



OWNER'S MANUAL
WARRANTY CARD
SPARE PARTS CATALOGUE

1-ROW VIBRATING DIGGER

Ursa

Z655 - VIBRATING DIGGER
WITH SIDE DISCHARGE

Z655/1 - VIBRATING DIGGER
WITH REAR DISCHARGE



PRIOR TO STARTING WORK, PLEASE READ THIS
OPERATING INSTRUCTIONS



BOMET[®]

Spółka z ograniczoną odpowiedzialnością
Spółka Komandytowa
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Original manual



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**DECLARATION OF CONFORMITY
for a machine**



According to the Ordinance of Minister of Economy of 21 October 2008 (Journal of Laws "Dziennik Ustaw" No 199, item 1228) and European Union Directive 2006/42/WE of 17 May 2006 Official Journal of the European Union L157 p. 24-86)

we declare with full responsibility that the machine:

Machine: **1-ROW VIBRATING DIGGER**
Type/model: **Z655**
Year of production: **201**
Serial number:
Function: Mechanical digging tubers with ridges

to which this declaration relates, is in conformity with:

the Ordinance of Minister of Economy of 21 October 2008 on essential requirements for machines (Journal of Laws "Dziennik Ustaw" No 199, item 1228) and European Union Directive 2006/42/WE of 17 May 2006

Person responsible for technical documentation of the machine: Andrzej Sińczuk, ul. B. Joselewicza 2, 07-100 Węgrów

Following harmonized standards have been applied:

PN-EN ISO 12100:2012P
PN-EN ISO 4254-1:2016E

This Declaration of Conformity WE loses its validity if the product is changed or modified without proper authorization.

THE MANUAL CONSTITUTES MACHINE BASIC EQUIPMENT!

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Węgrów,
Place and date of issue

.....
Name and function of the signatory



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.....
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WARRANTY CARD

1-row vibrating digger type **Z655**

Serial number

Production date **201**

Inspector signature

Date of sale

Seller signature

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.....
Seller stamp

CAUTION: It is seller's obligation to fill in the warranty card and complaint forms carefully (legibly). Lack of e.g. date of sale or stamp of sales point will put the user at risk of not acknowledging possible complaints. Warranty card with any written corrections or filled in illegibly – is invalid.

Warranty proceedings rules

1. A user is understood as a natural or legal person purchasing an agricultural equipment and a seller – as a corporate unit providing equipment to the user and a manufacturer - as a producer of agricultural equipment.
2. Manufacturer ensures good quality and efficient operation of the digger, to which the warranty card is attached.
3. Any defects or damage of the digger shall be fixed free of charge at the place of the purchaser in the period of **12 months** from the sales date.
4. Any revealed defects or damages shall be reported in person, by post mail or by phone.
5. If during warranty period, a necessity of performing three warranty repairs occurs, and the product will still reveal defects disabling its usage according to its intended use, the purchaser is entitled to have the product exchanged into a new, flawless one or refund.
6. If the manufacturer, a seller and a user will not establish another deadline for considering the complaint, exchanging the product or refund, it should be made within 14 days from the date of reporting it by the user.
7. Warranty repairs do not cover repairs caused by:
 - using the digger inconsistently with the manual and intended use,
 - acts of God or others for which the manufacturer does not take responsibility.These repairs can be made only at the expense of the user, purchaser.
8. The manufacturer can cancel warranty on the product in case of stating:
 - introducing structural changes,
 - occurring any damages caused by acts of God,
 - lack of necessary records or made by one's own any records in the warranty card,
 - using the digger inconsistently with intended use or manual.

Complaint form no 1

1-row vibrating digger type **Z655**

Serial number Date of sale

.....

Seller's signature and stamp

Complaint protocol number

Complaint form no 2

1-row vibrating digger type **Z655**

Serial number Date of sale

.....

Seller's signature and stamp

Complaint protocol number

Complaint form no 3

1-row vibrating digger type **Z655**

Serial number Date of sale

.....

Seller's signature and stamp

Complaint protocol number

After repair I received technically efficient machine
on

.....
User's signature

Notices:

.....
.....
.....

After repair I received technically efficient machine
on

.....
User's signature

Notices:

.....
.....
.....

After repair I received technically efficient machine
on

.....
User's signature

Notices:

.....
.....
.....

IDENTIFICATION

1-ROW VIBRATING DIGGER

1-row vibrating digger type Z655 has a rating plate, fitted in the front part of the digger frame. Basic data which serves for identification of the machine: manufacturer's name, machine symbol, serial number, year of production, is put there.

Data placed on the rating plate serves for identification of the digger and ought to correspond to the following data, filled in during the sales. .

Symbol **Z655**

Year of production: **201**

Serial number

IT IS ADVISED THAT THE SUPPLIER OF A MACHINE, BOTH NEW AND USED ONES, KEEP THE SIGNED BY THE PURCHASER CONFIRMATION OF RECEIPT OF MANUAL ALONG WITH THE MACHINE.



THE MANUAL CONSTITUTES MACHINE BASIC EQUIPMENT

KEEP THIS INSTRUCTION FOR FUTURE REFERENCE



CAUTION!

When lending the machine to another person, the manual shall be attached to the machine.



CAUTION !

During operation, it is necessary to pay particular attention to loosening of screw connections. Therefore, it is necessary to check and tighten screw connections after stopping the tractor and turning off the tractor engine.



REMEMBER

Before work, check the correct cooperation of the PTO shaft with the tractor. The length of the PTO shaft should be adjusted to the tractor by changing the length of the telescopic tubes, see the manual of the PTO shaft.

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1. INTRODUCTION

This manual is attached to each machine to make a user acquainted with construction, operation and adjustment of the 1-row vibrating digger. Its aim is also warning about existing or possible threats. The manual also contains information on preparation of the digger for operation and for transportation on public roads.

Strict compliance with recommendations included in the content of the manual will ensure long-term and non-failure operation and contribute to reduction of operating costs of the machine. Each section of the instruction (according to the contents) presents proper issues in detail. If there is any unclear information for the user, they can obtain exhaustive explanation by writing to the manufacturer's address (the address is on the cover) – you are asked to give: exact address of the purchaser of the machine, machine symbol, serial number, year of production, year and number of issuing the manual.

Terms used in the manual: left side, right side, back and front – refer to the settings of an observer with his face turned according to the direction of the machine drive.

Warranty proceedings regulations and rights resulting from them, are given in the warranty card, attached to each digger.

2. INTENDED USE OF THE DIGGER

1-row vibrating digger is intended to operate exclusively in the agriculture. Using it for other purposes shall be understood as using it against the intended use. Meeting requirements referring to operation of the machine, its maintenance and repairs according to recommendations of the manufacturer and strictly complying with them state the condition of using it according to the intended use.

The machine shall be employed and operated only by people acquainted with its detailed characteristics and with procedures in the field of safety. Regulations concerning accident prevention and all the basic regulations in the field of occupational health and safety and also traffic regulations should be always abided by.

Vibrating digger Z655 is a machine mounted on three-point suspension system of the tractor. The digger should co-operate with tractor classes of power of 10 KM equipped with normalized power take-off shaft, suspension system category I or II and front axle standard ballasts for keeping the required controllability factor ($s \geq 0.2$). The machine is equipped with two-sided studs of the lower suspension axle allowing for aggregation of a digger with tractors of suspension category I (stud of diameter of $\text{Ø}22$ mm) or category II (stud of diameter of $\text{Ø}28$ mm). The machine is mainly intended for digging up potatoes from 1 row but it can also gather other root crops and vegetables. The machine can be employed on light and medium compacted soils, not too stony and at fragmented haulms on plain terrain and slopes up to 8.5° .

Digger submerges in the ridge with a ploughshare taking soil along with potatoes and then the soil is sifted on two hoppers while potatoes are put on the left side in a narrow strip in the distance enabling another working passage.

Digger submerges in the ridge with a ploughshare taking soil along with potatoes and then the soil is sifted on two hoppers while potatoes are put on the left side in a narrow strip in the distance enabling another working passage. Vibrating digger of Z655/1 series puts potatoes behind the digger.

The digger can be employed for gathering root crops e.g. onion, carrots etc.

3. SAFETY PRECAUTIONS AND WARNINGS

3.1. Symbols: meaning and application

In the present manual symbols are used in order to draw the reader's attention and stress certain particularly important aspects requiring discussion.



DANGER

This indicates danger, with a possible serious accident risk. Not obeying recommendations marked with this sign may cause a situation of a serious risk of sustaining an injury by the operator and/or people nearby! ***Obey strictly these recommendations!***



CAUTION

The symbol indicates possibility of damaging the machine or other object and demands to be cautious.
It is important advice which should be paid special attention!



REMEMBER

The symbol indicates advice or notice regarding key functions or useful information concerning proper functioning of the machine.

3.2. Expected use

1-row vibrating digger Z655 has been designed, built and adjusted for digging potatoes from one row on flat and wavy fields, on all types of soil kept in good culture, stoneless, of humidity enabling proper operation. Operation with a digger can be performed on slopes up to 8.5°. 1-row digger should operate with tractors of power of 10 kW and higher equipped with normalized power take-off shaft and standard three-point suspension system of category I or II, the machine is equipped with studs of $\varnothing 22$ mm and $\varnothing 28$ mm. The tractor should be equipped with front axle standard ballasts for keeping the required controllability factor.



REMEMBER

Regulations concerning the intended use and configurations, provided for this machine are the only ones, which are exclusively allowed. The machine shall not be employed for other purposes than those, which have been provided for it. The regulations given in this manual do not substitute obligation towards present regulations with force of a statute, referring to standards concerning safety and prevention from misadventure, but they summarize them.

3.3. Description of residual risk

Residual risk results from wrong or incorrect behavior of the digger operator. The greatest danger can occur in performing following activities:

- Operation of the digger by minors and also people not acquainted with the manual or not having qualifications for driving an agricultural tractor,
- Operation of the digger by people with a disease, in a state indicating for using alcohol or narcotic drugs,
- Transport and operation without proper safety measures,
- Aggregation of the digger with a tractor if the operator is between the machine and the tractor at the engine working,
- Operation when people or animals stay within the range of operation of the assembly tractor + machine,

- Maintenance and adjustment at the digger when the tractor engine is working and the machine is not protected against falling down.

When describing residual risk of the digger, the digger is treated as a machine, which since the moment of starting the production, has been designed and manufactured according to the present technique condition.

3.4. Estimation of residual risk

During operation of the digger, threat and residual risk can be limited to the minimum when such recommendations are abided by:

- Careful reading the manual,
- prohibition of people staying on the digger during operation and transport,
- prohibition of people staying between the tractor and the digger when the tractor engine is working,
- all adjustment, maintenance and lubrication of the digger shall be performed only at the tractor engine stopped,
- repairs of the digger performed only by people trained in this field,
- operation of the machine by people who have qualifications to drive agricultural tractors and are familiar with the manual of the machine,
- During repair, at the machine raised if necessary, the machine must be protected against falling down e.g. with a wood block.
- protection of the digger against children access.

Although **BOMET**[®] company takes responsibility for pattern-designing and construction in order to eliminate danger, certain risk elements during vibrating digger operation are unavoidable.

 **1) Danger of being caught or hurt** by the frame edges or sharp edges of the ploughshares and sifting hoppers of the digger during aggregation or changing transportation-operation position and inversely.

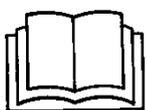
 **2) Danger of wound or abrasion** by elements of the machine during performing maintenance or adjustment resulting from improper position of the operator during these activities.

 **3) Danger of turning over the machine** during storage or transportation. When stored to keep stability, the digger should be set on the flat ground on support wheels and ploughshares. The digger shall be aggregated only with recommended tractor classes equipped with front axle ballasts.

 **4) Danger of being caught** by rotating drive elements. Keep the safe distance when the rotating elements are in motion. The operator and other people should not approach the machine during the operation.

 **5) Danger of throwing out** stoned by sifting hoppers during operation. Keep particular caution and safe distance during the operation of the machine. The operator and other people should not approach the machine during its operation.

3.5. Regulations for occupational health and safety



CAUTION

In order to avoid threats, before starting operation of the digger, please read the present manual and follow these rules concerning threats and safety measures:

3.5.1. General regulations

- Apart from this manual, one shall also follow traffic regulations and occupational safety and health regulations.
- Warnings (pictograms) placed on the digger give advice concerning safety of the user and other people, and avoiding accidents.
- When driving on public roads, it is obligatory to follow regulations included in Highway Code.
- It is recommended to cooperate with a tractor equipped with a cabin or a protective frame.
- Before each using the machine, it is necessary to check if all elements of the digger are in a good condition. Damage incurred shall be fixed without delay and possible deficiencies filled up.
- Avoid staying within the range of the working digger.
- Before leaving the tractor cabin and before each activity made at the digger, stop the tractor engine; remove the key from the ignition switch.
- The digger shall be stored in a dry room, on the tough and flat ground. During lowering the digger onto the ground, keep particular caution. Danger of injury!!!

3.5.2. Aggregation of the machine

- Keep particular caution during connecting the digger with a tractor and during disconnection.
- It is forbidden to stay between the digger and a tractor during any activities performed with a hydraulic system lever.
- While aggregating the digger with a tractor, it is forbidden to stay between the machine and the tractor at the tractor engine working.
- During performing any maintenance at the digger, it is necessary to stop the engine, remove the key from the ignition switch and pull the handbrake.
- Pivots of the digger suspension system shall be secured only with the use of typical protection in the form of cotter pins.
- The digger shall be aggregated only with recommended tractor classes equipped with front axle standard ballasts.
- The digger can be operated by a person with qualifications allowing for using agricultural tractors.
- During aggregation, keep the minimum load of the tractor front.



CAUTION

Operation with a tractor of another class than recommended by the manufacturer may cause threat of stability loss in operation or in stoppage. The load of the tractor's front axle cannot be lower than 20% of its weight.

3.5.3. Maintenance of the machine

- A digger can be operated by a person with qualifications allowing for using agricultural tractors and acquainted with the manual.
- It is not allowed for other people not acquainted with the manual to operate the digger.
- It is not allowed for children and people after drinking alcohol to operate the digger.
- The digger shall be raised onto the tractor suspension system easily, without jerks or vibrations.
- **Work with a digger without the drive shaft shield is strictly forbidden.**
- Work with a digger on slopes with gradient exceeding 8.5° is not allowed.
- At each getting off the tractor by the operator, leave the digger in the lowered position.
- Use only PTO shafts with complete shields and CE marking for the digger drive.
- Removing clogs can be performed after lowering the machine onto the ground and turning off the PTO shaft and tractor engine and the key removed from the ignition switch.

- When removing clogs, if necessary, use special tools and secure the raised digger against falling down with a support e.g. a wood block.
- It is not allowed to use tractor reverse gear during work, when the machine is in the working position.
- All maintenance (lubrication, repairs, cleaning etc.) shall be performed with the digger lowered onto the ground, the PTO shaft turned off and tractor engine stopped, key removed from the ignition switch and handbrake pulled.
- People operating agricultural equipment should be equipped with working clothes and footwear, and personal protection measures appropriate for existing threats.

3.5.4. Transportation of the machine

- Transportation of a digger by means of transport from the manufacturer to a sales person or a client is described in the section 'Transportation on public roads' in detail. One shall remember safety rules during the loading and proper fixing of the digger on a car trailer. Hooks for ropes or chains are marked with pictograms.
- The digger transported on the tractor three-point suspension system on public roads must be equipped with portable light and warning devices and a triangular sign for low-speed vehicles, fixed in special handles at the back of the digger frame, see details in section 'Transportation on public roads'.
- It is forbidden to transport any people or items on the digger frame or sifting hoppers.
- Due to overlapping of a machine and a fixed connection with the tractor, keep caution especially at returns during operation and turnings during transportation on public roads.
- Keep extreme caution while making a turn of a tractor with a mounted digger, both during transportation and also while making returns in the field, especially when there are any people or items nearby.
- Driving speed of the tractor with the digger during transportation cannot exceed:
 - driving on hardened roads with flat surface – 15 km/h,
 - driving on field ways – 10 km/h.

3.5.5. Storage of the machine

- Disconnecting the digger from the tractor can take place only after the PTO shaft turned off and the tractor engine stopped, key removed and the handbrake pulled.
- The digger shall be stored in a dry room, on the tough and flat ground. During lowering the digger onto the ground, keep particular caution - danger of being injured or crushed!!!
- During storage the digger should be leant firmly on ploughshares and support wheels.
- The digger should be stored in places where there is no possibility of accidental injury of people or animals, on the flat ground, preferably under a roof.
- Vibrating digger shall be stored in a clean condition.



Threat!

Pay attention to sharp endings - danger of being hurt, keep caution during operations around the digger.

3.5.6. Others

- The digger shall not be employed for other purposes than those, which have been given in the manual.



CAUTION

Not following these rules may cause threat to the operator and other people and also may cause damage to the digger. Any damage resulting from not following these rules is the only responsibility of the user.

3.6. Standard conformity

The machine has been designed and made in accordance with standards concerning safety in the machine industry, valid on the day of marketing the digger. Particularly, following legal acts and harmonized standards have been taken into account:

- 2006/42/WE - Directive on machinery safety introduced by the Ordinance of Minister of Economy on 21 October 2008 (Journal of Laws 'Dziennik Ustaw' No 199, item 1228).
- PN-EN ISO 12100:2012P - Machinery. Safety. General principles for design. Risk assessment and risk reduction.
- PN-EN ISO 4254-1:2016P – Agricultural machinery. Safety. Part 1: General requirements.
- PN-ISO 730-1:2018E – Wheeled agricultural tractors. Rear three-point suspension system. Categories 1, 2, 3 and 4 (orig).
- PN-R-02001-01:1993P - Tractors and machinery for agriculture and forestry - Technical means for ensuring safety - General
- PN-ISO 2332:1998P – Tractors and agricultural machinery. Mounting machinery on a three-point suspension system. Free space zone.
- PN-ISO 3600:1998P – Tractors, agricultural and forest machinery, mototools. Manual. Contents and form.
- PN-ISO 11684:1998P – Tractors, agricultural and forest machinery, mototools. Safety and warning signs. General principles.

3.7. Manufacturer's responsibility and guarantee

In relation to described in this manual machine, **BOMET**[®] company does not acknowledge any civil responsibility towards:

- improper or inconsistent with the manufacturer's recommendations using the machine,
- using the machine in a way breaking domestic law concerning safety and preventing from unfortunate accidents,
- non-compliance or improper following regulations cited in this manual,
- making unauthorized changes in the machine,
- using the machine by unqualified staff,
- using spare parts that are not original.

As long as the purchaser wants to make use of warranty, he should strictly follow recommendations and regulations given in the manual. In particular:

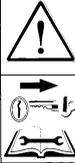
- he should work only in the given ranges of the machine operation,
- he should always perform unchangeable and thorough maintenance,
- only operators with proper abilities and qualifications shall be allowed to use the machine,
- he should use only original spare parts recommended by the manufacturer.

3.8. Safety signs and captions

1-row vibrating digger Z655 of **BOMET**[®] company is equipped with all devices that ensure safe work. Where it is not possible to secure dangerous places entirely due to the proper operation of the digger, there are warning signs – pictograms which indicate for possibility of danger and present manners of avoiding it.

In table 1, pictograms placed on the machine and their meanings have been specified. Safety pictograms should be protected against being lost and against loss of legibility. Lost or illegible signs and captions should be replaced with new ones. It is required that new assemblies employed during repair were marked with all safety signs predicted by the manufacturer. If you want to buy pictograms, write to the manufacturer's address, or send information to the e-mail address and give the sign number (according to the table 1), version and year of issuing this manual.

Table 1. Safety signs and captions

No	Pictogram	Meaning	Location
1	2	3	4
1.	(Rating plate)	Rating plate	At the front of the frame on the left side
2.		Caution. Before operating the machine, read the manual.	At the front, on the rack of the three-point suspension system
3.		Caution. Before operation turn off the engine and remove the key from the ignition switch.	At the front, on the rack of the three-point suspension system
4.		Do not stay near the lift rods, while controlling the lift.	At the front, on the rack of the three-point suspension system
5.		Danger of hurting a leg. Keep the safe distance from ploughshare sharp endings.	On the frame of the digger
6.		Caution. Do not touch the machine elements before all units are stopped.	On the frame of the digger
7.		Danger of crushing hands. Do not reach crushing area if the elements can be in motion.	On the digger frame at rocker levers
8.		Marking places of loading hooks.	On the frame of the digger
9.		Marking lubrication points	On the rototiller frame
10.		Symbol of permissible transport speed.	At the back, on the drive shaft shield
11.		Information on rotational speed of the power take-off shaft and rotation direction.	On the power input connection shield
12.		Company logo	On the frame of the digger

3.9. Noise and vibrations

During the operation of a vibrating digger for the operator there is no threat caused by noise contributing to the loss of hearing because the workplace of the operator is in the tractor cabin. Measurement of the sound pressure level has been conducted at the machine stoppage, according to the appendix B of norm PN-EN ISO 4254-1:2013-08E, at nominal rotations of the tractor engine equaled 80 dB (A).

There is no threat caused by vibrations when working with a digger because the operator's workplace is located in the tractor cabin where the seat is amortized and properly ergonomically shaped.

4. USAGE REGULATIONS

4.1. General information

Vibrating digger Z655 is manufactured as a 1-row machine suspended on tractor three-point suspension system. 1-row vibrating digger is adjusted to work on terrain slopes not exceeding 8.5° and can cooperate with tractors of power over 10 KM equipped with standardized power take-off shaft (see technical characteristics – table 4) and wheel standard ballasts.

4.2. Construction and operation of the machine

4.2.1 Construction of the vibrating digger with side discharge

Mounted vibrating digger with side discharge of potatoes (figure 1) is an agricultural machine of compact and simple construction, reliable and user-friendly.

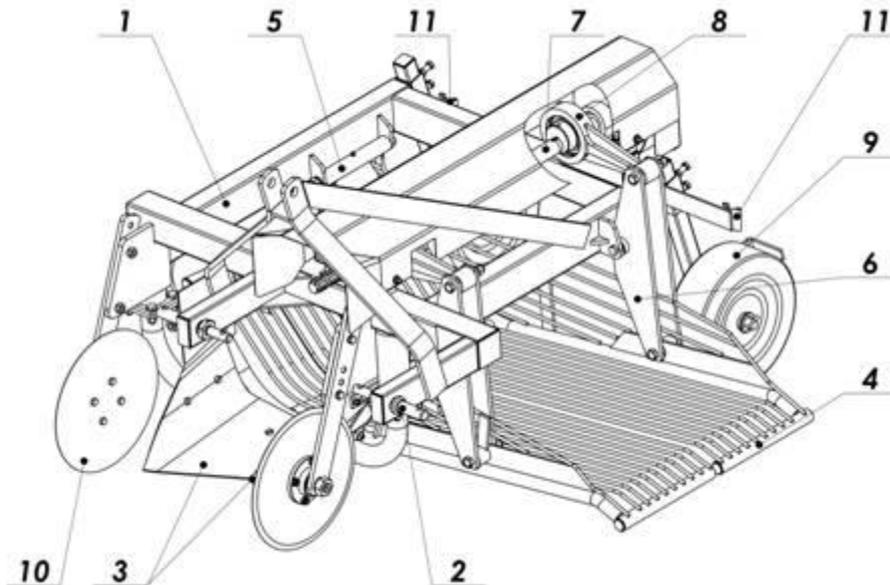


Figure 1. Basic units of vibrating digger: 1 - frame, 2 – studs of three-point suspension system, 3 – topper ploughshares, 4 – sifting hopper, 5 – rockers, 6 - rocker lever, 7 – drive shaft, 8 – connecting rods, 9 – support wheels, 10 - disc coulters, 11 – bracket for the light sign or the triangular sign

The basic element of the machine is a welded frame (1) to which other elements of the machine are installed. At the front of the frame, there is three-point suspension system with the suspension system rack which in the lower part has suspension axle studs (2) installed consistent with suspension system category I or II. In the front part, on specially profiled form there is a topper (3) installed, consisting of two ploughshares. Optionally, on ploughshares sides there can be disc coulters installed (10). Profiled form of the ploughshares ensures the most favorable taking of ridge along with potatoes. The topper passes the soil layer onto slatted sifting hoppers (4). Sifting hoppers are movable tubular-bar construction, installed to the frame through rockers (5) and levers (6) which crushes and sifts away soil and puts potatoes (or another crop) in the narrow strip on the left side of the machine. The digger is an active machine; sifting hoppers receive the drive from PTO shaft through the drive shaft (7) on which connecting rods (8) are installed eccentrically and connected to the levers. At the back of the digger in the rails there are support wheels (9) installed, used for infinitely

variable adjustment of ploughing. At the back of the digger frame there are also brackets for installing portable warning devices (11) and a triangular sign for low-speed vehicles.

4.2.2 Construction of the vibrating digger with rear discharge

Vibrating digger with rear discharge (Figure 2) can be employed on light and medium compacted soils, not too stony, weedy and with fragmented haulms. The advantage of the digger is minor and rare damage to potato tubers during harvest.

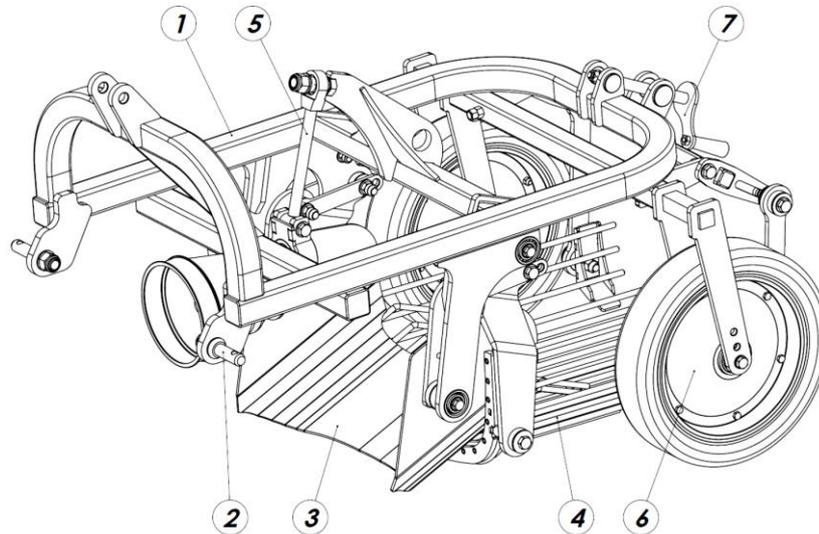


Figure 2. Basic units of the vibrating digger with rear discharge: 1 - frame 2 - three-suspension system studs, 3 - ploughshare, 4 - sifting hopper, 5 - crank mechanism, 6 - support wheels, 7 - mechanism for adjusting the operating angle of the hopper

The main element of the machine is a welded frame, which has the I category of the three-point suspension system at the front. A properly profiled ploughshare is pivotably mounted at the front. Behind the ploughshare there is a single pendulum sifting hopper. Vibrations on the ploughshare and the sifting hopper are passed through a simple crank mechanism. At the back of the digger there are support wheels determining the ridge digging depth. The intensity of sifting soil can be adjusted by changing the angle of the sifting hopper.

4.3. Equipment and fittings

The manufacturer delivers the digger for sale assembled. The manual with a spare parts catalogue and a warranty card are delivered along with the machine by the manufacturer. Basic equipment of the machine does not involve: PTO shaft, portable light and warning devices and a triangular sign for low-speed vehicles which are available at agricultural equipment storehouses.



REMEMBER

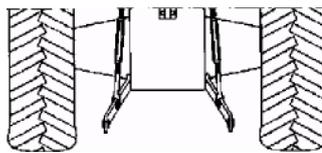
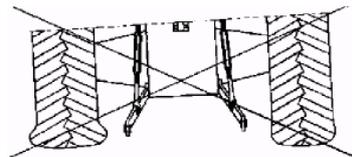
Manual with a spare parts catalogue comprise basic equipment of the digger.

Each user of a digger shall have light and warning signs, in working order, and a triangular sign for low-speed vehicles (sign description is available in the section 'Transportation'). Not having them during transportation may result in an accident. For damage incurred during an accident the user of the machine is responsible.

4.4. Preparing the tractor to work

Preparation of a tractor to cooperation with a digger consists in checking its general efficiency in accordance with the tractor manual (pay particular attention to the proper operation of the suspension system). In addition, it is necessary to uninstall from the tractor elements disabling mounting the machine or disabling its operation. It is mandatory to

aggregate the digger with recommended tractor classes equipped with standard ballasts of front axle and rear wheels in accordance with data given in the technical characteristics of the tractor. Air pressure, particularly in rear tires of the tractor should be equal in both wheels and in accordance with the tractor's manual!



Before suspension of the machine, lower rods of the tractor's suspension system shall be set in lower position at the same height (distance between joints and the ground is minimum 200 mm). Rods set at the equal height from the ground facilitate mounting the digger on the tractor.

4.5. Preparing the digger to work



Caution

It is forbidden for the operator to stay between the tractor and the machine at the tractor engine running.

Preparation of a digger to operation in season and after storage period (e.g. after winter) consists in checking its technical condition and most of all durability of connections of working elements with the frame. In case of stating damage or worn elements it is necessary to exchange them into new or regenerated ones. Otherwise, it can lead to reduction of the machine work quality.

Before each starting operation of the digger, it is necessary:

- check screw connections, in case of backlash tighten the nuts, (pay particular attention to screws where silent blocks are embedded),
- check firmness of pivot connections,
- check the condition of the topper and adjusting nuts,
- check the condition of sifting hoppers,
- check the condition of bearings on which the shaft and eccentrics are embedded,
- check the condition of welds on the frame and other welded elements of the machine,
- lubricate the digger in accordance with recommendations (see section "Lubrication instruction").



CAUTION

All maintenance in the digger shall be performed before installing it on the tractor.

4.6. Mounting the digger on the tractor

When mounting the digger on the tractor, perform following activities:

- disassemble a tool drawbar from lower rods of the tractor three-point suspension system,
- drive to the machine frame close enough with the tractor,
- **turn off the tractor engine, remove the key from the ignition switch and pull handbrake,**
- install tractor lower rods onto the digger studs and secure them with typical cotter pins,
- using a pivot, link the upper connector of the tractor with the digger frame rack and secure with a typical cotter pin,
- tighten gently chains of lower rods of the tractor, keeping the symmetry between the digger suspension and the tractor,
- connect the digger with the tractor power take-off shaft through the PTO shaft, secure the PTO shaft shields against the rotation by locking the chains,
- install portable light and warning signs and a triangular sign for low-speed vehicles,
- raise the digger over the minimum transportation clearance (250mm).

**CAUTION**

It is forbidden to connect the machine with a tractor when the tractor engine is running. It is forbidden to use other elements to secure the tool suspension system than recommended by the manufacturer.

**CAUTION**

Pay particular attention when aggregating the digger, do not keep place between the digger and the tractor.

Disconnecting the digger from the tractor is performed in reverse order, it is necessary to leave the machine on the flat ground.

4.7. Adjustment and setting of the digger

Digger proper operation of good quality is dependent on proper levelling of the digger and adjustment of topper immersion and angle. Before starting operation it is necessary to check the correctness of settings on a short distance and correct them if need be.

Transversal leveling is performed with the right hook of the tractor suspension system. After performing adjustment of the digger frame, visible from the back, after gaining full operation depth should be set horizontally.

Adjustment of ploughing depth is performed by setting support wheels on the proper height at the back of the digger, at the same level from the right and left side. Level of immersion should be such so that all potatoes were dug with no damages but also so that the topper did not take excessive amount of soil. Excess of soil on the hoppers causes difficulties in sifting away potatoes.

Adjustment of ploughing angle is performed by extending or shortening the central connector. By shortening the connector we increase the angle of entering the topper into the ground and by extending – we decrease the angle. It sifting hopper was space for the sifted soil.

The intensity of sifting soil in a digger with rear discharge, is adjusted with a crank at the back of the digger by changing the angle of the sifting hopper. The intensity of sifting is increased by raising the hopper upwards and the intensity of sifting is decreased by lowering the hopper.

**WARNING**

It is forbidden to perform adjustment of the digger at the tractor engine working. It is forbidden for the operator to stay between the tractor and the digger at the tractor engine running.

4.8. Operation with the digger

**Caution**

Operation with the digger without shields is strictly forbidden. It is recommended to use a PTO shaft marked with CE marking.

The best effects of the operation with a digger shall be gained if the field is initially cleaned out of haulms and when it is not too stony or weedy. It is necessary to remember that the best sifting away the soil is gained at medium moist soil. After performing the adjustment according to the point 4.7 the operator can start the work.

**IMPORTANT**

The best effects are gained on light and medium compacted soils that are not too stony or weedy and at cut haulms.

The field shall be divided into patches, optionally up to 30 ridges and dug driving around. When driving into a ridge it is necessary to lower down the digger into the working position and at the end of the ridge the machine shall be raised to the transportation position with the use of a hydraulic elevator. Keep the machine in a straight line during operation. The wheels

of the digger should be installed in the brackets so that the right wheel does not press a neighboring ridge.



WARNING

All clogging made during work of the digger requiring interference in the operation, shall be removed after stopping the tractor, lowering the digger onto the ground or support, turning off the tractor engine and pulling the handbrake.

In case of clogging of the machine and when elements were not automatically cleaned, it is necessary to stop the tractor, turn off the tractor engine and then manually or with the use of special tools remove the accumulated contamination. If the digger must be raised for removing the contamination, it is necessary to put a support securing against its falling down (e.g. a wood block). During operation and especially in the first period of using, it is necessary to pay particular attention to backlash of screw connections. Therefore, it is necessary to check and tighten screw connections after stopping the tractor and turning off the tractor engine.



Caution

Returns shall be performed easily with the digger raised to the transportation position, with no use of the tractor independent brake. It is necessary to keep extreme caution if there are people or items in the range of the digger operation.



Caution

It is not allowed to use tractor reverse gear during work, when the machine is in the working position. The digger shall be raised easily, without jerks or vibrations.



Caution

It is inadmissible to leave the digger on the slope or other terrain slope without securing it against automatic rolling down.

5. TECHNICAL OPERATION

To ensure a lasting and reliable operation of the digger, condition of screw connections should be checked and tightened in case of loosening. After work, the digger should be cleaned thoroughly. Worn or damaged working parts of the digger shall be replaced following these recommendations:

- all worn elements of the digger shall be exchanged in the proper time,
- for exchange only original parts ensuring good quality shall be used, it comprises one of conditions of keeping warranty validity.

5.1. Instruction on maintenance of a digger

Each time, after work, clean the digger out of soil and other contamination, especially clean thoroughly shake hoppers and ploughshare out of haulm residues and soil. Then review of connection of parts and units shall be performed. Technical operation of the digger consists in checking the state of topper ploughshare, shake hoppers and the drive shaft with eccentrics and also checks the state of screw and pivot connections and the state of welds. All loose screw connections shall be tightened. Pivots and studs of the digger suspension system should not be lubricated but kept in a clean and dry condition. Warning signs and a triangular sign for low-speed vehicles shall be kept clean.



Caution

All maintenance shall be performed at the digger lowered onto the ground and the tractor engine stopped using personal protection measures (e.g. gloves).

5.2. After-seasonal maintenance of the digger

After season, the digger shall be cleaned thoroughly out of contamination and washed. Worn or damaged working parts shall be exchanged and all loose screw connections

tightened. Loss occurred in paint coat should be cleaned and filled by covering with a fresh layer of protective paint and then the digger shall be greased in accordance with the lubrication instruction (see point 5.6).

5.3. Digger storage

Digger should be kept under a roof on the flat, solid ground. In case of lack of a roofed place, it is possible to keep the machine outside. After disconnecting the digger from the tractor, the machine should be leant on the topper ploughshare and support wheels.



Caution

The digger should be kept in a place posing no threat to people and surrounding.

During long-term storage of the machine outside, preservation of working elements shall be repeated in case of the preservative layer rinsed. **Light and warning signs and a triangular sign for low-speed vehicles should be uninstalled from the digger and placed in a dry room, to be protected from being damaged.**

5.4. Working parts exchange

During operation of the digger, working parts i.e. ploughshares are subject to wear and tear. It is necessary to keep the ploughshares in a good technical condition, without any deformations and properly sharp. In order to exchange working elements, the digger suspended on the tractor shall be raised to the transportation position. The machine shall be secured against falling by putting a strong enough support under the frame, excluding its falling over. After setting the support, lower the digger until it is leant on it, stop the tractor engine, remove the key from the ignition switch, pull the handbrake, and secure one of the rear wheels of the tractor with wedges against moving. Before exchange of the working elements, stability of the assembly: tractor – digger shall be checked.



CAUTION

Disassembly and assembly of worn elements shall be performed on the tough and flat ground after lowering the digger onto the ground or supports.

Exchange of topper ploughshares

- the digger frame should be leant on a support, so that the ploughshare was over the ground,
- untwist the screws fastening the ploughshare to the frame,
- uninstall worn ploughshares,
- install new ploughshares,
- tighten screws fastening ploughshares.

Exchange of sifting hopper

- the digger frame should be leant on a support, so that the hopper was over the ground,
- untwist and take out the screw fastening the hopper in the topper,
- untwist and take out the screw fastening the hopper in the lever,
- uninstall worn or damaged hopper,
- install a new hopper,
- tighten screws fastening hopper in the topper and lever.



REMEMBER

Working elements are not subject to warranty in case of wear or damage that is not the fault of the manufacturer.



CAUTION

During exchange of working elements, it is necessary to use proper tools and protective gloves. During exchange of working elements it is necessary to use spare parts catalogue where assembly of digger parts is presented in the scheme.

5.5. Lubrication instruction

Basic maintenance activities are keeping lubrication periods and using proper types of grease. Before lubrication all the points of lubrication shall be cleaned out of contamination. Lubrication of the digger shall be performed according to the table 3.

Table 2. Digger lubrication place

Nr of lubrication place	Lubrication place	Lubrication frequency	Grease type
1	Rocker sleeve of the front hopper	Twice a season	ŁT-43 grease
2	Sleeve of the front hopper	Twice a season	ŁT-43 grease
3	Rocker sleeve of the back hopper	Twice a season	ŁT-43 grease
4	Sleeve of the back hopper	Twice a season	ŁT-43 grease
5	Axle of the support wheel	every 50 hours	ŁT-43 grease
6	Drive shaft bearing unit	every 200 hours (or once a season)	ŁT-43 grease

5.6. Detection and removal of failure

During operation, following failure can occur, which can affect unfavorably the digger operation quality, raise the application cost and also lead to damage both of the digger and the tractor.



REMEMBER !

Work with an inefficient, improperly adjusted machine may lead to serious threats to the operator and other people. Inefficiencies and damages noticed shall be removed without delay.

Table 3. Table of inefficiency reasons and methods of removal

Symptoms	Reason	Method of removal
Tractor front tends to rise upwards	Too little load on the front. IMPORTANT: Tractor front axle load cannot be less than 0.2 of the tractor's weight.	Check if the tractor class is consistent with the manual recommendations. If not – change the tractor. If so – check and if need be add the proper number of front axle ballasts.
Dug potatoes, vegetables are damaged	The digger operates too shallow	Increase the depth of the digger operation, adjusting the support wheels.
Digger will not submerge	Damaged or worn topper ploughshares	Check and exchange topper ploughshares
	Topper ploughshares set too high	Check and adjust the operation depth
	Improper longitudinal levelling	Check and level the digger, perform adjustment with the central connector
Not all soil is sifted away	Too little space between hoppers and the ground	Check and perform proper adjustment with the central connector and support wheels
Transversal rocking of the digger	Improperly adjusted side rods pullers	Check and perform adjustment

6. TRANSPORTATION ON PUBLIC ROADS

6.1. Digger transportation by means of transport

Diggers can be transported from the manufacturer to the sales person or client by trailers or means of transport. Diggers are transported assembled and ready for operation. Diggers are loaded onto car trailers with lifting devices after installing lines or chains in places marked with pictograms by the manufacturer. The diggers should be secured still on means of transport, the transporting person is responsible for proper securing.

**CAUTION**

When loading the diggers on means of transport, lines or chains shall be installed in places marked by the manufacturer with pictograms.

6.2. Transportation of a digger on the tractor three-point suspension system

Digger is adjusted for transportation on public roads on the tractor three-point suspension system. During transportation it shall be raised with the use of the tractor three-point suspension system so that the clearance equals minimum 25 cm. **If during transportation on the tractor three-point suspension system, the digger obscures the tractor lights,** the digger shall be equipped with portable light and warning devices having at the back: combination lamps (red position, stop, direction indicator and red reflective one). If the tractor lights are visible, it is sufficient to install on the machine a triangular sign for low speed vehicles and portable light and warning devices equipped with red position and red reflective light at the back. Portable light devices are connected with the tractor wiring with the use of a connecting cable ended with 7-pole plugs. Moreover, the tractor, on which the digger is mounted, should fulfill conditions of admitting it to motion on public roads in accordance with Highway Code.

**CAUTION!**

It is forbidden to move on public roads without the proper marking (Ordinance of Minister of Infrastructure of 31 December 2002 Journal of Laws No 32/2003 item 262 with later amendments). Digger transported on a tractor suspension system on public roads should be equipped with portable light and warning devices (if need be) and a triangular sign for low-speed vehicles installed in special handles installed on the machine.

**CAUTION!**

When turning, pay attention to “overlapping” of the machine. It is forbidden to transport people or cargo on the frame of the digger.

7. DISASSEMBLY AND TOTALLING**CAUTION**

All maintenance connected with disassembly and totaling of the digger shall be performed on the tough flat ground, after lowering the digger onto the ground or support, using proper personal protection measures (e.g. gloves, glasses).

In case of occurring permanent damage of the frame or other bearing elements causing deterioration of functionality and danger of using safety, disassembly and totaling of the digger shall be performed. Disassembly of the machine should be performed by people, previously acquainted with its construction, equipped with protective gloves and other personal protection measures. These activities shall be performed after setting the machine on the flat and tough ground.

**CAUTION**

Before starting to disassembly, vibrating digger shall be disconnected from the tractor.

Disassembly should be performed in the proper order, according to the tables included in the spare parts catalogue, preventing from crushing with untwisted parts. It is necessary to keep all precautions using protective gloves and efficient tools. All fixings are made of normalized elements adjusted to metric keys. For key movement there are free spaces ensuring unconstrained unscrewing and tightening up nuts and screws predicted. In case of screws of yoke fastening working sections to the frame, use bent box spanners. Due to a number of digger parts exceeding 20 kg (frame, drive shaft), during disassembly use lifting devices. During disassembly or totaling, parts should be grouped according to the

material type. Uninstalled elements should be grouped and passed to points collecting metals.

	<p>CAUTION Lifting devices used during disassembly can be operated only by a person properly authorized and qualified.</p>
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8. TECHNICAL CHARACTERISTICS

Technical data of suspended 1-row vibrating digger is listed in table 4.

Table. 4. Technical characteristics of vibrating 1-row diggers

No	Specification	Unit of measure	Manufacturer data	
1.	Symbol	-	Z655	
2.	Type of the digger	-	suspended	
3.	Working width	-	1-row	
4.	Discharge of potatoes	-	side	rear
5.	Dug row spacing	mm	625 -750	
6.	Maximum working depth	mm	200	
7.	Machine weight	kg	245	135
8.	Overall dimensions in working position			
	- length	mm	1700	1290
	- width	mm	1500	925
	- height	mm	1150	900
9.	Power demand (min.)	kW / KM	7.5 / 10	
10.	Working speed	km/h	5	
11.	PTO shaft - min. moment *	Nm	300	
12.	PTO shaft - length min / max*	mm	L_{min} -510, L_{max} -790	
13.	Speed of PTO shaft	rpm	540	
14.	Efficiency	ha/h	up to 0.22	

* - the digger is not equipped with the PTO shaft. Use only shafts with CE marking.

Measurements of geometric dimensions and weights are given in the technical characteristic to an accuracy of 1%.

NOTES

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SPARE PARTS CATALOGUE

How to use the catalogue.

Spare parts catalogue includes other assemblies of the 1-row vibrating digger marked with proper numbers.

The catalogue should be used as follows:

- determine the proper assembly the exchanged part belongs to according to the tables,
- find the needed part on the assembly table following the reference number from the assembly drawing.

Spare parts can be purchased at the tool manufacturer, by writing to his address or by calling; then you are supposed to specify:

- the exact address of the orderer,
- digger symbol,
- digger serial number ,
- year of production,
- manual issue number,
- the exact name of parts or assembly,
- Catalogue symbol (KTM), spare part number or standard,
- number of pieces,
- payment terms.

All standard parts can be purchased in the public sale.

Table 1. Vibrating digger with side discharge

Pos. in picture	Part name	KTM symbol or norm number	Number of items Z655
1.	Frame set	655-001-000	1
2.	Ploughshare right set	655-002-000	1
3.	Ploughshare left set	655-003-000	1
4.	Sifting hopper front set	655-004-000	1
5.	Sifting hopper rear set	655-005-000	1
6.	Digger drive set	655-006-000	1
7.	Drive shield welded	655-007-000	1
8.	Disc coultter set	655-008-000	2
9.	Rocker right set	655-009-000	2
10.	Rocker left set	655-010-000	2
11.	Support wheel set	655-011-000	2

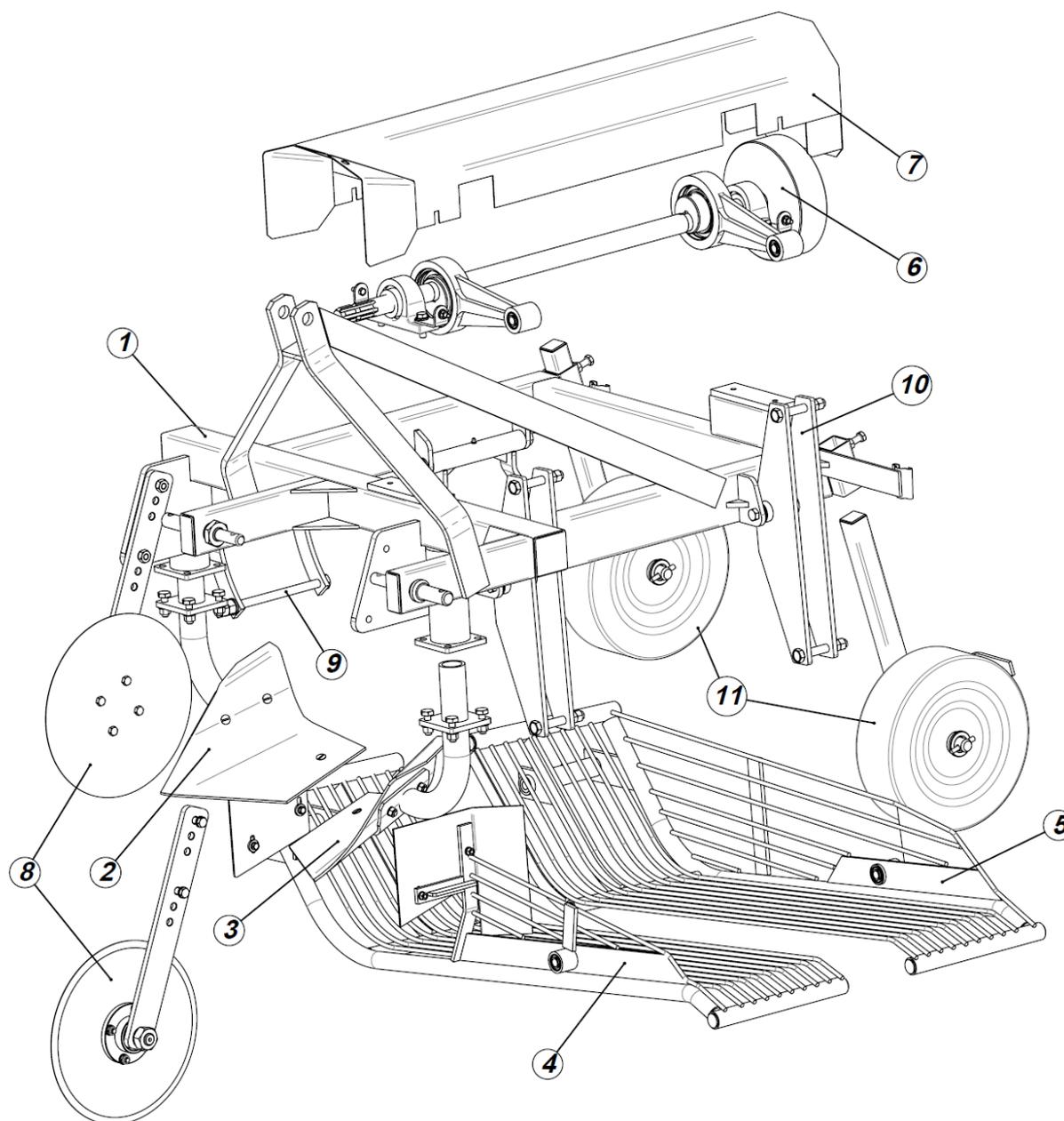


Table 2. Vibrating digger frame with side discharge

Pos. in picture	Part name	KTM symbol or norm number	Number of items Z655
1.	Frame set	655-001-010	1
2.	Ploughshare support bracket right welded	655-002-020	1
3.	Ploughshare support bracket left welded	655-003-030	1
4.	Ploughshare right	655-002-040	1
5.	Ploughshare left	655-003-050	1
6.	Countersunk screw M10x25 (DIN 963)	655-001-060	6
7.	Washer M10 (DIN 125)	655-001-070	6
8.	Nut M10 (DIN 934)	655-001-080	6
9.	Screw M12x40 (DIN 933)	655-001-090	16
10.	Washer M12 (DIN 125)	655-001-100	12
11.	Spring washer M12 (DIN 127)	655-001-110	14
12.	Nut M12 (DIN 934)	655-001-120	12
13.	Rocker right set	655-009-000	2
14.	Rocker left set	655-010-000	2
15.	Screw M16x280 (DIN 931)	655-009-005	2
16.	Screw M16x160 (DIN 931)	655-010-008	2
17.	Washer M16 (DIN 125)	655-001-170	4
18.	Nut M16 (DIN 934)	655-001-180	8
19.	Disc coulter set	655-008-000	2
20.	Hitch lower pivot two-stage of the three-point suspension system	655-001-200	2
21.	Spring washer M27 (DIN 127)	655-001-210	2
22.	Nut M27 (DIN 934)	655-001-220	2

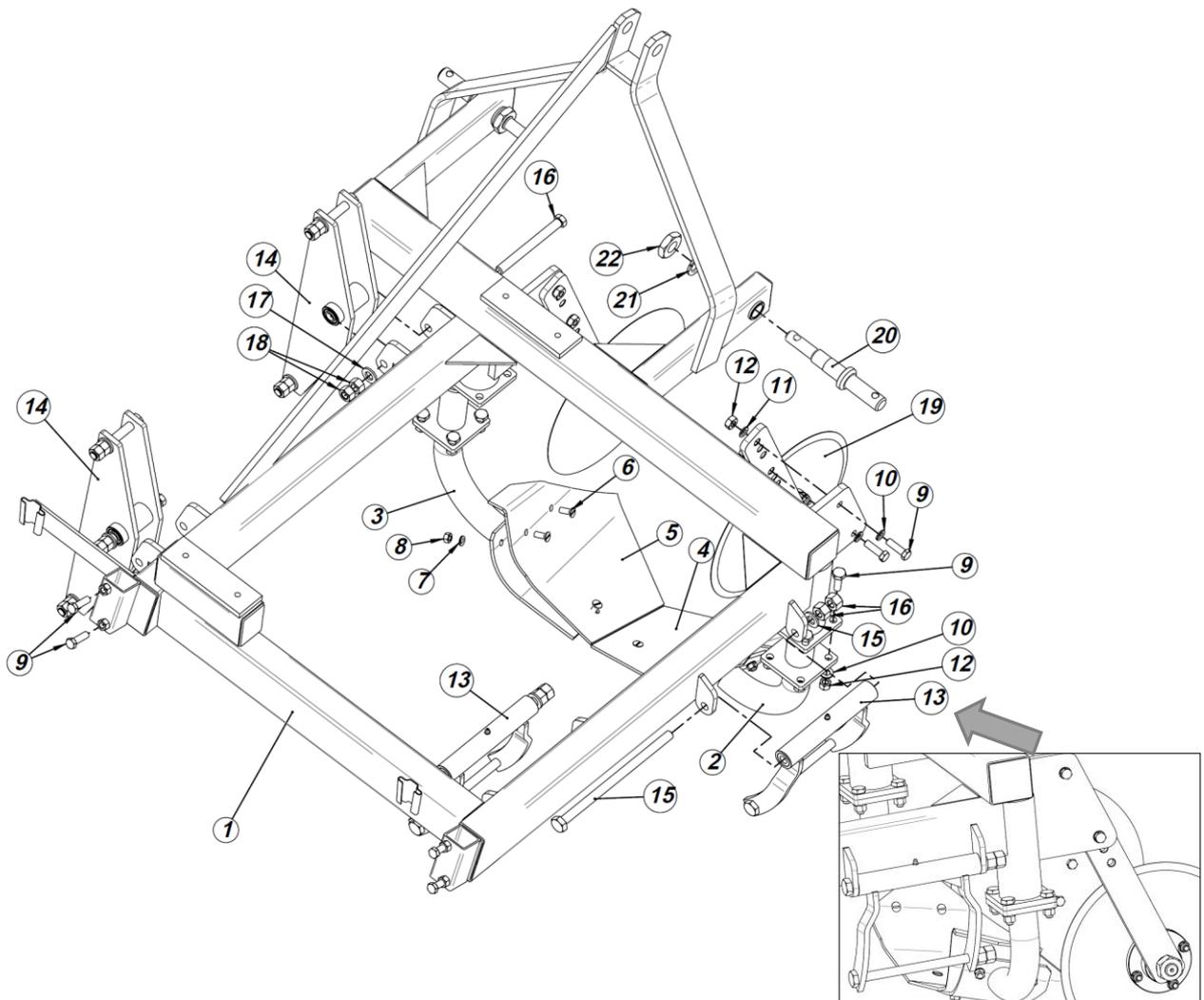
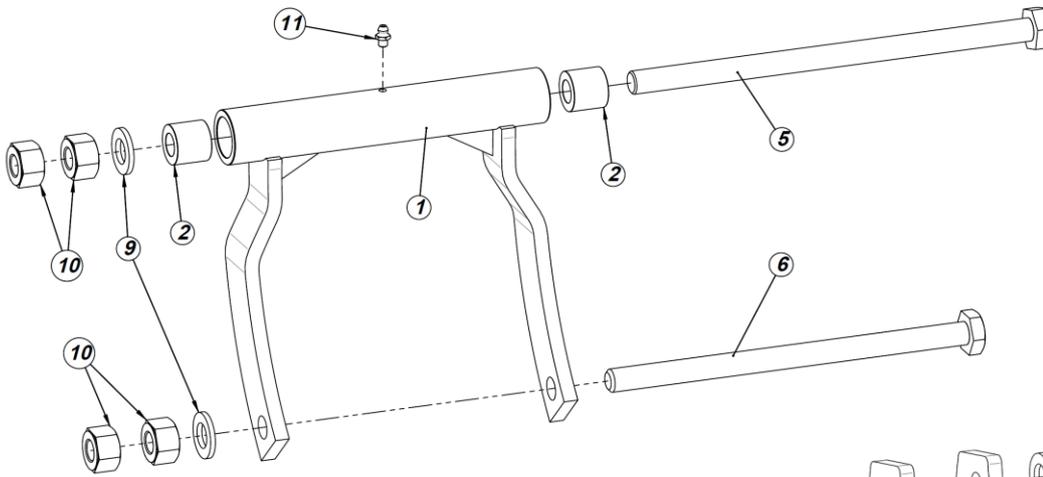
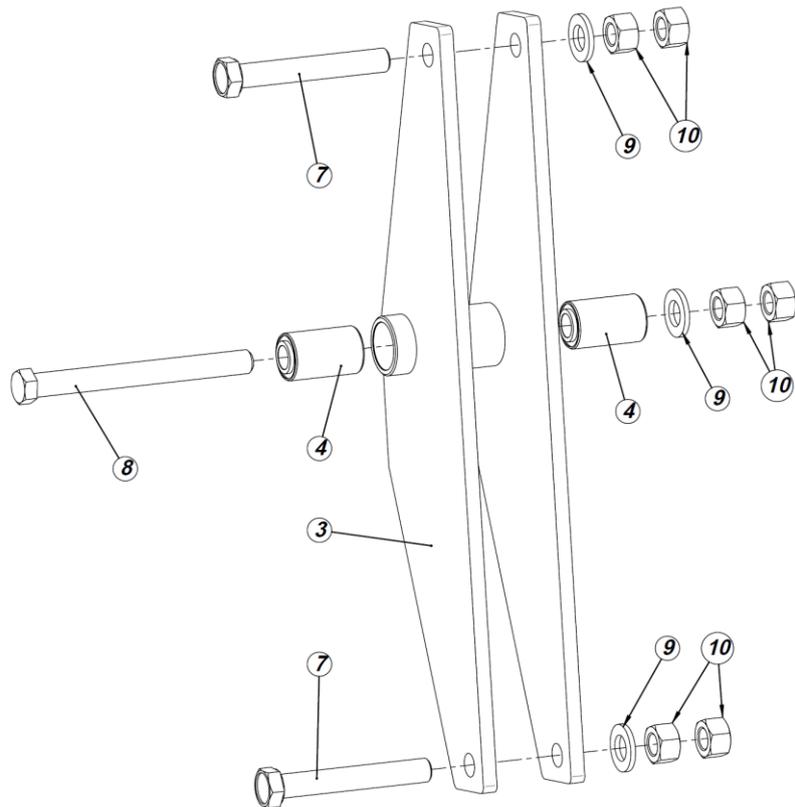


Table 3. Vibrating digger rocker with side discharge

Pos. in picture	Part name	KTM symbol or norm number	Number of items Z655
1.	Rocker right welded	655-009-010	1
2.	Plastic sleeve Ø16x28-25	655-009-020	2
3.	Rocker left welded	655-010-030	1
4.	Silent block type B	655-010-040	2
5.	Screw M16x280 (DIN 931)	655-009-050	1
6.	Screw M16x250 (DIN 931)	655-009-060	1
7.	Screw M16x110 (DIN 931)	655-010-070	2
8.	Screw M16x160 (DIN 931)	655-010-080	1
9.	Washer M16 (DIN 125)	655-009-090	5
10.	Nut M16 (DIN 934)	655-009-100	10
11.	Grease nipple M8x1 (DIN71412A)	655-009-110	1



Rocker right set



Rocker left set

Table 4. Vibrating digger drive with side discharge

Pos. in picture	Part name	KTM symbol or norm number	Number of items Z655
1.	Drive shaft	655-006-010	1
2.	Connecting rod set	655-006-020	2
2.1	Connecting rod	655-006-021	1
2.2	Eccentric	655-006-022	1
2.3	Bearing 6015 ZZ	655-006-023	1
2.4	Outer ring Segera Z-75x2,5	655-006-024	1
2.5	Inner ring Segera W-115x4	655-006-025	1
2.6	Grub screw M8x12	655-006-026	2
2.7	Silent block typ B	655-006-027	1
3.	Parallel key 8x7-40 (DIN6885)	655-006-030	3
4.	Bearing bracket UCP207	655-006-040	2
5.	Bracket mounting the cover welded	655-006-050	4
6.	Stripper bolt M12x40 (DIN7968)	655-006-060	4
7.	Washer M12 (DIN 125)	655-006-070	4
8.	Washer M8 (DIN 125)	655-006-080	4
9.	Nut M8 (DIN 934)	655-006-090	4
10.	Flywheel	655-006-100	1
11.	Nut M27 (DIN 934)	655-006-110	1

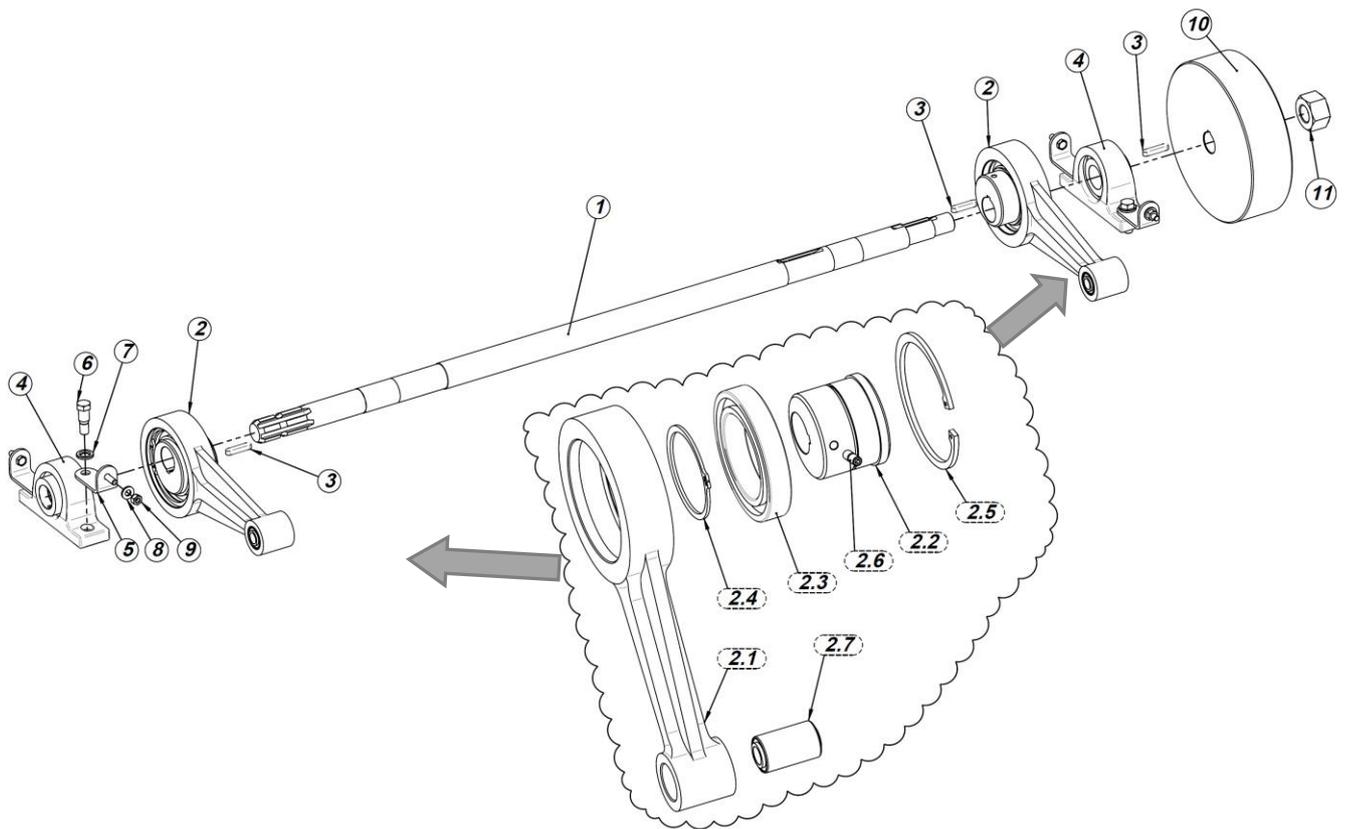


Table 5. Sifting hoppers of the vibrating digger with side discharge

Pos. in picture	Part name	KTM symbol or norm number	Number of items Z655
1.	Sifting hopper 1 front welded	655-004-010	1
2.	Silent block type B	655-004-020	2
3.	Rocker sleeve plastic Ø16x28-25	655-004-030	4
4.	Right guide	655-004-040	1
5.	Left guide	655-004-050	1
6.	Sifting hopper 2 rear welded	655-005-010	1
7.	Screw M8x30 (DIN933)	655-004-070	2
8.	Screw M8x25 (DIN933)	655-004-080	2
9.	Spring washer M8 (DIN 127)	655-004-090	8
10.	Washer M8 (DIN 125)	655-004-010	8
11.	Nut M8 (DIN 934)	655-004-011	4
12.	Rocker right set	655-009-000	2
13.	Rocker left set	655-010-000	2
14.	Screw M16x250 (DIN 931)	655-009-060	2
15.	Screw M16x110 (DIN 931)	655-010-070	2
16.	Washer M16 (DIN 125)	655-009-090	4
17.	Nut M16 (DIN 934)	655-009-100	8

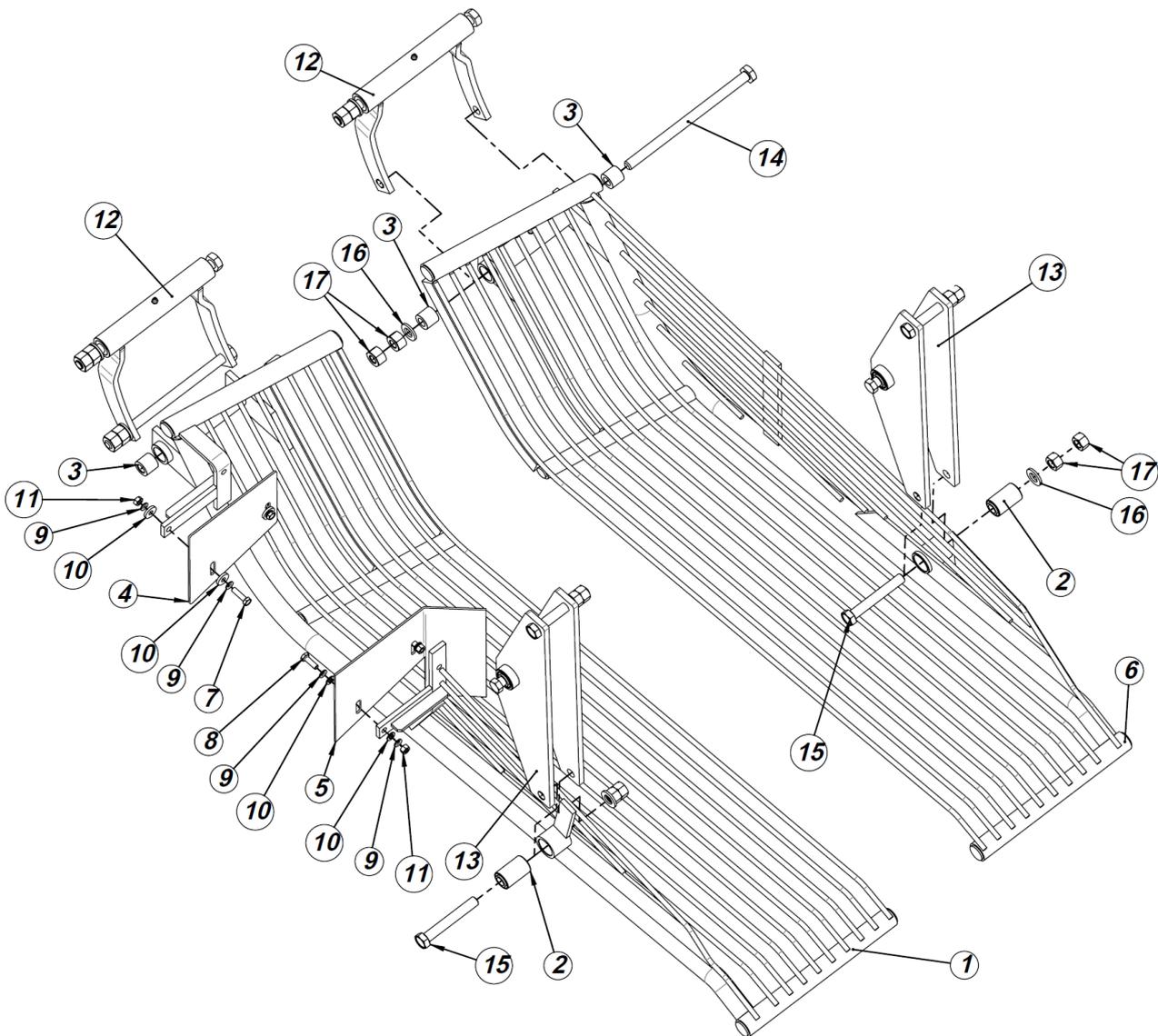


Table 6. Vibrating digger couler with side discharge

Pos. in picture	Part name	KTM symbol or norm number	Number of items Z655
1.	Couler support bracket	655-008-010	1
2.	Couler hub set	655-008-020	1
3.	Spring washer M24 (DIN 127)	655-008-021	1
4.	Nut M24 (DIN 934)	655-008-022	1
5.	Disc couler Ø360	655-008-050	1
6.	Screw M10x30 (DIN933)	655-008-060	4
7.	Washer M10 (DIN 125)	655-008-070	4
8.	Nut M10 (DIN 934)	655-008-080	4
9.	Screw M12x40 (DIN933)	655-008-090	2
10.	Spring washer M12 (DIN 127)	655-008-100	4
11.	Nut M12 (DIN 934)	655-008-110	2

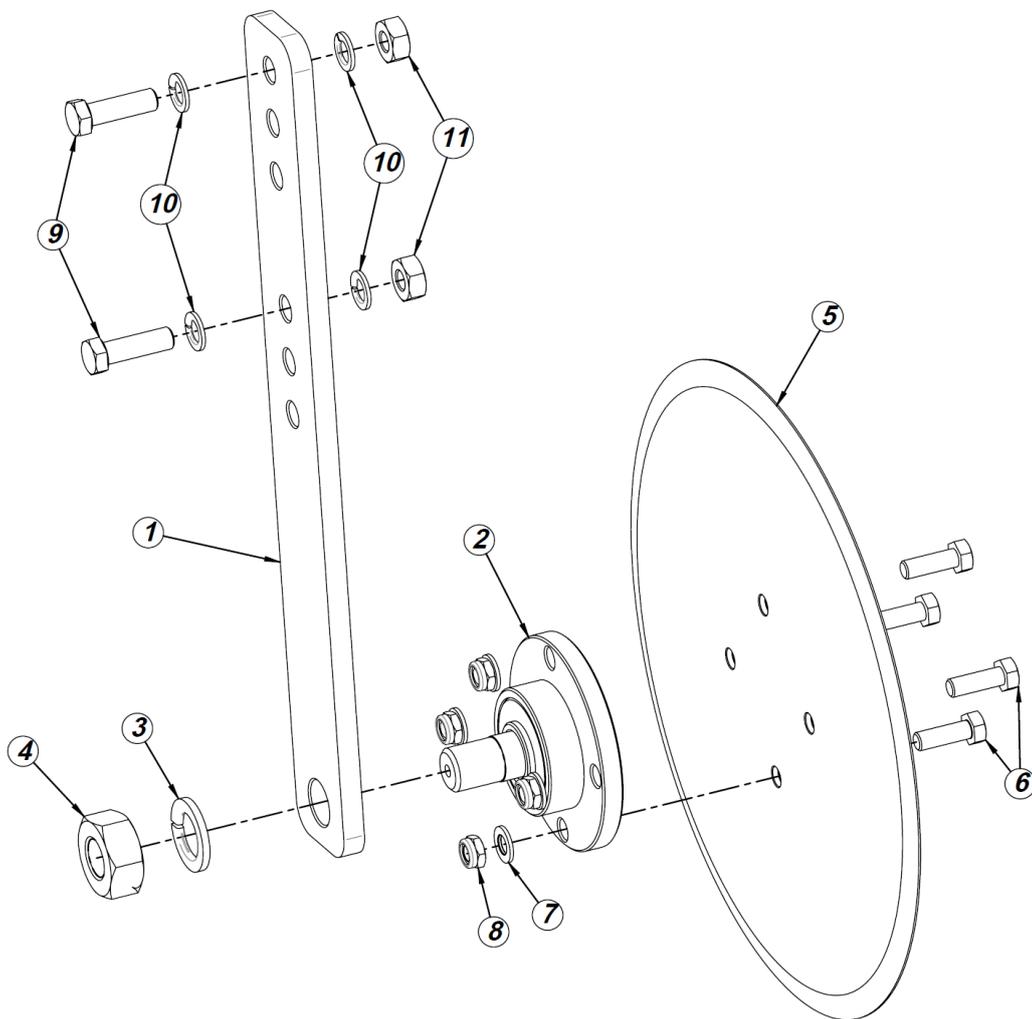


Table 7. Support wheel of the vibrating digger with side discharge

Pos. in picture	Part name	KTM symbol or norm number	Number of items Z655
1.	Support wheel arm welded	655-011-010	1
2.	Support wheel welded	655-011-020	1
3.	Plastic sleeve of the support wheel Ø26x38-40	655-011-021	2
4.	Washer M26 (DIN 125)	655-008-022	1
5.	Washer M28 (DIN 125)	655-008-050	1
6.	Taper pin A 8x60 (DIN 1)	655-008-060	1
7.	Grease nipple M10x1 (DIN71412A)	655-008-070	1

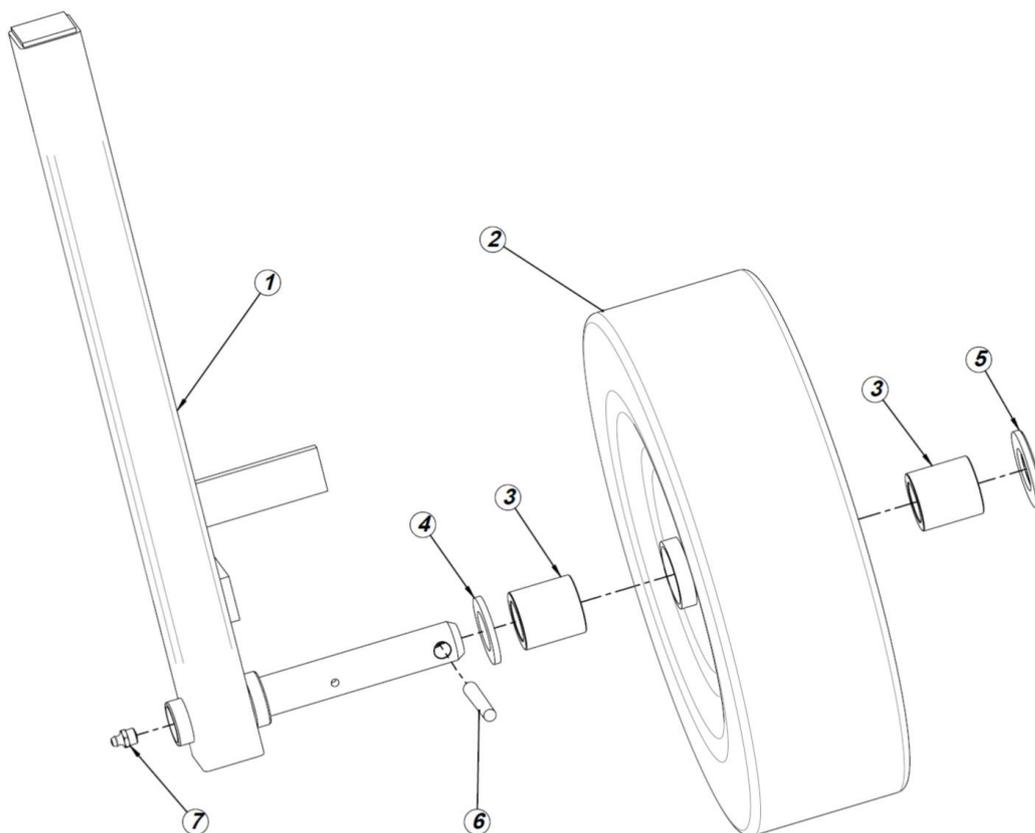


Table 8. Vibrating digger with rear discharge

Pos. in picture	Part name	KTM symbol or norm number	Number of items Z655/1
1.	Frame set	655-101-000	1
2.	Hopper support bracket front set	655-102-000	1
3.	Ploughshare set	655-103-000	1
4.	Sifting hopper welded	655-104-000	1
5.	Hopper support bracket rear set	655-105-000	1
6.	Rear support bracket arms	655-106-000	2
7.	Support wheel set L	655-107-000	1
8.	Support wheel set R	655-108-000	1
9.	Drive - crank mechanism set	655-109-000	1
10.	Screw M12x90 (DIN 931)	655-110-000	2
11.	Screw M12x100 (DIN 931)	655-111-000	2
12.	Washer M12 (DIN 125)	655-112-000	10
13.	Self-locking nut M12 (DIN 985)	655-113-000	5
14.	Screw M14x50 (DIN 931)	655-114-000	2
15.	Washer M14 (DIN 125)	655-115-000	4
16.	Self-locking nut M14 (DIN 985)	655-116-000	2

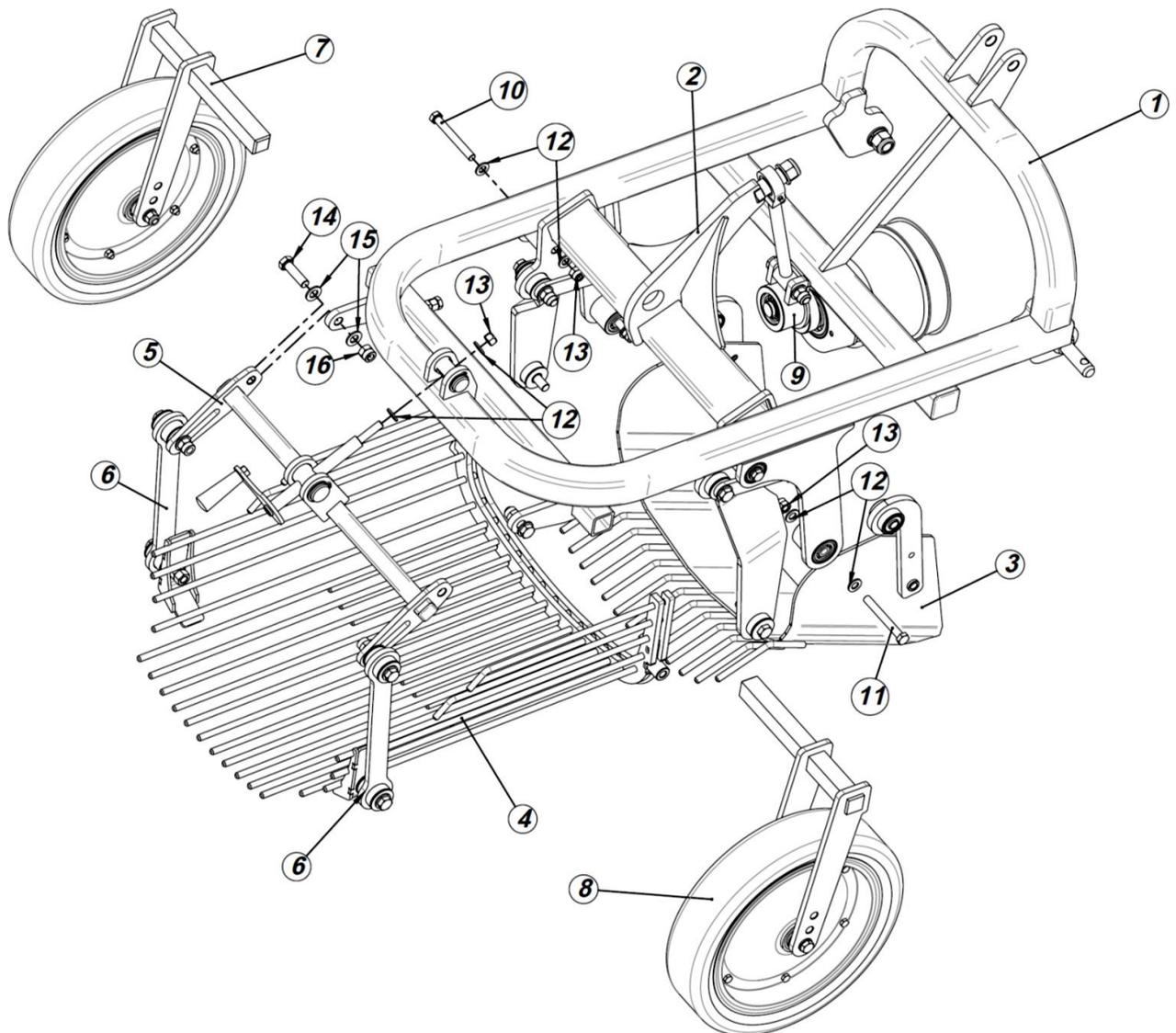


Table 9. Vibrating digger frame with rear discharge

Pos. in picture	Part name	KTM symbol or norm number	Number of items Z655/1
1.	Welded frame	655-101-010	1
2.	Spacer sleeve A - Ø12.5x20-31	655-101-020	2
3.	Bearing 6301	655-101-030	1
4.	Distance bushing B - Ø12,5x20-35	655-101-040	1
5.	Bearing 6201	655-101-050	1
6.	Pivot type A with a hole - Ø30-70	655-101-060	2
7.	Outer ring Segera Z30x2 (DIN 471)	655-101-070	1
8.	Bearing 6207	655-101-080	1
9.	Power input connection shield	655-101-090	1
10.	Screw M8x25 (DIN 933)	655-101-100	2
11.	Washer M8 (DIN 125)	655-101-110	2
12.	Screw M12x35 (DIN 933)	655-101-120	2
13.	Nut M12 (DIN 934)	655-101-130	2
14.	The lower pin of the TUZ hitch	655-101-140	2
15.	Spring washer M20 (DIN 128)	655-101-150	2
16.	Washer M20 (DIN 125)	655-101-160	2
17.	Nut M20 (DIN 934)	655-101-170	2
18.	Plastic plug 50x50	655-101-180	4

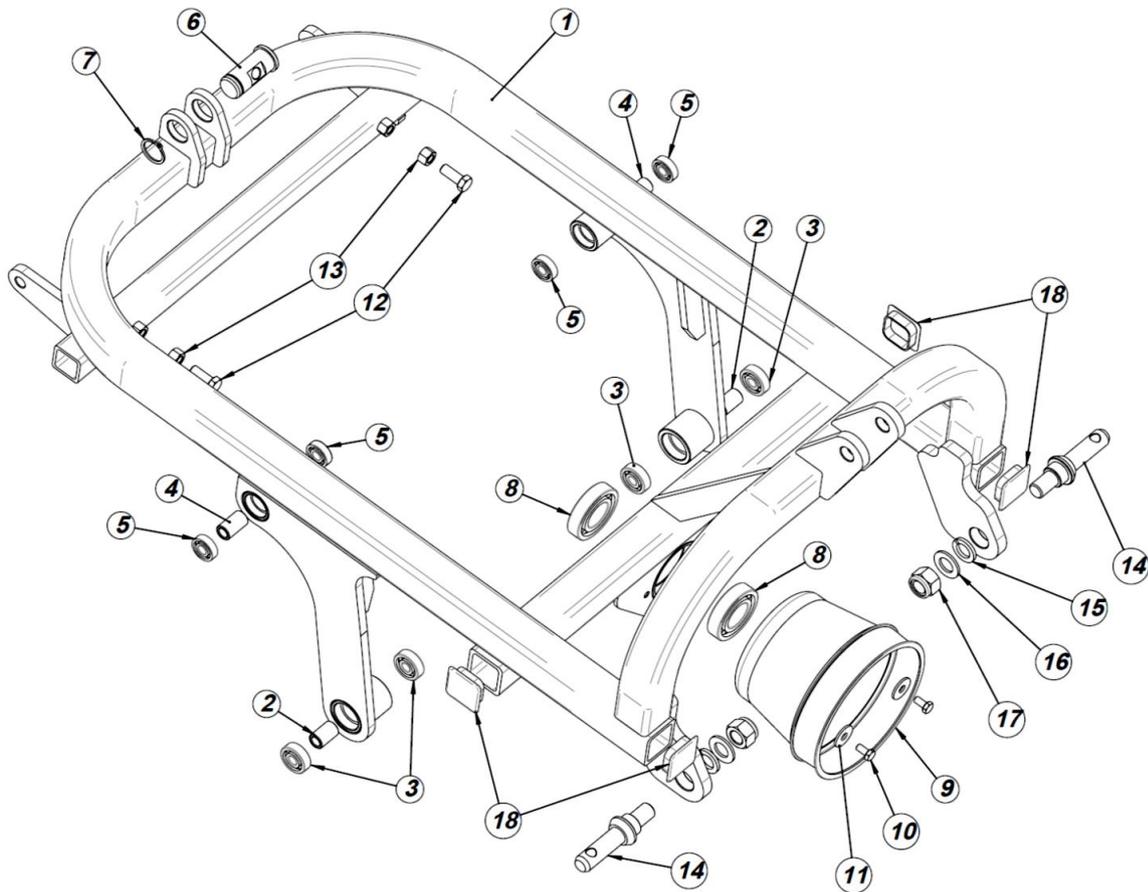


Table 10. Drive mechanism of the vibrating digger with rear discharge

Pos. in picture	Part name	KTM symbol or norm number	Number of items Z655/1
1.	Hopper support bracket front welded	655-102-010	1
2.	Support bracket connector	655-102-020	4
3.	Ploughshare welded	655-103-030	1
4.	Silent block type T	655-102-040	10
5.	Spacer washers Ø19x42-2	655-102-050	20
6.	Screw M14x90 (DIN 931)	655-102-060	5
7.	Screw M14x70 (DIN 931)	655-102-070	2
8.	Washer M14 (DIN 125)	655-102-080	18
9.	Nut M14 (DIN 934)	655-102-090	9
10.	Hopper support bracket rear welded	655-105-100	1
11.	Pivot type B with thread M20 - Ø30-70	655-105-110	1
12.	Outer ring Segera Z35x2,5 (DIN 471)	655-105-120	2
13.	Adjusting screw, rear welded	655-105-130	1
14.	Washer M12 (DIN 125)	655-105-140	2
15.	Self-locking nut M12 (DIN 985)	655-105-150	1
16.	Rear support bracket arms welded	655-106-160	2
17.	Sifting hopper welded	655-104-000	1
18.	Screw M14x80 (DIN 931)	655-105-180	4
19.	Eccentric hub set welded	655-109-190	1
20.	Eccentric welded	655-109-200	1
21.	Bearing 6205	655-109-210	2
22.	Distance washer Ø25x35-0,5	655-109-220	2
23.	Outer ring Segera Z25x2 (DIN 471)	655-109-230	1
24.	Connecting rod of the eccentric welded	655-109-240	1
25.	Distance bushing Ø22x27-14	655-109-250	2
26.	Washer M20 (DIN 125)	655-109-260	1
27.	Self-locking nut M20 (DIN 985)	655-109-270	1

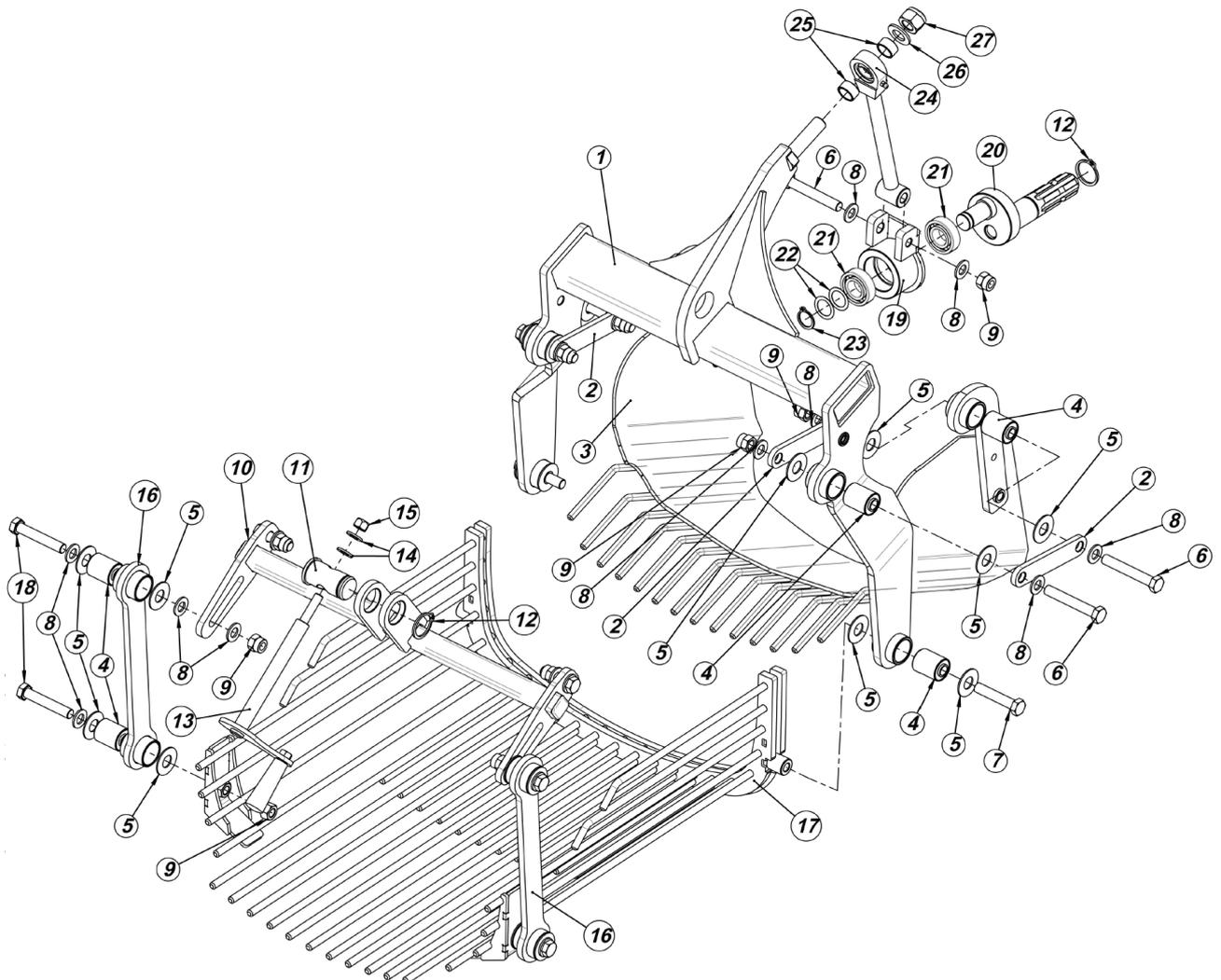


Table 11. Support wheel of the vibrating digger with rear discharge

Pos. in picture	Part name	KTM symbol or norm number	Number of items Z655/1
1.	Wheel support bracket welded L	655-107-010	1
	Wheel support bracket welded R	655-108-010	1
2.	Distance bushing Ø12,5x25-100	655-107-020	1
3.	Distance bushing Ø25,5x38-13	655-107-030	1
4.	Solid wheel Ø400-85	655-107-040	1
5.	Washer M24 (DIN 125)	655-107-050	2
6.	Washer M24 (DIN 125)	655-107-070	2
7.	Self-locking nut M14 (DIN 985)	655-107-080	1
8.	Screw M14x140 (DIN 931)	655-107-090	1

