

2017 Field Commander Wiring Manual

Revised January 1, 2017

2014-17 Field Commander Wiring Manual

New Large Board Marked Comm6 FC V4.1 or V4.2

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Wire Theft Monitor (without power)

Second End Gun or Pump Control

Relay wiring

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Pivot wiring using start, theft monitoring, or direction control

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INTRODUCTION / NEW FEATURES

Introduction – The new 2014-17 Field Commander has a couple of new features. These new features required changing the position and purpose of 3 wires in the Field Commander unit.

The Black/Red Stripe wire (previously unused) is now required to be connected to the tower box earth ground bar on all pivots covered in this manual. This wire is used for wire theft detection, and to help eliminate static electricity.

The Yellow and Yellow/Black Stripe wires (previously DC power input) are now the Second End Gun / Pump Control wires. See the new features section below for wiring information.

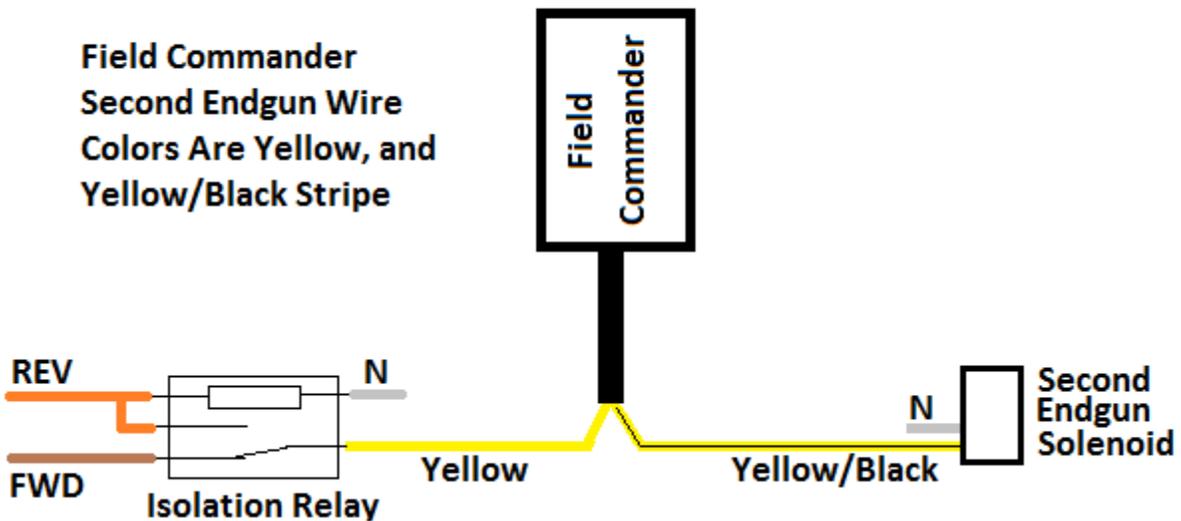
New Features:

- 1. Wire Theft Monitor (without power)** – For many years, the Field Commander has done Theft Monitoring based on power. If the unit sent an alert that power was lost, you knew to go check the pivot for wire theft. The new 2014 Field Commander still has this feature, **AND** now includes a method of detecting wire theft when the pivot does not have power available. When the pivot has lost power (power outage, load control, gen-set, main disconnect turned off, etc...) the Field Commander will use the Black/Red Stripe wire (connected to the tower box earth ground bar) to check the wires of the pivot several times a minute to monitor if the wires have been cut. This wire theft feature requires good connections at each tower box ground bar and collector ring. Any poor/loose connections or bad spots in the collector ring could cause a false alarm to be sent.
- 2. Second End Gun or Pump Control Relay Wiring** – A new relay has been added to the 2014 Field Commander with PRO service that can control a second end gun, or can be used to control the water pump on certain pivots. Inside the Field Commander, the Yellow wire is connected to the Normally Open terminal of the relay, and Yellow/Black Stripe wire is connected to the Common terminal of the relay. For an example of how to wire a second endgun, see the schematic below marked “Second Endgun”.

To use the new relay for pump control instead of endgun (advanced installers only), your pivot must already have the pump kill (on/off) wires in the irrigation panel at the center of the pivot, **AND** your pivot must have 1 unused span cable wire available. As an example, this is easiest on Valley pivots by converting the safety to be like a zimmatic (using an isolation relay). This frees up the Valley safety out (yellow/red) wire to be used for pump control. For a schematic example, see the drawing below labeled “Second Endgun Relay for Pump Control”

Second Endgun Wiring Example Valley Pivot

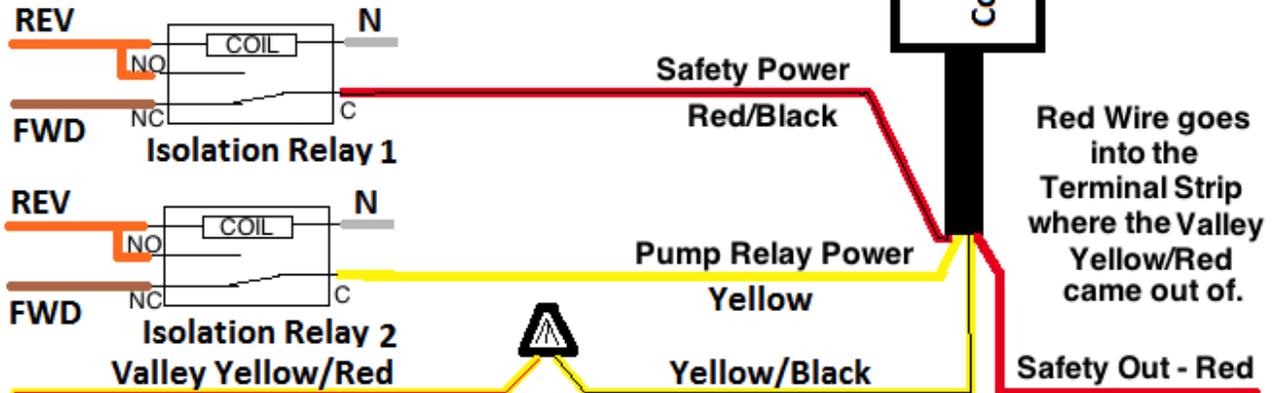
Field Commander
Second Endgun Wire
Colors Are Yellow, and
Yellow/Black Stripe



To Span Cable Wires Coming from Center of Pivot

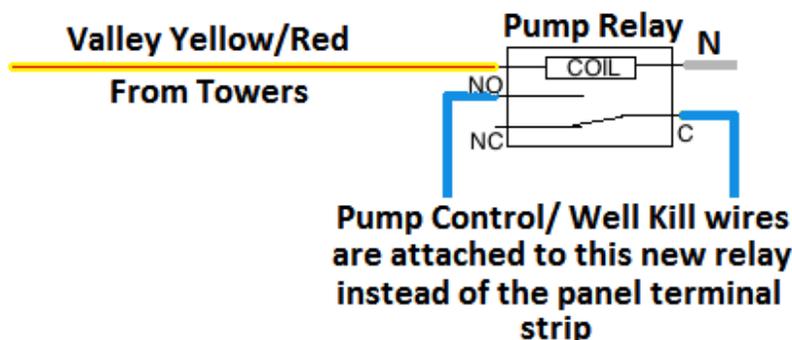
Using the Second Endgun Relay for Pump Control (Valley pivot end tower wiring shown)*

Since the Valley Yellow/Red is now used for pump control, you must install the Field Commander Red/Black Stripe wire into its own isolation relay as shown to power the Safety Circuit



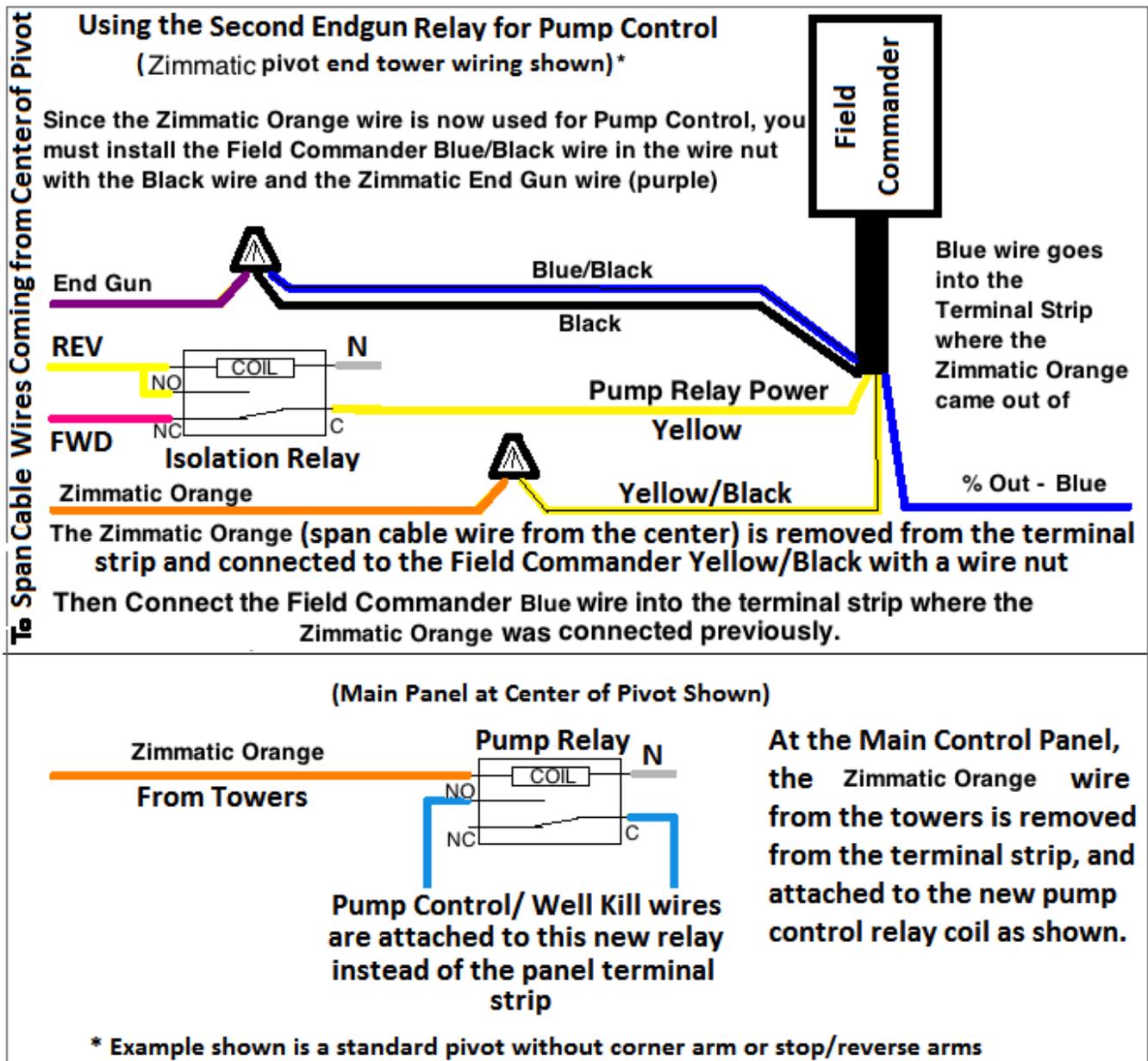
Valley Yellow/Red (span cable wire from the center) is removed from the terminal strip and connected to the Field Commander Yellow/Black with a wire nut
Then Connect the Field Commander Red wire into the terminal strip where the Valley Yellow/Red was connected previously.

(Main Panel at Center of Pivot Shown)



At the Main Control Panel, the Valley Yellow/Red wire from the towers is removed from the terminal strip, and attached to the new pump control relay coil as shown.

* Example shown is a standard pivot without corner arm or stop/reverse arms



Other 10 wire irrigation systems (similar to zimmatic) can be wired as the drawing shows above, substituting the wire colors of your particular machine for the zimmatic orange(%), Fwd(pink), Rev(yellow) and Endgun(purple).

Field Commander Mounting

The Field Commander can be mounted to the pivot two different ways:

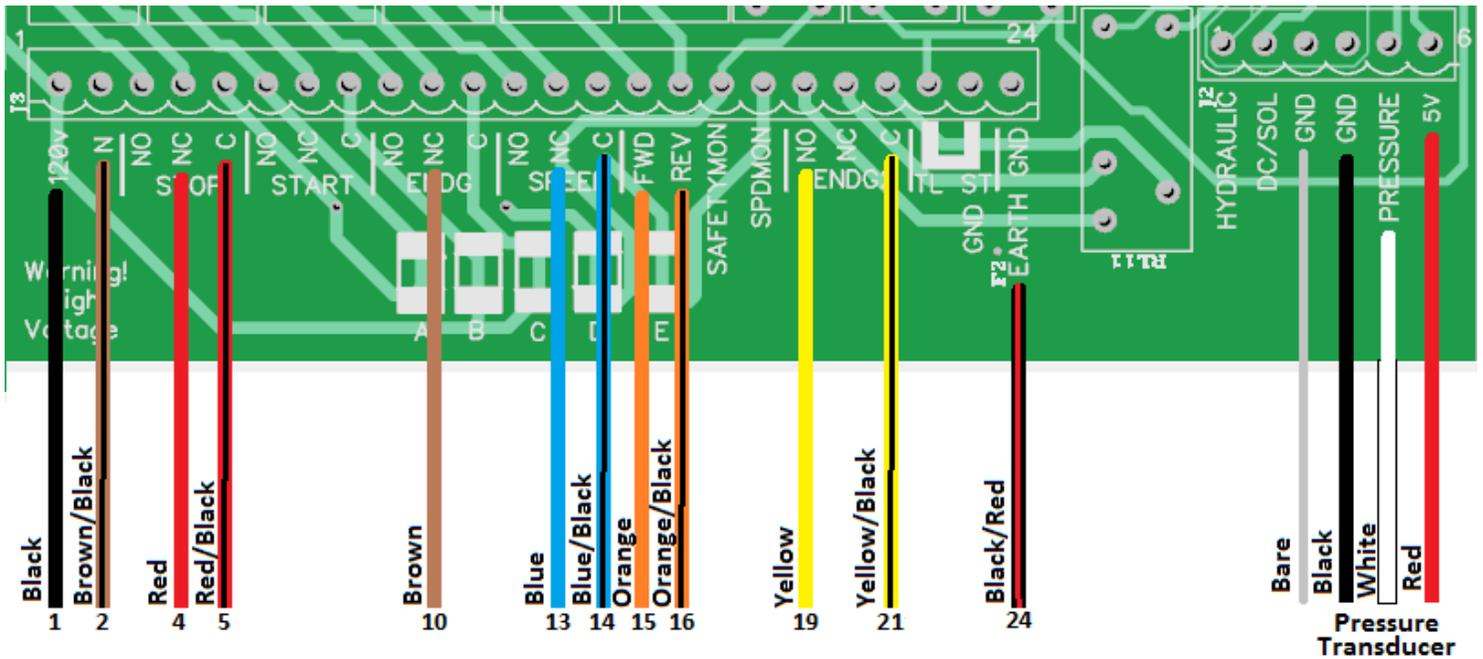
On pivots with truss cable supports (rabbit ears) on the end tower, mount the unit on the truss cable supports as high as possible using the supplied beam clamps that will still allow the cable to reach the end tower box.

On pivots without truss cable supports (rabbit ears), you can use the supplied beam clamps and two large hose clamps to clamp the Field Commander to the irrigation pipe at the last tower.

WARNING – the top of the Field Commander needs to be as flat (level) as possible with the sky, and must not have any obstructions keeping the GPS antenna from having a clear view of the sky in all directions!! If the unit is tilted too far in any direction, or obstructed, you may lose GPS signal.

Note: also be careful to keep the Field Commander out of the direct spray path of impact sprinklers or any other type of high pressure direct spray.

Field Commander Wire & Pressure Transducer Wire Locations



2014 Field Commander V4.1

Section 1 – BASIC / ENHANCED SERVICE WIRING

For pivots NOT using start or direction control:

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

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

Only do steps 1-6 for basic stop feature and tape off each unused wire separately.

Add steps 7 and 8 for speed control

Add steps 9 and 10 for end gun control

Basic/Enhanced wiring on Zimmatic/Lindsay pivots:

1. Remove the Zimmatic brown (safety) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Black wire AND Red/Black Stripe 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 Brown/Black Stripe wire into the terminal strip with the other white (neutral) wires.
4. Install our Black/Red Stripe wire into the Earth Ground bar with the Zimmatic Green wires.
5. Install our Orange wire in with the Zimmatic pink wire. (Forward Run) (Span cable wire coming from the center) – Note: Zimmatic wire color may differ depending on age of system.
6. Install our Orange/Black Stripe wire in with the Zimmatic yellow wire. (Reverse Run) (Span cable wire coming from the center) – Note: Zimmatic wire color may differ depending on age of system.
7. Remove the Zimmatic orange (percent timer) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Blue wire in its place.
8. Use a wire nut to connect our Blue/Black wire to the Zimmatic orange (percent timer) wire that was removed from the terminal strip in step 7.
9. Remove the Zimmatic purple (end gun) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Brown wire in its place.
10. Use a wire nut to cap the Zimmatic purple (end gun) wire that was removed from the terminal strip in step 9.

Only do steps 1-6 for basic stop feature and tape off each unused wire separately.

Add steps 7 and 8 for speed control

Add steps 9 and 10 for end gun control

Basic/Enhanced wiring on Valley pivots:

1. Remove the Valley yellow (safety) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Black wire AND Red/Black Stripe 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 Brown/Black Stripe wire into the terminal strip with the other white (neutral) wires.
4. Install our Black/Red Stripe wire into the Earth Ground bar with the Valley Green wires.
5. Install our Orange wire in with the Valley brown wire. (Forward Run) (Span cable wire coming from the center)
6. Install our Orange/Black Stripe wire in with the Valley Orange wire. (Reverse Run) (Span cable wire coming from the center)
7. Remove the Valley purple (percent timer) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Blue wire in its place. (systems with TAG (Z Corners), refer to the schematic on Page 21 for proper wiring of the blue speed wires.)
8. Use a wire nut to connect our Blue/Black Stripe wire to the Valley purple (percent timer) wire that was removed from the terminal strip in step 7.
9. Remove the Valley pink (end gun) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Brown wire in its place.
10. Use a wire nut to cap the Valley pink (end gun) wire that was removed from the terminal strip in step 9.

Only do steps 1-6 for basic stop feature and tape off each unused wire separately.

Add steps 7 and 8 for speed control

Add steps 9 and 10 for end gun control

Pierce (Newer systems, example - CP600 pivots):

1. Remove the Pierce yellow (safety) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Black wire AND Red/Black Stripe wire in its place.
2. Use a wire nut to connect our Red wire to the Pierce yellow (safety) wire that was removed from the terminal strip in step 1.
3. Install our Brown/Black Stripe wire into the terminal strip with the other white (neutral) wires.
4. Install our Black/Red Stripe wire into the Earth Ground bar with the Pierce Green wires.
5. Install our Orange wire in with the Pierce brown wire. (Forward Run) (Span cable wire coming from the center)
6. Install our Orange/Black Stripe wire in with the Pierce Orange wire. (Reverse Run) (Span cable wire coming from the center)
7. Remove the Pierce purple (percent timer) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Blue wire in its place.
8. Use a wire nut to connect our Blue/Black Stripe wire to the Pierce purple (percent timer) wire that was removed from the terminal strip in step 7.
9. Remove the Pierce pink (end gun) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Brown wire in its place.
10. Use a wire nut to cap the Pierce pink (end gun) wire that was removed from the terminal strip in step 9.
- 11.

Pierce (Older systems, example - P.93 pivots):

1. Remove the Pierce brown (safety) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Black wire AND Red/Black Stripe wire in its place.
2. Use a wire nut to connect our Red wire to the Pierce brown (safety) wire that was removed from the terminal strip in step 1.
3. Install our Brown/Black Stripe wire into the terminal strip with the other white (neutral) wires.
4. Install our Black/Red Stripe wire into the Earth Ground bar with the Pierce Green wires.
5. Install our Orange wire in with the Pierce purple wire. (Forward Run) (Span cable wire coming from the center)
6. Install our Orange/Black Stripe wire in with the Pierce yellow wire. (Reverse Run) (Span cable wire coming from the center)
7. Remove the Pierce orange (percent timer) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Blue wire in its place.
8. Use a wire nut to connect our Blue/Black Stripe wire to the Pierce orange (percent timer) wire that was removed from the terminal strip in step 7.
9. Remove the Pierce tan (end gun) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Brown wire in its place.
10. Use a wire nut to cap the Pierce tan (end gun) wire that was removed from the terminal strip in step 9.

Only do steps 1-6 for basic stop feature and tape off each unused wire separately.

Add steps 7 and 8 for speed control

Add steps 9 and 10 for end gun control

Olson: (After 1980)

1. Remove the Olson yellow (safety) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Black wire AND Red/Black Stripe 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 Brown/Black Stripe wire into the terminal strip with the other white (neutral) wires.
4. Install our Black/Red Stripe wire into the Earth Ground bar with the Olson Green wires.
5. Install our Orange wire in with the Olson brown wire. (Forward Run) (Span cable wire coming from the center)
6. Install our Orange/Black Stripe wire in with the Olson white/black wire. (Reverse Run) (Span cable wire coming from the center)
7. Remove the Olson grey (percent timer) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Blue wire in its place.
8. Use a wire nut to connect our Blue/Black Stripe wire to the Olson grey (percent timer) wire that was removed from the terminal strip in step 7.
9. Remove the Olson purple (end gun) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Brown wire in its place.
10. Use a wire nut to cap the Olson purple (end gun) wire that was removed from the terminal strip in step 9.

Only do steps 1-9 for stop and endgun feature, and tape off each unused wire separately.
Add steps 10 and 11 for speed control

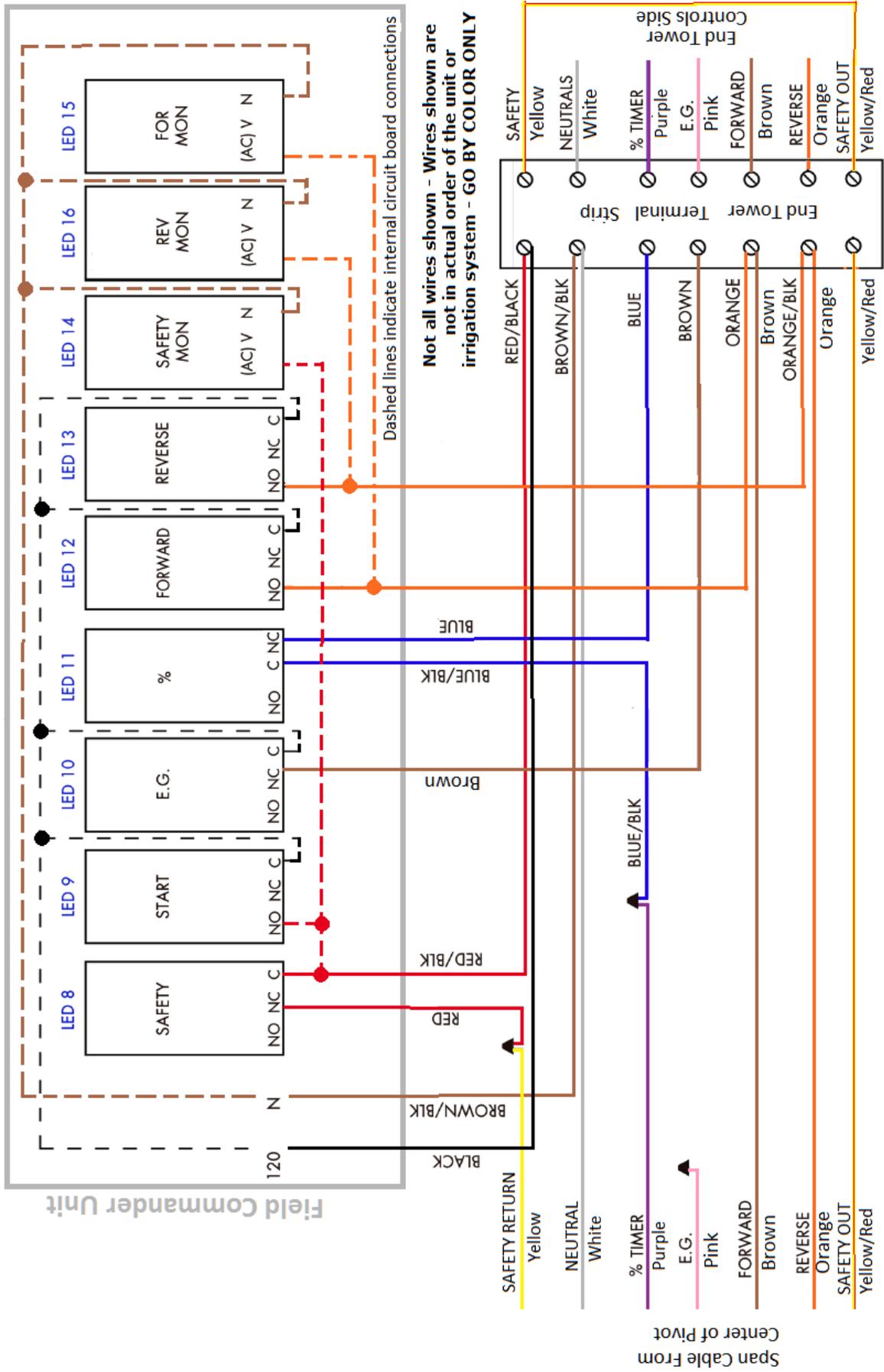
Lockwood with 16v safety system:

1. At the center of the pivot, make sure there are no endgun shutoff switches/ramps in place so that the endgun wire always has power when the pivot is running. (and does not have power when the pivot is not running)
2. Remove the Lockwood Brown (end gun) wire (Span cable wire coming from the center) from the terminal strip/wire nut in the end tower box and install our Brown wire in its place.
3. Use a wire nut to connect our Black wire to the Lockwood Brown (end gun) wire that was removed in step 2.
4. Remove one of the 120v wires going to the safety transformer (Span cable wire coming from the center) at the end tower and connect our Red/Black Stripe wire to that 120v wire with a wire nut.
5. Use a wire nut to connect our Red wire to the wire that goes to the safety transformer. (the wire on the transformer that the span cable was hooked to in step 4)
6. Install our Brown/Black Stripe wire in with the other neutral (white) wires.
7. Install our Black/Red Stripe wire into the Earth Ground bar with the Lockwood Green wires.
8. Install our Orange wire into the tower terminal strip/wire nut with the Lockwood yellow wire. (Forward Run)
9. Install our Orange/Black Stripe wire into the tower terminal strip/wire nut with the Lockwood orange wire. (Reverse Run)
10. Remove the Lockwood purple (percent timer) wire (Span cable wire coming from the center) from the terminal strip/wire nut in the end tower box and install our Blue wire in its place.
11. Use a wire nut to connect our Blue/Black Stripe wire to the Lockwood purple (percent timer) wire that was removed from the terminal strip/wire nut in step 10.

Reinke Pivots – Please see the Reinke Manual available from AgSense, or view/print online at: www.agsense.net – login and click help, then click on Reinke Manual.

EXAMPLE WIRING SHOWN IS SYSTEMS WITHOUT CORNERS OR MODIFIED WIRING

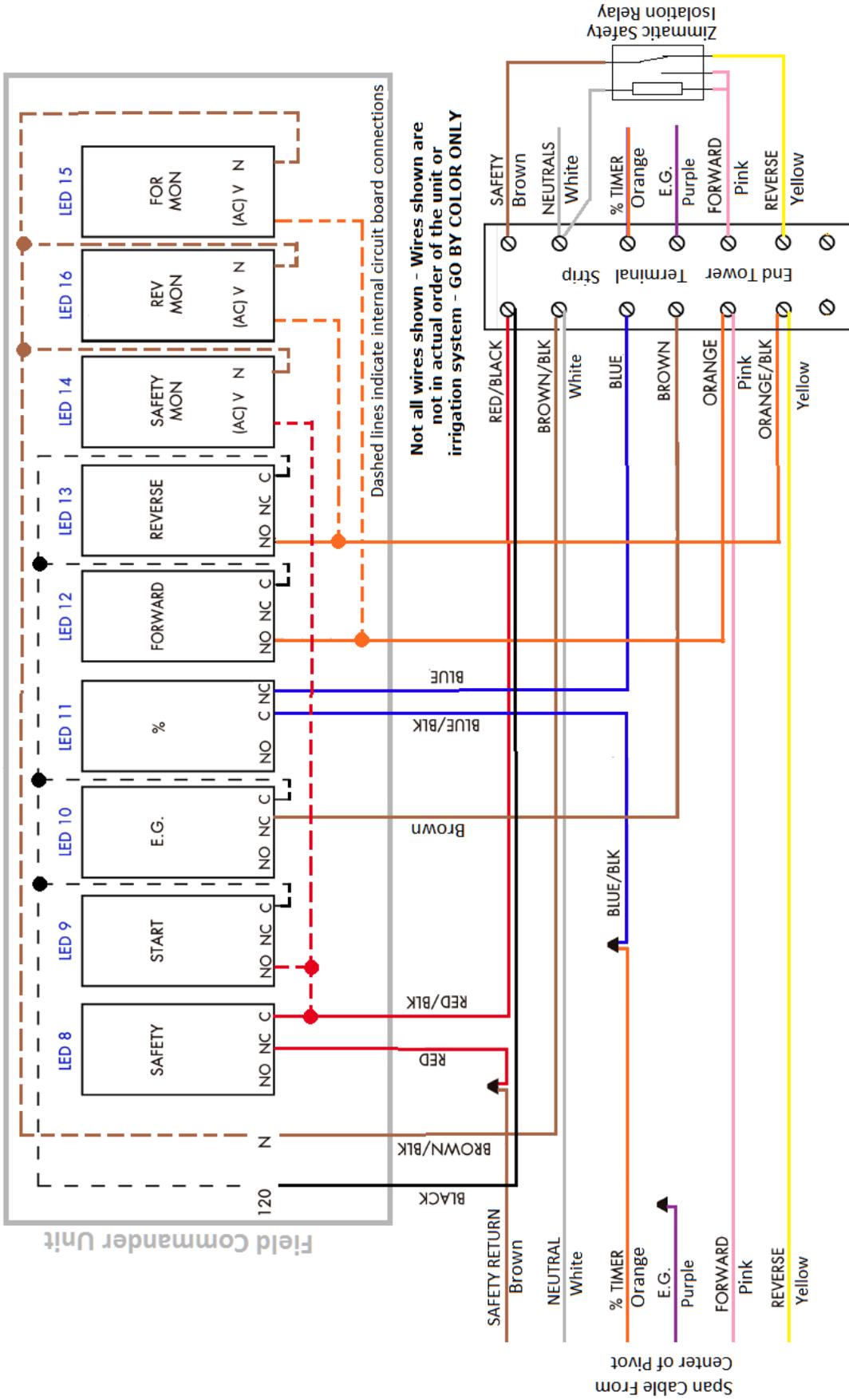
Example: Wiring of Field Commander with "ENHANCED" service to Valley Tower Box



Notes: For "Basic" wiring/service, the span cable End Gun wire (pink) and the % Timer wire (purple) would remain in the end tower terminal strip, and the Field Commander brown wire and blue wires would be unused/capped individually.

EXAMPLE WIRING SHOWN IS SYSTEMS WITHOUT CORNERS OR MODIFIED WIRING

Example: Wiring of Field Commander with "ENHANCED" service to ZIMMATIC End Tower Box

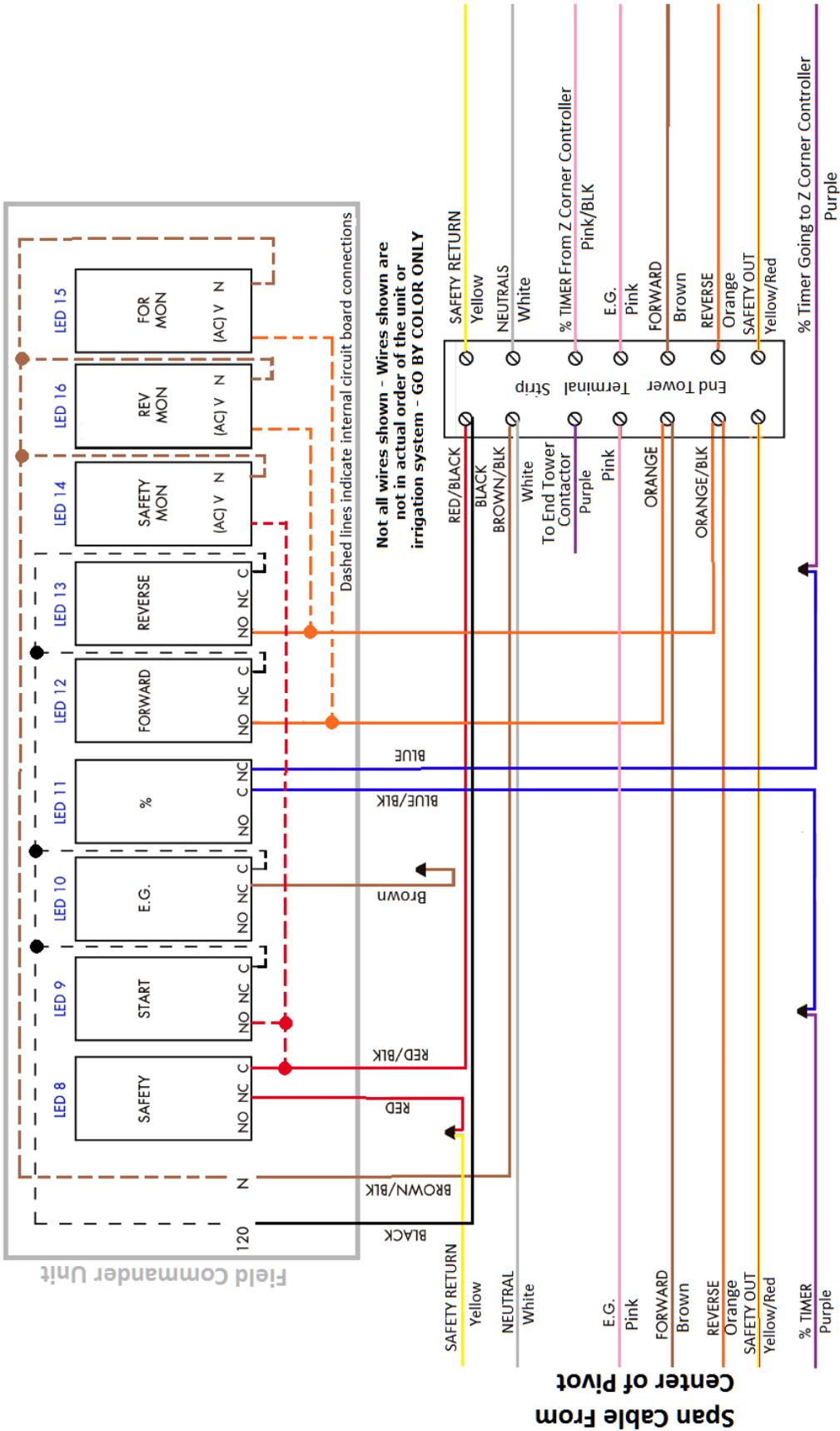


End Tower Controls Side

Notes: For "Basic" wiring/service, the span cable End Gun wire (Purple) and the % Timer wire (orange) would remain in the end tower terminal strip, and the Field Commander brown wire and blue wires would be unused/capped individually.

Wiring Differences for Speed Control on TAG (Z Corner – Double Corner) Field Commander Blue Wires.

Example: Wiring of Field Commander with Stop and Speed Control at the End Tower (Pivot has Z-Corner (TAG))



Section 3 – PRO SERVICE WIRING:

For using Start, Power Monitoring, or Direction Control:

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

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

In the Pivot Control Panel, remove end gun wire that goes out to the tower boxes and connect it to 120v directly from the transformer. (after the 120v fuse, or add a fuse as necessary) Also, remove any endgun stops/ramps/shutoffs. (End gun wire will have 120v at all times, even when pivot is idle)

Start Feature applies 120v to the safety circuit for 10 seconds to start the pivot – this may not work on all pivots to be able to start the pivot. To test this, use a fused jumper wire to connect 120v to the safety wire for 10 seconds to see if the pivot will start. Note: you may need to bypass the pressure switch in the panel with either a jumper wire or a one-shot timer to enable starting the pivot wet.

Direction Control will not work on all pivots! The direction control works by applying 120v to the wire opposite of the direction the pivot is currently moving for 10 seconds. – this will not work on all pivots and MUST be tested by the installer before adding this feature - Simply test by using a fused jumper wire to connect 120v to the direction wire opposite the direction the pivot is currently moving for 10 seconds. Test this for both directions. If the pivot changes direction and stays moving that direction, then proceed with adding this feature.

Perform steps 1 - 11 and cap off any unused wires individually.

Zimmatic: (Read beginning of Section 2 before proceeding)

1. Remove the Zimmatic brown (safety) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our 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 Brown/Black wire into the terminal strip with the other white (neutral) wires.
4. Install our Black/Red Stripe wire into the Earth Ground bar with the Zimmatic Green wires.
5. Remove the Zimmatic orange (percent timer) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our Blue wire in its place.
6. Use a wire nut to connect our Blue/Black wire to the Zimmatic orange (percent timer) wire that was removed from the terminal strip in step 5.
7. Remove the Zimmatic purple (end gun) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our Brown wire in its place.
8. Use a wire nut to connect our Black wire to the Zimmatic purple (end gun wire coming from the control panel (120v all the time)) wire that was removed from the terminal strip in step 7.
9. Install our Orange wire into the tower terminal strip with the Zimmatic pink wire. (Forward Run) – Note: Zimmatic wire color may differ depending on age of system.
10. Install our Orange/Black wire into the tower terminal strip with the Zimmatic yellow wire. (Reverse Run) – Note: Zimmatic wire color may differ depending on age of system.
11. See Pages 2 & 3 for second end gun control.

Valley: (Read beginning of Section 2 before proceeding)

Note: - On some Valley panels with SIS (stop-in-slot), moving the pink end gun wire to 120v all the time in the panel will cause the pivot to start without hitting the start button on the panel, and will cause the safety system to be hot all the time (pivot won't safety) You must check for this and fix it if needed. The fix for this will disable the SIS (stop-in-slot) feature of the pivot.

To check for this issue and correct it if needed:

1. Remove the top cover of the collector ring and find the wires coming out of the top of the collector ring. (these wires are coming from the control panel)
2. Find the Pink wire coming from the control panel at the top of the collector ring, and see what number wire is wire-nutted to that Pink wire. (usually #8) – do not disconnect this wire.
3. Find the brush that matches the wire number in step 2. (the brush will have a sticker with the same number on it)
 - a. If the Pink wire that goes out to the tower boxes is installed in that brush, no changes are needed, you can put the cover back on the collector ring, test the safety of the pivot and then proceed to wiring the Field Commander at the end tower. (step 1 below)
 - b. If the brush does not have the Pink wire that goes out to the towers installed in it (but has some other wire in it), proceed to the next step.
4. Remove the wire that is in the brush (the brush found in step 3) and cap it with a wire nut.
5. Find the Pink wire that goes out to the tower boxes. Disconnect it from the wire that it is currently wire-nutted to.
6. Install the Pink wire that goes out to the tower boxes into the brush (the brush found in step 3).
7. Cap off the unused wire from step 5 with a wire nut.

You should now have the Pink wire from the tower boxes installed into the brush that matches the wire number that the Pink wire from the control panel is connected to.

After completing this change, TEST THE SAFETY AGAIN before continuing to step 1 below.

Valley - Wiring the Field Commander at the end-tower:

1. Remove the Valley yellow (safety) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our 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 Brown/Black wire into the terminal strip with the other white (neutral) wires.
4. Install our Black/Red Stripe wire into the Earth Ground bar with the Valley Green wires.
5. Remove the Valley purple (percent timer) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our Blue wire in its place. (systems with TAG (Z Corners), refer to the schematic on Page 21 for proper wiring of the blue speed wires.)
6. Use a wire nut to connect our Blue/Black wire to the Valley purple (percent timer) wire that was removed from the terminal strip in step 5.
7. Remove the Valley pink (end gun) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our Brown wire in its place.
8. Use a wire nut to connect our Black wire to the Valley pink (end gun wire coming from the control panel (120v all the time)) wire that was removed from the terminal strip in step 7.
9. Install our Orange wire into the tower terminal strip with the Valley brown wire. (Forward Run)
10. Install our Orange/Black wire into the tower terminal strip with the Valley Orange wire. (Reverse Run)
11. See Pages 2 & 3 for second end gun control.

NOTE – ON SOME VALLEY CORNER SYSTEMS: If start feature does not work correctly, use the Valley yellow-red wires in steps 1 and 2 instead of the Valley yellow wires.

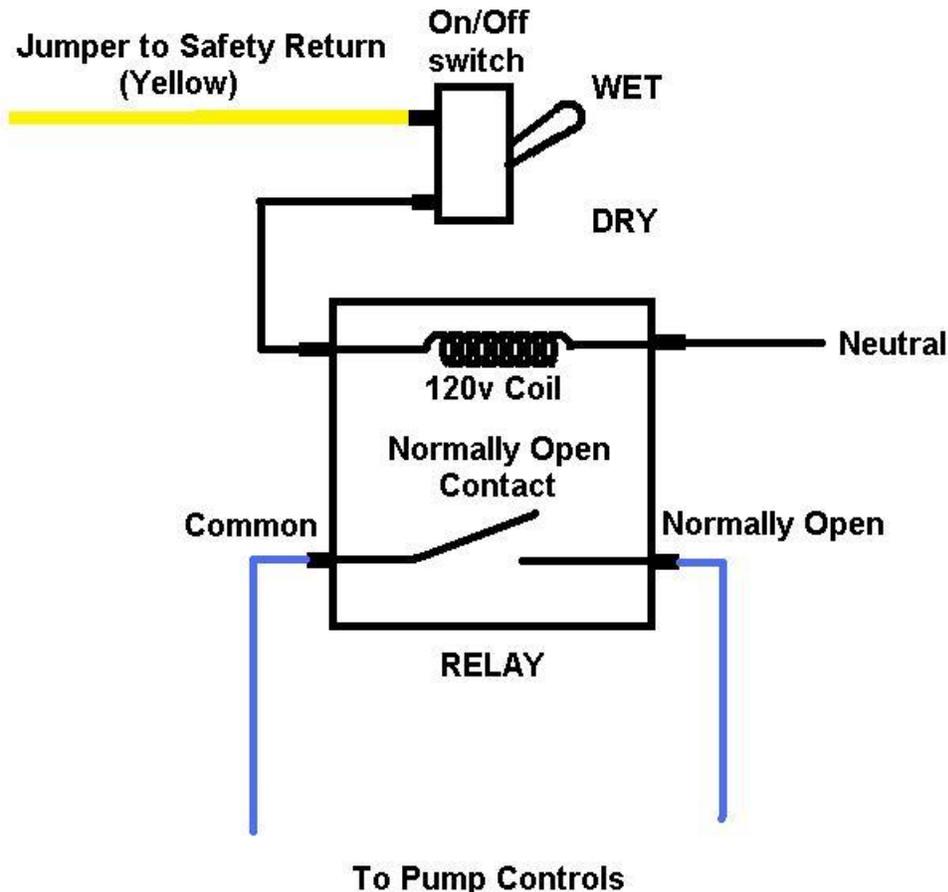
NOTE – ON MOST VALLEY SELECT PANELS:

If the Field Commander is able to start the pivot when the panel is set to “dry”, but cannot start the pivot when the panel is set to “wet”:

Use these steps to make these panels work correctly:

1. At the Panel, run a jumper wire from Safety Return to an on/off switch. (see drawing below)
2. Run another wire from that on/off switch to the coil terminal of a new relay with Normally Open contacts – 120v coil. (see drawing below)
3. Run a jumper wire from the other coil terminal to Neutral.
4. Remove the pump control wires from the panel terminal strip labeled “Pump Control N.O.” and “Pump Control Common” and install them into the Common and Normally Open contacts of the new relay. (see drawing below)
5. Set the digital portion of the panel to “Dry” and leave it that way. – then use the new toggle switch to control wet/dry.

Valley Select Panel - Change for using Field Commander Start Feature.



Pierce (Newer systems, example - CP600 pivots) (Read beginning of Section 2 before proceeding):

1. Remove the Pierce yellow (safety) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our 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 Brown/Black wire into the terminal strip with the other white (neutral) wires.
4. Install our Black/Red Stripe wire into the Earth Ground bar with the Pierce Green wires.
5. Remove the Pierce purple (percent timer) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our Blue wire in its place.
6. Use a wire nut to connect our Blue/Black wire to the Pierce purple (percent timer) wire that was removed from the terminal strip in step 5
7. Remove the Pierce pink (end gun) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our Brown wire in its place.
8. Use a wire nut to connect our Black wire to the Pierce pink (end gun wire coming from the control panel (120v all the time)) wire that was removed from the terminal strip in step 7.
9. Install our Orange wire into the tower terminal strip with the Pierce brown wire. (Forward Run)
10. Install our Orange/Black wire into the tower terminal strip with the Pierce orange wire. (Reverse Run)
11. See Pages 2 & 3 for second end gun control.

Pierce (Older systems, example - P.93 pivots) (Read beginning of Section 2 before proceeding):

1. Remove the Pierce brown (safety) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our Red/Black wire in its place.
2. Use a wire nut to connect our Red wire to the brown (safety) wire that was removed from the terminal strip in step 1.
3. Install our Brown/Black wire into the terminal strip with the other white (neutral) wires.
4. Install our Black/Red Stripe wire into the Earth Ground bar with the Pierce Green wires.
5. Remove the Pierce orange (percent timer) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our Blue wire in its place.
6. Use a wire nut to connect our Blue/Black wire to the Pierce orange (percent timer) wire that was removed from the terminal strip in step 5
7. Remove the Pierce tan (end gun) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our Brown wire in its place.
8. Use a wire nut to connect our Black wire to the Pierce tan (end gun wire coming from the control panel (120v all the time)) wire that was removed from the terminal strip in step 7.
9. Install our Orange wire into the tower terminal strip with the Pierce purple wire. (Forward Run)
10. Install our Orange/Black wire into the tower terminal strip with the Pierce yellow wire. (Reverse Run)
11. See Pages 2 & 3 for second end gun control.

Olson: (After 1980) (Read beginning of Section 2 before proceeding)

1. Remove the Olson yellow (safety) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our 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 Brown/Black wire into the terminal strip with the other white (neutral) wires.
4. Install our Black/Red Stripe wire into the Earth Ground bar with the Olson Green wires.
5. Remove the Olson grey (percent timer) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our Blue wire in its place.
6. Use a wire nut to connect our Blue/Black wire to the Olson grey (percent timer) wire that was removed from the terminal strip in step 5
7. Remove the Olson purple (end gun) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our Brown wire in its place.
8. Use a wire nut to connect our Black wire to the Olson purple (end gun wire coming from the control panel (120v all the time)) wire that was removed from the terminal strip in step 7.
9. Install our Orange wire into the tower terminal strip with the Olson brown wire. (Forward Run)
10. Install our Orange/Black wire into the tower terminal strip with the Olson white/black wire. (Reverse Run)
11. See Pages 2 & 3 for second end gun control.

Lockwood with 16v safety system: - only works on newer systems that do not flip-flop the 120v and Neutral going to the safety transformer. (Read beginning of Section 2 before proceeding)

1. Remove the 120v wire going to the safety transformer and connect our Red/Black wire in its place.
2. Use a wire nut to connect our Red wire to the wire that goes to the safety transformer (this is the wire that was removed in step 1.)
3. Install our Brown/Black wire in with the Neutral wire that goes to the safety transformer.
4. Install our Black/Red Stripe wire into the Earth Ground bar with the Lockwood Green wires.
5. Remove the Lockwood purple (percent timer) wire from the terminal strip in the end tower box and install our Blue wire in its place.
6. Use a wire nut to connect our Blue/Black wire to the Lockwood purple (percent timer) wire that was removed from the terminal strip in step 5.
7. Remove the Lockwood brown (end gun) wire from the terminal strip in the end tower box and install our Brown wire in its place.
8. Use a wire nut to connect our Black wire to the Lockwood brown (end gun wire coming from the control panel (120v all the time)) wire that was removed from the terminal strip in step 7.
9. Install our Orange wire into the tower terminal strip with the Lockwood yellow wire. (Forward Run)
10. Install our Orange/Black wire into the tower terminal strip with the Lockwood orange wire. (Reverse Run)
11. See Pages 2 & 3 for second end gun control.

Reinke Pivots – Please see the Reinke Manual available from AgSense, or view/print online at: www.agsense.net – login and click help, then click on Reinke Manual.

Section 4

Simple Power On/Off Monitor Wiring:

This is only to monitor if Power to a device is on or off – there are no controls.

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

120v AC Device Monitor system:

Brown/Black – Neutral

Black Wire – 120v AC

OR

7-40v DC Device Monitor system:

Yellow/Black – Ground

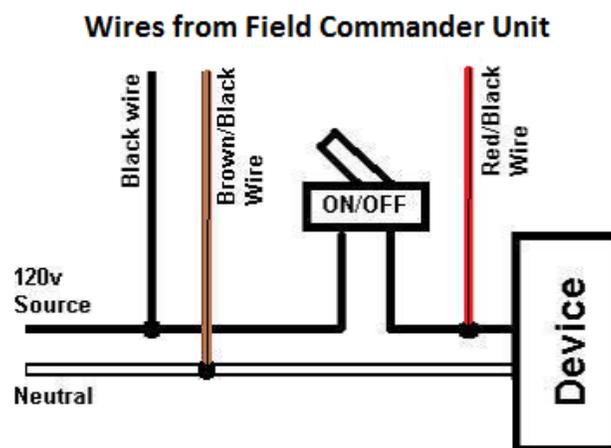
Yellow – 7-40v DC

Monitor Incoming Power AND Device On/Off Wiring:

This is to monitor the incoming power to a device, and to monitor if the device is on or off – there are no controls.

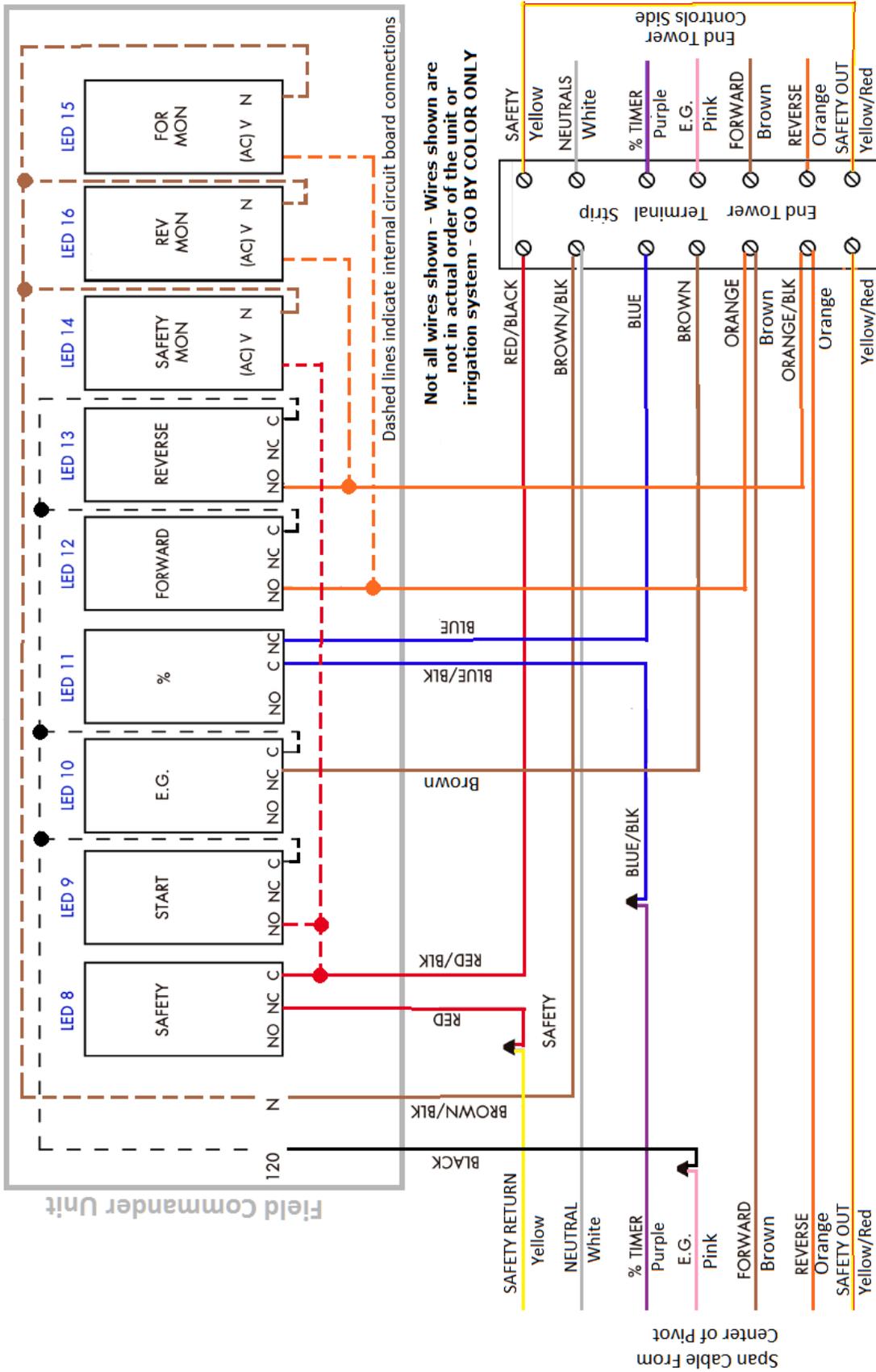
NOTE: The power being monitored and the power from the device being monitored as on/off must be coming from the same source / same phase and share a common neutral.
(see drawing below)

1. Connect our Black wire to the 120v source being monitored.
2. Connect our Brown/Black wire to the Neutral of the 120v source being monitored.
3. Connect our Red/Black wire to the 120v from the device that is being turned on/off.



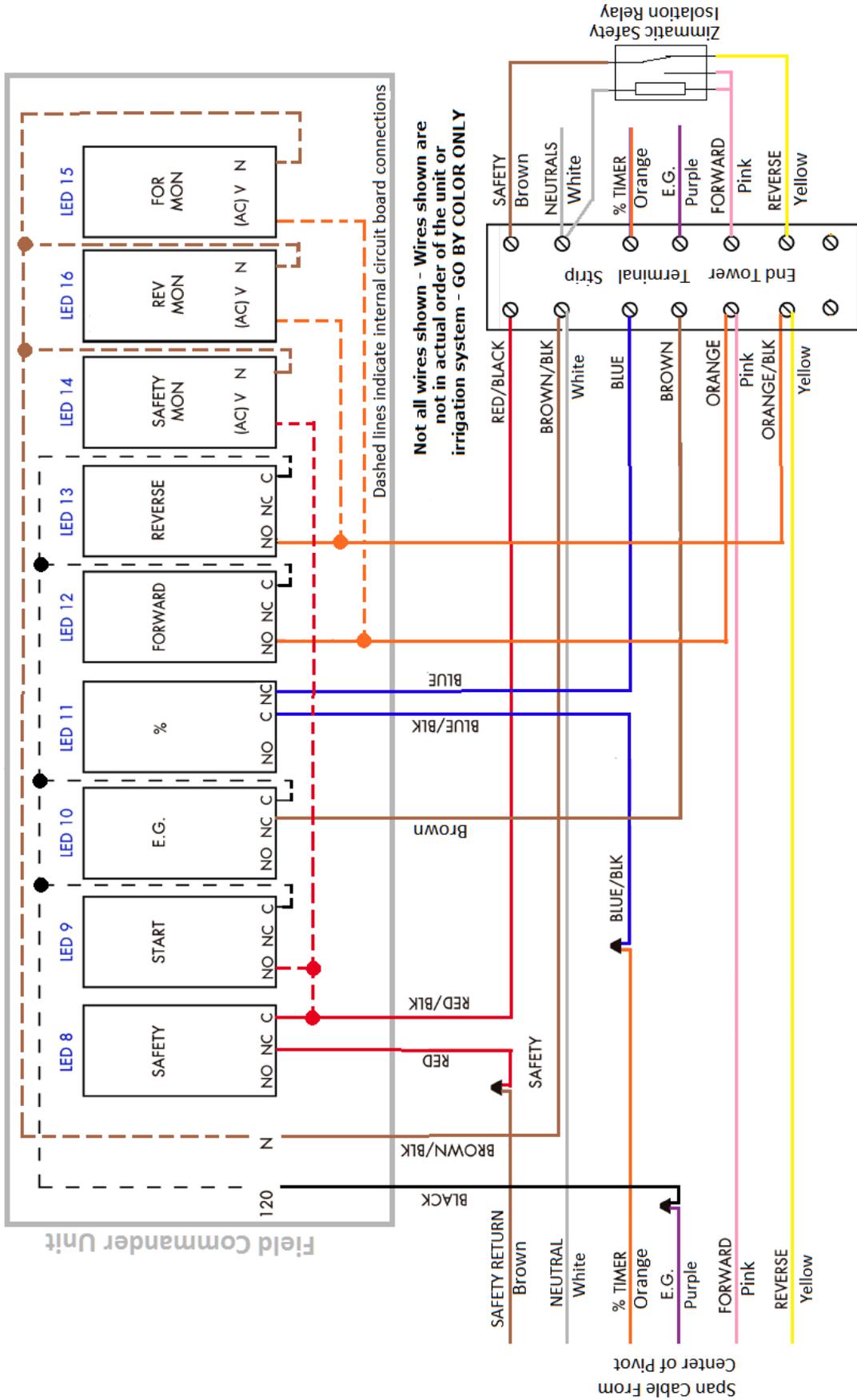
EXAMPLE WIRING SHOWN IS SYSTEMS WITHOUT CORNERS OR MODIFIED WIRING

Example: Wiring of Field Commander with "PRO" service to Valley Tower Box



EXAMPLE WIRING SHOWN IS SYSTEMS WITHOUT CORNERS OR MODIFIED WIRING

Example: Wiring of Field Commander with "PRO" service to ZIMMATIC End Tower Box



Notes: This drawing assumes that the End Gun wire is connected to the 120v transformer in the irrigation control panel as indicated in the installation instructions for "pro" type wiring/service.

For "Basic or Enhanced" wiring/service, the Field Commander black wire would be connected with the Red/Black wire.

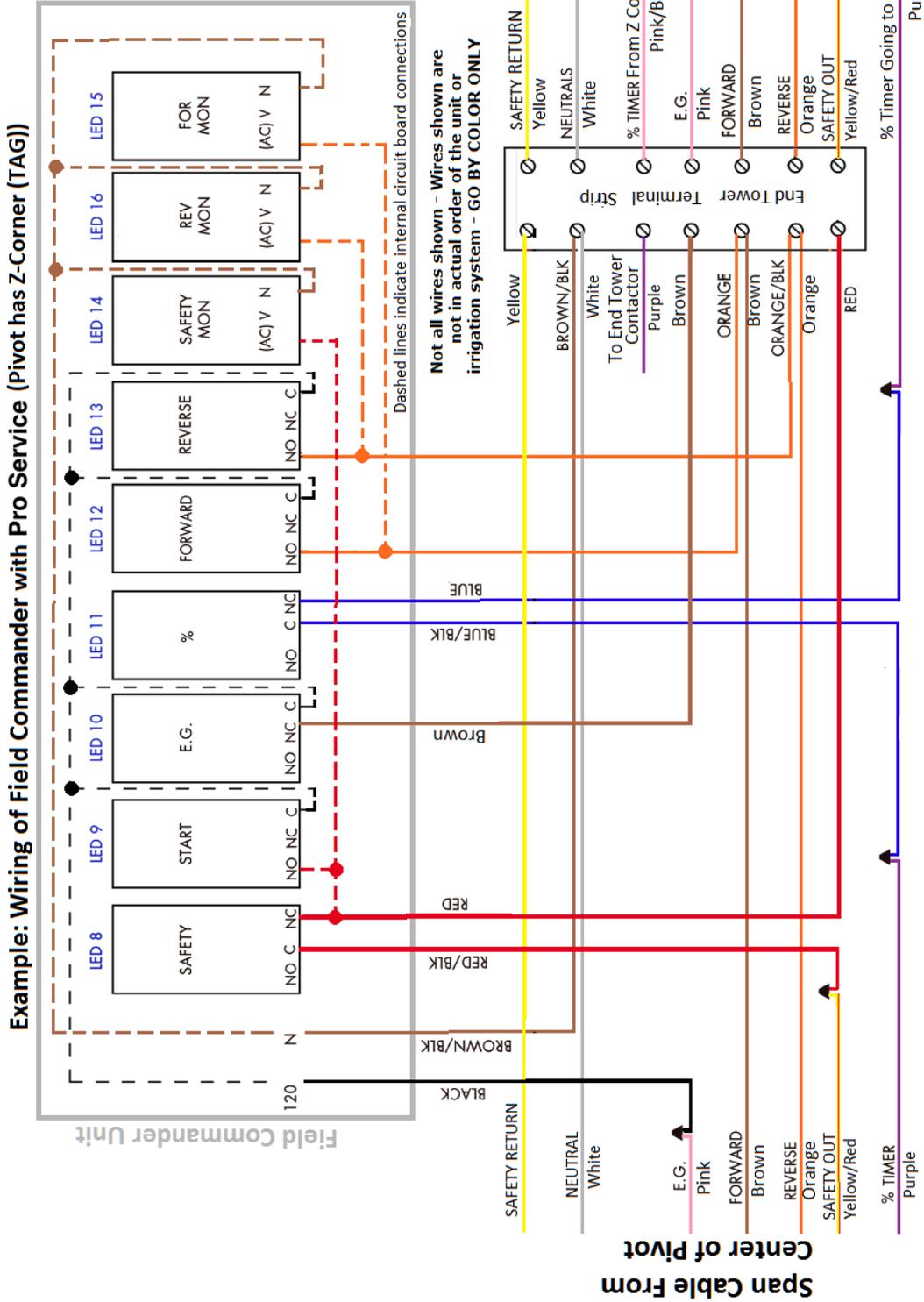
For "Enhanced" wiring/service, the span cable End Gun wire (Purple) would be capped and unused.

For "Basic" wiring/service, the span cable End Gun wire (Purple) and the % Timer wire (orange) would remain in the end tower terminal strip, and the Field Commander brown wire and blue wires would be unused/capped individually.

Wiring Differences for Speed Control on TAG (Z Corner – Double Corner)

Field Commander Blue Wires and Red Wires.

Cable Going Out to the Z-Corner Control Panel



Power Requirements for these units:

DC Powered Unit 7-40V 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 5A, 3A constant (at a max voltage of 120vAC, or 30vDC).

Warranty Information:

All warranty service provided by the AgSense service center, or an authorized technician.

**Warranty repairs require a Return Merchandise Authorization Number (RMA);
Have your dealer contact AgSense to obtain this RMA number.**

For the Period of :	AgSense will:
60 Days	Money back Guarantee if not satisfied with product.
2 Years	Repair on any unit that fails due to defect in materials or workmanship. AgSense labor and parts would be provided free of charge during the warranty period. (This does not include dealer labor.)

What is not covered:

- Service trips to your home to teach you how to use the product.
- Improper installation, delivery or maintenance. If you have an installation problem contact your dealer or installer.
- Failure of product resulting from modification to product or due to unreasonable failure to provide reasonable and necessary maintenance.
- Labor necessary to move device from one location to another.
- Improper installation of battery.
- Failure due to corrosion or water damage.
 - Units installed in direct contact with sprinklers require a tower box or other watertight protection.
- Damage to the product caused by improper power supply voltage, accident, fire, floods or acts of God.
- Damage caused after delivery.

Exclusion of implied warranties – Your sole and exclusive remedy is product repair as provided in this Limited Warranty. Any implied warranties, including the implied warranties of merchantability or fitness for a particular purpose, are limited to two years or the shortest period allowed by law.

This warranty is extended to the original purchaser and any succeeding owner for the products purchased for use within the USA.

Some states do not allow the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights, and you may also have the other rights which vary from state to state. To know what your legal rights are, consult your local or state consumer affairs office or your state's Attorney General.

DISCLAIMER: The use of Field Commander/Crop Link/Aqua Trac shall not be utilized by customer as a substitute for the Customer's personal observation of the manner in which Customer's irrigation equipment is functioning. AgSense specifically advises Customer that this product is designed to enhance Customer's ability to control existing irrigation equipment and to provide the Customer with additional information about existing irrigation equipment. Field Commander/Crop Link/Aqua Trac relies upon GPS, Satellite and Internet technology which not always functions properly, accordingly, AgSense disclaims any and all responsibility for the reliability of this technology. Customer acknowledges that AgSense does not have the ability to control the reliability of GPS, Satellite and Internet Technology. AgSense specifically disclaims any and all liability for Customer's failure to personally determine whether or not the irrigation equipment that belongs to Customer is functioning properly. AgSense, its agents, members or officers will not be liable for Customer's loss of profits, business interruption, or any other type of consequential damages arising because of the failure to Customer's equipment, GPS, Satellite or Internet to function properly.

CUSTOMER'S RESPONSIBILITIES: Customer agrees to keep the irrigation equipment upon which Field Commander/Crop Link/Aqua Trac is installed in good repair and maintenance. Customer acknowledges the importance of and agrees to keep all safety devices which came with Customer's irrigation equipment in working order. Customer agrees to keep an end field stop and barricades in place to prevent damage to the irrigation equipment in the event that Field Commander/Crop Link/Aqua Trac malfunctions. Customer agrees that Field Commander/Crop Link/Aqua Trac cannot solely replace the personal monitoring of the operation of irrigation equipment.

REMEDY: Customer acknowledges that Field Commander/Crop Link/Aqua Trac's sole obligation and Customer's exclusive remedy in the event of any material and continuing nonconformity, defect, or error in the information service shall be to take reasonable corrective actions upon discovery of the problem.

AgSense

259 Dakota Ave S
PO Box 53
Huron, SD 57350

605-352-8350
www.AgSense.net