

## INSTALLATION SHEET FOR LV LOADER DIRECTIONAL CONTROL VALVE KEEP WITH PRODUCT UNTIL INSTALLED

### Mounting Surface

The valve must be mounted on a flat surface. It is important not to bend or twist the casting when mounting because this may cause the spools to bind.

### Can I paint my valve?

Painting valves is okay as long as the following precautions are taken: 1- All ports must be plugged and 2- the spool must be masked or taped off completely. Any paint on the spool will cause leakage when it chips off. Warranty is void if any valve is returned with paint on the spool.

Surplus Center will not accept returns on valves that have been painted.

### How do I assemble the handle to the valve? (A & A1-Handle Option)

To install the handle, place the threaded end of the handle in either hole of the handle adapter and lock the handle into position with the jam nut.

### Can I convert my valve to utilize "Power Beyond"?

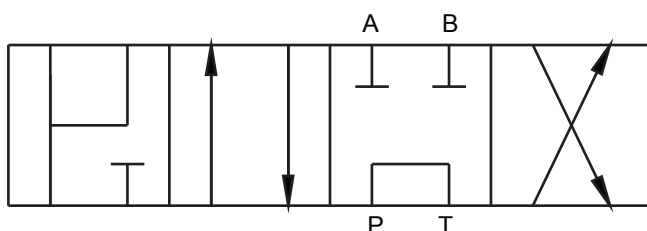
Yes, order a LV2-W (Surplus Center Item # 9-7401-B) cartridge kit and install it in the outlet on the side of the casting. Then remove the plug in the upper outlet for low pressure return to tank. See the dimensional schematic on the next page.

### Can I convert my valve to operate in a "Closed" system?

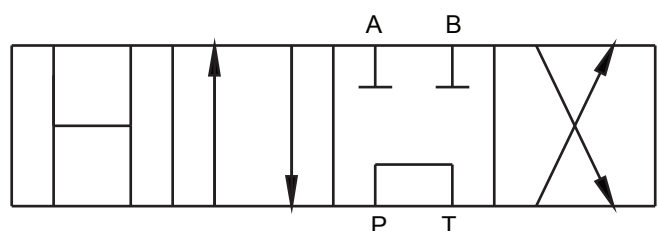
Yes, order a LV2-C (Surplus Center Item # 9-7401-C) cartridge kit and install it in the outlet on the side of the casting, i.e. the same place the Power Beyond cartridge is installed, see the dimensional schematic on the next page.

### Can I convert my "A" joystick option to the "A1" option?

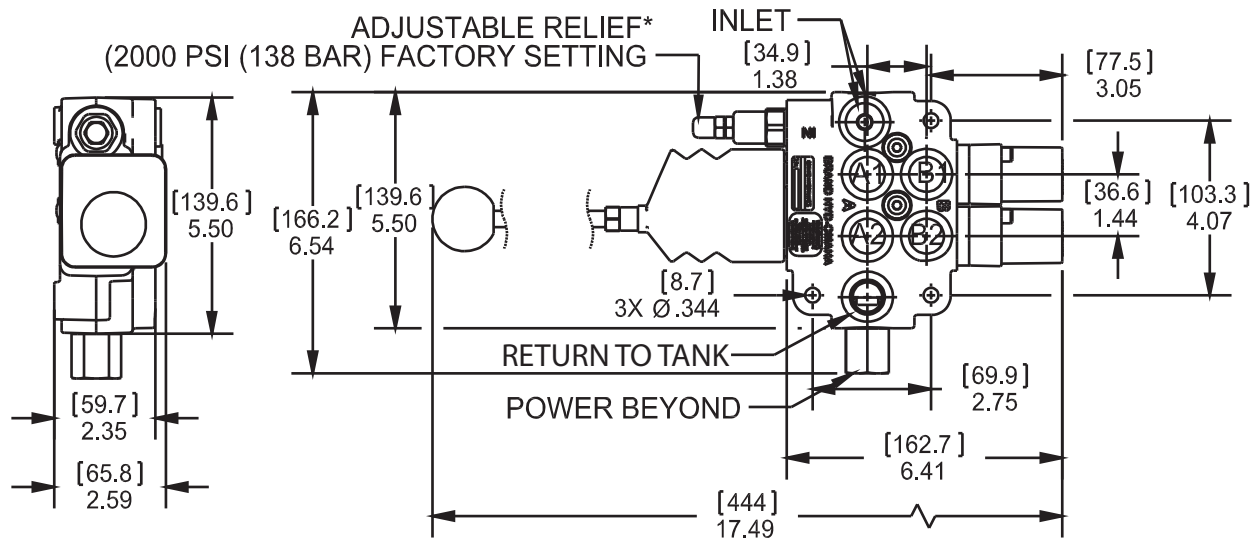
Yes, see pages 3 through 7 for instructions.



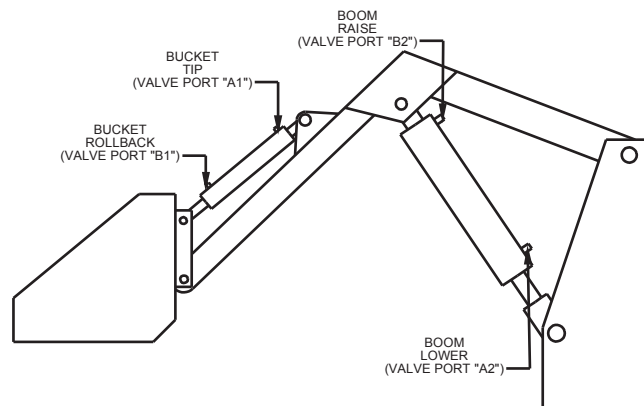
First Spool Regen -  
Fourth position allows for rapid  
extension of cylinder.



Second Spool Float-  
Detented Fourth position allows  
cylinder to move or motor to rotate when spool is  
detented.



**Figure 3: Dimensional data for LV valves in inches & [millimeters]**

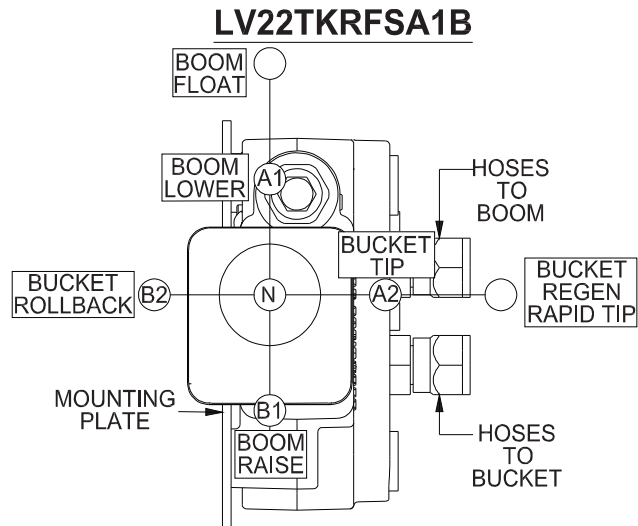
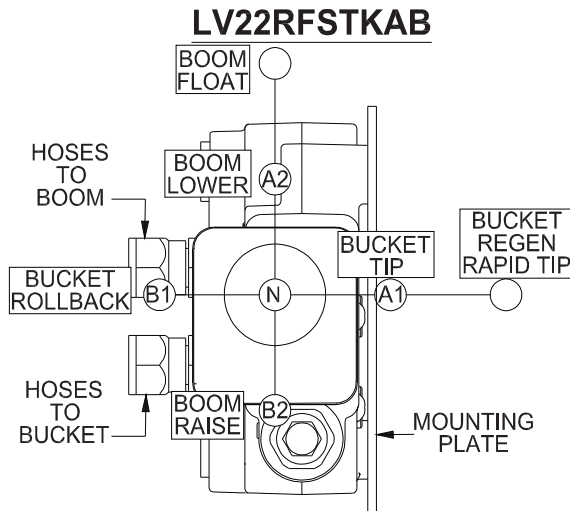


**Figure 2: Typical Loader Schematic**

How does joystick movement actuate the LV loader valve?

JOYSTICK OPERATION  
LOOKING AT HANDLE KNOB

**LV – JOYSTICK MOVEMENT SCHEMES:**



The valve comes set up in the LV22RFSTKAB configuration. See the instructions on pages 4 through 7 to convert to the LV22TKRFS1B configuration.

## Instructions for Converting the LV/MB Joystick from "A" to "A1"

| TOOL LIST              |                        |                                |
|------------------------|------------------------|--------------------------------|
| 1 – 7/16" WRENCH       | 1 – 9/16" WRENCH       | 1 – 1/8" ALLEN WRENCH          |
| 1 – 5/32" ALLEN WRENCH | 1 – 3/16" ALLEN WRENCH | 1 – 1/4" DRIVE PUNCH, OPTIONAL |

Use along with DWG #: LV2-HA & LV2-HA1

### **Disassembly of the "A" configuration:**

1. With a 9/16" wrench, remove the handle assembly, i.e. the control knob (LV40), the joystick handle (LV21), and 9/16" hex nut (LV11)
2. Set the handle assembly aside.
3. Slip rubber dust boot (LV27) over the retaining plate (LV22), then the entire joystick mechanism
4. Set the dust boot aside.
5. With a 3/16" Allen wrench, remove the large button head cap screw (S048)
6. Set large button head cap screw aside
7. With a 5/32" Allen wrench, remove the two (2) small button head cap screws (P1985)
8. Set the small button head caps screws aside
9. Remove the rod end retaining plate (LV66) and the joystick handle link (LV69)
10. Set the rod end retaining plate and joystick handle link aside
11. Remove the three (3) 7/16" hex nuts (LV14) from their rods ends (LV9, LV9 and LV67 & LV68)
12. Set the 7/16" hex nuts aside.
13. Remove the spool pivot (LV67) and the spherical rod end (LV68) from the second spool.
14. Set the spool pivot and spherical rod end aside
15. Remove studded rod end (LV9) from the retaining plate (LV22)
16. Set the studded rod end aside
17. Rotate the first spool and last studded rod end (LV9) 90° CW (clockwise)
18. Remove studded rod end (LV9) from spool
  - a. If the spool bushing (LV30) comes loose with the studded rod end, continue to Step# 19
  - b. If the spool bushing (LV30) does not come loose with the studded rod end:
    - i. Tap it out, gently using a drive punch
    - ii. Reinstall in studded rod end (LV9)
    - iii. Continue to Step# 19
19. Set the final studded rod end and spool pivot aside
20. With a 1/8" Allen wrench, remove the two (2) button head cap screws (P1984) holding the retaining plate (LV22) to the valve
21. Set the button head cap screws aside
22. Pull retaining plate (LV22) off of valve.
23. Set the retaining plate aside.

Joystick assembly and valve are now ready to be reconfigured for the "A1" joystick configuration.

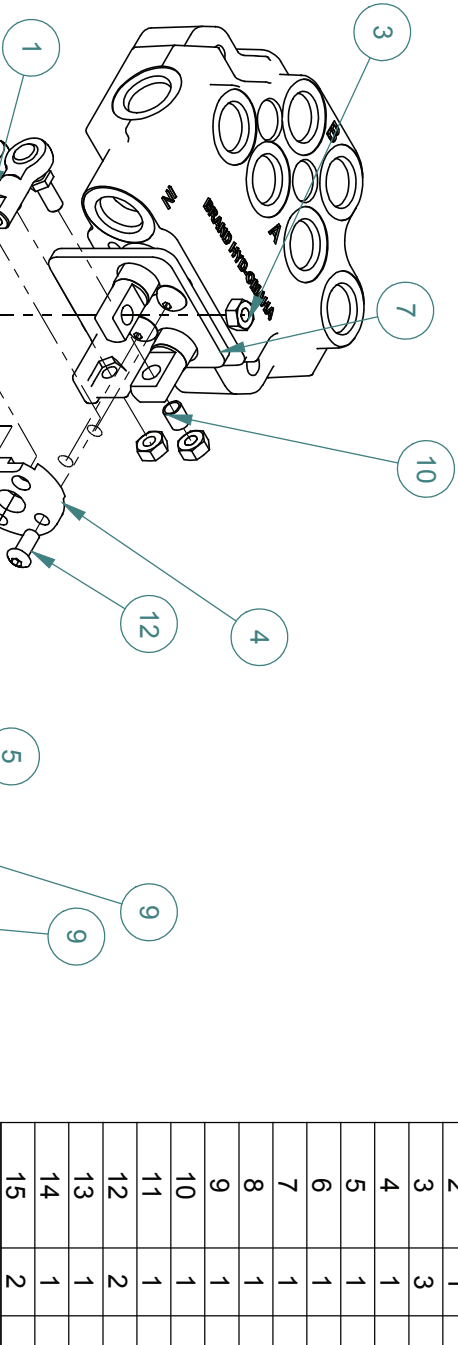
### Reassembly into the "A1" configuration:

1. Align the retaining plate (LV22) so the anchor point is below the 2<sup>nd</sup> spool
2. Install the retaining plate (LV22) flush against the valve with the anchor point facing away from the valve
3. With a 1/8" Allen wrench, install the two (2) button head cap screws (P1984) that secure the retaining plate (LV22) to the valve.
4. Install the first studded rod end (LV9) into the retaining plate (LV22) with the socket end facing the first spool
  - a. This is the left side when viewing the valve with the joystick facing towards you
5. With a 7/16" wrench, secure the studded rod end (LV9) with one (1) 7/16" hex nut (LV14) to the retaining plate (LV22)
6. Install the second studded rod end (LV9) and the spool bushing (LV30) in the spool directly above the retaining plate anchor
7. Rotate the installed studded rod end (LV9) and the spool 90° CCW (counter-clockwise)
  - a. The threaded ends of both the studded rod ends (LV9) should be pointing in the same direction
8. With a 7/16" wrench, secure the studded rod end (LV9) with one (1) 7/16" hex nut (LV14) to the second spool
9. Rotate the 1<sup>st</sup> spool until it is perpendicular to the 2<sup>nd</sup> spool
  - a. If you are converting from "A" to "A1", this was done during disassembly
10. Install the threaded end of the spool pivot (LV67) thru the bottom of the 1<sup>st</sup> spool
11. With a 7/16" wrench, secure the spool pivot (LV67) to the 1<sup>st</sup> spool with a 7/16" hex nut (LV14)
  - a. When installed the threaded end of the spool pivot and hex nut will point upward in the same direction as the fluid work ports
12. Align the small grooves in the rod end retaining plate (LV66) with the flats in the tapped end of the studded rod ends (LV9) already installed
13. With a 5/32" Allen wrench, secure the rod end retaining plate (LV66) to the studded rod ends using the two (2) small button head cap screws (P1985)
  - a. When installed, the flat on the rod end retaining plate will face to the left, when looking at the valve with the joystick facing you.
  - b. If you just disassembled the "A" configuration, the joystick handle link (LV69) will still be attached to the rod end retaining plate (LV22)
14. Install the socket end of the spherical rod end (LV68) into the spool pivot (LV67)
15. With a 3/16" Allen wrench, secure the spherical rod end (LV68) to the rod end retaining plate (LV66) using the large button head cap screw (S048)
16. With a 9/16" wrench, install the joystick handle link (LV69)
  - a. If you just disassembled the "A" configuration, skip this step and continue to Step #17
17. Slide the rubber joystick boot (LV27) over the joystick mechanism with the square end of the boot facing the valve until the retaining plate (LV22) rests in the first groove of the rubber joystick boot and the joystick handle link (LV69) is thru the round hole of the rubber dust boot.
18. Install the handle assembly (LV11, LV21 & LV40) into the joystick handle link (LV69)
19. Secure the handle assembly (LV11, LV21 & LV40) by tightening the 9/16" hex nut (LV11)

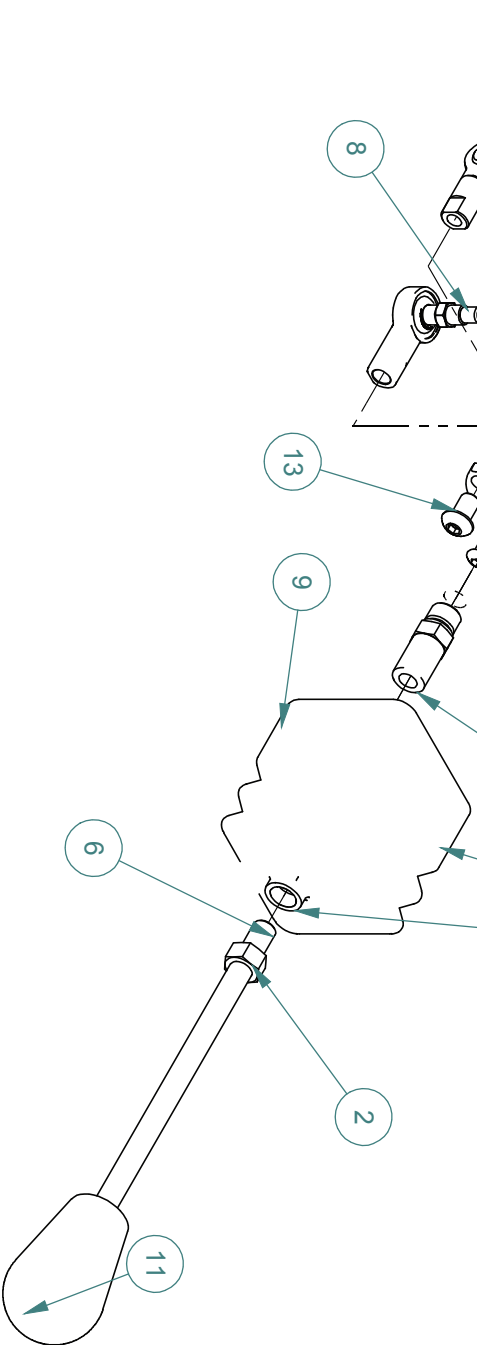
The joystick is now converted to the "A1" configuration.

Rev: 26-Aug-09





| ITEM NO. | QTY. | PART NO. | DESCRIPTION               |
|----------|------|----------|---------------------------|
| 1        | 2    | LV9      | STUDDERED ROD END 1/4-28  |
| 2        | 1    | LV11     | 3/8-16 HEX NUT            |
| 3        | 3    | LV14     | 1/4-28 HEX NUT            |
| 4        | 1    | LV66     | ROD END RETAINING PLATE   |
| 5        | 1    | LV69     | JOYSTICK HANDLE LINK      |
| 6        | 1    | LV21     | HANDLE, JOYSTICK          |
| 7        | 1    | LV22     | RETAINING PLATE           |
| 8        | 1    | LV67     | 5/16 SPOOL PIVOT          |
| 9        | 1    | LV27     | JOYSTICK BOOT             |
| 10       | 1    | LV30     | BUSHING, SPOOL            |
| 11       | 1    | LV40     | KNOB, PLASTIC, 3/8-16     |
| 12       | 2    | P1985    | 1/4-28 x 1/2 B.H.C.S.     |
| 13       | 1    | S048     | 5/16-24 x 1/2 B.H.C.S.    |
| 14       | 1    | LV68     | SPHERICAL ROD END 5/16-24 |
| 15       | 2    | P1984    | 1/4-20 x 5/8 B.H.C.S.     |



BRAND HYDRAULICS CO., INC  
2332 SOUTH 25TH STREET, OMAHA NEBRASKA 68105

TITLE: JOYSTICK ASSEMBLY, STANDARD, INVERTED  
for LV22 VALVE

|   |                  |                     |
|---|------------------|---------------------|
| STANDARD TOLERANCE<br>UNLESS NOTED:<br>0.00 ± 0.010 (0.015 GC1)<br>0.000 ± 0.005 (0.010 GC1)<br>⊙ = .005 TIR<br>FRACTION ± 1/32<br>ANGLE ± 2°<br>DIMENSIONS ARE IN INCHES |                  | PART NO:<br>LV2-HA1 |
|   | DATE: 09/30/2008 |                     |
| HEAT TREAT: - ±2RC X - ▽  | SCALE: 1:3       |                     |