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*The effective technology*

# OPERATING MANUAL

# KULTIS 6 | 8

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# 1. Introduction

## 1.1. Characteristics and Technical Description of the Cultivator

The row crop cultivator with KULTIS liquid fertilizing is designed for inter-row cultivation of maize and sunflower jointly with the application of liquid fertilizer into the zone of the plant roots. The machine is designed as semi-carried. The working bodies are sweeps attached to massive shanks. The individual shanks are attached to the frame using a parallel link hitch that together with a land carrying wheel and protection spring or hydraulic plungers traces the surface along the entire coverage of the machine and easy setting of the working depth. The working bodies are alternative, such as chisels or coulters.

There are two rolling coulters located on the sides of the unit, ensuring perfect separation of the processed strip of soil and protecting plants from damage caused by soil.

The sufficient dimension of shanks and sweeps provides good quality of work even in heavy rocky soils. The cultivation unit is constructed so that the plant residues continue fulfilling their soil-protective function on the surface of the soil. The cultivator is equipped with a plastic tank for liquid fertilizer, a pump, filtration, filling and distributions that bring the liquid fertilizer under the wings of the sweeps into the zone of the plant roots.

The frame of the cultivator with fertilizing consists of a combined section and it is equipped with hydraulically controlled elements for unfolding from the transport position into the working position. The working bodies are attached to the frame using clamps that allow setting the inter-row distance from 70 cm to 75 cm. The frame includes a working platform for the operation of the machine providing for simple filling and cleaning of the tank.

The drive and precise feeding within the range of 60 and 160 l/ha is provided mechanically from the land carrying wheel. Liquid fertilizers may be applied during vegetation up to the height of the growth of 40 – 50 cm.

The frame of the KULTIS machine provides for high travelling speed within the range of 8 and 12 km/h with emphasis on the proper function of the machine. A tractor with the power of 70 HP is sufficient as the pulling vehicle.

## 1.2. Basic Technical Parameters

| Type | **KULTIS 6** | **KULTIS 6 - H** | **KULTIS 8** | **KULTIS 8 - H** |
|---|---|---|---|---|
| Transport height [ mm ] | 2 560 | 2 560 | 2 960 | 2 960 |
| Transport width [ mm ] | 3 000 | 3 000 | 3 000 | 3 000 |
| Length [ mm ] | 2 850 | 2 850 | 2 850 | 2 850 |
| Weight [ kg ] | 1 950 | 1 710 | 2 220 | 2 065 |
| Number of rows | 6 | 6 | 8 | 8 |
| Tank capacity [ L ] | 1200L | 1200L | 1200L | 1200L |
| Down pressure of units | Mechanical | Hydraulic | Mechanical | Hydraulic |

The KULTIS machine is structurally designed as semi-mounted. The working coverage is 6 or 8 rows with a distance from 70 to 75cm. The transport width is three meters and the capacity of the tank is 1,200L. Two external hydraulic tractor circuits are required for the control of the working depth and for the change from the transport position to the working position. If the machine is equipped with hydraulic down pressure, three external hydraulic tractor circuits are required. The row crop cultivator is structurally designed for the working speed of 8 – 12 km/h and therefore aggregation with a tractor with 70 HP is sufficient.

## 1.3. Functional Properties of Cultivator

The drive of the feed pump is solved mechanically from the land carrying wheel. The batch is set by a combination of the chain wheel on the drive and driven shaft of the pump. The location of hydraulic piston-rods is designed originally within the frame of the machine for an easy alteration between the transport and working positions. Two independently mounted swivel travelling wheels on offset axle pivots are used for the transport, thus allowing automatic control of the machine during transport.

## 1.4. Technological Utilization of the Machine

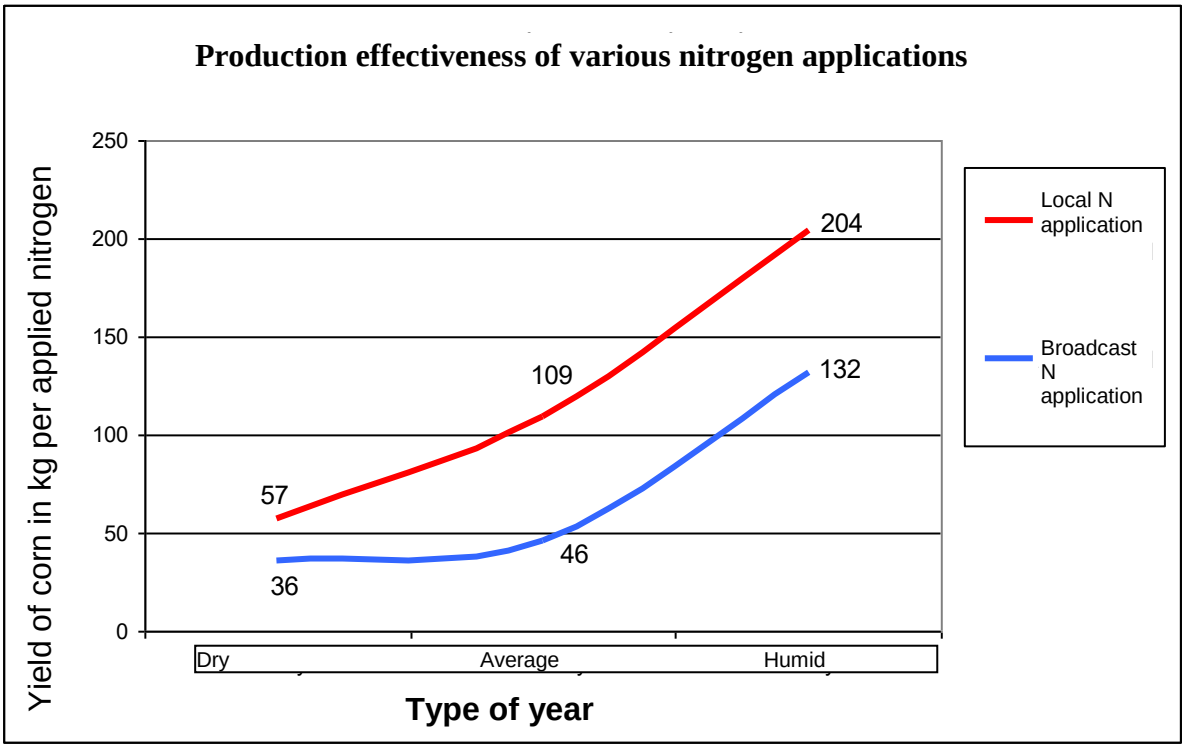
The cultivation of maize is becoming more and more important in the primary industry thanks to the modern hybrids producing high yield of grains. The energetic potential of maize in MJ x $ha^{-1}$ is grossly 30% higher than that of winter wheat. That and other qualities of this crop require a modern approach to the cultivation technology.

On top of the selection of a suitable hybrid, the quality of sowing, the protection of growth and particularly the nutrition of growth have a significant effect on the crop.

KULTIS is a gentle and precise application of the liquid form of nitrogen (DAM) in batches that the plant actually uses and that have no effect on the environment. It is applied directly into the soil to the plant roots. It is also possible to apply various liquid mixtures, including micro-nutrients, according to the current condition of nutrients in the soil. Furthermore, the row crop cultivation effectively removes the soil crust and aerates soil in the inter-rows, which has a demonstrably positive effect on the development of vegetation. Such an operation prevents unproductive evaporation of moisture in inter-rows. The KULTIS 8 cultivator perfectly fulfils all those aspects in the technology of maize and sunflower growth nutrition.

The results of measurements taken by the company producing maize seeds (LG) show that the yield of corn with the zone application of fertilizer into soil almost doubles per 1kg of applied nitrogen when compared with the standard fertilizing method (see graph in the KULTIS 8 leaflet).

Graph of the effectiveness of local application of N as provided by LIMAGRAIN



### 1.5. Assembly and Detailed Production Design

The structural and technical quality of the product is at a corresponding level. The machine is made from material that guarantees long-term service life and high operating reliability. The individual components of the machine, parts and subdeliveries are 80% made in the Czech Republic.

The unfolding of the machine from the transport to the working position is designed originally: there are two straight-lined hydraulic cylinders fitted in the frame of the machine which protects them from the aggressive effect of liquid fertilizers. The hydraulic cylinders are easily accessible for maintenance or disassembly.

The parallel link hitches of the individual working sections are fitted with maintenance-free cases with long service life, even in a dusty environment.

The dispensing of the liquid fertilizer is technically designed so that a constant batch independent of the liquid surface level in the tank is provided. The valves and fittings have constant pressure along the entire coverage of the machine in all application spots thanks to the function of a specially designed distributor.

The design of the valves and fittings of the machine is very simple and fully functional with high resistance in the aggressive environment of liquid fertilizers.

### 1.6. Ecological Aspects

The technical design and technological use of the KULTIS row crop cultivator in the primary production has a significant effect on the ecological view of the issue of applying liquid fertilizers. The fertilizer is applied directly into the soil, in small batches, and therefore this method is environmentally friendly when it comes to ecology.

The KULTIS technology in its full scope meets the requirements of the “Nitrate Directive”.

## 2. Safety Requirements

### 2.1. General Labour Safety Requirements

Experience shows that injuries related to the operation of the machine, its service, maintenance or transport are caused due to the failure to observe the basic principles of safe work. Therefore, it is necessary to inform of labour safety requirements every person who is going to work with the machine. All machines, including the **KULTIS 6** and **KULTIS 8 CULTIVATOR WITH FERTILIZING**, may only be operated, repaired and serviced by a person that has been informed in detail of the operation of the machine and any potential risks.

- Observe the instructions for the use of the machine included in this Operating Manual as well as generally valid regulations for labour safety, health protection, road safety and environmental protection.

- Basic rule: Prior to each single activation, check the machine for any issues related to labour safety, labour hygiene, fire safety, road safety and environmental protection.

- The machine may only be operated by a person above the age of 18 who is a holder of a driving licence, group T, and who has been informed of the operating manual of the machine and of generally valid regulations of labour safety, health protection, road safety and environmental protection.

- The machine is operated by one person.

- The operator must not operate the tractor and the machine when under the influence of drugs or narcotics having side effects leading to decreased concentration.

- The operator is liable for safety and all damages caused by the machine operation.

- Learn about the machine, its functions and control elements prior to its first use. It might be late for that once the work has started.

- Keep all warning signs, plates and labels clean. If damaged, immediately replace them.

## 2.2. Specific Labour Safety Requirements

- Observe the instructions and symbols located on the machine. Their observation is important for a safe and reliable operation.

- When working on slopes, observe the recommended climbing ability according to the type of the used tractor, speed and terrain surface.

- The climbing ability of the machine depends on the climbing ability of the power producing vehicle.

- The machine may only be operated on slopes in the working position!

- Before you leave the tractor, lower the machine down into the lowest position, turn off the engine, secure the set against movement and against accidental activation.

- When turning and reversing with the set, check the immediate surroundings. Always make sure that you have a sufficient view.

- No persons may access the area between the tractor and the machine unless the set has been secured against movement by braking, or wedging.

- The operator may only enter the footsteps of the machine when the machine has been maximally lowered, the tractor engine has been stopped and the entire set has been secured against movement.

- Attention! It is not allowed to stay on the footsteps while the set is moving.

- Only fill up the tank with liquid fertilizer when the tractor engine has been stopped and secured against accidental activation. The set must be secured against movement.

## 2.3. Connecting and Disconnecting the Machine

- Connect and disconnect the machine on a flat and hard surface.

- When mounting the machine to the lower bars of the three-point hitch, secure the control handle in a position that excludes the possibility of accidental activation or lifting of the machine.

- There is a risk of injury in the area of the three-point hitch, therefore do not enter the area between the tractor and the machine when connecting the machine.

- After the machine has been connected, secure the lower bars against movement on the sides, lift the supporting legs up and secure them with the pins.

## 2.4. Hydraulic System

- All hydraulically controlled parts of the machine represent a risk of injury.

- When manipulating the hydraulic system of the tractor and the machine, the hydraulic system of the machine must not be pressurized.

- The service life of the used hydraulic hoses should not exceed 6 years, including potential two-year storage.

- Regularly check the hydraulic hoses; if damaged, replace them.

- The hydraulic equipment may only be activated when there are no people within the reach of the machine.

- Connect the hydraulic hoses to the tractor according to the Operating Manual. Mark the sockets and plugs in colour to prevent incorrect connection. When the connecting parts are switched, their function may be reversed, which represents a risk of injury.

- The maximum working pressure in the hydraulic system must never be exceeded during the work with the machine.

- The parts that are under the pressure of the hydraulic fluid must not be demounted.

- When checking the tightness of the hydraulic system, use appropriate tools (cardboard).

- Prior to any work with the hydraulic system, first depressurize the system, turn off the engine and secure it against accidental activation.

## 2.5. Health Protection

- The operator must observe the regulations and directives related to work with harmful substances and must know the symptoms of poisoning and how to provide first aid.

- The operator must use solid work shoes and skin-tight clothing when working with the machine. The operator must use gloves when connecting and disconnecting the machine. When working with harmful substances, the operator must use the prescribed protective aids.

- Hydraulic oil that penetrates skin under high pressure causes heavy injuries. Immediately seek a doctor if such an injury occurs.

## 2.6. Labour Safety Requirements for Maintenance, Adjustments and Repairs

- We recommend that you have the machine checked by a service technician after every season. In particular, it is necessary to check the condition of the rotary parts.

- In case of a failure or damage, immediately put the machine out of operation, secure the set against movement, turn off the tractor engine and secure it against accidental activation. Then remove the failure.

- Adjustment, lubrication, cleaning and repairs may only be performed when the tractor engine is stopped and secured against accidental activation and the set is secured against movement.

- When lifting the machine using an overhead lifting device, only use areas of the machine marked for lifting and be extra cautious.

- When the repairs, maintenance, cleaning or treatment of the machine have been completed, activate the machine only after checking that all screw connections have been thoroughly tightened.

- Only repair the machine when it is clean and the tank is empty and rinsed.
- Any repair work performed in the tank of the machine may only be executed after the tank has been thoroughly cleaned and provided that the operator wears a protective mask. Another person outside the tank must supervise the work for safety reasons.
- When replacing damaged parts, only use the spare parts supplied by the producer.
- Regularly lubricate the entire machine according to the lubrication schedule.
- When replacing pressure hoses, make sure that the new hose is of the same type and same length.
- Tighten the screw connections after the first few hours of operation.
- Regularly check and tighten the screw connections. Pay extra attention to checking and tightening the wheel nuts.
- Tighten the wheel nuts after the first use of the machine.
- Use appropriate support when the machine needs to be lifted for a repair.
- The producer will supply a spare wheel at the user's request.
- The installation of tyres requires sufficient knowledge and prescribed installation tools. Tyres may only be repaired by professional workers.
- There is a risk of explosion when the air pressure in the tyres is high.
- Regularly check the air pressure in the tyres.
- Use appropriate tools and gloves when replacing working instruments with a blade.
- Disconnect the cables from the accumulator prior to work with the electric equipment.
- Prior to welding electric equipment, disconnect the cable from the alternator and the accumulator. Attach the ground clamp near the welding area.

## 2.7. Road Safety Requirements

- Observe the relevant valid regulations when driving on roads.
- When operated on roads, the machine must meet the provisions of Act No. 56/2001 Coll.
- The highest speed limit for the set is 20 $km.h^{-1}$
- Do not connect anything to the machine when transporting the set on roads.
- It is not allowed to transport people on the machine.
- The hydraulic control of the lower bars of the three-point hitch of the tractor must be secured against accidental activation of the machine prior to the road transport.

- Always make sure that the lower bars of the three-point hitch of the tractor are sufficiently secured on the sides when the machine is in the transport position.

- It is not allowed to transport the machine on roads while the tank contains the substance for liquid fertilizing.

- The folding parts of the machine must be mechanically secured in the transport position when driving on roads.

- The machine must be rearranged in the transport position according to the Operating Manual to be driven on roads.

- The supporting legs must be rearranged and secured against accidental unfolding prior to driving on roads.

- The machine is accompanied with a technical certificate that must be submitted to the traffic police during an inspection.

- When driving on roads, the machine must be equipped with a special sign (triangle) for slow vehicles.

- The operation on roads is only permitted for the transport from the workplace and back.

- The power producing vehicle must be equipped with a special orange warning light (beacon) for transport on roads. The light must be activated during the drive.

- The external lighting of the set with dipped headlights must be on when driving on roads.

- The set must be cleaned prior to entering a road to prevent contamination of the road.

## 2.8. Environmental Protection Requirements

- When working, the operator must observe generally valid regulations and directives related to work with harmful substances.

- Any residues of chemicals may only be released at a designated place where immediate neutralization must be executed.

- Handle oils and greases after use in compliance with the valid acts on waste.

- When working with harmful substances, the operator must observe the instructions of producers for dosage, cleaning and disposal of harmful substances.

- When the service life of the machine ends, the user shall dispose of the machine using secondary raw material in compliance with the valid acts on waste.

# 3. Technical Operating Instructions

- Some images in this Operating Manual may differ from reality due to the continuous development and improvements of the machine.

## 3.1. Safety Instructions for Machine Operation

1. No people may be within the reach of the parts of the machine when rearranging the machine into the working position and vice versa.
2. No person or solid obstacles may be present in front of the machine when in operation.
3. Observe the maximum speed limit of 15 km/h when driving on roads.
4. It is only possible to drive on roads with an empty tank.
5. Always use personal protective aids prescribed for manipulation with the used liquid fertilizer when filling up the tank, providing maintenance and repairs of the fittings for the application of the liquid fertilizer.
6. Only execute repairs and adjustments of the machine when the tractor engine is turned off and the set has been secured against movement.
7. No person may be present on the operating platform of the tank during driving.

## 3.2. Description of the Machine

The KULTIS cultivator is used for inter-row cultivation of maize and sunflower growth with concurrent additional liquid fertilization.

Its frame is semi-mounted; the machine is mounted in the arms of the hydraulics of the pulling tractor. It has not control in the cross direction. The number of processed rows is 6 or 8; the inter-row spacing is 650 – 750mm.

The machine consists of a frame which is fitted with weeding units, a chassis, a tank for the fertilizer with a pump and application distribution. Furthermore, there is hydraulic control system for folding the arms of the frame and the chassis.

### 3.2.1. Frame

The frame consists of a three-piece carrier of the weeding units; there are connecting pins for the pulling vehicle in the front and a holder for the tank with the applied fertilizer with an operating platform in the rear. There are holes for securing the side arms in the working or transport position using pins in the place where the frame is divided.

### 3.2.2. Weeding Units

The weeding units are designed with a parallel link hitch. There is a shank with a flat-cutting V-string sweep with the width of 250mm in the rear part of the unit. There are application pipes for the distribution of the liquid fertilizer in the rear part of the shank.

Furthermore, there separator disks located on the shanks in the rear part of the unit that are adjustable in both vertical and horizontal direction. The separator disks separate the strip of the processed soil by a weeding tine from the row. At the same time, it acts as a shield that prevents damage to the plants in the row caused by the soil from the tine.

The weeding unit may get clogged even when the separator disks are set to the maximum width when cultivating growth with a high amount of weeds.

The frame of the tine is connected to the unit by two screws M16x70. They are shear screws in order to protect the frame of the weeding unit from damage caused when the tine hits a solid obstacle or gets clogged.

There is a feeler wheel with adjustable working depth on the handle in the front part of the unit.

In the centre of the parallel link hitch, there are shock-absorbing springs or hydraulic plunger located on pins. They stabilize the weeding unit in the vertical direction and ensure terrain tracing.

The weeding units are connected to the frame by clamps. When rearranging the inter-row spacing, release the clamps and change the position of the weeding unit to the required distance.

### 3.2.3. Chassis

The chassis consists of two pairs of travelling wheels that are adjustable in relation to the frame. There are two wheels allowing mechanical setting of the height of the frame above the surface, located on the axles in the front of the frame in the direction of drive. There is a chain drive of the metering pump for the fertilizer on one of the wheels.

There are travelling wheels located in the rear part of the frame on hydraulically controlled axles.

### 3.2.4. Hydraulic Control System

The hydraulic system allows folding the parts of the frame into the transport position and controls the tip-protection gear for the transport of the machine and turning at the headland. The system is designed as dual-circuit with regard to the connection to the pulling vehicle. The control circuits of the machine are switched manually, using two three-way valves.

If the machine is equipped with hydraulic down pressure, the system has two circuits.

The circuit for folding the arms of the frame consists of two hydraulic cylinders that are located at the centre of the frame of the machine.

The circuit for the control of the tip-protection gear consists of two hydraulic cylinders and a hydraulic lock that secures the setting of the position of the travelling wheels.

The distribution of the pressure oil is provided by pressure hoses with a diameter of 6mm and connecting elements M14x1.5mm.

The pressure vessel is filled with nitrogen to the value of 80bar; no further adjustment is required.

## 3.3. Equipment for the Application of Liquid Fertilizers

The equipment consists of a tank with fittings, a filter, a pump, gearing for the setting of the application batch, a separator, hose distribution and application pipes.

### 3.3.1. Fertilizer Tank

The tank is located on the frame. Its capacity is 1,300L. It can be filled up through an opening at the top or using a hose with a bayonet joint at the bottom.

### 3.3.2. Tanks for Clean Water

The tanks are located on the operating platform of the tank. Their total capacity is 50L. They can only be filled through the top opening.

### 3.3.3. Pump

**Description of Activity**

The fluid is drawn from the tank through a three-way valve and filter into the pump that pushes is into the central distributor. The fluid is divided by the number of the weeding units. It is divided by a T-branch at each weeding unit and led to both application pipes. There are restrictors placed in a hose after the T-branch that ensure that the supply of the fluid is the same in both application pipes. The T-branch and the restrictor for the edge unit are located by the central distributor.

**Replacement of Oil in the Pump**

Disconnect the hose from the pump (demount the pump from the holder). Turn the pump by 180° and drain oil by turning the shaft. Fill the empty pump with new oil up to the gauge line on the pouring vessel.

Mount it back on the weeder and check the oil after a short activity and once its level has been stabilized.

Change the oil once a year before the season. Use motor oil.

**Filling the Tank with Liquid Fertilizer**

It is filled

1) via the top tank opening
2) via the bottom filling pipeline with a blind coupling

**Technical Description**

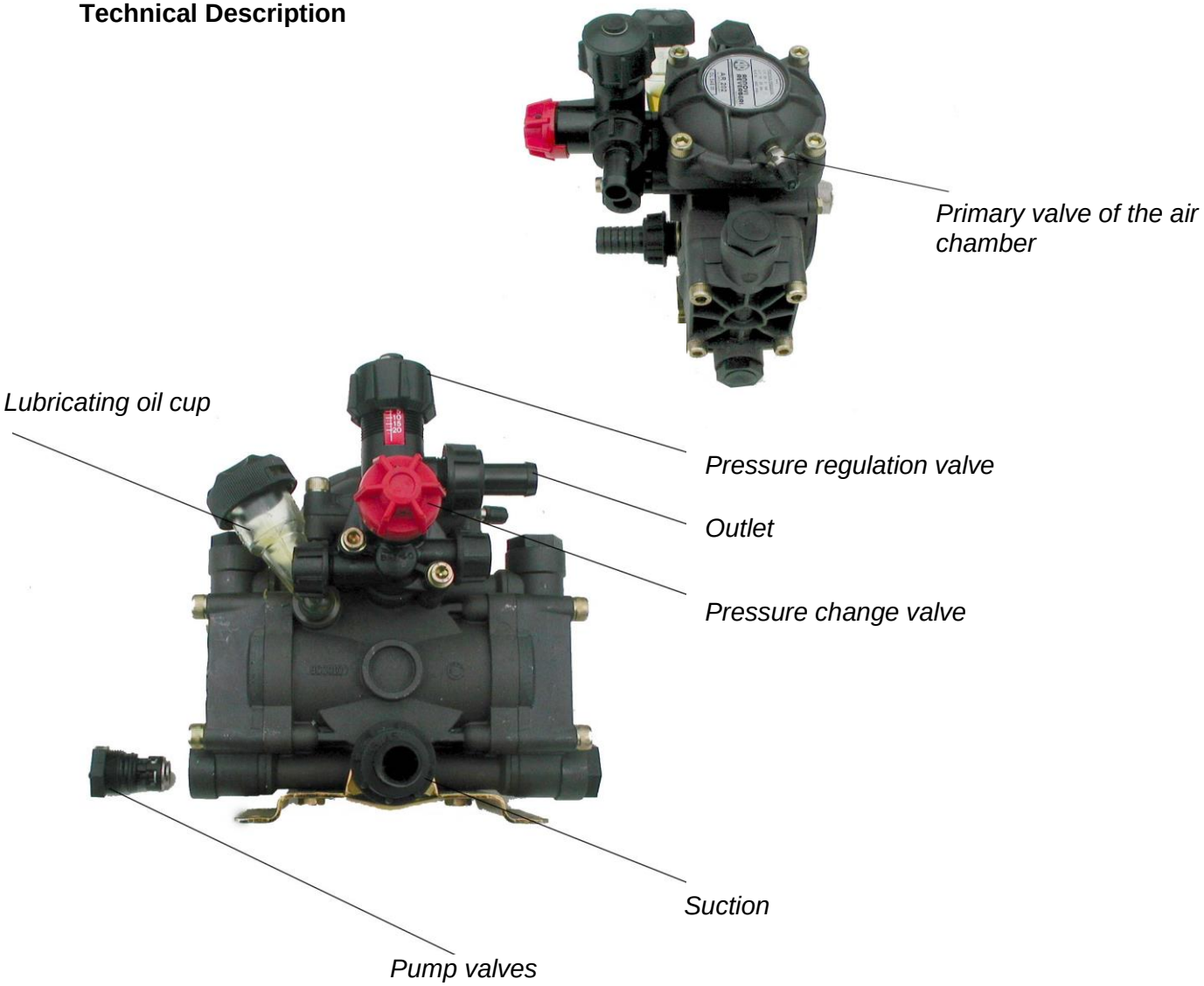



Fig. 1 Pump

**Pressure Regulation Valve**
The valve is used to set the pressure in the pump which prevents spontaneous flow of the fluid through the pump.

**Pressure Change Valve**
Position A: Fast filling of the machine hoses (empty hoses)
Position C: Pressure position

Possibility of filling position C – longer period
When machine in operation – position C

**Pump Air Chamber**
The air chamber eliminates the pressure surge in the fluid. The boost pressure of the air chamber is 1/3 of the operating pressure at 1000kPa; the air chamber has pressure of 300kPa.

**Maintenance of the Pump after Season**
Rinse the distribution with clean water and empty the tank and the hoses. Disconnect the hoses from the pump and run the drive which drains water from the pump. Uninstall the filter; drain tanks.

## 3.4. Setting the Applied Batch

The setting is executed by changing the sprockets of the drive on the countershaft and of the drive of the pump (under the cover).

8-row cultivator – supplied sprockets 15 Z -2x, 40 Z -1x

| Batch L/ha | Drive ratio 38/19 | |
|---|---|---|
| | Gear drive sprocket | Pump sprocket |
| 60 | 33 | 25 |
| 80 | 25 | 15 |
| 100 | 33 | 15 |
| **Batch L/ha** | **Drive ratio 38/15** | |
| | **Gear drive sprocket** | **Pump sprocket** |
| 80 | 33 | 25 |
| 100 | 25 | 15 |
| 135 | 33 | 15 |
| 160 | 40 | 15 |

6-row cultivator – supplied sprockets 15 Z -2x, 38 Z -1x, 40 Z -1x

| Batch L/ha | Drive ratio 36/25 | |
|---|---|---|
| | Gear drive sprocket | Pump sprocket |
| 60 | 33 | 25 |
| 80 | 25 | 15 |
| 100 | 33 | 15 |
| 120 | 40 | 15 |
| **Batch L/ha** | **Drive ratio 38/15** | |
| | **Gear drive sprocket** | **Pump sprocket** |
| 125 | 25 | 15 |
| 170 | 33 | 15 |

### 3.5. Maintenance of the Application Equipment

Switch the three-way valve into the rinsing position after the completion or work and before folding the machine into the transport position. Turn the wheel of the drive to rinse the application substances off the application hoses, distributor and valve. Then remove the filter and rinse it under the valve of the clean water tank.

Washing the frame of the machine with clean water prevents contamination with the application substance, leakage during the transport of the machine and corrosion – and thus it prolongs the service life of the machine.

## 4. Machine Control

### 4.1. Connection to the Tractor

1. Connect the machine to the lower bars of the three-point hitch of the tractor and secure it.
2. Connect the hydraulic hoses to the outlets of the hydraulic circuits of the tractor according to the table with colour marking of hoses located on the front side of the tank.
3. Connect the plug of the electric lighting of the machine into the tractor socket.
4. Lift the arms to release the supporting legs of the machine.
5. Unblock the supporting legs of the machine and lift them into the transport position and secure with pins.


Fig. 2 Supporting Legs of the Machine in the Storage Position

Proceed in a reverse order to disconnect the machine.

### 4.2. Rearranging the Machine from Transport to Working Position

1. Set the three-way valve control levers to the vertical position /Fig. 3/.

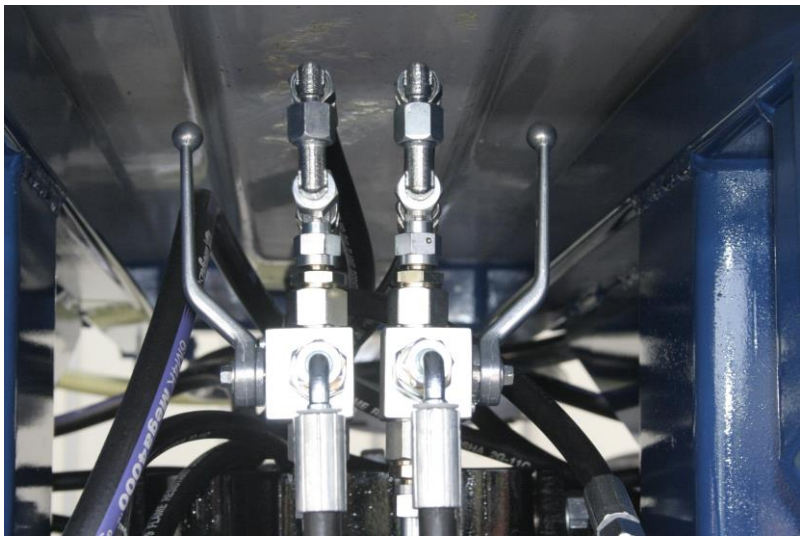


Fig. 3. Control Valve Levers in the Machine Unfolding and Folding Position

2. Remove the securing pins of the folded arms / Fig. 4 /

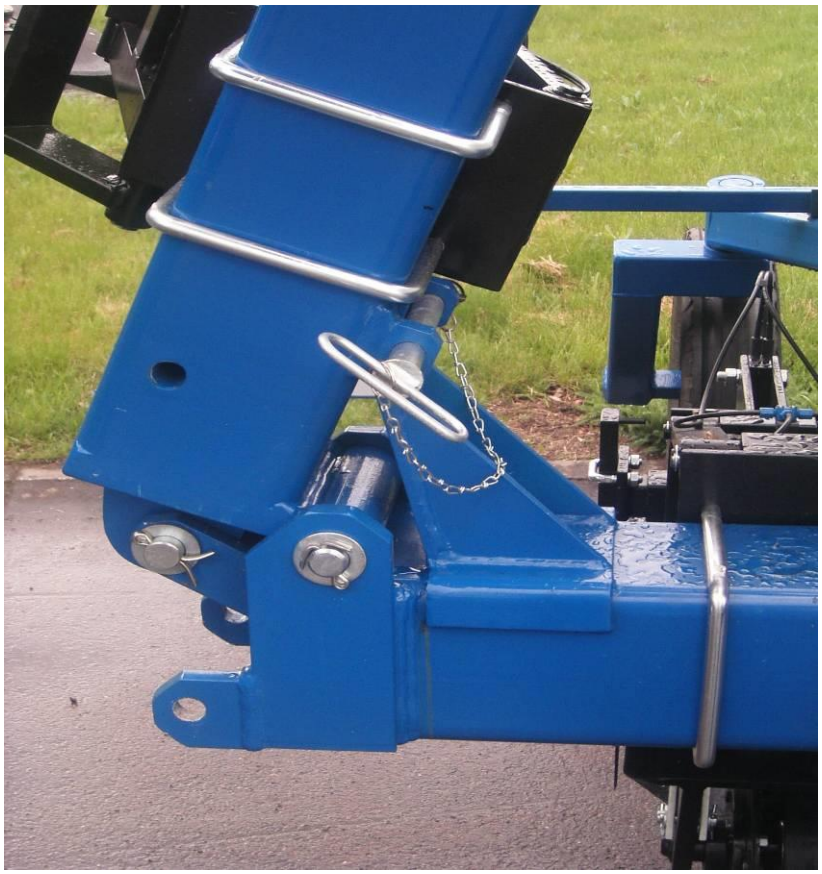


Fig. 4 Arm Secured with Pin in Transport Position

3. Use the control lever of the external hydraulic circuit of the tractor to lower the arms and secure the side parts of the frame to the central part of the frame using pins.

4. The three-way valve levers will rearrange to the horizontal position for the chassis control /Fig. 5 /.

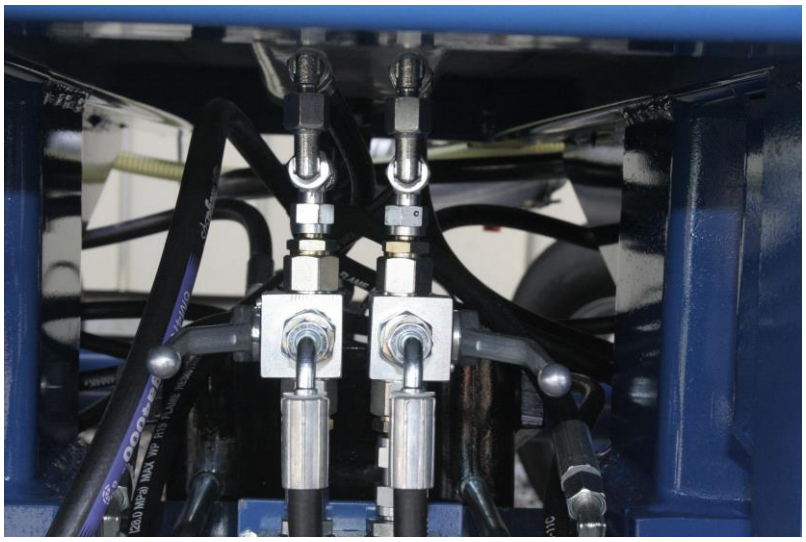


Fig. 5 Valves in the Chassis Control Position

5. Use the control lever of the external circuit of the tractor to set the height of the rear wheels of the chassis.

Proceed in a reverse order to change the machine from the working to the transport position.

## 4.3. Storing the Machine

**The machine may only stand on the rear wheels and front supporting legs when in storage. The fertilizer tank must be empty. When the machine is stored away, the valves must be switched to the vertical position for machine folding and unfolding, see Fig. 3.**

**ATTENTION: The machine must not be stored on the working units as such storage would damage the working units.**

## 4.4. Basic Setting of the Machine

1. Using the tractor arm hydraulics, level the machine at a horizontal position.

2. Using the front adjustable travelling wheels, level the frame of the machine into the traverse plane.

3. Lower the machine onto the front travelling wheels by the internal tractor circuit control lever, and at the same time, set the height of the rear part of the chassis by the external circuit lever. The rear transport wheels must be slightly above the ground. When working in soft conditions or when the tank is full, set the rear wheels so that they slightly touch the ground and thus make the working unit lighter.

4. Connect the hydraulic pressure control hose to the outlet of the external tractor circuit.

5. Open the pressure oil inlet valve /Fig. 6/.

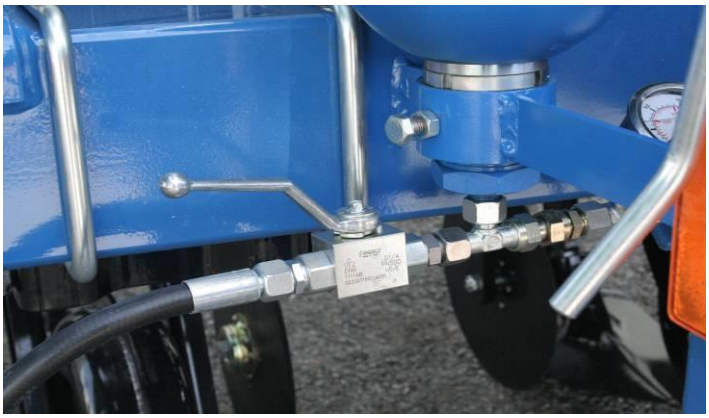


Fig. 6 Hydraulic Pressure Valve in Open Position

6. Using the control of the external hydraulic circuit, set the pressure in the system to the basic setting value: 50 bar.

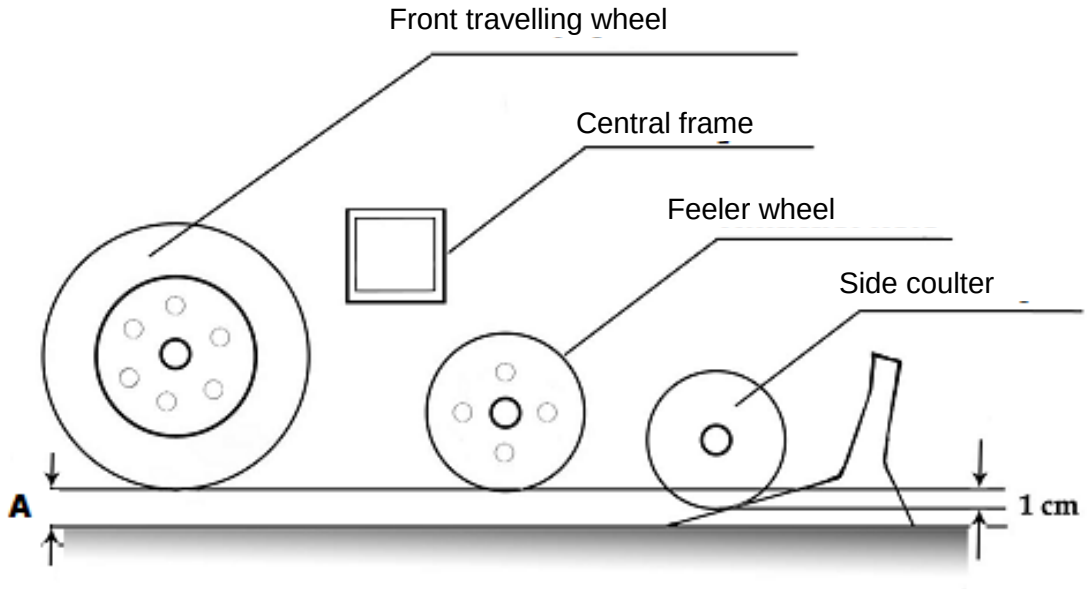
When turning the machine at the headland and using the levers of the external and internal circuit of the tractor hydraulics at the same time, the machine is rearranged into the transport position and thus can be turned around.

The down pressure may be changed continuously during operation depending on the soil conditions by using the controls of the external circuit of the tractor hydraulics; however, not more than 100bar.

The working speed of the machine should be within the range of 5 – 10km/h.

## 4.5. Setting the Working Depth

**Parts to adjust**




A – Required aeration depth: 5 – 8cm

When changing the depth, the adjusting bolts of the depth-control wheels and the adjusting bolts of the front axle also have to be set at the same time. The frame of the machine must always be parallel to the ground.

Front chassis – third-point bolts between the axle and lug
Side coulters – lugs affixing the coulter tines to the unit
Depth-control wheels – openings in the weeding unit frame

Check that the adjusting bolts are properly tightened.

# 5. Maintenance and Storage of the Machine

## 5.1. Daily Inspection

1. Check the tightness of the connections of the liquid fertilizer application equipment.
2. Perform the tasks described in the Application Equipment chapter.
3. Check the tightness of the hydraulic system.
4. Check the screw connections.

Cleaning the filter – stop the three-way valve in front of the filter, demount the filter and clean it. The filter is cleaned once a day according to the cleanliness of the fluid.

## 5.2. Seasonal Inspection

1. Clean the machine and repair any damaged coating.
2. Thoroughly rinse the application equipment with water and empty it of any fluid completely.
3. Replenish the grease in the hubs of the landing wheels and coulters of the weeding units.
4. Preserve the extended parts of the piston rods of the hydraulic cylinders.

## 5.3. Lubrication of the Machine

The feeler wheels and landing wheels are fitted with standard antifriction bearings. The joints of the weeding units are fitted with special self-lubricating sleeves.

| Lubrication Spot | Type of Lubricant | Lubrication Frequency |
|---|---|---|
| Chains of the pump drive | Gear oil | Daily |
| Chassis swivel pins | Universal grease | Daily |
| Travelling wheel hubs | Universal grease | Before and after season |
| Chassis suspension pins | Universal grease | Before and after season |
| Weeding unit joints | Universal grease | Before and after season |
| Depth-control drum hubs | Universal grease | Before and after season |
| Bearings of the pump drive | Universal grease | Before and after season |
| Pump | | Daily inspection |

***2012/010/01***

# (CZ) ES PROHLÁŠENÍ O SHODĚ
# (GB) CE CERTIFICATE OF CONFORMITY
# (D) EG-KONFORMITÄTSERKLÄRUNG
# (F) DÉCLARATION CE DE CONFORMITÉ
# (RU) СЕРТИФИКАТ СООТВЕТСТВИЯ ЕС
# (PL) DEKLARACJA ZGODNOŚCI WE

1. (CZ) My (GB) We (D) Wir (F) Nous (RU) Мы (PL) My:

**Farmet a.s.**
Jiřinková 276
552 03 Česká Skalice
Czech Republic
DIČ: CZ46504931
Tel/Fax: 00420 491 450136

(CZ) Vydáváme na vlastní zodpovědnost toto prohlášení. (GB) Hereby issue, on our responsibility, this Certificate. (D) Geben in alleiniger Verantwortung folgende Erklärung ab. (F) Publions sous notre propre responsabilité la déclaration suivante. (RU) Под свою ответственность выдаем настоящий сертификат. (PL) Wydajemy na własną odpowiedzialność niniejszą Deklarację Zgodności.

2.

| | | | |
|---|---|---|---|
| (CZ) Strojní zařízení: | - název | : | **Kultivátor s kapalným přihnojováním** |
| (GB) Machine: | - name | : | **Cultivator with liquid fertilisation** |
| (D) Fabrikat: | - Bezeichnung | : | **Kultivator mit flüssiger Zudüngung** |
| (F) Machinerie: | - dénomination | : | **Cultivateur avec épandage d'engrais liquide** |
| (RU) Сельскохозяйственная машина: | - наименование | : | **Культиватор с внесением жидких удобрений** |
| (PL) Urządzenie maszynowe: | - nazwa | : | **Pielnik z nawożeniem nawozami płynnymi** |
| | - typ, type | : | **KULTIS** |
| | - model, modèle | : | **KULTIS 6, KULTIS 8** |
| | - (CZ) výrobní číslo | : | |
| | - (GB) serial number | | |
| | - (D) Fabriknummer | | |
| | - (F) n° de production | | |
| | - (RU) заводской номер | | |
| | - (PL) numer produkcyjny: | | |

3. (CZ) Příslušná nařízení vlády: č.176/2008 Sb. (směrnice 2006/42/ES). (GB) 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). (RU) Соответствующие постановления правительства: № 176/2008 Сб. (инструкция 2006/42/ES). (PL) Odpowiednie rozporządzenia rządowe: nr 176/2008 Dz.U. (Dyrektywa 2006/42/WE).

4. (CZ) Normy s nimiž byla posouzena shoda: (GB) Standards used for consideration of conformity: (D) Das Produkt wurde gefertigt in Übereinstimmung mit folgenden Normen: (F) Normes avec lesquelles la conformité a été évaluée: (RU) Нормы, на основании которых производилась сертификация: (PL) Normy, według których została przeprowadzona ocena: ČSN EN ISO 12100, ČSN EN ISO 4254-1.

(CZ) Schválil (GB) Approve by
(D) Bewilligen (F) Approuvé
(RU) Утвердил (PL) Uchwalił

dne: 01.06.2012

p. Gavlas Dušan
technický ředitel
Technical director

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V České Skalici

dne: 01.06.2012

Ing. Karel Žďárský
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General Manager