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**VMAC – Vehicle Mounted Air Compressors**

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Fax: 1-250-740-3201

Owner's Manual — Document 1930174

S700157 Lincoln Welder Compressor

**Changes and Revisions**

Version	Revision Details	Revised by/date	Approved by/date	Implemented
A	Released for production	S. Coker 09/21/2010	S. Coker 09/21/2010	09/21/2010
B	Updated for current production	M.H 02/22/11	S. Coker 02/22/2011	02/22/2011
C	ECN 12-041	SAR 14/03/2012	MH 03 Apr 2012	12 Apr 2012
D	ECN 12-092	SAR 14 Jun 12	MH 22 Jun 2012	29 Jun 2012

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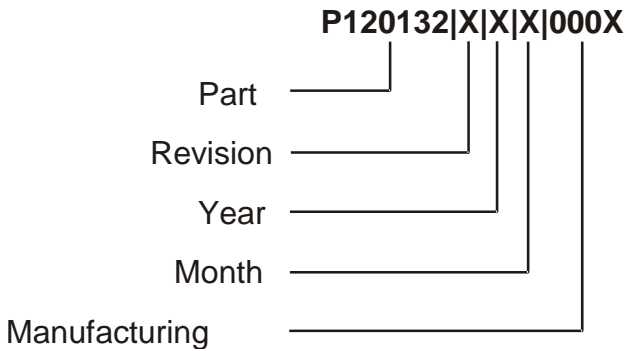
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# Serial Number Breakdown Description



A-H, J-N, P, R, T-W, Y ONLY AS PER ASME STANDARD: Y14.35I

YEAR	MONTH
X - 2009	A - JANUARY
Y - 2010	B - FEBRUARY
Z - 2011	C - MARCH
AA - 2012	D - APRIL
AB - 2013	E - MAY
	F - JUNE
	G - JULY
	H - AUGUST
	I - SEPTEMBER
	J - OCTOBER
	K - NOVEMBER
	L - DECEMBER

# 1.0 Information

## 1.1 Foreword

This manual provides maintenance, repair and troubleshooting instruction for the S700157 air compressor system. Proper and regular servicing provides continued high performance and long life at low cost. For more information contact VMAC.

**KEEP THIS MANUAL WITH THE WELDING/AIR COMPRESSOR  
UNIT FOR USER REFERENCE**

## 1.2 Important Safety Notice

The information contained in this manual is based on sound engineering principles, research, extensive field experience and technical information. Information is constantly changing with the addition of new models, assemblies and service techniques. If a discrepancy is noted in this service manual, contact VMAC prior to initiating or proceeding with service. Current information may clarify the matter. Any person with knowledge of such discrepancies who performs service and repair assumes all risks.

Only proven service procedures are recommended. Anyone who departs from the specific instructions provided in this manual must first assure that their safety and that of others is not being compromised and that there will be no adverse effects on performance or the operational safety of the equipment.



***The hoses used in VMAC compressor systems have a specific inner liner that is compatible with our compressor oil. Use of hoses other than those supplied or recommended by VMAC may cause compressor damage and may void your warranty. Please contact VMAC for replacement hoses and further information.***

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Neither VMAC nor Lincoln will be held responsible for any liability, injuries, loss or damage to individuals or to equipment as a result of the failure of any person to properly adhere to the procedures set out in this manual or standard safety practices. Safety should be your first consideration in performing service operations. If you have any questions concerning the procedures in this manual or require any more information on details that are not included in this manual, please contact VMAC before beginning repairs.

## 1.3 Safety Messages



This symbol is used to call your attention to instructions concerning your personal safety. Watch for this symbol; it points out important safety precautions, it means, “attention, become alert! Your personal safety is involved. Read the message that follows and be alert to the possibility of personal injury or death. Be alert; your safety is involved. While it is impossible to warn about every conceivable hazard, let good common sense be your guide.



This symbol is used to call your attention to instructions on a specific procedure that if not followed may damage or reduce the useful life of the compressor.



This symbol is used to call your attention to additional instructions or special emphasis on a specific procedure.

### Safety Precautions

Read this information before operating the compressor for the first time. Follow the information and procedures in this manual for operation, maintenance and repair. Observe the following items to reduce the chance of personal injury or equipment damage.

Follow all safety precautions for mechanical work. Moving drive belts or fan blades are an extreme hazard. Stay clear of all moving parts when the system is operating. Only qualified personnel should perform maintenance and repair on system components with the welder/compressor shutdown.

Proper service and repair are important to the safety of the service technician and the safe, reliable operation of the equipment. Always use genuine VMAC replacement parts; do not use any substitutes. The procedures described in this service manual are effective methods of service and repair. Some procedures may require the use of tools specially designed for a specific purpose. Anyone using a replacement part, service procedure or tool must first determine that neither their safety nor the safe operation of the equipment will be compromised by the replacement part, service procedure or tool selected.

This manual contains various warnings, cautions and notices that must be observed to reduce the risk of personal injury during service or repair and the possibility that improper service or repair may damage the equipment or render it unsafe. *Be aware that it is impossible to warn of all the possible hazardous consequences that might result from failure to follow these instructions.*

## Fire and Explosion Hazards



Fire in the compressor can cause an explosion and flame projection. Should this occur, there is potential for serious injury or death.



Vaporized oil propelled by high-pressure air is an explosive mixture.

You must observe the following when operating the compressor:

- Constant vigilance is necessary around high-energy equipment
- Be attentive for unexplained changes in operation parameters and record any changes
- Never bypass or disable the oil thermistor
- Never expose the tank or compressor to extreme heat
- Ensure that the air entering the compressor is free of flammable vapors

## Personal Hazards

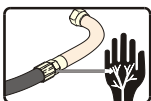
Follow all safe work practices. Wear the appropriate safety equipment.



Do not breathe the compressor air. Vaporized oil is a respiratory hazard.



Always use the appropriate personal protective equipment, particularly eye and hearing protection when operating air-powered equipment.



The compressor system is under sufficient pressure that a leak could force the oil/air mixture through the skin directly into your bloodstream. This will cause death.

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Never adjust or attempt to make any repairs to the compressor system while engine is running. Components and hoses under pressure could separate suddenly and fly out and cause serious injury or death.



Never perform maintenance procedures on the system until the Welder/Compressor has been shut down for at least 5 minutes to ensure the system is fully depressurized. After 5 minutes open the discharge valve to ensure the system is depressurized. Failure to depressurize the system could cause parts to separate explosively. Flying parts could cause serious injury or death. Oil/air mixture could be sprayed out with sufficient force to penetrate the skin, which could cause serious injury or death.



The compressor and the compressor system gets very hot during operation, contact with the components or the oil can cause serious burns. Allow sufficient time for the system to cool before performing service



Components and hoses under pressure could separate suddenly and fly out and cause serious injury or death. If equipped the auxiliary air tank must be drained before servicing any components in the compressor system.

## **Pressure regulator and/or lubricator**



The compressor can produce air pressures up to approximately 150 PSI (896 kPa). It is the responsibility of the user to know the pressure and air flow requirements of the tools powered by the air compressor system. An appropriate air pressure regulator and lubricator can be externally installed to the outside of the pressure supply valve. Failure to regulate the air pressure may cause damage to the tool.



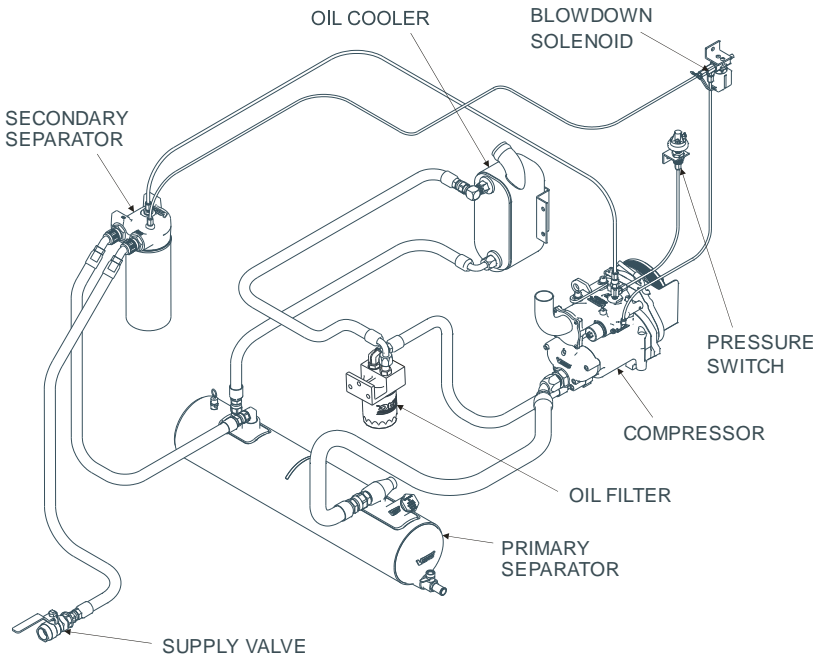
## 1.4 System

The compressor system is protected from over pressurization by a mechanical inlet control in the compressor that regulates airflow in response to the demand. There is also a 200 PSI (1,379 kPa) pressure relief valve in the oil/air separation tank to protect the system from over pressurization. If the oil temperature exceeds 290°F (143°C) the clutch is disengaged, draining the high-pressure air and reducing the load on the engine.

VMAC recommends the use of certified and approved high performance synthetic oil is used to lubricate the compressor. The oil/air separator tank removes most of the oil from the compressed air and the coalescing separating filter removes the remaining oil. The oil is passed through a replaceable filter to remove contaminants.

The compressor air intake is equipped with a replaceable paper filter element.

### System Components



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## 1.5 Auxiliary Air Tank

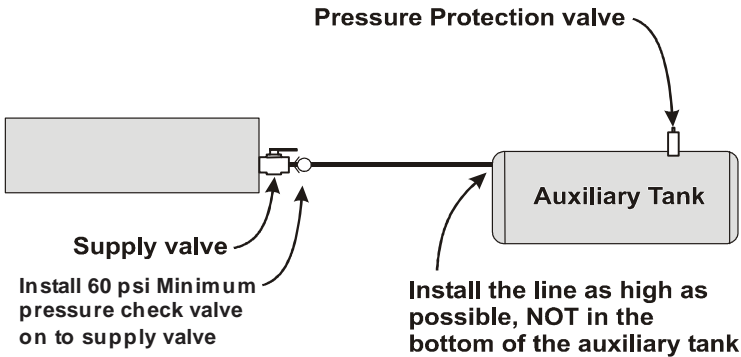


If an auxiliary air tank is to be used with this system the following setup **MUST** be followed. Failure to observe this procedure will result in damage to the system.



Hose reels may be considered as air storage device and must be treated same as auxiliary tank.

1. The auxiliary air tank must be connected to the supply valve.
2. The air line **MUST** have a 60 psi minimum pressure check valve installed to prevent blow back from the auxiliary air tank into the compressor system.
3. The air line **MUST** be connected as high as possible on the auxiliary air tank.
4. The auxiliary air tank **MUST** have a pressure protection valve calibrated for about 200 PSI (1379 kPa).



## 2.0 Routine Maintenance

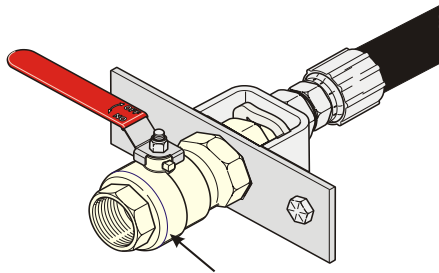


**Impact damage and premature bearing failure may occur in the compressor bearings if the system is not operated on a regular basis due to vibration caused by truck operation. Operate the system at least every 30 days for 15 minutes at no load to ensure bearing lubrication and rotation.**

Maintenance is a planned program, which provides an orderly series of service and inspection procedures, together with cleaning. A well planned maintenance program lowers maintenance costs, reduces down time and can prevent possible accidents due to failed components.



Shut down the Welder/ Compressor for 5 minutes. After 5 minutes open the pressure supply valve to ensure the system is fully depressurized.



Pressure Supply Valve

### Torque Specifications

STANDARD GRADE 8 NATIONAL COARSE THREAD								
Size	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4
Foot-pounds (ft-lb)	9	18	35	55	80	110	170	280
Newton meter (N•m)	12	24	47	74	108	149	230	379
STANDARD GRADE 8 NATIONAL FINE THREAD								
Size	3/8		7/16		1/2	5/8	3/4	
Foot-pounds (ft-lb)	40		60		90	180	320	
Newton meter (N•m)	54		81		122	244	434	
METRIC CLASS 10.9								
Size	M8	M10	M12	M14	M16			
Foot-pounds (ft-lb)	19	41	69	104	174			
Newton meter (N•m)	25	55	93	141	236			

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## 2.1 Maintenance Schedule

The following maintenance schedule should be adhered to, to assure good performance and long service life. The hours indicated are those displayed on the compressor hour meter. Service should be performed at the lesser of the two intervals, whichever occurs first.

Check the Illustrated Parts List for replacement part numbers or call VMAC.

### Every time before start up

- Check the level of oil in the oil/air separator tank
- Check pressure supply valve is in good working order
- Check compressor and hoses for damage or wear
- Check after cooler drain collection bottle (if equipped)
- Check area around clutch for dirt/ oil

### Extreme Environmental Service Intervals

Change the following items as per intervals specified

- Heavy duty air filter = 250 hrs
- Compressor Oil = 250 hrs
- Oil Filter = 250 hrs
- Coalescing Filter = 250 hrs

### Every 500 hours as displayed on the hour meter or 1 year

(More frequently if used in dusty or extreme working conditions)

- Change compressor oil
- Change compressor oil filter
- Change compressor air filter

### Every 1000 hours as displayed on the hour meter or 1 year

- Change coalescing filter



VMAC certified synthetic oil should be used. Failure to use this oil or other recommended alternatives may result in damage to the compressor and will void the warranty.

## 2.2 Start-up Procedure



Read all the service procedures and safety warnings before operating the compressor.

The unit must be level or must not exceed 35°, as higher angles will affect lubrication and oil and air separation.

2.2.1 Make sure the air operated equipment is securely connected to the pressure supply valve and turned OFF.



**If air operated equipment is faulty, not securely connected, or not connected then excessive oil may be noticed in discharge air.**

2.2.2 Place the engine main RUN-STOP switch in the STOP position.

2.2.3 Place the compressor ON-OFF switch in the OFF position.

2.2.4 Turn the air supply valve OFF.

2.2.5 Perform the “Before Start Up” checks in procedure 2.1.

2.2.6 Start the engine according to the starting instructions in the Lincoln Welder’s Owners Manual.



Full air flow can only be achieved while the engine is operating at high idle.

2.2.7 While in auto turn the compressor ON-OFF switch to the ON position. Wait for the engine to idle down to the low idle state.



The clutch may be engaged in high idle but it is recommended that the compressor clutch be engaged in as low an RPM as is practical to extend clutch service life.

2.2.8 Slowly open the supply valve. The compressor will supply compressed air, as demand requires.

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## 2.3 Shutdown Procedure

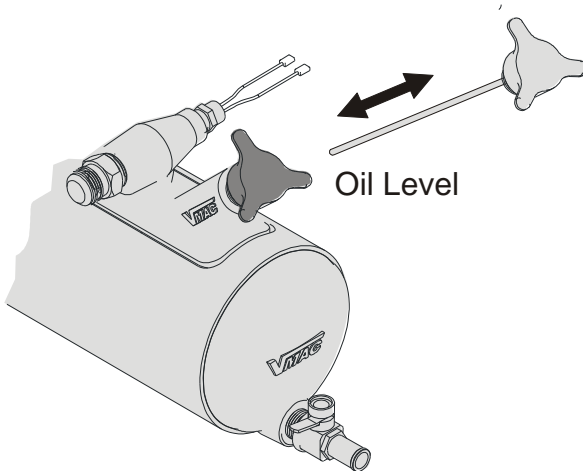
- 2.3.1 Turn OFF the air equipment connected to the supply valve.
- 2.3.2 Close the supply valve.
- 2.3.3 Turn the compressor ON-OFF switch to the OFF position.
- 2.3.4 Allow the engine to return to the low idle state.
- 2.3.5 Shutdown the engine according to the instructions in the Lincoln Welder's Owners Manual.

## 2.4 Check oil level in oil/air separator tank



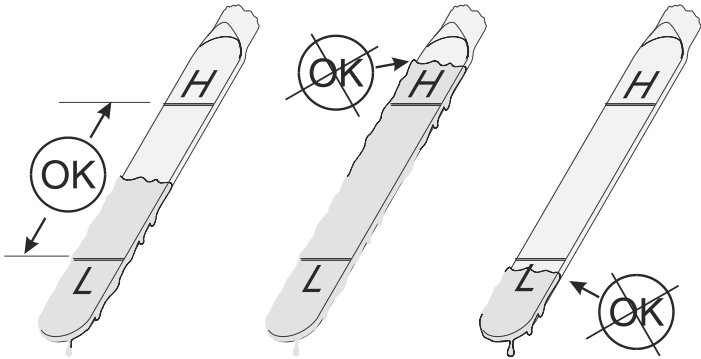
The air compressor system holds 5 litres of oil, which includes enough to fill the oil filter. The filter holds 0.3 litres of oil. The compressor holds about 0.5 litres of oil.

- 2.4.1 Unscrew the oil level dipstick and remove it. Take care not to damage the O-ring on the dipstick.
- 2.4.2 Wipe the oil level dipstick with a clean cloth or paper towel.
- 2.4.3 Insert the oil level dipstick and screw it all the way down, then unscrew and remove it.

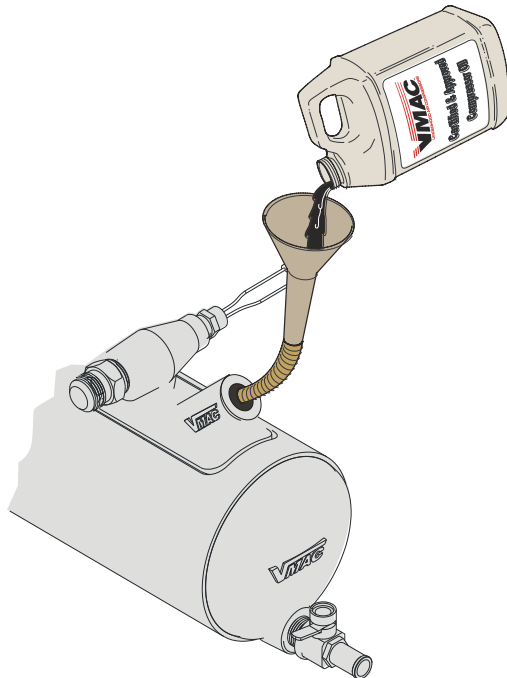


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2.4.4 Check the level mark the oil has reached on the oil level dipstick.



2.4.5 Use a funnel inserted into the dipstick hole and pour in VMAC certified or approved synthetic oil. Call VMAC for information.



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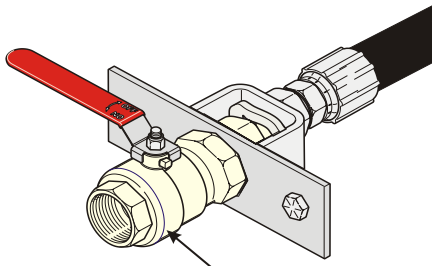
- 2.4.6 Inspect the O-ring on the dipstick for abrasions or nicks. Replace the O-ring if damaged. Install the oil level dipstick and tighten it securely.
- 2.4.7 Start the engine following the start-up procedure number 2.2.
- 2.4.8 Turn the compressor switch on the control panel to the ON position.
- 2.4.9 Allow the system to pressurize.
- 2.4.10 Turn the compressor switch on the control panel to the OFF position.
- 2.4.11 Shutdown the engine and wait 5 minutes, then open the pressure supply valve to depressurize the system.
- 2.4.12 Check for oil leaks.
- 2.4.13 Repeat steps 2.4.3 through 2.4.13 until the oil level dipstick shows the oil level in the oil/air separator tank is in the operational range.

## 2.5 Check pressure supply valve



Follow all safety precautions.

- 2.5.1 Check that the ball valve rotates freely.
- 2.5.2 Visually inspect the ball valve for damage, cracks or damaged threads.



Pressure Supply Valve



## 2.6 Check compressor for damage



Follow all safety precautions.

2.6.1 Before starting the engine, open the service door and visually inspect the compressor for:

- Cracks in the case
- Cracks in the bracket
- Oil leaks at the seams
- Loose mounting bolts
- Hoses and fittings are secure



## 2.7 Check air lines and hoses for damage



Follow all safety precautions.

2.7.1 Trace all the airlines and hoses looking for chaffing against each other or metal edges. If chaffing is seen, protect the area on the hose or airline.

2.7.2 Check that all the lines and hoses are secure. If loose hoses are seen, secure the hoses using tie straps.

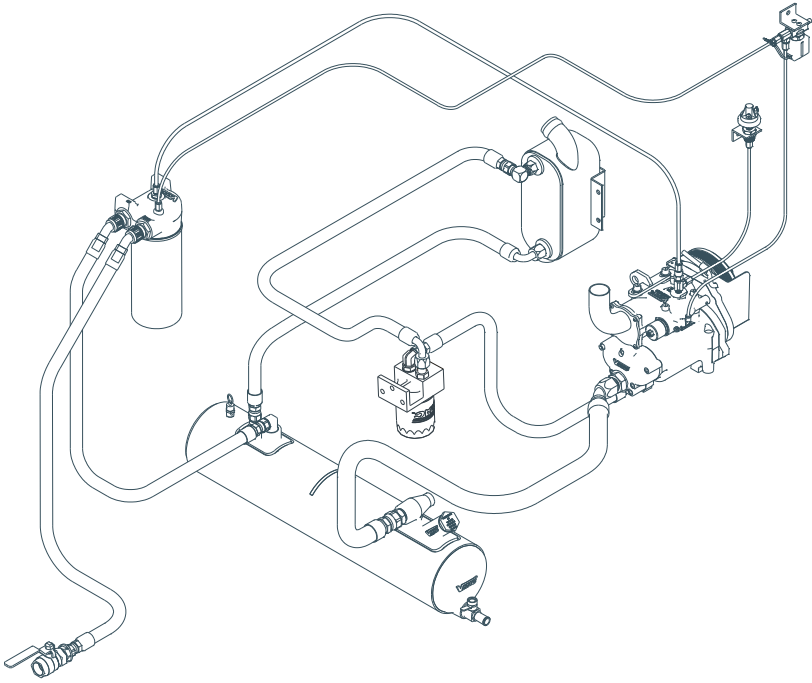
2.7.3 Examine the hoses and air lines for cuts or cracks.

2.7.4 If any of the airlines or hoses show damage they should be replaced by an authorized VMAC or Lincoln Electric Service Centre before operating the equipment.

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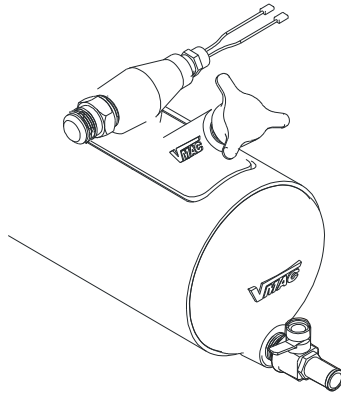
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## 2.8 Change compressor oil



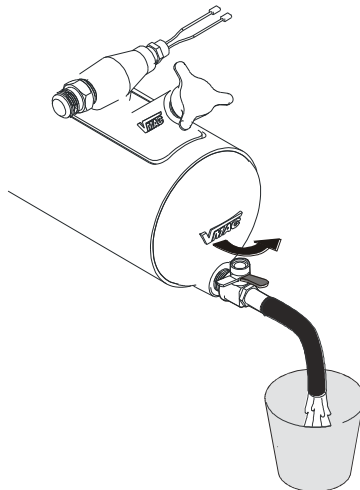
Follow all safety precautions.

2.8.1 Clean debris and dust from the area around the drain valve of the oil/air separator tank to prevent contamination.



Drain valve

2.8.2 Insert a hose over the oil/air separator tank's drain valve outlet and open the valve to drain the oil into a container large enough to hold at least 1-1/2 US Gallons (6 liters). After the oil has drained, close the valve.



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**NOTE** Dispose of the oil in accordance with the Environmental Protection Laws in your location.

2.8.4 Remove and replace the oil filter at this time following procedure number 2.9.

2.8.5 Clean debris and dust from the area around the oil level dipstick of the oil/air separator tank to prevent contamination.

**NOTE** 5 liters of VMAC certified or approved synthetic oil is required to fill the system. Contact VMAC for information.

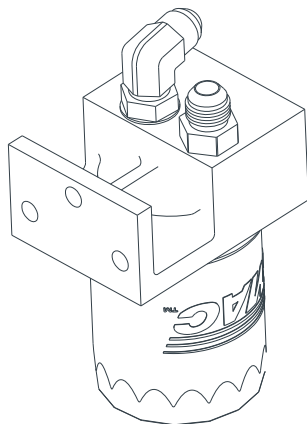
2.8.6 Unscrew and remove the oil level dipstick. Take care not to damage the O-ring on the dipstick. Use a funnel inserted into the oil level dipstick hole and pour in the required amount of VMAC oil.

2.8.7 Follow the oil level checking procedure in Section 2.4.

## 2.9 Change compressor oil filter



Follow all safety precautions.

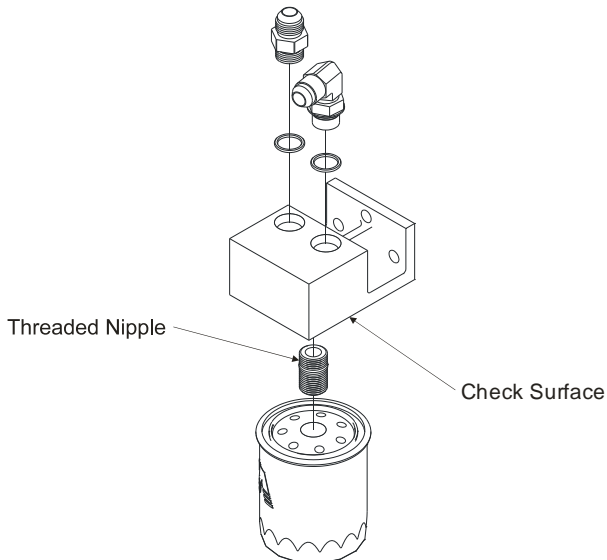


2.9.1 Clean debris and dust from the area around the manifold block and the filter to prevent contamination.

2.9.2 Remove the filter by turning it counterclockwise using a suitable filter wrench.



Check the filter to make sure that the threaded nipple did not unscrew with the filter. If it is in the filter, remove it carefully to avoid thread damage, coat the threads that go into manifold block with a small amount of Loctite blue and install it into the manifold block.



2.9.3 Check the gasket-sealing surface of the manifold block for contamination, old gasket material or damage.



Make sure the new filter is a VMAC filter, part number 9200039. This oil filter is a high pressure oil filter, not an automotive oil filter, which will rupture under high pressure.

2.9.4 Apply a thin coating of compressor oil to the filter sealing gasket.

2.9.5 Spin the filter onto the threaded nipple until the gasket contacts the sealing surface of the manifold block.

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2.9.6 Tighten the filter an additional 3/4 to 1 turn to seat the sealing gasket.



Never over-tighten the filter, as this may damage the seal or filter.

2.9.7 Follow the oil level checking procedure in Section 2.4.

## 2.10 Change compressor air filter



Follow all safety precautions. For ease of service the air filter is located on the roof of the welder. The filter is also equipped with a filter minder.

2.10.1 Clean loose dust and debris from the area around the filter cover to prevent contaminants from entering the system.

2.10.2 Remove the air filter cover retaining clamps and the cover.

2.10.3 Immediately cover the air intake to prevent contamination entering the intake hose and compressor.



Do not use compressed air or perform any other tasks around the filter and cover until both are replaced. Never clean the filter element with compressed air, as this will allow some contaminants into the compressor system. Always replace the air filter element.

2.10.4 Remove the filter element from the filter cover. Clean the inside of the cover with a clean, dry cloth.



Do not use flammable solvents to clean the inside of the cover. If a solvent has been used rinse the cover thoroughly with water and dry it before installing the cover. Fire in the compressor can cause an explosion.

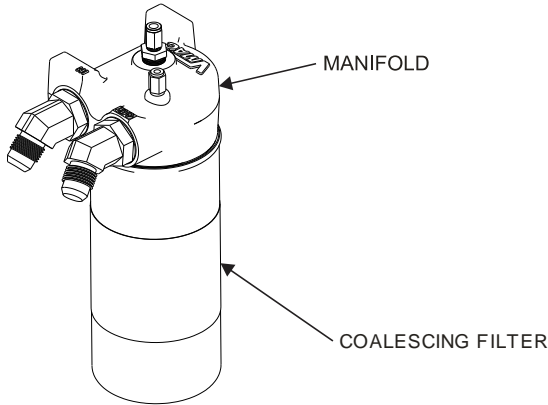
2.10.5 Remove the protecting cover from the compressor air intake.

2.10.6 Place the filter into the cover and secure it with the retaining clamps.

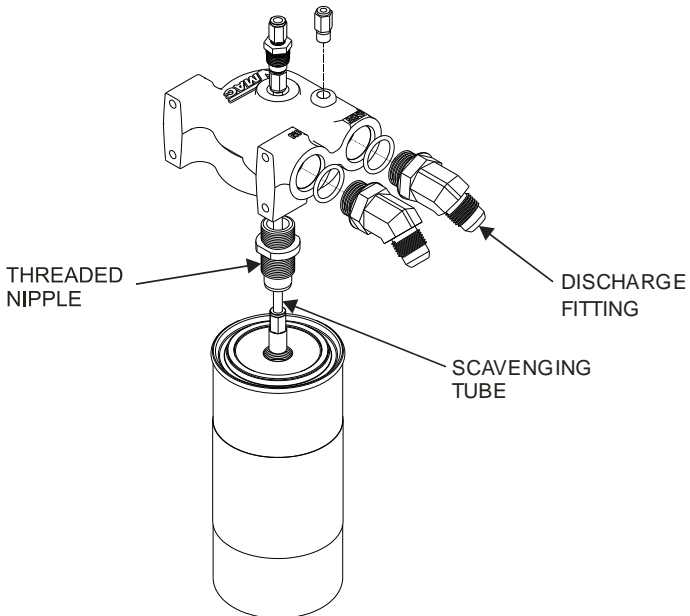
## 2.11 Change coalescing filter



Follow all safety precautions.



Do not use a screwdriver punched into the side of the filter, as this practice can damage the internal scavenging tube and screen.



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Check the filter to make sure that the threaded nipple did not unscrew with the filter. If it is in the filter, remove it carefully to avoid thread damage, coat the threads that go into manifold block with a small amount of Loctite blue and install it into the manifold block. Use caution when removing the filter so as to avoid catching the scavenge screen orifice on the bottom of the scavenge tube on the lip of the coalescing filter. This scavenge screen orifice is attached to the scavenge tube by a “push to connect” fitting, if the fitting has come off of the tube re-insert the tube into the fitting ensuring that the tube is fully engaged.

2.11.3 Check the gasket-sealing surface of the manifold block for contamination, old gasket material or damage.



Make sure the new filter is a VMAC filter, part # 3600079. This is a high pressure filter. Use of other filters not rated to the required pressure may cause the filter to rupture.

2.11.4 Apply a thin coating of compressor oil to the coalescing filter sealing gasket and coat the end of the threaded nipple, as there is also an O-ring inside the coalescing filter.

2.11.5 Spin the filter onto the threaded nipple until the gasket contacts the sealing surface of the manifold block.

2.11.6 Tighten the filter an additional 3/4 to 1 turn to seat the sealing gasket.



Never over-tighten the filter, as this may damage the seal or filter.

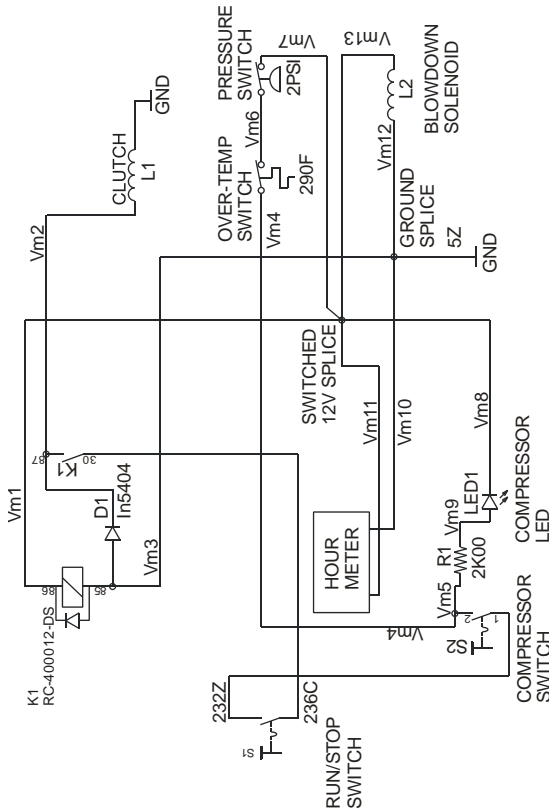
2.11.7 Check the oil level following the oil level checking procedure in Section 2.4.



## 2.12 Electrical

The air compressor electrical system receives power from the main engine RUN-STOP switch, on the control panel, when the switch is in the RUN position. The compressor switch is turned to ON to start the compressor producing high pressure air. If the compressor's oil temperature goes above 290°F (143°C) the thermal switch located in the primary air oil separator will disengage the compressor clutch and illuminate the 'Compressor Protection' indicator. This circuit is non-latching and the compressor clutch will re-engage when pressure and temperature allow.

The compressor system is also protected from engaging the clutch while at pressure. The clutch will not engage when the compressor system pressure is above 2 psi.



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## 3.0 System Diagnosis

Problem diagnosis for the compressor system should follow sound, recognized practice. Quick, accurate diagnosis of problems is possible by;

- Accurately identifying the problem by operating the system yourself, following safety practices
- Determining possible causes for the problem by understanding how the system operates
- Isolating the potential causes by accurate testing using the correct, recognized procedures
- Performing proper repairs using the correct procedures outlined in this manual and the recommended replacements parts
- Performing proper post-repair testing to ensure that the repairs were effective

When performing problem diagnostics, do not use test practices that are potentially harmful to the people involved, or the equipment.

Electrical testing should be performed according to the processes described in the troubleshooting charts and in conjunction with the manuals provided by Lincoln Electric.

<b>SYMPTOM</b>	<b>POSSIBLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
Frequent relief valve operation	Pressure control line plugged or frozen	Remove and clear the line
	Defective relief valve	Replace the valve
Compressor does not run	High system pressure	Clutch will not engage with more than 2 psi system pressure
	High oil temperature	See "frequent over-temperature shut-down"
Frequent over-temperature shut-down	Low oil level	Check oil level with equipment on level ground
	Restricted oil lines	Check for kinked or pinched lines
	Plugged oil filter	Replace oil filter
	Cooler not functioning or plugged	Replace or clean oil cooler
	Engine cooling system failure (high engine temperature)	Correct problem
	High ambient temperatures	Reduce duty cycle
	Oil temperature sensor failure	Replace if defective
	Inadequate ventilation	See Lincoln "Operator manual"
Excessive oil in the air	Coalescing separator failure	Replace element
	Clogged scavenge line screen	Clean or replace
	High oil level	Check oil level with equipment on level ground
	Operating angle in excess of 35 degrees from horizontal	Reduce operating angle
	Air operated equipment is faulty, or not correctly connected to supply valve	Test air operated equipment for proper operation and connect to supply valve
	Incorrect start-up/shutdown procedures	Observe start up/ shutdown procedures detailed in this manual.
Objectionable noise level	Excessive gear wear	Replace gearbox assembly

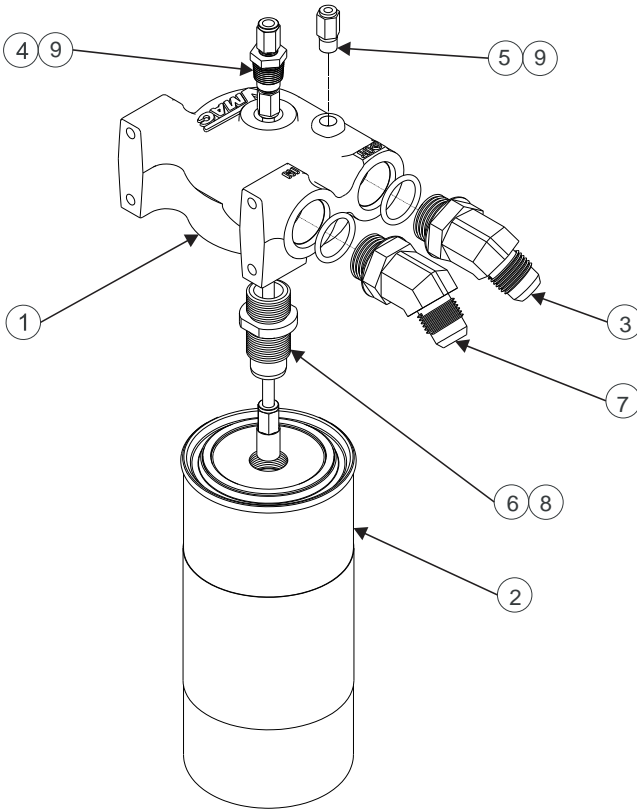
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# 4.0 Illustrated Parts Lists

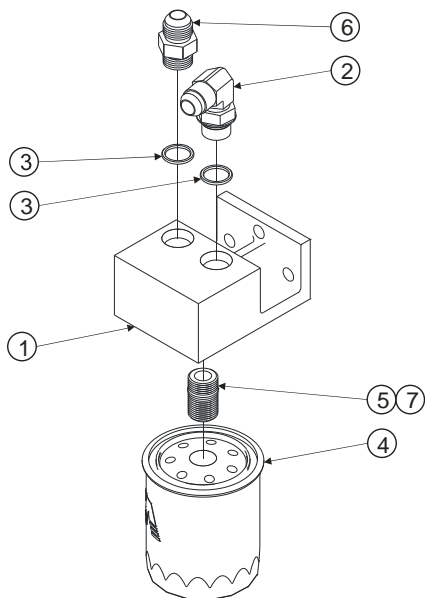
## 4.1 Manifolds and Filters



9300107 Coalescing filter assembly

Item	Qty.	Part #	Description
1	1	9300105	Filter head, machining
2	1	3600079	Oil separator, spin on
3	1	9300102	Fitting, modified
4	1	9300025	Assembly, scavenge tube
5	1	5000162	Connect, Brass NPT-Poly,3/16-1/8 NPT
6	1	9300007	Adapter
7	1	4900158	Conn, Steel, 45, #10 JIC - #12 ORB
8	A/R	5400396	Loctite,242, blue
9	A/R	5400579	Loctite,567,Thread sealant,high temp

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9300097 Oil filter assembly

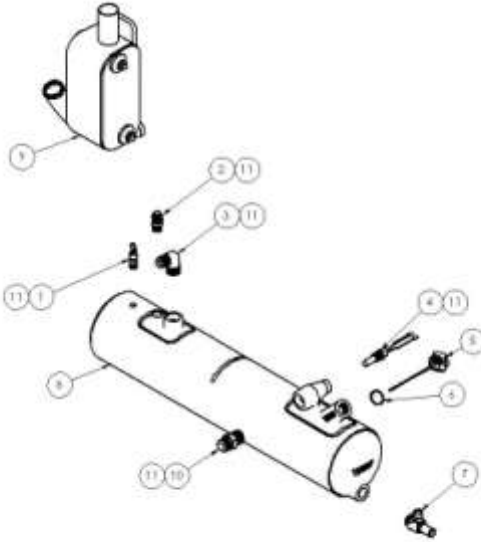
Item	Qty.	Part #	Description
1	1	3200392	Manifold
2	1	4900002	Elbow, steel JIC/O-ring, 1/2 3/4-16
3	2	5830132	O-ring, Viton, #8 ORB
4	1	9200039	Oil Filter, VR 3.250 Short
5	1	4900035	Nipple, steel, str thrd, 3/4 - 16
6	1	4900046	Conn, Stl,3/4-16 O-ring to 1/2 Tube
7	A/R	5400396	Loctite, 242, Blue

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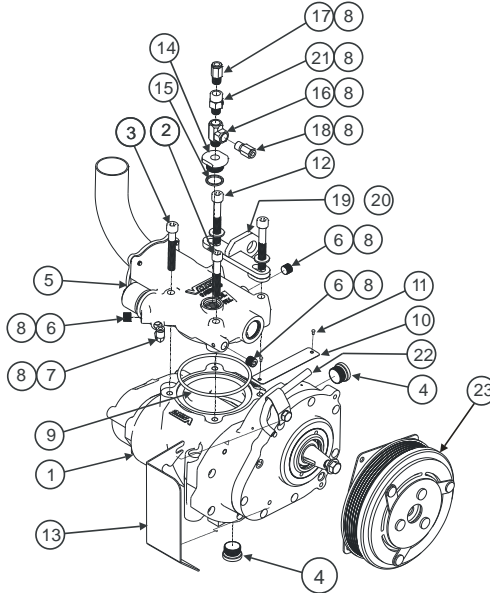
## 4.2 Oil/Air Separator Tank and Cooler



Item	Qty.	Part #	Description
1	1	3600054	Valve - pressure relief 1,379 kPa (200 PSI)
2	1	5000089	Connector, brass, NPT- SAE, 3/8 - 1/2
3	1	5000141	Connector - 90° 3/4 NPT to 5/8 SAE
4	1	3550691	Temperature thermostat
5	1	9300090	Dipstick compressor oil
6	1	5830112	O-ring Viton
7	1	3200360	Valve, Modified (3600085) gasket supplied
8	1	9300055	Oil/air separator tank assembly
9	1	9300056	Oil cooler
10	1	4900033	Connector
11	A/R	5400345	Loctite, 592, thread sealant, slow cure

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## 4.3 Compressor and drive components



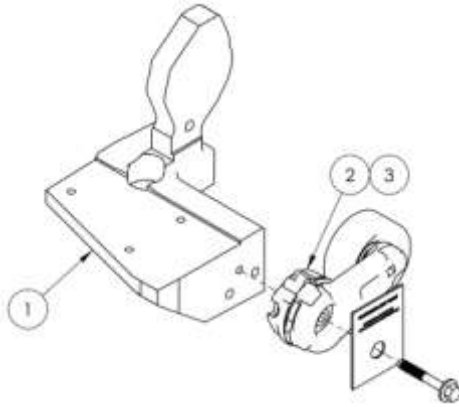
P120132 - Compressor Assembly

Item	Qty.	Part #	Description
1	1	P120010	VR70 Compressor assembly
2	1	1540550	Bolt, SHCS, M8 X 1.25 X 50, G12.9 plt.
3	1	1540530	Bolt, SHCS, M8 X 1.25 X 55, G12.9 plt.
4	1	4900045	Plug, steel, hex SAE/ O-ring port
5	1	9300104	Inlet valve, S700157
6	1	4300076	Pipe ftg, plug skt head, 1/8
7	1	5000165	Elbow, 90, brass, NPT-Poly, 1/8-3/16
8	A/R	5400345	Loctite, 592, thread sealant, slow cure
9	1	5830004	O-ring, viton, 3 1/8 ID X 1/8
10	1	4400594	Label, Name Plate, Generic
11	2	1500355	Screw, Long U Drive, 2 - 3/16
12	2	1540427	Bolt, SHCS, M8 X 1.25 X 60
13	1	1200617	Guard, clutch
14	1	3200373	Fitting, inlet scavenge
15	1	5830132	O-ring, VITON, #8 ORB
16	1	5000121	Tee, street, extruded, 1/8
17	1	5000012	Connector, brass NPT-poly, 1/8-1/4
18	1	5000162	Connector, brass NPT-poly, 3/16-1/8
19	1	1200616	Bracket, brace
20	2	1570067	Washer, SAE, 5/16
21	1	3600123	Valve, Check, 1/8 NPT
22	5"	3500156	Tubing, PVC alpha black, 2-100
23	1	P200035	Clutch, Complete 6 Groove

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Item	Qty.	Part #	Description
1	1	1100187	Bracket, main, Cummins B3.3
2	1	3300036	Tensioner
3	A/R	5400396	Loctite, 242, blue

Main Bracket Assembly



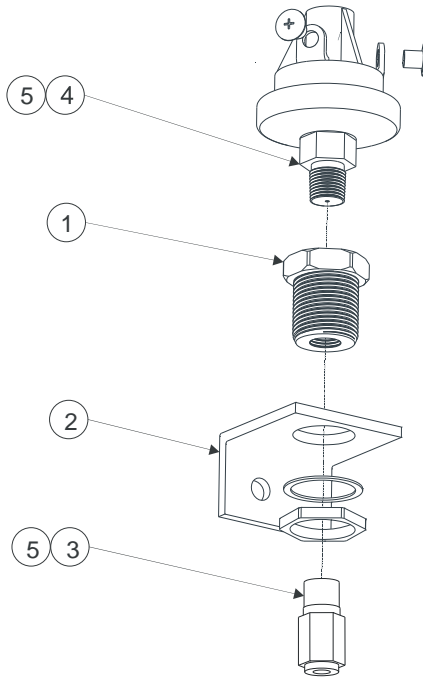
Drive components

Item	Qty.	Part #	Description
1	1	4800566	Pulley, crank, Cummins B3.3
2	1	1650270	Belt 47.5"
3	1	3400072	Spacer, fan

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## 4.4 Pressure Switch Assembly



4800565 – Pressure Switch Assembly

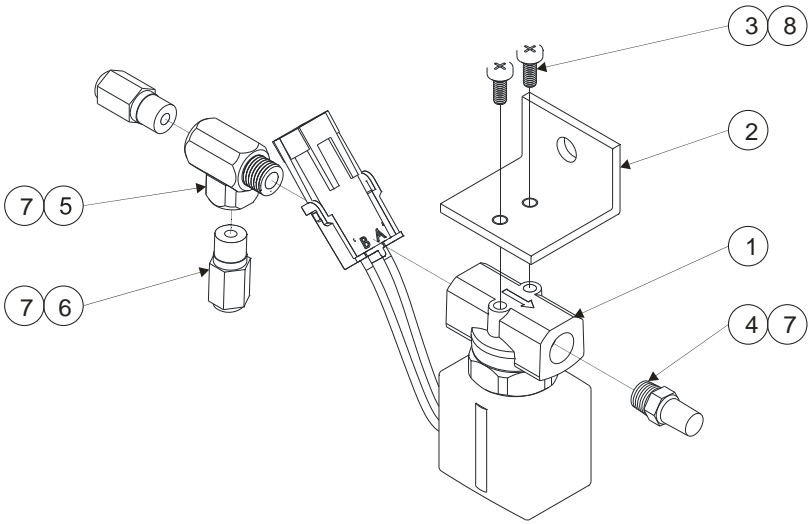
Item	Qty.	Part #	Description
1	1	5000178	Connector, Brass Bulkhead, 1/8
2	1	1200628	Bracket, Pressure Switch
3	1	5000162	Connect,Brass NPT-POLY,3/16-1/8 NPT
4	1	3501068	Switch Pressure N.C. 2PSI
5	A/R	5400579	Loctite,567,Threadsealant,High Temp

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## 4.5 Solenoid Assembly



4800562 – Solenoid Assembly

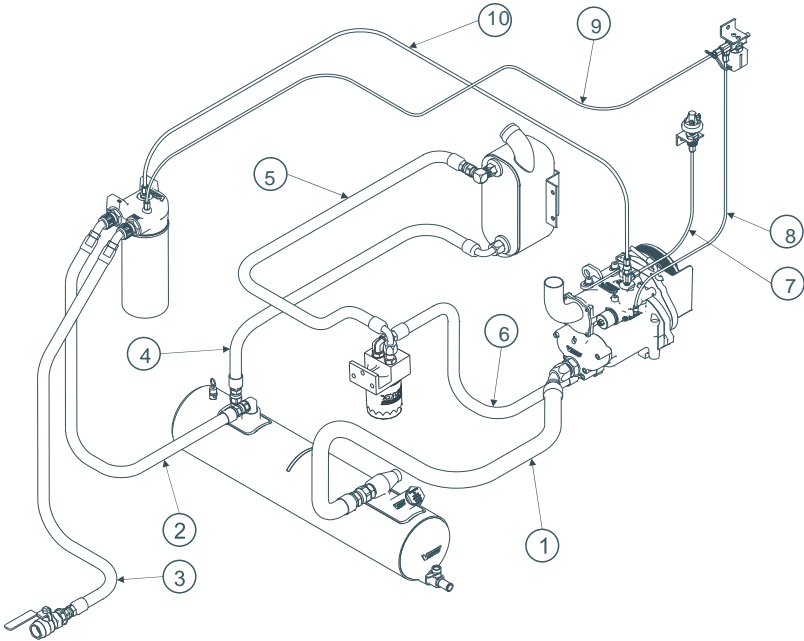
Item	Qty.	Part #	Description
1	1	3550764	Assy., Valve Solenoid, Norm.Open 12V
2	1	1200618	Bracket, Solenoid
3	2	1500604	Screw, Phillips Head Pl, M4 X 10
4	1	4500104	Muffler, Sintered Exhaust, 1/8"
5	1	5000121	Tee, Street, Extruded, 1/8
6	2	5000162	Connect, Brass NPT-POLY, 3/16-1/8 NPT
7	A/R	5400579	Loctite, 567, Threadsealant, High Temp
8	A/R	5400396	Loctite, 242, Blue

## 4.6 Electrical Components



Item	Qty.	Part #	Description
1	1	3550769	Harness S700157

## 4.7 Hoses and tubing



Item	Qty.	Part #	Description
1	1	1771023	Hose, crimped, 3/4 x 23"
2	1	1710775	Hose, crimped, 5/8 x 46"
3	1	1710774	Hose, crimped, 5/8 x 65"
4	1	1752016	Hose, crimped 1/2 x 16"
5	1	1752069	Hose, crimped 1/2 x 69"
6	1	1752020	Hose, crimped, 1/2 x 20"
7	8.0"	1700571	Tube, Teflon, 3/16 OD
8	12"	1700571	Tube, Teflon, 3/16 OD
9	33"	1700571	Tube, Teflon, 3/16 OD
10	33"	1700570	Tube, Teflon, 1/4 OD

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## 4.8 Fastener Pack - 3800783

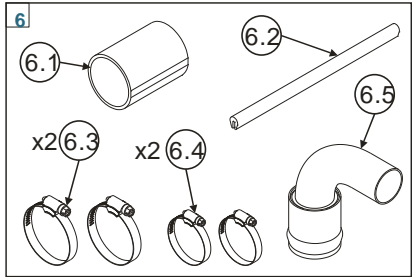
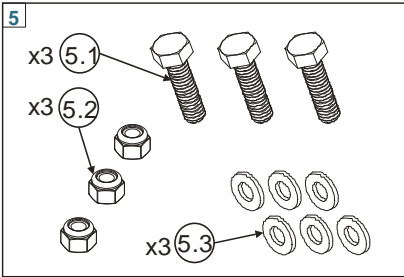
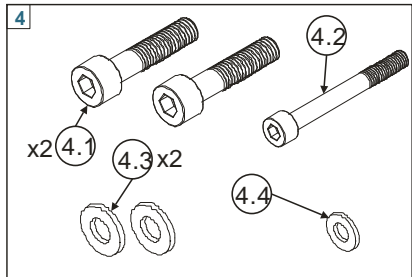
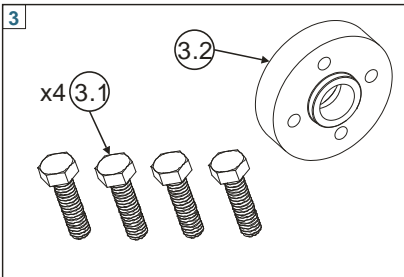
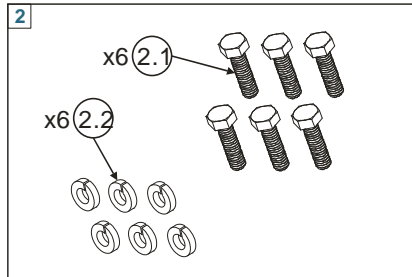
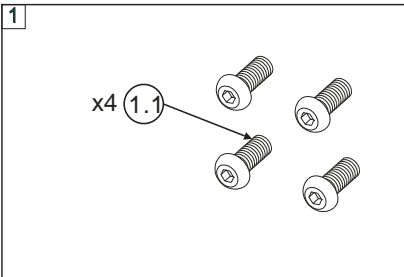
Item #	Part #	Qty.	Description
1	3800467	1	FASTENER PACK, TANK INSTALLATION
1.1	1530282	4	BOLT, SHCS NC G8, 5/16 X 3/4 BUTTON
2	3800468	1	FASTENER PACK, OIL COOLER/MANIFOLD INST.
2.1	1510025	6	BOLT, HHCS NC G8 PL, 3/8 X 1
2.2	1570009	6	WASHER, SPLIT LOCK, 3/8
3	3800784	1	FASTENER PACK, FAN SPACER
3.1	1520588	1	BOLT,HHCS,PL,G10.9,FL M8X1.25X 40MM
3.2	3400072	4	SPACER, FAN
4	3800785	1	FASTENER PACK, COALESCER MOUNT
4.1	1540146	2	BOLT, SHCS, M10 X 1.5 X 25
4.2	1540530	1	BOLT,SHCS,M8 X 1.25 X 55, G12.9 PLT
4.3	1570044	2	WASHER, ALLOY PL SAE, 3/8
4.4	1570067	1	WASHER, SAE, 3/8
5	3800787	1	FASTENER PACK, FILTER, OIL, MOUNT
5.1	1520513	3	BOLT, HHCS G10.9, M8 X 1.25 X 30
5.2	1560407	3	NUT, NYLOCK, M8
5.3	1570067	6	WASHER, SAE, 5/16
6.4	3800789	1	FASTENER PACK, FILTER, REMOTE MOUNT
6.1	1700387	3"	HOSE, COOLANT, 2" GREEN STRIPE
6.2	1700523	11"	MOULDING, EDGE, BLACK, 9/32
6.3	2200027	2	CLAMP, HOSE HS32
6.4	2200062	2	CLAMP, HOSE HS24
6.5	9300103	1	CONNECTOR, REMOTE FILTER
7	3800790	1	FASTENER PACK, ASSEMBLY, COMPRESSOR
7.1	1520513	3	BOLT, HHCS G10.9, M8 X 1.25 X 30
7.2	1570058	3	WASHER, SPLIT LOCK, 5/16
7.3	1570067	3	WASHER, SAE, 5/16
7.4	4900138	1	FITTING, M JIC#8 X M ORB#8 LONG
8	3800791	1	FASTENER PACK, FITTING, OIL COOLER
8.1	4900047	1	ELBOW, STEEL JIC, 90 DEG, 1/2 – 1/2
9	3800792	1	FASTENER PACK, BRACKET, MAIN
9.1	1540171	2	BOLT, SHCS, M10 X 1.5 X 30
9.2	1540561	2	BOLT, SHCS, M10 X 1.5 X 75
9.3	5830138	1	RING, BUNA, M3 X 84
10	3800841	1	FASTENER PACK, POLY TUBES
10.1	1700570	15"	TUBE, TEFLON,PTFE, 1/4"OD
10.2	1700571	20.5"	TUBE, TEFLON,PTFE, 3/16"OD X 1/8"ID
10.3	1700571	19"	LOOM, SPLIT PLASTIC, 1/4, HIGH TEMP
10.4	1700571	8"	LOOM, SPLIT PLASTIC, 1/4, HIGH TEMP

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10.5	1700581	13"	LOOM, SPLIT PLASTIC, 1/4, HIGH TEMP
10.6	1700581	18.5"	LOOM, SPLIT PLASTIC, 1/4, HIGH TEMP
10.7	1700581	17"	LOOM, SPLIT PLASTIC, 1/4, HIGH TEMP
10.8	1700581	6"	LOOM, SPLIT PLASTIC, 1/4, HIGH TEMP
10.9	2200019	12	TIE, NYLON MD 6"
11	3800841	1	FASTENER PACK, ENGINE MOD PACK S700157
11.1	4300085	3	PIPE, FTG, PLUG, SKTHD, MODIFIED
11.2	5000055	1	ELBOW, BRASS STREET, 1/8



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