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DOUBLE-AXLE AGRICULTURAL TRAILER THREE-SIDE DUMPER

T653 T653/1 T653/2

OPERATION & MAINTENANCE MANUAL

Identification of the machine

Symbol /Type:

KTM Symbol:

1026-636-847-303 for T653 1026-636-847-316 for T653/1 1026-636-847-329 for T653/2

Serial:

The serial is stamped on the type plate and on the front of the trailer's frame. The type plate is riveted to the load-carrying body.

In the course of purchase check conformity of the serial stamped on the trailer with the serial given in the warranty card, in purchase documents and in the operation manual.

Hydraulic system is filled with HL32 hydraulic oil

Quality Inspection Sign.....

The manual and the spare parts catalogue are valid together with the annex No. from the

The manufacturer reserves the right to introduce design modifications for the purpose of simplified maintenance and improved operation quality.

Remarks and notices about design and operation of the trailer should be submitted to the manufacturer. This information allows us to evaluate objectively manufactured machines and will be used as hints for further modernisation.

Information about major design alterations will be supplied to users in the form of enclosed information leaflets (annexes).

CAUTION!

The operation & maintenance manual is the substantial equipment of the trailer.

The user should read carefully the manual before operation and observe all recommendations given in the manual. This will ensure safe maintenance and failure-free operation of the machine.

The machine has been designed in accordance with generally recognised standards, documents and currently binding legal regulations.

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1 INTRODUCTION

1.1 GENERAL INFORMATION

The manual describes basic rules of safe operation & maintenance of the agricultural trailer. If information contained within the manual will be not comprehensible for the user please do not hesitate to contact your dealer or directly the manufacturer.

Especially important are information and recommendation marked in the text by bold characters or preceded by the word "CAUTION".

Information, descriptions of danger and precautions as well as commands and orders concerning safe operations are marked with following sign:



and mentioned in the chapter "Safe operation ".

1.2 APPLICATION OF THE TRAILER

The trailer is designed for transportation of agricultural produce as well as loose and volume materials within farm limits and on public roads.

Brake, lighting and signalling systems fulfil all requirements of traffic regulations.

The trailer is adapted for coupling with agricultural tractors fitted with external hydraulic system and an upper towing hook. The rear coupling of the trailer is designed for coupling only with double-axle trailers.



CAUTION!

The trailer must not be used contrary to its proper application and especially:

- for transporting of persons & animals,
- for transporting of loose, unprotected toxic materials if there is the possibility of environment contamination,
- for transporting of machinery & devices, which location of gravity centre may influence negatively on trailer's stability,
- for transporting of loads, which may cause unequal load or overload of axles,
- for transporting of non-fastened loads, which may change their location on the trailer's platform during drive.

2 OPERATIONAL SAFETY



- The user should read carefully the manual before operation and observe all recommendations given in the manual during operation.
- If information contained within the manual will be not comprehensible for the user please do not hesitate to contact your dealer, who also provides repair & service or directly the manufacturer.
- Careless and improper operation & maintenance of the trailer as well as lack of observation of recommendations given in present manual may endanger human health and life.
- Lack of observation of safe use rules may endanger health of operators and third persons.
- There is the risk of residual danger, thus application of safe operation rules should be the basic principle of trailer's use.
- Persons unauthorised for driving agricultural tractors including children and drunk persons have no right to use the trailer.
- It is prohibited to use the trailer contrary to its purposes. User, who utilise the trailer in other than prescribed manner, takes all responsibility for all consequences resulting from trailer's use.
- Any unauthorised modification absolves the PRONAR Narew from responsibility for resulted damage or health detriment.
- Prior to each trailer's use check its technical condition, especially coupling system, drive system, brakes and signalling lights.
- Check trailer's hydraulic system frequently; any oil leakage is inadmissible.
- Take special care while coupling trailer with tractor.
- While coupling the trailer with tractor use only the upper tractor's tow coupling. The rear coupling of the trailer is designed for coupling only with other double-axle trailers. Check protection devices.
- For coupling with tractor use only hooks for single-axle trailers. Check safety device.
- In the course of coupling no one is allowed to stand between trailer and tractor.
- Climbing on the trailer is allowed only if the trailer is completely stopped and tractor's engine off; the trailer should be also braked with its hand brake.
- Disconnection of the trailer while the load crate is lifted with the telescope cylinder is prohibited. Take special care by disconnecting the trailer.
- Disconnected trailer should be braked. If the trailer stands on a slope or an elevation it should be protected additionally with wedges or other blunt-edged objects placed under wheels.
- The load should be placed uniformly on the load crate surface.

- Admissible load must not be exceeded.
- Driving with lifted load crate and transporting of people & animals is prohibited.
- No one is allowed to stand in the vicinity of lifted load crate and unloaded material.
- Keep safe distance from electric lines while lifting the load crate.
- If any operation failure or damage occurs, stop operation of the trailer and repair the damage.
- Maintenance & repair of the trailer with loaded and/or lifted load crate without proper support of the crate is prohibited.
- During trailer's operation use protection gloves and proper tools.
- All maintenance & repair works should be performed with observation of safety regulations. In the case of wound wash and disinfect wounded place immediately. In the case of serious injuries consult a physician.
- The trailer is marked with information / signalling stickers as described in the table 1 below. The user should take care of legibility and cleanliness of inscriptions & warnings for all time of trailer's operation. In the case of damage or destruction replace missing stickers with new ones available at your dealer or manufacturer.

Safety sign or text	Explanation	Location
	Read operation manual	Front wall
	Prior to maintenance & repair stop the engine and remove the ignition key	Front wall
"Maintenance & repair of the trailer with loaded and/or lifted load crate without proper support of the crate is prohibited"		Front wall

Table 1. Information & warning stickers, continued

Safety sign or text	Explanation	Location
"Prior to unloading unlock two bolts connecting the crate with the frame on the opposite side of the dump flap. The load crate is raised, keep safe distance. "		Front wall
"Couple only with the upper tow coupling"		Front wall
(for hydraulic systems of I and II trailer)		Cut-off valve
"Load: 4000 kg"		Side walls (T653)
"Load: 5000 kg"		Side walls (T653/1)
"Load: 6000 kg"		Side walls (T653/2)
"390 kPa"	Tyre pressure 10.0/75-15.3 10PR	Above wheels (T653)
"340 kPa"	Tyre pressure 11.5/80-15.3 10PR	Above wheels (T653/1)
"410 kPa"	Tyre pressure 11.5/80-15.3 12 PR	Above wheels (T653/.2)

2.1 PRINCIPLES OF USE OF PUBLIC ROADS

- While driving public roads observe traffic regulations.
- Trailer's overload may cause its damage and endanger traffic safety.
- Do not exceed the maximum speed of 30 kph. Adjust the speed to traffic conditions.
- The trailer can work on slopes up to 8°. Lift the load crate on level ground only.
- It is prohibited to leave unsecured trailer. Always activate the parking brake.
- While driving public roads the trailer should be equipped with certified or approved warning reflecting triangle.

Rear wall should be equipped with a triangular plate for slowly moving vehicles (if the trailer is the last vehicle in a set (Fig. 1)).



Fig. 1 Location of a triangular plate for slowly moving vehicles.

3 ADDITIONAL INFORMATION

3.1 TRAILER EQUIPMENT

Trailer equipment consists of:

•	operation & maintenance manual + spare parts catalogue	-	1
•	warranty card	-	1
•	connection cable	-	1
•	load crate support	-	1
	For user's order the trailer may be equipped additionally with:		

- warning reflecting triangle
- triangular plate for slowly moving vehicles



CAUTION!

Assembly & disassembly of the superstructure should be performed with help of proper platform, ladder or ramp. Two operators secured from falling down should perform this operation with special care.

3.2 WARRANTY CONDITIONS

"PRONAR" Sp. z o.o. guarantees efficient operation of the trailer if utilised according to technical & operation conditions described in the manual.

Failures detected during warranty period will be removed by the Warranty Service within no longer than 14 working days from the date of delivery to a repair station or within any other agreed period.

Normally wearing parts i.e. tyres, brake linings as well as mechanical damage, damage resulted from improper use, adjustment or maintenance are not subject of warranty.

Detailed warranty conditions are mentioned in the warranty card supplied together with the newly bought trailer.



CAUTION!

Demand your dealer to fill the warranty card and complaint coupons exactly and completely. Lack of e.g. sale date or dealer's stamp may render your possible complaint void.

3.3 TRANSPORTATION

The trailer is delivered for sale fully assembled and requires no package. Packed are only: the manual, the connection cable and – if ordered – the warning triangle.

The trailer is supplied to the user with a truck or the user can take by himself with his own tractor.



CAUTION!

If the user takes the trailer by him he should read present manual and observe all recommendations given in the manual. In the case of transportation with a truck the trailer is fastened on the load crate according to generally recognised safety rules. The truck driver should take special precautions while transporting the trailer, because the gravity centre of the loaded truck is shifted upwards.

4 OPERATIONAL INFORMATION

4.1 TECHNICAL DATA

	Table 2.	Basic technical	data
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No.	Data	Unit	T653	T653/1	T653/2
1	Overall length	mm	6140	6140	6140
2	Overall width	mm	2230	2230	2230
3	Overall height	mm	1585	1630 (2130*)	1630 (2130*)
4	Wheel base	mm	1600	1600	1600
5	Load crate intern. dimensions:				
	- length	mm	4010	4010	4010
	 width (front / rear) 	mm	2010/2060	2010/2060	2010/2060
	- height	mm	500	500 (1000*)	500 (1000*)
6	Load volume	m ³	4	4(8*)	4(8*)
7	Load surface	m²	8	8	8
8	Load surface height above ground	mm	1085	1130	1130
9	Weight	kg	1950	1925 (2105)	1940 (2120*)
10	Admissible weight	kg	5950	7105	8120
11	Admissible load	kg	4000	5180 (5000*)	6180 (6000*)
12	Load crate tilt angle				
13	- rearward	(°)	50 ⁰ -6 ⁰	$50^{\circ}-6^{\circ}$	50 ⁰ -6 ⁰
14 15	- side	(°)	$50^{0}\pm6^{0}$	$50^{0}\pm6^{0}$	$50^{0}\pm6^{0}$
	Rated voltage	V	12	12	12
16	Admissible speed	km/h	30	30	30
17	Hydraulic oil capacity				
18	Pressure in tires	kPa	390	340	410
19	Tires size and PR number		10,0/75-15,3	11,5/80-15,3	11,5/80-15,3
20	Wheel rims dimension		10PR 9,0x15,3	10PR 9,0x15,3	12PR 9,0x15,3

* data in brackets concerns the trailer versions with walls of 1m height

4.2 STRUCTURE AND OPERATIONAL PRINCIPLE

4.2.1 Undercarriage



Fig. 2 Chassis and upper frame

1 - lower frame, 2 - hydraulic servo-motor, 3 - racer, 4 - racer frame 5 - shaft, 6 - upper frame, 7 - loading case support, 8 - springs, 9 - driving axles

Trailer's undercarriage consists of parts shown on the Fig. 2. The lower frame is a welded structure made of steel profiles. Main carrying elements are two stringers connected each to other with cross-bars. The rear part of the frame is fitted with bolts for mounting the upper frame, the middle part – with a seat for hydraulic cylinder. The front frame part is fitted elements of front axle suspension: turntable, turntable frame, suspension springs and hitch bar. The rear part of the frame is fitted also with mountings for the rear axle and for rear lighting elements.

Axles are made of a square rod with pivots on either end; on pivots are mounted conical bearings and on bearings – wheel hubs. The wheels are of single type, fitted with shoe brakes actuated with brake cams.

4.2.2 Load crate

The load crate consists of: upper frame welded together with floor, walls A, B and C and set of superstructures D, E and F.

The upper frame is mounted to the lower frame in articulated joints and protected with bolts, which simultaneously are the axis for tilting.

The wall & superstructure locks and the chute flap are protected against spontaneous, undesirable opening.



Fig. 3 Load crate elements

A – side walls, B – rear wall, C – front wall, D – side superstructure, E – rear superstructure, F – front superstructure, 1 – upper frame, 2 – connecting cable, 3 – rear post, 3 – middle post, 4 – wall lock, 5 - hinge

4.2.3 Hydraulic tilting system

Hydraulic tilting system is designed for automated unloading of the trailer through tilting the load crate backwards or sidewards. The hydraulic system is supplied with oil from tractor's hydraulic system. Tilting of the load crate is controlled with a distributor of tractor's external hydraulic system.

The trailer's hydraulic system consists of two independent circuits:

- Circuit I for supplying the trailer hydraulic cylinder
- Circuit II for supplying the second trailer cylinder if two trailers are coupled to the tractor.

Both circuits are operated with the control valve 2 (Fig. 4). The valve lever can be set in two positions:

- ,, O_I " first trailer tilting system open
- ,, O_{II} " second trailer tilting system open



Fig. 4 Hydraulic system for tilting the load crate

1 – hydraulic cylinder, 2 – control valve, 3 – connection valve plug, 4, 5 – flexible conduits, 6 – rigid hydraulic conduits, 7 – control cable for cut off valve, 8 – roller, 9 – cut off valve, 10 – connection valve socket



CAUTION!

The cut-off valve 9 (Fig. 4) reduces load crate tilting angle while tilted sidewards. The length of the cable rope is adjusted by the manufacturer and must not be readjusted by the user.

4.2.4 Braking system

The trailer is fitted with a braking system, which consists of:

- pneumatically controlled operational brake
- manually operated (crank-operated) parking brake

The operational brake (pneumatic) is actuated from driver's seat with a brake pedal. In the case of disconnection from tractor's pneumatic system of the brake is actuated automatically.





1 – air reservoir, 2 – control valve, 3 – pneumatic cylinder, 4 – connector conduit for coupling with the tractor, 5 - connector conduit for coupling with second trailer, 7 - drain valve, 8 – braking regulator

4.2.5 Wiring, lighting, signalling

The wiring system is adapted for power supply with 12 V DC. Trailer and tractor electrical systems should be connected together with suitable connection conduit.



Fig. 6 Trailer wiring system

1-socket of plug joint, 2-rear right complex-lamp, 3-rear left complex-lamp, 4-license plate lightning lamp, 5front position lamp, 6-link cable, 7-electrical looms

4.3 TRAILER OPERATION PRINCIPLES

4.3.1 Coupling with tractor

Prior to coupling with tractor check if the trailer is braked with the parking brake. The tractor should be fitted with a tow hook, which is able to carry min. 8 kN (800 kg) vertical load.

To couple trailer with tractor it is necessary to perform following operations:

- Position the hitch rod eye on suitable level.
- Precise adjustment of the rod can be achieved by adjustment of the hitch spring tension with use of the tensioning screw.
- Draw back the tractor, couple hitch rod eye with the upper tow coupling on the tractor and check its fastening.
- Connect electrical, hydraulic and brake conduits to the tractor.
- Unlock the trailer parking brake.



CAUTION!

In the course of coupling no one except of operator is allowed to stand between trailer and tractor.

4.3.2 Preparation for work

During preparation for work it is necessary to check following items:

- condition of tyres and tyre pressure
- fastening of nuts fixing wheels and hitch rod
- condition of other screw connections
- function of lighting & signalling systems
- function of braking system
- condition and function of wall locks and hinges
- function of hydraulic tilting system

4.3.3 Loading the load crate

It is allowed to load the crate only if it is coupled with a tractor and stands on the level ground. Loading should be arranged uniformly on the entire load crate floor, if possible.

It is recommended to use a crane, a loader or a conveyor for loading. Prior to loading check if wall locks & hinges and the chute flap are closed.

In the case of objects, which put pressure in a few points only use thick boards as separators. Table 3 contains admissible loading heights of various materials. The table shows clearly that – in many cases – it is impossible to use the entire loading volume without exceeding the admissible load. It is important not to overload the trailer during loading.

Lightweight materials of great volume may be loaded above wall height but the load should be properly secured from falling down and polluting the road.

Table 3. Loading height

Type of material		Loading height [m]	
i ype of material	T653	T653/1	T653/2
wet gravel, wet soil, clinker, stone	0,25	0,3	0,4
cement, dry gravel, soil, brick	0,35	0,4	0,5
manure, full brick, mineral fertiliser	0,5	0,7	0,8
rye, potatoes, maize, rape, wheat	0,5	0,8	1,0
barley, oats, peat, coke	0,5	1,0	1,0



CAUTION!

- It is prohibited to exceed the admissible trailer load. Overload may endanger traffic safety and damage the trailer.
- Prior to drive with the trailer check if
 - bolts connecting load crate with lower frame are protected against spontaneous falling out
 - wall hinge bolts are secured from falling out.

4.3.4 Transportation

- While driving public roads observe traffic regulations.
- Do not exceed the maximum admissible speed. Adjust the speed to traffic conditions.
- The trailer can work on slopes up to 8°.
- While driving public roads the trailer should be equipped with certified or approved warning reflecting triangle.
- Rear wall should be equipped with a triangular plate for slowly moving vehicles (if the trailer is the last vehicle in a set).

4.3.5 Load crate unloading

Unloading is performed through tilting the load crate backwards or sidewards. Automated unloading should be executed as follows:

- Place the trailer on flat ground, brake the tractor and the trailer with the parking brake. During unloading the tractor should be positioned as to drive forward.
- Place the bolts with grips connecting the load crate with lower frame on the unloading side
- Open lower locks and relevant wall locks (according to unloading direction)
- Tilt the load crate with the hydraulic cylinder

CAUTION!

- It is allowed to tilt the load crate only when the trailer stands on hard, flat ground.
- Use only original bolts with grip. Use of other bolts may result in destruction of the trailer
- Take special precautions while opening wall locks due to load pressure on walls
- Take special precautions while closing walls and chute to avoid crushing fingers.
- Unloading of loose materials loaded higher than 1 m may be realised only by tilting the load crate backwards
- During unloading no one is allowed to stand in the vicinity of tilted load crate.
- It is allowed to tilt the load crate only if the trailer is coupled with a tractor.
- It is prohibited to tilt the load crate during violent wind gusts.
- Do not move and/or drive with the load crate in upper position

The rear wall is fitted with a chute, which opening can be adjusted resulting in slots of various heights. This enables adjustment of output of unloaded loose materials e.g. mineral fertilisers or cereal. To open the chute, first loose the nut of the securing clamp. While using the chute do not open rear wall locks.



Fig. 7 Tilt bolts 1 – left rear tilt bolt (right front), 2 right rear tilt bolt (left front)

A - tilt bolt locked, B - tilt bolt unlocked

After unloading:

- Lower the load crate
- Install and secure bolts connecting load crate with lower frame
- Clean wall edges and floor from residues or impurities. Close walls. Close locks to make spontaneous opening impossible
- when unloading on sloped ground t is admissible to tilt the load crate on this side, which is higher.

4.3.6 Uncoupling the tractor

To uncouple the trailer perform following actions:

- Stop the tractor and the trailer with the parking brake.
- Disconnect electric, hydraulic and brake conduits; protect their ends from dirt.
- Uncouple the hitch rod cable from the tractor's towing hook and drive away with the tractor

4.3.7 Failures and defects

Frequently appearing failures & defects and troubleshooting are given in the chapter "MAINTENANCE MANUAL".



CAUTION!

- If any operation failure or damage occurs, stop operation of the trailer and repair the damage/ remove the failure.
- Maintenance & repair of the trailer with loaded and/or lifted load crate without proper support of the crate is prohibited.
- All maintenance & repair works should be performed with observation of safety regulations. In the case of wound wash and disinfect wounded place immediately. In the case of serious injuries consult a physician.
- If it is necessary to maintain the trailer with lifted load crate (e.g. replacement of the telescope cylinder) commission a specialised workshop to make repair.

5.1 ADJUSTMENT OF WHEEL BEARINGS

After first 500 km and after every next 1500-2000 km check and – if necessary – adjust play of wheel bearings.

Scheme 1



Couple the trailer with a tractor, brake the tractor, place locking wedges under trailer wheels and raise each wheel with suitable hoist. Place the hoist between bail screws (1), which fasten the suspension spring to the axle. Check play of bearings.

Scheme 2



If the play is excessive, dismount the hub cover (2) and remove the cotter pin (4) of the crown nut (3).

Scheme 3



While turning the wheel screw the crown nut tight until the wheel stops. Unscrew the nut by 1/3 of turn until the next cotter pin groove will be aligned with the opening in the pivot.

Scheme 4



Secure the nut (3) with the cotter pin (4) and mount the hub cover (2). The wheel should turn smooth, without stops and perceptible resistance, which do not result from rubbing between brake shoes and the drum.

5.2 ADJUSTMENT OF BRAKES

The brakes should be adjusted if:

- excessive play between shoe and drum appears due to wear of brake shoes; braking efficiency falls down
- Brakes operate uneven and not simultaneously.

If brakes are adjusted properly braking of both wheels should take place in the same moment.

Adjustment of brakes consists in adjustment of position of the brake cam arm (1) (Fig. 11) in relation to the cam shaft (2). For this purpose loose the nut (4) and change position of the arm on the multi-groove end of the shaft (2) towards proper direction i.e.:

- backward if the brake brakes to late
- forward if the brake brakes to soon

Perform adjustment separately for each wheel. After proper brake adjustment cam arms should form the angle of 90° in relation to pneumatic cylinder push rod whilst the braking power is greatest. Parking brake should be adjusted if the brake cable is excessively stretched or if cable clamps are loosened. Cable length should be matched so that by fully loosened parking and working brakes the cable would be loose and hang down by $1 \div 2$ cm.



- Fig. 8 Brake adjustment elements
- 1 brake cam arm, 2 brake cam shaft, 3 securing screw, 4 nut

CAUTION!

With properly adjusted brakes the braking force should be not lower than values given in the Table 4.

Table 4.Braking force.

Trailer type	Main brake braking force (kN)	Parking brake braking force (kN)
T653	17,9	10,7
T653/1	21,4	12,8
T653/2	24,4	14,7

Difference between left and right wheel braking forces must not exceed 30% with assumption that the "100%" means the greater force.



CAUTION!

The trailer braking power is the sum of braking forces of both wheels.

5.3 MAINTENANCE OF PNEUMATIC SYSTEM

In the scope of maintenance operations it is necessary to perform inspection of pneumatic system tightness, especially at all connections. Tightness test should be executed with system pressure rated at ca. 600 kPa (6,0 kg/cm2).

If conduits, sealings or other elements of the system are damaged, air will get out in points of damage with typical hiss or – in the case of small leakage – in the form of small air bubbles. Small leakage can be detected with soap water or washing agent. Damaged sealings or conduits replace with new ones. If the reason of leakage is the damaged pneumatic cylinder – regenerate it.

Periodically remove condensed water from the air tank. For this purpose pull out the drain valve arbour located in the upper part of the tank. Compressed air will push the water out. After loosening the arbor the valve should close automatically and stop airflow from the tank.

Once a year just before the winter unscrew the drain valve and clean it from accumulated dirt.

5.4 MAINTENANCE OF HYDRAULIC SYSTEM

It is necessary to take as the principle that the oil in the trailer hydraulic system and the oil in the external tractor hydraulic system is of the same type. Application of different oil types is prohibited.

New trailers are filled with HL32 hydraulic oil.

The hydraulic system of the trailer should be absolutely tight. Test of tightens consists in coupling of the trailer with a tractor, activation of the hydraulic cylinder and keeping it in its maximally pulled out position for 30 s.

If oil leaks at connections of hydraulic conduits, screw the connection tightly; if leakage persists – replace the conduit or the connector with a new one. If oil leaks between connections, replace the damaged conduit. Each mechanical damage requires replacement of damaged element.

If the body of the hydraulic cylinder is polluted with oil check the reason of leakage.

While the cylinders are entirely pulled out check all sealings. Small leakage of "sweating off" type are admissible; if drops of oil are observed – stop the operation and repair the failure.



CAUTION!

Operation of the trailer with leaky tilting hydraulic system is prohibited.

It is prohibited to operate a trailer with lengthened (in relation to manufacturer's adjustment) rope controlling the cut-off valve (9) (Fig. 4, "Hydraulic system of the load crate tilting system")



CAUTION!

Condition of the hydraulic system should be checked all time during trailer's operation.

If the hydraulic systems is used very intensively (great number of tilts) replace hydraulic conduits every 4 years.

5.5 LUBRICATION

The trailer should be lubricated in points shown on fig. 9, and described in the Table 5 "Lubrication points of the trailer".



Fig. 9 Trailer lubrication points

Table 5.	Trailer	lubrication	points
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No. at fig. 9	Lubrication point	Number of points	Grease type	Frequency & method of lubrication
1	Suspension spring bolts	4	solid	every 3-4 months
2	Hitch rod bolts	2	solid	every 3-4 months
3	Racer	2	solid	every 3-4 months
4	Seats of load crate	4	solid	every 2 months cover surfaces with fresh grease
5	Suspension spring slide surfaces	4	solid	every 3-4 months
6	Parking brake screw	1	solid	every 3-4 months
7	Upper ball articulation of the cylinder	1	solid	every 6 months
8	Bolts of mounting of the hydraulic cylinder	4	solid	every 6 months cover bolts with fresh grease
9	Cam shaft sleeves	4	solid	every 6 months
10	Wheel bearings	4	solid	Replace grease every 2 years
11	Load crate wall locks	12	oil	once a month
12	Superstructure hinges	10	solid	once a month cover bolts with fresh grease
13	Chute guide	2	solid	every 3-4 months cover with very thin layer of grease

5.6 MAINTENANCE OF SUSPENSION SPRINGS

Maintenance of suspension springs consists in periodical lubrication in points given in the Table 6 and inspection of condition of suspension spring leafs.

Suspension spring leafs should be covered with thin layer of grease. Avoid accumulation of dried mud layer on suspension springs.



CAUTION!

In the case of break of a spring leaf in any suspension spring stop operating the trailer and remove the failure.

DOUBLE-AXLE AGRICULTURAL TRAILER THREE-SIDE DUMPER

T653 T653/1 T653/2

SPARE PARTS CATALOGUE



Fig. 10 Double-axle trailer (front- and rearview)



Fig11 Double-axle trailer (side view)



Fig. 12 Double-axle trailer (up view)

	Pic. 10,11,12	ic. 10,11,12 Catalogue No. or		Quantity (pcs.)		
NO.	Part name	norm no.	T653	T653/1	T653/2	
1	Lower frame complet.	29RPN-01.00.000	1	1	1	
2	Upper frame	29RPN-02.00.000	1	1	1	
3	Racer frame	29RPN-03.00.000	1	1	1	
4	Shaft (standard equipment., solid tie)	29RPN-04.00.000	1	1	1	
5	Front wall	29RPN-05.00.000	1	1	1	
6	Rear wall complet.	29RPN-06.00.000	1	1	1	
7	Side wall	29RPN-07.00.000	2	2	2	
10	Electrical system	29RPN-10.00.000	1	1	1	
11	Pneumatic system	29RPN-11.00.000-01	1	1	-	
12	Pneumatic system	29RPN-11.00.000-02	-	-	1	
13	Hand-brake	29RPN-12.00.000	1	1	1	
14	Hydraulic system	29RPN-13.00.000-01	1	1	-	
15	Hydraulic system	29RPN-13.00.000-02	-	-	1	
16	Side-walls complet.	29RPN-14.00.000	-	1	1	
17	Real clinch	29RPN-00.01.000	-	-	1	
18	Rear lock	29RPN-00.02.000	1	1	1	
19	Left stake	29RPN-00.03.000	1	1	1	
20	Right stake	29RPN-00.04.000	1	1	1	
21	Line Disconnection mechanism	29RPN-00.05.000	2	4	4	
22	Upper spring board complet.	29RPN-00.06.000	4	4	4	
23	Pin complet.	29RPN-00.07.000	6	6	6	
24	Support	29RPN-00.08.000	1	1	1	
25	Attaching line	29RPN-00.09.000	1	2	2	
26	Lower ladder	29RPN-00.12.000	-	1	1	
27	Upper ladder	29RPN-00.13.000	-	1	1	
28	Tipper pin complet.	29RPN-00.15.000	4	4	4	
29	Wheel complet.	29RPN-00.16.000	4 (5)*	-	-	
30	Wheel complet.	29RPN-00.17.000	-	4 (5)*	-	
31	Wheel complet.	29RPN-00.18.000	-	-	4 (5)*	
32	Spare wheel hanger complet.	29RPN-00.19.000	1*	1*	1*	
33	Check complet. R2K6	29RPN-00.00.100	4	-	-	
34	Check complet. R2K30	29RPN-00.00.200	-	4	4	
35	Tie complet.	29RPN-00.00.300	2	2	2	
36	Racer	29RPN-00.00.600	1	1	1	
37	Leaf spring	29RPN-00.00.700	4	4	4	
38	Shaft ladder	29RPN-00.00.900	-	1	1	
39	Spring	29RPN-00.00.001	1	1	1	
40	Spring pin	29RPN-00.00.007	4	4	4	
41	Yoke bolt	29RPN-00.00.008	8	8	8	
42	Support pin	29RPN-00.00.009	1	1	1	
43	Stake cover	29RPN-00.00.010	2	2	2	
44	Rating plate	29RPN-00.00.011	1	1	1	
45	Informational sticker I	29RPN-00.00.012	1	1	1	
46	Sticker T653	29RPN-00.00.013	2	-	-	

Na	Pic. 10,11,12	Catalogue No. or	Qua	antity (p	cs.)
NO.	Part name	norm no.	T653	T653/1	T653/2
47	Sticker T653/1	29RPN-00.00.014	-	2	-
48	Sticker T653/2	29RPN-00.00.015	-	-	2
49	Capacity sticker 4000 kg	29RPN-00.00.016	2	-	-
50	Capacity sticker 5000 kg	29RPN-00.00.017	-	2	-
51	Capacity sticker 6000 kg	29RPN-00.00.018	-	-	2
52	Sticker 390 kPa	29RPN-00.00.019	4	-	-
53	Sticker 340 kPa	29RPN-00.00.020	-	4	-
54	Sticker 410 kPa	29RPN-00.00.021	-	-	4
55	Informational sticker II	29RPN-00.00.022	1	1	1
56	Sticker 1 2	29RPN-00.00.023	_	-	1
57	Informational sticker III	29RPN-00.00.024	1	1	1
58	Rectangular reflective self-adhesive white DOB35		2	2	2
59	Rectangular reflective self-adhesive yellow DOB35		4	4	4
60	Reflection triangle DOB31		2	2	2
61	Board distinguishing slow-running vehicles		1*	1*	1*
62	Cover IKP45		1	1	1
63	Black peg EPDM typ 1 SR1089	461534	30	30	30
64	Broadbench EB 20-010 zinc		-	1	1
65	Stretcher M12 S.11076		1	1	1
66	Rivet 3x8 P AI./Fe	PN-83/M-82971	4	4	4
67	Cotter 4x50 S-Zn	PN-76/M-82001	6	6	6
68	Cotter 4x32 S-Zn	PN-76/M-82001	10	10	10
69	Bolt M20x65-10.9-B-Fe/Zn	PN-85/M-82105	-	-	2
70	Bolt M16x45-8.8-B-Fe/Zn	PN-85/M-82105	17	17	17
71	Bolt M10x30-8.8-B-Fe/Zn	PN-85/M-82105	4	4	4
72	Bolt M8x25-8.8-B-Fe/Zn	PN-85/M-82105	-	44	44
73	Screw M5x20-4.8-B-Fe/Zn5	PN-85/M-82215	4	4	4
74	Cap M20-10-B-Fe/Zn5	PN-86/M-82144	-	-	4
75	Corona cap M20-5-C-Fe/Zn5	PN-86/M-82148	6	6	6
76	Cap M20x1.5-5-B-Fe/Zn5	PN-86/M-82144	32	32	32
77	Cap M16-8-B-Fe/Zn5	PN-85/M-82175	17	17	17
78	Cap M10-5-B-Fe/Zn5	PN-86/M-82144	4	4	4
79	Cap M8-5-B-Fe/Zn5	PN-86/M-82144	-	10	10
80	Cap M5-5-B-Fe/Zn5	PN-86/M-82144	4	4	4
81	Gib pad 18	PN-79/M-82018	6	6	6
82	Pad 21-Fe/Zn5	PN-78/M-82005	8	8	8
83	Pad 17-Fe/Zn5	PN-76/M-82005	25	25	25
84	Pad 10.5-Fe/Zn5	PN-86/M-82030	4	4	4
85	Pad 8.5-Fe/Zn	PN-86/M-82030	-	34	34
86	Pad 8.4-Fe/Zn5	PN-78/M-82005	-	10	10
87	Pad Z 10.2-Fe/Zn5	PN-77/M-82008	4	4	4
88	Pad Z 8.2-Fe/Zn5	PN-77/M-82008	-	44	44

No.	Pic. 10,11,12	Catalogue No. or	Qua	antity (p	cs.)
	Part name	norm no.	T653	T653/1	T653/2
89	Pad Z 5.1-Fe/Zn5	PN-77/M-82008	4	4	4
90	Cautionary reflective triangle		1*	1*	1*

*- special equipment



Fig.13 Lower frame

No	Pic. 13	Catalogue number or norm	Quantity
NO.	Part name	number	(pcs.)
	Lower frame complet.	29RPN-01.00.000	1
1	Pad	29RPN-00.00.002	4
2	Bolt M12x85-5.8-B-Fe/Zn5	PN-85/M-82101	2
3	Bolt M8x30-5.8-B-Fe/Zn5	PN-85/M-82105	8
4	Cap M12-5-B-Fe/Zn5	PN-85/M-82175	2
5	Cap M8-5-B-Fe/Zn5	PN-86/M-82144	8
6	Pad 8.5 Fe/Zn5	PN-78/M-82005	8
7	Pad spr. Z8.2 Fe/Zn5	PN-77/M-82008	8



Fig. 14 Shaft (custom order, rotation tie)

No.	Pic. 14	Catalogue number or norm	Quantity
	Part name	number	(pcs.)
	Rotation shaft complet.	29RPN-15.00.0000	1
1	Rotation tie	37RPN-18.00.001	1
3	Corona cap ZM36x3-6-B	PN-86/M-82148	1
4	Pad	29RPN-15.00.004	1
5	Cotter S-Zn 6.3x71	PN-76/M-82001	1



Fig. 15 Rear wall

No	Pic. 15	Catalogue number or norm	Quantity
NO.	Part name	number	(pcs.)
1	Rear wall	29RPN-06.01.000	1
2	Blot complet.	29RPN-06.02.000	1
3	Lever	29RPN-06.03.000	1
4	Tie	29RPN-06.04.000	2
5	Pad 21 Fe/Zn5	PN-78/M-82005	2
6	Pad 13 Fe/Zn5	PN-78/M-82005	6
7	Cotter S-Zn 5x28	PN-76/M-82001	2
8	Cotter S-Zn 3.2x16	PN-76/M-82001	4



Fig. 16 Driving axle

No	Pic. 16	Catalogue number or norm	Quantity
NO.	Part name	number	(pcs.)
	Driving axle complet.	44.00	1
1	Bearing outer	44.01	2
2	Bearing inner	44.02	2
3	Ring	44.03	2
4	Corona cap	44.04	2
5	Cover	44.05	2
6	Pin	44.06	12
7	Cap M18x1,5	44.07	12
8	Pad	44.08	12
9	Brake clamp with lining	44.09	4
10	Front spring	44.10	2
11	Rear spring	44.11	2
12	Pin	44.12	2
13	Left expander	44.13	1
14	Right expander	44.14	1
15	Brake lever	44.15	2
16	Cross-bar	44.16	1
17	Hub-drum	44.17	2

Caution: Listed quantities refer to one driving axle. When purchasing the axle or spare parts for axle it is necessary to provide trailers factory number, trailer's type and axle's type which are given on the rating plate.



Fig.17 Electrical system

No	Pic.17	Catalogue number and norm	Quantity
NO.	Part name	number	(pcs)
1	Rear bar complet	29RPN-10.01.000	1
2	Central loom	29RPN-10.02.00	1
3	Front loom	29RPN-10.03.00	1
4	Rear loom	29RPN-10.04.00	1
5	Link cable	29RPN-10.05.00	1
6	Lightning bar distance	29RPN-10.00.001	4
7	Socket GN-7 (X7)	8JB001941-002	2
8	7-polead	006004.60	2
9	Screw M5x35-5.8 Fe/Zn5	PN/M-82207	6
10	Pad 5,1 Fe/Zn9	PN/M-82208	4
11	Pad 5,3 Fe/Zn5	PN/M-82205	4
12	Cap M5-8-Fe/Zn5	PN/M-82144	4
13	Lamp. LT-120		2
14	Lampa front pos. LO-110PP		2
15	Lamp rear grouped WE 549L		1
16	Lampa rear grouped WE 549P		1
17	Bulb C5W-SV8,5		4
18	Fitting 20x22		1
19	Bolt M5x25-B-5,8 Fe/Zn5	PN/M-82105	4
20	Grip 4,5x160	AC RZ-46KT	4
21	Bolt M10x35-8-Fe/Zn5	PN/M-82105	4
22	Cap M10-8-Fe/Zn5	PN/M-82144	4
23	Pad spr. 10,2 Fe/Zn5	PN/M-82008	4
24	Pad 10,5 Fe/Zn5	PN/M-82005	8



Na	Pic.18, 19, 20	Catalogue number	Quantity (pcs)		
NO.	Part name	or norm number	T653	T653/1	T653/2
1	Air tank 20I	29RPN-11.01.000	1	1	1
2	Cable O-O 1800	29RPN-11.02.000	1	1	1
3	Cable O-W 4300	29RPN-11.03.000	-	-	1
4	Cable O-W 3400	29RPN-11.04.000	1	1	1
5	Cable O-W 1200	29RPN-11.05.000	-	-	1
6	Cable O-W 600	29RPN-11.06.000	1	1	1
7	Cable W-W 1000	29RPN-11.07.000	1	1	-
8	Cable W-W 700	29RPN-11.08.000	1	1	1
9	Cable Z-Z 2300	29RPN-11.09.000	1	1	1
10	Bolt	29RPN-11.00.001	-	-	1
11	Stopper	29RPN-11.00.002	1	1	-
12	Joint	29RPN-11.00.003	1	1	1
13	Pin	29RPN-11.00.004	1	1	1
14	Band	29RPN-00 14 000	2	2	2
15	Long joint	6RPN-01 00 06		-	1
16	Bolt	6RPN-01 00 10	4	4	5
17	Short joint	6RPN-01 00 11	3	3	1
18	Servo-motor pneumat	$\emptyset 100x53.22.00/A$	2	2	2
19	Control valve 44.11.011.0		1	1	1
20	Braking power regulator	61.11.012.0	-	-	1
21	Cable junction 87.30.010.0		1	1	1
22	Cable junction 87.30.011.0		-	-	1
23	Dehydrating valve 83.10.012.0		1	1	1
24	Control junction 88.10.011.0		-	-	1
25	Filter 81.01.010.0		1	1	1
26	Band RIBENCLIP 22		6	6	10
27	Band S.6327		1	1	1
28	Pad 27/22/2		15	15	18
29	Pad 20/12.5/2		6	6	6
30	Cotter S-Zn 3.2x25	PN-76/M-82001	2	2	2
31	Ring Ø20x5	PN-64/M-73093	-	-	1
32	Screw \emptyset 5 5x19	DIN-7504-K	3	3	6
33	Bolt M12x30-5.8-B-Fe/Zn5	PN-85/M-82105	8	8	8
34	Bolt M10x35-5.8-B-Fe/Zn5	PN-85/M-82105	2	2	2
35	Bolt M8x30-5 8-B-Fe/Zn5	PN-85/M-82105		_	2
36	Bolt M6x16-5 8-B-Fe/Zn5	PN-85/M-82105	3	3	3
37	Cap M22x1.5-04-B-Fe/Zn5	PN-86/M-82153	-	-	1
38	Cap M12-5-B-Fe/Zn5	PN-86/M-82144	8	8	8
39	Cap M10-5-B-Fe/Zn5	PN-86/M-82144	6	6	6
40	Cap M8-5-B-Fe/Zn5	PN-86/M-82144	-	-	2
41	Cap M6-5-B-Fe/Zn5	PN-86/M-82144	3	3	3
42	Pad 12 5-Fe/Zn5	PN-78/M-82005	10	10	10
43	Pad 710 2-Ee/7n5	PN-77/M-82008	6	6	6
44	Pad 8 4-Fe/Zn5	PN-78/M-82005	-	-	2
45	Pad 6 4-Fe/Zn5	PN-78/M-82005	3	3	3
46	Pad 712 2-Fe/7n5	PN-77/M-82008	8	8	8
47	Pad 78 2-Fe/7n5	PN-77/M-82008	-	-	2
48	Pad 76 1-Fe/7n5	PN-77/M-82008	3	3	3
			5	5	5



Fig.19 Pneumatic system

Na	Pic.18, 19, 20	Catalogue number	Quantity (pcs)		
NO.	Part name	or norm number	T653	T653/1	T653/2
1	Air tank 20I	29RPN-11.01.000	1	1	1
2	Cable O-O 1800	29RPN-11.02.000	1	1	1
3	Cable O-W 4300	29RPN-11.03.000	-	-	1
4	Cable O-W 3400	29RPN-11.04.000	1	1	1
5	Cable O-W 1200	29RPN-11.05.000	-	-	1
6	Cable O-W 600	29RPN-11.06.000	1	1	1
7	Cable W-W 1000	29RPN-11.07.000	1	1	-
8	Cable W-W 700	29RPN-11.08.000	1	1	1
9	Cable Z-Z 2300	29RPN-11.09.000	1	1	1
10	Bolt	29RPN-11.00.001	-	-	1
11	Stopper	29RPN-11.00.002	1	1	-
12	Joint	29RPN-11.00.003	1	1	1
13	Pin	29RPN-11.00.004	1	1	1
14	Band	29RPN-00.14.000	2	2	2
15	Junction	6RPN-01.00.06	-	-	1
16	Bolt	6RPN-01.00.10	4	4	5
17	Junction	6RPN-01.00.11	3	3	1
18	Servo-motor pneumat.	Ø100x53.22.00/A	2	2	2
19	Control valve 44,11,011,0		1	1	1
20	Braking power regulator	61.11.012.0	_	_	1
21	Cable joint 87.30.010.0		1	1	1
22	Cable joint 87.30.011.0		_	_	1
23	Dehydrating valve 83.10.012.0		1	1	1
24	Control joint 88.10.011.0		-	_	1
25	Filter 81.01.010.0		1	1	1
26	Band RIBENCLIP 22		6	6	10
27	Band S.6327		1	1	1
28	Pad 27/22/2		15	15	18
29	Pad 20/12.5/2		6	6	6
30	Cotter S-Zn 3.2x25	PN-76/M-82001	2	2	2
31	Ring Ø20x5	PN-64/M-73093	-	-	1
32	Screw Ø5.5x19	DIN-7504-K	3	3	6
33	Bolt M12x30-5.8-B-Fe/Zn5	PN-85/M-82105	8	8	8
34	Bolt M10x35-5.8-B-Fe/Zn5	PN-85/M-82105	2	2	2
35	Bolt M8x30-5.8-B-Fe/Zn5	PN-85/M-82105	-	-	2
36	Bolt M6x16-5.8-B-Fe/Zn5	PN-85/M-82105	3	3	3
37	Cap M22x1.5-04-B-Fe/Zn5	PN-86/M-82153	-	-	1
38	Cap M12-5-B-Fe/Zn5	PN-86/M-82144	8	8	8
39	Cap M10-5-B-Fe/Zn5	PN-86/M-82144	6	6	6
40	Cap M8-5-B-Fe/Zn5	PN-86/M-82144	-	-	2
41	Cap M6-5-B-Fe/Zn5	PN-86/M-82144	3	3	3
42	Pad 12.5-Fe/Zn5	PN-78/M-82005	10	10	10
43	Pad Z10.2-Fe/Zn5	PN-77/M-82008	6	6	6
44	Pad 8.4-Fe/Zn5	PN-78/M-82005	-	-	2
45	Pad 6.4-Fe/Zn5	PN-78/M-82005	3	3	3
46	Pad Z12.2-Fe/Zn5	PN-77/M-82008	8	8	8
47	Pad Z8.2-Fe/Zn5	PN-77/M-82008	-	-	2
48	Pad Z6.1-Fe/Zn5	PN-77/M-82008	3	3	3



Fig. 20 Pneumatic system

Na	Pic.18, 19, 20	Catalogue number		Quantity (pcs)		
NO.	Part name	or norm number	T653	T653/1	T653/2	
1	Tank pow.20I	29RPN-11.01.000	1	1	1	
2	Cable O-O 1800	29RPN-11.02.000	1	1	1	
3	Cable O-W 4300	29RPN-11.03.000	-	-	1	
4	Cable O-W 3400	29RPN-11.04.000	1	1	1	
5	Cable O-W 1200	29RPN-11.05.000	-	-	1	
6	Cable O-W 600	29RPN-11.06.000	1	1	1	
7	Cable W-W 1000	29RPN-11.07.000	1	1	-	
8	Cable W-W 700	29RPN-11.08.000	1	1	1	
9	Cable Z-Z 2300	29RPN-11.09.000	1	1	1	
10	Bolt	29RPN-11.00.001	-	-	1	
11	Stopper	29RPN-11.00.002	1	1	-	
12	Joint	29RPN-11.00.003	1	1	1	
13	Pin	29RPN-11.00.004	1	1	1	
14	Band	29RPN-00.14.000	2	2	2	
15	Junction	6RPN-01.00.06	-	-	1	
16	Bolt	6RPN-01.00.10	4	4	5	
17	Junction	6RPN-01.00.11	3	3	1	
18	Servo-motor pneumat.	Ø100x53.22.00/A	2	2	2	
19	Control valve 44 11 011 0		1	1	1	
20	Braking power regulator	61 11 012 0	-	_	1	
21	Cables joint 87 30 010 0	01.11.012.0	1	1	1	
22	Cables joint 87 30 011 0		-	_	1	
23	Dehydrating valve 83 10 012 0		1	1	1	
24	Control joint 88 10 011 0			-	1	
25	Filtr 81 01 010 0		1	1	1	
26	Band RIBENCLIP 22		6	6	10	
27	Band S 6327		1	1	1	
28	Pad 27/22/2		15	15	18	
29	Pad 20/12 5/2		6	6	6	
30	Cotter S-Zn 3.2x25	PN-76/M-82001	2	2	2	
31	$\operatorname{Ring} \emptyset 20x5$	PN-64/M-73093	-	-	1	
32	Screw \emptyset 5 5x19	DIN-7504-K	3	3	6	
33	Bolt M12x30-5.8-B-Fe/Zn5	PN-85/M-82105	8	8	8	
34	Bolt M10x35-5.8-B-Fe/Zn5	PN-85/M-82105	2	2	2	
35	Bolt M8x30-5 8-B-Fe/Zn5	PN-85/M-82105		_	2	
36	Bolt M6x16-5 8-B-Fe/Zn5	PN-85/M-82105	3	3	3	
37	Cap M22x1 5-04-B-Fe/Zn5	PN-86/M-82153	-	-	1	
38	Cap M12-5-B-Fe/Zn5	PN-86/M-82144	8	8	8	
39	Cap M10-5-B-Fe/Zn5	PN-86/M-82144	6	6	6	
40	Cap M8-5-B-Fe/Zn5	PN-86/M-82144	-	-	2	
41	Cap M6-5-B-Fe/Zn5	PN-86/M-82144	3	3	3	
42	Pad 12 5-Fe/Zn5	PN-78/M-82005	10	10	10	
43	Pad Z10.2-Fe/Zn5	PN-77/M-82008	6	6	6	
44	Pad 8.4-Fe/Zn5	PN-78/M-82005	-	-	2	
45	Pad 6.4-Fe/Zn5	PN-78/M-82005	3	3	3	
46	Pad Z12.2-Fe/Zn5	PN-77/M-82008	8	8	8	
47	Pad Z8.2-Fe/Zn5	PN-77/M-82008	-	-	2	
48	Pad Z6.1-Fe/Zn5	PN-77/M-82008	3	3	3	
				1	1	



Fig. 21 Hydraulic system

Na	Pic.21	Catalogue number	Qua	ntity (po	cs)
NO.	Part name	or norm number	T653	T653/1	T653/2
1	Cable DN13 H17.8 H2.12 3100	29RPN-13.01.000	-	-	1
2	Cable DN13 H17.8 H2.12 750	29RPN-13.02.000	1	1	1
3	Cable DN13 H2.12 H4.13 4200	29RPN-13.03.000	1	1	-
4	Cable DN13 H2.12 H4.13 1200	29RPN-13.04.000	-	-	2
5	Cable DN13 H17.8 H4.13 750	29RPN-13.05.000	1	1	1
6	Pipe 1	29RPN-13.06.000	-	-	1
7	Pipe 2	29RPN-13.07.000	1	1	1
8	Wheel	29RPN-13.00.001	1	1	1
9	Wheel axle	29RPN-13.00.002	2	2	2
10	Hydraulic valve	29RPN-13.00.003	-	-	1
11	Joint body	12RPN-18.00.02	1	1	1
12	Quickconnector – plug	ZSR32-W01	1	1	1
13	Quickconnector – socket	ZSR32-G01L	-	-	1
14	Plug socket	ZSR5-160-13/300	-	-	1
15	Cylinder tel. CT-S224-16-60/4/1300		1	1	1
16	Zawiesie ZCT-105		1	1	1
17	Bearing 55 ŁK-55/0.00		1	1	1
18	Valve Pister	HBKH-15L-DN13	1	1	1
		456.01.120			
19	Cauche A6 oc	PN-66/M-80247	1	1	1
20	Grip 6.5 oc	PN-73/M-80241	4	4	4
21	Line Ø5.5 T6x37+Ao I=1600		1	1	1
22	Thermoretractive PBF 12/6 I=330	PN-89/C-89209	2	2	2
23	Band RIBENCLIP 22		3	3	3
24	Band RIBENCLIP 16		3	3	6
25	Cotter S-Zn 4x32	PN-76/M-82001	4	4	4
26	Pad 27/22/2		1	1	1
27	Screw Ø5.5x19	DIN-7504-K	6	6	9
28	Bolt M6x45-5.8-B-Fe/Zn5	PN-85/M-82101	2	2	4
29	Bolt M12x35-8.8-B-Fe/Zn5	PN-85/M-82105	4	4	4
30	Bolt M6x16-5.8-B-Fe/Zn5	PN-85/M-82105	3	3	3
31	Cap M22x1.5-04-B-Fe/Zn5	PN-86/M-82153	-	-	1
32	Cap M5-5-B-Fe/Zn5	PN-86/M-82144	8	8	8
33	Cap M6-5-B-Fe/Zn5	PN-86/M-82144	3	3	3
34	Pad 17 Fe/Zn5	PN-78/M-82005	4	4	4
35	Pad Z 12.2-Fe/Zn5	PN-78/M-82008	4	4	4
36	Pad 6.4-Fe/Zn5	PN-78/M-82005	5	5	7
37	Pad Z6.1-Fe/Zn5	PN-77/M-82008	5	5	7



Fig 22. Hand brake

No	Pic.22	Catalogue number or part	Quantity
NO.	Part name	number	(pcs)
1	Brake mechanism	29RPN-12.01.000	1
2	Pin	29RPN-12.00.001	1
3	Line clinch	29RPN-01.00.018	1
4	Line wheel	29RPN-13.00.001	1
5	Bolt sheckle S.2768	SPAREX	1
6	Cauche A6 oc	PN-66/M-80247	2
7	Grip 6.5 oc	PN-73/M-80241	4
8	Line Ø5.5 T6x37 + Ao I=1360mm		1
9	Pad 17 Fe/Zn5	PN-78/M-82005	1
10	Cotter S-ZN-4x40	PN-76/M-82001	3
11	Cap M5-5-B Fe/Zn5	PN-86/M-82144	8
12	Thermoretractive pipe PBF 12/6	PN-89/C-89209	2





Fig. 2	23 Bra	ke mec	hanism
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No	Pic.23	Catalogue number or part	Quantity
NO.	Part name	number	(pcs)
1	Crank complet.	29RPN-12.01.100	1
2	Tie complet.	29RPN-12.01.200	1
3	Bolt complet.	29RPN-12.01.300	1
4	Cover complet.	29RPN-12.01.400	1
5	Body	29RPN-12.01.001	1
6	Сар	29RPN-12.01.002	1
7	Cover	29RPN-12.01.003	1
8	Spring	29RPN-12.01.004	1
9	Funnel	29RPN-12.01.005	1
10	Pad 17	PN-78/M-82005	1
11	Pad 6.4	PN-78/M-82005	1
12	Corona cap. K M16-5-C-Fe/Zn5	PN-86/M-82148	1
13	Peg 6x24	PN-89/M-85023	1
14	Greaser M6	PN-79/M-86002	1
15	Cotter S-Zn 4x32	PN-76/M-82001	1



Fig. 24 Check R2K6

No.	Pic.24	Catalogue number or part	Quantity
	Part name	number	(pcs)
1	Rubber spring R2K6	29RPN-00.00.005	1
2	Distance funnel	29RPN-00.00.101	1
3	Pad	29RPN-00.00.102	1
4	Bolt M12x40-8.8-B Fe/Zn5	PN-87/M-82302	1
5	Cap M12-8-B Fe/Zn5	PN-86/M-82144	1
6	Pad Z12.5 Fe/Zn5	PN-77/M-82008	1



Fig. 25 Receiver R2K30

No	Pic.25	Catalogue number or part	Quantity
NO.	Part name	number	(pcs)
1	Ribbon spring R2K30	29RPN-00.00.004	1
2	Distance funnel	29RPN-00.00.201	1
3	Pad	29RPN-00.00.202	1
4	Bolt M12x45-8.8-B Fe/Zn5	PN-87/M-82302	1
5	Cap M12-8-B Fe/Zn5	PN-86/M-82144	1
6	Pad Z12.5 Fe/Zn5	PN-77/M-82008	1



Fig. 26 Tie.

No	Pic.26	Catalogue number or part	Quantity
NO.	Part name	number	(pcs)
1	Left bolt	29RPN-00.00.301	1
2	Right bolt	29RPN-00.00.302	1
3	Threaded funnel	29RPN-00.00.303	1
4	Cap M16-05-B-Fe/Zn5	PN-86/M-82153	1
5	Stud 10x25	PN-89/M-85023	2



Fig. 27 Shaft ladder

No.	Pic.27	Catalogue number or part	Quantity
	Part name	number	(pcs)
1	Shaft ladder complet.	29RPN-00.00.900	1
2	Mounting plate	29RPN-00.00.902	2
4	Cover IK22	IK22	4
5	Bolt M8x80-5.8-B-Fe/Zn5	PN-85/M-82101	4
6	Cap M8-5-B-Fe/Zn5	PN-86/M-82144	4
7	Spring pad Z8.2-Fe/Zn5	PN-77/M-82008	4



Fig.28 Rear clinch

No	Pic.28	Catalogue number or norm	Quantity
NO.	Part name	number	(pcs)
1	Clinch body	29RPN-00.01.100	1
2	Pin complet.	29RPN-00.01.200	1
3	Cotter 5x11	PN-ISO 7072	1
4	Chain L=250 mm		1
5	Wheel I	29RPN-14.06.203	1
6	Wheel II	29RPN-14.06.204	1
7	Cotter S-Zn-3.2x25	PN-76/M-82001	1



Fig. 29 Rear lock

No	Pic.29	Catalogue number or	Quantity
INO.	Part name	norm number	(pcs)
1	Tie complet.	29RPN-00.00.300	1
2	Link	29RPN-00.02.001	1
3	Lever	29RPN-00.02.002	1
4	Peg 10x25	PN-89/M-85023	1
5	Cap M16-6-B Fe/Zn5	PN-85/M-82175	1
6	Pad 17 Fe/Zn5	PN-78/M-82005	1



Fig. 30 Left and right stake

No	Pic.30	Catalogue number or norm	Quantity
NO.	Part name	number	(pcs)
1	Right stake complet.	29RPN-00.04.000	1
2	Left stake complet.	29RPN-00.03.000	1
3	Pressure board	29RPN-00.03.001	1
4	Bolt M12x30-8.8-B-Fe/Zn5	PN-85/M-82105	1
5	Pad 12.2 Fe/Zn5	PN-77/M-82008	1

Number of pieces in pos. 3-5 is reffering to 1 (one) stake



Fig. 31 Line disconnection mechanism

No.	Pic.31 Part name	Nr katalogowy lub numer normy	Quantity (pcs)
1	Zaczep linki	29RPN-00.05.100	1
2	Mechanism handle	29RPN-00.05.001	1
3	Cotter 5x110-Fe/Zn5	PN-ISO 7072	1
4	Cap M10-6-B Fe/Zn5	PN-85/M-82175	1
5	Pad 10.5 Fe/Zn5	PN-59/M-82030	1



Fig. 32 Pin

No.	Pic.32	Catalogue number or norm	Quantity
	Part name	number	(pcs)
1	Pin	29RPN-00.07.001	1
2	Greaser M6	PN-76/M-86002	1



Fig. 33 Attaching line

No.	Pic.33	Catalogue number or	Quantity
	Part name	norm number	(pcs)
1	Shackle oc S.4869		2
2	Bracer M8x100 oc. S.11074		1
3	Cauche A6 oc	PN-66/M-80247	1
4	Yoke grip 6.5 oc	PN-73/M-80241	4
5	Line Ø5.5 T6x37 I=1900		1
6	Cap M8-5-B Fe/Zn5	PN-86/M-82144	1
7	Cap M5-5-B Fe/Zn5	PN-86/M-82144	8
8	Thermoretractive pipe PBF 12/6 I=330	PN-89/C-89209	2



Fig. 34 Tipper pin

No.	Pic.34 Part name	Catalogue number or norm number	Quantity (pcs)
1	Pin	29RPN-00.15.100	1
2	Cotter 5x110-Fe/Zn5	PN-ISO 7072	1
3	Chain		1
4	Wheel I	29RPN-14.06.203	1
5	Wheel II	29RPN-14.06.204	1
6	Cotter S-Zn-3.2x25	PN-76/M-82001	1



Fig. 35 Wheel.

No.	Pic.35	Catalogue number	Quantity (pcs)		cs)
	Part name	or norm number	T653	T653/1	T653/2
1	Shielded wheel 9.00x15.3"	153.09.27	1	1	1
2	Tire 10.0/75-15.3 10PR 123A6		1	-	-
3	Tire 11.5/80-15.3 10PR 131A6		-	1	-
4	Tire 11.5/80-15.3 12PR 135A6		-	-	1
5	Inner tube 10.0/75-15.3 with valve TR15		1	-	-
6	Inner tube 11.5/80+12.5/80-15.3 with valve TR15		-	1	1



Fig.36 Spare wheel hanger

No.	Pic.36	Catalogue number or norm	Quantity
	Part name	number	(pcs)
1	Spare wheel hanger	29RPN-00.19.100	1
2	Cap DM 18x1,5-10	PN-88/S-91240/62	2
3	Bolt M8x25-8.8-B-Fe/Zn5	PN-85/M-82105	3
4	Cap M8-8-B-Fe/Zn5	PN-86/M-82144	3
5	Pad Z8.2 Fe/Zn5	PN-77/M-82008	3
6	Pad 8.5 Fe/Zn5	PN-59/M-82030	3



Fig. 37 Side walls complete

No.	Pic.37	Catalogue number or norm	Quantity
	Part name	number	(pcs)
1	Front side wall	29RPN-14.01.000	1
2	Rear side wall	29RPN-14.02.000	1
3	Side side wall	29RPN-14.03.000	2
4	Left stake	29RPN-14.04.000	1
5	Right stake	29RPN-14.05.000	1
6	Lower ear of side wall hinge	29RPN-14.06.000	10
	complet.		
7	Lower ear of side wall hinge	29RPN-14.06.100	10
8	Cotter complet.	29RPN-14.06.200	10
9	Hinge pin	29RPN-14.06.001	10