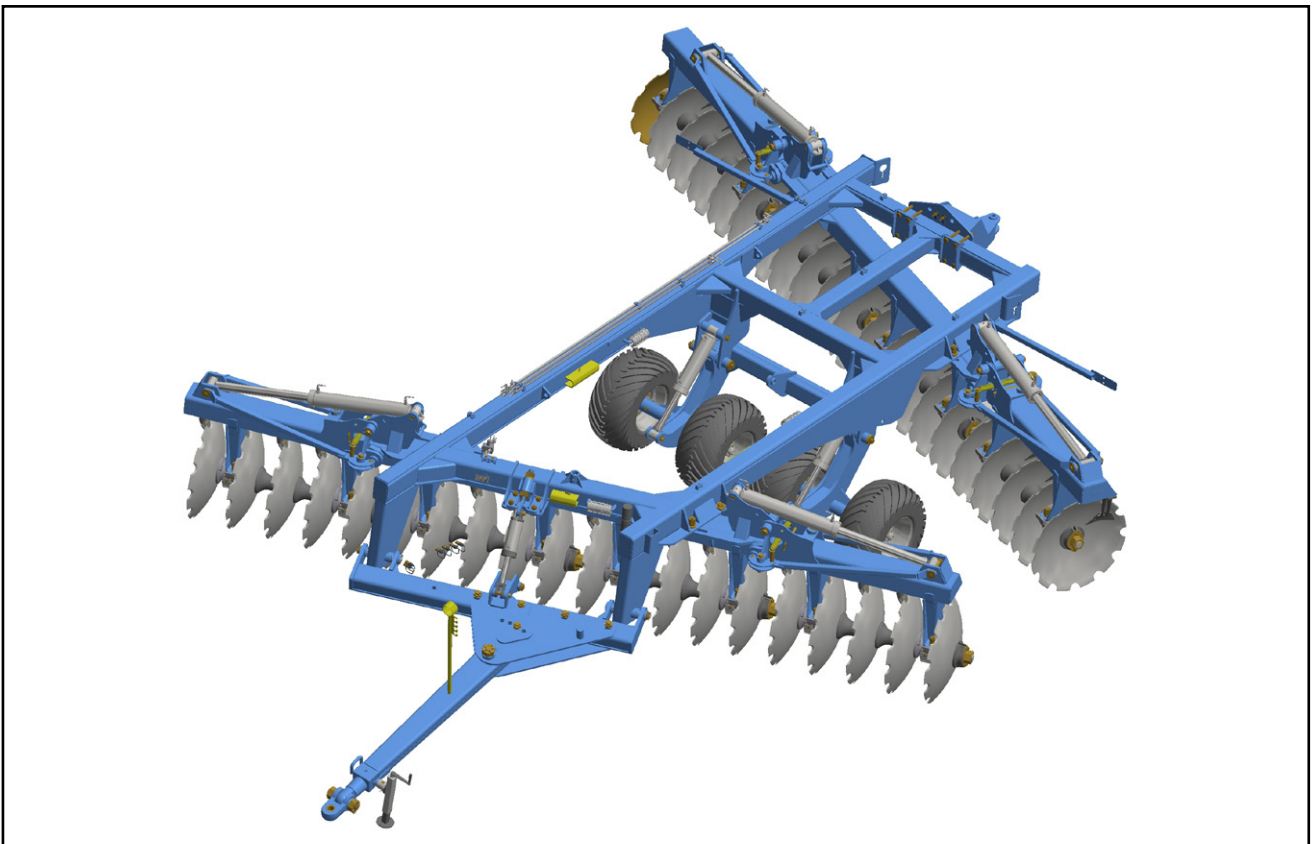


**MARCHESAN**

# **OPERATOR'S MANUAL**



***GAPCR-HD 8013***

***GASPCR-HD 9017***

***GASPCR-EHD 10020***

# IDENTIFICATION

Dealer: \_\_\_\_\_

Owner: \_\_\_\_\_

Firm / Farm: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_

No. of the Certificate of Guarantee: \_\_\_\_\_

Serial / No.: \_\_\_\_\_

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ Invoice No.: \_\_\_\_\_

Product: \_\_\_\_\_

Notes: \_\_\_\_\_

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# Introduction

The **GAPCR-HD 8013** disk harrow is specially designed for hard-working, either in newly deforested areas or sugar cane ratoons. It is great for seedbed preparation in large areas after the crop and stubble incorporation.

The **GASPCR-HD 9017** disk harrow is specially designed to prepare the soil deeply and to harrow newly deforested areas and extreme conditions in civil construction, like roads and dams.

The **GASPCR-EHD 10020** disk harrow is specially designed to build roads and dams in severe conditions, harrow newly deforested areas and savannas; as well as to eliminate the ratoons with a great straw concentration.

All models feature an efficient wheelset with hydraulic activation to control the depth and transport the equipment safely over long distances. This wheelset also streamlines the maneuvers during the service.

This instructions manual contains the necessary information for the best performance of these harrows. The operator must carefully read the entire manual before working with the equipment. Also, read and understand the safety recommendations.

For any further clarification or in the event 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"/>
<b>MARCHESAN IMPLEMENTOS E MÁQUINAS AGRÍCOLAS "TATU" S.A.</b> <a href="http://www.marchesan.com.br">www.marchesan.com.br</a> AV. MARCHESAN, 1979 - MATÃO-SP-BRASIL CNPJ: 52.311.289/0001-63	
	

#### NOTE

The warranty shall not be applied to any equipment, or any parts 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 S/A.

# To the operator

## Be careful with the environment

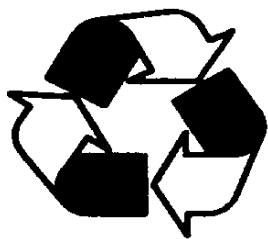
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Dear operator!

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 spilled 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. When the safety instructions are not being followed, a serious accident or even death may occur.**

These disk harrows are simple to operate, requiring however the basic and essential cautions to their handling.

Always keep in mind that safety requires constant attention, observation and prudence during the 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). Do not get closer during operation.

## 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 maintenance operations and 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 near or over the equipment while it is operating, during transportation or storage.
- Have full knowledge of the soil before starting to work. Provide the delineation of obstacles or hazardous locations. Use the speed which is suitable to the conditions of the ground or pathways to be covered.
- 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.
- Never operate the equipment without its proper **protective devices**.
- Be careful while hitching the drawbar to the tractor.
- Wear protective gloves to work near the disc blades.
- Never attempt to change the adjustments, clean or lubricate the equipment while it is moving.
- Carefully check the transport width on narrow locations.
- When setting the disk harrow to transport position, check if there are no people or animals close or under it.
- In case of emergency, know how to stop the tractor and harrow quickly.
- Always shut down the engine, remove the key and use the handbrake before leaving the tractor seat.
- Only pull the equipment using a tractor with enough 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.
- Do not allow people or animals to get under the equipment at any time.
- Whenever you unhitch the equipment, either in the field or shed, do it on a flat and firm surface and use the parking 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



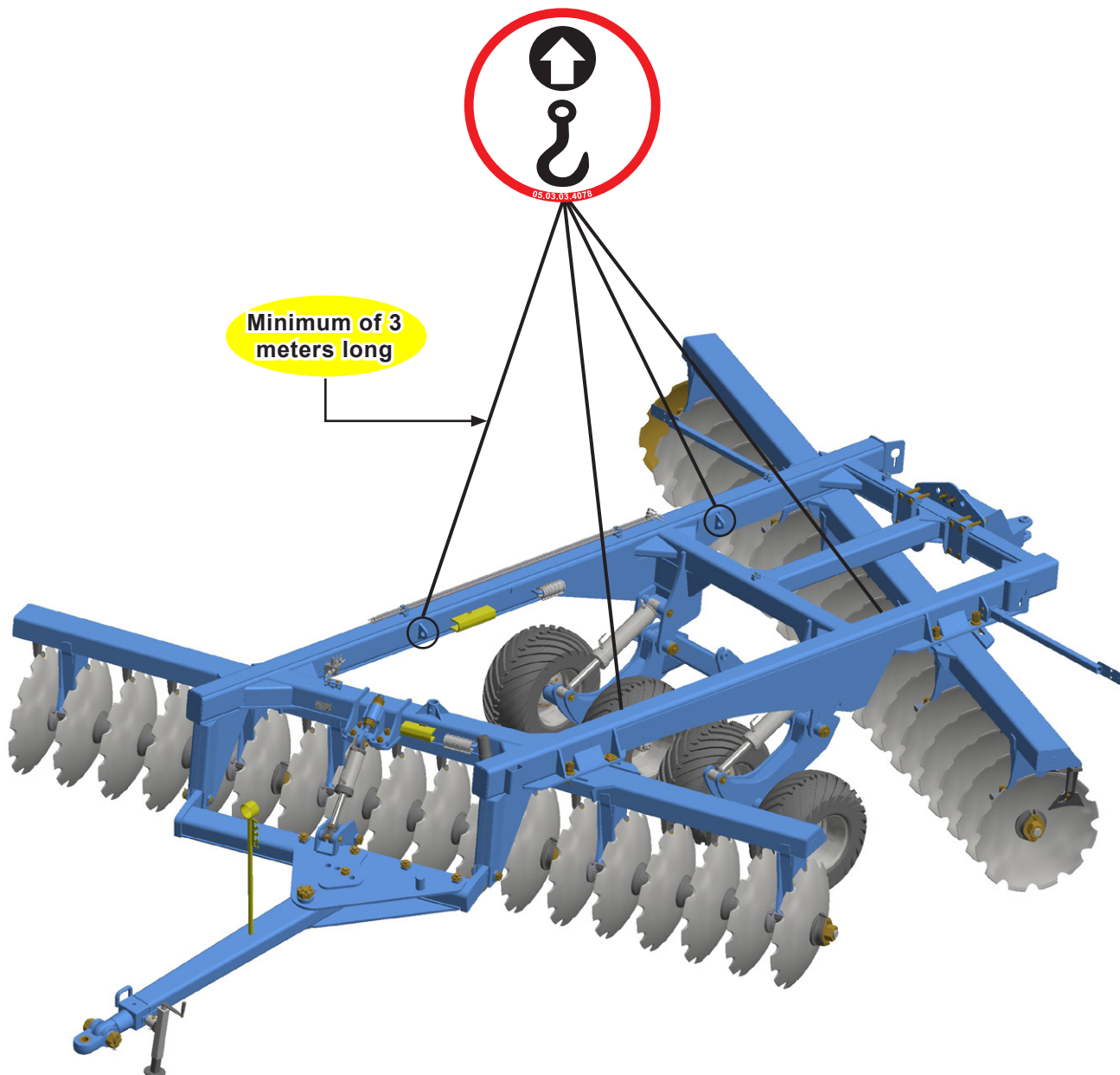
Marchesan does not advise the equipment traffic on highways, because this practice involves serious security risks in addition to being prohibited by the current existing traffic law. The transportation for long distances should be done on truck, trailer or other by following these safety guidelines:

- Use adequate ramps to load or unload the equipment. Do not make the loading on ditch banks, it may cause a serious accident.
- When lifting with a hoist, use the appropriate points to lift.
- Underpin the equipment appropriately.
- Use chock blocks and safety chains to secure the equipment to the truck or trailer during the transport.
- 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

## Lifting points

The equipment has adequate lifting points located on the frame. When carrying out any maintenance or when transporting the equipment, hitch the cables to all lifting 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 number.



**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 rapidamente.*

05.03.03.1896

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

05.03.03.1827



# To the operator

## Safety decals

Pressão Pressure Presión	Retorno Return Retorno	
		<b>Cilindro do cabeçalho</b> Drawbar cylinder <i>Cilindro de la cabecera</i>
		<b>Cilindro do levante</b> Lifting cylinder <i>Cilindro de levante</i>
		<b>Cilindro de articulação</b> Articulation cylinder <i>Cilindro de articulación</i>
		<b>Cilindro de abertura</b> Opening cylinder <i>Cilindro de abertura</i>
		<b>Engate traseiro</b> Rear hitch <i>Enganche trasero</i>

05.03.03.4499

ATENÇÃO

ATTENTION

ATENCIÓN

Leia o manual antes de iniciar o uso do equipamento.

Read the manual before attempting to work with the equipment.

Lea el manual antes de iniciar el uso del equipo.

05.03.03.1428

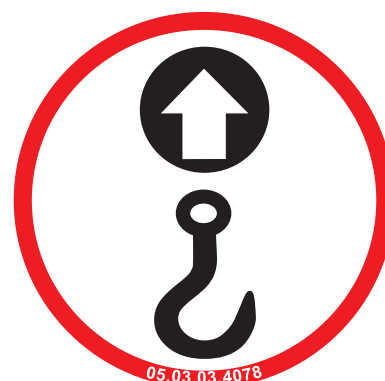
ATENÇÃO / ATTENTION / ATENCIÓN

- 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



## Decal set

Model	Description	Serial number
	Tatu logotype decal	<b>05.03.03.3933</b>
GAPCR-HD 8013	Decal	<b>05.03.03.4064</b>
GASPCR-HD 9017	Decal	<b>05.03.03.4976</b>
GASPCR-EHD 10020	Decal	<b>05.03.03.4977</b>



# Data sheet

Model: ..... **GAPCR-HD 8013**

Spacing between disc blades: ..... 340 mm

Disc blades dimension: ..... Ø 32" x 9 mm, Ø 34" x 9 mm or Ø 36" x 9 mm

Disc blade type: ..... Concave notched

Bearings - Length: ..... 330 mm  
 - Type: ..... Tapered roller bearings

Spacer spools - Length: ..... 330 mm  
 - Type: ..... Iron cast

Axle diameter: ..... Ø 63.50 mm (2.1/2")

Hitching type: ..... Drawbar

Tires - 400/60 x 15.5 - 14 ply ..... 21 - 37 disc blades  
 - 600/50 x 22.5 - 16 ply ..... 39 - 49 disc blades

Working speed: ..... 5 to 7 km/h

Model	Number of disc blades	Cutting width (mm)	Net weight (kg)	Tractor required (hp)
<b>GAPCR HD 8013</b>	21	3716	5870	210 - 230
	23	4032	6100	230 - 250
	25	4350	6330	250 - 280
	27	4670	6560	280 - 310
	29	4815	8360	310 - 330
	31	5131	8590	330 - 340
	33	5447	8825	340 - 360
	35	5766	9050	380 - 400
	37	6085	9715	420 - 440
	39	6546	12700	460 - 480
	41	6861	13020	510 - 530
<b>GAPCR HD 8013 Folding wings</b>	41	6861	11664	510 - 530
	45	7499	12535	540 - 560
	49	8070	14056	600 - 640

**NOTE** / The weights above are obtained using Ø 36" x 9 mm disc blades.

The required tractor power can suffer variations according to the soil conditions.

# Data sheet

Model: ..... **GASPCR-HD 9017**

Spacing between disc blades: ..... 440 mm

Disc blades dimension: ..... Ø 36" x 12 mm, Ø 38" x 12 mm or Ø 40" x 12 mm

Disc blade type: ..... Concave notched

Bearings - Length: ..... 430 mm  
 - Type: ..... Tapered roller bearings

Spacer spools - Length: ..... 430 mm  
 - Type: ..... Iron cast

Axle diameter ..... Ø 63.50 mm (2.1/2")

Hitching type: ..... Drawbar

Tires - 9.00 x 20 - 14 ply ..... 12 - 30 disc blades  
 - 600/50 x 22.5 - 16 ply ..... 32 - 36 disc blades

Working speed: ..... 5 to 7 km/h

Model	Number of disc blades	Cutting width (mm)	Net weight (kg)	Tractor required (hp)
<b>GASPCR HD 9017</b>	12	2526	5160	250 - 270
	14	2942	5705	270 - 290
	16	3344	6245	290 - 310
	18	3795	8180	310 - 330
	20	4207	8525	330 - 350
	22	4621	8875	350 - 370
	24	4970	9245	370 - 390
	26	5384	9590	390 - 410
	28	5798	9920	410 - 430
	30	6203	10680	430 - 450
	32	6626	11790	480 - 500
	34	7037	12135	500 - 520
36	7431	12480	520 - 560	

**NOTE/** The weights above are obtained using Ø 40" x 12 mm disc blades.

The required tractor power can suffer variations according to the soil conditions.

# Data sheet

Model: ..... **GASPCR-EHD 10020**

Spacing between disc blades: ..... 505 mm

Disc blades dimension: ..... Ø 36" x 12 mm, Ø 38" x 12 mm  
 ..... Ø 40" x 12 mm or Ø 42" x 12 mm

Disc blade type: ..... Concave notched

Bearings - Length: ..... 495 mm  
 - Type: ..... Tapered roller bearings

Spacer spools - Length: ..... 495 mm  
 - Type: ..... Iron cast

Axle diameter: ..... Ø 63.50 mm (2.1/2")

Hitching type: ..... Drawbar

Tires: ..... 9.00 x 20 - 14 ply

Working speed: ..... 5 to 7 km/h

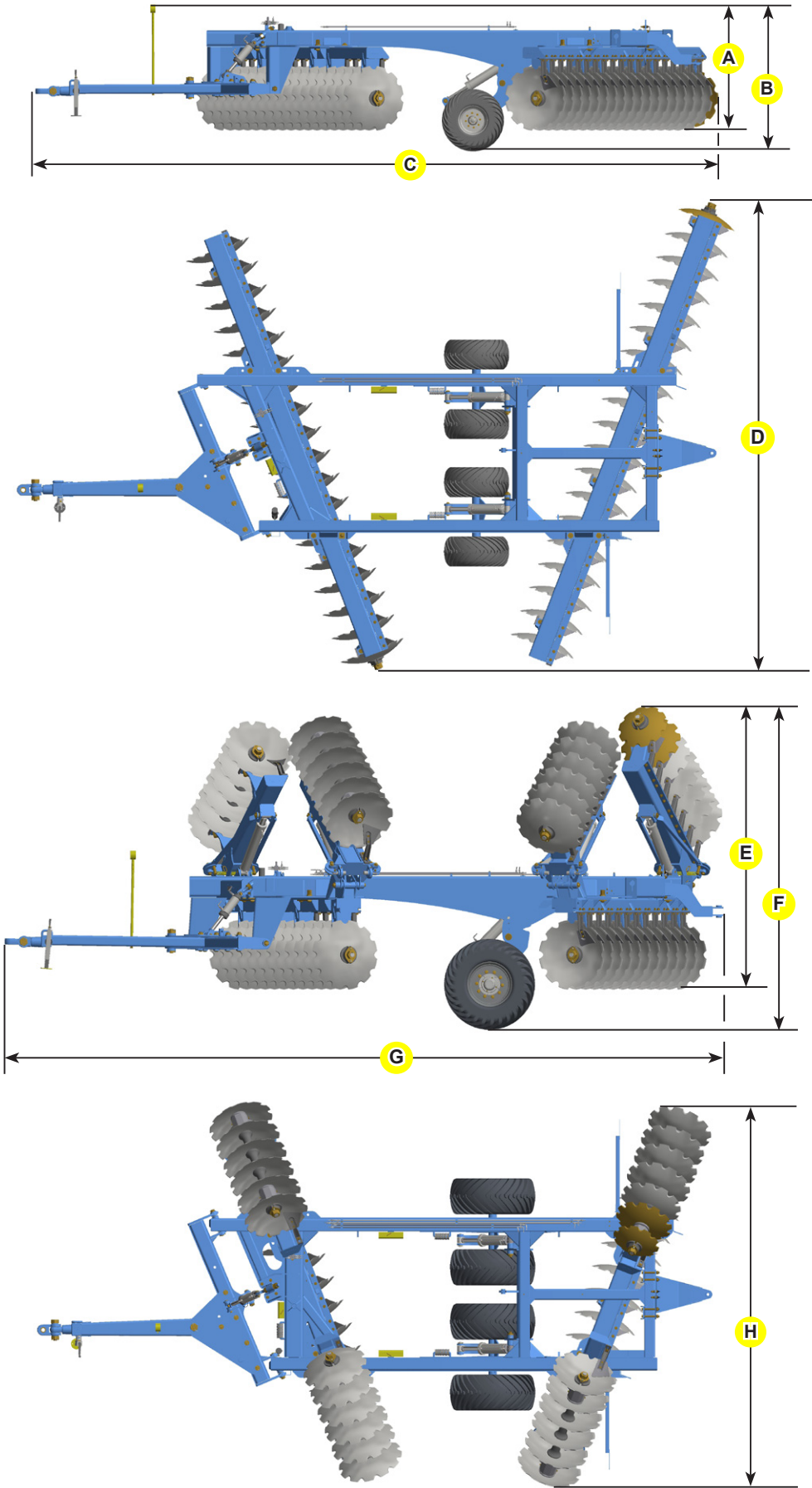
Model	Number of disc blades	Cutting width (mm)	Net weight (kg)	Tractor required (hp)
<b>GASPCR EHD 10020</b>	12	2750	6215	260 - 280
	14	3222	6930	280 - 300
	16	3815	8160	330 - 350
	18	4280	8545	360 - 380
	20	4750	8930	380 - 400
	22	5420	10790	420 - 440
	24	5704	11300	460 - 480
	26	6178	12090	500 - 540

**NOTE** / The weights above are obtained using Ø 42" x 12 mm disc blades.

The required tractor power can suffer variations according to the soil conditions.

# Data sheet

## General dimensions



# Data sheet

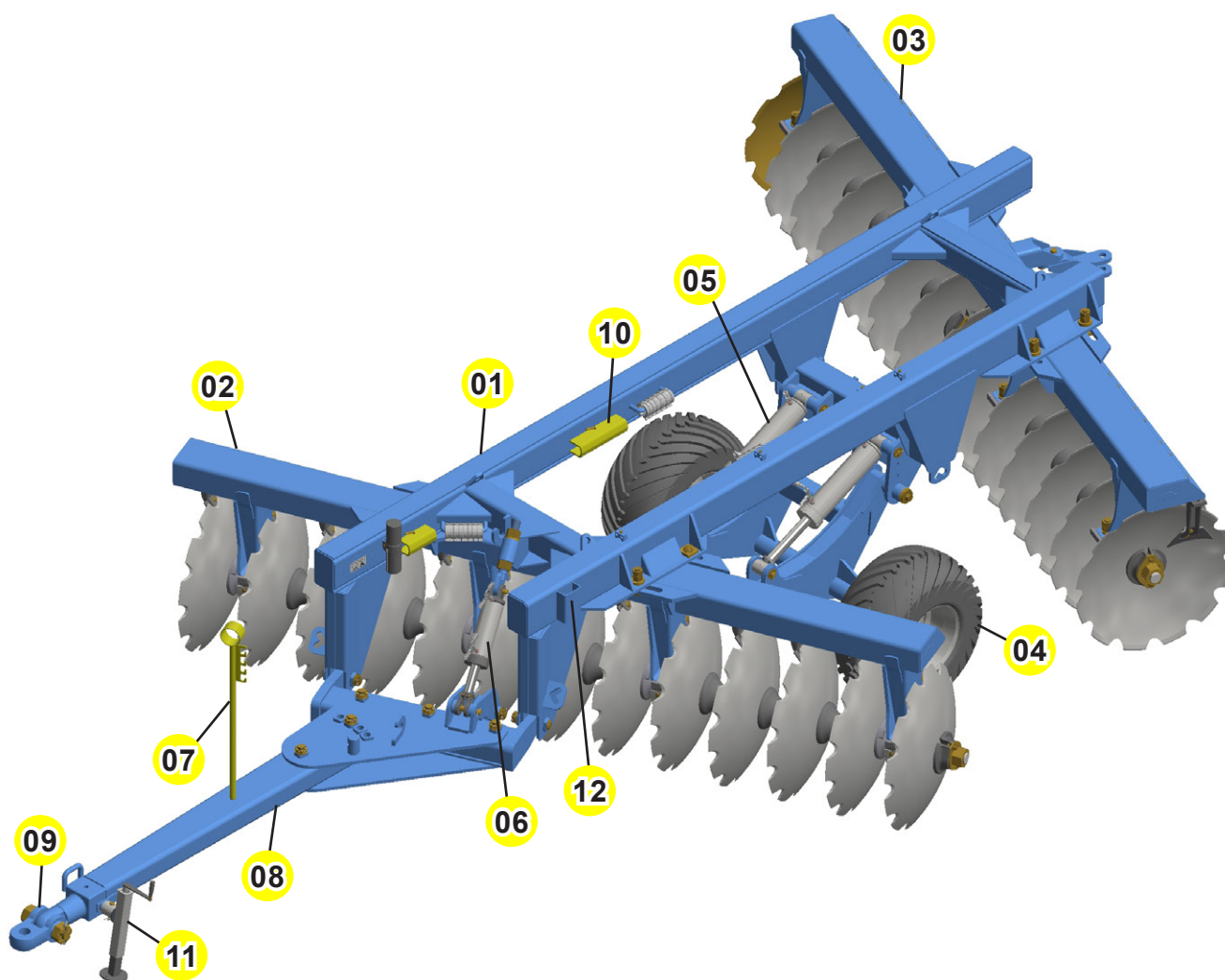
## General dimensions

Model	Number of disc blades	Dimensions (mm)							
		A	B	C	D	E	F	G	H
GAPCR HD 8013	21	1770	2070	8550	3880	-	-	-	-
	23	1770	2070	8640	4180	-	-	-	-
	25	1770	2070	8680	4475	-	-	-	-
	27	1770	2070	8740	4810	-	-	-	-
	29	1770	2070	9455	5000	-	-	-	-
	31	1770	2070	9500	5300	-	-	-	-
	33	1770	2070	9560	5630	-	-	-	-
	35	1770	2070	9620	5900	-	-	-	-
	37	1770	2070	9680	6240	-	-	-	-
	39	1770	2070	9870	6730	-	-	-	-
	41	1770	2070	9890	7020	-	-	-	-
45	1770	2070	10040	7610	-	-	-	-	
GAPCR HD 8013 Folding wings	41	1770	2070	9750	6986	3535	3885	9400	4600
	45	1770	2070	9845	7565	3535	3910	9400	5300
	49	1770	2070	9920	8180	3660	4227	9400	5300
GASPCR HD 9017 - GASPCR EHD 10020	12	1790	2190	8470	2290	-	-	-	-
	14	1790	2190	8630	3080	-	-	-	-
	16	1790	2190	8990	3500	-	-	-	-
	18	1790	2190	9230	3925	-	-	-	-
	20	1790	2190	9340	4325	-	-	-	-
	22	1790	2190	9660	5360	-	-	-	-
	24	1790	2190	9730	5820	-	-	-	-
	26	1790	2190	9840	6090	-	-	-	-
GASPCR HD 9017	28	1790	2190	9860	6270	-	-	-	-
	30	1790	2190	9910	6540	-	-	-	-
	32	1790	2190	9935	6755	-	-	-	-
	34	1790	2190	9970	7140	-	-	-	-
	36	1790	2190	10435	7570	-	-	-	-

# Components

## GAPCR-HD 8013 - 21 to 27 disc blades (Hydraulic)

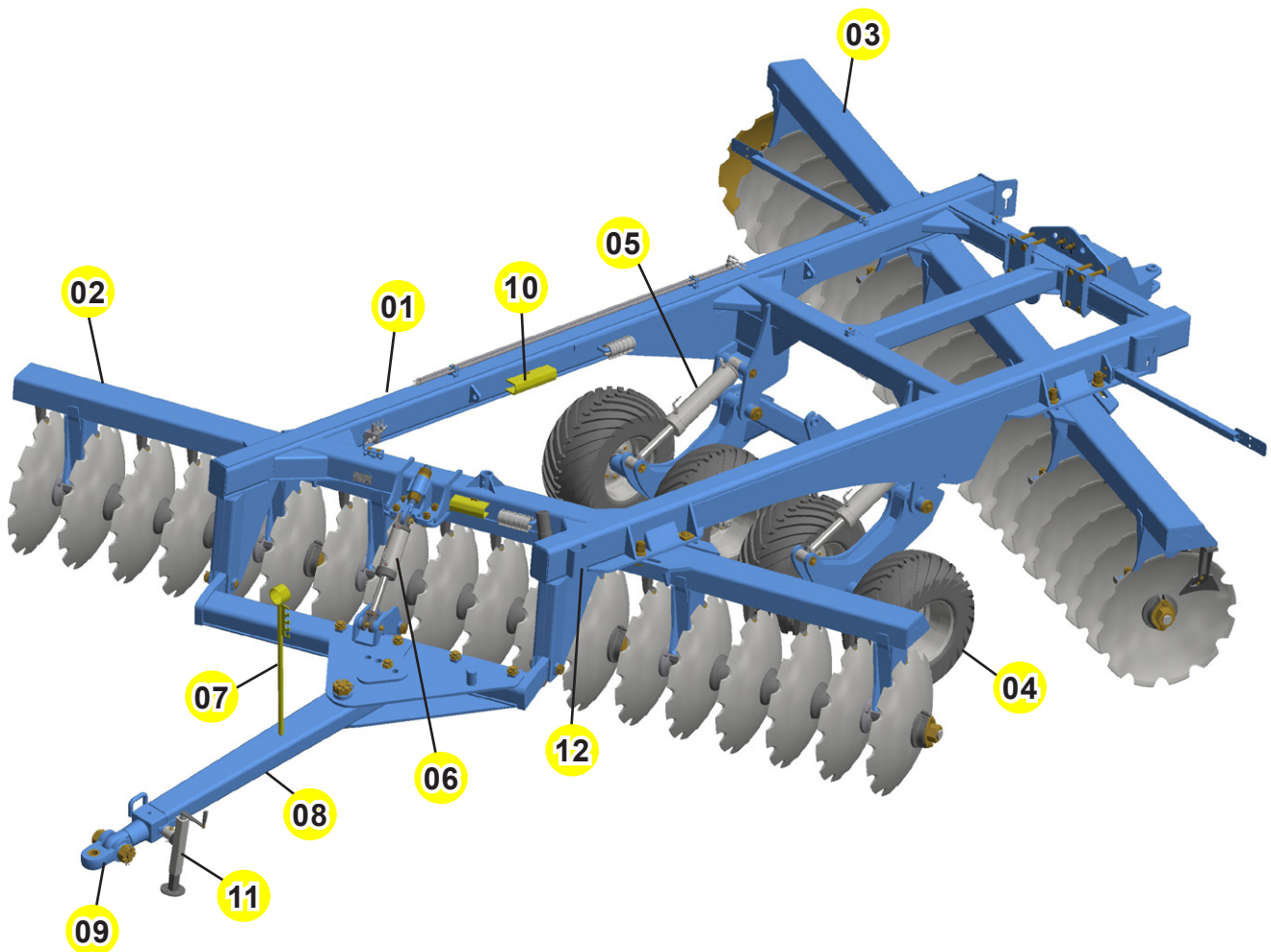
- |                          |                       |
|--------------------------|-----------------------|
| 01 - Frame               | 07 - Hose support     |
| 02 - Front disc gang     | 08 - Drawbar          |
| 03 - Rear disc gang      | 09 - Tractor hitch    |
| 04 - Wheelset system     | 10 - Transport lock   |
| 05 - Hydraulic cylinder  | 11 - Parking jack     |
| 06 - Stabilizer cylinder | 12 - Wrenches support |



# Components

## GAPCR-HD 8013 - 29 to 37 disc blades (Hydraulic)

- |                          |                       |
|--------------------------|-----------------------|
| 01 - Frame               | 07 - Hose support     |
| 02 - Front disc gang     | 08 - Drawbar          |
| 03 - Rear disc gang      | 09 - Tractor hitch    |
| 04 - Wheelset system     | 10 - Transport lock   |
| 05 - Hydraulic cylinder  | 11 - Parking jack     |
| 06 - Stabilizer cylinder | 12 - Wrenches support |

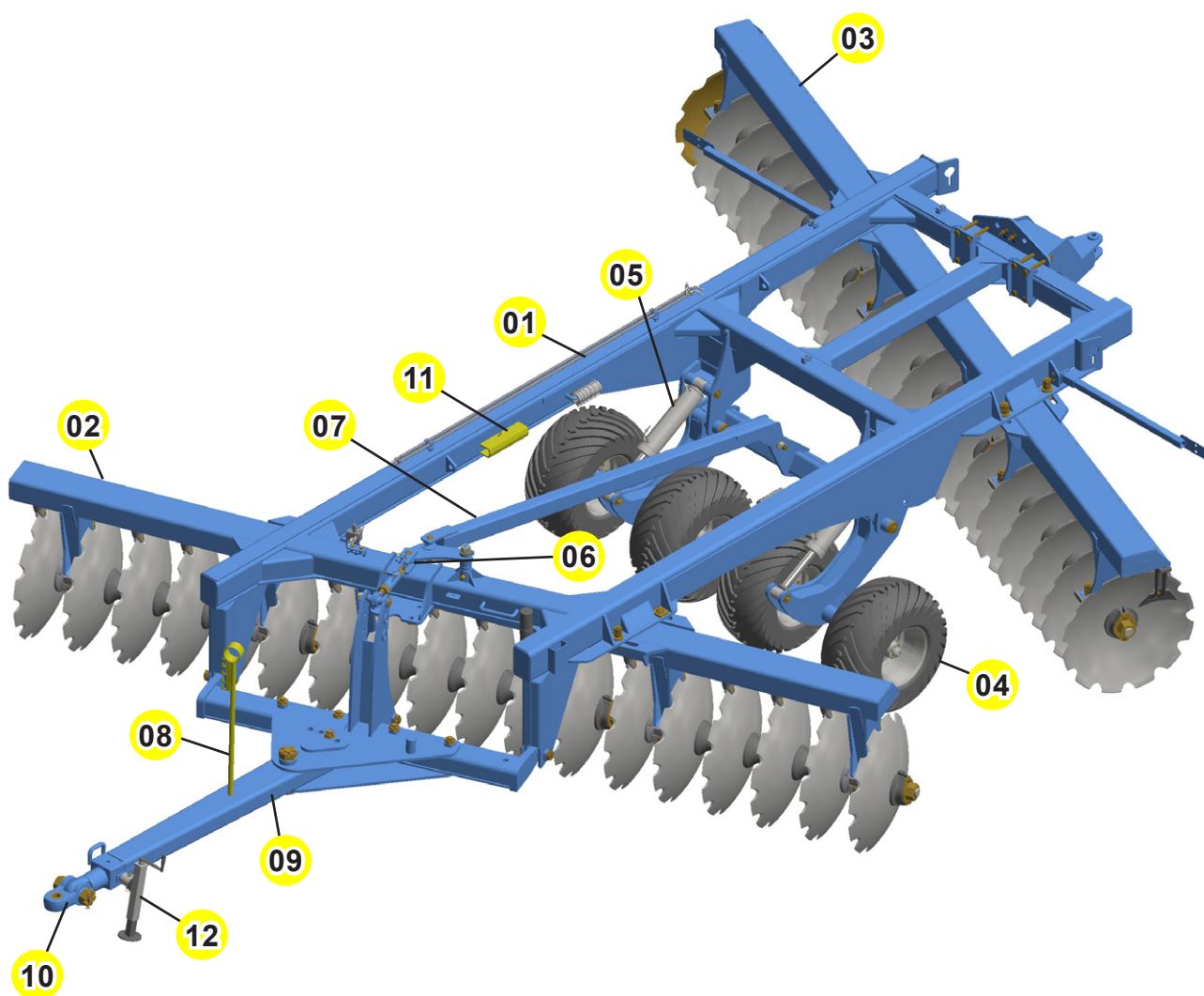




# Components

## GAPCR-HD 8013 - 29 to 37 disc blades (Mechanical)

- |                         |                     |
|-------------------------|---------------------|
| 01 - Frame              | 07 - Stabilizer bar |
| 02 - Front disc gang    | 08 - Hose support   |
| 03 - Rear disc gang     | 09 - Drawbar        |
| 04 - Wheelset system    | 10 - Tractor hitch  |
| 05 - Hydraulic cylinder | 11 - Transport lock |
| 06 - Stabilizer         | 12 - Parking jack   |

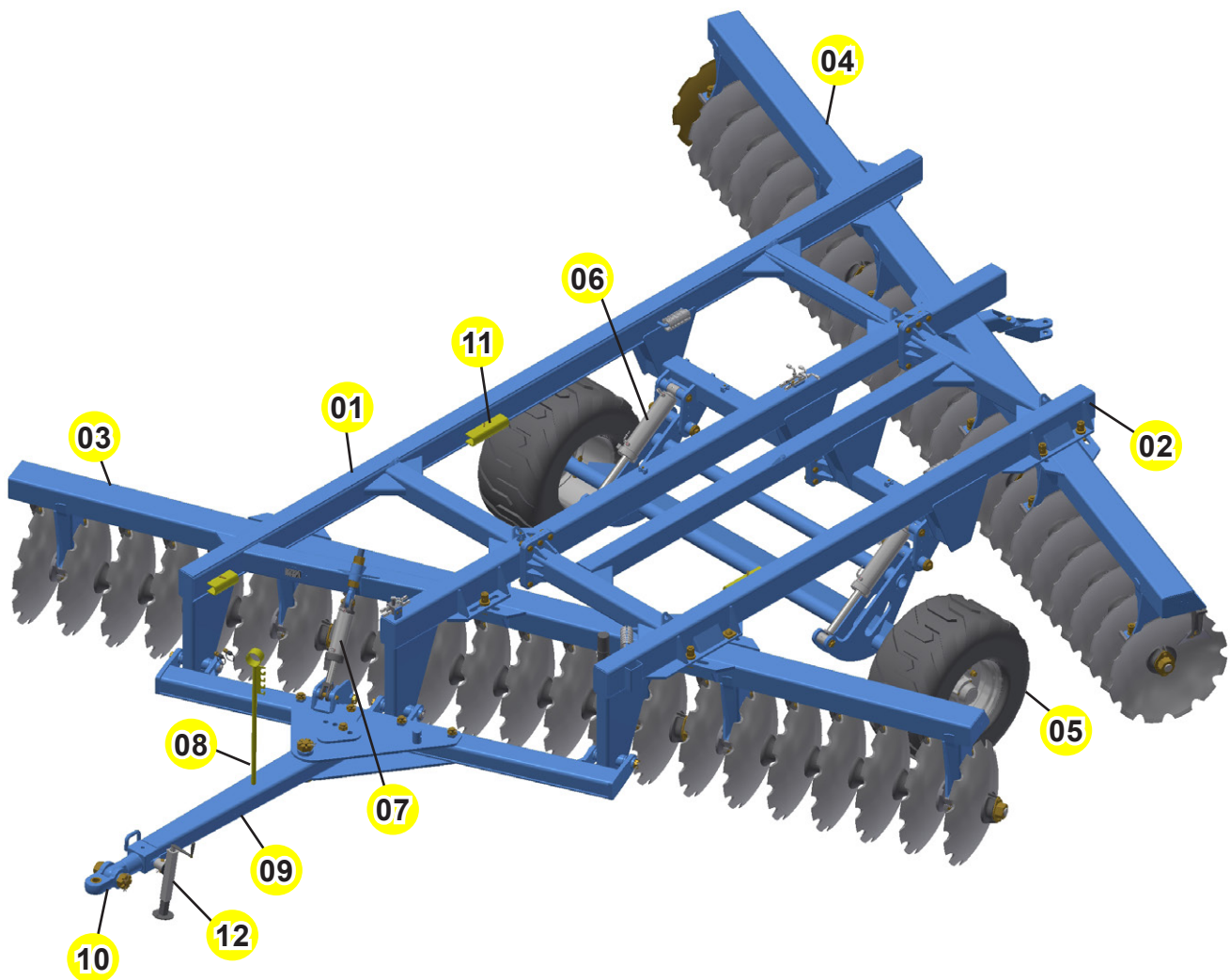




# Components

## GAPCR-HD 8013 - 39 to 45 disc blades (Hydraulic)

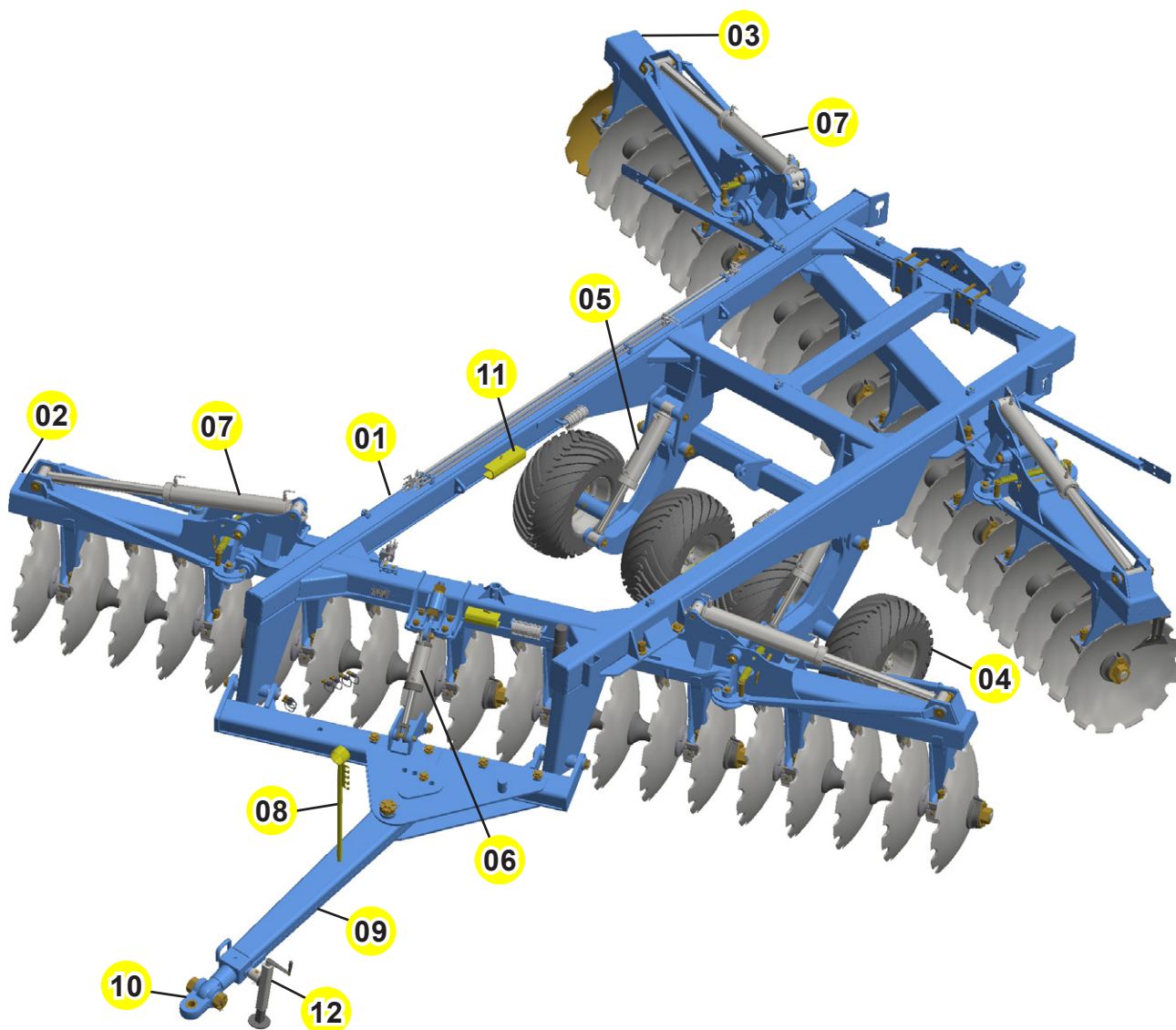
- |                         |                          |
|-------------------------|--------------------------|
| 01 - Right frame        | 07 - Stabilizer cylinder |
| 02 - Left frame         | 08 - Hose support        |
| 03 - Front disc gang    | 09 - Drawbar             |
| 04 - Rear disc gang     | 10 - Tractor hitch       |
| 05 - Wheelset system    | 11 - Transport lock      |
| 06 - Hydraulic cylinder | 12 - Parking jack        |



# Components

## GAPCR-HD 8013 - 41 to 49 disc blades (Folding wings)

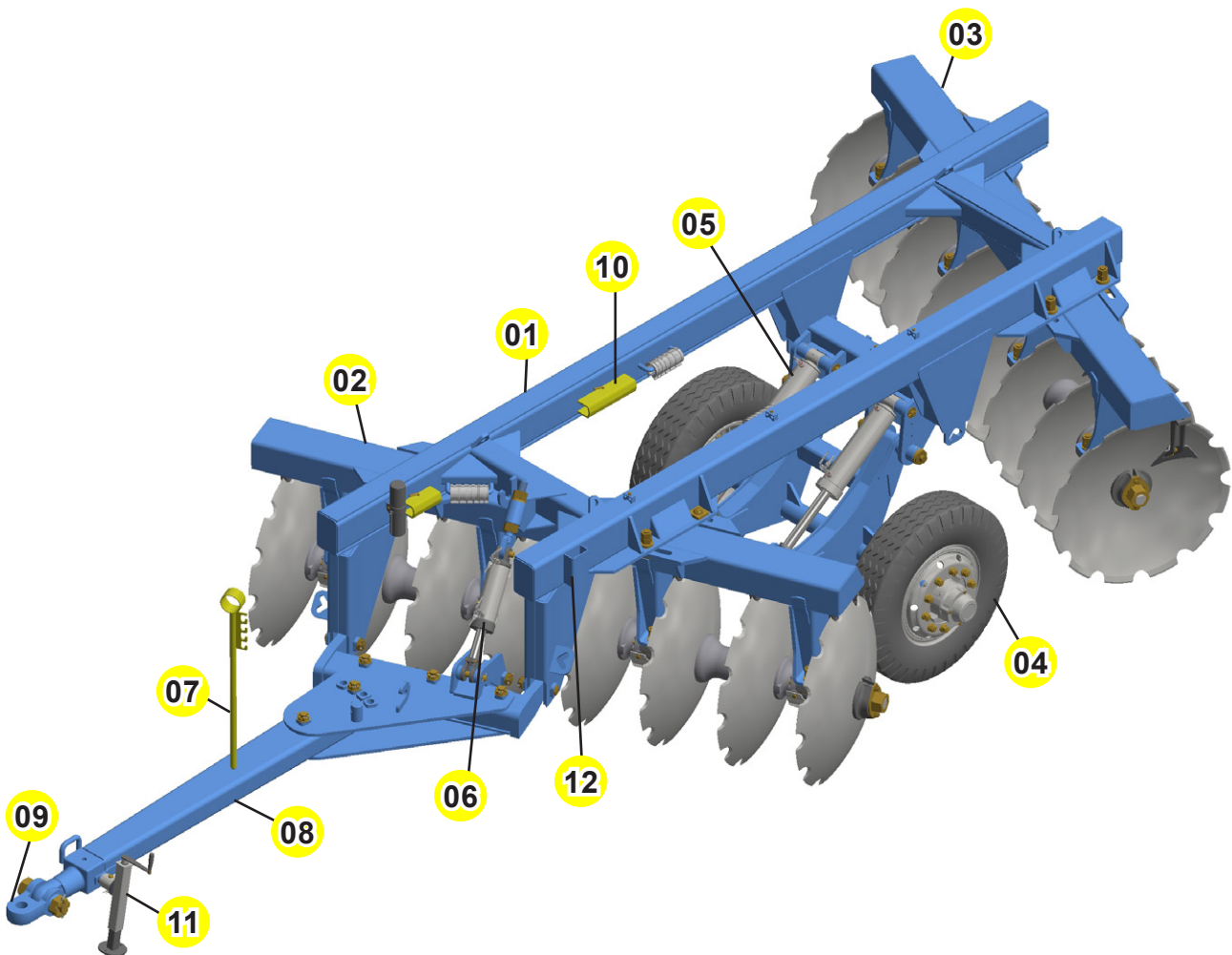
- |                          |                               |
|--------------------------|-------------------------------|
| 01 - Frame               | 07 - Folding section cylinder |
| 02 - Front disc gang     | 08 - Hose support             |
| 03 - Rear disc gang      | 09 - Drawbar                  |
| 04 - Wheelset system     | 10 - Tractor hitch            |
| 05 - Hydraulic cylinder  | 11 - Transport lock           |
| 06 - Stabilizer cylinder | 12 - Parking jack             |



# Components

## GASPCR-HD 9017 - 12 to 16 disc blades (Hydraulic)

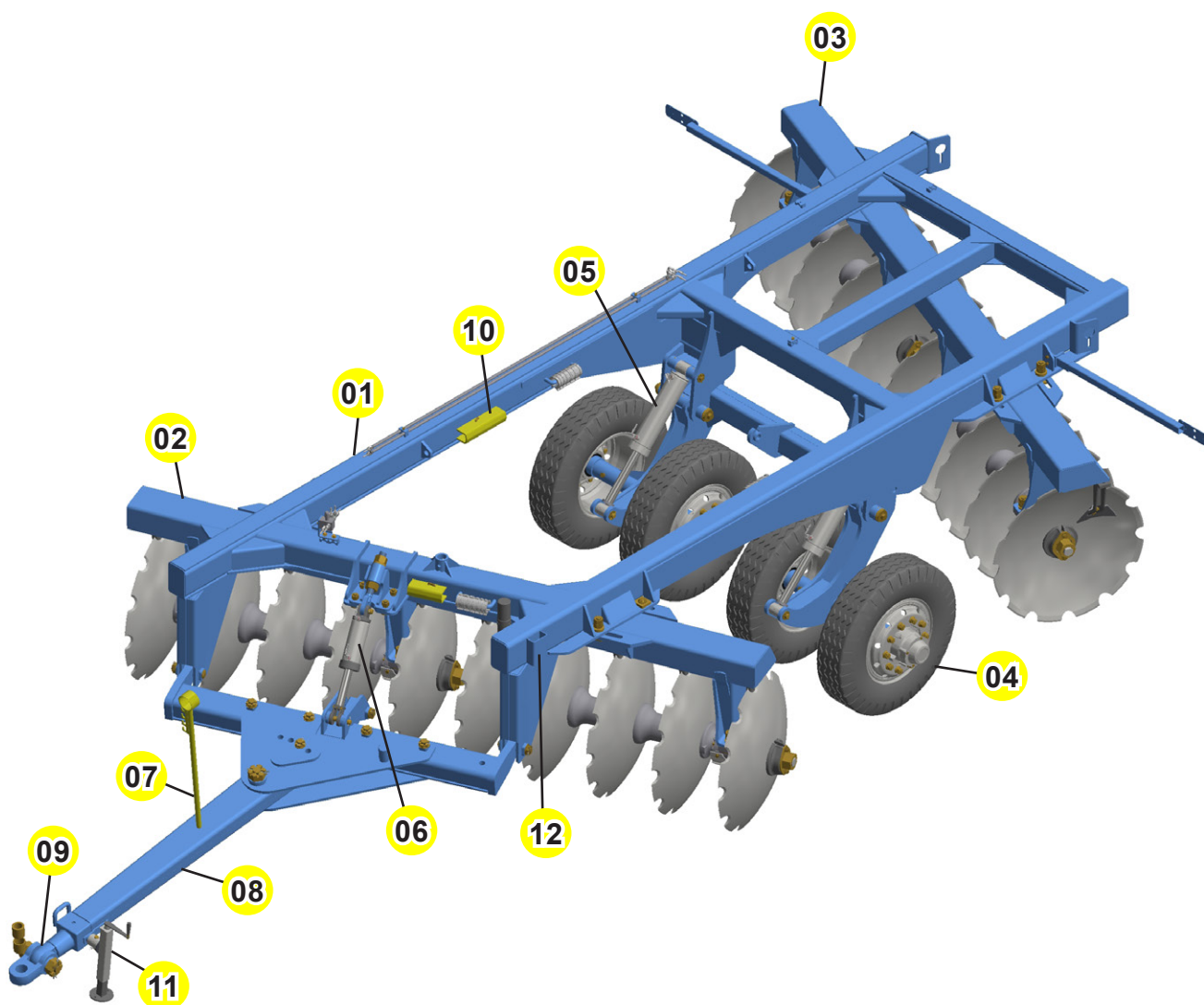
- |                          |                       |
|--------------------------|-----------------------|
| 01 - Frame               | 07 - Hose support     |
| 02 - Front disc gang     | 08 - Drawbar          |
| 03 - Rear disc gang      | 09 - Tractor hitch    |
| 04 - Wheelset system     | 10 - Transport lock   |
| 05 - Hydraulic cylinder  | 11 - Parking jack     |
| 06 - Stabilizer cylinder | 12 - Wrenches support |



# Components

## GASPCR-HD 9017 - 18 to 22 disc blades (Hydraulic)

- |                          |                       |
|--------------------------|-----------------------|
| 01 - Frame               | 07 - Hose support     |
| 02 - Front disc gang     | 08 - Drawbar          |
| 03 - Rear disc gang      | 09 - Tractor hitch    |
| 04 - Wheelset system     | 10 - Transport lock   |
| 05 - Hydraulic cylinder  | 11 - Parking jack     |
| 06 - Stabilizer cylinder | 12 - Wrenches support |

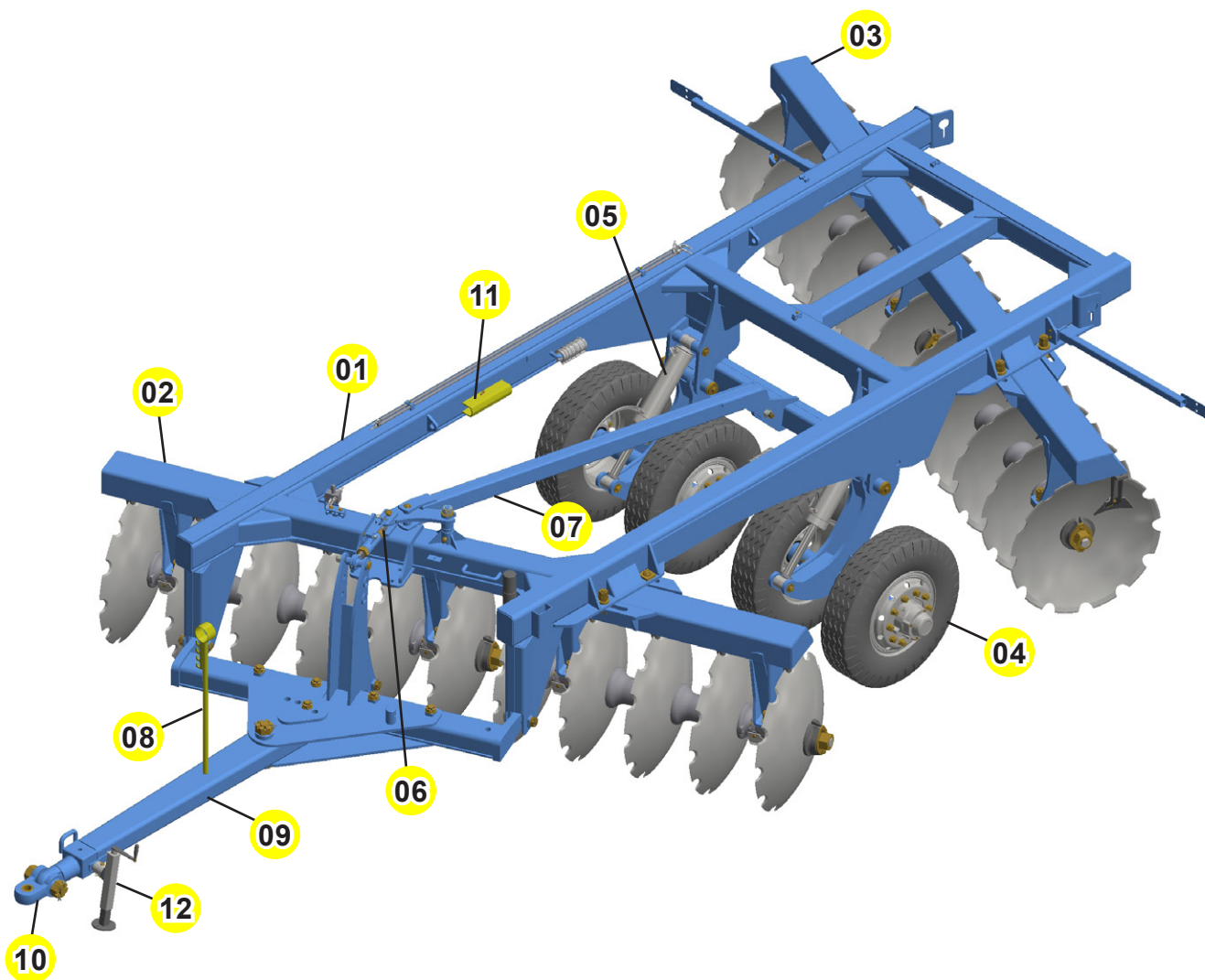




# Components

## GASPCR-HD 9017 - 18 to 22 disc blades (Mechanical)

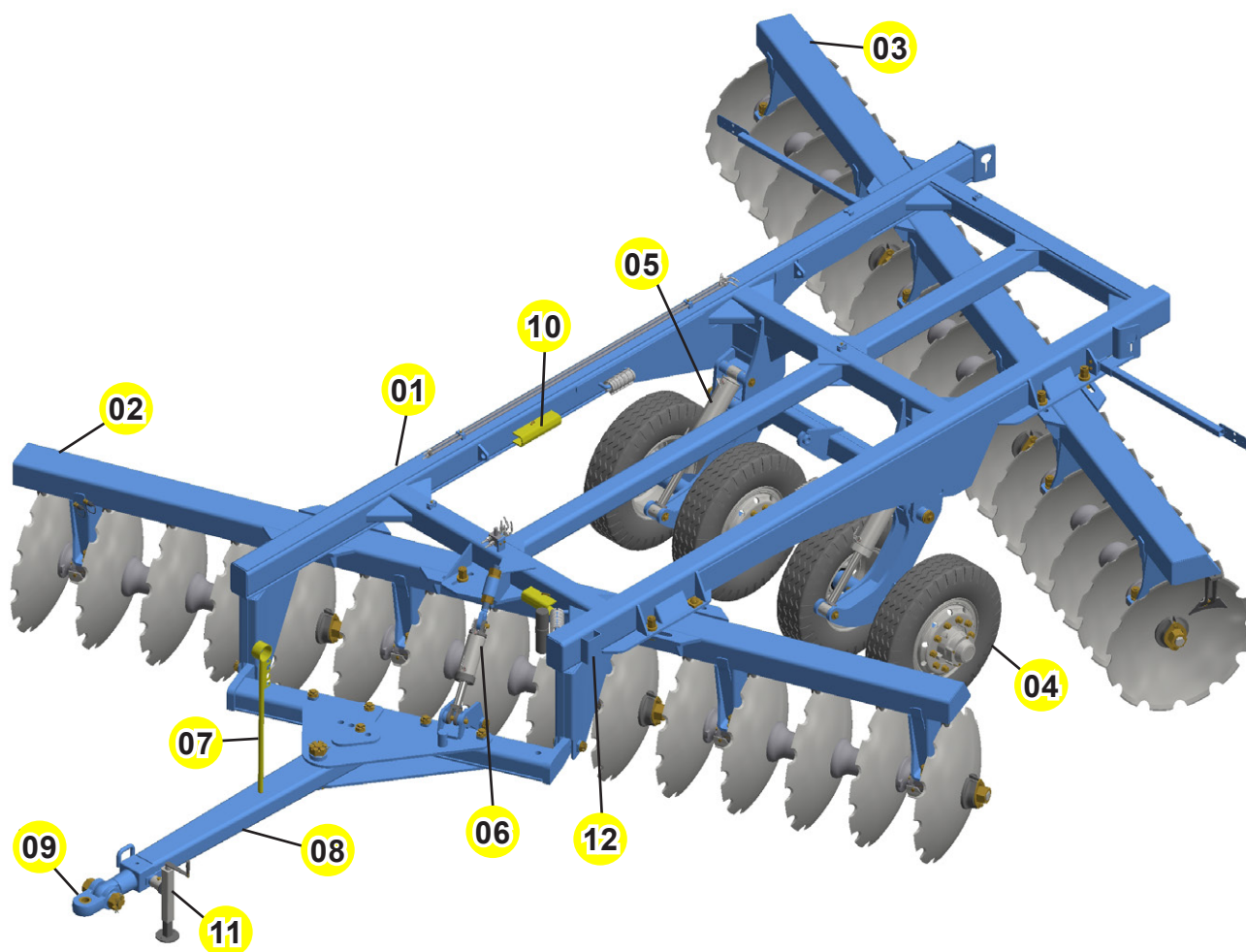
- |                         |                     |
|-------------------------|---------------------|
| 01 - Frame              | 07 - Stabilizer bar |
| 02 - Front disc gang    | 08 - Hose support   |
| 03 - Rear disc gang     | 09 - Drawbar        |
| 04 - Wheelset system    | 10 - Tractor hitch  |
| 05 - Hydraulic cylinder | 11 - Transport lock |
| 06 - Stabilizer         | 12 - Parking jack   |



# Components

## GASPCR-HD 9017 - 24 to 30 disc blades (Hydraulic)

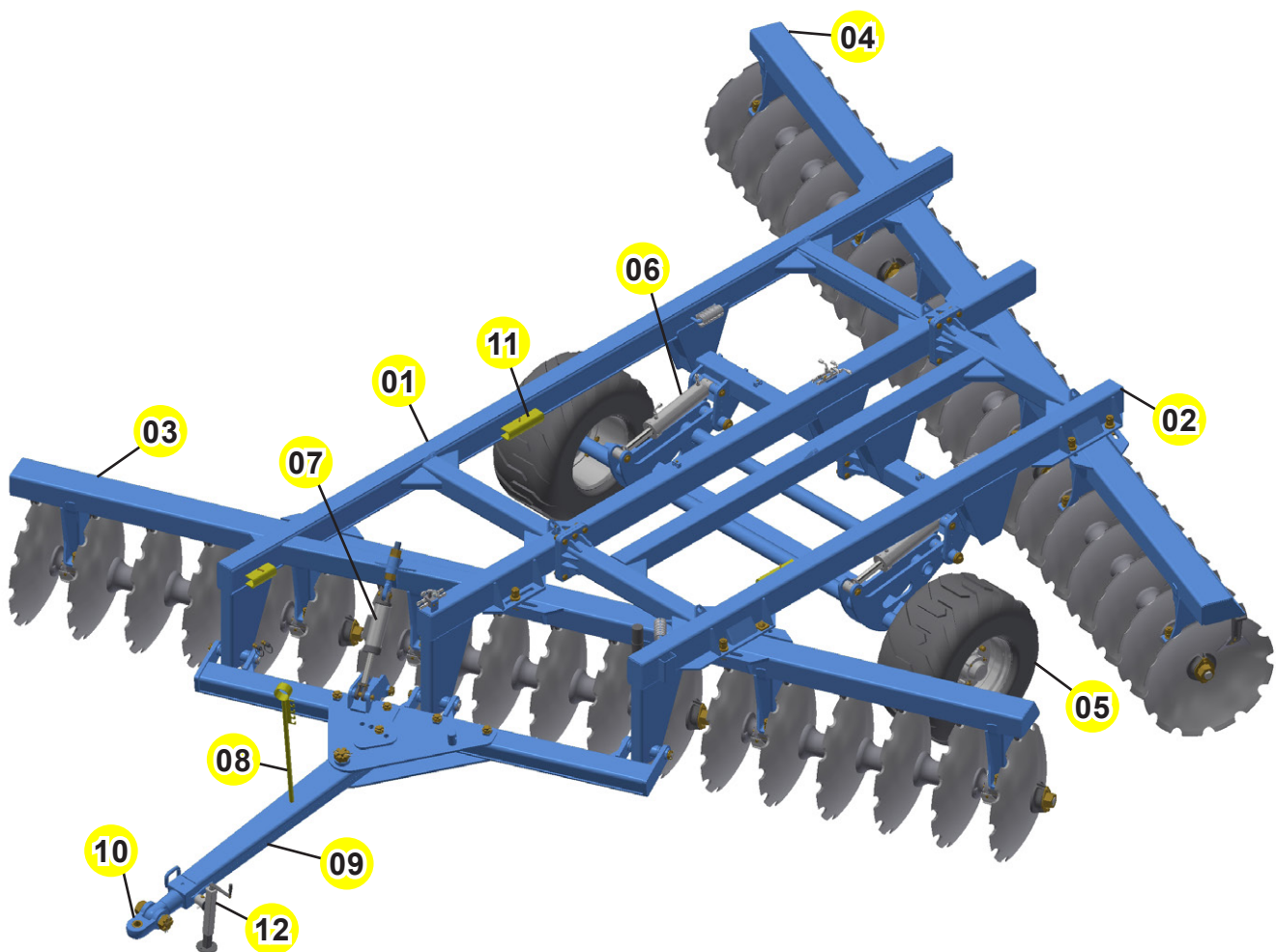
- |                          |                       |
|--------------------------|-----------------------|
| 01 - Frame               | 07 - Hose support     |
| 02 - Front disc gang     | 08 - Drawbar          |
| 03 - Rear disc gang      | 09 - Tractor hitch    |
| 04 - Wheelset system     | 10 - Transport lock   |
| 05 - Hydraulic cylinder  | 11 - Parking jack     |
| 06 - Stabilizer cylinder | 12 - Wrenches support |



# Components

## GASPCR-EHD 9017 - 32 to 36 disc blades (Hydraulic)

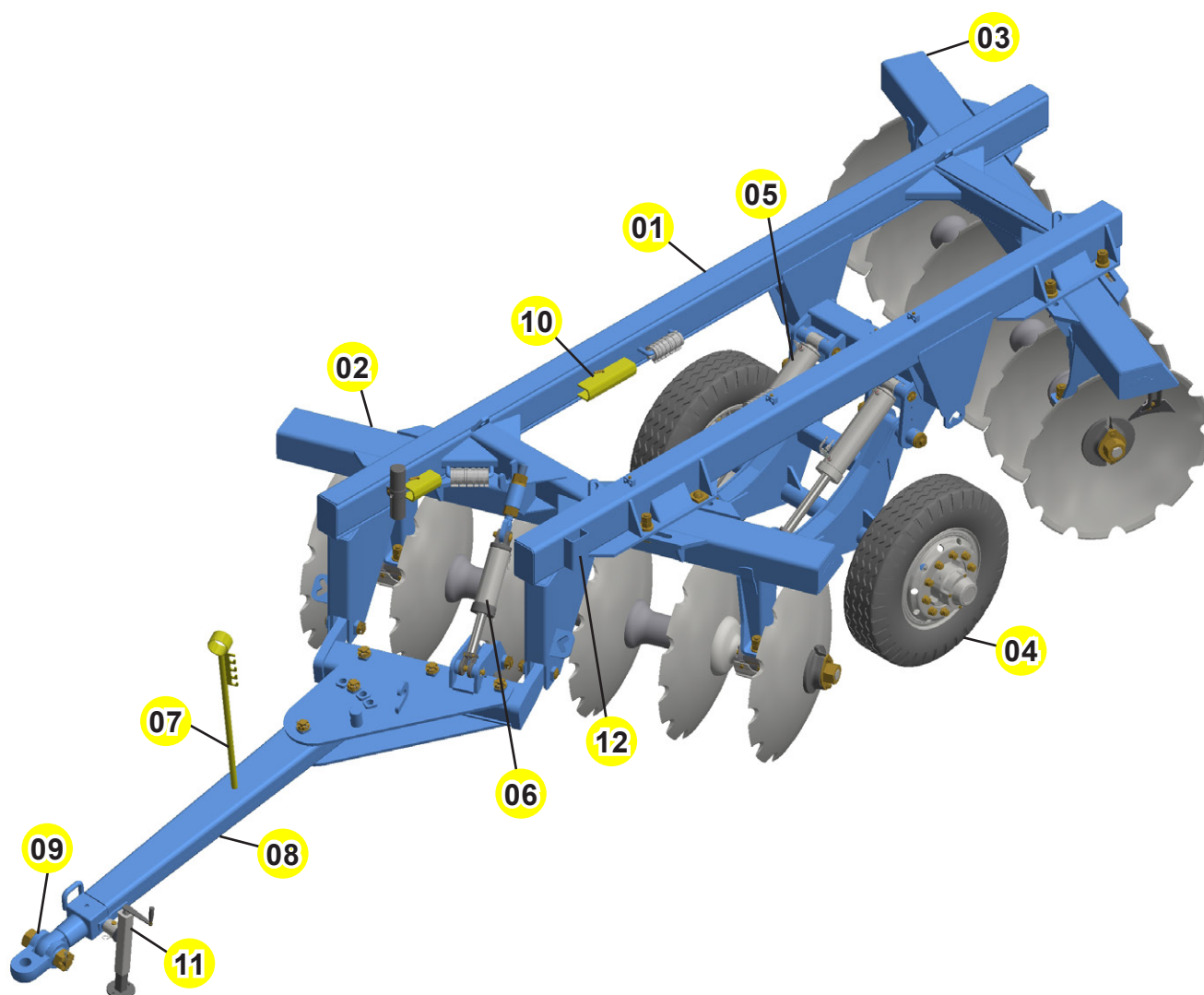
- |                         |                          |
|-------------------------|--------------------------|
| 01 - Right frame        | 07 - Stabilizer cylinder |
| 02 - Left frame         | 08 - Hose support        |
| 03 - Front disc gang    | 09 - Drawbar             |
| 04 - Rear disc gang     | 10 - Tractor hitch       |
| 05 - Wheelset system    | 11 - Transport lock      |
| 06 - Hydraulic cylinder | 12 - Parking jack        |



# Components

## GASPCR-EHD 10020 - 12 to 14 disc blades (Hydraulic)

- |                          |                       |
|--------------------------|-----------------------|
| 01 - Frame               | 07 - Hose support     |
| 02 - Front disc gang     | 08 - Drawbar          |
| 03 - Rear disc gang      | 09 - Tractor hitch    |
| 04 - Wheelset system     | 10 - Transport lock   |
| 05 - Hydraulic cylinder  | 11 - Parking jack     |
| 06 - Stabilizer cylinder | 12 - Wrenches support |

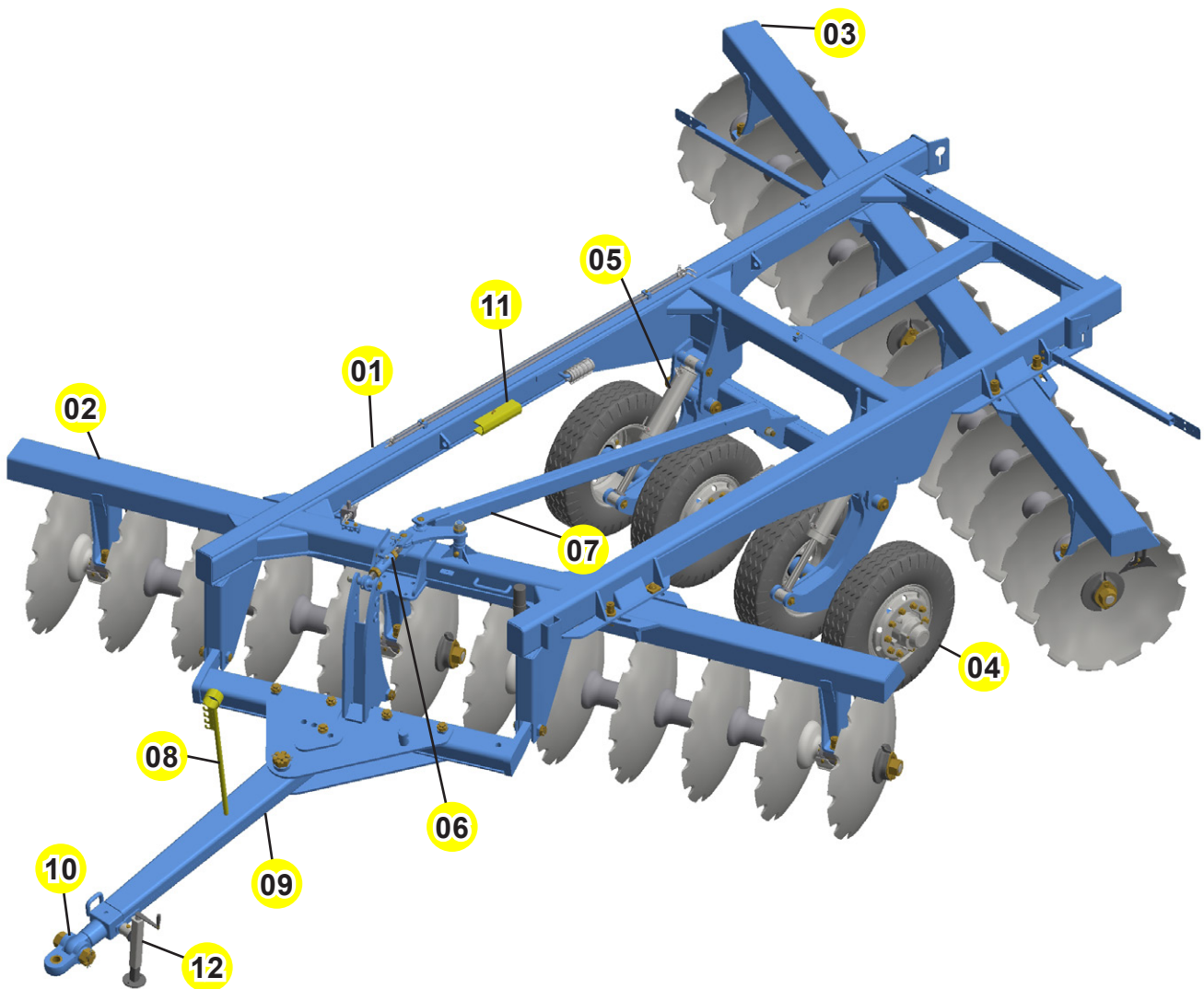




# Components

## GASPCR-EHD 10020 - 16 to 24 disc blades (Mechanical)

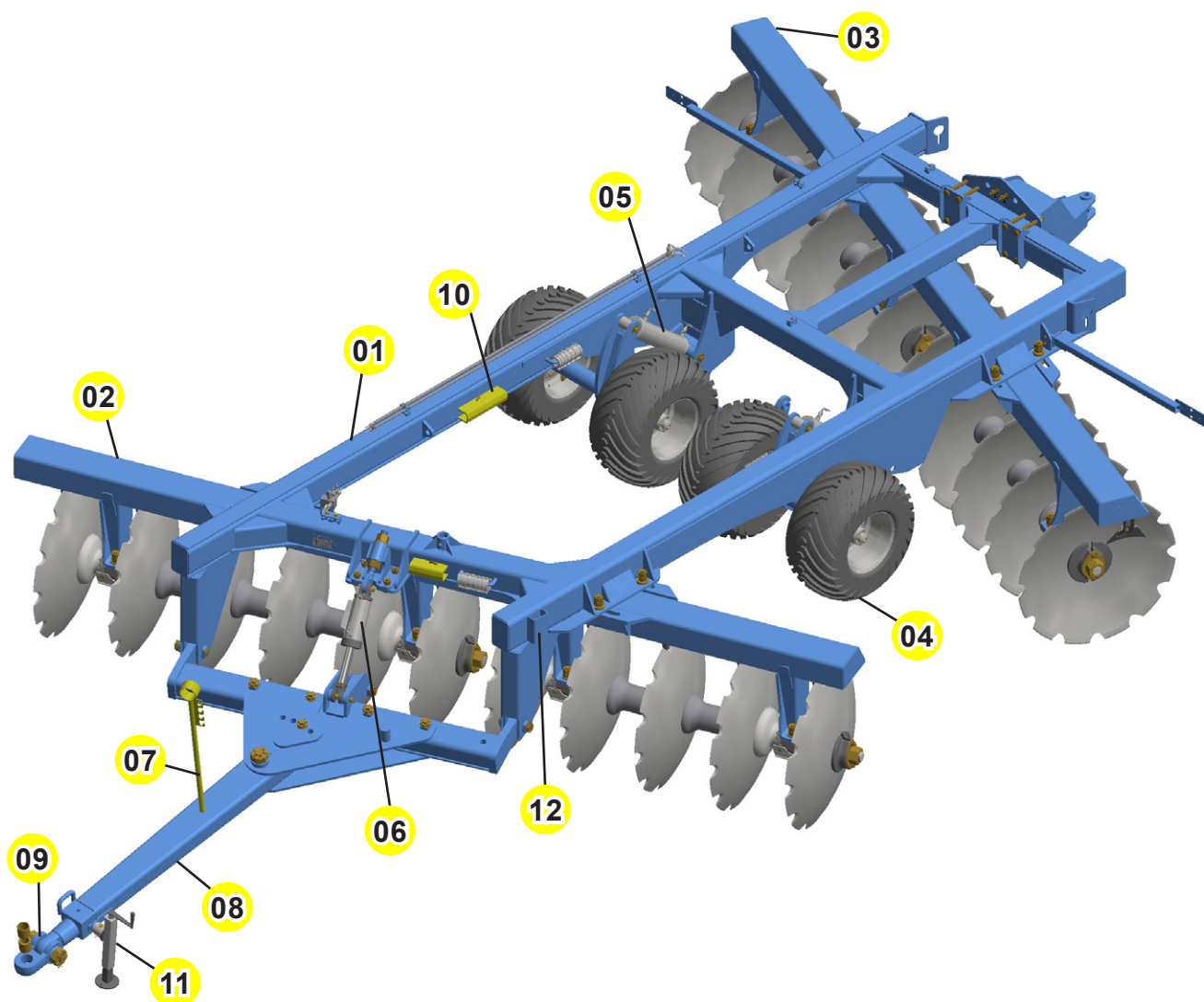
- |                         |                     |
|-------------------------|---------------------|
| 01 - Frame              | 07 - Stabilizer bar |
| 02 - Front disc gang    | 08 - Hose support   |
| 03 - Rear disc gang     | 09 - Drawbar        |
| 04 - Wheelset system    | 10 - Tractor hitch  |
| 05 - Hydraulic cylinder | 11 - Transport lock |
| 06 - Stabilizer         | 12 - Parking jack   |



# Components

## GASPCR-EHD 10020 - 16 to 24 disc blades (Hydraulic)

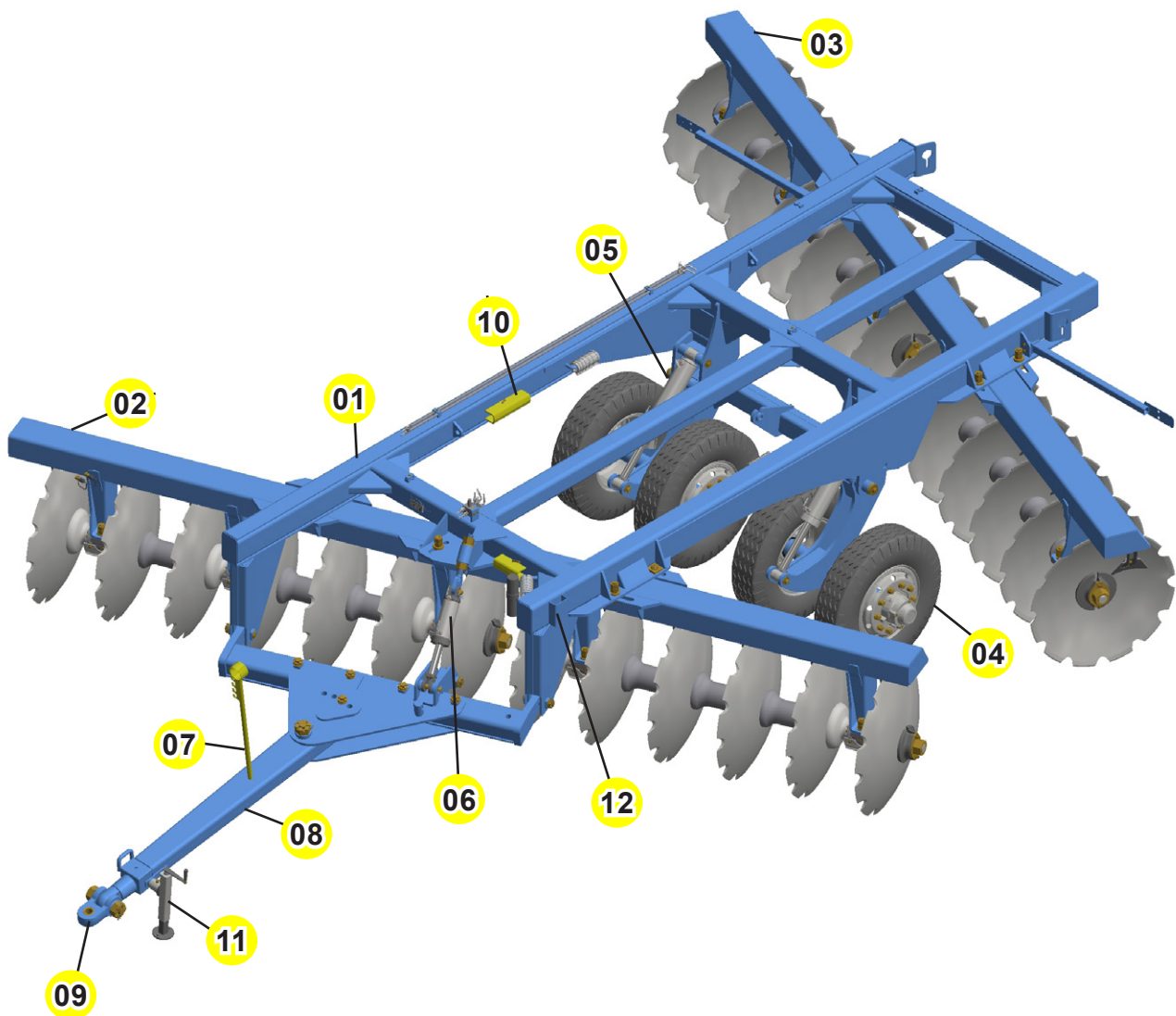
- |                          |                       |
|--------------------------|-----------------------|
| 01 - Frame               | 07 - Hose support     |
| 02 - Front disc gang     | 08 - Drawbar          |
| 03 - Rear disc gang      | 09 - Tractor hitch    |
| 04 - Wheelset system     | 10 - Transport lock   |
| 05 - Hydraulic cylinder  | 11 - Parking jack     |
| 06 - Stabilizer cylinder | 12 - Wrenches support |



# Components

## GASPCR-EHD 10020 - 26 disc blades (Hydraulic)

- |                          |                       |
|--------------------------|-----------------------|
| 01 - Frame               | 07 - Hose support     |
| 02 - Front disc gang     | 08 - Drawbar          |
| 03 - Rear disc gang      | 09 - Tractor hitch    |
| 04 - Wheelset system     | 10 - Transport lock   |
| 05 - Hydraulic cylinder  | 11 - Parking jack     |
| 06 - Stabilizer cylinder | 12 - Wrenches support |

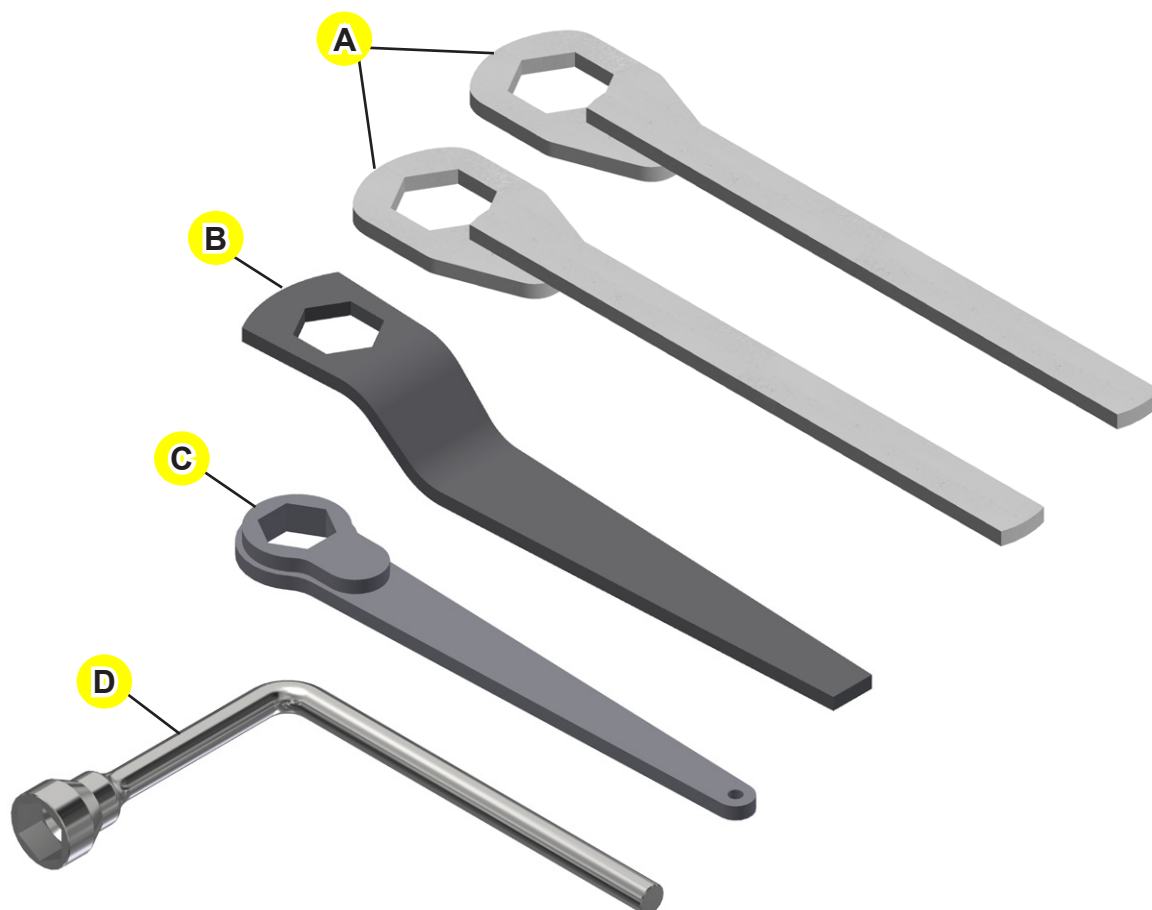


# Assembly

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) to tighten the nuts of the disc gang, being one to hold the axle nut on one side while the other tightens the nut to the other end, thereby preventing the axle from rotating.
- Use the box end wrench (B) to tighten the nuts on the traction unit.
- Use the box end wrench (C) to tighten the nuts on the bolts that fasten the disc carriers to the frame.
- Use the L shaped socket wrench (D) to tighten the nuts on the bearing bolts.



**NOTE/** We recommend wearing gloves, especially while assembling the disc gangs.

# Assembly

## Assembly of bearings and spacer spools - GAPCR HD 8013



**GAPCR-HD 8013**  
21 disc blades  
8 bearings  
9 spacer spools



**GAPCR-HD 8013**  
23 disc blades  
8 bearings  
11 spacer spools



**GAPCR-HD 8013**  
25 disc blades  
8 bearings  
13 spacer spools



**GAPCR-HD 8013**  
27 disc blades  
8 bearings  
15 spacer spools



**Bearing**



**Spacer spool**



**Small disc**

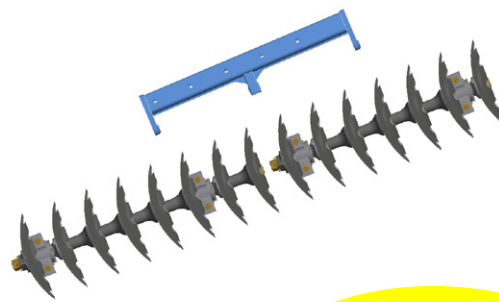


# Assembly

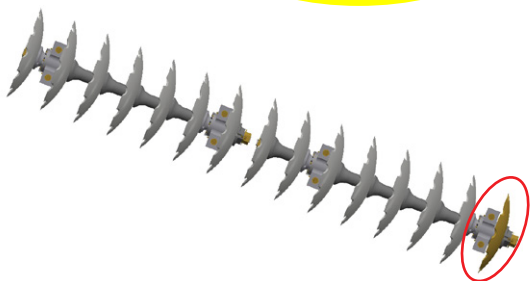
## Assembly of bearings and spacer spools - GAPCR-HD 8013



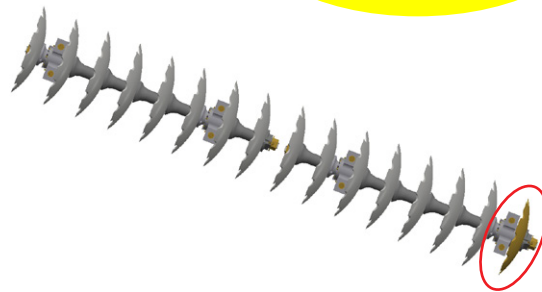
**GAPCR-HD 8013**  
29 disc blades  
8 bearings  
17 spacer spools



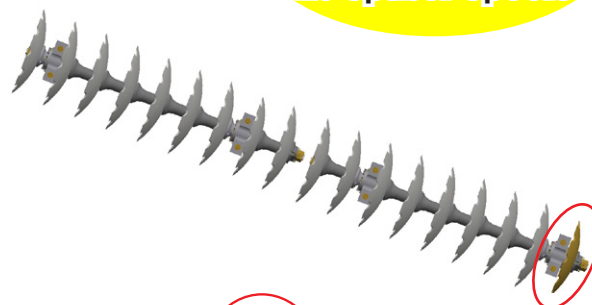
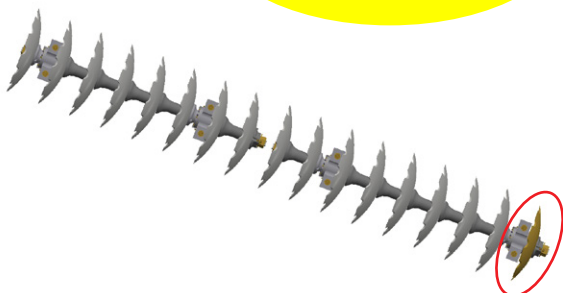
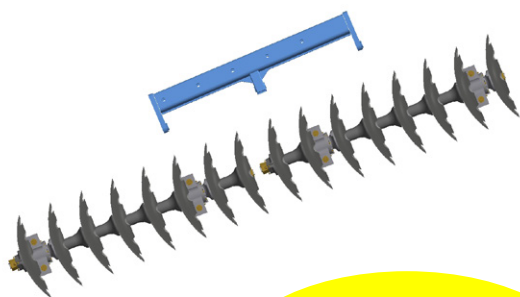
**GAPCR-HD 8013**  
31 disc blades  
8 bearings  
19 spacer spools



**GAPCR-HD 8013**  
33 disc blades  
8 bearings  
21 spacer spools



**GAPCR-HD 8013**  
35 disc blades  
8 bearings  
23 spacer spools



**Bearing**



**Spacer spool**



**Small disc**

# Assembly

## Assembly of bearings and spacer spools GAPCR-HD 8013



**GAPCR-HD 8013**  
37 disc blades  
12 bearings  
19 spacer spools



**GAPCR-HD 8013**  
39 disc blades  
12 bearings  
21 spacer spools



**GAPCR-HD 8013**  
41 disc blades  
12 bearings  
23 spacer spools



**GAPCR-HD 8013**  
45 disc blades  
12 bearings  
27 spacer spools



**Bearing**



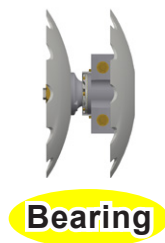
**Spacer spool**



**Small disc**

# Assembly

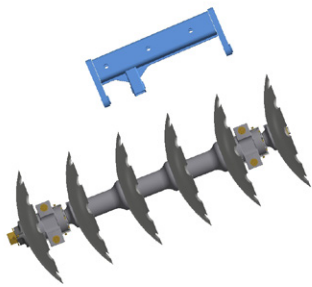
## Assembly of bearings and spacer spools - GAPCRHD 8013 (Folding wings)





# Assembly

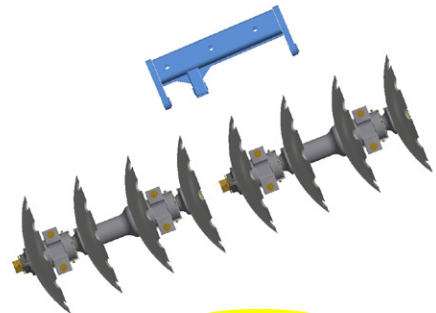
## Assembly of bearings and spacer spools GASPCR HD 9017 and GASPCR EHD 10020



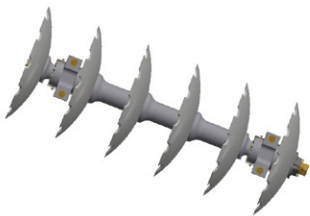
**12 disc blades  
4 bearings  
6 spacer spools**



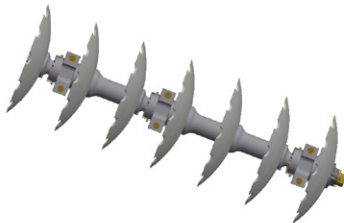
**14 disc blades  
6 bearings  
6 spacer spools**



**16 disc blades  
8 bearings  
4 spacer spools**



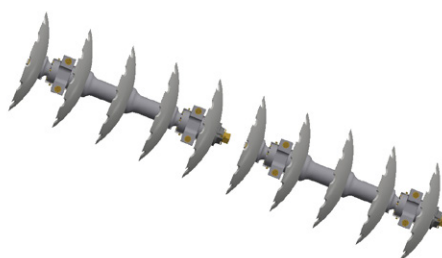
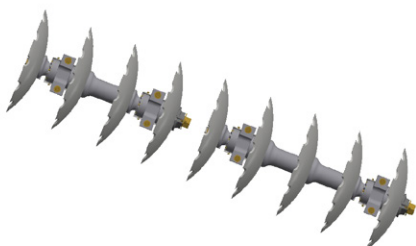
**18 disc blades  
8 bearings  
6 spacer spools**



**20 disc blades  
8 bearings  
8 spacer spools**



**Bearing**



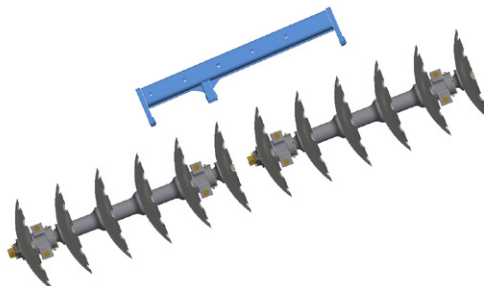
**Spacer spool**

# Assembly

## Assembly of bearings and spacer spools GASPCR HD 9017 and GASPCR EHD 10020



**22 disc blades  
8 bearings  
10 spacer spools**



**24 disc blades  
8 bearings  
12 spacer spools**



**GASPCR-HD 9017  
26 disc blades  
8 bearings  
14 spacer spools**



**GASPCR-EHD 10020  
26 disc blades  
10 bearings  
12 spacer spools**



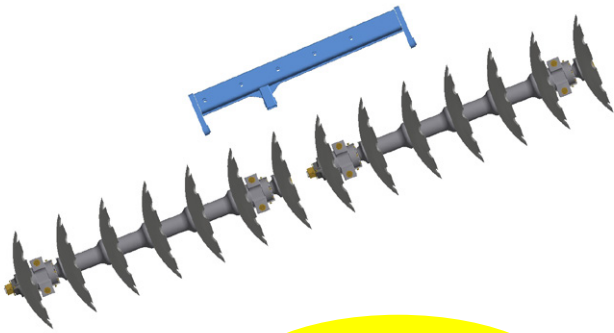
**Bearing**



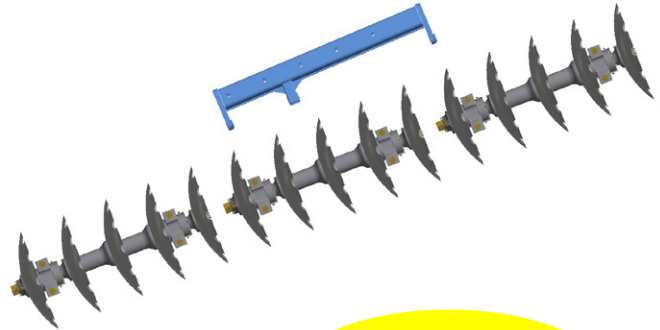
**Spacer spool**

# Assembly

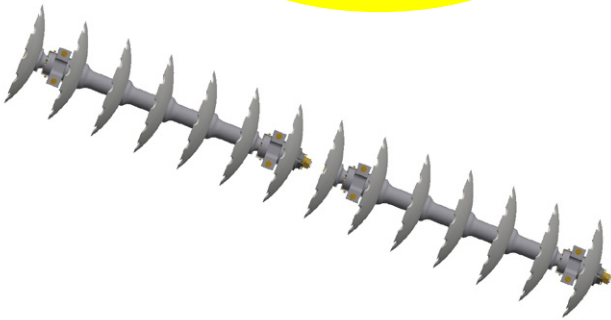
## Assembly of bearings and spacer spools - GASPCR HD 9017



**28 disc blades  
8 bearings  
16 spacer spools**



**30 disc blades  
12 bearings  
12 spacer spools**



**32 disc blades  
12 bearings  
14 spacer spools**



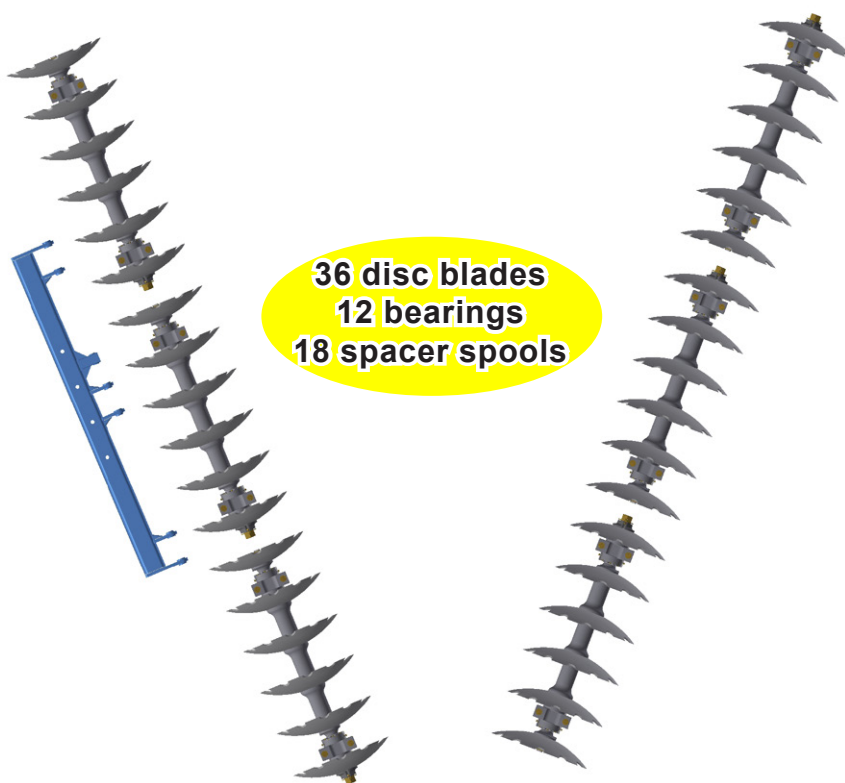
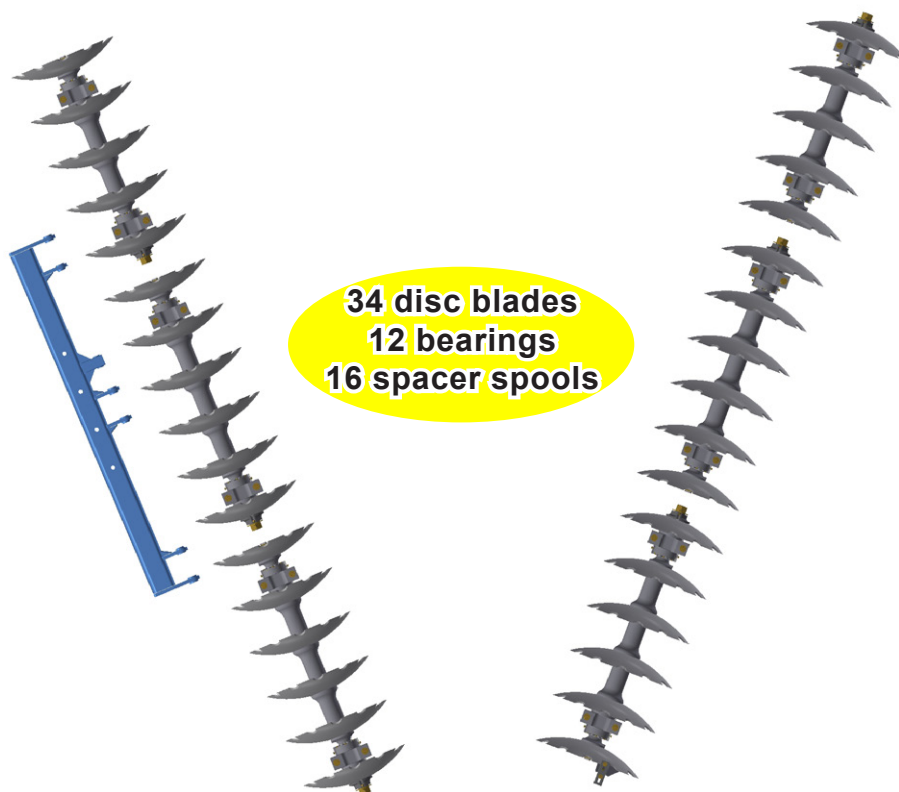
**Bearing**



**Spacer spool**

# Assembly

## Assembly of bearings and spacer spools - GASPCR HD 9017



Bearing



Spacer spool

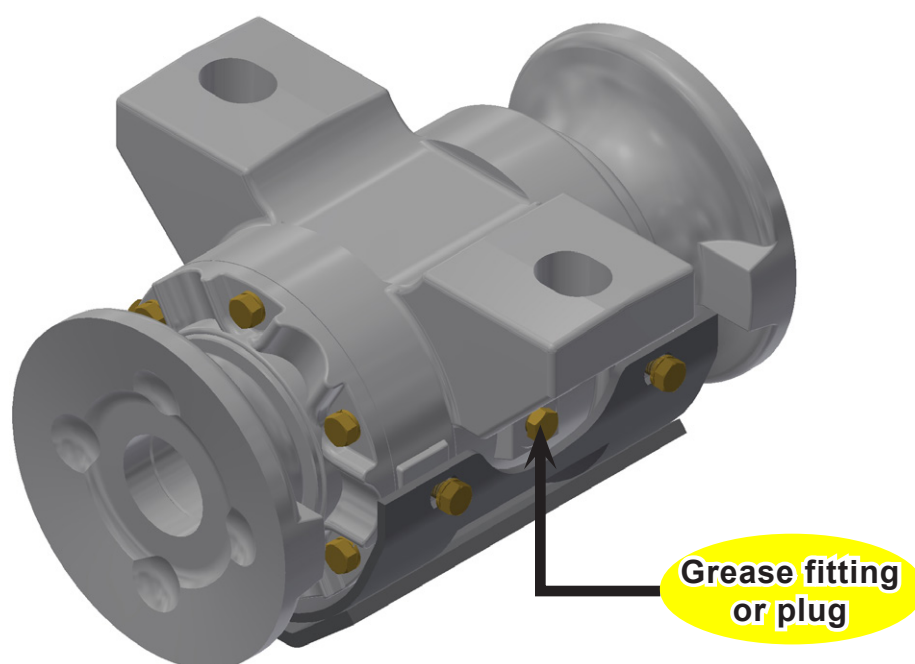
# Assembly

## 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 the other nut (C-1).
- Place the bolt (H) that fasten the nut lock (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 on 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 with a piece of wood or another object, preventing them from moving (As shown on the next page).
- Lastly, place the bolt (H-1) and position the lock nut (I-1), fastening with a spring washer and nut.

### IMPORTANT

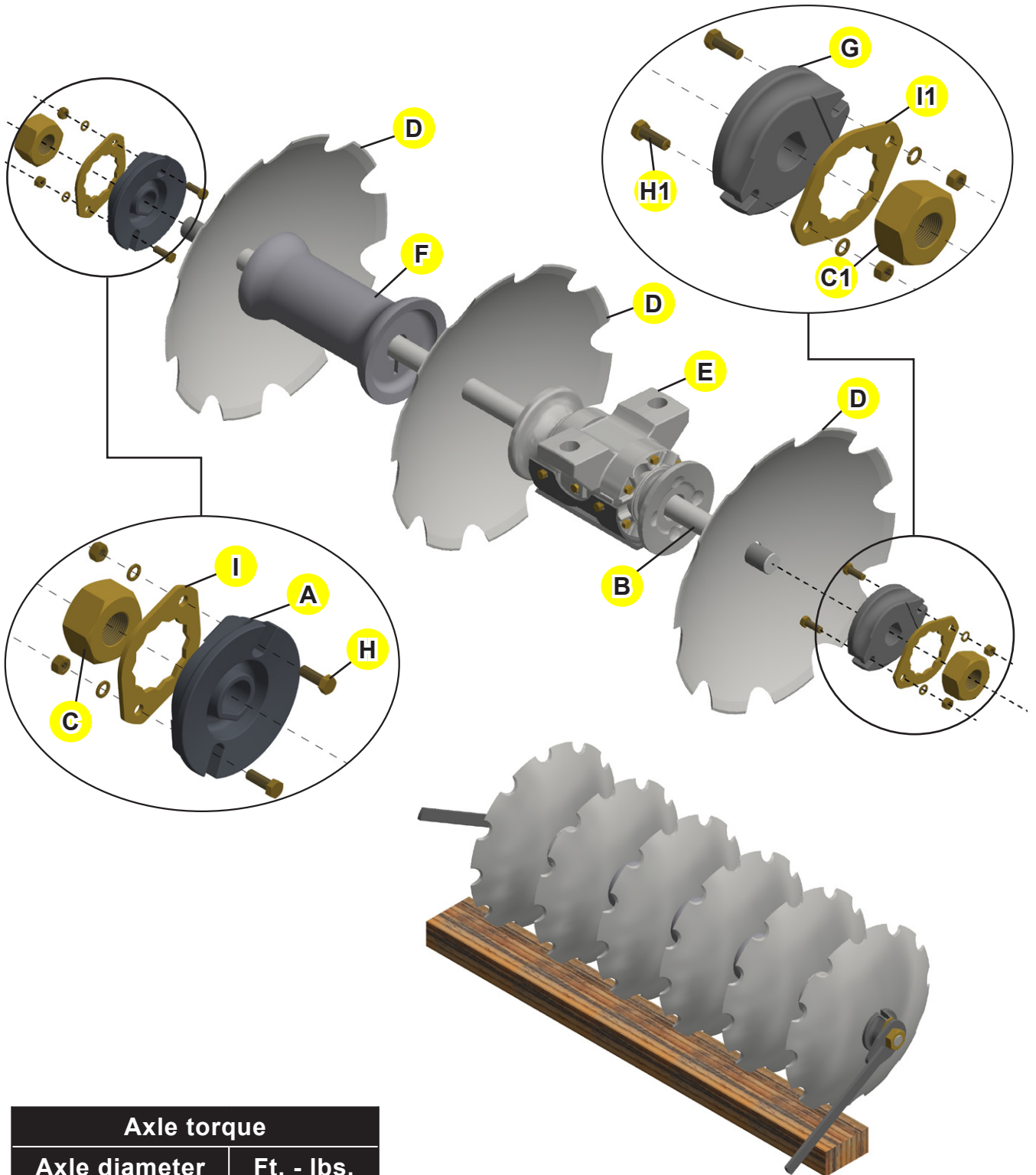
Check the correct side of the bearings and spacer spools according to the concavity of the disc blades.





# Assembly

## Disc gangs assembly sequence



Axle torque	
Axle diameter	Ft. - lbs.
1.1/2"	2670
1.5/8"	2890
2.1/8"	3300
2.1/2"	3500

**NOTE** / The axle threads (B) should be cleaned and greased before their assembly. Consult the torque table on the 'important data' section.



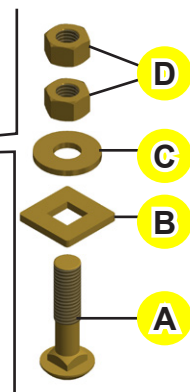
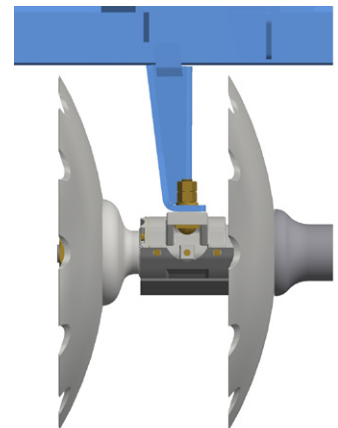
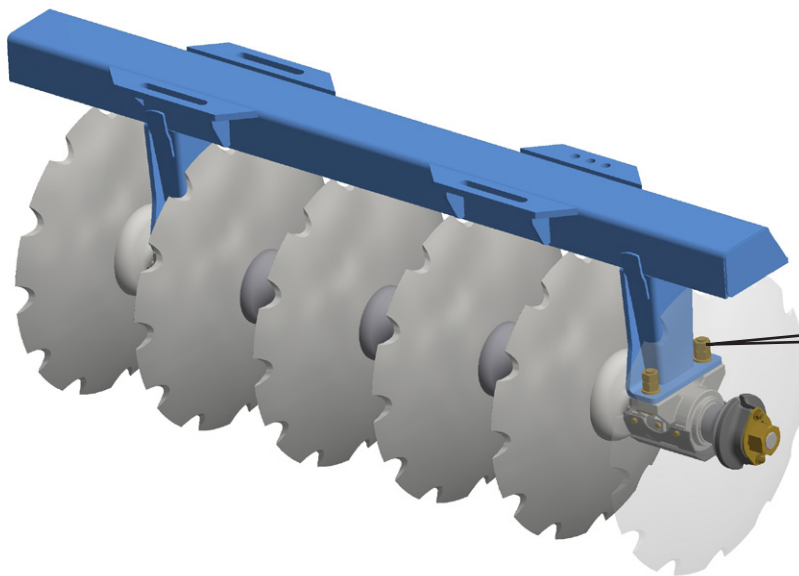
# Assembly

## 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.

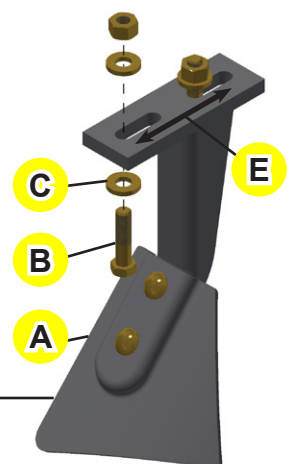
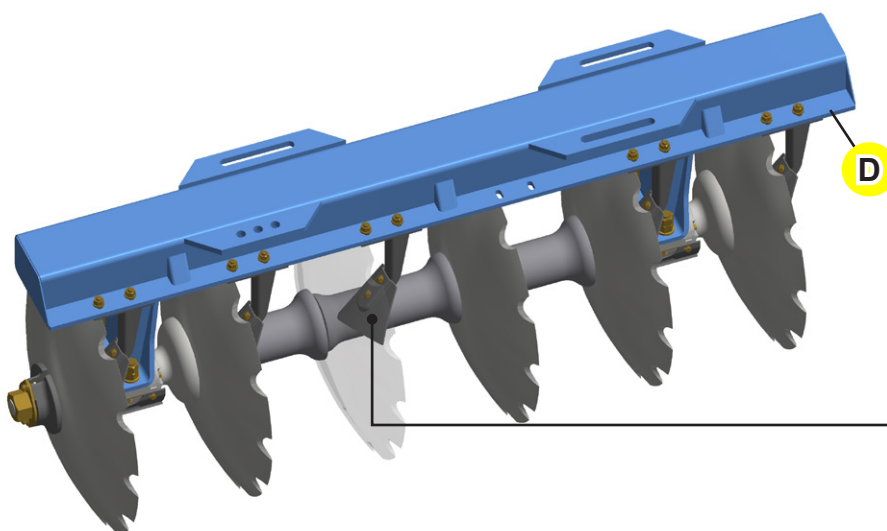
In the gang assembly to the carriers, the bearing hangers should remain facing the disc blades concavity.

To fasten the disc gang to the frame, place a bolt (A) with square washer (B) and pass it through the bearing and the bearing hanger hole. On top, place a flat washer (C) and nuts (D). Repeat this operation for the other bearings.



## 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 a bolt (B) and flat washer (C). The bolt (B) is placed underneath the fixation plate (D). On top, place a flat washer and nut.

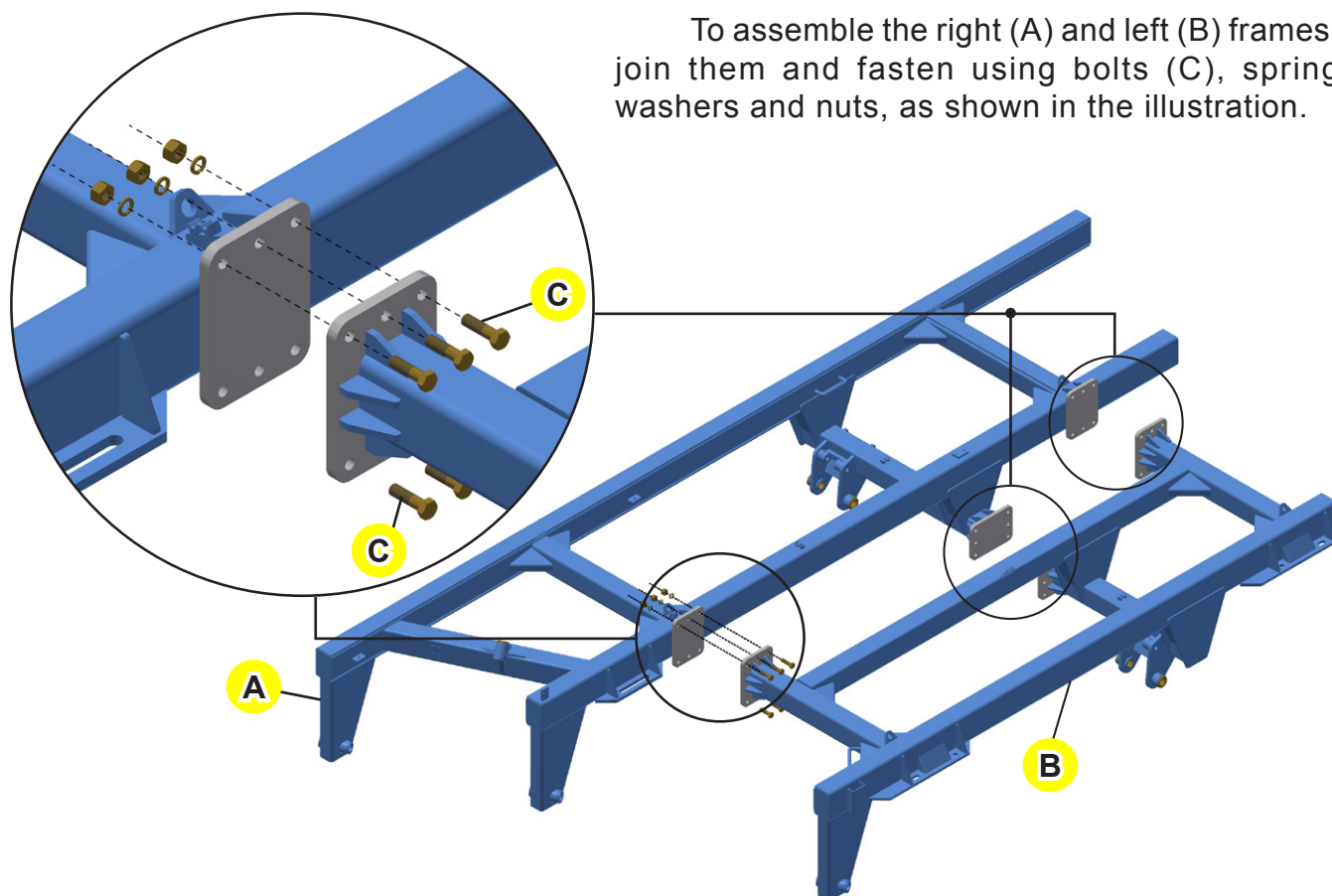


**NOTE** / The scrapers feature an adjustment to approach or distance them from the disc blades, on a range from 5 to 10 mm.

# Assembly

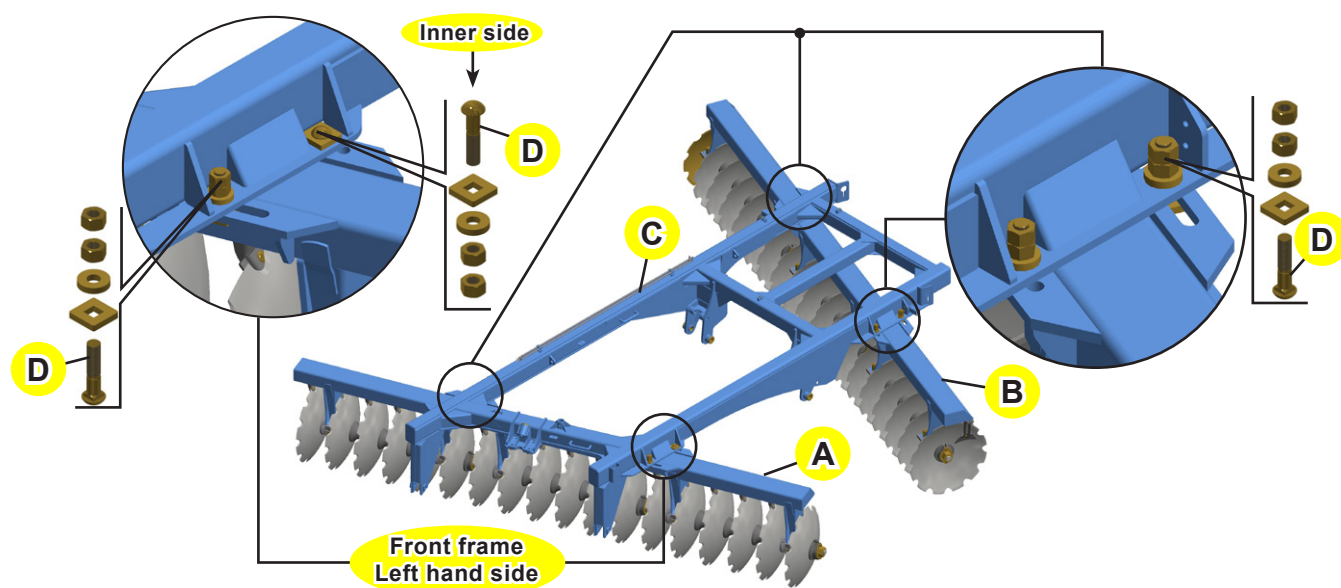
## Frame assembly for the GAPCR HD 8013 (39 to 45 disc blades) and GASPCR HD 9017 (32 to 36 disc blades) models

To assemble the right (A) and left (B) frames, join them and fasten using bolts (C), spring washers and nuts, as shown in the illustration.



## Assembling the disc carrier to the frame

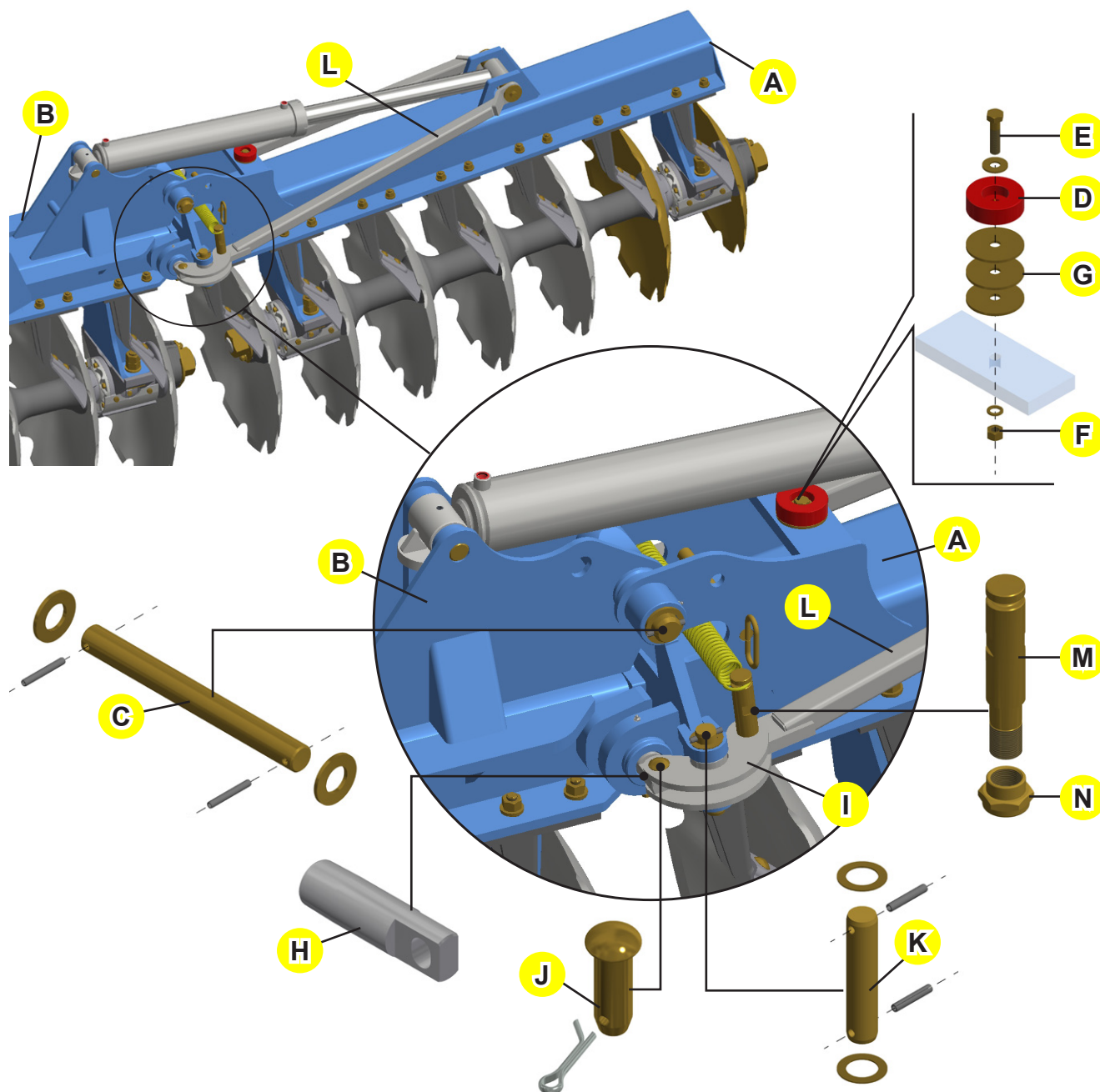
Fasten the front and rear disc gang carriers (A and B) to the frame (C) using bolts (D), washers and nuts. All bolts are placed from bottom to top, except the one that is the inner bolt on the left hand side of the front frame, which must be assembled from top to bottom.



# Assembly

## Folding wings - GAPCR HD 8013 (41 to 49 disc blades)

Approach the folding wing (A) to the central frame (B). Right after, fasten them using a pin (C), flat washers and elastic pins. Assemble the shock absorber (D) to the frame (A) using a bolt (E), flat washer, spring washer and nut (F). Use the spacing flat washers (G) to adjust the shock absorber (D) height.



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

Lock the activation arm (L) to the articulation lock (I) using an axle lock, spring fastener (M) and nut (N).

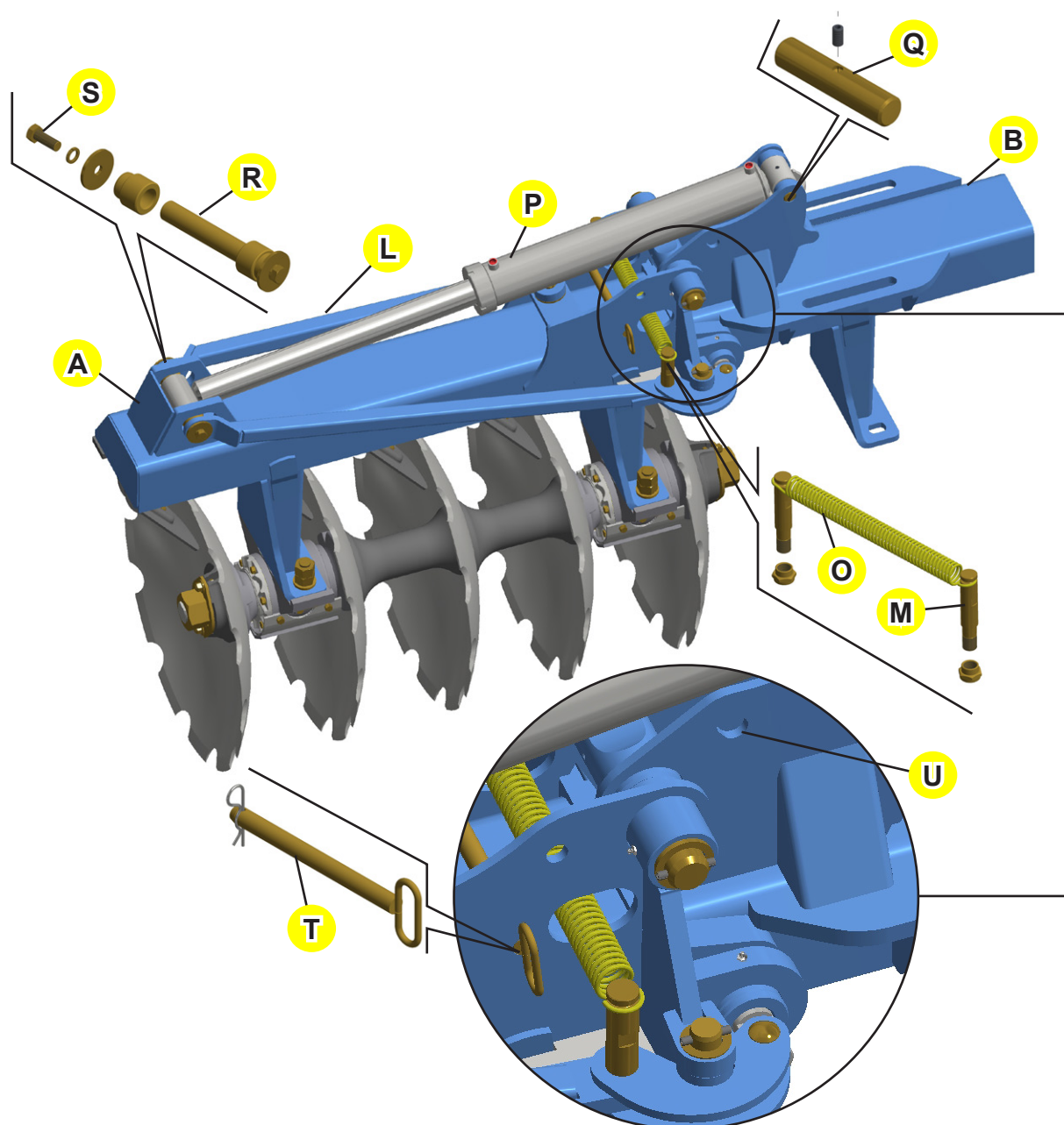
Repeat the same procedure on the other side of the frame.

# Assembly

## Folding wings - GAPCR HD 8013 (41 to 49 disc blades)

Assemble the spring (O) passing it through the folding wing (A) and fastening on the axle locks and spring fastener (M).

Couple the hydraulic cylinder (P) to the central frame (B) using a pin (Q) and bolt. Fasten the cylinder rod end to the folding wing (A) using a pivot axle (R), bushings, flat washers, spring washers and bolts (S); also lock the cylinder and the activation arms (L).



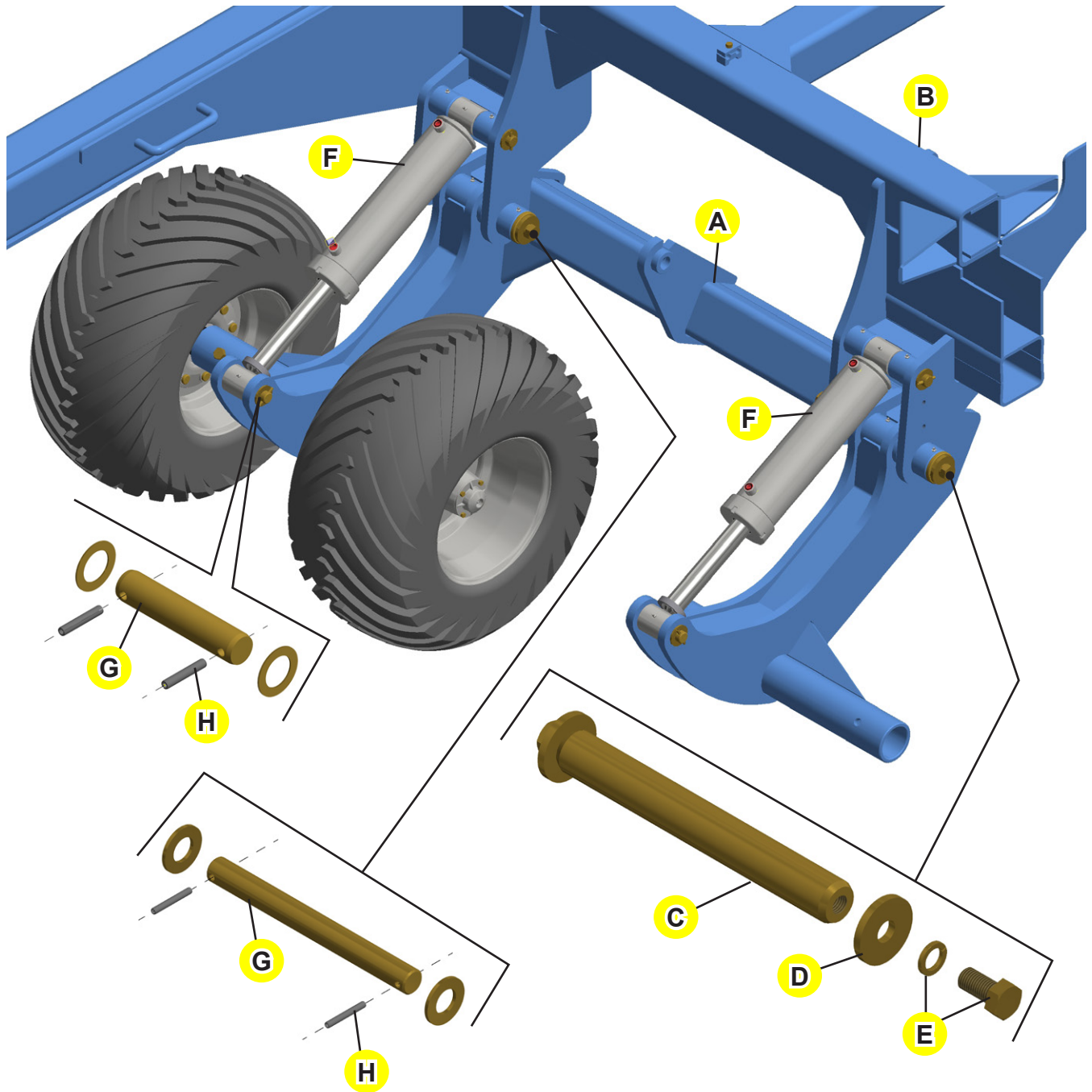
**NOTE** The lock pin (T) is used only for locking the folding wing (A) with the central frame (B) through the hole (U) to transport the equipment.



# Assembly

## Wheelset

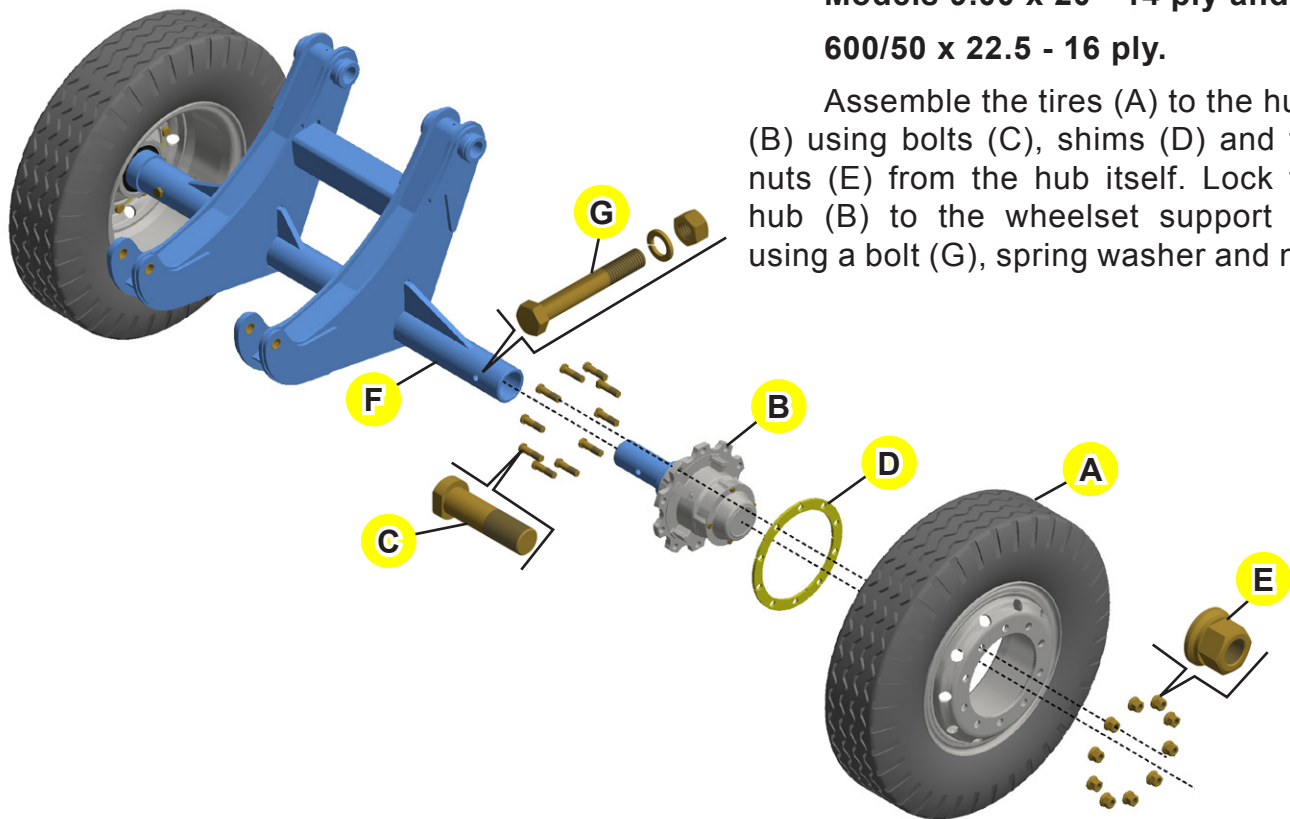
Lock the wheelset (A) to the frame (B) using a junction axle (C), flat washers (D), spring washers and bolts (E). Then, fasten the cylinders (F) to the wheelset (A) and lock using articulation axles (G), flat washer and elastic pins (H).



**NOTE** The cylinder rods must be facing the front part of the equipment and the hose connectors must be facing up.

# Assembly

## Tires

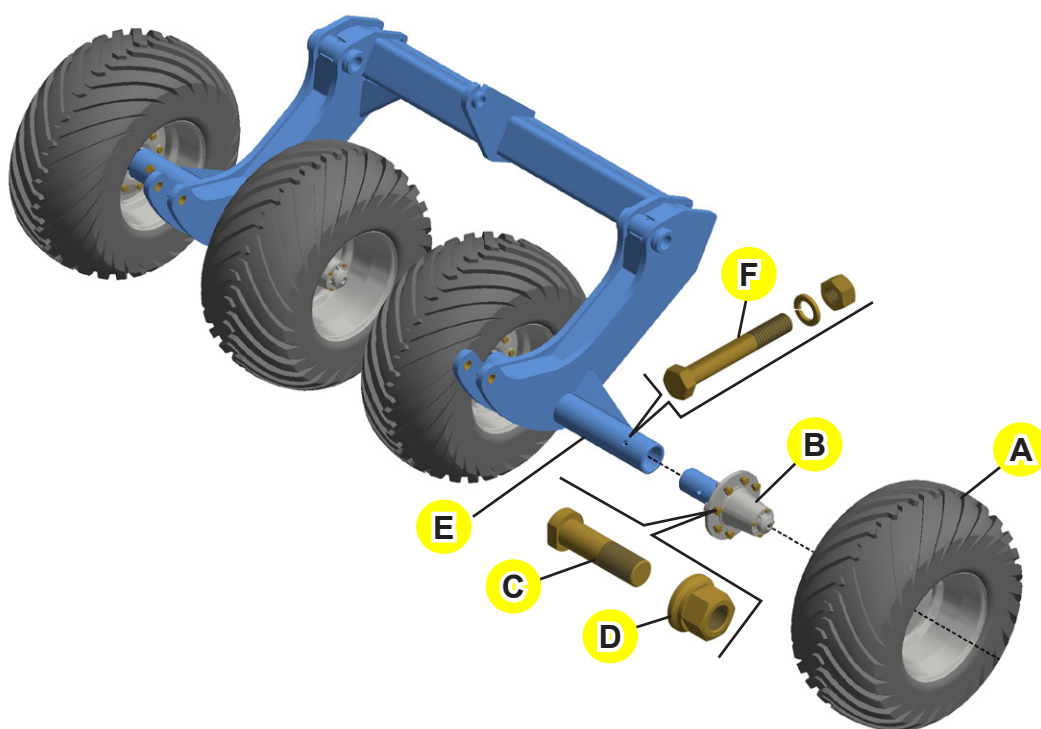


**Models 9.00 x 20 - 14 ply and  
600/50 x 22.5 - 16 ply.**

Assemble the tires (A) to the hubs (B) using bolts (C), shims (D) and the nuts (E) from the hub itself. Lock the hub (B) to the wheelset support (F) using a bolt (G), spring washer and nut.

**Model 400/60 x 15.5 - 14 ply.**

Assemble the tires (A) to the hubs (B) using bolts (C) and nuts (D) from the hub itself. Lock the hub (B) to the wheelset support (E) using bolt (F), spring washer and nut.





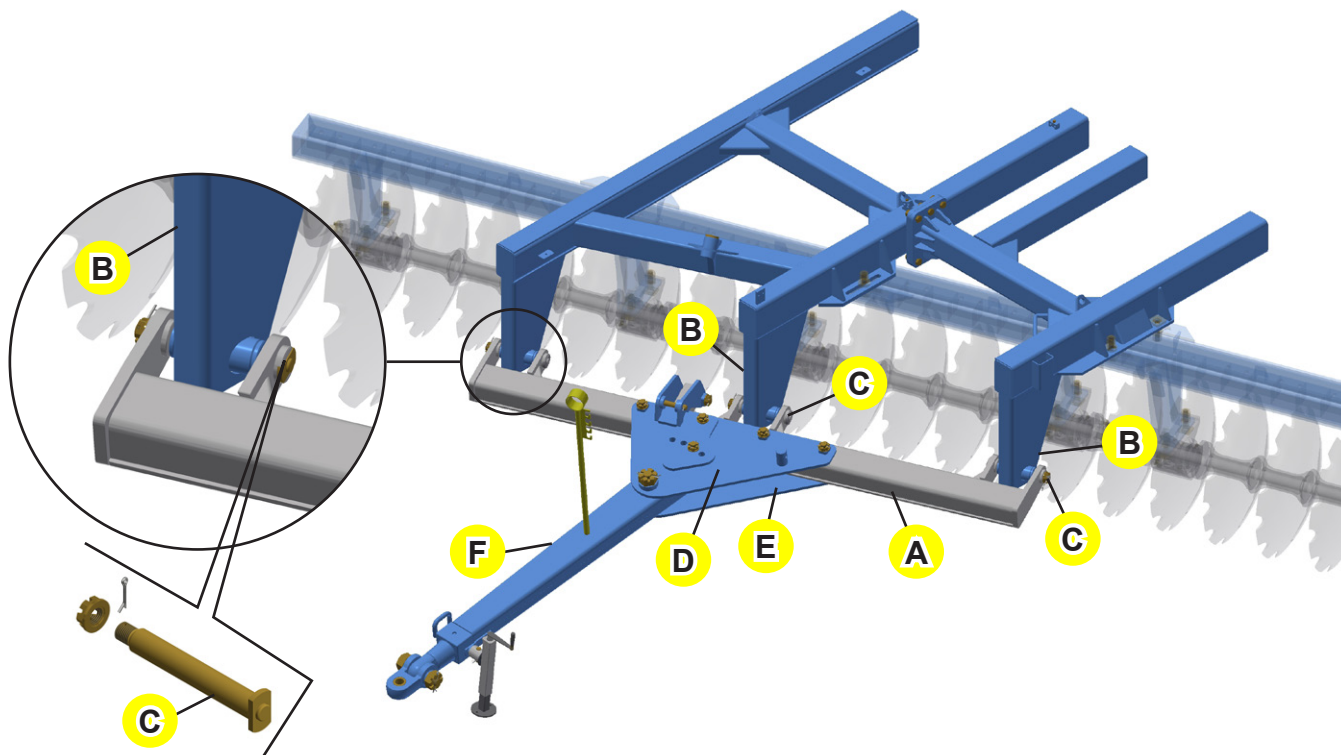
# Assembly

## Traction set

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

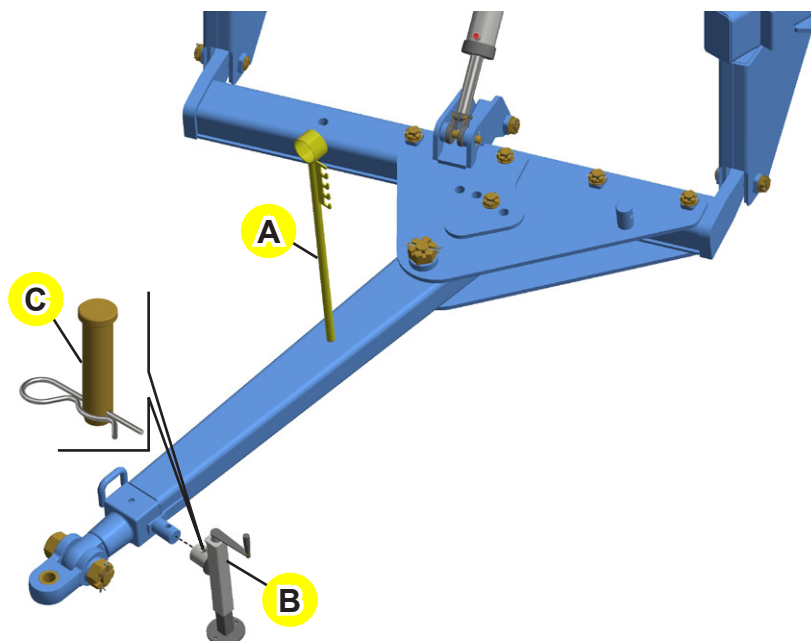
Assemble the upper (D) and lower (E) plates checking their correct position. Avoid to assemble them inverted.

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



## Hose support and parking jack assembly

Assemble the hose support (A) and the parking jack (B) using a pin (C) and cotter pin.

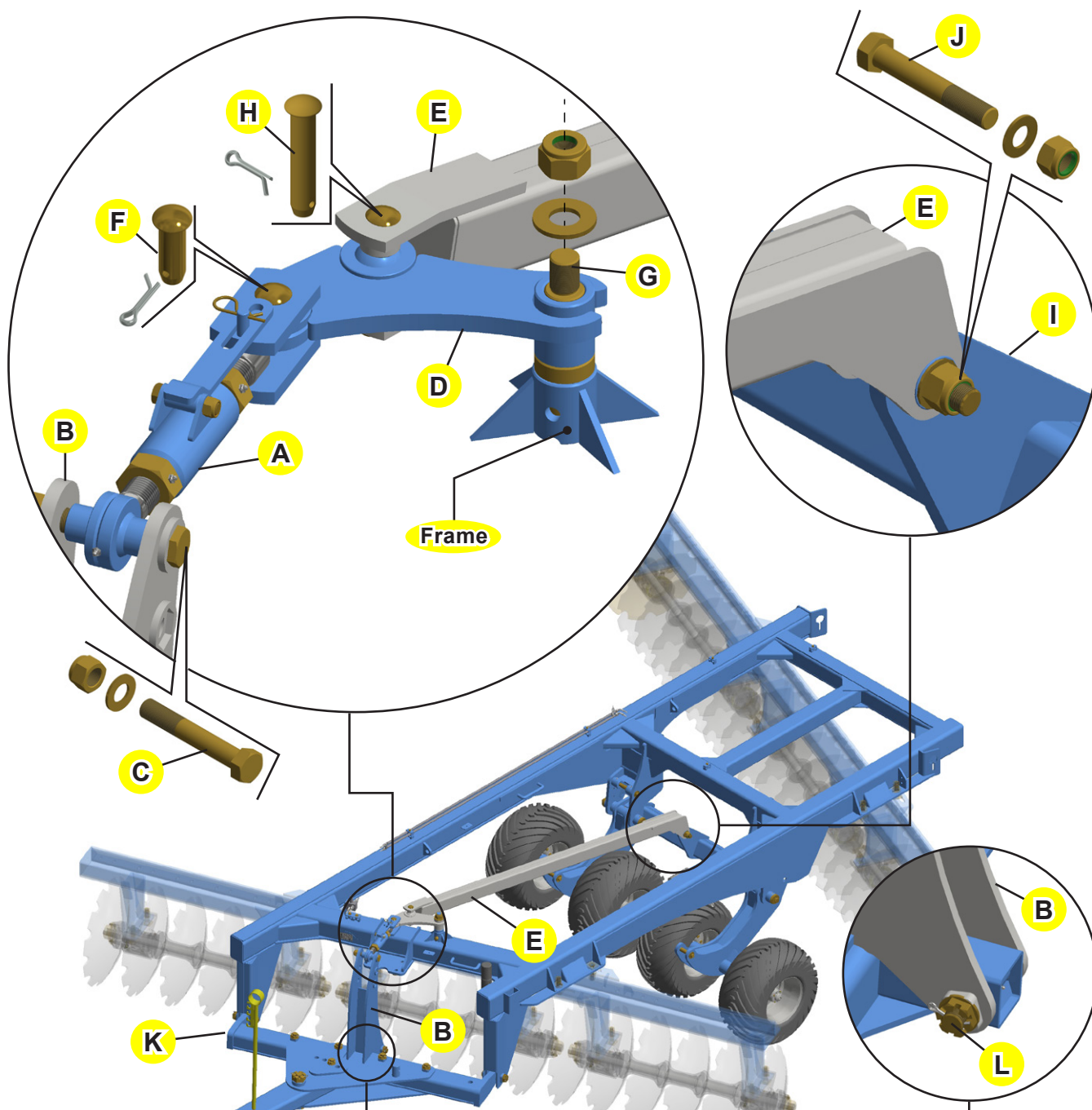


# Assembly

## Mechanical stabilizer bar set

Couple the stabilizer (A) to the drawbar articulator (B) using a bolt (C), flat washer and nut and to the stabilizer bar (E) articulator (D) using a pin and cotter pin (F). Fasten the other end of the articulator (D) on the frame using a pivot axle (G), flat washer and nut.

Fasten one end of the stabilizer bar (E) to the articulator (D) using a pin and cotter pin (H). Lock the other end to the wheelset (I) using a bolt (J), flat washer and nut.



**NOTE** The drawbar articulator (B) is fastened to the hitch bar (K) using a bolt (L), castle nut and cotter pin. When fastening it, make sure to not overtighten the nut to lock the set, so the drawbar will be free to articulate.

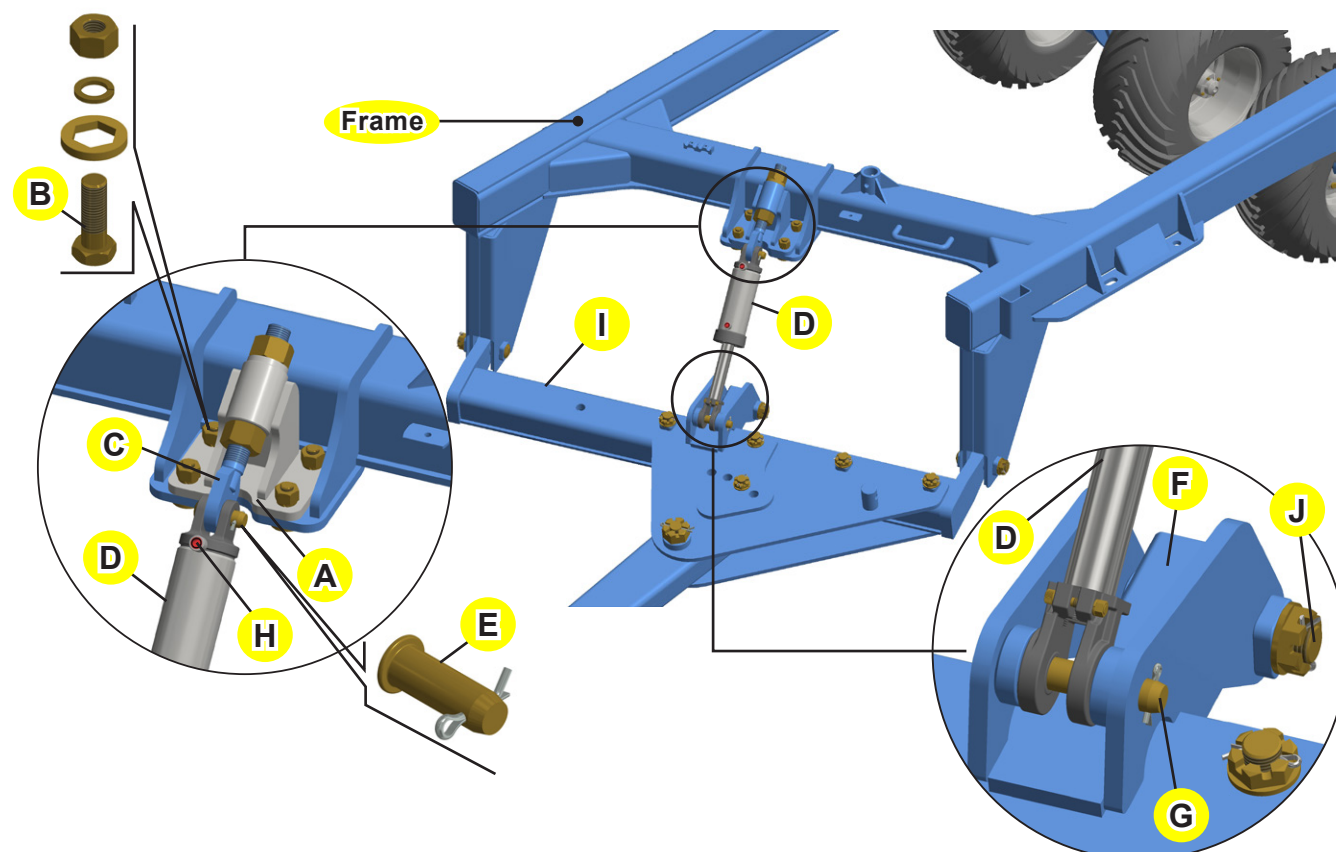
# Assembly

## Hydraulic articulation set

Assemble the cylinder fastener (A) to the frame using a bolt (B), flat washers, spring washer and nut. After that, fasten the adjusting spindle (C) to the fastener (A) using bolts.

Assemble the cylinder (D) to the adjusting spindle (C) using pin and cotter pin (E). Fasten the cylinder rod to the drawbar articulator (F) using a pin and cotter pin (G).

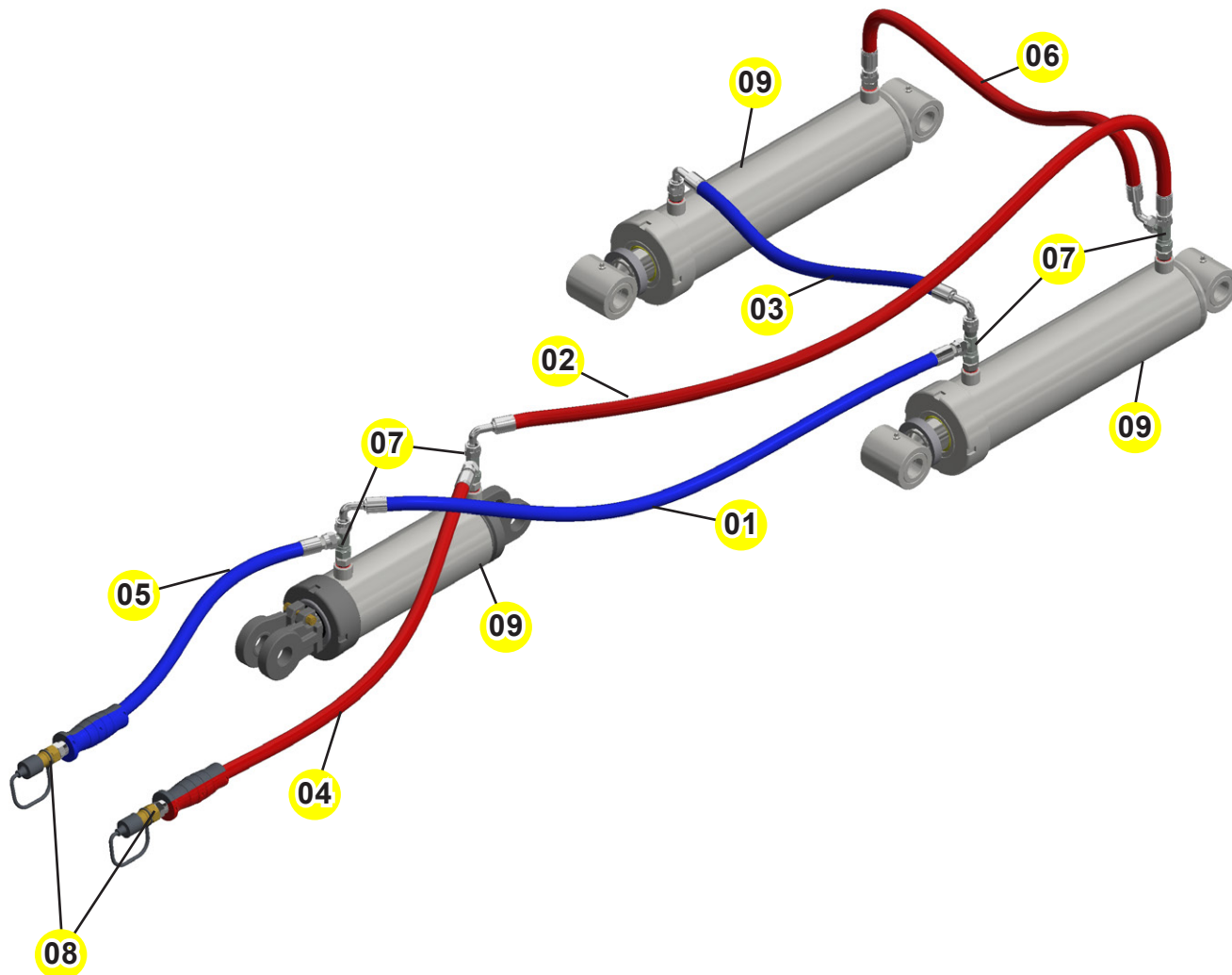
Note that the cylinder rod must remain facing the front part of the equipment and the hose connectors (H) must be facing up.



**NOTE** The drawbar articulator (F) is fastened to the hitch bar (I) using a bolt (J), castle nut and cotter pin. When fastening it, make sure to not overtighten the nut to lock the set, so the drawbar will be free to articulate.

# Assembly

Hydraulic circuit - GAPCR-HD 8013 (21 to 27 disc blades)  
 GASPCR-HD 9017 (12 to 16 disc blades)  
 GASPCR-EHD 10020 (12 and 14 disc blades)



Item	Description		Quantity
01	3/8" X 4000 TR - TC hose	Return	01
02	3/8" X 4700 TR - TC hose	Pressure	01
03	3/8" X 1700 TC - TC hose	Return	01
04	3/8" X 5500 TR - TM hose	Pressure	01
05	3/8" X 5500 TR - TM hose	Return	01
06	3/8" X 1330 TR - TR hose	Pressure	01
07	T male adapter 3/4"		04
08	Male quick coupler 1/2" with cap and grip couplers		02
09	Cylinder		03



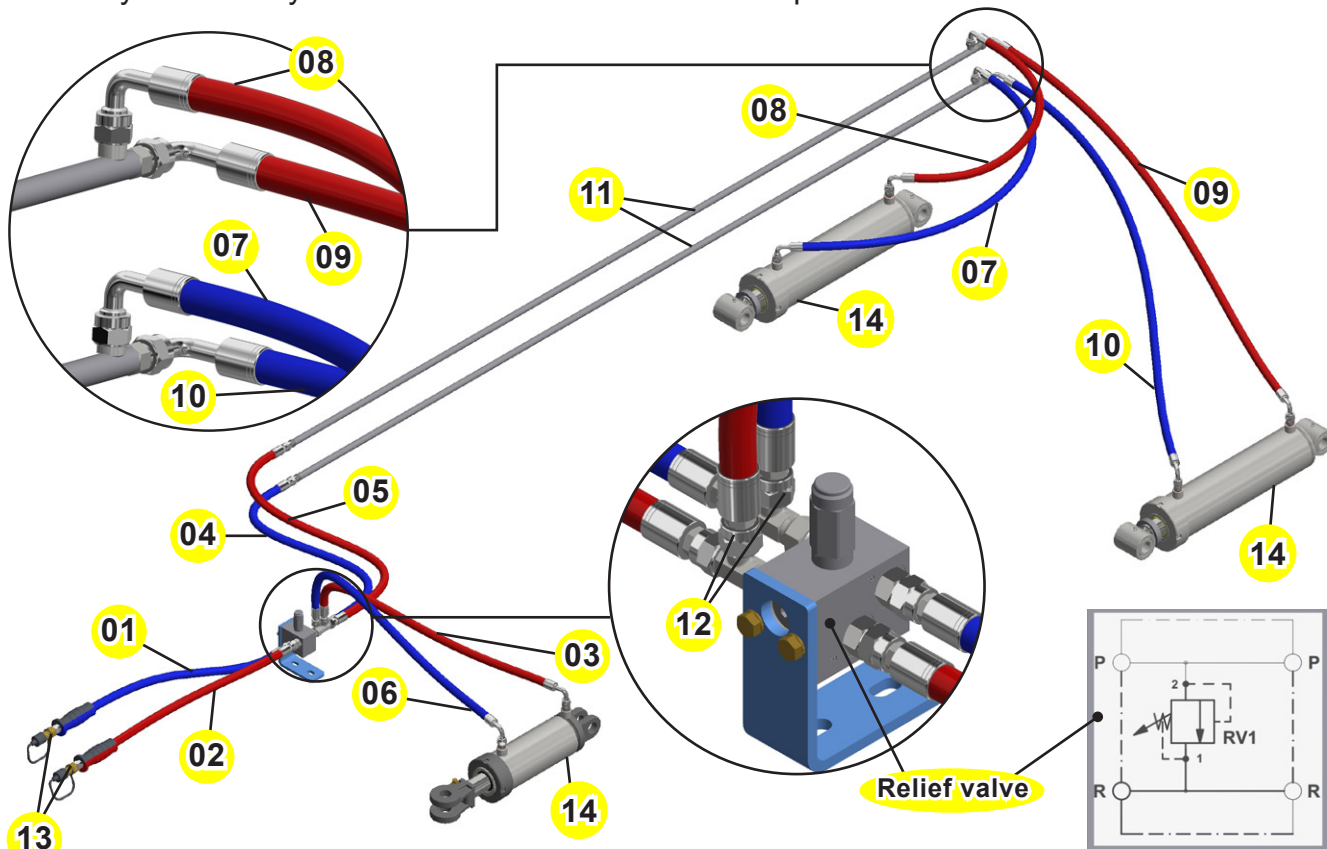
# Assembly

## Hydraulic circuit - GAPCR-HD 8013 (29 to 37 disc blades)

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 rod stops.



**NOTE** The 03, 06 and 14 items are included for the models with hydraulic drawbar articulation only.

Item	Description		Quantity
01	3/8" X 5500 TR - TM hose	Return	01
02	3/8" X 5500 TR - TM hose	Pressure	01
03	3/8" X 1500 TR - TC hose	Pressure	01
04	3/8" X 800 TR - TR hose	Return	01
05	3/8" X 800 TR - TR hose	Pressure	01
06	3/8" X 1300 TR - TC hose	Return	01
07	3/8" X 1000 TC - TC hose	Return	01
08	3/8" X 1200 TC - TC hose	Pressure	01
09	3/8" X 2600 TC - TC hose	Pressure	01
10	3/8" X 2200 TC - TC hose	Return	01
11	Oil distribution duct 2650 (03 outlets R.3/4" JIC)		02
12	T male adapter 3/4"		02
13	Male quick coupler 1/2" with cap and grip couplers		02
14	Cylinder		03

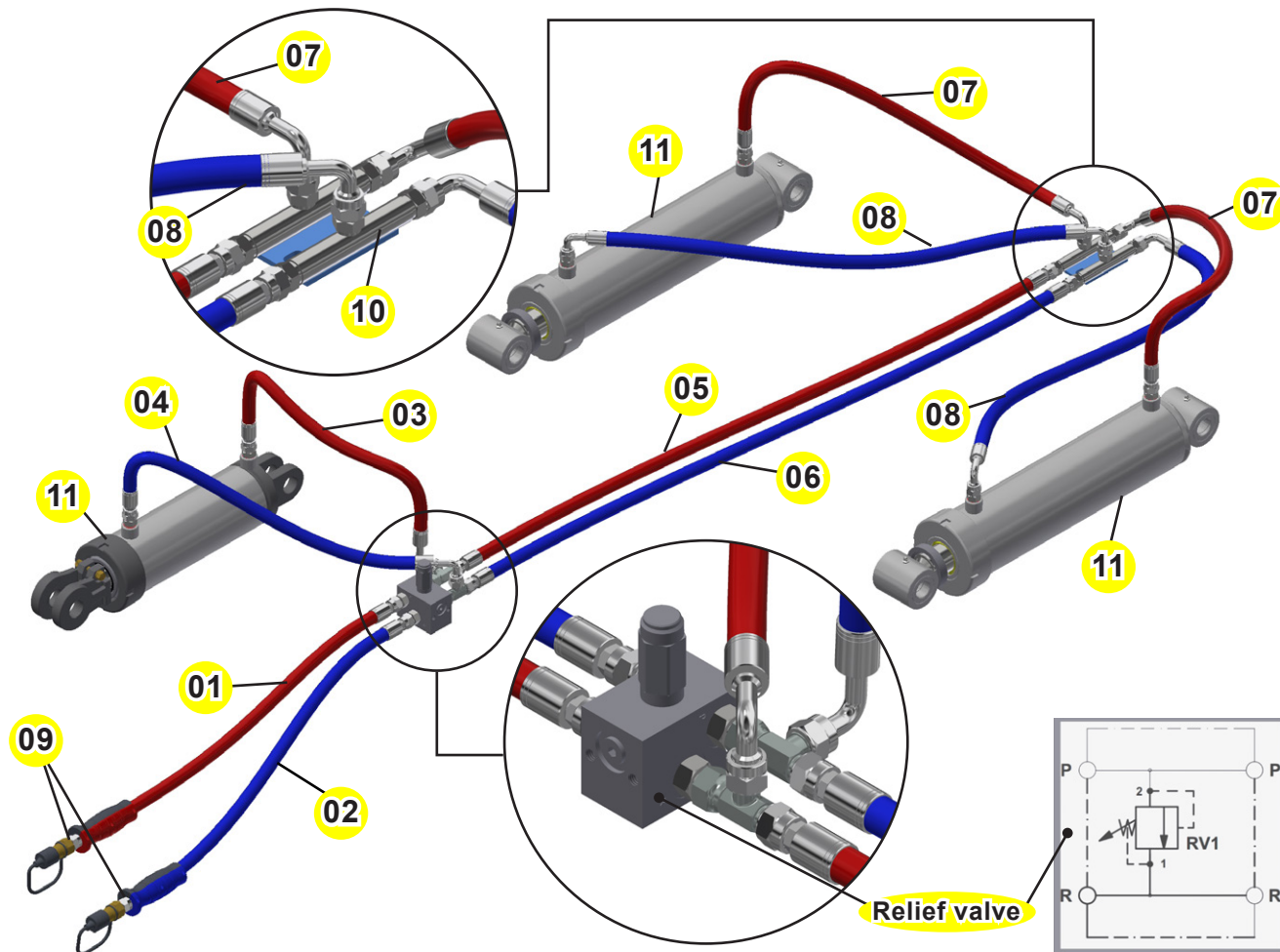
# Assembly

## Hydraulic circuit - GAPCR-HD 8013 (39 to 45 disc blades) GASPCR-HD 9017 (32 to 36 disc blades)

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 rod stops.



Item	Description		Quantity
01	3/8" X 5500 TR - TM hose	Pressure	01
02	3/8" X 5500 TR - TM hose	Return	01
03	3/8" X 650 TR - TC hose	Pressure	01
04	3/8" X 800 TR - TC hose	Return	01
05	3/8" X 3900 TR - TR hose	Pressure	01
06	3/8" X 3900 TR - TR hose	Return	01
07	3/8" X 1800 TR - TC hose	Pressure	02
08	3/8" X 2200 TC - TC hose	Return	02
09	Male quick coupler 1/2" with cap and grip couplers		02
10	Double connection		01
11	Cylinder		03



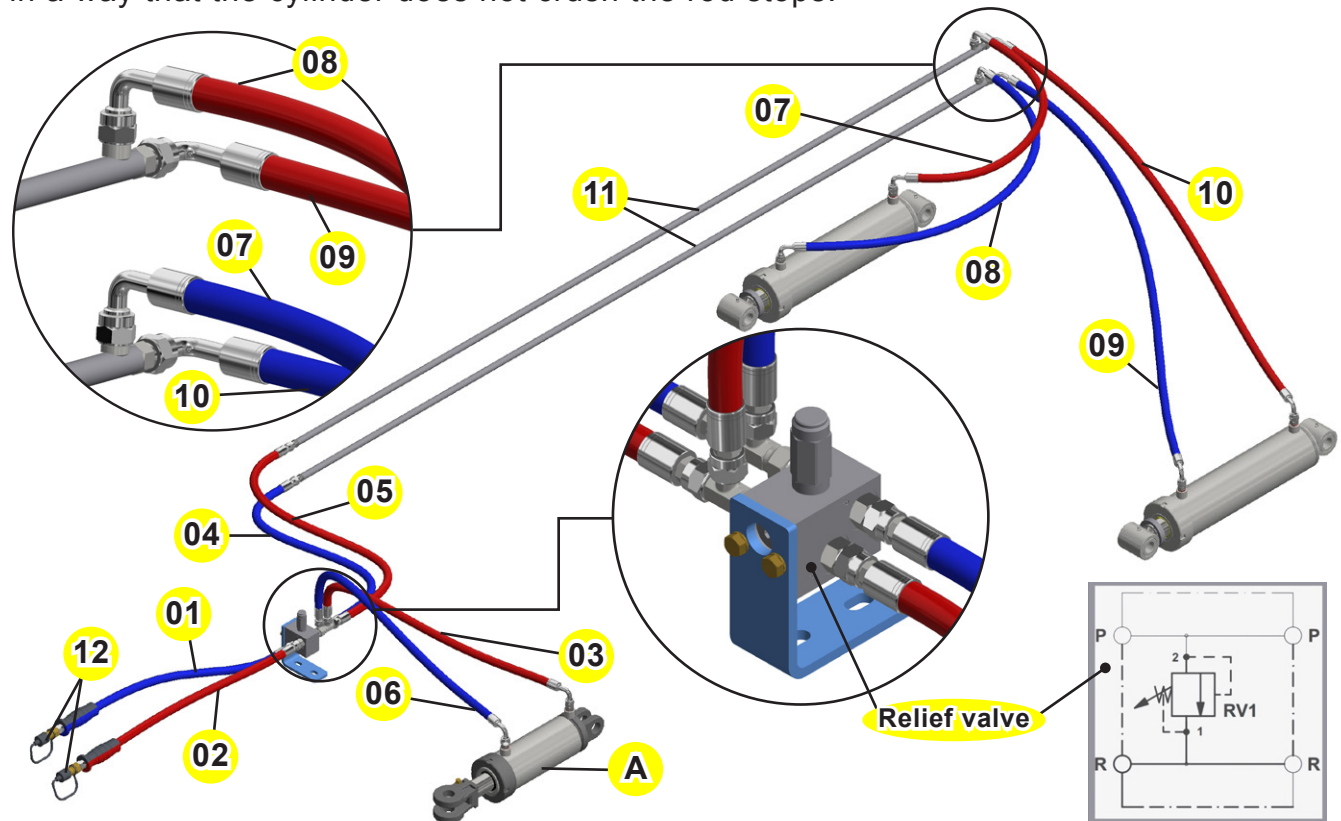
# Assembly

## Hydraulic circuit with folding wing GAPCR-HD 8013 (41 to 49 disc blades) - Wheelset system

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 rod stops.

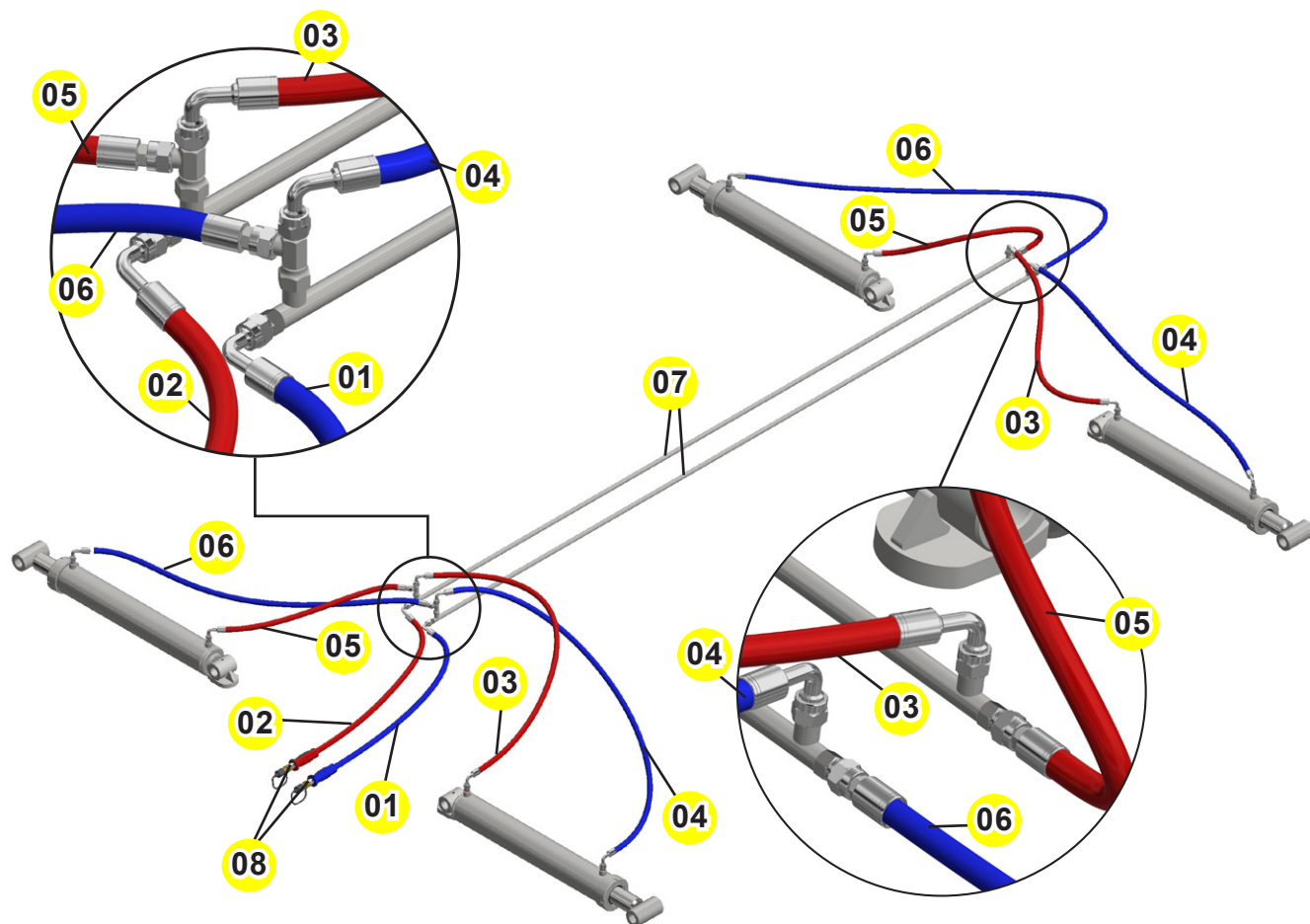


**NOTE** The 03 and 06 items and the cylinder (A) are included for the models with hydraulic drawbar articulation only.  
Check the hydraulic circuit of the folding wing on the next page.

Item	Description		Quantity
01	3/8" X 5500 TR - TM hose	Return	01
02	3/8" X 5500 TR - TM hose	Pressure	01
03	3/8" X 1500 TR - TC hose	Pressure	01
04	3/8" X 800 TR - TR hose	Return	01
05	3/8" X 800 TR - TR hose	Pressure	01
06	3/8" X 1300 TR - TC hose	Return	01
07	3/8" X 1000 TC - TC hose	Pressure	01
08	3/8" X 1200 TC - TC hose	Return	01
09	3/8" X 2600 TC - TC hose	Return	01
10	3/8" X 2200 TC - TC hose	Pressure	01
11	Oil distribution duct 2650 (03 outlets R.3/4"JIC)		02
12	Male quick coupler 1/2" with cap and grip couplers		02

# Assembly

## Hydraulic circuit with folding wings GAPCR-HD 8013 (41 to 49 disc blades) - Folding system



**NOTE** / Check the wheelset hydraulic circuit on the previous page.

Item	Description		Quantity
01	3/8" X 6100 TC - TM hose	Return	01
02	3/8" X 6100 TC - TM hose	Pressure	01
03	3/8" X 4000 TC - TC hose	Pressure	02
04	3/8" X 4600 TC - TC hose	Return	02
05	3/8" X 2200 TR - TC hose	Pressure	02
06	3/8 X 2700 TR - TC hose	Return	02
07	Oil distribution duct 2650 (03 outlets R.3/4"JIC)		02
08	Male quick coupler 1/2" with cap and grip couplers		02

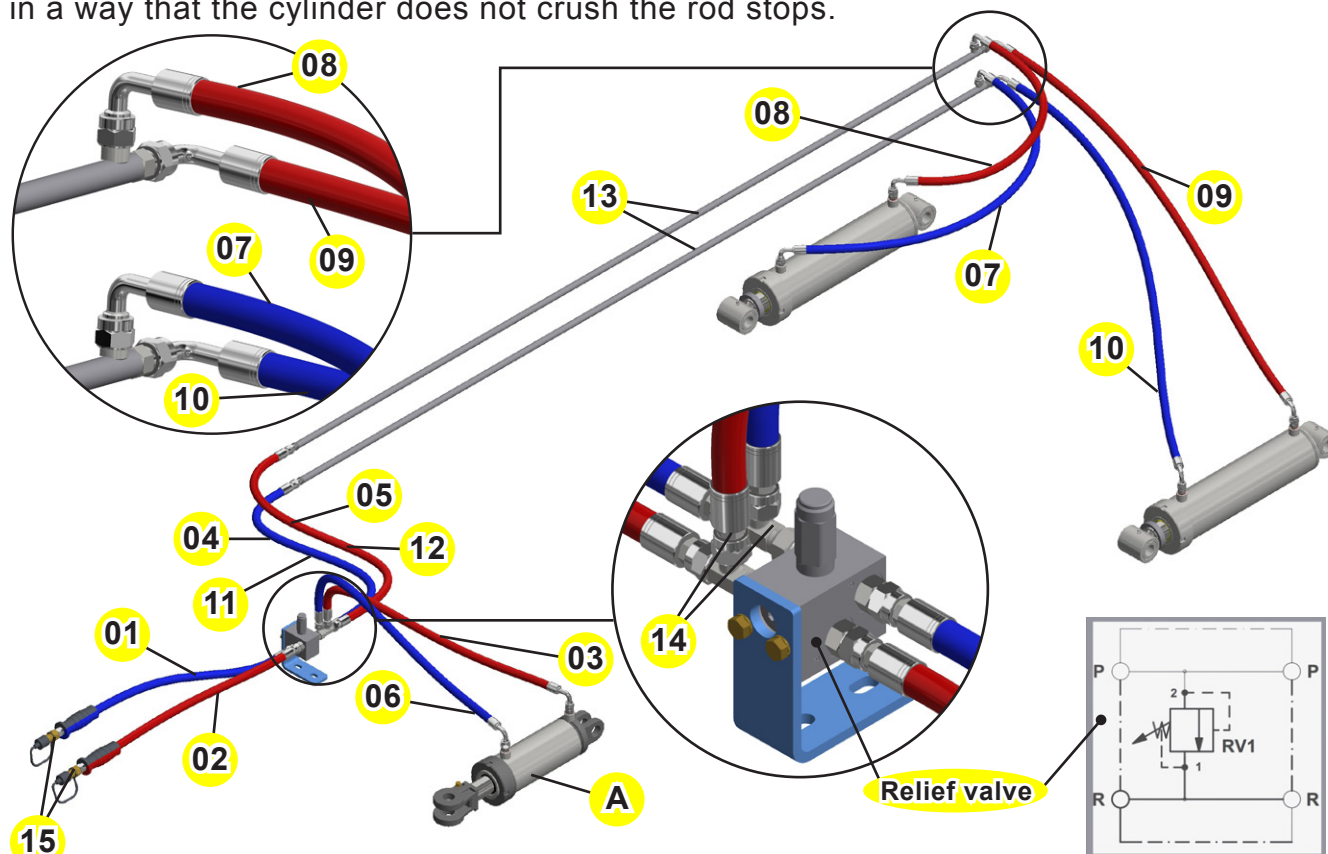
# Assembly

## Hydraulic circuit - GASPCR-HD 9017 (18 to 30 disc blades)

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 rod stops.



**NOTE** / The 03, 06, 11, 12 items and the cylinder (A) are included for the models with hydraulic drawbar articulation only.

Item	Description		18 - 22	24 - 30
01	3/8" X 5500 TR - TM hose	Return	01	01
02	3/8" X 5500 TR - TM hose	Pressure	01	01
03	3/8" X 1500 TR - TC hose	Pressure	01	01
04	3/8" X 800 TR - TR hose	Return	01	-
05	3/8" X 800 TR - TR hose	Pressure	01	-
06	3/8" X 1300 TR - TC hose	Return	01	01
07	3/8" X 1000 TC - TC hose	Return	01	01
08	3/8" X 1200 TC - TC hose	Pressure	01	01
09	3/8" X 2600 TC - TC hose	Pressure	01	01
10	3/8" X 2200 TC - TC hose	Return	01	01
11	3/8" X 1000 TR - TC hose	Return	-	01
12	3/8" X 1500 TR - TC hose	Pressure	-	01
13	Oil distribution duct 2650 (03 outlets R.3/4"JIC)		02	02
14	T male adapter 3/4"		02	02
15	Male quick coupler 1/2" w/ cap and grip couplers		02	02

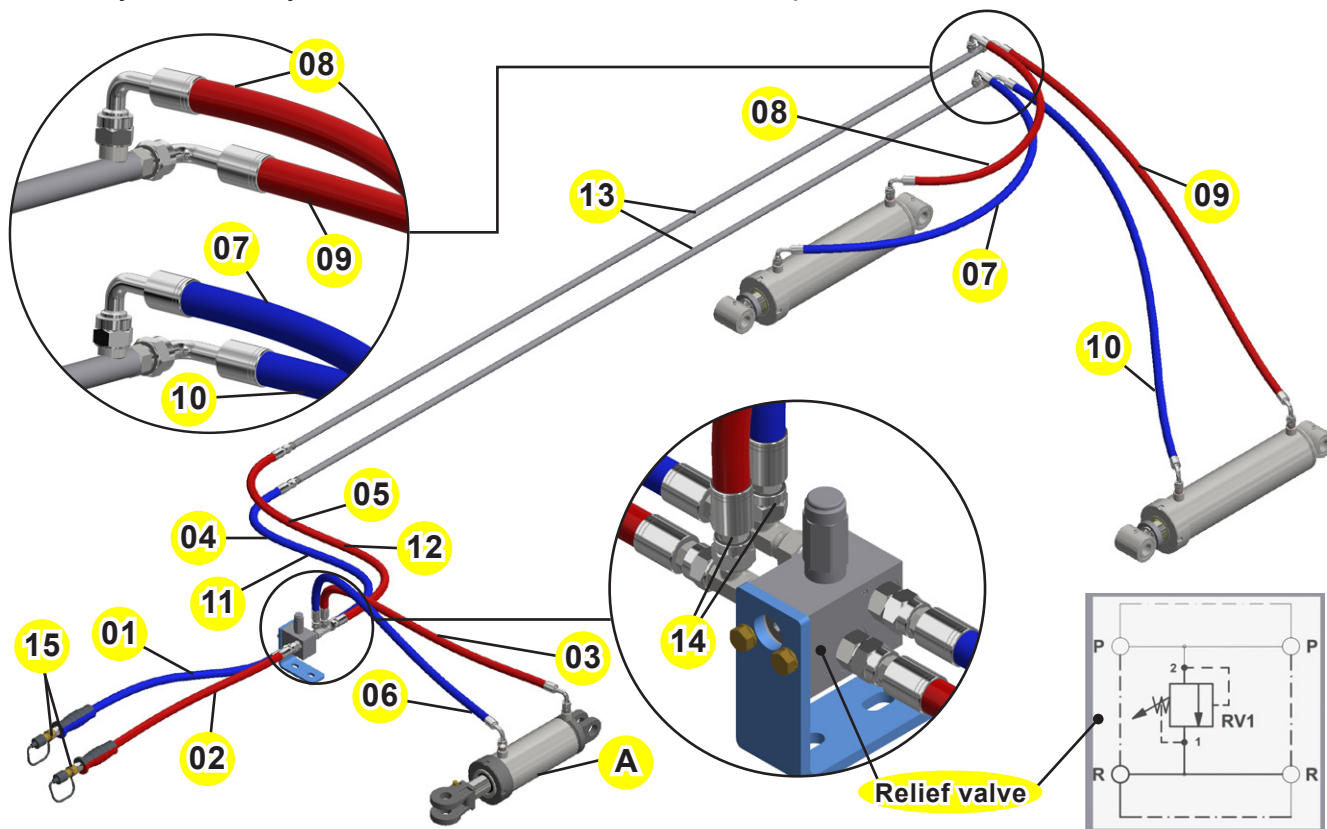
# Assembly

## Hydraulic circuit - GASPCR-EHD 10020 (16 to 26 disc blades)

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 rod stops.



**NOTE** / The 03, 06, 11, 12 items and the cylinder (A) are included for the models with hydraulic drawbar articulation only.

Item	Description		16 - 24	26
01	3/8" X 5500 TR - TM hose	Return	01	01
02	3/8" X 5500 TR - TM hose	Pressure	01	01
03	3/8" X 1500 TR - TC hose	Pressure	01	01
04	3/8" X 800 TR - TR hose	Return	01	-
05	3/8" X 800 TR - TR hose	Pressure	01	-
06	3/8" X 1300 TR - TC hose	Return	01	01
07	3/8" X 1000 TC - TC hose	Return	01	01
08	3/8" X 1200 TC - TC hose	Pressure	01	01
09	3/8" X 2600 TC - TC hose	Pressure	01	01
10	3/8" X 2200 TC - TC hose	Return	01	01
11	3/8" X 1000 TR - TC hose	Return	-	01
12	3/8" X 1500 TR - TC hose	Pressure	-	01
13	Oil distribution duct 2650 (03 outlets R.3/4" JIC)		02	02
14	T male adapter 3/4"		02	02
15	Male quick coupler 1/2" w/ cap and grip coupler		02	02



# Optional

## Rear hitch

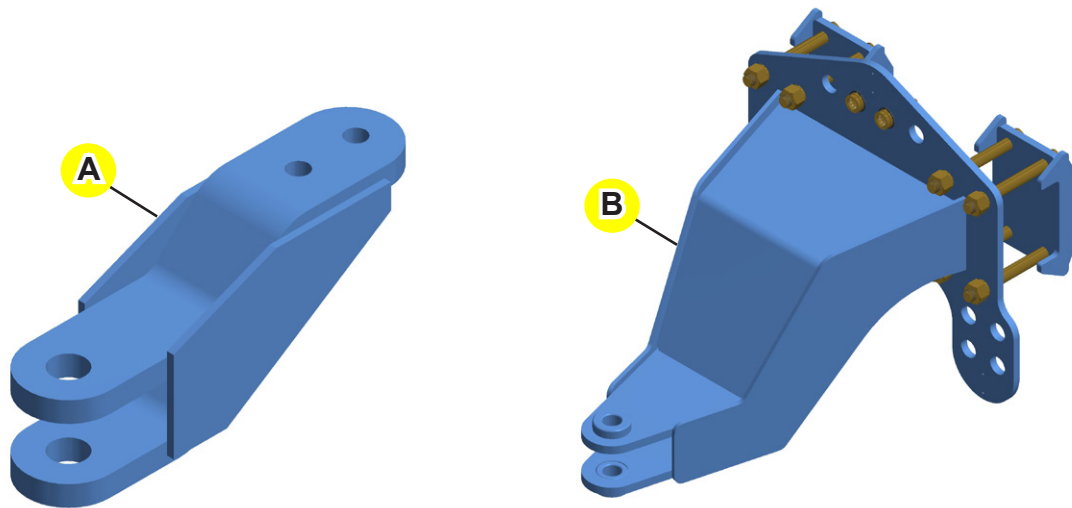
The rear hitch (A) can be optionally supplied for these models

**GAPCR-HD 8013 (21 to 27 disc blades)**

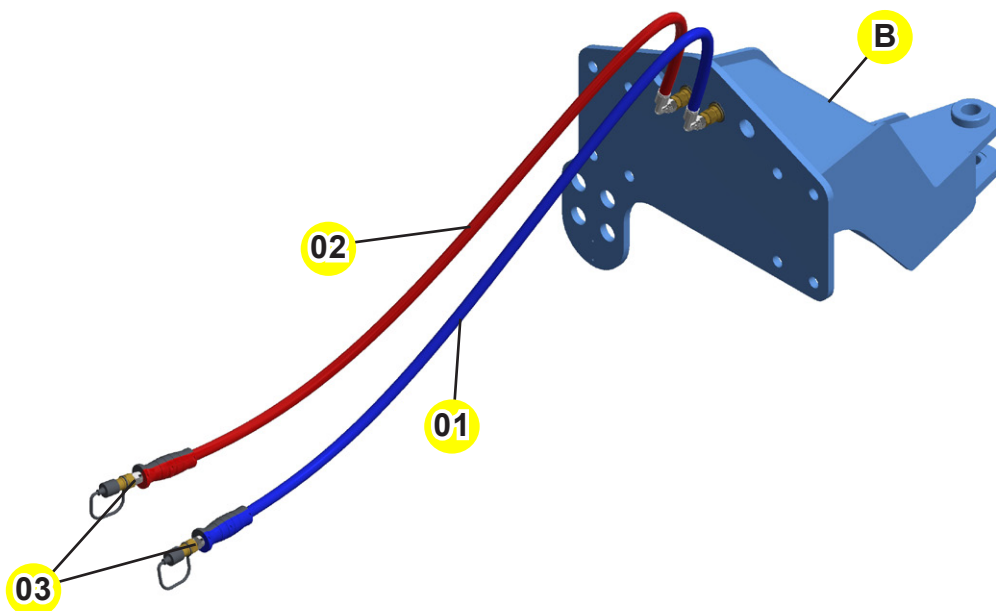
**GAPCR-HD 8013 (39 to 45 disc blades)**

The rear hitch (B) can be optionally supplied for the following model

**GAPCR-HD 8013 (29 to 37 disc blades)**



Rear hitch hydraulic circuit for the GAPCR-HD 8013 (29 to 37 disc blades) model.



Item	Description		Quantity
01	3/8" X 12000 TC -TM hose	Return	01
02	3/8" X 12000 TC -TM hose	Pressure	01
03	Male quick coupler 1/2" with cap and grip couplers		02

# Set-up instructions

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

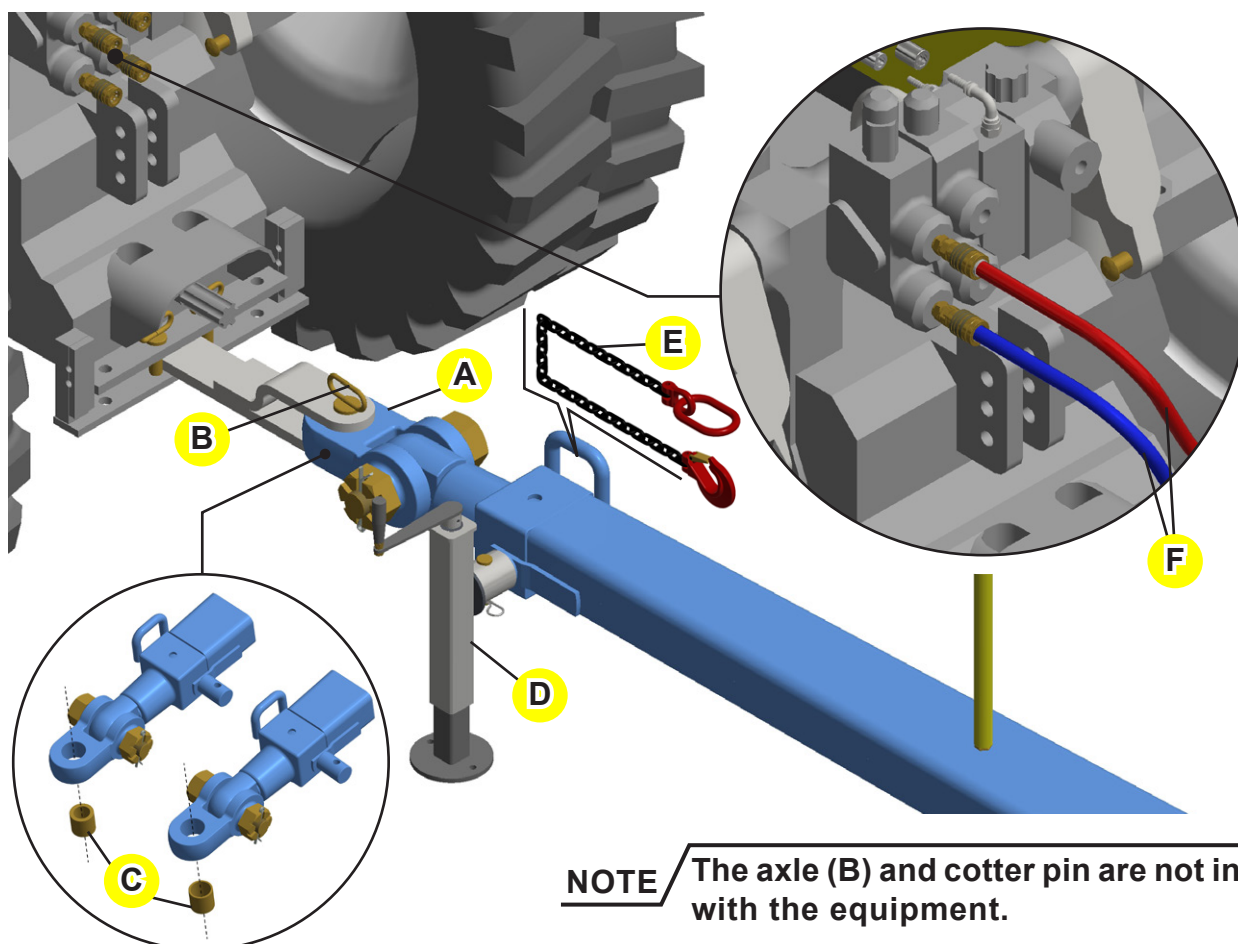
## Preparing the tractor

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 full conditions before using it.

## Hitching to the tractor

Couple the hitch (A) to the tractor drawbar and lock using an axle (B) and cotter pin. Use the most suitable bushings (C) for the axle (B) that is going to be used on the hitch. Note that the drawbar is centralized on the tractor. To facilitate hitching, use the parking jack adjustment (D). Right after, place the safety chain (E).

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



### ATTENTION

Before activating the hydraulic command to lower or lift the tires, check if there are no people close to the disk harrow, especially near the drawbar.

Do not allow that people or animals get closer.

Never release or remove the hoses without relieving the control valve pressure first.



# Set-up instructions

## Important recommendations

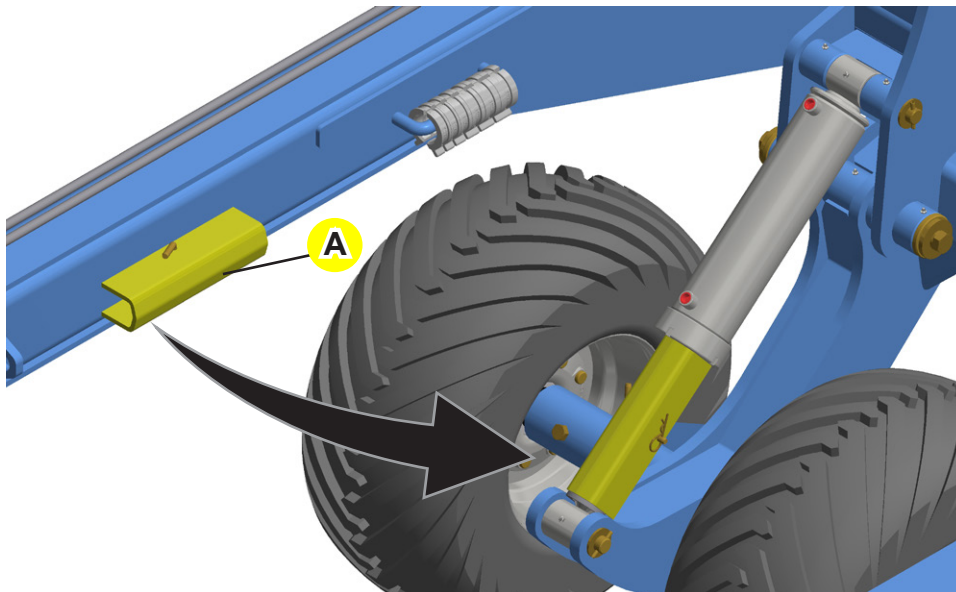
The tractor drawbar must remain loose during working and fixed during transportation.

Relieve the control valve pressure before removing the hoses.

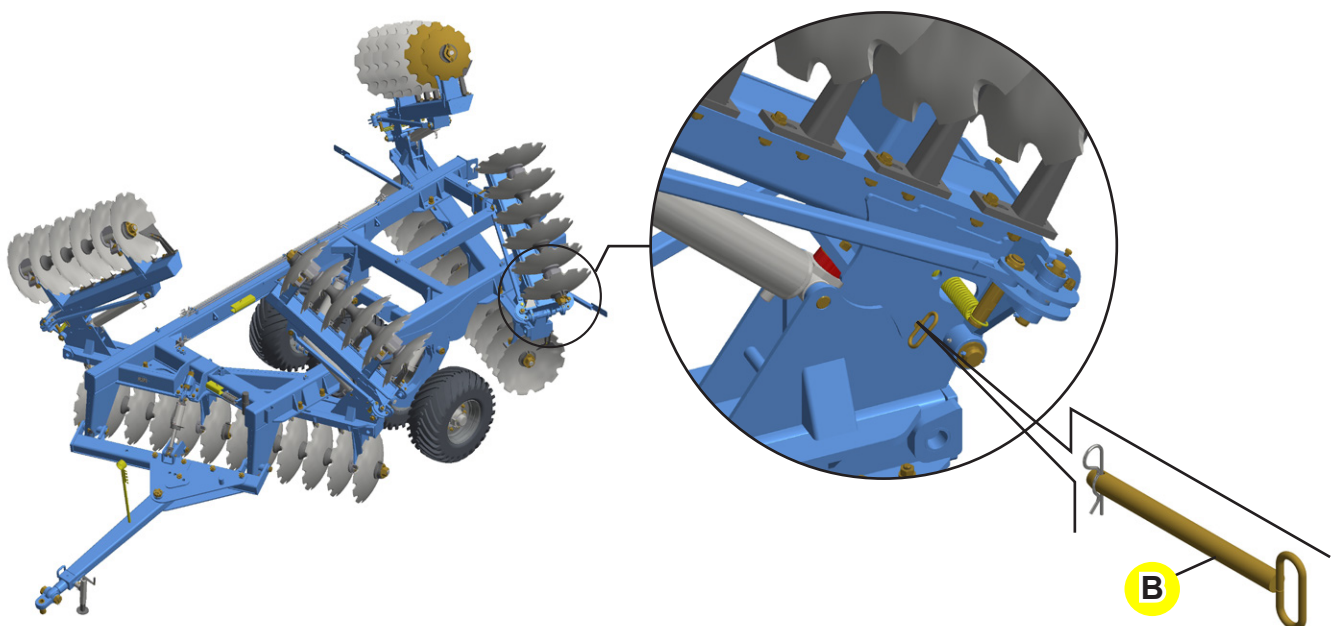
Before starting working, check the conditions of all parts and retighten nuts and bolts, especially the ones on the disc gangs; damage to the axles and other fixation components may occur if the gangs are working loose.

Lubricate all grease fittings appropriately. (Check lubrication instructions).

To transport the disk harrow over greater distances use the transport locks (A), which are coupled to the hydraulic cylinder rods.



To transport the disk harrow with folding wings over great distances use the axle locks (B) for transportation, which are coupled on the central frame and on the folding wings.



# Adjustments and operations

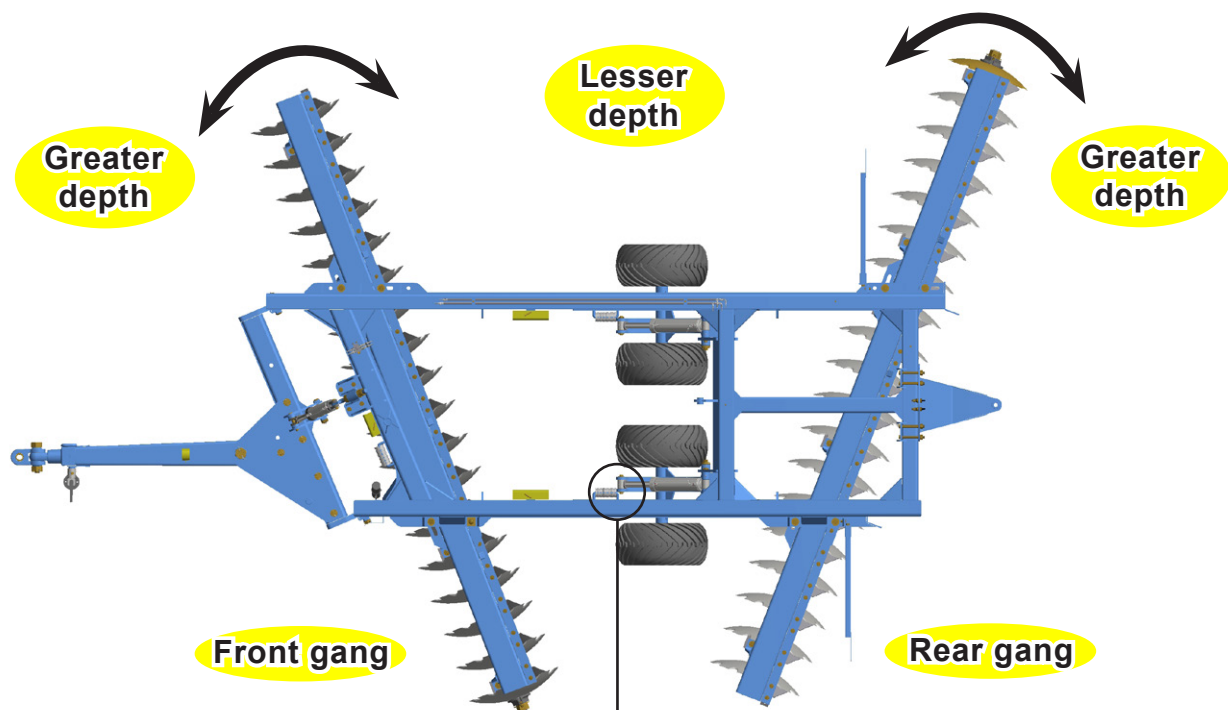
## Cutting depth

The cutting depth is adjusted through the following points:

### 1) Disc gangs opening

The opening angle should increase between the gangs to work in soils with greater difficulty to penetrate the disc blades. In light and loose soils, it is appropriate to work with a smaller opening angle.

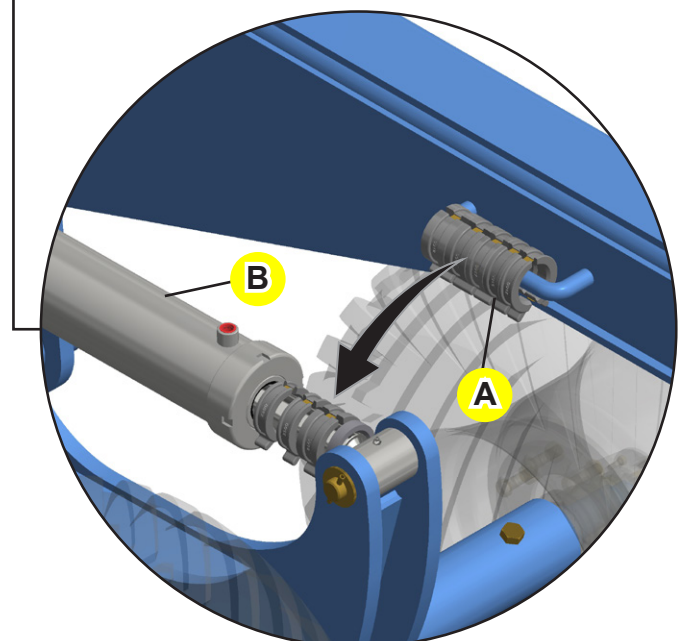
This adjustment is done by changing the setting of the disc gang carriers on the main frame.



Use the rod stops (A) to control the depth, which are placed on the hydraulic cylinder (B) rods and work as course limiters, thus providing several adjustments of the disc blades cutting depth.

**NOTE** We recommend the depth control by the disc gangs opening. Use the tires only where the harrow penetrates excessively.

Use the rod stops (A) to determine less depth when cutting with the harrow, always maintaining the same adjustment of the cutting depth of the discs.



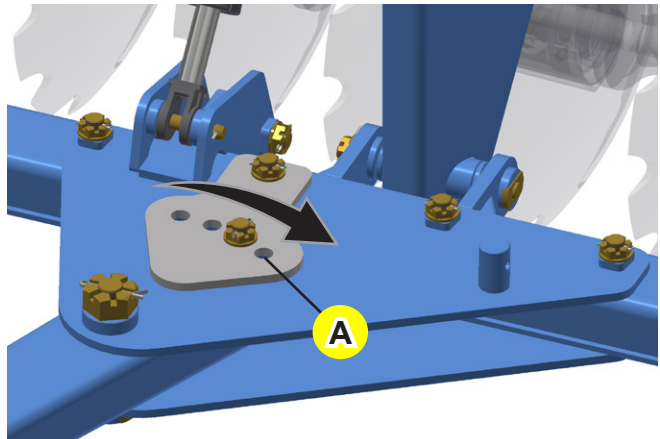
# Adjustments and operations

## Cutting depth

### 2) Drawbar angle

The holes (A) in the upper and lower plates define a greater or smaller cutting depth and also performs the lateral displacement of the harrow.

In normal conditions, the drawbar should operate in the central hole of the fixation plates.



**IMPORTANT** / To start the harrowing, we recommend using an average opening in the disc gangs and in the holes of the drawbar plates.

The harrowed soil is always on the left hand side of the operator (harrow closed side).

Try to make a good finish between passes. Avoid the formation of furrows or untilled strips.

The tractor and harrow drawbar should be as aligned as possible related to the work direction.

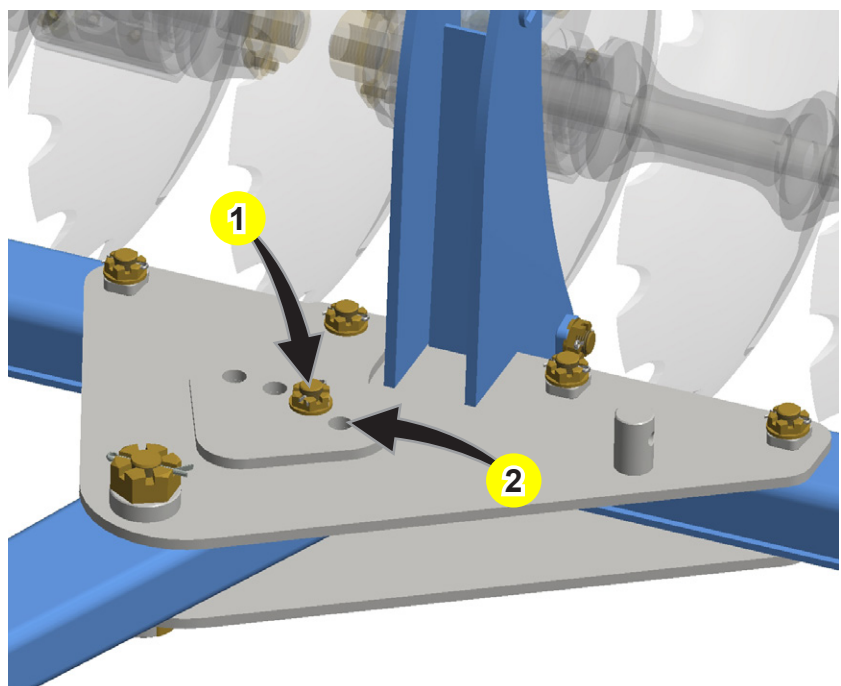
## Tractor position related to the previous pass - Lateral displacement

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

This position is obtained according to the tractor gauge and cutting width of the harrow.

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

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



Position #1: Normal position (Centralized): Used in most situations.

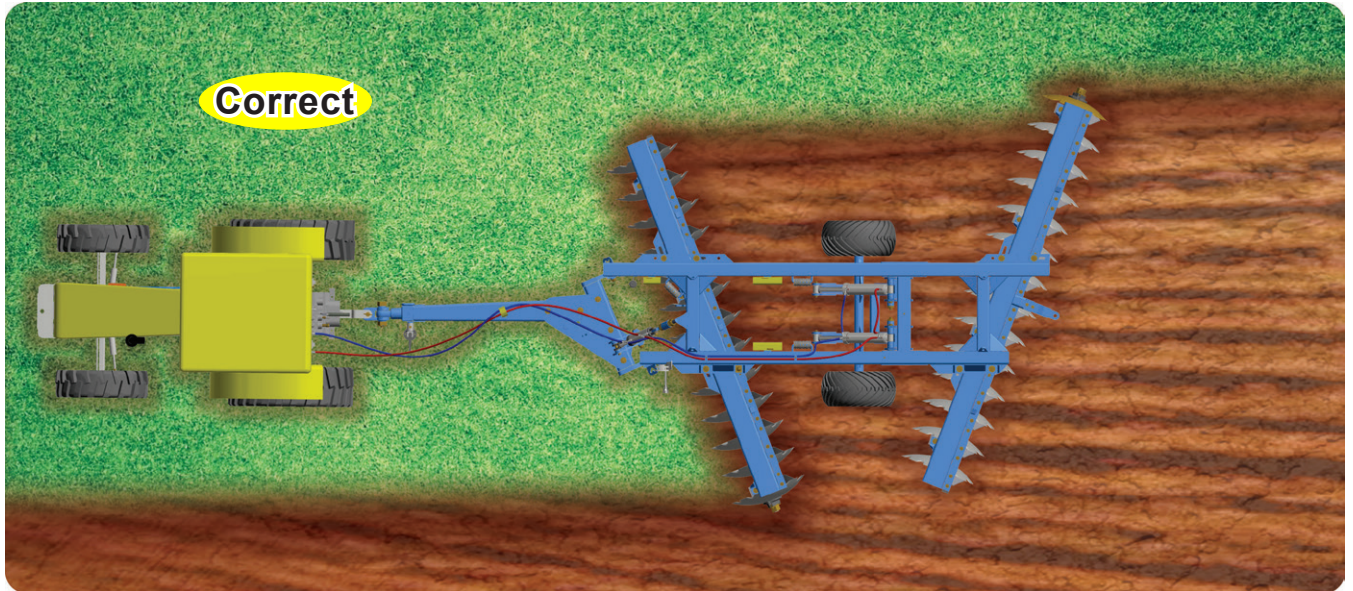
Position #2: Allows the tractor to approach the previous furrow.



# Adjustments and operations

## Correct way for harrowing

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



**IMPORTANT** / Never pass the tires over an already harrowed area.



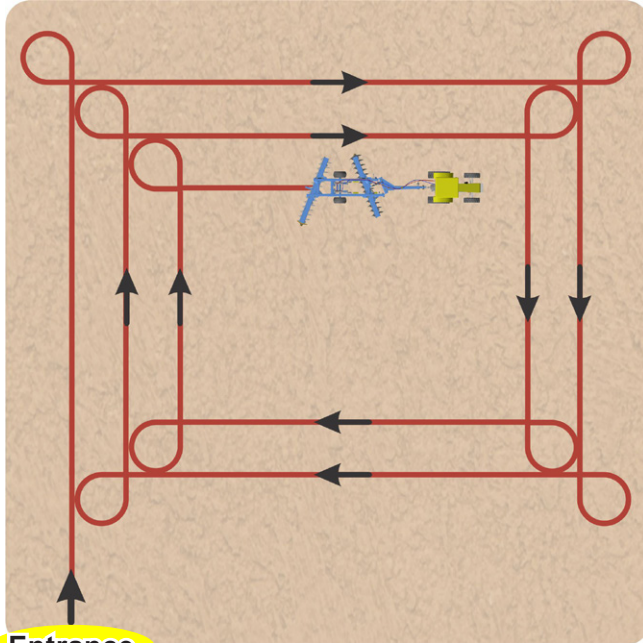


# Adjustments and operations

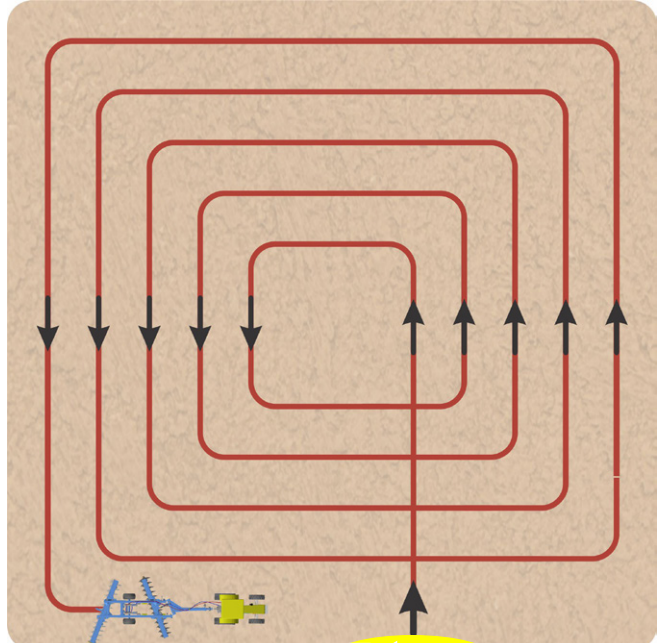
## Ways to start the harrowing

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.

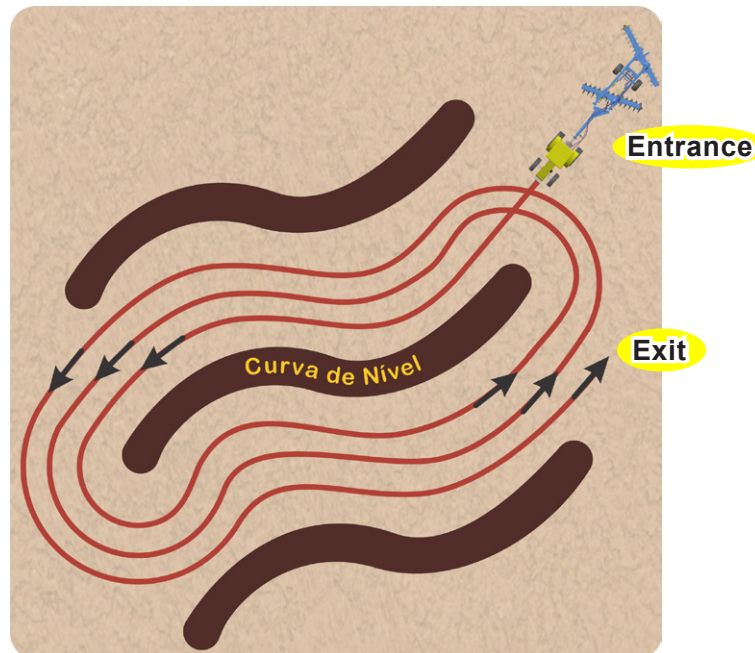
**Harrowing in squares from outside to inside**



**Harrowing in squares from inside to outside**



**Harrowing in level**



### IMPORTANT

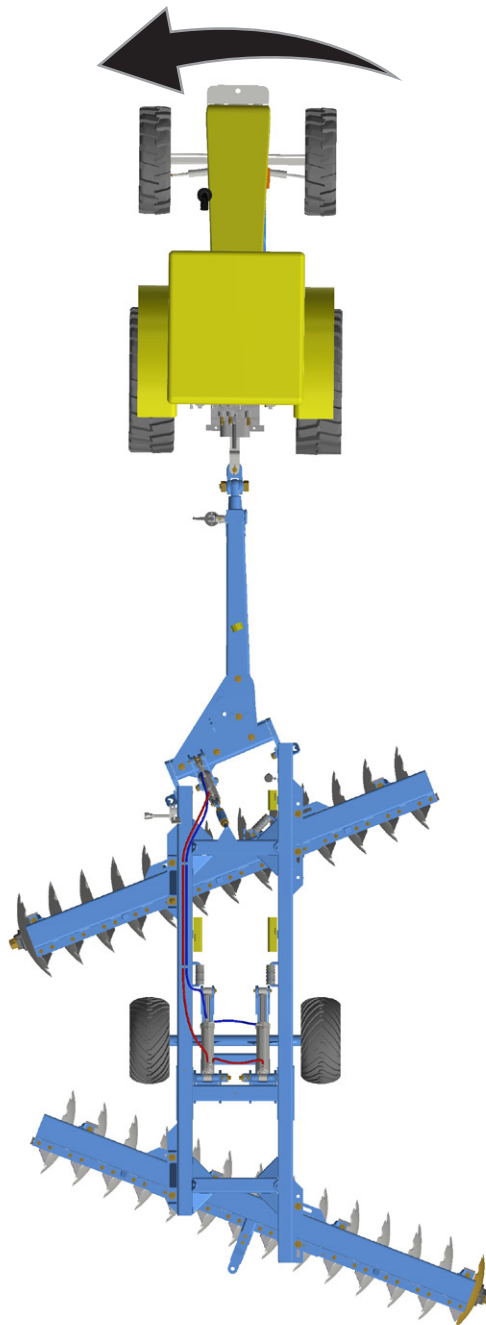
Note that the harrowed soil is always on the left hand side of the operator.  
Being the disc gangs lowered, only maneuver to the left (harrow closed side).



# Adjustments and operations

## Direction of the maneuvers

As previously mentioned, the harrow provides several working angles to operate properly in all types of soil. However, this 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** / Being the disc gangs lowered, it is necessary to maneuver to the left to avoid overloads.

Following these instructions also avoids the undesirable formation of large furrows in the maneuver spots.

# 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 rod 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 <sup>2</sup> .
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.
- Special attention should be given to the disc gangs, retightening daily during the first week of use. Then, tighten periodically.
- Carefully observe the lubrication intervals.
- The tire inflation must be done with the aid of a contention device (tire inflation cage).
- The tire inflation is important; keep the inflation according to the 'tires inflation' pages.
- Choose a gear that allows the tractor to maintain certain power reserve, ensuring against unforeseen efforts.
- Always carry out the operations on a careful and controlled manner.
- 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 avoid possible damages to the equipment.
- Before maneuvering, activate the hydraulic cylinder gradually to lift the disc gangs.
- The harrowed soil is always on the left hand side of the operator.
- Remove pieces of wood or any object that may attach in the disc blades.
- The harrow activation to open or close the disc gangs must be done gradually, while the tractor is moving.
- Do not check any leaks with your bare hands, because the high pressure can cause injury. Use cardboard or other suitable object.
- Only pull the harrow using a tractor with enough power.
- Never maneuver to the right side during operation, because the angle formed by the gangs start to transmit great effort to the equipment, overloading traction components.
- Relieve the control valve pressure before disconnecting the quick couplers and when doing any verification in the hydraulic cylinder.
- When working over compacted soils, the disc blades penetration may be harder and the depth may be minimum, leading to an unsatisfactory operation. On these cases, we recommend using an equipment that is more suitable to this job.
- The tractor drawbar must remain loose during working and fixed during transportation.
- During working or transportation, the presence of passengers on the tractor or equipment is not allowed.
- As previously mentioned these disk harrows have several settings, but only the local conditions can determine their best adjustment.

# Maintenance

## Lubrication

To reduce the wear caused by the friction between the moving parts of the harrow, it is necessary to carry out a correct lubrication, as described below.

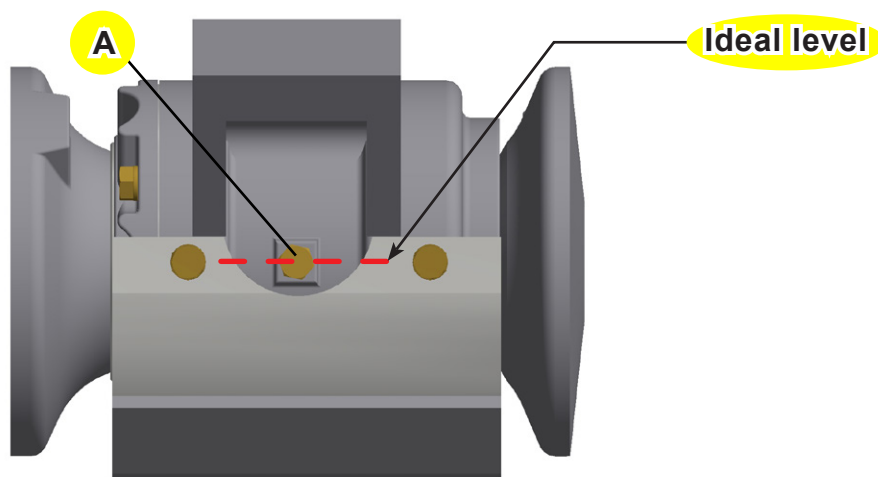
1) Every 24 operating hours, lubricate the articulations through the grease fittings in the following way:

- Be sure about the lubricant quality, with relation to its efficiency and purity, avoiding the use of products contaminated by water, earth and others.
- Remove the remainder old grease around the articulations.
- Clean the grease fittings with a cloth before inserting lubricant and replace the damaged ones.
- Apply an enough amount of new grease.
- Use medium consistency grease.

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

2.1) The roller bearings with oil bath work 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 harrow for the first time and every day of the first week.
- Then, start to check weekly.
- Change all the oil every 1,000 working hours.
- Use only SAE 90 mineral oil.



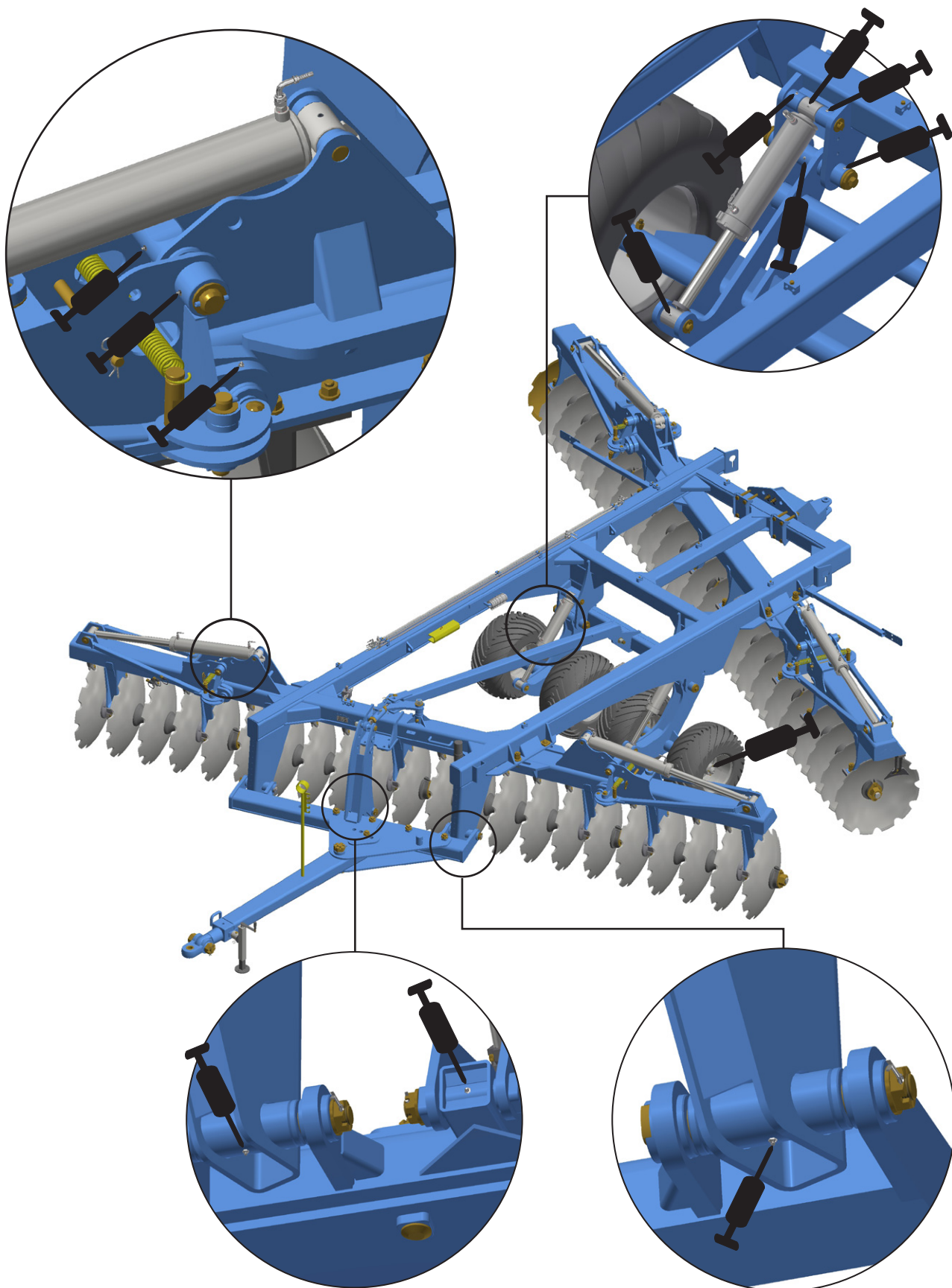
**NOTE** / The suitable level is when the oil reaches the hole of the plug (A), being the harrow in a flat place.

The oil volume on the bearings are 1.1 liters.



# Maintenance

## Lubrication points



**NOTE** / Lubricate the points shown above and all grease fittings as well.

# Maintenance

## Wheelset hubs lubrication

The wheelset hubs must be lubricated every 150 hours. When the existence of any clearance is noticed, carry out a maintenance on the wheel hubs.

Disassemble the hubs and remove their internal components. Clean all parts using diesel oil or kerosene.

Check the existence of clearances, the condition of the bearings, retainers or bushings. If there is any part that shows excessive wear or damages, replace them.

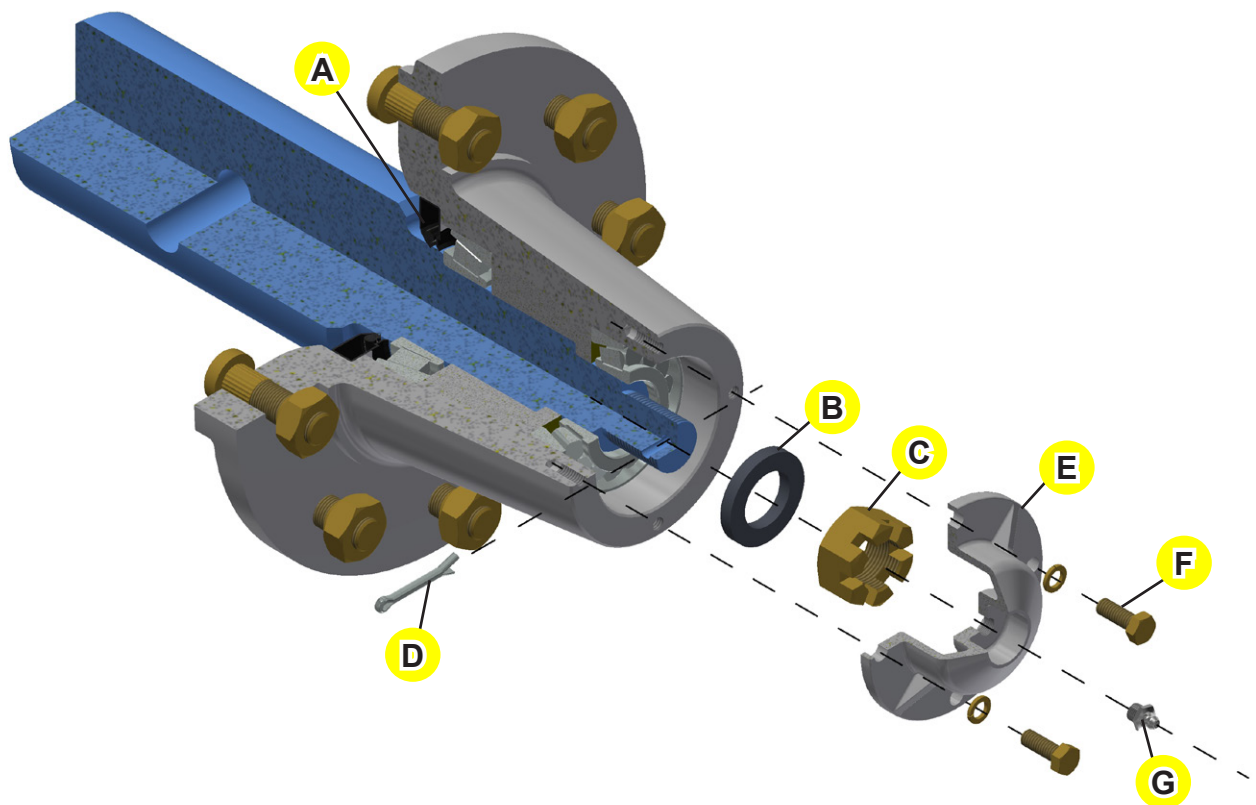
The bearing must be replaced in a preventive manner, to avoid that it breaks and to avoid greater maintenance costs, since more parts of the set suffer damages when the bearing breaks during the job.

- **For models with 400/60 x 15.5 tires - 14 ply**

Check the retainer position (A) to let the excess of grease flow out of the hub and be careful to not damage the retainer.

Adjust the flat washer (B) and the castle nut (C) on the hub using a wrench to get some resistance while turning the hub. Do not totally tighten it. Lock it using a cotter pin (D).

Place the hubcap (E) and lock using a bolt (F) and spring washer. Lastly, attach the grease fitting (G) on the hubcap.



# Maintenance

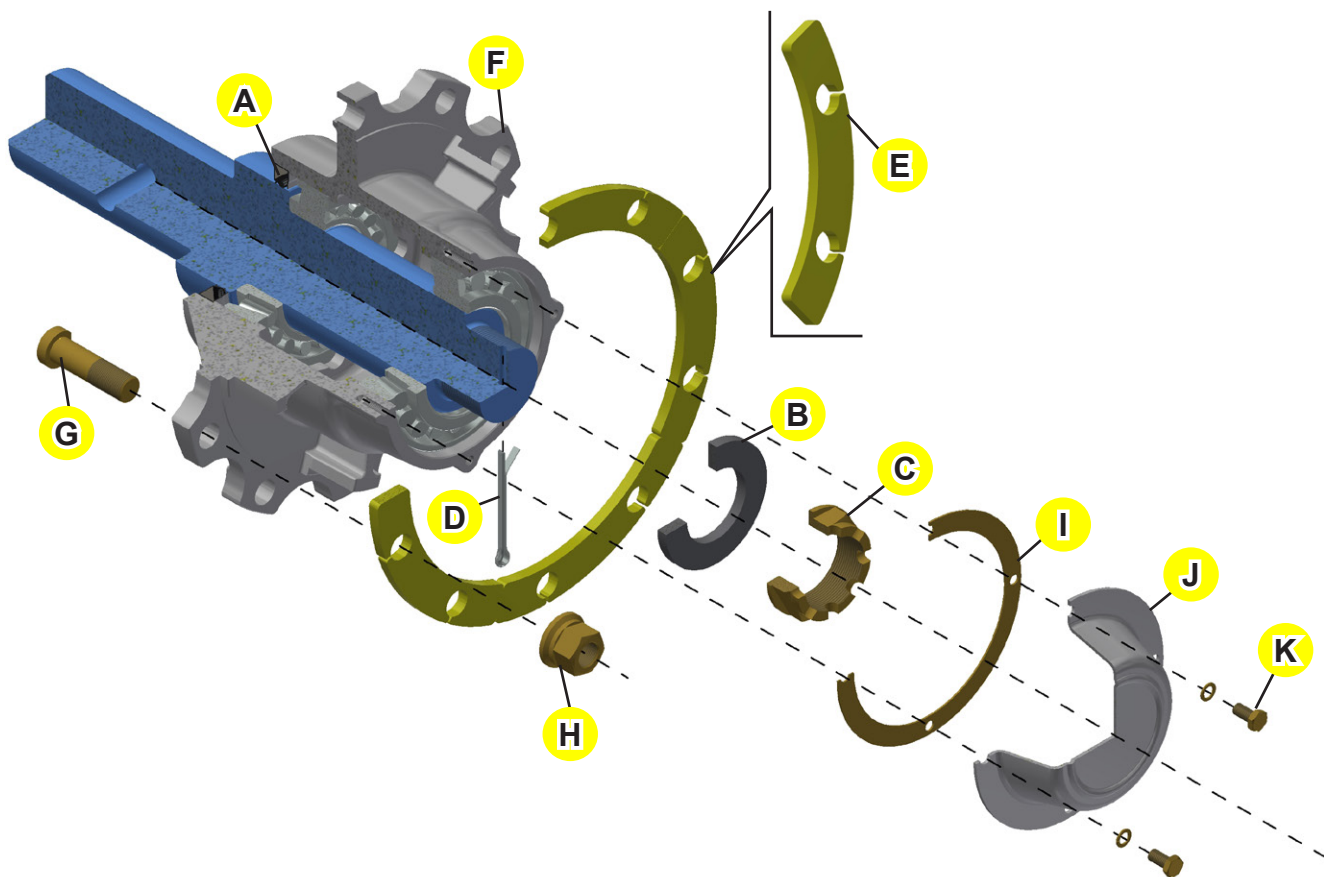
## Wheelset hubs lubrication

- For models with 9.00 x 20 tires - 14 ply and 600/50 x 22.5 tires - 16 ply.

Check the retainer position (A) to let the excess of grease flow out of the hub and be careful to not damage the retainer.

Adjust the flat washer (B) and the castle nut (C) on the hub using a wrench to get some resistance while turning the hub. Do not totally tighten it. Lock it using a cotter pin (D).

Place 5 small flanges (E) on the wheelset hub (F) using a bolt (G) and nut (H). Place a dust cap (I) facing the wheelset hub (F), the hub cap (J) and lock using a bolt (K) and spring washer.



Whenever the retainer is damaged, replace it immediately.

Do not forget to apply the specific grease, that is a lithium soap grease for this equipment, grade NLGI 2 with Extreme Pressure additive, anticorrosive and antioxidant.

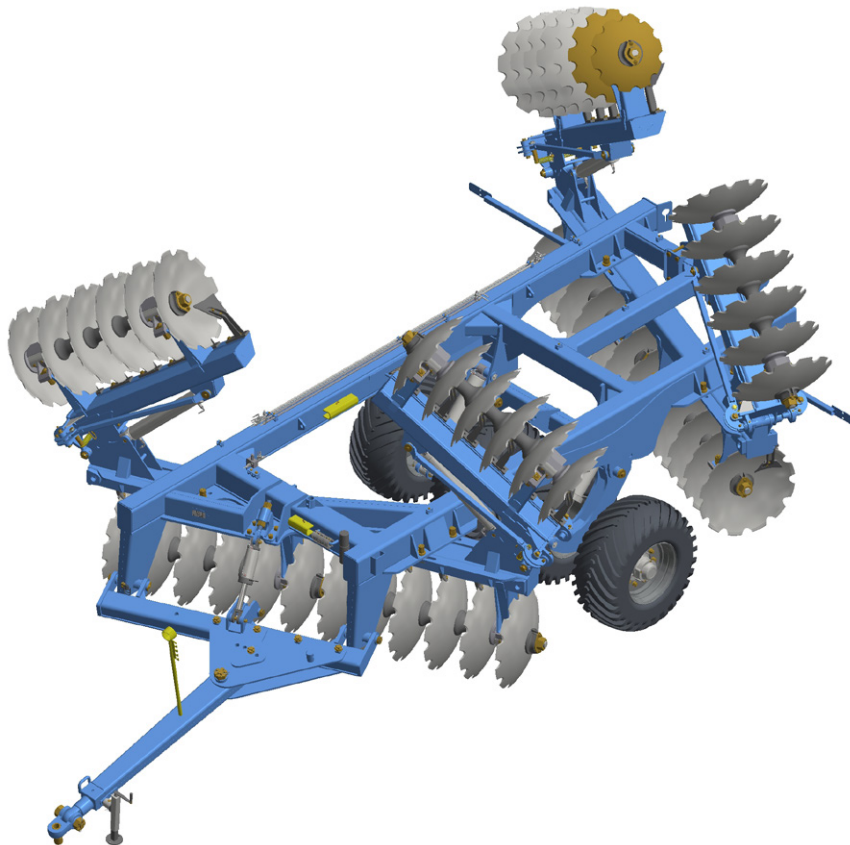
# Maintenance

## Disk harrow

- 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 some hours of operation, 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.

# 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.

400/60 x 15.5 tires - 14 ply .....	(52 PSI)
600/50 x 22.5 tires - 16 ply .....	(41 PSI)
9.00 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.



**NOTE** / Use TATU original parts only.



# Maintenance

## Hydraulic cylinder maintenance

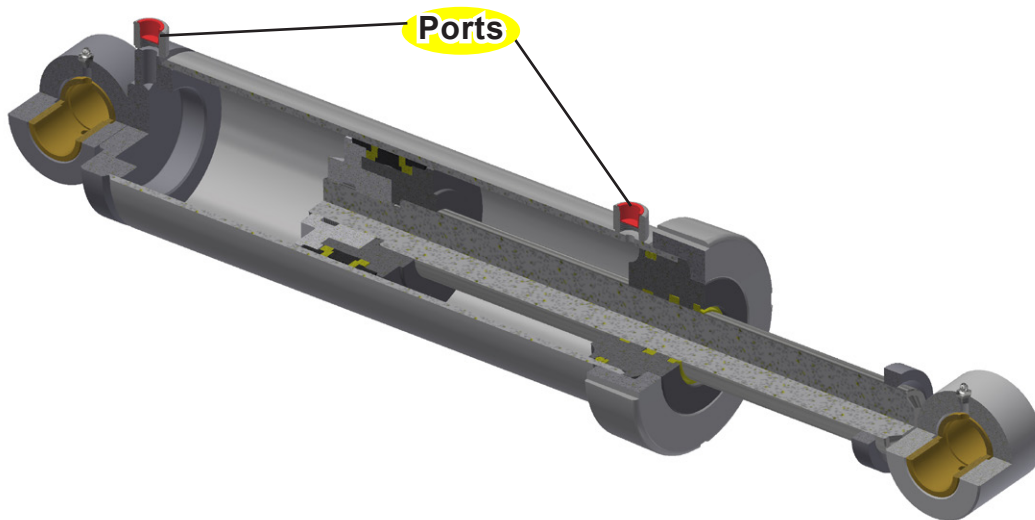
When cylinder repair is required, clean off unit, disconnect hoses and plug ports before removing cylinder.

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.

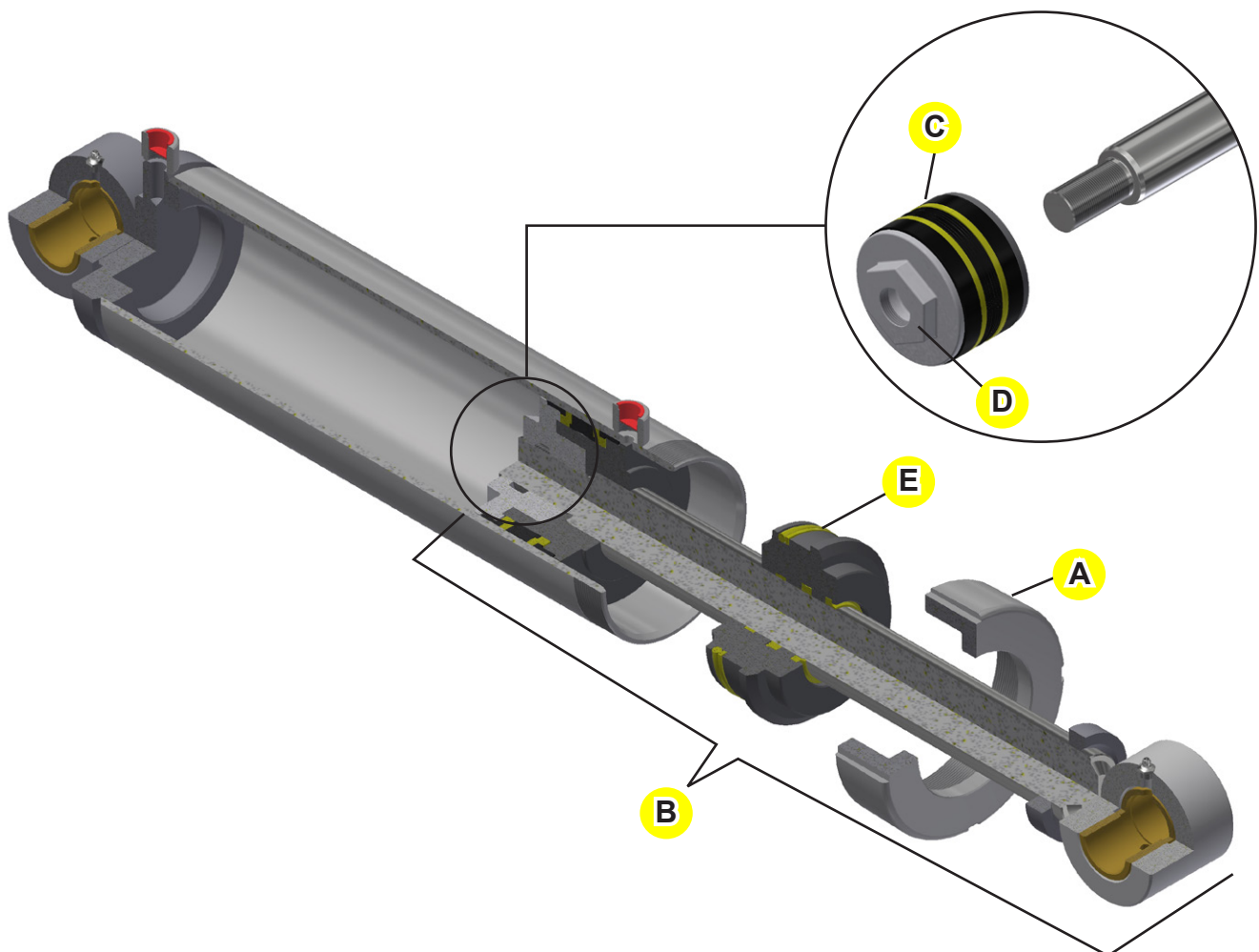
# Maintenance

## 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.

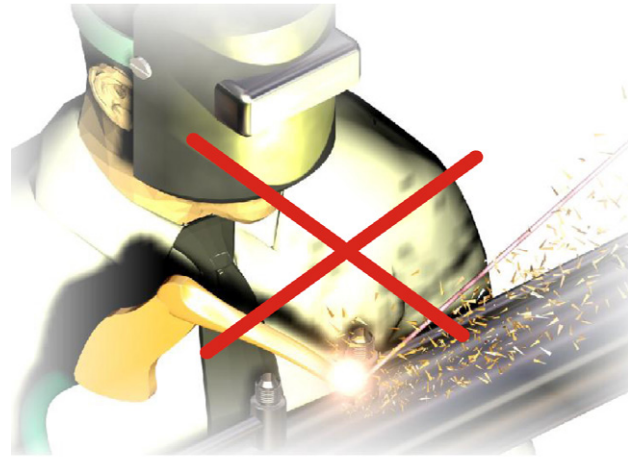
Periodically or when the oil is replaced anormally or even when there is loss of power, inspect the hydraulic system, fasten the connections that are leaking, replace the hoses that are almost reaching its expiration date or if they show any cut, crack or dryness. Regarding the hoses assembly, do it 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.

# Important data

## Calculation of hourly income

To calculate the hourly income, use the following calculation:

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

Where:

R = Hourly income;

L = Harrow cutting width (meters);

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

E = Efficiency: 0.90;

X = Hectare value = 10,000 m<sup>2</sup>.

Example with a GASPCR-HD 9017 (22 disc blades):

R = ?

L = 4.62 m

V = 6,000 m/h

E = 0.90

X = 10,000 m<sup>2</sup>

$$R = \frac{4.62 \times 6,000 \times 0.90}{10,000}$$

R = 2.49 hectares per hour.

**NOTE** / The harrow 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	Cutting width (m)	Hourly income (ha)	Daily income (ha)
GAPCR HD 8013	21	3.71	2.00	18.03
	23	4.03	2.18	19.59
	25	4.35	2.35	21.14
	27	4.67	2.52	22.70
	29	4.81	2.60	23.38
	31	5.13	2.77	24.93
	33	5.48	2.96	26.63
	35	5.77	3.12	28.04
	37	6.08	3.28	29.55
	39	6.54	3.53	31.78
	41	6.86	3.70	33.34
	45	7.50	4.05	36.45
	49	8.07	4.36	39.22

Model	Number of disc blades	Cutting width (m)	Hourly income (ha)	Daily income (ha)
GASPCR HD 9017	12	2.53	1.37	12.30
	14	2.95	1.59	14.34
	16	3.34	1.80	16.23
	18	3.80	2.05	18.47
	20	4.20	2.27	20.41
	22	4.62	2.49	22.45
	24	4.70	2.54	22.84
	26	5.40	2.92	26.24
	28	5.80	3.13	28.19
	30	6.20	3.35	30.13
	32	6.62	3.57	32.17
	34	7.04	3.80	34.21
	36	7.43	4.01	36.11



# Important data

## Average income table

Model	Number of disc blades	Cutting width (m)	Hourly income (ha)	Daily income (ha)
<b>GASPCR EHD 10020</b>	12	2.75	1.49	13.37
	14	3.22	1.74	15.65
	16	3.81	2.06	18.52
	18	4.30	2.32	20.90
	20	4.75	2.57	23.09
	22	5.20	2.81	25.27
	24	5.70	3.08	27.70
	26	6.18	3.34	30.03

**NOTE** / An average speed of 06 km/h was adopted to make the tables.

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 65 hectares to be worked with a GASPCR EHD 10020 that has 18 disc blades (Hourly income = 2.32 ha).

$$\text{So: } \frac{65}{2.32} = 28.02$$

Approximately will be spent 28 (twenty-eight) hours to work in an area of 65 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.

TORQUE VALUES CHART						
Bolt Diameter	Grade 2		Grade 5		Grade 8	
	Coarse	Fine	Coarse	Fine	Coarse	Fine
1/4"	50 In. Lbs.	56 In. Lbs.	76 In. Lbs.	87 In. Lbs.	9 Ft. Lbs.	10 Ft. Lbs.
5/16"	8 Ft. Lbs.	9 Ft. Lbs.	13 Ft. Lbs.	14 Ft. Lbs.	18 Ft. Lbs.	20 Ft. Lbs.
3/8"	15 Ft. Lbs.	17 Ft. Lbs.	23 Ft. Lbs.	26 Ft. Lbs.	33 Ft. Lbs.	37 Ft. Lbs.
7/16"	25 Ft. Lbs.	27 Ft. Lbs.	37 Ft. Lbs.	41 Ft. Lbs.	52 Ft. Lbs.	58 Ft. Lbs.
1/2"	35 Ft. Lbs.	40 Ft. Lbs.	57 Ft. Lbs.	64 Ft. Lbs.	80 Ft. Lbs.	90 Ft. Lbs.
9/16"	50 Ft. Lbs.	60 Ft. Lbs.	80 Ft. Lbs.	90 Ft. Lbs.	115 Ft. Lbs.	130 Ft. Lbs.
5/8"	70 Ft. Lbs.	80 Ft. Lbs.	110 Ft. Lbs.	125 Ft. Lbs.	160 Ft. Lbs.	180 Ft. Lbs.
3/4"	130 Ft. Lbs.	145 Ft. Lbs.	200 Ft. Lbs.	220 Ft. Lbs.	280 Ft. Lbs.	315 Ft. Lbs.
7/8"	125 Ft. Lbs.	140 Ft. Lbs.	320 Ft. Lbs.	350 Ft. Lbs.	450 Ft. Lbs.	500 Ft. Lbs.
1"	190 Ft. Lbs.	205 Ft. Lbs.	480 Ft. Lbs.	530 Ft. Lbs.	675 Ft. Lbs.	750 Ft. Lbs.
1.1/8"	265 Ft. Lbs.	300 Ft. Lbs.	600 Ft. Lbs.	670 Ft. Lbs.	960 Ft. Lbs.	1075 Ft. Lbs.
1.1/4"	375 Ft. Lbs.	415 Ft. Lbs.	840 Ft. Lbs.	930 Ft. Lbs.	1360 Ft. Lbs.	1500 Ft. Lbs.
1.3/8"	490 Ft. Lbs.	560 Ft. Lbs.	1100 Ft. Lbs.	1250 Ft. Lbs.	1780 Ft. Lbs.	2030 Ft. Lbs.
1.1/2"	650 Ft. Lbs.	730 Ft. Lbs.	1450 Ft. Lbs.	1650 Ft. Lbs.	2307 Ft. Lbs.	2670 Ft. Lbs.

	GRADE 2 No Marks.		GRADE 3 3 Marks.		GRADE 8 6 Marks.
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[G:\VALSON\Manuais\_Ingles\Torque]

### NOTE For metric conversion:

- Multiply inch-pounds by .113 to convert to newton-meters (Nm).
- Multiply foot-pounds by 1.356 to convert to newton-meters (Nm).

# Important

## **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**

**Elaboration / Diagramming:** Valson Hernani de Souza

**Diagramming Assistant / Illustrations:** Edilson Rodrigues da Cruz

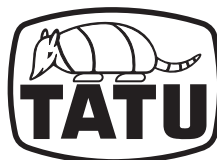
**Technical information:** Carlos C. Galhardi

**Translation:** Matheus Freire de Souza

**October, 2020**

**Serial number.: 05.01.09.0787**

**Revision: 03**



**MARCHESAN**

**MARCHESAN IMPLEMENTOS E MÁQUINAS AGRÍCOLAS "TATU" S.A.**

Marchesan Av., 1979 - Zip Code 15994-900 - Matão - SP - Brazil

Telephone 55.16.3382.8282

[www.marchesan.com.br](http://www.marchesan.com.br)

