INSTRUCTIONS FOR USE

Radio docking station G84

Manufacturer:

Distributor:

EN - translation of the original instruction from Polish *Version 2/28.08.2023*

The authors: MARK-JOHN Sp. z o.o.,

EU CERTO OFFICE Sp. z o.o.

Graphic design: EU CERTO OFFICE Sp. z o.o.

Editor: EU CERTO OFFICE Sp. z o.o.

The instructions for use were developed on the basis of data obtained from the Customer (MARK-JOHN Sp. z o.o.) and of the radio docking station assessment.

The instructions are recommended for use by radio docking station operators.

The content complies with the requirements of national and EU regulations in force in August 2023.

EC/EU DECLARATION OF CONFORMITY

MARK-JOHN Sp. z o.o.
Runowo 2A
62-035 Kornik
POLAND

acting as manufacturer

declares with full responsibility that the machine:

Radio docking station

Type / Model: G84
Year of production: _____
Product number: not applicable
Batch/serial number: _____

Description of the machinery and its function:

The radio docking station is designed for controlled pumping of slurry, water and sewage sludge from open or closed tanks.

to which this declaration relates complies with the requirements of:

- Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (OJ L 157, 09.06.2006, p.24-86)
- Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (OJ L 96 29.3.2014, p. 79-106)

The following harmonised standards were applied, to assess compliance:

EN ISO 12100:2010
EN ISO 20607:2019
EN ISO 4254-1:2015

and technical standards, regulations and specifications:

EN ISO 4254-1:2015/A1:2021

Person authorised to compile the technical file:

Name and surname: Dawid Machowiak
Address: Runowo 2A , 62-035 Kornik , POLAND

This declaration is no longer valid if the machine is modified or rebuilt without the permission of the manufacturer.

Signed for and on behalf of the manufacturer:

PREZES ZARZĄDU

Kornik, 13.07.2023
The place and date of the declaration

Janusz Przybylski
The identity, function and signature of the person empowered to draw up the declaration

Contents

1. GENERAL

1.1. Introduction

IMPORTANT!
These instructions for use should be attached to Radio docking station G84. The information and recommendations contained in these instructions are addressed mainly to machine operators, service personnel, persons carrying out repairs and maintenance, persons involved in ensuring work safety and should be followed by them.
We recommend that all persons referred to above confirm that they have received the instruction manual and are familiar with its content.

These operating instructions are the basic equipment of the machine. It is important that each new employee delegated to work on the machine first read its content.

The rules for safe use of the machine, lubrication, maintenance and safety recommendations included in the instructions for use will enable safe operation of the machine and protect operators from potential hazards. Therefore, keep the instructions for future use.

Please read this document before using the machine for the first time. Read the entire instructions for use and follow the rules presented in it, which will guarantee safe use of the machine and minimize the risk of accidents or its failure. This document is divided thematically into clauses and subclauses (see table of contents) presenting relevant information for you.

These instructions are only valid for the radio docking station. They are identified with a given machine by its type, serial number and year of production.

IMPORTANT!
Before starting work, make sure you read this entire manual.
If any information given in these instructions are incomprehensible please contact for help directly to the manufacturer.

Radio docking station has been designed and manufactured in accordance with safety requirements, but inappropriately utilized may cause hazards to the user health and life or bystanders. Therefore, utilizing the machine you must follow the safety, environmental and occupational medicine regulations. Only persons who are familiar with the machine and its operating instructions can work on it and carry out any servicing and maintenance. All persons should be trained to operate the machine.

Use the machine only for its intended purpose. Follow all procedures related to preparing the machine for work. Unauthorized use, inconsistent with the rules set out in the manual and the basic health and safety rules may lead to a serious accident, even

fatal, and also may cause the risk of damage/failure.

Table 1 - Nomenclature used in the instructions for use

Name	Meaning
Instructions for use	Manual, operating instructions, this document describing use principles according to essential requirements of machinery directive 2006/42/WE
Machine, device	Radio docking station
External service	The person responsible for carrying out specialist repair and service work other than the use and maintenance of the machine
Operator, user	A person working at a radio docking station, operating it as part of the process of checking its operation, responsible for adjusting its operating parameters

IMPORTANT!

Any other use of the machine, not described in this manual, should be consulted with the manufacturer in advance.

IMPORTANT!

Information important for the user and other persons described in Table 1 is indicated in such a way.

NOTE!

This sign warns of the potential hazard in relation to the machine operator, persons described in Table 1 or bystanders, and of the risk relating to the functioning of the machine itself.

Not following the recommendation marked by this sign can cause accidents. Strictly follow the recommendations specified by this sign.

The manufacturer delivers the machine together with the instructions for use containing the signed EC declaration of conformity. The warranty card and parts list are separate documents attached as attachments.

Making any changes to the machine without prior agreement releases the manufacturer from the consequences resulting from their implementation. Details regarding the warranty and service are given in the warranty card, that is a separate document and should be delivered together with the instructions for use.

Whenever these instructions for use refer to a machine or device, it means **the radio docking station G84**.

Whenever the content refers to the manual, it means these instructions for use and all documents related to it.

IMPORTANT!

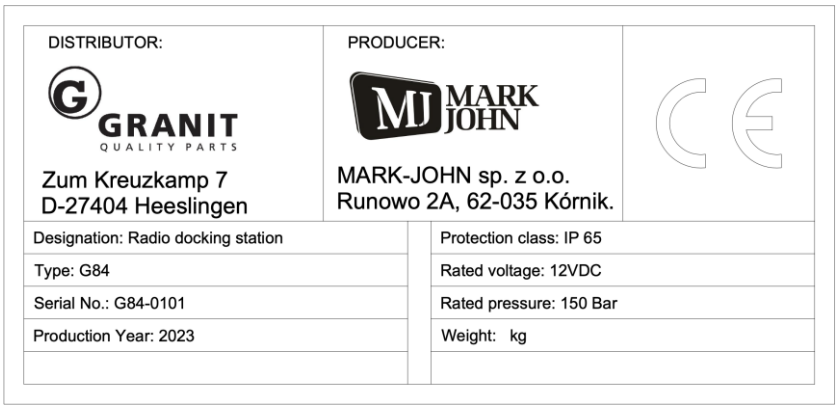
In case of sale or rental the machine to another user, always give him the instructions for use. In the event of its loss or damage, please contact your dealer to purchase a new copy.

IMPORTANT!
The manufacturer is not responsible for accidents resulting from not following the safety usage rules published in this manual.

In case of doubt regarding the operation of the radio docking station, observed malfunctions or defects, please contact the manufacturer.

1.2. The machine identification

The identification of the machine can be found on the nameplate attached to the body of the machine.



The view of the nameplate

2. SAFETY OF USE AND WARNINGS

2.1. General safety rules

IMPORTANT!
Important safety instructions are provided below. Follow the provisions to ensure the safety of yourself and others in the vicinity. These instructions do not limit the general health and safety instructions - are merely a supplement.

NOTE!
MARK-JOHN Sp. z o. o. is not responsible for damages caused by the user's violation of the requirements stated herein!

When operating the radio docking station, follow the general health and safety regulations and the rules for working conditions in agriculture. Take precautions related to its use when using the machine.

The constructional solutions for safety aspects adopted in this machine minimize its malfunction and the risks to users, provided that the machine is correctly connected to the tractor's three-point linkage, that the machine is operated in the recommended manner and the safety and hygiene rules of work are respected.

The most important elements used in the machine, serving to increase the level of safety during use are:

- a solution that allows you to control the station using a wireless remote control,
- a sensor that turns off the machine after removing the hose of the slurry tanker from the machine funnel,
- durable, steel construction,
- signal lamps,
- powering the machine from a 12 V car battery,
- the emergency STOP button (mushroom button),
- extensions with connecting stubs to minimize the risk of crushing or cutting the upper/lower limb with the latch,
- brakes on 2 wheels protecting the machine against accidental movement (when it is not aggregated with a tractor).

NOTE!

In an exceptional case and during a breakdown, immediately disconnect the machine from the power supply. Start removing the failure only after stopping the machine and securing it against switching on (switch the main switch to the "OFF" position and secure it against switching on again by removing the key). For the hydraulic system - see the manual for the hydraulic system provided as an attachment.

IT IS FORBIDDEN to taking by the User any actions that could lead to a lowering of machine safety (e.g. work without extensions, work with damaged or destroyed guards, or damaged electric and hydraulic cables or damaged/destroyed working parts of the machine, etc.).

NOTE!

Be careful when working with slurry, the gases produced are highly toxic and explosive when combined with oxygen.

NOTE!

Explosion hazard! Be especially careful due to gas formation.

NOTE!

Charge the battery in a place equipped with efficient ventilation due to the risk of accumulation of explosive hydrogen during the process!

NOTE!

Do not use open flames, do not smoke or use sparking equipment near the machine when charging the battery and when working with slurry due to the risk of gas explosion!

NOTE!

Do not eat or drink anything while operating the machine or while cleaning it!

Before using the machine read these instructions and follow the rules mentioned below, regarding the elimination of hazards and taking appropriate precautions.

- Use the radio docking station only in the intended manner (see clause 3.1).
- The machine is not intended for use in explosive atmospheres.
- The working environment should be free of additional hazards.
- You should be thoroughly acquainted with the health and safety and fire protection regulations and all the documentation provided. Also follow traffic regulations.
- The machine may only be operated by a person who has a driving license for tractors.
- You should know the principles of first aid for crushes, blows and cuts of various parts of the body and injuries caused by high-pressure fluid squirts.
- Oil from the hydraulic system under pressure can damage the skin and lead to serious injuries! In the event of an accident, see a doctor immediately. There is a serious risk of infection.
- The radio docking station can only be operated by adults trained in the safe operation of the equipment, health and safety regulations and familiar with the content of the manual.
- The use of the machine by underage and children is forbidden.
- The use of the machine by people who are ill, are under the influence of alcohol or other drugs is forbidden.
- It is forbidden for bystanders, especially children, to stay near the machine while: working, repaired, cleaned or undergoing maintenance.
- It is forbidden to use the device for purposes other than those specified in this manual.
- Do not use the device with faulty hydraulic or electrical installation.
- All areas of work, traffic and the passage keep in the proper cleanliness.
- Do not make unauthorized changes to the construction and temporary machine connection to the tractor.
- Do not combine or disable elements of the security chain, even partially. Safety devices should be effective and should not be overreached.
- Immediately report to the manufacturer any defects that may cause a risk of failure.

- Wear protective clothing and protective equipment for all hazardous work as defined for the workplace.
- Avoid wearing clothes that are too loose, which could get caught in the working parts of the machine.
- Keep every person and animal away from the machine working area where a dangerous situation may arise.
- Do not use a machine that is out of order or has any damage.
- Warnings (adhesive labels) placed on the machine provide instructions for the safety of the user and bystanders.
- It is strictly forbidden to carry people or animals on the machine during transport or operation.
- It is forbidden to support the machine on temporary stands, use the rotating wheels for this purpose that the machine has been equipped with by the Manufacturer, two of them have brakes - block them.
- Do not leave unsecured agricultural equipment on inclines or slopes to prevent it from rolling away.
- For installation work, use personal protective equipment (PPE) and technical measures that will ensure the safety of you, bystanders, property and the environment.
- The speed and manner of driving the tractor with the attached radio docking station must always comply with the terrain and road conditions.
- Pay attention to crushing zones, especially those that are hydraulically operated.
- Before leaving the tractor cabin, apply the tractor brake, lower the machine to the ground, turn off the tractor engine and remove the ignition key.
- Do not stay between the tractor and the connected machine if you don't immobilize the engine, apply the parking brake in the tractor and place anti-roll blocks under the tractor wheels at first.
- Store the machine in a dry room (if possible), on a hard surface. Use extreme caution when lowering the machine to the ground.
- The battery powering the machine is filled with a highly corrosive contact acid. Avoid contact with acid and its vapors as particularly dangerous substances.
- Do not allow battery acid to come into contact with skin, eyes or clothing (in case of contact with acid, immediately wash the area with plenty of water and consult a doctor).
- Wear protective clothing and glasses when working with the battery.
- Carry out all maintenance and repair work only after thoroughly cleaning the machine of slurry residues.

2.2. Safety rules for battery charger connection to the electrical power supply

- The battery charger is supplied with hazardous mains voltage (1 x 230 V AC; 50 Hz).
- User is responsible for the correct execution of the electrical system in the building.

- User is responsible for the correctness of connection points of power consumption and their proper operation.
- User is responsible for proper execution and periodic monitoring of protection against electric in the installation of used machine.
- Before connecting the device check that the power supply voltage is in accordance with the requirements of the battery charger. It will avoid of burn its electrical equipment due to insufficient voltage.
- Check reliability of connection.
- Route the power cord in such a way as to ensure full protection against cutting or breaking.
- The device should be connected to the mains in accordance with national regulations.
- Do not make any changes to the connection of the charger to the mains on your own.
- The electrical box must always be closed and undamaged.
- Only a person authorized to perform electrical work on the machine should have access to the electrical box.
- Electric wires are in isolation, that protects them from damage. It must not be cut, ripped off from the fastenings, etc.

2.3. Rules for safe assembly

NOTE!

The machine is sent to the customer partially disassembled. The machine has the suction and return duct outlets secured with metal plugs. Duct extensions are delivered disassembled, which requires assembly prior to commissioning. The final customer is responsible for the assembly.

- Before starting the assembly, read the assembly instructions, ensuring the proper sequence and safety of individual operations. If you have any doubts, contact the manufacturer.
- Heavy elements of the machine should be lifted using devices adapted for this purpose.
- It is forbidden to stay directly under the moved and/or lifted element.
- Hoists, lifts, belts, slings should have sufficient load capacity.
- The lifted element should be properly attached so that its unexpected movement is impossible.

- Installation of duct extensions should be carried out with particular care by at least 2 persons. Avoid bringing your limbs closer to places where there is a risk of crushing due to uncontrolled movement of machine parts.
- Wear appropriate protective clothing during assembly.
- Carry out the assembly using efficient tools and devices as well as original materials and parts.
- It is forbidden to support the machine on temporary stands. Use the rotating wheels that the machine has been equipped with by the Manufacturer for this purpose. Two of them have brakes. Block them if necessary.
- Regularly check the bolts and nuts tightening, tighten them if necessary.

2.4. Safety rules for connection to tractor tree point linkage

IMPORTANT!
Connecting the machine to the tractor should be carried out by a trained adult familiar with the construction of the machine and the tractor.

- The machine may only be connected to an agricultural tractor on the rear or front three-point linkage.
- Any activities related to machine connection to the tractor may be performed after prior familiarization with the safety requirements described in this manual.
- The user is responsible for the correct coupling of the machine.
- Attach the machine to the tractor when the tractor is turned off and secured against moving (as well as against uncontrolled restarting - remove the ignition key).
- Carry out all work in protective gloves and shoes.
- The machine may be connected to the tractor only with the use of equipment intended for this purpose.
- Be especially careful when coupling the machine to the tractor and when uncoupling it.
- Before hitching the machine, check whether the tractor's front axle is sufficiently loaded - applies to attaching the machine to the rear three-point linkage (in accordance with the tractor's manufacturer's instructions and reservations).
- If the load on the front axle of the tractor does not exceed 20% of the total weight of the tractor, after connecting

it to the machine, it is absolutely necessary to equip the tractor with front axle weights (the condition is presented in detail in clause 6.3).

- Be careful when hitching the machine to the tractor. It is forbidden for people to stay in the zone between the machine and the tractor when reversing the tractor towards the machine.
- Do not get between the tractor and the machine unless you protect them from moving by applying the brakes on the tractor, turning off the engine and removing the ignition key.
- When attaching/unhitching the machine to the tractor, leave the hydraulic lifting lever in such a position that the hydraulic system cannot start working on its own.
- It is forbidden to stay between the machine and the tractor while performing any actions with the lever operating the hydraulic system.
- Operate the control levers only from the seat position in the tractor cabin.
- Pay attention to the work zone of the three-point linkage. There is a risk of crushing there.
- When hitching the machine to the tractor's three-point linkage, make sure that the diameters of the mounting pins are suitable for the tractor's mounting elements.
- Use original bolts, pins and cotter pins.
- Unhitch the machine from the tractor after lowering the machine onto an even, hardened surface, switching off the tractor engine and pulling the hand brake in the tractor first. Also remember to remove the key from the ignition.
- Dangerous places are marked on the machine with warning pictograms. The meaning of the individual signs is given in the clause "Safety signs". Find out the meaning of all the given signs. Pay special attention to places marked with pictograms during operation.

2.5. Safe working practices

IMPORTANT!
Keep the instructions for use near the machine in order to have it always with you.

IMPORTANT!
Keep a log with notes on any problems encountered, failures, accidents or maintenance carried out on your own responsibility.

IMPORTANT!
Perform all maintenance work with extreme caution. Always use appropriate and safe tools and protective clothing.

The using of all designed protective housings and covers is absolute obligatory.

It is forbidden to lubricate the machine while it is in motion and to perform any maintenance activities that may contribute to lowering the safety level of the machine.

- The machine users should be thoroughly familiar with first aid in case of injuries caused by hydraulic oil squirting from a damaged hose (if applicable), crushing, impacts and cuts of various parts of the body and other foreseeable accidents.
- Before switching on the radio docking station, check that its elements are securely connected (tighten loose connections), check the completeness of the covers, check that there are no visible damages (in particular, electrical and hydraulic wires, safety system elements and working elements). If there is damage, report the problem to the manufacturer and do not operate the machine until the problem is resolved.
- Do not use a station that is out of order or damaged in any way.
- Do not remove or open the guards while operating the machine. Do not operate the station with the guards out of place or damaged. This also applies to extensions, which should always be fitted to the machine.
- Do not use the station when the safety system is out of order.
- The electrical box must always be tightly closed and undamaged.
- Only a person authorized to perform electrical work on the machine should have access to the electrical box.
- Electric wires are in special isolation, that protects them from damage. The isolation must not be cut, ripped off from the fastenings, etc.
- Before starting the station and during operation, check that there are no bystanders, especially children, or foreign objects in the danger zones (area around the machine). Check the condition of the warning signs.
- Make sure that it is clear how to turn off the device in the event of a sudden failure before starting the work.
- Dangerous places are marked on the machine with warning pictograms. The meaning of the individual signs is given in the clause "Safety signs". Find out the meaning of all the given signs.
- Pay special attention to places marked with pictograms during operation.

- Do not touch electrical and hydraulic lines with your body parts while it is operating.
- Always turn off the main power switch before leaving the station for an extended period of time.
- Stand securely at the workstation next to the machine while operating the radio docking station. The area around the workstation should be free of any objects that could reduce visibility.
- Safety devices should be effective. You must not bypass them.
- Keep power cords away from heat, oil, sharp edges or moving parts.
- It is the user's responsibility to check the effectiveness of the machine's safety and control devices.
- Leave the hydraulic lifting lever in such a position that the hydraulic system cannot start working on its own when connecting the machine to the tractor.
- It is forbidden for people or animals to stay in the crushing hazard zone while raising and lowering the machine on the three-point hitch.
- Make sure you have the right visibility.
- Do not stay between the tractor and the machine connected to the three-point hitch, unless you first immobilize the engine, pull the handbrake and place anti-roll blocks under the tractor wheels.
- It is forbidden to transport people and goods on the machine attached to the three-point hitch of the tractor.
- The speed and manner of driving the tractor with the machine attached to the three-point hitch must always correspond to the terrain and road conditions. Avoid sudden changes in direction under all circumstances.
- Always lower the machine to the ground, engage the tractor brake, turn off the engine and remove the ignition key before leaving the tractor cab.
- Store the machine in places inaccessible to unauthorized persons and animals during breaks in operation. It is recommended to store it under a roof to extend the life of the machine. It'll protect it from direct contact with weather conditions.
- After finishing the machine's operation, clean it of the remains of slurry, preferably with water and a disinfectant. Pay special attention to the cross channels.
- Make sure that the machine is not too heavily shielded when working with slurry. Ensure that the area is well ventilated, avoiding the accumulation of gases (risk of gas explosion).
- Always take care of the state of the machine's battery charge, the lack of the appropriate amount of energy may lead to incomplete closing of the latches and uncontrolled emptying of the tank.
- Be especially careful when working with slurry due to the emission of toxic gases that can affect your well-being or even poison the body.

2.6. Rules for safe cleaning, maintenance and repair

NOTE!

When you are not using the machine (e.g. during service, maintenance, work breaks) turn off the power supply and secure the main switch in the "OFF" position by removing the key, you will avoid the risk of accidental starting by unauthorized persons. For the hydraulic system - see the manual for the hydraulic system provided as an attachment.

Perform all maintenance work with extreme caution. Always use appropriate and safe tools and protective gloves.

- Inspect the machine regularly for wear or damage to its components.
- All activities related to repairs and assembly of spare parts can be made after reading the security requirements described in this manual.
- Use appropriate and safe protective equipment and gloves for all work.
- Protect the electrical installation against water and moisture. Do not wash electrical devices with a jet of water under pressure (e.g. with a high-pressure cleaner).
- Disconnect the machine from the electrical network, reduce the pressure in the hydraulic system in the event of any damage to the electrical system and then contact the manufacturer.
- Turn off the power before repairing an electrical device. For electrical safety, remove the key from the main switch and post appropriate warnings.
- Contact the manufacturer if you notice any damage to the components or if the machine does not work properly.
- Spare parts must comply with the manufacturer's technical requirements (see "List of spare parts" - the document is attached to this manual).
- Do not check the technical condition, do not clean hard-to-reach parts of the machine and replace components while the machine is operating and the power is on.
- The user is responsible for the correct installation of spare parts in the machine.
- Clean the station, especially hard-to-reach parts of the machine, with care.
- Regularly check the nuts and bolts at the place of their installation and tighten them.
- Any work on the electrical system should be performed by a person with appropriate qualifications. The machine's battery charger is powered by a life-threatening mains voltage (1 x 230 V AC; 50 Hz). Entrust repairs and maintenance of the electrical system to persons with appropriate qualifications.
- Check protective devices regularly and replace them in correct time.
- Carry out repairs after thoroughly cleaning the machine of contamination.

- Refer periodic inspections and maintenance program to competent and trained personnel or service.
- Before reconnecting the machine's battery charger, check that the supply voltage is within the required limits to prevent burnout of the machine's electrical equipment due to incorrect voltage.
- Contact the manufacturer in case of problems with the operation of the radio docking station.
- Make sure the covers and sensor are in place or not damaged after any service. Only then can the machine be started.
- Inspect the hydraulic hoses once a year. Carefully check: damage to the outer coating, porosity of the outer coating, resulting deformations under and without pressure, condition of joints and valves.
- Replace hydraulic hoses every 5 years with new, certified ones with appropriate technical characteristics.
- Oil from the hydraulic system under pressure can damage the skin and lead to severe subcutaneous wounds that are barely visible from the outside! In the event of an accident, see a doctor immediately. There is a serious risk of infection.

2.7. Safety rules for transportation

2.7.1. Transportation during delivery

IMPORTANT!

The machine can be transported on external means of transport, taking into account weather conditions, in accordance with local regulations regarding traffic on public roads. Cables and electrical components should be protected in such a way that it is impossible to get them wet.

NOTE!

It is forbidden to carry loads over people.

- The machine is transported by an external means of transport in a partially dismantled state on Euro pallets during delivery.
- It can be transported on an external means of transport during use, without dismantling any components. Euro pallets are not needed in this case.
- Secure the machine with straps against uncontrolled movement while driving in any case.
- Transport the device only on external means of transport, equipped with a tarpaulin or a built-in load box, thus protecting it against harmful external factors.

- Protect electrical wires and components in such a way that it is impossible to get them wet.
- For loading and unloading, use a forklift or manual pallet truck. Slide the forks of the truck under the pallet with the machine.
- Persons operating a forklift should have a valid permission to operate it.
- The means of transport and the device for moving loads must have sufficient load capacity and dimensions to ensure safe handling and transport.
- It is forbidden to stay directly under the lifted machine parts.
- Slide the forks under the frame in the middle part or under the pallet with the machine. Be careful especially during unloading in the presence of bystanders who shouldn't be in the danger zone (maneuvering the load).
- For reloading work, use personal protective equipment and technical measures that will ensure the safety for you, bystanders, property and the environment.

2.7.2. Safety transport rules for machine connected to the tractor during transport on public roads

NOTE!

Seasonal agricultural machines are allowed to drive on public roads in some countries without the need to register them, but it is required that:

- the machine should have a sign for slow-moving vehicles attached,
- the share of the load on the tractor's steered axle and its drive axle (for each load condition of the tractor) shouldn't be less than 20 % of the tractor's own weight (parameter specified for a given tractor model),
- the machine should have distinctive markings installed (boards with diagonal white and red stripes) and road lighting visible at the front and rear of the tractor-machine set, in accordance with current national regulations.

NOTE!

The user is responsible for the use of the machine not adapted to traffic on public roads due to the lack of lighting and marking or for registration of the tractor-machine set.

NOTE!

Check the general condition of the machine (whether the machine's components have not been damaged during operation), also check the screw connections and welded connections of the machine before going on a public road. In particular, check the connecting elements between the tractor and the machine, hitch pins, connectors, etc.

NOTE!

The user is personally responsible for complying with the traffic regulations in his/her country when using machines manufactured by MARK-JOHN machines.

- Check the condition of the tractor brakes before driving.
- Before driving, the lever controlling the lifting of the machine must be locked, thus preventing the uncontrolled lowering of the machine.
- Secure the tractor's lower links against sideways movement of the machine while driving (if applicable).
- Check the immediate surroundings for undesirable people before going on a public road.
- It is allowed to travel on public roads with the tractor-machine combination, provided that the machine is raised to a height of min. 35 cm for safe transport clearance.
- When driving with the radio docking station, be careful in particular when turning, pay attention to the dimensions of machine attached and its weight.
- Check the technical condition of the machine before going on public roads, in particular: elements coupling the machine with the tractor, screw connections, pins and cotter pins.

Do not exceed the maximum transport speed of 25 km/h. Always adjust the driving speed with the suspended machine to the type and condition of the road surface and road conditions. The following speeds are recommended:

- on smooth roads up to 25 km/h,
- on field or cobblestone roads 6-10 km/h,
- on rough roads up to 5 km/h.

2.7.3. Transport on internal roads

The basic principles of transport on internal roads in relation to the transport position and driving speed are the same as in the case of driving on public roads.

2.8. Fire regulations

DO NOT use water to extinguish any fire on or around the machine. For extinguishing, use only specialized means intended for this purpose.

- In case of fire:
  - evacuate people from the danger zone - in the case of slurry there is a high risk of a flammable gas explosion,
  - notify the fire department and your supervisor,
  - start extinguishing.
- Do not extinguish the electrical system with water or a foam fire extinguisher.
- Shut off atmospheric oxygen as soon as possible.
- The user of the machine is responsible to completion of all obligations relating to fire protection.
- Smoking and using open flames near the machine during operation is unacceptable.
- Repairs, and particularly welding can be carried out after a thorough cleaning of the machine of contaminations.
- Welding works may only be carried out by a specialist company and welders with appropriate qualifications and experience.
- Before starting welding work, protect electric wires, hydraulic system, plastic elements and valves against excessive heating.
- It is recommended to dismantle elements that would be welded.

2.9. Environmental protection regulations

- Any maintenance or repair work where there is a risk of hydraulic oil leaking from the radio docking system should be carried out on an oil-resistant surface.
- Take the used oil to a waste disposal point.
- In the event of an oil leak, secure the leak source first. Collect spilled oil with available means and take it to a waste disposal point.
- Take the used/damaged battery to a battery disposal point.
- Make sure that the discharge and suction pipes are tightly plugged into the connectors before you start pumping slurry. You will prevent environmental pollution due to slurry spillage.
- You mustn’t allow slurry to contaminate ground and surface waters under any circumstances.
- Slurry is a source of emission of various harmful gases, including ammonia, methane, carbon dioxide and, among others, hydrogen sulphide and odour.
- Store slurry in closed tanks, which reduces ammonia emissions.

2.10. Hazards caused by the hydraulic system

There is a risk of deep injury and burns to parts of the body, in particular the face, eyes and uncovered areas of the skin (e.g. hands) due to the squirting of hot hydraulic oil under high pressure in the system.

Dangerous areas are located in the vicinity of hydraulic conduits or structural parts of the hydraulic system, in zones where leakage and liquid spurts may occur.

The technical condition of the hydraulic conduits and the way they are routed should be systematically checked so as not to expose them to mechanical damage.

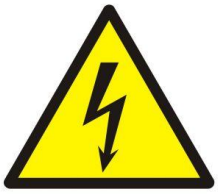
2.11. Safety signs

Pictograms (safety signs) on the machine warn against hazards which might arise while operating the machine and give tips on proper use.

Signs should always be legible and clean, unobstructed and visible to operators, people involved in assembling, connecting to the power supply and servicing the machine, and others.

If the sign becomes illegible or damaged or lost, replace it with a new one, also if it was on parts that were replaced during the repair.

List of pictograms placed on the radio docking station

	Read the instructions for use.	Signs indicating the need to read the instructions. Pictogram placed at the workstation.
	Electrical shock hazard.	Sign informing about the risk of electric shock. Pictogram placed on the electrical box housing and on the battery cover.

	Before starting maintenance or repairs, switch off the machine with the main switch, securing it against being switched on again.	Signs informing about the need to cut off the power supply and to remove the key before starting maintenance and repair activities. Pictogram placed at the workstation.
	Risk of hot hydraulic oil squirting out.	Signs informing about the risk of hot hydraulic oil squirting. Pictogram placed at the workstation.
	Crushing hazard.	Signs informing about the risk of crushing and how to avoid the risk by keeping a safe distance during the movements of machine elements. Pictogram placed near the hazard in the operator's zones.
	Danger from a lead-acid battery.	A sign that indicates a battery charging hazard, such as spillage of toxic contents or sparks. Pictogram placed on the battery cover.
	Danger of corrosive substances.	A warning sign indicating the presence of dangerous corrosive substances in a given place. Pictogram placed on the battery cover.

	Do not stand near the lift rods when operating the lift - risk of impact or crushing.	The sign informing about the risk of getting between the device and the tractor applies to the situation when the docking station is suspended on the three-point hitch for the duration of transport. Pictogram placed near the hazard in the operator's occupied zones.
	Put on protective clothing.	Sign requiring the use of protective clothing. Placed at the workstation.
	Put on protective gloves.	Sign requiring the use of protective gloves when performing any type of work on the machine. Placed at the workstation.
	Put on protective shoes.	A sign requiring the use of protective footwear with a non-slip sole and a plate protecting the toes against crushing when operating the machine. Placed at the workstation.
	Main switch.	A sign indicating the location of the entire machine main switch. Pictogram placed near the main switch.
		A sign informing about the nominal pressure in the hydraulic system. Located at the hydraulic system service station.

2.12. Residual risk description and assessment

The machine is designed and constructed in accordance with the current state of the art and the applicable standards. Despite the efforts of the manufacturer to ensure the safety and elimination of hazards when using the machine, some elements of risk during operation cannot be avoided. The residual risk may arise in emergency situations, arising in particular from disregarding the operating instructions or from not paying proper attention during the user-machine interaction.

The highest hazard occurs when conducting the following, prohibited activities:

- operation of the device by children, minors or untrained persons, unfamiliar with the operator's manual or without authorization to drive a tractor,
- operation by persons who are ill or under the influence of alcohol or other drugs,
- checking the technical condition, cleaning, replacing components with the power on or by unauthorized persons,
- using the machine with damaged or worn electric cables or hydraulic hoses,
- using the machine with damaged components,
- using of machine without safety sensors or with sensors damaged,
- touching electric cables and hydraulic hoses with parts of the body, cutting or damaging thema,
- cleaning the machine with a water jet, especially in areas with electrical components,
- using the machine not as intended and to other purposes than described in the instruction,
- operating the machine with a discharged battery,
- putting hands or bringing hands into dangerous zones where there are moving parts,
- troubleshooting while the machine is running,
- trying to bypass protective devices,
- working without protective covers,
- carrying out service works by bystanders, unauthorized persons, ignoring the dates of periodic inspections,
- climbing onto the machine casing,
- aggregating the machine to a tractor with inadequate three-point linkage,
- aggregating the machine with a defective tractor in poor technical condition,
- working with the machine without front axle weights installed, when the load on the tractor's front axle is less than 20 % of the tractor's unladen weight (applies to the machine attached to the rear three-point hitch),
- entering the area between the tractor and the aggregated machine,
- working without extensions installed,
- smoking or using an open flame while pumping,
- using the machine in places well protected from the wind or indoors, where

toxic (including explosive) gases can accumulate and expose the operator to poisoning or explosion,

- pouring slurry in places not intended for this,
- pumping liquid when the machine is aggregated with a tractor.

Residual risk can be minimized provided that the following recommendations are fulfilled:

- read and follow the instruction manual carefully,
- do not put your hands and other body parts in forbidden places,
- be especially careful during replacement of parts and maintenance, these works can be carried out by a person with appropriate qualifications,
- do not operate the machine without guards or without properly functioning protective devices,
- do not carry out repairs, adjustments, maintenance and lubrication with the power turned on and while machine is running,
- do not replace assemblies with the power on and while machine is running,
- repair the machine only if you are a trained person with appropriate qualifications and authorized,
- protect the machine against access by children and bystanders,
- do not leave the working machine unattended,
- cut off the power to the machine each time you don't use it (e.g. during breaks at work), and also when you carry out maintenance work on the machine,
- comply with health and safety regulations,
- don't allow people to operate, maintain and repair the machine who haven't been trained, who don't comply with the provisions of the operating manual and general health and safety rules and who haven't been authorized to perform these works,
- don't reach for or service moving parts during work,
- always make sure that the machine is properly coupled to the tractor before driving on a public road,
- when aggregating the machine: always turn off the engine, apply the brake and remove the ignition key from the tractor when you leave it,
- don't work with the machine without extensions installed,
- don't smoke or use an open flame when pumping,
- don't use the machine in places strongly protected from the wind or indoors, where toxic (including explosive) gases can accumulate and expose you to poisoning or an explosion,
- pour slurry in places intended for this,
- don't pump liquid when the machine is aggregated with a tractor.

3. MACHINE DESCRIPTION

3.1. Intended use

The machine should be used, operated, maintained and repaired only by persons familiar with its construction and operating principles and trained in the field of occupational health and safety.

The radio docking station is designed for controlled pumping of slurry, water and sewage sludge from open or closed tanks to water or slurry tankers for agricultural work (fertilization/utilization).

The device is a machine powered by a 12 V lead-acid car battery. In addition, the machine is equipped with a battery charger powered from the power grid with a dangerous current of 1 x 230 V / 50 Hz through a socket-plug system.

The machine is adapted to be aggregated on the tractor's rear or front three-point linkage in order to transport it to the final place of work.

Unauthorized changes to the construction of the machine or to the working process without the manufacturer's permission can lead to serious accidents and release the manufacturer from liability for damage caused.

Meeting the requirements for the use of the machine, for servicing and replacing assemblies in accordance with the manufacturer's instructions, as well as strict compliance with the recommendations is a condition of intended use. Using the machine for other purposes will be considered as improper use. Improper use includes, but is not limited to:

- transporting people, objects or animals on the machine,
- hitching with the tractor in a manner other than presented in this manual,
- moving on public roads with a machine attached to a tractor, against the applicable regulations, e.g. without pin protection, warning markings and lighting,
- pumping substances not provided for in the design of the machine, such as lime, liquid fertilizers (and slurry with a content of dry elements above 10%).

Occupational safety, accident prevention and occupational health regulations must always be observed.

The machine may only be used in an open area or inside well-ventilated / ventilated rooms, where there are no sparking devices or devices emitting an open flame (especially when charging the battery).

3.2. Technical characteristics of machine

Table 2 - Technical characteristics of machine

Parameter	Unit	Radio docking station
Machine type	-	mobile, on wheels, adapted for transport on the front and rear three-point linkage of the tractor II category
Power supply type	-	automotive type battery 12 V, 95 Ah, 810 A
Type of mains supply - battery charger	-	electric 1 x 220 - 240 V, 50 - 60 Hz
Machine weight	kg	< 500
Overall dimensions of the machine:	-	-
width	m	1075
length	m	1700
height	m	1545
Battery charger	-	5850010121
output voltage	V	12
output current	A	2 and 5
The gross weight of the charger	kg	0,85
The degree of protection of the charger	IP	65
Charger operating temperature range	°C	-10 - +40
Charger humidity range	%	maximum 90% of relative humidity
Number of operators	persons	1
Hydraulic unit	-	-
Power of the hydraulic unit	W	0,8
Hydraulic power supply voltage	V	12
Rated oil pressure	bar	150
Hydraulic oil	type	recommended mineral or synthetic hydraulic oil 2 ISO 6743/4 / DIN 51519, viscosity 15 ÷ 100 mm/s ISO 3448 2 (recommended viscosity 22 ÷ 46 mm/s)
Capacity of the hydraulic system	l	approximately 2,8
Control	-	-
Main switch	pcs.	1
Emergency switch	pcs.	1
JUUKO wireless remote control	pcs.	1
pilot frequency	MHz	434,040 - 434,790
degree of protection of the JUUKO remote control	IP	65
degree of protection of the JUUKO receiver	IP	65
The temperature of the transferred medium (eg. slurry)	°C	max 55
The dry material content of the medium	%	max 10
Emission sound pressure level*	dB(A)	< 70

** the maximum emission sound pressure level at the operator's workplace was measured, corrected by characteristic A (according to the methodology specified in the EN ISO 11201:2010 and EN ISO 3744:2010 standards).*

One operator is required to operate the machine.

The operator stands on the ground near the machine during operation. Control by means of a wireless remote control.

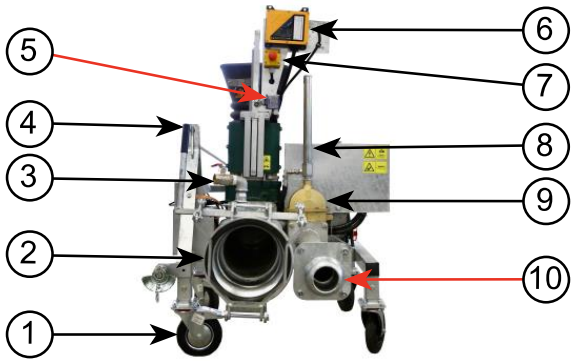
3.3. Construction and principle of operation

The radio docking station for controlled pumping of a liquid medium such as water or slurry from the tank to the water or slurry tanker is built on a multi-profile steel frame constituting its body. The frame was placed on four rotating wheels. Two of them are equipped with brakes. The machine, as intended for use on farms, is equipped with a suspension system on the front or rear three-point linkage of the tractor in order to transport it to the final place of work. Working with the machine doesn't require aggregating it to the tractor.

Flow channels are welded to the frame, ending with suction, return and one output connectors. The suction and return channels are equipped with hydraulically driven latches, controlled by the JUUKO control system and its wireless remote control.

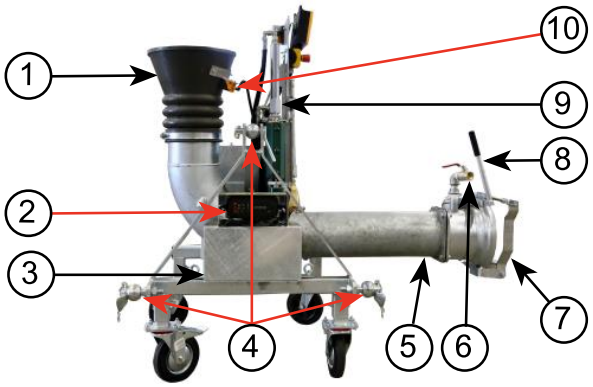
The radio docking station consists of the following basic components:

- steel frame constituting the body of the machine,
- flow channels,
- lever quick coupler on suction channel,
- return hose connectors,
- a funnel for the nozzle of a water or slurry tanker,
- sensor detecting a metal suction cup in the funnel,
- hydraulic aggregate,
- hydraulic hoses,
- hydraulic cylinder of the return channel latch,
- hydraulic cylinder of the suction channel latch,
- return channel latch,
- suction channel latch,
- quick coupler lever,
- flow channel vent valve,
- 12V lead acid battery,
- limit sensors,
- electrical box,
- JUKKO controller suspended on a damping spring,
- JUUKO wireless remote control,
- light signals,
- machine battery charger,
- suspension system on the front or rear three-point linkage of a farm tractor,
- two rotating wheels,
- two rotating wheels with brakes,
- main switch.



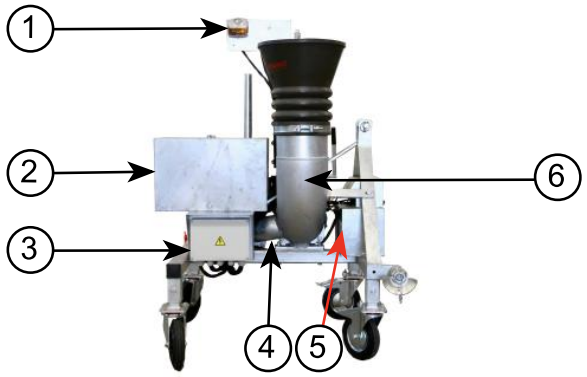
1 - rotating wheel with a brake
2 - suction channel opening with a lever quick coupler
3 - suction channel vent valve
4 - quick coupler lever
5 - latch limit sensor
6 - JUKKO controller
7 - emergency switch
8 - hydraulic cylinder of the return channel latch
9 - return channel latch
10 - return channel opening with a connector

Fig. 1. Radio docking station - front view



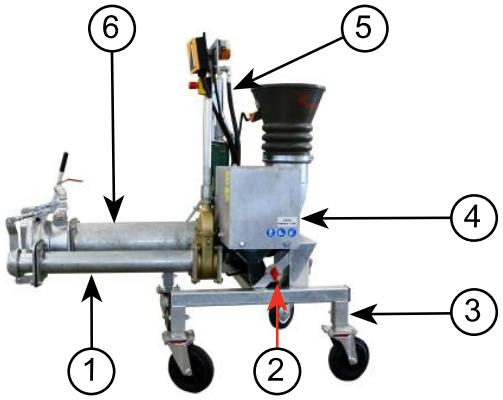
1 - funnel for the nozzle of the water or slurry tanker
2 - battery charger
3 - battery housing
4 - attachment to the tractor's three-point linkage
5 - suction channel
6 - suction channel vent valve
7 - lever quick coupler
8 - quick coupler lever
9 - cylinder of the suction channel latch
10 - sensor detecting nozzle in the funnel

Fig. 2. Radio docking station - right view



1 - light signals
2 - hydraulic unit housing
3 - electric box
4 - return channel
5 - battery
6 - suction channel

Fig. 3. Radio docking station - rear view



1 - return channel
2 - main switch
3 - steel frame of the machine
4 - hydraulic unit housing
5 - hydraulic hose
6 - suction channel

Fig. 4. Radio docking station - left view

The machine works in manual mode. The operator controls the operations using the JUUKO wireless remote control with buttons, which emits radio signals to the JUUKO controller (6, fig. 1), located on the machine frame. The JUUKO controller executes the operator's commands by closing and opening individual latches of the station's channels.

When starting work, the operator connects the return hose to the outlet/return channel, securing it in this position by locking it with a manual lever. The other end of the drain hose is connected to the slurry tank, ensuring its free return. The operator connects the hose of the slurry tank to the opening of the suction channel of the station and locks it in this position by lifting the quick coupler lock lever (8, fig. 2). Checks if the vent valve is closed.

The operator turns the machine on by turning the red key to the ON position (the longer part of the key indicates the position

of the main switch) (2, Fig. 4). Starts the remote control by pressing "START" (the white lamp is on - 1, fig. 3). The operator inserts the nozzle of the water or slurry tanker into the funnel of the station (1, fig. 2). The steel tip of the nozzle activates the sensor (10, fig. 2 and fig. 5) located on the funnel. The signal from the sensor releases the blockage of the suction channel latch.

Fig. 5. A sensor detecting the steel tip nozzle of the water or slurry tanker in the funnel docking station

The operator presses and holds the button on the remote control for about 5 seconds (see also the pilot description in clause 5.1, fig. 27) - it opens the hydraulically driven latch of the suction channel and automatically closes the return channel to the slurry tank (orange light is on).

After the slurry has been poured, the operator presses the lowering button of the suction channel gate valve (the lower end position is detected by the limit sensor) until the orange indicator light starts flashing, which means that the return channel latch is open.

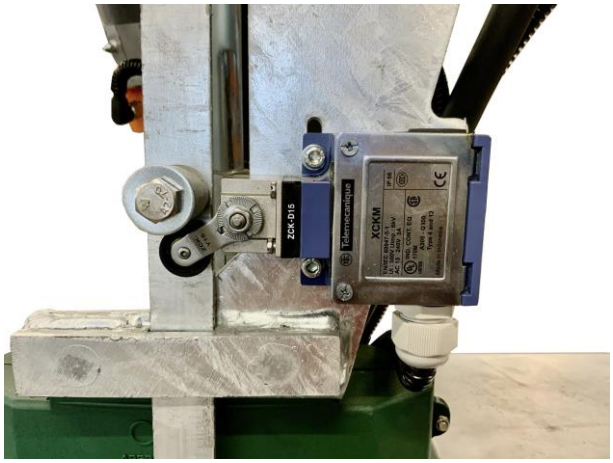


Fig. 6. Limit sensor for the closed position of the suction channel latch

After this operation, the liquid in the channels that hasn't been pumped to the water or slurry tanker can freely flow back to the tank.

After emptying the channels of residual liquid, the operator closes the hydraulically driven return channel latch using the wireless remote control (orange indicator light goes out). He opens the station's vent valve (fig. 7), removes the nozzle of the water or slurry tanker from the station's funnel, and then cuts off the machine's power supply with the main switch. The valve will be closed again by the operator before reconnecting the suction hose.

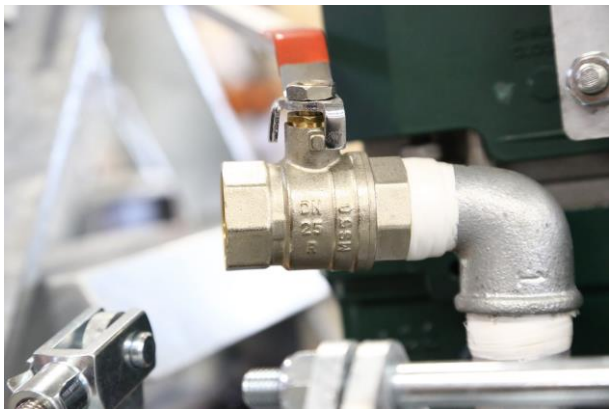


Fig. 7. Vent valve of the station channels

The operator checks the battery charge level at least every 6 hours of operation and, if necessary, carries out the charging process by connecting the charger (fig. 8) to the mains (there is a risk of uncontrolled slurry leakage when the battery is discharged).

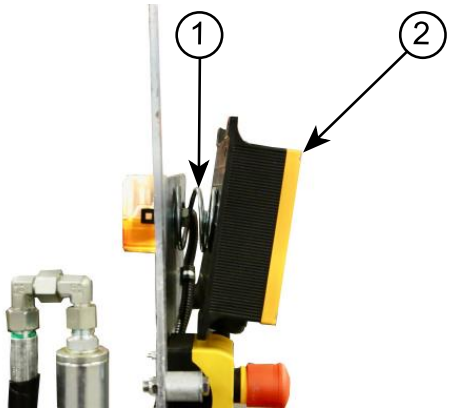
Fig. 8. Docking station battery charger

The electric charging wires of the automatic charger have been divided and equipped with a double banana connector (fig. 9) preventing incorrect connection to the battery poles. Additionally, a 7.5 A car-type plate fuse was installed on the cable (fig. 10).

Fig. 9. Double banana plug-socket arrangement, wires from the output side of the charger to the battery - view of connected and disconnected elements

Fig. 10. A 7.5 A car-type plate fuse on the output side of the battery charger

The JUUKO controller was suspended on a spring (1, fig. 11) attached to the machine frame. It absorbs vibrations caused by the transport of the station during operation, which could damage the sensitive internal elements of the controller.



1 - spring absorbing vibrations 2 - JUUKO controller

Fig. 11. Spring absorbing vibrations in JUUKO controller

A compact hydraulic unit is used to drive the hydraulic cylinders that move the latches of the suction and return channels.

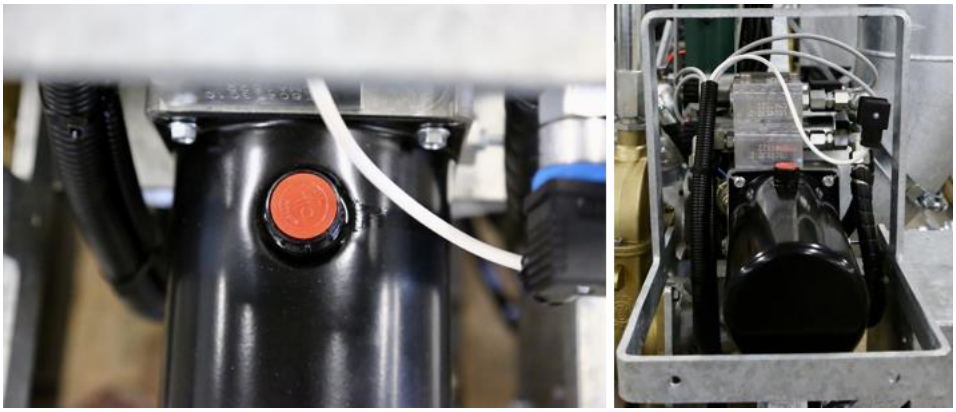


Fig. 12. Oil filler cap and hydraulic aggregate - view with the aggregate housing removed

3.3.1. Machine sides and the operator's station

The following figure shows the basic sides of the machine: front, rear, left and right sides, and workstations (in red).

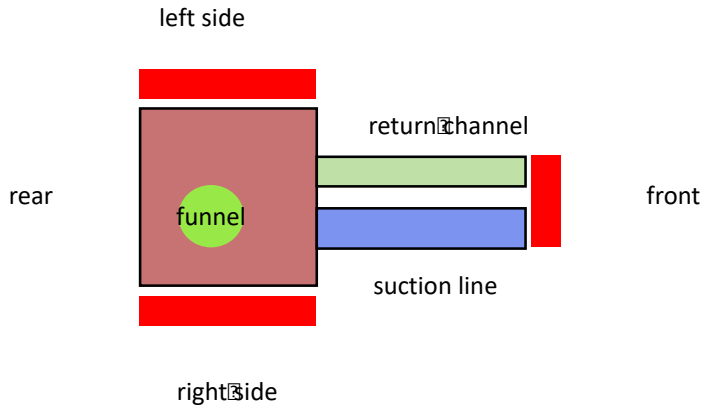


Fig. 13. Overview, top view - machine sides and the main operator's workstations (marked in red)

4. PRELIMINARY OPERATIONS AND COMMISSIONING

4.1. Ordering

The orders for radio docking station can be submitted to the manufacturer or his suppliers.

The manufactured machine is partially assembled. Before first use, the suction and return channels extensions must be fitted.

Read this manual, the JUUKO control system manual, the GRANIT automatic battery charger manual and the hydraulic unit manual before using the machine for the first time.

4.2. Machine transportation - delivery

IMPORTANT!

The machine can be transported on external means of transport with a tarpaulin or in a container or by own transport on the tractor's three-point linkage, in accordance with local regulations regarding traffic on public roads.

NOTE!

Staying under the lifted load is FORBIDDEN.

The machine is transported in 2 ways:

- in two parts, using euro pallets, on external means of transport, equipped with a tarpaulin or a built-in load box/transport platform, or
- as a whole, aggregated with a farm tractor - suspended on the front or rear three-point hitch.

In the case of transport using external means of transport: secure pallets with machine elements on the transport box with belts against uncontrolled movement while driving.

Protect the machine on pallets with foil against harmful external factors or transport it on a transport box equipped with a tarpaulin or a built-in load box.

A qualified person must be present during all procedures for loading, unloading, setting up or storing the machine. His recommendations and instructions should be followed by all participants in the above-mentioned activities.

Loading and unloading from the means of transport should be carried out using a forklift or pallet truck. The forklift operator must have a valid license to operate it.

Avoid impacts when loading and unloading. Use personal protective equipment and technical measures that will ensure the safety of you, bystanders, property and the environment during above mentioned activities.

Follow the safety rules described in clause 2.7.1.

Follow the safety rules described in chapter 2.7.2 when transporting the machine aggregated with the tractor. The procedure of aggregating and disconnecting the machine from the tractor is described in clause 6.3.

During delivery, the machine is provided with a factory kit containing the main switch key, JUUKO wireless remote control, rectifier terminals, Radio docking station manual, documents for the battery, rectifier and radio.

Fig. 14. Factory set: main switch key and JUUKO wireless remote control, rectifier terminals, station user manual

NOTE!
Carrying on loads over people and animals is forbidden.

4.3. First assembly of the device

NOTE!
The manufactured machine is sent to the customer partially disassembled. The machine has the outlets of the suction and return channels secured with sheet metal plugs. Channels extensions are supplied disassembled, requiring assembly prior to commissioning. The final customer is responsible for the assembly.

NOTE!

Read this manual and follow the rules listed below before starting assembly work. They concern the elimination of hazards and taking appropriate precautions. If in doubt, contact the manufacturer.

The free area should be selected so as to ensure safe installation of the machine.

Don't assemble it inside where is a potentially explosive atmosphere or increased humidity or presence of flammable liquids, gases or dust.

Assemble the elements by ensuring the appropriate number of people (minimum 2 persons). It should be made by a trained assembly team with appropriate qualifications.

Read the assembly instructions before starting the assembly. Ensure the proper sequence and safety of individual operations. If in doubt, contact the manufacturer.

Follow applicable health and safety regulations. When carrying out assembly work, remember about:

- collecting materials and tools necessary to perform the work;
- using only original manufacturer's parts;
- adequate hands, eyes and feet protection;
- prohibiting the presence of children and bystanders near the place where assembly works are carried out.

Installation of duct extensions should be carried out with particular care, avoid bringing limbs closer to places where there is a risk of crushing due to uncontrolled movement of machine parts.

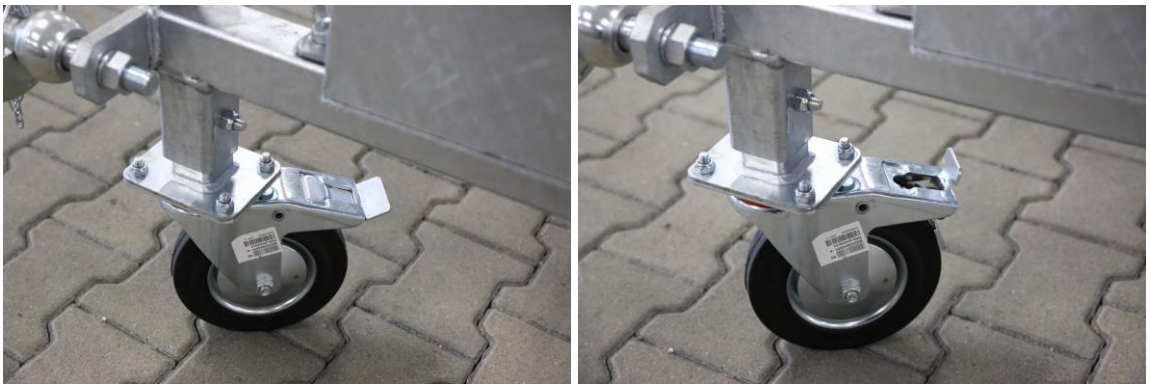
Carry out the assembly on the machine set on swivel wheels with locked brakes, standing on a hard surface.

Check the tightness of the bolts and nuts after assembly. Tighten them if necessary.

Leave the working area in complete order, don't leave used packaging (foil, pallets, etc.) at the assembly site.

To install the duct extensions, follow these steps:

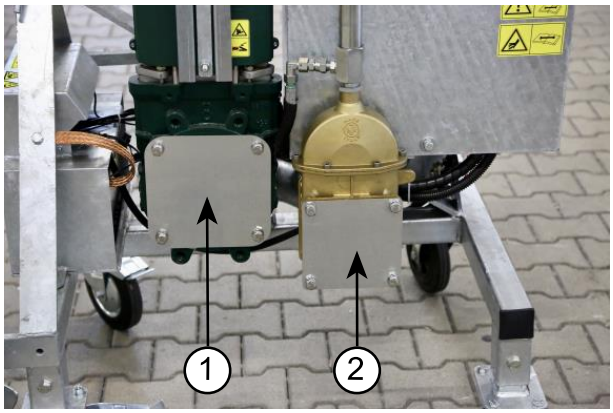
1. set the machine in the place intended for assembly and lock the wheel brakes (fig.15),



a) brake not locked *b) brake locked*

Fig. 15. Machine swivel wheel - brake position

2. check that the power switch is in the "OFF" position (fig. 23),
3. unscrew the four screws securing the sheet metal plug of the suction channel (1, fig. 16) using a flat wrench or a socket wrench,



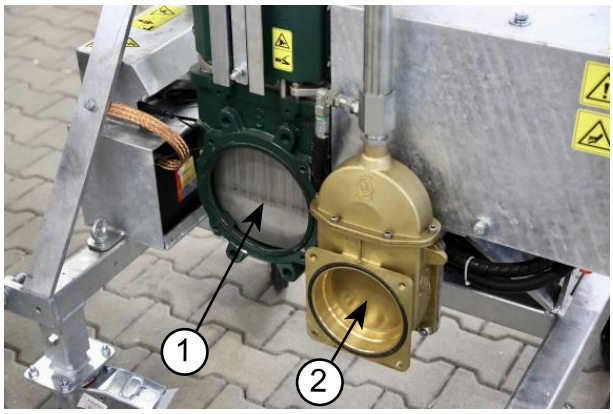
1 - sheet metal plug of the suction channel opening 2 - sheet metal plug of the return channel opening

Fig. 16. Plugs at the machine channels openings - view with plugs screwed to the openings for transport

4. put the plug in the storage place - it will not be needed anymore, leave the screws with you,
5. unscrew the four screws securing the sheet metal plug of the return channel, using a flat wrench (to hold the nut) and a socket wrench,
6. put the plug in the storage place - it will not be needed anymore, leave the screws with you,

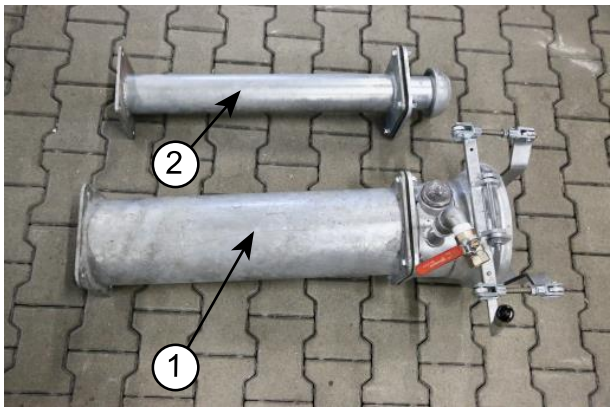
Fig. 17. Plug disassembly from the suction channel opening - disassembly view using a flat wrench or a socket wrench and a screwdriver

Fig. 18. Plug disassembly from the return channel opening - disassembly view using a flat wrench, a socket wrench and a screwdriver



1 - latch of the suction channel opening 2 - latch of the return channel opening

Fig. 19. Channel openings closed with latches - view before suction and return channels extensions assembly



1 - suction channel extension 2 - return channel extension

Fig. 20. Suction and return channels extensions

7. put the suction channel extension to the suction channel opening and hold it in this position (perform the operation with at least 2 persons) - you can do it manually or using a lift,
8. insert the previously removed bolts into the four holes and tighten them with wrenches,

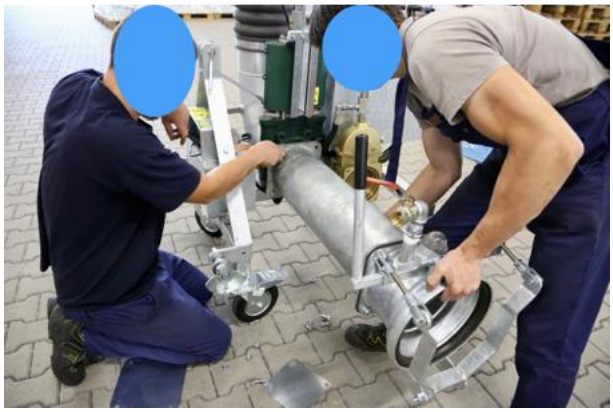


Fig. 21. The suction channel extension assembly

Fig. 22. The return channel extension assembly

9. do the same with the second extension for the return channel, apply nuts to the bolts (holes are not threaded),
10. check the tightness of the screws again.

4.4. Charging the battery with the charger

NOTE!

Charge the battery in a place equipped with efficient ventilation due to the risk of accumulation of explosive hydrogen during the process!

NOTE!

When charging the battery: don’t use an open flame near it, don’t smoke or don’t use sparking devices that create sparks or emit open flames - risk of gas explosion!

NOTE!

Connect the charger to the mains when the main switch is in the OFF position.

NOTE!

MARK-JOHN Sp. z o. o. is not liable for damage caused during electrical connection that is inconsistent with applicable regulations and for incorrect operation of the machine.

NOTE!

Never recharge a frozen battery.

Charge the battery before using the radio docking station for the first time. Do not attempt to start the machine without a fully charged battery. Lack of sufficient energy can lead to incomplete closing of the latches and uncontrolled emptying of the tank.

Follow the rules of safe connection of the charger to the mains (see clause 2.2).

The charger carries out the charging process automatically. To charge the battery:

1. move the machine to the charging place,
2. check the level of the electrolyte (fill it with distilled water if necessary),
3. connect the charger plug to a 230 V / 50 Hz socket,
4. route the power cord in such a way as to ensure complete protection against cutting or breaking - pay special attention not to run over it with the station's wheels,
5. select the appropriate program on the charger, to do this, select the car battery with the "Battery Type" button - the indicator with the car icon will light up,
6. depending on the thermal conditions of the environment, use the "Mode" button to select charging at a temperature below or above 10 ^{o}C (snowflake or Normal indicator),
7. if the "Fault" indicator is not blinking (lights up constantly), charging is proceeding smoothly automatically,
8. after the green indicator lights up of 100 % battery charge, disconnect the charger plug from the socket - the process has been completed.

See also description of the charger in clause 5.1, fig. 30.

In case of problems, refer to the original battery charger manual or contact the manufacturer. The battery charger manual is attached to this document.

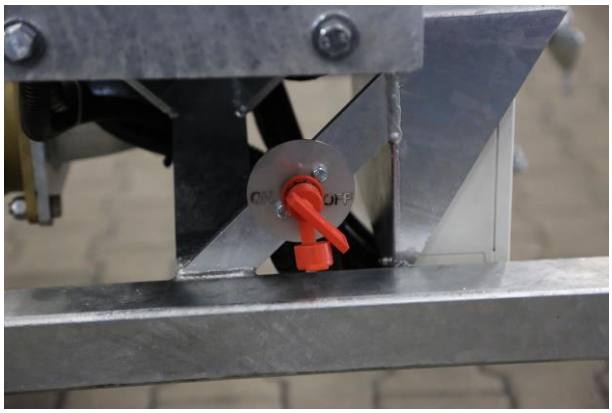


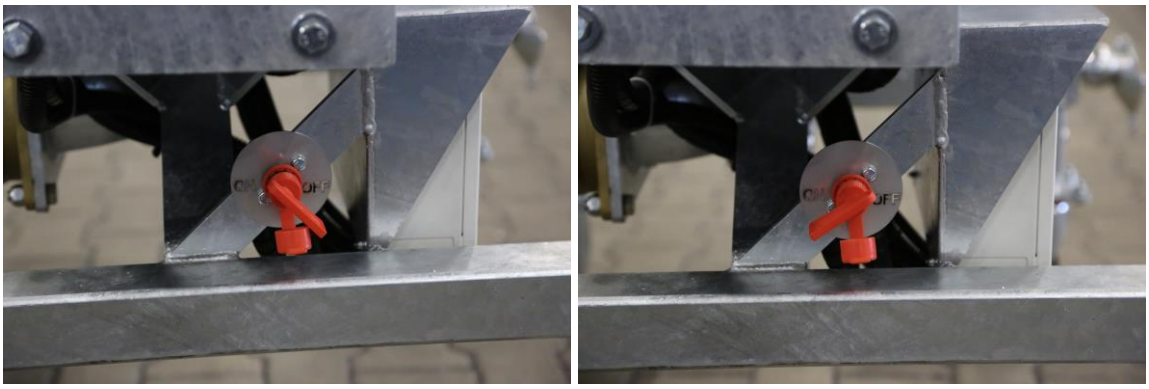
Fig. 23. Main switch in OFF position

Fig. 24. Battery charger for the radio docking station

5. MACHINE CONTROL

5.1.1. Control devices

A red main switch with a removable handle/key is installed at the bottom of the machine frame. When the switch is in the "ON" position, the key cannot be removed from the device. Only after turning the handle to the "OFF" position, it is no longer blocked and it is possible to remove the key from the switch.



a) OFF - switched off position *b) ON - switched on position*

Fig. 25. Main switch positions

The control system of the radio docking station consists of the JUUKO main control system (receiver) and the JUUKO wireless remote control. The control system activates the individual components of the machine after receiving radio signals from the remote control.

The remote control is equipped with buttons and signaling diodes. You can start it by pressing the "START" button (1, fig. 27). Using the „hold-to-run" type button with an up arrow (2, fig. 27) will cause raising the latch and the slurry will flow to the slurry tanker. The down arrow button (6, fig. 27) closes the suction channel latch. After it's completely closed it automatically opens the return channel latch, allowing excess liquid to flow back into the tank. You can close the return channel latch by pressing the "START" button (1, fig. 27). After turning on the remote control, the "START" button has an additional control function. At the top of the remote control there is a no function light (3, fig. 27), a remote control activity light (4, fig. 27) and another no function light (5, fig. 27). The manufacturer placed the "STOP" button in the lower part of the remote control to turn it off.

Additional information can be found in the JUUKO system manual, which is an appendix to this document.

Fig. 26. Green light of JUUKO control system activity

1 - remote control switch/lowering the return latch
2 - opening the suction channel latch
3 - no function
4 - remote control activity indicator
5 - no function
6 - lowering the suction channel latch
7 - no function
8 - switch off button

Fig. 27. JUUKO wireless remote control

The signal lamp (fig. 28) located at the back of the docking station allows you to determine the status of the station's activity. The white light on indicates readiness for operation - the machine is turned on and the remote control has been activated by pressing the "START" button. The orange lamp turns on when the suction channel latch is opened, and starts blinking when the return channel latch is opened or while raising it.

Fig. 28. Signal lamp - view with the white and orange lights on

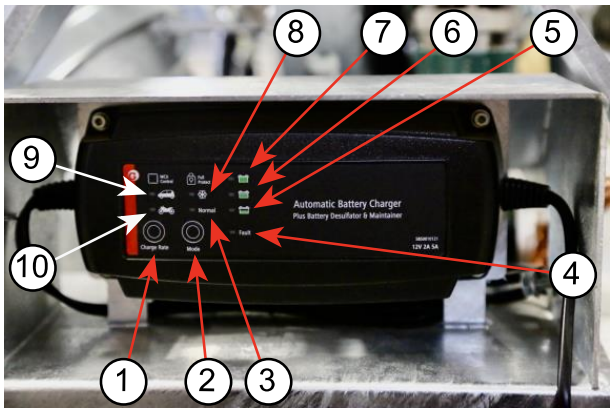
Under the JUUKO controller box, the manufacturer has installed a mushroom-type emergency switch. Activation of the emergency switch results in an immediate interruption of the process of raising/lowering the latches of the machine channels. Re-

starting the processes is possible after unlocking the emergency switch and pressing the "START" button on the wireless remote control.

Fig. 29. Emergency switch

The machine's battery charger is located in the recess above the battery housing. The manufacturer has designed control and signalling elements on the charger housing, in the form of a button for selecting the type of battery to be charged (1, fig. 30). The charger allows you to choose between charging the car battery, which is indicated by the LED indicator with the image of the car (9, fig. 30) or charging the motorcycle battery, which is indicated by the LED indicator with the motorcycle icon. The charger also allows you to select the weather conditions for charging the battery with the "Mode" button (2, fig. 30). You can choose to charge the battery at a temperature > 10 °C, which is indicated by the "Normal" indicator light (3, fig. 30). If the weather conditions are unfavourable, you can choose charging at a temperature of ≤ 10 °C – then the snowflake indicator light (8, fig. 30) is on.

The battery charging process is monitored by the green charge status lights: 20 % charge (5, fig. 30), 80 % charge (6, fig. 30), 100 % charge (7, fig. 30). The full charge indicator has an additional function of informing about the ongoing analysis or battery regeneration by blinking in green.



1 - battery type selection button
2 - charging conditions selection button
3 - charging indicator at > 10 °C
4 - battery fault indicator
5 - 20 % charge indicator
6 - 80 % charge indicator
7 - 100 % charge indicator
8 - charging indicator at ≤ 10 °C
9 - car battery charging indicator
10 - motorcycle battery charging indicator

Fig. 30. Machine battery charger

6. USAGE

6.1. General rules - preliminary checks before starting

NOTE!
Never use a machine that is out of order, damaged, with a damaged electrical or hydraulic system, or if there are even minor faults in the operation of the equipment.

Use work clothes, protective gloves and footwear.

IMPORTANT!
Improper machine preparation for work may result in lower quality of work, its damage or an accident at work, or environmental pollution.

NOTE!
Make sure that extensions are mounted on the machine (see clause 4.3).
It is not allowed to work without extensions due to easy access in this case to dangerous places - risk of crushing or cutting off fingers or toes. Therefore, always operate the machine with the extensions correctly fitted.

Whenever the machine sides are mentioned, they should be understood as shown in figures 1 - 4 and 14.

For the efficient machine operation, it is necessary to ensure appropriate working conditions, which include:

- tractor with front or rear three-point linkage in good technical condition,
- charged battery (preferably fully charged), because the lack of the appropriate amount of energy may lead to incomplete closing of the latches and uncontrolled emptying of the tank,
- free space enabling safe aggregation of the machine with the tractor.
- at the place of pumping: free space not excessively shielded to ensure good ventilation of the area and thus avoid gas accumulation (risk of gas explosion),
- in the place of charging the battery: free access to the source of electricity and efficient exhaust ventilation in the room,
- free space and adequate lighting to ensure safe maintenance.

Before each start of work: check the technical condition of the machine, and above all, the battery charge, the condition of working and hitching elements, and make sure that work with the machine is safe for anyone. Report any problems or doubts to the manufacturer immediately.

Don't start working with the machine until you have performed the checks described below.

1. Make sure the machine is not frozen - defrost it in a warm room if necessary before starting it.
2. Make sure there are no unnecessary items on the machine.
3. Visually make sure that the machine has no external damage, that it has all the guards (housings and that they are closed), that it has all the elements (especially mounted extensions) and that they are in good technical condition.
4. Check the condition of screw connections - tighten if necessary.
5. Check the electric wires (it is unacceptable to work with damaged wire insulation).
6. Check the hydraulic hoses, don't start the machine with a leaking hydraulic system.
7. Visually inspect the condition of the individual components of the machine.
8. Check the battery charge level - recharge if the charge level is low.
9. Check that the vent valve (fig. 7) is closed - you must close it before starting work.
10. Turn on the machine with the main switch and activate the remote control.
11. Check machine operation. Observe how the individual units of the machine behave - listen to how the machine works - it should work without disturbing noises.
12. Check the operation of the safety systems, use the emergency switch, then perform a reset by pulling it out.

In the event of damage, malfunction or wear of parts that reduce the quality of work, contact the manufacturer and don’t start work until the fault is removed.

If you carry out the above checks, you will reduce the risk of machine failure and accidents at work.

After carrying out the inspection activities with a positive result, proceed to the stage

of aggregating the machine with the tractor. The procedure is described in clause 6.3.

If you are going to hitch the machine on the rear three-point linkage, check whether the stability condition is met at first - see clause 6.2.

If you intend to hitch the machine on the front three-point linkage, you can start aggregating right away - see clause 6.3.

6.2. Stability condition

IMPORTANT!
Aggregating on the tractor should be performed by a person familiar with the construction of the machine and the tractor.

IMPORTANT!
Make sure that the stability condition is met before you aggregate the machine with the tractor. If not - attach the front axle ballast first (applies to the machine mounted on the tractor's rear three-point linkage). This will ensure the stability of the machine-tractor set.

IMPORTANT!
If, after attaching the machine to the rear three-point linkage, the load on the front axle does not exceed 20 % of the total weight of the tractor, absolutely equip the tractor with ballast mounted on the front three-point linkage.

The radio docking station is adapted, only for transport purposes, to be aggregated with the tractor on the rear or front three-point linkage.

Attachment of the front axle ballast

The required mass of weights can be determined by the calculation method from the static stability condition. It is strictly required that the load on the front axle is at least 20 % of the empty weight of the tractor. The use of the following formula allows you to calculate the value of the minimum weight of the ballast attached to the front of the tractor.

$$I_{F,min} = \frac{I_R x (c + d) - (T_F x b) + (0{,}2 x T_E x b)}{a + b}$$

where:

T_E - is the empty weight of the tractor, in kg (see the tractor's manual);

T_F - is the load on the front axle of the unladen tractor, in kg (see tractor’s manual);

T_R - is the load on the rear axle of the unladen tractor, in kg (see tractor’s manual);

I_R - is the total mass of the rear mounted machine/rear ballast in kg (see technical characteristics);

I_F - is the total weight of the front-mounted machine/front ballast in kg;

a - is the distance from the center of gravity of the aggregated front-mounted machine/front ballast to the center of the front axle in m (measure it);

b - is the wheelbase of the tractor, in m (see tractor manual or measure it);

c - is the distance from the center of the rear axle to the center of the ball joints of the lower links, in m (see tractor manual or measure it);

d - is the distance from the center of the ball joints of the lower links to the center of gravity of the aggregated machine, mounted at the rear/rear ballast in m (measure it).

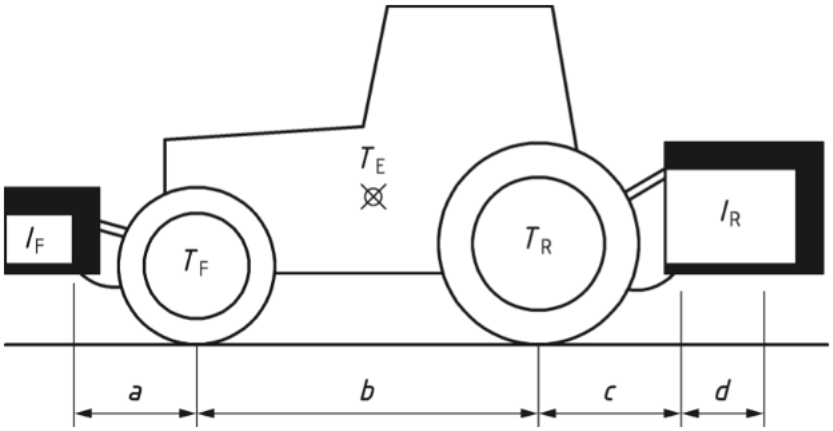


Fig. 31. Stability condition for a tractor with a rear or front mounted machine

Also check the actual rear axle load to ensure that the tire load capacity is not exceeded.

The actual load on the rear axle is $T_{R,rz}$:

$$T_{R,rz} = T_E + I_R + I_F - T_{F,rz}$$

where:

$$T_{F,rz} = \frac{I_F x (a+b) + T_F x b - I_R x (c+d)}{b}$$

The actual loads of the front and rear tractor axles calculated shouldn't exceed the permissible load capacities for the tires used in the tractor.

If the load on the front axle is not equal to at least 20 % of the empty weight of the tractor or the load capacity of the front or rear tires has been exceeded, the machine must not be operated with this tractor.

6.3. Aggregating the machine with the tractor and disconnecting it

IMPORTANT!

Make sure that the stability condition is met before you aggregate the machine with the tractor. If not - attach the front axle ballast first (applies to the machine mounted on the tractor's rear three-point linkage). This will ensure the stability of the machine-tractor set.

IMPORTANT!

Aggregating on the tractor should be performed by a person familiar with the construction of the machine and the tractor.

NOTE!

It is unacceptable for anyone to stay in the zone between the reversing tractor and the machine.

When connecting the machine to the tractor, engage the handbrake on the tractor, turn off the engine and remove the ignition key.

NOTE!

Use only original and in good technical condition pins and cotter pins.

The radio docking station is adapted to be connected to the tractor by means of a three-point hitch system on the front or rear three-point linkage, category II. Check the height and diameter of the tractor's three-point linkage mounting holes before connecting the machine to the tractor.

The height of the lower points from the ground is 39 cm, the diameter of the ball joints on the lower pins is 6,4 cm. The height of the upper point from the ground is 100 cm, the diameter of the ball joint on the upper pin is 6 cm.

Fig. 32. Three-point hitch system for the front and rear three-point linkage at the tractor

Aggregating on the front three-point linkage

To connect the machine to the tractor:

1. place the machine on a level and hard surface,
2. drive the tractor to the machine in such a way that it is possible to perform aggregation in a convenient way, engage the brake on the tractor, turn off the engine and take the keys with you,
3. stand on the right side of the machine and attach the lower hitches to the lower hangers of the tractor's front three-point linkage, secure them against falling out with agricultural cotter pins,
4. fasten the upper connector and insert the pin and secure it against falling out with the agricultural cotter pin.

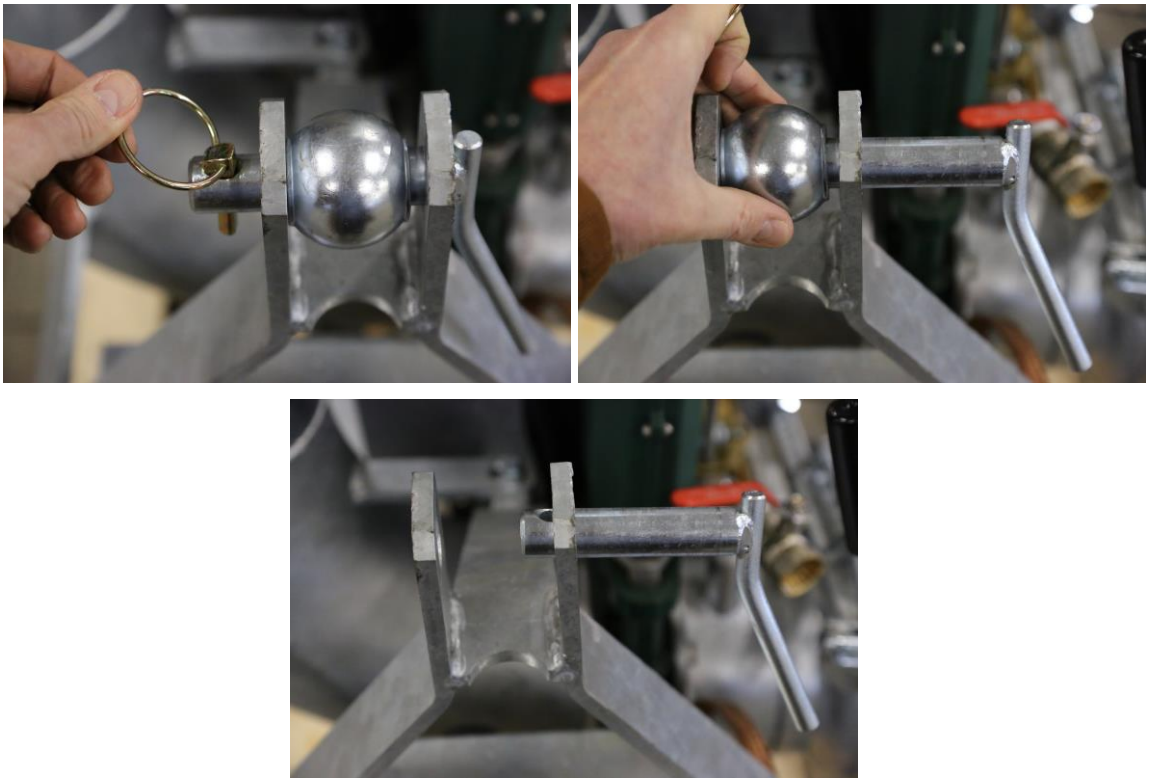


Fig. 33. Disassembly of the upper hitch elements

Fig. 34. Disassembly of the upper hitch elements

Aggregating on the rear three-point linkage

To connect the machine to the tractor, carry out the aggregation procedure similar to that for the tractor's front three-point linkage (see descriptions in points 1 - 4). However, check whether the tractor has an agricultural hitch attached to the rear first. If so, you must dismantle it before starting to aggregate.

Disconnecting the machine from the tractor

Disconnect from the tractor in the reverse order to aggregating.

6.4. Battery recharging

NOTE!

Always take care of the state of charge of the machine's battery, the lack of the appropriate amount of energy may lead to incomplete closing of the latches and uncontrolled emptying of the tank.

Check the machine's battery before operating the machine and every 6 hours during operation, and recharge it if necessary.

Follow the Safety rules for battery charger connection to the electrical power supply (see clause 2.2) and follow the procedure described in clause 4.4 "Charging the battery with the charger".

See also the charger description in clause 5.1, fig. 30.

Further information can be found in the manual of the automatic battery charger attached to this document.

6.5. Operating

NOTE!

Never use the machine when it is out of order, with damaged electrical and hydraulic systems, or if there are even minor faults in the operation of the equipment.

NOTE!

Do not bypass the safety guards, do not remove the safety guards, especially the channels extensions.

IMPORTANT!

Check its functioning and technical condition at all times during operating the machine.

NOTE!

Make sure that extensions are mounted on the machine (see clause 4.3).

It is not allowed to work without extensions due to easy access in this case to dangerous places - risk of crushing or cutting off fingers or toes. Therefore, always operate the machine with the extensions correctly fitted.

6.5.1. First start-up

Recharge/charge the battery using the charger supplied with the machine before the first start-up.

Then go to the procedure described in clause 6.5.2.

6.5.2. Working with the machine

NOTE!

Make sure the battery is charged, the vent valve is closed and the extensions are in place.

IMPORTANT!

Check the state of charge of the battery approx. every 6 hours and recharge it fully if necessary.

NOTE!

You mustn't allow slurry to contaminate ground and surface waters under any circumstances. Make sure that the discharge and suction lines are tightly plugged into the connectors.

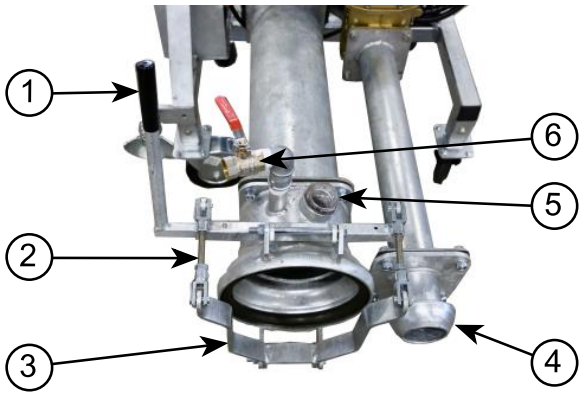
NOTE!

Before operating a frozen machine, bring it into a heated room first to thaw. Only then you can start operating the latches with the remote control if they are defrosted. Otherwise, permanent damage to the machine assemblies may occur.

Make sure all preliminary checks before starting have been carried out - details see clause 6.1. The working process drawings below are exemplary views.

Prepare the machine for work, set it in a convenient position between the water or slurry tanker and the slurry tank. Then:

1. connect the drain hose to the return channel connector of the station (4, fig. 35) and close the protection,
2. check if the connection is correct,
3. connect the other end of the hose to the slurry tank in such a way that the excess liquid can flow back freely at the right moment,
4. connect the hose of the liquid slurry tank to the suction channel opening of the station (fig. 36), then lift the quick coupler lock lever (1, fig. 35) and leave it in a vertical position, locking the connection,
5. check if the vent valve is closed.



1 - quick coupler closing lever
2 - quick coupler tightening regulator
3 - clamping bar of the quick coupler
4 - return channel connector
5 - suction channel sight glass
6 - vent valve of machine channels

Fig. 35. Hose connectors at the ends of the extensions of the suction and return channels - view of the quick coupler closed, vent valve in the closed position

Fig. 36. Suction channel quick coupler open - lever lowered

6. check if the connection is correct,
7. remove the plug, insert the key and turn the main switch to the "ON" position (fig. 37) power the machine with electricity from the battery,

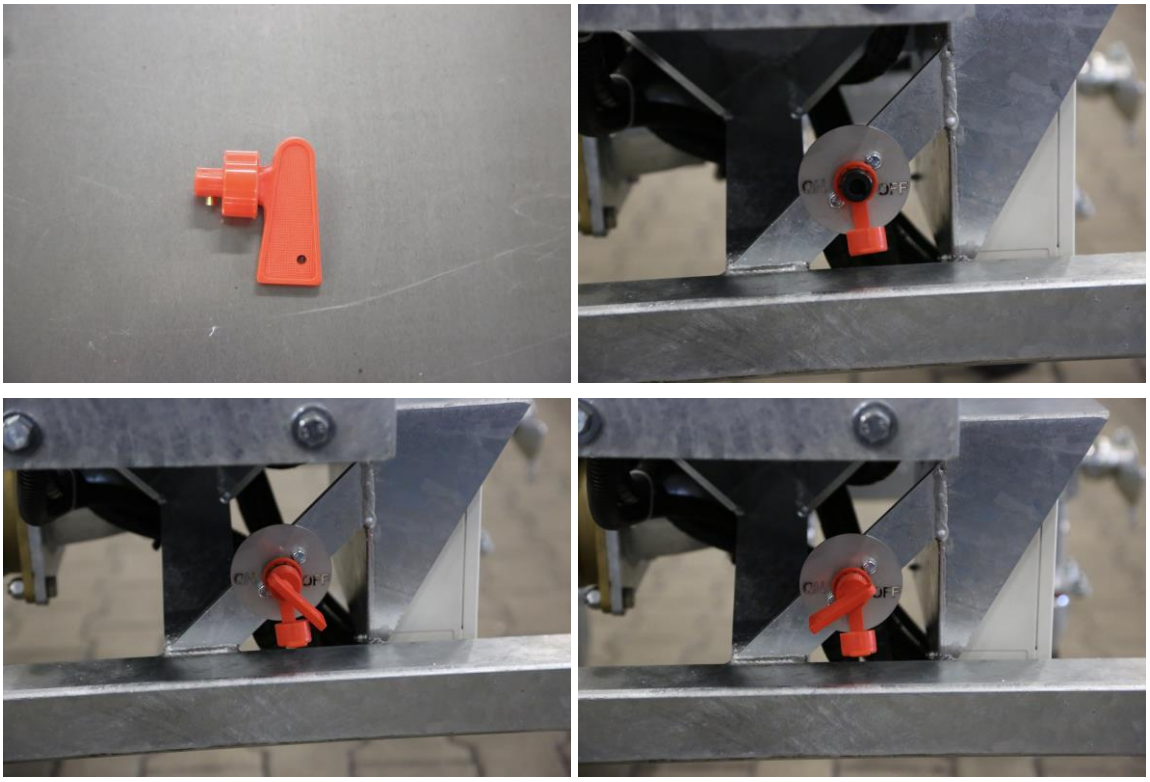


Fig. 37. Switching on the power supply at radio docking station

8. turn on the remote control by pressing the "START" button - the white indicator light will turn on (fig. 38),

Fig. 38. Signalling the station's readiness for operation

9. insert/dock in the funnel (1, fig. 2) the nozzle steel end of the water or slurry tanker - the sensor on the funnel will detect its presence and send a signal to the control system, enabling further actions,
10. using the remote control, open the suction channel latch - the return channel latch will close automatically and the orange indicator light will turn on (fig. 39),

Fig. 39. Signalling of the opened suction channel latch and closed return channel latch

11. fill the water or slurry tanker with liquid using the controls on the tractor or on the slurry tanker,
12. use the remote control again by activating the down arrow button (6, fig. 27) - keep the button pressed until the suction channel latch closes and the return channel latch opens - the orange indicator light starts flashing,
13. the liquid in the station and hose will flow to the tank through the return hose,
14. press the "START" button - the return channel latch will close and the orange lamp will go out,
15. disconnect the nozzle of the water or slurry tanker from the funnel of the docking station,
16. turn off the station with the main switch, remove the key and replace the plug,
17. turn off the remote control with the "STOP" button,
18. open the suction channel vent valve (fig. 40),

Fig. 40. Vent valve in open position

19. lower the quick coupler lever (fig. 36) and disconnect the suction hose from the station channel,
20. open the lock and disconnect the return hose from the station channel,
21. close the vent valve (fig. 41).

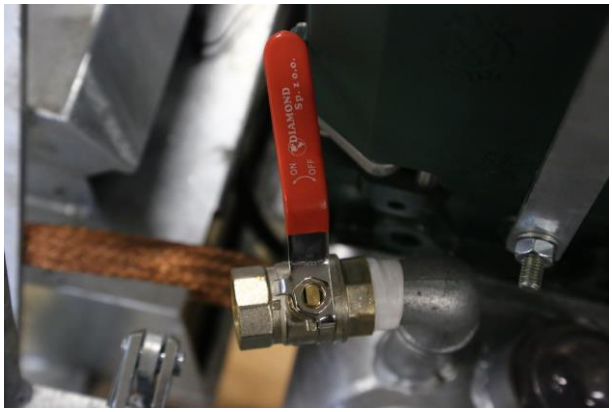


Fig. 41. Vent valve in closed position

6.6. Machine cleaning

NOTE!

It is forbidden to wash the electrical parts of the machine with a jet of water under pressure, e.g. with a pressure washer and wet rags. Do not step on machine components.

NOTE!

Always switch off the machine with the main switch and secure it in the OFF position by removing the key and placing the cap before cleaning, to prevent it from being switched on by unauthorized persons.

NOTE!

Use protective clothing and gloves as well as appropriate footwear with non-slip soles while cleaning.

NOTE!

Before operating a frozen machine, bring it into a heated room first to thaw. Only then you can start operating the latches with the remote control if they are defrosted. Otherwise, permanent damage to the machine assemblies may occur.

Always clean the machine thoroughly after pumping. Carry out cleaning at the place of pumping, after disconnecting the suction and return lines and after venting the machine.

When operating the latches alternately, open and close them (turn off the power after each operation). Clean the station channels from slurry residues by rinsing with water. Wash the machine in a place where the liquid residues will not penetrate directly into the ground, so as not to contaminate the environment (surface and groundwater). We recommend you to do it in a place designed for this purpose, so that the rest of the liquid flows into a tank intended for this type of waste.

Clean the places with electrical equipment with cleaning cloth.

Keep the battery terminals clean and maintain them with grease intended to the terminals and poles.

Wear protective clothing, gloves and appropriate footwear when cleaning the device.

Do not clean a frozen machine.

6.7. Preparing for a longer storage

NOTE!

Always switch off the machine with the main switch, remove the key from the ignition switch and place the cap during breaks in work, to prevent it from being switched on by unauthorized persons.

NOTE!

Before operating a frozen machine, bring it into a heated room first to defrost. Only then you can start operating the latches with the remote control if they are defrosted. Otherwise, permanent damage to the machine assemblies may occur.

Store the machine on a hard, level surface away from bystanders, especially children and animals. It is best to store the machine under a roof, which will reduce the harmful effects of weather conditions and extend the life of the machine.

Turn the main switch to the "OFF" position, remove the key and replace the plug.

The machine should be cleaned each time before storing it.

Protect the machine against corrosion by covering unpainted places with a thin layer of solid lubricant, e.g. STP or technical vaseline before a longer break in work.

Before starting the machine after a long period of storage, perform all the checking activities.

7. ADJUSTMENTS

Machine adjustments are made only by qualified and authorized personnel of MARK-JOHN Sp. z o. o.

Report any problems to the manufacturer.

8. MAINTENANCE

8.1. General rules

IMPORTANT!
Perform most maintenance with the machine turned off. Use personal protective equipment.
Take special care while carrying activities that require switching on the machine.

IMPORTANT!
Only delegated persons who know the machine well and are fully aware of the hazards that may occur during this type of work may perform maintenance work.

NOTE!
Before starting lubrication or maintenance: always switch off the machine with the main switch and secure it in the OFF position (removing the key) to prevent it from being switched on by unauthorized persons. For the hydraulic system, see the hydraulic manual supplied as an attachment.

NOTE!
Use protective clothing and gloves as well as appropriate footwear with non-slip soles when performing service and maintenance activities.

Long-term and efficient operation of the machine depends on skilful operation, systematic cleaning, lubrication and immediate removal of noticed defects.

Remove protective covers only for maintenance work, after the machine has been completely immobilized and secured against unauthorized start-up.

Regularly check the tightening of bolts and nuts.

8.2. Lubrication

The manufacturer of the machine, Mark-John Sp. z o.o. does not require lubrication at the radio docking station.

Contact the manufacturer if you have any questions.

8.3. Inspections and maintenance

NOTE!

Check that you have tightened the fastening screws of all machine guards after completing maintenance and service work.

Every day, before starting work: check the technical condition of the machine, its completeness and the condition of screw connections (tighten if loose).

Daily maintenance consists in cleaning the machine after each use and removing defects caused by operation; checking the completeness and technical condition of the machine, in particular the electrical equipment, hydraulic system and safety system.

Report all problems to the manufacturer.

Perform cleaning on the machine disconnected from the tractor and when power supply is switched off.

Major maintenance work carried out in hazardous areas must be carried out by competent and trained persons who fully understand the risks involved.

Daily inspections

It is required to carry out daily inspections of the machine by the operator before starting work - see clause 6.1.

In addition, daily tasks include:

- External inspection, including checking the completeness and technical condition of individual elements.
- Visual and auditory inspection (after starting the machine, pay attention to whether the moving parts work smoothly - without jams and whether there are any disturbing noises or unnatural mechanical sounds).
- Checking the oil level in the tank of the hydraulic unit tank.
- Visual inspection of hydraulic hoses condition (check for oil leaks, abrasions of the outer coating).

Repair damaged or worn parts or replace with new (original) parts.

If defects are found, report them to the manufacturer. After the fault has been removed by the manufacturer's service, you can start work.

Change the hydraulic oil for the first time after 100 hours of operation.

Quarterly inspections

Regularly (every 3 months) check:

- Functioning of safety devices.
- Technical condition of electrical and hydraulic installations. If you notice damage to the protective sheath, replace the cable with a new cable of the same size.
- The correctness of the electrical connectors connection.
- Seal condition. Replace them with new ones if necessary.
- The condition of screw connections, in case of looseness - tighten with a wrench.
- Oil contamination in the generator tank. If you have any questions, please contact the manufacturer - Mark-John Sp. z o. o.

Also carry out inspections after making changes or performing maintenance on the machine.

Annual inspections

Change the oil on average once a year (if you have any questions, contact the manufacturer - Mark-John Sp. z o.o.).

Electrical installation

The inspection of electrical equipment should be carried out by a qualified electrician with valid licenses. The general functional test should show any current problems related to the maintenance of the electrical systems. In addition to the functional test, visual inspection of the electrotechnical equipment should be carried out to identify any physical damage.

A visual inspection of the power installation should be carried out to ensure that no cables have been physically damaged and that all attached cables are secured.

Keep the battery terminals clean and maintain them with grease intended to the terminals and poles.

During scheduled maintenance also remember to check internal wiring for physical damage or wear.

If you notice any damage to the protective sheath, replace the cable with a new one of the same cross-section.

The same applies to checking the condition of hydraulic hoses and valves. If a leak is found in any system, repair works should be started immediately.

Hydraulic hoses must be replaced at least every 5 years, even if they are not damaged. If external damage is noticed on the hydraulic hoses (abrasions, cuts), replace the hose immediately.

Report any fault to the manufacturer.

Damaged or worn parts must be replaced with new (original) ones.

If a safety device is found to be damaged or ineffective during the inspection (e.g. fails to stop the machine), bring the machine to a safe condition or turn off the power until the safety devices are restored to proper operation or repaired or replaced with new ones.

In the event of a failure, mark the machine with the "FAULT" label.

8.4. Replacement of components

IMPORTANT!

Replace worn or damaged components with new ones with appropriate characteristics and approvals (if applicable). The list of spare parts is attached to this manual.

NOTE!

Before replacing components: it is essential to switch off the machine with the main switch and secure it by removing the key to prevent the machine from being switched on by unauthorized persons. For the hydraulic system, see the hydraulic manual supplied as an attachment.

NOTE!

Replacing components (including electrical ones) should be carried out by 2 persons.

NOTE!

Each failure, regardless of whether it disables the machine or allows it to continue working, should be reported to the machine manufacturer and removed. The machine must not be operated until the detected fault has been repaired.

IMPORTANT!

Work related to the replacement of components should be entrusted to persons familiar with the construction of the machine and experienced in repairing agricultural machinery.

Regularly check the technical condition of all machine components and in the event of damage or wear, contact MARK-JOHN.

If any component on the machine needs to be replaced, follow these guidelines:

- always use original spare parts,
- place the machine on a hard, level surface,
- secure the machine against uncontrolled movement,
- clean the machine of all slurry residues, dust and other dirt. Perform activities in appropriate work clothes, using tools and means intended for this purpose,
- work with 2 persons.

Replacement of hydraulic system components

Remember to replace the hydraulic hoses every 5 years, no matter how intensively the machine was used.

Replacement of hydraulic system components should be entrusted to a person with knowledge and experience in this field.

8.4.1. Replacement of electrical equipment

IMPORTANT!

A person with a valid electrical license must perform control checks each time after making changes. Electrical checks should be repeated periodically. Performing control checks with a positive result is a condition for allowing the machine to continue operation!

NOTE!

Take all precautions and follow all safety rules during electrical work. It is forbidden to perform any work on the electrical system by persons who don't have appropriately documented qualifications.

NOTE!

Performing tests to check the effectiveness of the electrical system is a condition for allowing the machine to continue operation.

Disconnect the machine from the power supply before replacing electrical equipment.

Take a look at the wiring diagram and only then start replacing damaged components.

Electrical diagrams are attached to this document.

8.4.2. Battery replacement

To replace the battery:

1. unplug the charger from the power supply (if applicable),
2. disconnect the banana connector on the cables from the charging side.

Fig. 42. Banana connector disconnected

3. unscrew the two eyebolts securing the battery housing to the docking station frame, use a wrench if necessary,
4. remove the housing,

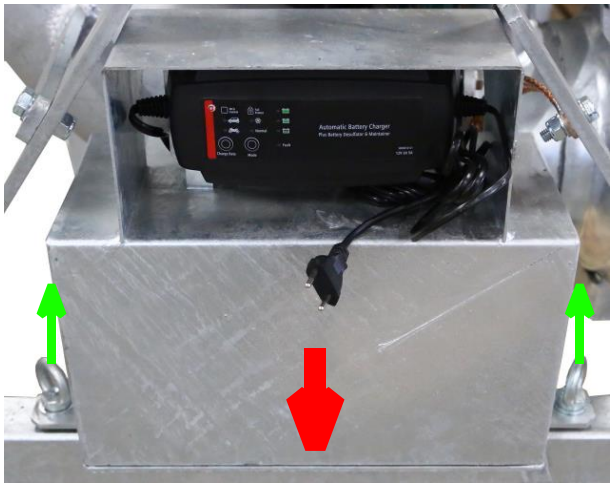


Fig. 43. Removable battery housing

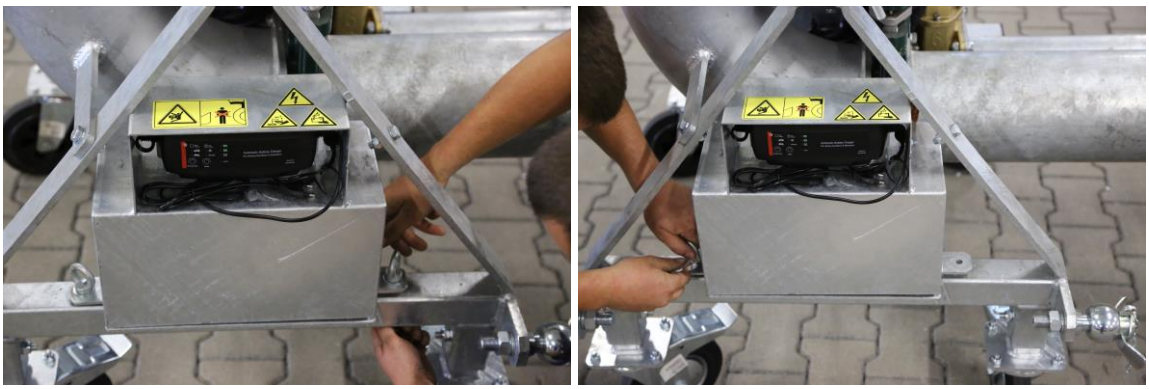


Fig. 44. Unscrew the eye nuts of the battery cover fastening

Fig. 45. Removing the unscrewed battery housing - the screws must be removed

5. unscrew the clamps on the battery, remembering to remove the negative clamp first and then the positive clamp,

Fig. 46. Clamps to unscrew

6. remove the old battery and insert a new one with the same capacity and technical parameters,
7. put on the positive clamp first and tighten, then put on the negative clamp and tighten,
8. put the battery housing back on,
9. tighten the eyebolts,

Fig. 47. Screwing the eye nuts

10. connect banana connectors,
11. check machine operation.

8.5. Storage

Store the machine on a hard, even and level surface in a well-ventilated space, away from bystanders, especially children and animals. We recommend storing the machine under a roof, which will limit the harmful effects of weather conditions (rain, snow, sun) and extend the life of the machine.

Protect the machine with foil against dust and possible moisture.

Remember not to connect it to power sources during storage. Secure access to the machine.

Put a sign that the machine is out of use - do not use.

Perform the checks and charge the battery before starting the machine after an extended period of storage.

8.6. Environmental hazard

The machine is equipped with a closed hydraulic system. Therefore, the environmental hazard is the risk of contamination by hydraulic oil. It can only occur in the event of a sudden leak in the system (failure) or during improper oil change.

The unit tank is filled with mineral oil.

Prepare a container of the correct capacity to collect used oil before starting an oil change.

Take the used oil to a disposal point. Don't pour used oil down the drain or into the ground.

Another environmental hazard is the risk of acid and lead contamination in the battery structure. Take used battery to a battery disposal point.

There are no threats to the environment, provided that the disassembly and removal process is carried out correctly, see clause 11.

The pumped liquid, in the form of liquid manure, can also be a threat to the environment. Improper use of the machine, incorrect installation of the suction and discharge pipes may result in uncontrolled outflow of slurry and, as a result, contamination of the ground and surface waters.

You mustn't allow slurry to contaminate ground and surface waters under any circumstances.

Therefore, follow all safety rules and follow the work procedures described in this manual. In this way, you will prevent environmental pollution.

Wash the machine in a place where liquid residues will not soak directly into the ground. We recommend you to do it in a place designed for this purpose, so that the liquid residues will flow into a tank intended for this type of waste.

9. TRANSPORTATION

9.1. Transportation by external means of transport

IMPORTANT!
Follow the safety rules described in clause 2.7.1.

The docking station can be transported using external means of transport. This doesn't require disassembly of any machine components.

Use a forklift or hand pallet truck to load or unload the machine. The forklift operator must have the appropriate training and authorizations.

If loading the machine onto a truck, place the machine on its own wheels on the load box. Lock the 2 wheels with brakes. Use transport straps to protect machine from uncontrolled movement while driving and secure it with a tarpaulin or foil.

Proceed in the same way if loading the machine into a container for transport by rail or sea.

A qualified person must be present during all procedures for loading, unloading, setting up or storing the machine. His recommendations and instructions should be followed by all participants in the above-mentioned activities.

Be especially careful during loading and unloading in the presence of bystanders who shouldn't be in the danger zone (manoeuvring the load). A minimum of two people are required for loading and unloading.

Avoid impacts when loading and unloading. Use personal protective equipment and technical measures for work, that will ensure the safety of you, third parties, property and the environment.

NOTE!
Staying under the lifted load is FORBIDDEN.

NOTE!

Don’t move the load over people or animals.

9.2. Transportation by machine aggregated with a tractor on public roads

IMPORTANT!

Follow the safety rules described in clause 2.7.1.

NOTE!

The user is responsible for the use of the machine not adapted to traffic on public roads due to the lack of lighting and marking or for registration of the tractor-machine set.

NOTE!

The user is personally responsible for complying with the traffic regulations in his/her country when using machines manufactured by MARK-JOHN machines.

Always turn off the machine's power supply at the main switch during transport (secure it with a cap).

Check the technical condition of the machine before going on public roads. In particular: elements coupling the machine with the tractor, screw connections, pins and cotter pins. Make sure that the tractor is in good technical condition.

Aggregate the machine with the tractor in accordance with the procedure described in clause 6.3. Follow the safety rules described in chapter 2.4 when aggregating.

Remember to secure the tractor's lower links against sideways movement of the machine while driving.

Check whether machine doesn’t cover the tractor's lights after lifting it on the three-point hitch. If so, install warning boards with lighting (see clause 2.7.2). Transport clearance should be minimum 35 cm to ensure safety on road.

When driving with the radio docking station, be careful in particular when turning, pay attention to the dimensions of machine attached and its weight.

Do not exceed the maximum transport speed of 25 km/h.

Always adjust the driving speed with the suspended machine to the type and condition of the road surface and road conditions. The following speeds are recommended:

- on smooth roads up to 25 km/h,
- on field or cobblestone roads 6-10 km/h,
- on rough roads up to 5 km/h.

9.3. Transportation on internal roads

The basic principles of transport on internal roads in relation to the transport position and speed of driving with the machine are the same as in the case of driving on public roads. Remember to follow them.

10. TROUBLESHOOTING

NOTE!

Each failure, regardless of whether it disables the machine or allows it to continue working, should be reported to the machine manufacturer and removed. The machine must not be operated until the detected fault has been repaired.

NOTE!

Disconnect the machine from the power supply immediately in the event of a breakdown. Start troubleshooting only after securing the machine against switching on. Turn the main switch to the "OFF" position and remove the key. For the hydraulic system, see the hydraulic manual supplied as an attachment.

The table below presents examples of fault causes and suggestions for their elimination. The list of problems is not a finite set.

In the event of a fault, contact the manufacturer for assistance.

Table 3 - Troubleshooting

Faults	Causes	Repairs
None of the battery charger lights are on	no electricity	check the power supply in the mains to which the charger is connected
The red fault light on the battery charger is on	short circuit	check the condition of the DC cable connecting the charger with the battery for a short circuit - remove
	polarity connection error	make sure the wires are connected correctly
The full battery and fault lights on the charger are blinking	the battery output voltage exceeds the rated charging voltage	check the condition of the battery and replace it with a new one if necessary
		check the output voltages of the charger
The red fault light on the battery charger is flashing	battery capacity too high	check whether the specification of the charger corresponds to the capacity of the battery
	the battery is damaged	check the condition of the battery and replace it with a new one if necessary

Slurry flows out of the machine	battery charge level too low - the latches do not close	charge the battery using the charger
	the latches are frozen	do not use the machine with frozen components, defrost the machine
	suction hose not properly connected	check and correct the fastening of the suction hose on the suction channel quick coupling
	drain hose not properly connected	check and correct the fastening of the drain hose on the drain channel connector
	docking funnel damaged	"check the condition of the funnel and remove the fault/replace the funnel
Docking the suction sup to the docking station does not work	incorrect nominal diameter of the suction port	use a different suction port of the tanker
	sensor detecting the suction cup in the funnel damaged	check the sensor / contact the manufacturer
The indicator lamp does not light up	light bulb in a lamp burnt out	replace the bulb
	limit sensor broken	check the sensor / contact the manufacturer
The suction channel latch does not open	the batteries in the remote control are too weak	replace the batteries in the remote control
	the latch is frozen	get warm the machine
	too low battery charge	charge the battery using the charger
	the remote control too far from the receiver or the signal does not reach	bring the remote control closer to the receiver and make sure that there are no obstacles between them that could suppress the signal
	the safety switch is pressed	check the reason for pressing the switch, remove it and then reset the switch by pulling out the red mushroom button
The drain channel latch does not open	the latch is frozen	get warm the machine
	the batteries in the remote control are too weak	replace the batteries in the remote control
	too low battery charge	charge the battery with the charger
	the remote control too far from the receiver or the signal does not reach	bring the remote control closer to the receiver and make sure that there are no obstacles between them that could suppress the signal
	the safety switch is pressed	check the reason for pressing the switch, remove it and then reset the switch by pulling out the red mushroom button
Hydraulic oil is leaking from the machine	hydraulic lines damaged	have the hydraulic hoses replaced by the service
	parts of the hydraulic system non-tightened	check and tighten or have it repaired by the service

Any work related to interference with the interior of the machine's electrical equipment may only be performed by a person with appropriate and valid qualifications.

Electrical diagrams are attached to this document.

11. DISASSEMBLY AND DISPOSAL

IMPORTANT!
Disassembly should be carried out by two persons.
Be especially careful.

NOTE!
Don’t pour hydraulic oil into the environment.

NOTE!
Don’t pour battery acid into the environment.

NOTE!
Be careful when using cutting tools such as angle grinders or gas cutting torches during disassembly.

If the machine is completely worn out or damaged, take it out of service and dispose of it.

Release the pressure from the hydraulic system before disassembling the machine. See hydraulic manual supplied as an appendix.

Remove the battery and hand it over to a specialized battery collection point.

Drain the hydraulic oil into a container and deliver it to a hazardous waste collection station for destruction or reclamation.

Electrical components

Deliver electrical and electronic products, e.g. electrical installation, control units, etc. to the receiving station authorized to dispose of electronic waste.

During the disposal: follow the safety regulations when disassembling electrical devices and procedures to prevent environmental contamination.

Hydraulic oil, battery, electrical and electronic equipment contain substances that can be harmful to human health and the environment if not properly recycled. It is the user's responsibility to deliver used oil, electrical and electronic equipment to the appropriate collection point.

By handling products correctly, you help protect human health and prevent unnecessary pollution of the environment. For more information on proper disposal, please contact your city council, waste disposal company or manufacturer.

<u>All parts of the machine must be sorted and properly disposed of.</u>

12. SPARE PARTS LIST

The spare parts list is a separate appendix to this document.

Distributor:

Wilhelm Fricke SE
Zum Kreuzkamp 7
DE-27404 Zeven
tel. (+49) 4281 712 712
fax: (+49) 4281 712 700

Manufacturer:
MARK-JOHN Sp. z o.o.,
Runowo 2A,
62-035 Kornik, Poland
tel. (+48) 885 999 223
e-mail: info@mark-jonh.pl