

Instruction Manual



HI 10-32

Mounted Disc Harrow

 **BALDAN**

■ Presentation

We thank you for your preference and congratulate you on the excellent choice you have just made, as you have purchased a product manufactured with **BALDAN IMPLEMENTOS AGRÍCOLAS S/A technology.**

This manual will guide you through the necessary procedures from its acquisition to the operational procedures for use, safety and maintenance.

BALDAN guarantees that it has delivered this implement to the dealer in its entirety and in perfect condition.

The dealer undertook the responsibility for its safekeeping and conservation during the period it was in their possession, and also for the assembly, retightening, lubrication, and general overhaul.

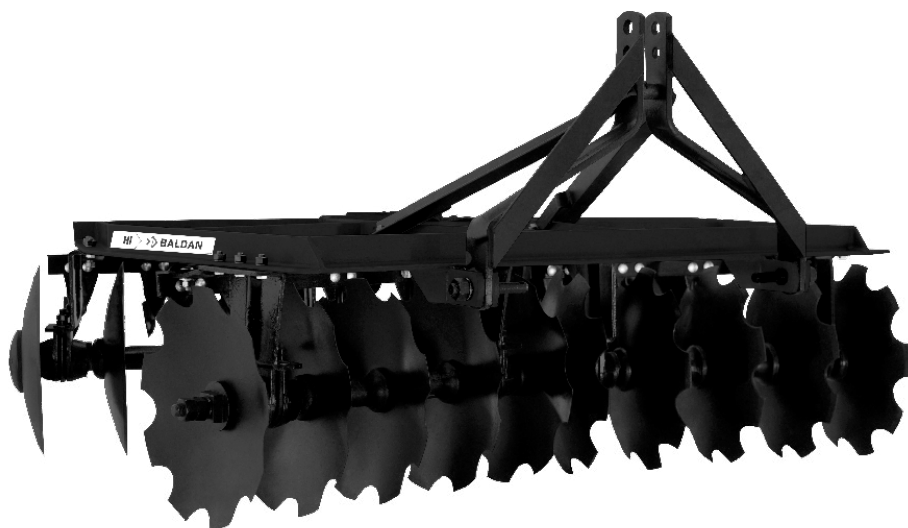
During technical delivery, the dealer must advise the user customer on maintenance, safety, their obligations in the event of technical assistance, strict observance of the technical assistance, strict observance of the warranty and reading of the instruction manual.

Any request for technical assistance under warranty should be made to the dealer from whom it was purchased.

We reiterate the necessity of carefully reading the warranty certificate and the observance of all items in this manual, because by doing so you will be increasing the lifespan of your implemen.



Instruction Manual



HI 10-32 Mounted Disc Harrow

BALDAN IMPLEMENTOS AGRÍCOLAS S/A.
CNPJ[Corporate Taxpayer Number]: 52.311.347/0009-06
Insc. Est.: 441.016.953.110



Scan the QR Code on the nameplate of your equipment and access this Instruction Manual online.

 **BALDAN**

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▪ **Baldan Warranty**

BALDAN IMPLEMENTOS AGRÍCOLAS S/A, guarantees the normal operation of the implement to the reseller for a period of 6 (six) months from the date of delivery on the resale invoice to the first end consumer.

During this period **BALDAN** undertakes to repair defects in material and or workmanship of its responsibility, with labor, freight and other expenses being the responsibility of the dealer.

During the warranty period, the request and replacement of any defective parts should be made to the dealer in the region, who will send the defective part for analysis at **BALDAN**.

When such a procedure is not possible and the dealer's capacity for resolution has been exhausted, the dealer will request support from **BALDAN's** Technical Assistance, through a specific form distributed to the dealers.

After **BALDAN's** Technical Assistance has analyzed the replaced items and concluded that they are not under warranty, then the dealer will be responsible for the costs related to the replacement, as well as the costs of material, travel including lodging and meals, accessories, lubricants used, and other expenses arising from the call to Technical Assistance, and **BALDAN** is authorized to make the respective billing on behalf of the dealer.

Any repairs made to the product that is within the warranty period by the dealer will only be authorized by **BALDAN** upon prior presentation of a budget describing the parts and labor to be executed.

It is excluded from this term the product that undergoes repairs or modifications in officials that do not belong to the **BALDAN** dealer network, as well as the application of non-genuine parts or components to the user's product.

This warranty will become void when it is found that the defect or damage is the result of improper use of the product, failure to follow instructions, or inexperience of the operator.

It is agreed that this warranty does not cover tires, polyethylene tanks, cardans, hydraulic components, etc., which are equipment guaranteed by their manufacturers.

The manufacturing and or material defects, object of this warranty term, will not constitute, under any hypothesis, reason for rescission of the purchase and sale contract, or for indemnity of any nature.

BALDAN reserves the right to alter and/or improve the technical characteristics of its products, without prior notice, and without obligation to do so with products previously manufactured.

▪ General Information

• To the owner

BALDAN IMPLEMENTOS AGRÍCOLAS S/A, is not responsible for any damage caused by accident resulting from the use, transport or improper or incorrect storage of your implement, either by negligence and/or inexperience of any person.

Only people who have full knowledge of the tractor and the implement should transport and operate them.

BALDAN is not responsible for any damage caused in unforeseeable situations or outside the normal use of the implement.

Improper handling of this equipment can result in serious or fatal accidents. Before putting the equipment into operation, carefully read the instructions contained in this manual. Make sure that the person responsible for the operation is instructed in the correct and safe handling. Also make sure that the operator has read and understood the product's instruction manual.

ATTENTION

NR-31 - SAFETY AND HEALTH AT WORK IN AGRICULTURE, LIVESTOCK FARMING, FORESTRY AND AQUACULTURE.

This Regulating Norm has the objective of establishing the precepts to be observed in the organization and in the work environment, in a way that is compatible with the planning and development of the activities of agriculture, livestock, forestry, forest exploration, and aquaculture with the safety and health and environment of the work.

MR. OWNER OR OPERATOR OF THE EQUIPMENT.

Read and comply carefully with the contents of NR-31.

For more information, visit the website and read NR-31 in full.
<http://portal.mte.gov.br/legislacao/normas-regulamentadoras-1.htm>

▪ Safety standards

- To the operator



THIS SYMBOL INDICATES AN IMPORTANT SAFETY WARNING. IN THIS MANUAL, WHENEVER YOU FIND IT, PLEASE READ THE FOLLOWING MESSAGE CAREFULLY AND BE AWARE OF THE POSSIBILITY OF PERSONAL ACCIDENTS.



ATTENTION



Read the instruction manual carefully to learn the recommended safety practices.



ATTENTION



Only start operating the tractor when you are properly seated and with your seat belt fastened.



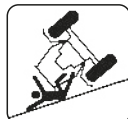
ATTENTION



Do not transport people on the tractor in or on the equipment.



ATTENTION



There is a risk of serious injury from tipping over when working on sloping ground.
Do not use excessive speed.



ATTENTION



Do not work with the tractor if the front is without enough ballast for the rear equipment. If there is a tendency for lifting, add weights or ballasts to the front or front wheels.



ATTENTION



Before doing any maintenance on your equipment, make sure it is properly stopped. Avoid being run over.

▪ Safety standards

! ATTENTION FOLLOW ALL THE RECOMMENDATIONS, WARNINGS AND SAFE PRACTICES RECOMMENDED IN THIS MANUAL, UNDERSTAND THE IMPORTANCE OF YOUR SAFETY. ACCIDENTS CAN LEAD TO DISABILITY OR EVEN DEATH. REMEMBER, ACCIDENTS CAN BE AVOIDED!

! ATTENTION



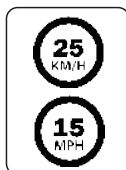
Do not make adjustments while the HI is running. When carrying out any work on the HI, switch off the tractor first. Use appropriate tools.

! ATTENTION



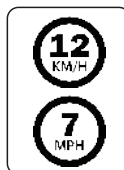
Always keep access and work areas clean of residue such as oil or grease, as this can cause accidents.

! ATTENTION



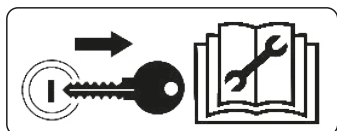
When transporting the HI, do not exceed a speed of 25 Km/h or 15 MPH, to avoid the risk of damage and accidents.

! ATTENTION



When working with the HI, do not exceed a speed of 12 Km/h or 7 MPH, to avoid the risk of damage and accidents.

! ATTENTION



Remove the ignition key before carrying out any maintenance on the HI. Protect yourself from possible injury or death caused by an unexpected HI departure. If the HI is not properly engaged, do not start the tractor.

! ATTENTION



Always keep away from the HI's active elements (discs), as they are sharp and can cause accidents.

When carrying out any work on the discs, wear safety gloves on your hands.

▪ Safety standards



ATTENTION



Before starting work or transporting the HI, check that there are no people or obstructions near it.



ATTENTION



Disposing of waste improperly affects the environment and ecology, as it pollutes rivers, canals and the soil.

Find out the correct way to recycle or dispose of waste.

PROTECT THE ENVIRONMENT!

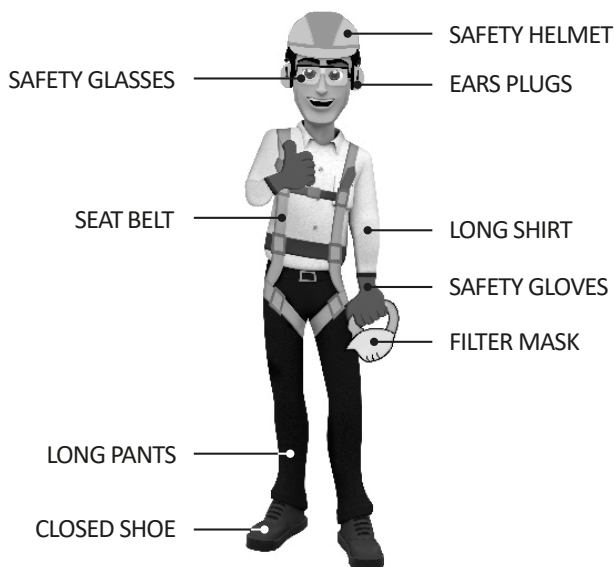
▪ Safety standards

• EPP equipment



ATTENTION | DO NOT WORK WITH HI WITHOUT FIRST PUTTING ON THE PPEs (SAFETY EQUIPMENT). IGNORING THIS WARNING COULD CAUSE DAMAGE TO YOUR HEALTH, SERIOUS ACCIDENTS OR DEATH..

When carrying out certain procedures with **HI**, wear the following PPE (Safety Equipment):



! IMPORTANT


















Safety practices must be carried out at all stages of working with the HI, thus avoiding accidents such as the impact of objects, falls, noise, cuts and ergonomics, i.e. the person responsible for operating the HI is subject to internal and external damage to their body.















NOTE | All PPE (safety equipment) must have a certificate of authenticity.



▪ Warnings

-  When operating the HI, do not allow people to stand too close to it or on it.
-  When carrying out any maintenance service, use PPE equipment.
-  Don't wear clothes that are too loose, as they may get tangled in the HI.
-  When starting the tractor engine, be properly seated in the operator's seat and aware of the full knowledge of the correct and safe handling of both the tractor and the HI. Always put the gearshift lever in the neutral position, turn off the PTO control gear, and put the hydraulic controls in the neutral position.
-  Do not run the tractor engine in an enclosed space without proper ventilation, as the exhaust fumes are harmful to your health.
-  When maneuvering the tractor for the HI hitch, make sure you have the necessary space and that no one is too close, always maneuver in low gear and be prepared to brake in an emergency.
-  Do not make adjustments while the HI is running.
-  When working on sloped terrain, proceed with caution and always try to maintain the necessary stability. If you start to feel unbalanced, reduce acceleration, turn the wheels to the side of the slope and never lift the HI.
-  Always drive the tractor at speeds compatible with the safety, especially when working on uneven terrain or on slopes, always keep the tractor in gear.
-  When driving the tractor on roads, keep the brake pedals connected.
-  Do not operate the tractor with a light rear end. If the rear end has a tendency to lift, add more weight to the rear wheels.
-  When leaving the tractor, put the gearshift lever in neutral and apply the parking brake. Never leave the HI hooked up to the tractor in the raised position of the hydraulic system.
-  Any maintenance on the HI must be carried out with the HI stopped and the tractor switched off.
-  Do not drive on highways, especially at night. Use warning signs for the entire route.
-  If you need to take the HI on the road, check with the traffic authorities.
-  Do not allow people who have not been trained to use the HI, i.e. who do not know how to operate it correctly.
-  Do not transport or work with HI near obstacles, rivers or streams.

▪ Warnings

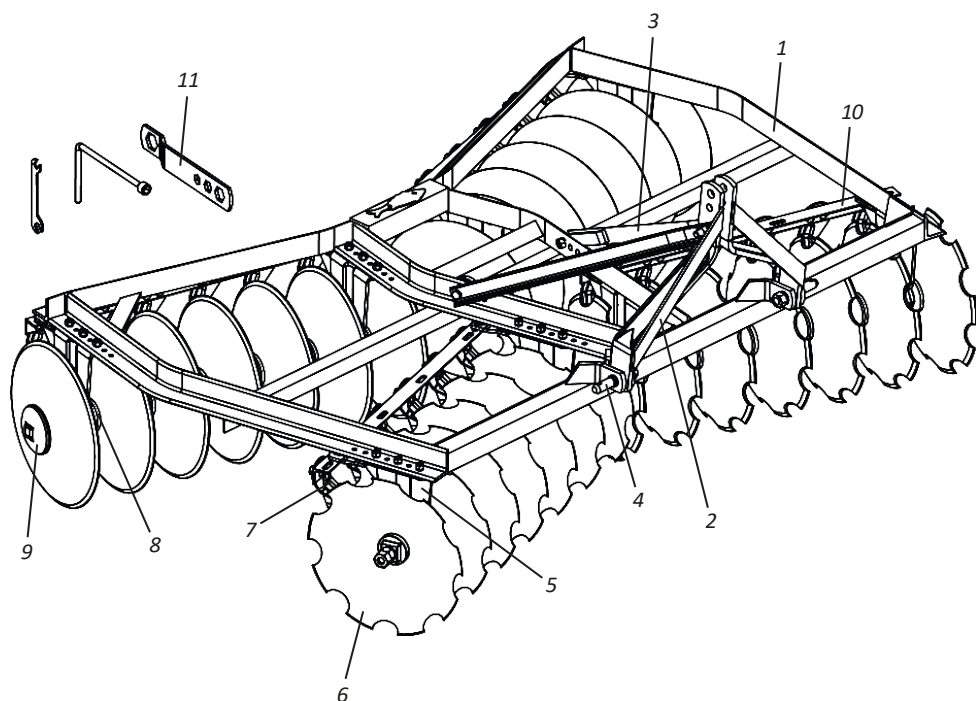
-  It is forbidden to transport people in self-propelled machines and implements.
-  Alterations to the original characteristics of the HI are not authorized, as they may alter safety, operation and affect service life.
-  Read all the safety information in this manual and on HI carefully.
-  Read or explain all the procedures in this manual to an operator who cannot read.
-  Always check that the HI is in perfect working order. In the event of any irregularity that could interfere with the operation of the HI, have it serviced before any work or transportation is carried out.
-  Maintenance and especially inspection in HI risk zones should only be carried out by a trained or qualified worker, observing all safety guidelines. Before starting maintenance, disconnect all drive systems from the HI.
-  Periodically check all the components of the HI before using it.
-  Depending on the equipment used and the working conditions in the field or maintenance areas, precautions are necessary. Baldan has no direct control over precautions, so it is the owner's responsibility to put safety procedures into practice while working with HI.
-  Check the minimum tractor power recommended for each HI model. Only use a tractor with power and ballast compatible with the load and topography of the terrain.
-  When transporting the HI, travel at speeds compatible with the terrain and never exceeding 16km/h. This reduces maintenance and consequently increases the HI's lifespan.
-  Alcoholic beverages or some medications can cause a loss of reflexes and alter the operator's physical condition. Therefore, never operate this HI under the use of these substances.
-  Read or explain all the procedures in this manual to the user who cannot read.

In case of doubts, consult After Sales.
Phone: 0800-152577 / E-mail: posvenda@baldan.com.br

▪ Components

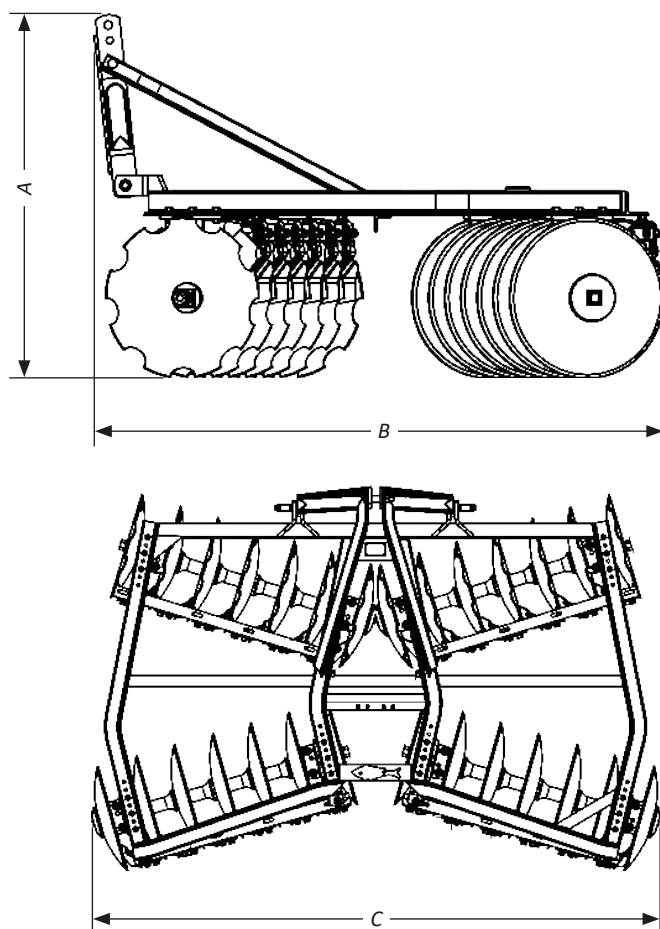
• HI - Mounted Disc Harrow

1. Frame
2. 3rd point hitching plate
3. 3rd point adjustment arm
4. 3rd point hitching pin
5. Shoe
6. Disc
7. Cleaner
8. Bearing
9. Axis
10. Wiper bracket
11. Keys



■ Dimensions

• HI - Mounted Disc Harrow



Model	Nr of Discs	Measure A (mm)	Measure B (mm)	Measure C (mm)
HI	10	976	755	1861
HI	16	1020	1469	1606
HI	20	-	-	-
HI	24	-	-	-
HI	28	1144	1802	2671
HI	32	1202	1928	3028

▪ Specifications

• HI - Mounted Disc Harrow

Model	Nr of Discs	Working width (mm)	Disc diameter (ø)	Approximate weight (Kg)				Tractor power (HP)
				16"	18"	20"	22"	
HI	10	1800	16" - 18" - 20" - 22"	284	195	207	232	25 à 35
	16	1505	16" - 18" - 20" - 22"	294	316	331	417	35 à 40
	20	1875	16" - 18" - 20" - 22"	328	344	388	447	44 à 48
	24	2245	16" - 18" - 20" - 22"	407	457	476	498	51 à 61
	28	2615	16" - 18" - 20" - 22"	-	483	554	629	61 à 75
	32	2985	16" - 18" - 20" - 22"	599	603	674	737	75 à 85

Shaft diameter (ø) 1"
 Disc spacing 185 mm
 Working depth 50 - 150 mm

Baldan reserves the right to change and/or improve the technical characteristics of its products without notice, and without obligation to do so with products previously manufactured.
The technical specifications are approximate and are provided under normal working conditions.

INTENDED USE OF HI

- The **HI** was developed for small areas where maneuvering is difficult and the slope is steep.
- The **HI** must only be driven and operated by a properly trained operator.

UNAUTHORIZED USE OF HI

- To avoid damage, serious accidents or death, do not transport people on any part of the **HI**.
- The **HI** may not be used to attach, tow or push other implements or accessories.
- The **HI** must not be used by an inexperienced operator who does not know all the driving, control and operating techniques.

▪ Assembly

The **HI** leaves the factory disassembled. To assemble it, follow the instructions below:

⚠ The **HI** must be assembled by the retailer, using people who are trained, qualified and qualified for the job.

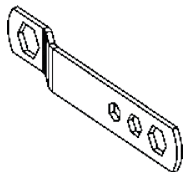
⚠ Before starting to assemble the **HI**, look for an ideal location where it is easy to identify the parts and assemble it.

⚠ Don't wear baggy clothes, as they could get tangled in the **HI**.

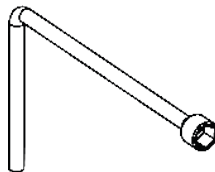
⚠ Use PPEs (safety equipment).

• Set of keys

When assembling, disassembling or servicing the **HI**, use the set of keys supplied with the harrow. The wrench set consists of:



**HEXAGON NUT WRENCH FROM
1.1/4" - 1" - 3/4" - 5/8"**



**L" WRENCH FOR 1/2"
HEX NUT**



**HEXAGON NUT WRENCH 3/8"
AND 1/2"**



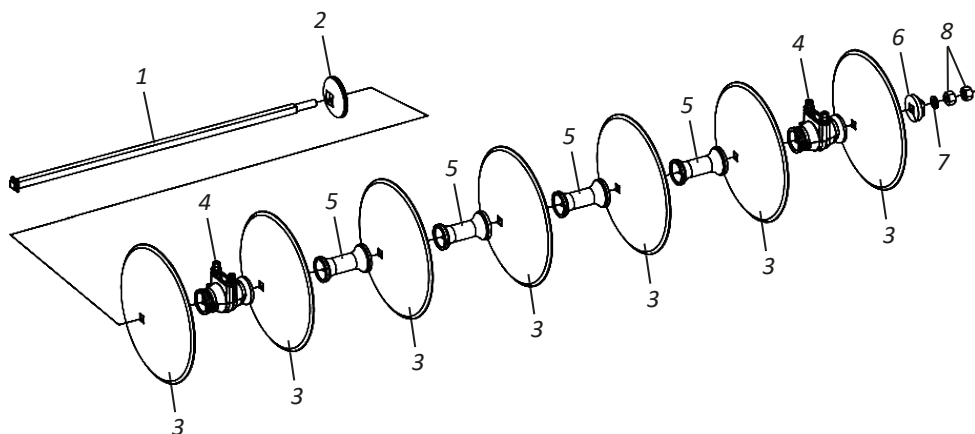
ATTENTION | If any key is lost or broken, get another one immediately. Always use original Baldan keys.

▪ Assembly

• Assembling the disc section

When starting the assembly of the HI, always start with the set of discs for this, proceed as follows:

- 01** - Place the concave thrust washer (2) on the shaft (1).
- 02** - Then place the disc (3), bearing (4), another disc (3), separator spool (5) on the shaft (1) and so on.
- 03** - When the assembly is complete with all the discs, bearings, separator spools, place the shaft end thrust washer (6), flat washer (7), lock (13), nut and lock nut (8), tightening with the wrench until the whole assembly is secure.
- 04** - Once this is done, put on the disc assembly and tighten the nut (8) by means of impacts.



ATTENTION

During the first week of using the HI, retighten all the bolts and nuts on the disc sections daily, then retighten them periodically.

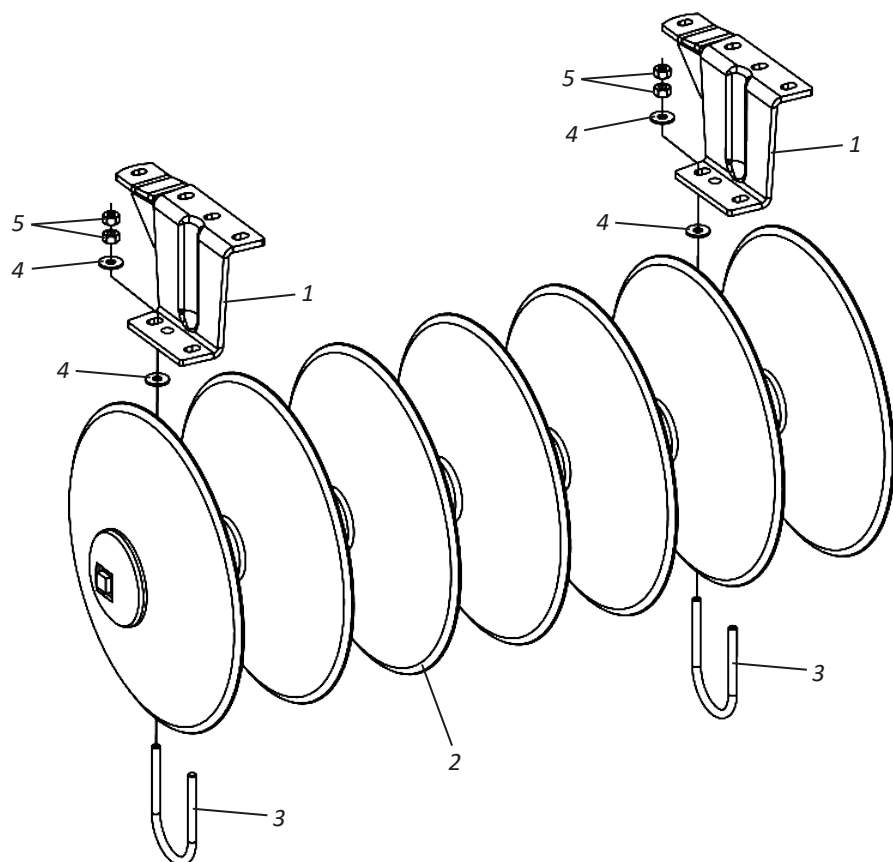
IMPORTANT

Check the right side of the separator spools and bearings, according to the concavity of the discs.

▪ Assembly

• Mounting the pads on the disc sections

To attach the pads to the disc sections, proceed as follows:



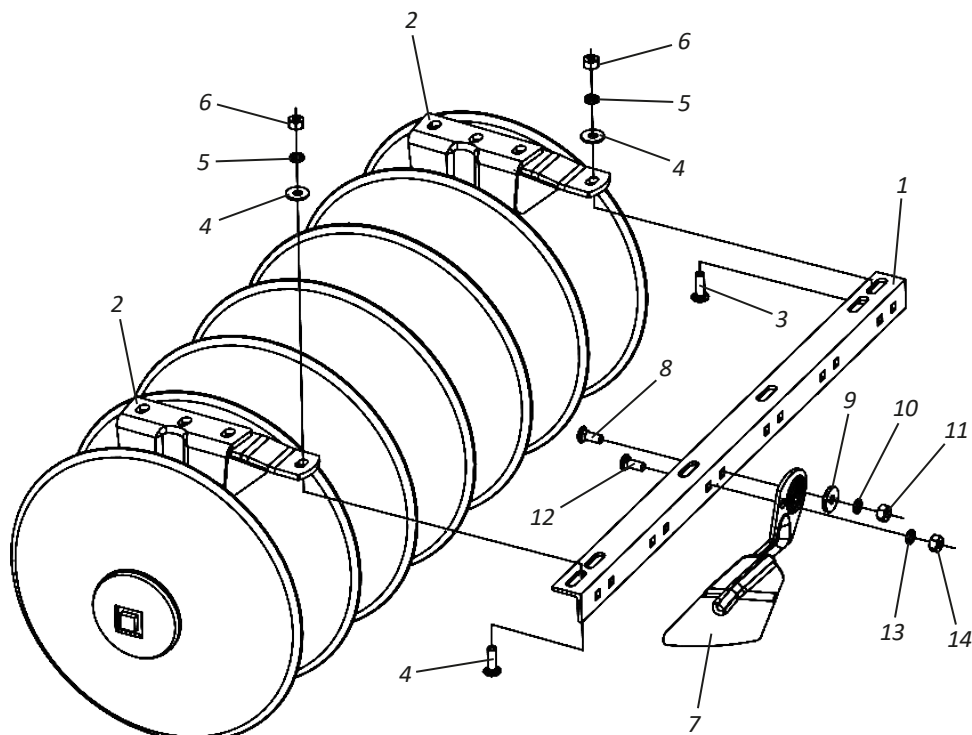
ATTENTION When mounting the pads on the disc sections, note that the pads must face the concavity of the discs.

▪ Assembly

• Mounting the wipers on the disc sections

To attach the wipers to the disc sections, proceed as follows:

- 01** - Attach the bar (1) to the pads (2) using screws (3), flat washers (4), lock washers (5) and nuts (6).
- 02** - Then attach the wipers (7) to the bar (1) using the screws (8), special washers (9), lock washers (10) and nuts (11) and the screws (12), lock washers (13) and nuts (14).



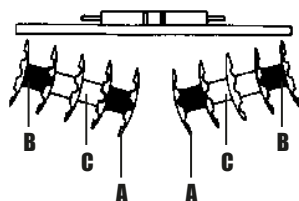
ATTENTION

Repeat the assembly of the bar (1) and wipers (7) on all the disc sections of the HI.

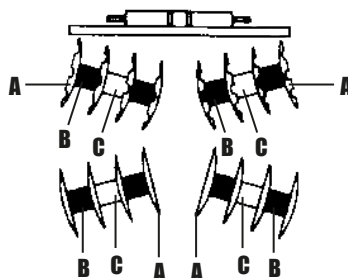
■ Assembly

• Assembling the disc sections - Part I

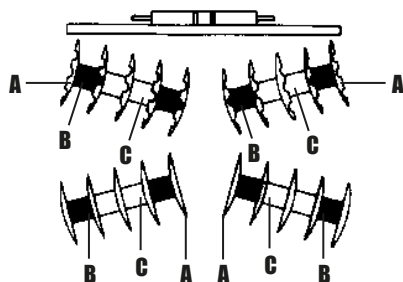
Check out the assemblies of the **HI 10**, **16** and **20** disc sections below.



HI 10 DISCS

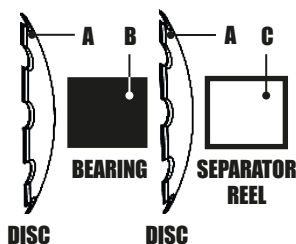


HI 16 DISCS



HI 20 DISCS

LEGEND:



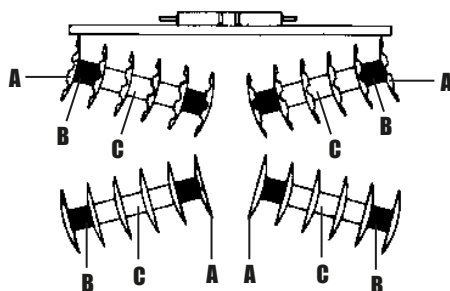
ATTENTION

When assembling the disc sections, note that the discs in the front section must be opposite the discs in the rear section.

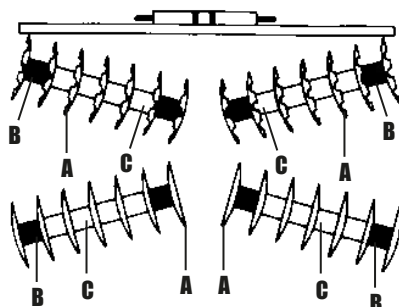
▪ Assembly

• Assembling the disc sections - Part II

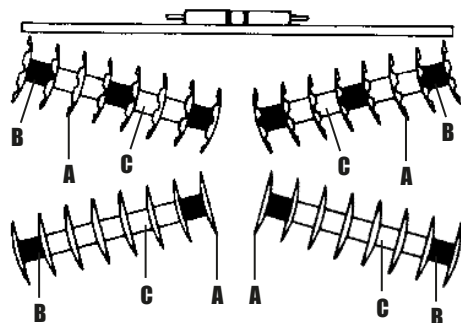
Check out the assemblies of the HI 24, 28 and 32 disc sections below.



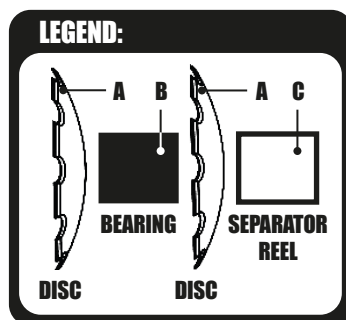
HI 24 DISCS



HI 28 DISCS



HI 32 DISCS



! ATTENTION

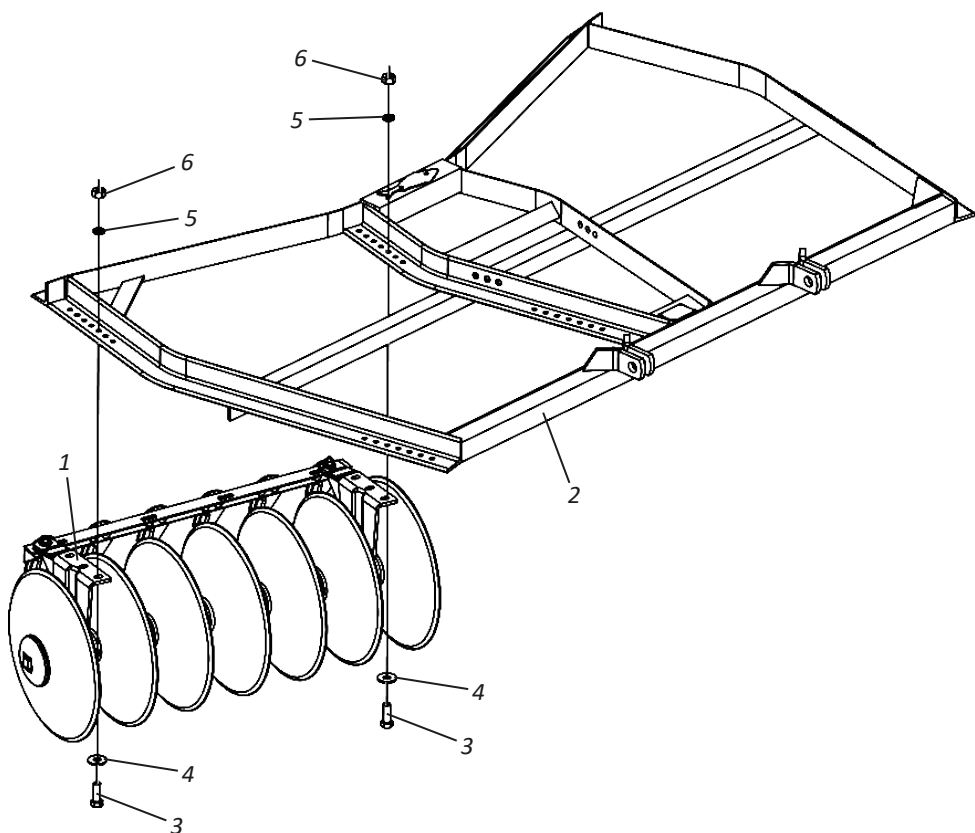
When assembling the disc sections, note that the discs in the front section must be opposite the discs in the rear section.

■ Assembly

• Mounting the disc sections on the frame (16", 18" and 20" discs)

To attach the pads mounted with 16", 18" and 20" discs to the frame, proceed as follows:

- 01** - Attach the pads (1) to the frame (2) using the screws (3), flat washers (4), lock washers (5) and nuts (6).

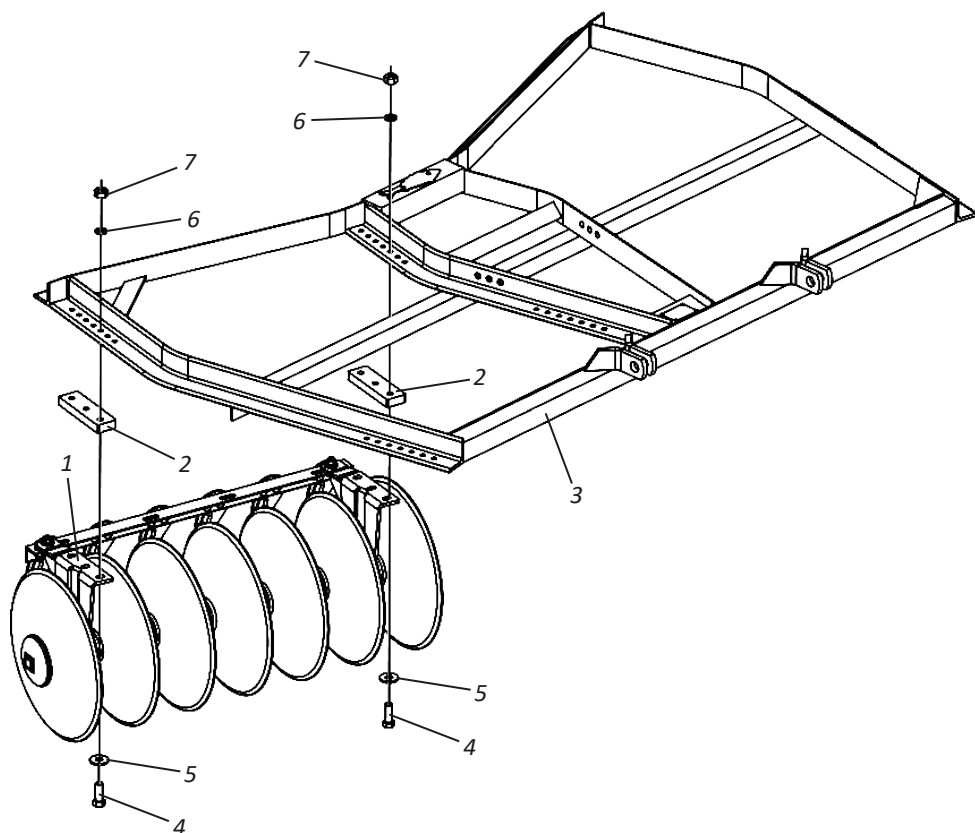


▪ Assembly

• Mounting the disc sections on the frame (22" discs)

To attach the pads mounted with 22" discs to the frame, proceed as follows:

- 01** - Attach the pads (1) and the lifting bracket (2) to the frame (3) using the screws (4), flat washers (5), lock washers (6) and nuts (7).



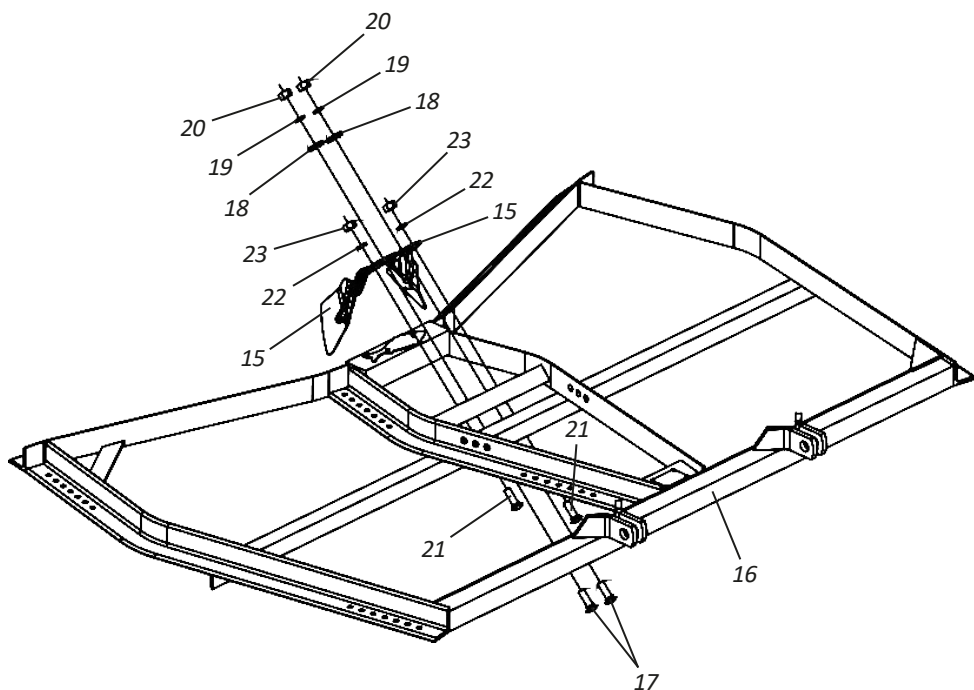
ATTENTION

The lifting bracket (2) only comes with the HI when it is sold with 22" discs.

▪ Assembly

• Mounting the wipers on the frame

01 - Next, attach the wipers (15) to the frame (16) using screws (17), special washers (18), lock washers (19) and nuts (20) and screws (21), lock washers (22) and nuts (23).

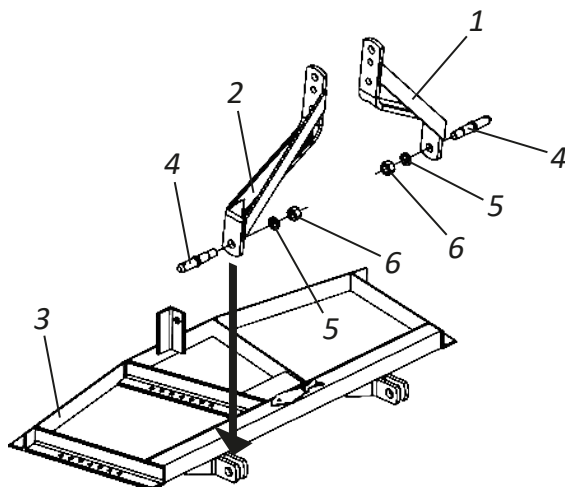


▪ Assembly

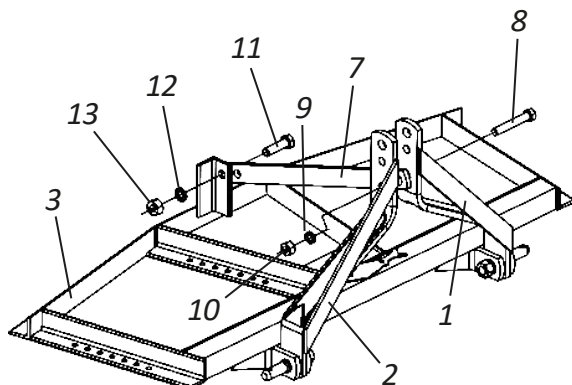
• Header assembly - HI 10 discs

To mount the hitching header, proceed as follows:

- 01** - Attach the right (1) and left (2) plates to the frame (3) using the hitching pins (4), spring washers (5) and nuts (6).



- 02** - Next, fit the arms (7) between the right (1) and left (2) plates, securing them with the screw (8), spring washer (9) and nut (10).
- 03** - Then attach the other end of the arm (7) to the frame (3), securing them with the screw (11), lock washer (12) and nut (13).

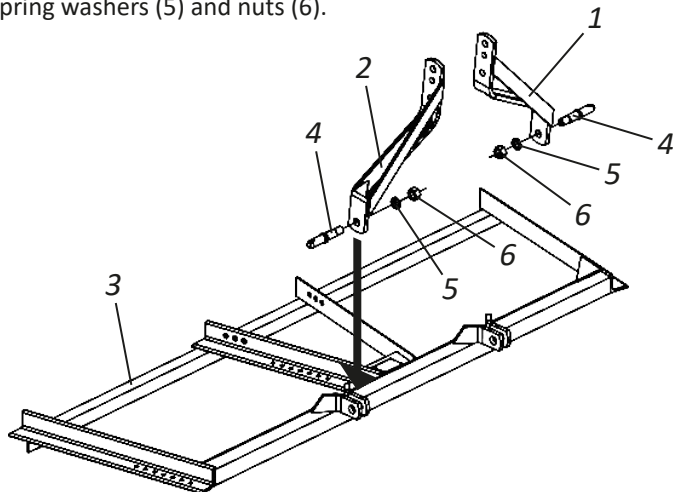


▪ Assembly

• Header assembly - HI 16, 20, 24, 28 and 32 discs

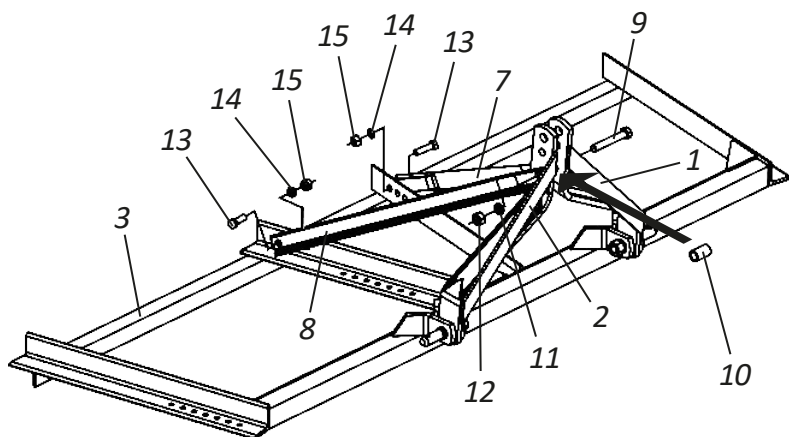
To mount the hitching header, proceed as follows:

- 01** - Attach the right (1) and left (2) plates to the frame (3) using the hitching pins (4), spring washers (5) and nuts (6).



- 02** - Next, attach the right (7) and left (8) arms to the right (1) and left (2) plates, securing them with the screw (9), bushing (10), spring washer (11) and nut (12).

- 03** - Then attach the other end of the right (7) and left (8) arms to the frame (3), securing them using the screws (13), lock washers (14) and nuts (15).

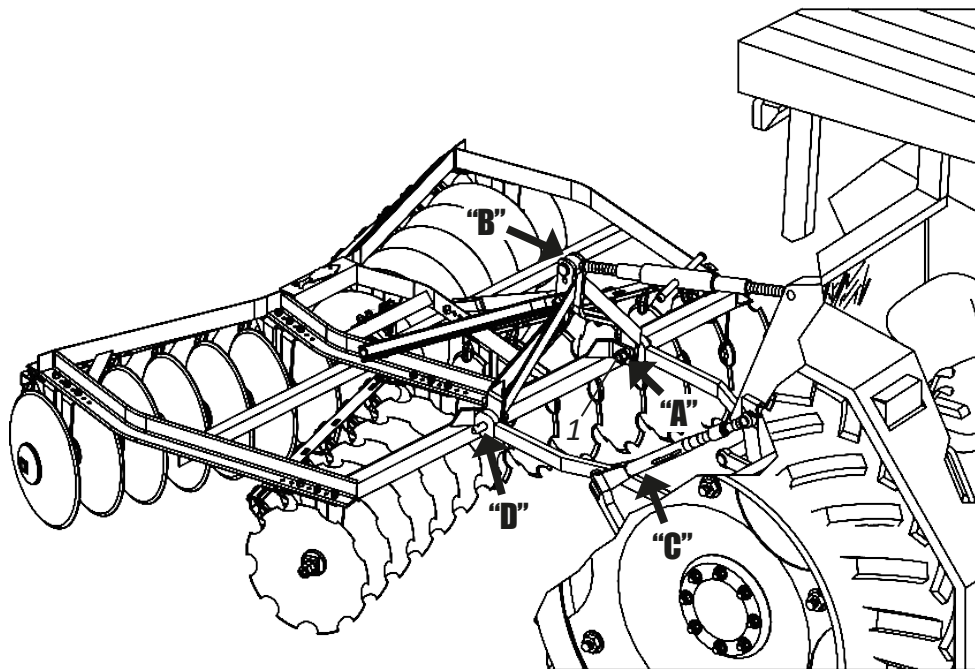


▪ Hitch

• Harrow hitching

To hitch the **HI** to the tractor, proceed as follows:

- 01** - Slowly approach the **HI** tractor in reverse, paying attention to the application of the brakes . Use the hydraulic position control lever when approaching the **HI**, leaving the lower left arm at the level of the HI hitching.
- 02** - Hitch the tractor's lower left arm via the hatching pin (1) on the **HI**'s "**A**" bracket.
- 03** - Attach the tractor's 3rd point to the **HI**'s "**B**" bracket.
- 04** - Finally, with the help of the adjusting lever "**C**", hitch the lower right arm of the tractor onto the **HI**'s "**D**" support.



! ATTENTION

When transporting the **HI**, the lower hydraulic arms must remain adjusted. Position the tractor hydraulics until the **HI** is level.

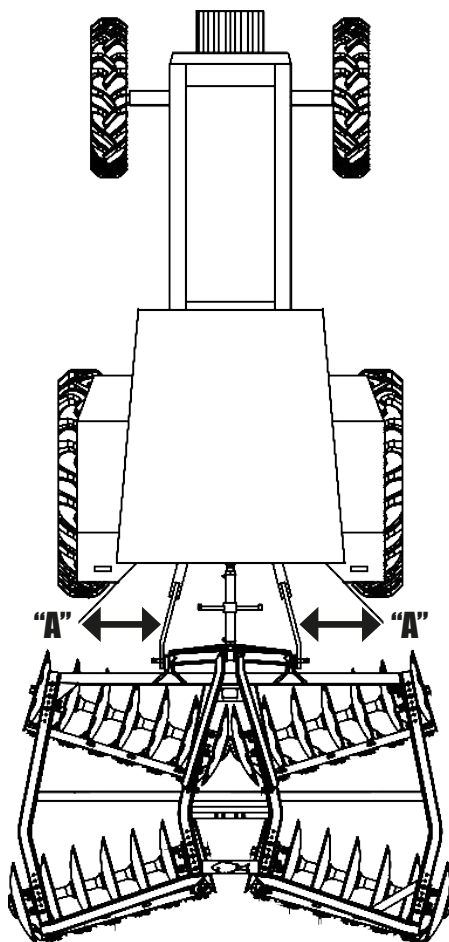
Always keep the arms of the 3rd point open, locked and raised as much as possible.

▪ Hitch

• Centralization

To center the **HI** in relation to the longitudinal axis of the tractor, proceed as follows:

- 01** - Align the upper hitch of the harrow with the 3rd point of the tractor.
- 02** - Then check that the “A” distances of the lower hydraulic arms are equal to the tractor tires. The lower arms should be level with each other.

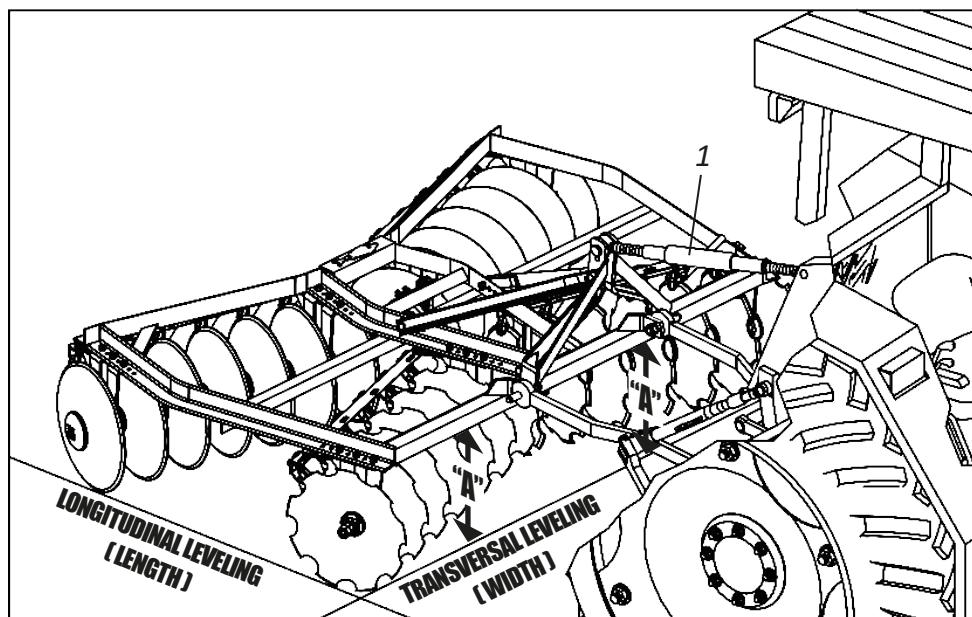


▪ Hitch

• Leveling

To level the **HI**, proceed as follows:

- 01** - First of all, the tractor must be on level ground.
- 02** - Then level the **HI** in the transverse direction (width) using the crank on the lower right arm of the hydraulic hitch. Note that the "A" measurements must be equal.
- 03** - Longitudinal leveling (length) is done via the 3rd point arm (1).
- 04** - Note that the **HI** discs must be parallel to the ground, i.e. they must all touch the same plane.



ATTENTION

When lifting the HI for maneuvering, check the tractor's instruction manual to make sure the weight required does not affect the stability and drivability of the tractor and harrow combination. If the weight distribution is not correct, serious accidents can occur, even causing death. Baldan is not responsible for the incorrect use of HI.

▪ Adjustments

• Adjustment of cutting depth

The cutting depth of the HI is adjusted by opening the disc sections, to do this, proceed as follows:

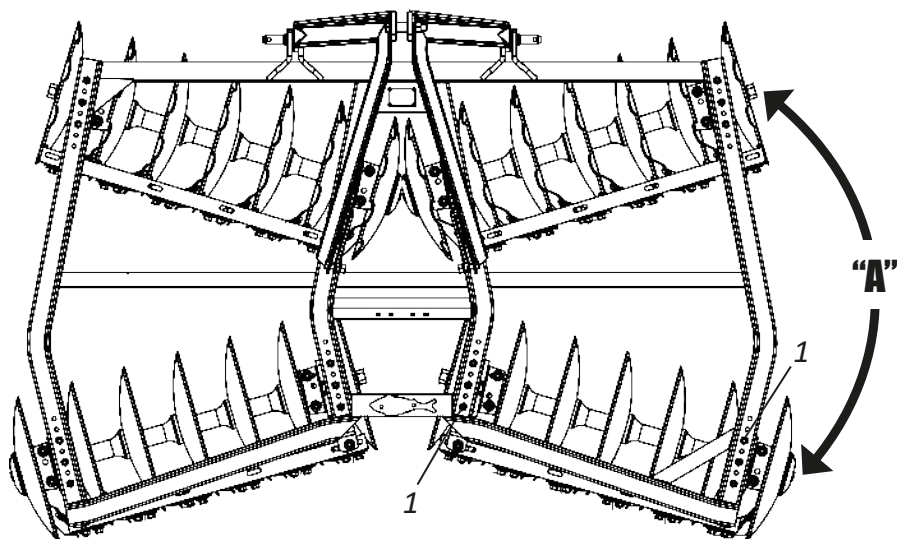
- TERRAINS THAT ARE MORE DIFFICULT FOR THE DISCS TO PENETRATE:

Increase the “A” gap between the disc sections (greater angle).

- LIGHT AND LOOSE TERRAIN:

Reduce the “A” gap between the disc sections (smaller angle).

To adjust the opening and closing of the disc section, loosen the screws (1) securing the pads to the frame and adjust the position using the holes in the chassis until the desired point is reached.



! IMPORTANT

To begin the harrowing, we suggest setting the disc sections to a medium opening setting and then making adjustments as necessary.

! ATTENTION

Only trained personnel should carry out this adjustment. Do not make adjustments while the HI is running.

▪ Operations

• Recommendations for operation - Part I

Preparing the **HI** and the tractor will save you time as well as a better result in field work. The following suggestions may be helpful to you.

HARROW STRUCTURE

After the first day of work with the **HI**, retighten all screws, nuts and check the condition of the pins and locks of the harrow structure. Then retighten all the bolts and nuts on the harrow structure every 24 hours.

DISC SECTIONS

Pay special attention to the **HI** disc sections. During the first week of using the **HI**, retighten all the bolts and nuts on the disc sections daily, then retighten them periodically.

GENERAL RECOMMENDATIONS

- 01** - Adjust the tractor according to the contents of the instruction manual, always using the front and rear weights to stabilize the equipment.
- 02** - Always hitch to the tractor at low speed and with great care.
- 03** - When using the **HI** it is important to check the hitching system and transverse leveling to make sure that the discs have the same depth of penetration in the soil.
- 04** - After carrying out the hitching and leveling, the next adjustments will be made directly in the work field, analyzing the terrain in terms of its texture, humidity and the types of operations to be carried out with the **HI**.
- 05** - On the tractor, choose a gear that allows you to maintain a certain reserve of power, guaranteeing yourself against unforeseen stresses.
- 06** - Observe the working and transport speeds specified on page 10. We do not recommend exceeding speeds to maintain service efficiency and avoid possible damage to the **HI**.
- 07** - When maneuvering the headlands, gradually operate the hydraulic cylinders first, lifting the disc sections.
- 08** - Remove any sticks or other objects that might get stuck in the discs.
- 09** - In compacted soil where it is difficult for the discs to penetrate, the depth can be minimal, making the work unsatisfactory. In these cases, it is recommended to apply other more suitable products beforehand.

▪ Operations

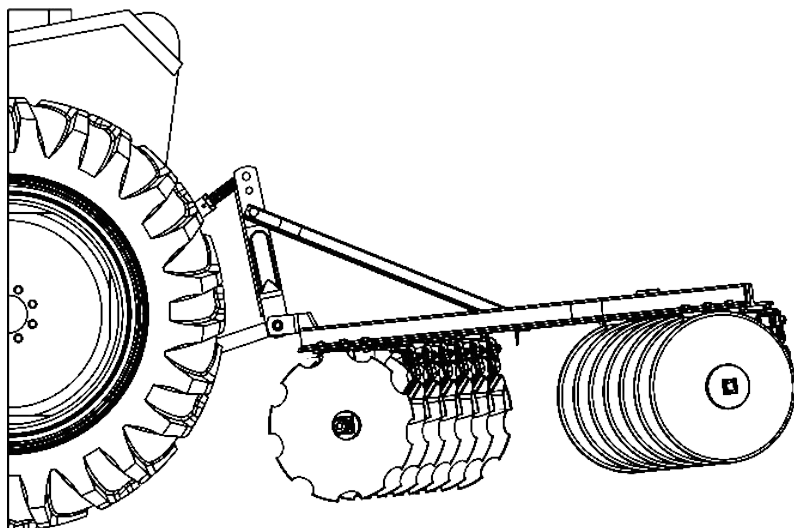
• Recommendations for operation - Part II

- 10** - During work or transportation, the tractor drawbar must remain fixed.
- 11** - When carrying out any maintenance on the **HI**, it must be lowered to the ground and the engine switched off.
- 12** - The **HI** has several settings, but only local conditions can determine the best setting.

If in doubt, never operate or handle the HI, consult After Sales. Phone.
Phone: 0800-152577 / E-mail: posvenda@baldan.com.br

• Maneuvers

The operation of the **HI** requires special care, such as lifting the harrow completely before carrying out maneuvers. If the harrow is not lifted correctly, the angle formed by the “double off-set” structure will suffer great strain at the apex, overloading the equipment and especially the traction components, such as the header and fasteners.



▪ Operations

• How to start harrow the harrowing

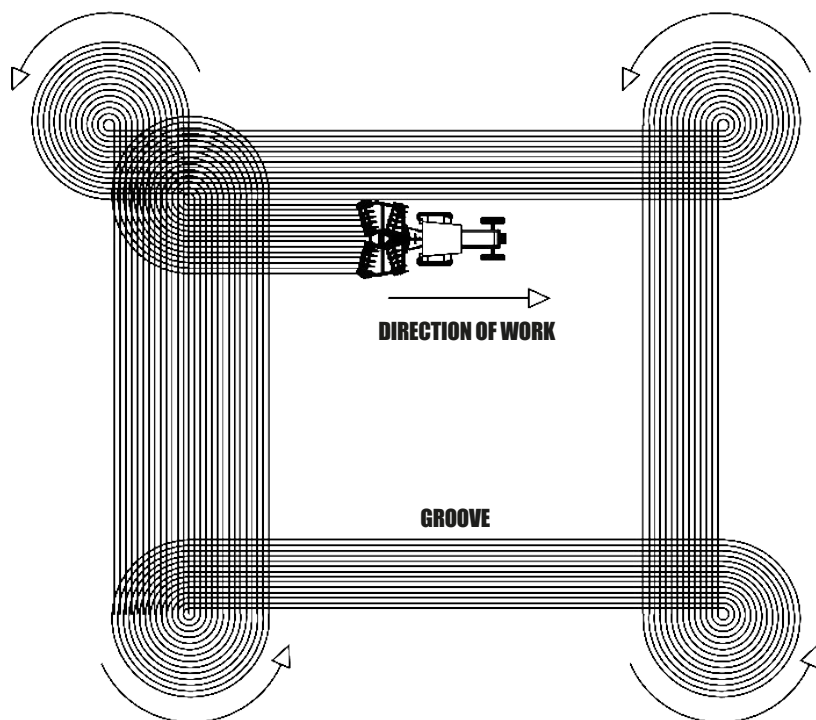
When starting the harrowing, you must always follow the terraces or contour cord, starting the operation so that the terrace is always on the left side of the tractor driver.



NOTE

Before starting operations with the HI, check it over completely, retightening all the bolts, nuts, shafts and especially the disc sections.

• Harrowing from the outside in



! IMPORTANT

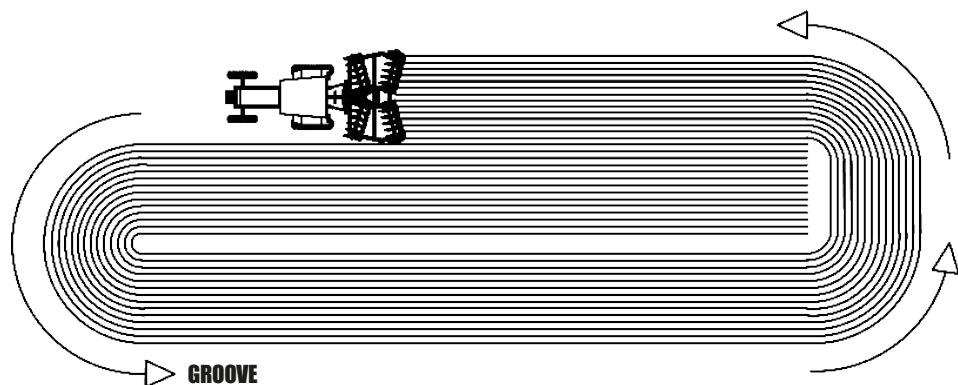
Try to drive the tractor in such a way as to obtain good performance between HI passes. Avoid forming beds or strips without harrowing.

The harrowed ground should always be to the left of the operator. Remember to keep the HI level at all times to ensure an even cutting depth.

■ Operations

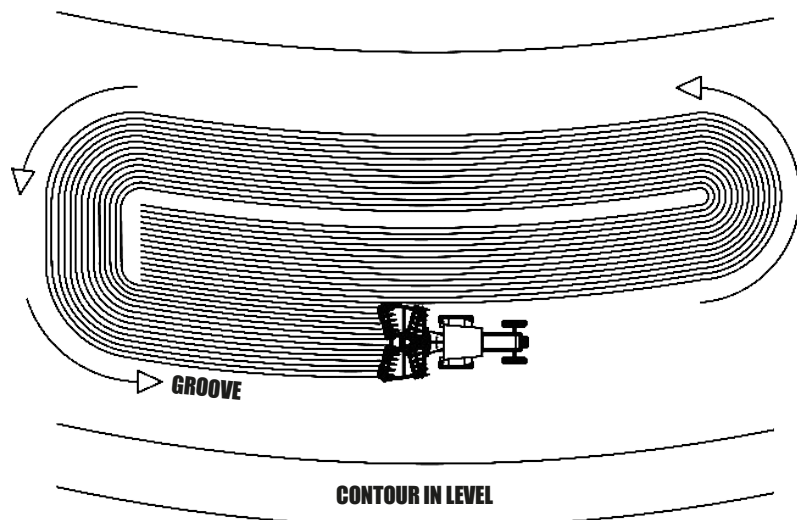
• Harrow from the inside out

In this sense, greater perfection is achieved. When you're walking a lot on the headlands, you might want to start another block.



• Plots with contour lines

On terrain with a contour in level, it is usual to start two plots at a time, taking care to start the work with the contour on the tractor driver's left. When you reach the middle of the contour in level, you may want to start another plot to reduce fuel costs.



▪ Calculations

• Approximate hourly output - Part I

To calculate **HI**'s approximate hourly output, use the following formula:

$$A = \frac{L \times V \times F}{X}$$

WHERE:

A = Area to be worked
L = Harrow working width (in meters)
V = Average tractor speed (in meters/hour)
F = Production factor: 0.90
X = Value of the hectare: 10,000 m²

Example: A 32 disc **HI**, how much Ha it will produce in one hour of work at an average speed of 7 km/h.

A = ?

L = 2,98 m

V = 7.000 m/h

F = 0,90

X = 10.000 m² (Calculated in hectare)

$$A = \frac{2,98 \times 7.000 \times 0,90}{10.000} = 1,87 \text{ Ha/h}$$

Model	Nr of discs	Working width (mm)	Average speed (m/h)	Production Factor	Aproximate Production in Hectare Hours
HI	10	1505	7.000	0,90	0,94
	16	1800	7.000	0,90	1,13
	20	1875	7.000	0,90	1,17
	24	2245	7.000	0,90	1,41
	28	2615	7.000	0,90	1,64
	32	2985	7.000	0,90	1,87

▪ Calculations

• Approximate hourly output - Part II

The formula for calculating approximate production refers to the calculation of areas to be worked by the **HI**. If you want to know the time it will take to work in an area of known value, just divide the value of this area by the hourly production of the **HI**.

Example: How long “X” will it take for a **32-disc HI** harrow to produce 35 hectares at an average speed of 7km/h?

$$X = \frac{35 \text{ Ha}}{1,87 \text{ Ha/h}} = 18,71 \text{ hours approximately to work 35 hectares.}$$



The hourly output of the HI can vary due to factors that alter the pace of work, such as (humidity and hardness of the soil, slope of the terrain, inadequate settings and speed of work).

▪ Maintenance

HI has been developed to give you maximum performance in terrain conditions. Experience has shown that periodic maintenance of certain parts of the **HI** is the best way to help you get out of trouble, so we suggest checking it out.



ATTENTION

Check the nuts and bolts constantly and retighten if necessary. Maintenance of the general re-tightening of the disc harrow must be carried out every 8 hours of work.

• Lubrication

Lubrication is essential for a good performance and greater durability of the moving parts of the **HI**, contributing to saving maintenance costs.

Before starting the operation, carefully lubricate all the grease fittings, always observing the lubrication instructions on the following page. Ensure the quality of the lubricant in terms of its efficiency and purity, and avoid using products contaminated by water, dirt and other agents.

• Table of greases and equivalents

Manufacturer	Recommended grease types
Petrobrás	Lubrax GMA-2
Atlantic	Litholine MP 2
Ipiranga	Ipiflex 2
Castrol	LM 2
Mobil	Grease MP
Texaco	Marfak 2
Shell	Alvania EP 2
Esso	Multi H
Bardahl	Maxlub APG-2EP
Valvoline	Palladium MP-2
Petronas	Tutela Jota MP 2 EP
	Tutela Alfa 2K
	Tutela KP 2K



ATTENTION

If there are equivalent manufacturers or brands that are not listed in the table, consult the manufacturer's technical manual.

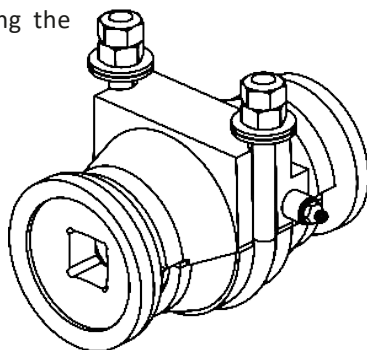
▪ Maintenance

• Friction bearing

Friction bearings should be lubricated daily using the grease specified below.

NOTE

Before lubricating the bearing, clean the grease nipple with a clean, lint-free cloth. Replace any damaged grease fittings.



ATTENTION

The amount of grease in each bearing is 80 grams.
Only use grease: EP (Specification DIN51825 KP00K Consistency NLGI 2/3).

• Periodic Maintenance

Parts description	Number of grease fittings						Lubricate with grease	Retightening	Replace	Maintenance interval
	HI 10	HI 16	HI 20	HI 24	HI 28	HI 32				
Friction bearings	4	8	8	8	8	10	X			Daily
Axle bolts and nuts	-	-	-	-	-	-		X		50 hours
Screws and nuts	-	-	-	-	-	-		X		100 hours
Discs	-	-	-	-					X	When necessary

▪ Maintenance

• Operational maintenance

PROBLEMS	PROBABLE CAUSES	SOLUTIONS
Disc sections are not at harrowing level.	Front and rear disc sections do not operate at the same depth.	Adjust the angle of the disc sections.
Locked disc sections.	Adjustment of disc sections with maximum angle.	Reduce the angle of the disc sections.
	Wipers worn or incorrectly adjusted.	Adjust or change the wipers when necessary.
	The pitch is very wet.	Allow the field to dry or superficially penetrate the discs to aid drying.
	The harrowing is too deep in damp soil.	Raising the discs will reduce penetration.
The tractor is pulling to the right.	The angle is too large in the front disc section or too small in the rear disc section.	Reduce the angle of the front disc section or increase the angle of the rear disc section.
The groove is being left open on the left.	The tractor is positioning too far to the right.	Position the tractor so that the front disc on the left side is at the edge of the furrow.
	The adjustment of the disc sections is laterally incorrect.	Move the rear disc section to the left or move the front to the right.
	The speed is too low for the ground conditions.	Increase the speed.
Formation of beds on the left side of the harrow.	Incorrect adjustment of the rear disc section. Insufficient overlap.	If a track forms, move the front disc section to the left or the rear disc section to the right.

▪ Maintenance

• Care

- 01** - Before each job, check the condition of all hoses, pins, bolts, bearings, discs and sections. When necessary, retighten them.
- 02** - Travel speed must be carefully controlled according to terrain conditions.
- 03** - **HI** is used in various applications, requiring knowledge and attention when handling it.
- 04** - Only local conditions can determine the best way to operate the **HI**.
- 05** - When assembling or disassembling any part of the **HI**, use appropriate methods and tools.
- 06** - Carefully observe the lubrication intervals at the various **HI** lubrication points. Respect the lubrication intervals.
- 07** - Always check parts for wear. If there is a need for replacement, always demand original Baldan parts.
- 08** - Keep your **HI** discs sharp at all times.



IMPORTANT

Proper and regular maintenance is necessary to ensure the long lifespan of the **HI**.

▪ Maintenance

• General cleaning - Part I

- 01** - When storing the **HI**, conduct a general clean and rinse it thoroughly with water only. Check if the paint has not worn away, and if it has, apply a general coat, apply protective oil and completely lubricate the **HI**. Do not use burnt oil or other abrasives.
- 02** - Fully lubricate the **HI**. Check all the moving parts of the **HI**, if they show wear or looseness, make the necessary adjustment or replace the parts, leaving the harrow ready for the next job.
- 03** - After all maintenance work, store the harrow in a covered, dry place, properly supported.
Avoid: - Discs coming into direct contact with the ground.

▪ Maintenance

• General cleaning - Part II

- 04** - Replace all stickers, especially warning stickers that are damaged or missing. Make everyone aware of their importance and the dangers of accidents when instructions are not followed.
- 05** - After all maintenance, store your **HI** on a flat surface in a covered, dry place, away from animals and children.
- 06** - We recommend rinsing the **HI** only with water when starting work.



ATTENTION

Do not use chemical or abrasive products to wash the HI, as this could damage the paintwork and adhesives.

• Harrow conservation - Part I

To prolong the life and appearance of **HI** for longer, follow the instructions below:

- 01** - Wash and clean all the harrow components during and at the end of the working season.
- 02** - Use neutral products to clean the harrow, following the safety and handling guidelines provided by the manufacturer.
- 03** - Always carry out maintenance at the times indicated in this manual.

• Harrow conservation - Part II

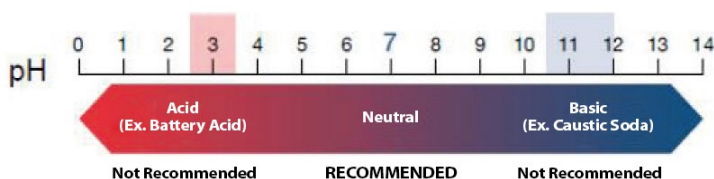
The practices and precautions below, if adopted by the owner or operator, make a difference to the conservation of the **HI**.

- 01** - Take care when pressure washing; do not direct the water jet directly at connectors and electrical components. Isolate all electrical components;
- 02** - Use only NEUTRAL water and detergent (pH equal to 7);
- 03** - Apply the product, strictly following the manufacturer's instructions, on the wet surface and in the correct sequence, respecting the application and washing times;
- 04** - Stains and dirt that cannot be removed with the products should be removed with a sponge.
- 05** - Rinse the machine with clean water to remove all chemical residues.

■ Maintenance

• Harrow conservation - Part III

- 06 -** Do not use: - Detergents with a basic active ingredient (pH greater than 7) may damage/ stain the harrow paintwork.
- Detergents with an acidic active ingredient (pH less than 7), act as a stripper/ removal of zinc plating (the protection of parts against oxidation).



- 07 -** Let the machine dry in the shade so that no water accumulates in its components. Drying too quickly can cause stains on your paintwork.
- 08 -** After drying, lubricate all chains and grease fittings according to the recommendations in the operator's manual.
- 09 -** Spray the entire machine, especially galvanized parts, with protective oil, following the manufacturer's application guidelines. The protectant also prevents dirt from sticking to the machine, making it easier to wash later.
- 10 -** Observe the curing time (absorption) and application intervals as recommended by the manufacturer.

! ATTENTION Do not use any other type of oil to protect the harrow (used hydraulic oil, "burnt" oil, diesel oil, castor oil, kerosene, etc).

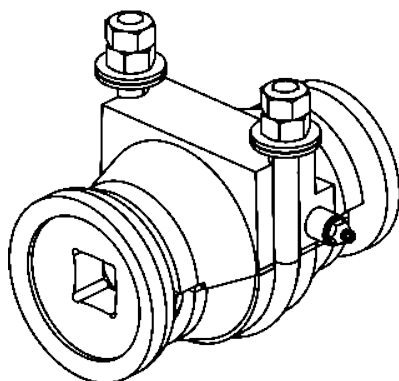
! IMPORTANT We recommend the following protective oils:
- Bardahl: Agro protetivo 200 o 300
- ITWChemical: Zoxol DW - Série 4000

🔍 NOTE Ignoring the conservation measures mentioned above can result in the loss of warranty for painted or galvanized components that present eventual oxidation (rust).

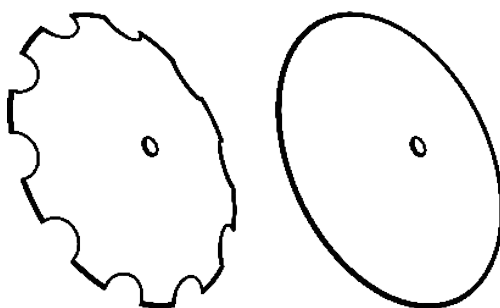
▪ Optional

• Optional Accessories

HI has options that can be purchased according to your work requirements.



FRICTION BEARING



CUT-OUT OR FLAT DISCS
16", 18", 20" E 22"

■ Identification

• Identification tag

To consult the parts catalog or request Baldan's technical assistance, always indicate the model (01), serial number (02) and date of manufacture (03), which can be found on the nameplate of your **HI**.

 BALDAN BALDAN IMPLEMENTOS AGRÍCOLAS S/A. AV. BALDAN, 1500 NOVA MATÃO CEP 15.993-900 MATÃO-SP BRASIL FONE: (16) 3221-6500 CNPJ: 52.311.347/0009-06 CREA/SP 0170977		
01 → Modelo / Model		Data / Date → 03
02 → N° de Série / Serial Number		Tipo / Type
Capacidade / Load Capacity		Peso / Weight

ATTENTION

The drawings contained in this instruction manual are for illustrative purposes only.

CONTACT

If in doubt, never operate or handle your equipment without consulting After Sales.

Phone: 0800-152577

e-mail: posvenda@baldan.com.br

PUBLICATIONS

Code: 60550201340 | CPT: HI07822A



▪ Identification**• Product identification**

Identify the data below correctly in order to always have information about the lifespan of your equipment.

Owner: _____

Resale: _____

Farm: _____

City: _____

State: _____

Warranty certificate no.: _____

Implement: _____

Serial No.: _____

Date of purchase: _____

Invoice : _____

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■ Annotations

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

BALDAN IMPLEMENTOS AGRÍCOLAS S/A, guarantees the normal operation of the implement to the dealer for a period of 6 (six) months from the date of delivery on the resale invoice to the first end consumer. During this period **BALDAN** undertakes to repair defects in material and or workmanship of its responsibility, with labor, freight and other expenses being the responsibility of the dealer.

During the warranty period, the request and replacement of any defective parts should be made to the dealer in the region, who will send the defective part for analysis at **BALDAN**.

When such a procedure is not possible and the dealer's capacity for resolution has been exhausted, the dealer will request support from **BALDAN's Technical Assistance**, through a specific form distributed to the dealers. After review of the replaced items by Baldan Technical Assistance, and the conclusion that this is not a warranty claim, then the dealer will be responsible for the costs related to the replacement; as well as the costs of material, travel including lodging and meals, accessories, lubricant used and other expenses arising from the call to Technical Assistance, and Baldan is authorized to make the respective billing on behalf of the dealer. Any repairs made to the product that is within the warranty period by the dealer will only be authorized by **BALDAN** upon prior presentation of a budget describing the parts and labor to be executed.

It is excluded from this term the product that undergoes repairs or modifications in officials that do not belong to the **BALDAN** dealer network, as well as the application of non-genuine parts or components to the user's product. This warranty will become void when it is found that the defect or damage is the result of improper use of the product, failure to follow instructions, or inexperience of the operator.

It is agreed that this warranty does not cover tires, polyethylene tanks, cardans, hydraulic components, etc., which are equipment guaranteed by their manufacturers. The manufacturing and or material defects, object of this warranty term, will not constitute, under any hypothesis, reason for rescission of the purchase and sale contract, or for indemnity of any nature.

BALDAN reserves the right to alter and/or improve the technical characteristics of its products, without prior notice, and without obligation to do so with products previously manufactured.

▪ Inspection and Delivery Certificate

SERVICE BEFORE DELIVERY: This implement has been carefully prepared by the sales organization, inspected in all its parts according to the manufacturer's instructions.

DELIVERY SERVICE: The user has been informed of the current warranty terms and instructed on the use and care of maintenance.

I confirm that I have been informed of the warranty terms in force and instructed on the correct use and maintenance of the implement.

Implement: _____ Serial No: _____

Date: _____ Tax No: _____

Revenda: _____

Phone: _____ ZIP CODE: _____

City: _____ State: _____

Owner: _____

Phone: _____

Address: _____ Number: _____

City: _____ State: _____

E-mail: _____

Date of sale: _____

Dealer's signature / stamp _____

1st copy - Owner

▪ Inspection and Delivery Certificate

SERVICE BEFORE DELIVERY: This implement has been carefully prepared by the sales organization, inspected in all its parts according to the manufacturer's instructions.

DELIVERY SERVICE: The user has been informed of the current warranty terms and instructed on the use and care of maintenance.

I confirm that I have been informed of the warranty terms in force and instructed on the correct use and maintenance of the implement.

Implement: _____ Serial No: _____

Date: _____ Tax No: _____

Revenda: _____

Phone: _____ ZIP CODE: _____

City: _____ State: _____

Owner: _____

Phone: _____

Address: _____ Number: _____

City: _____ State: _____

E-mail: _____

Date of sale: _____

Dealer's signature / stamp _____

2nd copy - Resale

▪ Inspection and Delivery Certificate

SERVICE BEFORE DELIVERY: This implement has been carefully prepared by the sales organization, inspected in all its parts according to the manufacturer's instructions.

DELIVERY SERVICE: The user has been informed of the current warranty terms and instructed on the use and care of maintenance.

I confirm that I have been informed of the warranty terms in force and instructed on the correct use and maintenance of the implement.

Implement: _____ Serial No: _____

Date: _____ Tax No: _____

Revenda: _____

Phone: _____ ZIP CODE: _____

City: _____ State: _____

Owner: _____

Phone: _____

Address: _____ Number: _____

City: _____ State: _____

E-mail: _____

Date of sale: _____

Dealer's signature / stamp _____

1.74.05.0059-5

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ECT/DR/SP

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www.baldan.com.br | email: sac@baldan.com.br

Export: Phone: +55 (16) 3221-6500 | Fax: +55 (16) 3382-4212 | 3382-2480

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