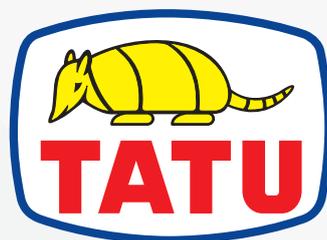


GCRO 7010
GCRO 7012

OPERATOR'S
MANUAL



MARCHESAN

Introduction

The GCRO 7010 and 7012 disk harrows were specially designed for great areas. They are ideal for the initial preparation or for leveling the soil, with excellent application and soil preparation for annual or perennial crops.

Their reinforced and adequate structure are made of folded steel plates joined by a good penetration weld and fine finishing, with resistant parts on the load concentrations.

These disk harrows feature an efficient wheel system with hydraulic activation to control the depth and for a safe transportation over long distances. This system also streamlines the maneuvers during the job.

This operator's manual contains the necessary information for the best performance of this disk harrow. The operator must carefully read the entire manual before working with the equipment. Also, read and understand the safety recommendations.

For any further explanation or in the case of technical problems that may arise during the service, consult your dealer and the Technical Support department of the factory. They can ensure the fully functioning of your TATU disk harrow.



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To the owner

The acquisition of any Tatu product assures to the original purchaser the following rights:

- Warranty certificate;
- Operator's manual;
- Technical assistance by the dealer on equipment delivery.

However, the owner must check the condition of the equipment on delivery, as well as knowing the warranty terms.

Special attention should be given to the safety recommendations, operation precautions and maintenance of the equipment.

The instructions in this manual indicates how to get the best performance and allow the operator to get maximum income, increasing the equipment lifetime.

This manual should be read by operators and maintenance staff.

Important



- Only people who own a full knowledge of the tractor and equipment must transport, operate and carry out any maintenance on them;
- Marchesan is not responsible for any damage caused by accident on transporting, incorrect utilization or inadequate storage, either by negligence and/or lack of experience from any person;
- Marchesan is not responsible for any damage caused by unpredictable situations or the incorrect use of the equipment.

General information

Right and left hand side indication are made observing the equipment from the rear.

To order any parts or request technical assistance services, it is required to provide the data contained on the nameplate, which is located on the equipment frame.

MODELO MODEL	<input type="text"/>
Nº SÉRIE SERIAL NR	<input type="text"/>
DATA DATE	<input type="text"/>
PESO WEIGHT	<input type="text"/>

MARCHESAN IMPLEMENTOS E
MÁQUINAS AGRÍCOLAS "TATU" S.A.
www.marchesan.com.br
AV. MARCHESAN, 1979 - MATÃO-SP-BRASIL
CNPJ: 52.311.289/0001-63



NOTE

The warranty shall not be applied to any equipment or any part thereof which has been altered elsewhere than at the place of manufacture or which the original purchaser thereof at retail has used or allowed to be used parts, not made or supplied by Marchesan.

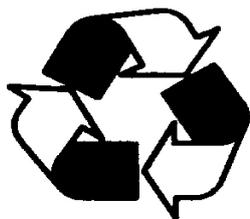
To the operator

Be careful with the environment



Dear operator!

Respect the ecology. Do not throw trash away. This gesture of goodwill helps to protect our environment.



Products such as oil, fuel, filters, batteries and others are spilt over the soil and can penetrate to the underground layers, compromising nature. Ecological and conscious disposal of them should be done.

Working safely



- **Security aspects must be carefully observed, to avoid accidents.**
- **This symbol is a warning used to prevent accidents.**
- **The instructions under this symbol refers to the safety of the operator, mechanic or third parties, therefore they should be carefully read and observed. If the safety instructions are not being followed, a serious accident or even death may occur.**

This equipment is simple to operate, requiring however the basic and essential cautions to its handling.

Always keep in mind that safety requires constant attention, observation and prudence during work, transportation, maintenance and storage.



Read and understand the information before making any adjustment or maintenance.



Have extreme caution when operating with the power take-off (PTO), which you should not get closer during operation.



When hitching the equipment to the tractor, use a chain to lock the equipment drawbar to the tractor hitch bar. This procedure will prevent a possible rupture of any hydraulic hose or breaks on the hitching system, what would make the equipment tilt up.

To the operator



Never use your bare hands to check hydraulic leaks, the high pressure can cause injuries.



Never attempt to change the adjustments, clean or lubricate the equipment when the same is switched on or in movement.



Be careful while driving on slopes. Risk of overturn.



Prevent that chemical products (i.e.: fertilizers, treated seeds) make any contact with your skin or clothes.



Keep access and work places clean or free from oil and grease. Risk of accidents.



Never transport the equipment on highways or paved roads during the night. Avoid that the tractor wheels touch the drawbar in sharp turns.



The presence of any other people on the tractor or equipment is strictly forbidden.



Have extreme caution when driving under electrical power lines. Any contact may result in severe shocks, injuries or death.



For your protection and safety, always wear adequate clothes and footwear while operating the equipment.



Always use the safety locks to carry out any maintenance or to transport the equipment.

To the operator



- Only trained and qualified personnel are allowed to operate the equipment.
- While working or during transportation, only the presence of the operator is allowed on the tractor.
- Do not allow children to play or to get over the equipment, while it is operating, during transportation or storage.
- When setting the equipment to transport position, check if there are no people or animals close or under it.
- Use personal protective equipment (PPE).
- Wear appropriate clothes and footwear. Avoid clothes that are either loose or hanging from the body, which may become entangled in moving parts.
- Wear protective gloves to work near the cutting parts.
- Never operate the equipment without its **protective devices**.
- Have full knowledge of the soil before starting to work. Use the speed which is suitable to the conditions of the ground or pathways to be covered. Provide the delineation of obstacles or hazardous locations.
- Carefully check the transport width on narrow locations.
- Be careful while hitching the equipment to the tractor.
- Only pull the equipment using a tractor with appropriate power.
- Do not drive the equipment under the influence of alcohol or any soothing/stimulating medicine, as it may result in a serious accident.
- In case of a fire outbreak or any possible hazard, the operator must leave the area as fast as possible and look for a safe place. Always have emergency numbers at hands.
- In case of emergency, know how to stop the tractor and disk harrow quickly.
- Always shut down the engine, remove the key and use the handbrake before leaving the tractor seat.
- Never attempt to change the adjustments, clean or lubricate the equipment while it is moving.
- Whenever you unhitch the equipment, either in the field or shed, do it on a flat and firm surface and use jacks. Make sure the equipment is properly supported.
- We suggest that you carefully read the manual, as it will be a guide for periodic verifications that need to be done and will allow that you assure the maintenance of your equipment.
- If there is any doubt after reading it, ask your dealer. For more complicated operations, there will be the right person to help you there.
- Please check the general safety instructions on the back cover of this manual.

To the operator

Transportation over truck or trailer



Marchesan does not advise the equipment traffic on highways, because this practice involves serious security risks in addition to being prohibited by the current existing traffic law. The transportation for long distances should be done on truck, trailer or others by following these safety guidelines:

- Use adequate ramps to load or unload the equipment. Do not make the loading on ditch banks, it can cause a serious accident;
- When lifting with a hoist, use the appropriate points to lift;
- Use the jacks to support the equipment appropriately;
- The drawbar must be lifted and locked in a vertical position or it must be removed and fastened to the load;
- Fasten the moving parts that may get loose and cause accidents;
- Underpin the equipment wheels properly;
- Use chock blocks and safety chains to secure the equipment to the truck or trailer during the transport;
- Stay away from straps, cables or chains that are working under load;
- Make sure the SMV (Slow Moving Vehicle) sign, and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic;
- After 8 to 10 km transporting, please inspect the load condition. Repeat this procedure every 80 to 100 km. Give more attention when transporting the equipment on rough roads, slopes and other adverse conditions;
- Always be careful with the load height, especially when passing under electrical power lines, bridges and others;
- Check all laws and regulations regarding the height limits and load width while transporting the equipment on truck or trailer. If necessary use banners, lights and other devices in order to give adequate warning to the other drivers.

To the operator

Working safety standards

It is important to have knowledge not only about the functioning, operation of the equipment and its technology, but also the working legal aspects when using the equipment, such as: safety standards, operator's manual and working safety.

The equipment and tools used on the rural area must be properly handled, otherwise health and safety of involved personnel may be compromised.

The operator must be capable and authorized to operate the tractor, meaning that that person must comprehend the functioning instructions of the tractor and know about the safety standards regarding the job that will be performed.

The Ministry of Labor and Employment created safety standards that aim to decrease the risk of accidents that may occur to the rural worker. Related to the subject of agricultural machines and equipments, we specifically cited the **NR 06**, **NR 12** and **NR 31** standards.

Regulatory Standard - **NR 06**:

- For purposes of applying this Regulatory Standard, personal protective equipment (PPE) is considered any device or product that is worn by an individual worker for protection against risks that could threaten safety and health at work.

Regulatory Standard - **NR 12**:

- This Regulatory Standard and its annexes provide technical references, basic principles and protective measures to ensure the health and physical integrity of workers and establishes minimum requirements for the prevention of accidents and occupational diseases in the design stages and use of machinery and equipment of all kinds, and also to its manufacture, importation, trading, exhibition and cession in any way. It is understood as using phase the construction, transportation, assembly, installation, adjustment, operation, cleaning, maintenance, inspection, disabling and dismantling of machinery or equipment.

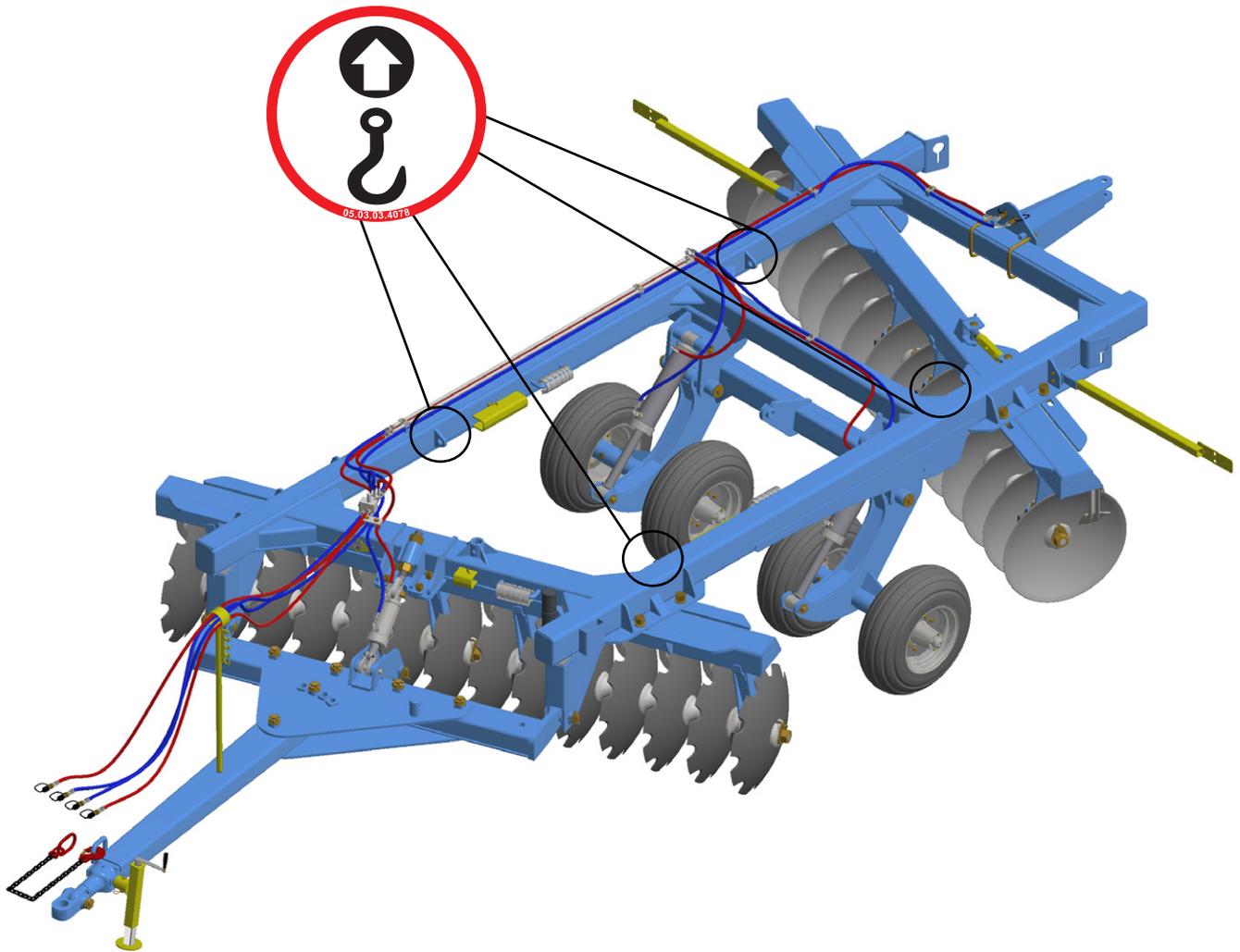
Regulatory Standard - **NR 31**:

- This Regulatory Standard has the purpose to establish the precept to be applied on the organization and on the working environment, in order to make compatible the planning and development of agriculture, livestock, forestry, forest exploration and aquaculture with safety on the working environment.

To the operator

Lifting points

This planter has adequate lifting points located on the frame. When carrying out any maintenance or transporting the equipment, it is essential to hitch the cables to these points.



Use chains, of at least 3 meters long, to lift the equipment safely.

Use the adequate points for lifting and be sure that the equipment is safe. Avoid accidents.

Always keep a safe distance from the equipment.

To the operator

Safety decals

The safety decals warn about the equipment points that require more attention and they should be kept in good repair. If these decals become damaged or illegible, replace them. Marchesan provide decals, upon request and indication of the respective serial numbers.

PERIGO / DANGER / PELIGRO

Para evitar acidentes, não faça regulagens com o equipamento em movimento. Para manutenção e limpeza, desligue o motor do trator.

In order to avoid accidents, do not carry out adjustments with the equipment in movement. For maintenance and cleaning, switch off the tractor engine.

Para evitar accidentes, no haga reglajes con el equipo en movimiento. Para mantenimiento y limpieza, apague el motor del tractor.

05.03.03.1739

ADVERTÊNCIA / WARNING / ADVERTENCIA

Para evitar acidentes, instale as travas dos cilindros antes do transporte ou antes de efetuar serviços no equipamento.

In order to avoid accidents activate cylinder locks before transportation or carrying out any service on the equipment.

Para evitar accidentes, instale las trabas de los cilindros antes del transporte o antes de efectuar trabajos en el equipo.

05.03.03.1738

PERIGO / DANGER / PELIGRO



Para evitar acidentes, fique longe do equipamento quando o mesmo estiver articulando ou desarticulando. Falhas mecânicas ou hidráulicas podem fazer com que o equipamento abaixe rapidamente.

In order to avoid accidents, keep away from the equipment when the same is folding or unfolding. Mechanical or hydraulic failure can make the equipment to fall down quickly.

Para evitar accidentes, quede lejos del equipo cuando el mismo esté articulando o desarticulando. Fallas mecánicas o hidráulicas pueden hacer con que el equipo baje rápidamente.

05.03.03.1896



ATENÇÃO / ATTENTION / ATENCIÓN

- Verifique o nível de óleo dos mancais semanalmente;
- Observe, diariamente, se há vazamento;
- Troque o óleo a cada 1000 horas de trabalho;
- Use óleo mineral SAE 90;
- Lubrifique os pontos de graxa periodicamente;
- Reaperte os conjuntos de discos periodicamente (antes disso, deve-se soltar os parafusos de fixação dos mancais).

- Check the bearings' oil level weekly;
- Check the existence of eventual leaks daily;
- Change the oil at every 1000 working hours;
- Use mineral SAE 90 oil;
- Lubricate the grease points periodically;
- Re-tighten the disc assemblies periodically (to do that, you must loose the bearing fastening bolts first).

- Verifique el nivel de aceite de los cojinetes semanalmente;
- Observe si hay pérdidas, diariamente;
- Cambie el aceite a cada 1000 horas de trabajo;
- Utilice aceite mineral SAE 90;
- Lubrique los puntos de grasa periódicamente;
- Reajuste los conjuntos de discos periódicamente (para esto, antes, se deberá soltar los tornillos de fijación de los cojinetes).

05.03.03.3038

To the operator

Safety decals

LUBRIFICAR E REAPERTAR DIARIAMENTE
LUBRICATE AND TIGHTEN DAILY
LUBRICAR Y REAPRETAR DIARIAMENTE

05.03.03.1827



05.03.03.4499



05.03.03.1428

Decal set

Qty.	Model	Serial number
2	GCRO 7010 decal set	05.03.03.3943
2	GCRO 7012 decal set	05.03.03.3944
2	Tatu logotype decal	05.03.03.5340
1	Warning decal	05.03.03.1738
4	Lifting points decal	05.03.03.4078
1	Read the manual decal	05.03.03.1428
1	Lubricate and tighten daily decal	05.03.03.1827
1	Danger decal	05.03.03.1896
1	Danger decal	05.03.03.1739
1	Grip coupler colors decal	05.03.03.4499
1	Danger decal	05.03.03.3038

Data sheet

GCRO 7010

Model: **GCRO 7010**

Spacing between disc blades: 270 mm

Disc blades dimension: Ø 26" x 7.5 mm, Ø 28" x 7.5 mm,
 Ø 30" x 7.5 mm, Ø 30" x 9 mm,
 Ø 32" x 7.5 mm and Ø 32" x 9 mm

Disc blade type: Concave notched and/or concave plain

Bearings - length: 262 mm
 - type: Oil bath bearing or steel-plated bearing

Spacer spools - length: 263 mm
 - type: Iron cast

Axle diameter: Ø 41.3 mm (1.5/8"), Ø 44.45 mm (1.3/4") or Ø 54 mm (2.1/8")

Hitching type: Drawbar

Tires: Check the 'tires inflation' page

Working speed: 5 - 7 km/h

Transport speed: 30 km/h

Model	Number of disc blades	Cutting width (mm)	Net weight (kg)	Tractor required (cv)
GCRO 7010 Non folding	28	3,620	4,880	230 - 240
	32	4,120	5,180	240 - 250
	36	4,625	5,430	250 - 260
	40	5,135	5,500	260 - 270
	44	5,645	6,155	270 - 280
	48	6,150	6,440	280 - 300
GCRO 7010 Folding wings	44	5,530	6,645	290 - 300
	48	6,160	7,820	300 - 320
	52	6,730	8,180	320 - 340
	56	7,240	8,405	340 - 360
	60	7,772	9,420	360 - 380
GCRO 7010 Side frames	72	9,540	14,120	420 - 450
	76	10,065	14,325	450 - 480
	80	10,445	14,755	480 - 510

NOTE • The weights above were obtained using Ø 28" x 7.5 mm disc blades.

Data sheet

GCRO 7012

Model: **GCRO 7012**

Spacing between disc blades (mm): 300

Disc blades dimension: Ø 32" x 7.5 mm
 Ø 32" x 9 mm

Disc blade type: Concave notched and/or concave plain

Bearings - length: 292 mm
 - type: Oil bath bearing

Spacer spools - length: 292 mm
 - type: Iron cast

Axle diameter: Ø 54 mm (2.1/8")

Hitching type: Drawbar

Tires: Check the 'tires inflation' page

Working speed: 5 - 7 km/h

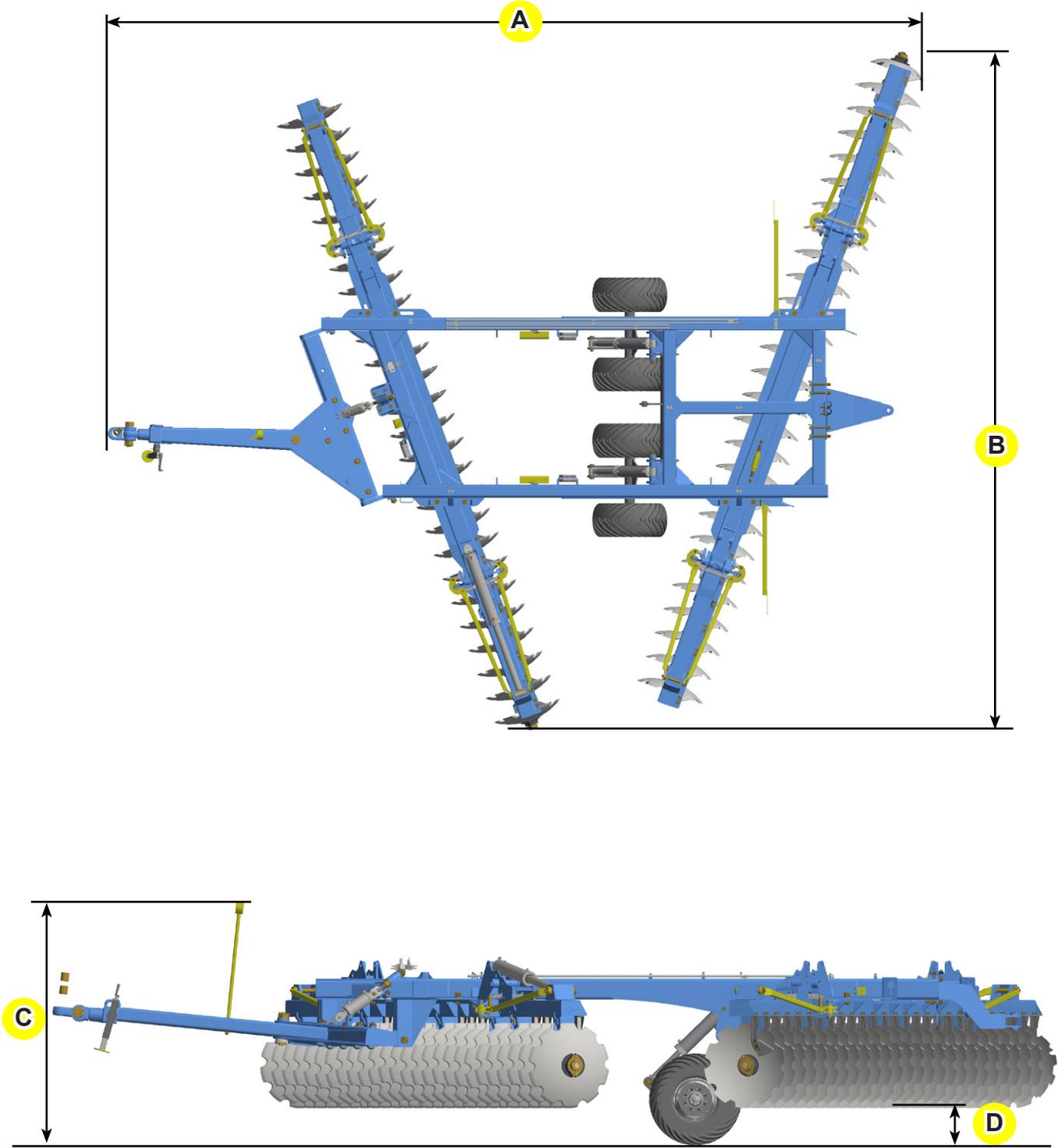
Transport speed: 30 km/h

Model	Number of disc blades	Cutting width (mm)	Net weight (Kg)	Tractor required (cv)
GCRO 7012 Non folding	28	3,985	5,800	250 - 270
	32	4,555	6,705	270 - 290
	36	5,115	6,905	290 - 310
	40	5,665	7,560	310 - 330
	44	6,225	8,100	330 - 350
	48	6,785	8,450	350 - 370
GCRO 7012 Folding wings	50	7,080	9,430	420 - 450
	52	7,380	9,695	450 - 480
	56	7,940	10,020	480 - 510

NOTE • The weights above were obtained using Ø 32" x 9 mm disc blades.

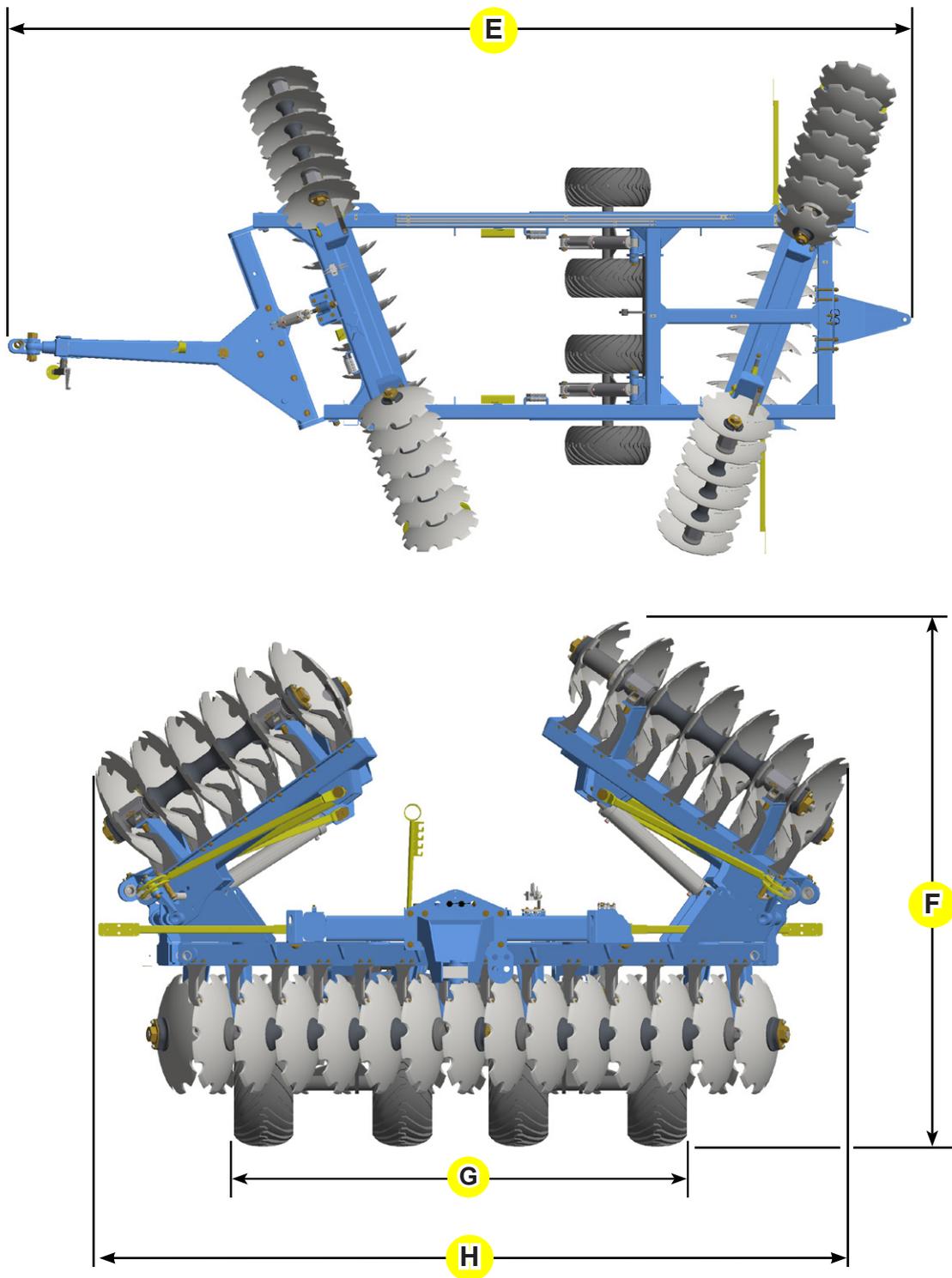
Data sheet

General dimensions



Data sheet

General dimensions



NOTE • * For these models, there are two versions that feature the measures below:

- Disk harrow with 52 disc blades - Height (F): 3435 or 3640;
- Disk harrow with 56 disc blades - Width (H): 4400 or 4855.

Data sheet

General dimensions

Model	Number of disc blades	Dimensions								
		A	B	C	D*	E	F	G	H	
GCRO 7010	28	8630	4870	2020	430	----	----	2790	----	
	32	8630	4870	2020	430	----	----	2790	----	
	36	8630	5060	2020	430	----	----	2790	----	
	40	8670	5390	2020	430	----	----	2790	----	
	44	8670	5955	2020	430	----	----	3050	----	
	44D	9345	5820	2020	430	8760	3440	2470	3550	
	48	8690	6480	2020	430	----	----	3050	----	
	Narrow	48D	9390	6520	2020	430	9310	3495	3050	4400
		52	9480	7025	2020	430	9325	3495	3050	4400
		56	9555	7535	2020	430	9290	3495	3050	4400
	Normal	52	9480	7025	2020	430	9325	3490	3050	4855
		56	9555	7535	2020	430	9290	3490	3050	4855
		60	9640	8120	2020	430	9325	3490	3050	4855
		72	10720	9650	2115	465	10775	4870	3550	6425
		76	10840	10175	2115	465	10860	4970	3550	6425
80	11025	10860	2230	500	11025	5030	3550	6425		

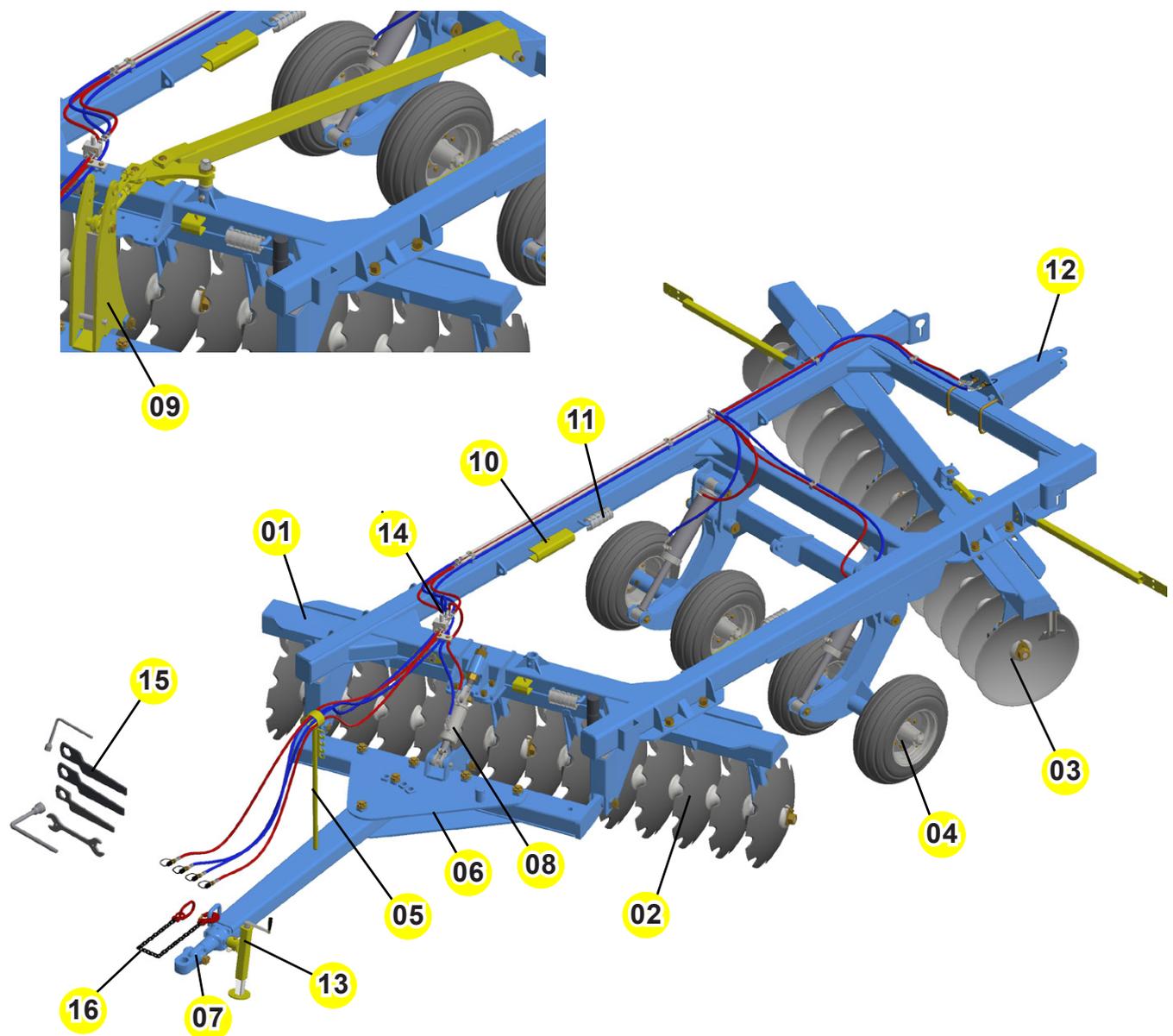
Model	Number of disc blades	Dimensions							
		A	B	C	D*	E	F	G	H
GCRO 7012	28	8635	4870	2000	330	----	----	3050	----
	32	8630	5025	2050	375	----	----	3050	----
	36	9305	5600	2050	375	----	----	3050	----
	40	9300	6155	2050	375	----	----	3050	----
	44	9410	6705	2050	375	----	----	3050	----
	48	9500	7270	2050	375	----	----	3050	----
	50	9580	7600	2050	375	9315	3565	3050	4865
	52	9615	7865	2050	375	9305	3570	3050	5390
	56	9725	8435	2050	375	9305	3750	3050	5125

- NOTE**
- The "B" measure corresponds to the TOTAL WIDTH of the disk harrow (being the disc blades lowered for the folding wings type).
 - The measures are approximated values.
 - Disk harrow 28, 32, 36, 40, 44 and 48 - Non folding wings.
 - Disk harrow 44D, 48D, 50, 52, 56 and 60 - Folding wings.
 - Disk harrow 72, 76 and 80 - Side frames.
 - *These measures may suffer changes according to the disc blade size.

Components

GCRO 7010 / 7012 - non-folding wings

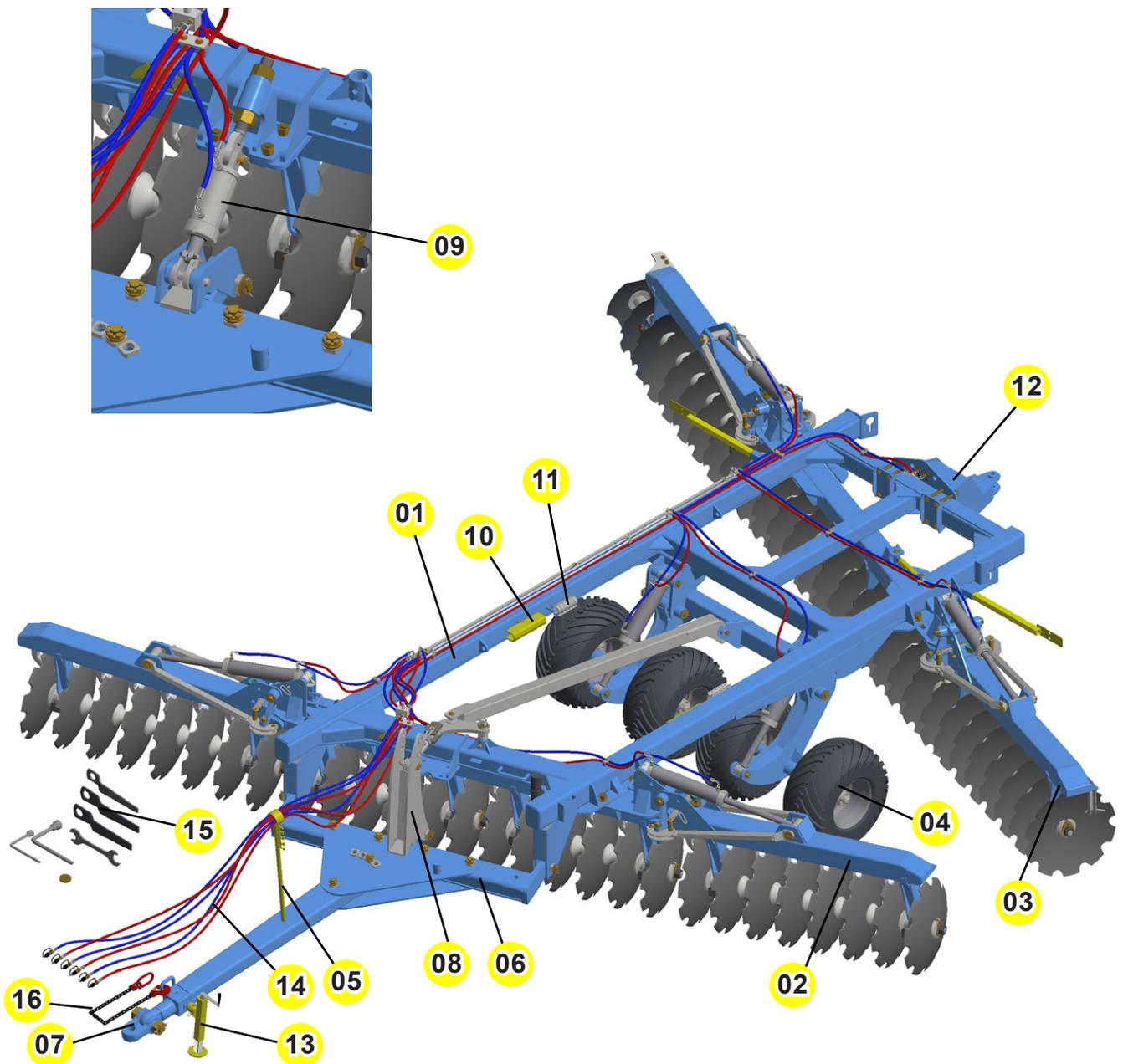
- | | |
|---|---------------------------------|
| 01 - Frame | 09 - Mechanical leveling system |
| 02 - Front disc gang | 10 - Transport lock |
| 03 - Rear disc gang | 11 - Depth stops |
| 04 - Wheels | 12 - Rear hitch (optional) |
| 05 - Hose support | 13 - Jack |
| 06 - Drawbar | 14 - Hydraulic system |
| 07 - Tractor hitch | 15 - Wrenches |
| 08 - Hydraulic leveling system (optional) | 16 - Safety chain |



Components

GCRO 7010 / 7012 - folding wings

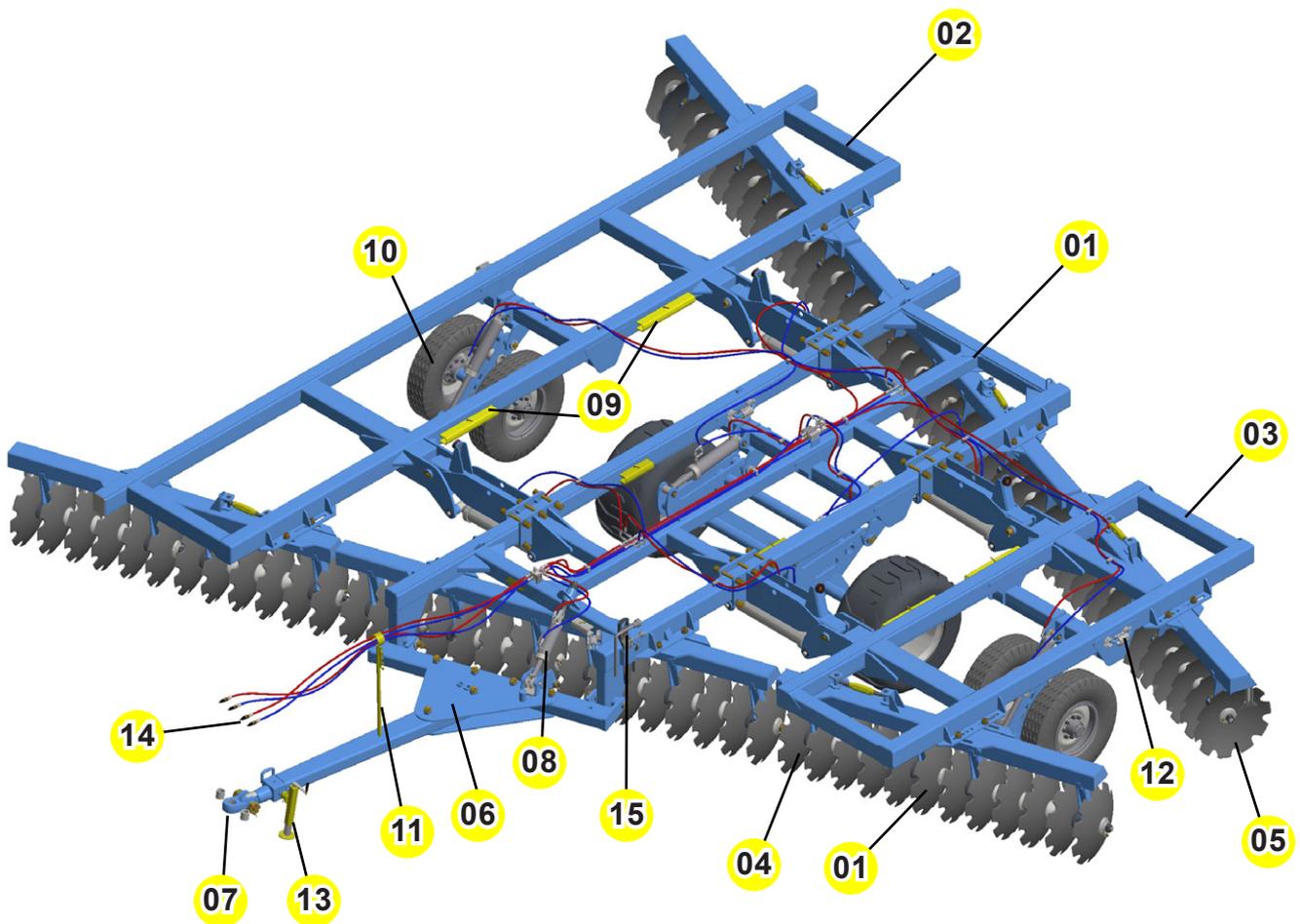
- 01 - Frame
- 02 - Folding front disc gang
- 03 - Folding rear disc gang
- 04 - Wheels
- 05 - Hose support
- 06 - Drawbar
- 07 - Tractor hitch
- 08 - Mechanical leveling system
- 09 - Hydraulic leveling system (optional)
- 10 - Transport lock
- 11 - Depth stops
- 12 - Rear hitch (optional)
- 13 - Jack
- 14 - Hydraulic system
- 15 - Wrenches
- 16 - Safety chain



Components

GCRO 7010 - folding frame

- 01 - Central frame
- 02 - Right side frame
- 03 - Left side frame
- 04 - Front disc gang
- 05 - Rear disc gang
- 06 - Drawbar
- 07 - Tractor hitch
- 08 - Hydraulic leveling system
- 09 - Transport lock
- 10 - Wheels
- 11 - Hose support
- 12 - Depth stops
- 13 - Jack
- 14 - Hydraulic system
- 15 - Wrenches

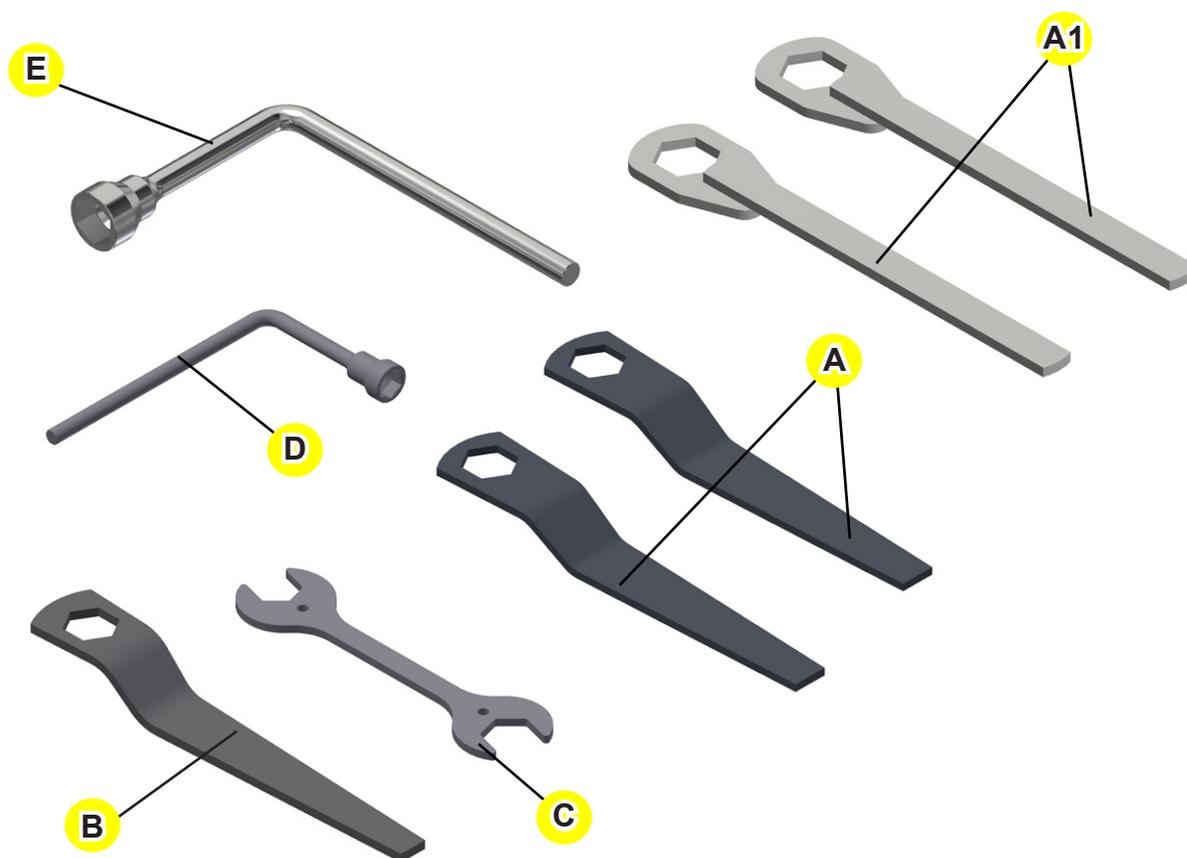


Assembly

First of all, put the parts in a clean place to identify them easier. Check the parts using the list that comes inside the packing box.

Using the set of wrenches

- Use two box-end wrenches (A and A1) to tighten the nuts of the disc gangs, one to hold the axle nut on one side while the other tight the nut to the other end, thereby preventing the axle from rotating.
- Use the box end wrench (B) to tighten the nuts from the traction set.
- Use the open end wrench (C) to adjust the nut on the rear stabilizer.
- Use the L-type socket wrench (D) to tighten the nuts on the disc gangs.
- Use the L-type socket wrench (E) to tighten the nuts on the bearing bolts.

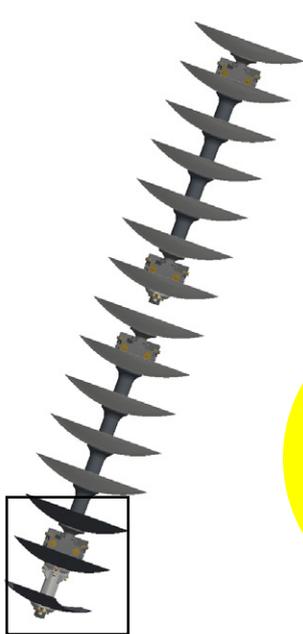


- NOTE**
- We recommend wearing gloves, especially while assembling the disc gangs.
 - The wrenches (A1) are used on 2.1/8" axles.

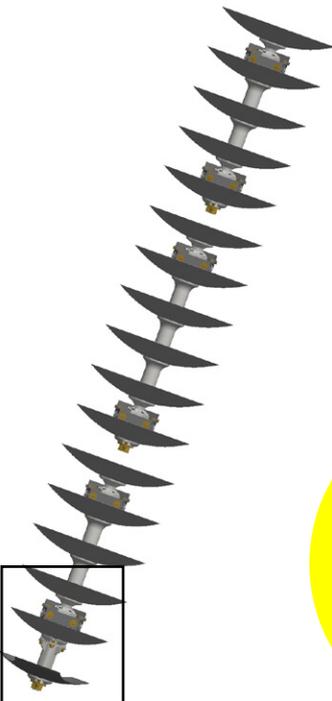
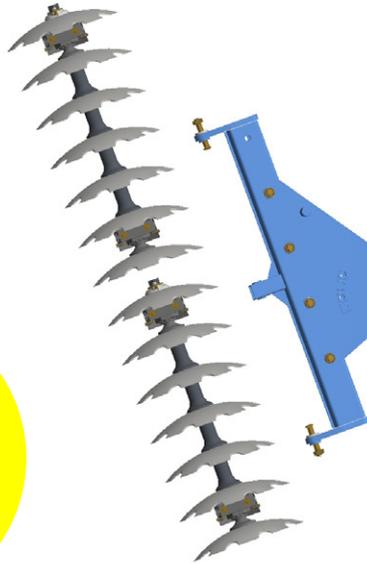
Assembly

Before starting to assemble the disc gangs, check the correct position of the bearings and spacer spools.

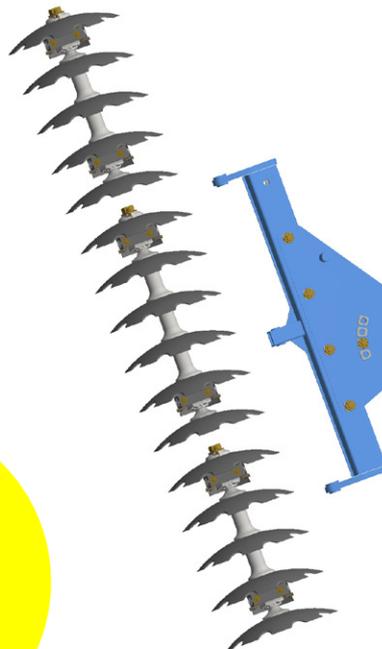
Assembly of bearings and spacer spools (GCRO 28 - 60)



GCRO 7010
(Ø1.5/8" axle)
GCRO 7012
(Ø2.1/8" axle)
28 disc blades,
8 bearings
16 spacer spools
1 furrow filler



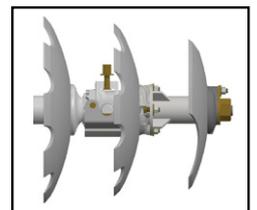
GCRO 7010
(Ø 1.5/8" axle)
GCRO 7012
(Ø 2.1/8" axle)
32 disc blades
12 bearings
14 spacer spools
1 furrow filler



Bearing



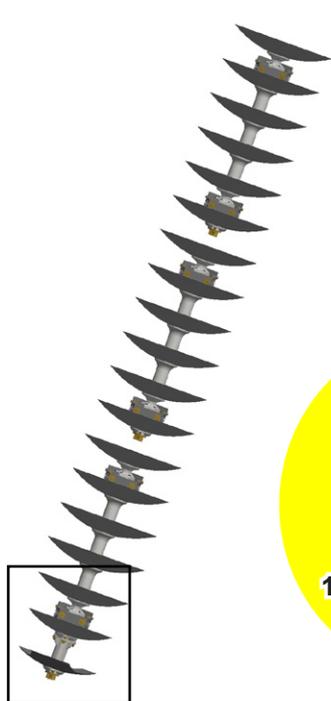
Spacer spool



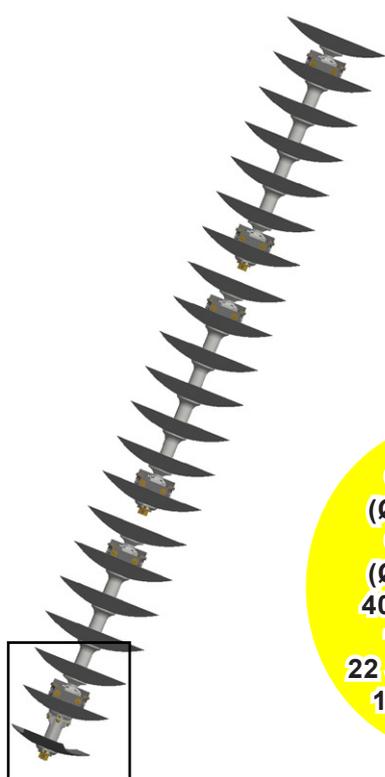
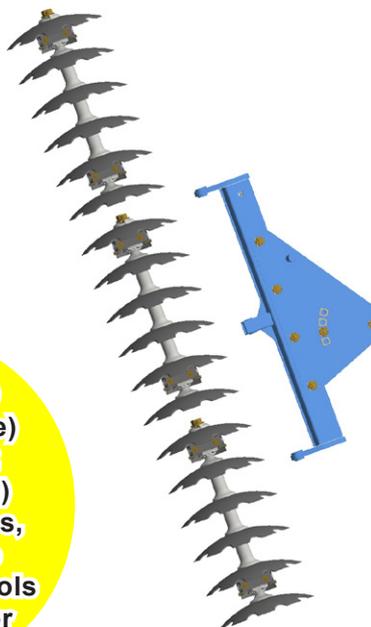
Furrow filler

Assembly

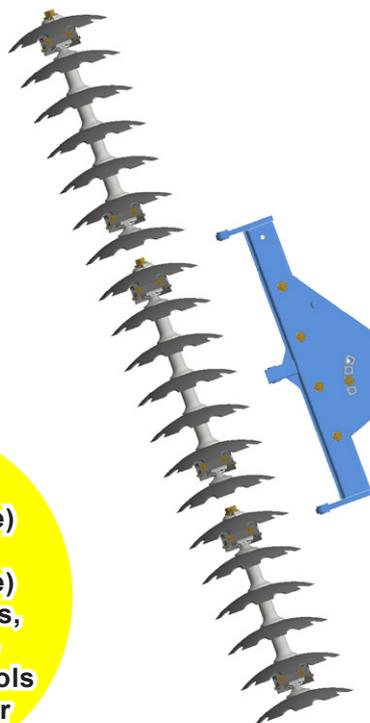
Assembly of bearings and spacer spools (GCRO 28 - 60)



GCRO 7010
(Ø 1.5/8" axle)
GCRO 7012
(Ø 2.1/8" axle)
36 disc blades,
12 bearings
18 spacer spools
1 furrow filler



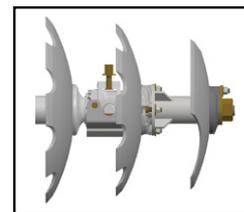
GCRO 7010
(Ø 1.5/8" axle)
GCRO 7012
(Ø 2.1/8" axle)
40 disc blades,
12 bearings
22 spacer spools
1 furrow filler



Bearing



Spacer spool



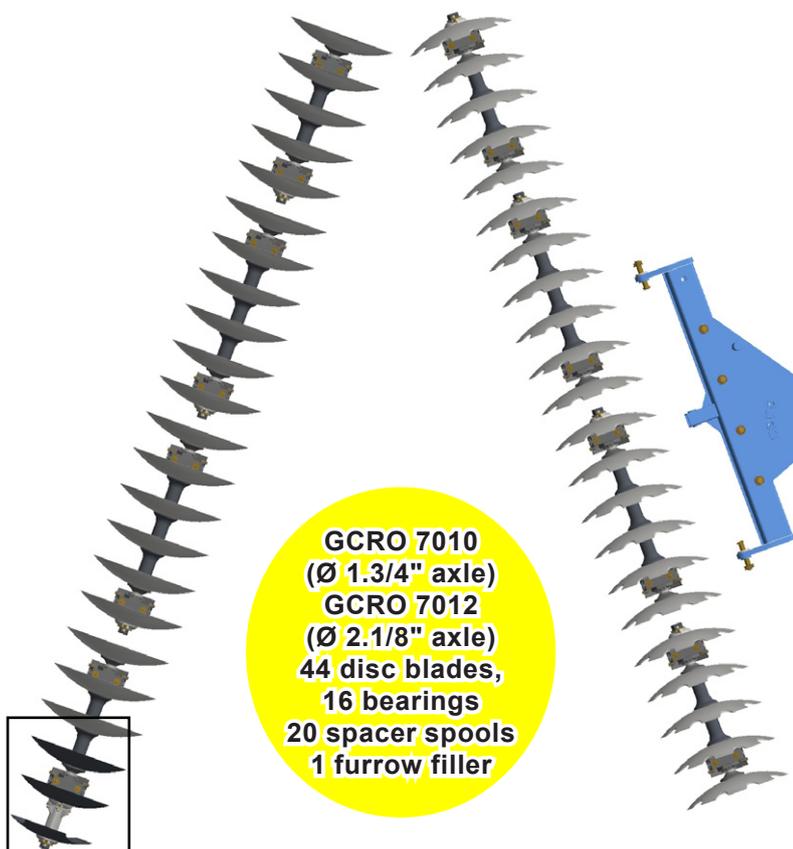
Furrow filler

Assembly

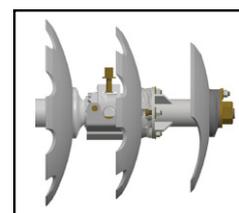
Assembly of bearings and spacer spools (GCRO 28 - 60)



Bearing



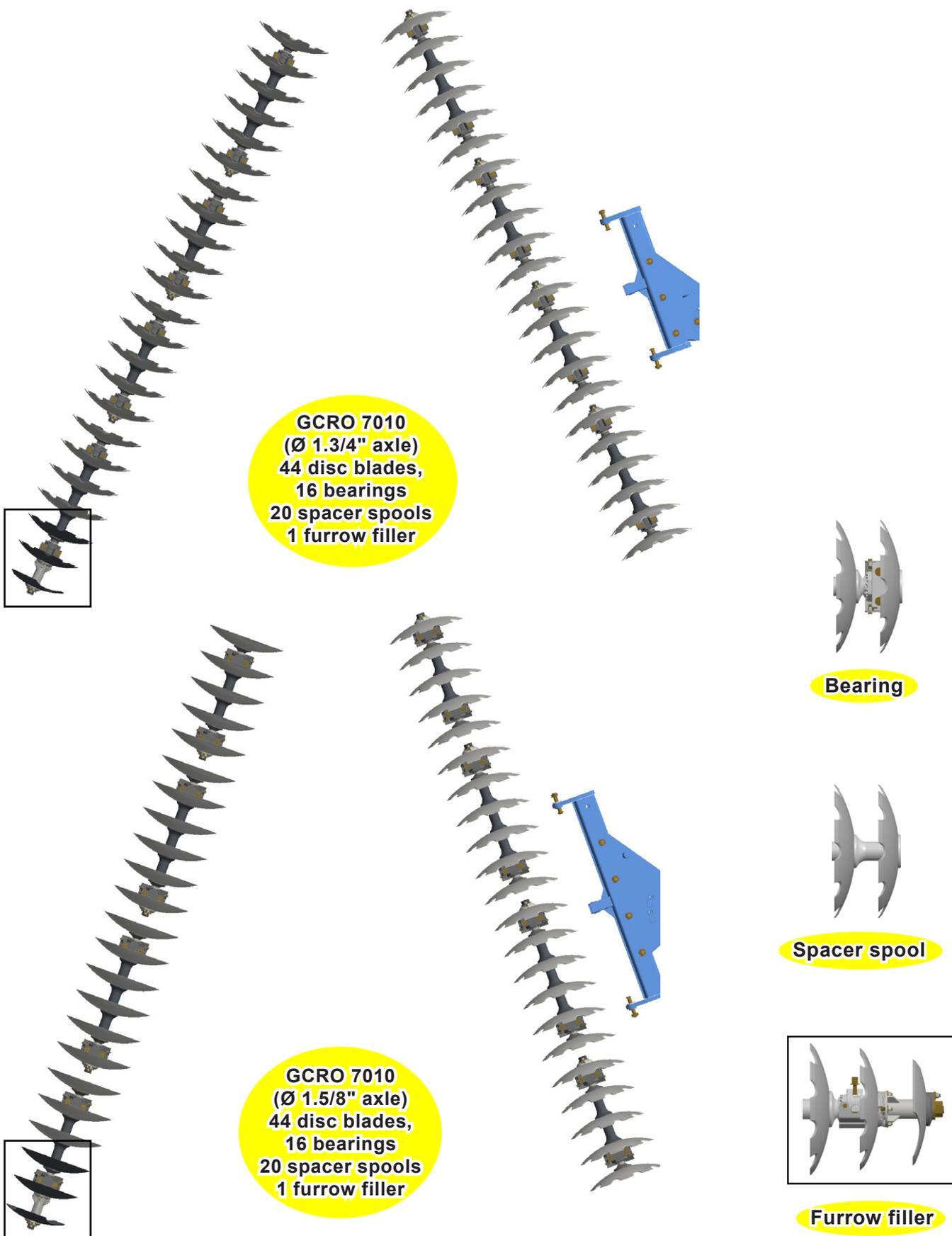
Spacer spool



Furrow filler

Assembly

Assembly of bearings and spacer spools (GCRO 28 - 60)

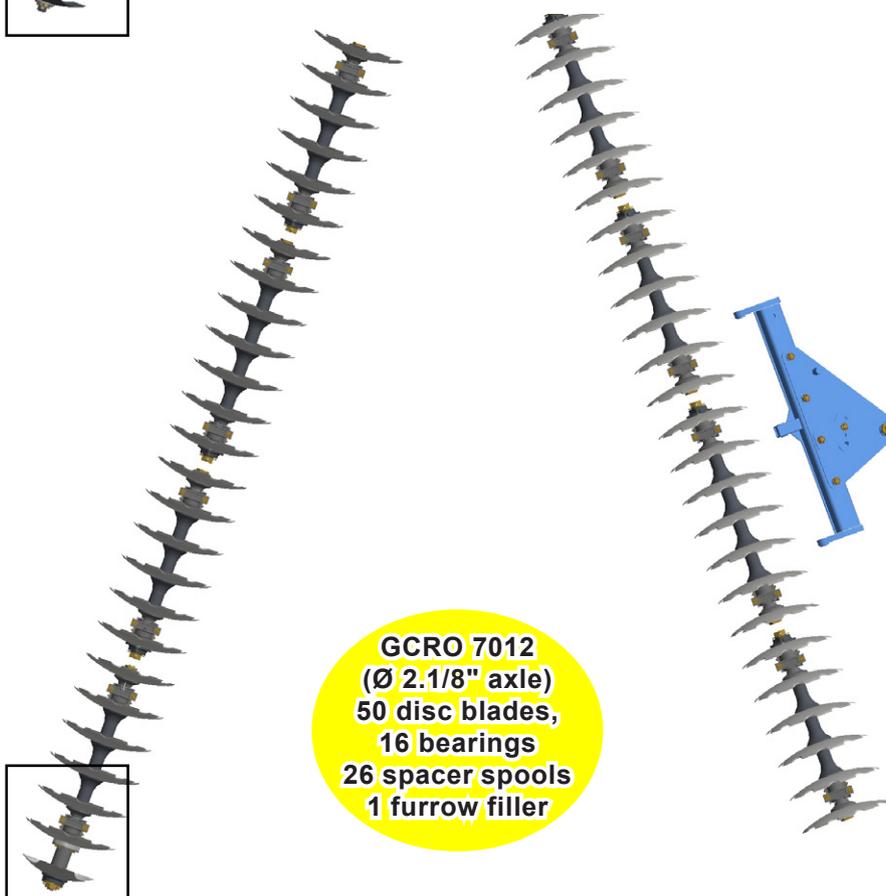


Assembly

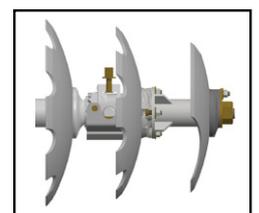
Assembly of bearings and spacer spools (GCRO 28 - 60)



Bearing



Spacer spool



Furrow filler

Assembly

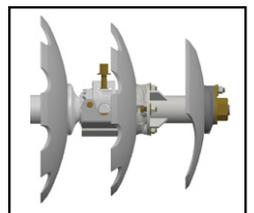
Assembly of bearings and spacer spools (GCRO 28 - 60)



Bearing



Spacer spool



Furrow filler

Assembly

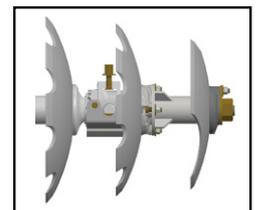
Assembly of bearings and spacer spools (GCRO 28 - 60)



Bearing



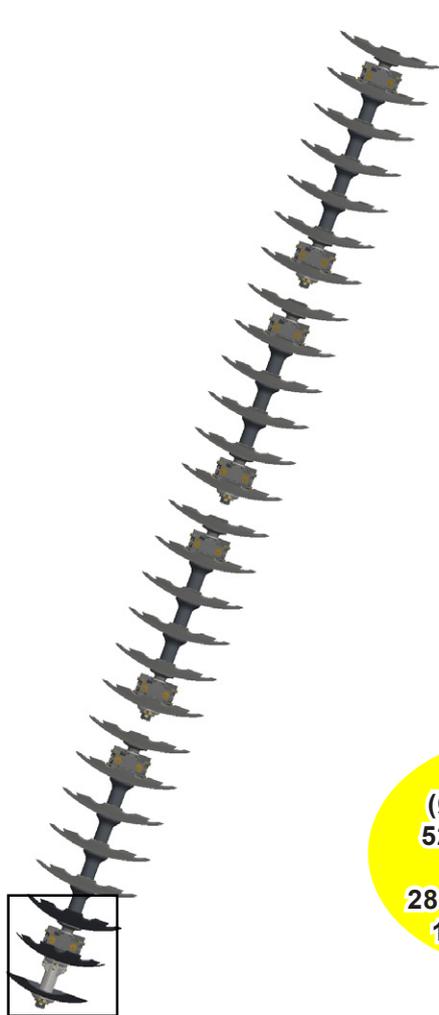
Spacer spool



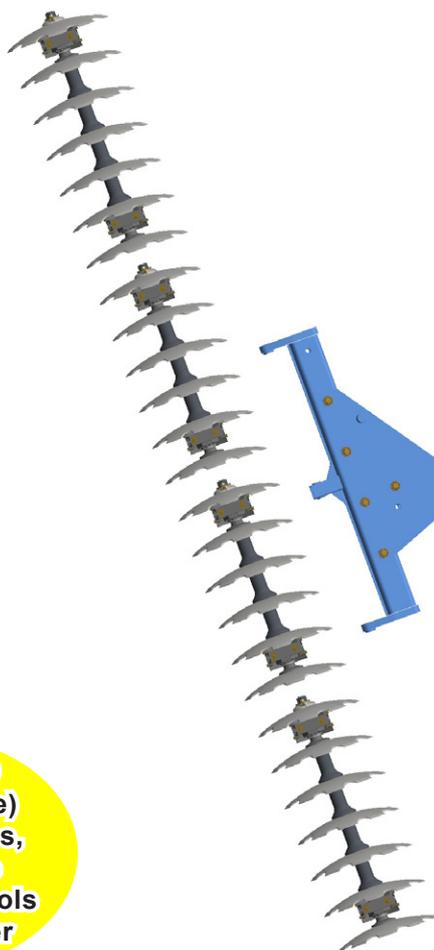
Furrow filler

Assembly

Assembly of bearings and spacer spools (GCRO 28 - 60)



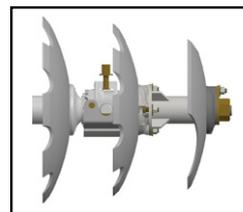
GCRO 7010
(Ø 1.3/4" axle)
52 disc blades,
16 bearings
28 spacer spools
1 furrow filler



Bearing



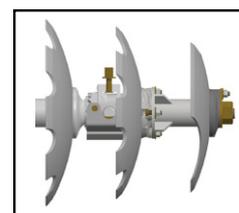
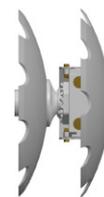
Spacer spool



Furrow filler

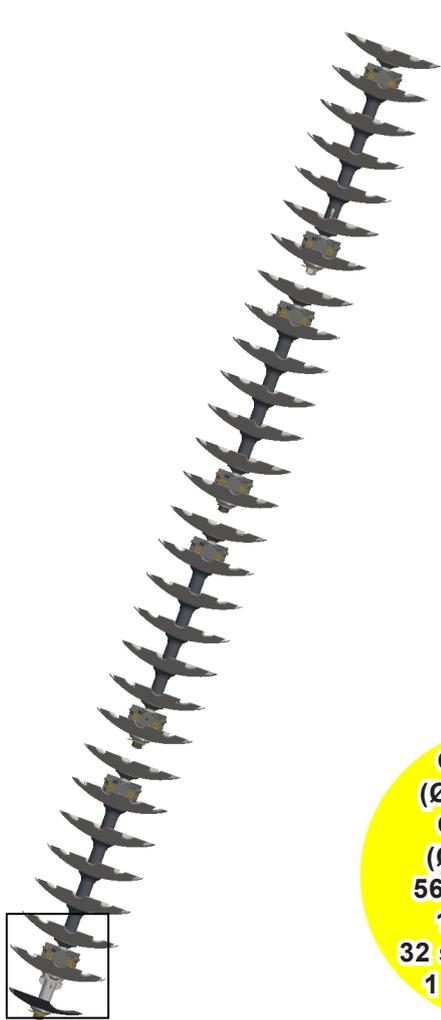
Assembly

Assembly of bearings and spacer spools (GCRO 28 - 60)

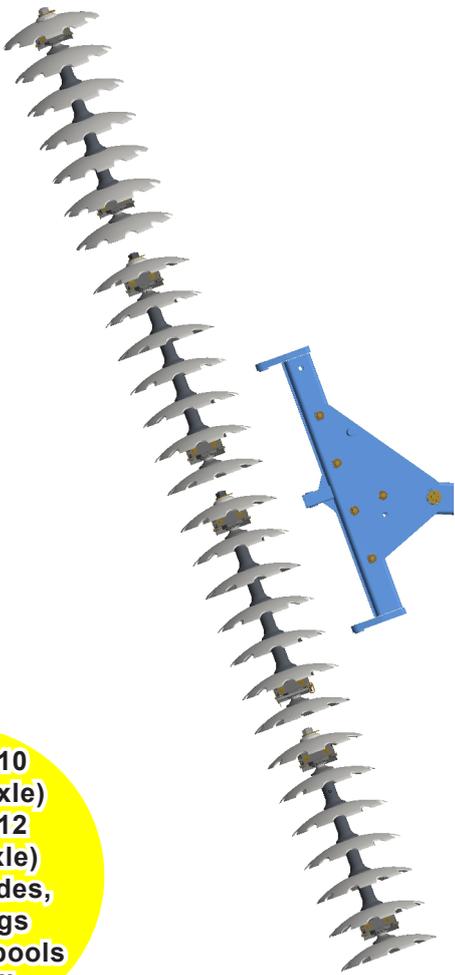


Assembly

Assembly of bearings and spacer spools (GCRO 28 - 60)



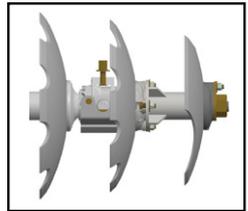
GCRO 7010
(Ø 1.5/8" axle)
GCRO 7012
(Ø 2.1/8" axle)
56 disc blades,
16 bearings
32 spacer spools
1 furrow filler



Bearing



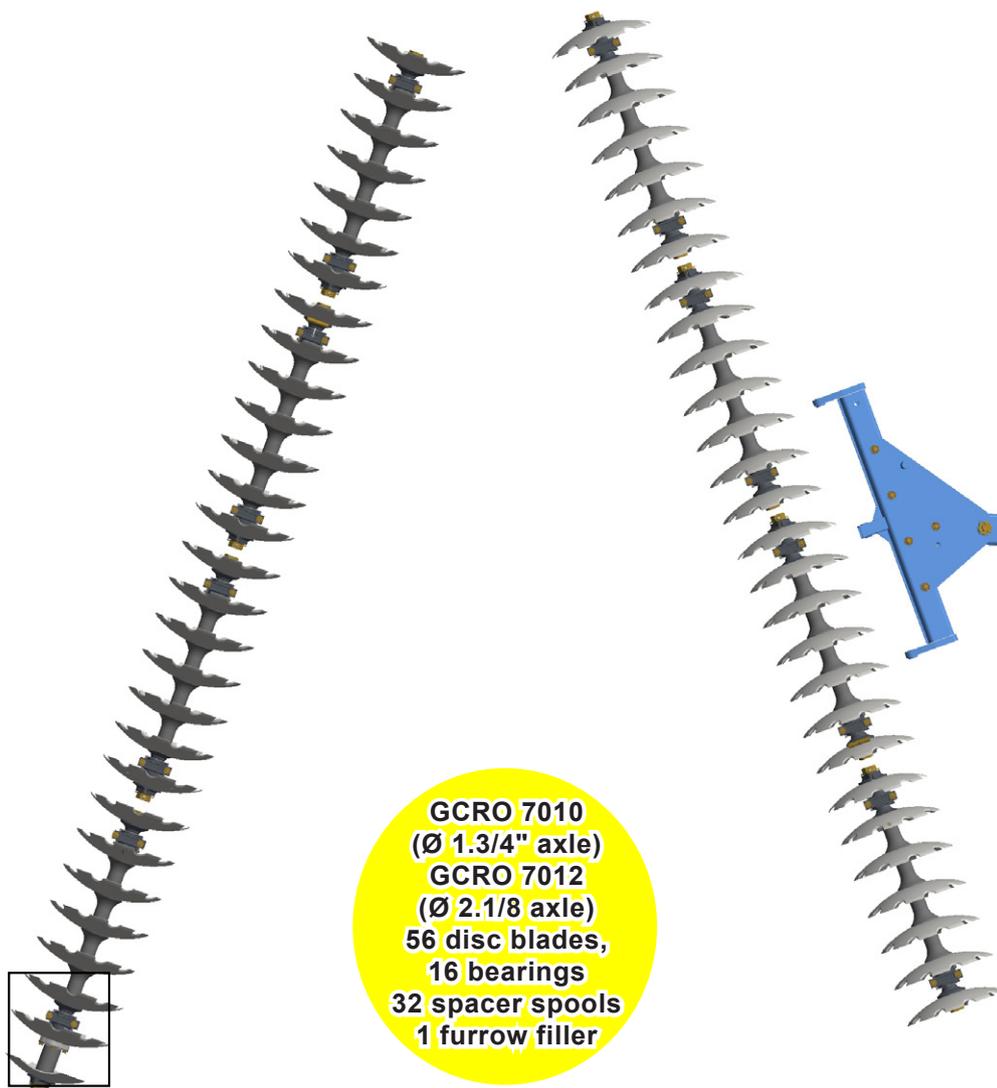
Spacer spool



Furrow filler

Assembly

Assembly of bearings and spacer spools (GCRO 28 - 60)



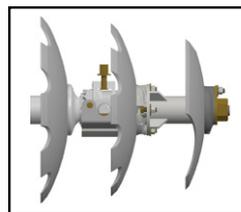
GCRO 7010
(Ø 1.3/4" axle)
GCRO 7012
(Ø 2.1/8" axle)
56 disc blades,
16 bearings
32 spacer spools
1 furrow filler



Bearing



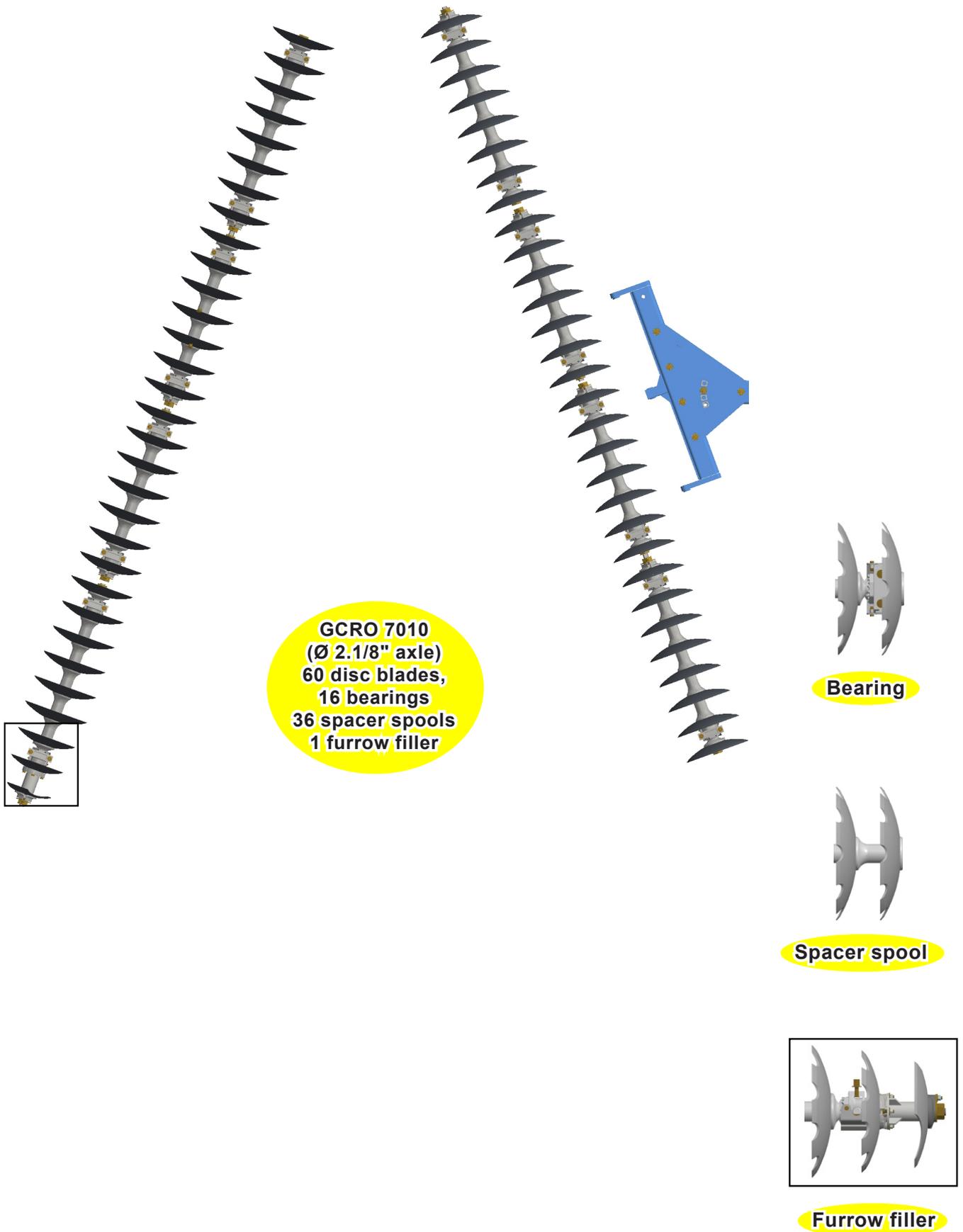
Spacer spool



Furrow filler

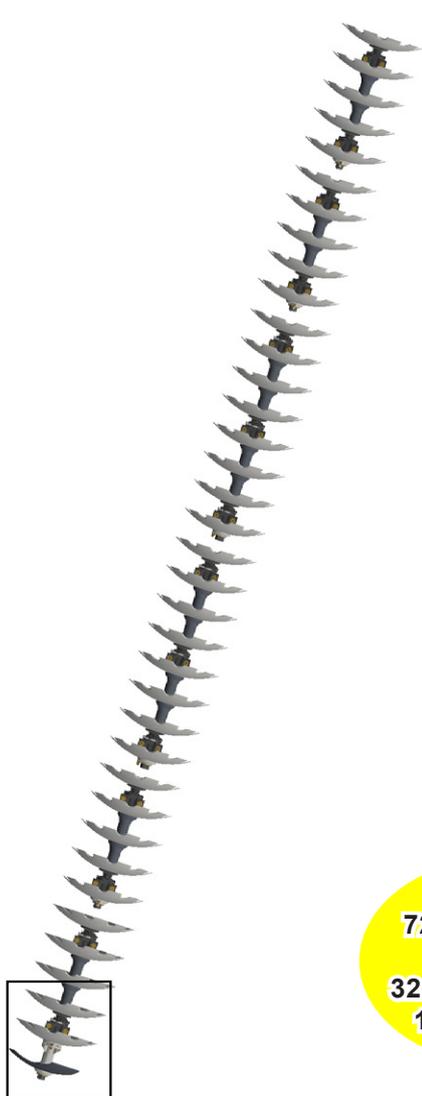
Assembly

Assembly of bearings and spacer spools (GCRO 28 - 60)

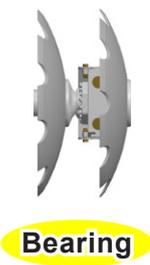
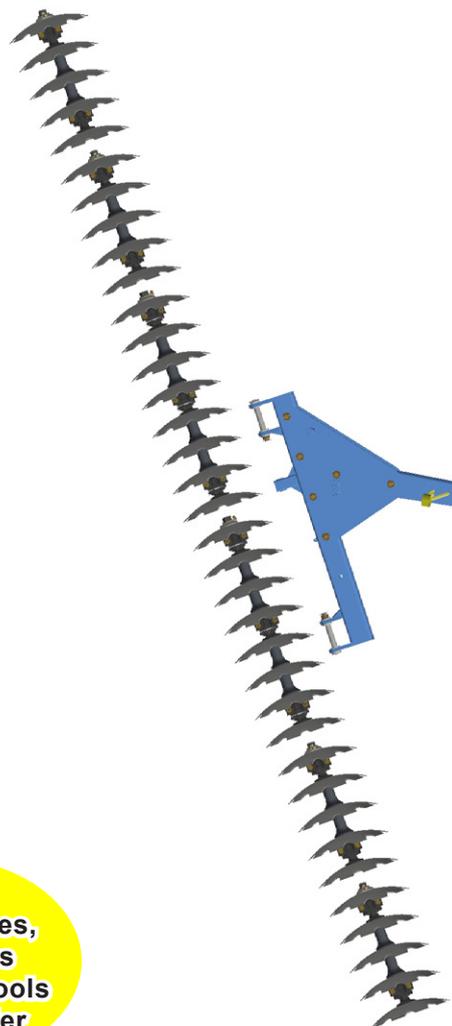


Assembly

Assembly of bearings and spacer spools (GCRO 72 - 80)



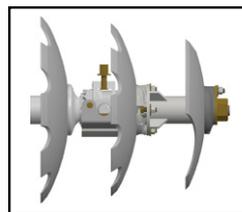
GCRO
72 disc blades,
28 bearings
32 spacer spools
1 furrow filler



Bearing



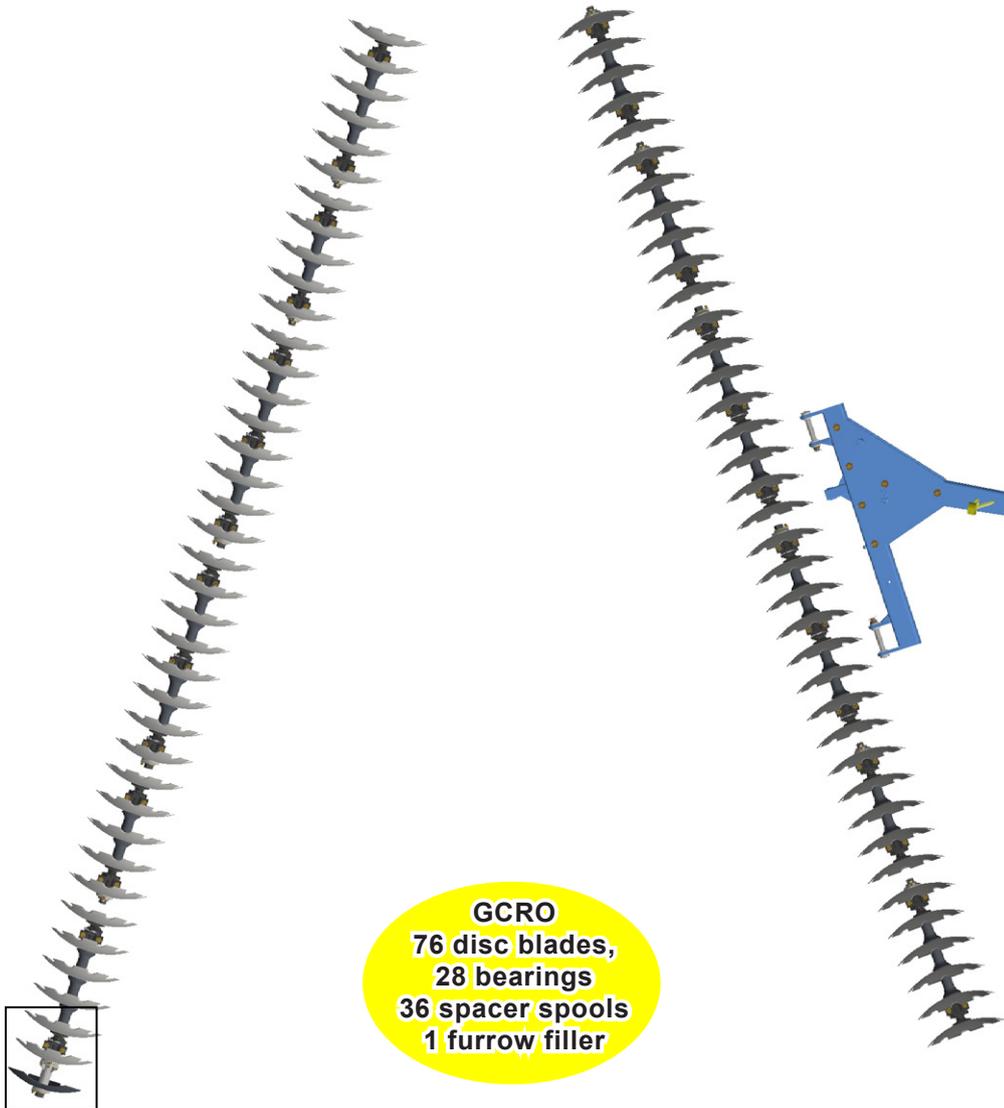
Spacer spool



Furrow filler

Assembly

Assembly of bearings and spacer spools (GCRO 72 - 80)



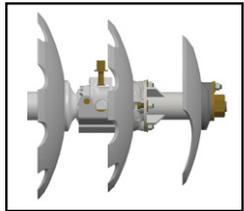
GCRO
76 disc blades,
28 bearings
36 spacer spools
1 furrow filler



Bearing



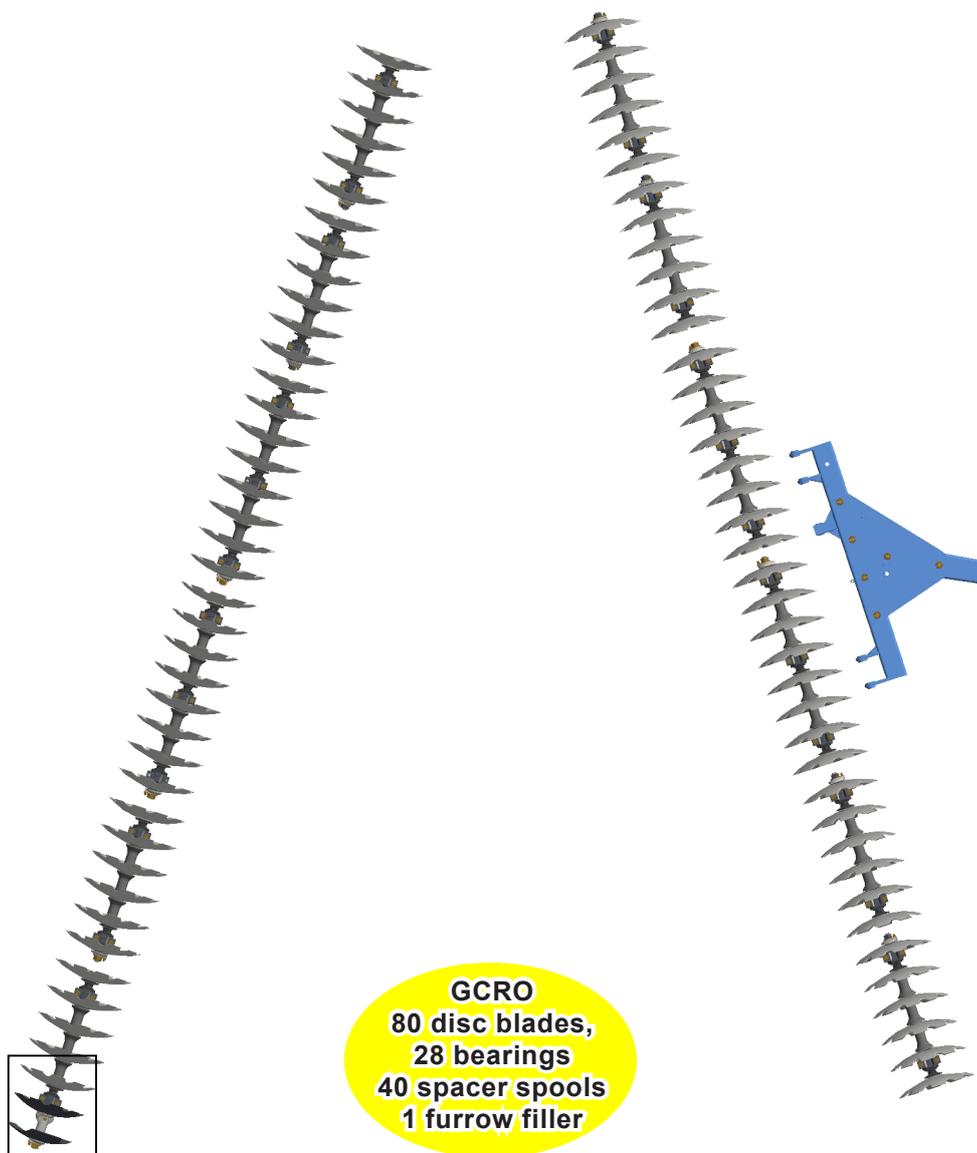
Spacer spool



Furrow filler

Assembly

Assembly of bearings and spacer spools (GCRO 72 - 80)



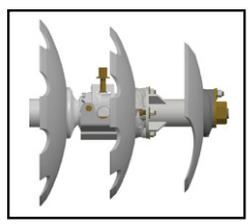
GCRO
80 disc blades,
28 bearings
40 spacer spools
1 furrow filler



Bearing



Spacer spool



Furrow filler

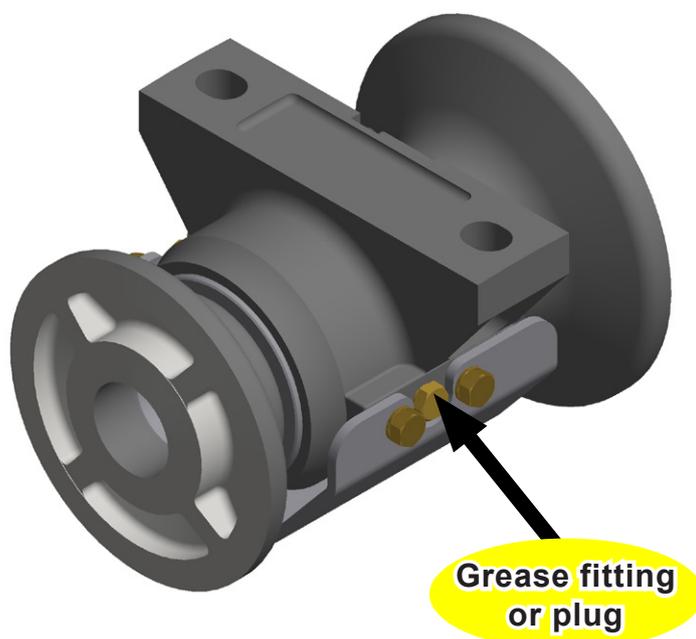
Assembly

Disc gangs assembly sequence

- Place the outer lock (A) along with the axle (B).
- Tighten the nut (C) passing 5 mm from the axle face.
- Place the disc blades (D), bearings (E) and spacer spools (F), following the instructions on the previous pages.
- Place the inner lock (G) and nut (C-1).
- Place the bolt (H) that holds the lock nut (I), along with a spring washer and nut, only on the outer side of the gangs.
- Use the wrenches from the 'set of wrenches' page to tighten the gangs as follows:
 - 1) Place one of the wrenches in the outer side of the gangs (locked side), supporting it on the ground. (As shown on the next page).
 - 2) On the inner side, use the other wrench and tighten the gangs to get maximum torque.
 - 3) To tighten the gangs, underpin them using a piece of wood or another object, thus preventing them from moving. (As shown on the next page).
- Lastly, put the bolt (H-1) and position the lock nut (I-1), fastening with a flat washer and nut.

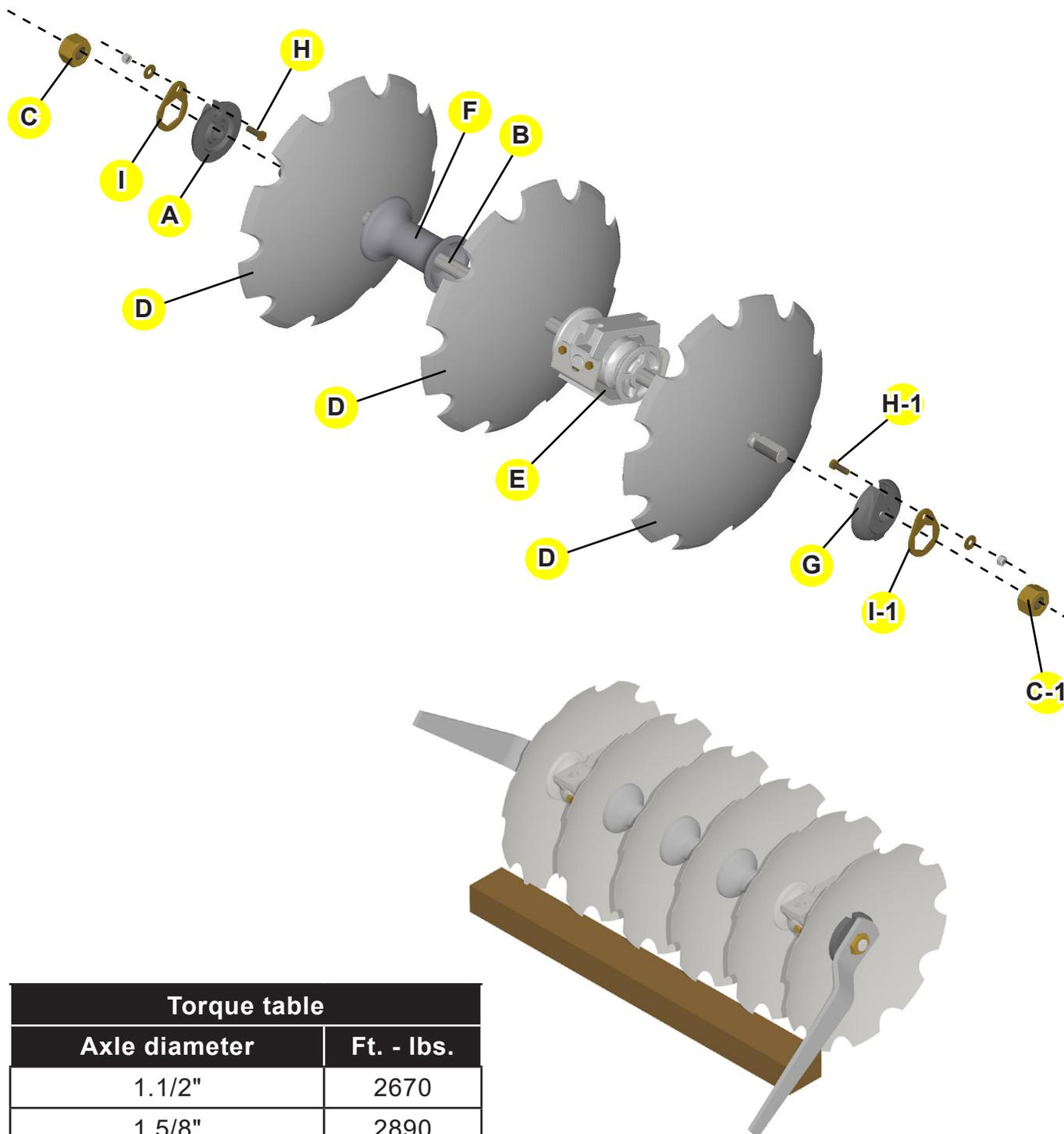
IMPORTANT

- Check the correct side of the bearings and spacer spools according to the disc blades concavity.



Assembly

Disc gangs assembly sequence



Torque table	
Axle diameter	Ft. - lbs.
1.1/2"	2670
1.5/8"	2890
1.3/4"	3020
2"	3150
2.1/8"	3300
2.1/2"	3500
2.3/4"	3750
3"	4000

NOTE The axle threads (B) must be greased before their assembly. Consult the torque table on the 'important data' page.

Assembly

Disc gangs assembly sequence (with furrow filler)

Place the outer lock (A) along with the axle (B).

Tighten the nut (C) passing 5 mm from the axle face.

Place the disc blades (D), bearings (E) and spacer spools (F), following the illustration on the next page.

Place the inner lock (G) and nut (C1).

Place the bolt (H) that fasten the lock nut (I), along with spring washer and nut (only on the outer side of the gangs).

Right after, underpin the disc blades to prevent their movement and tighten as shown on the next page, using the wrenches from the 'set of wrenches' page.

On the outer side of the gangs, couple the spacer spool (J) to the outer lock (A) using bolts (H1) and fastening with spring washers and nuts.

Fasten the furrow filler (K) to the spacer spool (J) and place the outer lock (L) on the spacer spool axle.

Then, fasten the nut (C2) to the spacer spool (J) axle.

Use the wrenches from the 'set of wrenches' page and tighten the gangs as follows:

1) Place one of the wrenches on the outer side of the gangs and support it on the soil. (As shown on the next page).

2) On the inner side, use the other wrench and tighten the gangs to get maximum torque.

3) To tighten the gangs, underpin them with a piece of wood or another object to prevent their movement. (As shown on the next page).

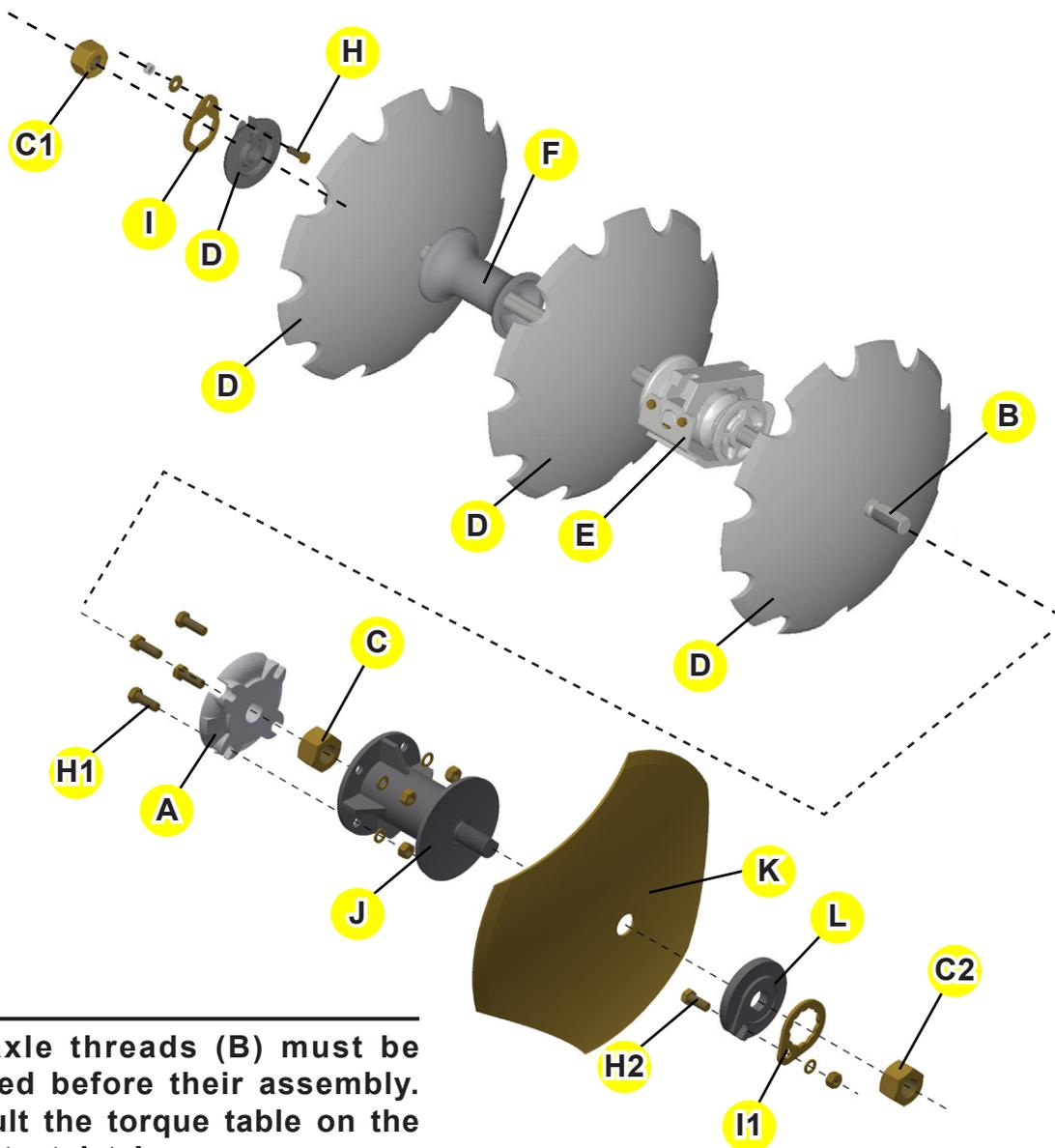
Lastly, place the bolt (H2) and position the lock nut (I1), fastening with flat washer and nut.

IMPORTANT

Check the correct side of the bearings and spacer spools according to the concavity of the disc blades.

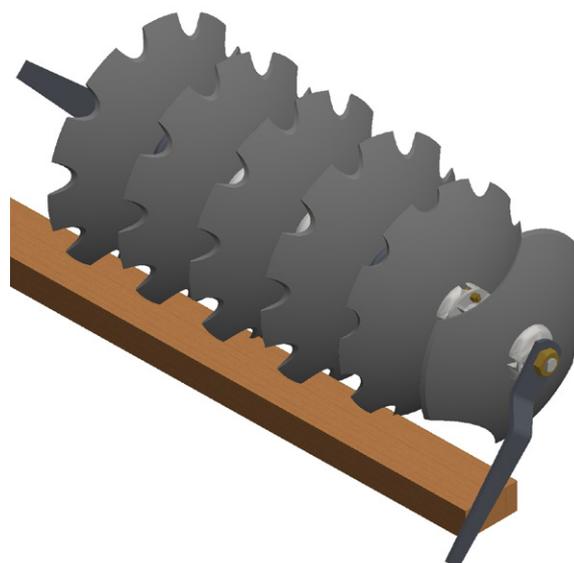
Assembly

Disc gangs assembly sequence (with furrow filler)



NOTE The axle threads (B) must be greased before their assembly. Consult the torque table on the 'important data' page.

Torque table	
Axle diameter	Ft. - lbs.
1.1/2"	2670
1.5/8"	2890
1.3/4"	3020
2"	3150
2.1/8"	3300
2.1/2"	3500
2.3/4"	3750
3"	4000



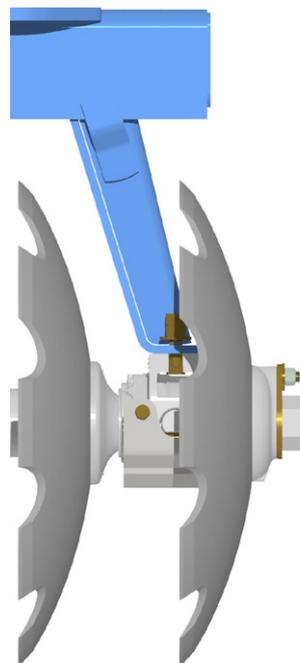
Assembly

Assembly of the disc gangs on the frame

IMPORTANT

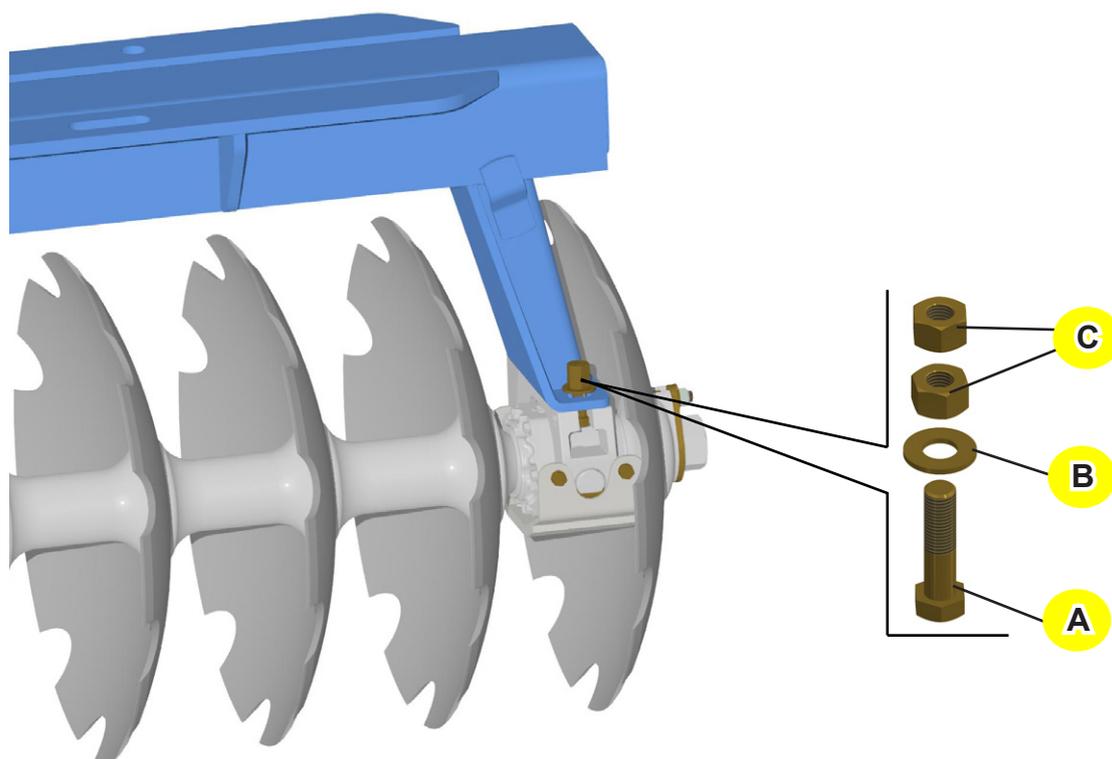
- The rear gang turns earth to the left and the front gang turns earth to the right.

In the gang assembly to the carriers, the bearing hangers should remain facing the disc blades concavity.



- Place the bolt (A) with square washer (B) and pass it through the bearing housing and through the bearing hanger hole. On the upper part, place a flat washer (B) and nuts (C);

- Repeat this operation for the other bearings.



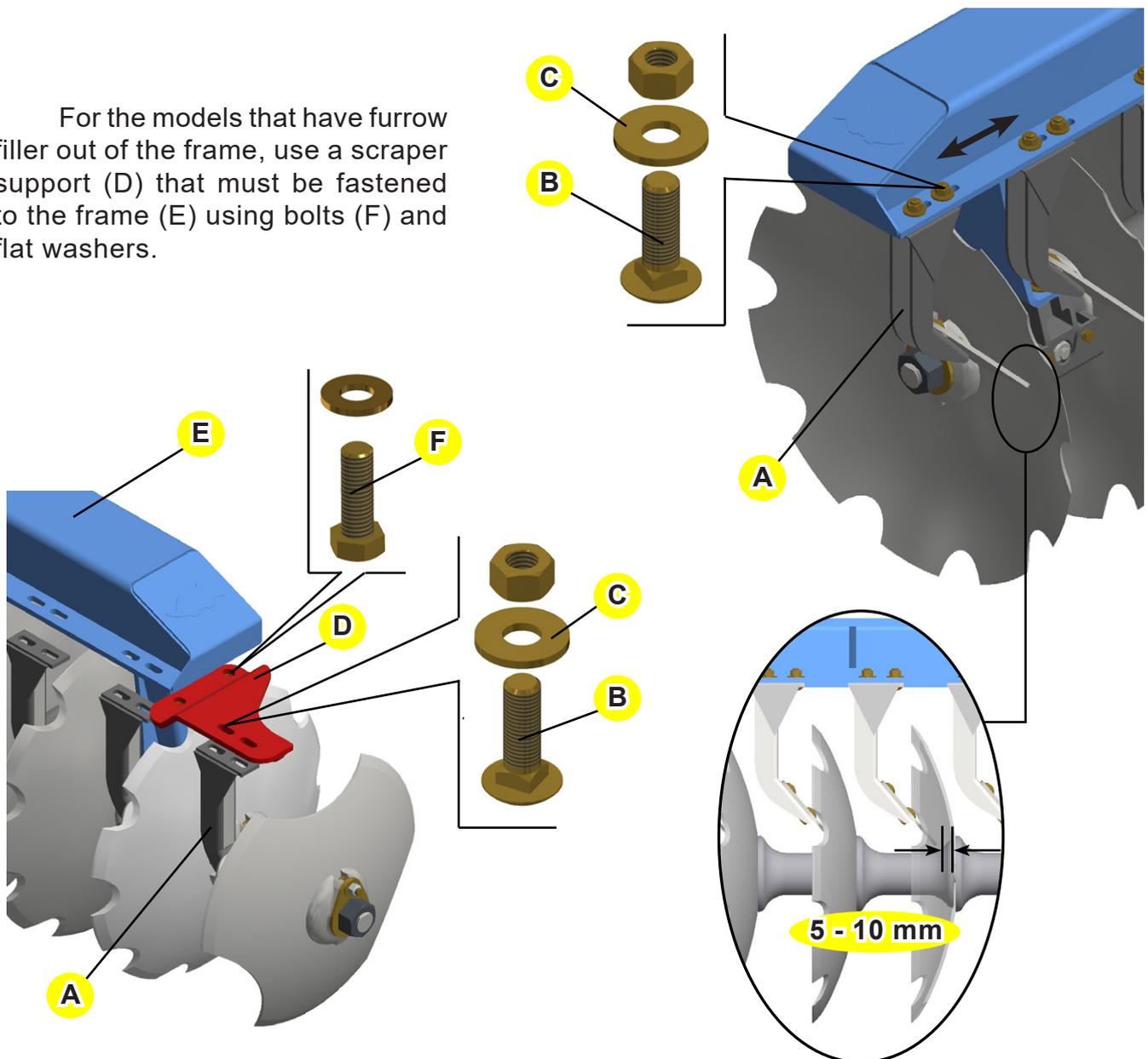
Assembly

Scrapers assembly

Note the fixing point of the scrapers with the end facing the concave side of the disc blades.

Assemble the scrapers (A) using the bolts (B), which are placed underneath the fixation plate. On the upper part, place flat washers (C) and nuts.

For the models that have furrow filler out of the frame, use a scraper support (D) that must be fastened to the frame (E) using bolts (F) and flat washers.

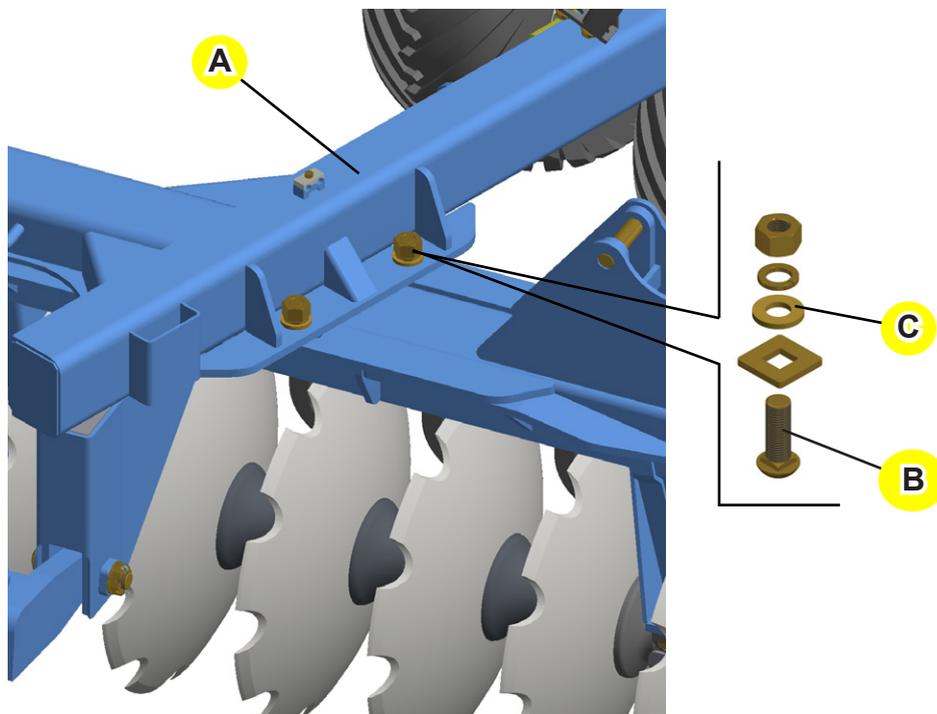


NOTE The scrapers feature an adjustment to approach or distance them from the disc blades; it ranges from 5 mm (minimum) to 10 mm (maximum).

Assembly

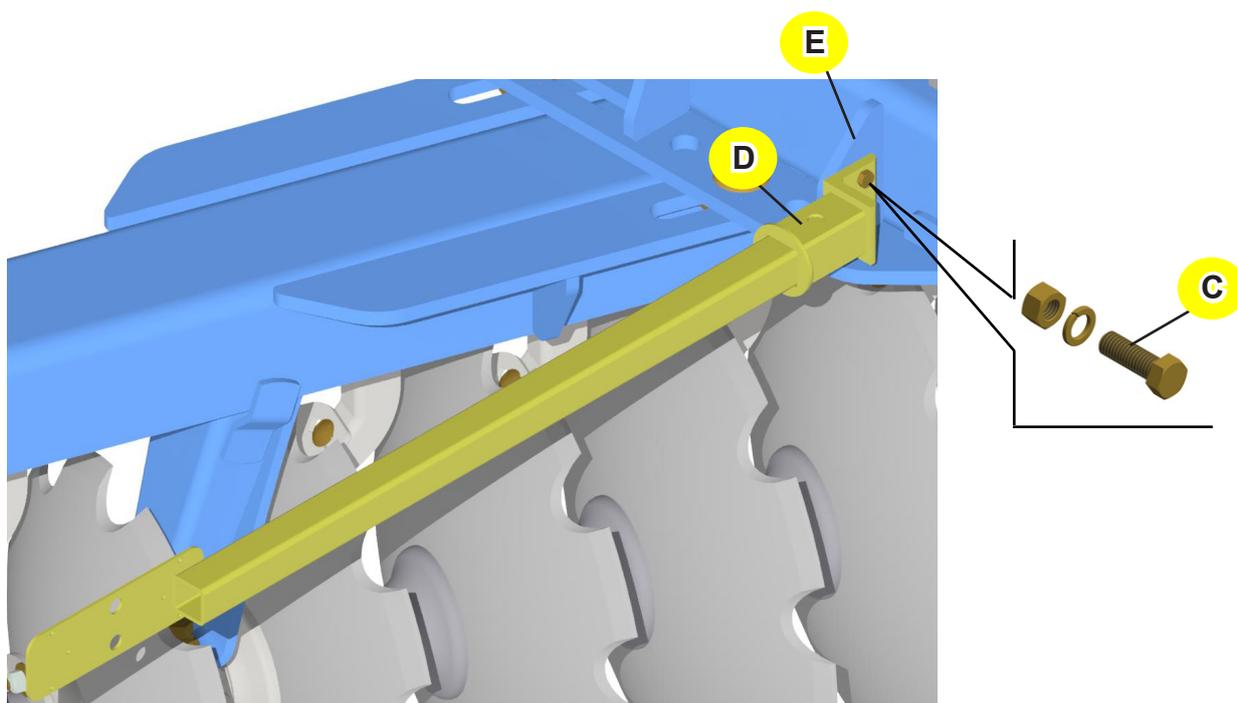
Disc gang carrier assembly to the frame

Fasten the front and rear disc gang carriers to the frame (A) using bolts (B) and square washer, placing these parts from the bottom to top. Right after, lock using flat washer (C), spring washer and nuts.



Lantern support assembly

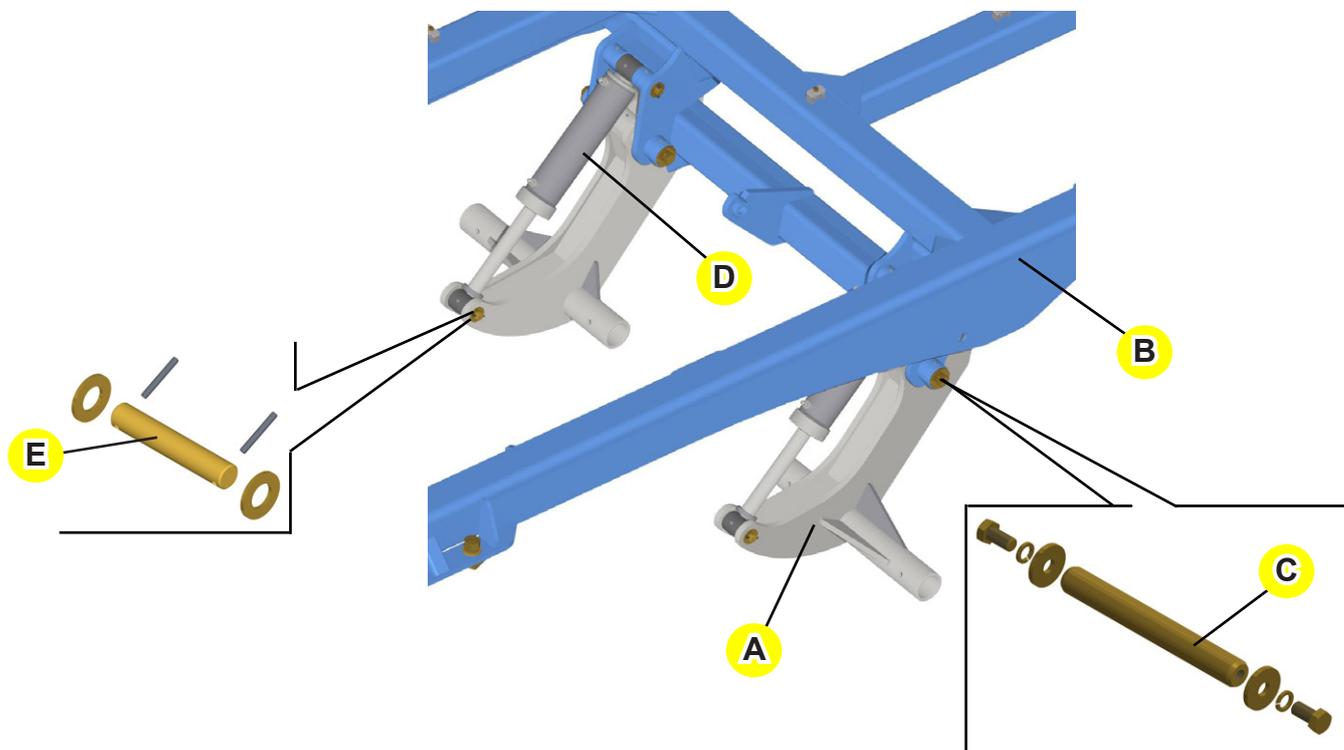
Fasten the lantern support (D) to the frame (E) using bolts (C), spring washers and nuts.



Assembly

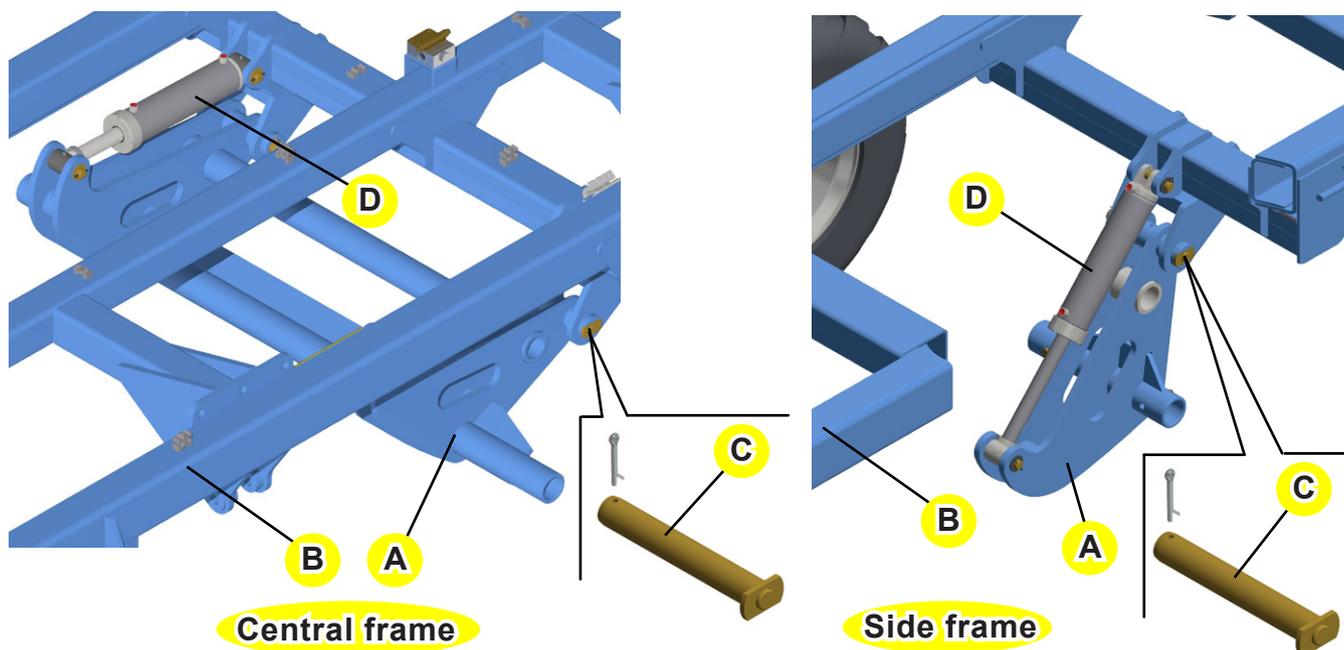
Wheel arm assembly (28 - 60 disc blades)

Fasten the wheel arm (A) to the frame (B) using a junction axle (C), flat washers, spring washer and bolts. Right after, fasten the cylinders (D) to the wheel arm (A) locking with articulation axle (E), flat washers and elastic pins.



Wheel arm assembly (72 - 80 disc blades)

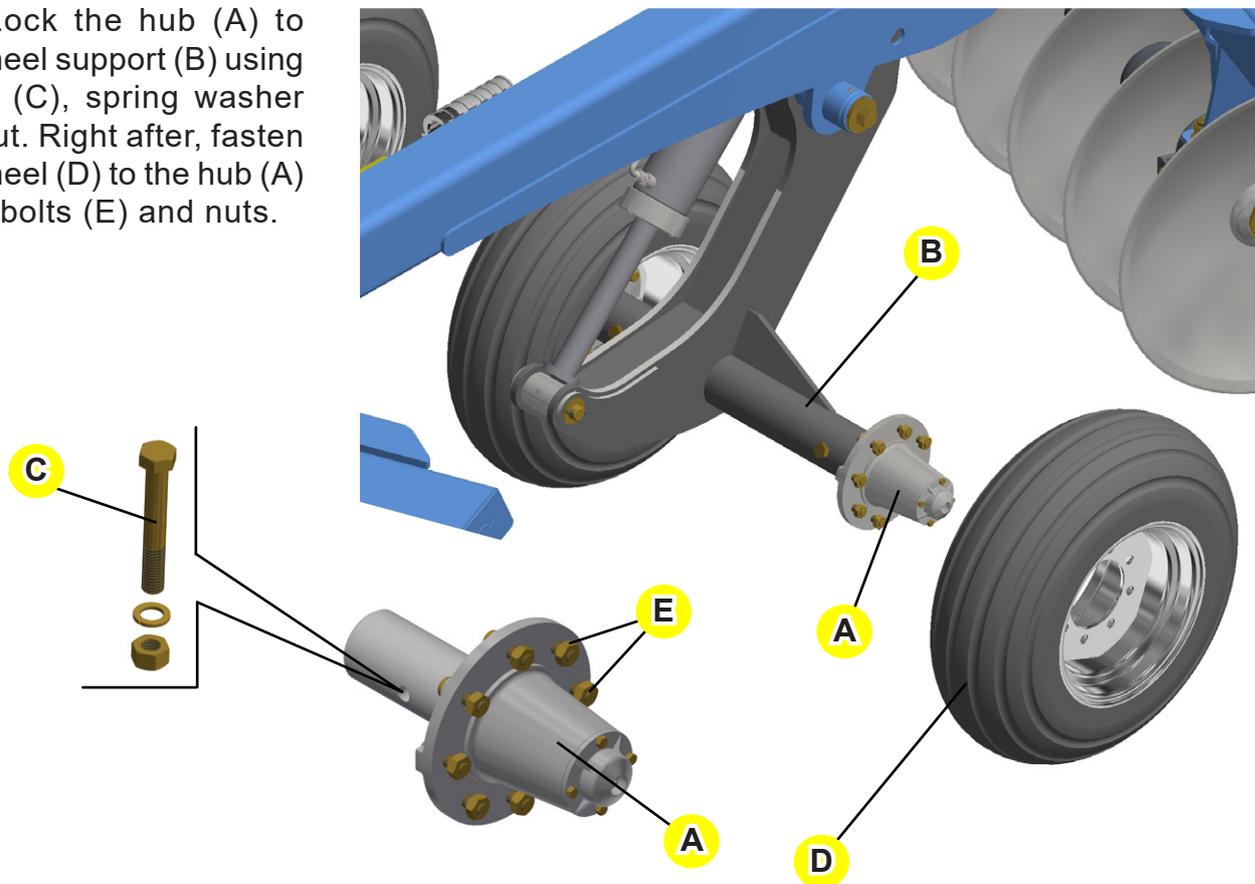
Lock the wheel arm (A) to the frame (B) using a junction axle (C), flat washers, spring washers and bolts. Then, fasten the cylinders (D) to the wheel arm (A) locking with articulation axles, flat washers and elastic pins.



Assembly

Tires assembly

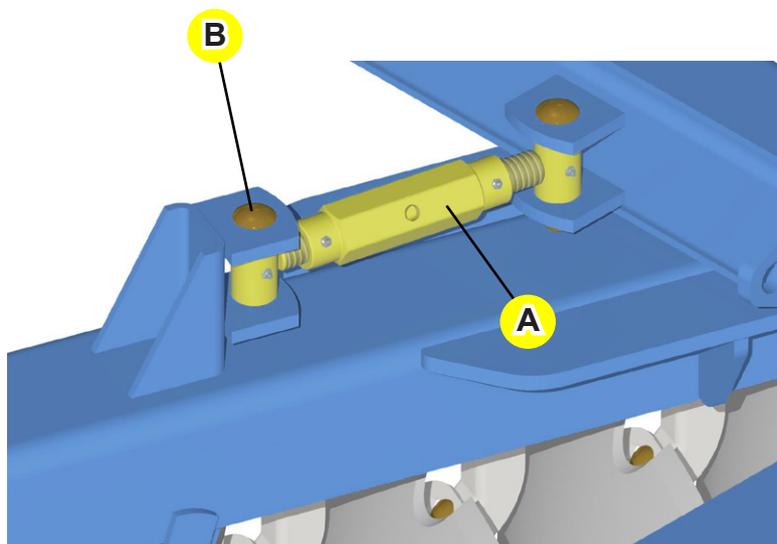
Lock the hub (A) to the wheel support (B) using a bolt (C), spring washer and nut. Right after, fasten the wheel (D) to the hub (A) using bolts (E) and nuts.



Stabilizer assembly

The GCRO disk harrow allows a lateral displacement of 150 mm on the rear disc gang carrier. The adjustment is done through the adjusting nut of the stabilizer (A). To lift the disk harrow totally, note the stabilizer leveling.

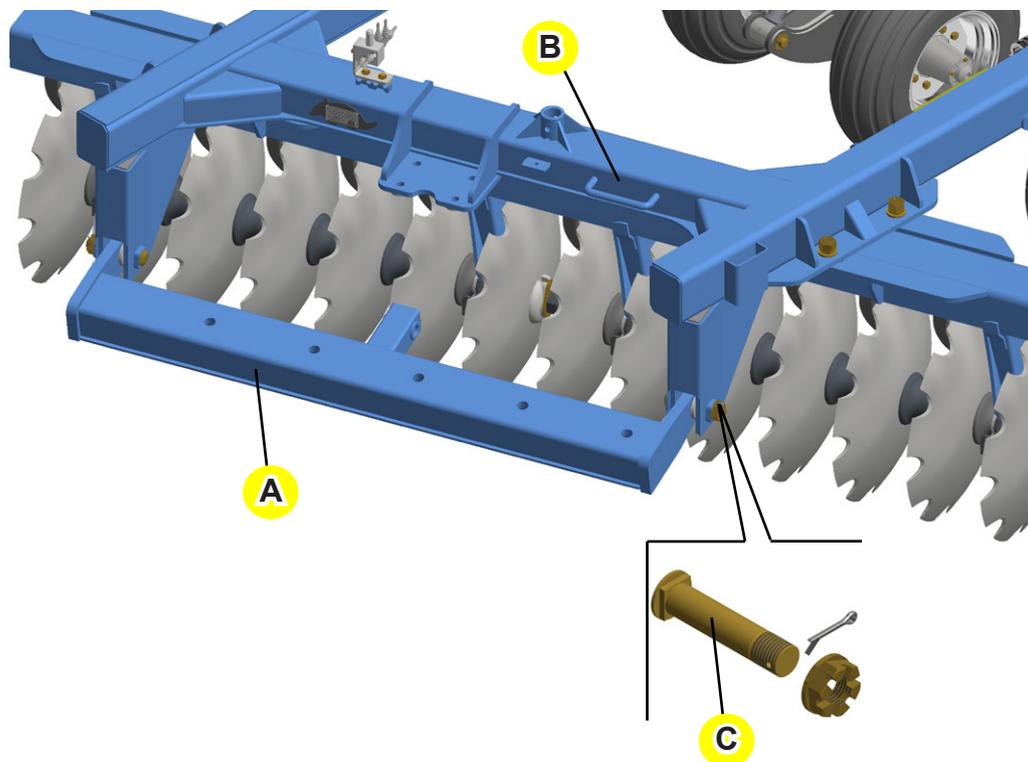
To mount the stabilizer, fasten it to the support using pins (B) and cotter pins.



Assembly

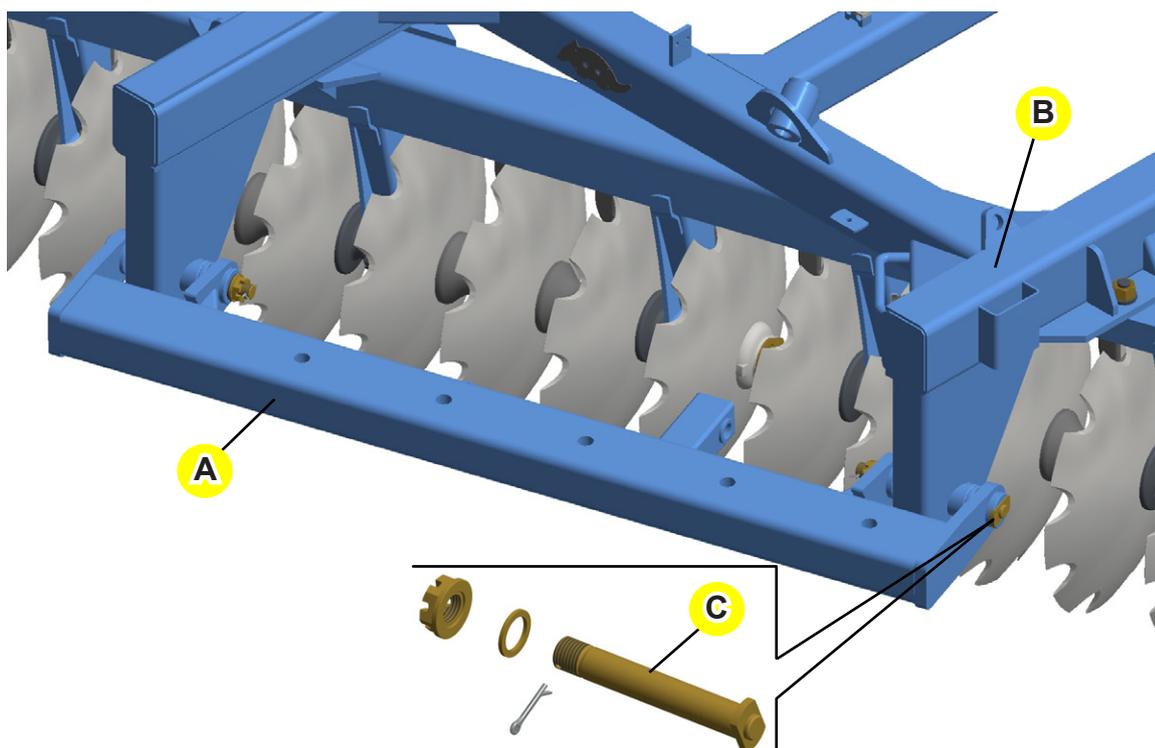
Hitch bar assembly (28 - 60 disc blades)

Couple the hitch bar (A) to the frame (B) arms and lock using a junction axle (C), castle nut and cotter pin.



Hitch bar assembly (72 - 80 disc blades)

Couple the hitch bar (A) to the frame (B) arms and lock using an axle with lock (C), flat washer, castle nut and cotter pin.



Assembly

Hydraulic traction set assembly

Assemble the upper (A) and lower (B) plates to the hitch bar (C) using junction axle (D), flat washer, castle nut and cotter pin, carefully observing the correct position of the plates and bolts. Avoid to assemble them inverted.

Assemble the drawbar (E). Note that all castle nuts are on the upper part of the plates, locked and with cotter pins.

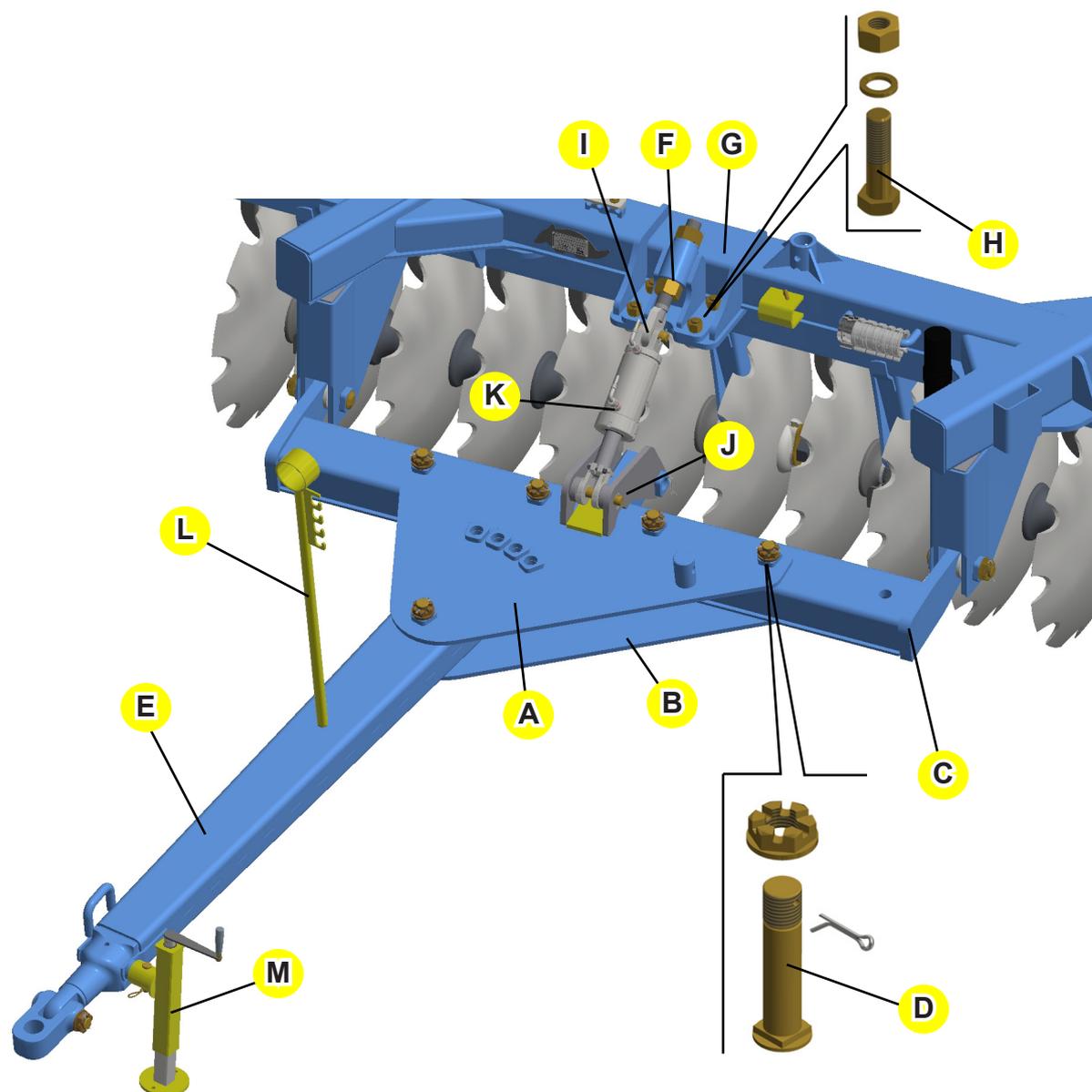
Assemble the cylinder fastener (F) to the frame (G) using bolts (H), spring washer and nuts.

Assemble the spindle (I) to the fastener (F) using nuts.

Assemble the articulator (J) to the hitch bar (C) using an axle, castle nut and cotter pin.

Fasten the hydraulic cylinder (K) to the spindle (I) and to the articulator (J) with its respective axles and cotter pins.

Assemble the hose support (L) and the jack (M) to the drawbar (E).



Assembly

Mechanical traction set assembly

Fasten the upper (A) and lower (B) plates to the hitch bar (C) using a junction axle (D), flat washer, castle nut and cotter pin; carefully observe the position of the plates and bolts. Avoid to mount them inverted.

Assemble the drawbar (E). Note that all castle nuts are on the upper part of the plates, locked and with cotter pins.

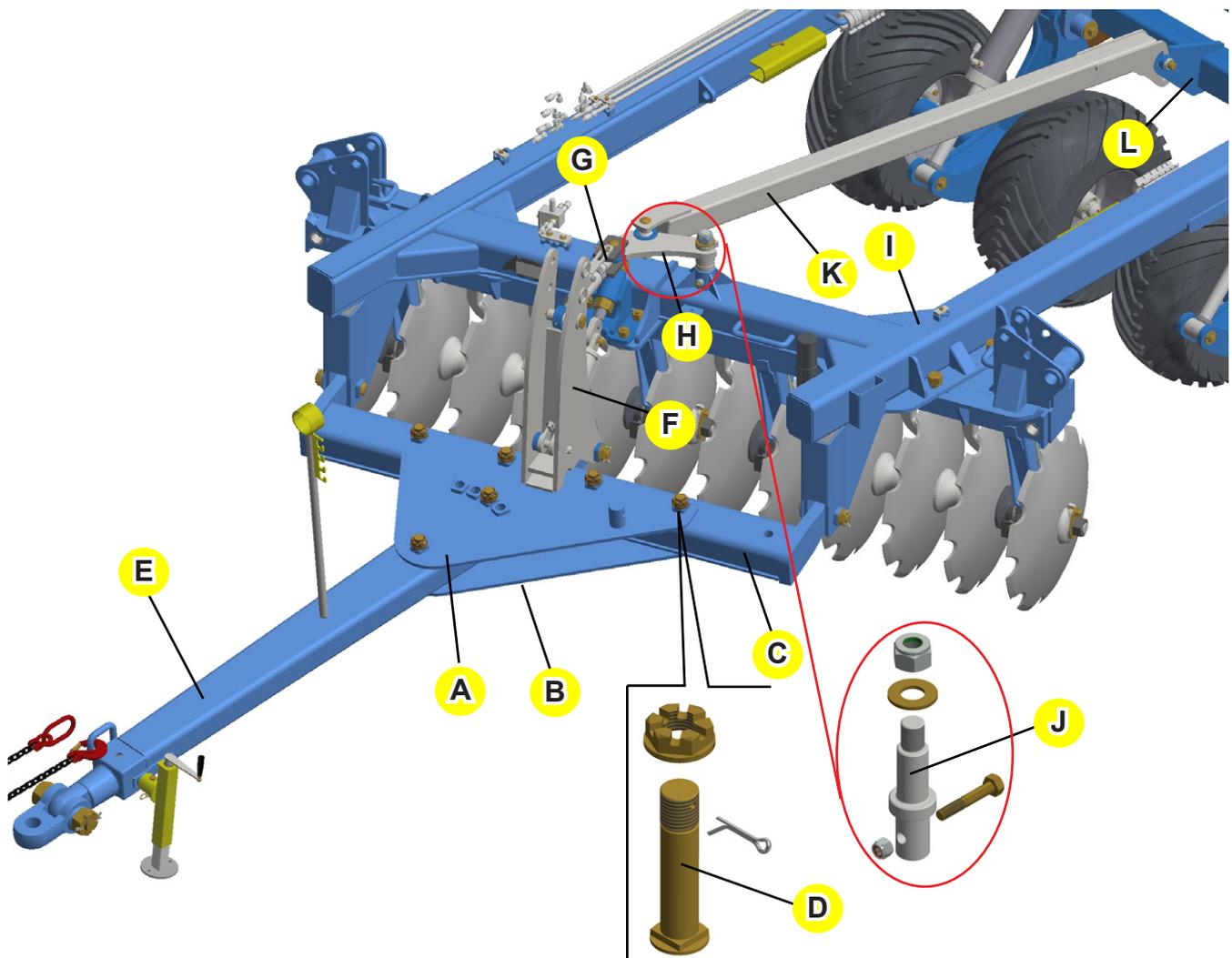
Assemble the drawbar articulator (F) to the hitch bar (C) using a bolt, castle nut and cotter pin.

Fasten the stabilizer bar adjustment extensor (G) to the articulator (F) using a bolt, flat washer and hex nut; on the other end of the extensor (G), couple the stabilizer bar articulator (H) using a junction axle and cotter pin.

Fasten the articulator (H) to the frame (I) using an axle (J) and then lock it using a bolt and hex nut.

Fasten the articulator (H) to the stabilizer bar (K) using junction axle and cotter pin.

Couple the stabilizer bar (K) to the wheel arm (L) using a bolt, flat washer and hex nut.



Assembly

Folding wings assembly

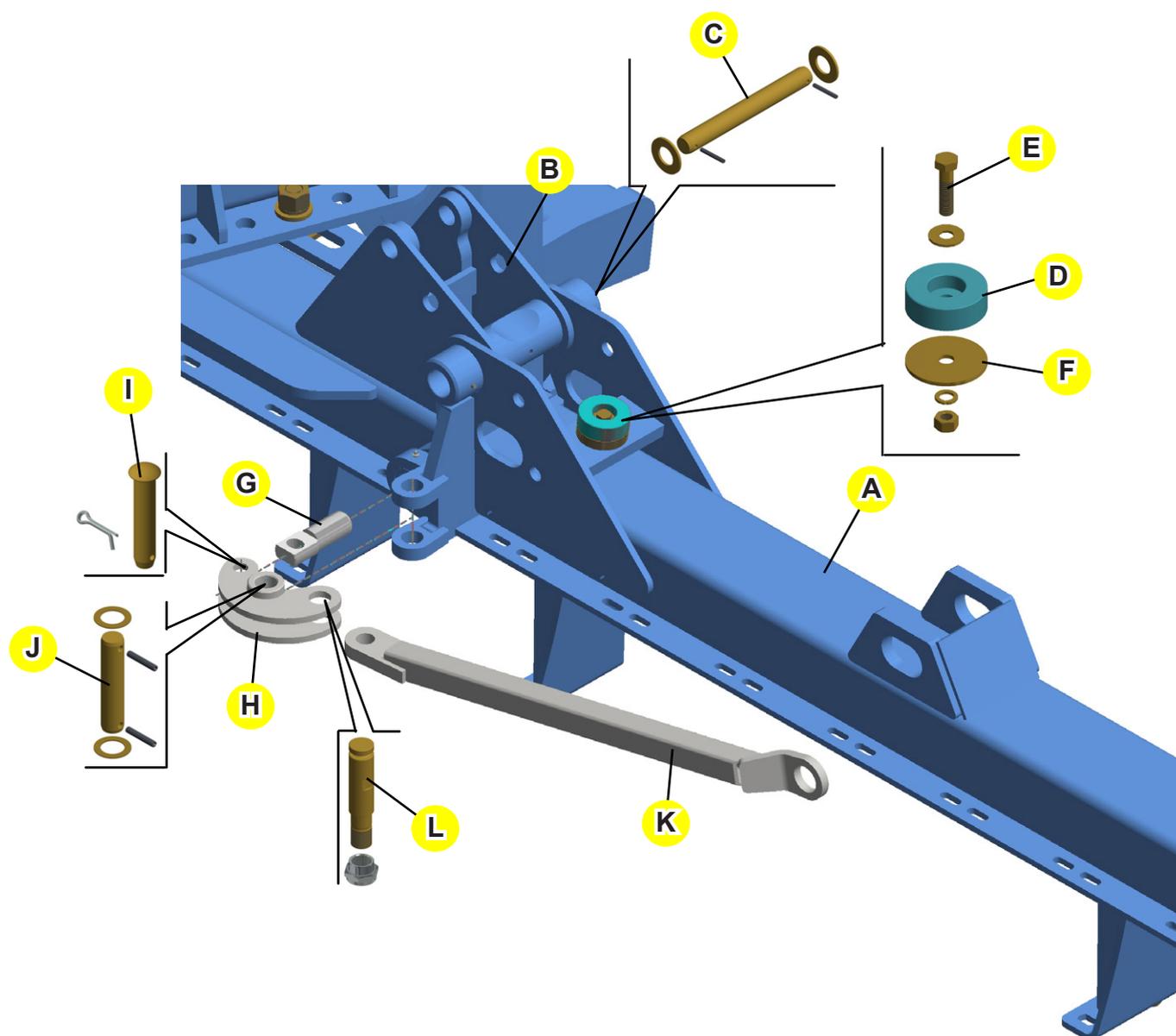
Approach the wing (A) to the central frame (B). After that, join them using a pin (C) and elastic pins.

Assemble the stop (D) to the wing (A) using a bolt (E), flat washer and spacing flat washers (F). Underneath the support, place a spring washer and nut.

Fasten the axle lock (G) to the central frame (B) and lock it to the articulator (H) using a pin (I) and cotter pin. Also place the pin (J), flat washers and elastic pins to lock the articulator (H) to the wing (A).

Lock the arm (K) to the articulator (H) using an axle lock, spring fastener (L) and nut.

Repeat the same procedure on the other side of the frame.

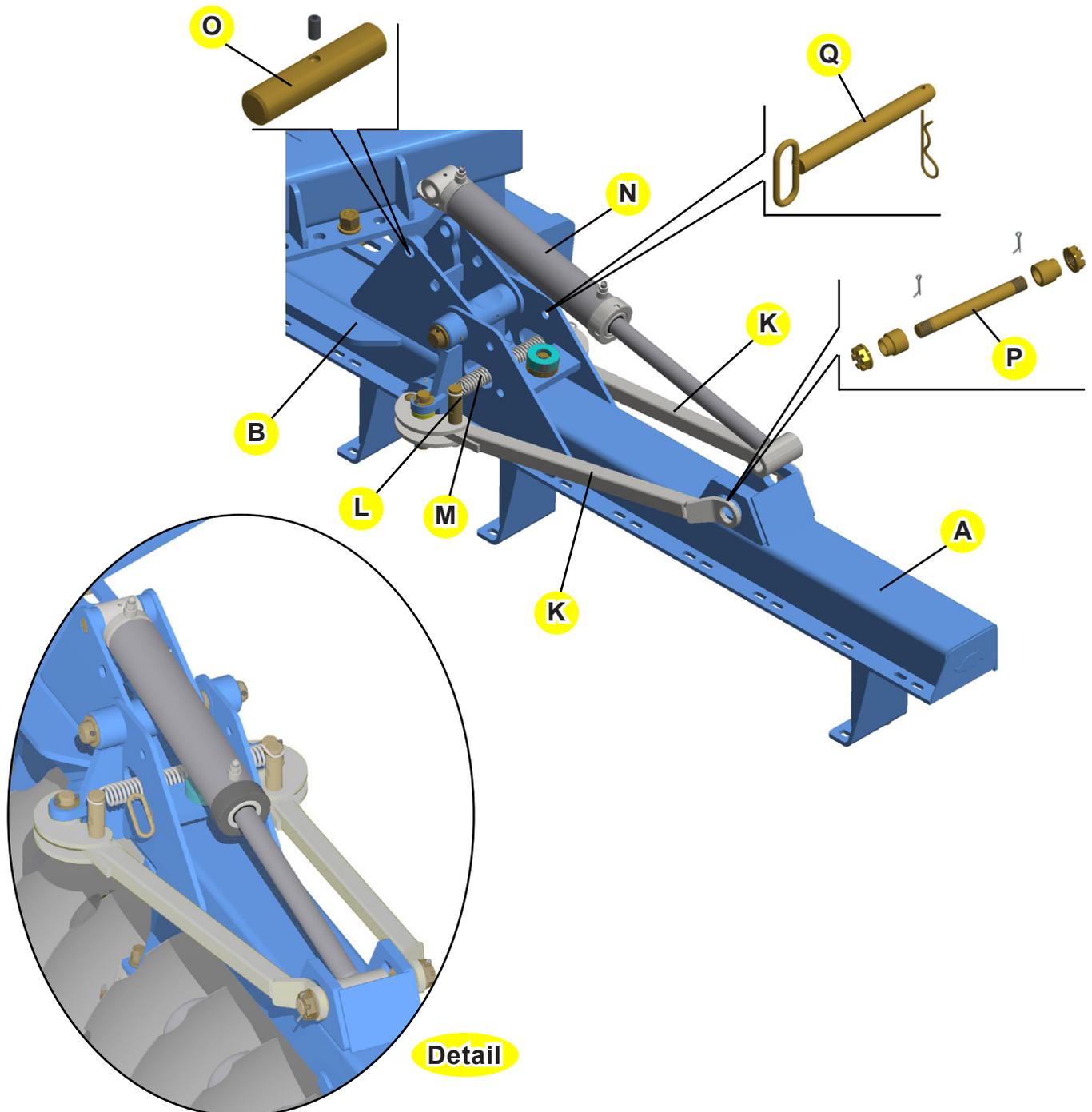


Assembly

Folding wings assembly

Assemble the spring (M) passing it through the frame (A) holes and locking with axles (L).

Couple the hydraulic cylinder (N) to the central frame (B) using a pin (O) and bolts; lock the cylinder (N) rod end to the wing (A) using an axle (P), bushings, castle nuts and cotter pins, locking the cylinder and the arms (K).



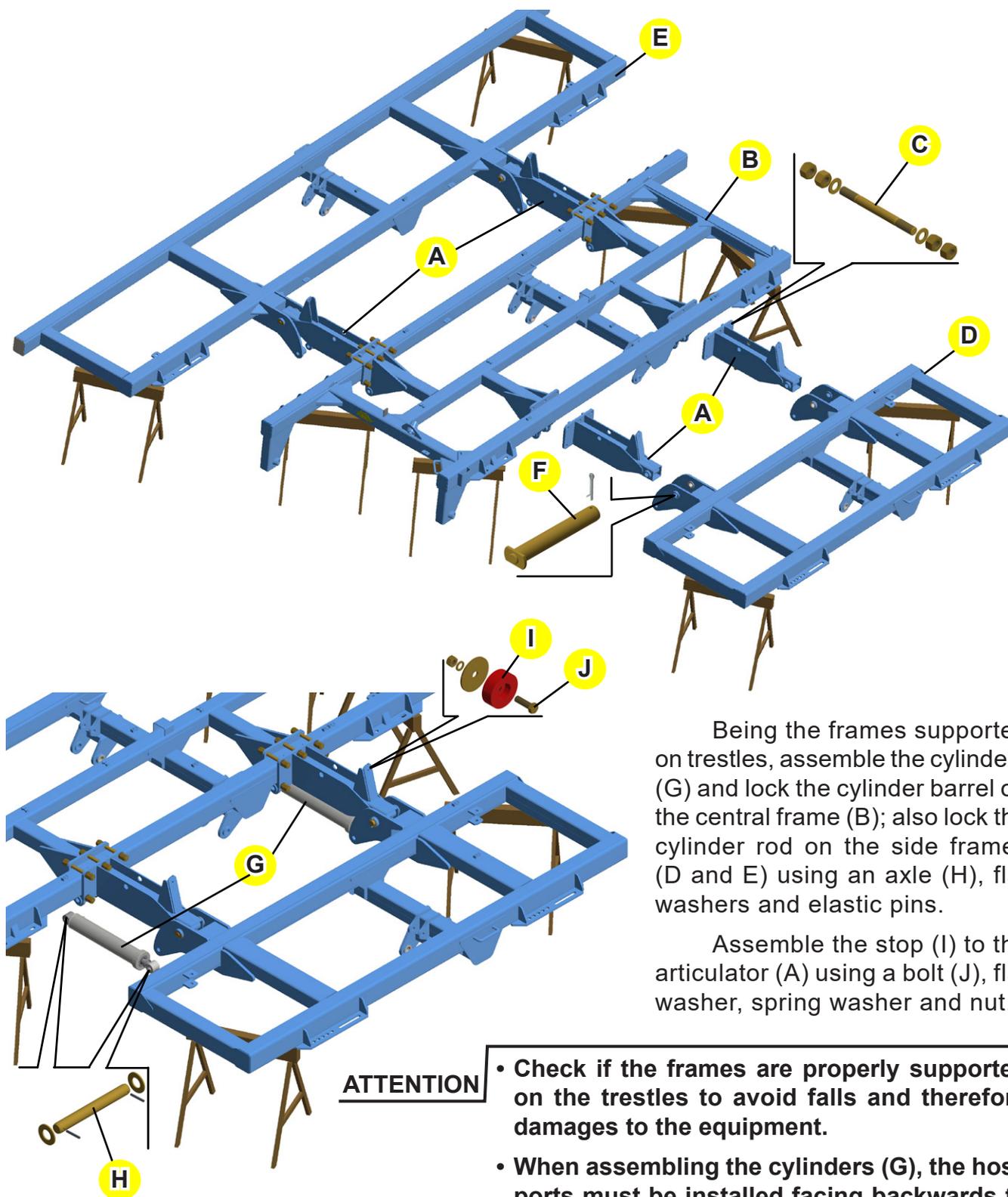
NOTE • The lock pin (Q) is used only to lock the wing (A) on the central frame (B) for transportation.

Assembly

Side frames assembly

Lock the side frame arms (A) to the central frame (B) using double end threaded studs (C), flat washers, nuts and counter nuts.

Being the frames supported on a trestle, join the side frames (D and E) on the articulator (A) and lock using an axle (F) with lock and cotter pin.



Being the frames supported on trestles, assemble the cylinders (G) and lock the cylinder barrel on the central frame (B); also lock the cylinder rod on the side frames (D and E) using an axle (H), flat washers and elastic pins.

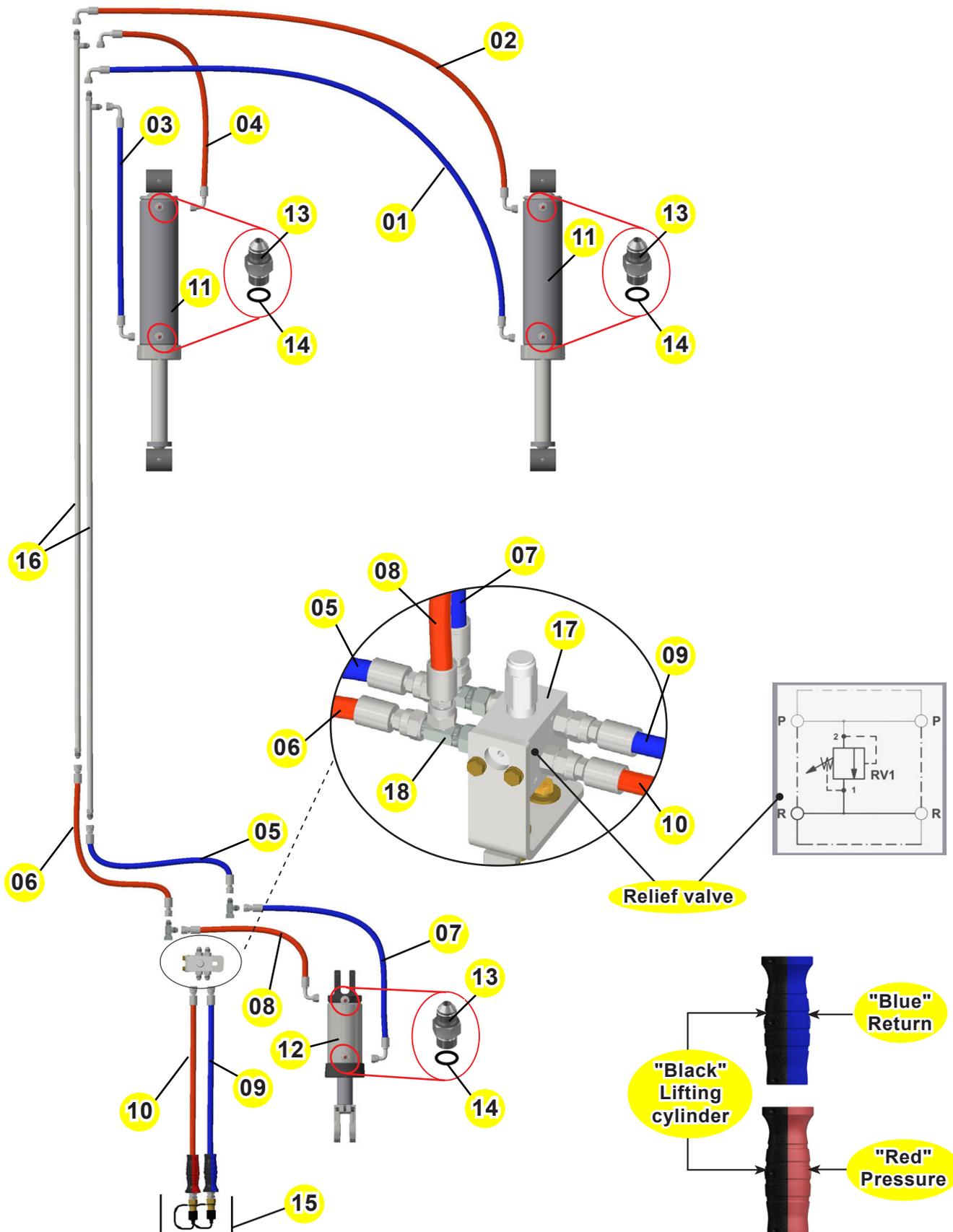
Assemble the stop (I) to the articulator (A) using a bolt (J), flat washer, spring washer and nut.

ATTENTION

- Check if the frames are properly supported on the trestles to avoid falls and therefore damages to the equipment.
- When assembling the cylinders (G), the hose ports must be installed facing backwards to avoid dirt accumulation.

Assembly

Wheel arm hydraulic circuit with cylinder and valve



Assembly

Wheel arm hydraulic circuit with cylinder and valve

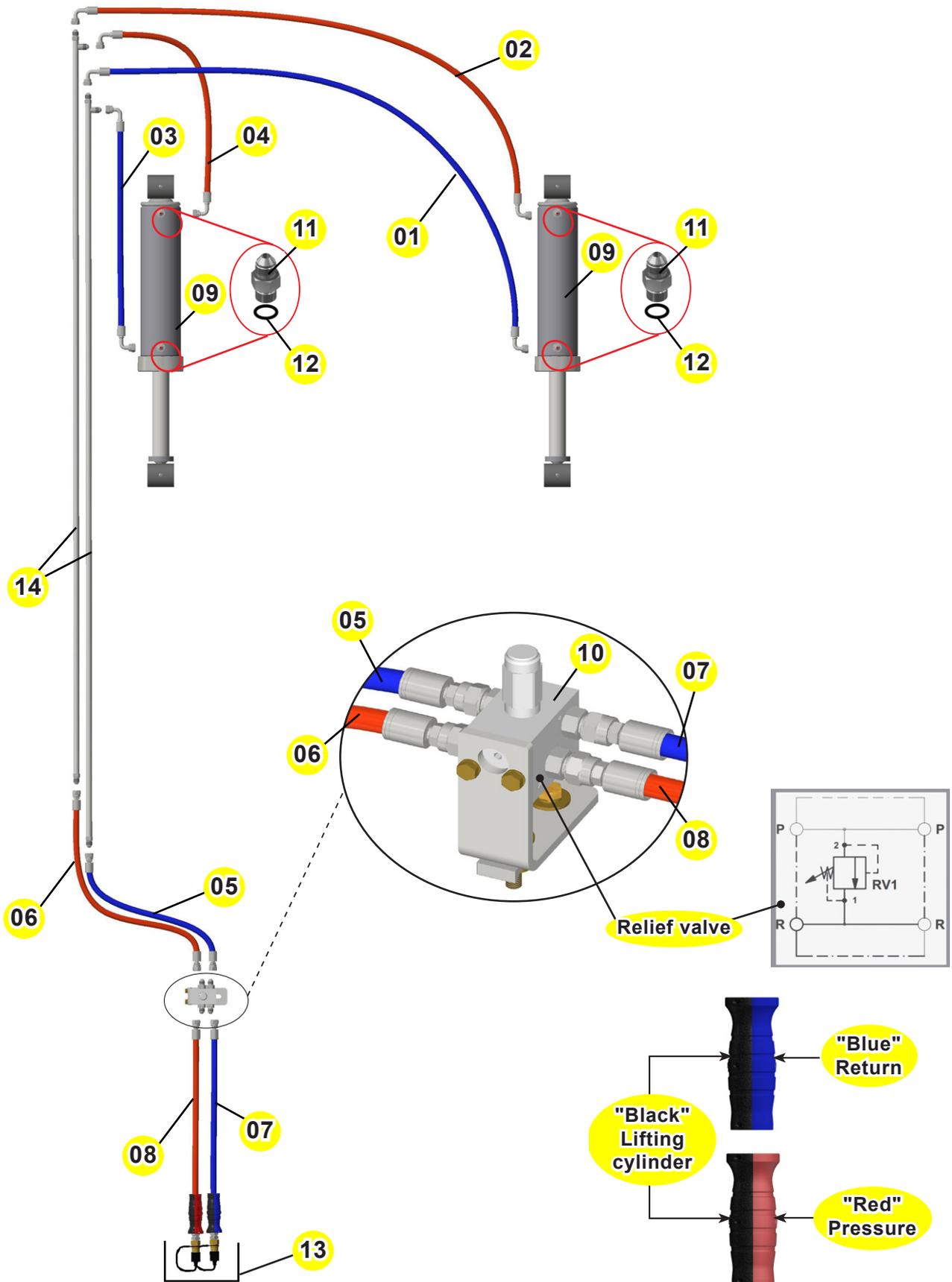
Item	Quantity	Description	
01	01	3/8 X 2400 TC - TC hose	Return
02	01	3/8 X 2000 TC - TC hose	Pressure
03	01	3/8 X 1200 TC - TC hose	Return
04	01	3/8 X 800 TC - TC hose	Pressure
05	01	3/8 X 800 TR - TR hose	Return
06	01	3/8 X 800 TR - TR hose	Pressure
07	01	3/8 X 1500 TR - TC hose	Return
08	01	3/8 X 1300 TR - TC hose	Pressure
09	01	3/8 X 5500 TR - TM hose	Return
10	01	3/8 X 5500 TR - TM hose	Pressure
11	02	Ø 53,98 hydraulic cylinder	
12	01	Ø 50,80 hydraulic cylinder	
13	06	Nipple fitting	
14	06	O' ring	
15	02	Male quick coupler 1/2 NPT with cap	
16	02	Oil distributor duct	
17	01	Valve	
18	02	"T" adapter	

NOTE

- The cylinder rod must remain facing the front part of the equipment.
- Always use thread sealing tape to couple the male quick couplers to the hoses.

Assembly

Wheel arm hydraulic circuit with stabilizer bar



Assembly

Wheel arm hydraulic circuit with stabilizer bar

Note that there are two engraved letters ("P" and "R") on the relief valve, as shown on the illustration. These hoses must never be inverted connected.

The hoses to be connected to the port with the engraved "P" letter are the ones responsible for closing the hydraulic cylinder (rod size).

The function of this valve is to control the closing pressure of the hydraulic cylinder, in a way that the cylinder does not crush the depth stops.

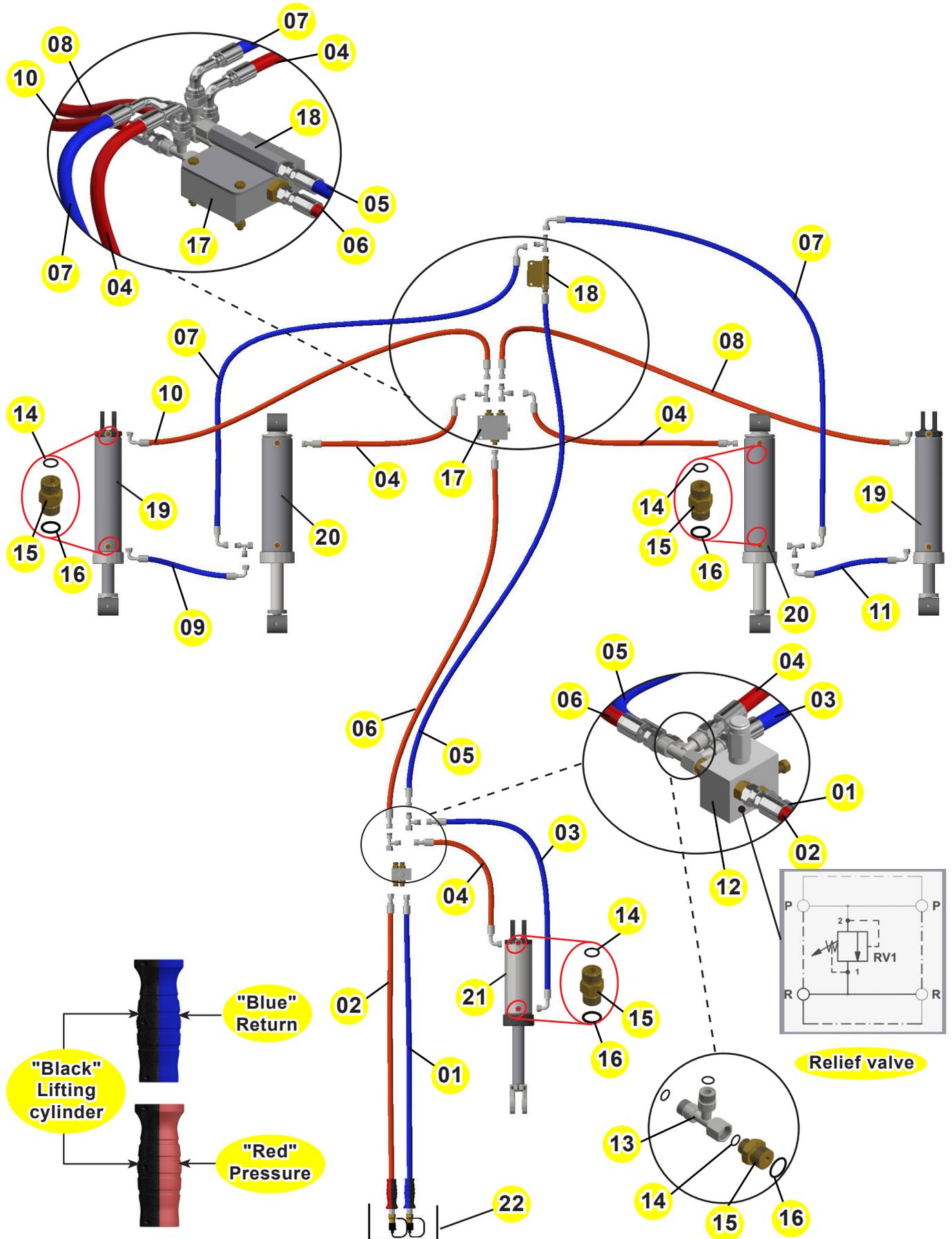
Item	Quantity	Description	
01	01	3/8 X 2400 TC - TC hose	Return
02	01	3/8 X 2000 TC - TC hose	Pressure
03	01	3/8 X 1200 TC - TC hose	Return
04	01	3/8 X 800 TC - TC hose	Pressure
05	01	3/8 X 800 TR - TR hose	Return
06	01	3/8 X 800 TR - TR hose	Pressure
07	01	3/8 X 5500 TR - TM hose	Return
08	01	3/8 X 5500 TR - TM hose	Pressure
09	02	Ø 53,98 hydraulic cylinder	
10	01	Valve	
11	04	Nipple fitting	
12	04	O' ring	
13	02	Male quick coupler 1/2 NPT with cap	
14	02	Oil duct	

NOTE

- The cylinder rod must remain facing the front part of the equipment.
- Always use thread sealing tape to couple the male quick couplers to the hoses.

Assembly

Wheel arm hydraulic circuit - GCRO 72 - 80



Assembly

Wheel arm hydraulic circuit - GCRO 72 - 80

Note that there are two engraved letters ("P" and "R") on the relief valve, as shown on the illustration. These hoses must never be inverted connected.

The hoses to be connected to the port with the engraved "P" letter are the ones responsible for closing the hydraulic cylinder (rod size).

The function of this valve is to control the closing pressure of the hydraulic cylinder, in a way that the cylinder does not crush the depth stops.

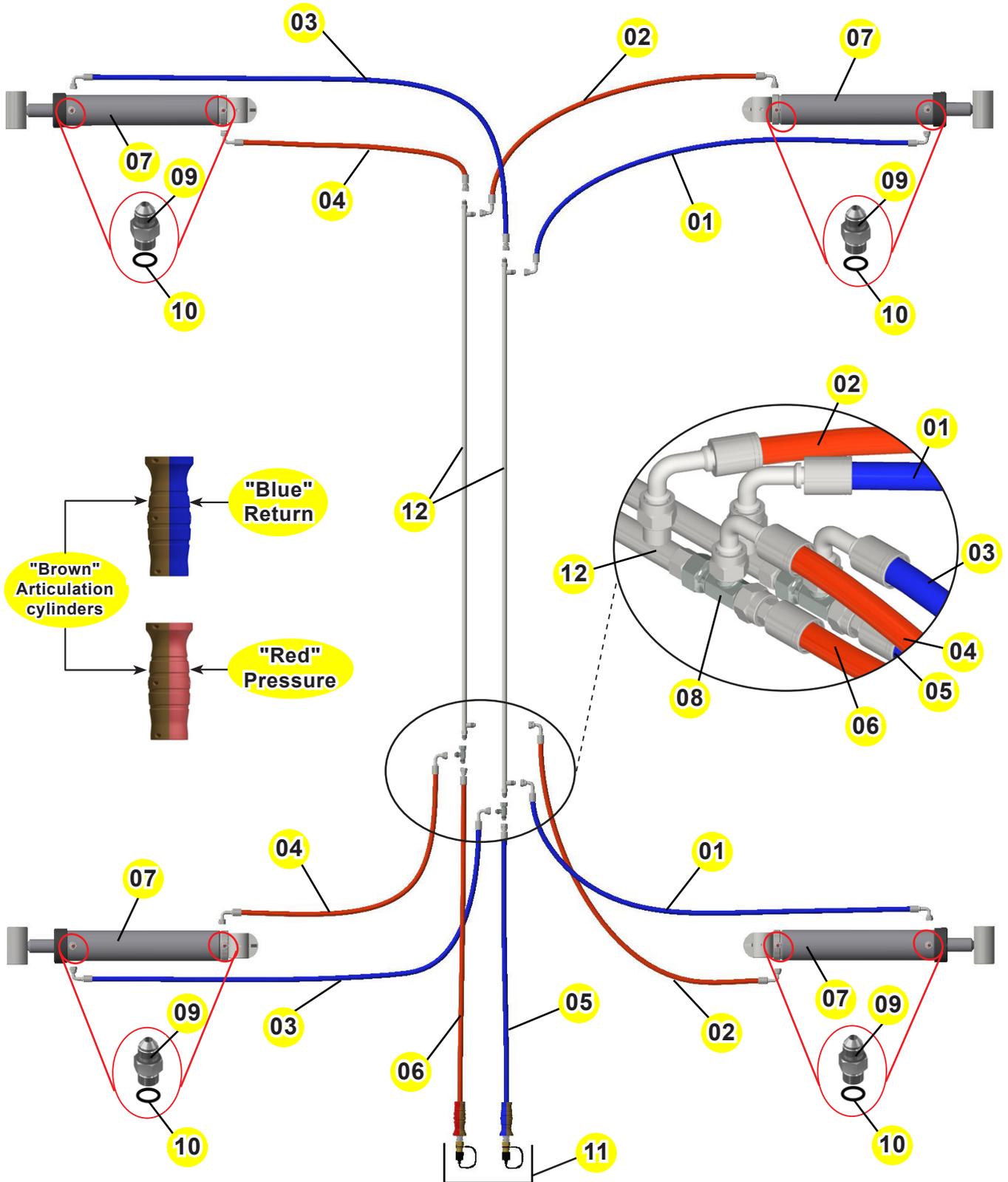
Item	Quantity	Description	
01	01	1/2" x 5500 TR-TM TERM OFS hose	Return
02	01	1/2" x 5500 TR-TM TERM OFS hose	Pressure
03	01	1/2" x 1000 TR-TC TERM OFS hose	Return
04	03	1/2" x 1330 TR-TC TERM OFS hose	Pressure
05	01	1/2" x 3200 TR-TR TERM OFS hose	Return
06	01	1/2" x 3200 TR-TR TERM OFS hose	Pressure
07	02	1/2" x 1630 TC-TC TERM OFS hose	Return
08	01	1/2" x 5700 TR-TC TERM OFS hose	Pressure
09	01	1/2" x 4500 TC-TC TERM OFS hose	Return
10	01	1/2" x 4000 TR-TC TERM OFS hose	Pressure
11	01	1/2" x 6000 TC-TC TERM OFS hose	Return
12	01	Relief valve	
13	07	T male adapter 1/2" OFS with swivel nut	
14	32	O' Ring	
15	10	Nipple fitting R.3/4"UNF x 13/16" UNC OFS x 40	
16	10	O' Ring	
17	01	Flow divider valve	
18	01	Oil distributor (R.13/16" OFS)	
19	02	Side wheel arms hydraulic cylinder	
20	02	Central wheel arms hydraulic cylinder	
21	01	Drawbar hydraulic cylinder	
22	02	Male quick coupler 1/2" NPT with cap	

NOTE

- The cylinder rod must remain facing the front part of the equipment.
- Always use thread sealing tape to couple the male quick couplers to the hoses.

Assembly

Frame articulation hydraulic circuit - GCRO 44 - 60



Assembly

Frame articulation hydraulic circuit - GCRO 44 - 60

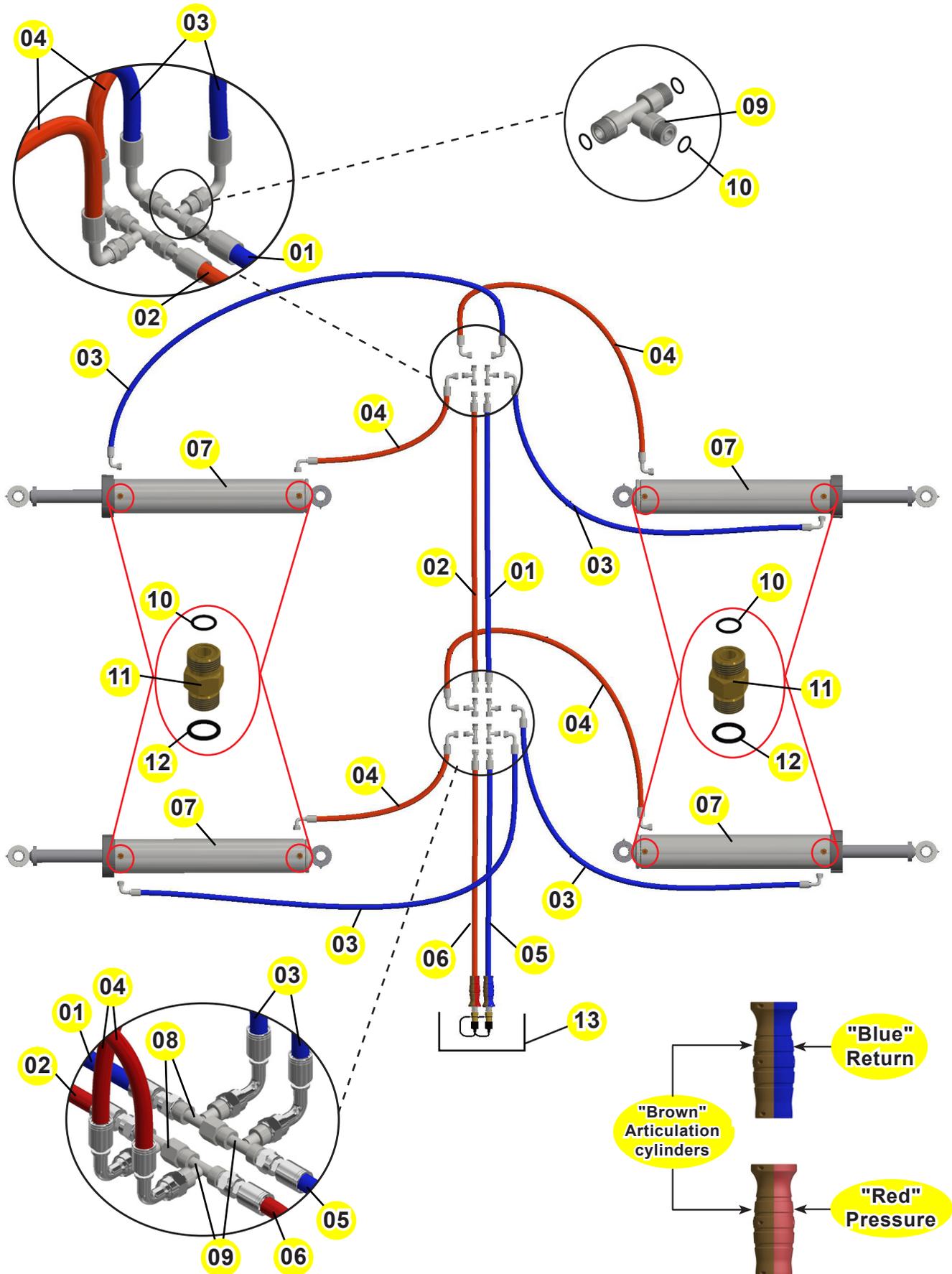
Item	Quantity	Description	
01	02	3/8 X 4200 TC - TC hose	Return
02	02	3/8 X 3600 TC - TC hose	Pressure
03	02	3/8 X 2300 TR - TC hose	Return
04	02	3/8 X 1800 TR - TC hose	Pressure
05	01	3/8 X 6100 TC - TM hose	Return
06	01	3/8 X 6100 TC - TM hose	Pressure
07	04	Ø 50,8 hydraulic cylinder	
08	02	"T" adapter	
09	08	Nipple fitting	
10	08	O' ring	
11	02	Male quick coupler 1/2 NPT with cap	
12	02	Oil distributor duct	

NOTE

- The cylinder rod must remain facing the front part of the equipment.
- Always use thread sealing tape to couple the male quick couplers to the hoses.

Assembly

Frame articulation hydraulic circuit - GCRO 72 - 80



Assembly

Frame articulation hydraulic circuit - GCRO 72 - 80

Item	Quantity	Description	
01	01	1/2 x 2600 TR - TR hose	Return
02	01	1/2 x 2600 TR - TR hose	Pressure
03	04	1/2 x 2350 TC - TC hose	Return
04	04	1/2 x 2200 TC - TC hose	Pressure
05	01	1/2" x 6800 TR-TM hose	Return
06	01	1/2" x 6800 TR-TM hose	Pressure
07	04	Wing hydraulic cylinder	
08	02	T male adapter 1/2" OFS	
09	04	T male adapter 1/2" OFS with swivel nut	
10	22	O' ring 2-014 N 3006-9B	
11	08	Nipple fitting	
12	08	O' ring 2-114 N 3006-9B	
13	02	Male quick coupler 1/2 NPT with cap	

NOTE

- The cylinder rod must remain facing the front part of the equipment.
- Always use thread sealing tape to couple the male quick couplers to the hoses.

Set-up instructions

The following instructions must be carefully observed in order to get the best working performance.

Preparing the tractor

The addition of water ballasts in the tires and a set of weights on the front part and rear wheels of the tractor are the most used ways to increase the soil traction and give greater stability to the tractor. Check if the tractor is in its full condition before using it.

The drawbar is used to get a better power supplied by the tractor to perform the equipment dragging.

Drawbar types:

Straight up and positioned on a single height related to the soil, without the option to adjust the hitching height;

Angled drawbar with two height adjustments (going up or down).

When the bar is totally retreated on its length, the operator must be aware for any curve or maneuvers, as the equipment drawbar may touch the tractor tires or damage the hydraulic hoses.

When using the tractor drawbar, lift the three-point hitches entirely.

The tractor drawbar must be compatible with the equipment. Do not exceed the static load capacity of the tractor drawbar.

Preparing the equipment

The equipment must always be parked on a dry and flat place, free from any debris or strange objects. Follow this procedure to set the equipment up:

Clean up to remove strange objects from the equipment and from the working area;

Make sure that there is enough room to maneuver the tractor until it hitches to the equipment;

Turn on the tractor and slowly approach it to the hitching point direction;

Use a clean cloth or a paper towel to clean the couplers in the end of the hoses. Also, clean the area around the tractor couplers;

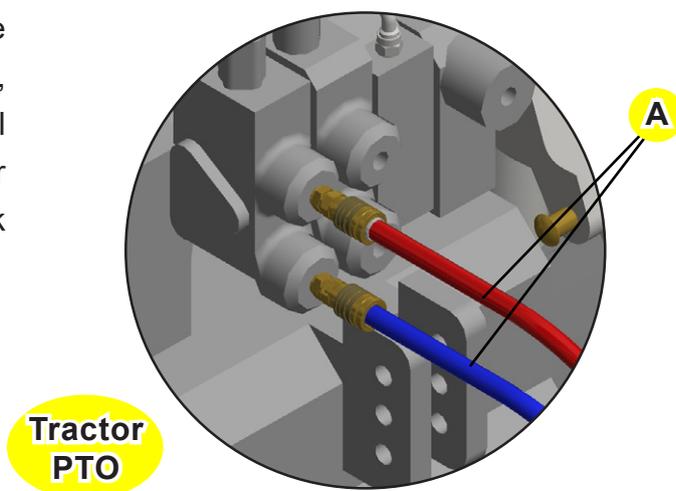
Check the tires inflation and keep the same pressure on all tires (check the 'tires inflation' page in the 'maintenance' section);

Lubricate all grease fittings appropriately (see the 'lubrication' page in the 'maintenance' section).

Set-up instructions

Hitching to the tractor

Approach the tractor and couple the hoses (A) to the quick couplers. To do so, shut down the engine, relieve the control valve pressure by activating the lever a couple of times and check if the quick couplers are clean.



Check the drawbar type from your tractor. To hitch the equipment, use the tractor drawbar.

Use the jack on the drawbar to lift or lower the hitch so it is possible to align it with the tractor drawbar.

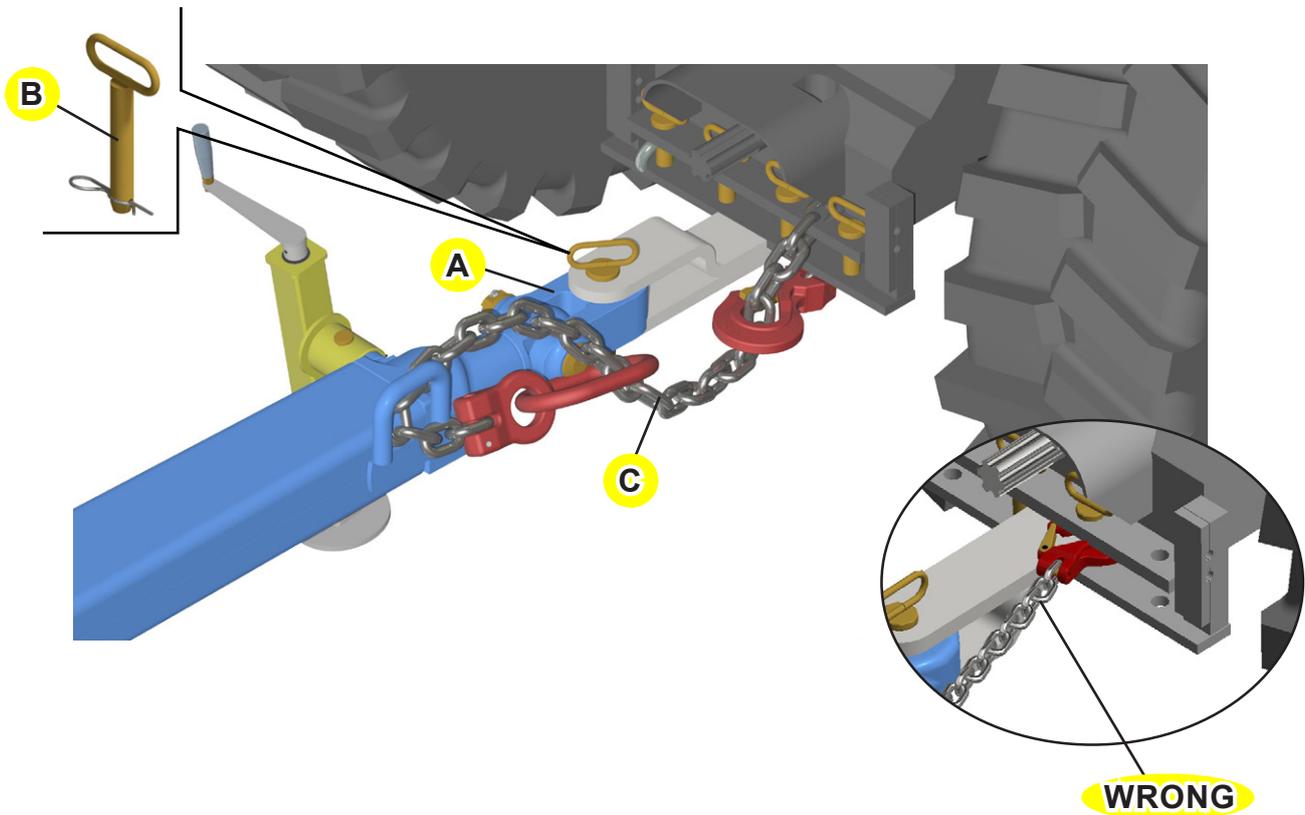
The tractor drawbar must be loose during work and fixed during transportation.

Couple the drawbar (A) to the tractor drawbar using a hitch pin (B). Fasten the safety chain to the tractor and equipment, but leave a small clearance to allow the equipment to perform maneuvers.

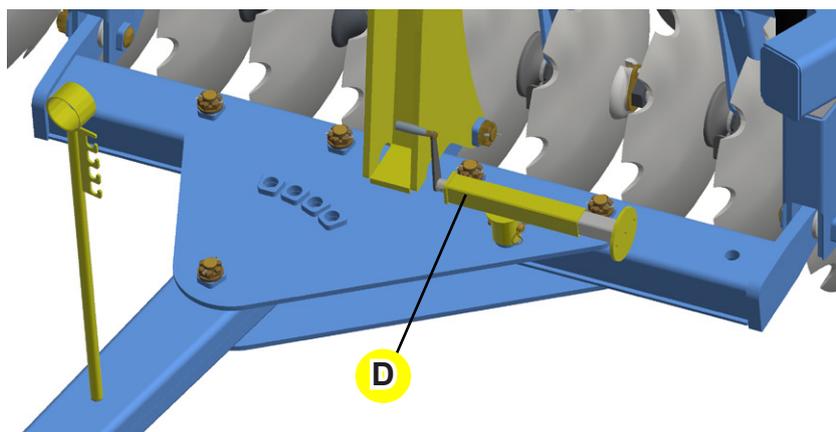
- WARNING**
- When setting up the equipment for the job, the tractor-equipment must be leveled related to the soil. Besides that, the tractor must be hitched to the equipment hitch to avoid unnecessary efforts during the set-up.
 - When hitching the equipment to the tractor, use a chain to lock the equipment drawbar to the tractor hitch bar. This measure will prevent a possible rupture of any hydraulic hose or breaks on the hitching system, what would make the equipment tilt up.
 - The correct way to hitch the safety chain (C) may vary according to the tractor model. However, the hitch and the hoop must pass through the chain links as shown on the illustration from the next page. Never hitch the hook without passing it through the chain.

Set-up instructions

Hitching to the tractor



ATTENTION During transportation, the hydraulic lower arms must remain adjusted. Position the tractor hydraulic cylinder until the disk harrow is leveled. The hitch pin (B) is not included with the equipment.



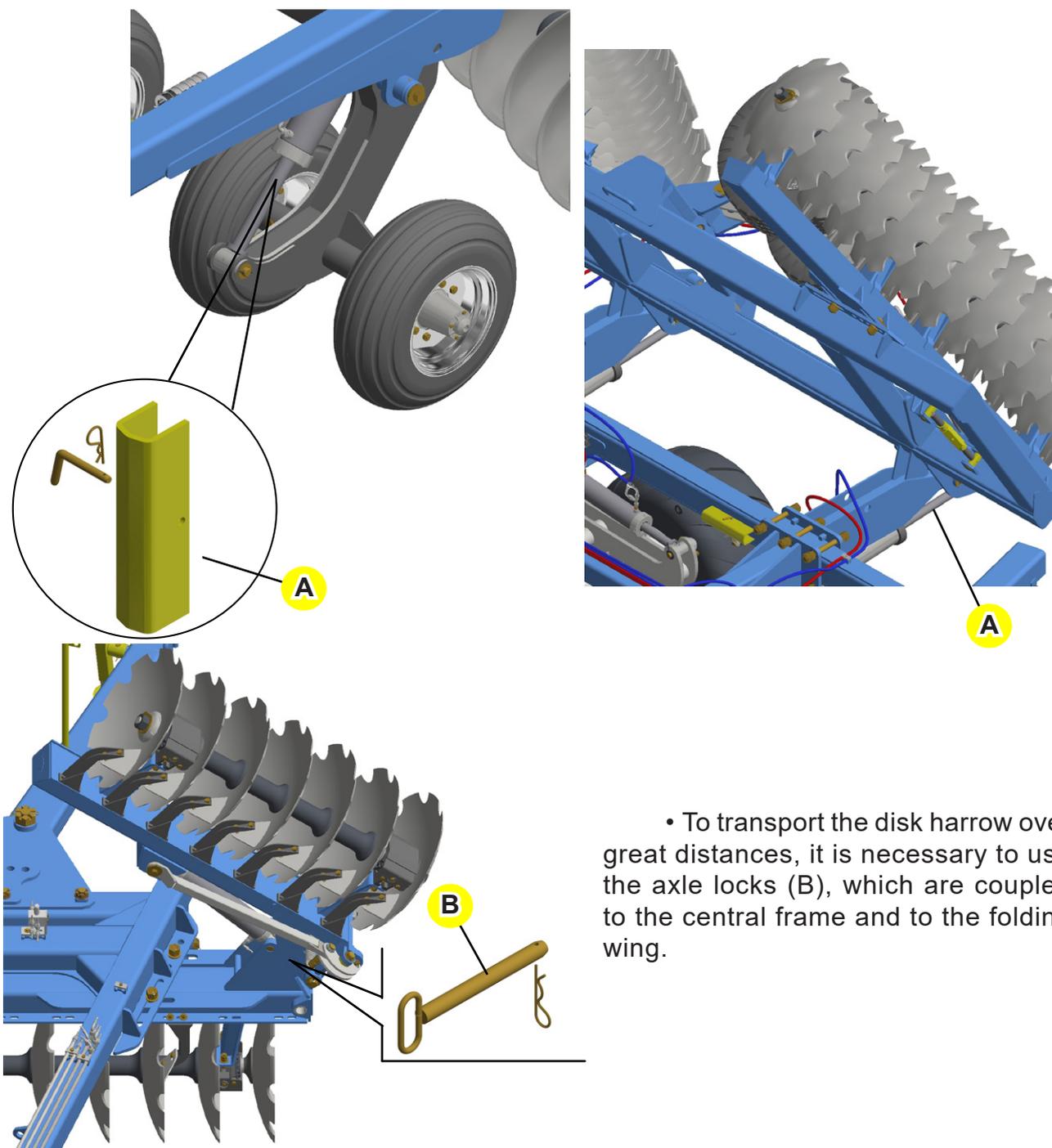
NOTE After hitching, place the jack (D) in transport position, as shown in the illustration below.

Keep the three-point hitch arms always opened, locked and lifted to the maximum.

Set-up instructions

Important recommendations

- The tractor drawbar must remain loose during work and fixed during transportation.
- Never remove the hoses before relieving the control valve pressure.
- Before starting working, check the conditions of all parts and retighten nuts and bolts, especially the ones on the disc gangs. If the gangs work loose, it may lead to damages to the axles and other fixation components.
- Lubricate all grease fittings appropriately. (See lubrication instructions).
- To transport the disk harrow over great distances, it is necessary to use the transport locks (A), which are coupled on the hydraulic cylinder rods.



- To transport the disk harrow over great distances, it is necessary to use the axle locks (B), which are coupled to the central frame and to the folding wing.

Adjustments and operations

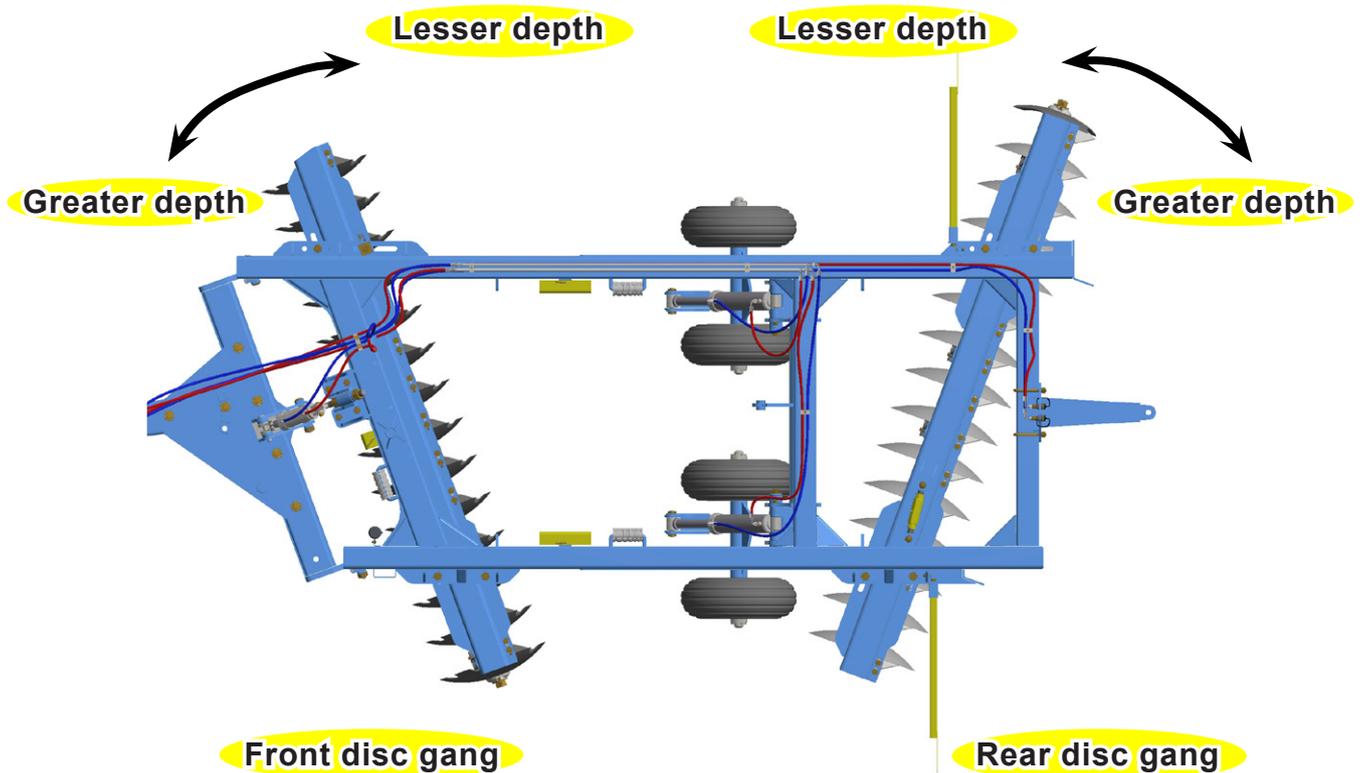
Cutting depth adjustment

The cutting depth is adjusted in two ways:

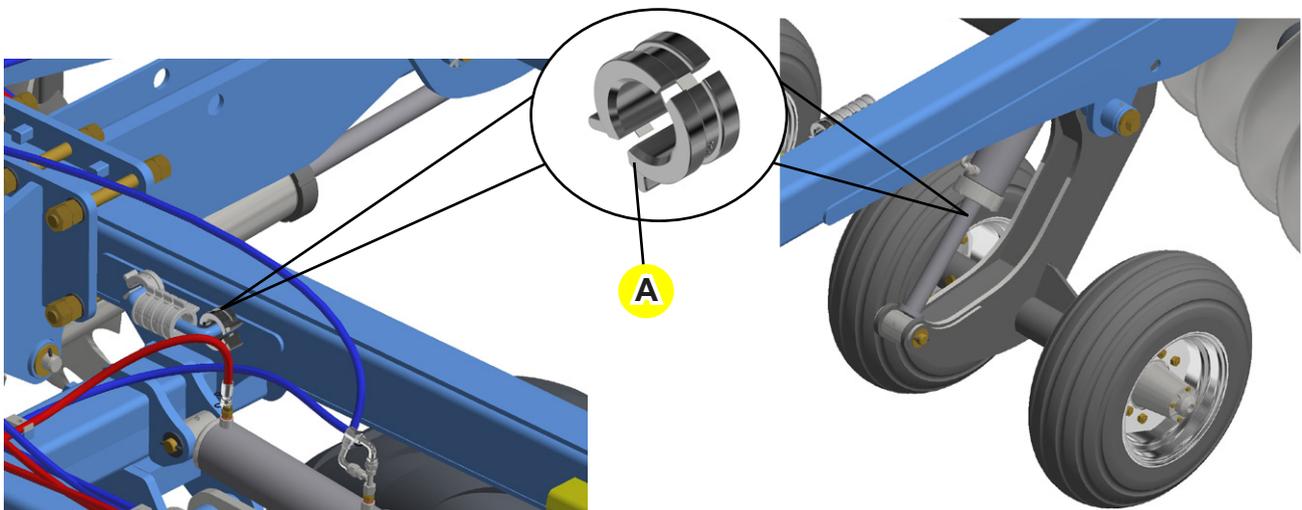
1) Disc gang opening

Increase the opening angle between the disc gangs to work over soil that are harder to penetrate. In light and loose soils, work using a smaller opening angle.

This adjustment is done by changing the disc gang carriers fixation on the main frame.



To control the depth through the tires use the depth stops (A) which are placed on the cylinder rods and work as course limiters, thus providing several cutting depth adjustments.



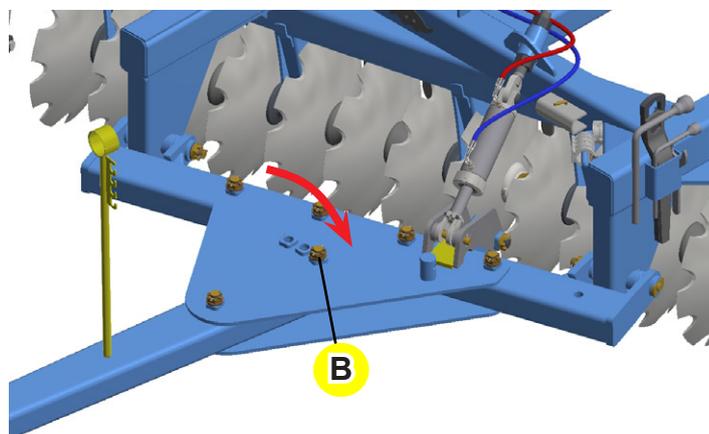
Adjustments and operations

- NOTE**
- We recommend to control the depth through the disc gang opening and using the tires only where the disk harrow penetrates excessively.
 - Use the rod stops (A) to determine a smaller cutting depth, always keeping the same depth adjustment on the disc blades.

2) Drawbar angle

The holes (B) on the upper and lower plates can set a smaller or greater cutting depth, and also can displace the equipment laterally.

Under normal working conditions, the drawbar must remain centered as much as possible related to the wheel arms.



- IMPORTANT**
- To start the harrowing, we recommend using an average opening on the disc gangs. If a greater penetration is needed, increase the opening angle of the rear gang.
 - The rear gang usually works with a greater opening than the front one.
 - The harrowed soil is always on the left hand side of the operator.
 - Try to make good finishing between passes. Avoid the formation of windrows or untilled strips.

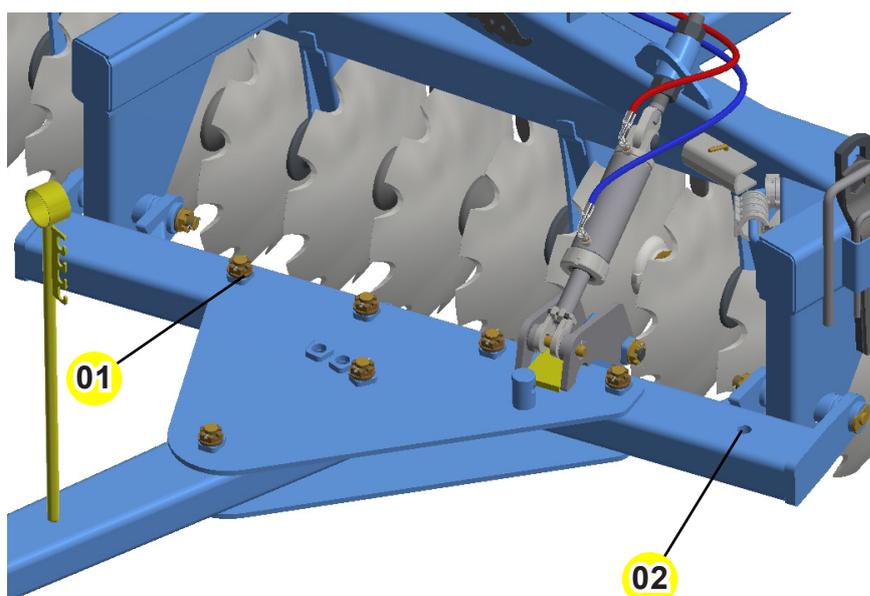
Tractor position related to the previous pass - lateral displacement

The lateral displacement is used to better position the tractor related to the furrow opened on the previous pass, avoiding leaving a trace and giving reference to the operator.

This positioning is obtained due to the tractor gauge and disk harrow cutting width.

Whenever possible, the tractor must pass over the unworked soil and near the previous furrow.

The displacement is done by changing the drawbar on the hitch bar.



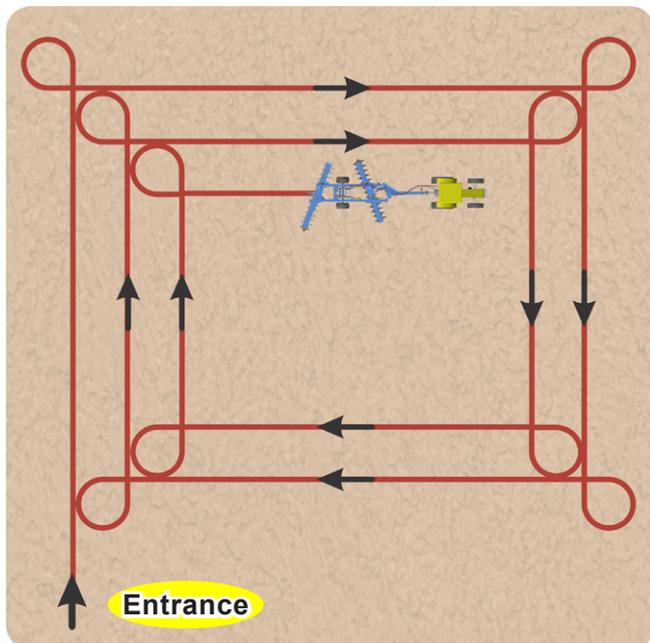
Position #1: Normal position (centered) - used on most situations.

Position #2: Allows the tractor to get closer to the previous furrow.

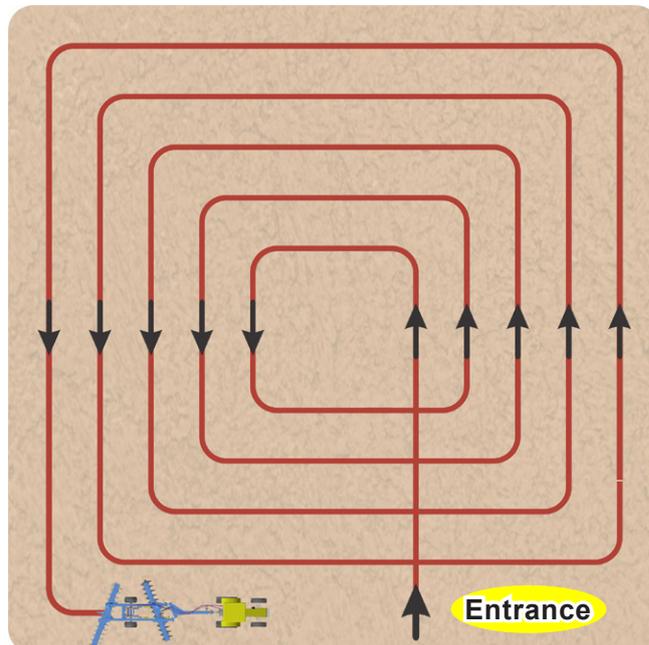
Adjustments and operations

Ways to start the harrowing

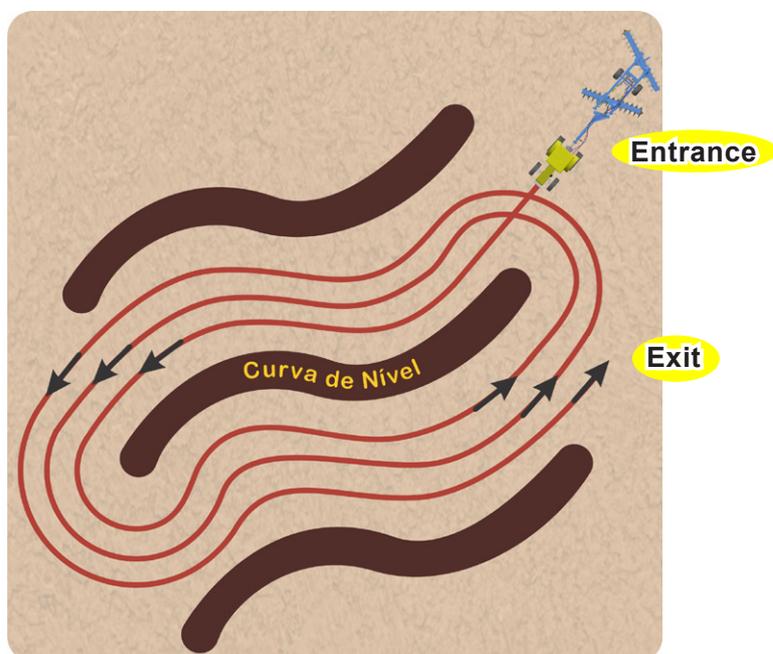
Regardless of the format and size of the field, the harrowing is made basically in two ways: from outside to inside or from inside to outside.



Harrowing in squares from outside to inside



Harrowing in squares from inside to outside



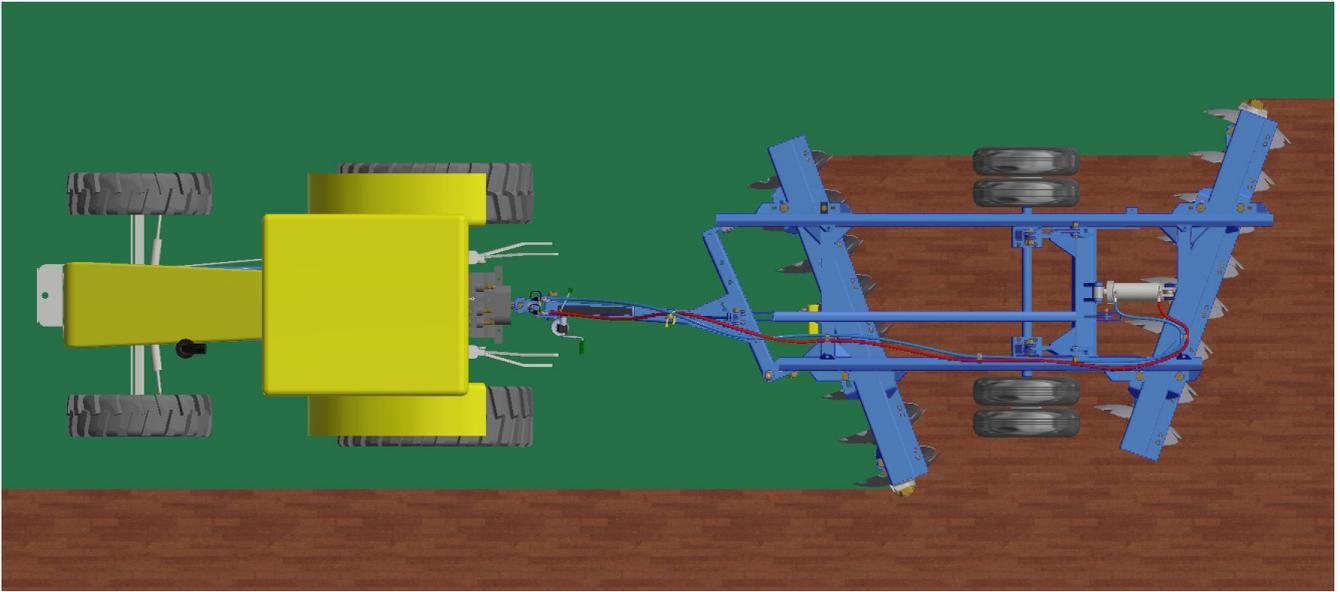
Harrowing in level

- IMPORTANT**
- Note that the harrowed ground is always on the left hand side of the operator.
 - Being the disc gangs lowered, only maneuver to the left hand side.

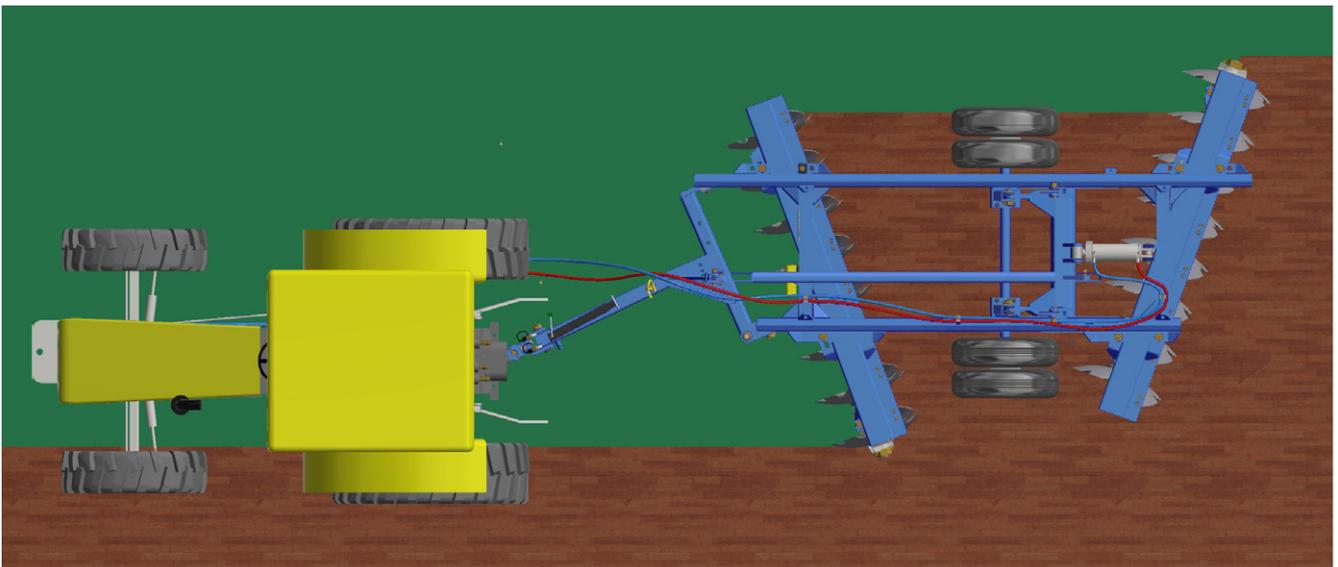
Adjustments and operations

Correct way of use

Correct



Incorrect

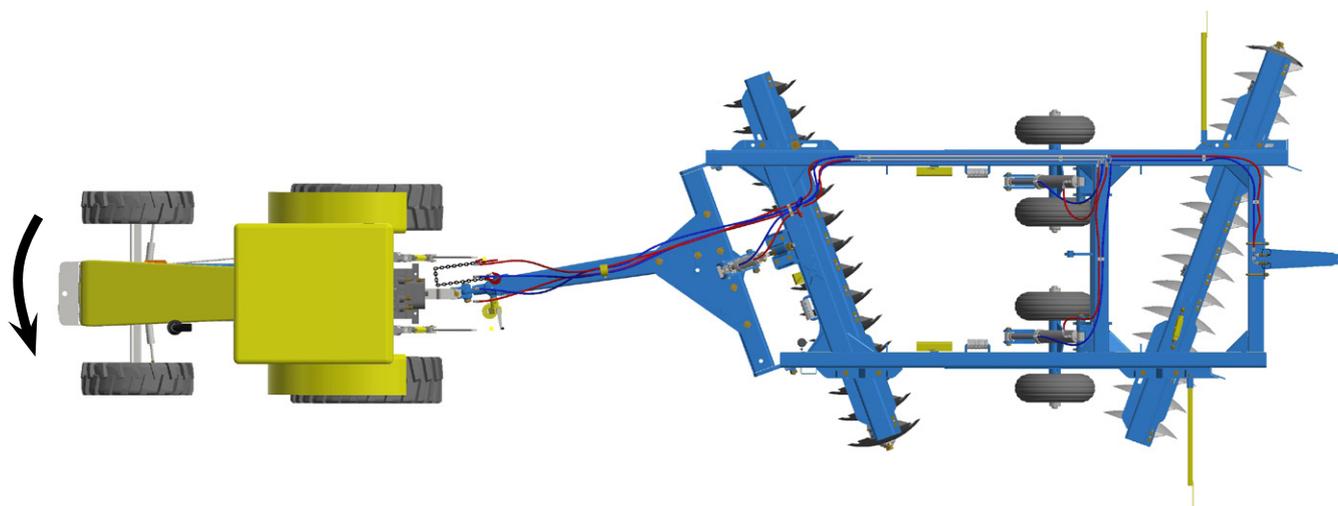


IMPORTANT • Never work with the tires over the already harrowed soil.

Adjustments and operations

Direction of the maneuvers

As previously mentioned, this disk harrow provides several working angles to operate properly in all types of soil. However, this disk harrow requires certain care during operations, like never make maneuvers to the right, because the angle formed on its vertex transmits great effort to the equipment, overloading traction components such as the hitch bar, the drawbar and other fixation parts.



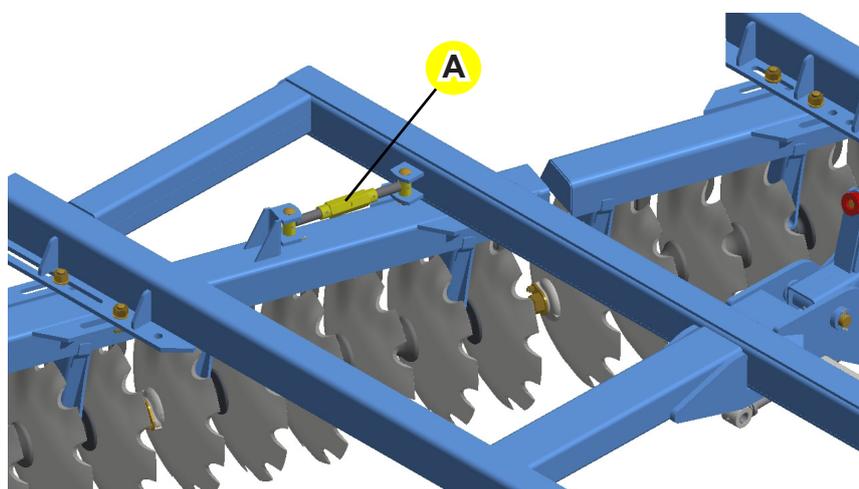
ATTENTION

- It is necessary to maneuver to the left to avoid overloads and to allow that the equipment operates normally. Following these instructions also avoids the undesirable formation of large furrows in the maneuver spots.

Frames alignment

To align the frames related to the front and rear disc gangs, use the extensor (A).

Loosen up the bolts that join the frame with the disc carriers and use the wrench (C) from the 'set of wrenches' page to make adjustments if necessary.



Adjustments and operations

Troubleshooting guide

PROBLEM	CAUSES	POSSIBLE SOLUTIONS
Tractor steering wheel pulling to the right.	Too much angle on the front gang or too small on the rear gang.	Reduce the angle from the front gang or increase the angle from the rear gang.
	Drawbar touching the stop to the left.	Move the drawbar to the left.
Disc gangs are not on harrowing level.	Front and rear disc gangs are not operating on the same depth.	Adjust the angle of the disc gangs.
Furrow opened on the left side.	Speed is too low for the soil conditions.	Increase the speed.
	Tractor being positioned far on the right.	Position the tractor in a way that the front disc on the left pass on the edge of the furrow.
	Incorrect adjustment of the disc gangs laterally.	Move the rear disc gang to the left or the front disc gang to the right.
Windrows forming on the left side.	Insufficient overlapping. Incorrect rear disc gang adjustment.	If windrows are forming, move the front disc gang to the left or the rear disc gang to the right.
Locked disc gangs.	Wet field.	Let the field dry out or penetrate the disc blade superficially to help the drying process.
	Maximum angle on the disc gangs adjustment.	Reduce the angle.
	Deep penetration on wet soil.	Use the depth stops to decrease the depth. Lift the disc blade to reduce the penetration.
	Worn out / incorrectly adjusted scrapers.	Adjust or change the scrapers when necessary.

Adjustments and operations

Troubleshooting guide

PROBLEM	CAUSES	POSSIBLE SOLUTIONS
Quick couplers do not adapt.	Different type of quick couplers.	Use male and female quick couplers from the same type.
Hoses leaking with fixed terminals.	Insufficient tightening.	Retighten carefully.
	Lack of sealing material on the thread.	Use thread sealing tape and retighten carefully.
Hydraulic cylinder leaking.	Damaged repairings.	Replace the repairings.
	Damaged rod.	Replace the rod.
	Oil with impurities.	Replace the oil, repairings and filter elements.
	Working pressure superior than the recommended one.	Adjust the control valve using the relief valve with the aid of a pressure gauge. Normal pressure: 180 Kg/cm ² .
Quick couplers leaking.	Insufficient tightening.	Retighten carefully.
	Lack of sealing material on the thread.	Use thread sealing tape and retighten carefully.
	Damaged repairings.	Replace the repairings.

Adjustments and operations

Operations - important points



- Retighten nuts and bolts after the first day of work and check the conditions of all pins and cotter pins. Then, retighten every 24 operating hours.
- Carefully observe the lubrication intervals.
- Special attention should be given to the disc gangs, retightening daily during the first week of use. Then, retighten periodically.
- Choose a gear that allows the tractor to maintain a certain power reserve, ensuring against unforeseen efforts.
- Always inflate the tires with the aid of a contention device (tire inflation cage).
- The correct tire inflation is important; keep the same pressure on every tire. (check the 'tires inflation' page on the 'maintenance' section).
- Speed is relative to the tractor gear and can only be determined by local conditions. We adopted an average 5 to 7 km/h, which is not advisable to overcome, to maintain service efficiency and to avoid possible damages to the equipment.
- It is important to keep a constant speed during the whole operation.
- Only people who own a complete knowledge of the tractor and equipment must operate them.
- Be on a wide field and maneuver on slow gear to hitch the equipment, being ready to brake when necessary.
- Remove sticks or any object that may get stuck on the disc blades.
- Only pull the equipment using a tractor with enough power.
- During work or transportation, do not allow passengers on the tractor or in the equipment.
- To carry out any verification on the equipment, lower it to the ground and shut down the tractor engine.

Adjustments and operations

Operations - important points

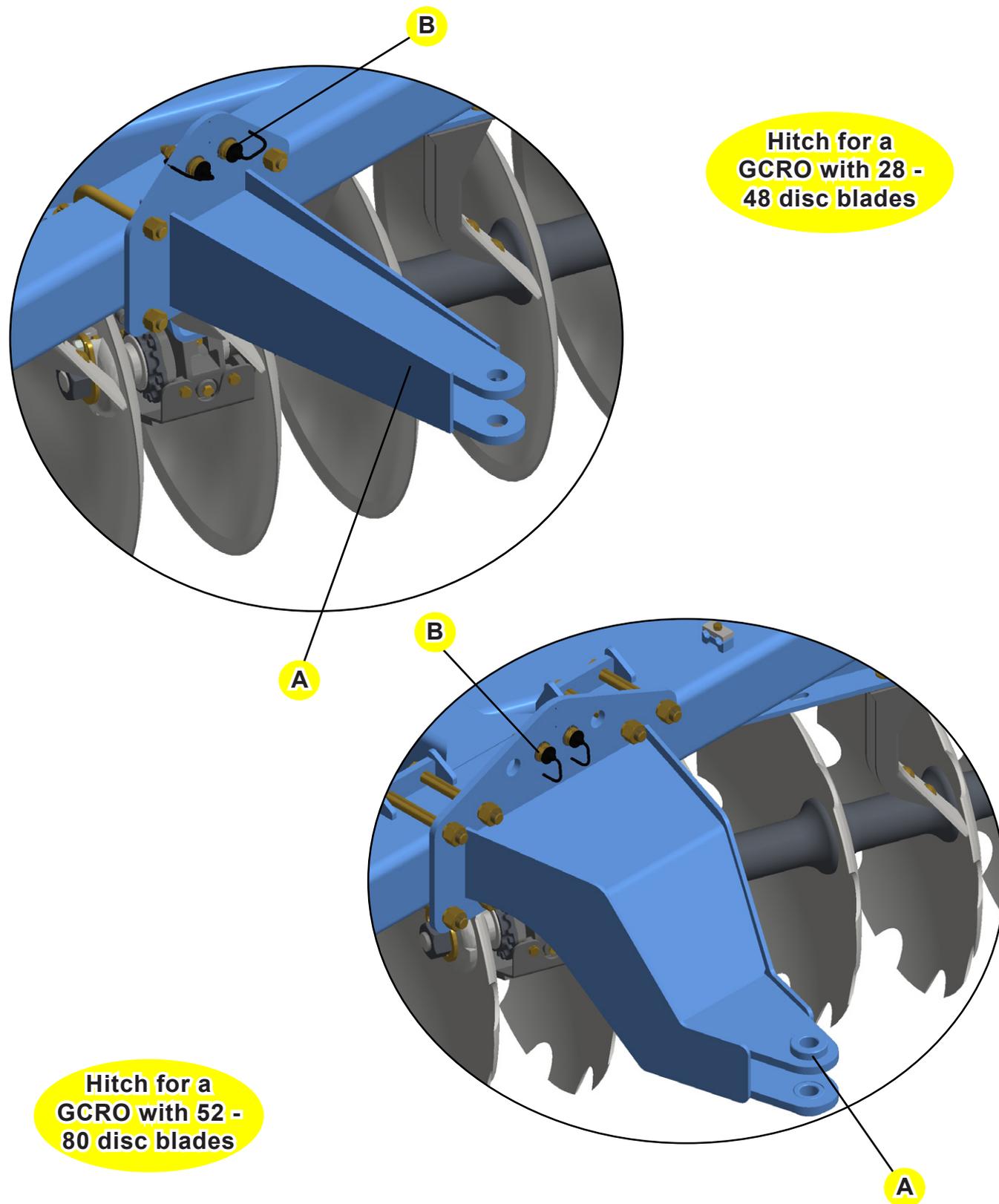


- To carry out any verification on the equipment, lower it to the ground and shut down the tractor engine.
- Whenever unhitching the equipment, either in the field or shed, do it on a flat and firm place and use the jacks. Make sure that the equipment is properly supported.
- Carry out the operations with a controlled and careful manner.
- As stated before, the maneuvers must always be done to the left hand side.
- Relieve the control valve pressure before disconnecting the quick couplers and when doing any verification in the hydraulic circuit or on the retention valve.
- The tractor drawbar must remain loose during work and fixed during transportation.
- Do not check eventual leaks using your bare hands, as the high pressure may cause body injury. Use a cardboard or any other suitable object instead.
- The harrowed soil is always on the left hand side of the operator.
- The harrow activation to open or close the gangs must be done gradually, being the tractor in movement.
- As previously mentioned, this disk harrow has several settings. However, only the local conditions can determine its best adjustment.

Optional

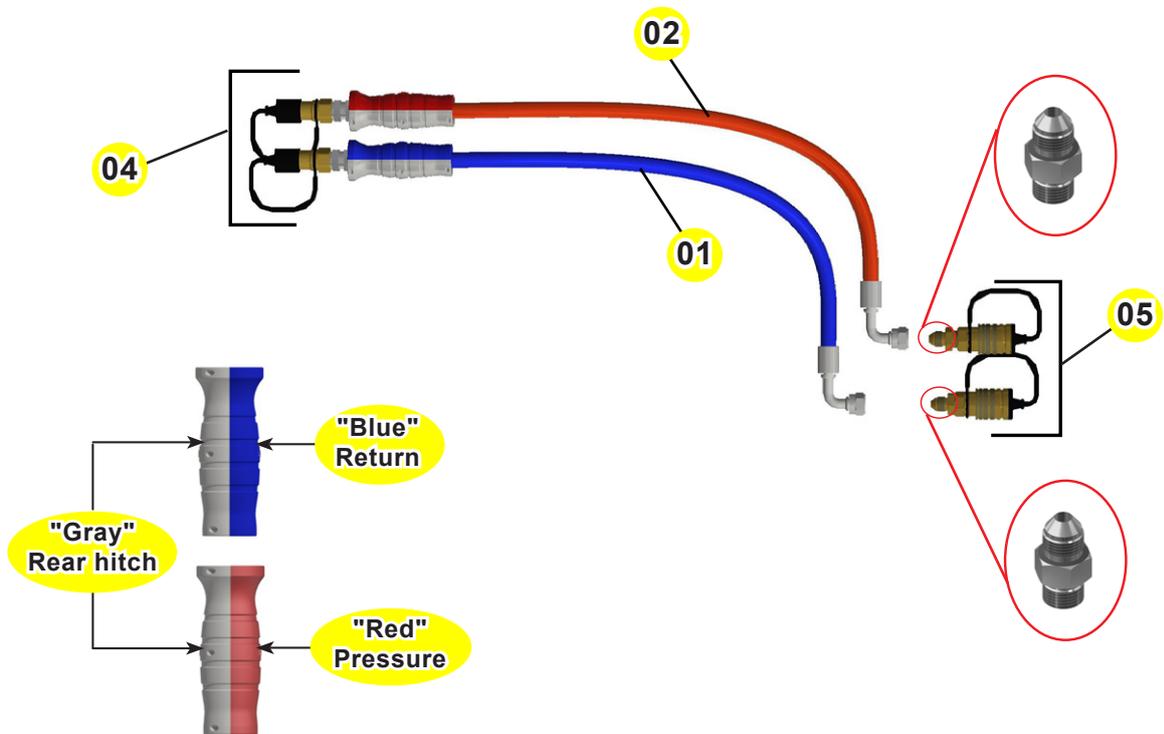
Rear hitch

Optionally, Marchesan supplies the rear hitch (A), assembled with hydraulic quick couplers (B) to allow the assembly of another accessory or equipment on the disk harrow.



Optional

Rear hitch hydraulic circuit



Item	Quantity	Description	
01	01	3/8 X 11500 TC - TM hose	Return
02	01	3/8 X 11500 TC - TM hose	Pressure
04	02	Male quick coupler 1/2 NPT with cap	
05	02	Female quick coupler 1/2 NPT with cap	
06	02	Nipple fitting	

NOTE

- The cylinder rod must remain facing the front part of the equipment.
- Always use thread sealing tape to couple the male quick couplers to the hoses.

Maintenance

Lubrication

To reduce the wear caused by the friction caused by the moving parts of the equipment, it is necessary to carry out a proper lubrication, as indicated below:

1) Every 24 hours of service, lubricate every grease fitting.

- Be sure about the lubricant quality in relation to its efficiency and purity, avoiding the use of products contaminated by water, dirt or others.

- Remove the remainder old grease around the articulations.

- Clean the grease fittings with a cloth before inserting lubricant and replace the damaged ones.

- Introduce enough amount of new grease.

- Use medium consistency grease.

2) The lubrication of the roller bearings should be done in the same aforementioned period (24 hours).

2.1) The roller bearings with oil bath works in constant lubrication, but it is still necessary to give them the following attention:

- In a flat place, check the oil level of each bearing before using the disk harrow for the first time and every day of the first week.

- Then, start to check weekly.

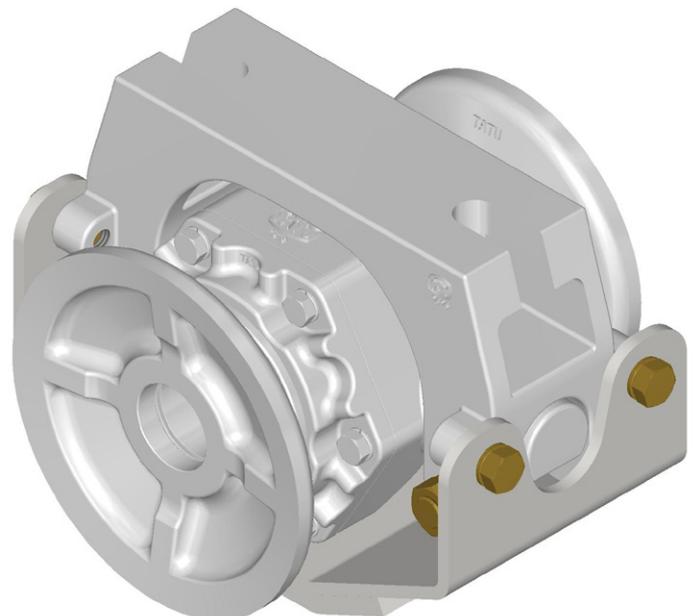
- Change all the oil every 1,000 operating hours.

- Use SAE 90 mineral oil only.

2.2) DMO bearings do not need maintenance.

NOTE Duromark steel-plated bearing.

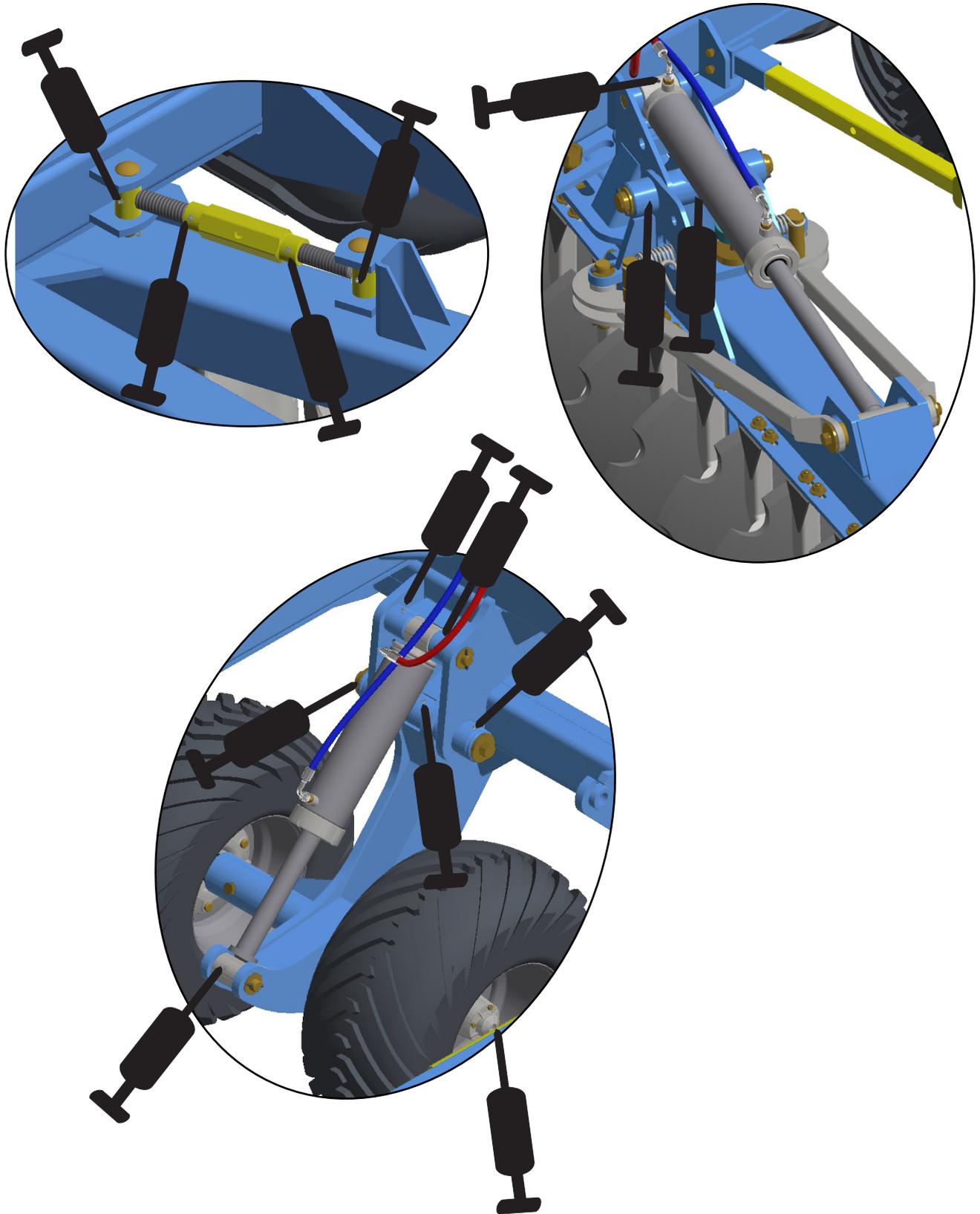
Assembled with a high-performance lubricant, the Duromark steel-plated bearing do not have a plug since there is no need to refill it, avoiding the risk of mixing incompatible lubricants.



Maintenance

Lubrication points

Lubricate every 24 hours of service.



ATTENTION Lubricate the points shown above and all grease fittings as well.

Maintenance

Hydraulic cylinder maintenance

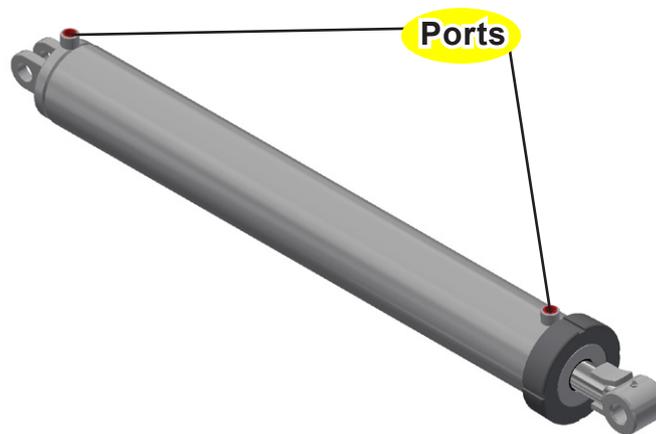
When cylinder repair is required, clean off unit, disconnect hoses and plug ports before removing cylinder.

When removed, open the cylinder ports and drain the cylinder's hydraulic fluid.

Examine the type of cylinder. Make sure you have the correct tools for the job.

You may require the following tools:

- Proper seal kit;
- Screwdriver and rubber cable;
- Pliers and wrenches.



IMPORTANT Never make any verification or maintenance if the system is pressurized.

Disassembly:

- 1) Remove the end cap (A);
- 2) Carefully remove inner assemblies (B);
- 3) Disassemble the piston (C) from the rod assembly by removing lock nut (D);
- 4) Slide off gland assembly (E) and end cap (A);
- 5) Remove seals and inspect all parts for damage;
- 6) Install new seals and replace damaged parts with new components;
- 7) Inspect the inside of the cylinder barrel, piston, rod and other polished parts for burrs and scratches. Smooth areas as needed with an emery cloth.

NOTE Do not clamp rod by chrome surface.

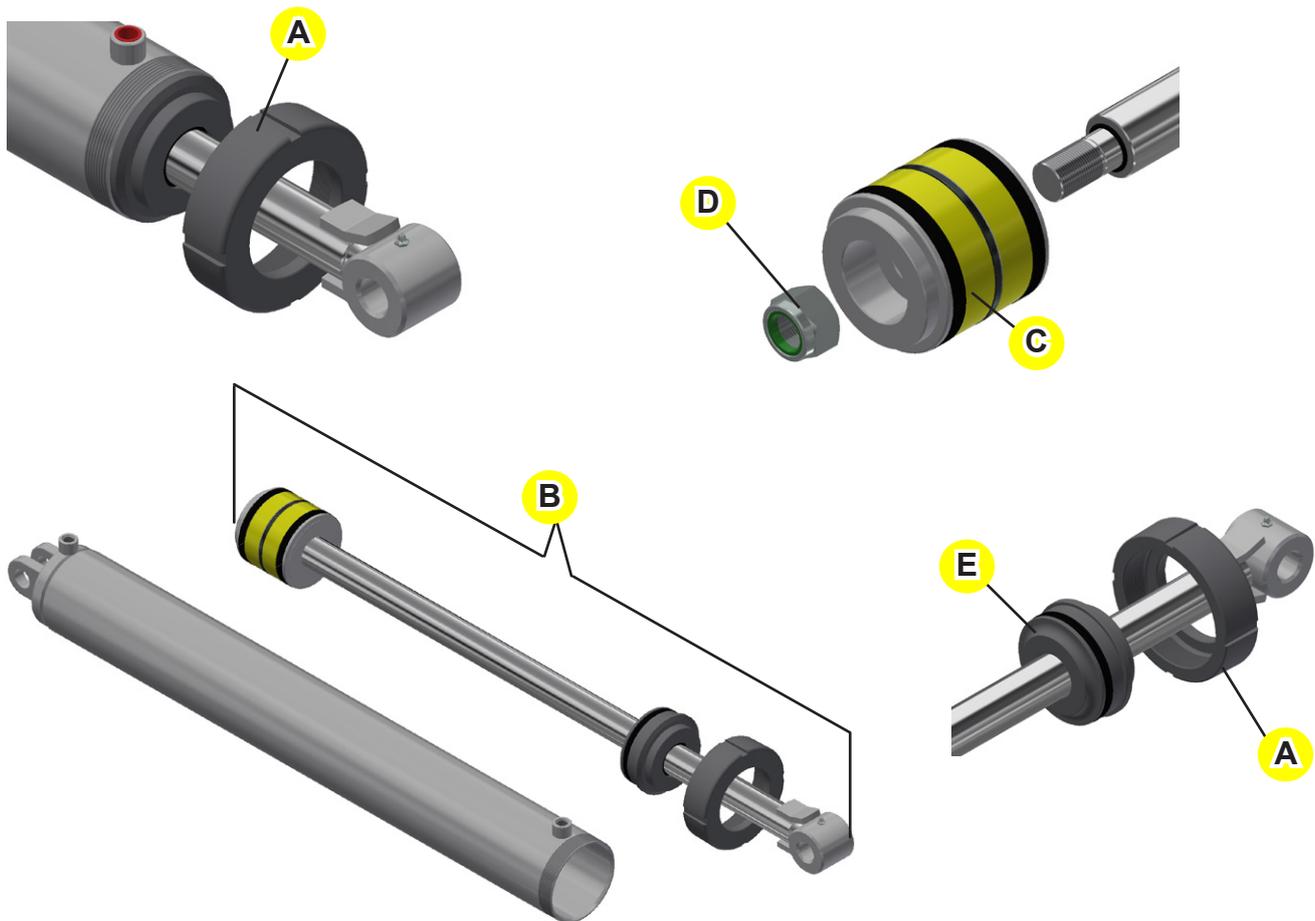
Maintenance

Hydraulic cylinder assembly

Reassembly:

- 1) Reinstall rod through gland (E) and end cap (A);
- 2) Secure piston (C) to rod with lock nut (D). Torque lock nut to proper value (consult torque table on the "important data" section);
- 3) Lube inside of barrel, piston seals, and gland seals with hydraulic oil;
- 4) With cylinder body held gently, insert the inner assemblies (B) using a slight rocking motion;
- 5) Apply Loctite 277 before installing the cylinder end cap (A);
- 6) Torque cylinder end cap (A) to **400 lb.ft (600 N.m)**.

IMPORTANT Insert the gland (E) on the cylinder head and align it with the tube so it will fit correctly on the cylinder barrel.



NOTE Do not clamp rod by chrome surface.

Maintenance

Hydraulic safety

Make sure that all components in the hydraulic system are kept in good condition and are clean. Carry out the maintenance of the hydraulic parts on a clean place, free from dust or contaminants. Otherwise, there may have malfunction or premature wear on the equipment.

The correct operation and maintenance of the hydraulic system will prevent damages, air infiltration on the system, oil and system overheating, damages to the rubber components, etc.

Periodically or when the oil is replaced anormally or even when there is loss of power, inspect the hydraulic system, fasten the connections that are leaking, replace the hoses that are almost reaching its expiration date or if they show any cut, crack or dryness. Regarding the hoses assembly, do it in a way that they always can flex, without twisting or pulling it.

If there is any problem with the hydraulic cylinder, do not carry out any maintenance procedure or weld heating, as both of this may cause roundness on the barrel or other problems, consequently leading to internal leakages, lack of power, gripping, damages to the cylinder rods, etc.

Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tape, clamps or cements. The hydraulic system operates under extremely high-pressure. Such repairs will fall suddenly and create a hazardous and unsafe condition.

Wear proper hand and eye protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to isolate and identify a leak.

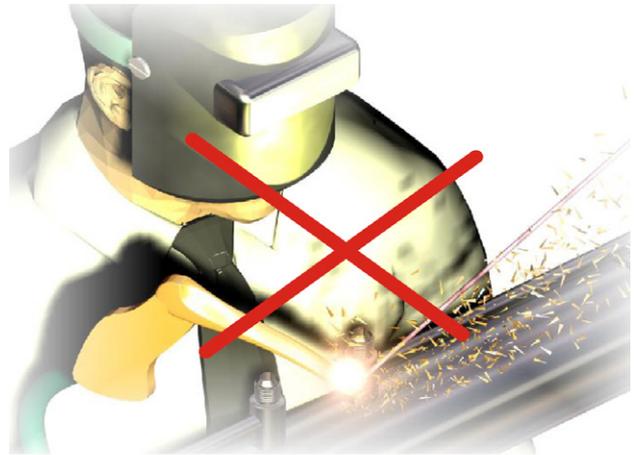
If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface. If this doctor is not aware of this type of problem, ask for a reference or look for another one to find the proper treatment.



Before applying pressure to the system, make sure all components are tight and that lines, hoses and coupling are not damaged.

Carry out the operations on a carefully and controlled manner. Avoid to let the hydraulic system working when it is not being used.

Failure to follow these procedures may lead to fatal accidents or even death.



Maintenance

Disk harrow maintenance

During offseason wash the equipment, repair any damaged paintwork, protect the disc blades with oil, lubricate all grease fittings and store the disk harrow in a covered and dry place, avoiding the direct contact of the disc blades with the soil.

The disc blades must be replaced as soon as they are providing a low yield, mainly because of the reduction in its diameter, loss of cut and other damages that may occur during the job.

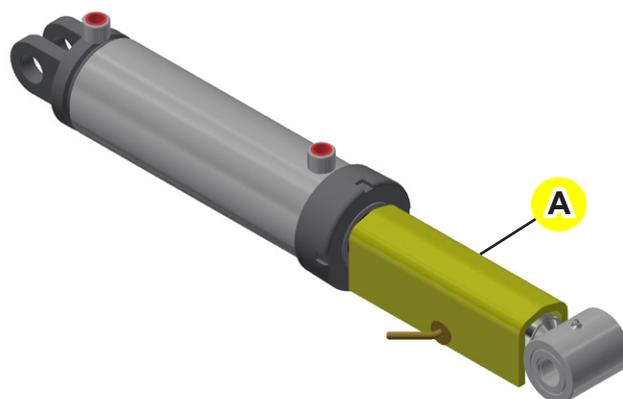
After 24 hours of service, the bolts on the disk harrow must be checked to see if they are properly tightened. To assure a great performance and avoid wear and rupture, these bolts must be tightened every so often.

Check wear occurrence on all moving parts. Replace any part, if necessary.

Replace the missing or damaged safety decals. Marchesan supplies these decals, upon request and indication of their respective serial numbers. The operator must know the need and importance to keep the decals in the proper place and in good conditions. The operator also have to know the need to follow the instructions, as the lack of safety may increase the risk of accidents.

IMPORTANT When uncoupling the equipment from the tractor, lift it and place the locks (A) on the cylinders; after that, lower the disk harrow until it touches the locks and place the jack with pin and cotter pin.

If it is necessary to totally lower the equipment, do not place locks and neither the pin on the jack, as such procedure may result in damages to the jack itself.



Maintenance

Tires inflation

The tires must always be properly inflated to avoid premature wear for excess or lack of pressure.

Do not attempt to mount the tires without experience and adequate equipment.

Maintain the correct tire pressure. Never inflate the tires beyond the recommended pressure.

Never weld or heat a wheel. The heat can cause increase in pressure, with a risk of tire explosion.

Welding can compromise the structure of the wheel or distort it.

When filling the tires, make sure the hose is long enough for you to stand. Also, do this process in a safety cage.

11L15 tires - 12 ply	(52 PSI)
400/60 tires - 14 ply	(52 PSI)
600/50 tires - 16 ply	(41 PSI)
9 x 20 tires - 14 ply	(110 PSI)



NOTE For the cases where the maximum pressure is not specified on the tires, consult the tire manufacturer and adopt the pressure indicated by them. Use TATU original parts only.

Important data

Hourly income calculation

To calculate the hourly income, use the following calculation:

$$R = \frac{L \times V \times E}{X}$$

Where:

R = Hourly income;

L = Working width (meters);

V = Average speed of the tractor (meters per hour);

E = Efficiency: 0.90;

X = Hectare value = 10,000 m².

Example - GCRO 7010 with 36 disc blades:

R = ?

L = 4.6 m

V = 6,000 m/h (6 km/h)

E = 0.90

X = 10,000 m²

$$R = \frac{4.6 \text{ m} \times 6,000 \times 0.90}{10,000}$$

R = 2.48 hectares per hour.

NOTE The hourly income can vary by physical factors such as humidity, slope, soil hardness, appropriate adjustments and especially the working speed.

Based on this calculation, the table on the following page shows the average hourly income and also for a day, that is, nine (9) hours of work.

Important data

Average income table

Model	Number of disc blades	Working width (mm)	Hourly income (ha)	Daily income (ha)
GCRO 7010	28	3,620	1.94	17.49
	32	4,120	2.22	20.02
	36	4,625	2.48	22.84
	40	5,135	2.81	25.27
	44	5,645	3.13	28.14
	44D	5,530	2.98	26.87
	48	6,150	3.36	30.23
	48D	6,160	3.32	29.93
	52	6,730	3.63	32.71
	56	7,240	3.91	35.19
	60	7,772	4.20	37.77
	72	9,540	5.15	46.36
	76	10,065	5.44	48.92
	80	10,445	5.64	50.76

Model	Number of disc blades	Working width (mm)	Hourly income (ha)	Daily income (ha)
GCRO 7012	28	3,985	2.15	19.36
	32	4,555	2.42	21.75
	36	5,115	2.72	24.45
	40	5,665	3.02	27.17
	50	7,080	3.82	34.41
	52	7,380	3.99	35.87
	56	7,940	4.29	38.59

NOTE / An average speed of 6 km/h was adopted to prepare the table above.

To know how many hours will be spent to work in a certain previously known area, it is necessary to divide the value of the area by the hourly income.

Example: An area of 50 hectares to be worked with a GCRO 7010 model that has 36 disc blades (Hourly income = 2.48 ha).

$$\text{So: } \frac{50}{2.48} = 20.16$$

Approximately will be spent 20 (twenty) hours to work in an area of 50 hectares.

Important data

Torque table

The table below gives correct torque values for various bolts. Tighten all bolts to the torques specified in chart unless otherwise noted. Check the tightness of bolts periodically, using this bolt torque chart as a guide. Replace hardware with the same strength (grade/class) bolt.

 MARCHESAN		TORQUE TABLE						<i>CIVEMASA</i>					
Bolt Size (Inches) (a)	 Grade 2		 Grade 5		 Grade 8		Bolt Size (Metric) (D)	 4.6		 8.8		 10.9	
	Lbs-ft (b)	N.m (c)	Lbs-ft	N.m	Lbs-ft	N.m		Lbs-ft	N.m	Lbs-ft	N.m	Lbs-ft	N.m
1/4" - 20	5,5	7,5	8,5	11,5	12	16,3	M5 x 0.8	2,5	3,39	5	6,78	8,5	11,526
1/4" - 28	6	8,1	9,5	12,9	14	19,0	M 6 x 1	3	4,068	8	10,85	11,5	15,594
5/16" - 18	10,5	14,2	17,5	23,7	24,5	33,2	M 6 x 0.75	3,5	4,746	8,5	11,53	13	17,628
5/16" - 24	12	16,3	19,5	26,4	27,5	37,3	M 8 x 1.25	7	9,492	19,5	26,44	28	37,968
3/8" - 16	19,5	26,4	31,5	42,7	44	59,7	M 8 x 1	8	10,848	21	28,48	30,5	41,358
3/8" - 24	22	29,8	35	47,5	50	67,8	M 10 x 1.5	14	18,984	38,5	52,21	56	75,936
7/16" - 14	31	42,0	50	67,8	70,5	95,6	M 10 x 1	16	21,696	43	58,31	63	85,428
7/16" - 14	34,5	46,8	56	75,9	79	107,1	M 12 x 1.75	25	33,9	66,5	90,17	98	132,888
1/2" - 13	47	63,7	76	103,1	107,5	145,8	M 12 x 1.25	27	36,612	73	98,99	107,5	145,77
1/2" - 20	53,5	72,5	86	116,6	121,5	164,8	M 14 x 2	40	54,24	107	145,09	156,5	212,214
9/16" - 12	68	92,2	110	149,2	155	210,2	M 14 x 1.5	43	58,308	115,5	156,62	169	229,164
9/16" - 18	76	103,1	122,5	166,1	173	234,6	M 16 x 2	62	84,072	165,5	224,42	243,5	330,186
5/8" - 11	94	127,5	151,5	205,4	214,5	290,9	M 16 x 1.5	66,5	90,174	177	240,01	260	352,56
5/8" - 18	106,5	144,4	171,5	232,6	242,5	328,8	M 18 x 2.5	86	116,616	229	310,52	336	455,616
3/4" - 10	167	226,5	269,5	365,4	380,5	516,0	M 18 x 1.5	96,5	130,854	257	348,49	378	512,568
3/4" - 16	186	252,2	300	406,8	424,5	575,6	M 20 x 2.5	121,5	164,754	323,5	438,67	475	644,1
7/8" - 9	169,5	229,8	434	588,5	612,5	830,6	M 20 x 1.5	134,5	182,382	359	486,80	527	714,612
7/8" - 14	187	253,6	478,5	648,8	676,5	917,3	M 22 x 2.5	165,5	224,418	441	598,00	647,5	878,01
1" - 8	254,5	345,1	650	881,4	918,5	1.245,5	M 22 x 1.5	182	246,792	484	656,30	711,5	964,794
1" - 12	285,5	387,1	729,5	989,2	1031	1.398,0	M 24 x 3	210	284,76	559	758,00	821	1113,276
1.1/8" - 7	360,5	488,8	921,5	1.249,6	1302	1.765,5	M 24 x 1.5	238,5	323,406	636	862,42	933,5	1265,826
1.1/8" - 12	404,5	548,5	1033,5	1.401,4	1460	1.979,8	M 27 x 3	307	416,292	820	1111,92	1204	1632,624
1.1/4" - 7	508,5	689,5	1300	1.762,8	1837,5	2.491,7	M 27 x 1.5	344	466,464	918	1244,81	1348,5	1828,566
1.1/4" - 12	563,5	764,1	1439,5	1.952,0	2034,5	2.758,8	M 30 x 3.5	416,5	564,774	1111,5	1507,19	1632,5	2213,67
1.3/8" - 6	667	904,5	1704,5	2.311,3	2408	3.265,2	M 30 x 1.5	477,5	647,49	1273	1726,19	1870	2535,72
1.3/8" - 12	759,5	1.029,9	1940	2.630,6	2741,5	3.717,5	M 33 x 3.5	567	768,852	1512,5	2050,95	2221,5	3012,354
1.1/2" - 6	885,5	1.200,7	2262,5	3.068,0	3197	4.335,1	M 33 x 1.5	641,5	869,874	1709,5	2318,08	2511	3404,916
1.1/2" - 12	996	1.350,6	2545,5	3.451,7	3597	4.877,5	M 36 x 4	729	988,524	1943	2634,71	2854	3870,024
a) Nominal thread diameter in inches-threads per inch b) Foot pounds c) Newton-meters d) Nominal thread diameter in millimeters x thread pitch							M 36 x 1.5	838,5	1137,006	2236	3032,02	3284	4453,104
							M 39 x 4	943	1278,708	2515	3410,34	3693,5	5008,386
							M 39 x 1.5	1073	1454,988	2860,5	3878,84	4201,5	5697,234

Values are for reference and are based on average steel-to-steel friction conditions.

ATTENTION

MARCHESAN S/A reserves the right at any time to make improvements in the design, material or specifications of machinery, equipment or parts without thereby becoming liable to make similar changes in machinery, equipment or parts previously sold.

Images are for illustration purposes only.

Some illustrations in this manual appear without the safety devices, removed to allow a better view and detailed instructions. Never operate the equipment without these safety devices.

TECHNICAL PUBLICATION DIVISION

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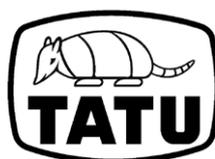
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Translation / Revision: Matheus Freire de Souza

March, 2022

Serial number.: 05.01.09.1554

Revision: 05



MARCHESAN

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ATENÇÃO

- RECOMENDAÇÕES GERAIS DE SEGURANÇA -

- 1 - Apenas pessoas que possuem o completo conhecimento do trator e dos implementos devem conduzi-los.
- 2 - Para engatar os implementos, faça as manobras em marcha lenta, em local espaçoso e esteja preparado para aplicar os freios.
- 3 - Para acoplamento na tomada de força, desligue o motor do trator.
- 4 - O motor não deve funcionar em locais sem o ideal arejamento, devido à toxicidade dos gases expelidos.
- 5 - Faça todos os lastreamentos necessários para tracionar equipamentos que os exigem, assim as operações tornam-se mais seguras.
- 6 - Em operações com o trator estacionado, trave os freios e calce as rodas.
- 7 - Todas as peças móveis como correias, polias, engrenagens etc. merecem cuidados especiais.
- 8 - Vista roupas e calçados adequados para a operação das máquinas e implementos agrícolas.
- 9 - Não permita que demais pessoas acompanhem o operador no trator ou no implemento.
- 10 - O uso das roçadeiras exige cuidados especiais. Não permita a aproximação de pessoas ou animais durante o serviço.
- 11 - Não efetue regulagens com o implemento em funcionamento.
- 12 - Não permita que crianças brinquem sobre ou próximo o implemento estando o mesmo em operação, transporte ou armazenado.
- 13 - A velocidade de operação deve ser cuidadosamente controlada.
- 14 - Em terreno inclinado mantenha a estabilidade ideal. Em início de desequilíbrio abaixe a aceleração e não levante o implemento.
- 15 - Os implementos de controle hidráulico devem ser abaixados até o solo e aliviados da pressão antes de desconectar qualquer tubulação.
- 16 - Não verifique vazamentos nos circuitos hidráulicos com as mãos. A alta pressão pode provocar lesões corporais, use papelão.
- 17 - No término do trabalho, os implementos deverão ser desengatados e devidamente apoiados no solo ou sobre cavaletes, não podendo ficar suspensos pelo hidráulico do trator.
- 18 - Não transite em rodovias ou estradas pavimentadas.
- 19 - Os implementos agrícolas tais como grades, arados e outros possuem normalmente órgãos ativos afilados, com bordas cortantes que oferecem riscos de acidentes mesmo quando não estão operando. Portanto, estes devem ser mantidos em local apropriado, devidamente apoiados no solo e impedindo-se o acesso de crianças e pessoas alheias ao manuseio dos mesmos.
- 20 - Para estacionar o trator, desligue o motor, neutralize a ação dos comandos e aplique os freios.

ATENCIÓN

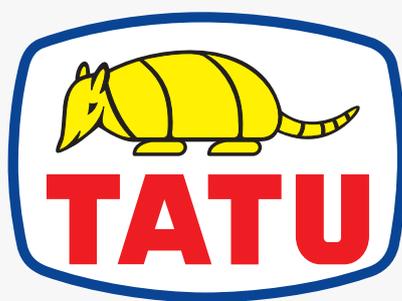
- RECOMENDACIONES GENERALES DE SEGURIDAD -

- 1 - Solamente personas con el completo conocimiento del tractor y de los implementos deben conducirlos.
- 2 - Para enganchar los implementos, proceda con maniobras en marcha lenta, en local con espacio y este preparado para aplicar los frenos.
- 3 - Para acoples en la toma de potencia apague el motor del tractor.
- 4 - El motor no debe funcionar en locales sin ventilación suficiente debido a la toxicidad de los gases expelidos.
- 5 - Proceda con los lastres necesarios para traccionar equipos que así exigir de esta manera, las operaciones se tornan mas seguras.
- 6 - En operaciones con el tractor estacionado (parqueado) trabar los frenos y las ruedas.
- 7 - Todas las piezas movibles como: bandas, poleas, engranajes, etc... necesitan cuidados especiales.
- 8 - Vestir ropas y calzados adecuados para operación de las máquinas e implementos agrícolas.
- 9 - No permita que otras personas acompañen el operador en el tractor o en el implemento; salvo si posee asiento adecuado.
- 10 - El uso de las rotativas (cortamaizas) exige cuidados especiales. No permita la aproximación de personas o animales durante el trabajo.
- 11 - No efectuar regulajes con el equipo en funcionamiento.
- 12 - No permitir que niños jueguen sobre o próximo de los equipos, en operación, durante el transporte o almacenado.
- 13 - La velocidad de operación debe ser cuidadosamente controlada.
- 14 - En terreno inclinado mantenga la estabilidad ideal. En inicio de desequilibrio baje la aceleración y no levante el implemento.
- 15 - Los implementos de control hidráulico deben ser rebajados hasta el suelo y aliviar la presión antes de desconectar cualquier tuerca.
- 16 - No verifique filtraciones en los circuitos hidráulicos con las manos, la alta presión puede provocar lesiones corporales, use cartón u otro objeto adecuado.
- 17 - Después del término del trabajo, los equipos deberán ser desenganchados y debidamente apoyados en el suelo o sobre caballetes, aliviando el hidráulico del tractor.
- 18 - No transitar en carreteras o caminos pavimentados.
- 19 - Los implementos agrícolas, como: rasiras, arados y otros, tienen normalmente órganos activos afilados, con bordes cortantes que ofrecen riesgos de accidentes, aún cuando detenidos, por lo tanto, estos deben ser mantenidos en local apropiado, debidamente apoyados en el suelo e impidiendo el acceso de niños y personas ajenas al uso de los mismos.
- 20 - Para estacionar (parquear) el tractor, apague el motor, neutralice la acción de los comandos y aplique los frenos.

ATTENTION

- GENERAL RECOMMENDATION ABOUT SAFETY -

- 1 - Only person who owns a full knowledge of tractor and implements must operate them.
- 2 - Take care to prevent injury to the hands or fingers when hitching the implement to the tractor.
- 3 - Always shut the tractor off before connecting the power take off.
- 4 - Never turn on the tractor engine within not aired places, due to toxic gases expelled.
- 5 - Before start the season it is necessary to prepare adequately the tractor and the implement to make the operations safer.
- 6 - Lock the tractors parking brake and block the wheels before dismounting the tractor for service or to make adjustments.
- 7 - Never allow riders to accompany the operator on tractor or implement, except if there is an adequate seat.
- 8 - Be sure that everyone is standing clear before operating the agricultural implement or machinery.
- 9 - Use extreme caution and wear gloves when handling the disc blades or gang assemblies.
- 10 - Wear adequate clothes and shoes to operate agricultural implements and machinery.
- 11 - Do not attempt to make adjustments when the unit is running.
- 12 - Disconnect the hydraulic hoses from breakaway couplers after bleeding off the system.
- 13 - Always block-up raised equipment when servicing. Never rely on the hydraulic system.
- 14 - The speed must be controlled when transporting the implement on rough roads, bridges, steep grades or any other adverse conditions.
- 15 - Lower the implement or machinery completely to the ground before unhitching from the tractor.
- 16 - Before making any inspection on hydraulic hoses for leaks, cycle the hydraulic cylinders several times to purge entrapped air from the system.
- 17 - When the tractor is equipped with swinging drawbar, lock the drawbar in the fixed position.
- 18 - Agricultural implements such as: disc harrows, disc ploughs and others have disc blades that are sharp and could cut hands, feet etc. even when they are not in operation. In order to avoid serious accidents, use chock blocks to prevent the gang assembly from rolling surfaces before assembly to the frame. Wear gloves when handling the blades or gang assemblies.
- 19 - On the transport of the harrow, always install transport lock devices.
- 20 - When parking the tractor, turn the engine off, lock the tractors parking brake and remove the key.



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