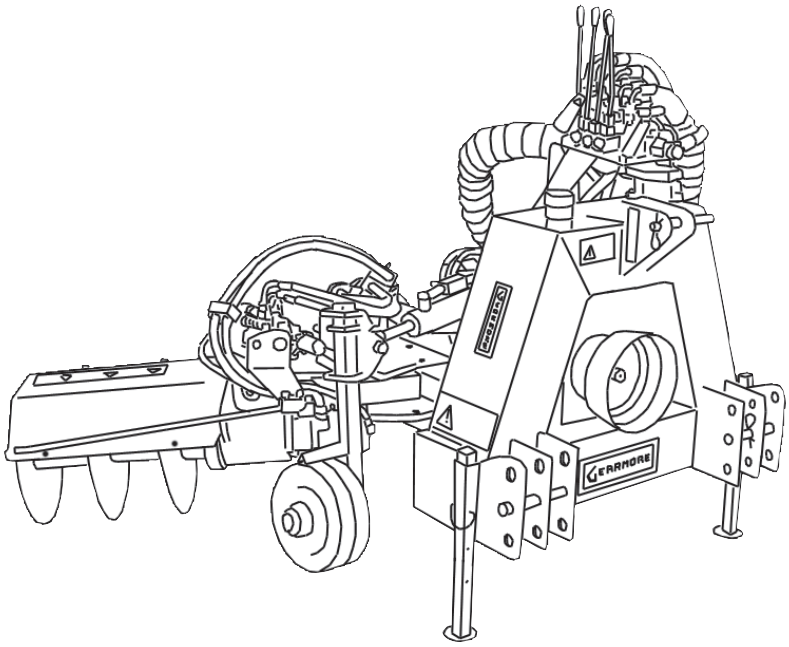
GEARMORE INC.

SPEDOVATORS



OPERATION & SERVICE MANUAL

FOR ALL MODELS

September 2008

Form: SpedovatorOp

TABLE OF CONTENTS

INTRODUCTION

This manual provides all the necessary information for regular use and correct maintenance of the all Spedovator models.

This manual includes instructions for use and maintenance, as well as the safety and setting rules, which require your direct action.

We recommend you keep this manual in good condition and in the proximity of the machine for a quick reference in case of need or action.

Start-up, checks, and maintenance shall be performed in order to grant the security and safety of the operator.

Warnings are pointed out by: 

Precautions are pointed out by: ⟹

Taking regularly and punctually note of what has been performed during the maintenance of the machine is a sign of precision; moreover it becomes the updated diary of what has been done and what has to be done at the next term. At the end of this manual some sheets for your notes are at your disposal.

For any further information, please check with your dealer and specify the **MODEL** and the **SERIAL NUMBER of the machine** in order to receive a prompt reply.

Any alteration or tampering of the machine is strictly forbidden.

The machine warranty will automatically lapse in case of tampering, misuse or use not in accordance with what is described in this manual and the manufacturer will be acquitted of any responsibility of possible damage suffered by people and/or things.

Read carefully the following section:

- LIST OF SAFETY REMARKS -

Please list your model number, serial number, date of purchase, and place of purchase below for further reference.

MODEL NO: _____

SERIAL NO: _____

DATE OF PURCHASE: _____

DEALER: _____

1 SAFETY REMARKS

LIST OF SAFETY REMARKS

ALWAYS OPERATE IN A
CAUTIOUS
CAREFUL
PRECAUTIONARY
WAY

Read this section very carefully before going on reading the following sections.

Considering that:

1. The machine was manufactured under surveillance of a qualified staff; it was tested and tried in order to exclude any negligence during its construction.

DURING THESE TESTS NOTHING TURNED OUT TO BE DEFECTIVE.

2. The machine was designed and manufactured according to the safety rules.

We specify that:

1. The machine is provided with warning labels that shall be scrupulously observed to avoid injuries. Under no circumstance should these labels be removed.

2. It is the specific duty of the buyer to teach the operator to use the machine in a safe way and particularly to:

~ take into account the warnings rated on the machine and listed in the present use and maintenance manual.

~ inform him of the possible dangers or consequences arising from the non-observance of the above mentioned warnings.

~ inform him of the administrative and penal sanctions into which he may fall if he does not observe the machine instructions for use ant other workplace regulations.

1.1 SAFETY WARNINGS

GENERAL WARNING:

Read this manual before starting to use the machine. EVERYTHING DESCRIBED IN THE MANUAL CONCERNS YOUR SAFETY. When you are working, be always careful and on the alert. Be aware of possible dangers.

REGULATIONS
Conform to the laws and regulations concerning you and your machine.

TRANSMISSION
Do not enter the driveshaft work area when it is moving.

CLOTHES
The use of clothes that are not proper for the work can injure you. Baggy suits can entrap in the machine. Please wear protective clothes apt for the work such as a rigid helmet, safety shoes, protective hoods, a close-fitting boiler suit and industrial gloves. Keep your cuffs buttoned up. Do not wear ties or scarves. If your hair is long, tie it up.

TOOLS
Always check that tools are in good condition and fit for the purpose.

HYDRAULIC HOSES
Hydraulic hoses can provoke accidents. Regularly check these hoses and look for damaged junctions, external surfaces worn out by rubbing or other reasons, bent or cracked hoses, and anything else which may break the hoses and cause dangerous situations.

HOSES CONTAINING PRESSURED OIL
The hoses can contain compressed air even when the machine is turned off or set out from the tractor. Before dismantling them, check on the diagram whether the pipe section contains compressed air. In any case, dismantle the pipe very cautiously.

O-RINGS, GASKETS AND PIPES
If gaskets, o-rings, hydraulic hoses are installed in a wrong way or are damaged or worn out, they can cause leaks or accidents. Do not use solvents or acids next to o-rings, gaskets, or hoses.

REPAIR WORK
Do not make repair work or any other maintenance work, which are not know.

TAMPERING
It is strictly forbidden to alter or tamper with parts of the machine, which may influence its regular working.

OPERATOR
All checks, inspections, controls, maintenance work, and any other operation shall be performed when the machine is not running and the main switch is off, unless the contrary is explicitly specified in this manual.

1.1 SAFETY WARNINGS (Continued)

WORKING
Before starting to work or to test the machine, check that the transmission, the tractor, and the equipment are provided with all the required safety protections and that they are in working order. Possible damaged or lacking components shall be replaced and correctly installed before going on working or testing.

EQUIPMENT
Do not use dangerous equipment, lacking safety devices and guards, or in bad condition.

FIRE
Safety rules forbid the presence of free flames and incandescent bodies in the workplace in order to avoid injuries.

ELECTRIC CIRCUITS
When you need to operate on the electrical circuit, make sure that the main switch is open and that nobody can operate it while you are absent.

CABLES
Before leaving the workplace, insulate any cable end to avoid accidents or short circuits.

TOOLS AND INSULATED TOOLS
Always check that tools are in good condition. Check that the insulation of insulated tools is not damaged and largely suitable for the voltage of the electrical circuit on which you are working.

COMPRESSED AIR (to clean the machine)
When you use compressed air, wear protective glasses or other equipment required by the safety rules in force.

HYDROCLEANER
In case the outside of the machine is cleaned by using hydrocleaners or similar equipment, wear personal protective clothes, glasses, gloves, etc.

WARNING FOR THE OPERATOR
The operator shall never operate directly with his hands. In case the existing equipment were not considered suitable for the purpose, the operator shall inform the assistance and/or safety service.

PINS - MECHANICAL PARTS
During maintenance and before using the machine, always make sure that both the equipment and the articulated joint pins do not show manifest wear and tear traces.

SPARE PARTS
The machine warranty will immediately lapse in case non-original spare parts are installed and the manufacturer will be acquitted of any responsibility of possible damages suffered by people and/or things.

IT IS THE DUTY OF THE EMPLOYER TO CHECK THAT THE OPERATOR HAS UNDERSTOOD THE STATED WARNINGS.

1.2 DESCRIPTION

The equipment described in this manual is provided with an independent hydraulic system and is equipped with either a hydraulic pump ("mono-pump" to feed the whole circuit) or with two hydraulic pumps ("bi-pump"; the former operates the set of disks and the latter all the other operations).

The equipment consists of four units:

a.) ***Framework*** - a solid metallic frame made of structural parts and press-folded high resistance carbon steel sheets. It includes hitch locks to be connected to the three points of the tractor, the coupling of the ridging and unridging set of disks support and the height adjustment wheels.

b.) ***Sensing Device Unit*** - completely hydraulically operated. It's peculiar configuration guarantees a specific sensitivity of the sensing device rod, which proportionally controls the cylinder whose function is to avoid obstacles.

c.) ***Unridging and Ridging Set of Disks*** - are the two main accessories that can be applied to this equipment. The unridging set of disks removes the soil from the inter-rows. Particularly suitable even if the speed of travel of the tractor has been reduced or in case of clay or stony fields. The set of disks rotation and therefore the soil working is performed by means of the hydraulic motor operated by the pressure of the oil sent by the pump to the machine by means of a remote hydraulic valve (see hydraulic diagram of the specific three disks device). The ridging set of disks is not hydraulically operated but rotates because of soil friction and ridges the soil in the inter-rows.

d.) ***Control Unit*** - to be placed by the operator. The remote hydraulic valves are manually operated by means of levers, or he hydraulic solenoid valves of the equipment controls are operated by means of push buttons and by the 12 Vcc tractor outlet.

The set of disks have been designed and manufactured to work inter-rows soils of any plantation, both vase and hedge trained, as well on close up short trunked plants or young plants. The use of unridging and ridging set of disks allows to remove the exceeding soil, herb, and damaging plants, to destroy canalizations made by rodents, to bring again soil and ridge it.

This machine can be used only for the purpose for which it was conceived. Any other employment is considered improper and the manufacturer cannot be considered responsible for possible damage caused by the improper use of other uses which are not explicitly specified in this book.

1.3 MACHINE IDENTIFICATION

The machine is provided with a rating plate that has been fastened in a visible position, as shown in the picture below (*Fig. 01*).

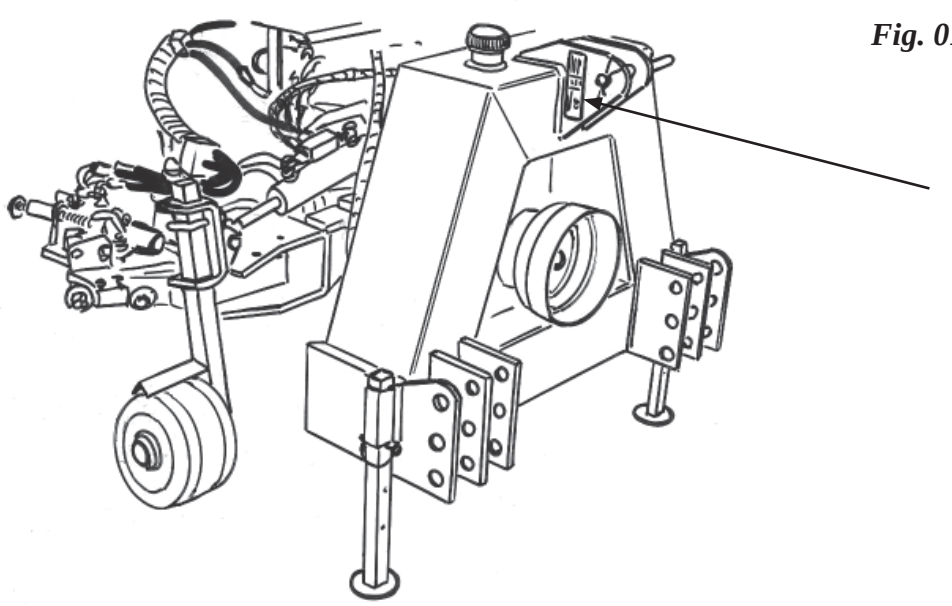


Fig. 01

The plate (*Fig. 02*) shows the identification data:

~ Manufacturer	~ Machine Model
~ Address	~ Machine Serial Number
~ CE Mark	~ Year of Production

Fig. 02

FOR ANY COMMUNICATION, REQUEST OF ASSISTANCE, OR SPARE PARTS, ALWAYS SPECIFY ALL THE DATA WRITTEN ON THE PLATE.

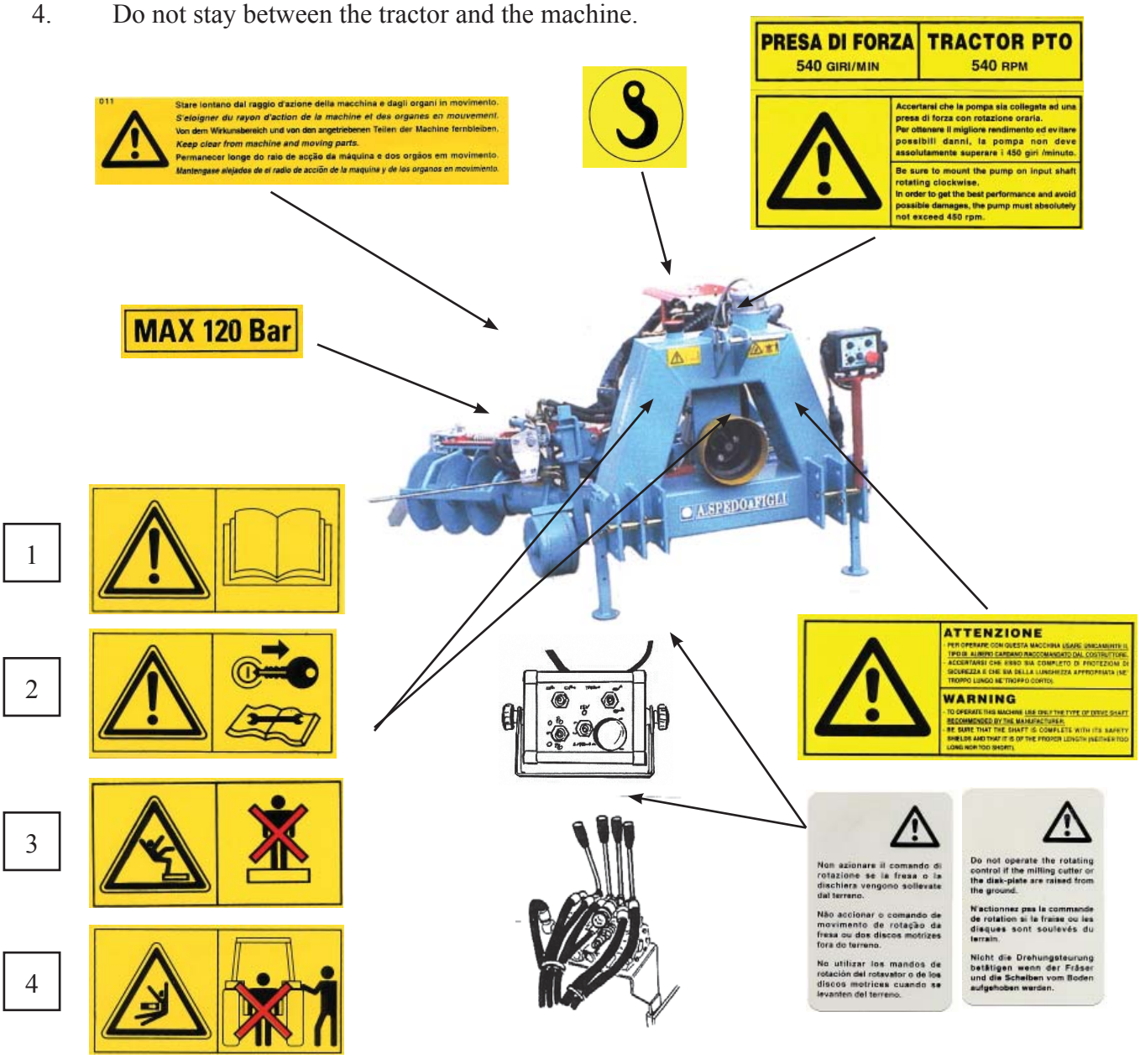
1.4 SAFETY LABELS

The labels attached on the equipment draw attention to particular risks or give the necessary information as regards peculiar works to be performed safely.

You will find here below the reproduction of the labels attached on the equipment and their position. The operator shall verify that they have been steadily attached on the equipment. Should any label not be on the equipment or be damaged, it will be necessary to inform the person in charge of the safety and then to address the inquiry to the dealer.

WARNING DESCRIPTION:

1. Before starting to work, read carefully the manual.
2. Before performing any maintenance operation, stop the tractor, lay the equipment on the ground, switch the engine off and look the manual up.
3. Do not get into the machine.
4. Do not stay between the tractor and the machine.



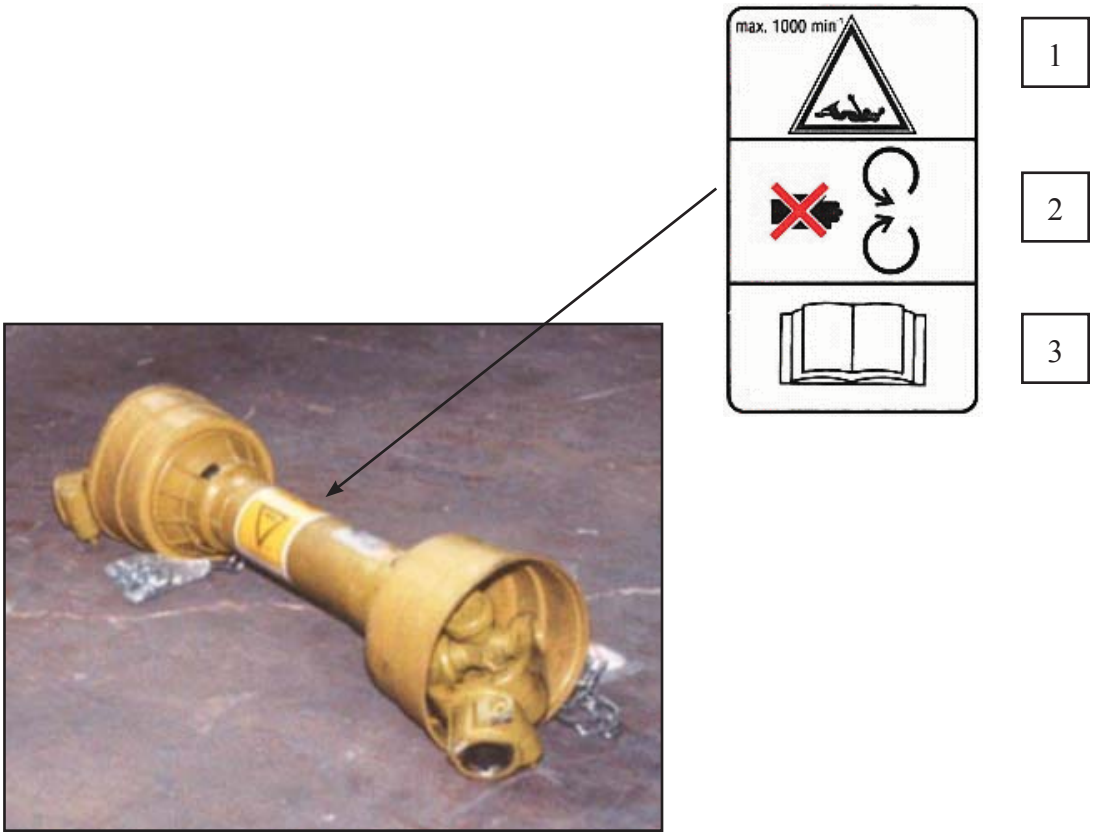
1.4.1 DRIVESHAFT SAFETY LABELS

Should the equipment be delivered complete with the driveshaft, you will find below the reproduction of the labels attached on the joint and their position. The operator shall verify that they have been steadily attached on the joint. Should any label not be on the joint or be damaged, it will be necessary to obtain a replacement and affix to the joint.

The driveshaft shall be supplied with its own "use and maintenance handbook" and with a "Statement of Compliance" with the European safety standards certified by a NOTIFIED BODY.

WARNING:

1. Do not enter the work area of the driveshaft when it is in motion. Contact can cause serious accidents.
2. Do not wear clothes with belts, hems, or parts that can be hooked.
3. Before starting to work, read carefuly the use handbook.



1.5 GENERAL SAFETY RULES

⇒ **Only authorized workers who have been trained to use the equipment described in the present use and maintenance can use this equipment.**

⇒ ***Personnel shall be trained to the use of the machine described in the present use and maintenance handbook.***

⇒ When you leave the tractor, even temporarily, verify that the equipment has been laid on the ground or positioned in such a way as not to be dangerous for the operator and bystanders.


When you leave the tractor, lay the equipment on the ground and turn off both the engine and the control board. If necessary, set the parking brake.

⇒ In case of doubt on what to do during the installation, working and maintenance, switch the engine of the tractor off and consult the manual or apply to a skilled person.

⇒ Start up the equipment only when you are properly seated in the tractor seat driving position.


In case of emergency, immediately switch off the engine of the tractor and the control board.

⇒ It is forbidden to perform operations different from those stated in the purpose of the machine.

⇒ It is forbidden to tamper, remove, or change the equipment.

⇒ It is forbidden to add fittings, optional accessories or other items, which have not been specified or previously authorized by the manufacturer.

⇒ This machine shall not be used by more than one operator at the same time.

⇒ When you are using the equipment, be careful to avoid abrupt accelerations, too fast starts and movements of the tractor.

⇒ If the equipment has to be lifted in order to make a shifting, reduce the speed of the tractor to avoid jerks.

⇒ Before starting to work, check the position of possible electric or similar lines, whether buried, or aerial, and of gas or water mains.

⇒ If the workplace is near high tension long-distance lines, we will remind that, under particular weather conditions, it is possible to meet with electric discharge of cables towards the ground, even without the cables being in touch with themselves or with the machine (lightening rod effect). Therefore, before starting working make sure that the minimum distances from long-distance line cables are observed and, if necessary, give prominence to the danger zone with proper means.

⇒ Things, people, and animals must keep clear from the range of action of the machine. If this should happen the operator shall stop the machine until the workplace is vacated.


Before operating with the equipment, the operator shall make sure that no persons are in the range of action of the equipment.

1.5 GENERAL SAFETY RULES (Continued)

⇒ Do not stay in the range of action of the machine and of the other moving parts when they are operative. Should this not be the case, the operator shall stop the tractor.


Do not touch the moving parts and do not stay between them.

⇒ It is strictly forbidden to lift or transport people or animals with the machine.

⇒ As for road circulation, it is necessary to ***follow the rules of the Highway Code*** in force in the area where the machine is used.

⇒ It is very important to bear in mind that the equipment carrying and/or towing can influence the roadholding, steerage, and braking of a tractor. Couple the machine correctly to a tractor having suitable power and configuration. Read the use and maintenance manual of the tractor.

⇒ It is strictly forbidden to stay between the machine and the tractor when the engine is on.

⇒ Only personnel in good health, qualified, and having a suitable driving license shall operate the machine.

⇒ At the end of the work lay the equipment on a flat surface sheltered from bad weather.


DO NOT OPERATE THE SET OF DISCS ROTATION CONTROL placed on the control board, when the set of discs ***is not working.***


DO NOT OPERATE THE SET OF DISCS ROTATION CONTROL placed on the control board, if the set of discs has been raised from the ground.

⇒ During maintenance, disconnect the main switch from the control board and from the electric system.

⇒ The person in charge of the safety shall approve all additional protective measures and operative procedures.

⇒ The user shall assign the running and maintenance tasks and check that these tasks are followed.

⇒ The machine shall not be used in any way, which may compromise the safety of people, things, assets, or the workplace.


Do not tamper with the hydraulic pipe sheathing.

⇒ It is forbidden to introduce hands or other things in the equipment area while the machine is on. Any operation shall be performed after having disconnected the equipment from both the electric and hydraulic source.

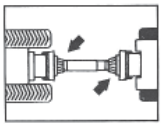
THE MANUFACTURER DECLINES ANY RESPONSIBILITY FOR INJURIES TO PEOPLE AND/ OR DAMAGE TO THINGS DUE TO THE NON-OBSERVANCE OF ONE OR MORE OF THE ABOVE-MENTIONED SAFETY RULES, WHICH ARE AN INTEGRATION OF THE NORMAL REGULATIONS IN FORCE IN THE WORKPLACE.

1.5.1 DRIVESHAFT GENERAL SAFETY RULES

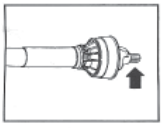
These rules concern driveshafts supplied with the equipment or supplied by the customer.

Do not enter the work area of the driveshaft when it is in motion. Contact can cause serious accidents. Do not wear clothes with belts, hems, or parts that can be hooked. The contact with rotating elements can cause serious accidents.

Only use the equipment with the original driveshaft, which has to be provided with suitable length, dimensions, safety devices, and protections.

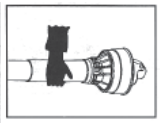


Before starting to work, verify that both the joint and the tractor, and the equipment are provided with serviceable protections.



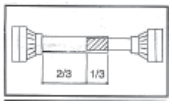
Before starting to work, make sure that the driveshaft has been correctly fastened to the PTO of the tractor and of the equipment.

Switch the engine off and take the tractor switch key away before approaching the machine or performing any maintenance.



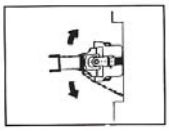
Transport the driveshaft in a horizontal position to avoid that the extraction causes accidents or damages the protection.

When the tractor is working, do not exceed the working conditions stated in the handbook and in the technical specifications of this manual. Avoid overloads and the under stress coupling of the drive.

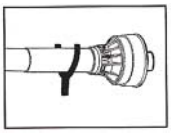


During transport and when the machine is working avoid the maximum elongation of the driveshaft. Under any working condition, the telescopic pipes shall be placed one upon another of at least 1/3 of their length.

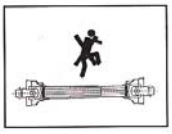
When the machine is working, the angles of the joint shall be contained and equal. Let out the drive when performing maneuvers with joint angles exceeding 25°.



Fix the chains so as to allow the joint articulation under any working and transport condition.



Do not use the chains to transport or to hold the driveshaft at the end of the work. Us a proper support.



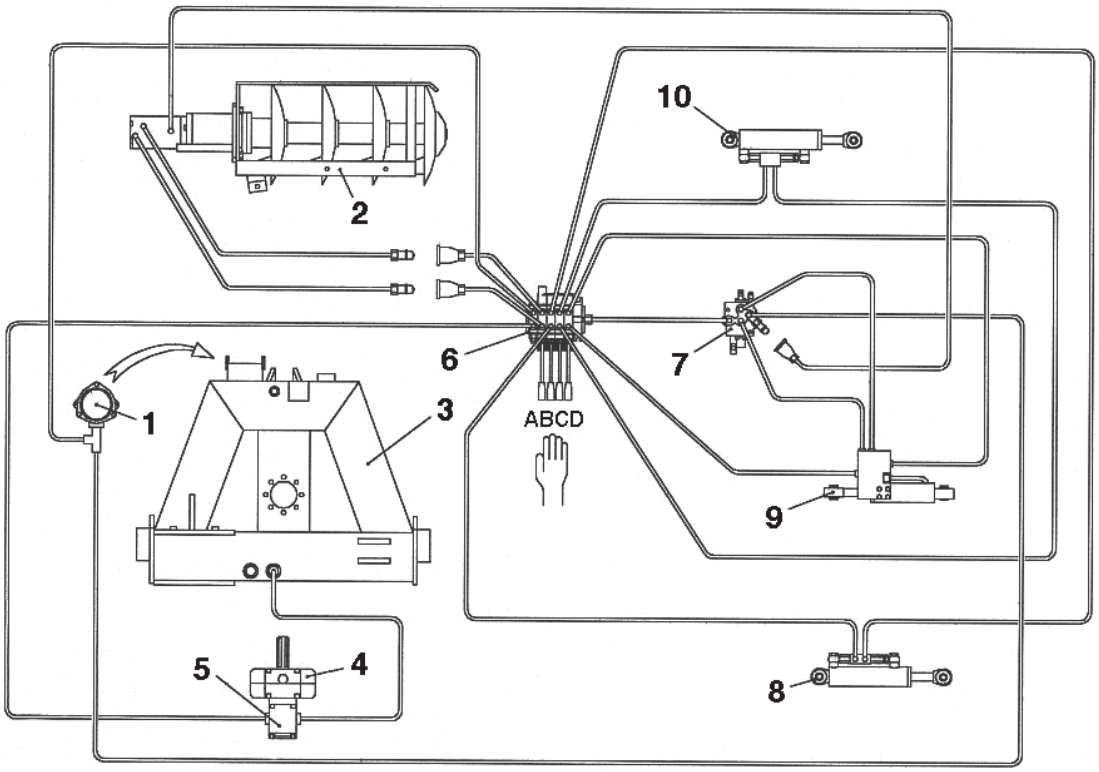
Do not use the driveshaft as a support or a foot board.

2 TECHNICAL INFORMATION

2.1 TECHNICAL SPECIFICATIONS

Quantity of oil in the tank:	13 Gallons
Hydraulic oil:	ISO 46 (with antifoaming addition agents)
Hydraulic oil pressure:	Max. 120 bar
Right rotation PTO, max. 540 r.p.m.	Using Max. 450 r.p.m.
Power supply:	12 Vcc

2.2 HYDRAULIC SYSTEM DIAGRAM - SINGLE PUMP, LIQUID CONTROLS

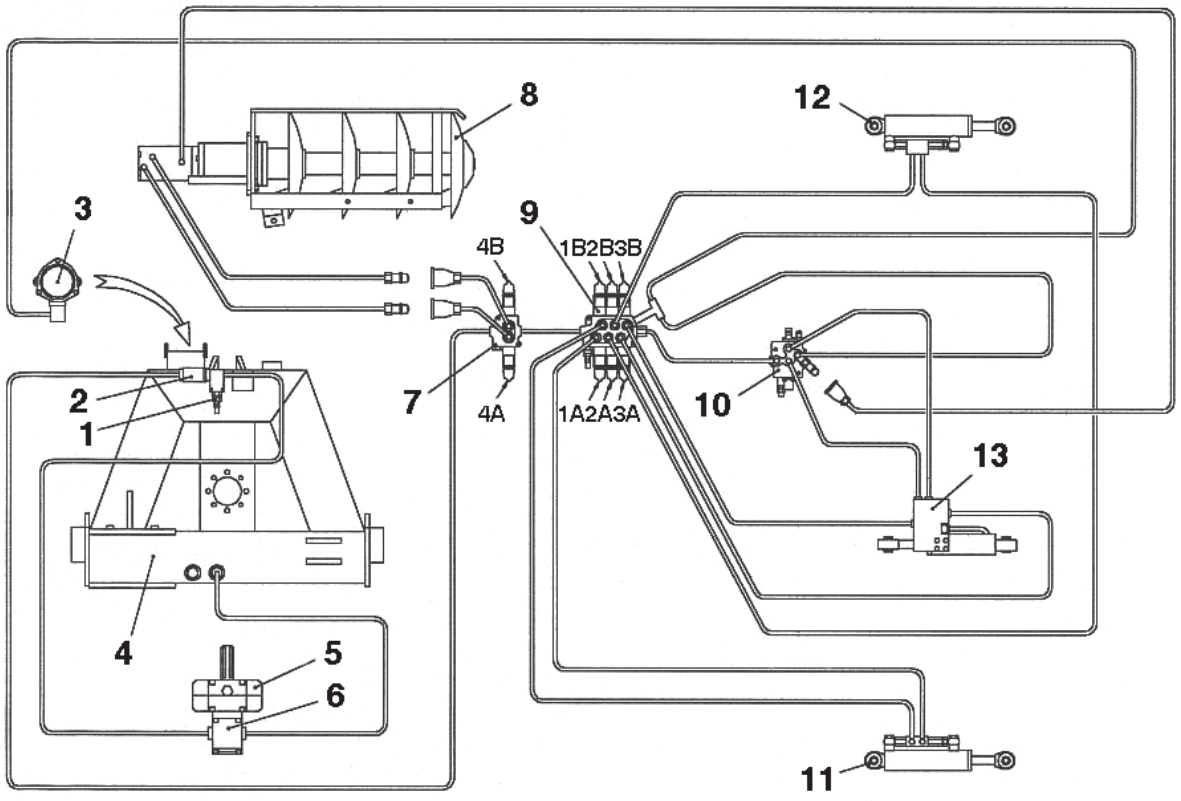


REF. NO.	DESCRIPTION
1	Filter
2	Set of Discs
3	Tank
4	Gear Reduction
5	Pump
6	Remote Hydraulic Valves
7	Remote Hydraulic Valve
8	Hydraulic Cylinder For Head Raising
9	Hydraulic Cylinder For Set of Discs Back In
10	Hydraulic Cylinder For Lateral Set of Discs Sliding Out

CONTROL MOVEMENTS:

A	Set of Discs Rotation Control
B	Head Control
C	Set of Discs Sliding Out Control
D	Set of Discs Back In Control

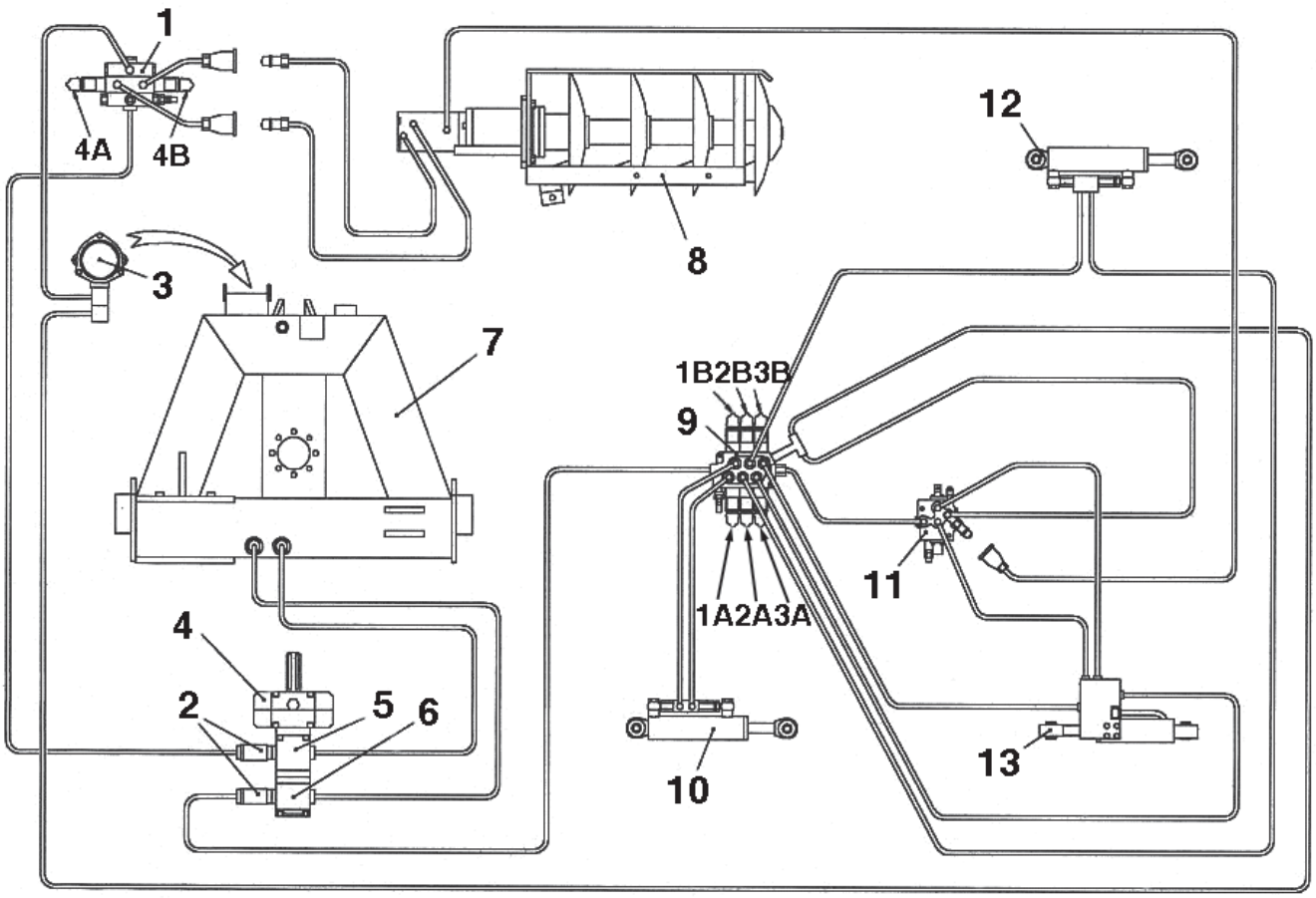
2.3 HYDRAULIC SYSTEM DIAGRAM - SINGLE PUMP, ELECTRIC CONTROLS



REF. NO.	DESCRIPTION
1	Pressure Relief Valve
2	Filter (Delivery)
3	Filter
4	Tank
5	Gear Reduction
6	Pump
7	Set of Discs Remote Electric Valve
8	Set of Discs
9	Remote Electric Valves
10	Remote Hydraulic Valve
11	Hydraulic cylinder For Head Raising
12	Hydraulic Cylinder For Lateral Set of Discs Sliding Out
13	Hydraulic Cylinder For Set Of Discs Back In

CONTROL MOVEMENTS:	
1A & 1B	Head Control
2A & 2B	Set of Discs Sliding Out Control
3A & 3B	Set of Discs Back In Control
4A & 4B	Set of Discs Rotation Control

2.4 HYDRAULIC SYSTEM DIAGRAM - DOUBLE PUMP, ELECTRIC CONTROLS



REF. NO.	DESCRIPTION
1	Set of Discs Remote Electric Valve
2	Filter (Delivery)
3	Filter
4	Gear Reduction
5	Pump 1
6	Pump 2
7	Tank
8	Set of Discs
9	Remote Electric Valves
10	Hydraulic Cylinder For Head Raising Control
11	Remote Hydraulic Valve
12	Hydraulic Cylinder For Lateral Set of Discs Sliding Out
13	Hydraulic Cylinder For Set Of Discs Back In

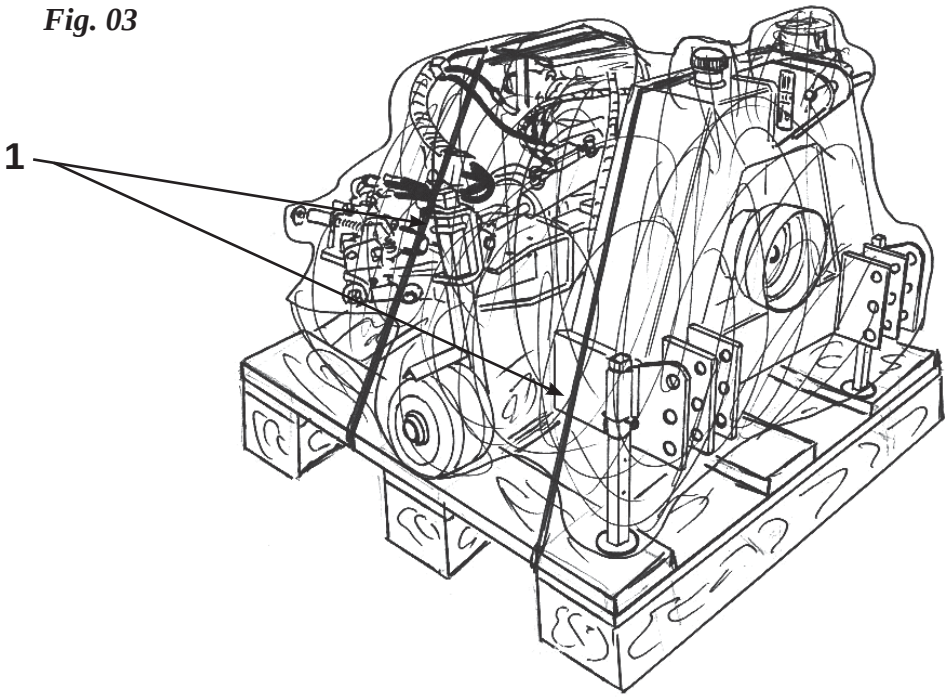
CONTROL MOVEMENTS:

1A & 1B	Head Control
2A & 2B	Set of Discs Sliding Out Control
3A & 3B	Set of Discs Back In Control
4A & 4B	Set of Discs Rotation Control

3 PACKAGING

3.1 UNPACKING

Fig. 03



If the equipment is delivered with its package, it will be wrapped in a nylon cover and, if necessary, placed on a pallet. (*Fig. 03*)

Cut both the safety band straps (*Pos. 1*) and the nylon sealing tape to remove the package, being careful not to damage the machine, parts of it, and/or the accessories, if any, packed on the frame.

Remove the accessories, if any, which lay on the main frame of the equipment.

Check that the contents comply with both the order and the documents.

As for shifting and transport, see ***Section 4***.

3.2 PACKAGE DISPOSAL

The customer is in charge of the package disposal in compliance with the law in force.

Any package component (i.e. plastic bags, polystyrene, nails, nylon, bands, and other things) constitutes a hazard to children and **MUST BE KEPT AWAY** from them.

4 TRANSPORT

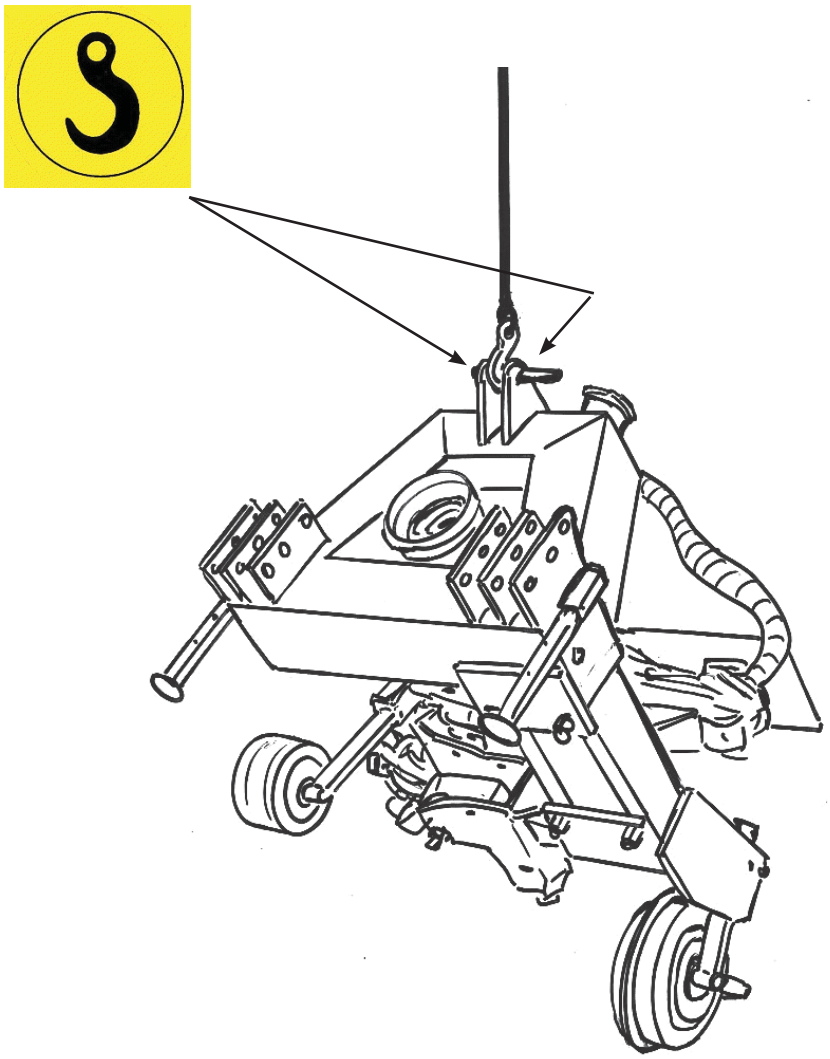
4.1 HANDLING & TRANSPORTING

If the machine has been placed on a pallet, it shall be handled and transported through appropriate equipment provided with forks. The machine transport and handling shall be carried out in compliance with both the law in force and the regulations concerning handling, transport, and hoisting of loads.

The machine, without package, shall be loaded and unloaded by means of bands, ropes, and chains properly placed on the upper attachment of the main frame.

Hoisting shall be carried out as shown in (*Fig. 04*).

Fig. 04



4.2 HANDLING & TRANSPORT WARNINGS

⇒ Loading and unloading shall be performed with ropes or hoisting equipment in compliance with the law and the directions provided in the previous section.

⇒ Check that belts, ropes, and other hoisting equipment have been made in accordance with the law in force and are provided with the relative plates attesting their law compliance.

⇒ MAKE SURE THAT THE MAXIMUM CAPACITY OF BELTS, ROPES, OR OTHER HOISTING EQUIPMENT IS HIGHER THAN THE EQUIPMENT TOTAL WEIGHT.

⇒ Check that belts, ropes, or other hoisting equipment are in good condition.

⇒ It is strictly forbidden for things and/or people to stay in the proximity of the machine in the loading/unloading area and transport during loading and unloading.

⇒ Do not make sharp maneuvers with the hoisting equipment while the load is raising or descending.

⇒ Pay the maximum attention during all handling operations in order to avoid any damage to the equipment.

⇒ Observe internal regulations and the laws concerning hoisting and transport.

⇒ **IT IS FORBIDDEN TO GET NEAR OR WALK UNDER HANDING LOADS.**

GEARMORE DECLINES ANY RESPONSIBILITY FOR POSSIBLE DAMAGE OR INJURY CAUSED BY ANY ACTION OCCURRED DURING THE MACHINE LOADING OR UNLOADING.

5 SAFETY

5.1 SAFETY RULES

GEARMORE DECLINES ANY RESPONSIBILITY FOR POSSIBLE DAMAGE OR INJURIES TO PEOPLE AND/OR DAMAGE TO THINGS DUE TO THE NON-OBSERVANCE OF THE HERE MENTIONED SAFETY RULES, WHICH ARE AN INTEGRATION OF THE LAW IN FORCE.

IT IS EXTREMELY IMPORTANT THAT THE OPERATOR UNDERSTANDS ALL THE FOLLOWING SAFETY RULES BEFORE STARTING TO WORK WITH THE EQUIPMENT, TO AVOID DAMAGE OR INJURIES TO THE OPERATOR OR OTHER PEOPLE.

⇒ If routine maintenance is not serviced, the machine can be dangerous for the operator and the people in the proximity. In order to ensure a safe and efficient operation of the machine, make sure that the maintenance plan is duly followed.

⇒ It is strictly forbidden to tamper, change, and improve details of the machine, which can alter its normal working.

⇒ The machine has been arranged in order to be used by only one operator.

⇒ The machine can be used only be personnel that has been authorized, trained, and informed on the risk related to the use of the machine.

⇒ Before switching the machine on, the operator shall make sure that no people or objects are in the immediate proximity of the machine, as this is a hazard to the operator and other people.

⇒ Protective glasses or other safety clothes provided by law shall be worn when compressed air is used.

⇒ Do not use the equipment unless visibility is good.

⇒ Make sure that there are no underground or aerial, but low, mains are in the workplace.

⇒ Make sure that there are no underground pipes in the workplace.

⇒ Do not use the equipment if there are piled up or stacked materials which, if bumped into, can fall or spread out.

⇒ The equipment can be easily used, but this does not mean that the operator does not have to operate cautiously to prevent from time to time any situation that can be dangerous for himself or other people.

6 SET-UP

6.1 START-UP

This section reports the operation that must be performed in order to install the equipment and some suggestions for its start-up

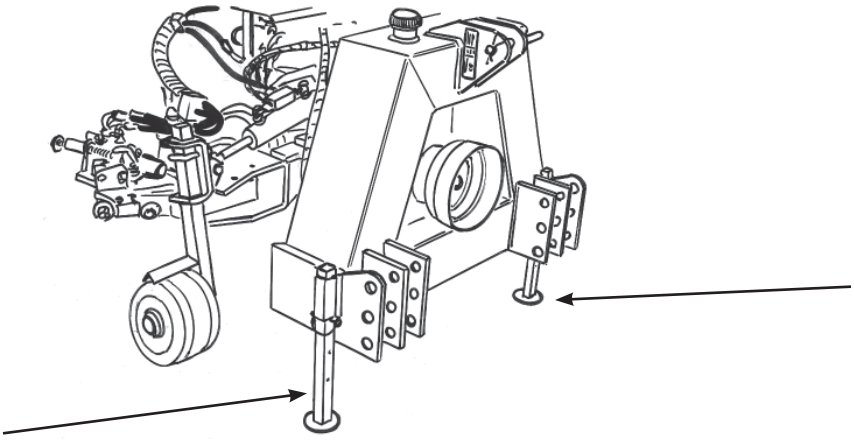
6.2 EQUIPMENT INSTALLATION

Coupling to the tractor:

To couple the equipment to the tractor follow exactly the instructions below:

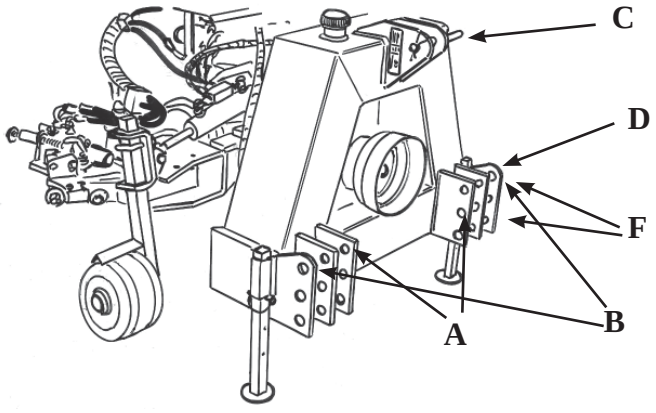
1. Make sure that the equipment has been perfectly laid flat and rests on the ground on the stands, which have been suitably placed at both sides of the frame (*Fig. 05*).

Fig. 05



2. Back the tractor until its three points of connection will approach the equipment and verify which of the two positions of the lower points of connections is the best one to couple your machine. **Fig. 06** shows the coupling of two lower **narrow "A"** points of connection and the coupling of two lower **wide "B"** points of connection, the upper point **"C"** and the various heights **"D"**, **"E"**, and **"F"** for the coupling of the upper and lower pins.

Fig. 06

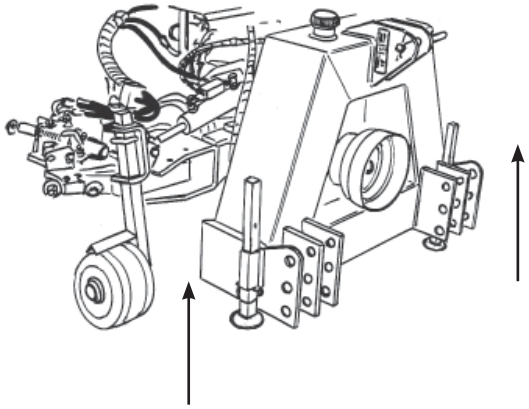


3. After having inserted both the articulated joint of the three points hitch and the check pins, lift the machine slightly and verify if both the coupling and the lifting arms have been correctly positioned. Check that all pins have been correctly installed and the safety devices against set of discs sliding out have been well placed.

4. Tension the stabilizing chains of the tractor lifting unit and set the position of the arms in order to center them in the center of the machine itself.

5. Leave the equipment in this position, raise completely the lateral stands until they reach their highest position, insert the check pins and hook the safety devices against the set of discs sliding out. (*Fig. 07*).

Fig. 07



6. Lower the implement until the back wheels rest completely on the ground.

TURN OFF THE ENGINE OF THE TRACTOR

6.3 MANUAL OR ELECTRIC CONTROL INSTALLATION

Manual controls (*Fig. 08a, pos. 1*) are delivered coupled to the machine through the clevis *pos. 2* in order to be correctly positioned during the transport. To install the tractor, take off the unit upwards and, by means of the proper clevis (*pos. 2*), place it in the preset support (*To be performed by the user*) placed beside the driver's seat.

Electric controls (*Fig. 08b, pos. 3*) are delivered packaged. The control board is provided with a 12 Vcc outlet (*pos. 4*) to be connected to the tractor, and with the male plug (*pos. 5*) to be connected to the female connector (*pos. 6*) of the hydraulic solenoid valves.

Should the voltage be different or in case of doubt, apply to our After-Sale Service.

Install the machine by means of the proper clevis (*pos. 7*) and place it in the preset support (*To be performed by the user*) placed beside the driver's seat.

THE OPERATOR SHALL BE ABLE TO REACH THE CONTROLS FROM THE DRIVER'S SEAT OF THE TRACTOR.

Fig. 08a

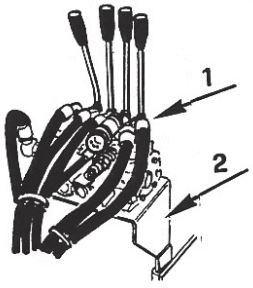
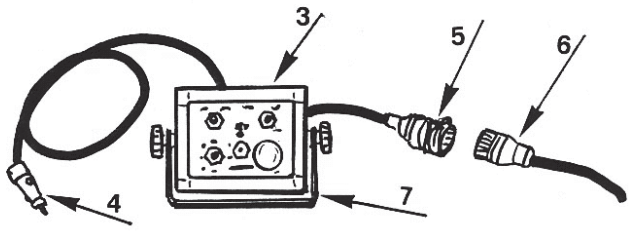


Fig. 08b



6.3.1 MANUAL CONTROL UNIT FUNCTIONS

Should you have any doubt, apply to our After-Sale Service.

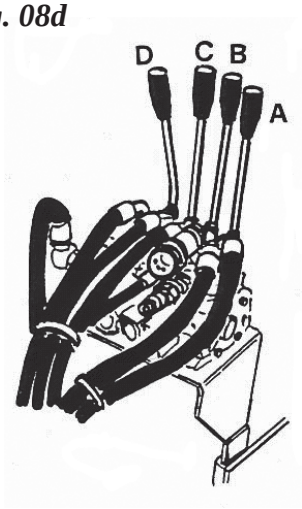
IMPORTANT:
ONLY QUALIFIED PERSONNEL SHALL OPERATE ON THE HYDRAULIC COMPONENTS, EVEN TO PERFORM STAGES OF LITTLE IMPORTANCE.

⇒ Turn off the engine and disconnect the pump before operating on the hydraulic system.

POSSIBLE DAMAGES CAUSED BY WRONG OPERATIONS ON THE HYDRAULIC SYSTEM ARE NOT UNDER WARRANTY.

After having installed both the control unit and the equipment according to all the directions stated in the previous paragraphs, read the following instructions (*Fig. 08d*) and look up the hydraulic system diagram to perform the preset controls:

Fig. 08d



- ~ To raise the "***head unit***" hold the lever (*pos. B*) outward. To lower it, hold it down inwards. To stop the head unit in an ***intermediate*** position, release the lever (in its steady central position).
- ~ To let the "***set of discs go back manually***" press the lever (*pos. D*). To reset, release the lever.
- ~ To perform the "***unit sliding out***" hold the lever (*pos. C*) down outward. To let it go back, hold it down inwards.
- ~ To perform the set of discs clockwise "***rotation***" press outwards the lever (*pos. A*). To perform the counterclockwise rotation, press it inwards.

Be careful! The lever Pos. "A", after having been operated, holds its position, therefore reset it in its central position (neutral) to stop the set of discs rotation.

DO NOT OPERATE THE SET OF DISCS ROTATION CONTROL placed on the control unit, when the set of discs is not working.

DO NOT OPERATE THE SET OF DISCS ROTATION CONTROL placed on the control unit, if the set of discs has been ***raised from the ground***.

Before performing any maneuver, even to test them, read carefully this manual and pay attention to the *instructions* and *directions* of the paragraphs concerning the above mentioned control functions.

6.3.2 ELECTRIC CONTROL BOARD FUNCTIONS

Should you have any doubt, apply to our After-Sale Service.

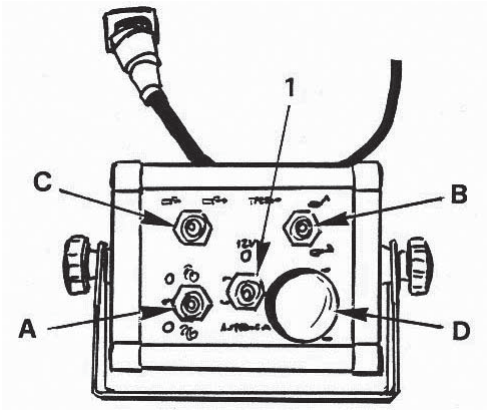
IMPORTANT:
ONLY QUALIFIED PERSONNEL SHALL OPERATE ON THE ELECTRIC COMPONENTS, EVEN TO PERFORM STAGES OF LITTLE IMPORTANCE.

⇒ Turn off the main switch before operating on the electric system.

POSSIBLE DAMAGES CAUSED BY A WRONG ELECTRIC CONNECTION ARE NOT UNDER WARRANTY.

After having performed the electric connection of the control board and installed the equipment according to ***all the directions*** stated in the previous paragraphs, read the following instructions (*Fig. 08e*) to perform the preset controls:

Fig. 08e



- ~ To switch on the control board, move upwards the push button (*pos. 1*) (**ON**). To switch it off, move it downwards (**OFF**).
- ~ To raise the "***head unit***" hold the push button (*pos. B*) upwards. To lower it, hold it downwards. To stop the head unit in an ***intermediate*** position, release the push button (in its steady centrol position).
- ~ To let the "***set of discs go back manually***" press the mushroom head push button (*pos. D*). To reset, release the push button.
- ~ To perform the "***unit sliding out***" hold the push button (*pos. C*) down rightwards. To let it go back, hold it down leftwards.
- ~ To perform the set of discs clockwise "***rotation***" press the push button (*pos. A*) upwards. To perform the counterclockwise rotation, press it downwards.

Be careful! The push button Pos. "A", after having been pressed, holds its position, therefore reset it in its central position (neutral) to stop the set of discs rotation.

DO NOT OPERATE THE SET OF DISCS ROTATION CONTROL placed on the control board, when the set of discs ***is not working***.

DO NOT OPERATE THE SET OF DISCS ROTATION CONTROL placed on the control board, if the set of discs has been ***raised from the ground***.

Before performing any maneuver, even to test them, read carefully this manual and pay attention to the *instructions* and *directions* of the paragraphs concerning the above mentioned control functions.

6.4 PTO DRIVELINE INSTALLATION

TURN OFF THE ENGINE BEFORE PERFORMING THE FOLLOWING OPERATIONS!

Before installing the driveline, make sure that the engine of the tractor has been switched off, that the switch key has been taken away and that it can not be started beyond the control of the operator who is installing the equipment.

To set up the equipment, follow these directions:

- ~ Carefully clean the slots of both the tractor and the equipment PTO by means of cloths or brushes. Then oil or grease. (*Fig. 09*).
- ~ Make sure there are no foreign matters in the hole splines of the driveline and, if necessary, remove the dirt, then oil or grease.
- ~ The little tractor printed on the label shows the side of the tractor transmission.
- ~ Insert the driveline on the spline shaft of the tractor and of the equipment. Press the push button and drive the fork hub onto the PTO so that the push button comes to its original position after the PTO fixing (*Fig. 10a*).
- ~ Fix the chain free end to one of the holes of the tractor frame by means of its proper locking bolt, so that the drive articulation is allowed under any working and transport condition.

Make sure that nothing has been placed on or twisted around the cardan joint.

Fig. 09

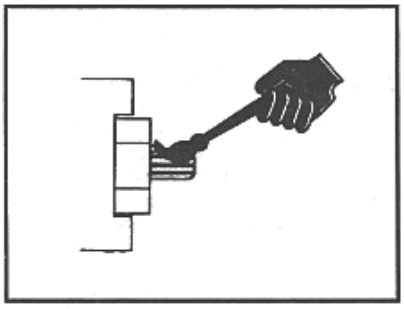
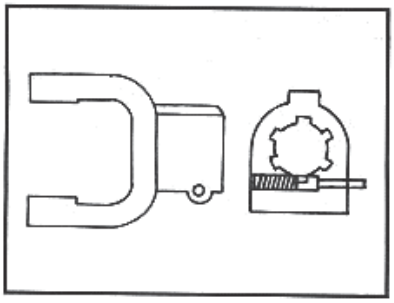


Fig. 10a



Make sure that the fixed safety guards of both the tractor and the equipment have been correctly installed and are not damaged. (*Fig. 10b*) and (*Fig. 10c*)

Fig. 10b

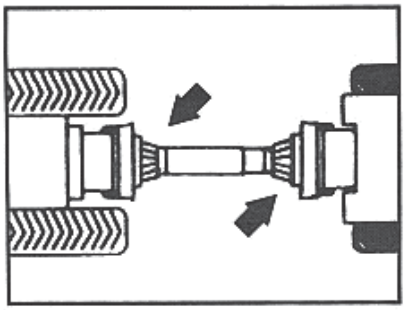
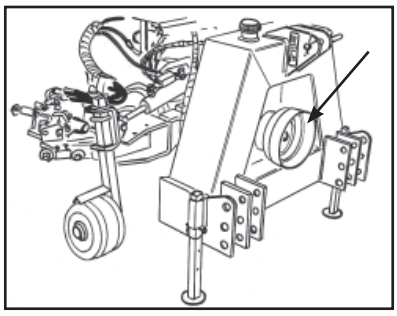


Fig. 10c



GEARMORE DECLINES ANY RESPONSIBILITY FOR INJURIES TO PEOPLE AND/OR DAMAGE TO THINGS DUE TO THE WRONG INSTALLATION AND FIXING OF THE CARDAN JOINT.

6.5 PTO ROTATION SPEED

To make sure the equipment work as best as it can, it is necessary to assure to the pump unit the correct number of revolutions, in order to obtain pressure and oil enough to perform all the operations. Therefore using the tractor PTO, which works at max. 450 r.p.m.,

PTO rotation speed shall NOT EXCEED 450 r.p.m.

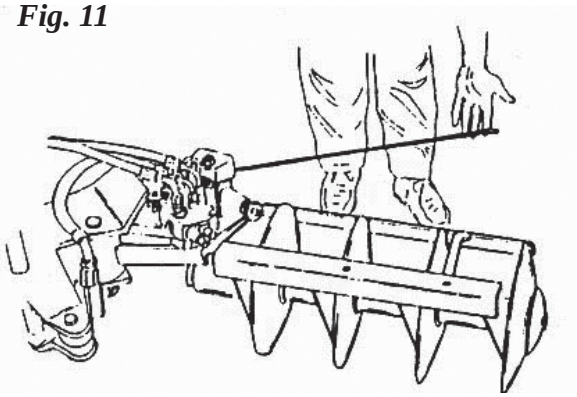
A higher rotation speed can irreparably damage the hydraulic circuit components. A lower rotation speed makes the equipment useless because of the lack of pressure and the consequent lack of power required to move the tools.

6.6 START UP

If the machine is started for the first time or after a long idle time, you just have to follow these instructions, paying particular attention to the hole coupling cleaning.

- ~ Start the machine and set the parking brake.
- ~ Raise the equipment from the ground, run the PTO and bring the tractor engine to its **minimum** r.p.m.
- ~ Stay in front of the power disc or other tools (*Fig. 11*) and, **only from this position and WITH THE GREATEST CARE**, operate the sensing device rod in such a way as to simulate an obstacle during the set of discs advancing. Verify that the set of discs goes along the whole stroke, i.e. reaches a position, which is parallel to the machine axis. When the sensing device rod has been released, the set of discs shall go back to its starting position. The set of discs shall have to move continuously and without jolts or discontinuities, as these are signs of air in the hydraulic circuit. *Operate the same control also from the driver's seat.*

Fig. 11



THE MACHINE STARTING AND START UP SHALL BE PERFORMED BY AUTHORIZED PERSONNEL AND TRAINED TO THE USE OF THE MACHINE. THE MANUFACTURER DECLINES ANY RESPONSIBILITY FOR INJURIES TO PEOPLE AND/OR DAMAGE TO THINGS DUE TO THE NON-OBSERVANCE OF THE PRECAUTIONS IN THIS MANUAL.

TURN OFF THE ENGINE BEFORE PERFORMING THE FOLLOWING OPERATIONS!!!

6.7 INSTALLATION OF POWER DISC

To install the power disc do so in the following manner:

- ~ Start the tractor and lift the back equipment about 26", switch the engine off and take the key out of the tractor.
- ~ Make sure that nobody in the proximity of the machine can operate the controls that lower the back three points of connection of the tractor.
- ~ Carefully clean both the slot in the set of discs supporting arm and the two studs, then oil or grease.
- ~ Install the power disc and insert it in the two studs (*Fig. 12, pos. 1*) of the set of discs support arm.
- ~ Insert the two spline washers and their nuts. Before fixing the nuts, set the depth of penetration in the ground. The adjustment of the inclination of the set of discs external end affects the depth at which soil is removed. In case of hard soils, we suggest adjusting the set of discs at its maximum depth, while in case of soils of medium hardness, a medium depth is enough.
- ~ Tighten the two nuts firmly.
- ~ Insert the sensing device rod (*pos. 2*) into its clevis (*pos. 3*) and tighten their fastening screws (*pos. 4*).
- ~ To connect the **SET OF DISCS** hydraulic hoses (*Quick coupling: delivery and drainage*) see the hydraulic diagram (*section 2.2 and 2.3*) and *Fig. 12a*.

For further information about the **SET OF DISCS**, refer to its specific manual.

Fig. 12

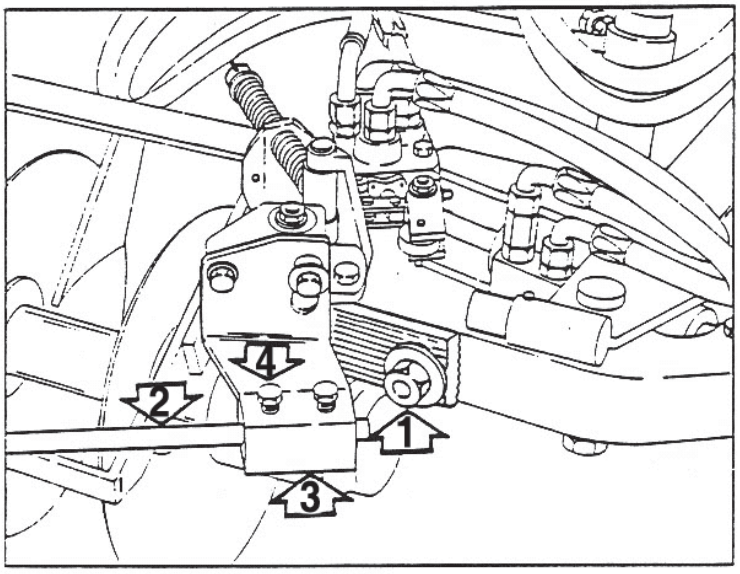
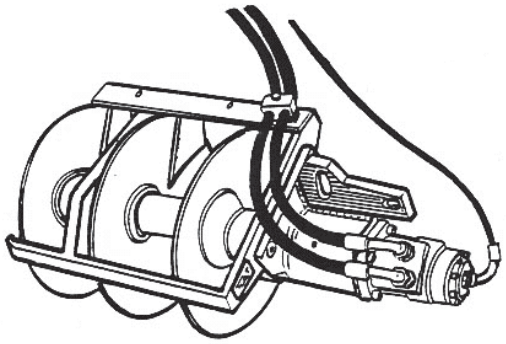


Fig. 12a



TURN OFF THE ENGINE BEFORE PERFORMING THE FOLLOWING OPERATIONS!!!

6.8 SENSING DEVICE ROD ADJUSTMENT

The sensing device rod is provided with two separate adjustments; the advance device and the horizontal adjustment.

If these two adjustments are very well combined, the discing operation will be performed successfully and very quickly.

6.8.1 ADVANCE DEVICE ADJUSTMENT

Adjust very carefully the sensing device rod; if it has been correctly positioned, the soil around the trunk will be really cleaned without damaging the trunk itself.

Fig. 13, pos. no. 2 shows the correct position of the sensing device; the distance between the sensing device and the set of discs will be proportional to the tractor travelling speed. The faster the moving is, the bigger the distance is, in order to leave some advance to the set of discs moving.

Ref. no. 1 in the Fig. 13 shows, e.g., a position, which is lightly advanced compared with the previous one. We suggest this position to work on inter-rows which consist of plants with a deformed trunk (e.g. vineyards, etc.) or not perfectly in line.

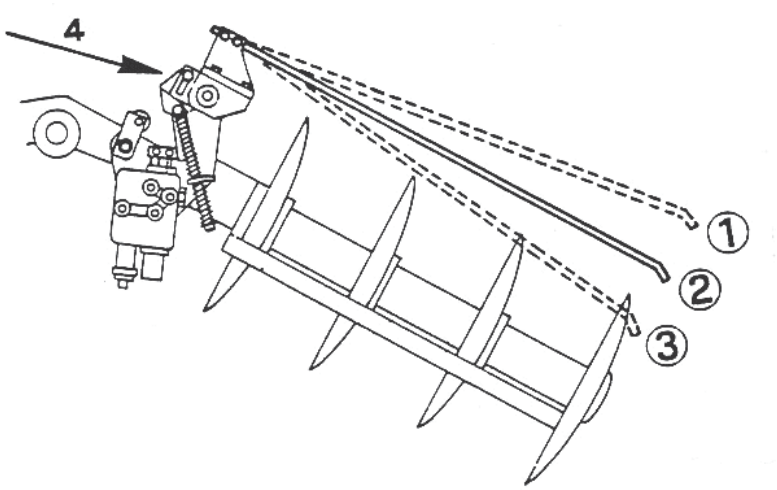
Ref. no. 3 in the Fig. 13 shows an uncorrected position of the sensing device rod.

To adjust the advance device, act on the two fastening screws *Fig. 13, pos.4*.

During the adjustment, take always into account, that the sensing device has its own flexibility and can perform a turning, which is different as against the set of discs. A correct adjustment of the sensing device must now allow it to be in touch with the set of discs before allowing the latter to turn itself.

Before using the sensing device rod, switch the engine off and verify that it will not touch, under any circumstances, the unridging set of discs.

Fig. 13



TURN OFF THE ENGINE BEFORE PERFORMING THE FOLLOWING OPERATIONS!!!

6.8.2 HORIZONTAL ADJUSTMENT

The sensing device rod is also provided with a horizontal adjustment.

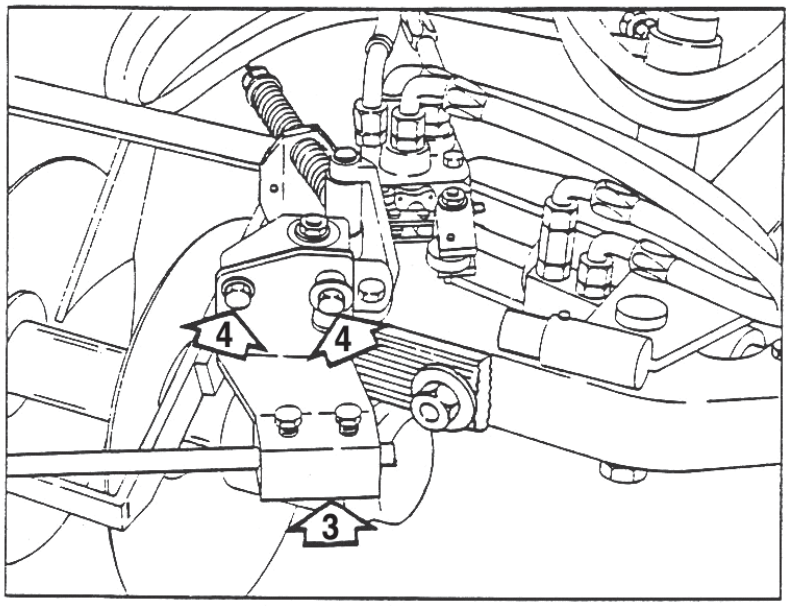
The sensing device rod shall be installed at about the middle of the set of discs (in line with its axis).

If big bushes or big harmful plant trunks have been removed, the sensing rod can be placed in a higher position in order to allow the set of discs to uproot bushes instead of digging them out by hand.

This adjustment can be prearranged also when deeper discing operations have to be performed.

To perform the horizontal adjustment act on the two fastening screws (*Fig. 14, pos. 4*) of the sensing device rod clevis (*Fig. 14, pos. 3*). When the rod has reached the best position, tighten the two screws firmly.

Fig. 14

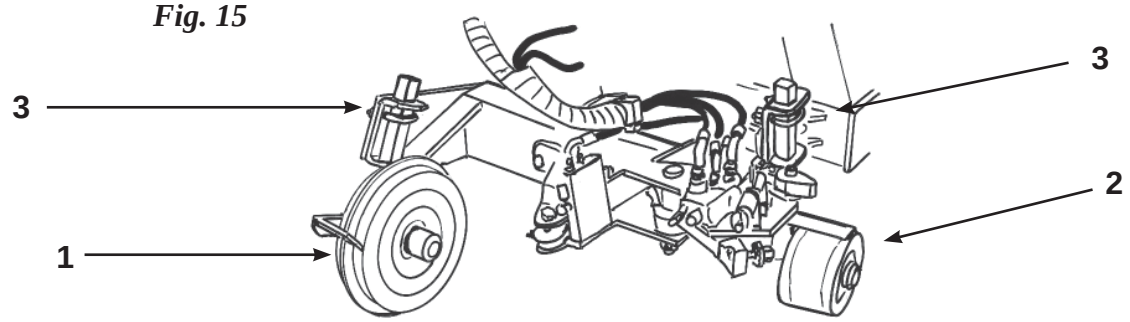


TURN OFF THE ENGINE BEFORE PERFORMING THE FOLLOWING OPERATIONS!!!

6.9 VERTICAL ADJUSTMENT

The two back wheels shall have to be adjusted in order to allow the set of discs to work exactly within the inter-rows (*Fig. 15, pos. 1 and 2*): act on the fastening screws *pos. 3*, raise the wheels up to the required height, tighten the fastening screws firmly. Before starting to work, make sure the height of the wheels is always lower than the axis of the set of discs.

Fig. 15

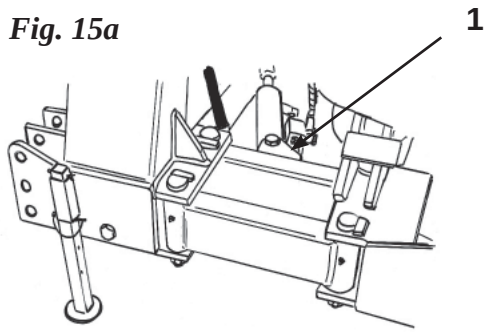


⇒ A too high adjustment of the wheels shall make the axis of the set of discs be in touch with the soil and does not let the set of discs turn.

6.10 LATERAL ADJUSTMENT

The lateral adjustment of the set of discs position has been prearranged to make the inter-row equipment more effective. It consists of parallel arms (*Fig. 15, pos. 1*) that can be moved directly from the driver's seat by operating either the manual or electric controls. We suggest moving it during the tractor advancing to make it easier.

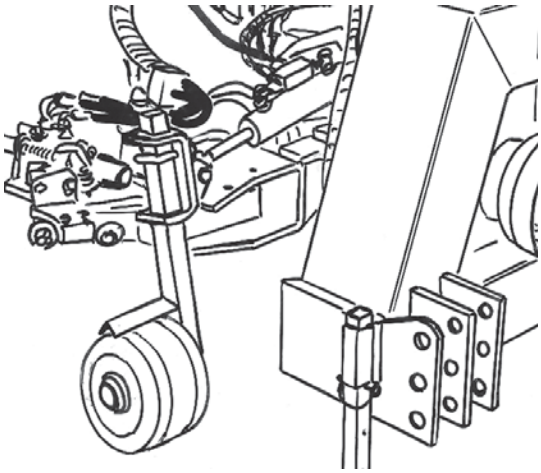
Fig. 15a



6.11 HEAD UNIT RAISING

The head unit can be raised from the ground by means of the hydraulic cylinder (Fig. 16, pos. 1) that can be moved directly from the driver's seat by operating either the manual or electric controls.

Fig. 16



BEFORE PERFORMING THIS OPERATION, THE OPERATOR SHALL MAKE SURE THAT NO PEOPLE ARE IN THE RANGE OF ACTION OF THE MACHINE.

IF THE MACHINE HAS BEEN PARKED WITH THE UNIT RAISED, MAKE SURE THAT THE TRACTOR HAS BEEN TURNED OFF AND THAT IT CAN BE TURNED ON ONLY BY THE OPERATOR, TO AVOID WRONG MOVEMENTS THAT CAN MAKE THE UNIT DESCEND AND CAUSE DANGER.

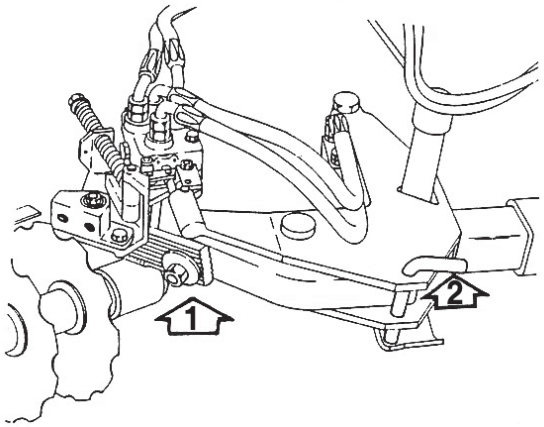
TURN OFF THE ENGINE BEFORE PERFORMING THE FOLLOWING OPERATIONS!!!

6.12 INSTALLATION OF BACK FILL DISC

To install the back fill disc:

- ~ Start the tractor and lift the back equipment about 6", switch the engine off and remove the key from the tractor.
- ~ Make sure that nobody in the proximity of the machine can operate the controls that lower the back three points of connection of the tractor.
- ~ Take off the sensing device rod and its adjustable support, paying attention to retighten the screws of the support in order to keep the threads clean.
- ~ To remove the unridging set of discs, unscrew the nuts, take off the spline washers, disconnect the hydraulic hoses and plug the remote valve fittings by means of suitable caps.
- ~ Carefully clean both the slot in the set of discs supporting arm and the two studs, then oil or grease.
- ~ Install disc assembly by bolting in place (*Fig. 17, pos. 1*)
- ~ Insert the two spline washers and their nuts. Before fixing the nuts, adjust the back fill disc so that the axis of the disc is parallel to the soil.
- ~ Tighten the two nuts firmly.

Fig. 17



- ~ Insert the lockpin (*pos. 2*) in its seat to lock the set of discs movements.

WARNING!!! DISCONNECT THE PTO

7 OPERATION

7.1 WORKING

Here you will find instructions, warnings, and advice concerning the safe use of the inter-row equipment.

7.2 POWER DISCING

Above all, get used to performing the aforementioned adjustments in order to carry out discing successfully. In fact, the more your inter-row equipment is correctly set, the more you will obtain better and quick results. Before starting to work, we suggest trying to use the equipment to familiarize yourself with the various adjustments.

Read carefully the listed details before starting to work. We suggest this procedure to use the inter-row equipment more effectively, to save time, and above all, to remove elements which can damage the equipment.

Make sure that in the soil to be worked:

- ~ there are no plants which have not been laid out in a line with the other plants.
- ~ there are no big or jutting stones.
- ~ there are no unused stakes stuck in the soil.
- ~ there are no tie-rods laid on the ground that can be hooked by the inter-row equipment.
- ~ there are no cables, ropes, remains of barbed wore or fences.
- ~ there are no obstacles lower than the sensing device rod height.
- ~ plants transplanted earlier than two years ago have on the soil no jute or nets to contain clods.
- ~ the discing depth does not damage the plant roots.
- ~ the axis of the set of discs is always higher than the earth surface.
- ~ the sensitivity of the sensing device is adequate to the plants which have to be treated. (see sections 6.8.1 and 7.3)

DO NOT OPERATE THE POWER DISC IF IT HAS BEEN RAISED FROM THE GROUND OR WHEN THE TRACTOR IS NOT WORKING

BEFORE USING THE POWER DISC, MAKE SURE THAT THE LOCKPIN HAS BEEN TAKEN OFF!!!

The tractor speed shall be proportionate to the distance between plants, to the type of soil, and to the working depth.

TURN OFF THE ENGINE BEFORE PERFORMING THE FOLLOWING OPERATIONS!!!

7.3 SENSING DEVICE SENSITIVITY ADJUSTMENT

The sensing device has to come into contact with the trunks in order to be able to carry out its own function: to locate the trunks and therefore retract the disc. The sensing device support has been arranged so that the "return spring" can be replaced in order to avoid that the contact between the sensing device and the trunk (particularly the trunk of young plants with a very delicate bark) can damage the plant itself.

The function of the return spring is to keep the sensing device rod in position when the tractor is operative; therefore the stronger the spring is, the stiffer the sensing device becomes with the possibility to damage the bark of plants.

The inter-row is equipped with three springs:

A) Spring (wire φ 2 mm) for young plants or plants with a delicate bark.

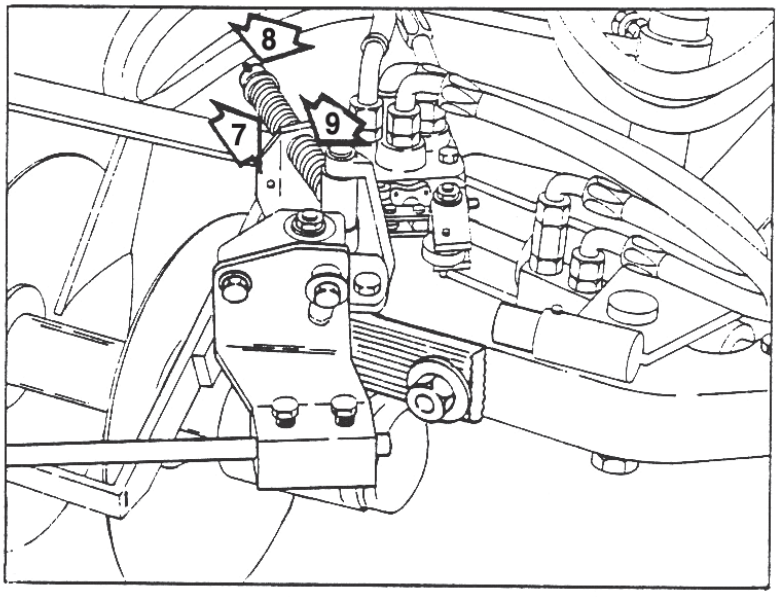
B) Spring (wire φ 3 mm) to be used in most cases

C) Spring (wire φ 3.5 mm) in case of very solid trunks.

To replace the return spring (*Fig. 18, pos. 7*), remove the safety lockpin (*pos. 8*), take off the flat washer, take off the spring and replace it with a spring more adequate to the kind of work you are going to perform.

⇒ **It is forbidden to remove the spring shown in the *Fig. 18, pos. 9*.**

Fig. 18



TURN OFF THE ENGINE BEFORE PERFORMING THE FOLLOWING OPERATIONS!!!

7.4 BACK FILL DISC

Some precautions should be taken when using the back fill disc. Unlike the power disc, which provides rotary motion and retractable system to avoid plants, the back fill disc is fixed to the frame. Thus, you must be extremely careful so that obstacles do not come in contact with the disc.

To use the back fill disc correctly, check the following:

- ~ The lock pin has been inserted (*section 6.12*).
- ~ The directions concerning the disc has been followed (*section 7.2*).
- ~ The disc is parallel to the soil.
- ~ The outer blade must stay approximately **8 inches** from the row of plants.
- ~ Disengage the PTO, as it is not required for this operation.

DO NOT FORGET TO TAKE OFF THE CHECK PIN WHEN NOT OPERATING THE BACK FILL DISC

7.5 SAFETY INSTRUCTIONS

IT IS EXTREMELY IMPORTANT TO LIFT THE EQUIPMENT WHENEVER YOU ARE GOING TO:

- ~ Make a u-turn
- ~ Perform alignment maneuvering with the tractor
- ~ Go in reverse
- ~ Steer abruptly unless this is required by the normal alignment to the row.

⇒ Always check for the presence of obstacles on the soil to be worked.

⇒ Before making the inter-rows equipment operative, keep at a distance animals or people who may be close to the interested areas.

⇒ Do not transport things, people, or animals on the tractor or on the inter-rows equipment.

⇒ Unauthorized and untrained people shall not use the inter-rows equipment.

⇒ Using the inter-rows equipment at excessive speeds can cause danger both to the operator and the equipment.

⇒ When the inter-rows is not being used, do not leave it lifted but lay it on the ground.

⇒ Do not leave the inter-rows equipment within children's reach.

⇒ Pay the greatest attention to the tools as, even if they are provided with metallic guards in the upper part, they are not equipped with covers able to protect against edges in order to let them work properly.

CONSTANTLY CHECK THAT NO PEOPLE, CHILDREN, OR ANIMALS STAY BY OR ARE WITHIN THE RANGE OF OPERATION OF THE MACHINE.

DURING THE MACHINE WORKING DO NOT TURN WHEN THE EQUIPMENT IS UNDERGROUND AND DO NOT WORK WHILE GOING IN REVERSE.

RAISE THE EQUIPMENT FROM THE GROUND BEFORE CHANGING DIRECTION OR GOING IN REVERSE.

THE MANUFACTURER DECLINES ANY RESPONSIBILITY FOR INJURIES TO PEOPLE OR ANIMALS AND/OR DAMAGE TO PROPERTY DUE TO THE NON-OBSERVANCE OF THE DIRECTIONS IN THIS MANUAL.

8 MAINTENANCE

8.1 MACHINE MAINTENANCE

We suggest the following instructions to let your equipment work effectively and to keep it in its full working order.

Practically speaking, the equipment requires no routine maintenance, except for its regular cleaning and the replacement of the hydraulic oil and of the hydraulic oil filter at the scheduled fixed dates.

EXTRAORDINARY MAINTENANCE
Extraordinary maintenance (repairs, replacements) shall be carried out by the authorized dealership personnel.

ROUTINE MAINTENANCE
Grower personnel shall carry out routine maintenance.

TURN THE ENGINE OFF AND TAKE THE SWITCH KEY AWAY FROM THE TRACTOR BEFORE PERFORMING ANY MAINTENANCE OR CLEANING OF THE PTO DRIVELINE OR OF THE EQUIPMENT.

MAINTENANCE, REPAIR, AND CLEANING SHALL BE CARRIED OUT BY MEANS OF PROPER ACCIDENT PREVENTION DEVICES.

POSSIBLE DAMAGED OR MISSING COMPONENTS SHALL BE REPLACED WITH ORIGINAL SPARE PARTS AND CORRECTLY INSTALLED BEFORE USING THE EQUIPMENT.

It is a good habit to record all maintenance operations. This will allow you to remember the performed maintenance and to schedule future maintenance. (At the end of this manual are blank pages dedicated for your "NOTES")

Keep lubricants out of the reach of children.

Read carefully the instructions and precautions on the lubricant container.

Wash your hands carefully after having used lubricants.

Handle the lubricant in use according to the antipollution provisions of law.

After the first eight (8) working hours, check the general conditions of the whole equipment, verify especially the tightening of the screws and of the whole machine.

AS FOR THE MAINTENANCE OF THE PTO DRIVELINE, FOLLOW THE DIRECTIONS OF ITS SPECIFIC MAINTENANCE AND USE HANDBOOK.

MAINTENANCE RECOMMENDATIONS:

EVERY 10 WORKING HOURS (or every day):

Check:

1. Check for damage
2. Check for oil leaks
3. Check connections and possible damage to electric cables
4. Eccentric pin efficiency
5. PTO driveline

Grease:

6. Ratchet
7. Eccentric pin

EVERY 50 WORKING HOURS (or every 2 weeks):

(To be carried out in addition to daily maintenance)

Cleaning:

1. General cleaning of themachine
2. Hydraulic oil filter cleaning or replacement
3. Articulated supporting arm for set of discs
4. Eccentric and springs
5. Set of discs

Check:

6. Hydraulic oil level

Greasing:

7. Ball joints
8. Ratchet
9. Eccentric pin
10. PTO Driveline

EVERY 200 WORKING HOURS (or every 2 months):

(To be carried out in addition to aforementioned maintenance)

Cleaning:

1. Hydraulic oil filter (or replacement)

Check:

2. Hydraulic circuit
3. Electric connections

EVERY 1000 WORKING HOURS (or once a year):

(To be carried out in addition to aforementioned maintenance)

Replacement:

1. Hydraulic oil
2. Hydraulic oil filter

8.2 CLEANING

To clean the machine, use detergents and not hurtful or polluting substances according to the law in force.

Remove all foreign elements such as branches, weeds, and whatever may have become stuck into the set of discs mechanism.

Pay greatest attention when you clean moveable, sharp, or acuminate parts, especially if they can hurt.

Avoid cleaning directly with your hands, but use protective gloves.

Always wear protective gloves or other clothes when you use compressed air.

At the end of cleaning we suggest oiling and greasing the moveable parts.

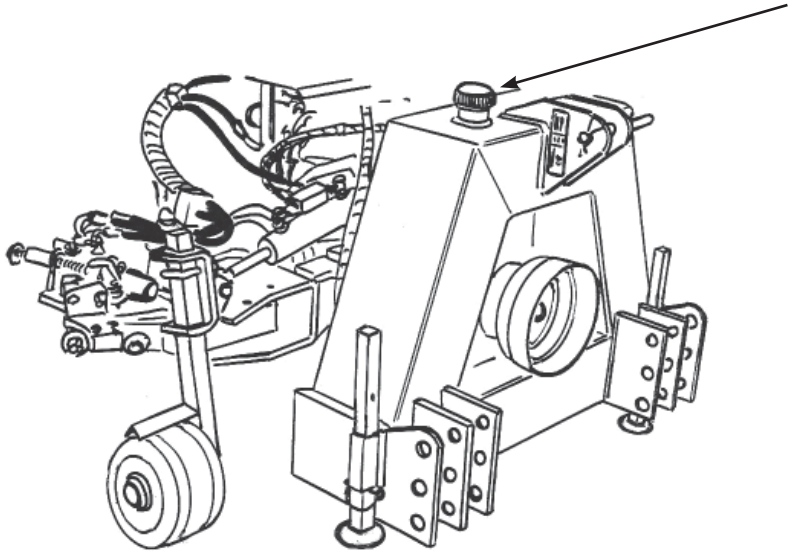
DO NOT USE SOLVENTS OR IRRITATING ACIDS

Before performing any maintenance, make sure the inter-row has been laid flat and rests on the ground.

8.3 CHECK OF THE HYDRAULIC OIL LEVEL

Check the oil level by means of the special rod placed under the oil-filling cap.

Fig. 19



Top the oil up with the same kind of oil used to fill the plant.

We suggest noting the type of oil in the back of this manual.

Should the system require too frequent topping up, check for possible leaks.

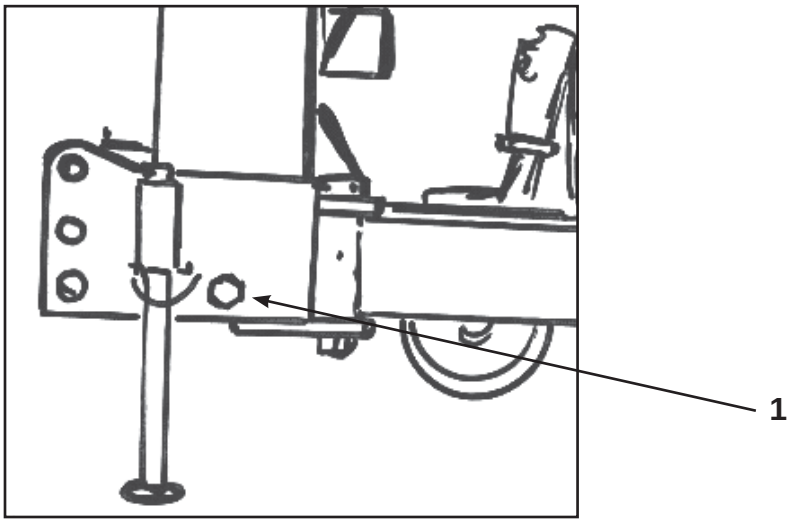
8.4 CHANGING HYDRAULIC OIL

We suggest changing all the hydraulic oil contained in the hydraulic system of the machine **every 1000 working hours** (as shown in the maintenance chart).

Act as follows:

- ~ Place the machine on a flat surface and turn the tractor off.
- ~ The drain plug is placed on the left side of the oil tank.
- ~ Prepare an adequate tray under the drain plug.
- ~ Unscrew the drain plug (*Fig. 20, pos. 1*) and the oil-filling cap (*Fig. 19*). When the tank is completely empty, start the tractor and operate the PTO for some seconds to drain the oil contained in the pipes, then turn the tractor off, wait until the tank is completely empty and screw the drain plug again.
- ~ During the oil drainage, replace the hydraulic oil filters.
- ~ Start filling the tank and, if possible, filter the new oil so that no foreign matters can enter the hydraulic circuit.
- ~ During the tank filling constantly check the oil level; as soon as you can see the oil level, go on filling but with small oil quantities, to allow the air contained in the tank to blow off.
- ~ Screw the cap again, start the tractor and operate the PTO for some minutes and check that the oil level remains constant; if necessary, top it up again.

Fig. 20



Oil changing and draining and its disposal shall take place in compliance with the law in force, as hydraulic oil is a special waste material.

Apply to authorized companies to dispose of special waste materials.

Pay attention during oil handling: excessive or long-lasting contacts may cause inflammations. In case of contact, was with plenty of water, soap, and proper detergents.

8.5 OIL FILTER CLEANING OR REPLACEMENT

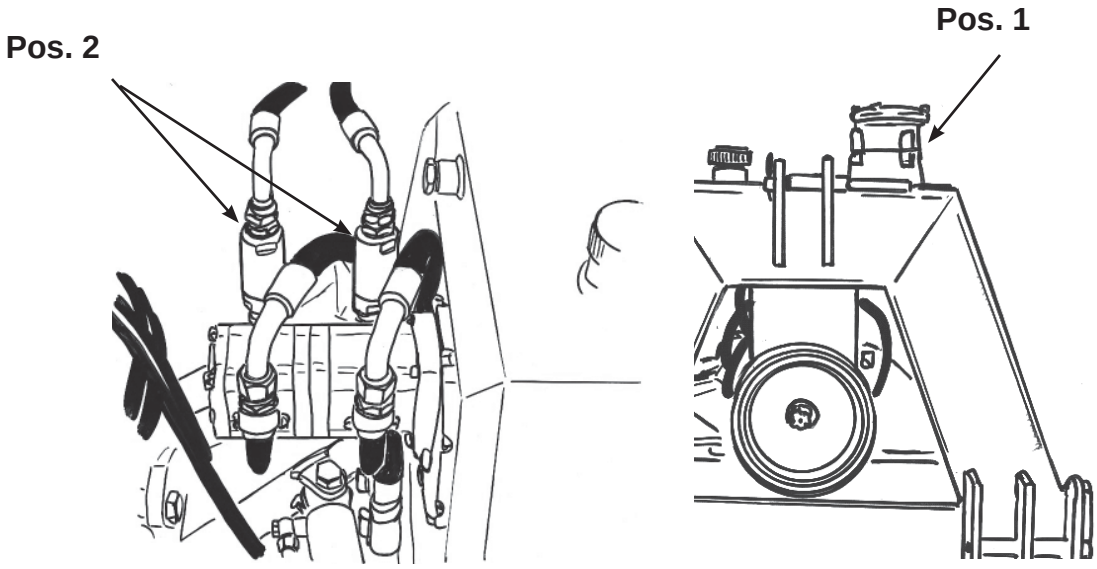
As shown in the maintenance chart, at fixed dates it is necessary to replace the hydraulic oil filter (drainage) placed on the tank.

Act as follows:

- ~ Carefully clean the hydraulic filter cover (*Fig. 21, pos. 1*) and its proximity.
- ~ Unscrew the four nuts on the filter cover.
- ~ Raise the filter cover.
- ~ Take out both the spring and the oil filter cartridge.
- ~ Insert the new filter, locate the spring, and press the spring with the cover until the filter is completely closed.
- ~ Screw the four nuts.

The double pump Spedovators are equipped with a hydraulic oil filter also in the "*Delivery*" circuit (*Fig. 21, pos. 2*), the single pump has one filter, the double pump has two filters. They shall be cleaned and replaced on the same fixed dates of the filter pos. 1. Remove the container by means of the proper wrench, clean or replace the filter, then reassemble and screw tight.

Fig. 21



If you are going to clean the oil filter, dip it in a tray filled with cleaning fluid. Some hours later, blow from outside towards inside with low pressure compressed air paying the greatest attention to make sure foreign matters is removed.

Before performing any maintenance, make sure the machine has been laid flat and rests on the ground.

8.6 GREASING POINTS

Fig. 22a, pos. 5, *Fig. 22b, pos. 5*, and *Fig. 22c, pos. 1* point out the location of the points that periodically, at the aforementioned fixed dates, shall have to be greased by means of a grease gun.

Smear the eccentric pin shown in *Fig. 22a, pos. 6*, with grease.

Fig. 22a

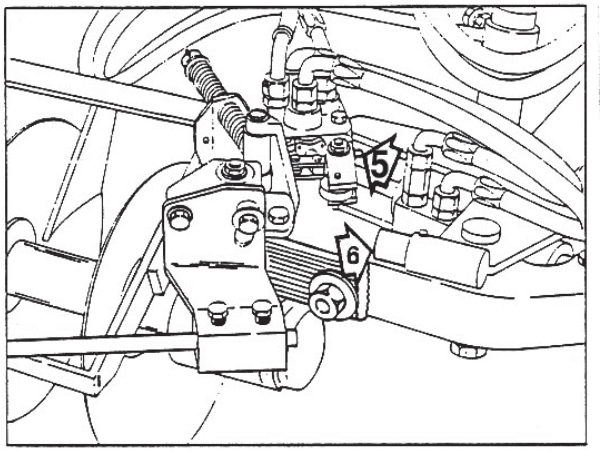


Fig. 22b

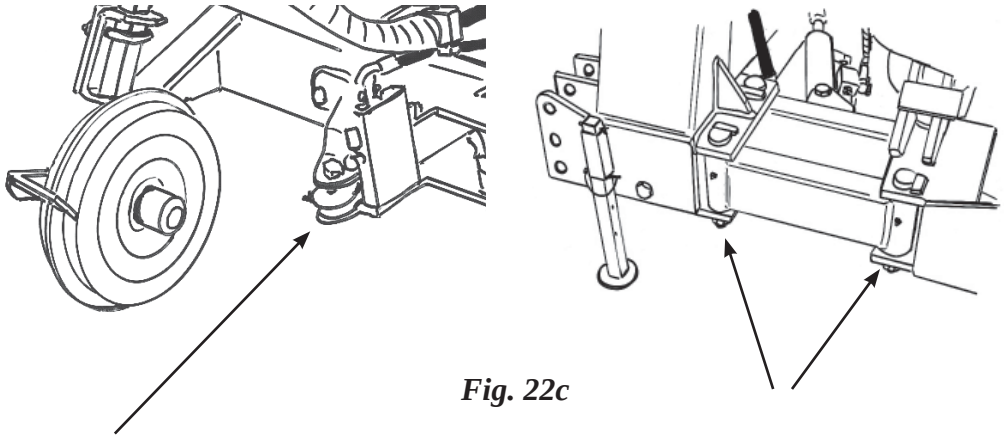
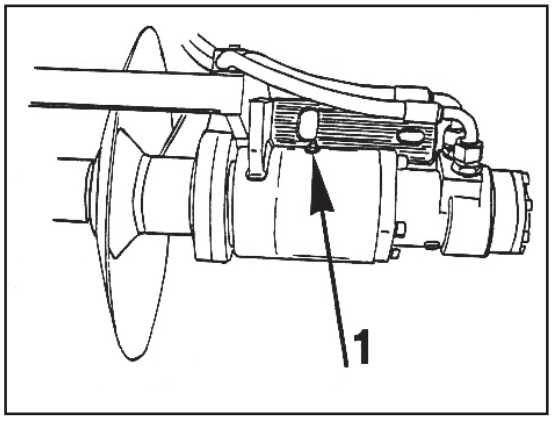


Fig. 22c



9 TROUBLESHOOTING

9.1 TROUBLE (Remote electric valve locking on double pump Spedovators)

When the control board is ON and a push button is operated but the relative control is not performed (lock of the remote electric valve function because of possible foreign matters) it is possible to unlock it acting as follows and observing the instructions:

Before performing any operation, lock the tractor.

Prearrange all the safety devices and stay in a safe position, so that not to be involved in the equipment movements.

~ Press the casing/push button shown in the electric remove valve completely to free the oil flow from the locked control. In this way the stem is directly operated and the control will be unlocked. Release the casing/pus button to reset the spool and to restore the cycle.

This trouble can occur also after a long idle period or a long storing because of a static friction increasing. To remove the trouble follow the above mentioned instructions.

Should the trouble persist, contact your authorized dealer.

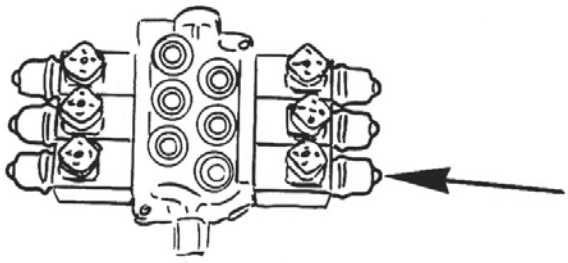
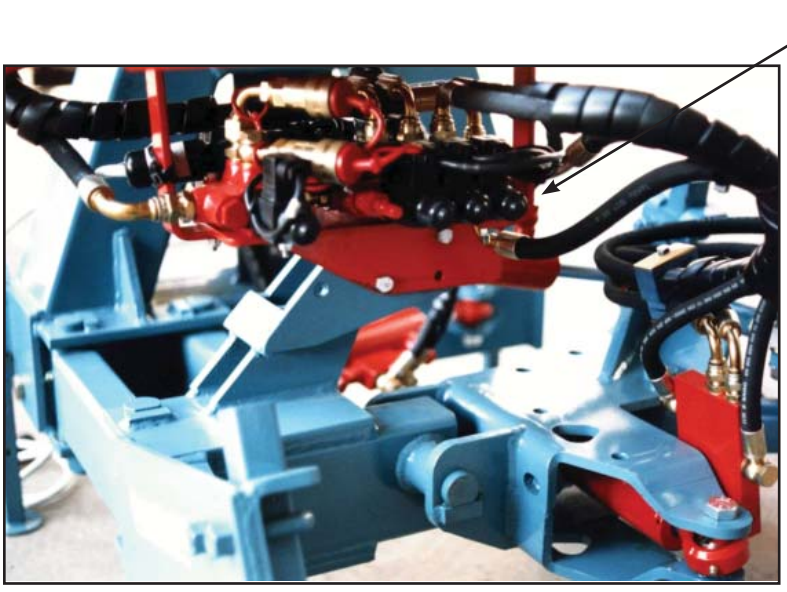


Fig. 25



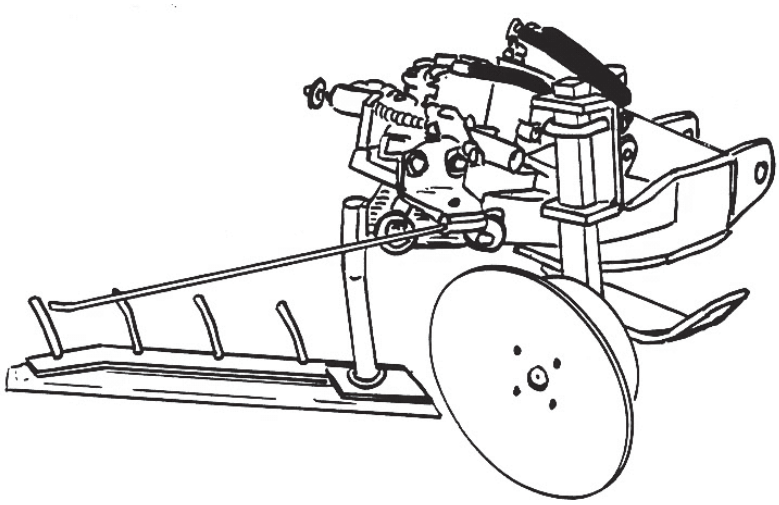
9.2 TROUBLESHOOTING CHART

TROUBLE	CAUSE	ORIGIN	REMEDY	
Operations do not move or do not keep the position	Lack of Pressure	PTO is OFF	Engage PTO	
		Pump not connected	Connect pump to PTO	
		Pump is seriously damaged	Replace the pump	
		Serious oil leakage	Check the leakage	*
		Engine is disconnected	Connect the engine	
		Engine is seriously damaged	Replace the engine	
	No movements	The traverse jack is locked	Repair/replace cylinder	
		Set of discs support is locked	Repair	
		Breaking of the hydraulic motor splined coupling	Replace	
	No hydraulic control	Lack of sensing device rod	Insert sensing device rod	
		Sensing device support is locked	Repair or replace	
		Remote hydraulic valve is locked	Repair or replace	
		The back in device is jammed	Repair or replace	
		Operated control has no oil flow	See section 9.1 to unlock	
	No electric control	Fuse	Replace fuse (located in the lower part of the control board)	
		No power	Make sure it is plugged in	
		Remote electric valve magnet	Replace	
The set of discs move irregularly	Back in springs of the sensing device	Wrong springs assembling	Verify and reassemble	
		Springs worn out	Replace springs	
	The pump is worn	Worn pump	Overhaul or replace	*
	Misalignment of the neutral positioning system	Broken bearings of the set of discs supporting arm	Replace bearings	*
	Worn support bearings in the power disc	Lack of lubrication / wear	Replace bearings	*
	Relevant oil leaks	Leaks from pipes	Check pipes	
		Leaks from pipe fittings	Check pipe fittings	
		Damaged cylinder gaskets	Replace gaskets	
	Control remote valve does not work correctly	Slide valve spring out of calibration	Replace	
		Impurities in remote valve	Overhaul remote valve	
		Slack screw in slide valve	Overhaul & tighten screw	
		Remote valve gaskets worn or damaged	Overhaul & replace	

TROUBLE	CAUSE	ORIGIN	REMEDY	
The set of discs move irregularly	Control remote valve does not work correctly	Breaking of the disc spring distributing valve support	Replace	
	Low oil flow	Worn pump	Replace pump	
		Wrong PTO R.P.M.	Check PTO R.P.M.	
	Force of friction	Piston rod is damaged	Replace	
	Hydraulic system overheating	Broken eccentric pin spring	Replace	
		Broken free wheel spring	Replace	
		Worn pump	Replace	
	Too much oil flow to the limited traverse cylinder	Wrong PTO speed	Check PTO speed - must be at 540 R.P.M.	
Possible troubles of the PTO driveline	Wear of driveline yokes	Excessive working angle	Reduce working angle. Disconnect drive when performing maneuvers whose joint angles exceed 35°	*
	Breaking of crosses	Excessive torque peak	Avoid PTO overloads and under stress coupling.	*
	Telescopic tubing deformation	Excessive torque peak	Avoid PTO overloads and under stress coupling. Check that the joint does not come into contact with the tractor or the equipment components during maneurering	*
	Early wear of the telescopic tubing	Inadequate lubrication	Follow directions in section 8.6	*
		Tubings have not been sufficiently placed one upon the other.	Follow instructions in section 1.5.1	
* Apply to the after-sale service.				

10 ACCESSORIES & OPTIONS - INSTALLATION & USE

10.1 IN ROW BLADE SPARE PARTS

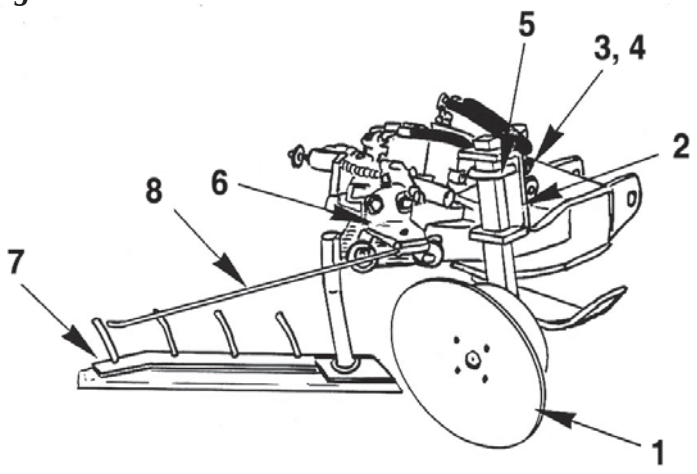


It is important to note that the in-row blade eradicates weeds without removing soil.

Depth of penetration	-	from 2 to 4 inches
Weight	-	70 lbs.

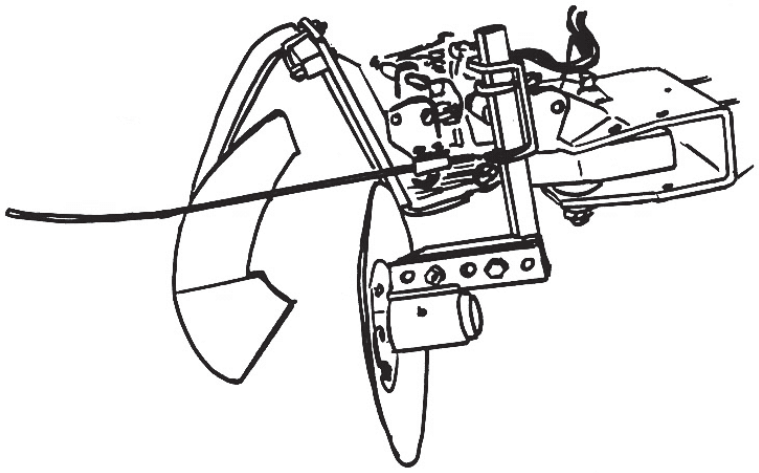
NOTE: As for the adjustments of the sensing device rod (*Fig. 26, pos. 8*) see section 6.8 and the followings sections on pages 26 and 27.

Fig. 26



REF. NO.	DESCSRIPTION
1	Complete Disc
2	Disc Holder
3	Plain Washer
4	Nut
5	U-bolt
6	Rod Holder
7	Horizontal Blade
8	Rod

10.2 FRENCH PLOW SPARE PARTS



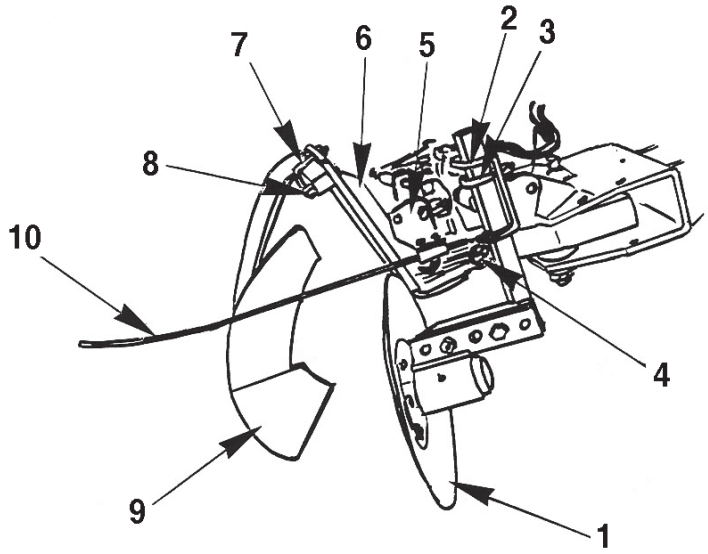
The French Plow not only turns over the ground in the inter-rows, but also removes harmful plants. Compared with the Power Disc, the Plow can reach a deeper penetration.

Depth of penetration	-	about 6 inches
Weight	-	150 lbs.

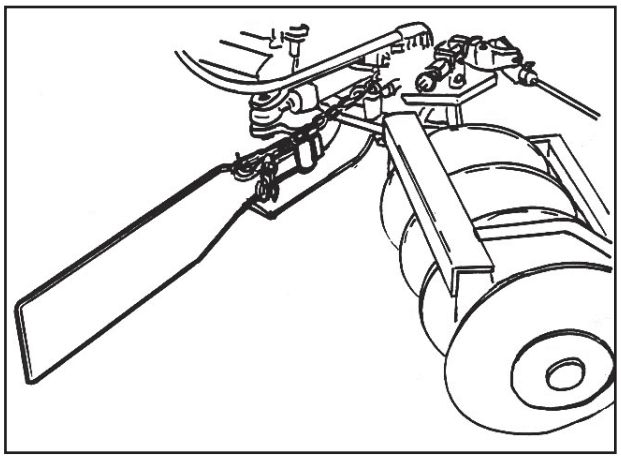
NOTE: As for the adjustments of the sensing device rod (*Fig. 27, pos. 10*), see section 6.8 and the following sections on pages 26 and 27.

Fig. 27

REF. NO.	DESCSRIPTION
1	Disc Holder
2	Plain Washer
3	Nut
4	U-bolt
5	Screw
6	Plow
7	Trunk Shield



10.3 TRUNK SHIELD (OPTIONAL)

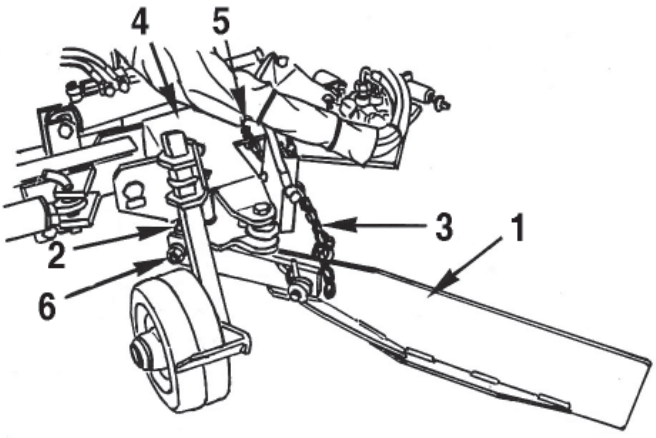


The Trunk Shield avoids the clods that have been turned by the Power Disc to be thrown into the row; moreover it levels the soil during ridging.

Weight - 28 lbs.

As for its installation and adjustment, refer to the diagram (*Fig. 28*).

Fig. 28



TRUNK SHIELD INSTALLATION

a) Insert the trunk shield hitch (*pos. 1*) into the wheel support rod (*pos. 2*).

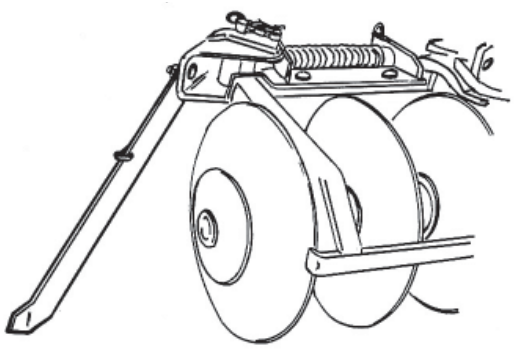
b) Connect the chain (*pos. 3*) to the support (*pos. 4*) through the hitch (*pos. 5*) and adjust its length according to the working conditions.

c) Tighten the bolt (*pos. 6*) to fix the trunk shield.

THE CHAIN SLACK SIDE SHALL BE KEPT BEYOND THE TRUNK SHIELD (*Fig. 28*)

DISCONNECT THE CHAIN (*pos. 3*) FROM (*pos. 5*) ONLY.
When the equipment is taken apart, the chain shall not remain connected to the power disc, but it shall be connected to the fixture and then removed from the disc.

10.4 TRUNK BASE SCRAPER (OPTIONAL)



The Trunk Base Scraper removes the clods that surround the trunk (*Fig. 29, pos. 3*) after the disc passes.

Weight - 20 lbs.

When the trunk base scraper (*Fig. 30, pos. 2*) is working, it is pushed downwards by the spring (*pos. 4*) and can swing through the slot (*pos. 1*) to compensate for the unevenness of the soil.

Fig. 29

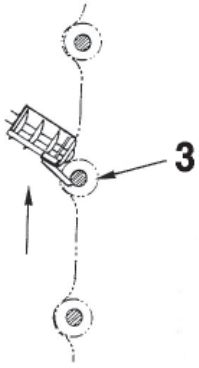
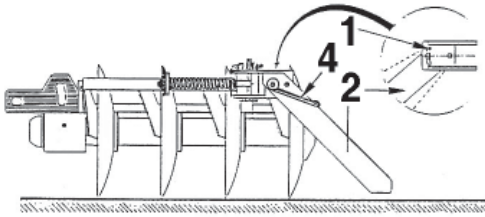
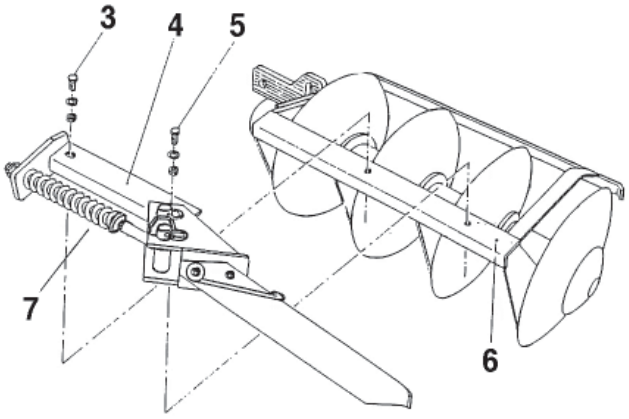


Fig. 30



TRUNK BASE SCRAPER INSTALLATION

Fig. 31



a) Remove the screws carried in stock (*pos. 3 & 5*) and place the trunk base scraper angle (*pos. 4*) on the soil scraper angle (*pos. 6*).

b) Insert the screws (*pos. 3 & 5*), tighten the nuts and start working, taking into account that the trunk base scraper edge must always hit the clods that lay at the base of the trunk that has to be disced (*see Fig. 29*).

c) A further adjustment of the sensitivity can be obtained by replacing the spring (*pos. 7*). If you need a more sensitive spring, e.g. in case of very young plants, contact your authorized dealer.

11 STORAGE

11.1 MACHINE DISABLEMENT

If the machine has to be idle for a long time, disconnect it from the tractor, oil, and protect the cylinder rods , all the machine guides and the sensing device.

Protect the whole machine, by storing out of the weather.

To start the machine after it has been stored for a long time, follow ALL the directions stated in the section 6.1 STARTING AND START-UP.

11.2 SPARE PARTS

THE COMPLETE RELIABILITY AND GUARANTEE OF THE MACHINE REQUIRES THE USE OF ORIGINAL SPARE PARTS ONLY.

Ordering instructions:

To order spare parts it is necessary to specify:

- ~ Model
- ~ Purchase year
- ~ Detail description
- ~ Requested quantity

NOTES

NOTES

12 LIMITED WARRANTY

GEARMORE INC.

GEARMORE, INC., warrants each new Gearmore product to be free from defects in material and workmanship for a period of twelve (12) months from date of purchase to the original purchaser. This warranty shall not apply to implements or parts that have been subject to misuse, negligence, accident, or that have been altered in any way.

Our obligation shall be limited to repairing or replacement of any part, provided that such part is returned within thirty (30) days from date of failure to Gearmore through the dealer from whom the purchase was made, transportation charges prepaid.

This warranty shall not be interpreted to render us liable for injury or damages of any kind or nature, direct, consequential or contingent, to person or property. This warranty does not extend to loss of crops, loss because of delay in harvesting or any other expenses, for any other reasons.

Gearmore in no way warranties engines, tires, or other trade accessories, since these items are warranted separately by these respective manufacturers.

Gearmore reserves the right to make improvements in design or changes in specification at any time, without incurring any obligations to owners or units previously sold.

GEARMORE, INC.
13477 Benson Ave.
Chino, CA 91710

Always refer to and heed machine operating warning decals on machine.

The serial number of this product is stored in our computer database, thus submitting a warranty registration card is not required.