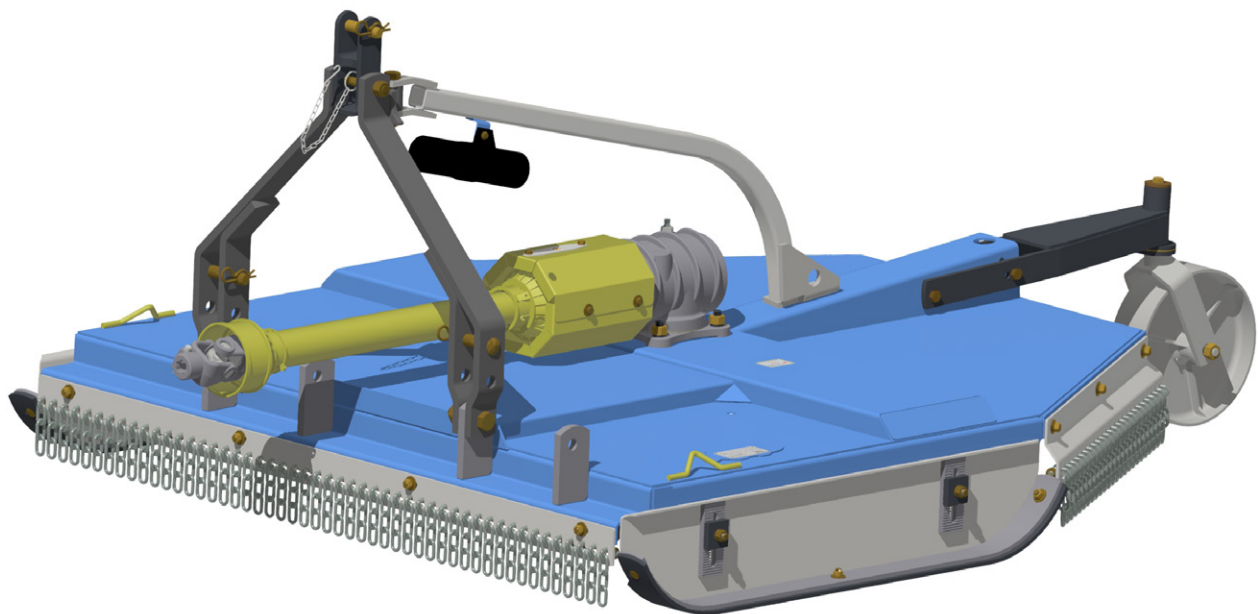


MARCHESAN

OPERATOR'S MANUAL



RC² 1300

RC² 1500

RC² 1700

IDENTIFICATION

Dealer: _____

Owner: _____

Firm / Farm: _____

City: _____ State: _____

No. of the Certificate of Guarantee: _____

Serial / No.: _____

Date:____/____/____ Invoice No.:_____

Product: _____

Notes: _____

[illegible]

Introduction

RC² 1300 rotary cutter was specially designed for cleaning between the coffee plantation rows and similar crops. RC² 1500 and RC² 1700 models are widely used for general mowing jobs.

All rotary cutters work in a central or lateral position and provide greater costs saving and workforce.

The RC² 1300, RC² 1500 and RC² 1700 rotary cutters are supplied with two Duromark blades, which are heat-treated and work in a counterclockwise direction.

This operator's manual contains the necessary information for the best performance of this rotary cutter. 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 rotary cutter.



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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 staff.

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			
Nº SÉRIE SERIAL NR			
DATA DATE		PESO WEIGHT	
MARCHESAN IMPLEMENTOS E MÁQUINAS AGRÍCOLAS "TATU" S.A. www.marchesan.com.br AV. MARCHESAN, 1979 - MATÃO-SP-BRASIL CNPJ: 52.311.289/0001-63		 MARCHESAN	

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.

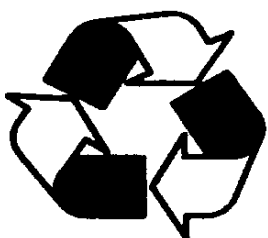
To the operator

Be careful with the environment



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.**

The RC² 1300, RC² 1500 and RC² 1700 rotary cutters 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 and free from oil and grease. Risk of accidents.



Never transport the equipment on highways or paved roads. 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 or to get over the equipment while it is operating, during transportation or storage.
- While setting the equipment to transport position, check if there are no people or animals close or under the equipment.
- 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. 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 equipment 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 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 left 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



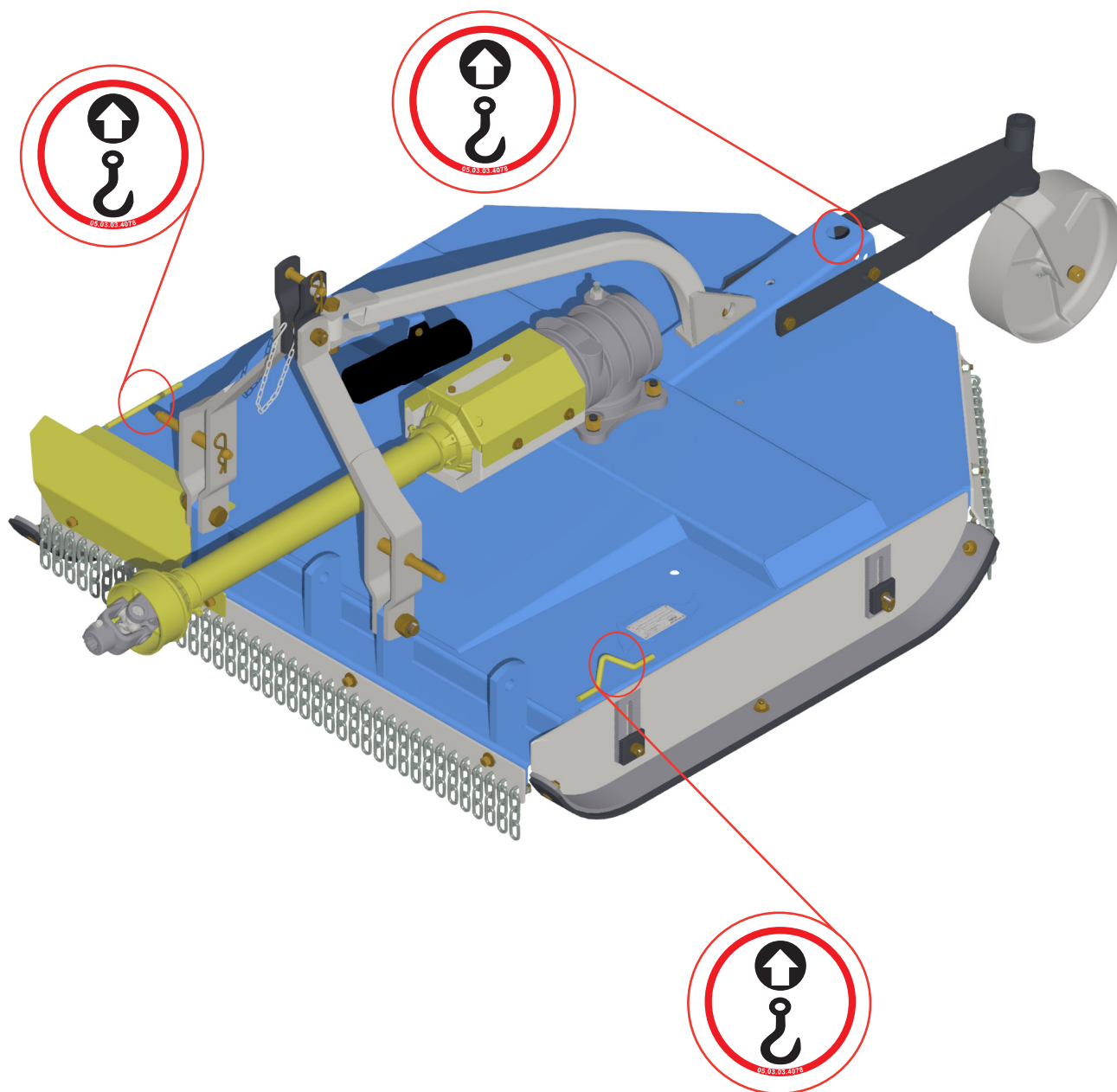
Marchesan does not advise the equipment traffic on highways, because this practice involves serious security risks in addition to being prohibited by the current existing traffic law. The transportation for long distances should be done on truck, trailer or other by following these safety guidelines:

- Use adequate ramps to load or unload the equipment. Do not make the loading on ditch banks, it can cause a serious accident.
- When lifting with a hoist, use the appropriate points to lift.
- Fasten the moving parts that could get loose and cause accidents.
- 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 to the 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

These rotary cutters have adequate lifting points located on the frame. When lifting with a hoist, 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 number.



05.03.03.1427



05.03.03.1428



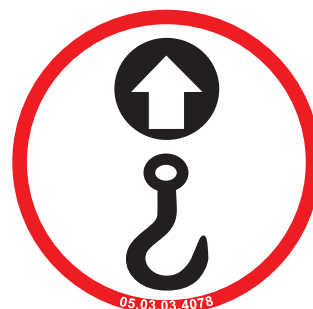
05.03.03.2949



05.03.03.1931



05.03.03.1929



05.03.03.4078

To the operator

Safety decals

! PERIGO / DANGER / PELIGRO

MANTENHA -SE DISTANTE - FACAS ROTATIVAS
 Ferimentos graves ou morte podem resultar de fragmentos ou contato com as facas.
 Não fique sobre ou próximo a roçadeira quando em operação.

KEEP AWAY - ROTATING BLADES
 Any contact or stone fragments thrown with action of the blades could result in serious personal injury or death.
 Never allow riders on the machine or near it while in operation.

MANTENGASE DISTANTE - CUCHILLAS ROTATIVAS
 Lesión personal grave o muerte pueden resultar de fragmentos o contacto con las cuchillas.
 No permanezca cerca ni suba en la desmalezadora cuando esté en funcionamiento.



! ATENÇÃO / ATTENTION / ATENCIÓN
 As roçadeiras podem soltar fragmentos à altas velocidades, o que pode causar ferimentos graves para pessoas próximas. Não opere a roçadeira com pessoas ao redor.
 Rotary cutters can throw fragments away at high-speeds, which can cause serious injuries or death for people near around. Don't operate the rotary cutter with people around.
 Las desmalezadoras pueden soltar fragmentos en alta velocidad, lo que puede causar heridas graves para personas próximas. No opere la desmalezadora con personas alrededor.

! ADVERTÊNCIA / WARNING / ADVERTENCIA

- Leia o manual de instruções antes de operar e siga todas as recomendações.
- Mantenha livre os locais de correias e transmissões em geral.
- Abaixe o equipamento, pare o motor e tire a chave do trator antes de desengatar, ou trabalhar sob o equipamento.
- Saiba como parar imediatamente o trator e o equipamento em caso de emergência.
- Pessoas não qualificadas e crianças estão proibidas de operar este equipamento.
- Cuidado com terrenos irregulares. Diminua a velocidade em curvas.
- Não opere a roçadeira na posição de transporte.
- In order to prevent serious personal injury read and understand the manual.
- Keep the belts and transmissions tighten and clean.
- Lower the equipment, shut the engine off and remove the key from the tractor before uncoupling or servicing under the equipment.
- Keep alert to stop the tractor and the equipment immediately in case of emergency.
- Unqualified people and children are not allowed to operate this equipment.
- Be careful with uneven terrain and reduce the speed in sharp turns.
- Never operate the machine in transport position.
- Lea el manual de instrucciones antes de operar y siga todas las recomendaciones.
- Mantenga libre los locales de correas y transmisiones en general.
- Baje el equipo, pare el motor y retire la llave del tractor antes de desenganchar o trabajar en el equipo.
- Sepa como detener inmediatamente el tractor y el equipo en caso de emergencia.
- Personas no calificadas y niños están prohibidas de operar este equipo.
- Cuidado con terrenos irregulares. Disminuya la velocidad en curvas.
- Nunca opere la desmalezadora en la posición de transporte.

05.03.03.1930

! ATENÇÃO / ATTENTION / ATENCIÓN

Não ajuste a fricção sem consultar o manual de instruções.

Do not adjust the friction before reading the instructions manual.

No ajuste la fricción antes de leer el manual de instrucciones.

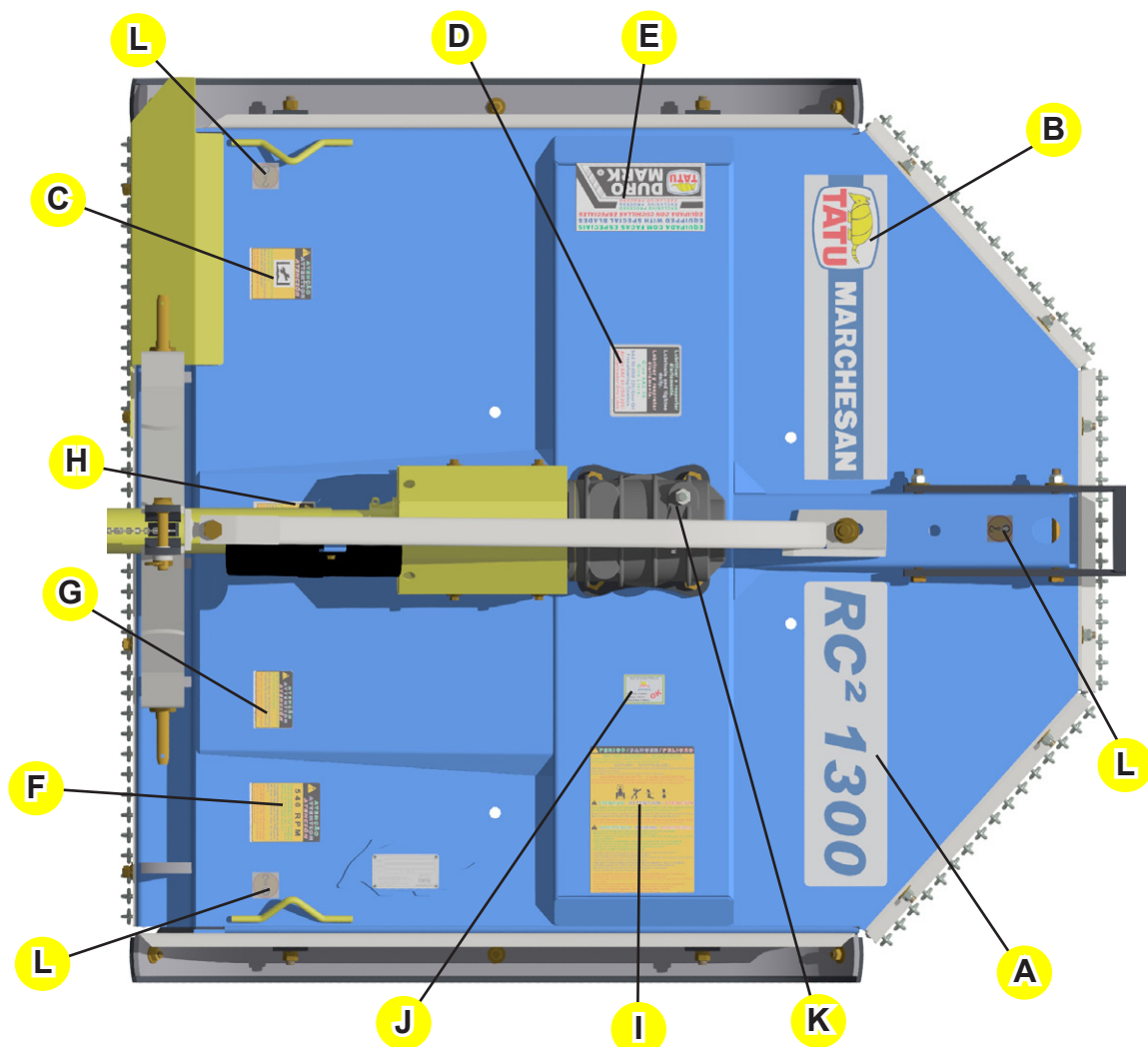
05.03.03.2534

Decal set

Model	Description	Serial number
RC ² 1300	Marchesan logotype decal	05.03.03.4333
	RC ² 1300 decal	05.03.03.4446
RC ² 1500	Marchesan logotype decal	05.03.03.4333
	RC ² 1500 decal	05.03.03.4447
RC ² 1700	Marchesan logotype decal	05.03.03.4333
	RC ² 1700 decal	05.03.03.4448

To the operator

Decal spots



Item	Serial number	Description
A	05.03.03.4446	RC² 1300 decal set
	05.03.03.4447	RC² 1500 decal set
	05.03.03.4448	RC² 1700 decal set
B	05.03.03.4333	Marchesan logotype decal
C	05.03.03.1428	Read the manual decal
D	05.03.03.1931	Freewheeling gearbox decal
E	05.03.03.1929	DM special blades decal
F	05.03.03.2949	540 RPM decal
G	05.03.03.2534	Friction adjustment decal
H	05.03.03.1427	PTO decal
I	05.03.03.1930	Rotary cutters decal
J	05.03.03.1087	Final test decal
K	05.03.03.1127	Breather decal
L	05.03.03.4078	Lifting points decal
M	05.03.03.4247	Lubrication points decal

Data sheet

RC² 1300

Type	Rotary cutter
Model	RC² 1300
Cutting width (mm).....	1300
Number of blades	02
Cutting height (adjustable) minimum.....	40 mm
maximum.....	140 mm
Hitching (Three-point hitch).....	category I and II
(PTO).....	540 rpm
Blades rotation (PTO at 540 rpm).....	1038 rpm
Tractor required (hp).....	36
Gearbox (Oil volume).....	2.60 liters
Width (mm).....	1600
Length (mm)	2210
Height (mm).....	1150
Weight (kg).....	438

RC² 1500

Type	Rotary cutter
Model	RC² 1500
Cutting width (mm).....	1500
Number of blades	02
Cutting height (adjustable) minimum	40 mm
maximum	140 mm
Hitching (Three-point hitch).....	category II
(PTO).....	540 rpm
Blades rotation (PTO at 540 rpm).....	1038 rpm
Tractor required (hp).....	50
Gearbox (Oil volume).....	2.60 liters
Width (mm).....	1800
Length (mm)	2375
Height (mm).....	1175
Weight (kg)	493

Data sheet

RC² 1700

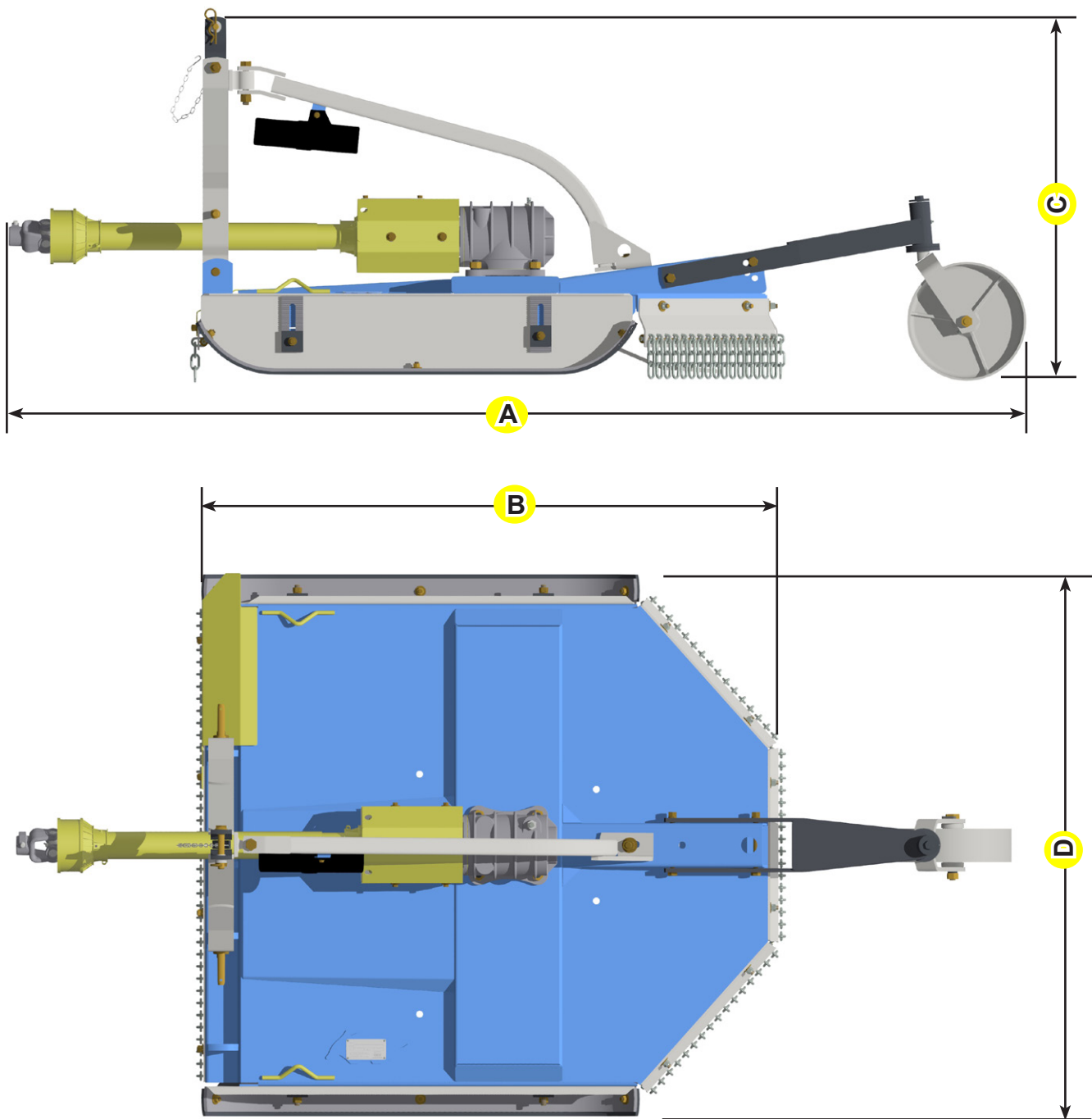
Type	Rotary cutter
Model	RC² 1700
Cutting width (mm).....	1700
Number of blades	02
Cutting height (adjustable) minimum	40 mm
maximum	140 mm
Hitching (Three-point hitch).....	category II
(PTO).....	540 rpm
Blades rotation (PTO at 540 rpm).....	1038 rpm
Tractor required (hp).....	60
Width (mm).....	2000
Length (mm)	2575
Height (mm).....	1180
Weight (kg).....	544

ATTENTION / The rotary cutters are designed for agricultural use only and they should not be used in urban areas.

Do not allow any people closer while the equipment is working.

Data sheet

Equipment dimensions



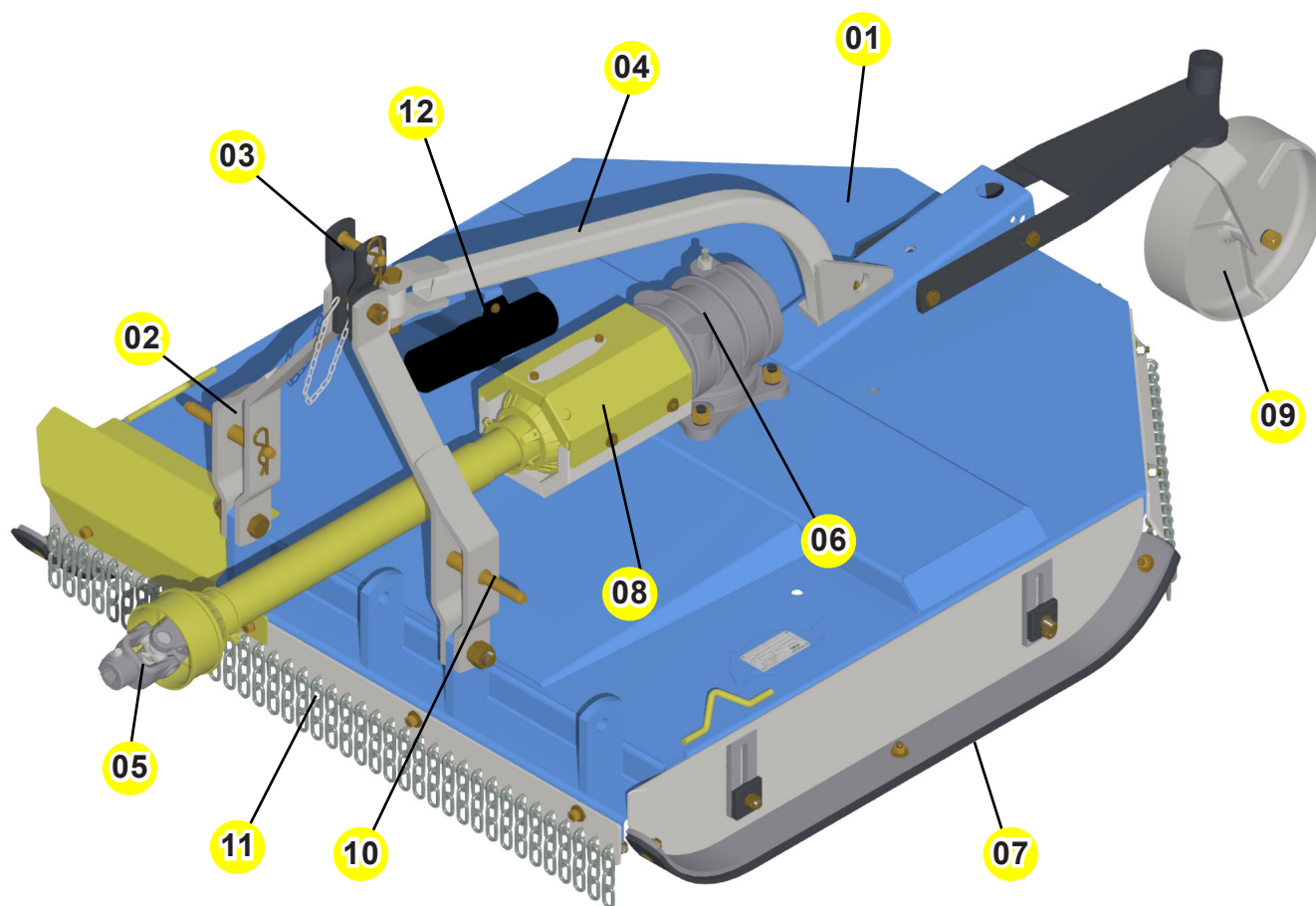
Models	A*	B	C*	D
RC ² 1300	2990	1710	1150	1600
RC ² 1500	3115	1860	1175	1800
RC ² 1700	3235	2100	1180	2000

NOTE • Measures in millimeters.
• * Measures may change due to the equipment adjustments.

Components

RC² 1300 / RC² 1500 / RC² 1700

- | | |
|------------------------|--------------------------|
| 01 - Frame | 02 - Drawbar |
| 03 - Drawbar extension | 04 - Angle bar |
| 05 - Cardan shaft | 06 - Gearbox |
| 07 - Side skids | 08 - Protection cover |
| 09 - Iron wheel | 10 - Hitch pin |
| 11 - Chain protection | 12 - Manual storage tube |



Set-up instructions

Preparing the tractor

Before starting working, prepare the tractor and equipment properly.

Check the general condition of the tractor, giving special attention to the hydraulic system.

The addition of water ballasts on the tires, a set of weights on the front part of the tractor or on the rear wheels are the most used means to increase soil traction and to give a greater stability to the set.

The front and rear gauges on the wheels must be equal (measuring from center-to-center of the tires).

Carefully follow the instructions on the equipment and tractor manual for the best performance of both.

Hitching to the tractor

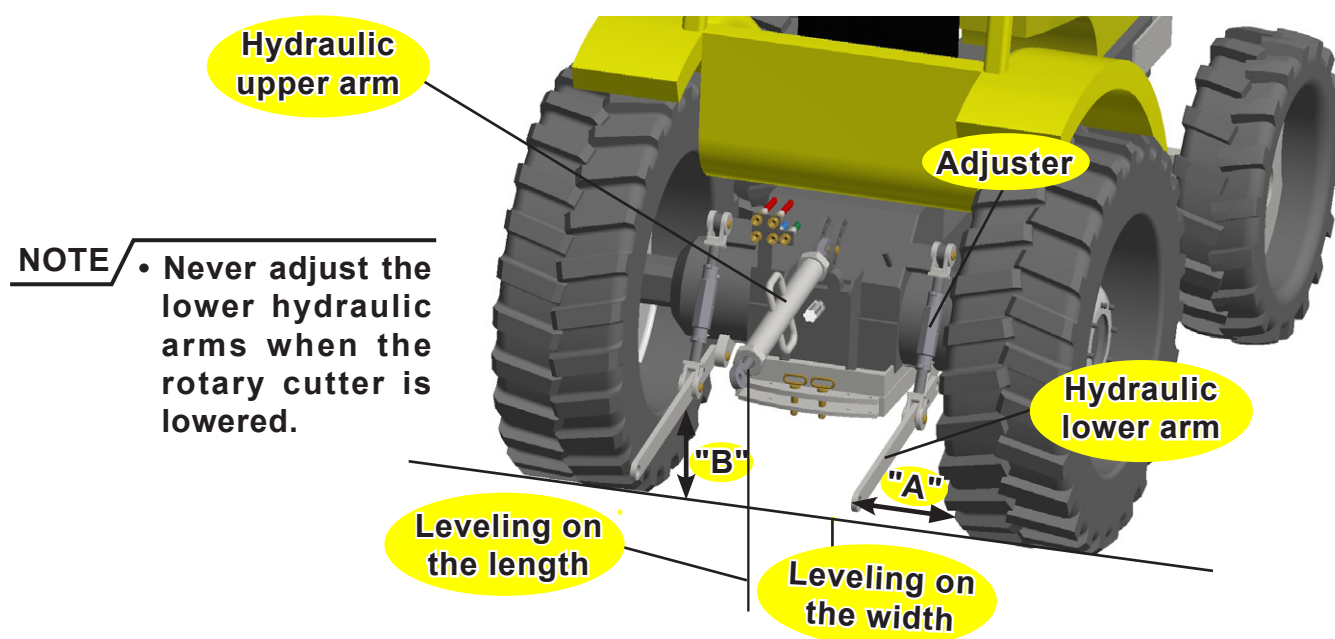
For hitching, choose a place as flat as possible.

Drive the tractor slowly in reverse gear and be ready to brake. When close enough, use the lever to control the hydraulic position and leave the left lower arm on the same level as the rotary cutter hitch pin.

1) Hitch the right and left arms that have up and down movements through the arm adjustment and place the lock pins. By doing so, the extension thread of the upper arm can be used to approach or move away the equipment, thus facilitating hitching.

2) Place the upper arm (three-point hitch) and lock using a lock pin. For a perfect hitching, the equipment must be centralized with the tractor, which is done as follows:

- Align the equipment drawbar with the tractor three-point hitch.
- Totally lift the equipment.
- Check if the distances between the lower arms and the tires are equal on both sides (as in "A"), being them leveled. (as in "B").

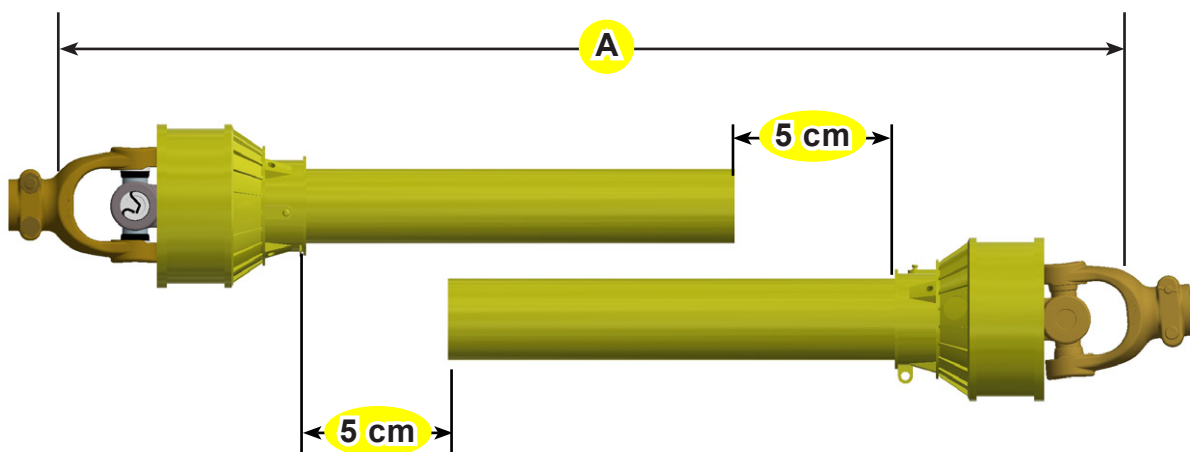
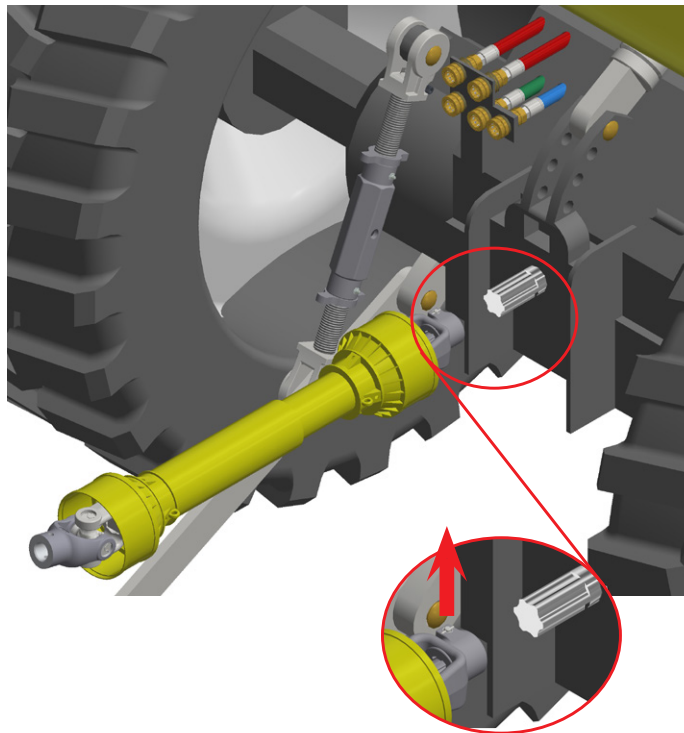


Set-up instructions

Coupling the cardan shaft

First of all, check the cardan shaft length as follows:

- 1) Being the equipment properly hitched to the tractor, but without the cardan shaft, move the hydraulics to find the minimum distance (A) between the power take-off and gearbox.
- 2) Separate the cardan shaft and couple the female part to the power take-off. To do so, turn the quick lock on the clockwise direction and push it until the locking device fits. Right after, release the lock and pull it to confirm that it has locked;
- 3) Being the cardan bars placed side by side, check if there is a minimum clearance of **5 centimeters**.

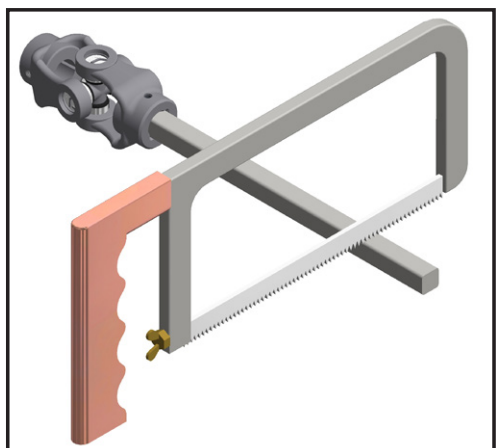
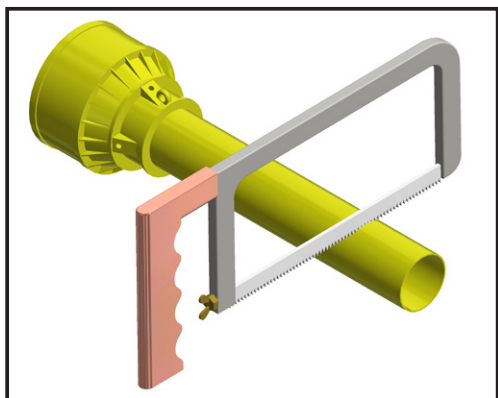


Set-up instructions

Reducing the cardan shaft length

If it is necessary, cut similar parts of the male and female drive shaft as well as the protecting covers. But before cutting the shaft, verify all possibilities of usage without reducing its length.

The length adjustment will be done when the distance between the equipment and the tractor do not allow coupling. Proceed as follows:



- First of all, disassemble the protecting covers.

- Cut the hub and the solid bar (male and female) in the desired measures. In order to do so, couple half of the cardan in the tractor and half in the equipment, placing the semi-cardans in parallel and in several operating positions. Then, determine the correct length and mark the cutting area.

- It is important to give finish working in the cut parts. For this purpose, use a filer. Soon after, remove the filing and lubricate the 'male' with a fine layer of grease.

- Decrease the length of both protective covers, using the cut tubes as a measure and clean the cut residues.

- After that, assemble the cardan according to the assembly instructions on the following page.

- When using another tractor to work with the equipment, verify the length of the cardan shaft again.

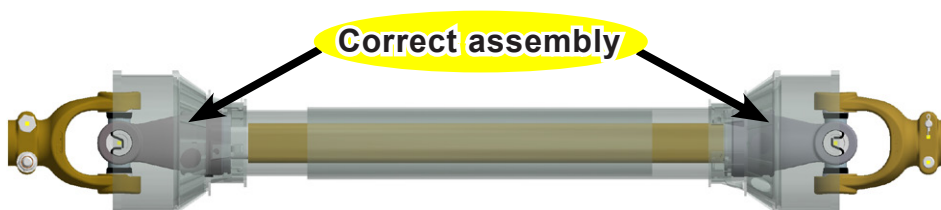
- The chains of the protective covers should be fastened in the equipment and in the tractor, so that they will not get loose during maneuvers.

Set-up instructions

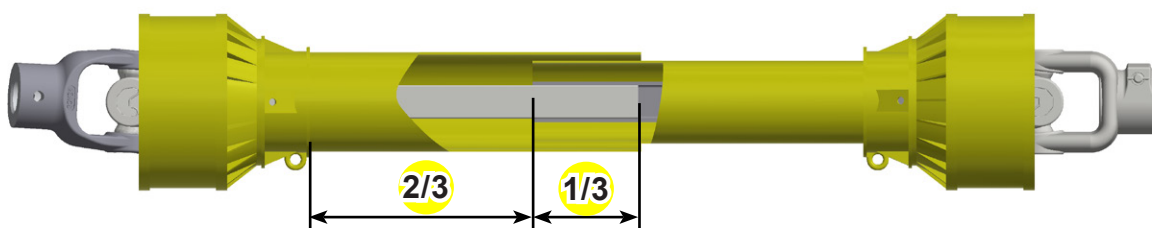
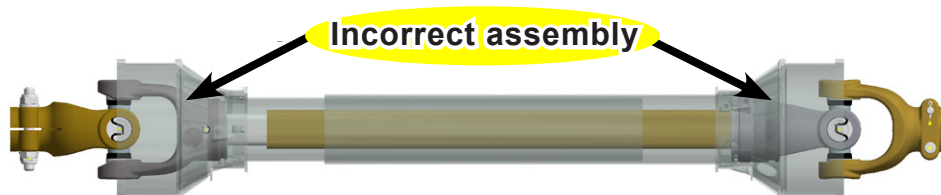
Cardan shaft assembly

When assembling the cardan shaft, it is necessary to be careful and leave the terminals on both ends aligned. The discrepancy of the terminals in 90° will cause vibrations and a greater wear on the universal joints, reducing the lifetime of the set.

Observe the internal forks alignment



Unaligned internal forks



NOTE The contact surface between the hub and the bar shall not be smaller than $\frac{1}{3}$ of the total length.

Set-up instructions

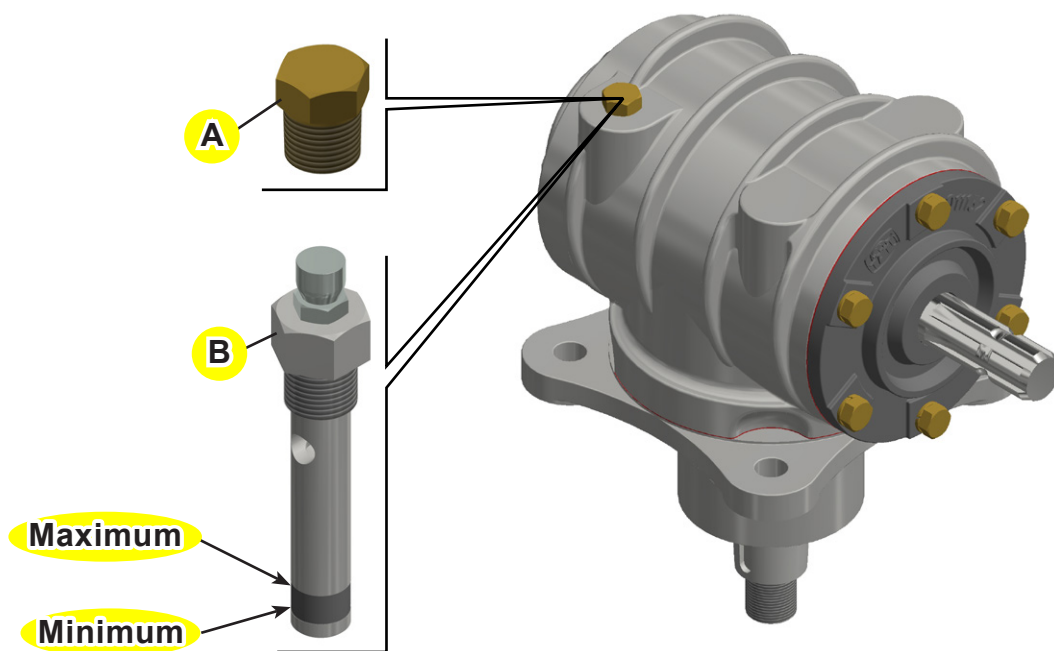
Assembly of the oil level marker with breather

Remove the plug (A) from the gearbox and place the oil level marker with breather (B).

At this moment, check the oil level by just placing the marker on the hole without tightening it; the marker must have reached the lower mark (minimum level). The upper mark (maximum level) must be reached only when the markers are tightened.

The oil level must be adjusted according to the indication in the markers, being the rotary cutter in a flat place.

Use only SAE 90 oil.



NOTE

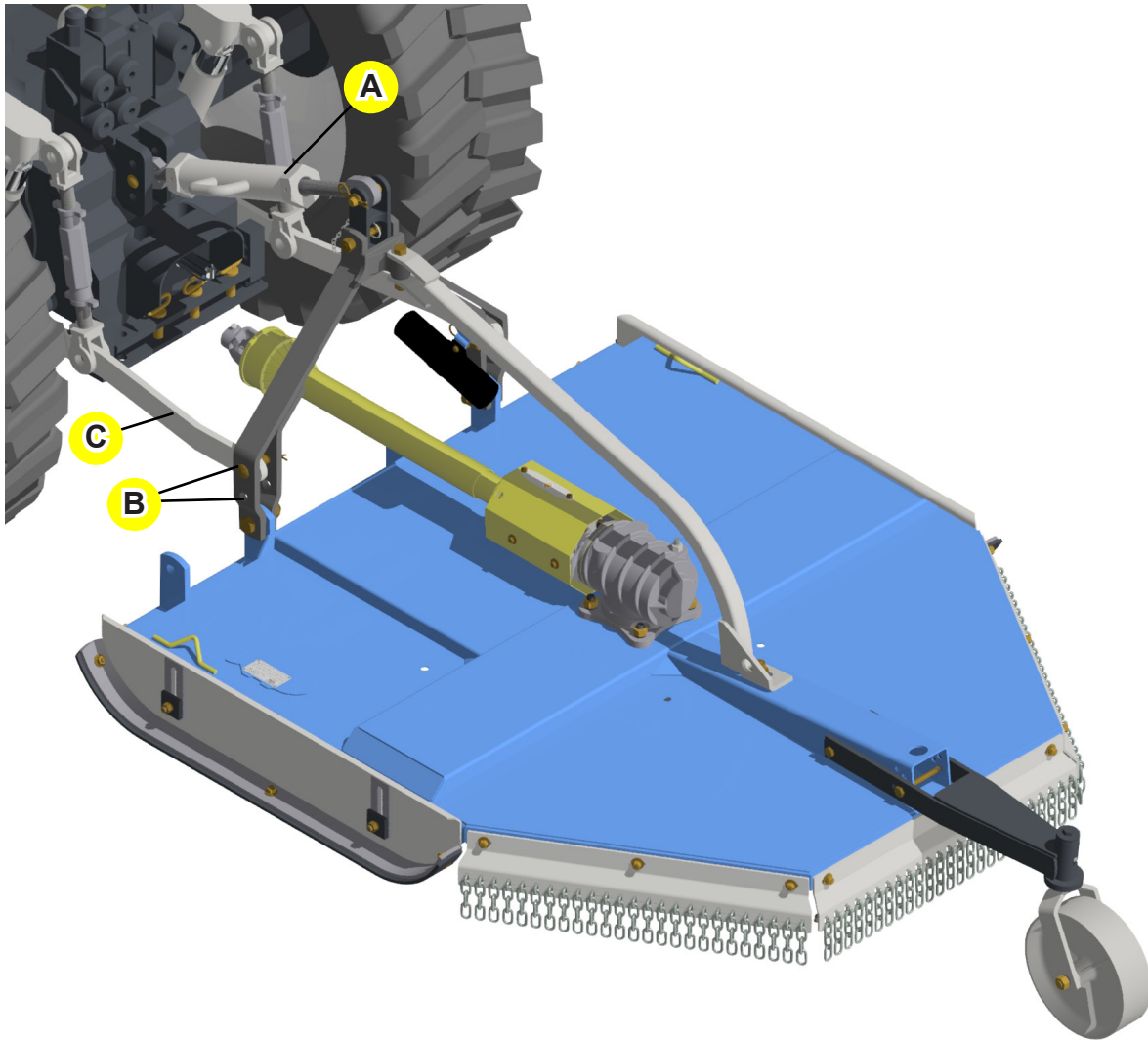
- The amount and type of oil that goes on the components can be found on the 'maintenance' section.

Set-up instructions

Longitudinal leveling

Carry out the adjustments on a flat place, being the equipment properly coupled to the tractor.

Level the rotary cutter through the upper (A) and lower right arm, which have adjustments.



NOTE

- For the RC² 1500 and RC² 1700 models, check the drawbar holes (B) before hitching the rotary cutter to the tractor. According to the tractor model, connect the hydraulic arm (C) on the upper or lower hole to leave the equipment leveled.
- The bar (C) must be free so that the equipment can move.

ATTENTION

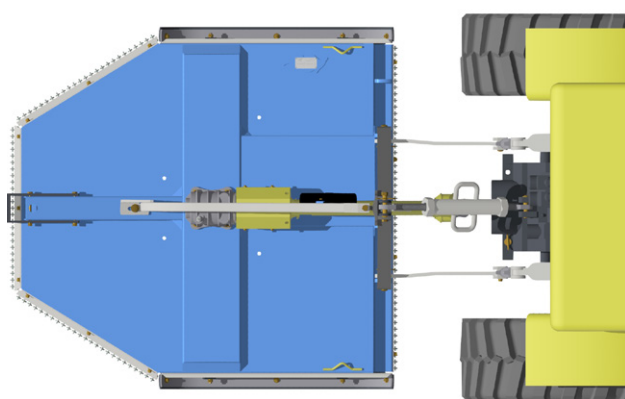
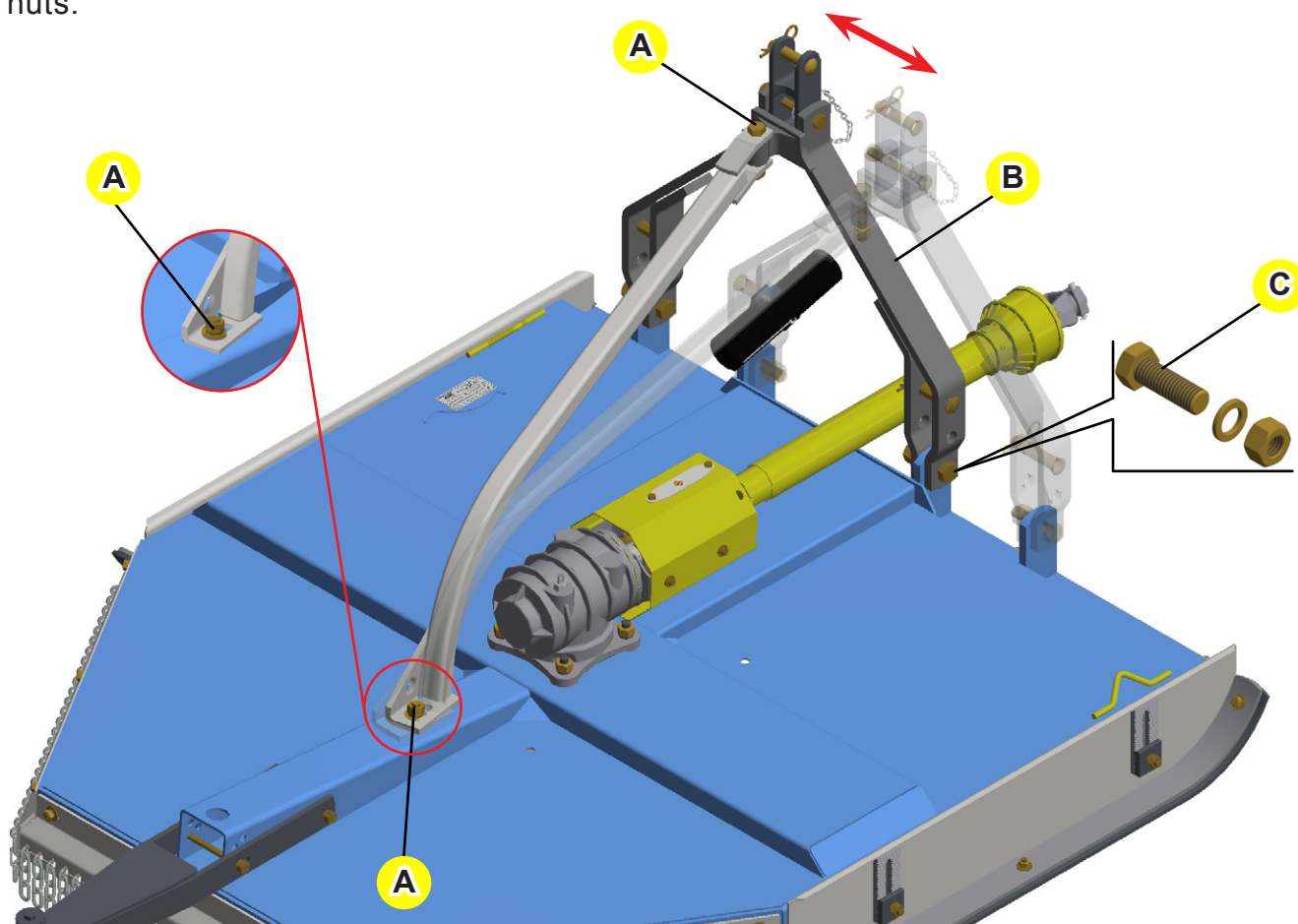
- The RC² 1300 model does not have the hole (B) adjustment on the drawbar.

Set-up instructions

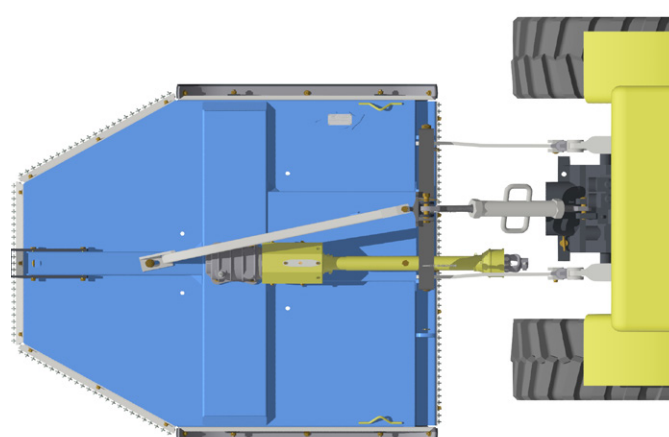
Working position

The RC² 1300, RC² 1500 and RC² 1700 rotary cutters can work in a central or lateral position related to the tractor. If it is necessary to change the position, follow the instructions below.

- Loosen the bolts that fasten the angle bar (A) without removing them.
- Displace the drawbar (B) on the frame removing the bolts (C), spring washers and nuts.



Centralized

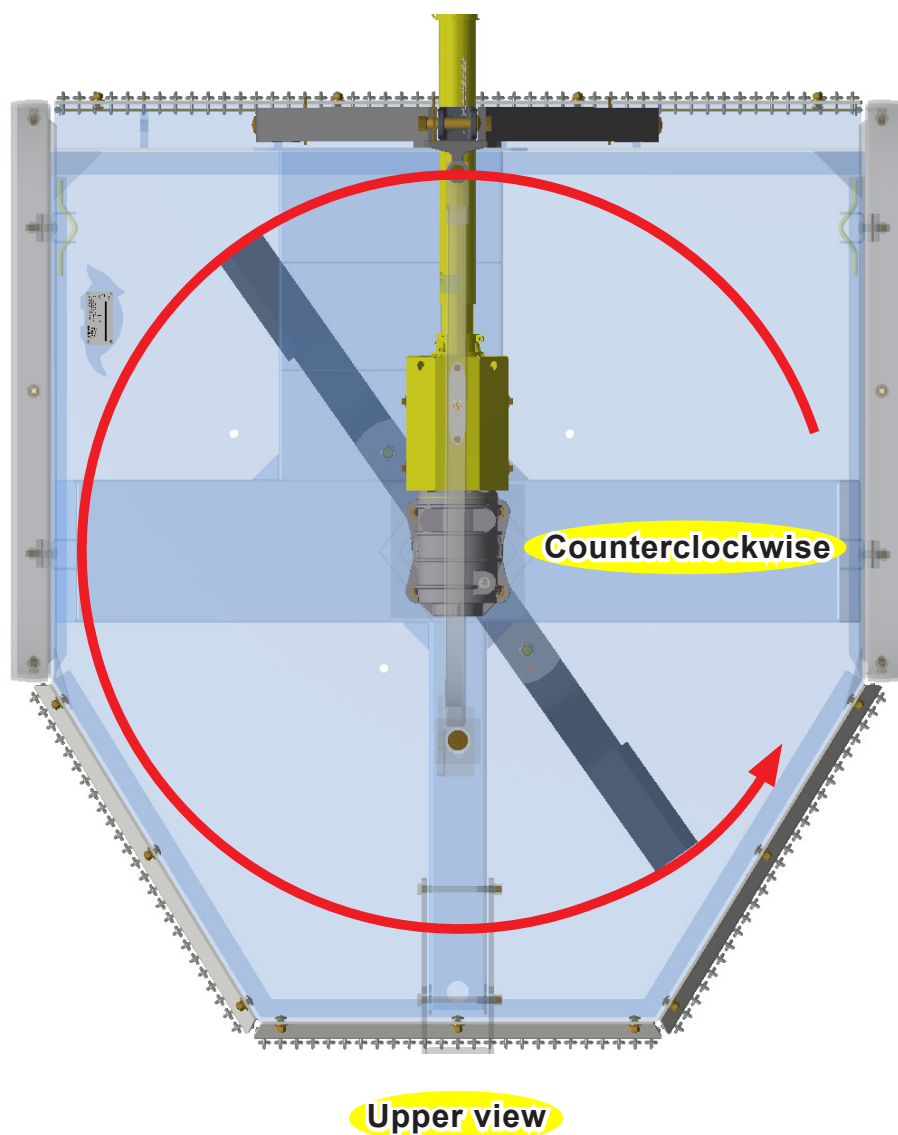


Displaced

Adjustments and operations

Direction of blades rotation and serial number

These rotary cutters have blades that turn in a counterclockwise direction.



RC² 1300 - Duromark blades - **06.22.40.0053**

RC² 1500 - Duromark blades - **06.22.40.0054**

RC² 1700 - Duromark blades - **06.22.40.0054**

Daily working preparation

Before starting working it is advisable to do a complete check on the rotary cutter. Retighten nuts and bolts.

Lubricate every grease fitting appropriately. (See the lubrication instructions).

NOTE / • Check how to replace the blades on the 'maintenance' section.

Adjustments and operations

Cutting height of the blades

Being the equipment leveled, adjust the cutting height of the blades as follows:

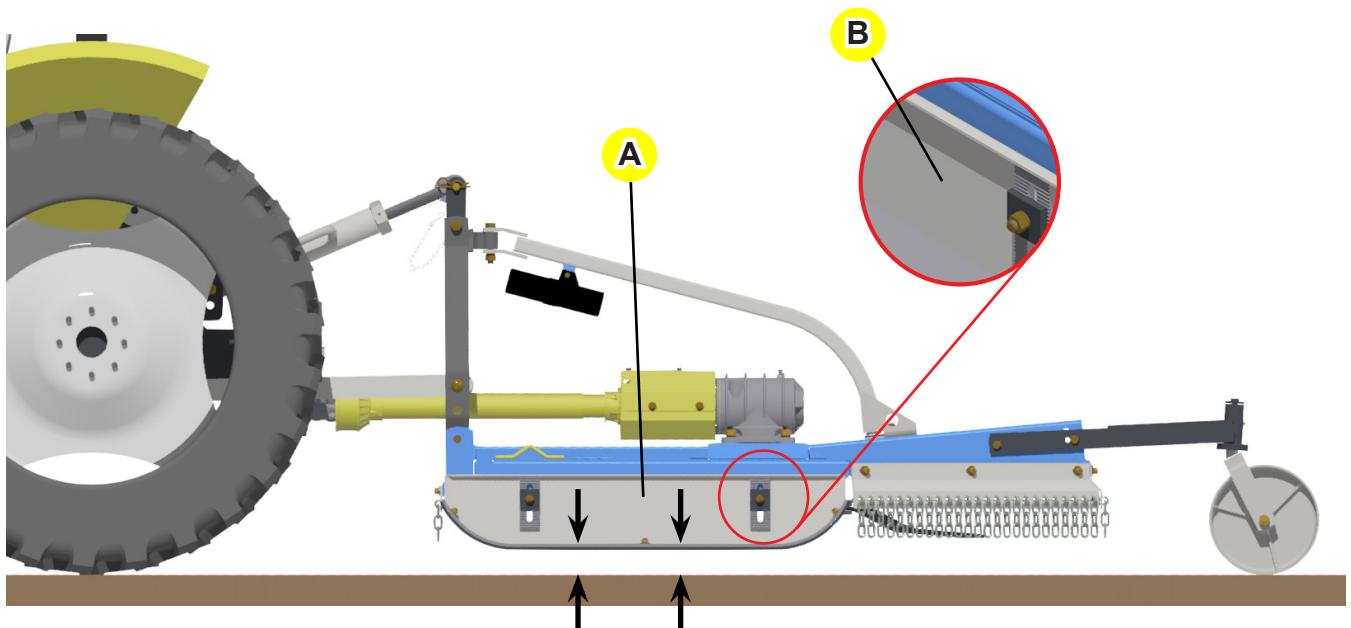
Use the hydraulic lever to determine the cutting height. After this adjustment, keep the lever locked during the whole job and just activate it if it necessary to change the cutting height;

Adjust the skids (A) height by loosening the bolts (B) and then adjusting to the desired cutting height;

After the height adjustment, retighten the bolts.

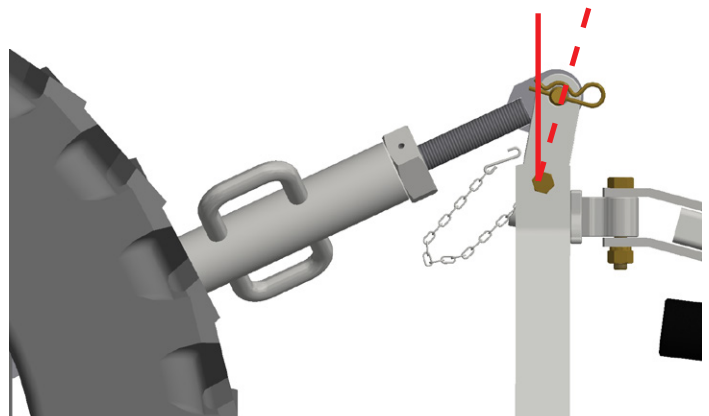
NOTE

- When changing the cutting height, it is also necessary to adjust the levers of the hydraulic system to level the rotary cutter again.
- For a better performance, we recommend a cutting height of at least 40 mm above the soil.
- It is necessary to turn on the blades first and then start the cutting operation.



Drawbar extension adjustment (Third-point articulation)

Use the upper arm from the third point to adjust the drawbar extension, in a way that it stays slightly tilted back, according to the figure. Therefore, the articulation will be enough to follow the unevenness of the soil surface.



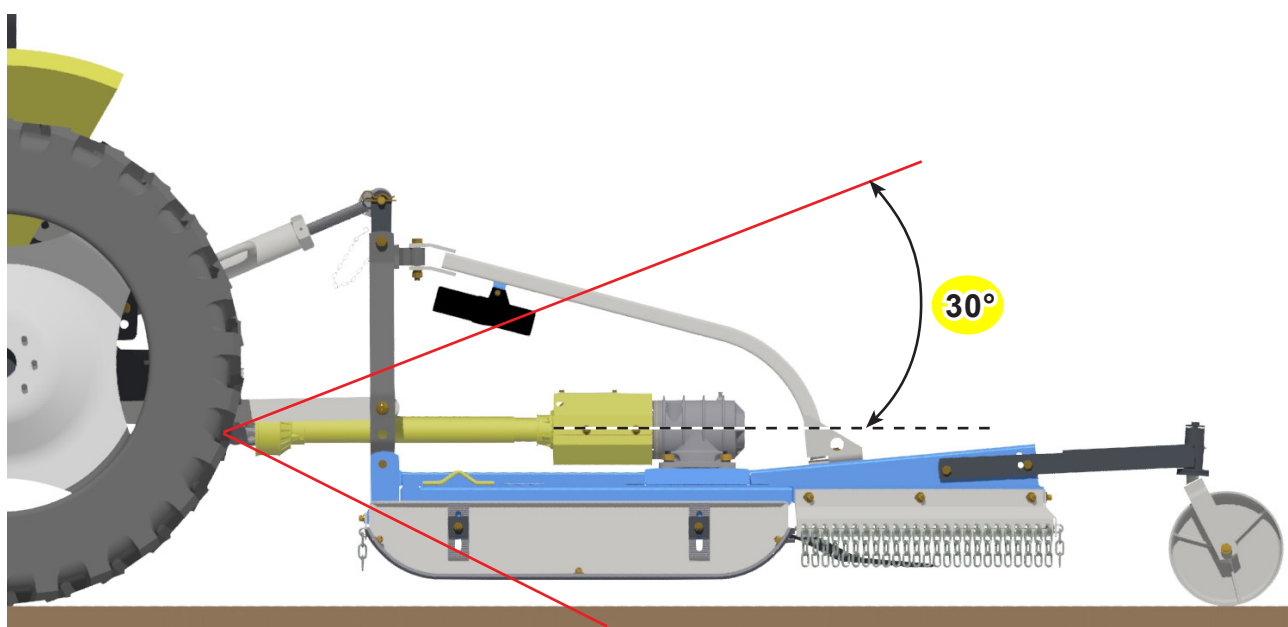
Adjustments and operations

On-field rotary cutter articulation

When starting the job, lift the equipment a little to remove the blades direct contact with the field. Couple the PTO and gradually start to increase the rotation to give movement to the set of blades. Right after, move the tractor by releasing the clutch gradually and increase the rotation on the range of the allowed rotation (**540 rpm**) simultaneously. When reaching the end of the row on the field, repeat the steps but on the opposite order, gradually decreasing the PTO and lifting the equipment a little so that the equipment can perform the maneuver. This simple procedure allows the coupling and uncoupling of the PTO to be done on a decreased rotation, thus assuring a greater lifetime of the equipment parts and tractor.

Never pass the maximum working angle (**25° - 30°**) as this can cause damages to the cardan set. If any strange sound is noticed when lifting the equipment, suspend the operation and be sure that all parts are in good condition.

- Cardan operation angle = 30° maximum.



- Do not allow any people or animal close when the equipment is operating.
- Be careful with the moving parts.
- Do not adjust the equipment while it is moving or when the transmission is activated.
- Never operate the equipment if the safety devices are not properly placed.
- Limit the lifting of the equipment so that it will not collide with the moving parts (cardan).

ATTENTION

- The rotary cutters are projected for agricultural use only, meaning that they must not be used on urban areas.

Adjustments and operations

Equipment transportation

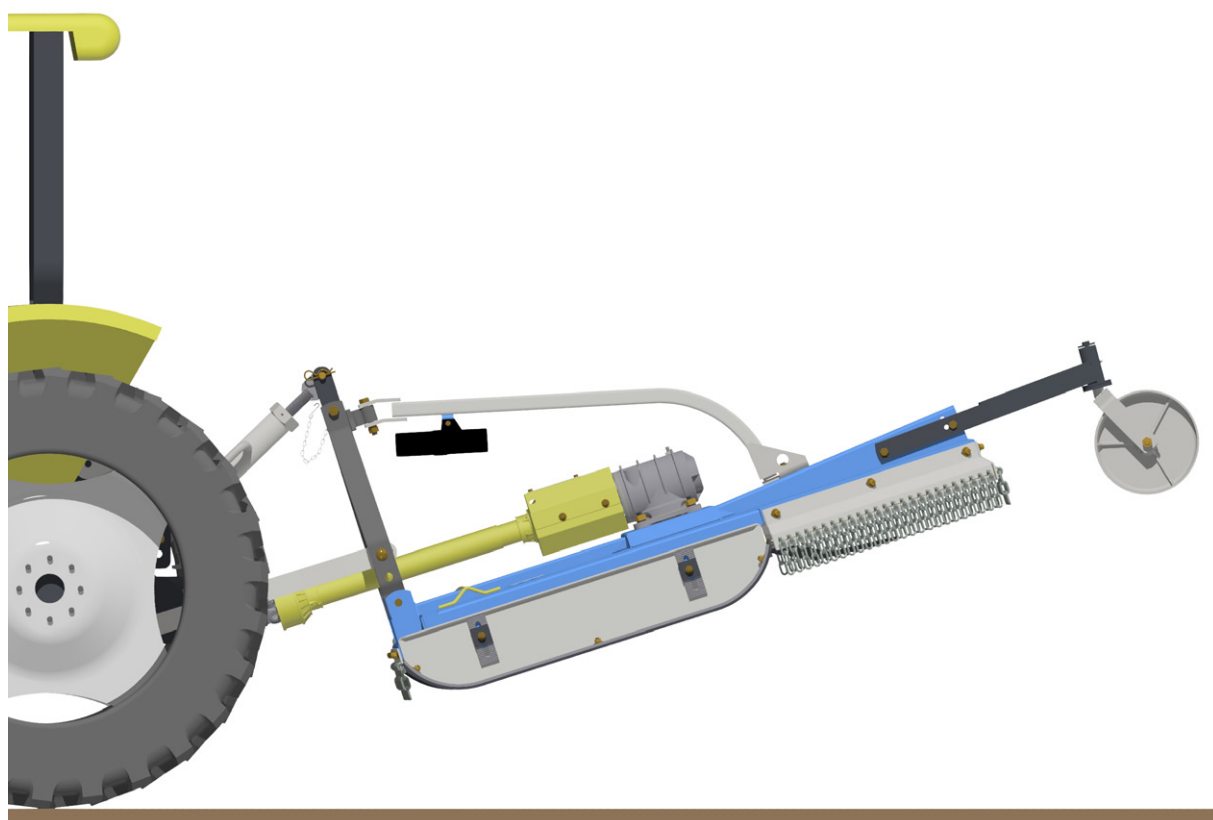
The equipment transportation while it is coupled to the tractor must not be done over public highways or roads. This practice must be limited to rural properties only.

If there is the need to transport the equipment over public highways or roads, consult the traffic current laws to check if it is possible to transport the equipment and to avoid any setback.

Over flat soils, never exceed the speed of **15 km/h** and over uneven soils, reduce the speed to assure a safe transportation.

To transport the equipment with the tractor, use the hydraulic arms and lift the equipment to the maximum.

Periodically check if the hydraulic arms are not losing height during transportation.



Adjustments and operations

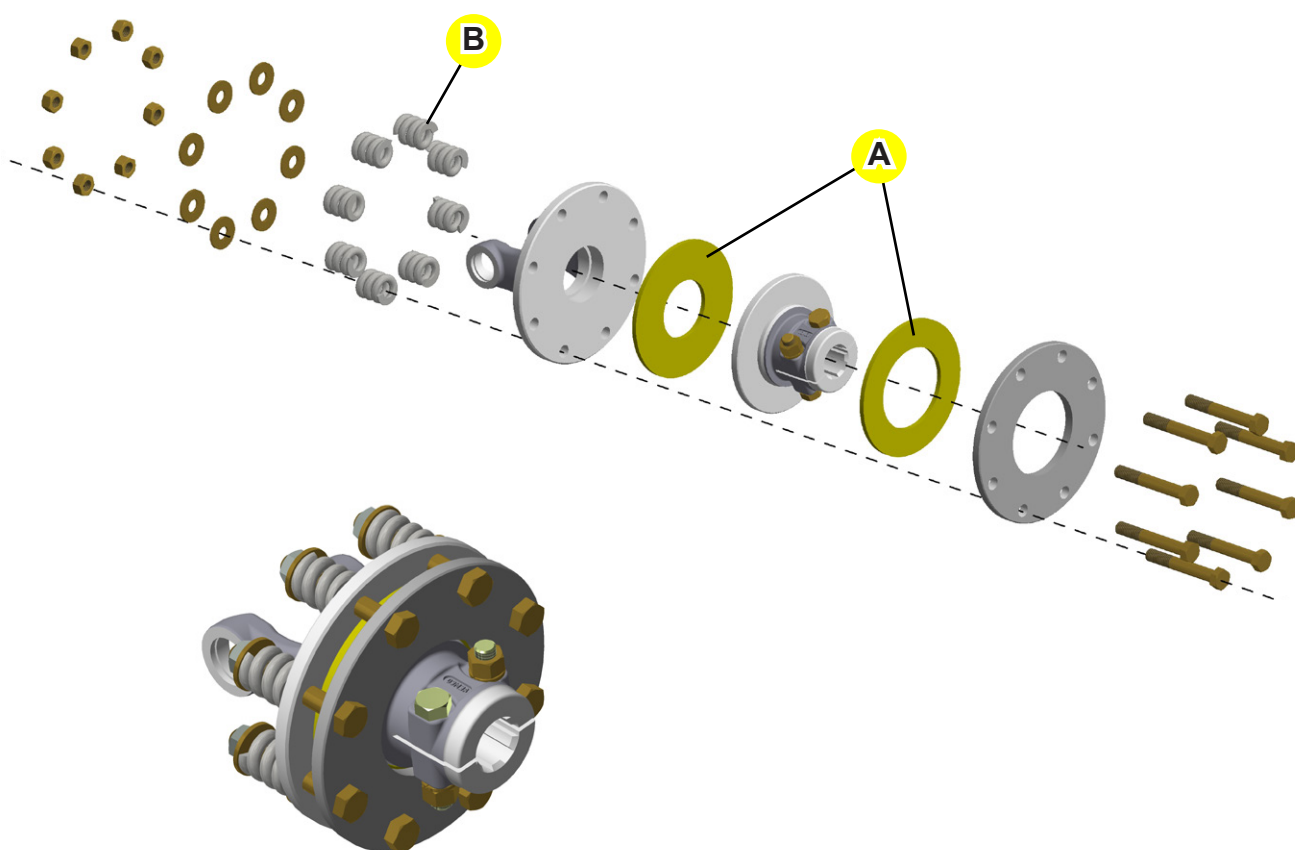
Slip clutch adjustment

When facing overloads, the slip clutch starts to work. Immediately lift the equipment to relief the overload.

A frequent activation of the slip clutch even when there is no overload may indicate the need to adjust it due to the wear caused on the plates (A).

Carry out the following procedures with the slip clutch:

- Visual checking of the slip clutch components. (Plates, springs, etc.);
- Tighten the springs proportionally, one by one, giving **1/3** of turn approximately;
- Repeat the same procedure every time the slip clutch starts to activate continuously;
- The springs (B) must be adjusted to have the same length.



NOTE

- When facing a field with great vegetation or if the cutting resistance is excessive, try to cut a narrower strip or decrease the operation speed.

Adjustments and operations

Troubleshooting guide

PROBLEM	CAUSES	POSSIBLE SOLUTIONS
Blades do not cut	Worn out or broken blades.	Replace them.
	Incorrect PTO rotation speed.	Correct rotation speed: 540 rpm.
	Excessive speed.	Reduce the speed.
	Blades do not work when the PTO is switched on.	Check the connection of the transmission shaft.
	Gearbox is not working properly.	Repair it.
	Turn direction of the blades.	Be sure about the correct turn direction of the blades and the turn direction of the gearbox.
Irregular cut	Worn out or broken blades.	Replace them.
	Excessive speed.	Reduce the speed.
	Excessive cutting height.	Lower the cutting height.
	Vegetation of great density and with an excessive height.	Reduce the speed.
	The cutter is not properly leveled.	Adjust the level properly.
Excessive slippage of the slip clutch	Unadjusted slip clutch.	Adjust the clutch.
	Worn out slip clutch plates.	Replace them when they reach a minimum thickness of 1.5 mm.
	Slip clutch springs adjustment.	Keep the 28 mm adjustment in the springs.
Vibration	Broken blades.	Replace them.
	Wrong length of the cardan shaft.	Check the correct length.
	Assembly of the universal joints of the cardan shaft.	Check the correct assembly of the universal joints.
Noisy cutter	Loose parts.	Tighten all bolts and nuts.
	Low oil level in the gearbox.	Check the oil level.
Tip and blades get worn out very quickly	Blades touching the soil.	Adjust and operate at a height that will not touch the ground.
	The cutter is not operating with a correct PTO speed.	Keep a correct PTO speed.

Adjustments and operations

OPERATIONS - Important points

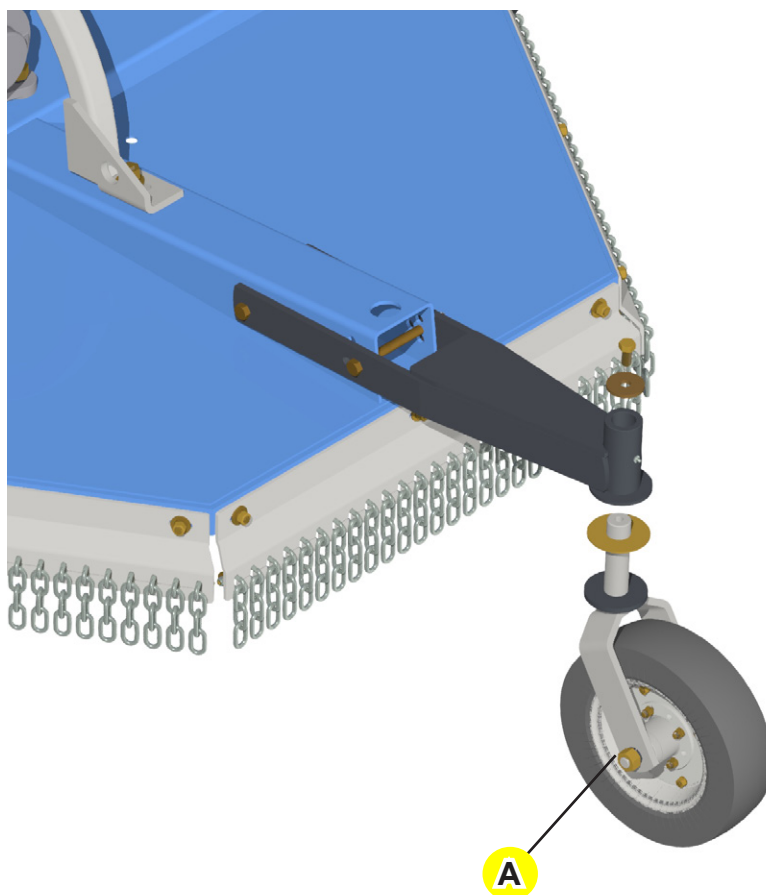


- Before starting working, it is advisable to do a complete check on the cutter. Grease the universal joints, check the oil level in the gearbox and tighten nuts and bolts.
- In order to couple and to uncouple the cardan shaft, the PTO should be disengaged.
- During transportation or when making any inspection in the cutter, keep the PTO disengaged.
- The ideal working speed of the PTO is **540 rpm**. See the corresponding engine revolution rate in the tractor manual.
- For a better performance, we recommend a cutting height of at least **40 mm** far from the ground.
- In order to get a good result, the working place should be free from stubs and stones.
- Put the blades into ideal operation speed before starting cutting the vegetation.
- In a vegetation of great density we recommend using a low speed and maintaining the PTO speed constant at **540 rpm**.
- When facing an overload the belts will skid, therefore it is necessary to stop the job immediately.
- It is important to maintain the **28 mm** distance in the springs of the clutches in order to compensate the adjustment of the plates and to maintain a good slip clutch operation.
- In excessively waved soils, the cutting height adjustment should avoid that the blades touch the ground excessively.
- Keep the equipment leveled.
- Do not work the PTO being the blades stuck to earth, sticks and stones. Objects can be tossed and cause serious wounds.
- During working or transportation, the presence of passengers on the tractor and rotary cutter is not allowed.
- Do not change the tractor speed, because this act can result in an efficient mowing with flaws. Maintain an average speed and keep it during the whole job.
- Recommended average speed = **4 to 6 Km/h**.
- As previously mentioned, these rotary cutters have several adjustments. However, only the local conditions can determine their best adjustment.

Optional

Laminated tires

Optionally, these cutters can be supplied with rear laminated tires (A) to relieve weight from the three-point hitch and to help when adjusting the cutting height.



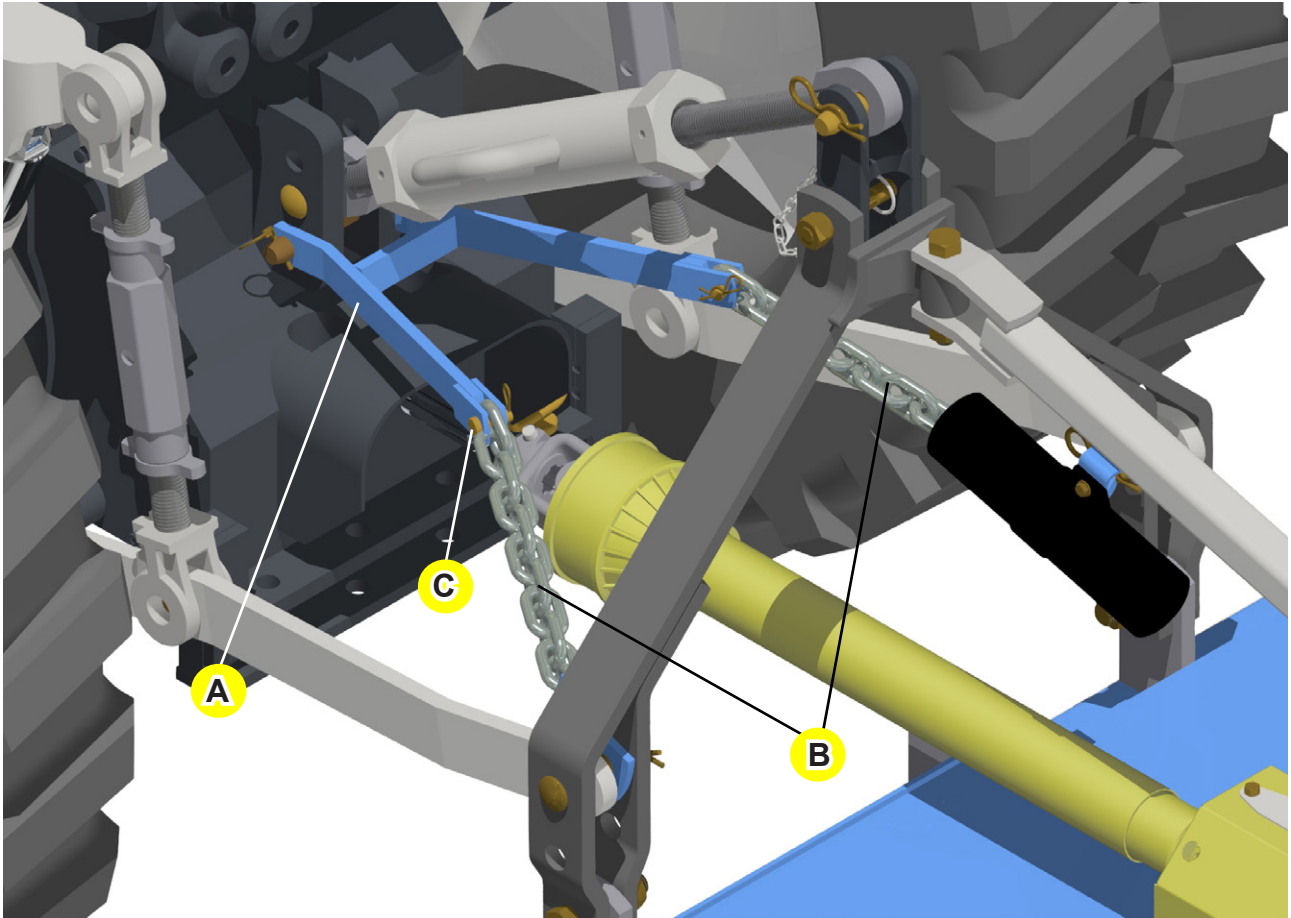
NOTE / The rear laminated tire can be useful to set the cutting height of the blades by its adjustment (hole) found in the fixation support.

Optional

Stabilizer set

The stabilizer set (A) can also be supplied optionally to transfer part of the rotary cutter weight to the rear axle of the tractor, in order to relieve the hydraulic system.

This set has a chain (B) adjustment by releasing the pins (C) and setting their length.



NOTE / This adjustment must be done being the rotary cutter in work position and with the cutting height already defined.

Maintenance

Lubrication

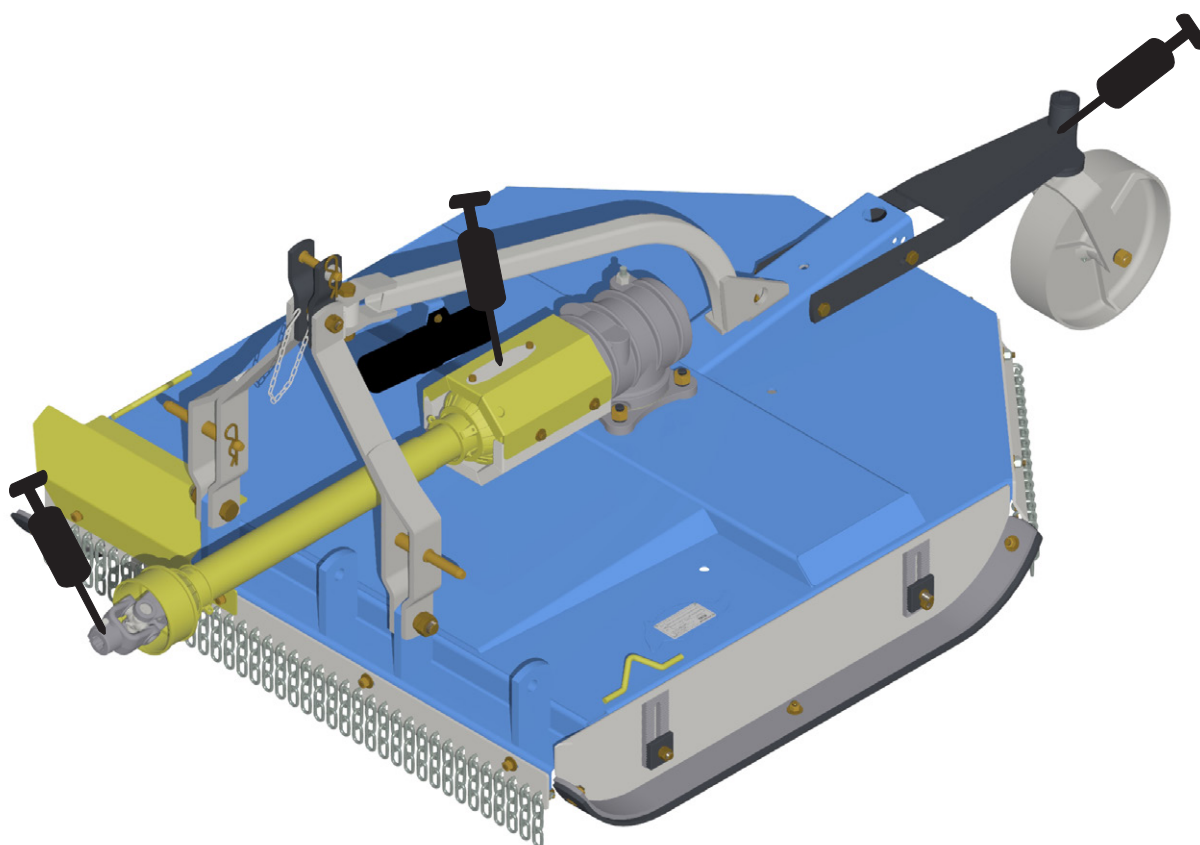
Observe daily if the nuts and bolts are tightened and the conditions of the pins and cotter pins.

The maintenance of the gearbox should be done in the following way:

- When starting to work and everyday of the first working week, check the oil level through the indicators of level and fill up if necessary.
- Then, verify the oil level monthly.
- Clean the grease fittings and insert a sufficient amount of fresh grease. Use the table below to see the indicated greases for the hub of the blades.

- NOTE**
- Do not add oil above the indicated level.
 - The oil capacity of the gearbox is 2.6 liters.
 - Use only SAE 90 oil.

Lubrication points - Lubricate daily



Manufacturer	Specification
FL-Lubrificantes	Tutela Alfa 2K grease
Castrol	EPL 2 grease
Shell	Alvania EP(LF) 2 grease
Ipiranga	Ipiflex EP 2 grease
Ipiranga	Litholine EP 2 grease

ATTENTION Besides the indicated spots, it is necessary to lubricate all grease fittings.

Maintenance

Replacement of the blades

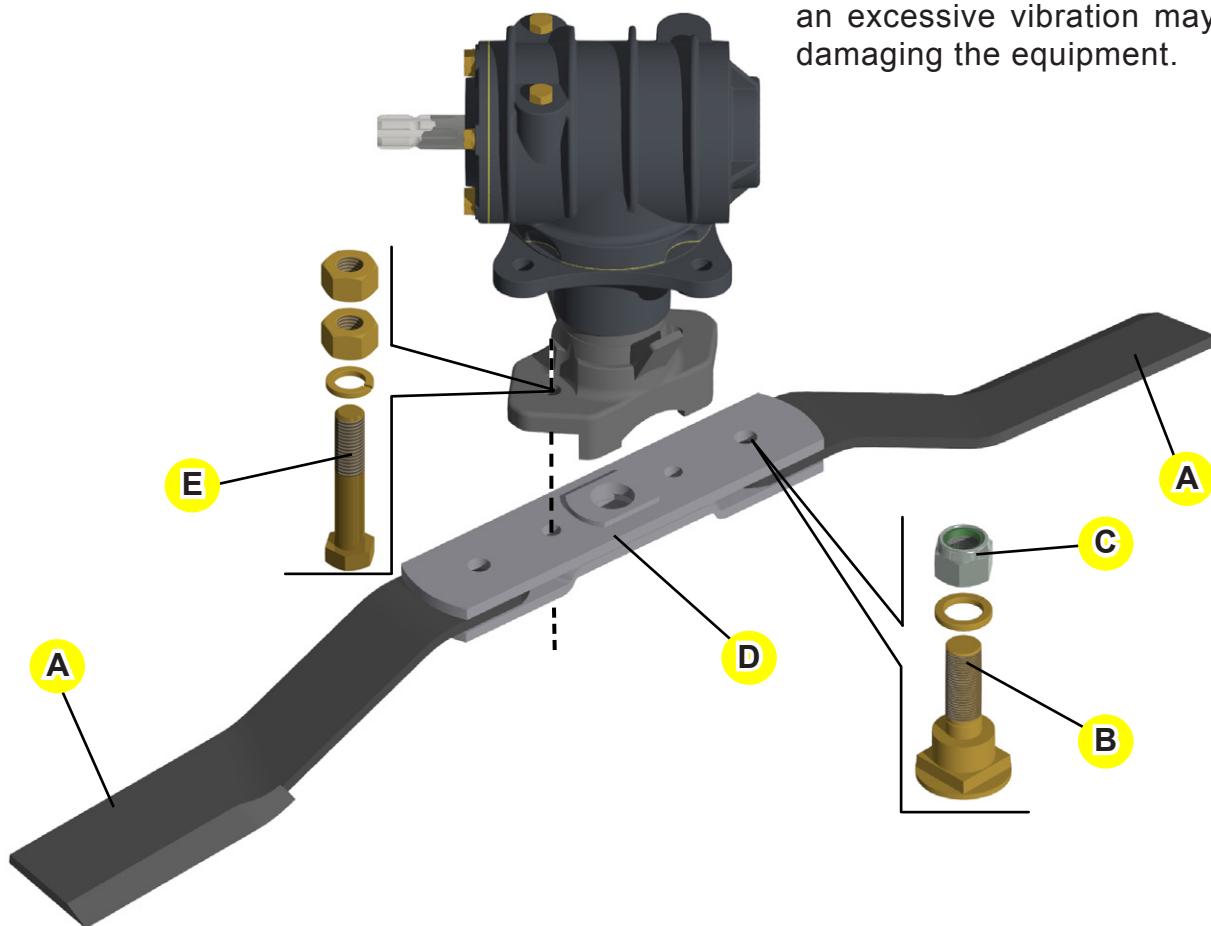
Inspect blades before each use to determine if they are properly installed and in good conditions. Replace any blade that is bent, excessively nicked, worn or has any other damage. Besides that, the blades must be replaced as soon as some cutting imperfection is being noticed.



Keep away from the blades and rotating shaft until the motion has stopped. Failure to do so may result in serious injury.

Always replace both blades, using the pair of blades supplied by the factory.

To replace the blades (A), release the bolts (B) along with the spring washers and nuts (C). After the replacement, check if the blades can swing freely. If this is not the case an excessive vibration may occur, damaging the equipment.



- NOTE**
- When replacing the blades it is necessary to replace the bolts (B), spring washers and nuts as well.
 - Use TATU original blades only, as they are made of special heat-treated alloy steel. Other blades may not meet the specifications and cause flaws.

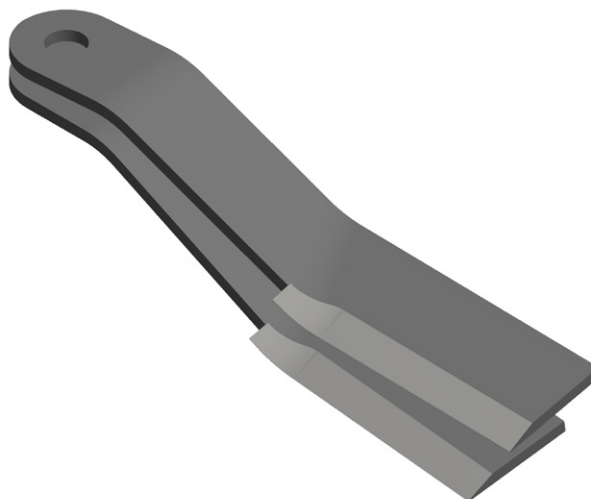
Removing the blades lower support

To remove the lower support (D), remove the bolts (E), spring washers and nuts.

Maintenance

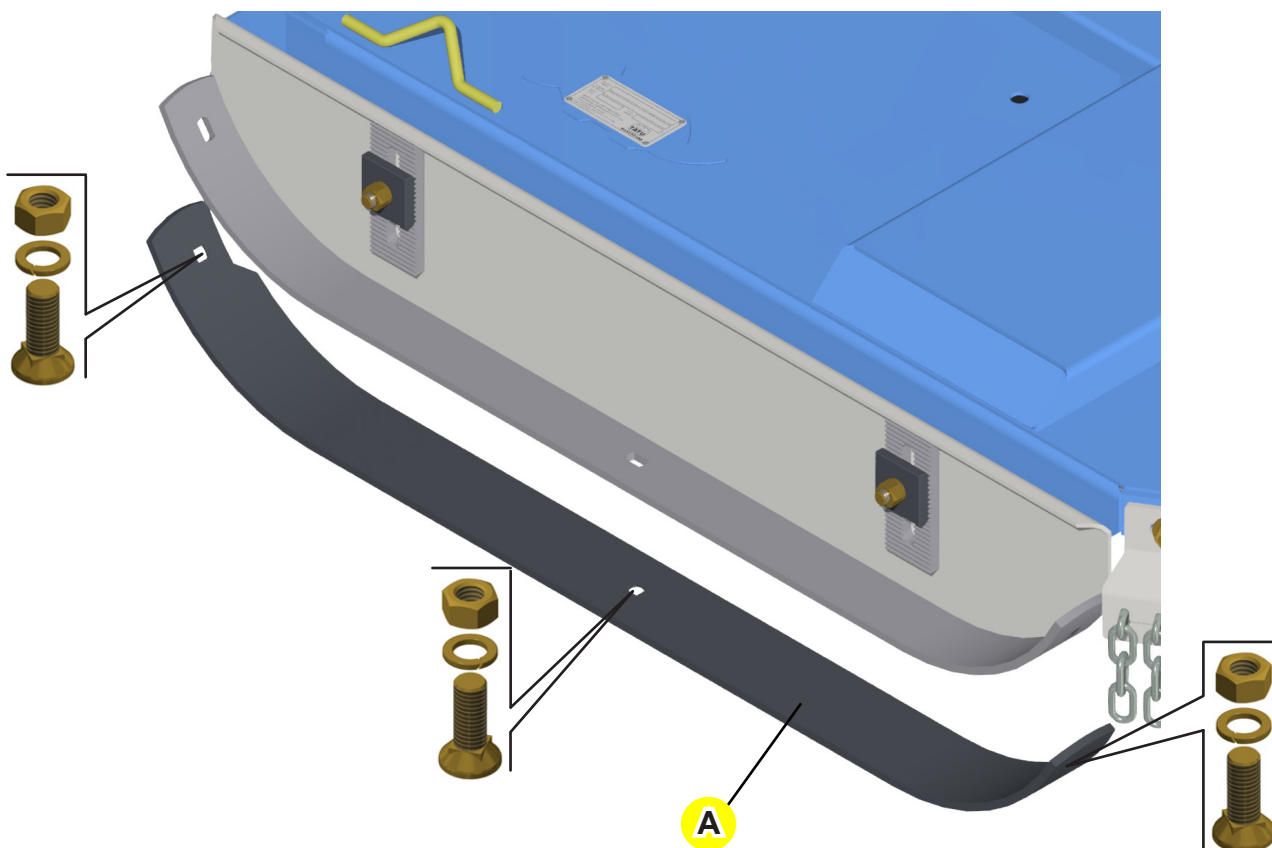
ATTENTION When replacing the blades, observe that they are supplied in pairs, which should be kept together until assembled on the cutter spindle. Unbalanced blades may cause excessive vibration and can damage bearings, retainers and the transmission box.

The discrepancy in weight of these blades is within the tolerance specified in the project.



Replacement of the skid guides

Periodically check the skid guides (A) and replace them as soon as excessive wear is noticed. Proceed in the same way with bolts, flat washers and nuts.



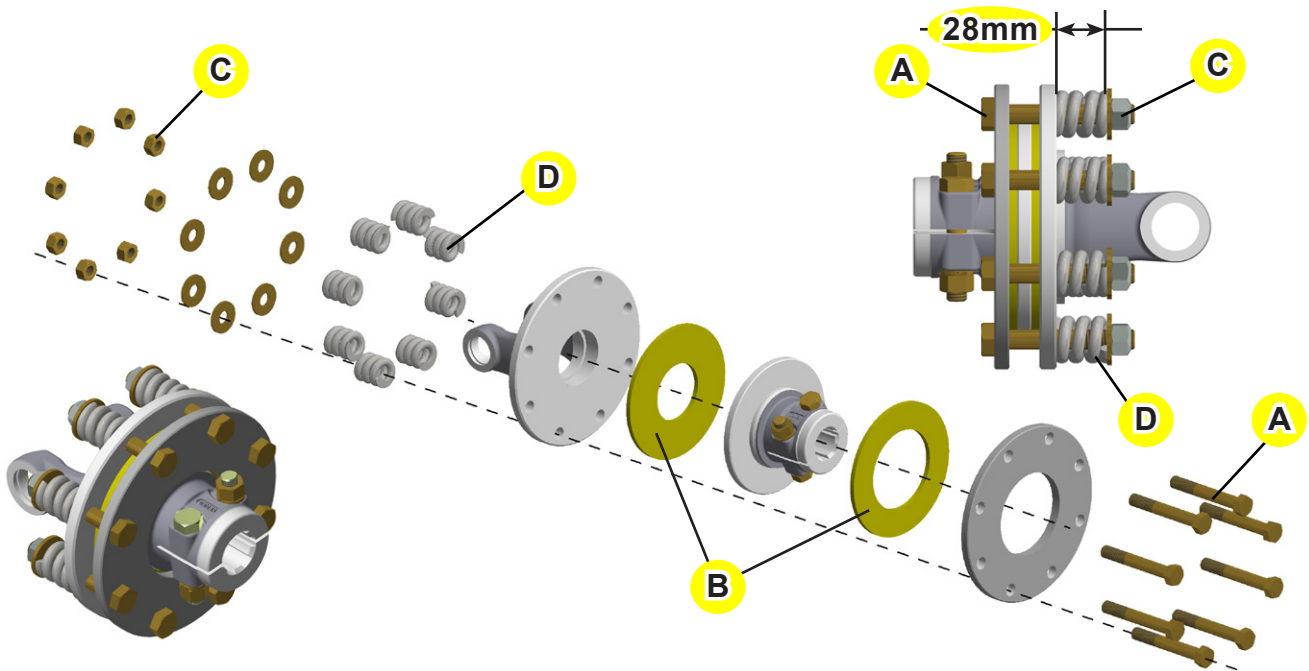
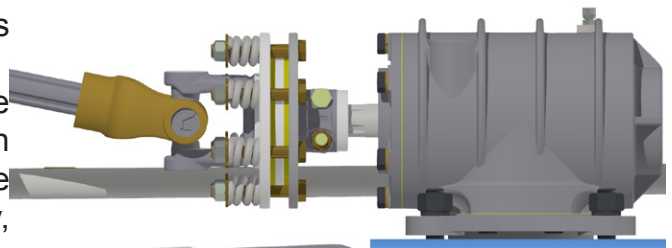
Maintenance

Slip clutch

The slip clutch is assembled both in the gearbox and in the cardan shaft, being also assembled in the metering box shaft. It is designed to slip, absorb operation loads and to protect the drive shaft. The slip clutch is factory fitted with a specified torque, in order to protect the tractor and equipment.

Before starting the assembly, be sure that the metering box shafts are clean, without any ink and dirt. To facilitate the assembly, apply some grease in the grooves of the shaft. Do not assembly the cardan shaft without its protection cover.

Proceed the assembling process and be sure that the slip clutch terminal totally enter in the grooves of the metering box shaft. Put the bolts (A) and tighten the nuts (C) alternately, until they get the proper torque.



Tighten the bolts (A) from the compression spring that has a length of 28 mm to adjust the slip clutch (See details in the figure).

The slip clutch must be checked periodically and adjusted to compensate the friction of the set. The plates (B) have a thickness of 5 mm when they are new. Replace them as soon as they get to 1.5 mm. If the rotary cutter stays inative for a long period or in a humid place, carry out the verification on the next page to be sure that the plates and flanges are not oxidized. Things that must be checked weekly in the slip clutch plates: the presence of oil or grease and wearing/humidity that may cause corrosion of the plates.

IMPORTANT The plates (B) must be replaced as soon as they get to a thickness of 1.5 mm or before, if they show greater damages. In order to do so, loosen up the nuts (C) and disassemble the slip clutch.

Maintenance

Slip clutch

Check the average length of the compression springs (D) before disassembling them. Disassemble and sand the metallic parts that are attached to the plates.

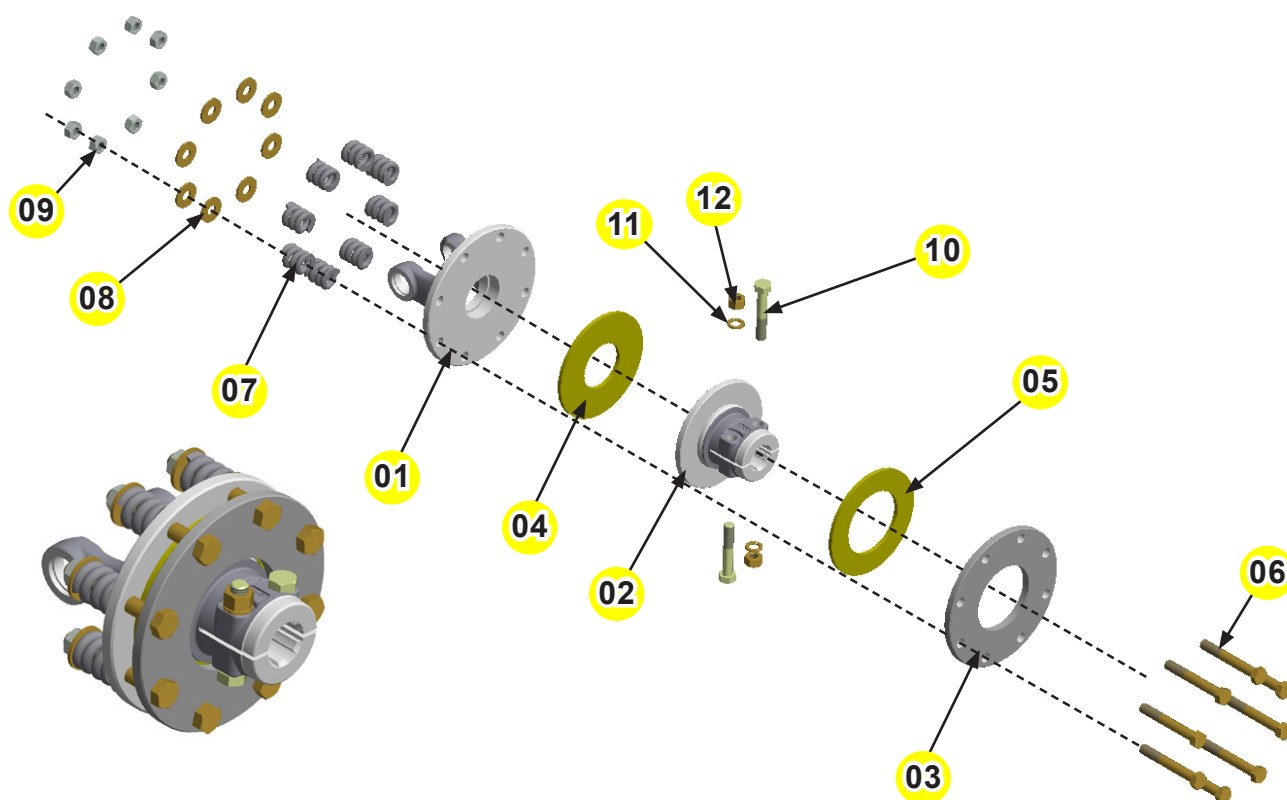
Being the clutch disassembled, the plates must swing freely between the metallic parts.

Replace the plates (B) when their thickness get to **1.5 millimeters**.

After this procedure, assemble the clutch again.

The compression springs (D) length must be adjusted to **28 mm**.

If the clutch swing freely in a normal working operation after the maintenance, tighten the nuts (C) from the compression springs until this occurrence does not happen anymore.



Item	Description	Quantity
01	Front flange	1
02	Central flange	1
03	Rear flange	1
04	Clutch outer coating	1
05	Clutch inner coating	1
06	1/2 x 3.1/2 bolt	8
07	Spring	8
08	Flat washer	8
09	Self locking nut	8
10	1/2 x 2.3/4 bolt	2
11	Spring washer	2
12	1/2 nut	2

Maintenance

Gearbox

The gearbox must be inspected every time the rotary cutter is about to operate. If the oil level is low, fill up the rotary cutter.

The oil level verification must be done in a flat place and adjusted according to the indications of the marker.

Do not pour oil over the level limit.

The oil capacity of the gearbox is 2.6 liters.

Use oil SAE 90 only.

Cardan shaft

Clean the cardan shaft every 15 days or before, if necessary.

Remove the protection covers.

Separate "male" and "female", wash to remove crusts and dry them. Then, lubricate the moving parts with grease and assemble again.

Rotary cutter storage

Before storing the cutter, we recommend some precautions to preserve its properly functioning and to let it ready for the next job.

Remove all the residues that remain in the equipment after its use, such as grass, dirt, culture debris and others.

Wash the whole equipment to remove the dirty grease and the earth that accumulates in the corners.

Repair the damaged paintwork if required.

Clean and lubricate all the grease fittings until the fresh grease can be seen.

Check the oil level of the gearbox.

Spray the equipment with penetrating or anti-corrosive oil.

Check the blades, apply a layer of paint and protect them with protective oil. If necessary, replace blades that are bent, excessively nicked or have any other damage.

Replace the missing or damaged safety decals. Marchesan provides these decals, upon request and indication of the respective serial number. The operator must know the need to keep these decals in place and in good conditions. Also, the operator must be aware that an accident can occur if the instructions are not followed.

Keep the equipment in a sheltered and dry place, protected from direct sunlight and rain, properly supported on the ground or easels.

NOTE • Use TATU original parts only.

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.						

[G:\VALSON\Manuais_Inglês\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.

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Notes

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