

5206 SS **Automatic Boom Switching** Installation Guide





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1.0 PARTS

	Part #	Description	Qty
1	A-5206	AUTOMATIC BOOM SWITCHING POD	1
2	AA-110P	REED TYPE SENSOR (PACKARD)	1
3	AA-133	MINI WHEEL MAGNET & NUT	2
4	AC-079-664-01	PACKARD TO 3PIN ARAG ADAPTER	15
5	AC-205	2 WAY 5M PACKARD EXTENSION CABLE	1
6	AC-3500/T	5206 SS TRACTOR LOOM	1
7	AC-520602-00	5206 SS ABS POD TO DRAWBAR LOOM	1
8	AC-520603-00	5206 SS ABS SPRAY/SECTION LOOM 3 WIRE	1
9	AH-300	DEUTSCH SOCKET MOUNTING PLATE	1
10	AH-408	UNIVERSAL HARDWARE PACK	1
11	AM-200	FARMSCAN 2 YEAR WARRANTY CARD	1
12	AM-5206-SS	5206 SS INSTALLATION MANUAL	1
13	HN-M8SSLK	M8 NYLOCK NUT – S/STEEL	4
14	HS-M8X25SS	M8X25mm BOLT S/STEEL	4
15	HW-M8SS	8mm SPRING WASHER	4
16	P-173	DEUTSCH LOCKING NUT	1
17	P-174	DEUTSCH LOCKING WASHER	1

OPTIONAL PARTS

	Part #	Description	Qty
1	AA-109	0 – 600KPA PRESSURE SENSOR	1

Important

This kit needs to be used with the Farmscan 3705, 3707 or 3709 Smart Switch panels to enable independent section calibration and control.



2.0 OVERVIEW

The 5206 ABS Auto boom switching pod integrates with the Canlink 3500, Farmlap RT 4000 and the Farmlap PRO 5500.

When used with a Canlink 3500 the 5206 allows for up to 9 individual sections or 7 1st line sections and 7 2nd line sections for split 2nd line operation. Spray rates can be manually adjusted on the run in preset steps or controlled automatically using a prescription map. With Canlink Spray Guidance, the option for headland shutdown is available. This is where the whole spray boom is automatically shutdown at headlands.

When used with a Farmlap RT 4000 or Farmlap PRO 5500 the same functions as the 3500 are available along with the ability for Auto Boom Switching (ABS). This is where Farmlap keeps track of sprayed areas and automatically switches boom sections OFF to avoid overlap and ON to cover unsprayed areas.

5206 ABS also incorporates the use of dump and section flushing functions. If a dump valve is installed the dump function will bypass liquid back to the tank whenever the system is put on hold. Flushing individual sections can be done by the click of a button through the flush screen.

A 2nd line can be used in single and multi step mode to increase spraying speeds or application rates without increasing nozzle sizes.

At first a lot of the functions may seem daunting to some. Time spent to familiarise with the unit and the users manual will allow the user to become familiar with all functions and benefits of what is a leading edge product in the field of guidance and spray application.

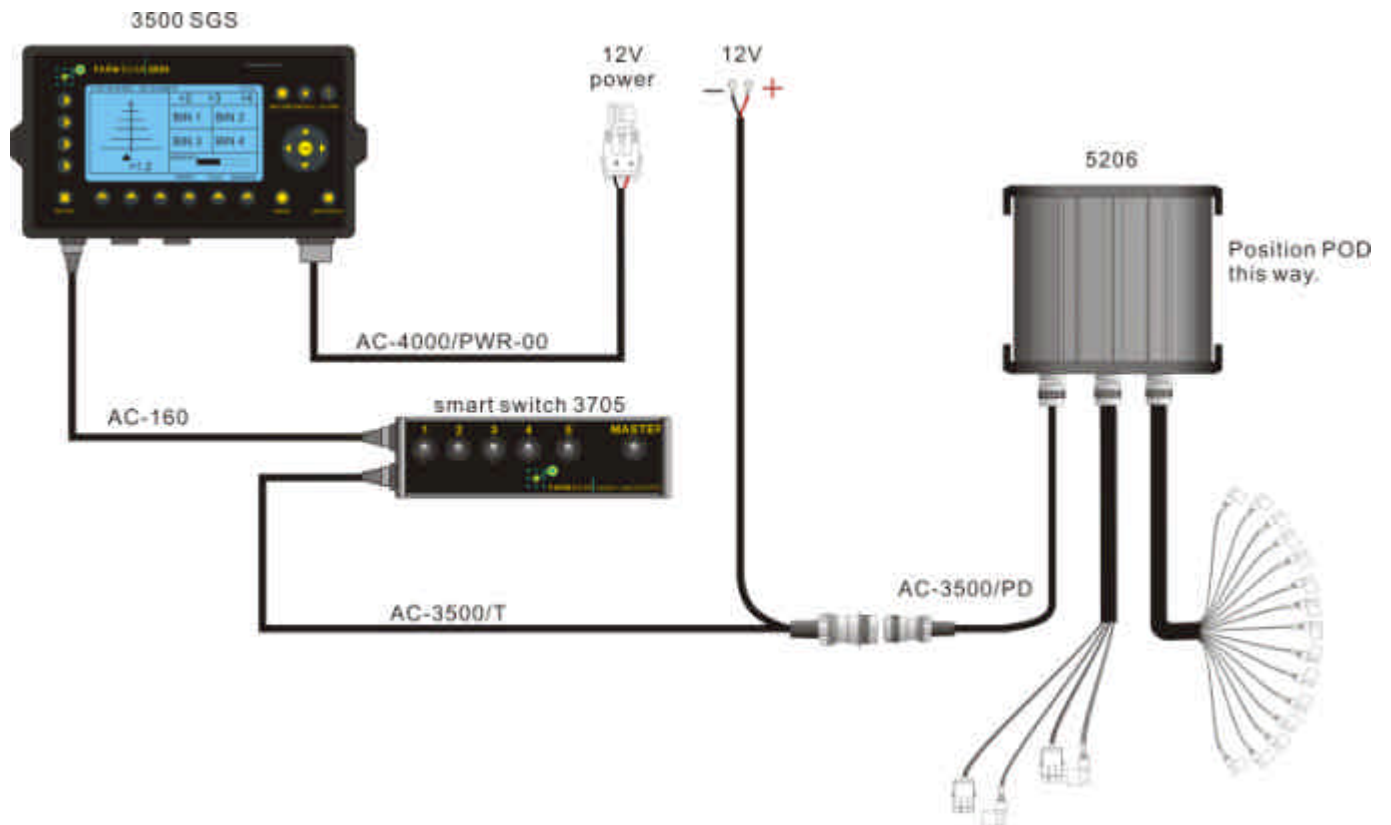
3.0 INSTALLATION

3.1 Connections – 3500 / 4000 Guidance Systems

- ?? Connect the AC-160 communication cable (supplied in the smart switch kit) between the smart switch panel and cab module.
- ?? Connect the GPS into the 9 pin serial connector on the cab module.
- ?? Connect the AC-3500/T tractor loom to the smart switch panel.
- ?? Connect the AC-3500/PD pod to drawbar loom to the AC-3500/T tractor loom and the 9 pin Deutsche connector "LEFT PLUG" on the 5206 spray pod.
- ?? Connect the connector labelled "**MIDDLE PLUG**" of the spray/section loom (AC-520603-00) to the middle Deutsche connector on the spray pod.
- ?? Connect the connector labelled "**RIGHT HAND PLUG**" of the spray/section loom (AC-520603-00) to the 23 way Deutsche connector on the right of the spray pod.
- ?? Connect adaptor cables to spray/section loom for Arag (AC-079-664-01) or Utilux (AC-079-Util-01) connections to control valve and or section valves.
- ?? Connect the main power cable from the AC-3500/T tractor loom directly to the 12v battery last.
- ?? Connect power to the 3500 or 4000 using the AC-4000PWR-00 cable.

See the diagram on the next page.

3500 / 4000 WITH 5206 SS

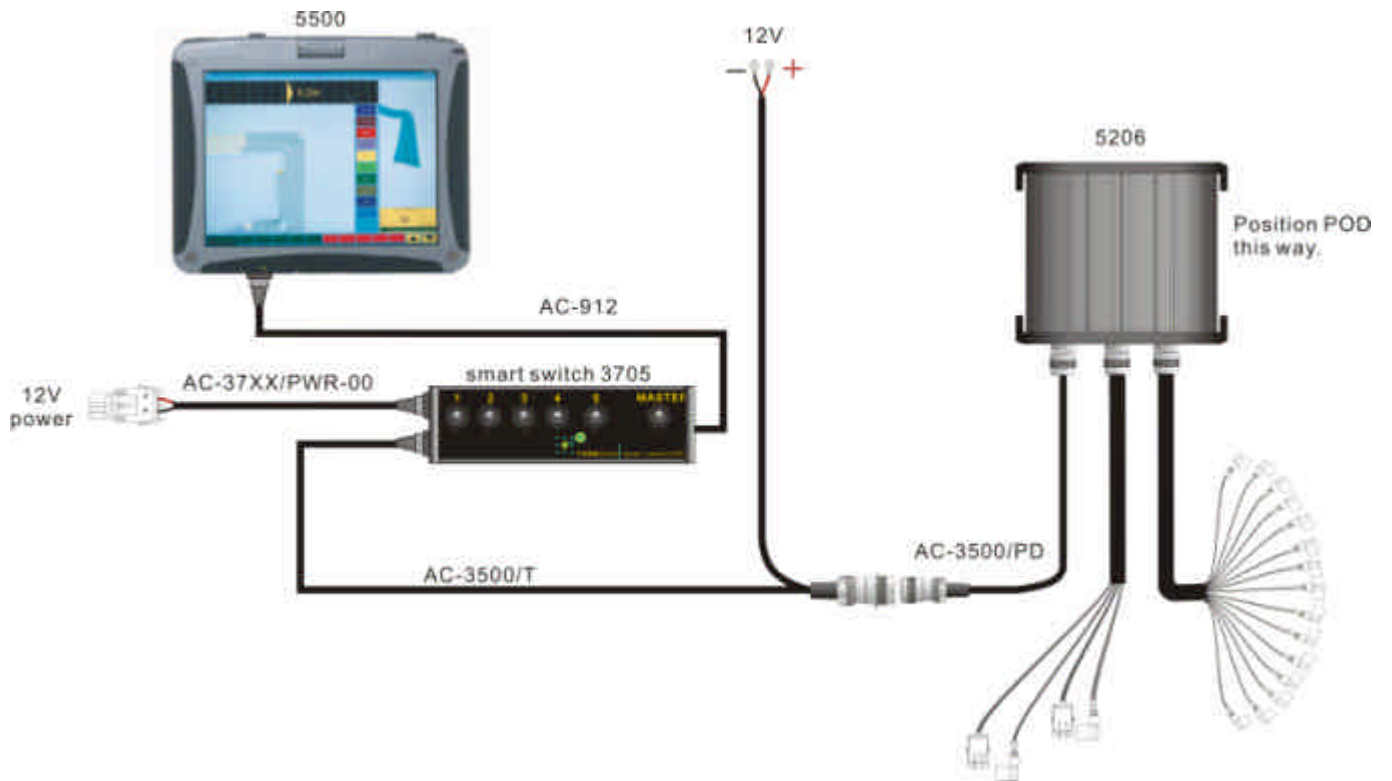


Connections – 5500 Guidance Systems

- ?? Connect the AC-912 communication cable (supplied in the smart switch kit) between the smart switch panel and the 9-way connector in the back of the bracket into Com 2 on the 5500 cab module.
- ?? Connect the AC-37XX/PWR-00 Power cable (supplied in the smart switch kit) to the smart switch panel.
- ?? Connect the GPS to the back of the bracket into DGPS COM 1.
- ?? Connect the AC-3500/T tractor loom to the smart switch panel
- ?? Connect the AC-3500/PD pod to drawbar loom to the AC-3500/T tractor loom and the 9 pin Deutsche connector "LEFT PLUG" on the 5206 spray pod.
- ?? Connect the connector labelled "**MIDDLE PLUG**" of the spray/section loom (AC-520603-00) to the middle Deutsche connector on the spray pod.
- ?? Connect the connector labelled "**RIGHT HAND PLUG**" of the spray/section loom (AC-520603-00) to the 23 way Deutsche connector on the right of the spray pod.
- ?? Connect adaptor cables to spray/section loom for Arag (AC-079-664-01) or Utilux (AC-079-Util-01) connections to control valve and or section valves.
- ?? Connect the main power cable from the AC-3500/T tractor loom directly to the 12v battery last.
- ?? Connect power to the 5500.

See the diagram on the next page.

5500 WITH 5206-SS



NOTES:

- ?? Tie down all loose cable away from potential damage.
- ?? See the back of this manual for loom wiring details.

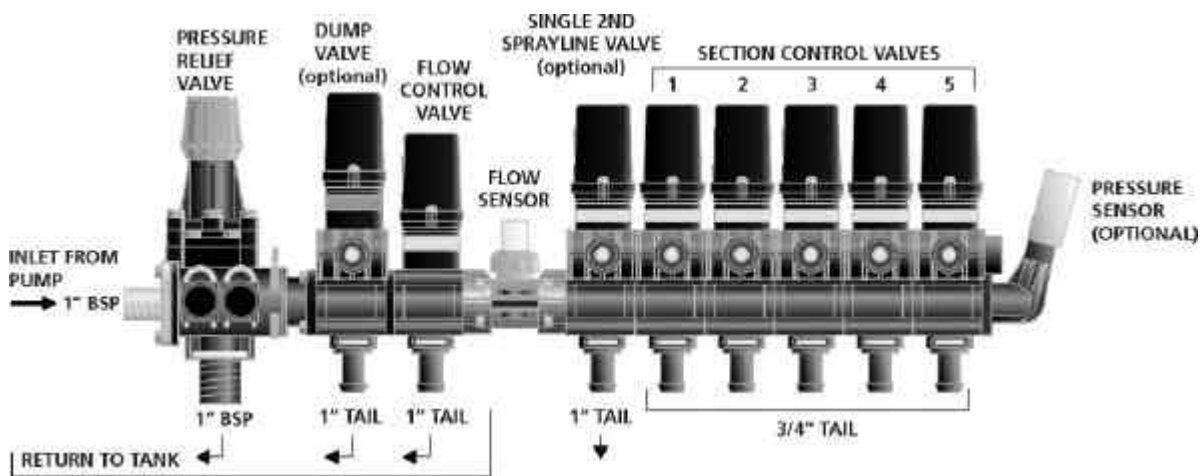
3.3 Pod Mounting

Use the supplied bolt, nut & washer set to mount the 5206 SS Pod in a suitable position on your machine.

Important notes.

- ?? Mount the pod in a sheltered position away from excessive amounts of spray.
- ?? Mount with the connectors on the pod facing down towards the ground.

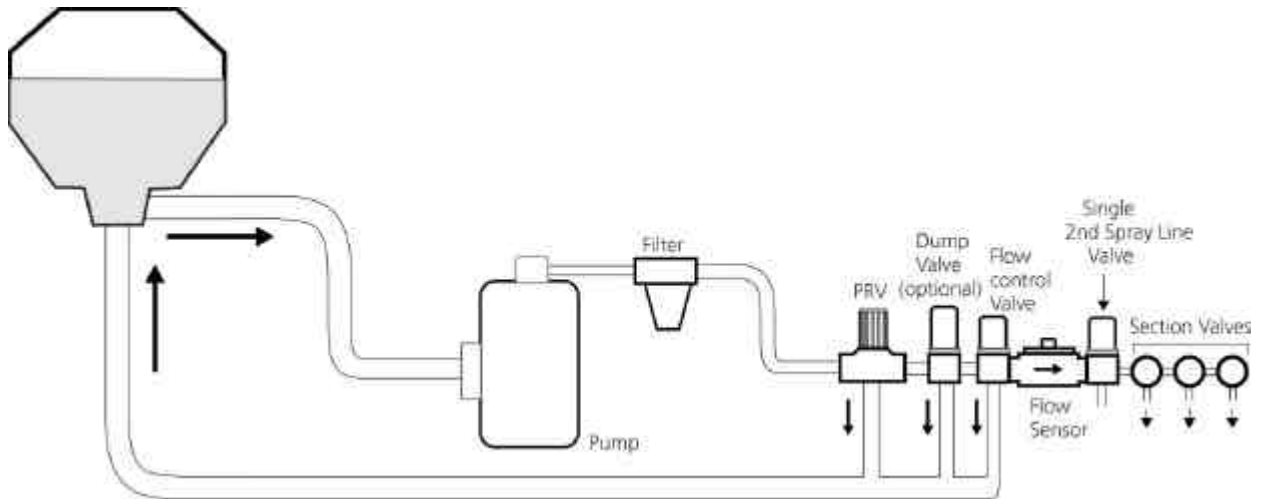
4.0 CONTROL BANK INSTALLATION



Note: Alternative hose tails or threaded outlets are available separately.

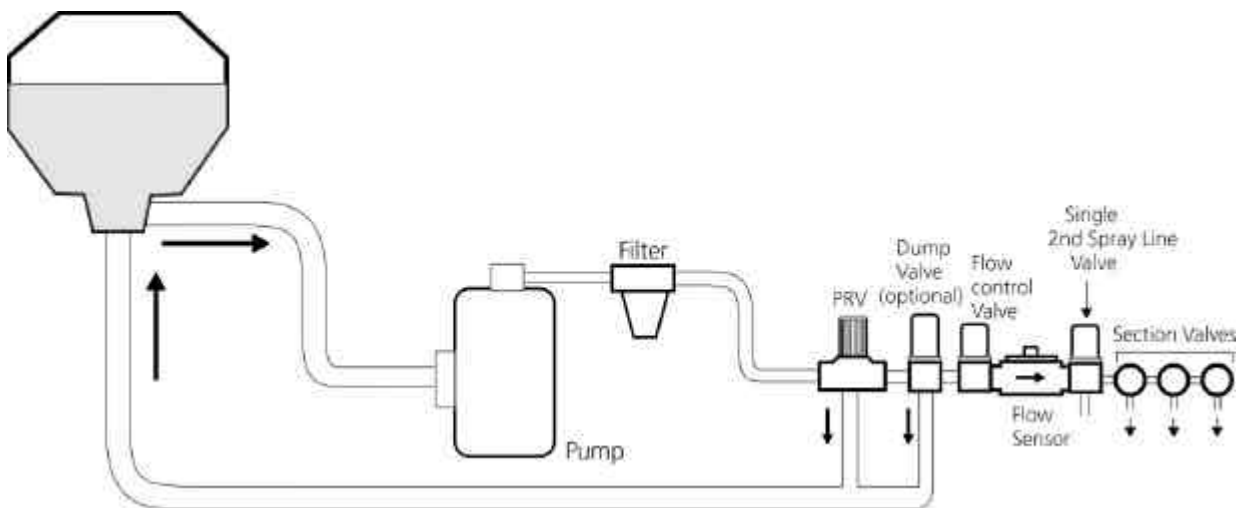
Proportional Control: The flow control valve regulates a proportion of material back to tank, thereby controlling the volume of material delivered to the section controls.

Suitable for broadacre boomsprays and high volume airblast sprayers.



Direct Control: Used to throttle (restrict) the main delivery line thereby regulating the volume of material delivered to the section controls.

Suitable for ultra low volume applications from 1 L/min – 80L/min.



4.1 Explanation of Components

Pressure Relief Valve (PRV)

The PRV is essential for safe and accurate operation of a positive displacement pump. The PRV is used to set the maximum pressure available to the flow control valve and protects the system by relieving excess pressure back to tank when the section controls are switched off.

Flow Control Valve

The spray controller is designed to operate a DC motorised flow control valve fitted downstream of the PRV, operating either proportional or direct flow control to regulate the main delivery line feeding the flow sensor and section control valves.

Flow Sensor

The flow sensor provides continuous feedback to the spray controller, which regulates the flow control valve to maintain the required volume of material delivered to the section valves.

All product delivered through the flow sensor must go to the section control valves only, ie no return line back to tank or pump after the flow sensor.

The sprayer must operate within the minimum and maximum operating range of the flow sensor, otherwise erratic control may result.

Important

Check required minimum and maximum flow rate **BEFORE** installing the equipment. Alternative flow sensors are available.

Flow rate Calculation:
$$\frac{\text{Rate (L/Ha)} \times \text{Speed (km/h)} \times \text{Width (Metres)}}{600} = \text{L/Min}$$

Example:
$$\frac{50\text{L/Ha} \times 12 \text{ Km/h} \times 12\text{m}}{600} = 12 \text{ L/min}$$

Section Valves

The section valves are controlled by the cab switches to provide partial or complete shutdown of the spray boom sections.

The spray controller will accept 2 wire 12volt solenoid valves rated to *1 amp continuous* draw or 3 wire motorised section valves.

3 wire motorised valves: +12V = Red, Black = Negative, Colour = Trigger
 2 wire solenoid valves: +12V = Unused, Black = Trigger, Colour = Trigger

Note: 2 wire motorised section valves require an inline adapter to reverse the polarity when switching from 'on' to 'off'.

Second Spray line (Optional)

A second spray line is activated automatically when the first spray line reaches a preset maximum pressure, thereby allowing greater flexibility in working speeds and additional capacity to change rates on the go.

The second spray line can be activated at a preset speed equal to the first spray line reaching maximum pressure or when using the optional pressure sensor, the second spray line is activated at a preset pressure.

Using pressure activation (eg 300kpa/43psi) avoids the need to change the set activation point when changing rates.

*When using **speed based** activation,* the second spray line must be fitted with the same size nozzles as the first spray line. Choose nozzles suitable to achieve target rates at lower working speeds then allow double the maximum speed or rate to calculate the full operating range.

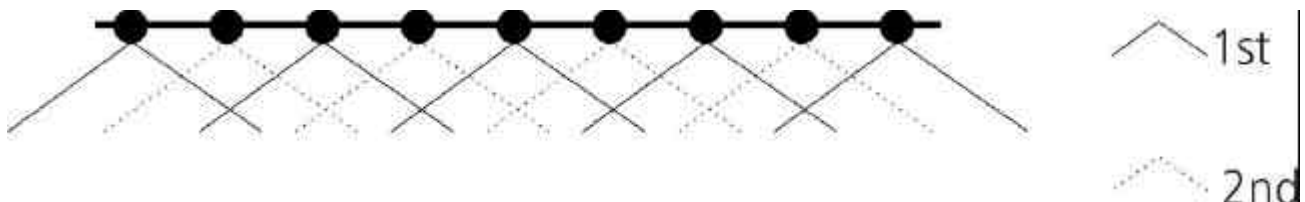
*When using **pressure based** activation,* you can choose single step or multi step operating mode.

With single step operation, fit the same size nozzles in both the first and second spray line as above.

With multi step operation, the first spray line is fitted with nozzles one size smaller than the second spray line. The controller will automatically select first, second or both spray lines to maintain operation within the desired pressure range.

Second Spray Line Plumbing.

The second spray line is fitted to the spray boom with nozzles positioned at half centres to the first spray line (eg, if using 50cm or 20inch spacings for the first line, the second line nozzles should be placed at 25cm or 10inch intervals.) See diagram.



The second spray line can be plumbed as a single section covering the entire boom width or maybe split into multi sections to match the first spray line sections.

Single Second Sprayline.

A single second spray line is adequate in high speed broadacre spraying where section shutdown is relatively infrequent. The controller will automatically shutdown the second spray line if one or more of the first spray line section valves are switched off.

A single second spray line requires one large section valve to activate the second sprayline.

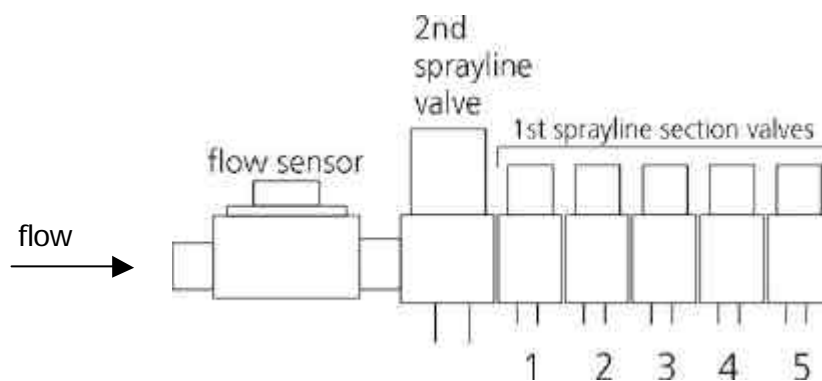
All the second spray line nozzles must be inter-connected on **one** independent hose with multiple infeed points to equalise pressure over the whole width.

The second spray line section valve must tee off the main delivery line *after the flow sensor and flow control valve*.

The second spray line valve is connected to the loom connector marked "2nd Line"

3 wire motorised valves:
2 wire solenoid valves:

Red = +12V, Black = Negative, Pink = Trigger
Red = Unused, Black = Trigger, Pink = Trigger



Split Second Sprayline

A split second sprayline is necessary when sections are frequently shutdown during operation.

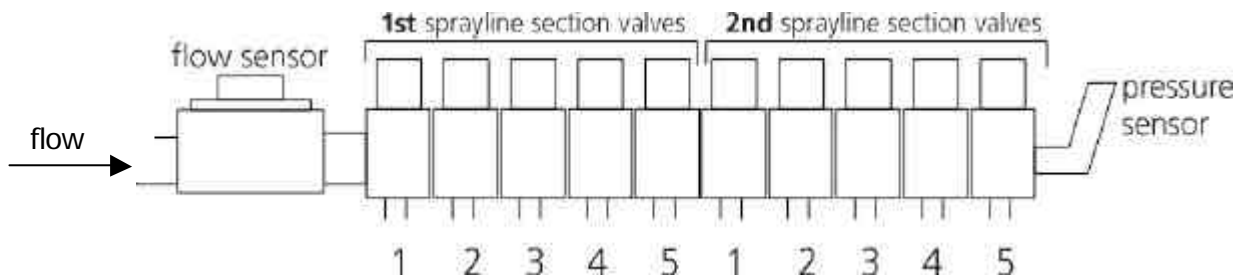
A split second spray line requires a separate section valve for *each section of the second sprayline*.

Each second line section valve must feed the matching width as covered by each first sprayline section valve.

The first and second spray line section valves should be plumbed onto a common manifold and must tee off the main delivery line *after the flow sensor and flow control valve*.

3 wire moterised valves: +12 = Red, Black = Negative, Colour = Trigger

2 wire solenoid valves: +12 = Unused, Black = Trigger, Colour = Trigger



Pressure Sensor (Optional)

The pressure sensor measures spray line pressure at the section manifold to provide pressure readouts and to control the slow hold and second spray line functions (if used).

Using a mechanical pressure gauge fitted to the spray boom as a reference, the pressure sensor reading can be adjusted to compensate for line loss between the control bank and the spray boom.

AA-109 Pressure Sensor 0 - 600kpa/85psi

Dump Valve (Optional)

The dump valve opens automatically whenever the sprayer stops or when all section valves are switched off. This option reduces reliance on the pressure relief valve to greatly reduce back pressure on a positive displacement pump.

The dump valve should be installed **BEFORE** the flow control valve.

5.0 Loom Drawings

Tractor Loom (AC-3500/T)


Part No: AC-3500/T

P-375 LTW 6
PIN FEMALE
CONNECTOR
(LOCK END)

1	Vin
2	RS-485
3	RS-485
4	0
5	RTS
6	

CORE CABLE

REAR VIEW
(solder terminals)




P-168 SIZE 12 MALE
DEUTSCH PIN

V	X	W	Y	Z	T	U	S
---	---	---	---	---	---	---	---

9 WAY
DEUTSCH
PLUG
P-160

12V In
GND
P-170 SIZE 8 MALE
DEUTSCH PIN

S - 524 INLINE WATERPROOF
BLADE FUSE HOLDER
S-545 30A FUSE



P-028
BLUE 10mm
RING TERMINAL

+12V
GND

C-207 5mm RED
C-207 5mm BLACK

FOR MANUFACTURE

DESIGNED BY: P.Vajda DATE: 3/8/05

CHECKED BY: DATE:

APPROVED BY: DATE:

INFORMATION ONLY NOT FOR MANUFACTURE

DATE	REVISION DETAILS	REV
1/8/05	Changed pin designation	C
9/8/05	Changed connector gender & cable lengths	D
10/8/05	Changed connector backing to standard	E
16/8/05	Changed cables going to pins Z & T	F

DO NOT SCALE FROM DRAWING

FILE LOCATION: //FARMSCAN/CABLES/AC-3500_T

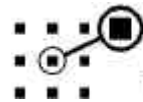
Ref: AC-3500_T.d06 Sheet Size A4 Page 1 of 1 ALL DIM IN mm

FARMSCAN

TITLE: AC-3500/T TRACTOR LOOM

DocRef: CCL-QAF-5.09/Ver 0/Rev 1/Issued July 9 - 1998/Page 1 of 1

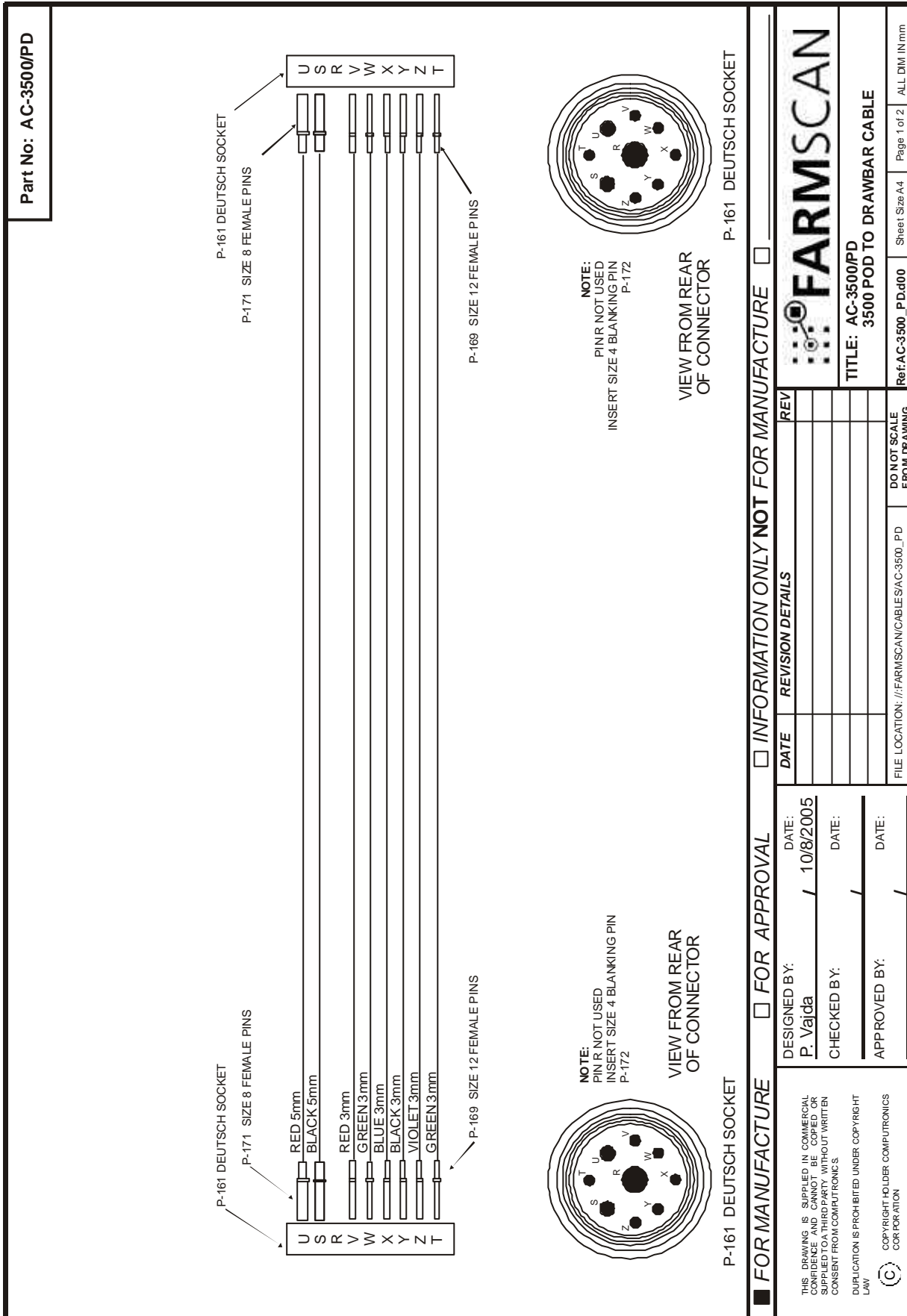
farmscan.net
+61 8 9470 1177



FARMSCAN

AM-5206SS
07/09/06

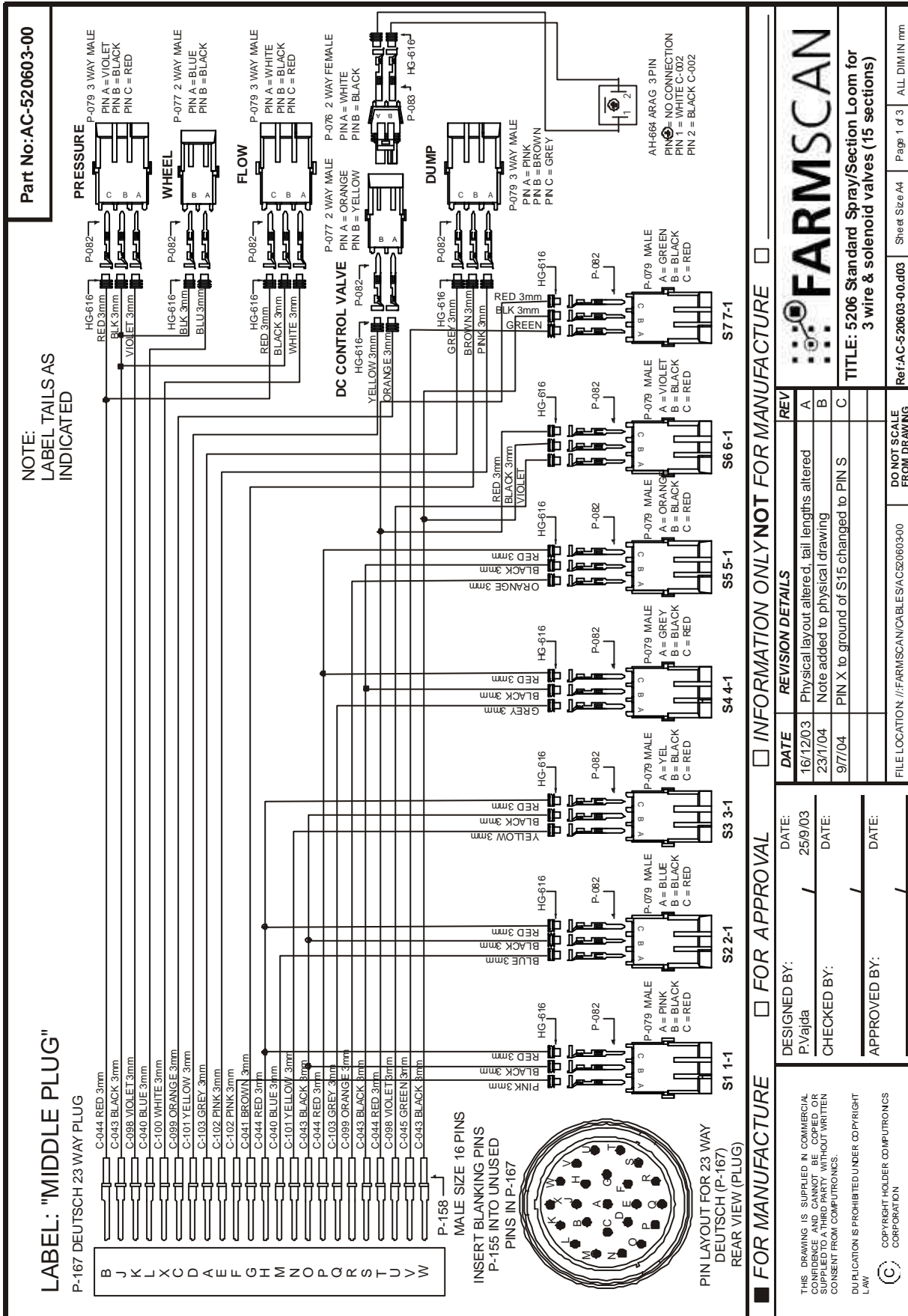
Extension Loom (AC-3500/PD-00)



FARMSCAN		TITLE: AC-3500/PD	
3500 POD TO DRAWBAR CABLE		Ref: AC-3500_PD.dwg	
Sheet Size A4		Page 1 of 2	
ALL DIM IN mm			
DESIGNED BY:	DATE:	REVISION DETAILS	REV
P. Vaida	10/8/2005		
CHECKED BY:	DATE:		
APPROVED BY:	DATE:		
FILE LOCATION: //FARMSCAN/CABLES/AC-3500_PD		DO NOT SCALE FROM DRAWING	

DocRef: CCL-QAF-5.09/Ver 0/Rev 1/Issued July 9 - 1998/Page 1 of 1

Standard Spray/Section Loom (AC-520603-00)



FOR MANUFACTURE		FOR APPROVAL		FOR APPROVAL	
DESIGNED BY: P.Vajda		DATE: 25/9/03		DATE: / /	
CHECKED BY:		DATE:		DATE:	
APPROVED BY:		DATE:		DATE:	
THIS DRAWING IS SUPPLIED IN COMMERCIAL CONFIDENCE AND CANNOT BE COPIED OR SUPPLIED TO A THIRD PARTY WITHOUT WRITTEN CONSENT FROM COMPUTRONICS. DUPLICATION IS PROHIBITED UNDER COPYRIGHT LAW.		DO NOT SCALE FROM DRAWING		FILE LOCATION: //FARMSCAN/CABLES/AC52060300	
FARMSCAN TITLE: 5206 Standard Spray/Section Loom for 3 wire & solenoid valves (15 sections)		Ref: AC-520603-00.d03 Sheet Size A4 Page 1 of 3		ALL DIM IN mm DocRef: CCL-QAF-5.09/Ver 0/Rev 1/Issued July 9 - 1998/Page 1 of 1	

7.0 Spray Pod Deutsch Connector Pin Outs

Pin assignment for 9 pin Deutsch connector.

PIN LETTER	DESCRIPTION
U	RAW PLUS 12 V (red)
S	RAW MINUS 12V (black)
X	DATA (blue)
W	DATA (green)
V	COMMS POWER
Y	COMMS GROUND
T	COMMS (grey)
R	-
Z	+12V (red)

Pin assignment for the middle 23 pin Deutsch connector on the spray pod.

PIN LETTER	DESCRIPTION
B	+12V OUT
K	PRESSURE
L	WHEEL
X	FLOW
J	GROUND OUT
C	DC MOTOR
D	DC MOTOR
E	DUMP
F	SECTION 1
G	SECTIONS GROUND
A	+12V SECTIONS
M	SECTION 2
N	SECTION 3
O	GROUND SECTIONS
P	+12V SECTIONS
Q	SECTION 4
R	SECTION 5
S	GROUND SECTIONS
T	+12V SECTIONS
U	SECTION 6
V	SECTION 7
W	GROUND SECTIONS
H	1 ST LINE

Pin assignment for the end 23 pin Deutsch connector on the spray pod.

PIN LETTER	DESCRIPTION
B	SECTION 1 NEGATIVE
K	SECTION 5 NEGATIVE
L	SECTION 6 NEGATIVE
X	DUMP NEGATIVE
J	SECTION 4 NEGATIVE
C	SECTION 2 NEGATIVE
D	SECTION 3 NEGATIVE
E	SECTION 8
F	SECTION 9
A	+12V SECTIONS
M	GROUND SECTIONS
N	+12V SECTIONS
O	SECTION 12
P	SECTION 13
Q	SECTION 14
R	SECTION 15 (WHOLE SECOND LINE)
S	GROUND SECTIONS
T	SECTION 7 NEGATIVE
U	SECTION 8 NEGATIVE
V	SECTION 9 NEGATIVE
W	SECTION 10 NEGATIVE
H	SECTION 11
G	SECTION 10


Wiring for 2 Wire Valves

Pins marked for example "SECTION 1 NEGATIVE" are for 2 wire valves (+12V and -12V). To operate section 1 which lets say is a 2 wire valve will require wires coming from pin F ("SECTION 1") of the middle Deutsch connector and pin B ("SECTION 1 NEGATIVE") of the end 23 way Deutsch.

Wiring for 3 Wire Valves

Where as pins marked for example "SECTION 1" are the trigger signals for three wire section valves (signal, +12V and ground). To operate section 1 which lets say is a 3 wire valve will require wires coming from pin A (" +12V SECTIONS"), pin F ("SECTION 1") and pin G ("GROUND SECTIONS") of the middle Deutsch connector.

For an Arag 3 pin plug, follow the pin out below:

Pin 1	+12V	(" +12V SECTIONS")
Pin 	Trigger	("SECTION no.")
Pin 2	GND	("GROUND SECTIONS")