

Bale Accumulator

User's Guide



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1. POMI Bale Accumulator

Thank you for choosing a POMI bale accumulator, you may use it for straw and silage. If you want to use it for other crops, please contact the manufacturer to have his written acceptance to do so.

2. Safety details

FOR YOUR OWN SAFETY

- **Never move about on or work on the machine unless the tractor engine has been stopped and the control box emergency stop button has been activated.**
- **Do not allow unauthorised persons within a distance of 10 m from the accumulator when it is in operation. There are two reasons for this: partly the machine may suddenly move and partly oil may squirt from a damaged tube.**
- **All lamps must function as provided in your national road code.**
- **Drive carefully when towing the bale accumulator, as fierce driving strains both the accumulator and the baler. POMI disclaims any liability for damage to the baler.**
- **Take care to set the oil quantity to 20 litres per minute, as excessive oil may cause heat and destroy the tractor. POMI disclaims any liability for such damage.**
- **Remember to re-torque the wheels and wheel axle.**
- **Avoid hitting kerbstones and bumps at high speeds as the wheels of the bale accumulator may break into self-oscillation.**

3. EU DECLARATION OF CONFORMITY

Manufacturer: POMI Industri ApS
Abildvædvej 5, Thorup
DK-9610 Nørager

Tel. +45 98 55 20 00
Company

Hereby declares that

Machine: Bale Accumulator
Brand type, serial no., year

has been produced in conformity with the provisions of Council Directive 89/392/EEC of 14 June 1989 on the mutual approximation of the laws of the Member States relating to machinery as amended on 20 June 1991 (91/368/EEC), (93/44/EEC) and (93/68/EEC) with special reference to Annex I of the Directive relating to essential safety and health requirements in connection with the design and manufacture of machinery.

Especially:

has/have been manufactured in conformity with the following harmonised standards (Art. 5, subart. 2 of the Directive)

has/have been manufactured in conformity with other standards and/technical provisions.

Signature

Date

Poul Mikkelsen
Managing Director
POMI Industri ApS

4. Identification of the machine

Please state the serial number of the machine when ordering spare parts. You will find the serial number on the type plate on the left side of the machine (see ill.)



Serial no. _____

5. Connecting the accumulator to the baler

Connect the accumulator to the baler so the front of the accumulator bed is about 5 cm below the pressing channel (see ill.)



about 5 cm

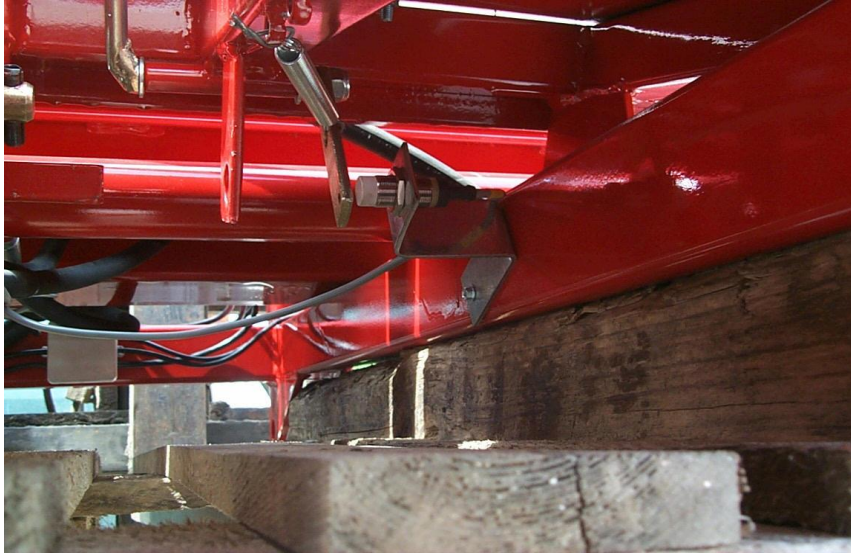
Set the oil for the accumulator to 20 litres.

If this is not possible and the tractor yields more oil, bigger tubes must be installed.

CONTACT THE MANUFACTURER.

6. Setting the accumulator

The bales activate the bale switch on the accumulator when they are discharged.
The switch can be adjusted to a higher or lower sensitivity under the bed (see ill.).



The switch of the push feeder can be moved in relation to the bale width (see ill.).

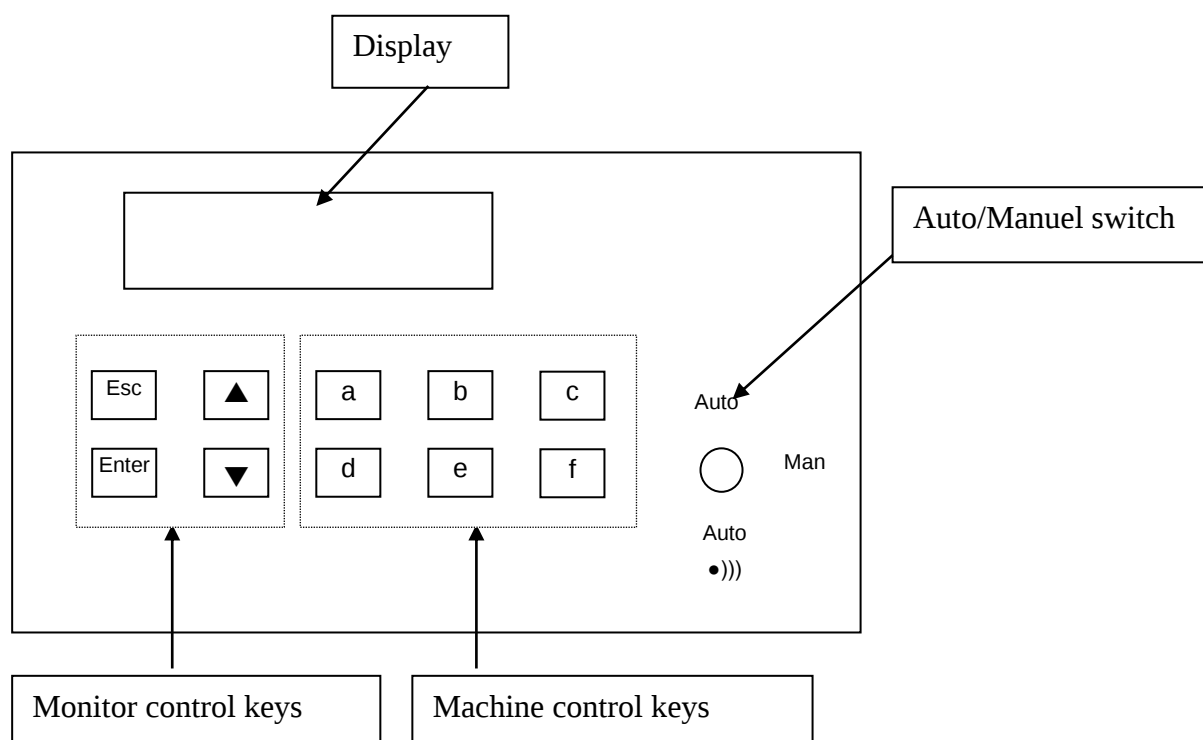
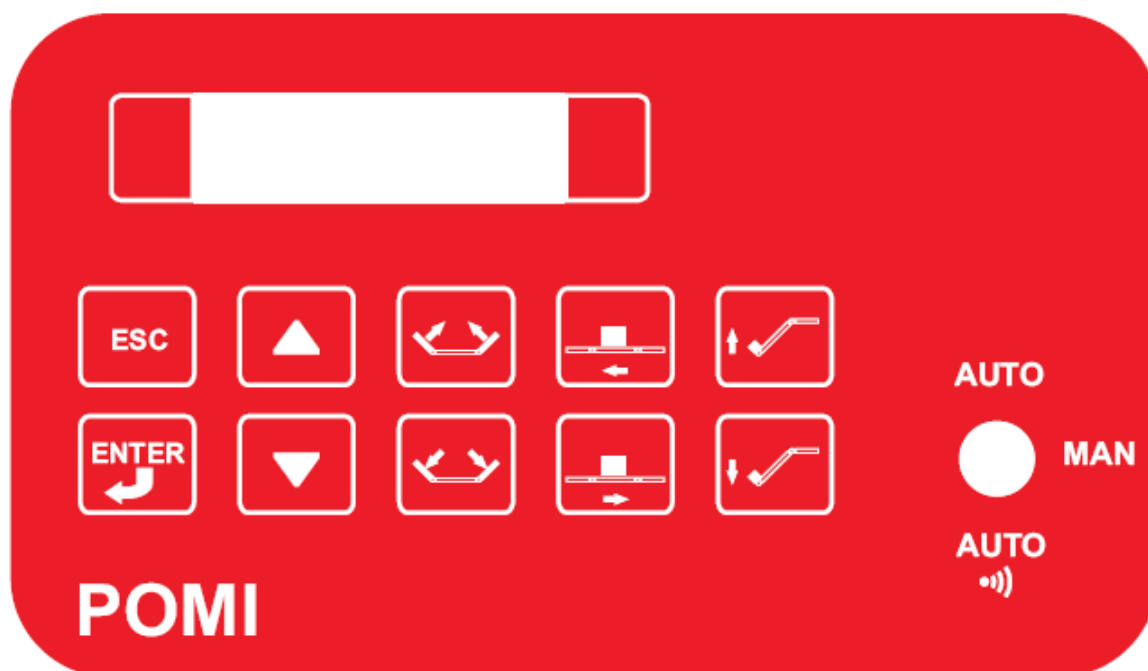


The sensors are very sensitive (max. 8 mm) so keep out of touch.



Do not forget to clean between the wheels of the pusher every day.

7. Computer



When the monitor is turned on, the display showing the number of bales on the dumping bed appears. (This is the only display shown during normal operation).

Depending on the position of the switch for Auto/Manual, the keys will have specific functions.

The Auto/Manual switch has three positions:

- **'Auto' and 'Auto •)')'**

In 'Auto' bales are automatically discharged once the dumping bed is full.

In 'Auto •)')' an acoustic signal is sounded once the dumping bed is full (5 beeps).

Machine control key "f" activates the 'auto offload'.

The other control keys are inactive.

If you depress the 'Enter' key for more than 2 secs., the display for setting of number of bales per dumping action appears. The figure will flash, and it can be set to 3 to 5 bales.

The monitor is now in set mode. The recording and dumping of bales has been deactivated.

- **'Man'**

The machine can only be operated via the machine control keys.

It is possible to reset the controller and change the machine parameters.

7.1. Code-displays

By depressing the 'Enter' and the Arrow-down key at the same time for 2 secs. the code display will appear.

There are displays for **Code 4** and **Code 7**.

Code 4

Display for change of machine times.

The following times can be set/changed:

Factory setting

- | | |
|--|------|
| - t1 = Maximum time of operation for bale push feeder right/left. | 12,0 |
| - t2 = Time of operation after activation of sensor right/left. | 0,0 |
| - t3 = Time of operation for tailgate up. | 2,0 |
| - t4 = Time of operation for tailgate down. | 2,0 |
| - t5 = Sensor time for bale on sensor. | 1,2 |
| - t6 = Latency until the tailgate is lowered. | 1,7 |
| - t7 = Latency before the tailgate is raised after it has been down. | 1,0 |

(These times only apply when the switch is on 'Auto' or 'Auto •)))'.

Code 7

There are four test displays. There are displays for key test, switch test, input test and output test.

- Key test: The display shows "Tst 1". When a key is pressed, a certain display segment will be lit.
- Switch test: The display shows "Tst 2". When the switch is activated, a certain display segment is lit.
- Input test: The display shows "Tst 3". When an input is activated, a certain display segment will be lit.
- Output test: The display shows "out.Ent". In order to activate this test; depress 'Enter' for two seconds. The display will now read "out." followed by the output number and an indicator for deactivated/activated.
 - o = activated.
 - = deactivated.

Error messages

Currently there is only one error message:

- Err 1.

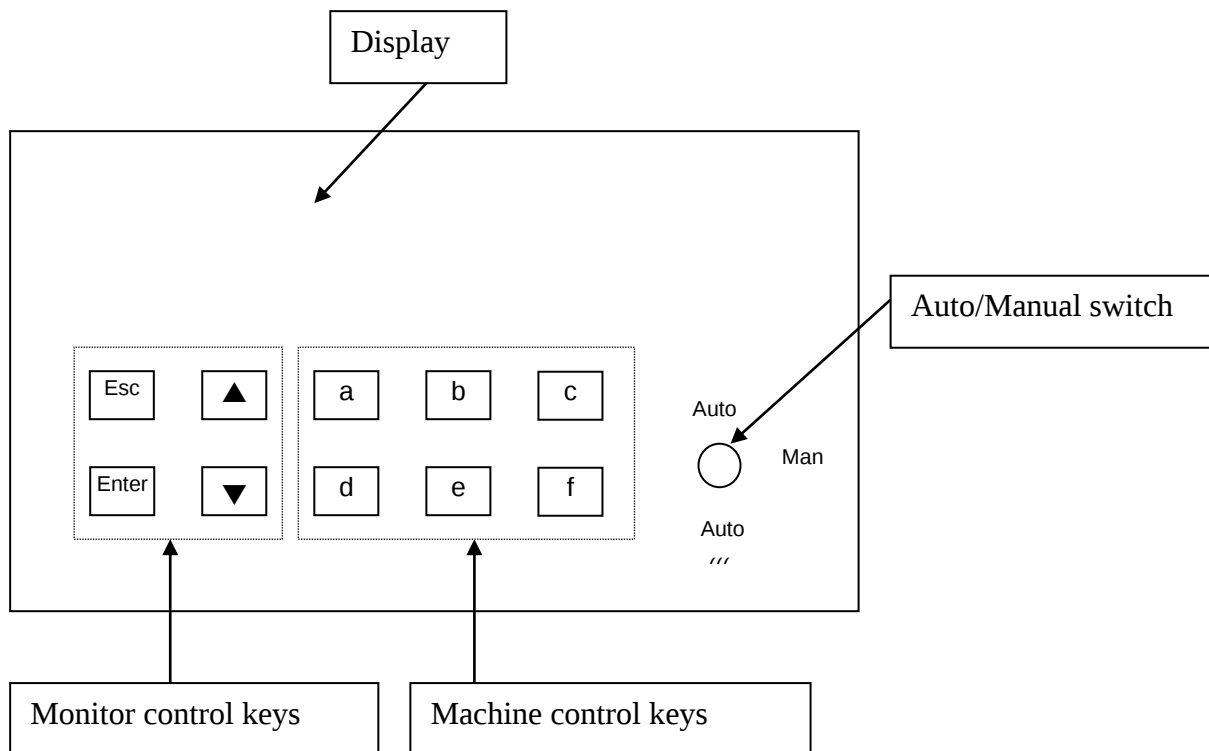
If the monitor is switched on or the emergency stop is reset while there is a bale on the sensor, and the switch is positioned in one of the Auto functions, the display will show an error message. "Err 1" will appear in the display.

The message is cancelled once the switch is set to Man. If the switch is set to one of the Auto functions again, the bale will be pushed and then dumped depending on the number of bales on the dumping bed.

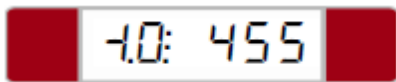
During operation in 'Auto' or 'Auto •)))' the display will show the side on which the push feeder is positioned, and the centre of the display shows the number of bales on the accumulator.

The push feeder must be positioned on a sensor to make the accumulator work.

8. Computer (if weight is mounted)



When the controller is switched on, the software version is first displayed and then the normal work display.



From left to right the work display shows: position of push feeder, number of bales on dumping frame and weight of last bale in kilos (kg).

Depending on the position of the switch for Auto/Manual, the keys will have specific functions.

The Auto/Manual switch has three positions:

- **Auto. and Auto (((-**

In Auto bales are automatically discharged once the dumping bed is full.

In Auto (((- an acoustic signal is sounded once the dumping bed is full (5 beeps).

Machine control key 'f' activates 'auto offload'.

The other control keys are inactive.

If you press the 'Enter' key for more than 2 secs., the display for setting of number of bales per dumping action appears. The figure will flash, and it can be set to 3 to 5 bales.

- **Man.**

The machine can only be operated via the machine control keys.
It is possible to reset the controller and change the machine parameters.

8.1. Code displays

Code 3

Setting up and calibrating the weighing system.

Setup1 is for setting up the scales.

The following values can be set/changed:

- tA = Tare Resetting of weight (unloaded)
- h2 = Max. weight at 20 mA. (Please refer to weighing cell specifications)
- SA = Sample time. Time between samples in milliseconds (10 ms. to 1000 ms.)
- M = measuring time. Time span during which sample values are taken for the calculation of the weight (100 ms. to 4000 ms.)
- CA = Calculation time. Time between the calculation of the weight based on the sample values taken
- Cor = Correction factor. This factor is calculated using the below formula

$$\text{Cor} = \frac{\text{DenVistVærdi}}{\text{DenFaktiskeVærdi}} .$$

Ex: Display reads 90 kg with a mass of 100 kg, set Cor to $\frac{90}{100} = 0.90$

Setup2 is for calibrating the weighing system.

The following values can be set/changed:

- Ad = Displays the actual analogue value
- A1 = The analogue value at 4 mA
- A2 = The analogue value at 20 mA

The system has been calibrated upon delivery of the controller and should normally not be changed.

If a new calibration is to be done, find the indication of A1.

Next press [ENTER] for 2 seconds, the analogue value of the weighing input will be displayed. Before you press [ENTER] again, make sure that only 4 mA are applied to the input.

A2 will then be displayed.

Next press [ENTER] for 2 seconds, the analogue value of the weighing input will be displayed. Before you press [ENTER] again, make sure that only 20 mA are applied to the input.

Code 4

Display for change of operation times on accumulator.

The following times can be set/changed:

Factory setting

t1 = Maximum time of operation for bale push feeder right/left.	12,0
t2 = Time of operation after activation of sensor right/left.	0,0
t3 = Time of operation for tailgate up.	2,0
t4 = Time of operation for tailgate down.	2,0
t5 = Sensor time for bale on sensor.	1,2
t6 = NA.	
t7 = Latency before the tailgate is raised after it has been down.	1,0

These times are applied when the controller is in one of the Auto functions.

Code 7

Fire test displays. There are displays for key test, switch test, input test and output test.

- Key test: The display shows “Tst 1”. When a key is pressed, a certain display segment is on.
- Switch test: The display shows “Tst 2”. When the switch is activated, a certain display segment is on.
- Input test: The display shows “Tst 3”. When an input is activated, a certain display segment is on.
- Output test: The display shows “out.Ent”. In order to activate this test, press [ENTER] for two seconds. The display will now read ”out.” followed by the output number and an indicator for deactivated/activated.
 - o = activated.
 - = deactivated.

Fault indications

- MAn.

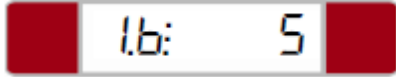
If the controller is switched on or the emergency stop is reset while there is a bale on the sensor and the controller is in one of the Auto functions, a fault indication is given and "Man" will flash in the display.

The indication will disappear when the controller is set to Manual. If the controller is again set in an Auto function the bale will be pushed or discharged – depending on the number of bales on the dumping bed.

Job counters

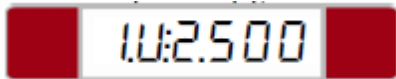
Press [ARROW-down] to display the current job counter. There are 9 job counters which all can be reset. Each job counter holds information about number of bales, total weight of the job and average bale weight for the entire job.

Below are the displays for job no. 1.



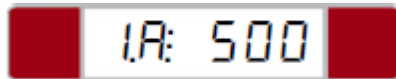
From left to right: job no.; b indicates the number of bales. Here are 5 bales.

Again press [ARROW down] to display:



From left to right: job no., U indicates the total weight in metric tonnes. Here we have 2.5 tonnes.

Again press [ARROW down] to display:

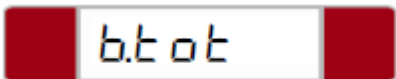


From left to right: job no.; A indicates the average weight. Here we have 500 kg.

Again press [ARROW down] to display to show the same values for the subsequent job counters.

After job counter no. 9, the total counter will be displayed.

The first display is:

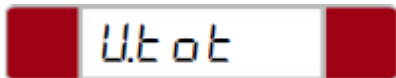


b.tot indicates that the total number of bales will be displayed.

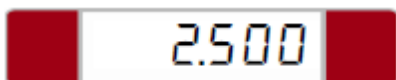


The display will switch between the two indications.

Again press [ARROW down] to display:



U.tot indicates that the total weight in tonnes will be displayed.



The display will switch between the two indications.

Actuation of job counter

To actuate a specific job counter, actuate the display of the job counter required. Take care not to touch any keys until the work display is again displayed. The last job counter displayed is now the active job counter. The first time you again press [ARROW down] this job counter will be the first one displayed.

In this way you can switch between the nine jobs.

Resetting a job counter

Reset a job counter by actuating the job counter with the required job number. If you press [ENTER] for 2 seconds, the value will flash and the counter will reset if you press [ENTER] again. If you do not want to reset, press [ESC]. The job counter can only be reset when the display is on bale counter or weight counter. The job counter cannot be reset when displaying the average weight.

9. Starting/testing the bale accumulator

When the computer has been switched on, set the AUTO/MAN switch to MAN.

The Flaps can now move up and down, the rear flap can move up and down and the pusher from side to side. When the pusher is in contact with a switch, the computer indicates which side it has moved to.

The pusher must have contact to a switch before the AUTO/MAN switch is set to AUTO.

When the AUTO/MAN switch is toggled upwards to AUTO, the bale sensor on the accumulator table can be activated, and the pusher will start to move in the opposite direction.

The display shows a figure (1); and when the pusher is in its start position, the display will indicate that the pusher is in contact with the sensor on the opposite side. When the bale sensor is activated again, it will start moving to the other side; the display will now read (2), and once the pusher is in its starting position, the display will again indicate that the pusher is in contact with the switch. When the bale sensor is activated again it will repeat the two previous processes, if the bales have a width of 80 cm. Next time the bale sensor is activated, the bale accumulator will automatically open the rear flap. If the AUTO/MAN switch is toggled down and set to AUTO, the above process will be executed; however, instead of automatically opening the rear door at the end of the process, it will give three beeps and show a figure 3 in the display. During both the AUTO operations, the rear door can be opened by pressing the rear door down. The rear door will then open and be left open for some time before it automatically closes again.

10. Hydraulic system

Compare with the image to identify the system used on your bale accumulator.

10.1. System 1



The accumulator can be used for both open and closed systems.

The standard design is for an open system, but it can be modified by closing the connection at the T-piece.

(see illustrations above)

10.2. System 2



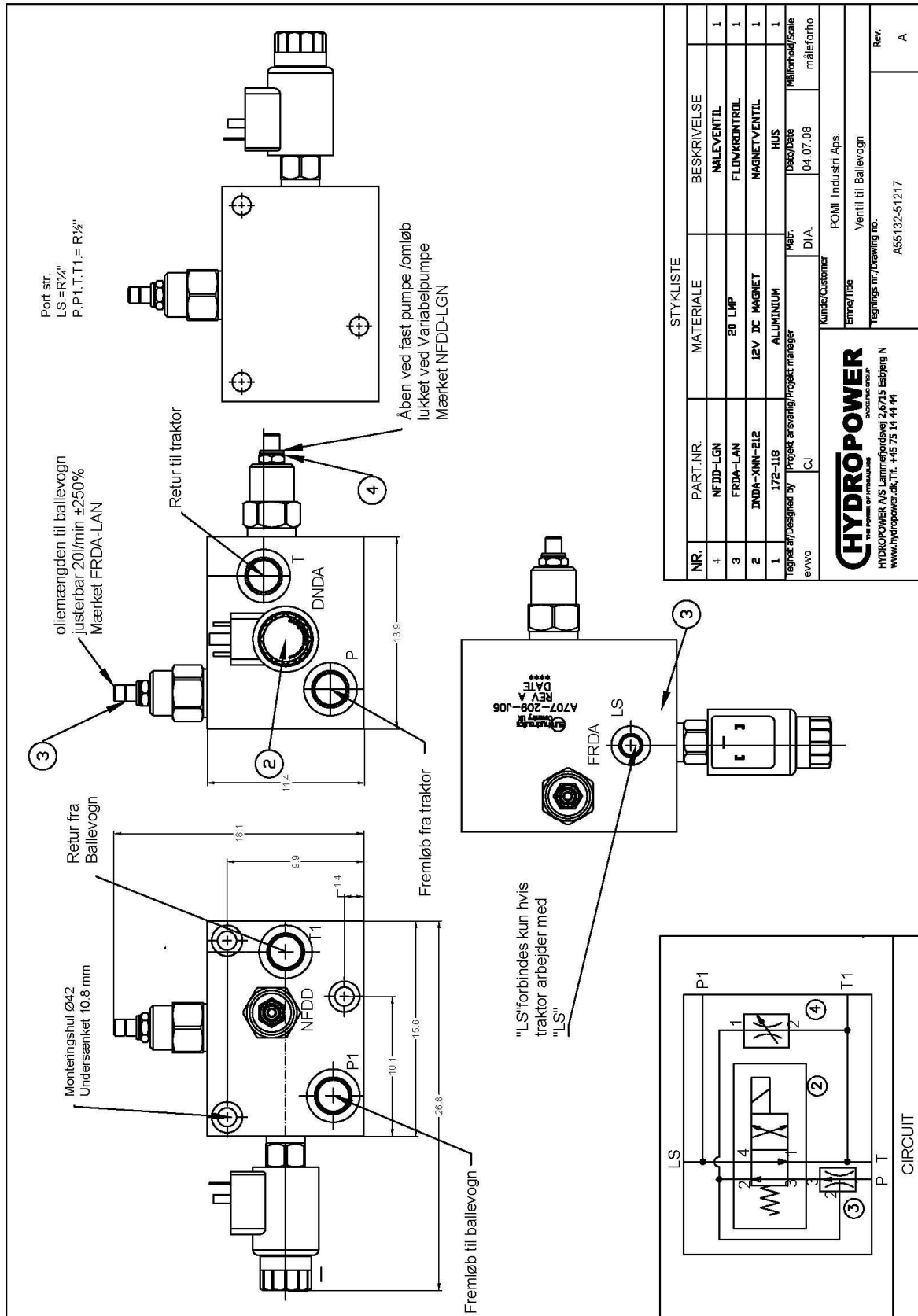
1

2

1. Is a flow-control valve pre-set to 20 liters. It can be adjusted some $\pm 25\%$.
2. Is a valve which has to be closed when in position LS and permanent pumping system, and it should be open in case of system circulation.

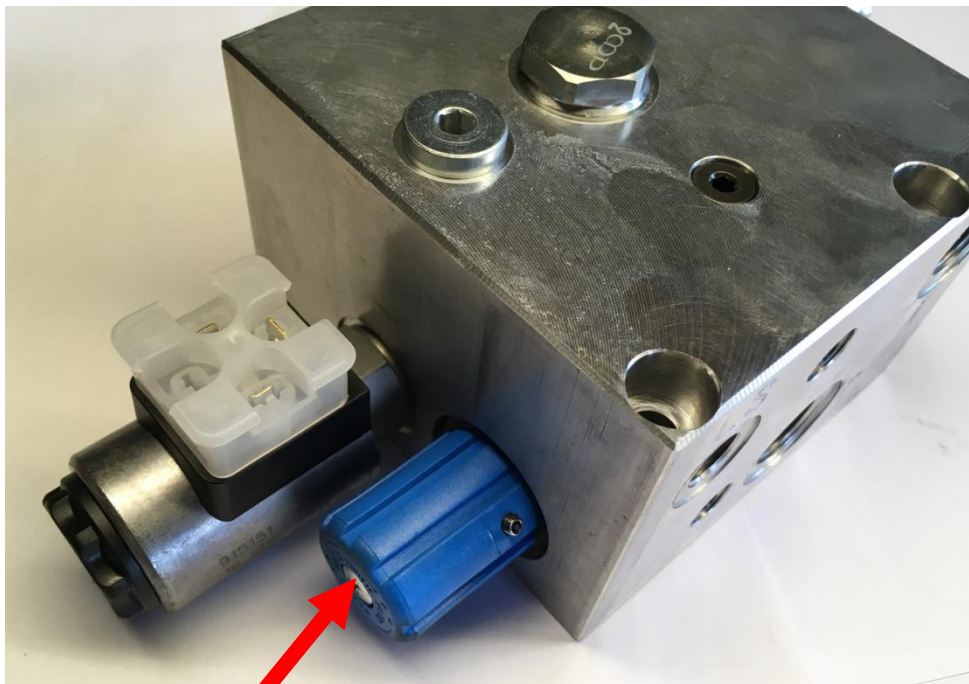
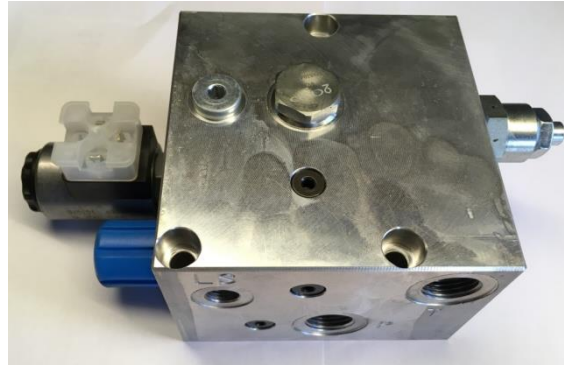
Please check before starting up that if you want to run LS or use a permanent pumping system, screw (2) should be screwed right home/closed. If you want to operate the system with closed circuit, screw (2) should be screwed out.

10.2.1. Hydraulic diagram



10.3. System 3

Valveblock for LS controle
type number DSD390225



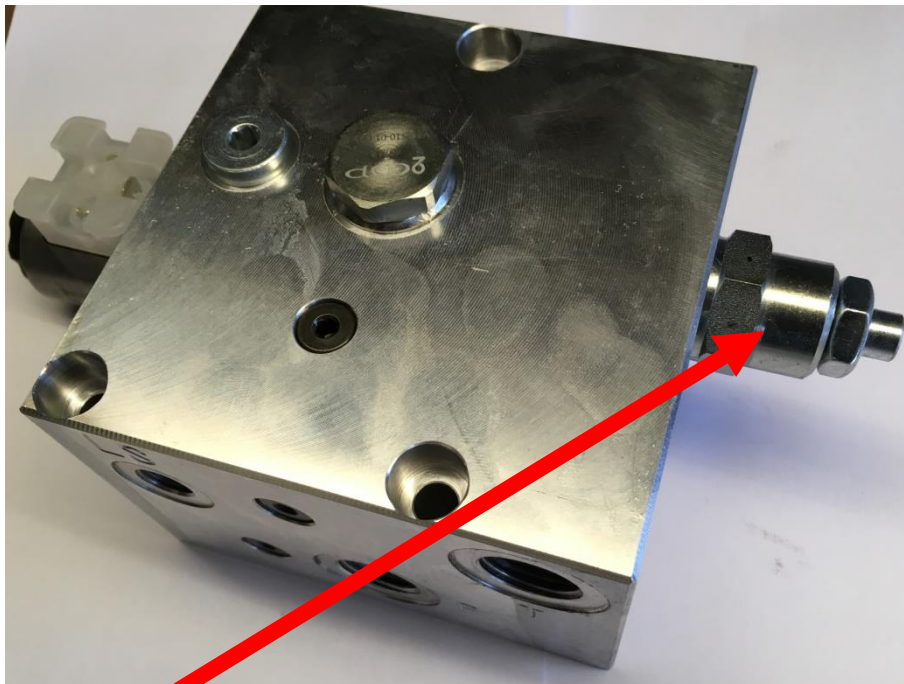
Flow/volume setting valve. Amount of oil which goes to the Bale Accumulator.

Screwed out = Max flow

Screwed in = Min flow

Oil from tractor goes to P-gate.

Oil from block goes out from P1 to P on Bale Accumulator.

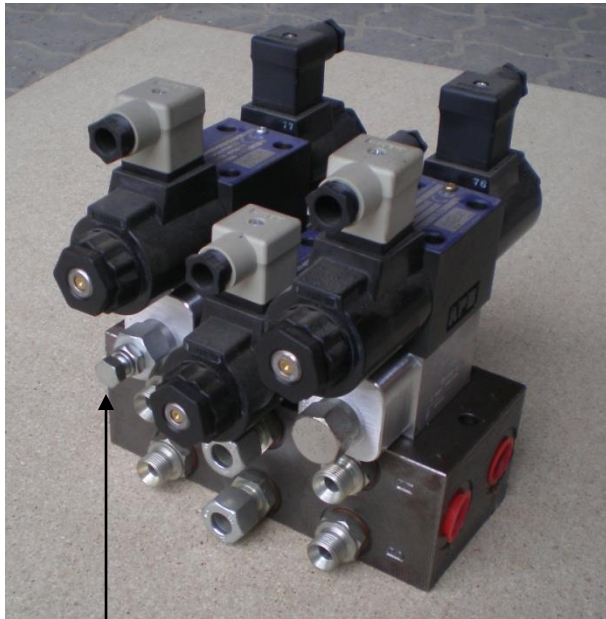


LS valve

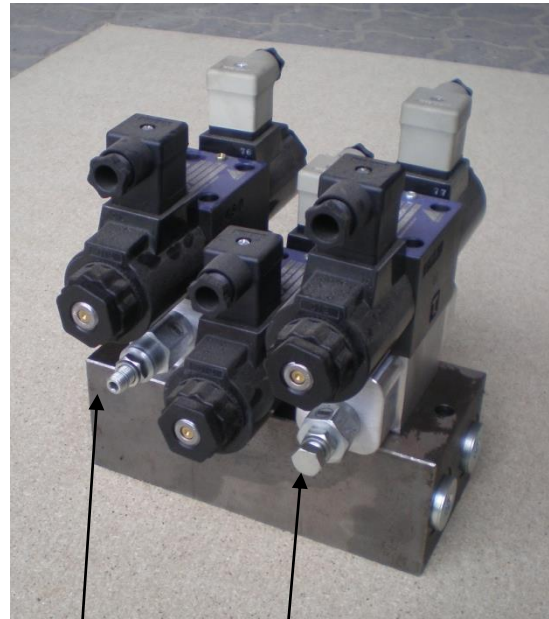
Screwed totally out = Circulation / none LS.

Screwed totally in = LS/LS hose must be connected.

Must be screwed totally in or out, depending on which mode of operation is selected.

11. Valve block on bale accumulator

2

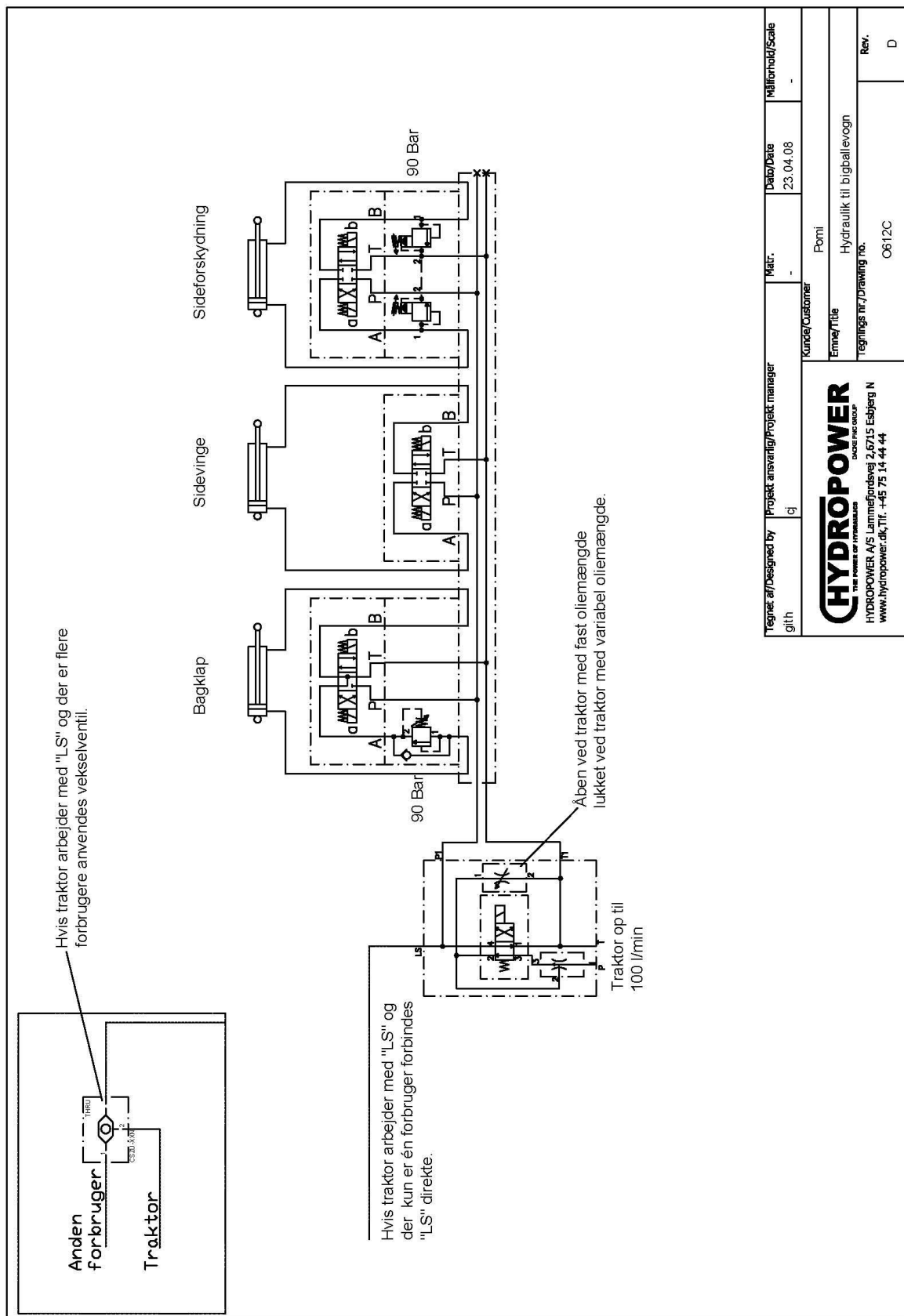


1

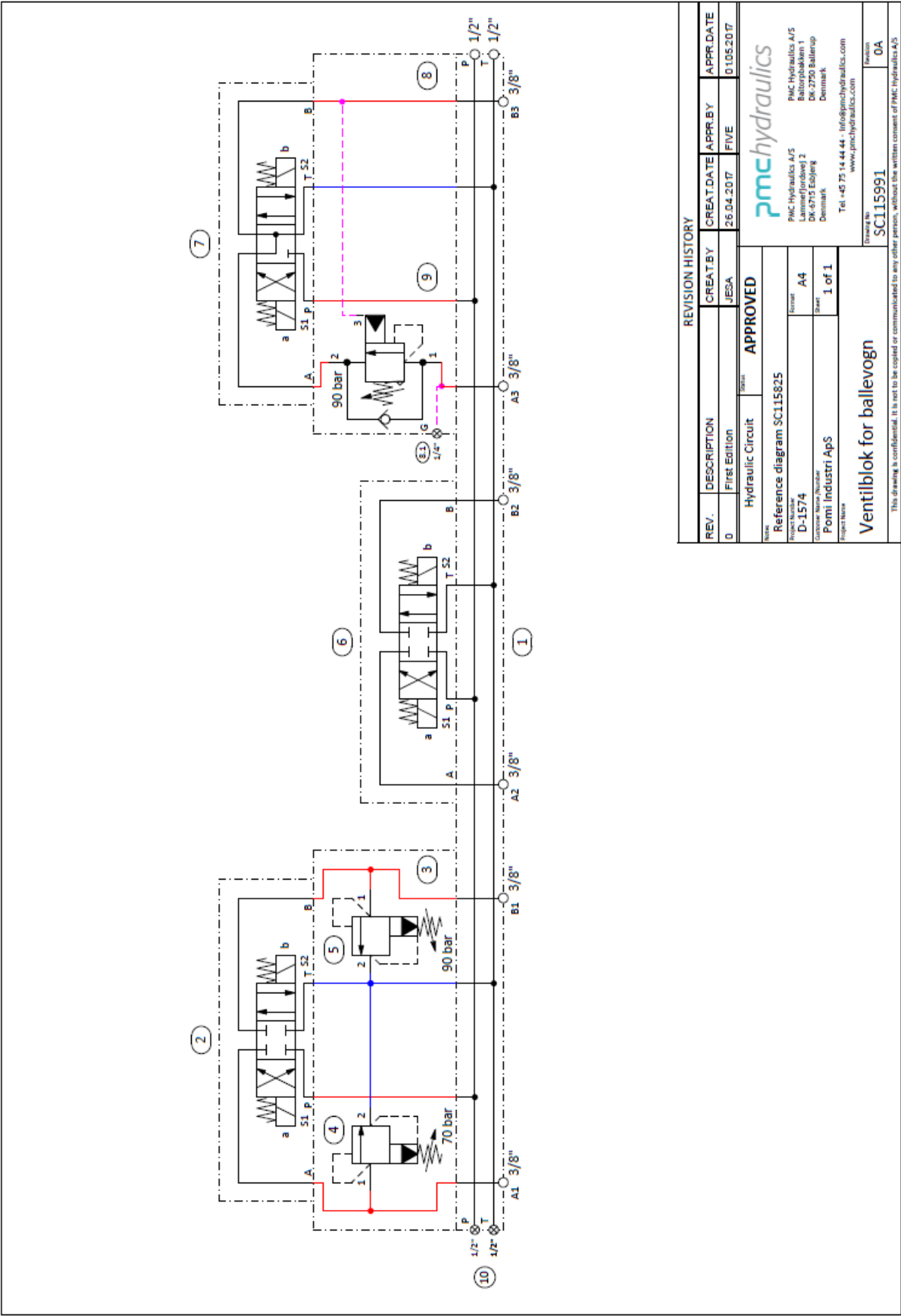
2

The valve block features a brake valve for the rear flap (1), set to 70 Bar, and two pusher pressure relief valves (2), set to 70 Bar for A PORT and 70 Bar for B PORT. See the hydraulics diagram, if necessary.

11.1. Hydraulic diagram to 2016



11.2. Hydraulic diagram 2017 and forward



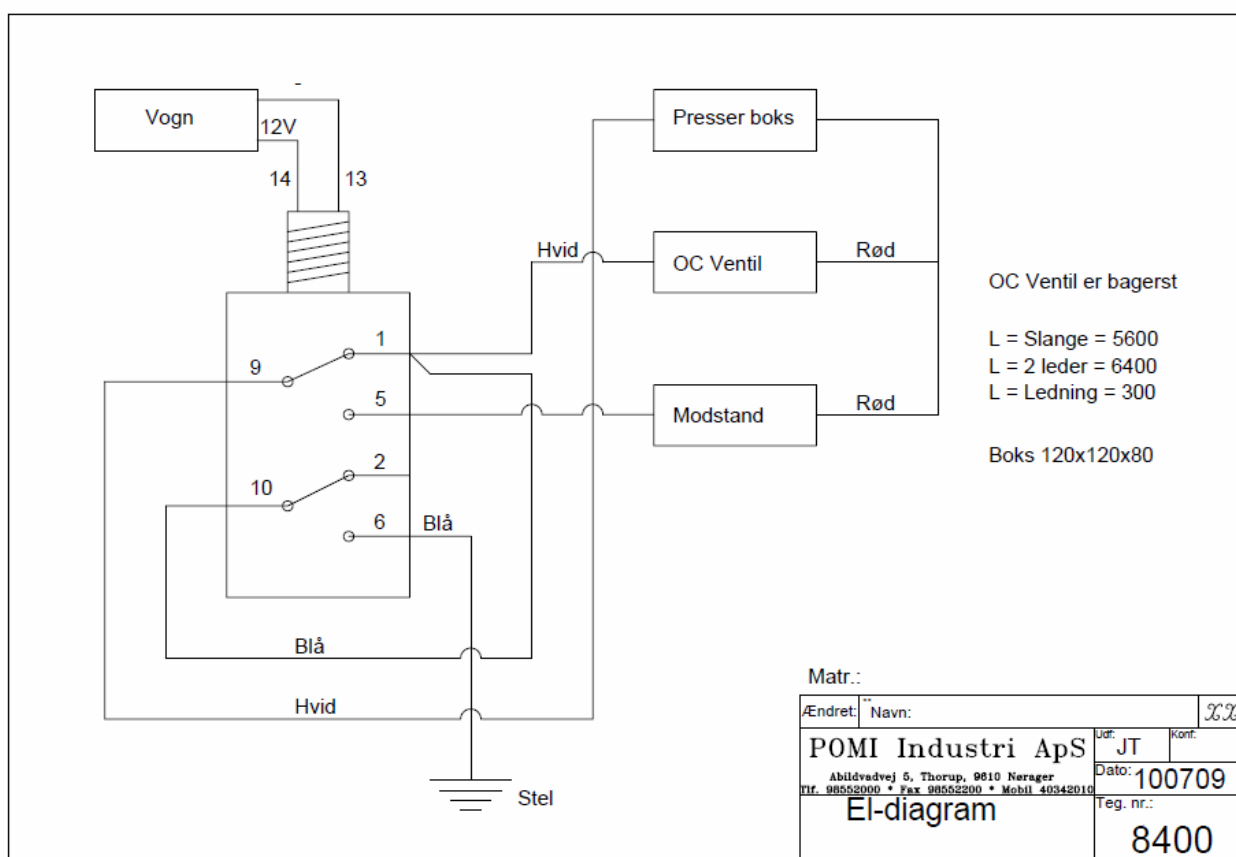
REVISION HISTORY				
REV.	DESCRIPTION	CREAT.BY	CREAT.DATE	APPR.BY
0	First Edition	JESA	26.04.2017	FIVE
APPROVED				
Name				
Reference diagram SC115825				
Project Number				
D-1574				
Customer Name/Number				
Pomi Industri ApS				
Project Name				
Ventilblok for ballekvogn				
Drawing No.				
SC115991				
Revision				
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12. Connection of control box to baler hydraulic system

The oil from the baler is drawn from the underside of the hydraulics block which features two plugs. Screw the two nipples of the set into the holes and fit the hoses on top.

The OC valve of the wiring diagram is the rearmost of the 3 valves on the baler valve block. Loop the red wire leading to this valve together with a wire to the resistor (see diagram).



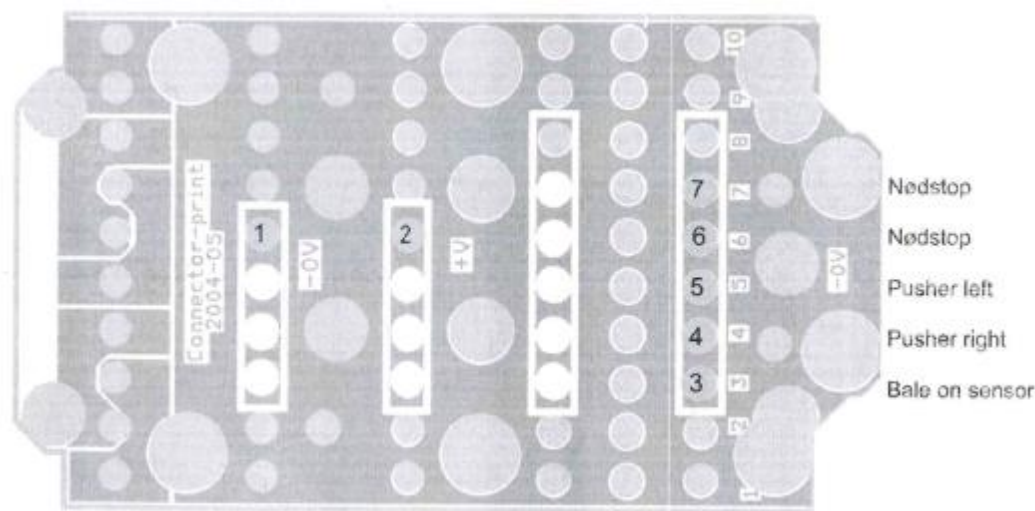


The figures appearing on the diagram can also be seen on the relay in the control box.

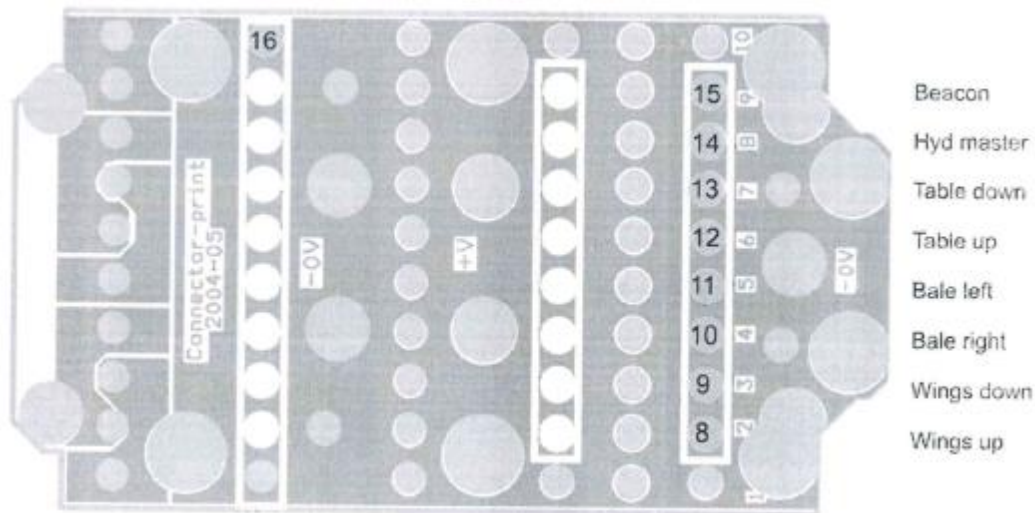
12.1. Electrical diagramCable: 16 * 1,0 mm²

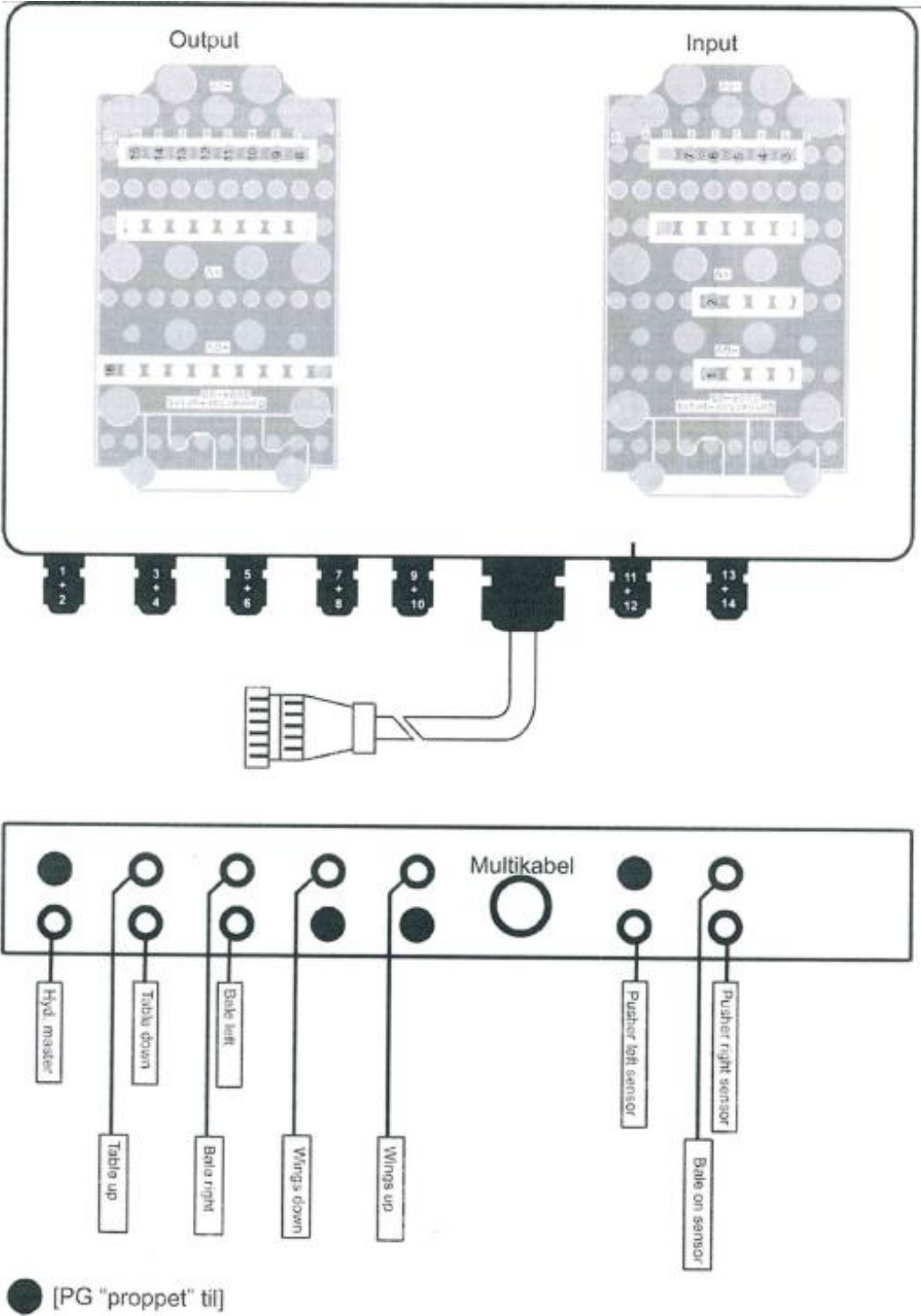
Cable	Plug pin	Terminal location on print	Type	Function
Print input				
1	1	6 (-0V)	Power	- 0 Volt (Maybe wire to -0V on output-print).
2	2	6 (+12V)	Power	+ 12 Volt (polar protected by fuse in monitor).
3	3	3	Digital Input	Bale on sensor.
4	4	4	Digital Input	Pusher right.
5	5	5	Digital Input	Pusher left.
6	6	6	Emergency stop 12V	+12V Stop.
7	7	7	Emergency stop input	Signal Stop.
Print output				
8	8	2	Output	Wings up.
9	9	3	Output	Wings down.
10	10	4	Output	Bale right.
11	11	5	Output	Bale left.
12	12	6	Output	Door up.
13	13	7	Output	Door down.
14	14	8	Output	Hydraulic master.
15	15	9	Output	Weight if available.
G/G	16	10 (-0V)	Power	- 0 Volt (Maybe wire to -0V on input-print).

Input-print



Output-print





13. Technical specifications

Oil consumption	20 litres
Current	12 V
Width during transportation	3 metres
Width in operating position	4.3 metres
Weight	1150 kg
Length	2.90 metres
Wheels	4 x 26-12 D = 640 mm
Max. load	2,400 kg
Ground clearance	35 cm

The accumulator runs behind the baler all the time.

Optionals:

- Scales for the weighing of bales on accumulator
- Camera to survey what is going on the accumulator