



INSTALLATION INSTRUCTIONS

PART NUMBER	154-8841
PART DESCRIPTION	OIL TANK UPGRADE KIT
REV DATE	4/08/2011
MACHINE MODELS	PHOENIX-S MODEL B



Should only be performed by a Kegel Certified Level 2 technician

TOOLS NEEDED:

Phillips Screwdriver
Allen wrench set
Wire nut crimpers

Wire cutters
(2) 7/16 wrench
wire strippers

needle nose pliers
11/32 wrench
Small flat screwdriver



TECHNICAL NOTE

Please thoroughly read the instructions prior to performing the installation of this assembly.

To avoid any potential problems, if at any time during the process you have a question, stop and contact our Tech Support department at the numbers listed below.

Please visit our growing library of videos to see if these instructions are available!



www.youtube.com/user/KegelBowling81



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Rev. 3.14

Removing the top side components:

Conditioner tank and components

1. Set the machine down into the operating position. If your machine is still equipped with the vent valve assembly, unfasten the screws holding the assembly plate to the machine.
2. Disconnect the hose from the fitting going to the float assembly located on top of the oil tank assembly. Follow the blue and white wire coming from the Vent valve assembly back to the wire joints. Cut the wires from the wire joints. **REMOVE THE ENTIRE ASSEMBLY** and dispose of, as this will no longer be used.
3. Disconnect the plug wired to the oil tank float.
4. Remove all hoses going to the oil tank assembly. Be cautious to remove the hose going to the in-line filter at the top so that oil does not leak.
5. Remove the 4 bolts on the front panel that mount the oil tank assembly. Remove the tank and dispose of the conditioner in a proper location.
6. Thoroughly clean the inside of the machine!

Removing the bottom side components:

Removal of the Oil Control valve assembly

1. Stand the machine up in the transport position.
2. Prior to removing any hoses or fittings, take some rags and 'line' the inside of the machine as well as under the machine to catch any oil that spills.
3. Remove ALL 4 conditioner tubing leading to the fittings of the oil control valve assembly . One in the upper left and lower left of the 24v valve and the upper right and lower right of the 115v valve assembly.
4. Remove all the wires going to the terminal block for the oil valve assembly with a small flat head screwdriver. There will be 8 wires going to it; 4 on top and 4 on the bottom. Once loose, pull the 4 wires going to the bottom through the bottom plate of the machine. They are colored Orange, Brown, White/Blue and White. While you are here, go ahead and remove the terminal block from the bottom of the machine.
5. Next, remove the assembly from the machine. Being that the hardware for the assembly is on the bottom, it is somewhat difficult to remove the fasteners. Using an assistant, take a long phillips screwdriver from the top, and a 11/32 nutdriver from the bottom and unfasten the assembly from the machine and set aside for the time being. If by yourself, it would be helpful to use a pair of vise grips on the nut on the bottom in place of the nutdriver.
6. You will only be using the 24v for reassembly. The 115V oil valve assembly will NO LONGER be used. Carefully, unscrew the 24v Oil valve from the bracket assembly and set aside for reassembly.

Oil pump motor assembly

1. Remove the protective cover that is covering the oil pump motor assembly. You may discard as this will no longer be used.
2. Locate the 2 pin molex plug for the capacitor and disconnect it. Cut the molex plug off of the Red/Brown and White wires and pull the wires back through the bottom of the machine.
3. Unscrew the capacitor from the mounting angle and set aside for the time being.
4. Remove the pass-through sensor and cut the sensor off of the end of the cable. Pull the cable back through the bottom and cut as this will no longer be used.
5. Next, remove the belt from the pulley assembly by loosening the set screw for the smaller pulley and slide the pulley off the shaft along with the belt. Set aside for future use.



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6. Disconnect the hoses from the left and the right side of the conditioner pump assembly and catch any oil with a rag.
7. This next part is a little difficult. The bolts that mount the oil pump motor assembly to the machine are also the same ones that hold the buffer motor bracket in place. It's a tight fit, but you can use a wrench to hold the nuts that are on the bottom of the buffer motor in the center compartment. Then take an allen wrench to the bolts on the bottom of the machine to break the bolts loose. Once loose, you should be able to spin the nuts free from the bolts on the bottom of the buffer motor assembly.
8. Remove the oil pump motor assembly bracket. **It will be necessary to rotate the pump assembly** and set aside along with the belt and pulley for future use.
9. Locate the two new 5/16 – 18 x 1” bolts and hardware from the kit, insert them into the two holes and fasten down the buffer motor bracket.

Removing the remaining miscellaneous pieces

1. Remove the cover for the oil pressure regulator and dispose of the cover.
2. Remove the remaining hoses along with the fittings from the bottom of the lane machine.

Assembly of the Mounting plate

Locate the picture diagram in the kit. Using the supplied hardware, mount each of the components onto the plate.

- **Oil pump and oil motor assembly** – Being careful to not pinch the wire assembly, mount the motor bracket assembly to the plate using the (2) ¼ - 20 x 1 – ¼“ bolts and hardware. Replace the belt and pulley back onto the shaft before mounting to the plate assembly.
- **Oil pump motor capacitor** – Mount the capacitor to the plate using an 8-32 x ¾ screw and locknut. Plug the two pin connector into the existing plug on wire harness.
- **24V Oil Control Valve assembly** – Using the supplied hardware (2) 4-40 x ½ screws, mount the 24V Oil Control Valve assembly to the mounting angle with the sticker on the valve facing outward as shown in the picture.

Next, using the (4) ¼ - 20 x 1” bolts and ¼” hardware, attach the plate assembly into place.

Wiring the 24v Oil Control Valve

1. Plug the Oil Tank float assembly into the existing float plug on the machine.
2. Locate the yellow wire and the white wire on the 24V assembly. Take the White wire and insert it into the right side of the blue Wago block. Insert the Yellow wire into the right side of the orange Wago block.
3. Next, locate the Orange and Brown wires that were pulled through the bottom of the machine during disassembly.
4. Strip these back so that a wire joint can be attached.

Wiring the Capacitor

1. Locate the Red/Brown wire and the White wire that were pulled through the bottom of the machine during step 2 of the Oil pump motor assembly.
2. Strip the wires back so that a wire joint can be attached.



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Wiring the plate assembly

1. The plate assembly components will be wired to the machine using the five pin molex plug assembly.
2. The orange wire and the brown should already be wire into the wago block.
3. Plug the Oil pump motor into the 2 pin plug with the white wire and the Red/brown wires coming from the 5 pin molex plug.
4. Run the remaining 4 open ended wires from the 5 pin molex plug assembly over to the 7 pin side of the lane machine.
5. Wire joint the white wire from the plug to the white wire from the bottom of the machine. Do the same with the Red/Brown wire.
6. Wire joint the orange wire from the plug to the orange wire from bottom of the machine. Do the same with the Brown wire.

Routing of tube

1. Locate the 24" piece of the 3/8" tubing from the kit, this is the oil return line from the oil control valve back to the oil tank assembly. Insert one end into the bottom fitting of the Oil Control valve assembly and route the tubing back over the oil pump motor assembly and insert into the fitting closest to the left side of the oil tank.
2. Next, locate the 154-0257 Female Connector from the kit. Thread this onto the bottom of the Oil pressure gauge.
3. Cut a 2" piece of 1/4" tubing that is supplied in the kit. Insert this into the fitting.
4. Locate the 153-0815 union tee fitting from the kit. Insert lengthwise onto the 1/4" piece that you installed on step 3.
5. Cut another 2" piece of 1/4" tubing and insert it into the middle insert of the tee fitting. Locate the 154-0248 reducing union and push this fitting on to the 2" piece.
6. Cut a piece of 3/16" tubing 12" long and insert one end into the reducing union. Locate the other 154-0218 reducing union from the kit and push this onto the other end of 12" piece just installed.
7. Cut another piece of 1/4" tubing and push this into the reducing union. The other end will have the 154-0222 elbow from the kit and plug into the 10 pin side of the Oil Control valve assembly.
8. Next, insert the pulse suppression tubing removed from the oil pump assembly earlier. Insert one end into the bottom remaining spot on the tee fitting and the other end into the 10 pin side of the oil pump assembly.
9. On the 7 pin side of the oil pump assembly, insert the other 154-0222 1/4" elbow from the kit into the fitting.
10. Cut a 4" piece of the 154-0202 3/8" tubing, and insert this into the fitting on the lower 7 pin side of the Oil Tank assembly.
11. Next with the remaining piece of the 154-0202 3/8" tubing, insert this into the elbow and run across to the 7 pin side of the Oil Pump assembly. Cut to length so that it will fit across. Before doing the next step, take the piece of yellow Tygon tubing from the kit and slide over the end of the 3/8 tubing along with the 154-0869 white clamp. Take one of the 154-0227 1/4 stem to 5/16 barb elbows and push onto the open end of this. Tighten the clamp assembly around this fitting.
12. Insert the barb fitting into the elbow that was inserted in step number 9.
13. Next, insert the tube that was the being used for the Oil return line back to the tank into the 7 pin side



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of the Oil Control Valve assembly. If you trace this tube down, you will find that it inserts into the floor plate of the lane machine. Leave this in place and do not remove.

14. Stand the machine up.
15. Follow the oil control valve tubing through the bottom of the plate. You will find the bottom side of the connector that it plugs into. Take a 154-0222 ¼ elbow and insert this into that fitting.
16. Next, locate the tubing that was inserted into the upper right side of the 115v control valve. This is same tubing that is used for the oil tip assembly. Place a 154-0241 on the end of this tubing.
17. Cut a length of the 154-0202A tubing that will fit from the end of the elbow installed in step number 15 and to the ¼" union just installed in step 16.

Modifying the Oil Tip Assembly

1. Now that routing of the Oil has been changed, we need to modify the oil tip assembly so that future Oil Calibrations can be performed.
2. Prior to removing the oil tip assembly, make a scribe line on the tip so that your adjustment remains the same.
3. Remove the set screw on the 7 pin side of the Oil tip assembly mount. This will no longer be used.
4. Locate the stop collar assembly from the kit. Slide this onto the tip assembly up to where you made the scribe line in step 2, and fasten down.
5. Insert the oil tip assembly back into the oil head. This will now be tightened into place using the supplied Thumb screw from the kit, so that easy removal can be done for calibration.

Final Inspection

1. Plug power into the machine and carefully inspect for any possible oil leaks. Correct the problem if any.
2. Perform an oil calibration while keeping a close look at tubing.

**This concludes the installation process of the Oil Tank Upgrade Assembly
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