

5300C AND 5300H

5300 CONVENTIONAL Boom Interface
5300 HARDI Boom Interface
Installation & Setup Guide

Introduction

The 5300 boom interface allows the Farmlap guidance system to show the true on/off status of boom sections while spraying. The interface detects a 12V DC signal (via supplied tractor and implement loom) from each boom section solenoid or motorised valve, and adds this extra information to the existing GPS data signal.

This system does not switch on or off sections. Switching of sections is still done through the boom control switch box.

A different trailer loom is provided for Hardi sprayers to match the reverse polarity on/off signaling. If you have purchased the 5300 NG option for use with the "Hardi Pilot", an alternative connection scheme is to be followed.

Will suit the Farmscan CF-18, CFM-33, CFM-34 and the RT-4000 guidance systems.

Installation

Parts 5300

	Part #	Description	Qty
1	A-5300	NG2 SECTION INTERFACE	1
2	AC-109	2M POWER EXT WITH PACKARD	1
3	AC-5003-01	SECTION INTERFACE CABLE TRACTOR	1
4	AC-5003-C-00	SECTION INTERFACE CABLE CONVENTIONAL	1
5	AH-5300C	FARMLAP 5300 CONVENTIONAL INSTALL KIT	1
6	AM-5300	5300 INSTALLATION & SETUP MANUAL	1

Parts 5300H

	Part #	Description	Qty
1	A-5300	NG2 SECTION INTERFACE	1
2	AC-109	2M POWER EXT WITH PACKARD	1
3	AC-5003-01	SECTION INTERFACE CABLE TRACTOR	1
4	AC-5003-H-00	SECTION INTERFACE CABLE HARDI	1
5	AH-5300C	FARMLAP 5300 CONVENTIONAL INSTALL KIT	1
6	AM-5300	5300 INSTALLATION & SETUP MANUAL	1

A-5300



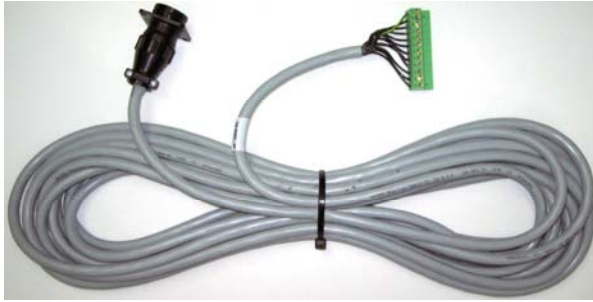
AC-109



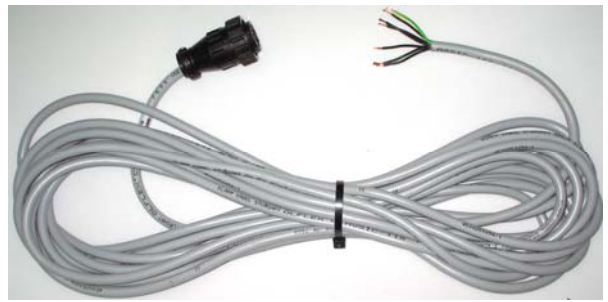
AH-5300C



AC-5003-01



AC-5003C-00

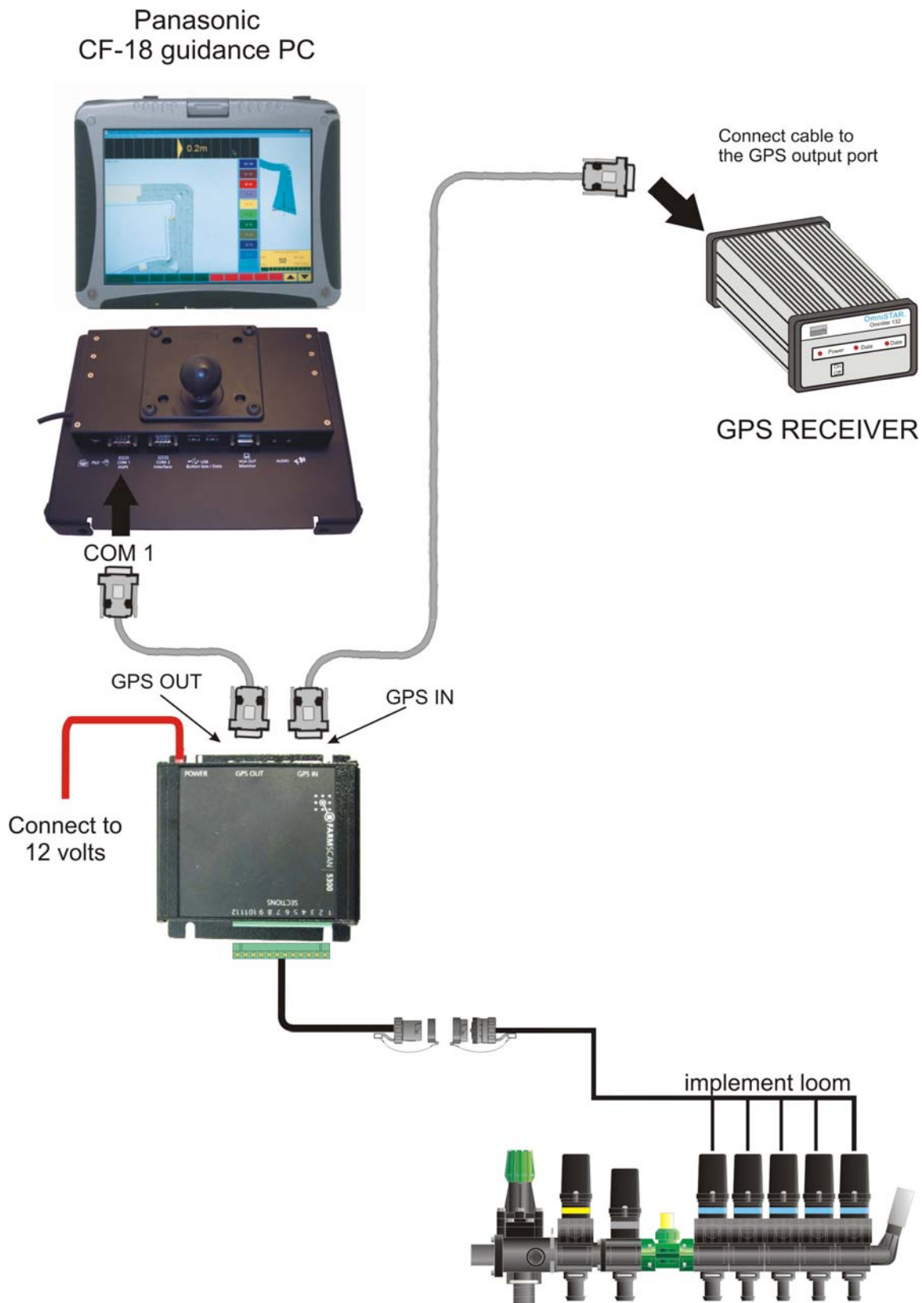


AC-5003H-00



Typical System Layout

This diagram applies for all Famscan contour guidance computers with the 5300 conventional & 5300 Hardi kits. Refer to the following pages for more information.



Connections

Data connection.

The existing connection from the GPS and guidance system has to be removed and connected to the 5300. Use the data cable supplied with the AH-5300C pack and connect the 5300 to the guidance system as shown in the diagram.

This applies to the Farmscan CF-18, CFM-34, CFM-33 and the RT-4000 guidance systems.

Implement Connection.

Use the supplied harness to splice into the existing connection for your section valves.

From these connections the 5300 will sense whether the valve is open or closed.

Conventional Loom Installation (AC-5003-C-00)

The wires in the conventional loom are numbered 1 to 6. There is also a green/yellow wire which must be connected to the earth terminal on any one of the solenoids.

- Connect wire **1** to the **far left** boom solenoid.
- Connect wire **2** to the boom solenoid second from the far left.
- Connect wire **3** to the boom solenoid third from the far left and so on.
- Wire **6** is connected to the master boom switch (not essential).

Follow the table below for wiring to conventional section valves.

Boom Section Status	5300 Pin No.	Wire (Tractor Loom)	Wire (Implement Loom)	Voltage from Sprayer Loom	Response from Farlap
Section 1 (far left) On	6	6	1	12 volts	Left On
Section 2 On	7	7	2	12 volts	Left inside On
Section 3 On	8	8	3	12 volts	Center
Section 4 On	9	9	4	12 volts	Right Inside On
Section 5 (far right) On	10	10	5	12 volts	Right On
Master On	11	11	6	12 volts	Master On
Section 1 (Far left) Off	6	6	1	0 volts	Left Off
Section 2 Off	7	7	2	0 volts	Left inside Off
Section 3 Off	8	8	3	0 volts	Center
Section 4 Off	9	9	4	0 volts	Right Inside Off
Section 5 (Far Right) Off	10	10	5	0 volts	Right Off
Master Off	11	11	6	0 volts	Master Off
Wires	1-5,12	1-5,Grn/ylw	Green/yellow	Earth	

Hardi Loom installation (AC-5003-H-00)

The implement loom runs between the drawbar and the Pilot computer on the sprayer. Follow the steps below to install the implement loom.

1. Run the implement loom along the existing Hardi loom and tie down firmly avoiding contact with any sharp edges.
2. Cut the cable approximately 500mm past the Pilot Computer Box. **Turn Off Power on your Spray controller before cutting any Wires!**
3. Remove box cover.
4. Remove one of the rubber grommets.
5. Cut about 10mm off the end of the grommet leaving a hole slightly smaller than the cable.
6. Push the grommet 300mm up the cable, thread it into the box then push it back into place.
7. Remove 150mm of the outer insulation to expose all 12 wires. The wires in the loom are numbered 1 to 11. There is also a green/yellow wire. All 12 wires must be connected to wires on the Hardi Pilot. Read the instructions below to connect wires to the Hardi Pilot.

Study the table and diagram on the following pages carefully before removing or cutting wires.

Wiring on particular machines may vary between different models, the table shown below allows you to test the wiring layout before installation.

It is recommended to test which wires on the sprayer loom provide the signals required by the 5300 NG box. When testing for the voltage signal from the Hardi sprayer loom, be aware that the controller will only supply voltage for 30 Seconds to operate the valve, so testing will require assistance from another person.

Testing requires putting a multimeter across the paired wires from each valve within the Hardi Pilot box located on the boom spray. When the valve is switched **On**, +12V or -12V will show on the multimeter. If the multimeter displays 12V, the terminal which is connected to the red multimeter lead is the "12V on" terminal for that section valve. If the multimeter displays -12V the terminal, which is connected to the black multimeter lead, is the "12V on" terminal for that section valve.

The paired terminal next to the 12V on terminal is the 12V off terminal. When the 12V on and 12V off terminals are established for each valve then the appropriate wires from the 5300 loom (see wiring table) can be spliced to the Hardi sprayer loom.

Splicing Wires together

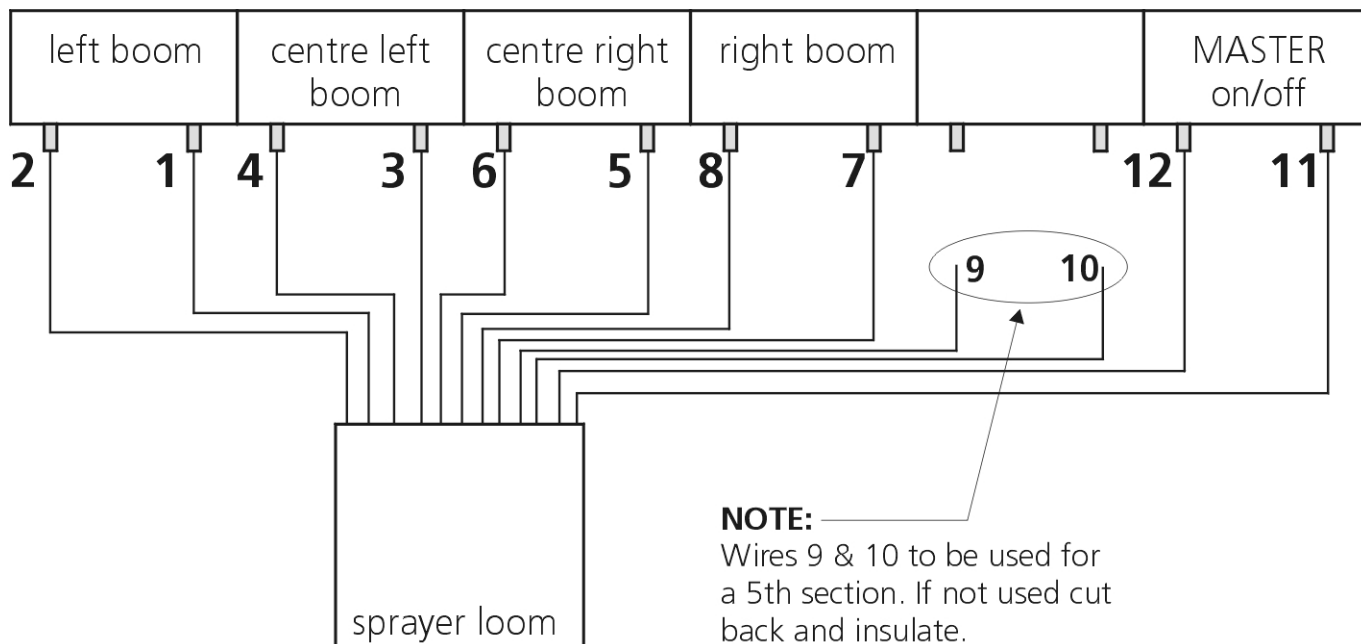
Supplied are 12 (3.5mm) female crimp connectors.

- Remove the current Hardi terminals, cut off the crimp connector.
- Strip back both wires, (wire 1 Hardi, wire 1 loom).
- Splice both wires together and crimp on a new terminal.
- Carefully slide the terminal back into place.

TIP: Remove and reconnect one wire at a time to avoid confusion!

!! NOTE:

Most Hardi Sprayers only have 4 Boom sections. However, the boom interface can handle an extra section if required. Wires 9 and 10 should be used for this. If they are not used it is necessary to insulate wire 9 and wire 10.



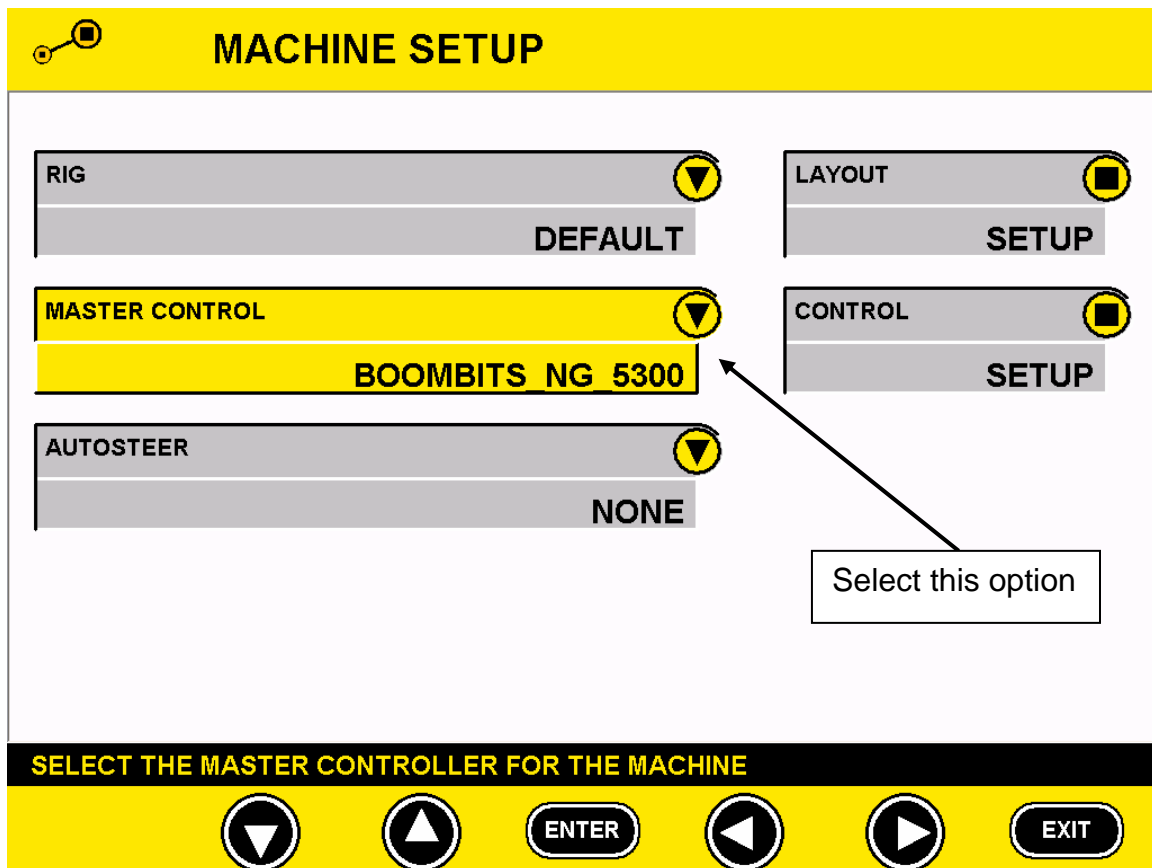
Boom Section Status	5300 Pin No.	Wire (Tractor Loom)	Wire (Implement Loom)	Voltage from Sprayer Loom	Response from Farmlap
Section 1 (Far left) On	1	1	1	12 volts	Left On
Section 2 On	2	2	3	12 volts	Left inside On
Section 3 On	3	3	5	12 volts	Right Inside On
Section 4 On	4	4	7	12 volts	Right On
Section 5 On	5	5	9		
Section 1 (Far left) Off	6	6	2	12 volts	Left Off
Section 2 Off	7	7	4	12 volts	Left inside Off
Section 3 Off	8	8	6	12 volts	Right Inside Off
Section 4 Off	9	9	8	12 volts	Right Off
Section 5 Off	10	10	10		
Master On	11	11	11	12 volts	Master On
Master Off	12	12	12	12 volts	Master Off

Setting Farmlap Version 2 Options

In order for Farmlap to recognise the 5300 installation, the section control option needs to be set to “Boombits_NG_5300”.

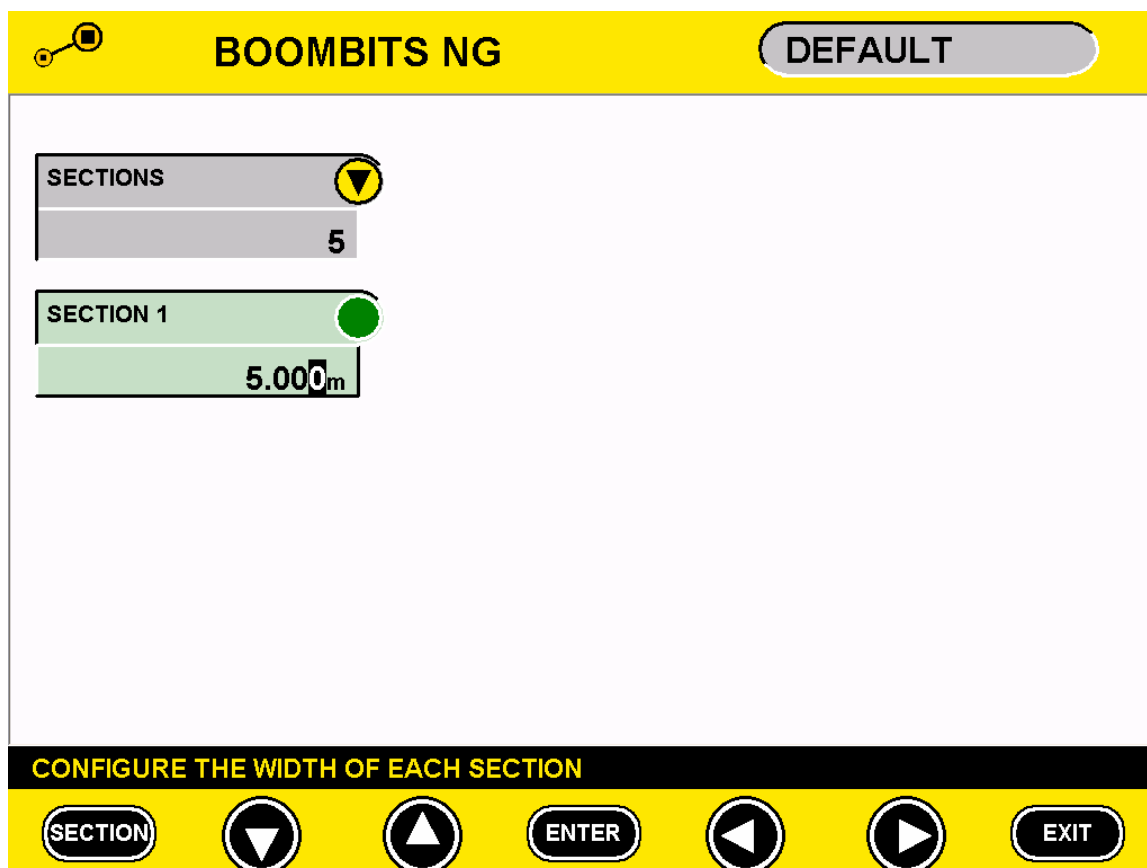
To do this:

- Select the “MENU” button from the main operations screen.
- Select the “MACHINERY” button.
- Select the “MASTER CONTROL” button and scroll through the options to select the “BOOMBITS_NG_5300” option.



- Continue to select the “CONTROL” button to setup your sections and widths.

- Select the “SECTIONS” button and change this figure to the number of sections your boomspray has. The 5300 can be configured to work with 1 to 5 section boomsprays.
- Select the “WIDTH” button to adjust your individual boom section widths. Each section can be adjusted one at a time by pressing the “SECTIONS” button at the bottom of the screen.



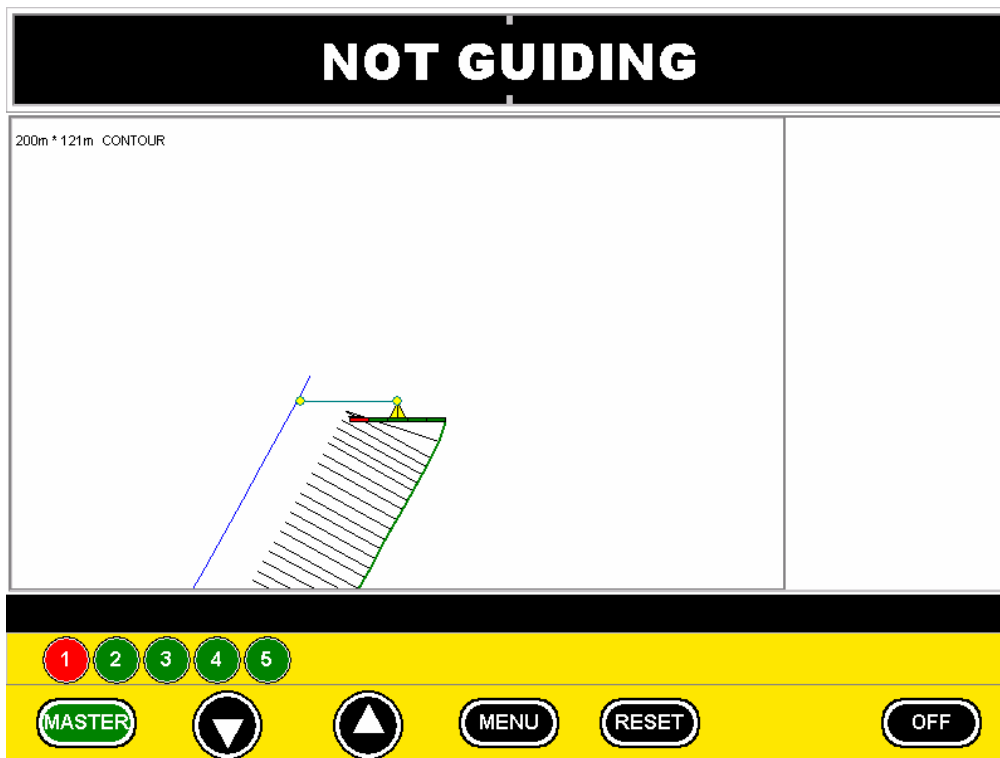
Testing the Installation

You should be able to see your section status indicators located at the bottom of your main guidance screen.

Green section indicators indicates that your sections are ON, Red indicates OFF.

Try to turn each individual section on and off to verify this.

NOTE: You must have a GPS signal for this to work



Section status Indicators

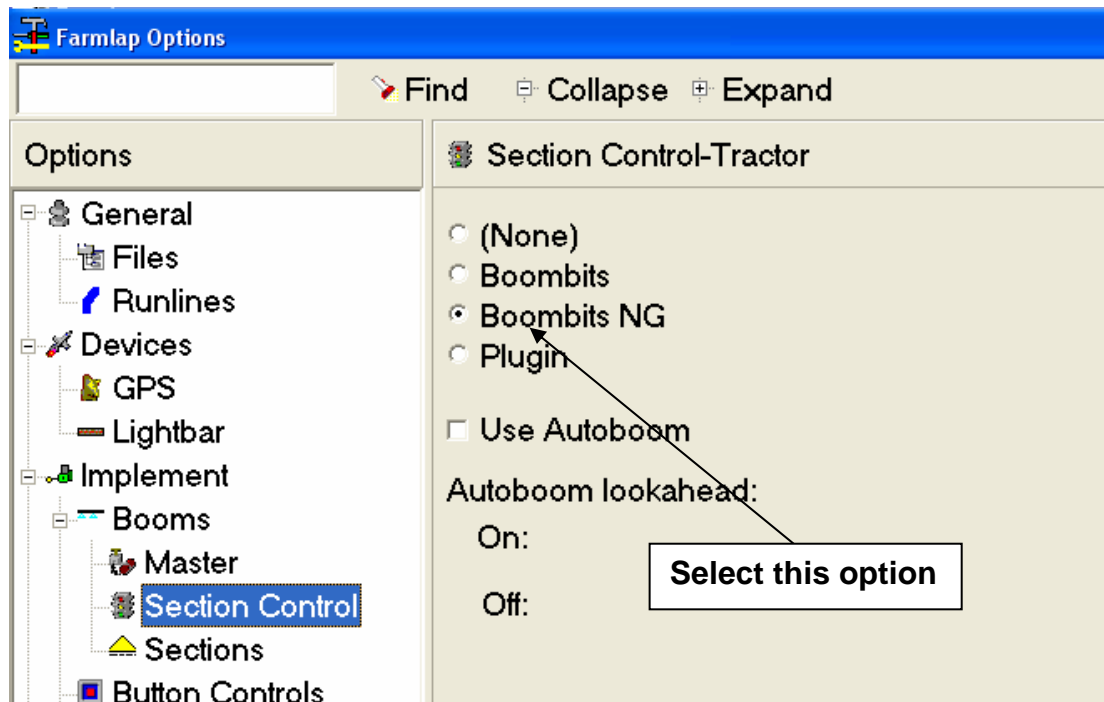
Setting Farmlap Version 1 Options

In order for Farmlap to recognise the 5300 Boombits NG the section control option needs to be set to “Boombits NG”.

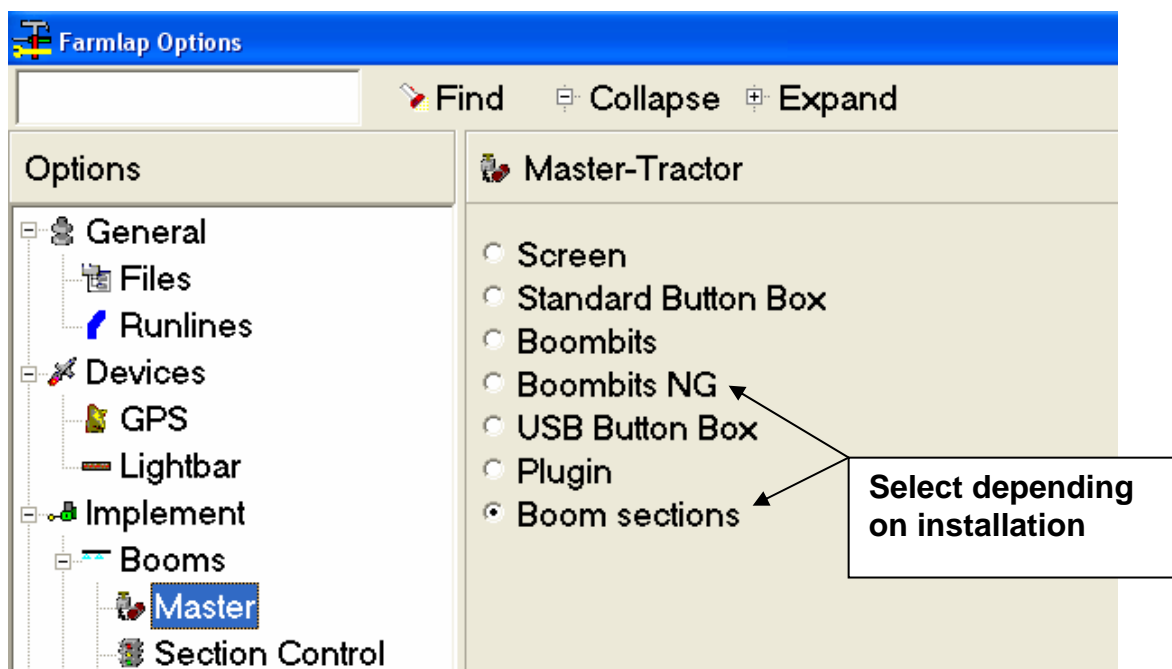
To do this:

Click “View” -> “Options” from the menu bar.

With the options window open click “Expand” -> “Section Control”. The following screen will appear.



After selecting the Boombits NG Option, select **Master** under Options.



If the installation is wired to a master valve select Boombits NG for master switching. This will switch Farmlap to “Not working” when the master switch is Off.

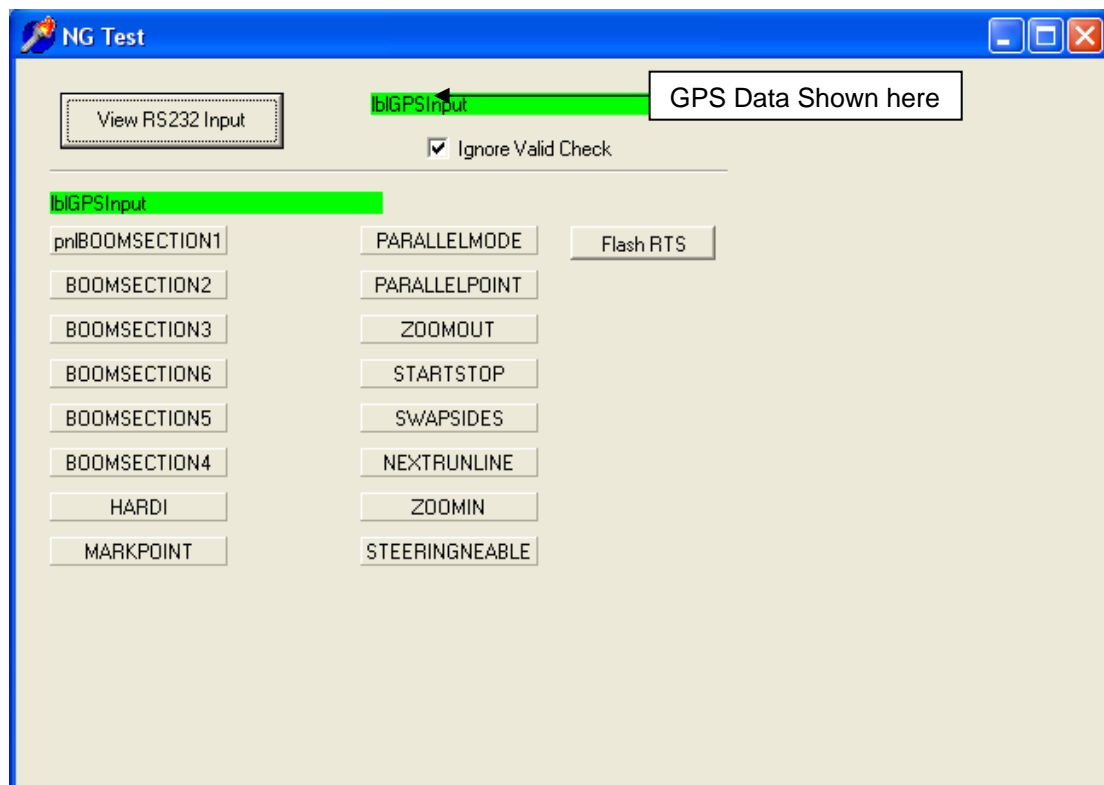
Installations wired to individual section valves and not including a master valve, require Boom sections to be selected for master switching. When this option is selected Farmlap will **Not** go into **working** mode when all sections are switched “Off” and then return to working mode when a section is switched on.

Testing Installation (Only applies to Version 1)

It is possible to test your installation using “NG Test” software already installed on your Farmlap computer. It is recommended that the system be tested prior to operating in farmlap, this will avoid confusion and trouble shooting if a problem is seen while spraying.

Follow the procedure below to test installation.

1. Open the NG Test software by clicking: Start -> Programs -> Farmscan -> NG Test. The window below will appear.



2. Ensure the 5300 unit and GPS Receiver are switched on.
3. GPS data must be received and sent out via the 5300 NG box for testing and operation.
4. When installed on a Hardi Boomspray the “HARDI” button will be highlighted in green in the “NG Test” window.
5. Button box functions do not work in this setup so there should not be any feedback from these buttons.
6. When a section is activated the corresponding button in the test window will highlight green.

Trouble Shooting

Problem	Possible Cause	Remedy
No “coverage lines” when work is started.	Unit not operating.	Switch 5300 on. Check power to unit. Ensure 12V DC is supplied.
	Master not switching	Incorrect installation of wiring. Check wiring table (see loom installation).
	Farmlap options incorrect.	Set boom master to either boom sections or Boombits NG depending on installation (see “Setting Farmlap Options”).
	No GPS input	Ensure unit is on and is outputting data. Check farmlap GPS port settings correspond to the port used by the receiver.
Wrong section switching shown on Farmlap.	Loom installation incorrect	Review loom installation table and check appropriate connections between Implement Loom and sprayer loom.
Section not responding on Farmlap when switched on spray controller.	Break in circuit between 5300 and sprayer loom.	Check all connections for break, corrosion etc. Clean and reconnect where necessary