

# Service Manual for VMAC System S700030

## CONTINENTAL WELDER SYSTEM

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### Document #1900815

Service Manual for VMAC System S700030

### Changes and Revisions

Version	Revision Details	Revised by/date	Approved	Implemented
00	Original manual	TM 24 June 2003	Unknown	Unknown
A	New Format	SL 18 July 2008	MH 18 July 2008	23 July 2008

### **VMAC – Vehicle Mounted Air Compressors**

Toll Free: 1-888-241-2289

Fax: 1-250-740-3201

## Important Information

The information in this manual is intended for certified VMAC installers who have been trained in installation procedures and for people with mechanical trade certification who have the tools and equipment to properly and safely perform the installation. Do not attempt this installation if you do not have the appropriate mechanical training, knowledge and experience.

Follow all safety precautions for underhood mechanical work. Any grinding, bending or restructuring operations for correct fit in modified vehicles must follow standard shop practices.

These instructions are a general guide for installing this system on standard production trucks and do not contain information for installation on non-standard trucks. This system may not fit special order models or those which have had other changes without additional modifications. If you have difficulty with the installation, contact VMAC.

The VMAC warranty form is located at the back of this manual. This warranty form must be completed and mailed or faxed to VMAC at the time of installation for any subsequent warranty claim to be considered valid.

To order parts, contact your VMAC dealer. Your dealer will ask for the VMAC serial number, part number, description and quantity. To locate your nearest dealer, call **1-888-241-2289**.

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## Routine Maintenance of the VR70 Compressor

The **VR70** compressor system contains no reed-valves or other easily fouled, fatigue-prone components. With proper maintenance, the need for premature repair or component replacement can be drastically reduced.



***During the warranty period, you must follow the maintenance schedule and use only original genuine VMAC replacement parts to maintain your system and your warranty.***

The most critical aspect of maintenance is proper air filtration and clean oil. If any particles enter the compressor through the air inlet, they can contaminate roller bearings, gears and the rotors in the compressor. Contamination will cause severe, rapid damage to components. **Never** run the compressor, without the recommended air filter and filter cover installed.

### Maintenance Schedule

The following maintenance schedule should be observed to assure good performance and long service life. For replacement part numbers, please check the appropriate ***Illustrated Parts List*** for your application or call a dealer near you.

#### **50 hours:**

Check the drive belt.

#### **200 hours:**

Replace oil filter and change oil.

Check the air filter.

**Use service kit #A700019\***

#### **400 hours:**

Replace the air filter, oil filter, coalescing element and change oil

**Use service kit #A700020\***

\*Refer to Continental Engines for the air filter replacement.

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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.**

**A small high-pressure leak at a connection or in an airline can cause an oil/air mixture spray capable of penetration of the skin and introducing the mixture to the bloodstream. This will cause death.**

**The air compressor and its components are extremely hot when the unit is in operation. Contact with the compressor, tanks, and filters can cause serious burns.**

**Never maintain the system until the Welder/Compressor has been shutdown for minimum of 3 minutes. Opening the pressure supply valve to ensure the system is depressurized.**

## **1.1 Inspect the Drive Belt**

1. 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.
2. Inspect all pulleys and idlers for damage. If any component shows cracks, chipping, impact damage or any other indications of physical damage, replace the pulley or idler.
3. 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 torqued and that there are no loose components.

## **1.2 Replace the Air Filter**



**Never attempt to clean the filter element with compressed air. Replace the filter element.**

1. If the system has been just operated, allow at least 30 seconds so that all air pressure can vent.

2. Clean loose debris from the area around the compressor and the filter cover to prevent contamination.
3. Remove the filter cover retaining nut, the filter cover and the filter element.
4. Immediately cover the air inlet opening by masking or with a clean cloth to prevent contamination. Do not use compressed air or perform any other tasks around the compressor until the filter and cover are replaced.
5. 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 you do use solvent, rinse the inside of the cover thoroughly with fresh water and dry it before installing the cover.
6. Remove the cloth or masking and install a new air filter. Make sure that the filter fits over the machined step on the housing.
7. Replace the cover and secure it with the cover bolt. Do not over-tighten the bolt.

### 1.3 Replace the Oil Filter



***Shutdown the Welder/Compressor for 3 minutes, open the pressure supply valve to ensure the system is depressurized, the failure to depressurize the system could cause parts to separate explosively creating a flying projectile, or a high pressure oil/air mixture spray with enough force to penetrate the skin, either which could cause serious injury or death. Hot oil and components can cause serious burns.***

1. If the system has been operated make sure that all air pressure is vented. **Ensure adequate safety precautions as the oil will be hot after operation.**
2. Clean loose debris from the area around the tank and the filter to prevent contamination.
3. Remove the filter by turning it counter clock wise. Before discarding the filter, check to make sure 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.

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4. Check the gasket-sealing surface on the front of the tank for contamination, old gasket material or damage.
5. Apply a thin coating of compressor oil to the filter-sealing gasket.
6. Spin the filter onto the threaded nipple until the gasket contacts the sealing surface on the tank.
7. Tighten the filter an additional 3/4 to 1 turn to seat the sealing gasket.
8. Check the oil level in the sight glass on the air/oil tank.
9. Start the engine and bring it to operating temperature.
10. Turn the compressor system "ON" following the procedures in the Continental Owner's Manual.
11. Allow the system to pressurize and return to preset base idle speed.
12. Check for oil leaks.



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

#### **1.4 Change Compressor Oil**



***Shutdown the Welder/Compressor for 3 minutes, open the pressure supply valve to ensure the system is depressurized, the failure to depressurize the system could cause parts to separate explosively creating a flying projectile, or a high pressure oil/air mixture spray with enough force to penetrate the skin, either which could cause serious injury or death. Hot oil and components can cause serious burns.***

1. If the system has been operated make sure that all air pressure is vented. **Ensure adequate safety precautions as the oil will be hot after operation.**

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2. Clean loose debris from the area around the oil drain plug on the front of the air/oil tank to prevent contamination.
3. Remove the drain plug and drain the oil into a container large enough to hold at least 5 litres(1.32 U.S. gal.). Install and tighten the plug.
4. If you are also replacing the oil filter, follow the procedure in section 1.3.
5. Remove the filler plug from the air inlet control valve.
6. Pour some VMAC certified and approved compressor oil into the oil filler hole on the inlet control valve using a funnel.



***You must use the supplied compressor oil in this system. Failure to use this special oil will result in damage to the compressor and will void your warranty.***

7. Turn the compressor clutch clockwise with a ratchet and a 1/2" socket using the hex head cap screw at the center of the compressor clutch during the fill process.
8. 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. Do not overfill the system.



***Overfilling the system with oil can flood the sight glass window and make the system appear empty.***

9. Install the fill plug in the inlet control valve and tighten it securely.
10. Start the engine and bring it to operating temperature.
11. Turn the compressor system "ON" following the procedures in the Continental Owner's Manual.
12. Allow the system to pressurize and return to preset base idle speed.
13. Turn the compressor switch on the control unit to the "OFF" position.

14. 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.

15. Check for oil leaks. Recheck the oil level.

### 1.5 Replace the coalescing separator element



***Shutdown the Welder/Compressor for 3 minutes, open the pressure supply valve to ensure the system is depressurized, the failure to depressurize the system could cause parts to separate explosively creating a flying projectile, or a high pressure oil/air mixture spray with enough force to penetrate the skin, either which could cause serious injury or death. Hot oil and components can cause serious burns.***

1. If the system has been operated make sure that all air pressure is vented. **Ensure adequate safety precautions as the oil will be hot after operation.**
2. Clean loose debris from the area around the air/oil tank to prevent contamination.
3. Remove the drain plug and drain the oil into a container large enough to hold at least 5 liters, (1.32 U.S. gal.).
4. Refit and tighten the plug.
5. Remove the 1/4" and 5/16" steel pressure control line and scavenge line from the rear end cap of the system air/oil tank. Swing the hoses, (carefully to avoid twisting the lines) out of the way.
6. Remove the six (6) 3/8" flange bolts retaining the tank end cap and blow down valve housing at the rear of the tank. Care should be taken when removing the six (6) flange bolts completely out as the coalescing element is spring loaded against the inside of the end cap.
7. Remove the housing from the tank.
8. Protect the housing from contamination by storing it in a clean, dry location.

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9. The filter element will pop out from the tank. Discard the filter element and wave spring.
10. Inspect the inside of the tank for contamination and wipe it clean as required. Do not use flammable solvents to clean out the tank.
11. Inspect the scavenge screen filter in the bottom rear of the coalescing chamber for damage or severe contamination. If the filter is plugged or damaged, replace it with a new filter. If it can be cleaned, wash the screen filter with solvent, blow it out thoroughly with compressed air and replace it on the end of the tube.
12. Remove the sealing O-ring on the face of the tank.
13. Wipe the sealing face of the tank and install a new O-ring.
14. Slide the new coalescing separator element with attached wave spring into the tank. Make sure that the element seats correctly.



***The wave spring is for the following purposes:***

***Coalescer grounding, (To drain off electrostatic charge)***

***To positively force the coalescer against the “C” shaped O-ring in the discharge cap.***

**This wave spring must never be left out of the assembly and during maintenance, should be kept clean and free of any build up of rust or other materials that could compromise the grounding action.**



***Loss of ground can lead to static discharge and even fire in extreme cases.***

15. Install the cover on the rear of the tank by pushing against the spring. Align the holes on the housing with the holes in the tank and install the six (6) 3/8-inch flange bolts. Torque the fasteners to 47 ft-lb (63 N·m).
16. Refit the 1/4” and 5/16” pressure control and scavenge steel lines to the end cap.
17. If you are also replacing the oil filter, follow procedure 1.3.

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18. Remove the oil filler plug on the air inlet control valve.
19. Pour some of the VMAC certified and approved compressor oil, into the oil filler hole on the inlet control valve using a funnel.



***You must use the supplied compressor oil in this system. Failure to use this special oil will result in damage to the compressor and will void your warranty.***

20. Turn the compressor clutch clockwise with a ratchet and 1/2" socket using the hex head cap screw at the center of the compressor clutch.
21. 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 oil is at the correct level. Do not overfill the system.



***over-filling the system with oil can flood the sight glass window and make the system appear empty.***

22. Install the fill plug and tighten it securely.
23. Start the engine and bring it to operating temperature.
24. Turn the compressor system "ON" following the procedures in the Continental Owner's Manual.
25. Allow the system to pressurize and return to preset base idle speed.
26. Turn the compressor switch on the control unit to the "OFF" position.
27. Allow 30 seconds for the pressure to blow down. Ensure that all air pressure has discharged from the system.
28. 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. Check for oil leaks.

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## **Illustrated Parts List for VMAC System S700030**

**VMAC – *Vehicle Mounted Air Compressors***

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# 1 - Kit Pack List

Item #	Part #	Qty	Description
1	1710761	1	TUBE, 1/4 OD, PTFE, 134" (1700570)
2	1710762	1	TUBE, 3/16 OD, PTFE, 134" (1700571)
3	1710763	2	LOOM 1/4, SPLIT 136" (1700581)
4	1900815	1	SERVICE MANUAL, CONTINENTAL WELDER
5	2200105	1	CLAMP, MOUNTING BRACKET C, 6 )
6	4500092	1	HAYDEN COOLER
7	4800343	1	IDENTIFICATION, SYSTEM S700030
8	9200430	1	TANK, VR70 DRESSED INT OIL FILTER
9	A700091	1	OIL, VR, 1L, HIGH PERFORMANCE
10	A700094	1	OIL, VR, 4L, HIGH PERFORMANCE
11	P120058	1	COMPRESSOR ASSEMBLY

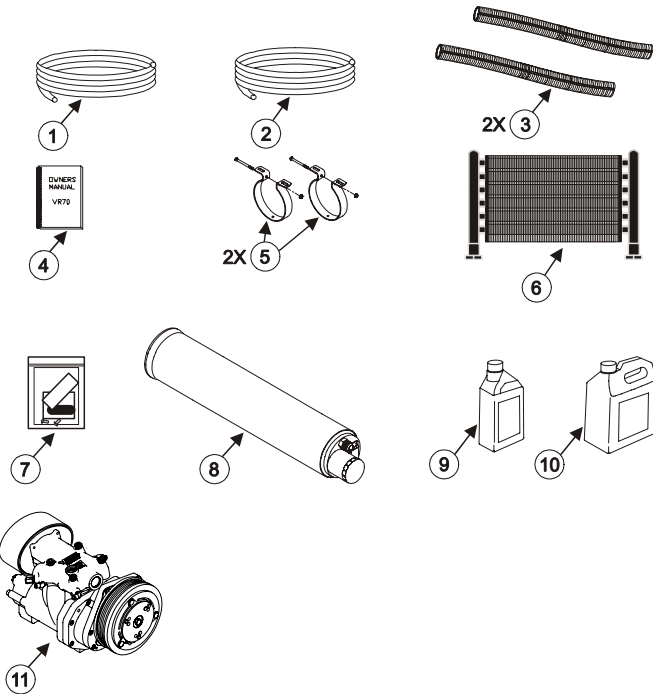


Figure 1 – Top Level Components

## 2 – VR70 Tank (9200430)

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Item#	Part#	QTY	Description
1	1510086	6	BOLT, HHCS NC G5 FL LK, 3/8 X 1
2	1510522	2	BOLT, HHCS NC G8 FL LK PL, 1/4 X 1/2
3	3200231	1	COVER, SIGHT GLASS
4	3600064	1	SEAL, TANK REAR CAP
5	3600090	1	THIMBLE, SCREEN
6	4900033	1	CONNECTOR, STEEL NPT-JIC, 3/4-3/4
7	4900035	1	NIPPLE, STEEL STR THRD, 3/4 - 16
8	4900106	1	PLUG, STEEL, #5 ORB, HEX
9	5000020	1	ELBOW, BRASS NPT-POLY, 1/8-1/4"
10	5000089	1	CONNECTOR, BRASS NPT-SAE, 3/8 - 1/2
11	5000165	1	ELBOW,90, BRASS NPT-POLY, 1/8-3/16"
12	5000160	1	ADAPTER, BRASS, 1/8-1/8 NPT
13	A700152	1	ELEMENT, SEP, COALESCING
14	5830066	1	O-RING, VITON, 4 3/4 ID X 1/8
15	5840069	1	SPRING, COMPRESSION, FL 1.5",OD .54
16	9200039	1	OIL FILTER, VR 3.250 SHORT
17	9200437	1	ASSEMBLY, BLOWDOWN CAP
17.1	3600054	1	VALVE, SAFETY, 3/8, 200 PSI
17.2	4500104	1	MUFFLER, SINTERED EXHAUST, 1/8"
18	9200378	1	TANK, OIL SEPARATOR
19	A700061	1	SIGHT GLASS ASSEMBLY

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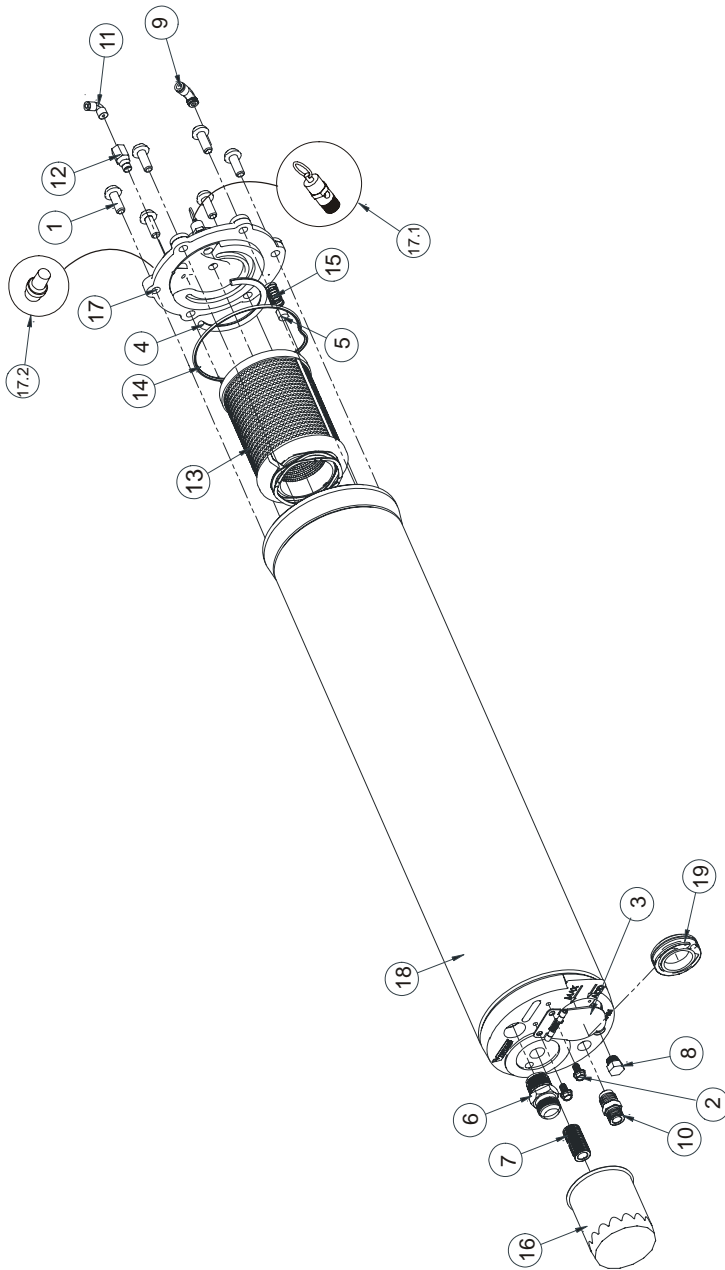


Figure 2 - VR70 Tank

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### 3 – Compressor (P120058)

Item#	Part#	QTY	Description
1	1540530	2	BOLT, SHCS, M8 X 1.25 X 55, G12.9 PLT
2	9200419	1	INLET VALVE, BASIC INTEGRATED REG.
3	5300009	1	CAP, PLASTIC, 1 1/16
4	P120002	1	COMPRESSOR, VR70
5	5830004	1	O-RING, VITON, 3 1/8 ID X 1/8
6	1570482	1	WASHER
7	5830005	1	O-RING, VITON, 11/16 ID X 3/32
8	4400295	1	LABEL, VR70 NAME PLATE
9	1500355	2	SCREW, LONG U DRIVE, 2 - 3/16
10	5000020	3	ELBOW, BRASS NPT-POLY, 1/8-1/4-X
11	5000162	1	CONNECT, BRASS NPT-POLY, 3/16-1/8 NPT
12	4900002	1	ELBOW, STEEL JIC/O-RING, 1/2 3/4-16
13	1540550	2	BOLT, SHCS, M8 X 1.25 X 50, G12.9 PLT

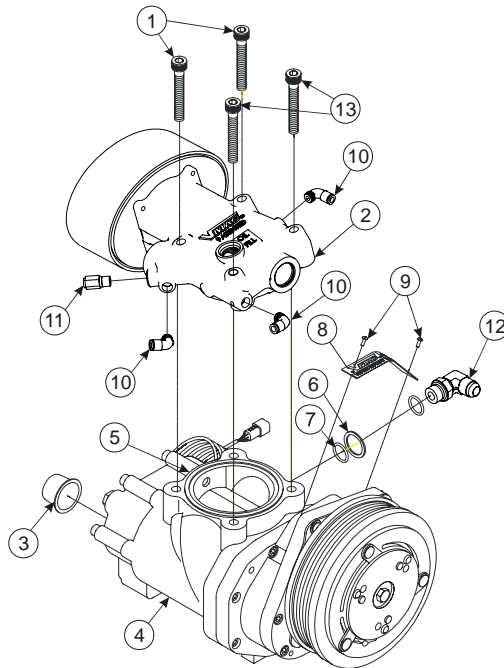


Figure 3 – Compressor Components

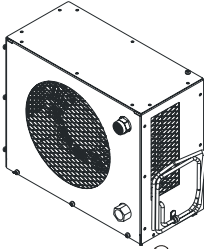
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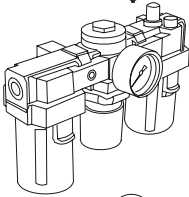
# Accessory Products from VMAC

The following accessory products for your VR compressor system are available from VMAC. For more information or to order these products, call 1-800-738-8622.



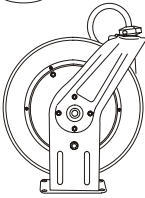
## Eliminator Aftercooler

Removes up to 80% of moisture from compressed air. Quick installation, automatic drain and compact design



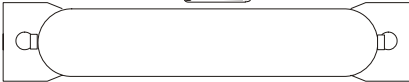
## Filter Regulator Lubricator

Removes lubricants, water and dirt from the air stream. Adds atomized tool oil to lubricate tools. Reduces pressure for longer tool life.



## Hose Reel

Secure, compact, retractable hose storage in a sturdy reel.



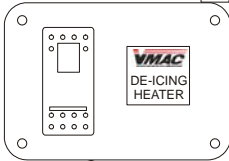
## Air Receiver Tank

Thirty-five gallon capacity in a compact tank, complete with fittings and a gauge.



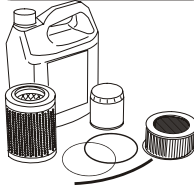
## De-icer Kit

Insulated rope heater prevents freezing of lines and regulator.



## Service Kits

Using OEM service products will extend the life of your system. Includes oil, filters, seals and O-rings. 200 hour and 400 hour service interval kits are available



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