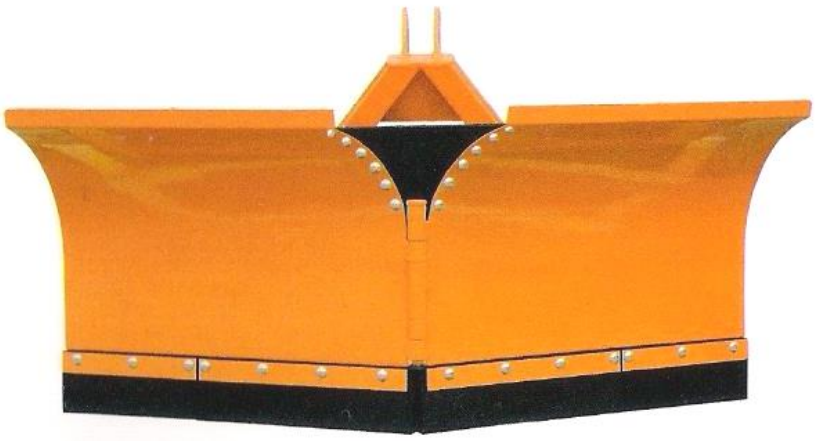
INSTRUCTION MANUAL

SPARE PARTS CATALOGUE

WARRANTY



Variable geometry double-blade wheeled snow plough

PX type

Bytów 2014

Edition 02

NOTE!

Please read this Instruction Manual before you start operating the machine and observe all safety rules contained herein.

The Instruction Manual constitutes the basic equipment of the machine!

Please keep this Instruction Manual in a safe place within easy reach of the user and the operator during the whole period of machine use.

In case this manual is lost or damaged, you should purchase the new copy, by placing an order in the point of sale or at the machine's manufacturer.

In case of the machine is resold or made accessible to a third party, you should enclose the Instruction Manual together with the Declaration of Conformity for the machine.

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1. Introduction

It is strongly recommended to read and understand this Instruction Manual before starting operation of the snow plough and observe all recommendations contained herein.

NOTE!
Read this Instruction Manual
Before starting to operate the snow plough

This Instruction Manual contains descriptions of all risks which may occur when you do not observe safety rules during the snow plough work and operation. In this Instruction Manual safety precautions which should be undertaken in order to minimize or avoid the risks are listed.

This Instruction Manual also contains the rules of proper snow plough use and explains what service procedures connected with it should be made.

If any information given in this Instruction Manual is incomprehensible, please ask directly the manufacturer for an explanation.

NOTE!
This symbol warns about the risk.
This warning symbol indicates an important information given in Instruction Manual concerning to the risk. Please read this information carefully, comply with the instructions and act with due caution.

2. Operating safety rules

2.1 User safety

The snow plough may be operated exclusively by adults who have familiarized themselves with its operation and who have read this Instruction Manual and have suitable qualifications. When operating the snow ploughs you should take all safety precautions, in particular:

- Observe general regulations relating to health and safety at work apart from keeping to the recommendations included in this Instruction Manual.
- Follow the safety instructions of the warning symbols attached to the machine.
- Never permit other persons than the operator to drive the vehicle which works with this snow plough and do not allow other people to stay in the vehicle or on the machine during their operation.
- The snow plough may be operated only by a person who is authorized to drive a vehicle with the plough attached, in accordance with the manufacturer's recommendations.
- The work-stand of the operator during work with the snow plough is the cabin of the vehicle to which the plough is attached.
- Please remember that on this snow plough there are a lot of places which can cause personal injury (sharp edges, protruding construction elements etc.). When operating it you should be particularly careful when you move near the above critical places, and you absolutely must use personal protective equipment, such as:
  - protective clothing,
  - protective gloves,
  - protective shoes
- Transport of people or objects on the snow plough is strictly forbidden.
- Moving and sliding of solid objects other than bulk materials is strictly forbidden. You should absolutely observe the manufacturer's recommendations in this respect.
- It is forbidden to operate the snow plough by unauthorized persons who have not read this Instruction Manual.
- When working with bulk materials other than snow it is necessary to wear protective clothing suitable for the material being pushed and transported, in particular: rubber boots, gloves, coat, cap and half-mask.
- An operator who operates the snow plough outside the working place should be equipped with first-aid-kit containing first aid measures together with instructions of their use.
- In case of poisoning or infection you should immediately contact the physician.
- When you drive the vehicle with the variable geometry plough attached, you should keep safety transport clearance ~0,3 m.

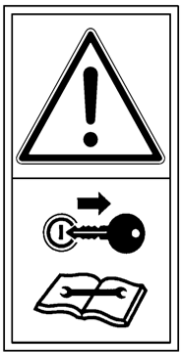
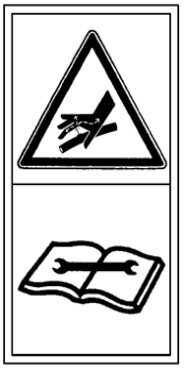
- You should exercise great caution during driving on public roads and observe legally binding traffic regulations.
- During driving on public roads you should absolutely use electric clearance lights, the snow plough is equipped with, and check its working order and visibility, as well as its cleanliness. On the rear part of vehicle, you should place distinguishing triangle plate. On the vehicle cabin's roof [lace warning light device. Reflective light and warning signs placed on the snow plough's construction elements should be kept clean and visible.
- Transport speed should be adjusted to the condition of road surface.
- In order to keep suitable control, the snow plough should be adjusted to the vehicle in accordance with the recommendations of both the vehicle and the plough manufacturers as well as the suspension used. Manufacturer's clamping rules of the snow plough are described in chapter 5.1. Assembly of variable geometry double-blade wheeled snow plough - of this manual.
- Please remember that the load of every axle of the vehicle with the plough attached must not lower than 20% of vehicle's gross weight.
- Never leave the vehicle with the snow plough attached on slopes or other terrain inclinations without protecting it against self-rolling downwards. The plough must be lowered on the ground. You should place wedges under the vehicle wheels.
- The snow plough should be adjusted to work during attaching it to the vehicle. It is permissible to make correction of the plough setting during its operation. it can be made from the vehicle cabin, without leaving the vehicle cabin by the operator.
- Before you start any activity connected with preparation, assembly, disassembly or adjustment you should stop the engine, switch off the drive, make the vehicle immobile and wait until all moving parts of the machine will stop.
- After the first hour of operation you should check the condition of all temporary fastenings, e.g. bolted joints.
- The plough should be stored on flat, even, paved ground in a place inaccessible for unauthorized persons and animals. You should use supporting foot in order to position the plough stably.
- At the time of snow plough assembly and disassembly you should exercise special caution paying attention to construction elements, responsible for clamping with the vehicle.
- Before you start using the snow plough you should check its technical condition as well as the vehicle working with it. The unit consisting of the vehicle and the snow plough must be in good technical condition. Worn or damaged parts should be immediately replaced by the new ones.
- The snow plough must be equipped with all protective shields (if they are provided by the manufacturer), which protect against accessing to movable parts. The protective covers shall be complete and in good working order.

- Before you start working with the snow plough you should familiarize with its functions by reading the user manual, safety at work principles and the recommendations concerning proper operation and adjustment.
- Before you start to work you should know the control elements of the snow plough and its general operating principle.
- The snow plough weight suspended on the vehicle may influence the vehicle's driveability. In such a situation great caution should be exercised.
- Keep this Instruction Manual accessible near the plough. When you loan the snow plough you should hand it over in good working and technical condition along with the Instruction Manual.
- Before you start using the snow plough, you should prepare it in accordance with the recommendations given in section: 5. Device use, assembly of the snow plough.
- Lashing to the snow plough additional transport means is strictly forbidden.
- At the time of first start-up you should check the functioning of the snow plough and make pre-adjustments of it without load.
- Assembly protections of the snow plough bolts, should be only done with the use of typical protection means in the form of cotter pins. Work with other protective means is forbidden.
- On account of natural wear of materials you should obey recommendations described in chapter 6. Service and maintenance procedure steps.
- Before you start to work, you should pay special attention to the condition of the snow plough's hydraulic and electrical systems. The cylinder, hydraulic piping and connections must be tight. Worn or damaged parts should be immediately replaced by the new ones.
- During operation the hydraulic piping is under high pressure. When you connect or disconnect the plough hydraulic system with the vehicle's hydraulic system, the system cannot be under pressure.
- Upon receiving the snow plough check its technical condition, whether it wasn't damaged.
- Staying under the raised snow plough is forbidden, there is a risk of being crushed by construction elements.
- It is forbidden to stay close to the snow plough when it is working.
- While making adjustments don't put fingers and limbs between construction elements of the snow plough.
- Operator of the vehicle which works with the snow plough must pay attention that no one approaches the plough or stays close to it during its operation and adjustments.
- During turning or reversing, manoeuvring with the snow plough, you should ensure suitable visibility for yourself or look for help of a properly trained person.

- It is forbidden for operating personnel to stay between the vehicle and the snow plough when the vehicle engine is operating.
- Work on the slopes exceeding 8% is inadmissible.
- During working on slopes you should act with great caution.
- Pay special attention during vehicle turns and manoeuvres with suspended snow plough, both during transport and while reversing, especially when people, animals or any objects are close to the vehicle.
- A vehicle operating with the snow plough should have a cabin.
- Operator operating the vehicle equipped with the snow plough, should use protective jacket – reflective.
- Never leave the vehicle with the engine operating. Before you leave the driver's seat you should lower the snow plough on the ground, turn off the vehicle engine, take out the ignition key, operate hand, parking brake.
- Do not wear unbuttoned or loose-hanging clothes while working, assembling, disassembling or making adjustments. Keep them away from construction elements as they may be caught by them.
- The snow plough should be disconnected from the vehicle not earlier than after turning the vehicle engine off and taking out the ignition key.
- After finishing work it is recommended to clean and wash the snow plough in washing stand fitted with sewage treatment or sediment trap to neutralize waste water.
- The snow plough should be stored on flat, paved surface under a roof, in places protected against unauthorized persons and animals, and in a way eliminating the risk of accidental injury.
- In case of failure you should immediately disconnect the drive transmitted from the vehicle.
- The snow plough operation by people under an influence of alcohol, drugs or other narcotics is strictly forbidden.
- All service procedures, which need a servicing person to stay near the snow plough should be done only with the plough lowered on the ground and with the vehicle engine turned off.
- The snow plough control is only possible from the operator's cabin of the vehicle to which the plough is connected

Failure to follow the above instructions could cause risk for the operator and unauthorized persons, as well as to damage the snow plough. The user bears responsibility for damages resulting from the lack of observing the above rules.

2.2. Safety signs placed on the snow plough

<table>
<tr>
<td> 
1.0 - Read this Instruction Manual before you start operating the machine</td>
<td>C.2.26
 
1.1 - Turn off the engine and take out the ignition key before starting service works or repairs</td>
<td>A.6.2 + B.2.6
 
1.2.1 – Keep safe distance from the machine. Toes or foot crushing. Force acting from the top.</td>
</tr>
<tr>
<td>C.2.7
 
1.5 - Don't take a seat close to lift links during controlling the lift</td>
<td>C.2.44
 
1.8 - Avoid action of fluid under high pressure. Read the Instruction Manual as regards service procedures</td>
<td> 
2.1 - Pointy of gripping the tractor mower during moving

 
2.5 – Warning about existing pressure in hydraulic circuit</td>
</tr>
<tr>
<td> 
The plate of oversized vehicle informing that buffer beam has width > 2.55m</td>
<td> 
2.3 – Wear protective overall</td>
<td> 
2.4 – Wear protective gloves</td>
</tr>
</table>

2.3. Risks occurring during snow plough operation

Pos. No.	*Risk*	*Source of risk (cause)*	*Precautions*
1	Excessive strain of the motor system (physical strain)	Work in standing, forced bent over position, walking, sliding	Familiarizing with Instruction Manual, training at the work station with a consideration of lifting standards during manual transport works, proper weight lifting techniques, using other person's help, devices which make moving easier e.g. hoist, hoisting winch
2	Falling down on the same level (stumbling, slipping etc.)	Uneven foundation, mess – lying and standing objects, cables lying on communication roads, slippery surfaces	Suitable protective shoes, even ground, focused attention, keeping order, familiarizing with the Instruction Manual

3	Hitting on fixed, protruding machine parts	The machine and its environment	Proper placing of the machine, safe space to move around, proper organization of work, focused attention, familiarizing with the Instruction Manual
4	Hitting by moving objects	Tedded and raked plants, accidental parts of turf, stones, which are thrown out by machine	Focused attention, marking of dangerous zone, ban on moving nearby working machine, wearing personal protective equipment – protective helmet, goggles, familiarizing with the Instruction Manual
5	Sharp, dangerous edges	Protruding machine construction parts, use of manual tools	Personal protective equipment – protective gloves, working uniform buttoned up, focused attention
6	Movable machine parts	Movable machine elements, sliding piston rods of hydraulic cylinders, lack of movable parts shielding	Ban on moving and making adjustments on working machine, exercise great caution, use of movable part covers, familiarizing with the Instruction Manual
7	Suspended and standing machine weight	Improper assembly, aggregation, improper machine positioning, improper operation, leaving suspended machine on tractor	Exercising great caution, using personal protective equipment - safety boots, safety gloves, safe placing of the machine, using other person's help, using jacks, cranes, familiarizing with the Instruction Manual
8	Micro-climate – changeable atmospheric conditions	Work done in differential weather conditions	Appropriate working clothes, drinks, creams with filter, brakes, familiarizing with the Instruction Manual
9	Noise	Too high machine revolutions, damaged, loose vibrating parts	Work with the machine in good working order, routine maintenance of the machine, proper machine revolutions, familiarizing with the Instruction Manual

3. Intended use of the machine

The snow plough PX type is used to clear snow from squares, parking places, roads and all other hardened road and pavement surfaces.

The plough assembly to the vehicle is possible with the use of the following blade fastenings: TUZ I, TUZ II, TUZ III, EURO, SMS, ISO. The fastening system should be chosen in accordance with User Manual of the vehicle and the plough.

The working element of the plough is its plough buffer beam, centrally divided into two parts, fitted with elastic (rubber) scrapping slats. The plough has hydraulic control system which after connecting it enables to control its operation from the vehicle operator's cabin. Construction of the system allows for optimal adjustment of the setting of plough's divided buffer beam through smooth adjustment of angle of each part of buffer beam separately. Basic setting of the plough relative to vehicle driving axis can be done in 5 positions – in accordance with Fig. 2

Meeting the requirements concerning machine use, servicing and repairs in accordance with the manufacturer's recommendations and strict observance of them is the condition of intended use of the machine. The plough should be used, operated and repaired exclusively by the persons who know its characteristics and are familiarized with health and safety at work rules.

The manufacturer has in its offer a wide assortment of snow ploughs. The manufacturer also offers specialist consultancy concerning the choice of suitable equipment for customer's needs.

All cases of lack of clarity concerning the machine intended use, should be cleared with the snow plough manufacturer. Proper choice of the machine and awareness of its intended use will rise safety at work.

4. Machine description

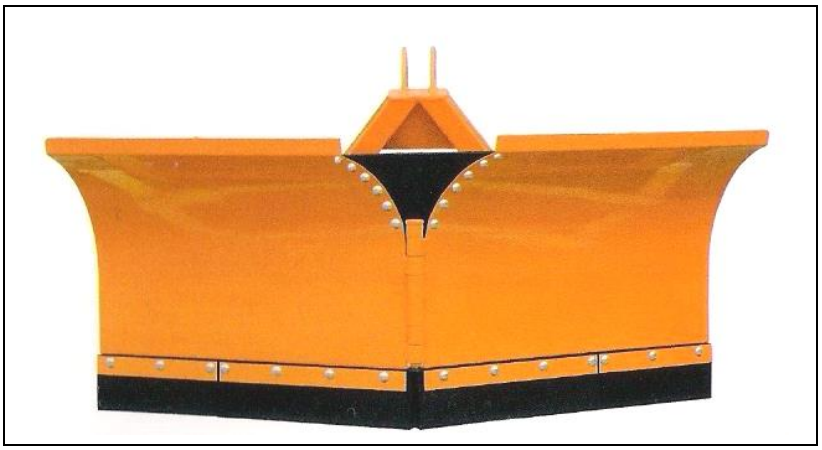


Fig.1 General front view - the variable geometry double-blade wheeled snow plough

The hydraulically suspended snow plough, equipped with hydraulic control system is adapted to work with a vehicle which has power hydraulic system as a standard of the rear and front fastenings used in agricultural vehicles.

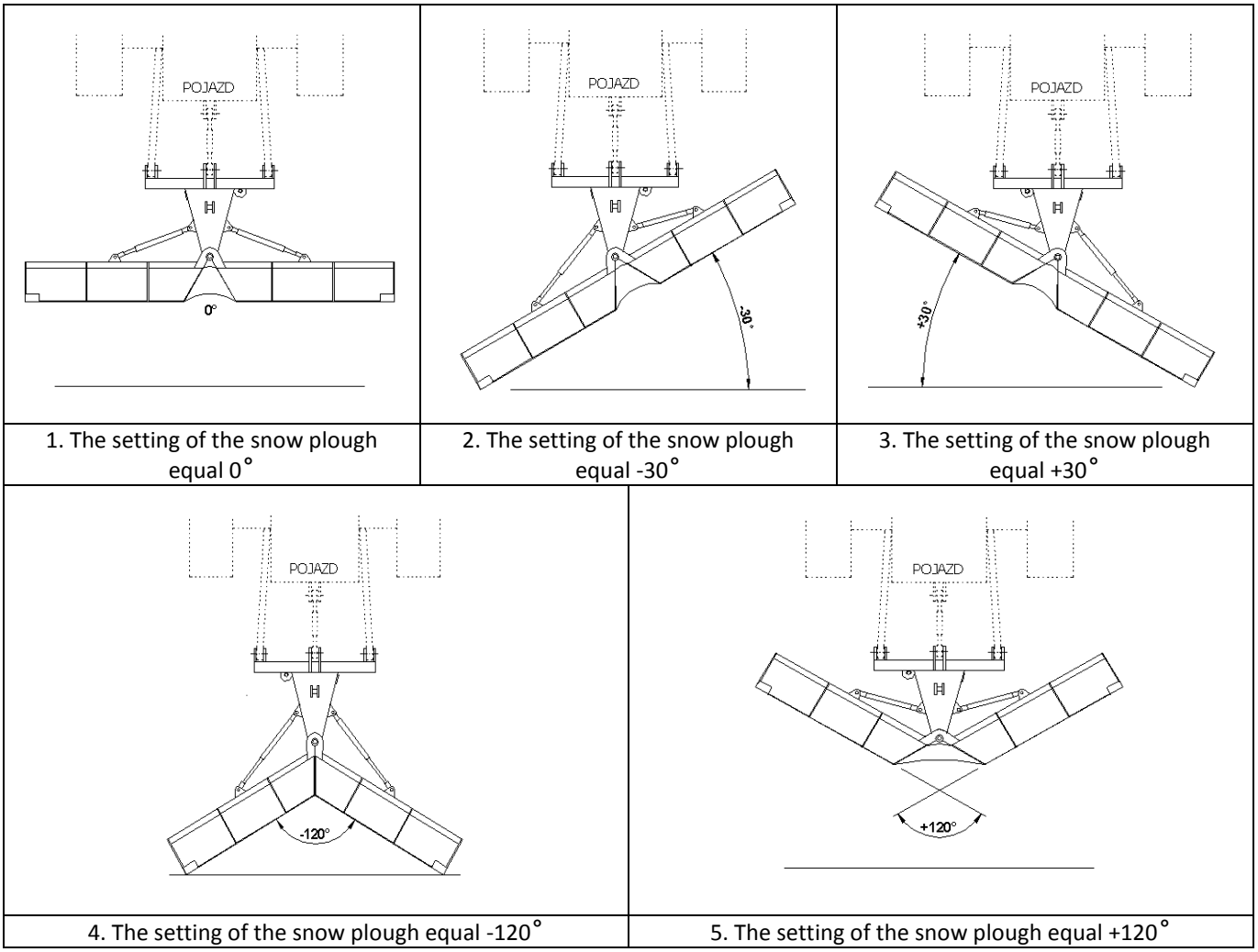
The manufactured ploughs on account of their construction and properties are classified as medium class snow ploughs. Basic tool fastening systems existing in the snow ploughs are as follows:

- TUZ I, TUZ II, TUZ III fastening systems
- EURO hitch type
- SMS type coupling

The straight snow plough is built of three articulated main construction elements. The first two elements - **plough buffer beams** made symmetrically of steel elements welded together constitute compact strong constructions – rigid beams.

The third element - **frame with suspension system used to connect to the vehicle** is a central element of the plough, made of steel elements welded together. Both parts can move relative to each other due to articulated joint and hydraulic control system which is controlled by the operator from the vehicle cabin after connecting the plough the vehicle. The control system

allows for smooth setting of each plough buffer beam in the range of +30° to -30°. The angle adjustment should be done without loading of the plough, after its raising over ground. Basic setting of the plough relative to vehicle driving axis can be done in 5 positions – in accordance with Fig. 2



1. The setting of the snow plough equal 0°

2. The setting of the snow plough equal -30°

3. The setting of the snow plough equal +30°

4. The setting of the snow plough equal -120°

5. The setting of the snow plough equal +120°

Fig.2 The snow plough setting relative to driving axis of vehicle

4.1. Equipment and accessories

4.1.1. Basic

Basic equipment of the straight snow plough consists of:

- Support foot
- Clearance lighting
- Hydraulic control system with power hydraulic system piping and hoses
- Instruction Manual
- Warranty card

Hand-held warning-lighting device and triangle marking plate for slow-moving vehicles do not belong to the basic equipment of the snow plough. You can buy them at the manufacturer and in the agricultural machines depot for additional cost. Each user of the snow plough should have a warning-lighting device in good working order and a triangle marking plate for slow-moving vehicles. Ignoring their use during transport and work can result in accident. The machine user is responsible for damages resulting from an accident.

4.1.2. Auxiliary

I. TILTING BLADE

The manufacturer can equip the snow plough with tilting blade as an option.
This device fits all snow ploughs described in Table 1. Tilting blades are available with all widths of ploughs.

Application of tilting blade considerably prolongs life-span of the plough. It is a safety barrier which eliminates effects of plough contact with obstacles encountered during its operation. The innovative solution protects the plough to the height of 110 mm. Due to this solution the most harmful results of plough contact with obstacle which often damages the plough are eliminated.

The scheme of functioning the plough blade is shown in fig. 3. Plough with tilting blade is composed of few segments of plough blade, which work independently. In case of contact with obstacle the plough blade pivots on its hinge axis. Maximum angle of plough blade rotation is 75°. The height of obstacle which can be overcome by blade is 110 mm. The mechanisms is so constructed, that after overcame the obstacle the blade return to its basic position 0°. The force needed to tilt the blade is approximately 2000 daN.

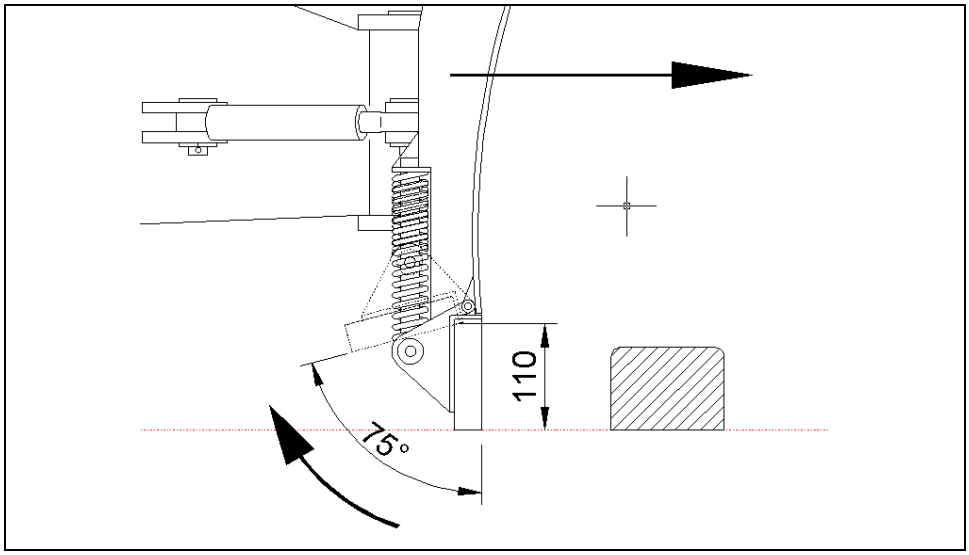


Fig. 3 The scheme of functioning the plough blade

II. TRANSVERSE TERRAIN COPYING

The manufacturer can equip the snow plough in transverse terrain copying as an option . It is a function consisting in accommodation of the plough to the shape of terrain. The plough has additional construction elements, which enables its rotation on vehicle driving axis. Due to this function the plough blade better adjusts to the ground. The copying is a very effective solution which lowers the work costs in case of working on irregularities of terrain. Fitting the plough to the ground eliminates the need of multiple riding, and in many cases it allows for accurate work. The range of transverse terrain copying is ±8°.

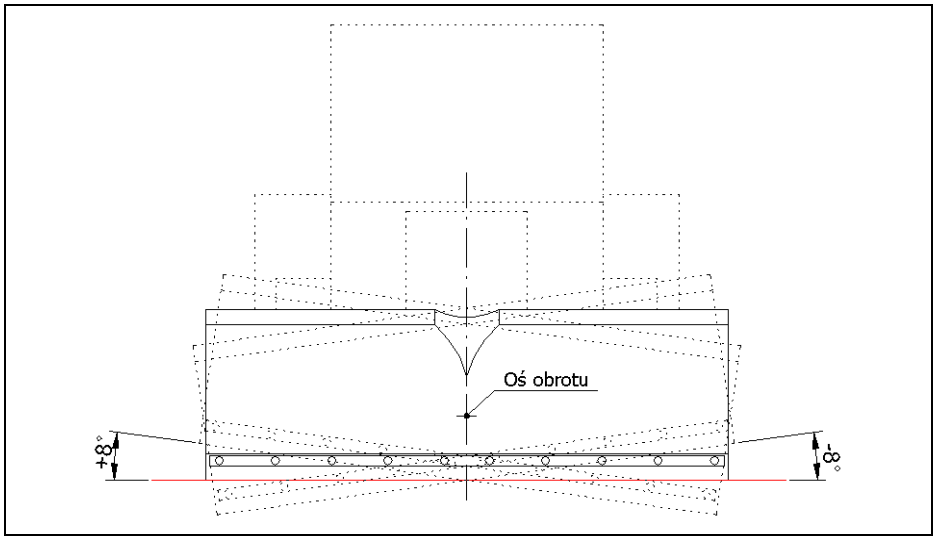


Fig. 4 Transverse terrain copying (Front view of vehicle with plough)

III. SUPPORTING WHEELS

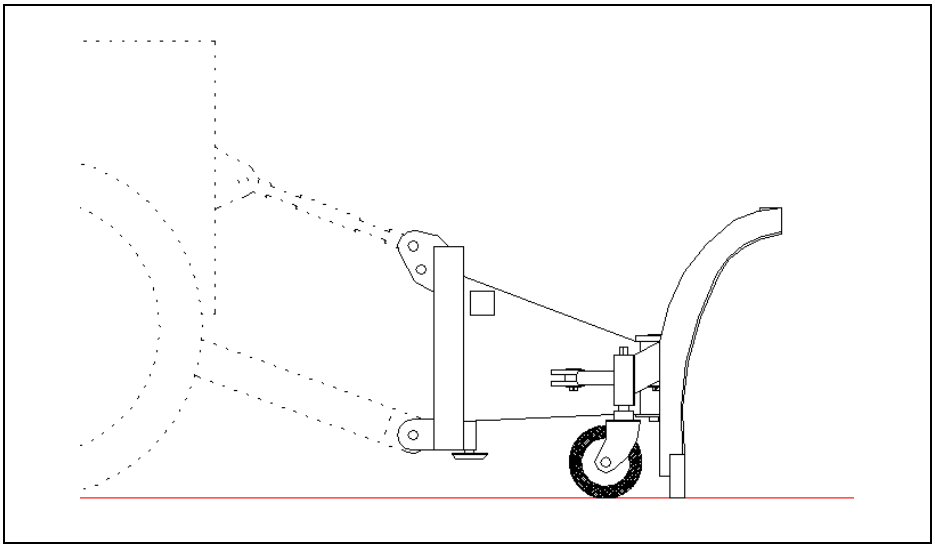


Fig. 5 Supporting wheels of snow plough

Additional equipment consists of two supporting wheels, assembled on two sides of snow plough buffer beam on supporting plates. The main task of supporting wheels is to lower work resistances, to lower wear of plough blade rubber and work stability due to better fitting of the blade to the ground.

This solution decreases work resistances which results in lowering snow plough operation costs.

Construction of snow plough buffer beam has special grips, to which the supporting wheels are fastened. Additional adjustment of height enables to adjust accurately the road clearance between the ground and the plough blade.

Note:
ALL ELEMENTS OF AUXILIARY EQUIPMENT OF THE SNOW PLOUGH MAY BE BOUGHT AT THE MANUFACTURER FOR AN ADDITIONAL COST.

4.2. Technical specification

Table No. 1

TECHNICAL DATA **VARIABLE GEOMETRY DOUBLE-BLADE WHEELED SNOW PLOUGH Ł PX TYPE**

No.	*Specification*	*Unit of measure*	*Parameter*				
1.	Type of snow plough	-	PX/1.4	PX/1.8	PX/2.2	PX/2.6	PX/2.9
2.	Machine type	-	Suspended of medium class				
3.	Overall dimensions (operation position 0°i transport) Length Width Height	 [mm] [mm] [mm]	 1400	 1800	 2200	 2600	 2900
4.	Weight of snow plough	[kg]					
5.	Working width for position 30°	[mm]	1220	1560	1910	2260	2520
6.	Operating position setting up	[°]	+30° ÷ -30°				
7.	Load capacity of the carrier (vehicle)	[kg]	6 000		8 000		
8.	Control of operating position setting up	-	Hydraulic control system				
9.	Hydraulic adjuster type	-	GRENE				
10.	Hydraulic cylinder type	-	BARTEX 295				
11.	Hydraulic system working pressure	[MPa]	16 ÷ 20				
12.	Transport clearance	[mm]	300				
13.	Working speed	[km/h]	4 ÷ 12				
14.	Transport speed	[km/h]	According to the regulations concerning the vehicle				
15.	Class of co-operating tractor	[kN]	min14				
16.	Number of personnel	[pcs.]	1				
17.	Type of fastening on the vehicle – DIN ISO 730-1 category	TUZ	I or II		II or III		
18.	Vehicle power needed	[HP]	up to 48	up to 120		up to 240	
19.							

4.3. Forces acting on the snow plough

Extreme phenomena existing during operation clearing snow are comparable with impact collision. To make the operation of clearing snow easier the vehicle weight – carrier load capacity has great significance. However, you should be aware of the forces which act during operation of heavy vehicle with suspended snow plough. Reading and analyzing Instruction Manual will guarantee safe use and reduce the results of operation errors – it will lower a risk for operators.

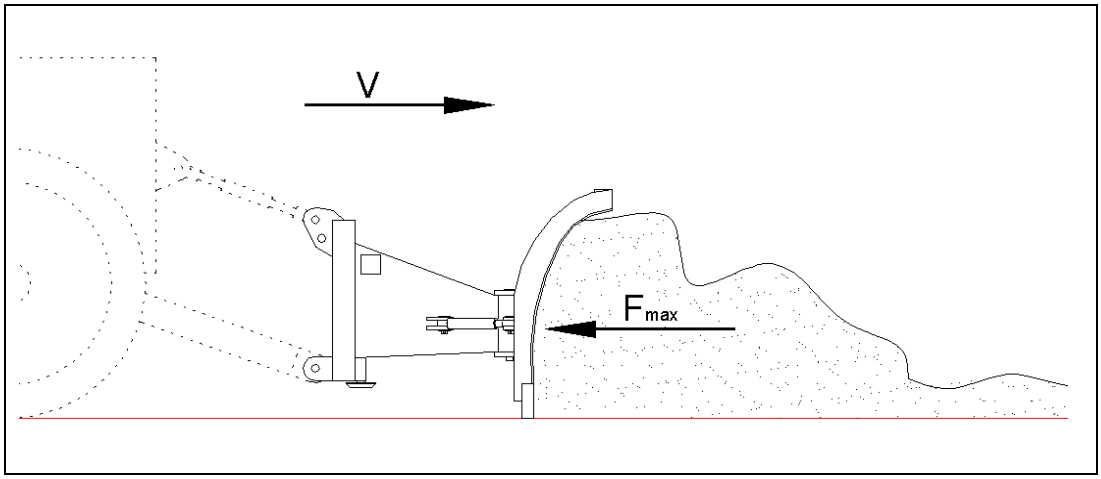


Fig. .6

Table No. 2. Permissible uniform loading of the snow plough during work – in accordance with Fig.7.

Plough type	PS/1.4	PS/2.0	PS/2.9
F_{max} [daN]	6 500	7 500	9 000

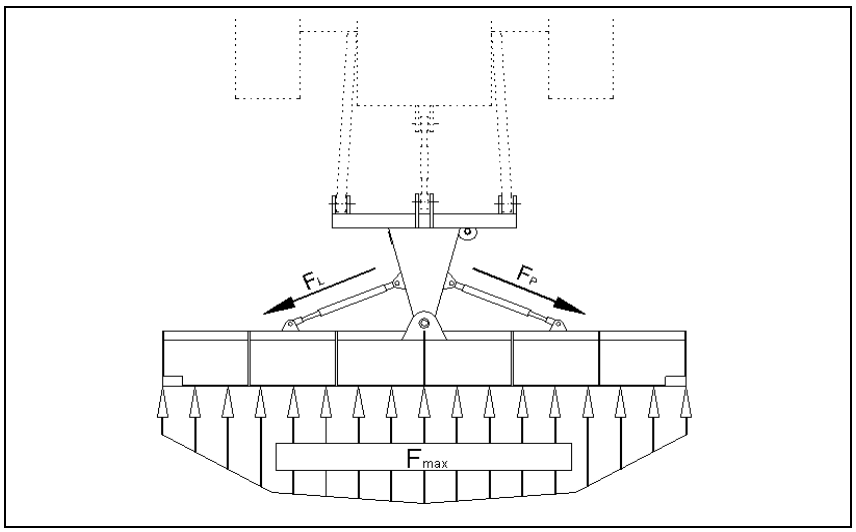


Fig.7 Distribution of forces of permissible snow plough loading with hydraulic cylinders and working settings 0°

Table No. 3. Theoretical force F_{max} [tonnes], which may act on the plough clamped to the vehicle with the weight of 5 000 kg with changeable speed and braking distance.

Braking distance S [m]	Vehicle speed V [km/h]		
	5	10	20
0,1	2	11	30
0,2	1	6	15
0,5	0,5	2,5	6
1,0	0,3	1	2,5

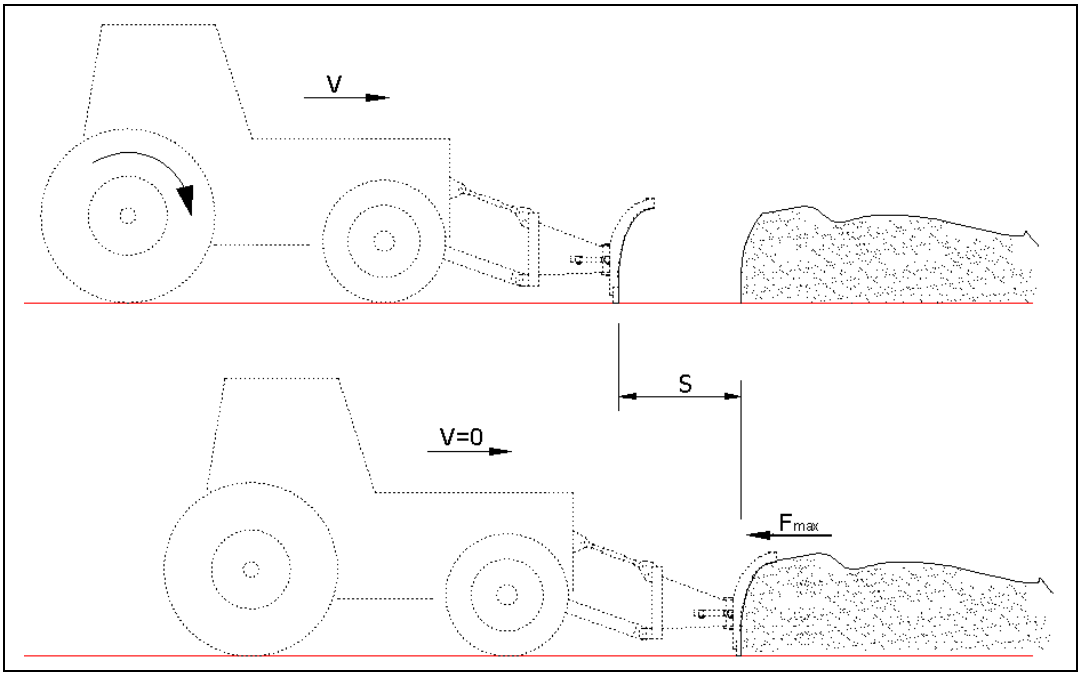


Fig.8 A picture of vehicle-braking in contact with an obstacle

The data concerning forces acting on the vehicle – plough unit will require high level of qualifications from persons operating the machine and appeal to consciousness of hazards appearing during operation of the snow plough.

It is essential to choose the safe vehicle driving speed in order to guarantee that the operation does not constitute the risk for environment and operating personnel – the vehicle's operator.

5. Device use

5.1. Assembly of the snow plough

Make sure that all mounting elements of the vehicle and the plough are matched appropriately to guarantee safe assembly and operation. In case of the lack of clarity you should definitely contact the manufacturer of the vehicle or the plough.

As there is a need to connect three plough systems to the vehicle, the assembly of the plough should be done in the following order:

I. Assembly of mechanical system of the vehicle and the plough.

Depending on the type of three-point hitch, you should provide original protections. Every time when you assembly the system you should check the wear of connecting elements: bolts and journals.

II. Assembly of the power hydraulic system

The plough with power hydraulic system is equipped with pipes (hoses), which need to be connected to connector pipes of the vehicle power hydraulic system. Please, make sure that the pipes (hoses) are run properly and check hydraulic connectors cleanliness.

III. Assembly of the electric power supply to control hydraulic distributor

	
9.1 Switch controlling hydraulic distributor powered from cigarette lighter socket	9.2 Distribution electro valve controlled by the switch from the vehicle cabin

Fig. 9. PX snow plough hydraulic control elements

Because of multiple operation positions of PX snow plough there is a need to extent the hydraulic system by additional hydraulic distributor, which allows for independent controlling of the buffer beams of plough. To facilitate this control, the distribution electro valve is used, which is mounted on the central frame of plough and which is controlled by the switch located in the operator's cabin. This switch should be placed in safe place, close to control elements. The power supply must be connected to the cigarette lighter socket. When connecting the power supply you should be careful when you lead electric cables near movable construction elements of the plough and the hitch.

IV. Assembly of the power supply system for the plough clearance lighting system.

The plough has 7 pin socket of agricultural trailer (PN 83/S-76055), which should be connected to the vehicle power supply system with the use of power extension cable. you should be careful when you lead electric cables near movable construction elements of the plough and the hitch.

The snow plough dismantling is carried out in reverse order with exercising special caution during disassembly of mechanical system, which separates the plough from the vehicle.

5.2. Control system of the snow plough

The snow plough operation is controlled from the vehicle operator cabin. The snow plough is equipped with power hydraulic system terminals, which after being connected to the power hydraulic system of the vehicle ensure smooth control of its work.

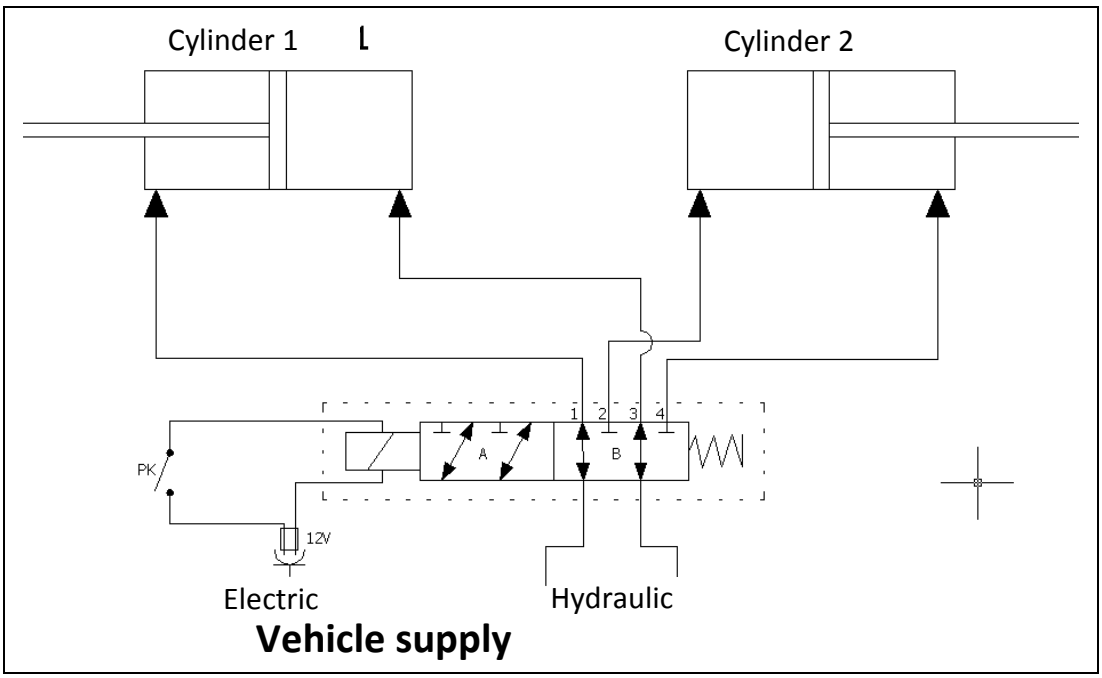


Fig.10 The PX type snow plough hydraulic system and its power supply system

6. Servicing and maintenance procedure steps

All activities connected with the snow plough servicing can be done by the operator of the vehicle to which the plough is attached provided that he is authorized to operate the vehicle.

The snow plough servicing is only possible after reading the Instruction Manual.

6.1. After work servicing

Each time, after finishing the work, the snow plough should be cleaned and placed on flat hardened surface. Then you should inspect connections of parts and assemblies. Worn or damaged parts should be immediately replaced by new or regenerated ones. You should check all screw connections and screw in the loosen ones. All safety signs placed on the snow plough buffer beams, clearance lights, warning lighting, triangle plate distinguishing slow-moving vehicles should be kept clean.

6.2. Lubrication of movable connections

Lubrication of movable connections of the snow plough is the basic maintenance operation step. All movable parts of the plough should be protected with ŁT-42 grease once a season. Clean all connections from dirt and old used grease before lubrication.
If you notice any traces of wear, you should definitely replace used parts with the new ones.

6.3. After season maintenance

Includes all operation steps listed in paragraph entitled: After work servicing. Additionally, the snow plough should be stored under canopy on flat hardened surface. You should make sure that paint cover is tight. If there is no paint in some places you should clean up the areas and apply new protection coating layer on them.

In case of leaks in the hydraulic system you should definitely replace damaged parts and assemblies of the system to prevent environment contamination.
Hydraulic hoses should be replaced every 5 years independently of their exterior condition.

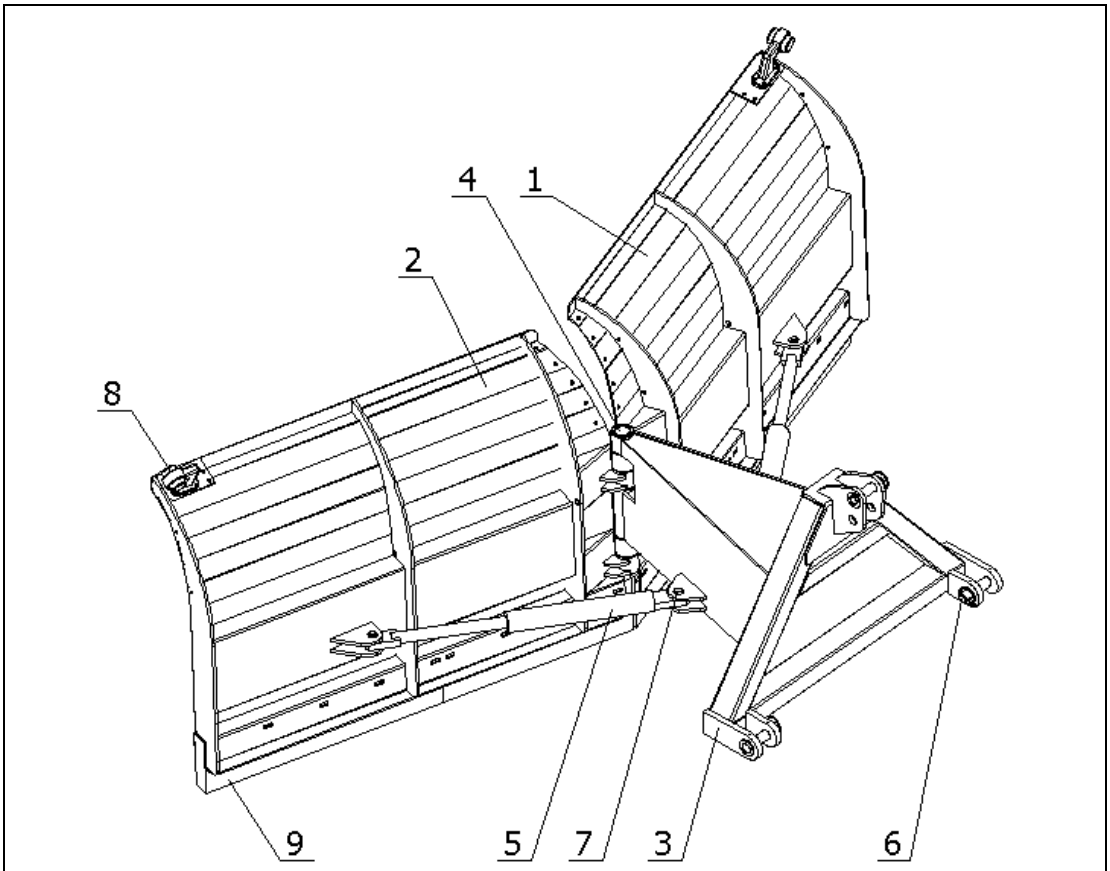
6.4 Scrapping, the environment

In case of total wear of the machine to the level not allowing for its further use, it should be scrapped. This also concerns routine repairs or replacement of damaged parts. With the aim of doing it, the machine should be carefully cleaned. Drain used oil and pass it to utilization. Then you should disassemble the machine and segregate parts according to the types of used materials. Segregated parts should be passed to the scrap heap or for utilization.

The machine is a fully environmental friendly product. The materials used for its production are recyclable in 97%. Used parts of the machine should be utilized in accordance with local environment protection law. During the whole period of machine use you shouldn't allow for oil leak, which can cause environment pollution.

7. Spare parts catalogue

Fig. 11 Variable geometry double-blade wheeled snow plough – the set of mechanical elements



No.	*Part /assembly name*	*Catalogue number*	*Number of parts*
1	Snow plough buffer beam right		1
2	Snow plough buffer beam left		1
3	Frame with suspension system used to connect with the vehicle		1
4	Axis of rotation axis of buffer beam cpl.		1
5	Hydraulic cylinder		2
6	Bolt for fastening TUZ fastening system		3
7	Bolt for fastening hydraulic cylinder		4
8	Clearance lighting system lamp		2
9	Rubber scrapping slats (blade) cpl.		1

Fig. 12 Variable geometry double-blade wheeled snow plough - hydraulic supply elements

No.	*Part /assembly name*	*Catalogue number*	*Number of parts*
1	Short hose of hydraulic cylinder		2
2	Long hose of hydraulic cylinder		2
3	Hydraulic distributor		1
4	Feed pipe (hose)		2

Spare parts should be ordered at points of sale of agricultural machines or at the machine's manufacturer. Only the use of original manufacturer parts guarantee safe and reliable work of the machine. The use of non-original parts or repair of damaged parts will cause loss of warranty.

8. Warranty

WARRANTY CARD

Serial number	……	Type	……
The year of manufacture	……	KJ	……

The manufacturer undertakes under this warranty to repair free of charge any physical defects disclosed during the warranty period which covers 12 months from the date of purchase.
The manufacturer is released from liability under this warranty in the following cases:

- Mechanical damages of the machine after handing it over to the user;
- Improper operation; maintenance and storage of the product especially contrary to this Instruction Manual;
- Repairs carried out by non authorized persons without the manufacturer's consent;
- Introducing constructional modifications without the manufacturer's consent;

The warranty card is valid if it has seller's signature and sales date affixed to it confirmed by the point's of sale stamp. There must not be any crossing-outs or alterations made by unauthorized persons.
A duplicate of the warranty card may be issued upon a written request and after submitting a proof of purchase by the user.
In case the service to carry out warranty repair is called unnecessarily, the costs of this are covered by the user.
The user should notify directly the seller about any damages within 14 days from their discovery.
The manufacturer provides warranty service within 14 days from the date of notification about the damage.
The warranty period is extended by the repair time counted from the date of notification to the date of service completion if the defect prevents from using the machine.
Warranty does not cover hydraulic pipes (hoses) and electrical parts of the machine.

Date of selling: _____ _____
(day, month, year) *(the signature and stamp of the point of sale)*

RECORD OF WARRANTY REPAIRS

To be filled in by the manufacturer

Date of notification of the complaint: ___________________ *The repair range and the parts replaced:* __________ ____ ____ *Date of complaint:handling:* _________________ *The warranty was extended until:* ______________ ____________________________ *(The signature and stamp of service centre)*	*Date of notification of the complaint:* ___________________ *The repair range and the parts replaced:* __________ ____ ____ *Date of complaint:handling:* _________________ *The warranty was extended until:* ______________ ____________________________ *(The signature and stamp of service centre)*
Date of notification of the complaint: ___________________ *The repair range and the parts replaced:* __________ ____ ____ *Date of complaint:handling:* _________________ *The warranty was extended until:* ______________ ____________________________ *(The signature and stamp of service centre)*	*Date of notification of the complaint:* ___________________ *The repair range and the parts replaced:* __________ ____ ____ *Date of complaint:handling:* _________________ *The warranty was extended until:* ______________ ____________________________ *(The signature and stamp of service centre)*

DECLARATION OF CONFORMITY

1. Product manufacturer:

Firma Kołaszewski
Lęborska street No. 22
77-100 Bytów

2. Product name:

Variable geometry double-blade wheeled snow plough PX type
The year of manufacture: 2012 Serial number ……

3. Product classification:

PKWiU 29.52.30-70.90
The machines for scrapping, moving, extraction of earth, others non self-propelled

4. Intended use and the range of product application:

Variable geometry double-blade wheeled snow plough PX type
serves to removal of snow from surfaces of squares, parking places, roads
and all other hardened road and pavement surfaces.

5. Reference documents:

EU regulations		Polish regulations	
Directive number	Title	Document name	No.
2006/42/EC	Machinery Directive	An order of the Minister of Economy of 21 October 2006 concerning basic machinery requirements	Polish Journal of Law 199/1228

Standard No.	Title
PN-EN ISO 12100-1:2005	Machinery. Safety. Basic concepts, general principles for design Part 1: Basic terminology, methodology
PN-EN ISO 12100:2011	Safety of machinery -- General principles for design -- Risk assessment and risk reduction
PN-EN 14121-1:2008	Safety of machinery -- Risk assessment -- Part 1: Principles
PN-ISO 730-1:1996	Agricultural wheeled tractors -- Rear-mounted three-point linkage -- Categories 1, 2, 3 and 4
PN-EN ISO 4254-1:2009	Agricultural machinery -- Safety -- Part 1: General requirements
PN-EN ISO 13857:2010	Safety of machinery -- Safety distances preventing from reaching dangerous zones by upper and lower limbs
PN-ISO 11684:1998	Tractors, machinery for agriculture and forestry, powered lawn and garden equipment. Safety sign and hazard pictorials.General principles.
PN-ISO 3600:1998	Tractors, machinery for agriculture and forestry, powered lawn and garden equipment - Operators manuals - Content and presentation
PN-M-73022:1973	Hydraulic drives and controls -- Hydraulic controls -- Division and markings
PN-83/S-76055	The electrical equipment of motor vehicles -- Plug-in 7-pin connections, N type (normal) -- Main dimensions and the terminals marking
Procedure P06.01	System procedure P06.01, 05.01.2011. Processes supervision

Compliance with the directive and standard requirements was confirmed on the basis of tests carried out by the company:
Polish Foundation of Mechanical Engineers and Technicians „FITMECH" in Słupsk.
Tests were carried out by: Msc. Eng. Zbigniew Myszka – SIMP expert No. 9763/11

I declare, with fully responsibility, that the product is in accordance with reference documents given at point 5.

....
(place and date of issue) *(full name and signature of a person authorised by the manufacturer)*

Firma Kołaszewski
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fax: (059) 822 24 75
kolaszewski@kolaszewski.pl

KOŁASZEWSKI

Declaration of quality policy

Policy **of Kołaszewski Sp. z o. o. - Bytów** comes down to running the company in such a way that the products/services offered to customers are in compliance with established requirements concerning quality and reliability and in conformity with national and international regulations, as well as carrying this task in a continuous way, friendly to the customers, work environment and with respect to the natural environment.

In order to keep and increase **Customers satisfaction** as well as other interested parties satisfaction the company applies the following **quality tasks:**

- it can offer and deliver only such products/services that can deserve customers recognition through effective fulfilling their needs and expectations with a consideration of standards and regulations being in force;
- High level of products/services quality, extensive offer of products/services and the culture of customer service are decisive for keeping competitive advantage as a reliable supplier of good-quality products/services.

Quality objectives are attained due to:

- application, development and constant improvement of quality management system on the basis of ISO series 9001:2008 standard as well as integrating the system requirements according to the standards of environmental management and management of health and safety at work.
- establishing and improving of cooperation with suppliers and consumers of materials/products/services,
- consistent motivation and development of personnel qualifications and experiences,
- communicating and informing about the policy and goals at all levels of management and for all functions,
- planning of means and activities in such a way as to ensure supervised receipt, transport and storage conditions and to prevent any cases of imperfection,
- identifying, planning and managing processes and connections between them as well as consistent assessment of processes effectiveness and efficiency including the processes of constant improvement.

Responsibility for quality shared by all employees through deliberate division of tasks and qualifications. Detailed goals concerning quality are developed for all functions and management levels and they particularly include goals concerning distribution processes as well as constant improvement goals involving all company's personnel in their setting and implementing.

President of the Management Board is responsible for establishing and continuing of quality policy, He is also committed to create conditions and internal company environment in order to allow all employees to get fully involved in attaining the goals. This commitment also encompasses provision of means needed for policy accomplishment including establishment, development and constant improvement of the quality management system and processes being a part of it.

A decision concerning introduction of the above policy was made by **the President of the Management Board**, who is undersigned below.

Bytów, 05.01.2011

Msc. Eng. Arkadiusz Urbaniak

- President of the Management Board