



MEEA
MOBILE ENERGY AUSTRALIA
Specialists in vehicle mounted compressor & generator systems

VR40 ENGINE MOUNTED COMPRESSOR SYSTEM



OWNER OPERATORS' MANUAL

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PURPOSELY.**

MEA Product Registration Form

**THIS FORM MUST BE COMPLETED AND
RETURNED WITHIN 30 DAYS OF INSTALLATION
OR**

MEA Product Registration Form

This form must be completed and returned to MEA at the time of Installation. Warranty will be void if this form is not received by MEA within 30 days of installation.

MEA Dealer Information

Company Name: _____

City: _____ State: _____ Country : _____

MEA Installer Information

Company Name: _____

City: _____ State: _____ Country: _____

Installation Date: _____ / _____ / _____
Day Month Year

Owner Information

Company Name: _____

Address: _____

City: _____ State: _____ Country: _____

Postcode: _____ Phone #: _____

Product Information

MEA Serial Number: _____

Model Number: _____

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Dear Customer,

Thank you for your valued support.

Please find enclosed the following information for your convenience:

- Commissioning Sheet
- VR40 Owner's Manual
- General MEA Brochure

For further information, technical support, service or sales, please phone us on **+61 7 3273 6803**.

Thank you,

Mobile Energy Australia

Installation Test Report

Customer: _____ Job #: _____

Compressor Serial Number	8060		VR70	
	8070		Pred. 40	
	8080		Pred. 60	
	80100		AHBI	
	HK400		Dynaset	
Control unit	Infinity			
	BCU		Can bus	
	Murphy		Analogue	

Model of truck VIN Number _____

Type of speed control	Manual		Electronic	
-----------------------	--------	--	------------	--

PTO serial number	Reverse rotator		
-------------------	-----------------	--	--

Engine Speed settings	Min		Max	
	Min		Max	
	ISUZU	.5vdc	HINO	.8vdc

Engine Speed volts Base _____

Voltage (circle 1) System _____

Settings	Air Pressure	
	Oil Pressure	
	Oil Flow	

Operating temperature Type of cooler _____

<u>System Checks (As Applicable)</u>	Remote		Water	
	Front Mount		Integrated	

Oil Level	Checked OK	
-----------	------------	--

Emergency stop	Tested OK	
----------------	-----------	--

PTO Kick out		Tested OK	
--------------	--	-----------	--

Handbrake warning buzzer	Tested OK	
--------------------------	-----------	--

	Checked OK	
--	------------	--

System checked for leaks	Checked OK	
--------------------------	------------	--

	Checked OK	
--	------------	--

Remote Fan Operation _____

Sign: _____ Date: _____

1. INTRODUCTION

This manual provides operation instructions, specifications, adjustment, maintenance, and Warranty information for the VMAC VR40 UNDERHOOD air compressor.

SAFETY WARNINGS



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 involving fire hazards.



This symbol is used to call your attention to additional instructions involving explosion hazards.

Important Safety Notice

The information contained within 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 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 any work on the system, 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 performance or the operational safety of the equipment.

INTRODUCTION - *Continued*

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 fan belts and 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 and only while the system is properly shut down.

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.

VMAC – Vehicle Mounted Air Compressors

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.*

MEA will not 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 set out in this manual or require any more information on details that are not included in this manual, please contact MEA before beginning any work.



Fire in the compressor system 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.

2. SAFETY PRECAUTIONS



Avoid all contact with pressurized air, if it penetrates your skin, it can enter your bloodstream and cause serious bodily harm or even death. Do not breathe the compressor air. Vaporized oil is a severe respiratory hazard.



Vaporized oil propelled by high pressure air is an explosive mixture. To prevent compressor explosion or fire, make sure that the air entering the compressor is free of flammable vapours.

Observe the following general safety rules:

- Pay attention to operations; do not leave the vehicle unattended.
- Follow safe work practices and wear the appropriate safety equipment when operating air-powered equipment, particularly eye and hearing protection.
- Avoid contact with drive belts and stay clear of all moving parts when the system is operating.
- Follow all safety precautions for under hood mechanical work.
- Follow safety procedures for the type of work being completed.

Observe these rules when operating the compressor:

- Do not bypass or disable the oil temperature sensor.
- Do not expose the tank or compressor to extreme heat.
- Do not perform any service until the system has been completely depressurized and you have verified that all air has been discharged from the compressor system and any connected receiver tanks.
- Do not try to repair or service a pressurized system
- Maintenance and repair on system components should only be performed by qualified personnel
- The vehicle must always be in park (for automatic transmissions) or neutral (for manual transmissions) with the park brake fully applied before starting the compressor and during compressor operation
- Use a regulator in the output line to precisely control the final air delivery pressure
- Do not bypass the park brake or DDC (drive disable circuit) connections
- Do not operate the compressor while driving
- Do not tamper with or remove the pressure relief valve

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.

SAFETY PRECAUTIONS - *Continued*



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.



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.



Never perform maintenance procedures on the system until the 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. Air/oil mixture could be sprayed out with sufficient force to penetrate the skin, which could cause serious injury or death.




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



Components and hoses under pressure could separate suddenly, 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

Ensure that the safety and operational instruction decal is affixed in an obvious location so that it can be seen by vehicle operators. A good spot for this is usually on the inside of the door, on the panel underneath the steering wheel, or next to the compressor control panel.



This Vehicle is Equipped with a VMAC Air Compressor System
System OPERATING INSTRUCTIONS

<p>Daily Pre-Start Check</p> <ol style="list-style-type: none"> 1. Check Oil Level in Tank 2. Check Drive Belt 3. Check for Leaks 	<p>Start Up Procedure</p> <ol style="list-style-type: none"> 1. Ensure Compressor is OFF 2. Ensure discharge valve is CLOSED 3. Ensure air system is discharged 4. Place vehicle in Neutral or Park and engage vehicle safety features - park brake 5. Start engine and bring up to operating temperature 6. Turn ON compressor 	<p>Shutdown Procedure</p> <ol style="list-style-type: none"> 1. Allow engine to idle for 1 minute 2. Turn OFF compressor 3. Wait for system to discharge for 1 minute before restarting
---	--	---

For Technical Support/Parts
Contact Mobile Energy Australia on +61 7 3273 6803

To alert any technicians that may service the vehicle, affix the servicing caution/contact label in the engine compartment near the hood latch in a visible location. Thoroughly clean the selected area before affixing the label.

3. SYSTEM SPECIFICATIONS

Model:

- VR 40 UNDERHOOD Air Compressor

Compressor Type:

- Oil injected rotary screw

Drive System:

- Front End Auxiliary Drive (FEAD)

Control:

- Electric on/off 12V clutch control

Maximum Air Delivery:

- Up to 40 CFM and 150 PSI/10 bar depending on installation and engine speed

Pressure Regulation:

- Intake valve is operated via a pressure regulator and pressure switch. The switch increases and decreases the engine RPM to suit air demand

Engine Controls:

- OEM supplied control box to start and stop compressor. engine RPM adjusts automatically depending on air demand

Safety Features:

- 200 PSI (13 bar) relief valve in separator tank
- rapid blow-down valve to relieve system pressure on shutdown

Lubrication:

- MEA certified and approved synthetic oil

Filters:

- Air filter: paper-type replaceable
- Oil filter: spin-on type high pressure
- Coalescing filter: spin-on type

The VR 40 consists of the following components:

- Oil separator tank
- Compressor
- Control panel
- Throttle control
- Air/oil discharge hose
- Oil return hose
- 1/4" scavenge oil return line

SYSTEM SPECIFICATIONS - *Continued*

Control Panel

OEM digital control panel starts and stops compressor, displays critical information such as operational hours, faults, and compressor status



Digital Control Box

Throttle control

Is achieved through an MEA supplied speed control unit seamlessly integrated into the vehicles ECU

Hoses

The VR 40 has three main hoses and 2 control tubes

- Discharge hose (compressor to separator tank)
- Cooler hose (tank to oil cooler)
- Return hose (cooler to compressor)
- PTFE oil scavenge tube (separator to compressor)
- PTFE regulator pressure tube (separator to regulator)

Air Compression

The VR40 systems use a VMAC designed and built oil flooded-lobe, rotary screw compressor. The oil-filled compressor housing contains two rotors.

Compression occurs when inlet air (at normal atmospheric pressure) enters a chamber where it is trapped between meshing rotor lobes.

Cooled oil is injected into the rotors during compression to lubricate and cool the rotors and bearings also sealing the rotor lobes to allow for efficient compression.

As the rotors rotate, the meshing lobes compress the volume of the trapped air/oil mixture before sending it down the discharge line to the separator tank where the air/oil mixture is separated by gravity.

Partially clean air moves on to the coalescing filter for further air/oil separation down to less than 3mg/m³.

Excess oil in the coalescing filter is sucked back into the compressor via the scavenge tube.

SYSTEM SPECIFICATIONS - *Continued*

Filtration and Cooling

The hot oil from the compressor flows through a high-pressure spin on oil filter and exits the separator tank to the oil cooler (radiator).

The cooled oil is then returned to the compressor via the oil return hose.

Belt Alignment and Tensioning

The VR40 system may be driven by serpentine belt that runs off the engine crank pulley.

Depending on the system the compressor may be driven by a belt with 8 ribs or less.

For proper alignment always ensure the belt is centred on the clutch grooves, i.e., if the system uses a 4-rib serpentine belt it should be centred on the middle 4 grooves with 2 unused grooves showing on either side of the belt.

Belt maintenance and service should be performed per the OEM's maintenance schedule. Systems with a dedicated serpentine auxiliary belt are equipped with an automatic tensioner and do not require manual adjustment. Check pulley alignment to ensure proper belt operation.

Additional Belt Information

Where necessary, MEA provides a replacement for the belt in the compressor service kit.

The OEM belt and any brackets removed during compressor installation should be kept with the vehicle. In the event of a compressor failure, the MEA supplied belt and brackets can be replaced with the OEM belt and brackets to ensure the vehicle remains operable.

Pressure Regulation and Engine Speed Control

The system uses a pressure regulator to regulate the air intake valve. The system pressure supply's the signal to operate the regulator which in turn opens and closes the intake valve poppet.

Connected inline with the regulator is a pressure switch that opens when it senses regulated pressure. This switch sends a signal to the engine speed controller that increases or decreases the engine RPM depending on air demand.

These control devices provide the following benefits:

- quick response to air flow demands
- reduction of standby noise
- reduction of cooling system load
- fuel conservation when not using air

SYSTEM SPECIFICATIONS - *Continued*

Safety Devices

A 200 PSI (13 Bar) pressure relief valve is installed in the separator tank to prevent system over pressure.

The system is also equipped with an automatic rapid blow-down system to discharge system pressure on shutdown.

The system makes use of the OEM safety circuits when available or adds safety circuits where required. These circuits prevent the operation of the high idle system if certain conditions are not met. This both protects the vehicle and ensures that the engine will not automatically go to high idle, should the compressor system be inadvertently activated at an inappropriate time.

The compressor system is equipped with a thermostatic switch, if the compressor oil temperature exceeds 140°C it will disengage the compressor and drop the engine to base idle.

An indicator light on the control box will illuminate to show that an over-temperature event has occurred, and a fault code will be generated to track the occurrence.

A 20A fuse protects the system.

If the fuse blows continuously, there is an electrical problem that will not be solved by a higher fuse rating. Exceeding the rating can cause component damage.

Do not disable or bypass the over-temperature shutdown circuit. Failure of the shutdown system could result in equipment damage, injury, or death. Hose Protection To prevent damage to the lines, observe the following:

- Always ensure that the hoses are secure, do not allow the hoses to dangle under the vehicle
- Always ensure that the hoses do not get pinched in steering or suspension components
- Make sure to keep the hoses away from hot surfaces, such as turbocharger housings or exhaust system components
- Hoses should not be bent tightly around sharp metal edges
- Ensure that hoses are kept away from fan blades or belts
- If the hoses are secured in a bundle, protect them from abrasion by insulating them from each other using rubber padding or plastic loom
- If any hoses appear damaged, replace hoses prior to failure.

Control Box Features

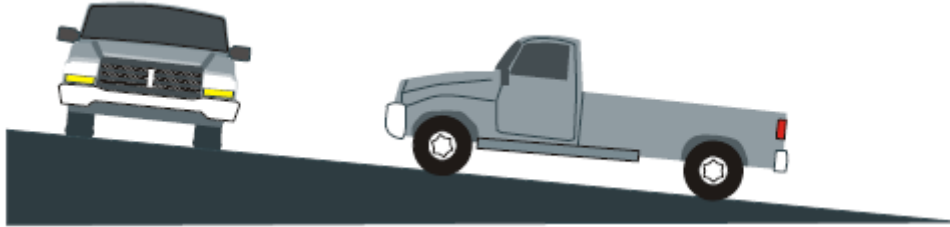
The control panel is not weather-proof. It should be installed either inside the cab or inside a cabinet on the service body (if equipped).

The control box has the following features:

- Large ON/OFF push button with green indicator light
- Compressor hour meter display
- Over-temperature warning light
- Fault code display

OPERATING INSTRUCTIONS

The vehicle must not be parked on grades exceeding 15 ° in slope as this may affect lubrication and air/oil separation.



1. Place the automatic transmission in park or neutral and fully apply the park brake.
2. Start and run the vehicle long enough for the engine to stabilize at base idle and reach normal operating temperature.
3. Close all compressor air system outlets.
5. Activate the compressor using the ON button on the control panel.

Engine RPM will increase to the set speed. The system will build pressure until it reaches 150 PSI/10 Bar (less if the pressure set point has been reduced). After reaching operating pressure there is a brief delay and the engine RPM will drop to high idle.

Re-starting the compressor immediately after shutdown may cause belt slippage and compressor clutch damage.

Cold Environment Operation

Diesel Particulate Filter Warning (DPF)

When engine driven or PTO driven equipment is run on vehicles with DPF for extended periods of time, particulate may build up in the filter.

All vehicles with a DPF have a warning light (or message) on the instrument panel or message centre. Run time until filter build up depends on many variables and is the responsibility of the operator to monitor. It is suggested that if equipment is run for extended periods of time (over 1 hour) without driving, the vehicle DPF warning system must be checked after 1 hour and every 15 min thereafter. If the DPF warning light or message appears, see the vehicle owner's manual for methods of cleaning or regenerating.

Always ensure that the transmission is in park or neutral with the park brake applied before starting the engine or operating the system.

TROUBLE SHOOTING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor does not run	Oil temperature too high.	Turn compressor off, allow to cool for 30 minutes, retry.
	Oil level is too low.	Park on level ground, check level at sight glass, add as necessary.
	Drive belt is broken.	Install new compressor belt. Check alignment of pulleys. Replace automatic tensioner.
	No power to the clutch.	Check for 12 V at the clutch, check fuse, check for broken wires or failed switch.
	Bad clutch ground.	With 12 V applied to the clutch check for voltage between the clutch stator housing and the engine. If voltage is present, ground the stator.
	Open clutch stator windings.	With compressor switch off and clutch wire disconnected, check resistance between the input wire and ground. Resistance (less lead resistance) should be 2.5 ohms to 3.0 ohms. If outside this range replace the stator.
Frequent over-temperature shutdowns.	Low oil level.	Check oil on level ground, add as required.
	Restriction in the compressor oil hoses.	Check for kinked or pinched oil hoses.
	Compressor oil filter plugged.	Replace oil filter.
	Heat exchanger not functioning or is fouled with deposits.	Remove and clean or replace heat exchanger.
	Engine cooling system failure (high engine temperature).	Correct engine cooling problems.
	Engine fan clutch slipping.	Replace fan clutch.
	High ambient temperatures.	Reduce duty cycle.
	Oil temperature probe failure.	Replace if defective.
	System needs service	Perform recommended service

TROUBLE SHOOTING – Continued

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Excessive air pressure	Pressure regulator valve too high.	Reduce system pressure by adjusting pressure regulator valve.
	System return line blocked or frozen	Clear or replace the line.
Engine stalls when compressor is activated.	System is under pressure.	Allow sufficient time for blow-down.
	Blow-down valve not working.	Replace blow-down valve.
	RPM setting too low or throttle not set correctly.	Readjust RPM and throttle settings for optimum operation.
	Throttle control not connected properly at foot pedal	Check for proper connections.
Belt squeals when compressor switch is activated.	System is under pressure.	Allow 10 seconds for blow-down.
	Blow-down valve not working or muffler is plugged.	Replace blow-down valve or clean muffler.
	Improper belt tension.	Check belt tensioner.
	Belt is glazed.	Replace belt.
Frequent relief valve operation.	Pressure regulator setting too high.	Adjust pressure regulator setting below 160 PSI / 1103 KPA.
	Pressure control line plugged or frozen.	Remove the pressure control line and clear any obstructions. (Blow out.)
	Relief valve defective.	Replace relief valve.
Power fuse blows.	Short to ground in the control circuit.	Locate and correct short or replace control panel.
	Incorrect fuse.	Install correct OEM fuse.
	Incorrect wiring.	Repair wiring according to wiring diagram.
Low air pressure.	Air flow is too high.	Reduce consumption.
	Throttle control set too low.	Increase maximum RPM settings.
	Pressure regulator valve set too low.	Increase pressure by adjusting pressure regulator valve.
Engine RPM excessive on initial startup and during operation.	Maximum RPM setting is too high.	Reduce maximum RPM setting throttle control or reset cable nipple.
	Idle-down pressure is too high.	Reduce idle-down setting of the throttle control.

TROUBLE SHOOTING - *Continued*

SYMPTON	POSSIBLE CAUSE	CORRECTIVE ACTION
Objectionable noise level.	Excessive gear wear.	Contact the nearest dealer to replace compressor/gearbox assembly. Refer to the dealer.
	Maximum RPM setting higher than necessary to meet air demand requirements.	Reduce maximum RPM settings.
	Operating with the hood open	Close the hood.
Engine RPM stays at base idle when compressor runs.	Mechanical throttle control receiving power, housing is acting as a chassis ground.	Test and correct connections.
	Throttle control not adjusted properly.	Adjust throttle controls.
	Poor electrical connections.	Test and correct connections.
	Throttle control not functioning.	Replace throttle control.
	Pressure sensor defective or disconnected.	Check connections or replace pressure sensor.
Engine RPM over-revs when compressor is activated.	Throttle controls not connected properly.	Check and correct connections.
	Throttle control not setup properly.	Adjust high idle screw.
	Pressure sensor defective or disconnected.	Check connections or replace pressure sensor.
Engine RPM does not return to base idle.	Wiring fault.	Check and correct wiring according to wiring diagram.
	Throttle not properly adjusted.	Adjust idle down screw.
Engine RPM stays at maximum whenever the compressor is running.	Idle-down setting is too high.	Reset idle-down pressure.

TROUBLE SHOOTING – *Continued*

SYMPTON	POSSIBLE CAUSE	CORRECTIVE ACTION
Excessive oil in the air.	Failed coalescing separator element.	Replace element.
	Clogged scavenge line screen.	Clean or replace parts as required.
	High oil level.	Correct oil level.
	Poor fit between coalescing filter and tank – lack of seal at O-rings.	Replace parts as required.
	Vehicle is not within requirements of 15 degrees of level.	Level vehicle and check for oil in the air.
	Compressor was turned off while running at high speed.	Allow engine RPM to drop before turning the compressor off.
	Wing tank – volume shutting down under load.	Clean or replace parts as required.
Oil blows out of compressor air filter on compressor shutdown.	Shutting the engine off while running at high speed.	Allow engine to idle-down before shutting down the compressor. Turn off any air tools before shutting down compressor.
Oil drips from clutch after shutdown.	Seal leaking.	Contact the nearest dealer to replace gearbox input shaft seal.

ROUTINE MAINTENANCE

The compressor system does not contain reed-valves or other easily fouled, fatigue-prone components. With proper maintenance, the need for premature repair or component replacement can be drastically reduced.

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 and the rotors in the compressor. Contamination will cause severe, rapid damage to components.

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 vehicle operation. Operate the system at least every 30 days for 15 minutes at no load to ensure bearing lubrication and rotation.

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.

Maintenance Schedule

The following maintenance schedule should be observed to assure good performance and long service life. The hours indicated are those displayed on the Compressor Control Box. Service should be performed at the lesser of the two intervals, whichever occurs first. For replacement part numbers, please check the appropriate Illustrated Parts List for your application or call a dealer near you.

50 hours or 1 week:

- Check the drive belt
- Check pressure relief valve function

200 hours or 6 months:

- Replace the air filter, oil filter, and change oil

400 hours or 1 year:

- Replace the air filter, oil filter, coalescing element, pressure relief valve, muffler and change oil.

Service kit parts

AIR FILTER	10008-P0042
OIL FILTER	10008-P0041
COALESCING FILTER	10008-P0045
OIL FULL SYN	10019-K0006

DRIVE BELT	
IDLER PULLEY	RMSK2589
TENSIONER IDLER PULLEY	

ROUTINE MAINTENANCE - *Continued*

Oil Level Maintenance You must use the VMAC supplied and approved compressor oil in this system. Failure to use this oil will result in damage to the compressor and may void your warranty.

1. Ensure the vehicle is parked on level ground and that the compressor system is depressurized and cool to the touch.
2. Check the oil level in the sight glass and ensure that it is between the “MAX” arrow and the “ADD” arrow.
3. If the level is below the “ADD” arrow, add oil to the system.
4. Loosen the hose clamp and remove the air filter tube from air intake valve on compressor, using a funnel, pour oil into the open intake valve.
5. Rotate the front of the compressor pulley in a clockwise direction until all the oil is drawn out of the funnel. Repeat the process until the oil reaches the “MAX” arrow.
6. Replace the air filter tube and tighten securely.

Do not overfill the system. Overfilling the system with oil can flood the sight glass window and make the system appear empty.



ROUTINE MAINTENANCE - Continued

Inspecting 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, 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 torqued and that there are no loose components.

Inspecting the Muffler

Visually inspect the muffler for evidence of corrosion or loss of functionality. Ensure the muffler allows the blow-down cap to function.

This can be tested by turning the system on and have it reach operating pressure. Turn the system off and listen for the pressurized air to blowdown through the muffler. If the muffler is showing signs of blockage, contact your local authorized VMAc dealer for a replacement part.

Inspecting the Pressure Relief Valve

Inspect the pressure relief valve for signs of corrosion or loss of functionality. To test the pressure relief valve functionality, turn the system on and bring it up to operating pressure.

Pull the ring on the pressure relief valve to depressurize the system. Turn the system off, and ensure the system comes back to operating pressure when the system is restarted. If the pressure relief valve is showing loss of functionality, contact your local authorized VMAC dealer for a replacement part.

Relief valve failure can result in air/oil tank over pressurization leading to system failure or rupture.

Replacing the Air Filter

Never run the compressor, drive the vehicle, or even allow the vehicle to sit parked without the recommended air filter and filter cover installed.

If the system has been just operated, shut off the engine and wait at least 30 seconds for the air pressure to vent before working on the system.

1. Clean loose debris from the area around the compressor and the filter cover to prevent contamination entering the compressor.
2. Remove the filter cover retaining nut, the filter cover, and the filter element. On some installations, it may be necessary to remove the filter assembly from the filter bracket to access the filter cover nut and remove the cover.
3. Immediately cover the air inlet opening by masking with tape 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.
4. 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.

ROUTINE MAINTENANCE - *Continued*

5. Remove the cloth or masking and install a new air filter. Make sure that the filter fits over the step on the filter plate.
6. Replace the cover and secure it with the cover bolt. Do not overtighten the bolt. Reinstall the filter on the filter bracket (if removed)

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

Replacing the Oil Filter

Always use an MEA oil filter. MEA oil filters are designed to work properly at system pressure. Standard automotive oil filters are NOT capable of withstanding system pressure.

If the system has been just operated, shut off the engine and wait at least 30 seconds for the air pressure to vent before working on the system.

Do not attempt to change the oil filter until the oil has cooled. Hot oil can cause severe burns.

1. Clean the area around the tank and the filter to prevent contamination.
2. Remove the drain plug and drain the oil into a container large enough to hold at least 5 litres.

3. Install and tighten the plug.
4. Remove the filter by turning it counter clockwise. 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.
5. Check the gasket-sealing surface on the front of the tank for contamination, old gasket material, or damage.
6. Apply a thin coating of compressor oil to the filter-sealing gasket and fill the filter with VMAC compressor oil.
7. 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.

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

You must use VMAC certified and approved synthetic compressor oil. Failure to use this oil will result in damage to the compressor and may void your warranty.

8. Place the manual transmission in neutral or the automatic transmission in park and fully apply the park brake.
9. Start the engine and allow it to reach operating temperature.
10. Turn on the compressor system, allow the system to pressurize, and return to base idle speed.
11. Turn off the compressor system.
12. 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.
13. Check for oil leaks.

ROUTINE MAINTENANCE - *Continued*

Changing the Coalescing Filter

If the system has just been operated, shut off the engine and wait at least thirty seconds for the air pressure to vent before working on the system. Also allow sufficient time for the oil to cool.

1. Clean the manifold around the coalescing filter to prevent contamination.
2. Note that the oil does not need to be drained to change the coalescing filter.
3. Remove the spin-on type coalescing filter by turning it counter clockwise.
4. Ensure the filter nipple has not loosened off from the manifold
5. Check the gasket-sealing surface on the front of the tank for contamination, old gasket material, or damage.
6. Apply a thin coating of compressor oil to the filter-sealing gasket.
7. 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.
8. Operate the system and check for leaks.

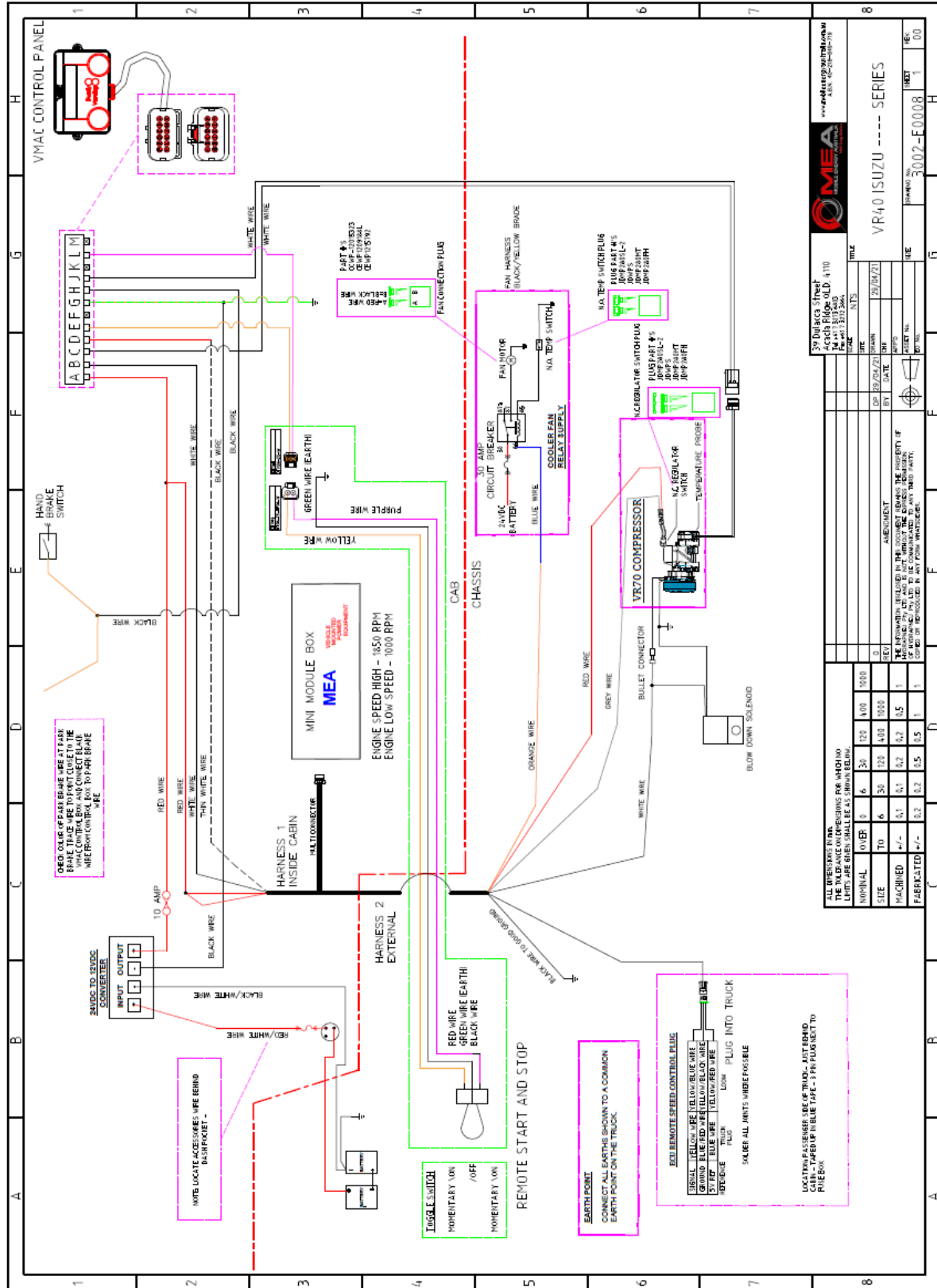
You can test the system operation using the tools that will be operated by the system or you can test operations using a .125" (1/8") orifice in the outlet to simulate tool use.

1. Install the test tool at the system outlet. If you are using the VMAC test tool, the appropriate orifice size is .125.”
2. Make sure that the ball valve is closed.
3. Place the transmission in park and fully apply the park brake.
4. Allow the engine to run until it is at operating temperature.
5. Operate the air compressor system until the oil is warm.
6. Observe the pressure gauge. Pressure should be approximately 150 psi.
7. Open the ball valve on the test tool and observe the engine tachometer. Engine speed should increase to a high idle.
8. Close the air valve slowly to allow the system pressure to rise. When the pressure reaches the pressure switch set-point of 150 PSI, the system will drop the engine to base idle.
9. Once the system pressure is at maximum, slowly open the ball valve on the test tool until the pressure on the gauge begins to drop. Engine speed should ramp up to high idle when the pressure drops approximately 40 PSI below the pressure switch set-point.

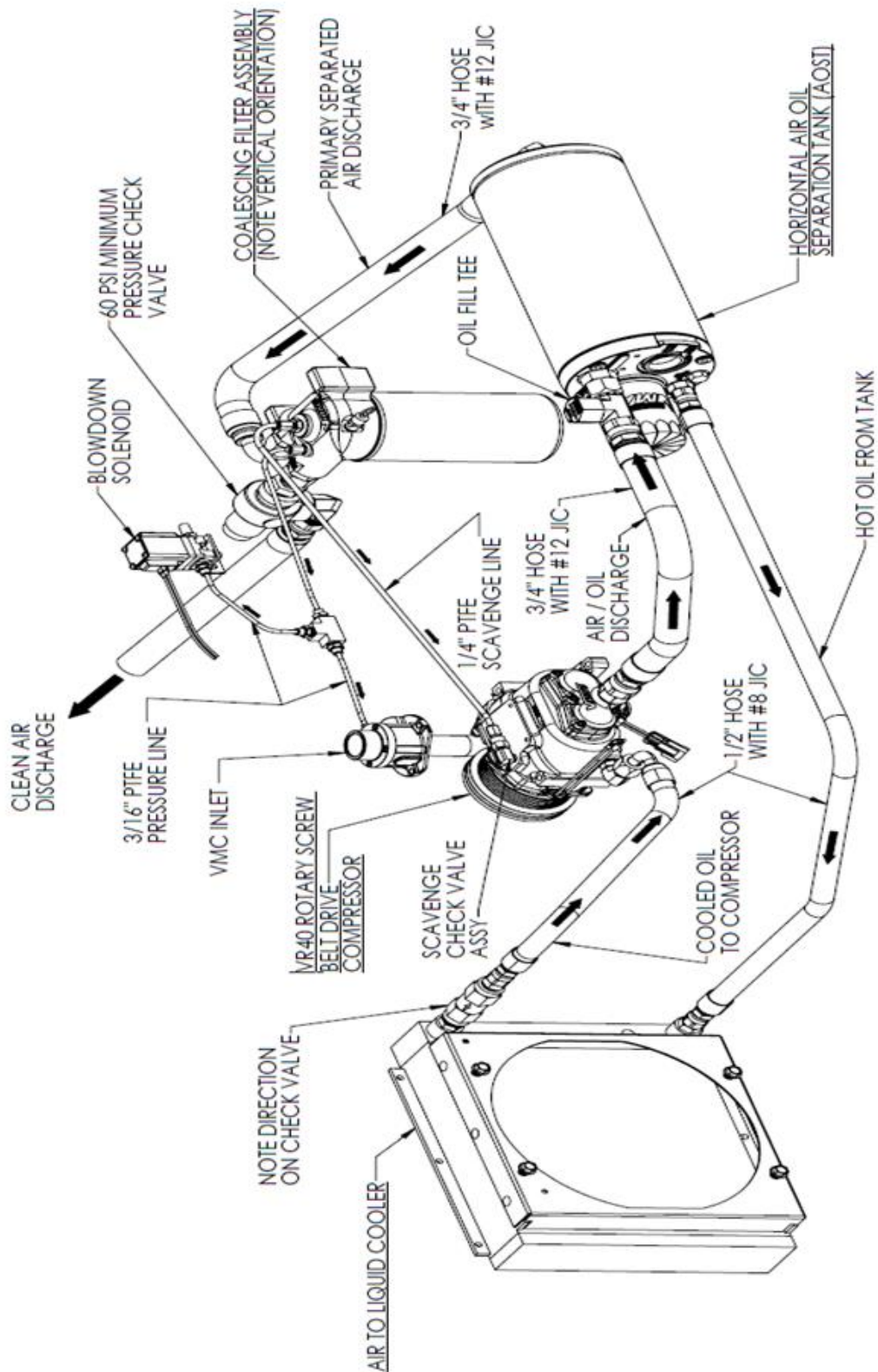
Adjusting the System Airflow and system pressure are related. If airflow demands on the system are low, operating pressure will remain high. If airflow demands are high, operating pressure will reduce. By adjusting the engine speed while operating a specific tool, you will achieve optimum performance.

If insufficient airflow is developed under high demand conditions, check engine RPM. Compressor CFM output is directly related to engine speed. As engine speed increases so does compressor output. Matching system output to the tools used has the benefit of maximizing performance and optimizing fuel consumption. The Throttle Control is adjusted at the factory to operate the engine in the middle of the RPM range. The engine speed can be increased or decreased to obtain the desired output.

CIRCUIT DIAGRAMS



COMPRESSOR LAYOUT



WARRANTY

Document No 3000-D0001-01

1 GENERAL PROVISIONS AND LIMITATIONS

- 1.1 Mobile Energy Australia (hereafter “MEA”) warrants to each original retail purchaser (hereafter “Buyer”) that such product(s) are, at the time of delivery to the buyer, free of manufacture ring defects in material and workmanship.

2 NO WARRANTIES IS MADE WITH RESPECT TO

- 2.1 Any product(s) which in the judgment of MEA has been subject to negligence, accident, improper storage, improper installation, improper application, improper operation, or maintenance or has been repaired or altered by others without the written authority of MEA.
- 2.2 Components or accessories manufactured, warranted, and serviced by others.
- 2.3 Damages caused by the lack of normal maintenance, service, and repairs such as the replacement and service of filters and seals.
- 2.4 Damages caused by the lack of normal minimum action, such as adjustments and inspections, replacement of items, such as service filters, seals, and service kits.
- 2.5 Consequential damages caused by product(s) failure.
- 2.6 Any product(s) if other than MEA’s genuine components are used in the product(s).
- 2.7 Normal wear and tear of product(s).

3 WARRANTY PERIOD

- 3.1 The warranty period will commence upon installation of the product(s). The returned registration form marks the date of installation. If the registration form is not received, the warranty period will be deemed to commence 30 days from date of shipment from MEA.
- 3.2 The Product(s) is warranted against manufacturer defects in materials and workmanship for a period of 12 months.
- 3.3 The compressor air end is warranted to be free from defects in material and workmanship for a period of two (2) years from the date of installation.
- 3.4 Components supplied under warranty shall be warranted for the remainder of the original warranty period.
- 3.5 MEA factory rebuilt components shall be warranted for a period of 6 months from date of shipment.

4 MEA OBLIGATIONS

- 4.1 The obligation of MEA is limited to repairing or replacing parts, during normal business hours, at an authorized service facility, any component, that in the judgment of MEA are defective.

WARRANTY - *continued*

4.2 The obligation of MEA is limited to replacement of faulty parts. No liability is accepted for any freight costs, consequential damages, injuries, or expenses directly or indirectly related to the Product(s) failure.

5 BUYER OBLIGATIONS

5.1 Buyer shall notify MEA of the alleged defect within 10 days of initial discovery and return the allegedly defective component(s) within 30 days of initial discovery.

5.2 The Buyer must prepay all costs associated with the warranty.

5.3 The Buyer must return components claimed under this warranty to a facility designated by MEA for evaluation, to establish a claim under this warranty.

5.4 Buyer shall maintain and service MEA Product(s) in accordance with the MEA Product(s) Owner's

6 WARRANTY REGISTRATION VALIDATION

6.1 A registration form is provided to the Buyer with the product(s). The form must be fully completed by the Buyer and returned to MEA upon completion of the installation of the product(s) to validate the warranty. No warranty claims will be processed unless MEA has received a fully completed warranty registration form.

7 DISCLAIMER AND WARRANTY SERVICE

7.1 Any labour costs claimed more than MEA's set rate and/or times are not provided by this warranty. If applicable, any labour costs more than MEA rate schedules caused by, but not limited to, location or inaccessibility of the equipment, travel time or labour provided by unauthorized service personnel are not provided by this warranty.

7.2 This warranty is in lieu of all other warranties or obligations expressed or implied. MEA expressly disclaims all implied warranties of merchantability or fitness for a purpose.

7.3 Warranty claims must be pre-authorized by MEA, and the components returned via prepaid freight using the designated "Returned Merchandise Authorization" number and form.

PLEASE NOTE:

Both the MEA Product Registration Form and the Kubota Engine Warranty Registration Form MUST be returned to MEA in the stamped, self-addressed envelope.

WARNING!!!

Failure to return PRODUCT WARRANTY REGISTRATION FORMS detailed above may result in the delayed processing of warranty claims.

MOBILE ENERGY AUSTRALIA - CONTACTS

Document No 3000-D0001-01

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