

Installation Manual for VMAC OEM Separator Package – A230102

www.vmacair.com

Table of Contents

TABLE OF CONTENTS	1
GENERAL INFORMATION	3
SAFETY	4
SAFETY PRECAUTIONS	5
AIR/OIL SEPARATOR TANK (AOST) INSTALLATION	7
COALESCER INSTALLATION	9
BLOWDOWN SOLENOID INSTALLATION	11
CONNECTING THE HOSES	12
PUSH-TO-CONNECT FITTINGS	12
JIC FITTINGS	13
ADDING OIL TO THE SYSTEM	14
ILLUSTRATED PARTS LIST	15
SEPARATOR PACKAGE – A230102	16
SEPARATOR TANK – 2120101	17
COALESCER ASSEMBLY – 2130114	18
BLOWDOWN SOLENOID ASSEMBLY – 4800787	19

Changes and Revisions

Revision	Revision Details	Revised by	Checked by				Implemented
			Eng.		Tech.	Qual.	
			Mech.	Elec.			
A	ECN-19-213: Engineering Release	NDB	PID	N/A	DSB	A.M.	10 DEC 2020

Important Information

The information in this manual is intended for approved VMAC installers who have been trained in installation and service procedures and/or for anyone with mechanical trade certification who have the tools and equipment to properly and safely perform the service. Do not attempt this service without the appropriate mechanical training, knowledge, and experience.

Follow all safety precautions for mechanical work. Any fabrication for correct fit in equipment must follow industry standard “best practices”.

Notice

Copyright © 2020 VMAC Global Technology Inc. All Rights Reserved. These materials are provided by VMAC for informational purposes only, without representation or warranty of any kind, and VMAC shall not be liable for errors or omissions with respect to the materials. The only warranties for VMAC products and services are those set forth in the express warranty statements accompanying such products and services, if any, and nothing herein shall be construed as constituting an additional warranty. Printing or copying of any page in this document in whole or in part is only permitted for personal use. All other use, copying or reproduction in both print and electronic form of any part of this document without the written consent of VMAC is prohibited. The information contained herein may be changed without prior notice.

Printed in Canada

General Information

Introduction

This manual provides installation instructions for the generic Separator Package which includes the oil separator tank, coalescer filter, blowdown solenoid, and their supplemental components. Read this manual prior to servicing or operating the compressor system.

Follow all safety precautions when servicing or operating the VMAC system.

Proper service and repair are important to the safety of the operator and the safe, reliable operation of the equipment. Always use genuine VMAC replacement parts.

The procedures described in this manual are the only approved methods of service and operation.

Ordering Parts

To order parts, contact the VMAC Inside Sales department. To assist in selecting the appropriate parts, please provide the VMAC compressor serial number, part number, description, and quantity. Contact VMAC Inside Sales by calling 1 (887) 912-6605 or by email to sales@vmacair.com.

Safety

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, service techniques and running OEM changes. If a discrepancy is found in this manual, contact the VMAC OEM department prior to initiating or proceeding with installation, service or repair. Current information may clarify the issue. Anyone with knowledge of such discrepancies, who proceeds to perform 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 the operational safety or performance of the equipment.

VMAC will not be held responsible for any liability, consequential damages, injuries, loss or damage to individuals or to equipment as a result of the failure of anyone to properly adhere to the procedures set out in this manual or standard safety practices. Safety should be the first consideration when performing any service operations. If there are any questions concerning the procedures in this manual, or more information is required, please contact VMAC OEM department prior to beginning repairs.

Safety Messages

This manual contains various warnings, cautions and notices that must be observed to reduce the risk of personal injury during installation, service or repair and the possibility that improper installation, service or repair may damage the equipment or render it unsafe.

	<p><i>This symbol is used to call attention to instructions concerning 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 aware of the possibility of personal injury or death. As it is impossible to warn of every conceivable hazard, common sense and industry standard safety practices must be observed.</i></p>
	<p><i>This symbol is used to call attention to instructions on a specific procedure that if not followed may damage or reduce the useful life of the compressor or other equipment.</i></p>
	<p><i>This symbol is used to call attention to additional instructions or special emphasis on a specific procedure.</i></p>

Safety Precautions



As it is impossible to warn of every possible hazard that may result from operating this system, common sense and industry standard safety practices must be observed.

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.

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.

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.




Moving Parts Hazard


- Before performing service, disconnect the power source to prevent unexpected equipment start.
- Do not operate the system without guards in place. If the guards are damaged or missing, replace them before operating the equipment.






Burn Hazard

- The compressor system gets very hot during operation, contact with the components or the oil can cause serious injury. Allow sufficient time for the system to cool prior to performing service.
- Never allow any part of your body to contact the compressor components until the system has cooled sufficiently.

	<p>Compressor Air and Oil Hazard</p> <ul style="list-style-type: none"> • The compressor system is under sufficient pressure that a leak could force the air/oil mixture through the skin directly into your bloodstream. This could cause serious injury or death. • Ensure the system is completely depressurized before attempting maintenance or repair. • Do not use compressed air to clean off clothing or skin, compressed air can penetrate the skin causing serious injury or death. • Do not move or service the system while it is pressurized or operating. • Components and hoses under pressure could separate suddenly and cause serious injury or death. If equipped, the air receiver tank must be drained prior to servicing the system. • Never adjust or attempt to make any repairs to the system while the engine is running. Components and hoses under pressure could fail and cause serious injury or death.
--	---

	<p>Burst Hazard</p> <ul style="list-style-type: none"> • Serious injury or death may result from an air tank explosion. • Never exceed manufacturer's maximum air pressure rating. • Do not repair components, only replace with approved parts. • Do not tamper with, or disable factory safety equipment.
--	--

  	<p>Personal Safety</p> <ul style="list-style-type: none"> • Vaporized oil is a respiratory hazard, do not breathe the compressor air. • Always use the appropriate personal protective equipment, particularly eye and hearing protection when operating air powered equipment.
---	--

Air/Oil Separator Tank (AOST) Installation

Locate the VMAC air/oil separator tank in a suitable location that provides easy accessibility and does not contact temperature sensitive equipment. Ensure there is sufficient space to remove the oil filter, connect the air lines, read the sight glass and access the oil drain.



To prevent compressor flooding with oil after shutdown, increasing startup load, and possibly causing component damage or premature wear, it is best practice to mount the tank below the level of the compressor. If mounting above the compressor is required, a check valve package A270102 must be installed. Refer to the manual supplied with the A270102 package for check valve location and orientation information.

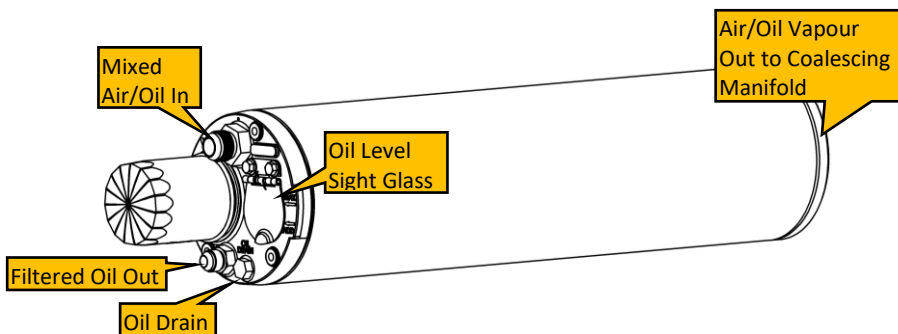


Figure 1 - Separator Tank Overview

- Place the tank on a workbench and remove the oil filter tag (Figure 2).
- Remove the two ¼" pinch bolts from the C-clamps. Expand the clamps slightly and slide them over the front of the tank (Figure 2).
- Position the clamps in a suitable location for attachment to piece of equipment (Figure 2).

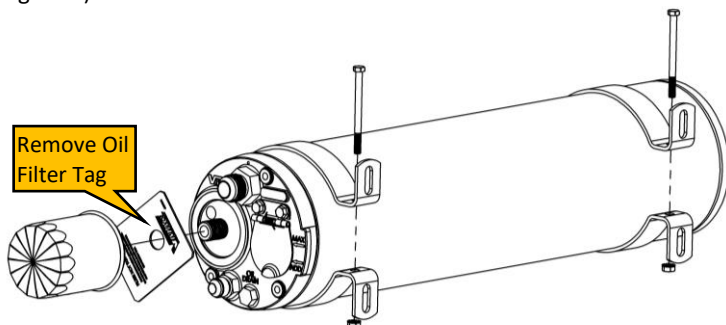


Figure 2 - Installing Tank Brackets

- Rotate the tank into the orientation shown in Figure 3. The tank shall be upright with the oil drain being its lowest point when mounted onto the equipment, then tighten the pinch bolts on the C-clamps to secure the tank.

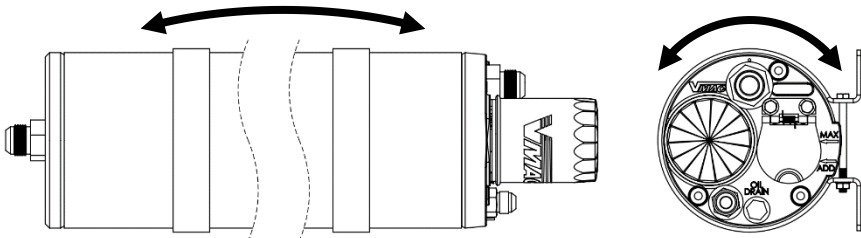


Figure 3 – Tank Level (left) and Orientation (right)



Tank orientation is critical. It must be installed level and with the "UP" arrow pointing upwards and the writing right-side up and horizontal. During operation the tank must not exceed 15 degrees of tilt in any direction. If the tank is not oriented correctly, you may experience oil starvation or oil carry-over. This can lead to compressor overtemp and possible failure.

- Install the tank onto the equipment (mounting fasteners not supplied) through the C-clamps into mounting points on the equipment. Ensure that the tank is as level as possible.
- Install the oil fill tee fittings (3800825) as shown in Figure 4. When installing, ensure that the cap is upright and easily accessible.

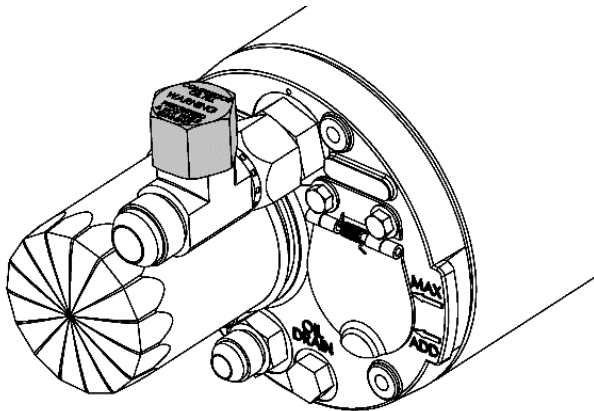


Figure 4 - Optional Oil Fill Location

Coalescer Installation

Locate the VMAC Coalescer assembly in a suitable location that provides easy accessibility and does not contact temperature sensitive equipment. Best practice is to minimize the distance between the separator tank and the coalescer to reduce moisture content in the system. Ensure there is sufficient space to remove the coalescing filter, connect the air lines, and access the pressure relief valve.

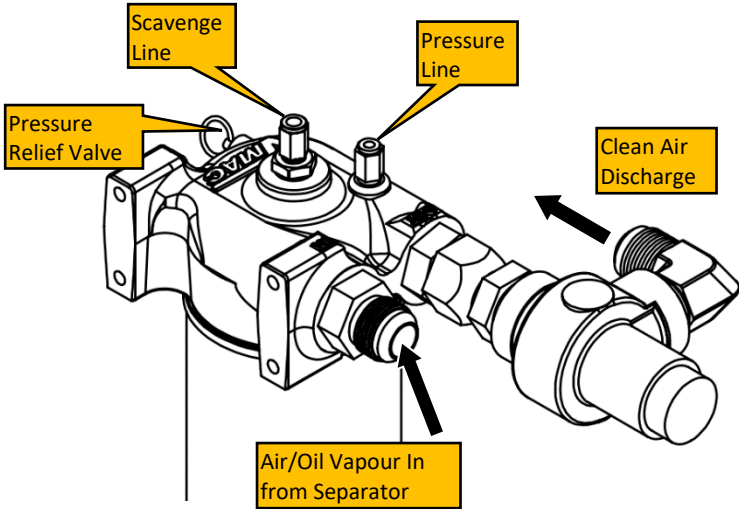


Figure 5 - Coalescer Overview

- Mount the coalescer using the mount pattern shown in Figure 6. The assembly should be mounted vertically (as pictured) $\pm 20^\circ$. Mounting bolts are 5/16–18 UNC thread.

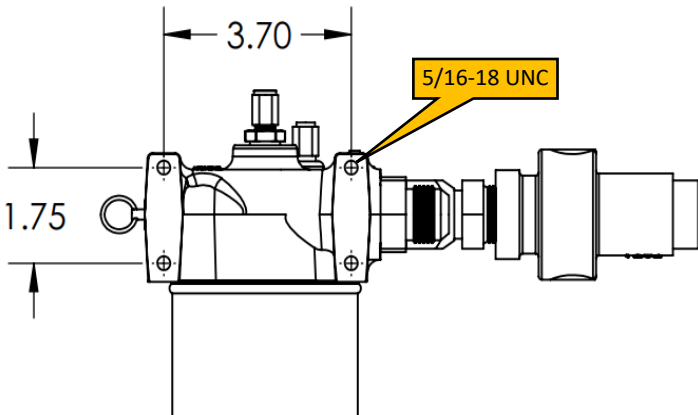


Figure 6 - Coalescer Mounting Dimensions

- Ensure that the Minimum Pressure Check Valve (MPCV) – 3600152 on the coalescer is in the position and orientation shown in Figure 7. Alternatively, the MPCV can also be mounted anywhere downstream from the “OUT” port of the coalescer. When connecting JIC fittings, follow the guideline illustrated on pg13.



Ensure MPCV is installed downstream of the “OUT” port on the coalescing manifold. Improper MPCV orientation or hose routing on the coalescer could result in compressor failure or personal injury.

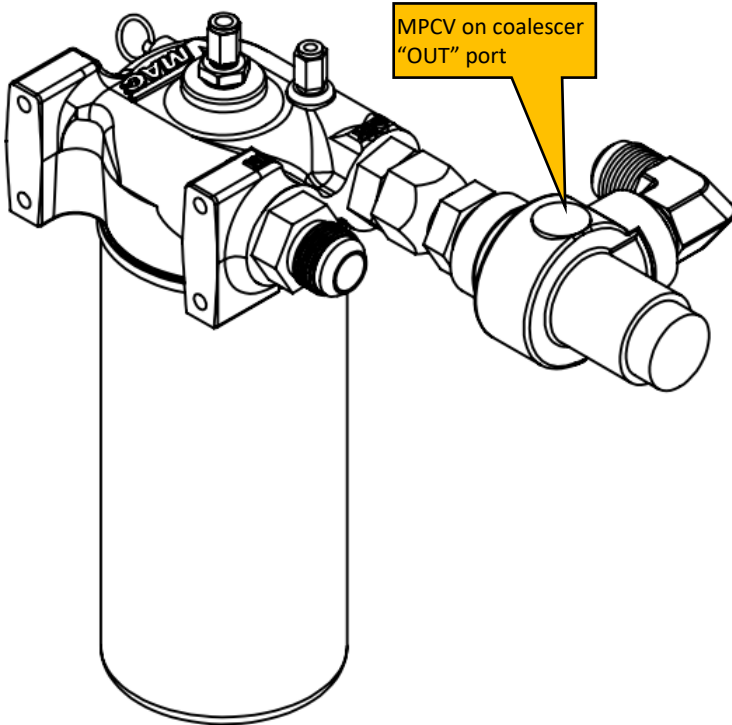


Figure 7 - Recommended MPCV Position

Blowdown Solenoid Installation



Mount the blowdown solenoid vertically so that any residual moisture can be drained and prevent buildup and blockages inside the solenoid valve. Residual moisture can lead to premature wear on the valve and failure to depressurize the system.

Locate the blowdown solenoid in a suitable location that provides easy access to it. Use a 5/16" or M8 bolt with the hole provided in the bracket to mount the blowdown solenoid. Ensure the blowdown solenoid is orientated as shown in Figure 8 below. This orientation allows the solenoid to drain any residual water that may have entered during the compressor shutdown and pressure release cycle. Residual moisture can reduce the life of the solenoid or cause a blockage resulting in malfunction of the pressure release cycle on shutdown.

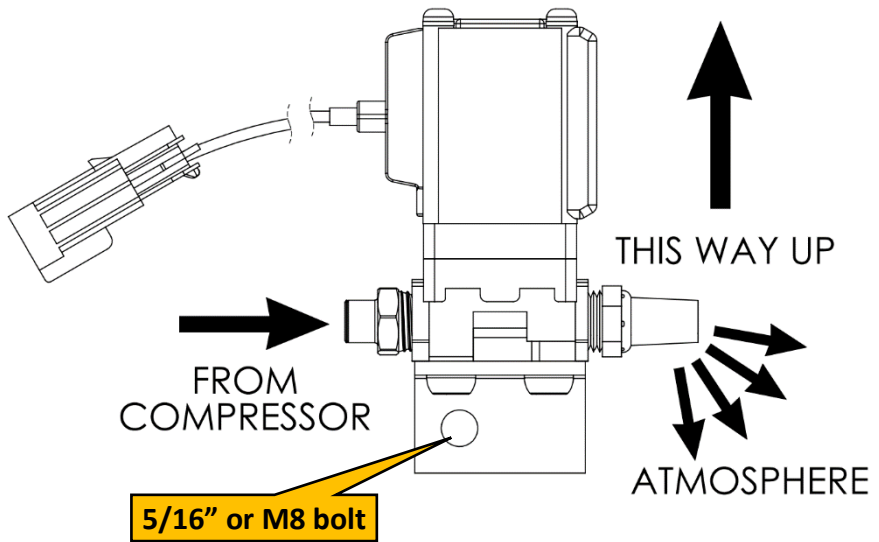


Figure 8 - Blowdown Solenoid Orientation

Connecting the Hoses



When routing hoses, ensure cap plugs are installed so that contaminants do not get in the line. Take care when routing hoses, as a hose failure may damage the compressor and/or cause injury.



All hoses, tubes and wires that are installed, rerouted or shifted during the installation must be secured so that they do not contact any hot, sharp or moving parts. Use rubber coated P-clips wherever possible. Follow the routing suggestions in this manual and cover all hoses with plastic loom.

Push-To-Connect Fittings

- Firmly push the tube into the fitting so that it fully seats in the fitting.
- Slide the collet out, away from the body of the fitting to lock the tubing in place.
- Ensure the tube does not have any 'play' to prevent the O-ring from wearing.

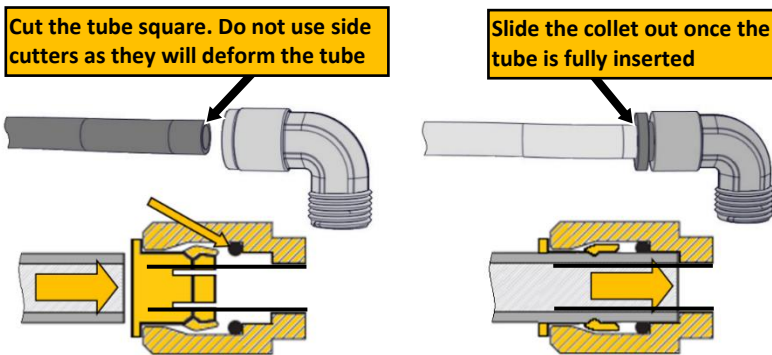




Figure 9 - Push-To-Connect Fittings

JIC Fittings

	<p><i>Do not overtighten JIC Hydraulic fittings. Overtightening may cause reduced life or permanent deformation of the sealing area of the fitting.</i></p>
	<p><i>JIC type hydraulic fittings do not require sealing compound or teflon sealing tape. JIC fittings when properly tightened form a metal to metal seal. Adding sealing compound or teflon sealing tape may introduce gaps and prevent the formation of a seal.</i></p>

- Spin-on the swivel nut by hand until it bottoms out; do not overtighten by hand.
- Using two appropriately sized wrenches, tighten the swivel using the Flats From Wrench Resistance (FFWR) method.



FFWR method:

- At the bottom out position, mark a line across the two fittings
- Note the fitting/hose size and tighten the fitting by the value indicated in the table below.
- Turn the fitting by the number of flats indicated (1 flat = 1/6 revolution or 60° rotation) or until firm resistance is met.

Fitting (hose) size	Flats	Degrees rotation
#04 (1/4")	2	120°
#05 (5/16")	2	120°
#06 (3/8")	1-1/2	90°
#08 (1/2")	1-1/2	90°
#12 (3/4")	1-1/4	75°
#16 (1")	1	60°

Table 1: FFWR Method Tightening Values

Adding Oil to the System

	<ul style="list-style-type: none">● <i>Use only VMAC approved compressor oil in this system. Failure to use approved oil may result in damage to the compressor and will void warranty.</i>● <i>Do not overfill the system. Overfilling the system with oil can flood the sight glass window and make the system appear empty. This can lead to excessive oil carryover.</i>
	<ul style="list-style-type: none">● <i>Oil level as viewed through the sight glass should be checked while the compressor system is OFF. Checking the oil level while the system is running can result in a false indication of oil level.</i>

- Remove the fill cap on the AOST (above the sight glass) (Figure 10), or on the compressor inlet.
- Using a funnel, pour 4L oil into the tank and run the unit. Let the system cool down (~10 minutes), check the oil level using the sight glass. If required, add another 1/2L of oil and run the unit again. Repeat until the oil level in the sight glass reaches the “MAX” line. The system capacity is 4-6 L depending on hose lengths (Figure 10).



If using the compressor inlet oil fill, turn the compressor clutch over by hand to distribute oil throughout the system.

- Reinstall the fill cap and tighten it securely. Ensure the fill port remains accessible as it will be necessary to check and top up the oil after the first compressor start.

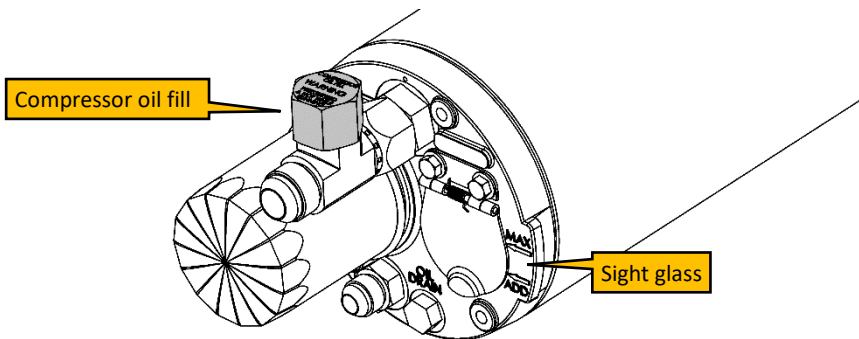


Figure 10 - Compressor Oil Fill

Illustrated Parts List

SEPARATOR PACKAGE – A230102	16
SEPARATOR TANK – 2120101.....	17
COALESCER ASSEMBLY – 2130114	18
BLOWDOWN SOLENOID ASSEMBLY – 4800787	19

Separator Package – A230102

Item #	Part #	Qty	Description
1	2120101	1	TANK, SEPARATOR
2	2200105	2	CLAMP, MOUNTING BRACKET C, 6
3	3800825	1	FASTENER PACK, OIL FILL TEE
4	2130114	1	ASSY, COALESCER, CHECK VALVE
5	4800787	1	ASSY, BLOWDOWN SOLENOID
6	1700571	24 IN	TUBE, TEFLON, PTFE, 3/16"OD X 1/8"ID
7	1700581	24 IN	LOOM, SPLIT PLASTIC, ¼, HIGH TEMP
8	A700091	3	OIL, VR, 1L, HIGH PERFORMANCE
9	A700094	1	OIL, VR, 4L, HIGH PERFORMANCE
10	1901134	1	INSTRUCTIONS/IPL, A230102

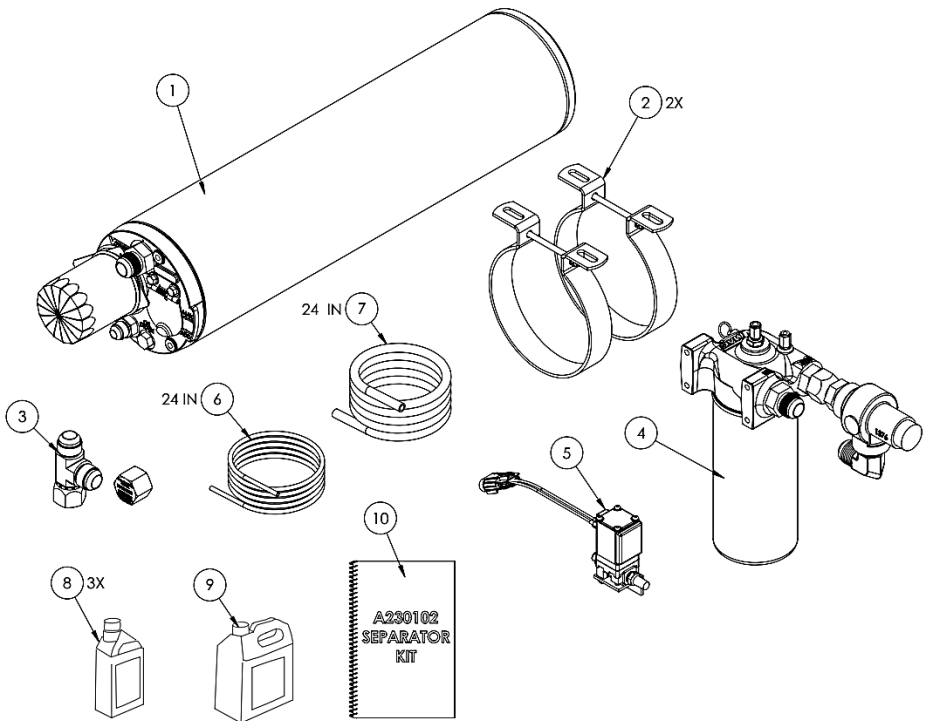


Figure 11 – A230102 Separator Package

Separator Tank – 2120101

Item #	Part #	Qty	Description
1	2120100	1	WELDMENT, SEPARATOR
2	4900128	2	FTG, STR, #12MORB-#12MJIC, VITON
3	4900035	1	NIPPLE, 3/4 - 16
4	9200039	1	OIL FILTER, VR 3.250 SHORT
5	4900200	1	FTG, STR, #8MORB-#8MJIC, VITON
6	4900106	1	PLUG, #5ORB, EXTERNAL HEX, VITON
7	A700061	1	PYREX WINDOW KIT
8	5800142	1	COVER, SIGHT GLASS
9	1520646	2	BOLT, HHCS G10.9, M6 X 1 X 10 FL PL

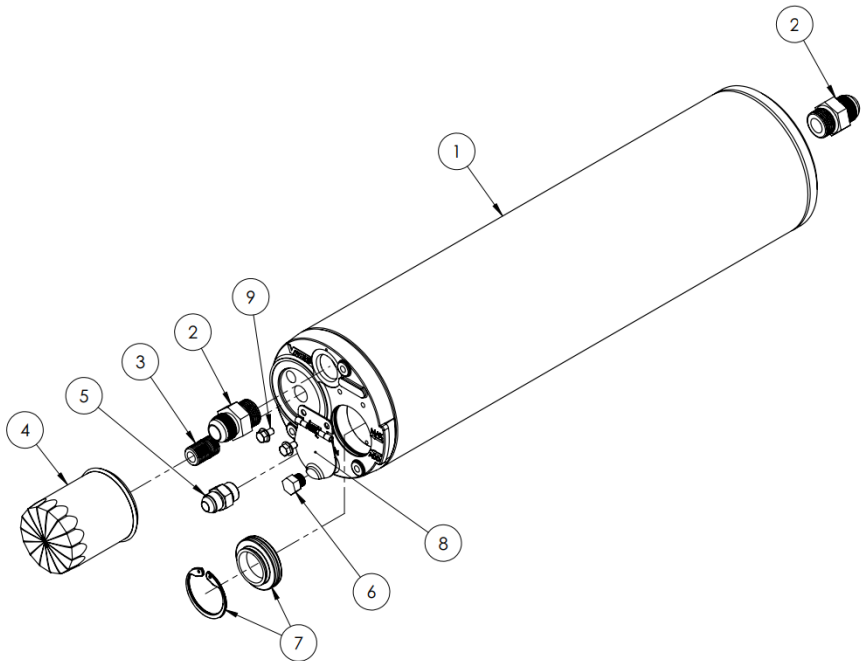


Figure 12 – 2120101 Separator Tank

Coalescer Assembly – 2130114

Item #	Part #	Qty	Description
1	9300025	1	ASSEMBLY, SCAVENGE TUBE
2	5000162	1	CONNECT, BRASS NPT-POLY, 3/16-1/8 NPT
3	3600054	1	VALVE, SAFETY 200 PSI
4	2130101	1	FILTER HEAD, MACHINING
5	4900128	2	FTG, STR, #12MORB-#12MJIC, VITON
6	9300007	1	ADAPTER
7	3600079	1	OIL SEPARATOR, SPIN-ON
8	4900109	1	FTG, STR, #12FJIC-3/4" MNPT
9	3600152	1	VALVE, 60 PSI MIN PRESSURE CHECK
10	4900079	1	FTG, 90, 3/4" MNPT-#12MJIC

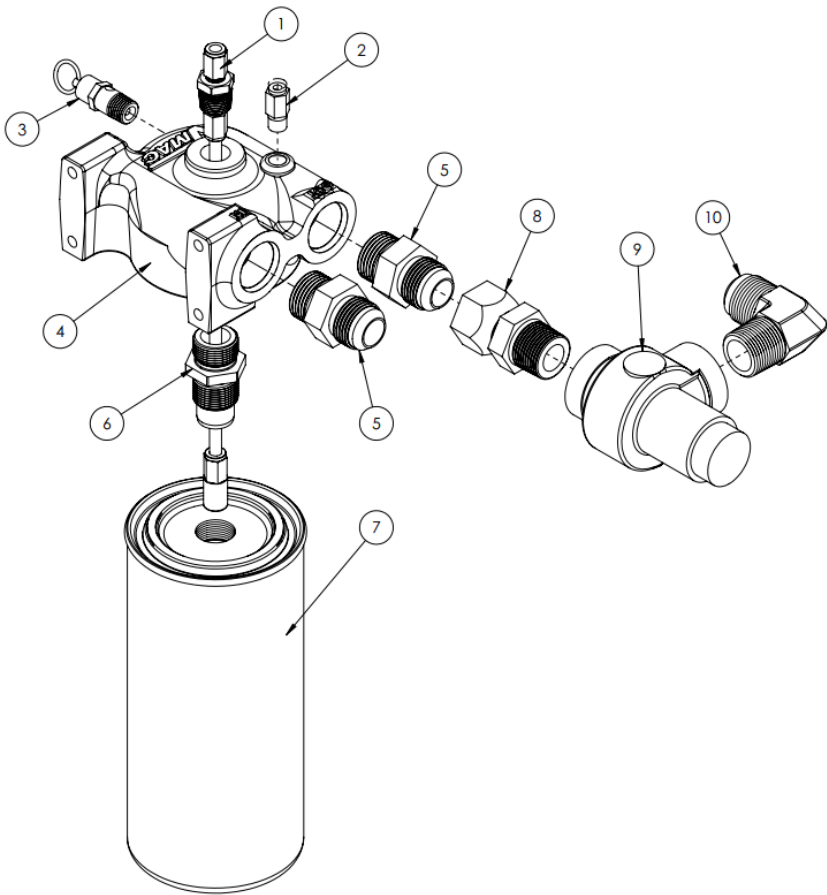


Figure 13 - 2130114 Coalescer Assembly

Blowdown Solenoid Assembly – 4800787

Item #	Part #	Qty	Description
1	1500632	2	SCREW, PHMS, M5 X 10
2	1200764	1	BRACKET, SOLENOID
3	5000201	1	CONNECTOR, BRASS, NPT-POLY, 1/4-3/16
4	4500105	1	MUFFLER, SINTERED EXHAUST, 1/4"
5	3550998	1	VALVE, SOLENOID, N.O., GT150 4-PIN

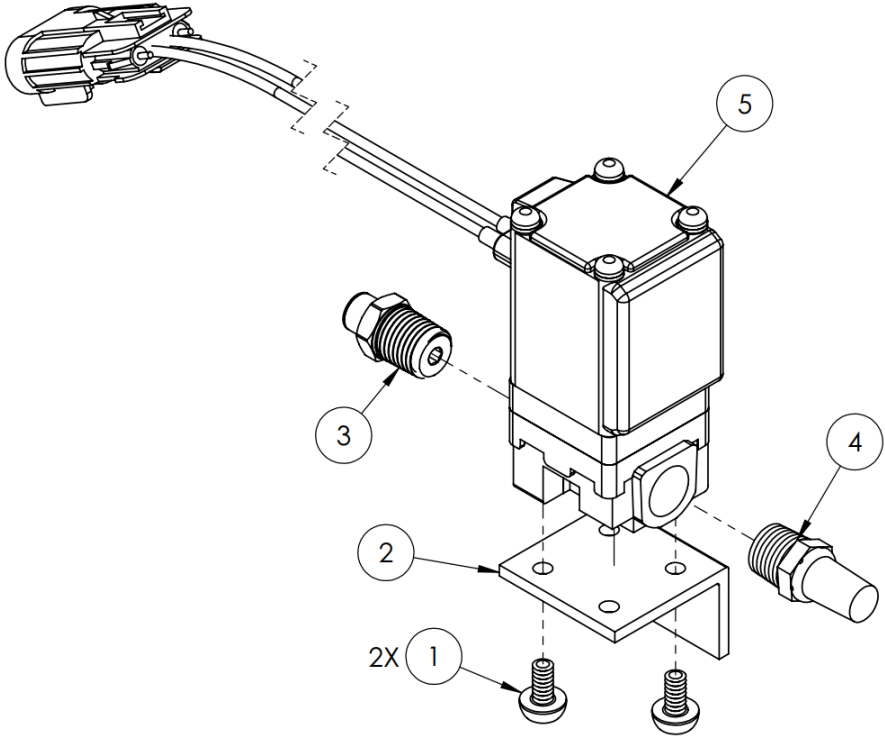


Figure 14 – 4800787 Blowdown Solenoid Assembly

This page intentionally left blank

This page intentionally left blank

Manufactured by



888-241-2289



877-740-3202



www.vmacair.com



tech@vmacair.com



warranty@vmacair.com



www.kb.vmacair.com



1333 Kipp Road, Nanaimo, B.C., V9X 1R3 Canada