



VMAC[®]
VEHICLE MOUNTED AIR COMPRESSORS
COMPACT. POWERFUL.



VMAC Compressor Systems Service Procedures for Champion Bus

**500 Hour/ 6 Month Service Kits A700232 (S400001),
1000 Hour/12 Month Service Kits A700233 (S400001),**

www.vmacair.com

VMAC Compressor Systems Service Procedures for Champion Bus

Document: 1901039

Changes and Revisions

Revision	Revision Details	Revised by	Checked by				Implemented
			Eng.		Tech.	Qual.	
			Mech.	Elec.			
A	Initial Release	RD	SM	N/A	GB	AMG	15 Jul 2016

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.



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 and Service Precautions

Observe these precautions when performing any service:

- Never attempt to clean the filter element with compressed air. Replace the filter element.
- Do not over-tighten the air filter cover retaining nut as this may crush and damage the filter.
- To prevent damage to the oil filter, always use a proper filter wrench. Never over-tighten the filter, as this may damage the seal or the filter.
- Never use any lubricant other than the supplied compressor oil, as other lubricants will damage the compressor and may void warranty.
- Do not overfill the system, as this can flood the sight glass window and make the system appear empty.
- If the system has been operating, shut it off and wait at least 30 seconds for the air pressure to vent before performing service.

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Fax: 1-250-740-3201

500 Hour/ 6 Month Service Kit A700232	1000 Hour/12 Month Service Kit A700233
<ul style="list-style-type: none"> • air filter • oil filter • 5 L (1.32 USG) (A700091 & A700094) 	<p>In addition to the contents of the 500 hour service kit, a 1000 hour service kit will contain:</p> <ul style="list-style-type: none"> • spin on coalescing filter (3600079)

General Service Information



You must make sure that there is no pressure left in the compressor system. If there is a pressure gauge, make sure that it is at "0" before commencing service. If you are not sure, drain air tanks and make sure that there is no pressure.

- If the system is cold, bring the engine to operating temperature and then operate the compressor system for a few minutes to bring the compressor oil to operating temperature. This will also help to suspend contaminants in the oil so that they can be removed from the system along with the old oil.
- Observe all safety procedures relating to moving belts, hot oil and compressed air. Use all safety equipment to protect yourself.
- Check the old oil for any evidence of metal filings or contamination; if found, flush the tank, hoses and cooler. Replace any failed parts. Metal filings will damage the compressor.

Flushing Procedure

Component failure (such as a compressor, hose or cooler core) can leave metal filings and other foreign materials in the system. To flush the system, follow this procedure:

1. Before replacing any failed component, check all other components for evidence of contamination and clean thoroughly.
 - Drain oil into a clean bucket and look for evidence of metal or other foreign material. Tip unit with a jack to get maximum oil drainage.
 - Use low pressure compressed air to blow out lines and other components and/or use a safety blow gun with side vents in the nozzle.
 - Remove the oil filter and empty out oil from the filter into a clean bucket and look for evidence of metal or other foreign material. If there is no metal in the oil and no metal visible in the filter, continue with the regular flush procedure, (continue to step 3).

2. If there is metal in the oil or oil filter, look for metal in the return line to the compressor. If metal is found anywhere, the cooler must be flushed before the new compressor is installed. The lines from the tank to the cooler and cooler to compressor must also be thoroughly checked/flushed or replaced before installing the new compressor.

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3. Once the system has been cleaned as thoroughly as possible, replace the failed component and reconnect all lines and fittings.
4. Install a new oil filter and fill the system with VMAC compressor oil to the correct level.
(When flushing VR150 systems you do not need to fill to the correct level, only 4 L (1 USG) of oil is required for the initial flush. This will provide enough oil to flush any contaminants from the system.)
5. Start the engine and engage the air system. Allow the system to pressurize to max pressure (usually 150 psi) and allow it to operate in “no-load” mode (without discharging any air) for about 15 minutes.
6. Shut-down, allow the system to cool and change the oil and the oil filter. Refill with VMAC compressor oil to the correct level.
(VR150 now requires 8-9 liters (2 USG))
7. After 50 hours of use, replace the oil filter and top up the oil level with VMAC compressor oil.

Parts to order to flush your system.

- Flushing kit A700214

And

- 500 hr service kit A700232.

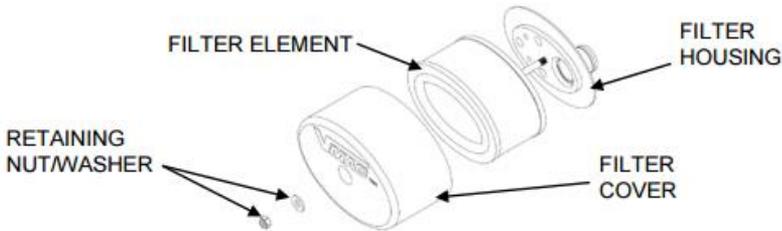
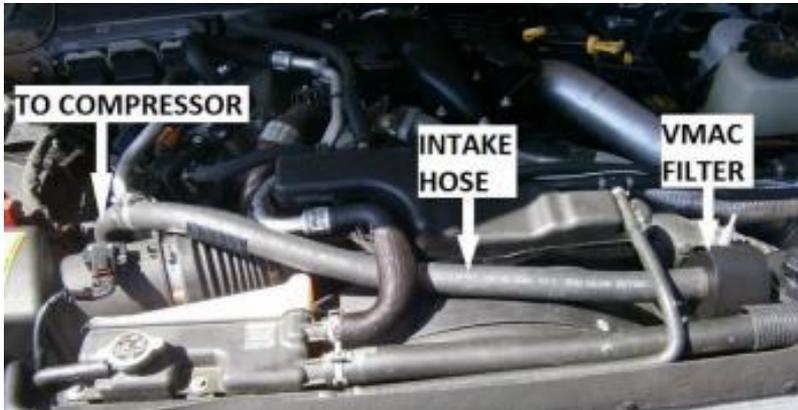
500 Hour Service Procedures

Inspect the Drive Belt

- Check the drive belt carefully for evidence of glazing, missing portions of the ribs or damage to the belt edges and surface. If the belt is damaged, install a new drive belt.
- Inspect all pulleys and idlers for damage. If any component shows cracks, chipping, impact damage, or any other indications of physical damage, such as bearing noise replace the pulley or idler.
- If the damage indicates possible misalignment, check pulley alignment. If the pulleys are not properly aligned, check all fasteners to ensure that they are properly tightened and that there are no loose components.
- Inspect the belt tensioner for any signs of misalignment as this will cause the belt to misalign. Also make sure the tensioner has smooth motion throughout its travel and is not binding.

Replace the Air Filter

The VMAC compressor air filter is found in the engine bay.



- Clean loose debris from the area around the filter cover to prevent contamination entering the compressor.
- Remove the filter cover retaining nut, the filter cover and the filter element.
- Immediately cover the air inlet opening with tape or with a clean cloth to prevent contamination.



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.

- Clean the inside of the filter 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.

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- Remove the cloth from the air cleaner opening.
- Place the filter onto the air filter plate. Ensure that the filter fits over the machined step on the plate.
- Replace the cover and secure it with the cover nut and washer.



Do not over-tighten the air filter cover retaining nut as this may crush and damage the filter.

Drain the Oil and Replace the Oil Filter



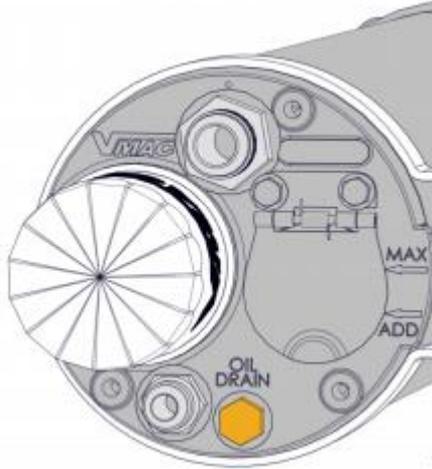
Hot oil can cause severe burns.

VMAC's oil tank is found on the driver's side frame behind the cab. Access door at the driver's step.



- Clean the area around the tank and the filter to prevent contamination.

- Remove the drain plug and drain the oil into a container large enough to hold at least: 5 L (1.32 USG).



- Install and tighten the drain plug. Ensure the O-ring is not damaged.
- Remove the oil filter by turning it counterclockwise. Before discarding the filter, ensure that the threaded nipple did not unscrew with the filter. If the nipple is in the filter, remove it carefully to avoid thread damage and replace it in the tank housing. The short thread end goes into the tank.
- Check the gasket-sealing surface on the front of the tank for contamination, old gasket material or damage. The surface must be clean and smooth to make a good seal.
- Apply a thin coating of compressor oil to the filter-sealing gasket and fill the filter with VMAC compressor oil.
- Spin the filter onto the threaded nipple until the gasket contacts the sealing surface on the tank, then tighten the filter an additional 3/4 to 1 turn to seat the sealing gasket.



To prevent damage to the oil filter, always use a proper filter wrench. Never over-tighten the filter, as this may damage the seal or the filter.

Replace the Oil

- Remove the oil filler cap from fittings at the front of the separator tank



- Pour in 4 liters (1 USG) of VMAC compressor oil into the oil fill hole using a funnel. Turn the compressor clutch clockwise to speed the fill process.



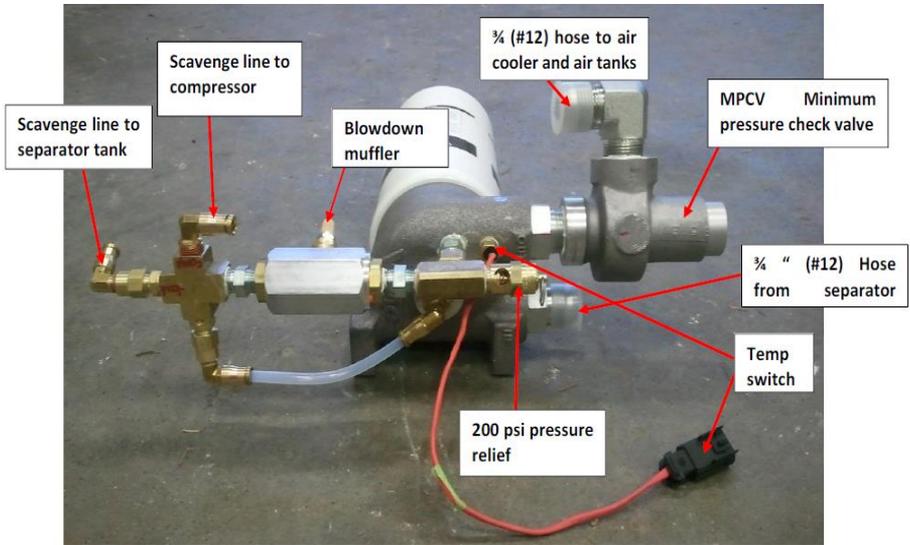
Never use any lubricant other than the supplied compressor oil, as other lubricants will damage the compressor and will void warranty.



Do not overfill the system, as this can flood the sight glass window and make the system appear empty.

- Allow 5 minutes for the oil to drain into the tank, then check the level at the sight glass at the front of the tank.
- Continue adding oil until the level is correct. Install the fill cap and tighten it securely.

Inspecting Other Components.



Inspect the Pressure Relief Valve

- Check the pressure relief valve for evidence of corrosion or loss of functionality. Test the pressure relief valve by pulling the ring on the pressure relief valve to ensure it's not seized. It should pull out and spring back. It should also hold pressure once this test is complete. If the pressure relief valve is showing signs of losing functionality, contact your local authorized VMAC dealer for a replacement part.

Inspect the Blowdown Muffler

- Visually inspect the muffler for evidence of corrosion or blockages. Ensure that the muffler allows the blowdown to function. When the system builds to 145 psi the compressor clutch will disengage and the system should depressurize air (blowdown) through the blow down muffler. It should blow down in 10-15 seconds. If the muffler is showing signs of blockage, contact your local authorized VMAC dealer for a replacement part.
- Make sure scavenge line is not kinked, collapsed or blocked as this will cause the blowdown to vent a lot of air while the compressor is running. (It's normal for a tiny amount of air to leak out of the blowdown muffler when the system is running and blowdown is working correctly.)

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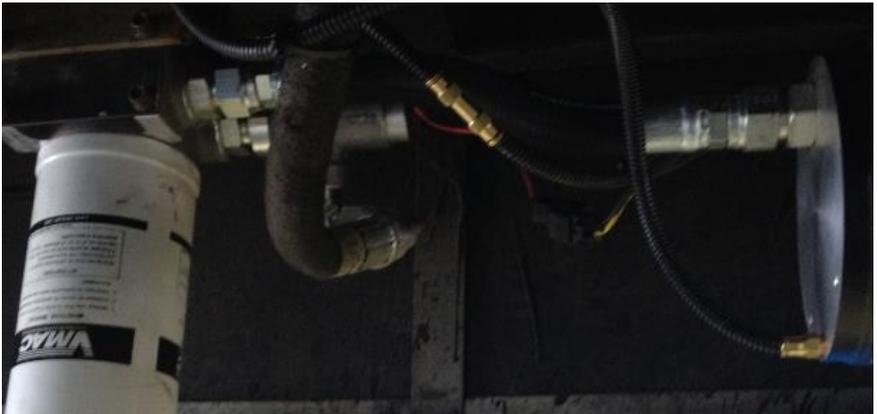
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- Place the manual transmission in “Neutral” or the automatic transmission in “Park” and fully apply the park brake.
- Start the engine and check for air or oil leaks. The compressor will automatically engage and run until it reaches 145 psi at which point it will shut and the separator tank will blow down (vent air out of the brass muffler on the discharge cap).
- Shut off the engine and allow the system to settle for 5 minutes, and then check the oil level through the sight glass. The level must be between the minimum and maximum level indicators. Top up as necessary.

1000 Hour Service Procedures

Same procedure as the 500 hr service -only additional step is to change the Spin On Coalescing Filter.

This Spin On Coalescing Filter is located behind the VMAC oil separator tank on the driver side frame rail.



VMAC –Tech Line Toll Free: 1-888-241-2289 if you have any questions.

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PH 250-740-3200

FX 250-740-3201

TF 1-888-241-2289

1333 Kipp Road, Nanaimo, BC, V9X 1R3 Canada

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