

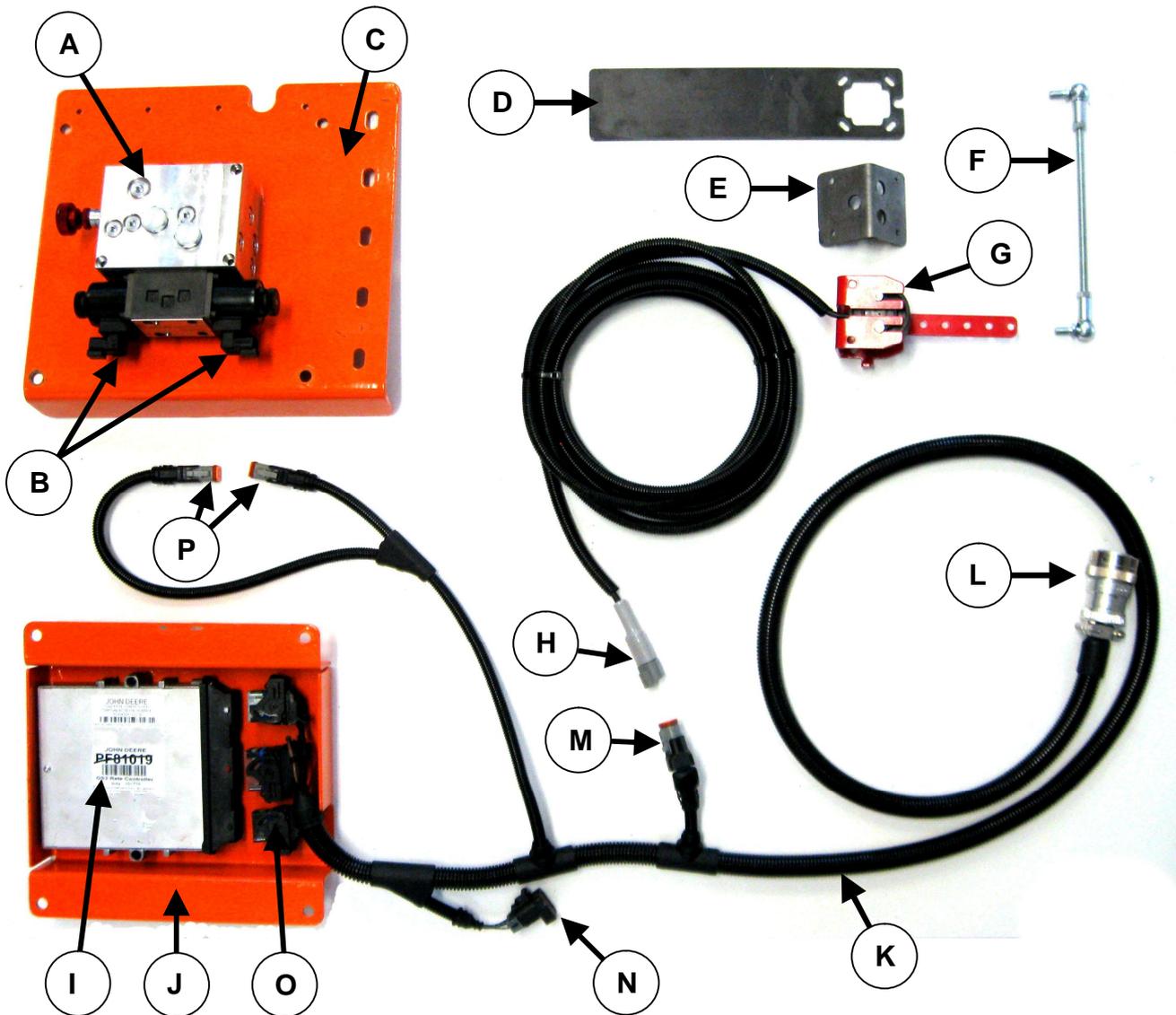
# iSteer Plough



## INSTALLATION MANUAL (English)

SBG INNOVATIE  
IM2005 (04AUG2010)

Parts overview iSteer Plough



	Description	Partnr.
A	Hydraulic manifold Load Sense	SBG52HY010
	Hydraulic manifold Open Center	SBG52HY020
B	Hydraulic valve connectors	-
C	Mounting plate manifold	SBG52MN020
D	Mounting plate angle sensor flat	SBG52MN010
	Mounting plate angle Z-shape 3 cm	SBG52MN011
	Mounting plate angle Z-shape 5 cm	SBG52MN012
E	Mounting plate angle sensor right angle	SBG52MN015
F	Threaded rod with two ball joints	SBG52FA010
G	Angle sensor	SBG52SE010
H	Angle sensor male connector	-
I	iSteer controller	SBG52CN002
J	iSteer controller cover	SBG52MN021
K	iSteer cable harness Plough	SBG52HA010
L	ISOBus connector	-
M	Angle sensor female connector	-
N	CANBus terminator	SBG52HA021
O	iSteer controller harness connectors	-
P	Hydraulic valve harness connectors	-

To measure the actual ploughing width during iSteer operation an angle sensor must be installed.

### **1. Determine mounting location of angle sensor**

The angle sensor will measure the displacement of the adjustable-width-bar compared to the fixed-frame-bar of the plough. By using the mounting plate (see *Parts overview: part D or E*), the sensor housing will be mounted on the fixed-frame-bar of the plough by making threaded holes in the frame-bars.

Search for a place on the plough where the sensor can be mounted with enough space to move (1). Make sure the cable of the sensor can reach the front of the plough where it has to be connected to the cable harness. In most cases the sensor will be mounted between the second and third plough element.



### **2. Measurements on the plough**

For two reasons we will measure and make some markings on the plough.

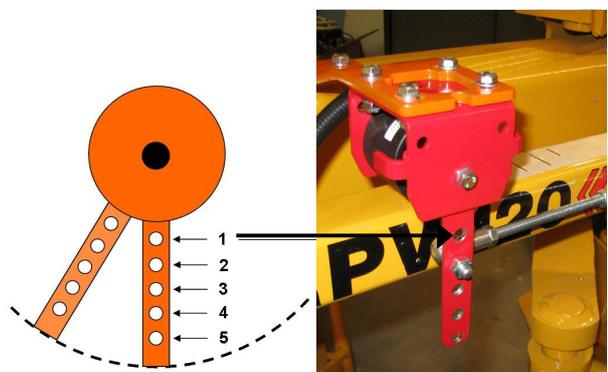
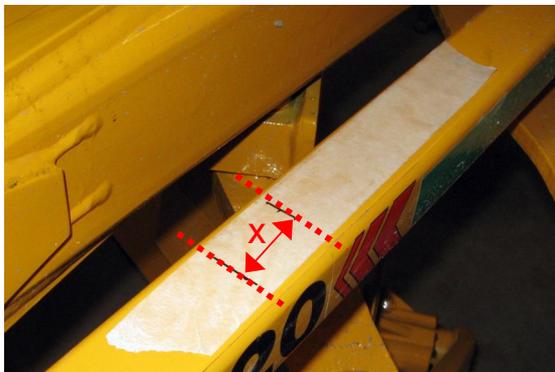
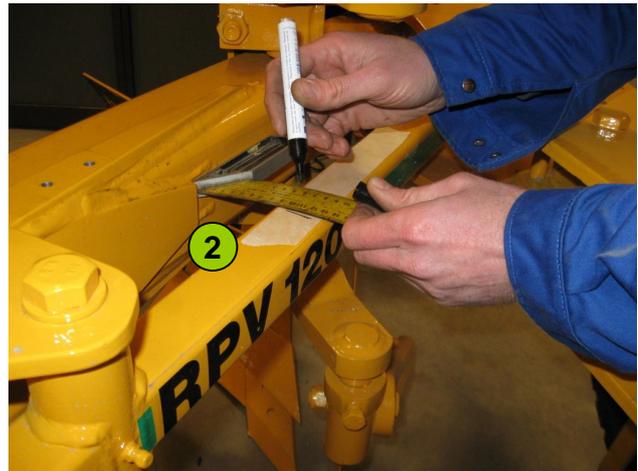
- A. Because the displacement of the adjustable-width-bar can be different on every plough we have to measure the needed sensor range. The sensor range can be adjusted by choosing between 5 mounting holes in the arm of the angle sensor. If we measure the total displacement of the adjustable-width-bar we can determine which mounting hole of the angle sensor we have to use.
- B. For the mounting of the sensor we need to be able to adjust the plough in its exact middle position. If we mount the sensor in its middle position on the plough when the plough is in its exact middle position, we are sure that the sensor will not get out of range during operation. When mounting the sensor, the sensor arm should be pointing straight down. This is the middle position of the sensor.



***Attention:*** *The markings on the plough are not exact positions where the sensor should be mounted. The place of the sensor can be chosen freely as long as the plough and the sensor are both in their middle position.*

**3. Determine sensor range**

Determine the maximum stroke of the adjustable-width-bar using a T-square. Hold the T-square on an exact repeatable place on the plough, or mark the fixed-frame-bar where you hold the T-square. Adjust the plough in its most narrow position and mark this position on the adjustable-width-bar (2). Now, adjust the plough in its most wide position and mark this position on the adjustable-width-bar. Measure the distance between the min. and max. Position. This distance will be used to determine the needed mounting hole of the sensorarm.

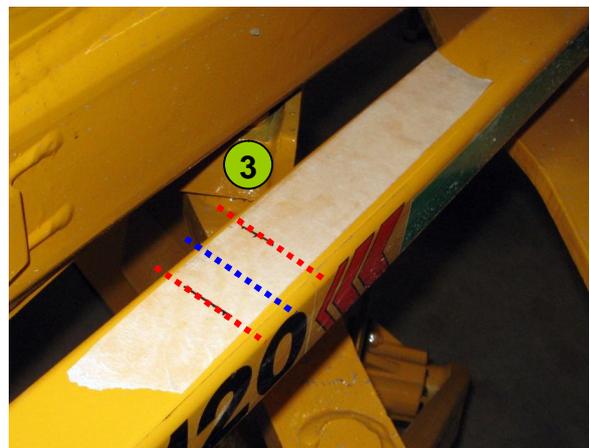


Stroke (X) of the adjustable-width-bar = Distance from min. to max.	Required hole
< 3,5 cm	1
3,5 - 5,5 cm	2
5,5 - 7,5 cm	3
7,5 - 9,5 cm	4
9,5 - 12,5 cm	5

**4. Measure and adjust the plough to its middle position**

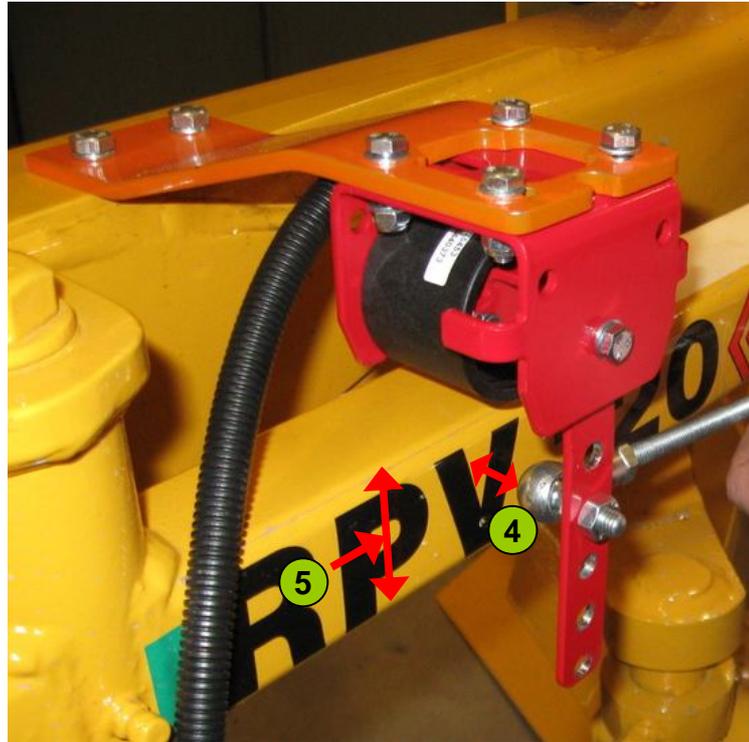
By using a ruler, calculate the position directly in the centre of the line between the min. and max. position (3). If the middle position is determined, mark it.

Now use this middle position to adjust the plough in its exact middle position by holding the T-square on the exact same place as before.



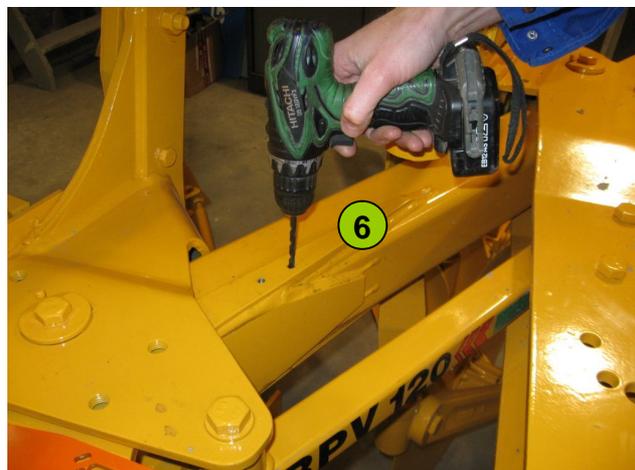
## 5. Mounting the sensor housing

Mount the angle sensor with bolts to the mounting plate. Make sure the ball joint is mounted in the right hole of the sensor-arm. Fix the mounting plate with the help of a clamp tool to the fixed-framebar. The ball joint and the threaded rod should be close (0,5 – 1,0 cm) to the adjustable-width-bar (4). The ball joint should be approximately in the middle of the height of the adjustable-width-bar (5). Make sure the sensor fits in all positions because the width-adjustable-bar moves also sideways. Adjust the plough width to verify that the sensor fits in all positions.



**Attention:** The distance between the fixed-frame-bar and the adjustable-width-bar varies when the ploughing width of the plough is adjusted. The sensor housing should be mounted in such a way that the arm of the sensor is not obstructed by any part of the plough.

Drill two 6.8 mm holes in the mounting plate and the frame bar of the plough (6). Remove the mounting plate from the plough and make M8 threads in the holes in the fixed-frame-bar. Drill 8 mm holes in the mounting plate and mount it to the fixed-frame-bar of the plough. If needed the mounting plate can be made shorter.

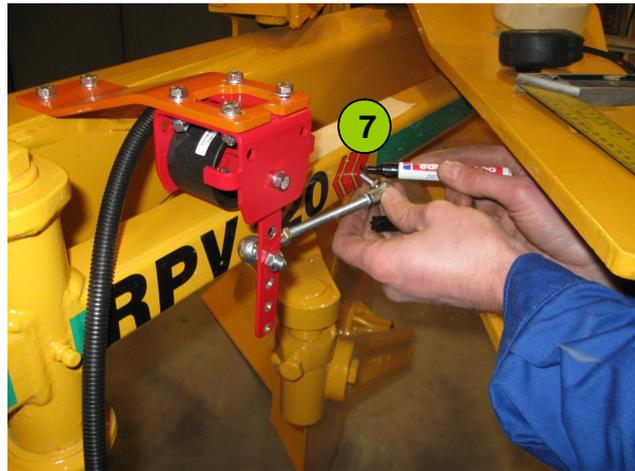


### **5. Mounting the sensor arm**

The arm of the angle sensor has several mounting holes. The hole that should be used depends on the maximum stroke of the adjustable-width-bar of the plough.

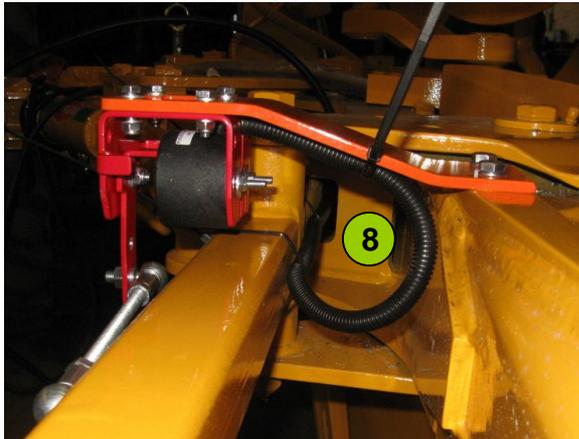
Adjust the sensor arm accurately in its middle position and mark the position (7) where the ball joint should be mounted to the adjustable-width-bar.

Drill an 6,8 mm hole in the adjustable-width-bar of the plough and make 8 mm thread in this hole. Mount the ball joint on the plough.



### **6. Mounting the sensor cable**

Mount the sensor cable in such a way that the first piece of the cable does not move relative to the sensor housing (8). Next, the cable can be mounted to the adjustable-width-bar (9). As soon as the sensor cable reaches the hydraulic hoses, the cable should be guided along with the hydraulic hoses to the front of the plough (10).



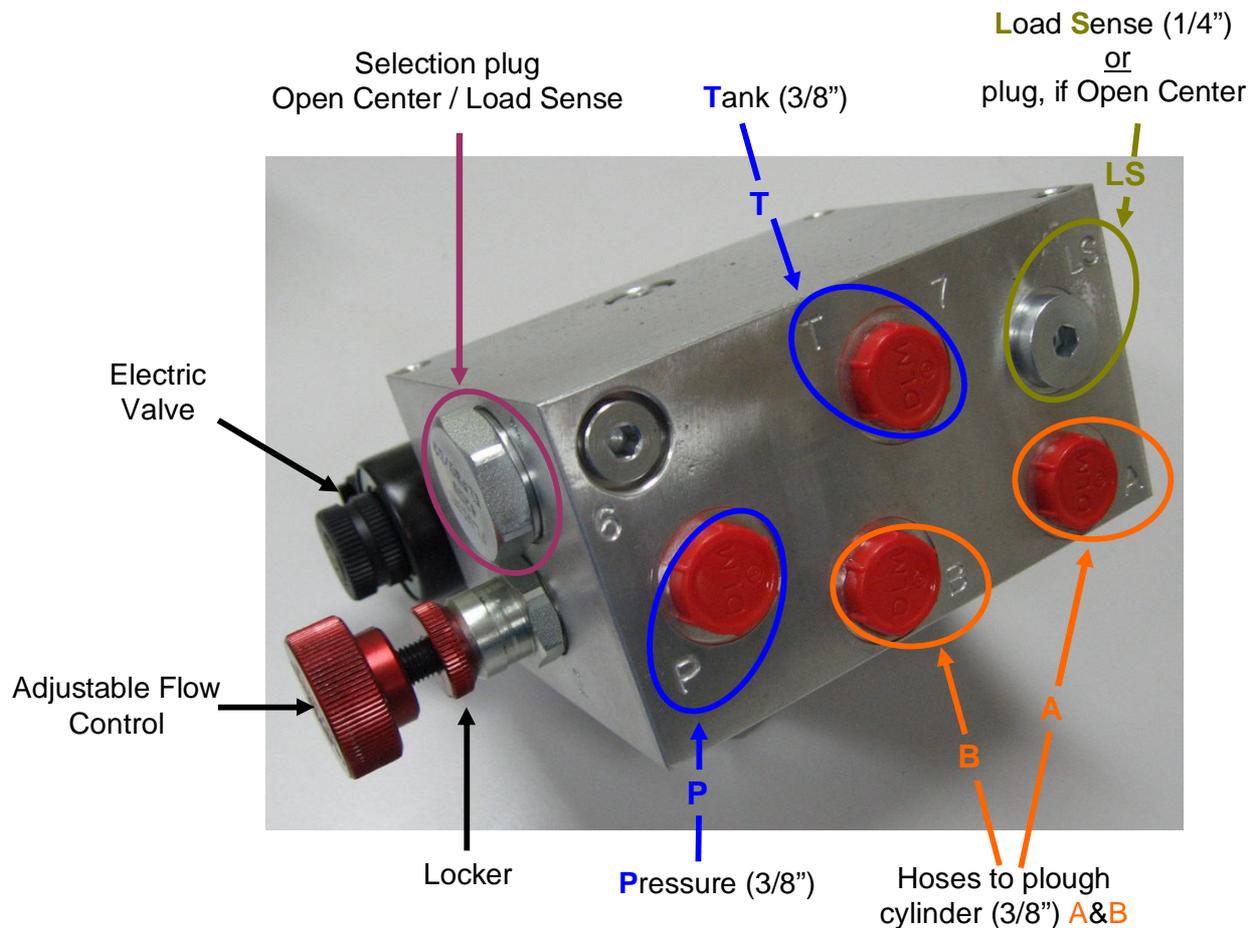
### 7. Check for obstructions of sensor and cabling.

Carefully adjust the plough width and check if sensor and cable does not get stuck.  
Carefully flip the plough and check if the cable does not get stuck.



**Attention:** Check if the cable does not get stuck when adjusting the plough width or when flipping the plough.

### 8. Checking the hydraulic manifold:



The iSteer hydraulic manifold can be used Load Sense (LS) or Open Center (OC).  
If the manifold is connected to the external valves of the tractor the manifold should be set as Open Center.

**Open Center:** The “**Selection plug**” should be a plug with the marking “**ELP30/D2**”.  
The **LS** connection of the manifold is closed with a plug.

**Load Sense:** The “**Selection plug**” should be a closed plug without any marking on it.  
The **LS** Connection will be connected to the LS connection on the tractor.



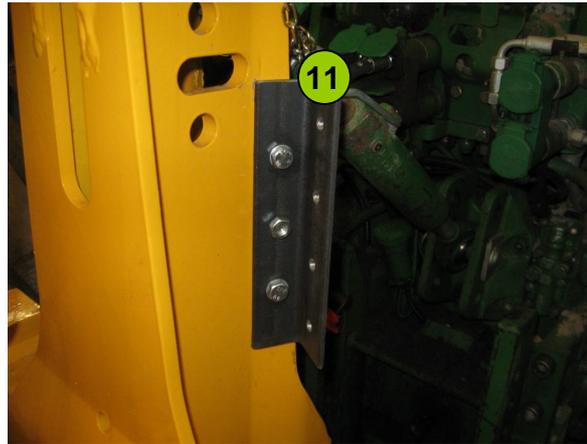
**Attention:** With Open Center there are different plugs in the manifold as with Load Sense!

Tip: The coils of the valves can be twisted if the plastic nuts are not tight enough.  
Do not forget to tighten them again after adjusting the coils position.

### **9. Mounting the manifold**

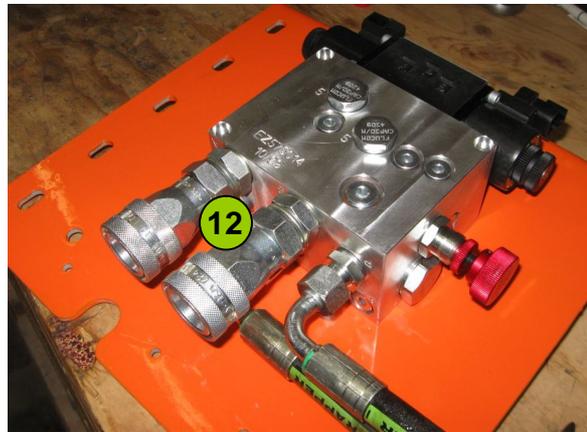
With the supplied mounting plate the hydraulic manifold and the iSteer-controller are mounted at the front of the plough (11).

With most ploughs the mounting can be done easily by using a 90 degree shaped piece of iron of 50 x 50 mm.



The hydraulic hoses of the plough's width adjust cylinder can be mounted directly to the **A** and **B** port of the manifold (see previous page).

If it is preferred that the hoses are easy to disconnect, they can also be mounted using the existing quick release couplings (12).



First mount the hydraulic hoses and/or the quick release couplings to the manifold. Then mount the manifold to the mounting plate (13).



## 10. Mounting the iSteer controller

Mount the iSteer controller with 2 x M8 bolts and nuts to the cover (14).



Connect the 3 harness connectors to the controller and lock the connectors with its clamps. Use the color marking on the controller and the color of the connectors (15).



Mount the cover with 4 x M8 bolts and nuts to the hydraulic mounting plate (16).



### **11. Mounting the cable harness**

Mount the harness with tie bands to the holes on the lower part of the manifold mounting plate (17).



Connect the two valve connectors to the hydraulic valve and the angle sensor connector to the angle sensor (18).

Lead the end of the cable harness with the round ISOBUS connector in such a way to the rear of the tractor that it will not get stuck while lifting or flipping the plough.



Use the picture of the part overview on page 2 when you have trouble connecting the different parts to the iSteer harness.