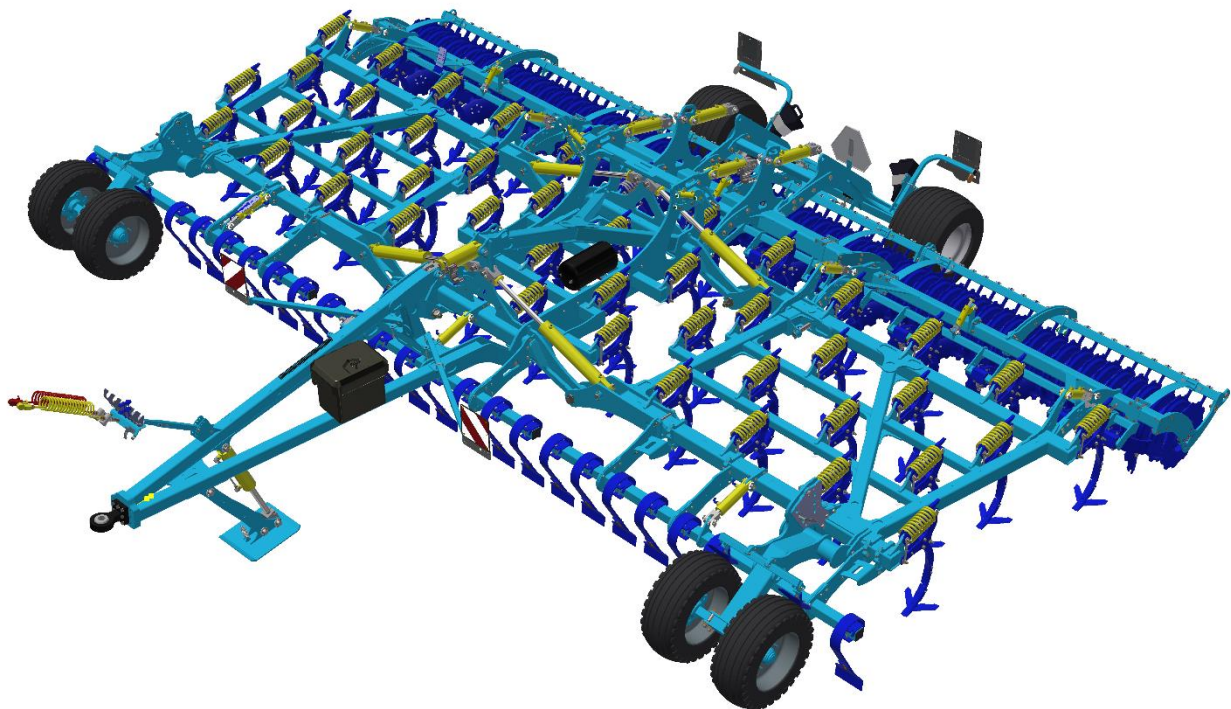


# OPERATING MANUAL

# **FANTOM** **FX 850 PS**



Edition: 1 | effective from: 1. 7. 2020

Dear customer,

Semi-carried cultivators **FANTOM** are quality products of Farmet a.s. Ceska Skalice.

You can fully utilise the advantages of your machine after thoroughly studying the operating manual.

The serial number of the machine is punched on the production label and written in the operating manual (see Table 1). This machine serial number must be stated whenever ordering spare parts for possible repairs. The production label is located on the middle frame near the tow bar.

Use only spare parts for these machines according to the **Spare parts catalogue** officially issued by the manufacturer, Farmet a.s. Ceska Skalice.

**Possibilities of Use of the Cultivator**

The **FANTOM** cultivator is designed for cultivation of all types of soils up to a processing depth of 150mm.

Production label of the machine **FANTOM FX 850 PS**

		OTK 	Farmet a.s. Jilinková 278 Česká Skalice
TYP / VARIANTA	FANTOM / FX 850 PS		
ČÍSLO SCHVÁLENÍ			
ROK VÝROBY / VÝROBNÍ ČÍSLO			
MAX. PŘÍPUSTNÁ HMOTNOST	9 000	kg	
MAX. PŘÍPUSTNÁ HMOTNOST NA NÁPRAVĚ	6 000	kg	

Table 1 – Your Machine Characteristics

<b>MACHINE TYPE</b>	
<b>MACHINE SERIAL NUMBER</b>	
<b>SPECIAL DESIGN OR ACCESSORIES</b>	
.....	
.....	
.....	
.....	

## TABLE OF CONTENTS

MACHINE LIMIT PARAMETERS .....	4
Technical parameters.....	4
Machine weight distribution during transport .....	5
Safety statement .....	5
A. GENERAL INSTRUCTIONS FOR USE.....	6
PROTECTIVE EQUIPMENT.....	6
B. MACHINE TRANSPORT USING TRANSPORT MEANS .....	7
C. MACHINE HANDLING USING LIFTING EQUIPMENT .....	8
D. WORK SAFETY LABELS .....	9
1. DESCRIPTION .....	12
1.1. Work parts of the machine.....	12
1.2. Hydraulics .....	12
2. MACHINE ASSEMBLY AT THE CUSTOMER.....	14
3. COMMISSIONING .....	14
3.1. Aggregation to a tractor .....	15
3.2. Hydraulics connection .....	16
3.3. Hydraulics control panel.....	18
3.4. Folding and unfolding of the machine.....	22
3.4.1. Machine unfolding procedure .....	23
3.4.2. Machine folding procedure .....	24
4. MACHINE TRANSPORT ON ROADS .....	25
5. MACHINE ADJUSTMENT.....	26
5.1. Machine working depth adjustment .....	26
5.1.1. Adjustment of depth on rollers .....	27
5.1.2. Hitch height related settings .....	27
5.1.3. Depth adjustment on the copying wheels .....	27
5.2. Front tools depth setting.....	28
5.3. Levelling disc adjustment .....	29
6. MACHINE MAINTENANCE AND REPAIRS.....	30
7. MACHINE STORAGE.....	31
8. MACHINE LUBRICATION SCHEDULE .....	31
9. ENVIRONMENTAL PROTECTION.....	32
10. MACHINE DISPOSAL AFTER SERVICE LIFE EXPIRY .....	32
11. SERVICING AND WARRANTY CONDITIONS.....	32
ⒸCE Certificate of Conformity .....	33

## **MACHINE LIMIT PARAMETERS**

- <sup>(x)</sup> The machine is designed for soil cultivation up to a depth of 15 cm when agricultural soil cultivation. Another type of use exceeding the determined purpose is forbidden.
- <sup>(x)</sup> The machine is only operated by one person - the tractor operator.
- <sup>(x)</sup> Machine operator must not use the machine in a different way, especially:
  - <sup>(x)</sup> Transport of persons and animals on the machine structure,
  - <sup>(x)</sup> Transport of burdens on the machine structure,
  - <sup>(x)</sup> Aggregation of the machine with another towing equipment than stated in Chapter „3.1“.

## **TECHNICAL PARAMETERS**

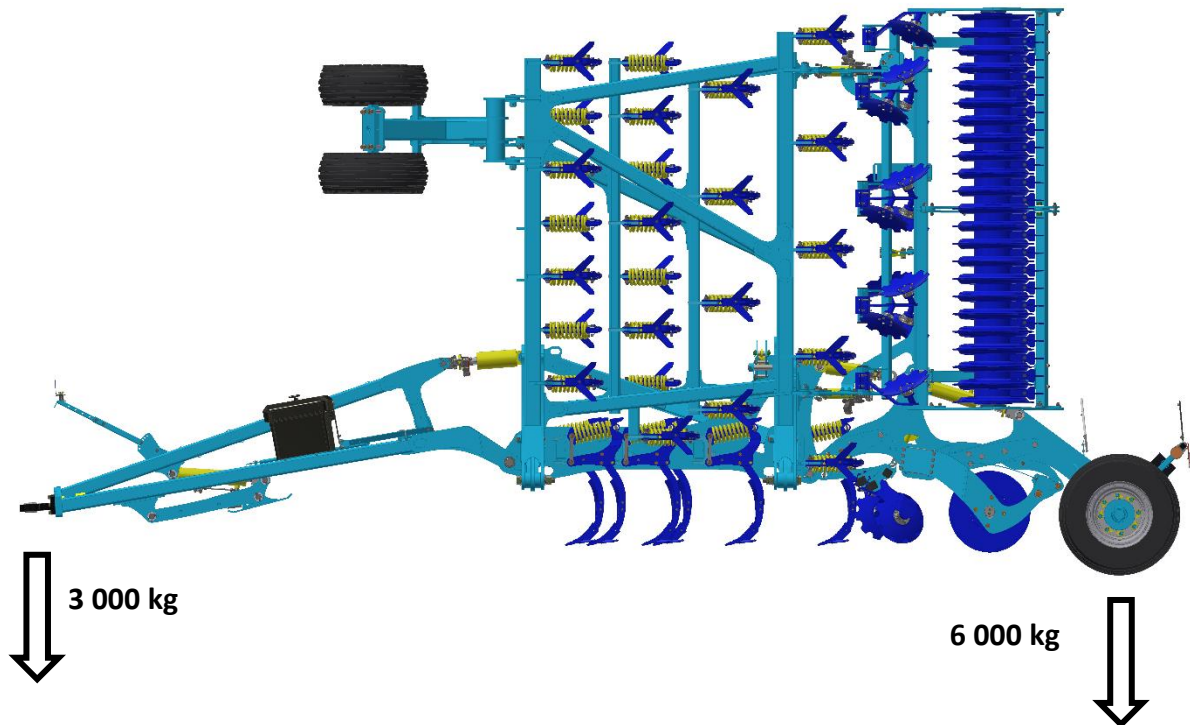
Table 2 – Technical Parameter

PARAMETERS	FANTOM FX 850 PS
Working width (mm)	8,550
Transport width (mm)	3,000
Transport height (mm)	4,000
Machine total length (mm)	8,700
Distance from the towing lug to the roller (mm)	6,900
Working depth (mm)	5 – 150
Number of shares	45
Working performance (ha/h)	6.8 – 10.2
Towing means (kW)	245 – 370*
Working speed (kph)	8 – 12
Maximum transport speed (kph)	30
Working depth (mm)	6
Tyre dimensions - transport	19.0/45-17 14PR
Tyre pressure (kPa)	400 kPa
Machine weight (kg)	

\* Recommended towing means, the real towing force may significantly vary according to the processing depth, soil conditions, land slope, working body wear and adjustment.

\*\* Weight with the LTX roller and front crossboards

## MACHINE WEIGHT DISTRIBUTION DURING TRANSPORT



## SAFETY STATEMENT



This warning sign warns about an immediate dangerous situation ending with death or severe injury.







This warning sign warns about a dangerous situation ending with death or severe injury.




This warning sign warns about a situation that may end with a smaller or slight injury. It also warns about dangerous actions related to the activity that could lead to an injury.

## A. GENERAL INSTRUCTIONS FOR USE

- A.1** <sup>(x)</sup> The machine is made in accordance with the latest equipment state and approved safety regulations. However, dangers of user or third person injury or machine damage or creation of other material damage may arise during use.
- A.2** <sup>(xx)</sup> Use the machine only in a technically sound condition, in accordance with its purpose, aware of possible dangers, and while adhering to the safety instructions of this operating manual!  
The manufacturer is not liable for damages caused by the use of the machine that is in contradiction with the limit parameters of the machine and with the instructions for the use of the machine. The user bears the risk.  
Immediately remove especially the failures that may negatively affect safety!
- A.3** <sup>(7)</sup> Machine operation may be performed by a person authorised by the operator under these conditions:
- <sup>(8)</sup> It must own a valid driver's licence of the corresponding category,
  - <sup>(9)</sup> It must be demonstrably familiarised with the safety regulations for work with the machine and must practically master the machine operation,
  - <sup>(10)</sup> The machine may not be operated by juveniles,
  - <sup>(11)</sup> It must know the meaning of the safety signs located on the machine. Their respecting is important for safe and reliable machine operation.
- A.4** <sup>(12)</sup> Maintenance and servicing repairs on the machine may only be performed by a person:
- <sup>(13)</sup> Authorised by the operator,
  - <sup>(14)</sup> Educated in the machinery field with knowledge of repairs of similar machines,
  - <sup>(15)</sup> Demonstrably familiarised with safety regulations for work with the machine,
  - <sup>(16)</sup> During a repair of a machine connected to a tractor, it must own a driver's licence of the corresponding category.
- A.5** <sup>(17)</sup> Machine operator must secure the safety of other persons when working with the machine or transporting the machine.
- A.6** <sup>(18)</sup> During machine work in the field or during transport, the operator must control the machine from the tractor's cabin.
-  **A.7** <sup>(19)</sup> The operator may enter the machine structure only with the machine at rest and blocked against movement, namely only for these reasons:
- <sup>(20)</sup> Adjustment of the machine working parts,
  - <sup>(21)</sup> Repair and maintenance of the machine,
  - <sup>(28)</sup> Adjustment of the working parts of the machine after unfolding the side frames.
-  **A.8** When climbing on the machine, do not step on the axle tyres, rollers or other revolving parts. Those may turn and you can cause very serious injuries by the subsequent fall.
-  **A.9** <sup>(22)</sup> Any changes or modifications of machine may be performed only with written consent of the manufacturer. For possible damage arisen due to ignoring this instruction, the producer bears no responsibility. The machine must be maintained equipped with prescribed accessories and equipment including safety marking. All warning and safety signs must be legible and in their places. In case of damage or loss, these signs must be immediately renewed.
- A.10** <sup>(23)</sup> The operator must have the Operating Manual with the work safety requirements available at any time when working with the machine.
-  **A.11** <sup>(24)</sup> The operator must not consume alcohol, medicines, narcotic and hallucinogenic substances that decrease his attention and coordination capabilities while using the machine. If the operator must use medicines prescribed by a physician or uses freely sold medicines, he must be informed by a physician, whether he is capable of responsible and safe operation of the machine under these circumstances.


## PROTECTIVE EQUIPMENT

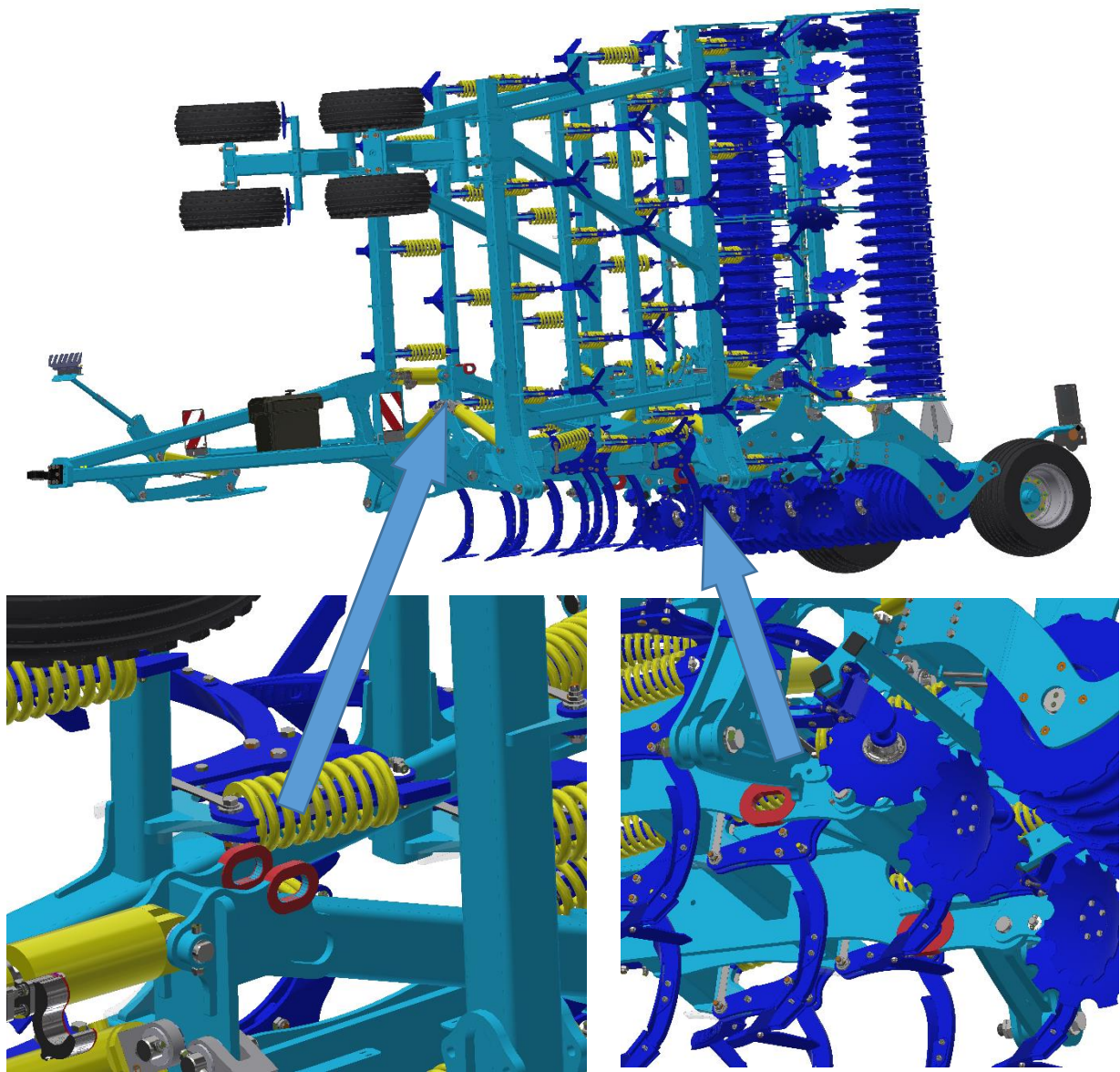
 For operation and maintenance use:

- Tight clothe
- Protective gloves and goggles for protection against dust and sharp parts
- of the machine



## B. MACHINE TRANSPORT USING TRANSPORT MEANS

- B.1** <sup>(1)</sup> The transport means designed for machine transport must have the load capacity minimally identical with the weight of the transported machine. The total weight of the machine is stated on the production label.
- B.2** <sup>(2)</sup> The dimensions of the transported machine including the transport means must comply with the valid regulations for road traffic (decrees, laws).
-  **B.3** <sup>(3)</sup> The transported machine must be always fastened to the transport means so that its spontaneous loosening could not happen.
- B.4** <sup>(4)</sup> The carrier is responsible for damage caused by the loosening of incorrectly or insufficiently fastened machine to the transport means.



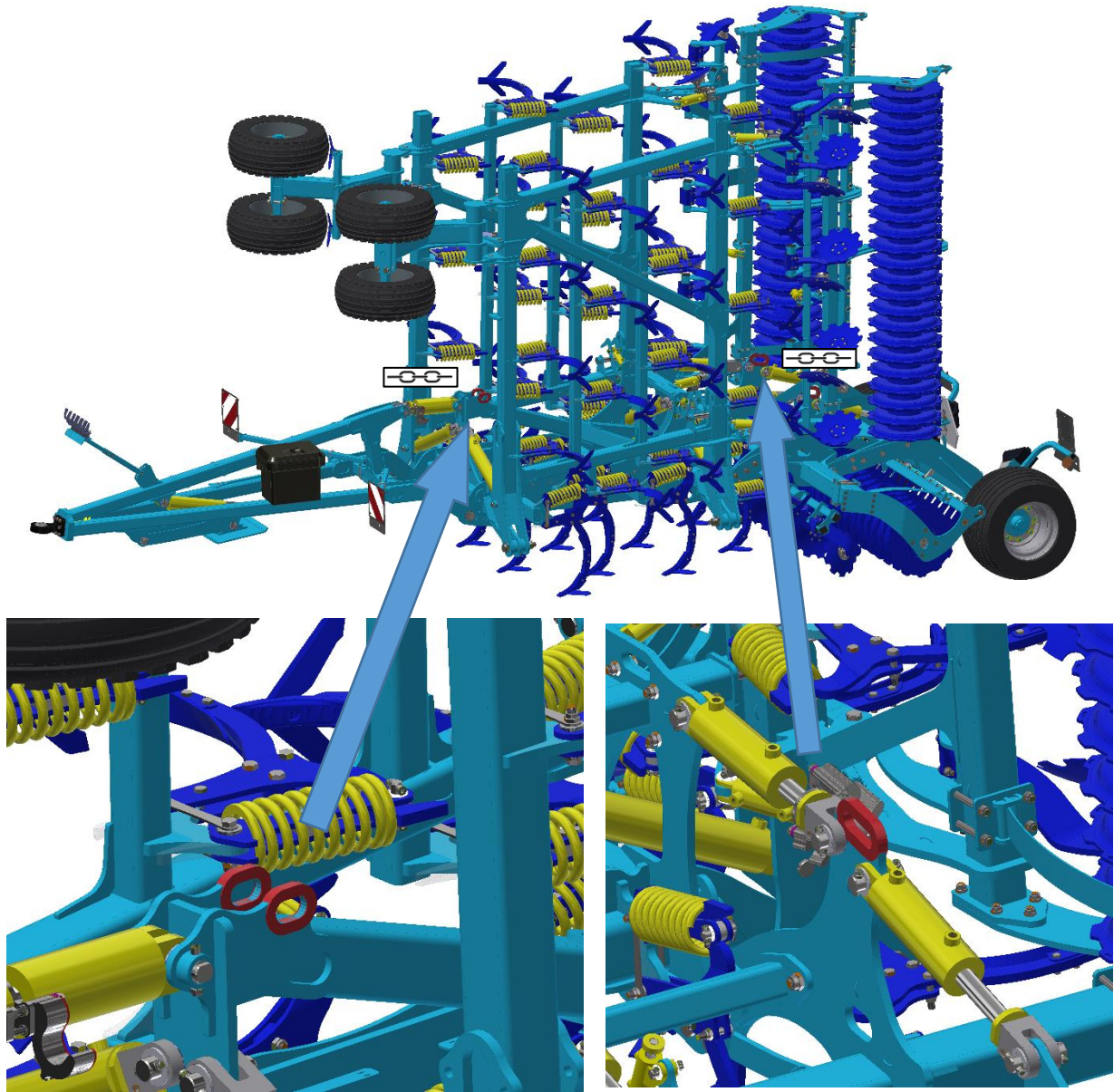
## C. MACHINE HANDLING USING LIFTING EQUIPMENT

C.1 <sup>(1)</sup> The lifting equipment and tying means designed for handling of the machine must have their load capacity at least identical with the weight of the handled machine.



C.2 <sup>(2)</sup> Machine fastening for handling may only be performed in places designed for that and marked with self-adhesive labels showing the "chain" symbol. —○—

C.3 <sup>(3)</sup> After fastening (suspending) at designated points, it is forbidden to move in the space of possible reach of the handled machine.





## D. WORK SAFETY LABELS

Warning safety labels serve for operator protection.

General:

A) Strictly observe the warning safety labels.

B) All safety instructions also apply to other users.

C) Upon damage or destruction of the aforementioned "SAFETY LABEL" located on the machine, THE OPERATOR IS OBLIGED TO REPLACE IT WITH A NEW ONE!!!

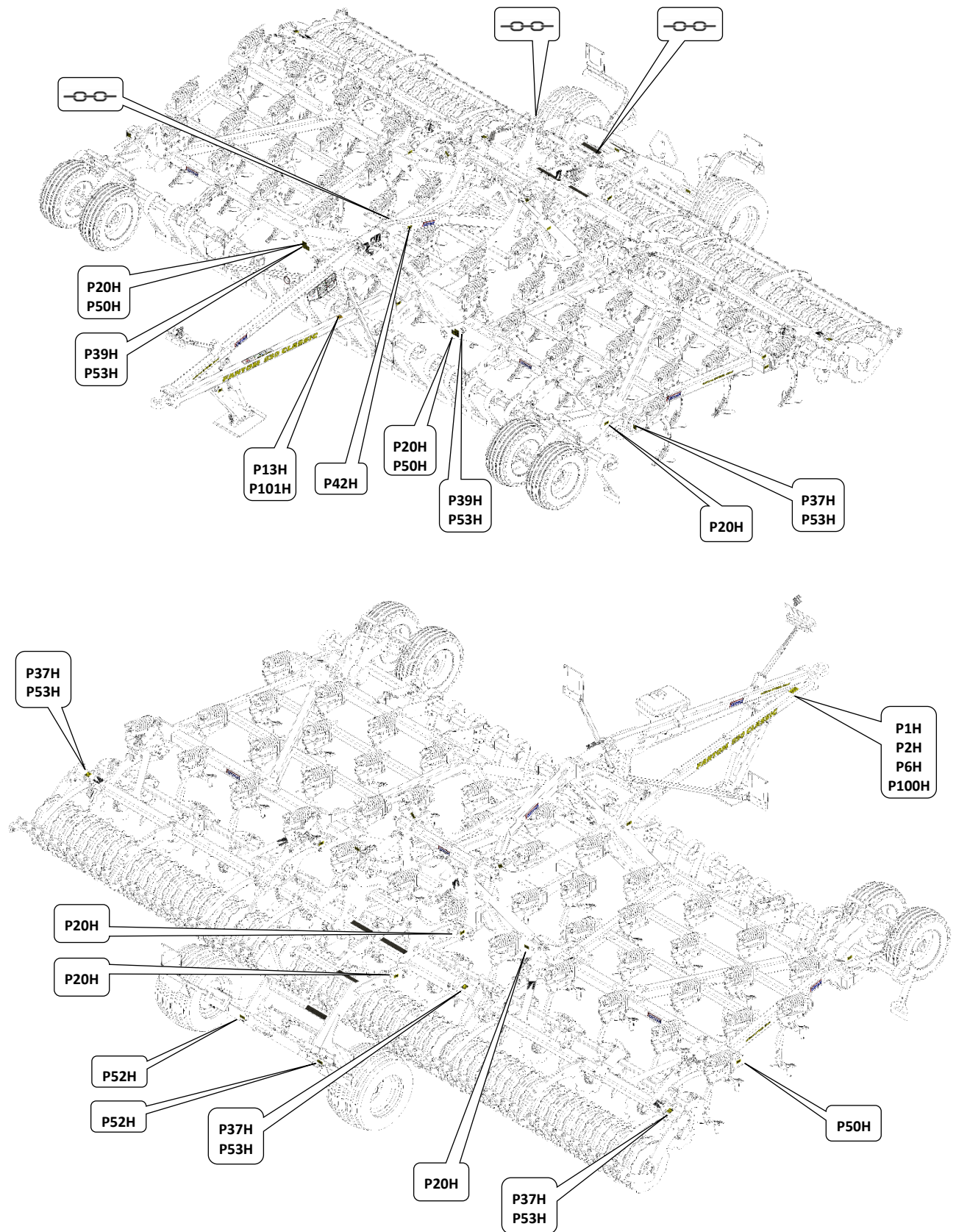
The position, appearance, and precise meaning of work safety labels on the machine is determined in the following tables (Tab. 3) and in the figure (Fig. 1).

Table 3 – Self-adhesive warning safety labels located on the cultivator

WARNING SAFETY LABEL	LABEL TEXT	MACHINE POSITION
	Before handling the machine, carefully read the operating manual. Observe the instructions and safety regulations for machine operation during use.	<b>P 1 H</b>
	Travelling and transport on the machine structure is strictly forbidden.	<b>P 37 H</b>
	When connecting or disconnecting, do not step between the tractor and the machine, also do not enter this space, if the tractor and the machine are not at rest and the engine is not turned off.	<b>P 2 H</b>
	When folding and unfolding the side frames, stay outside their reach.	<b>P 50 H</b>
	Stay outside the reach of the tractor - agricultural machine set, if the tractor engine is in operation.	<b>P 6 H</b>
	When folding the side frames, do not reach into the space of the machine folding joints. There is a danger of cutting when setting the depth of the machine.	<b>P 20 H</b>
	Before commencing the machine transport, secure the axle with spherical valves against unexpected drop.	<b>P 13 H</b>
	When working and transporting the machine, maintain safe distance from the electric appliances.	<b>P 39 H</b>

	<p>The pressure vessel is under gas and oil pressure. Execute disassembly and repairs only according to the instructions in the manual.</p>	<p><b>P 42 H</b></p>
	<p>Secure the machine against unwanted movement by positioning on its working bodies.</p>	<p><b>P 52 H</b></p>
	<p>Stay outside the reach of the tractor - agricultural machine set, if the tractor engine is in operation.</p>	<p><b>P 53 H</b></p>
	<p>The shown positions of the lever and the function of the hydraulic spherical valve located on the piston rod.</p>	<p><b>P 101 H</b></p>
	<p>Before commencing the machine transport, secure the axle with spherical valves against unexpected drop.</p>	<p><b>P 100 H</b></p>

Fig. 1 – Location of safety labels on the machine

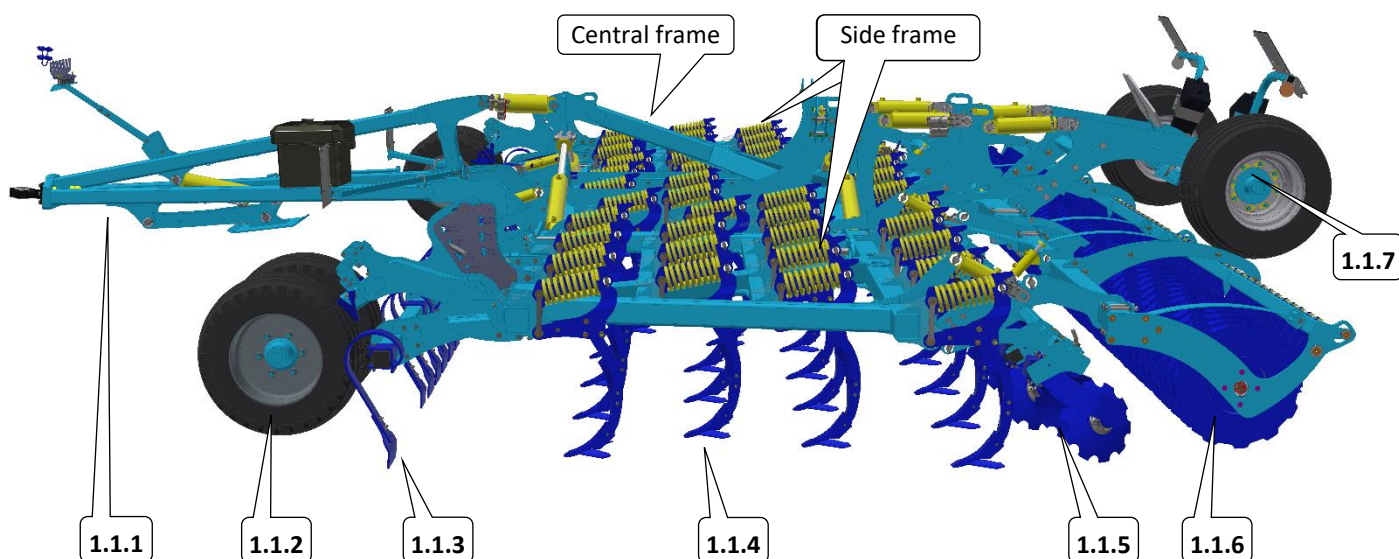


## 1. DESCRIPTION

The **FANTOM FX 850 PS** machine is constructed as semi-carried. The basic version consists of a tractive pole with a TPS suspension bar with  $\varnothing 36$  mm or  $\varnothing 60$  mm pivots for the TPS 3 and KIROVEC category, or a loop for bottom hitch ( $\varnothing 51$  mm,  $\varnothing 71$  mm or K80 hitch), a central frame with the transportation axle and four side frames. There are four rows of working shares located on the central and side frames and tracing wheels on the side frames. Furthermore, there are rollers in the rear of the machine that compact the loosened soil. In front of the first row, it is possible to mount front tools upon request, i.e. a crossboard, a cutting roller, or coulters. Behind the rear roller in the middle part, the machine axle is located.

### 1.1. WORK PARTS OF THE MACHINE

Fig. 2 – Work Parts of the Machine



- |              |                                  |              |                      |
|--------------|----------------------------------|--------------|----------------------|
| <b>1.1.1</b> | Tractive pole with a folding leg | <b>1.1.5</b> | Rear levelling discs |
| <b>1.1.2</b> | Supporting wheel                 | <b>1.1.6</b> | Roller               |
| <b>1.1.3</b> | Front tools                      | <b>1.1.7</b> | Transportation axle  |
| <b>1.1.4</b> | Four rows of shares              |              |                      |

### 1.2. HYDRAULICS

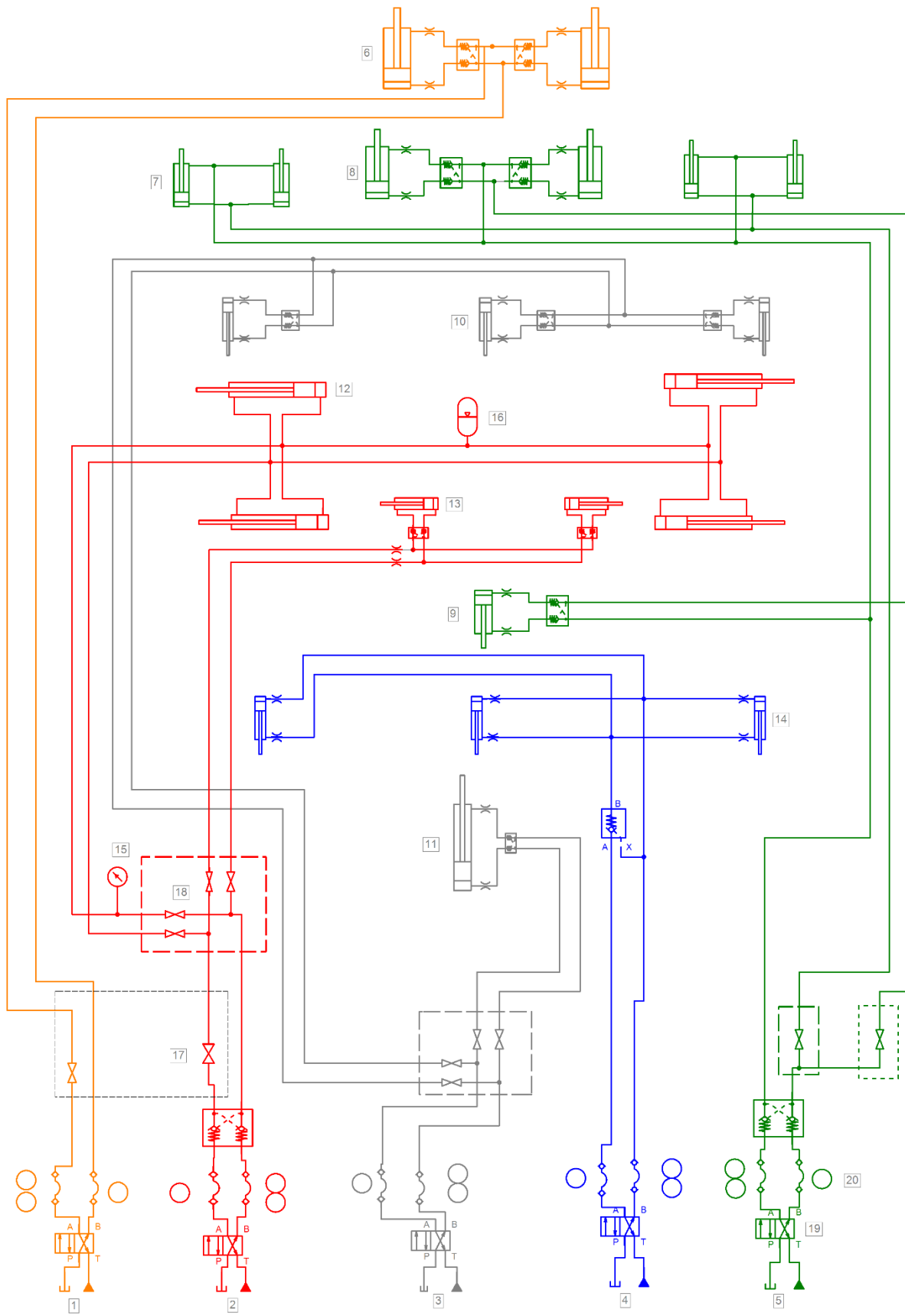


Parts of the hydraulic system of the machine, which are under pressure, are forbidden to disassemble. Hydraulic oil that penetrates the skin under high pressure causes severe injuries. In case of injury, seek a physician immediately.


#### DESCRIPTION OF THE HYDRAULIC SYSTEM DIAGRAM

- |  |  |
|--|--|
| 1. Yellow circuit                                      | 11. Hydr. cylinder – support foot                      |
| 2. Red circuit   | 12. Hydr. cylinders – side frame folding               |
| 3. White circuit                                       | 13. Hydr. cylinders – frame securing against unfolding |
| 4. Blue circuit  | 14. Hydr. cylinders – front tools                      |
| 5. Green circuit                                       | 15. Manometer  |
| 6. Hydraulic cylinders – axles                         | 16. Pressure accumulator                               |
| 7. Hydr. cylinders – supporting cylinders, side frames | 17. Closing valve                                      |
| 8. Hydr. cylinders – supporting cylinder, middle       | 18. Switching valve                                    |
| 9. Hydr. cylinder – hitch                              | 19. Tractor distributor                                |
| 10. Hydr. cylinders – levelling discs                  | 20. Hydraulic couplers                                 |


DIAGRAM OF THE HYDRAULIC SYSTEM OF FX 850 PS:



## 2. MACHINE ASSEMBLY AT THE CUSTOMER

- The operator must perform the assembly according to the instructions of the producer, best in cooperation with the expert servicing technician determined by the producer.
-  ▪ The operator must secure a functional test of all assembled parts after the completion of the machine assembly.
- The operator must secure that the handling of the machine using lifting equipment during its assembly is in accordance with chapter „C“.

## 3. COMMISSIONING

- Before taking over the machine, test and check, whether damage occurred during transport and whether all parts contained in the bill of delivery were supplied.
-  ▪ Before commissioning the machine, carefully read this operating manual, especially Chapters **A-D**. Before the first use of the machine, familiarise yourselves with its controls and overall function.
- During work with the machine, observe not only the instructions of this operating manual but also generally valid regulations of work safety, health protection, fire and transport safety, and environmental protection.
- The operator must check the machine before every use (commissioning) from the standpoint of completeness, work safety, work hygiene, fire safety, transport safety, and environmental protection. A machine showing signs of damage must not be commissioned.
- Aggregation of the machine with the tractor is to be performed on a flat and hardened surface.
- When working on slopes, observe the lowest slope grade of the set **TRACTOR - MACHINE**.
- Before starting the tractor motor, check whether no person or animal is in the working space of the set and push the warning sound signal.
- The operator is responsible for the safety and all damage caused by the operation of the tractor and the connected machine.
- The operator is obliged to adhere to the technical and safety regulations of the machine determined by the producer when working.
- The operator is obliged to retract the working bodies of the machine from the ground when turning at the headland.
- The operator is obliged to observe the prescribed working depths and speeds stated in the manual in Tab. 2 when working with the machine.
- The operator is obliged to lower the machine to the ground and secure the set against movement before leaving the tractor cabin.



### **DECREASE OF SOIL PRESSURE TO A VALUE LOWER THAN 200 kPa**

- To decrease the specific pressure on soil (below 200 kPa) at the turns on the headland, raise the machine on the pole by using the hydraulic tractor shoulders and rear rollers. Turn around when the machine is unfolded and resting on rollers.

### 3.1. AGGREGATION TO A TRACTOR

- The machine can be connected only to a tractor, whose curb weight is identical or higher than the overall weight of the connected machine.
- The machine operator must observe all generally valid regulations of work safety, health protection, fire safety, and environmental protection.
- The operator may connect the machine exclusively to a tractor that is equipped with a rear three-point suspension and a functional undamaged hydraulic system.

Tab. 4 – The table of requirements for the towing means for work with the machine:

<sup>(5)</sup> Requirement for the tractor engine power for cultivator <b>FX 850 PS</b>		<b>245 - 370 kW</b>
<sup>(6)</sup> Requirement for tractor aggregation	<sup>(7)</sup> Spacing of the lower suspension joints (measured at the joint axes)	<b>1010±1,5 mm, (possible to set also 910±1,5 mm)</b>
	<sup>(8)</sup> Ø of the hole of the lower suspension joints for the machine suspension pivots	<b>Ø37,5 mm</b>
	Bottom fixed hitch height	<b>500 – 600 mm (19.7 - 23.6 in)</b>
	Bottom fixed hitch aggregation mechanism	<b>Pin Ø50 mm (1.96 in)</b>
		<b>Pin Ø70 mm (2.75 in)</b>
	<b>Ball K80</b>	
<sup>(9)</sup> Requirement for the tractor's hydraulic system	<sup>(10)</sup> Frame folding circuit	<b>Circuit pressure 200 bar, 2 pcs of quick-coupler sockets ISO 12.5</b>
	<sup>(11)</sup> Axle lifting circuit	<b>Circuit pressure 200 bar, 2 pcs of quick-coupler sockets ISO 12.5</b>
	Rollers lifting circuit	<b>Circuit pressure 200 bar, 2 pcs of quick-coupler sockets ISO 12.5</b>
	Front tool control circuit	<b>Circuit pressure 200 bar, 2 pcs of quick-coupler sockets ISO 12.5</b>
	Levelling disc circuit	<b>Circuit pressure 200 bar, 2 pcs of quick-coupler sockets ISO 12.5</b>

- Connect the machine using the TPS suspension bar to the lower arms of the rear TPS of the tractor, secure the TPS arms using pins against disconnecting.



**When connecting, no persons may stay in the space between the tractor and the machine.**

## 3.2. HYDRAULICS CONNECTION

- Connect the hydraulics only when the hydraulic circuits of the machine and the tractor (aggregate) are in a pressure-less condition.
- The hydraulic system is under high pressure. Regularly check for leaks and immediately remove obvious damage of all lines, hoses, and pipe unions.
- When seeking and removing leaks, use only the suitable tools.
- For connecting the hydraulic system of the machine to the tractor, use the plug (on the machine) and the socket (on the tractor) of the quick-couplers of the same type. Perform the connection of the machine couplers to the tractor's hydraulic circuits so that the folding of the side frames – **RED DUSTERS** – was on one control circuit, machine lifting on cylinders – **GREEN DUSTERS** – on the second control circuit, and machine lifting on the axle – **YELLOW DUSTERS** – on the third control circuit, control of the levelling discs and the storage feet – **WHITE DUSTERS** – on the fourth control circuit, and front tools – **BLUE DUSTERS** – on the fifth control circuit.



**In order to prevent accidental or foreign person (children, passengers) caused movement of the hydraulics, the control switchboards on the tractor must be secured or blocked in the transport position.**



Fig. 3 – Hydraulic Circuits

	<p><b>RED DUSTERS</b> – control of side frame folding and securing (after control valve switching)</p> <ul style="list-style-type: none"> <li>➤ <b>1 TAPE:</b> <ul style="list-style-type: none"> <li>- folding the side frames into the transport position</li> <li>- securing the frames against unfolding</li> </ul> </li> <li>➤ <b>2 TAPES:</b> <ul style="list-style-type: none"> <li>- unfolding the side frames into the working position</li> <li>- side frame release</li> </ul> </li> </ul>
	<p><b>YELLOW DUSTERS</b> – axle control</p> <ul style="list-style-type: none"> <li>➤ <b>1 TAPE:</b> <ul style="list-style-type: none"> <li>- axle hydr. cylinder ejection, machine lifting into the transport position</li> </ul> </li> <li>➤ <b>2 TAPES:</b> <ul style="list-style-type: none"> <li>- axle hydr. cylinder insertion, machine lowering to the ground, axle into the working position</li> </ul> </li> </ul>
	<p><b>GREEN DUSTERS</b> – roller and tow bar control, headland turning</p> <ul style="list-style-type: none"> <li>➤ <b>1 TAPE:</b> <ul style="list-style-type: none"> <li>- hydr. cylinder ejection, machine shallowing</li> </ul> </li> <li>➤ <b>2 TAPES:</b> <ul style="list-style-type: none"> <li>- hydr. cylinder insertion, machine deepening</li> </ul> </li> </ul>
	<p><b>WHITE DUSTERS</b> – control of the levelling discs or the support leg (after control valve switching)</p> <ul style="list-style-type: none"> <li>➤ <b>1 TAPE:</b> <ul style="list-style-type: none"> <li>- Covering disc hydr. cylinder insertion, disc shallowing</li> <li>- Support leg hydr. cylinder ejection, tow bar lifting</li> </ul> </li> <li>➤ <b>2 TAPES:</b> <ul style="list-style-type: none"> <li>- Covering disc hydr. cylinder ejection, disc deepening</li> <li>- Support leg hydr. cylinder insertion, tow bar lowering</li> </ul> </li> </ul>
	<p><b>BLUE DUSTERS</b> – front tools control</p> <ul style="list-style-type: none"> <li>➤ <b>1 TAPE:</b> <ul style="list-style-type: none"> <li>- hydr. cylinder insertion, front tools deepening</li> </ul> </li> <li>➤ <b>2 TAPES:</b> <ul style="list-style-type: none"> <li>- hydr. cylinder ejection, front tools shallowing</li> </ul> </li> </ul>

### 3.3. HYDRAULICS CONTROL PANEL

- On the tow bar, there is a control panel with up to 4 levers (according to machine equipment, the number of levers may vary).
- By moving the levers, spherical valves in hydraulic circuits are switched or closed.
- The lever positions according to the pictograms drawn determine the specific settings of the hydraulic circuits for the required machine function.
- For better orientation, individual levers are also framed with colour according to the hydr. circuits controlled by the lever in question.
- **With open closing valves, it is necessary to pay increased attention, unexpected machine movement may occur.**



When the machine rides on roads, it is necessary to have the machine locking lever for transport in the LEFT position, i.e. locked.

#### Machine locking lever for transport

	<p><b>Left lever position</b></p> <p>The machine is brought into the transport condition. The axle (yellow) and folding (red) circuits are locked.</p>
	<p><b>Right lever position</b></p> <p>The machine is brought into the working condition. The axle (yellow) and folding (red) circuits are open and allow for free piston rod movement.</p> <p><b>Attention! Unexpected machine movement may occur upon switching.</b></p>

#### Folding circuit function switching lever (red circuit)

	<p><b>Left lever position</b></p> <p>The red circuit controls the side frame folding.;</p>
	<p><b>Right lever position</b></p> <p>The red circuit controls the securing of the side frames against unfolding.</p>

## Roller circuit closing valve levers (green circuit)

	<p><b>Right lever position</b></p> <p>The green circuit is open. The cylinder and tow bar piston rods may move.</p> <p>Used during work.</p> <p><b>Attention! Unexpected machine movement may occur upon switching.</b></p>
	<p><b>Upper lever right, lower lever left</b></p> <p>Upper lever – oil supply into the side roller piston rods open</p> <p>Lower lever – oil supply into the middle roller and tow bar piston rods closed</p>
	<p><b>Upper lever left, lower lever right</b></p> <p>Upper lever – oil supply into the side roller piston rods closed</p> <p>Lower lever – oil supply into the middle roller and tow bar piston rods open</p> <p>Used for lifting on the axle to increase clearance during crossing road unevenness.</p>

	<p><b>Left lever position</b></p> <p>The green circuit is closed. The roller and tow bar piston rods cannot move.</p> <p>Used during transport.</p>
--	---

**Covering disc circuit function switching lever (white circuit)**

	<p><b>Right lever position</b></p> <p>The white circuit controls the covering discs.</p>
	<p><b>Left lever position</b></p> <p>The white circuit controls the support leg.</p>

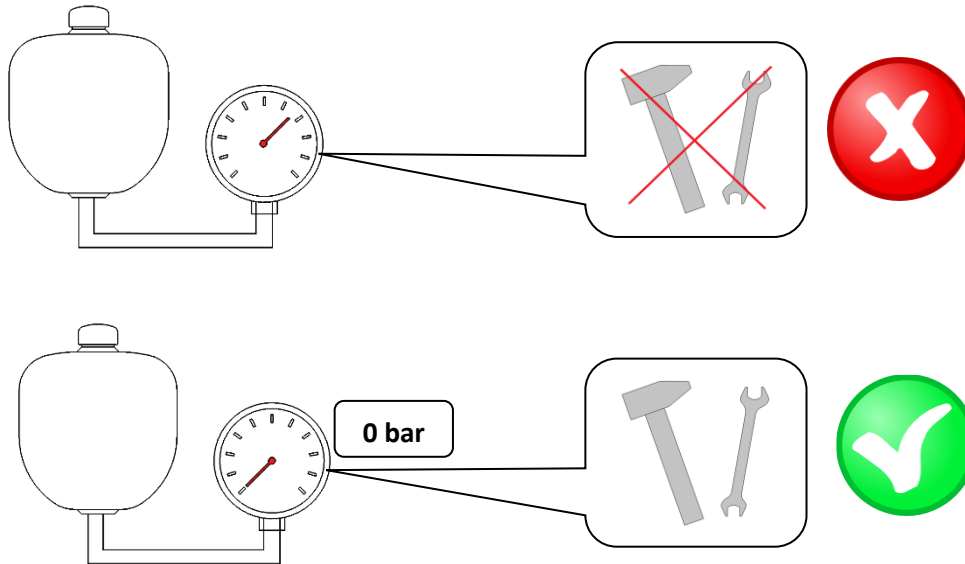
**PRESSURE VESSEL**



Never open or adjust (welding, drilling etc.) the pressure vessel (pressure accumulator). The pressure vessel is still under gas pressure even after it has been emptied.

Empty the pressure vessel in case of any work on the hydraulics of the machine. The manometer must not show any pressure, or the pressure on the manometer must decrease to 0 bars. Only then it is permitted to work on the hydraulic circuit.

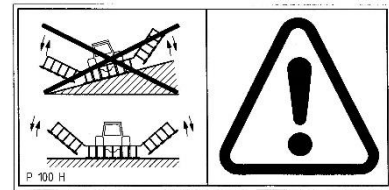
Fig. 4 – Work on the hydraulic circuit



### 3.4. FOLDING AND UNFOLDING OF THE MACHINE



- The hydraulics for the folding and unfolding must be connected to the double-action control unit.
- The operator must ensure that during folding and unfolding of the side frames, no person or animal is within their reach (i.e. at the place of their impact) or vicinity.
- Perform folding and unfolding on flat and solid surfaces or laterally to the slope with the fully open control unit.
- Execute the folding or unfolding only with a machine that is raised on the axle with the side rollers in the recessed position, i.e. their piston-rod should be drawn in.
- Remove stuck soil from folding points, soil may impair function and cause damage to the mechanics.
- During folding or unfolding, check the side frames and have them continuously fold into the end position to the stoppers.



**CAUTION!!!** The machine must be lifted on the axle, when the machine is folded and unfolded. Otherwise, the rollers may get damaged.

Fig. 5 – Machine position for folding

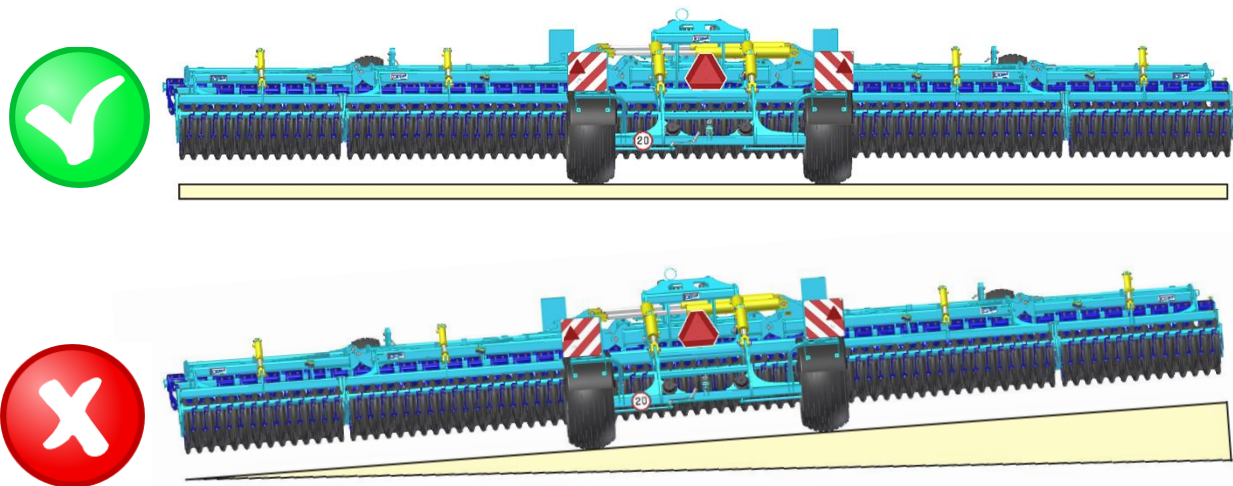
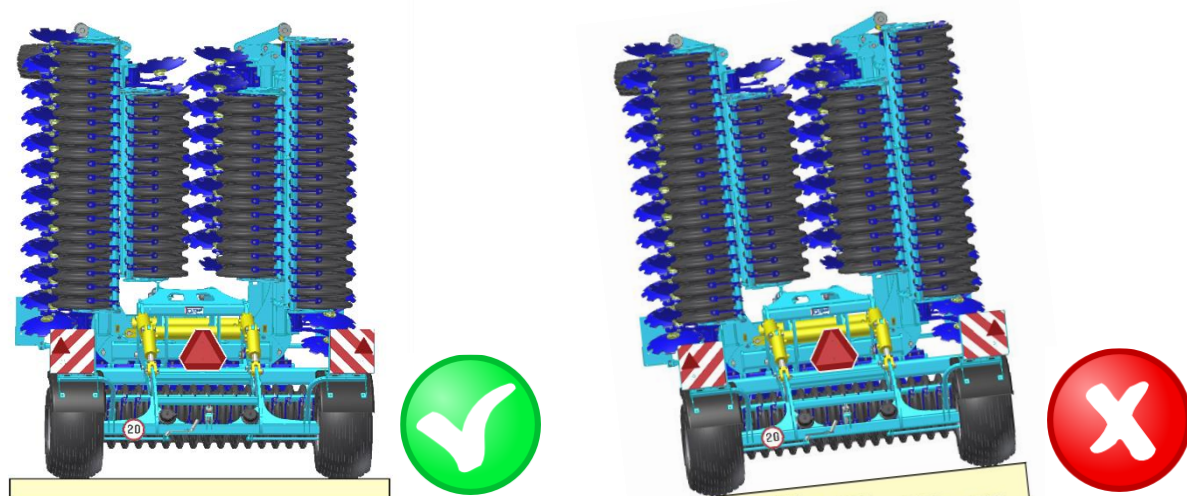


Fig. 6 – Machine position for unfolding



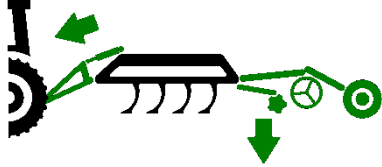
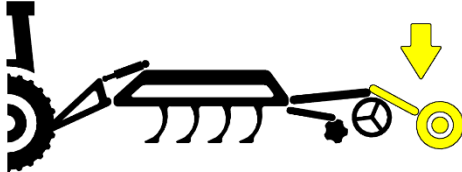
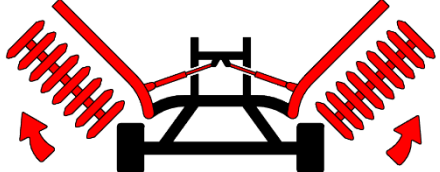
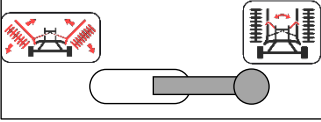
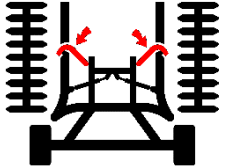
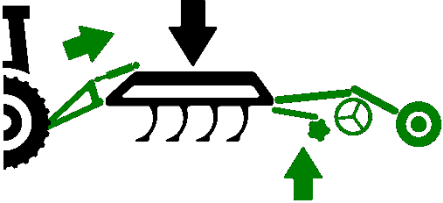
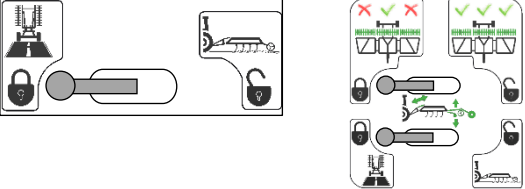
### 3.4.1. MACHINE UNFOLDING PROCEDURE

Tab. 5 – Work position of the machine

Machine Unfolding Procedure – Work Position		
<p><i>Initial condition: The machine is lifted on the axle (height up to 4 m), the side frames are secured with hooks, the spherical valves closed for transport, the switching valve is set to securing hooks.</i></p>		
1		<p>Switch both levers of the green circuit to the right (open).</p>
		<p>Lift the machine up to the maximum height using the green circuit.</p>
		<p>Using the red circuit, release the securing hooks of the side frames.</p>
2		<p>Switch the lever of the folding circuit to the left (red circuit, for frame folding).</p>
		<p>Unfold the side frames with the red circuit. On the manometer, set the side frame downforce to 100 bar.</p>
		<p>Lift the axle with the yellow circuit up to the working position.</p>
	<p>Place the corresponding number of washers on the piston rods of the rollers and the tow bar, check the copying wheel depth setting pin position and set the side leveling discs to the working position.</p> <p>The machine is ready for work. Headland turning is performed using the green circuit.</p>	
<p><b>SETTING THE DOWN PRESSURE OF SIDE FRAMES</b></p> <ul style="list-style-type: none"> <li>When the machine has been unfolded, the down pressure of the side frames must be adjusted to ensure optimal terrain tracing.</li> <li>Set the value of <b>100 bar</b> on the pressure gauge using the circuit for unfolding.</li> </ul>		

### 3.4.2. MACHINE FOLDING PROCEDURE

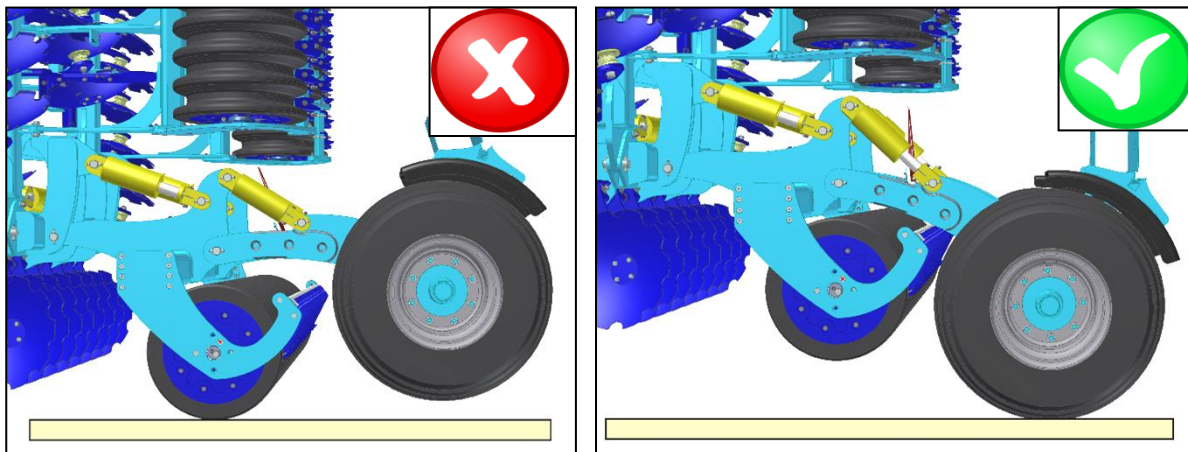
Tab. 6 – Transport position of the machine

Machine Folding Procedure – Transport Position		
Initial condition: The machine is unfolded and maximally lifted during the headland turn. All closing valves open, the red circuit switched to frame folding		
1		Lift the machine up to the maximum height using the green circuit.
		Eject the axle piston rods (yellow circuit) into the end position, lift the machine up to the maximum height.
		Fold the machine with the red circuit.
2		Switch the red circuit for securing hook control. Put all washers on the middle roller and the tow bars (for work and transport, height below 4 metres). Set the side leveling discs to the transport position.
		Secure the side frames with the red circuit.
		With the green circuit, lower the machine to the washers and insert the piston rods of the side rollers to the end position, i.e. maximum insertion. Transport height below 4 m and width below 3 m.
3		Switch both levers of the green circuit and the circuit closing (red and yellow) lever for transport to the left (close).





**Warning!!! The machine must only be transported by the axle, not rollers.**



## 4. MACHINE TRANSPORT ON ROADS



### Transport position of FANTOM FX 850 PS

- Connect the machine by suspending on the tractor using the two-point suspension equipment.
- Bring the machine into the transport position (according to Tab. 6).
- The machine must be equipped with removable shields with marking of contours, functional lighting, and the board of the rear marking for slow vehicles (according to ECE No. 69).
- The lighting must be activated during travelling on roads.
- The tractor must be equipped with a special light device of an orange colour, which must be activated during travelling on roads.
- The maximum transport speed during travelling on roads is **30 kph**.

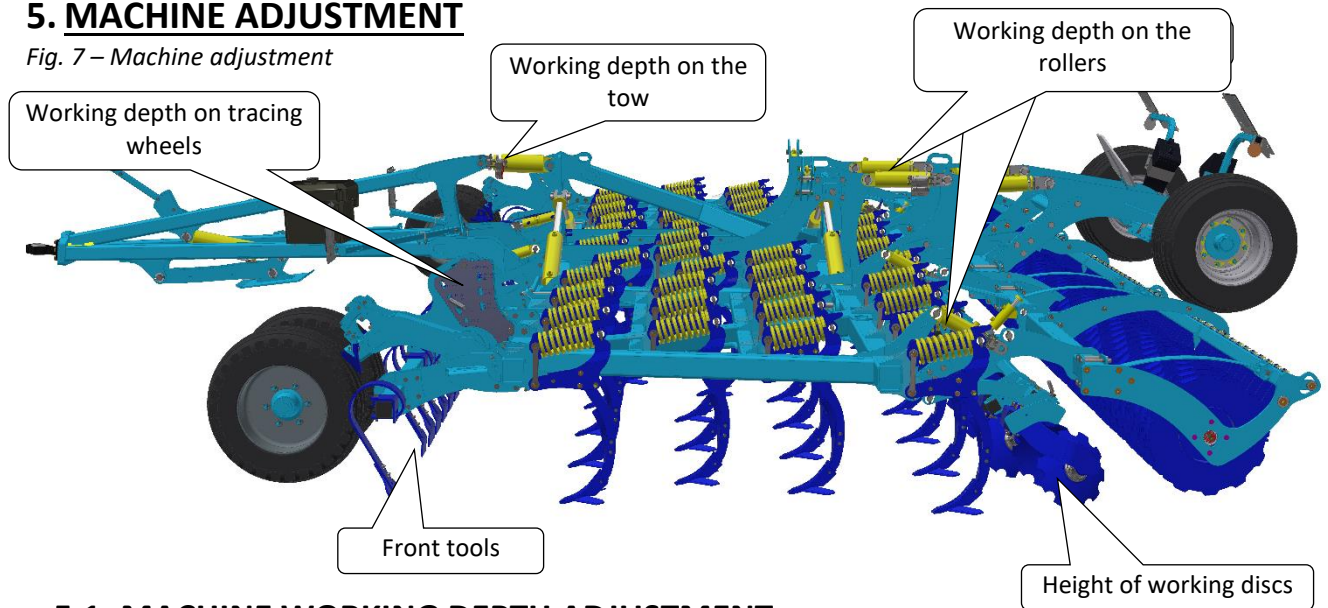


### Ban of transport with decreased visibility!

- The operator is obliged to pay increased attention during transport on roads, due to the transport dimensions of the machine.
- The operator must observe the valid regulations for transport on roads (laws, decrees) after connecting the machine to the tractor, for reason of a change of the axle load. The driving properties of the set also change depending on the terrain nature, adapt the manner of driving to these conditions.
- Only machines with a valid technical certificate issued in accordance with the valid regulation on the approval of technical qualification and operation on public communications as amended may be transported on public communications. Machines without a valid technical certificate may only be transported on public communications when carried by a towed trailer or other approved means of transport in accordance with the valid regulation.
- The operator is obliged to secure sufficient outlook during reversing from his position of the tractor driver. In case of insufficient outlook, the operator is obliged to call a competent and informed person.
- The operator must fold the side frames for transport and secure them against unwanted unfolding by disconnecting the hydraulic circuit of the machine and the tractor.
- The operator must secure the arms of the rear TPS of the tractor in the transport position during road transport, i.e. prevent unexpected arm drop using the hydraulic arm control lever. At the same time, the arms of the rear TPS of the tractor must be secured against side swinging.
- During machine transport on roads, the operator must observe the valid laws and decrees that deal with this topic and which specify the relationships of the tractor axle load depending on transport speed.
- Clean the entire machine from any accumulated soil before the transportation on the road.

## 5. MACHINE ADJUSTMENT

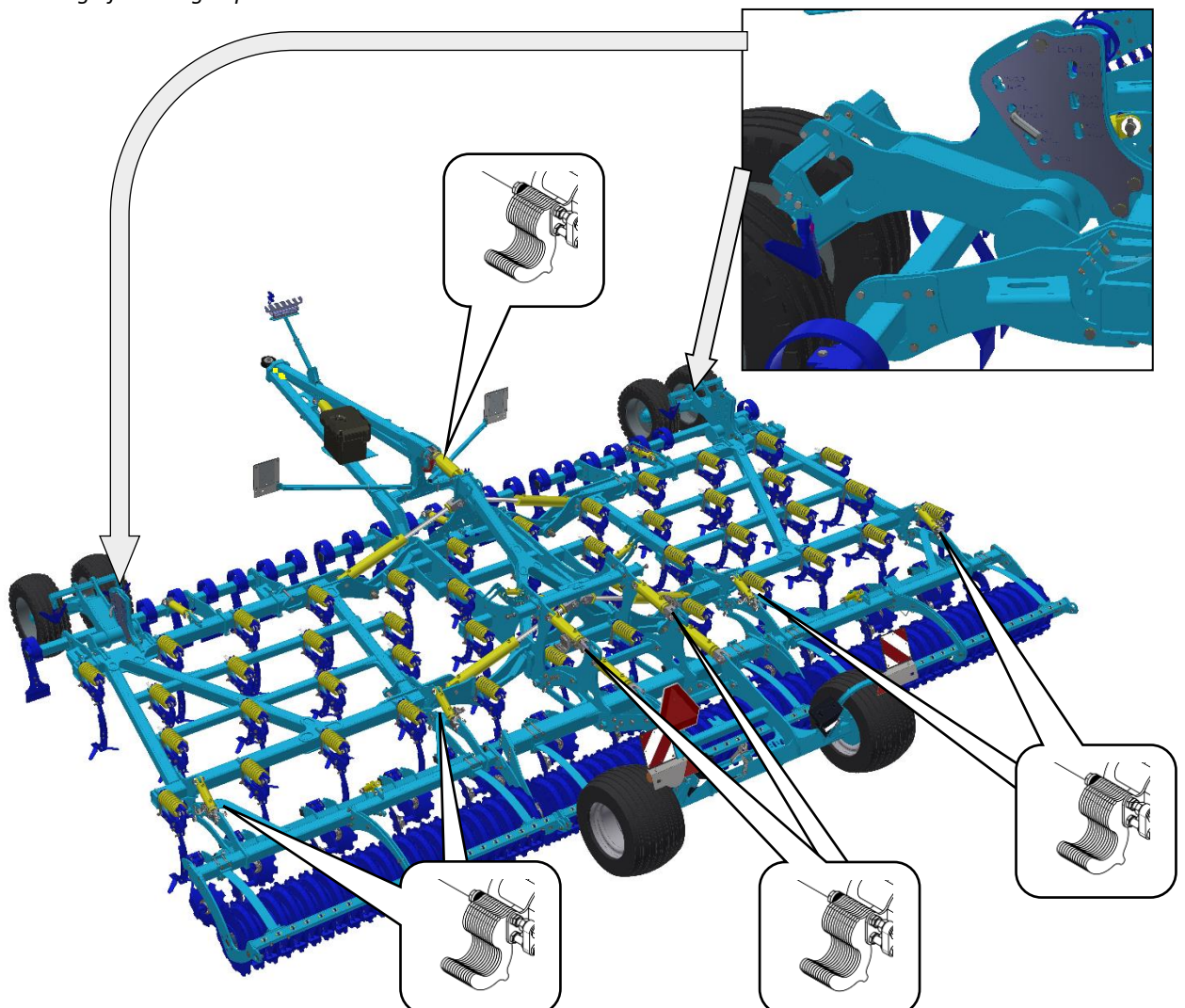
Fig. 7 – Machine adjustment



### 5.1. MACHINE WORKING DEPTH ADJUSTMENT

- Setting the depth of soil processing is executed when the machine is lifted on the rollers by adding or removing distance washers on the piston rods of the rollers.
- When changing the depth of soil processing, the pins of the tracing wheels also have to be adjusted in the relevant positions.

Fig. 8 – Setting of working depth



- **On all piston rods, the same washer combination must always be set according to the tables at the setting point!!!**
- Specified working depths at individual positions are only for information. They may vary according to particular soil conditions. Required number of distance washers may be added/removed as needed.

### 5.1.1. AJUSTMENT OF DEPTH ON ROLLERS

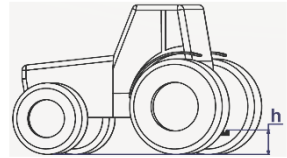
- When working, the number of washers must be the same on all rollers.
- The setting must also match the setting on the tow bar.
- During road transport (height below 4 metres), all washers must be used.
- There are no transport washers on side frame piston rods.
- Depth setting is also similar on the tow bar piston rod.
- On the tow bar piston rod, every fifth washer is thicker for easier distinction.

16	TRANSPORT	
12		3 / 1.2
11		4 / 1.6
10		5 / 2.0
9		6 / 2.4
8		7 / 2.8
7		8 / 3.1
6		9 / 3.5
5		10 / 3.9
4		11 / 4.3
3		12 / 4.7
2		13 / 5.1
1		14 / 5.5
0		15 / 5.9

### 5.1.2. HITCH HEIGHT RELATED SETTINGS

- The number of washers on the tow bar piston rod must be adjusted according to the height (*h*) of the tractor hitch above the ground.
- The number of washers must be increased by the number stated in the following table.
- The number of washers can be adjusted for achieving frame parallelism with the ground.

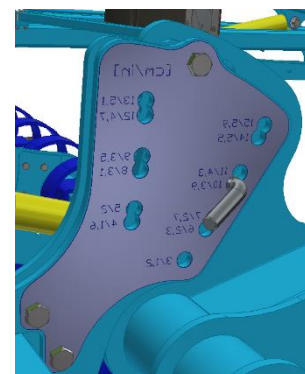
	h [ cm / in ]
10	50 / 19.7
8	52 / 20.5
6	54 / 21.3
4	56 / 22.1
2	58 / 22.8
0	60 / 23.6



FANTOM

### 5.1.3. DEPTH ADJUSTMENT ON THE COPYING WHEELS

- Perform the setting with the machine lifted up.
- Select the pin position corresponding to the desired working depth.
- The position must match the setting in the rest of the machine.
- The setting may vary according to specific soil conditions.



## 5.2. FRONT TOOLS DEPTH SETTING

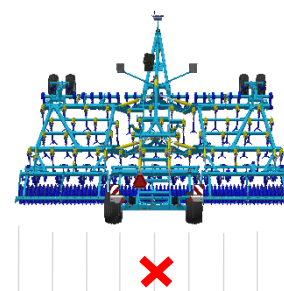
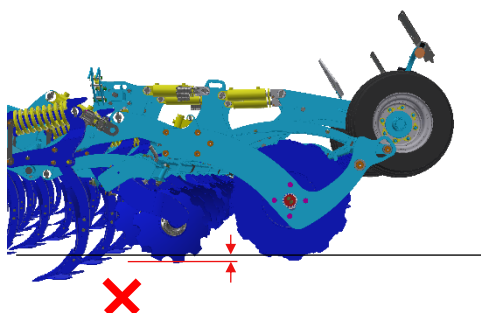
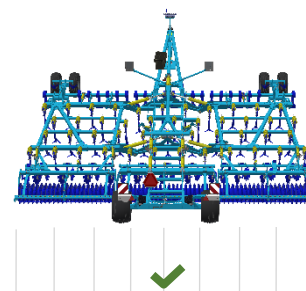
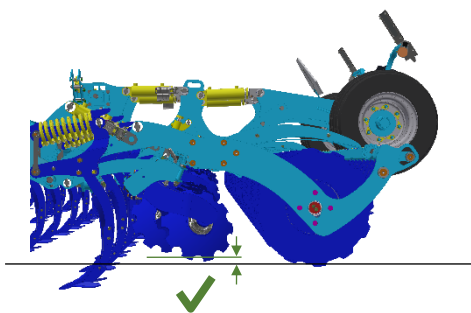
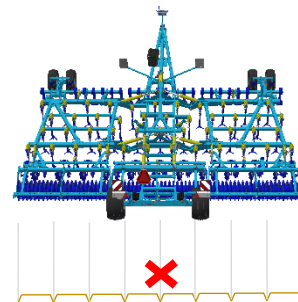
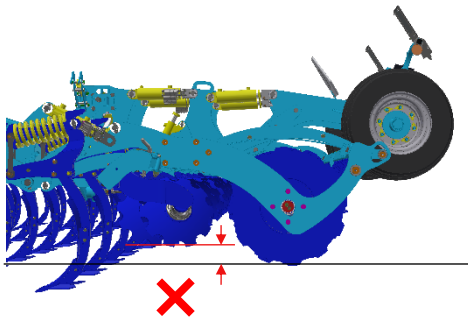
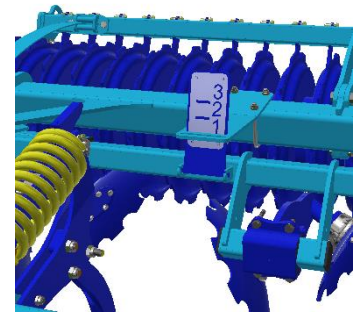
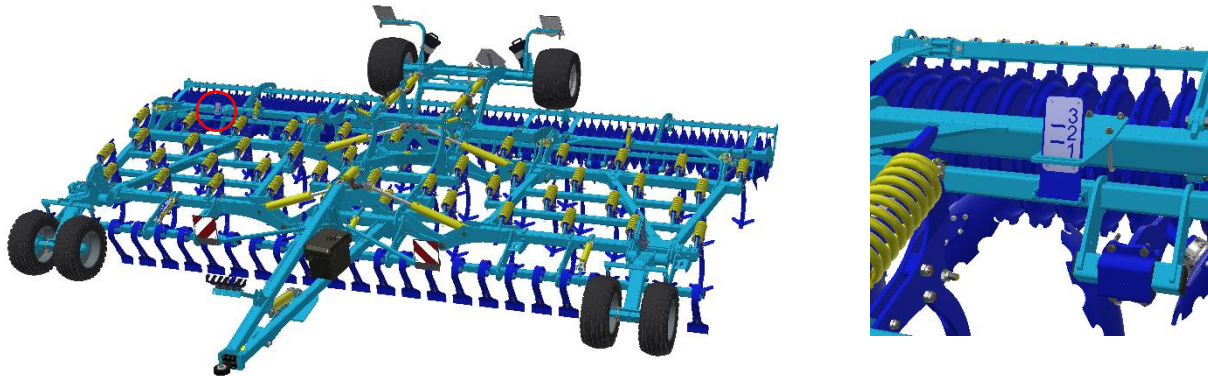
**Attention!** The front tools working depth changes with the working depth of the ploughshares.

- The setting is hydraulic from the cabin using the blue hydraulic circuit.
- The working depth can also be smoothly changed while driving.
- The current setting is visible on the indicator.
- The working depth is determined by the position of the piston rod and the height of the frame above the ground (or the ploughshare depth)
- 1 – maximum depth, work intensity, 4 – lifted, tools not working
- Too large a working depth of the front tools (machine frame low above the ground, high ploughshare depth) may cause its overload.



### 5.3. LEVELLING DISC ADJUSTMENT

- Set the working depth of the directing discs using the hydraulic circuit (**WHITE**). Be careful when setting.
- Correctly set discs ensure perfect levelling and covering with fine soil across the entire working width.
- With low disc deepening, grooves are left behind the rear ploughshares, with high deepening, traces of accumulated soil are formed behind the machine.
- Check the correct setting of the disc during work – the setting may vary according to soil conditions and disc wear.
- The height setting of the levelling discs may be checked on the indicator shown in the picture ( 1 – minimum depth, 3 – maximum depth).



## 6. MACHINE MAINTENANCE AND REPAIRS



Observe the safety instructions for treatment and maintenance.

- If it is necessary to weld during the repair and have the machine connected to the tractor, it must have disconnected supply cables from the alternator and the accumulator.
- Check the tightening of all screw and other assembly connections at the machine before every use of the machine, furthermore continuously as needed.
- Continuously check the wear of the working bodies of the machine, possibly replace these worn working bodies with new ones.
- Adjustment, cleaning, and lubrication of the machine may only be performed with the machine at rest (i.e. the machine is standing and not working).
- When working on a lifted machine, use suitable support equipment supported at marked points or at points suitable for that.
- During adjustment, cleaning, maintenance, and repair of the machine, you must secure those parts of the machine that could endanger the operator by falling or another movement.
- For catching the machine during handling using lifting equipment, use only the places marked with self-adhesive labels with the chain sign " ".
- Upon a failure or damage of the machine, immediately turn off the tractor's engine and secure against restarting, secure the machine against movement ⇒ only then you can remove the failure.
- During repairs of the machine, use exclusively the genuine spare parts, suitable tools and protective equipment.
- Regularly check the prescribed pressure in the machine tyres and the condition of the tyres. Perform possible repairs of the tyres in an expert workshop.
- Keep the machine clean.



Do not clean hydraulic cylinders and bearings with a high-pressure cleaner or direct water stream. The seals and bearings are not watertight at high pressure.



Never open or adjust (welding, drilling etc.) the pressure vessel (pressure accumulator). The pressure vessel is still under gas pressure even after it has been emptied.

Empty the pressure vessel in case of any work on the hydraulics of the machine. The manometer must not show any pressure, or the pressure on the manometer must decrease to 0 bars. Only then it is permitted to work on the hydraulic circuit.

### RECOMMENDED TIGHTENING TORQUE OF SCREW JOINTS

SCREW JOINT	TIGHTENING TORQUE	NOTE
M16 (10.9)	200 Nm	Machine towing lug (C40, C50, C70, K80)
<b>WHEEL NUT</b>		
M18x1.5	265 Nm	Copying wheels
M20x1.5	343 Nm	Transport axle
<b>HYDRAULIC + AIR JOINTS</b>		
M12x1.5	35 Nm	Hydraulic screwing
M16x1.5	60 Nm	Hydraulic screwing, air screwing
M22x1.5	140 Nm	Hydraulic screwing, air screwing

#### Nut tightening check

- Wheel nuts the first time and every time after dismounting wheels – after 10 hours
- Then every 6 months
  
- Towing lug nut tightening – first after 10 hours and then every 6 months

## 7. MACHINE STORAGE

Long-term machine shutdown:

- Store the machine under a roof if possible.
- Store the machine on a flat and solid surface with sufficient load capacity.
- Clean the machine before storing and conserve so that it is not damaged in any way during storage. Pay special attention to all marked lubrication points and properly lubricate them according to the lubrication plan.
- Store the machine in the position with folded frames in the transport position. Store the machine on the axle and the storage leg, secure the machine against spontaneous movement using scotches or another suitable tool.
- When storing, lower the machine into the lower position using hydraulics.
- The machine must not lean on the discs as the working discs of the machine could be damaged.
- Secure the machine against access of unauthorised persons.

## 8. MACHINE LUBRICATION SCHEDULE

- During machine maintenance and its lubrication, it is necessary to observe the safety regulations.

Tab. 8 – Locations and Intervals of the Machine Lubrication

LUBRICATION POINT		INTERVAL	LUBRICANT
Tow bar joint	Fig. 9	<ul style="list-style-type: none"> <li>• Once a week</li> <li>• Always before the work with the machine</li> <li>• Always after the end of the season and before storing the machine</li> </ul>	Plastic lubricant of class NGLI 2
Towing lug	Fig. 10		

Fig. 9 - lubricator, tow bar joint

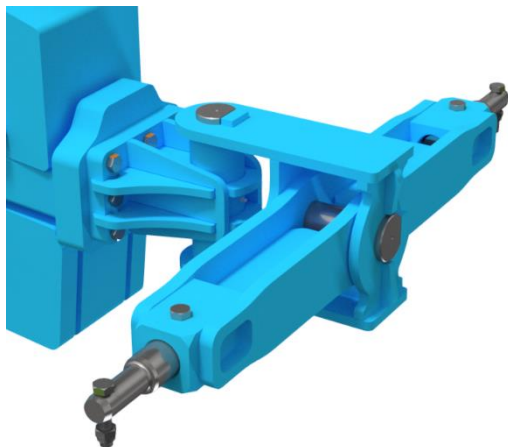
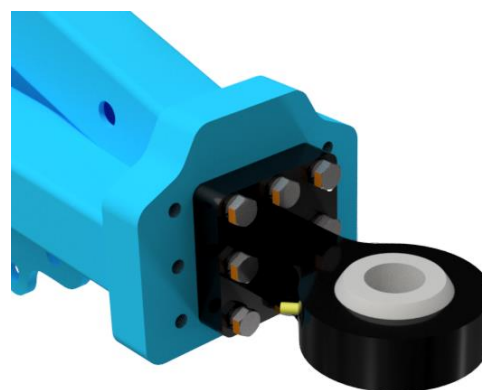


Fig. 10 – towing lug



### Lubricant handling:

Protect yourselves against direct contact with oils by using gloves or protective creams. Thoroughly wash oil spots on the skin using warm water and soap. Do not clean the skin with petrol, engine diesel fuel or other solvents. Oil is poisonous. If you swallowed the oil, immediately seek a physician. Protect the lubricants against children.

## **9. ENVIRONMENTAL PROTECTION**

- Regularly check the tightness of the hydraulic system.
- Preventively replace or repair hydraulic hoses, possibly further parts of the hydraulic system showing signs of damage, before oil leaks occur.
- Check the condition of hydraulic hoses and perform their timely replacement. The service life of hydraulic hoses includes the time, when they were stored.
- Handle oils and greases according to valid waste laws and regulations.

## **10. MACHINE DISPOSAL AFTER SERVICE LIFE EXPIRY**

- The operator must secure during machine disposal that steel parts and parts, in which hydraulic oil or lubricating grease moves are differentiated.
- Steel parts must be cut by the operator while observing safety regulations and handed over to the secondary raw material collection point. He must proceed with other parts according to valid laws about waste.

## **11. SERVICING AND WARRANTY CONDITIONS**

### **11.1 SERVICING**

Servicing is secured by the dealer after consulting with the manufacturer, possibly directly by the manufacturer. Spare parts then using the sales network by individual sellers in the entire country. Use only the spare parts according to the spare parts catalogue officially issued by the manufacturer.

### **11.2 WARRANTY**

- 11.2.1** The manufacturer provides a warranty of 24 months for these machine parts: main frame, axle, and machine tow bar. For other parts of the machine, the manufacturer provides a warranty of 12 months. The warranty is provided from the date of sale of the new machine to the end user (consumer).
- 11.2.2** The warranty applies to hidden defects that will show in the warranty period with proper use of the machine and while fulfilling the conditions stated in the operating manual.
- 11.2.3** The warranty does not apply to wearable spare parts, i.e. regular mechanical wear and tear of replaceable parts of the working sections (shares, edges, etc.).
- 11.2.4** The warranty does not apply to indirect consequences of possible damage, such as service life decrease etc.
- 11.2.5** The warranty is bound to the machine and is not void upon an owner change.
- 11.2.6** The warranty is limited to the disassembly and assembly, possibly replacement or repair of the defective part. The decision, whether to replace or repair the defective part, is up to the contractual workshop of Farmet.
- 11.2.7** During the warranty period, only the authorised servicing technician of the manufacturer may perform repairs or other interventions into the machine. In the opposite case, the warranty will not be acknowledged. This provision does not apply to the replacement of wearable spare parts (see point 11.2.3).
- 11.2.8** The warranty is conditioned by using the genuine spare parts of the manufacturer.



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1. ⒸZ My ⒸG We ⒸD Wir ⒸF Nous ⒸR Мы ⒸPL My: **Farmet a.s.**  
Jiřínková 276  
552 03 Česká Skalice  
Czech Republic  
DIČ: CZ46504931  
Tel/Fax: 00420 491 450136

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ⒸD Fabrikat: - Bezeichnung : **Meißelgrubber**  
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ⒸR Сельскохозяйственная машина: - наименование : **Чизельный культиватор**  
ⒸPL Urządzenie maszynowe: - nazwa : **Spulchniarka dłutowa**  
  
- typ, type : **FANTOM**  
- model, modèle : **FX 850 PS**  
- PIN/VIN:   
  
- ⒸZ výrobní číslo :   
- ⒸG serial number  
- ⒸD Fabriknummer  
- ⒸF n° de production  
- ⒸR заводской номер  
- ⒸPL numer produkcyjny:

3. ⒸZ Příslušná nařízení vlády: č.176/2008 Sb. (směrnice 2006/42/ES). ⒸG Applicable Governmental Decrees and Orders: No.176/2008 Sb. (Directive 2006/42/ES). ⒸD Einschlägige Regierungsverordnungen (NV): Nr.176/2008 Slg. (Richtlinie 2006/42/ES). ⒸF Décrets respectifs du gouvernement: n°.176/2008 du Code (directive 2006/42/CE). ⒸR Соответствующие постановления правительства: № 176/2008 Сб. (инструкция 2006/42/ES). ⒸPL Odpowiednie rozporządzenia rządowe: nr 176/2008 Dz.U. (Dyrektywa 2006/42/WE).

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ⒸZ Schválil ⒸG Approve by dne: 01.07.2020  
ⒸD Bewilligen ⒸF Approuvé  
ⒸR Утвердил ⒸPL Uchwalit

V České Skalici dne: 01.07.2020

Ing. Petr Lukášek  
technický ředitel  
Technical director

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59