

BOOMPILOT® INSTALLATION MANUAL

Automatic boom section control installation manual
for use with ARAG BRAVO 180 controller w/Matrix® Pro



TeeJet®
TECHNOLOGIES

BoomPilot®

A Subsidiary of  Spraying Systems Co.®

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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.

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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	902-363	ABSC adapter box	1
E	903-330	ABSC adapter box kit for ARAG 180, 4 sections	1
	903-331	ABSC adapter box kit for ARAG 180, 5 sections	1
F	020-042	Installation manual, ARAG BRAVO 180.....	1
G	98-05243	Matrix Pro BoomPilot setup guide	1

*Part number is dependent on kit contents

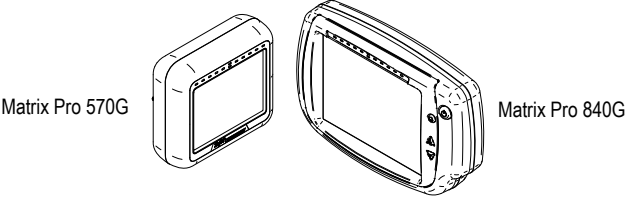
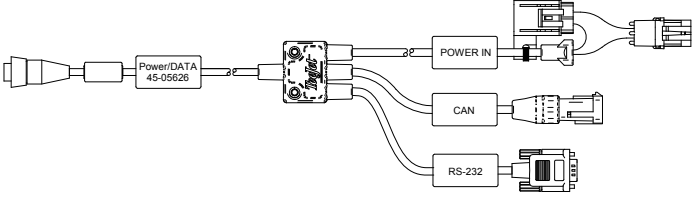

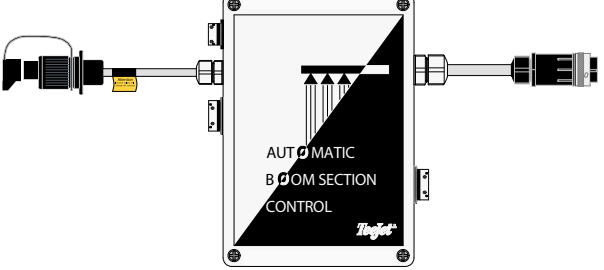
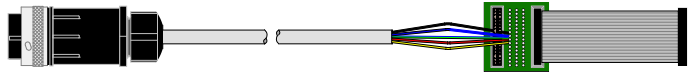
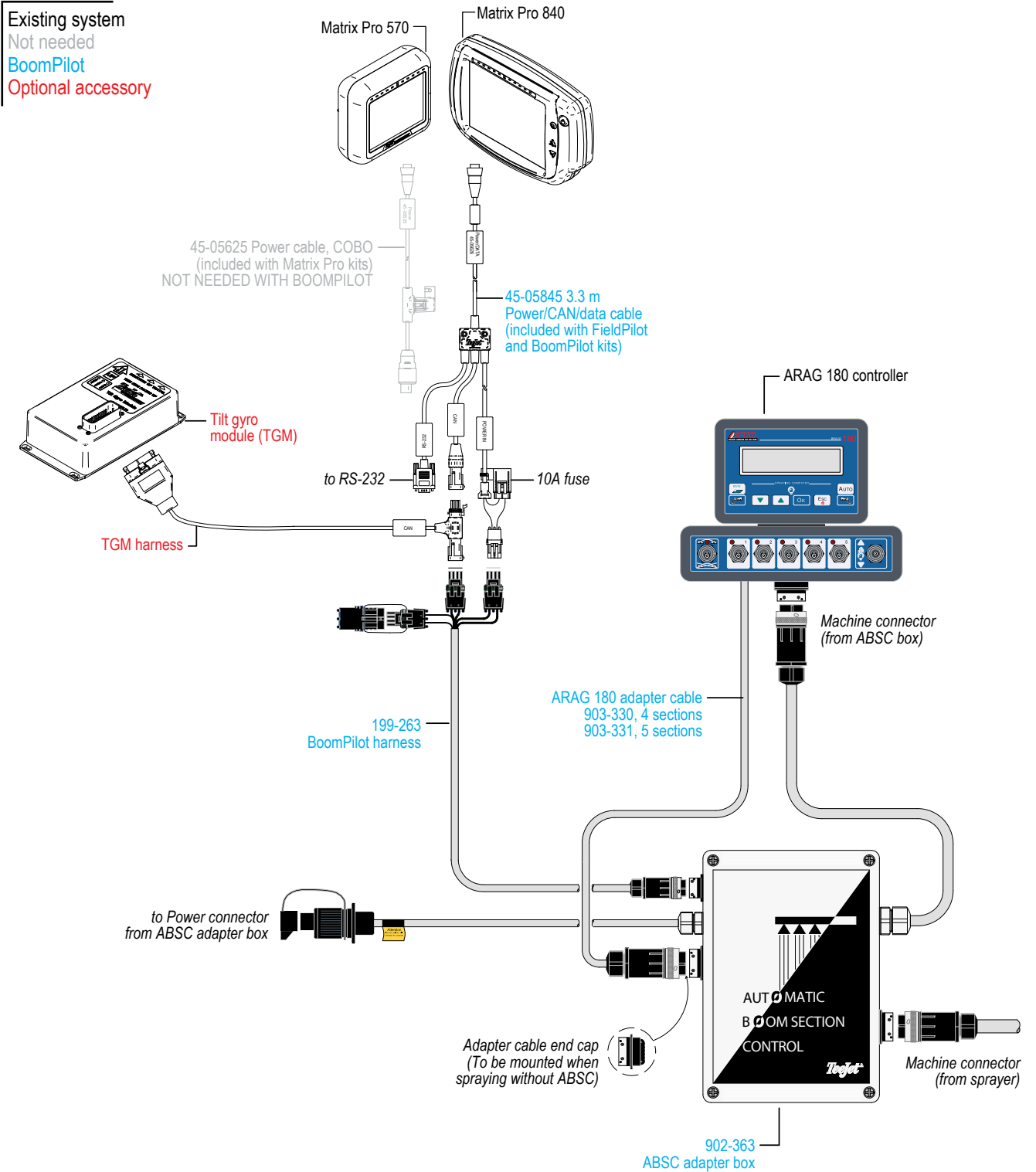
Item	Part #	Description	Illustration
A	Part number is dependent on kit contents	Matrix Pro guidance controller kit	 <p>Matrix Pro 570G Matrix Pro 840G</p>
B	45-05845	Power/CAN/data cable	
C	199-263	BoomPilot adapter cable	
D	902-363	ABSC adapter box	
E	903-330	ABSC adapter box kit for ARAG 180, 4 sections	
	903-331	ABSC adapter box kit for ARAG 180, 5 sections	
F	020-042	Installation manual, ARAG BRAVO 180	
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.

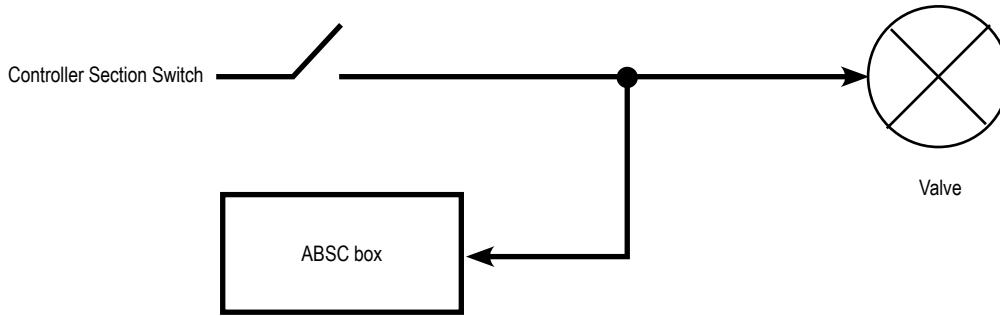
The ABSC (automatic boom section control) box is designed for switching active high when spraying. This means that a 12V signal is issued to control the corresponding section valve.

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.

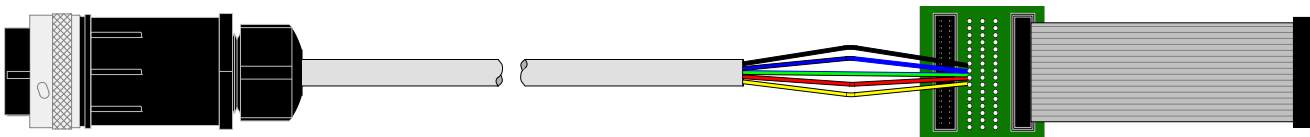
NOTE: BE VERY CAREFUL TO ABSOLUTELY SECURE ALL CABLES AND HOSES SO THAT THEY DON'T INTERFERE WITH THE MANY MOVING PARTS OF THE MACHINE!

1. INSTALLING THE ARAG 180 ADAPTER CABLE

To get electrical contact with the sections and the Master switch in the ARAG 180, it's necessary to install the adapter cable (E), in the ARAG 180 controller. This is a critical operation and must only be conducted of persons with the necessary skills.

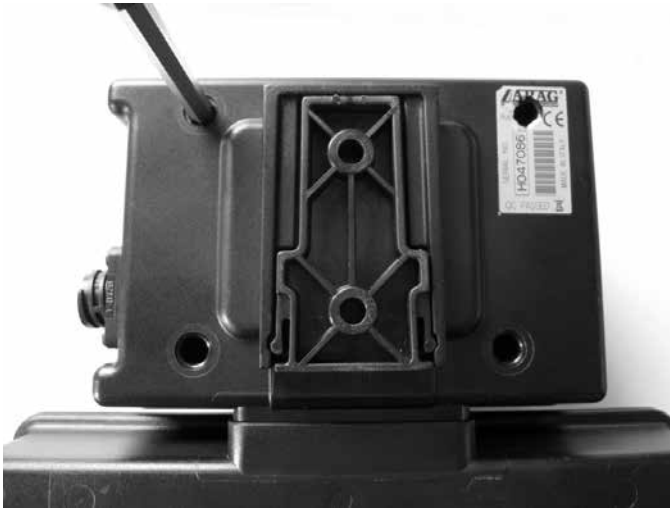
NOTE: In case the ARAG 180 controller is damaged during the installation, it's on the buyers sole risk and therefore the buyer is not entitled to any form for compensation.

Figure 3: ARAG 180 adapter cable



1. Disassemble the ARAG 180 controller by unscrewing the screws on the rear side (Controller and switch box).

Figure 4:



2. Unscrew the two 6 mm bolts which fix the controller to the switch box part.

Figure 5:

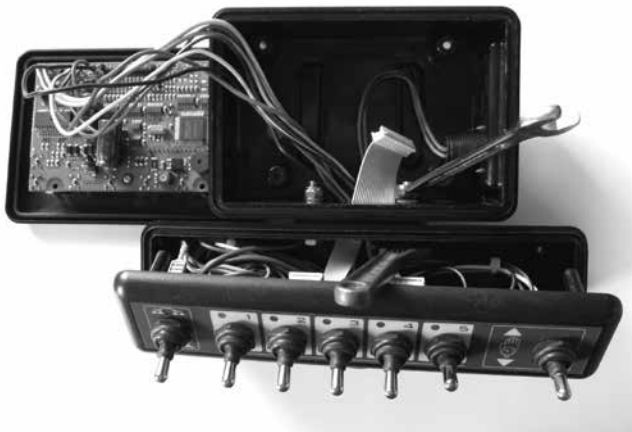
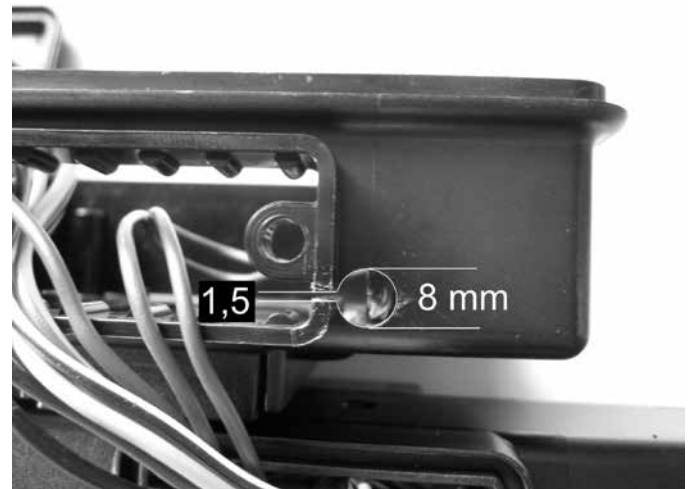


Figure 6:



3. Drill a 8 mm hole in the bottom of the controller housing.
4. Make a 1.5 mm gab as shown on the picture.

Figure 7:



5. Place the free wires of the ARAG 180 adapter cable one by one in the hole and pull the cable trough as shown.

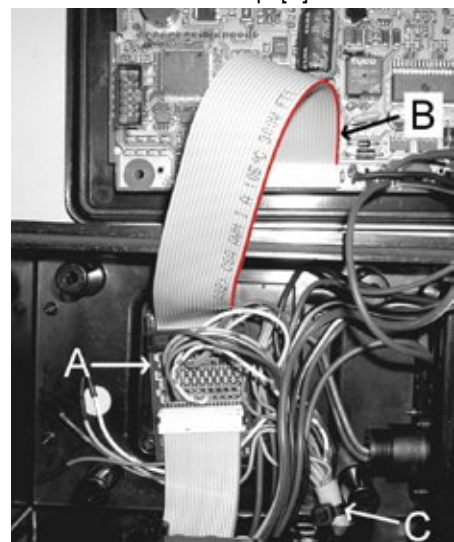
Figure 8:



6. Place the Circuit board on in the bottom of the controller housing and fasten it with the adhesive tape. [A]

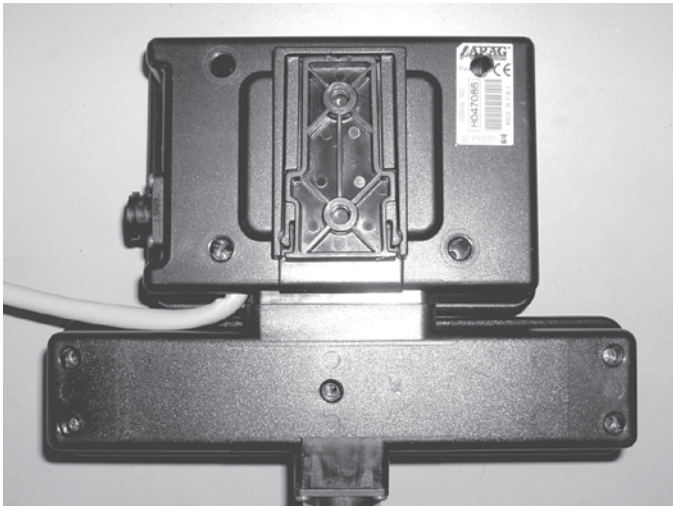
7. Connect the flat cables as shown on the picture. [B]

8. Secure the cable with a cable strip. [C]



9. Organize the wires inside carefully and assemble the unit again.

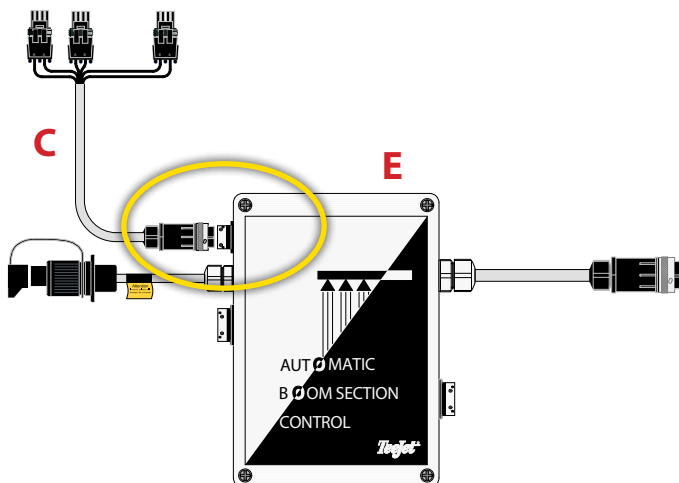
Figure 9:



2. MOUNT & CONNECT ABSC ADAPTER BOX

1. Mount ABSC box **(E)** as shown where LED's can be seen for troubleshooting.
2. Connect BoomPilot adapter cable **(C)** to ABSC box **(E)**.

Figure 10: Connect ABSC box



3. DISCONNECT & RECONNECT HARNESES & CABLES

The BoomPilot adapter cable **(C)** tees into the existing system's connection between the ARAG BRAVO 180 rate controller and flow control harness.

1. Disconnect existing connection at the back of the ARAG BRAVO 180 console.
2. Connect BoomPilot adapter cable **(C)** to ARAG BRAVO 180 console.
3. Connect BoomPilot adapter cable **(C)** to existing ARAG BRAVO 180 flow control harness.

Figure 11: Disconnect existing connection

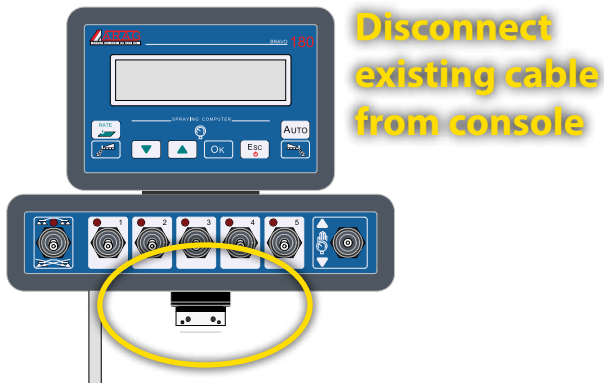
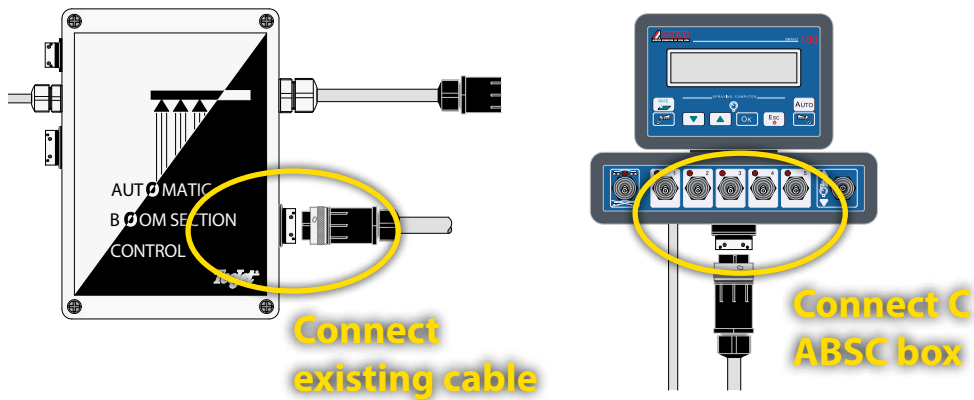


Figure 12: Existing system cable to ABSC box

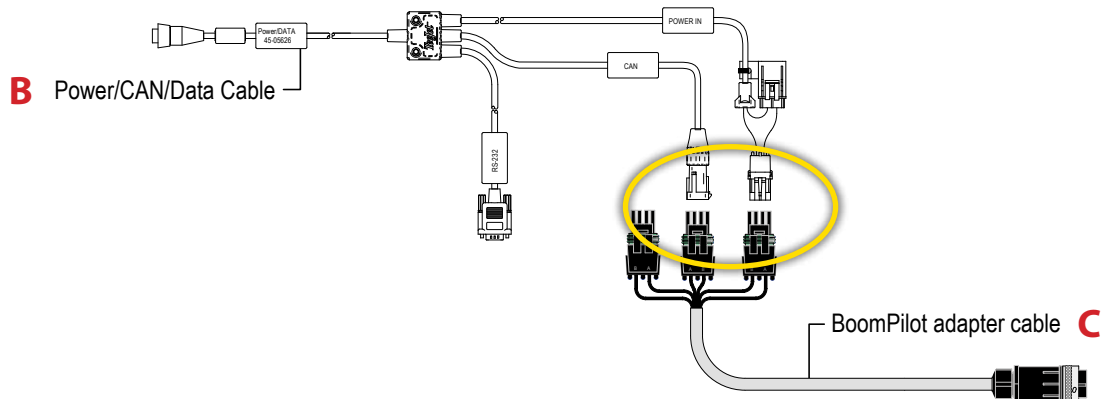
ABSC box to controller



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

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

Figure 13: Connect power/CAN/data cable to BoomPilot adapter cable

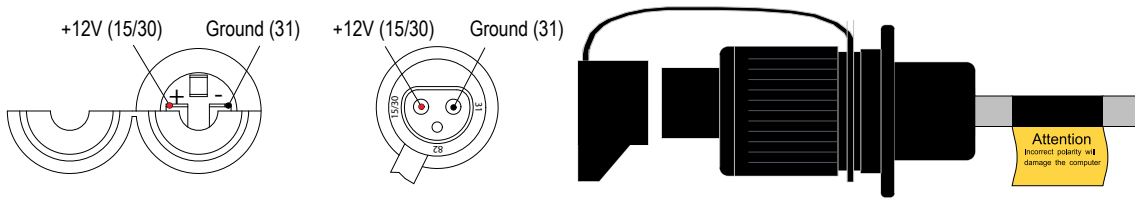


5. CONNECTING TO POWER

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 14: COBO cable



Optional Battery Cable

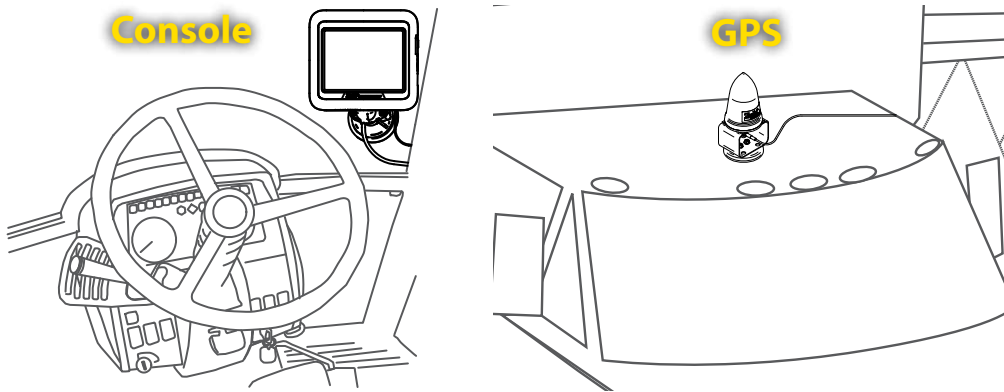
If a power connector (Socket) isn't available in the tractor cabin, an optional battery cable can be used (PN 96ET14).



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 15: 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:

ARAG BRAVO 180:

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:

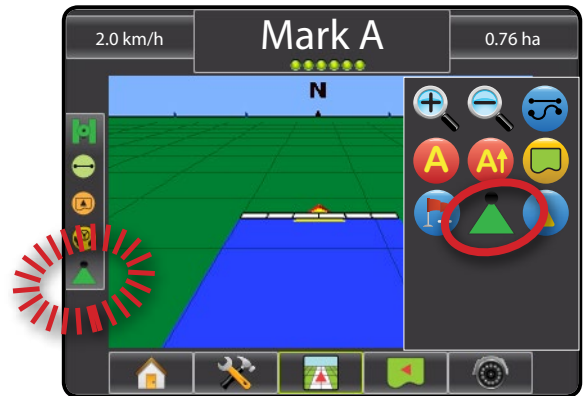
ARAG BRAVO 180:

- 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 16: Automatic to all booms on mode



BOOMPILOT[®]

USER 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 ABSC on a ARAG BRAVO 180 controller w/Matrix[®] Pro. Please review this manual thoroughly before beginning the installation process.

BoomPilot[®]



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