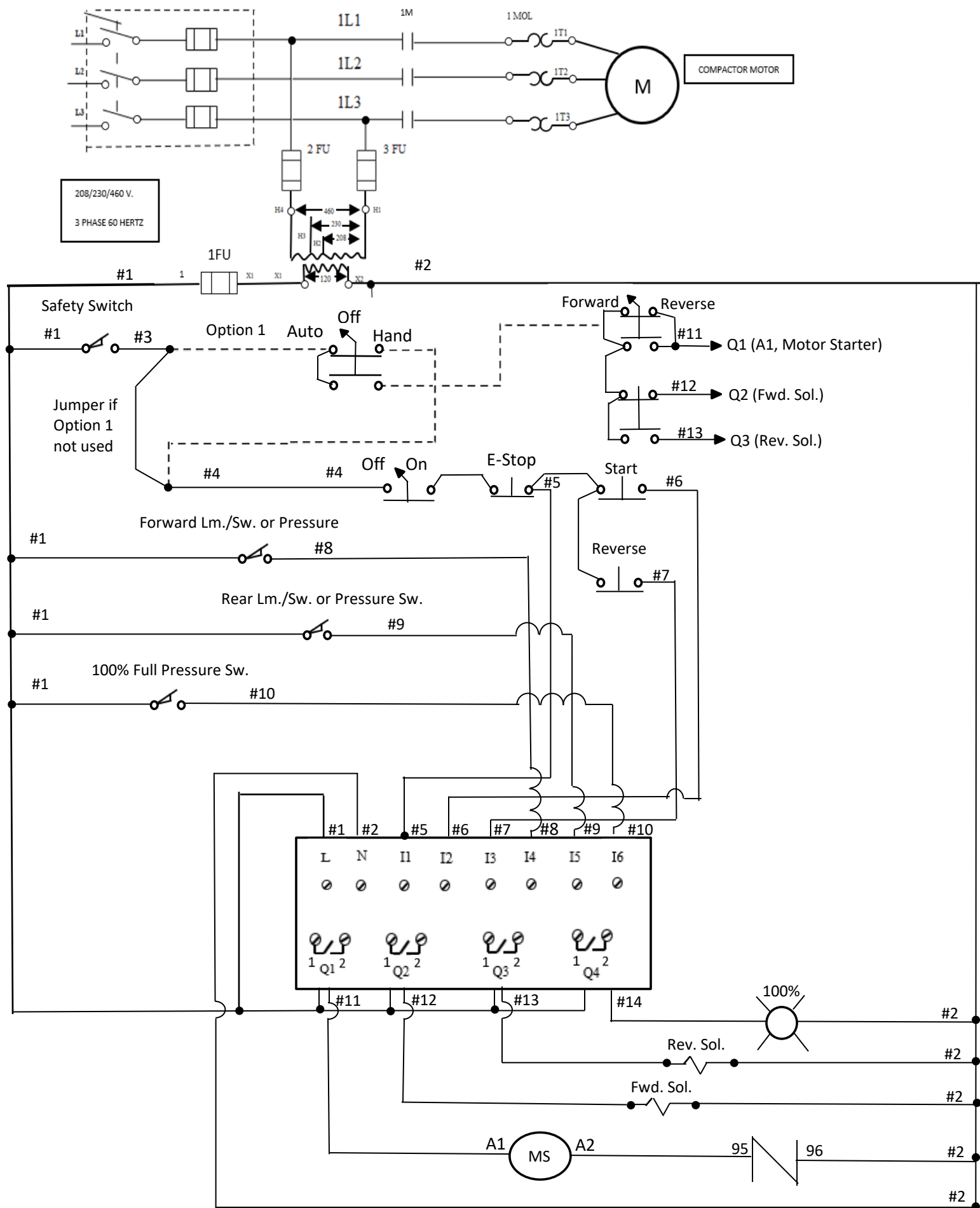






#PLC.64.MULTI.KIT Operation Manual

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This PLC Retrofit Kit includes a Schneider SR2A101FU 6 input 4 output 120VAC PLC mounted on din rail and prewired to din mounted screw terminals. The PLC has 6 different programs to run a multitude of Compactors and Balers. This manual will explain how to set a program number, set timers and multicycles, wire the inputs and outputs, and troubleshoot this PLC's programs.

A. Programs Numbers included with the PLC and description:

1. **Compactor-** For use with Self Contained and Stationary Compactors.
2. **Compactor + Photoeye-** For use with Self Contained and Stationary Compactors with auto start photoeye + strobe and buzzer.
3. **Compactor + Door Start-** For use with Self Contained and Stationary Compactors that need to start when the loading door is opened then closed.
4. **VIP Compactor-** For use with Vertical Compactors
5. **Vertical Balers-** For use with Vertical Baler using limit switches, magnetic safety switches and proximity sensors. Does not work with Balers using magnetic safety interlocks like the Cramalot VB Series
6. **Compactor + Deadman-** For use with Self Contained and Stationary Compactors that need to be used with Deadman manual operator controls only.

B. Selecting a Program Number, Setting Timers, and Setting Multicycle:

1. **Select Program Number-** Press and hold WHITE ○ shift button, press and release RIGHT ➡, finally release WHITE ○ shift button. Press and release UP ⬆ or Down ⬇ to navigate the correct program selection. Once the program number you want is blinking press and release the GREEN ● menu button. The screen should then change to show the program name on the top of the screen as well as showing the Extend Timer, Retract Timer, and Machine Cycles.
2. **Resetting Program Number-** Press and hold LEFT ⬅ for 30 seconds. Screen will return to Select Program #. Follow Step 1 to select a new program number.
3. **Adjust Timers and Multicycle-** Press and hold WHITE ○ shift button, press and release RIGHT ➡, finally release WHITE ○ shift button. Press and release RIGHT ➡ or LEFT ⬅ to navigate to the correct timer. Once the correct timer is blinking, press and release the UP ⬆ or DOWN ⬇ until the desired time or cycle amount is blinking. Finally press and release the GREEN ● menu button.

C. Wiring Inputs for Program #1, #2, #3, #6:

1. **Safety Switch-** Contact should be closed when the loading door is closed and open when the door is open. Safety Switch wires on #1 and #3 on terminal strip. *NOTE* Program #3 Door Start, install jumper wire from #3 to #8 as well.

2. **Driver Control-** Control gets power from #3, when in AUTO mode it sends power to #4. In HAND mode power is sent to the selector switch contacts. When turned FORWARD power is sent to #11 and #12. When turned REVERSE power is sent to #11 and #13.
3. **Operator Control-** Control gets power from #4, Estop when closed sends power to #5, Start button when closed sends power to #6, Reverse button when closed sends power to #7, 100% full light gets power from #14 and neutral from #2
4. **Limit Switches-** Forward limit switch uses a normally open contact. This contact gets power from #1 and when closed sends power to #8 (except Program #2). Reverse limit switch uses a normally open contact. This contact gets power from #1 and when closed sends power to #9.
5. **Pressure Shifting-** Rear pressure switch can be used in place of a rear limit switch. This switch should be placed on the retract hose, directly off the pump, or off P port on the subplate. Rear pressure switch uses a normally open contact and gets power on common from #1 and the NO contact goes to #9.
6. **100% Pressure Switches-** 100% full pressure switch should be placed on the extend hose, directly off the pump, or off P port on the subplate. 100% full switch uses a normally open contact and gets power on common from #1 and the NO contact goes to #10.

D. Jumper Wiring for Programs #1, #2, #3, and #6:

1. If using Program #6 Deadman, install jumper wire #1 to #3 to jump out the safety switch as it is not needed.
2. If a driver control is not used, install jumper wire #3 to #4 to jump out the driver control.
3. If you wish for the machine to reverse first, install jumper wire #6 to #7. This will make the machine reverse first when the start button is pushed.
4. If pressure switch is installed directly off the pump or off P port on subplate then it is possible to use this 1 pressure switch for 100% full and rear pressure shift. Install jumper wire #9 to #10 to achieve this function.

E. Wiring Outputs for Program #1, #2, #3, #6:

1. **Motor Starter-** Install jumper wire #11 to A1 on the Motor Starter. Install jumper wire A2 on the Motor Starter to #95 on the Overload normally closed contact. Install jumper wire #96 on the Overload normally close to neutral #2 on terminal stirp.
2. **Valve Extend Coil-** Directional valve extend coil wires go to neutral #2 and hot to #12 on terminal stirp.
3. **Valve Retract Coil-** Directional valve retract coil wires go to neutral #2 and hot to #13 on terminal stirp.
4. **100% Full Light-** 100% full light wires go to neutral #2 and hot to #14 on terminal stirp.

F. Operation Sequence of Programs #1, #2, #3, and #6:

1. Turn the driver control key switch to AUTO mode, ensure loading door is closed and safety switch is closed, turn operator key switch to ON mode, make sure emergency stop button is pulled out and not engaged, press the start button for 2-3 seconds.

2. After the start button is pressed the machine will extend first until it hits a forward limit switch, reaches the extend timer, or hits full pressure. Machine will then shift and start to retract.
3. Machine will continue to retract until it hits rear limit switch, reaches retract timer, or hits reverse pressure switch pressure.
4. When the machine extends 2 cycles in a row and the 100% full pressure switch is engaged, the full light will come on.
5. To reset the 100% full light the machine will need to be started again and the 100% full pressure switch is not engaged. Once that is achieved 1 cycle the 100% full light will turn off.

G. PLC Screen Displays:

1. **Timer Screen/Inputs Screen-** While in normal operation, the PLC screen will be on the Timer and Cycle screen. Press and hold the DOWN  to change it to the Inputs screen to see which inputs and outputs are currently energized.
2. **Password Screen-** All features the technician will need to access are in the steps above and below. You should never need the password to the PLC. If a screen is showing saying to enter password, then you are in the wrong area of the PLC. Turn off disconnect for 10 seconds then turn back on to reset the screen. You can also press and release the WHITE  shift button and GREEN  menu button at the same time to return to the menu.
3. **Menu Screen-** If you hit the GREEN  menu button, then the menu screen will pop up. You can scroll through the menu by pressing and releasing either the UP  or DOWN . You can select an option by pressing and releasing the GREEN  menu button. To return to the main timer's screen press and release the LEFT .
4. **RUN or STOP MODE-** When on the main timer screen press and hold the DOWN . A screen showing the 6 inputs in the top left corner and 4 outputs in the bottom left corner will appear. In the middle of the screen on the right side it will say RUN LD or STOP LD. For the PLC program to work correctly, it needs to be in RUN LD mode. If in STOP LD mode, press and release the GREEN  menu button. Use UP  or DOWN  to scroll to the Run/Stop option and press and release the GREEN  menu button while hovering over it. Hover over the With Nonvolat INI option, press and release the GREEN  menu button. PLC will then reset itself and you will have to follow Steps B #1 and B #3 to set a program number and set timers.

H. Notes for PLC:

1. **Program #2 Photoeye-** Email partslc2020@gmail.com for strobe and buzzer kit #PLC.64.PH.KIT
2. **Program #4 VIP-** Email partslc2020@gmail.com for schematic and wiring instructions.
3. **Program #5 Baler-** Email partslc2020@gmail.com for schematic and wiring instructions. This program only works for certain balers, and we will need to verify with technician information about the baler before rewiring the machine.
4. **Program #6 Deadman-** Install jumper wire #1 to #3. Operator will need to press and hold the start button the entire extend stroke of the machine until it reaches a forward limit switch, 100% full pressure switch or extend timer. Once the machine shifts to retract the operator can release the start button. If the start button is released before one of the shifting options is engaged, the machine will automatically retract until it reaches rear limit switch, reverse pressure switch or

reverse timer. This program does not like every type of rear limit switch so email partslc2020@gmail.com if you are having troubles with rear limit switch.

5. **Cart Tipplers-** This PLC will work for most compactors with integral cart tipplers, 90-gallon trash can tipplers, and free-standing cart tipplers. If the compactor and tipper both need to operate off the same powerunit this plc will work. If there are 2 separate powerunits then this plc will work for the compactor only and you will need to contact partslc2020@gmail.com for instructions on how to wire the tipper powerunit.
6. **Pre-crushers-** This PLC does not work for any pre-crusher compactor machines.
7. **Horizontal Balers-** This PLC does not work for any horizontal baler machines.
8. **Dock Leveler or Dock Lift-** This PLC does not work for any dock leveler or dock lift.

I. Troubleshooting PLC and Powerunit:

1. PLC Screen Off or Blinking-

- a.** PLC requires at least 100VAC to operate. Check secondary power after the fuse, check primary power before and after the fuses, check primary power before and after disconnect fuses.
- b.** If there is a short in the magnetic safety switch, motor starter, directional valve that can also pull voltage away from #1 hot wire and cause this issue.
- c.** Check for signs of water in the plc, transformer, motor starter, seal tight or so cord, and directional valve.

2. Machine shifting back and forth quickly-

- a.** When the start button is pushed if the machine extends for a couple seconds, then retracts a couple seconds, then extends again and repeats this cycle, most likely the pressure switch is not set correctly, not wired correctly, or has gone bad.
- b.** This can also be caused by the limit switches being jammed by debris, being shorted out by water inside the switch or the switch staying stuck closed sending power all the time to #8 and #9.

3. Machine Reverses 1st when Start is pressed-

- a.** Make sure you do not have jumper wire #6 to #7 installed, this wire will make that machine reverse 1st.
- b.** Your hoses might be hooked up backwards, switch the A port hose to the B port and the B port hose to the A port.
- c.** Your Directional valve wires might be hooked up backwards. Swap the valve wire from #12 to #13 and the #13 wire to #12.
- d.** Your forward limit switch might be stuck on debris or gone bad.
- e.** Your 100% pressure switch could be bad.
- f.** Your extend time could be at 0 seconds. Adjust it higher.

4. Press Start and nothing happens-

- a.** Make sure Driver control is in Auto, loading door is closed and the safety switch is not broken, key switch is turned to "ON", estop is in normal position pulled out. If all of these are true, then you should have 120VAC on #5.
- b.** Overload might tripped.
- c.** Make sure the contacts and wire to the estop and start button are good