

OWNER'S GUIDE

AUTOMATIC OILER KIT (230 VAC) FOR PCNC 1100 / 15L

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PURPOSE

This document gives instructions on installing and using an automatic oiler on either a PCNC 1100 mill or a 15L Slant-PRO lathe.

PRODUCT INFORMATION

Product: Automatic Oiler Kit (230 Vac) for PCNC 1100 / 15L (PN 31374)



Quantity	Description
13 ft	3-Conductor Wire (PN 31377)
6	7-in. Cable Tie (PN 32791)
1	Automatic Oiler (PN 38255)
1	Brass Tube Coupling Fitting (PN 31305)
10 ft	Lubrication System Tubing, 4 mm, Nylon (PN 31304)
1	Cord Grip (PN 31376)
1	Cord Grip Nut (PN 31867)

REQUIRED TOOLS

Quantity	Description
1	Elbow Fitting (PN 38919)
6	10-32 × 7/16 in. Screw (PN 32071)
2	M6 Lock Washer (PN 31379)
2	M6 Nut (PN 31381)
2	M6 × 16 mm Screw (PN 31378)
6	Cable Tie Anchor, Screw Mount, M5 (PN 31460)
1	Ring Terminal (PN 31093)
2	14 Gauge Spade Terminal (PN 31128)
10 ft	Lubrication System Spring Sheath, 4 mm (PN 31306)



Note: If any items are missing, we can help. Create a support ticket with Tormach Technical Support at tormach.atlassian.net/servicedesk for guidance on how to proceed.



Note: Depending on whether you're installing the oiler on a mill or a lathe, not all included parts may be used.

REQUIRED TOOLS

This procedure requires the following tools. Collect them before you begin.

- 1/4 in. drill bit
- Adjustable wrench
- Electric drill
- Flat-blade screwdriver
- Phillips screwdriver
- Wire stripper or wire crimper

INSTALLATION FOR PCNC 1100

Complete the following steps in the order listed:

Make Automatic Oiler Connections	4
Install the Automatic Oiler on a PCNC 1100	6

Make Automatic Oiler Connections

1. Remove the automatic oiler cover plate.
2. Put the 3-conductor wire through the pre-installed cord grip assembly as shown in the following image.

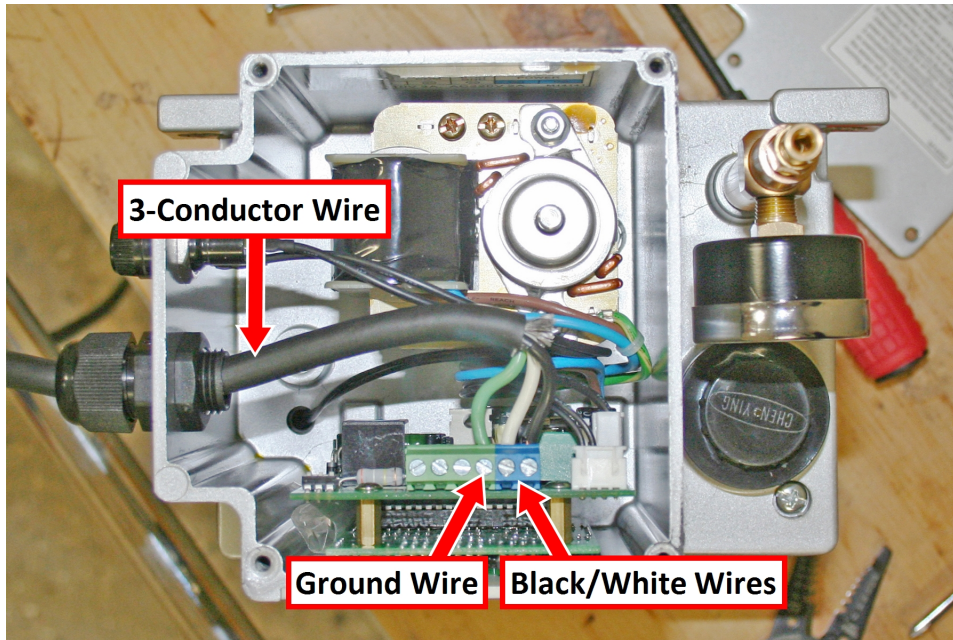


Figure 1: 3-conductor wire connected to the automatic oiler.

3. Use a wire stripper (or similar) to remove two inches of the 3-conductor wire insulation.
4. Use a wire stripper to remove 1/4 inch of the wires, and then connect them.
5. Gently pull the 3-conductor wire away from the automatic oiler to remove the slack. Stop pulling when the 3-conductor wire is snug. Then, tighten the nut.

INSTALLATION FOR PCNC 1100

6. Remove the brass fitting from the automatic oiler.



Figure 2: Brass fitting on the automatic oiler.

7. Connect the brass fitting to the elbow fitting. Then, install the elbow fitting on the automatic oiler as shown in the following image.

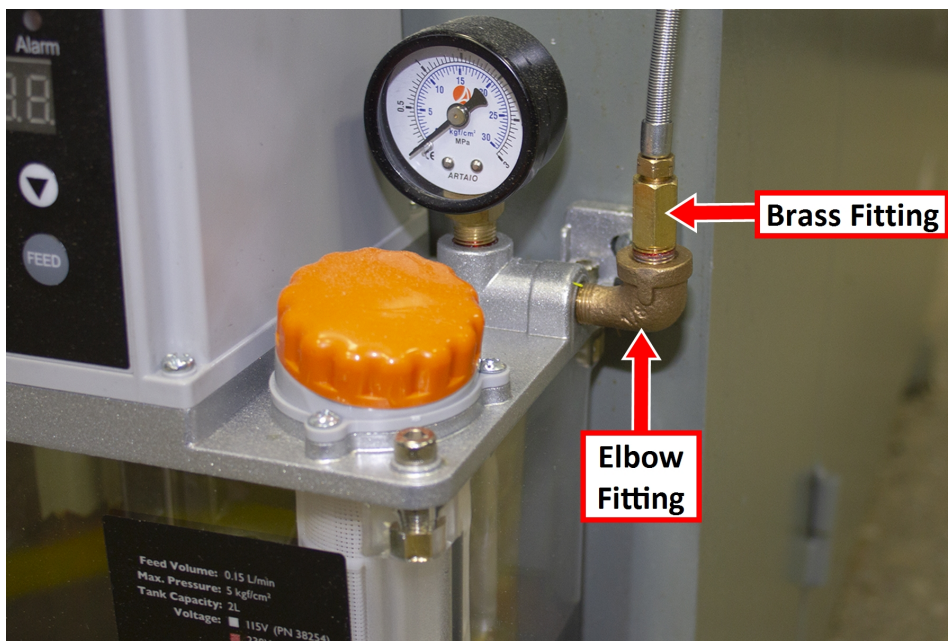


Figure 3: Elbow fitting installed on the automatic oiler.

8. Use the upper fitting and the ferrule from the automatic oiler's brass fitting to attach the clear nylon tubing. Then, use an 8 mm wrench to tighten it.

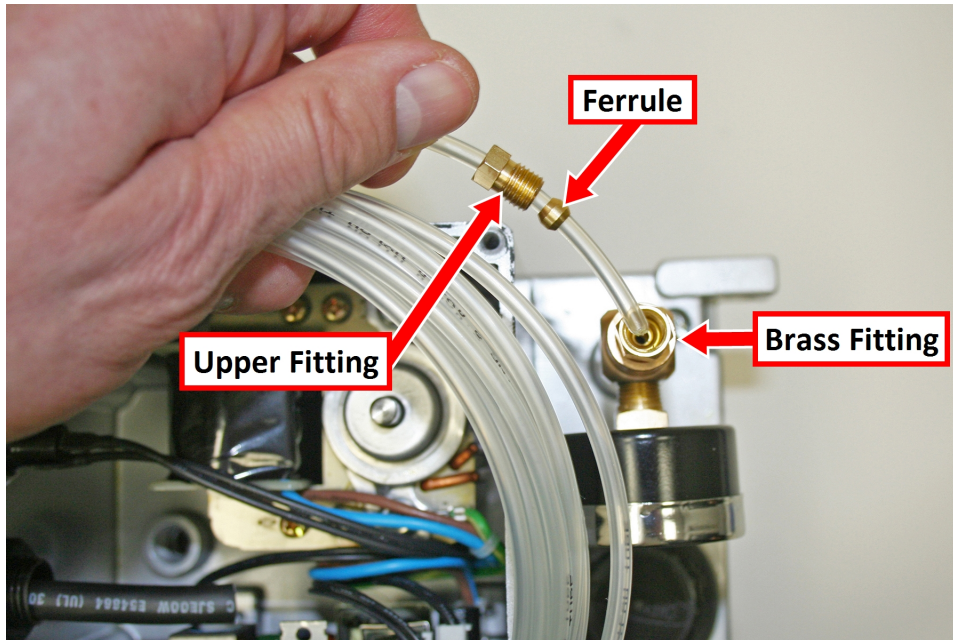


Figure 4: Clear nylon tubing and the hardware to attach it.

9. Put the tube protection sleeve over the clear nylon tubing.
10. Reinstall the automatic oiler cover plate.

Install the Automatic Oiler on a PCNC 1100

1. Power off the machine and the PathPilot controller.
 - a. Push in the machine's red Emergency Stop button, which removes power to motion control.
 - b. From the PathPilot interface, select **Exit**.
 - c. Turn the Main Disconnect switch to **OFF** on the side of the electrical cabinet.
2. On the left-hand side of the stand (under the chip pans), locate the pilot holes for mounting the automatic oiler.
3. Use a Phillips screwdriver to attach the automatic oiler to the stand with two M6 × 16 mm screws, two M6 lock washers, and two M6 nuts.

4. Use three M5 × 10 mm screws to attach three mounting tabs to the stand.

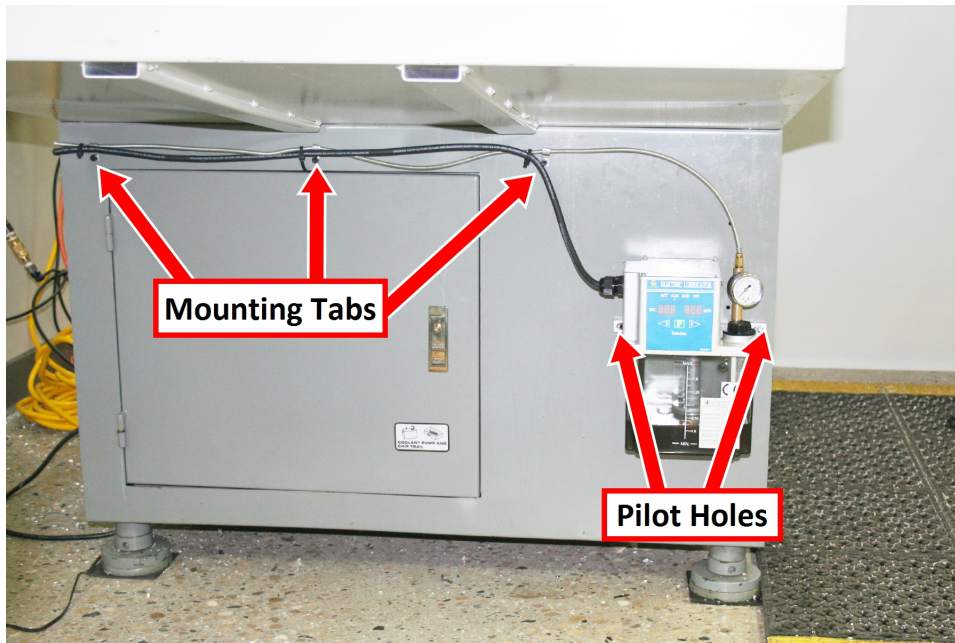


Figure 5: Automatic oiler installed on the stand.

5. Put the 7 in. cable ties through the mounting tabs, and then secure the 3-conductor wire and oil tube in the mounting tabs.
6. To extend the existing oil line, connect it to the brass tube coupling fitting and clear nylon tubing from the automatic oiler.

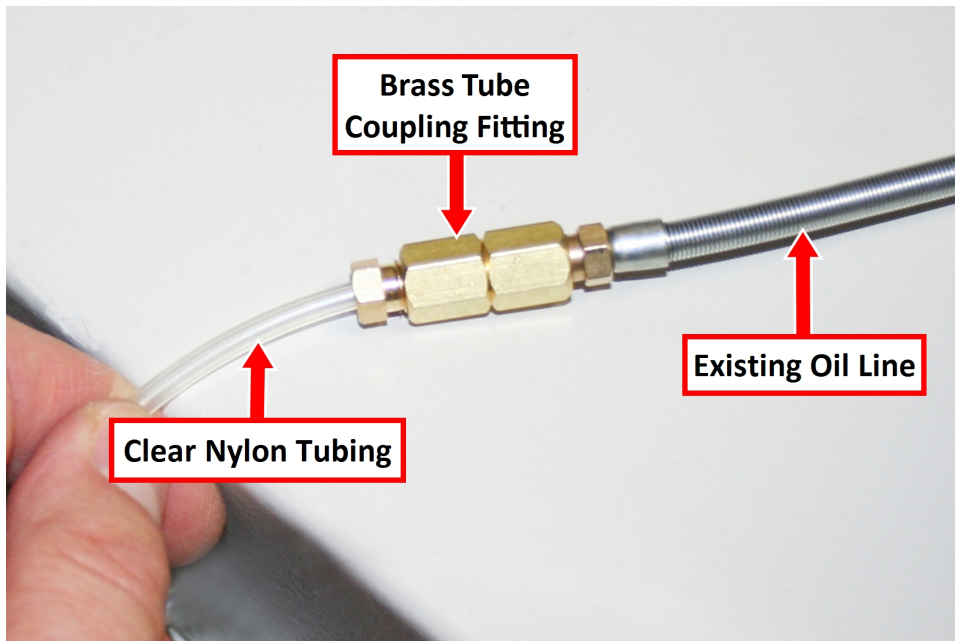


Figure 6: Extending the existing oil line.

7. Carefully route the line around the back of the mill. Make sure that it doesn't come in contact with any moving parts.

8. Use the cord grip to put the 3-conductor wire through bottom of electrical cabinet's knockout hole. Then, tighten it with the cord grip nut.

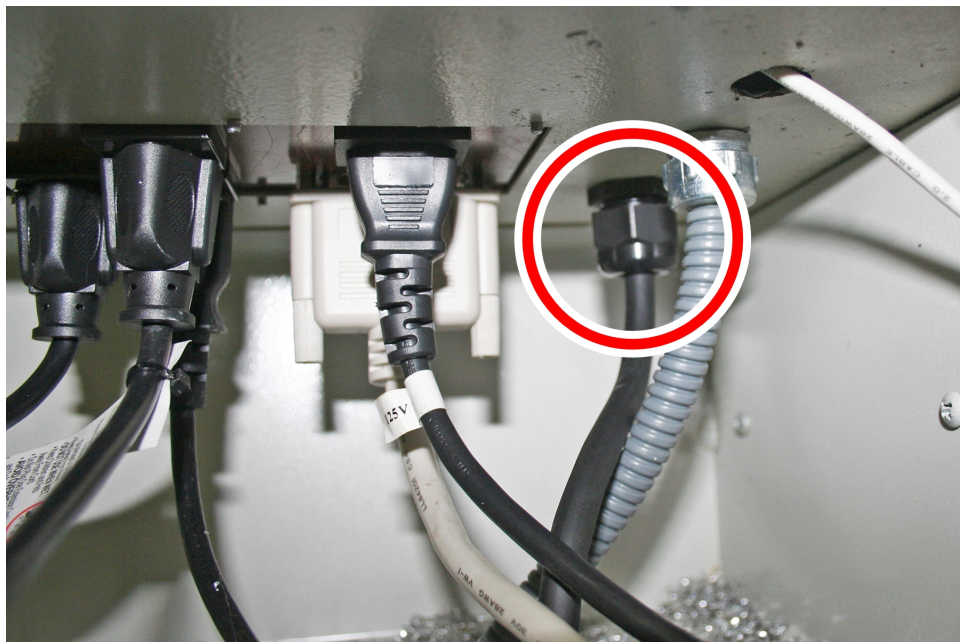


Figure 7: Automatic oiler's 3-conductor wire in the electrical cabinet.



Note: If the cord grip doesn't fit in the knockout hole, use a 7/8 in. drill to enlarge the hole.

INSTALLATION FOR PCNC 1100

- Older machines are equipped with a ground bar, while newer machines have a green ground terminal block section. Identify the ground connection specific to your machine.

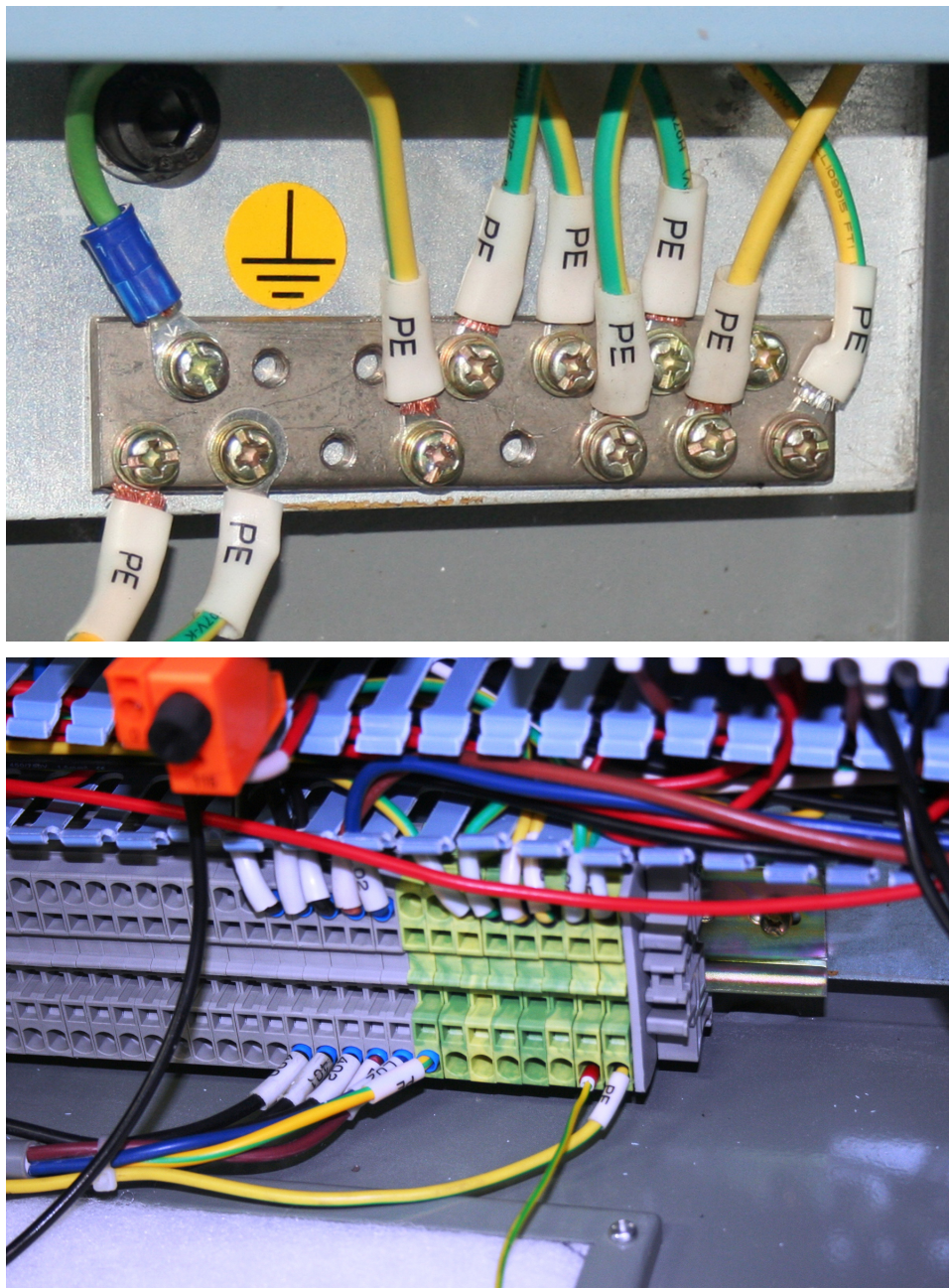


Figure 8: Examples of a ground bar and ground terminal block.

- Use a wire stripper to remove 1/4 in. of the insulation on the black and white power wires to expose bare metal.

11. Crimp the spade connectors to the black and white power wires.

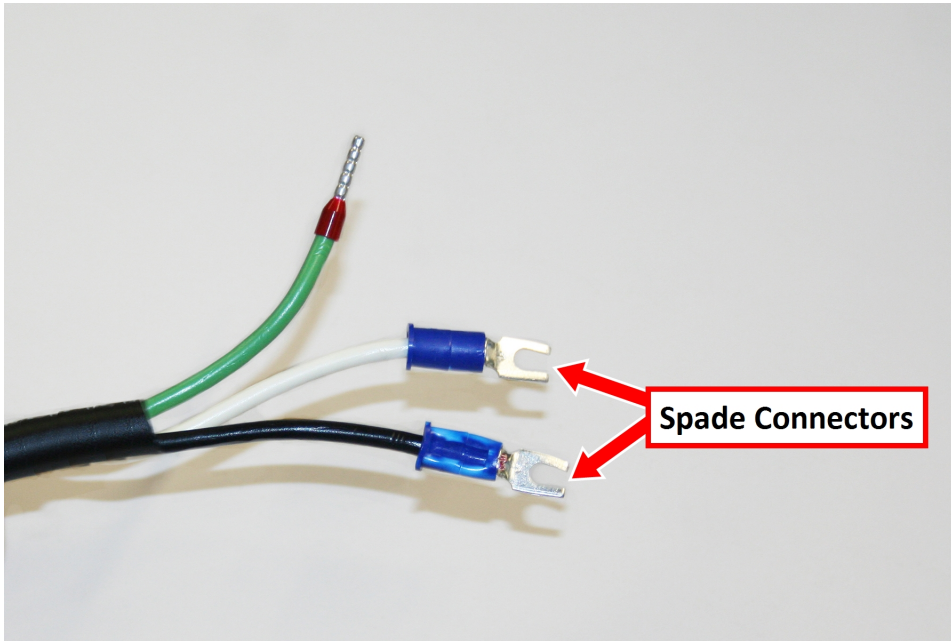


Figure 9: Spade connectors crimped on the power wires.

12. Based on the ground connection that you identified in Step 9, do one of the following:
 - a. **Ground Terminal Block** Use the pre-mounted ferrule; go to Step 13.
 - b. **Ground Bar** Clip off the ferrule, remove 1/4 in. of the insulation on the wire, and then crimp on the ring connector, as shown in the following image.

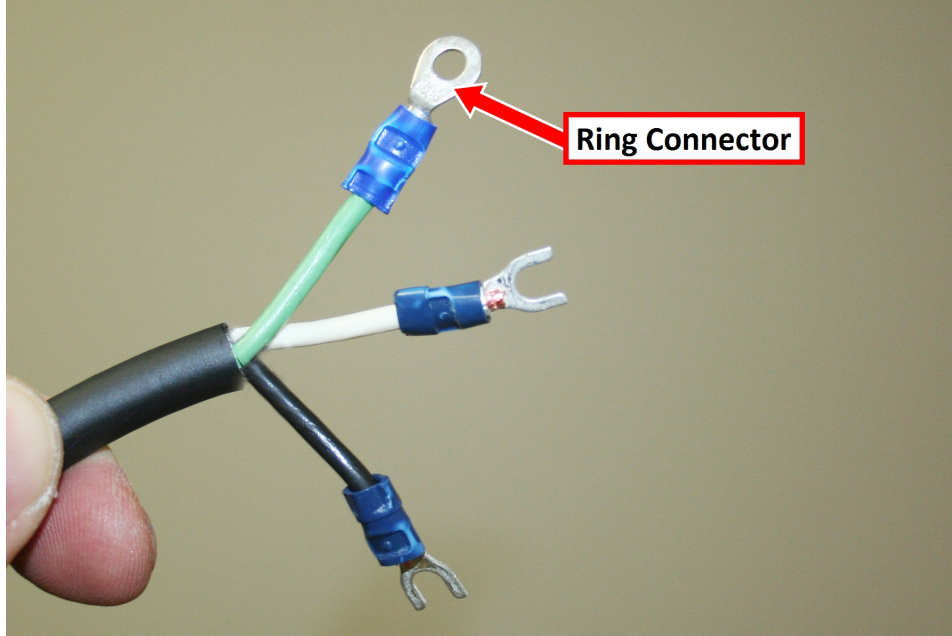


Figure 10: Ring connector crimped on to the ground wire.

INSTALLATION FOR PCNC 1100

13. Inside the mill's electrical cabinet, remove the required wire trough covers, and set them aside.

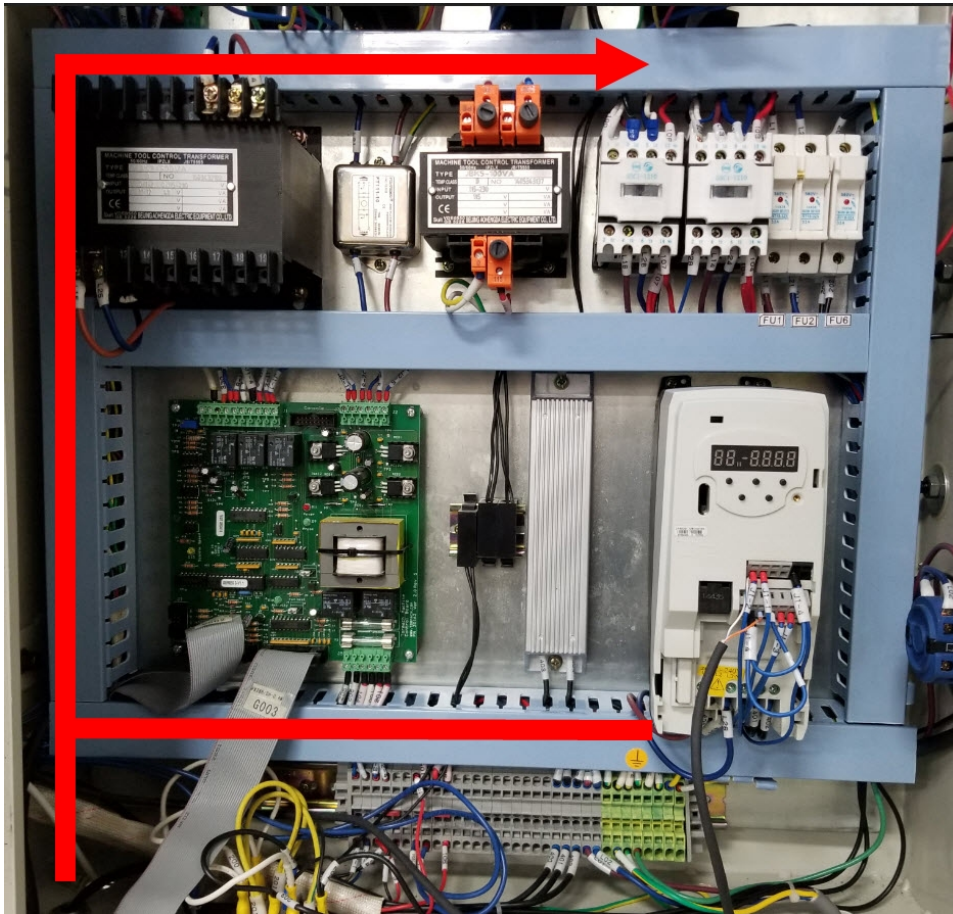


Figure 11: Wire routing inside the electrical cabinet.

14. Based on the ground connection that you identified in Step 9, do one of the following:
 - a. **Ground Bar** Route the green wire through the lower wire trough, and connect it to any ground bar terminal screw.
 - b. **Ground Terminal Block**
 1. Route the green wire through the lower wire trough.
 2. Slowly insert the end of a small, flat-blade screwdriver straight into any slot in the green section of the terminal block.

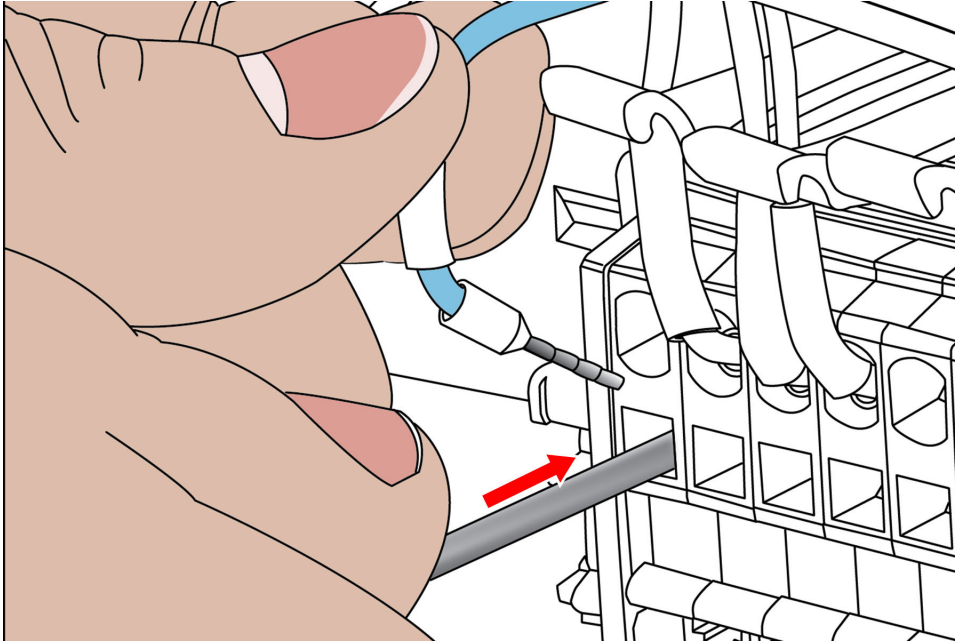


Figure 12: Use a flat-blade screwdriver to open the terminal clip and insert the wire.

3. Gently pry the terminal clip open, and then insert the wire into the terminal block.
 4. Slowly remove the screwdriver.
15. Route the black and white power wires through the wire troughs to C2 contactor.

INSTALLATION FOR PCNC 1100

16. Loosen the screw terminals below wires L13 and L23. Regardless of C2-wire orientation, connect the black wire to the L13 screw terminal and the white wire to the L23 screw terminal.

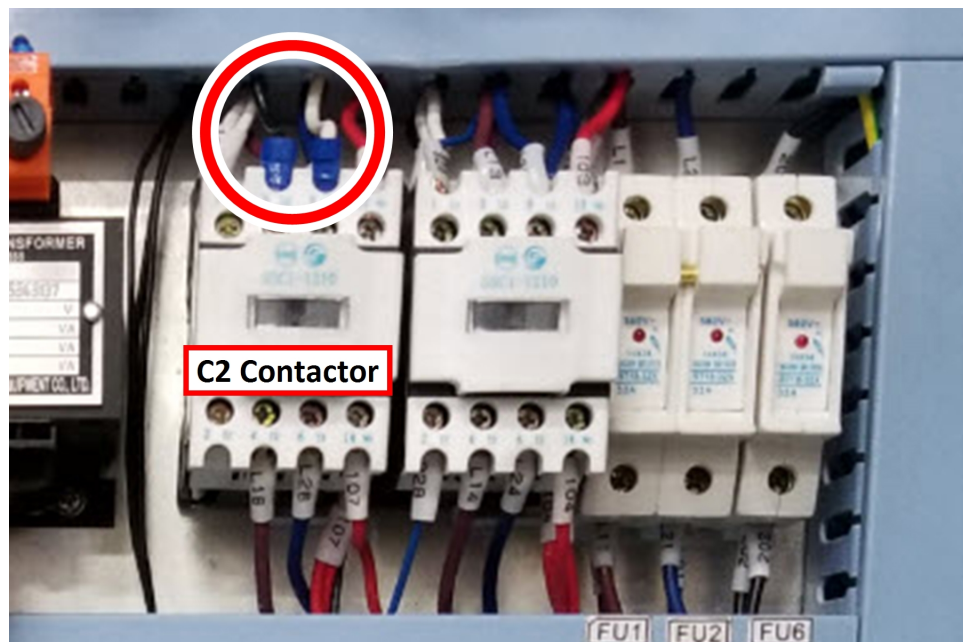


Figure 13: Black and white wires connected to the C2 contactor.

17. Tighten the screws on C2 contactor.
18. Reattach the wire trough covers.
19. You've completed the installation of the automatic oiler. Go to "Setup" (page 24).

INSTALLATION FOR 15L

Complete the following steps in the order listed:

Make Automatic Oiler Connections	14
Install the Automatic Oiler on a 15L Slant-PRO	16

Make Automatic Oiler Connections

1. Remove the automatic oiler cover plate.
2. Put the 3-conductor wire through the pre-installed cord grip assembly as shown in the following image.

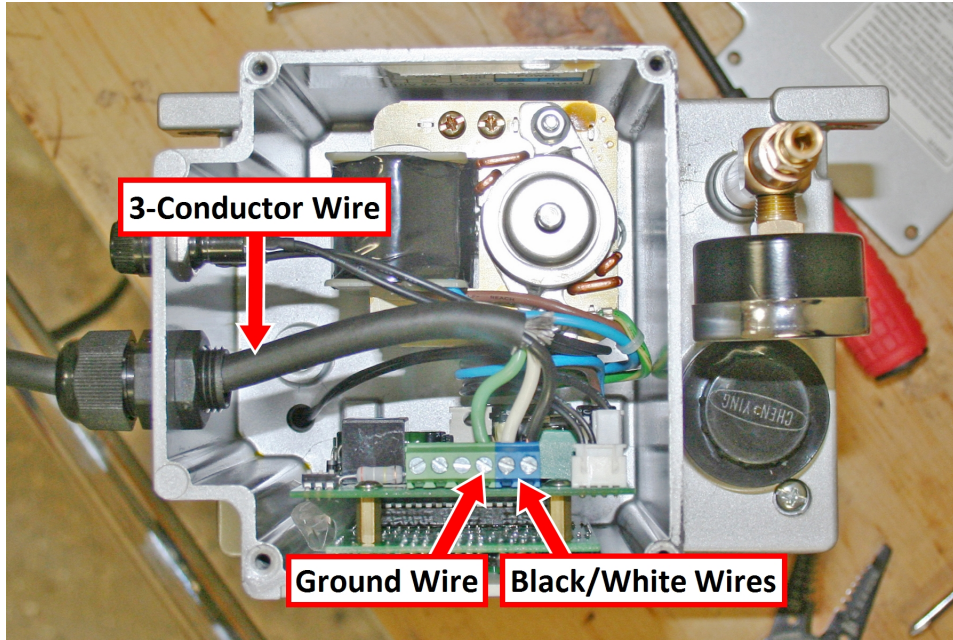


Figure 1: 3-conductor wire connected to the automatic oiler.

3. Use a wire stripper (or similar) to remove two inches of the 3-conductor wire insulation.
4. Use a wire stripper to remove 1/4 inch of the wires, and then connect them.
5. Gently pull the 3-conductor wire away from the automatic oiler to remove the slack. Stop pulling when the 3-conductor wire is snug. Then, tighten the nut.

INSTALLATION FOR 15L

6. Remove the brass fitting from the automatic oiler.



Figure 2: Brass fitting on the automatic oiler.

7. Install the T-fitting on the automatic oiler as shown in the following image



Figure 3: T-fitting installed on the automatic oiler.

INSTALLATION FOR 15L

8. Use the upper fitting and the ferrule from the automatic oiler's brass fitting to attach the clear nylon tubing. Then, use an 8 mm wrench to tighten it.

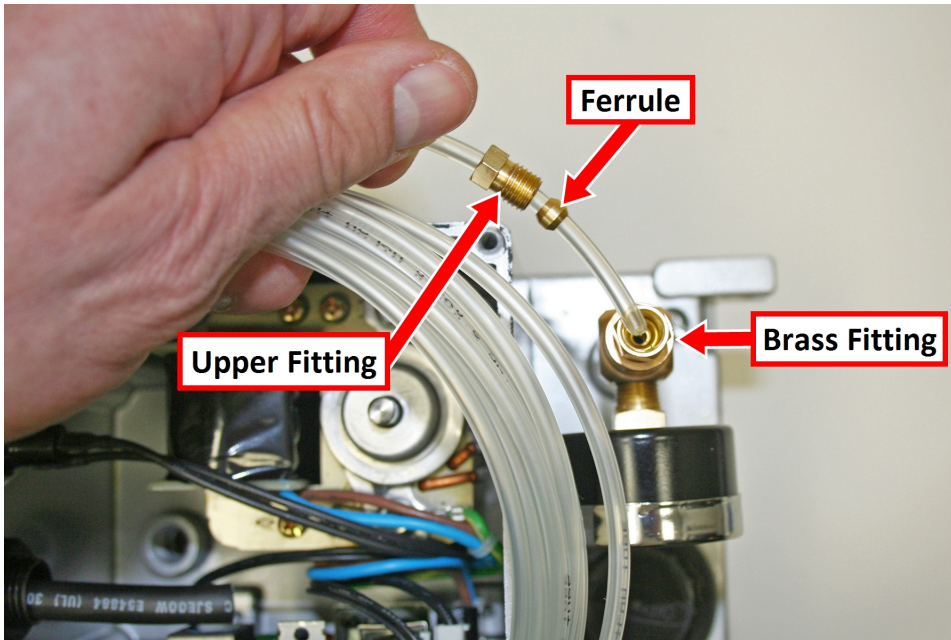


Figure 4: Clear nylon tubing and the hardware to attach it.

9. Put the tube protection sleeve over the clear nylon tubing.
10. Reinstall the automatic oiler cover plate.

Install the Automatic Oiler on a 15L Slant-PRO

1. Power off the machine and the PathPilot controller.
 - a. Push in the machine's red Emergency Stop button, which removes power to motion control.
 - b. From the PathPilot interface, select **Exit**.
 - c. Turn the Main Disconnect switch to **OFF** on the side of the electrical cabinet.

2. Use a hex head wrench to remove the two pre-installed screws on the lathe as shown in the following image.

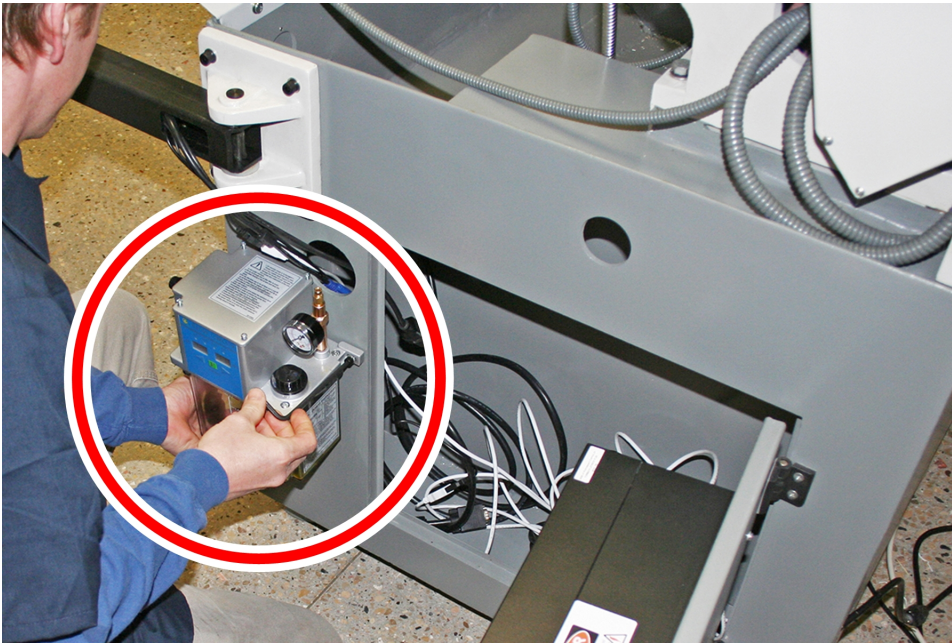


Figure 5: Installing the automatic oiler on the stand.

3. Use the removed screws to mount the automatic oiler.
4. Use six M5 × 10 mm screws to attach six mounting tabs to the stand.

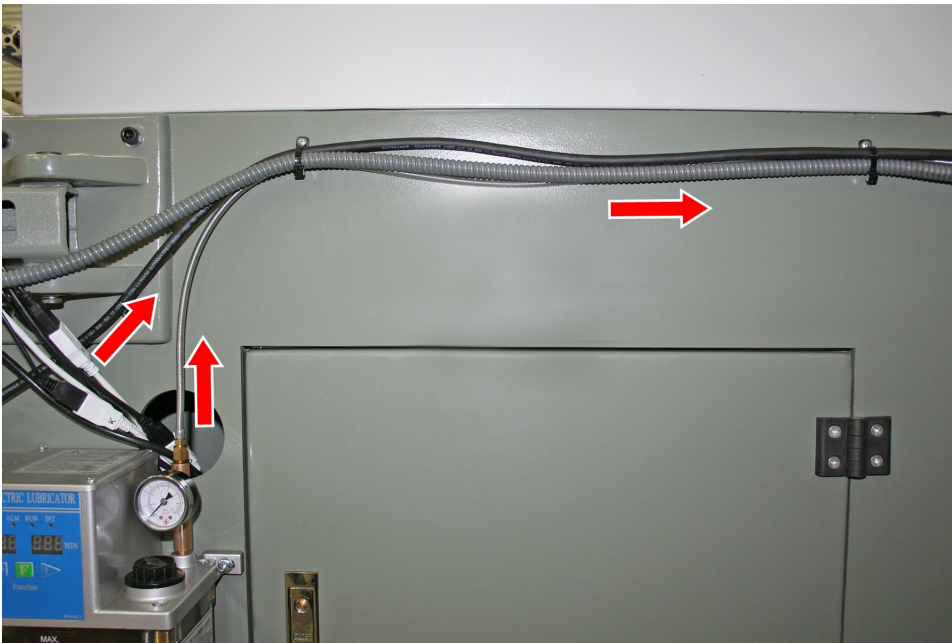


Figure 6: Oil line routing.

5. Put the 7 in. cable ties through the mounting tabs, and then secure the 3-conductor wire and the clear nylon tubing in the mounting tabs.



Note: If you have a remote Emergency Stop line, you can also secure that with the 7 in. cable ties.

INSTALLATION FOR 15L

6. To extend the existing oil line, connect it to the brass tube coupling fitting and clear nylon tubing from the automatic oiler.

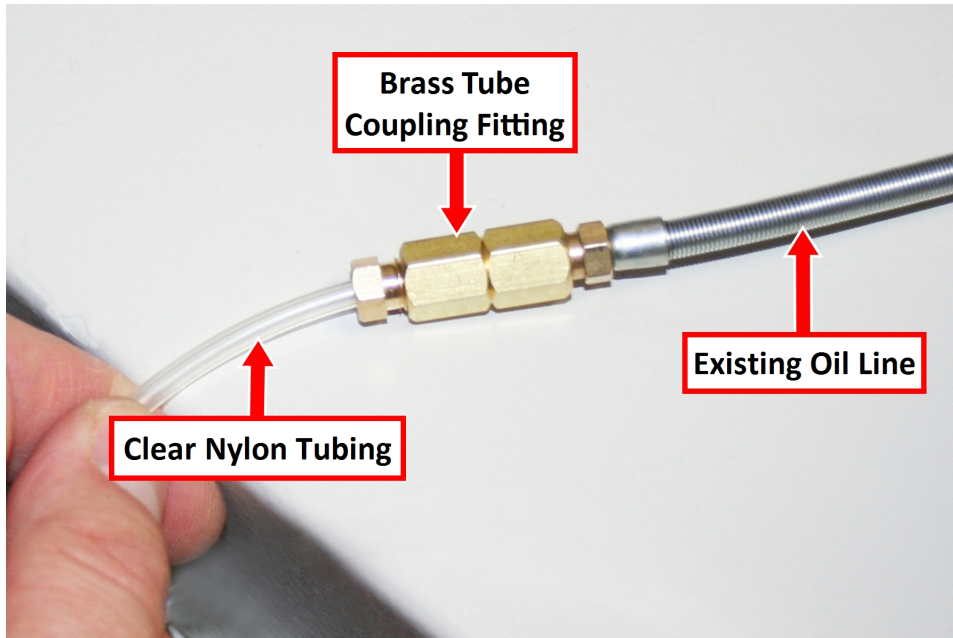


Figure 7: Extending the existing oil line.

7. Carefully route the line around the back of the lathe. Make sure that it doesn't come in contact with any moving parts.
8. Route the 3-conductor wire from the automatic oiler through the pre-installed cord grip in the bottom of the electrical cabinet.



Figure 8: Automatic oiler wires routed through the cord grip in the electrical cabinet.

INSTALLATION FOR 15L

- Older machines are equipped with a ground bar, while newer machines have a green ground terminal block section. Identify the ground connection specific to your machine.

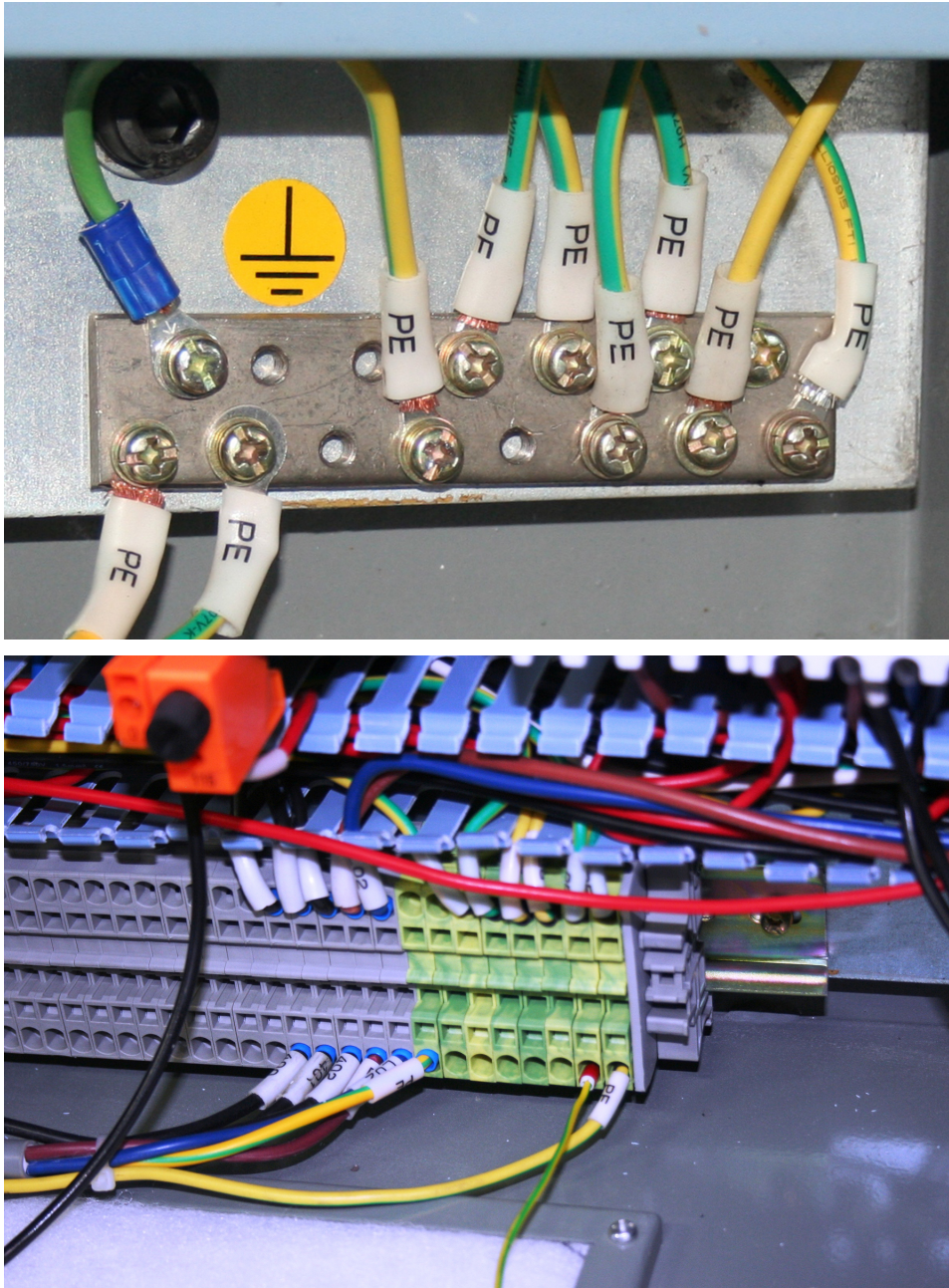


Figure 9: Examples of a ground bar and ground terminal block.

- Use a wire stripper to remove 1/4 in. of the insulation on the black and white power wires to expose bare metal.

11. Crimp the spade connectors to the black and white power wires.

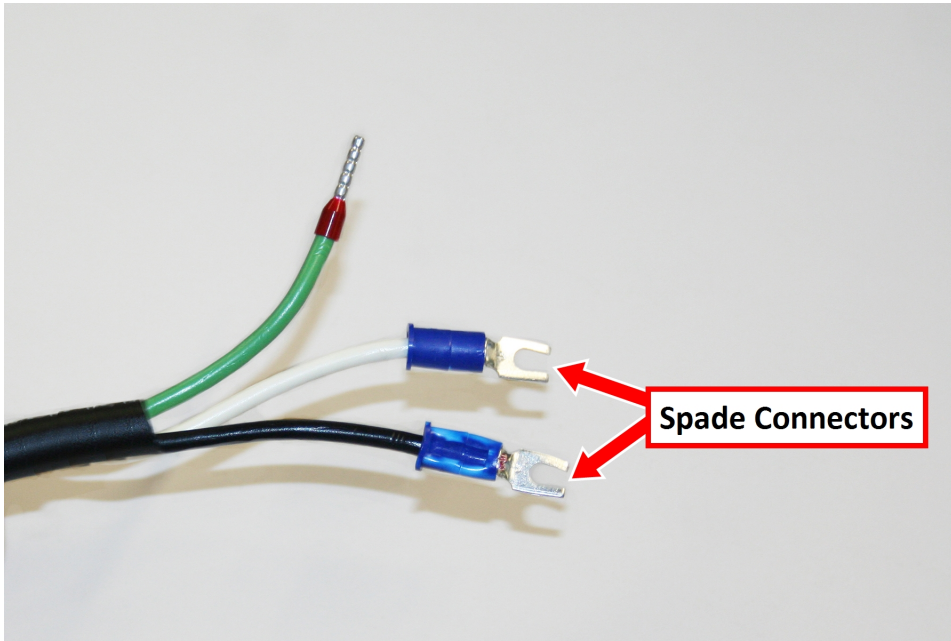


Figure 10: Spade connectors crimped on the power wires.

12. Based on the ground connection that you identified in Step 9, do one of the following:
 - a. **Ground Terminal Block** Use the pre-mounted ferrule; go to Step 13.
 - b. **Ground Bar** Clip off the ferrule, remove 1/4 in. of the insulation on the wire, and then crimp on the ring connector, as shown in the following image.

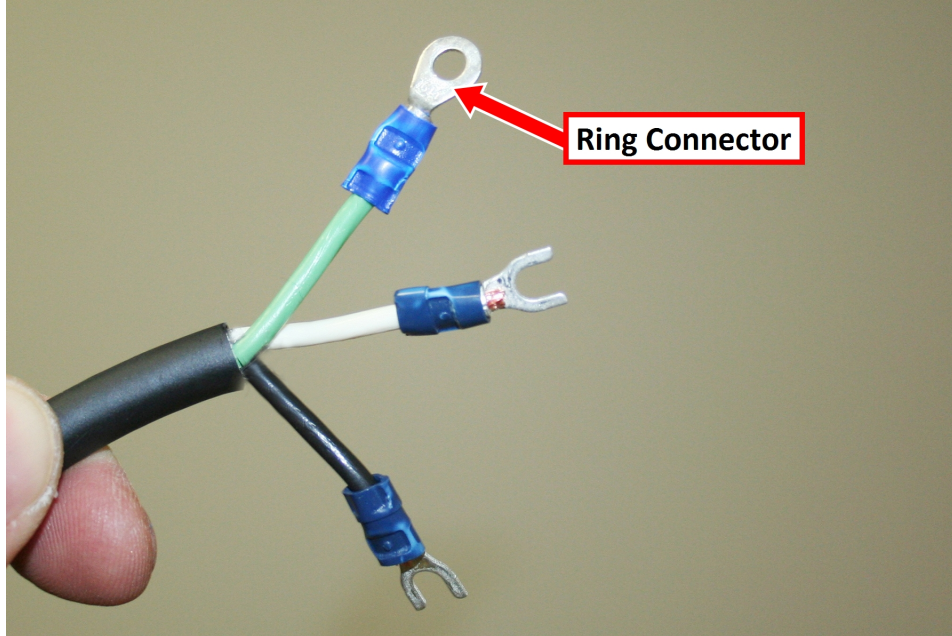


Figure 11: Ring connector crimped on to the ground wire.

13. Inside the electrical cabinet, remove the required wire trough cover and set aside.

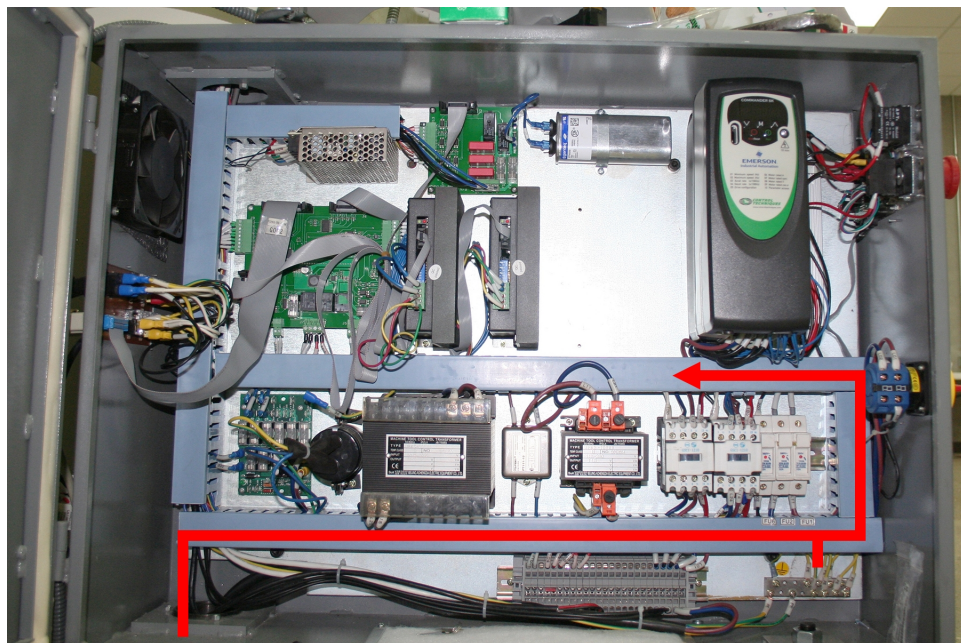


Figure 12: Wire routing inside the electrical cabinet.

14. Based on the ground connection that you identified in Step 9, do one of the following:
 - a. **Ground Bar** Route the green wire through the lower wire trough, and connect it to any ground bar terminal screw.
 - b. **Ground Terminal Block**
 1. Route the green wire through the lower wire trough.
 2. Slowly insert the end of a small, flat-blade screwdriver straight into any slot in the green section of the terminal block.

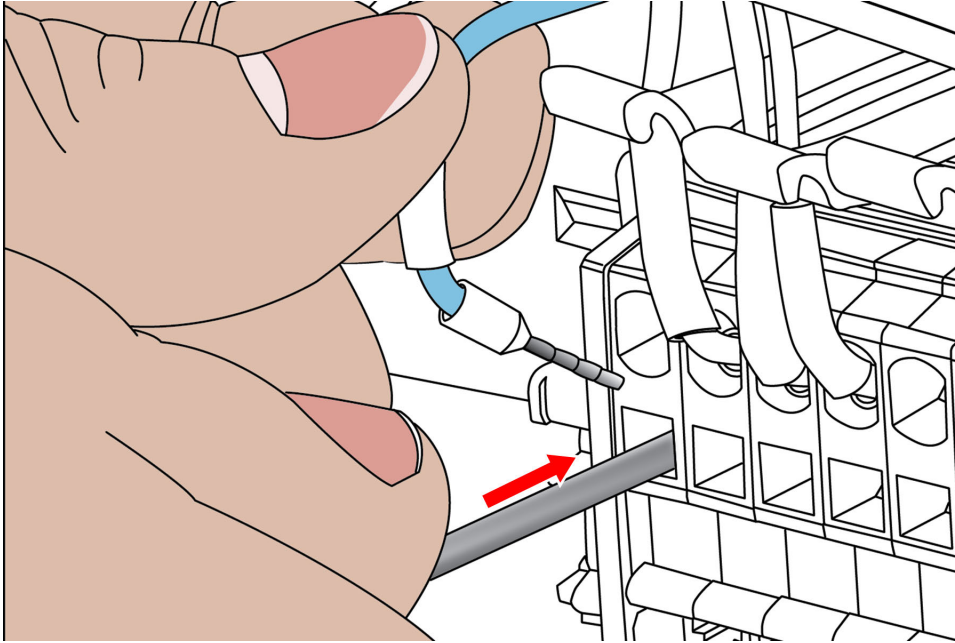


Figure 13: Use a flat-blade screwdriver to open the terminal clip and insert the wire.

3. Gently pry the terminal clip open, and then insert the wire into the terminal block.
 4. Slowly remove the screwdriver.
15. Route the black and white power wires through the wire troughs to C2 contactor.

16. Loosen the screw terminals below wires L13 and L23. Regardless of C2-wire orientation, connect the black wire to the L13 screw terminal and the white wire to the L23 screw terminal.

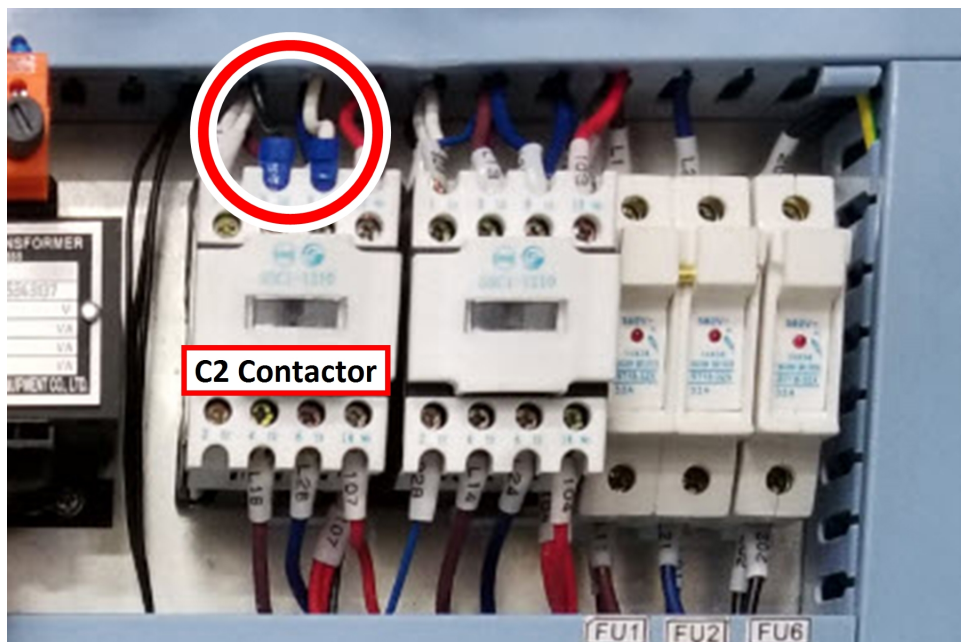


Figure 14: Black and white wires connected to the C2 contactor.

17. Tighten the screws on C2 contactor.
18. Reattach the wire trough covers.
19. You've completed the installation of the automatic oiler. Go to "Setup" (page 24).

SETUP

If you installed an automatic oiler, you must now set it up. Complete the following steps in the order listed:

Look for Leaks and Clear the Lines	24
Specify the Interval Time	24
Specify the Actuation Time	25

Look for Leaks and Clear the Lines

1. Power on the oiler.
2. On the oiler's control panel, push and hold the **Feed** button for two seconds.
The oiler pushes oil through the distribution system.
3. Examine the distribution system to make sure that oil doesn't leak while the system is operating.

Specify the Interval Time

The oiler distributes oil at the following times:

- When the machine is powered on
- After a specified interval

The interval time is the amount of time, in minutes, that the oiler waits between oil applications.



Note: If your machine will be unused for a long period of time (like overnight), we recommend powering off the machine to avoid over-lubricating the system.

1. On the oiler's control panel, push and hold either of the **Minutes Adjustment** buttons. It doesn't matter which button you push.

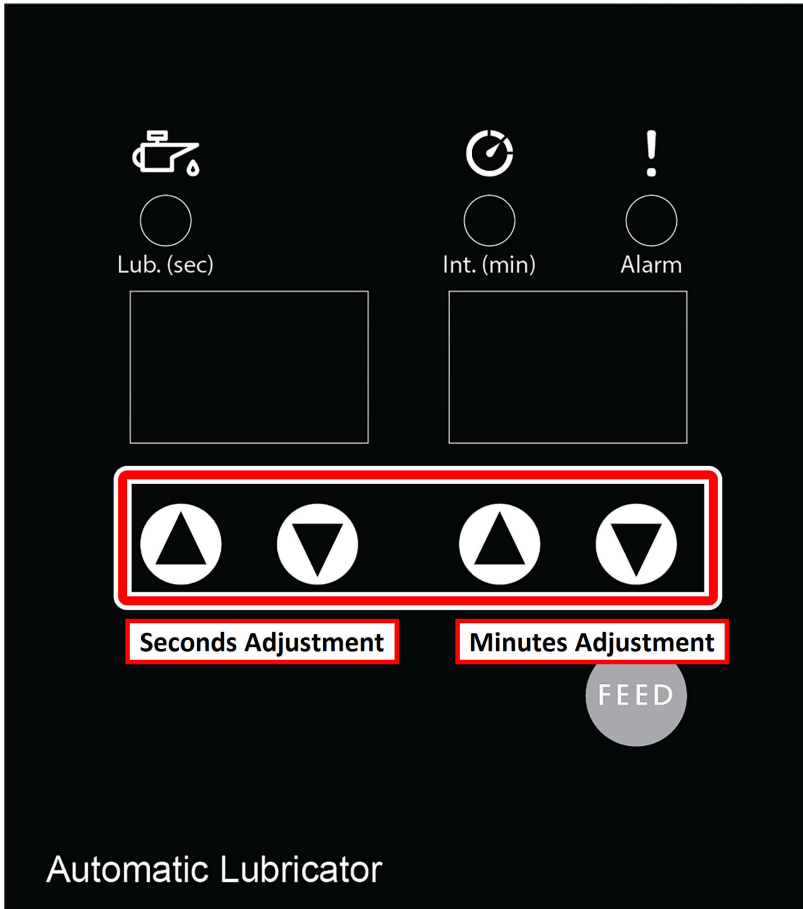


Figure 1: Automatic oiler control panel.

The oiler beeps.

2. While looking at the **Minutes** display, do one of the following:
 - To increase the interval time, push the **Up Arrow**. We recommend that you set it to 480 minutes (eight hours).
 - To decrease the interval time, push the **Down Arrow**.

NOTICE! Pressure Hazard: To avoid potential equipment damage, don't set the interval time to less than five minutes.

Specify the Actuation Time

The actuation time is the amount of time, in seconds, that the oiler distributes oil during an oil application.


1. On the oiler's control panel, push and hold either of the **Seconds Adjustment** buttons. It doesn't matter which button you push.
The oiler beeps.

2. While looking at the **Seconds** display, do one of the following:

- To increase the interval time, push the **Up Arrow**. We recommend that you set it to 12 seconds.
- To decrease the interval time, push the **Down Arrow**.

NOTICE! Pressure Hazard: To avoid potential equipment damage, don't set the actuation time to more than three minutes.

MAINTENANCE

 **WARNING!** Electrical Shock Hazard: Power off the Automatic Oiler before doing any maintenance procedures. Failure to do so could result in serious injury and/or death.

Time	Activity
Daily	Clean the surface of the automatic oiler.
Monthly	Remove any accumulated material from the filter net.
Every six months	Clean and thoroughly rinse the inside of the tank.
	Replace the filter net.

TROUBLESHOOTING

⚠ WARNING! Electrical Shock Hazard: Power off the automatic oiler before doing any troubleshooting procedures. Failure to do so could result in serious injury and/or death.

Problem: Low oil output

Lights	Cause	Solution
Alarm light is FLASHING	Connectors	Make sure all fittings on the automatic oiler are securely installed.
	Viscosity	The oil viscosity is not within the specified range. Replace oil in the reservoir.

Problem: Low oil pressure

Lights	Cause	Solution
Alarm light is FLASHING	Viscosity	The oil viscosity is not within the specified range. Replace oil in the reservoir.

Problem: No oil output

Lights	Cause	Solution
Power light is ON	Blockage	Remove any accumulated material from the filter net, clean and thoroughly rinse the inside of the tank, and examine the automatic oiler for blockages.
	Level Sensor	Make sure the level sensor is operating properly.
	Motor	<ol style="list-style-type: none"> 1. Make sure the interval time is not less than five minutes, and the actuation time is not more than three minutes. 2. Replace the motor.
Power light is ON , and Alarm light is FLASHING	Oil	Make sure there is oil in the reservoir. If there is not, fill the reservoir to about 80 percent with lubricant oil.

Problem: No power

Lights	Cause	Solution
Power light is OFF	Voltage	<ol style="list-style-type: none"> 1. Make sure the input voltage is correct. 2. Make sure the power cord is securely installed.