Instruction
Manual

CRI-A

Folding Offset Disc Harrow Remote Control

BALDAN

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 necessaries, 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

CRI-A

Folding Offset Disc Harrow Remote Control

BALDAN IMPLEMENTOS AGRÍCOLAS S/A.
CNPJ: 52.311.347/0009-06
Insc. Est.: 441.016.953.110

Scan the QR Code on the identification plate of your device and access this Instruction Manual online.

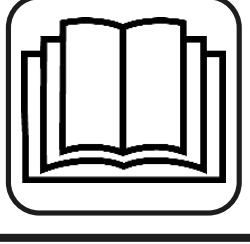
BALDAN

INDEX

THIS SYMBOL INDICATES IMPORTANT SAFETY WARNING. EVERY TIME YOU SEE IT IN THIS MANUAL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND PAY ATTENTION TO THE POSSIBILITY OF PERSONAL ACCIDENTS.

ATTENTION

- *Carefully read the instructions manual to know the recommended safety practices.*



ATTENTION

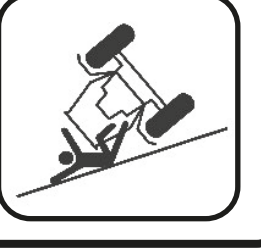
- *Only start operating the tractor when you are duly accommodated and with the seat belt locked.*

ATTENTION

- *Do not transport people on the tractor and neither inside nor over th e equipment.*

ATTENTION

- *There are risks of severe injuries due to falling when working on sloped lands.*
- *Do not use excess speed.*



⚠ ATTENTION

- *Do not work with the tractor if the front is not heavy enough for the back equipment.*
- *Add weights to the front or front wheels in case it may be raised.*

⚠ ATTENTION

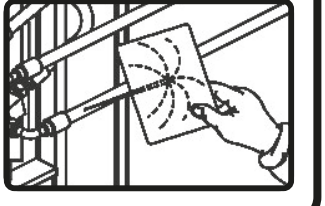
- *Before executing any maintenance on your equipment, check if it is at a standstill.*
- *Avoid being hit.*

⚠ ATTENTION

- *Always stay away from active elements of the equipment (Discs) as they are sharp and can cause accidents.*
- *Use safety gloves on your hands when performing services on the discs.*

⚠ ATTENTION

- *When searching for a possible leak on the hoses, use a piece of cardboard or wood and never use your hands.*
- *Avoid the incision of fluid on the skin.*



⚠ ATTENTION

- *Do not exceed the speed of 16 km/h or 10 MPH when transporting this equipment in order to avoid the risk of damages and accidents.*

⚠ ATTENTION

- *The hydraulic oil works under pressure and can cause serious injuries in the case of leaks. Periodically check the state of conservation of the hoses. Immediately replace in the case of leaks.*
- *Before connecting or disconnecting the hydraulic hoses, release the pressure of the system, activating the control with the tractor switched off.*

NR-31 – OCCUPATIONAL SAFETY AND HEALTH IN AGRICULTURE, LIVESTOCK, FORESTATION, FOREST EXPLORATION AND AQUICULTURE.

This objective of this Regulatory Standard is to establish the precepts to be observed in the organization and in the work environment, compatible with planning and development of the agricultural, livestock, forestation, forest exploration and aquiculture activities with occupational safety, health and environment.

THE OWNER OR OPERATOR OF THE EQUIPMENT.

Carefully read and observe the provision in NR-31.

For more information, consult the site and read the full NR-31.
http://portal.mte.gov.br/legislacao/normas-regulamentadoras-1.htm

WARNING

INCORRECT USE OF THIS EQUIPMENT MAY RESULT IN SERIOUS OR EVEN FATAL ACCIDENTS. BEFORE PLACING THE IMPLEMENT INTO OPERATION, CAREFULLY READ THE INSTRUCTIONS CONTAINED IN THIS MANUAL. ENSURE THAT THE PERSON RESPONSIBLE FOR THE OPERATION HAS BEEN INSTRUCTED ON THE CORRECT AND SAFE USE, HAVING READ AND UNDERSTOOD THIS MACHINE'S INSTRUCTION MANUAL.

01- ⚠ When operating with the equipment, prevent people from staying too close to or over the implement.

02- ⚠ Use gloves during the mounting or dismounting in the disc sections.

03- ⚠ Relieve the pressure of the circuit when switching the hydraulic hoses on or off.

04- ⚠ Periodically check the state of conservation of the hoses. Immediately replace it in the case of leaks because the oil operates at high pressure and can cause serious injuries.

05- ⚠ Do not use loose clothing as it can get caught on the equipment.

06- ⚠ When activating the tractor engine, be properly seated on the operator seat and have complete knowledge of the correct and safe handling of the tractor as well as the equipment. Always keep the gear stick in the neutral position, switch o the power take-o control gearing and place the hydraulic controls in the neutral position.

07- ⚠ Do not start the tractor engine in a closed setting without suitable ventilation because the exhaust gases are dangerous to health.

08- ⚠ When maneuvering the tractor to the coupler of the equipment, make sure there is enough space and no one too close to it, always maneuver in reduced speed and be prepared to brake in an emergency.

09- ⚠ **Do not make adjustments with the equipment in operation.**

10- ⚠ **When working on sloped lands, proceed carefully, always maintaining the necessary stability. In the case of misbalance, reduce the speed, turn the wheels towards the sloped side of the land and never raise the equipment.**

11- ⚠ **Always drive the tractor at speeds compatible with safety, especially in works on uneven lands or slopes, always keep the tractor coupled.**

12- ⚠ **When driving the tractors on streets, keep the brake pedals interconnected.**

13- ⚠ **Do not work with the tractor if the front is light. Add weights to the front or front wheels in case it may be raised.**

14- ⚠ **When leaving the tractor, put the brake handle in the neutral position and use the parking brake. Never leave the equipment coupled to the tractor with the hydraulic system in the raised position.**

15- ⚠ **Alcoholic drinks or some drugs may cause loss of reexes and change the physical conditions of the operator. Therefore, never operate this equipment when under the inuence of these substances.**

16- ⚠ **Read or explain all the procedure above to the user that cannot read.**

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

02. COMPONENTS

01 - Stiffener
02 - Left side front frame
03 - Center front frame
04 - Right side front frame
05 - Left side back frame
06 - Center back frame
07 - Right side back frame
08 - Coupling header
09 - Articulation shaft support
10 - Tires
11 - Discs
12 - Wheel articulation pistons
13 - Side articulation pistons
14 - Stabilizer rod
15 - Lifter stabilizer bar
16 - Lift support (mechanical jack)
17 - Cleaners
18 - Sign plate

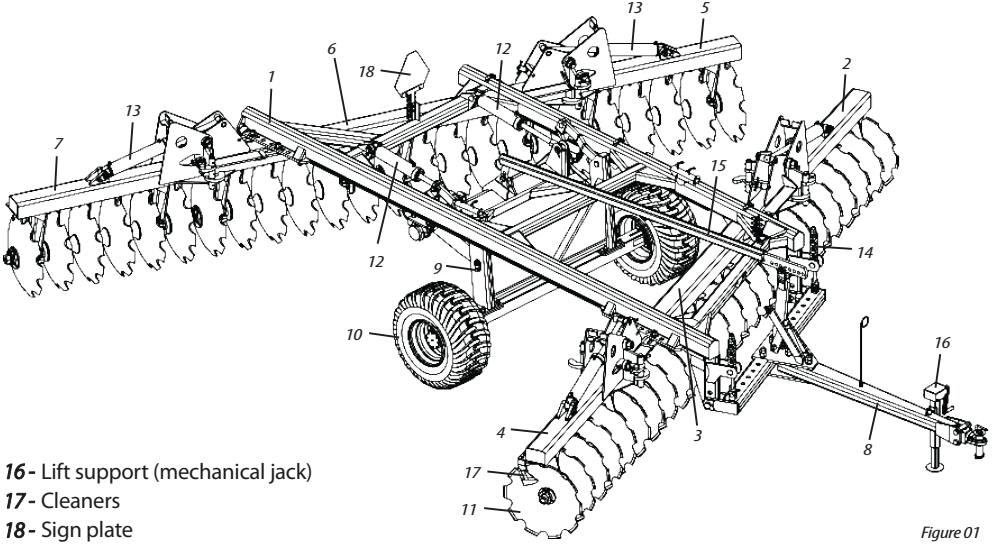
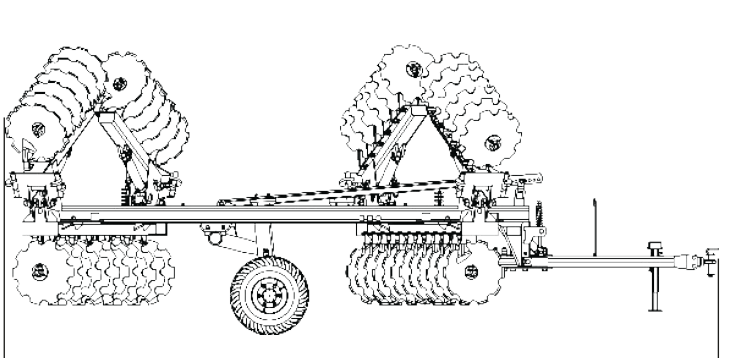
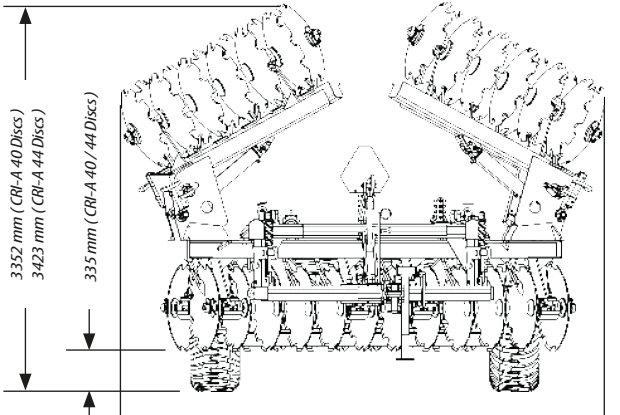


Figure 01

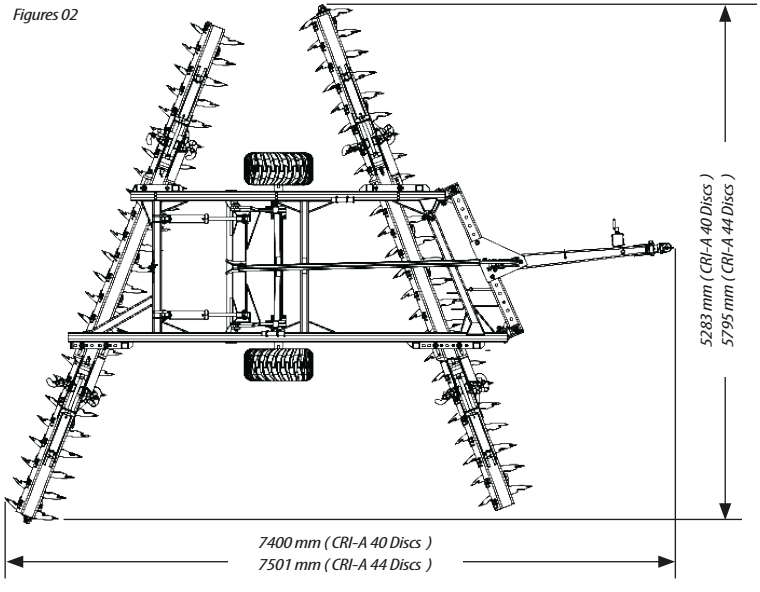
DIMENSIONS CRI-A 40 / 44 DISCS (FIGURES 2)



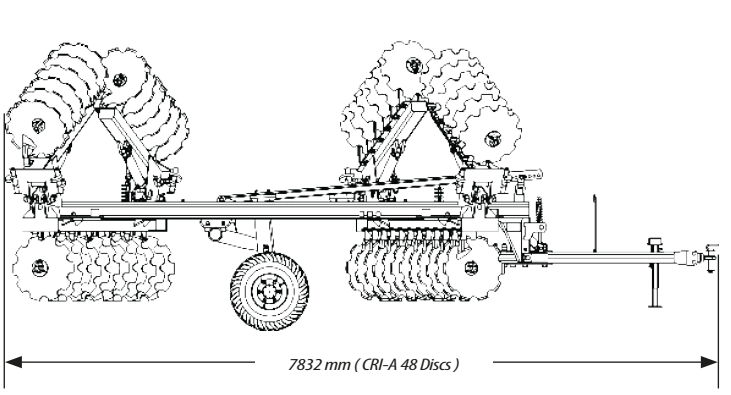


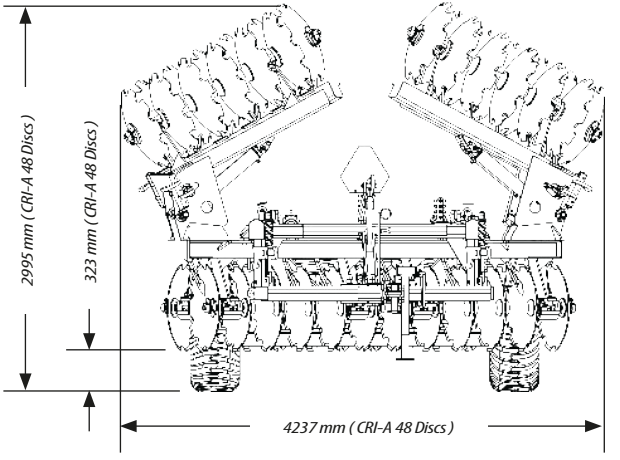
Figures 02

Figures 02


5283 mm (CRI-A 40 Discs)
5795 mm (CRI-A 44 Discs)
7400 mm (CRI-A 40 Discs)
7501 mm (CRI-A 44 Discs)

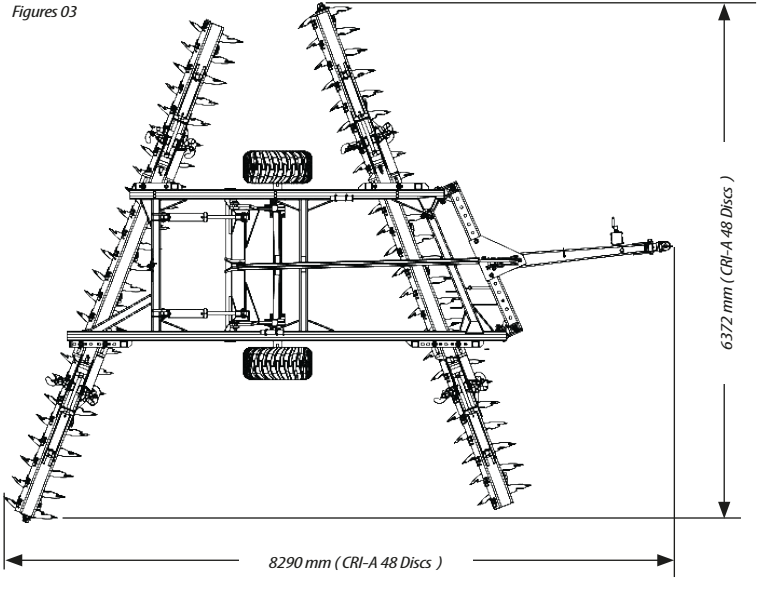
DIMENSIONS CRI-A 48 DISCS (FIGURES 3)





Figures 03

Figures 03



04. TECHNICAL SPECIFICATIONS

Tabela 01

Model	Nr of Discs	Spacing between Discs (mm)	Discs diameter (ø)	Concave Discs (mm)	Shaft diameter (ø)	Working width (mm)	Working depth (mm)	Approximate weight (Kg)		Tractor Power (HP)	Wheelsets
								26"	28"		
CRI-A	40	270	26" e 28"	6,0 e 7,5	1.5/8"	5290	150 - 250	0	5440	240 - 260	Duplo 400x60
CRI-A	44	270	26" e 28"	6,0 e 7,5	1.5/8"	5840	150 - 250	0	5650	264 - 280	
CRI-A	48	270	26" e 28"	6,0 e 7,5	1.5/8"	6390	150 - 250	0	6000	288 - 303	

Baldan reserve s the right to change the technical features of this product without prior warning.
The technical specications are approximate and informed in the normal working conditions.

05. ASSEMBLY

- The CRI-A harrows leave's the factory dismounted. To mount them, follow the instructions below:

1 - ⚠
2 - ⚠

Use safety gloves on your hands when performing mounting and dismounting services on the discs.
Do not use loose clothing because it can get caught on the equipment.

MOUNTING OF DISC SECTION (FIGURE 4)
CRI -A 40 / 44 / 48 DISCS

- When mounting the CRI-A, always start with the set of discs and proceed as follows:

01 - Place the concave thrust washer (2) on the shaft (1), followed by the washer (3), nut (4) and lock (5), securing it with the pressure washer (6) and bolt (7).

02 - Then put the disc (7), bearing (8), another disc (7), separator spool (9) on the shaft (1) and so on successively, as shown in figure 4.

03 - When the set is complete with all the discs, bearings, separator spools, put the convex thrust washer (10), the other washer (3) and nut (4), tightening with the key until the entire set is firmly secured.

04 - Then wedge the set of discs and tighten the nut (4) through impacts. When maximum tightness is almost obtained, adjust the lock (5) with the convex washer (10), always tightening the nut until it coincides with the hole, fixing it with the pressure washer (6) and bolt (7).

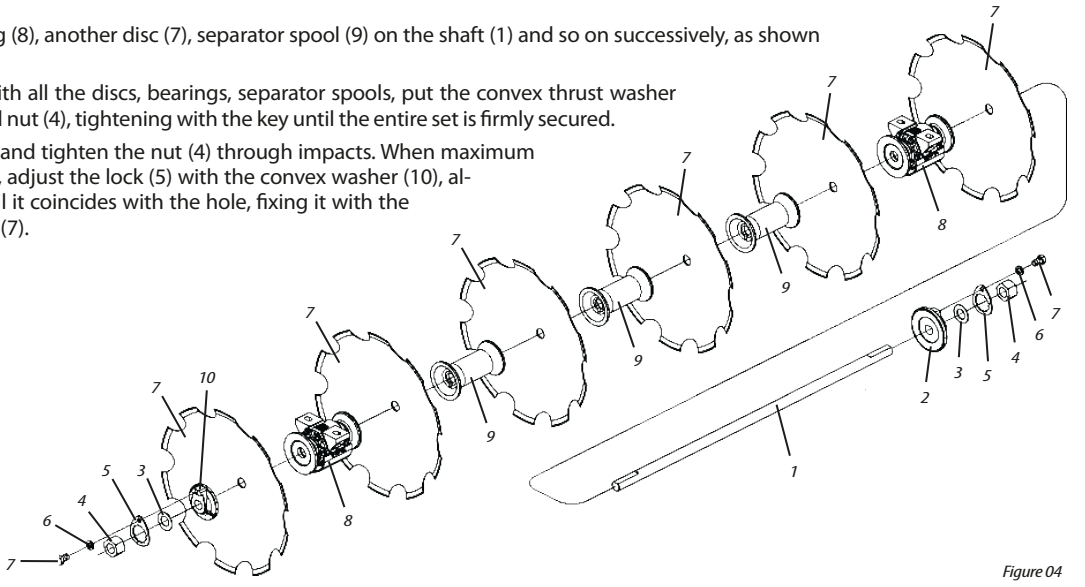
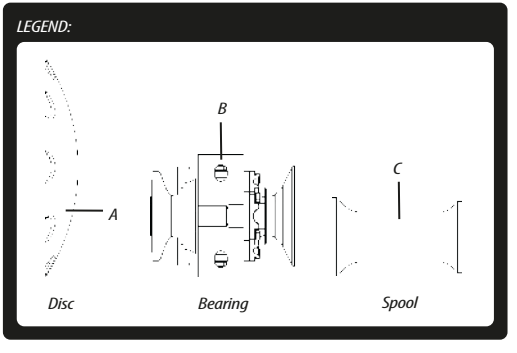
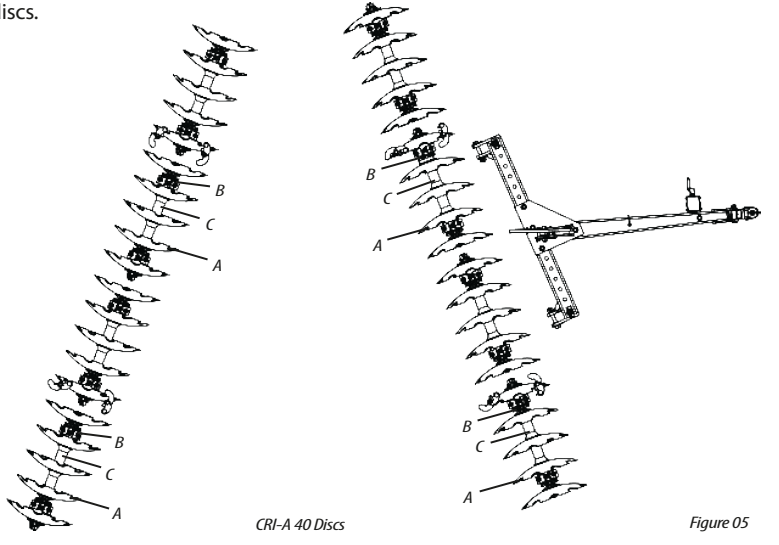


Figure 04

MOUNTING OF DISC SECTIONS (FIGURE 5)
CRI-A 40 DISCS

01 - Figure 5 shows the mounting of the disc sections of CRI-A 40 discs.



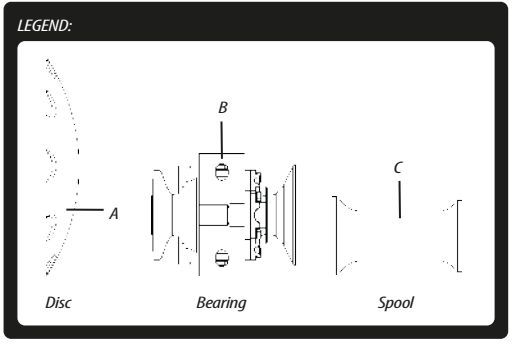


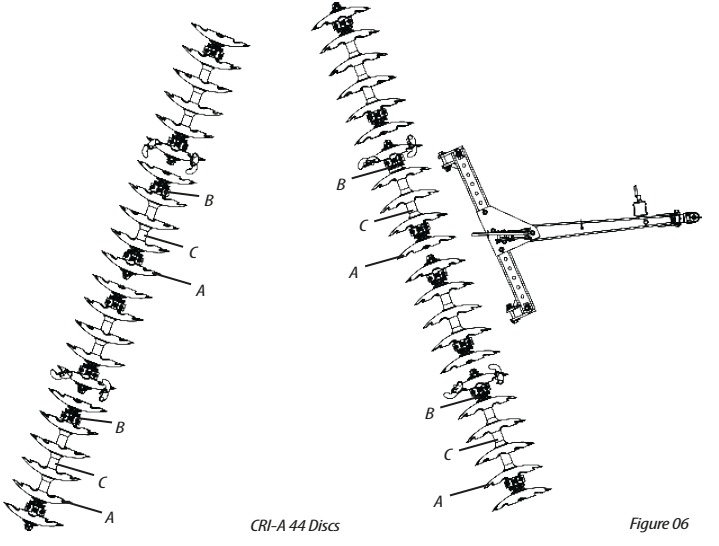
CRI-A 40 Discs

Figure 05

MOUNTING OF DISC SECTIONS (FIGURE 6)
CRI-A 44 DISCS

01 - Figure 7 shows the mounting of the disc sections of CRI-A 44 discs.



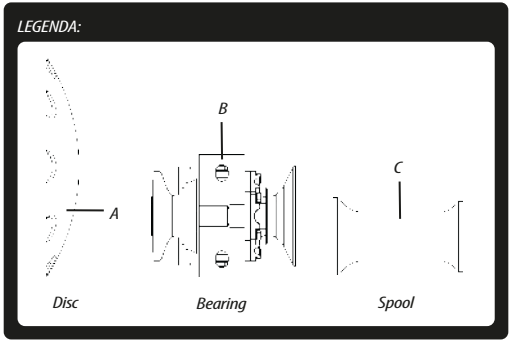


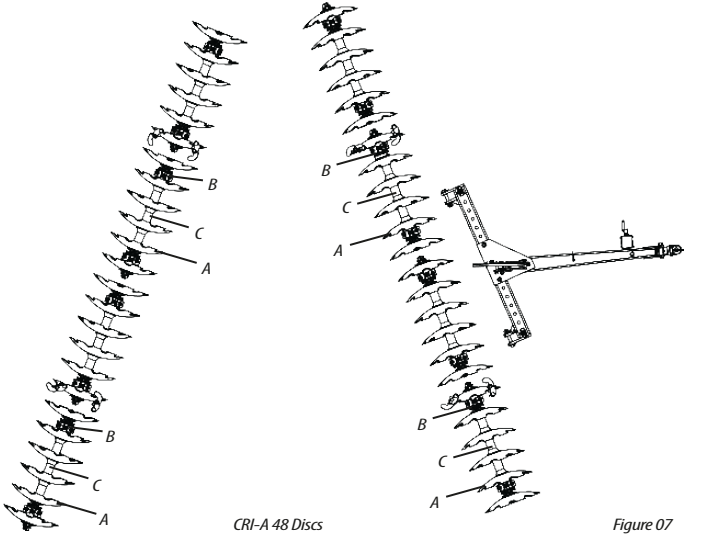
CRI-A 44 Discs

Figure 06

MOUNTING OF DISC SECTIONS (FIGURE 7)
CRI-A 48 DISCS

01 - Figure 7 shows the mounting of the disc sections of CRI-A 48 discs.





CRI-A 48 Discs *Figure 07*

MOUNTING OF CENTER FRAMES ON THE STIFFENER (FIGURE 8)
CRI -A 40 / 44 / 48 DISCS

- Start mounting the CRI-A with the center frames, proceeding as follows:

01 - Put the front center frames (1) and back center frames (2) on a flat and clean place.

02 - Then put the stiffener (3) on the front (1) and back center frames (2), securing them with the bolt (4), lock (5), flat washer (6), pressure washer (7) and nut (8).

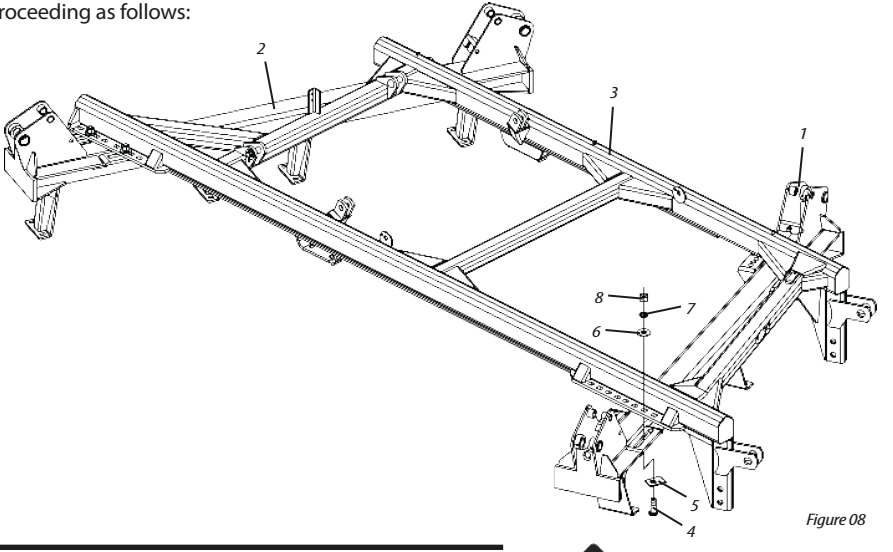


Figure 08

MOUNTING OF DISC SECTIONS ON CENTER FRAMES (FIGURE 9)
CRI -A 40 / 44 / 48 DISCS

- After fixing the center frames (1) on the stiffener (2), attach the disc sections (3), proceeding as follows:

01 - Raise the front or back part of the harrow and place the disc section (3) in row and coincide the holes of the wedges (4) with the bearings, then secure using the bolts (5), flat washer (6), pressure washer (7) and nut (8).

02 - Then raise the other part of the harrow and repeat the operation, checking the concavity of the discs of one section to the other, which must be otherwise.

03 - After mounting, check to see if the wedges (4) are facing the concavity of the discs.

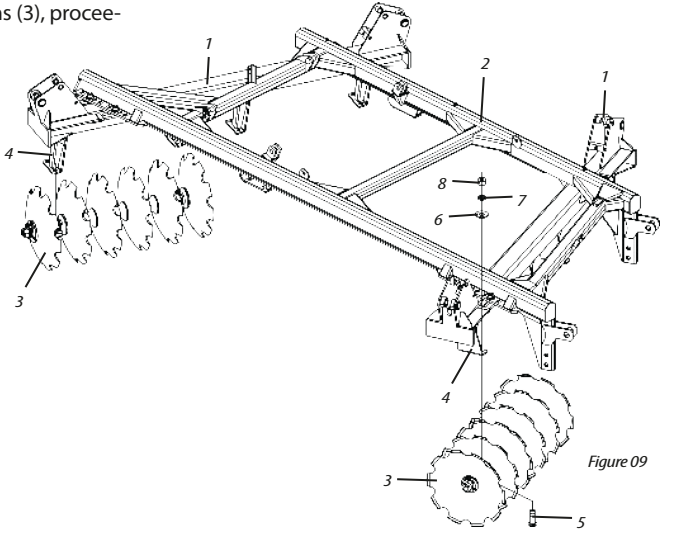


Figure 09

ATTENTION

When mounting the disc sections on the frames, ensure that the wedges of the frames face the concavity of the discs.

MOUNTING OF SIDE FRAMES (FIGURE 10)
CRI -A 40 / 44 / 48 DISCS

- To mount the side frames of the CRI-A, proceed as follows:

01 - Couple the side frames (1) to the center frames (2).

02 - Then insert the pins (3), securing using at washers (4) and nuts (5), locking using the bolts (6) and nuts (7).

03 - Finish by placing the supports (8), securing using the pins (9) and retaining pins (10).

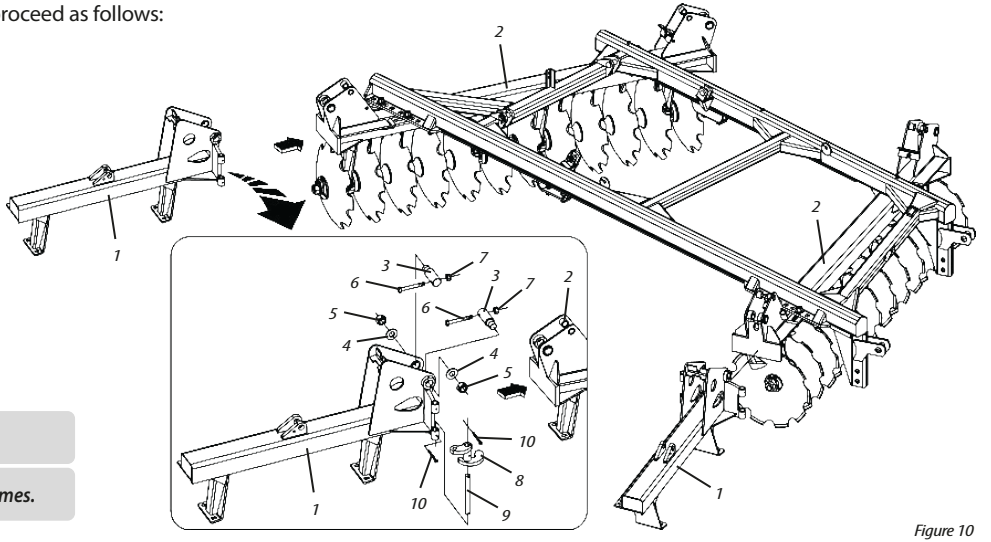


Figure 10

ATTENTION

Repeat this procedure to mount the left side frames.

MOUNTING OF DISC SECTIONS ON SIDE FRAMES (FIGURE 11)
CRI -A 40 / 44 / 48 DISCS

- After fixing the side frames (1) on the center frames (2), attach the disc sections (3), proceeding as follows:

01 - Raise the front or back part of the harrow and place the disc section (3) in row and coincide the holes of the wedges (4) with the bearings, then secure using the bolts (5), flat washer (6), pressure washer (7) and nut (8).

02 - Then raise the other part of the harrow and repeat the operation, checking the concavity of the discs of one section to the other, which must be otherwise.

03 - After mounting, check to see if the wedges (4) are facing the concavity of the discs.

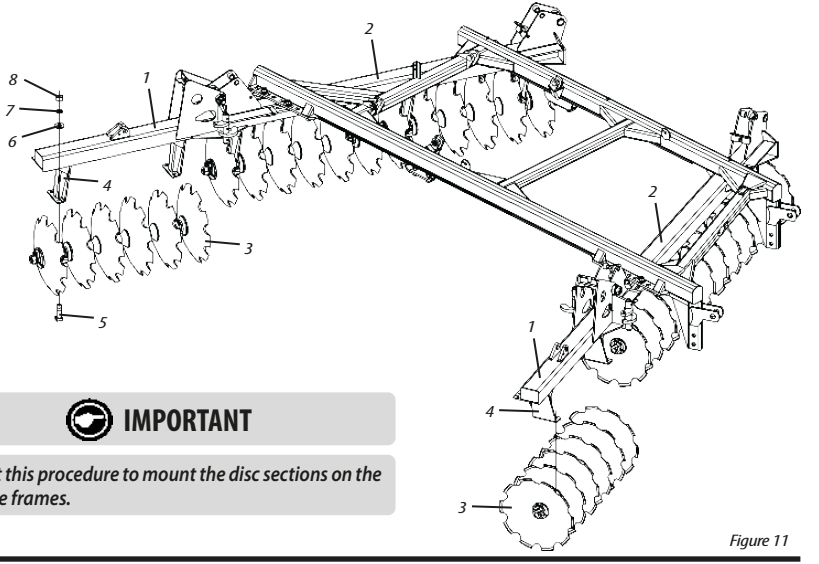


Figure 11

ATTENTION

When mounting the disc sections on the side frames, ensure that the wedges of the side frames face the concavity of the discs.

IMPORTANT

Repeat this procedure to mount the disc sections on the left side frames.

MOUNTING OF CLEANERS (FIGURE 12)
CRI -A 40 / 44 / 48 DISCS

- After mounting the disc sections on the frames, attach the cleaners (1), proceeding as follows:

01 - Put the cleaners (1) on the frames (2), securing them with bolts (3), flat washers (4), pressure washers (5) and nuts (6).

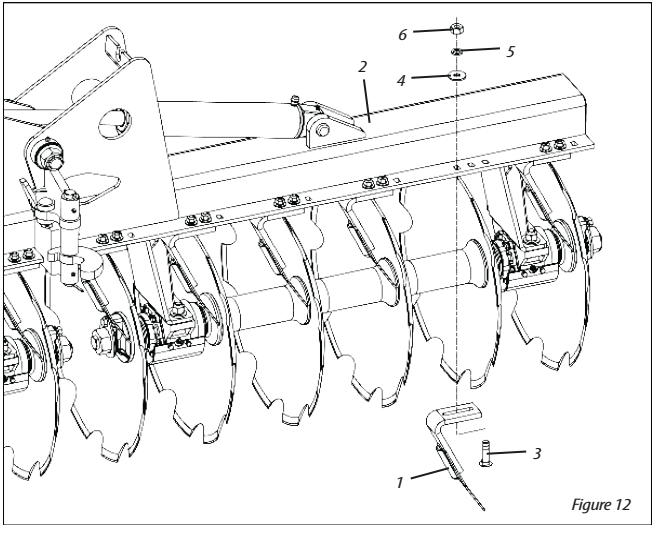


Figure 12

ATTENTION

When mounting the cleaners, these should be 0.5 to 1.0 cm away from the discs.

MOUNTING OF STIFFENER WHEEL SUPPORT (FIGURE 13)
CRI -A 40 / 44 / 48 DISCS

- To mount the wheel support (1) in the center frame proceed as follows:

01 - Couple the hub (1) to the articulation shaft of the tires (2) and secure the hub (1) to the stiffener (3) through bolts (4), pressure washers (5) and nuts (6).

02 - Then couple the shaft support (7) to the articulation shaft of the tires (2), securing using the pin (9), pressure washer (10) and bolts (11).

03 - After, place the bars (12) on the shaft support (7) and stiffener (3), securing with the pins (13), flat washers (14) and retaining pin (15).

04 - Finish by coupling the shaft (16) to the shaft support (7), securing with the bolts (17), pressure washers (18) and nuts (19).

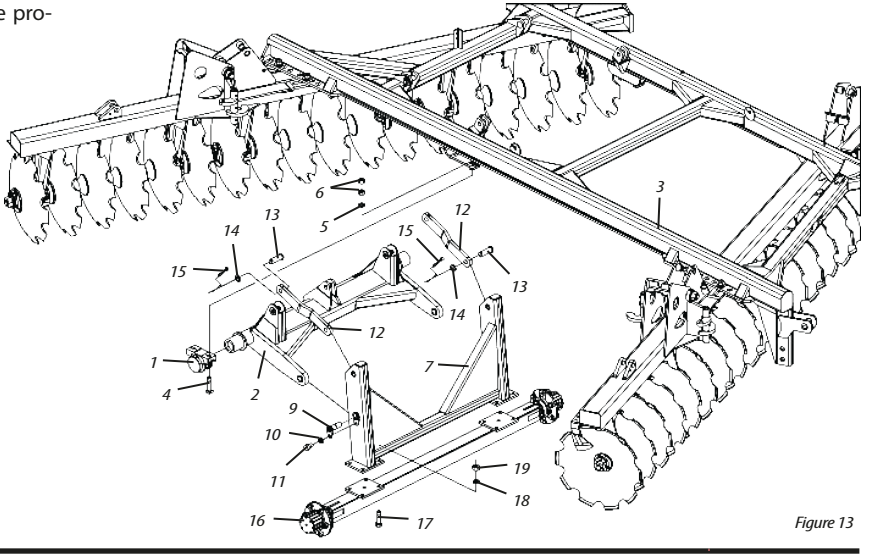


Figure 13

MOUNTING OF TIRES (FIGURE 14)
CRI -A 40 / 44 / 48 DISCS

- After mounting the wheel support on the stiffener, attach the tires (1), proceeding as follows:

01 - Couple the tires (1) to the wheel support (2) using the bolts (3) and nuts (4).

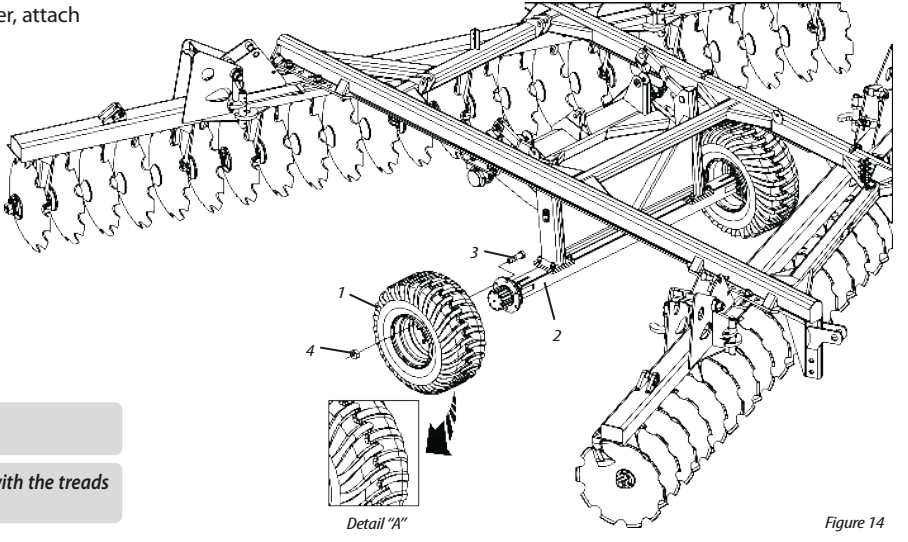


Figure 14

ATTENTION

All the tires should be mounted anti-tractioned, that is, with the treads facing the front of the CRI-A, as shown in detail "A".

MOUNTING OF COUPLING HEADER (FIGURE 15)
CRI -A 40 / 44 / 48 DISCS

- To mount the coupling header, proceed as follows:

01 - Couple the coupling header (1) to the stiffener (2) through bolts (3), pressure washers (4) and nuts (5), locking with the bolts (6).

02 - Then attach the rods (8) to the header (1) and to the stiffener (2) using the pins (9), washers (10) and retaining pin (11).

03 - Then couple the stabilizer bar support (12) to the header (1) using the bolt (13), pressure washer (14) and nut (15).

04 - Afterwards, insert the pin (16) in the header (1), locking the stabilizer bar support (12) with the flat washer (17) and lock (18).

05 - Couple the mechanical jack (19) to the header (1) locking it with the pin (20) and lock (21).

06 - Lastly, place the hose support (22) and the lock nut (23) on the header (1).

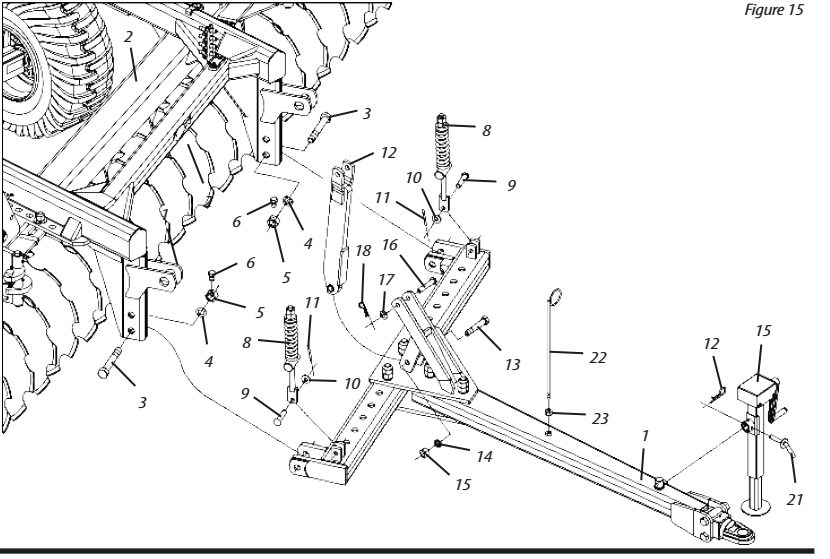


Figure 15

MOUNTING OF ADJUSTING ROD (FIGURE 16)
CRI -A 40 / 44 / 48 DISCS

- After mounting the coupling header, attach the adjusting rod (1), proceeding as follows:

01 - Attach the back part of the adjusting rod (1) to the articulation shaft (2) using the pin (3), flat washer (4) and retaining pin (5).

02 - Then, attach the front part of the adjusting rod (1) to the rod support (6) using the pin (7), flat washer (8) and lock (9).

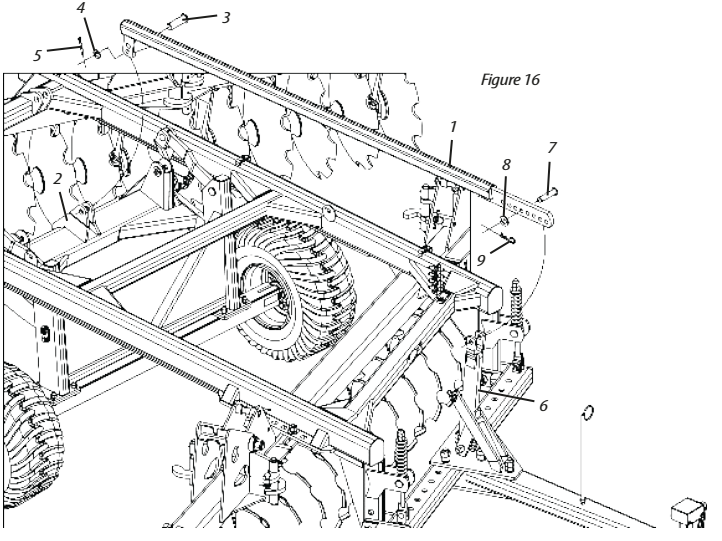


Figure 16

MOUNTING OF CENTRAL HYDRAULIC CYLINDERS (FIGURE 17)
CRI -A 40 / 44 / 48 DISCS

- After mounting the adjusting rod, attach the central hydraulic cylinders proceeding as follows:

01 - Couple the bases of the hydraulic cylinders (1) to the stiffener (2) with the pins (3), flat washers (4) and retaining pins (5).

02 - Then couple the rods of the hydraulic cylinders (1) to the wheel support (6) with the pins (7), flat washers (8) and retaining pins (9).

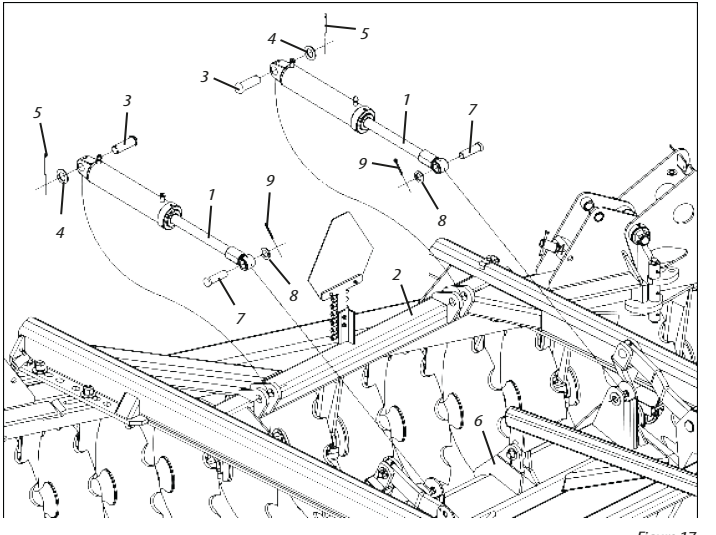


Figure 17

MOUNTING OF SIDE HYDRAULIC CYLINDERS (FIGURE 18)
CRI -A 40 / 44 / 48 DISCS

- After mounting the central hydraulic cylinders, attach the side hydraulic cylinders proceeding as follows:

01 - Couple the bases of the hydraulic cylinders (1) to the side frames (2) with the pins (3), pressure washers (4) and bolts (5).

02 - Then couple the rods of the hydraulic cylinders (1) to the center frames (6) with the pins (7) and the elastic pins (8) and (9).

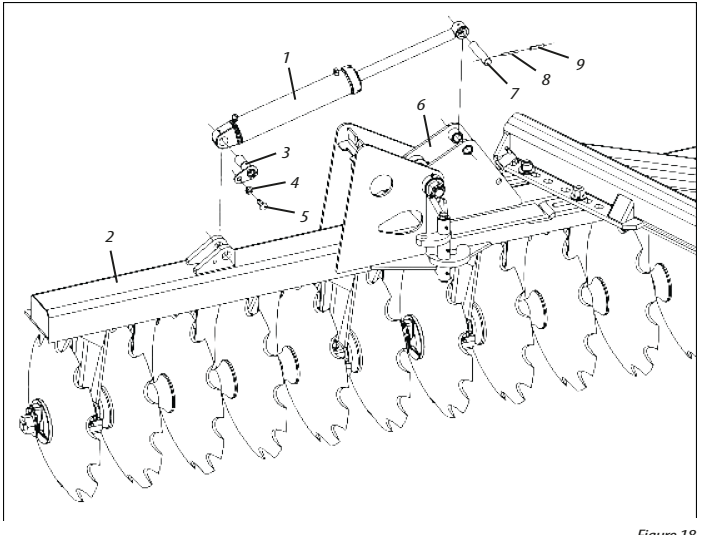


Figure 18

MOUNTING OF INTERNAL CYLINDERS (FIGURE 19)
CRI -A 40 / 44 / 48 DISCS

- After mounting the side hydraulic cylinders, attach the internal hydraulic cylinders proceeding as follows:

01 - Couple the hydraulic cylinders (1) to the locks (2) with the pins (3), flat washers (4) and retaining pins (5).

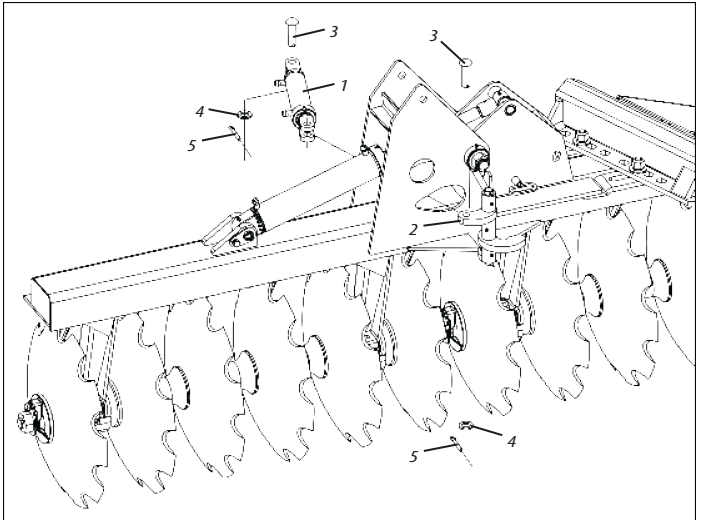


Figure 19

MOUNTING OF SIGN PLATE (FIGURE 20)
CRI -A 40 / 44 / 48 DISCS

- After mounting the coupling header, attach the sign plate (1), proceeding as follows:

01 - Attach the sign plate (1) to the support (2) using the bolts (3), pressure washers (4) and nuts (5).

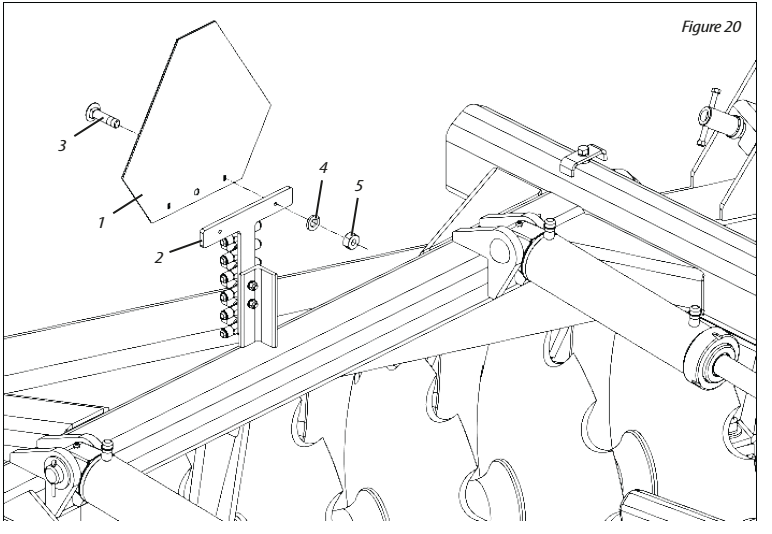
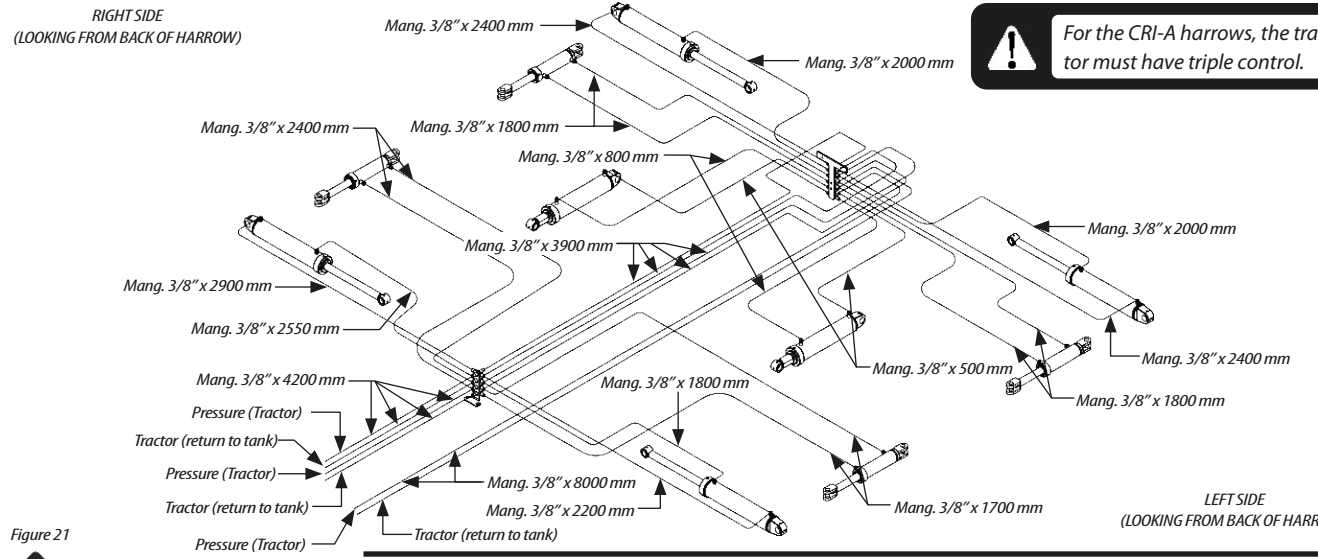


Figure 20

ATTENTION

Do not transport the harrow without the sign plate mounted.

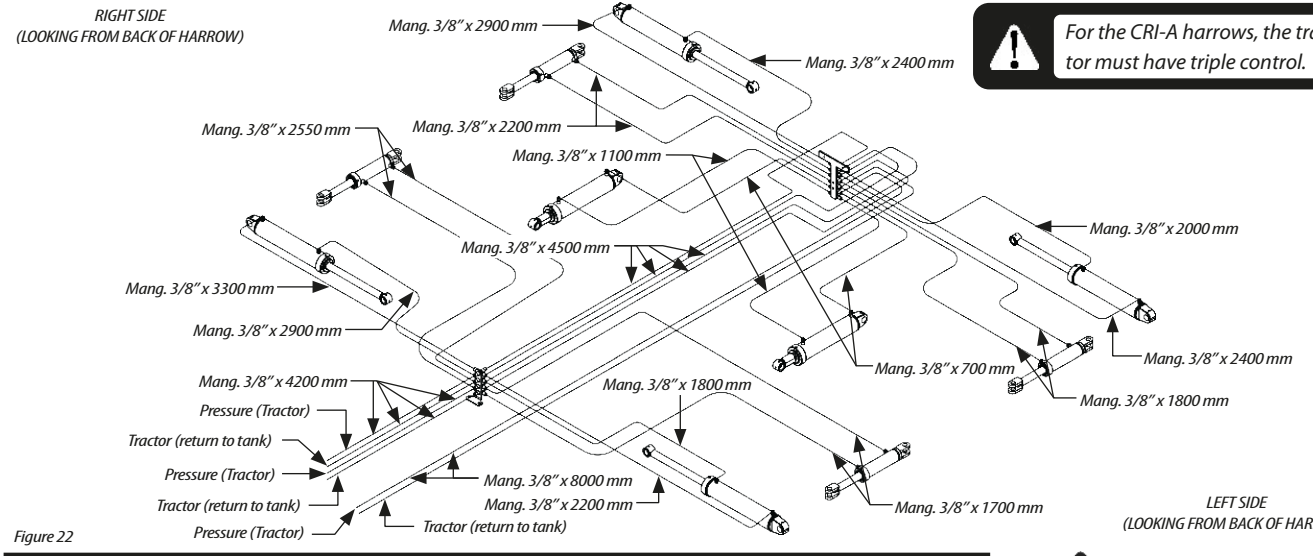
MOUNTING OF HYDRAULIC SYSTEM (FIGURE 21)
CRI-A 40 / 44 DISCS



For the CRI-A harrows, the tractor must have triple control.

Figure 21

MOUNTING OF HYDRAULIC SYSTEM (FIGURE 22)
CRI-A 48 DISCS



For the CRI-A harrows, the tractor must have triple control.

Figure 22

COUPLING THE HARROW TO TRACTION BAR OF THE TRACTOR (FIGURE 23) CRI -A 40 / 44 / 48 DISCS

- To couple the CRI-A to the traction bar of the tractor, follow the instructions below:

01 - *Before coupling the CRI-A, look for a safe place of easy access.*
02 - *Always use reduced gear with low acceleration.*
03 - *Before connecting or disconnecting the hydraulic hoses, stop the engine and release the pressure of the circuit by fully activating the control handles.*
04 - *Make sure no one gets injured by the equipment movement when releasing the pressure of the system.*

- Observe the instructions below and proceed as follows:

01 - Level the coupling header (1) of the CRI-A in relation to the tractor coupler using the adjusts (2) of the coupling shackle. Then slowly bring the tractor close to the harrow on reverse, paying attention to the application of the brakes.

02 - Proceed with coupling the CRI-A to the tractor by attaching it with the coupling pin (3), flat washer (4) and lock (5).

03 - Finish coupling the hoses (6) to the quick coupling system of the tractor.

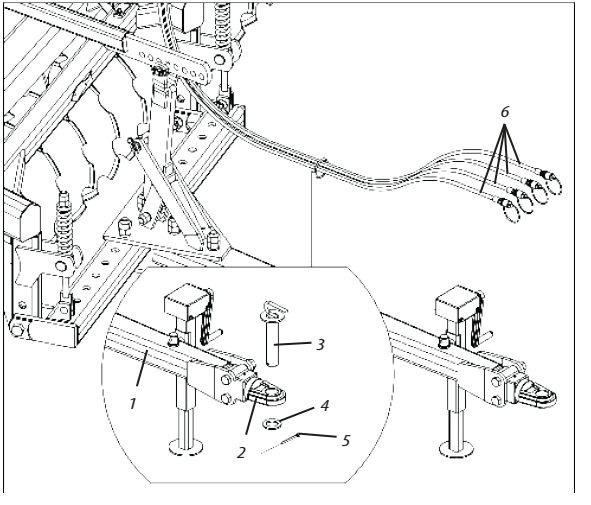
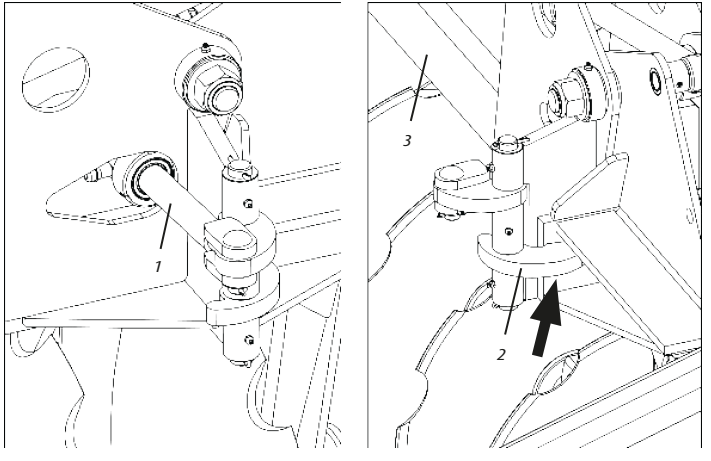


Figure 23

TRANSPORTATION (FIGURES 24)
CRI -A 40 / 44 / 48 DISCS

- Before transporting the CRI-A, proceed as follows:

Figures 24



01 - First of all, operate the hydraulic cylinders (1) in order for these to move the support (2), unlocking the side frames (3).

02 - Then articulate the side frames (3).

ATTENTION

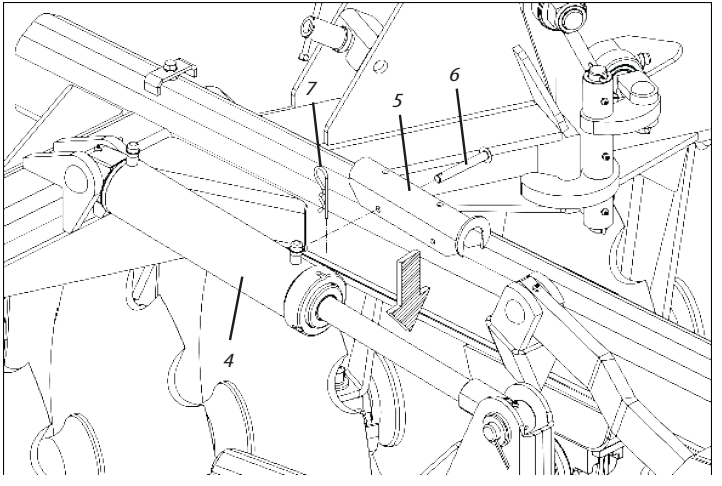
When articulating the CRI-A, avoid having people close to it because of the risk of accidents caused by possible mechanical or hydraulic failure, causing the frame to lower rapidly.

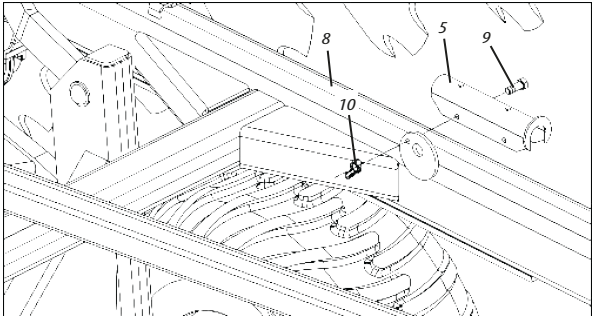
03 - Afterwards, operate the rods of the hydraulic cylinders (4) to the necessary measurement.

04 - Put the lock (5) on the rods of the hydraulic cylinders (4) until it lls the entire space between the coupling of the rods and the plunger of the hydraulic cylinders (4) and attach it using the pin (6) and lock (7).

05 - After transporting the CRI-A, remove the lock (5) from the hydraulic cylinder and attach it to the stiener (8) with the bolt (9) and wing nut (10).

Figures 24



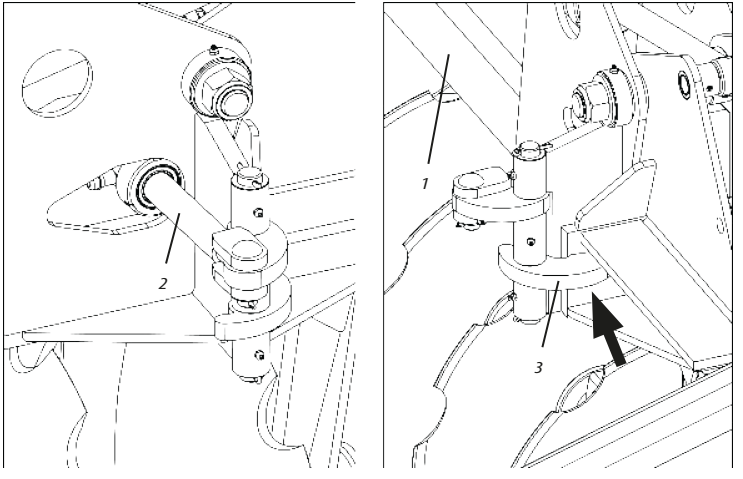


ATTENTION

Do not transport the CRI-A without placing the locks (5) on the hydraulic cylinders (4).

- Before operating the CRI-A, proceed as follows:

Figures 25



01 - First, disarticulate the side frames (1).

02 - Then operate the hydraulic cylinders (2) in order for these to move the support (3), locking the side frames (1).

ATTENTION

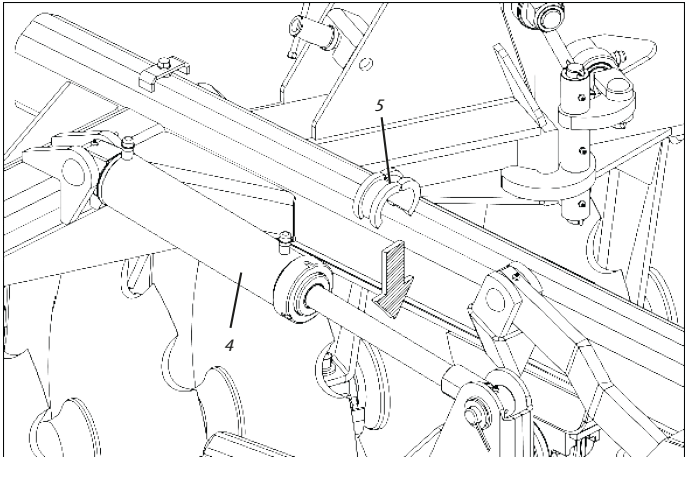
When disarticulating the CRI-A, avoid having people close to it because of the risk of accidents caused by possible mechanical or hydraulic failure, causing the side frames (1) to lower rapidly.
Do not operate the CRI-A without locking the side frames (1).

03 - Afterwards, to limit the depth of the CRI-A, operate the rods of the hydraulic cylinders (4) to the necessary measurement.

04 - Then put the limiting rings (5) on the rods of the hydraulic cylinders (4) until they fill up the entire space between the coupling of the rods and the plungers of the hydraulic cylinders (4).

05 - After working with the CRI-A, remove the limiting rings (5) from the hydraulic cylinders (4).

Figures 25



IMPORTANT

After adjustment, the CRI-A will always operate at the same depth both on hard and soft land because the limiting rings (5) will be limiting the stroke of the hydraulic cylinders (4), which means, it will prevent the oscillation of the wheels.

ATTENTION

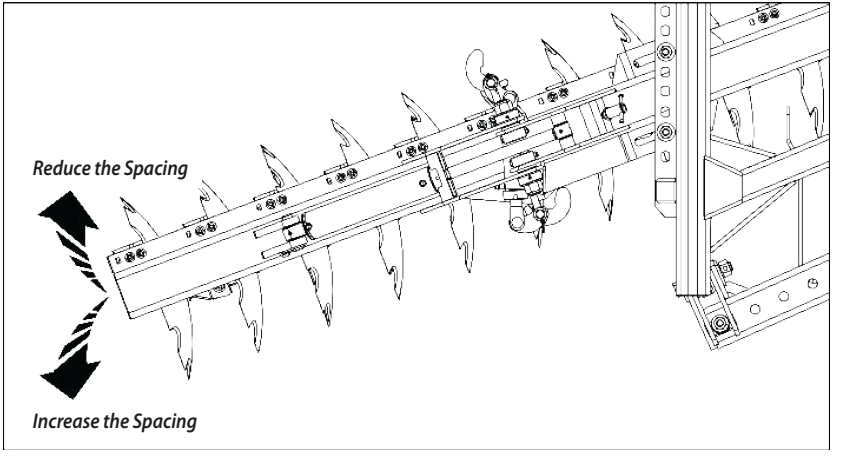
Always put the same number of limiting rings (5) on the two hydraulic cylinders (4) for raising the wheels.

HARROW SPACING ADJUSTMENTS (FIGURES 26)
CRI -A 40 / 44 / 48 DISCS

- To obtain the ideal penetration of the discs, the harrow spacing should be adjusted and this varies with the type of soil:

01 - *On lands of greater penetration diculty, increase the harrow spacing.*

02 - *On light and loose lands, reduce the harrow spacing.*



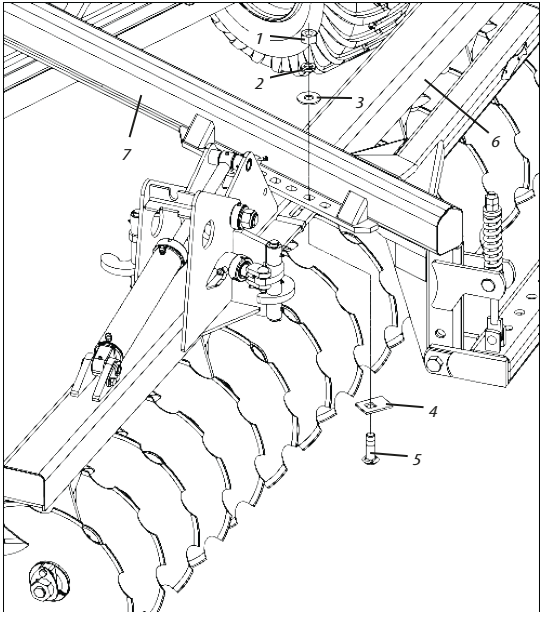
Figures 26

- To open or close the harrow, proceed as follows:

01 - First, loosen the nuts (1), pressure washers (2) and flat washers (3), and remove the locks (4) and bolts (5).

02 - Then adjust the frames (6), reducing or increasing the opening.

03 - After, attach it back to the stiffener (7).



Figures 26

ATTENTION

The wheels also aid in controlling the depth of the discs.

HARROW DISPLACEMENT ADJUSTMENT (FIGURES 27)
CRI -A 40 / 44 / 48 DISCS

- Displacement of the harrow must be performed when the harrow is not giving a perfect finish, meaning that it is leaving a trail of the tractor. In order for the harrow to work centralized with the traction line of the tractor, proceed as follows:

01 - Loosen the nuts (1), pressure washers (2), then remove the bolts (3) and move the header (4), performing the ideal adjustment.

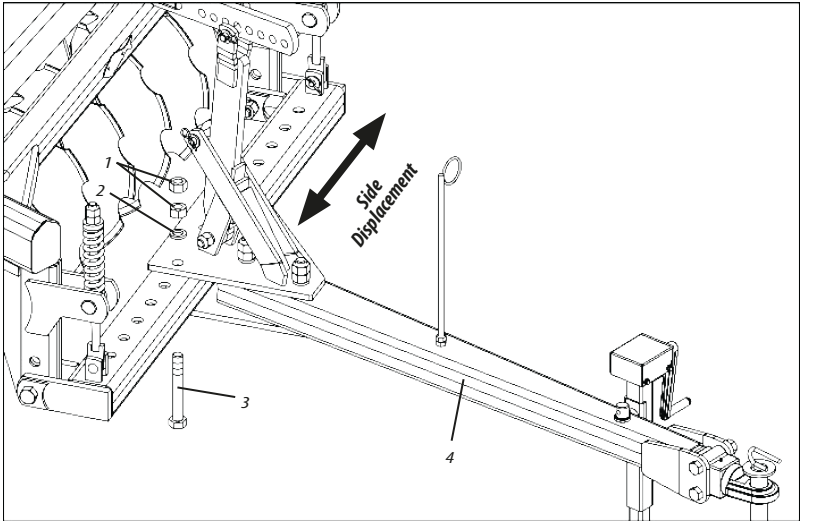


Figure 27

CROSS-SECTIONAL BAR ADJUSTMENT (FIGURE 28) CRI -A 40 / 44 / 48 DISCS

01 - The stiffener (1) has two holes on each side with the main purpose of leveling the header of the harrow in relation to the traction bar of the tractor.

01 - Increase Penetration.

02 - Reduce Penetration.

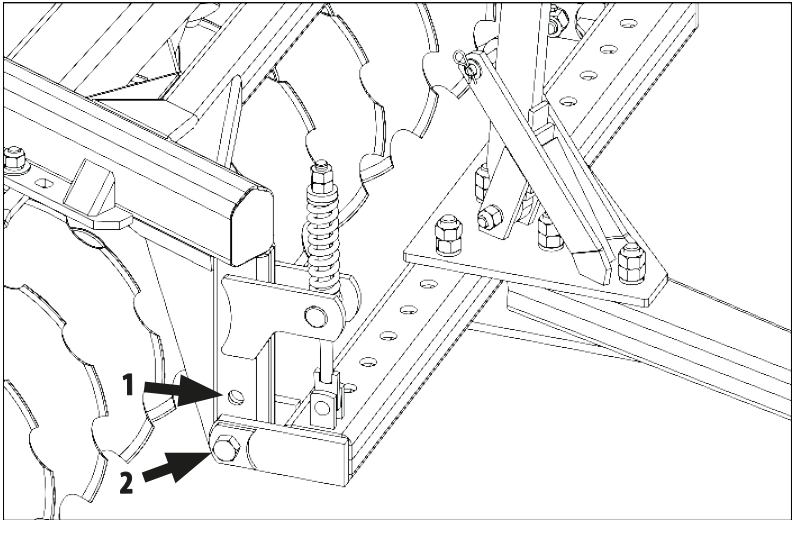
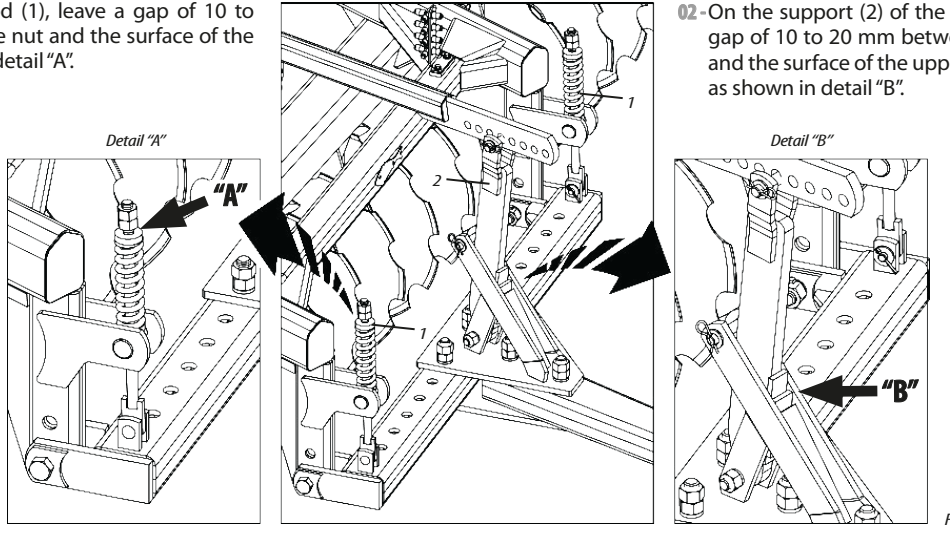


Figure 28

STABILIZER ROD AND STABILIZER ROD SUPPORT ADJUSTMENT (FIGURES 29)
CRI -A 40 / 44 / 48 DISCS

01 - On the stabilizer rod (1), leave a gap of 10 to 20 mm between the nut and the surface of the spring as shown in detail "A".

02 - On the support (2) of the stabilizer bar, leave a gap of 10 to 20 mm between the stabilizer rod and the surface of the upper plate of the header as shown in detail "B".



Figures 29

09. OPERATIONS

- The preparation of the tractor will enable you to save time besides having a better result in the field works.
- The suggestions below may be useful.

01 - *After the first day of work with the CRI-A, retighten all the bolts and nuts and check the conditions of the pins and locks. Then carry out general retightening of all the bolts and nuts after every 10 hours of work.*

02 - *Adjust the tractor according to the content of the instruction manual, always using the front and back weights to stabilize the equipment.*

03 - *When using the CRI-A, it is important to check the coupling and cross-leveling system to make sure the discs will have the same penetration depth on the ground.*

04 - *After coupling and leveling, the next adjustments should be performed directly on the field, analyzing the land in terms of texture, wetness and types of operations to be executed with the CRI-A.*

HARROWING
CRI -A 40 / 44 / 48 DISCS

Before operating the harrow, carry out complete revision, retightening all bolts, nuts, hose terminals, shafts and especially the disc sections.

01 - When harrowing, always follow the terraces or contour line, starting operation with the terrace on the left side of the tractor operator.

02 - Do not turn to the right, the harrowed land must always be to the left of the tractor operator.

HARROWING FROM OUTSIDE TO INSIDE (FIGURE 30)
CRI -A 40 / 44 / 48 DISCS

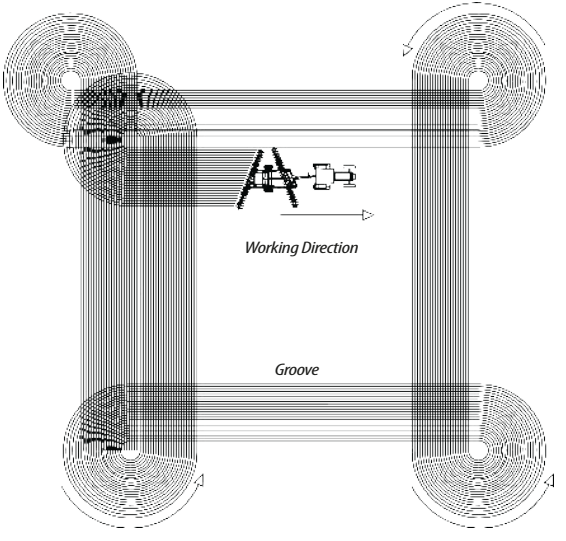
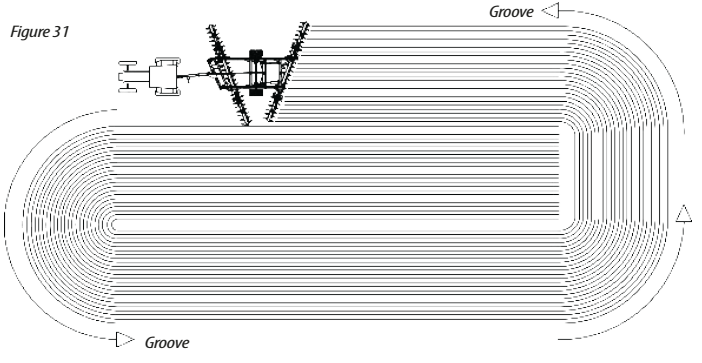


Figure 30

HARROWING FROM INSIDE TO OUTSIDE (FIGURE 31)
CRI -A 40 / 44 / 48 DISCS

01 - Greater perfection is obtained in this direction. Start another plot when moving a lot on the headers.

Figure 31



PLOTS WITH CONTOUR LINES (FIGURE 32)
CRI -A 40 / 44 / 48 DISCS

01 - On lands with contour line, it is normal to start two plots at a time, carefully starting the work with the level curve on the left side of the tractor operator. When reaching the middle of the level curve, start the other half of the level curve, and start another plot to reduce the use of fuel.

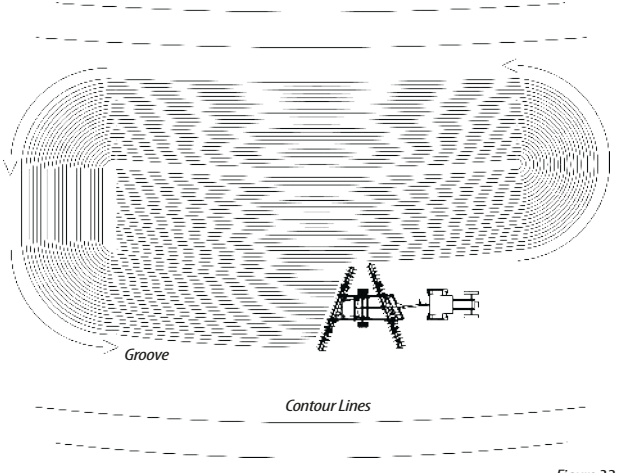


Figure 32

10. MAINTENANCE

01 - CRI-A was developed to provide the maximum yield on the land conditions. Experience has shown that periodic maintenance of certain parts of the harrow is the best way to prevent problems; hence we suggest the check.

ATTENTION

Constantly check the nuts and bolts, and retighten if necessary. General retightening maintenance of the equipment should be performed every 8 working hours.

TIRE PRESSURE (FIGURE 33)
CRI -A 40 / 44 / 48 DISCS

01 - The tires must always be correctly calibrated to avoid premature wears by excess or lack of pressure, and by ensuring precision in the distribution.

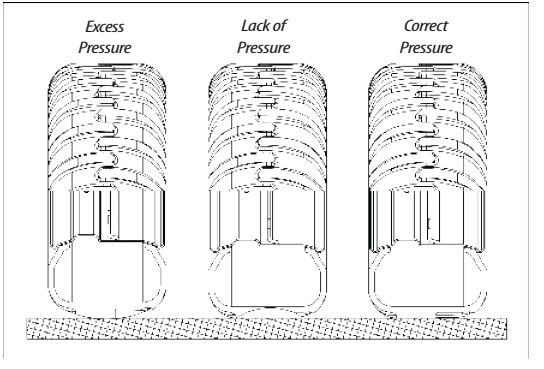
ATTENTION

The recommended calibration of 52 lb/inch² is for tires model 400 x 60 14 ply supplied with the CRI-A.
When calibrating the CRI-A, do not exceed the recommended calibration.
When purchasing the harrow without tires, it is recommended to consult the manufacturer on the ideal calibration for the model of tire to be used on the harrow

NOTE

The tire pressure of the tractor should be according to the pressure recommended by the manufacturer.

Figure 33



LUBRICATION (TABLE 2)
CRI -A 40 / 44 / 48 DISCS

01 - Lubrication is indispensable for a good performance and higher durability of the moving parts of the harrow, which helps save maintenance costs.

02 - Before executing the operation, carefully lubricate all greasers, always observing the lubrication intervals in the pages below. Check the quality of the lubricant in relation to its efficiency and purity, avoiding the use of products contaminated with water, soil and other agents.

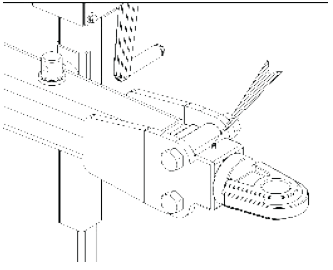
NOTE *In the case of other manufacturers and/or equivalent brands that are not listed on this table, consult the technical manual of the manufacturer.*

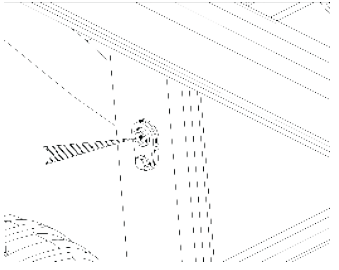
TABLE OF GREA SE AND EQU IVALENT PRODUCTS

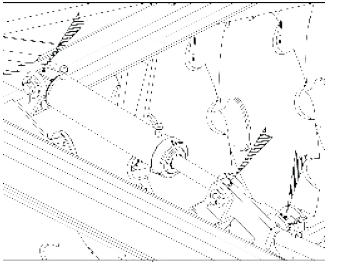
Manufacturer	*Types of grease recommended*
Petrobrás	*Lubrax GMA 2*
Atlantic	*Litholine MP 2*
Ipiranga	*Super Graxa Ipiranga* *Ipíranga Super Graxa 2* *Ipiflex 2*
Castrol	*LM 2*
Mobil	*Mobilgrease MP 77*
Texaco	*Marfak 2* *Agrotex 2*
Shell	*Retinax A* *Alvania EP 2*
Esso	*Multipurpose grease H*
Bardahl	*Maxlub APG 2 EP*

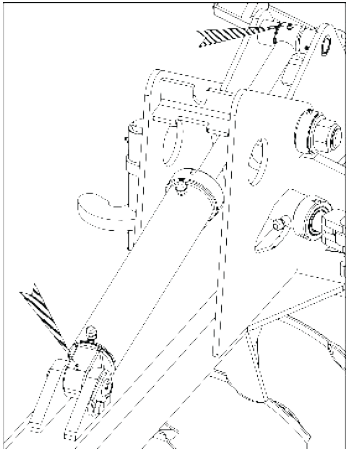
Table 02

LUBRICATE EVERY 24 HOURS OF WORK (FIGURES 34)
CRI -A 40 / 44 / 48 DISCS







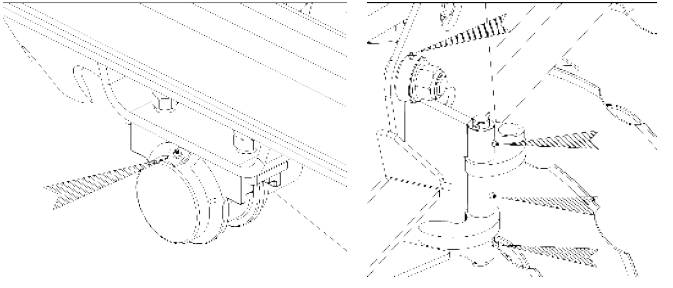


Figures 34

ATTENTION

When lubricating the CRI-A, do not use excess quantity of new grease. Add a sucient amount.

LUBRICATE EVERY 24 HOURS OF WORK (CONTINUATION) - CRI-A 40 / 44 / 48 DISCS



Figures 34

ATTENTION

When lubricating the CRI-A, do not use excess quantity of new grease. Add a sucient amount

LUBRICATE EVERY 60 HOURS OF WORK (FIGURE 35) CRI -A 40 / 44 / 48 DISCS

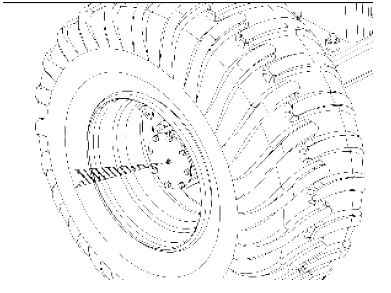


Figure 35

ATTENTION

When lubricating the CRI-A, do not use excess quantity of new grease. Add a sucient amount.

BEARING ADJUSTMENTS (FIGURE 36)
CRI -A 40 / 44 / 48 DISCS

- When the bearings become slack, proceed as follows to adjust them:

01 - Remove the washer (1).

02 - Then loosen the bolts (2) and remove the cover from the bearing (3).

03 - After, remove one or two joints (4) from the bearing cover (3). Put back the bearing cover (3) and retighten.

04 - If the slackness persists, face the bearing cover (3) to increase the adjust, and then mountit on the bearing with as many joints considered necessary.

05 - The bearing should rotate freely without slacks.

⚠ ***Do not mount the bearing without joints (4).***

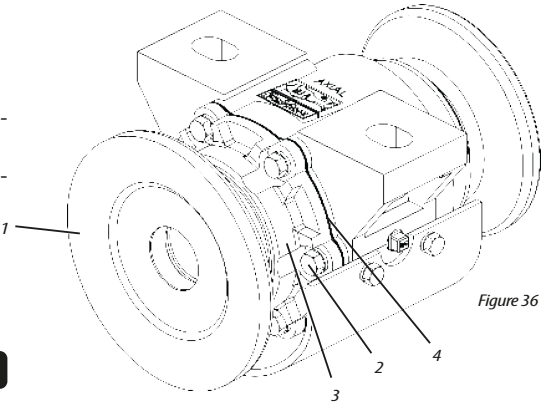


Figure 36

BEARING LUBRICATION

01 - On the rst days of work with the CRI-A, check the oil level of the bearings daily and then check it after every 120 hours of work.

02 - The oil should be changed after every 1200 hours of work. Use oil for transmission 90 API GL4, MIL-L-2105; SAEJ306, May/81; SAE 80W,90 and 140.

⚠ ***The ideal oil level is the level at which it reaches the hole of the plug. Find a at place when checking the oil level of bearing.***

11. CALCULATIONS

APPROXIMATE HOURLY PRODUCTION
CRI -A 40 / 44 / 48 DISCS

- Use the formula below to calculate the approximate hourly production of the CRI-A harrows.

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

WHERE:

A = Area to be worked
L = Working width of the harrow (in meters)
V = Average speed of the tractor (in meters/hour)
F = Production Factor – 0.90
X = Value of the hectare – 10,000 m² (the value varies according to the region)

- ***Example***: A harrow has 48 discs, how many Ha will it produce in one working hour at an average speed of 7 km/h?

A = ?
L = 6,39m
V = 7.000m/h
F = 0,90
X = 10.000 m² (Calculated in hectares)

$$\frac{A = 6{,}39 \times 7.000 \times 0{,}90}{10.000} = 4{,}02 \text{ Ha/h}$$

The hourly production of the CRI-A harrow can vary due to factors that change the rhythm of work such as wetness and hardness of the soil, declivity of the land, inadequate adjustments and working speed).

APPROXIMATE HOURLY PRODUCTION TABLE
CRI -A 40 / 44 / 48 DISCS

Model	Working Width (m)	Average Speed (m/h)	Production Factor	Approximate Production in Hectares/Hour
CRI-A 40	5,29	7.000	0,90	3,33
CRI-A 44	5,84	7.000	0,90	3,67
CRI-A 48	6,39	7.000	0,90	4,02

Table 03

01 - The formula to calculate the approximate production refers to the calculation of areas to be worked or areas worked per harrow. To know the time spent working an area of known value, divide the value of this area by the hourly production of the harrow.

- **Example: What is the time "X" spent for a CRI-A harrow of 48 discs to produce 35 hectares at an average speed of 7km/h?**

$$X = \frac{35\ Ha}{4{,}02\ Ha/h} = 8{,}70 \text{ approximate hours to work 35 hectares.}$$

The hourly production of the CRI-A harrow can vary due to factors that change the rhythm of work such as wetness and hardness of the soil, declivity of the land, inadequate adjustments and working speed, factors that are dierent from the table above, which were obtained with eld work on soils with normal conditions.

PRECAUTIONS
CRI -A 40 / 44 / 48 DISCS

01 - Before each work, check the conditions of all pins, bolts, bearings, discs and sections. Retighten them when necessary.

02 - The displacement speed must be carefully controlled according to the conditions of the land.

03 - The CRI-A models 40 / 44 / 48 discs are used in various applications, requiring know-how and attention during their handling.

04 - Only local conditions can determine the best way of operating the CRI-A.

05 - Use the suitable methods and tools to mount or dismount any part of the CRI-A.

06 - Always check if the parts do not present wears. If replacement is required, always demand for original Baldan parts.

07 - Always keep the CRI-A discs sharp.

NOTE *Appropriate and periodic maintenance are necessary to ensure the long life of the equipment.*

GENERAL CL EANING
CRI-A 40 / 44 / 48 DISCS

01 - When storing the CRI-A, carry out general cleaning and wash it. Check if the paint is not worn, otherwise apply a general coat of paint, apply protection oil and completely lubricate the CRI-A.

02 - Completely lubricate the harrow. Check all the moving parts of the CRI-A for wear or looseness and perform the necessary adjustments or replacement of the parts, leaving the harrow ready for the next operation.

03 - After all the maintenance cares, keep your CRI-A on a at surface, in a sheltered and dry location away from animals and children.

04 - Washing the CRI-A at the start of work is recommended.

12. 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

- Look in your local, a reseller BALDAN, he will have in stock genuine parts.

PUBLICATIONS

***Code:** 6055010371-3*
***CPT:** CRIA013319A*

WARNING

The draws contained in this instruction manual 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 certified number: _____ *Serial number:* _____

Purchase date: _____ / _____ /_____ *Invoice. Nr:* _____

13. NOTES:

CERTIFICATE OF WARRANTY

01 - **BALDAN IMPLEMENTOS AGRÍCOLAS S/A**, guarantee the normal operation of the product for a 6 (six) months period dated from the dealers's bill of sale to the first final customer.

02 - During this period, **Baldan** compromise itself to repair the material or manufacturing defects, but the labour,the freight and other expenses are the dealer's responsability.

03 - At the garantee period, all the request and replacement of any defective part must be made to the dealer of the region, which will send the defective part for analysis at **Baldan**.

04 - When this procedure won't be possible and the dealer couldn't have the abiliy to solve the problem, the dealer can ask for **Baldan's Technical Assistance** using the specific form delivered to them.

05 - After the analysis of the items replaced by **Baldan Technical Assistance** and if we conclude that it wasn't a guarantee problem, then the dealer will be the responsible for all costs related to the replacement; as well as material expenses, travel including accommodation and meals, also the accessories, lubricant used or any other expenses after having called the Technical Assistance. And, withal, the company Baldan is authorized to issue the billing in name of the respective reseller.

06 - Any repair made to the product wich is in warranty period by the dealer, will only be authorized by Baldan after budget previous presentation describing pieces and labour to be accomplished.

07 - It is out of this term the product wich has repairs or modifications not made by dealers from Baldan's network, as well as pieces applications or not authentic components to the product by the user.

08 - This certificate of guarantee will became invalid when notice that the damage or defect is the result of incorrect use of the product, of instructions non-observance or operator's inexperiences.

09 - It's stipulated that this guarantee don't cover tires, polyethylene deposits, universal joints, hydraulic components, etc, wich equipments are guarantee by their manufacturers.

10 - The material or manufacture defects, object of this certificate of guarantee, will not be, by any hypotesis, reason for cancellation of the contract of sale, or indemnity of any kind.

11 - For a warranty solicitation to the distributor, you have to proceed in the following manner:

12 - Send the technical informe detailed telling the problem (technical assistance request form to the client), you can find it send us an email to **aftersales@baldan.com.br** or acessing our website.

13 - If it's possible send films and photos from the requested spare parts.

14 - To point at the form: serial number, manufacture year, etc, that is, all information asked at the form. The damage spare parts should be available for analysis of the the after sales department in a future visit (in case of requested).

15 - **Baldan** keeps the right of changing and or improve the technical characteristics of its products, without notice and without the obligation of act like this way with its previously manufactured products.

INSPECTION AND DELIVERY CERTIFICATE

- **SERVICE BEFORE THE DELIVERY:** This equipment was very carefully prepared by the dealer's organization, inspected in all its parts in agreement with the manufacture's prescription.
- **DELIVERY SERVICE:** The user was informed about the current guarantee terms and instructed about maintenance care and utilization.
- I confirm that I was informed about the current guarantee terms and instructed about the correct utilization and maintenance of this product.

Product: _____ *Serial number:* _____

Date: _____ *Bill of sale:* _____ *Store:* _____

City: _____ *State:* _____ *Zip code:* _____

Owner: _____ *Phone:* _____

Adress: _____ *Number:* _____

City: _____ *State:* _____

E-mail: _____ *Date of sale:* _____

1ª Page - Owner

Signature / Store's stamp _____

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Product: _____ *Serial number:* _____

Date: _____ *Bill of sale:* _____ *Store:* _____

City: _____ *State:* _____ *Zip code:* _____

Owner: _____ *Phone:* _____

Adress: _____ *Number:* _____

City: _____ *State:* _____

E-mail: _____ *Date of sale:* _____

2ª Page - Store

Signature / Store's stamp _____

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Product: _____ *Serial number:* _____

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City: _____ *State:* _____ *Zip code:* _____

Owner: _____ *Phone:* _____

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City: _____ *State:* _____

E-mail: _____ *Date of sale:* _____

3ª Page - Manufacturer

Please send this filled copy to Baldan, until 15 days after the purchase.

Signature / Store's stamp _____

BALDAN

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