

ORIGINAL INSTRUCTIONS - according to Directive 2006/42/EC, Annex I 1.7.4.1 and according to Supply of Machinery (Safety) Regulations 2008, Annex I 1.7.4.1

OPERATOR'S MANUAL

Vibro Crop **Vibro Crop Intelli** **Tillage**

*PIN KTNKA70*A00001438 and above*

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1 - GENERAL INFORMATION

Note to the owner

This manual has been prepared to assist you in the correct procedure to run in, to drive, to operate, to adjust and to maintain your new implement.

This implement has been designed and built to give maximum performance, economy and ease of operation under a wide variety of conditions.

Prior to delivery, your implement was carefully inspected both at the factory and by your dealer to make sure that it reaches you in optimum condition. To maintain this condition and assure trouble-free operation it is important that routine services, as specified in this manual, are carried out at the recommended intervals.

Read this manual carefully (especially Chapter 2 that covers the safety information) and keep this manual in a convenient place for future reference. DO NOT operate or permit anyone to operate or service this implement until you and/or other persons have read this manual. Read the manual, it will save you time and hassle later. Lack of knowledge can lead to accidents. Employ only trained operators who have demonstrated the ability to operate and service this implement correctly and safely. Contact your dealer for assistance providing the required training to your operators. Contact your dealer to obtain additional manuals or alternate language versions.

If at any time you require advice that concerns your implement, do not hesitate to contact your authorized dealer. He has factory-trained personnel, genuine service parts and the necessary equipment to carry out your service requirements.

NOTICE: *This implement has been designed and built in line with the requirements put forward by the European Directives 2006/42/EC and 2014/30/EU.*

Always use genuine KONGSKILDE Service Parts or parts that match at least the same quality, reliability and functionality as the equivalent original Service Parts when you service and repair your implement and do not modify your implement without a written permission of the manufacturer. Failure to do so will void the responsibility of the manufacturer.

Check local road legislation before you drive the implement on public roads.

When you operate interchangeable implement, make sure that the implement is CE approved.

As this publication is distributed throughout our international network, the implement illustrated, either as standard or as an accessory, may vary according to the country in which the implement is to be used. Low specification configurations, as chosen by the customer, may deviate from the specifications given.

Several figures in this operator's manual show the safety guarding or the additional guards, legally required by certain countries, open or removed to better illustrate a particular feature or adjustment. The implement must not be used in this condition. For your own safety, make sure that all guards are closed or replaced before you operate the implement.

OWNER ASSISTANCE

We at KONGSKILDE and your KONGSKILDE dealer want you to be completely satisfied with your investment. Normally, your dealer's Service Department will handle any problems with your implement. Sometimes however, misunderstanding can occur. If your problem has not been handled to your satisfaction, we suggest you to contact the owner or General Manager of the dealership, explain the problem and request assistance. When additional assistance is needed, your dealer has direct access to our branch office.

COMPANY POLICY

Company policy, which is one of continuous improvement, reserves the right to make changes in design and specification at any time without notice and without obligation to modify units previously built.

All data given in this book is subject to production variations. The information in this publication is provided on the basis of information that was available at the time that the manual was written. Settings, procedures and other items can change. These changes can affect the service that is given to the implement.

Dimensions and weights are approximate only and the illustrations do not necessarily show the implement in standard condition. For exact information about any particular implement please consult your dealer. Make sure that you have the most current and complete information from your dealer before you start any job.

ACCESSORIES AND OPTIONS

Your implement has been designed to operate in a wide variety of soils/crops and conditions. Nevertheless additional equipment may, in certain cases, be required to improve the implement performance. A list of this additional equipment is given in the "Accessories" chapter in this manual. Use only those accessories designed for your implement.

PARTS AND ACCESSORIES

Genuine KONGSKILDE parts and accessories have been specifically designed for KONGSKILDE implements.

We would like to point out that "non-genuine" parts and accessories have not been examined and released by KONGSKILDE. The installation and/or use of such products could have negative effects upon the design characteristics of your implement and thereby affect its safety. KONGSKILDE is not liable for any damage caused by the use of "non-genuine" parts and accessories.

Rely on your authorized dealer to supply you with genuine KONGSKILDE parts only. These parts are covered by our warranty and will give you the best performance.

See the parts catalog or browse the KONGSKILDE portal to find service parts for your implement.

When you order service parts, always quote the model and serial number printed on the Product Identification Number (PIN) plate.

LUBRICANTS

Your dealer sells a selection of specially formulated lubricants based on own engineering specifications.

Recommended lubricants for your implement are listed in the maintenance chapter.

WARRANTY

Your implement is warranted according to legal rights in your country and the contractual agreement with the selling dealer. No warranty shall, however, apply if the implement has not been used, adjusted and maintained according to the instructions given in this operator's manual.

It is prohibited to carry out any modifications to the implement unless specifically authorized, in writing, by a KONGSKILDE representative.

CLEANING YOUR IMPLEMENT

When you use a high pressure washer, do not stand too close to the implement and avoid directing the jet at electronic components, electrical connections, breathers, seals, filler caps, and so on.

Clean decals only with a soft cloth, water and a gentle detergent. DO NOT use solvent, gasoline or other harsh chemicals to clean decals. Decals could be removed or get damaged.

DISASSEMBLY OR SCRAPPING

The critical condition of the equipment is the complete wear and tear of all components. When the costs of repair, restoration or replacement of the individual components and/or assemblies become economically impractical, a decision is made on decommissioning the equipment.

When your implement is taken out of service because it is damaged beyond repair or has reached the end of its useful life, disassembly, scrapping and/or recycling of components must be performed only by a qualified technician with service instructions, and in compliance with local law and regulations.

Intended use

KONGSKILDE implement can only perform the usual work in agriculture. Only connect the implement to a tractor that corresponds with the specifications of the implement and is legal to use.

The implement row cleaners are developed for agricultural work. Connect the implement only to agricultural tractors and drive by the hydraulic and electrical system on the agricultural tractor.

The implement is only intended for work the soil in between row crops like maize and sugar beets in order to mechanically clean out between the rows.

The implement is a rear-mounted row crop cleaner mounted on a parallelogram side shift frame, designed for mechanical row crop cleaning. The new intelligent solutions providing increased capacity, precision and userfriendliness.

The implement is self-adjusting during the work in the field due to the camera controlled side shift frame. The implement identifies and follows the rows in the field and adjusts itself when camera is active. These solution allows increase maximum working speed up to **10 km/h (6.2 mph)**.

The work must occur under reasonable conditions, or thorough agricultural knowledge and authorized operation, on a normal cultivation that has a reasonable extension without foreign matter and the like. The performance of the implement will depend on the crop, the condition of the field, the ground, and finally the weather.

Intended use implies that you observe the prescriptions concerning adjustment, operation and maintenance in the instruction manual. Observed altogether the safety instructions as well as common rules concerning technical safety, working practices and road safety. Also read the spare parts catalog and use original spare parts. If necessary contact an authorised workshop.

If you notice degradation of performance, contact your dealer for assistance. He may have useful information for improvements, or a kit may be available to enhance the performance.

With respect for the routine maintenance and with operating conditions, the assigned service life for the implement is minimum seven years.

Prohibited usage

NOTICE: *DO NOT use this implement for another purpose than intended by the manufacturer (as described in the manual, shown by the decals, or in other product safety information provided with the implement). These information sources define the intended use of the implement.*

Any other use beyond the intended use is regarded as misuse and requires the authorization of the manufacturer. The manufacturer is not responsible for any damage that results from the improper use of the implement. The user bears that risk.

Contact your local dealer when you are not sure about the use or function of your implement in a particular application (for example crop, variety, unique conditions, etcetera) or you do not know if there is a need for special equipment or special precautions.

No parts must be fitted to this implement, which have not been released by KONGSKILDE. They might affect the implement operation, safety of the user or other people, stability or wear characteristics of the implement. They may also void the homologation approval obtained for your country and compliance with EC directives.

Do not make changes to the implement and its construction without the permission from the manufacturer. The manufacturer does not accept any responsibility for damages that results from unauthorized modification.

Electro-Magnetic Compatibility (EMC)

This machine complies strictly with the European Regulations on electro-magnetic emissions. However, interference may arise as a result of add-on equipment which may not necessarily meet the required standards. As such interference can result in serious malfunction of the unit and/or create unsafe situations, you must observe the following:

- Ensure that each piece of non- KONGSKILDE equipment fitted to the machine bears the CE mark.
- The maximum power of emission equipment (radio, telephones, etc.) must not exceed the limits imposed by the national authorities of the country where you use the machine.
- The electro-magnetic field generated by the add-on system should not exceed **24 V/m** at any time and at any location in the proximity of electronic components.

Failure to comply with these rules will render the KONGSKILDE warranty null and void.

Manual scope and required training level

Introduction to this manual

This manual gives information about the use of your KONGSKILDE machine as intended and under the conditions foreseen by KONGSKILDE during normal operation, routine service, and maintenance.

This manual does not contain all the information that relates to periodic service, conversions, and repairs that only trained service personnel can perform. Some of these activities may require appropriate facilities, technical skills, and/or tools that KONGSKILDE does not supply with the machine.

The manual contains the chapters as shown on the Contents pages. See the Index at the end of this manual to locate specific items about your KONGSKILDE machine.

Normal operation

Normal operation consists of the use of this machine for the purpose KONGSKILDE intends by an operator that:

- Is familiar with the machine and any mounted equipment or towed equipment
- Complies with the information on operation and safe practices as specified by KONGSKILDE in this manual and by the signs on the machine

Normal operation includes:

- Preparation and storage of the machine
- Addition and removal of ballast
- Connection and disconnection of mounted equipment and/or towed equipment
- Adjustment and configuration of the machine and equipment for the specific conditions of the job site, field, and/or crop
- Movement of components into and out of working positions

Routine service and maintenance

Routine service and maintenance consists of the daily activities necessary to maintain the proper machine function. The operator must:

- Be familiar with the machine characteristics
- Comply with the information on routine service and safe practices as specified by KONGSKILDE in this manual and by the signs on the machine

Routine service can include:

- Fueling
- Cleaning
- Washing
- Topping up fluid levels

- Greasing
- Replacing consumable items such as light bulbs

Periodic service, conversions, and repairs

Periodic service consists of activities that are necessary to maintain the expected life of the KONGSKILDE machine. These activities have defined intervals.

Trained service personnel familiar with the machine characteristics must perform these activities at the defined intervals. Trained service personnel must comply with the information on periodic service and safe practices as partly specified by KONGSKILDE in this manual and/or other company literature.

Periodic service includes:

- Oil change service for the engine, hydraulic circuits, or transmission
- Periodic exchange of other substances or components as required

Conversion activities rebuild the KONGSKILDE machine in a configuration that is appropriate for a specific job site, crop, and/or soil conditions (e.g., installation of dual wheels). Conversion activities must be done:

- By trained service personnel familiar with the machine characteristics
- By trained service personnel that comply with the information on conversion as partly specified by KONGSKILDE in this manual, assembly instructions, and/or other company literature

Repair activities restore proper function to a KONGSKILDE machine after a failure or degradation of performance. Dismantling activities occur during the scrapping and/or dismantling of the machine.

Trained service personnel familiar with the machine characteristics must perform these activities. Trained service personnel must comply with the information for repair as specified by KONGSKILDE in the service manual.

Before you operate

Read this manual before you start the engine or operate this KONGSKILDE machine. Contact your KONGSKILDE dealer if:

- You do not understand any information in this manual
- You need more information
- You need assistance

All persons training to operate, or who will operate this KONGSKILDE machine should be old enough to possess a valid local vehicle operating permit (or meet other applicable local age requirements). These persons

must demonstrate the ability to operate and service the KONGSKILDE machine in a correct and safe manner.

aging depending on the kind of shipment and the related procedure to assemble the received components.

Additional documents

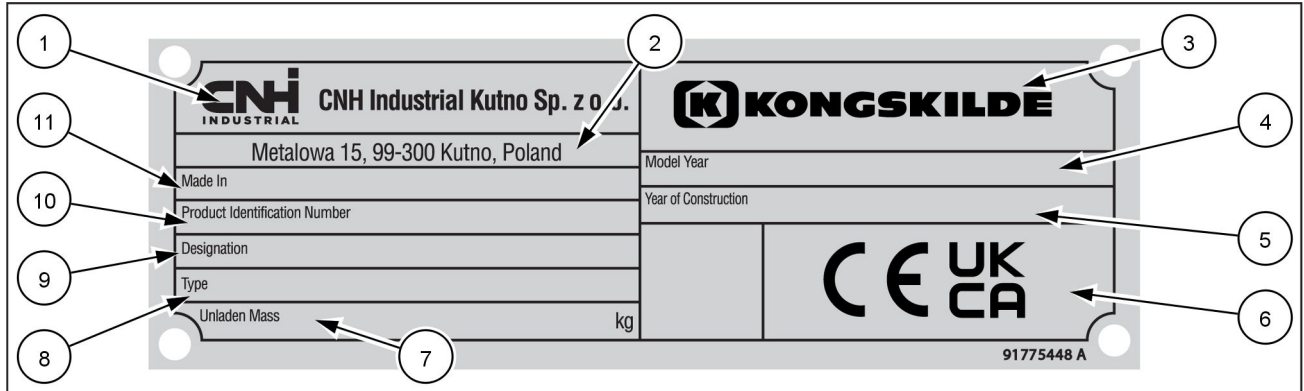
When required, the machine is delivered with an assembly instruction. The assembly instruction shows the pack-

Product Identification Number (PIN)

The Product Identification Number (PIN) is a serial number that identifies the implement.

The serial number, model and other specifications are on the PIN plate.

Provide your KONGSKILDE dealer with the model and the PIN when you order parts.



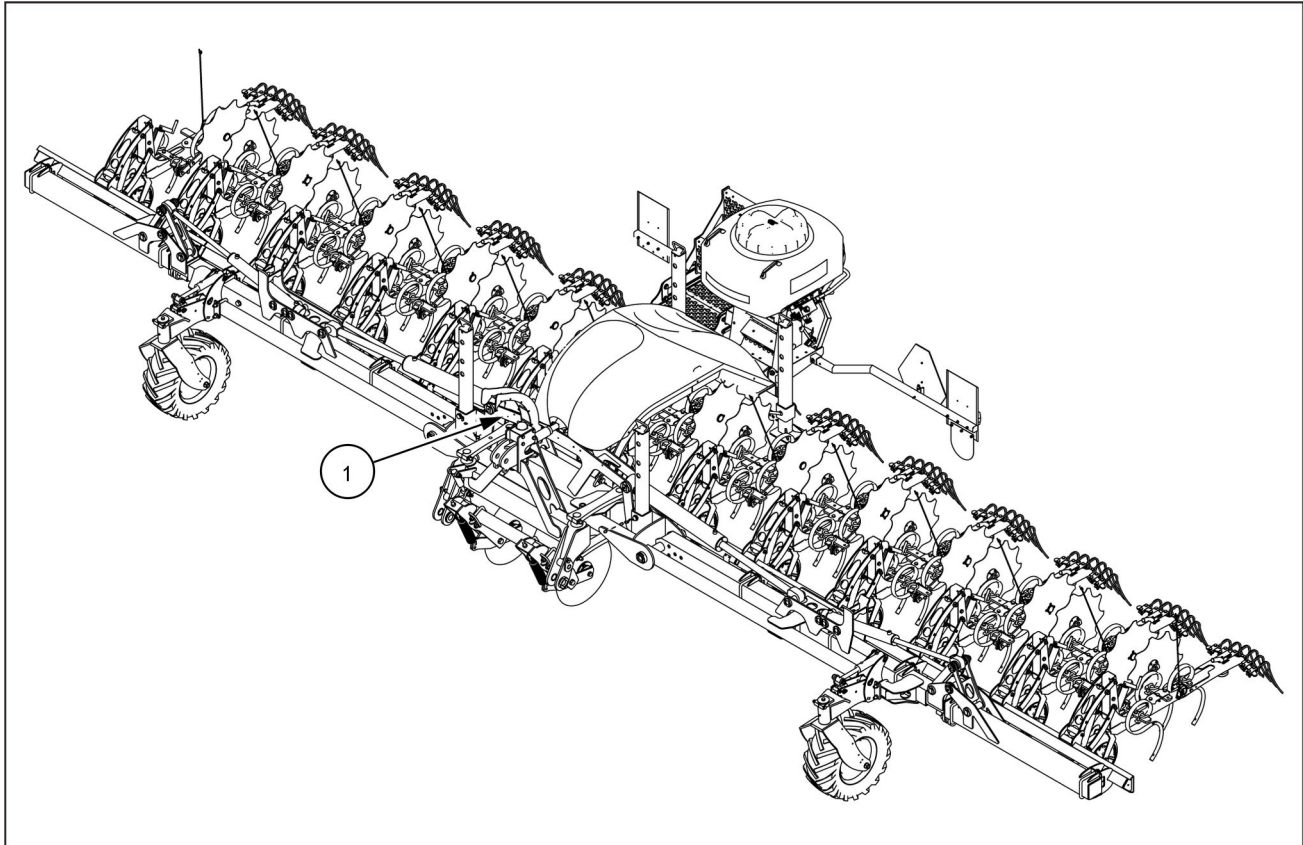
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- | | | | |
|------------|---------------------------|-------------|-------------------------------------|
| (1) | Company name | (7) | Unladen mass |
| (2) | Mailing address | (8) | Type / Variant |
| (3) | Brand identification logo | (9) | Designation |
| (4) | Model year | (10) | Product Identification Number (PIN) |
| (5) | Year of construction | (11) | Made in (country of origin) |
| (6) | Certification mark | | |

Product identification

NOTE: Do not remove or change the *Product Identification Number (PIN) plate (1)* on the implement.

The PIN plate **(1)** is on the front of the implement.



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For future reference, record your implement model and PIN in the spaces below.

Model

Product Identification Number (PIN)

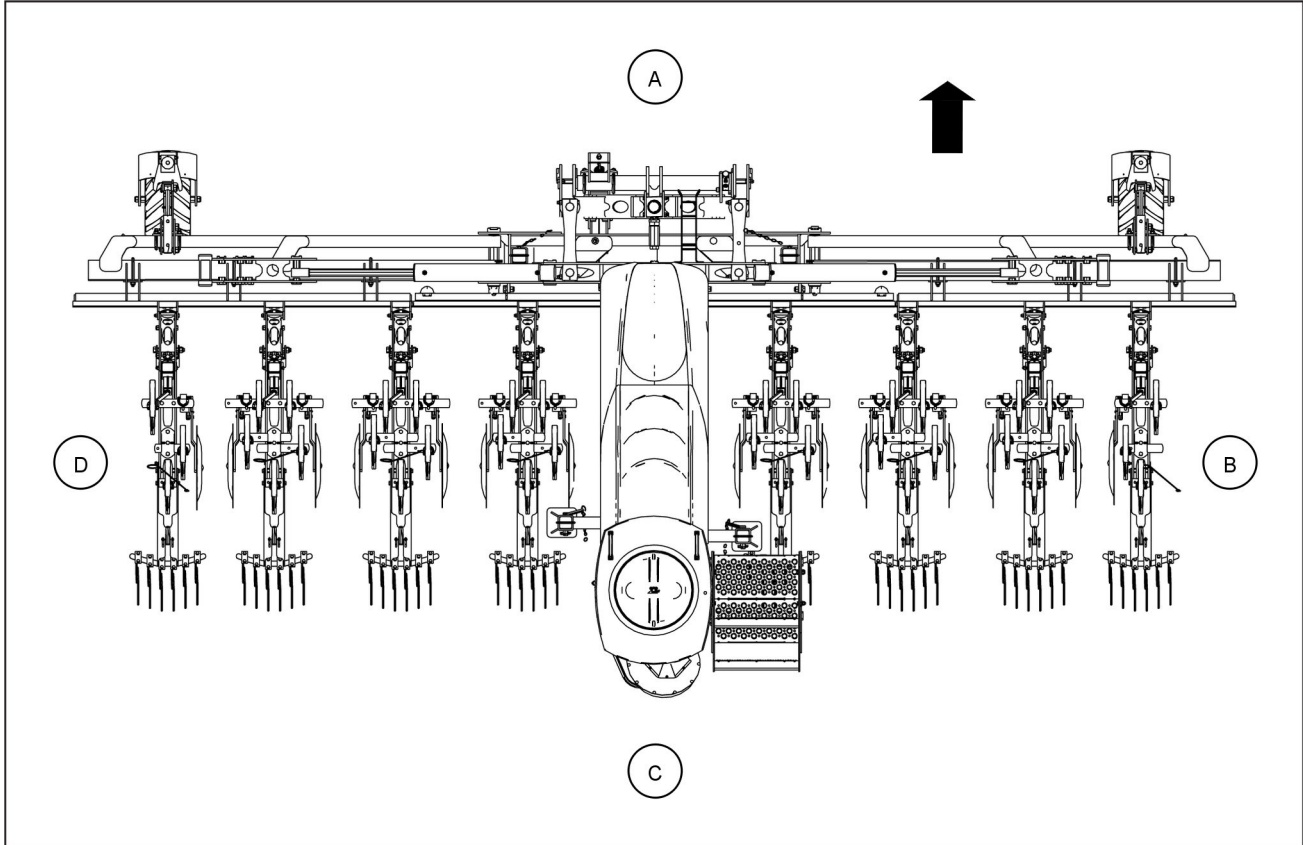
Operator's manual storage on the machine

Keep this operator's manual protected and accessible on the tractor whenever you transport or operate the implement.

Implement orientation

NOTE: To determine the left-hand side and the right-hand side of the implement, stand behind the implement and face the direction of travel during working operation.

The following overhead view illustration is a general representation of the implement. The illustration indicates the sides, front, and rear orientations of the implement as referred to throughout this operator's manual.



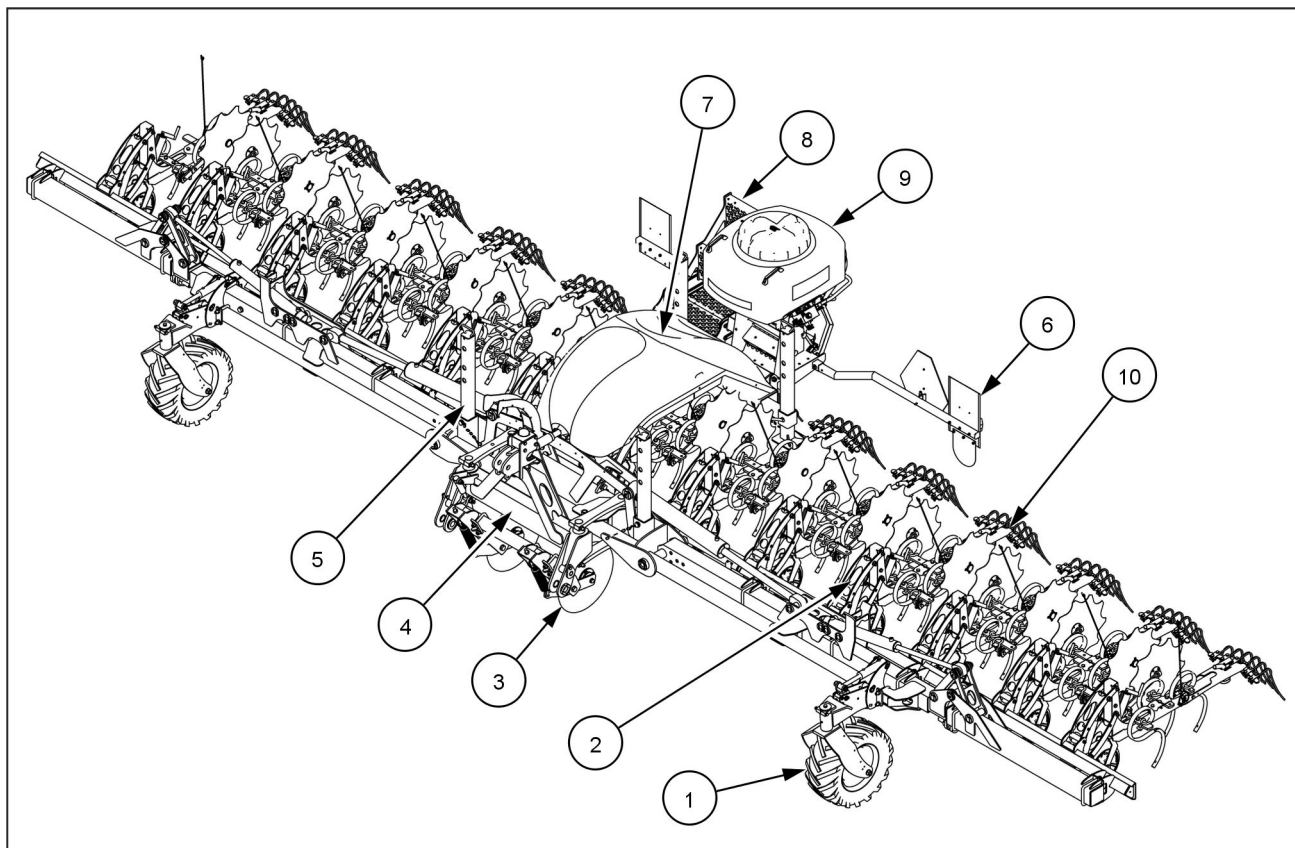
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NOTE: The arrow indicates the direction of the implement during working operation.

- (A) Front of the implement
- (B) Right-hand side of the implement
- (C) Rear of the implement
- (D) Left-hand side of the implement

Implement components

Vibro Crop Intelli



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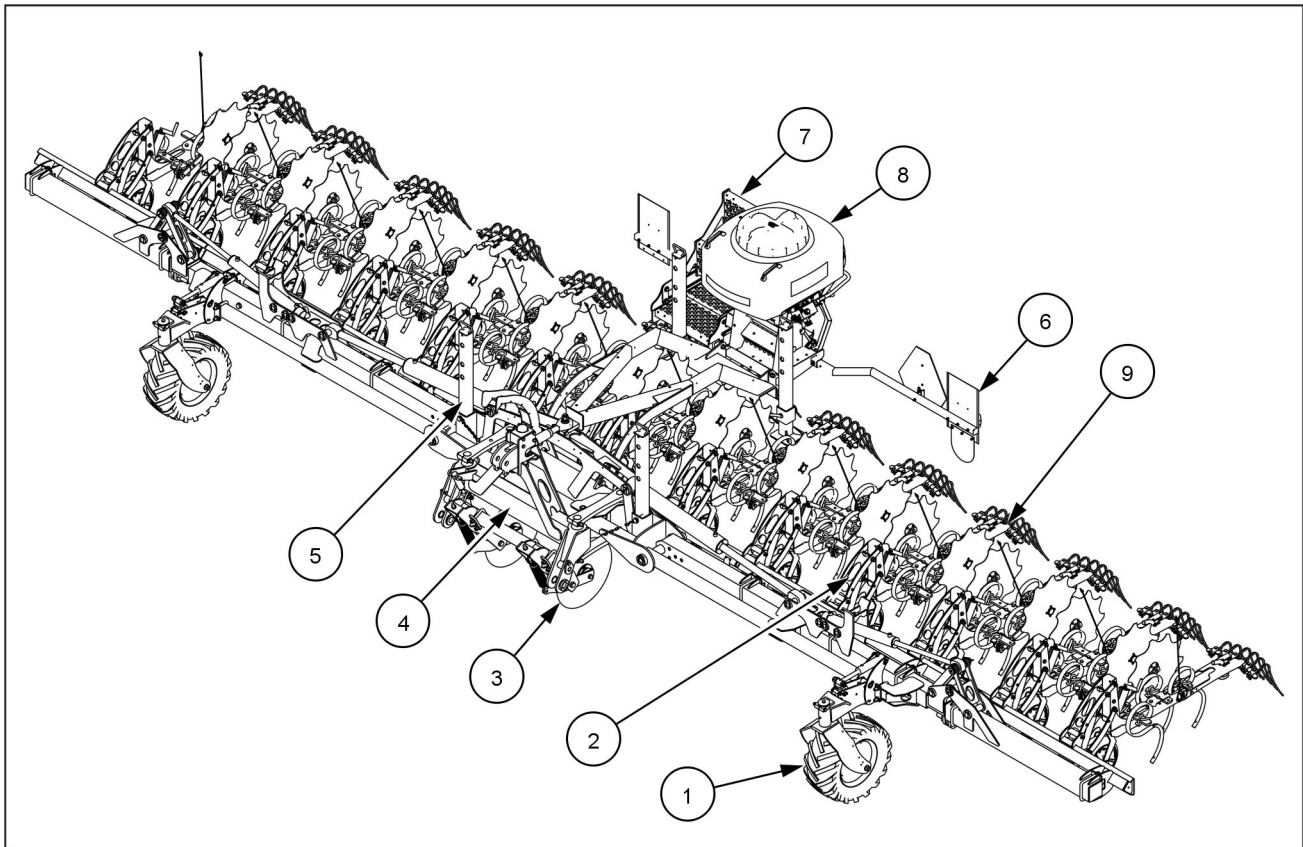
Standard equipment:

- (1) Support wheels
- (2) Working section
- (3) Stabilizing disc
- (4) Parallelogram side shift frame
- (5) Parking legs (front and rear)
- (6) Light set

Optional equipment:

- (7) Section control
- (8) Platform for seeder
- (9) Seeder (aftermarket equipment)
- (10) Rear harrow

Vibro Crop



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Standard equipment:

- (1) Main frame
- (2) Working section
- (3) Stabilizing disc
- (4) Parallelogram side shift frame
- (5) Parking legs (front and rear)
- (6) Light set

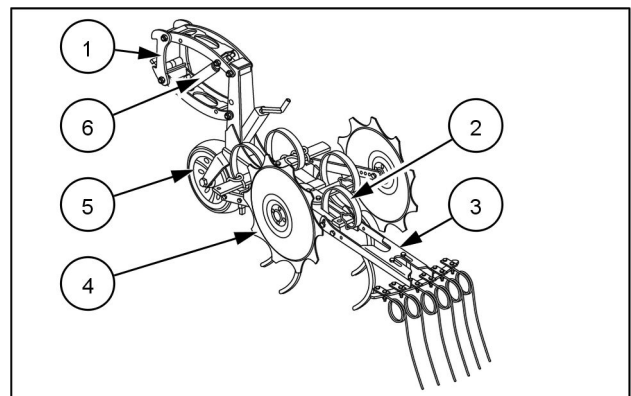
Optional equipment:

- (7) Platform for seeder
- (8) Seeder (aftermarket equipment)
- (9) Rear harrow

Structure of the working section

Working section:

- (1) Parallelogram
- (2) Vibro S tine or Vibro Crop tine
- (3) Rear harrow (optional equipment)
- (4) Rolling shield
- (5) Support wheel
- (6) Hydraulic cylinder for section control or simple lifting system



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2 - SAFETY INFORMATION

Safety rules and signal word definitions

Personal safety



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

 DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: Notice indicates a situation that, if not avoided, could result in machine or property damage.

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: Note indicates additional information that clarifies steps, procedures, or other information in this manual.

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

General recommendations

Most farm machinery accidents can be avoided by the observance of a few simple safety precautions.

- This operator's manual contains important information concerning operation, maintenance and adjustment of the implement. Furthermore, this operator's manual mentions and emphasizes all the safety instructions.
- Read the operator's manual thoroughly before you start, operate, service, or carry out any other operation on the implement. Even though you have been driving a similar implement before, you must read the manual. This is a matter of your own and other people safety. A few minutes reading will save you time and hassle later. Lack of knowledge can lead to accidents.
- In case of an accident, stop the tractor, turn off the engine and remove the key from the contact, assess the situation and call emergency services when required.
- Your implement was designed with safety in mind. However, there is no real substitute for caution and attention when you need to prevent an accident. Once an accident has occurred, it is too late to think about what you should have done. This means that it is very important that you as user of the implement pay attention and use the implement correctly and thereby avoid exposing yourself and others to unnecessary danger.
- The implement must be operated only by responsible persons who have been adequately trained and authorized to use the implement. Never leave the implement to others before you have made sure that they have the necessary knowledge to operate the implement safely.
- Never let the implement run without supervision.
- Always keep a first aid kit handy.
- The implement has only one operator station and this is the cab of the tractor, which is a one man operated implement. Never permit anyone to ride on or in an implement. Do not allow riders on the implement or tractor; do not allow people to stand on the ladder or steps. Your view to the left or right will be obstructed and a rider risks to fall from the implement or tractor during unforeseen or abrupt movements. There is no need for other people on or around the implement during normal operation.
- Do not use this implement as a lift, ladder or platform to work at heights.
- Before you work on the implement, disengage all drives, stop the engine and remove the ignition key. Wait for the rotating parts to run down.
- Never work around the implement with loose clothing, jewelry, watches, long hair and other loose or hanging items can be pulled in by the moving parts of the implement.

Illustrations

WARNING

Illustrations in this manual may show protective shielding open or removed to better illustrate a particular feature or adjustment.
Replace all shields before operating the machine.
Failure to comply could result in death or serious injury.

W0012A

NOTE: Some of the illustrations in this manual have been obtained by photographing prototypes. Standard production machines may differ in some details.

Local obligations

Your machine may be equipped with special guarding or other devices in compliance with local legislation. Some of these require active action by the operator.

Therefore, check local legislation on the usage of this machine.

Fire or explosion prevention

1. Crop material, trash, debris, bird nests or flammable material can ignite on hot surfaces.
2. Inspect the electrical system for loose connections or frayed insulation. Repair or replace loose or damaged parts.
3. Do not store oily rags or other flammable material on the implement.
4. Do not weld or flame cut any items that contain flammable material. Clean items thoroughly with non-flammable solvent before you weld or cut with a flame.
5. Do not expose the implement to flames, burning brush or explosives.
6. Promptly investigate any unusual smells or odors that may occur during the operation of the implement.

Hazardous chemicals

1. If you are exposed to or come in contact with hazardous chemicals you can be seriously injured. The fluids, lubricants, paints, adhesives, coolant, etcetera. required for the function of your machine can be hazardous. They may be attractive and harmful to domestic animals as well as humans.
2. Material Safety Data Sheets (MSDS) provide information about the chemical substances within a product, safe handling and storage procedures, first aid measures and procedures to be taken in the event of a spill or accidental release. MSDS are available from your dealer.
3. Before you service your machine check the MSDS for each lubricant, fluid, etcetera. used in this machine. This information indicates the associated risks and will help you service the machine safely. Follow the information in the MSDS, on manufacturer containers, as well as the information in this manual when you service the machine.
4. Dispose of all fluids, filters and containers in an environmentally safe manner in accordance with local laws and regulations. Check with local environmental and recycling centers or your dealer for correct disposal information.
5. Store fluids and filter in accordance with local laws and regulations. Use only appropriate containers for the storage of chemicals or petrochemical substances.
6. Keep out of reach of children or other unauthorized persons.
7. Additional precautions are required for applied chemicals. Obtain complete information from the manufacturer or distributor of the chemicals before you use them.

Starting up the implement safely

Before you attach the implement to the tractor, ensure that the tractor is in good working order and that the brakes are efficient, particularly if you operate on hilly ground. Also, ensure that the hydraulic or pneumatic system is compatible with that of the implement.

When you attach the implement to the tractor:

- Never allow anyone to stand between the tractor and the implement. An unintentional maneuver with the tractor may cause serious injury.
- Never go under an unsupported implement.
- Before you start the implement, learn all components of the implement and service equipment.
- Before you start the implement, make sure that all sub-assemblies are fully operational and complete. Pay particular attention to all locks and safety devices.
- Before you start the implement, repair or replace all malfunctioning elements with new ones.
- Never start the tractor until all persons are safely away from the tractor and the implement.
- Make sure that all tools have been removed from the implement before starting the tractor.
- Make sure that all spare part and moving equipment are intact and have been mounted correctly.
- Do not stand near the implement while it is working.

Traveling on public roads

Comply with the relevant traffic regulations

WARNING

Loss of control hazard!
Uneven brake force exists on left-hand and right-hand brakes. Always use brake pedal coupler when traveling on public roads to ensure brakes are actuated together.
Failure to comply could result in death or serious injury.

W0081A

WARNING

Impact hazard!
Take care when making turns. The machine rear end swings out when changing direction.
Failure to comply could result in death or serious injury.

W0089A

The implement is built according to the homologation requirements of your country. Do not modify the implement in a sense that would conflict with the national regulations.

If you wish to transport the implement on the public road, make sure that the combination tractor and implement observes the traffic rules in your country. This gives you and your surroundings the best possible safety.

The operators must observe relevant statutory or other national regulations that deal with road safety and labor safety issues.

Before you drive the implement on public roads:

- Check the allowable transport dimensions and weights.
- Install correctly the lighting and the warning panels.

Always observe the principles for permissible axle loads, the total unit mass and the transport gauge.

Observe the tractor manufacturer regulations and recommendations, specifically those relating to maximum transport loads and maximum speed.

Even in similar circumstances, the maximum allowed speed can vary depending on which country you travel in.

Always drive with the statutory lights and safety marking during transport on public road and at night.

Install all the required signs that indicate the vehicle width. Also install all the required lights that indicate the vehicle width during the nightly transport. If in doubt, contact your government department responsible for road transport.

Travel may be restricted to certain road types. Transport may be restricted to daytime or outside peak traffic hours. However plan your route to avoid heavy traffic and peak traffic hours.

Passengers

Do not allow passengers to ride in the tractor unless a specific seat is provided.

During transport, the transportation of people on the top of the implement is strictly forbidden.

Transport safety

Transport the implement only in transport position. Secure the implement for transport. Always activate the mechanical transport safety devices before transport.

Make sure to fit all the hitch pins with retaining pins correctly. Mechanically secure the hydraulic cylinders to prevent cylinders from creeping.

Drive safe

Do not drive under the influence of alcohol or drugs.

Never travel at speed in crowded areas.

When you maneuver the tractor with the implement, always be aware and conscious of its size.

The tractor driver must not leave the cabin during transport.

Always consider other road users.

Always adopt safe driving practices. Slow down and signal before turning. Give way to oncoming traffic in all situations, including narrow bridges, intersections etcetera. Pull over to allow faster traffic to pass.

If the implement is marked with a maximum speed limit, never exceed this maximum speed limit.

Always adjust the driving speed to the road and weather conditions. In case of bad road conditions and high driving speeds, big forces may occur and cause overload of tractor and implement.

Drive at a safe speed to ensure control and ability to stop in an emergency.

Lock the tractor brake pedals together. Never use independent breaking at transport speeds.

Mounted implements and ballast weights influence the driving, steering and braking capacity of the tractor. Make sure that the additional weight of the implement on the linkage does not compromise driving, steering and braking capacity of the tractor. Install front weights or repair the brakes if the tractor is not safe to drive.

Reduce speed during turns. Tractors have not been designed for fast turning. Avoid that the rear end of the implement hits an obstacle.

When you turn during transport pay attention to the overhang and/or oscillating weight of the implement.

Use engine braking when you drive down hills. Do not coast.

Watch for obstructions, particularly if over-width. Observe any load ratings applicable on bridges.

After you finish the transport, before you leave the tractor, always lower the implement to the ground in parking position, turn off the tractor engine, pull the parking brake, and remove the key from the ignition.

Operating the implement safely

WARNING

Roll-over hazard!

Special care is required when operating the machine on slopes or in a tilted position. A wrong maneuver or unexpected event could create a dangerous situation.

Failure to comply could result in death or serious injury.

W0207A

WARNING

Hazard to bystanders!

Always sound the horn before starting the machine. Make sure the work area is clear of other persons, domestic animals, tools, etc. before you operate the machine. Never allow anyone in the work area during machine operation.

Failure to comply could result in death or serious injury.

W0304A

NOTE: Only put the implement into operation according to the instructions from the dealer.

Never operate the implement under the influence of alcohol, drugs, or while otherwise impaired.

Before you operate the implement, familiarize yourself with all facilities and operating elements. Once an accident happens it is too late to think about what you did.

Examine the work surface for hidden obstacles. Obstacles pose a risk.

Keep people away from the implement during operation. Ask bystanders to leave the field. There is the risk for bystanders to be overrun by the implement. Stop the implement immediately if someone approaches.

The tractor or its implement may strike or crush against a person or pet within the operator area of the tractor. Do not allow anyone to enter the work area. Make sure that the area is clear and operation is safe before you move the implement.

Before you raise or lower the implement, check that nobody is near the implement or touches the implement.

When you operate the implement, always remain seated in the tractor cab. Operate controls only when seated in the tractor seat, except for those controls expressly intended for use from other locations.

The transportation of people on top of the implement is strictly forbidden at all times.

Avoid using the implement in unsuitable weather conditions. It is better to stop work temporarily rather than to operate in such conditions.

Do not operate the implement during a thunderstorm. If you are on the ground during a thunderstorm, stay away from machinery and equipment. Seek shelter in a permanent, protected structure.

If a lightning from a thunderstorm should strike during operation, remain in the tractor cab. Do not leave the cab. Do not make contact with the ground or objects outside the machine.

Always operate the implement at a safe speed in accordance with the ground conditions. On uneven ground, proceed with the utmost caution to ensure proper stability.

When you turn on hillsides always be careful. Adjust the speed to these conditions.

Drive in a low tractor gear if you work on hillsides.

When you drive up and down and across hillsides, avoid sharp turns.

When you turn during operation, pay attention to the overhang and/or oscillating weight of the implement.

Avoid changing direction abruptly, avoid dangerous pitching of the implement.

Pay the necessary attention while you operate next to public roads or footpaths.

Danger of death by electrocution!

Pay special attention to the overhead power lines. Always ask the owner of the field about the presence of overhead power lines. Make sure the implement has sufficient clearance to pass in all directions (also with raised or opened implement components). Also think of the radio aerial(s) or any other accessory or parts which may have been added afterwards.

High voltage lines may require significant clearance for safety. Contact local authorities or utilities to obtain safe clearance distances from high voltage power lines.

Should a contact between the implement and an electric power line occur, then the following precautions must be taken: Stop the implement movement immediately, stop the tractor engine and apply the tractor handbrake.

Check if you can safely leave the cab or your actual position without direct contact with electric wires. If not, stay in your position and call for help. If you can leave your position without touching the lines, jump off the last step or support position and make sure that there is no contact between any part of your body, the tractor and the ground at the same time. Never touch the tractor or the implement afterwards until power to the lines has been shut off. When people approach the tractor or the implement, warn them not to touch the tractor or the implement but to ask the electric power supply company to shut off the power to the lines.

Maintenance

WARNING

Maintenance hazard!

Before you start servicing the machine, attach a DO NOT OPERATE warning tag to the machine in a visible area.

Failure to comply could result in death or serious injury.

W0004A

- Follow the maintenance schedule with regard to the implement servicing intervals.
Remember that the implement requires attention from time to time. Also remember that the maintenance will greatly extend the life of the implement.
 - Take the necessary precautions: not to spill any oil, fuel or grease.
To avoid oil and grease contact with your skin, wear protective gloves.
 - Service the implement on a firm level surface.
 - Do not attempt to remove material from any part of the implement, clean, lubricate or carry out any adjustments on the implement while it is in use.
 - Keep hands, feet and/or garments away from parts which move.
 - Raised implement and/or loads can fall unexpectedly and crush persons underneath. Never enter or allow anyone to enter the area underneath raised implement during operation.
Unsupported hydraulic cylinders can lose pressure and drop the implement and cause a crushing hazard. Do not leave the implement in a raised position while parked or during service, unless securely blocked on wooden blocks.
 - Never work under a raised implement unless a support chain or other mechanical securing device secure the link arms of the tractor so that the implement cannot move to a lower position unintentionally.
 - Relieve the pressure, stop the engine and remove the ignition key, before you connect or disconnect fluid lines.
 - Before you adjust, clean, lubricate or you carry out repairs on the implement, stop the engine and remove the ignition key.
 - Any leakage of hydraulic oil or fuel under pressure may cause severe harm, so always use a shield, goggles and gloves when you trace oil or fuel leaks.
- Do not use your hand to check for leaks. Use a piece of cardboard or paper.
 - Continuous long term contact with hydraulic fluid may cause skin cancer. Avoid long term contact and wash the skin promptly with soap and water.
 - If hydraulic fluid or diesel penetrates the skin, seek medical care immediately.
 - Observe all recommendations that are mentioned in this manual such as service intervals, torques, lubricants, etcetera.
 - Always replace all parts that have damage or wear.
 - Never build flexible hose assemblies from hoses that were previously part of a hose assembly.
 - Never weld to the tubes.
 - Always use gloves when you work with parts on the implement as the parts can have sharp edges.
 - Transmission and hydraulic lines may become hot during operation. Be careful when you service such components. Allow surfaces to cool before you handle or disconnect hot components. Wear protective equipment when required.
 - Make sure that tires are correctly inflated. Do not exceed any recommended load or pressure. Over pressure could cause explosion hazard, with risk of death or serious injury. Follow the instructions in the manual for proper tire inflation
 - Tires are heavy. Always handle the tires with proper equipment. Failure to comply could cause death or serious injury.
 - Never weld on a wheel with a tire installed. Always remove the tire completely from the wheel before you weld.
 - Always have a qualified tire technician service the tires and wheels. If a tire has lost all pressure, take the tire and wheel to a tire shop or your dealer for service. Explosive separation of the tire can cause serious injury.
 - Do not weld to a wheel or rim until the tire is completely removed. Inflated tires can generate a gas mixture with the air that can be ignited by high temperatures from welding procedures performed on the wheel or rim. Removing the air or loosening the tire on the rim (breaking the bead) will not eliminate the hazard. This condition can exist whether tires are inflated or deflated. The tire must be completely removed from the wheel or rim prior to welding the wheel or rim.

Personal protective equipment (PPE)

Wear Personal Protective Equipment (PPE) such as protective clothing, eye protection, hearing protection, dust mask, hard hat, heavy gloves, work boots, and/or any other PPE that provides for the safety and protection of the individual that operates this equipment.



NHIL13RB00001AA 1

Safety requirements for fluid power systems and components - hydraulic systems

Before you start the engine or pressurize the hydraulic system, install and tight correctly all the hydraulic couplings. Check that all hoses and fittings are undamaged. Replace immediately damaged components.

Only connect the hydraulic hoses to the tractor outlets if the tractor and the implement are pressure-free. If the hydraulics of the tractor is activated it may lead to uncontrolled movements which may cause secondary damage.

Make sure that no persons are near the implement when you start the implement, as there might be air in the hydraulic system which might lead to sudden movements.

When the tractor engine has stopped, activate the tractor hydraulic spool valves to make sure that there is no pressure in the hydraulic hoses.

To expel all the air from the oil in the hydraulic cylinders, test all the functions after you connect the hydraulic connections to the tractor, especially before you enter or drive on the public roads. Otherwise you risk that the cutting unit suddenly moves downward after you have dismantled the transport lock

Noise emission

The measuring and reporting of the noise level were carried out according to EN ISO 3746: 2005.

The noise emissions for the implement equipped with the seeder are:

1. LPA emission pressure level = maximum **103 dB** with an uncertainty of **2 dB**.
2. LWA emission pressure level = **109 dB** with an uncertainty of **2 dB**.

Use hearing protectors if the noise from the implement is annoying or if you work with the implement for a considerable period in a tractor cabin that has not a adequate soundproof cabin.

Implement stability

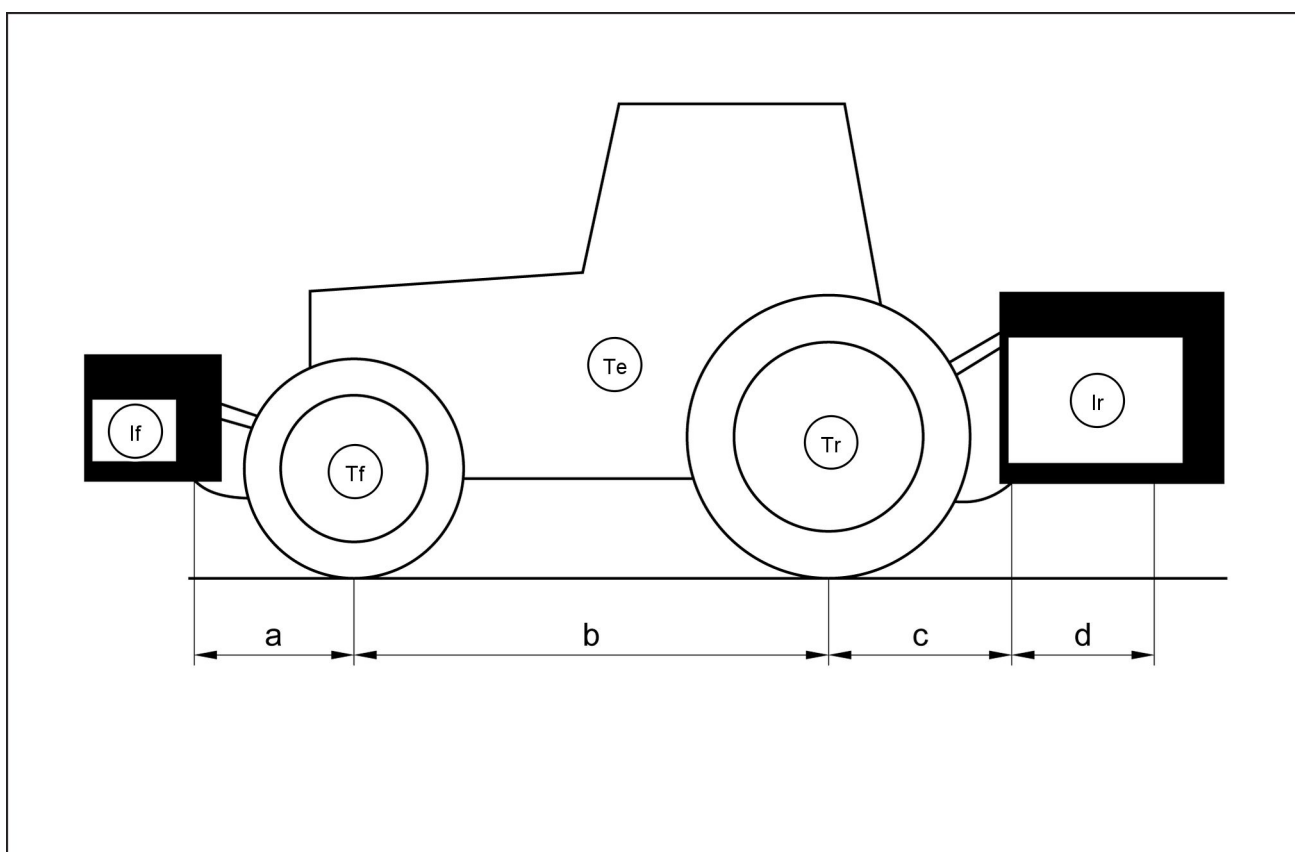
The combination of your tractor and implement can become unstable, due to the additional weight that the implement adds to the tractor.

In order to guarantee stable and safe transport, you must check if you need ballast weights for transport and field work.

You must also check and guarantee that you have at least **20%** from the tractor weight on the front axle.

For rear mounted implements and front-rear combinations, the formula is:

$$I_{f,min} = \frac{[I_r \times (c + d)] - (T_f \times b) + (0,2 \times T_e \times b)}{a + b}$$



ZEIL18HT00277FA 1

Example of references to stability of the combination tractor – implement

List of signs

T_e [kg]	The tractor own weight.
T_f [kg]	Front axle load with empty tractor.
T_r [kg]	Rear axle load with empty tractor.
I_r [kg]	Total weight of the rear-mounted implement/rear ballast.
I_f [kg]	Total weight of the front-mounted implement/front ballast.
a [m]	Distance between the center of gravity of the front-mounted implement/front ballast and the middle of the front axle.
b [m]	The tractor wheel distance.
c [m]	Distance between the middle of the rear axle and the middle of the link arm balls.
d [m]	Distance between the middle of the link arm balls and the center of gravity of the rear mounted implement/rear ballast.

Ecology and the environment

Soil, air, and water quality is important for all industries and life in general. When legislation does not yet rule the treatment of some of the substances that advanced technology requires, sound judgment should govern the use and disposal of products of a chemical and petrochemical nature.

Familiarize yourself with the relative legislation applicable to your country, and make sure that you understand this legislation. Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, anti-freeze, cleaning agents, etc., with regard to the effect of these substances on man and nature and how to safely store, use, and dispose of these substances. Your KONGSKILDE dealer can also provide assistance.

Helpful hints

- Avoid the use of cans or other inappropriate pressurized fuel delivery systems to fill tanks. Such delivery systems may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of these products contain substances that may be harmful to your health.
- Modern oils contain additives. Do not burn contaminated fuels and or waste oils in ordinary heating systems.
- Avoid spillage when you drain fluids such as used engine coolant mixtures, engine oil, hydraulic fluid, brake fluid, etc. Do not mix drained brake fluids or fuels with lubricants. Store all drained fluids safely until you can dispose of the fluids in a proper way that complies with all local legislation and available resources.
- Do not allow coolant mixtures to get into the soil. Collect and dispose of coolant mixtures properly.
- Do not open the air-conditioning system yourself. It contains gases that should not be released into the atmosphere. Your KONGSKILDE dealer or air-conditioning specialist has a special extractor for this purpose and can recharge the system properly.
- Repair any leaks or defects in the engine cooling system or hydraulic system immediately.
- Do not increase the pressure in a pressurized circuit as this may lead to a component failure.

Battery recycling

Batteries and electric accumulators contain several substances that can have a harmful effect on the environment if the batteries are not properly recycled after use. Improper disposal of batteries can contaminate the soil, groundwater, and waterways. KONGSKILDE strongly recommends that you return all used batteries to a KONGSKILDE dealer, who will dispose of the used batteries or recycle the used batteries properly. In some countries, this is a legal requirement.



NHIL14GEN0038AA 1

Mandatory battery recycling

NOTE: The following requirements are mandatory in Brazil.

Batteries are made of lead plates and a sulfuric acid solution. Because batteries contain heavy metals such as lead, CONAMA Resolution 401/2008 as amended by CONAMA Resolution 424/2010 requires you to return all used batteries to the battery dealer when you replace any batteries. Do not dispose of batteries in your household garbage.

Points of sale are obliged to:

- Accept the return of your used batteries
- Store the returned batteries in a suitable location
- Send the returned batteries to the battery manufacturer for recycling

Safety signs

The following safety signs are on your implement as a guide for your safety and for the safety of those who work with you.

Walk around the implement and note the content and location of all safety signs before you operate your implement. Read all the safety decals adhered to the implement and follow the instructions.

Keep all safety signs clean and legible. Clean safety signs with a soft cloth, water, and a gentle detergent.

NOTICE: Do not use solvent, gasoline, or other harsh chemicals. Solvents, gasoline, and other harsh chemicals may damage or remove the safety signs.

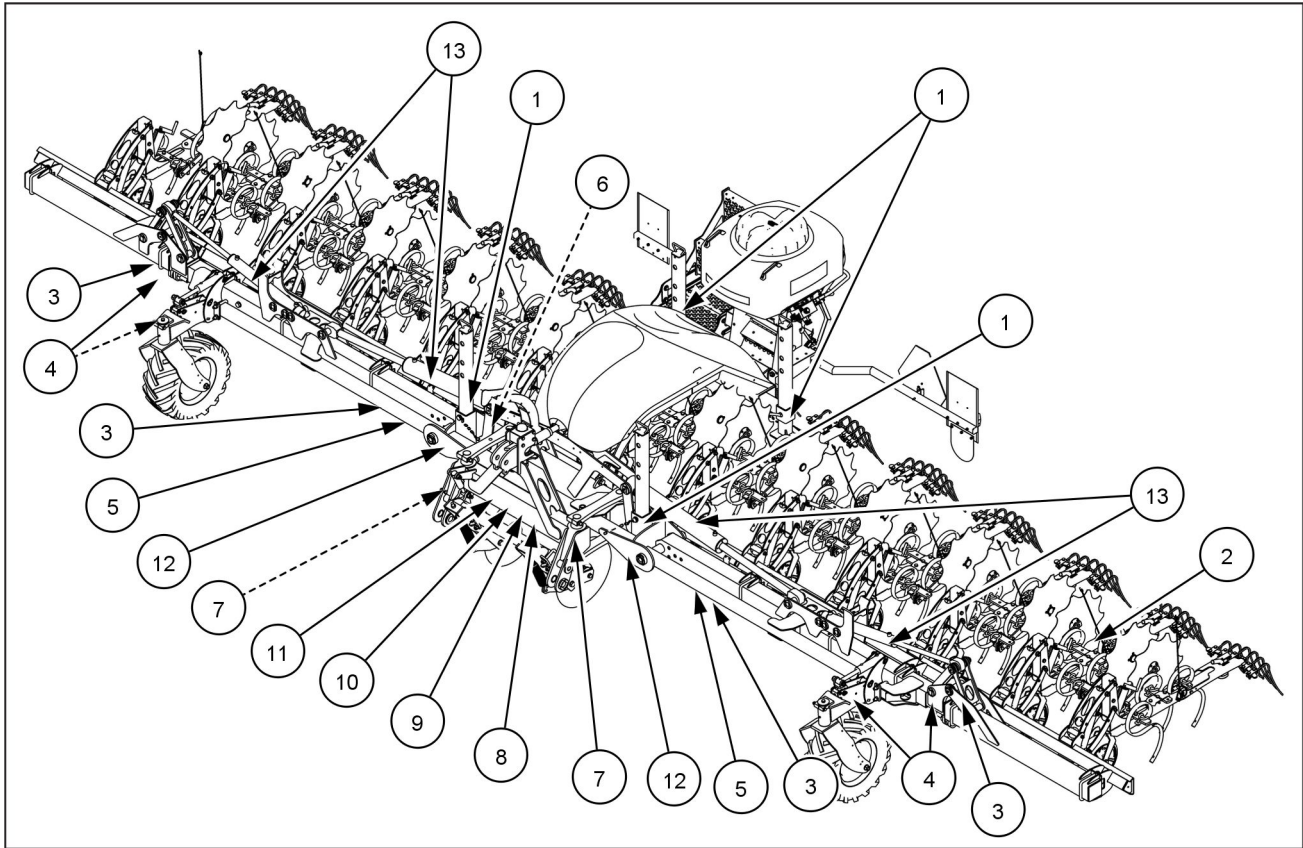
Replace all safety signs that are damaged, missing, painted over, or illegible. If a safety sign is on a part that you or your dealer replaces, make sure that you or your dealer install the safety sign on the new part. Contact your dealer for the replacement of the safety signs.

Safety signs that display the “Read operator’s manual” symbol direct you to the operator’s manual for further information regarding maintenance, adjustments, or procedures for particular areas of the implement. When a safety sign displays this symbol, consult the appropriate page of the operator’s manual.



Safety signs that display the “Read service manual” symbol direct you to the service manual. If you doubt your ability to perform service operations, contact your dealer.





ZEIL19TIL0205FA 1

Safety sign (1)

⚠ WARNING

Crushing hazard!

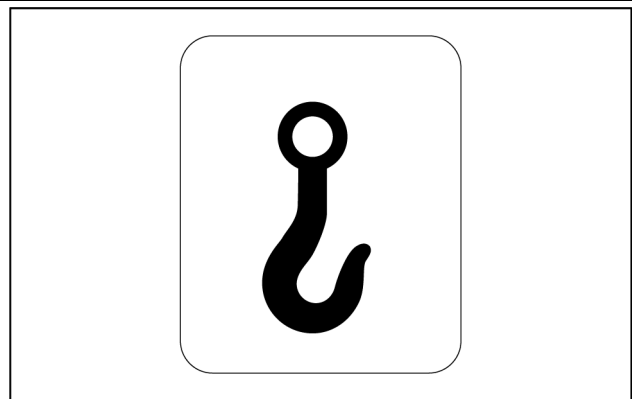
Use the machine lifting points when you lift and/or move the machine with heavy handling equipment. Lift the machine only from the indicated lifting eye hookup points. Always use adequate lifting equipment.

Failure to comply could result in death or serious injury.

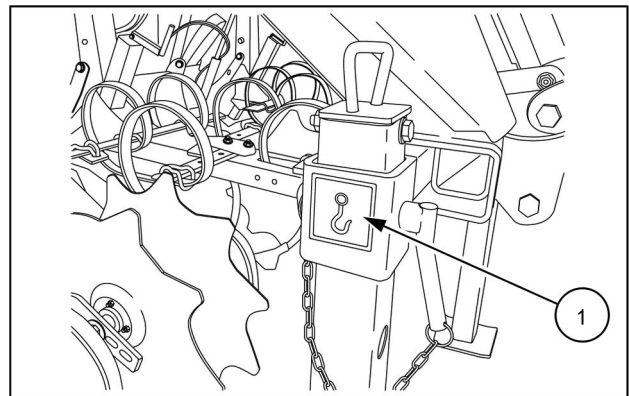
W1432B

Part number: 74000666103

Located on the four jacks.



74000666103 2



ZEIL22TIL0192AA 3

Safety sign (2)

Keep hands away.

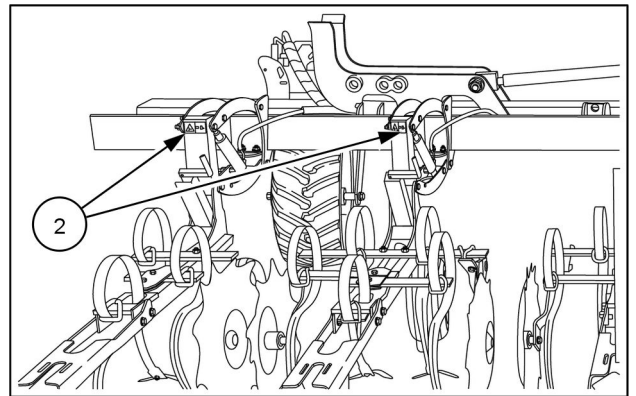
Never move your hand into the danger zone as long as the parts can move. The hazard could result in death or serious injury.

Part number: 7002152848



7002152848 4

Located on each working section.



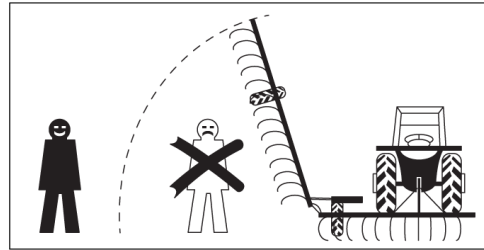
ZEIL22TIL0194AA 5

Safety sign (3)

Do not stand near the implement during lowering or leveling the implement.

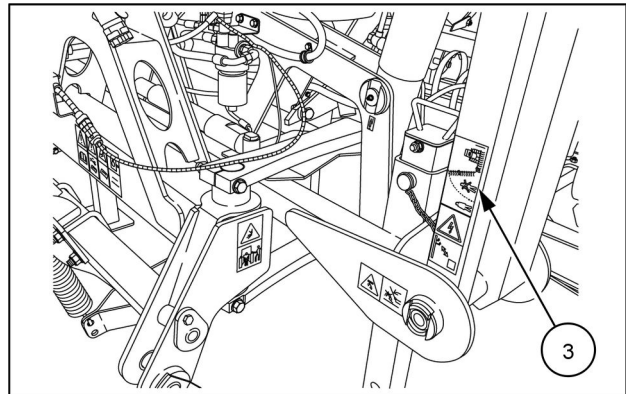
Do not stand between the tractor and the implement or underneath the implement when operating the equipment. It may cause serious injuries.

Part number: 101000336

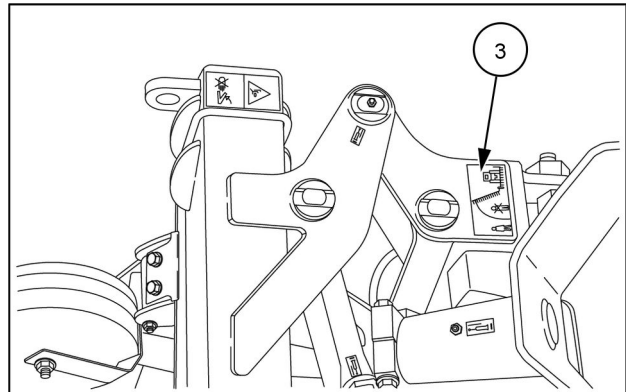


101000336 6

Located on front side of each wings.



ZEIL22TIL0189AA 7



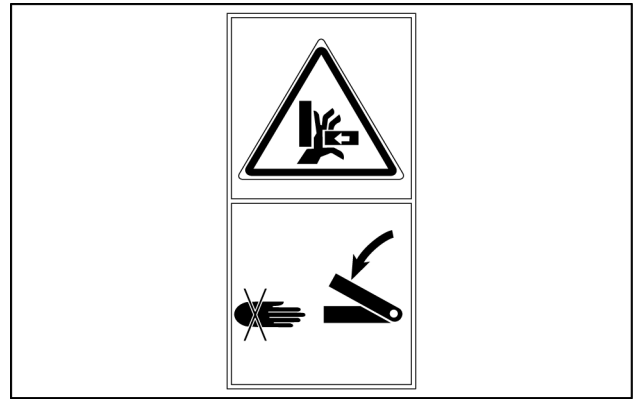
ZEIL22TIL0193AA 8

Safety sign (4)

Keep hands away.

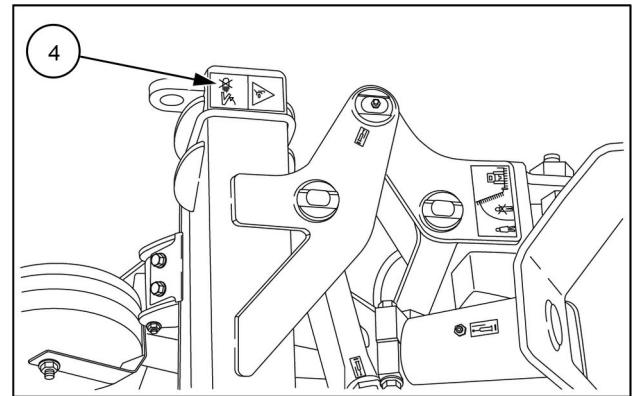
Never move your hand into the danger zone as long as the parts can move. The hazard could result in death or serious injury.

Part number: 71000629549



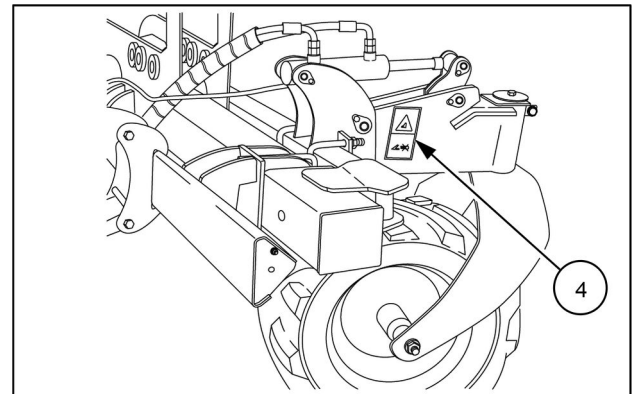
71000629549 9

Located on the front side of the wings.



ZEIL22TIL0193AA 10

Located on the front wheels support.



ZEIL22TIL0197AA 11

Safety sign (5)

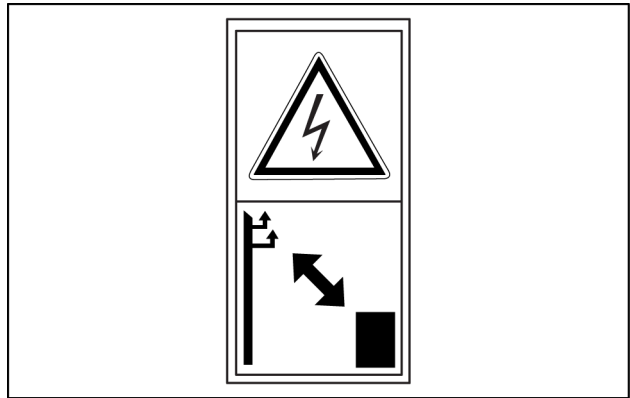
⚠ WARNING

Electrocution hazard!

Contact with overhead power lines can cause severe electrical burns or death from electrocution. Make sure there is enough clearance between equipment and overhead power lines. Failure to comply could result in death or serious injury.

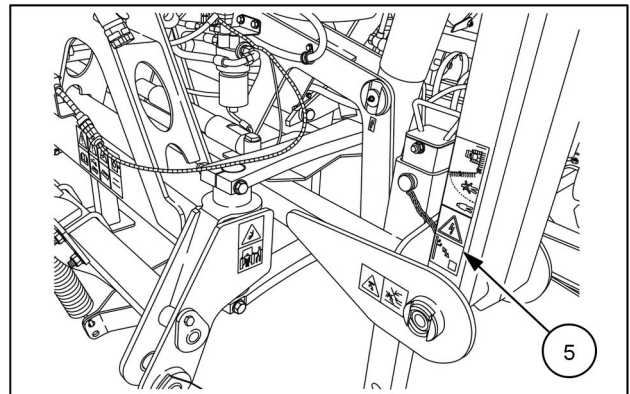
W0040A

Part number: 301010038



303021278 12

Located on the front side of the wings.



ZEIL22TIL0189AA 13

Safety sign (6)

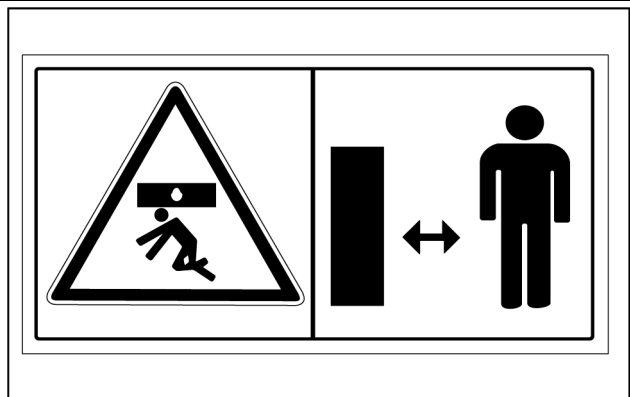
Keep away.

There is a danger that you can be crushed by lowering the implement elements.

The danger may cause severe injuries to the entire body.

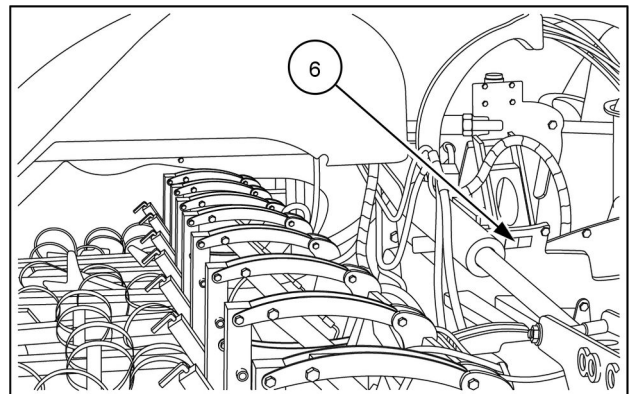
Keep clear of the implement's danger zone and pay attention to all other people standing next to the implement.

Part number: 330600020



ZEIL20TIL0005AA 14

Located on the right-hand side of the parallelogram side shift frame.



ZEIL22TIL0196AA 15

Safety sign (7)

A hazard of your body being crushed when standing between the tractor and the implement to be connected.

The hazard could result in death or serious injury.

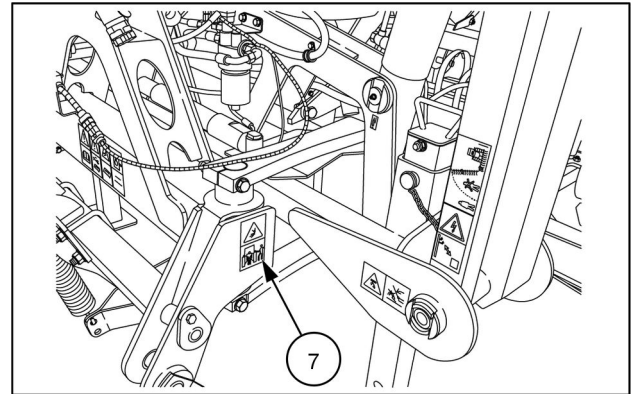
When connecting the implement to a tractor, standing in between the implement and the tractor with the tractor engine running and the tractor not secured against accidental rolling is strictly prohibited.

Part number: 300007974



300007974 16

Located on both sides of the parallelogram side shift frame.

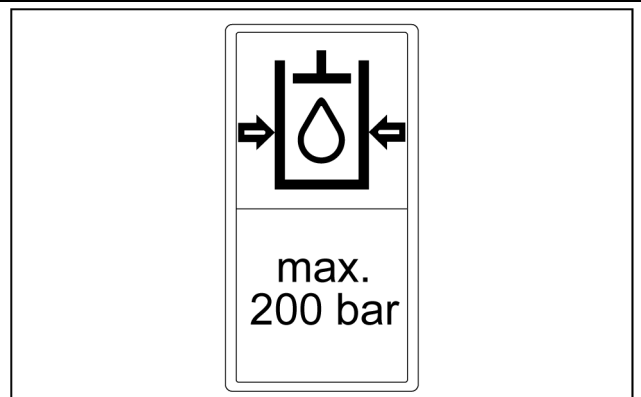


ZEIL22TIL0189AA 17

Safety sign (8)

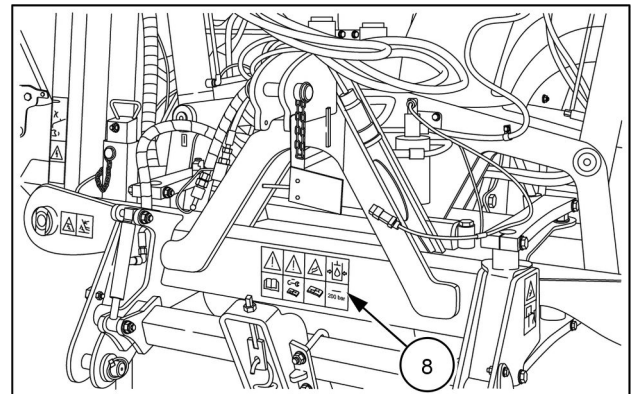
Maximum working pressure of the hydraulic system:
200 bar (2900 psi)

Part number: 300007977



300007977 18

Located on the front of the parallelogram side shift frame.



ZEIL22TIL0190AA 19

Safety sign (9)

Avoid pressurized outflowing of liquid.

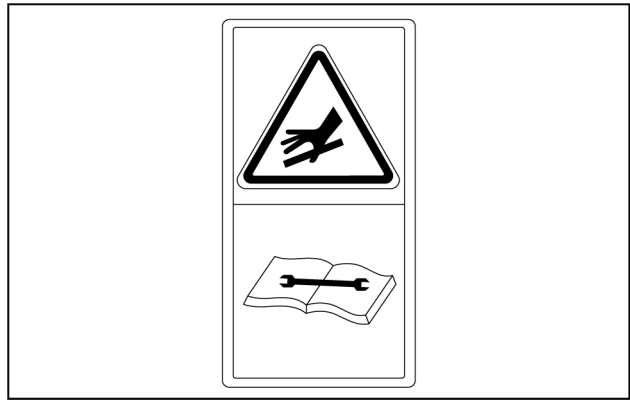
Danger generated by hydraulic oil out flowing under pressure.

The danger may cause severe injuries to the entire body, with possible lethal effect.

Before proceeding to maintenance procedures or repairs of the hydraulic system, make sure the system is depressurized.

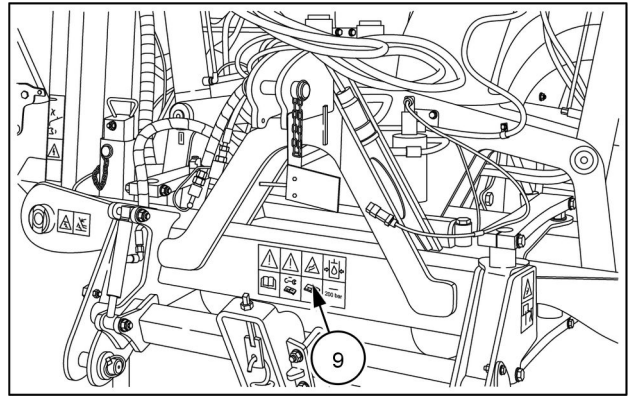
Do not try to seal hydraulic oil leaks using your hands or fingers.

Part number: 300007973



300007973 20

Located on the front of the parallelogram side shift frame.



ZEIL22TIL0190AA 21

Safety sign (10)**⚠ WARNING**

Avoid injury! Always do the following before lubricating, maintaining, or servicing the machine.

1. Disengage all drives.
2. Engage parking brake.
3. Lower all attachments to the ground, or raise and engage all safety locks.
4. Shut off engine.
5. Remove key from key switch.
6. Switch off battery key, if installed.
7. Wait for all machine movement to stop.

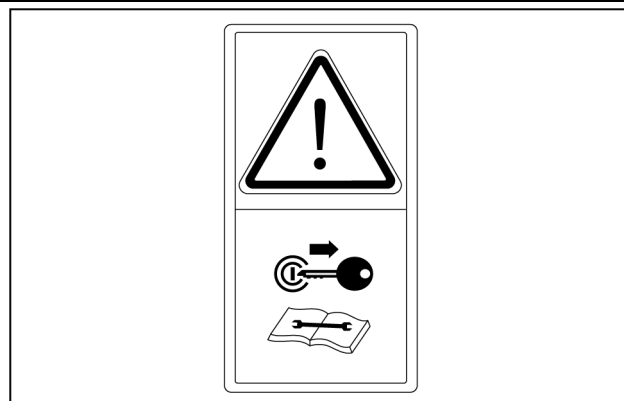
Failure to comply could result in death or serious injury.

W0047A

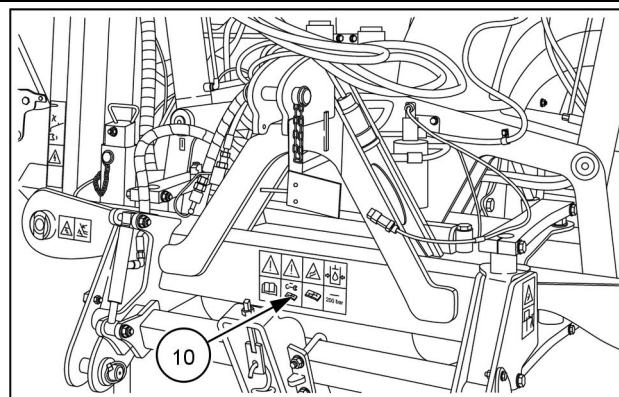
Stop the engine and take the key out of the ignition.

Part number: 71000629551

Located on the front of the parallelogram side shift frame.



71000629551 22



ZEIL22TIL0190AA 23

Safety sign (11)

⚠ WARNING

IMPROPER OPERATION OF THIS MACHINE CAN CAUSE DEATH OR SERIOUS INJURY.

MAKE SURE THAT EVERY OPERATOR:

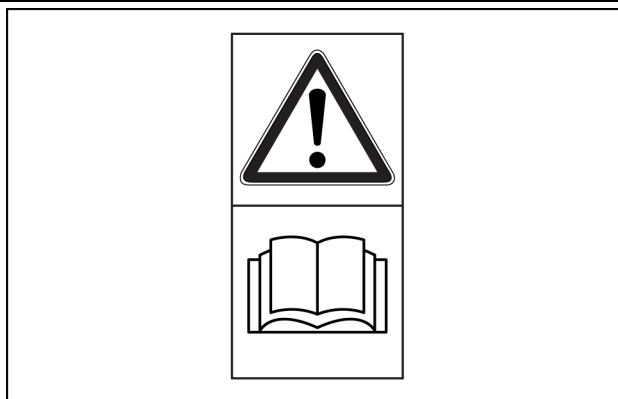
- is instructed in the safe and proper use of this machine.
- reads and understands the operator's manual for this machine.
- reads and understands ALL safety signs on the machine.

Failure to comply could result in death or serious injury.

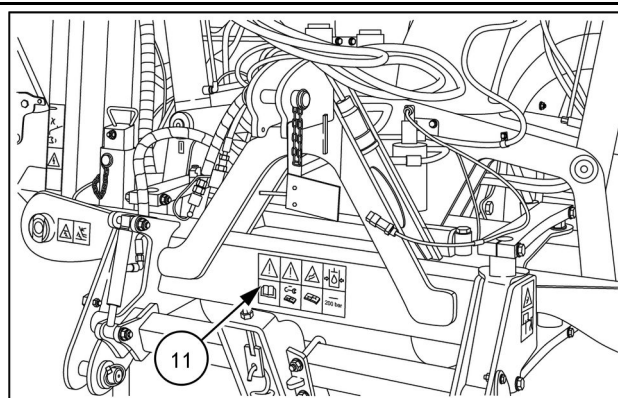
W0188A

Part number: 200043774

Located on the front of the parallelogram side shift frame.



200043774 24



ZEIL22TIL0190AA 25

Safety sign (12)

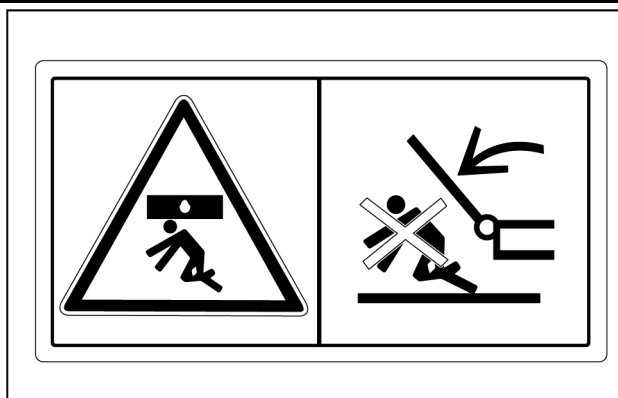
Attention! Folded elements.

There is a danger that the implement unfolded could crush the body.

The danger may cause severe injuries to the entire body, with possible lethal effect.

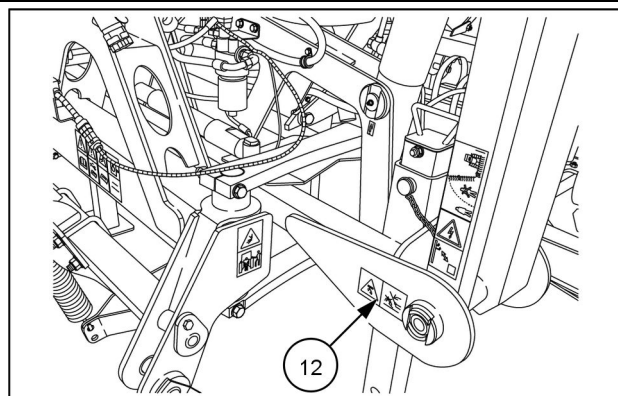
To avoid the danger, don't stand within the range of the folding implement. Before you fold/unfold the implement, make sure that there are not people standing in its range.

Part number: 71000629546



ZEIL20TIL0004AA 26

Located on the wings junctions.

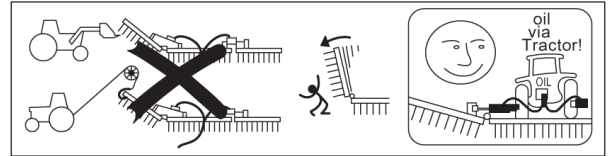


ZEIL22TIL0189AA 27

Safety sign (13)

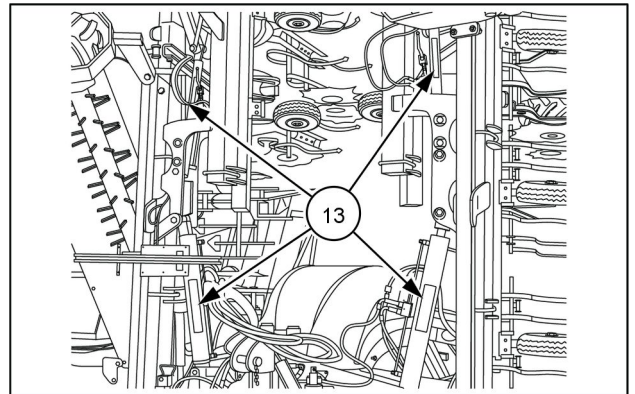
Do not raise the side wings in any other way than through the hydraulic system of the tractor. Failure to comply can result in damage to the implement.

Part number: 101000337



101000337 28

Located on the hydraulic cylinders.



ZEIL22TIL0191AA 29

3 - CONTROLS AND INSTRUMENTS

Display

Camera steering

The camera steering system described in this chapter is an additional equipment for Intelli version and intended exclusively for installation on machines approved by the respective implement manufacturer. The camera steering is suitable and intended for shifting the implement laterally and automatically while driving on fields.

NOTICE: Only persons familiar with the camera steering and instructed in the functional hazards can use and maintain it.

The LED light package is an option.

Function	Professional	Standard	Option
High resolution	X		
3D mode	X		
Color selection	X		
Proportional mode	X		
Automatic dual offset	X		
Directional control valve (black-and-white mode)		X	
LED light package			X
ISO sensor cable			X

Driving with the camera steering

NOTICE: Incorrect use of the system involves danger of accident. Persons may be injured or even killed.

The camera steering is intended for fieldwork exclusively. Active the automatic control and check if there are any obstacles in the area.

Do not activate the camera steering during road travel. Before you switch on the camera steering, start the tractor engine (see Page 3-4).

Do not switch off the terminal while driving, all functions of implements, machines and tractors controlled by the terminal are no longer available.

NOTICE: When you switch off the terminal, all implements and machines may move uncontrollably.

Press the switch off button to turn out the terminal, then the displays gets darker and goes out.

Camera

The camera serves as a sensor for automatic control of the shifting frame.

Use the associated adapter cable (spiral cable) to connect the camera.

The camera identifies plants by their color (2D mode) or height (3D mode). The 3D mode recognizes the shapes of the crop and weed more efficiently so the machine follows the correct line. The system looks for plants forming a straight line (row spacing, plant width and height). The CAN bus sends the measured values to the control unit (CME module) and the operator can display the identified plants on the monitor.

The positions of the rows of plants are marked by blue lines **(1)** on the video image. Set the number of the plants and the arrangement of the lines in the application settings (see Page **3-18**). When the camera can not detect the plant row, a red dot appears **(2)**.

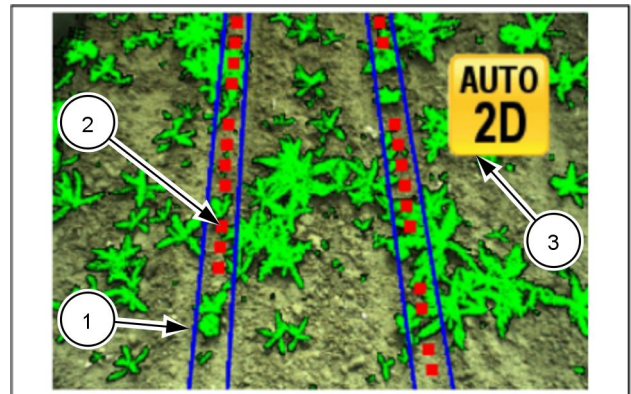
Symbols in the video image **(3)** indicate the status of the automatic control unit and the current mode.

The colour of the symbols indicates the status:

1. Grey: automatic control is deactivated.
2. Green: automatic control is active.
3. Yellow: automatic control is active, but the signal quality is below the threshold value.

Select the 3D mode to detect plants by height differences.

NOTE: When the plant row is outside the created lines, the system will not work due to insufficient settings.

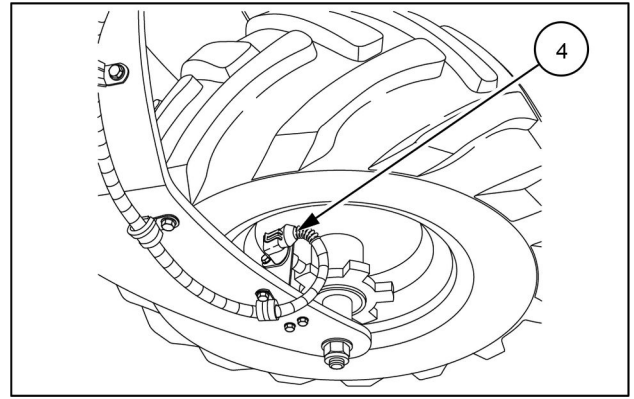


ZEIL19TIL0565AA 1

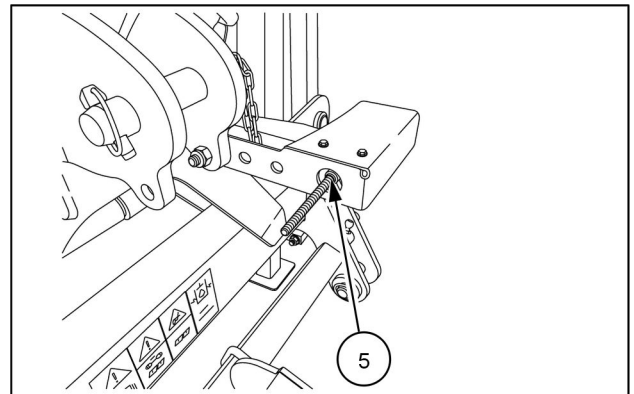
Besides the camera, further sensors provide important information for the system. Correct installation is an important prerequisite for flawless function of sensors.

The sensors available are:

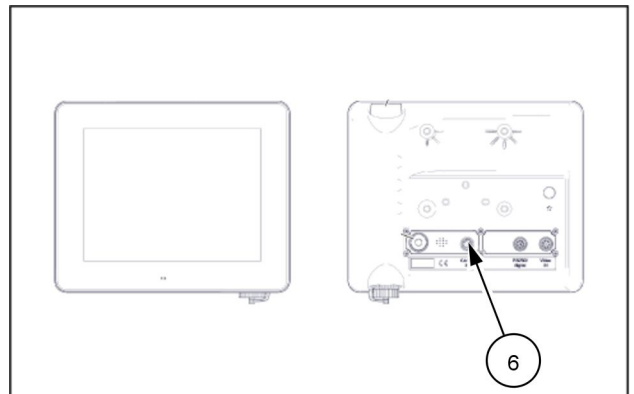
- Travel speed sensor **(4)** on the right-hand side wheel, that detects pulses from metal parts moving past the sensor, then detects the current travel speed. The distance between the sensor and the metal part is to set at maximum **5.0 mm (0.2 in)**.
- Position sensor **(5)**, that detects the position of the shifting frame.
- ISO sensor cable **(6)**, that enables using signals from the tractor sent through the ISO socket in the cab. The ground speed signal and the working position signal can be used. The ground speed sensor and the working position switch are substituted by the signals from the tractor. When there are two signals for one parameter (ground speed or working position), the signal from the tractor is used. The ISO sensor cable option also enables recording the operating hours and the worked area.



ZEIL22TIL0172AA 2



ZEIL22TIL0195AA 3



ZEIL19TIL0566AA 4

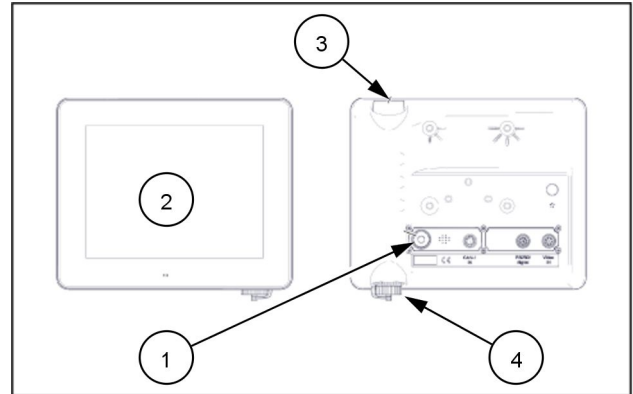
Monitor

Terminal

The terminal is installed on the respective tractor to let the driver make settings and corrections during the driving. The terminal needs a power supply. After you start the tractor engine, press and hold key **(1)** until the display lights up to switch on the monitor.

The terminal features a color display touch screen **(2)**.

NOTE: A speaker and a USB connection are located on the rear of the display **(4)** as well as a camera input socket and a scroll wheel **(3)** to access to menu item, select function or value.



ZEIL19TIL0566AA 1

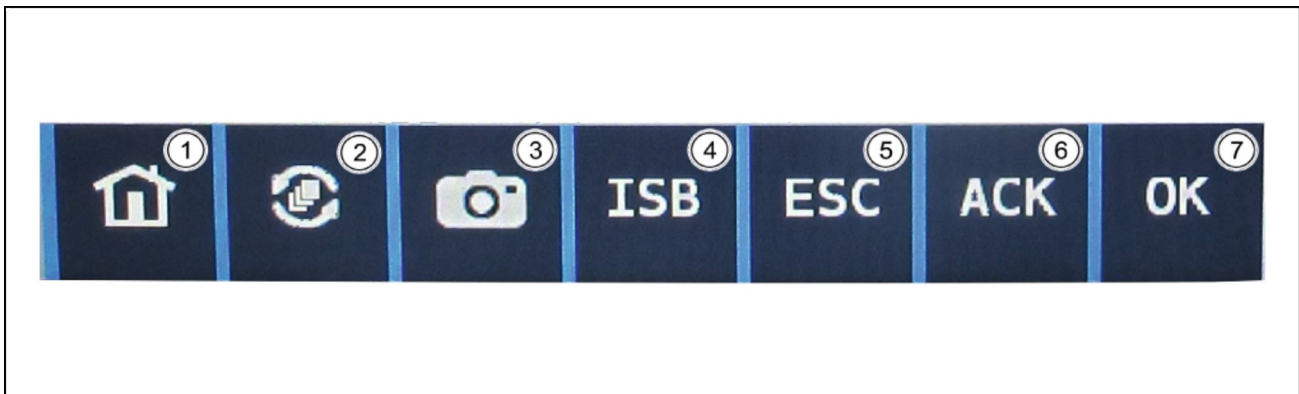
The navigation is done by touching the required field/item on the monitor screen or by using the scroll wheel located on the rear of the display.

Menu

The available menus are located on the right hand side of the screen and can be accessed by touching the respective buttons on the touch screen display.

When there are more menus available displayed on the screen, use the black arrow button to change page.

Slide menu



ZEIL19TIL0588EA 2

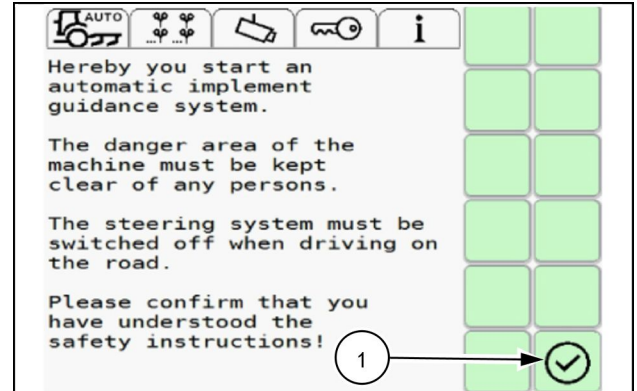
Slide-in menu		
	Designation	Function
1	Home screen	Calls up the terminal program home screen
2	Change application	Changes over the terminal application
3	Screenshot	Takes a screenshot of the current view. This is possible only if a USB data memory with sufficient memory capacity is connected to the terminal's USB port.
4	ISB	No function for the system
5	ESC	Escape Exit menu
6	ACK	Acknowledges elements waiting for a user entry
7	OK	To confirm the entry.

Home screen

Home page

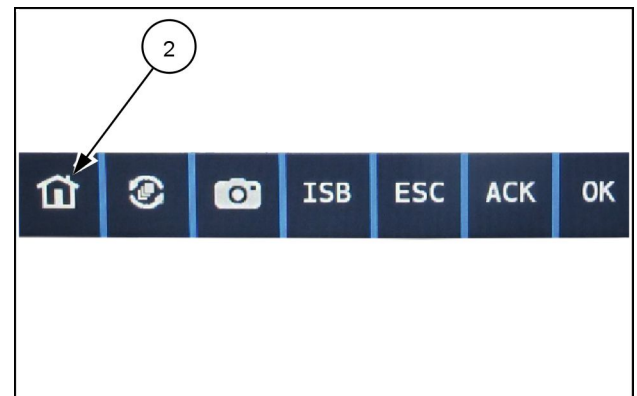
NOTE: All functions of implements, machines and tractors controlled by the terminal are not available when the terminal is switched off.

The monitor shows the start screen. Read and observe the safety message on the terminal, then touch the button (1)



ZEIL19TIL0577AA 1

Wipe from the bottom edge upwards on the touch screen to see the menu and touch the button (2).



ZEIL19TIL0599AA 2

The vehicle creates the home page for the display.

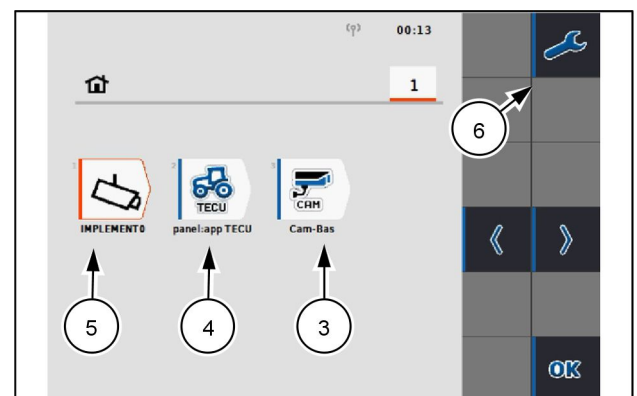
The home page has two standard areas to organize components from the vehicle and other software applications in the display:

- Home screen area

The home page area contains different boxes to select: implements (5), TECU (4) and camera (3)

- Status area

The status area displays icon to select the settings (6)



ZEIL19TIL0578AA 3

Settings

Select the "Settings" icon  from the home page to access screens for setting display preferences and operator preferences, to customize the screens.



User settings

In this sub-menu the operator can set the following items:

- Display lighting: touch the button  and enter the value (available from the minimum volume of **0%** to the maximum of **100%**).
- Tone: touch the button  to activate the signal generator and set the volume (available from the minimum volume of **0%** to the maximum of **100%**)
- Changes over apps: touch the button  to set the app change mechanics.
- Selection of buttons with the scroll wheel 

NOTE: Set the lighting threshold value to change from day to night mode and vice versa automatically when the light value exceeds or falls below the threshold.



Country settings

In this sub-menu the operator can set the following items:

- Language: touch the button  to select the language.

NOTE: The system supports the following languages: Czech, Danish, German, English, Spanish, French, Italian, Dutch and Swedish. The terminal program supports further languages.

NOTE: When the language in the terminal is not supported by the application, the display language in the application will be in english.

- Keyboard: touch the button  to set the layout of the virtual keyboard.
- Units: touch the button  to select the unit of measurement.
- Decimal point format: touch the button  to set the number format.

Use the virtual keyboard or the scroll wheel to make entries.



System settings

In this sub-menu the operator can set the following items:

- Date and time: touch the button to enter and set the date and the time. Scroll the menu to change the time format, the time zone and activate the summer time
- App management: touch the button to activate or deactivate apps.
- Interfaces: touch the button to set hardware interfaces.
- CAN: touch the button to set the ISOBUS settings.
- Touch screen calibration
- Service: opens the service area (only for service technicians)
- GPS
- Licence key to display and activate app licences.



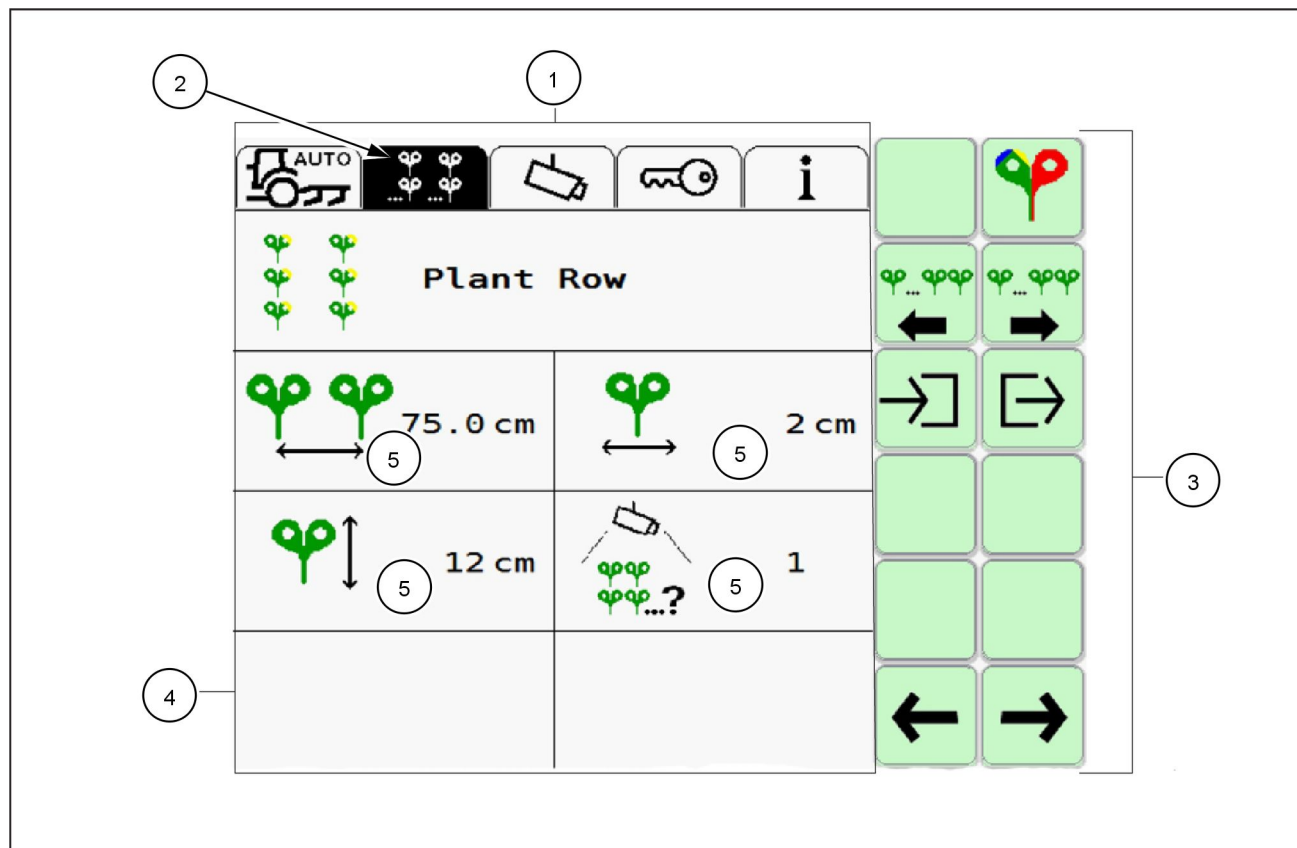
Info and diagnosis

In this sub-menu the operator can set the following items:

- Terminal, with hardware and software information
- Network members
- Memory
- Self-test
- Fault memory
- Credits

Menu overview

Select the "Implements" icon from the home screen area to see different info screens:



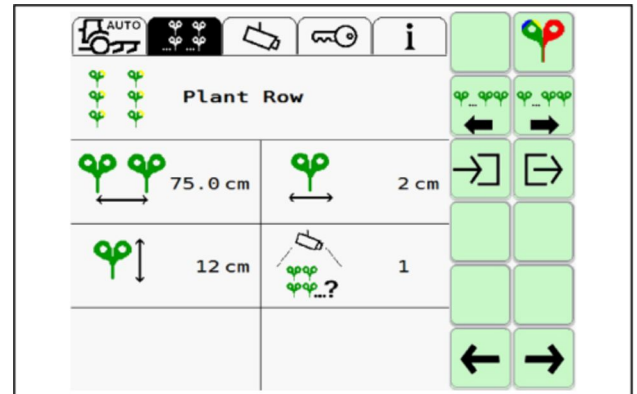
ZEIL22TIL0165FA 1

	Designation	Function
1	Main menu	Menu selection
2	Selected menu	Shows the associated data field and buttons
3	Buttons	Performs actions
4	Data field	Shows the current information of the selected menu item
5	Entry fault	Changes settings by touching

Implements menu

In this menu you can see the following section:

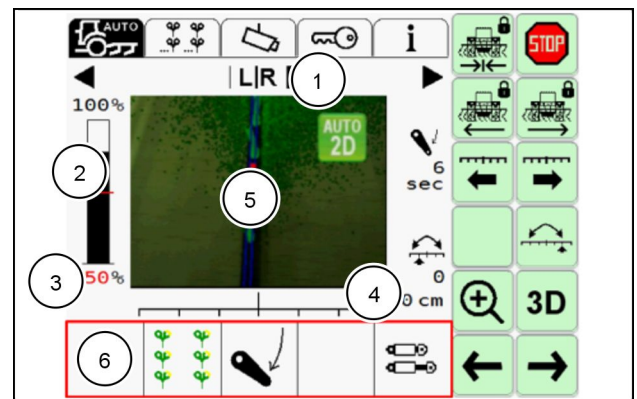
1. Automatic control 
2. Application 
3. General settings 
4. Extended settings 
5. Information 



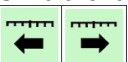
Automatic control menu

In this sub-menu you can activate the automatic control and see the following items:

- Shifting (1).
- Signal quality (2).
- Threshold value (3).
- Offset (4) of shifting frame.
- Video image taken by the camera (5)
- Selected application row of plants or multiple row, working position and automatic control status (6).



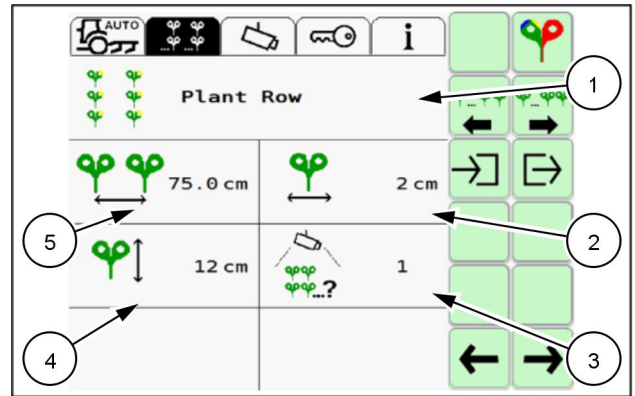
In the status area you can change function with the following icon:

- Activate or deactivate the automatic control 
- Move the shifting frame to the centre position . When the lock symbol is present the function is locked. Touch once to enable (lock symbol disappears), touch one more time to execute.
- Relocate the frame to the left or the right by touching the icons  twice.
- Zoom in or out the video image 
- Shift the offset to left or right by touching the icons . When dual offset is required touch the icon 

Application

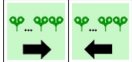
In this sub-menu you can Set the parameters for this application and see the following item:

- Row of plants **(1)**, multi row . The color indicates the selected color setting.
- Row spacing **(5)**.
- Plant width **(2)**.
- Plant height **(4)**.
- Number of row **(3)**.



ZEIL19TIL0569AA 3

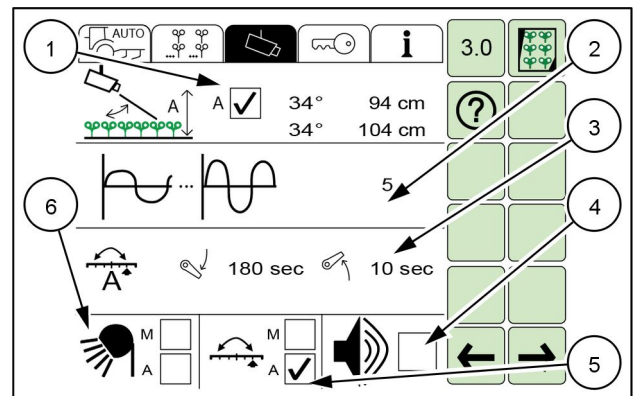
In the status area you can change function :

- Set the color of the plants. Possible settings: green-bluish / green-yellowish / red .
- Change over from single to multiple rows and viceversa .
- Save settings .
- Load the saved settings .

General settings

In this sub-menu you can set the parameters for this application and see the following item:

- Camera setting.
- Automatic camera mode **(1)**.
- Control system sensitivity **(2)** to set how fast or slow the control unit respond. The pre-set value is 5.
- Dual offset automatic mode **(5)**. Use to set manual mode. The set offset is displayed graphically on the terminal and as a measure in cm.
- Time of working position **(3)**.
- Tone **(4)**
- Led light **(6)**



ZEIL22TIL0273AA 4

NOTE: Only the tone signalling the falling short of the signal quality threshold value can be deactivated.

NOTE: Automatic mode, time of working position is available only for professional version.

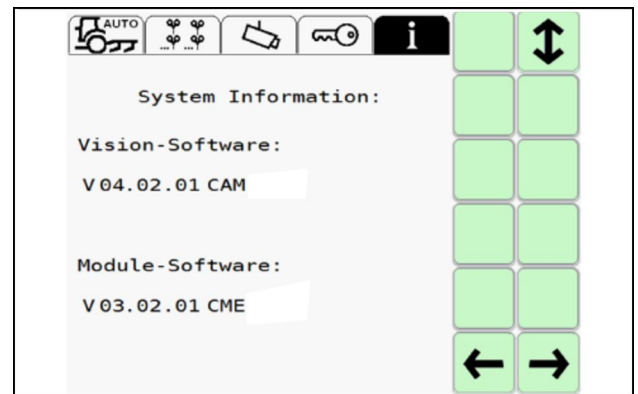
Extended settings

Contact your authorized local KONGSKILDE dealer to access the extended settings.

Information menu

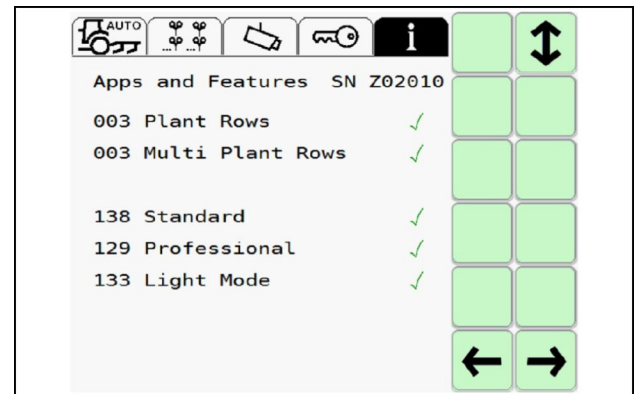
In this sub-menu you can see the following information:

- The software version of camera and CME module.



ZEIL19TIL0576AA 5

- The camera serial number.
- List of available applications and functions.



ZEIL19TIL0604AA 6

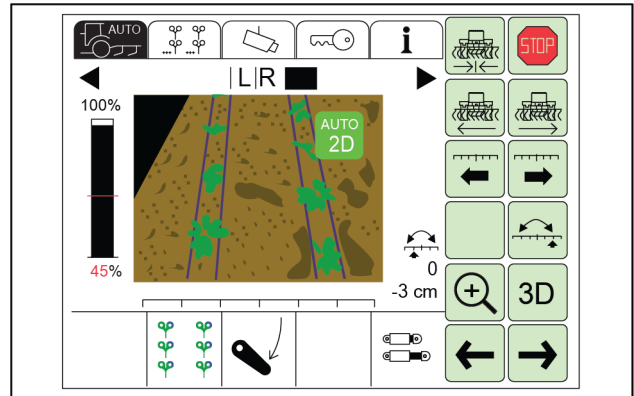
Image masking

The purpose of the image masking feature is to mask out objects from the image that may have an impact on the camera capabilities to detect the crop row. The image

mask is defined by four lines. The area outside the lines is masked out or removed from the image. This feature requires to activate the professional option.

Main screen

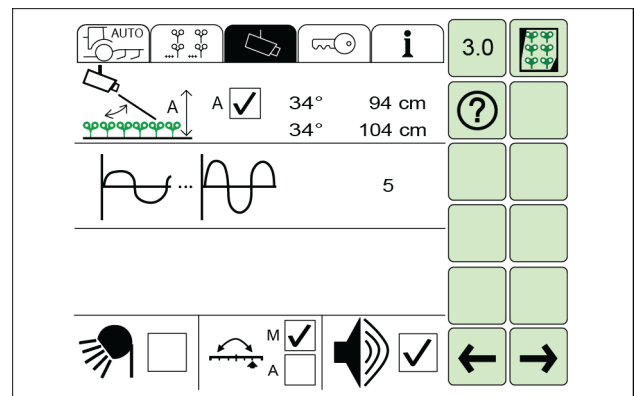
On the main screen, the masked out areas from the video image are black (see Figure 1).



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Configuration menu

If the image masking is available, a soft key with the image masking icon is shown in the camera setup "Menu" tab. Image masking must be supported by both Camera Module Electronics (CME) and camera software.



ZEIL22TIL0267AA 2

Press the icon  to make appear a new menu (first level):

In this menu you can have the following functions:

1. ON. Once ON the camera draw lines in the image. The

areas outside the lines are masked out. 

2. OFF. Once OFF the image masking feature is not ac-

tive. 

3. Proceed to next menu for the adjustment of the image

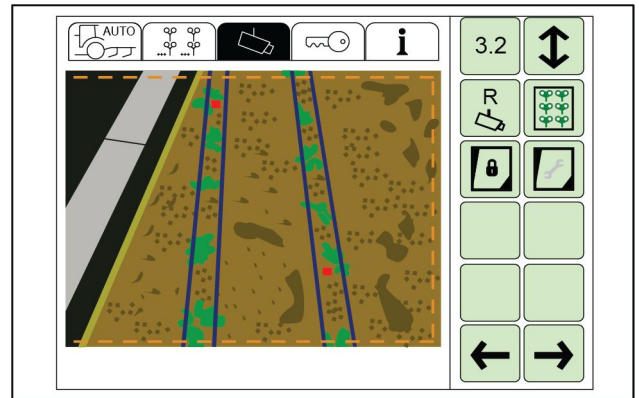
mask. 

4. Ground fixed image mask. In case the object is ground fixed, like a tractor wheel, the implement position is used to move the mask. Thus, if the tractor tire is visible once the implement is in the center position, more of the tire will be seen if the implement moves towards the wheel and vice versa. The image mask

will adapt to this. 

5. Camera fixed image mask. In case the object is camera fixed, use this function. It is ideal when the object

is independent by the implement position. 



ZEIL22TIL0268AA 3

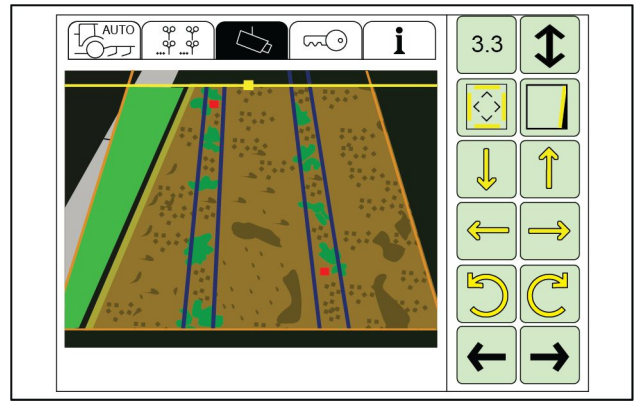


Press the icon  to proceed to the next menu to adjust size and location of the image mask.

In this menu, the lines that define the mask are manipulated.

Icon	Description
	The lines are reset to a well known position.
	Select the active line as yellow.
	Move the line up.
	Move the line down.
	Move the line left.
	Move the line right.
	Rotate the line counterclockwise.
	Rotate the line clockwise.
	Move to the camera setup menu.

If a line is moved close to the border, the line appearance changes from solid to dashed. A dashed line means that the mask is open in that direction and the full image will be used.



ZEIL22TIL0269AA 4

TECU application

The TECU application connects the terminal with the tractor. This application has information such as travel speed, PTO shaft speed and power lift position available.

The Isobus standard ISO 11783–9 controls the electric and hydraulic functions and allows the exchange of data.

The TECU application has the following functions:

- Read out the signals applied to the tractor signal socket (ISO 11786 / DIN 9864)
- Calculate the travel speed from wheel and radar sensors
- Determine the PTO shaft speed and the three-point linkage position.
- Select and configure the sensor sources.
- Manage several tractor profiles.



ZEIL19TIL0579AA 1

Fieldwork

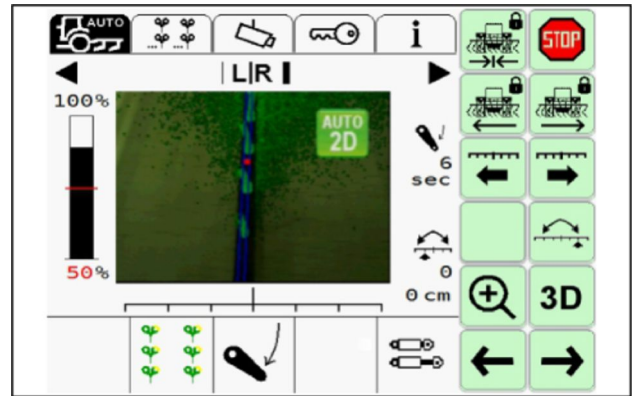
Before operate the implement, set and calibrate the implement for a correct function of the automatic control. It is possible make corrections during the drive mode.

To activate the automatic control proceed as follow:

1. Drive the vehicle manually over the desired plant rows in accordance with the pre-set application.

2. Touch the button , a beep indicates that the automatic control is active.

3. Then touch the button  to deactivate the automatic control.

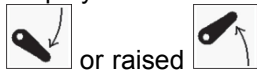


ZEIL19TIL0581AA 1

Display shows the status of the automatic control unit:

- The display flashes when the implement is raised  and/or the travel speed is too slow .
- Implement in working position and travel speed in permitted range .

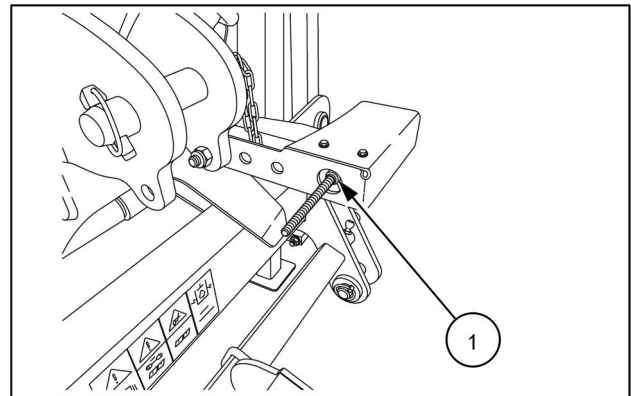
Display shows also if the implement is in working position



or raised

Top link lifting sensor/working position sensor (1) for three point hitch. Through this sensor, the side shift system of the implement can stop working automatically when you lift the implement (headland management). The sensor is installed on the top link and user need to adjust the correct position.

When the machine is raised, the spring is bent and control panel present raised position. However, during operations the spring should have no tension and the control box present working position.



ZEIL22TIL0195AA 2

The shifting frame is automatically centred as soon as the implement is raised in the following conditions:

- The machine has travelled with the implement lowered for at least **5 s** before.
- The machine did not stand for more than **10 s** before with the implement lowered.

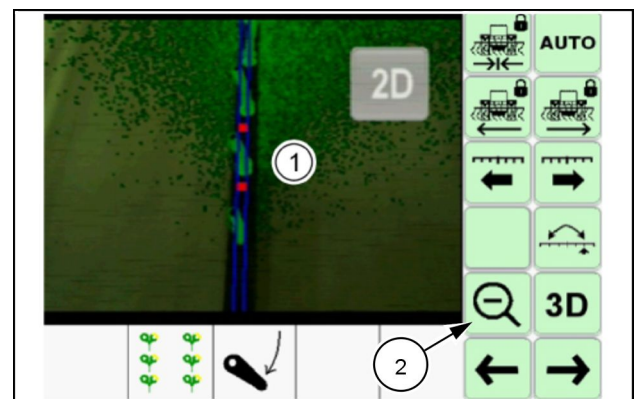
The following circumstances result in immediate automatic deactivation of automatic control:

- Exceeding a travel speed of **20.0 km/h (12.4 mph)**
- No feedback from the camera
- Malfunctioning of position sensor
- Malfunctioning of hydraulic valve
- Malfunctioning of CME module
- Malfunctioning of working position switch
- Malfunctioning of speed sensor

A drop of signal quality below the pre-set threshold value will not cause deactivation of the automatic control unit. Two consecutive signal tones indicate a drop of signal quality below the pre-set threshold value.

In the standard view, the standard displays of the automatic control are arranged around the video image. Touch the button **(2)** to enlarge or reduce the video image.

When the video image is enlarged **(1)**, the standard displays and the main menu are covered up. The buttons and the display area at the bottom edge of the screen remain visible.



ZEIL19TIL0582AA 3

Application adjustments

Select the application to suit the row structure on the field.

Color selection (only for professional version)

The color selection allows setting the color of the plants to be detected.

It is possible to have a multiple selection. Select more colors to identify more plants, crops and weeds:

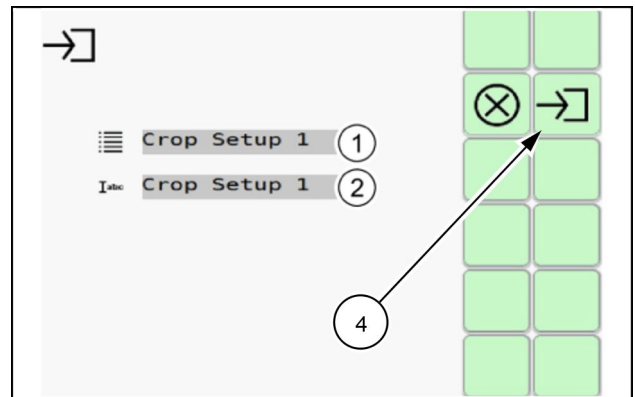
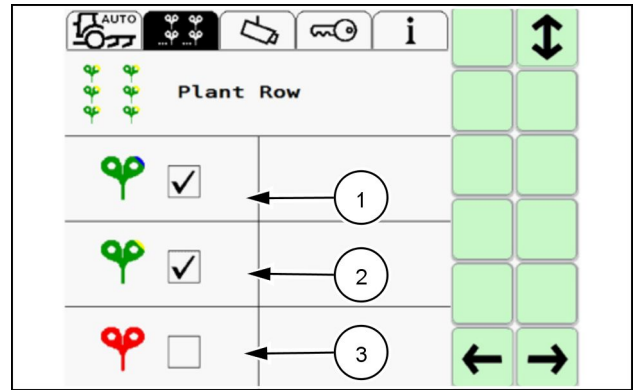
- Select the green-bluish (1) setting for green and green-bluish plants on a dark soil.
- Select the green-bluish (1) and the green-yellowish (2) setting for plants with a diameter below 4 cm.
- Select the red setting (3) for reddish plants.

In case of other plant colors or heavy weeds, use the 3D mode. The 3D mode works from crop height differences of 10 cm upwards.

Save the settings for rows of plants or multiple rows for reuse at a later date. Save up to 6 sets of settings.

To save the setting touch the button (4) and enter a name of 15 characters maximum.

NOTE: it is not possible to delete settings sets, but only to overwrite.



Camera height adjustments

When working in hilly terrain, the camera remains in a centre position above the plant row.

When the implement is twisted too much with respect to the rows, it can be problems with identifying the rows. In this case, the camera must be positioned as closely as possible to the tools (knives, shovels, blades).

In the status area on the monitor the operator can adjust the camera height and angle.

NOTE: *Change the setting of the camera may influence the accuracy of the measurement and signal quality.*

The higher the camera is placed, the harder it is for the camera to see the plants. For this reason, keep the camera in the lowest possible position when working in small plants. From a plant diameter of **10 cm**, place the camera at the highest possible position in order to detect as many rows as possible. For more information see the table.

NOTE: *When only one plant row is identified, a larger camera angle will improve system robustness.*

To perform adjustment on the camera position see Page **6-10**.

Row spacing / drilling spacing [cm]	Number of rows	Recommended minimum camera height [cm] ± 10 cm	
		Small plants, row diameter and height < 10 cm	Large plants, row diameter or height > 10 cm
12.5 / grain	5	100	≥ 120
12.5	6	110	≥ 130
25 / bio wheat	3	100	≥ 130
25	4	120	≥ 150
25	5	140*	≥ 170
37.5 / soybeans	2	90	≥ 130
37.5	3	120	≥ 160
50 / sugar beet	2	100	≥ 150
50	3	140*	≥ 190
75 / maize	2	120	≥ 190
* Plant diameter ≥ 3 cm			

Camera angle adjustments

The camera angle is measured between the vertical and the viewing direction of the camera. When the camera faces straight down, the camera angle is 0° .

Larger camera angles ensure more stable operation. However a larger camera angle reduces accuracy. When the camera is in very low positions, use a bigger angle in order to increase the field of view.

To set the camera proceed as follows:

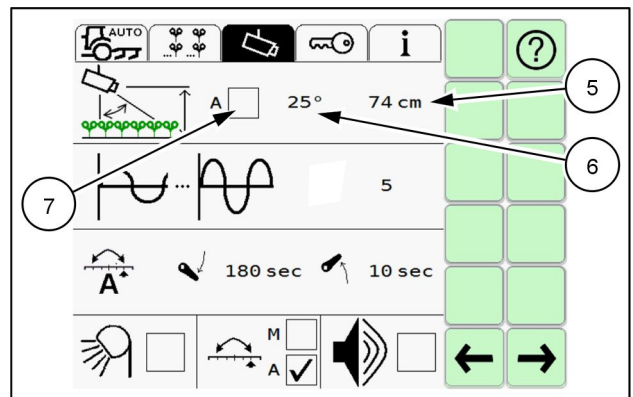
- Touch the icon **(5)** and enter the value to modify the camera height.
- Touch the icon **(6)** and select a value from the list to modify the camera angle.

It is possible to measure automatically both angle and height only for professional version. Use this mode to improve the accuracy and minimise the danger. In this process, the pre-set camera height is compared with the recommended minimum heights for the pre-set plants.

The camera height is measured automatically with an accuracy of $\pm 5 \text{ cm}$ in the range between **5 cm** and **250 cm**. The camera angle is measured automatically with an accuracy of $\pm 3^\circ$ in the range between -5° and 50° .

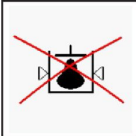
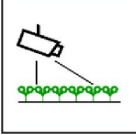
When the current camera height deviates by $\pm 25 \text{ cm}$, a fault message appears for **5 s**. This message cannot be acknowledged and appears every time when automatic control is active.

To activate the automatic measurements select the box **(7)**.



Fault tables

Display	Fault	Correction
	No camera signal. Camera fails to react.	Check if cable and connector are undamaged and tightly seated or restart the system.
	No camera measurement / camera sends no steering information.	Restart the system.
Q < 50%	Low signal quality.	Check the camera height, the angle and the entered values for the camera. Check the application setting and compare it with the conditions on the field.
	Very slow or varying rate of movement of shifting frame.	Check if cable and connector are undamaged and tightly seated. Check also the setting range.
	Short-circuit or lost signal in valve.	Check if cable and connector are undamaged and tightly seated and restart the system.
	Implement movement without a corresponding control command.	Check the position sensor and fasten it again if required or select a new mounting position.
	Automatic control unit deactivates itself independently.	Check the speed sensor and restart the automatic control unit.
	Faulty signal from working position switch.	Check if cable and connector are undamaged and tightly seated
–	The system automatically changes to the safe state.	For less critical fault, call up and exit the main screen, then call up the main screen again. If the fault persists check if cable and connector are undamaged and tightly seated
–	Monitor will not start.	Check if the power supply is interrupted, then check if cable and connector are undamaged and tightly seated.
–	The automatic control unit cannot be activated.	Check if position sensor is damaged and replace the position sensor if necessary. If the Position sensor signal is outside of defined range check the setting range. If the position sensor is not properly calibrated check calibration and repeat if required.

Display	Fault	Correction
–	Automatic control can be activated, but the shifting frame will not move.	Check the camera signal.
–	Automatic control unit drifts to one direction.	Check the application setting and compare it with the conditions on the field. If the error persists check and replace the hydraulic valve if necessary.
–	The automatic control unit controls to one side.	Ensure that valve connectors are not mixed up. Check calibration and repeat if required.
	Hydraulic system problem. Not enough hydraulic oil.	Check the hydraulic oil tractor's level and top up if necessary.
	Camera height fault (only for professional version).	Check the camera installation height and adapt it to the conditions on the field.
	Hydraulic filter problem.	Check the hydraulic filter and replace the filter element if necessary.

4 - OPERATING INSTRUCTIONS

Commissioning the unit

Choice of the tractor

To operate the implement in compliance with the intended use, the tractor must fulfill the following requirements.

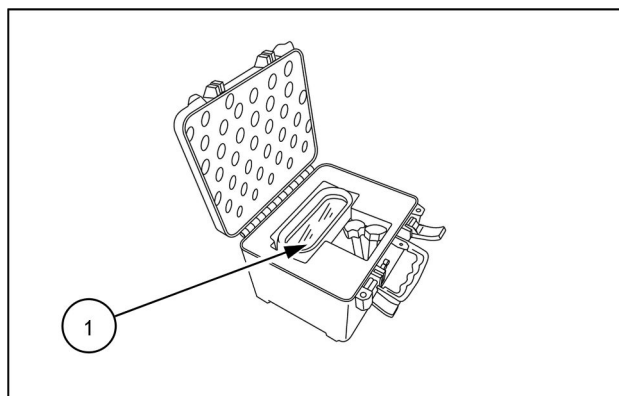
Tractor engine power	
VCO-I 18-50	135 – 160 kW (183.5 – 217.5 Hp)
VCO-I 12-75	
VCO-I 18-45	
VCO-I 16-60	
VCO 18-50	
VCO 12-75	
VCO 18-45	
VCO 16-60	
VCO-I 12-50	66 – 95 kW (90 – 129 Hp)
VCO-I 8-75	
VCO-I 12-45	
VCO-I 8-60	
Electrical system	
Battery voltage	12 V (volts)
Lighting socket	7 pin according ISO1724
Power supply socket	3 pin according DIN 9680
Hydraulic system	
Maximum operating pressure	200 bar (2900 psi)
Tractor pump power	At least 60 L/min at 160 bar (2320 psi) Maximum oil flow 20–40 L/min
Implement hydraulic fluid	Transmission/hydraulic fluid HLP68 *
Maximum oil temperature	50 °C (122 °F)
Hydraulic outlets for Vibro Crop Intelli	
Control unit 1	Double-acting control unit
Control unit 2	Single-acting control unit
Control unit 3	Double-acting control unit – with free return for the seeder
Control unit 4	Single-acting control unit – for implement without section control
Control unit 5	LS Port
Hydraulic outlets for Vibro Crop	
Control unit 1	Double-acting control unit
Control unit 2	Single-acting control unit
Control unit 3	Double-acting control unit – with free return for the seeder

* The implement hydraulic/transmission fluid is suitable for the combined hydraulic/transmission fluid circuits of all standard made on tractor.

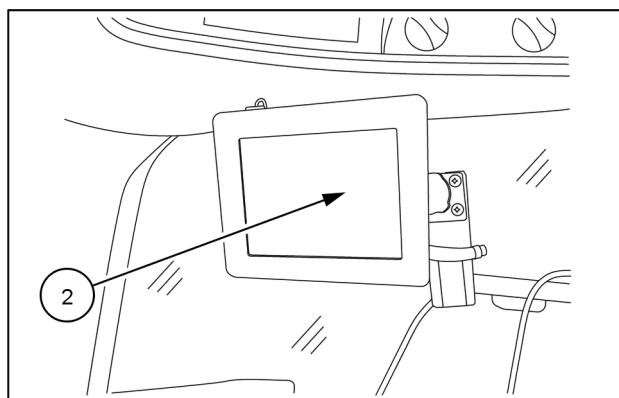
Implement preparation

The following standard equipment are not assembled on the implement. It is the KONGSKILDE dealer's responsibility to prepare and deliver the implement with the standard equipment installed.

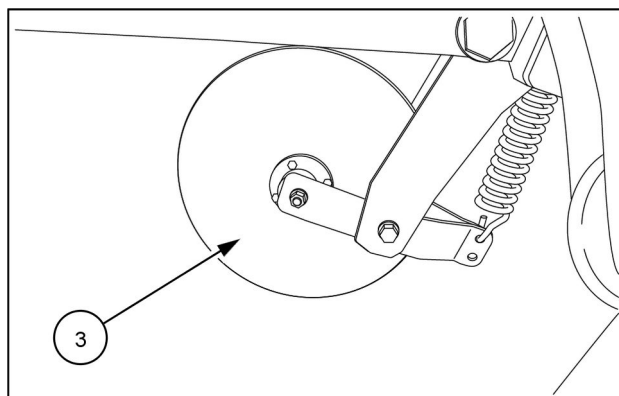
- Camera **(1)** with spiral cable (only for Intelli version).
See Page 7-18 Sub title **Installation of the camera**.
- Monitor **(2)** with mounting arm (only for Intelli version).
See Page 7-21 Sub title **Installation of the monitor**.
- Stabilizing disc **(3)**. See Page 7-24 Sub title **Installation of the stabilizing disc**.



ZEIL22TIL0167AA 1



ZEIL21AI00080AA 2



ZEIL22TIL0170AA 3

Check before use

Before you operate the implement for the first time, perform the following items:

- Read this operator's manual carefully; especially the chapter headed "Safety information".
- Check the correct assembly of the implement. Also check that the implement is undamaged.
- Check that no parts have been tied up inside the implement in connection with the delivery of the implement.
- Remove all the tools from the implement.
- Connect the implement to the tractor and check if the subassemblies work properly.
- Check the correct connection and tightening of the hydraulic components.
- Check the entire hydraulic system – all tubes, hoses and connections. Upon noticing any traces of damages or even the slightest leaks make sure to replace these parts.
- Check that the hydraulic hoses are long enough for the movements of the implement in relation to the tractor.
- Check the length of the hydraulic hoses when the implement is in working position. Check that the hydraulic hoses are not too tense.
- Grease sufficiently the implement (see Page **7-10**).
- Check the proper tightness of all the nuts and bolts.
- Check the tire pressure. If necessary, inflate the tire to the recommended pressure.
- Check if the brake system works properly.
- Check if the electrical installation works properly, including the lights.
- Check the tines, shares, and protection shields for wear and replace as needed.

Activities on the camera steering system

- Adjust the camera angle (see Page **3-20 Sub title Camera angle adjustments**)
- Adjust the camera height (see Page **3-19 Sub title Camera height adjustments**)
- Set all the parameters from the application sub-menu of the monitor (see Page **3-10 Sub title Application**)
- If necessary change the monitor settings like brightness, work at night etc. from the user settings sub-menu of the home page monitor (see Page **3-6**).

NOTE: *Values which are required by the camera steering system must be defined based on the real field conditions like plant size and their color.*

Activities on the implement

- Adjust the working depth (see Page **6-4**).
- Adjust the protection shields and the tines position (see Page **6-8**).
- Adjust the implement by lifting or lowering tractor linkages in order to reach parallel position of the working section toward the ground.
- Adjust the stabilizing disc (see Page **6-9**).

NOTE: *In order to reach the best settings, it is necessary to drive a few meters in the field in order to check the implement performance.*

Starting the unit

Connection to the tractor

⚠ WARNING

Pressurized system!

Before removing the attachment from the machine, make sure the air pressure and hydraulic oil pressure are at zero.

Failure to comply could result in death or serious injury.

W0284A

⚠ WARNING

Hitching hazard!

Always keep the area between the tractor and the implement clear of all persons while the tractor or three-point hitch is in motion. Lock the tractor transmission in Park and engage the parking brake(s) before you allow anyone to complete hitching or unhitching.

Failure to comply could result in death or serious injury.

W1540A

Use only tractors specified in the operator's manual as recommended for connecting the implement.

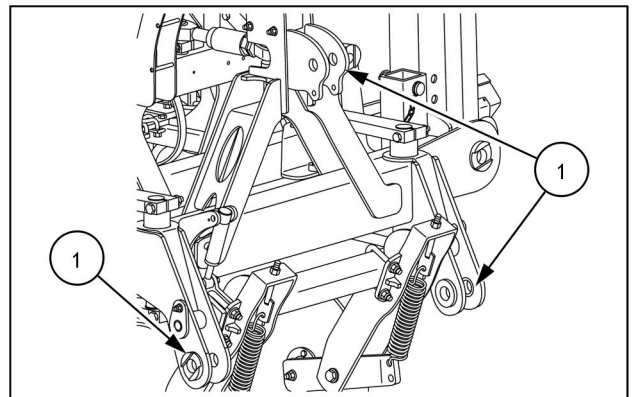
To mount the implement on the tractor, the implement is equipped with 3 separate movable connection brackets (1). Each bracket can be adjusted in the optimal way in relation to the tractor make, model and 3-point hitch category. Correctly adjust the lower link arm brackets of the implement so that the implement follows the tractor correctly.

Before you connect the implement, control all coupling elements, inspect the implement for cracks, loose screws or nuts, or parts missing. Always make sure that the implement will not accidentally disconnect from the tractor during field works.

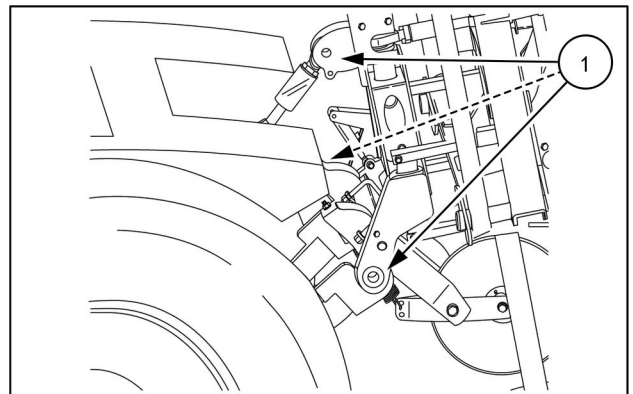
NOTICE: Due to the weight of the implement and its distance of the center of gravity behind the tractor, the top-link is high loaded. Make sure, that the used top-link is fully functional and that there are no damages at its hook. In cases of doubt replace the top-link. Only use KONGSKILDE spare parts.

Connect the implement to the tractor in dedicated places only.

Install the pincers of the three-point implement suspension system on the tractor. Secure the pincers against possible unintentional disconnection.



ZEIL19TIL0184AA 1



ZEIL19TIL0235AA 2

Connecting the implement to the tractor

Before you connect the implement to the tractor:

- Verify if the connection matches the three-point suspension system of the implement and the tractor.
- Perform all the necessary adjustments if the connection is inconsistent.
- Make sure that the implement stands on a firm and even ground.

To connect the implement to a three-point suspension system of the tractor, proceed as follows:

1. Lower the lower linkages and reverse the tractor to place the hooks of the lower linkages under the ball sleeves.
2. Place the correct ball couplings on the pivot of the connecting rod.
3. Raise the jack until the hooks of the lower linkage grab the ball sleeves.
4. Secure all the connections to avoid unintentional disconnection.

NOTE: The connections must be as tight and stiff as possible. Any side movement is not allowed because it decreases the implement performance.

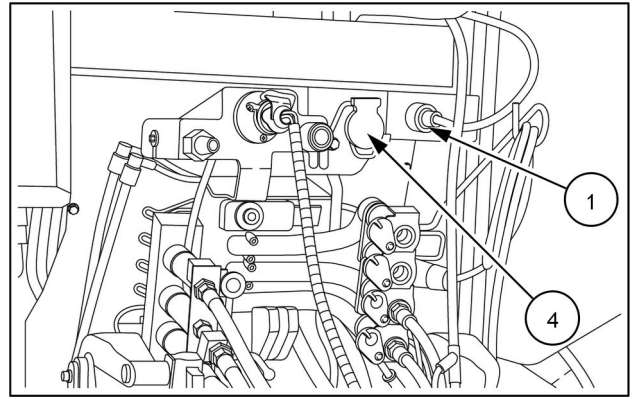
5. Mount the top link so that it is approximately parallel with the link arms. Hereby you obtain the smallest change in the implement inclination when raised and lowered, so that it does not incline away from or towards the tractor.

NOTE: When three-point suspension is engaged, adjust the top link lifting sensor/working position sensor.

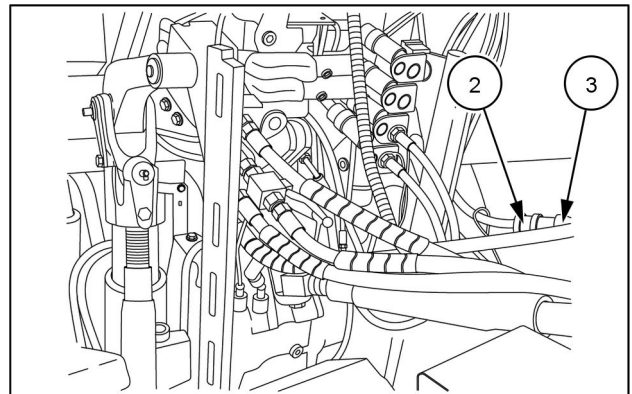
6. Install the monitor in the tractor cab.
7. Connect the monitor with the implement by tractor wiring harness (1).
8. Connect the power supply plug (2) of the camera steering system to the socket (3).
9. Connect the implement lighting.
10. Make sure that all hydraulic connections are clean and then make all the necessary hydraulic connections.

NOTE: Keep the correct oil flow direction.

11. Inspect the implement for any leaks from hydraulic connections.
12. Connect the plug for section control to the socket (4) when the implement is equipped with optional section control (see Page 6-11).
13. Check if all devices are fully operational.
14. Lift the implement with the tractor three point linkage so that the jacks do not touch the ground.



ZEIL22TIL0203AA 3

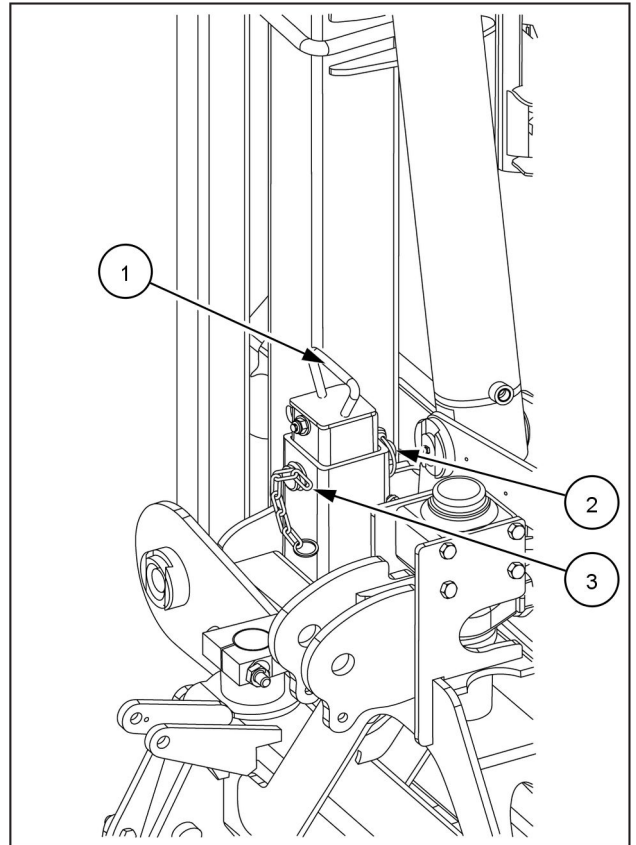


ZEIL22TIL0204AA 4

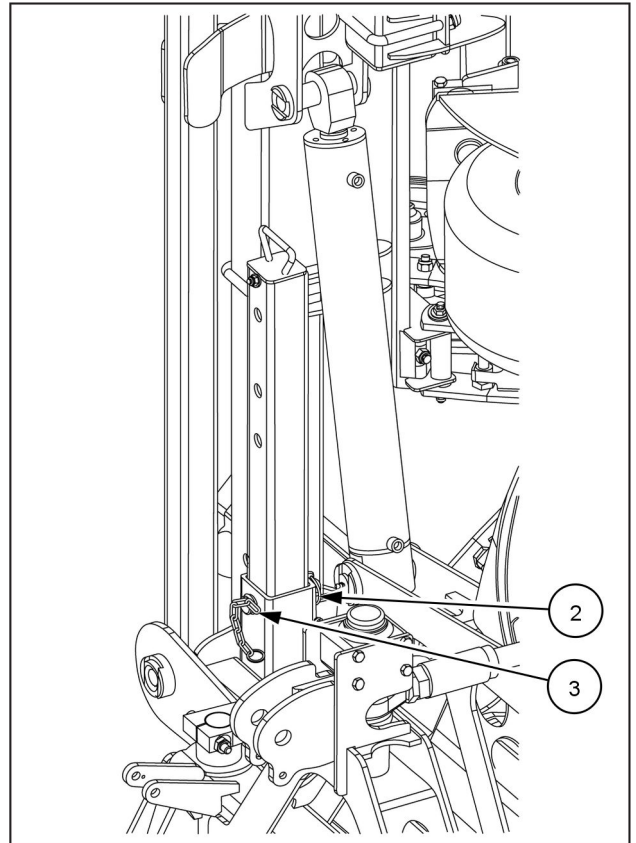
Lift the jack as follows:

1. Remove the linchpin **(2)** and pull out the pin **(3)**.
2. Use the handle **(1)** to lift the jack up to the highest position.
3. Re-insert the pin **(3)** in hole and secure it with the linchpin **(2)**.
4. Repeat Step 1 to Step 3 for all four jacks.

NOTE: Adjust and lock sideways so that the implement is suspended centered behind the tractor and there is no play sideways.



ZEIL19TL0051BA 5



ZEIL19TL0052BA 6

Hydraulic connections - Vibro Crop Intelli

Hydraulic connections are marked with the following colors:

- Black – the inlet line has ball valve to stop leaking of oil and operating the implement folding.
- Red – the inlet line has ball valve to stop leaking of oil and operating side shift and section control system. The outlet valve has at the end of cable a check valve to guarantee the correct use of the hydraulic connection.
- Blue- single acting line for simple section lift system (optional).
- Green – the line operating the LS - load sensing (optional) has male output instead of female. This line is special for tractor with oil pump and works only when the system note there is a pressure drop.

NOTE: Make sure to connect the hydraulic system output with ball valve to outlet T (Tank) and the power cable without ball valve to outlet P (power/pomp)..

NOTE: Make sure that hoses of the same colors are connected to the same pairs of hydraulic inlets on the engine. Line operating load sensing (optional) must be connected into load sense coupler in tractor.

Hydraulic connections - Vibro Crop

Hydraulic connections are marked with the following colors:

- Black – the line operating the implement folding.
- Blue- single acting line for simple section lift system.

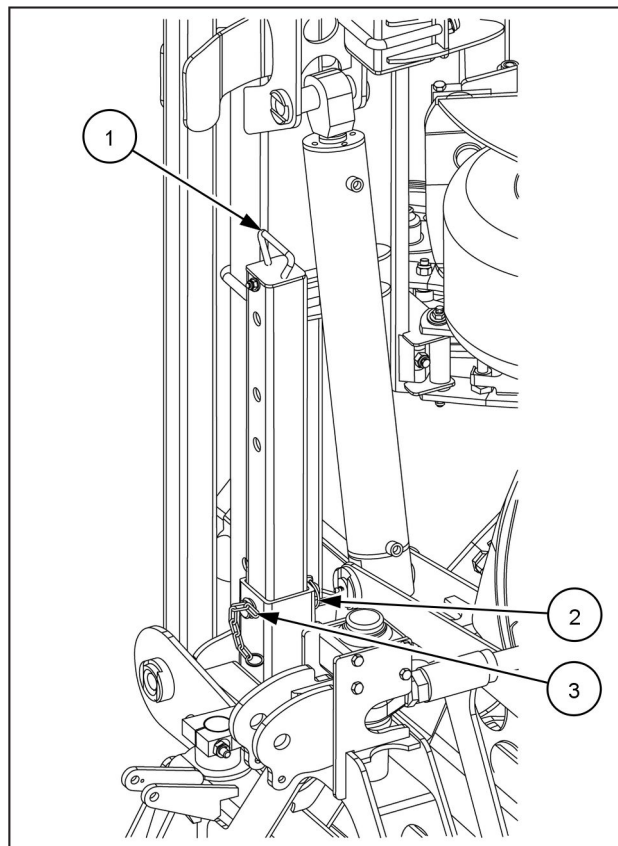
NOTE: *Make sure that hoses of the same colors are connected to the same pairs of hydraulic inlets on the engine. Line operating load sensing (optional) must be connected into load sense coupler in tractor.*

Parking the unit

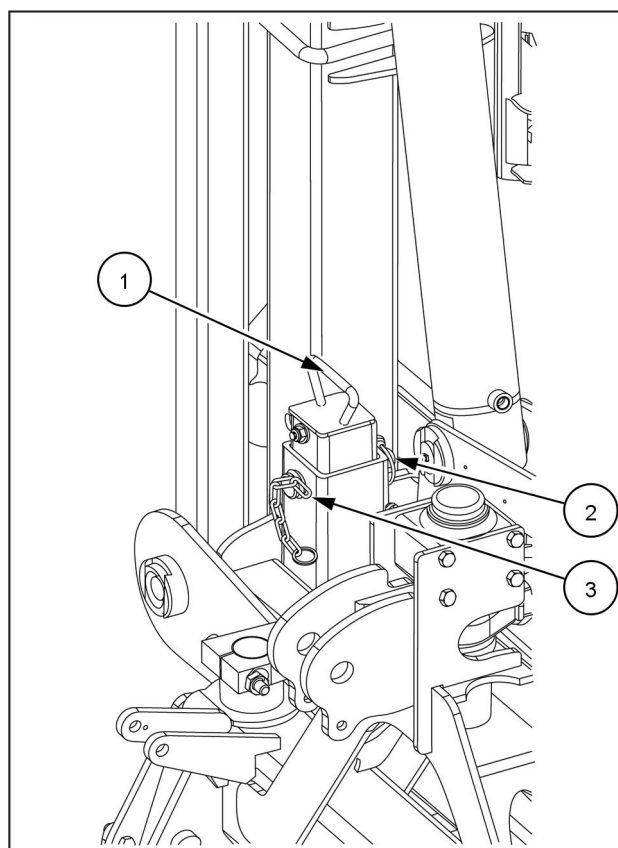
Disconnection and parking

To disconnect and park the implement, proceed as follows:

1. Place the implement on a firm and level ground.
2. Disconnect all the hydraulic couplers.
3. Disconnect the electrical connection.
4. Place wheel chocks as follows:
 - On a flat surface: one in front of, and one behind a wheel.
 - On a slope: one chock per wheel, either in front of, or behind the wheel, depending on the incline.
5. Remove the linchpin **(2)** and pull out the pin **(3)**.
6. Use the handle **(1)** to lower the jack.
7. Re-insert the pin **(3)** in hole and secure it with the linchpin **(2)**.
8. Repeat Step 5 to Step 7 for all four jacks.

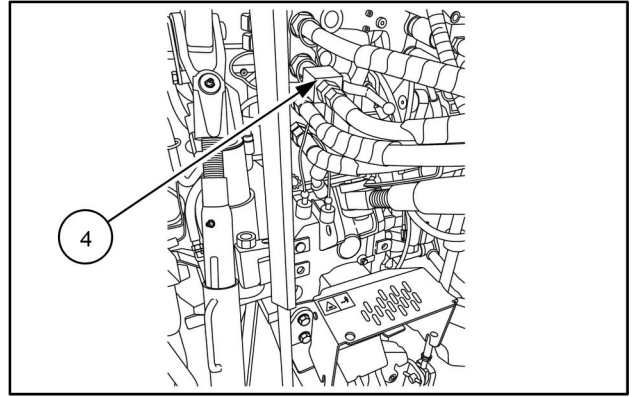


ZEIL19TL0052BA 1



ZEIL19TL0051BA 2

9. Close the hydraulic ball valves **(4)** on hydraulic hoses coming out from tractor.
10. Depressurize the hydraulic system.
11. Disconnect the hoses of the hydraulic system from the tractor.
12. Disconnect the electric wire connected with the tractor.
13. Disconnect the lighting equipment.
14. Dismount the top link.
15. Unlock and pull out the hooks from lower couplings.
16. Lower the jack arms until they are released from the couplings on the implement.



ZEIL22TIL0166AA 3

⚠ WARNING

Escaping fluid!

Do not connect or disconnect hydraulic quick coupler under pressurized conditions. Make sure all hydraulic pressure is removed from the system before connecting or disconnecting hydraulic quick coupler.

Failure to comply could result in death or serious injury.

W0095B

5 - TRANSPORT OPERATIONS

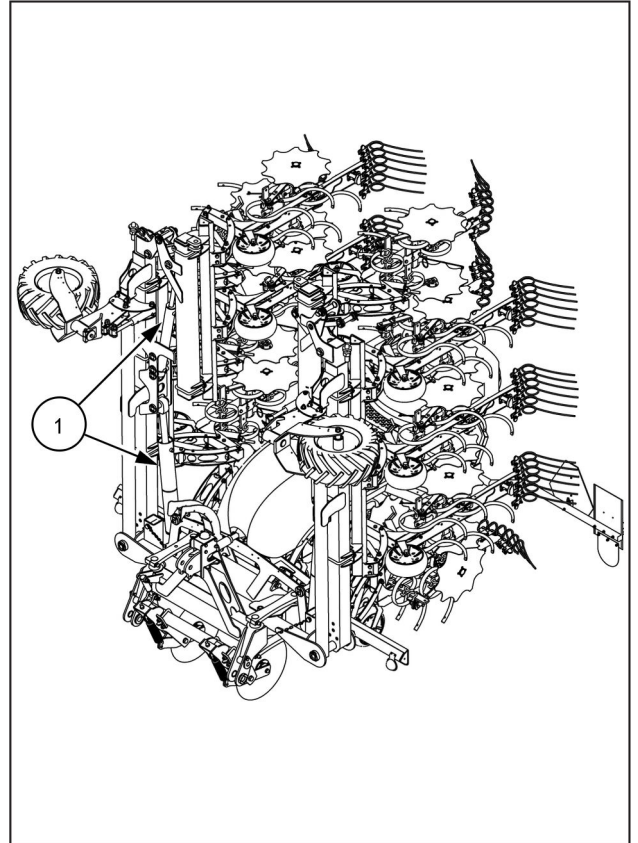
Road transport

Transport position

The implement is equipped with a special hydraulic folding beam. Folding and unfolding is achieved with 2 double acting cylinders (1), which are activated from the tractor.

The smaller implement until **6 m (19.7 ft)** have single fold, whereas **9 m (29.5 ft)** implement have double fold. A simple folding mechanism ensures a transport width of **3 m (9.8 ft)**.

NOTICE: Check position of the camera and lower if needed to avoid any damage during folding.



ZEIL19TIL0234BA 1

Transport on public roads

WARNING

Transport hazard!

If the tractor hydraulic system accidentally engages during transport, the machine could drop to the ground, swing into roadside obstacles, or swing into oncoming traffic. Before transport, always engage the header lift lock valve and the tongue swing cylinder valve in the **LOCKED** position.

Failure to comply could result in death or serious injury.

W1518A

NOTICE: When you drive on sloping ground, you must be aware that the implement's high center of gravity will increase the risk of overturning, and also affects the road-holding qualities around corners etc.

NOTE: The behavior of the tractor when you drive with the implement may vary. Adjust the style of driving to the conditions on the road. Pay special attention to the location of the center of gravity of these implement elements which are folded with the use of hydraulic cylinders. The maximum permissible speed for driving with the implement attached is **25 km/h (15.5 mph)**.

NOTE: Make sure that the implement is equipped with the correct lighting system and other traffic markings in accordance with the country's current rules. The implement must be equipped with front lights (position lights) and rear lights (turn signals, position lights, braking lights) connected to the electrical installation of the tractor. Plus a triangle sign must be mounted on a special grip for slow vehicles.

NOTE: In vertical transport position the wings must be folded in and the 3-point linkage must be lifted so that the transport height is below 4 meters and still safe clearance above the road from the lowest point. The exact transport height for the individual implements is stated under technical data (see Page **9-1**).

NOTE: During transport and in operation, transporting people on the structure of the implement is strictly prohibited.

NOTE: Before you transport the implement on a public road, make sure not to exceed the transport height of **4 m (13.1 ft)**.

Only transport the implement behind a tractor in the tractor linkage arms.

Transport the implement only in the transport position.

Before you drive on public roads, convert the implement from transport to working position and back again to ensure that there is no air in the hydraulic system.

Always immobilize (close) the ball valve that secure the implement before you drive on public road.

Lift the sections and put into transport position to obtain the correct transport width and inhibit the sections from moving during transport

Place the jacks into the transport position. Lift the jacks and secure the support in the transport position with a latch pin. Make sure that the four latch pins are reengaged.

When you drive with the implement attached on any public roads, railway tracks or other surfaces, never exceed the transport width the implement, specified by applicable regulations. If the maximum permissible transport width is exceeded, then, in extraordinary conditions, the authorities may issue a special permit for the transport of a large-size vehicle.

Always observe the principles for permissible axle loads, the total implement mass and the transport gauge.

When you turns or drive next to corners, maintain a safe distance to account for the inertia of the implement and location of the center of gravity of the folded frame, which is at height.

After you finish the transport, before you leave the tractor, always lower the implement to the ground to the parking position (see Page **4-10**), turn off the tractor engine, remove the key from the ignition and pull the hand brake.

To lower the center of gravity, and to ensure more stable transport conditions, the implement must be lowered to the lowest position available, ensuring however that sufficient space is left from the surface of the road.

Make sure that the implement is safe and that nothing falls off it during transport, for instance large lumps of soil.

Control the operation of the implement's lamps and the condition of warning plates.

Shipping transport

Lifting the implement

⚠ WARNING

Falling object hazard!

DO NOT go underneath a hanging load. Make sure the area is clear of all bystanders. Failure to comply could result in death or serious injury.

W1129A

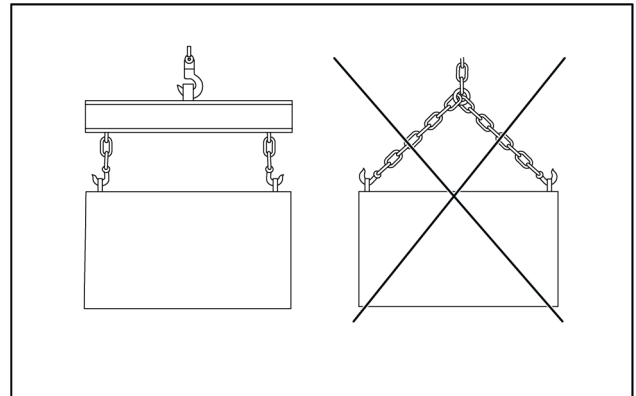
⚠ WARNING

Crushing hazard!

Use the machine lifting points when you lift and/or move the machine with heavy handling equipment. Lift the machine only from the indicated lifting eye hookup points. Always use adequate lifting equipment.

Failure to comply could result in death or serious injury.

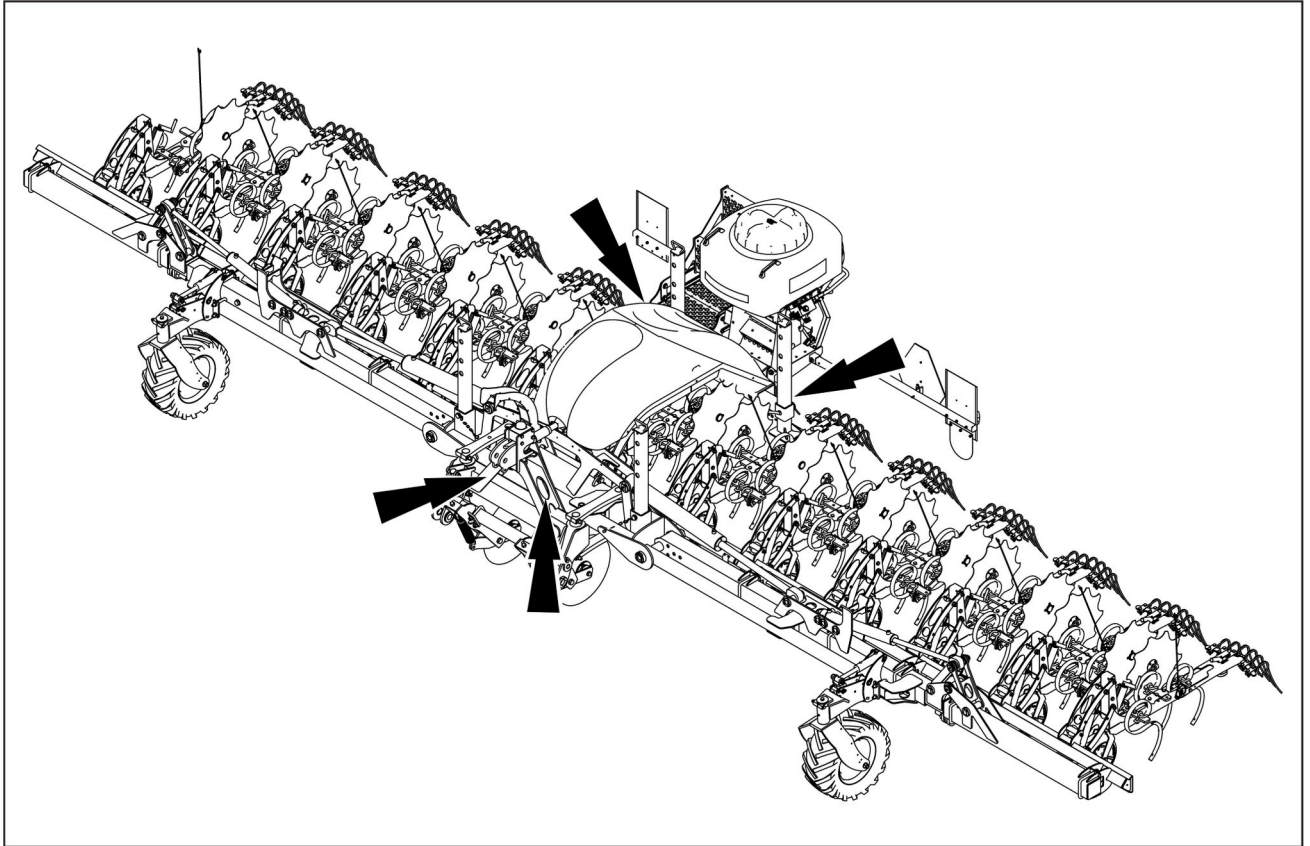
W1432B



ZEIL19TL0049AA 1

If you lift the implement with a crane or a forklift, always proceed according to the following guidelines:

- The crane or forklift used to lift the implement must have proper lifting capacity and is equipped with proper ballast.
- Lift the implement in the folded position or with unfolded only main fold wings.
- Always use transport belts with proper load-bearing capacity.
- To lift the implement correctly use the lifting point shown in the Figure 2.



ZEIL19TIL0205FA 2

Loading and unloading of the implement with suitable lifting device

- For loading and unloading the implement, use only a suitable lifting device with an operational operating braking system.
- Fold the outer wings (for **9 m** models).
- When you perform the loading / unloading procedure, ask an additional person for help in pointing the right directions.
- When you load the implement, disconnect it from the tractor and secure it for the duration of transport, according to applicable regulations.

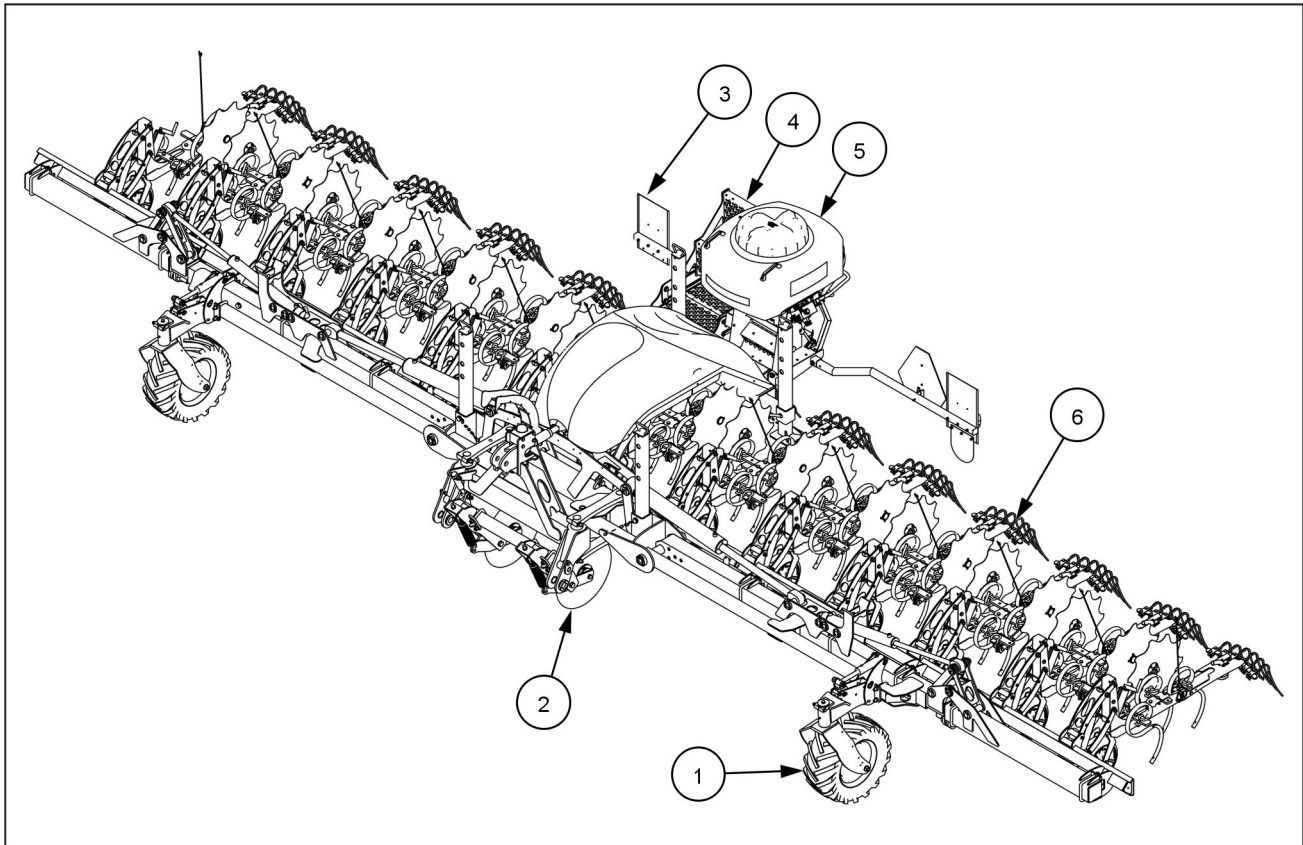
Transport on pallet

The implement is properly adapted to loading onto any means of transport after some preparation. To transport the implement, fold the outer wings (for **9 m** models) and disassemble some of equipment.

To prepare the transport of the implement, disassemble and pack the following parts on euro pallet:

- Wheels **(1)**
- Stabilizing discs **(2)**
- Light kit **(3)**
- Platform for seeder **(4)** (if equipped)
- Seeder **(5)** (if equipped)
- Rear harrows **(6)** (if equipped)

Before you load and unload, secure all contact points of the implement with the forklift are structure to avoid damaging the varnish or equipment (cylinders, hydraulic hoses).



ZEIL19TIL0205FA 1

6 - WORKING OPERATIONS

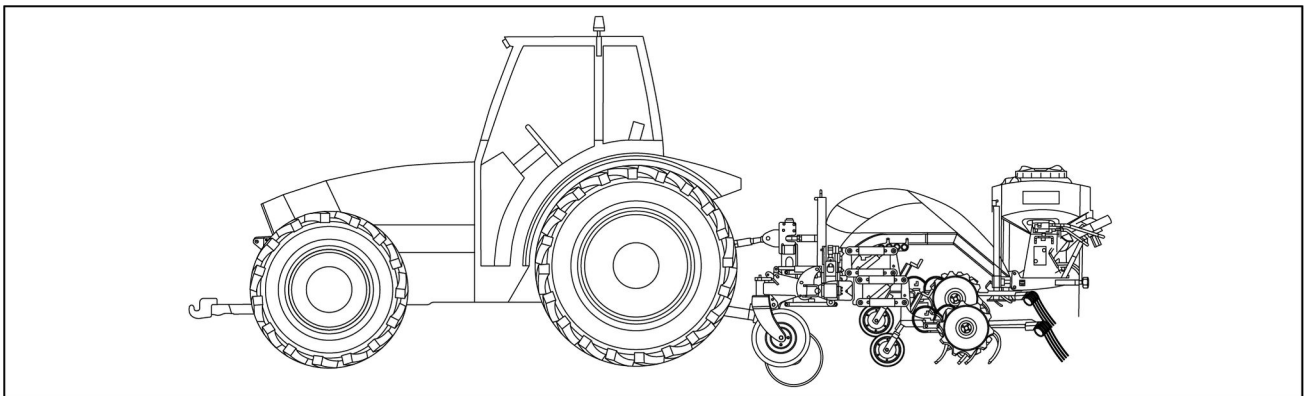
General information

Working position

To unfold the implement to the working position, proceed as follows:

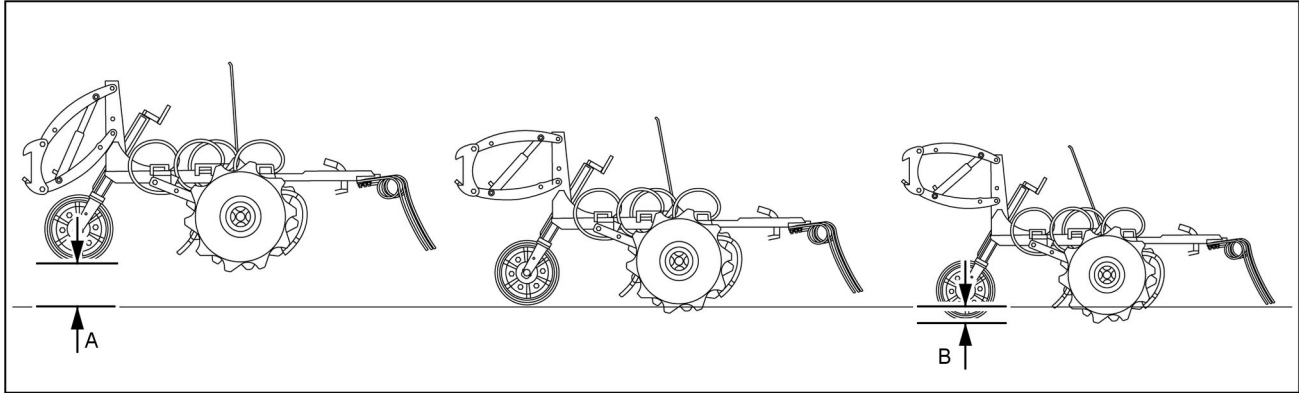
1. Lift the jacks to the transport position - highest position.
2. Open the hydraulic ball valves on hydraulic hoses coming out from tractor and in line to stabilizing disc.
3. Fold out the outer wings (for **9 m** models) by briefly activating the hydraulic outlet.
4. Lower the implement while you activate the hydraulic outlet slowly (If the hydraulic oil is cold, it may happen that the lowering speed decreases strongly).
5. Lower the sections using hydraulic line.
6. Lower the 3 point linkage until the sections are in working position - the parallelograms are horizontal with the field.
7. Adjust the linkage arms so that the foremost end of the bar is vertical.
8. Make sure that the row spacing is adjusted correctly - if no, correct the distance.
9. Adjust the wheels on the sections in accordance with the required working depth - normally **2 – 3 cm (0.8 – 1.2 in)**.

NOTE: If you fold the outer wings, the **9 m (29.5 ft)** version can be used as a **6 m (19.7 ft)** implement.



ZEIL19TL0085EA 1

The sections must be horizontal when work is started in the field and able to move freely up and down without interference. Each individual section can move upwards approximately **25 cm (9.8 in) (A)** and downwards approximately **7 cm (2.8 in) (B)** in relation to the horizontal position to be able to follow the contours of an uneven field. If the tines and discs on the working sections are blocked; stop the tractor engine, activate the parking brake and remove the foreign matter.



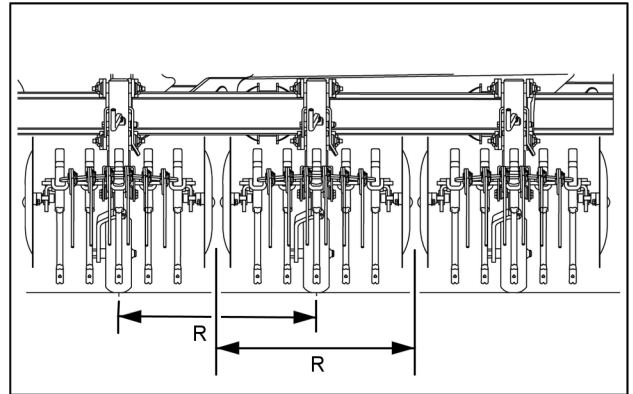
ZEIL19TIL0192EA 2

Adjustment of working section

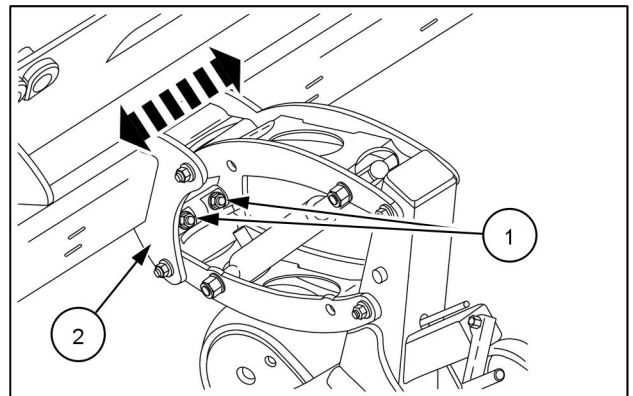
NOTE: Only small adjustment are available.

With proper spacing section, the support wheels must roll a middle of inter rows. The distance between sections (measured from center of support wheel) must be the same and correspond to widths of inter rows (**R**). In case of irregularities the sections should be moved. To move the section, proceed as follows:

1. Loosen the bolts (1).
2. Lift and move the section (2) as required.
3. Tighten the bolts (1).



ZEIL19TL0080AA 1

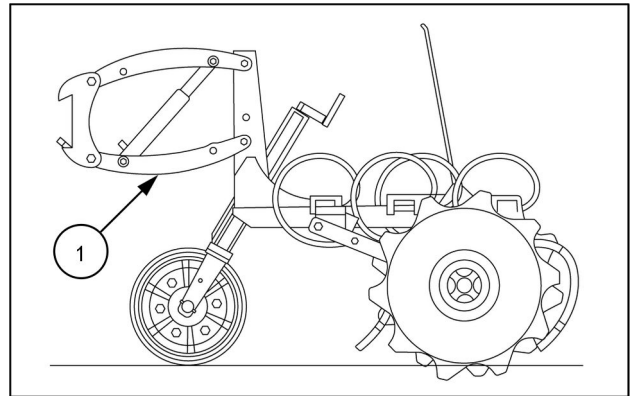


ZEIL19TIL0185AA 2

Adjustment of the working depth

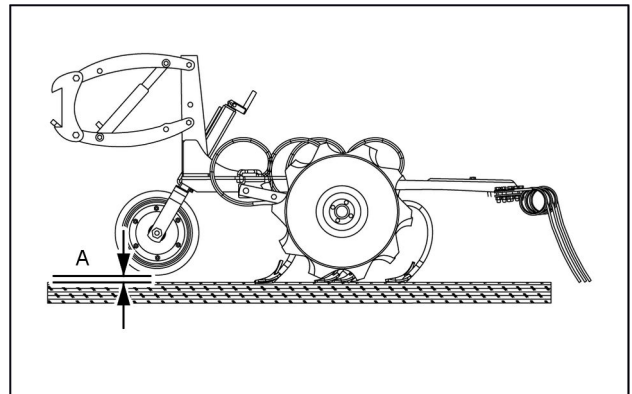
Position the boom correctly in relation to the field; horizontal sections and vertical tool bar at the foremost end of the bar. Mount the cleaning sections so that they clean between the rows of crops.

The working sections **(1)** must be horizontal during work to achieve the best possibility for the sections to follow the soils contours. Position the boom correctly in relation to the field.



ZEIL19TIL0405AA 1

While regulation, remember that the wheel sections collapse in the soil for about **1 – 1.5 cm (0.4 – 0.6 in)**. To set the correct working depth, adjust the support wheel at the height **(A)**.



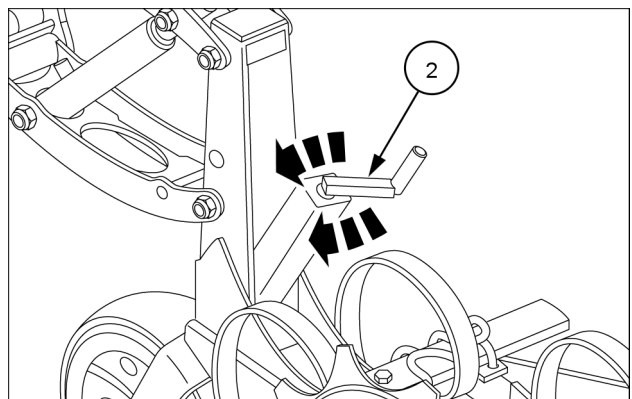
ZEIL19TIL0406AA 2

Each individual unit is a separate self contained cultivator with its own depth control and parallelogram suspension. The depth control wheel makes the section very stable while maintaining the uniform depth. The wheel is maintenance free and is adjustable by means of a crank.

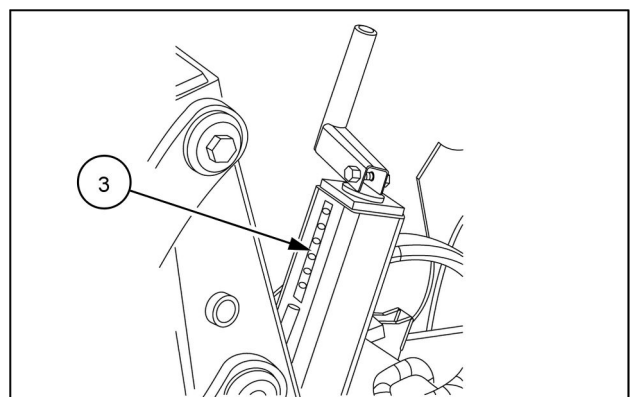
To change the working depth, proceed as follows:

1. Turn the crank **(2)** clockwise to increase working depth.
2. Turn the crank **(2)** counter-clockwise to decrease working depth.

Use the scale and indicator **(3)** to set the same working depth for each section.



ZEIL19TIL0404AA 3



ZEIL19TIL0408AA 4

Working in the field - Vibro Crop Intelli

Before you work in the field, check that the implement has been connected correctly, that the implement is in the working position and that equipment has been adjusted correctly as described in the previous sections.

When you go into or out of the headland, have a slower speed than driving in the field. Always remember to lift and lower the implement when you go in and out of the headlands. The implement will automatically self-center when it is being raised due to activation of an implement sensor when the implement is lifted. The camera will then go on standby.

Lowering the implement will activate the camera and it needs a few meters to read the rows. If the camera is not able to identify the rows it will lock the side shift in the current position until row identification has been restored or implement sensor has been activated.

The maximum working speed is **14 km/h (8.7 mph)**, but depending on the crop and the working conditions, the optimal working speed should be between **6 – 10 km/h (3.7 – 6.2 mph)**. Always adjust the speed to the conditions in the field.

Adjusting the implement in the field

Raise the implement above the ground and adjust the side shift frame in the camera steering settings by marking the two out positions (left-hand side and right-hand side) and the center position.

To control the correct position of the rolling shields on either side of the rows, drive slowly forward some **2 m (6.6 ft)** and check that the rolling shields are correctly positioned on either side of the rows. If not, adjust the working implements and the protection shields to suit the row distance.

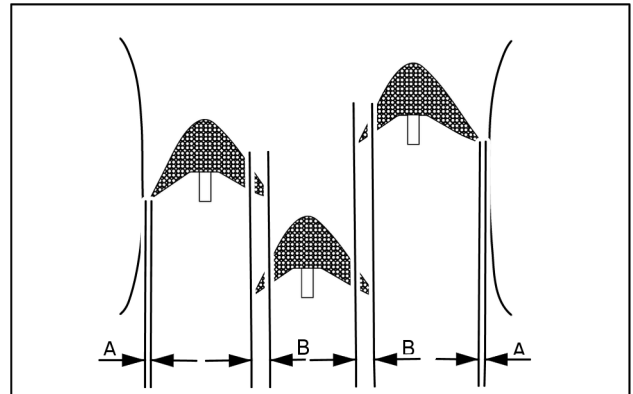
Drive again slowly forward. Stop after some **10 m (32.8 ft)** and examine the position of the tractor top link. If the top link is straight in relation to the tractor, and if the implement follows the rows, then the adjustment is correct.

If the top link has moved to either side, adjust the implement at the links and test again.

Check the working depth – normally approximately **3 cm (1.2 in)**. The working depth is finely adjusted by altering the length of the tractor top link and support wheel on the sections. Adjusting the top link also alters the angle of the shares and thus its ability to penetrate.

Check that the soil clods from the shares hit the rolling shields. Normally the length of the rolling shield arms should be adjusted so that the centers of the rolling shields are in line with the back of the nearest tines. At high speed it may become necessary to move the shields further back.

Check the working depth of the stabilizer disc – it should be **> 5 cm (2 in)**. The working depth is can normally correct by adjusting the tension of the spring.



ZEIL19TL0067AA 1

Turning

NOTICE: Reversing the implement with the working tines in the ground is prohibited. Risk of implement damage.

NOTICE: If you turn at high speed the implement may begin tilt and collide with the ground.

Always drive slowly when you turn on the headland and when you drive with lifted cleaning sections. The implement must have ground clearance when you turn at the headland to avoid unintended torsion stress at the support wheel and for the parallelogram side shift frame to self center.

After you establish the proper working position of the cultivator, to lift the implement on headlands, use the tractor three point linkage.

Working in the field - Vibro Crop

Before you work in the field, check that the implement has been connected correctly, that the implement is in the working position and that equipment has been adjusted correctly as described in the previous sections.

When you go into or out of the headland have a slower speed than driving in the field. Always remember to lift and lower the implement when you go in and out of the headlands.

Depending on the crop and the working conditions, the driving speed should be between **6 – 10 km/h (3.7 – 6.2 mph)**. Always adjust the speed to the conditions in the field.

Adjustment of spacing of the tines and protection shields

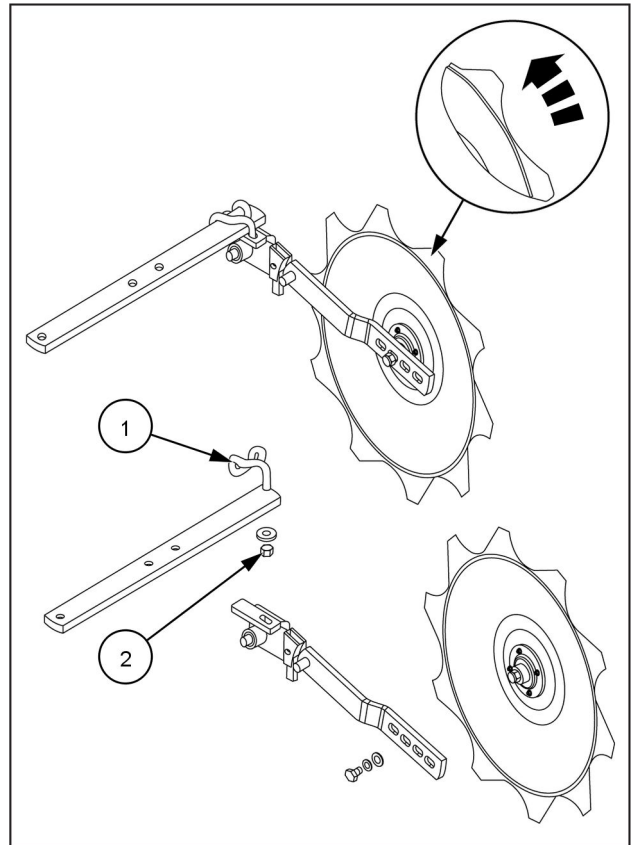
The step-less adjustable shields are adjustable in width from **7 cm (2.8 in)** to prevent plant damage. They are mounted on the parallelogram and are used to minimize the area in contact with the soil and prevent weed, seeds and soil thrown into the crop rows.

The shields can be locked manually in raised position when not needed or in a later plant stage. Due to the rotation there will be minimal plant damage and no dragging of plant residues.

Protection shields and tines are fixed to the beam by clamps (1). To change the position of protection shield or tine, proceed as follows:

1. Loosen the nut (2).
2. Move the protection shield to the right position.
3. Tight the nut (2).

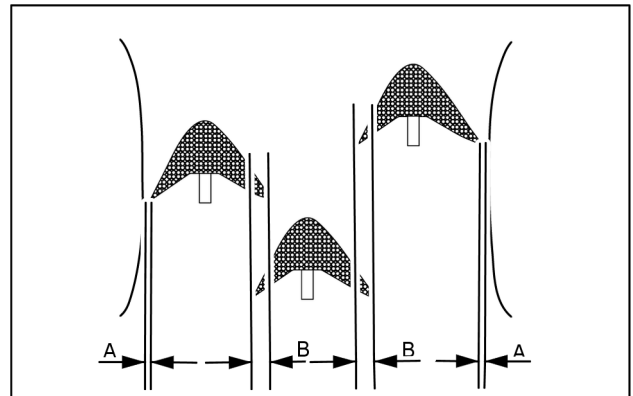
NOTE: There are right-hand side and left-hand side protection shield arm and protection shields. Mount the protection shield so that the serrations turn in the direction shown.



ZEIL19TL0066BA 1

Cleaning sections are mounted with the vibrating tines. The tines vibrate the weeds free from surrounding soil, so that they can disappear quicker. The tines also improve drainage without disturbing the soil structure. During adjustment, the range of action of the tines should overlap each other approximately **2 cm (0.8 in) (B)** and the distance between nearest share and protection shield should be no larger than **1 cm (0.4 in) (A)**.

NOTE: Row widths of up to **55 cm (21.7 in)** are cultivated with 3 tines on each parallelogram. Distances from **55 cm (21.7 in)** and above are cultivated with 5 tines.



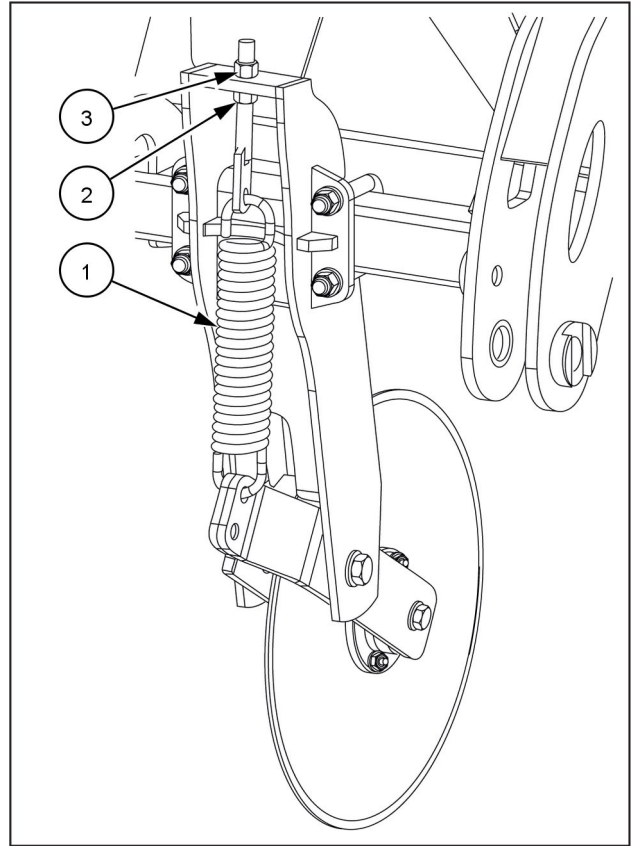
ZEIL19TL0067AA 2

Adjustment of the stabilizing disc

With side shift or guiding disc, the implement is ensured of following the correct course even on undulated and sloping land while still maintaining a high working speed.

The spring **(1)** press the stabilizing disc into the soil. The size of the force this spring should ensure delving into the soil at least 2/3 of the cutting edge. To change the pressure of the spring, proceed as follows:

1. Loosen the locknut **(2)**.
2. Rotate the nut **(3)** by wrench (clockwise to increase the pressure of the spring, increase the delve of disc / counter-clockwise to decrease the pressure of the spring, decrease the delve of disc).
3. Tighten the locknut **(2)**.



ZEIL19TL0068BA 1

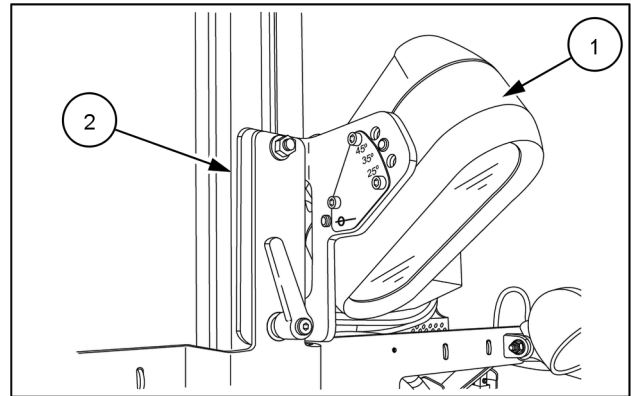
Camera steering

The implement is equipped with a camera steering system (1) for Intelli version that is able to detect and identify the crop rows when you drive along the rows in the field. The camera controls the side shift frame so the implement is self-adjusting during the work in the field. Use the aluminium rail and the bracket (2) to mount the camera. The camera bracket can be placed directly above a section to see 2 crops rows (A) or between two sections to see 3 rows (B) for a precision of less than **1 cm (0.4 in)**, at high speed and on undulated land the accuracy is up to **2.5 cm (1 in)**. Mount and adjust the camera precisely before you start to work the field to avoid crop damage.

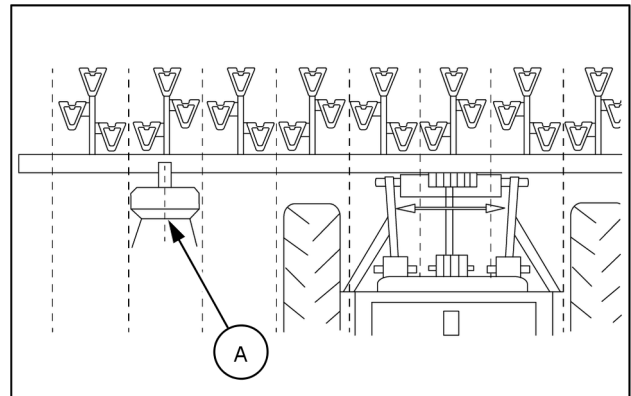
While the tractor with the implement is stationary and in-line with the rows in the field, turn on the camera and adjust the side shift frame correctly. Find the best camera signal as possible.

The implement is adjusted and works independent of the tractor's position in the rows. The height (3) and the angle (4) of the camera can be adjusted depending on the growth stage of the crop. For the recommended minimum camera height, see Page 3-19 Sub title **Camera height adjustments**.

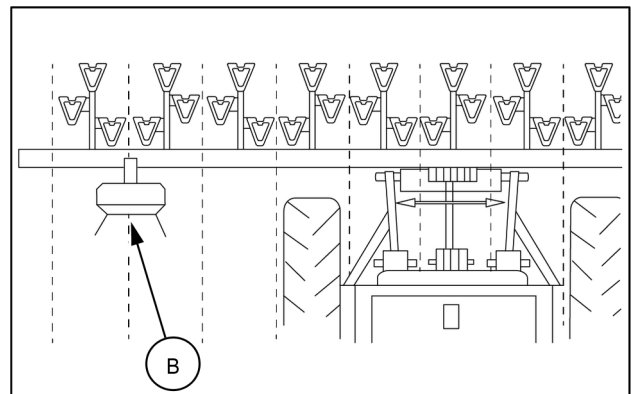
NOTE: The camera must be placed right above a section or in the center between two sections with the best precision possible < **1 cm (0.4 in)**.



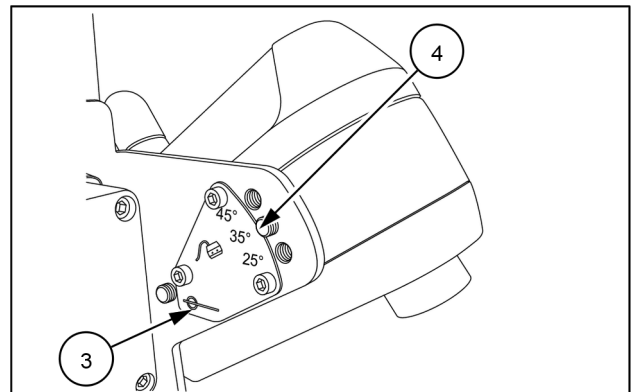
ZEIL19TIL0611AA 1



ZEIL19TL0078AA 2



ZEIL19TL0079AA 3



ZEIL22TIL0168AA 4

Section controls

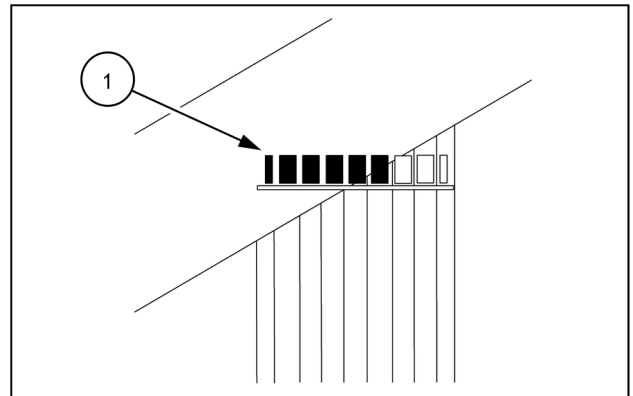
NOTE: Valid only for Vibro Crop Intelli.

The implement can be equipped with section control enabling cultivation of the entire field. Section control is carried out via a GPS terminal in the tractor and allows you to work with less damage of the crop than traditional row crop cleaners. This enables individual tine sections to be raised and lowered **(1)** when the cultivator approaches the headland or irregular shaped areas of the field **(2)**. The GPS section control enables the field to be 100% cleaned. The result is no damage of crop in the headlands, saving of cost of herbicides, the existing GPS equipment can be utilized for auto-steering.

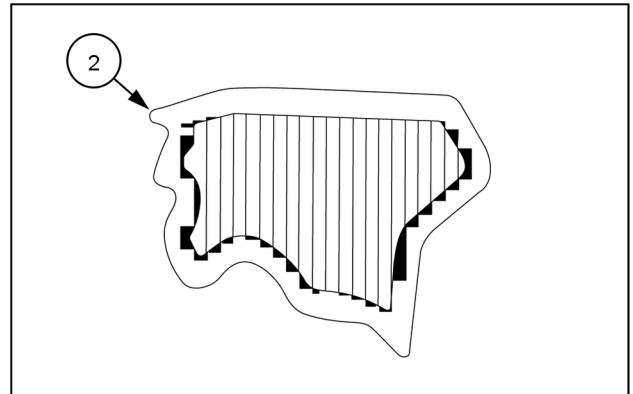
Operating the GPS system is individual depending on the GPS supplier. KONGSKILDE recommends and advises that how to operate and maintain the equipment must be in accordance with the specific GPS supplier's manual.

When you approach the headland using the GPS section control, the forward speed must be reduced to **5 km/h (3.1 mph)** in order to ensure sufficient lifting capacity of all sections.

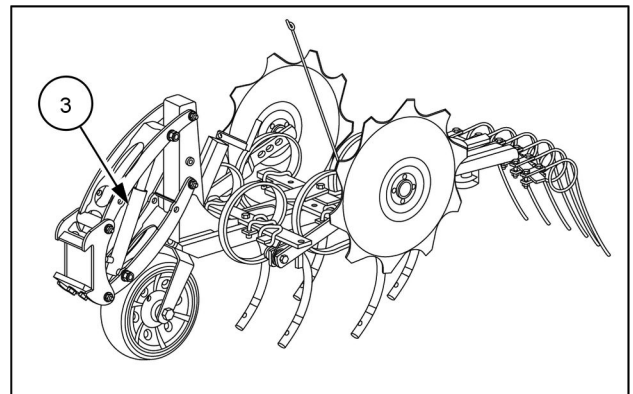
Hydraulic cylinder **(3)** provides **25 cm (9.8 in)** ground clearance when the sections are raised in the field.



ZEIL19TIL0188AA 1



ZEIL19TIL0187AA 2



ZEIL19TIL0189AA 3

There are two section control systems:

- Section control system adapted to GPS (from Trimble, Topcon or Agleader).

For customers with a GPS from Trimble, Topcon or Agleader, a pre-assembly kit is available, including a cable to connect the implement to the section control box. The section control box is not included and must be obtained directly at Trimble, Topcon or Agleader. The control box is used to allow the specific functions of the GPS manufacturer to be translated to the electronics of the row crop machine.

- Auto section control Isobus.

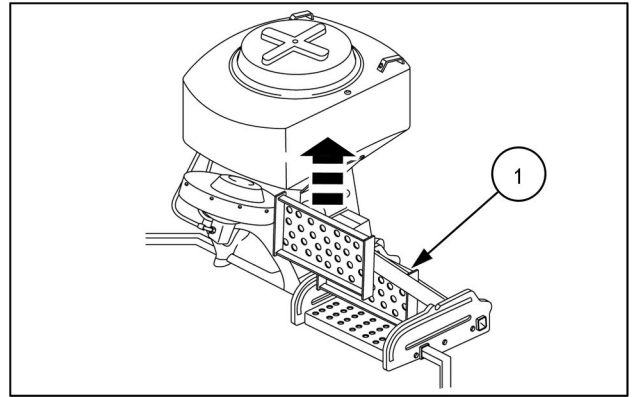
The Isobus is a universal communication system enabling the communication of the implement section control, with any tractor brand from now on. No additional equipment is needed, only an Isobus terminal in the tractor. The Isobus controller controls the electric and hydraulic functions and allows the section control to lift the individual elements.

KONGSKILDE is not doing support on the different GPS supplier's equipment. In case of issues related to the GPS equipment please read the external GPS manual or contact the GPS supplier directly. KONGSKILDE will be helpfully in advising you about the GPS supplier.

Filling the seeder (aftermarket equipment)

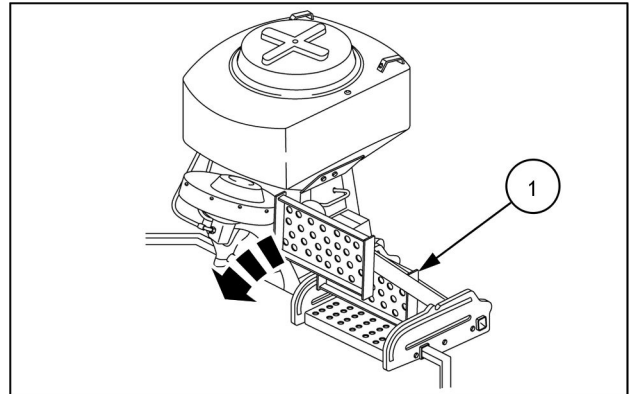
To fill the seeder proceed as follows:

1. Unlock the steps (1).



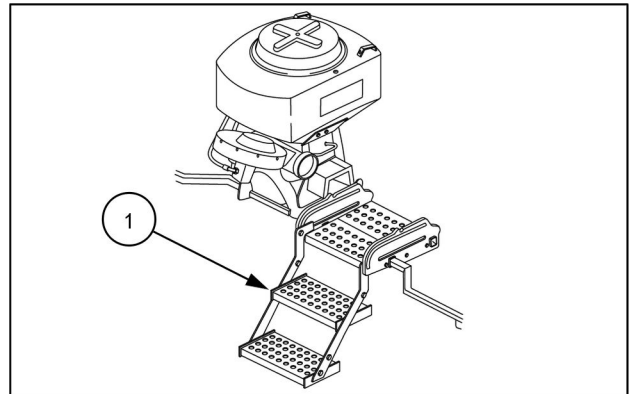
ZEIL19TL0073AA 1

2. Fold the steps (1) down.



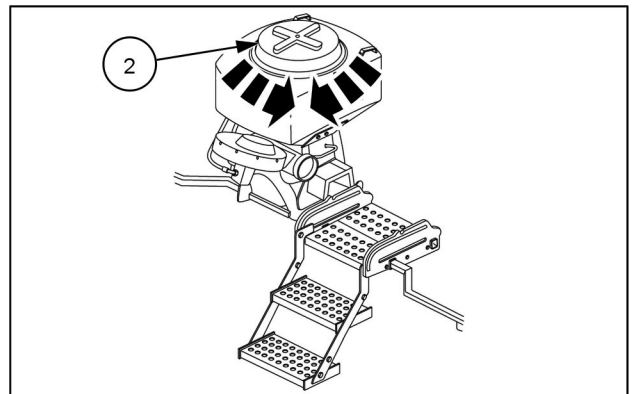
ZEIL19TL0074AA 2

3. Climb up the steps (1) onto the loading board.



ZEIL19TL0075AA 3

4. Remove the cap (2) by turning (left - open, right - close), and fill the seeder hopper.



ZEIL19TL0076AA 4

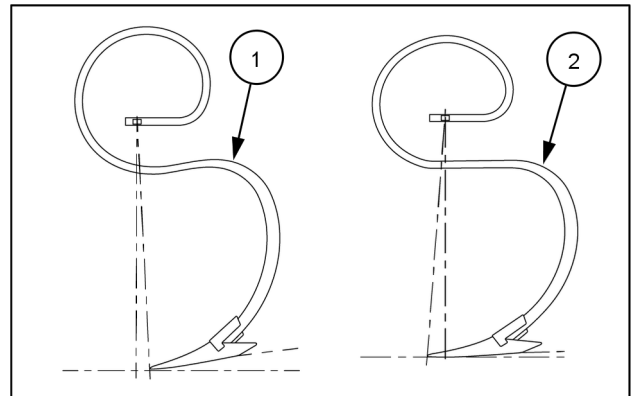
Tines (Vibro Crop tines for vulnerable crops)

The implement with the combination of vibrating S-shaped tines (for improved accuracy, while working minimum depths) and rolling shields enables the user to work the maximum area possible between the rows as well as maintaining a high working speed. The implement is designed to give absolute accuracy both above and below the working surface.

Two different types of tine are available:

1. The universal tine **(1)** for the implements with row width **60 – 75 cm (23.6 – 29.5 in)**.
2. The Vibro Crop-tine **(2)** for the implements with row width **45 – 50 cm (17.7 – 19.7 in)**, specially designed to work on shallow depths.

The S-tines are not only cutting the weeds but are also vibrating the weeds free from the surrounding soil, so that they can die on the soil surface. In conjunction with this they are also aerating the soil and improving the drainage without disturbing the soil structure.



ZEIL19TIL0182AA 1

7 - MAINTENANCE

General information

General

WARNING

Improper operation or service of this machine can result in an accident.

If you do not understand a maintenance procedure, or doubt your ability to perform a maintenance procedure correctly, see your authorized dealer.

Failure to comply could result in death or serious injury.

W0157A

WARNING

Avoid injury! Always do the following before lubricating, maintaining, or servicing the machine.

1. Disengage all drives.
2. Engage parking brake.
3. Lower all attachments to the ground, or raise and engage all safety locks.
4. Shut off engine.
5. Remove key from key switch.
6. Switch off battery key, if installed.
7. Wait for all machine movement to stop.

Failure to comply could result in death or serious injury.

W0047A

WARNING

Cutting hazard!

Use care handling sharp components. Always wear appropriate Personal Protective Equipment (PPE), including heavy gloves.

Failure to comply could result in death or serious injury.

W1267A

NOTICE: Be sure that all the service operations in this chapter are carried out punctually at the intervals given, in order to ensure optimum performance levels and maximum safety when using the implement.

Adequate lubrication and maintenance on a regular schedule is vital to maintain your implement. To ensure long service and efficient operation, follow the lubrication and maintenance schedules outlined in this operator's manual. The use of proper oils, grease, and filters, as well as keeping the systems clean, will also extend the implement and components life.

NOTICE: Failure to complete the required maintenance at the recommended intervals can cause unnecessary downtime.

Use the intervals listed in the maintenance chart as guidelines when you operate in normal conditions. Adjust the intervals when you operate in adverse environmental and working conditions. Shorten the intervals for sandy, dusty, and extremely hot operating conditions.

NOTICE: *While any company can perform necessary maintenance or repairs on your implement, KONGSKILDE strongly recommends that you use only authorized KONGSKILDE dealers and products that meet given specifications. Improperly or incorrectly performed maintenance and repair voids the equipment warranty and may affect service intervals.*

Always disengage the hydraulic pressure and power, before you:

1. Lubricate the implement.
2. Clean the implement.
3. Disassemble any part of the implement.
4. Adjust the implement manually.
5. Connect and disconnect electronics and electrical equipment.

When you repair or maintain the implement it is especially important to ensure the correct personal safety. Therefore, always park the tractor (if mounted) and the implement safely (see Page **4-10**).

Secure the implement by applying suitable supports before performing maintenance works with the implement in the raised position.

Check and torque all the bolts regularly.

Switch off the electric power supply before doing anything with the electrical system.

Disconnect the cables from the alternator and battery of the tractor before electrically welding of parts of a tractor and the drill implement installed on it.

If the cultivator tines get loosened, tighten the clamping ring mounting the tine to a torque between **60 – 65 N·m**.

Used and destroyed parts must be unconditionally replaced with the next possible opportunity in order to ensure that the implement operates correctly and safely.

Use only original spare parts and consumables, manufactured by KONGSKILDE.

Cleaning and maintenance

After you finish to work with the implement, clean it thoroughly.

Before you clean the implement:

1. Turn off the drive.
2. Turn off the engine.
3. Remove the key from the ignition.
4. Disconnect the power supply from the implement.

Before you clean the implement, make sure that the implement is properly secured against unintentional rolling.

To protect your health, always wear adequate protective equipment when you clean the implement.

Do not clean hydraulic cylinders, bearings, or any other electrical elements using high-pressure implements.

Torque

Minimum hardware tightening torques (in N m or lb in /lb ft) for normal assembly applications unless otherwise stated

The minimum hardware tightening torque on drawings, in specifications, etcetera have priority.

In the following tables, torque specifications are shown following the standard **ENS7001**, applicable for material class 8.8 and material class 10.9.

Hex head bolts

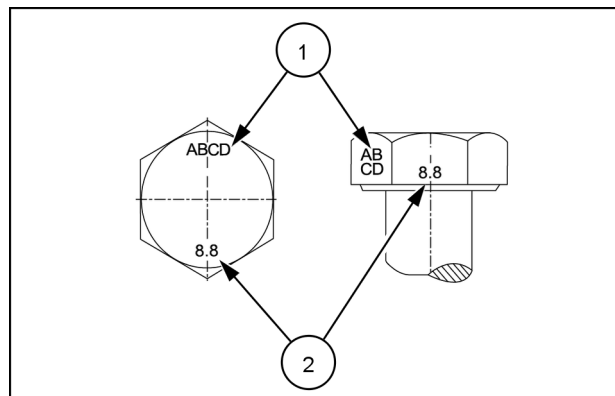
Nominal Size	Class 8.8 in N m (lb in or lb ft)			Class 10.9 in N m (lb in or lb ft)		
	Plated nut	Lock nut	Hardened nut/Oiled plated nut	Plated nut	Lock nut	Hardened nut/Oiled plated nut
M3	1.3 N·m (11.5 lb in)	0.7 N·m (6.2 lb in)	1.2 N·m (10.6 lb in)	1.8 N·m (15.9 lb in)	0.9 N·m (8.0 lb in)	1.6 N·m (14.2 lb in)
M4	2.9 N·m (25.7 lb in)	1.6 N·m (14.2 lb in)	2.6 N·m (23.0 lb in)	4.2 N·m (37.2 lb in)	2.3 N·m (20.4 lb in)	3.7 N·m (32.7 lb in)
M5	5.9 N·m (52.2 lb in)	3.2 N·m (28.3 lb in)	5.3 N·m (46.9 lb in)	8.5 N·m (75.2 lb in)	4.6 N·m (40.7 lb in)	7.6 N·m (67.3 lb in)
M6	10.1 N·m (89.4 lb in)	5.5 N·m (48.7 lb in)	9.1 N·m (80.5 lb in)	14.5 N·m (10.7 lb ft)	7.9 N·m (69.9 lb in)	13 N·m (9.6 lb ft)
M8	24.5 N·m (18.1 lb ft)	13.5 N·m (10.0 lb ft)	22 N·m (16.2 lb ft)	35.1 N·m (25.9 lb ft)	19.3 N·m (14.2 lb ft)	31.5 N·m (23.2 lb ft)
M10	48.7 N·m (35.9 lb ft)	26.8 N·m (19.8 lb ft)	43.8 N·m (32.3 lb ft)	69.5 N·m (51.3 lb ft)	38.2 N·m (28.2 lb ft)	62.5 N·m (46.1 lb ft)
M12	85 N·m (62.7 lb ft)	46.7 N·m (34.4 lb ft)	76.5 N·m (56.4 lb ft)	121 N·m (89.2 lb ft)	66.5 N·m (49.0 lb ft)	108.9 N·m (80.3 lb ft)
M14	135 N·m (99.6 lb ft)	74.2 N·m (54.7 lb ft)	121.5 N·m (89.6 lb ft)	193 N·m (142.3 lb ft)	106.1 N·m (78.3 lb ft)	173.7 N·m (128.1 lb ft)
M16	210 N·m (154.9 lb ft)	115.5 N·m (85.2 lb ft)	189 N·m (139.4 lb ft)	301 N·m (222 lb ft)	165.5 N·m (122.1 lb ft)	270.9 N·m (199.8 lb ft)
M18	299 N·m (220.5 lb ft)	164.4 N·m (121.3 lb ft)	269.1 N·m (198.5 lb ft)	414 N·m (305.4 lb ft)	227.7 N·m (167.9 lb ft)	372.6 N·m (274.8 lb ft)
M20	425 N·m (313.5 lb ft)	233.72 N·m (172.4 lb ft)	382.5 N·m (282.1 lb ft)	587 N·m (432.9 lb ft)	322.8 N·m (238.1 lb ft)	528.3 N·m (389.7 lb ft)
M22	579 N·m (427 lb ft)	318.4 N·m (234.8 lb ft)	521.1 N·m (384.3 lb ft)	801 N·m (590.8 lb ft)	440.5 N·m (324.9 lb ft)	720.9 N·m (531.7 lb ft)
M24	735 N·m (542.1 lb ft)	404.2 N·m (298.1 lb ft)	661.5 N·m (487.9 lb ft)	1016 N·m (749.4 lb ft)	558.8 N·m (412.1 lb ft)	914.4 N·m (674.4 lb ft)
M27	1073 N·m (791.4 lb ft)	590.1 N·m (435.2 lb ft)	967.5 N·m (713.6 lb ft)	1486 N·m (1096 lb ft)	817.3 N·m (602.8 lb ft)	1337 N·m (986.1 lb ft)
M30	1461 N·m (1077.6 lb ft)	803.5 N·m (592.6 lb ft)	1315 N·m (969.9 lb ft)	2020 N·m (1489.9 lb ft)	1111 N·m (819.4 lb ft)	1818 N·m (1340.9 lb ft)

Flange head bolt/Flange nut

Nominal Size	Class 10.9 in N·m (lb ft)
M3	2.0 N·m (1.5 lb ft)
M4	4.6 N·m (3.4 lb ft)
M5	9.4 N·m (6.9 lb ft)
M6	15.9 N·m (11.7 lb ft)
M8	38.7 N·m (28.5 lb ft)
M10	76.5 N·m (56.4 lb ft)
M12	134 N·m (98 lb ft)
M14	213 N·m (157 lb ft)
M16	331 N·m (244 lb ft)
M18	455 N·m (336 lb ft)
M20	645 N·m (476 lb ft)
M22	881 N·m (650 lb ft)
M24	1118 N·m (824 lb ft)
M27	1635 N·m (1206 lb ft)
M30	2222 N·m (1639 lb ft)
M36	3880 N·m (2862 lb ft)

Identification markings

Metric hex head, flange hex head and carriage bolts,
Classes (CL) 5.6 and upward

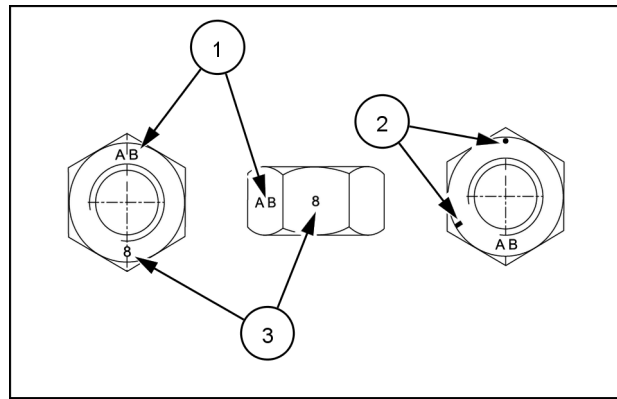


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Metric bolt identification markings

1. Manufacturer's identification
2. Property class

Metric hex nuts and locknuts, Classes (CL) 05 and upward



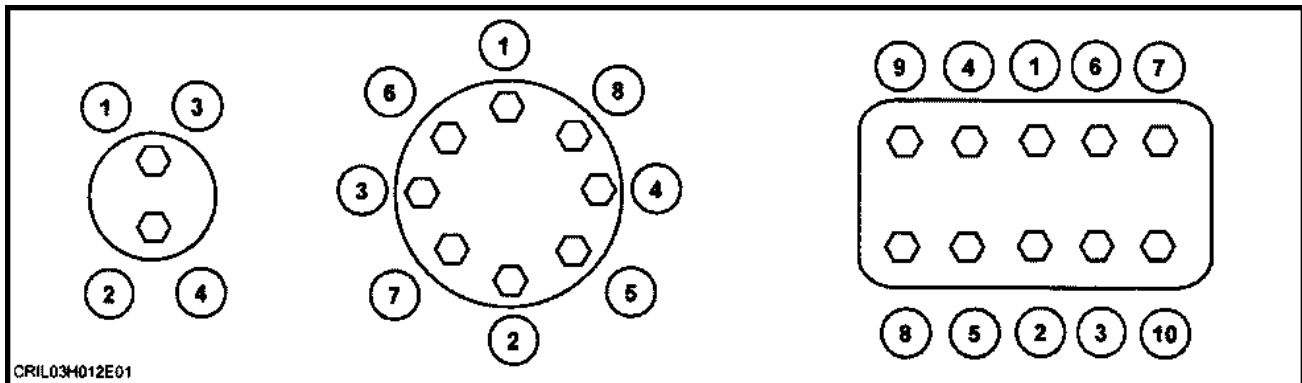
NHIL14RB00663AA 2

Metric hex nut identification markings

- **(1)** – Manufacturer's identification
- **(3)** – Property class
- **(2)** – Clockwise type markings indicate property class and may include manufacturer identification (if applied),
Example: property marks **240°** apart (shown) at the eight o'clock position indicate a Class 8 property, and marks **300°** apart at the ten o'clock position indicate a Class 10 property.

Torque tightening sequence

NOTICE: Shown below is the suggested initial torque tightening sequences for general applications, tighten in sequence from item 1 through to the last item of the hardware.



CRIL03H012E01

DF5019-1 3

Grease fittings and intervals

Regular lubrication is the best insurance against delays and repairs. Proper lubrication will extend the life of the implement.

Grease fittings

On new implements, the grease fitting may be covered with paint. Remove the paint to ensure the grease fitting can accept grease.

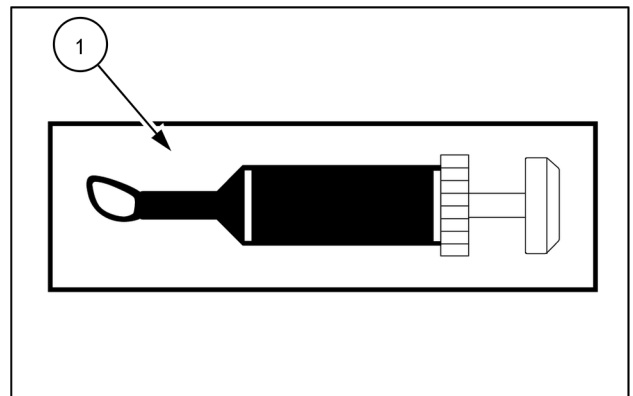
Wipe the dirt from all of the fittings and from the grease gun nozzle before you grease the implement to minimize the chance of contamination.

Pump fresh grease into the fitting to adequately lubricate the component and force out any contamination from the grease passage. Wipe off any excess grease.

Follow the lubrication schedule outlined in this operator's manual. Refer to the illustrations to identify each grease fitting on this implement.

All grease fittings are labeled with the sticker **(1)**.

Not all grease fittings are readily visible. Various grease fittings can only be accessed through the removal of shields or guards. Always install the shields or guards before you operate the implement.



ZEIL20TIL0006AA 1

Grease guns

Different types of grease guns provide a different amount of grease per pump of the handle.

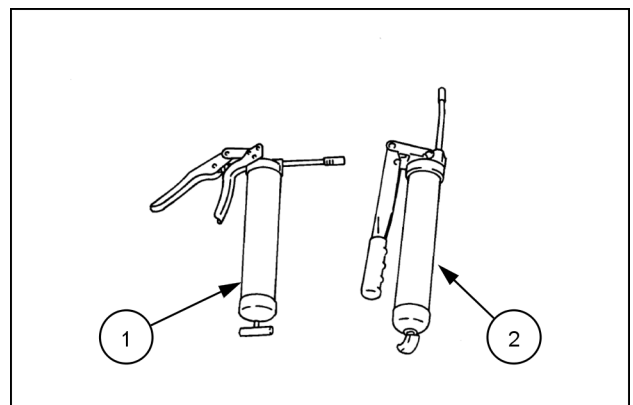
Two commonly used grease gun types are as follows:

- (1)** Pistol grip-style grease gun
- (2)** Lever-style grease gun

In general, a pistol grip-style grease gun injects half of the amount of grease per pump as a lever-style grease gun.

For listed components to grease on this implement, the number of pumps of grease for each grease location are based on the use of a pistol grip-style grease gun **(1)**.

If you use a lever-style grease gun, use only half of the indicated number of pumps of grease.



1431-2-58N 2

Grease specification

See Page **7-9** for the correct grease specification.

Pressure washing

WARNING

Flying debris!

Always wear protective clothing and safety glasses or a face shield when using a steam cleaner or power washer.

Failure to comply could result in death or serious injury.

W0314A

NOTE: Legislation in certain countries and good practice requires special treatment of waste water through sedimentation and oil separation and controlled removal of residues.

Before you use pressure washing, clean the implement with compressed air.

Avoid pressure washing at ambient temperatures below **10 °C (50 °F)** or when the implement is wet. Place the implement in a heated workshop or dry barn for at least **24 h**. Clean the implement only when fully dry.

Be careful when you clean the implement with a high pressure washing. Avoid to direct water jets on electric equipment, bearings, seals, gearboxes, etcetera.

Grease all grease fittings carefully after you clean the implement to press possible water outside bearings.

When you use a high pressure washer:

- Keep a minimum distance of **30 cm (12 in)** between the spray gun and the surface to be cleaned.
- Spray under an angle of minimum **25°** (do not spray straight at the implement).
- Maximum water temperature: **60 °C (140 °F)**.
- Maximum water pressure: **60 bar (870 psi)**.
- Do not use chemicals.

NOTICE: On the cylinders, do NOT direct the stream of a high pressure washer at the wiper seal. Water could come through the rod guide and create corrosion. This corrosion could generate pollution and seizing of the cylinder rod and the rod guide.

Fluids, lubricants, and capacities

Application	Capacity	Product name	Specification(s)
Grease fittings	As required	TUTELA 75 MD GREASE	M1C 137-A

Maintenance planning

Overview

Maintenance action	Check					Grease					Page no.
	Cleaning					Replace					
	Tighten					Storing					
After the first 10 hours											
Nuts and bolts	x										7-11
Every 10 hours											
Camera steering		x									7-11
Monitor		x									7-11
Position sensor		x									7-11
Hydraulic connections			x								7-12
Every 100 hours											
100 hours grease fittings				x							7-13
Nuts and bolts	x										7-15
Connectors		x									7-15
Monitor connections			x								7-15
Every year											
Monitor connections			x								7-16
Every six years											
Hydraulic hoses						x					7-16
As required											
Camera (only for Intelli version)							x				7-17
Monitor (only for Intelli version)							x				7-20
Stabilizing disc							x				7-23

After the first 10 hours

Nuts and bolts

Torque again all the bolts, the nuts and the fasteners after the first **10 h** of work.

Every 10 hours

Camera steering

NOTE: Valid only for Vibro Crop Intelli.

Clean the camera front glass every **10 h** of work.

NOTE: Do not use any aggressive cleaning agents or wet auxiliary agents. Water may penetrate the housing and damage the device.

Monitor

NOTE: Valid only for Vibro Crop Intelli.

Clean the monitor every **10 h** of work.

NOTE: Do not use any aggressive cleaning agents or wet auxiliary agents. Water may penetrate the housing and damage the device.

Position sensor

NOTE: Valid only for Vibro Crop Intelli.

Clean the area around the position sensor every **10 h** of work.

NOTE: Do not use any aggressive cleaning agents or wet auxiliary agents. Water may penetrate the housing and damage the device.

Hydraulic connections

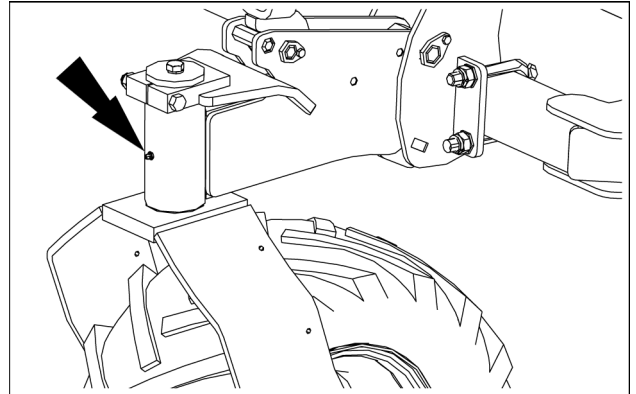
Check the tightness of all hydraulic threaded connections every **10 h** of work.

Every 100 hours

100 hours grease fittings

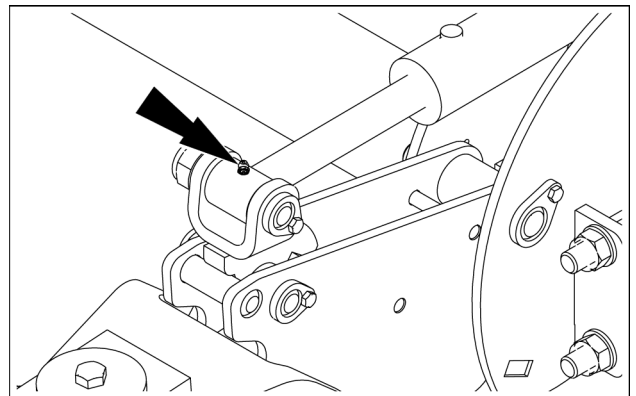
Front side

1. Wheel link (2x).



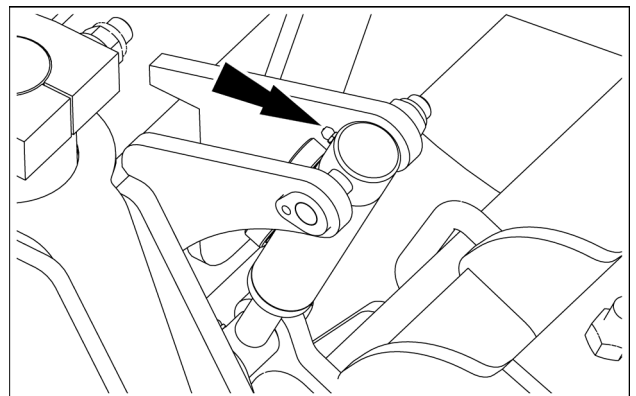
ZEIL19TIL0203AA 1

2. Hydraulic cylinder (2x).



ZEIL19TIL0217AA 2

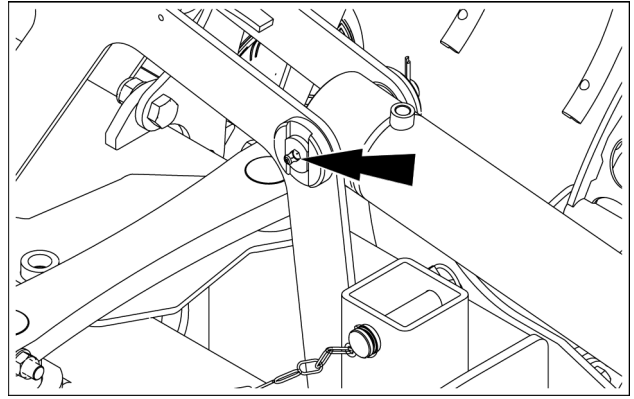
3. Hydraulic cylinder (2x).



ZEIL19TIL0218AA 3

4. PIN 30x140 (2x).

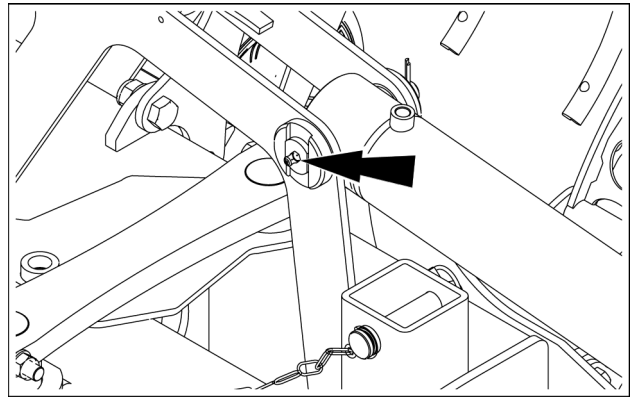
NOTE: Valid for Vibro Crop Intelli 6 m (19.7 ft).



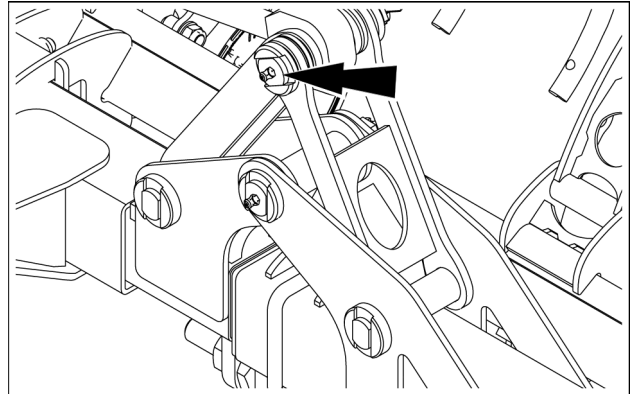
ZEIL19TIL0215AA 4

5. PIN 30x140 (4x).

NOTE: Valid for Vibro Crop and Vibro Crop Intelli 9 m (29.5 ft).



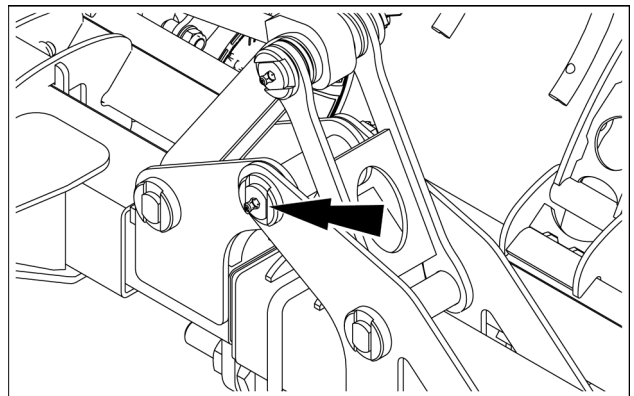
ZEIL19TIL0215AA 5



ZEIL19TIL0216AA 6

6. PIN 30x150 (2x).

NOTE: Valid for Vibro Crop and Vibro Crop Intelli 9 m (29.5 ft).



ZEIL19TIL0216AA 7

Nuts and bolts

Torque all the bolts, the nuts and the fasteners every **100 h** of work. If necessary, tighten all loosened elements you come across.

Connectors

Clean the area surrounding connectors of individual components and surrounding the hydraulic valve connector every **100 h** of work. If necessary, clean the connectors with a moist cloth.

Monitor connections

Check the following connections related to the monitor every **100 h** of work:

- the strain relief of all connectors;
- the tightness of the cable entry into the cab;
- the strength of the position sensor clamp on the steering cylinder connecting rod;
- function of mechanical components on position sensor.

Every year

Monitor connections

Torque all monitor threaded connections.

Every six years

Hydraulic hoses

⚠ WARNING

Escaping fluid!

Do not disconnect hydraulic quick coupler under pressurized conditions. Make sure all hydraulic pressure is removed from the system before disconnecting hydraulic quick coupler. Failure to comply could result in death or serious injury.

W0095A

⚠ WARNING

Escaping fluid!

Hydraulic fluid or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury: Relieve all pressure before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and all components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.

Failure to comply could result in death or serious injury.

W0178A

Hydraulic hoses are important safety elements in modern machinery. However, over the years, hose characteristics alter under pressure, thermal load and UV light. Therefore, most hoses now have a production date printed on the metal clamp bushing which allows to determine the age.

Legislation in certain countries and good practice require that hydraulic hoses are replaced when they become 6 years old.

When the hydraulics hoses are stiff and hard to bend it means that the hydraulic circuit is under pressure.

Upon the occurrence of leaks, make sure oil does not penetrate the soil or water, and remove the source of the leak as fast as possible.

After you replace the hydraulic hoses, maintain proper cleanness.

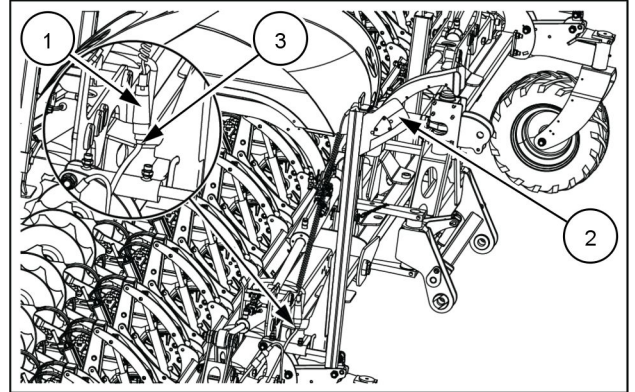
Inspect the entire hydraulic installation at least once a year.

As required

Camera (only for Intelli version)

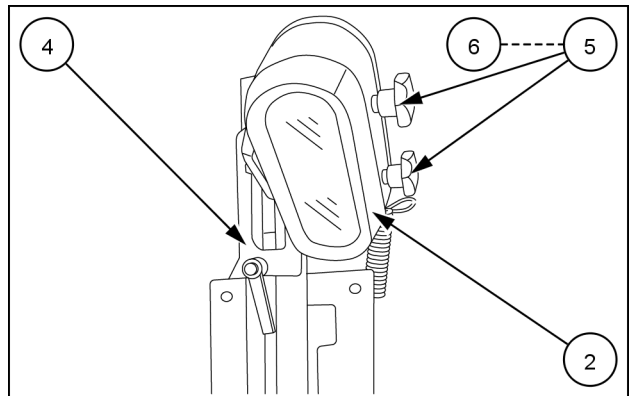
Removal of the camera

1. Disconnect the connector (1) of the camera (2) from the connector (3) of the implement wiring harness.



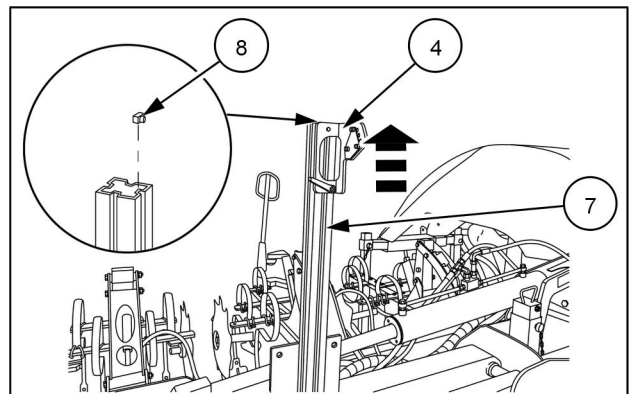
ZEIL21AI00078AA 1

2. Remove the camera (2) from the bracket assembly (4). Use the washers (5) and the lobe knobs (6).



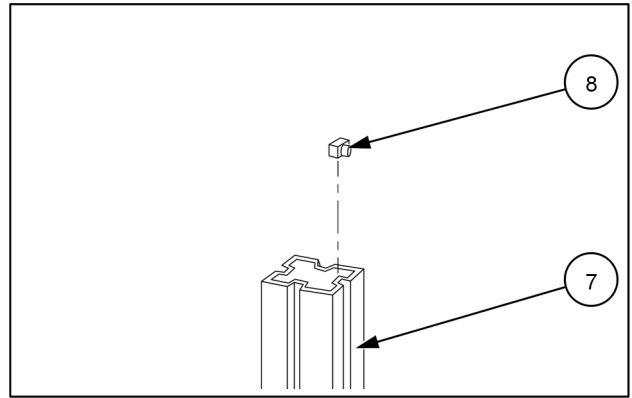
ZEIL22TIL0117AA 2

3. On top of the bar guide (7), remove the pin (8). Keep for later use.
4. Slide out the bracket assembly (4) from the bar guide (7).



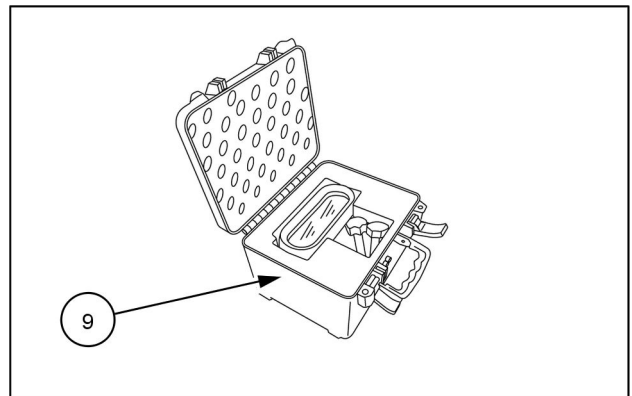
ZEIL22TIL0335AA 3

5. On top of the bar guide (7), reinstall the pin (8).



ZEIL22TIL0336AA 4

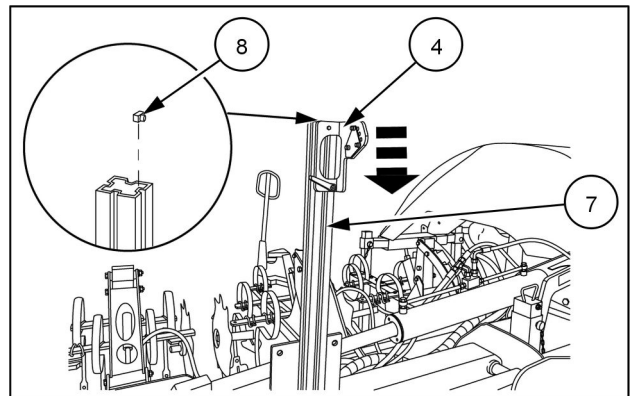
6. Store the camera in the original box (9).



ZEIL22TIL0167AA 5

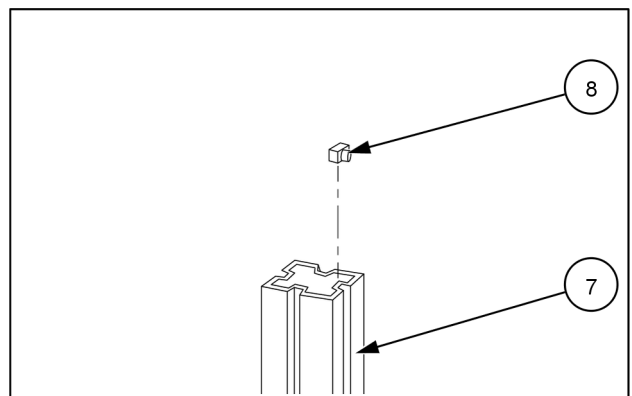
Installation of the camera

1. On top of the bar guide (7), remove the pin (8). Keep for later use.
2. Slide in the bracket assembly (4) inside the bar guide (7).



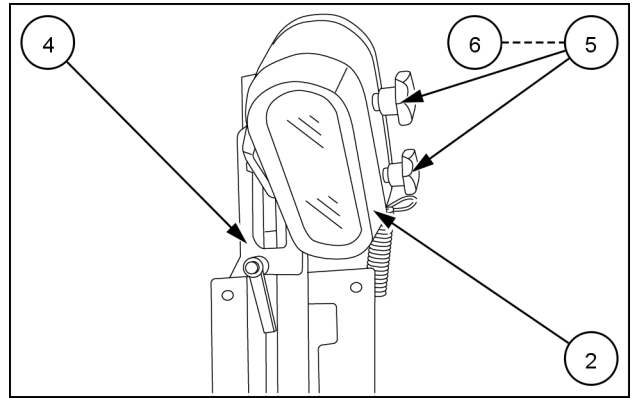
ZEIL22TIL0335AA 6

3. On top of the bar guide (7), reinstall the pin (8).



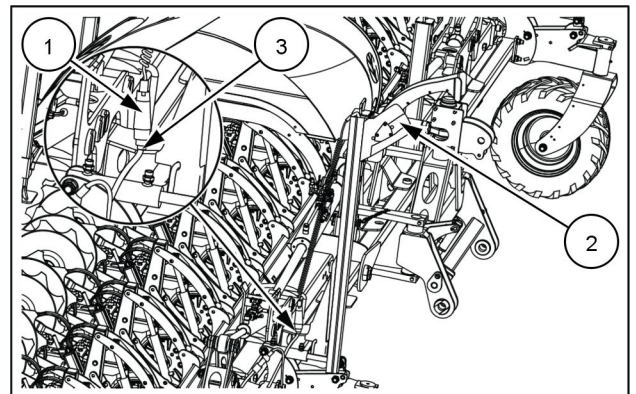
ZEIL22TIL0336AA 7

4. Install the camera (2) on the bracket assembly (4). Use the washers (5) and the lobe knobs (6).



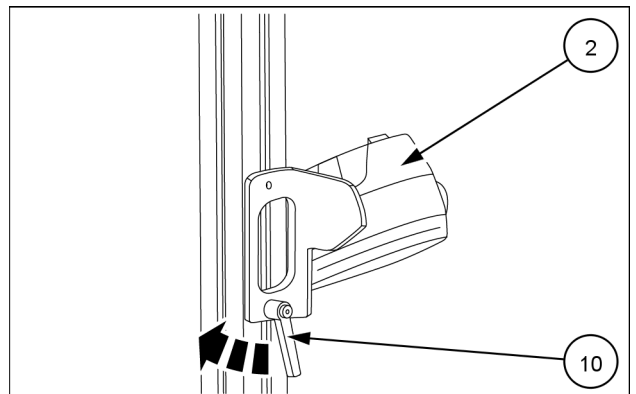
ZEIL22TIL0117AA 8

5. Connect the connector (1) of the camera (2) with the connector (3) of the implement wiring harness.



ZEIL21AI00078AA 9

6. Adjust the height of the camera (2). Use the lever (10). See Page 3-19 Sub title Camera height adjustments.

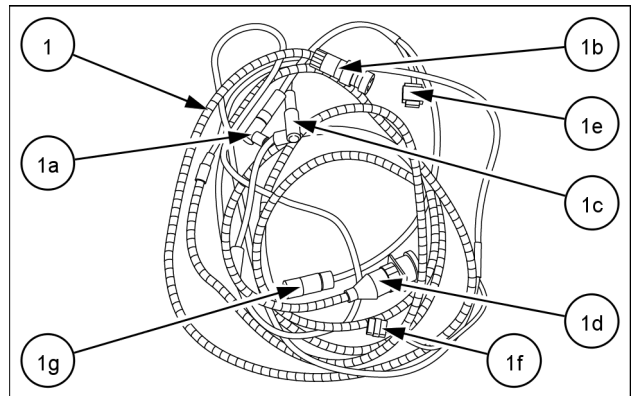


ZEIL21AI00086AA 10

Monitor (only for Intelli version)

Wiring harness (1) overview:

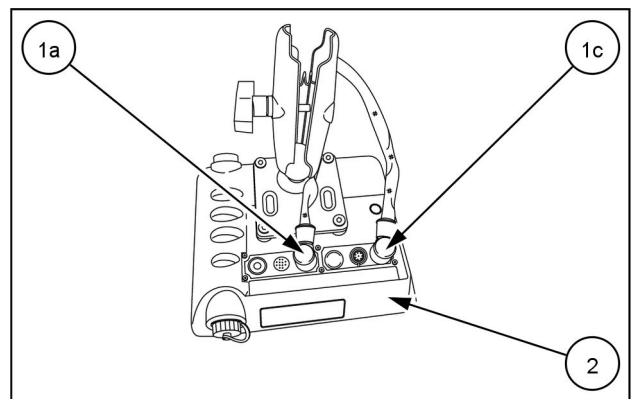
- (1a) XC
- (1b) Power unit connector
- (1c) XV
- (1d) Electrical connector
- (1e) Not used
- (1f) Not used
- (1g) Not used



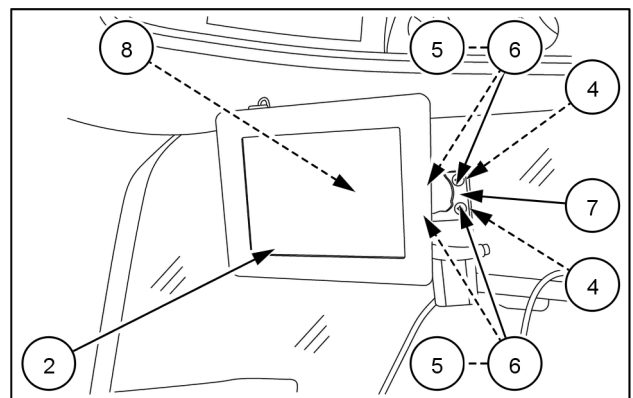
ZEIL21AI00075AA 1

Removal of the monitor

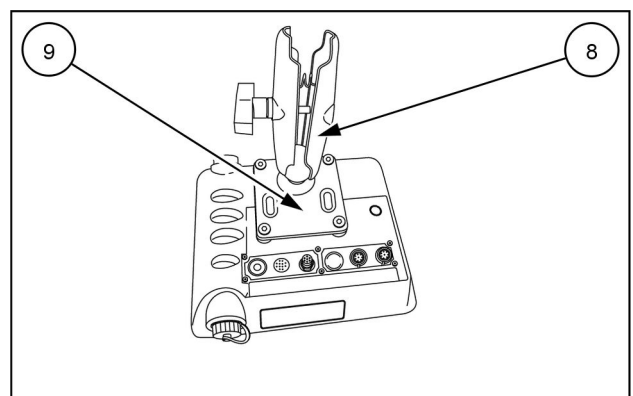
1. Disconnect the connector (1a) from the monitor (2).
2. Disconnect the connector (1c) from the monitor (2).
3. Inside the cab of the tractor, remove the U-bolts (4), the spacers (5), the nuts (6) and remove the monitor assembly composed by the support (7), the support (8) and the monitor (2).
4. Remove the assembled monitor support (8) and the monitor (2) from the monitor support (7).
5. Remove the monitor support (8) from the plate (9).



ZEIL21AI00082AA 2

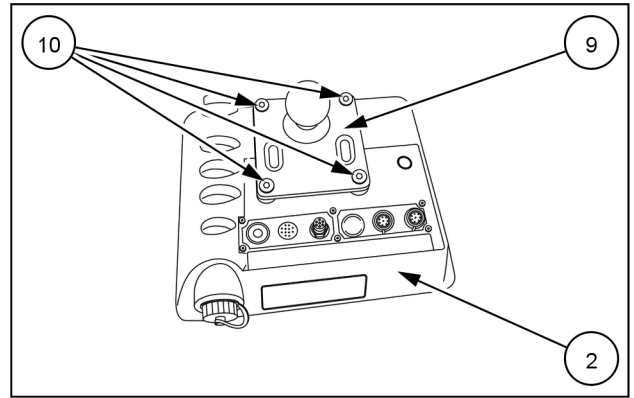


ZEIL21AI00080AA 3



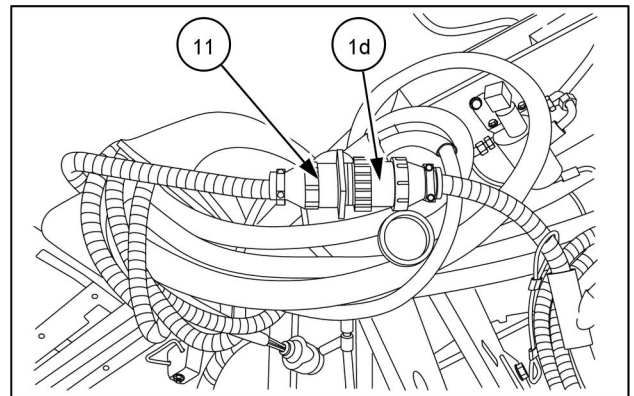
ZEIL21AI00069AA 4

6. Remove the screws **(10)** and remove the plate **(9)** from the monitor **(2)**.
7. Route the wiring harness **(1)** through the cab of the tractor to the implement.
8. Disconnect the connector **(1b)** from the tractor power unit.



ZEIL21AI00083AA 5

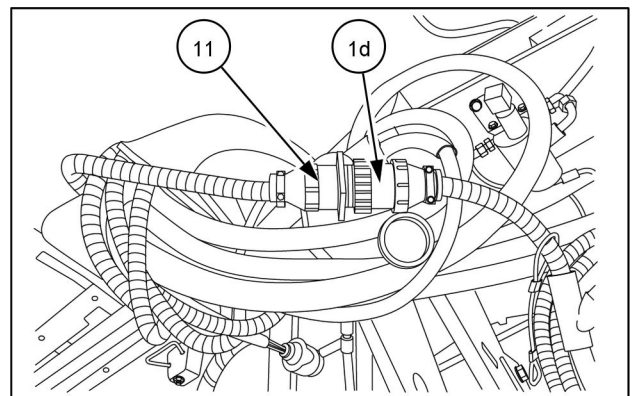
9. Disconnect the connector **(1d)** with the electrical connector **(11)** of the implement wiring harness.
10. Store the monitor assembly in an appropriate place.



ZEIL22TIL0116AA 6

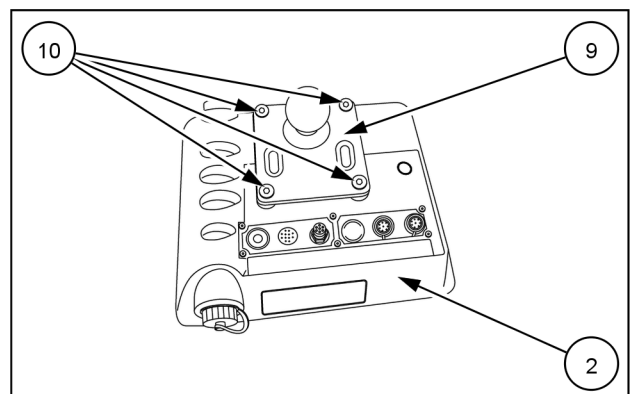
Installation of the monitor

1. Connect the connector **(1d)** with the electrical connector **(11)** of the implement wiring harness.



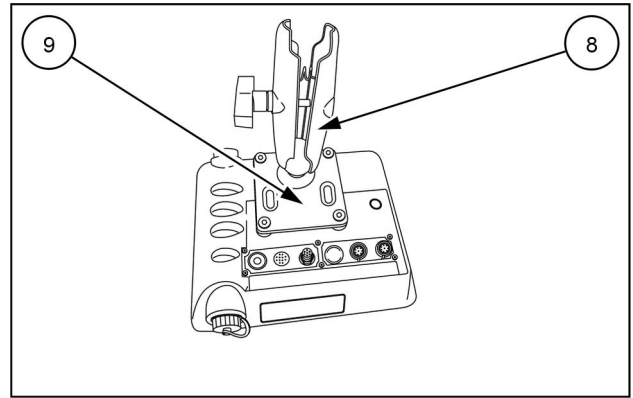
ZEIL22TIL0116AA 7

2. Connect the connector **(1b)** to the tractor power unit.
3. On the monitor **(2)**, install the plate **(9)**. Use the screws **(10)**.



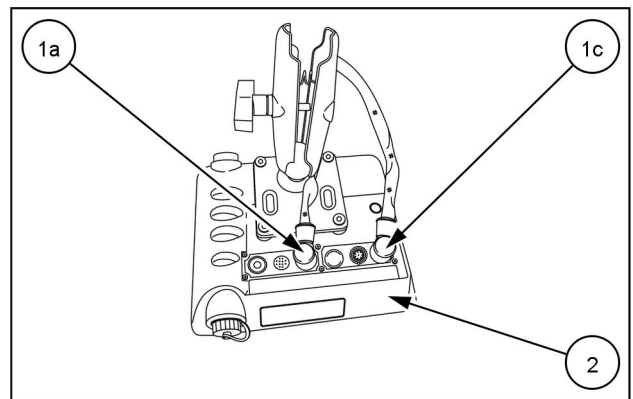
ZEIL21AI00083AA 8

4. Install the monitor support (8) on the plate (9).



ZEIL21AI00069AA 9

5. Route the wiring harness (1) through the implement to the cab of the tractor.
6. Connect the connector (1a) to the monitor (2).
7. Connect the connector (1c) to the monitor (2).

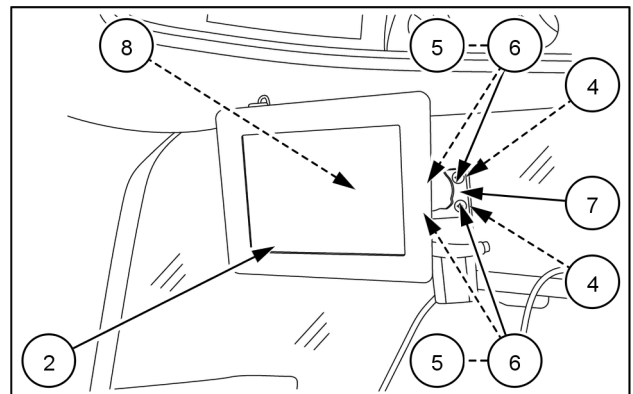


ZEIL21AI00082AA 10

8. Inside the cab of the tractor, install the monitor support (7) in a suitable location. Use the U-bolts (4), the spacers (5), and the nuts (6).

NOTE: The installation of the monitor can change depending on the kind of tractor. Be sure to install the monitor correctly in order to not disturb the view of the driver.

9. Install the monitor support (8) and the monitor (2) previously assembled, on the monitor support (7).

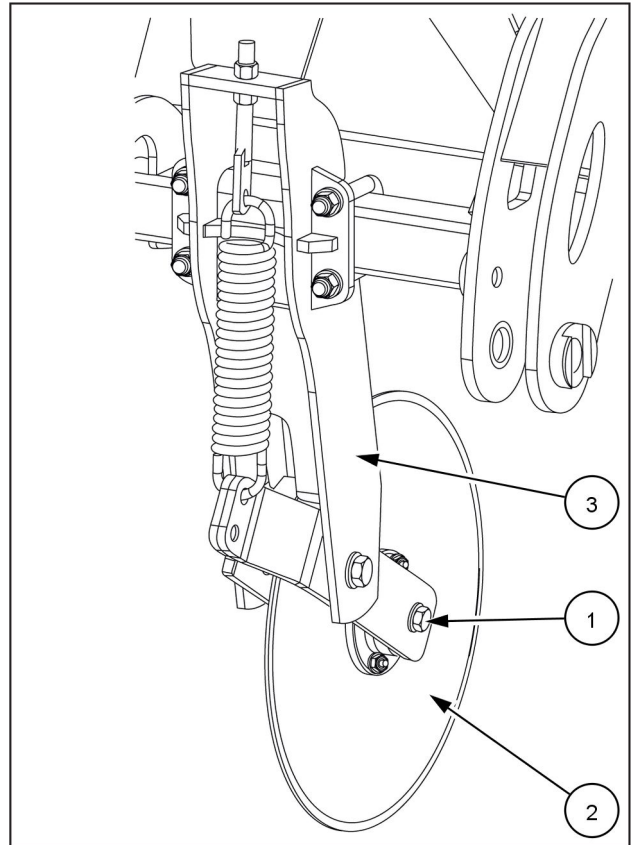


ZEIL21AI00080AA 11

Stabilizing disc

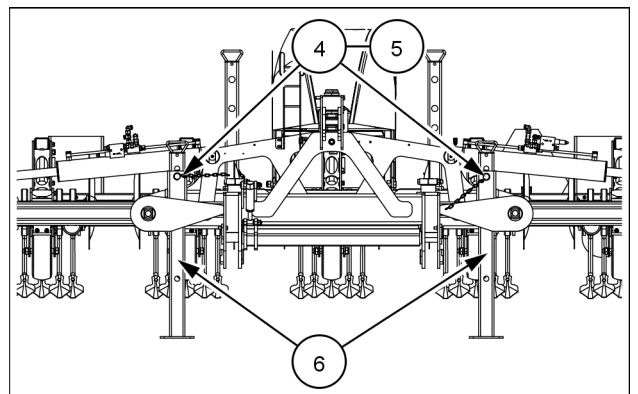
Removal of the stabilizing disc

1. Remove the hardware (1) and remove the disc (2).
2. Install the hardware (1) on the left-hand side of the frame assembly (3).
3. Repeat Step 1 and Step 2 to remove the other disc (2) on the right-hand side of the frame assembly (3).



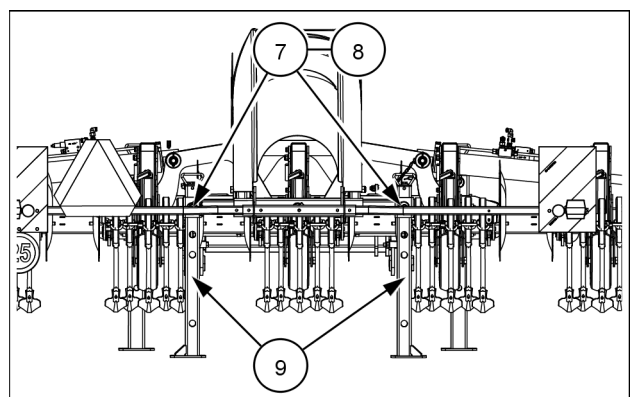
ZEIL19TL0068BA 1

4. On the front of the frame assembly, remove the linchpins (4) and pins (5).
5. Lower the front jacks (6).
6. Secure the front jacks (6), reinstall the pins (5) and linchpins (4).



ZEIL21AI00071AA 2

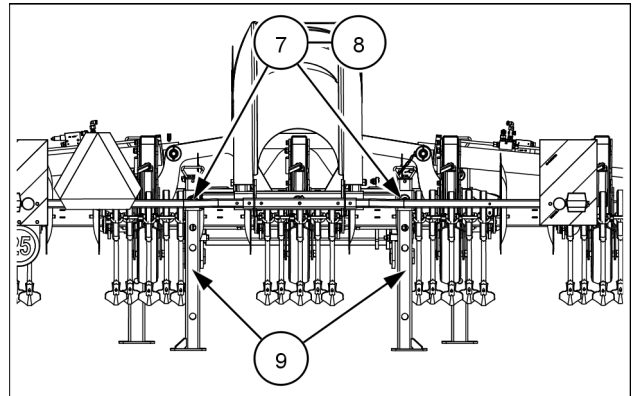
7. On the rear of the frame assembly, remove the linchpins (7) and pins (8).
8. Lower the rear jacks (9).
9. Secure the rear jacks (9), reinstall the pins (8) and linchpins (7).



ZEIL21AI00070AA 3

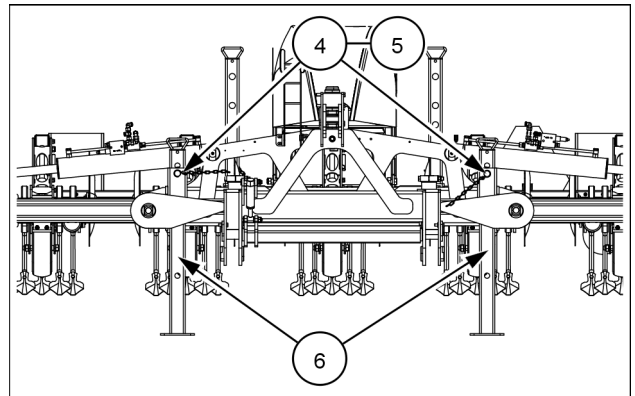
Installation of the stabilizing disc

1. On the rear of the frame assembly, remove the linchpins (7) and pins (8).
2. Lift the rear jacks (9).
3. Secure the rear jacks (9), reinstall the pins (8) and linchpins (7).



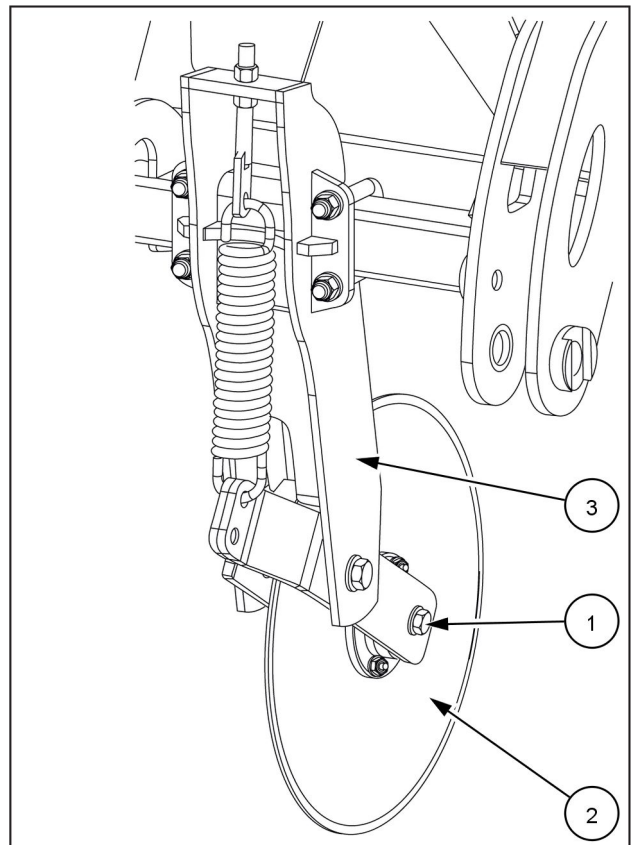
ZEIL21AI00070AA 4

4. On the front of the frame assembly, remove the linchpins (4) and pins (5).
5. Lift the front jacks (6).
6. Secure the front jacks (6), reinstall the pins (5) and linchpins (4).



ZEIL21AI00071AA 5

7. On the left-hand side of the frame assembly (3), remove the hardware (1). Keep for later use.
8. Install the disc (2). Use the hardware (1).
9. Repeat Step 7 and Step 8 to install the other disc (15) on the right-hand side of the frame assembly (1).



ZEIL19TL0068BA 6

Storage

End of season service

When the season is over, prepare the implement for the storage immediately.

To prepare the implement for winter storage, proceed as follows:

1. Clean the implement thoroughly. Dust and dirt absorb moisture and moisture increases the formation of rust.
2. Store the implement in a dry place, protected against wind and weather in the best possible way.

NOTE: *It is recommended to store the implement in unfolded position.*

3. Grease all grease fittings after you clean the implement, according to the "Maintenance planning" (see Page 7-10).
4. Check the implement for damaged parts, loose screw-joints, leakage, wear and other defects carefully before the storage. If there is any damage, it may be forgotten during the storage and result in problems the following season. Note down the necessary parts you will need before the next season and order the spare parts.
5. The piston rod of the hydraulic cylinders may get rusty. Clean with brush and grease the components in order to protect them against wind and weather.
6. Dismount the hydraulics and electronic cables and wires. Leave the hydraulic components on the machine and secure the monitor.
7. Remove the camera from the implement and store the camera in the original box.
8. Support the implement to relieve the weight from the tires. Keep tires inflated. Tire and rubber components life will be extended if protected from sunlight during storage.

NOTE: *Periodic checks will help to keep your implement maintenance and repairs to a minimum and avoid costly breakdowns during the season. Therefore, it is good practice to have the implement inspected at the end of the season.*

Implement long-term storage and/or disposal

When the implement reaches the end of its useful life, observe the following recommendations for disposal:

- See your KONGSKILDE dealer to make an agreement for your dealer to properly dispose of the implement, or
- Sell the implement to a company that specializes in the proper disposal of industrial machinery.

If you want to keep the implement on your premises (for spare parts or other reusable components, etc.) you must observe the following instructions:

1. Park the implement on hard and level ground. Bring all moveable components to the lowest position and/or safest position.
2. Store the implement with the axles on wooden blocks in order to keep the implement upright, as the tires will deflate over time.
3. Drain the oil from gearbox, and hydraulic systems into appropriate containers. Take the oil to your local waste recycling facility. Pay attention to local rules that may require you to store the different types of oils separately. Remove the filters (if available).

NOTE: *The implement is now ready for a long-term storage and/or for scrapping after the removal of reusable components.*

Long-term storage

The assigned storage life for the implement is minimum seven years, during this time the implement must be packed in a dry and clean place without condensation.

NOTE: *All the requirements for the storage of the implement must be met.*

Scrapping

When you scrap the vehicle, you must keep materials apart. Separate the following:

- Plastics
- Rubber hoses
- Belts
- Electric and electronic components
- Tires
- Wiring harnesses
- Sheet metal
- Castings
- Weld assemblies
- Aluminium
- Any other additional category

NOTE: *See your local waste recycling facility for specific rules on how to deliver the scrapped materials.*

When you dismount mechanical systems, make sure that there is no risk of residual energy (such as compressed springs in belt variators). If you do not have the proper tools or instructions to disassemble a system or component, contact your KONGSKILDE dealer to perform this service.

NOTE: *Make sure that the implement maintains stability during the dismantling process.*

Ordering parts and/or accessories and / or accessories

When you prepare the implement for storage, check thoroughly for any parts that may have become worn and need replacing.

Order and install the spare parts and/or accessories at once before the next season.

When you order spare parts, always make sure to give your KONGSKILDE dealer the model number and the Product Identification Number (PIN) of your implement. See "Product identification" in Chapter 1 of this operator's manual.

Insist on genuine KONGSKILDE "quality" spare parts as they will give the best performance and are covered by our warranty.

For best performance, have your implement serviced by an authorized KONGSKILDE dealer.

8 - TROUBLESHOOTING

Fault code resolution

General

This chapter describes the easy diagnostic methods for generic problems and the related remedies for them. If you cannot find the cause of a problem or solve a problem, consult the KONGSKILDE dealer.

Field operation

Problem	Possible Cause	Correction
Too shallow / deep work.	Incorrect adjustment of the working section.	Turn the working section crank to set the desired working depth.
Too slow / fast frame shift.	Unregulated oil flow.	Adjust the oil flow.
The working section does not work correctly between the rows.	The working section moves on the frame.	Adjust the width of the working section on the frame.
	Too weak pressure of the stabilizing disc on the ground.	Increase the pressure of the stabilizing disk on the ground.
Inaccurate work between rows.	Worn elements in the working sections.	Replace worn elements in working sections.
	Incorrect tine positions in the working section.	Set the tines correctly in the working sections.
The implement does not fold.	Hydraulic valve closed.	Check the valve setting.
The plants in the row are covered with soil.	Incorrect setting of protective shields.	Move the protective shield to the correct working position.

Camera system

Problem	Possible Cause	Correction
0002: Camera height or camera angle is faulty.	Camera height is too low.	Increase camera height.
	Camera angle is too small or too large.	Increase or reduce the camera angle.
0008: Combined fault: height difference between camera and plant is below 50 cm. The clearance between camera and plant must be at least 50 cm in 2D mode and at least 80 cm in 3D mode.	The camera installation position is too low.	Install the camera at a more elevated position
	Incorrect plant height setting.	Adjust the correct plant height.
	Malfunctioning of automatic camera mode in bed structures.	Deactivate automatic camera mode and enter the camera height manually
0009: Clearance between rows and beds (multiple rows) is too small or too large.	Error in row spacing.	Correct the row spacing within the beds.
0010: Combined fault: It must be possible to divide the total number of rows by the number of rows in each bed (multiple row).	The total number of rows is more than 8.	Make sure that the total number of rows is less than 8 and can be divided by number of rows in one bed.
0011: Combined fault: The clearance between adjoining plants is too small.	The plant width is set too large.	Reduce the plant width.
	The clearance between rows or beds is set too small.	Increase the clearance between rows or beds.
0013: Plant height is too small or too large.	Camera position compromised.	Reduce or increase the plant height.
0014: Plant width is too large or too small.	Camera position compromised.	Reduce or increase the plant width
0015: The total number of rows must be between 1 and 8.	The total number of rows is more than 8.	Reduce or increase the number of rows or beds.
0016: Error in clearance between the rows in one bed.	Clearance between the rows in one bed is too small or too large.	Reduce or increase the clearance between rows in beds.
0017: Error in lights.	LED and Xenon lights are activated at the same time.	Activate only one type of lighting.

9 - SPECIFICATIONS

Technical data

Name	Configurations of Vibro Crop Intelli 9 m (29.5 ft)			
	VCO-I 18-50	VCO-I 12-75	VCO-I 18-45	VCO-I 16-60
Frame width	9.95 m (32.64 ft)		10.5 m (34.4 ft)	10 m (32.8 ft)
Working width	9.5 m (31.2 ft)	9.1 m (29.86 ft)	8.3 m (27.2 ft)	9.75 m (32 ft)
Row distance	50 cm (19.7 in)	75 cm (29.5 in)	45 cm (17.7 in)	60 cm (23.6 in)
Quantity of cleaned rows	18	12	18	16
Quantity of sections	19	13	19	17
Quantity of tines	55	61	55	81
Share width	13.5 cm (5.3 in)			
Working depth	up to 7 cm (2.8 in)			
Quantity of depth wheels	19	13	19	17
Diameter depth wheels	300 mm (11.8 in)			
Quantity of steering disc	2			
Diameter of steering disc	520 mm (20.5 in)			
Power consumption	135 – 160 kW (184 – 218 Hp)			
3 -point linkage	III			
Hydraulic oil pressure	160 – 200 bar (2320 – 2900 psi)			
Maximum hydraulic oil pressure	200 bar (2900 psi)			
Hydraulic outlet	2 double-acting control units (optionally plus 1 double-acting control units with free return for the seeder and 1 single-acting control unit for implement without section control) LS port option			
Electrical system	12 V (7-pin)			
Transport width (T2)*	3 m (9.8 ft)			
Transport height (H)	3.7 m (12.1 ft)	3.6 m (11.8 ft)	3.7 m (12.1 ft)	3.6 m (11.8 ft)
Clearance (G)	0.25 m (0.82 ft)			
Transport length (L2)	3.2 m (10.5 ft)			
Transport length (L1)	3.0 m (9.8 ft)			
Weight	3000 kg (6614 lb)	2800 kg (6173 lb)	3000 kg (6614 lb)	2900 kg (6393 lb)
Working speed	up to 10 km/h (6.2 mph)			
Transport speed	Check the maximum speed of the combination tractor-implement in functional of the tractor approval, implement size and dimensions and local road circulation rules.			

9 - SPECIFICATIONS

Name	Configurations of Vibro Crop Intelli 6 m (19.7 ft)			
	VCO-I 12-50	VCO-I 8-75	VCO-I 12-45	VCO-I 8-60
Frame width	6.9 m (22.6 ft)		7.4 m (24.3 ft)	6.9 m (22.6 ft)
Working width	6.2 m (20.3 ft)		5.7 m (18.7 ft)	6.2 m (20.3 ft)
Row distance	50 cm (19.7 in)	75 cm (29.5 in)	45 cm (17.7 in)	60 cm (23.6 in)
Quantity of cleaned rows	12	8	12	8
Quantity of sections	13	9	13	9
Quantity of tines	37	41	37	41
Share width	13.5 cm (5.3 in)			
Working depth	up to 7 cm (2.8 in)			
Quantity of depth wheels	13	9	13	9
Diameter depth wheels	300 mm (11.8 in)			
Quantity of steering disc	1			
Diameter of steering disc	520 mm (20.5 in)			
Power consumption	66 – 95 kW (90 – 129 Hp)			
3 -point linkage	III			
Hydraulic oil pressure	160 – 200 bar (2320 – 2900 psi)			
Maximum hydraulic oil pressure	200 bar (2900 psi)			
Hydraulic outlet	2 double-acting control unit (optionally plus 1 double-acting control unit with free return for the seeder and 1 single-acting control unit for implement without section control) LS port option		1 double-acting control unit and 1 single-acting control unit	
Electrical system	12 V (7-pin)			
Transport width (T2)*	3 m (9.8 ft)			
Transport height (H)	3.7 m (12.1 ft)	3.6 m (11.8 ft)	3.7 m (12.1 ft)	3.6 m (11.8 ft)
Clearance (G)	0.25 m (0.82 ft)			
Transport length (L2)	3.2 m (10.5 ft)			
Transport length (L1)	3.0 m (9.8 ft)			
Weight	2000 kg (4409 lb)	1700 kg (3748 lb)	2000 kg (4409 lb)	1700 kg (3748 lb)
Working speed	up to 10 km/h (6.2 mph)			
Transport speed	Check the maximum speed of the combination tractor-implement in functional of the tractor approval, implement size and dimensions and local road circulation rules.			

Name	Configurations of Vibro Crop 9 m (29.5 ft)			
	VCO 18-50	VCO 12-75	VCO 18-45	VCO 16-60
Frame width	9.95 m (32.64 ft)		10.5 m (34.4 ft)	10 m (32.8 ft)
Working width	9.5 m (31.2 ft)	9.10 m (29.86 ft)	8.3 m (27.2 ft)	9.75 m (32 ft)
Row distance	50 cm (19.7 in)	75 cm (29.5 in)	45 cm (17.7 in)	60 cm (23.6 in)
Quantity of cleaned rows	18	12	18	16
Quantity of sections	19	13	19	17
Quantity of tines	55	61	55	81
Share width	13.5 cm (5.3 in)			
Working depth	up to 7 cm (2.8 in)			
Quantity of depth wheels	19	13	19	17
Diameter depth wheels	300 mm (11.8 in)			
Quantity of steering disc	2			
Diameter of steering disc	520 mm (20.5 in)			
Power consumption	135 – 160 kW (184 – 218 Hp)			
3 -point linkage	III			
Hydraulic oil pressure	160 – 200 bar (2320 – 2900 psi)			
Maximum hydraulic oil pressure	200 bar (2900 psi)			
Hydraulic outlet	1 double-acting control unit and 1 single-acting control unit			
Electrical system	12 V (7-pin)			
Transport width (T2)*	3 m (9.8 ft)			
Transport height (H)	3.7 m (12.1 ft)	3.6 m (11.8 ft)	3.7 m (12.1 ft)	3.6 m (11.8 ft)
Clearance (G)	0.25 m (0.82 ft)			
Transport length (L2)	3.2 m (10.5 ft)			
Transport length (L1)	3.0 m (9.8 ft)			
Weight	2700 kg (5952 lb)	2450 kg (5401 lb)	2700 kg (5952 lb)	2600 kg (5732 lb)
Working speed	up to 10 km/h (6.2 mph)			
Transport speed	Check the maximum speed of the combination tractor-implement in functional of the tractor approval, implement size and dimensions and local road circulation rules.			

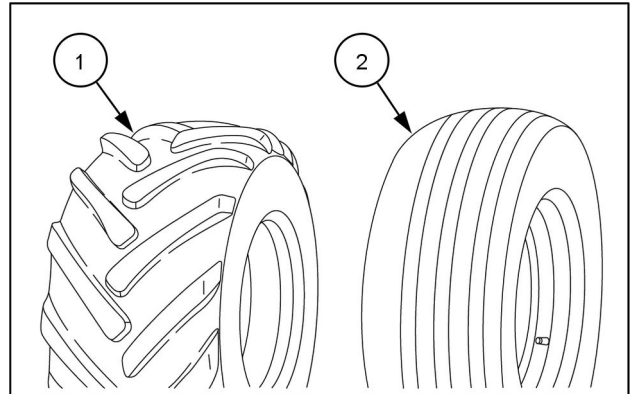
Fluids, lubricants, and capacities

Application	Capacity	Product name	Specification(s)
Grease fittings	As required	TUTELA 75 MD GREASE	M1C 137-A

Wheels

There are two different type of support wheels on the frame:

- Wheel size 23x10.50–12 as wide wheel **(1)** – **268 mm (11 in)** with tractor pattern.
- Wheel size 24x8.00–14.5 as narrow wheel **(2)** – **198 mm (8 in)** with ring pattern.



ZEIL19TIL0190AA 1

10 - ACCESSORIES

General information

Accessories or optional equipment listed hereafter may be part of the standard equipment for certain countries. Some of these accessories or options may not be available in certain markets.

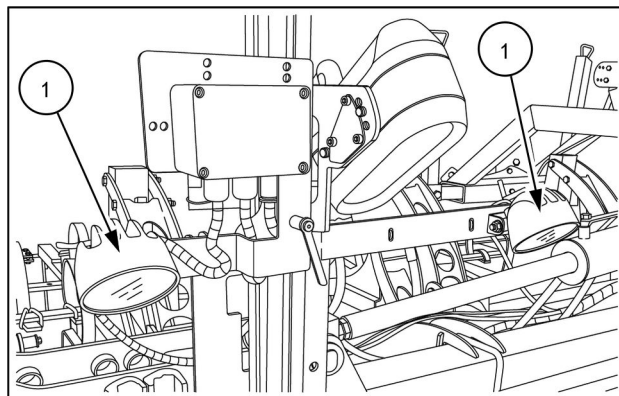
Light kit for camera

NOTE: Valid only for Vibro Crop Intelli.

The LED lights **(1)** enable the camera to work also at night. You can turn the light on and off on the terminal in the cabin.

Install the LED lights underneath the camera position.

Position the LED lights at the same angle as the camera.



ZEIL22TIL0169AA 1

Side shift camera upgrade unlock code

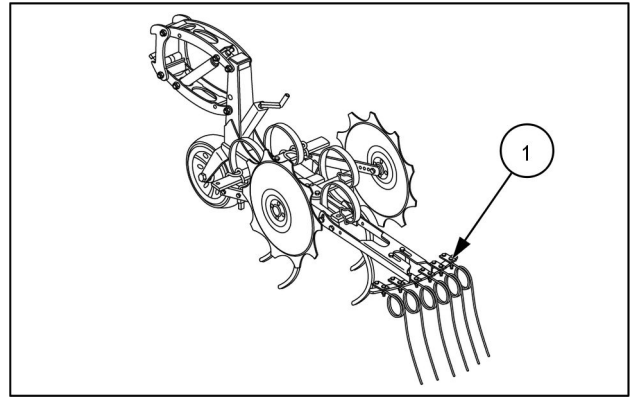
NOTE: Valid only for Vibro Crop Intelli.

The unlock code upgrades the camera to a professional version and allows to obtain the professional features:

- color recognition
- 3D-mode
- proportional mode

Long finger harrow

The long finger harrows (1) allow for an accurate cleaning of the soil between one row and the other.

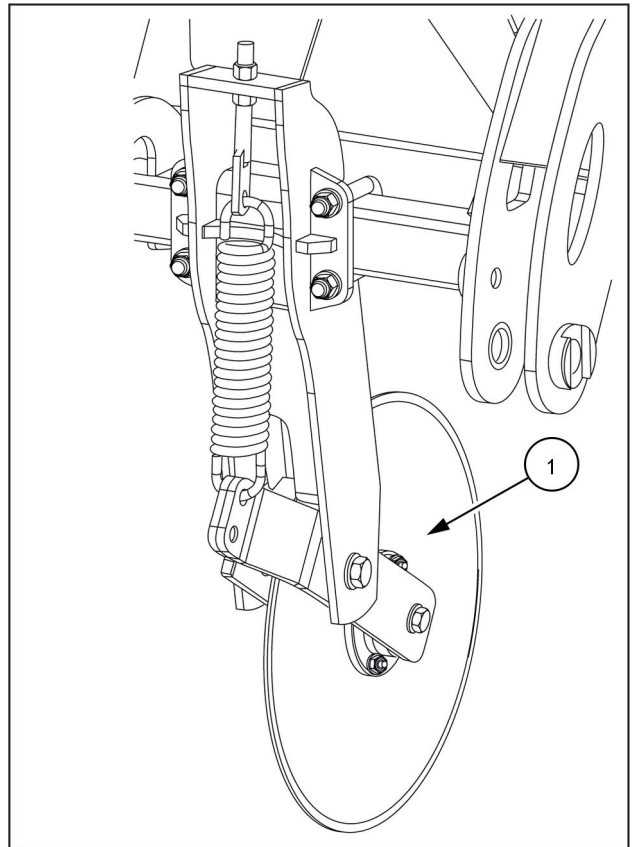


ZEIL19TIL0183AA 1

Additional stabilizing disc

NOTE: Valid only for Vibro Crop Intelli 6 m (19.7 ft).

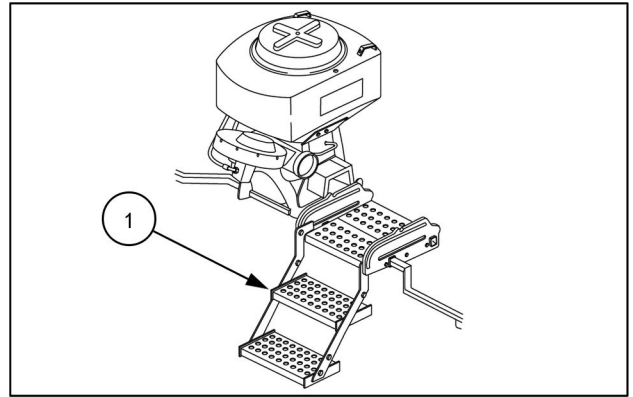
In case of hilly conditions or side shift movements, an additional stabilizing disc (1) can be added to the current single standard disc in order to improve the accuracy.



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Platform for seeder

A platform (1) can be ordered to have easy access to the seeder (aftermarket equipment).



ZEIL19TL0075AA 1

Starwheel kit

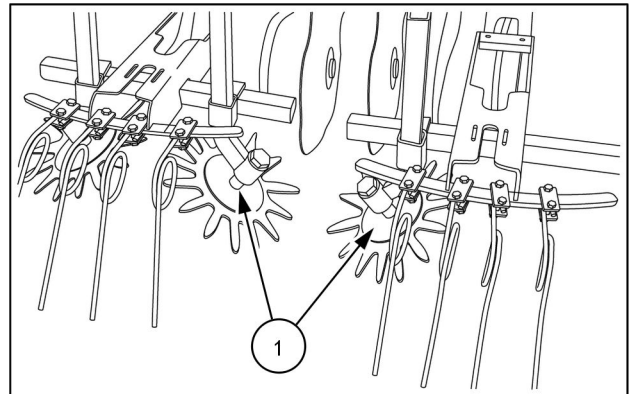
The starwheel kit (1) can be attached to every common hoe and allow for a more accurate cleaning of the soil, cleaning also the space between one plant and the other of the same row.

The rubber fingers grip from the side around the plant and there they hoe the weeds.

NOTE: To achieve the maximum weed-control, the kit should be used when the weeds just emerge.

Depending on the plant cultivation use the recommended size of the kit as summarized in the table below.

Size	Row distance	Plants
Large (Ø 370 mm)	45.0 – 50.0 cm (17.7 – 19.7 in)	Strawberries, cabbage, maize, tobacco and tree nurseries
Medium (Ø 290 mm)	60.0 – 75.0 cm (23.6 – 29.5 in)	Sugar beets, soybeans and leek



ZEIL22TIL0171AA 1

11 - FORMS AND DECLARATIONS

Class of 2004/2005 Annex I	IT ENNES-veiklības deklarācija 2004/2005 gada 2014/305/EK 2014/305/EK	IT Dichiarazione CEUE di conformità Al sensi della direttiva 2004/2005/CE 2014/305/EK	LT ENNES atitikties deklaracija pagal direktyvą 2004/2005/CE 2014/305/EK	LV ENNES atbilstības deklarācija saskaņā ar Direktīvu 2004/2005/CE 2014/305/EK	NL EGEU Verklaring van Omvarendeblaring 2004/2005/CE en 2014/305/EK	NO EUEU Sammenhengende Erklæring 2004/2005/CE og 2014/305/EK	PL Deklaracja zgodności WEUE z dyrektywą 2004/2005/CE 2014/305/EK
1.A.1	Automaģi, [1] konstrukcijas tehniskā tūlītā konstrukcija, ko izstrādājis izstrādātājs	Nē, [1] dichiarazione, sotto la quale esclusiva responsabilità, che il prodotto	Nē, [1] savo atitikties deklaracijai, kad gamina	Uzdevums, [1] ar vienpersonu atbilstību pamatos, ka	Ja, [1] verklaring op onze eigen verantwoordelijkheid dat het product	Ja, [1] erklæring under eget ansvar at produkt	Ja, [1] ogodęciem, przynajmniej na siebie pełną odpowiedzialność, że produkt
1.A.2	Motorsāģis, [1] konstrukcijas tehniskā tūlītā konstrukcija, ko izstrādājis izstrādātājs	Motorsāģis, [1] Dichiarazione di conformità a modello [2] Dichiarazione [3] Tipo (specifica tecnica variabile) [4] Modello [5] Numero di serie [6]	Motorsāģis, [1] Konstrukcija patērētāja ir modeļa [2] Dichiarazione [3] Tipa (specifika tehniskā variācija) [4] Modello [5] Serijs numurs [6]	Automaģis, [1] Konstrukcija patērētāja ir modeļa [2] Dichiarazione [3] Tipa (specifika tehniskā variācija) [4] Modello [5] Serijs numurs [6]	Automaģis, [1] Konstrukcija patērētāja ir modeļa [2] Dichiarazione [3] Type (variante technische variatie) [4] Modelnummer [5] Seriëlevernummer [6]	Automaģis, [1] Konstrukcija patērētāja ir modeļa [2] Dichiarazione [3] Type (specifika tehniskā variācija) [4] Modelnummer [5] Seriëlevernummer [6]	Automaģis, [1] Konstrukcija patērētāja ir modeļa [2] Dichiarazione [3] Typ (specifika tehniskā variācija) [4] Modelnummer [5] Seriëlevernummer [6]
1.A.4	Arī, ja ir izstrādājis izstrādātājs, [1] konstrukcijas tehniskā tūlītā konstrukcija, ko izstrādājis izstrādātājs	Ja, [1] si que se declara la presente declaración de conformidad a la disposición de la directiva 2004/2005/CE y 2014/305/EK, modificada de [7]	Ja, [1] si kuris gada izstrādājis deklarāciju, atbilstoši vienīgajai direktīvai 2004/2005/CE y 2014/305/EK modifikācija [7]	Ja, [1] si kuris gada izstrādājis deklarāciju, atbilstoši vienīgajai direktīvai 2004/2005/CE y 2014/305/EK modifikācija [7]	Ja, [1] si kuris gada izstrādājis deklarāciju, atbilstoši vienīgajai direktīvai 2004/2005/CE y 2014/305/EK modifikācija [7]	Ja, [1] si kuris gada izstrādājis deklarāciju, atbilstoši vienīgajai direktīvai 2004/2005/CE y 2014/305/EK modifikācija [7]	Ja, [1] si kuris gada izstrādājis deklarāciju, atbilstoši vienīgajai direktīvai 2004/2005/CE y 2014/305/EK modifikācija [7]
1.A.7	Arī, ja ir izstrādājis izstrādātājs, [1] konstrukcijas tehniskā tūlītā konstrukcija, ko izstrādājis izstrādātājs	Ja, [1] Par l'attestation appropriée des dispositions de la directive sous les aspects suivants: standard harmonisé [8]	Ja, [1] Atliksim deklarāciju, izstrādājot, ieviešot vai izstrādājot, [8]	Ja, [1] Declaro, noapaļot, atbilstoši tehniskajam ir pamatots šā (saskaņā ar) standartu [8]	Ja, [1] Voor de juiste toelichting van de conformiteitsverklaring met de Europese wetgeving (harmonisatie) worden toegevoegd [8]	Ja, [1] De tekniske (harmoniserte) standarder er angivet for tekniske egenskaber og for tekniske dokumentation [8]	Ja, [1] W celu udzielenia wystarczającej informacji technicznej, podano następujące dane [8]
1.A.2	Arī, ja ir izstrādājis izstrādātājs, [1] konstrukcijas tehniskā tūlītā konstrukcija, ko izstrādājis izstrādātājs	Nē, [1] Pasceles [10] a) [11] b) [12] c) [13] d) [14] e) [15] f) [16] g) [17] h) [18] i) [19] j) [20] k) [21] l) [22] m) [23] n) [24] o) [25] p) [26] q) [27] r) [28] s) [29] t) [30] u) [31] v) [32] w) [33] x) [34] y) [35] z) [36] aa) [37] ab) [38] ac) [39] ad) [40] ae) [41] af) [42] ag) [43] ah) [44] ai) [45] aj) [46] ak) [47] al) [48] am) [49] an) [50] ao) [51] ap) [52] aq) [53] ar) [54] as) [55] at) [56] au) [57] av) [58] aw) [59] ax) [60] ay) [61] az) [62] ba) [63] bb) [64] bc) [65] bd) [66] be) [67] bf) [68] bg) [69] bh) [70] bi) [71] bj) [72] bk) [73] bl) [74] bm) [75] bn) [76] bo) [77] bp) [78] bq) [79] br) [80] bs) [81] bt) [82] bu) [83] bv) [84] bw) [85] bx) [86] by) [87] bz) [88] ca) [89] cb) [90] cc) [91] cd) [92] ce) [93] cf) [94] cg) [95] ch) [96] ci) [97] cj) [98] ck) [99] cl) [100] cm) [101] cn) [102] co) [103] cp) [104] cq) [105] cr) [106] cs) [107] ct) 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[208] gq) [209] gr) [210] gs) [211] gt) [212] gu) [213] gv) [214] gw) [215] gx) [216] gy) [217] gz) [218] ha) [219] hb) [220] hc) [221] hd) [222] he) [223] hf) [224] hg) [225] hh) [226] hi) [227] hj) [228] hk) [229] hl) [230] hm) [231] hn) [232] ho) [233] hp) [234] hq) [235] hr) [236] hs) [237] ht) [238] hu) [239] hv) [240] hw) [241] hx) [242] hy) [243] hz) [244] ia) [245] ib) [246] ic) [247] id) [248] ie) [249] if) [250] ig) [251] ih) [252] ii) [253] ij) [254] ik) [255] il) [256] im) [257] in) [258] io) [259] ip) [260] iq) [261] ir) [262] is) [263] it) [264] iu) [265] iv) [266] iw) [267] ix) [268] iy) [269] iz) [270] ja) [271] jb) [272] jc) [273] jd) [274] je) [275] jf) [276] jg) [277] jh) [278] ji) [279] jj) [280] jk) [281] jl) [282] jm) [283] jn) [284] jo) [285] jp) [286] jq) [287] jr) [288] js) [289] jt) [290] ju) [291] jv) [292] jw) [293] jx) [294] jy) [295] jz) [296] ka) [297] kb) [298] kc) [299] kd) [300] ke) [301] kf) [302] kg) [303] kh) [304] ki) [305] kl) [306] km) [307] kn) 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[508] sh) [509] si) [510] sj) [511] sk) [512] sl) [513] sm) [514] sn) [515] so) [516] sp) [517] sq) [518] sr) [519] ss) [520] st) [521] su) [522] sv) [523] sw) [524] sx) [525] sy) [526] sz) [527] ta) [528] tb) [529] tc) [530] td) [531] te) [532] tf) [533] tg) [534] th) [535] ti) [536] tj) [537] tk) [538] tl) [539] tm) [540] tn) [541] to) [542] tp) [543] tq) [544] tr) [545] ts) [546] tt) [547] tu) [548] tv) [549] tw) [550] tx) [551] ty) [552] tz) [553] ua) [554] ub) [555] uc) [556] ud) [557] ue) [558] uf) [559] ug) [560] uh) [561] ui) [562] uj) [563] uk) [564] ul) [565] um) [566] un) [567] uo) [568] up) [569] uq) [570] ur) [571] us) [572] ut) [573] uu) [574] uv) [575] uw) [576] ux) [577] uy) [578] uz) [579] va) [580] vb) [581] vc) [582] vd) [583] ve) [584] vf) [585] vg) [586] vh) [587] vi) [588] vj) [589] vk) [590] vl) [591] vm) [592] vn) [593] vo) [594] vp) [595] vq) [596] vr) [597] vs) [598] vt) [599] vu) [600] vv) [601] vw) [602] vx) [603] vy) [604] vz) [605] wa) [606] wb) [607] wc) 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[708]					

For your better and easier understanding of the document, you will find the text reproduced hereafter.

EC/EU Declaration of Conformity
According to Directives 2006/42/EC & 2014/30/EU

We,

declare under our sole responsibility, that the product:

Agricultural machine

Commercial Name KONGSKILDE and Model: ...

Denomination: Tillage

Type (Specify any variant/version): ...

Planning key: ...

Serial Number: ...

to which this declaration relates, fulfills all the relevant provisions of
Directives 2006/42/EC & 2014/30/EU, amended by: -

For the relevant implementation of the provisions of the Directives, the
following (harmonized) standards have been applied:

- EN ISO 4254-1: 2015

Name, position, and address of the authorized person to compile the
Technical Construction File:...

Place and date of the declaration:

Signature, name and position of person empowered to draw up the EC
Declaration of Conformity:

NOTE: Only for United Kingdom.

	Declaration of Conformity of the Machinery according to Supply of Machinery (Safety) Regulations 2008 n.1597 and Electromagnetic Compatibility Regulations 2016 n.1091	[1]
1.A.1	We, [1] declare under our sole responsibility, that the product:	[2] [3] [4] [5] [6]
1.A.3	Agricultural machine Commercial Name and Model: [2] Denomination: [3] Type (Specify any variant/version): [4] Planning key: [5] Serial Number: [6]	[7] [8] [9] [10] [11] [12] [13] [14] [15] [16]
1.A.4	to which this declaration relates, fulfills all the relevant provisions of these Regulations.	[17] [18] [19] [20] [21] [22] [23] [24] [25] [26] [27] [28] [29] [30] [31] [32] [33] [34] [35] [36] [37] [38] [39] [40] [41] [42] [43] [44] [45] [46] [47] [48] [49] [50] [51] [52] [53] [54] [55] [56] [57] [58] [59] [60] [61] [62] [63] [64] [65] [66] [67] [68] [69] [70] [71] [72] [73] [74] [75] [76] [77] [78] [79] [80] [81] [82] [83] [84] [85] [86] [87] [88] [89] [90] [91] [92] [93] [94] [95] [96] [97] [98] [99] [100]
1.A.7	For the relevant implementation of the provisions of these Regulations, the following published (designated) standards have been applied: [8]	[101] [102] [103] [104] [105] [106] [107] [108] [109] [110] [111] [112] [113] [114] [115] [116] [117] [118] [119] [120] [121] [122] [123] [124] [125] [126] [127] [128] [129] [130] [131] [132] [133] [134] [135] [136] [137] [138] [139] [140] [141] [142] [143] [144] [145] [146] [147] [148] [149] [150] [151] [152] [153] [154] [155] [156] [157] [158] [159] [160] [161] [162] [163] [164] [165] [166] [167] [168] [169] [170] [171] [172] [173] [174] [175] [176] [177] [178] [179] [180] [181] [182] [183] [184] [185] [186] [187] [188] [189] [190] [191] [192] [193] [194] [195] [196] [197] [198] [199] [200]
1.A.2	Name: [9] Position: [10] and address: [11] of the person authorized to compile the Technical File:	[201] [202] [203] [204] [205] [206] [207] [208] [209] [210] [211] [212] [213] [214] [215] [216] [217] [218] [219] [220] [221] [222] [223] [224] [225] [226] [227] [228] [229] [230] [231] [232] [233] [234] [235] [236] [237] [238] [239] [240] [241] [242] [243] [244] [245] [246] [247] [248] [249] [250] [251] [252] [253] [254] [255] [256] [257] [258] [259] [260] [261] [262] [263] [264] [265] [266] [267] [268] [269] [270] [271] [272] [273] [274] [275] [276] [277] [278] [279] [280] [281] [282] [283] [284] [285] [286] [287] [288] [289] [290] [291] [292] [293] [294] [295] [296] [297] [298] [299] [300]
1.A.9	Place: [12] and date: [13] of the declaration.	[301] [302] [303] [304] [305] [306] [307] [308] [309] [310] [311] [312] [313] [314] [315] [316] [317] [318] [319] [320] [321] [322] [323] [324] [325] [326] [327] [328] [329] [330] [331] [332] [333] [334] [335] [336] [337] [338] [339] [340] [341] [342] [343] [344] [345] [346] [347] [348] [349] [350] [351] [352] [353] [354] [355] [356] [357] [358] [359] [360] [361] [362] [363] [364] [365] [366] [367] [368] [369] [370] [371] [372] [373] [374] [375] [376] [377] [378] [379] [380] [381] [382] [383] [384] [385] [386] [387] [388] [389] [390] [391] [392] [393] [394] [395] [396] [397] [398] [399] [400]
1.A.10	Signature: [14] Name: [15] and position: [16] of the person empowered to draw up the UKCA Declaration of Conformity.	[401] [402] [403] [404] [405] [406] [407] [408] [409] [410] [411] [412] [413] [414] [415] [416] [417] [418] [419] [420] [421] [422] [423] [424] [425] [426] [427] [428] [429] [430] [431] [432] [433] [434] [435] [436] [437] [438] [439] [440] [441] [442] [443] [444] [445] [446] [447] [448] [449] [450] [451] [452] [453] [454] [455] [456] [457] [458] [459] [460] [461] [462] [463] [464] [465] [466] [467] [468] [469] [470] [471] [472] [473] [474] [475] [476] [477] [478] [479] [480] [481] [482] [483] [484] [485] [486] [487] [488] [489] [490] [491] [492] [493] [494] [495] [496] [497] [498] [499] [500]

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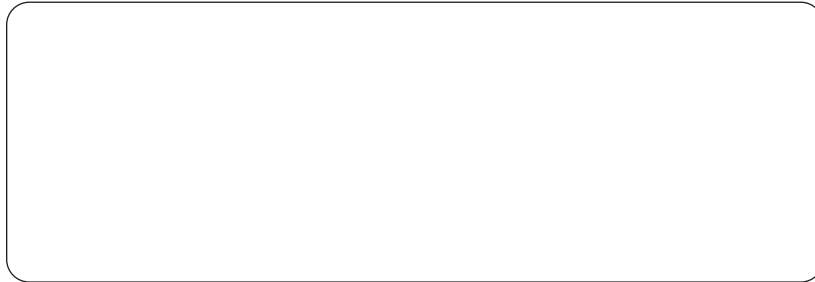
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The manufacturer and its authorized representative reserves the right to make improvements in design and changes in specifications at any time without notice and without incurring any obligation to install them on units previously sold. Specifications, descriptions, and illustrative material herein are as accurate as known at the time of publication, but are subject to change without notice.

Availability of some models and equipment builds varies according to the country in which the equipment is being used. For exact information about any particular product, please consult your Kongskilde dealer.



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