



PRONAR Sp. z o.o.

17-210 NAREW, UL. MICKIEWICZA 101A, PODLASKIE PROVINCE

phone:	+48 085 681 63 29	+48 085 681 64 29
	+48 085 681 63 81	+48 085 681 63 82
fax:	+48 085 681 63 83	+48 085 682 71 10

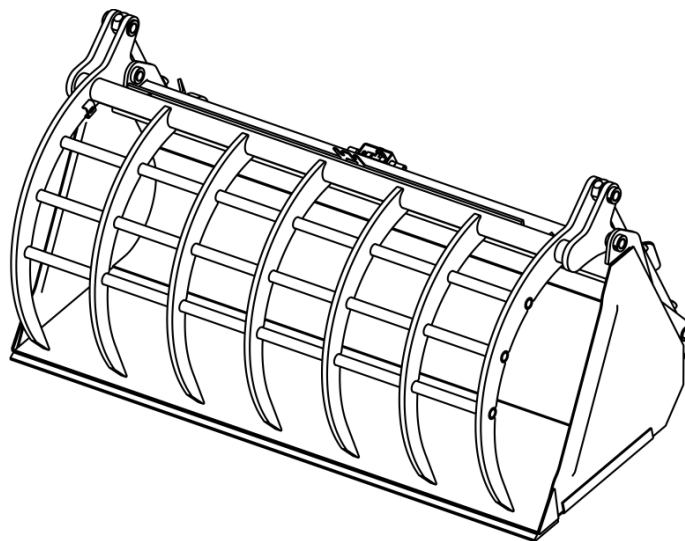
www.pronar.pl

OPERATOR`S MANUAL

**FRONT LOADER IMPLEMENTS
TYPES OF ATTACHMENT: ŁC-1650; EURO**

GRAPPLE BUCKET PRONAR CHC15 / CHC18 / CHC20 PRONAR CHC15E / CHC18E / CHC20E

TRANSLATION OF THE ORIGINAL COPY OF THE MANUAL



EDITION 1A-02-2010

PUBLICATION NO 197N-0000000-UM



FRONT LOADER IMPLEMENTS

TYPES OF ATTACHMENT: LC-1650; EURO

GRAPPLE BUCKET

PRONAR CHC15 / CHC18 / CHC20

PRONAR CHC15E / CHC18E / CHC20E

MACHINE IDENTIFICATION

TYPE:

SERIAL NUMBER:

--	--	--	--	--	--

INTRODUCTION

Information contained herein is current at date of publication. As a result of improvements, some numerical values and illustrations contained in this publication may not correspond to the factual specification of the machine supplied to the user. The manufacturer reserves the right to introduce design changes in machines produced that facilitate operation and improve the quality of their work, without making minor amendments to this Operator's Manual.

This Operator's Manual is an integral part of the machine's documentation. Before using the machine, the user must carefully read this Operator's Manual and observe all recommendations. This guarantees safe operation and ensures failure-free work of the machine. The machine is designed to meet obligatory standards, documents and legal regulations currently in force.

The manual describes the basic safety rules and operation of the implement. If the information stated in the Operator's Manual needs clarification then the user should refer for assistance to the sale point where the machine was purchased or to the Manufacturer.

MANUFACTURER'S ADDRESS:

*PRONAR Sp. z o.o.
ul. Mickiewicza 101A
17-210 Narew*

CONTACT TELEPHONES

<i>+48 085 681 63 29</i>	<i>+48 085 681 64 29</i>
<i>+48 085 681 63 81</i>	<i>+48 085 681 63 82</i>

SYMBOLS APPEARING IN THIS OPERATOR'S MANUAL

Information, descriptions of danger and precautions and also recommendations and prohibitions associated with user safety instructions are marked:



and also preceded by the word "**DANGER**". Failure to observe the instructions may endanger the machine operator's or other person's health or life.

Particularly important information and instructions, the observance of which is essential, are distinguished in the text by the sign:



and also preceded by the word "**ATTENTION**". Failure to observe the instructions may lead to damage to the machine as a result of improper operation, adjustment or use.

In order to focus the user's attention on the need to perform maintenance, the relevant section of the Operator's Manual is marked with the pictogram:



Additional tips and advice for machine operation are marked with the sign:



and also preceded by the word "**TIP**".

DIRECTIONS USED IN THIS OPERATOR'S MANUAL

Left side – side to the left hand of the operator facing in the direction of machine's forward travel.

Right side – side to the right hand of the operator facing in the direction of machine's forward travel.



PRONAR Sp. z o.o.

ul. Mickiewicza 101 A
17-210 Narew, Polska

tel./fax (+48 85) 681 63 29, 681 63 81, 681 63 82,
681 63 84, 681 64 29

fax (+48 85) 681 63 83

http://www.pronar.pl

e-mail: pronar@pronar.pl

EC DECLARATION OF CONFORMITY OF THE MACHINERY

PRONAR Sp. z o.o. declares with full responsibility, that the machine:

Description and identification of the machinery						
Generic denomination and function:	Silage bucket					
Type:	CHC15	CHC18	CHC20	CHC15E	CHC18E	CHC20E
Model:	–	–	–	–	–	–
Serial number:						
Commercial name:	Silage bucket PRONAR CHC15 Silage bucket PRONAR CHC18 Silage bucket PRONAR CHC20 Silage bucket PRONAR CHC15E Silage bucket PRONAR CHC18E Silage bucket PRONAR CHC20E					

to which this declaration relates, fulfills all the relevant provisions of the Directive **2006/42/EC** of The European Parliament and of The Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (Official Journal of the EU, L 157/24 of 09.06.2006).

The person authorized to compile the technical file is the Head of Research and Development Department at PRONAR Sp. z o.o., 17-210 Narew, ul. Mickiewicza 101A, Poland.

This declaration relates exclusively to the machinery in the state in which it was placed on the market, and excludes components which are added and/or operations carried out subsequently by the final user.

Z-CA DYREKTORA
d/s technicznych
członka zarządu
Roman Omelianuk
Roman Omelianuk

Narew, the 2010 -04- 07

Place and date

Full name of the empowered person
position, signature

TABLE OF CONTENTS

1	BASIC INFORMATION	1.1
1.1	IDENTIFICATION	1.2
1.2	PROPER USE	1.3
1.3	EQUIPMENT	1.4
1.4	WARRANTY TERMS	1.5
1.5	TRANSPORT	1.6
1.6	ENVIRONMENTAL HAZARDS	1.8
1.7	WITHDRAWAL FROM USE	1.8
2	SAFETY ADVICE	2.1
2.1	BASIC SAFETY RULES	2.2
2.1.1	USE OF MACHINE	2.2
2.1.2	LINKING AND DISCONNECTING THE IMPLEMENT	2.3
2.1.3	HYDRAULIC SYSTEM	2.3
2.1.4	TRANSPORTING THE MACHINE	2.4
2.1.5	MAINTENANCE	2.4
2.1.6	OPERATING THE IMPLEMENT	2.6
2.2	RESIDUAL RISK	2.7
2.3	INFORMATION AND WARNING DECALS	2.8
3	DESIGN AND OPERATION	3.1
3.1	TECHNICAL SPECIFICATION	3.2
3.2	GENERAL DESIGN	3.3
3.3	HYDRAULIC SYSTEM	3.4
4	CORRECT USE	4.1
4.1	PREPARING FOR WORK	4.2

4.2 CHECKING TECHNICAL CONDITION	4.3
4.3 HITCHING TO FRONT LOADER	4.4
4.3.1 HITCHING TO FRONT LOADER ARM	4.4
4.3.2 CONNECTING THE HYDRAULIC SYSTEM	4.5
4.4 OPERATING THE IMPLEMENT	4.7
4.5 UNHITCH THE IMPLEMENT FROM THE LOADER	4.9
4.6 TRANSPORTING THE MACHINE	4.10
4.7 INSTALLATION OF ADDITIONAL EQUIPMENT	4.11
5 MAINTENANCE	5.1
5.1 HYDRAULIC SYSTEM MAINTENANCE	5.2
5.2 STORAGE	5.4
5.3 LUBRICATION	5.5
5.4 TIGHTENING TORQUE FOR NUT AND BOLT CONNECTIONS	5.6
5.5 TROUBLESHOOTING	5.7

SECTION

1

BASIC INFORMATION

1.1 IDENTIFICATION

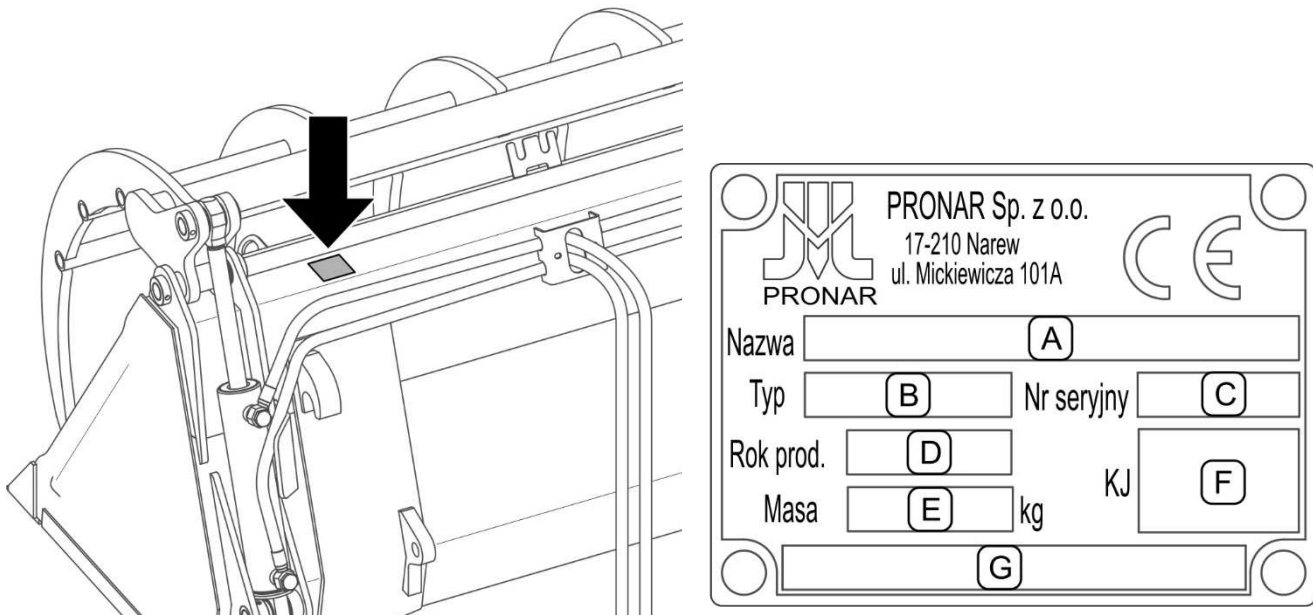


FIGURE 1.1 Location of the data plate

Meaning of data plate items (FIGURE 1.1):

- A - machine name
- B – type (e.g. CHC15)
- C – serial number
- D – year of manufacture
- E – machine tare weight [kg]
- F – Quality Control stamp
- G – Unfilled box or extension of name (box A)

Serial number is stamped on the data plate. Data plate is located on the left side, on the top surface of the bucket (FIGURE 1.1). When buying the machine check that the serial number on the machine agrees with the number written in the *WARRANTY BOOK*, in the sales documents and in the *OPERATOR'S MANUAL*.

1.2 PROPER USE

The implement described in this Operator's Manual is designed for ŁC-1650 front loaders and front loaders equipped with EURO linkage. Attachments for ŁC-1650 loaders are not compatible with the attachments for EURO loaders and vice versa because they are equipped with different linkage depending on the attachment model (see 3.1 *TECHNICAL SPECIFICATION*).

The grapple bucket is used for collecting from storage area, loading to transport vehicles and handling loose materials (e.g. seeds, sand), loosely bound materials (e.g. manure, silage) and bulky materials (e.g. sawdust, rubbish, leaves, biomass). The grapple bucket may be used for transporting the above-mentioned materials only at short distances.

The above mentioned implement may only be used for loading and unloading work in agriculture, forestry and municipal services. The use of the implement for other purposes should be regarded as improper.

Using it as intended also involves all actions connected with the safe and proper operation and maintenance of the machine. Due to the above, the user is obliged to:

- carefully read the *OPERATOR'S MANUAL* and comply with its recommendations,
- understand the machine's operating principle and how to operate it safely and correctly,
- comply with general safety regulations while working,
- prevent accidents,
- comply with road traffic regulations.

The machine may only be used by persons, who:

- are familiar with the contents of this publication and with the contents of the carrying vehicle's Operator's Manual,
- have been trained in machine operation and safe working conditions,
- have the required authorisation to drive the carrying vehicle and are familiar with the road traffic regulations.

ATTENTION

The implement must not be used for purposes other than those for which it is intended, in particular:

- for transporting people and animals,
- for transporting any materials other than those listed in the manual.

TABLE 1.1 Requirements for front loader

	UNIT	REQUIREMENTS
Linkage	– –	LC-1650 EURO
Nominal pressure in the hydraulic system	MPa	16
Hydraulic sockets	–	2 sockets of one section for controlling the implement
Type of oil	–	hydraulic, HL32

1.3 EQUIPMENT

The implement equipment includes:

- The Operator's Manual;
- Warranty Book

Additional equipment:

- mesh shield (see 4.7 *INSTALLATION OF ADDITIONAL EQUIPMENT*)

1.4 WARRANTY TERMS

PRONAR Sp. z o.o., Narew guarantees the reliable operation of the machine when it is used according to its intended purpose as described in the *OPERATOR'S MANUAL*. Defects discovered during the warranty period will be removed by the Warranty Service. The repair period is specified in the *WARRANTY BOOK*.

The warranty does not cover those parts and sub-assemblies of the machine which are subject to wear in normal usage conditions, regardless of the warranty period. Consumables include the following parts/sub-assemblies:

- bucket blade,
- grapple slide sleeves,

The warranty service only applies to such cases as: mechanical damage which is not the user's fault, factory defects of parts, etc.

In the event of damage arising from:

- mechanical damage which is the user's fault, road accidents,
- inappropriate use, adjustment or maintenance, use of the machine for purposes other than those for which it is intended,
- use of damaged or malfunctioning machine,
- repairs carried out by unauthorised persons, repairs carried out improperly,
- making unauthorised alterations to machine design,

the user will lose the right to warranty service.



TIP

Demand that the seller carefully and precisely fills out the *WARRANTY BOOK* and warranty repair coupons. A missing date of purchase or sale point stamp may make the user ineligible for any warranty repair or refund.

The user is obliged to report immediately on noticing any wear in the paint coating or traces of corrosion, and to have the faults rectified whether they are covered by the guarantee or not. For detailed Terms & Conditions of Warranty, please refer to the *WARRANTY BOOK* attached to each newly purchased machine.

Modifications of the machine without the written consent of the Manufacturer are prohibited. In particular, do NOT weld, drill holes in, cut or heat the main structural elements, which have a direct impact on the machine operation safety.

1.5 TRANSPORT

The machine is prepared for sale completely assembled and does not require packing. Packing is only required for the machine operator's manual. Delivery is either by transport on a vehicle or independently, after being attached to a tractor. Transport of the machine is permissible connected to a carrying vehicle provided the vehicle's driver familiarises himself with the machine's Operator's Manual and particularly with information concerning safety and principles of connection and transport on public roads.

During road transport the machine should be firmly secured on the load platform by means of certified belts or chains fitted with a tightening mechanism.

When loading and unloading the machine, comply with the general principles of workplace health and safety for reloading work. Persons operating reloading equipment must have the qualifications required to operate these machines.

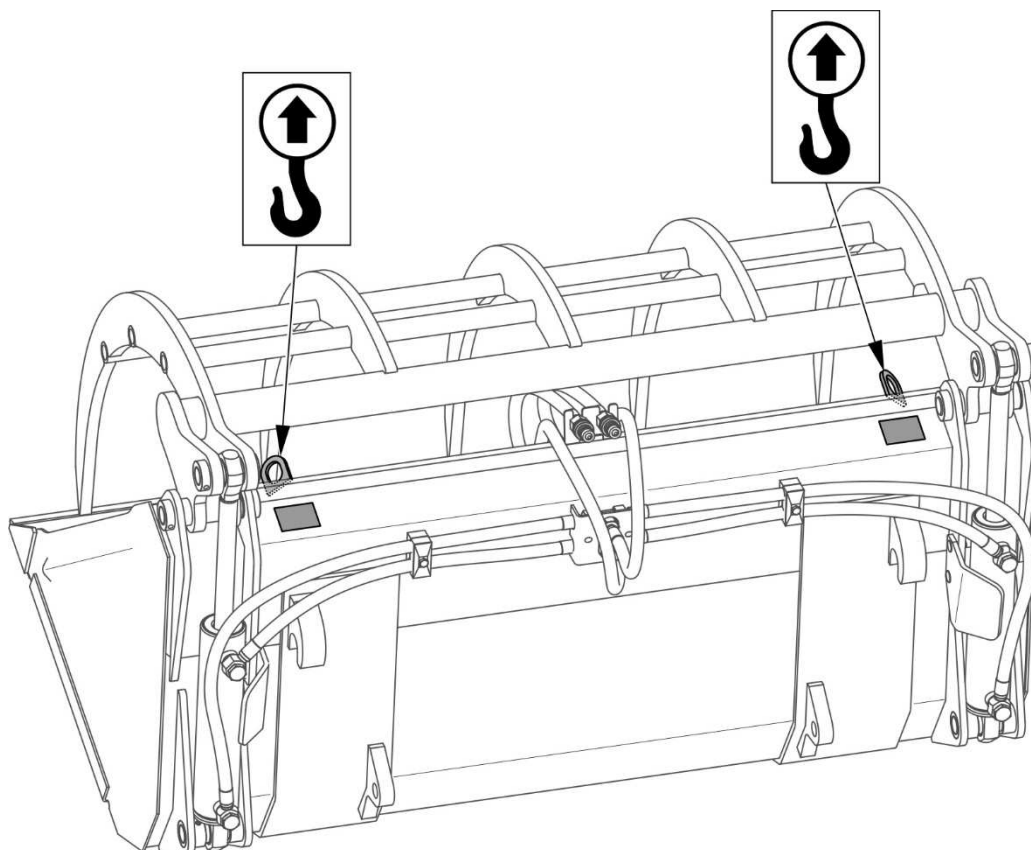


FIGURE 1.2 Transport lugs

The machine should be attached to lifting equipment in places specially designed for this purpose (FIGURE 1.2), i.e. by the lugs in the upper part of the bucket. Suspension points are identified with information decals. When lifting the machine, take particular care due to the possibility of tipping over the machine and the risk of injuries from protruding parts. To keep lifted machine in the correct direction it is recommended to apply additional guy cables. During the loading work particular care should be taken not to damage paint coating.

DANGER



When transporting independently, the user must carefully read this Operator's Manual and observe all recommendations and regulations of law. When being transported on a motor vehicle the machine must be mounted on the vehicle's platform in accordance with the transport safety requirements. The driver of the vehicle should take particular care while transporting the machine. This is due to the vehicle's centre of gravity shifting upwards when loaded with the machine.

	L
CHC15/ CHC15E	770 mm
CHC18/ CHC18E	920 mm
CHC20/ CHC20E	1 020 mm

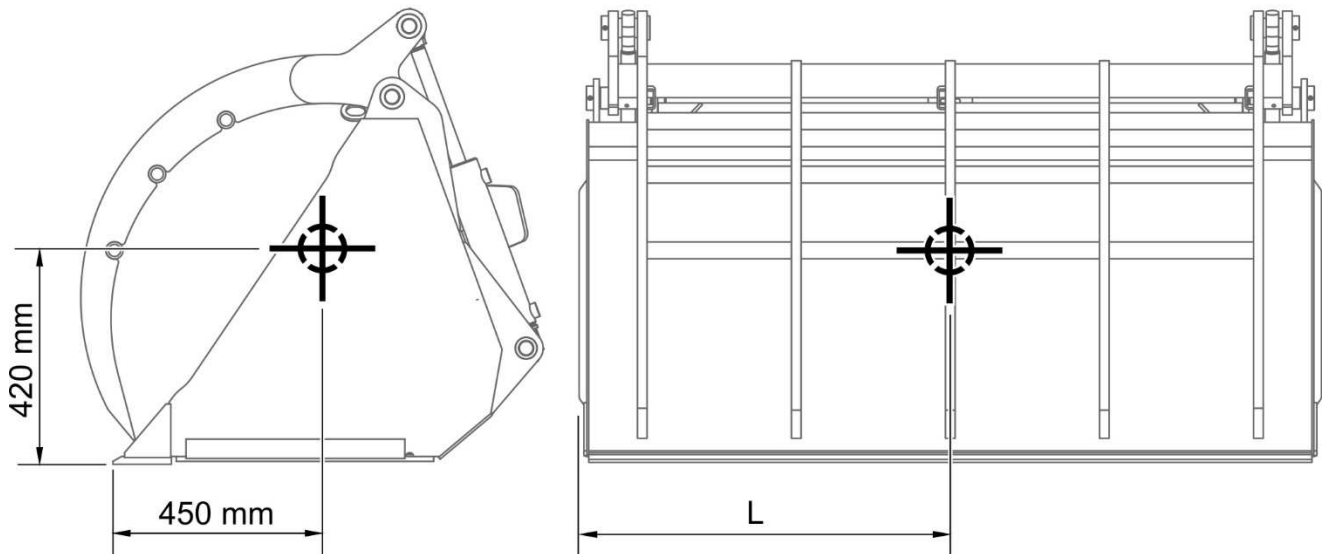


FIGURE 1.3 Centre of gravity



ATTENTION

Do NOT secure lifting slings or any types of securing elements to hydraulic cylinders.

**DANGER**

During loading and transport, the cutter should be closed.

1.6 ENVIRONMENTAL HAZARDS

A hydraulic oil leak constitutes a direct threat to the natural environment owing to its limited biodegradability. Maintenance and repair work which involves the risk of an oil leak should be performed in the rooms with oil resistant surface. In the event of oil leaking into the environment, first of all contain the source of the leak, and then collect the leaked oil using available means. Remaining oil should be collected using sorbents, or by mixing the oil with sand, sawdust or other absorbent materials. The oil contaminations, once gathered up, should be kept in a sealed, marked, hydrocarbon resistant container, and then passed on to the appropriate oil waste recycling centre. The container should be kept away from heat sources, flammable materials and food.

Oil which has been used up or is unsuitable for further use owing to loss of its properties should be stored in its original packaging in the conditions described above.

1.7 WITHDRAWAL FROM USE

In the event of decision by the user to withdraw the machine from use, comply with the regulations in force in the given country concerning withdrawal from use and recycling of machines withdrawn from use.

Before proceeding to dismantle machine, oil shall be completely removed from hydraulic system.

When spare parts are changed, worn out or damaged parts should be taken to a collection point for recyclable raw materials. Used oil and also rubber and plastic elements should be taken to the appropriate facilities dealing with the recycling of this type of waste.

**ATTENTION**

During dismantling, personal protection equipment shall be used i.e. protective clothing, boots, gloves and protective goggles etc.

Avoid contact of skin with oil. Do not allow used oil to spill.

SECTION

2

SAFETY ADVICE

2.1 BASIC SAFETY RULES

2.1.1 USE OF MACHINE

- Before using the implement, the user must carefully read this Operator's Manual and the *WARRANTY BOOK*. When operating the machine, the operator must comply with all recommendations contained in the Operator's Manual.
- The implement may only be used and operated by persons qualified to drive agricultural tractors and agricultural machines and trained in the use of the implement.
- If the information contained in the Operator's Manual is difficult to understand, contact the seller who runs the authorised technical service on behalf of the Manufacturer, or contact the Manufacturer directly.
- Careless and incorrect use and operation of the implement, and non-compliance with the recommendations given in this operator's manual is dangerous to your health.
- Be aware of the residual risk. Use caution when operating this machine and follow all relevant safety instructions.
- The implement must never be used by persons who are not authorised to drive agricultural tractors, including children and people under the influence of alcohol, drugs or other abusive substances.
- Non-compliance with the safety rules of this Operator's Manual can be dangerous to the health and life of the operator and others.
- The implement must not be used for purposes other than those for which it is intended. Anyone who uses the machine other than the way intended takes full responsibility for himself for any consequences of this use. Use of the machine for purposes other than those for which it is intended by the Manufacturer may invalidate the guarantee.
- The implement may only be used when all the protective elements and warning decals are correctly positioned and technically sound. In the event of loss or destruction of the protective elements, they must be replaced with new ones.

2.1.2 LINKING AND DISCONNECTING THE IMPLEMENT

- Do NOT hitch the implement to the loader if different types of hydraulic oil are used in both machines, or if the implement's linkage is not compatible with the loader's linkage.
- After completed hitching of the machine, check the safeguards. Carefully read the loader Operator's Manual.
- Loader carrying the implement must be in good working order and must comply with the requirements of the implement Manufacturer.
- Be especially careful when hitching the implement to the loader.
- When linking, there must be nobody between the loader and the implement. A person assisting in the implement hitching should stand in such a place (beyond the dangerous area) in which he/she is continuously visible to the loader operator.
- Before unhitching from the loader, close the grapple.
- Exercise caution when unhitching the implement.
- The implement unhitched from the loader must be placed on level, sufficiently hard surface in such a manner as to ensure that it is possible to hitch it again.

2.1.3 HYDRAULIC SYSTEM

- The hydraulic system is under high pressure when operating.
- Regularly check the technical condition of the connections and the hydraulic conduits. There must be no oil leaks.
- In the event of the hydraulic system malfunction, discontinue using the machine until the malfunction is corrected.
- When connecting the loader's hydraulic lines, make sure that the hydraulic systems of the loader and the implement are not under pressure. If necessary, reduce residual pressure in the system.
- In the event of injuries being caused by pressurised hydraulic oil, contact a doctor immediately. Hydraulic oil may penetrate the skin and cause infections. In the event of contact of oil with eyes, rinse eyes with a large quantity of water and in the event of the occurrence of irritation consult a doctor. In the event of contact of

oil with skin wash the area of contact with water and soap. Do NOT apply organic solvents (petrol, kerosene).

- Use the oil recommended by the Manufacturer. Never mix two types of oil.
- Used oil or oil which has lost its properties should be stored in original containers or replacement containers resistant to action of hydrocarbons. Replacement containers must be clearly marked and appropriately stored.
- Do not store hydraulic oil in packaging designed for storing food or foodstuffs.
- Rubber hydraulic conduits must be replaced every 4 years regardless of their technical condition.
- Repair and replacement of hydraulic system elements should be entrusted to the appropriately qualified persons.

2.1.4 TRANSPORTING THE MACHINE

- Do not exceed maximum transport speed of 15km/h (i.e travel speed without load). Adjust driving speed to the road conditions.
- Do not transport people and animals on the implement.
- For the duration of the transport protect the loader from accidental use.
- All travel back and forth during loading/unloading should be with the implement lowered down so that it does not obscure visibility and does not have any contact with the ground.
- Do not drive on public roads with implements mounted on loader.
- Reckless driving and excessive speed may cause accidents.

2.1.5 MAINTENANCE

- During the warranty period, any repairs may only be carried out by Warranty Service authorised by the manufacturer. It is recommended that necessary repairs to machine should be undertaken by specialised workshops.
- In the event of any fault or damage, do not use the implement until the fault has been fixed.

- During work on the machine, use the proper, close-fitting protective clothing, gloves and appropriate tools. When working on hydraulic systems it is recommended to use oil resistant gloves and protective goggles.
- Any modification to the machine frees PRONAR from any responsibility for damage or detriment to health which may arise as a result.
- Before undertaking any work on the machine, turn off tractor engine.
- Regularly check the technical condition of the safety devices and correct tightening of bolt connections.
- Regularly perform service inspections of machine as recommended by the Manufacturer.
- Do NOT perform service or repair work under raised and unsupported implement.
- Before beginning work on hydraulic systems, reduce oil pressure.
- Servicing and repair work should be carried out in line with the general principles of workplace health and safety. In the event of injury, the wound must be immediately cleaned and disinfected. In the event of more serious injuries, seek a doctor's advice.
- Repair, maintenance and cleaning work should be carried out with the tractor engine turned off and the ignition key removed. Immobilise tractor with parking brake. Ensure that unauthorised persons do not have access to the vehicle.
- Should it be necessary to change individual parts, use only original parts. Non-adherence to these requirements may put the user and other people's health and life at risk, and also damage the machine and invalidate the warranty.
- Regularly check technical condition and mounting of all guards and protective elements.
- The paint coating should be removed before beginning welding work. Burning paint fumes are poisonous for people and animals. Welding work should be carried out in a well lit and well ventilated space.
- During welding work pay attention to flammable or fusible elements (parts of the hydraulic systems, plastic parts). If there is a risk that they will catch fire or be damaged, they should be removed or covered with non-flammable material

before commencing welding work. Before beginning work, prepare a CO₂ or foam extinguisher.

- In the event of work requiring the machine to be raised, use properly certified hydraulic or mechanical lifts. After lifting the machine, stable and durable supports must also be used.
- The machine must not be supported using fragile elements (bricks or concrete blocks).
- After completing work associated with lubrication, remove excess oil or grease.
- In order to reduce the danger of fire the machine must be kept in a clean condition.

2.1.6 OPERATING THE IMPLEMENT

- Before starting the machine make sure that there are no bystanders (especially children) or animals in the danger zone. The machine operator is obliged to ensure proper visibility of the machine and the working area.
- Before starting work, the user must carefully acquaint himself with the workplace and its surroundings.
- Before lifting or lowering the implement hitched to the loader, make sure that there are no bystanders near the machine.
- During implement operation do not occupy a different position than that of the operator in the vehicle's cab. Do NOT leave the cab, when the machine is in operation.
- Do NOT stand within the implement's working zone.
- The front loader and the implement may not be fitted with lifting slings or used for loading, unloading and mounting work with such equipment, because the safety of the employees in the working zone is not guaranteed.
- Keep a safe distance from overhead electric power lines during work with raised implement.
- Do not exceed the maximum working speed of 6 km/h.
- The load placed on or in the implement should be distributed evenly.

- Do not work with front loader (scraping, levelling) with the implement set vertically downwards.
- Do not raise load to extreme height on gradients or slopes. Take note of uneven terrain and its load bearing capacity.
- Do not transport or load and unload materials for which the implement is not designed.
- When driving with loads do not make sharp turns or brake suddenly.
- When driving with load, braking distance is increased, therefore be particularly careful when travelling on gradients or slippery surfaces.
- Do not leave raised and unsecured implement. When parked, the implement should be lowered.
- Before using the machine always check its technical condition, especially in terms of safety. In particular, check the technical condition of the securing elements and the hydraulic system.

2.2 RESIDUAL RISK

Pronar Sp. z o. o. in Narew has made every effort to eliminate the risk of accidents. There is, however, a certain residual risk, which could lead to an accident, and this is connected mainly with the actions described below:

- using the machine for purposes other than those for which it is intended,
- being between the carrying vehicle and the machine while the engine is running and when the machine is being attached,
- being on the machine while the engine is running,
- operating the machine with removed or faulty safety guards,
- not maintaining safe distance from the danger zone or being within the zones while the machine is operating,
- operation of the machine by persons under the influence of alcohol,
- cleaning, maintenance and technical checks when tractor is connected and engine is running;


The residual risk may be kept to a minimum by following the recommendations below:




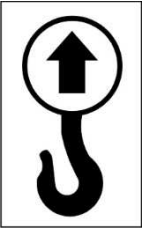

- operate the machine in prudent and unhurried manner,
- reasonably apply all the remarks and recommendations stated in the Operator's Manual,
- carry out repair and maintenance work in line with operating safety rules,
- repair and maintenance work should be carried out by persons trained to do so,
- use close fitting protective clothing,
- ensure unauthorised persons have no access to the machine, especially children,
- maintain a safe distance from forbidden or dangerous places
- do not climb on the machine when it is operating

2.3 INFORMATION AND WARNING DECALS

All signs should always be legible and clean, visible to the operator and also to persons possibly being in the vicinity of the machine in operation. If any safety sign is lost or illegible, it should be replaced with a new one. All elements having safety signs replaced during repairs should be affixed with these signs. Safety signs and decals may be purchased from the Manufacturer or the Seller.

TABLE 2.1 Information and warning decals

ITEM	SYMBOL	DESCRIPTION
1		<p>Before starting work, carefully read the Operator's Manual.</p>

ITEM	SYMBOL	DESCRIPTION
2		<p>Keep a safe distance from the raised front loader or the implement. Danger of crushing.</p>
3		<p>Do not reach into crushing space because elements may move. Danger of crushing hands or fingers</p>
4		<p>Pressurised liquid. Risk of injury. Keep a safe distance.</p>
5		<p>Lifting equipment attachment points while loading the machine</p>
6		<p>Manufacturer</p>

Numbers in the Item column correspond to decals (FIGURE 2.1)

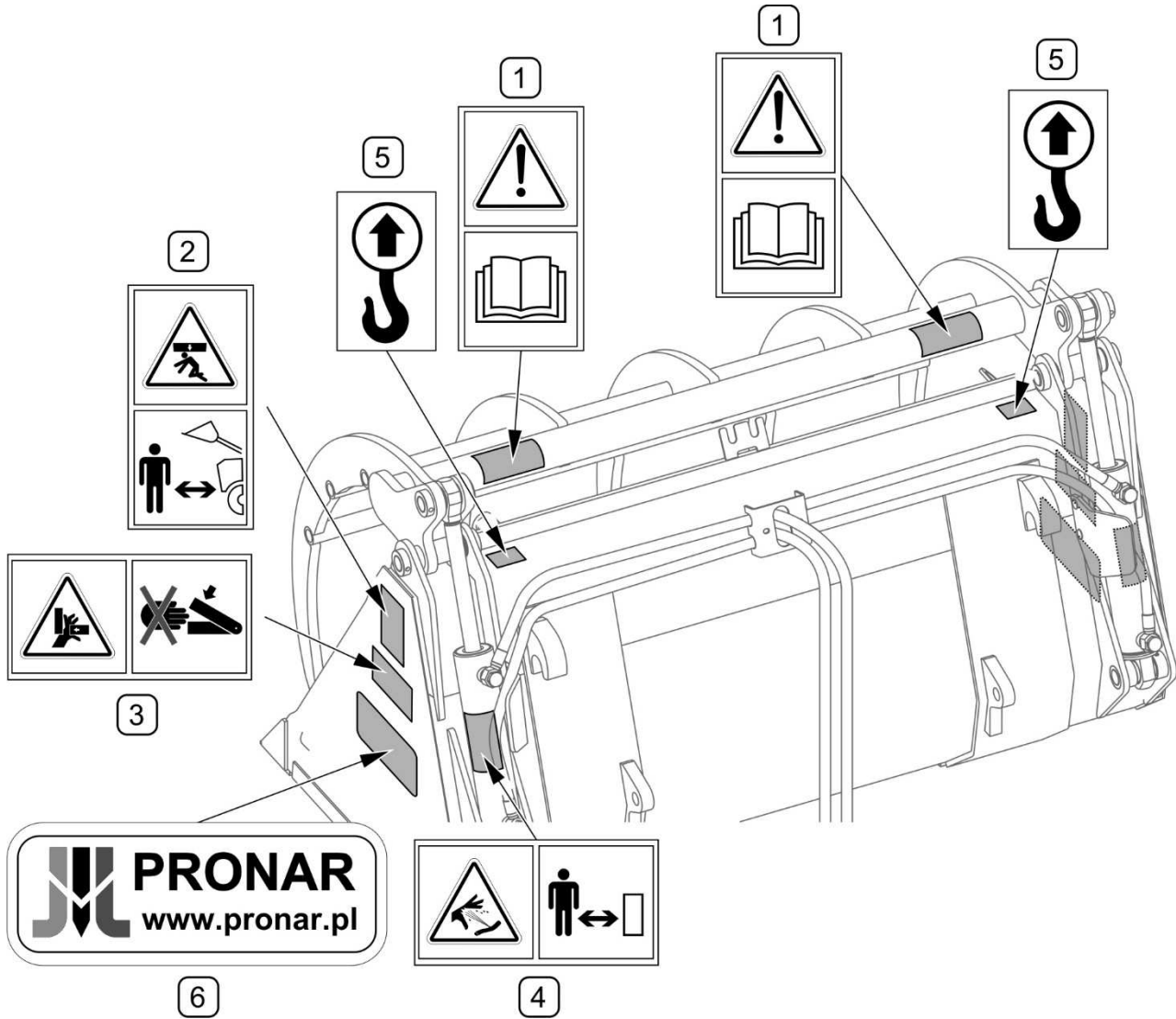


FIGURE 2.1 Locations of information and warning decals

Meaning of symbols (TABLE 2.1)

SECTION

3

**DESIGN AND
OPERATION**

3.1 TECHNICAL SPECIFICATION

TABLE 3.1 BASIC TECHNICAL DATA

	Unit	Grapple bucket					
Name	–						
Model	–	CHC15	CHC15E	CHC18	CHC18E	CHC20	CHC20E
Capacity	m ³	0.7		0.8		0.9	
Working depth	mm	780					
Working width	mm	1,500		1,800		2,000	
Weight	kg	350		394		421	
Number of grapple teeth	pc.	5		6		7	
Number of hydraulic cylinders	pc.	2					
Control	–	using the third section of the selective control valve					
Nominal pressure in the hydraulic system	MPa	16					
Mounting method	–	ŁC-1650	EURO	ŁC-1650	EURO	ŁC-1650	EURO

Level of noise emitted by machine does not exceed 70 dB(A)

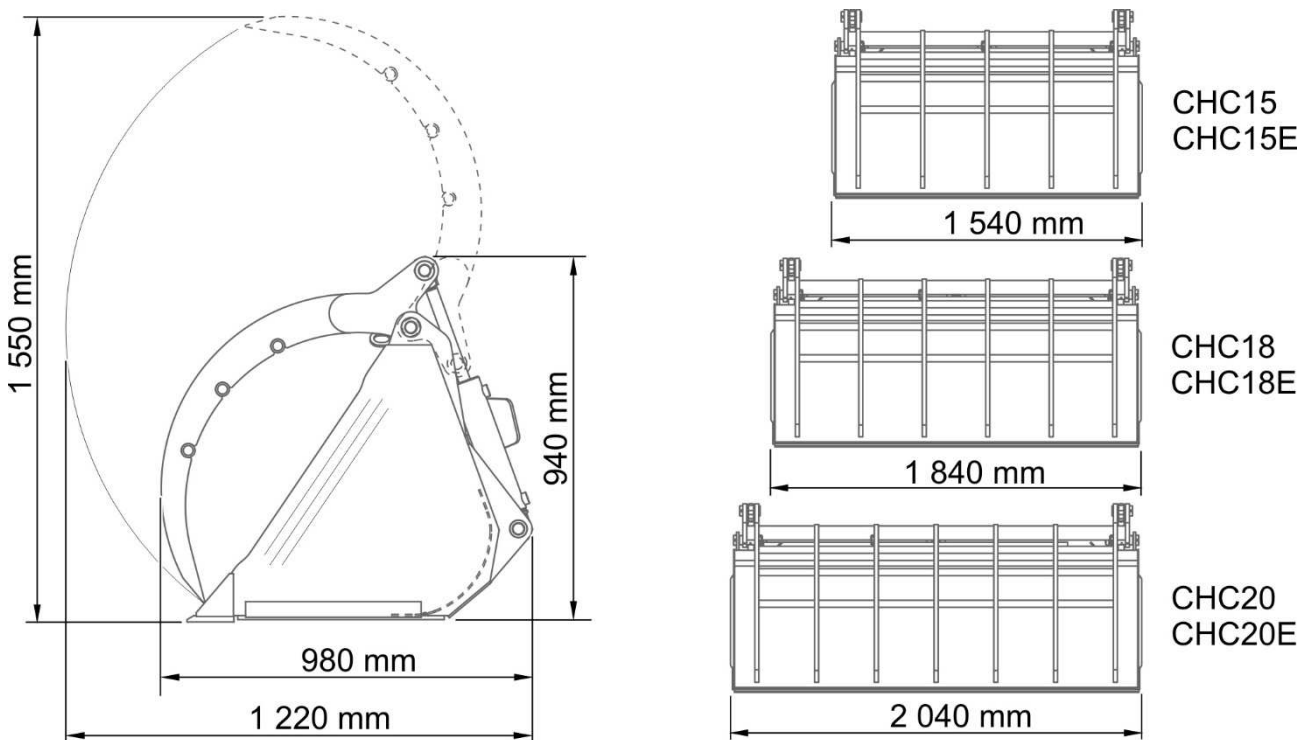


FIGURE 3.1 External dimensions

3.2 GENERAL DESIGN

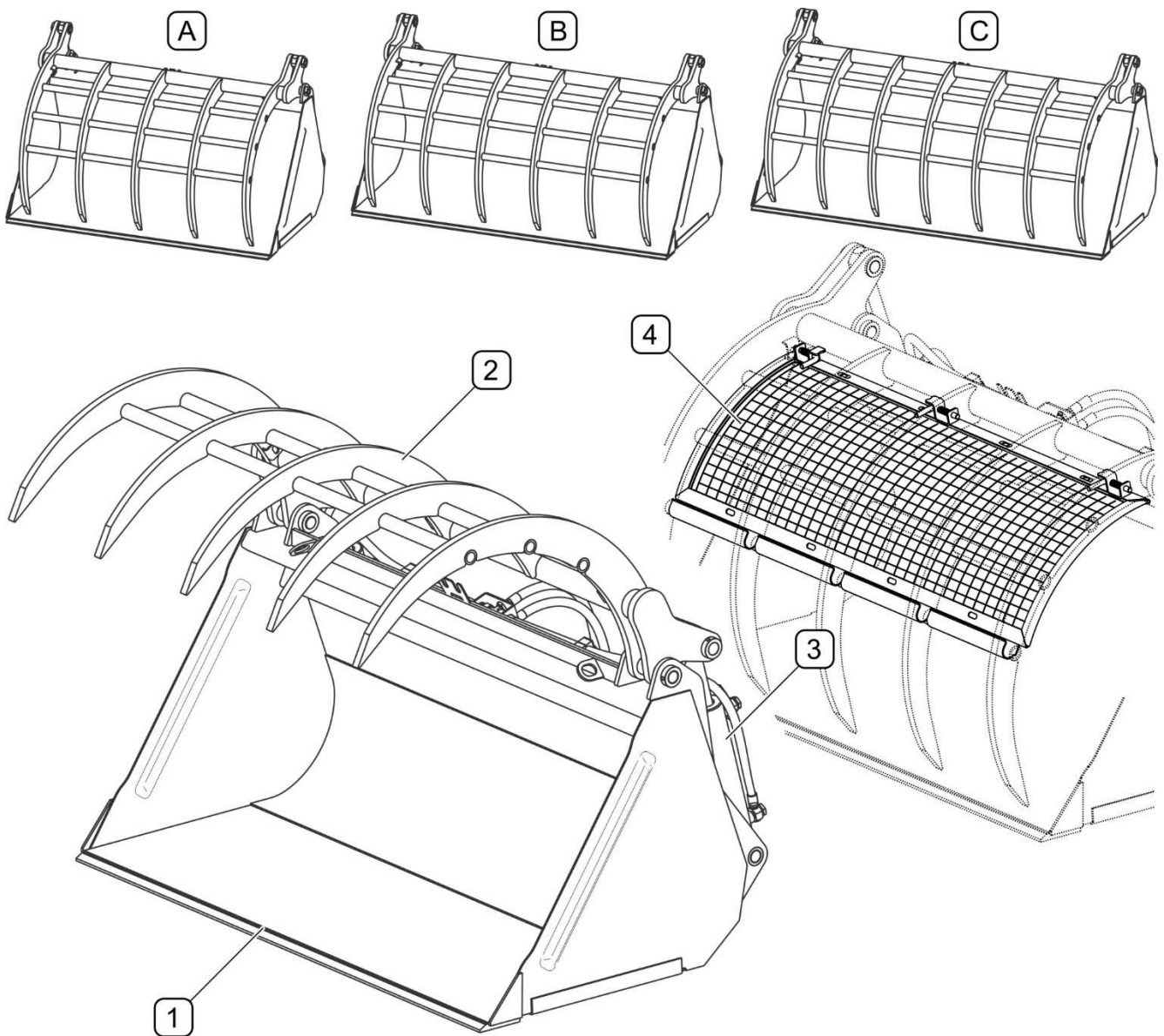


FIGURE 3.2 General design

(1) - bucket; (2) - grapple; (3) - hydraulic system; (4) - mesh shield (option); (A) - grapple bucket CHC15/ CHC15E; (B) - grapple bucket CHC18/ CHC18E; (C) - grapple bucket CHC20/ CHC20E

The grapple bucket consists of bucket (1) made of welded elements and equipped with hooks and brackets for hitching the grapple bucket to loader. Hinged grapple (2) is attached to the bucket by means of pins. The grapple is opened and closed by the hydraulic system (3). Optionally, the grapple can be equipped with mesh shield (4).

3.3 HYDRAULIC SYSTEM

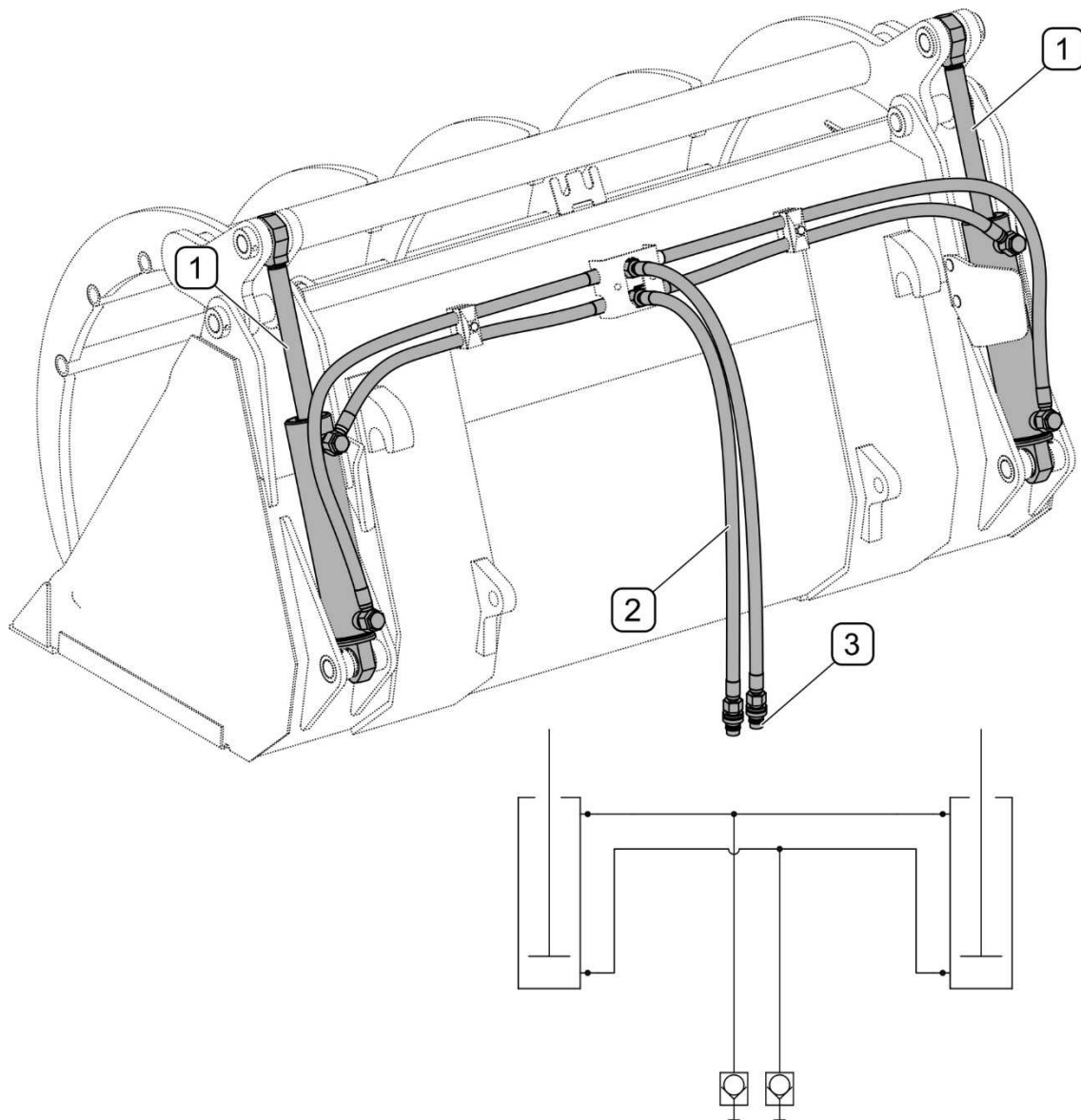


FIGURE 3.3 Hydraulic system design

(1) - hydraulic cylinders; (2) - conduits; (3) - hydraulic quick couplers

The grapple is opened and closed by two hydraulic cylinders (1) supplied with oil from the loader's hydraulic system.

Hydraulic conduits (2) terminated with quick couplers (3) are used for connecting the grapple's hydraulic system with the loader's hydraulic system.

SECTION

4

CORRECT USE

4.1 PREPARING FOR WORK

DANGER



Before using the implement the user must carefully read this Operator's Manual as well as that of the loader to which the implement is attached.

Careless and incorrect use and operation of the machine, and non-compliance with the recommendations given in this Operator's Manual is dangerous to your health.

The machine must never be used by persons, who are not authorised to drive agricultural tractors (carrying vehicles), including children and people under the influence of alcohol or other drugs.

Non-compliance with the safety rules of this Operator's Manual can be dangerous to the health and life of the operator and others.

Before starting the machine, make sure that there are no bystanders in the danger zone.

The manufacturer guarantees that the machine is fully operational and has been checked according to quality control procedures and is ready for use. This does not release the user from an obligation to check the machine's condition after delivery and before first use. The machine is delivered to the user completely assembled. Prior to connecting to the tractor, machine operator must verify the machine's technical condition. In order to do this:

- the user must carefully read this Operator's Manual and observe all recommendations, understand the design and the principle of machine operation,
- check the compatibility of the implement linkage with the suspension system of the front loader,
- check the compatibility of hydraulic system,
- check the condition of protective paint coat,
- inspect machine's individual components for mechanical damage resulting from incorrect transport (dents, piercing, bent or broken components),
- check all the lubrication points, lubricate the machine as needed according to recommendations provided in section 5,
- check technical condition of the hydraulic system,
- check technical condition of the elements fixing the implement to the front loader.



ATTENTION

Non-adherence to the recommendations contained in the Operator's Manual or incorrect start may cause damage to the machine.

The technical condition before starting the machine must be no cause for concern.

If all the above checks have been performed and there is no doubt as to the machine's good technical condition, it can be connected to carrying vehicle, started and all its individual systems checked. In order to do this:

- hitch the machine to carrying vehicle (see „*HITCHING TO FRONT LOADER*”),
- connect hydraulic system conduits, confirm correctness of operation and check tightness of the system and cylinders,

In the event of a disruption in the operation of the machine immediately discontinue its use, find and remove the fault. If a fault cannot be rectified or the repair could void the guarantee, please contact the Manufacturer for additional clarifications.



ATTENTION

Before using the machine always check its technical condition. In particular, check the technical condition of the fixing elements and the hydraulic system.

4.2 CHECKING TECHNICAL CONDITION

When preparing the machine for normal use, check individual elements according to guidelines presented in table (4.1)

TABLE 4.1 TECHNICAL INSPECTION SCHEDULE

DESCRIPTION	MAINTENANCE ACTIVITIES	FREQUENCY
Technical condition of grapple	Check technical condition, if complete and correctly mounted.	Before starting work
Technical condition of the hydraulic system.	Visually inspect the technical condition	
Check if all main nut and bolt connections are properly tightened	Tightening torque values should be according to table (5.3)	Once a week
Lubrication	Lubricate the components according to section " <i>LUBRICATION</i> ".	According to table (5.2)


ATTENTION



The machine must not be used when not in working order.


4.3 HITCHING TO FRONT LOADER

The implement can be hitched to a front loader that meets the requirements specified in table 1.1 *REQUIREMENTS FOR FRONT LOADER*.



ATTENTION

Before hitching the implement to the front loader, the user must carefully read the tractor operator's manual.



DANGER

When hitching, there must be nobody between the implement and the front loader. A person assisting in the hitching of the machine should stand in such a place (beyond the area of danger), in order to be continuously visible to the tractor driver.

Be especially careful when hitching the implement to the loader.

4.3.1 HITCHING TO FRONT LOADER ARM

Before hitching the implement to the front loader, check the compatibility of the implement linkage with the front loader linkage. CW18E multifunction bucket is designed for hitching to loader arms equipped with EURO linkage.

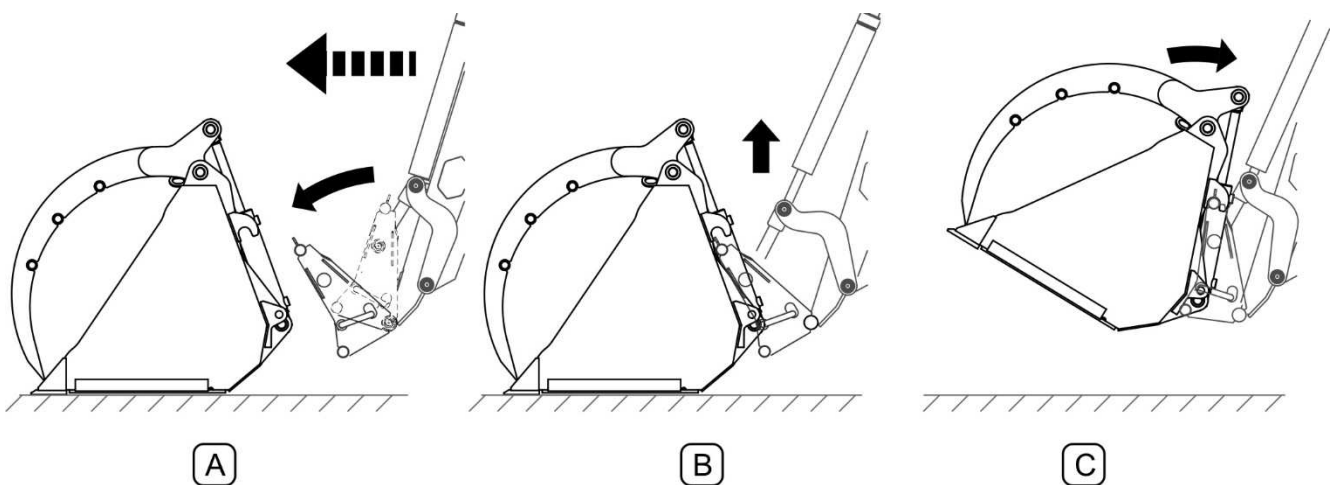


FIGURE 4.1 Hitching to front loader
 (A), (B),(C)- successive stages of hitching

To attach the implement to front loader (FIGURE 4.1) proceed as follows:

- unlock quick securing mechanism in loader frame,
- lower arm and turn frame downwards (A) so that mounting points on quick mounting frame are below the mounting hooks of the implement;
- drive the loader close to the implement and insert the mounting points into the appropriate places in the quick mounting frame,
- lift arm (B), so that the upper mounting points are place in the implement hooks,
- control the arm and tilt the frame backwards (C) in order to lock the quick mounting mechanism,
- check correctness of hitching and lock the quick mounting mechanism (*depending on the loader type*).

The above hitching method is described only for reference and may vary depending on the loader model. A detailed method of hitching the implements is described in the front loader operator's manual.

4.3.2 CONNECTING THE HYDRAULIC SYSTEM

In order to connect the implement's hydraulic system to the front loader's system:

- hitch the implement to the loader arm (*see 4.3.1 HITCHING TO MULTIFUNCTION ARM*),
- turn off the engine, lower the implement until it rests on the ground and reduce the residual pressure in the implement's hydraulic control circuit by moving the control lever sideways while holding down the button activating the third section of the selective control valve (*depending on loader type*);
- connect the implement's hydraulic couplers to corresponding couplers in the front loader arm

The implement compatible with PRONAR ŁC-1650 front loader has two hydraulic connectors while the implement compatible with EURO loaders has one connector and one hydraulic socket.

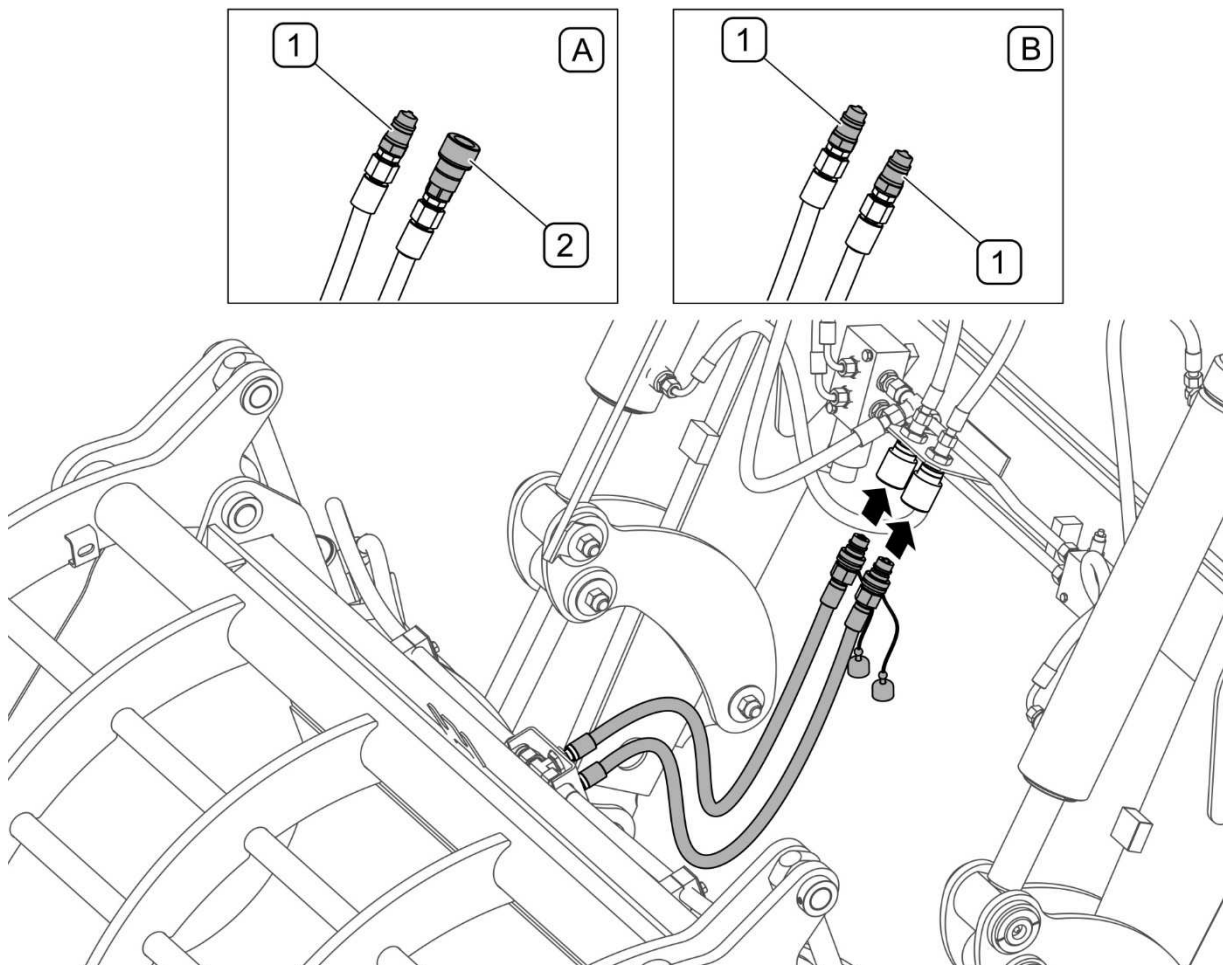


FIGURE 4.2 Connecting the hydraulic system

(A) - hydraulic system for EURO loaders; (B) - hydraulic system for PRONAR LC-1650 loaders; (1) - hydraulic connector (plug); (2) - hydraulic connector (socket);

	DANGER
Prior to connecting individual system conduits, the user must carefully read the operator's manual of the loader and observe all Manufacturer's recommendations.	

	DANGER
When connecting the hydraulic conduits, make sure that the hydraulic systems of the front loader arm and the implement are not under pressure.	

	ATTENTION
The connecting cables should be routed so that they do not get damaged during work.	

4.4 OPERATING THE IMPLEMENT

When operating loader with grapple, ensure the most beneficial position of means of transport (*place of unloading*) in relation to place of loading. The distance should be chosen so that manoeuvring the loader would be by the shortest route. While gathering material and driving with loaded bucket the maximum permitted speed is 6 km/h with the lowest possible working implement position. The bucket may be raised to a required height and unloading may be completed only at the place of unloading.

Avoid ruts, depressions, ditches or driving on roadside slopes. Driving across such obstacles could cause the tractor with the loader to suddenly tilt. Driving near ditches or canals is dangerous as there is a risk of the slope collapsing. Speed must be sufficiently reduced before making a turn or driving on an uneven road or a slope.

When operating the bucket, it is recommended that the implement level indicator should be used (*if fitted on the loader*).



DANGER

People or animals must not be carried in the front loader's implements.
There must be no bystanders within the implement working zone.



DANGER

The front loader's implements can be controlled only from the operator cab.



ATTENTION

Do not exceed permitted load of front loader, nor permitted loading of tractor front axle.

**ATTENTION**

Do not exceed the maximum working speed of 6 km/h.

The successive steps of the working cycle of the front loader with the grapple bucket:

- drive to the place of loading, lower the bucket and position the lower edge at the ground level (*it is recommended that the implement level indicator should be used - if fitted on the loader*),
- open the grapple and drive the tractor forward to fill the bucket with material. Collect the material using the whole width of the bucket.
- close the grapple and the complete bucket by moving the loader control lever,
- drive to the place of unloading with the bucket raised at the minimum height. Do not make sharp turns or brake suddenly.
- raise the bucket to the required unloading height and place it above the unloading area,
- empty the bucket by opening the grapple and tilting it forwards.
- turn the grapple backwards (*e.g. in order to avoid collision with the trailer's load box wall when reversing the loader*);
- reverse the tractor to such a distance as to make it possible to lower the loader arm with the implement and close the grapple;
- travel to the loading site;

4.5 UNHITCH THE IMPLEMENT FROM THE LOADER

Before unhitching, empty the bucket and close the grapple. Implement should be disconnected and placed in such a place so that it is possible to connect it again. Before lowering the implement on the ground, set it horizontally.



DANGER

Before unhitching the implement, turn off the tractor engine, engage the parking brake and protect the cab against access of unauthorized persons.



DANGER

Reduce pressure prior to disconnecting the hydraulic system.

To unhitch the implement from the loader:

- lower the arm until the bucket rests on the ground, turn off the engine,
- reduce pressure in the implement control hydraulic system by moving the control lever of the third section of the manifold (*depending on the loader type*),
- take out pins on the loader quick mounting mechanism;
- disconnect hydraulic conduits of the implement from the front loader's hydraulic system and place them in special bracket;
- start the carrying vehicle's engine and tilt the loader arm frame forwards until the frame rods are disconnected from the implement hooks, drive the loader away from the implement.

The implement unhitched from the loader should not be moved or carried using other implements with the exception of pallet forks if the implement is secured to the pallet.

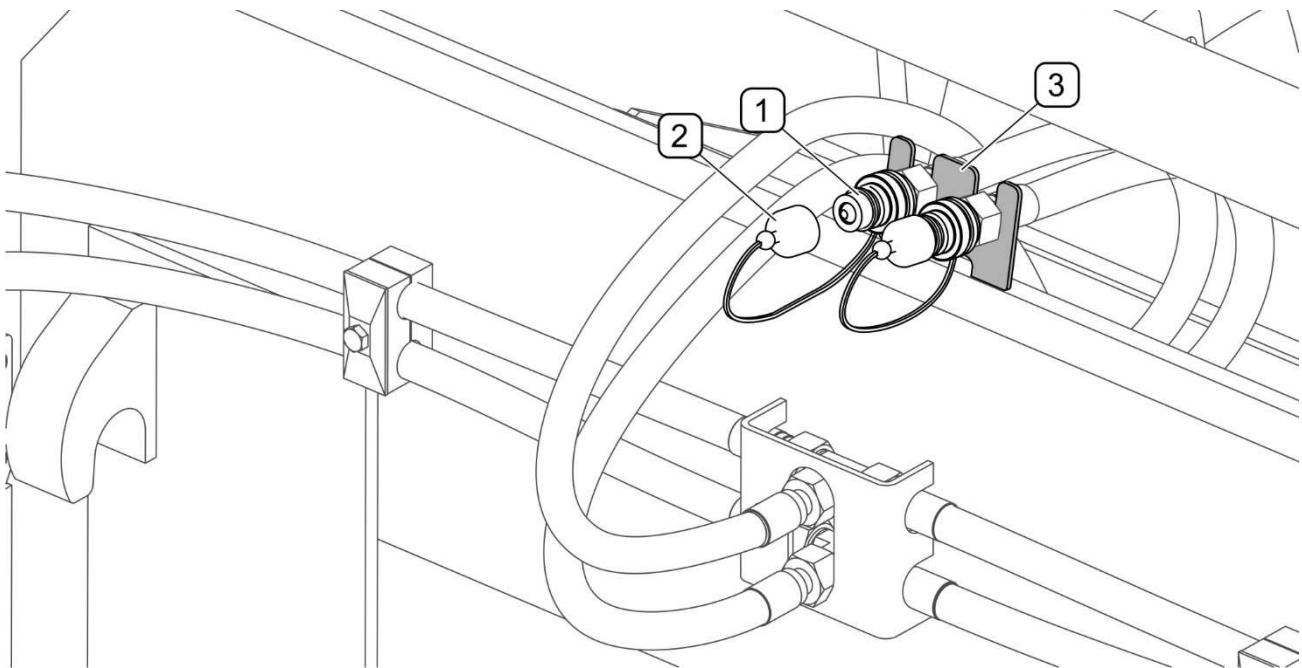


FIGURE 4.3 Protection of hydraulic quick couplers

(1) - hydraulic quick coupling plugs; (2) - protective stoppers; (3) - conduit bracket;

4.6 TRANSPORTING THE MACHINE

During transport travel (*i.e. during a long-distance travel without load*) , the following guidelines must be followed:

- Make sure that the implement is correctly hitched to the loader.
- During travel, the grapple of the bucket should be closed.
- During travel, the implement should be set so as not to obscure the lights or restrict the visibility of the operator or rub against the ground.
- During transport travel with raised implement, the loader control system should be protected against accidental activation (*e.g. using the control lever interlock*)
- Do not exceed the maximum transport speed. Travelling speed should be adjusted to existing road conditions, pavement condition and other conditions.

**DANGER**

Do not exceed the maximum transport speed of 15km/h (*i.e. travelling speed without load*).

**DANGER**

Do not drive on public roads with the implement mounted on the loader.

4.7 INSTALLATION OF ADDITIONAL EQUIPMENT

Optionally, the grapple bucket can be equipped with a mesh shield installed under the grapple teeth in order to facilitate loading and unloading loosely bound materials (e.g. manure, silage) or bulky materials (e.g. leaves, sawdust, biomass, rubbish).

**DANGER**

If the implement is hitched to the loader, before mounting and dismounting the shield, lower the loader arm, close the grapple, turn off the engine and remove the key from the ignition.

Do not perform any work under the loaded or raised implement.

TABLE 4.2 TYPE OF MESH SHIELD DEPENDING ON THE GRAPPLE MODEL

GRAPPLE BUCKET MODEL	WORKING WIDTH OF GRAPPLE BUCKET [mm]	NAME PART NUMBER
CHC15 / CHC15E	1,500	CHC15 mesh shield 197N-95000000
CHC18 / CHC18E	1,800	CHC18 mesh shield 197N-95000000-01
CHC20 / CHC20E	2,000	CHC20 mesh shield 197N-95000000-02

To install the mesh shield (FIGURE 4.4) proceed as follows:

- pull out the pins and lock them in open position (A),
- install the lower part of the mesh from the bottom on the lower pipe reinforcing the grapple teeth,
- press the mesh to the grapple teeth and lock the pins in succession in closed position (B).

The mesh shield is available in three sizes depending on the bucket model.

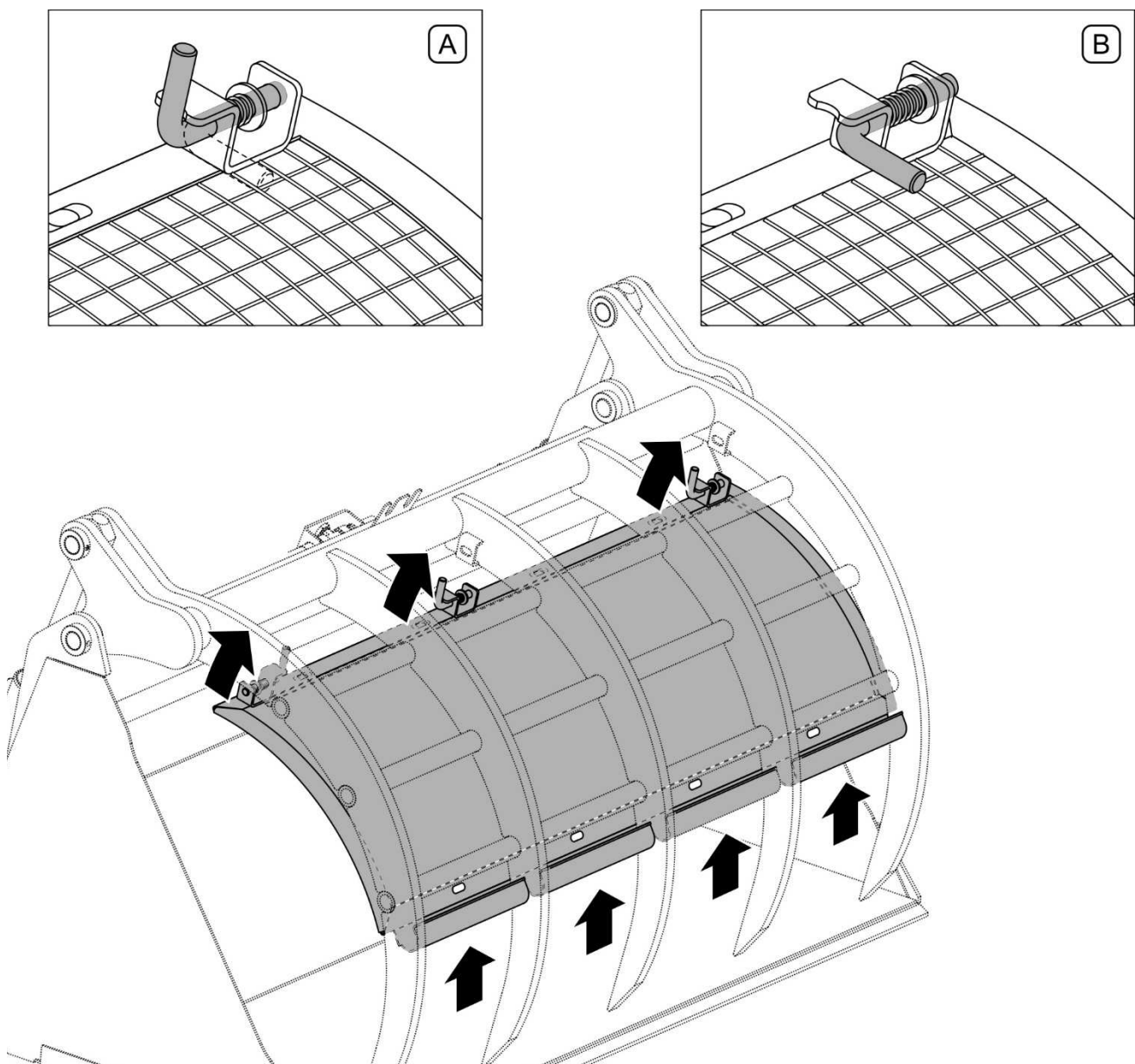


FIGURE 4.4 Mesh shield installation

(A) - pin unlocked; (B) - pin locked

SECTION

5

MAINTENANCE

5.1 HYDRAULIC SYSTEM MAINTENANCE

The duties of the operator connected with the hydraulic system maintenance include:

- checking leaktightness of hydraulic connections;
- checking technical condition of hydraulic conduits and quick couplers;



DANGER

Do not repair hydraulic system on your own. All hydraulic system repairs must be performed only by suitably qualified personnel.



ATTENTION

Before starting work, visually inspect the hydraulic system components.



DANGER

Do not perform service or repair work under the loaded or raised implement.

The hydraulic system of new machine is factory filled with HL32 hydraulic oil. Because of its composition, the oil is not classified as a dangerous substance, however long-term action on the skin or eyes may cause irritation. In the event of contact of oil with skin wash the place of contact with water and soap. Do NOT apply organic solvents (petrol, kerosene). Contaminated clothing should be changed to prevent access of oil to skin. In the event of contact of oil with eye, rinse with large quantity of water and in the event of the occurrence of irritation consult a doctor. Hydraulic oil in normal conditions is not harmful to the respiratory tract. A hazard only occurs when oil is strongly atomised (oil vapour), or in the case of fire during which toxic compounds may be released.



DANGER

Oil fires should be quenched with carbon dioxide (CO₂), foam or extinguisher steam. Do NOT use water for fire extinguishing!



Flexible hydraulic conduits should be replaced every 4 years.

TABLE 5.1 HL32 hydraulic oil characteristics

ITEM	NAME	VALUE
1	ISO 3448VG viscosity classification	32
2	Kinematic viscosity at 40°C	28.8 – 35.2 mm ² /s
3	ISO 6743/99 quality classification	HL
4	DIN 51502 quality classification	HL
5	Flash point, °C	Above 210°C
6	Maximum operating temperature, °C	80

Spilt oil should be immediately collected and placed in a marked tight container. Used oil should be taken to the appropriate facility dealing with recycling or regeneration of oils.

The hydraulic system should be completely tight sealed. Minimum leaks are permissible with symptoms of "sweating", however in the event of noticing leaks in the form of "droplets" stop using the machine until faults are remedied.

The hydraulic system is vented automatically during machine operation.



The condition of hydraulic system should be inspected regularly while using the machine.



DANGER

Before commencing whatever work on hydraulic system reduce the residual pressure in the system.



DANGER

During work on hydraulic system, use the appropriate personal protection equipment i.e. protective clothing, footwear, gloves and eye protection. Avoid contact of skin with oil.

**ATTENTION**

The hydraulic system is vented automatically during machine operation.

5.2 STORAGE

After finishing work, implement should be thoroughly cleaned and washed with water jet. While washing do not direct a strong water or steam jet at information and warning decals, bearings or hydraulic conduits. Nozzle of pressure or steam washer should be kept at a distance of not less than 30 cm from cleaned surface.

After cleaning, inspect the whole machine, inspect technical condition of individual elements. Used or damaged elements should be repaired or replaced.

In the event of damage to the paint coat, clean rust and dust from damaged area, degrease and then paint with undercoat and after it is dry paint with surface coat paint retaining colour uniformity and even thickness of protective coating. Until the time of touch-up painting, the damaged place may be covered with a thin layer of grease or anticorrosion preparation. It is recommended to keep the implement in a closed or roofed building.

If the implement shall not be used for a long period of time, protect it against adverse weather conditions. Lubricate machine according to the instructions provided. In the event of a prolonged work stoppage, it is essential to lubricate all components regardless of the date of the last lubrication. Additionally, before winter, grease the hitching system elements.

5.3 LUBRICATION



DANGER

Before lubricating, lower the loader arm, turn the engine off and remove the key from the ignition of the tractor (carrying vehicle).

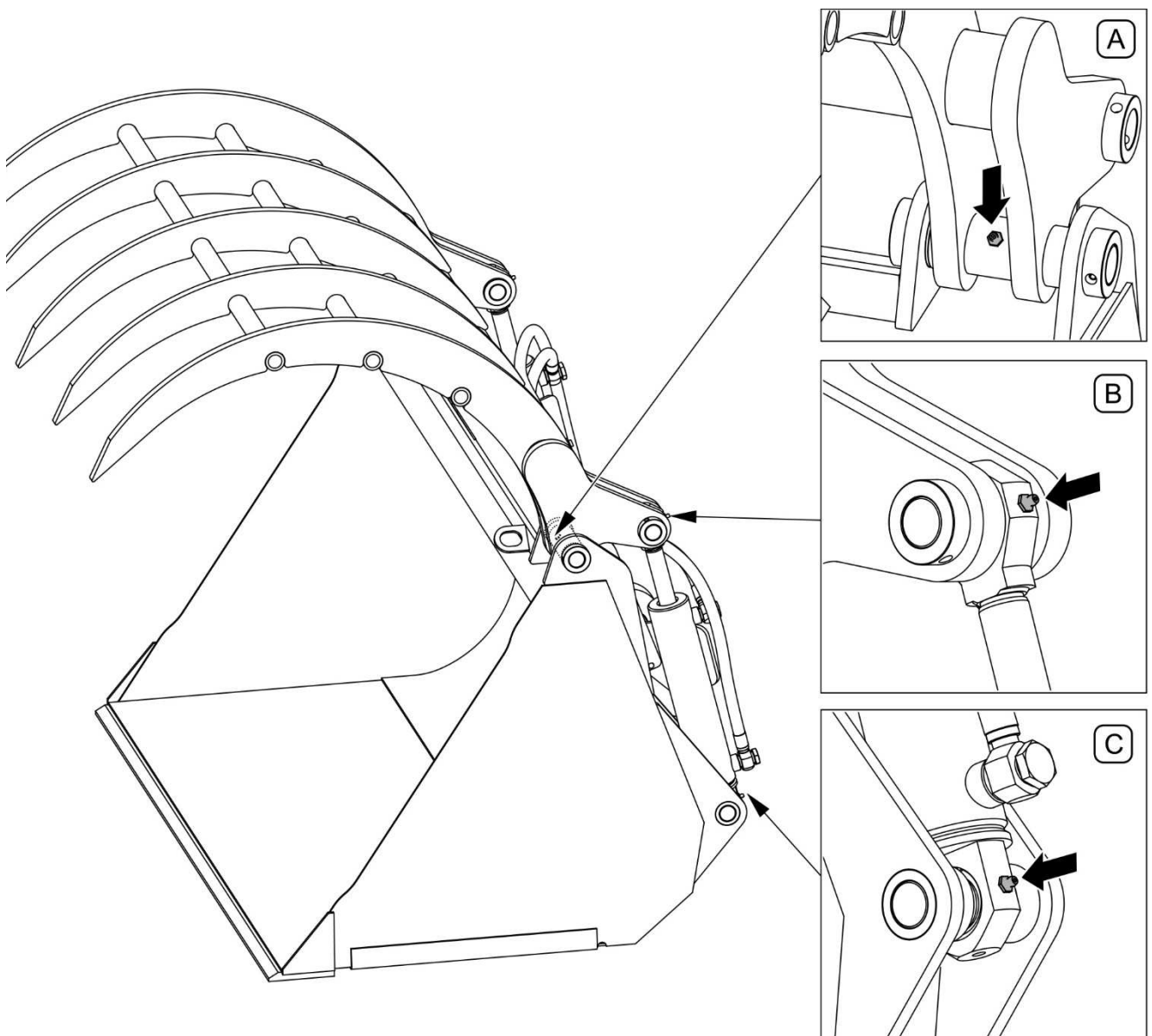


FIGURE 5.1 Lubrication points

Lubrication points are described in Table 5.2


TABLE 5.2 LUBRICATION POINTS AND LUBRICATION FREQUENCY

ITEM	NAME	NUMBER OF LUBRICATI ON POINTS	TYPE OF GREASE	LUBRICATION FREQUENCY
A	Grapple rotation pins	2	grease	every 25 hours of work
B	Cylinder rod eye	2		
C	Cylinder lug	2		

Marking description in Item column (TABLE 5.2) conforms with numbering shown (FIGURE 5.1)

Machine lubrication should be performed with the aid of a manually or foot operated grease gun, filled with generally available grease. Before commencing lubrication insofar as is possible remove old grease and other contamination. Remove and wipe off excess oil or grease


LT-43-PN/C-96134 grease is recommended for lubrication.



When using the machine the user is obliged to observe lubrication instructions according to attached schedule. Excess lubricant causes depositing of additional contaminants in places requiring lubrication, therefore it is essential to keep individual machine components clean.

5.4 TIGHTENING TORQUE FOR NUT AND BOLT CONNECTIONS

Unless other tightening parameters are given, during maintenance and repair work apply appropriate tightening torque to bolt and nut connections. Recommended torque values apply to non-greased steel bolts.



ATTENTION

Should it be necessary to change individual parts, use only original parts or those indicated by the Manufacturer. Non-adherence to these requirements may put the user and other people's health and life at risk, and also cause damage to the machine.

TABLE 5.3 TIGHTENING TORQUE FOR NUT AND BOLT CONNECTIONS

THREAD DIAMETER [mm]	5.8	8.8	10.9
	TIGHTENING TORQUE [Nm]		
M6	8	10	15
M8	18	25	36
M10	37	49	72
M12	64	85	125
M14	100	135	200
M16	160	210	310
M20	300	425	610
M24	530	730	1 050
M27	820	1 150	1 650

5.5 TROUBLESHOOTING

TABLE 5.4 TROUBLESHOOTING

TYPE OF FAULT	CAUSE	REMEDY
Grapple cannot be opened or closed	The implement's hydraulic couplers are not connected to the loader	Connect the hydraulic couplers to the implement control system
	The implement's hydraulic couplers are incorrectly connected to the loader	Correct the connection, repair damaged connectors at an authorised service point
	Defective the loader's implement control system	Find the cause and remove the defect
Grapple falls autonomously	Damaged hydraulic conduits	Check technical condition of hydraulic conduits, if necessary, repair them at an authorised service point
	Damaged hydraulic cylinder seals or damaged sliding surface of cylinder piston	Repair at an authorised service point

NOTES

A series of horizontal dotted lines for writing notes.