



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

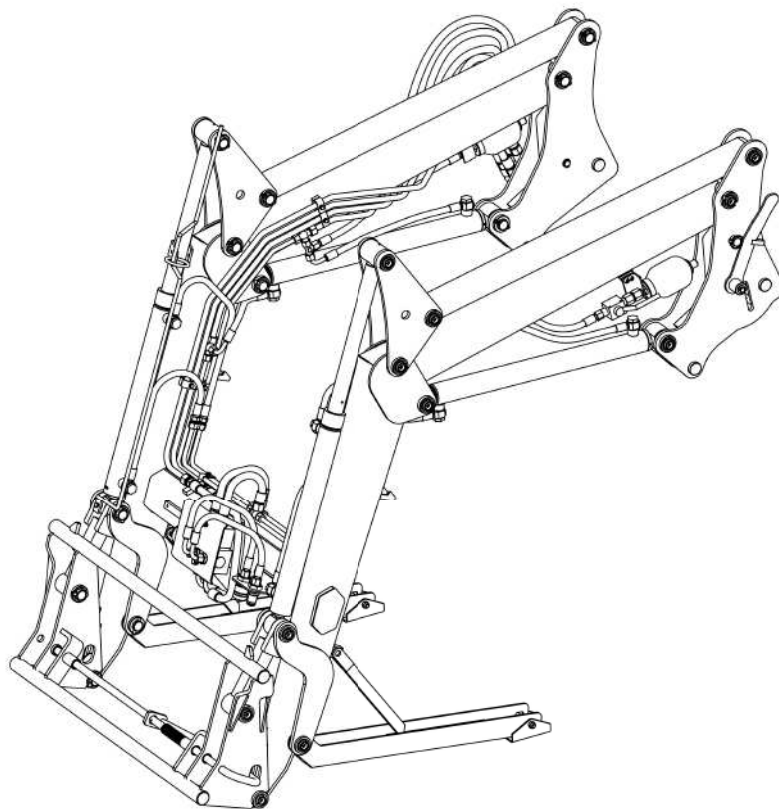
FRONT LOADER

PRONAR LC2

FOR TRACTORS:

ZEFIR 40/40K; KIOTI DK451C; KIOTI DK551C

TRANSLATION OF THE ORIGINAL COPY OF THE MANUAL



EDITION 2A-01-2010

PUBLICATION NO 176N-00000000-UM



FRONT LOADER

PRONAR LC2

MACHINE IDENTIFICATION

TYPE:

LC2

SERIAL NUMBER:

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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 malfunction 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 front loader. If the information contained 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:



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:	Front loader
Type:	LC2
Model:	—
Serial number:	
Commercial name:	Front loader PRONAR LC2

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.

Narew, the 2010 -04- 07

Place and date

Z-CARDYREKTORA
d/s technicznych
członek zarządu

Roman Omelianiuik

*Full name of the empowered person
position, signature*

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SECTION

1

BASIC INFORMATION

IDENTIFICATION DATA

PROPER USE

EQUIPMENT

TERMS & CONDITIONS OF WARRANTY

TRANSPORT

ENVIRONMENTAL HAZARDS

WITHDRAWAL FROM USE

1.1 IDENTIFICATION DATA

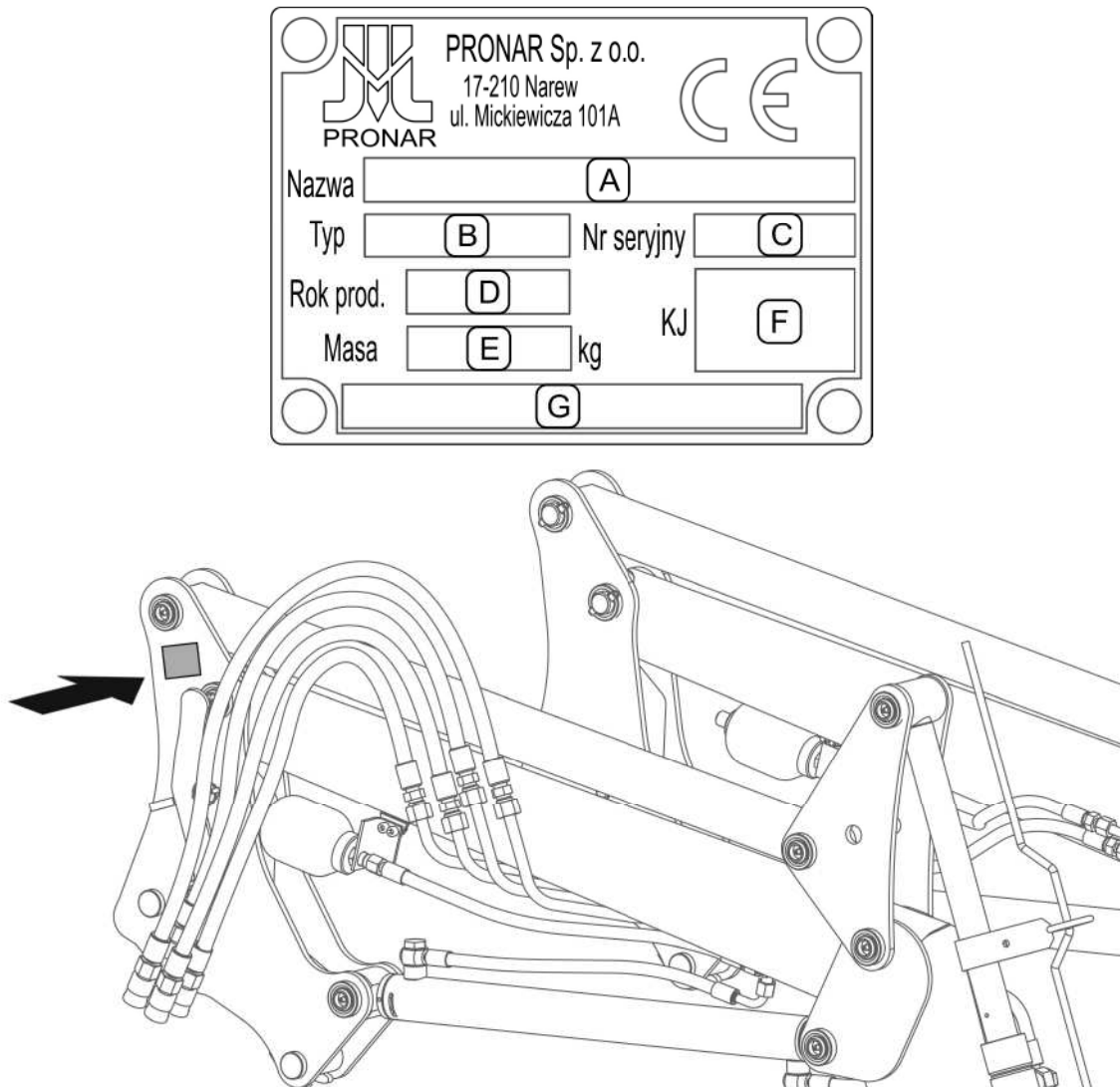


FIG. 1.1 A **Location of the data plate**

Meaning of data plate items (FIG. 1.1 A):

- A – machine name
- B – type,
- 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)

The factory number is stamped into the data plate and on mounting base beside the data plate. The data plate is on the right loader arm mounting base. When buying optional equipment and fittings check that the serial numbers on optional equipment/fittings correspond to the number written in the *WARRANTY BOOK*, in the sales documents and in the *OPERATOR'S MANUAL*.

1.2 PROPER USE

The loader is an appliance designed for loading and unloading of various types of materials. Main virtue of the loader is the quickly fitted equipment allowing using the loader for different purposes and also the quick mounting and dismounting of the loader onto and from the tractor.

Depending on the support frame the LC2 loader can be used with ZEFIR 40/40K; KIOTI DK451C; KIOTI DK551C and other tractors with power range from 40 hp to 70 hp.

The LC2 loader is equipped with a quick mounting frame, which enables mounting optional equipment with EURO mounting. Implements envisaged by the Manufacturer can be used with the LC2 loader.

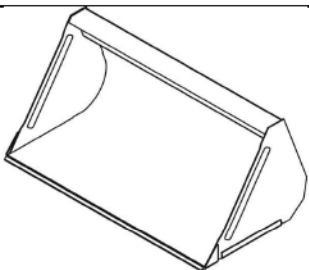
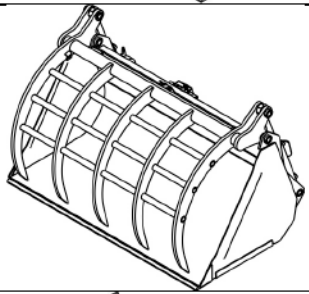
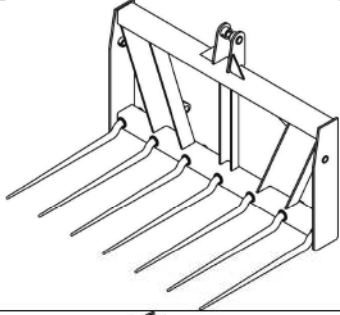
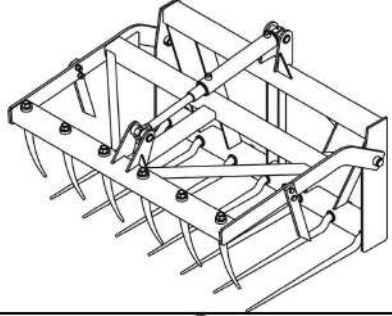
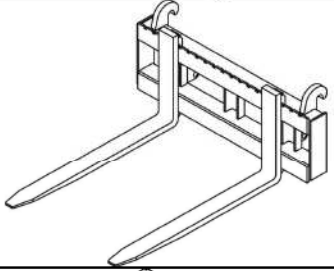
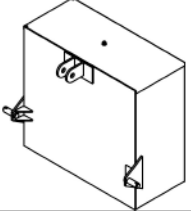
The LC2 front loader may only be used for loading and unloading work in agriculture, forestry and municipal services. Use for other purposes should be regarded as improper.

1.3 EQUIPMENT

The LC2 front loader equipment components include:

- Front loader complete (with hydraulic and electrical systems)
- Elements mounted on the tractor (support frame, control elements, hydraulic and electric system elements and also connection elements)
- Key for adjusting fast spring locks
- Operator's Manual
- Warranty Book

TAB 1.1 ADDITIONAL LC2 LOADER IMPLEMENTS

	NAME OF IMPLEMENT	MODEL
	Bucket for bulk materials – capacity 0.6m ³ ; working width 1,500 mm	35C15
	Grapple bucket – capacity 0.69 m ³ ; working width 1,500 mm	CHC15E
	Manure Fork: – width 1,420 mm	35WO2
	Manure fork with grapple – width 1,420 mm; two hydraulic cylinders – width 1,420 mm; one hydraulic cylinder	35CO3 35CO5
	Pallet fork	35WP1
	Counterweight 400kg, cat II	400
	Others according to Manufacturer product range	

1.4 TERMS & CONDITIONS OF WARRANTY

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 apply to those parts and sub-assemblies of the machine, which are subject to wear in normal usage conditions, regardless of the warranty period.

For detailed Terms & Conditions of Warranty, please refer to the *WARRANTY BOOK* attached to each machine.



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.

Modification of the machine without the written consent of the Manufacturer is forbidden. 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 front loader may be supplied to the user by any means of transport, which comply with safety conditions during transport.

When loading and unloading the machine, comply with the general principles of workplace health and safety for reloading work. Persons operating forklift trucks or cranes used for such work should have the required authorisations.

Front loader

The front loader is in a completely assembled condition and does not require packing. During loading and unloading, arm must be suspended on the suspension points indicated by pictograms (FIG. 1.2 A)

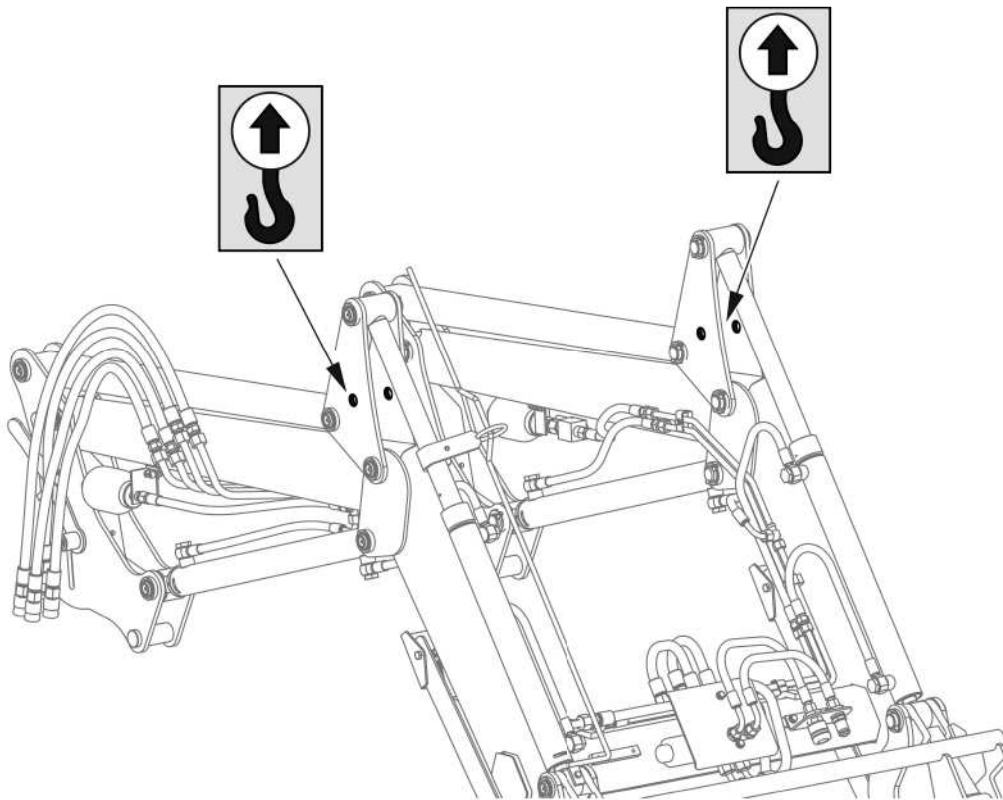


FIG. 1.2 A Arm suspension points

Suspension points are located on the right and left sides of the arm and are labelled with the information decals.

When being transported on a motor vehicle the front loader shall be secured in accordance with the transport safety requirements.



ATTENTION!

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

During unloading and loading on transport vehicle the front loader stand supports should be folded. The front loader should be in a horizontal position on the load platform of means of transport.

Support frame and attached elements

Support frame elements, hydraulic and electrical system elements and also attached elements are packed in wooden cases.

1.6 ENVIRONMENTAL HAZARDS

A hydraulic oil leak constitutes a direct threat to the natural environment owing to its limited biodegradability. While carrying out maintenance and repair work which involves the risk of an oil leak, this work should take place on an oil resistant floor or 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. Collected oil should be kept in sealed and clearly marked containers away from heat sources and food. Oil waste should be taken to the appropriate facility dealing with the re-use of this type of waste.

It is recommended to store used oil in its original packaging.

1.7 WITHDRAWAL FROM USE

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



DANGER

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.

Worn metal parts remaining after repairs and unsuited for regeneration shall be scrapped. Waste oil and also rubber and plastic elements should be taken to establishments undertaking the utilisation of such materials.

SECTION

2

SAFETY ADVICE

BASIC SAFETY RULES

DRIVING ON PUBLIC ROADS

DESCRIPTION OF MINIMAL RISK

INFORMATION AND WARNING DECALS

2.1 BASIC SAFETY RULES

- Before using the machine, the user must carefully read this operator's manual. When operating the machine, the operator must comply with all the recommendations included in the operator's manual.
- If the information stated in the Operator's Manual is difficult to understand, contact a seller, who runs an authorised technical service on behalf of the manufacturer, or contact the manufacturer directly.
- The machine must never be used by persons, who are not authorised to drive agricultural tractors, including children and people under the influence of alcohol or other drugs.
- The implement must not be used for purposes other than those for which it is intended. Anyone who uses the implement other than the way intended takes full responsibility for himself for any consequences of this use.
- Do not operate loader or the implement from any other position than driver in tractor cab.
- Any modification to the front loader frees the manufacturer from any responsibility for damage or detriment to health which may arise as a result.
- Do not carry people or animals in loader implement.
- Before using the front loader always check its technical condition and if it is complete.
- In the event of any fault or damage whatsoever, do not use the front loader until the fault has been fixed.
- Do NOT exceed the foreloader's maximum carrying capacity.
- Do not leave the loader in a raised position while immobilised. When the engine is switched off the loader should be supported by the ground surface or secured before lowering with the aid of service interlocks attached to hydraulic ram cylinder rods and loader control lever shall also be interlocked. Failure to observe this recommendation may cause sudden autonomous fall of loader on person in immediate vicinity, causing serious injury or death.

- While connecting loader to tractor be particularly careful.
- When hitching, there must be nobody between the front loader and the tractor.
- After connecting loader always check correct operation of quick spring blocking locks and in case of need readjust.
- Before commencing work acquaint yourself with the place of work and surroundings (e.g. hazards within the area of performance of work, presence of persons, load-bearing capacity of ground surface and substrate and secure site with regard to general access of road traffic).
- Do not travel with the load raised upwards
- The front loader may not be operated on gradients greater than 10° along the slope and 6° across the slope.
- Changing the track setting of the tractor can improve the stability of the implement.
- Do not transport or load and unload materials for which the front loader implements are not designed.
- All travel back and forth during loading/unloading should be with working element lowered down so that working element does not obscure visibility, while not having any contact with the ground.
- The front loader and implement may not be fitted with lifting slings or used for loading, unloading and mounting work with such equipment, which does not guarantee the safety of employees in the vicinity of work.
- Keep a safe distance from overhead electric power lines during work with raised loader.
- Do NOT exceed the maximum speed with load of 6 km/h.
- Do NOT exceed the maximum speed without load of 15 km/h. Loader control lever shall be blocked in neutral position preventing accidental use
- Load on or in fittings shall be spread evenly.
- Do not work with front loader (scrapping, 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.
- 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 operate loader with tractor's engine turned off.
- Check condition of foreloader's hydraulic system frequently, oil leaks are not allowed.
- Reduce pressure prior to disconnecting the hydraulic system.
- When connecting the hydraulic lines, make sure that the hydraulic system is not under pressure.
- Do not modify pressure in hydraulic system on forfeit of warranty rights for front loader and tractor.
- In the event of malfunction of the hydraulic system, do not use the front loader until the malfunction is corrected.
- Work associated with servicing tractor, involving the necessity to raise the loader, is only and exclusively permitted after blocking loader rams with the aid of service interlock and blocking control lever.
- Repair, maintenance and cleaning work shall be performed only with tractor engine turned off, lowered loader and key removed from ignition or after disconnection of loader from tractor.
- Do not do service repair work under load or with raised and unsecured loader.
- During maintenance repair work wear protective gloves and use appropriate tools.
- Regularly check the condition of the bolt and nut connections.
- During the warranty period, any repairs may only be carried out by Warranty Service authorised by the manufacturer.
- 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 damage the machine.

2.2 DRIVING ON PUBLIC ROADS

- Travel on public roads may only take place after dismantling implement from front loader.
- When driving on public roads with the front loader, respect the road traffic regulations.
- Do NOT exceed the maximum transport speed of 15 km/h.

2.3 DESCRIPTION OF MINIMAL RISK

Pronar Sp. z o. o. in Narew has made every effort to eliminate the risk of accidents. There is, however, a certain minimal 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 described in the Operator's Manual,
- being between the carrying vehicle and the implement while the engine is running
- operation of the machine by persons under the influence of alcohol
- being on the machine when it operates,
- cleaning, maintenance and technical checks when engine is running,





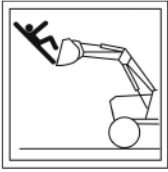
The minimal risk may be kept to a minimum by following the recommendations below:



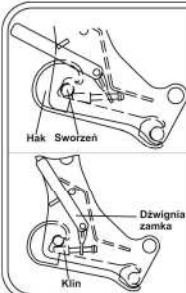

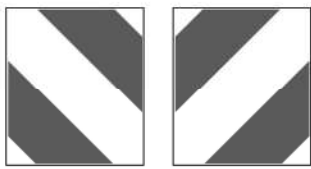

- prudent and unhurried operation of the machine,
- application of the remarks and recommendations stated in the Operator's Manual;
- maintaining safe distance from the danger zone
- a ban on being on the machine when it is operating;
- carrying out repair and maintenance work in line with operating safety rules,
- using suitable protective clothing
- ensuring unauthorised persons have no access to the machine, especially children.



2.4 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.

TAB. 2.1 INFORMATION AND WARNING DECALS

ITEM	SYMBOL	DESCRIPTION
1		Carefully read the Operator's Manual before use
2		Keep a safe distance from raised front loader Danger of crushing Keep a safe distance from electric power lines.
3		Do not reach into crushing space because elements may move. Danger of crushing hands or fingers.
4		Before entering danger zone block hydraulic cylinder with an interlocking device
5		Do not carry people on loader fittings because of danger of falling

ITEM	SYMBOL	DESCRIPTION
6		Danger of being crushed by loader.
7	PRZEBYWANIE W ZASIĘGU WYSIĘGNIA WZBRONIONE	"Keep away from area within arm's reach"
8	PRONAR LC2	Loader model
9		Arm suspension point
10	 <p>Podłączenie wysięgnika 1. Odryglować dźwignię zamka - rys. 1. 2. Podjechać ciągnikiem do wysięgnika, następnie podłączyć przewody hydrauliczne wysięgnika do rozdzielacza na konstrukcji wsporczej. Uwaga! Nie operować siłownikami wychyłu narzędzia roboczego, dopóki dźwignia zamka nie znajduje się w pozycji odryglowanej - rys. 1. 3. Sterując wychyleniem narzędzia roboczego ustawić wysięgnik tak, aby sworznie zamka trafiły na gniazda haków. 4. Unieść narzędzie robocze na wysokość ok. 10 cm nad powierzchnię gruntu. 5. Zaryglować dźwignię zamka - rys. 2. Uwaga! Sprawdzać napięcie zamka w regularnych odstępach czasu i w razie konieczności regulować wg. INSTRUKCJI OBSŁUGI.</p> <p>Odlączenie wysięgnika Uwaga! Zabrania się odlaczania wysięgnika od konstrukcji wsporczej bez zamontowanego narzędzia roboczego. 1. Wysięgnik wraz z zamontowanym narzędziem roboczym opuścić na podłoże. 2. Dźwignię sterowania ładownicą ustawić w pozycji płynącej. 3. Opuścić podpory postojowe oraz odryglować dźwignię zamka - rys. 1. 4. Sterując wychyleniem narzędzia roboczego wyjąć wysięgnik z gniazd haków. 5. Cofnąć ciągnikiem ok. 20-30 cm, następnie odłączyć przewody hydrauliczne.</p>	Coupling and uncoupling loader
11		Danger. Hydraulic accumulator. Pressurised nitrogen ... bar. Release pressure from the system before the technical inspection.
12		Loader outline marking Counterweight outline marking
13		Maximum transport speed (<i>travel speed without load</i>)
Decals affixed in the cab		

ITEM	SYMBOL	DESCRIPTION
14	 <p>SCHEMAT STEROWANIA ŁADOWACZEM</p> <p>The diagram shows a central square with four arrows pointing outwards, each ending in a small square. The top square has a downward arrow, the bottom has an upward arrow, the left has a rightward arrow, and the right has a leftward arrow. The central square has a cross inside it.</p>	Loader control diagram
15	 <p>The symbol consists of a row of six icons. From left to right: a warning triangle with an exclamation mark, a loader bucket, a loader bucket with a person inside, a loader bucket with a person inside and a lightning bolt, a loader bucket with a person inside and a lightning bolt, and a lightning bolt.</p>	Danger to the operator

Numbers in the item column correspond to decals (FIG. 2.1A)



FIG. 2.1A Locations of information and warning decals.

Meaning of symbols (TAB. 2.1)

SECTION

3

DESIGN AND OPERATION

TECHNICAL SPECIFICATION
DESIGN AND OPERATION

3.1 TECHNICAL SPECIFICATION

TAB. 1. Basic technical specification

Compatible tractor model	KIOTI DK451C	KIOTI DK551C	Zefir 40/40K
Nominal lift capacity: – in lower setting – in higher setting at pressure in hydraulic system.	700 kg 420 kg 13 MPa	820 kg 530 kg 14,5 MPa	820 kg 530 kg 14,5 MPa
Implement mounting method	mechanical, EURO quick mount system		
Operation	using the lever on the driver's cab 2-section hydraulic or 3-section electrohydraulic (option)		
Power supply: – hydraulic – electric	external tractor hydraulic system 12 V from lighter socket (option)		
Weight: – arm – support frame	356 kg 205 kg	356 kg 150 kg	356 kg 144 kg
Maintenance	1- person		
Compatible tractor power	40 ÷ 70 KM		
Maximum working speed	6 km/h		
Maximum transport speed	15 km/h		
Weight of counterweight filled with ballast	400 kg		

Level of noise emitted by LC2 front loader does not exceed 70 dB(A)

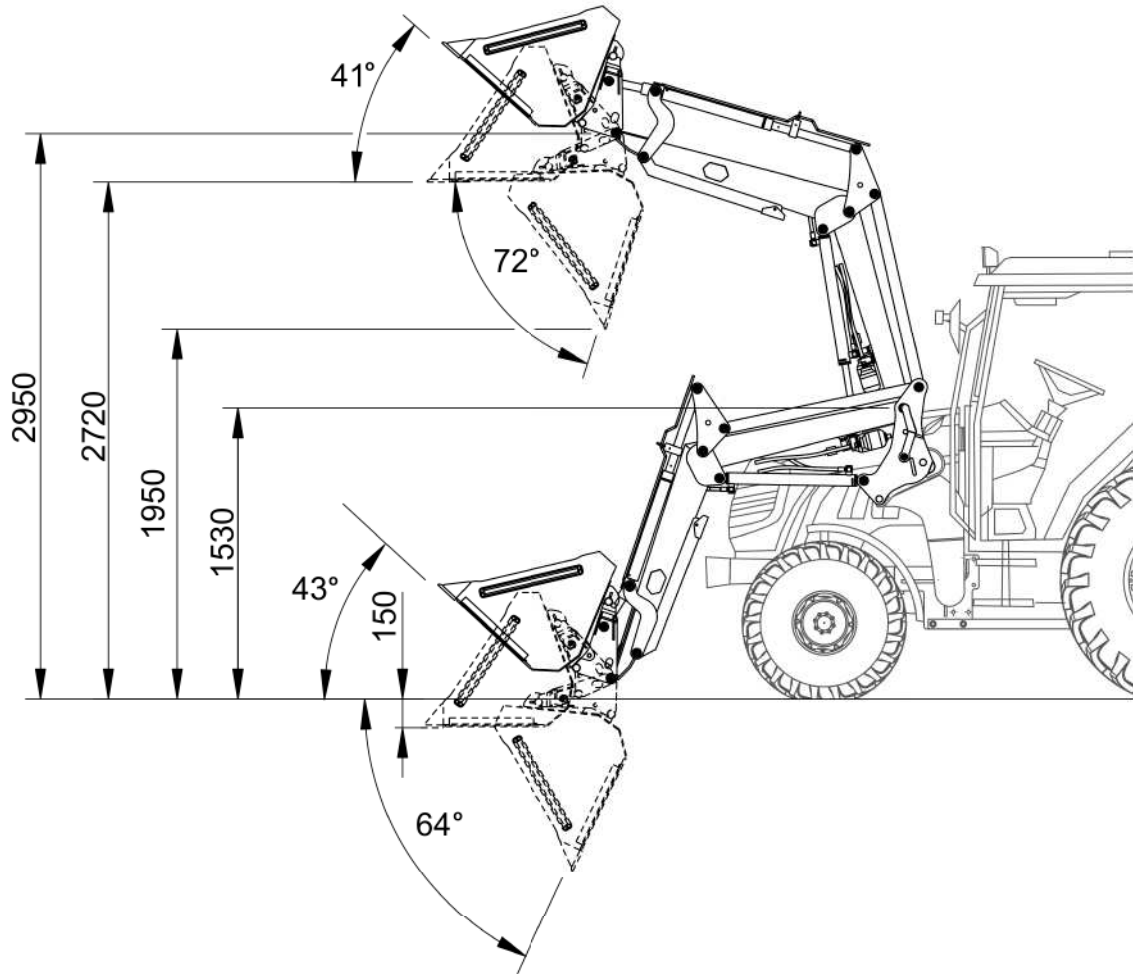


FIG. 3.1A **Operating range of LC2 loader**

Dimensions are approximate and depend on the tractor model.

3.2 DESIGN AND OPERATION

The main elements of the front loader are the arm and the support frame. The ram is mounted on the tractor frame through a special intermediary support frame. The type of support frame and its mounting method depends on the type of tractor. The loader arms and loader frame are made from steel elements ensuring great resistance with relatively little weight. Raising and lowering the arm is performed using two hydraulic cylinders supplied from the tractor external hydraulics. The quick mounting frame placed at the end of the loader arm, capable of tilting with the aid of hydraulic cylinders is used for the mounting of working fittings. Loader's advantages are the overloading resistant, rigid structure, ease of attachment to and separation from tractor, and simple daily service. After disconnecting from the support frame, the arm rests on two folded parking stands.

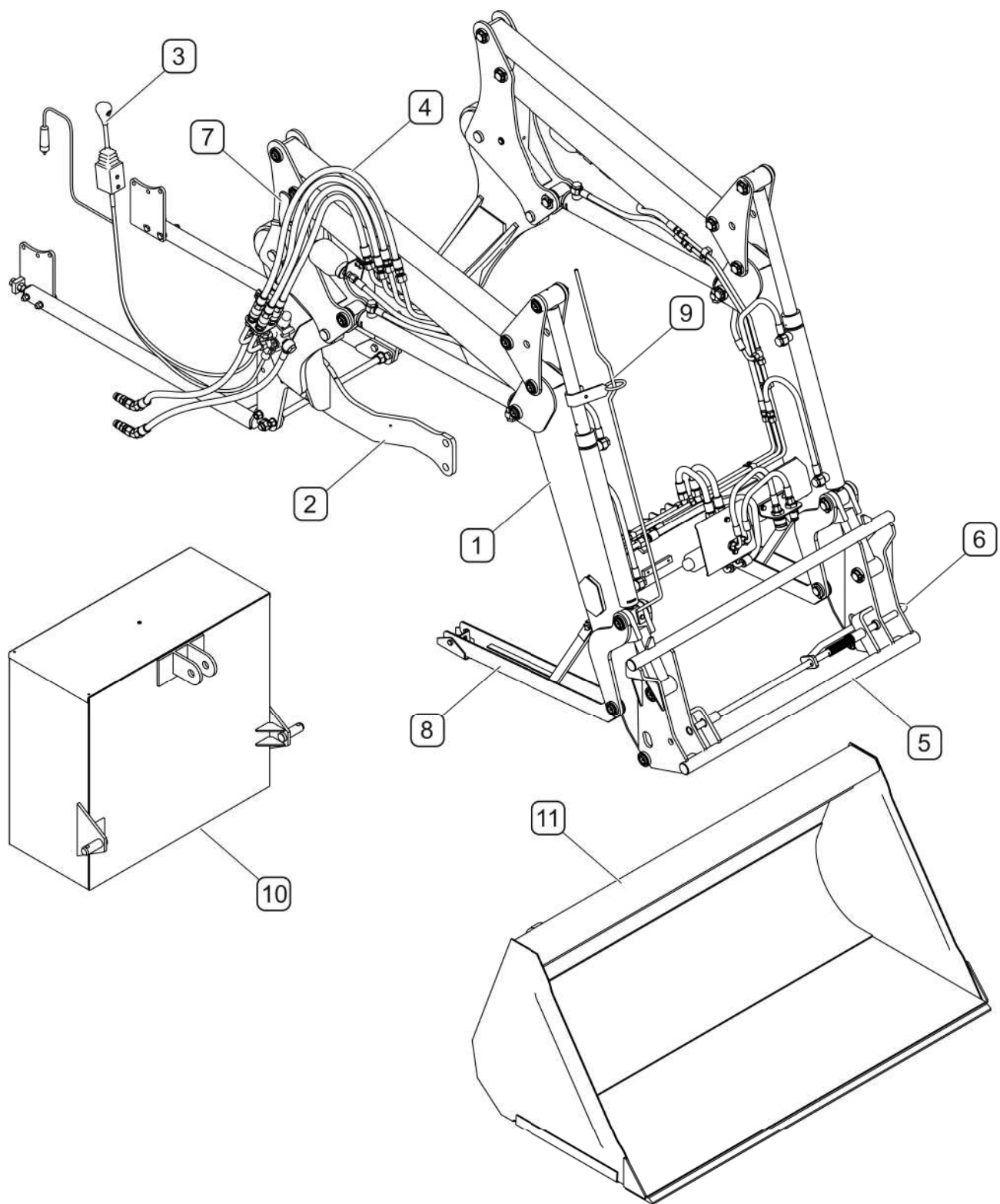


FIG. 3.2A General LC2 loader design

(1)- loader arm; (2)- support frame; (3)- control lever; (4)- hydraulic system; (5)- quick mounting frame; (6)- quick mounting mechanism lever; (7)- rapid spring lock; (8)- parking stand; (9)- fitting position indicator; (10)- counterweight (option); (11)- loader implement - bucket (option)

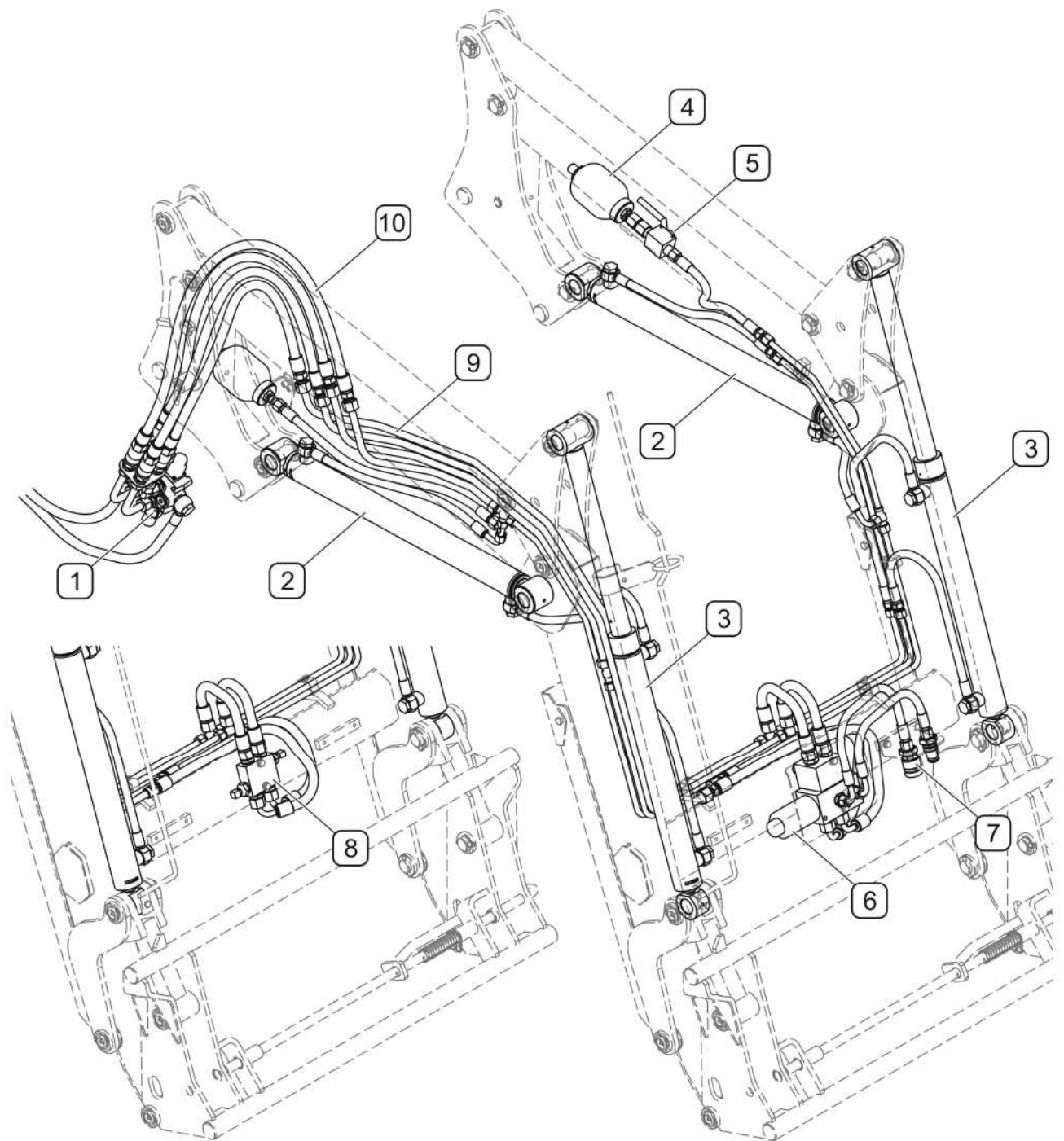


FIG. 3.3A LC2 front loader hydraulic system design

(1)- hydraulic selective control valve; (2)- hydraulic lifting cylinders; (3)- hydraulic tipping cylinders; (4)- hydro-accumulator; (5)- hydro-accumulator valve; (6) - implement hydraulic system solenoid valve (option), (7) - implement supply quick coupling (option) (8) - Cross relief valve, (9) - metal lines, (10) - flexible lines;

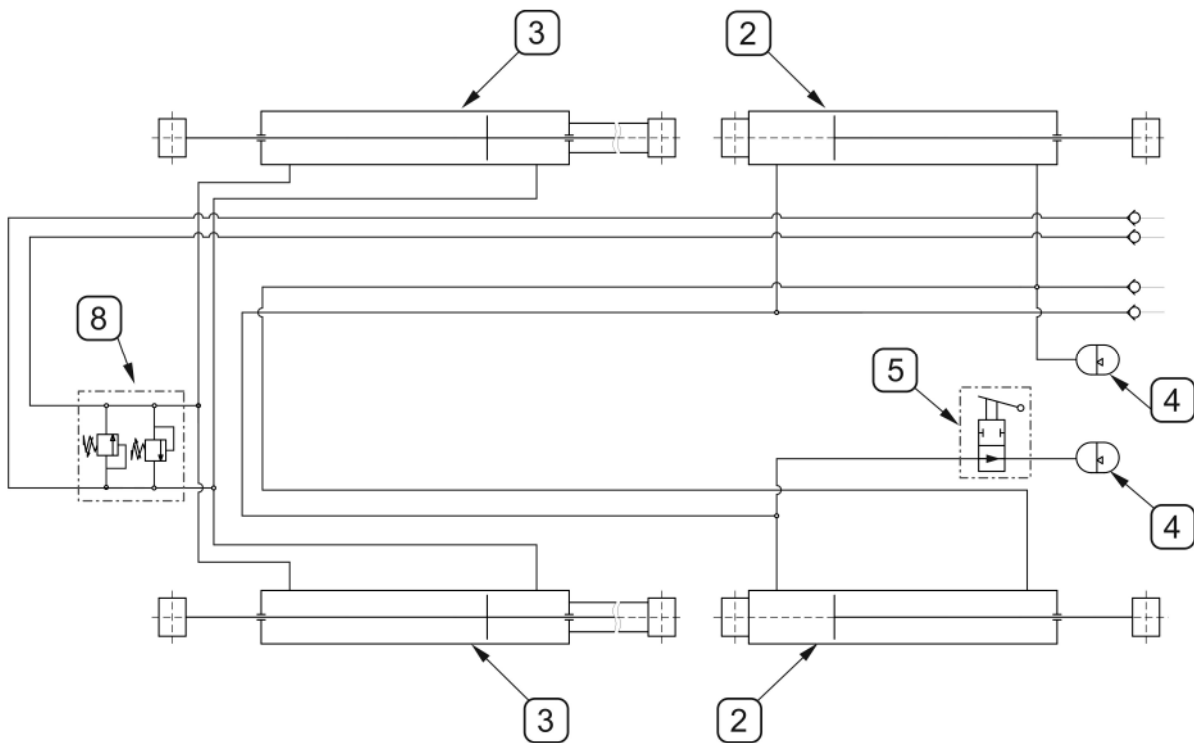


FIG. 3.4A LC2 are hydraulic system diagram with 2-section control

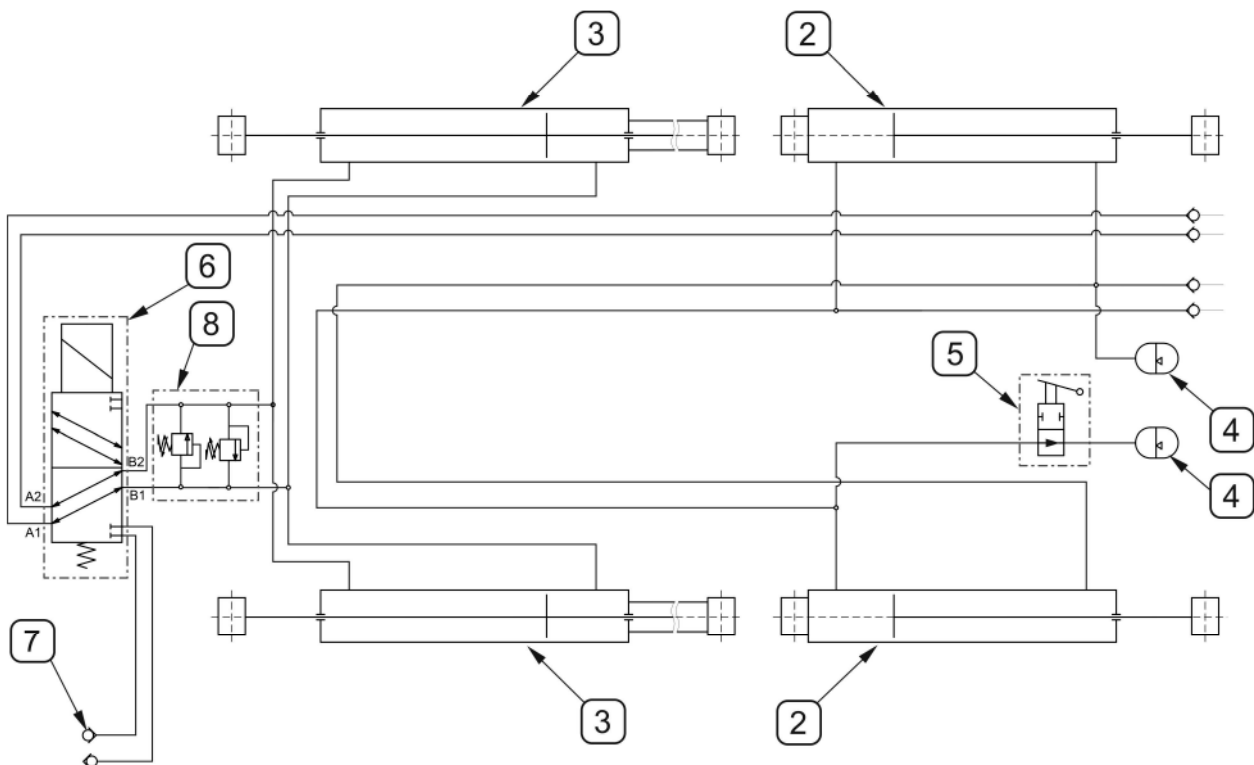


FIG. 3.5A LC2 are hydraulic system diagram with 3-section control (option)

(2) - hydraulic lifting cylinders, (3) - hydraulic tipping cylinders; (4) - hydro-accumulator, (5) - hydro-accumulator valve, (6) - implement hydraulic system solenoid valve (option), (7) - implement supply quick coupling (option) (8) - Cross relief valve

SECTION

4

CORRECT USE

MOUNTING LOADER ON TRACTOR
WORK WITH LOADER
TRANSPORTING THE MACHINE

4.1 MOUNTING LOADER ON TRACTOR

4.1.1 MOUNTING SUPPORT FRAME

To enable connection of tractor to loader the tractor must be equipped with special loader support frame. The type of support frame depends on the type of tractor. It is recommended that the bolts securing the support frame to the tractor frame are protected with thread locking adhesive to preventing unscrewing. The mounting process should be performed by a person with appropriate qualifications. Before mounting support frame, remove the weights from the front axle. Remove the reinforcement bars (if any) and the air tank. Any components (brackets, cable grips, etc.) installed at the point of attachment of the support frame must first be removed.

MOUNTING SUPPORT FRAME ON KIOTI DK551C TRACTORS

In the KIOTI DK551C tractors, remove the air pressure regulator and hydraulic hoses bracket before beginning assembly. The front and rear of the brackets (1) and (2) (FIG. 4.1A) fix with bolts (14) and washers (25). Secure brace rods brackets (5) to driving axle using bolts (15) and washers (23). To the brackets (5), using bolts (16) with nuts (20) and washers (26) fix brace rods (4), whose front part must be bolted to brackets (1) and (2) using bolts (18) and nuts (20). When bolting brace rods (4) with brackets (1) i (2) use suitable brackets (9) or (9a depending on tractor equipment options). Tension the brace rods system (FIG. 4.6A)

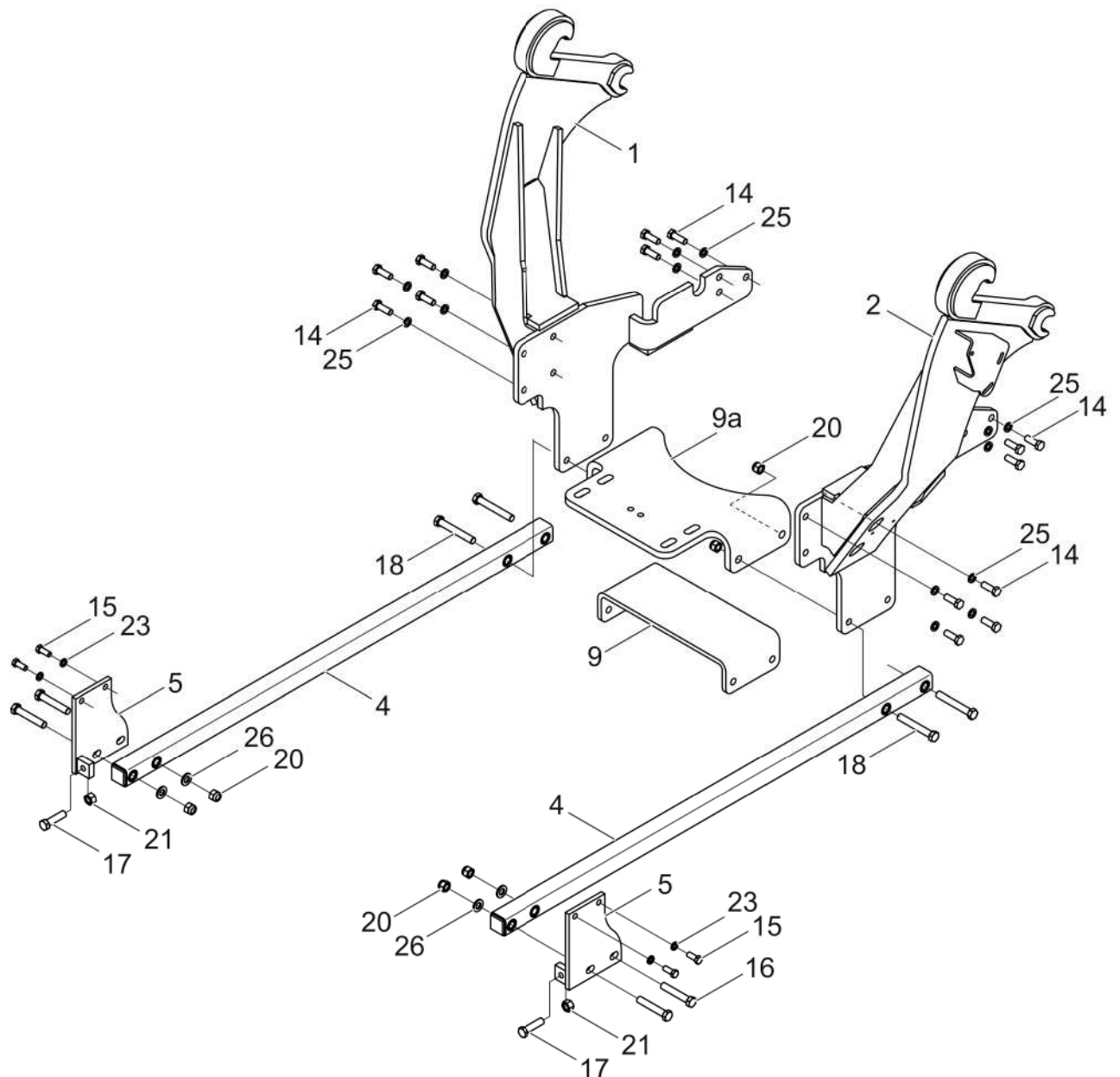


FIG. 4.1A Mounting support frame on KIOTI dk551C tractors

(1) - left bracket, (2) - right bracket, (4) - beam, (9) - bracket, (9a) - bracket (with front linkage and ZUIDBERG PTO) (13) - bolt M10x20-8.8, (14) - bolt M14x1, 5x40-8.8; (15)- bolt M12x1,5x35-8.8; (16)- bolt M16x90-8.8; (17)- bolt M16x65-8.8; (18)- bolt M16x110-8.8; (20)- counter nut M16-8; (21)- nut M16-8; (23)- spring washer Z12,2; (24)- spring washer Z10,2; (25)- spring washer Z14,3; (26)- washer 16-100HV;

MOUNTING SUPPORT FRAME ON KIOTI DK551C tractors with KB2375 backhoe

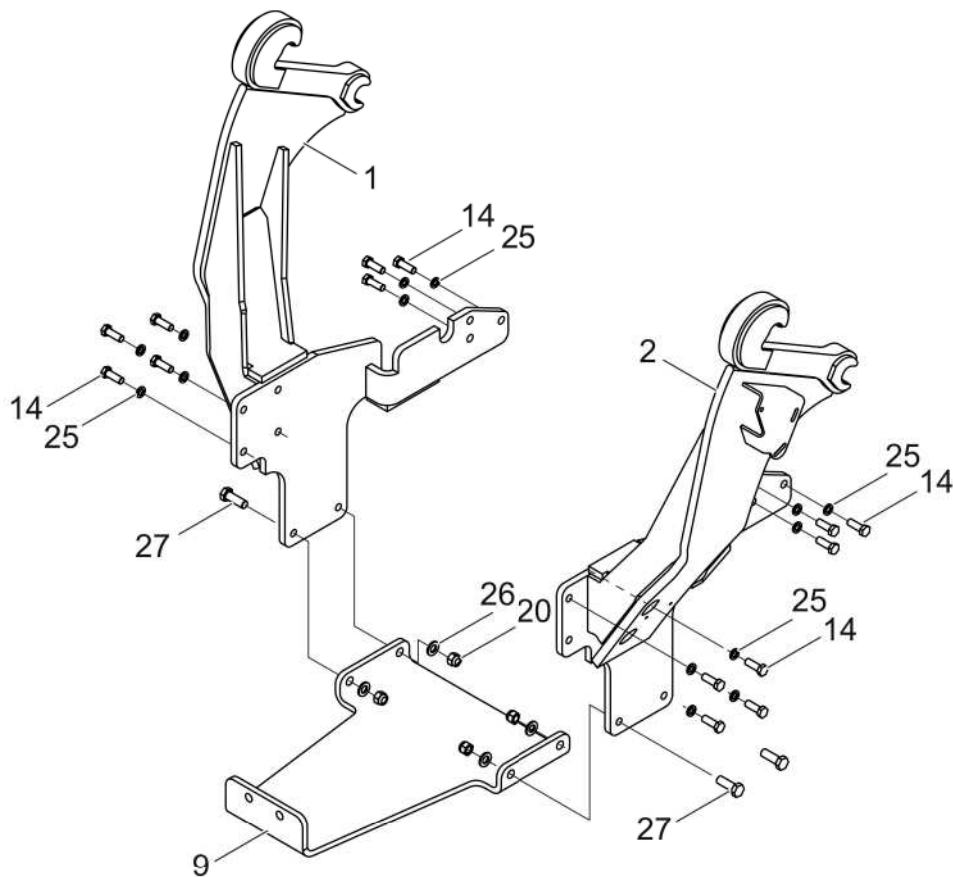


FIG. 4.2A Mounting support frame on KIOTI dk551C tractors with KB2375 backhoe

(1)- left bracket; (2)- right bracket; (9)- bracket; (14)- bolt M14x1,5x40; (20)- counter nut Z12,2; (24)- spring washer Z10,2; (25)- spring washer Z14,3; (26)- washer 16-100HV; (27)- bolt M16x55

In the KIOTI DK551C tractors equipped with KB2375 backhoe, remove the air pressure regulator and hydraulic hoses bracket before beginning assembly. The front and rear of the brackets (1) and (2) (FIG. 4.2A) fix with bolts (14) and washers (25). Between the brackets (1) and (2) (9), using bolts (27) nuts (20) and washers (26).

MOUNTING SUPPORT FRAME ON KIOTI DK451C TRACTORS

In the KIOTI DK451C tractors (FIG. 4.3A), remove the air pressure regulator and hydraulic hoses bracket before beginning assembly. Front and rear part of the brackets (1) and (2) fix using the bolts (8), (9) and (11) with washers (22) and (24). In the front part of the right bracket, use one of the two spacer bushings (3) (previously mounted under the air pressure regulator bracket) and install bracket (1) of the compressor (FIG. 4.11A). Between brackets (1) and (2), mount securing rod (3) using bolts (16), nuts (17) and

washers (23). Secure brace rods brackets(6) and (7) to driving axle using bolts (12) and washers (25) and (20). To the brackets (6) and (7), using bolts (23) with nuts (17) and washers (13) fix brace rods (4) and (5), whose front part must be bolted to brackets (1) and (2) using bolts (19) and (15), nuts (17) and washers (23). Tension the brace rods system (FIG. 4.6A)

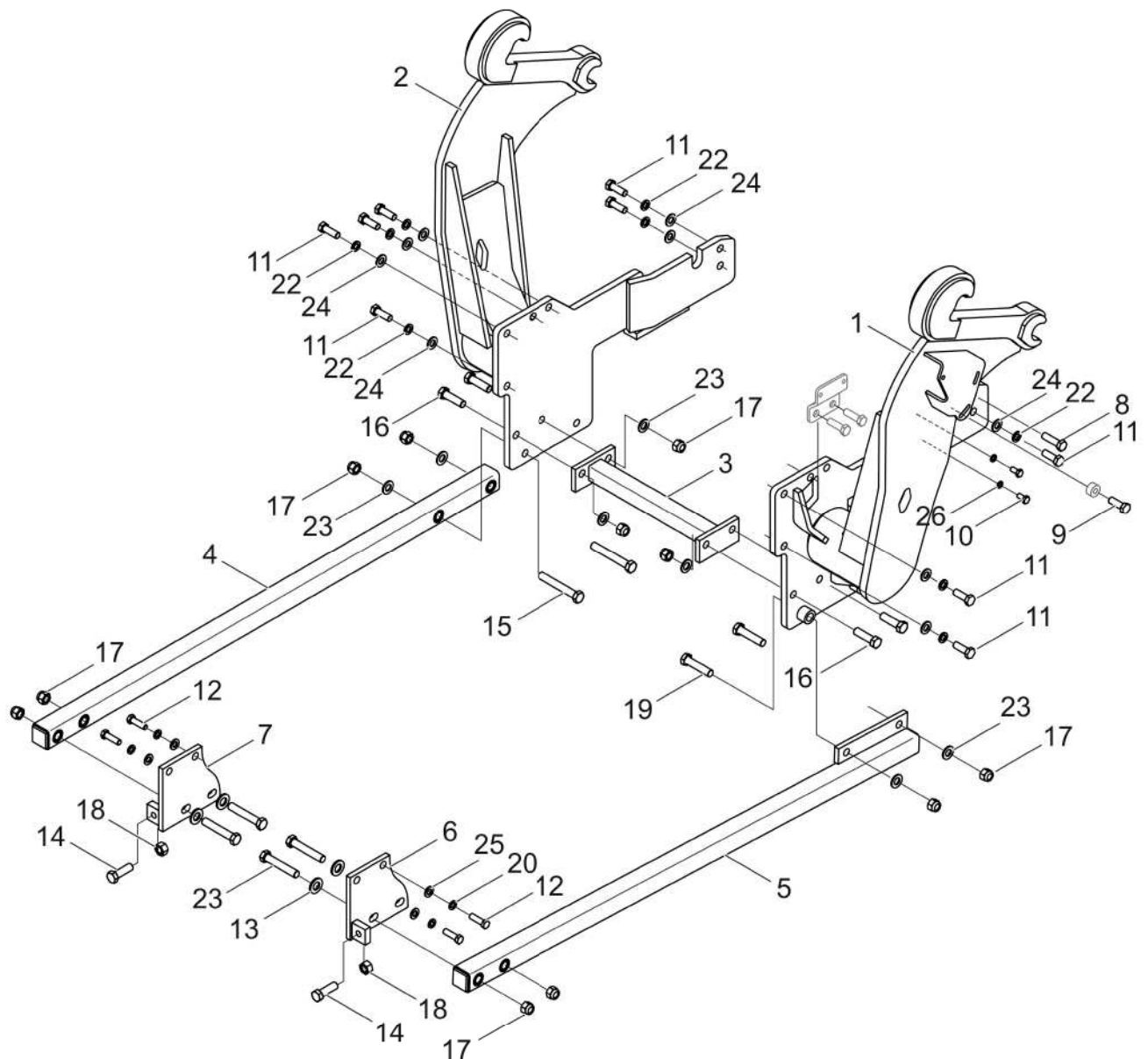


FIG. 4.3A Mounting support frame on KIOTI dk451C tractors

(1)- right bracket; (2)- left brackets; (3)- securing rod; (4)- left brace rod; (5)- right brace rod; (6)- right brace rod bracket; (7)- left beam bracket; (8)- bolt M14x1,5x45-8.8; (9)- bolt M12x1,25x35-8.8; (10)- bolt M10x20-8.8; (11)- bolt M14x1,5x65-8.8; (12)- bolt M12x1,25x35-8.8; (13)- bolt M16x90-8.8; (14)- bolt M16x65-8.8; (15)- bolt M16x110-8.8; (16)- bolt M16x55-8.8; (17)- counter nut M16-8; (18)- nut M16-8; (19)- bolt M16x75-8.8;

(20)- spring washer Z12; (22)- spring washer Z14,3; (23)- nut 16-100HV;
 (24)- washer 14-100HV ;(25)- washer 12-100HV; (26)- spring washer Z10,2;

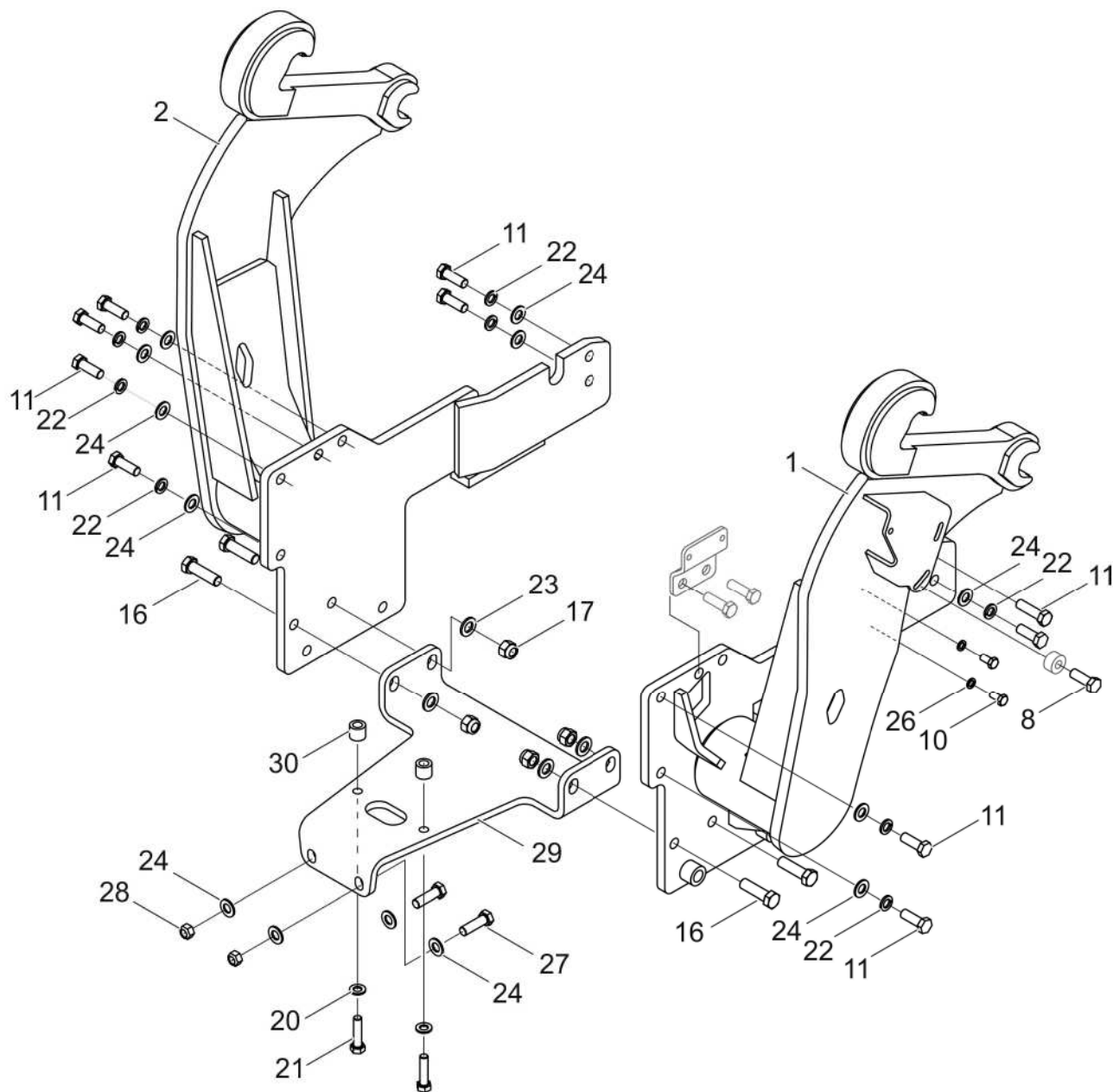


FIG. 4.4A Installation of the KIOTI DK451C tractor support frame with KB2375

(1) - left bracket, (2) - right bracket, (9) - bracket, (13) - bolt M10x20-8.8, (14) - bolt M14x1, 5x40-8.8, (20) - counter nut M16-8, (23) - bolt M16X80-8.8; (23)- spring washer Z12,2; (24)- spring washer Z10,2; (25)- spring washer Z14,3; (26)- washer 16-100HV; (30) - spacer bushing

In the KIOTI DK451C tractors equipped with KB2375 backhoe (FIG. 4.4A), remove the air pressure regulator and hydraulic hoses bracket before beginning assembly. Front and rear part of the brackets (1) and (2) fix using the bolts (8), (9) and (11) with washers (22) and

(24). In the front part of the right bracket, use one of the two spacer bushings (3) (*previously mounted under the air pressure regulator bracket*) and install bracket (1) of the compressor (FIG. 4.11A). Between brackets (1) and (2), mount brackets (29) using bolts (16), nuts (17) and washers (23). Under the bracket (29) use spacer bushings (30) and fix using bolts (21) with washers (20).

MOUNTING SUPPORT FRAME ON ZEFIR 40/40K TRACTORS

The front and rear of the brackets (1) and (2) (FIG. 4.5A) fix using bolts (17) with washers (27) and spacer bushings (12). In tractors without front three-point linkage, apply spacer plates (9). Fix the rear part of the brackets (1) and (2) using the bolts (14) and washers (25). Secure brace rods brackets(5) and (6) to driving axle using stud bolts (23) and the existing tractor nuts. To the brackets (5) and (6), using bolts (15) with nuts (19) fix brace rods (4), whose front part must be bolted to brackets(1) and (2) using bolts (16) and nuts (20). Using securing rod (10) bolt brackets (1) and (2) and secure with nuts (22). Tension the brace rods system (FIG. 4.6A)

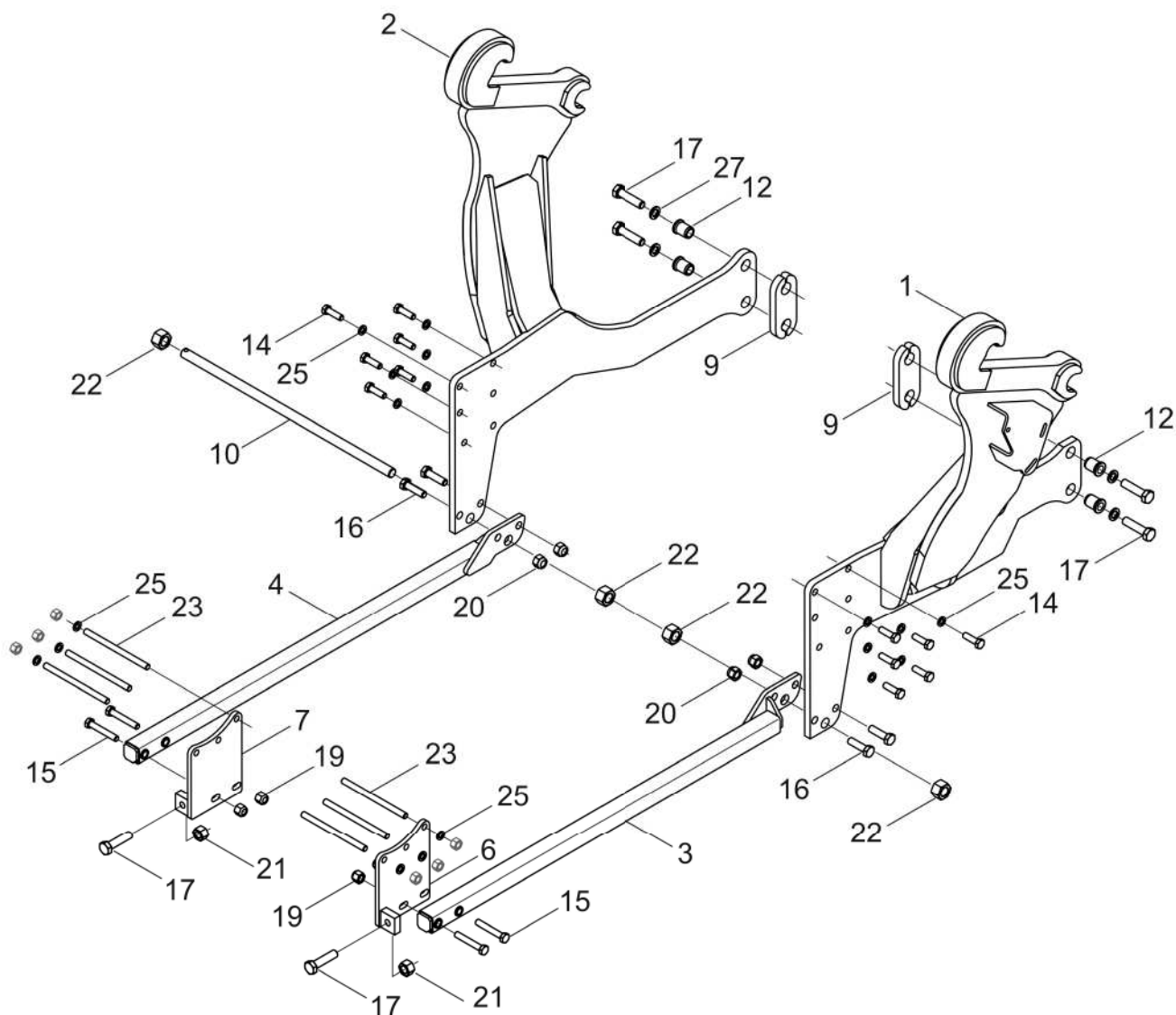


FIG. 4.5A Mounting support frame on Zefir 40/40K tractors

(1)- right bracket; (2)- left bracket;; (3)- right brace rod (4)- left brace rod; (5)- right brace rod bracket; (6)- left brace rod bracket; (9)- spacer plate; (10)- securing rod; (12)- support bushing;(14)- bolt M12x40-8.8; (15)- bolt M12x75-8.8; (16)- bolt M14x50-8.8; (17)- bolt M16x65-8.8; (19)- nut M12-8; (20)- nut M14-8; (21)- nut M16-8; (22)- nut M20-8; (23)- stud bolt M12/M12x1,5x160-8.8; (25)- spring washer Z12,3; (27)- spring washer Z16,3; (28)- washer 20-100HV;

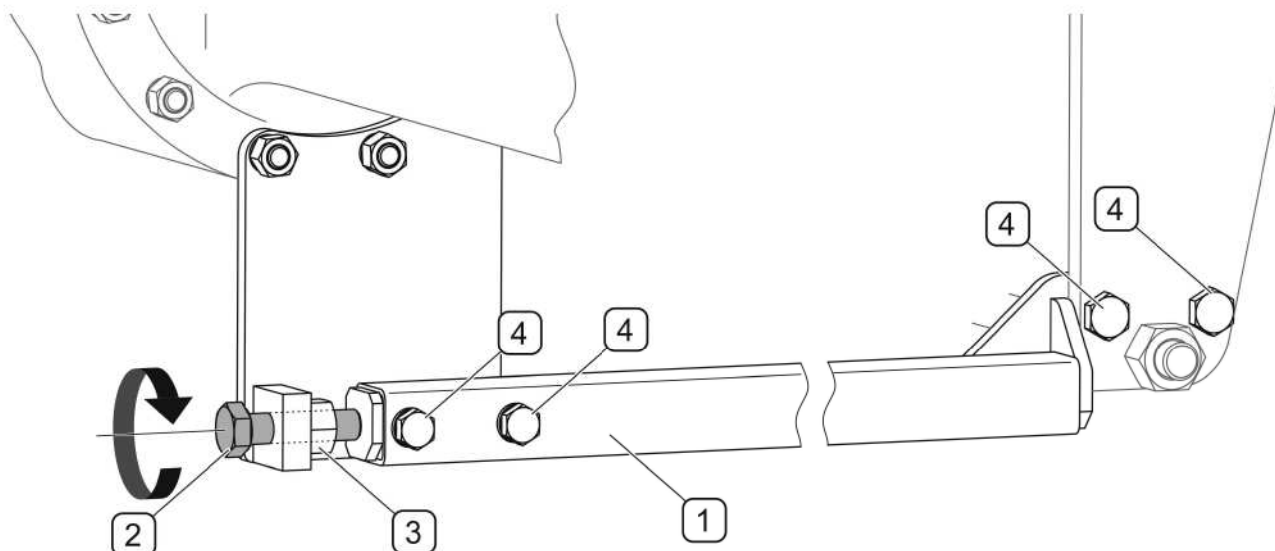


FIG. 4.6A Tensioning the supporting frame beam system

(1) - brace rod, (2) - tension bolt, (3) - counter nut, (4) - brace rods mounting bolts

To tension the brace rods (1), loosen the nuts on the bolts (4) in the front and back of the brace rod and counter nut (3). tighten the tension bolt (2) with a torque of about 30 Nm. Tighten the counter nut (3) and bolts (4) securing the brace rods. Proceed the same way with the second brace rod. Description of tensioning the brace rods is not applicable to Kioti tractors equipped with the KB2375 backhoe.

TAB. 4.1 RECOMMENDED TIGHTENING TORQUE OF BOLTS

Metric thread diameter [mm]	Tightening torque of bolts [Nm]		
	8.8	10.9	12.9
8	18	25	36
10	37	49	72
12	64	85	125
14	128	181	217
16	197	277	333
18	275	386	463
20	385	541	649
22	518	728	874
24	665	935	1,120
14x1, 5	157	219	261
16x1, 5	233	333	394

Recommended torque values apply to non-greased steel bolts.

4.1.2 INSTALLATION OF HYDRAULIC SYSTEM

INSTALLATION OF HYDRAULIC SELECTIVE CONTROL VALVE.

Installation of hydraulic system elements should be done by appropriately qualified persons.

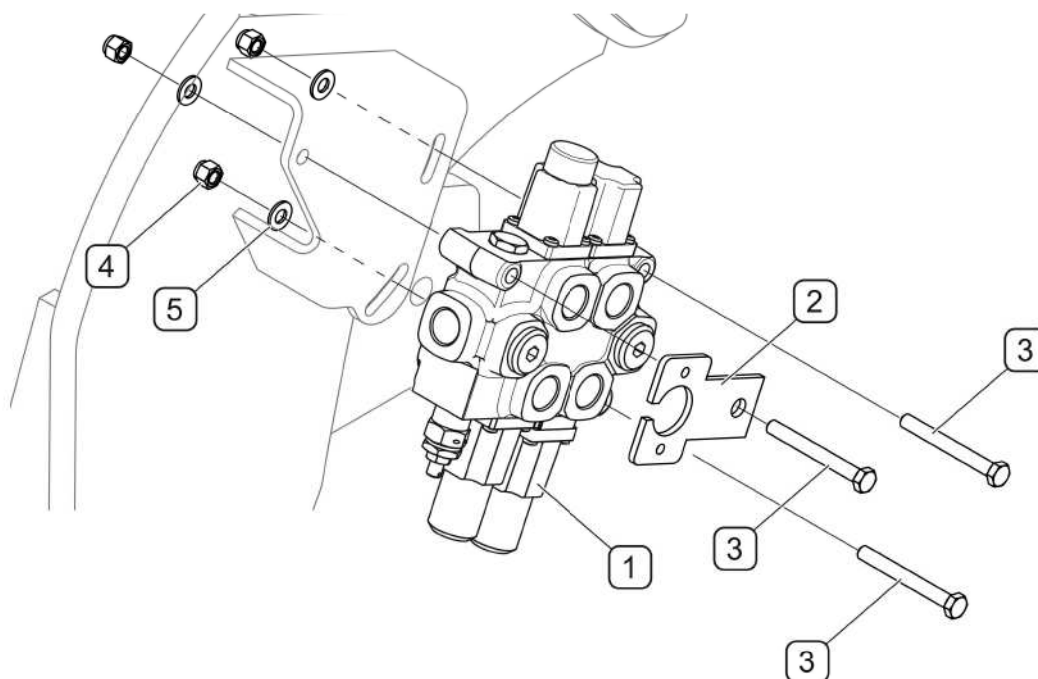


FIG. 4.7AND Installation of the hydraulic selective control valve on arm support

(1) - hydraulic selective control valve, (2) - electrical socket bracket, (3) - bolt M8x70-8.8, (4) - nut M8-8, (5) - washer 8-100HV

Secure hydraulic selective control valve (1) to the right support frame bracket (FIG. 4.7A) with bolts (3), nuts (4) and washers (5). In loaders with 3-section control (option), in addition to selective control valve, electrical socket bracket (2) (FIG. 4.7A) must be installed. Selective control valve must be installed (FIG. 4.8A) (if not already installed by the manufacturer).

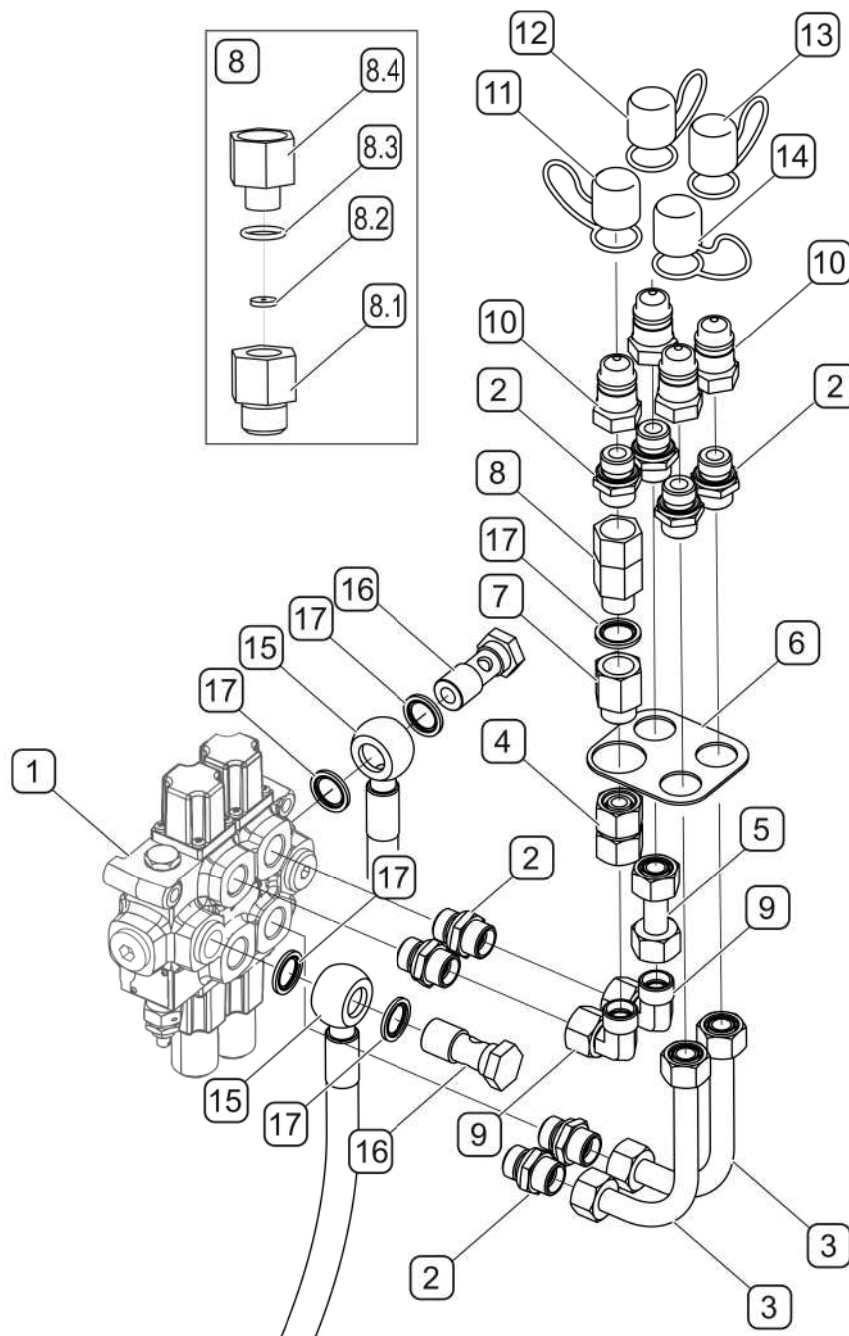


FIG. 4.8A Installation of the hydraulic selective control valve LC2

(1) - selective control valve, (2) - connector body GE15LREDOMDCF; (3)- line 181N-01020100; (4)- connector body GZ15LCF; (5)- line 181N-01020200; (6)- bracket 181N-01020003; (7)- connector GAI15LRCFX; (8)- valve 35N-06010000-01 (8.1)- body; (8.2)- plate with hole $\varnothing 1,4$ mm; (8.3)- sealing ring; (8.4)- connector; (9)- adjustable elbow EW15LOMDCF; (10)- quick coupler NV 12 GAS M; (11)- blue cap TF12; (12)- black cap TF12N; (13)- red cap TF12R; (14)- green cap TF12V; (15)- hydraulic lines; (16)- bolt 6RPN-04.00.07; (17) - PPM22 seal;

CONNECTION TO THE ZEFIR 40/40K TRACTOR HYDRAULIC SYSTEM

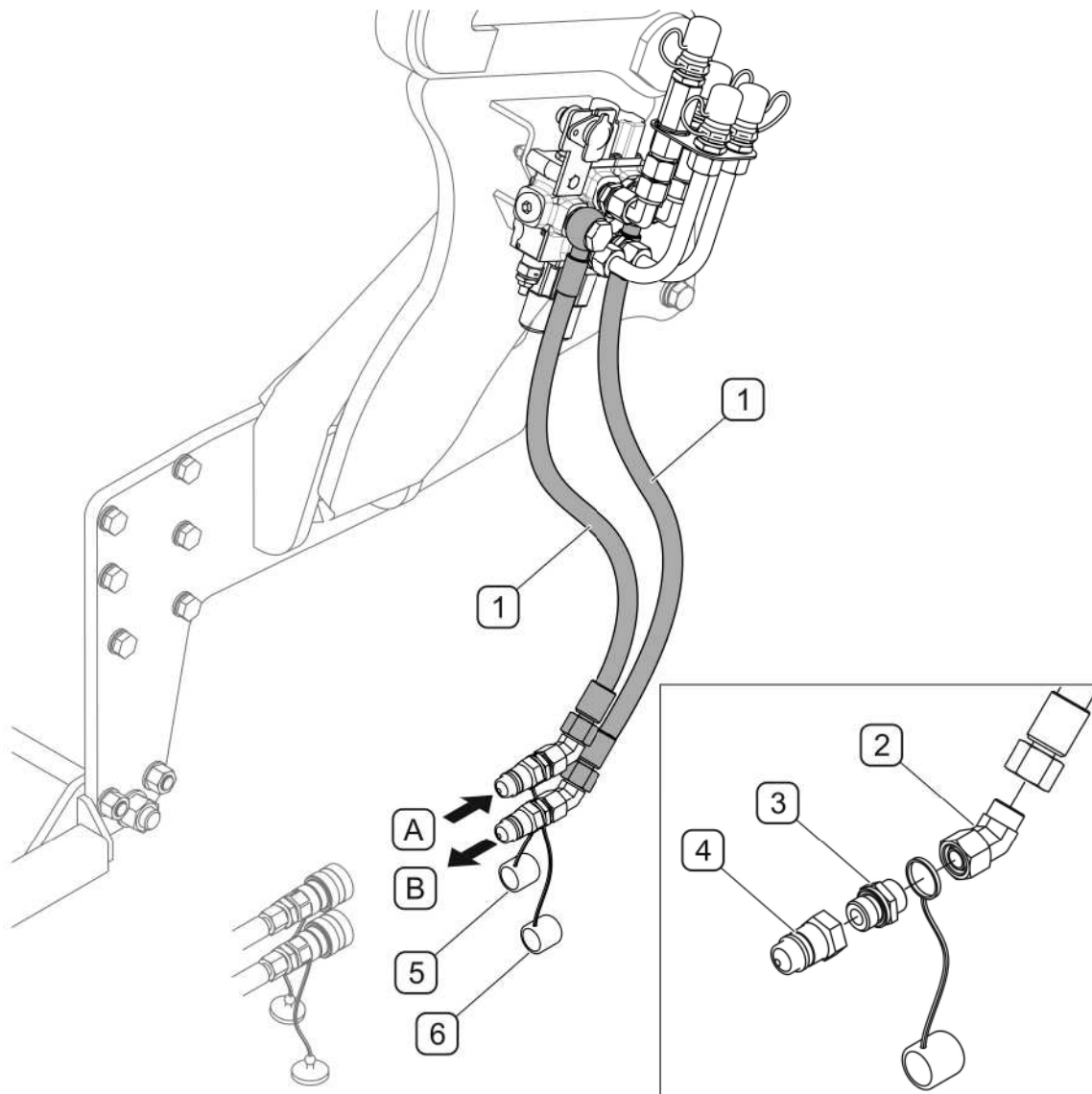


FIG. 4.9A Connect the selective control valve to the Zefir 40/40K tractor hydraulic system

(A) - supply from tractor hydraulic system; (B) - oil return to tractor hydraulic system;
(1) - hydraulic lines 181N-01020300, (2) - Adjustable elbow EV15LOMDCF;
(3) - GE15LREDOMDCF connector body; (4) - quick plug NV 12 GAS M; (5) - black cap TF 12N; (6) - red cap TF 12R

In the Zefir 40/40K tractors connect the selective control valve (FIG. 4.9A) using flexible lines (1) with the front right pair of tractor hydraulic quick couplers.

CONNECTION TO KIOTI TRACTOR HYDRAULIC SYSTEM

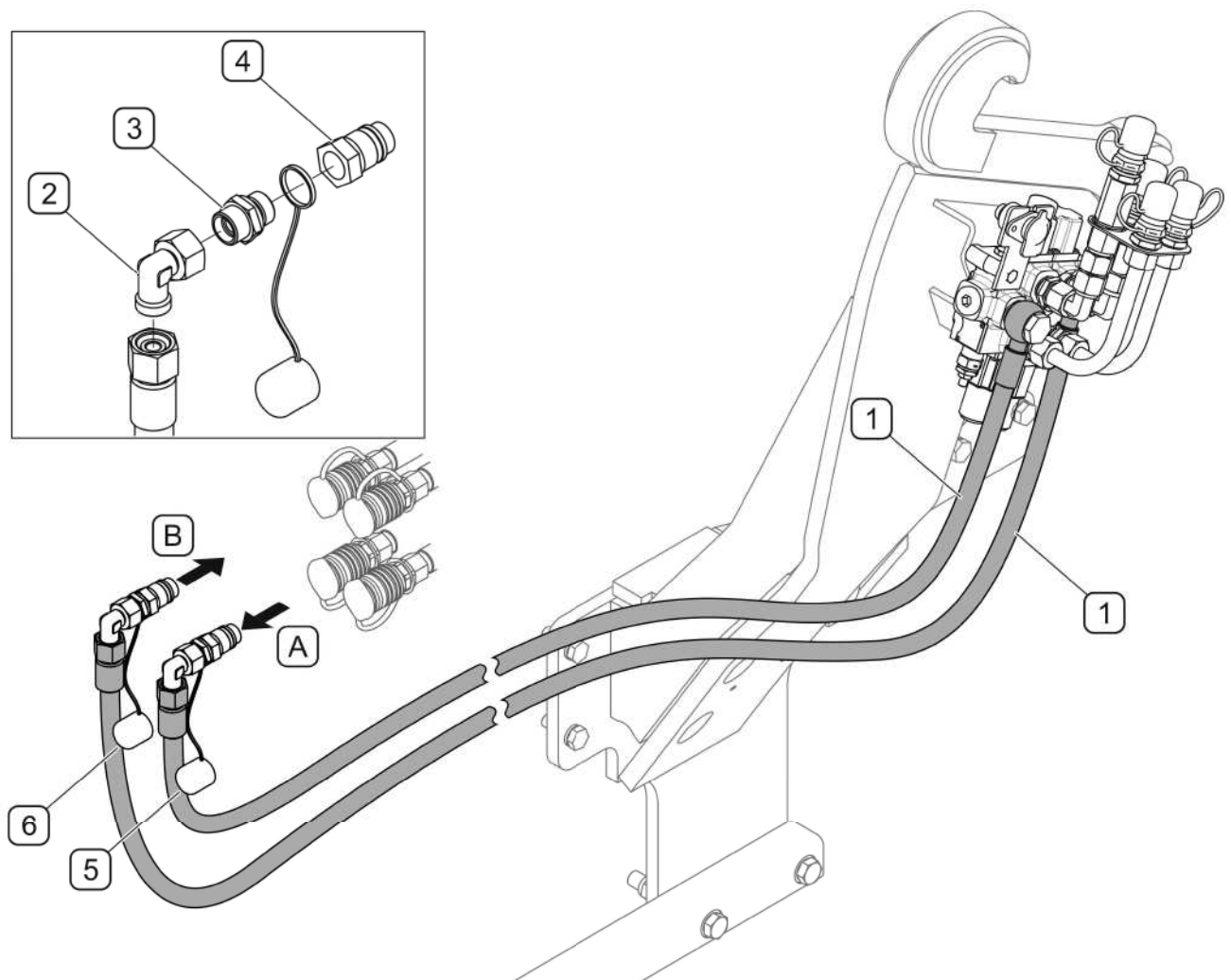


FIG. 4.10A Connect the selective control valve to the KIOTI DK451C and KOITI DK551C tractor hydraulic system

(A) - supply from tractor hydraulic system; (B) - oil return to tractor hydraulic system;
(1) - hydraulic lines 161N-01020100, (2) - Adjustable elbow EW15LOMDCF;
(3) - GE15LREDOMDCF connector body; (4) - quick plug NV 12 GAS M; (5) - black cap TF 12N; (6) - red cap TF 12R

In the KIOTI DK451C and DK551C tractors connect the selective control valve (FIG. 4.10A) using flexible lines (1) with the rear pair of tractor hydraulic quick couplers supplied from the latched hydraulic section. Loader hydraulic system is connected to selective control valve using quickcouplers, marked with appropriate plug colours.

4.1.3 ADDITIONAL MODIFICATIONS

In KIOTI DK451C tractors mount bracket (3) and the previously the air pressure regulator (FIG. 4.11A) and compressor bracket to the right bracket of the support frame. If the tractor pneumatic system is not configured in the factory for the loader support frame, replace the lines connecting the compressor and the regulator a also the regulator with the air tank with suitable lines (1) and (2). Air tank must be connected to line (1) through the connector (4) and connector (5). Secure compressor mounting bracket to the loader support frame. After completing above actions check seal tightness of pneumatic system.

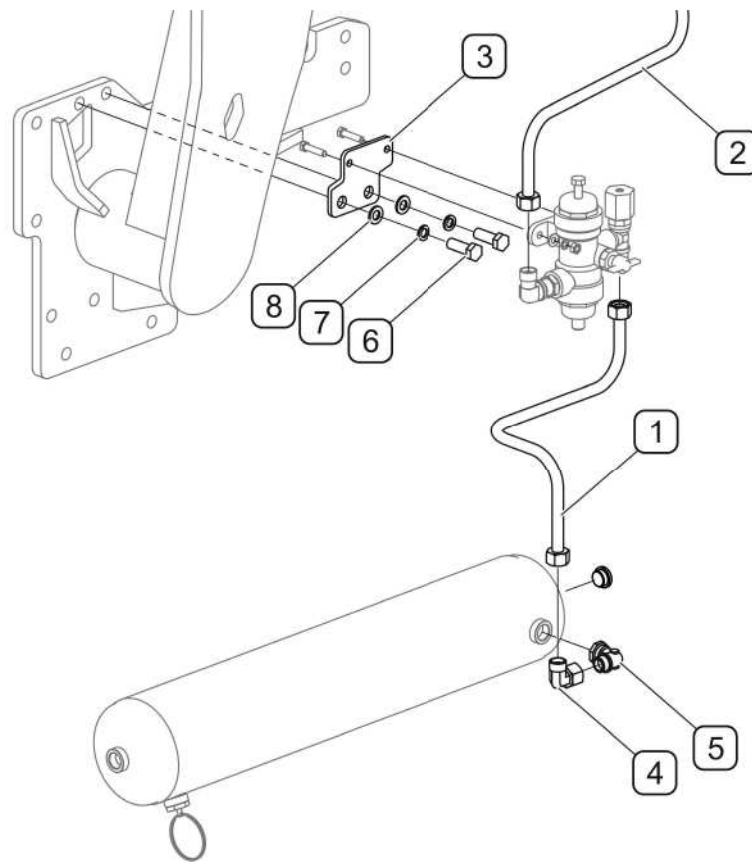


FIG. 4.11A Modification of pneumatic system in KIOTI DK451C tractors

(1) - line 143N-02000100; (2) - line 143N-0100150000; (3) - bracket 143N-02000015;
(4) - swivel elbow connector EW15LOMDCF; (5) - elbow connector ZŁWM22k/M22-kol;
(6) - bolt M14x1,5x45; (7) - spring washer Z14,3; (8) - washer 14-200HV

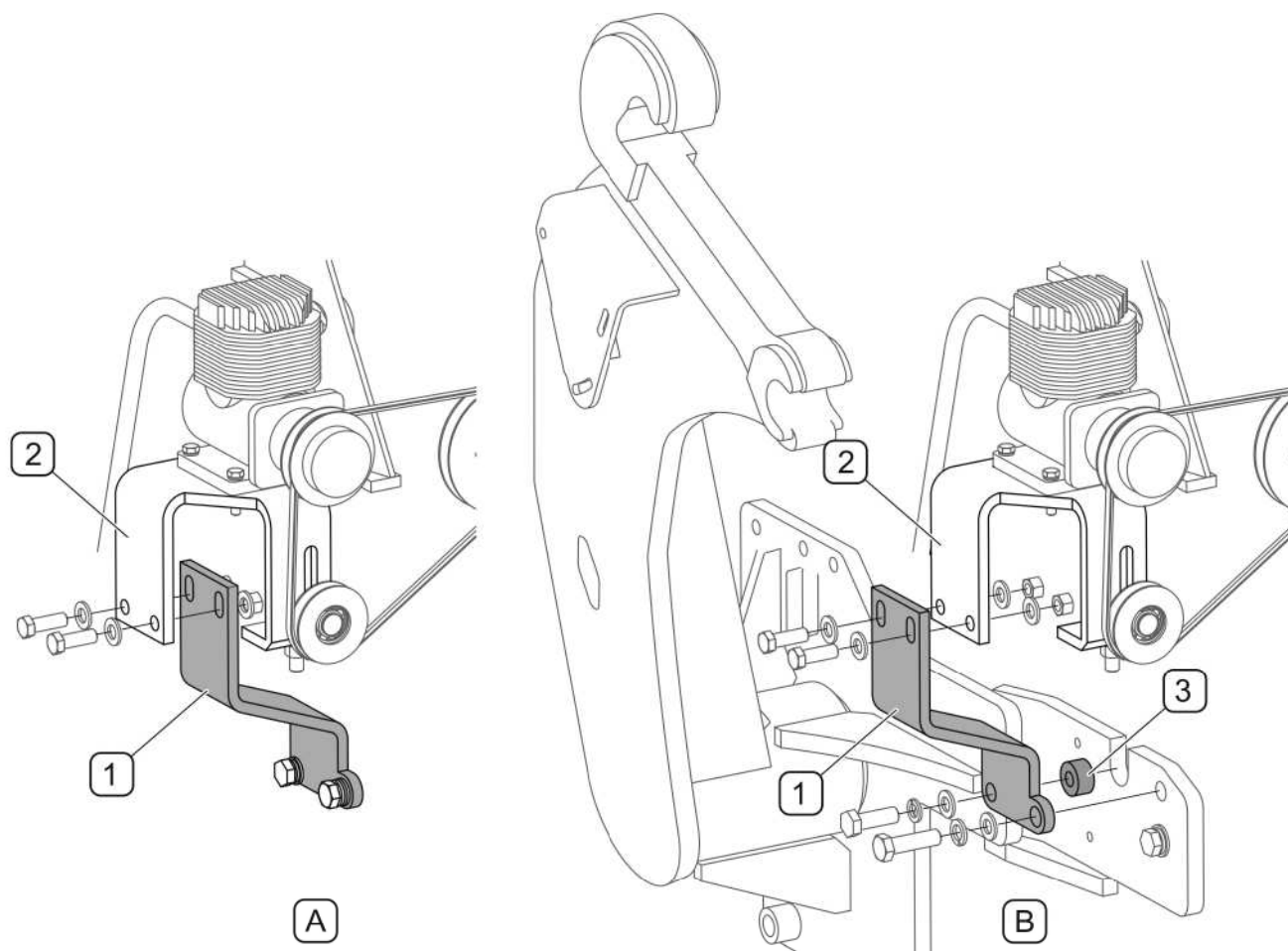


FIG. 4.12A Changing the compressor mounting bracket in Kioti DK451C tractors

(A) - Mounting bracket before mounting the support frame, (B) - mounting bracket to the loader support frame, (1) - support, (2) - compressor bracket, (3) - spacer bushing

In the Kioti DK451C tractors, using the existing fasteners, install the bracket (1) which is factory pre-installed (A) under the compressor bracket (2), onto the compressor bracket (FIG. 4.12A). Under the bracket (1) use the spacer bushing (3) removed from the air regulator bracket (FIG. 4.11A).

In the Kioti DK551C tractors the previously removed air pressure regulator is mounted directly onto the left bracket of support frame. Connect the pneumatic system components (FIG. 4.13A) using an additional line (2) and connector body (4). After completing above actions check seal tightness of pneumatic system.

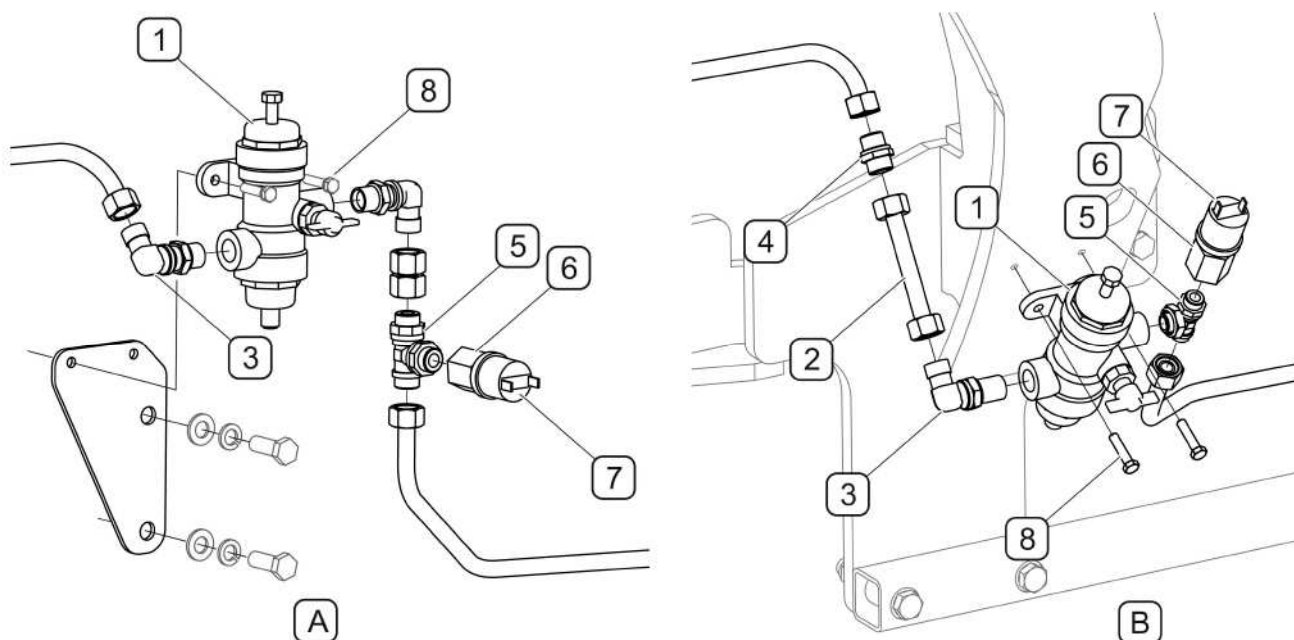


FIG. 4.13A Modification of the pneumatic system in Kioti DK551C tractors

(A) - installation of the regulator without the loader support frame, (B) - mounting the regulator on the support frame, (1) - air pressure regulator, (2) - line 161N-01030000, (3) - swivel elbow, (4) - connector body G15LCF, (5) - Three-way connector: (6) - coupler; (7) - air pressure sensor, (8) - bolt M8x70;

4.1.4 INSTALLATION OF THE LOADER CONTROL LEVER

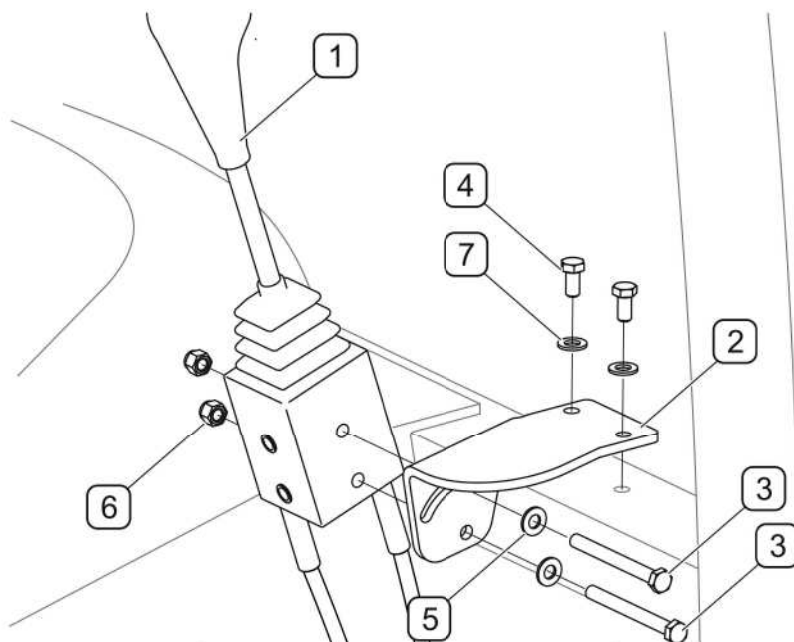


FIG. 4.14A Installation of the control lever in the Zefir 40/40K tractor cab

(1) - loader control lever, (2) - lever support, (3) - bolt M8x80, (4) - bolt M8x16, (5) - washer 8-100HV, (6) - nut M8; (7) - spring washer Z8

When installing the control lever in the Zefir40/40K tractor (FIG. 4.14A) secure bracket (2) for the control lever (1) inside the cabin by right front door corner post.

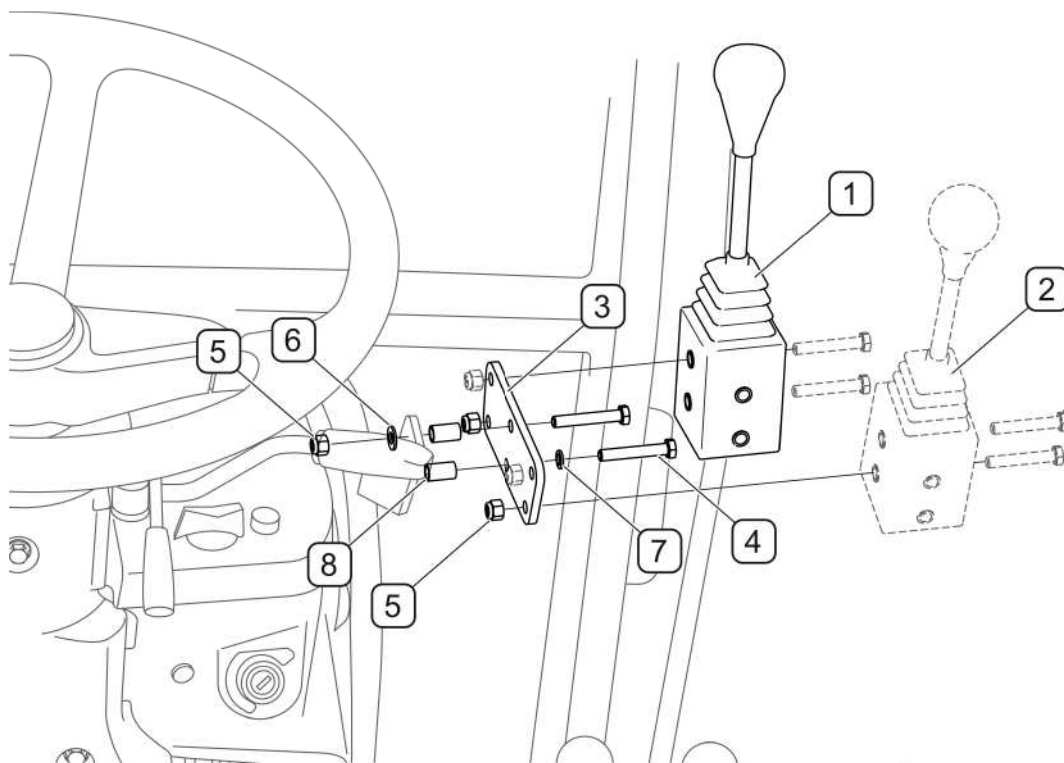


FIG. 4.15A Installation of the control lever in the KIOTI DK451C and DK551C tractors

(1) - loader control lever, (2) - external hydraulics control lever (existing in the tractor), (3) - lever bracket, (4) - bolt M8x50, (5) - nut M8; (6) - washer 8-100HV, (7) - spring washer Z8, (8) - spacer bushing;

Installation of the loader control lever in KIOTI DK451C and DK551C tractors (FIG. 4.15A) consists of removing the existing external hydraulic control lever (2) (if the tractor is equipped with the lever) and using in its place the bracket (3) to which is mounted the lever (2) and loader control lever (1). Use the existing fasteners to install the lever on the mounting bracket.

Take out the control rods outside the cab through the holes in the floor. Using cables connect control lever with appropriate loader selective control valve sections.

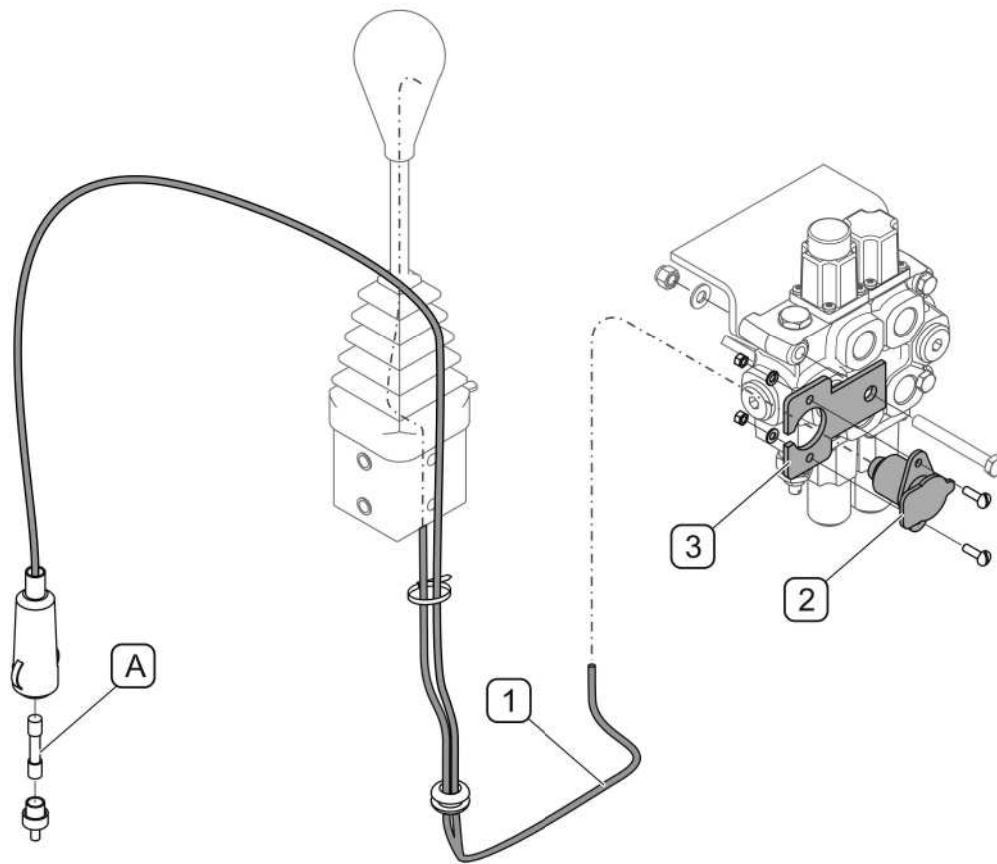


FIG. 4.16A Connect the power supply (optional)

(1) - Electrical wiring harness with connector, (2) - 3-pole socket (3) - socket bracket, (A) - fuse 10A;

In loaders with 3-section control (option), connect the electrical harness (1) already connected to the control lever connected to an electrical socket (2) and mount on the bracket (3) of the hydraulic selective control valve. Plug the harness connector (1) in the 12V cigarette lighter socket. The electric circuit is used only in loaders with 3-section control. It controls the hydraulic solenoid valve operation at the front of the loader arm frame.

4.2 WORK WITH LOADER

Before first use acquaint oneself with the loader Operator's Manual and the fittings that it works with. Make certain that the front loader is able to work with the given implement.



DANGER

Do not operate loader from any position other than that of driver in tractor cab.



ATTENTION!

Do not lower loader with disconnected tractor engine.

Before commencing work check:

- completeness of loader and implements;
- condition of bolt connections of implements and loader support structure (if necessary tighten);
- condition of tighteners of brace rods (adjust if necessary)
- set quick spring locks (adjust if necessary)
- condition of elements securing implements on loader;
- condition of hydraulic system and control system;

In the event of any fault or damage whatsoever, do not use the front loader until the fault has been fixed.

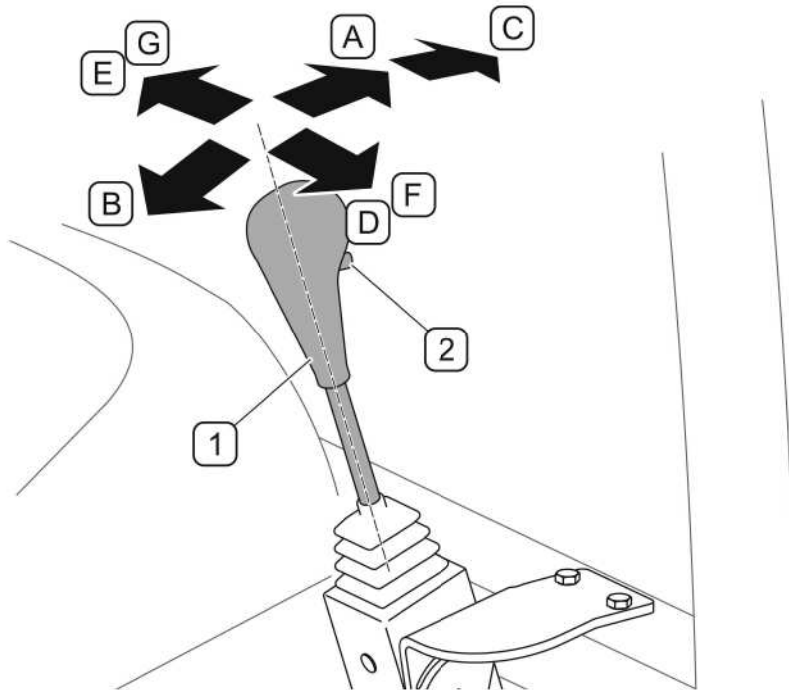


FIG. 4.17A Controlling the loader

(1) - control lever, (2) - 3-section control activation button (option); (A) - lowering loader; (B) - raising loader; (C) - loader "floating" position; (D) - tipping implement forwards; (E) - tipping implement backwards; (F) - implement opening (option); (G) - implement closing (option)

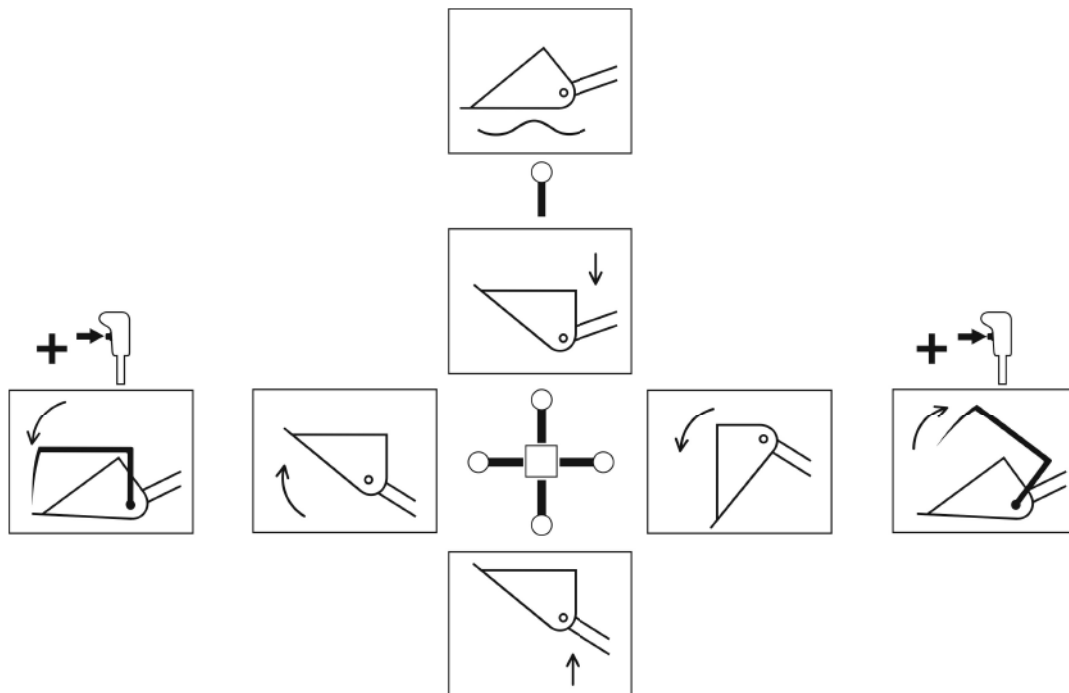


FIG. 4.18A Loader control diagram

Position (F) and (G) (FIG. 4.17A) is applied in implement equipped with hydraulic system (e.g. manure grab, bale grab, silage cutter etc.) connected to front loader quick coupler (3-section control). To open the implement set lever to the extreme right position and additionally press button (2) (FIG. 4.17A) in lever handle. To close implement press button (2) and set control lever in left setting.

Control lever interlock (FIG. 4.19A) in neutral position (central) prevents operating loader and so protects hydraulic system against accidental activation. To unlock control lever move interlock to extreme left setting (*looking from position of driver*), to engage interlock move to the right.

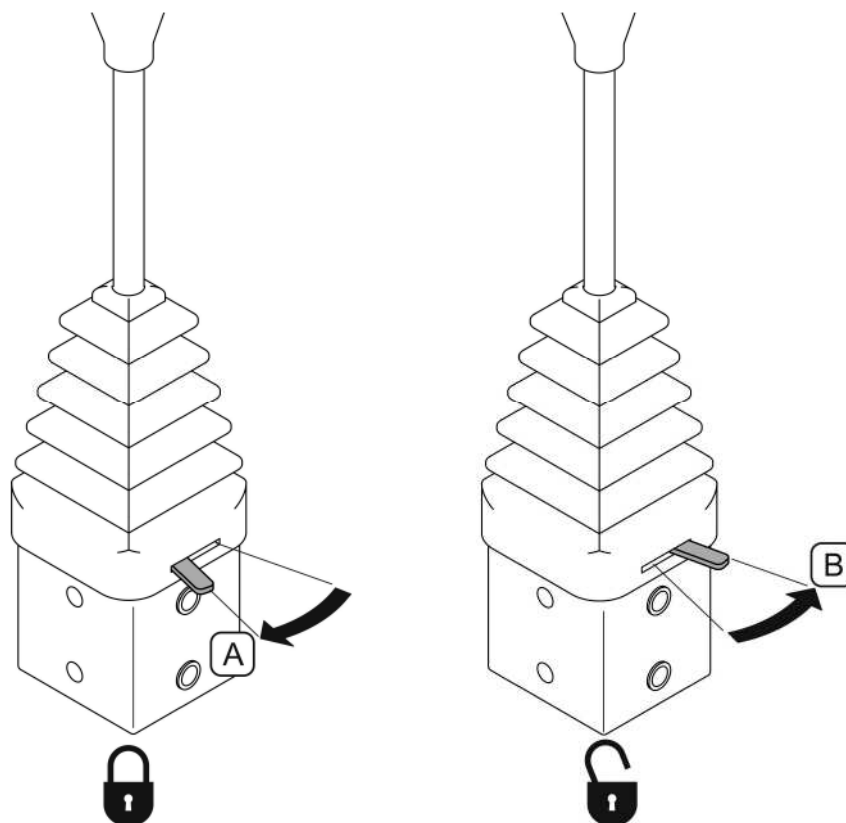


FIG. 4.19A Control lever lock

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

Front loader operation involves performing specified activities (cycles):

- travel to place of loading, appropriate implement setting (working implement);
- filling and raising working implement;
- travel to the place of unloading (e.g. means of transport) and uploading material;
- travel to the loading site;

Loader work cycle depends on the implement applied. When loading material, collect it with the whole width of the working implement. When driving with loads do not make sharp turns or brake suddenly.

When operating loader with implement, pay attention to the most beneficial positioning of means of transport (place of unloading) in relation to place of loading. The distance should be chosen so that manoeuvring the tractor with loader would be by the shortest route.

While gathering material and driving with loaded implement the maximum permitted speed is 6 km/h with the lowest possible working implement position. Limitation of speed is essential to reduce dynamic loading. Raising implement to the required height and completing work action may be made only at place of unloading.



DANGER

Do not carry people or animals in implements.

Persons must not be present within range of operating loader.



ATTENTION!

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



ATTENTION!

Do not exceed a maximum working speed of 6 km/h

Implement position indicator

The implement position indicator is an element facilitating work with loader (FIG. 4.20A).

The indicator has two bows enabling the setting of the given implement horizontally in relation to the surface:

- Forks and grapples - when the lower bow is covered by the ring
- Bucket for bulk materials – when the upper bow is covered by ring

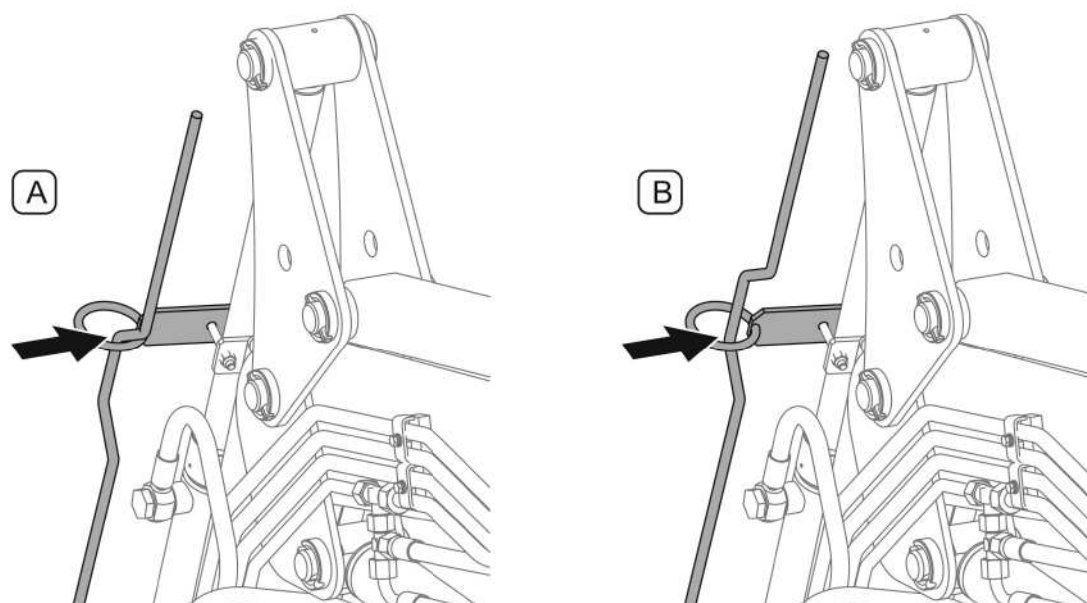


FIG. 4.20A Implement position indicator

A - implement level setting for forks and grapples; (B) - implement level setting for bucket for bulk materials

Hydraulic shock absorber

LC2 front loader is equipped with two double-acting hydraulic shock absorber intended to diminish vibration transferred to the tractor from the loader particularly while travelling on uneven surfaces.

The hydraulic shock absorber may be disconnected setting valve lever (1), (FIG. 4.21A) in vertical position. It is recommended to deactivate shock absorber in work requiring precision of loader setting (e.g. work with pallet forks).



DANGER

Hydraulic shock absorber valve should be opened (engaging shock absorber) slowly with working implement resting on surface, checking that nobody is in range of the loader. It is recommended to set the loader control lever to the "floating" position

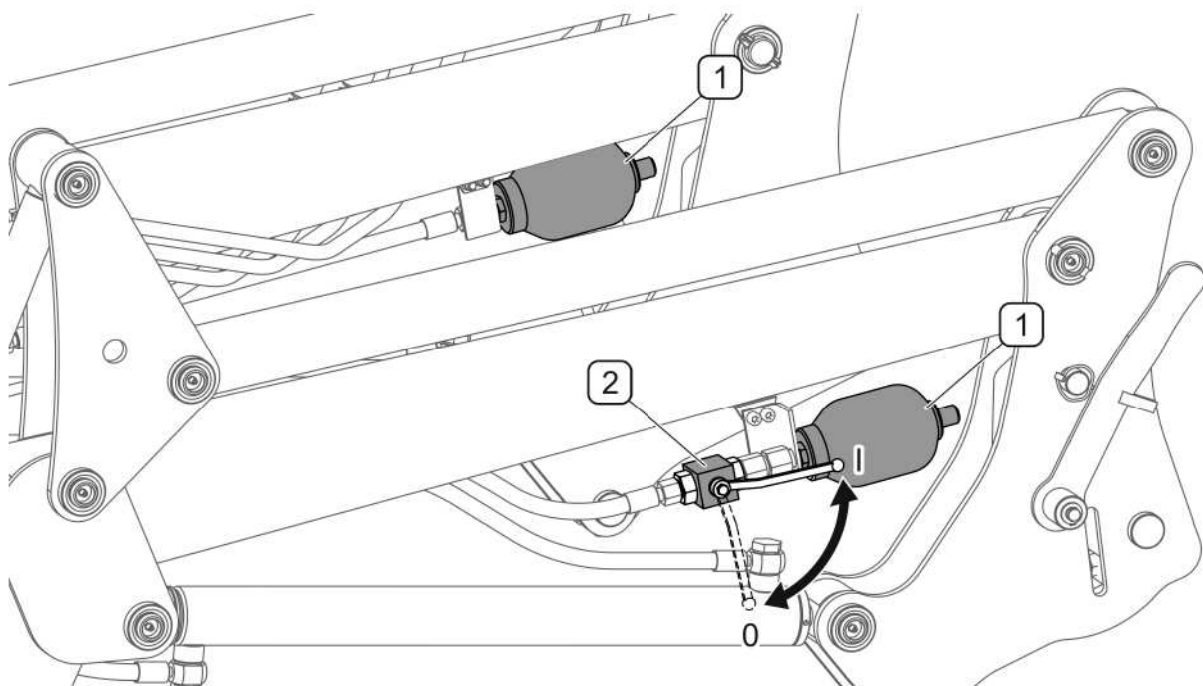


FIG. 4.21A Engaging hydraulic shock absorber

(1) - hydraulic shock absorber, (2) - hydraulic shock absorber valve; (0) - the valve in the closed position, (I) - the valve in the open position

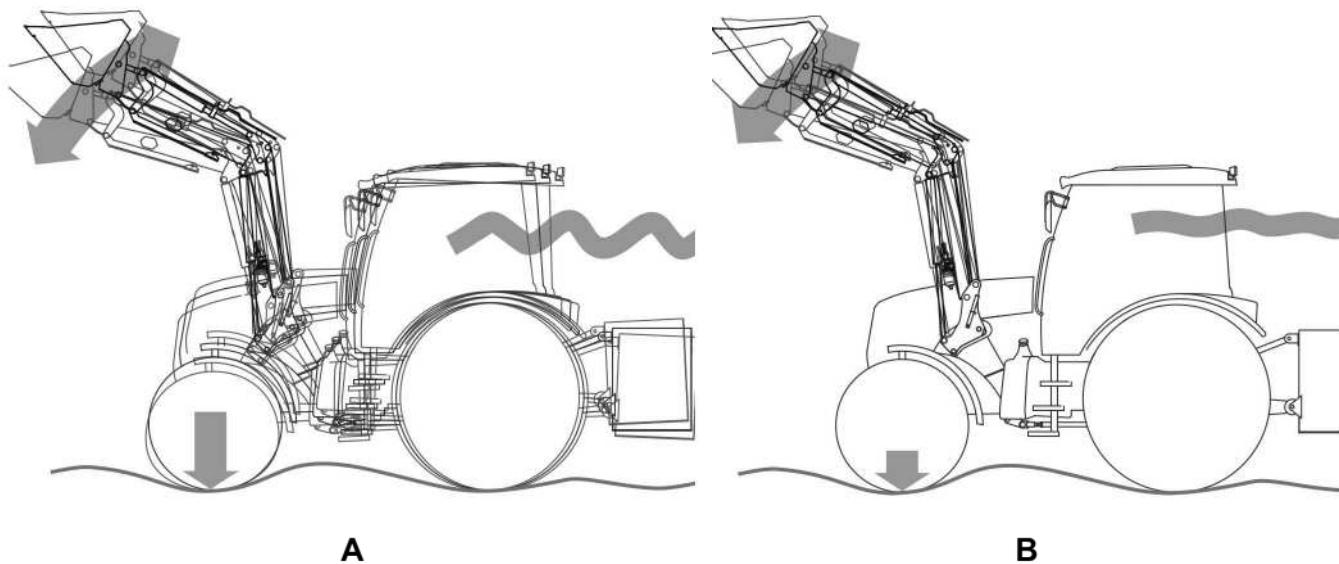
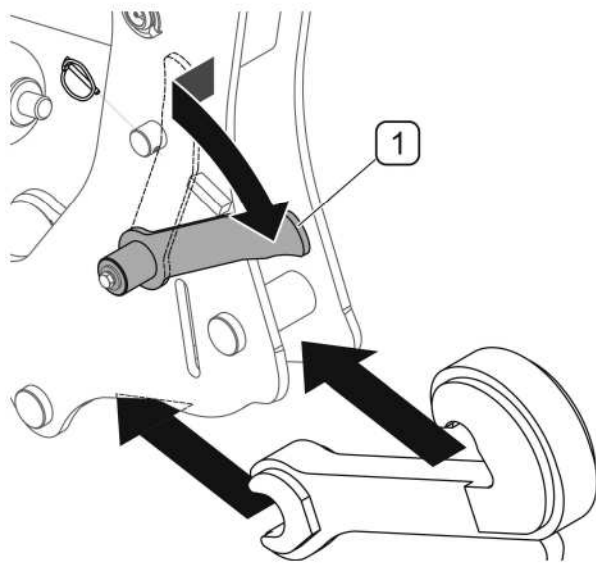


FIG. 4.22A Work with hydraulic shock absorber

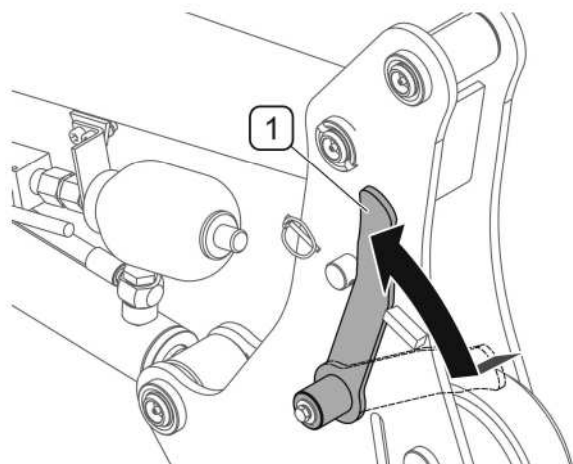
(A) - work without shock absorber; (B) - work with hydraulic shock absorber

4.2.1 CONNECTING FRONT LOADER TO SUPPORT FRAME

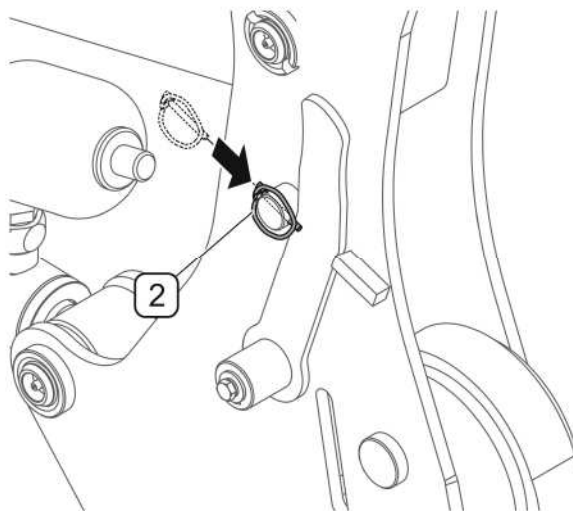
In order to connect front loader to support frame mounted on tractor:



- drive tractor up to up front loader placed on support in parked position,
- connect appropriate loader hydraulic lines to hydraulic selective control valve,
- check whether both levers (1) quick spring lock are in open position (to the rear)



- controlling tipping of working implement set loader in such a way that the lock pin shall reach the socket in the support structure
- raise load at a height of about 10 cm above ground surface
- lever (1) set lock forwards (closed position)



- secure both levers with securing cotter pins (2)
- connect electric power wire
- raise rest support and lock in upper position
- after executing the full range of loader movements – check oil level in tractor system and if necessary supplement according to tractor Manufacturer guidelines

FIG. 4.23A Connecting front loader to support frame

(1) - quick springlocks lever; (2) - securing cotter pins

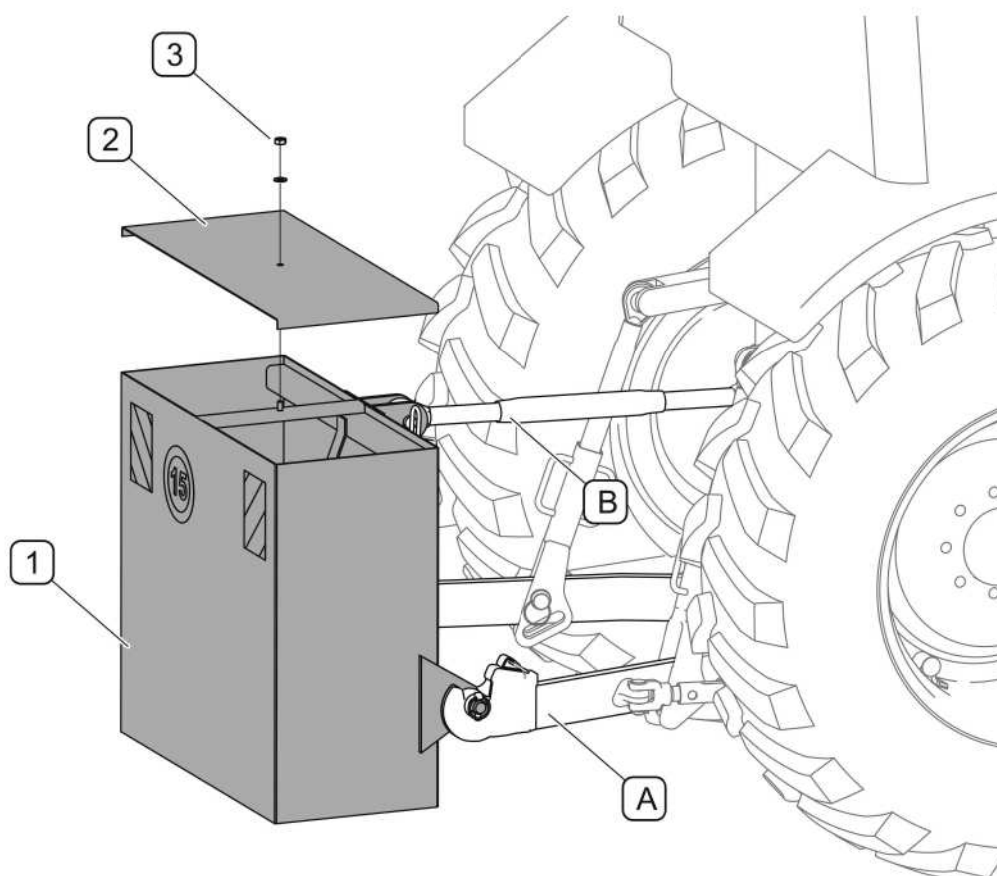


FIG. 4.24A Counterweight

(A) - lower tractor linkages; (B) - central link, (1) - counterweight, (2) - cover; (3) - nut;

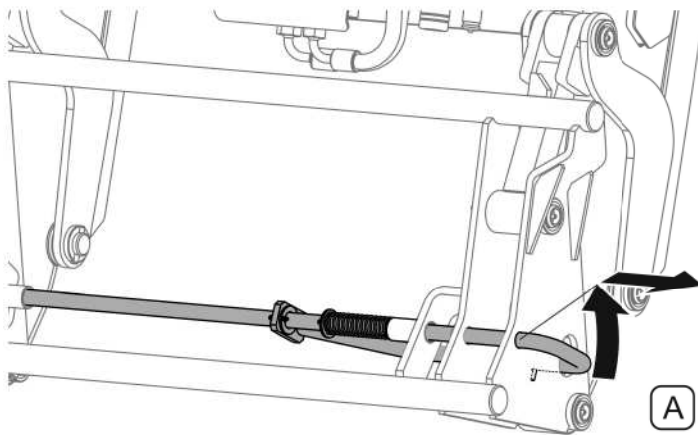
Connect the lower counterweight mounting bolts (FIG. 4.24A) to the lower linkage (A) of the tractor and connect the upper attachment point to using the central link (B). Counterweight must also be filled up to a total weight of about 400 kg. To fill the counterweight weights, coarse gravel, sand or concrete can be used. To fill the counterweight, remove the cover (2) secured with a nut (3)



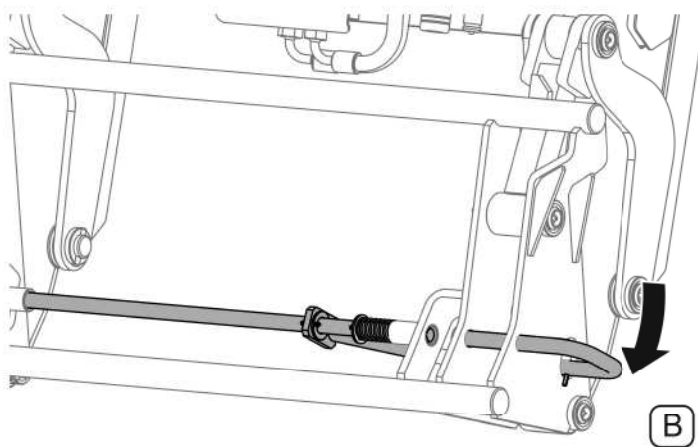
ATTENTION!

The front loader must not be used without counterweight suspended on tractor rear three-point linkage.

4.2.2 CHANGING OF WORKING IMPLEMENT



- Turn lever anticlockwise
- Pull lever back to moment when securing pins are beyond frame opening.



- Push lever downwards so that pin locks lever security preventing its return.
- In this position the mechanism is unlocked.
- Interlocking the mechanism takes place automatically after suspending working implement and tipping quick mounting frame to the rear and lowering the arm all the way down.

FIG. 4.25A Principle of operation of quick mounting mechanism.

(A)- mechanism interlocked; (B)- mechanism unlocked

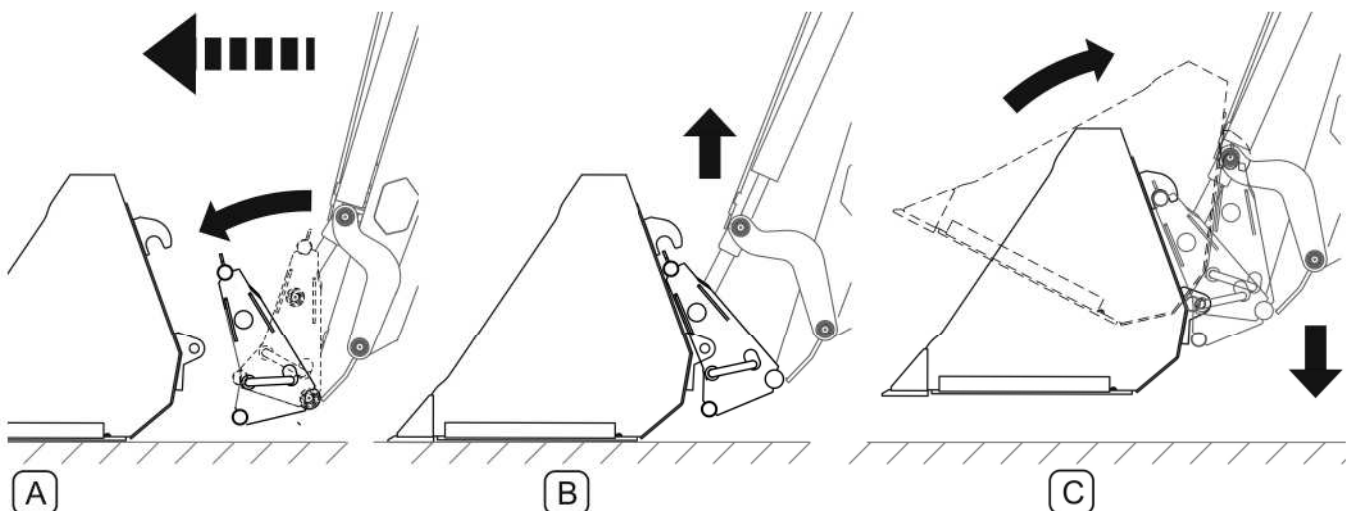


FIG. 4.26A Mounting working implement

Shown above is the method of attaching loose material bucket to the loader.

In order to secure implement to the LC2 front loader:

- unlock quick securing mechanism in loader frame (B, FIG. 4.25A);
- rotate the frame forward and lower the arm so that mounting points on quick mounting frame are below the mounting points of the implement (A, FIG. 4.26A);
- approach implement with loader so that points in quick mounting frame rods are directly below the securing hooks of the implement;
- raise loader introducing frame points into implement hooks (B, FIG. 4.26A);
- moving lever in cab tilt frame to the rear and lower the ram causing interlocking of quick mounting mechanism (C, FIG. 4.26A)
- check if mounting is secure;
- in the event of connecting implement with hydraulic system (e.g. manure grab, bale grab, silage cutter etc.) turn off engine, lower implement until supported on ground surface and reduce pressure in hydraulic circuit controlling the implement by moving control lever sideways with pressed button activating third selective control valve section;
- with the aid of quick couplers connect implement (FIG. 4.27A) to loader hydraulic system (option);

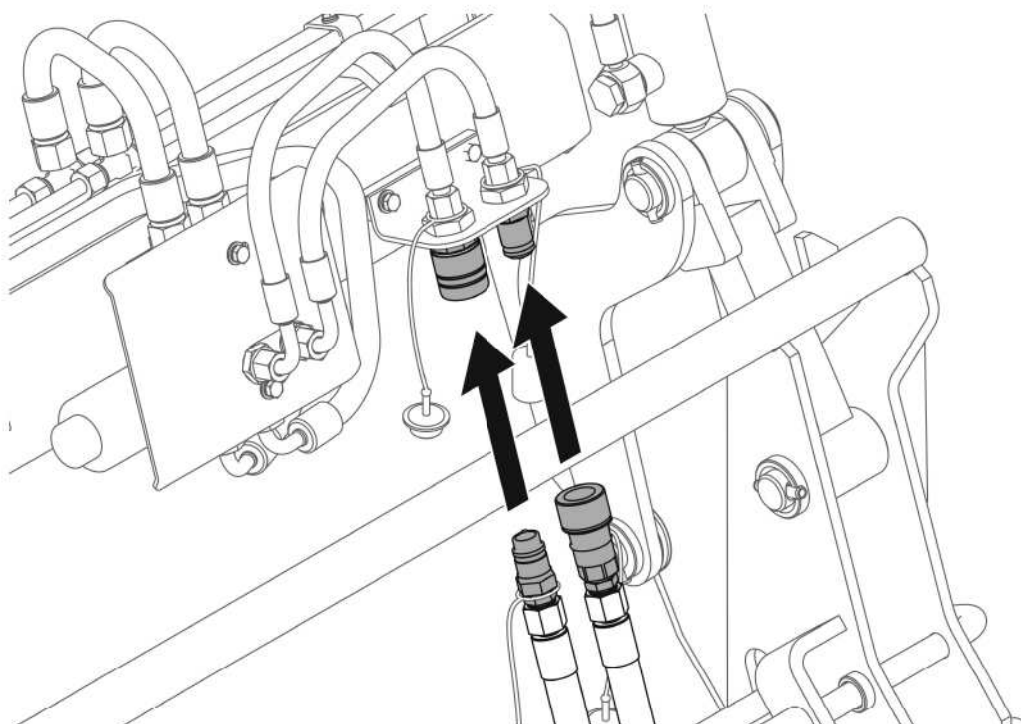


FIG. 4.27A CONNECTING THE IMPLEMENT HYDRAULIC SYSTEM (option)

Connecting the implement hydraulic system is only possible in LC2 front loaders with 3-section control (option).

Demounting working implement

Before disconnecting implement empty it and close. Implement should be disconnected and placed in such a place so that it is possible to connect it again. Before leaving implement on ground surface set it horizontally. Before leaving the tractor cab, immobilise tractor, switch of engine and apply parking brake.

To demount implement:

- take out pins on the implement quick mounting mechanism;
- in the event of disconnecting implement with hydraulic system (e.g. manure grab) turn off engine, lower implement to moment of support on ground surface and reduce pressure in hydraulic circuit controlling implement by moving control lever sideways with pressed button activating third selective control valve section hydraulic manifolds;
- tip implement forwards and lower until fully supported on ground surface and emergence of frame rods from implement hooks.
- drive loader away from implement;

After disconnection from loader the implement appliance should not be moved or carried using other appliance with the exception of pallet forks if the implement is secured to the pallet.

4.2.3 DEMOUNTING LOADER FROM SUPPORT FRAME

If the loader is not used it is recommended to detach the loader from the support frame.

Folding out parking supports

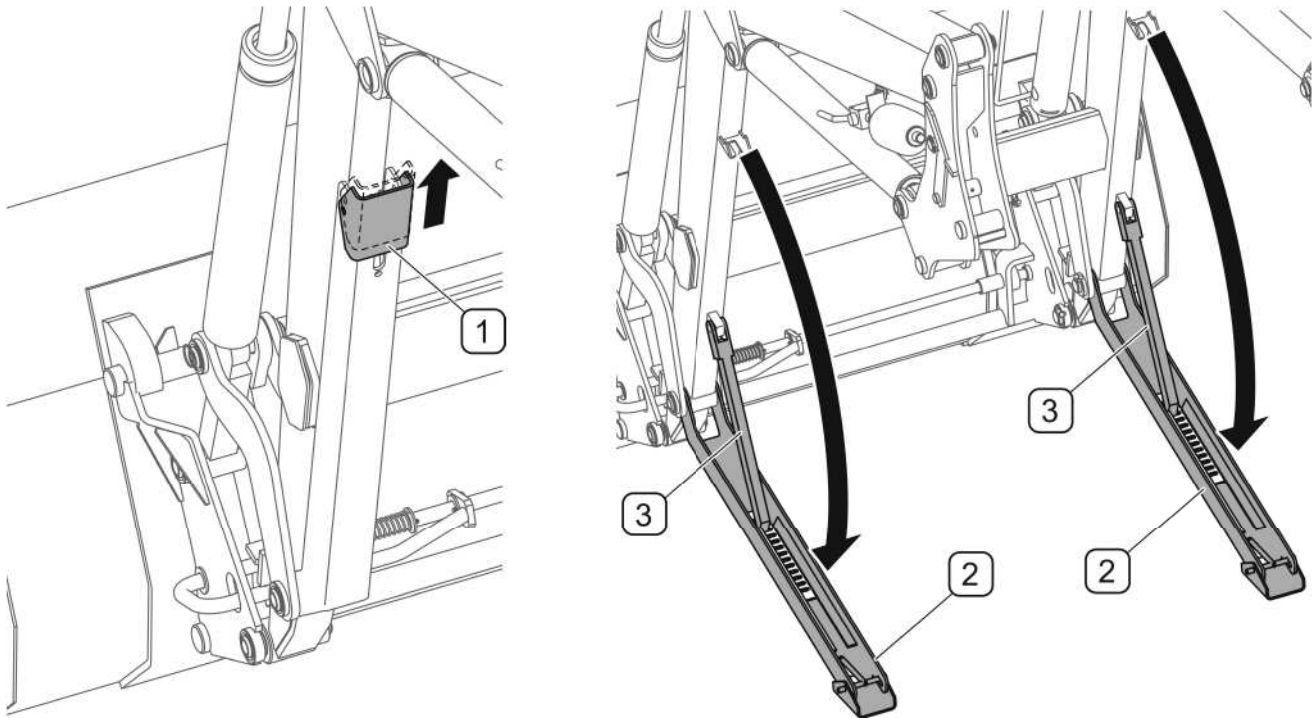


FIG. 4.28A **Parking supports**

(1) - foot blocks; (2) - parking supports; (3) - catches;

- lower loader together with attached working implements on hard level surface;
- place loader control lever in "floating" position;
- pull out foot blocks (1) (FIG. 4.28A);
- lower parking supports (2) together with catches (3), onto the ground;
- minimally tip working implement forwards so that catches the correctly engage openings in both parking supports;

Removing the arm

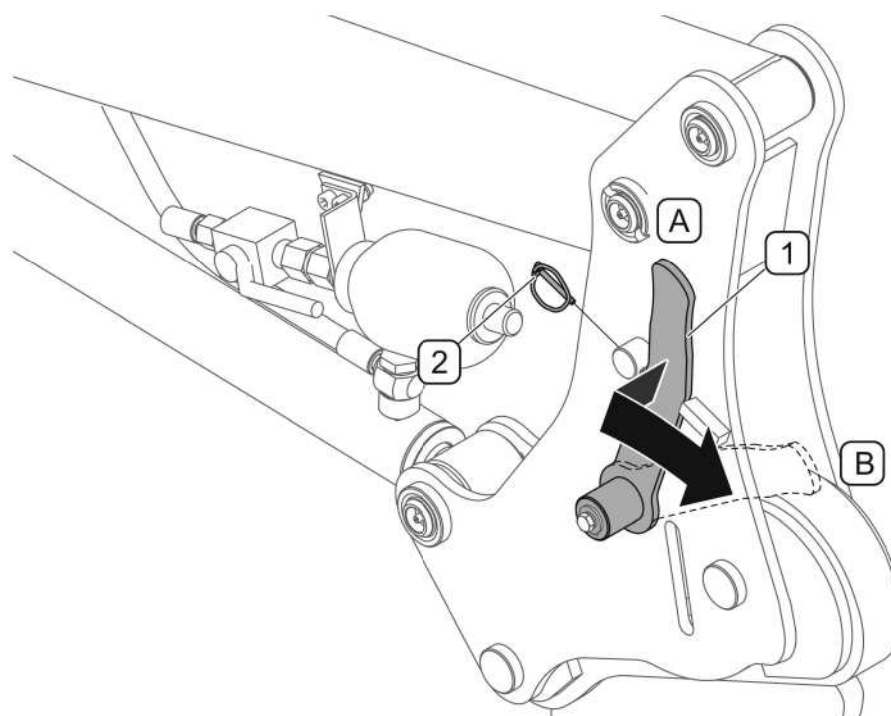


FIG. 4.29A Demounting loader from support frame

(A) - lever locked, (B) - lever unlocked , (1) - quick coupler lock lever, (2) - securing cotter pin;

- take out securing cotter pin (2), (FIG. 4.29A);
- push back lever (1) of lock and set it to the rear in "unlocked" setting (B);
- controlling tipping of working implement take loader out of support structure hook sockets;
- withdraw tractor about 20÷30 cm after disconnecting loader from support structure and controlling the tipping of working implement set it parallel to the ground surface;
- turn off tractor engine and before leaving cab engage parking brake;
- with loader control lever make movements in all possible positions in order to reduce pressure in hydraulic lines;
- disconnect hydraulic lines controlling hydraulic selective control valve and solenoid valve electric control wire;
- start engine and reverse tractor away from loader;



DANGER

Do not disconnect loader from support frame without a working implement mounted. Demounting working implement has a negative effect on detached loader stability.

4.3 TRANSPORTING THE MACHINE

- Do not exceed maximum transport speed of 15 km/h (*i.e travel speed without load*). Adjust speed to road conditions.
- When transporting the machine set loader in position so that it does not limit tractor driver's visibility.

When driving on public roads, comply with the road traffic regulations.



ATTENTION!

Do NOT exceed the maximum transport speed of 15 km/h



DANGER

Do not drive on public roads with appliance implements mounted on loader.

SECTION

5

MAINTENANCE

SERVICE INTERLOCK

QUICK SPRING LOCKS ADJUSTMENT

HYDRAULIC SYSTEM OPERATION

LUBRICATION

STORAGE

TROUBLESHOOTING

5.1 SERVICE INTERLOCK

Service interlocks (1) are used to lock the arm in the raised position (FIG. 5.1A). Use service interlock during maintenance, servicing or repair of the loader. Service interlock can be used only if the loader arm is suspended on the support frame.

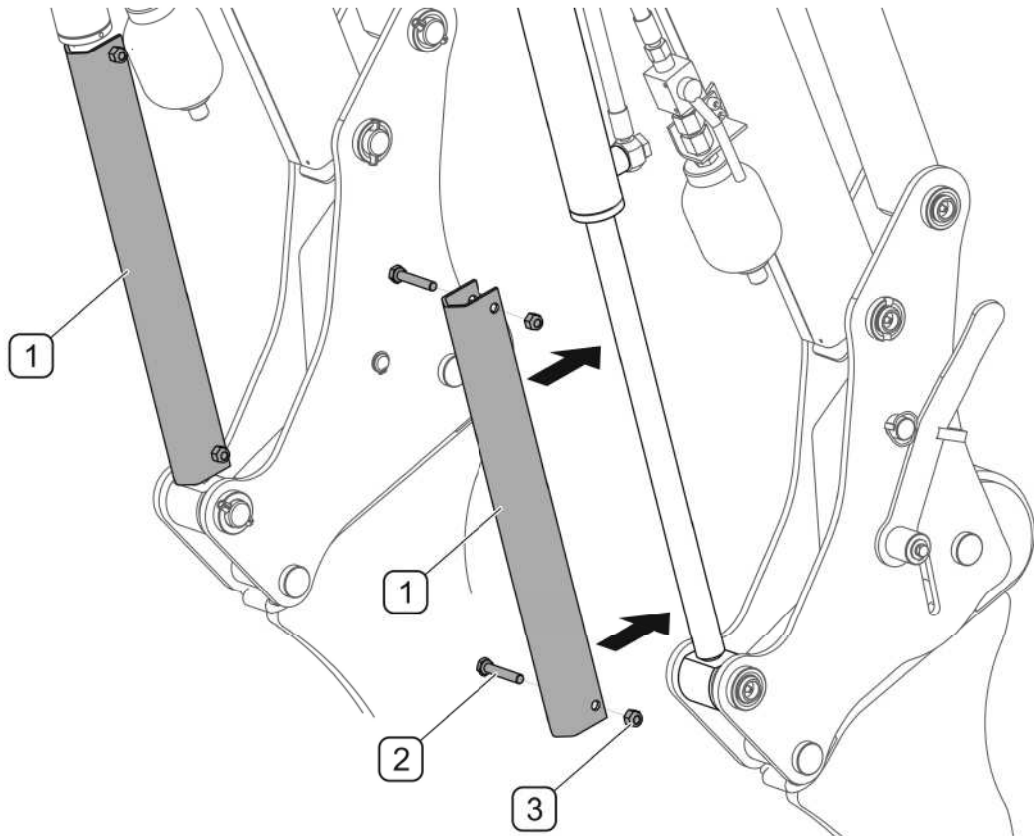


FIG. 5.1A Service interlock

(1) - service interlock, (2) - bolt, (3) - nut

In order to use the service interlock:

- raise loader arm maximally;
- turn off the tractor engine, engage the parking brake,
- install locks (1) on the arm lifting hydraulic cylinder piston rods;
- install bolts (2) and secure with nuts (1);



DANGER

Do not do service repair work under load or with raised and unsecured loader.

5.2 QUICK SPRING LOCKS ADJUSTMENT



DANGER

Before commencing work with loader check the quick spring locks and if necessary adjust them.

If after connecting the loader support structure slack is detectable on lever (1) in closed position, adjust locks (FIG. 5.2A). Inspection and adjustment is performed for both locks with loader suspended on support frame. To adjust, use a special key (8).

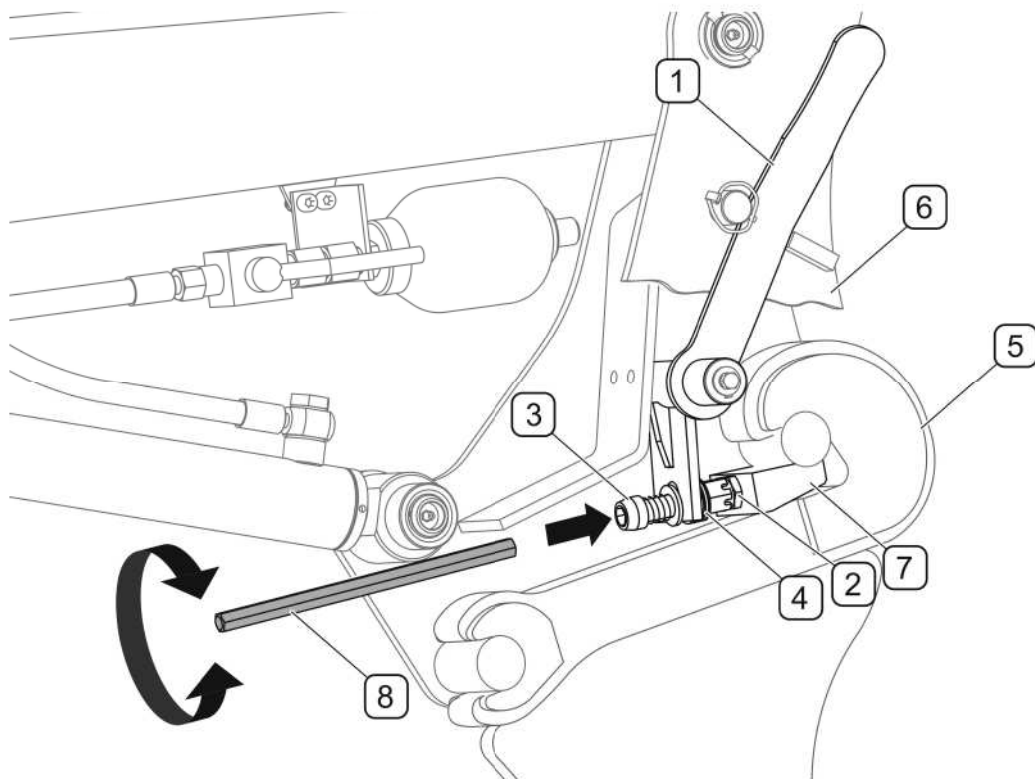


FIG. 5.2A Quick Spring Locks Adjustment

(1)– lever; (2)– counter nut; (3)– adjustment bolt; (4)– plate springs; (5)– support frame hook; (6)– loader panels; (7)– wheel chock; (8)– adjustment allen key

Screw out bolt (3) until complete closing of plate springs (4) visible from above hook (5) between panels (6). Check whether it is possible after unlocking lever (1), to interlock it again. If it is not, then tighten bolt (3) by $\frac{1}{2}$ turn. Repeat interlocking attempt. If it is possible to interlock lever (1) and springs are compressed, then disconnect loader from support structure and tighten counter nut (2) to wedge (7). Suspend loader on support

structure, interlock lever (1) in closed position and secure with safety catch. If plate springs are not compressed then repeat adjustment.

5.3 HYDRAULIC SYSTEM OPERATION

DANGER



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

Before commencing whatever work on hydraulic system reduce the pressure in the system. Hydro accumulator valve lever should be set to the open position.

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

ATTENTION!



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

Always adhere to the principle that the oil in the loader hydraulic system and in the tractor hydraulic system are of the same type. Application of different types of oil is not permitted. The hydraulic system in a new front loader is filled with HL32 hydraulic oil.

The hydraulic system should be completely tight sealed. In the event of confirmation of an oil leak on hydraulic line connections, tighten connections, and if this does not remedy faults then change line or connection elements. If oil leak occurs beyond connection, the leaking line system should be changed. Change of sub-assemblies is equally required in each instance of mechanical damage.

Inspect the seals when hydraulic ram cylinders are completely extended. In the event of confirmation of oil on hydraulic ram cylinder bodies ascertain origin of leak. Minimum leaks are permissible with symptoms of "sweating", however in the event of noticing leaks in the form of "droplets" stop using the implement until faults are remedied.

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 damage the implement.



Hydraulic lines should be replaced after 4 years of machine use.

Detailed tightness and technical condition inspection of hydraulic system should be made at least annually.

5.4 LUBRICATION

Clean the loader before lubricating it. Lubrication at the appropriate time with application of the appropriate grease significantly reduces damage and premature wear of individual parts.

Machine lubrication should be performed with the aid of a manually or foot operated grease gun, filled with LT-43 PN-72/C-96134 grease. Only lubricate loader in lubrication points when not under load. Remove the excess grease after lubricating.



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

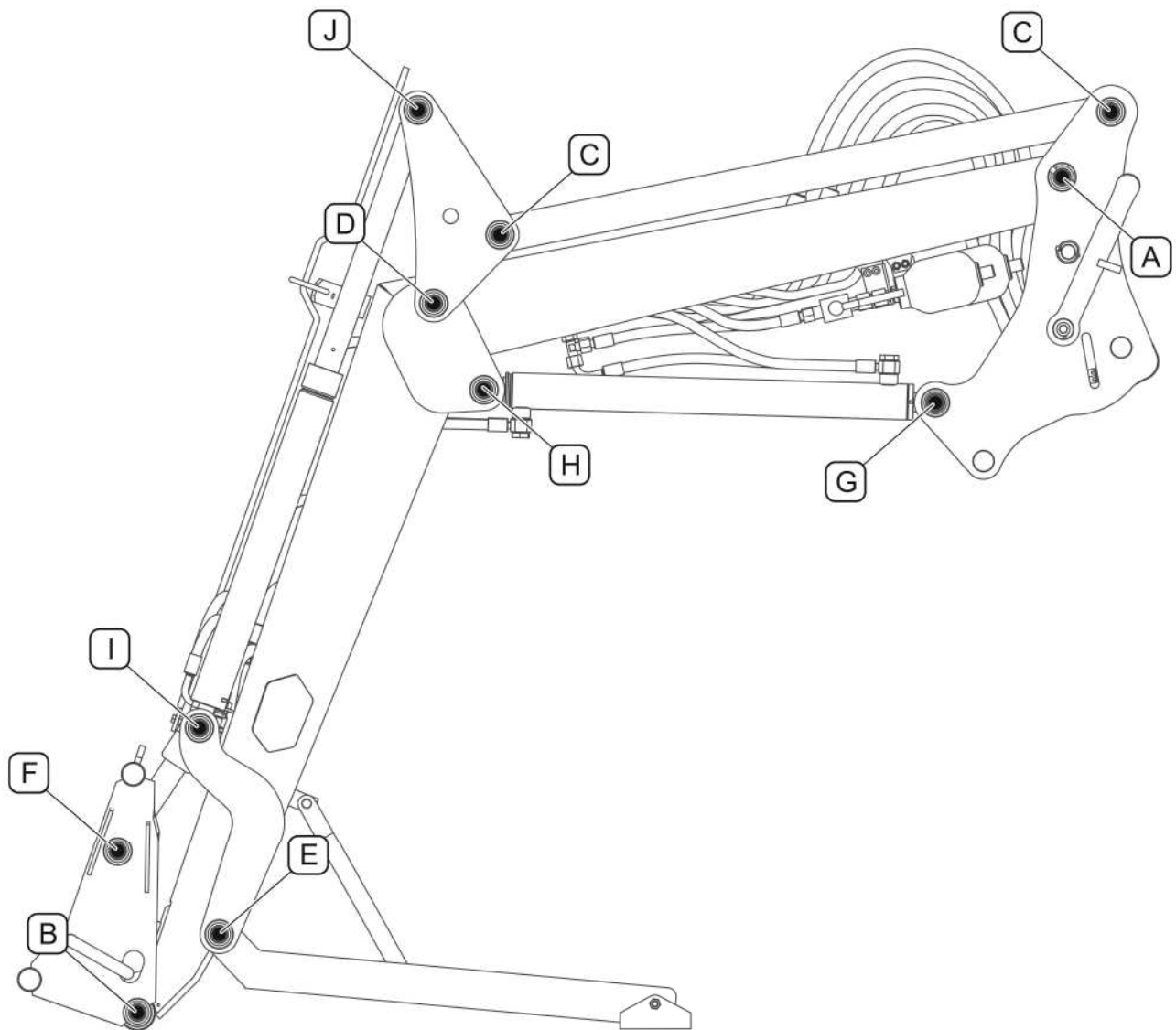


FIG. 5.3A Lubrication points

Marking description is presented in TAB. 5.1



DANGER

Lubrication may only be performed when loader is lowered, and when implement is supported by the ground.

Before lubricating, switch off engine, remove key from ignition and engage tractor parking brake.

TAB. 5.1 LIST OF LUBRICATION POINTS

MARKING (FIG. 5.3A)	LUBRICATION POINTS	NUMBER OF LUBRICATION POINTS*	LUBRICATION FREQUENCY
A	Loader rotation pin	2	every 25 hours of work
B	Frame rotation pin	2	
C	Upper arm pin	4	
D	Straight line mechanism panel pin	2	
E	Connection pin	2	
F	Front link pin	2	
G	Raising cylinder ram pin	2	
H	Raising cylinder pin	2	
I	Tipping cylinder ram pin	2	
J	Tipping cylinder pin	2	

* – lubrication points are on both sides of the loader.



ATTENTION!

Do not lubricate quick spring locks!



Perform lubrication every 25 hours of work or after each interval of over 1 month. LT-43 grease is recommended for lubrication.

5.5 STORAGE

It is recommended to keep the loader and implements in closed or roofed building. Before longer outdoor storage, it is essential to protect the loader against adverse weather conditions, especially those causing corrosion. Loader should be placed on flat, hard, dry surface. Protect hydraulic connections against contamination. All parts not protected by protective covering should be protected against corrosion by a coating of permanent grease. In the event of damage to the lacquer coating clean those places, degrease and then paint with paint maintaining uniform colour and even thickness of protective coating.

If the loader has not been used for a longer period of time then before beginning work check:

- Legibility of information and warning signs,
- completeness and correct securing of safety elements,
- condition of nut and bolt connections, if necessary tighten,
- technical condition of control elements and electrical system,
- technical condition of lines and hydraulic system connections.
- Loader's general technical condition.

5.6 TROUBLESHOOTING

TAB. 5.2 TROUBLESHOOTING

Fault	Cause	Remedy
Loader cannot be raised	– Disconnected oil pump in tractor	– Connect oil pump in tractor
	– Disconnected external hydraulic control lever	– Connect external hydraulic control lever
	– Oil level in tractor too low	– Supplement oil
	– Faulty hydraulic connector in tractor or loader	– Check connectors, in the event of damage replace connector with a new one
	– Damaged hydraulic lines	– Check condition of lines, replace damaged lines
Loader falls autonomously	– Disconnected external hydraulic control lever	– Connect external hydraulic control lever
	– Damaged hydraulic lines	– Check condition of lines, replace damaged lines
	– Damaged hydraulic cylinder seal or damaged sliding surface of hydraulic ram	– Change seal, in the event of damaged ram, change hydraulic cylinder
Loader control lever movement is impossible	– Interlock engaged locking control lever in neutral position	– Turn off the lever lock (see loader Operator's Manual)
	– Control mechanism stuck	– Lubricate mechanism, check condition of operating cable
Loader does not react to control lever movements	– Electrical system not connected	– Connect to electrical system
	– Damaged control cable or faulty connection	– Change cable, check connections
Working implements fall autonomously	– Incorrectly connected or not connected fitting hydraulic connector	– Check connector connections, in the event of damage replace
	– Damaged hydraulic lines	– Check condition of lines, in the event of damage replace
	– Damaged hydraulic cylinder seal or damaged sliding surface of hydraulic ram	– Change seal, in the event of damaged ram, change hydraulic cylinder
	– Damaged solenoid valve	– Check contacts and sealing of solenoid valve or replace
Working elements of implement do not open or do not close	– Incorrectly connected or not connected implement hydraulic connector	– Check connection, in the event of damage replace
	– Incorrectly connected or damaged loader electrical connector	– Check connection, in the event of damage replace
	– Damaged solenoid valve	– Check contacts and sealing of solenoid valve or replace
	– Burnt fuse in lighter socket plug	– Change fuse

[illegible]