Installation Guide

John Deere Joystick Conversion Kit

Designed and Fabricated in the USA by L&M Concepts, LLC

Applicable Models: 2013+ Signature Series X700s (X758, X750, X739, X738, X734, X730)

Figure 1: 2024 X739 with the Joystick Conversion Kit

Click here for a link to a YouTube video of the installation

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Joystick Conversion Kit Installation Instructions

Joystick Conversion Kit includes the following parts:

Qty	Description	Notes	Bag ID
1	Joystick	Cable attachment hardware is in small plastic bag in the Joystick box	
2	Joystick Cables		
1	Joystick Mast		
1	Cable Retention Bracket	Bracket style is dependent on your tractor/front end loader configuration	
1	Fender Washer	For forward most hole in mast	HW Bag
2	16mm Jam Nuts	To fasten Joystick Cable to Retention Bracket	HW Bag
2	Rod Ends	For Cable to SCV piston connection	HW Bag
2	5/16-18x3.5” bolts (includes nuts/washers)	Joystick to Mast - Includes nuts and washers	HW Bag
3	5/16-18x1” bolts (includes nuts)	Mast to tractor – Includes nuts	HW Bag
3	3/8-16x1” bolts (includes nuts)	To fasten cable retention bracket to tractor (120R sub-frame installations will reuse sub-frame hardware)	HW Bag
2	1/4-20x1” bolts (includes nuts)	To fasten cable clamps to mast	HW Bag
2	Cable clamps	Cable management retention	HW Bag
3	Cable Ties	Cable management	HW Bag

Tools Needed

- Electric Drill
- General tool set (wrenches, socket set, etc)

Special Tools needed

- 3-1/4” hole saw (for drilling out cup holder)
- Sandpaper (for smoothing out cup holder hole after cutting it out)

Preparation

- It is recommended that you wash your tractor and frame to remove any dirt/dust/grass where the joystick and cables will be located.
- Remove mower deck.
- Place rear of tractor on Jack Stands and remove right rear wheel.
- **Caution:** Some steps require drilling with a drill bit or hole saw. Any time you drill, make absolutely sure there is NOTHING behind what you are drilling that can be hit by the drill bit or hole saw.
- Read full Installation Guide thoroughly.
- If you have any questions, please email us at: sales@landmconcepts.com

Figure 2 – Joystick Kit

1 Joystick Installation

1.1 Attach cables to Joystick

Follow the instructions included with the joystick box to attach the cables. There is a small bag of hardware included with the joystick. A summary of the steps is as follows:

- Remove rubber cover from joystick body
- Insert “fork end” of cable into hole on bottom of body.

- Align “fork” with tab on joystick mechanism and insert pin. An assistant may be useful for this step. The inside of the cable can be pushed from the other end to give you more room to make the connection.
- Place “e-clip” on end of pin. Use a needle nose pliers (or similar tool) to squeeze the clip into place.
    - **Note:** Be careful not to lose the e-clips. They are “small and jumpy”.
- Repeat for the other cable.
- Push cable bodies into joystick housing just far enough for the recess in the cable crimp to be exposed in the retention bolt hole and insert the long bolt through the side of the body to retain the cables. Pay attention to the orientation of the bolt. There is a spot cast into the joystick body for the nut. Install nut and tighten the bolt with an Allen wrench.
- The little plastic plugs are to cap unused holes in the joystick housing.

1.2 Drill Cup Holder

1. **Caution:** Make sure there is nothing under the cup holder that can be cut by drilling. Only cut deep enough to drill through the bottom. If you go too deep, you will likely hit the tractor fender. Go slow and stop as soon as the bottom is cut.
    a. The toolbox can be easily removed for drilling to eliminate the concern about hitting the fender while drilling. Remove the 4 nuts holding the handle/toolbox to the fender.
2. With a 3-1/4” hole saw, drill out the bottom of the cup holder. Drill on low speed.
3. There may be some “remnants” of the bottom portion on the sides that need to be removed. Use the hole saw and simply clean up the hole by going around the bottom on low speed. This should remove any extra plastic that would interfere with the joystick sliding into place.
4. If necessary, use some sandpaper and smooth out the cut edges of the newly cut hole.
    a. If you removed the toolbox to drill the cub holder, reinstall.
5. Insert the Joystick (cables first) into the cup holder hole. Insert the joystick so that the handle curves toward the back. This makes sure that when you push the handle forward the lift cable pushes forward (to lower the loader). When you pull back, the lift cable should pull back (to raise the loader). The handle can be rotated on the shaft after installation.

Figure 3: Initial orientation of Joystick handle upon installation.

6. Rotate the cables under the tractor so they naturally curve towards the front.

1.3 Install Joystick Mast

1. Figure 4 shows the location of components.

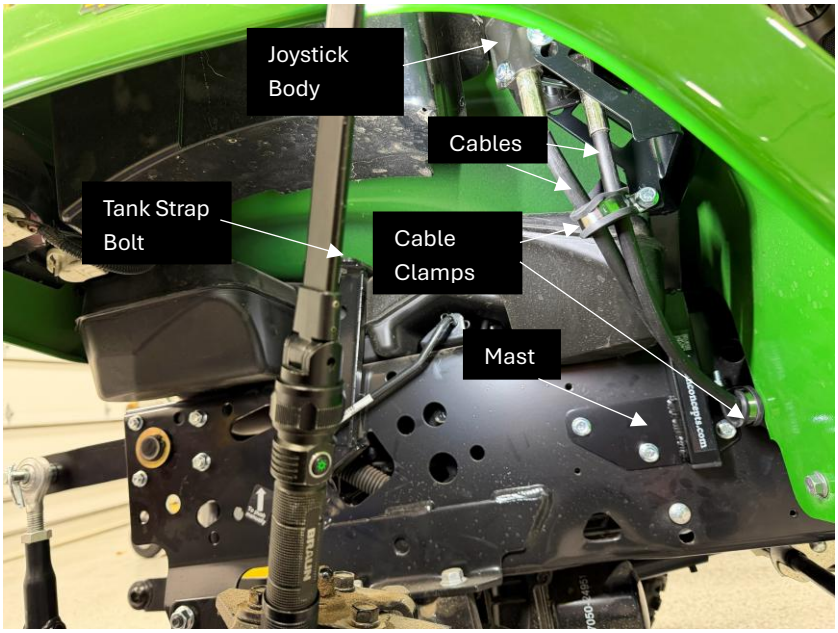

Figure 4 - Finished Location of Components

2. From the wheel well, attach the mast to the joystick using the 2 3-1/2” bolts/washers/nuts. It helps to lower the joystick into the wheel well.
    1. There are two sets of holes spaced apart to match the holes in the joystick body.
    2. There are 2 sets of holes that line up with the holes in the Joystick Body. Use the top set in the mounting bracket if possible. This will place the Joystick a little higher in the cup holder.
    3. If you want it lower (or have clearance problems with the top bolt, the bottom holes can be used. Tighten fasteners.
3. Make sure that the rubber boot is properly placed over the joystick housing and slide joystick up into cup holder hole.
    1. Make sure the rubber boot doesn’t get caught by the edge of the cup holder.
    2. When using the top set of holes, the edge of the joystick body sits about 1/4" below the top of the cup holder.
4. Attach mast to the tractor’s frame using the holes identified in Figure 5. Align the bolt holes, install and tighten hardware.
5. The 2 Yellow holes use just a bolt and nut. The Blue hole requires the black fender washer included in the kit.
6. Note: The fuel tank should not hit the mast. Inspect Figure 6 for the area circled in Red. If there is contact, it could eventually rub through the tank. If you’ve recently removed the tank for shimming or THRV, the tank may be positioned more forward than from the factory. Loosen the right-side fuel tank strap bolt and slide the tank backwards. Retighten the tank strap bolt. This can be done without removing seat pan. The location of the tank strap bolt is identified in Figure 4.

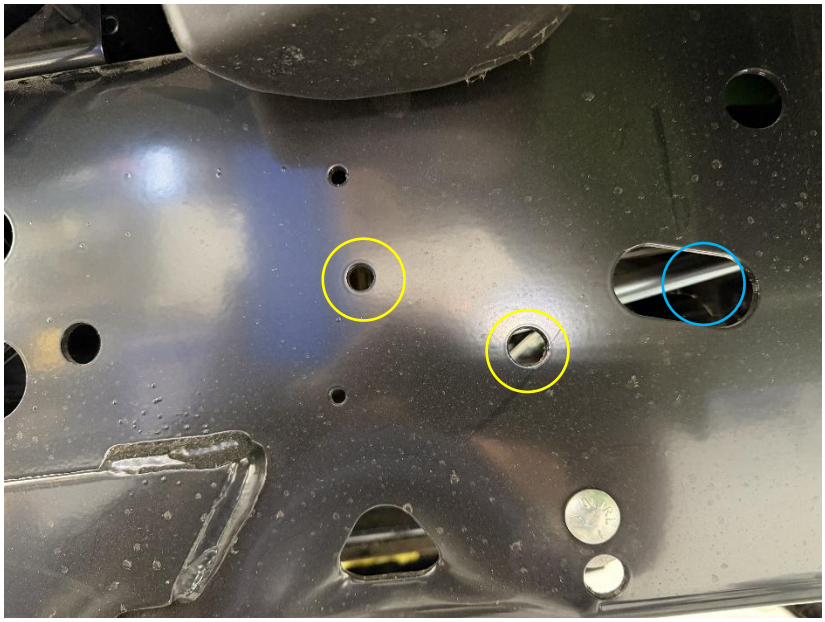

Figure 5 – Joystick Mast Bolt Hole Location.

Figure 6 - Mast and cable clamp installed

1.4 Cable Routing

1. Route cables under the tractor between the fender and the frame toward the SCV.
2. Restrain the cables by installing the cable clamps on the mast as shown in Figure 4.
    a. Be sure to push the cables as far up and inboard to make sure they will clear the rear tire. This will take some force to curl the stiff cables.

1.5 Installation of Cable Retention Bracket

1. Depending on your tractor's configuration, there are different cable retention brackets.
    a. **LMC 120R sub-frame or LMC 45 Loader sub-frame:** the bracket will be installed over the sub-frames using the existing bolts.

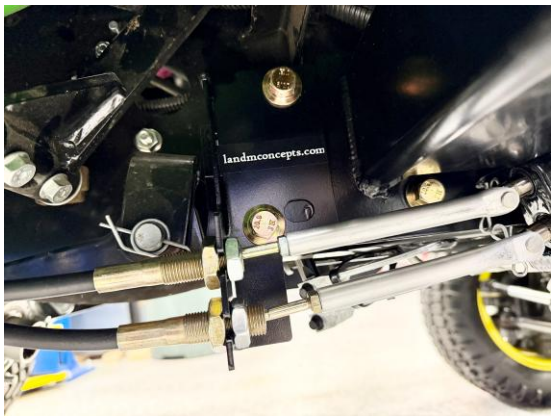

Figure 7: LMC 120R/45 Loader Cable Retention Bracket

    b. **No Loader or a Little Buck or Little Bull Loader**: The bracket will be installed directly on the frame. The top bolt hole can be used as is (Yellow), the bottom forward bolt hole (Green) will have to be enlarged with 3/8" drill bit and the bottom rear bolt hole will have to be drilled new (Red). The design of this bracket allows you to still see the Serial Number plate.
        i. **"New hole" outlined in RED:** As of the writing of this revision, it has not been determined that the new hole is required. Test with bolts in the Yellow and Green holes for flex in the bracket. If desired, you can install the 3rd bolt by drilling the Red hole.

Figure 8: Little Bull/Buck or No Loader Cable Retention Bracket

c. **CTC loader:** The bracket will re-use the top CTC sub-frame bolt (Yellow) as is. You will need to enlarge the lower front hole (Green) with a 3/8” drill bit and one new hole will have to be drilled with a 3/8” drill bit (Red).
    i. **“New hole” outlined in RED:** As of the writing of this revision, it has not been determined that the new hole is required. Test with bolts in the Yellow and Green holes for flex in the bracket. If desired, you can install the 3rd bolt by drilling the Red hole.

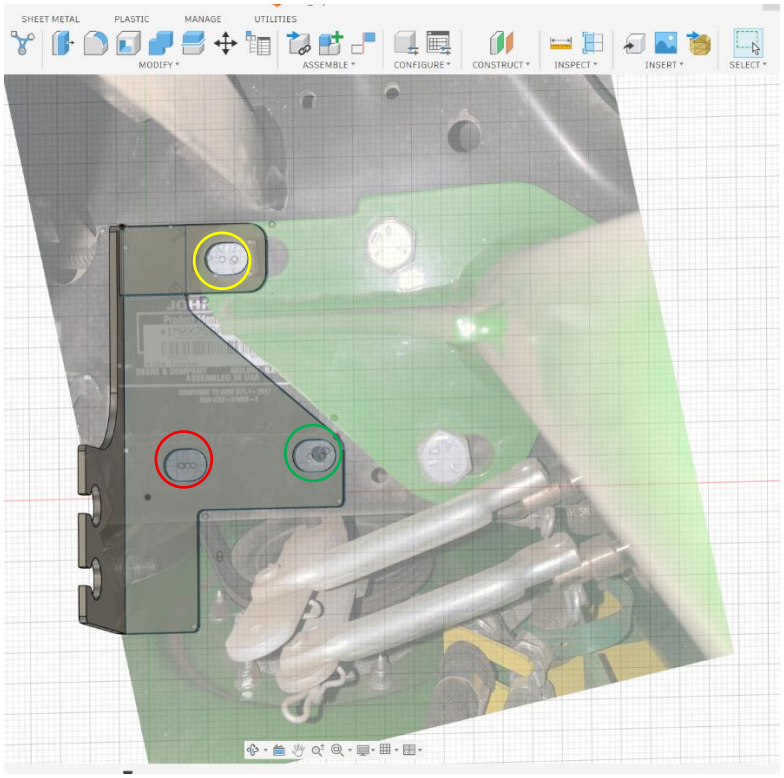

Figure 9: CTC Loader Cable Retention Bracket

1.6 Cable Routing

1. Routing cables: The cables need to be routed high and inboard against the frame using the provided cable clamps. It is very important that there is clearance between the cables and the rear tire. You will need to flex the stiff cables up and inboard and fasten with the cable clamps.

    a. Check which cable is the lift function (forward/backwards on joystick). This cable will be placed on top of the other cable. Route it on top of the other cable all the way from the joystick to the SCV.
    b. Secure the cable to the joystick mast with cable clamp.

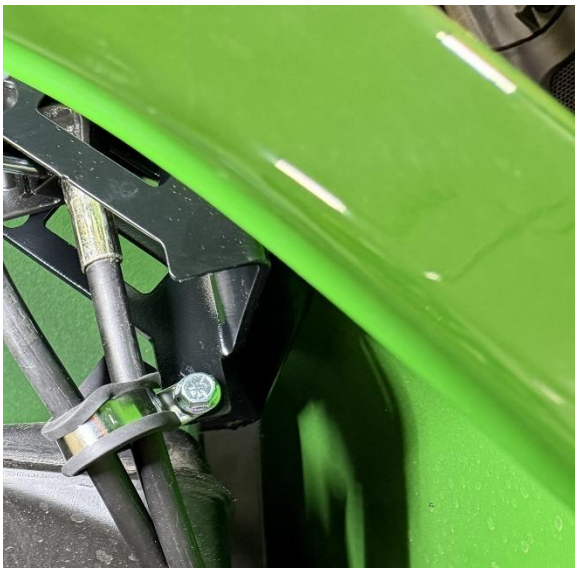

Figure 10: Retain Cables near joystick

c. Route cables between the fender and the frame (not below the fender). Secure the cables to the Mast bracket with the provided cable clamp.

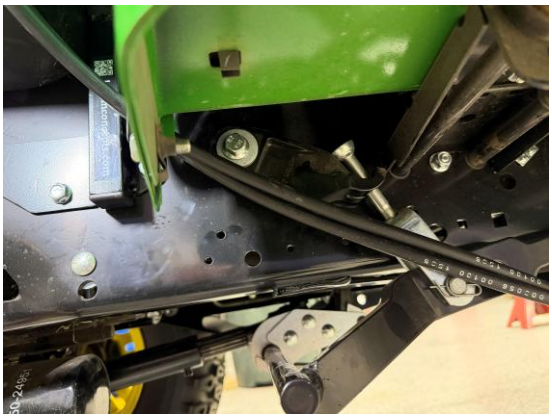

Figure 11: Route cables behind fender against frame.

Figure 12: Retain cables near frame with cable clamp

1.7 Attaching Cables to SCV and Adjustment

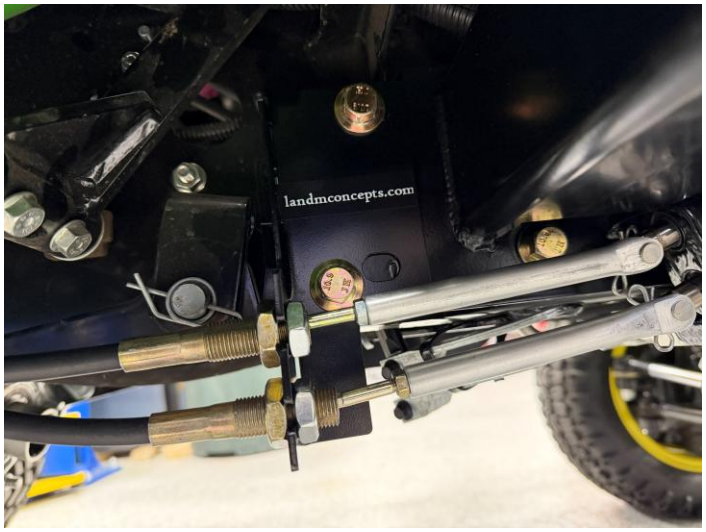

Figure 13: Connection of cables to retention bracket and SCV

a. Remove the OEM SVC linkages from SCV and Column lever brackets. You will reuse 2 of the retention clips.
b. Confirm the loader lift cable is still on top of the two cables by moving joystick forward and backward. Insert the **lift** cable into the **top** cable retention bracket hole and install the 2nd M16 jam nut to hold it in place.
c. Confirm the 2nd cable is the curl-dump function (left/right on joystick). Route it below the lift cable all the way from the joystick to the SCV. Insert the **curl** cable into the **bottom** cable retention bracket hole and install the 2nd M16 jam nut to hold it in place.
d. Install the rod ends on each of the cables. Fully thread on the existing lock nut until it bottoms out and then screw on the new rod ends. Do not tighten the jam nut as the rod ends will need to be adjusted.
e. Lock the joystick in "neutral" by pushing ring just below the handle as you move the joystick around center. It will click into place and lock it from moving.
f. Turn SCV piston rods so the holes are horizontal.
g. Adjust rod ends and cable nuts so that the pins in the rod ends line up with the holes in the SCV pistons. The pins will insert from the side.
h. Install retention clips from OEM linkages.
i. Tighten the cable nuts to lock cable into place.

j. Tighten the jam nut against the cable rod end. Hold the end of the rod end (with the pin) using a small wrench or adjustable wrench to keep it from rotating when tightening lock nut.
k. Release joystick by lifting the neutral safety lock. Move joystick to test operation.
l. Install cable tie around the cables above the rear tire to bundle them together.
m. Install cable tie around cables and thread through notch in reverse pedal bracket to hold cables away from anything that moves.

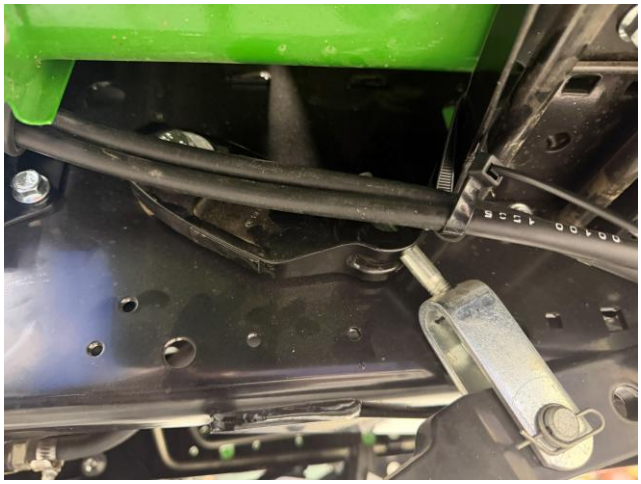

Figure 14: Retain cables from touching anything that moves.

n. Using cable ties to strap the SCV linkage brackets (under the tractor at the end of the column lever rods) so that the column levers are held in the forward position. Move levers forward and find a convenient feature to strap them to like shown in Figure 15.
    i. It has been noticed that there is slight interference between the hood and one of the levers in the strapped configuration shown in the picture. The hood can flex around the handle and should cause no damage. Loosening the cable tie will help minimize interference (so the lever is not pulled so far forward).
    ii. Another option is to remove the SCV linkage brackets from the end of the column lever rods by removing the 8mm bolt. The column levers will be loose/floppy in this configuration.

Figure 15: Retention of column levers

1.8 Rotation of the Joystick Handle

1. If desired, you can rotate the joystick 180 degrees, so the handle curves forward as showed in Figure 16. This may be useful if you plan on adding a diverter valve for a grapple…or prefer it like that.
2. Remote joystick handle by loosening the setscrew at the bottom.
3. Note the location of the factory "detent" drilled in the joystick shaft. This is used to keep the handle from rotating by giving the setscrew something to lock into. At the same height, but the opposite side (180 degrees) from the factory detent, mark the location for another detent to be drilled.
4. Using a ~ 1/8" drill bit, drill the new detent. Just go deep enough for the setscrew to have something to bite into. Do not drill all the way through the joystick shaft.

Figure 16: Rotation of the Joystick Handle

Installation is complete!

Congratulations and "*Enjoy Your New Capabilities*"

