

AS7500 Installation Manual for John Deere Self-Propelled Vehicles

- I. Description
 - a. The AS7500 is compatible with a wide variety of spray rate controllers. To simplify installation on the John Deere (JD) Self-Propelled (SP) vehicles, Leica has developed a customized installation kit for these vehicles.
 - b. This manual covers the options for installing the AS4080 onto a JD SP 47X0, 4920, and 4930 series vehicles. It will cover the following areas:
 - i. Connecting to power
 - ii. Connecting GPS
 - iii. Connecting to spray controller
 - iv. Connecting to master switch
 - c. Compatible vehicles
 - i. 4700
 - ii. 4710
 - iii. 4720
 - iv. 4920
 - v. 4930
- II. Installation: This section will describe how to install the AS7500 unit into a JD SP sprayer using the JD Installation Kit. The installation of the AS7500 is detailed in the AS7500 User Manual. (1-1252)
 - a. Standard Items: The standard JD Kit comes standard with the power and Spray Controller Cable necessary to allow the AS7500 to function on any compatible vehicle. In the simplest case, the master switch on the sprayer and the AS7500 must both be turned on by the operator when spraying
 - i. 7500 Unit (1-0490)
 - ii. JD Power Cable (1-2416): used to draw power from the in-cabin power strip
 - iii. Controller Cable (1-2840): Note-REVC is required to connect ot master detect cable 1-2842
 - iv. Starfire GPS Cable (1-2762) (optional): Used to connect externally to the Starfire GPS receiver
 - b. Optional Items: For 4700 and 4710 models an option exists to hook into the master switch using a toggle switch option. This can either be done by splicing into the wiring loom directly or by using a custom cable (1-2842). The toggle switch can also be used in the 4x20 series as a more convenient external master switch. Finally, a mounting bracket is also available for mounting the unit on the front pillar, below and behind the spraystar controller.

Leica **AS7500**

- i. CAN Bus Interface Cable (1-2265): Used to join to the CAN bus to derive GPS or master status from the bus.
 - ii. Master switch tee cable (1-2842): Option for 4710 only
 - c. Connecting to GPS (StarFire™)
 - i. Disconnect the connector from the StarFire™ receiver and insert matching T connector from the GPS interface cable provided.
 - ii. Reconnect the cable disconnected in step 1 to the other side of the GPS interface cable
 - iii. Remove Cab roof and route cable into the cab, down the pillar and to the AS4080 unit.
 - iv. Connect the D9 plug to the port marked GPS on the AS4080 controller.
 - v. NOTE: The StarFire™ receiver must be configured to output the NMEA messages GGA and VTG at 19200 baud.
 - d. Connecting to Power
 - i. Insert the power cable to the 12Vdc connector of the AS4080 box.
 - ii. Insert the end of the power cable into the in-cab power outlet
 - e. Connecting to Spray Controller
 - i. Remove the panel containing the section switches for the sprayer by removing the screw in the center of the console.
 - ii. Route the controller cable behind the console to come out by the power bar on the floor from here it should run under the mat to the front corner post.
 - iii. Connect the controller interface boards to each of the section wires
 1. = Yellow
 2. = Grey
 3. = Green
 4. = Blue
 5. = Magenta
 6. = Pink
 7. = Brown
 - iv. Remove the harness from the rear of the switch 1
 - v. Insert the supplied adaptor board to the rear of switch 1. Check that the orientation of the board is correct with the connector pin on the bottom of the switch.
 - vi. Reconnect the original harness to the rear side of the adaptor board. Ensure that the orientation of the plug is correct with the wires being on the bottom side of the plug.
 - vii. Repeat for all switches
 - viii. Replace panel and floor mat
 - f. Connecting Master Switch (4700, 4710 only): For 4700 and 4710 models a switch box can be integrated into the system to intercept the signal from the master

switch. This allows the system to know when the master has been switched and react appropriately. The following instructions show how to connect the switch box. In the 4x20 series, the toggle switch must be used in parallel with the handle master.

- i. Locate the connector behind the driver's seat of the cab
 - ii. Locate wire 809 (+) and wire 811 (-) in the harness behind the connector. Using the supplied quick grip connectors, connect to these two wires.
 - iii. Run these wires into the console where the cable 1-2840 has been connected to the back of the boom switches. Connect the two wire connecting 809 to the wire labeled MASTER coming from the end of the cable 1-2840 REVC. Connect 811 to the wire labeled SECTION8.
- g. Connecting Master Switch using cable 1-2842 (4710 only): For the 4710 model as an alternative to splicing into the wiring harness as in step 2 above, cable part number 1-2842 can be used. This cable tees in between the connector located at the rear of the driver's seat. The following shows the installation using this cable.
- i. Locate the connector behind the driver's seat of the cab
 - ii. Unplug the connector and insert the *t* cable labeled 1-2842 to reconnect the existing connector.
 - iii. Run the wires coming from 1-2842 into the console where the 1-2840 has been connected to the back of the boom switches. Connect the two wire connecting 809 to the wire labeled MASTER coming from the end of the cable 1-2840C. Connect 811 to the wire labeled SECTION8.
 - iv. Go to console of AS7500 and choose menu 6.5 Master Source and select Dipole
- h. Connecting JD CAN Bus with cable 1-xxxx: For the 4x20 model as an alternative to using serial GPS, the GPS can be extracted directly from the CAN Bus in the vehicle cab. Also, the master detect can be obtained in the same way. To do so, the CAN Bus needs to be connected with cable 1-2262.
- i. Locate the connector coming from the column connecting to the spraystar controller. Remove the CAN connector and replace with the tee connector of cable 1-2262.
 - ii. Connect the circular AMP connector of cable 1-2262 to the AS7500
 - iii. On the console of the AS7500, select menu 6.2 (GPS Type) and select NMEA2000.
 - iv. Go to the console of the AS7500. Choose menu 6.1 (Controller Type) and select John Deere
 - v. Go to the console of the AS7500. Choose menu 6.5 (Master Source) and select External

Generic AutoSPRAY Cable

BoomSpray

Pin	Function	Colour	Label	Colour	Label
1	None	Red	Power		Not Connected
2	None	Black	Ground		Not Connected
3	Section 1	Yellow	Section 1	Blue	
4	Section 2	Grey	Section 2	Blue	
5	Section 3	Green	Section 3	White	
6	Section 4	Blue	Section 4	Yellow	
7	Section 5	Magenta	Section 5	Purple	
8	Section 6	Pink	Section 6	Brown	
9	Section 7	Brown	Section 7	Green	
10	Section 8	White	Section 8		Not used
11	Master Switch	Yellow/Red	Master		Not used

Generic AutoSPRAY cable notation

- i. Testing the AutoSPRAY 4080 Installation: In order to test the cable for functionality, it will be necessary to undertake two different tests. The tests will require that the AutoSPRAY 4080 controller be interfaced to a GPS receiver and that the spray rig be partially filled with water to undertake an in-field test.
 - i. Testing the Master Switch: The first portion of the test will determine that the master switch is correctly recognized by the AutoSPRAY 4080.
 1. Turn the Isolation power switch (IPS) to the ON position and then turn the ignition switch to the ON position which will start up the unit. This will take approximately one minute.
 2. Set the Master option under the PARAMETERS menu to TOGGLE. (See the AutoSPRAY 4080 User Manual). Return to the main menu
 3. Switch the Master Switch in the hydro-handle ON and OFF and observe that the switched status is being reflected correctly on the AS4080 display (i.e. M=ON or M=OFF).
 4. Conduct the field test as detailed in the following sections

- ii. A delay may occur between the switching of the Master Section switch and when the Status M= is displayed on the AutoSPRAY 4080. This delay is due to the type of electrical circuit switching used within the spray rate controller.
- j. Testing the AutoSPRAY and Boom Spray Sections: This test will require the spray rig to be in a field where the boom spray can be operated in a typical manner.
 - i. Switch the ignition on to power the unit; this will take approximately one minute
 - ii. Check that the Power and GPS LEDs on the AutoSPRAY 4080 front panel are green
 - iii. Turn the spray rate controller ON; all boom section switches are to be in the OFF position
 - iv. Turn the spray rate controller Master switch to the ON position
 - v. Using the front panel, go to the SELFTEST menu item and toggle this from NO to YES, then press ENTER.
 - vi. Note whether each section sprays for 3 seconds from the left side of the boom to the right side of the boom when looking forward from the cab.
 - vii. If this is correct then the boom is ready for the latency calibration
- k. Latency Calibration: This test will require the spray rig to be in a field where the boom spray can be operated in a typical manner.
 - i. Switch the ignition on to power the unit; this will take approximately one minute
 - ii. Check that the Power and GPS LEDs on the AutoSPRAY 4080 front panel are green
 - iii. Turn the spray rate controller ON, all boom section switches are to be in the OFF position
 - iv. Turn the spray rate controller Master switch to the ON position
 - v. Drive the vehicle forward in a straight line and observe that all boom sections automatically switch ON. If the sections do not switch ON, consult the AutoSPRAY 4080 User Manual and/or check that all cabling is correct.
 - vi. Drive the vehicle around so that it crosses the portion of the field sprayed and observe that all sections of the boom switch OFF and then switch ON in the correct order. The sections may not switch OFF at exactly the correct locations as the boom spray parameters may still require tuning (see AutoSPRAY 4080 User Manual). If the sections all switch ON & OFF in the correct order, the field tests have been successfully completed. If the sections do not switch OFF in the correct order, check the cabling.
 - vii. The AutoSPRAY 4080 system should now be tuned for the boom spray parameters as noted in the User Manual.

III. Disclaimer

- a. No liability is assumed with respect to the use of the information contained herein. While every precaution has been taken in the preparation of this manual, Leica assumes no responsibility for errors or omissions and is not liable for any damages resulting from the use of the information. Further, this manual and the features described are subject to change without notice.
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