



Thank you for choosing our front loader designed for effective loading and unloading of bulk agricultural materials.

The following manual will let you fully use the advantages of our machine and to optimise the material loading and unloading processes the loader is intended for.

The manual contains a detailed table of contents followed by descriptions which will allow to easily identify the device and to make the best use of it.

The information regarding safety and comfort of operation, description of coupling with a tractor, technical service activities and storage conditions are listed on the following pages of the manual.

A spare parts catalogue containing the list of the loader major components allowing for easy ordering is attached to the manual in a digital form on a CD.

The printed version of the catalogue may be purchased at authorised dealerships or directly from the manufacturer.

Both the manual and the spare parts catalogue contain basic information on the product. The elements fitted to the equipment may be slightly different from the ones presented in the manual.

The manufacturer reserves the right to introduce changes without notice.

## Symbols

### Warning:



This is a warning symbol and it indicates that it is required to pay special attention to the operator and bystanders' safety requirements or safe operation requirements.

### Information:



This symbol indicates additional information which allows to optimise the device operation.

### Environmental precautions:



This symbol indicates the need to pay special attention to environmental considerations.

### Cross-reference:



This symbol directs you to a page on which detailed information on a given subject is presented.

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# 1 Loader identification, general safety rules

## 1.1 Loader identification

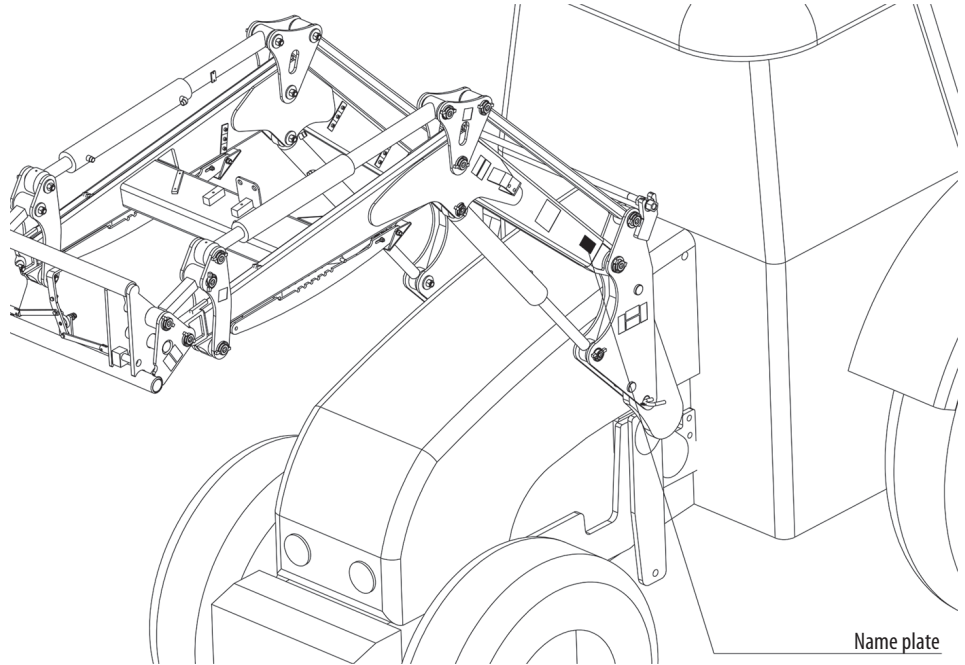
The front loader is identified by its nameplate securely fastened to the main frame of the machine.

The information given on the nameplate of a T241 front loader is shown on the diagram below. A T229 front loader has the same nameplate type.

<b>METAL-FACH</b>			
ul. Kresowa 62, 16-100 Sokółka, Poland			
tel.:+48 (085) 711 98 40-45, fax:+48 (085) 711 90 65			
Symbol	<input type="text" value="T241"/>	Typ	<input type="text"/>
Rok prod.	<input type="text" value="20"/>	Masa wysięgnika	<input type="text"/> kg
Nr fabr.	<input type="text"/>	Udzwig	<input type="text"/> kg
		KJ	<input type="text"/>



It is forbidden to drive the loader on public roads without its nameplate or with an illegible nameplate.



When purchasing the machine check the serial number indicated in the Manual and the warranty card against the serial number stamped on the nameplate.



The Manual is a part of the loader equipment.

If the machine is sold to another user, it must be supplied with the operating manual. It is advised that the supplier has a confirmation stating that the manual has been transferred together with the machine, signed by the buyer and filed.

### Carefully read the operating manual.

If the rules stated in this manual are complied with, it will help prevent hazards and operate the machine efficiently; it will also allow to retain the warranty throughout the period granted by the manufacturer.

Detailed information on the structure, operating principles, technology and other details may be obtained from authorised outlets and the loader manufacturer.



It is forbidden for persons who have not read the manual to operate the loader.

The loader shall be operated according to its intended use by coupling it with compatible agricultural tractors  
▶▶ Chapter 2.1.

The front loader is intended for loading and unloading bulk agricultural materials such as fertilisers, grain,

straw, gravel, root crops, manure, silage, hay and straw bales.



Any use of this loader involving purposes other than listed is improper use.

**The loader does not come with a device preventing incidental lowering of the arm.**



The loader is not intended for lifting requiring presence of any persons nearby the lifted load.



It is forbidden to use the loader for reloading flexible containers and pallets.

During operation, the operator is not subject to noise which may cause the loss of hearing, as the noise level of the machine does not exceed 70 dB (A) and the operator works inside the tractor cabin.

During the operation, the operator is not subject to harmful vibration as the vibration level transferred to the upper limbs does not exceed 2.5 m/s<sup>2</sup>, and the vibration level transferred to the body is lower than 0.5 m/s<sup>2</sup> and the operator is positioned in the tractor cabin.



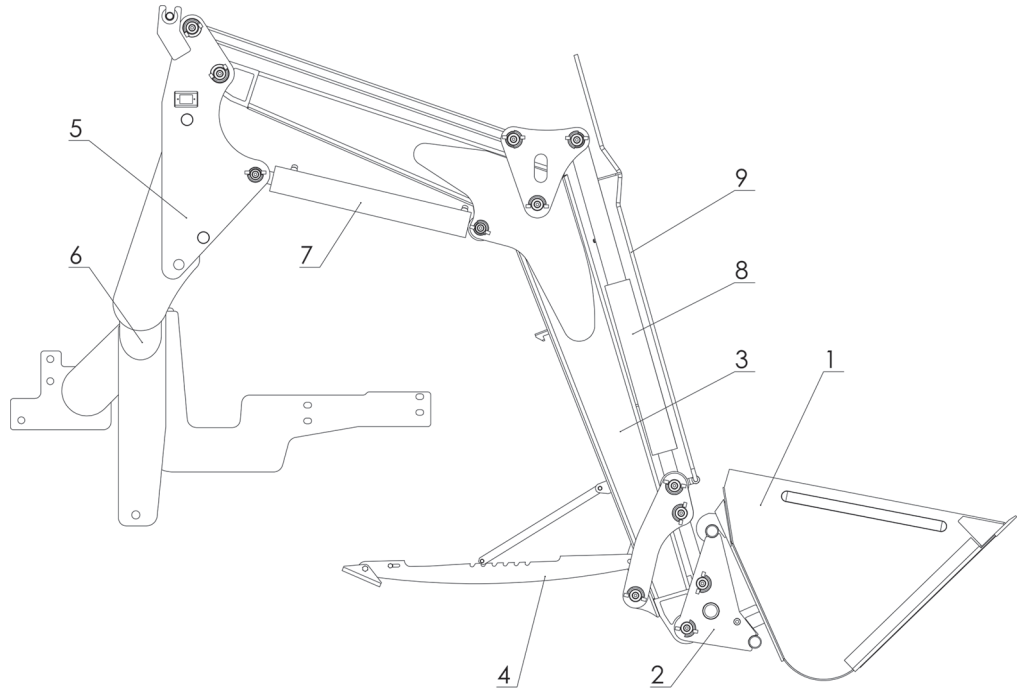
Any unauthorised changes to the loader structure absolve the manufacturer from all responsibility for the threats and damage it may cause.



## 1.2 Construction of a front loader

The machine consists of the following main assemblies:

Working tool	item 1
Coupling frame	item 2
Extension arm	item 3
Support	item 4
Fixing plate	item 5
Supporting frame	item 6
Extension arm actuator	item 7
Frame actuator	item 8
Levelling indicator	item 9
Hydraulic control unit	item 10



The front loader is a hydraulic machine installed at the front of a tractor. The loader is powered by the tractor power hydraulic system. The loader can be installed thanks to the supporting frame (6) permanently fixed to the tractor.

**The frame is installed by an authorised sales or manufacturer's service point.**

The loader is mounted by connecting the fixing plates (5) being its integral part with the supporting frame(6) ► chapter 2.2 The working movement top – bottom of the extension arm (3) is performed by the extension arm actuator (7) – a dual side operation hydraulic actuator. The rotational movement of the coupling frame (2) is performed by the frame actuator (8) – a dual side operation hydraulic actuator. The loader (depending on the option) may have a levelling indicator (9). The design of the loader also includes a support (4) used during the connection of the loader with a tractor and during the storage of the machine.

## Front loader frame

The drawing presents the front loader frame installed on a tractor.



The frame can be installed only at authorised sales or manufacturer's service points.

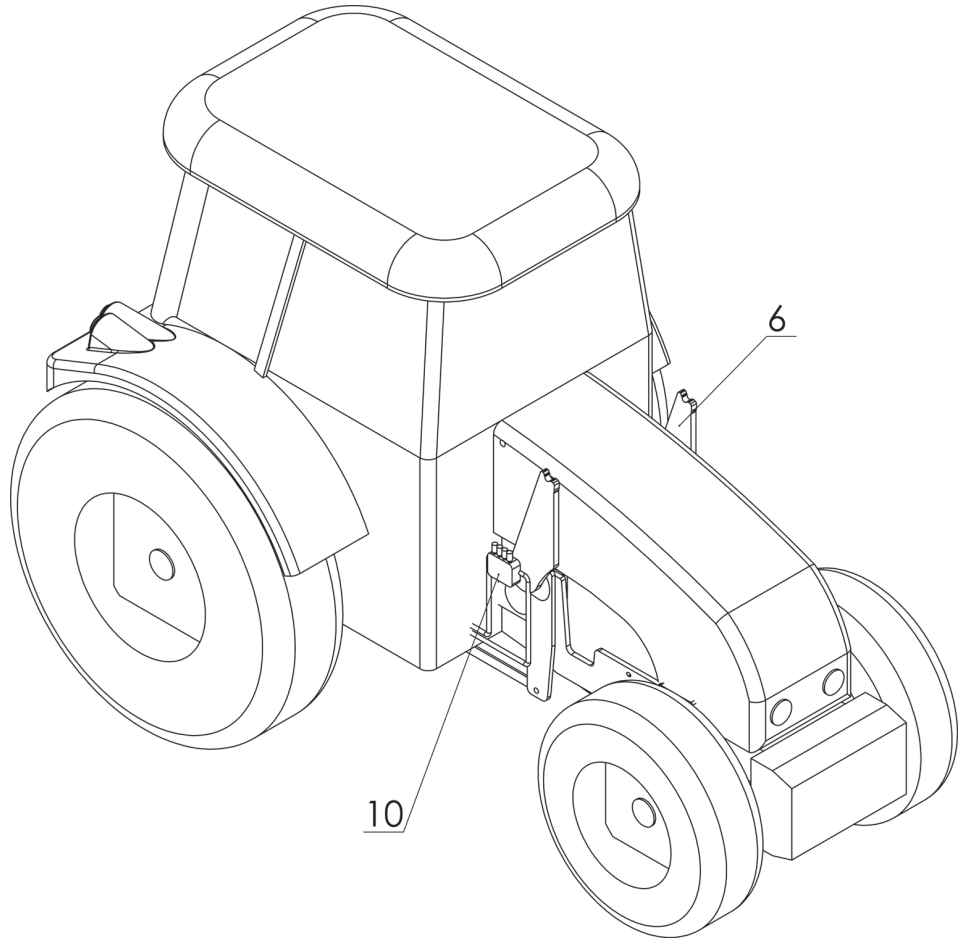


Do not remove or modify the front loader frame once installed by the authorised service.

The construction of loader support frames is adapted individually to a tractor. The range of frame structures offered by the manufacturer covers approx. 200 items.

The front loader may be coupled only with a tractor equipped with a supporting frame (6) recommended by the manufacturer and installed by an authorised dealer or manufacturer's service.

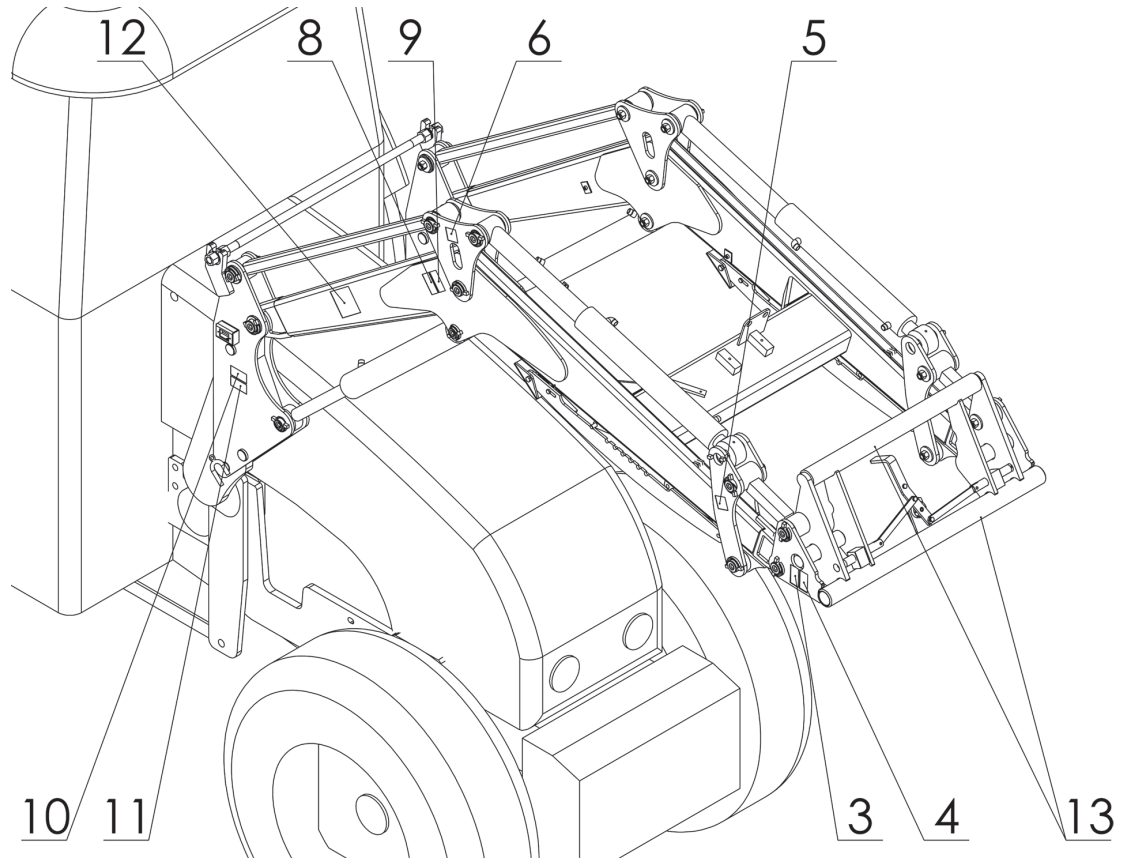
Install a hydraulic control unit (10) on the right side of the frame (6) and connect it with the hydraulic power system of the tractor. Install a controller (joystick) in the tractor's cabin and connect it with the hydraulic control unit. ►► chapter 5.3.



### 1.3 Location of pictograms

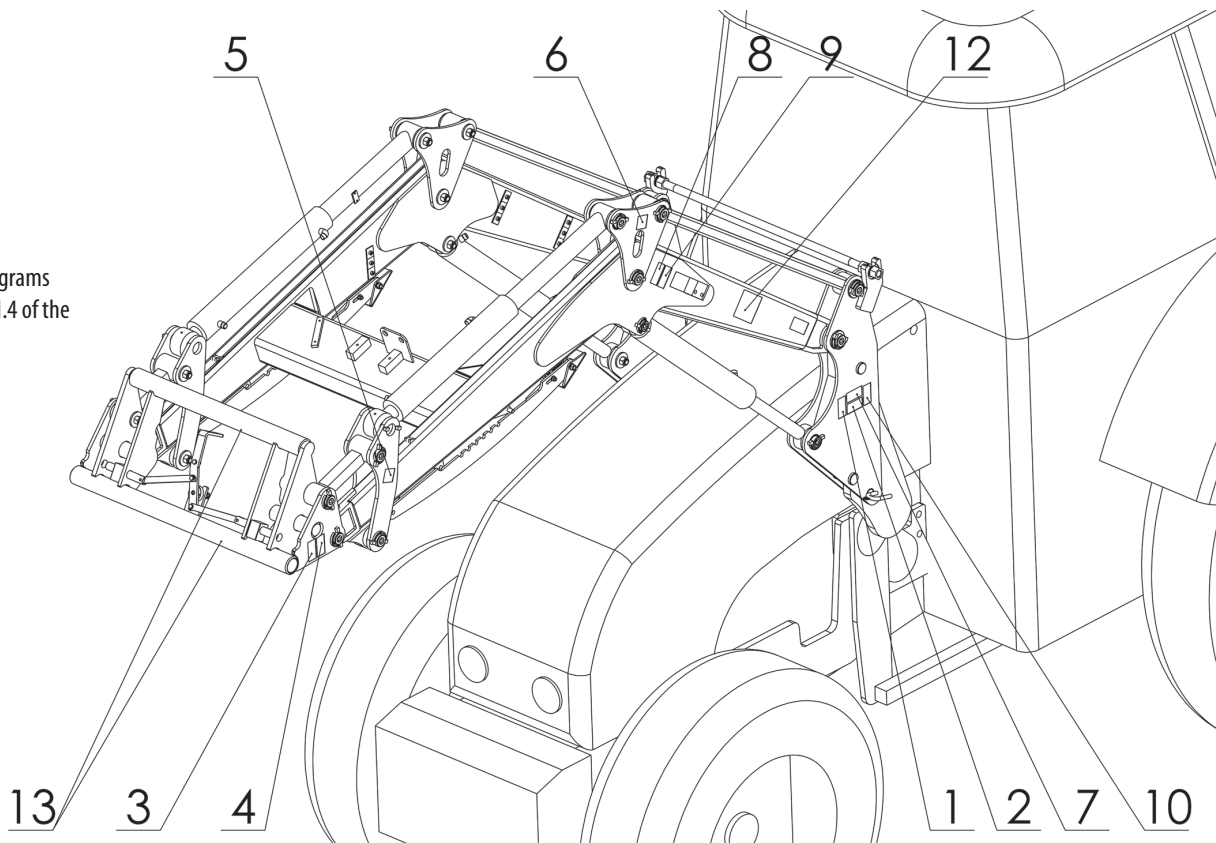
#### Location of symbols – right

The meaning of pictograms is explained in chapter 1.4 of the Manual.



## Location of symbols – left

The meaning of pictograms is explained in chapter 1.4 of the Manual.



# 1.4 Warning Symbols

The warning pictograms placed on the machine (►► chapter 1.3) inform the operator about the hazards and dangers which may occur during work. Keep the symbols clean and legible.



Replace illegible symbols with new ones. New symbols can be purchased from the manufacturer.



**Symbol 1**  
Refer to the operating manual before performing this action.



**Symbol 2**  
Turn off the engine and remove the ignition key before servicing or repairs.



**Symbol 3**  
Keep a safe distance from the working or moving loader. Hazard of crushing by the loader extension arm.



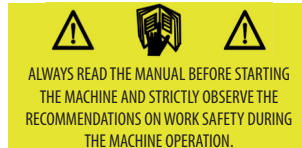
**Symbol 4**  
Keep a safe distance from power lines during machine operation.



**Symbol 5**  
Keep a safe distance from the machine.



**Symbol 6**  
Lifting sling fixing point.



**Symbol 7**  
Information symbol.



**Symbol 8**  
Do not use to transport or lift persons. Keep a safe distance from the working or moving loader.



**Symbol 9**  
Keep a safe distance from the raised extension arm or bucket.

**Symbol 10**

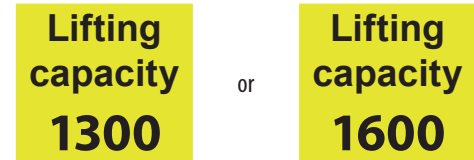


Information symbol.



**Symbol 11**  
Avoid contact with liquids under pressure. Read the Manual ►► chapter 1.7.

**Symbol 12**



Permissible load capacity

**Symbol 13**



Warning strip - white and red.

## 1.5 Characteristics of a front loader

### 1.5.1 Characteristics of a T229 front loader

Item	Details	Unit	Data	Data	Data
1	2	3	4	5	6
1.	Loader type	-	T229-D	T229-1	T229-K
2.	Maximum load capacity	kg	1600	1300/1600	1300/1600
3.	Lifting height	mm	4425	4000	4000
4.	Bucket loading height for bulk materials	mm	3540	3070	3070
5.	Bucket unloading height for bulk materials	mm	2990	2550	2550
6.	Type of lifting cylinder		SCJ90/45/500 SCJ80/45/400	SCJ70/40/500 SCJ70/36/400 S90/45/500 SCJ80/45/400	SCJ70/40/500 SCJ70/36/400 S90/45/500 SCJ80/45/400
7.	Operating pressure	MPa	16	16	16
8.	Loader weight	kg	650	600	620
9.	Counterweight + ballast weight	kg	820	650	650
10.	Dimensions of a tractor with the loader in the transport setup:	mm	6020	5420	5420
	- length (without the working tool)	mm	2100	2100	2100
	- width	mm	4200	3700	3700
11.	Operating speed	km/h	Max. 10	Max. 10	Max. 10
12.	Transport speed	km/h	Max. 15	Max. 15	Max. 15
13.	Number of operators	-	1	1	1
14.	Level of acoustic pressure emissions in the operator's place	dB (A)	under 70	under 70	under 70

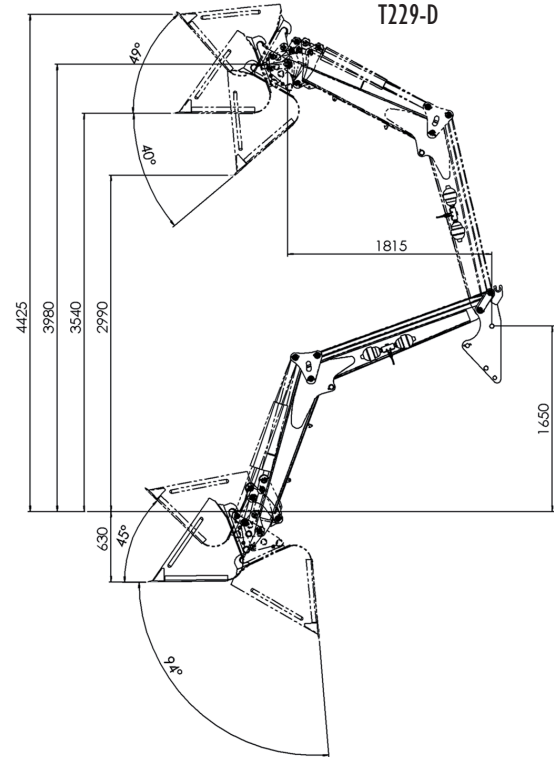
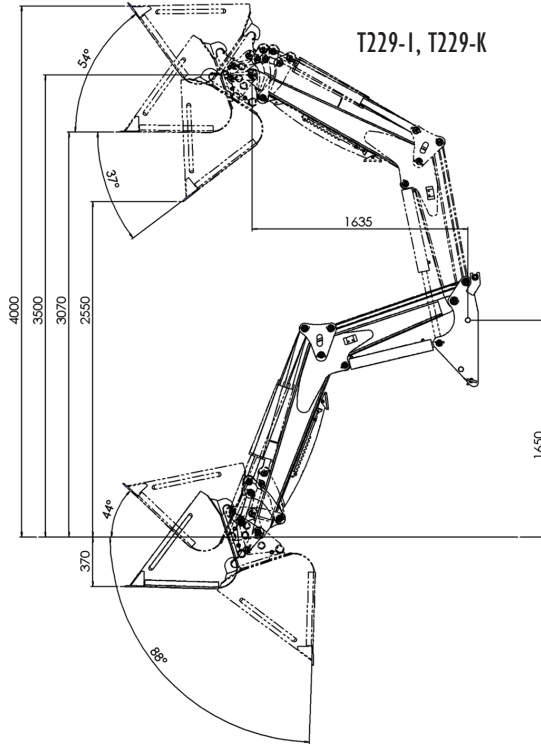
The table presents dimensions of a loader installed on a FARMER F-9258 TE tractor.

## 1.5.2 Characteristics of a T241 front loader

Item	Details	Unit	Data	Data	Data
1	2	3	4	5	6
1.	Loader type	-	T241-D	T241-1	T241-K
2.	Maximum load capacity	kg	1600	1300/1600	1300/1600
3.	Lifting height	mm	3300	2850	2850
4.	Loading height	mm	3500	3400	3400
5.	Unloading height	mm	2600	2300	2300
6.	Type of lifting cylinder		UCJ 133-80/45/520 UCJ 126-80/40/400	SMT2S.70.40.520 SMT1S.70.36.400 UCJ 125-80/45/520 UCJ 126-80/40/400	SMT2S.70.40.520 SMT1S.70.36.400 UCJ 125-80/45/520 UCJ 126-80/40/400
7.	Maximum working pressure	MPa	18	18	18
8.	Loader weight	kg	600	550	560
9.	Counterweight + ballast weight	kg	820	650	650
10.	Dimensions of a tractor with the loader in the transport setup:				
	- length (without the working tool)	mm	6020	5420	5420
	- width	mm	2100	2100	2100
	- height	mm	4200	3700	3700
11.	Operating speed	km/h	Max. 10	Max. 10	Max. 10
12.	Transport speed	km/h	Max. 15	Max. 15	Max. 15
13.	Number of operators	-	1	1	1
14.	Level of acoustic pressure emissions in the operator's place	dB (A)	under 70	under 70	under 70

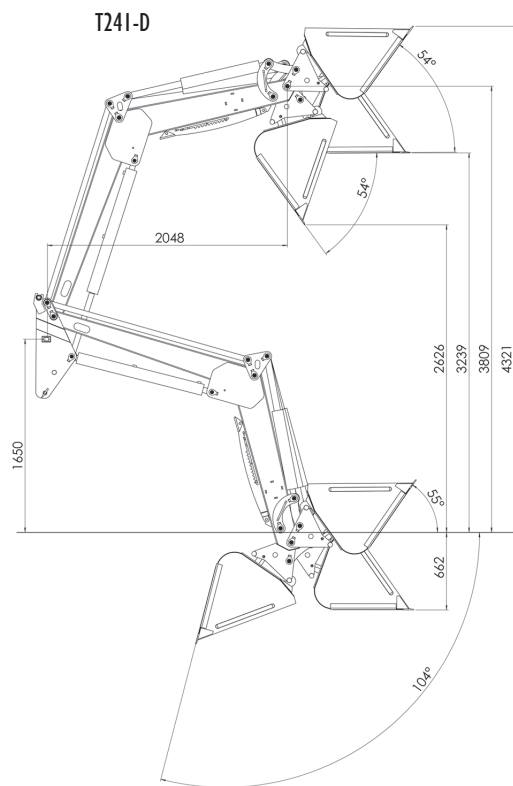
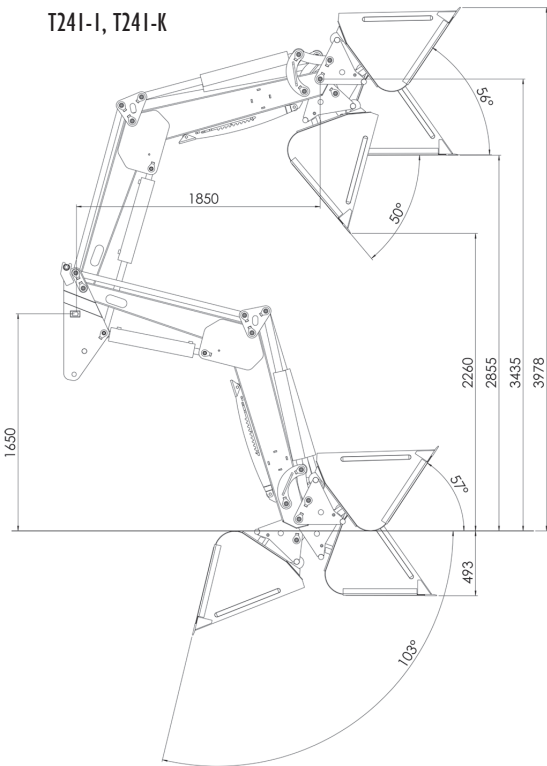
The table presents dimensions of a loader installed on a FARMER F-9258 TE tractor.

## 1.6 Dimensions of front loader



The drawings present overall dimensions of a T229 front loader with extreme positions of the working tool. The dimensions refer to a loader installed on a tractor with the fixing point located at 1650 mm from the surface. Dimensions of loaders installed on other tractors are different from the ones presented in the drawing.





The drawing present overall dimensions of a T241 front loader with extreme positions of the working tool.  
 The dimensions refer to a loader installed on a tractor with the fixing point located at 1650 mm from the surface.  
 Dimensions of loaders installed on other tractors are different from the ones presented in the drawing.

## 1.7 General safety rules

1.7.1 During operation and repair of the loader, the farming health and safety regulations contained in the Regulation of the Minister of Agriculture and Food Economy of 12 January 1998 must be complied with.

1.7.2 Only an adult with a valid agricultural tractor driver's licence and familiarised with the occupational health and safety regulations regarding agricultural equipment and this Manual may operate this machine.

1.7.3 The following manual must be read and adhered to, paying special attention to directions regarding the safe operation of the loader.

1.7.4 The manual indicates the machine parts which pose a potential threat. Hazardous areas are marked with yellow stickers with warning symbols. Pay special attention to the hazardous areas and strictly adhere to the rules.

1.7.5 The operator must familiarise themselves with the meaning of the symbols.

1.7.6 All adjustment, repair and maintenance works shall be conducted with the tractor engine turned off and making sure that the machine is secured against an accidental start.

1.7.7 Prior to doing work, particularly after a longer standstill, check the technical condition of the loader.

1.7.8 The machine must come with all guards and supports.

1.7.9 It is forbidden to operate damaged hydraulic lines. The damaged lines must be immediately replaced with new ones. During the replacement of hydraulic lines, use impermeable protective clothing and gloves.

1.7.10 The hydraulic lines of the loader shall be connected to the tractor hydraulic power system after the pressure has been disconnected.

1.7.11 Prior to starting the machine operation, install a balance weight.

1.7.12 Before and during operation and transport make sure that there are no bystanders, especially children, nearby.

1.7.13 It is forbidden for humans to stay on the working parts of the loader.

1.7.14 During the loader operation allow for free space near the working elements.

1.7.15 It is forbidden to work on a sloped area with inclination exceeding 8 degrees across and 12 degrees along the slope.

1.7.16 Do not exceed the acceptable load capacity of the loader.

1.7.17 Take special care when driving with the maximum acceptable load capacity and on a rough surface.

1.7.18 Do not lift the load to extreme heights on a slope or inclined terrain.

1.7.19 It is forbidden to stay under or operate the loader with any of the assemblies lifted.

1.7.20 Exercise extreme caution when coupling and uncoupling the loader with/from the tractor. Couple the machine with a tractor with a supporting frame installed on the tractor ►► chapter 1.2.

1.7.21 Exercise extreme caution at loading and unloading.

1.7.22 It is forbidden to conduct loading and unloading if it requires assistance of any third persons.

1.7.23 It is forbidden to load and unload flexible containers and pallets.

1.7.24 During operation, use appropriate protective clothing and shoes with anti-slip soles.

1.7.25 The machine hydraulic system shall only be operated from the tractor cabin.

- 1.7.26 Make sure there are no low-height power, telephone or gas lines (the machine working tools lift to 4 m).
- 1.7.27 Do not turn or brake violently when driving with a load.
- 1.7.28 Exercise caution when lifting loads. There is a risk of the load falling onto the operator's place. The tractor's protective frame is only a partial protection for the operator.
- 1.7.29 Follow the traffic code regulations and the manufacturer's recommendations when travelling on public roads. ►► Chapter 8.2.
- 1.7.30 Before entering a public road dismantle the loader working tool.
- 1.7.31 The tractor-loader unit can move on public roads without a balance weight if a full steering capacity of the tractor is maintained.
- 1.7.32 During each break in the operation, turn off the tractor engine, remove the ignition key, engage the tractor parking brake and lower the loader to the ground.
- 1.7.33 When stopping the machine on a slope, besides doing the above mentioned activities, place the chocks under the tractor wheels.
- 1.7.34 Check for correct installation of the extension arm supports in a storage setup and in a setup intended for installation on the tractor.
- 1.7.35 Maintain pressure in the tyres at the level indicated in the tractor manual.
- 1.7.36 It is forbidden to operate the loader while under influence of alcohol.
- 1.7.37 It is forbidden to operate the loader while under influence of drugs or medicines with similar effects.
- 1.7.38 It is forbidden to operate the loader while under influence of medicines which affect the ability to drive vehicles or reduce psychophysical fitness or cause concentration disorders and delay reaction time.
- 1.7.39 It is forbidden to drive the loader near sources of open flame.
- 1.7.40 Strictly adhere to the fire protection regulations and immediately extinguish any fire which may occur during the loader use or at its standstill.
- 1.7.41 Do not approach the working loader with open flame and do not smoke near the machine.
- 1.7.42 Every time before commencing work, check if the tractor is equipped with a dry powder extinguisher. If not, place a dry powder fire extinguisher on the tractor.

## 2 Drive operation

### 2.1 Tractors dedicated for front loaders

#### 2.1.1 Tractors dedicated for T229 front loaders

Make of tractor	Tractor type
<b>BELARUS</b>	80.1, 82.1, 800, 820, 890, 892, 900, 920, 950, 952, 1021, 1025
	920.3, 922.3, 952.3, 1021.3, 1025.3
	1221.3 (with a front TSS)
<b>CASE</b>	CS 86 (with a front TSS)
	CS 105 Pro
	JX 80
	JXU 85, 95
	JX 95, 90
	1056 AXL International
<b>CLAAS</b>	Celtis 456 RX
<b>FARMER</b>	F-8244-C2, F-8248
	F-10244-C1
	F- 8258
	F- 9258 TE, F- 7258 TE
	F4-7258
<b>FARMTRAC</b>	70 4WD, 665 DT
	80 4WD, 675 DT
	685 DT
	690 DT
<b>FENDT</b>	Farmer 309LS Turbomatik (1989)
	Farmer 311LSA Turbomatik (1984)

Make of tractor	Tractor type
<b>FOTON POLMOT</b>	824
	704
<b>INTERNATIONAL</b>	Synchron 1055 (1965)
<b>JOHN DEERE</b>	5620 Premium
	5820
	3040 Power Synchron
<b>JUMZ</b>	Jumz Farmer FJ-8244, F-10244
	Jumz (D65M-USSR engine)
<b>KUBOTA</b>	ME9000, ME8200
	M108S Dual Speed
	M8540
	M6040
<b>LAMBORGHINI</b>	Lamborghini 70 Lampo, Roller.
	Lamborghini 70W Lampo
	Lamborghini 70W Lampo, Same 70W Roller
	Lamborghini R2.56, R2.66
	Lamborghini G.Prix LS 874-90
	Lamborghini G.Prix 95 Target with a front TSS)
	Lamborghini G.Prix 95 Target, Same Explorer 95 Classic, Same Explorer II 90
	Lamborghini 1050 Premium
Lamborghini 1060	

<b>Make of tractor</b>	<b>Tractor type</b>
	Lamborghini R4.95
	Lamborghini R4.105
	Lamborghini R3 EVO 85, 100
<b>SAME</b>	Deutz Fahr 410, 420 Agrofarm, 85, 100 Agrofarm
	Same Silver 130 (with a front TSS)
	Same Dorado <sup>3</sup> 80
<b>DEUTZ-FAHR</b>	Agroplus 70, 80
	Agroplus 87
	Agroplus 95
	Agroplus 100
	Agrofarm 410, 420 (Lamborghini R3 EVO 85, 100)
	Agrofarm 85, 100
	Agrofarm 430
	DX 4.50
	DX 85, 90
	Agrotron 4.90 S
	Agrotron K120
	Agroplus 70, 80
<b>LANDINI</b>	105 Vision
	105 Vision (with a front TSS)
	125 Landpower (with a front TSS)
	95 Pauerfarm

<b>Make of tractor</b>	<b>Tractor type</b>
<b>MASSEY FERGUSON</b>	MF-188A (without a cabin)
	MF-398
	MF-575
	MF-1014
	MF-2620
	MF-3060 and probably MF-3050
	MF-3080, 3090
	MF-3095
	MF-3655 Turbo
	MF-4255
<b>MTZ</b>	80,82
<b>MTZ - PRONAR</b>	82A, 82SA, 82TS, 82TSA, 1025A
<b>McCORMICK</b>	CMAX 100
<b>NEW HOLLAND</b>	7056-Bis
	80-66S
	TD 60, 70D - old
	TD 60, 70D Plus - new
	TD 80D, TD 85D, TD 90D
	TD 95D
	TD 5030, TD 5020
	TD 5040, TD 5050
	T4030

Make of tractor	Tractor type
	T 6010 Delta
	T 6030 Delta
	T 6030 Delta
	TL 100A (T5040, T5050, T5060)
	TL 80, 90, 100
<b>PRONAR</b>	5112
	5130 (with a front TSS)
	5135 (with a front TSS)
	5135
	85 Zefir
	1025A II
<b>RENAULT</b>	Billancourt 92109
<b>STEYR</b>	8065 Turbo
<b>URSUS</b>	4512
	4514, 5314
	5714, 5314, 4514
	5714, 5314, 4514
	6014
	6024
	3724 (with a Metal Fach cabin)
	5524 - replaced by 6824
	914, C-385 (Zetor 8011, 8145)
	914 Bizon, 1014 (Zetor 8045, 10145)
	1224
<b>VALTRA</b>	A95 (MF-4455)
	A95 (with a front TSS)

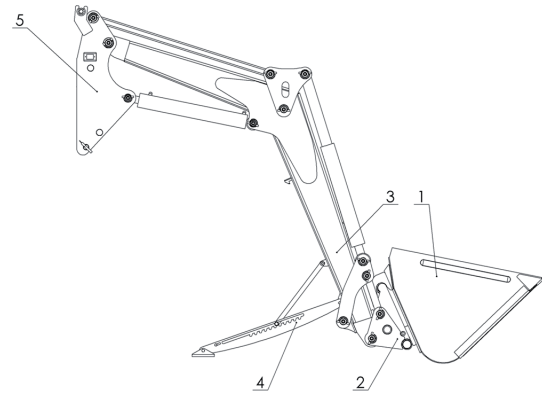
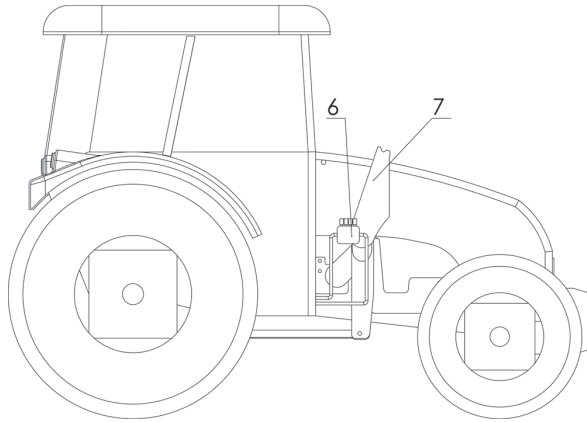
Make of tractor	Tractor type
<b>ZETOR</b>	5340, 6340, 7340, 5320
	6245, 7245, 7045, 7745, 5320, 6211, 7711, 4340, 5340 (ver.3 - basic)
	6245, 7245, 7045, 7745, 5320, 6211, 7711, 4340, 5340
	5245
	8540, 9540, 10540 Intercooler
	9641, 10641, 11441 Forterra Turbo
	9641, 10641, 11441 Forterra
	9641, 10641, 11441 Forterra
	6441, 7441, 8441 Proxima - 2006
	6441, 7441, 8441 Proxima - New, 75 Proxima
	7321, 7341 Super Turbo, 6321, 6341
	8011, 8145 (Ursus 914, C-385)
	8045, 10145 Crystal (Ursus 914 Bizon, 1014)
	12145 Turbo, 12111
	95 Proxima Power (9542.12)
	105 Proxima Plus (10541)
95, 105, 115 Forterra	

## 2.1.2 Tractors dedicated for T241 front loader

Make of tractor	Tractor type	
<b>CASE</b>	JX 80, 70, 60	
	JX 90, 95	
	JXU 85, 95, 105 JX 1090 U	
	JXU 85, 95, 105 JX 1090 U	without TSS
	CS 105 PRO	
<b>CLAAS</b>	Axos 340 CX	
	Arion 410 CIS	
<b>FARMER</b>	F-8244-C2, F-8248	
	F9258	
	F-9258 TE, F-7258 TE	
	F4-7258, F4-6258	
<b>JOHN DEERE</b>	5820	
	5080M	
	6330	
<b>McCORMICK</b>	CMAX 100	
<b>MTZ/PRONAR BELARUS</b>	80, 82, 82A, 82SA, 82TS, 82TSA, 1025A 80.1, 82.1, 800, 820, 890, 892, 900, 950, 952, 1021, 1025	
<b>NEW HOLLAND</b>	TD5030, TD5020	
	TD 5040, TD 5050	
	TL100A, T5040, T5050, T5060	
	T6040 Delta, TS 100 A	
	T6030 Delta	

Make of tractor	Tractor type
<b>URSUS</b>	Ursus 914 Bizon, 1014-Zetor 8045, 10145
	Ursus 6824, 5524
	Ursus 3724
<b>ZETOR</b>	Zetor 5340, 6340, 7340
	Zetor 6441, 7441, 8441 Proxima - New Zetor 75 Proxima
	Zetor 95 Proxima Power
<b>LAMBORGHINI DEUTZ FAHR SAME</b>	Lamborghini R3 EVO 85, 100 Deutz Fahr 410, 420 Agrofarm Deutz Fahr 85, 100 Agrofarm Same Explorer 85, 100 Deutz Fahr 430 Agrofarm Same Dorado 80 Deutz Fahr Agroplus 320 Deutz Fahr Agroplus 320 Ecoline Lamborghini 75 Rekord
<b>DEUTZ FAHR</b>	Agroplus 100 Agrofarm 430 Agrotron K120
<b>KUBOTA</b>	M5840
	M1085
	M6040
<b>VALTRA</b>	A95

## 2.2 Drive operation



An authorised dealer or manufacturer's service points install the frame on the tractor.

The drawing above shows a tractor with the frame installed. Install a loader's dual-section hydraulic control unit (6) on the right side of the frame (7). Install the hydraulic control unit in the tractor's power hydraulic system.



The first coupling of the loader with a tractor should be performed under the supervision of an experienced operator or a dealer's service representative.

The loader is coupled with the tractor in the following way:

- Place the loader on a hard, level ground, and place a support (4) as shown above,
- Carefully approach the loader with a tractor and frame (7) mounted in a service point to a distance allowing for connecting hydraulic power lines of the loader with a two-section control unit (6),
- Connect the loader's hydraulic power lines with the two-section control unit (6),
- Set the coupling device in the seat
- of the frame installed on the tractor (use movements of the loader's hydraulic power actuators



▶▶ chapter 3 and make a precise move with the tractor, if necessary),

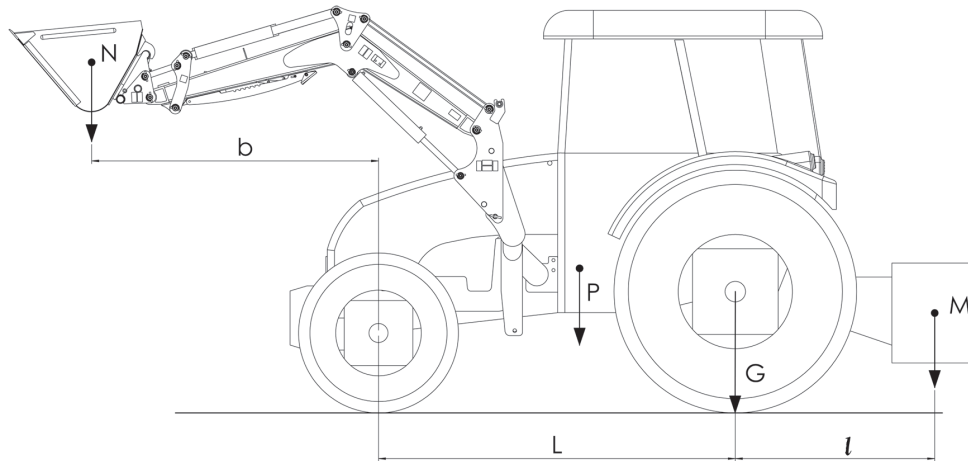
- Protect the connection of the device coupling with the frame, using bolts with pins,
- mount the support (4).



Do not dismantle the frame mounted in the service.



## 2.3 Stability of the loader-tractor system



Once the loader is installed on the tractor, the load centre is shifted and in extreme cases may result in a negative impact on the system stability.

Correction of the system load centre is done by mounting a balance weight on the rear TSS protecting the rear axle load with the value greater than 20% of the system weight (sum of the loader, working tool, counterweight and load weight).



Check the system stability before starting loading work with the maximum acceptable load.

The system stability is ensured when the following condition is fulfilled:

$$\frac{G * L + M(l + L) - N * b}{L} > \frac{P + N + M}{5}$$

where:

P - tractor weight (kg) with the extension arm,

M - weight (kg) of the rear balance weight,

G - pressure (kg) on the rear axle with the installed tool for mounting working tools and extension arm in the maximum extended position (with no rear balance weight),

b - vertical distance (mm) from the centre of the front axle to the load centre of the working tool with the load at the maximum extended position,

l - horizontal distance (mm) from the centre of the rear axle to the load centre of the rear balance weight,

L - axle spacing (mm).

Authorised sales points check whether the condition of stability has been fulfilled.

The user can check whether the condition of stability has been fulfilled by weighing the tractor with a maximum load and full equipment twice.

## 2.4 Disconnecting from the drive



One operator disconnects the loader from the tractor by themselves.



The first coupling of the loader with a tractor and the first disconnecting from the tractor should be performed under the supervision of an experienced operator or a dealer's service representative.



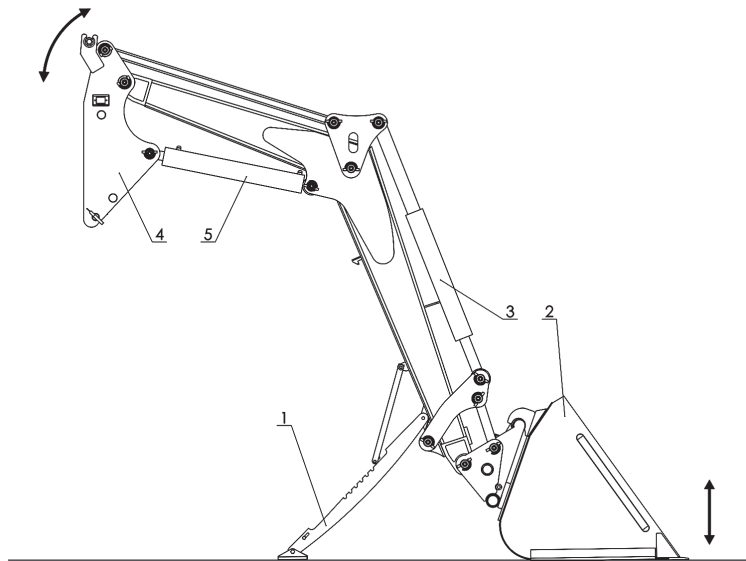
Prepare a hardened, even and levelled surface to store the loader.



Make sure that there are no bystanders, especially children, in the loader storage area and its vicinity.



Make sure that the tractor hydraulic system is tight.



The loader is disconnected from the tractor in the following way:

- Lower the loader carefully resting the tool (2) on the ground
- Remove the support (1), rest it on the ground and block the support (1) resting on the ground,
- Lower the loader to the ground,
- Remove the safety pins,
- Slightly lift the fixing plate (4) with the hydraulic actuator (3),

- The loader is removed from the supporting structure,
- Disconnect the loader power unit lines from the hydraulic control unit.



Store the loader with the working tool installed, ►► chapter 9 Loader storage.

# 3 Commissioning



The commissioning of a newly purchased front loader should be performed under the supervision of an experienced operator or a dealer's service representative.



Before commissioning, familiarise yourself with the following manual, paying special attention to the fragments regarding the safety of the operator and bystanders.



If there are any doubts regarding safety issues, please contact your sales representative or the manufacturer.

Hydraulic lines of the loader shall be connected to the two-circuit system of the tractor external hydraulic power system.

Connect the two-section hydraulic control unit (installed on the loader frame) with the tractor hydraulic power system with a two-section external hydraulic power system, chapter 5.3.

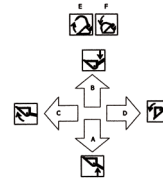
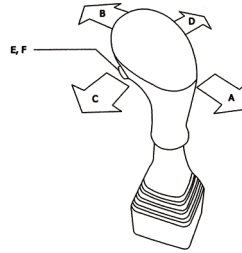
Install the controller (joystick) in the tractor's cabin without a two-circuit external hydraulic power system ►► chapter 4.1.



Do not adjust the hydraulic control unit and overflow valve. They have been properly set by the manufacturer.

## Commissioning of the controller

The controller of the control unit and solenoid valve allows for smooth and accurate control of the loader operation. The control unit controls the extension arm and tool operation whereas the solenoid valve allows for the grip closing and opening.



The drawing presents a graphic diagram of the loader controller function.

A - upward movement of the extension arm

B - downward movement of the extension arm

C - clockwise tool rotation,

D - counterclockwise tool rotation,

E - grip opening,

F - grip closing,

## Commissioning of the balance weight control

Provide correct balance weight control ►► chapter 4.

The balance weight is controlled from the operator's cabin with internal control levers of the tractor pull up cables ►► tractor's instruction manual.

# 4 Control and ongoing adjustment elements

## 4.1 Front loader controller



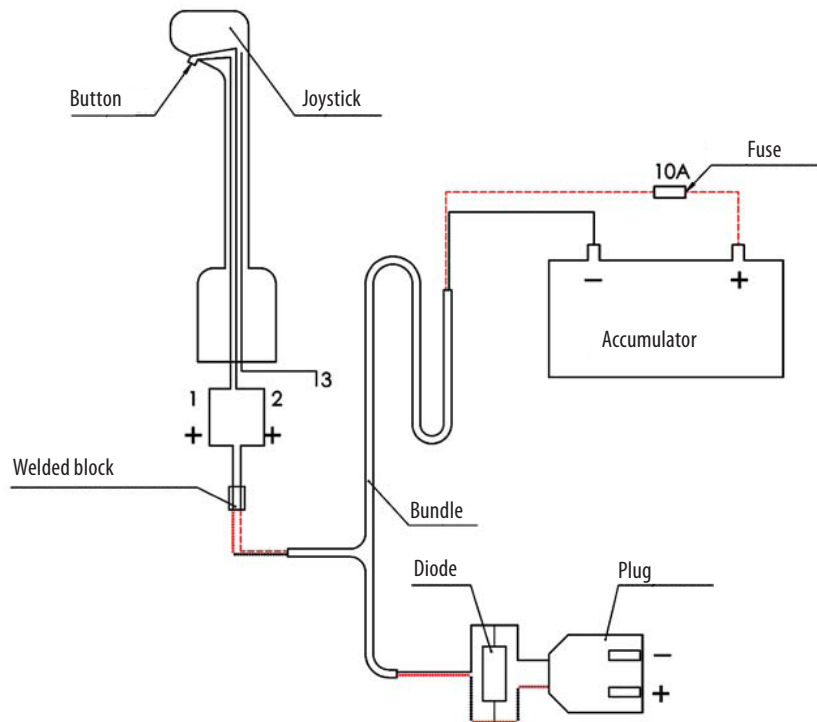
The first installation of the loader controller shall be done in the authorised sales or manufacturer's service point.

Install the loader controller (joystick) and connect it into the tractor's wiring system using the loader socket.

The diagram of the controller electrical connections is presented in the drawing.

Connect the controller with the two-section control unit installed on the supporting frame with Bowden wires.

Loader's electrical system connection diagram.



Line ----- red "+"  
Line ----- brown "-"  
Line ----- red and black "+"

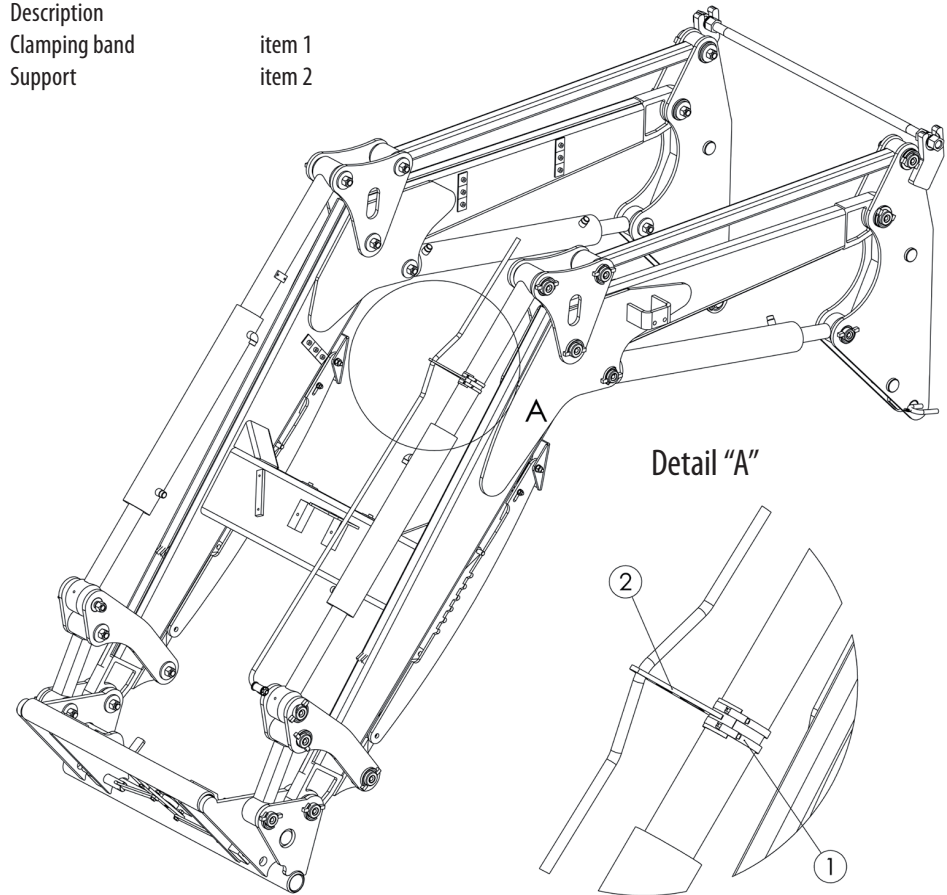


## 4.2 Location of ongoing adjustment points

### Indicator adjustment

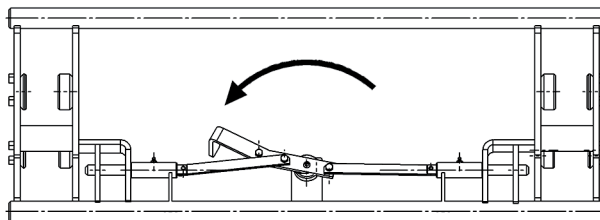
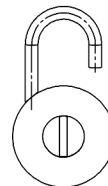
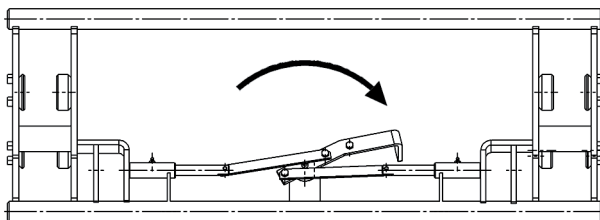
Once the tool has been installed, adjust the loader levelling indicator. To do so:

- set the tool in the required working position,
- loosen the clamping bands (1),
- set the support (2) with its centre in the middle of the indicator curve ►► detail A,
- tighten the clamping bands.



# 5 Operation of the front loader

## 5.1 Installing the working tool



The front loader is intended for operation with both mechanical tools and tools requiring connection to the loader hydraulic power system.



Make sure that there are no bystanders, especially children or animals, in the working tool mounting area and its vicinity.

Prior to installing the working tool, place the blocking tool in an open position as shown in the top drawing.

After installing the working tool, place the blocking tool in a lock position as shown in the bottom drawing.

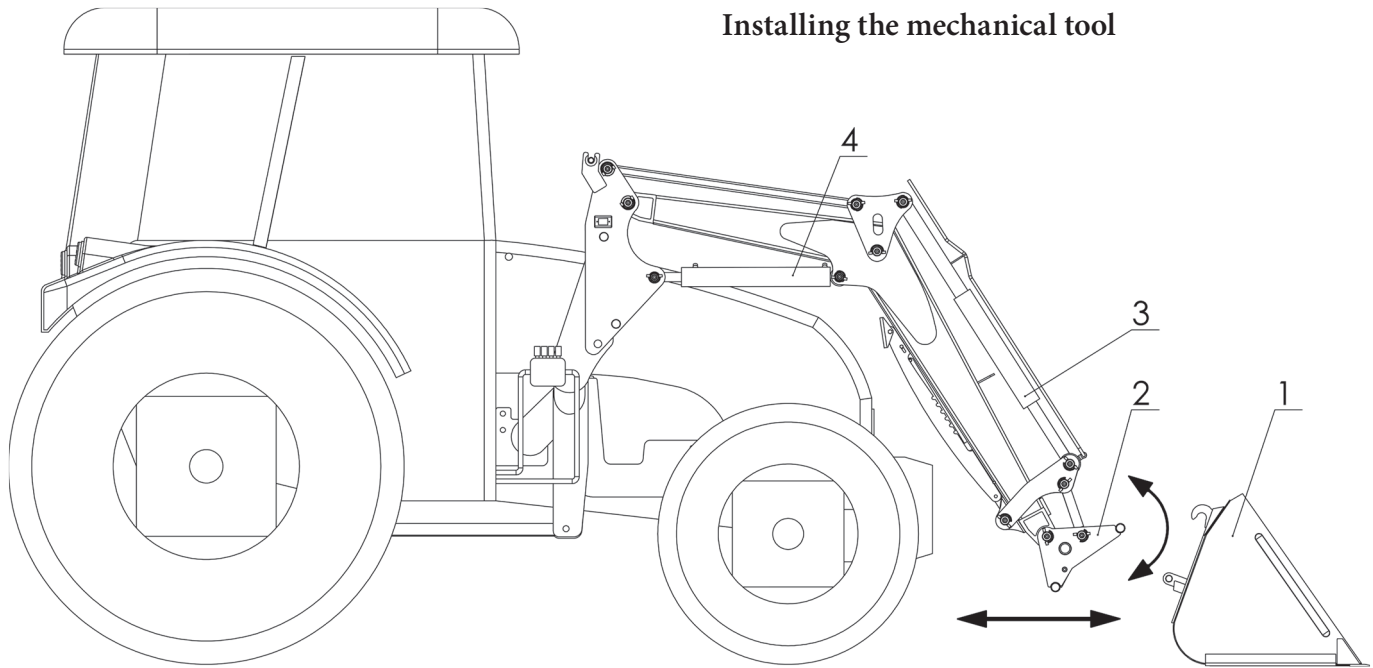


The tools can be installed and removed by the user exercising special care.



Wear appropriate protective clothing, gloves and shoes with anti-slip soles during maintenance works.

## Installing the mechanical tool



### Description:

Working tool  
Coupling frame  
Arm actuator  
Extension arm actuator

item 1  
item 2  
item 3  
item 4

The drawing above presents installation of the tool that does not require connection to the hydraulic power system of the loader.

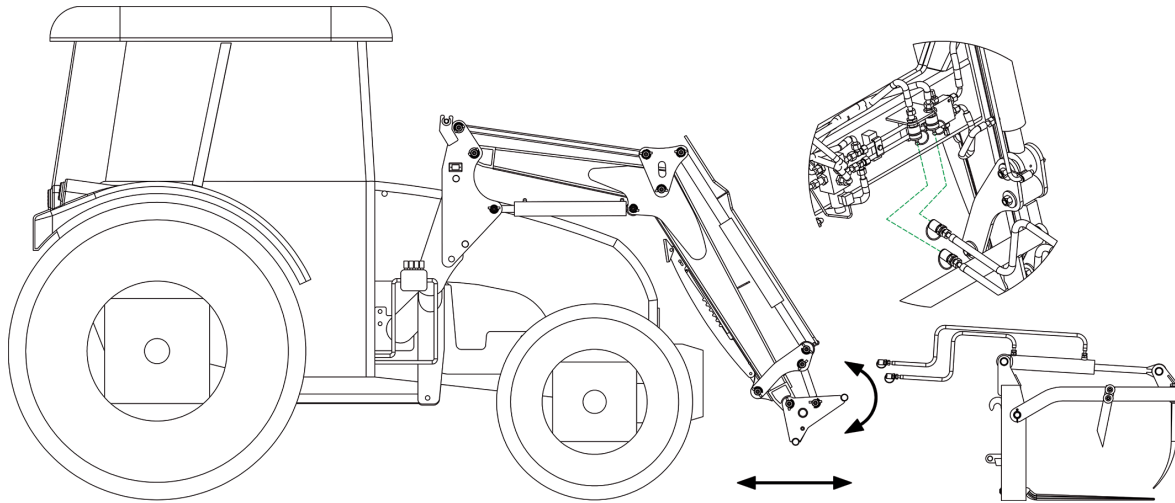
To install the tool:

- approach the tool (1) placed on a flat, level and hard surface,
- lower the loader until the coupling frame (2) is below the tool hooks (1),

- set the blocking device open ►► next page
- lower the coupling frame (2),
- carefully approach the tool,
- place the tool hitches (1) in the coupling frame guides (2),
- set the blocking device locked ►► next page.



## Installing the hydraulic tool



The drawing above presents installation of the tool which requires connection to the hydraulic power system of the loader.

To install the tool that uses the loader's hydraulic power system, perform the same initial actions as for installing a mechanical tool:

- approach the tool (1) placed on a flat, level and hard surface,
- lower the loader until the coupling frame (2) is below the tool hooks (1),
- set the blocking device open ►► next page,
- lower the coupling frame (2),
- carefully approach the tool,
- place the tool hitches (1) in the coupling frame guides (2),
- set the blocking device locked next page.

- connect the tool hydraulic lines to the actuator hydraulic power system as shown in the drawing above.



Make sure that the connectors of the loader's hydraulic lines included in the tractor hydraulic power circuit are free of impurities.



Both the hydraulic and mechanical tool shall be first installed in the presence of an employee of an authorised sales or manufacturer's service point.

## 5.2 Working tools

The manufacturer offers working tools as additional equipment. They can be purchased with the machine or at any convenient time.

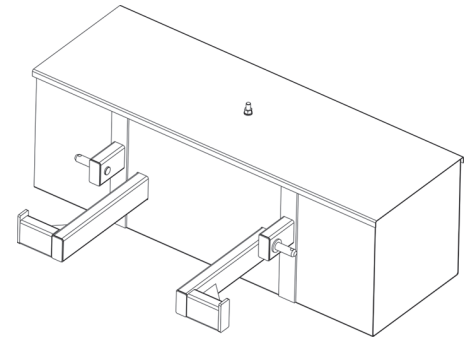
Each working tool comes with a nameplate.



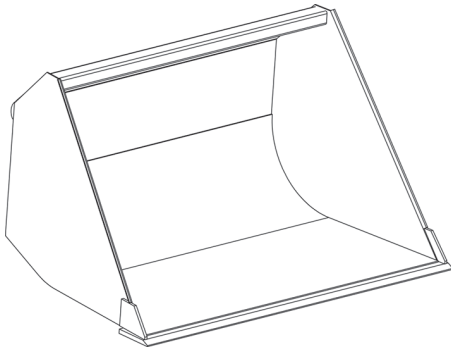
It is forbidden to load the tools with a weight exceeding the load capacity given on the nameplate.

<b>METAL-FACH</b>	Produkt Chwytnak bel			
	Typ OL.CH.....			
CE	Metal - Fach Sp. z o.o. 16-100 Sokółka ul. Kresowa 62 tel./fax +48571 19844/45 www.metalfach.com.pl	Masa	Max. udźwig	Szer. robocza
		Rok prod.	Nr fabr.	

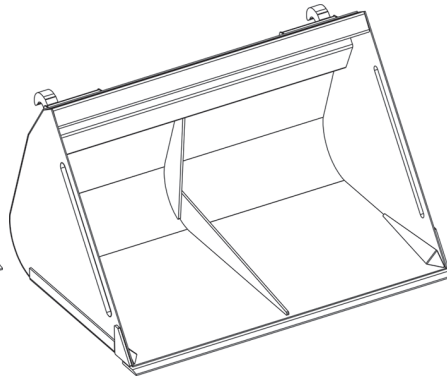
Nameplate for a tool



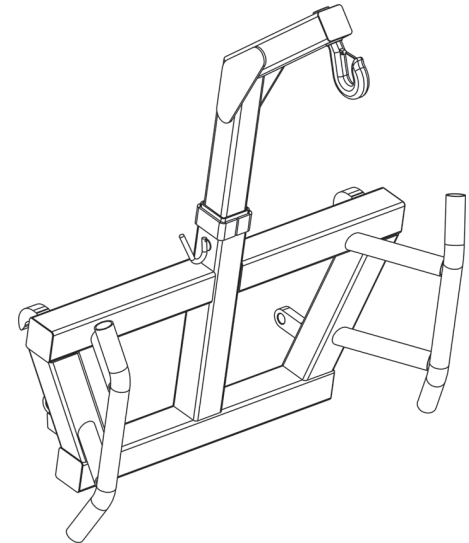
Ballast box



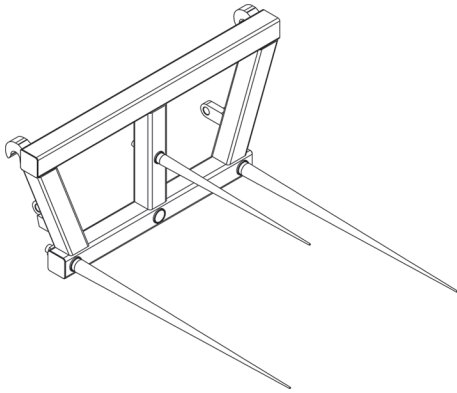
Bulk material bucket



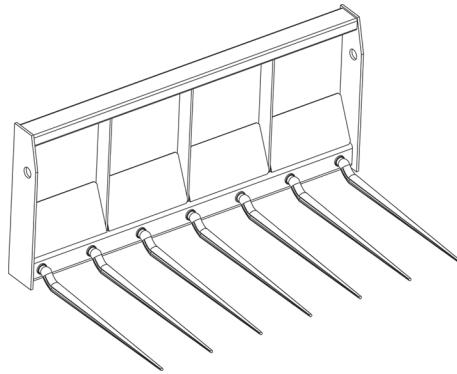
Bulk material bucket



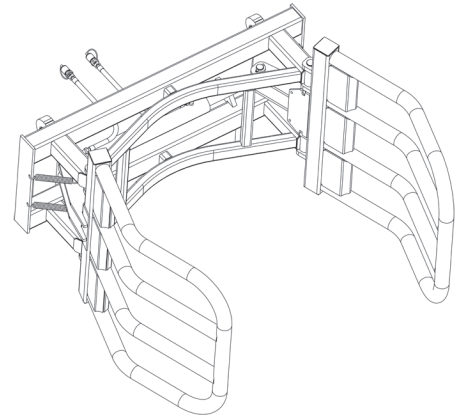
Big Bag lifter



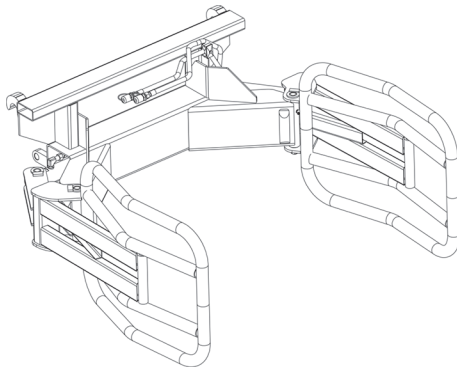
Bale fork



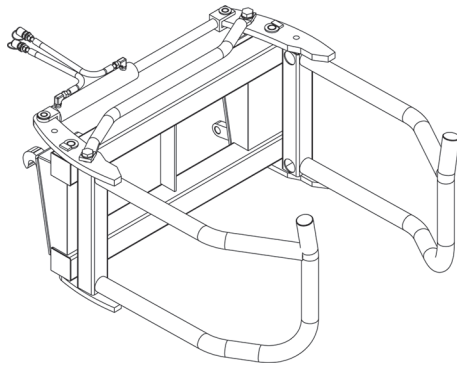
Manure and hay bale fork



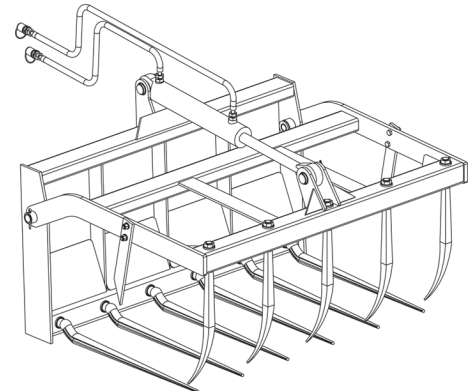
Heavy bale grip



Standard bale grip

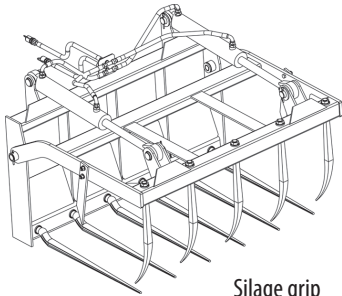


Lightweight bale grip

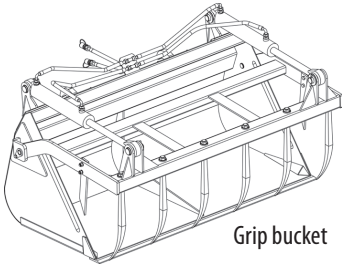


Silage grip

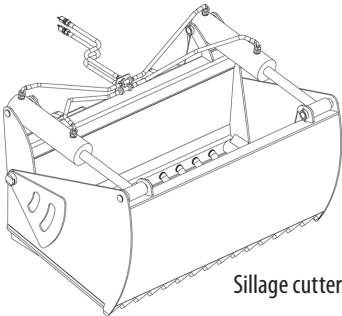
## Tools' characteristics



Silage grip



Grip bucket



Sillage cutter

Item	Type of accessories	Weight of accessories kg	Capacity m <sup>3</sup>	Load capacity kg	Number of pins (bottom/ top frame)	Pin spacing (bottom/ top frame)
1	Bulk material bucket					
	- 1.2 m width	144	0.38	650		
	- 1.5 m width	164	0.48	800		
	- 1.8 m width	194	0.57	950		
	- 2.0 m width	207	0.64	1050		
	- 2.2 m width	225	0.7	1150		
2	Bulk material BIG bucket					
	- 1.4 m width	155	0.45	750		
	- 1.7 m width	183	0.56	950		
	- 2.0 m width	214	0.67	1050		
	- 2.2 m width	226	0.74	1250		
3	Bale grip	183	1000-1400	600		
4	Heavy bale grip	186	950-1600	900		
5	Lightweight bale grip	151	850-1400	500		
6	Silage grip 1.2 m (1 actuator)	216	0.55	500	6 per 5	216/282
7	Silage grip 1.5 m (1 actuator)	242	0.68	650	7 per 6	230/286
8	Silage grip 1.8 m (1 actuator)	275	0.82	800	9 per 8	210/247
9	Silage grip 1.2 m (2 actuator)	250	0.55	500	6 per 5	216/282
10	Silage grip 1.5 m (2 actuator)	275	0.68	650	7 per 6	230/286
11	Silage grip 1.8 m (2 actuator)	305	0.82	800	9 per 8	210/247
12	Manure and hay bale fork 1.2 m	130	0.27	500	6	216
13	Manure and hay bale fork 1.5 m	150	0.34	650	7	230
14	Manure and hay bale fork 1.8 m	172	0.41	800	9	210
15	Grip bucket 1.5 m	300	0.77	800	6	290
16	Grip bucket 1.8 m	335	0.92	950	8	250
17	Silage cutter 1.2 m	415	0.55	750	9	140
18	Silage cutter 1.5 m	560	0.7	900	13	118
19	Bale fork	55		1000	3	760/230
20	Big Bag lifter	75		1000		
21	Ballast box, load capacity: 650 kg	125	0.35	650		
22	Ballast box, load capacity: 800 kg	135	0.45	800		

## 5.3 Hydraulic system

The front loader's hydraulic system is powered from the tractor's hydraulic system. The loader's attachment cables are used to connect the machine to the tractor's hydraulic system. The loader's operation is controlled using the controller (joystick) located in the operator's cabin ►► chapter 3.

Connect the loader's hydraulic power system through a two-section control unit (installed on the loader frame ►► chapter 2.3) with the tractor's hydraulic system.

The diagram and method of connecting the two-section control unit of the loader into the tractor's hydraulic power circuit is discussed in chapter 4.1



Do not adjust the control unit valve. It is pre-adjusted by the manufacturer. Correct setting of the valve prevents unauthorised overloading of the machine.



Keep the oil clean. The oil purity in the tractor's hydraulic power circuit must meet the 20/18/15 requirement according to ISO 4406-1996.

## 5.4 Operation of the loader

Prior to starting loader operation:

- check the tightening of all screws and nuts, in particular the screws connecting the support with the tractor. Retighten loose connections with a 60 Nm torque,
- check all pin connections,
- check the condition of hydraulic lines and push-in fittings,
- replace damaged hydraulic lines and push-in fittings with new ones,
- check the tractor's hydraulic and wiring system condition,
- lubricate all lubrication points ►► chapter 6.1,
- check correct operation of the hydraulic system by lifting the extension arm and rotating the tool,
- make sure there are no leaks from the hydraulic system,
- check the brake system for correct operation,
- check the tyre pressure,
- check the correct fixing of the tool on the loader,
- check the system stability ►► chapter 2.3.

## 5.5 Finishing work

After completing work:

- check all pin connections,
- check the condition of hydraulic lines and push-in fittings,
- make sure there are no leaks from the hydraulic system,
- remove the working tool from the loader,
- set the loader in the rest position or remove the loader from the frame ►► chapter 2.5,
- protect the hydraulic lines against UV radiation.



If any unauthorised changes to the two-section control unit valve setting are discovered, the warranty becomes null and void and releases the loader's manufacturer from any responsibility for hazard and damage it may cause.

# 6 Regular inspection

## 6.1 User's inspection

After each use of the loader:

- check all pin connections,
- check the condition of hydraulic lines and push-in fittings,
- make sure there are no leaks from the hydraulic system,
- remove the working tool from the loader,
- set the loader in the off position or remove the loader from the frame ►► chapter 2.4,
- protect the hydraulic lines against UV radiation.

The nameplate must only be replaced at an authorised service point.

Replace the illegible pictograms with new ones.

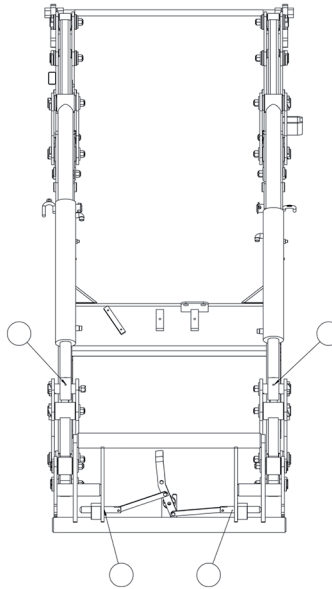
Replace damaged grease fittings.

After each 30-hour operating cycle and at the end of season, lubricate the points marked in the diagram aside with LT-43 bearing lubricant.

Replace the hydraulic lines every 3 years.

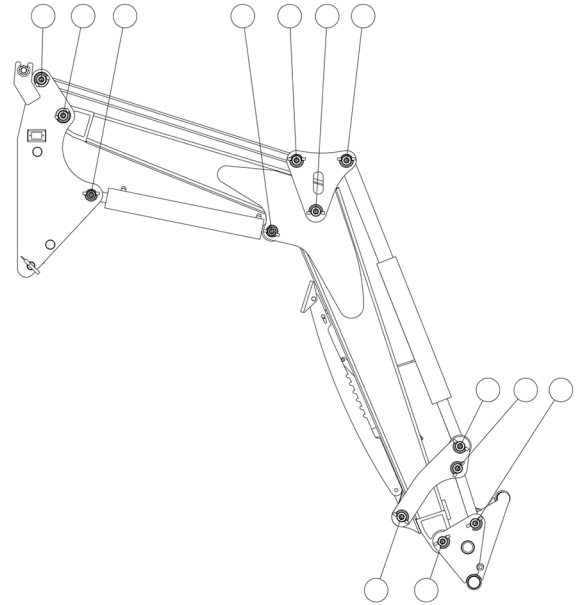
Conduct all inspections and repair maintenance activities with the tractor engine switched off, key removed from the ignition, activated auxiliary brake and extension arm lowered to the ground.

Clean the machine and control its condition, paying special attention to the quality of the protective paint coat. If it is required to make some touch-ups,



it is advised to use the paint repair kit supplied by the manufacturer.

Before every working season, check the loader operation (without load) by activating the arm and rotating the tool ►► chapter 3.



## 6.2 Service checks

Periodical service checks shall be performed after every two working seasons of machine use.

It is advised to use original spare parts which will help maintain the loader in a good technical order for a long time.

## 7 Authorised service

### 7.1 Warranty service

The manufacturer issues a warranty on conditions described in the warranty card. During the period covered by the warranty, repairs shall be made at authorised service stations or at the manufacturer's service point.

### 7.2 Ongoing maintenance

After the period covered by the warranty, authorised service stations perform periodical inspections, adjustments and repairs.

### 7.3 Ordering of spare parts

Spare parts should be ordered from resellers or directly from the manufacturer stating the name and surname of the user or company name and address, name, symbol, serial number and year of manufacture of the machine, catalogue name of the part, catalogue number, number of a drawing or standard, number of ordered items and agreed terms of payment.

## 8 Front loader transport

### 8.1 Transporting a load



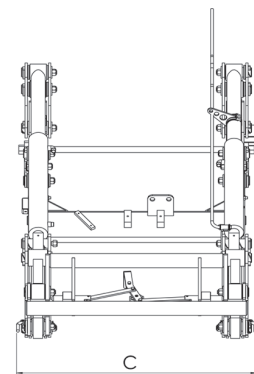
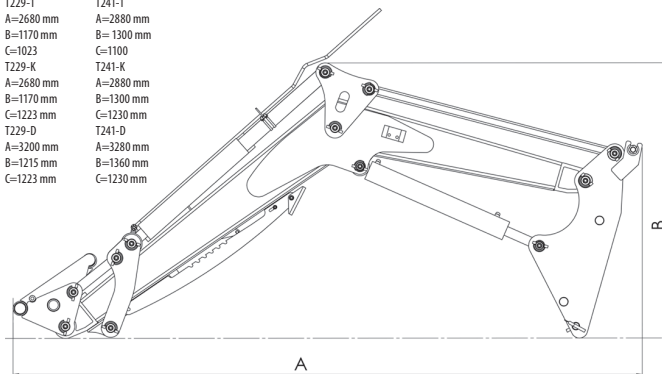
The loader is suitable for road and rail transport using carriers with appropriate load bearing capacity.



For loading on a means of road transport, use lifting devices with a lifting capacity appropriate for the loader weight. Use the frame elements marked on the machine as attachment points (see the pictogram) or forklift trucks.



T229-1	T241-1
A=2680 mm	A=2880 mm
B=1170 mm	B=1300 mm
C=1023	C=1100
T229-K	T241-K
A=2680 mm	A=2880 mm
B=1170 mm	B=1300 mm
C=1223 mm	C=1230 mm
T229-D	T241-D
A=3200 mm	A=3280 mm
B=1215 mm	B=1360 mm
C=1223 mm	C=1230 mm



It is forbidden to lift the loaders in a manner different than using relevant holes marked with pictograms or by lifting on pallets using forklift trucks.

The lifting device should be operated by experienced operators with appropriate qualifications.

It is forbidden to transport the loader with a load.

The transported loader must be securely fastened to the carrier vehicle on wooden transport pallets.

Fasten the pallet securely to the surface.

The dimensions of a loader prepared for transport as a load are presented below.

## 8.2 Driving on public roads

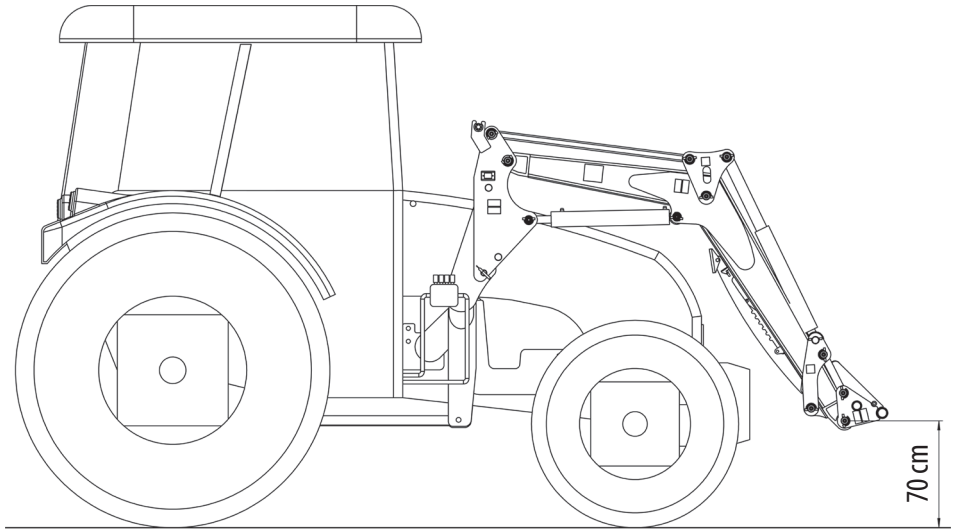
The loader can be driven on public roads as a machine installed on a tractor.

The dimensions of the machine prepared for transport are shown in ►► chapter 1.5.

Use tractors with a balance weight connected to the rear TSS for transport on public roads.

Before entering a public road:

- dismantle the working tool,
- set the loader's extension arm in a resting position (tool rotation point ca. 70 cm above the ground),
- move the lock to secure the controller (joystick) against incidental activation,
- the speed should be adjusted to the existing conditions and not exceed 15 kph,



It is forbidden to drive a loader with the working tool installed on the extension arm on public roads,



It is forbidden to transport a load on a loader on public roads.

Before entering public roads, check if the tractor is fully steerable. The load on the rear axle must be at least 20% of the tractor's own weight. If this condition is not met, additional weight is required on the rear axle.



## 9 Storage of the front loader

Follow the traffic code regulations when transporting the loader on public roads.

If an emergency requires the driver to stop the tractor with a coupled loader on a public road, the tractor driver should:

- Stop the vehicle without causing any danger to the road users,
- Stop the vehicle as close to the road edge as possible and parallel to the road axis,
- Turn off the engine, remove the ignition key, engage the parking brake and place chocks under the tractor's wheels,
- Outside a built-up area, the warning triangle should be placed 30-50 meters behind the vehicle and the emergency lights must be turned on,
- While driving in a built-up area, turn on the emergency lights and place the warning triangle in the stand on the rear of the machine. Make sure that the triangle is visible to other road users,
- In the event of a breakdown, take the required precautions to ensure safety in the area.



Store the loader on a hard, flat, level surface. Ensure greater stability by storing the loader coupled with the working tool (e.g. bulk material bucket). Stable position is ensured when the loader is stored lying flat ►► chapter 8.1 Load transport.



It is forbidden to conduct the loader maintenance at storage with any of the assemblies lifted.



Protect hydraulic lines connections against oil leaks.



Store the loader in an atmosphere free of aggressive agents (e.g. ammonia, chemicals).

If the loader is stored without any canopy roof, protect it with a water-resistant tarpaulin or film.

After the working season is over, clean the loader and check the condition of the protective paint coating. Touch up the damage to the paint coating at a service workshop.

Check the condition and legibility of the nameplate. If the plate is damaged, notify the service station.

Check the condition and legibility of the symbols. If they are damaged, replace them with new ones.

It is advised to store the loader in a dry location, protecting it against UV rays and other harmful agents.



# 10 Hazards

## 10.1 Description of residual risks

Residual risks result from incorrect actions of the loader operator. The greatest hazards occur during the following forbidden actions:

- Installation of the loader on tractors which do not meet the required minimum criteria stated in this Manual,
- Standing below raised components of the machine,
- Humans and animals staying in the machine working area,
- Operating or repairing the loader with the tractor engine on or servicing or repairing the loader under the extension arm which is lifted and unsecured against incidental lowering,
- Using damaged hydraulic lines,
- Operation without keeping a safe distance from power, telephone and gas lines,
- Machine operation without a balance weight in place,
- Machine operation by an operator standing outside the tractor cabin,
- Machine operation by an operator under influence of alcohol,
- Operating a loader which is damaged or without protective guards in place,

- Operating the loader on slopes with an inclination exceeding 8°,
- Transport materials with the loader on public roads,
- Humans staying on the working tools during the loader operation or driving on public roads,
- Using the loader against its intended use,
- Leaving the loader unsecured on an inclined land,
- Standing between the tractor and the machine while the engine is running.

With the aforementioned residual risks, the loader is regarded as a machine which has been designed and built according to the current state of technology.

## 10.2 Assessment of residual risks

Follow these guidelines:

- Read and fully understand the Operating Manual.
- Do not stay under a lifted grip,
- Do not stay in the loader working area.
- The maintenance and repairs of the loader should be performed at authorised service workshops.
- The machine should be used by trained and authorised operators.
- Protect the loader against access by children and bystanders.

Only then can you eliminate the residual risks related to using this loader and keep it safe to people and the environment.

**Note:**

**The residual risks are present when the aforementioned manufacturer's rules and indications are not followed.**

## 11 Loader disposal

Disassembly and disposal of the loader should be performed by specialised service stations familiarised with the construction and functioning of the machine. Only specialised service stations have complete and up-to-date knowledge of the applied materials and hazards related to their improper transport and storage. The authorised service stations offer both advice and complete machine disposal services.

Use proper tools and auxiliary equipment for the disassembly (jack, lift).



The used oil must be stored in sealed containers. Immediately dispose of the used oil at petrol stations which collect such materials.



Dismantle the machine. Segregate the dismantled components. Pass the dismantled components to relevant collection points.



During disassembly of the loader machine use proper protective clothing and shoes.

## 12 Typical problems and troubleshooting

Item	Problem	Possible cause	Remedy
1	2	3	4
1.	Hydraulic cylinders of the loader work incorrectly.	Not enough oil in the tractor hydraulic system.	Check the oil condition in the tractor and complete if necessary.
		Oil pressure in the tractor hydraulic system is too low.	Check pressure in the tractor hydraulic system with a pressure gauge (min. 14 MPa).
		Incorrectly set lever of the external circuit.	Turn on the pump drive.
		Damaged actuator.	Check the actuator's condition, replace it with a new one or contact the loader manufacturer.
2.	The loader works too slowly.	Not enough oil in the tractor hydraulic system. Low pump capacity.	Check the oil condition and top up if necessary.
3.	Oil leaks from the control unit	Worn out seal rings.	Replace the seal rings on the hydraulic control unit.
4.	The loader's extension arm does not lift loads.	Damaged actuator.	Check the actuator's condition, replace it with a new one or contact the loader manufacturer.
		Not enough oil in the tractor hydraulic system.	Check the oil condition and top up if necessary.
		Oil pressure in the tractor hydraulic system is too low.	The pump is damaged or its capacity is too low.

## 13 Accessories

The user may purchase the following optional and additional equipment at an authorised reseller or directly from the manufacturer:

- Spare parts catalogue - printed version.
- Warning triangle sign for slow-running vehicles  
▶▶ chapter 8.2,
- Paint touch-up kit ▶▶ chapter 5.8,
- Bulk material bucket with a volume of 0.38 m<sup>3</sup> - (width: 1.2 m); 0.48 m<sup>3</sup> - (1.5 m); 0.58 m<sup>3</sup> - (1.8 m); 0.64 m<sup>3</sup> - (2.0 m); 0.70 m<sup>3</sup> - (2.2 m); 0.77 m<sup>3</sup> - (2.4 m).
- Bale grip,
- Silage grip,
- Manure and hay bale fork,
- Grip bucket,
- Silage cutter,
- Bale fork
- Ballast box
- Big Bag lifter
- Torque wrench

## 14 Names and abbreviations

**Nameplate** - plate with information which unequivocally identifies the machine

**Pictogram** - information plate,

**OHS** - Occupational Health and Safety,

**TSS** - three-point suspension system - elements of tractor hitching ▶▶ tractor's instruction manual,

**UV** - ultraviolet radiation; invisible electromagnetic radiation which may have a negative influence on human health; UV radiation also has a negative effect on rubber elements.

**kW** - kilowatt, unit of power,

**V** - volt, unit of voltage,

**bar** - unit of pressure,

**kg** - kilogram, unit of mass,

**m** - meter, unit of distance,

**mm** - millimetre, auxiliary unit of distance equal to 0.001 m,

**min** - minute, auxiliary unit of time equal to 60 seconds,

**kph** - kilometres per hour, unit of speed,

**db(A)** - A-scale decibel, unit of acoustic pressure,



# Warranty card

**Metal-Fach**  
**ul. Kresowa 62**  
**16-100 Sokółka**

**Warranty card**  
**Front loader T.....**

Front loader T..... Serial no .....Year/ date of manufacture.....

**Date of sale** .....

F  
I  
L  
L  
E  
D  
  
B  
Y

**The warranty service is provided**  
**on behalf of the manufacturer by:** .....

Seller's stamp, legible signature of the outlet representative

S  
E  
L  
L  
E  
R

Name and surname of the Customer.....Signature .....

Post code, City.....

Street, number.....Tel. ....

## Warranty conditions

1. The manufacturer provides a front loader designed and built in compliance with the current standards. The manufacturer guarantees that the supplied loader is free of manufacturing defects.
2. Metal-Fach Sp. z o.o. provides warranty service for 12 months starting from the date of first sale, provided the loader is used for its intended purpose and the recommendations contained in the manual are followed.
3. The warranty card properly filled in at the Dealership is the confirmation of the manufacturer's warranty; the acceptance of the warranty conditions must be confirmed by the customer's signature.

## Warranty conditions

4. The quality warranty covers the machine defects caused by defective manufacturing, material defects and latent defects.
5. The warranty does not cover the assemblies and parts which are subject to normal wear and tear (e.g. hydraulic power lines).
6. The warranty does not cover any mechanical damage or other damage resulting from improper use, improper maintenance or improper adjustment of the loader.
7. The warranty does not cover any damage resulting from using polluted or inappropriate oil in the tractor's hydraulic system. The oil cleanliness must meet the 20/18/15 requirement according to ISO 4406-1996.
8. The warranty does not cover any damage resulting from improper storage of the machine.
9. Any unauthorised modifications in the construction of the machine or unauthorised adjustments to the hydraulic system introduced by the user will result in automatic termination of the warranty.
10. Breaking the seals applied by the manufacturer will result in automatic termination of the warranty.
11. The manufacturer shall not be held responsible for any loss, damage or destruction of a product resulting from causes other than defects of the supplied machine.
12. During the warranty period the manufacturer will repair any defects which occurred as a result of the manufacturer's negligence with the exception of defects listed in items from 5 to 9.
13. The warranty repair shall be made within 14 working days of the notification/ supply of the loader to the designated service station or at another time agreed upon by the parties.
14. The warranty is extended by the time required to complete the repair.
15. During the warranty period all repairs which are not covered by the warranty are performed by authorised service stations at a full cost chargeable to the user. Before such repairs, the service station will inform the user of the suggested cost, time and scope of the repair.
16. The decision whether to commence a chargeable repair of the loader with a warranty valid at the time of repair is made by the customer.