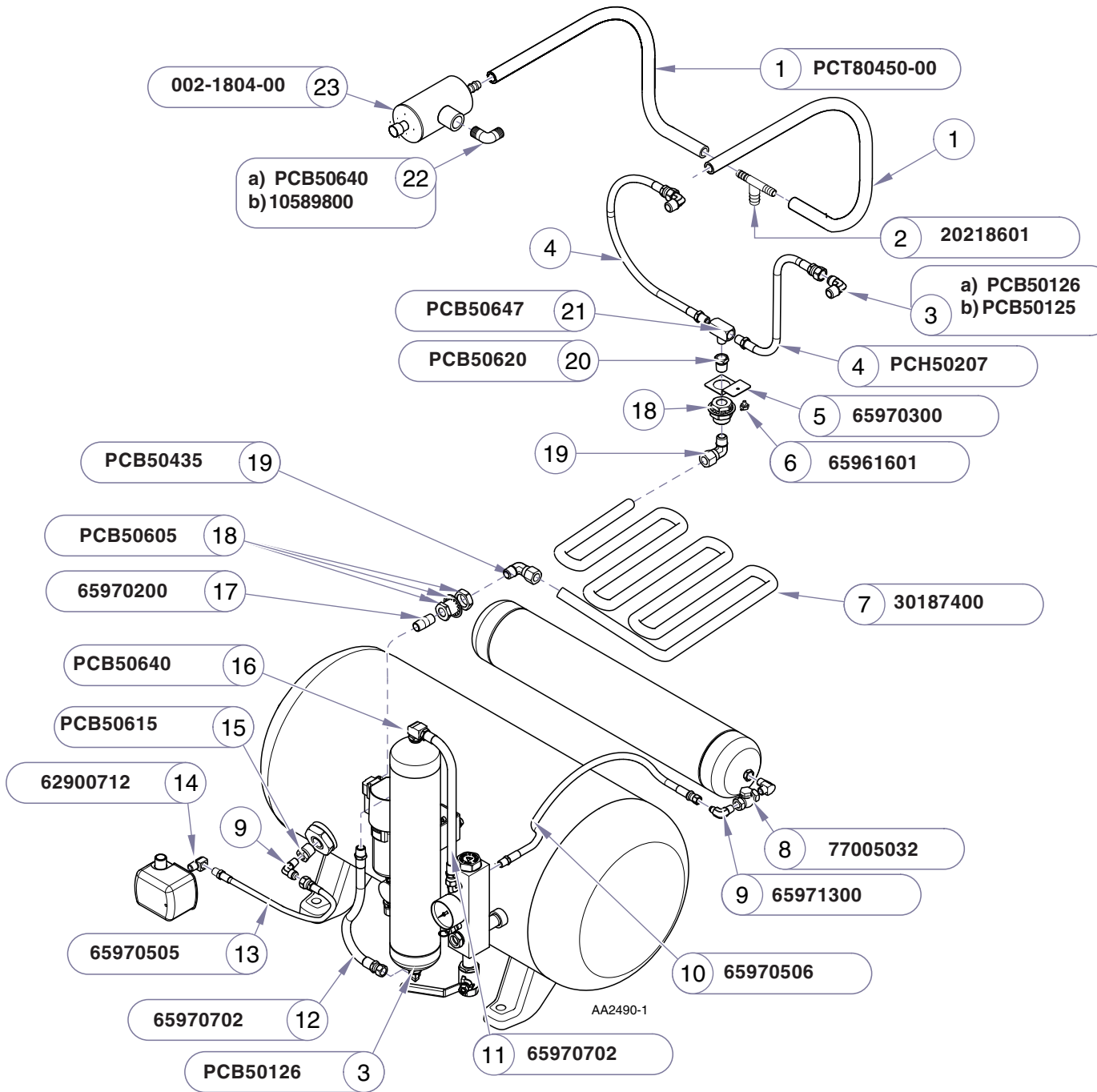
Models: **CL52** | **CL52**
Serial Numbers: 0701L520001 thru Present | V785000 thru Present

Pneumatic Tubes and Hoses



Item	Description	Qty.
1	Hose (1/2" x 26" L)	2
2	Hose Connector (1/2")	2
3	Hose (1/2" x 9 3/4" L)	1
4	Elbow	
	a) (Thomas Heads) (5/8"-18 x 3/8"MPT)	1
	b) (Gast Heads) (5/8"-18 x 1/4"MPT)	1
5	Air Hose	2
6	Thermal Switch Bracket	1
7	Thermal Switch	1
8	Pre-Cooler	1
9	Pop Rivet (.150 x .860)	1
10	Manifold Clamp	1
11	Purge Valve	1
12	Elbow (7/16"-20 x 1/4" MPT)	2
13	Hose Assembly (1/4" NPT, 21"L)	1
14	Hose Assembly (3/8" NPT, 16"L)	1
15	Street elbow (3/8")	1
16	Hose Assembly (1/4"NPT, 16"L)	1
17	Street Elbow (1/4" NPT with Sealant)	1
18	Bushing (1/2"MNPT x 1/4"FNPT with Seal)	1
19	Nipple (3/8" NPT x 1 1/2" Brass)	1
20	Anchor Bulkhead (1/4")	1
21	MPT ST (1/2" CA x 3/8")	1
22	MPT EL (1/2" CA x 3/8")	1
23	Bushing (3/8" x 1/4")	1
24	Tee Run (1/4")	1
25	Street EL	
	(Thomas Heads) (3/8")	1
	(Gast Heads) (1/4")	1
26	Elbow (1/2"CON x 3/8" MPT)	2
27	Hose Assembly (3/8" NPT, 16" L)	1

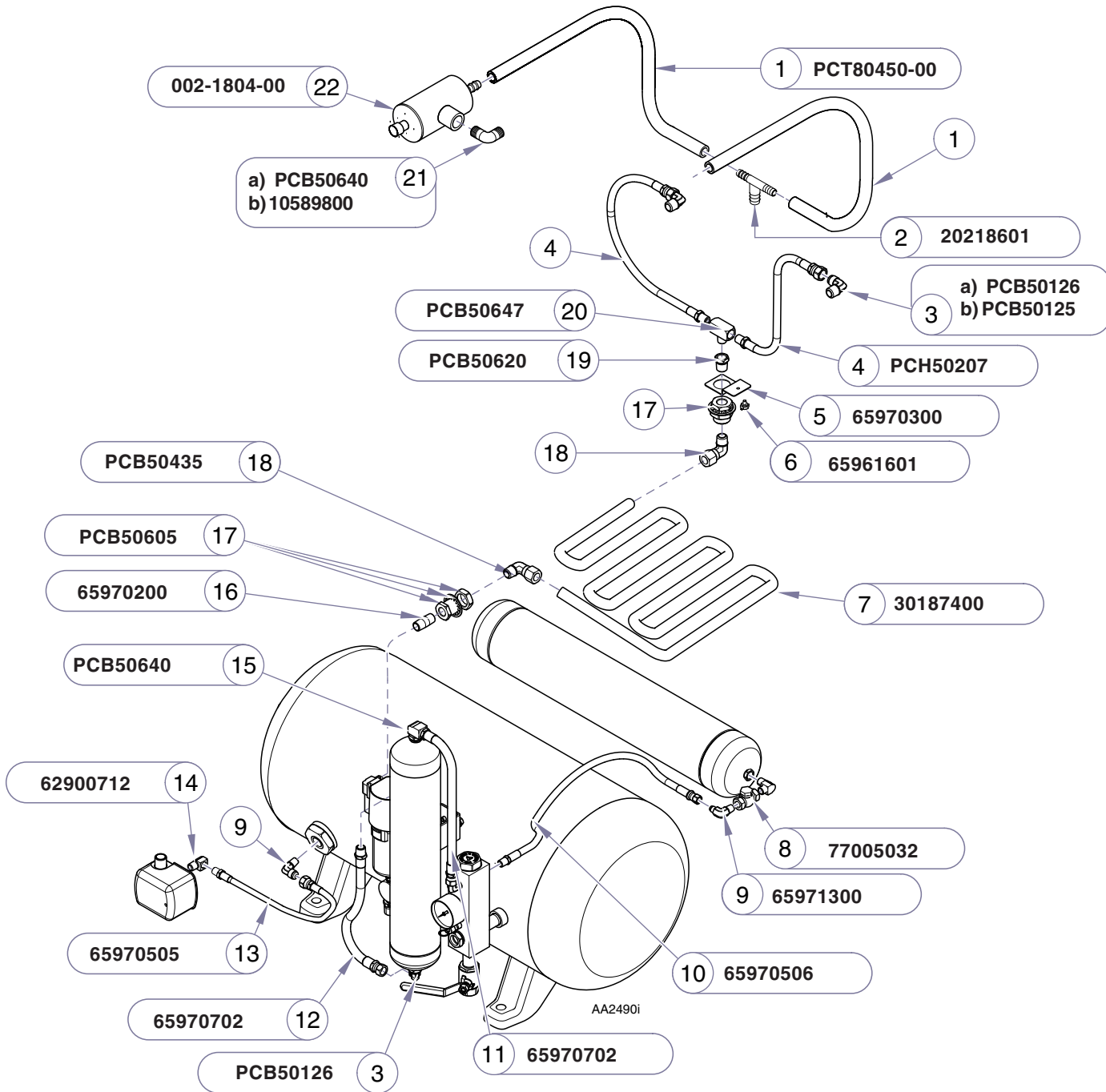
Always Specify Model & Serial Number



Item	Description	Qty.
1	Hose (1/2" x 26" L)	2
2	Hose Connector (1/2"x1/2"x3/4")	1
3	Elbow	
	a) (Thomas Heads) (5/8"-18 x 3/8"MPT) ...	3
	b) (Gast Heads) (5/8"-18 x 1/4"MPT)	3
4	Air Hose	2
5	Thermal Switch Bracket	1
6	Thermal Switch	1
7	Pre-Cooler	1
8	Purge Valve	1
9	Elbow (7/16"-20 x 1/4" MPT)	2
10	Hose Assembly (1/4" NPT, 21"L)	1
11	Hose Assembly (3/8" NPT, 16"L)	1
12	Hose Assembly (3/8" NPT, 16" L)	1
13	Hose Assembly (1/4"NPT, 16"L)	1
14	Street Elbow (1/4" NPT with Sealant)	1
15	Bushing (1/2"MNPT x 1/4"FNPT with Seal)	1
16	Street elbow (3/8")	1
17	Nipple (3/8" NPT x 1 1/2" Brass)	1
18	Anchor Bulkhead (1/4")	2
19	MPT EL (1/2" CA x 3/8")	2
20	Bushing (3/8" x 1/4")	1
21	Tee Run (1/4")	1
22	Street EL	
	(Thomas Heads) (3/8")	2
	(Gast Heads) (1/4")	2
23	Filter assembly	2

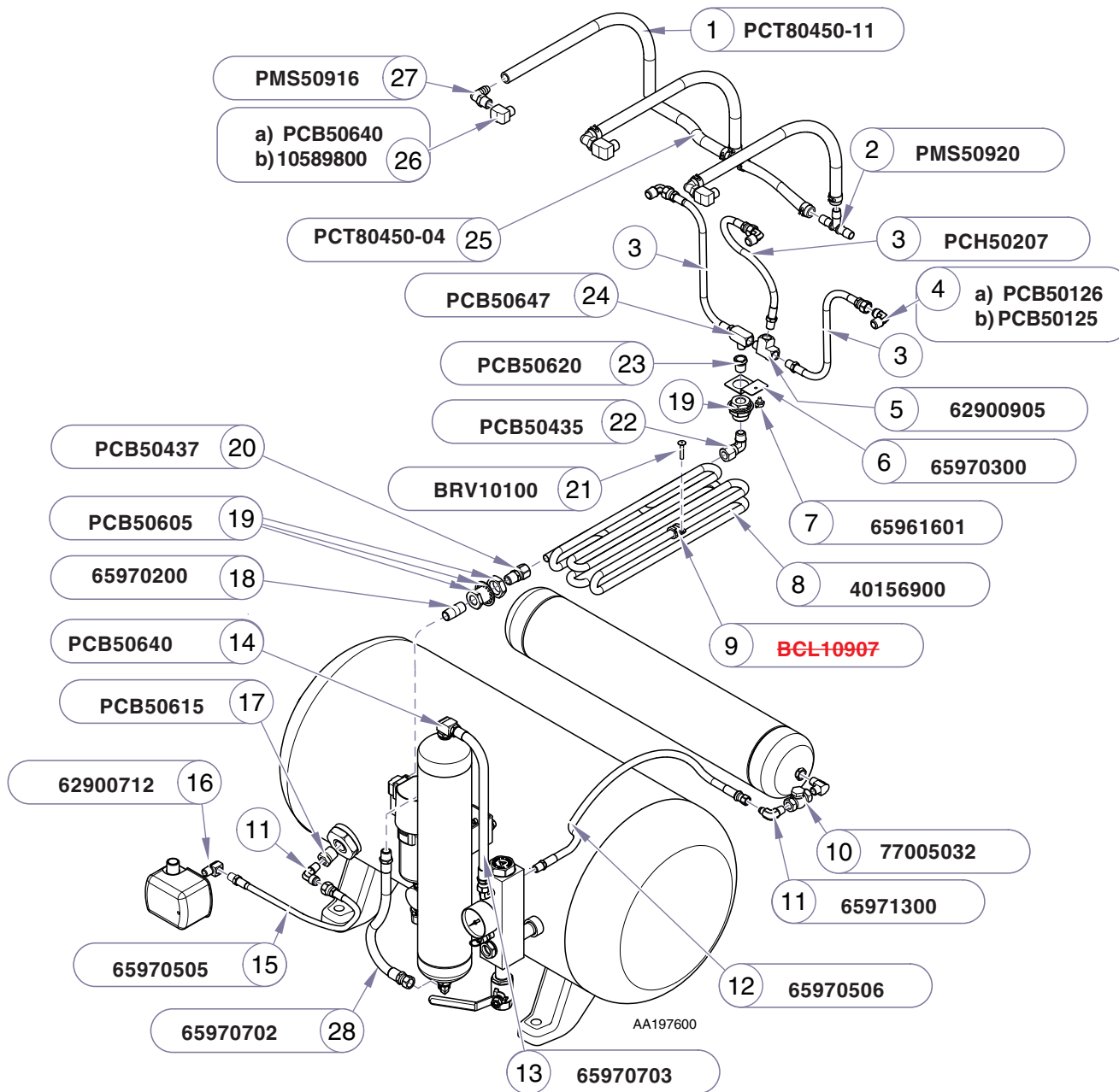
Always Specify Model & Serial Number

Models:	P21	P22
Serial Numbers:	Aug 2008 thru V1700964	Aug 2008 thru V1701031



Item	Description	Qty.
1	Hose (1/2" x 26" L)	2
2	Hose Connector (1/2"x1/2"x3/4")	1
3	Elbow	
a)	(Thomas Heads) (5/8"-18 x 3/8"MPT)	3
b)	(Gast Heads) (5/8"-18 x 1/4"MPT)	3
4	Air Hose	2
5	Thermal Switch Bracket	1
6	Thermal Switch	1
7	Pre-Cooler	1
8	Purge Valve	1
9	Elbow (7/16"-20 x 1/4" MPT)	2
10	Hose Assembly (1/4" NPT, 21"L)	1
11	Hose Assembly (3/8" NPT, 16"L)	1
12	Hose Assembly (3/8" NPT, 16" L)	1
13	Hose Assembly (1/4"NPT, 16"L)	1
14	Street Elbow (1/4" NPT with Sealant)	1
15	Street Elbow (3/8")	1
16	Nipple (3/8" NPT x 1 1/2" Brass)	1
17	Anchor Bulkhead (1/4")	2
18	MPT EL (1/2" CA x 3/8")	2
19	Bushing (3/8" x 1/4")	1
20	Tee Run (1/4")	1
21	Street EL (Thomas Heads) (3/8")	2
	(Gast Heads) (1/4")	2
22	Filter assembly	2

Always Specify Model & Serial Number



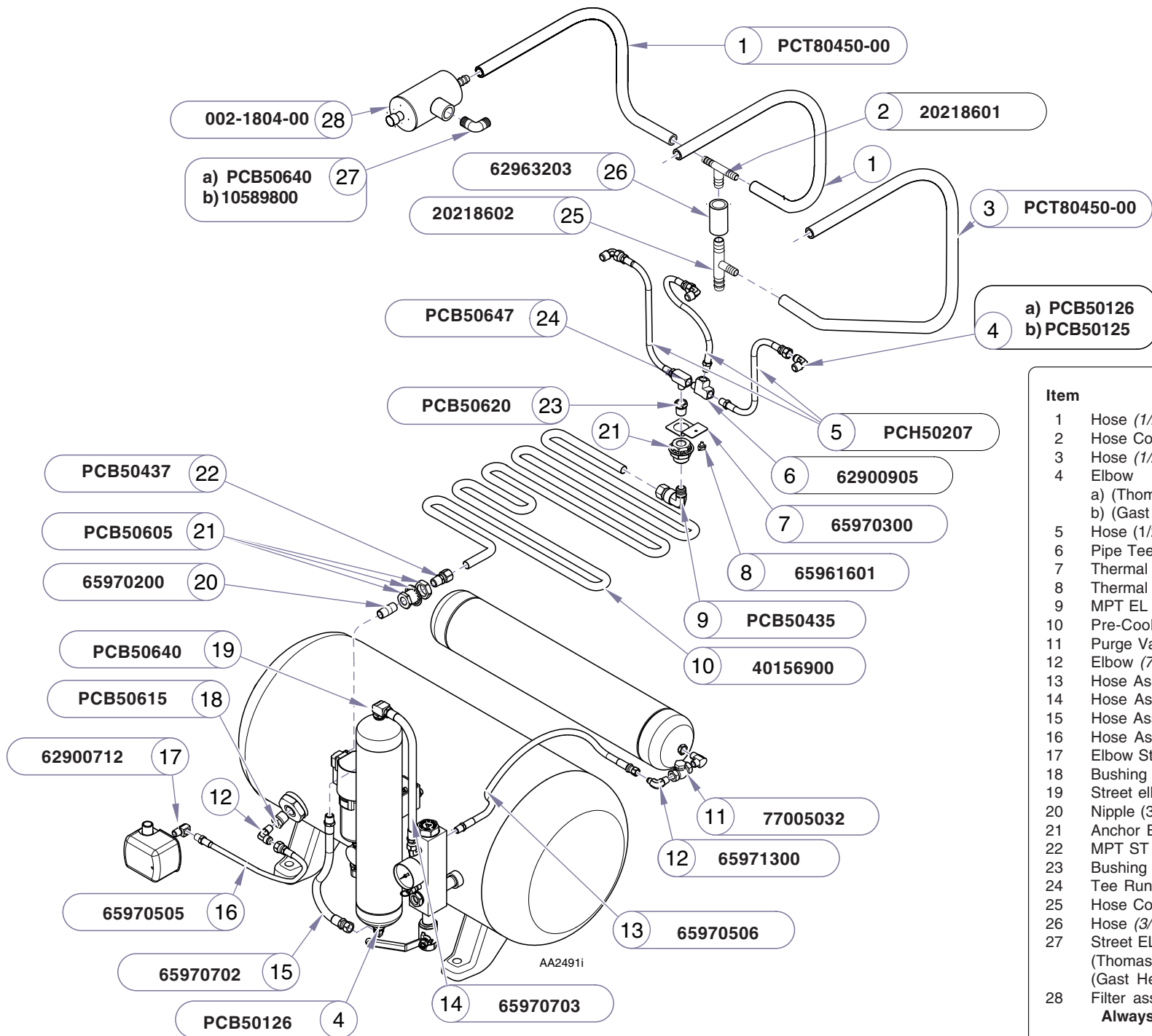
Item	Description	Qty.
1	Hose (1/2" x 26" L)	3
2	Hose Connector (1/2")	3
3	Hose (1/2" x 9 3/4" L)	3
4	Elbow	
	a) (Thomas Heads) (5/8"-18 x 3/8"MPT)	1
	b) (Gast Heads) (5/8"-18 x 1/4"MPT)	1
5	Pipe Tee (1/4"M x 1/4F x 1/4F)	1
6	Thermal Switch Bracket	1
7	Thermal Switch	1
8	Pre-Cooler	1
9	Manifold Clamp	1
10	Purge Valve	1
11	Elbow (7/16"-20 x 1/4"MPT)	2
12	Hose Assembly (1/4" NPT, 21"L)	1
13	Hose Assembly (3/8"NPT, 21"L)	1
14	Street EL (3/8")	1
15	Hose Assembly (1/4"NPT, 16"L)	1
16	Elbow Street (1/4"NPT with Sealant)	1
17	Bushing (1/2" x 3/8")	1
18	Nipple (3/8"NPT x 1 1/2" Brass)	1
19	Anchor Bulkhead	2
20	MPT ST (1/2" CA x 3/8")	1
21	Pop Rivet (.150 x .860)	1
22	MPT EL (1/2" CA x 3/8")	1
23	Bushing (3/8" x 1/4")	1
24	Tee Run (1/4")	1
25	Hose (1/2", 9 3/7 L)	2
26	Street EL (Thomas Heads) (3/8")	1
	(Gast Heads) (1/4")	1
27	Elbow (1/2"CON x 3/8" MPT)	2
28	Hose Assembly (3/8" NPT, 16" L)	1

Always Specify Model & Serial Number

Models: P32
Serial Numbers: 0703P320001 thru July 2008

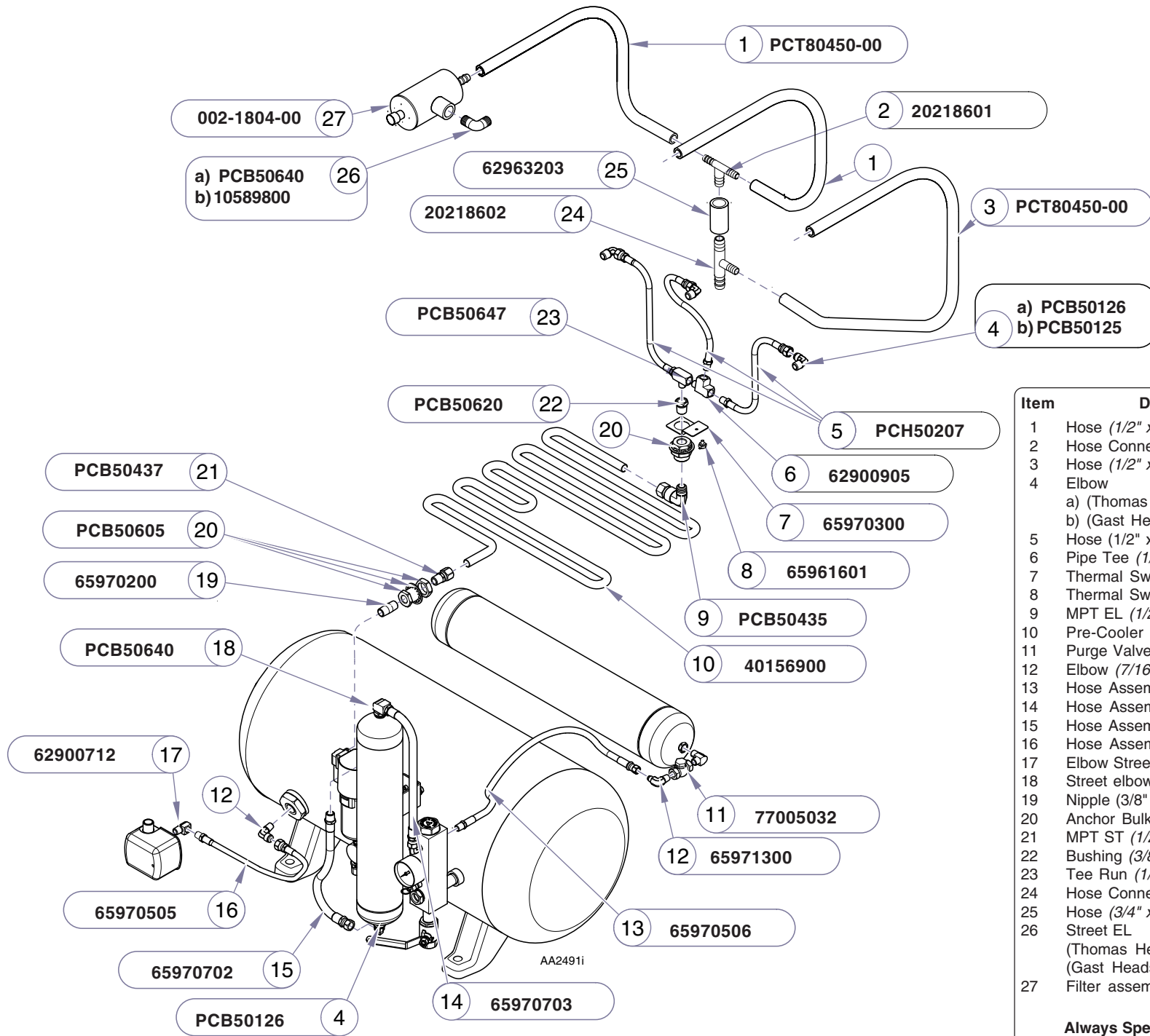
P32
 V785000
 thru July 2008

Pneumatic Tubes and Hoses



Item	Description	Qty.
1	Hose (1/2" x 26" L)	2
2	Hose Connector (1/2" x 1/2" x 3/4")	1
3	Hose (1/2" x 31" L)	3
4	Elbow	
	a) (Thomas Heads) (5/8"-18 x 3/8"MPT) ...	4
	b) (Gast Heads) (5/8"-18 x 1/4"MPT)	4
5	Hose (1/2" x 9 3/4")	
6	Pipe Tee (1/4"M x 1/4F x 1/4F)	1
7	Thermal Switch Bracket	1
8	Thermal Switch	1
9	MPT EL (1/2" CA x 3/8")	1
10	Pre-Cooler	1
11	Purge Valve	1
12	Elbow (7/16"-20 x 1/4"MPT)	2
13	Hose Assembly (1/4" NPT, 21"L)	1
14	Hose Assembly (3/8"NPT, 21"L)	1
15	Hose Assembly (3/8" NPT, 16" L)	1
16	Hose Assembly (1/4"NPT, 16"L)	1
17	Elbow Street (1/4"NPT with Sealant)	1
18	Bushing (1/2" x 3/8")	1
19	Street elbow (3/8")	1
20	Nipple (3/8" NTP x 1 1/2" Brass)	1
21	Anchor Bulkhead	2
22	MPT ST (1/2" CA x 3/8")	1
23	Bushing (3/8" x 1/4")	1
24	Tee Run (1/4")	1
25	Hose Connector (1/2" x 3/4" x 3/4")	
26	Hose (3/4" x 2.5" L)	2
27	Street	
	(Thomas Heads) (3/8")	3
	(Gast Heads) (1/4")	3
28	Filter assembly	3

Always Specify Model & Serial Number

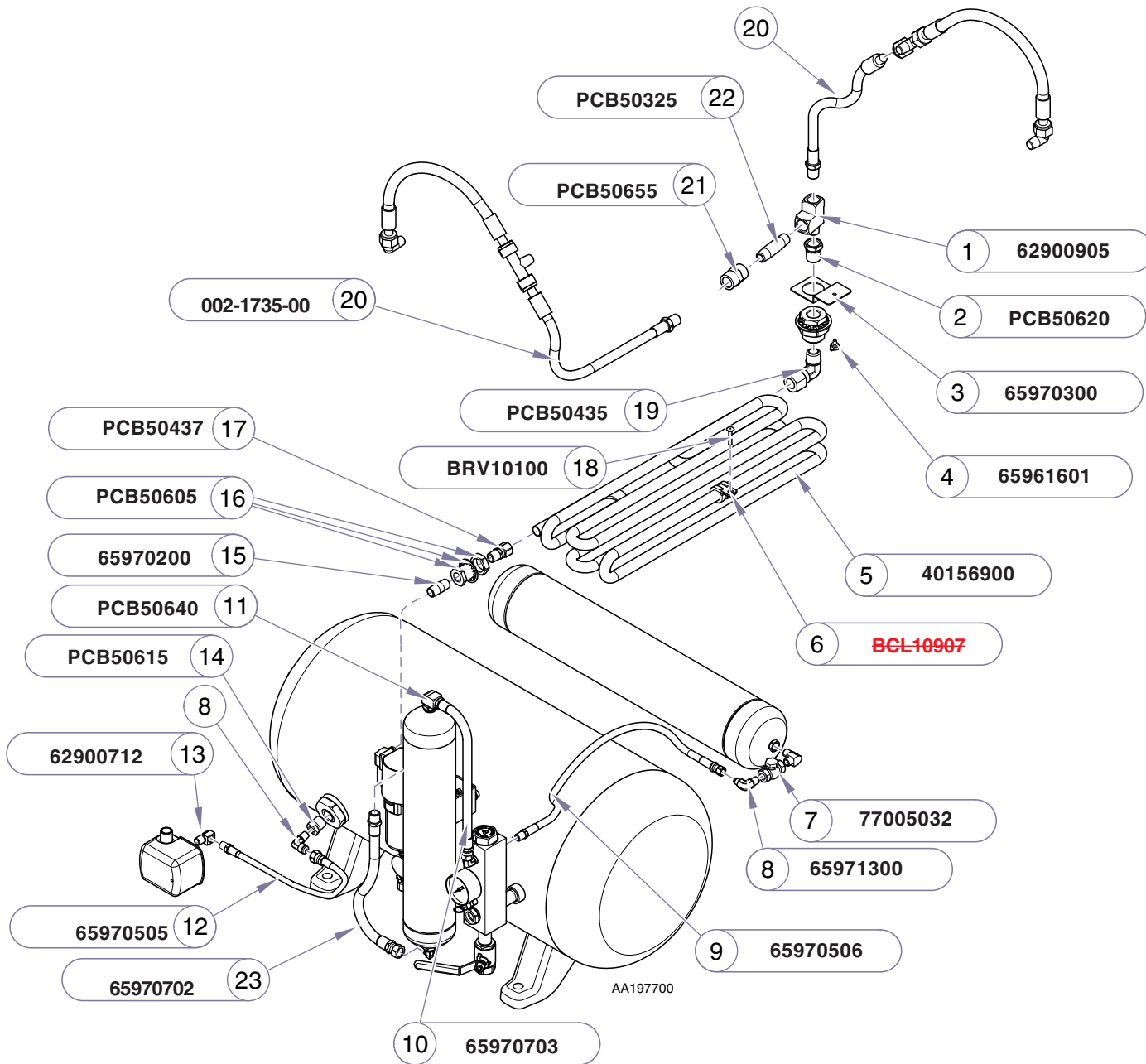


Item	Description	Qty.
1	Hose (1/2" x 26" L)	2
2	Hose Connector (1/2" x 1/2" x 3/4")	1
3	Hose (1/2" x 31" L)	3
4	Elbow a) (Thomas Heads) (5/8"-18 x 3/8"MPT) ... b) (Gast Heads) (5/8"-18 x 1/4"MPT)	4
5	Hose (1/2" x 9 3/4")	4
6	Pipe Tee (1/4"M x 1/4F x 1/4F)	1
7	Thermal Switch Bracket	1
8	Thermal Switch	1
9	MPT EL (1/2" CA x 3/8")	1
10	Pre-Cooler	1
11	Purge Valve	1
12	Elbow (7/16"-20 x 1/4"MPT)	2
13	Hose Assembly (1/4" NPT, 21"L)	1
14	Hose Assembly (3/8"NPT, 21"L)	1
15	Hose Assembly (3/8" NPT, 16" L)	1
16	Hose Assembly (1/4"NPT, 16"L)	1
17	Elbow Street (1/4"NPT with Sealant)	1
18	Street elbow (3/8")	1
19	Nipple (3/8" NTP x 1 1/2" Brass)	1
20	Anchor Bulkhead	2
21	MPT ST (1/2" CA x 3/8")	1
22	Bushing (3/8" x 1/4")	1
23	Tee Run (1/4")	1
24	Hose Connector (1/2" x 3/4" x 3/4")	2
25	Hose (3/4" x 2.5" L)	2
26	Street EL (Thomas Heads) (3/8")	3
	(Gast Heads) (1/4")	3
27	Filter assembly	3

Always Specify Model & Serial Number

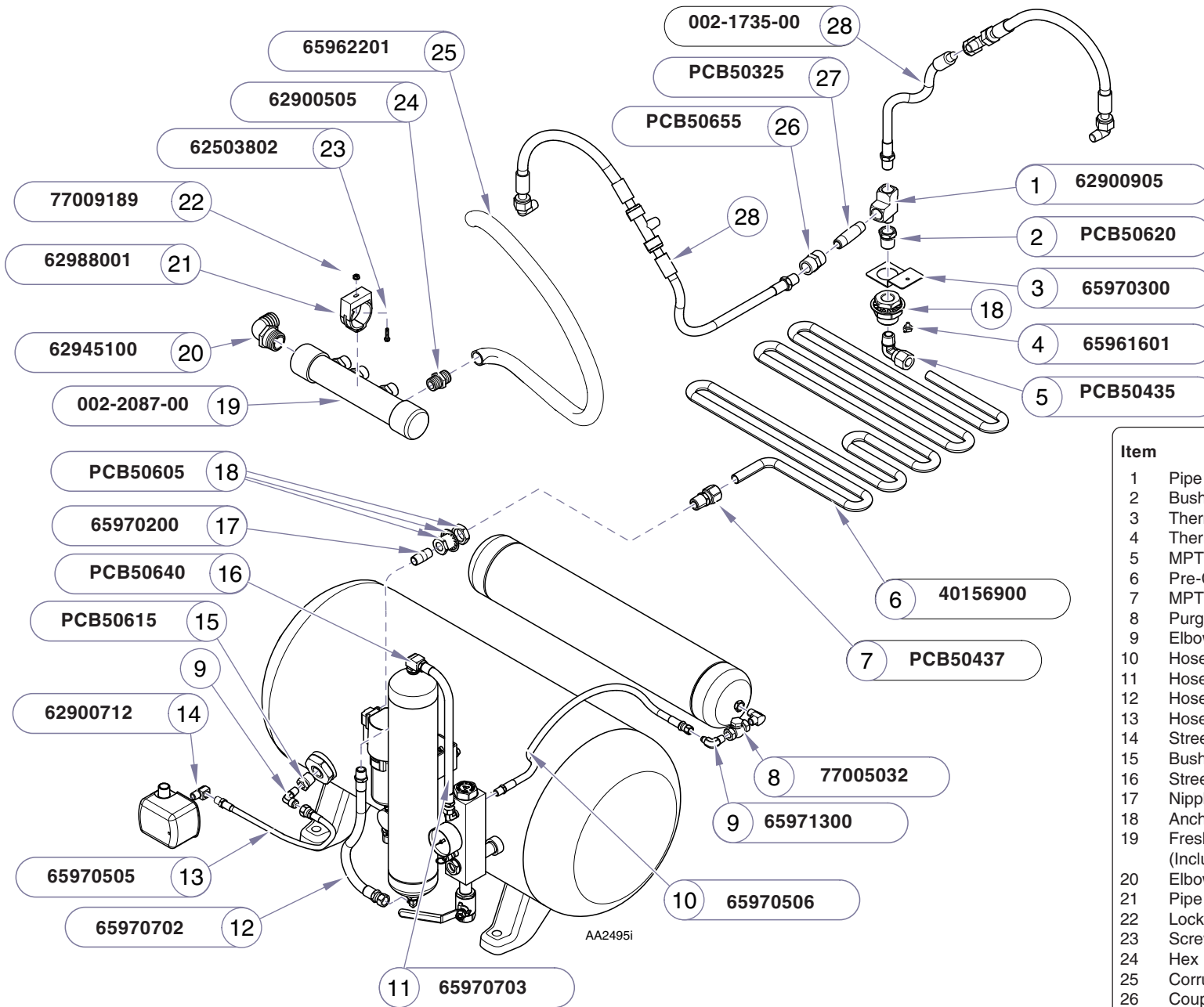
Models: P32
Serial Numbers: V1703515 thru Present

Pneumatic Tubes and Hoses **E-20.2**
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Item	Description	Qty.
1	Pipe Tee (1/4M x 1/4F)	1
2	Bushing (3/8" x 1/4")	1
3	Thermal Switch Bracket	1
4	Thermal Switch	1
5	Pre-Cooler	1
6	Manifold Clamp	1
7	Purge Valve	1
8	Elbow (7/16"-20 x 1/4" MPT)	2
9	Hose Assembly (1/4" NPT, 21" L)	1
10	Hose Assembly (3/8"NPT, 21" L)	1
11	Street Elbow (3/8")	1
12	Hose Assembly (1/4"NPT, 16" L)	1
13	Street Elbow (1/4"NPT with Sealant)	1
14	Bushing (1/2" x 3/8")	1
15	Nipple (3/8" x 1 1/2")	1
16	Anchor Bulkhead	2
17	MPT ST (1/2"CA x 3/8")	1
18	Pop Rivet (.150 x .860)	1
19	MPT Elbow (1/2"CA x 3/8")	1
20	Hose Assembly (3/8"T x 1/4"MNPT, 15"L) ...	2
21	Coupling (1/4")	1
22	Nipple (1/4" x 20)	1
23	Hose Assembly (3/8" NPT, 16" L)	1

Always Specify Model & Serial Number

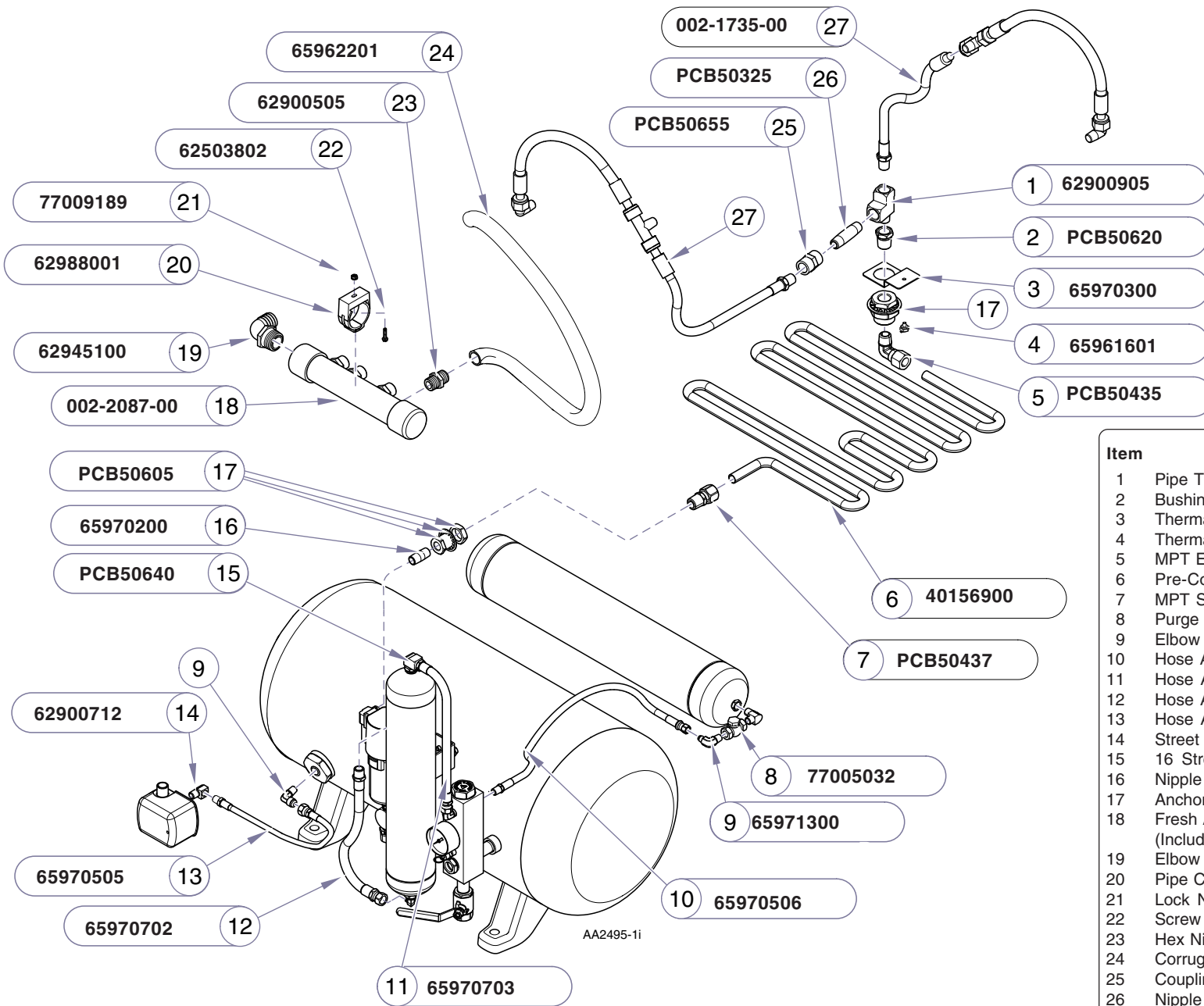


Item	Description	Qty.
1	Pipe Tee (1/4M x 1/4F)	1
2	Bushing (3/8" x 1/4")	1
3	Thermal Switch Bracket	1
4	Thermal Switch	1
5	MPT Elbow (1/2"CA x 3/8")	1
6	Pre-Cooler	1
7	MPT ST (1/2"CA x 3/8")	1
8	Purge Valve	1
9	Elbow (7/16"-20 x 1/4" MPT)	2
10	Hose Assembly (1/4" NPT, 21" L)	1
11	Hose Assembly (3/8"NPT, 21" L)	1
12	Hose Assembly (3/8" NPT, 16" L)	1
13	Hose Assembly (1/4"NPT, 16" L)	1
14	Street Elbow (1/4"NPT with Sealant)	1
15	Bushing (1/2" x 3/8")	1
16	Street Elbow (3/8")	1
17	Nipple (3/8" x 1 1/2")	1
18	Anchor Bulkhead	2
19	Fresh Air Intake Manifold Kit	1
(Includes items 20 thru 24)		
20	Elbow Male (1" hose X 1" NPT)	1
21	Pipe Clamp (1 1/4" locking)	1
22	Lock Nut	1
23	Screw Hex Washer (8-32 x 5/8)	1
24	Hex Nipple (1/2" NPT X 1/2" NPT)	1
25	Corrugated Tubing 3/4" (per inch)	AR
26	Coupling (1/4")	1
27	Nipple (1/4" x 20)	1
28	Hose Assembly (3/8"T x 1/4"MNPT, 15"L) 2	

Always Specify Model & Serial Number

Models: P52
Serial Numbers: Aug. 2008 thru V1703321

Pneumatic Tubes and Hoses **E-21.1**



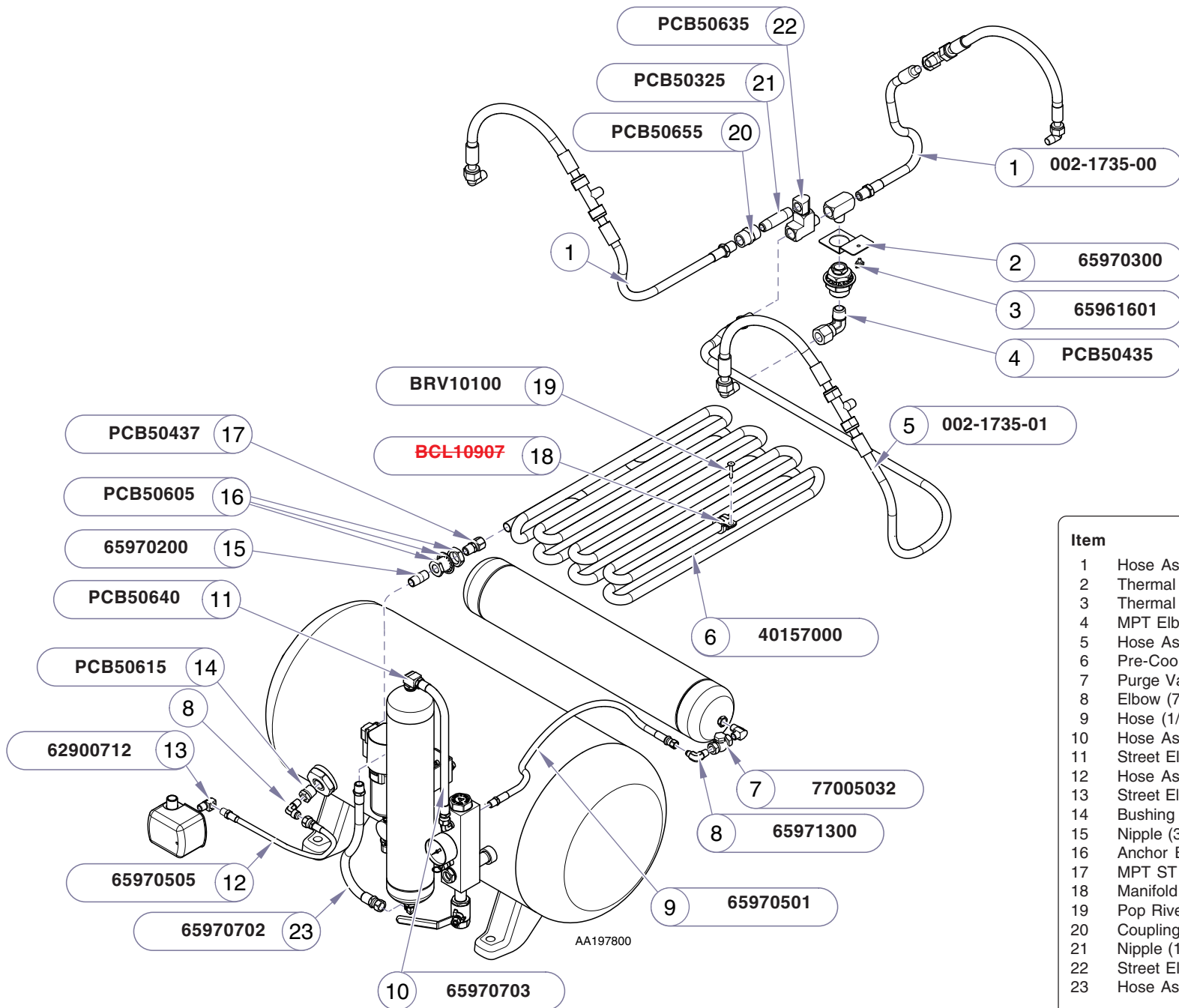
Item	Description	Qty.
1	Pipe Tee (1/4M x 1/4F)	1
2	Bushing (3/8" x 1/4")	1
3	Thermal Switch Bracket	1
4	Thermal Switch	1
5	MPT Elbow (1/2"CA x 3/8")	1
6	Pre-Cooler	1
7	MPT ST (1/2"CA x 3/8")	1
8	Purge Valve	1
9	Elbow (7/16"-20 x 1/4" MPT)	2
10	Hose Assembly (1/4" NPT, 21" L)	1
11	Hose Assembly (3/8"NPT, 21" L)	1
12	Hose Assembly (3/8" NPT, 16" L)	1
13	Hose Assembly (1/4"NPT, 16" L)	1
14	Street Elbow (1/4"NPT with Sealant)	1
15	16 Street Elbow (3/8")	1
16	Nipple (3/8" x 1 1/2")	1
17	Anchor Bulkhead	2
18	Fresh Air Intake Manifold Kit	1
19	Elbow Male (1" hose X 1" NPT)	1
20	Pipe Clamp (1 1/4" locking)	1
21	Lock Nut	1
22	Screw Hex Washer (8-32 x 5/8)	1
23	Hex Nipple (1/2" NPT X 1/2" NPT)	1
24	Corrugated Tubing 3/4" (per inch)	AR
25	Coupling (1/4")	1
26	Nipple (1/4" x 20)	1
27	Hose Assembly (3/8"T x 1/4"MNPT, 15"L)	2

Always Specify Model & Serial Number

E-21.2

Pneumatic Tubes and Hoses

Models: P52
Serial Numbers: V1703322 thru Present

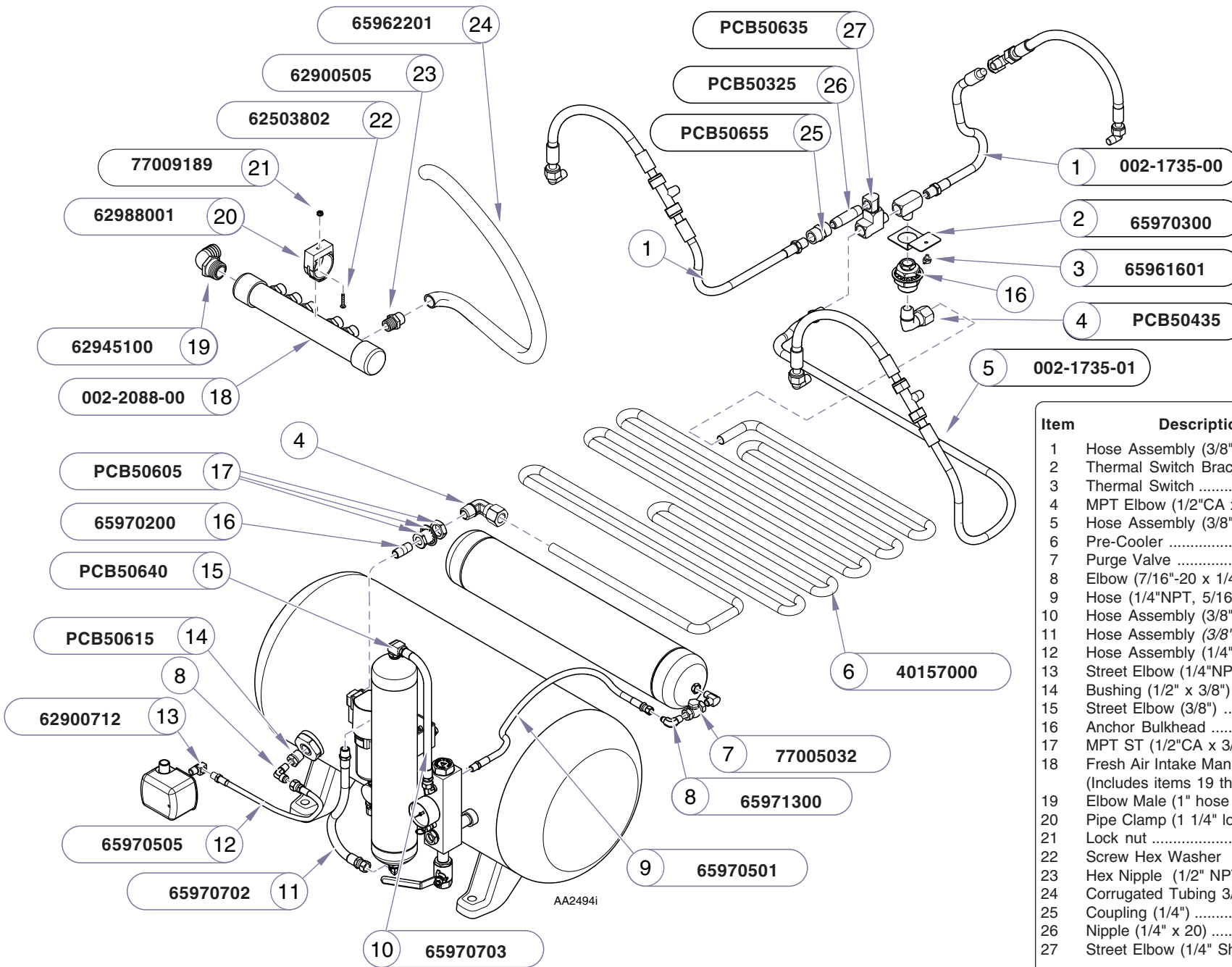


Item	Description	Qty.
1	Hose Assembly (3/8" x 1/4"MNPT, 15"L) ..	1
2	Thermal Switch Bracket	1
3	Thermal Switch	1
4	MPT Elbow (1/2"CA x 3/8")	1
5	Hose Assembly (3/8"T x 1/4"MNPT, 36"L) ..	1
6	Pre-Cooler	1
7	Purge Valve	1
8	Elbow (7/16"-20 x 1/4" MPT)	2
9	Hose (1/4"NPT, 5/16"-18, 26"L)	1
10	Hose Assembly (3/8"NPT, 21" L)	1
11	Street Elbow (3/8")	1
12	Hose Assembly (1/4"NPT, 16" L)	1
13	Street Elbow (1/4"NPT with Sealant)	1
14	Bushing (1/2" x 3/8")	1
15	Nipple (3/8" x 1 1/2")	1
16	Anchor Bulkhead	2
17	MPT ST (1/2"CA x 3/8")	1
18	Manifold Clamp	1
19	Pop Rivet (.150 x .860)	1
20	Coupling (1/4")	1
21	Nipple (1/4" x 20)	1
22	Street Elbow (1/4" Short).....	1
23	Hose Assembly (3/8" NPT, 16" L)	1

Always Specify Model & Serial Number

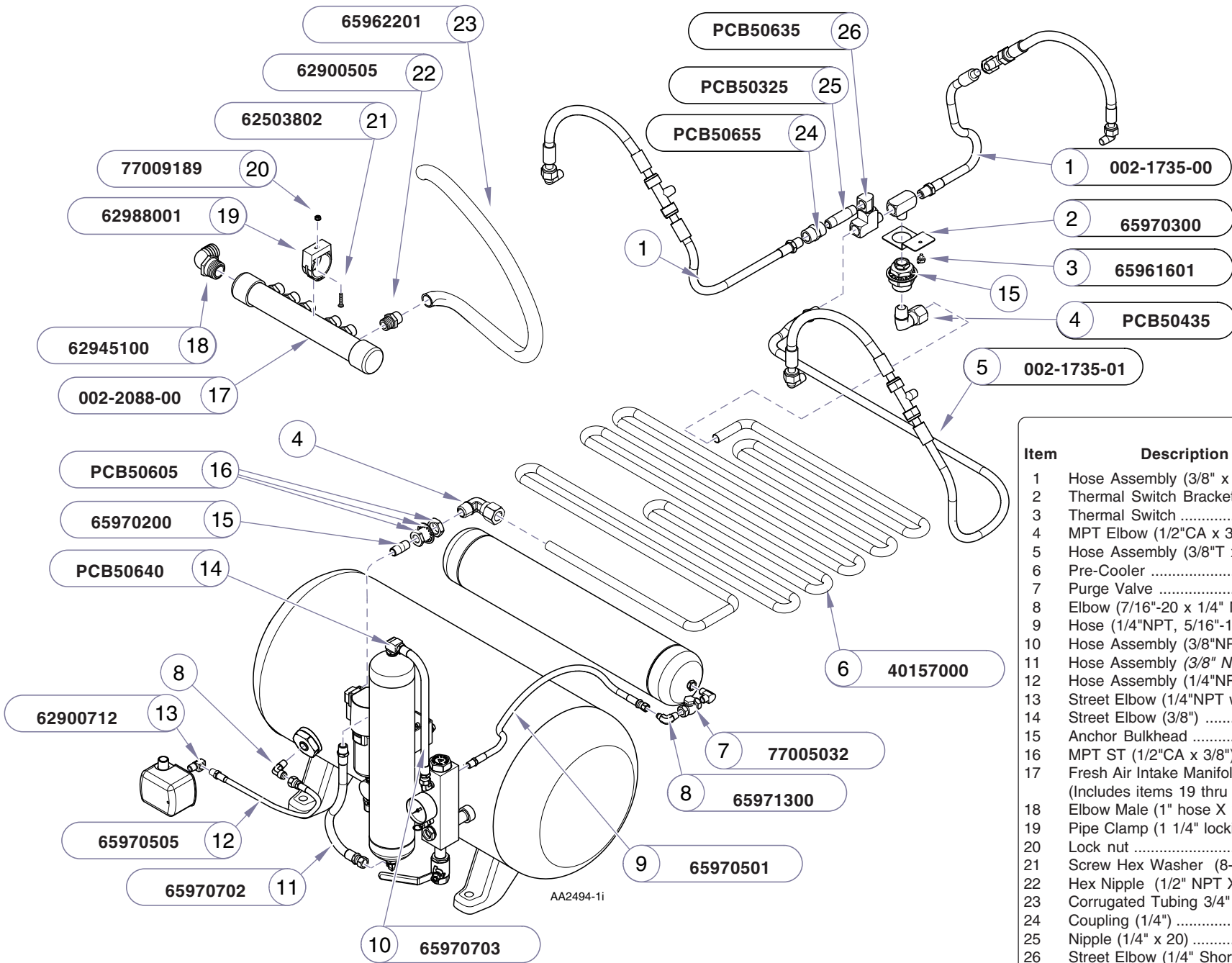
Models: **P72** | **P72**
Serial Numbers: 0701P720001 thru July 2008 | V785000 thru July 2008

Pneumatic Tubes and Hoses



Item	Description	Qty.
1	Hose Assembly (3/8" x 1/4"MNPT, 15"L) ..	1
2	Thermal Switch Bracket	1
3	Thermal Switch	1
4	MPT Elbow (1/2"CA x 3/8")	2
5	Hose Assembly (3/8" T x 1/4"MNPT, 36"L)	1
6	Pre-Cooler	1
7	Purge Valve	1
8	Elbow (7/16"-20 x 1/4" MPT)	2
9	Hose (1/4"NPT, 5/16"-18, 26"L)	1
10	Hose Assembly (3/8"NPT, 21" L)	1
11	Hose Assembly (3/8" NPT, 16" L)	1
12	Hose Assembly (1/4"NPT, 16" L)	1
13	Street Elbow (1/4"NPT with Sealant)	1
14	Bushing (1/2" x 3/8")	1
15	Street Elbow (3/8")	1
16	Anchor Bulkhead	2
17	MPT ST (1/2"CA x 3/8")	1
18	Fresh Air Intake Manifold Kit	1
(Includes items 19 thru 22)		
19	Elbow Male (1" hose X 1" NPT)	1
20	Pipe Clamp (1 1/4" locking)	1
21	Lock nut	1
22	Screw Hex Washer (8-32 x 5/8)	1
23	Hex Nipple (1/2" NPT X 1/2" NPT)	1
24	Corrugated Tubing 3/4" (per inch)	AR
25	Coupling (1/4")	1
26	Nipple (1/4" x 20)	1
27	Street Elbow (1/4" Short)	1

Always Specify Model & Serial Number



Item	Description	Qty.
1	Hose Assembly (3/8" x 1/4"MNPT, 15"L) ..	1
2	Thermal Switch Bracket	1
3	Thermal Switch	1
4	MPT Elbow (1/2"CA x 3/8")	2
5	Hose Assembly (3/8" T x 1/4"MNPT, 36"L)	1
6	Pre-Cooler	1
7	Purge Valve	1
8	Elbow (7/16"-20 x 1/4" MPT)	2
9	Hose (1/4"NPT, 5/16"-18, 26"L)	1
10	Hose Assembly (3/8"NPT, 21" L)	1
11	Hose Assembly (3/8" NPT, 16" L)	1
12	Hose Assembly (1/4"NPT, 16" L)	1
13	Street Elbow (1/4"NPT with Sealant)	1
14	Street Elbow (3/8")	1
15	Anchor Bulkhead	2
16	MPT ST (1/2"CA x 3/8")	1
17	Fresh Air Intake Manifold Kit	1
(Includes items 19 thru 22)		
18	Elbow Male (1" hose X 1" NPT)	1
19	Pipe Clamp (1 1/4" locking)	1
20	Lock nut	1
21	Screw Hex Washer (8-32 x 5/8)	1
22	Hex Nipple (1/2" NPT X 1/2" NPT)	1
23	Corrugated Tubing 3/4" (per inch)	AR
24	Coupling (1/4")	1
25	Nipple (1/4" x 20)	1
26	Street Elbow (1/4" Short)	1

Always Specify Model & Serial Number

Models: P72
Serial Numbers: V1702887 thru Present

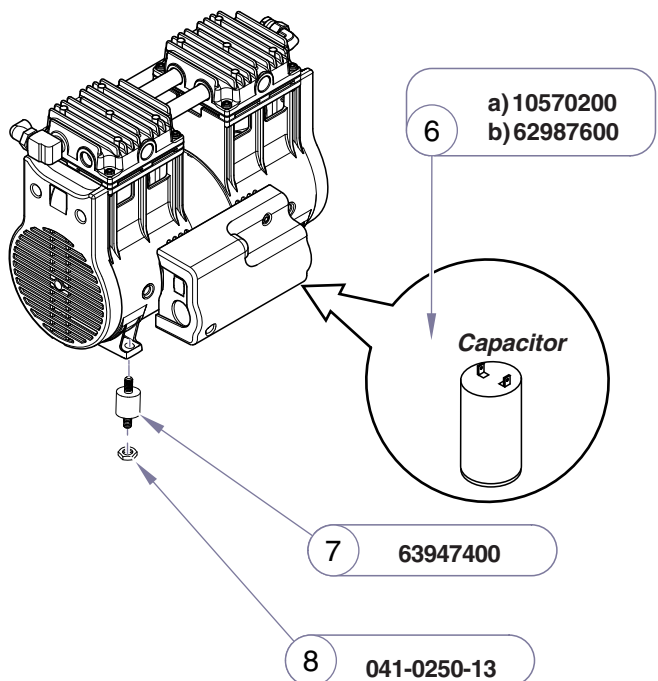
Note

208-230V Gast heads standard on units after serial number V1368137.
115V Gast heads standard on units after serial number V1393525.

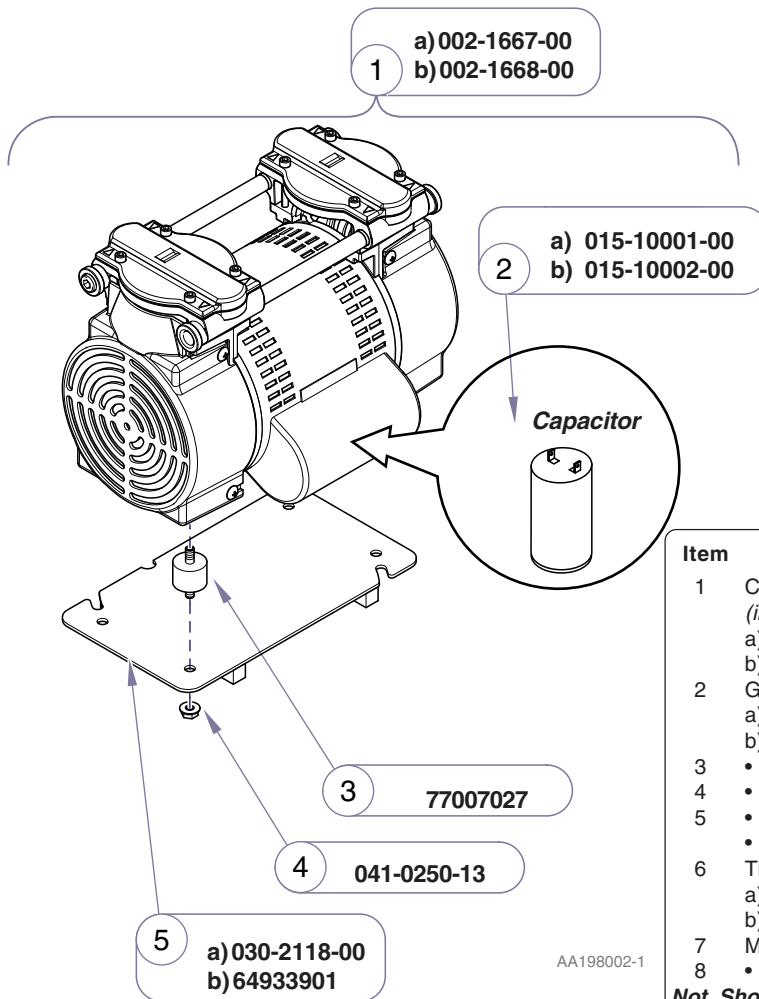
Thomas Head

Note

Older style Thomas Head can be replaced with new style Gast head.



Gast Head

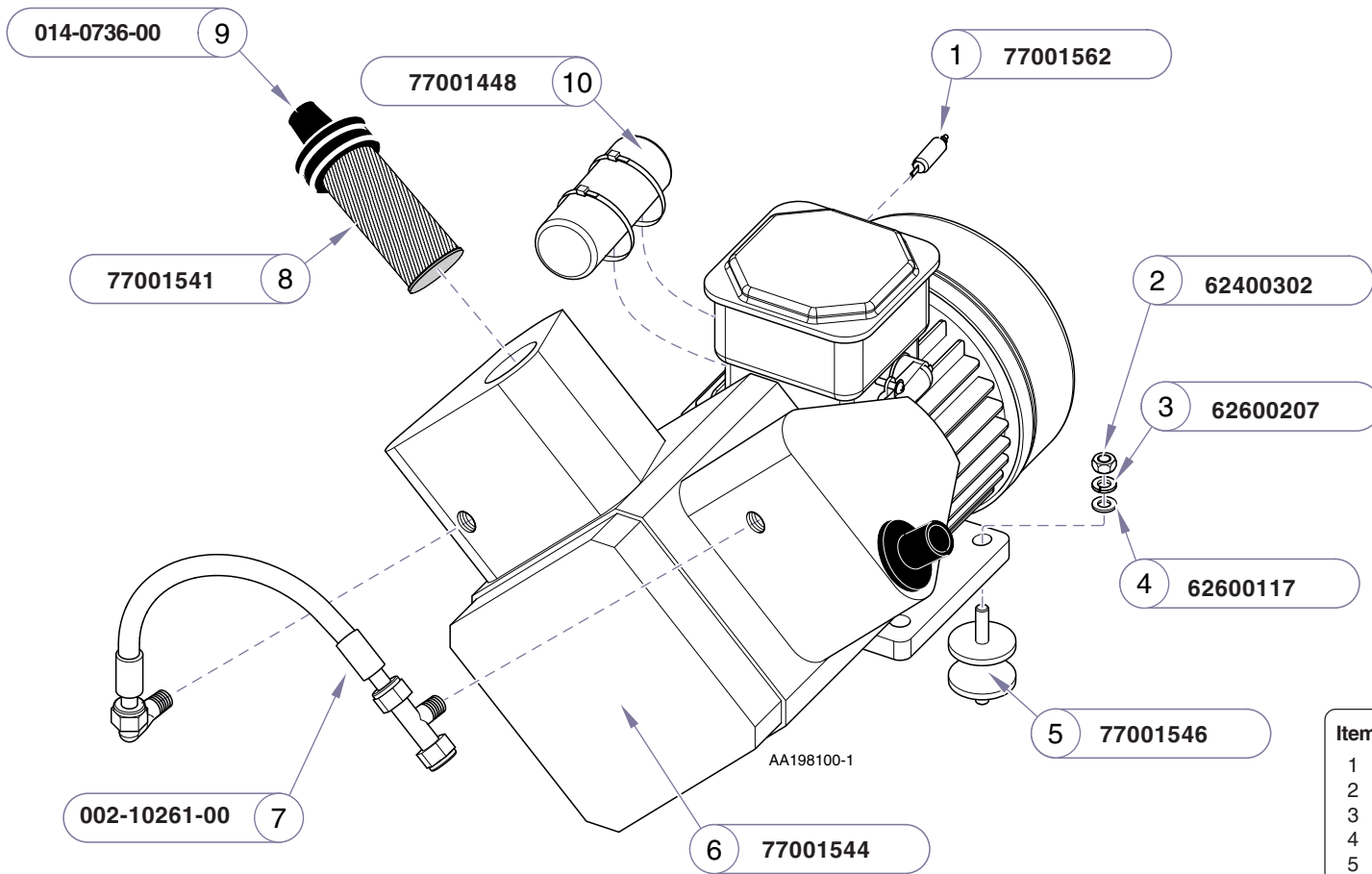


Note

Rebuild kit parts can not be ordered separately.

Item	Description	Qty.
1	Compressor Head Replacement (includes item # 2 thru 4) a) P21 (115V) 1 b) P22 & P32 (208V-230V) 1	
2	Gast Head Capacitor 1 a) 115 VAC Models 1 b) 208-230 VAC Models 1	
3	• Mounting Feet (includes item #4) 1	
4	• • 1/4"-20 Hex Flange Nut 1	
5	• a) Adapter Plate (Thomas Replacement) 1 • b) Mounting Plate (Gast Replacement) 1	
6	Thomas Head Capacitor 1 a) 115 VAC Models 1 b) 208-230 VAC Models 1	
7	Mounting Feet (includes item #7) ... 1 set of 4	
8	• 1/4"-20 Hex Flange Nut 1	
Not Shown		
9	Compressor Head Rebuild Kit 77001616 (Thomas Head only) 1 ACA86075 (Gast Head only) 1	
10	015-3308-00 Thomas Black Fan Replacement 1 015-3307-00	
11	Thomas White Fan Replacement 1	

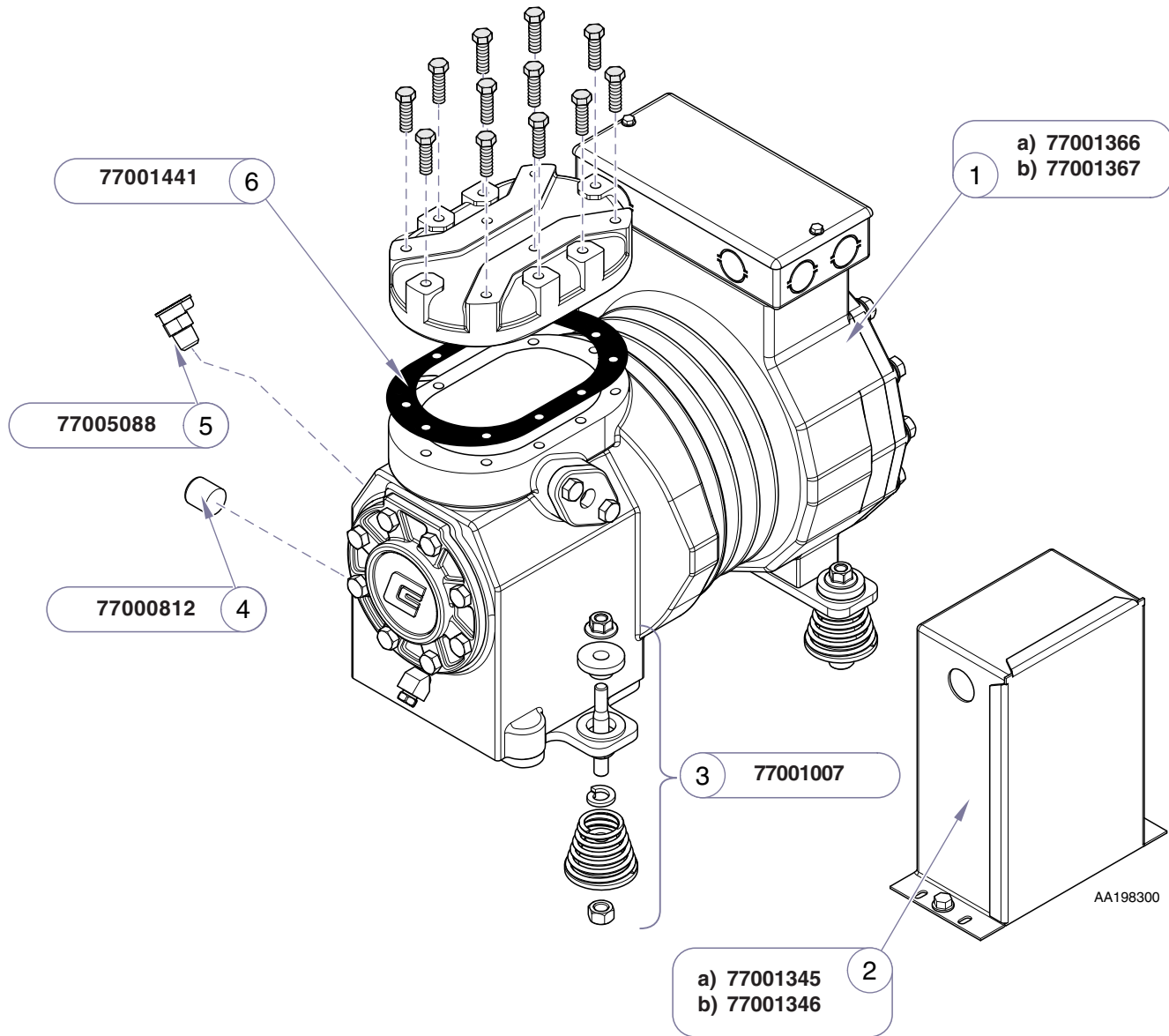
Always Specify Model & Serial Number



Item	Description	Qty.
1	Circuit Breaker, 11 AMP	1
2	Hex Nut (M8 x 1 1/4")	3 per Head
3	Lock Washer (5/16")	3 per Head
4	Flat Washer (5/16")	3 per Head
5	Mounts (pkg of 3)	1 per head
6	Compressor Head	
	P52	2
	P72	3
7	Hose Replacment Kit	1 per head
8	Intake Air Filter	2 Per Head
9	Air Intake Nipple	2 Per Head
10	Start Capacitor	1 Per Head
	Not Shown	
11	77001450 - Reed Valve Kit	
	•Thin Teflon Gasket	
	•Valve Plate Assembly	
	•Thick Teflon Gasket	
	•Spacer Plate	
	•Small O-Ring	
Always Specify Model & Serial Number		

Models:	P52	P72	P72
Serial Numbers:	0701P520001 thru Present	0701P720001 thru Present	V785000 thru Present

Compressor Head

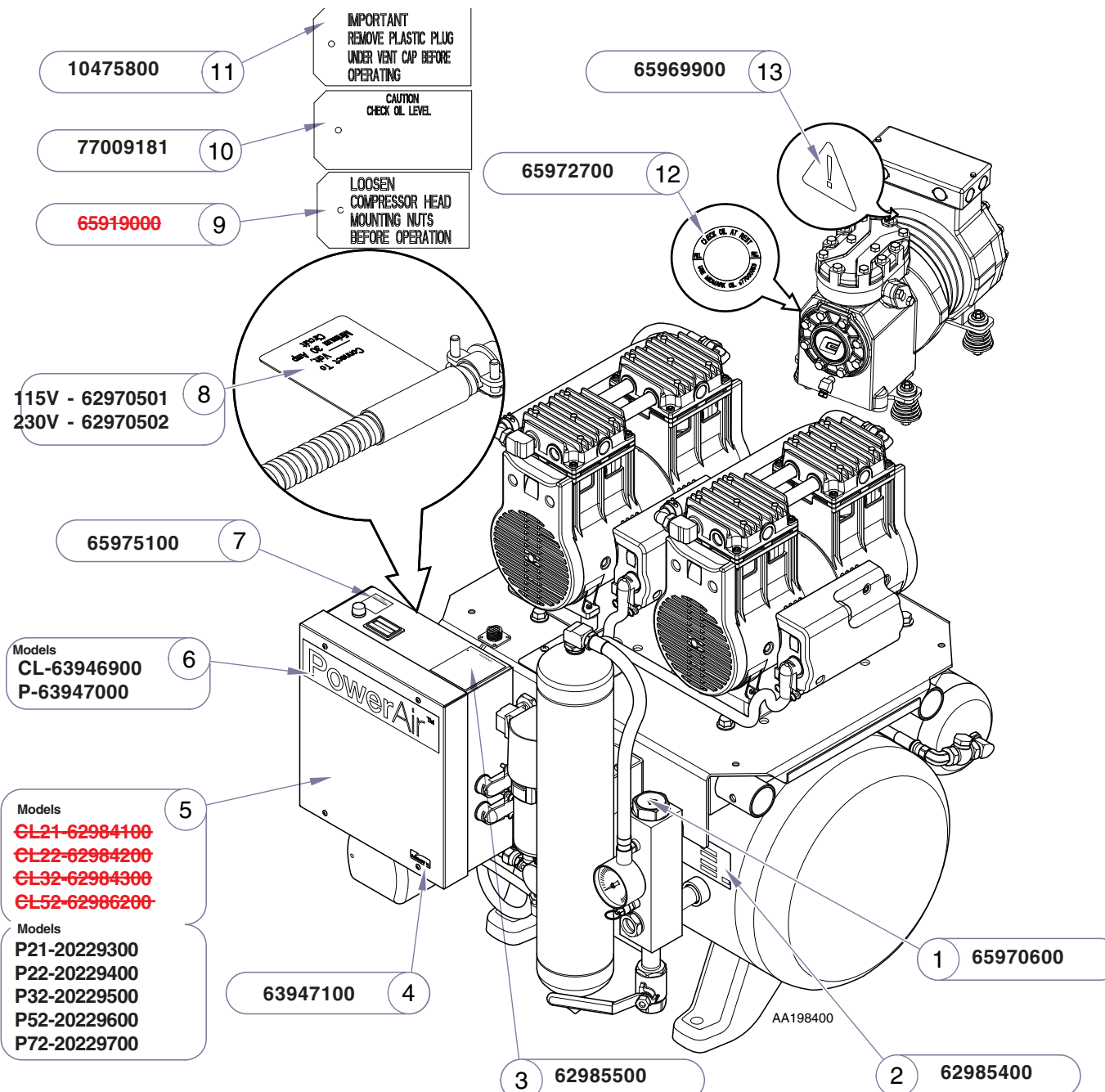


Item	Description	Qty.
1	Lubricated Compressor Head	
	a) 115 Volt Model	
	CL21	1
	b) 208/230 Volt Models	
	CL22	1
	CL32	2
	CL52	3
2	Capacitor / Relay Box	
	a) 115 Volt Model	
	CL21	1
	b) 208/230 Volt Models	
	CL22	1
	CL32	2
	CL52	3
3	Mounting Kit (Includes 4 Mounts)	1
4	Site Gauge	1
5	Oil Fill Cap	1
6	Gasket	1

Always Specify Model & Serial Number

Compressor Head

Models:	CL21	CL22	CL32	CL52	All CLxx Models
Serial Numbers:	0701L210001 thru Present	0701L220001 thru Present	0701L320001 thru Present	0701L520001 thru Present	V785000 thru Present



Models
CL-63946900
P-63947000

Models
~~CL21-62984100~~
~~CL22-62984200~~
~~CL32-62984300~~
~~CL52-62986200~~

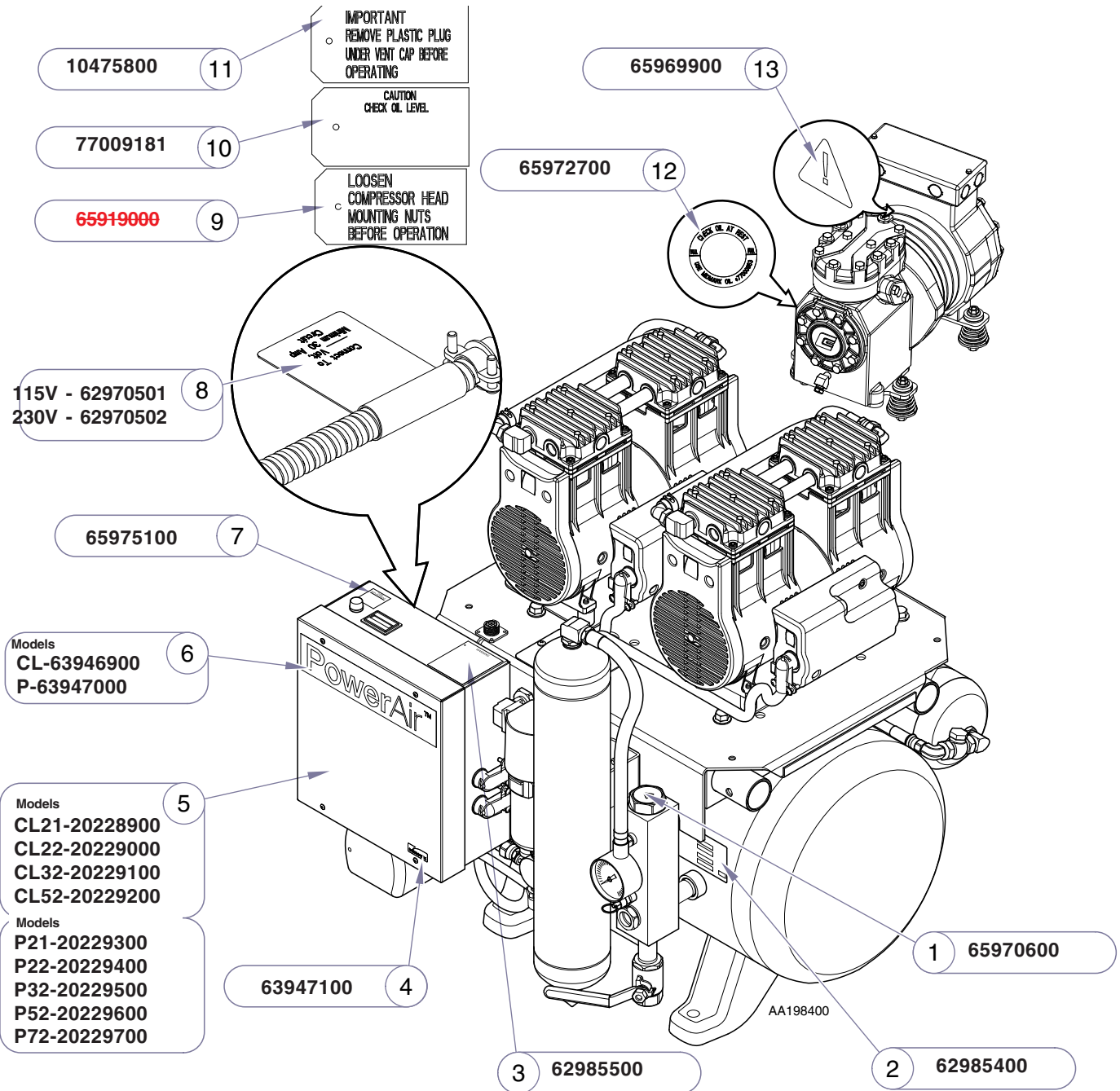
Models
P21-20229300
P22-20229400
P32-20229500
P52-20229600
P72-20229700

Item	Description	Qty.
1	Check Valve Location Label	1
2	Serial Number Label	1
3	Warning Label	1
4	Midmark Label	1
5	Marked in Red Denotes No Longer Available - Schematic Labels	1
6	Brand Label	1
7	Fuse Replacement Label	1
8	Voltage Label	1
Classic Series Lubricated Compressors Only have Items# 9-13		
9	Mounting Nut-Tag-NLA	+
10	Oil Check Tag	1
11	Remove Plug Tag	1
12	Oil Level Label	1

Always Specify Model & Serial Number

Models:	CL21	CL22	CL32	CL52	
Serial Numbers:	0701L210001 thru 0901L210370	0701L220001 thru 0903L220294	0701L320001 thru 0901L320807	0701L520001 thru 0810CL520124	
Models:	P21	P22	P32	P52	P72
Serial Numbers:	0703P210001 thru 0903P210361	0703P220001 thru 0903P221139	0703P210001 thru 0903P321137	0703P210001 thru 0902P520467	0703P210001 thru 0903P720190

Label Locations



Models
CL-63946900
P-63947000

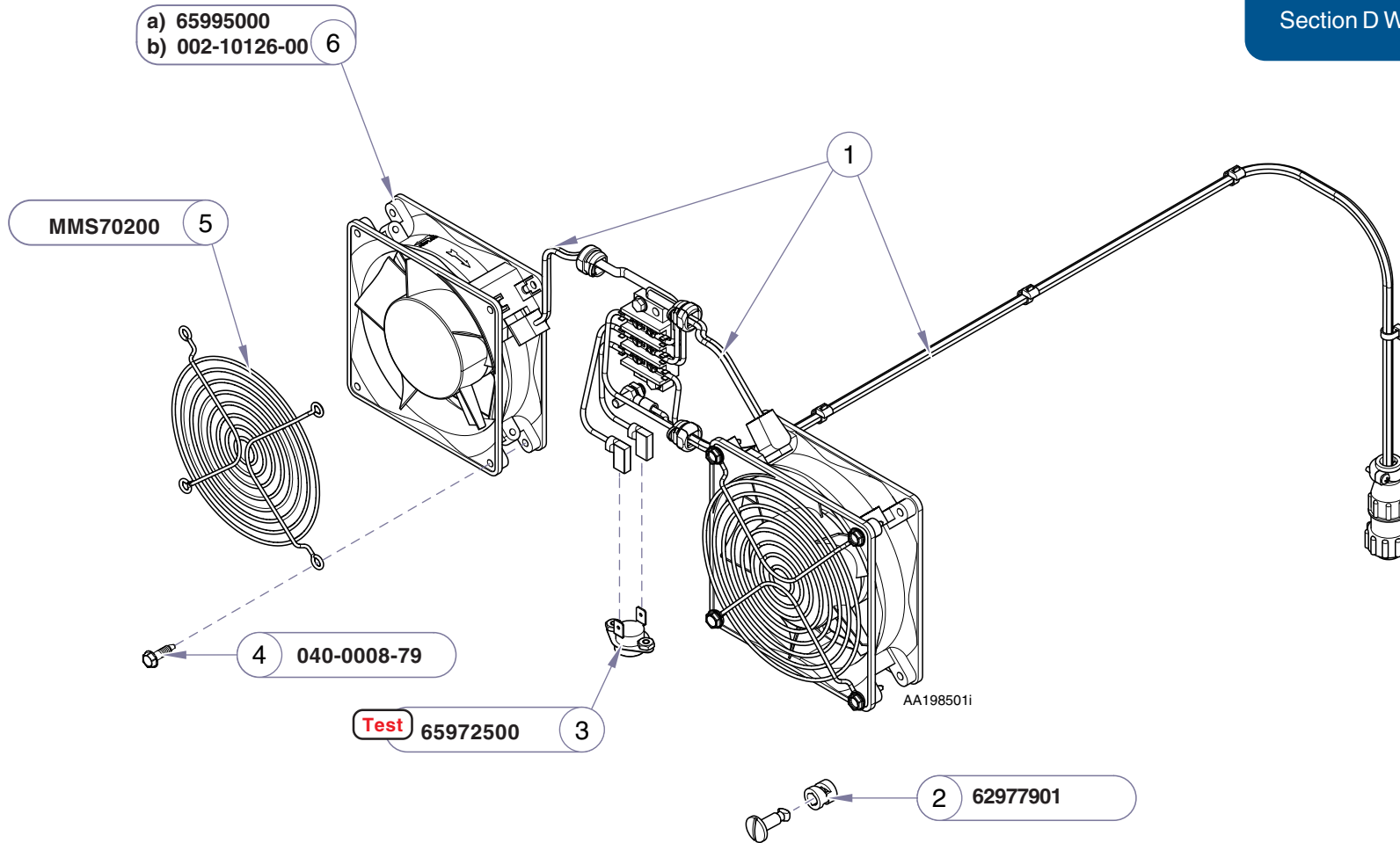
Models
CL21-20228900
CL22-20229000
CL32-20229100
CL52-20229200

Models
P21-20229300
P22-20229400
P32-20229500
P52-20229600
P72-20229700

Item	Description	Qty.
1	Check Valve Location Label	1
2	Serial Number Label	1
3	Warning Label	1
4	Midmark Label	1
5	Schematic Labels	1
6	Brand Label	1
7	Fuse Replacement Label	1
8	Voltage Label	1
Classic Series Lubricated Compressors		
Only have Items# 9-13		
9	Mounting Nut Tag NLA	†
10	Oil Check Tag	1
11	Remove Plug Tag	1
12	Oil Level Label	1

Always Specify Model & Serial Number

Models:	CL21	CL22	CL32	CL52	All
Serial Numbers:	0902L210372 thru Present	0903L220296 thru Present	0901L320813 thru Present	0810L520126 thru Present	V785000 thru Present
Models:	P21	P22	P32	P52	P72
Serial Numbers:	0904P210365 thru Present	0904P221146 thru Present	0904P321145 thru Present	0904P520474 thru Present	0903P720191 thru Present



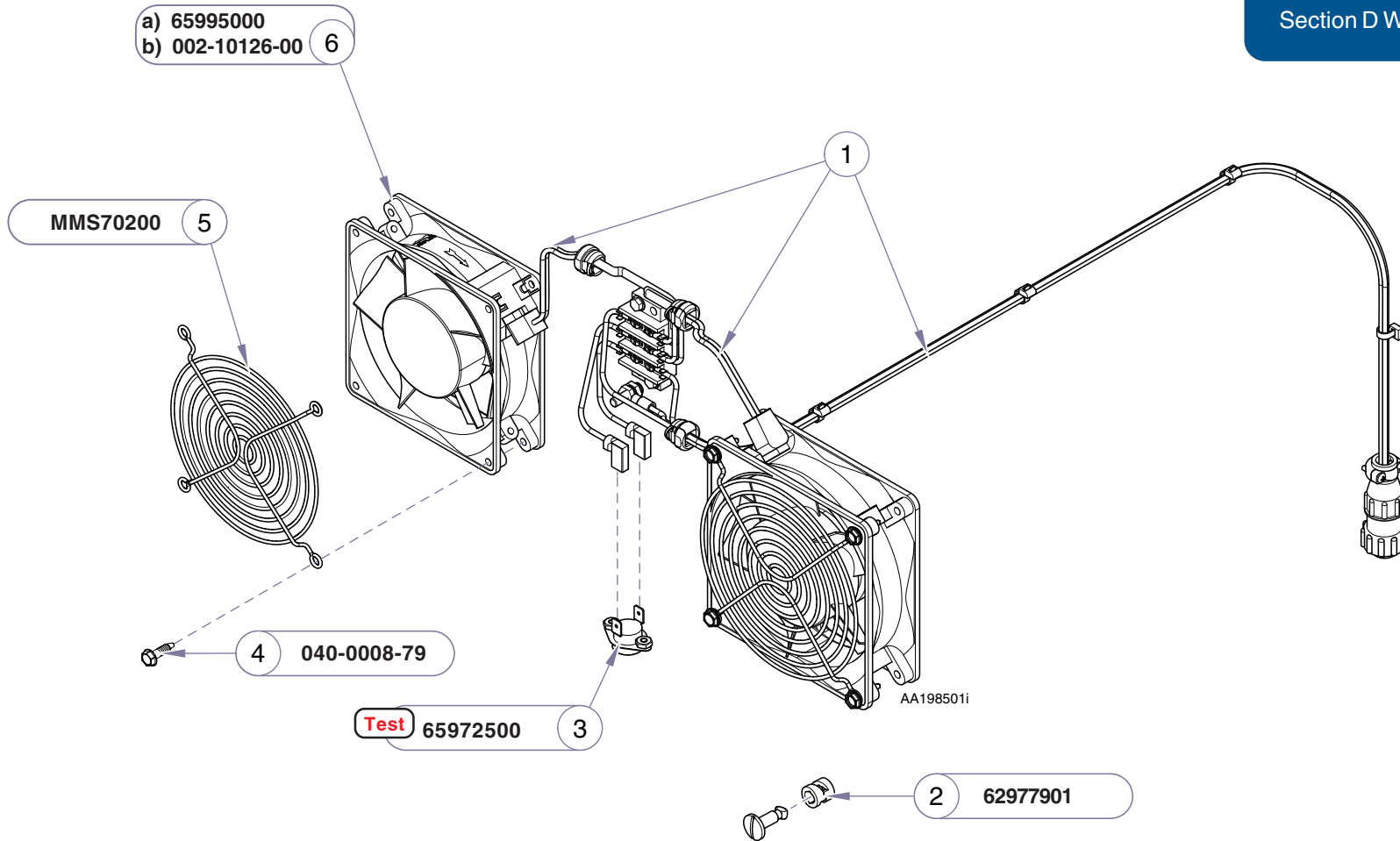
Sound Cover	Accessory for PowerAir™ Model
77001603	P21
77001604	P22
77001605	P32 & P52
77001606	P72

Item	Description	Qty.
1	Fan Wiring Refer to Sec D Wire Diagrams	4
2	1/4 Turn Fastener Straight Slot	1
3	Thermal Switch	4
4	Screw, Hex Head (#10-16 x 3/4")	2
5	Fan Guard	2
6	Fan (includes item 4):	
	a) P21(115V)	2
	b) P22, P32, P52, P72 (230V)	2

Always Specify Model & Serial Number

Models:	77001603	77001604	77001605	77001606
Serial Numbers:	0703SC1001	0703SC2001	0703SC3001	0703SC4001

Replacement Parts for Sound Cover Accessory



<i>Sound Cover</i>	<i>Accessory for PowerAir™ Model</i>
77001603	P21
77001604	P22
77001605	P32 & P52
77001606	P72

Item	Description	Qty.
1	Fan Wiring Refer to Sec D Wire Diagrams	4
2	1/4 Turn Fastener Straight Slot	1
3	Thermal Switch	4
4	Screw, Hex Head (#10-16 x 3/4")	1
5	Fan Guard	2
6	Fan: (includes item 4)	2
	a) P21(115V)	2
	b) P22, P32, P52, P72 (230V)	2

Always Specify Model & Serial Number

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