

Service Procedures for RAPT AIR60

500/1000 Hour Service Kits A500001/17 (RAPT AIR60)

General Service Information

Safety and Service Precautions

Observe these precautions when performing any service:

- Never attempt to clean the air filter element with compressed air. Replace the air filter element.
- 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. Apply a thin coating of compressor oil to the filter sealing gasket.
- 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 oil level sight tube 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.

 ***You must make sure that there is no pressure left in the system. If there is a pressure gauge, make sure that it is at zero before commencing service. If you are not sure, attach a tool or air nozzle to the air outlet 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. Metal filings will damage the compressor.

Flushing Procedure

Component failure (such as a gearbox, 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 system components for evidence of contamination and clean thoroughly. Use compressed air to blow out lines and other components. Remove the oil filter and dump out oil from the filter. If there is no metal in the oil filter, continue with the regular flush procedure, (continue to step 2).
If there is metal in the oil filter, look for metal in the return line to the compressor. If metal is found, the cooler must be flushed before the new compressor is installed. As well, the lines from the tank to the cooler and cooler to compressor need to be thoroughly checked / flushed or replaced before installing the new compressor.
2. Once the system has been cleaned as thoroughly as possible, replace the failed component and reconnect all lines and fittings
3. Install a new oil filter and fill the system with VMAC compressor oil to the correct level.
4. Start the engine and engage the air system. Allow the system to pressurize and allow it to operate in no-load mode for about 15 minutes without discharging any air.
5. Shut-down, allow the system to cool and change the oil and the oil filter. Refill with compressor oil to the correct level.
6. After 50 hours, replace the oil filter and top up the oil level.

Service Kit Contents

A 500 hour service kit will contain an air filter, oil filter and sufficient oil for the system, 1.06 USG (4 liters) for a RAPT AIR60.
A 1000 hour service kit will contain the same, with the addition of a Coalescing Filter, (Vmac # **3600079**).

VMAC – Vehicle Mounted Air Compressors
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1. Check oil level in air/oil separator tank

The air compressor system holds 4 litres of oil, which includes enough to fill the oil filter. The filter holds 0.3 litres of oil. The compressor holds about 0.5 litres of oil.

- Check the level the oil has reached on the oil level sight tube.

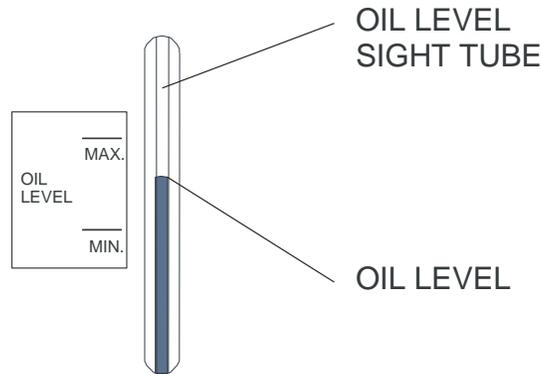
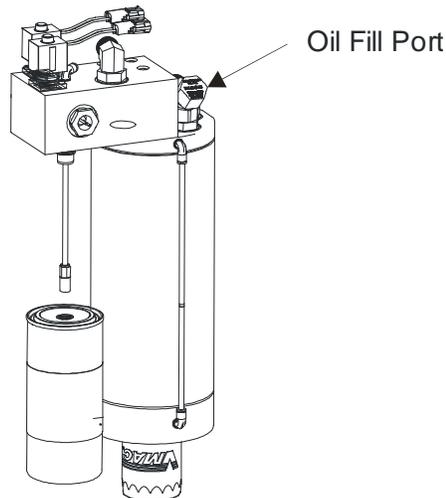


Figure 1 – Checking Compressor Oil Level

- Clean debris and dust from the area around the oil fill port of the air/oil separator manifold to prevent contamination.
- Use a funnel inserted into the oil fill port in the air/oil separator manifold and pour in VMAC certified compressor oil.



- Replace the cap on the oil fill port and tighten.
- Start the system following the start-up procedure in the User's Manual
- Allow the system to pressurize.
- Turn off the system using the shutdown procedure in the User's Manual
- Wait 5 minutes then drain the air fully to depressurize the system.
- Check for oil leaks.
- Repeat until the oil level sight tube shows the oil level in the air/oil separator tank is in the operational range.

2. Replacing the Air Filter

 This is a dual air filter for the Kubota engine and VMAC compressor. Follow all safety precautions. For ease of service the air filter is located just under the roof of the RAPTAIR60 behind the service panel. The filter is also equipped with a filter minder switch at the back, and is monitored by the control system.

- Clean loose dust and debris from the area around the filter cover to prevent contaminants from entering the system.
- Remove the air filter cover retaining clamps and the cover.
- Remove the filter element from the air cleaner housing.
- Immediately cover the air cleaner housing with a clean cloth to prevent contamination entering the intake hose and compressor.

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

- Clean the inside of the cover and the air cleaner housing 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.**

- Remove the cloth from the air cleaner housing.
- Place the filter into the air cleaner housing and secure the cover with the retaining clamps.

3. Replacing Compressor Oil

 **Follow all safety precautions.**

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

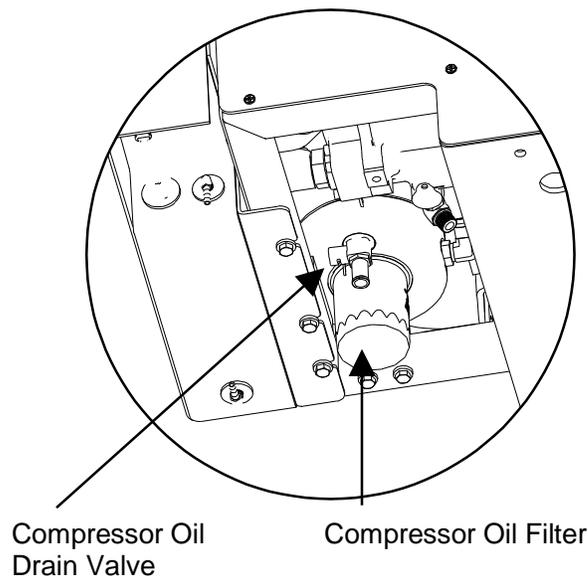


Figure 2 - Oil Filter Location

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

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

- Replace oil filter as in **Section 4**.
- Clean debris and dust from the area around the oil fill port of the air/oil separator manifold to prevent contamination.

NOTE *4 liters of VMAC certified oil is required to fill the system.*

- Unscrew and remove the oil fill port cap. Use a funnel inserted into the port and pour in the required amount of VMAC oil.
- Follow the oil level checking procedure in **Section 1**.

4. Replacing the Compressor Oil Filter

! *Follow all safety precautions.*

- Clean debris and dust from the area around the air/oil separator tank and the filter to prevent contamination.
- Remove the filter by turning it counterclockwise using a suitable filter wrench.

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

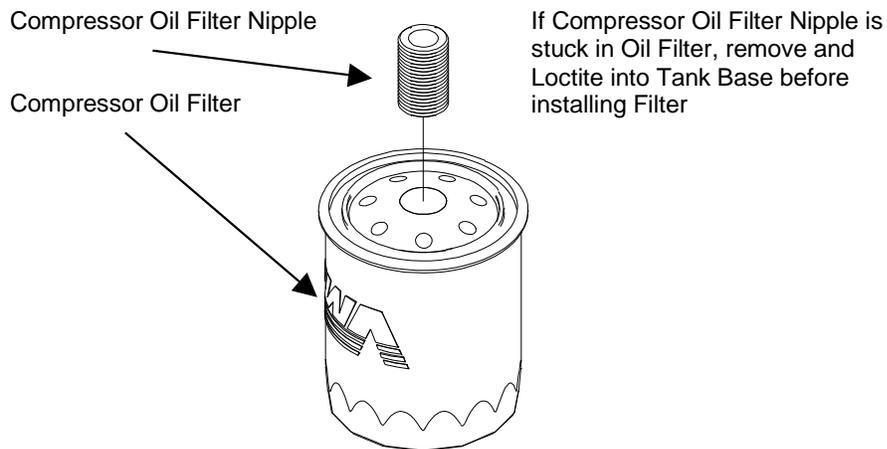


Figure 3 – Compressor Oil Filter

- Check the gasket-sealing surface of the air/oil separator tank for contamination, old gasket material or damage.

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

- Apply a thin coating of compressor oil to the filter sealing gasket.
- Spin the filter onto the threaded nipple until the gasket contacts the sealing surface of the air/oil separator tank.
- Tighten the filter an additional 3/4 to 1 turn to seat the sealing gasket.

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

- Follow the oil level checking procedure in **Section 1**.

1000 Hour Service Procedures

For 1000 Hour Service, perform the 500 Hour Service and also replace the Coalescing Filter as below:

5. Replacing the Coalescing Filter



Follow all safety precautions.

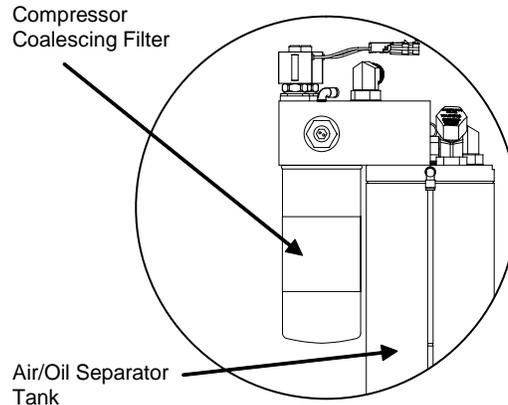


Figure 4 - Coalescing Filter Location

- Clean debris and dust from the area around the air/oil separator tank and the filter to prevent contamination.
- Remove the filter by turning it counterclockwise using a suitable filter wrench.

NOTE *Do not use a screwdriver punched into the side of the filter, as this practice can damage the scavenging tube and screen. See Fig. 5.*

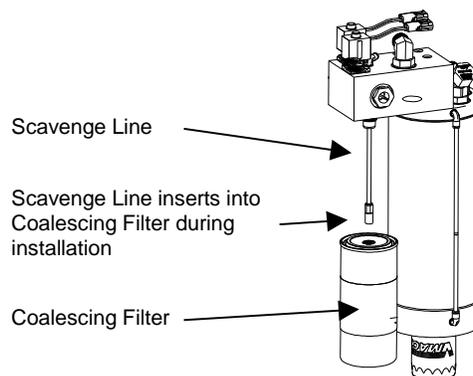


Figure 5 – Avoid Damaging the Scavenge Line

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

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

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

- Apply a thin coating of compressor oil to the coalescing filter sealing gasket and coat the end of the threaded nipple, as there is also an O-ring inside the coalescing filter.
- Spin the filter onto the threaded nipple until the gasket contacts the sealing surface of the manifold block.
- Tighten the filter an additional 3/4 to 1 turn to seat the sealing gasket.

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

- Check the oil level following the oil level checking procedure in **Section 1**.

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Version	Revision Details	Revised by/date	Approved by/date	Implemented
A	Engineering Release	SAR 22 Sep 2011	SM/MH 5 Oct 2011	6 Oct 2011
B	ECN 12-028: revised as per markups	SAR 26 Jan 2012	SM 25 Jun 2012	04 Jul 2012
C	ECN 13-048: Updated for use on both A500001 and A500017	CM 10 Jun 2013	MH/DB 04 Jul 2013	05 Jul 2013

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