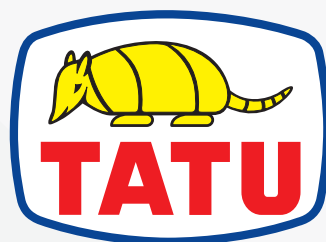


CAC

OPERATOR'S MANUAL



MARCHESAN

IDENTIFICATION

Dealer: _____

Owner: _____

Firm / Farm: _____

City: _____ State: _____

No. of the Certificate of Guarantee: _____

Serial / No.: _____

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

Product: _____

Notes: _____

[illegible]

Introduction

The CAC row crop cultivator correctly performs the fertilizer covering job and the cultivation of weeds, but can also perform each operation separately.

Its structure allows the displacement of the springs and the hoppers on the cultivator frame to adapt to the different spacings between the row units.

The hoppers have a metering system through coil pitch augers, which deposit fertilizer on the side of the plants uniformly for a maximum improvement and better development of the culture.

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

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



Table of contents

1. To the owner	3
2. To the operator	4 to 8
Working safely	4 to 6
Transportation over truck or trailer	7
Working safety standards	8
Safety decals	9
3. Data sheet	10 to 12
4. Components	13
5. Assembly	14 to 25
General assembly	14 to 18
CAC hoppers application	19 to 25
6. Set-up instructions	26 to 33
Preparing the tractor	26
Hitching to the tractor	26
Leveling the cultivator	27
Cardan shaft length	27
Reducing the cardan shaft length	28
Cardan correct assembly	29
Hoppers displacement	30
Shanks displacement and number of shanks between the rows	31
Setting the cultivator to transport position	32
Procedures before cultivation	32 & 33
7. Adjustments and operations	34 to 42
Fertilizer dosage and distribution / Distribution tables	34 to 38
How to use the tables from the previous pages	39
Practical test for fertilizer distribution	40
Fertilizer distribution calculation	41
Operations - important points	42
8. Optional	43
Stirrer set	43
1" coil pitch auger	43
9. Maintenance	44 to 47
Lubrication	44
Lubricate every 10 hours of service	44
Gearbox maintenance / Cleaning the hoppers	45
Cultivator maintenance	46
Torque table	47
10. Important	48

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 or 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.

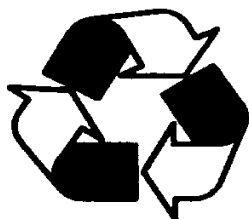
To the operator

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.**

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

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



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



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



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

To the operator



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



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



Be careful while driving on slopes. Risk of overturn.



Prevent that chemical products (i.e.: fertilizers and 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. Avoid that the tractor wheels touch the drawbar in sharp turns.



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



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



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



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

To the operator



- Only trained and qualified personnel are allowed to operate the equipment.
- While working or during transportation, only the presence of the operator is allowed in the tractor.
- Do not allow children to play or to get over the equipment while it is operating, during transportation or storage.
- When setting the equipment to transport position, check if there are no people or animals close or under it.
- Use personal protective equipment (PPE).
- Wear appropriate clothes and footwear. Avoid clothes that are either loose or hanging from the body, which may become entangled in moving parts.
- Wear protective gloves to work near the cutting parts.
- Never operate the equipment without its **protective devices**.
- Have full knowledge of the soil before starting to work. Use the speed which is suitable to the conditions of the ground or pathways to be covered. Provide the delineation of obstacles or hazardous locations.
- Carefully check the transport width on narrow locations.
- Be careful while hitching the equipment to the tractor.
- Only pull the equipment using a tractor with appropriate power.
- Do not drive the equipment under the influence of alcohol or any soothing/ stimulating medicine, as it may result in a serious accident.
- In case of a fire outbreak or any possible hazard, the operator must leave the area as fast as possible and look for a safe place. Always have emergency numbers in 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 jacks. Make sure that 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 and it is prohibited by the current traffic law. The transportation for long distances should be done on truck, trailer or others by following these safety guidelines:

- Use adequate ramps to load or unload the equipment. Do not make the loading on ditch banks, it can cause a serious accident.
- When lifting with a hoist, use the appropriate points to lift.
- Underpin the equipment properly.
- 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, 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.

Working safety standards

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

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

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

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

Regulatory Standard - **NR 06**:

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

Regulatory Standard - **NR 12**:

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

Regulatory Standard - **NR 31**:

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

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.



Decal set

Qty.	Model	Serial number
1	CAC decal	05.03.06.0874
1	Read the manual decal	05.03.03.1428
1	540 RPM decal	05.03.03.2949
1	Lubricate and tighten daily decal	05.03.03.1827

Data sheet

Model	Number of shanks	Number of hoppers	Frame length (mm)	Weight (kg)	Tractor required power (cv)
CAC	04	02	2800	269	45 - 50
	06	02	2300	265	45 - 50
	07	02	2300*	268	45 - 50
	07	02	2800	277	45 - 50
	08	02	3700	327	50 - 60
	09	02	2800	304	50 - 60
	09	02	3200	300	50 - 60
	09	03	2800	328	50 - 60
	09	03	3200	336	50 - 60
	09	03	3700	372	65 - 70
	09	04	3700	358	65 - 70
	10	03	3200	342	65 - 70
	10	03	3700	287	50 - 60
	13	02	3200	330	50 - 60
	13	02	3700	342	65 - 70
	13	02	4200	366	65 - 70
	13	03	3700	432	65 - 70
	13	04	3700	382	65 - 70
	13	04	4200	470	65 - 70
	15	03	4200	457	65 - 70
	15	04	4200	470	65 - 70
	15	05	4600	596	70 - 75
	16	03	4200	480	70 - 75
	16	03	4600	563	70 - 75
	16	05	4600	544	70 - 75
	19	03	5500	516	75 - 80
	19	06	5500	635	75 - 80

* In these models, both sides of the plant are going to be fertilized.

CAC - Row crop cultivator

HC - Short shank

HL - Long shank

CS - Single hopper

CD - Double hopper

Data sheet

CAC 13/4

Number of shanks.

Number of hoppers.

Shanks dimension: 6" x 4.5 mm to 12" x 4.5 mm

Three-point hitch: Category II

Optionals: Single or double hopper;

..... Stirrer set;

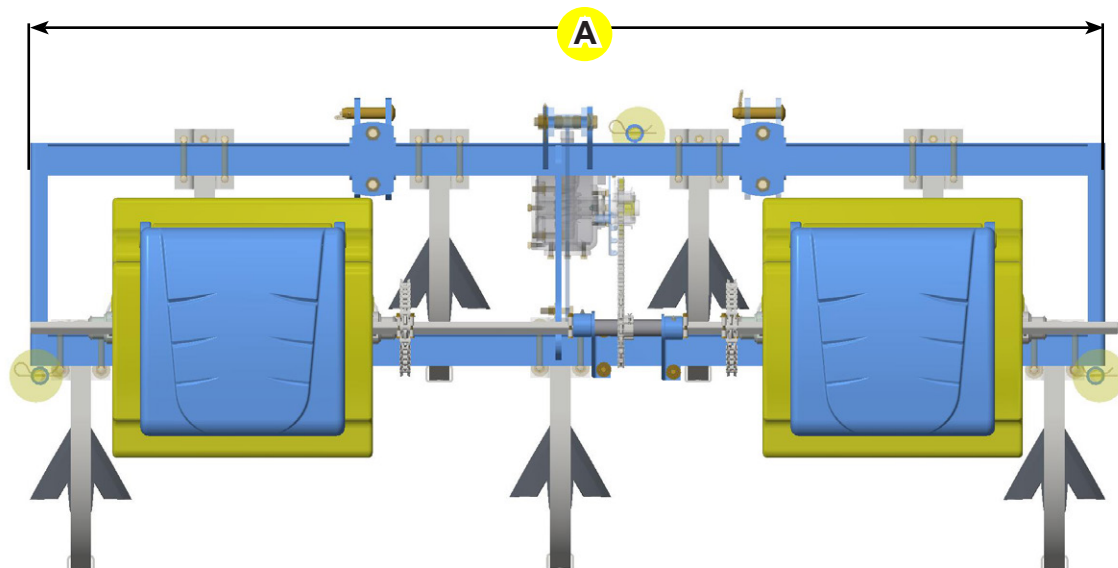
..... 1" coil pitch auger

Hoppers capacity: Single = 65 liters

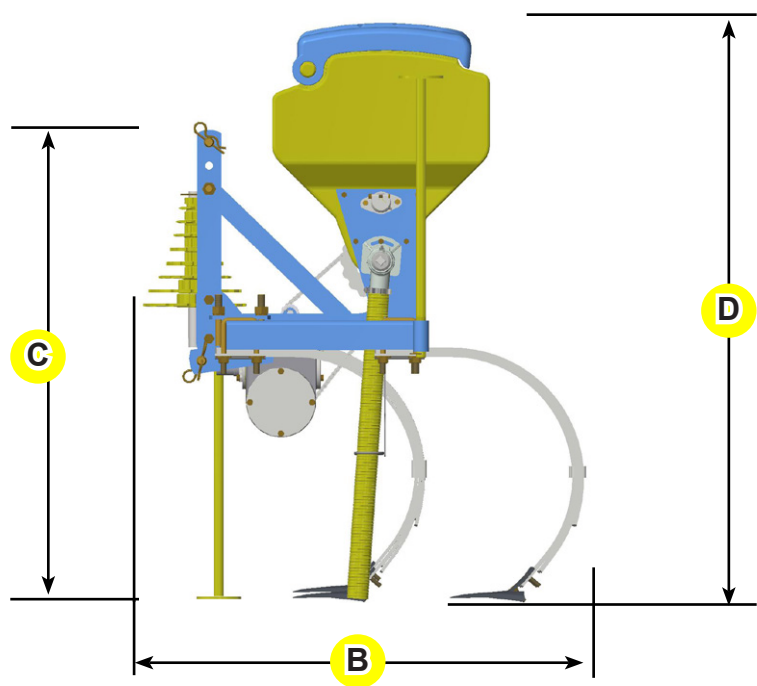
..... Double = 110 liters

The gearbox oil volume is 2.15 liters.

CAC dimensions



Data sheet

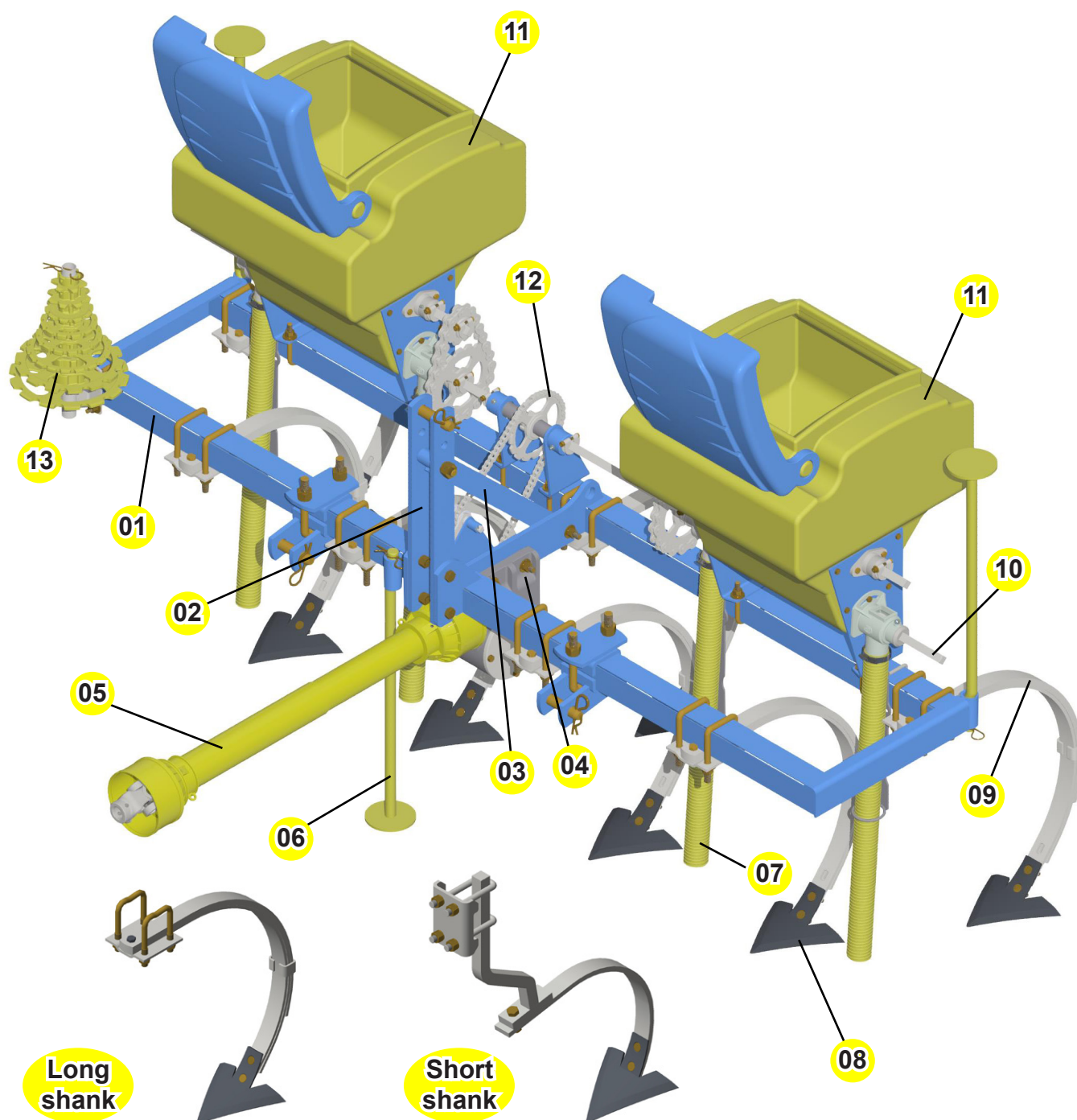


Model / shanks	A	B	C	D
CAC / 04	2800	1200	1210	1500
CAC / 06	2300			
CAC / 07	2300			
CAC / 07	2800			
CAC / 08	3700			
CAC / 09	2800			
CAC / 09	3200			
CAC / 09	3700			
CAC / 10	3200			
CAC / 10	3700			
CAC / 13	3200			
CAC / 13	3700			
CAC / 13	4200			
CAC / 15	4200			
CAC / 15	4600			
CAC / 16	4200			
CAC / 16	4600			
CAC / 19	5500			

Components

Row crop cultivator

- | | |
|-------------------|----------------------|
| 01 - Frame | 02 - Semi-drawbar |
| 03 - Angle bar | 04 - Gearbox |
| 05 - Cardan shaft | 06 - Jack |
| 07 - Hoses | 08 - Shanks |
| 09 - Sweep | 10 - Activation axle |
| 11 - Hoppers | 12 - Sprockets |
| 13 - Sprocket set | |



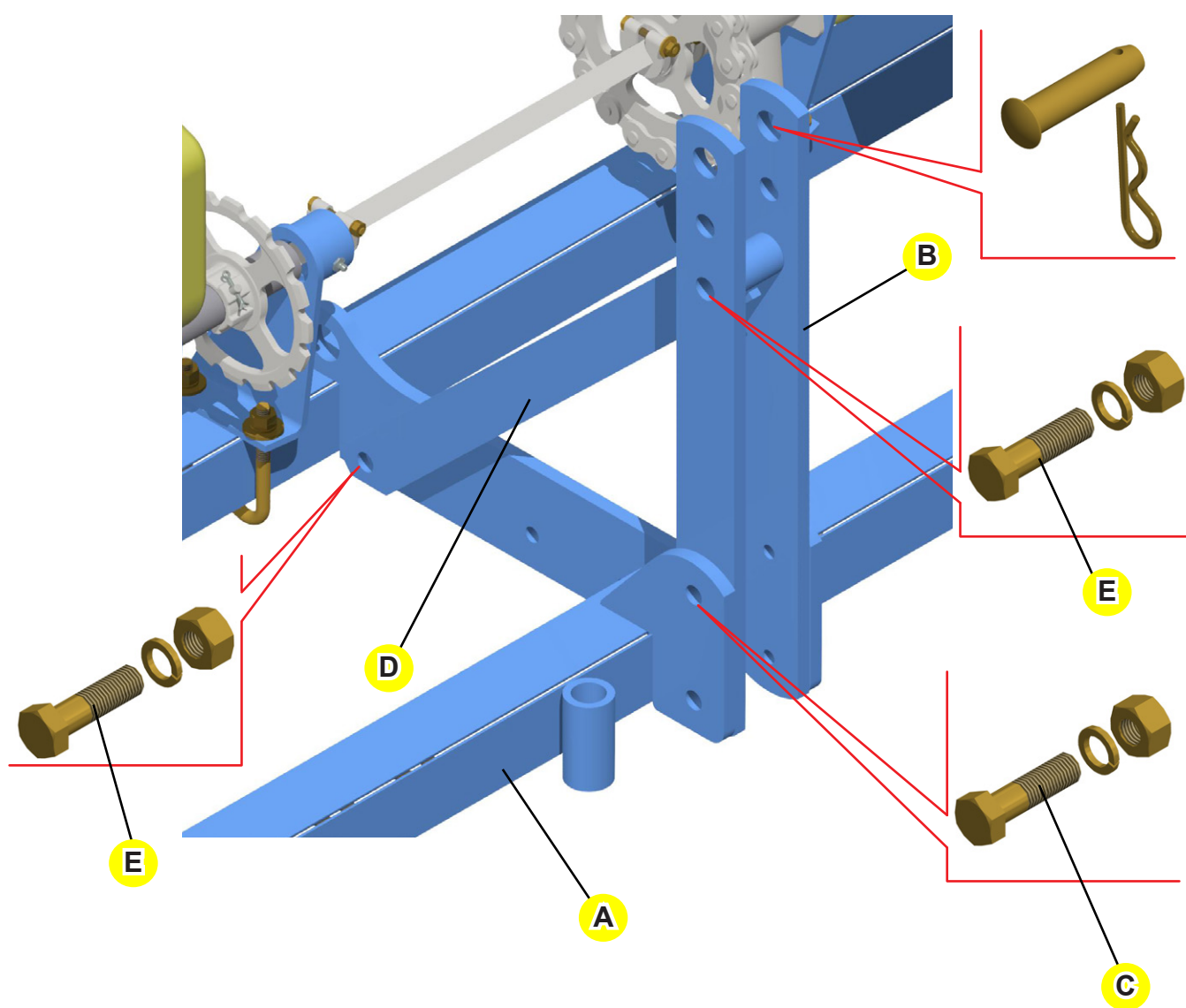
Assembly

General assembly

The hopper and the drive shaft leaves the factory assembled to the frame. To assemble the cultivator completely, follow the instructions below:

- To facilitate assembly, support the frame (A) over two trestles with approximately 01 (one) meter each.

- Start by placing the semi-drawbar (B) using bolts (C), spring washers and nuts. Couple the angle bar (D) using bolts (E), spring washers and nuts, using the bottom hole of the semi-drawbar (B).

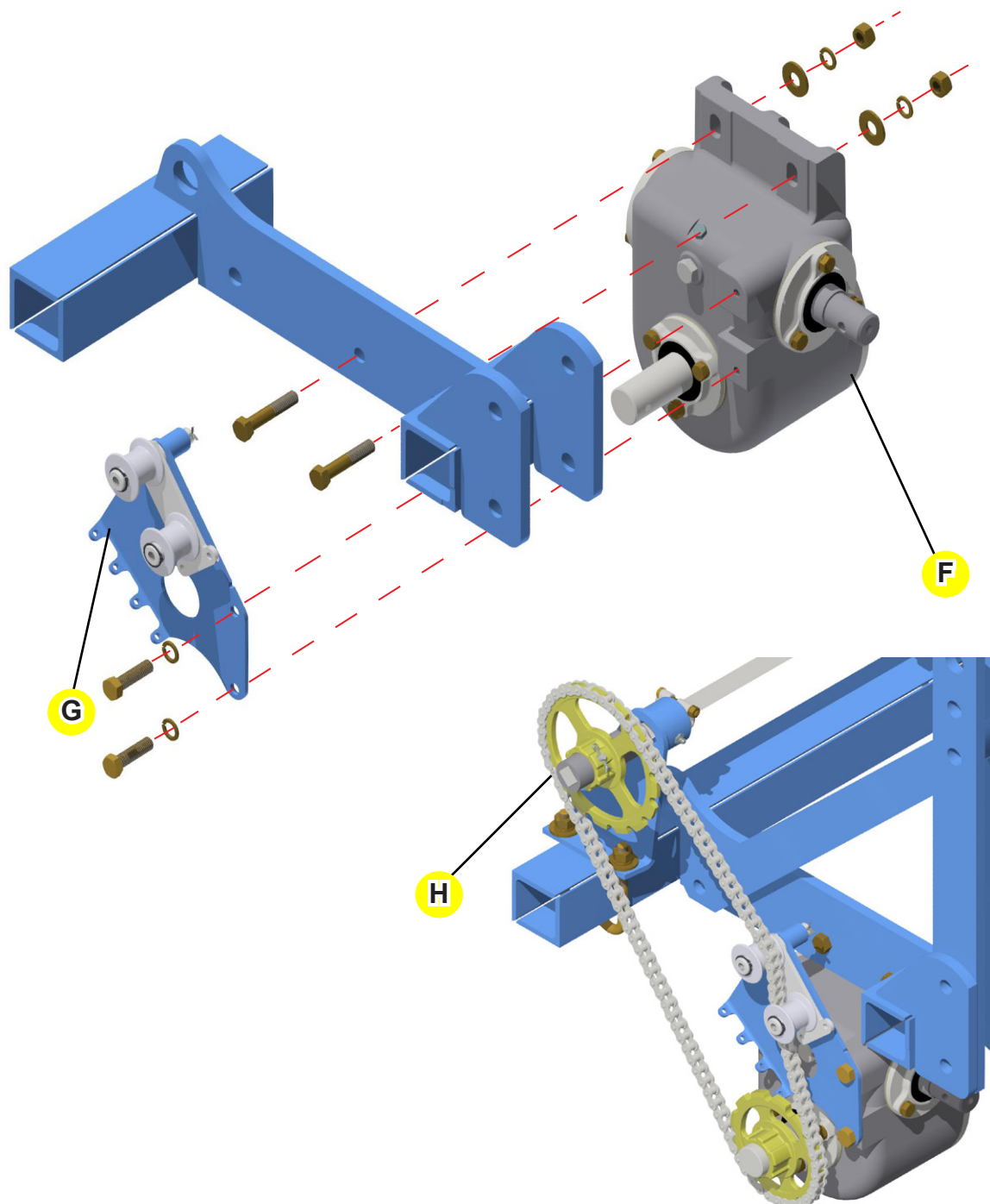


Assembly

General assembly

- Couple the gearbox (F) to the frame using bolts, spring washer and nuts. Then, fasten the tensioner (G) to the gearbox using bolts, spring washers and nuts.
- Assemble the chain (H) and pass it by the gearbox, chain tensioner and drive shaft sprockets.

NOTE Carefully observe the correct assembly position of the chain (H), as shown below.

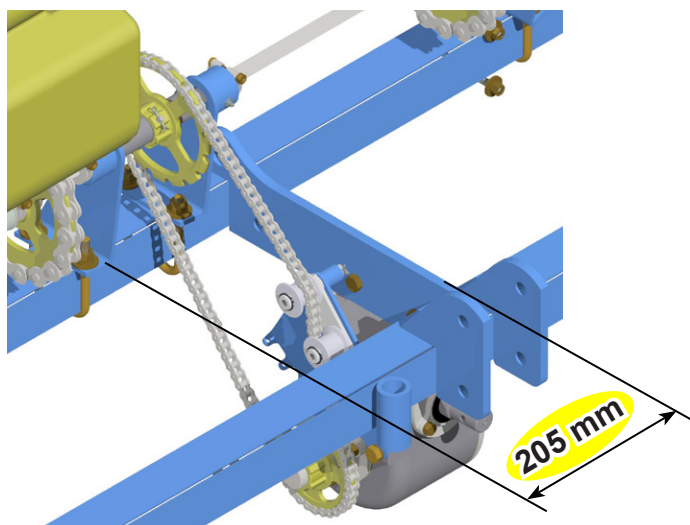
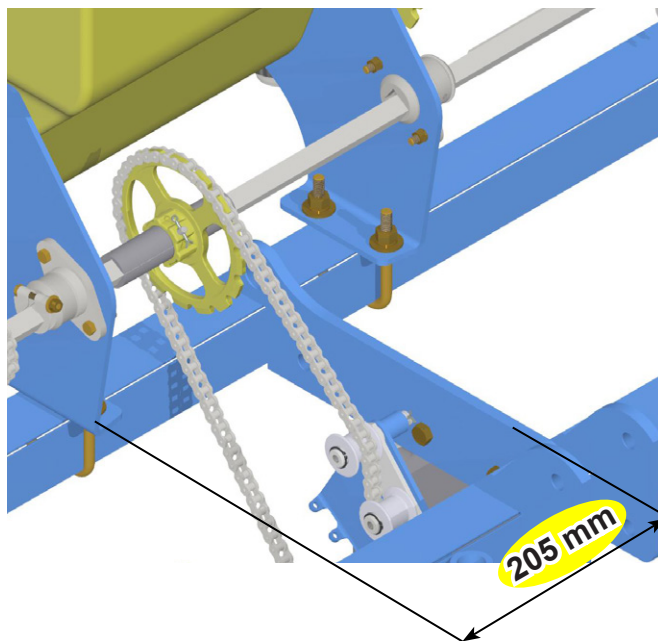


Assembly

General assembly

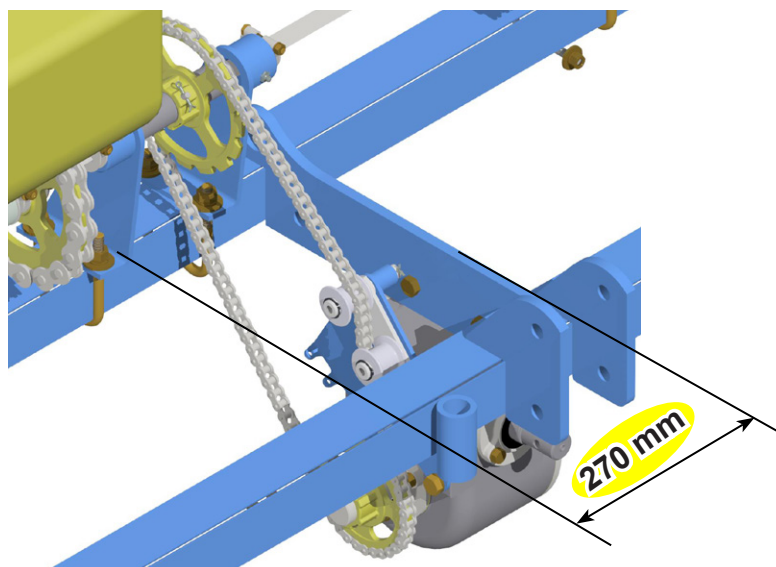
When assembling, align the chain with the sprocket and keep the distances as indicated in the figures below, according to the different number of hoppers.

For 03 or 05 hoppers
with stirrer.



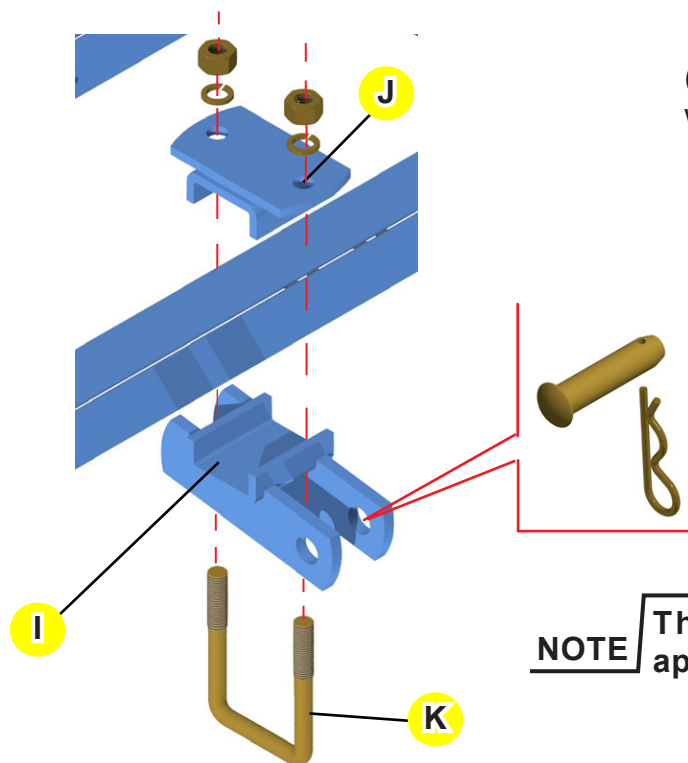
For 02 hoppers.

For 04 or 06 hoppers.



Assembly

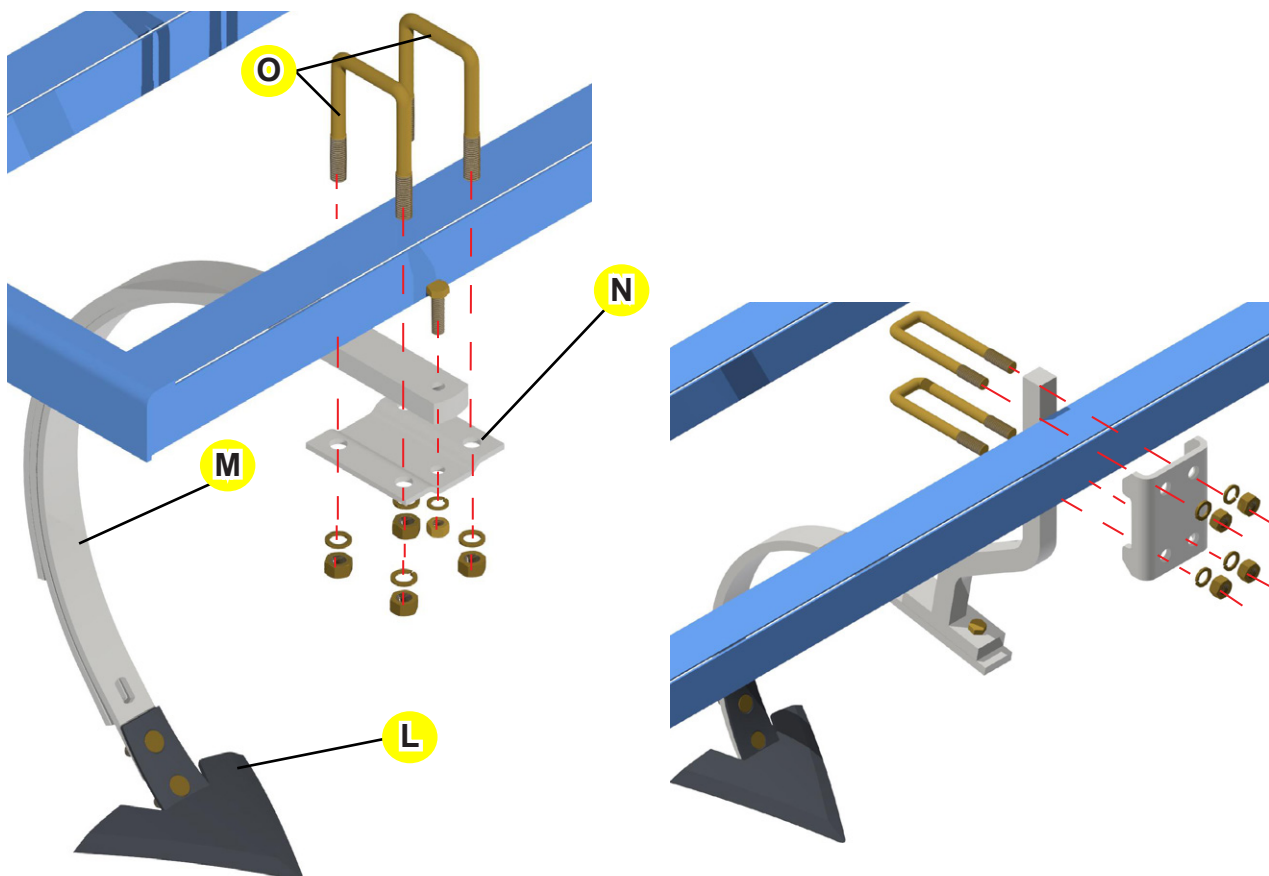
General assembly



- Fasten the frame to the lower hitches (I) using guides (J), clamps (K), spring washers and nuts.

NOTE The lower hitches must be assembled approximately 450 mm from the frame center.

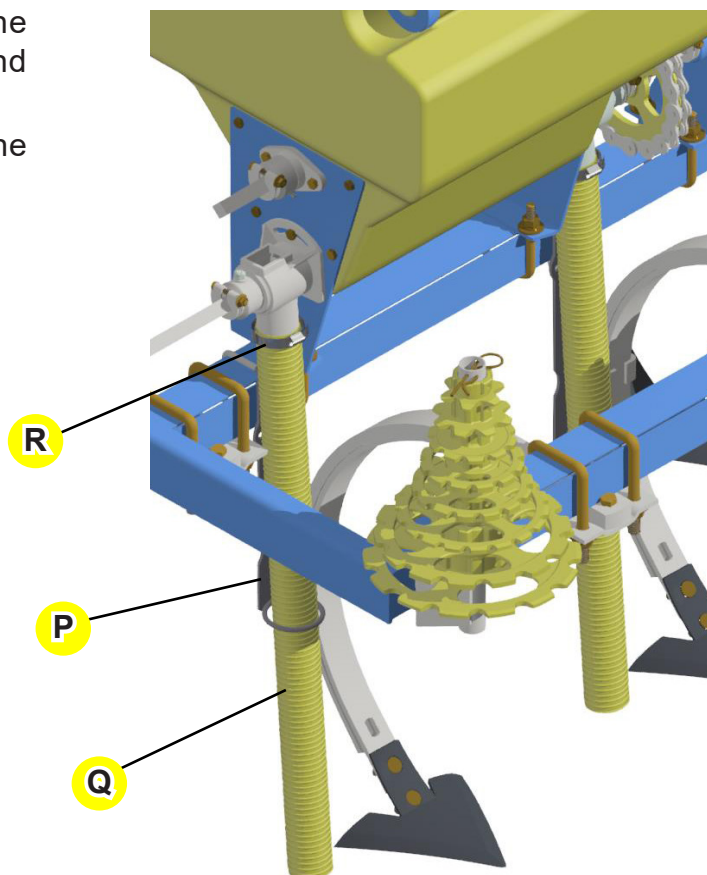
- Fasten the sweeps (L) to the shanks (M) using bolts, spring washers and nuts. Then, place the shanks (M) on the frame using the supports (N), clamps (O), spring washers and nuts.



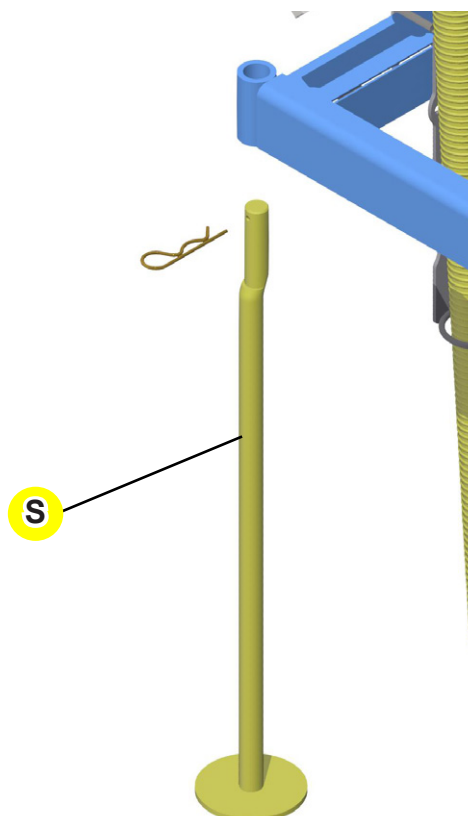
Assembly

General assembly

- Couple the hose support (P) to the frame using clamps, spring washers and nuts.
- Also fasten the hoses (Q) to the hopper tubes using clamps (R).



- Assemble the jacks (S) to the frame and with cotter pins.



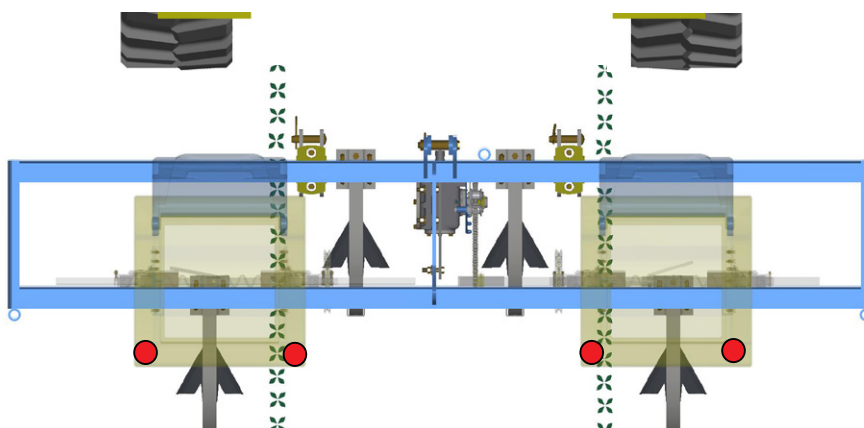
Assembly

CAC hoppers application

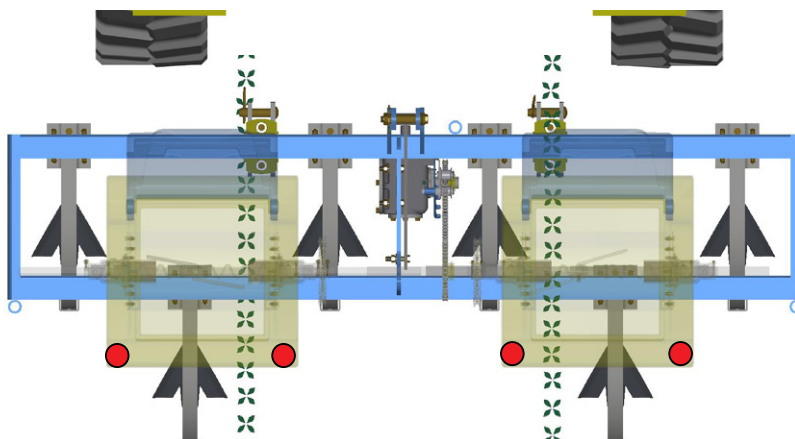
To have the best performance, we recommend the most suitable model of cultivator related to the number of rows in the planter, thus the cultivator and planter will pass in the same spots during tillage.

1) The models CAC 7/2, CAC 10/3, CAC 13/2, CAC 13/4, CAC 15/3, CAC 16/5, CAC 19/3 and CAC 19/6 work exactly with the same number of rows as the planter. The probable mismatch between passes is compensated with the smaller number of shanks on the sides of the cultivator.

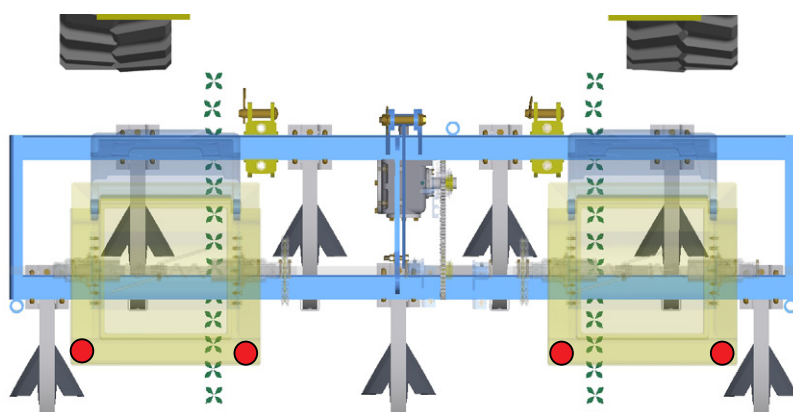
Planter with 02 row units - CAC 4/2 - 2800 mm frame / Single fertilization.



Planter with 02 row units - CAC 6/2 - 2300 mm frame / Double fertilization.



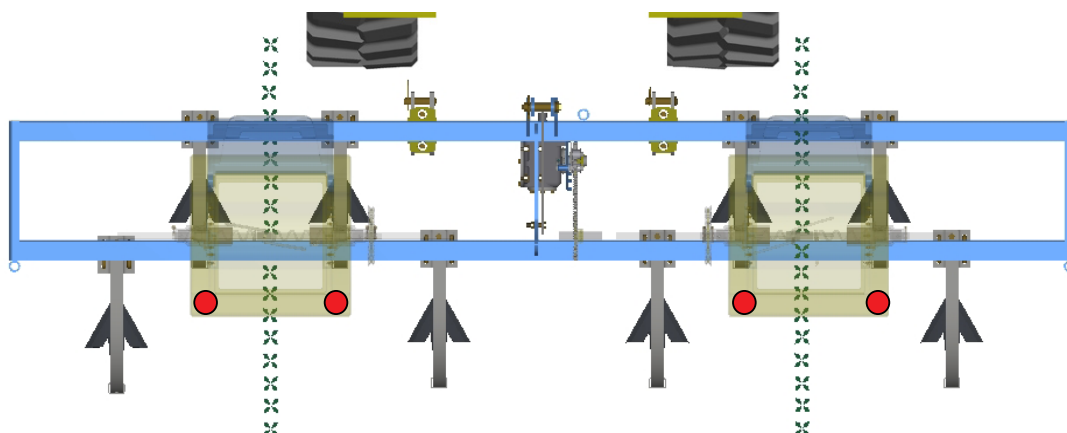
Planter with 02 row units - CAC 7/2 - 2300 or 2800 mm frame / Double fertilization.



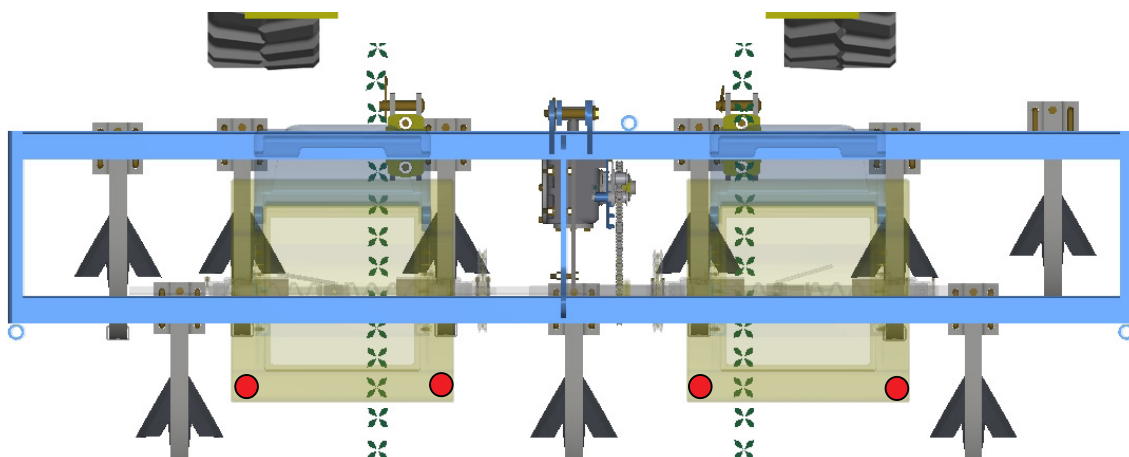
Assembly

CAC hoppers application

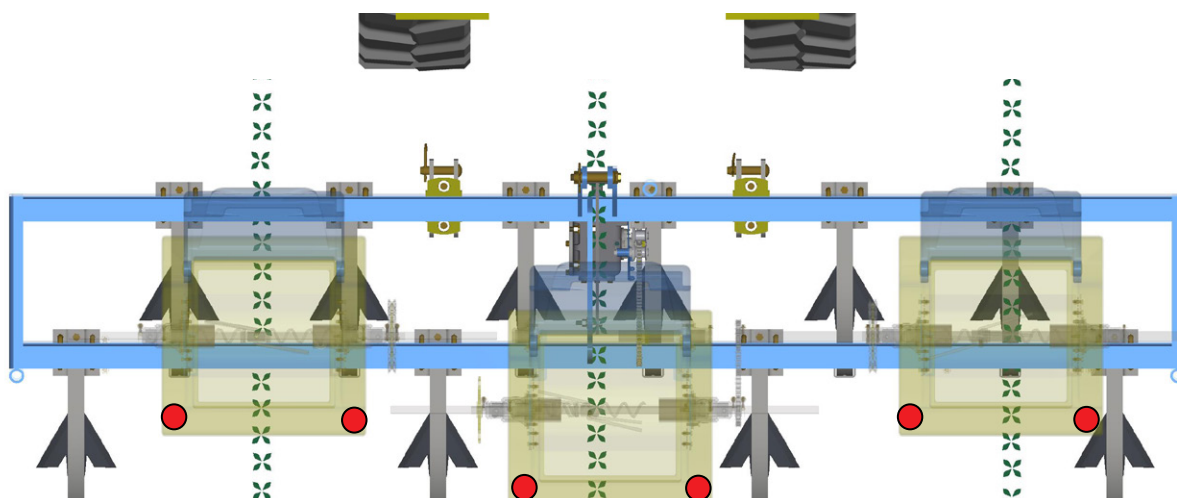
Planter with 02 row units - CAC 8/2 - 3700 mm frame / Double fertilization.



Planter with 02 row units - CAC 9/2 - 2800 mm frame / Double fertilization.



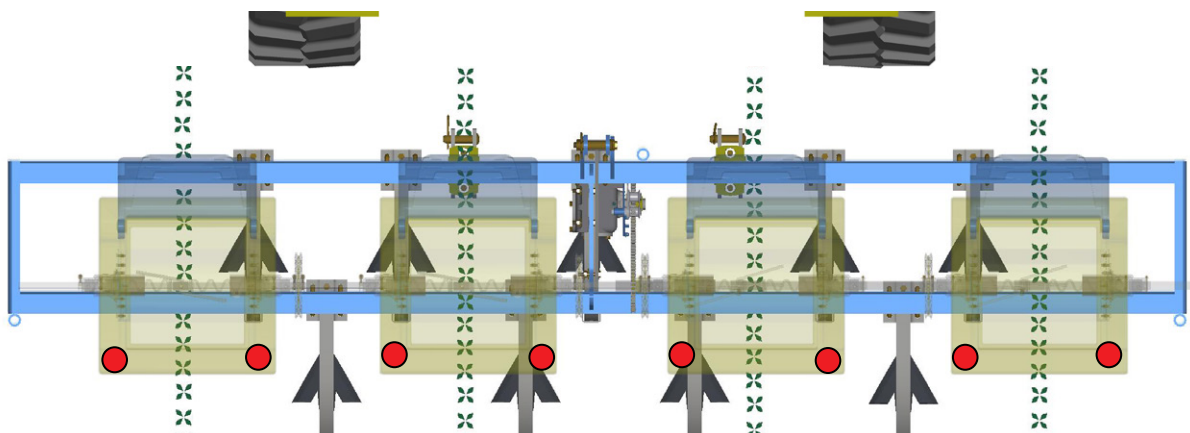
Planter with 03 row units - CAC 10/3 - 3200 or 3700 mm frame / Double fertilization.



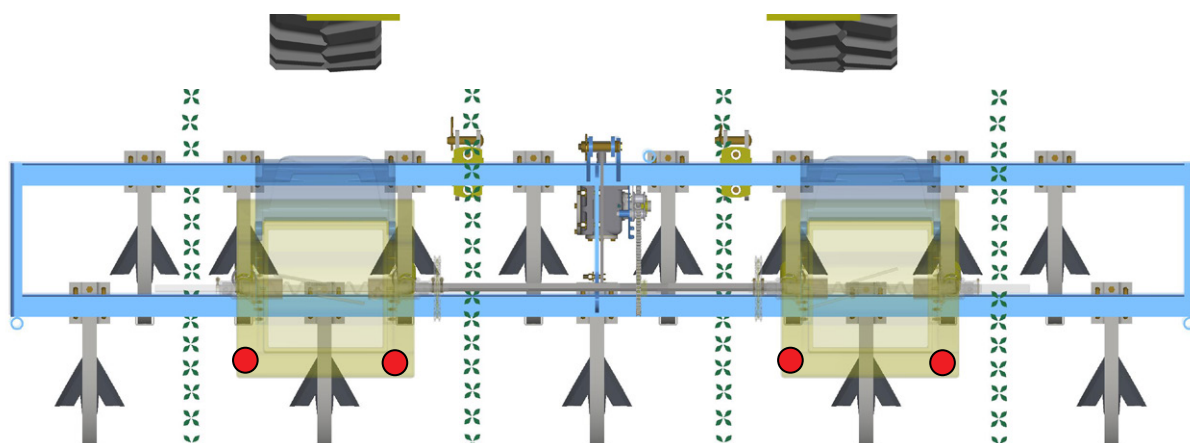
Assembly

CAC hoppers application

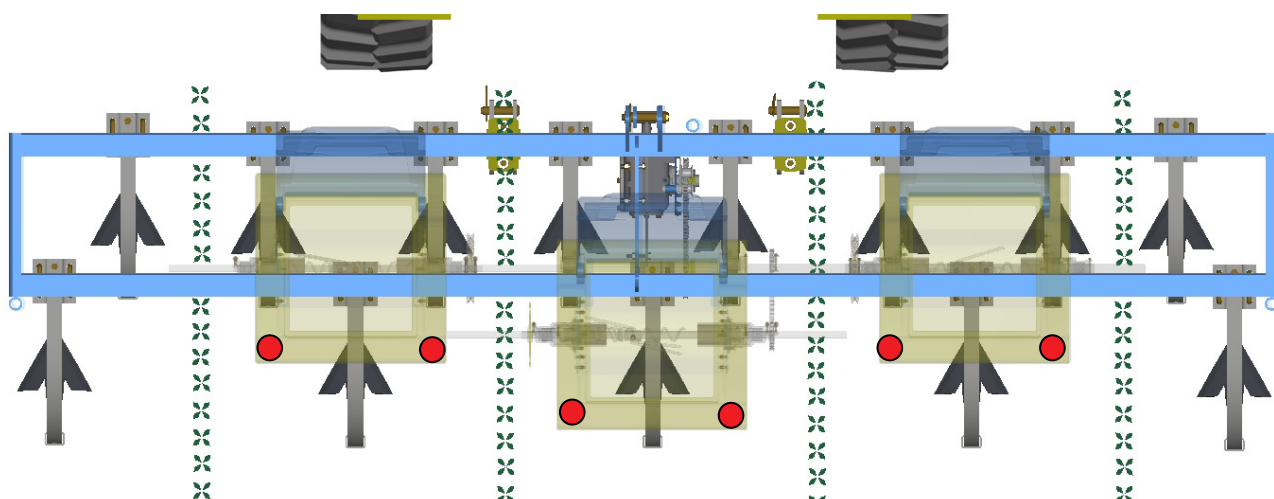
Planter with 04 row units - CAC 9/4 - 3700 mm frame / Double fertilization.



Planter with 04 row units - CAC 13/2 - 3200, 3700 or 4200 mm frame / Single fertilization.



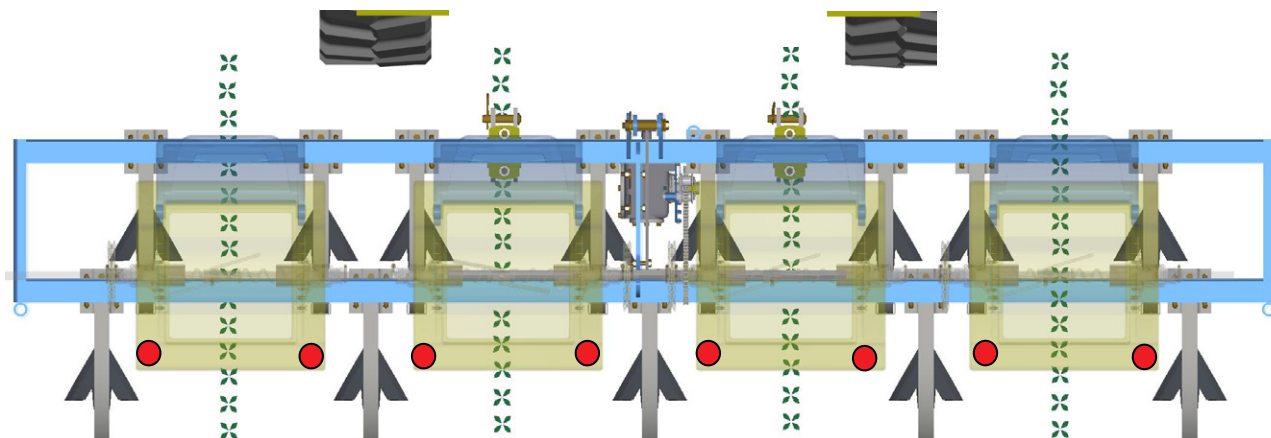
Planter with 04 row units - CAC 13/3 - 3700 mm frame / Double fertilization.



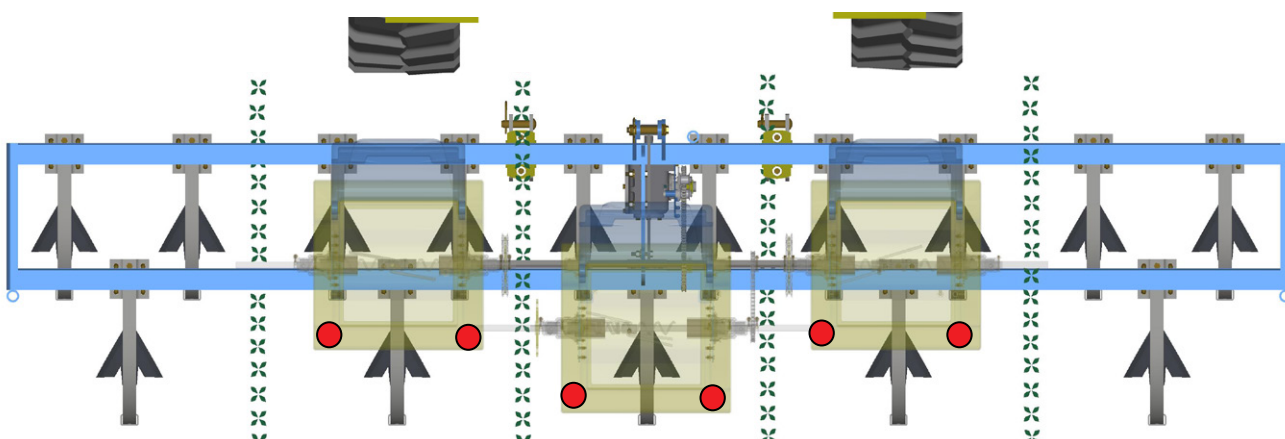
Assembly

CAC hoppers application

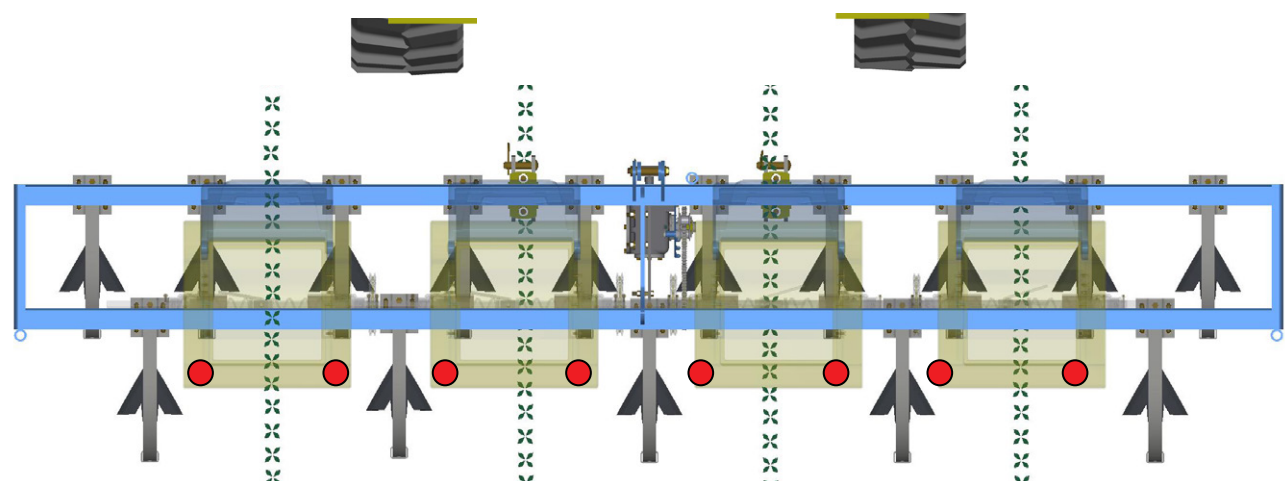
Planter with 04 row units - CAC 13/4 - 3700 or 4200 mm frame / Double fertilization.



Planter with 04 row units - CAC 15/3 - 4200 mm frame / Double fertilization.



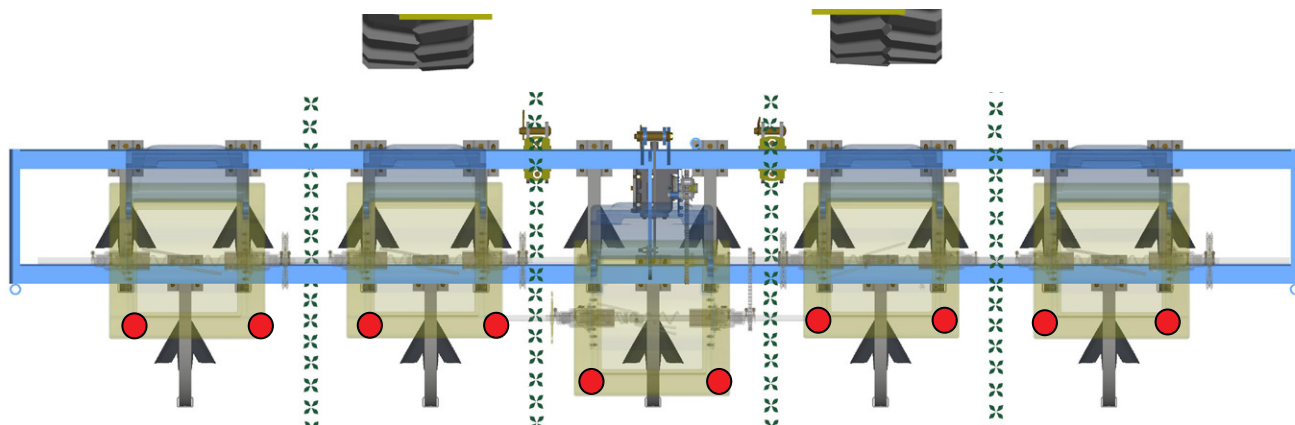
Planter with 04 row units - CAC 15/4 - 4200 mm frame / Double fertilization.



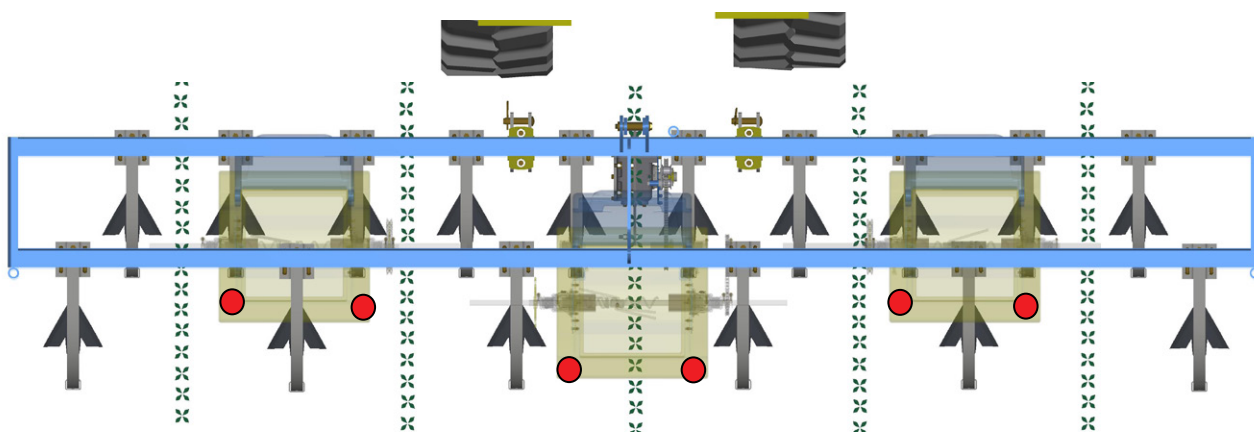
Assembly

CAC hoppers application

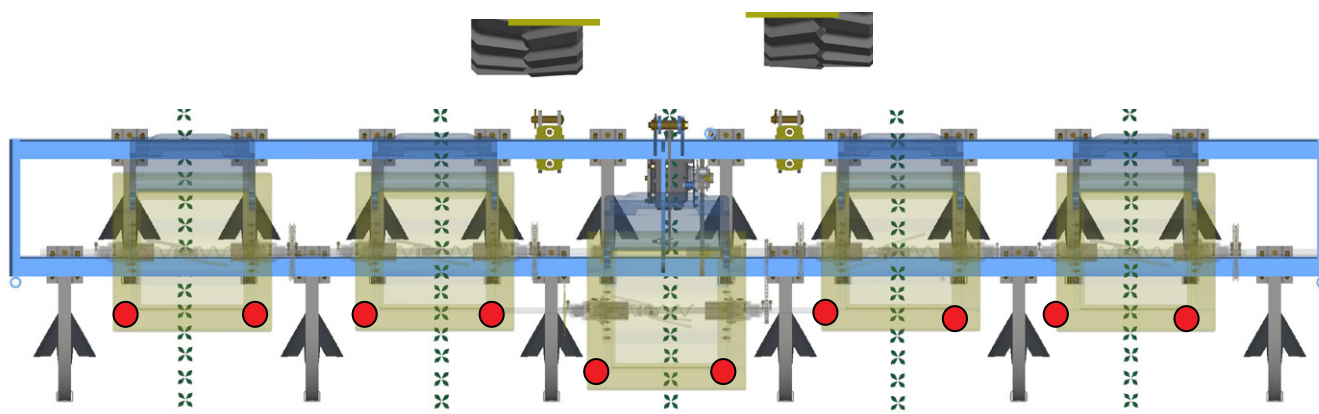
Planter with 04 row units - CAC 15/5 - 4600 mm frame / Double fertilization.



Planter with 05 row units - CAC 16/3 - 4200 or 4600 mm frame / Double fertilization.



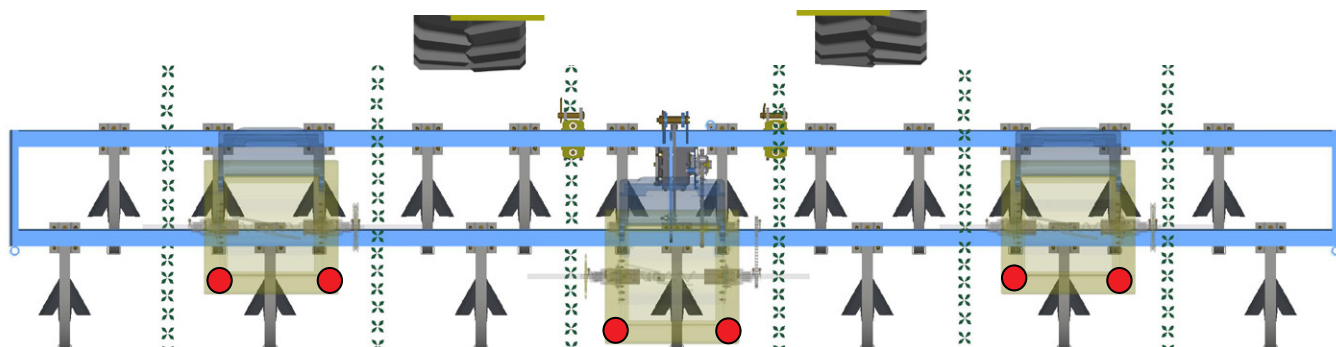
Planter with 05 row units - CAC 16/5 - 4600 mm frame / Double fertilization.



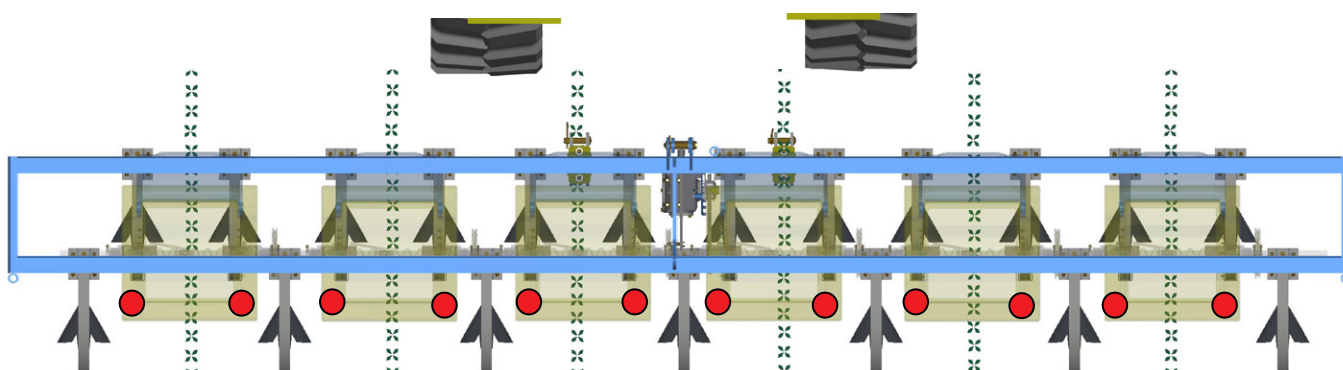
Assembly

CAC hoppers application

Planter with 06 row units - CAC 19/3 - 5500 mm frame / Single fertilization.



Planter with 06 row units - CAC 19/6 - 5500 mm frame / Double fertilization.



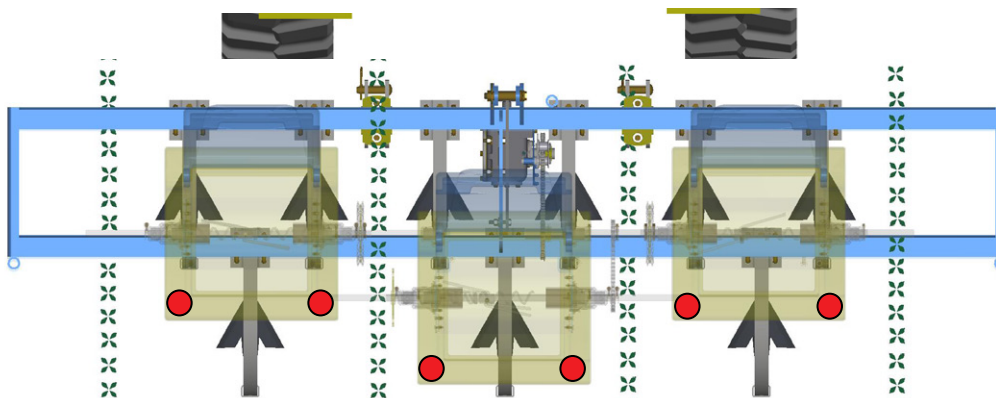
Assembly

CAC hoppers application

2) The model CAC 9/3 can be used when the row markers of the planter are followed correctly.

Planter with any number of row units.

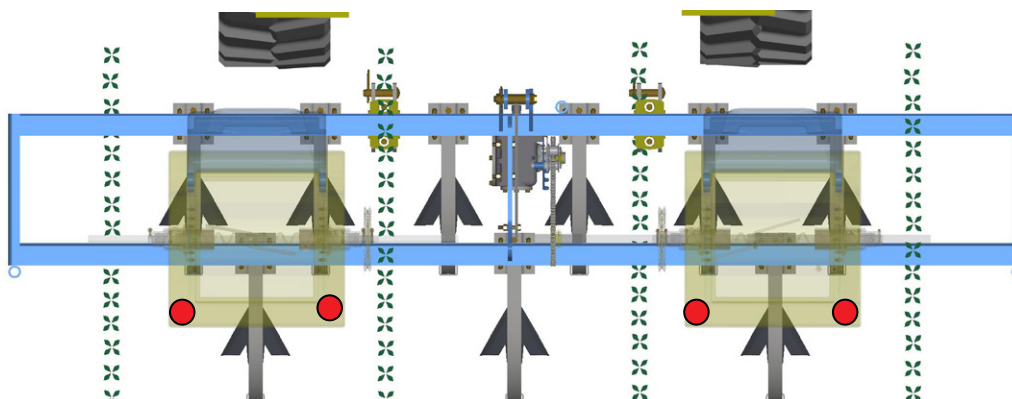
CAC 9/3 - 2800 or 3200 mm frame / Double fertilization.



3) The model CAC 9/2 can be used when the row markers of the planter are correctly followed, regardless of the number of rows in the planter. However, in order to fertilize on every row, it is necessary to cultivate between one of the rows twice.

Planter with any number of row units.

CAC 9/2 - 2800 or 3200 mm frame / Single fertilization.



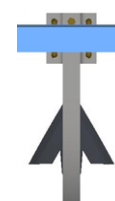
Fertilizing



Tractor tire



Row crop



Shank

Set-up instructions

Preparing the tractor

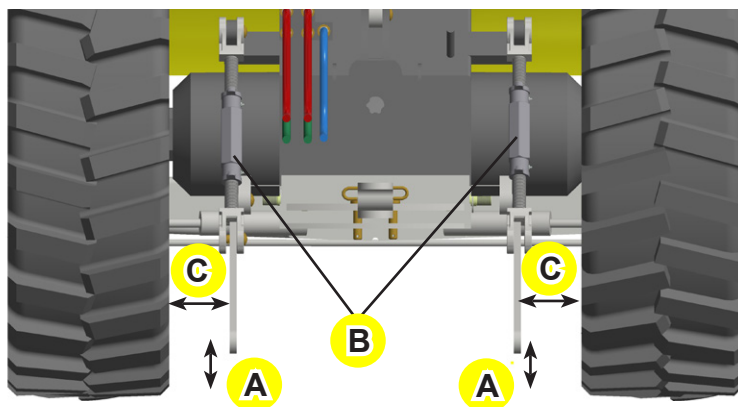
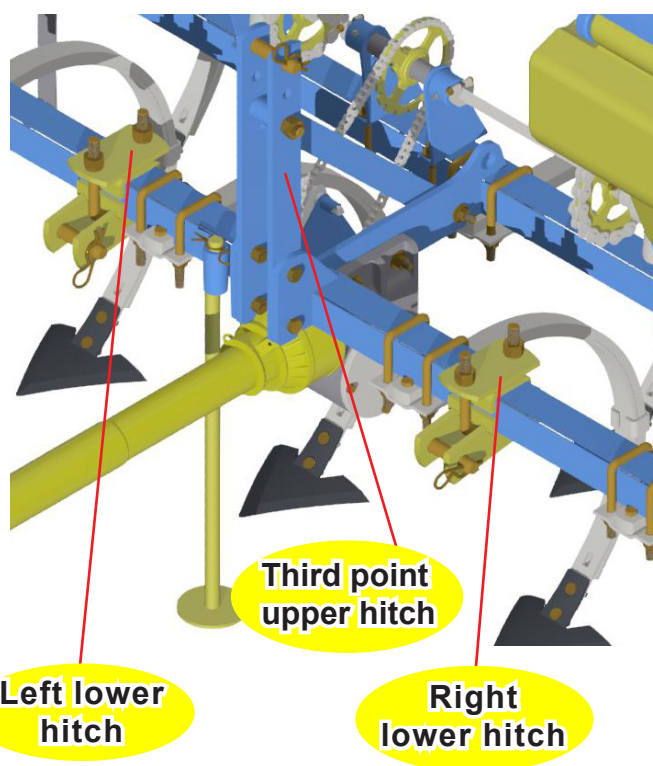
The addition of water ballasts on the tires or a set of weights on the front part or on the rear wheels are the most used means to increase the traction over the soil and to give greater stability to the tractor.

Use narrow tires and adjust the front and rear wheel gauges with the same opening, according to the spacing between the culture rows.

Hitching to the tractor

For hitching, choose a place as flat as possible.

- 1) Lower the tractor hydraulic cylinder completely.
- 2) Position the hydraulic arms at approximately 600 mm over the soil (as in "A") using the extensor arms ("B").
- 3) Drive the tractor in reverse gear slowly to the tractor direction and be ready to brake. When close enough, use the lever to control the hydraulic position in order to leave the left lower arm at the same level as the hitch pin.
- 4) Hitch the left lower arm and place the junction axle and lock using a lock pin.
- 5) Hitch the upper arm (third point), place the junction axle and lock using a lock pin.
- 6) Hitch the right lower arm (which has up and down movements) using the leveling crank. Doing so, the extensor thread of the third point can be used to approach or move away the tractor in order to facilitate hitching.



For a perfect hitching, the equipment must be centralized with the tractor, which is done as follows:

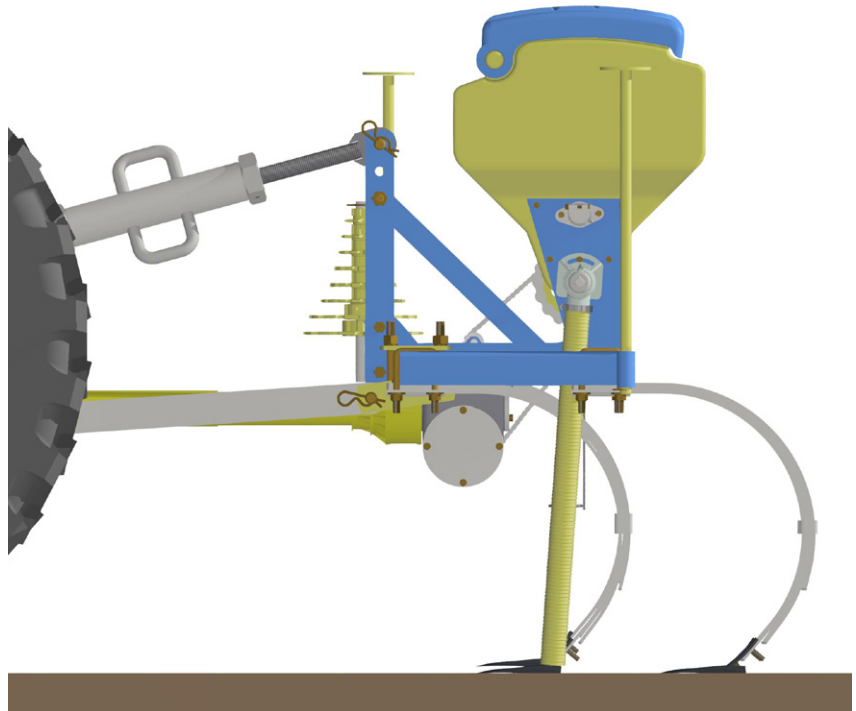
- Align the front hitch with the tractor third point.
- Check if the distances between the lower arms and the tires are equal on both sides (as in "C"), being both leveled.

NOTE Never adjust the stabilizers of the hydraulic lower arms if the cultivator is lowered.

Set-up instructions

Leveling the cultivator

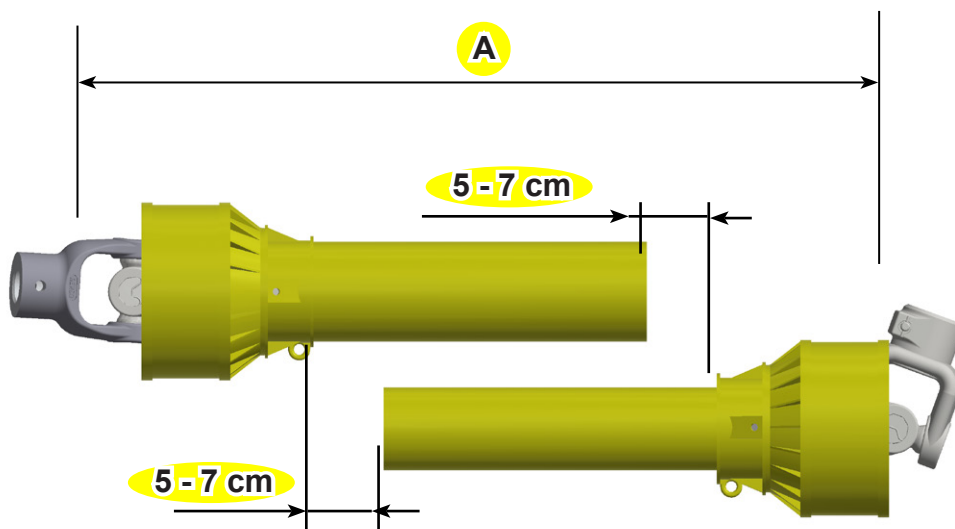
Level the cultivator by the right lower arm and the upper one, which have adjustments.



Cardan shaft length

Before starting the operations, check the cardan shaft length related to the tractor and its correct assembly.

- When the cultivator is properly hitched to the tractor but without the cardan shaft, move the hydraulic cylinder until you find the minimum distance (A) between the power take-off and the gearbox.
- Remove the "female" from the cardan shaft and couple it to the power take-off (PTO).
- Then, place it over the "male" as if it was coupled and check the dimensions.

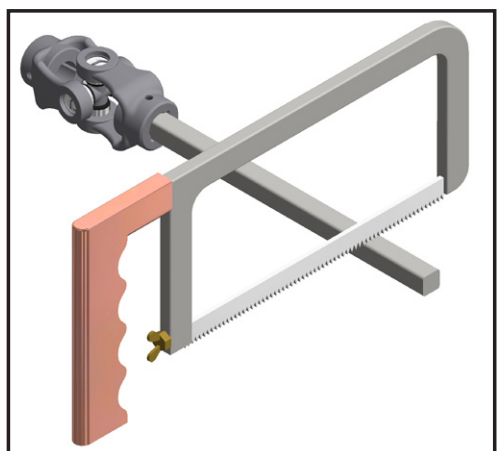
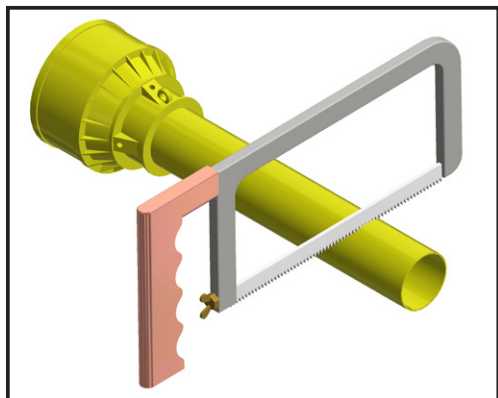


Set-up instructions

Reducing the cardan shaft length

If it is necessary, cut similar parts of the "male" and "female" shaft, as well as the protection 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 does not allow coupling. Proceed as follows:



- First of all, disassemble the protection 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 shaft to the tractor and half to 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 file. Soon after, remove the filing and lubricate the "male" with a fine layer of grease.

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

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

- When using another tractor, check the length of the cardan shaft again.

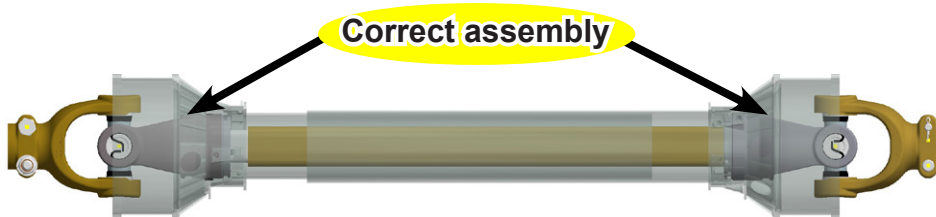
- The protection cover chains must be fixed to the equipment and tractor, in a way that they will not get loose during maneuvers.

Set-up instructions

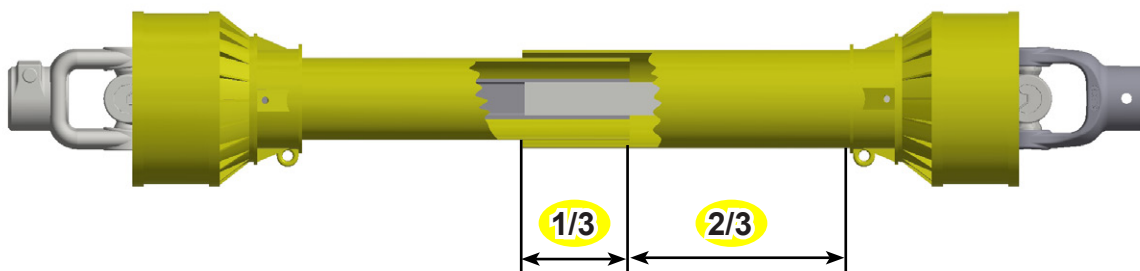
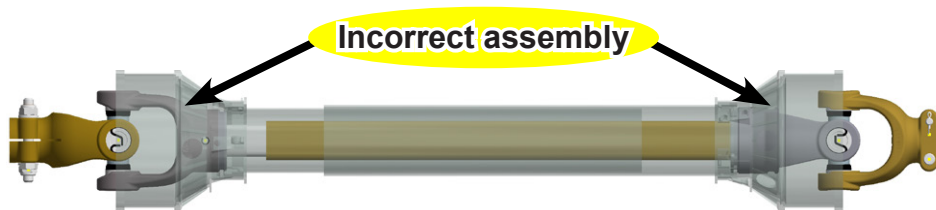
Cardan correct assembly

Assemble the cardan shaft properly as shown below. Note the forks arrangement and be careful when disassembling them. The wrong assembly causes excessive vibration and damage the transmission.

Note the internal forks alignment



Unaligned internal forks



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

Set-up instructions

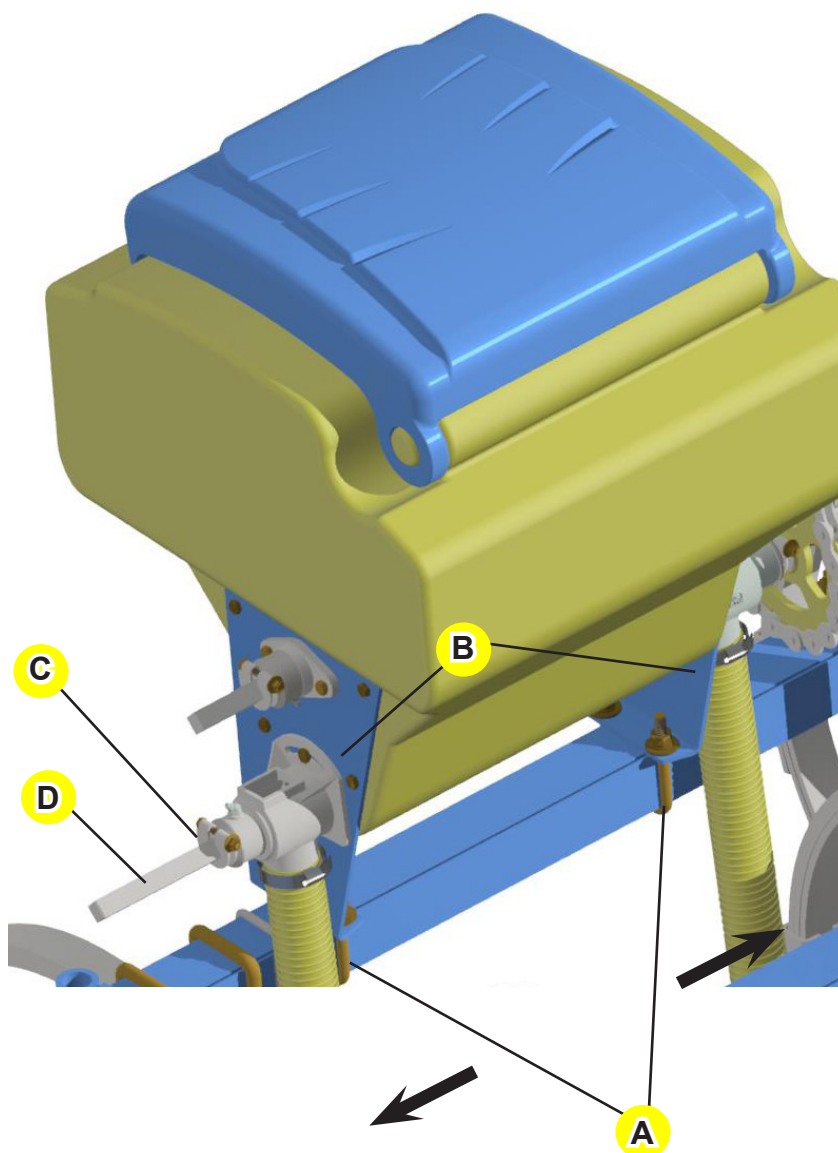
Hoppers displacement

If it is necessary to displace the hoppers on the frame, proceed as follows:

- Loose the clamps (A) that fasten the fixation support (B) of the hoppers on the frame;
- Loose the clamps (C) from the activation axle.

Move the hoppers until the desired spot (considering the crop spacing) and fasten once again the points that were loosened.

NOTE Note the proper alignment of the hoppers with the activation axle (D) and the hopper frame.



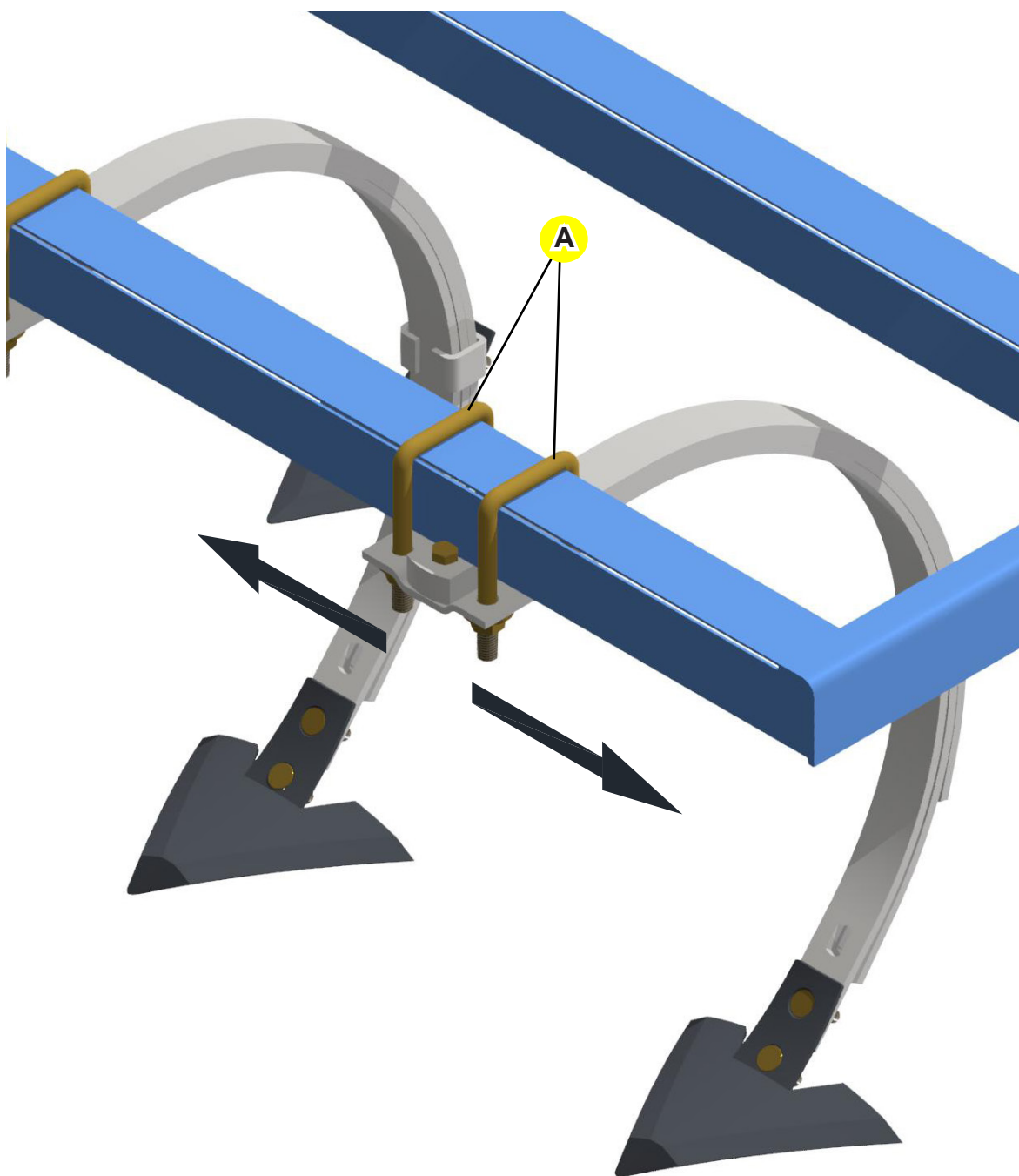
Set-up instructions

Shanks displacement and number of shanks between the rows

To displace the shanks, loose the clamp nuts (A) and displace the set to the desired spacing.

Then, position and determine the number of shanks between the rows of the crop, in a way that it will not affect the plants and not leave gaps without cultivation.

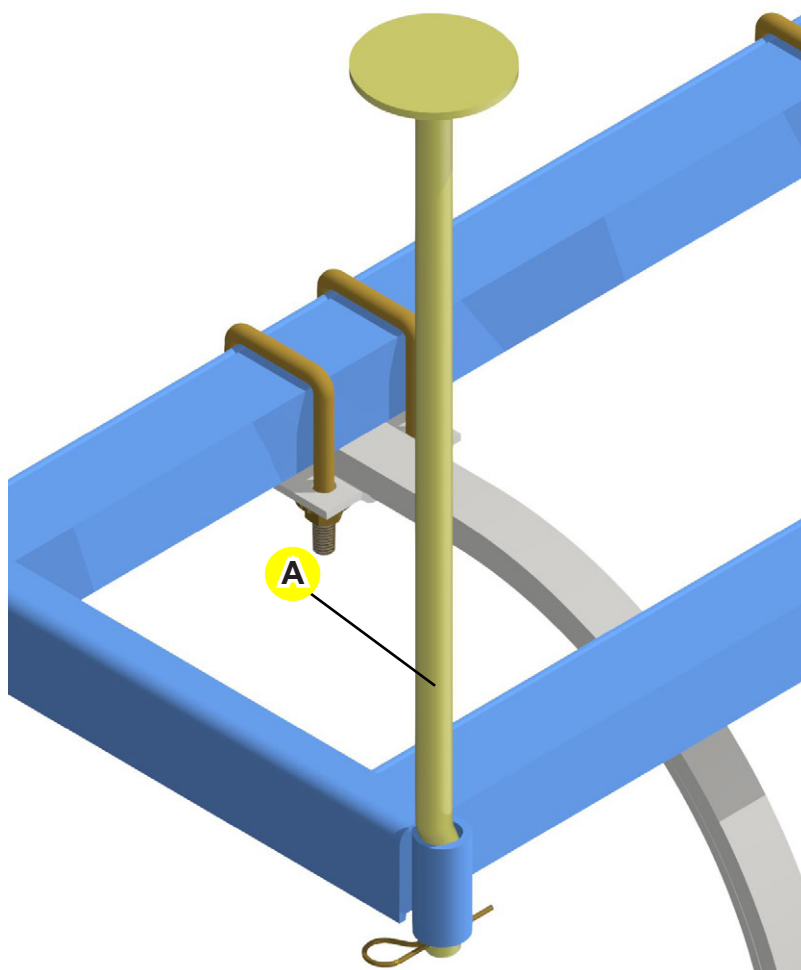
NOTE The adjustments that were previously cited can be done in the tillage, according to the used spacing.



Set-up instructions

Setting the cultivator to transport position

- Place the jack (A) as shown below.



Procedures before cultivation

- Before starting to work, do a general inspection on the cultivator. Retighten nuts and bolts and also check the condition of all pins and cotter pins to prevent future damage. Repeat this procedure after the first day of work.
- Make sure there is no object inside the hoppers, which can damage the distribution sets.

IMPORTANT We recommend to fill up the cultivator only on the work place to prevent overloading the hydraulic lift during transport.

- Lubricate all grease fittings appropriately. (See instructions on the 'lubrication' page).

Set-up instructions

Procedures before cultivation

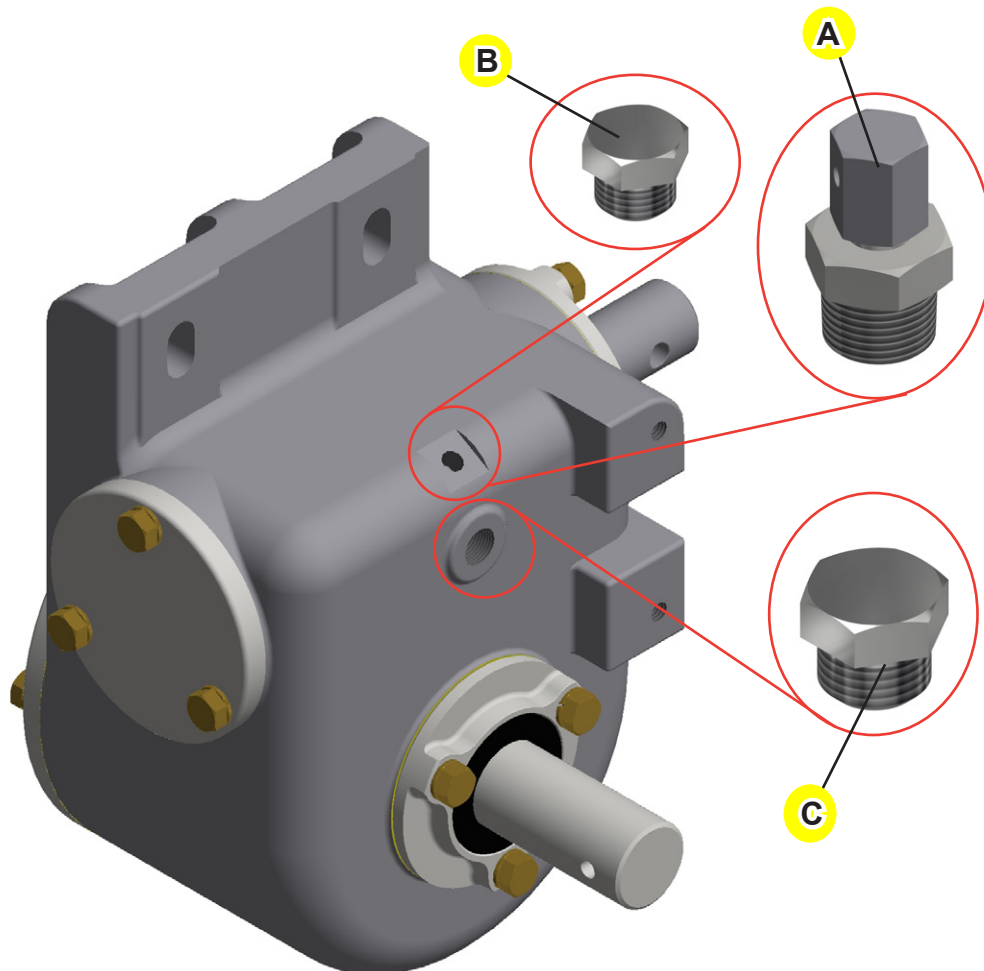
- Before starting to work, do a general inspection on the cultivator. Retighten nuts and bolts and also check the condition of all pins and cotter pins to prevent future damage. Repeat this procedure after the first day of work.

- Make sure there is no object inside the hoppers, which can damage the distribution sets.

NOTE We recommend to fill up the cultivator only on the work place to prevent overloading the hydraulic lift during transport.

- Lubricate all grease fittings appropriately. (See instructions on the 'lubrication' page).

- Place the vent valve (A) which is an included part of the cultivator, replacing the bolt (B) in the upper part of the gearbox. Its purpose is to avoid a pressure that can be created inside the gearbox.



- Check the gearbox oil level, keep it leveled and remove the side plug (C).

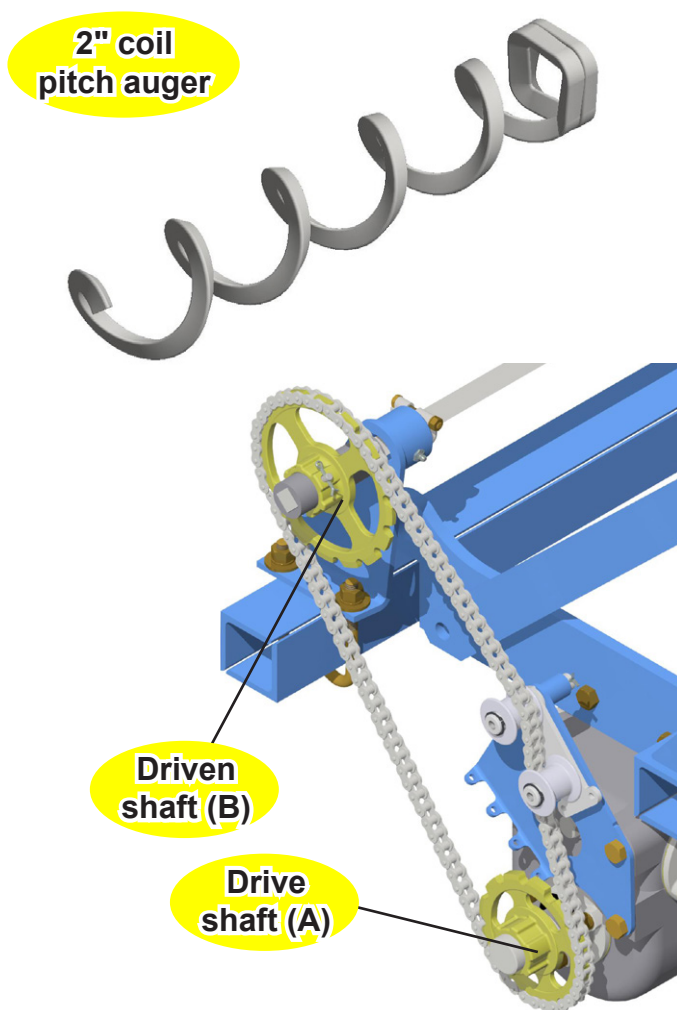
NOTE The ideal level is when the oil reaches the hole that the side plug (C) occupies, being the equipment in a flat place. Use SAE 90 oil only.

Adjustments and operations

Fertilizer dosage and distribution

The fertilizer distribution is done through the augers (coil pitch of 1" or 2") and the different dosages can be obtained by the sprocket combinations of the **Drive {A}** and **Driven {B}** shafts.

IMPORTANT When changing the augers, note that are a right and a left one.



Consult the tables on the following pages that indicates the correspondences used to distribute different amounts of urea or ammonium sulfate in spacings from 400 to 1000 mm. Note that the tables from augers of 1" coil pitch and 2" coil pitch are different.

NOTE The third column of the tables inform the amount of fertilizer in "grams in 50 meters per row", considering only one fertilizer output for each culture row (single fertilization).

For fertilization on both sides of the plant (double fertilization), the values of "grams in 50 meters per row" and the other values on the table (kg/ha) should be divided by 2 (two), because in these cases each culture row will be fertilized by 2 (two) outputs.

For the sprocket combinations marked with an "*" on the table, increase 3 (three) links in the chain plus the mend. Note that the chain already have 2 mends to facilitate disassembling and avoid mistakes.

Adjustments and operations

Table for distribution of urea

2" coil pitch auger with stirrer.

Travel speed = 5.5 km/h (PTO - 540 rpm).

Urea density = 0.750 kg/liter.

Sprockets		Grams in 50m per row (One output)	Amount in kg/ha for several spacings between rows									
Drive (Gearbox)	Driven (Shaft)		400	450	500	550	600	650	700	800	900	1000
6	22	195	98	87	78	71	65	60	56	49	43	39
6	20	215	107	95	86	78	72	66	61	54	48	43
6	18	239	119	106	95	87	80	73	68	60	53	48
6	16	268	134	119	107	98	89	83	77	67	60	54
6	14	307	153	136	123	112	102	94	88	77	68	61
8	18	318	159	141	127	116	106	98	91	80	71	64
8	16	358	179	159	143	130	119	110	102	89	80	72
10	18	398	199	177	159	145	133	122	114	99	88	80
8	14	409	204	182	164	149	136	126	117	102	91	82
6	10	429	215	191	172	156	143	132	123	107	95	86
10	16	447	224	199	179	163	149	138	128	112	99	89
12	18	477	239	212	191	173	159	147	136	119	106	95
10	14	511	256	227	204	186	170	157	146	128	114	102
12	16	537	268	239	215	195	179	165	153	134	119	107
*14	18	557	278	247	223	202	186	171	159	139	124	111
8	10	572	286	254	229	208	191	176	164	143	127	114
10	12	596	298	265	239	217	199	183	170	149	133	119
12	14	613	307	273	245	223	204	189	175	153	136	123
14	16	626	313	278	250	228	209	193	179	157	139	125
*16	18	636	318	283	254	231	212	196	182	159	141	127
12	12	716	358	318	286	260	239	220	204	179	159	143
*18	16	805	403	358	322	293	268	248	230	201	179	161
16	14	818	409	363	327	297	273	252	234	204	182	164
14	12	835	417	371	334	304	278	257	239	209	186	167
12	10	859	429	382	343	312	286	264	245	215	191	172
10	8	895	447	398	358	325	298	275	256	224	199	179
*18	14	920	460	409	368	335	307	283	263	230	204	184
16	12	954	477	424	382	347	318	294	273	239	212	191
14	10	1002	501	445	401	364	334	308	286	250	223	200
12	8	1073	537	477	429	390	358	330	307	268	239	215
16	10	1145	572	509	458	416	382	352	327	286	254	229
10	6	1193	596	530	477	434	398	367	341	298	265	239
14	8	1252	626	557	501	455	417	385	358	313	278	250
18	10	1288	644	572	515	468	429	396	368	322	286	258
16	8	1431	716	636	572	520	477	440	409	358	318	286
18	8	1610	805	716	644	586	537	495	460	403	358	322
14	6	1670	835	742	668	607	557	514	477	417	371	334
20	8	1789	895	795	716	651	596	550	511	447	398	358
16	6	1908	954	848	763	694	636	587	545	477	424	382
22	8	1968	984	875	787	716	656	606	562	492	437	394
18	6	2147	1073	954	859	781	716	661	613	537	477	429
20	6	2385	1193	1060	954	867	795	734	682	596	530	477
22	6	2624	1312	1166	1050	954	875	807	750	656	583	525

* Sprocket combinations that should increase 3 links plus the mend in the chain.

Adjustments and operations

Table for distribution of urea

1" coil pitch auger with stirrer.

Travel speed = 5.5 km/h (PTO - 540 rpm).

Urea density = 0.750 kg/liter.

Sprockets		Grams in 50m per row (One output)	Amount in kg/ha for several spacings between rows									
Drive (Gearbox)	Driven (Shaft)		400	450	500	550	600	650	700	800	900	1000
6	22	97	48	43	39	35	32	30	28	24	21	19
6	20	106	53	47	43	39	35	33	30	27	24	21
6	18	118	59	53	47	43	39	36	34	30	26	24
6	16	133	67	59	53	48	44	41	38	33	30	27
6	14	152	76	68	61	55	51	47	43	38	34	30
8	18	158	79	70	63	57	53	49	45	39	35	32
8	16	177	89	79	71	64	59	55	51	44	39	35
10	18	197	99	88	79	72	66	61	56	49	44	39
8	14	203	101	90	81	74	68	62	58	51	45	41
6	10	213	106	95	85	77	71	65	61	53	47	43
10	16	222	111	99	89	81	74	68	63	55	49	44
12	18	236	118	105	95	86	79	73	68	59	53	47
10	14	253	127	113	101	92	84	78	72	63	56	51
12	16	266	133	118	106	97	89	82	76	67	59	53
*14	18	276	138	123	110	100	92	85	79	69	61	55
8	10	284	142	126	114	103	95	87	81	71	63	57
10	12	296	148	131	118	107	99	91	84	74	66	59
12	14	304	152	135	122	111	101	94	87	76	68	61
14	16	310	155	138	124	113	103	96	89	78	69	62
*16	18	315	158	140	126	115	105	97	90	79	70	63
12	12	355	177	158	142	129	118	109	101	89	79	71
*18	16	399	200	177	160	145	133	123	114	100	89	80
16	14	405	203	180	162	147	135	125	116	101	90	81
14	12	414	207	184	166	150	138	127	118	103	92	83
12	10	426	213	189	170	155	142	131	122	106	95	85
10	8	443	222	197	177	161	148	136	127	111	99	89
*18	14	456	228	203	182	166	152	140	130	114	101	91
16	12	473	236	213	189	172	158	146	135	118	105	95
14	10	497	248	221	199	181	166	153	142	124	110	99
12	8	532	266	236	210	193	177	164	152	133	118	106
16	10	568	284	252	227	206	189	175	162	142	126	114
10	6	591	296	263	236	215	197	182	169	148	131	118
14	8	621	310	276	248	226	207	191	177	155	138	124
18	10	639	319	284	255	232	213	196	182	160	142	128
16	8	709	355	315	284	258	236	218	203	177	158	142
18	8	798	399	355	319	290	266	246	228	200	177	160
14	6	828	414	368	331	301	276	255	236	207	184	166
20	8	887	443	394	355	322	296	273	253	222	197	177
16	6	946	473	420	378	344	315	291	270	236	210	189
22	8	976	488	434	390	355	325	300	279	244	217	195
18	6	1064	532	473	426	387	355	327	304	266	236	213
20	6	1182	591	526	473	430	394	364	338	296	263	236
22	6	1301	650	578	520	473	434	400	372	325	289	260

* Sprocket combinations that should increase 3 links plus the mend in the chain.

Adjustments and operations

Table for distribution of ammonium sulfate

2" coil pitch auger with stirrer.

Travel speed = 5.5 km/h (PTO - 540 rpm).

Ammonium sulfate density = 0.980 kg/liter.

Sprockets		Grams in 50m per row (One output)	Amount in kg/ha for several spacings between rows									
Drive (Gearbox)	Driven (Shaft)		400	450	500	550	600	650	700	800	900	1000
6	22	221	110	98	88	80	74	68	63	55	49	44
6	20	243	121	108	97	88	81	75	69	61	54	49
6	18	270	135	120	108	98	90	83	77	67	60	54
6	16	304	152	135	121	110	101	93	87	76	67	61
6	14	347	173	154	139	126	116	107	99	87	77	69
8	18	360	180	160	144	131	120	111	103	90	80	72
8	16	405	202	180	162	147	135	125	116	101	90	81
10	18	450	225	200	180	164	150	138	128	112	100	90
8	14	462	231	206	185	168	154	142	132	116	103	92
6	10	486	243	216	194	177	162	149	139	121	108	97
10	16	506	253	225	202	184	169	156	145	126	112	101
12	18	540	270	240	216	196	180	166	154	135	120	108
10	14	578	289	257	231	210	193	178	165	145	128	116
12	16	607	304	270	243	221	202	187	173	152	135	121
*14	18	630	315	280	252	229	210	194	180	157	140	126
8	10	647	324	288	259	235	216	199	185	162	144	129
10	12	674	337	300	270	245	225	208	193	169	150	135
12	14	694	347	308	277	252	231	213	198	173	154	139
14	16	708	354	315	283	258	236	218	202	177	157	142
*16	18	719	360	320	288	262	240	221	206	180	160	144
12	12	809	405	360	324	294	270	249	231	202	180	162
*18	16	911	455	405	364	331	304	280	260	228	202	182
16	14	925	462	411	370	336	308	285	264	231	206	185
14	12	944	472	420	378	343	315	291	270	236	210	189
12	10	971	486	432	388	353	324	299	277	243	216	194
10	8	1012	506	450	405	368	337	311	289	253	225	202
*18	14	1041	520	462	416	378	347	320	297	260	231	208
16	12	1079	540	480	432	392	360	332	308	270	240	216
14	10	1133	567	504	453	412	378	349	324	283	252	227
12	8	1214	607	540	486	441	405	374	347	304	270	243
16	10	1295	647	576	518	471	432	398	370	324	288	259
10	6	1349	674	600	540	491	450	415	385	337	300	270
14	8	1416	708	630	567	515	472	436	405	354	315	283
18	10	1457	728	647	583	530	486	448	416	364	324	291
16	8	1619	809	719	647	589	540	498	462	405	360	324
18	8	1821	911	809	728	662	607	560	520	455	405	364
14	6	1889	944	839	755	687	630	581	540	472	420	378
20	8	2023	1012	899	809	736	674	623	578	506	450	405
16	6	2158	1079	959	863	785	719	664	617	540	480	432
22	8	2226	1113	989	890	809	742	685	636	556	495	445
18	6	2428	1214	1079	971	883	809	747	694	607	540	486
20	6	2698	1349	1199	1079	981	899	830	771	674	600	540
22	6	2968	1484	1319	1187	1079	989	913	848	742	659	594

* Sprocket combinations that should increase 3 links plus the mend in the chain.

Adjustments and operations

Table for distribution of ammonium sulfate

1" coil pitch auger with stirrer.

Travel speed = 5.5 km/h (PTO - 540 rpm).

Ammonium sulfate density = 0.980 kg/liter.

Sprockets		Grams in 50m per row (One output)	Amount in kg/ha for several spacings between rows									
Drive (Gearbox)	Driven (Shaft)		400	450	500	550	600	650	700	800	900	1000
6	22	128	64	57	51	47	43	39	37	32	29	26
6	20	141	71	63	56	51	47	43	40	35	31	28
6	18	157	78	70	63	57	52	48	45	39	35	31
6	16	176	88	78	71	64	59	54	50	44	39	35
6	14	202	101	90	81	73	67	62	58	50	45	40
8	18	209	105	93	84	76	70	64	60	52	46	42
8	16	235	118	105	94	86	78	72	67	59	52	47
10	18	261	131	116	105	95	87	80	75	65	58	52
8	14	269	134	119	108	98	90	83	77	67	60	54
6	10	282	141	125	113	103	94	87	81	71	63	56
10	16	294	147	131	118	107	98	90	84	74	65	59
12	18	314	157	139	125	114	105	97	90	78	70	63
10	14	336	168	149	134	122	112	103	96	84	75	67
12	16	353	176	157	141	128	118	109	101	88	78	71
*14	18	366	183	163	146	133	122	113	105	91	81	73
8	10	376	188	167	151	137	125	116	108	94	84	75
10	12	392	196	174	157	143	131	121	112	98	87	78
12	14	403	202	179	161	147	134	124	115	101	90	81
14	16	412	206	183	165	150	137	127	118	103	91	82
*16	18	418	209	186	167	152	139	129	119	105	93	84
12	12	471	235	209	188	171	157	145	134	118	105	94
*18	16	529	265	235	212	192	176	163	151	132	118	106
16	14	538	269	239	215	196	179	165	154	134	119	108
14	12	549	274	244	220	200	183	169	157	137	122	110
12	10	565	282	251	226	205	188	174	161	141	125	113
10	8	588	294	261	235	214	196	181	168	147	131	118
*18	14	605	302	269	242	220	202	186	173	151	134	121
16	12	627	314	279	251	228	209	193	179	157	139	125
14	10	659	329	293	263	240	220	203	188	165	146	132
12	8	706	353	314	282	257	235	217	202	176	157	141
16	10	753	376	335	301	274	251	232	215	188	167	151
10	6	784	392	349	314	285	261	241	224	196	174	157
14	8	823	412	366	329	299	274	253	235	206	183	165
18	10	847	423	376	339	308	282	261	242	212	188	169
16	8	941	471	418	376	342	314	290	269	235	209	188
18	8	1059	529	471	423	385	353	326	302	265	235	212
14	6	1098	549	488	439	399	366	338	314	274	244	220
20	8	1176	588	523	471	428	392	362	336	294	261	235
16	6	1255	627	558	502	456	418	386	358	314	279	251
22	8	1294	647	575	518	471	431	398	370	323	288	259
18	6	1412	706	627	565	513	471	434	403	353	314	282
20	6	1568	784	697	627	570	523	483	448	392	349	314
22	6	1725	863	767	690	627	575	531	493	431	383	345

* Sprocket combinations that should increase 3 links plus the mend in the chain.

Adjustments and operations

How to use the tables from the previous pages

1) Example: Fertilization on one side of the plant (single fertilization).

To distribute approximately 150 kg/ha (one hundred and fifty kilograms per hectare) of ammonium sulfate in a spacing of 900 mm, it is recommended to use the following sprockets:

Drive shaft with 10 teeth (gearbox) and driven shaft with 12 teeth to operate at a speed of 5.5 km/h, with a constant speed of 540 rpm on the PTO.

2) Example: Fertilization on both sides of the plant (double fertilization).

To distribute approximately 150 kg/ha (one hundred and fifty kilograms per hectare) of ammonium sulfate in a spacing of 900 mm, it is recommended to use the following sprockets:

Drive shaft with 6 teeth (gearbox) and driven shaft of 14 teeth to operate at the same speed and rotation of the first example.

NOTE CAC models to fertilize one side of the plant (single fertilization): CAC 4/2, CAC 9/2, CAC 13/2 and CAC 19/3.

CAC models to fertilize both sides of the plant (double fertilization): CAC 6/2, CAC 7/2, CAC 9/3, CAC 9/4, CAC 10/3, CAC 13/3, CAC 13/4, CAC 15/3, CAC 15/5, CAC 16/3, CAC 16/5 and CAC 19/6.

IMPORTANT

- The distribution tables serve as a reference to adjust the cultivator.
- The working speed, different rotation of the PTO or different type of fertilizer may show different results in the tillage.
- We suggest that you make a practical test, as instructed on the next page.

Adjustments and operations

Practical test for fertilizer distribution

The most appropriate way to assess the amount of fertilizer to be distributed is at the same place where the cultivation will take place, in the following way:

- Whenever possible, have the same tractor and operator for the coverage;
- Set the distance for the test. Example in the fertilizer table: 50 linear meters;
- Fill up the hoppers halfway and travel some meters to fill up the meterings completely, before entering the delimited area;
- Place bags at the fertilizer outlets (use preferably plastic bags);
- Move the tractor along the delimited area, using the same speed in the whole process;

Recommended speed = 5 to 6 km/h;

PTO constant rotation = 540 rpm;

- Now just weigh the fertilizer in the bags and compare it with the third column of the indicated table (grams in 50 meters per row - single fertilization);
- If necessary, change the adjustments and redo the test;
- After achieving the desired amounts and still at the terrain, move the tractor at the same speed, but now letting the fertilizer reach the soil to better check the distribution uniformity.

ATTENTION For double fertilization (on both sides of the plant), it is necessary to divide the amount collected by two to compare with the table.

Variations in the working speed and rotation of the PTO may affect the amount distributed.

It is important to check the amount again after the first day of work.

Adjustments and operations

Fertilizer distribution calculation

To distribute other quantities of fertilizer in different spacings and areas, it is suggested to make a quick calculation, where all data used can be replaced. Use the formula below, which contains the following elements:

A = Area to be fertilized (m²).

B = Spacing between culture rows (mm).

C = Amount of fertilizer to be distributed in the area (kg).

D = Distance to travel for the drop test (m).

X = How many grams should fall in "D"?

Formula:
$$X = \frac{B \times C}{A} \times D$$

Example:

A = 10,000 m²

B = 800 mm

C = 200 kg

D = 50 m

X = ?

$$X = \frac{800 \times 200}{10,000} = 16 \times 50$$

$$X = 16 \times 50 = 800$$

X = 800 grams in 50 meters in each row.

Then, adjust the cultivator to distribute the found amount or an amount that fits the most in the determined space to test.

Adjustments and operations

Operations - important points

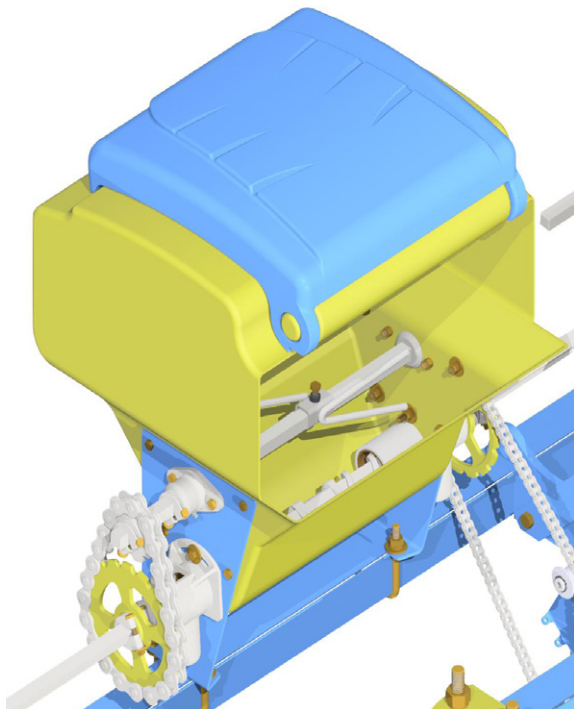


- Retighten nuts and bolts after the first day of work. Check the conditions of all pins and cotter pins and retighten every 24 hours of service.
- Carefully observe the lubrication intervals.
- Only a person that has the full knowledge of the tractor and cultivator must operate them.
- During work or transportation, do not allow passengers on the tractor or cultivator.
- Keep the lower arms of the hydraulic lift adjusted.
- Choose a gear that allows the tractor to maintain certain power reserve for any unpredictable effort that may occur.
- When filling up the cultivator, note if it is properly hitched to the tractor. Also check if there is any object inside the hoppers, which could damage the distribution sets.
- Always use impurity-free fertilizers and periodically observe the proper functioning of the distribution system.
- Keep the equipment leveled.
- Periodically check the established settings at the work outset.
- It is important to keep a constant speed in the whole cultivation; as well as a constant speed of **540 rpm** on the tractor **PTO**.
- Do not maneuver or use reverse gear if the shanks are lowered to the soil.
- To carry out any verification on the equipment, lower it to the ground and turn off the tractor engine and PTO.
- As previously mentioned, the CAC cultivator has several settings. However, only the local conditions can determine its best adjustment.

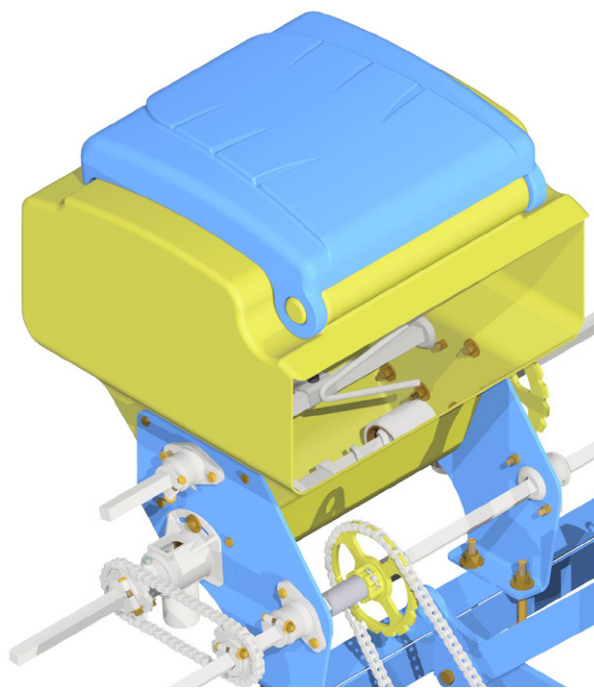
Optional

Stirrer set

For the best distribution uniformity of certain types of fertilizer, the CAC cultivator may optionally supply the stirrer set, as shown below.



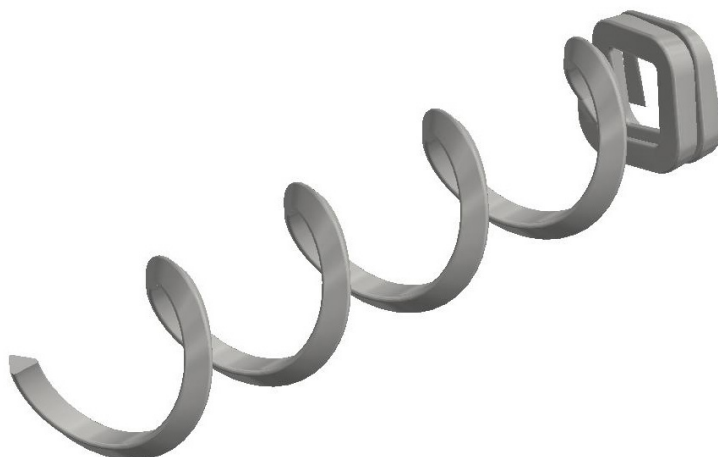
**Even number
of hoppers**



**Odd number
of hoppers**

1" coil pitch auger

For a better distribution in low dosages of coverage, it is necessary to use an 1" coil pitch auger.



- NOTE**
- Note that they are right and left.
 - Use TATU original parts only.

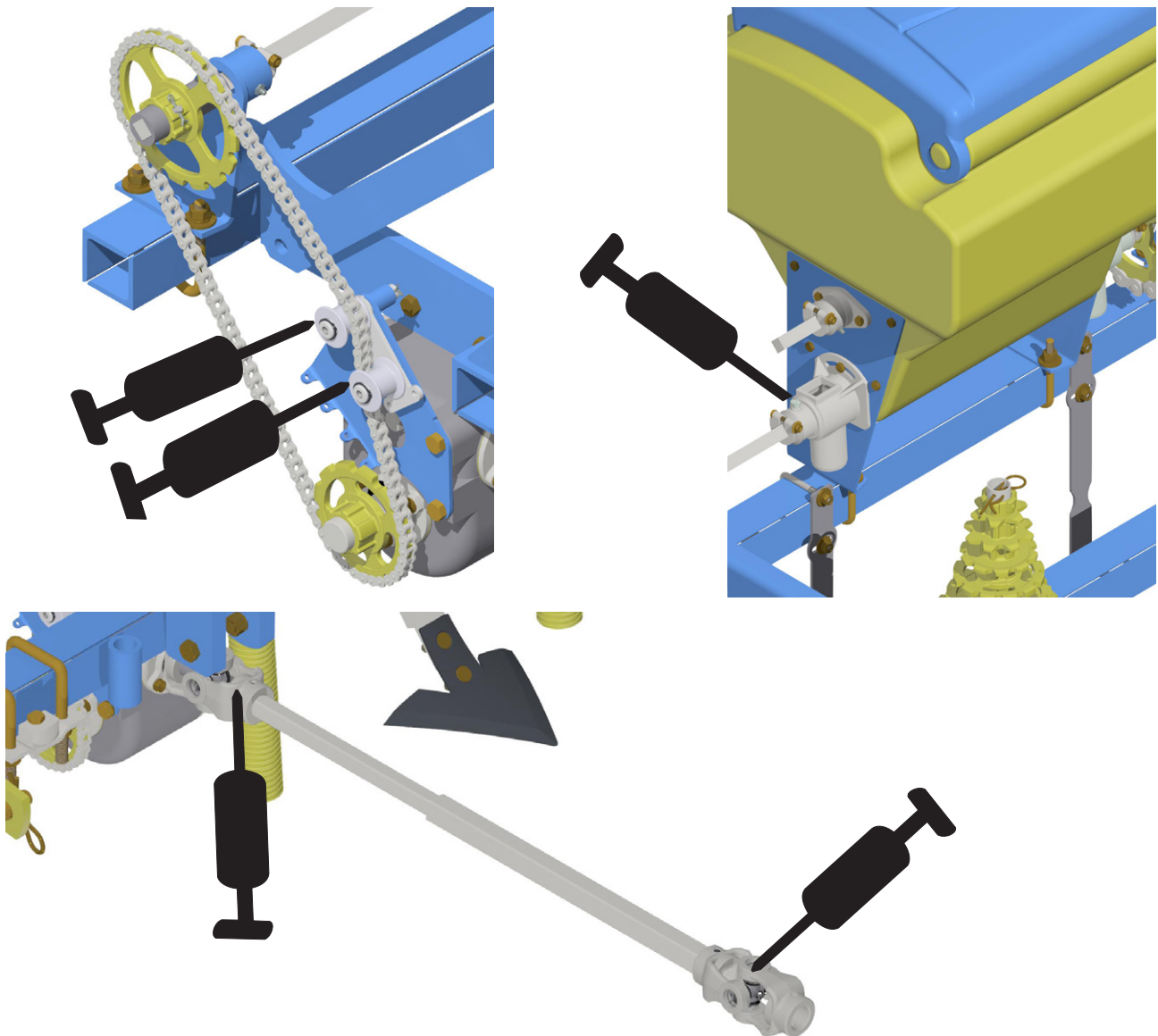
Maintenance

Lubrication

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

- Be sure about the lubricant quality as 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 introducing lubricant and replace the defective ones;
- Introduce an enough amount of new grease;
- Use medium consistency grease.

Lubricate every 10 hours of service



ATTENTION The oil volume on the gearbox is 2.15 liters.

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

Maintenance

Gearbox maintenance

The gearbox maintenance shall be made as follows:

- When starting to work and every day of the first week, see the side plug to check the oil level. Fill it up if necessary.

NOTE Do not exceed the oil level.

- Every 1000 hours, replace all the oil. Do this in a clean, free from dust and moisture place.

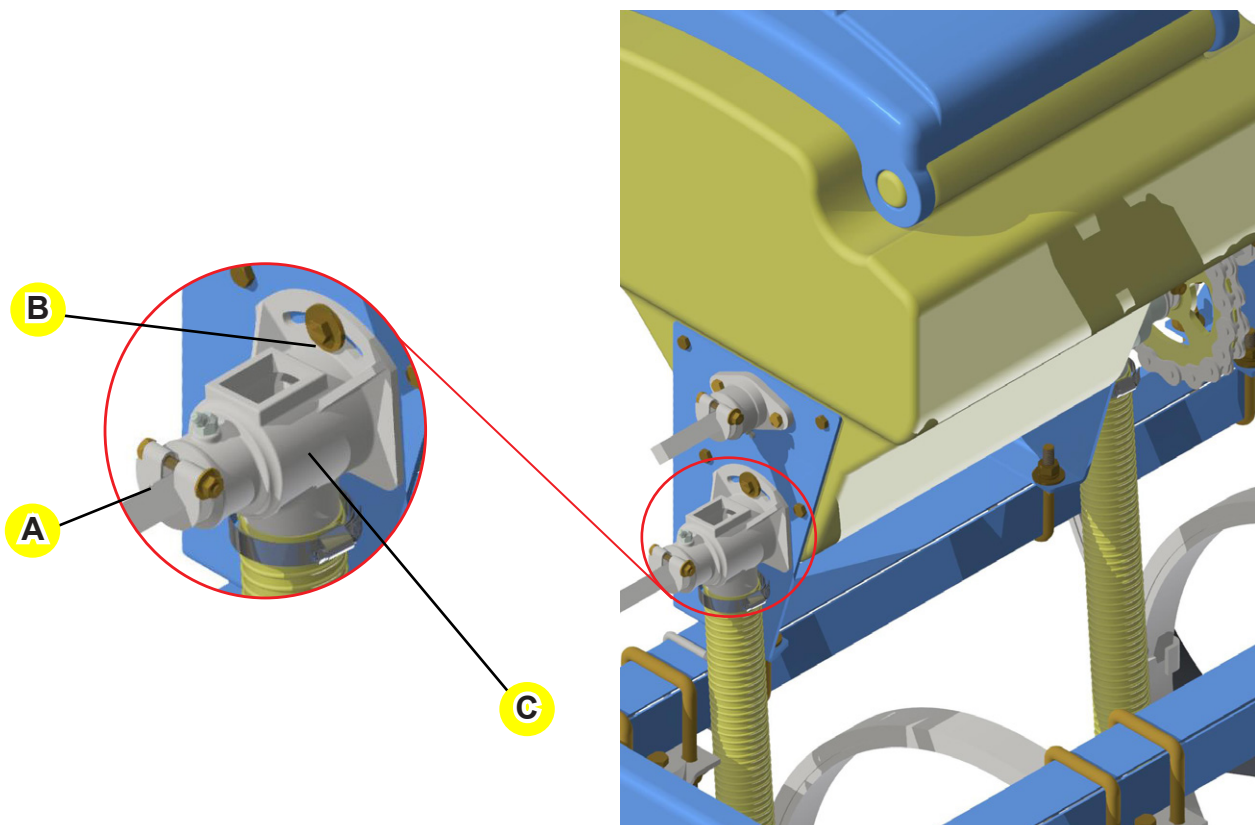
NOTE The gearbox oil volume is 2.15 liters.

Use only SAE 90 oil.

Cleaning the hoppers

To clean the plastic hoppers properly, proceed as follows:

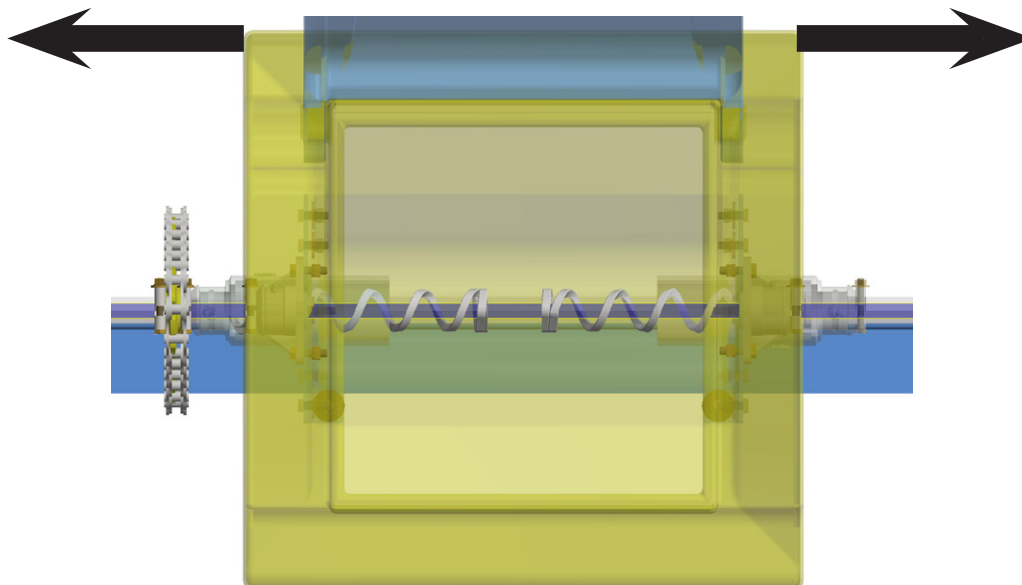
- Loose the drive shaft clamps (A).
- Loose the bolts (B) and move the metering support (C).
- Then, wash the hoppers with water to remove all the remainder fertilizer.



Maintenance

Cultivator maintenance

If you need to change the fertilizer augers, note that there are a left and a right one.



- Remove the transmission chain of the gearbox and keep it soaked in oil until the next cultivation;
- Remove the hoses from the hoppers and wash them immediately;
- Wash the whole equipment, particularly the hoppers;
- Make sure all moving parts of the equipment show no wear. If necessary, replace these parts in order to leave the equipment ready for the next cultivation;
- Repair the paint failure;
- If necessary, spray the metallic parts with protective oil. Never spray used engine lubricant oil;
- After making all repairs and maintenance, store the equipment in a covered and dry place;
- Keep the equipment properly supported.

NOTE / Use TATU original parts only.

Maintenance

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

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

ATTENTION

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

Images are for illustration purposes only.

Some images 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: Káthia Regina Datorre

Technical information: Thiago Alexandre Mistrão

Translation / Revision: Matheus Freire de Souza

July, 2022

Serial number.: 05.01.09.0880

Revision: 09



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



ATENÇÃO

- RECOMENDAÇÕES GERAIS DE SEGURANÇA -

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



ATENCIÓN

- RECOMENDACIONES GENERALES DE SEGURIDAD -

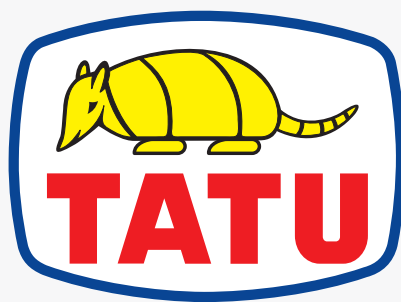
- 1 - Solamente personas con el completo conocimiento del tractor y de los implementos deben conducirlos.
- 2 - Para enganchar los implementos, proceda con maniobras en marcha lenta, en local con espacio y este preparado para aplicar los frenos.
- 3 - Para acoples en la toma de potencia apague el motor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



ATTENTION

- GENERAL RECOMMENDATION ABOUT SAFETY -

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



MARCHESAN

www.marchesan.com.br

