

# **2014 Field Commander Wiring Manual For Reinke Pivots**

## **New Large Board Marked Comm6 FC V4.1**

**Intro 1 – Pages 2 – New Features Overview**  
Wire Theft Monitor (without power),  
Second End Gun Relay wiring

**Intro 2 – Page 3 – Unit Mounting,  
Pressure Transducer Wiring**

**Section 1 – Pages 4-5 – BASIC / ENHANCED SERVICE:**  
Pivot wiring NOT using start, theft  
monitoring, or direction control

**Section 2 – Pages 6-22 – PRO SERVICE:**  
Pivot wiring using start, theft  
monitoring, or direction control  
(if the pivot is capable of it)

**Section 3 – Page 23 – Example Wiring of Field Commander  
with Pro Service on Reinke Pivot  
(standard system with no corner-arm  
or modified wiring.)**

**Section 5 – Page 24-25 – Specs. and Warranty Information.**

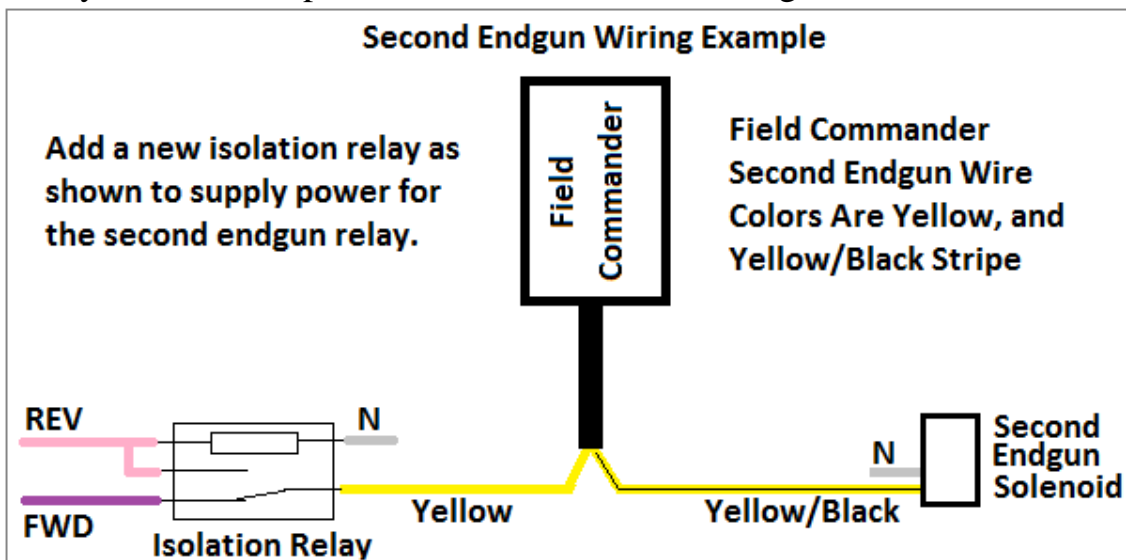
**Introduction** – The new 2014 Field Commander has a couple of new features. These new features required changing the position and purpose of 3 wires in the Field Commander unit.

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 wires. See the new features section below for wiring information.

## New Features:

- 1. Wire Theft Monitor (without power)** – For many years, the PRO 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 on all service levels 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 Wiring** – A new relay has been added to the 2014 Field Commander with PRO service that can control a second end gun. 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.



# Field Commander Mounting

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

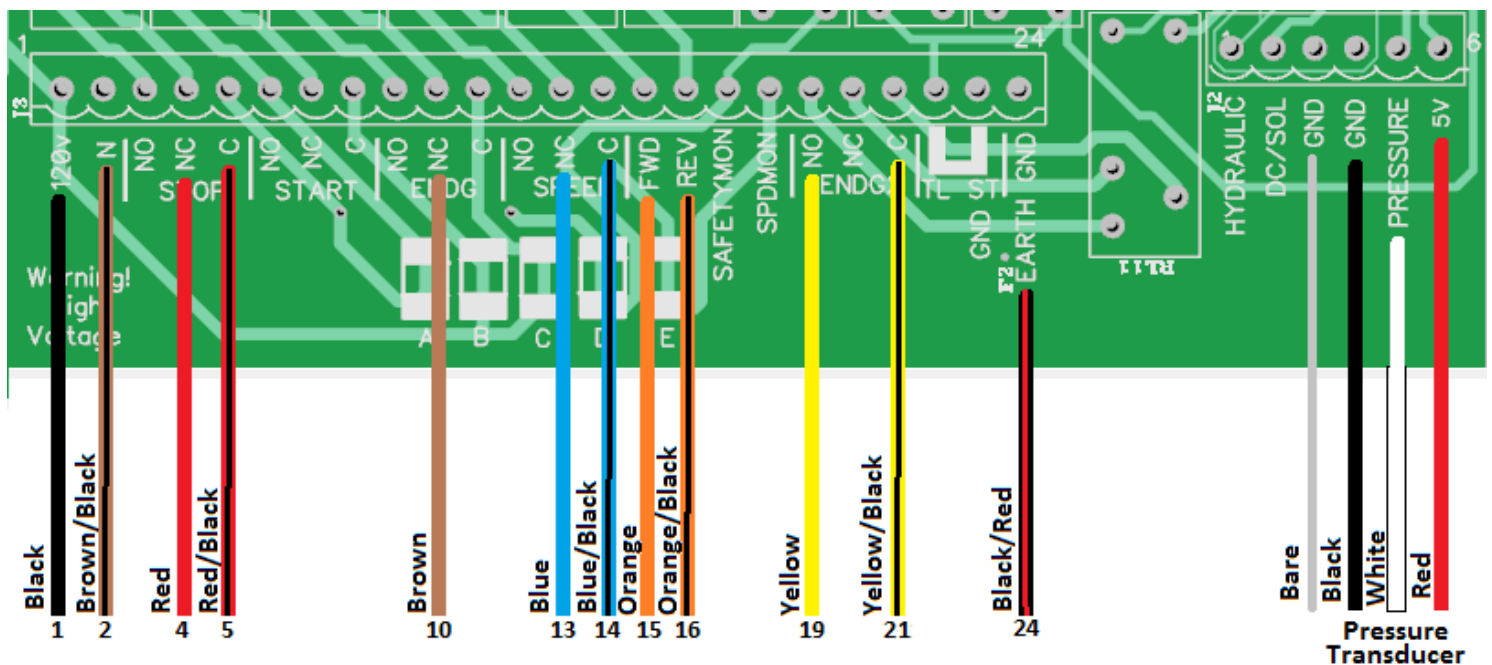
On pivots with truss cable supports (rabbit ears) on the end tower, mount the unit on the truss cable supports as high as possible using the supplied beam clamps that will still allow the cable to reach the end tower box.

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

## Reinke - BASIC/ENHANCED WIRING

**- Note -** On some Reinke 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 WIRING BELOW.**

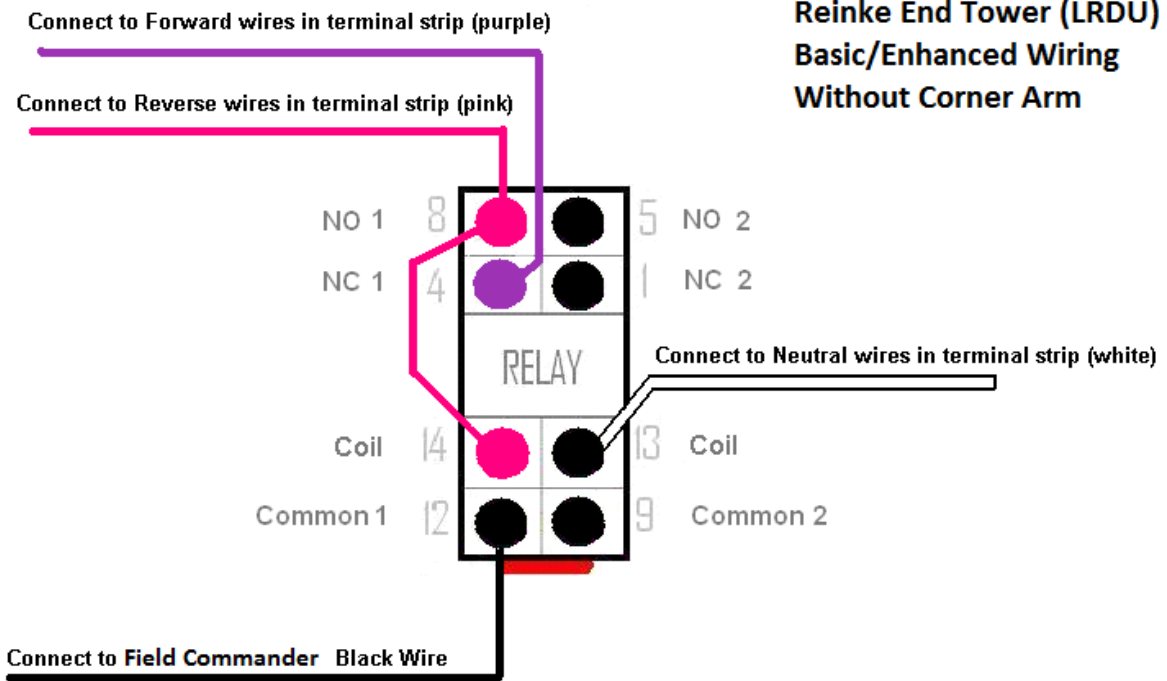
Only do Steps 1 – 8 for basic stop feature and tape off unused wires

Add Steps 9 – 10 for speed control

Add Steps 11 – 12 for endgun control

1. Remove the Reinke brown (safety) wire from the terminal strip in the end tower box (Span cable wire coming from the center) and install our Red/Black Stripe wire in its place. - See Note at top of page -
2. Use a wire nut to connect our Red wire to the Reinke 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 Reinke Green Wires.
5. 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
6. 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 Field Commander 120v on the black wire no matter which direction the pivot is moving)
7. Install our Orange wire into the tower terminal strip with the Reinke purple wire. (Forward Run)
8. Install our Orange/Black wire into the tower terminal strip with the Reinke pink wire. (Reverse Run)
9. Remove the Reinke 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.
10. Use a wire nut to connect our Blue/Black wire to the Reinke orange (percent timer) wire that was removed from the terminal strip in step 9
11. Remove the Reinke yellow (endgun) 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.
12. Install a wire nut onto (to cap off) the Reinke yellow wire that was removed in step 11.

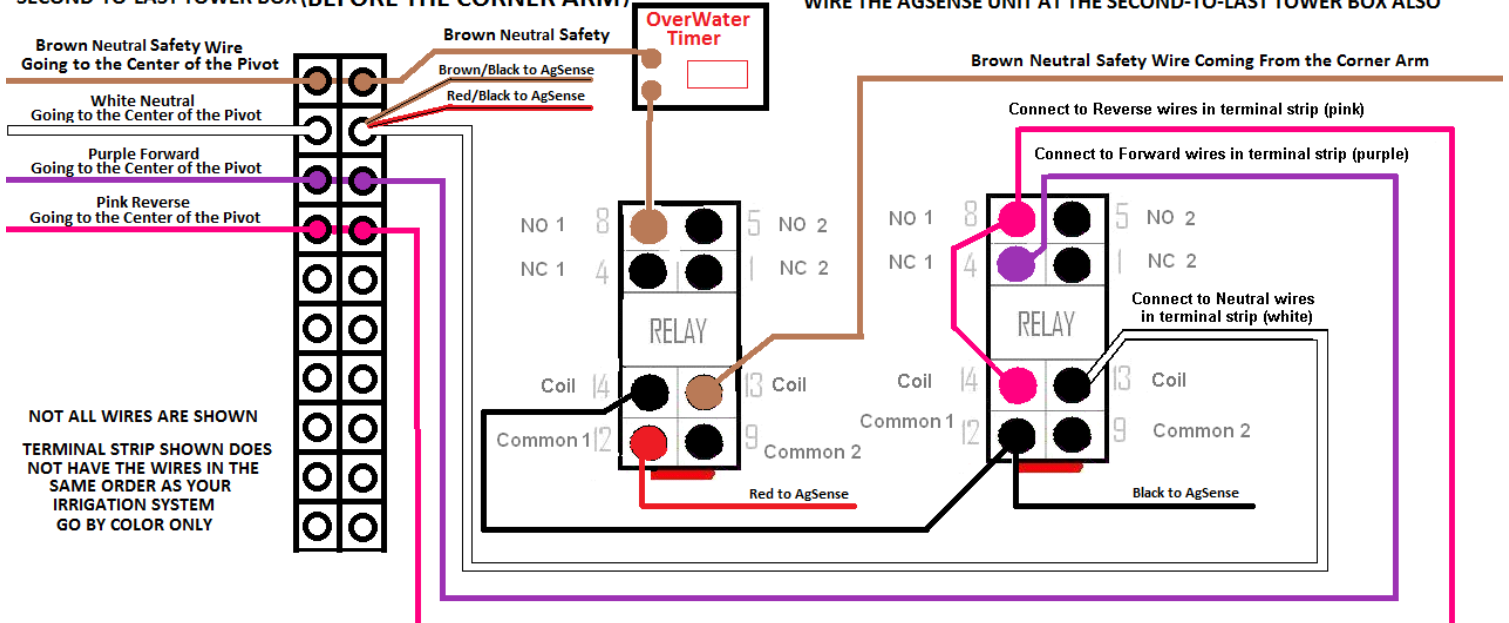
**Additional Relay/s for Reinke – (other neutral safety type pivots similar)**



**REINKE CORNER ARM**

**ADDITIONAL RELAY REQUIRED FOR REINKE NEUTRAL SAFETY (Basic/Enhanced Wiring) ON SYSTEMS WITH A CORNER ARM SECOND-TO-LAST TOWER BOX (BEFORE THE CORNER ARM)**

**WIRE THE AGSENSE UNIT AT THE SECOND-TO-LAST TOWER BOX ALSO**



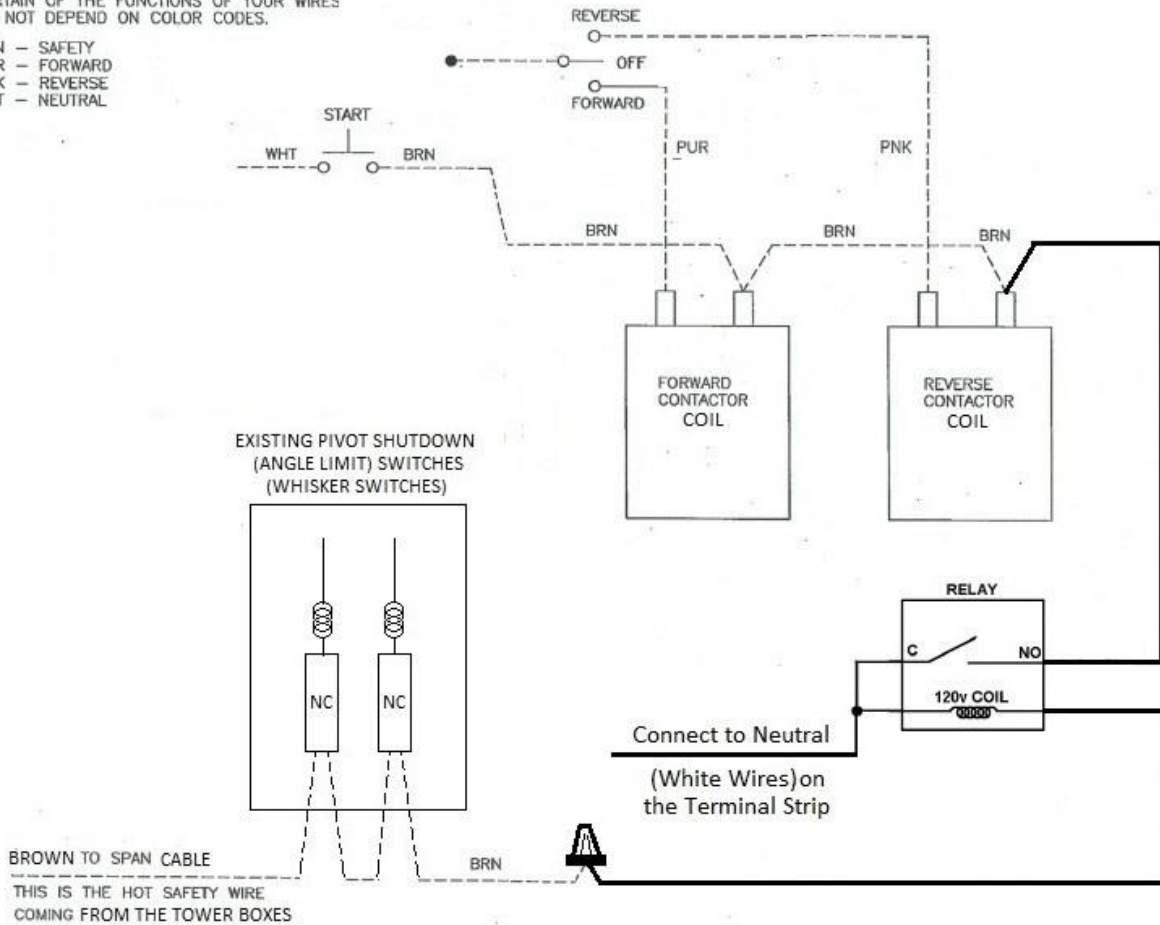
# REINKE - PRO WIRING

**Reinke – Older Grey Panels (without PAC timer) – You must convert the pivot to a Hot Safety (120v Safety) and test the pivot BEFORE installing the Field Commander. Follow the diagrams on the following 3 pages to make the Hot Safety Conversion.**

COLOR CODE COMMONLY USED BY REINKE.  
YOUR PIVOT MAY BE WIRED DIFFERENTLY OR MAY HAVE BEEN MODIFIED. BE CERTAIN OF THE FUNCTIONS OF YOUR WIRES DO NOT DEPEND ON COLOR CODES.

BRN – SAFETY  
PUR – FORWARD  
PNK – REVERSE  
WHT – NEUTRAL

----- DASHED LINES SHOW PARTIAL VIEW OF REINKE WIRING



**REINKE GREY PIVOT CONTROL PANELS: (without PAC timer) Wiring Changes for Pro wiring (Start) "Hot Safety"**

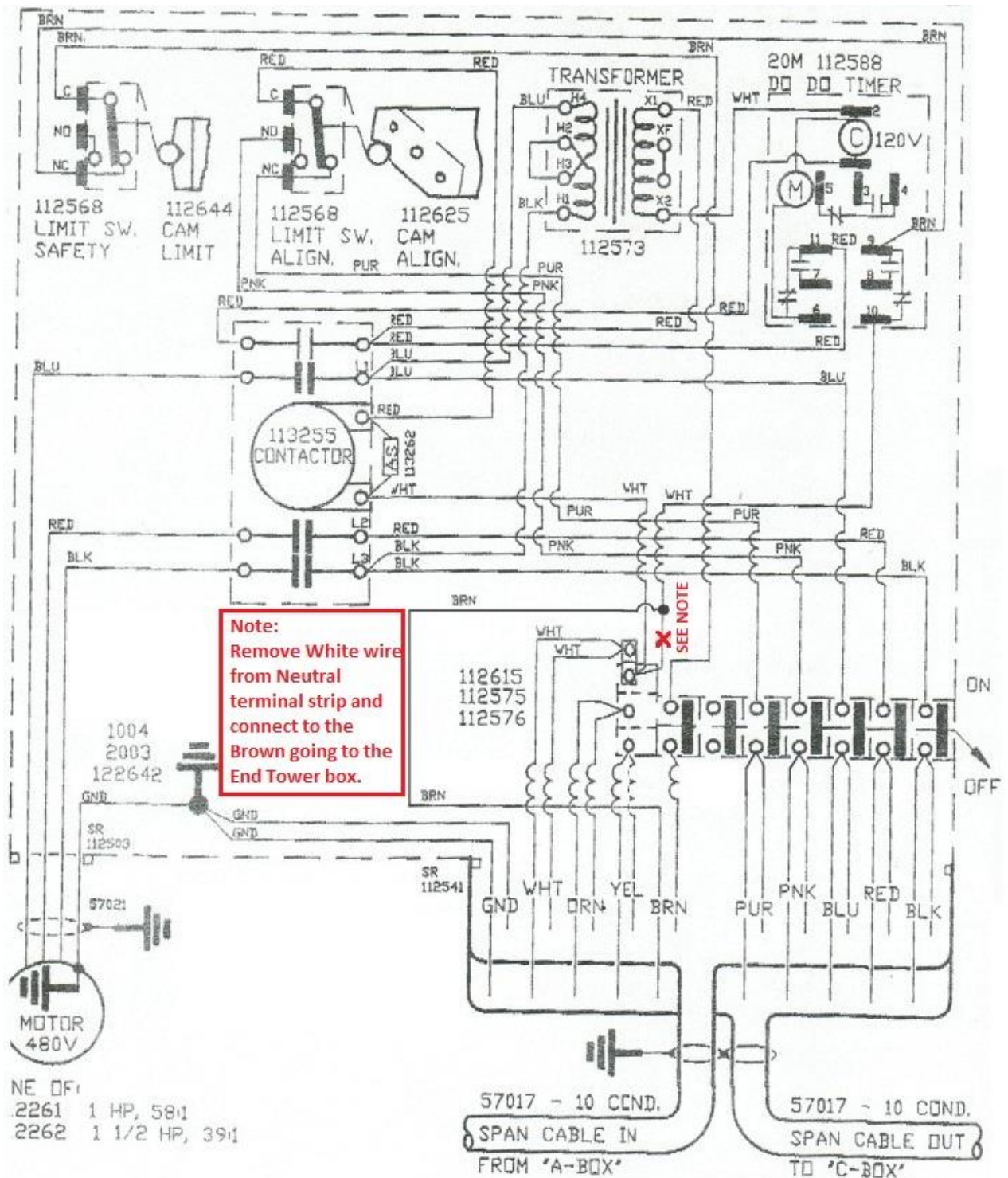
**THE CHANGES ON THESE 3 PAGES MUST BE DONE BEFORE WIRING IN THE AGSENSE UNIT.**

**ONCE THESE WIRING CHANGES ARE COMPLETE, YOU MUST RUN THE PIVOT AND TEST THE SAFETY BEFORE WIRING IN THE AGSENSE UNIT!!**

1. Disconnect the Brown Safety wire (the span cable wire that comes in from the towers) from the Main Terminal Strip in the panel. (If your pivot has them, make sure the Angle Limit (whisker) Switches are wired as shown)
2. Connect that Brown Safety wire to one terminal of the Relay Coil as shown.
3. Connect a wire from the Common terminal of the relay and the other Coil terminal to the White (neutral) wires on the Main Terminal strip in the panel.
4. Connect a wire from the Normally Open terminal of the relay to the Contactor Coil terminal that the Brown wire connects to as shown.

**Parts Needed: AgSense Reinke Relay kit, or SPST - NO - with 120vAC coil**





### SECOND-TO-LAST TOWER BOX

The wiring in this tower box needs to be checked to make sure the brown safety wire is NOT connected to NEUTRAL. To Check this, follow the brown wire coming from the center of the pivot through the Safety Microswitch, then over to the Overwater Timer (usually terminal #9) and then out of the Overwater timer (usually terminal #10) and make sure it is connected to the brown safety wire that goes out to the end tower. (and not connected to the white neutral wires)

If the wire from terminal #10 of the overwater time IS connected to the white neutral wires, remove that wire from the neutral terminal strip and connect it to the brown safety wire that goes out to the end tower.

Also make sure the pink and purple wires are connected as shown (some Rienke pivots have these left loose (disconnected), but they must be connected to the pink and purple wires coming from the center.



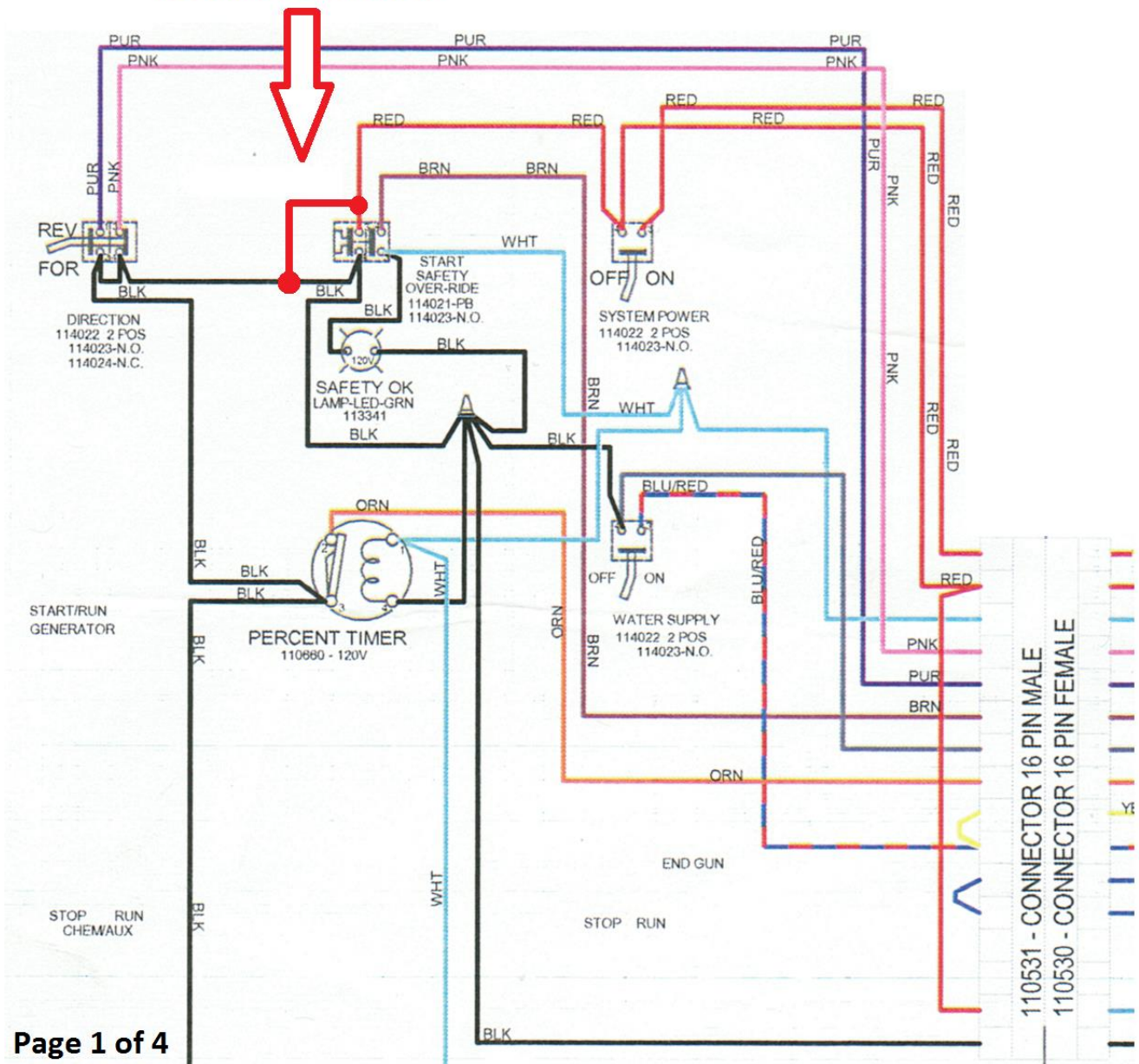


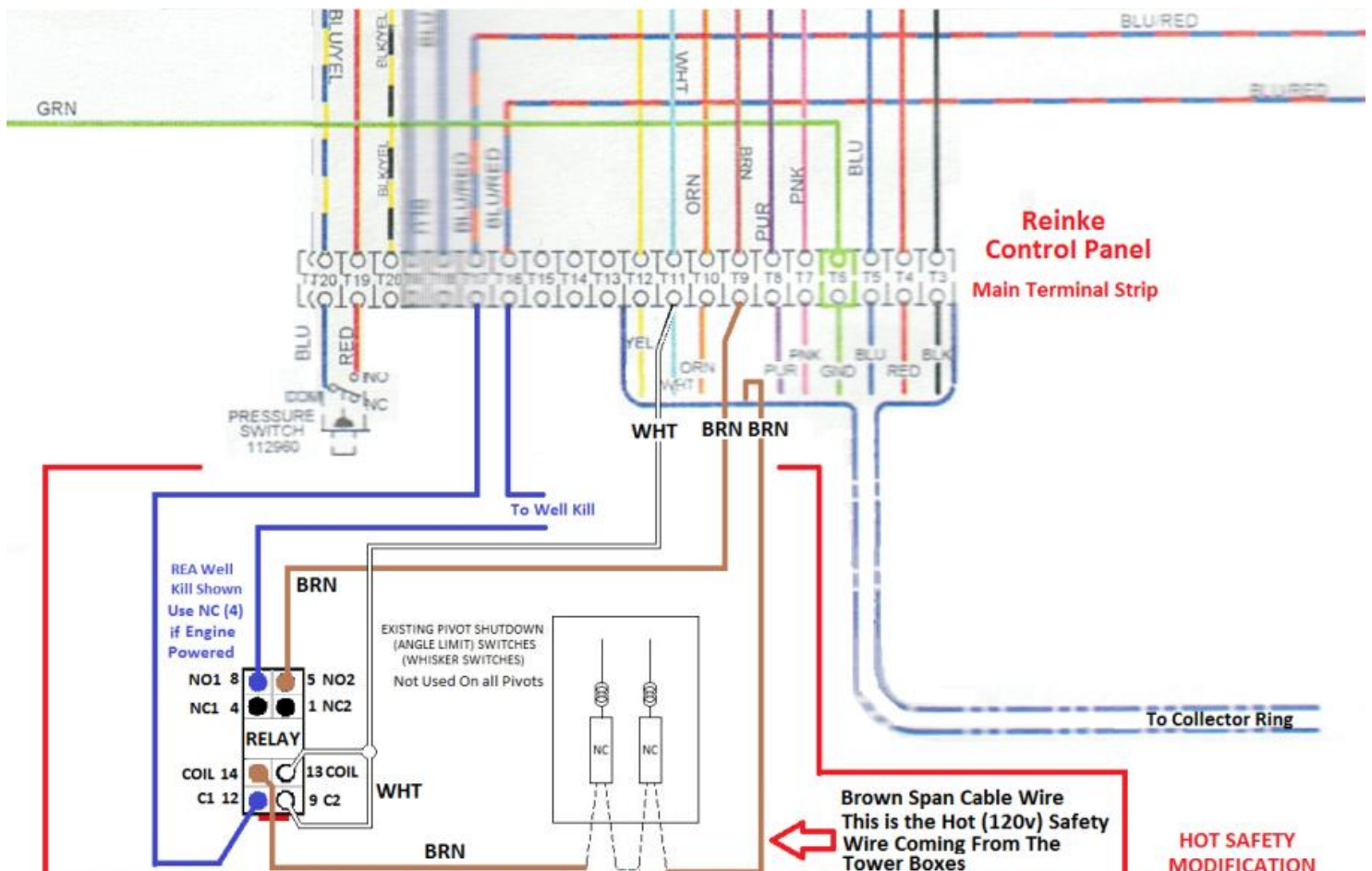
**Reinke – Basic Blue Panels (without PAC timer) – You must convert the pivot to a Hot Safety (120v Safety) and test the pivot BEFORE installing the Field Commander. Follow the diagrams on the following 4 pages to make the Hot Safety conversion.**

**Reinke Blue Panel WITHOUT PAC Timer Remote Start Modification:**

**Main Control Panel Start Button wiring change**

**Add Jumper to Start Button Shown Below**

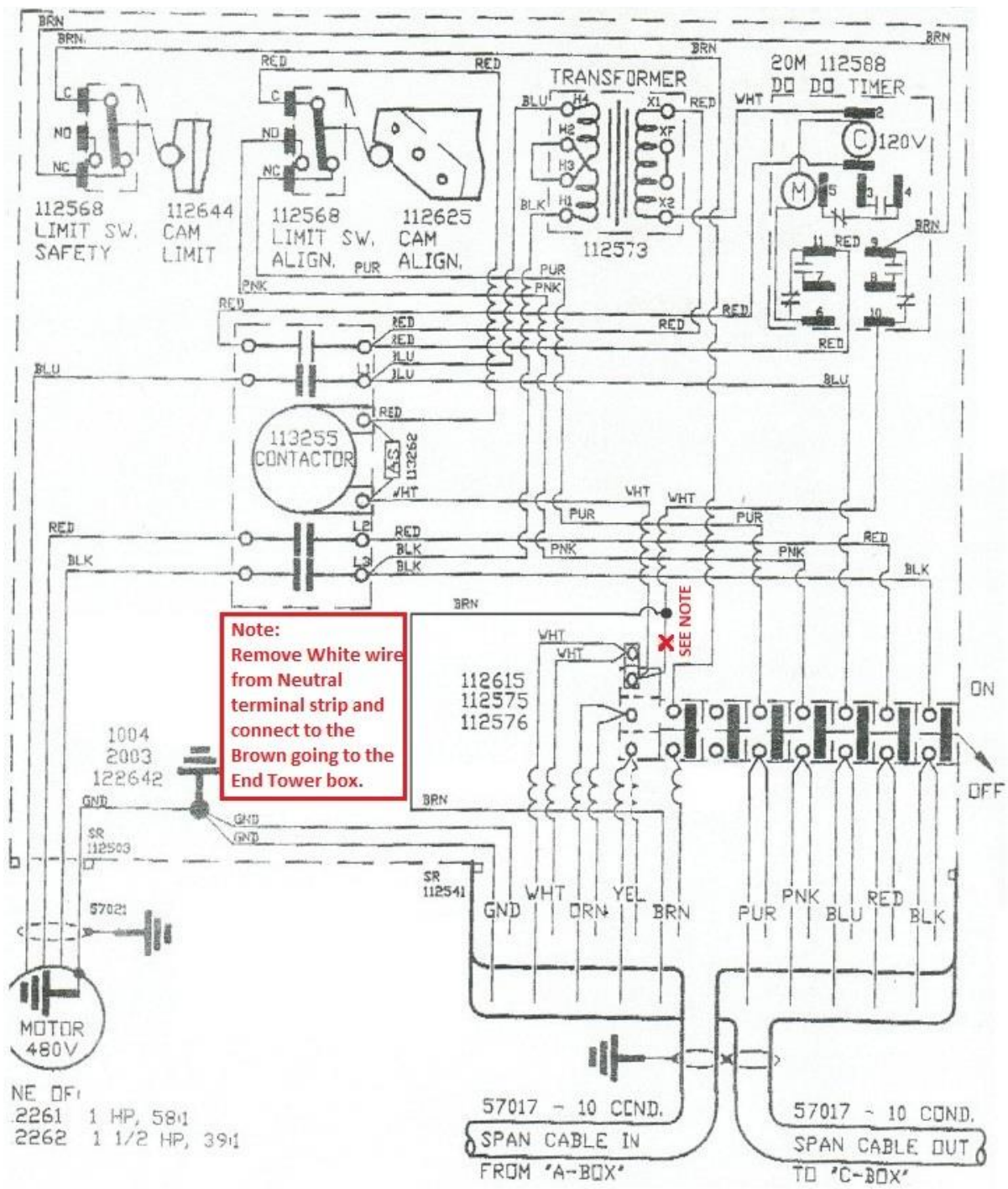




1. Disconnect the Brown Safety Wire (The Span Cable Wire That Comes In From The Towers) From The Main Terminal Strip In The Panel. (If Your Pivot Has Them, Make Sure The Angle Limit Switches Are Wired As Shown)
2. Connect That Brown Safety Wire To One Coil Terminal Of The Relay As Shown.
3. Connect a Wire From The Common Terminal Of The Relay AND The Other Relay Coil Terminal To The White (Neutral) Wires At The Main Terminal Strip As Shown.
4. Connect A Wire From The Normally Open Terminal Of The Relay To The Terminal That The Brown Safety Wire Used To Be In At The Main Terminal Strip As Shown.

**HOT SAFETY MODIFICATION FOR REMOTE-START**  
 Parts Needed:  
 AgSense Reinke Relay Kit (DPDT 120v Coil)





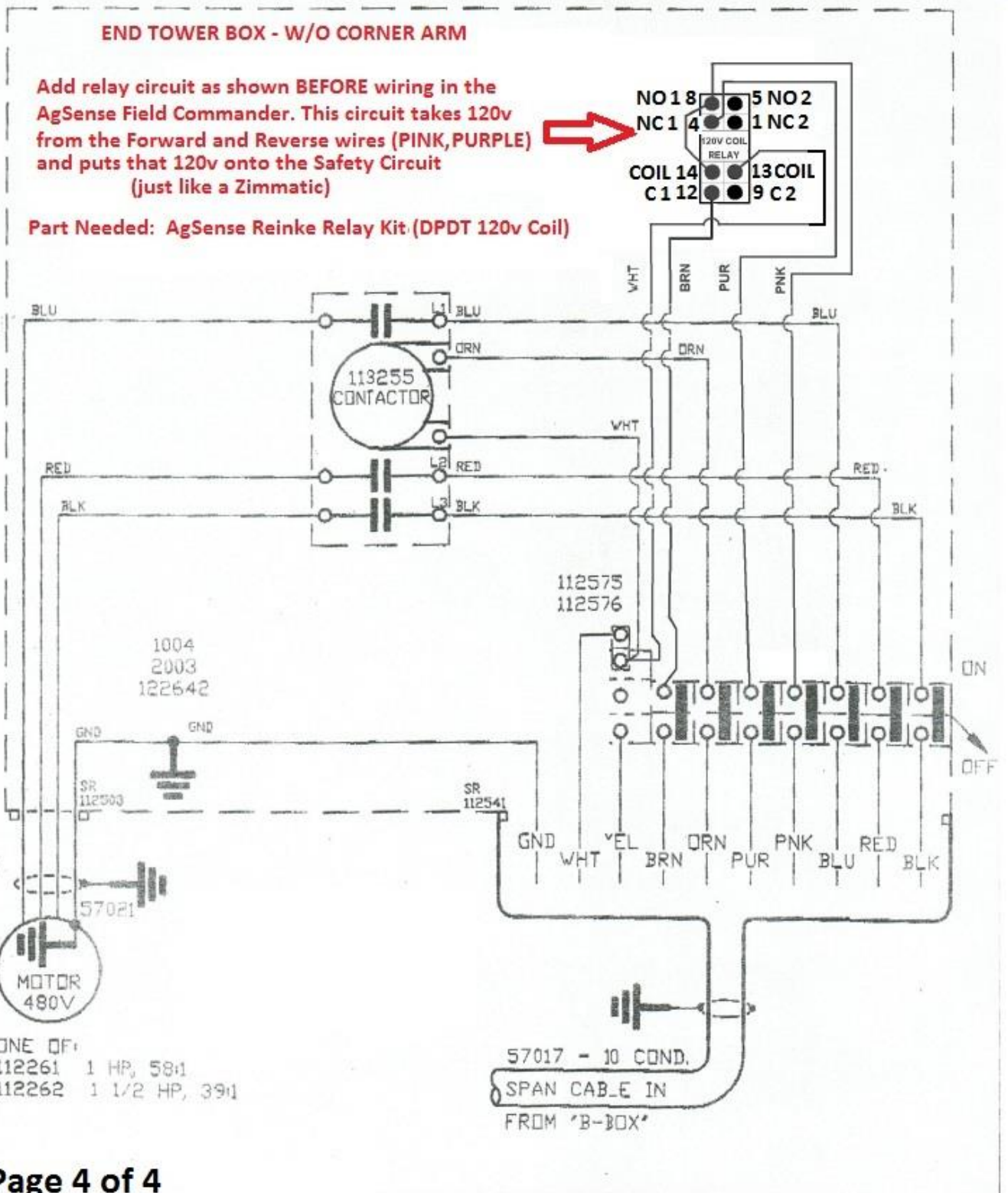
NE OF:  
 2261 1 HP, 581  
 2262 1 1/2 HP, 391

**SECOND-TO-LAST TOWER BOX**

The wiring in this tower box needs to be checked to make sure the brown safety wire is NOT connected to NEUTRAL. To Check this, follow the brown wire coming from the center of the pivot through the Safety Microswitch, then over to the Overwater Timer (usually terminal #9) and then out of the Overwater timer (usually terminal #10) and make sure it is connected to the brown safety wire that goes out to the end tower. (and not connected to the white neutral wires)

If the wire from terminal #10 of the overwater time IS connected to the white neutral wires, remove that wire from the neutral terminal strip and connect it to the brown safety wire that goes out to the end tower.

Also make sure the pink and purple wires are connected as shown (some Rienke pivots have these left loose (disconnected), but they must be connected to the pink and purple wires coming from the center.



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**Note:** Make sure the Brown Safety wire is NOT connected to the White Neutral wires in this tower box. The Brown Safety wire needs to go to the Common Terminal of the Relay as shown.

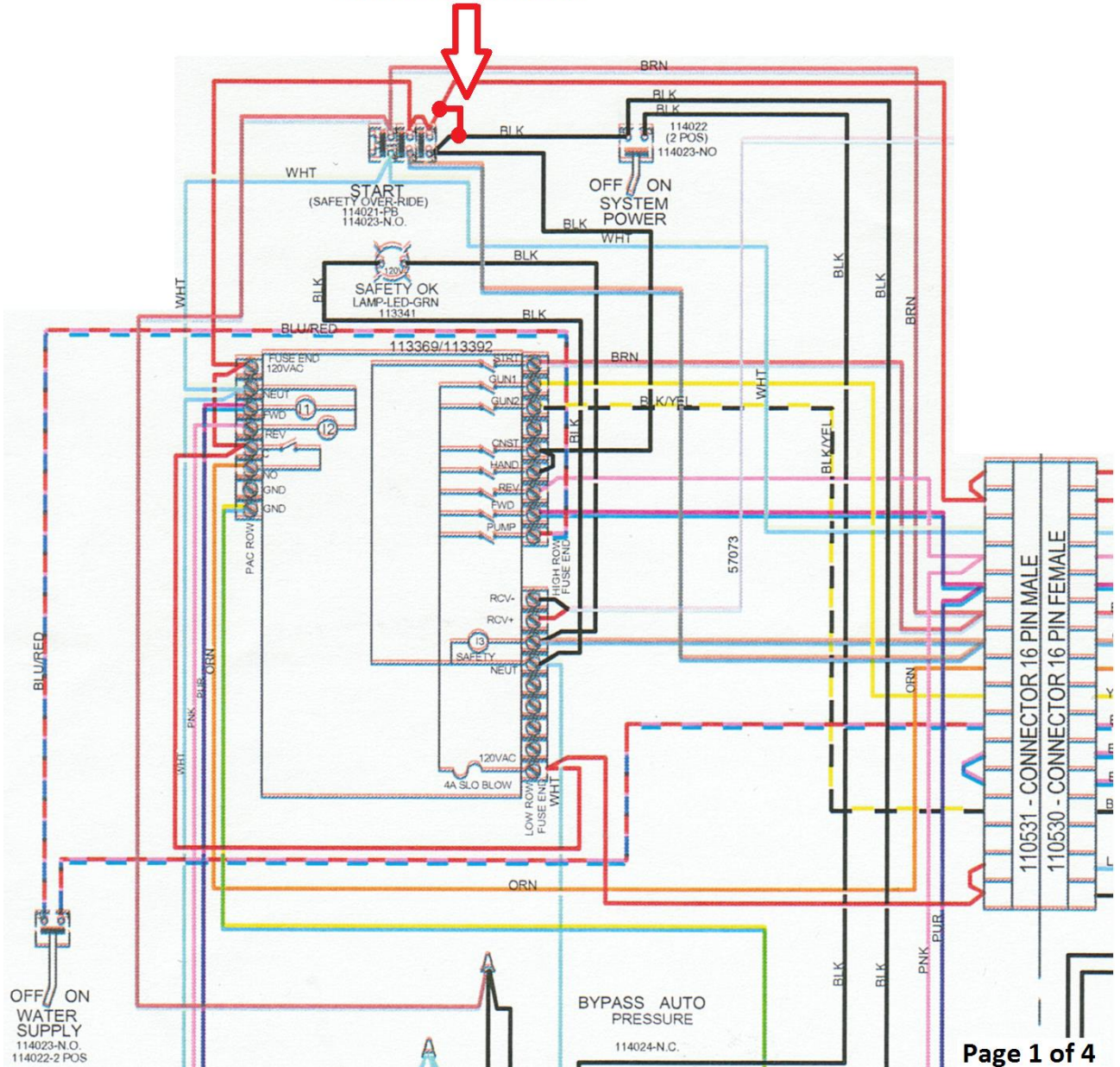
Next Step is to test the pivot and safety to make sure the pivot works correctly, then proceed to Field Commander Wiring instructions below to start wiring in the Field Commander Unit.



**Reinke – Blue Panels With PAC Timer** – You must convert the pivot to a Hot Safety (120v Safety) and test the pivot **BEFORE** installing the Field Commander. Follow the diagrams on the following 4 pages to make the Hot Safety conversion.

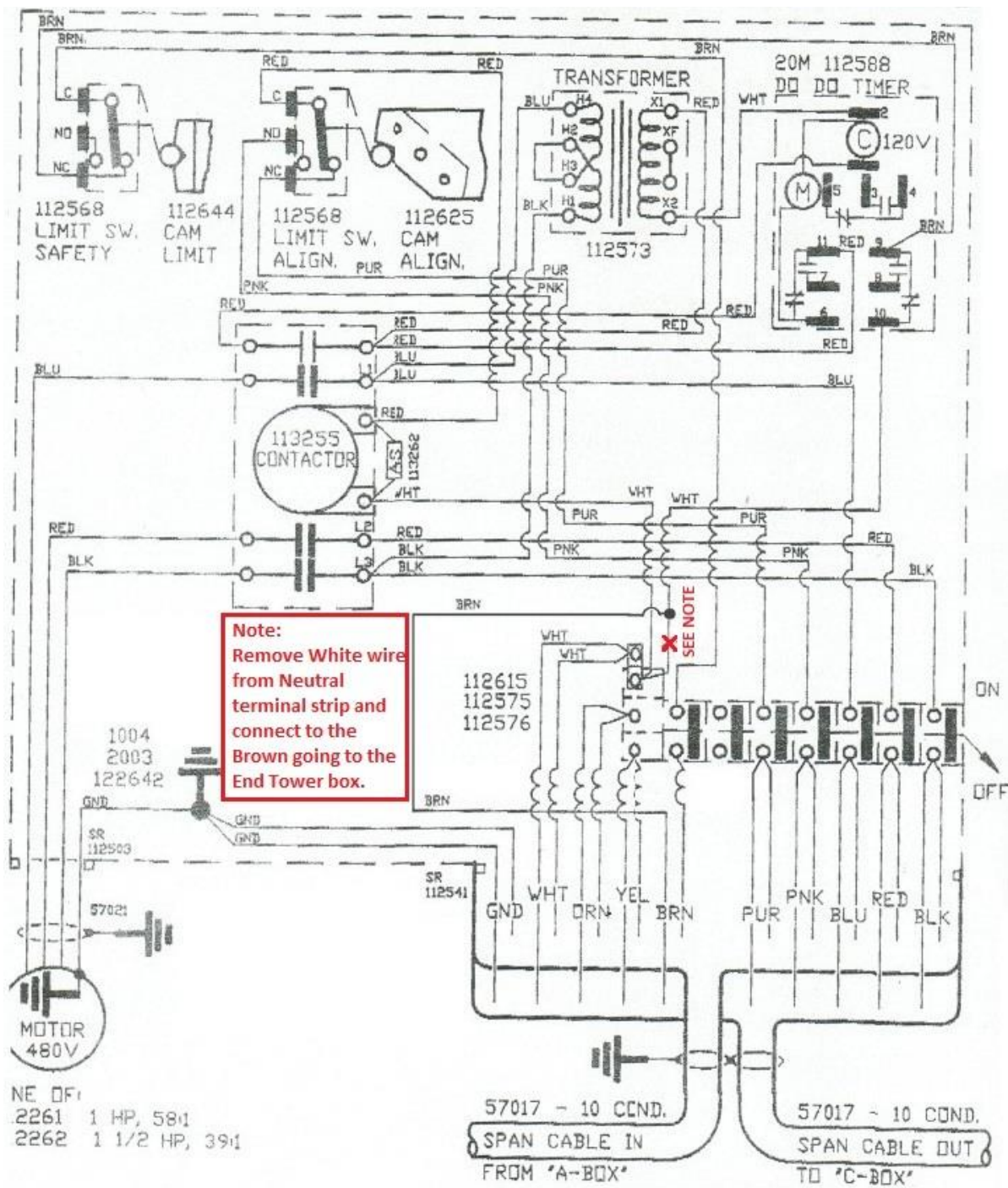
**Reinke Blue Panel WITH PAC Timer Remote Start Modification:  
Main Control Panel Start Button Wiring change**

Add Jumper to Start Button Shown Below







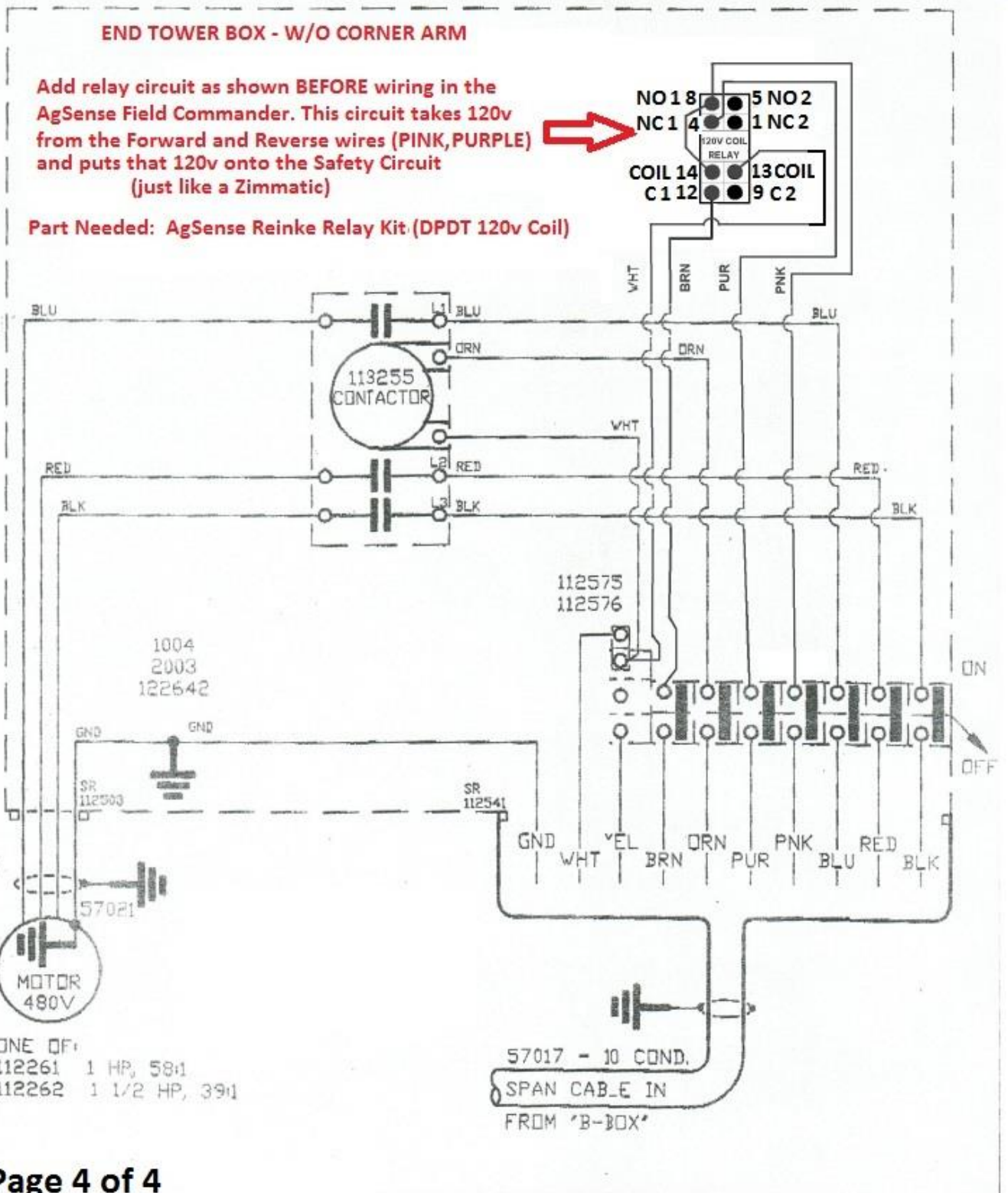


**SECOND-TO-LAST TOWER BOX**

The wiring in this tower box needs to be checked to make sure the brown safety wire is NOT connected to NEUTRAL. To Check this, follow the brown wire coming from the center of the pivot through the Safety Microswitch, then over to the Overwater Timer (usually terminal #9) and then out of the Overwater timer (usually terminal #10) and make sure it is connected to the brown safety wire that goes out to the end tower. (and not connected to the white neutral wires)

If the wire from terminal #10 of the overwater time IS connected to the white neutral wires, remove that wire from the neutral terminal strip and connect it to the brown safety wire that goes out to the end tower.

Also make sure the pink and purple wires are connected as shown (some Rienke pivots have these left loose (disconnected), but they must be connected to the pink and purple wires coming from the center.



## Page 4 of 4

**Note:** Make sure the Brown Safety wire is NOT connected to the White Neutral wires in this tower box. The Brown Safety wire needs to go to the Common Terminal of the Relay as shown.

Next Step is to test the pivot and safety to make sure the pivot works correctly, then proceed to Field Commander Wiring instructions below to start wiring in the Field Commander Unit.



**Reinke – Blue Panels With Touchscreen – You must convert the pivot to a Hot Safety (120v Safety) and test the pivot BEFORE installing the Field Commander. Follow the diagrams on the following 4 pages to make the Hot Safety conversion.**

**REINKE TOUCHSCREEN REMOTE-START MODIFICATION:**

ADD A STANDARD REINKE FWD-OFF-REV SWITCH TO THE PANEL AS SHOWN

THE OFF POSITION WILL ALLOW NORMAL LOCAL CONTROL OF THE PIVOT VIA THE TOUCHSCREEN.

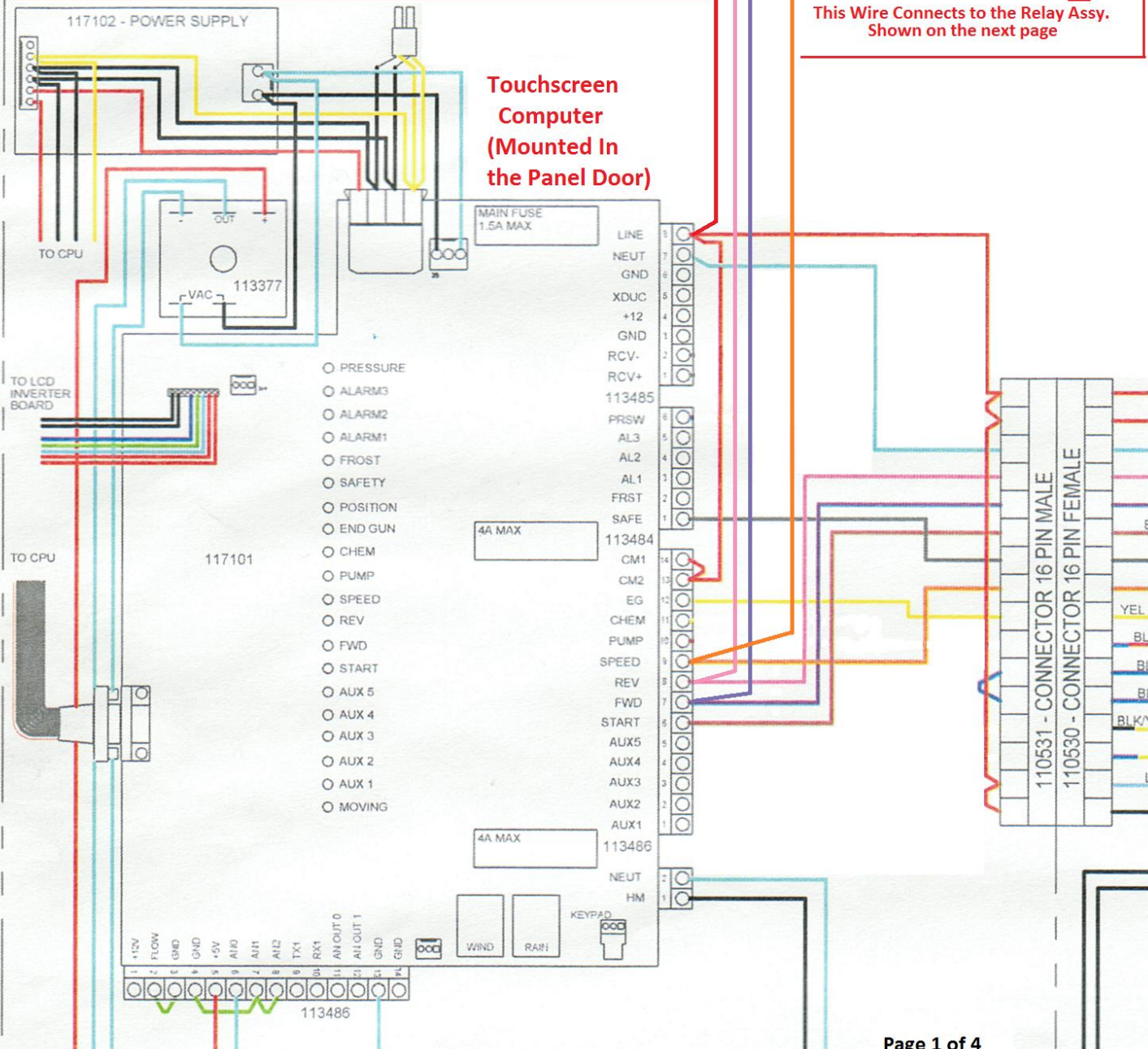
THE FWD AND REV POSITIONS ARE ONLY FOR REMOTE CONTROL OF THE PIVOT (STARTING THE PIVOT REMOTELY) VIA THE AGSENSE FIELD COMMANDER - REMOTE DIRECTION CONTROL WILL NOT WORK

Remote Control REV  
OFF = Local Control  
Remote Control FOR

ALSO ADD A STANDARD ON/OFF TOGGLE SWITCH FOR LOCAL / REMOTE CONTROL OF PIVOT SPEED - WITH THE SWITCH SET TO REMOTE THE PERCENT TIMER WIRE WILL HAVE CONSTANT POWER WHEN THE PIVOT IS RUNNING - YOU MUST USE THE AGSENSE SPEED CONTROL WHEN SWITCH IS SET TO REMOTE

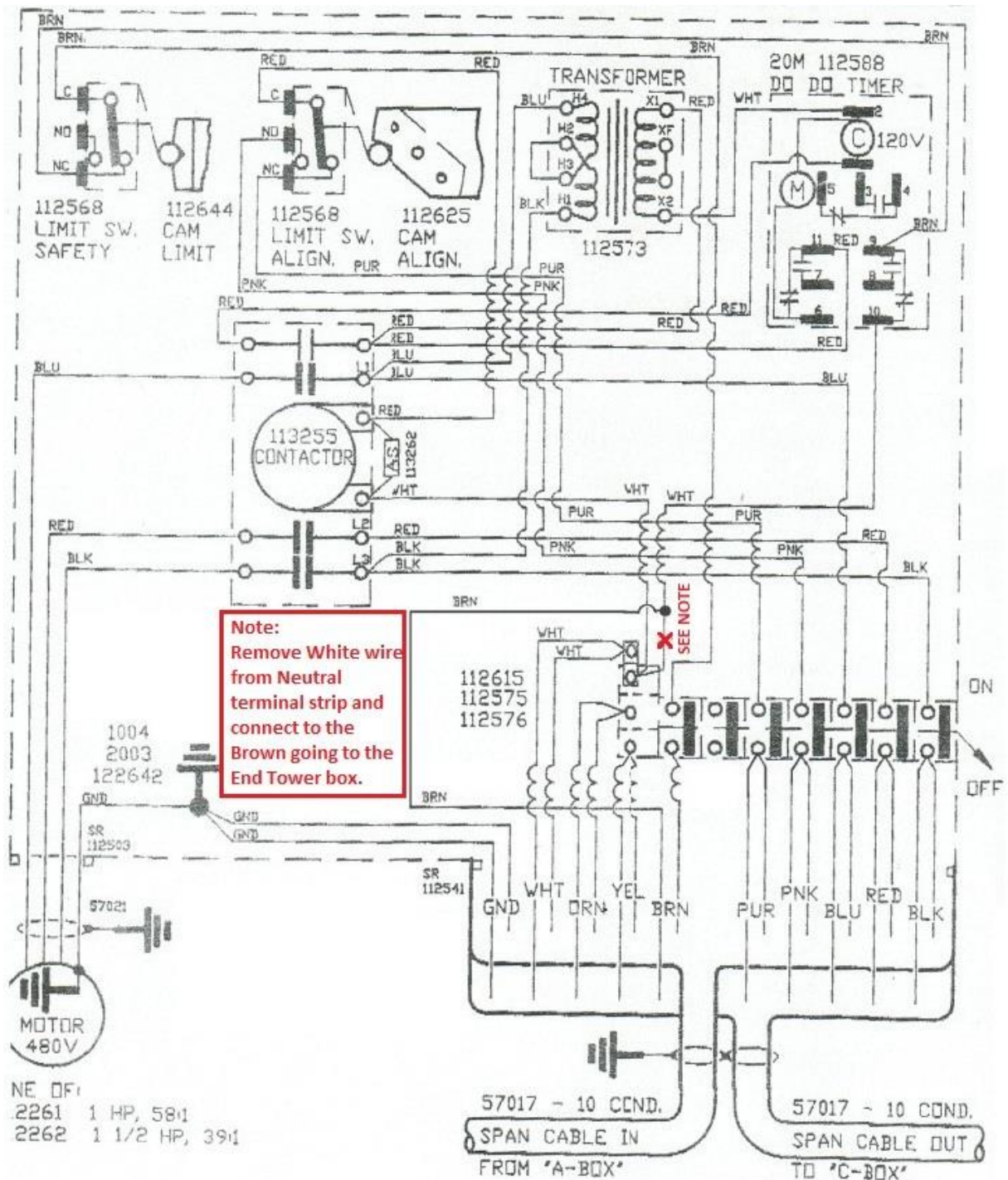
ON=REMOTE  
OFF=LOCAL

This Wire Connects to the Relay Assy. Shown on the next page







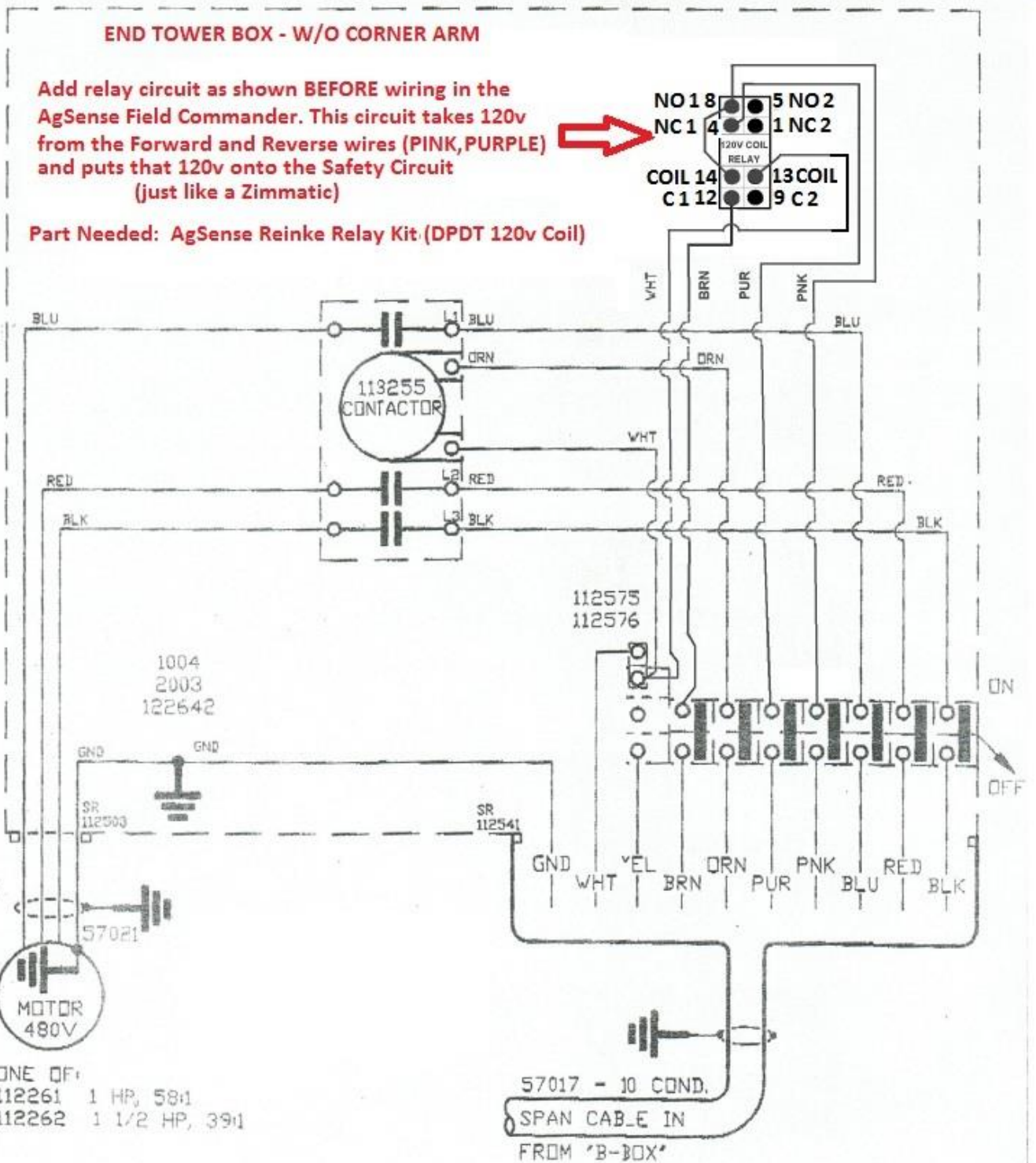


### SECOND-TO-LAST TOWER BOX

The wiring in this tower box needs to be checked to make sure the brown safety wire is NOT connected to NEUTRAL. To Check this, follow the brown wire coming from the center of the pivot through the Safety Microswitch, then over to the Overwater Timer (usually terminal #9) and then out of the Overwater timer (usually terminal #10) and make sure it is connected to the brown safety wire that goes out to the end tower. (and not connected to the white neutral wires)

If the wire from terminal #10 of the overwater time IS connected to the white neutral wires, remove that wire from the neutral terminal strip and connect it to the brown safety wire that goes out to the end tower.

Also make sure the pink and purple wires are connected as shown (some Rienke pivots have these left loose (disconnected), but they must be connected to the pink and purple wires coming from the center.



## Page 4 of 4

**Note:** Make sure the Brown Safety wire is NOT connected to the White Neutral wires in this tower box. The Brown Safety wire needs to go to the Common Terminal of the Relay as shown.

Next Step is to test the pivot and safety to make sure the pivot works correctly, then proceed to Field Commander Wiring instructions below to start wiring in the Field Commander Unit.



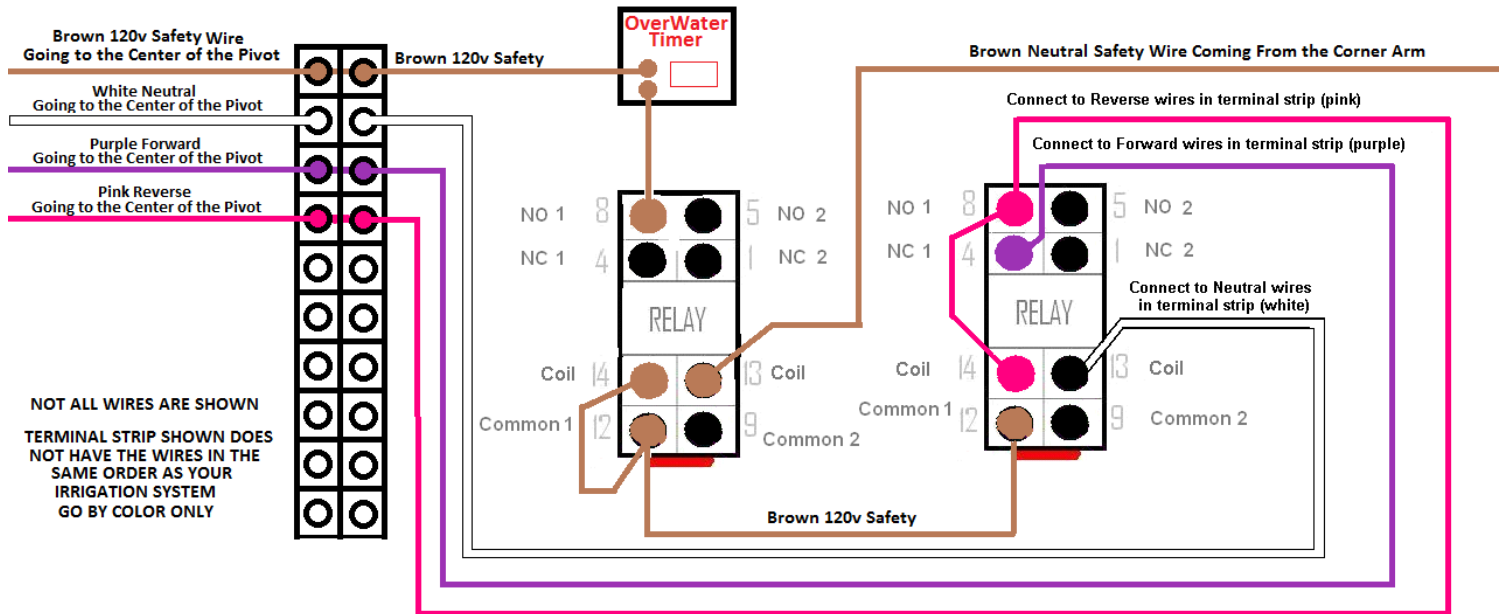
**Any of the above systems that are being wired Pro (remote start) with hot safety – if the system has a Corner Arm, you must add an additional relay as shown below:**

**BOTH OF THESE RELAYS AND THE AGSENSE UNIT SHOULD BE WIRED IN AT THE SECOND-TO-LAST TOWER BOX BEFORE THE CORNER (ITS MUCH EASIER)**

### REINKE CORNER ARM

ADDITIONAL RELAY REQUIRED FOR REINKE HOT SAFETY (REMOTE START) ON SYSTEMS WITH A CORNER ARM

SECOND-TO-LAST TOWER BOX - WIRING SHOWN *BEFORE* ADDING THE AGSENSE UNIT - DO THESE CHANGES AND TEST THE SYSTEM BEFORE ADDING AGSENSE



## Field Commander Wiring instructions to Start Reinke with HOT SAFETY

Follow the group of schematics on the previous pages that are correct for your type of panel to convert the Reinke pivot to a hot safety FIRST.

Once that is complete, you must run the pivot and trip the safety switch at one of the towers to ensure the safety system works correctly now that it is re-wired.

**ONLY AFTER THIS SAFETY TEST PASSES, THEN PROCEED TO STEP 1 OF THE FIELD COMMANDER WIRING BELOW.**

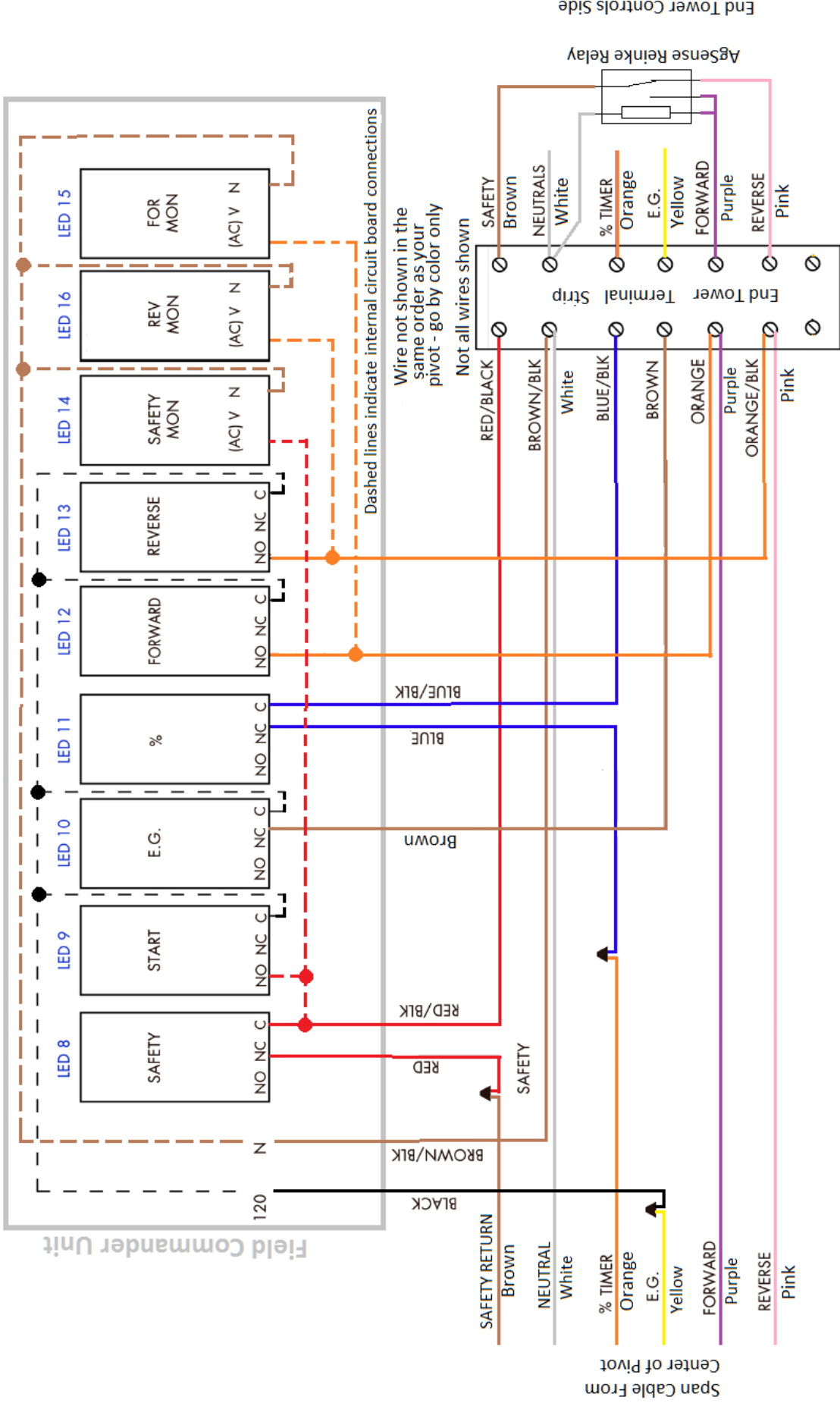
1. At the Reinke Control Panel, remove the Reinke Yellow (goes out to the towers) wire from the terminal strip and connect it to 120v directly from the transformer. (after the 120v fuse, or add a fuse as necessary) Also, remove any endgun stops/ramps/shutoffs. (End gun wire will have 120v at all times, even when pivot is idle)
2. Out at the end tower box, remove the Reinke Yellow (end gun) wire (Span cable wire coming from the center) from the terminal strip 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 Reinke Yellow wire that was removed from the terminal strip in step 2.
4. Remove the Reinke brown (safety) wire from the terminal strip in the end tower box (Span cable wire coming from the center) , and install our Red/Black Stripe wire in its place.
5. Use a wire nut to connect our Red wire to the Reinke brown (safety) wire that was removed from the terminal strip in step 4.
6. Install our Brown/Black Stripe wire into the terminal strip with the other Reinke Neutral (white) wires.
7. Install our Black/Red Stripe wire into the Earth Ground bar with the Reinke Green wires.
8. Remove the Reinke 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.
9. Use a wire nut to connect our Blue/Black Stripe wire to the Reinke orange (percent timer) wire that was removed from the terminal strip in step 8
10. Install our Orange wire into the tower terminal strip with the Reinke Purple wire. (Forward Run)
11. Install our Orange/Black wire into the tower terminal strip with the Reinke Pink wire. (Reverse Run)

**Steps 10 and 11 must be hooked up for the AgSense unit to work correctly, but that does not mean that Direction Control will work on this pivot! Very few Reinke pivots have the type of auto reverse installed that will work with the AgSense unit to control direction – please perform the test below:**

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 using 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 using this feature. If not, call your AgSense Dealer to have the direction control buttons disabled on the website so they are not accidentally used.

12. See Page 2 for second endgun wiring.

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



Notes: This drawing assumes that the End Gun wire is connected to the 120v transformer and the "hot safety" (AgSense Reinke Relay) is wired into the safety in the irrigation control panel as indicated in the installation instructions for "pro" type wiring/service.

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:
<b>60 Days</b>	Money back Guarantee if not satisfied with product.
<b>2 Years</b>	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.