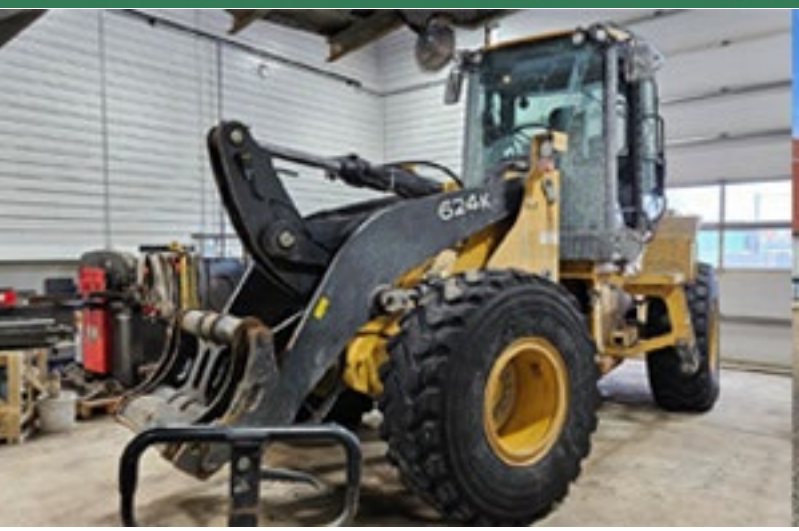
Tuffer III Installation Guide
John Deere 624K | 644K | 644G Tier



SAFETY

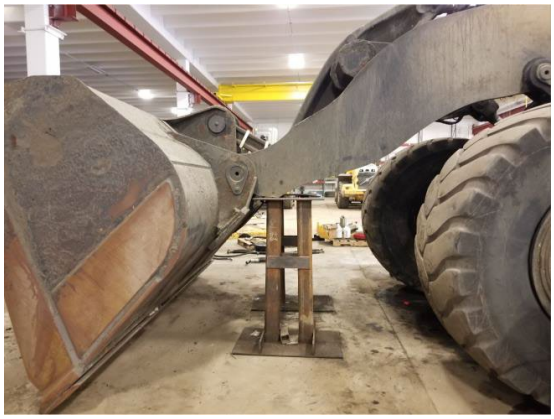
Make sure you follow safety procedures mandated by your company, state, and governing body.

Consult the machine manual for the correct procedure.

If you need to work under the H-frame and dump pressures make sure the H-Frame is supported with posts, Hydraulic Lock is installed, or the bucket is on the ground.

You will need to dump hydraulic system pressure for:

- The Lift and lower circuit (H-Frame or Boom).
- This is dumped by moving hydraulic control levers forward and backwards once the frame is in a safe position on posts are on the ground and the engine is off and ignition is on **ON** position.
- Release pressure in the hydraulic tank. (Remove filler cap slowly.)



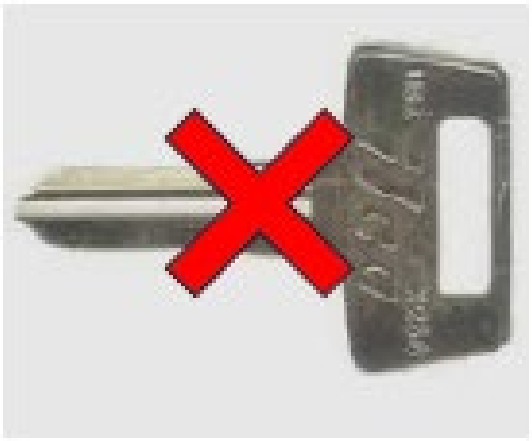
Follow the lock out tag out procedures.

It is also good practice to secure a business card to the tag, so your contact information is available to anyone unsure of who to contact.

Make sure the machine wheels are choked.

Remove the key from the ignition.

Turn the battery disconnect switch to the **OFF** position.



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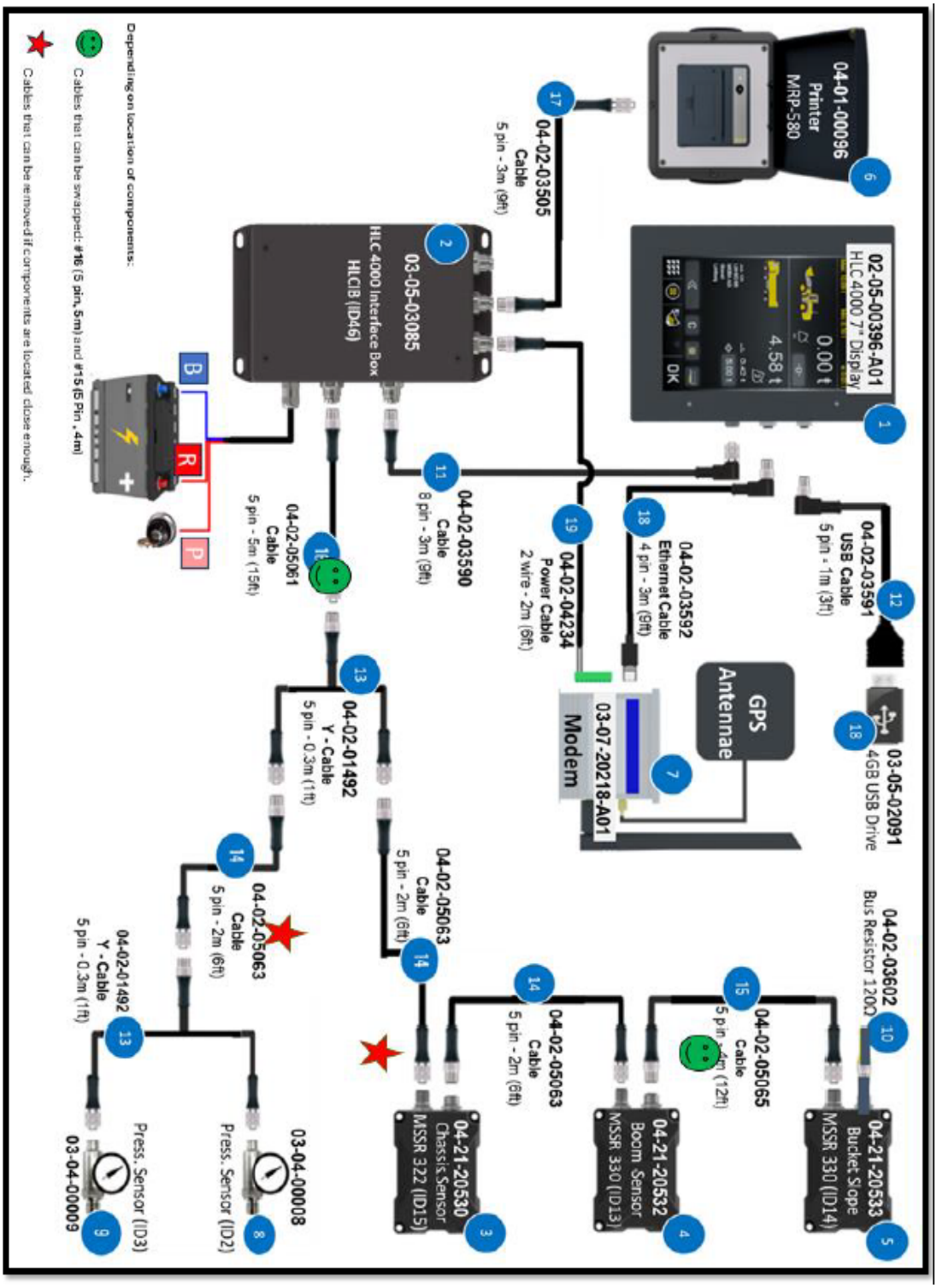
To keep installation neat the 2 cables ★ below were not needed during the installation.

Depending on Bucket sensor location in relation the boom sensor the 2 cables ● can be swapped.



TUFFER III MAIN COMPONENTS & GENERAL POSITION

A	Tuffer III Display (7“, TFT, Touch)	02-05-00396-A01
B	Tuffer III-Interface-Box	03-05-03085
C	Pressure transmitter	03-04-00008, 03-04-00009
D	Slope sensor “MSSR-322“	04-21-20530
E	Slope sensor “MSSR-330“	04-21-20532
F	Terminating resistor	04-02-03602
G	Slope sensor “MSSR-330“	04-21-20533
H	Gateway/Modem	03-07-20218
I	Tuffer III USB stick	03-05-02091
J	Printer	04-01-00096

Wrong choice or wrong and improper usage of quick-lock couplings and their accessories may lead to material damages and personal injuries, partly even with fatal outcomes.

- Coupling or other construction parts may fly around at high speed.
- Escape of hydraulic liquids under high pressure and at high speed.
- Collisions with moving, sagging or dropping construction parts after breakdown of the hydraulic cycle.
- Dangerous swing out of the hydraulic hose.
- Explosion and inflammation of the used liquids.
- Physical contact with the transported liquid which can be very hot, very cold, toxic or dangerous for other reasons.
- Squirting or explosion of solvents or other inflammable liquids which are used in chemical processes.

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Complete a thorough walk around check on the machine and identify the following:

1. Mounting locations for all components.
2. Check clearances by working machine left to right.
3. Best way to run wiring throughout machine.
4. Identify any issues with the machine and how to run wiring.

Assemble Bracket

Assemble the mounting bracket using the short bolts from Hardware kit:

1. Modem bracket
2. Display Ram Mount
3. Printer Ram Mount (when needed)

Mount the Display & Printer & Modem

First clean glass thoroughly with glass Cleaner then use alcohol wipes and let surface dry.

Remove red backing from mounting bracket and place bracket in place.

Using a screwdriver press on bracket in multiple places to expel all air bubbles.

1. Mount Modem to modem bracket.
2. Mount Display to middle RAM mount Ball
3. Mount Printer to middle RAM mount Ball

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Mount the USB port

Using red 3m double sided tape attach the USB port to the top of the Display.

Available at Home Depot.

Mount the GPS Antennae

Do Not stick GPS antennae to glass as the heat will loosen the glue and the antennae will fall off.

Remove tape backing off antennae and stick antennae to flat area where Bolt hole is on the RAM mount.

Add 1 or 2 small zip ties to keep Antennae in place.

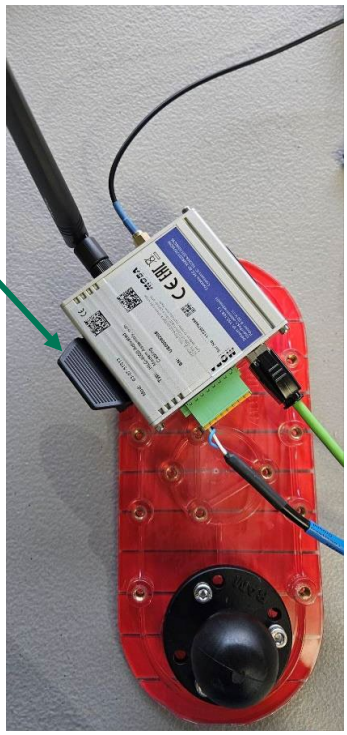
Mount Modem

Clip modem into place and connect antennas to correct connection.

Do not mix up the antennae connections.

GPS to Square antennae with cable.

Mobile to Long Plastic Antennae.



Mount the Interface Box
The interface mounted behind front cover on Right side of the machine.

Main Cable for “CAN” if fed through the grommets below.

Bolt Interface box to exist frame behind from cover on Right side of cab.

Install spare caps on unused connectors to keep them free from dust.

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Clean surfaces thoroughly

To provide a good clean surface before mounting the slope sensors.

1. Use a good degreasing solution to clean the locations.
2. Use alcohol wipes included to remove any remaining residue.

Mount Chassis Slope Sensor

04-21-20530 MSSR 322 - 60° (ID 15)

Chassis Slope sensor must be mounted on the front section of machine.

Mount the chassis sensor on Left Hand Side of the machine with cables facing to the Right.

NOTE: Check for proper clearance!

Before final mounting check for proper clearance when machine is turned fully left and right.

Mount H-Frame (Boom) Slope Sensor

04-21-20532 MSSR 322 - 180° (ID 13)

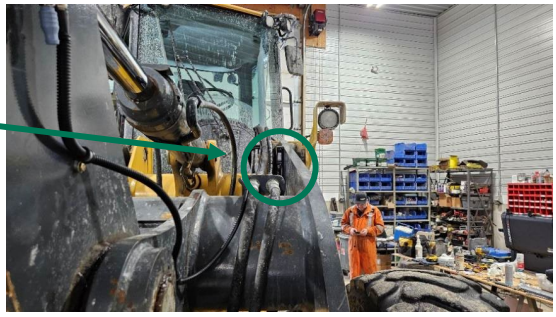
Boom Slope sensor is mounted on Inside of the boom on the Left hand side of the machine.

This makes it easy to run cable to bucket sensor by following existing lines on a machine with a quick attachment setup.

- Check wiring loops.
- Identify good anchor points.

NOTE: Check for proper clearance!

Before final mounting check for proper clearance – Raise and lower the boom.



Mount Bucket Sensor

04-21-20530 MSSR 322 - 180° (ID 14)

Check wiring loops for good movement
Identify good anchor points.

NOTE: Check for proper clearance!

Before final mounting check for proper clearance – Curl Bucket open and closed completely.

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Assemble and prepare the Pressure Transducers and Hydraulic hose.

ID #2 = Pressure side (Piston of Cylinder)

ID #3 = Return Side (Rod end of Cylinder)

Mark the ID number on the fitting as the label gets covered up by the clamp.

Note: Prepare 1 Hose with 2 zip ties.

On 1 hose add 2 x zip ties on each end to identify which end goes to ID #2 and Piston side of cylinder.

Use 2 x zip ties on both ends of 1 hose to mark the hose connected to **Piston Side of cylinder** and **03-04-00008 Sensor ID #2**

Mount Pressure Transducers

Mark the pressure sensors before mounting to make it easy to identify ID 2 and ID 3.

03-04-00008 Pressure sensor ID #2
Must be connected to the hose on the **piston side** of the cylinder.

03-04-00009 Pressure Sensor ID #3
Must be connected to the hose on the **Rod side** of the cylinder.

Note:
Hose with 2 x zip ties connects to sensor ID #2 and Piston side of cylinder.

Drill a 7/16” hole through side panel and bolt sensors to inside of machine (sometimes a longer bolt is required).

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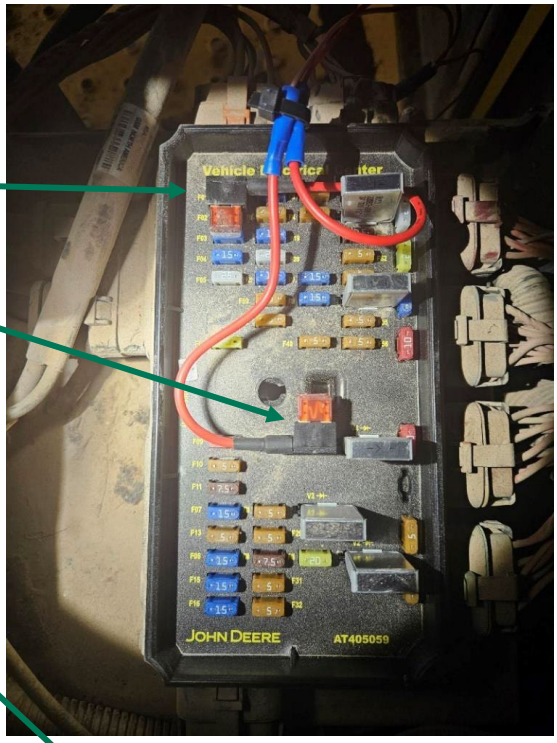
Fuses & Ground

There are 3 wires that need to be connected for Power (2) & ground (1)

12vdc / 24vdc

Red Wire = Power even if key is **OFF** (F01)

Pink Wire = Power with Key **ON**



Fuse box

Is also accessable behind rear cover on right side of the machine

Drill or notch Fuse box cover.

To allow the wires to enter the fuse box and close cover, you will need to notch the fuse box cover or drill a hole and use a grommet to feed wires into fuse box.

1. Drill cover
2. Insert Grommet
3. Feed Red and Pink wire through grommet
4. Connect Fuse “add a circuit” on the inside side of the cover.
5. Connect Fuses to fuse box as needed.

You can now close the fuse box

Brown Wire = Ground.

Make sure this location is a good chassis ground.

Grind/Remove any paint so that the ground contact is a good contact.

Wiring & Routing

Run main cable from cab to chassis slope sensor with the OEM wiring harness.

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GET INTO THE HYDRAULICS

Hydraulics (options) 644G Tier

Option 1

Insert 2 x ORFS connectors.

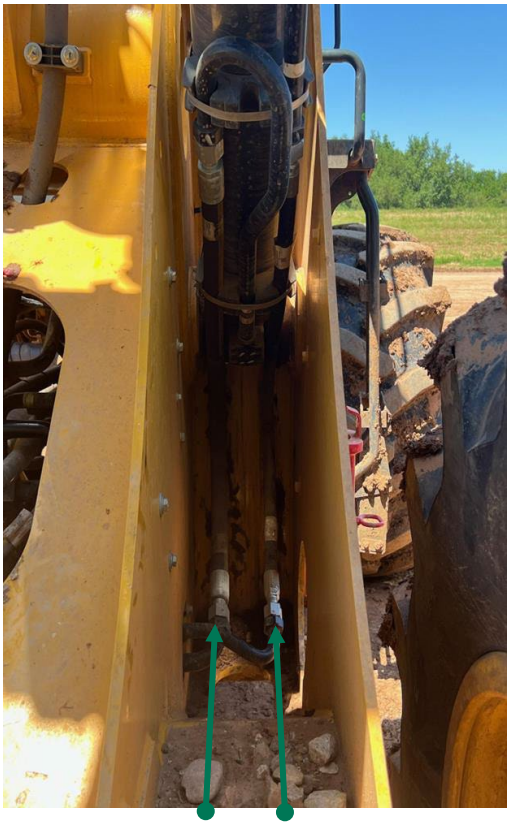
Piston of lift Cylinder **(Lift Side)** = ORFS #16

SI Part Number 03-08-50023

Rod of lift Cylinder **(Return Side)** = ORFS #12

SI Part Number 03-08-50015

Insert 2 x ORFS Adaptors into the lift cylinder circuit



ORFS #16 ORFS #12

Option 1 – Flange Adaptors

Option 3 – Use scale ports.
Special Notes: JD624K with OEM scale

If a Scale is already installed OEM or Aftermarket.
In most cases it is possible to use ports where scale pressure sensors are currently located (Could be at the hydraulic control valve).

Note:
Do not install SI Pressure sensors directly to the control valve. This will cause rapid heating and cooling of the oil side effects detected by the scale system.

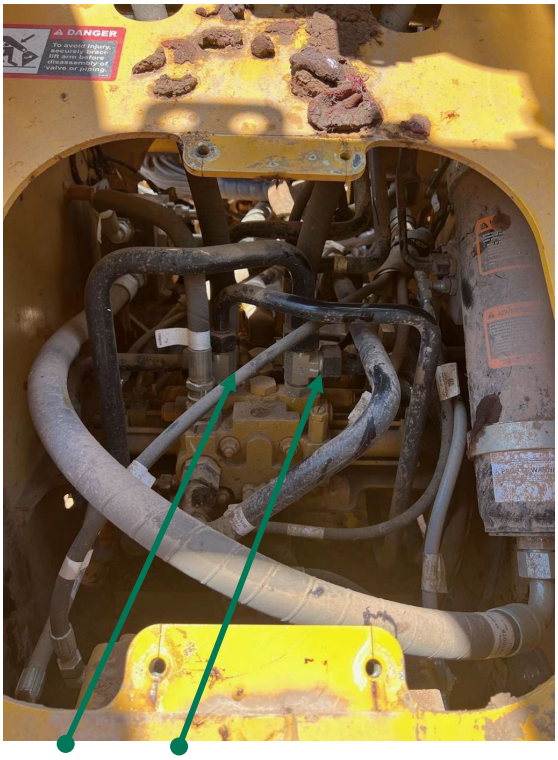
If there is no existing scale
Options are:

1. Drill and Tap
2. Hydraulic Adaptors: Connected to 1 x to Boom (H-Frame) lift cylinder.
   - Piston of lift Cylinder **(Lift Side)** = ORFS #16
     SI Part Number 03-08-50023
   - Rod of lift Cylinder **(Return Side)** = ORFS #12
     SI Part Number 03-08-50015

Drill And Tap 2 X T connectors.

Completely remove 2 X T connectors and drill and tap for 1/8" BSP.

Clean T Connectors thoroughly before re-installing.



T Connectors