BOOMPILOT®

INSTALLATION MANUAL

BOGBALLE CALIBRATOR with Matrix® Pro GS
- Automatic Section Control & Variable Rate Control -

TeeJet® TECHNOLOGIES

BoomPilot®

A Subsidiary of Spraying Systems Co.®

Safety information
TeeJet Technologies is not responsible for damage or physical harm caused by failure to adhere to the following safety requirements.

As the operator of the vehicle, you are responsible for its safe operation.

The BoomPilot is not designed to replace the vehicle’s operator.

Do not leave a vehicle while the BoomPilot is engaged.

Be sure that the area around the vehicle is clear of people and obstacles before and during engagement.

The BoomPilot is designed to support and improve efficiency while working in the field. The driver has full responsibility for the quality and work related results.

Disengage BoomPilot before operating on public roads or when not in use to prevent loss of vehicle control.

Table of contents

INTRODUCTION TO MATRIX PRO GS

1. PRINCIPLE OF OPERATION

The Matrix controls the granular spreader according to the GPS position as well as the GPS guidance to avoid overlaps or skips. The Matrix controls the granular spreader in automatic mode and monitor the spreader in manual mode. The operator is always able to override the control of the spreader via the START/STOP key on the Calibrator.

2. FEATURES

The Matrix PRO GS in combination with the BOGBALLE smartcable and CALIBRATOR, adds **'Automatic Section Control' (ASC), 'Variable Rate Control' (VRA) and GPS Speed** to the spreader (See table below). The Smart cable also support the Bogballe 'SC Dynamic' spreaders. The 'Start/Stop' points at headland is mainly related to the working width. To keep the user-friendliness of the BOGBALLE system, the CALIBRATOR has a build-in automatic compensation control which corrects information given by the MATRIX.

3. SOFTWARE VERSION

The BOGBALLE CALIBRATOR and the MATRIX communicates via a special RS232 to CAN device. Therefore the software and hardware version in the BOGBALLE CALIBRATOR must be of the right version:

CALIBRATOR	Software ver.	Hardware ver.	Features
ZURF	from 1.16	All	Multi Section (Spreaders without SC Dynamic - 8 virtual sections). Multi Section (Spreaders with SC Dynamic - 8 sections), GPS Speed available via Smart cable VRA available via smart cable (Unlock code 001-267 and Matrix PRO GS V4.11 required).
UNIQ	from 1.13	361 & 362	Multi Section (Spreaders without SC Dynamic - 8 virtual sections). GPS Speed available via Smart cable
ICON	from 1.16	All	Multi Section (Spreaders without SC Dynamic - 8 virtual sections).

REQUIRED COMPONENTS

Unpack the installation kit and identify the required parts for your installation.

Item	Part Number	Description	Quantity
D	90-xxxxx*	Matrix Pro GS guidance controller kit	1
E	45-05826	Power/CAN/Data cable w/COBO connector	1
F	78-05082	SmartCable Bogballe Calibrator.	1
G	45-08101	CAN bus termination	1
H	020-055-UK	Installation manual, Bogballe ASC	1
I	98-05243	Matrix Pro BoomPilot setup guide	1

**Part number is dependent on kit contents*

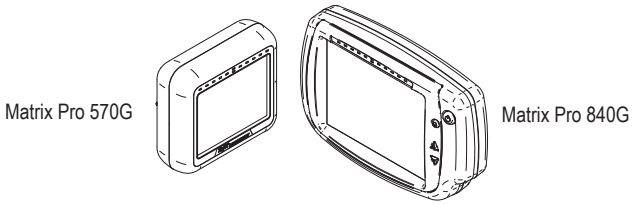
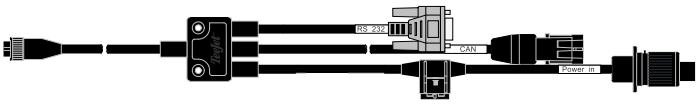
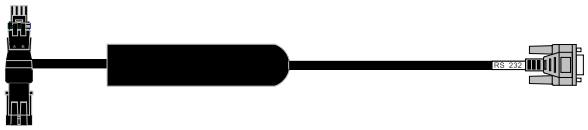
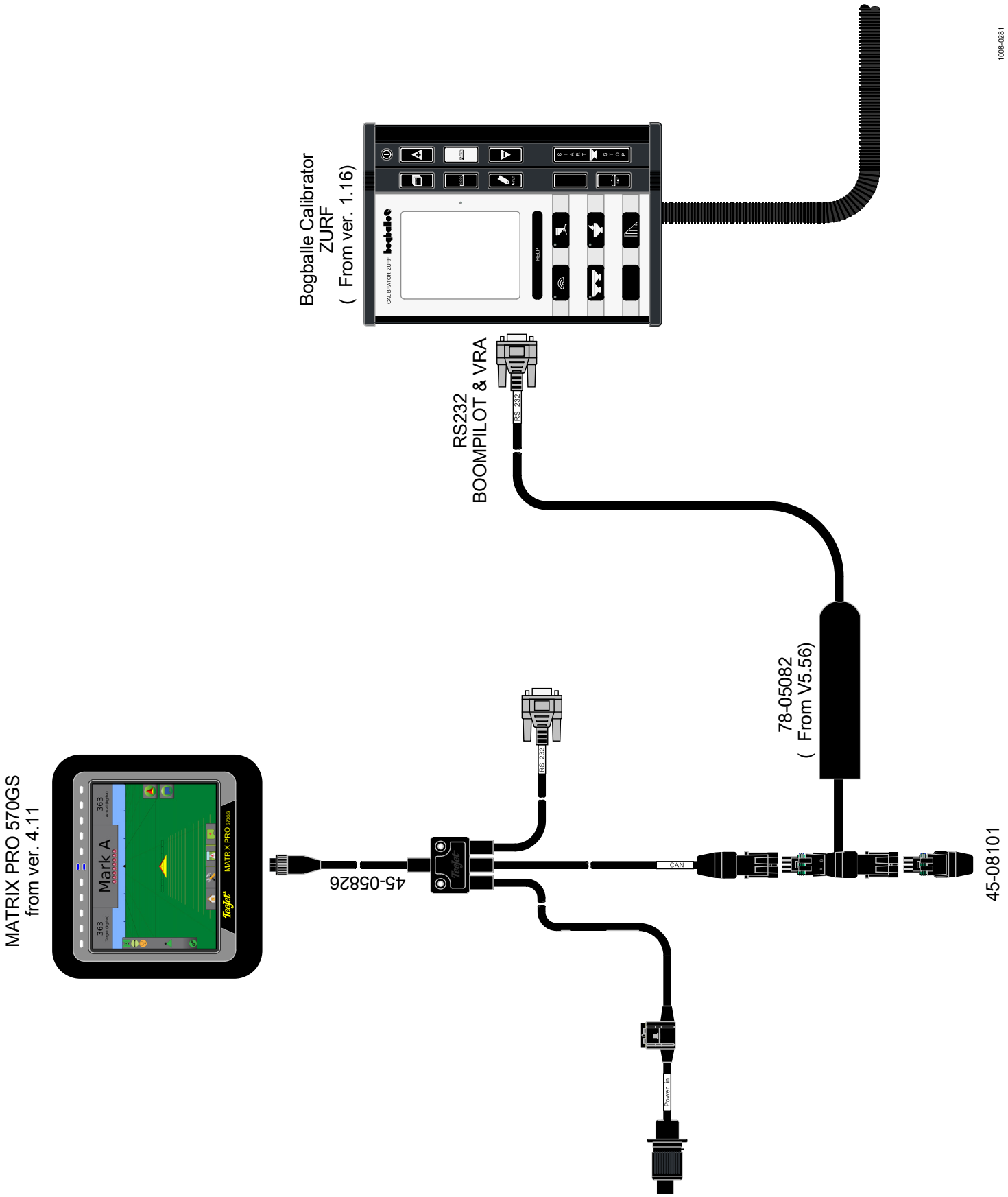
Item	Part #	Description	Illustration
A	Part number is dependent on kit contents	Matrix Pro guidance controller kit	
B	45-05826	Power/CAN/data cable w/COBO connector.	
C	78-05082	SmartCable Bogballe Calibrator	
D	45-08101	CAN bus termination.	
E	020-055-UK	Installation manual, Bogballe Calibrator ASC.	
F	98-05243	Matrix Pro BoomPilot setup guide	

Figure 1: System Overview



INSTALLATION

If there are questions concerning the installation of the BoomPilot system on this vehicle, or due to the changes in component specifications the parts supplied in the kit are not exactly as presented in this document, please contact your dealer or TeeJet Customer service representative for clarification before installation. TeeJet Technologies is not responsible for misuse or incorrect installation of the system.

NOTE: All references to left and right are stated as if the user is seated in the driver's seat.

NOTE: BE VERY CAREFUL TO ABSOLUTELY SECURE ALL CABLES THAT THEY DON'T INTERFERE WITH THE MANY MOVING PARTS OF THE MACHINE.

1. CONSOLE

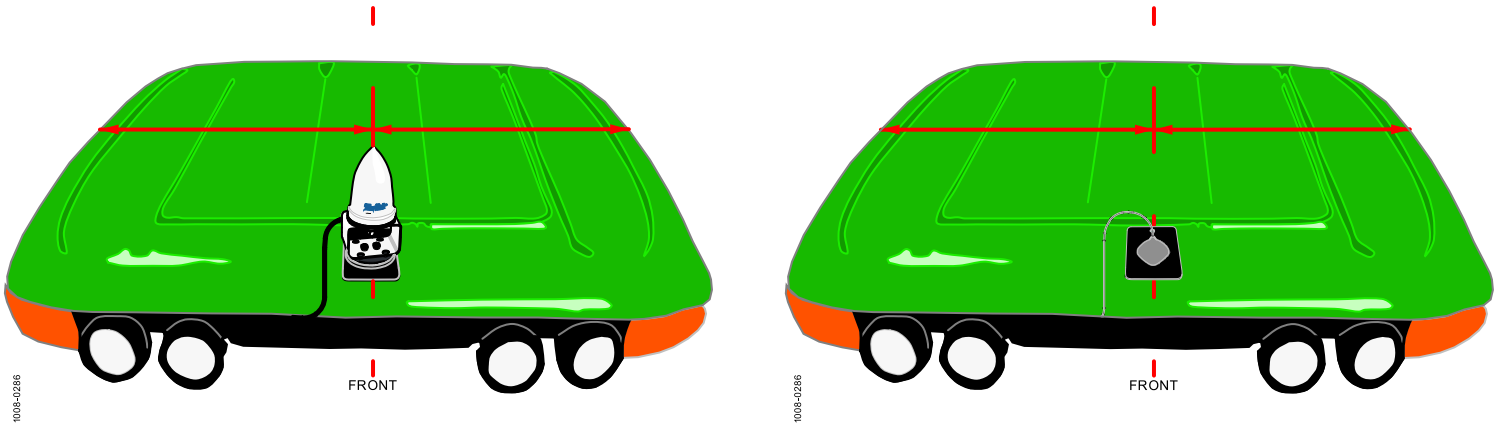
A secure, mechanical mounting solution needs to be employed for permanent mounts within an operating vehicle.

Figure 2: Recommended console placement

2. ANTENNA

The GPS Antenna base is magnetic. Position the antenna in the centre of the vehicle at the highest point with a clear view of the sky. A metal plate with adhesive strips has been included in the kit for easy mounting and installation.

Figure 3: Antenna placement

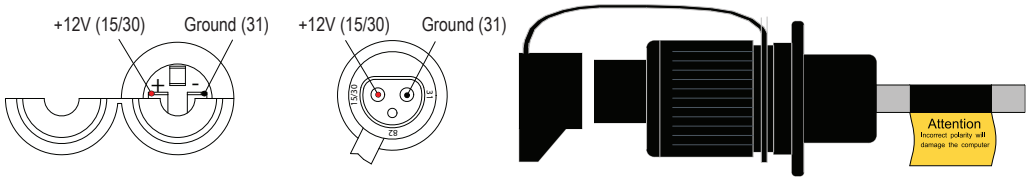


It is STRONGLY recommended to use this metal plate underneath the antenna as it will improve signal acquisition. Once the antenna has been positioned, route the antenna cable carefully to avoid damage.

3. POWER

Connect the Matrix to constant power via the 3P connector (Only the big pins no. 15/30 and no. 31 are used).

Figure 4: Power connector



Pos.	Description
1	+12V (15/30)
2	Ground (31)

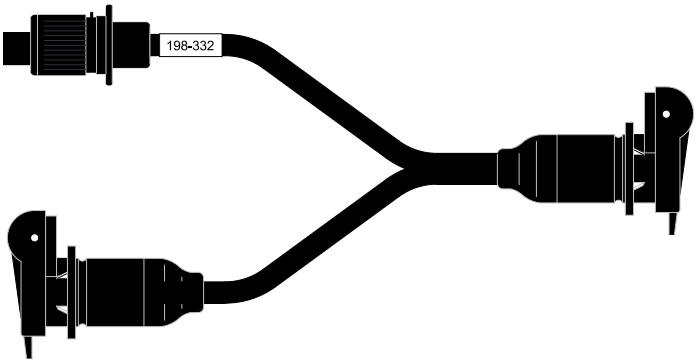
Warning: When connecting the system to 12V power it's very important that the polarity is correct, if not the system will be damaged.

Battery Cable (Option)

If an extra power connector (socket) is requirred, TeeJet offer two optional battery cables:

Figure 5: PN 96ET14:

Figure 6: PN 198-332:



SETUP AND TEST

4. AUTOMATIC SECTION CONTROL - SETUP AND TEST

Refer to the Matrix Pro GS User Guide for further instructions on setting up and using your Matrix Pro GS.

To check the system it's necessary to have full GPS signal so the vehicle must be placed outside. Connect all cables before starting the MATRIX and the BOGBALLE CALIBRATOR.

MATRIX

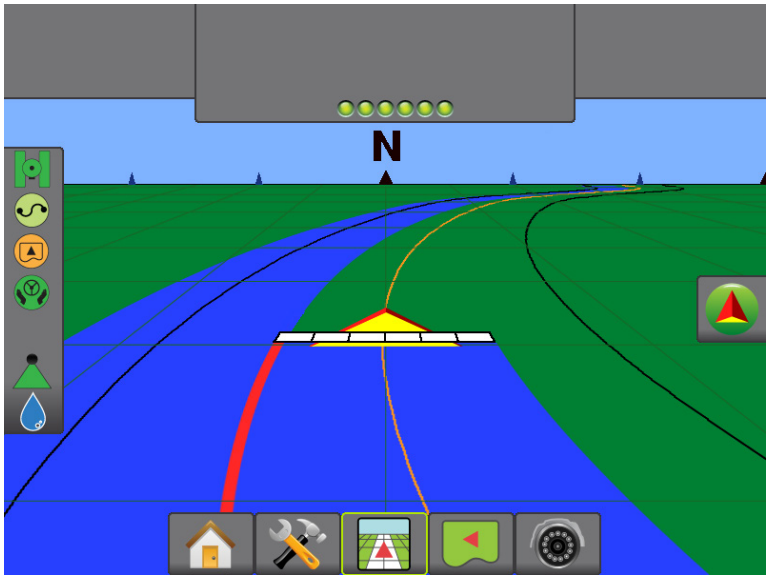
- Encode working width (8 sections)
- Encode antenna 'Direction', 'Offset' and 'Hight'
- Encode 'Overlap' (50%)
- Encode 'Delay-start' and 'Delay-stop' (0)
- Select AUTO in the 'Work-screen' (Press the green triangle)

BOGBALLE CALIBRATOR

- For general setup, refer to the BOGBALLE manual
- Press the 'STAT/STOP' key on the CALIBRATOR
- Drive forward (Min. 1.2 kmh)
- Check that all sections in the MATRIX 'Work-screen', turns on
- Check the 'Scale' indicator opens in the CALIBRATOR 'Work-screen'

  Note: Recommended speed when entering the headland is 6-8 kmh.

Figure 7: Test



5. VARIABLE RATE CONTROL - SETUP

Before using the Matrix PRO GS for Variable Rate Control, the console must be un-locked. Please contact your TeeJet dealer for further information.

MATRIX

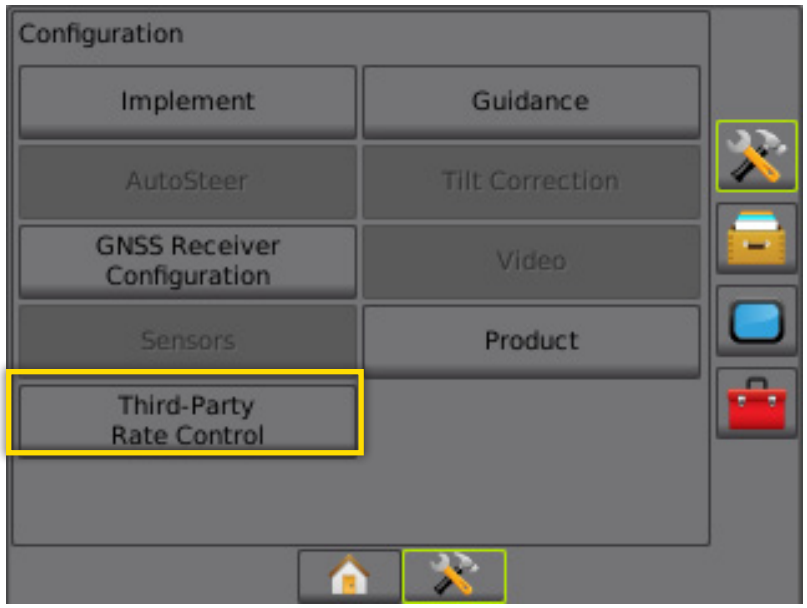
- After entering the un-lock code and re-start, select 'Third-Party Rate Control'.
- Check 'Third-Party-Rate Control' is enabled.
- Hardware interface = CAN.
- Communication Protocol = Teton.
- Controller mode = Granular.
- Serial Baud Rate = (Not used when CAN is selected).
- Rate Controller status = Test of connection

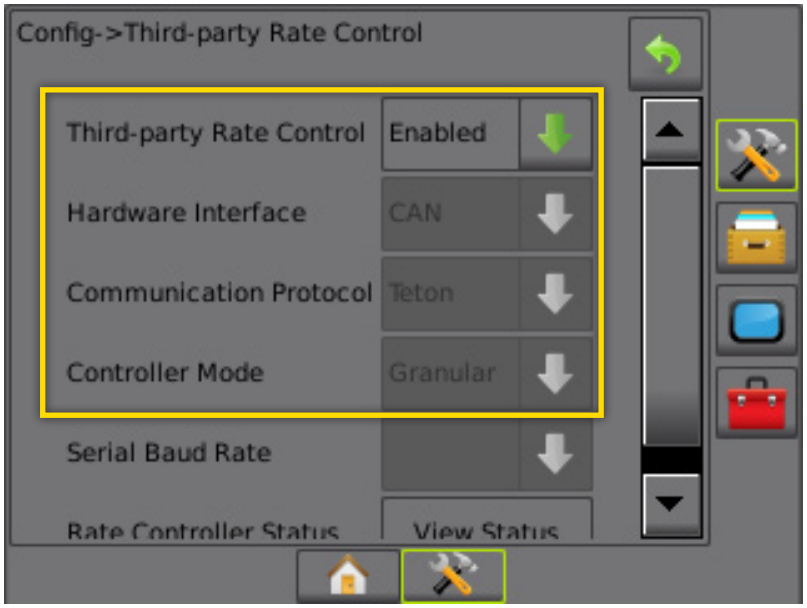
To change the settings, 'Third-Party Rate Control' must be disabled.

BOGBALLE CALIBRATOR

- For general setup, refer to the BOGBALLE manual.

Figure 8: VRA Setup

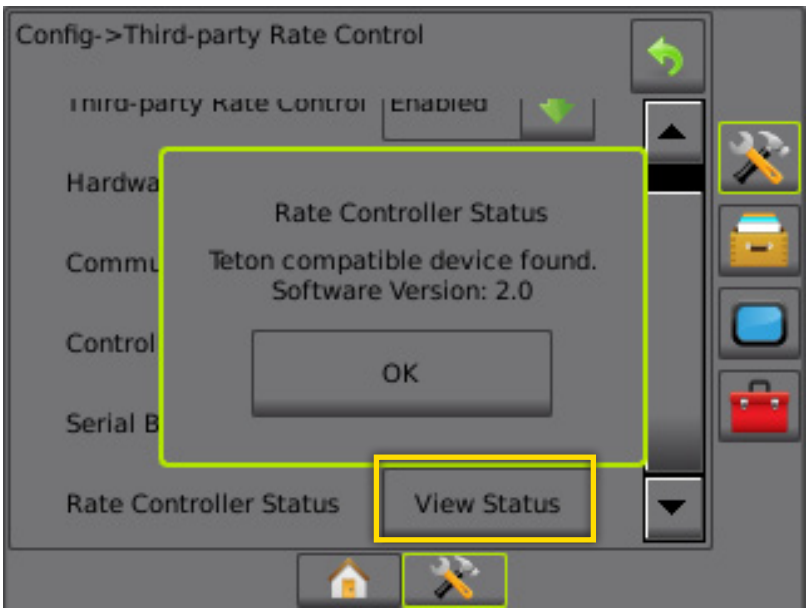




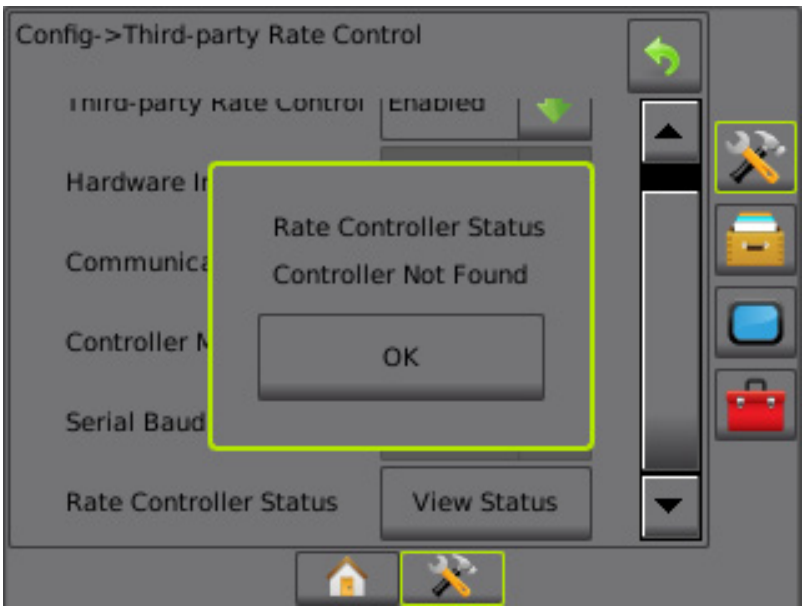
6. VARIABLE RATE CONTROL - TEST

By pressing the 'VIEW STATUS' key it's possible to test the connection to the Rate controller. In the example below the connection is ok.

Figure 9: VRA Test



In the example below, no Rate controller is found. Check settings and connections.



BOOMPILOT®
INSTALLATION MANUAL

A series of equipment-specific installation kits have been developed to work in conjunction with your automated boom section control system. This kit contains the necessary components and instructions to install BoomPilot on a BOGBALLE controller. Please review this manual thoroughly before beginning the installation process.

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