



# INSTALLATION MANUAL

(English)(Original Instructions)

*SBGuidance Disc*

**CAN disc and wheel control**

016-8000-070EN Rev. A





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## Preface

This installation manual is intended for persons responsible for installing an SBGuidance Disc set. The manual contains important instructions that should be complied with when commissioning, operating and servicing the SBGuidance system.

This manual has been compiled with the utmost care. Raven Europe assumes no responsibility for any errors or omissions in this document.

Any comments or questions can be sent to [service-eu@ravenind.com](mailto:service-eu@ravenind.com).

**Raven Europe and its suppliers will accept no liability for physical or material damage caused whilst using the SBGuidance system.**

The installed SBG systems produces less than 70 dBA.

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## Disclaimer



### **Warning!**

Always switch off the tractor before installing or repairing hydraulic and electrical components of the SBGuidance system.



### **Warning!**

The system contains moving parts! Make sure the immediate environment is clear of people before operating the system



### **Warning!**

Always wear personal protective equipment when operating/adjusting/repairing the system outside of the tractor cabin.



### **Warning!**

In case of system failure or breakdown switch of the tractor and disconnect the electrical power source to avoid further damage. Contact SBG for further instructions on how to repair your system.



### **Warning!**

The safety instructions contained in the manuals of the tractor or implements must be complied with at all times.



### **Warning!**

It is strictly prohibited to use the SBGuidance system on public roads.



### **Warning!**

It is strictly prohibited to leave a driving vehicle unattended whilst the SBGuidance operating system is switched on. The driver is always responsible for the direction and course of the vehicle.



### **Warning!**

To prevent injury or fire, replace defective fuses only with fuses of the same type and amperage.



**Warning!:**

The SBGuidance the operating system is not able to detect and avoid obstacles. If there is an obstacle in your path, you yourself will always need to take action for it to be avoided.



**Warning!:**

Only allow authorized/qualified persons to operate the system. Authorized/qualified persons are defined as: persons who have read and understood the manual, have been given instructions by a product specialist, and who are both physically and mentally fit and able to operate the system.



**Caution!:**

In order to prevent power surges from occurring, always start the machine first, before initializing the SBGuidance control system.



**Caution!:**

Only touch the touch-screen with your finger or by using a special touch-screen stylus/pen. Operating the touch-screen with sharp objects may cause permanent damage to the screen.



**Caution!:**

Always consult your supplier as to which products are best suited first before cleaning the touch-screen with chemicals or alcohol.



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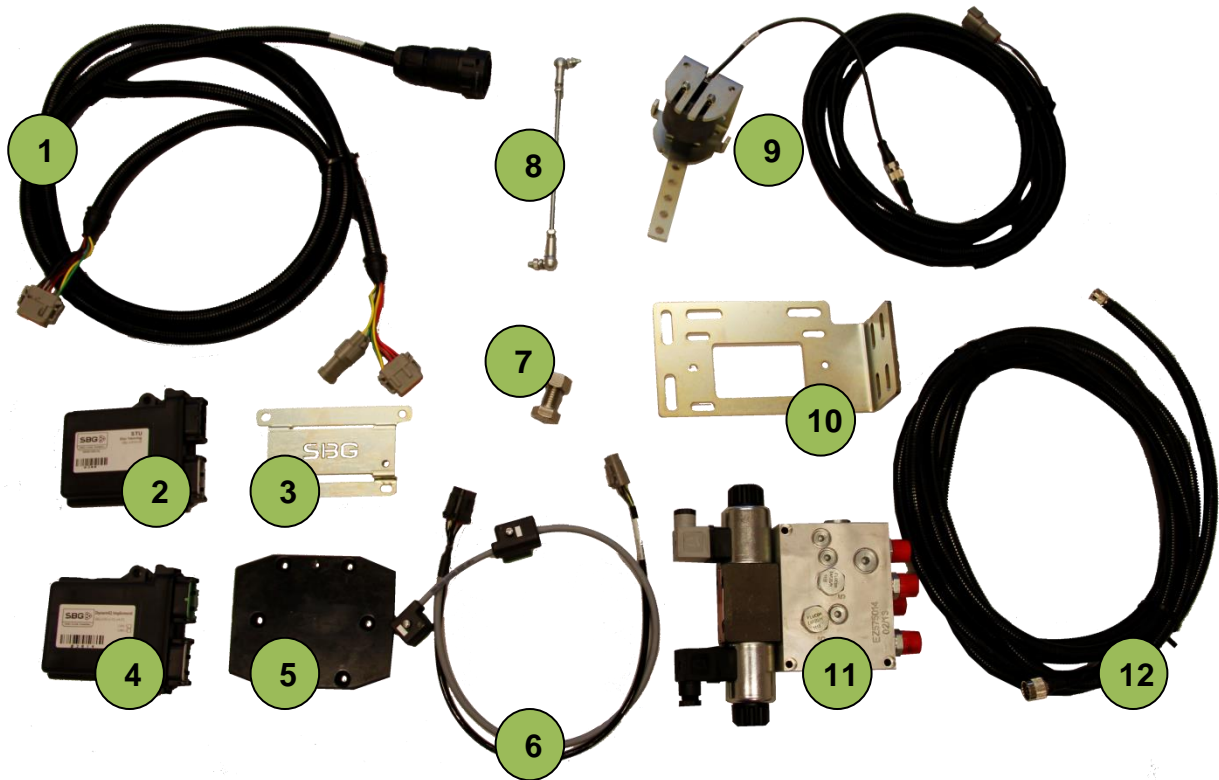
## 1. Instructions for installing the SBGuidance Disc

This manual is a general guide and is not intended for any specific make or type. The SBGuidance Disc control system is to be used for disc and wheel control/steering on implements. Several different steering sets are possible. This section provides an overview of components that can be supplied in the various disc steering sets.

All necessary parts are supplied, including this manual. Verify that all items listed on the packing list are actually present.



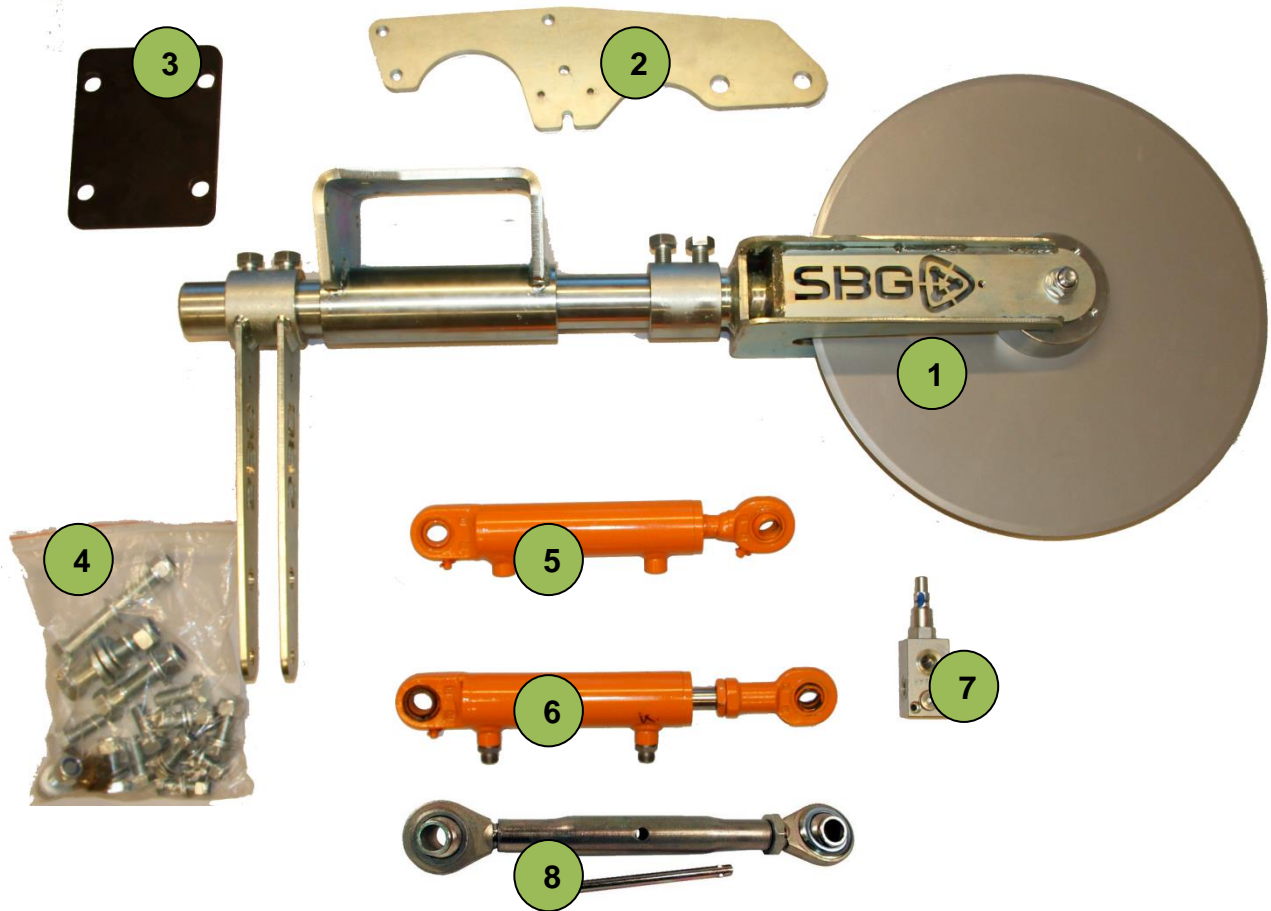
### 1.1. Overview of basic components for the disc/wheel control system



Symbol	Order number	Description
1	11158000258	HARNESS, IMPLEMENT 4.0M DUAL
2	10638000038	STU – DISC
3	11078000006	BRACKET, MANIFOLD V3, STU
4	10630173890	DynamIQ ISO Steering ECU Implement
5	11078000007	BRACKET, DYNAMIQ, V1
6	11158000009	HRNS, STU, IMPL.MANIFOLD
7	11178000311	KIT, BOLT + NUT, UNC, ANTENNA
8	11178000307	Kit, WAS Link, M8210, RAD-RAD
9	11158000193, 10638000066	HRNS, WAS, 1.5M + WAS ASY,12V 90°
10	11078000062	BRACKET, MANIFOLD V3, GENERIC
11	13348000001	MANIFOLD, IMPLEMENT, LS, 5L
12	11158000117, 11158000119	CBL, ANT. CONDUIT, TNC-TNC (6m, 10m)



### 1.2. Overview of components for disc control steering sets



Symbol	Order number	Description
<b>1a</b>	11168000035, 13218000034, 11168000037, 11178000345, 11078000128, 11168000038	Disc leg with disc Ø 45cm
<b>1b</b>	11168000036, 13218000035, 11168000037, 11178000345, 11078000128, 11168000038	Disc leg with disc Ø 60cm
<b>2</b>	11078000127	MOUNTINGPLATE, DISC, CYLINDER
<b>3</b>	11078000126	WELD PLATE, DISC, 150X180
<b>4</b>	11178000344	KIT, MOUNTING, DISC
<b>5</b>	13348004001	CYLINDER, 40-20-100, NON-ADJ
<b>6</b>	13348004002	CYLINDER, 40-20-100, ADJ
<b>7</b>	13348001002, 13348001001	PRESSURE VALVE 130BAR, 140BAR
<b>8</b>	13218000038	TOPLINK, CAT0

Parts required for each steering set:



- Single-disc steering set: 1, 2, 3, 4 and 5
- Steering set, dual disc, mechanically connected: 1 (2x), 2, 3 (2x), 4, 5 and 8.
- Steering set, dual disc, hydraulically connected: 1 (2x), 2 (2x), 3 (2x), 4 (2x), 5, 6 and 7 (2x)



### 1.3. Overview of the Stone Protection Assembly (optional)

An optional stone protection (Figure 1 and Stone protection with disk leg Figure 2) can be added to the disk steering set. When the disk hits a rock, the disk will be able to move upward to prevent the disk from damaging. The stone protection consists of one assembly for each disk leg. An hydraulic accumulator should be added. The accumulator absorbs the oil in the cylinder when the disc is moving up.

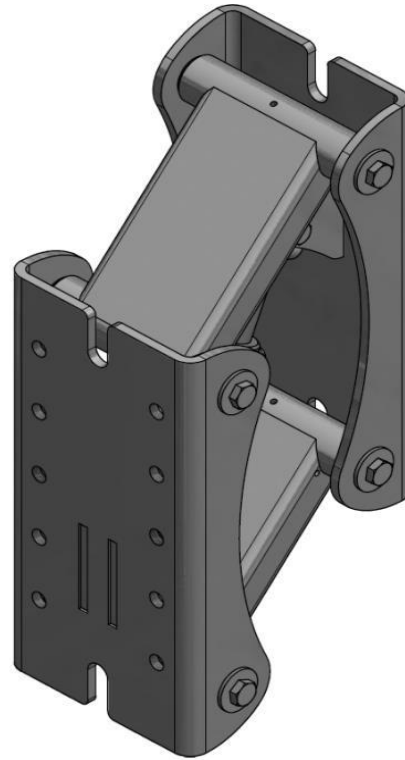


Figure 1 Stone Protection Assembly

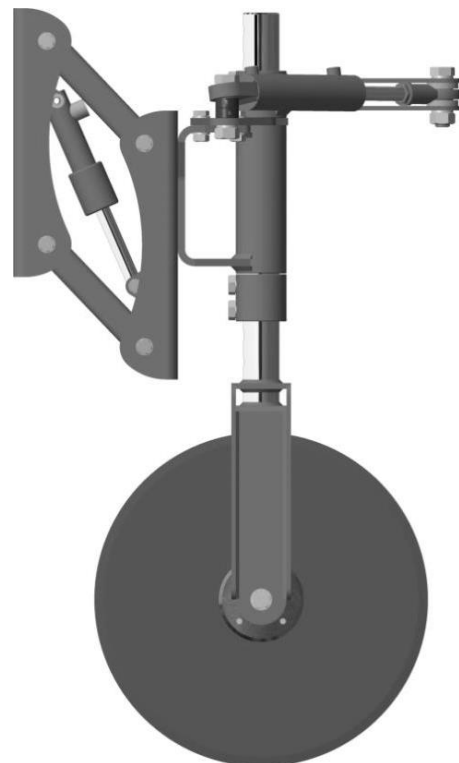


Figure 2 Stone protection with disk leg





The table below shows the contents of the Kit manometer & accumulator

Symbol	Order number	Description
1	13348001018	Accumulator 0,35L 210/30 bar
2	11030159018	Accumulator mounting bracket
3	14170001033	Manometer 0-250 bar
4	13330012452	Fitting, Bulkhead, 12L, 90deg
5	13330012492	Manometer coupling 12L
6	11078000129	Bracket manometer
7	11078000130	Bracket manometer protection

#### 1.4. Disc set assembled

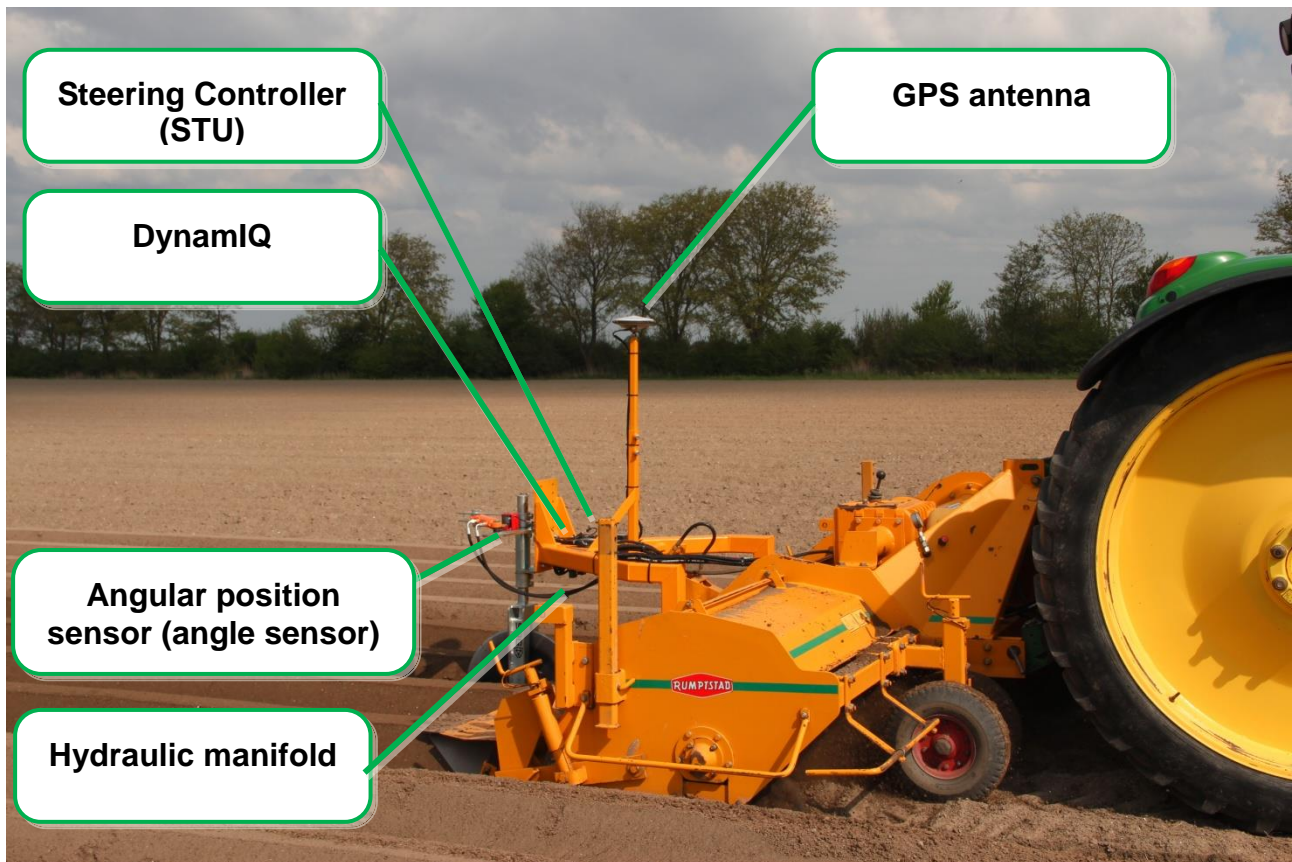


Figure 3 Overview of a mounted disk set



## 2. Assembly of basic components

Some components are required for both disc and wheel steering. In the case of disc steering, it is practical to start with the assembly of the disc legs (section 3). Components such as the GPS antenna, DynamIQ ISO/SGC, Steering Controller and hydraulic manifold can possibly be added to the construction of the disc leg.

### 2.1. Checking the hydraulic manifold

The manifold can be used either in Load-Sense (LS) mode or in Open Center (OC) mode. A selector plug should be used, depending on the type of hydraulics used (Table1, Figure 5). Check the type of selector plug (Figure 4) before mounting the manifold.

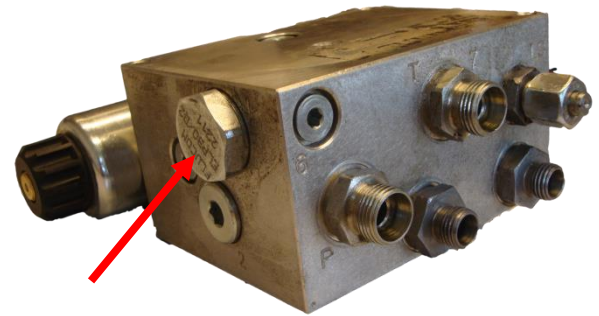


Figure 4 Selector plug

Table1 Selector plug manifold

Type of hydraulics	Selector plug
Load Sense	13348001019 CARTRIDGE, LS, LONG
Open Center	13348000002 CARTRIDGE, OC ELP30



Figure 5 Types of selector plug

If the manifold is connected to an external spool valve of the tractor, the manifold must be configured in Open Center mode. The LS port of the manifold must be plugged.

If the manifold is connected to the power beyond connection at the back of the tractor, the manifold must be configured in LS mode. The LS mode is the preferred mode.



*Different selector plugs are required for  
Open Center or Load Sense!*



## 2.2. Mounting the hydraulic manifold

The manifold is equipped with threaded holes for mounting purposes. Attach the manifold to the bracket supplied or directly onto the frame for the disc legs (Figure 6).

Mount the manifold on the implement. Be sure that the hydraulic hoses can easily be directed towards the tractor and the control cylinder. Ensure that the connectors on the proportional valve can be connected after fitting the manifold. Connect the control cylinder to **A** and **B** ports of the manifold.

### Load Sense

Connect the pressure line to **P**, the return line to **T** and the sensor line to **LS** on the manifold. Use the Power Beyond connections of the tractor. Ensure that the return on the tractor is pressureless.

### Open Center

Connect the pressure line to **P** and the return line to **T** on the manifold. Use the external spool valve of the tractor. Be sure that the return on the tractor is pressureless. Be sure to adjust the flow from the spool valve of the tractor to just the right amount of flow for the job. Too little flow will result in poor steering performance. Too much flow will result in overheating the hydraulic oil.



Figure 6 Hydraulic manifold mounted



### 2.3. Mounting the Steering Controller

The Steering Controller (STU - Disc steering) can be mounted to the manifold using an STU bracket or directly on the frame of the implement (Figure 7). Be sure to mount the STU close enough to the manifold, keeping the length of the STU harness in mind.

It is recommended to mount the STU flat or with the connectors pointed downwards to prevent water collecting in the connectors.



Figure 7 Steering Controller and DynamIQ

### 2.4. Mounting the DynamIQ ISO/SGC

Mount the DynamIQ terrain compensation on a flat surface free from vibrations and preferably with the connectors pointing to the rear (default configuration). A good place would be on the main frame of the implement (Figure 7).



## 2.5. Mounting the GPS antenna

The best position for the GPS antenna will depend on the implement being used:  
On front-mounted implements with disc steering, the antenna should preferably be mounted as close to the disc leg as possible (Figure 9). On rear-mounted planters with wheel steering, mount the antenna close to the planting elements (Figure 8).

It is recommended to attach the GPS antenna as low as possible and at the centre of the implement.

Be sure to provide a clear view at an angle of 20 degrees (in relation to the horizon). If the cabin roof is the highest point, the GPS antenna does not need to be mounted as high, depending on how far it is mounted behind the tractor.

In addition, the construction needs to be rigid to prevent the GPS antenna from being affected by vibrations.



*Use extendible tubing to mount the GPS antenna as low as possible. If satellite signals are interrupted, the tube can be extended.*



Figure 8 Antenna position for wheel steering



Figure 9 Antenna position for disk steering





## 2.6. Installing leads/cables

An Implement-ready wiring harness is required on the tractor for connecting the disc or wheel control unit.

The IBBC connector will be used to connect the disc or wheel control (Figure 10) to the tractor.

Section 2.7 shows a schematic view of the circuit. The implement harness is used to connect the STU to the tractor. The hydraulic harness needs to be connected to the STU. This hydraulic harness ensures the control of the proportional valve and the readout of the angle sensor.

A panel mount antenna connection mounted on the IBBC bracket is optional (Figure 11). An antenna cable/lead can be concealed in the cabin between the terminal and the IBBC bracket.

**!** *Mount the CAN implement lead in such a way that the separate conductors coming from the protective sleeve are directed downwards. This will prevent penetration of water into the protective sleeve.*

**!** *Ensure that the leads do not get damaged during installation.*





Figure 10 IBBC bracket with socket



Figure 11 IBBC bracket with antenna connection



 *Tip: Tie-wrap the leads to ensure that they are attached free from vibration and friction.*

 *Press the connectors firmly into place until they click!*



**2.7. CAN implement harness Disc  
(schematic view)**

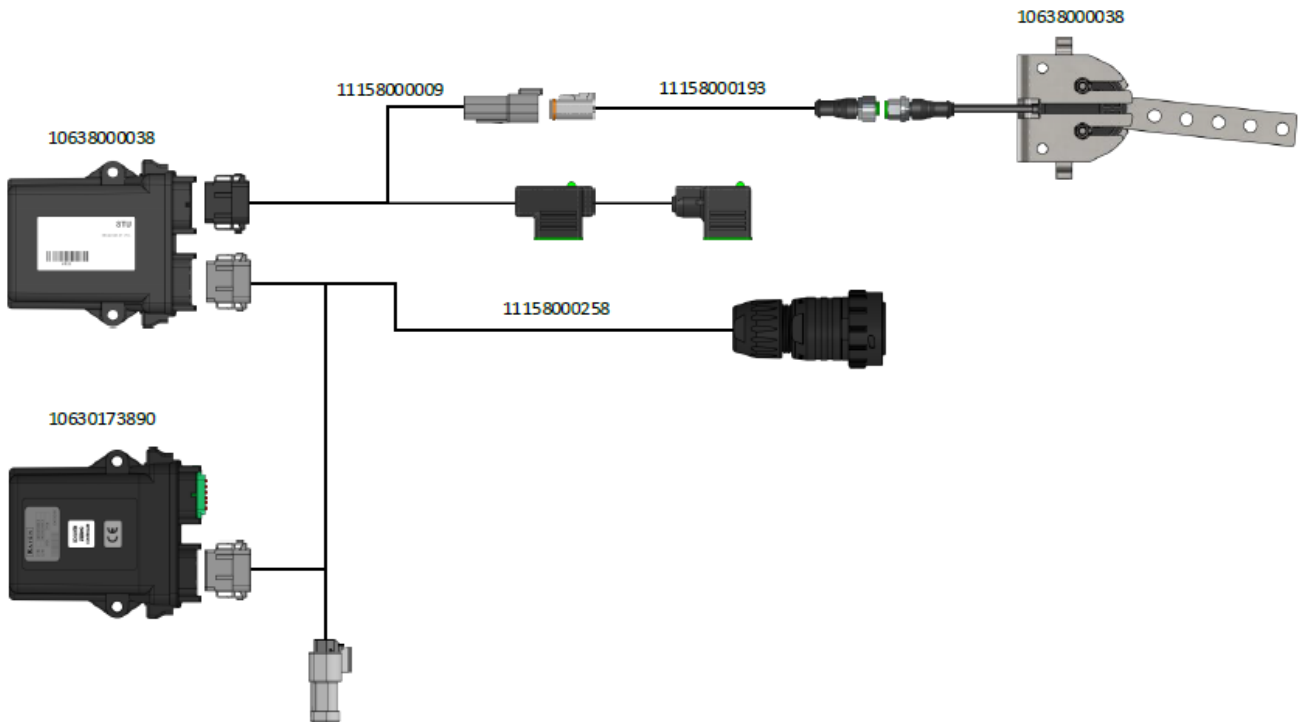


Figure 12 CAN implement harness


### 3. Disc set assemblies


Three different options are available for disc steering:

1. Steering set, single disc; 1 cylinder
2. Steering set, dual disc, 1 cylinder, mechanical track rod
3. Steering set, dual disc, 2 cylinders, hydraulic track rod

Depending on the implement used, it is advised to have the disc or discs rear-mounted. Discs mounted behind the implement ensure the best results.

The disc should cut to a depth of about 3-5 cm, depending on the type and humidity of the soil. If the soil has already been ploughed to a depth of 15 cm, this means that the disc should cut to a depth of 20 cm.

 *Check the working depth and prevent the disc from cutting too deep into the firm soil!*

 *The disc should preferably be rear-mounted. It should be mounted behind the implement.*

When a dual disc is used, preference should always be given to the use of a track rod with a single cylinder. Only use two cylinders if a track



rod is not possible in the structure of the implement.

### 3.1. Mounting the Stone Protection Assembly

The optional stone protection can be mounted between the implement and the disc leg. The cylinder in the assembly must be connected to an external spool valve of the tractor using hydraulic hoses. An accumulator and pressure gauge should be connected near the cylinder, using t-pieces. Ensure that the pressure gauge is visible from the tractor cab. See the diagram in Figure 13 for the hydraulic connections.

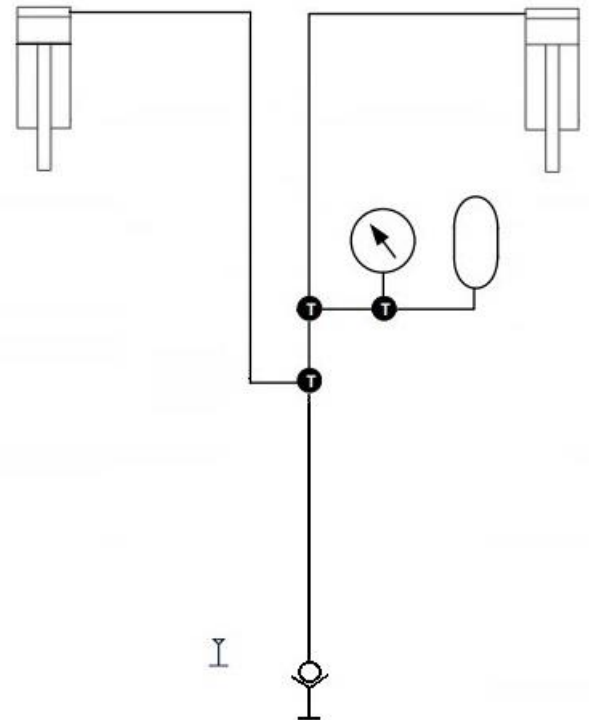


Figure 13 Stone protection hydraulics





### 3.2. Mounting the disc leg

Figure 14 shows an exploded view of how the disc leg is mounted.

Use the set of bolts, nuts and rings/washers supplied.

The mounting plate for the cylinder and the angle sensor are provided with several holes. Different holes need to be used, depending on the steering set used (Table 2, Figure 15).

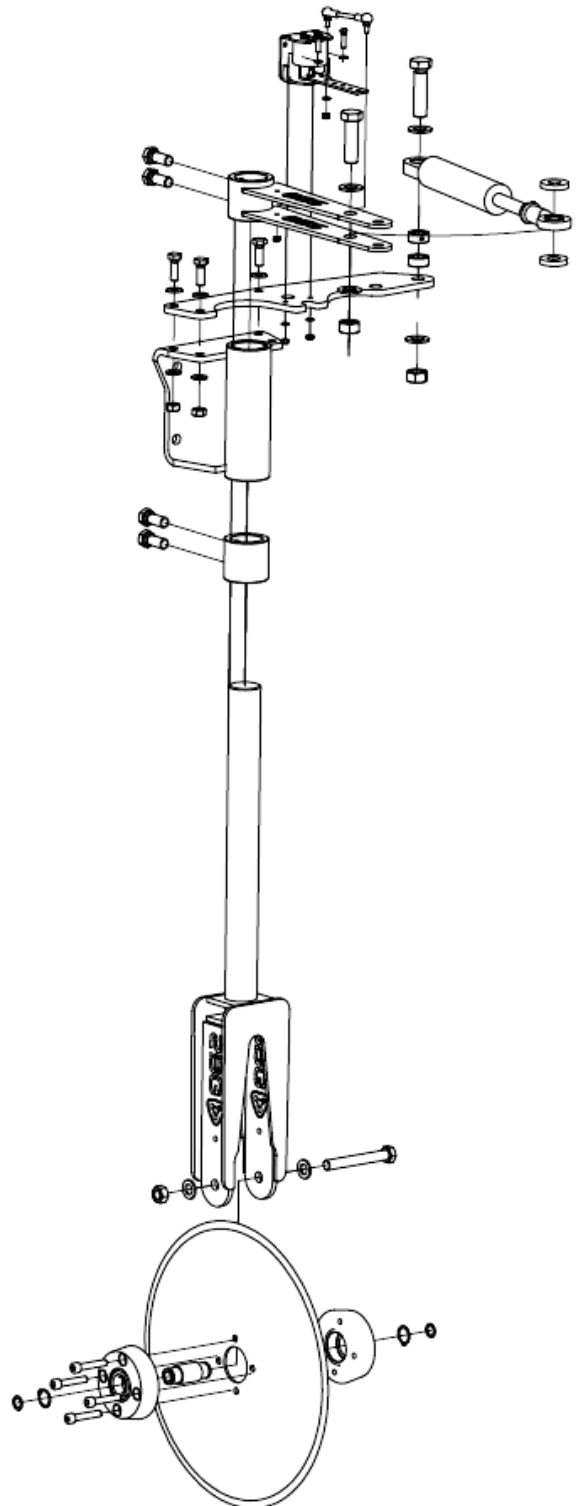


Figure 14 Exploded view of an assembled disk leg



Table 2 Holes in mounting plate for cylinder and angle sensor

Symbol	Description
1	Disc leg attachment
2	Angle sensor
3	Fixed cylinder
4	Adjustable cylinder

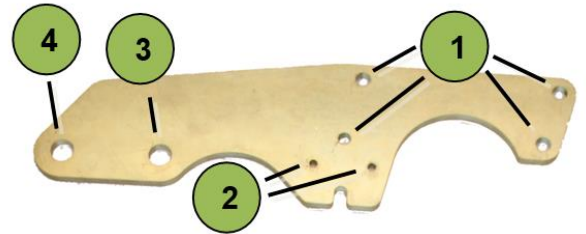


Figure 15 Mounting plate

### 3.3. Assembly of single-disc steering set

A single disc leg (Figure 16) can be used on implements with a maximum width of approx. 3 metres. A disc with a diameter of 45 cm suffices for lightweight seeding and planting machines. On heavier machines such as ridgers, a disc with a diameter of 60 cm is required on a single disc leg.

Always mount a single disc leg in the centre and at the back of the implement. Take account of the working depth of the disc and the position of the disc leg in the attachment. The disc legs are provided with several holes in order to adjust to the required working depth.



*Construct a sturdy frame from thick-walled tubing of at least 80 x 80 cm.*



Figure 16 Single disc steering set



### 3.4. Assembly of dual disc steering set with track rod

In the case of dual discs, the use of a mechanical track rod is preferred (Figure 17 and Figure 18) instead of an hydraulic track rod.

Take account of the working depth of the disc and the position of the disc leg in the attachment. The disc legs are provided with multiple holes in order to finely adjust the required working depth.

**!** *Construct a sturdy frame from thick-walled tubing of at least 80 x 80 cm.*

The track rod must be adjustable, by using a spindle, to be sure that both discs can be properly aligned. Cut the rod supplied in two halves. Determine the desired length of the track rod. Weld a tube between the two track rod sections. Finally, in the straight forward position, the discs should be parallel. Check whether the distance between the discs at the front and the rear is the same. If necessary, make adjustments to the track rod.

**i** *Use the rod supplied to construct an adjustable track rod.*

On a retractable implement, the frame for the disc legs can be mounted in a central position on the beam of the main frame (Figure 18).



Figure 17 Dual disc steering with mechanical track rod



Figure 18 Dual disc steering with mechanical track rod on a retractable implement



On seeders and inter-row cultivators it is sometimes possible to construct a universal frame that can be transferred from one implement to another. Ensure that the hydraulics, STU and DynamIQ are mounted on the universal frame.





### 3.5. Mounting the control set for dual disc with two cylinders

In the case of two cylinders (hydraulic track rod), one cylinder should be non-adjustable and the other should be adjustable (Figure 19 and Figure 21).

Only use two cylinders if a track rod is not possible in the structure of the implement. A mechanical track rod is preferred.

Take account of the working depth of the disc and the position of the disc leg on the attachment. The disc legs are provided with several holes in order to adjust to the required working depth.

**!** Construct a sturdy frame from thick-walled tubing of at least 80 x 80 cm.

#### 3.5.1. Hydraulic system

The cylinders should be mounted in mirrored positions. The ports on the piston rod side of the cylinders must be connected to each other (Figure 19). In addition, two pressure relief valves need to be installed in the correct position in the system. The pressure relief valves are pre set. Do not change the valve settings.



Figure 19 Dual disc steering with hydraulic track rod

The mounting sequence of the cylinders is as follows:

1. Mount the fixed cylinder (innermost hole on the mounting plate) on the right side of the implement and then put the disc in the straight forward position.
2. Then mount the adjustable cylinder on the left side (outermost hole on the mounting plate) and also put this disc in the straight forward position.
3. Connect the hydraulic hoses as shown in the schematic Figure 22. The pressure relief valves have three ports (Figure 20). Two P-ports and one T-port.
4. The angle sensor should be mounted on the right side, with the fixed cylinder.
5. After installing all hydraulics, flush the system by steering left and right several times. Keep on steering, when the cylinders are at the end of their stroke to flush all air out.
6. When all air is out, position the right disk in the mid (straight ahead) position.
7. Check that the distance between the discs at the front and the rear is the same. Adjustments to the adjustable cylinder to achieve that the discs are parallel.

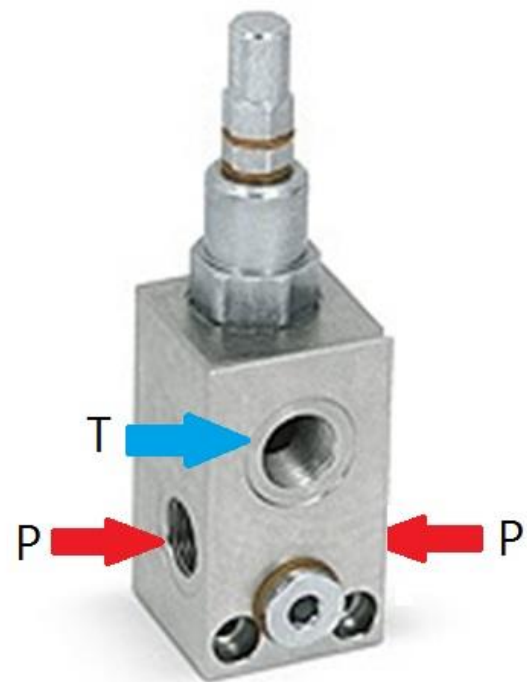


Figure 20 Ports of the pressure relief valve

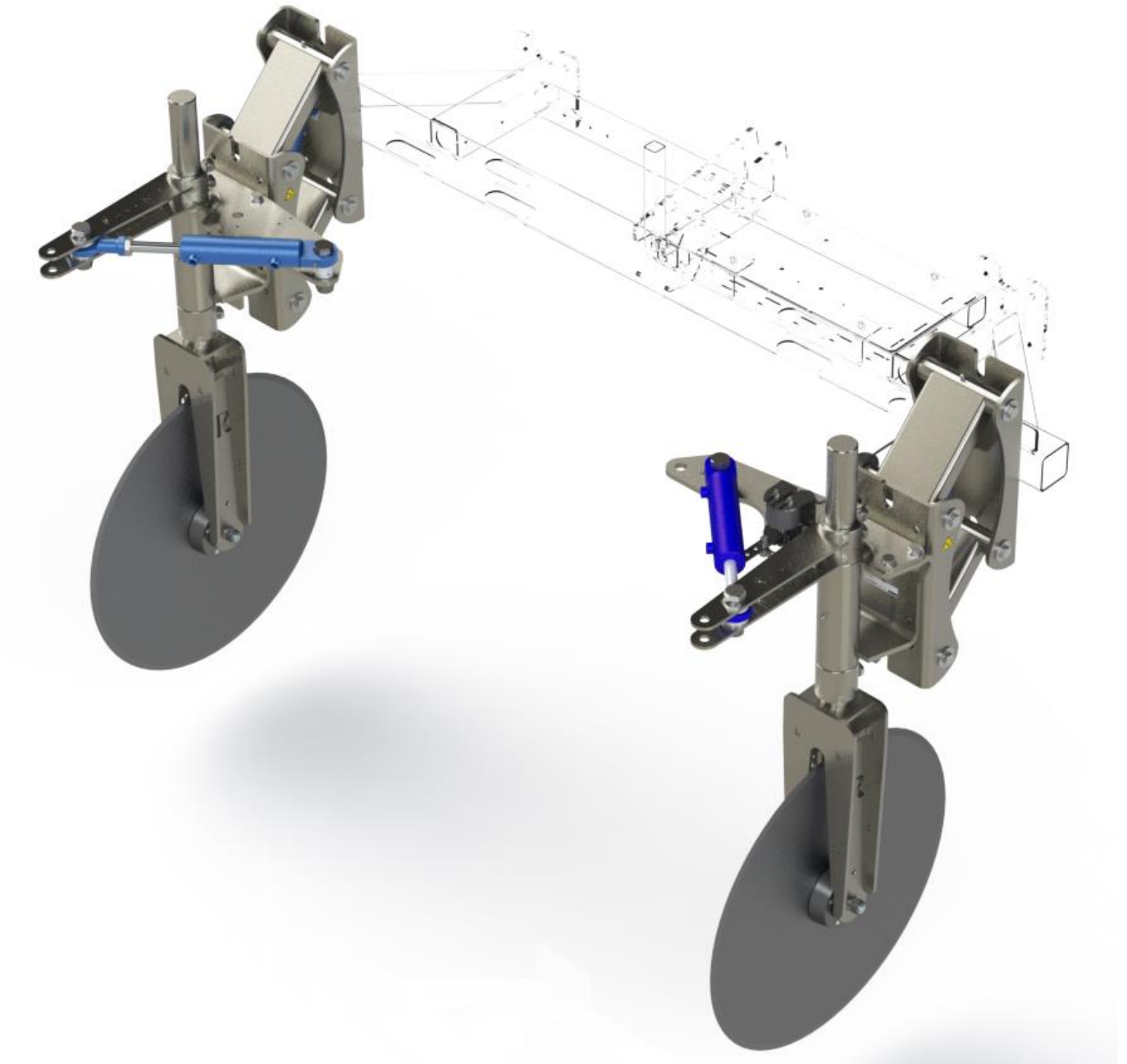


Figure 21 Dual discs with two cylinders



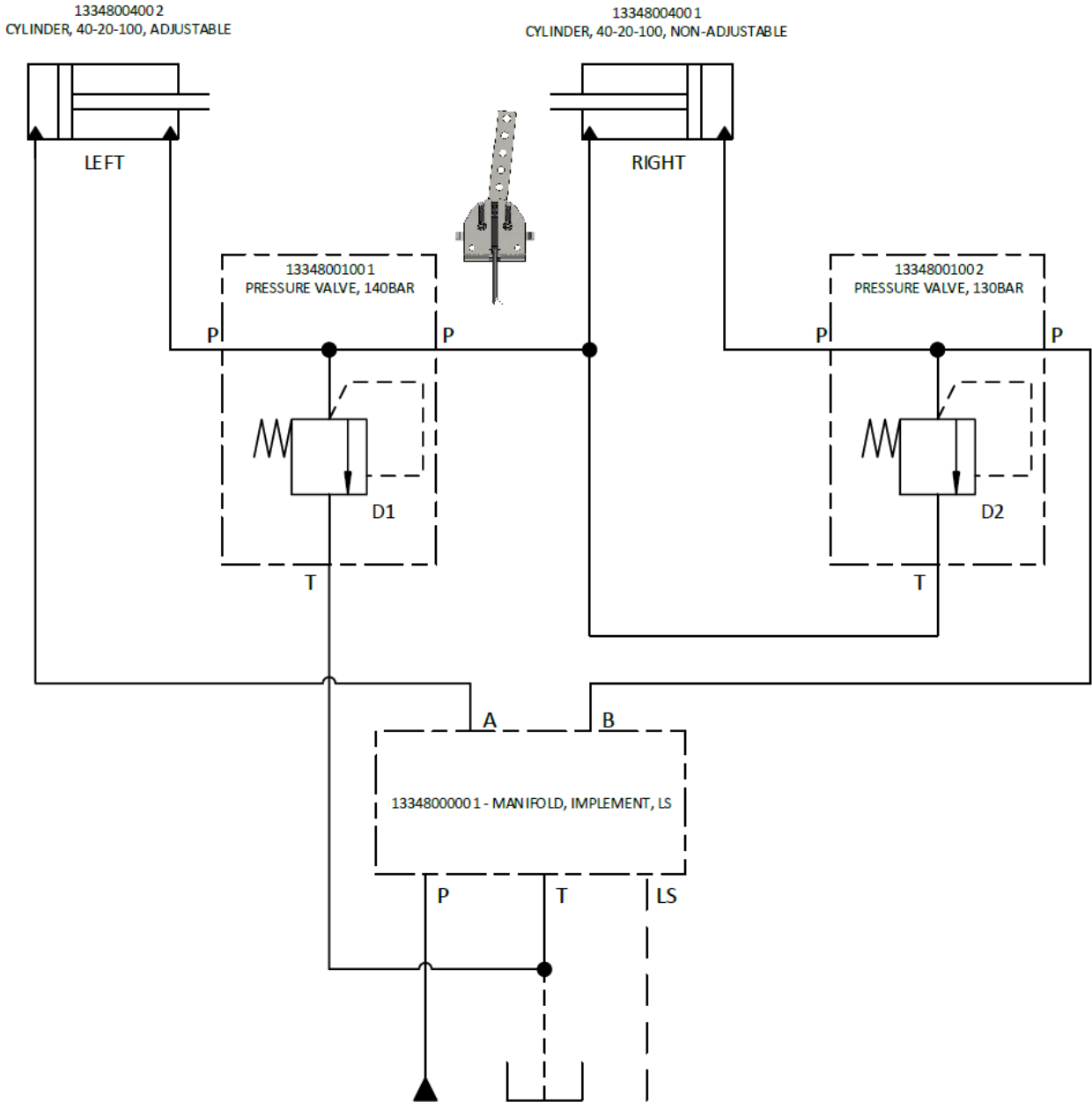


Figure 22 Hydraulic circuit dual disc with hydraulic track rod



### 3.6. Mounting the angle sensor

In the case of disc control, the mounting plate, which is attached to the disc leg of the implement for attaching the disc cylinder, is also provided with holes for the angle sensor bracket. The angle sensor measures the actual disc position.

**i** In a disc steering set, the angle sensor is already mounted in an angle sensor bracket (Figure 23).

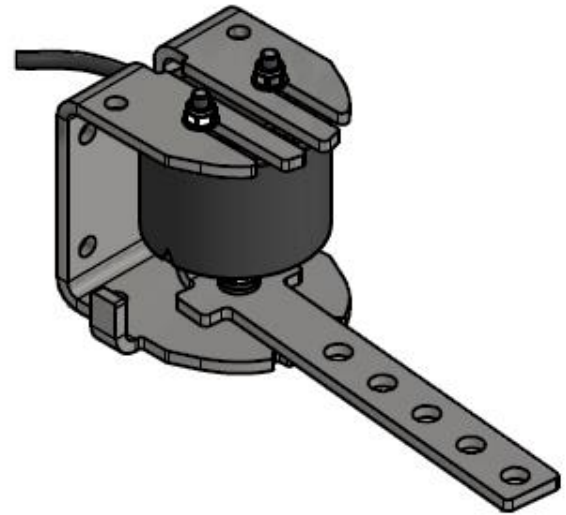


Figure 23 Angle sensor in bracket

#### 3.6.1. Mounting the angle sensor to the sensor bracket

Follow the steps described below for mounting the angle sensor in the angle sensor bracket (Figure 24):

1. The sensor consists of a plastic cup and a plastic disc which both need to be attached to the arm and the bracket with M5 bolts. The disc needs to be attached to the arm and the cup needs to be attached to the sensor bracket. The triangular notches, carved in the disc as well as in the cup should line up in the center position.
2. Attach the parts in the following order: M6 bolt, sensor bracket, washer, sensor bracket, ring, spring-loaded ring and locking nut.
3. Tighten the locking nut firmly and then loosen it a little so that the angle sensor is able to turn freely.

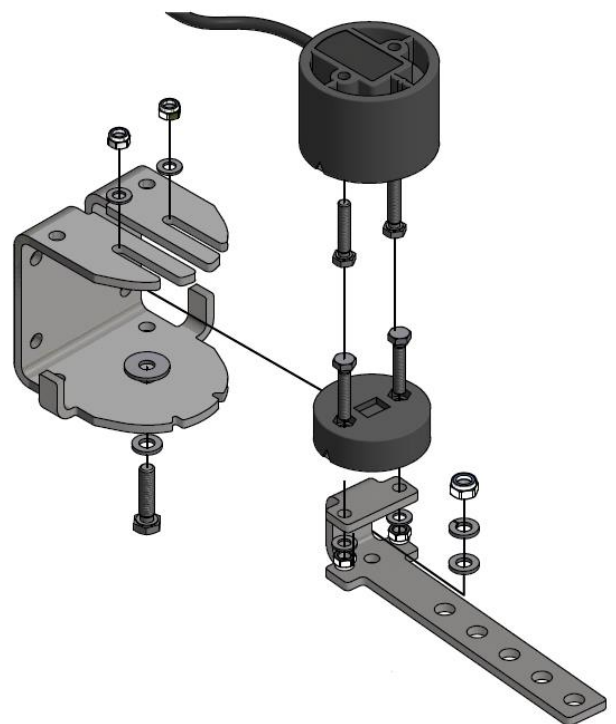


Figure 24 Angle sensor exploded view



### 3.6.2. Disc control

1. Attach the angle sensor bracket to the mounting plate (Figure 25). Turn the disc leg to the straight forward position and direct the sensor arm straight to the rear. Now cut the threaded rod to the required length.
2. Wrap the sensor lead in protective sleeve to prevent it from becoming constricted or damaged.



Figure 25 Angle sensor on disc steering

### 3.6.3. Wheel control

For wheel steering, the angle sensor should be mounted to an angle sensor bracket (Figure 26 and Figure 27).

Try to benefit from the entire range (0.5 – 4.5V) of the sensor.

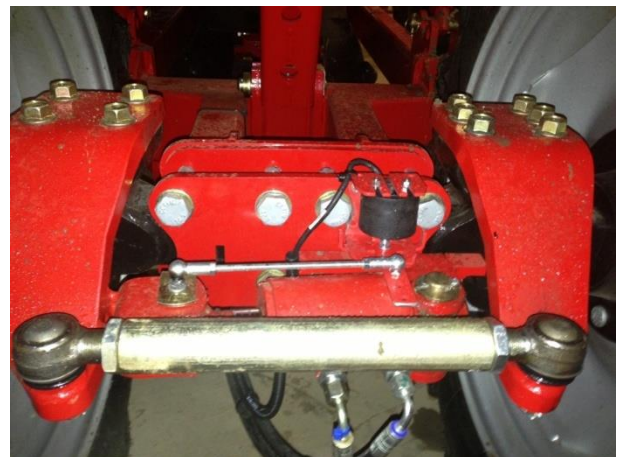


Figure 26 Angle sensor mounted at wheel steering



Figure 27 Angle sensor mounted at wheel steering



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## 4. Set-up and calibration

The following software and firmware versions are required for the set-up, calibration and use of the CAN disc controller:

- CAN-Tool 2.0.38 or more recent version.
- Disc control firmware STU\_DISK\_3\_0\_38 or more recent version
- SBGuidance 4.2.115 or more recent version.

**i** Check the download page on [www.raveneurope.com](http://www.raveneurope.com) for the most recent software and firmware versions.

**i** To update the steering controller firmware, see document: **CONFIGURATION MANUAL FIRMWARE UPDATE CANbus controllers 016-8000-031EN**

### 4.1. Set-up with the CAN tool

Initialize the CAN tool. After initializing the connection with the CAN bus, a bus load will be displayed. The received frames must be increasing. The bus load and received frames are displayed at the bottom of the screen. If not, check the wiring and connections.

Go to the tab page MyDevice and on Pre-selection select "**Navigation Controller**

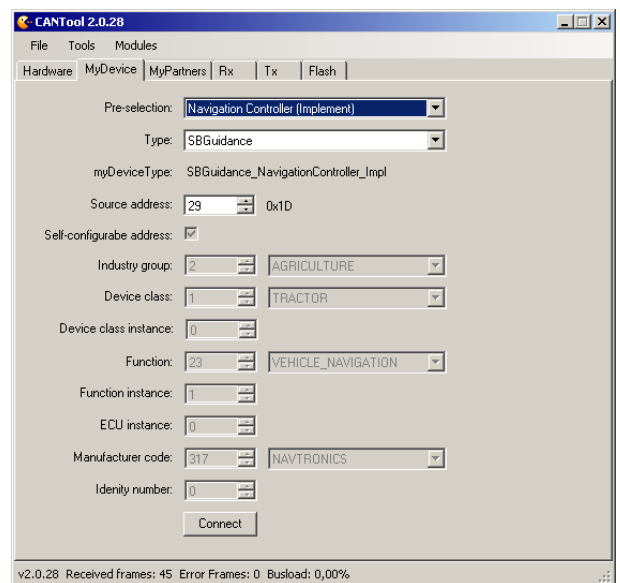


Figure 28 Navigation Controller (Implement)





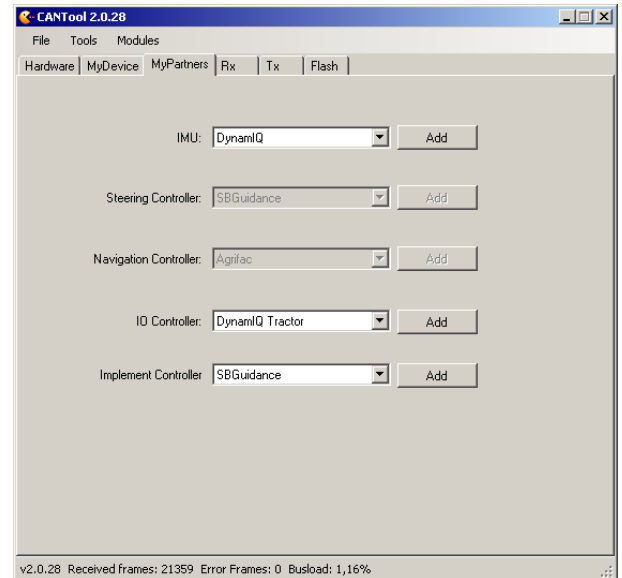
**(Implement)**". Then click *Connect* (Figure 28).

Go to the tab page *MyPartners* (Figure 29). On *Implement Controller*, select "SBGuidance" and click on "Add". This will open the set-up screen for the CAN disc controller (Figure 30).

The steering controller is recognized if the status is on *Running*, if an *SW Version* is displayed and the correct type of STU is detected. In addition, a sensor value should be displayed and a yellow line should be visible in the graphic display. The sensor value should change when the steering controller is used.



*Check if the STU is recognized before you continue to set up and calibrate the disc control.*



**Figure 29 MyPartners**



## 4.2. Determining the control speeds

All new manifolds are equipped with a proportional valve.

1. On the tab page Steering (Figure 30) for proportional steering, select Type *Pwm*.

**i** Allow the oil from the tractor to warm up before starting determining the control rates.

**i** The steering can be checked by clicking one of the **Test** buttons on the tab page *Steering* and by observing whether any of the LED lights on the DIN connectors light up.

**!** Before steering: Check if the surroundings of the discs are clear.

2. Check if steering to the left and to the right corresponds to the actual situation. Otherwise, check the box "**L/R Inverted**".
3. Use the "**Test**" button to the right of the control percentages to determine the maximum control speeds. Start with the maximum control percentages set to 70% and decrease the values until the maximum control speed decreases.

**i** Set the maximum control percentages to achieve that the actual maximum control speed is reached. Restrict the maximum

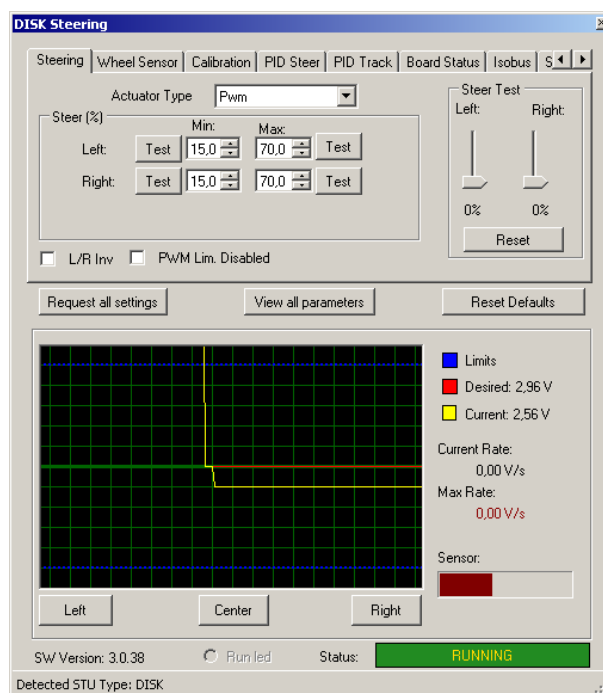




Figure 30 Tab Steering




*control speeds for disc control to 1.8 – 2.0 V/s.*

4. Use the "**Test**" buttons on the left of the control percentages to steer at the minimum control speed. Determine the left and right control speeds independently to achieve that both minimum control speeds correspond to approximately 0.04 V/sec. The discs/wheels should respond immediately if the minimum values are set. Otherwise, increase the minimum control values.

 *Determine the minimum control values in the central range (i.e. from the straight forward position).*

 *When minimum control values are applied, the control response to the left or to the right should be just as quick.*

 *The discs/wheels should respond immediately if the minimum values are set.*





### 4.3. Calibrating the angle sensor

The angle sensor serves to provide feedback relating to the actual position of the discs or wheels. Calibration can be performed from the tab page Wheel Sensor (Figure 31), but also in SBGuidance.

1. Set both the left and right angle sensor limits. In wheel control mode, turn the wheels to their most extreme position and record the resulting voltages. With disc control, the left (30%) and the right (70%) limits must be set tighter. This prevents the discs from being controlled far too extreme.

**!** *With two cylinder disc control, set the left and right limits much tighter in order to avoid synchronization problems.*

**i** *In the wheel control mode, always set the left and right limits to their end positions so that the implement being drawn can be steered automatically on the line as quickly as possible.*

2. Determine the centre value of the angle sensor by turning the discs or wheels to the straight forward position and by tapping the Midpoint button.
3. Check the centre of the disc when testing in the field. Read the centre of the disc in the Sensor calibration in SBGuidance

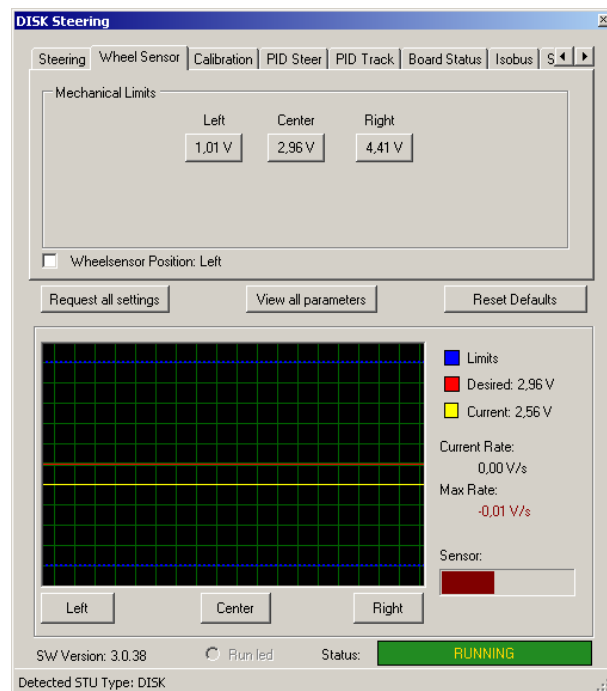


Figure 31 Tab Wheel Sensor

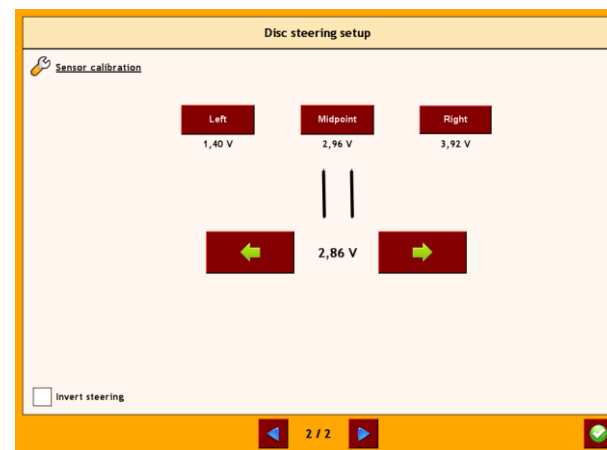


Figure 32 Sensor calibration



(Figure 32) after driving for at least 50 metres in the automatic control mode. If necessary, adjust the centre of the disc.



#### 4.4. Configuring the PID controllers

Use the default settings for the PID controllers (PID Steer and PID Track). The default settings can be obtained by clicking the *Restore Group Defaults* button in tabs PID Steer and PID Track (Figure 33 and Figure 34). The response of the controllers can be adjusted by changing the dealer gain percentages.

**i** Dealer gain PID EHV = hydraulic percentage

Increase the hydraulic percentage to obtain a more aggressive response of the wheel position control.

At low maximum speeds, the hydraulic percentage may need to be increased.

With disc control, the hydraulic percentage can remain at 100%. If wheel control is applied at a low maximum control speed, the hydraulic percentage may have to be set to a higher level.

**i** Dealer gain = gain percentage

Increase the gain if the deviation to the line is too slow to reach 0 cm.

Determine the gain in the field.

**i** The user can adjust the gain and the hydraulics in SBGuidance under Settings > Vehicle > Tuning > tab page Implement) (Figure 35).

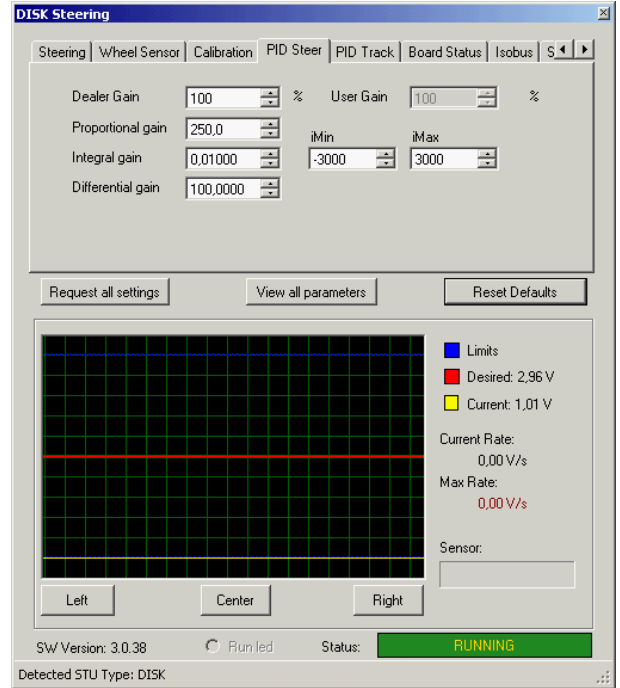


Figure 33 Tab PID Steer

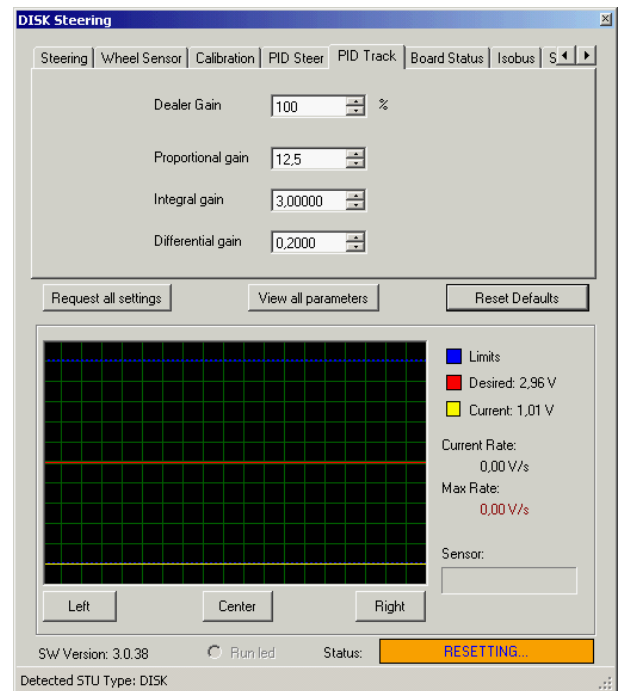


Figure 34 Tab PID Track

### 4.5. Configurator set-up

Copy the SBGuidance folder of the tractor that will be used with the disc control unit. Add the make and type of the implement to the name of the copied folder. For example:  
*MF7619\_Monosem.*

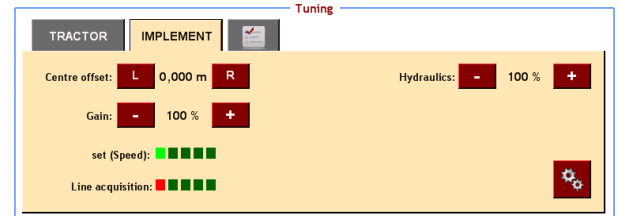



Figure 35 Vehicle Tuning

Open SBGuidance Configurator from the SBGuidance folder. Under Machine settings in the SBGuidance Configurator, set up and configure the system and guidance type for the AUX control. Select system type **"CAN"** and Guidance type **"SBGuidance Disc"**. On Orientation, select **"DynamIQ"**.

No parameters are required on the tab page Disc.

On the tab page Machines, enter offset A (antenna height).

 Refer to the SBGuidance Auto CAN set-up and configuration manual for further information on how to install SBGuidance.

### 4.6. Checking orientation of DynamIQ

The orientation of the DynamIQ ISO/SGC must be checked and set in SBGuidance at INFO > GPS > Orientation > tab page Implement (Figure 36).

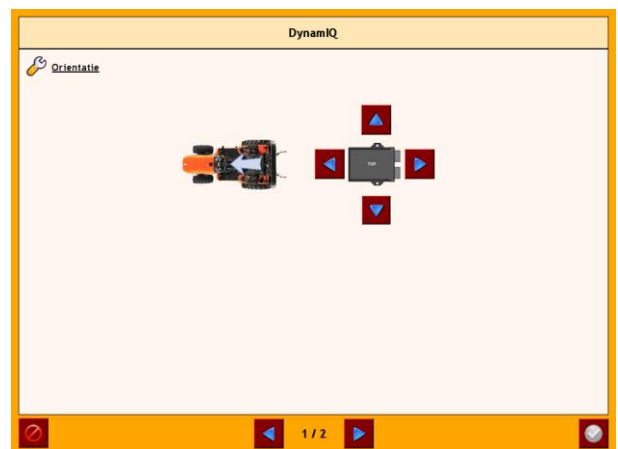


Figure 36 DynamIQ Orientation



### 4.7. Calibrating DynamIQ

Calibrate the DynamIQ ISO/SGC using the two-point calibration method. Calibration (Figure 37) can be performed in SBGuidance under INFO > GPS > Orientation > tab page Implement.

**i** Refer to the SBGuidance Auto CAN set-up and configuration manual for further information on how to install DynamIQ.

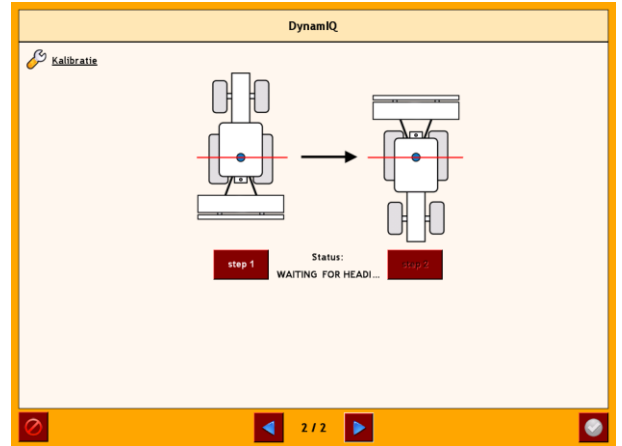


Figure 37 DynamIQ Calibration





#### 4.8. Set the stone protection

The accumulator of the stone protection should be filled to a certain level of hydraulic pressure to ensure that the disk is able to penetrate the soil, but also will be able to move upward in case a rock is hit.

Use an external spool valve to set a low pre charge of 50 bar. Determine if this is enough, by checking if the disk stays in the soil while working. If it is set too low, raise the pre charge with 10 bar at a time.

A value between 50 and 100 bar should be sufficient for all applications.

#### 4.9. Checking the centre

The centre position of the disc control is important in order to ensure the correct successive follow-up of work operations. If the DynamIQ is calibrated and the GPS antenna is positioned in the centre of the implement, generally only a few centimetres need to be corrected.

Follow the steps described below:

1. First check the centre of the tractor. Does the tractor drive back and forth in the same track?
2. The stabilization of the tractors hitch must be loose.



3. Check that the correct working width has been entered.
4. Ensure that the disc control steers accurately with minimal or no deviations before the distance to the next furrow is measured.
5. Adjust the centre of the implement by half the measured connecting error. The centre can be adjusted with the the centre adjustment (Figure 38) in SBGuidance under Settings > Vehicle > Tuning > tab page Implement).

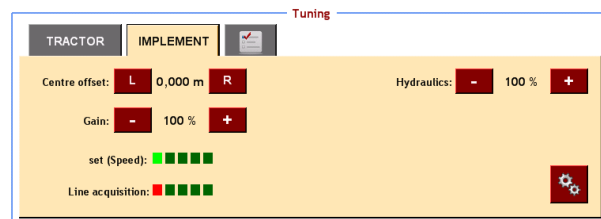


Figure 38 Adjust the center offset



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## 5. Annexe

### 5.1. Pin-out STU

**Table 3 STU B-connector (black)**

Pin	Description
1	VCC / PWM
2	ACT Ground
3	ACT Switched
4	ECU Power
5	Input 3 (no function)
6	5V Sensor power (optional)
7	Angle sensor signal
8	Input 2 (n function)
9	ECU Power (12V sensor power)
10	ECU Ground (sensor ground)
11	ACT Ground
12	VCC / PWM

**Table 4 STU A connector (grey)**

Pin	Description
1	Power Actuator
2	Power Actuator
3	Power ECU
4	N.C.
5	N.C.
6	CAN High
7	CAN Low
8	N.C.
9	N.C.
10	ECU Ground
11	ACT Ground
12	ACT Ground



## 5.2. Pin-OUT angle sensor

Table 5 Angle sensor 12V

Pin	Description	Wire colour
1	5V sensor power	-
2	ECU ground	Blue
3	Sensor signal	Black
4	12V sensor power	Brown