NAKLADLANIK
(HUT-4, HUT-5)

OPERATOR'S MANUAL

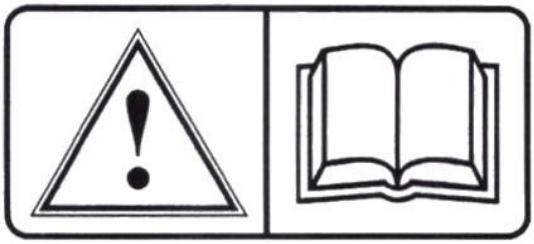
1. GENERAL INFORMATION FOR USERS

HYDRAULIC LOADER (HUT) that you bought is high quality agricultural machine that is intended for manipulation of various cargoes.

Safety, easy to use and operating efficiency is directly linked with user manual and how machine is used, also knowing the tractor performances to which is loader attached.

LEVEL OF SOUND (NOISE) when hydraulic loader is working is equal to noise that tractor is making, to which is loader attached, so they do not mentioned in the manual.

In case of any questions while reading this manual or working with machine, feel free to contact us or contact specialized sellers.



ATTENTION!
This manual is an important contribution to safety and efficiency in the operation and use of the machine, it must therefore be thoroughlystudy! Instruction is necessary to strictly observe in order toavoid the possibility of compromising the safety of the user, otherpersons and animals.

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2. DESCRIPTION AND GENERAL INFORMATION

Loader is primarily intended for the loading of manure and is often referred to as amanure loader. For this purpose, using interchangeable extensions in the form of villas. However application is continued in the form of buckets enabled the manipulation of bulk materials (soil, sand, gravel, sawdust...), and plugging the so-called. spoons enabled and trenching. It is also possible, with some structural changes, setting pliers boulders. These pliers have the possibility of rotation around its own axis, so it is necessary to another additional management functions.

Loader is basically welded structure from which the joint connections connected elements that together with the hydraulic cylinders, as the executive authorities, facilitate the functioning of the loader. Because of specifics of their constructions is independent of the tractor hydraulics, for successful application is necessary only the loader pump, bearing the shaft coupling, connected directly to the output shaft of the tractor.

Loader for coupling with agricultural tractors with standard rear linkage category I, II or III for connecting the machine to the three-point according to ISO 730.

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3. IDENTIFICATION PLATE OF MACHINE

Each loader is equipped with appropriate identification table, which contains basic information about manufacturer and machine. Appearance of identification plate is shown in Figure 1. The plate contains the following data and phrases:

1. Identification and contacts of the manufacturer
2. Name
3. Identification
4. Production year
5. Serial Number
6. Mass
7. Serbian mark of conformity 3A
8. CE mark

Figure 1 - Look Of The Identification Plate

4. TECHNICAL SPECIFICATIONS

SPECIFICATIONS	VALUE	
MAX. REACH	4.0 m	5.0 m
MAX. LIFTING HEIGHT	3.2 m	4.0 m
MAX. DEPTH OF REACH	2.4 m	3.1 m
MAX. WEIGHT LIFTING	300 kg	
ROTATION ANGLE	180°	
MASS OF LOADER	500 kg	550 kg
WORKING PRESSURE	160 bars	
VOLUME OF TANK	18 lit	
MAX. TRANSPORT SPEED	15 km/h	
POWER REQUIRED	25 KW 34 KS	35 KW 48 KS

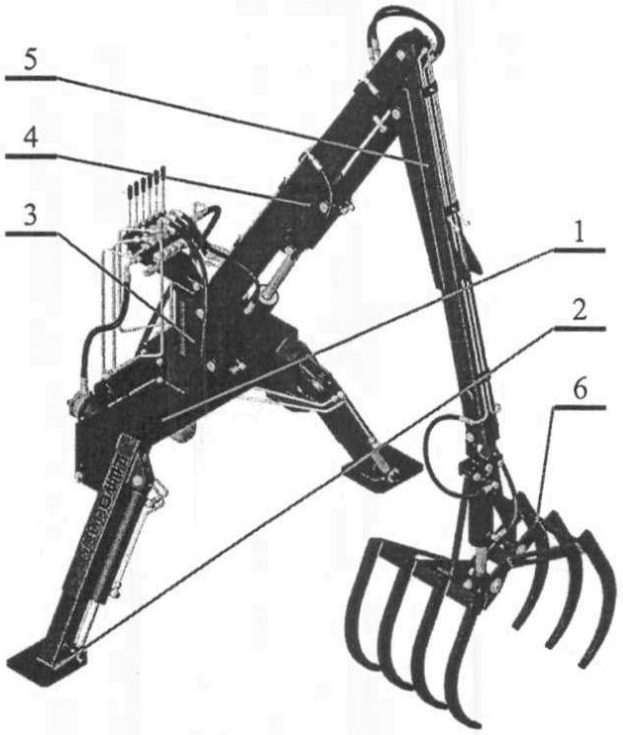

Figure 2 - Hydraulic Loader 4 m (Parts)

NOTES:

1. In completely left and far right position maximum load is 200 ÷ 250 kg (particularly in "smaller" tractor)
2. More tractor power for loader of 5 m is required because the focus is more distant from the loader attachment, so higher tractor weight contributes to a more stable work and transportation.

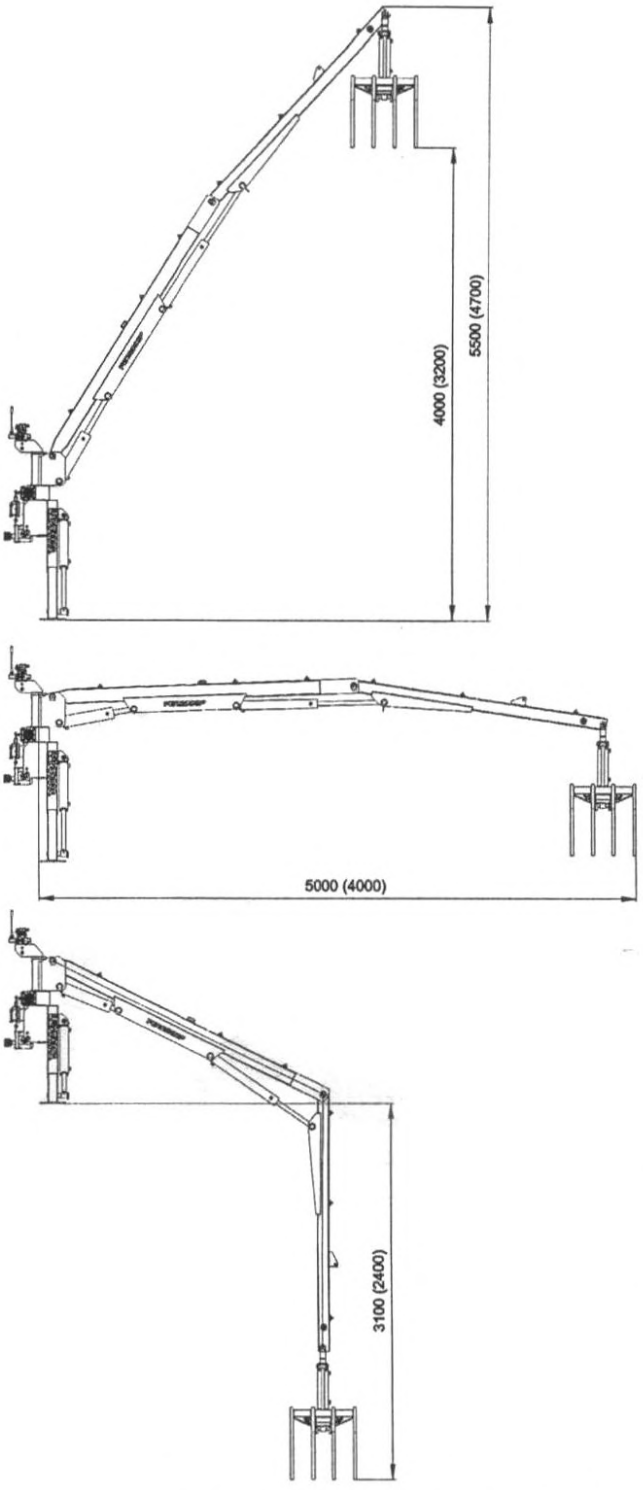

Figure 3a - Hydraulic Loader (Working Positions)

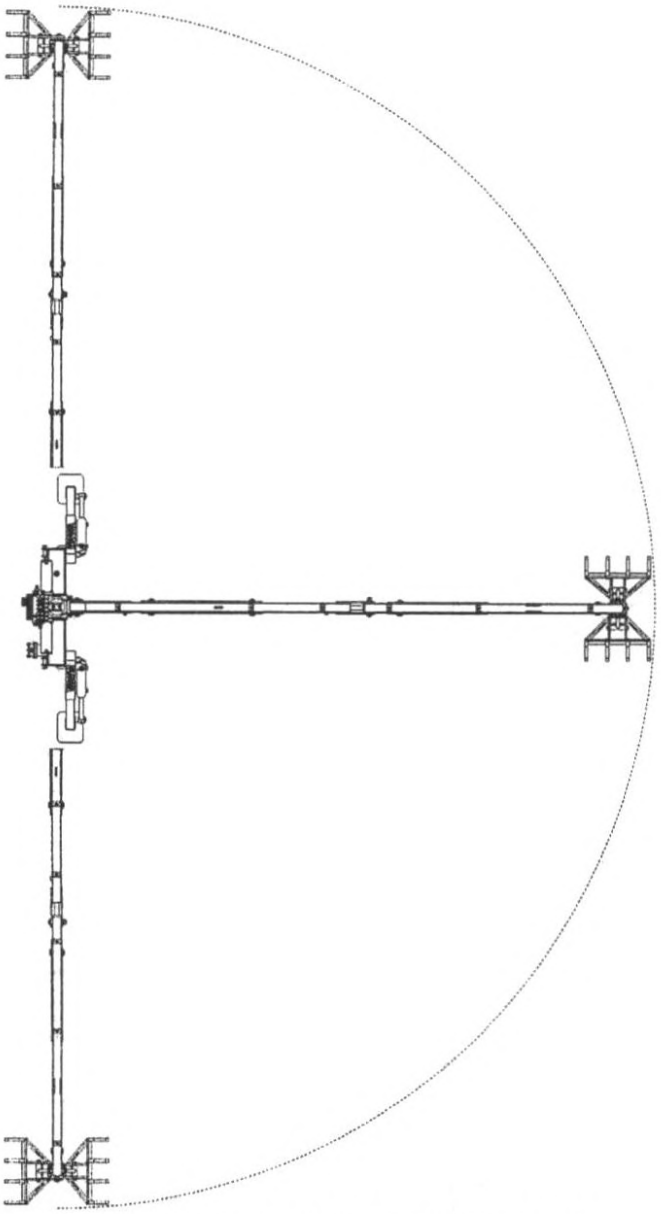

Figure 3b - Hydraulic Loader (Field Of Work)

4.1 WORKING POSITIONS AND FIELD OF WORK

Figure 3a shows the possible extreme working positions of the loader. Values that are outside brackets refer to the HUT-5 while the numerical values in brackets refer to the HUT-4 loader.

Figure 3b shows the working field of the loader. It is very important that during the operation of the loader, remove all persons and objects from a working field.

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The lifting power of the loader depending on the operating position of the first and second arms is given in the following table:

DISTANCE FROM PILLAR TO END OF LOADER	2.0 m	2.5 m	3.0 m	3.5 m	4.0 m	4.5 m	5.0 m
LIFTING CAPACITY	300 kg	300 kg	300 kg	280 kg	260 kg	240 kg	220 kg

5. BASIC PARTS

The main parts of the loader are shown in Figure 2.

The Carrier (1) is a central element. It is composed of rectangular steel tubes. In addition to being used for the acceptance of the loader on the tractor and serves as a reservoir for oil. It bears the hydraulic cylinders through which regulates the position of ***The Legs*** (2). It is also welded to the bracket and rack box, through which hydraulic cylinders are ***Turning Pillar*** (3). ***The First Arm*** (4) and ***The Second Arm*** (5) perform basic operations when handling of loads. Each of them has a separate hydraulic cylinder. On the other hand is linked ***Working Element*** (6) which opening also is powered by hydraulic cylinder.

Regulation of the position of the hydraulic cylinders, and his manipulating with cargo is done by hydraulic directional valve.

Hydraulic pump, which gives the working pressure is powered by output shaft of the tractor. Minimum required output shaft speed is 540 r/min. In case of the speed is less than 540 r/min there is possibility of irregular operation of the loader.

5.1 WORKING ELEMENTS

Besides the manure fork which are in the basic package, on loader can be mounted the basket for bulk materials as well as the digging bucket.

These two engaging elements, together with the manure fork is the standard loader elements and they are powered by same cylinder.

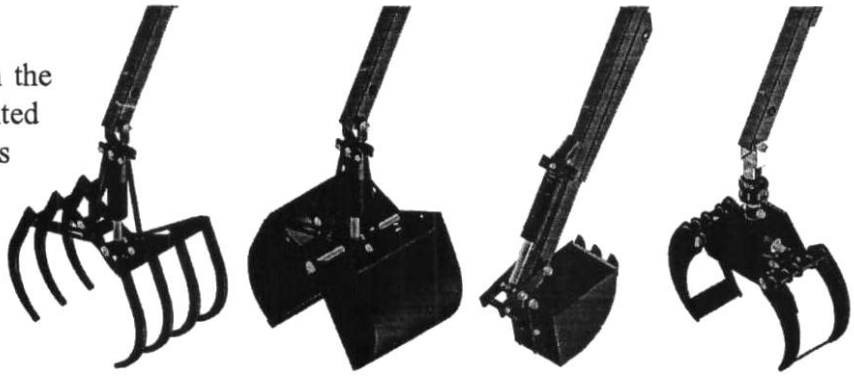

Figure 4 *- Working Elements*
(Manure Fork, Basket For Bulk Materials, Bucket For Digging, Pincers)

Basket for bulk materials is welded steel structure, and it is used to manipulate with sand, gravel, sawdust…. Etc. It is mounted in the same way as the manure fork.

Bucket for digging is a 30 cm width. For mounting the bucket for digging it is necessary to previously remove manure fork. The cylinder switches up and it is connected to the arm with the help of cross-sleeves. By means of a lever system is connected to the bucket and hydraulic cylinder. It is necessary to remove steel hydraulic hoses that go to the cylinder while the flexible hydraulic hoses remain the same. All necessary parts (spoon, levers, bolts and nuts and steel hydraulic hoses) comes complete with a spoon.

It is possible (at the request of the customer) to set and hydraulic pincers with rotator. These pincers are mainly used to manipulate the wooden logs. In this case, some of the elements of hydraulics (distributor,

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tubes, hoses...) are different than standard parts of loader. Pliers have its own cylinder to open and close while to reverse themselves pliers around its own axis uses so-called hydraulic rotator.

5.2 SCHEDULE OF CONTROLS

Controls for the hydraulic cylinders are located on the hydraulic directional valve. The directional valve is six function monoblock or, if necessary, seven function monoblock. The layout of both distributor and the schedule of commands are shown in Figure 5. Additional command on seven section valve (2a) is used to rotate pincers for logs or, in the case that this function does not exist, it is inactive.

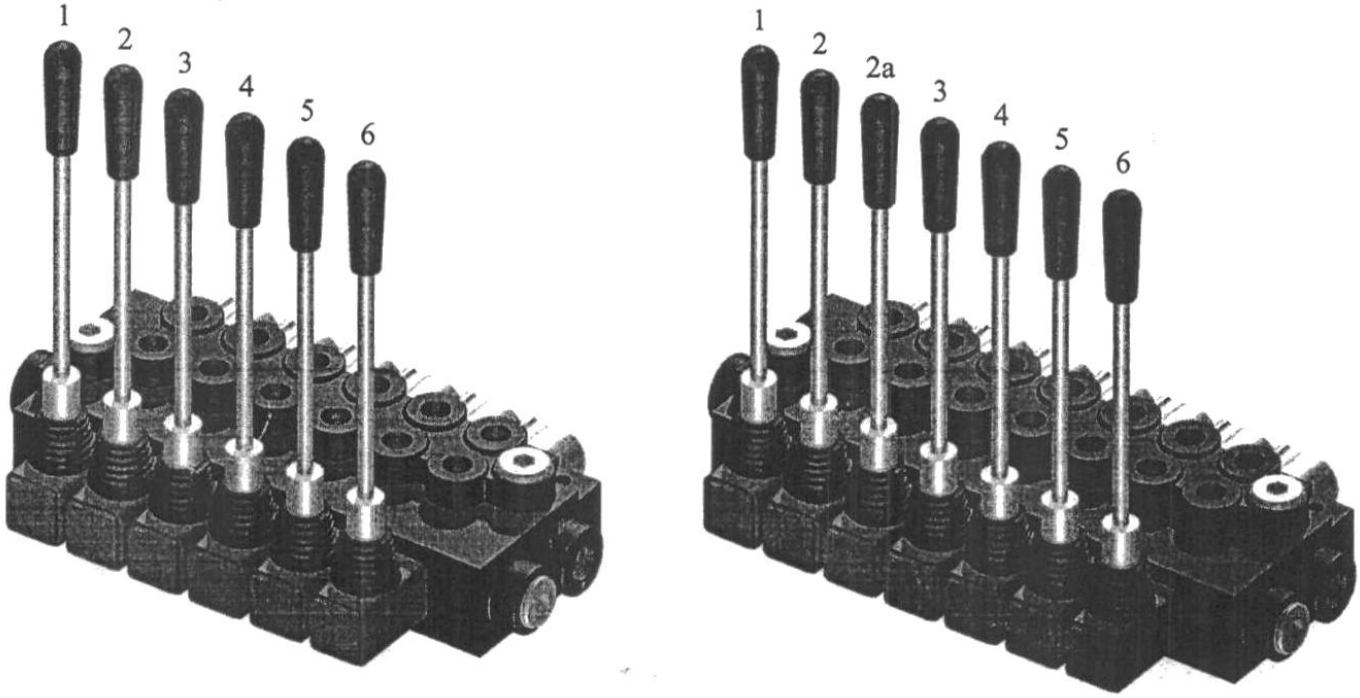

***Figure 5** - Hidraulic Directional Valve (Six Section and Seven Section)*

Figure 5 shows six section valve and seven section valve. Schedule of commands are:

1. Cylinder for left leg
2. Cylinder for manure fork

2a. Rotator pincers for a log

3. Cylinder for second hand
4. Cylinder for first hand
5. Cylinder for pillar (turning)
6. Cylinder for right foot

Figure 6 gives a diagram that shows which lever moves which hydraulic cylinder. Depending on direction of lever moving we have a full line (moving the lever to yourself) and dotted line (moving the lever against yourself).

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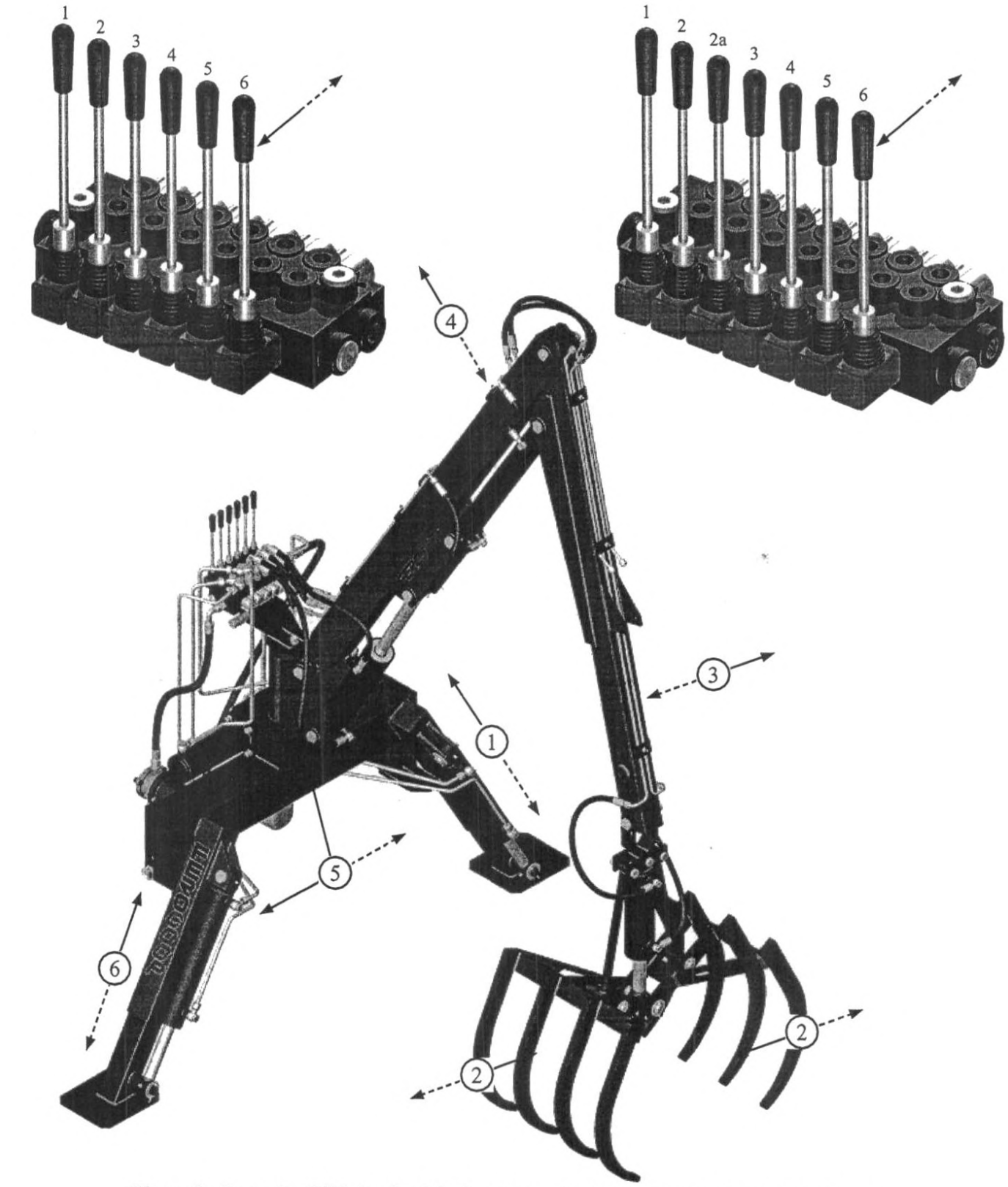

Figure 6 - Operation Of Hydraulic Cylinders Depending Of The Position Of The Valve Levers

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6. SAFETY INSTRUCTIONS, PROCEDURES AND WARNINGS

6.1 GENERAL

In addition to the advice in this manual, also concerning the other generally regulations for safety at work.

In the public transportation follow the traffic signs and applicable regulations.

Safety signs and hazard pictures on the labels on the machine, with the texts of their meaning in this guide, provide important instructions for safe operation of the machine. Respect them for your safety.

6.2 SAFETY RULES AND INSTRUCTIONS

The symbol ⚠ means warning of danger or important instructions. SECURITY is on first place so be careful and obey the instructions, recommendations and warnings.

6.2.1 Designated use

Loader is prepared exclusively for use with dedicated connections as described in this instructions.

Intended use includes monitoring provisions for handling during operation with load or objects, with maintenance and servicing required by manufacturer.

The warranty provided by the manufacturer could be lost if occur some damage that you have caused by changing purpose of machine.

6.2.2 Basic rules for safe connection and use and for the prevention of accidents

1. Be careful when connecting and removing the loader to or from the linkage of the tractor. It can only work trained people, and it is forbidden to be between the machines and tractors for the persons who do not working with machine.
2. When connecting the tractor must be secured with the parking brake.
3. During operation and during transportation it is forbidden for support worker or any other person to be near machine.
4. Before you go with the machine in public roads, machine is need to be cleaned up and checked the structural elements that can fall off or be damaged in transport.
5. Regularly inspect hydraulic hoses and plugs, and take care of proper technical condition.
6. Before you leave the tractor you must put down the loader to the ground. Stop the engine and remove the key from the ignition.
7. Loader is being disposed only in an equally hard and flat surface.

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6.2.3 The meaning of signs and safety hazards pictures that are located on the machine

All signs can be with horizontal or vertical layout. Here are all the signs with their meanings as well as their location on the machine.

1. **Be sure to get familiar with the content of the operating instructions!**
   (placed near the directional valve)

2. **When connecting the machine to the tractor there is a danger of pinching!**
   (placed near the attachment)

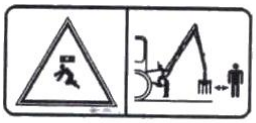
3. **Because of the danger of overturning always observe the maximum permissible axle bearing, allowable longitudinal and lateral slopes of the tractor with the machine!**
   (placed on the pillar)

4. **Assembly / disassembly of the machine, setting and servicing machines must be carried out only when drive shaft does not work!**
   (placed on the pillar)

5. **5.) It is forbidden to operate the machine in the presence of people in the working field!**
   (placed on the pillar - on both side)

6. **The operating of machine is forbidden without the lowered stabilizer! When working on lean ground you must adjust the stabilizers so that the machine remains in an upright position! Work is banned on the sideways sloping terrain over 10 °!**
   (placed on the pillar)

7. **Provide locking the cylinders before entering the danger zone**
   (placed on the cylinder for the first and second arm)



8. **Be sure to hold the distance from the working area of machine!**
   (placed at the farthest part of the loader)

9. **It is forbidden to work with the machine under and near power lines lower than 6 m (for loader 5 m) and 5 m (for the loader of 4 m)!**
   (placed on the pillar)

CONTROLLING WITH VALVE
(figure 6 on page 7)

(placed on the pillar)

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7. CONNECTION, PREPARATION, USE, MAINTENANCE AND STORAGE

7.1 CONNECTION

Loader is connected to the tractor in three-point linkage, and lifting in a transport position is controlled via hydraulic system of the tractor. Bolt for the connection must be secured from falling out. Hydraulic pump is connected to the output shaft of the tractor and chain is used to secure against rotation around its own axis.

7.2 PREPARING FOR WORK

Before the start working with the loader it is necessary to do the following:

1. Check the oil level in the tank
2. Lubricate all moving parts
3. Lower the stabilizers on a solid ground so that the machine remains in an upright position
4. Remove all people from the working field of the machine
5. Before the first manipulation with the cargo check all operating positions of machine

7.2.1 Controlling the speed of individual cylinders

At the request of customers, and also as manufacturer's recommendation the operating speed of some operations can be regulated. This is done for security reasons, as well as certain type of protection for the machine.

Setting these regulators are recommended for the cylinders for turning, as well as a rotating function of the rotator.

Figure 7 - Flow Regulator

For this purpose flow control regulator is used. These regulators, regardless of their structural differences, working on the same principle. By screwing or unscrewing these flow control regulator we can reduce or increase the flow of working fluid (oil) in the hydraulic cylinder. Therefore the operations carried out by the hydraulic cylinder done faster or slower.

7.3 USE

Before start working with machine, you must make sure that the loader is placed on solid ground and stabilizers are adjusted and machine is standing upright. The machine is being put into operation only on a flat surface.

Since every movement working with the machine is dangerous, all persons and objects must be at a safe distance. Radius of the loader is 5 m (for HUT-5) and 4 m (for HUT-4). While loader is working any persons and objects in that field must be moved to a safe distance.

While working with the machine pay special attention to the power lines. It is forbidden for any work with the loader under and near power lines, which is less than 6 m (HUT-5) and 5m (for HUT-4).

When handling with the loader using only one command is recommended. Using multiple commands at the same time can cause damage to certain parts of the machine. There is also a risk of injury for the operator or machine.

The maximum transport speed is 15 km/h. Be sure to observe the maximum tractor axle load with the loader attached to tractor. Pay special attention on the conditions of stability, control and rollover while working and transportation.

7.4 CONTROLLING THE STABILITY

This check is mainly concerning the possibility of losing the stability of the tractor during transportation.

Because of the weight of the loader which is attached to the tractor, tractor itself may become unstable. Checking stability gives the minimum required weight in the front of the tractor , this is in order to avoid potential instability.

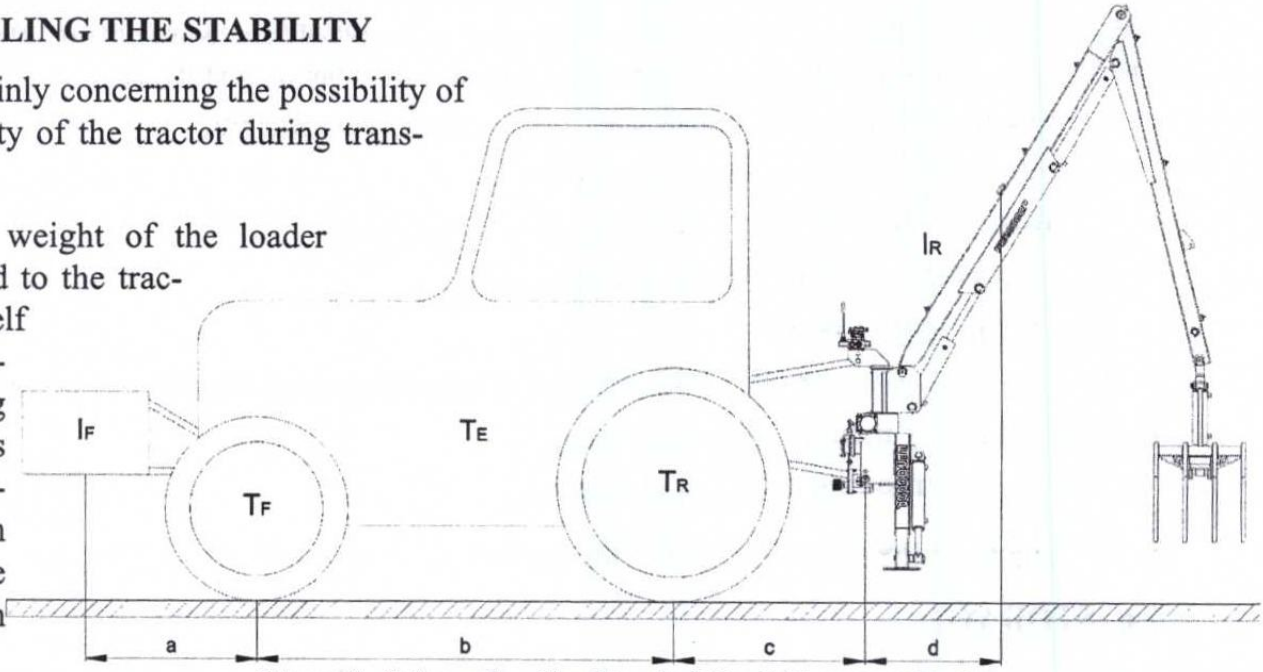

***Figure 8** - Scheme For Checking Stability In Transport Position*

Parameters which should be used for checking stability, and which are shown in Figure 8, are given below:

T_E [kg] - Mass of unladen tractor (*see the tractor's manual*)

T_F [kg] - Front axle load of unladen tractor (*see the tractor's manual*)

T_R [kg] - Rear axle load of unladen tractor (*see the tractor's manual*)

I_F [kg] - Mass of the front weight

I_R [kg] - Mass of the hydraulic loader (*450 kg for HUT-5, 400 kg for HUT-4*)

a [m] - Distance between the front axle and the front weight's center of mass

b [m] - Distance between the tractro's front and rear axle (*see the tractor's manual*)

c [m] - Distance between the tractro's rear axle and the lifting arm's lifting point (*see the tractor's manual*)

d [m] - Distance between the lifting arm's lifting point and the hydraulic loader center of mass (*0.81 m for HUT-5, 0.66 m for HUT-4*)

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Calculation of the mass of the front is weight out according to the following formula:

$$I_{F,min} = \frac{(I_R \times (c+d)) - (T_F \times b) + (0.2 \times T_E \times b)}{a+b}$$

7.5 MAINTENANCE

Proper operation of the machine depends largely on its maintenance. To ensure the greatest possible output, longer lifetime as well as the low cost of repairs it is important to ensure proper and regular maintenance of the machine. During maintenance you must follow some basic operations:

1. Regularly check and, if necessary, tighten all screws and nuts
2. Lubricate all recommended places
3. Wash the oil filter after every 100 hours of working
4. Change the oil after 1500 hours of working
5. Fill up oil if needed
6. Clean the machine after each use and, if necessary, paint the parts where protection is damaged

Prohibited are any maintenance work when:

1. Drive shaft of the tractor is turned on
2. The machine is not lowered to the ground

7.6 STORAGE

Loader must be separated from the tractor and kept under the roof where the floor is hard and flat, so that it completely stable and secured from rollover.

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