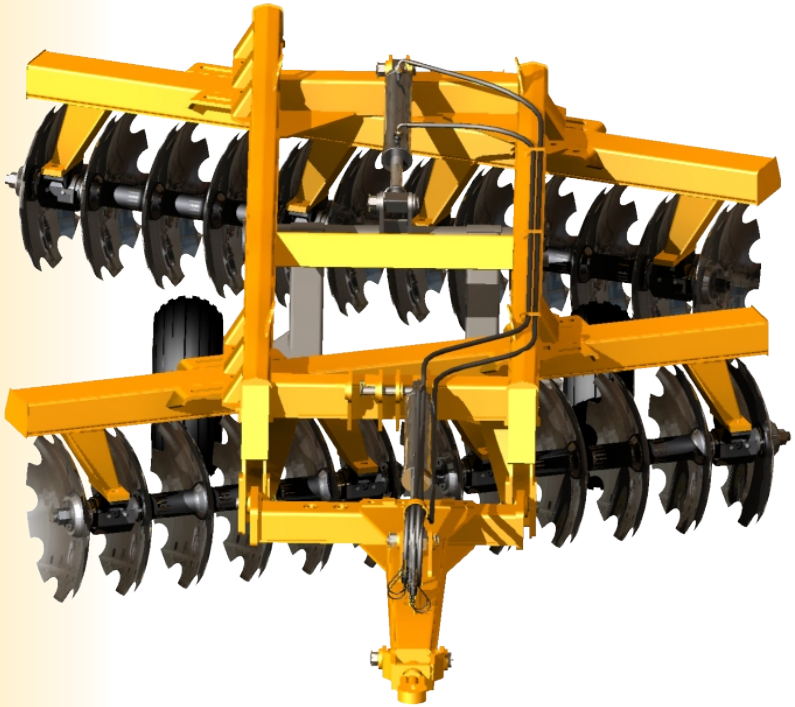
# INSTRUCTION MANUAL
# GILSI and GAISI

SANTA IZABEL
Agricultural Implements

## SANTA IZABEL LIGHT INTERMEDIATE HARROW
## SANTA IZABEL INTERMEDIATE DISC HARROW

October / 2010



# GILSI
# GAISI

## SANTA IZABEL LIGHT INTERMEDIATE HARROW
## SANTA IZABEL INTERMEDIATE DISC HARROW

## *TECHNICAL INFORMATION*

*NOTE: The weights were obtained with Ø20" x 7.5 mm discs*

| Code | Model | Ø Discs | Ø Disc Axles | Disc Spacing | Cut Width | Approximate Weight | Indicated Power CV Tires (WHEELS) |
|---|---|---|---|---|---|---|---|
| 10.75.1013 | GILSI 24 | 28" | 1.3/4" | 270 mm | 3200Mm | 2900Kg | 140 |
| 10.75.1015 | GILSI 26 | 28" | 1.3/4" | 270 mm | 3400Mm | 3050Kg | 170 |
| 10.75.1017 | GILSI 28 | 28" | 1.3/4" | 270 mm | 3700Mm | 3120Kg | 190 |
| 10.75.1019 | GILSI 30 | 28" | 1.3/4" | 270 mm | 3900Mm | 3350Kg | 200 |
| 10.67.2009 | GAISI 32 | 28" | 1.3/4" | 270 mm | 4200Mm | 4700 Kg | 220 |
| 10.67.2018 | GAISI 36 | 28" | 1.3/4" | 270 mm | 4700Mm | 4960Kg | 240 |
| 10.67.2016 | GAISI 40 | 28" | 1.3/4" | 270 mm | 5200Mm | 5390Kg | 270 |
| 10.67.2022 | GAISI 44 | 28" | 1.3/4" | 270 mm | 5700Mm | 6445Kg | 300 |
| 10.67.2025 | GAISI 48 | 28" | 1.3/4" | 270 mm | 6200Mm | 6630Kg | 320 |

"Pursuant to the continuous improvement program for the products of the company, the specifications contained herein may be changed without prior notice and without the commitment of altering pieces of equipment previously manufactured."

# GILSI AND GAISI

## SANTA IZABEL LIGHT INTERMEDIATE HARROW

## SANTA IZABEL INTERMEDIATE DISC HARROW

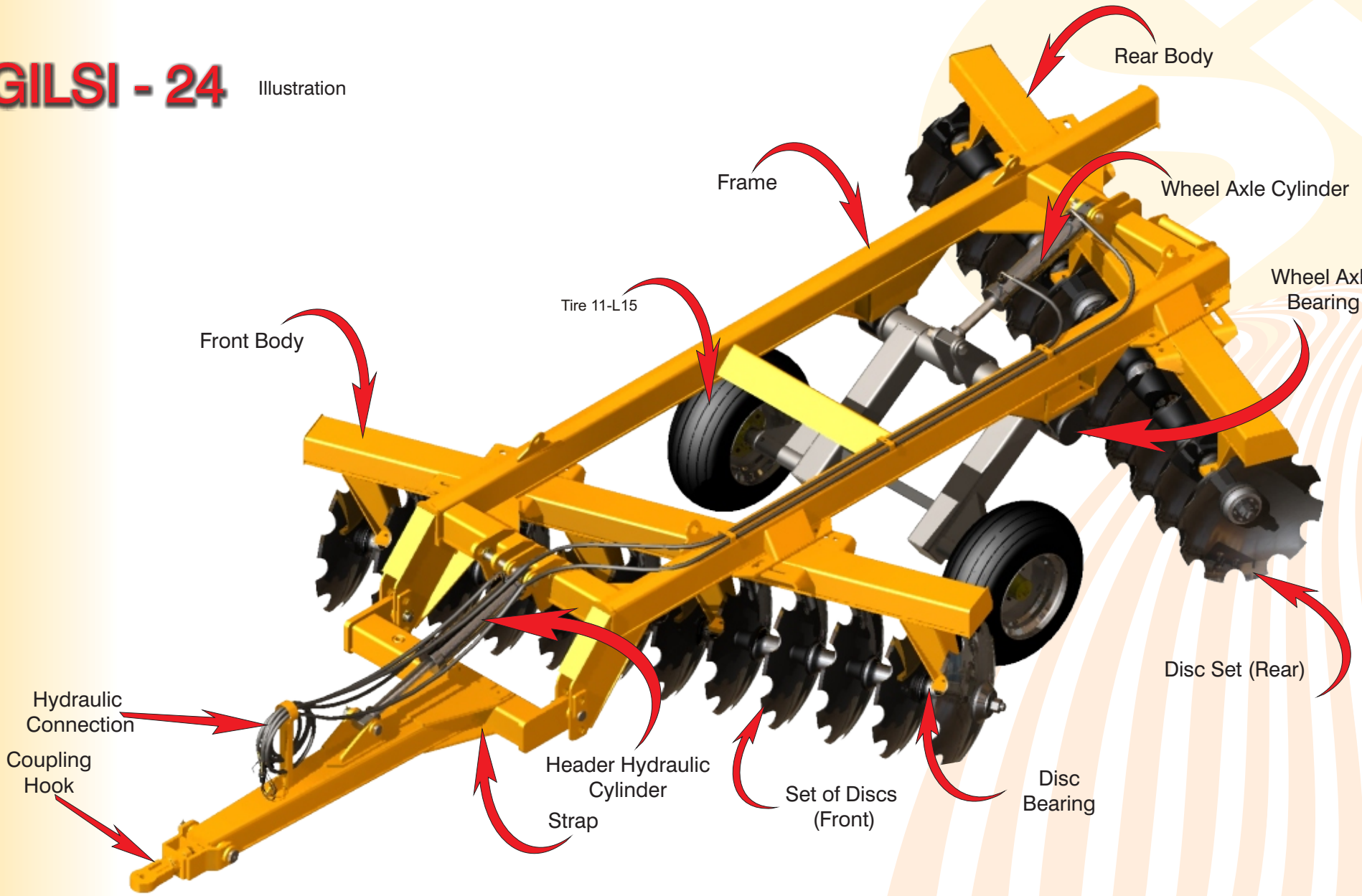
## To the owner

*- This manual should be handed to the operators and maintenance staff.*
*-Upon receiving it, it is important to check the conditions of the product.*
*-Request the completion of the warranty certificate.*
*- The information contained herein indicates the best use and allows the maximum performance of the implement, increasing its useful life.*

The manual contains several pieces of information related to the operation, adjustment, and maintenance.
The operators should carefully read it before putting the implement into operation.

# GILSI - 24

Illustration



# ASSEMBLY

*IMPORTANT:*

*- Read this manual carefully before operating the equipment;*

*- SANTA IZABEL implements are supplied partially disassembled. To assemble them, carefully follow the instructions contained in this manual;*

*- Assembly involves the use of a crane, tow truck or any other equipment that allows raising the parts of the implement or the implement itself safely;*

*- Before starting assembly, it is necessary to clean and lubricate the components.*

*NOTE: The right and left sides of the plough are in the same arrangement as the tractor, seen from behind.*

# SEQUENCE OF DISC SET ASSEMBLY

***-ATTENTION:*** *The use of gloves is recommended to assemble the disc sections.*

***-IMPORTANT:*** *Check the correct side of the bearings and disc spacers.*

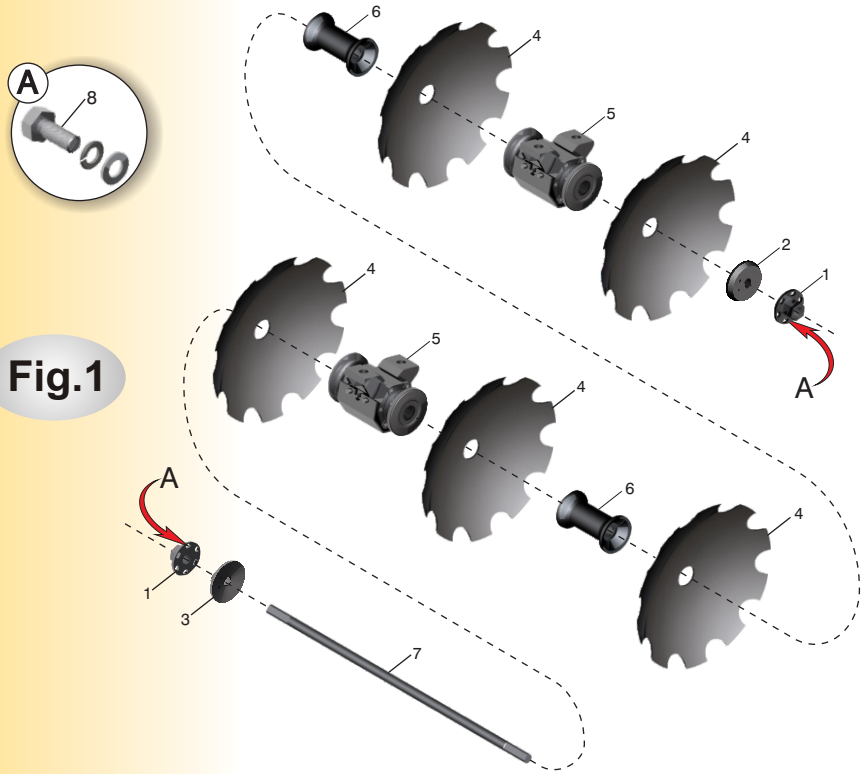



**Fig.1**

Hold the axle (7) and one of the ends, place the external abutment (3) and then screw the left nut (1) until facing the tip of the axle, leaving it to be tightened at the end of the assembly. The first disc is assembled (4), along with bearings, spacers, and other components as per sequence of figure 1.

Finally, set up the internal abutment (2) and the nut (1), tightening with the wrench (10) until the set is totally firm. This nut should be locked, thus the holes of the nut and the abutment must coincide. Use the screw (8) for locking.

Once this is done, with the wrench (10) and its handle standing on the ground, tighten with the wrench (11) from the external side of the disc (use a 10 kg mallet approximately and about 70 cm of wire) until reaching maximum torque, seeking to coincide the holes of the nut with the holes of the external abutment. This nut should be locked. Use the screw (8) to lock it. Figures 2 and 3.

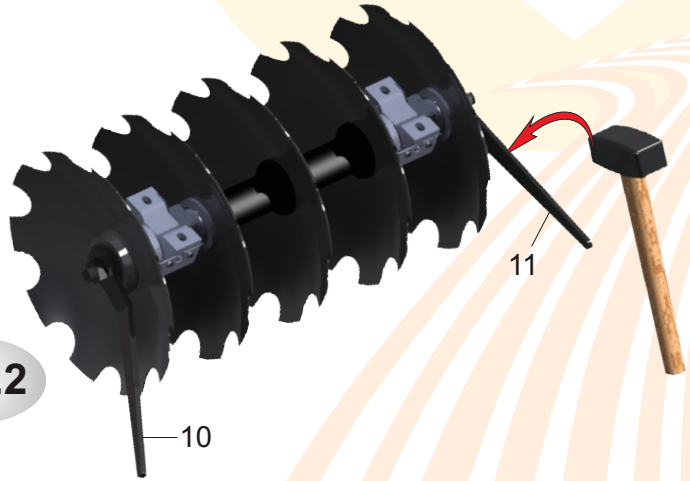



**Fig.2**

***NOTE:*** To prevent the disc set from moving, it is necessary to wedge it with pieces of wood or similar objects.

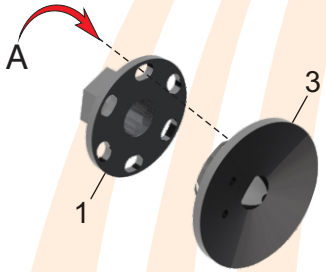



**Fig.3**

***OBS.:***
*For the locking, coincide 2 nut oblongs with two holes of the abutment, as per figure 3.*

***NOTE:*** For longer durability of the equipment, check if all axle components are adjusted.

## ASSEMBLY OF DISC SETS IN THE BODY

After fixing the disc sets in the body, observe the bearing stands in relation to the concavity of the discs (figure 4).

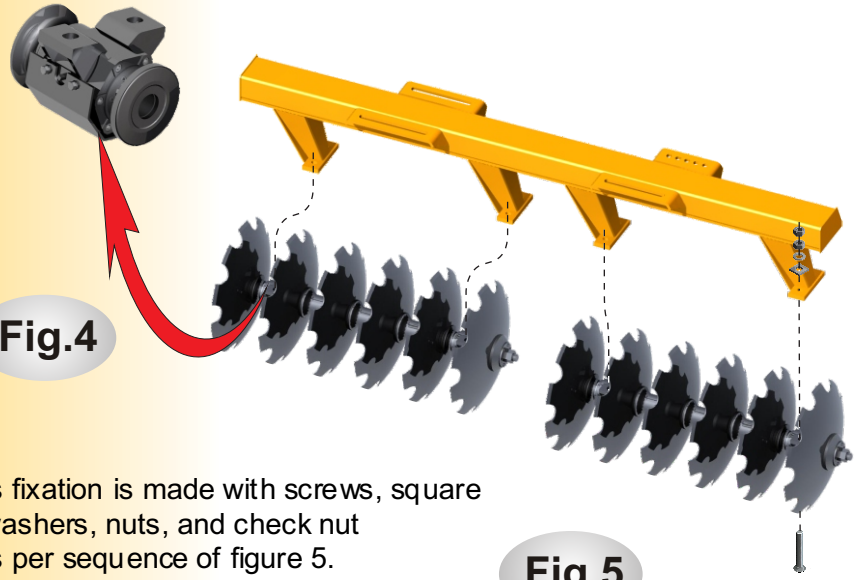


Fig.4

Its fixation is made with screws, square washers, nuts, and check nut as per sequence of figure 5.

Fig.5

## CLEANER ASSEMBLY

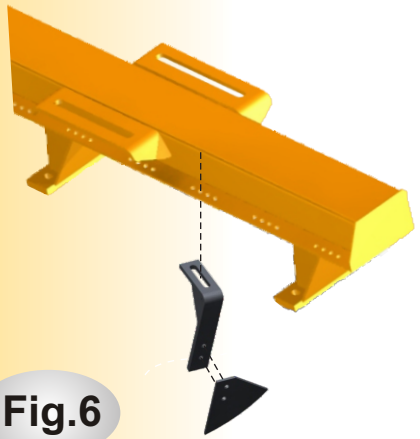


Fig.6

- There are front and rear cleaners.
- During assembly, make sure their rods are turned to the concave side of the discs.
- They are adjustable and allow proximity with the discs.
- French screws with nuts and washers allow their fixation (figure 6).

## HEADER ASSEMBLY

The traction bar is assembled in the frame supports (use coupling pins). Screws, nuts, and check nuts fixate the strap set in the traction bar. Assemble the cylinder on a flap of the frame and the other end in the strap using pins
and nuts, and couple the hoses as shown in figure 07.

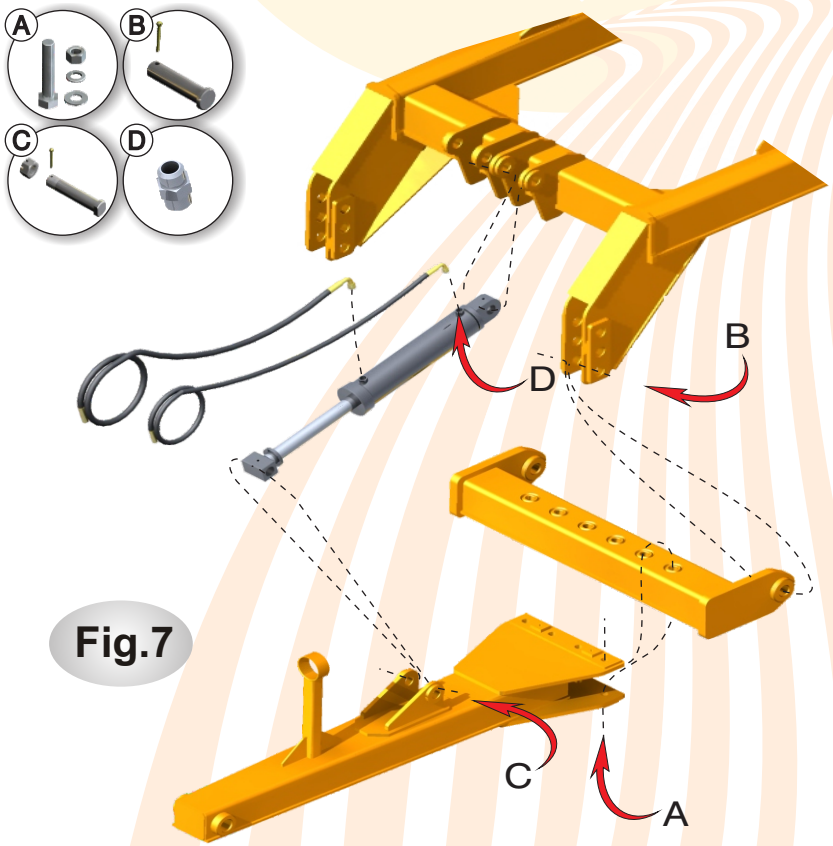



Fig.7

## HYDRAULIC SYSTEM ASSEMBLY

- Set up the hydraulic cylinder in the frame and in the wheel axle;
- Couple the hoses in the cylinder and fix them to the frame with -clamps and screws;
- Use the hose support fixed to the strap set to guide them to the -tractor, as per figure 8.

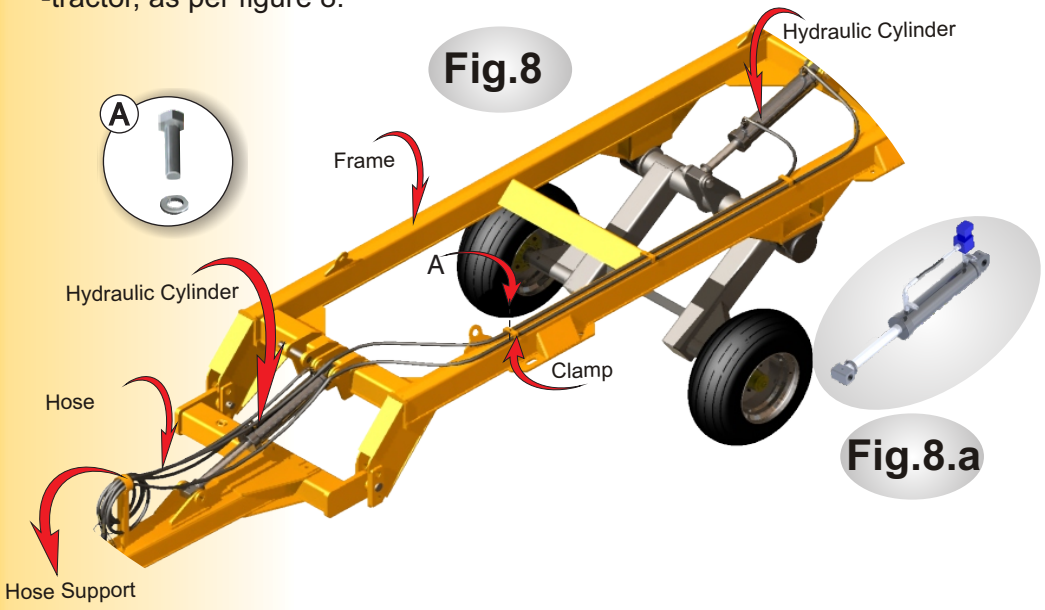



Fig.8

Fig.8.a

***OBS.:*** thread locker to couple the quick coupling rhose / cylinder.

## INSTRUCTIONS ON OPERATIONS AND REGULATIONS

For maximum performance when operating the equipment,we suggest you to carefully read the instructions below.

It should be highlighted that adding water ballast to the tires and set of weights in the front or rear wheels are the most used forms to increase soil traction and provide more stability to the tractor.

## TRACTOR COUPLING

To couple the implement to the tractor, bring it closer to the equipment header and couple the hoses to the quick couplings. This is done with the engine off: relieve command pressure by activating the control lever a few times.
Check if the couplings are clean.
(See figure 9).

To facilitate coupling the plough to the tractor, proceed as follows:

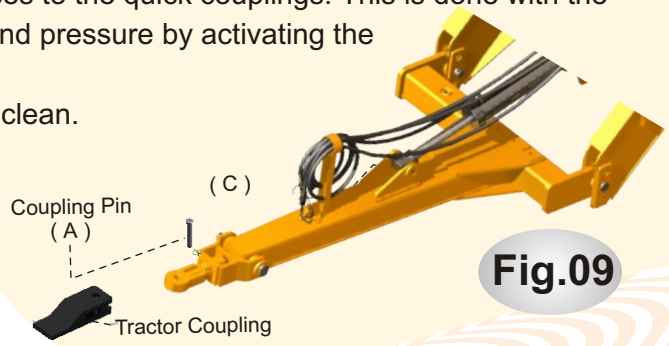



Fig.09

**1)** Activate the command by lowering the tires until you are able to place the pin (C) in the hole (A);
**2)** Activate the command to raise the tires until the header is as high as the tractor bar;
**3)** Place the Coupling Pin (A).

### ATTENTION

**1)** To transport the plough, keep the tractor's traction bar fixed to the center.
**2)** Never remove the hoses before lowering the plough and relieving command pressure.
**3)** The plough strap cylinder cannot operate while locked, therefore when the tractor does not have a self-fluctuating system, a self-fluctuating valve should be installed (Figure 8.a) so that the plough follows the irregularities of the soil.
**4)** Before working with the plough, check if the tractor's hydraulic system is equipped with the self-fluctuating kit.

## CUT DEPTH

Basically the cut depth is regulated as follows:

- By activating the hydraulic cylinder so that the tires act as depth regulators;
- And by the most recommended form, which is regulating the opening of the disc sections (cut angle lock).

This regulation is made by displacing the bodies though the fixation holes on the right side of the frame (figure 10).

Usually to work on lands more difficult for plough penetration, increase the opening angle between the sections; on light and soft soils, decrease the opening angle.

### NOTE:

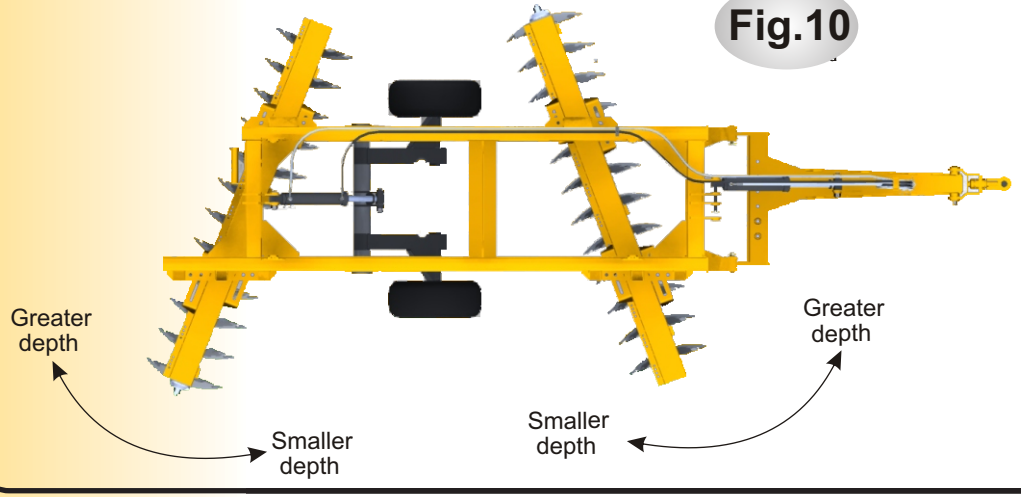
Depending on the texture, compacting degree and soil humidity, the lock required is determined in the beginning of the operation.

As a general rule, the front section does not work with opening higher than the rear section.

The front hydraulic cylinder was developed to provide quick and precise leveling facility to the equipment during transport. During operation, this system should be on the free flow position in order to permit articulation to the draw bar.

**ALERT :** Operation with the hydraulic leveling system on the fix position can cause serious damage to the disc sections and also effect the general frame structure of the equipment.

Fig.10




## ANGLING AND FIXATION OF WORK POSITIONS

Observe that the grated soil should always be on the left side of the operator (closed side of the plough).

Avoid forming bands without grating (windrows), always trying to attain a good finishing between steps

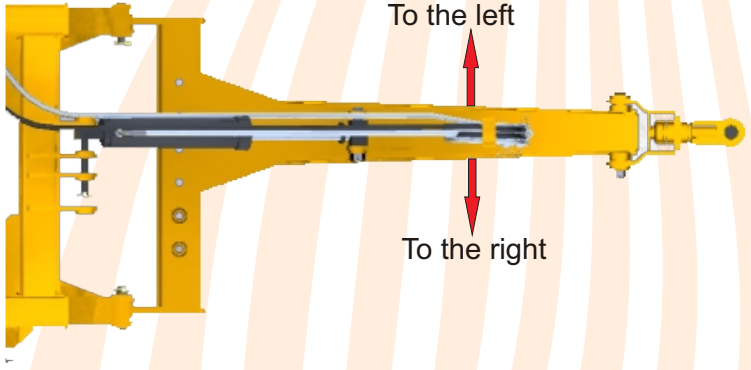
## SIDE DISPLACEMENT OF THE TRACTOR IN RELATION TO THE PRIOR STEP

Depending on the gouge of the tractor and the cut width of the plough, the side displacement of the tractor is used to better position the tractor in relation to the groove of the last step, avoiding leaving a track and giving a reference to the operator.

Whenever possible, the tractor should “move” on the soil not worked and close to the previous groove.

This is attained by displacing the header set by the plough traction bar.

**NOTE** With the side displacement, the stabilizing bar fixation is also changed, according to need.



- Do not make any inspection on the implement without first supporting
- the discs on the soil and shutting off the engine;
- The high pressure during leaks of the hydraulic circuit may cause body
- injuries. Use appropriate protection for this inspection;
- Wear protection groves to handle discs or their protection;
- Do not drive on highways or paved roads, especially at night.

For long distances, use intermittent signaling.

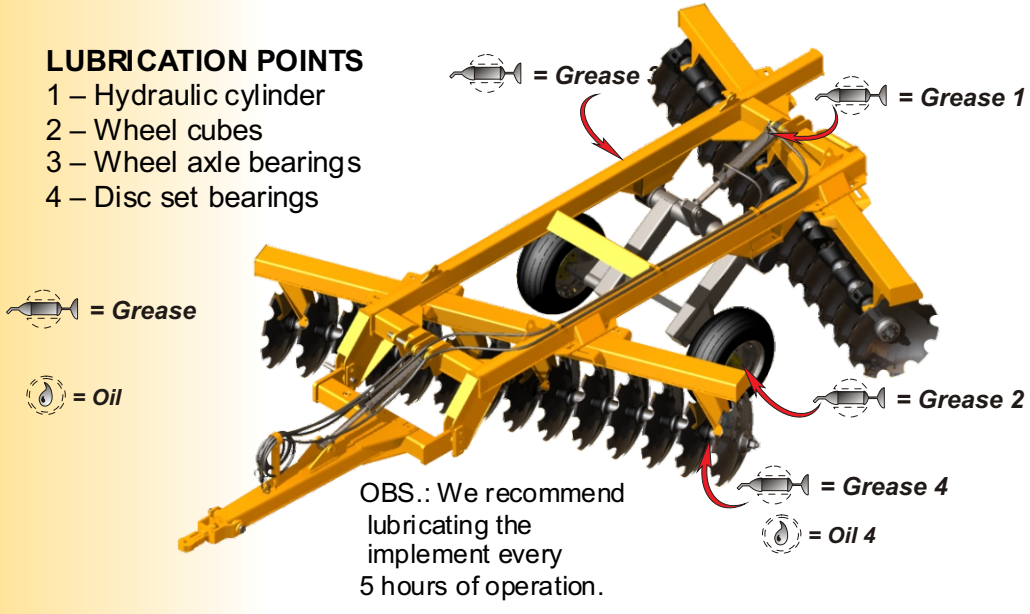
## MAINTENANCE

It is never too much to insist on the cares that should be taken with the implement:

- Retighten daily the nuts and screws of the implement;
- Perform daily lubrication;
- Keep the implement at a covered and humidity-clear place;
- Apply a thin layer of oil or used grease to the discs to prevent rust.

**LUBRICATION POINTS**

1 – Hydraulic cylinder
2 – Wheel cubes
3 – Wheel axle bearings
4 – Disc set bearings




OBS.: We recommend lubricating the implement every 5 hours of operation.

## SPECIAL CARES

### Retightening the disc set

It is necessary, in the first days working with the implement, to retighten its disc sets.

It is desirable, even after these initial cares, to make at least one daily observation To check if they remain tightened.

To retighten the disc sets, first slightly release the screws that connect their bearings to the body.

If the discs operate loosely, it is possible that, by friction, the facers of the spacers and bearings are worn out. In this case, the set should be taken out of the structure, retightened and the distance between the center of its bearings should be controlled, obeying the limits provided in figure 19.

If the distance is smaller than the one indicated, the compensating washers should be placed between the discs and the spacers, as indicated in detail A. Only then the set should be retightened, controlled and assembled back in its place.

**ATTENTION:**

*The lack of these cares will result in irreparable damages in the ball bearings and axles, not covered by the warranty.*

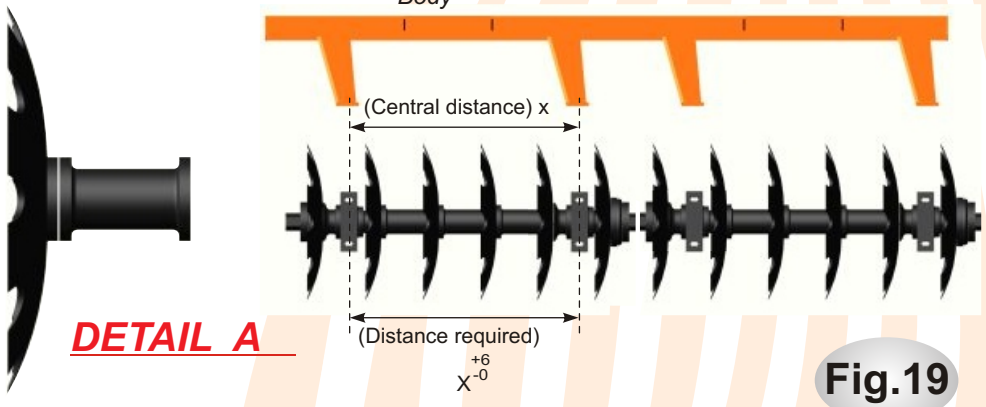



Fig.19

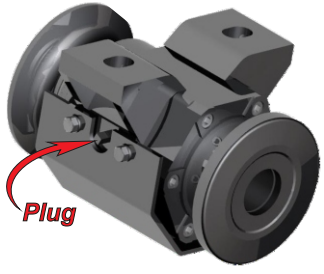
## IMPORTANT

- Check the oil level in the bearings and lubricate the grease points prior to starting using this implement.
- Repeat the inspection weekly.
- Observe if there are leaks daily.
- Change the oil every 1000 hours of operation.
- Use mineral oil SAE 90.
- Retighten the disc sets periodically, keeping in mind that for that the bearing fixating screws should be released.
- Lubricate the grease points periodically.

## PERMANENT LUBRICATION BEARINGS

- Before putting the plough to work for the first time, check the oil level
- of the bearings, removing the “gas level indicator”. The bearing will have a
- good oil level if it spills through the hole where the plug was screwed. If the
- level needs to be filled up use mineral oil SAE 90.
- A weekly inspection of the oil level is enough, but in the first days of
- operation, check for external indications of oil leak or check the oil level daily. If there are leaks, disassemble the bearing, replace its retainers and mostly the bearing axle if there is wear in the area where the retainer is located.
- Oil changes should be made every 1000 hours of actual operation with the plough, as follows:

a) Dry the plough bearings;
b) Drain the oil through the existing plug;
c) Fill up with mineral oil SAE 90*;
d) Check the oil level.




* The plug in the body of the bearing not only allows the introduction of oil, but also serve as a level for the lubricant, thus providing the ideal measure of the oil quantity the bearing should contain. The bearing will have a good oil level if it spills through the hole where the plug was screwed.

## LUBRICATION

The correct lubrication is indispensible for the efficient operation and maintenance of the equipment. The main function of the lubricant is to form a layer around the surface of the bearings, isolating them.

If there is no lubrication or if it is inappropriate or defective, the insulating layer ceases to exist and the components of the bearings start to friction between themselves, drastically shortening the life of the bearing.

The appropriate lubricant also lubricates the retaining rings, avoiding internal corrosion of the bearing and dissipating the heat generated by the bearings and retainers. The oil is a great lubricant for ball bearings.

The bearing should not be completely filled with oil, as the sun heat and the heat generated by the movable components of the bearing would cause the lubricant to expand, damaging the retainers or even the bearing case due to the pressure.

When the equipment is inoperative for a long period (for example, during planting and harvesting), the bearings should spin a few times so that the lubricant involves all their components, especially their upper parts, which may oxidize due to the long inactive period with the action of air above the oil level. We suggest that the disc bearings and the wheel cubes be moved (turned) at lest twice a month. To facilitate this operation, the ploughs should stand on wedges, which should be placed on the bodies of the bearings high enough to prevent the contact of the discs with the ground.

## OPERATIONAL DATA AND SAFETY

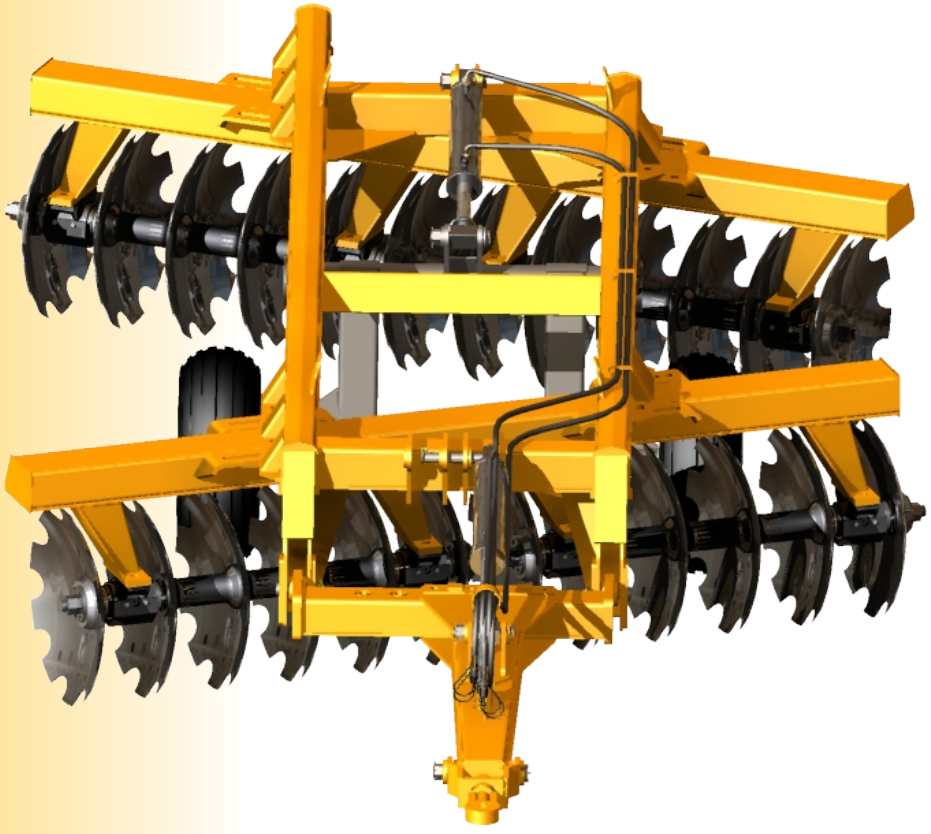
- Choose the appropriate gear that allows the tractor to keep a certain power reserve, in case unforeseen efforts are required;
- The average operating speed is determined by field conditions and may vary from 5.0 to 7.0 km/h. A higher speed may compromise the efficiency of the service and damage the implement;
- Raise the disc sections while making maneuvers in the headers, gradually activating the hydraulic cylinder;
- During operation (discs on the ground), maneuvers to the right overload the traction components, since the angle formed by the disc sections transfers an excessive effort to the implement. AVOID THIS.
- Remove any object (wood, wire) that may trap the discs;
- By making any inspection in the hydraulic cylinder, hoses, quick coupling, relieve the command pressure.
- When the plough is in transport (axles articulated downwards), do not exceed the maximum speed of 20 km/h.

## SAFETY: Some cares to avoid accidents:

- Only qualified people with knowledge on the tractor and the implement should operate them;
- Before starting the work, analyze the area to be worked on, marking dangerous spots;
- Do not let anyone other than the tractor operator stand in the tractor or the implement during transport or work;

# SANTA IZABEL INTERMEDIATE HARROW
# SANTA IZABEL LIGHT INTERMEDIATE DISC HARROW

## GILSI - 24 Illustration



## NOTES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