ORIGINAL INSTRUCTIONS - according to Directive 2006/42/EC, Annex 1 1.7.4.1

OPERATOR'S MANUAL

Vibro Crop Vibro Crop Intelli Inter-Row Cultivator



Part number 51601877 Ist edition English May 2019

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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

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 are 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

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.

Do not use this implement:

- 1. To perform other works than farm works based on mechanical row crop cleaning.
- 2. If you have not read this instruction manual.
- 3. If you have not learn the structure and operation of the implement.

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.

If you use the unit inconsistently with its destination, KONGSKILDE and/or its representatives shall not be held liable for any damages incurred. In such case, full responsibility for the implement use, transport, maintenance, repairs, etc. shall be borne by the owner/user.

Any and all departures from manufacturer requirements and effective legal regulations, as well as performing any modifications in implement structure without obtaining prior manufacturer's approval, using spare parts other than original ones shall be construed as using the unit inconsistently with the requirements and shall result in a waiver performed by KONGSKILDE with respect to the damages.

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.

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.



- (1) Company name
- (2) Brand identification logo
- (3) Mail address
- (4) Type / Variant / Version
- (5) Model year
- (6) Certification mark

- (7) Year of construction
- (8) Made in (country of origin)
- (9) Maximum weight
- (10) Product Identification Number (PIN)
- (11) Model
- (12) Designation

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



ZEIL19TIL0205FA 1

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) Loading platform with steps
- (9) FS SEEDER
- (10) Rear harrow

Vibro Crop



ZEIL19TIL0214FA 2

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

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

Optional equipment:

- (7) Loading platform with steps
- (8) FS SEEDER
- (9) Rear harrow



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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.

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

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

A 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.
- 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 autho-

rized 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.
- Take the necessary precautions (for example assistance) to always be aware of the possible presence of bystanders and pets.
- Keep children away from and off the implement at all times.
- 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.
- Keep hands away from moving parts of the implement.

Illustrations

A 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.

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

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

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

- 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 harmfull 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.
- 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

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.

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.
- Before you start the implement, make sure that all subassemblies 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

AWARNING

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

A 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.

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

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

A WARNING

Rotating parts! Keep clear of all drives and rotating components. Failure to comply could result in death or se-

rious injury.

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.

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 with the link arms of the tractor, 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.

While in operation, the transportation of people on the top of the implement is strictly forbidden.

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

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.

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

Adjust the working speed to make sure that the soil processed is transported evenly between particular working elements.

Adjust the processing depth to the type of work performed and the amount of post-cropping residue in the farmed soil.

In the event the implement clogs:

- Stop the tractor engine immediately and lift the implement.
- When it's necessary to step on the implement to remove jams, maintain particular caution – there is a risk of slipping.
- When it's necessary to step under the implement to remove jams, maintain particular caution and always make sure the implement was secured against automatic lowering.

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.

- 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.
- 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 shielding, 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.
- The 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.

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 dismounted the transport lock

Noise emission

The measuring and reporting of the noise level were carried out according to EN ISO 3746: 2005. The measurement uncertainty is approximately +/- **2 dB**.

The noise emissions for the implement equipped with FS Seeder are:

- 1. LPA emission pressure level = maximum 103 dB
- 2. LWA emission pressure level = 109 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:

$$If,min = \frac{[Ir x (c + d)] - (Tf x b) + (0,2 x Te x b)}{a + b}$$





List of signs

Te [kg]	The tractor own weight.
Tf [kg]	Front axle load with empty tractor.
Tr [kg]	Rear axle load with empty tractor.
lr [kg]	Total weight of the rear-mounted implement/rear ballast.
lf [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 sub-stances 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

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 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)

A hazard of falling caused by standing on the implement when working or in transport. The hazard could result in death or serious injury.

Traveling on the implement or entering the implement when working is strictly prohibited. This reservation refers to implement with walking surfaces and platforms as well. Make sure that no one is traveling on the implement.

Part number: 300007972



300007972

Safety sign (2)

Moving parts in the seed drill tank.

Never move your hand into the danger zone as long as the parts can move.

This may cause serious injury and, at worst, result in death.

Part number: 7000045057



Safety sign (3)

Mount transport belts here.

Part number: 74000666103



Safety sign (4)

Speed limit: 25km/h. Part number: 300008277



Safety sign (5)

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 6

Safety sign (6)

Lubrication point.

Part number: 74000667708



Safety sign (7)

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 course serious injuries.

Part number: 101000336



Safety sign (8)

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



Safety sign (9)

Hazard of being electrocuted or fire hazard caused by accidental hooking onto overhead electrical lines or by unauthorized proximity to live-current overhead electrical lines.

The hazard could result in death or serious injury.

Maintain a safe distance to any electrical wires when folding, unfolding and traveling in the vicinity of electrical lines.

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: 303021278

Safety sign (10)

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: 372003609



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



303021278 10



372003609 11



300007974 12

Safety sign (12)

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

Part number: 300007977



300007977 13

Safety sign (13)

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

Safety sign (14)

A 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







Safety sign (15)

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.

Part number: 200043774

Safety sign (16)

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



200043774 16



Safety sign (17)

Do not raise the side arms 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



3 - CONTROLS AND INSTRUMENTS

Information

Operating principles

For all information related to the description and the location of the controls to use your implement, see chapter "Controls and Instruments" in the operator's manual of your vehicle.
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						
VCO-I 12-75						
VCO-I 18-45						
VCO-I 16-60	135 - 160 kW (183 5 - 217 5 Hm)					
VCO 18-50	133 - 100 kW (103.3 - 217.3 Hp)					
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)					
Implement hydraulic fluid	Transmission/hydraulic fluid HLP68 *					
Maximum oil temperature	50 °C (122 °F)					
Hydraulic outlets for Vibro Crop Inte	elli					
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 FS 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 FS Seeder					

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

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 pipes, 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 7-7).
- Check the proper tightness of all the nuts and bolts.
- Check the tire pressure and, if necessary, pump them to reach the required values.
- 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.

Starting the unit

Connection to the tractor

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 toplink 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 original 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.

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 ground.

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.



ZEIL19TIL0235AA 2

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.
- 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.
- 6. Make sure that all hydraulic connections are clean and then make all the necessary hydraulic connections.
- 7. Inspect the implement for any leaks from hydraulic connections.
- 8. Connect the implement lighting.
- 9. Connect the plug (2) of the camera steering system to the socket (3).
- 10. Connect the power supply plug (1) of the electrical installation.
- 11. Connect the plug for section control (4) when the implement is equipped with optional section control.
- 12. Check if all devices are fully operational.
- 13. Lift the implement with the tractor three point linkage so that the jacks do not touch the ground.



ZEIL19TL0053AA 3



ZEIL19TL0054AA 4



ZEIL19TL0055AA 5



ZEIL19TL0056AA 6

Lift the jack as follows:

- 1. Remove the pin (3) and pull out the pivot (2).
- 2. Grab the handle **(1)** and lift the jack up to highest position.
- Re-insert the pivot (2) in hole and secure it with a pin (3).
- 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.



ZEIL19TL0052BA 8

Hydraulic connections for Vibro Crop Intelli

Hydraulic connections are marked with the following colors:

- Black the line operating the implement folding.
- Red the line operating side shift and section control system.
- Blue- single acting line for simple section lift system (optional).
- Green the line operating the load sensing (optional).

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 for 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:
 - $_{\odot}\,$ 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 latch pin (1). Lower the jack (2). Secure with the latch pin (1).
- 6. Close the hydraulic ball valves (3) on hydraulic hoses coming out from tractor.
- 7. Depressurize the hydraulic system.
- 8. Disconnect the hoses of the hydraulic system from the tractor.
- 9. Disconnect the electric wire connected with the tractor.
- 10. Disconnect the lighting equipment.
- 11. Dismount the top link.
- 12. Unlock and pull out the hooks from lower couplings.
- 13. Lower the jack arms until they are released from the couplings on the implement.

A 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.



ZEIL19TL0051BA



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).



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 roadholding 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 **4-7**), 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

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 iniurv.

W1129A

AWARNING

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

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.
- Before you proceed to loading / unloading, connect the implement to the tractor in the correct way.
- 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 wings 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)
- Steps (4)
- FS seeder (5)
- Rear harrows (6)

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 side wings 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.
- 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

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 (\mathbf{R}). In case of irregularities the sections should be moved. To move the section, proceed as follows:

- 1. Loosen the bolt (1).
- 2. Lift and move the section (2) in correct way, right-hand side or left-hand side (to make the setting section easier, use the scale glued on the inner part of the frame).
- 3. Tighten the bolt with proper torque (1).



ZEIL19TIL0185AA 2

Adjustment of 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.

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).

Each individual unit is a separate self contained cultivator with its own depth control an 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 ad follows:

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

The scale and indicator (3) makes easier to set the same working depth for each section.



ZEIL19TIL0405AA







ZEIL19TIL0404AA 3



ZEIL19TIL0408AA 4

Hydraulic adjustment

Hydraulic block **(1)** to control the parallelogram side shift frame allows to work in 3 modes, depending on the required operating mode adjustment is necessary:

- Closed Center (CC)
- Open Center (OC)
- Load Sensing (LS) as option



Hydraulic block adjustment

To adjust the hydraulic block, proceed as follows:

- 1. Loosen the nut (2).
- 2. Screw or unscrew the bolt (3).
- 3. Tighten the nut (2).



6-5

Operation mode adjustment

To adjust the hydraulic block operation mode in Open Center, proceed as follows:

The bolt (4) should be unscrewed until the tension of the spring is undetectable. The dimension (A) is approximately 24 mm (0.9 in).

To adjust the hydraulic block operation mode in Closed Center or Load Sensing, the bolt (4) should be screwed to the end. The dimension (B) is approximately 11 mm (0.4 in).





ZEIL19TL0072 AA 4

Oil flow adjustment

To adjust the speed of the frame shift, adjust the oil flow. To adjust the oil flow, proceed as follows:

- 1. Loosen nut (1).
- 2. Screw or unscrew bolt (2).
- 3. Tighten nut (1).



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 links 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.

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 Vibro Crop 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 links 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 in the direction shown.



ZEIL19TL0066BA

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.



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) 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. To adjust the settings of the camera use the external camera manual.

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. Operate the camera in accordance with the external manual of the specific camera. While the tractor with the implement is stationary and in-line with the rows in the field, turn on the camera and make the adjustments according to the supplied manual. Adjust the side shift frame correctly according to the manual. Find the best camera signal as possible according to the manual.

The implement is adjusted and works independent of the tractor's position in the rows. The height and angle of the camera can be adjusted depending on the growth stage of the crop.

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



ZEIL19TL0079AA 3

Filling the FS Seeder

To fill the FS Seeder proceed as follows:

1. Unlock the steps (1).

2. Fold the steps (1) down.

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

1

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).
- 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 KONGSKILDE 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

A 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

Always disengage the hydraulic pressure and power, activate the parking brake and stop the tractor engine 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 **4-7**).

Turn off the tractor engine before repair, maintenance and cleaning the implement, to solve any problems related to any malfunctions of the implement. Always turn off engine, take out the key from the ignition and pull the hand brake.

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 until you reach the dynamometric moment between $60 - 65 \text{ N} \cdot \text{m}$.

Used and destroyed parts must be unconditionally replaced with the next possible opportimplementy 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

	Class 8.8 in N m (lb in or lb ft)		Class 10.9 in N m (lb in or lb ft)			
Nominal	Plated nut	Lock nut	Hardened	Plated nut	Lock nut	Hardened
Size			nut/Olled			nut/Olled
				4 0 11		
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)
MA	2 9 N.m	1 6 N.m	2 6 N.m	(10.0 lb lll)	2 3 N·m	3 7 N.m
1014	(25.7 lb in)	(14.2 lb in)	(23.0 lb in)	(37.2 lb in)	(20.4 lb in)	(32.7 lb in)
M5	5 9 N.m	3 2 N.m	5 3 N·m	8 5 N·m	46 N.m	7 6 N.m
IVIO	(52.2 lb in)	(28.3 lb in)	(A6.9 lb in)	(75.2 lb in)	(40.7 lb in)	(67.3 lb in)
MG	(J2.2 ID III)	(20.3 lb lll)	(40.9 lb lll)	(75.2 lb ll)	(40.7 ID III)	(07.5 lb lll)
IVIO	(89.4 lb in)	(48.7 lb in)	(80.5 lb in)	(10.7 lb ft)	(69.9 lb in)	(9.6 lb ft)
M8	24.5 N·m	13.5 N·m	22 N·m	35.1 N·m	19.3 N·m	31.5 N·m
	(18.1 lb ft)	(10.0 lb ft)	(16.2 lb ft)	(25.9 lb ft)	(14.2 lb ft)	(23.2 lb ft)
M10	48.7 N·m	26.8 N·m	43.8 N·m	69.5 N·m	38.2 N·m	62.5 N·m
	(35.9 lb ft)	(19.8 lb ft)	(32.3 lb ft)	(51.3 lb ft)	(28.2 lb ft)	(46.1 lb ft)
M12	85 N·m	46.7 N·m	76.5 N·m	121 N·m	66.5 N·m	108.9 N·m
	(62.7 lb ft)	(34.4 lb ft)	(56.4 lb ft)	(89.2 lb ft)	(49.0 lb ft)	(80.3 lb ft)
M14	135 N·m	74.2 N∙m	121.5 N∙m	193 N∙m	106.1 N∙m	173.7 N∙m
	(99.6 lb ft)	(54.7 lb ft)	(89.6 lb ft)	(142.3 lb ft)	(78.3 lb ft)	(128.1 lb ft)
M16	210 N·m	115.5 N∙m	189 N·m	301 N∙m	165.5 N∙m	270.9 N∙m
	(154.9 lb ft)	(85.2 lb ft)	(139.4 lb ft)	(222 lb ft)	(122.1 lb ft)	(199.8 lb ft)
M18	299 N·m	164.4 N∙m	269.1 N∙m	414 N∙m	227.7 N∙m	372.6 N∙m
	(220.5 lb ft)	(121.3 lb ft)	(198.5 lb ft)	(305.4 lb ft)	(167.9 lb ft)	(274.8 lb ft)
M20	425 N∙m	233.72 N·m	382.5 N∙m	587 N∙m	322.8 N∙m	528.3 N∙m
	(313.5 lb ft)	(172.4 lb ft)	(282.1 lb ft)	(432.9 lb ft)	(238.1 lb ft)	(389.7 lb ft)
M22	579 N·m	318.4 N∙m	521.1 N∙m	801 N∙m	440.5 N∙m	720.9 N∙m
	(427 lb ft)	(234.8 lb ft)	(384.3 lb ft)	(590.8 lb ft)	(324.9 lb ft)	(531.7 lb ft)
M24	735 N∙m	404.2 N∙m	661.5 N∙m	1016 N∙m	558.8 N∙m	914.4 N∙m
	(542.1 lb ft)	(298.1 lb ft)	(487.9 lb ft)	(749.4 lb ft)	(412.1 lb ft)	(674.4 lb ft)
M27	1073 N∙m	590.1 N∙m	967.5 N∙m	1486 N∙m	817.3 N∙m	1337 N∙m
	(791.4 lb ft)	(435.2 lb ft)	(713.6 lb ft)	(1096 lb ft)	(602.8 lb ft)	(986.1 lb ft)
M30	1461 N∙m	803.5 N∙m	1315 N∙m	2020 N∙m	1111 N∙m	1818 N∙m
	(1077.6 lb ft)	(592.6 lb ft)	(969.9 lb ft)	(1489.9 lb ft)	(819.4 lb ft)	(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



Metric bolt identification markings

- 1. Manufacturer's identification
- 2. Property class

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



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.



Torque for class 12.9

Bolts of quality 12.9 are used on the implements. Make sure to use the same type of bolts and nuts to replace bolts and nuts of quality 12.9. It is easier to torque bolts and nuts to correct value of torque if you lubricate bolts and nuts with oil.

Quality	Size	Torque for dry bolts and nuts	Torque for bolts and nuts lubricated with oil
12.9	M8	40 N⋅m (29.50 lb ft)	-
12.9	M10	81 N⋅m (59.74 lb ft)	-
12.9	M12	135 N·m (99.57 lb ft)	-
12.9	M12 x 1.25	146 N·m (107.68 lb ft)	-
12.9	M14	215 N·m (158.58 lb ft)	_
12.9	M14 x 1.5	230 N·m (169.64 lb ft)	_
12.9	M16	333 N·m (245.61 lb ft)	286 N·m (210.94 lb ft)
12.9	M16 x 1.5	350 N·m (258.15 lb ft)	_
12.9	M18	440 N·m (324.53 lb ft)	_
12.9	M20	649 N·m (478.68 lb ft)	558 N·m (411.56 lb ft)
12.9	M20 x 1.5	720 N·m (531.04 lb ft)	_
12.9	M24	1120 N·m (826.07 lb ft)	963 N·m (710.27 lb ft)
12.9	M24 x 1.5	1175 N·m (8666.35 lb ft)	_
12.9	M30	2300 N·m (1696.39 lb ft)	_

Fluids and lubricants

ltem	Capacity	KONGSKILDE brand name	KONGSKI- LDE specifi- cation	Lubricant grade	International specification
Grease fittings	As required	-	-	NLGI 2	M1C 137-A

Maintenance planning

Overview

Greas	se	_		Replace	
Tighten	_				
Maintenance action				Page no.	
After the first 10 hours					
Nuts and bolts	Х			7-7	
Every 100 hours					
100 hours grease fittings		х		7-8	
Nuts and bolts	Х			7-10	
Every six years					
Hydraulic hoses			Х	7-11	

After the first 10 hours

Nuts and bolts

Torque again all the bolts, the nuts and the fasteners after the first ${\bf 10}$ h of work.

Every 100 hours

100 hours grease fittings

Front side

1. Wheel link (2x).











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- 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).





6. PIN 30x150 (2x).

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





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.

Every six years

Hydraulic hoses

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.

A 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.

Storage

Pressure washing

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

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

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.

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

NOTE: 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 **25 cm** (**9.8 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: 50 °C (122 °F).
- Maximum water pressure: 80 bar (1160 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.

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.
- 3. Grease all grease fittings after you clean the implement, according to the "Maintenance chart".
- 4. Check the implement for damaged parts, loose screwjoints, 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. Parts polished with use and the piston rods of the hydraulic cylinder may get rusty. Clean and brush with grease parts polished with use and the piston rods to protect against wind and weather.
- 6. Dismount the hydraulics and electronic cables and wires, keep the ends dry.
- 7. Support the implement to relieve the weight from the tires. Leave 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.

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

Troubleshooting

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

9 - SPECIFICATIONS

Technical data

Nama	Configurations of Vibro Crop Intelli 9 m (29.5 ft)											
Name	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	i (5.3 in)									
Working depth		m (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			II									
Hydraulic oil pressure		160 – 200 bar (2	2320 – 2900 psi)									
Maximum hydraulic oil pressure		200 bar (2900 psi)									
Hydraulic outlet	2 DA (optionally plu	s 1 DA with free return	rn for FS Seeder and	1 SA for implement								
Electrical system		12 V	(7_n)									
Transport width(T2)*		3 m (9.8.ft)									
Transport height (H)	37m (121ft)	3.6 m (11.8 ft)	3.0 ft	3.6 m (11.8 ft)								
	5 .7 m (1 2 .1 m)	0 25 m	(0.82 ft)	5.0 m (11.0 m)								
Transport length(L2)	2.2 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		un to 10 km	h (6.2 mph)	2000 kg (0000 lb)								
Transport speed		up to 25 km/	h (15.5 mph)									

Nome	Configurations of Vibro Crop Intelli 6 m (19.7 ft)											
Name	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 cı	m (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												
Hydraulic oil pressure		160 – 200 bar (2	2 320 – 2900 psi)									
Maximum hydraulic oil pressure		200 bar (2900 psi)									
Hydraulic outlet	2 DA (optionally p return for FS See implement without port c	lus 1 DA with free eder and 1 SA for section control) LS option	1 DA ai	nd 1 SA								
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		up to 25 km /	h (15.5 mph)									

Norma	Configurations of Vibro Crop 9 m (29.5 ft)												
Name	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	ı (5.3 in)										
Working depth		up to 7 c i	m (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													
Hydraulic oil pressure		160 – 200 bar (2	2320 – 2900 psi)										
Maximum hydraulic oil pressure		200 bar (2900 psi)										
Hydraulic outlet		1 DA ai	nd 1 SA										
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		up to 25 km /	h (15.5 mph)										

Fluids and lubricants

ltem	Capacity	KONGSKILDE brand name	KONGSKI- LDE specifi- cation	Lubricant grade	International specification
Grease fittings	As required	-	-	NLGI 2	M1C 137-A

10 - ACCESSORIES

Section controls (GPS-system)

The Vibro Crop Intelli row crop cultivator 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.

KONGSKILDE recommends using one of the 3 following GPS suppliers:

- Trimble
- AgLeader Technology
- Topcon

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.

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 help-fully in advising you about the GPS supplier.



Light kit for camera (Complete xenon light kit)

NOTE: Valid only for Vibro Crop Intelli.

The xenon light (1) enables the camera to work also at night.

You can turn the light on and off on the terminal in the cabin.

The xenon light kit includes the following components:

- Hella oval 100 xenon
- Cable harness
- · Cable harness on tractor
- Bracket
- Power extension cable

These components can also be ordered separately.



ZEIL19TIL0220BA 1

Adapter for light kit

The adapter for light kit (1) allows you to connect lamps with US standards.



ZEIL19TIL0226AA

External video monitor

With the external video monitor (1), the operator can see what the camera records directly from the tractor. Thanks to this, he sees how the implement behaves towards the rows.

NOTE: Valid only for Vibro Crop Intelli.



ZEII 19TII 0336AA

Rear harrow

The rear harrow (1) levels the soil, leaving weeds to dry out on the surface.



FS Seeder

NOTICE: FS Seeder is available only on implements with a distance of 75 cm (29.5 in) between rows. Changes the distances in rows results in collisions with components in the working sections.

When the optional FS Seeder (1) is installed, the Vibro Crop intelli allows to seed intermediate crops during row crop cleaning. A compact pneumatic seeding unit is available, for sowing intermediate crops in e.g. maize, simultaneously with the final cultivation pass. The equipment comes with steps and platform with handrails for easy and safe access to the hopper. It is a simple design with gravity point close to the tractor.



ZEIL19TIL0191AA 1

Load sensing kit

The load sensing kit (1) is a hydraulic system that controls the quantity and pressure of oil fed to the receiver. The load sensing kit gives an impulse to the tractor system, when the implement needs the right pressure and the right amount of oil.

The benefits of the load sensing kit are:

- Fuel saving.
- Reduction of pump wear.
- · Oil overheating prevention.

NOTE: Valid only for Vibro Crop Intelli.

Hopper level sensor

NOTE: Available only on implements with FS Seeder.

This sensor can be retrofitted on the PS 120/200/300 M1. Operation with a control box 1.2, 5.5 or 6.2 is required. It measures how much seed is still left in the hopper, and triggers an alarm on the control box when there is not enough seed in the hopper.

You can also adjust the intensity of the sensor for the respective seed type using the small slotted screw at the rear of the sensor.





ZEIL19TIL0224AA 1

Wheels

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

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



Splitter cable and sensors

NOTE: Available only on implements with FS Seeder.

7-pin signal cable

7-pin signal cable (1) for automatic speed recording plus lifting signal as an accessory for pneumatic seed drills. More modern tractors are equipped with a standard socket, from which the cable for speed recording connect to the electric operating element. Through this socket, the speed and the lifting signal from the vehicle are recorded and transmitted to the electric control module. The control module then automatically regulates the rotational speed of the seeding shaft, the spread rate, and the automatic shutoff at the headlands. The seed drill therefore works completely independent of the user, without any manual intervention.

The sensor is available as a set with the following lifting unit sensors:

- Top link lifting unit sensor (2). For 3-point hitch and for mounting in a second top link hole. Through this sensor, the seeding shaft of the implement can start and stop rotating automatically when you lift and lower the implement (headland management). The sensor is installed on the top link or where there is mechanical movement (invertible).
- Running gear lifting unit sensor (3). For mounting on parts that move on the headlands. Using this sensor you can start or stop the auger of the pneumatic seed drill (invertible).
- Pull switch lifting unit sensor (4). For mounting on the 3-point hitch or on parts that move on the headlands. Through this sensor, the seeding shaft can start and stop rotating automatically when you lift and lower the implement (headland management). You can mount the sensor at any position where there is a change in length of more than 70 mm (2.8 in) when lifting the implement (invertible).



Splitter cable

The splitter cable **(5)** is required for the combined use of the speed sensor and lifting unit sensor.



Wheel sensor

The wheel sensor **(6)** records the forward speed. When the magnet passes by, a pulse is generated and this allows the speed to be calculated. The sensor is firmly attached to the frame and can detect both the supplied magnets and bolt heads, wheel studs, etc. on the rim of the wheel. The magnets hold on by themselves through their strong magnetic force. A mounting kit for the sensor is included as a standard.

The sensor is available as a set with the following lifting unit sensors:

- Top link lifting unit sensor (2) (see Figure 2)
- Running gear lifting unit sensor (3) (see Figure 3)

Radar sensor

The radar sensor (7) sends information on the speed of the vehicle to the control module. The control module therefore automatically regulates the rotational speed of the seeding shaft and the spread rate. The seed drill therefore works completely independent of the user, without any manual intervention. You can use a lifting unit sensor in combination for automatic switching on and off at the headlands.

The sensor is available as a set with the following lifting unit sensors:

- Top link lifting unit sensor (2) (see Figure 2)
- Running gear lifting unit sensor (3) (see Figure 3)



ZEIL19TIL0232AA

6



Connector cable

NOTE: Available only on implements with FS Seeder.

With the 7-pole cable (1) the control module connects to the tractor. The control module receives 3 signals from tractor (DIN 9684 Norm). This way the actual tractor driving speed is passed on to the control. This is displayed in the control console and the seeding amount is regulated automatically with the rotational speed of then sowing wheel. The regulation adjusts speed differences from **50%** upwards and **50%** downwards.

This way the desired seeding amount per hectare is adhered to, no matter the speed of the tractor. All proceedings are taken on from the control console for the operator. Even when turning no manual operating on the control has to be done as the land wheel recognises the lifting and lowering of the soil working implement.

Adapter cable power supply

The adapter cable power supply (1) allows you to connect a device with US standards.





11 - FORMS AND DECLARATIONS

CE Declaration of conformity

Acco	EC/EU Declaration of Conformity rding to Directives 2006/42/EC and if relevant EMC Directive 2014/30/EU
٦	The manufacturer,
(E	CNH INDUSTRIAL Belgium N.V. 38210 Zedelgem, Belgium
ł	nereby declare that the product:
Å	Agricultural implement
(Commercial Name KONGSKILDE and Model:
[Designation: Tillage
٦	rvv:
5	Serial Number:
t N E	o which this declaration relates, is in conformity with the provisions of the Machinery Directive 2006/42/EC and if relevant also the provisions of the EMC Directive 2014/30/EU
1	Name, position, and address of the authorized person to compile the Fechnical Construction File:
F S C	Place and date of the declaration: Signature, name and position of person empowered to draw up the EC Declaration of Conformity:

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Dealer's stamp

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