2009-10 Pivot Point Lite Wiring Manual

(small square single circuit board design)

Section 1 – Pages 2-3 – Pivot wiring to monitor and/or stop the irrigation system.

Section 2 – Page 4 – Simple on/off monitor only – no control features

Section 3 –Page 4 -- Connections for TL pivot and DC powered applications

Warning: Units built for AC use cannot be used on DC applications.
Units built for DC use cannot be used on AC applications.

Section 1 - Pivot wiring to monitor and/or stop the irrigation system:

Warning: unused wires must be capped or taped off individually to avoid damage to unit.

Safety circuit must be tested by the installer before AND after installation is finished.

***NOTE* ON ALL UNITS – BLACK WIRE WITH RED STRIPE IS NOT USED**

Zimmatic:

1. Remove the Zimmatic brown (safety) wire from the terminal strip (span cable side) in the end tower box and install our Black wire AND Red/Black wire in its place.
2. Use a wire nut to connect our Red wire to the Zimmatic brown (safety) wire that was removed from the terminal strip in step 1.
3. Install our Orange wire into the terminal strip with the other white (neutral) wires.

Valley:

1. Remove the Valley yellow (safety) wire from the terminal strip (span cable side) in the end tower box and install our Black wire AND Red/Black wire in its place.
2. Use a wire nut to connect our Red wire to the Valley yellow (safety) wire that was removed from the terminal strip in step 1.
3. Install our Orange wire into the terminal strip with the other white (neutral) wires.

Olson: (After 1980)

1. Remove the yellow (safety) wire from the terminal strip (span cable side) in the end tower box and install our Black wire AND Red/Black wire in its place.
2. Use a wire nut to connect our Red wire to the yellow (safety) wire that was removed from the terminal strip in step 1.
3. Install our Orange wire into the terminal strip with the other white (neutral) wires.

Lockwood with 16v safety system:

1. Remove the 120v wire going to the safety transformer and connect our Black wire AND Red/Black wire in its place.
2. Use a wire nut to connect our Red wire to the wire that was removed from the transformer in step 1.
3. Install our Orange wire in with the other neutral (white) wires. **-see note-**

-note- on older Lockwood systems, the power to the safety transformer is flip-flopped depending on which direction the system is moving. **On these, change step 3 to this:** Install our Orange wire into the other 120v terminal on the safety transformer. (with the wire that was not disturbed in step 1 or 2)

Reinke and similar Neutral Safety System Wiring

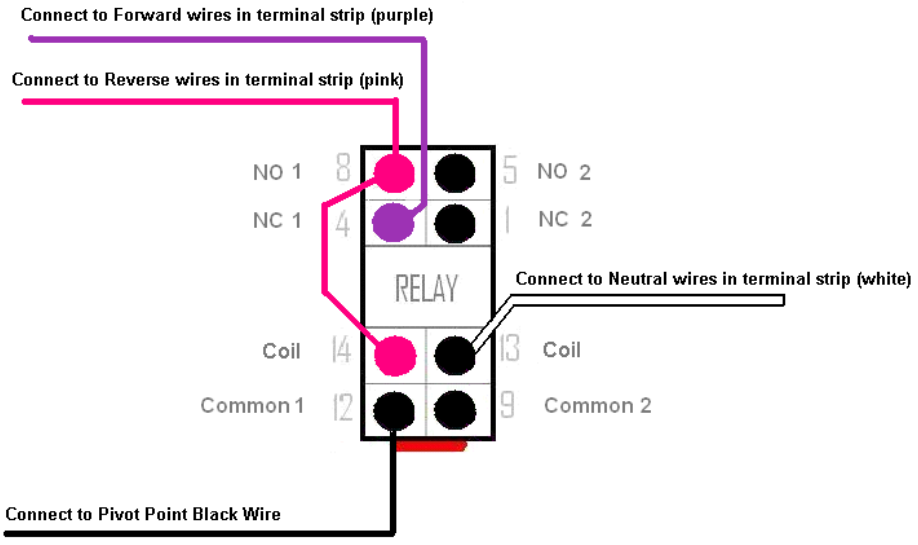
- Note - On some Rienke pivots, the safety circuit begins at the second-to-last tower instead of at the end tower. (where the Brown Safety wire connects to the White Neutral wires) On these systems you will need to change the second-to-last tower and the end tower. In the end tower, make a jumper to connect the white neutral wires to the brown safety wire. At the second-to-last tower, locate the white wire that connects the overwatering timer contact (#10 on most) to the neutral wires on the terminal strip. Remove this white wire from the terminal strip, but leave it connected to the overwatering timer contact. Then, connect that white wire to the brown safety wire that goes out to the end tower. (this wire most likely is capped or not hooked up to anything in this second-to-last tower box)
You should now have a safety circuit that starts in the end tower box where the brown wire is connected to neutral, and then travels to the second-to-last tower box on the brown wire, goes to the overwatering timer contact #10, then exits the overwatering timer on terminal #8, goes to the limit switch, then leaves the limit switch and goes to the next tower closer to the main panel.

AFTER COMPLETING THIS, YOU MUST TEST THE SAFETY TO BE CERTAIN THE SYSTEM WORKS CORRECTLY. WITH THE SYSTEM RUNNING, DISCONNECT THE BROWN SAFETY WIRE FROM THE TERMINAL STRIP IN THE END TOWER BOX – THIS SHOULD SAFETY THE SYSTEM OFF IF THE RE-WIRING WAS DONE CORRECTLY.

ONLY AFTER THIS SAFETY TEST PASSES, THEN PROCEED TO STEP 1 OF THE PIVOT POINT WIRING BELOW.

1. Remove the Rienke brown (safety) wire from the terminal strip (span cable side) in the end tower box and install our Red/Black AND Orange wires in its place. - See Note -
2. Use a wire nut to connect our Red wire to the Rienke brown (safety) wire that was removed from the terminal strip in step 1.
3. Install our Black wire into the relay assembly as shown (see Picture 1 below) Relay part number - W78ARCSX-11, and Base part number – 70-459-1
4. Run jumper wires from the forward and reverse on the terminal strip and install them into the relay as shown (see Picture 1 below - this gives the Pivot Point 120v on the black wire no matter which direction the pivot is moving)

Picture 1 – Additional Relay for Rienke – (other neutral safety type pivots similar)



Section 2

Simple Power On/Off Monitor Wiring:

This is only to monitor if Power to a device is on or off – there are no controls.
120v AC Device Monitor system:
Orange Wire – Neutral
Black Wire – 120v AC

Section 3

7 to 28 Volt DC or on TL Pivot with DC power (Mounted at Center or Wire run to first tower)

Orange Wire – 7-28v DC
Black Wire – Ground
Red Wire – Normally Open Relay
Red/Black – Common on relay

1. Connect Black to Ground
2. Connect Orange to 7-28 VDC
3. Connect Red/Black to Ground
4. Connect Red Wire to S terminal of Murphy switch (this will ground the Murphy switch and kill power to the pivot when activate via the web)

Using on end tower of TL pivot with Precision Point Control (24 volt controls at the end tower)

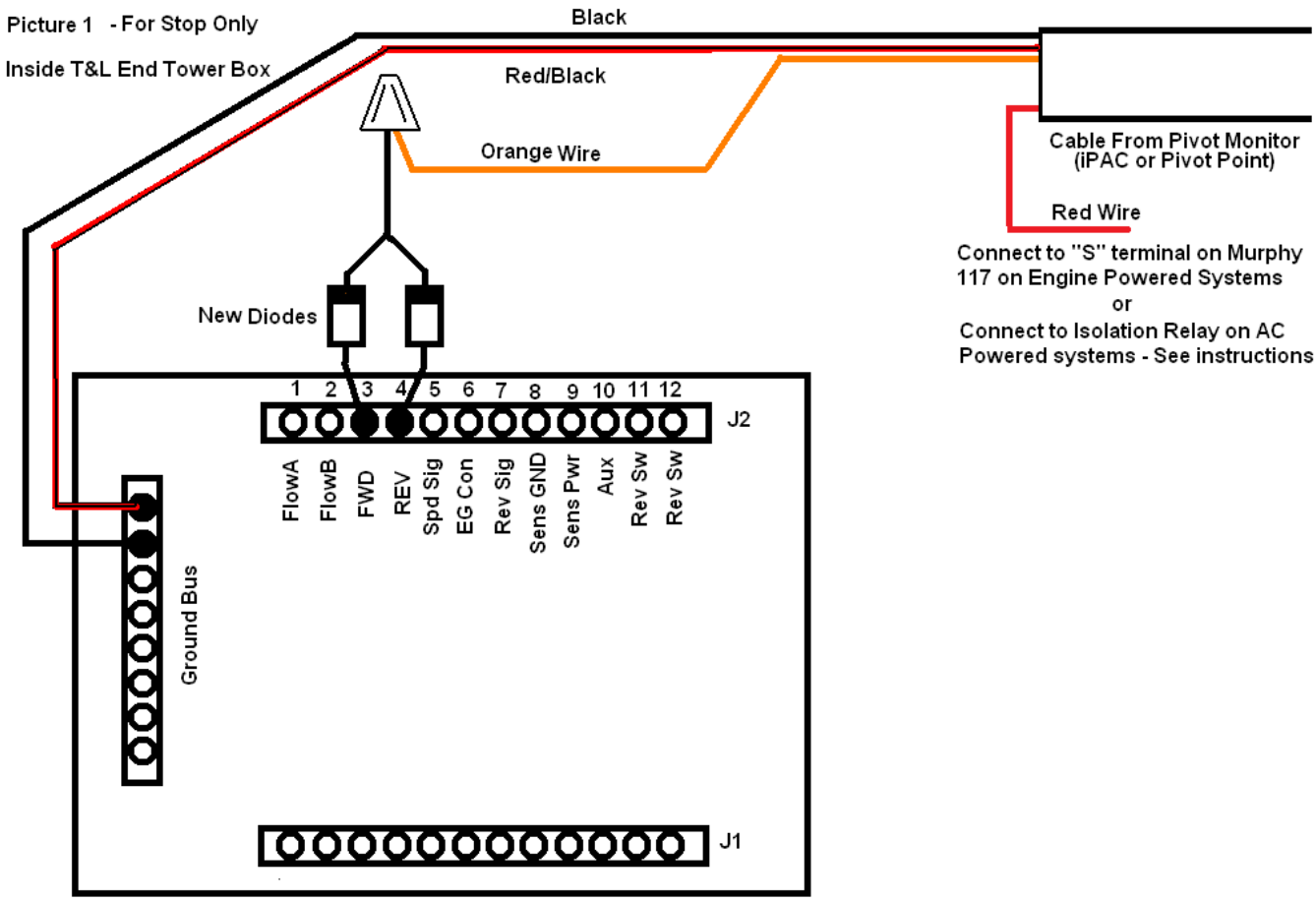
1 In the end tower box, connect our Red/Black wire and our Black wire to the Ground Bus in picture 1

2 In the end tower box, connect our Orange wire to a new diode pair (from the TL kit available from AgSense) attached to FWD and REV as shown in picture 1 (MUST ADD NEW DIODE PAIR – existing diode pair is to run the speed sensor only – do not modify or remove the original pair if your system has them – just add the two new diodes to the FWD and REV terminals that the original diode pair is already in.)

3 In the end tower box, connect our Red wire to an unused span cable wire that goes back to the center of the pivot to the T&L Point Control Panel.

4 At the center of the pivot, the span cable wire that was used in step 3 must be connected correctly to shut off the pivot one of these two ways depending on how the Point Control Panel is powered:

A. On pivots being powered from the 12v battery of the diesel/gas engine, connect the wire from step 3 to terminal 11 in the T&L Point Control Panel (if the Murphy switch 117 "s" terminal is wired into the Point Control Panel) - If the Murphy switch is not wired into the Point Control Panel, you must run the wire from step 3 directly to the Murphy 117 "s" terminal.
B. On pivots being powered by AC, an isolation relay must be installed in the Point Control Panel. This relay must be a 24v DC Coil relay that is Normally Open.
    a. Connect one terminal of the relay coil to the wire from step 3.
    b. Connect the other terminal of the relay coil to terminal 10 in the Point Control Panel (24v DC)
    c. Next, if the Murphy 117 is wired into the Point Control Panel, connect the "Common" terminal of the Isolation relay to terminal 12 in the Point Control Panel (AC Neutral). Then connect the "Normally Open" terminal of the isolation relay to terminal 11 in the Point Control panel (Murphy 117 "s").
    d. If the Murphy 117 is not wired into the Point Control Panel, you must run wire from terminal 11 in the Point Control panel to the Murphy 117 "s" terminal, and run wire from terminal 12 in the Point Control panel to AC Neutral in the electric panel that the Murphy switch is in.



Power Requirements for these units:

DC Powered Unit 7-28V DC:

At 12v DC: 1.0A MAX
0.1A - 0.5A during normal operation

120vAC Powered Unit:

At 120v AC: 0.25A MAX
0.05A - 0.15A during normal operation

The above numbers are the current required for our unit to operate. Below is the current the relays in our box can control:

On both AC and DC units, each relay can handle a peak max of 10A, 5A constant (at a max voltage of 120vAC, or 30vDC).