

BOOMPILOT INSTALLATION MANUAL

for Berthoud DP-Tronic Controller
w/ factory installed interface



TeeJet®
TECHNOLOGIES

A Subsidiary of  **Spraying Systems Co.®**

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MATRIX™ with Berthoud DP Tronic Controller

This installation manual covers installation of Matrix with Berthoud DP Tronic Controller. We have endeavoured to deliver a fault free product. To ensure optimal use of the equipment, we ask you to pay great attention when reading this manual. Regarding responsibility for use of the product, we refer to our sales and delivery terms - especially paragraph 7, which follows:

Product usage.

7.1 Any use of the product is at the sole risk of the buyer. The buyer is therefore not entitled to any form for compensation caused by, for example, any of the following:

- Disturbance to/from any electronic services or products that do not confirm to the standards for CE marking,
- Missing or poor signal coverage or a succession hereof from external transmitters/receivers, used by the buyer,
- Functional faults, which apply to or from a PC-program or PC-equipment, not delivered by the seller.
- Faults that may arise from the buyers negligence to react to warnings and fault messages from the product, or which can be traced to negligence and/or absent constant control of the work carried out in comparison to the planned job.

7.2 When implementing any new equipment the buyer must take great care and pay attention. Any doubts as to correct operation/use should result in contacting TeeJet Technologies.

Kind regards,

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INTRODUCTION TO MATRIX - BOOMPILOT

Principle of Operation

The Matrix Guidance controller features control of up to 15 boom sections. The Matrix connects in parallel to the existing wiring loom to the section valves.

The Matrix controls the section valves according to the GPS position as well as the GPS guidance to avoid overlaps or skips.

The Matrix controls the section valves in automatic mode. The section switches should be set to off unless the operator wants to override the auto mode and thus force spraying.

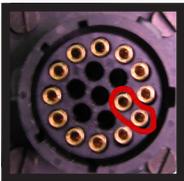
The Matrix monitors the section switches that control the valves in manual mode. The master switch can be used both in automatic mode and in manual mode.

FACTORY INSTALLED BOOMPILOT INTERFACE

BoomPilot interface in DP Tronic

IMPORTANT!

The newer Berthoud sprayers with DP Tronic controllers does now include a factory installed BoomPilot interface. This simplifies the installation of the TeeJet BoomPilot kit.



The two TeeJet BoomPilot kits 990-888 and 990-889 fits the new Berthoud BoomPilot interface (Berthoud no. 292 483 - doc. 590.143-C), which has two extra pins in the round 19P connector (Pos. M & N marked in the red circle).



If the DP Tronic controller has no BoomPilot interface installed from the factory or the BoomPilot interface installed, is of an older type than described above, it's necessary to install Berthoud no. 292 483 or TeeJet no. 902-422, before using Teejet kit no. 990-888 or 990-889.

Required Parts and kit selection

To add BoomPilot to a Berthoud DP Tronic Controller, the following part numbers are required:

Item	Part Number	Description	Quantity
A	90-xxxx*	Matrix Guidance Controller Kit.....	1
B	45-05626	Power/CAN/Data Cable, Matrix	1
C	45-05648	Power cable, Matrix	1
D	990-888	Berthoud DP Tronic BoomPilot kit 2011 (New SAFI or penumatic section valves)	1
OR			
E	990-889**	Berthoud DP Tronic BoomPilot kit 2011 (Old SAFI or ARAG type section valves)	1

*Part number is dependent on kit contents

** 990-889 includes a relay box to convert the signal from the Section Driver Module.

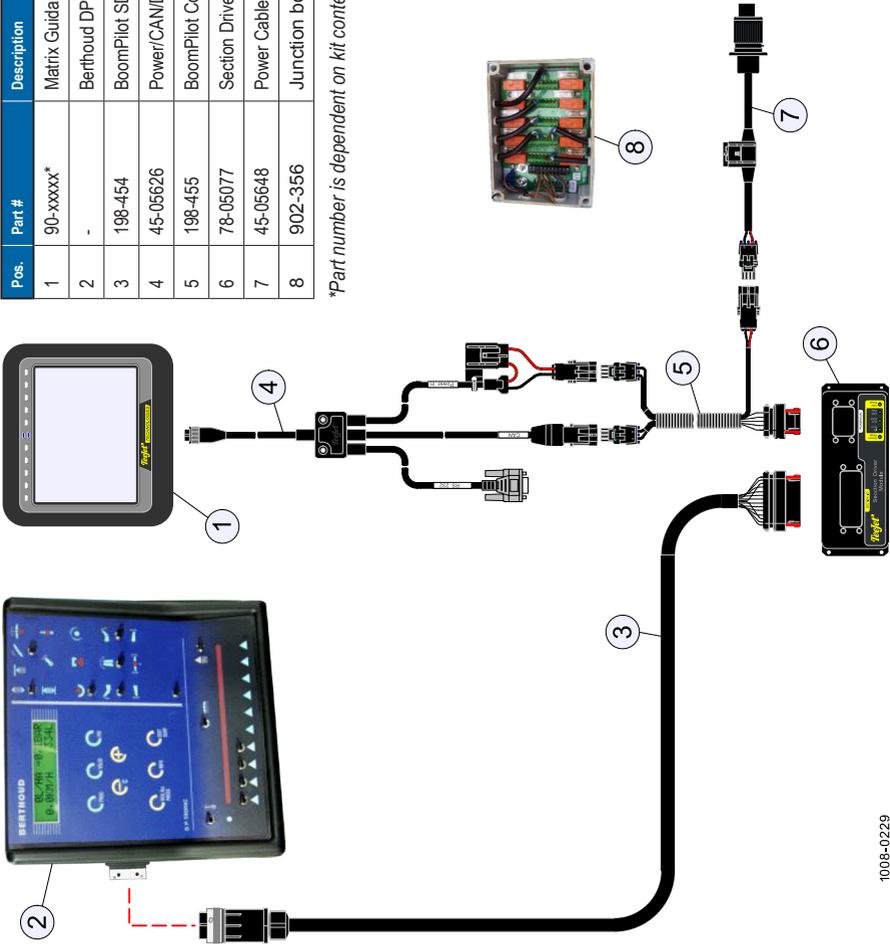
	NEW SAFI		PNEUMATIC	Kit no. 990-888
<ul style="list-style-type: none"> - 3 wire connection - Permanent 12V and Gnd - Switching input 12V = ON 		<ul style="list-style-type: none"> - 2 wire connection - Permanent Gnd - Switching input 12V = ON 		

	OLD SAFI		ARAG	Kit no. 990-889
<ul style="list-style-type: none"> - 3 wire connection - Permanent Gnd - 2 Switching input both 12V 		<ul style="list-style-type: none"> - 2 wire connection - Changeover polarity to open and close 		

SYSTEM DIAGRAM

Pos.	Part #	Description
1	90-xxxxx*	Matrix Guidance Controller
2	-	Berthoud DP Tronic Controller
3	198-454	BoomPilot SDM <=> Sections Controller, NEW
4	45-05626	Power/CAN/Data Cable, Matrix
5	198-455	BoomPilot Console <=> SDM Power & CAN, NEW
6	78-05077	Section Driver Module, NEW
7	45-05648	Power Cable, Matrix
8	902-356	Junction box, DPDT relays, kit. 990-889

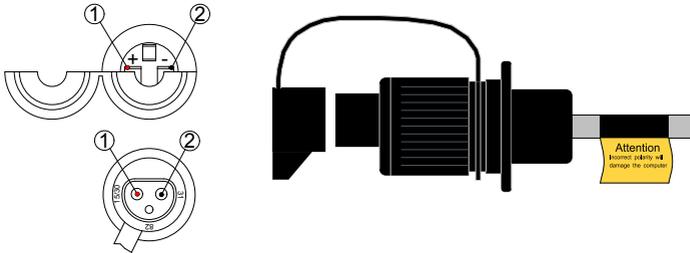
*Part number is dependent on kit contents



INSTALLING THE DP TRONIC BOOMPILOT KIT

Connect the automatic boom section kit as shown on the system overview diagram. The kit includes all necessary connectors to get electrical contact with the DP Tronic system.

Connecting to Power



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

Battery Cable (Option)

The power supply must be strong enough to operate the valves. The total current will depend on the type of valve used.

If a power connector (socket) is not available in the tractor cabin, an optional battery cable can be used (PN 96ET14).



VALVES CONNECTION

Berthoud sprayers with New Safi or pneumatic valves:

No particular connection has to be done. Original cabling is ok.

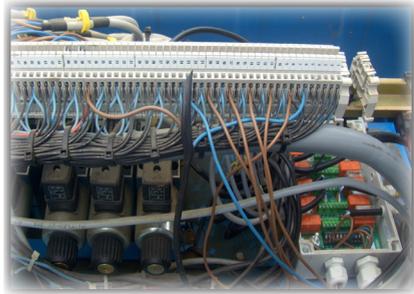
Berthoud sprayers with Old Safi or Arag valves:

Relay box installation

Take out the blue cover above the boom



Fix the relay box to the frame



Connect loose wires to the connection bloc. Below a informative table but verify that the respective connections are giving out 12 V when section is ON.

Name	S1	S2	S3	S4	S5
Pin	8	11	14	17	20

Name	S6	S7	S8	GND	12V
Pin	23	27	30	6	37



Valves connections to relay box:

Disconnect the valves from the connection bloc and connect them into the relay box.

For old SAFI valves:

Wire Color	Connection	Function
Brown	NH	12 V for closing
White	NL	12 V for opening
Blue	GND	Permanent Ground

For ARAG valves:

Wire Color	Connection	Function
Brown	NH	12 V for closing
Blue	NL	12 V for opening



SYSTEM CHECK

To check the system it's necessary to have full GPS signal so the vehicle must be placed outside.

Check AUTO mode:

Berthoud DP Tronic Controller:

- Set the section switch's off
- Set the Master switch on
- Turn the DP Tronic controller on

Matrix:

- Turn the Matrix on
- Encode the number of sections and the width of each (Refer to the Matrix user manual)
- Wait for DGPS (Green satellite on)
- Set the mode to AUTO (Press the green triangle icon)
- Drive forward (Min. Speed 1.5 km/h)
- Observe that all sections and the master valve open.
- Check that the Master valve closes when the Master switch is set off.
- Check hectare counter in the Matrix against the DP Tronic controller.

Check MAN mode:

Berthoud DP Tronic Controller:

- Set the section switch's on
- Set the Master switch on
- Observe that all sections and the master valve open.
-

Matrix:

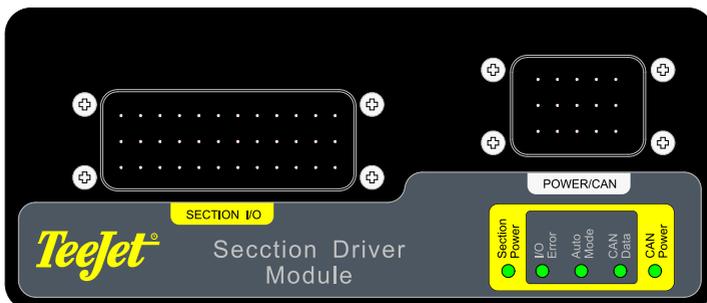
- Set the mode to MAN (Press the green triangle icon).

Check that the boom section icons turn OFF and ON according to the valve/switch status.



LED's on the Section Driver Module (SDM):

- Sec. Power:** ON when power is available for the section drivers.
- I/O error:** Should normally be OFF
- Auto Mode:** ON when automatic boom switching is active.
- CAN Data:** ON is flashing when it communicates with the Matrix.
- CAN Power:** ON when power is applied to the Matrix and the SDM module



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