

# BOOMPILOT<sup>®</sup>

## INSTALLATION MANUAL

Automatic boom section control installation manual  
for use with Müller Spraydos w/Matrix<sup>®</sup> Pro



**TeeJet<sup>®</sup>**  
TECHNOLOGIES

**BoomPilot<sup>®</sup>**

A Subsidiary of  Spraying Systems Co.<sup>®</sup>

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## 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.

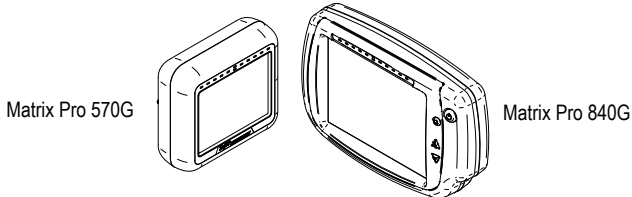
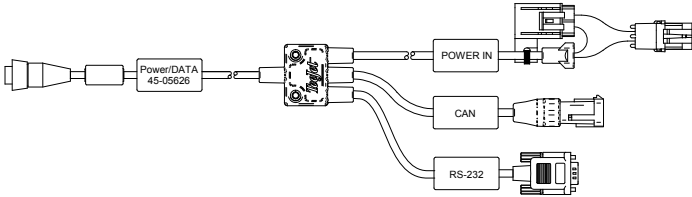
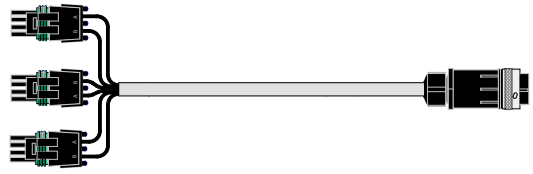
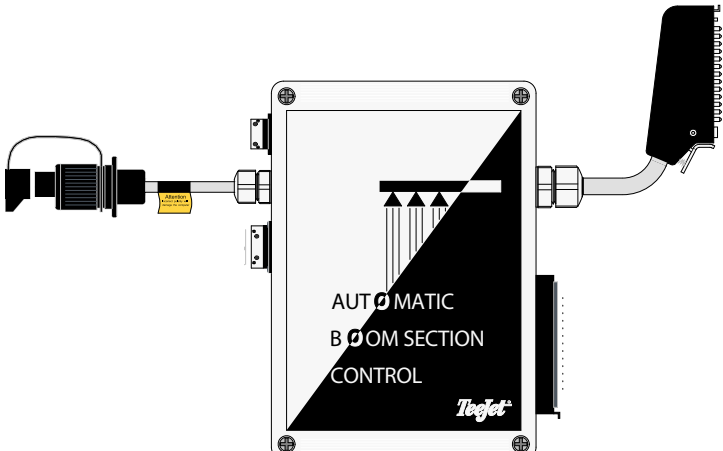
Disengage BoomPilot before operating on public roads or when not in use to prevent loss of vehicle control.

## REQUIRED COMPONENTS

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

Item	Part Number	Description	Quantity
A	90-xxxx*	Matrix Pro guidance controller kit .....	1
B	45-05845	Power/CAN/data cable .....	1
C	199-263	BoomPilot adapter cable.....	1
D	902-361	ABSC adapter box .....	1
E	903-326	Müller Spraydos adapter cable (with COBO power), 5 sections.....	1
	903-325	Müller Spraydos adapter cable (with COBO power), 7 sections.....	1
	903-327	Müller Spraydos adapter cable (with COBO power), 9 sections.....	1
F	020-041	Installation manual, Müller Spraydos .....	1
G	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	 <p>Matrix Pro 570G      Matrix Pro 840G</p>
B	45-05845	Power/CAN/data cable	 <p>Power/DATA 45-05826</p> <p>POWER IN</p> <p>CAN</p> <p>RS-232</p>
C	199-263	BoomPilot adapter cable	
D	902-361	ABSC adapter box	 <p>AUTOMATIC BOOM SECTION CONTROL</p> <p>Teget</p>

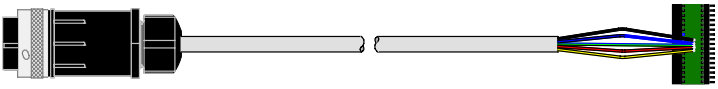
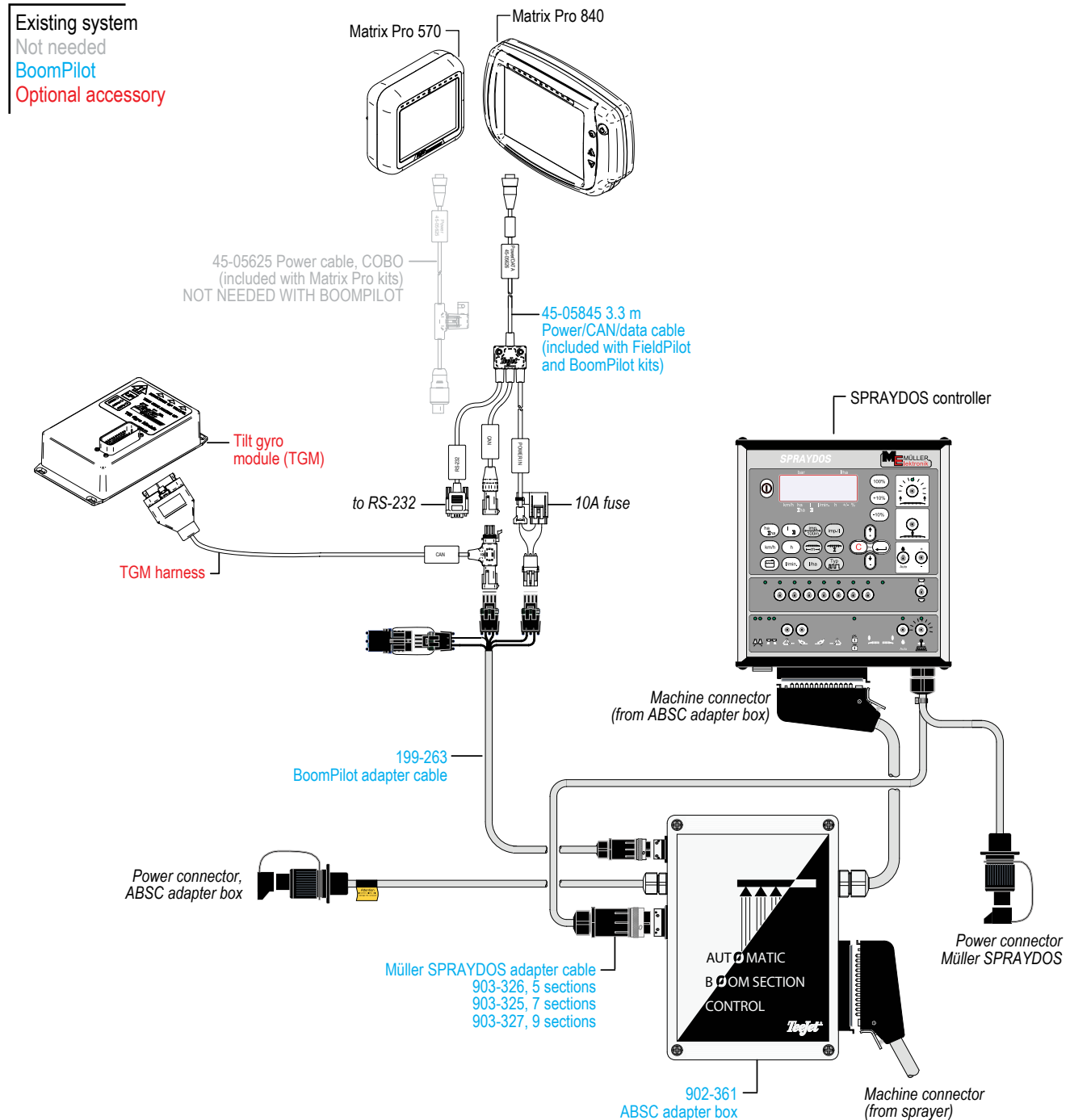
Item	Part #	Description	Illustration
E	903-326	Müller Spraydos adapter cable (with COBO power), 5 sections	
	903-325	Müller Spraydos adapter cable (with COBO power), 7 sections	
	903-327	Müller Spraydos adapter cable (with COBO power), 9 sections	
F	020-041	Installation manual, Müller Spraydos	
G	98-05243	Matrix Pro BoomPilot setup guide	

Figure 1: System diagram



## PRINCIPLE OF OPERATION

The BoomPilot system controls the sections valves according to the GPS position. The GPS makes it possible to avoid overlaps or skips.

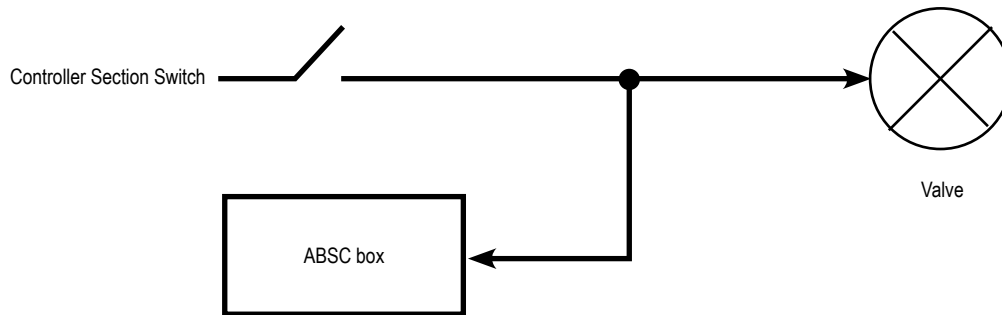
The ABSC (automatic boom section control) box is designed for switching active high when spraying. This means that a 12V signal is issued to control the corresponding section valve.

The ABSC box is connected in parallel with the controller section switches.

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

The BoomPilot monitors the controller section switches that controls the valves in manual mode. The the Master switch can be used both in automatic mode as well as in manual mode.

Figure 2: Principle of operation



## INSTALLATION



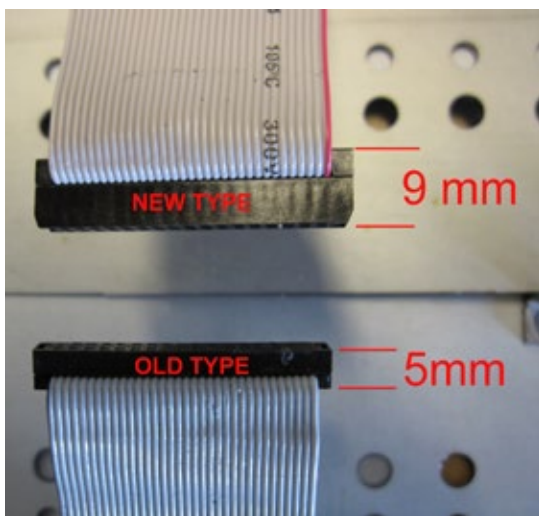
If there are questions concerning the installation of the BoomPilot system on this vehicle, or due to the changes in component specifications the parts supplied in the kit are not exactly as presented in this document, please contact your dealer or TeeJet Customer service representative for clarification 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 AND HOSES SO THAT THEY DON'T INTERFERE WITH THE MANY MOVING PARTS OF THE MACHINE!*

### 1. INSTALLING THE SPRAYDOS ADAPTER CABLE

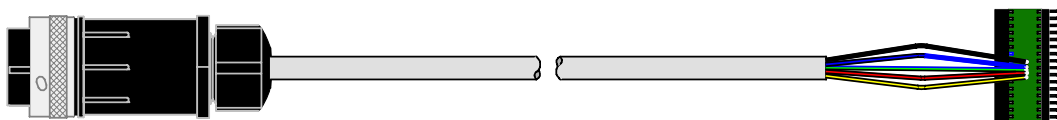
To get electrical contact with the sections and the Master switch in the Spraydos, it's necessary to install the adapter cable (E), in the Spraydos controller. This is a critical operation and must only be conducted of persons with the necessary skills.



The adapter cable can only be installed in Spraydos controllers where the connector between the processor board and the main board is a 'Low-profile' type (see picture on left).

In case the Spraydos controller is damaged during the installation, it's on the buyers sole risk and therefore the buyer is not entitled to any form for compensation.

Figure 3: Spraydos adapter cable



1. Unscrew the top and bottom endplate of the Spraydos controller.
2. Pull carefully the keypad incl. The circuit board out of the profile until you can see the buzzer in the bottom of the profile. Be careful, the wires are just long enough to make it possible to unscrew the buzzer from the profile.

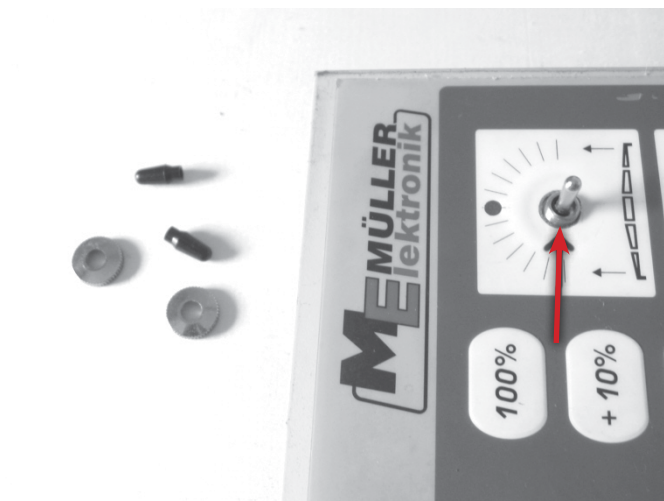
*NOTE: Not all Spraydos controllers has the buzzer fastened as shown, some has it placed on the circuit board.*

Figure 4:



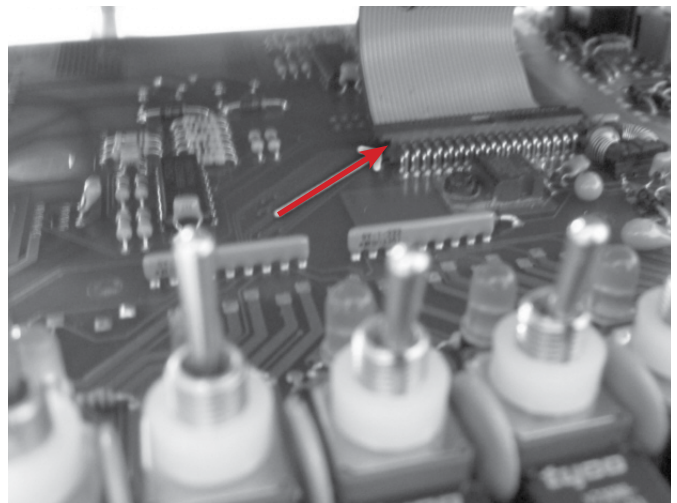
3. Pull off the black plastic caps on the switch's and unscrew all the small nuts.
4. Turn the unit around and unscrew the two 3 mm screws, which connect the circuit board with the keypad in the top of the controller.

Figure 5:



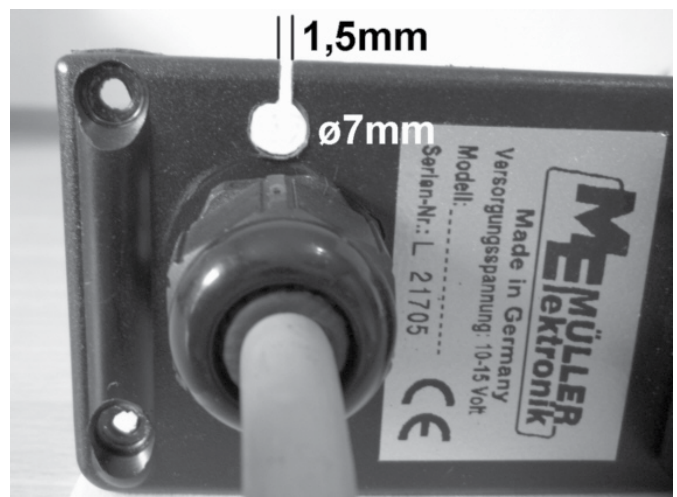
5. Lift the keypad and pull the controller flex cable carefully out of the connector.

Figure 6:



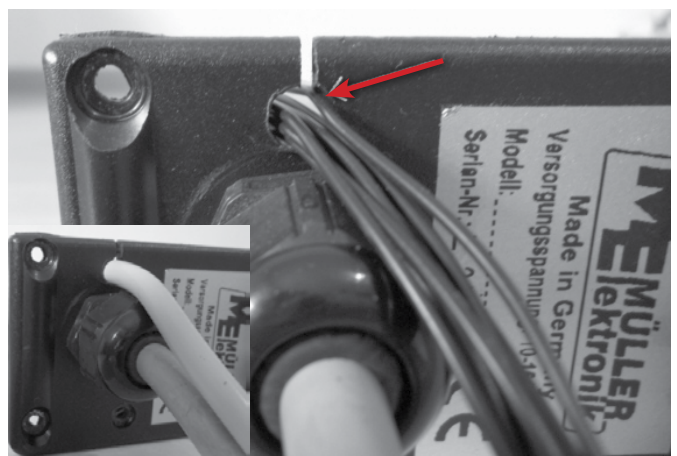
6. Drill a 7 mm hole in the bottom plastic end plate between the power cable gland and the rear edge of the end plate.
7. Make a 1.5 mm gap as shown on the picture.

Figure 7:



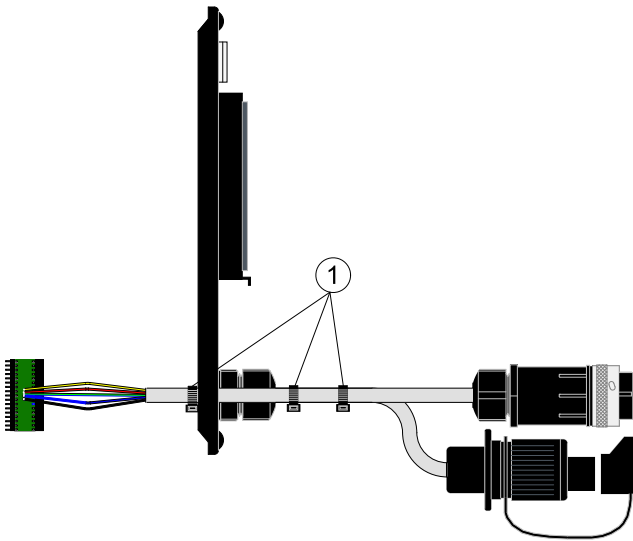
8. Place the free wires of the Spraydos adapter cable one by one in the hole and pull the cable trough as shown..

Figure 8:



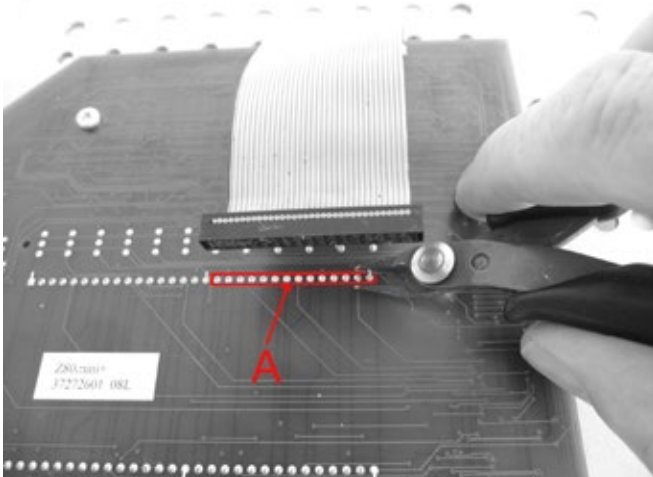
9. Fasten the adapter with a cable strip (POS 1).

Figure 9:



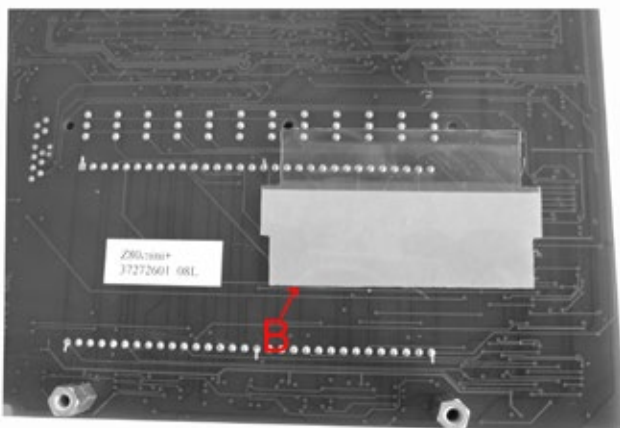
10. To protect the controller flex cable against the sharp ends shown on the picture, it's necessary to cut these [A]. Cut 14 ends with a sharp suitable tool.

Figure 10:



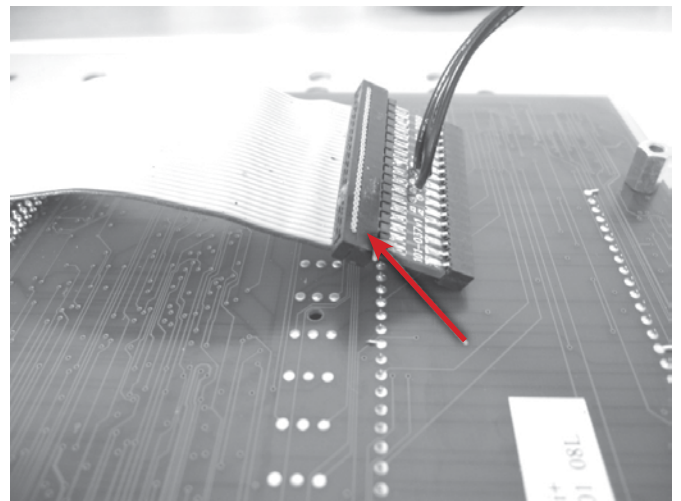
11. Place the protection plastic plate [B] with the adhesive tape as shown on the picture.

Figure 11:



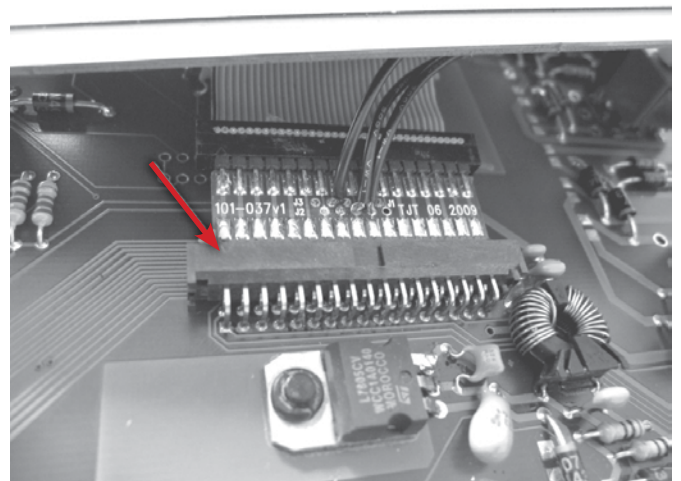
12. Connect the small adapter circuit board to the keypad flat cable connector as shown on the picture.

Figure 12:



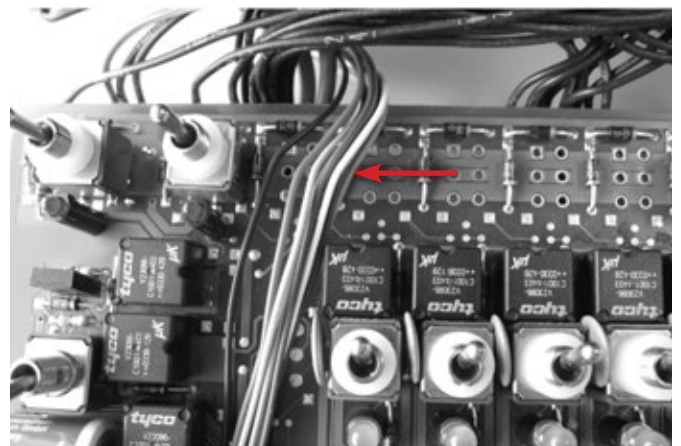
13. Connect the small adapter circuit board to the controller board. Make sure the connectors are correct positioned and fully connected.

Figure 13:



14. Place the adapter cable wires inside the controller.

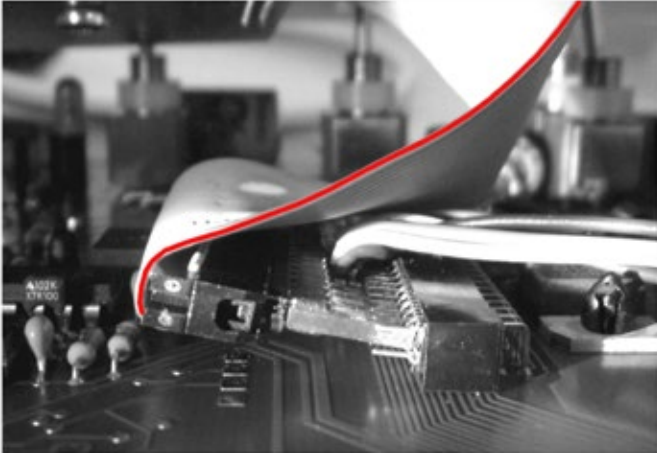
Figure 14:



15. Place the flex cable inside the controller.

16. Mount the keypad again.

Figure 15:

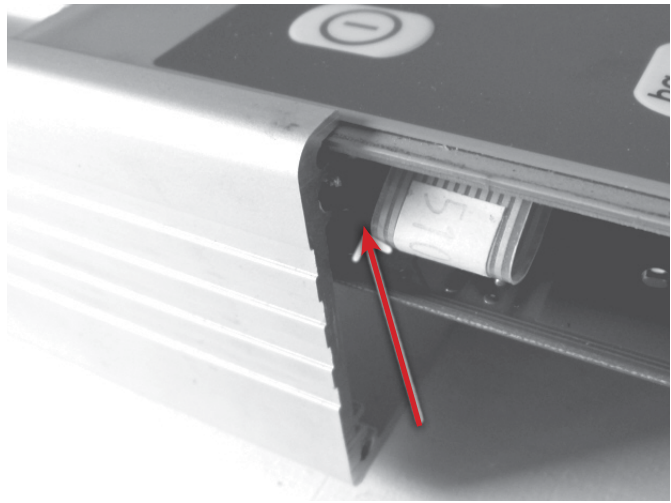


17. Be care full when the keypad is mounted in the profile again.

There is a risk for damaging the flex board.

18. Assemble the controller again and connect the system as shown in the system overview drawing.

Figure 16:

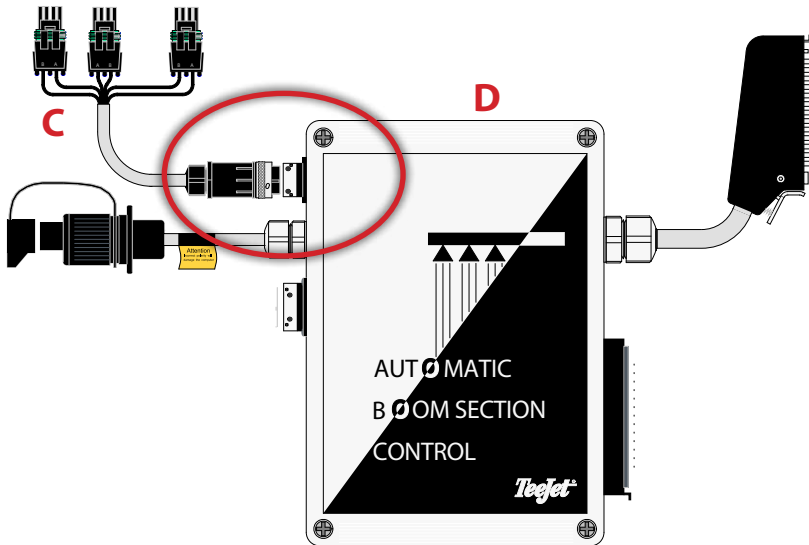


## 2. MOUNT & CONNECT ABSC ADAPTER BOX

1. Mount ABSC adapter box (D) as shown where LED's can be seen for troubleshooting.

2. Connect BoomPilot adapter cable (C) to ABSC adapter box (D).

Figure 17: Connect ABSC adapter box



### 3. DISCONNECT & RECONNECT SPRAYDOS ADAPTER CABLES

The ABSC adapter box (D) ties into the existing system's connection between the Müller Spraydos rate controller and flow control harness.

1. Disconnect existing connection at the bottom of the Müller Spraydos console.
2. Connect ABSC adapter box (D) to Müller Spraydos console.
3. Connect existing Müller Spraydos cable to ABSC adapter box (D).

Figure 18: Disconnect existing connection

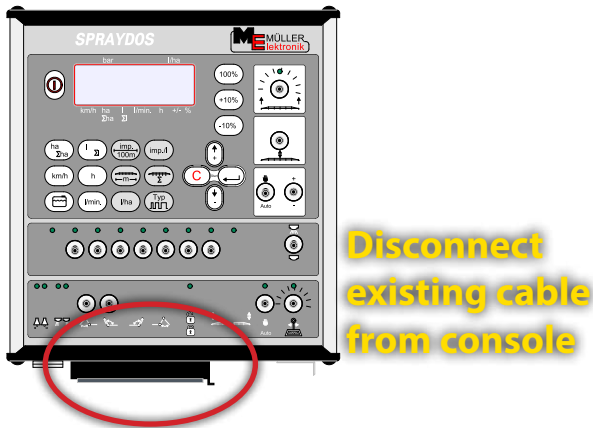
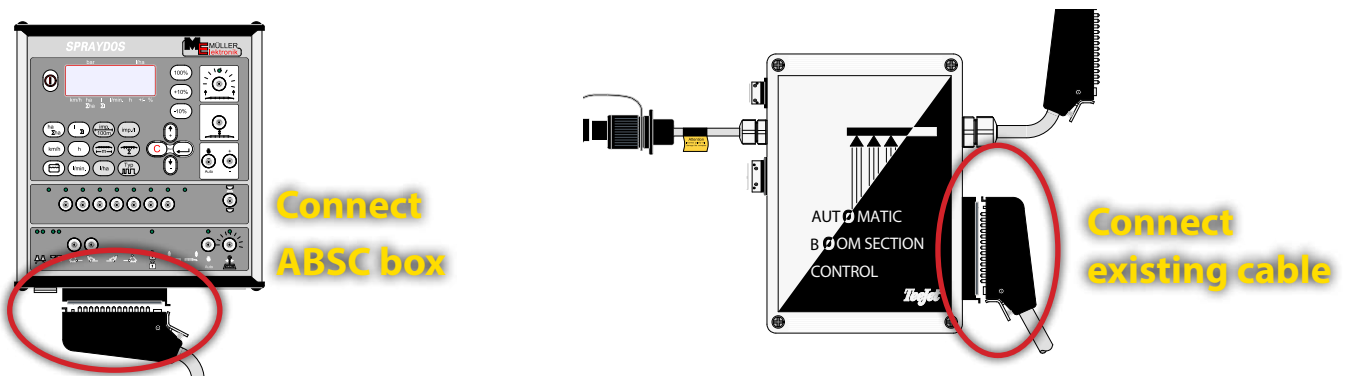


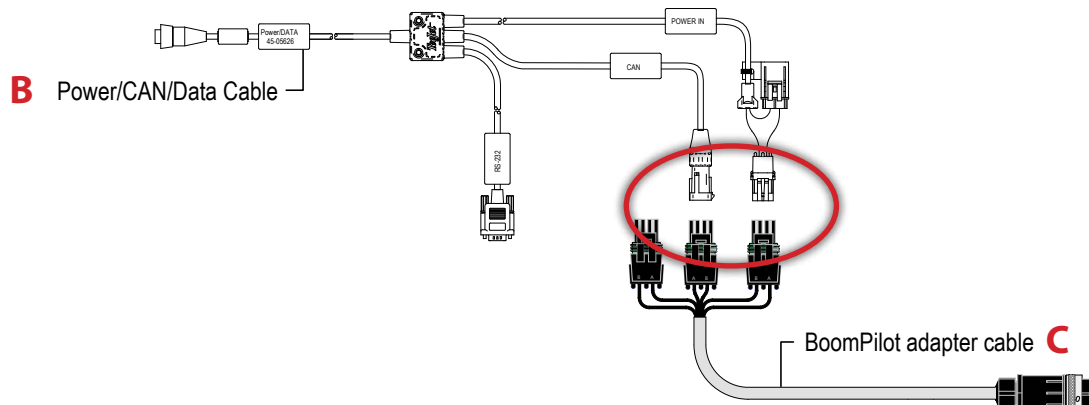
Figure 19: ABSC adapter box to Müller Spraydos console Existing Müller Spraydos cable to ABSC adapter box



### 4. CONNECT POWER/CAN/DATA CABLE TO BOOMPILOT ADAPTER CABLE

Connect Power/CAN/data cable (B) to BoomPilot adapter cable (C).

Figure 20: Connect power/CAN/data cable to BoomPilot adapter cable

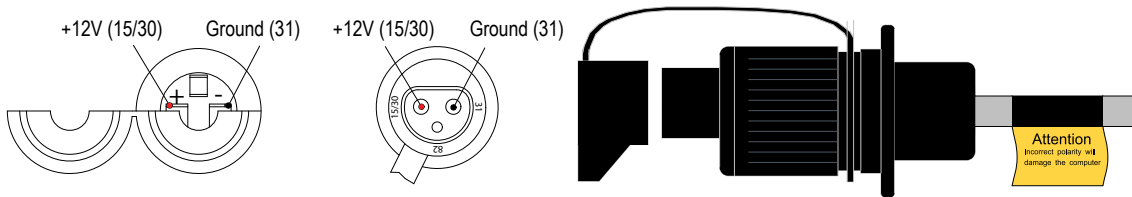


## 5. CONNECTING TO POWER

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

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

Figure 21: COBO cable



### Optional Battery Cable

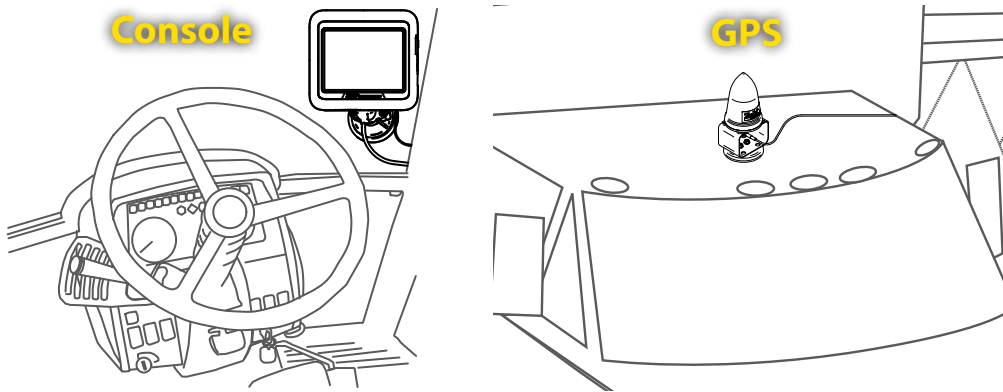
If a power connector (Socket) isn't available in the tractor cabin, an optional battery cable can be used (PN 96ET14).



## 6. RECOMMENDED ELECTRONICS INSTALLATION

The control console can be mounted to the operator's preference. The GPS antenna should be mounted in the center on top of the cab on a metal surface of at least 10 cm square.

Figure 22: Recommended electronics installation



## 7. COMPLETE ELECTRONIC INSTALLATION

Refer to the Matrix Pro BoomPilot Setup Guide for further instructions on setting up and using your Matrix Pro for ABSC.

If not using a Matrix Pro, please refer to the owner's manual supplied with the guidance system to complete the electronic installation and setup.

## SYSTEM CHECK

After connecting the power connector, it is time to make a system check. To check the system, it is necessary to have full GPS signal. To obtain full GPS signal, the vehicle must be placed outside.

### Check AUTOMATIC mode:

#### Müller Spraydos:

Section switches should be in the OFF position when working in Automatic mode. The Master switch will control the sprayer and should be ON to enable automatic switching of the sections.

#### Matrix Pro:

- Turn on the Matrix Pro console
- Encode the number of sections and the width of each (Refer to the Matrix Pro user manual)
- Wait for GPS signal
- Set the BoomPilot mode to AUTOMATIC  
◀ Status Bar Icon will change to green ▲
- Drive forward (> 2 km/h)
- Observe that all valves open
- Check that the valves close when the Master switch is set to OFF

### Check MANUAL mode:

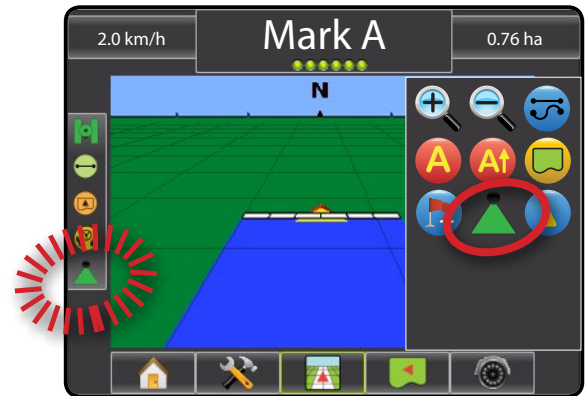
#### Müller Spraydos:

- Set the section switches to ON
- Set the Master switch to ON

#### Matrix Pro:

- Set the BoomPilot mode to MANUAL  
◀ Status Bar Icon will change to red ▲
- Check in the 'Vehicle View Screen' (Matrix Pro) that the section icons turn off and on according to the valve/switch status
- Observe that all valves are open

Figure 23: Automatic to all booms on mode



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# BOOMPILOT<sup>®</sup>

## USER MANUAL

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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 ABSC on a Müller Spraydos w/Matrix<sup>®</sup> Pro. Please review this manual thoroughly before beginning the installation process.

**BoomPilot<sup>®</sup>**



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020-041-UK R6 English  
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