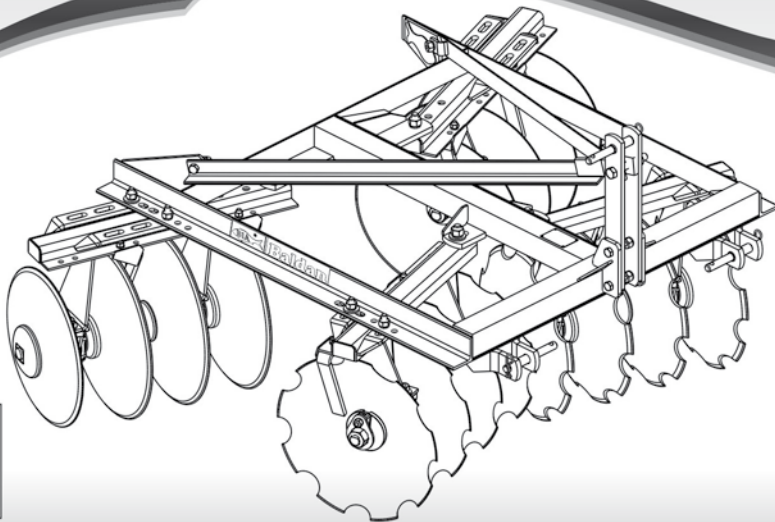


HIB

• **Baldan Hydraulic Disc Harrow (Tandem)**

Instruction Manual



www.baldan.com.br

INTRODUCTION

We thank you for the preference and congratulate your excellent choice in acquiring an implement of outstanding quality, manufactured in accordance with the advanced technology of **BALDAN IMPLEMENTOS AGRÍCOLAS S/A.**

This manual will assist you, in proceeds necessities, since when you bought until the operational proceeds application, security and maintenance.

The **BALDAN** guarantees that deliver this implement to the dealer, working properly, and in perfect conditions.

The dealers it's under the responsibility to keep the protection and conservation while keep the implement in your stock, and than, to assembly, tighten, lubrication and overhaul.

On time of the technical deliver, the dealer must to have conducted the user customer about the manutentation, safety, and your obligations in a possible technical assistance, the obligation to see the warranty terms and read the instruction manual. Any solicitation of warranty, please contact our Baldan technical service, by your Baldan dealer that you bought our implement.

Reaffirm the necessity to read carefully of warranty certificate and note all of items from this manual, therefore you will increase the working life of your equipment.



Instruction Manual



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01. SAFETY STANDARDS

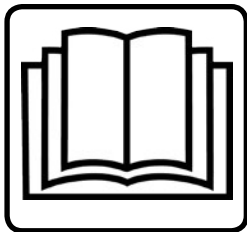


THIS SYMBOL INDICATES IMPORTANT SAFETY WARNING. WHENEVER YOU FIND IT IN THIS HANDBOOK, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE AWARE OF THE POSSIBILITY OF PERSONAL INJURY.



ATTENTION

- *Read the instruction manual carefully, so you can learn the recommended safety practices.*



ATTENTION

- *Only start operating the tractor when properly seated and with the safety belt fastened.*



ATTENTION

- *Do not transport people on the tractor and not in or on the equipment.*



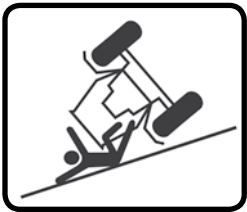
ATTENTION

- *Do not operate the tractor if the front is light. With a tendency to rise, add weights on the front of the tractor or front wheels.*



ATTENTION

- *There are risks of serious injury by tumbling when working on slopes.*
- *Do not use excessive speed.*



ATTENTION

- *Before performing any maintenance on your equipment, make sure it is turned off. Avoid getting hit.*



ATTENTION









- *Keep yourself away from the active elements of the machine (discs), they are sharp and can cause accidents.*
- *When carrying any service on discs, use safety gloves on hands.*









ALCOHOL OR DRUGS CAN GENERATE SOME LOSS OF REFLEXES AND CHANGE THE PHYSICAL CONDITIONS OF THE OPERATOR, SO, NEVER OPERATE THIS EQUIPMENT UNDER USE OF THESE SUBSTANCES.



THE MISMANAGEMENT OF THIS EQUIPMENT CAN RESULT IN SERIOUS OR FATAL ACCIDENTS. BEFORE PLACING THE EQUIPMENT IN OPERATION, CAREFULLY READ THE INSTRUCTIONS IN THIS HANDBOOK. MAKE SURE THAT THE PERSON RESPONSIBLE FOR THE OPERATION IS INSTRUCTED ON THE PROPER AND SAFE HANDLING, IF HE HAS READ AND UNDERSTOOD THE HANDBOOK OF THIS PRODUCT.

- 01-  When operating the equipment, do not allow people to stay very close or on it.
- 02-  In making any assembling and disassembling service in the discs, always use safety gloves.
- 03-  Do not wear loose clothing as they can become entangled in moving parts.
- 04-  When turning the tractor engine on, be properly seated on the operator's seat and aware of the correct and safe management of both tractor and implement. Always put the selector lever in neutral, turn off the power take-off command and place the hydraulic commands in the neutral position.
- 05-  Do not run the engine in indoor environments without adequate ventilation, as the exhaust fumes are harmful to health.
- 06-  When maneuvering the tractor to the implement hitch, make sure that there is plenty of room and that there is nobody very close, always do the maneuvers in low gear and be prepared to brake in emergency situations.
- 07-  Do not make adjustments with the implement in operation.
- 08-  When working on slopes, proceed with caution when trying to maintain the necessary stability. In case of unbalance, reduce the throttle and turn the wheels of the tractor to the side of the slope.

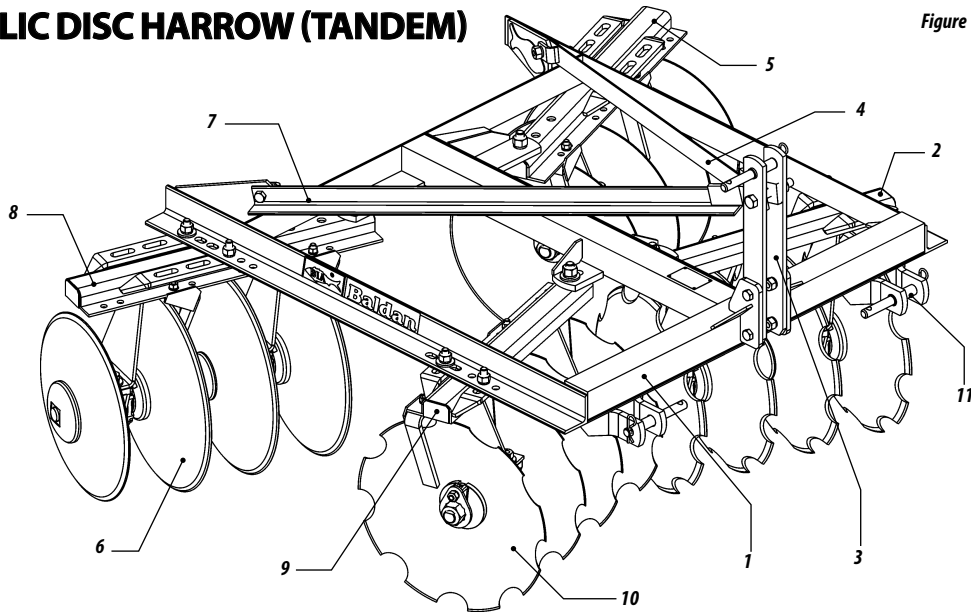
- 09-  Always drive the tractor at speeds compatible with safety, especially when working on uneven ground or slopes. Keep the tractor always engaged.
- 10-  When driving on roads, keep the tractor brake pedals interconnected and use safety signs.
- 11-  Do not operate the tractor if the front is light. If there is a tendency to rise, add weights on the front or front wheels.
- 12-  Leaving the tractor, put the shifter in neutral and apply the parking brake.
- 13-  Alcoholic beverages and some medications can cause loss of reflexes and change the physical conditions of the operator. Therefore, never operate this equipment, under the influence of these substances.
- 14-  Read or explain all the procedures above to the operator who cannot read.

HIB - BALDAN HYDRAULIC DISC HARROW (TANDEM)

Figure 1

02. COMPONENTS

- 01 - Structure
- 02 - Front left frame
- 03 - Hydraulic coupling plate
- 04 - Adjustment left arm
- 05 - Rear left frame
- 06 - Rear disc section
- 07 - Adjustment right arm
- 08 - Rear right frame
- 09 - Front right frame
- 10 - Front disc section
- 11 - Hydraulic coupling pin



03. TECHNICAL SPECIFICATIONS

Table 1

Model	No. of Discs	Spacing between Discs (mm)	Disc diameter (ø)	Axle diameter (ø)	Working width (mm)	Working depth (mm)	Approx. weight (Kg)			Required tractor power (HP)
							18"	20"	22"	
HIB	16	175	18" - 20"	1.1/4"	1980	50 - 150	417	442	-	35 - 40
HIB	20	175	18" - 20" - 22"	1.1/4"	2330	50 - 150	472	497	534	44 - 48
HIB	24	175	18" - 20" - 22"	1.1/4"	2680	50 - 150	527	570	624	48 - 59
HIB	28	175	18" - 20" - 22"	1.1/4"	3030	50 - 150	582	624	683	61 - 75
HIB	32	175	18" - 20" - 22"	1.1/4"	3380	50 - 150	637	680	745	75 - 85

*The Baldan reserves the right to change the specifications of this product without prior notice.
The technical specifications are approximate and valid in normal working conditions.*

04. ASSEMBLY

- 01 - Check the parts with the parts list that is inside the package.
- 02 - Before beginning assembly, put protective gloves on hands.
- 03 - Place in shaft item 1 Figure 2, the washer item 2, ensuring that it fitted the shaft head. Then, place a disc of smaller diameter item 3, (only for rear sections), the bearing item 4, the other disc item 5, the separation reel item 6 and so on as shown in figure 2.
- 04 - When the assembly is complete with all discs, bearings, and separation reels, place the convex washer, item 7, nut, item 8, giving a prior tightening with the key until the set is stable.
- 05 - Then, wedge the set and tighten the nut, item 8, through impacts. When almost achieving maximum tightening, adjust the latch, item 9, with convex washer, always tightening the nut to match the drilling, fasten them through the screw, item 10.
- 06 - When assembling the bearings, verify that they should be assembled with the lubrication system facing the rear part of the implement, as shown in figure 3.

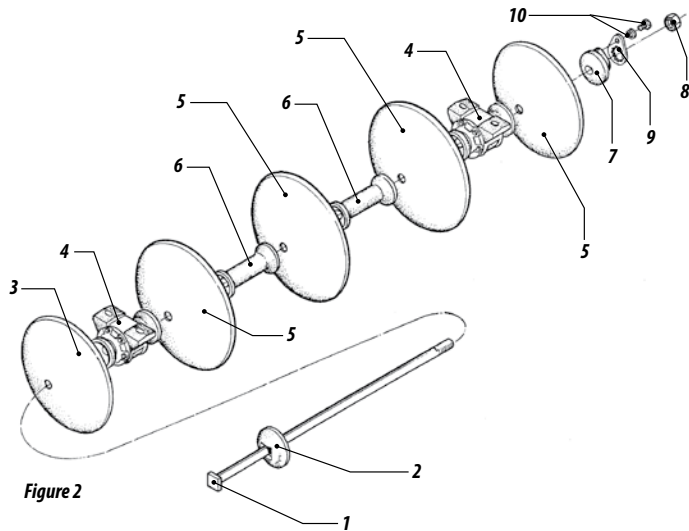


Figure 2

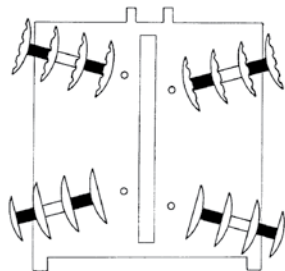


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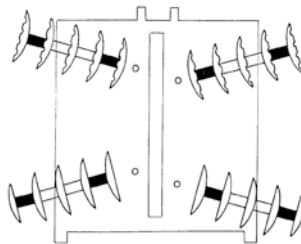
Before beginning assembly, put protective gloves on hands.

01 - Figure 3 shows the assembly of disc sections for each disc harrow model.

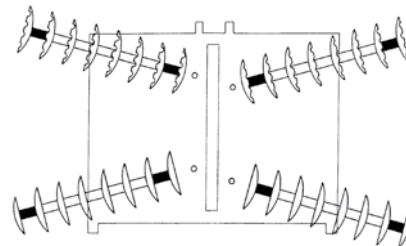
Figures 3



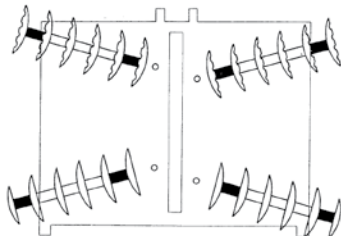
HIB 16 Discs



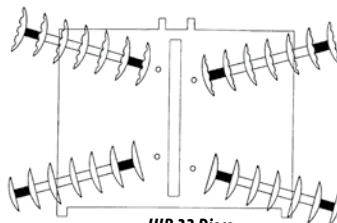
HIB 20 Discs



HIB 24 Discs



HIB 28 Discs



HIB 32 Discs

LEGEND

■ = BEARING

□ = SEPARATOR REEL

D = DISC

ASSEMBLY OF THE STRUCTURE

01 - Assemble the frame, item 1 Figure 4, the coupling plates, item 2 through screws item 3, washer item 4 and nut item 5.

02 - Assemble the right and left adjustment arms item 6 on the structure item, through the screw item 7, washer item 8, and nut item 9 on the rear of the equipment and on the coupling plates item 2 using the screw item 10, spacer sleeve item 11, washer item 12 and nut item 13.

03 - Insert the hitch pin item 14 between the lower coupling plates and lock it with the cotter pin item 15 and lock item 16.

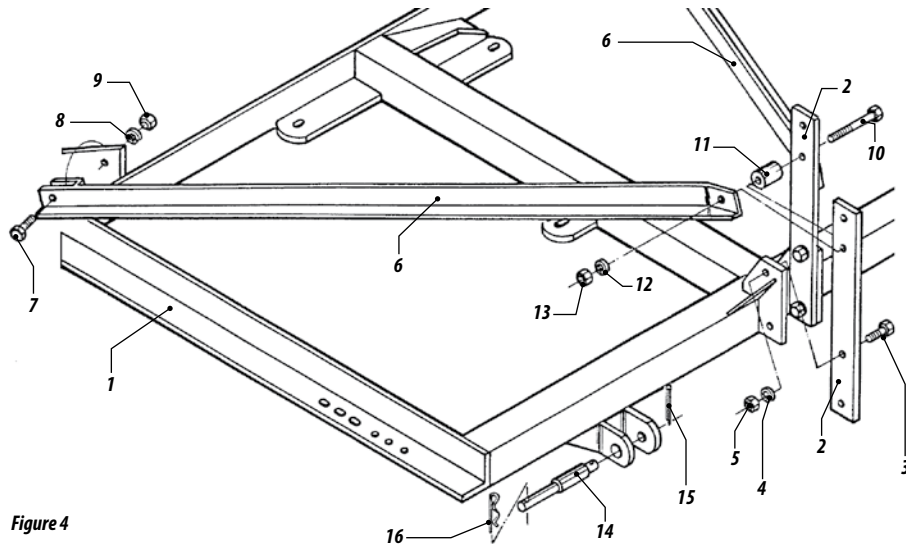


Figure 4

ASSEMBLING THE FRONT AND REAR FRAMES ON THE STRUCTURE

- 01 - Introduce the frames, item 1 Figure 5, in the arm of the structure, item 2, by fixing its ends with screws, item 3, flat washer, item 4, pressure washer, item 5 and nut, item 6.
- 02 - Fix the frame, item 1, in the adjustment plate of the structure opening, item 2, with screws, item 7, flat washer, item 8, pressure washer, item 9, and nut, item 10.
- 03 - This operation must be repeated for all four frames.

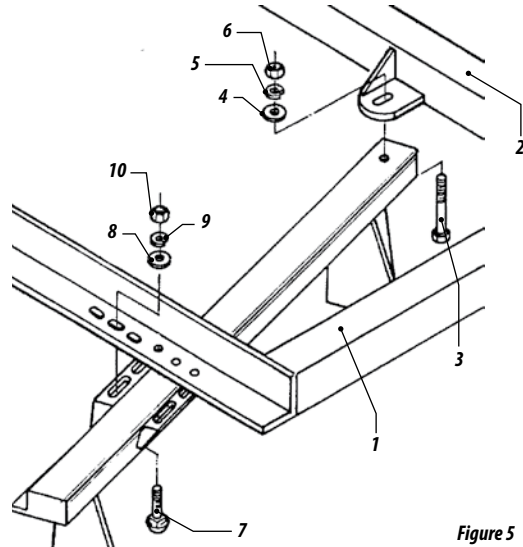
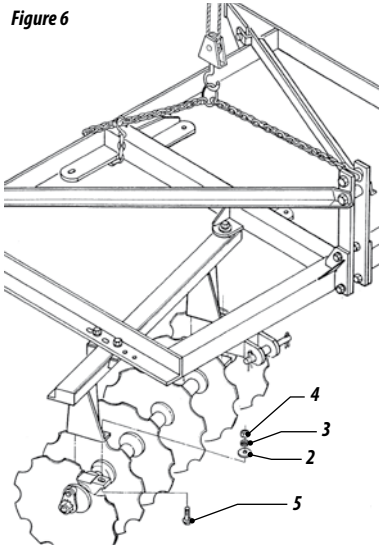


Figure 5

ASSEMBLY OF DISC SECTIONS ON FRAMES

Figure 6



- 01 - Place the structure with frames on flat and clean place.
- 02 - Lift part of the structure (front or rear), place the disc sections under the frames, observing their arrangement shown in Figure 2. Match the drilling of shoes with those of bearings, and make the assembly with screws, item 1 Figure 6, flat washer, item 2, pressure washer, item 3, and nut, item 4, noting that the bracket (shoe) should be facing the concavity of the discs, as in Figure 7.
- 03 - Lift the other side of the disc furrow and repeat the above operation, verifying that the concavity of discs of a section should be the opposite of the other.

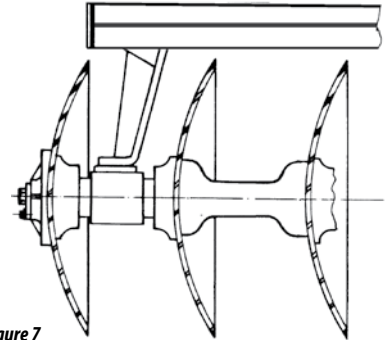


Figure 7

05. DISC HARROW COUPLING

- Before coupling the disc harrow to the tractor, ensure that it is prepared to work as follows:

- 01 - Remove the tractor's drawbar;
- 02 - Make sure that the tractor is fitted with front counterweights.
- 03 - Engage the tractor's lower left arm on bracket "A" of the implement with the hitch pin, item 1 Figure 8.
- 04 - Engage the 3rd point of the tractor on bracket "B" of the implement.
- 05 - Finally and with the aid of a height adjustment lever "D", engage the tractor's lower right arm on bracket "C" of the implement, as Figure 8.



ATTENTION

By coupling the disc harrow, search for a safe and easily accessible place, always use low gear with low throttle.

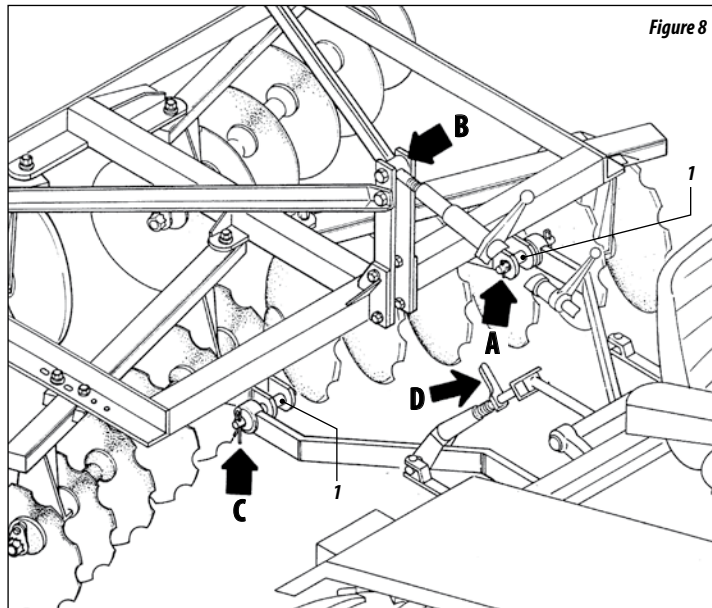


Figure 8

DISC HARROW CENTERING

- To center the disc harrow in relation to the tractor, proceed as follows:
- 01 - Align the upper hitch of the implement with the 3rd point of the tractor, checking if the distances of the lower hydraulic arms are equal in relation to the tractor's tires. The lower arms must be leveled with each other.

DISC HARROW LEVELLING

- To level the disc harrow, proceed as follows:
- 01 - 1 - The tractor must be on level ground, then, level the disc harrow in the transverse (width) through the crank of the hydraulic coupling lower right arm as shown in figure 9.
 - 02 - 2 - Longitudinal leveling (length) is done through the arm of the 3rd point. Note that the front discs of the disc harrow should be approximately 2 cm above the ground level, as shown in figure 9.

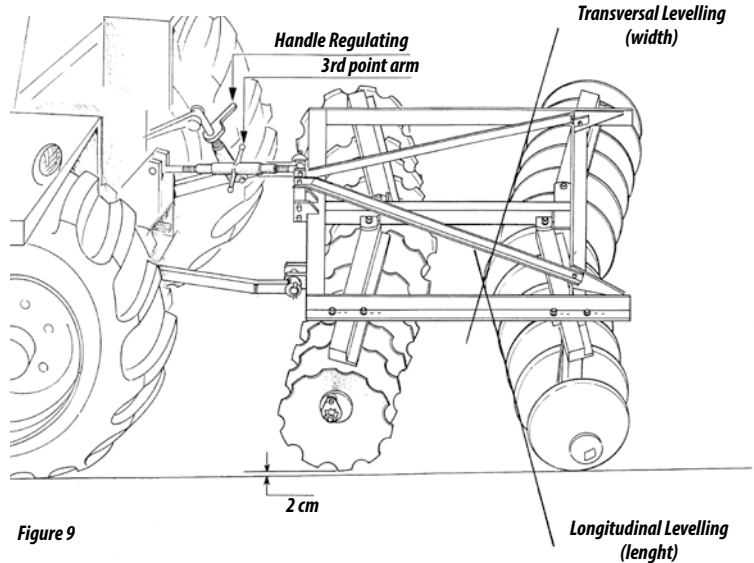


Figure 9

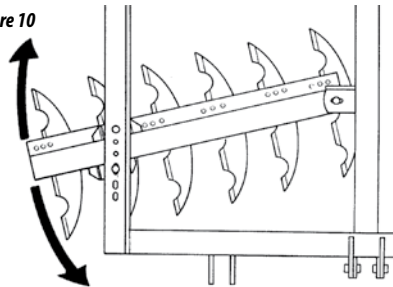
06. ADJUSTMENTS AND OPERATIONS

ADJUSTING THE OPENING OF DISC SECTIONS

- 01 - To obtain optimum penetration of discs, the opening of disc sections must be adjusted according to soil type:
- 02 - To soils more difficult to penetrate, the opening of disc sections must be increased;
- 03 - For light and loose soils, the opening of disc sections must be reduced, as shown in figures 10 and 11.
- 04 - To open or close disc sections, remove the screws, Item 1, loosen the screw, Item 2, then move the disc section to the ideal setting.
- 05 - When making the finishing with the disc harrow and if it is leaving ridges or furrows, move the rear disc section as follows:
- 06 - Loosen the nuts item 1, figure 11;
- 07 - Remove the screw, item 2, and move the disc section to openings "A", "B" or "C".
- 08 - Retighten the screw, item 2, and the nuts, item 1.
- 09 - When giving more opening or closing to the front disc sections, observe if they are not leaving a furrow without cutting between them, if this happens, loosen nuts, item 1 and 2 Figure 10 and move disc sections to the ideal position into the hole of the support, item 3.

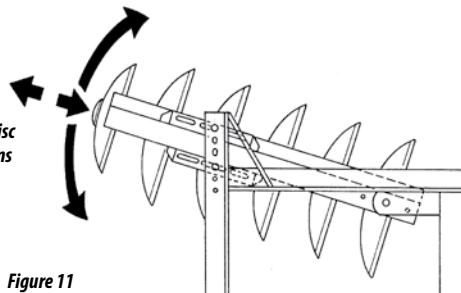
Figure 10

Front Disc Sections



Rear Disc Sections

Figure 11



WIPERS

- 01 - Wipers should be fitted and adjusted so that they make the cleaning of discs without touching them.
- 02 - Wipers should be assembled only in the gaps where there are no bearing shoes.

OPERATIONS

- 01 - Before starting operations with the disc harrow, revise it fully, re-tighten all screws, nuts, shafts and especially disc sections.
 - This disc harrow is used for the following operations:
- 02 - Crushing of compacted land, which is done after plowing or harrowing to break clumps, making them with a finer grain, thereby facilitating planting;
- 03 - Weeding, which is done on land with seed beds, small vegetation or cultivation at the center of rows of citrus orchards, coffee carriers, etc.

07. MAINTENANCE

LUBRICAÇÃO

- 01 - Lubrication is essential for optimal performance and durability of moving parts of your disc harrow.
- 02 - Before start working, carefully lubricate all grease fittings, always observing re-lubrication intervals, making sure about the quality of the lubricant, as its efficiency and purity, avoiding the use products contaminated by water, dirt, etc.

LUBRICATION OF ROLLER BEARINGS AND GREASE

- 01 - Clean the grease fitting with a clean and lint-free cloth and replace damaged ones.
- 02 - The amount of grease in each bearing is 150 grams.
- 03 - The roller bearings should be re-lubricated every 12 hours, using the grease specified in the table below.



LUBRICATION OF FRICTION BEARINGS

01 - Lubricate the friction bearings every 12 hours.

LUBRICATION OF ROLLER BEARINGS IN OIL BATH

01 - In the first days of working with the disc harrow, check the oil level daily and also the seals.

02 - Check the oil level every 120 hours of work.

03 - The oil change should be done every 1200 hours of work. Use SAE 90 mineral oil.

TABLE GREASES AND EQUIVALENTS

<i>Manufacturer</i>	<i>Type of grease recommended</i>
<i>Petrobrás</i>	<i>Lubrax GMA 2</i>
<i>Atlantic</i>	<i>Litholine MP 2</i>
<i>Ipiranga</i>	<i>Super Grasa Ipiranga Ipiranga Super Grasa 2 Ipiflex 2</i>
<i>Castrol</i>	<i>LM 2</i>
<i>Mobil</i>	<i>Mobilgrease MP 77</i>
<i>Texaco</i>	<i>Marfak 2 Agrotex 2</i>
<i>Shell</i>	<i>Retinax A Alvania EP 2</i>
<i>Esso</i>	<i>Multipurpose grease H</i>
<i>Bardahl</i>	<i>Maxlub APG 2 EP</i>

Table 2

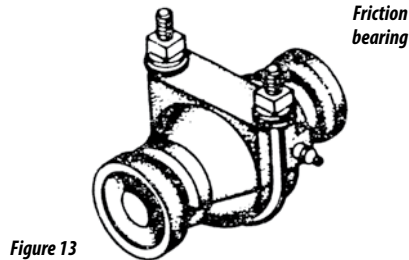
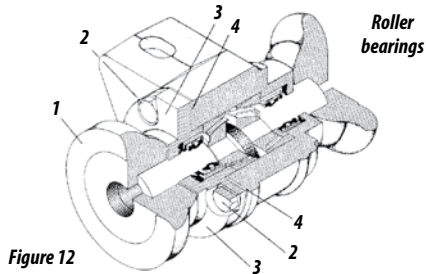


If there are manufacturers and /or equivalent brands which are not listed in the table, refer to the manufacturer's technical manual.

ADJUSTMENT OF BEARINGS

- When the roller bearings show clearances, adjust them as follows:

- 01 - Remove the washer item 1 Figure 12.
- 02 - Loosen the screws item 2 and remove the cover item 3.
- 03 - Remove 1 or 2 gaskets item 4 from the bearing cover. Replace the cover and retighten it.
- 04 - If the clearance persists, you can face the cover item 3, to increase the adjustment, and then assemble the bearing using as many gaskets as required.
- 05 - The bearing must rotate freely, i.e. without axial or radial clearances.



08. CLEANING

- 01 - When the disc harrow remains inactive for an extended period, make a general cleaning, make sure the cover is not worn out.
- 02 - If so, apply a general coat, protective oil and lubricate the disc harrow completely.
- 03 - Check the discs, apply a coat of paint on them and protective oil.



NOTE

Don't assemble the roller bearing without a joint.

09. APPROXIMATE PRODUCCION

01 - To calculate the approximate hourly production of the hydraulic disc harrow, use the following formula:

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

WHERE

- A = Area to be worked
- L = Working width of the disc harrow (in meters)
- V = Average tractor speed (meters / hour)
- F = Production factor - 0.90
- X = Hectare value - 10,000 m²

• **Example:** Using a 20-disc disc harrow, how many Hectare it will produce in an hour of work at an average speed of 7km / h?

- A = ?
- L = 1.60m
- V = 7.000m/h
- F = 0.90
- X = 10.000 m²

$$\frac{A = 1.60 \times 7.000 \times 0.90}{10.000} = 1.00 \text{ Ha/h}$$

TABLE OF APPROXIMATE PRODUCTION

Model	Spacing (m)	Working length (m/h)	Average speed	Production factor
				Hectares
HIB 16	1,25	7,000	0,90	0,78
HIB 20	1,60	7,000	0,90	1,00
HIB 24	1,95	7,000	0,90	1,22
HIB 28	2,30	7,000	0,90	1,45
HIB 32	2,65	7,000	0,90	1,66

Table 3

01 - The formula to calculate the appropriate production refers to the calculation of the area to be worked by the disc harrow. If you want to know how long it will take to work an area of known value, simply divide the value of this area by the hourly production of the disc harrow.

- **Example:** What is the time "X" that will be spent with a 20-disc Hydraulic Disc Harrow to produce 35 hectares at an average speed of 7km / h?

$$X = \frac{35 \text{ Ha}}{1.00 \text{ Ha / h}} = 35 \text{ hours approx.}$$

- The hourly production can vary by factors that alter the pace of work, for example: humidity and soil hardness, land slope and inadequate adjustments. These factors are different from those in the Table above, which shows field work in soils under normal conditions.

10. IDENTIFICATION

- In order to refer parts catalogues or apply technical support from Baldan, always indicate model (1), serial number (2), manufacture date (3) located on the identification tag.

ALWAYS REQUIRE BALDAN ORIGINAL PARTS



BIA Baldan
BALDAN IMPLEMENTOS AGRÍCOLAS S/A.
AV. BALDAN, 1500 | CEP 15.993-000 | MATÃO-SP | BRASIL
FONE: (0xx16) 3221-6500 | FAX: (0xx16) 3382-6500
e-mail: sac@baldan.com.br | Home Page: www.baldan.com.br
CNPJ: 52.311.347/0009-06 | INSCR. EST.: 441.016.953.110

Modelo	
Nº de Série	Date

1 points to the 'Modelo' field.
2 points to the 'Nº de Série' field.
3 points to the 'Date' field.



MARKETING

EDITING CATALOGS AND MANUALS

Code: 6055010089-7
Revision: 01
CPT: HIB05715



ATTENTION

The drawings in these instructions are merely illustrative.



CONTACT

*In case of doubt **do not** operate the equipment, please contact our **After-sales Service**.
Phone: 0800-152577
e-mail: export@baldan.com.br*

PRODUCT IDENTIFICATION

- Do the identification below to always have the properly informations about your equipment life time.

Owner: _____

Dealer: _____

Farm: _____ **City:** _____ **Country:** _____

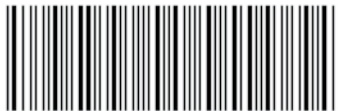
Model: _____

Warranty Number: _____ **Serial Number:** _____

Purchase Date: _____ / _____ / _____ **Invoice Number:** _____



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60550100897



Baldan



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