



Technical Support

Subject
Multifunction AC/DC Generator Replacement – Kubota Powered

System or Parts affected

Kubota-Powered Multifunction Power Systems with AC/DC generator/welder:

- D600007
- D600008
- D600009
- D600012
- D600013

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Overview

- The following instruction outlines the removal and installation of the AC/DC generator in VMAC's Kubota-powered Multifunction Power Systems.
- These instructions apply to most of the above applications, but some deviation may be necessary depending on your system.

Before you start

- Completely read this document before starting the generator replacement process.
- If this is a warranty situation, within 1 year of date of sale, contact VMAC Tech Support before you proceed. 1-888-241-2289 or tech@vmacair.com .
- Clear service access is required all around the Multifunction to perform this operation.

Generator Removal and Replacement

Removal:

1. Disconnect welder control box connectors from Raptair MF unit (x2).
2. Remove service panel.
3. Disconnect battery and remove the positive terminal clamp from end of wire. Remove protective boot.
4. Remove battery.

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5. If generator is a terminal strip type, remove junction box cover, mark wires and note wire locations. Disconnect and remove the wires to the truck from junction box. Wires going from the terminal strip into the front cover of the generator will remain attached. See Figure 1.



Figure 1 – Standard outlet panel (Left) and Terminal Strip panel (Right)

6. If DC terminal plugs have permanent studs with wires in place, mark wires, note wire locations, and remove wires from generator.
7. Disconnect the beacon harness connector from the top panel. Remove top panel – (x11) Phillips screws. (It maybe necessary to heat the panel screws to remove them easier, as they have Loctite on them)
8. Remove generator side panel – (x11) Phillips screws – 2 different sizes.
9. Remove engine radiator panel – (x8) Phillips screws.
10. Remove lower Phillips head screw from control box mounting bracket to side of radiator.
11. Tilt control box away from 3/4 in Air Oil Separator Tank (AOST) hose & fitting.
12. Remove negative battery cable from clips (x3).
13. Disconnect pressure sensor harness connector from pressure sensor.
14. Remove (x2) bolts from the rear AOST.
15. Loosen band clamp around the AOST and slide to back of tank.

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16. Using a zip tie wrapped around 3/4 in hose, lift AOST and tie to lifting hook clevis. See Figure 2.

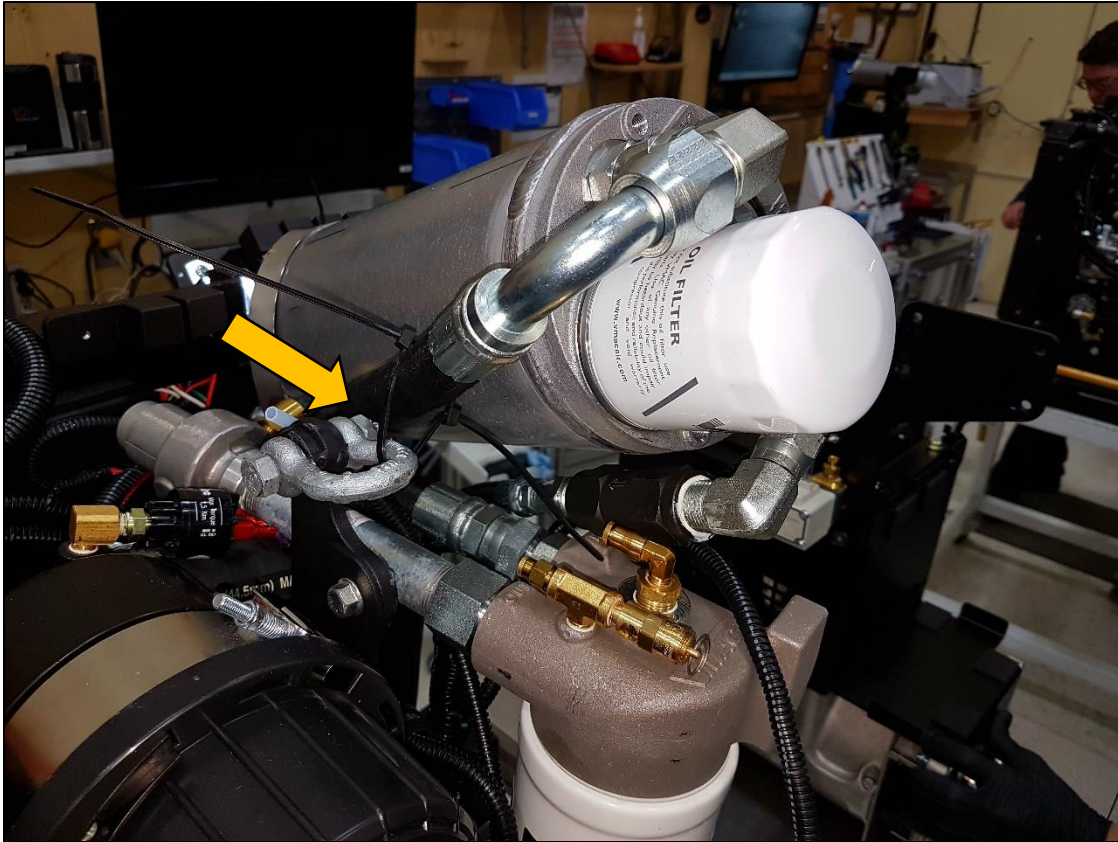


Figure 2

17. Remove positive wire from (x2) retaining clips and move out of way.
18. Disconnect wire harness from rear of generator cover clip.
19. Disconnect (x2) wires from start-up alarm.
20. Disconnect air solenoid connector.
21. Disconnect the 3/16 in PTFE tube from the inlet.
22. Disconnect the two 1/4 in PTFE tubes from the manifold block, noting which tube goes where.
23. Remove the (x4) bolts from the filter manifold block that hold the manifold block to the generator cover.
24. Remove the “P” clip wire retainer that holds the welder control box harness in place at the bottom of the frame.
25. Remove the belt.
26. Remove both generator side cover vent panels.
27. Remove the (x4) bolts that hold generator to the frame.
28. Slightly tilt generator away from compressor and disconnect the 2-pin connector from the side of the generator cover.
29. Remove generator.

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30. Remove the AOST bracket from top of generator by removing the (x2) top and (x2) side bolts. Keep bolts and bracket for reinstallation on new generator.

Replacement:



Use Loctite® Threadlocker Blue 242 on all fasteners.

1. Reinstall the AOST bracket onto the new generator cover using saved bolts.
2. Set new generator in place with welder control box harness going down and under generator to follow the rest of the harness and fuel lines out to location where the “P” clip stud is located.
3. Slightly tilt generator away from compressor and reconnect the 2-pin connector from the side of the generator cover.
4. Install the new supplied (x4) generator bolts and reinstall the ground strap on one of the rear mounting bolts.
5. Install the supplied new generator side cover vent panels.
6. Using a straight edge or laser alignment tool verify the pulley on the generator aligns with the grooves on the compressor clutch pulley and the idler below.

It may be necessary to move the generator pulley in or out. To make this adjustment you will have to cut the anti-rotational wire and remove the bolt on the pulley and move the pulley to get the correct belt alignment. You can use the two bolt holes in the pulley to mount a puller to slide the pulley outwards. Once proper alignment is achieved, reinstall bolt with blue Loctite. You will also need to install the supplied anti-rotational wire through holes in the bolt head. This must be done in a correctly or the bolt will back out allowing the pulley to fall off. Guide the wire from outside of bolt head and pull up through the center. Wrap the other end around pulley in groove and guide wire from outside of bolt head and pull up through the center. You should have both wire ends coming up through the center of the bolt head now. Using pliers, twist wire so that twisted portion goes all the way into the bolt head. Next push the wire down right beside the Bolt head so that the wire bends into the groove of the pulley, taking care not to snap the wire. See Figure 3

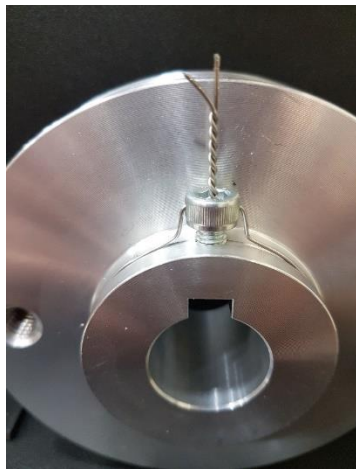


Figure 3

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7. Reinstall belt.
8. Reinstall “P” clip wire harness retainer to stud for the welder control box. Make sure harness is not too loose.
9. Reinstall the (x4) bolts in the manifold block and ensure the ground wire and the beacon harness is attached to the two top bolts.
10. Reconnect the (x2) 1/4 in PTFE tubes to the manifold block in the proper orientation noted previously. See PTFE installation tips at the end of this instruction.
11. Reconnect the 3/16 in PTFE tube from the air solenoid to the inlet.
12. Reconnect the air solenoid connector.
13. Reconnect the (x2) wires to the start-up alarm.
14. Reconnect the wire harness from the rear of the generator cover clip.
15. Install the battery.
16. Reroute the positive battery cable over generator cover towards battery post. Do not install into retaining clips at this time.
17. Install positive boot over wire and install positive terminal clamp on end of wire. Set clamp on battery post. Now you can clip positive wire into retaining clips. Remove the clamp from battery terminal.
18. Cut the zip tie holding AOST out of the way and place AOST in place.
19. Reinstall (x2) bolts to the rear of the AOST.
20. Slide the band clamp up and into place around the front generator cover mount. Tighten clamp so that the bolt is angled slightly upwards on the side of the AOST.
21. Reconnect pressure sensor.
22. Guide the negative battery wire around back side of AOST and set clamp on battery post. Now you can clip negative battery wire into retaining clips. (x3) Remove the clamp from the battery terminal.
23. Angle control box back vertically and reinstall the Phillips head screw.
24. Reinstall the engine radiator panel.
25. Reinstall the generator side panel.
26. Reinstall the top panel and connect the beacon connector.
27. If DC terminal bolts were used to hold wire in place reinstall wire and bolts to proper location.
28. If terminal strip junction box was used on generator reinstall all wires to proper location.
29. Connect negative clamp on battery.
30. Connect positive clamp on battery.
31. Reinspect all hose and wires to make sure nothing is pinched or out of place. You will need to zip tie harness back up so that they don't vibrate around.
32. Reconnect the (x2) welder control box plugs.
33. On the generator front insure the master breaker is turned on.
34. Start Raptair MF unit up and allow to warm up.
35. Inspect the belt to insure it is running true.
36. Turn welder control box to 0Volts.
37. Turn generator on.
38. Using multimeter on AC scale measure 220V plugs or at terminal strip terminals, they should be between 216V – 263V.
39. Using multimeter on DC scale and put test lead on each generator DC terminal post in proper polarity.
40. Turn welder control box to 12V the multimeter should read 12-17V.

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41. Turn welder control box to 24V the multimeter should read 26-30V.
42. Turn welder control box to 36V the multimeter should read 39-48V.
43. Turn welder control box to 48V the multimeter should read 52-61V.
44. If all above values fall within the prescribed parameters, the voltage output is good. To test the generator in the “Weld” function you will need to turn welder control box to “Weld” and actually weld something to verify this function performs properly.
45. Install the service panel.
46. End.

PTFE Push-To Connect Fittings:

NOTE *Lubricate the tube and firmly push it into the fitting so that the tube 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.*

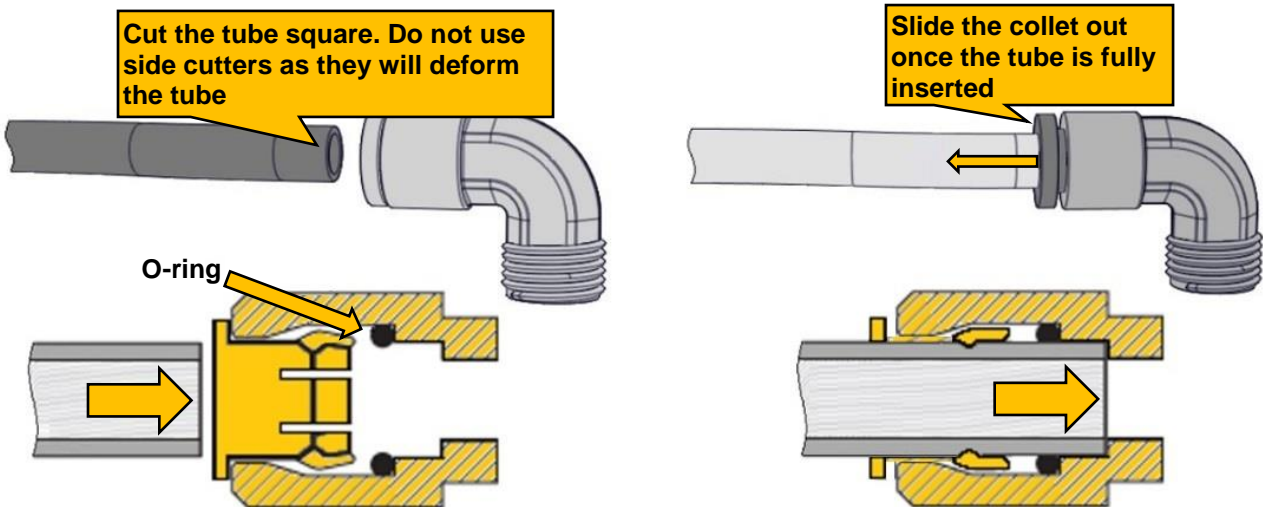


Figure 1 – Push-to-connect fittings

- Lubricate the PTFE tube with compressor oil or assembly grease so that it doesn't roll the internal O-Ring when it is inserted, otherwise the fitting may leak.
- With the collet (sleeve in the fitting) against the body of the fitting, push the PTFE tube all the way into the fitting. There will be a little resistance at first and then the tubing will be felt to seat against the fittings.
- Once the PTFE tube is fully seated, pull the collet away from the fitting to the PTFE tube in place.
- To release the PTFE tube, push the collet flush with the fitting.

If you have any questions, please contact VMAC Technical Support 1-888-241-2289

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