Hardi Pilot AutoSPRAY Installation Manual

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Revision A

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RINEX TECHNOLOGY

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AutoSPRAY

Hardi Pilot AutoSPRAY Installation Manual

Written for RINEX Hardi Pilot AutoSPRAY Modification Kit

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1. INTRODUCTION

The RINEX AutoSPRAY is compatible with a wide variety of spray rate controllers. RINEX have a range of easy to install interface cables available for some of the more popular spray rate controllers on the market.

The Hardi Pilot controller requires an upgrade to the keypad in order for it to be AutoSPRAY compatible. Only four section controllers using touch buttons are compatible with the upgrade kit.

The Hardi Pilot keypad upgrade is available as part of the Hardi Pilot AutoSPRAY kit (Part# 1-0344). The upgrade will normally be done before the AutoSPRAY kit is supplied.

This manual describes how to install and test the Hardi Pilot AutoSPRAY kit.

2. INSTALLATION

This section describes how to connect and install the modified Hardi Pilot Keypad and AutoSPRAY cables. The installation and configuration of the RINEX guidance system or AutoSPRAY 4080 is detailed in the appropriate User Manual.

An overview of the Hardi Pilot AutoSPRAY Kit and how it is installed into a vehicle is shown in Figure 2.1.

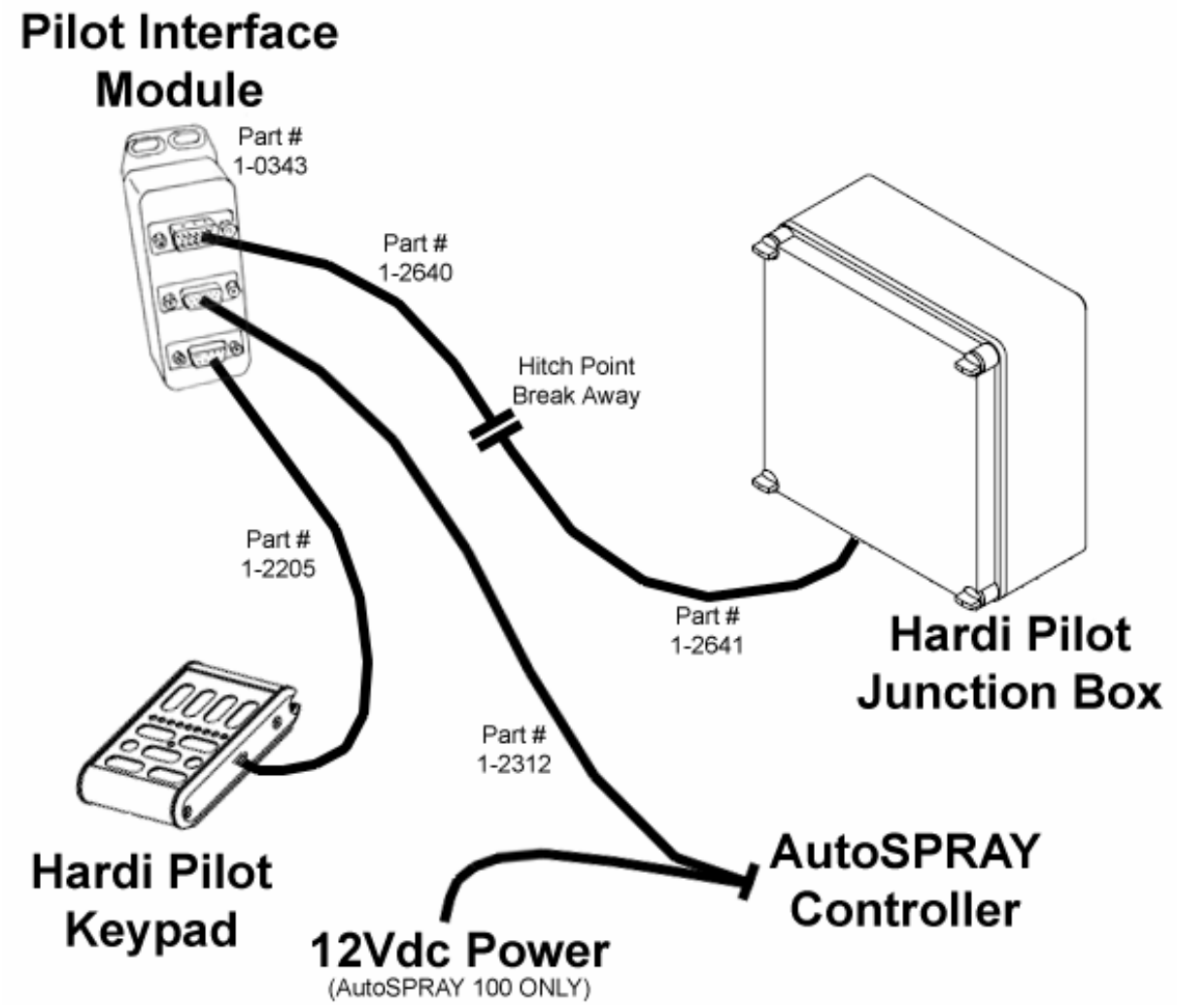

Figure 2.1 Hardi Pilot AutoSPRAY installation overview

It is recommended that all electrical wiring should be installed by a qualified auto-electrician. Incorrect wiring may damage the AutoSPRAY controller and/ or the spray rate controller.

Installing the Pilot Keypad and Cables

The following outlines each step required to install the Hardi Pilot AutoSPRAY Kit, an overview of the installation is shown in Figure 2.1

Step	Instruction
1	Re-install the Hardi Pilot Controller keypad by attaching the screen and the mounting brackets. Connect the cable from the screen to a connector on the back of the keypad and connect the cable that runs to the boom to the other connector. **CAUTION**: When connecting the any connectors to the Pilot Keypad the power MUST be turned off to the Hardi Pilot or the system may be damaged
2	In a suitable out of the way location, mount the Pilot Interface Module (Part# 1-0343).
3	Connect the Pilot AutoSPRAY cable (Part# 1-2312) to the RINEX AutoSPRAY port on the Pilot Interface Module and to the AutoSPRAY controller. If connecting to an AutoSPRAY 4080 the Power leads on the Pilot AutoSPRAY cable can be cut short and insulated. If connecting to the AutoSPRAY 100 controller the power leads should be connected to a suitable 12Vdc source and to ground. Ensure the rest of the AutoSPRAY controller is correctly installed by referring to the Installation Manual supplied with the AutoSPRAY controller.
4	Connect the Pilot Tractor Valve Sense Cable (Part# 1-2640) to the Valve Sense port on the Pilot Interface Module and run the cable to the back of the tractor where the Pilot Boom Valve Sense Cable can be connected easily when hooking the tractor to the spray boom.

Step	Instruction
5	Connect the Pilot Boom Valve Sense Cable (Part# 1-2641) to the Pilot Tractor Valve Sense Cable at the back of the tractor and run the cable along the tow hitch, securing with cable ties along the way, back to the Junction Box on the boom. The Junction Box is a large white plastic box where the single cable from the controller in the cab is connected and where all the individual wiring for the valves, flow meter, etc are connected.
6	Remove the cover of the Junction Box by unscrewing the four large thumb screws. Locate the internal board where the valves are connected. It is usually the outer most board and looks similar to the one shown in Figure 2.2
7	Connect the push on terminals to the required points on the board using Table 2.1 as a guide; ensure the cable is run though a hole in the bottom of the junction box before making the connections. To connect the cable wires remove the pilot valve wire, connect the female push on terminal on the Pilot Boom Valve Sense Cable to the terminal on the board, and connect the valve wire onto the male push on terminal on the Pilot Boom Valve Sense Cable, as shown in Figure 2.3. Ensure that only one wire is removed at a time so that the valve wires can not be mixed up.
8	The Hardi Pilot spray rate controller should be tested for typical function before connecting the Pilot Keypad to the Pilot Interface Module. Check all switches function correctly and the controller can still display actual flow rate correctly.
9	To complete the installation connect the supplied serial cable (Part# 1-2205) to the Pilot Keypad port on the Pilot Interface Module and to the new 9 pin port on the right hand side of the Pilot keypad. **CAUTION**: When connecting the any connectors to the Pilot Keypad the power MUST be turned off to the Hardi Pilot or the system may be damaged

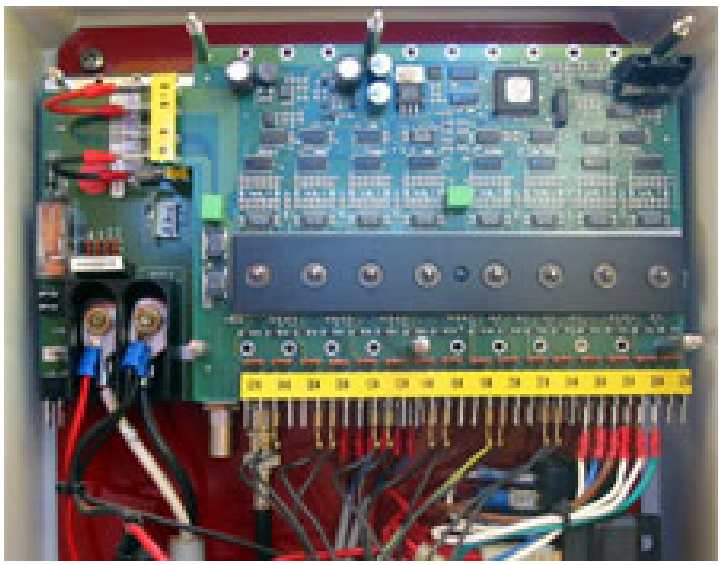

Figure 2.2 Connection to Hardi Pilot Junction Box

Hardi Terminal Number	Function / Label	Wire Colour
02	Valve 1a	Brown
03	Valve 1b	Red
06	Valve 2a	Orange
07	Valve 2b	Yellow
10	Valve 3a	Green
11	Valve 3b	Blue
14	Valve 4a	Violet
15	Valve 4b	Pink
18	Valve Master a	Grey
19	Valve Master b	Black

Table 2.1 Hardi Pilot Junction Box Valve Connection Terminal Assignments

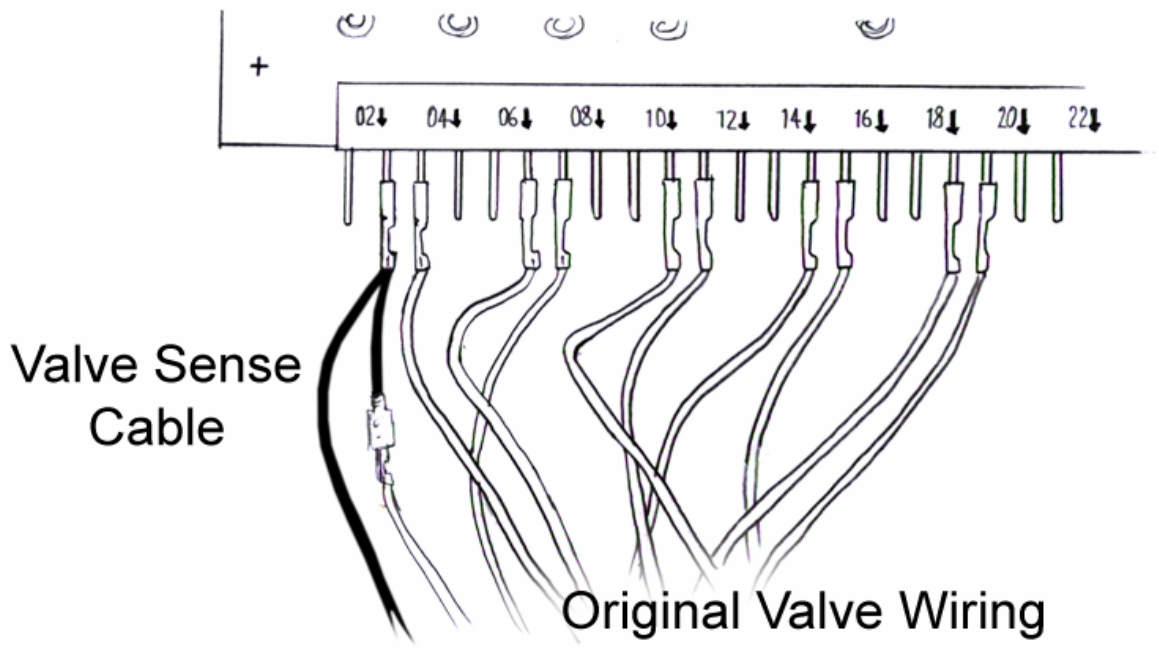

Figure 2.3 Connecting valve sense wires to the Pilot Junction Box

3. RINEX SYSTEM SETUP

AutoSPRAY 4080 Setup

Step	Instruction
1	From the main menu press the DOWN button until the PARAMETERS menu is displayed
2	Press the RIGHT button until CONTROLLER is displayed
3	Press the ENTER button to change the selected controller and press the DOWN button until SP655 is displayed
4	When SP655 is being displayed press the ENTER button to save the change

GuideTRAX 3.1 Setup

Step	Instruction
1	From the Main Screen, Press Setup
2	Press AutoSPRAY
3	Set High Line Enable to ON
4	Press the Exit Setup button to return to the Main Screen.

4. TESTING

The test will require that the AutoSPRAY controller be correctly connected, setup to operate and that the spray rig be partially filled with water to undertake an in-field test. To start the spray rig will need to be in a field where the boom spray can be operated in a typical manner.

Step	Instruction
1	Start the vehicle, the RINEX guidance system or AutoSPRAY 4080 controller and spray rate controller in accordance with the respective User Manuals.
2	Check that the system is receiving good GPS data and is ready for operation.
3	Ensure that the boom and the vehicle parameters are correctly entered in the appropriate sections of the software. Once completed return to the Main screen and confirm that the correct number of boom sections is being displayed.
4	Power the spray rate controller ON, turn the spray rate controller master switch to ON and turn the Master Switch on the RINEX system to ON
5	Drive the vehicle forward in a straight line and observe that all boom sections automatically switch ON. If the sections are displayed as ON in the RINEX system but the valves do not switch ON check the troubleshooting section in this manual.
6	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 ON in the correct order. See Figure 4.1. The sections may not switch OFF at exactly the correct location as the boom spray parameters may still require calibrating. If the sections all switch ON & OFF in the correct order the field test has been successfully completed.
7	The AutoSPRAY settings should now be configured so that the optimum performance of AutoSPRAY is achieved. Instruction on how to calibrate AutoSPRAY can be found in the AutoSPRAY installation manual.

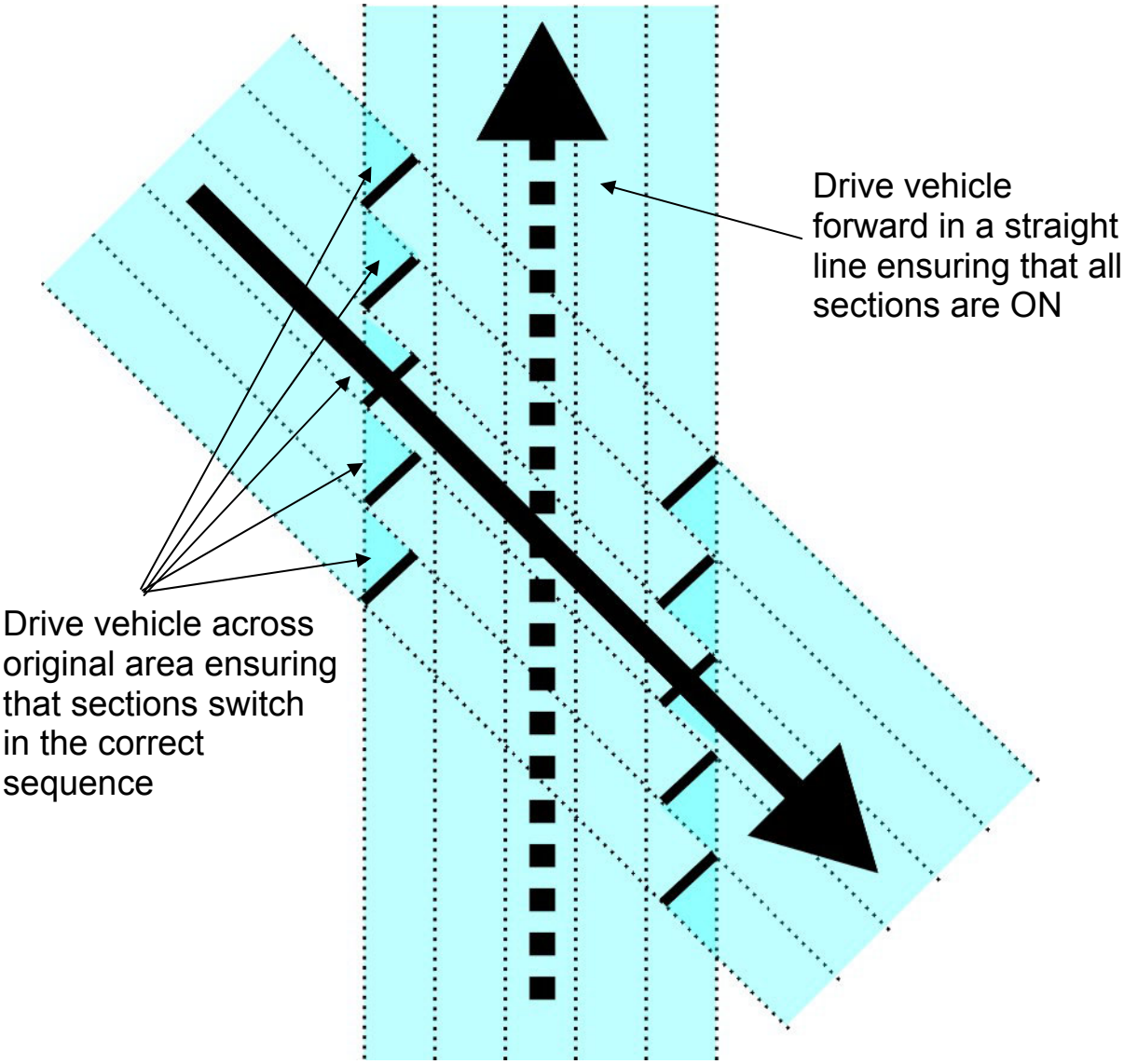

Figure 4.1 Testing vehicle overlaps

APPENDIX A. TYPICAL OPERATION

The following steps are typical operation of AutoSPRAY controlling the Hardi Pilot controller once everything has been setup and configured.

Step	Instruction
1	Start a new field by clearing the current memory.
2	Setup the flow rates, etc on the Hardi Pilot.
3	Turn the Master switch on the Hardi Pilot to ON. If the RINEX system is not set to sense the Hardi Pilot master switch then turn the Master on the RINEX system to ON. Manually turning sections ON or OFF on the controller will have no effect. To manually spray turn the AS4080 to standby or turn AutoSPRAY off in the Setup menu for GuideTRAX users.

APPENDIX B. TROUBLESHOOTING

Problem	Solution
The boom sections constantly turn ON & OFF	Check the valve sense cable is connected at each of the points
	Check the valve sense cable is wired to the correct terminal in the Pilot Junction box
Sections turn ON & OFF on the AutoSPRAY controller but there is no response from the Pilot	For GuideTRAX users check the High Line Enable option is set to ON in the AutoSPRAY setup. For AS4080 users check SP655 is selected as the controller in the PARAMETERS menu
	Check all the cabling is properly installed and connected.
	Check the serial cable between the keypad and the Pilot Interface Module is properly connected and labelled with RINEX part 1-2205.
Sections turn ON when they should be OFF and OFF when they should be ON	Check the connections in the junction box are correct. The valve a/b connection could be back to front.