



# LIVE 3RD FUNCTION VALVE KIT

## Owner's Manual



### **READ BEFORE INSTALLATION**

Before removing contents from the box, confirm that the kit number on the box label and on the installation instructions matches the loader that the kit is being installed on.

Please keep this Owner's Manual in a secure and easily accessible place. This manual contains essential information regarding the proper installation, operation, and maintenance guidelines for safe and effective use.

## Please read these instructions carefully before beginning the installation process.

Lifetime Support is included with your purchase.  
We are here when you need us.



Help is available on our website  
<https://www.wrlonginc.com/help>

Please visit the troubleshooting guide if you run into any issues.



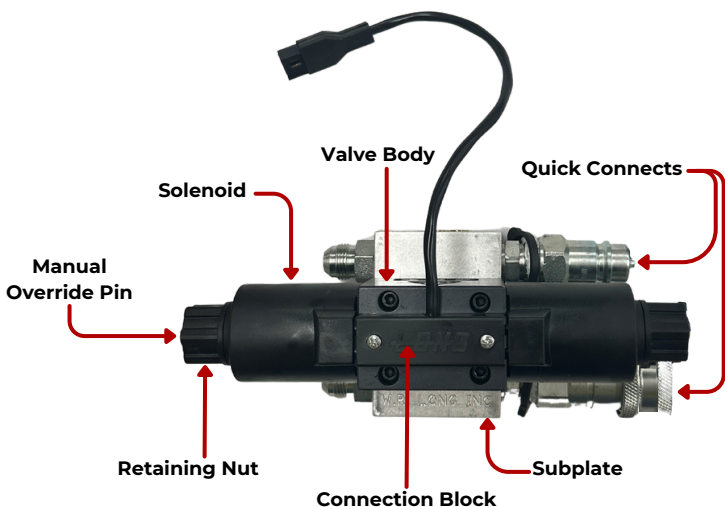
Visit our YouTube channel for installation videos and troubleshooting tips.

<https://www.youtube.com/@WRLongInc>

Send us an email if you need any assistance: [help@wrlonginc.com](mailto:help@wrlonginc.com)  
Or give us a call: 252-823-4570

## VALVE KIT CONTENTS

### 1. VALVE ASSEMBLY



- The valve assembly is the hydraulic valve (including the two solenoids), the aluminum subplate, and the connection block (or relay pack depending on the type of kit).
- The aluminum subplate has 4 ports for hydraulic connections – two are the P & T ports: P for supply, T for return. The other two are the A & B ports. These are referred to as the work ports as they send and receive fluid when the valve is operated.
- Each port in the subplate will have the appropriate adapter or quick coupler pre-installed according to the kit specification.

## 2. VALVE MOUNTING BRACKET

- Each kit has a mounting bracket that is specific to the kit. The valve mounting bracket comes attached to the valve assembly. You can confirm the bracket and its orientation on the valve by referring to the kit specific instructions.

## 3. BULKHEAD BRACKET

- The Bulkhead bracket is provided to mount quick couplers to the front of the loader in order to easily connect and disconnect the third function hydraulic lines for different attachments.
- Each kit has a specific bulkhead bracket assigned to that kit. Most kits have a bulkhead bracket that is specifically designed to bolt up to the loader. Some kits have a generic bracket.
- Generic Bracket: This bracket is designed to be welded onto the torque tube of the loader. Two holes are provided in the plate should the installer prefer to fabricate a custom mount.



*Generic Bracket with Quick Couplers*

## 4. LONG WORK HOSES

Two hoses are provided that run from the A & B ports on the valve assembly to the bulkhead fittings on the bulkhead bracket. These hoses supply the fluid to the attachment using the 3rd function valve.

## 5. QUICK COUPLERS

- W. R. Long, Inc. uses a standard ag style quick coupler with a poppet valve. Quick couplers are provided pre-assembled onto the bulkhead bracket.
- Quick couplers are typically included in the work ports (A & B) of the valve assembly for easy removal of the loader. If the loader does not come off the tractor, quick couplers are not included on the work ports. If the W. R. Long valve assembly is located under or on the rear of the tractor, quick couplers will be provided in the middle of the work hoses to accommodate removal of the loader.

## 6. TRACTOR PLUMBING HOSES

- Both the P & T ports must be plumbed into the tractor in order for the valve to receive fluid. It is imperative that the W. R. Long valve is plumbed into the tractor hydraulics after the pressure relief valve in order to protect the hydraulic pump. See the section titled "How to Identify the Power Beyond Port" for more information.
- Depending on the tractor, the kit will include one or more hoses in order to properly connect into the tractor hydraulics. In many instances, a pre-existing hydraulic line on the tractor will be re-used. The kit specific instructions will indicate if the kit has one or more hoses included to properly install the valve kit.

## 7. HANDLE

### **(OPTIONAL DEPENDING ON FACTORY EQUIPPED HANDLE)**

- W. R. Long Handle: The standard W. R. Long handle has two buttons on it used to operate the open and close functions of the 3rd function valve. Some factory handles have extra features. In that case, a special W. R. Long handle will be provided in order to keep the factory behavior and add on control for the 3rd function valve.

- **Factory Handle:** This option is available only if the factory handle has two or more functions available. Many tractor manufacturers include two buttons or a rocker switch in their handle that is not currently used. In this case, the W. R. Long kit can be ordered without the handle and the appropriate relay pack included to use those buttons.

## 8. HYDRAULIC ADAPTORS

Many kits require special hydraulic adaptors in order to properly connect into the tractor hydraulics. The kit specific instructions will refer to these adaptors if they are required.

## 9. ELECTRICAL COMPONENTS

The valve assembly and W. R. Long handle already have the electrical wiring required for the valve kit with the exception of an in-line fuse and miscellaneous electrical connectors to connect the power wire to the tractor's electrical source. These are included with the kit.

## 10. HARDWARE

Each kit comes with hardware to mount the valve assembly on the mounting bracket to the tractor (if required). In many cases, the mounting location uses pre-existing mounting hardware that is already included on the tractor. The kit specific instructions will indicate if you need to re-use existing mounting hardware or if the required hardware is included in the kit. The same applies for the bulkhead bracket. The hardware for the W. R. Long handle comes pre-packaged and/or pre-installed with the handle assembly.

# HOW TO IDENTIFY THE POWER BEYOND PORT



Scan the QR Code to watch how to identify the Power Beyond Port.

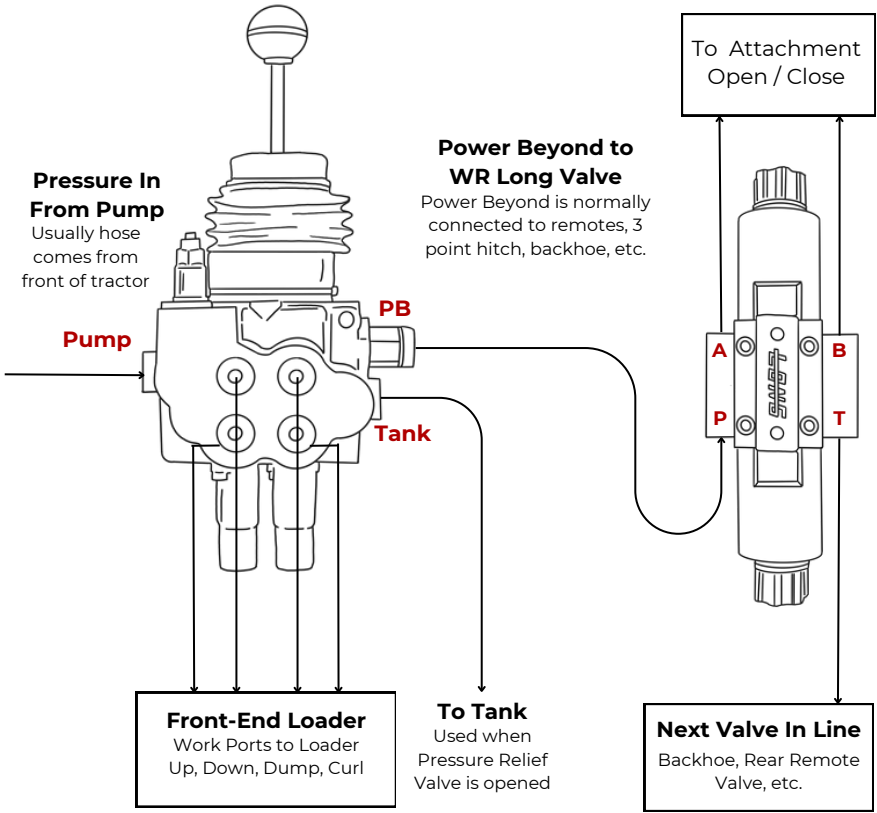


## WARNING

This valve kit is designed to work off the power beyond port of the loader valve. The power beyond port is the output port on the loader valve that is protected by the pressure relief valve. Connecting the W. R. Long valve up to any other port poses the risk of damage to the hydraulic pump or other hydraulic components and will void the W.R. Long warranty.

**See Additional Resources for Tech Tips**

# FLOW DIAGRAM



# PRODUCT VARIATION



Two button handle uses connection block.



Kits designed for using the factory handle require the use of a relay pack.

## A note about backhoes and other optional equipment

Backhoes are a common add on for many tractors and they require hydraulics to operate. When a backhoe is installed on the tractor, the pressure for the backhoe typically comes from the power beyond port of the loader valve. The W. R. Long valve kit is designed for the most common tractor configuration. That's why some of our kits are designed specifically for tractors with backhoes, but many are not. If your tractor has a backhoe and the W. R. Long kit is not specifically designed for the backhoe, it can still be installed on the tractor. The most important principle to remember is the P port on the W. R. Long valve should be connected to the power beyond port on the loader valve then the T port on the W. R. Long valve will be connected to what was previously connected to the power beyond port.

# KIT SPECIFIC INSTRUCTIONS

Kit specific installation instructions are provided in addition to this owner's manual. Please begin installation by referring to the kit specific instructions to follow each step. Once each step in the kit specific instructions is completed, return to this manual for the electrical installation instructions. If you do not have kit specific instructions, please contact W. R. Long, Inc. with the part number of your kit for a copy of those instructions.

Live 3<sup>rd</sup> Function Valve Kit (PART#) Installation Instructions for the Loader Model # on Tractor Model # (12B)

1. Please visit our help page on our website. [www.wrlonginc.com](http://www.wrlonginc.com)
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_

Picture of the W.R. Long 3rd Function Valve and mounting bracket for your specific loader

EXAMPLE OF INSTALLATION INSTRUCTION SHEET LAYOUT

# ELECTRICAL INSTRUCTIONS

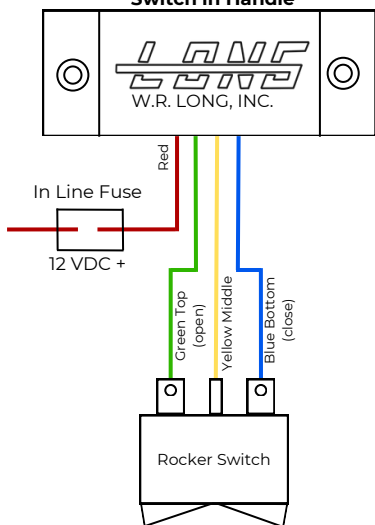
1. If you are using the factory handle proceed directly to the next section "Factory Handle Instructions."
2. Remove the knob from your joystick and unpack the provided handle from its box.
3. The handle comes pre-assembled with two black cables. One cable has a red wire inside that will run to your power source. The other cable has two control wires inside that will run to the connection block on the valve.
4. (Optional) The control cable uses a plug to easily attach the handle wires to the valve. Additional spade connectors are provided in the kit if you need to run the cable through a small opening that the connector does not fit through. Remove the back from the handle and re-install the button head bolt. Cut the two control wires that run to the switches and pull the cable out of the handle. After Step 6 - Run the control wires back up the handle and cut them to the desired length. Re-terminate the wires with the provided spade connectors in the kit and re-install the back of the handle.
5. Back out the set screws and place the W. R. Long handle over the joystick rod. Be sure the button head bolt is installed as it is used to prevent the bottom of the switches from touching the top of the joystick. Adjust the handle orientation as necessary according to your preference and tighten down the set screws and lock nuts.
6. Run the black cable with the 2 control wires from the W R Long Handle to the valve. Plug in the connector on the end of the cable to the mating connector attached to the valve.
7. Connect the red wire from the handle to the positive terminal of the battery or a keyed hot wire on the tractor using the 10 amp in line fuse provided in the kit.
8. Test the valve by pressing one button at a time. If the attachment opens or closes opposite your preferred button you can switch the hoses on the back side of the bulkhead bracket.
9. Secure the cable runs to the joystick with a few tie wraps.

# FACTORY HANDLE INSTRUCTIONS

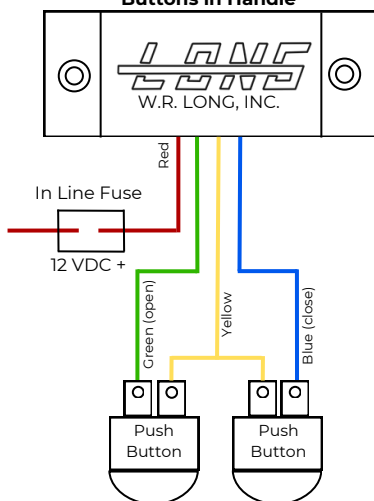
Some loaders come with a factory rocker switch or two push button switches to open and close a future attachment. The W. R. Long valve can be operated using the factory supplied switch(es) when there are relays included in the kit. Please confirm\* your kit includes relays before wiring directly to the factory switch(es). If you use your factory switch(es) make sure you completely disconnect the switch(es) from your tractor before connecting to the W. R. Long valve. See below for the relay pack (aka control module) to factory switch(es) wiring diagrams.

*\*Kits that use relays have the red power wire running directly to the top of the 3rd function valve. Kits that do not use relays have the red wire running directly to the handle.*

**Wiring Diagram for Rocker Switch in Handle**



**Wiring Diagram using two Push Buttons in Handle**



# OPERATING INSTRUCTIONS

**Carefully read and understand these operating instructions before attempting to operate the third function valve kit.**

Verify that the attachment you intend to operate is correctly attached to the tractor and that the hydraulic lines are correctly installed, and all hydraulic quick couplers are fully seated before cranking up the tractor.

To operate your attachment, press and hold one button to open it; release to stop. For closing, use the other button, releasing when you want it to stop. Avoid pressing both buttons simultaneously, as it activates both solenoids and is not recommended. When your attachment reaches the end of the stroke, release the button. Forcing fluid at the end of stroke adds strain and wear to the hydraulic system.

It's essential to follow these maintenance steps for optimal valve performance:

- Visually inspect all components to make sure they are in good condition before every use.
- Hoses and fittings should be thoroughly inspected for damage or leaks every 50 hours of use. Before checking for leaks be sure the tractor is off and has had time for hydraulic fluid to cool down.

- Ensure the two black plastic retaining nuts are tight on each of the valve solenoids every 50 hours of use.
- Always use the included dust caps and plugs on the hydraulic quick couplers when detaching attachments.
- Always keep quick couplers free of dirt and debris.
- Thoroughly clean quick couplers if dropped in dirt or mud before reconnecting.
- Be sure quick couplers are fully seated before operating attachment.
- Relieve pressure from hydraulic lines before disconnecting attachment. To relieve pressure, turn tractor off (while keeping electrical power to the valve) and alternate pressing each button of the 3rd function valve kit. This will relieve any pressure that may be remaining in the hydraulic lines.
- Periodically manually operate unused valves to ensure the spool moves freely. This is especially important if valve is not used for longer periods of time. (See our YouTube channel for a detailed instruction video)
- Always be aware of your surroundings while operating your attachment using your 3rd function valve.

**If any issues arise during operation, consult the trouble shooting section of the manual provided.**

## ADDITIONAL RESOURCES



**Troubleshooting Guide**

<https://www.wrlonginc.com/tsg>



**Spare Parts Store**

<https://www.wrlonginc.com/store>

### Tech Tip:

### Signs that the hydraulic plumbing is wrong

ISSUE		MOST LIKELY CULPRIT
3rd Function Attachment opens or closes without pressing button.	→	Hoses to the P and T port are reversed.
3rd Function attachment only works when moving joystick.	→	3rd Function valve is hooked to the tank port on the loader valve instead of the power beyond port.
3rd Function attachment only works when running backhoe, rear remotes, 3-point hitch, etc.	→	Hydraulic tee was added causing fluid to bypass 3rd function valve.

**Please refer to the Troubleshooting Guide for additional resources.**



## WARRANTY

Warranty Program of products manufactured by W.R. Long, Inc. is as follows:

- All materials and workmanship for a period of 180 days from the date of original purchase, except hydraulic and electrical components.
- Hydraulic valves and cylinders for a period of 12 months from the date of original purchase.
- Hydraulic hose assemblies, couplings, fittings, and seals for a period of 30 days from date of original purchase.
- Electrical switches, components, and wiring for a period of 90 days.
- W.R. Long, Inc. will, at its discretion, repair or replace this product or any components of this product found to be defective within the specified warranty periods.
- W.R. Long, Inc. must be notified prior to ANY warranty repairs being made. All warranties are void should this product be repaired or modified in any way not authorized by W.R. Long, Inc.

**If you need warranty service, notify the dealer from whom this product was purchased.**

## PRODUCT REGISTRATION



**Scan the QR code to register your product and enter into prize drawing.**

### Terms and Conditions for Prize Drawing

This drawing is open to end user individuals who have purchased and registered their product. Actual prize will be at the discretion of W.R. Long and is to be awarded through a random selection process. Winners will be notified by e-mail or phone. Your privacy is important and all personal information will be kept confidential. We reserve the right to modify or terminate the drawing at any time if necessary.

# MESSAGE FROM THE OWNER

On behalf of the entire W.R. Long family, I want to say Thank You for choosing our 3rd Function Valve Kit and now being a part of the Long Legacy! Your trust in our products is a testament to our commitment to quality and customer service.

At W.R. Long, we take pride in providing solutions that enhance your equipment's functionality and performance. The 3rd Function Valve Kit you've chosen is designed with function and durability to meet your needs.

Your satisfaction is our top priority, and we are confident that this kit will exceed your expectations. Should you have any questions or need assistance, our dedicated team is here to support you every step of the way. We answer the phone—and with this purchase you receive lifetime support—so call us when you need us.

Best Regards,



President/CEO

## 100+ Different Front-End Loader Attachment Options



- 4N1 Buckets
- Adaptor Plates
- Bale Spears
- Fork Attachments
- Front Blades
- Grapple Options
- Hay Equipment
- Snow Pushers
- Sod Rollers
- Standard Buckets
- Tooth Bars
- Tree Spades
- Wear Blades



Please visit our website to see our full line of  
Front End Loader Attachments