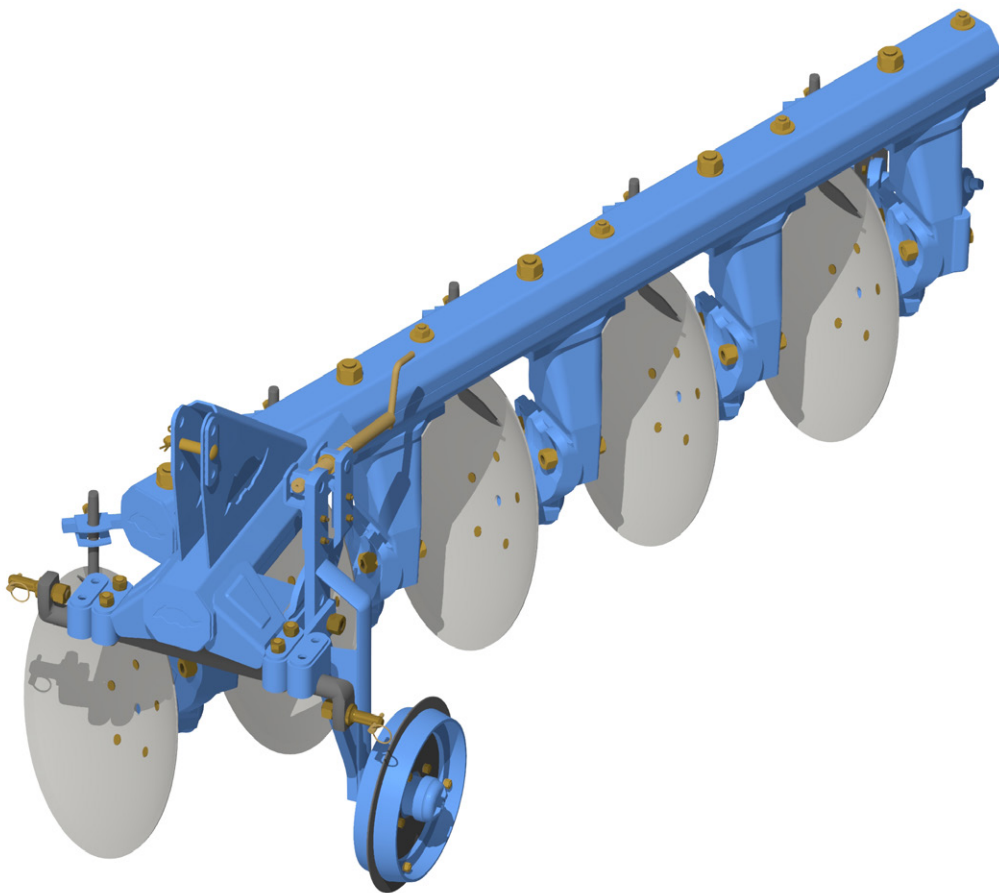


MARCHESAN

OPERATOR'S MANUAL



AF / AFL

IDENTIFICATION

Dealer: _____

Owner: _____

Firm / Farm: _____

City: _____ State: _____

No. of the Certificate of Guarantee: _____

Serial / No.: _____

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

Product: _____

Notes: _____

[illegible]

Introduction

The TATU disk plows follow the proper standards of manufacturing, which ensures its use in any type of soil, providing improved yield in plowing operations, construction of terraces and other applications.

High-resistance tubular frame and simplified adjustments ensure the best working conditions.

Conical roller bearing disc hubs and gauge wheel. The disc blades are manufactured under strict standards feature improved wear and impact resistance.

Marchesan own its prominent position in the Agricultural Implements and Machinery, supplying farmers with products of high quality; which proves the increasing number of farmers who start to choose the TATU brand.

This operator's manual contains the necessary information for the best performance of these plows. 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 plow.



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To the owner

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

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

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

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

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

This manual should be read by operators and maintenance staff.

Important



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

General information

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

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

MODELO MODEL			
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.

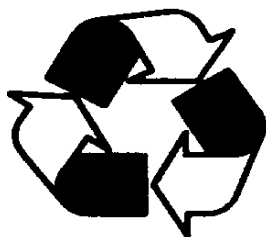
To the operator

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 spilled to the soil and can penetrate to the underground layers, compromising nature. Ecological and conscious disposal of them should be done.

Working safely



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

AF and AFL plows are simple to operate, requiring however the basic and essential cautions to their handling.

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



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



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

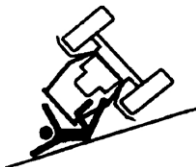
To the operator



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



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



Be careful while driving on slopes. Risk of overturn.



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



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



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



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



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



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



Always use the safety locks to carry out maintenance operations and to transport the equipment.

To the operator



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

To the operator

Transportation over truck or trailer



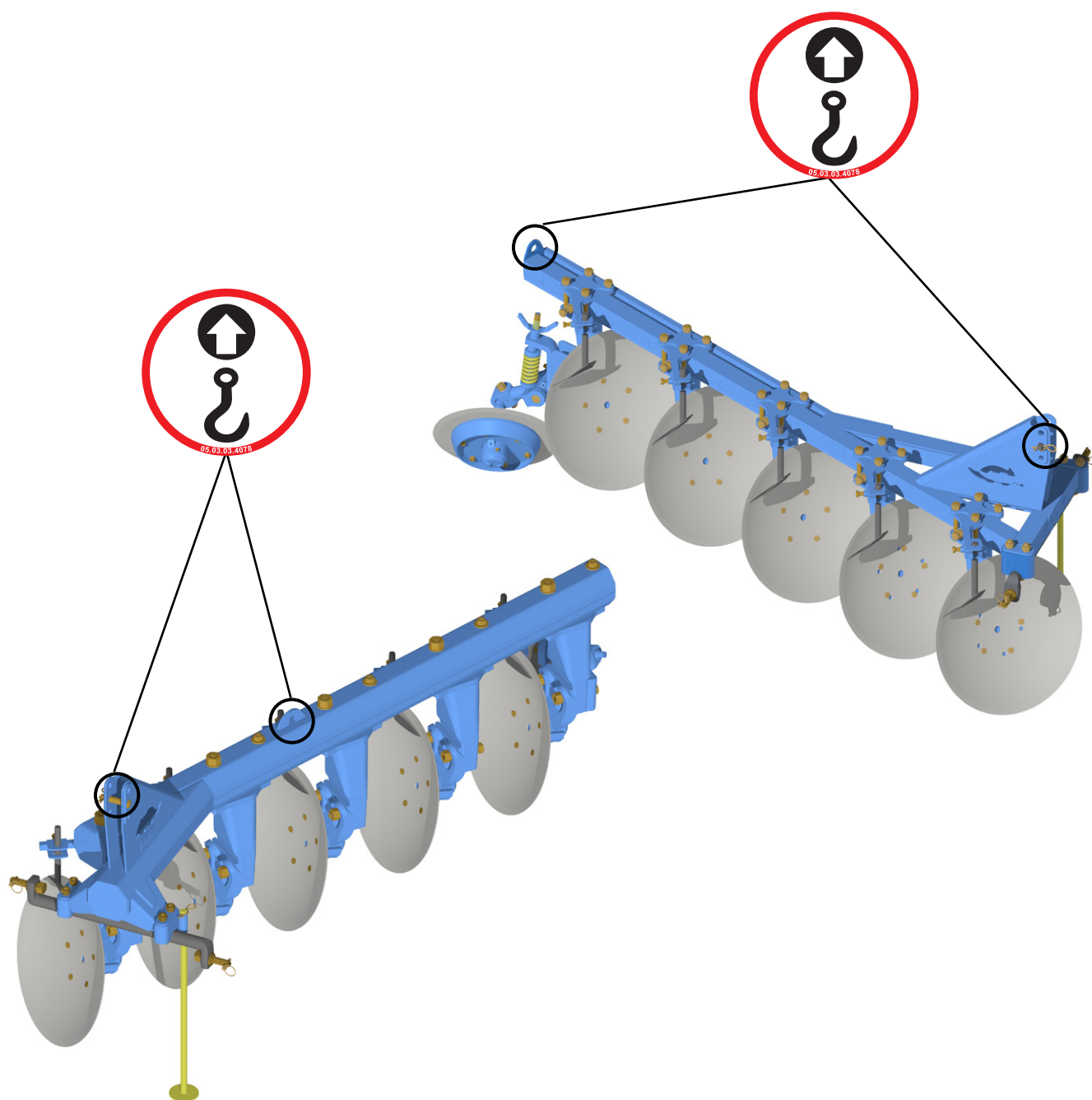
Marchesan does not advise the equipment traffic on highways, because this practice involves serious security risks in addition to being prohibited by the current existing traffic law. The transportation for long distances should be done on truck, trailer or other by following these safety guidelines:

- Use adequate ramps to load or unload the equipment. Do not make the loading on ditch banks, it can cause a serious accident.
- When lifting with a hoist, use the appropriate points to lift.
- Underpin the equipment appropriately.
- Use chock blocks and safety chains to secure the equipment to the truck or trailer during the transport.
- Make sure the SMV (Slow Moving Vehicle) sign, and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
- After 8 to 10 km transporting, please inspect the load condition. Repeat this procedure every 80 to 100 km. Give more attention when transporting the equipment on rough roads, slopes and other adverse conditions.
- Always be careful with the load height, especially when passing under electrical power lines, bridges and others.
- Check all laws and regulations regarding the height limits and load width while transporting the equipment 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

This moldboard plow has adequate lifting points located on the frame. When lifting with a hoist, it is essential to hitch the cables to all of these points.



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

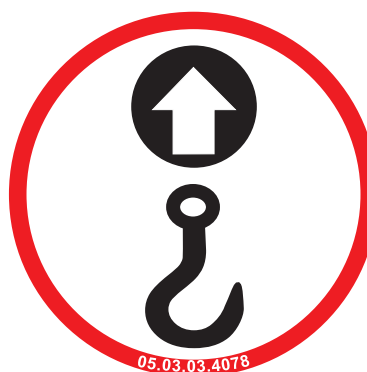
Use the adequate points for lifting and be sure that the equipment is safe. Avoid accidents.

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.



Decal set

Qty.	Model	Serial number
1	AF decal set	05.03.06.0799
1	AFL decal set	05.03.06.0800
1	Danger decal	05.03.03.1739
1	Lifting points decal	05.03.03.4078
1	Read the manual decal	05.03.03.1428
1	Lubricate and tighten daily decal	05.03.03.1827

Data sheet

Type: Mounted disk plow

Model: **AF**

Spacing between disc blades: 570 mm

Disc blades dimension: Ø 26" x 4.75 mm or Ø 28" x 6 mm

Number of disc blades: 02, 03, 04 and 05

Disc blade type: Plain or notched

Hitching type: Three-point hitch - Category II

Working speed: 5 to 7 km/h

Model	Number of disc blades	Cutting width (mm)	Total weight (kg)	Tractor engine required power (hp)
AF	02	550 - 650	314	45 - 50
	03	800 - 920	408	60 - 70
	04	1020 - 1230	492	80 - 95
	05	1280 - 1550	594	105 - 120

NOTE / The working speed must be kept at 5 - 7 km/h, depending on the soil conditions and type.

The tractor power must take soil type and depth, as well as working speed into consideration.

Plow net weight with a Ø 26" x 4.75 mm disc blade - without gauge wheel.

Data sheet

Type: Mounted disk plow

Model: **AFL**

Spacing between disc blades: 500 mm, 550 mm and 570 mm

Disc blades dimension: Ø 26" x 4.75 mm or Ø 28" x 6 mm

Number of disc blades: 03, 04 and 05

Disc blade type: Plain or notched

Hitching type: Three-point hitch - Category II

Working speed: 5 to 7 km/h

Model	Number of disc blades	Cutting width (mm)	Total weight (kg)	Tractor engine required power (hp)
AFL	03	700 - 950	390	50 - 60
	04	900 - 1100	486	70 - 80
	05	1100 - 1400	495	85 - 95

NOTE

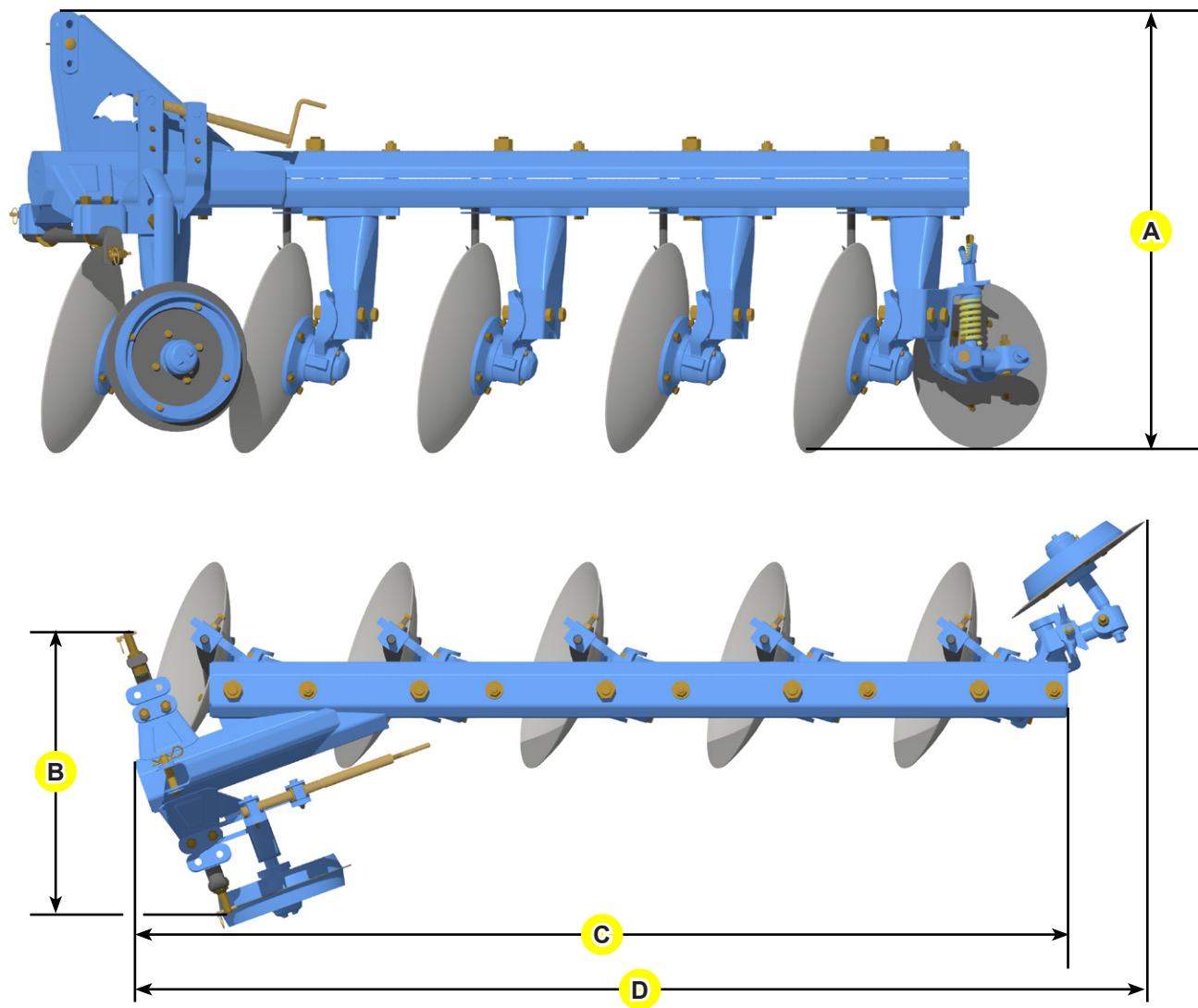
The working speed must be kept at 5 - 7 km/h, depending on the soil conditions and type.

The tractor power must take soil type and depth, as well as working speed into consideration.

Plow net weight with a Ø 26" x 4.75 mm disc blade - without gauge wheel.

Data sheet

Dimensions for transportation and storage



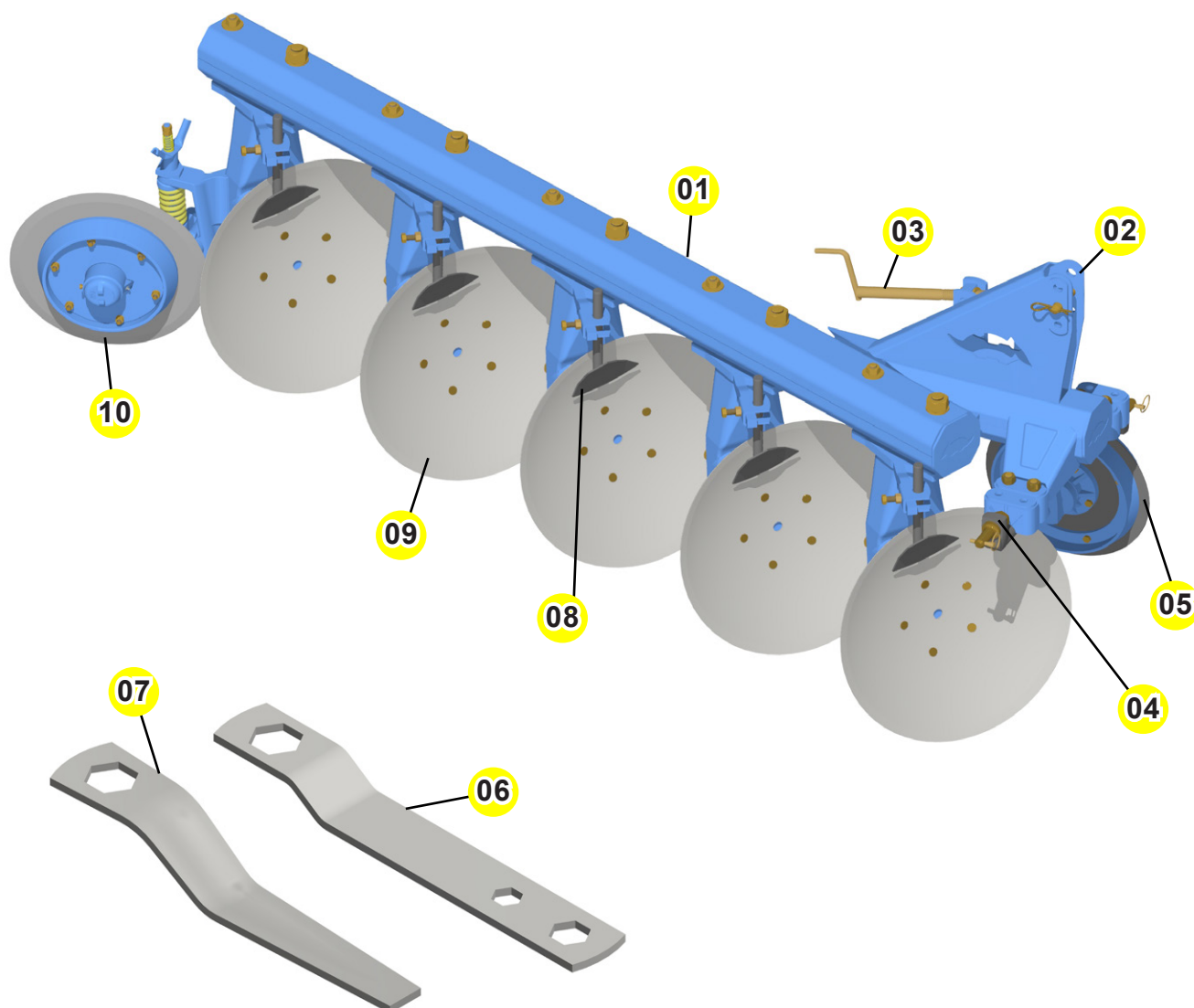
Model	Number of disc blades	A	B	C	D
AF	02	1365	850	1200	1450
	03	1365	850	1725	1975
	04	1365	850	2235	2485
	05	1365	850	2860	3110
AFL	03	1365	850	1725	1975
	04	1365	850	2235	2485
	05	1365	850	2860	3110

NOTE/ Measures in millimeters.

Components

AF - Mounted disk plow

- | | |
|-----------------------------|-----------------------|
| 01 - Frame | 06 - 5/8" wrench |
| 02 - Hitch post | 07 - 1.1/4" wrench |
| 03 - Level axle (Optional) | 08 - Scraper |
| 04 - Hitch pin | 09 - Plain disc blade |
| 05 - Gauge wheel (Optional) | 10 - Guide wheel |



Components

AFL - Mounted disk plow

01 - Frame

02 - Parking jack

03 - Disc blade carrier

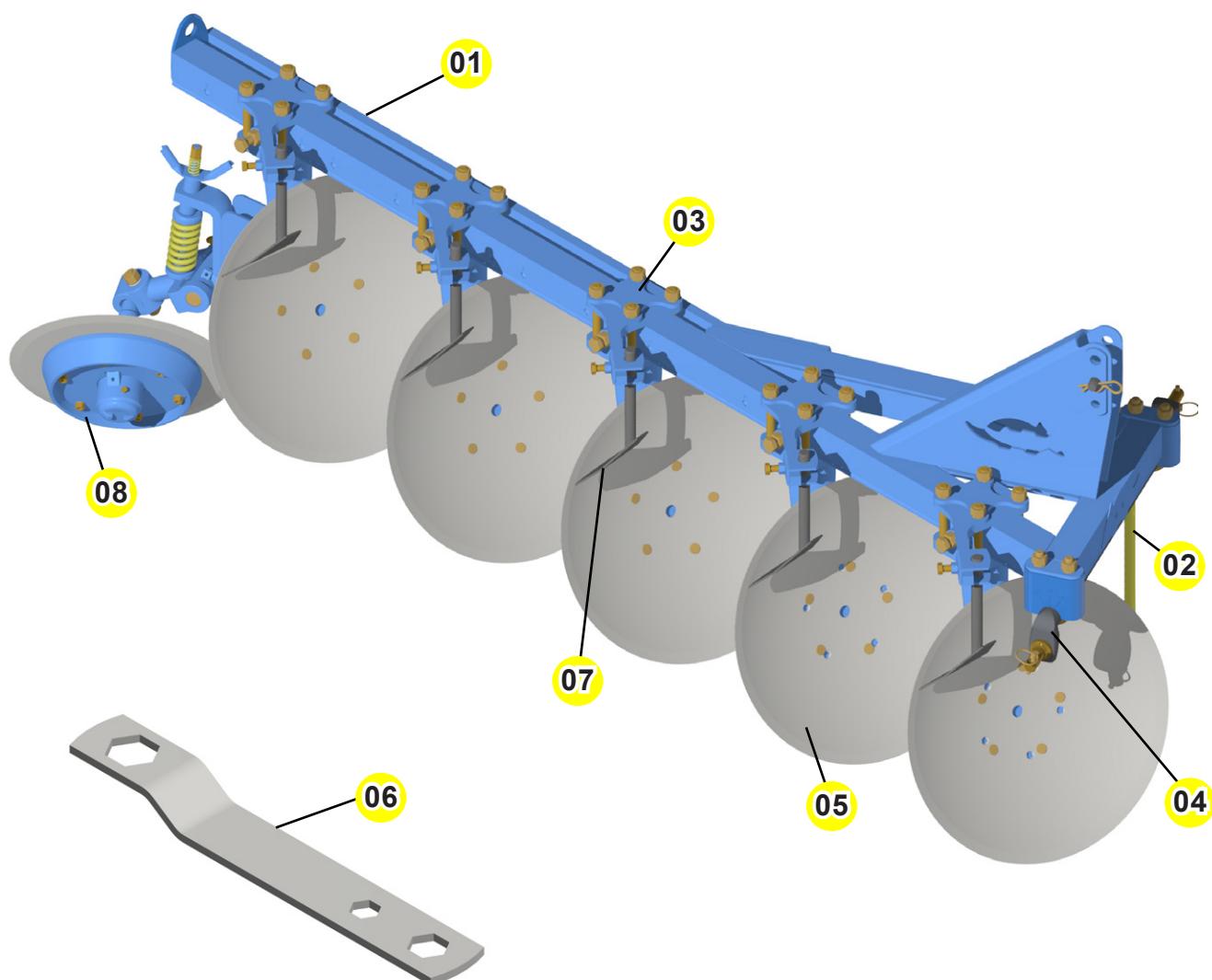
04 - Hitch pins

05 - Disc blade

06 - 5/8" wrench

07 - Scraper

08 - Guide wheel



Assembly

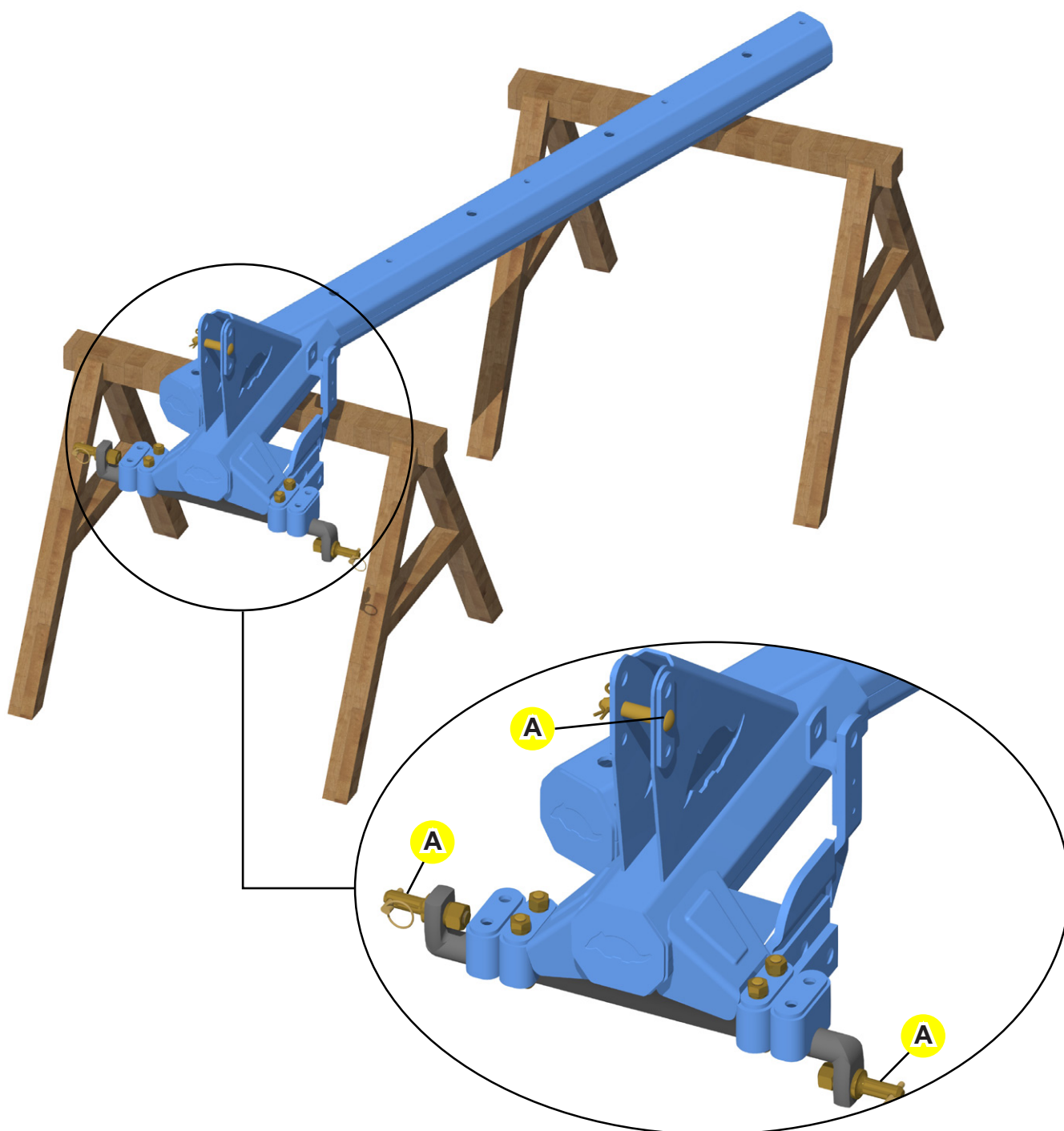
Frame assembly

To assemble the plow, choose a place free from any dirt and as flat as possible.

Separate the parts in groups to make it easier to grab them, and check them using the list found inside the package.

The assembly can be basically initiated in two ways:

- Supporting the frame over two trestles of, approximately, one meter-high each.
- Coupling the frame to the three-point hitch of the tractor using hitch pins (A) and lifting it about one meter.

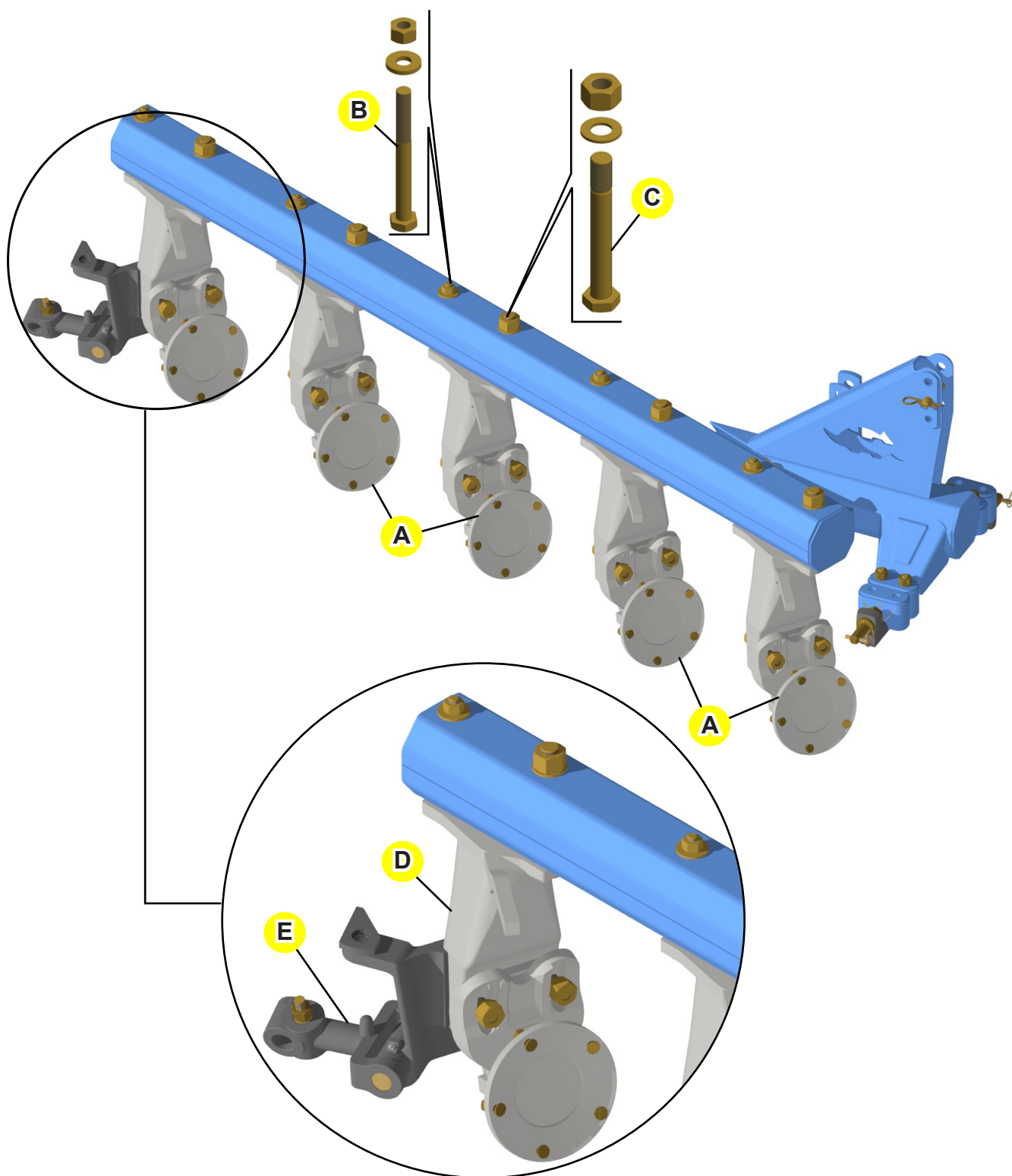


Assembly

AF disc blades sequence assembly

- Fasten the disc blade carriers (A) to the frame using bolts (B and C), washers and nuts. Check the carriers hole adjustment on the 'adjustments and operations' section (Disc blades cutting angle page).

- The disc blade carrier (D) that leaves the factory coupled to the guide wheel support (E) will be fastened to the last holes on the frame.

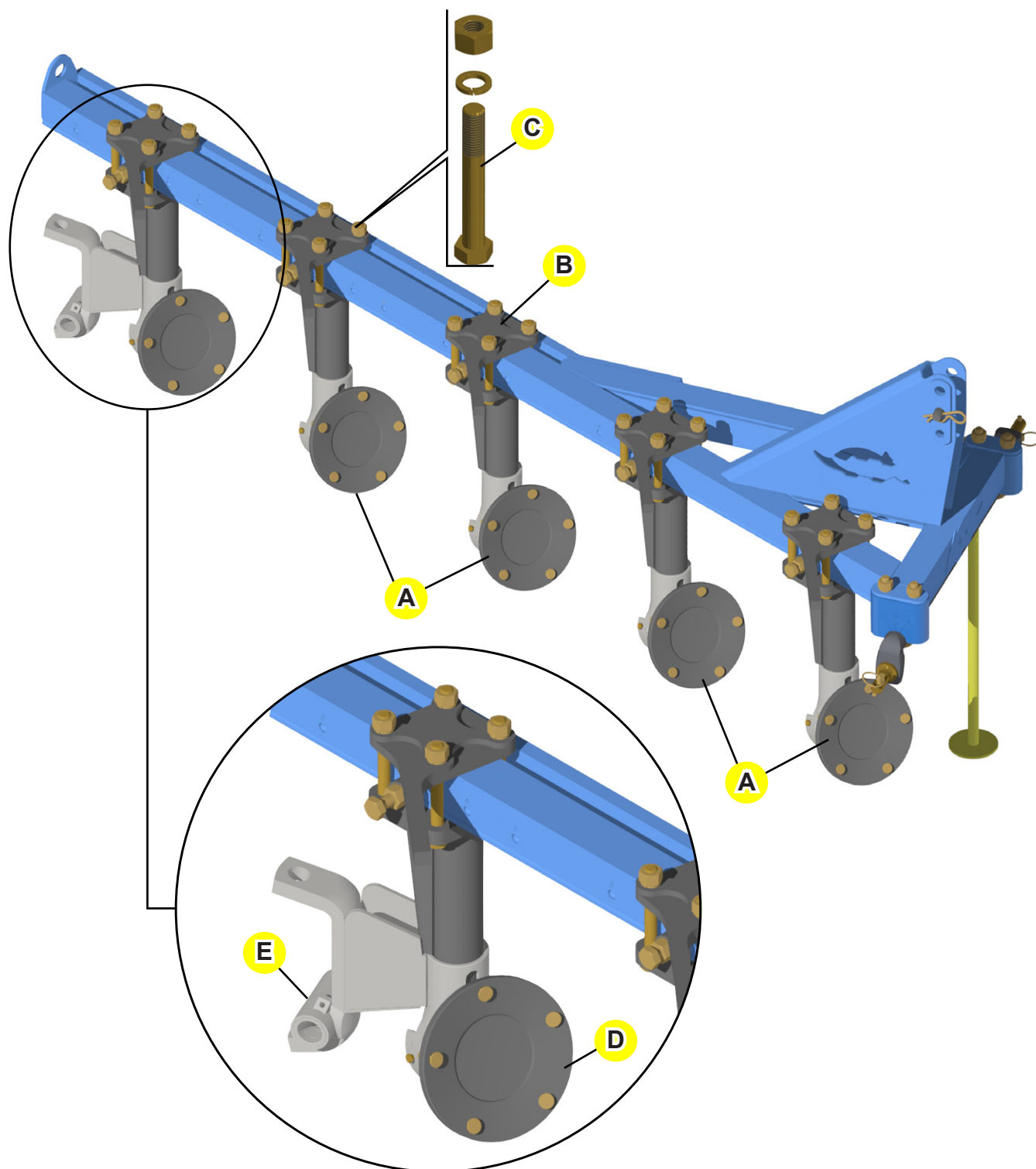


Assembly

AFL disc blades sequence assembly

- Fasten the disc blade carriers (A) to the frame with the fixating plates (B) and using bolts (C), spring washers and nuts. Check the carriers hole adjustment on the 'adjustments and operations' section (Spacing between disc blades - AFL page).

- The disc blade carrier (D) that leaves the factory coupled to the guide wheel support (E) will be fastened to the last holes on the frame.



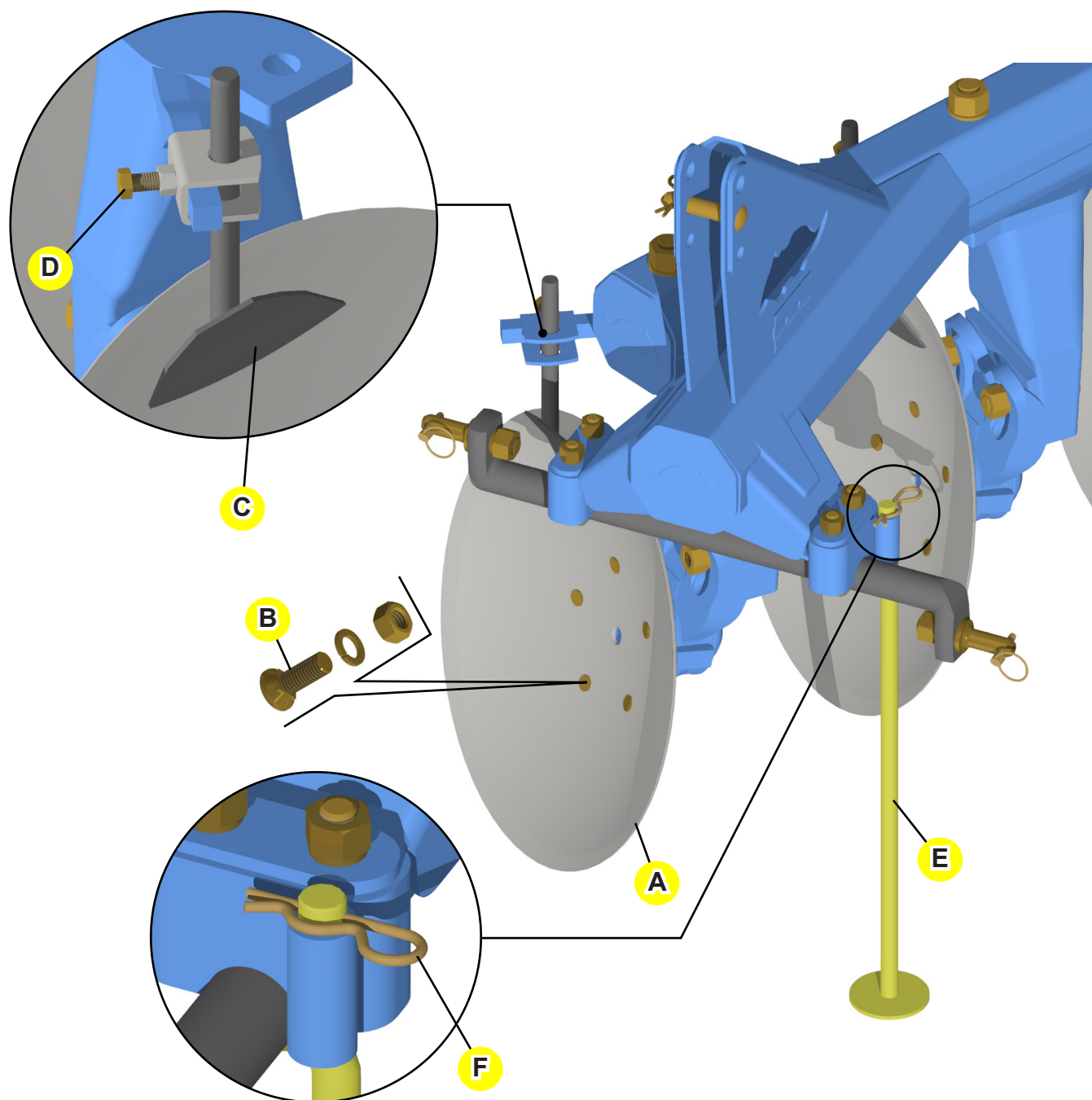
Assembly

Assembling the disc blades and scrapers

Place the disc blades (A) on the hubs using bolts (B) with spring washers and nuts.

The scrapers (C) are assembled to the disc blade carriers extension using bolts (D).

Place the parking jack (E) along with a cotter pin (F).



NOTE / To assemble the plows with gauge wheels, check the 'Optional' section (Gauge wheel page).

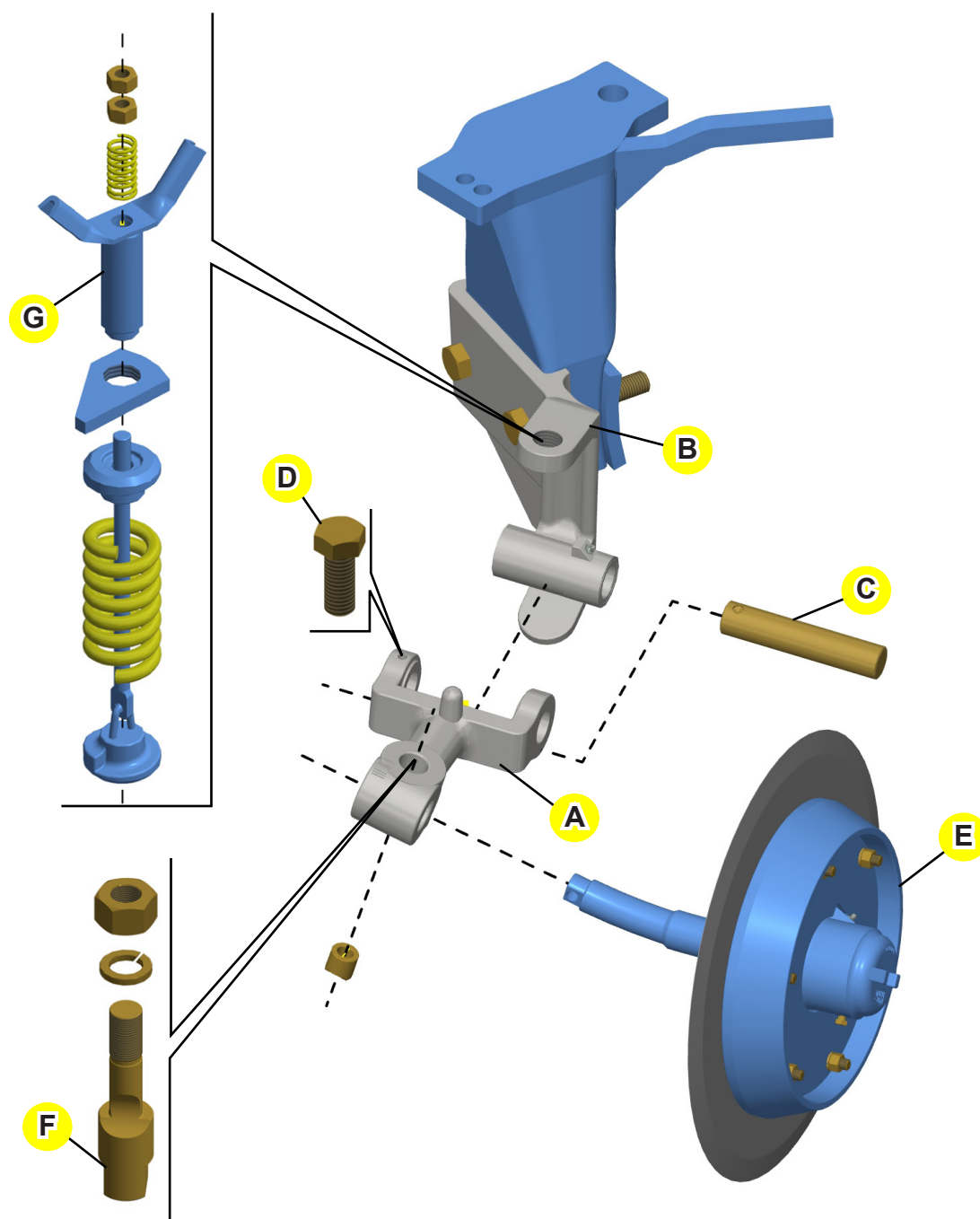
Assembly

Guide wheel set assembly

Fasten the fork (A) to the guide wheel support (B) using a pin (C) and locking with a bolt (D).

Fasten the guide wheel (E) to the fork (A) and lock using bolts (F), spring washers and nut.

Place the rod set (G) with springs according to the illustration, passing through the guide wheel support (B) and supporting it on the fork (A).



IMPORTANT The guide wheel is always assembled on the right side.

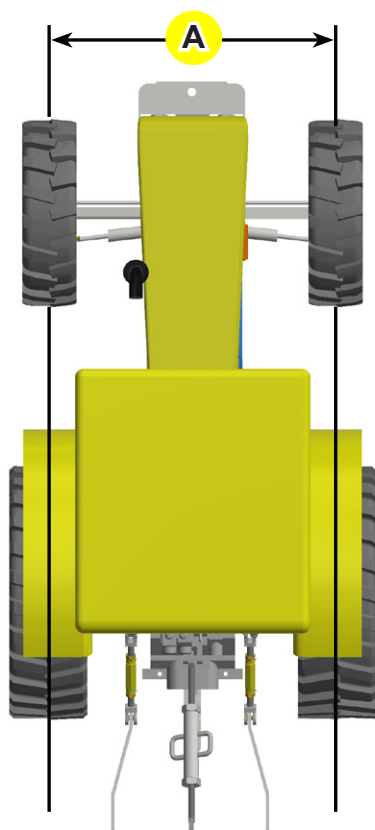
Set-up instructions

Preparing the tractor

When the tractor receives the plow, a single set is formed to perform the job. Therefore, it is important to follow the recommendations below:

A) First of all, check the general conditions to use the tractor; mainly regarding the good functioning of the hydraulic system.

B) The gauges of the front and rear wheels must be equal (by measuring the center of the tires); according to (A). Check the correct gauge and the best way to drive the tractor so that the first disc blade can work with the same cutting width as the other ones.



C) The common force of the tractors are applied on the rear wheels. So, if the tractors slip during the job, they will lose part of this force and ideal yield will not be achieved; and also the tires will suffer a greater wear.

To avoid skidding, we recommend the addition of ballast water in the tires and a set of weights on the front part and rear wheels of the tractor, as these methods are the most used ways to increase the soil traction and give greater stability to the tractor.

D) Follow the tractor and plow manual appropriately for the best performance of both.

E) Carefully note the instructions of right and left sides, considering the plow seen by its rear.

Tires	Distance between tires center (mm)
12.4/11-28	1420
13.6/12-38	
14.9/13-24	1520
14.9/13-28	
18.4/15-30	1620
18.4/15-34	
23.1/18-26	



NOTE

When transporting the plow or lifting it for maneuvers, check the operator's manual to be sure about the necessary weight to not affect the stability of the tractor-plow set. Without this proper weight distribution, serious accidents or even death may occur.

Marchesan is not responsible for the incorrect use of its equipment.

Set-up instructions

Hitching to the tractor

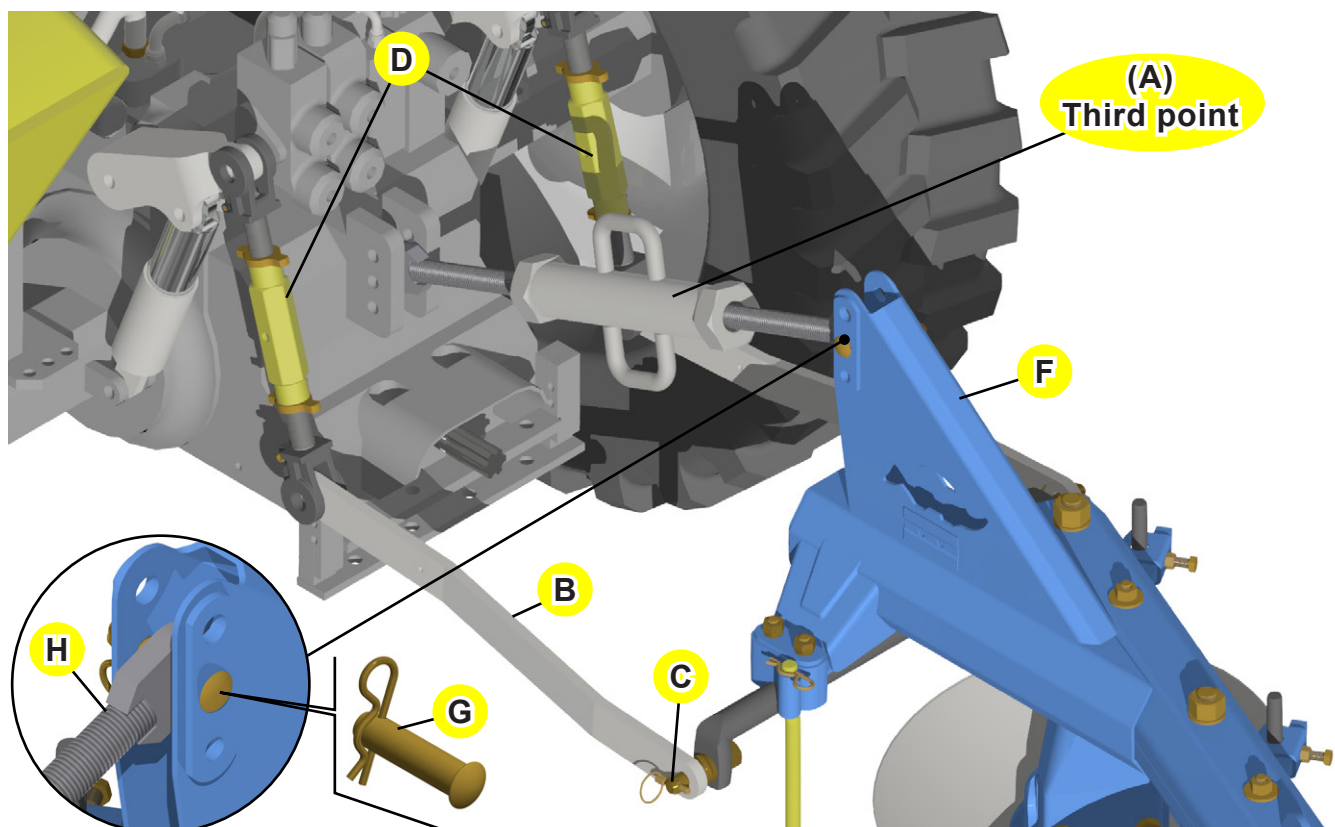
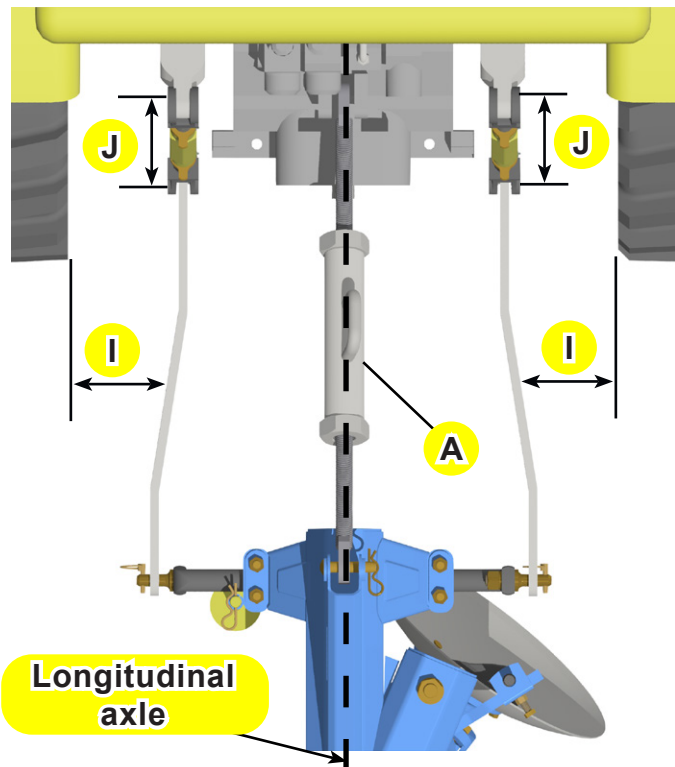
For the perfect hitching, the equipment must be centralized related to the tractor longitudinal axle on a flat place, which is done as follows:

Drive the tractor slowly in reverse gear to the plow direction and be ready to brake. When close enough, align the drawbar with the upper arm (A) - Tractor third point.

Use the lever to control the hydraulic position and let the left lower arm (B) on the same level as the plow hitch pin (C). Hitch the right and left lower arms (which have up and down movements) through the adjusters (D) and place the lock pins (C).

Lock the tractor third point (A) to the hitch post (F) with lock pin (G). Use the third point extensor thread (H) to approach or move away the plow in order to facilitate hitching.

Totally lift the equipment and check if the distances between the lower arms and tires are equal on both sides (as in "I"), being them leveled (as in "J").



Adjustments and operations

Plow leveling

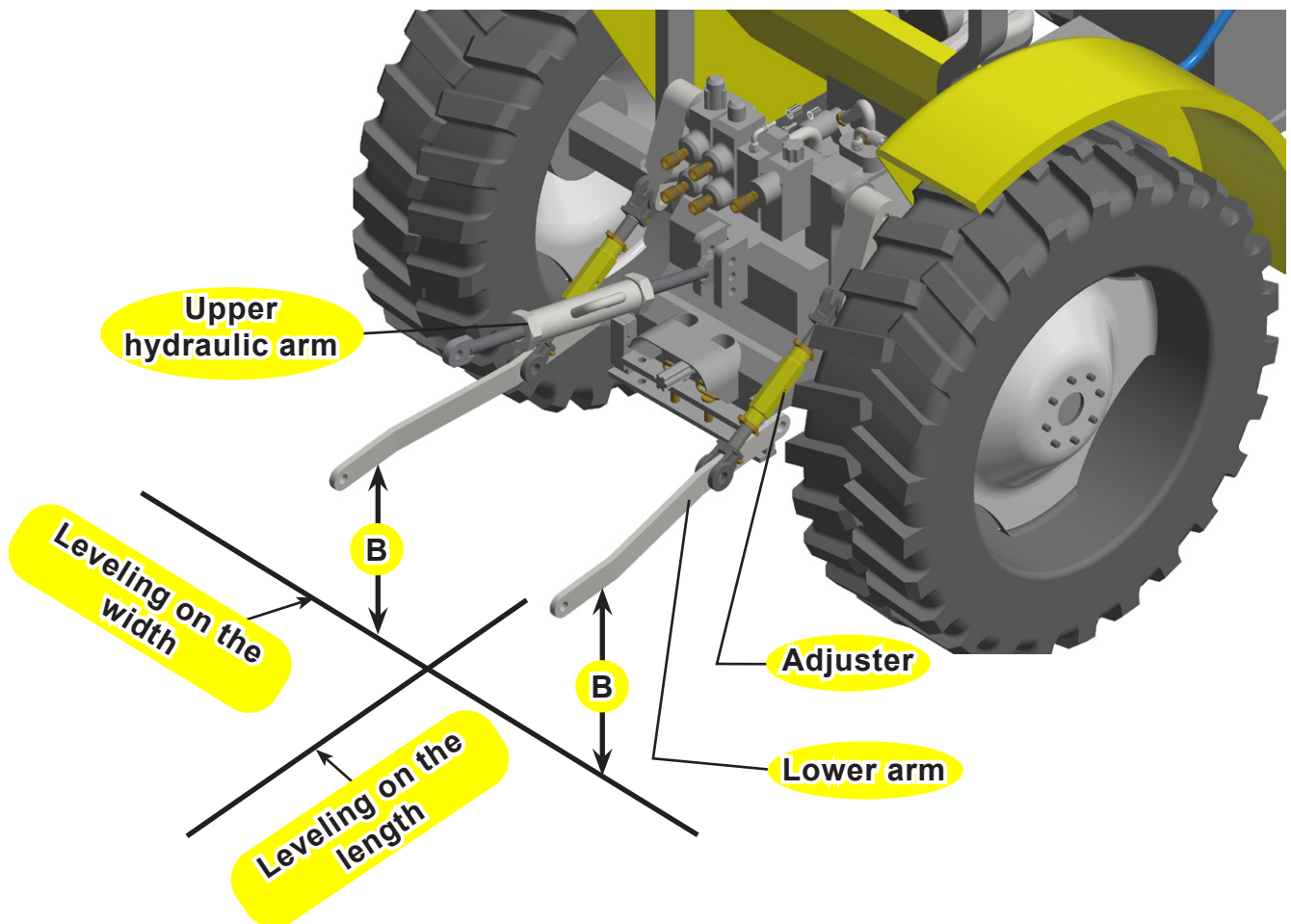
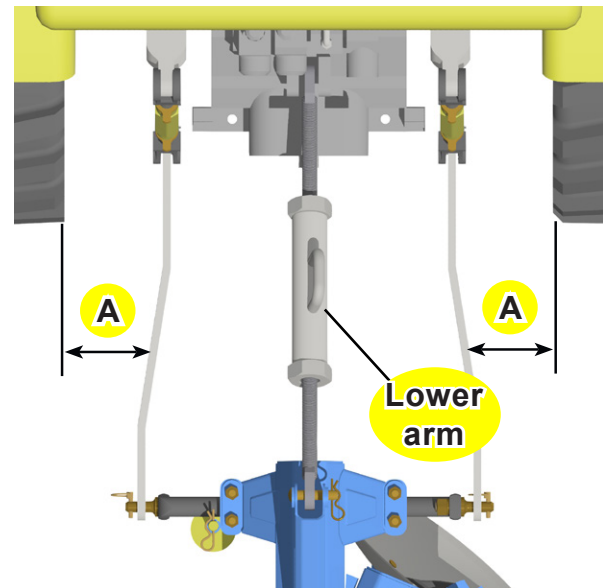
To level the equipment, proceed as follows:

Place the tractor on a flat place and level the equipment on its width (transversal) and on its length (longitudinal).

Check if the distances between the lower arms and tires are equal on both sides (as in "A"). On the width, the leveling is done through the adjuster of the lower right and left hydraulic arms, leaving the equipment drawbar lifted or both "B" with the same measure.

On the length, the leveling is done through the upper hydraulic arm (third point), leaving the frame parallel to the soil.

The equipment is leveled from the front to the rear by adjusting the upper connection length of the three-point hitch; Shorten the upper bar to lean the equipment forward or lengthen the bar to lean the equipment backwards.



NOTE After the plow passes once in the soil, adjust the upper arm (third point) to let the first disc blade 2 or 3 centimeters higher than the others.

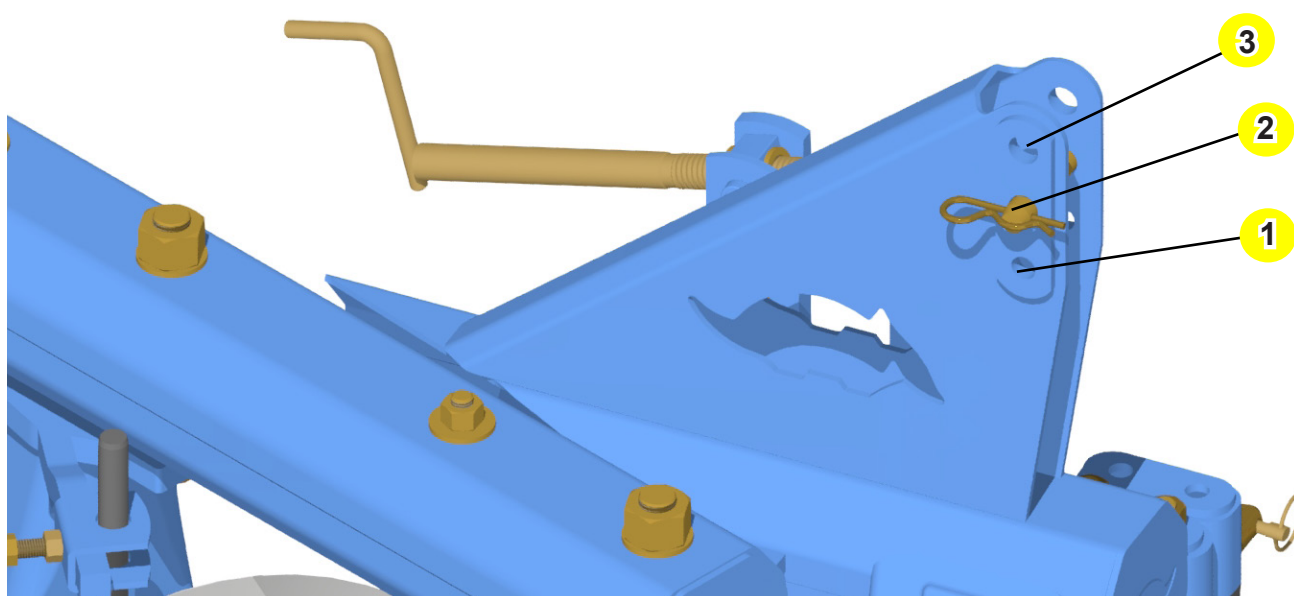
Adjustments and operations

Adjustment points

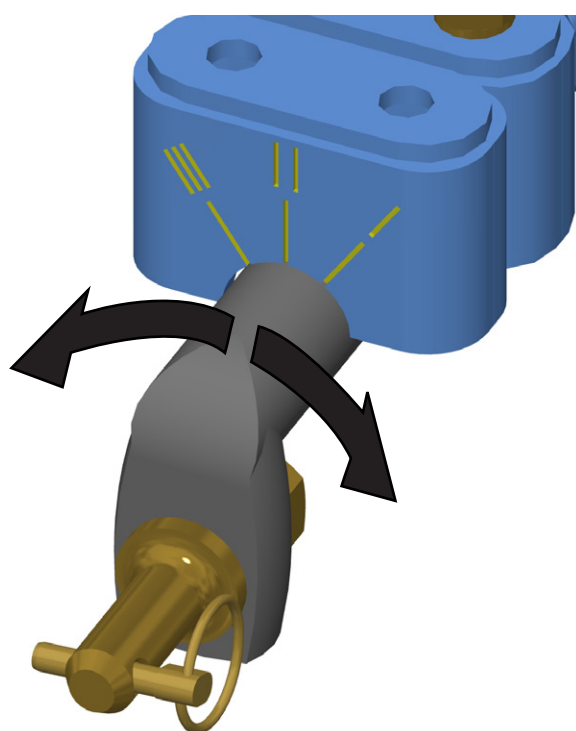
Holes on the plow post

On the plow hitch post, there are three holes that are used to work on different soil types and they must match the holes on the tractor.

- 1 - For category I tractors.
- 2 - For medium and heavy soils.
- 3 - For loose soils.



Handle axle



The handle axle has rotation movements which allows to change the plow cutting width according to the soil conditions, being:

Position	Width	Soil type
I	Smaller	Hard and resistant
II	Medium	Normal
III	Greater	Light and loose

Adjustments and operations

Guide wheel

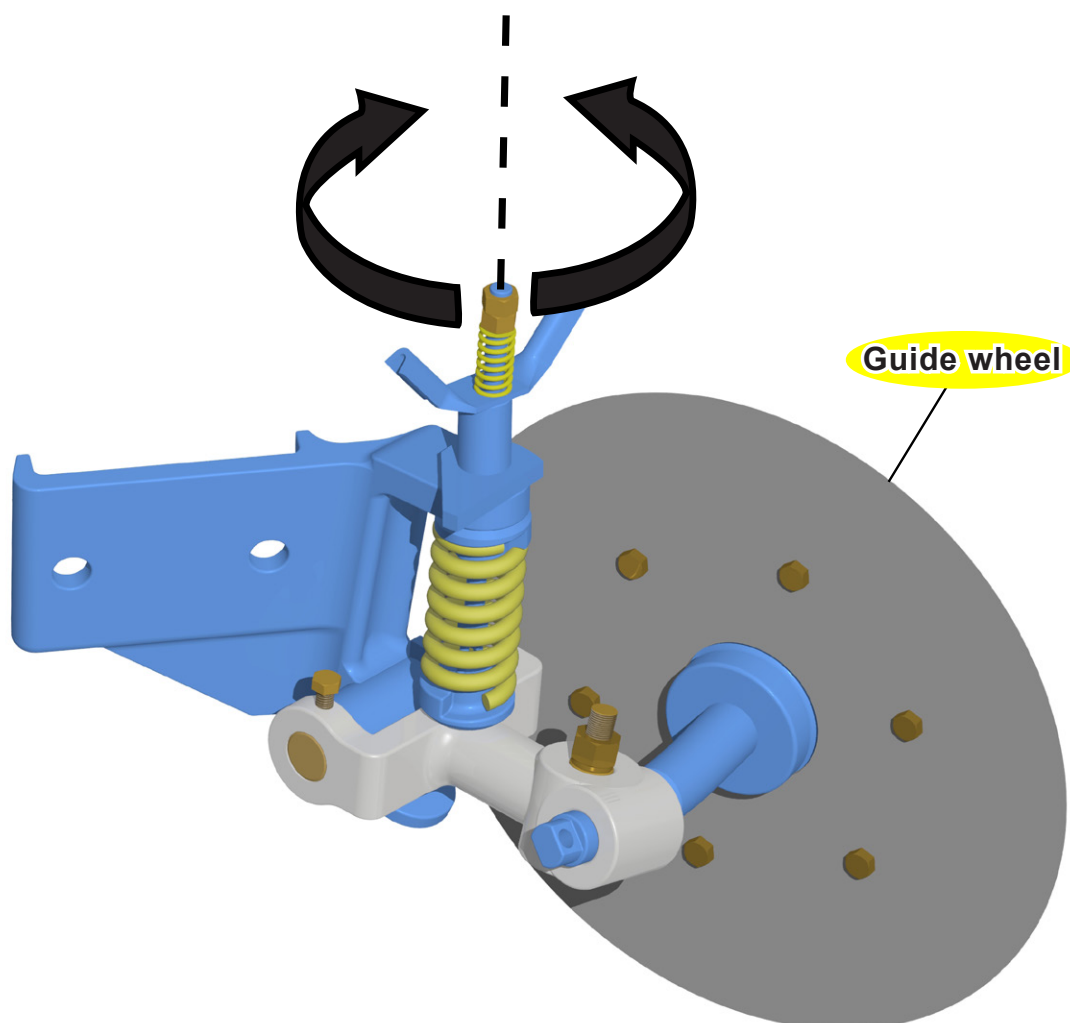
The guide wheel is responsible for aligning the tractor-plow set, stabilizing the equipment rear and avoiding side drafts.

It has to pass over the bottom of the furrow, leaning on the furrow border. It has two important adjustments, being: spring pressure and cutting angle.

Spring pressure

The spring adjustment influences the working depth. When working on light and loose soils, it is necessary to use more pressure so the spring can support part of the plow weight. Otherwise, the plow will deepen excessively. On hard soils, it is necessary to reduce the spring pressure, so the plow will transfer more weight to the disc blades to increase the penetration on soil.

Spring with	Soil type
Smaller pressure	Light and loose
Greater pressure	Hard



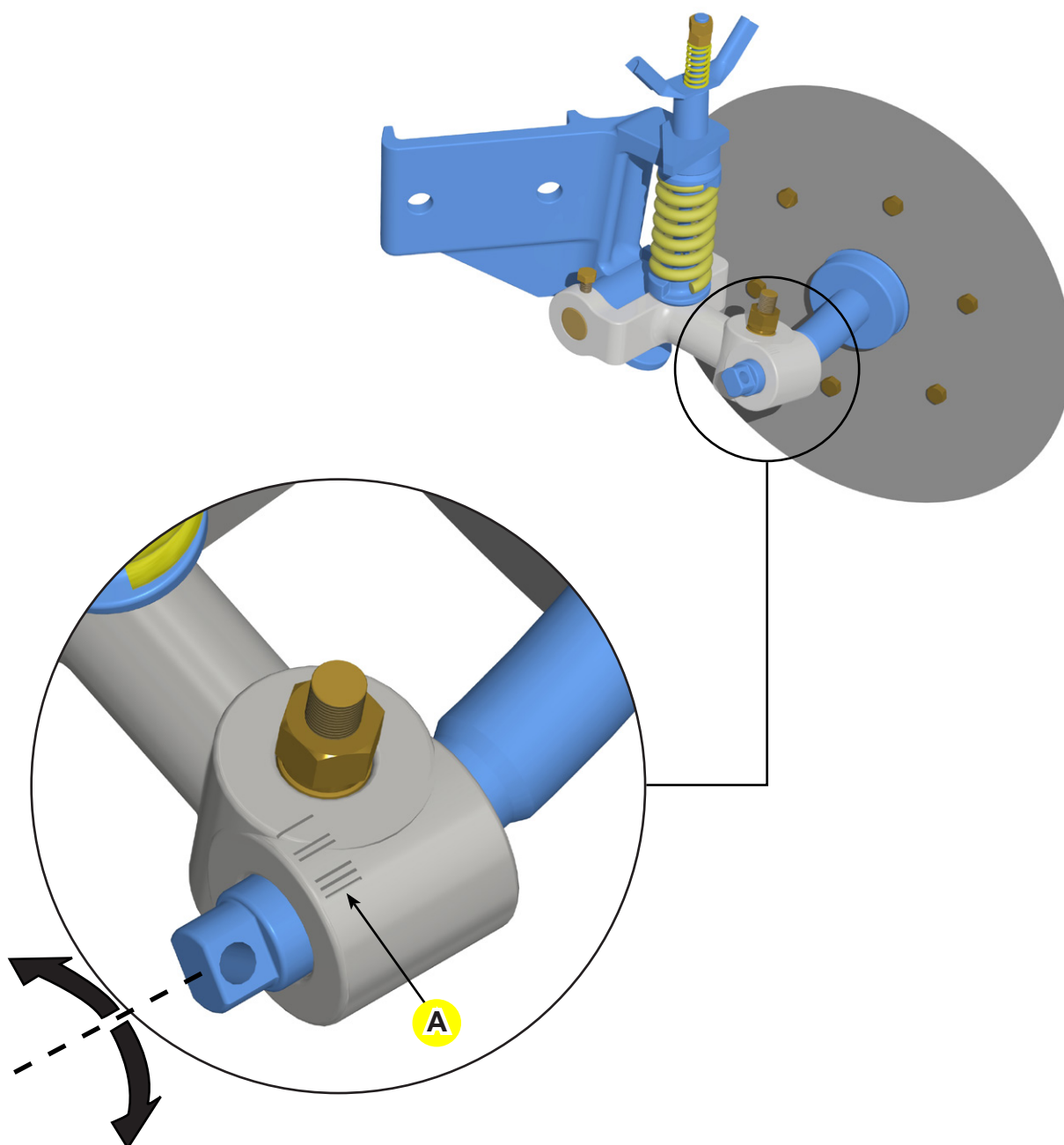
Adjustments and operations

Guide wheel angle

The numbers (A) on the guide wheel fork must match the adjustments on the handle axle: 1 and I, 2 and II, 3 and III.

This change on the guide wheel position is used for the plow correct operation in different types of soil, being:

Position	Soil type
I	For hard soils with greater inclination angle
II	Medium inclination angle
III	For loose soils with smaller inclination angle



Adjustments and operations

Disc blades cutting angle

VERTICAL:

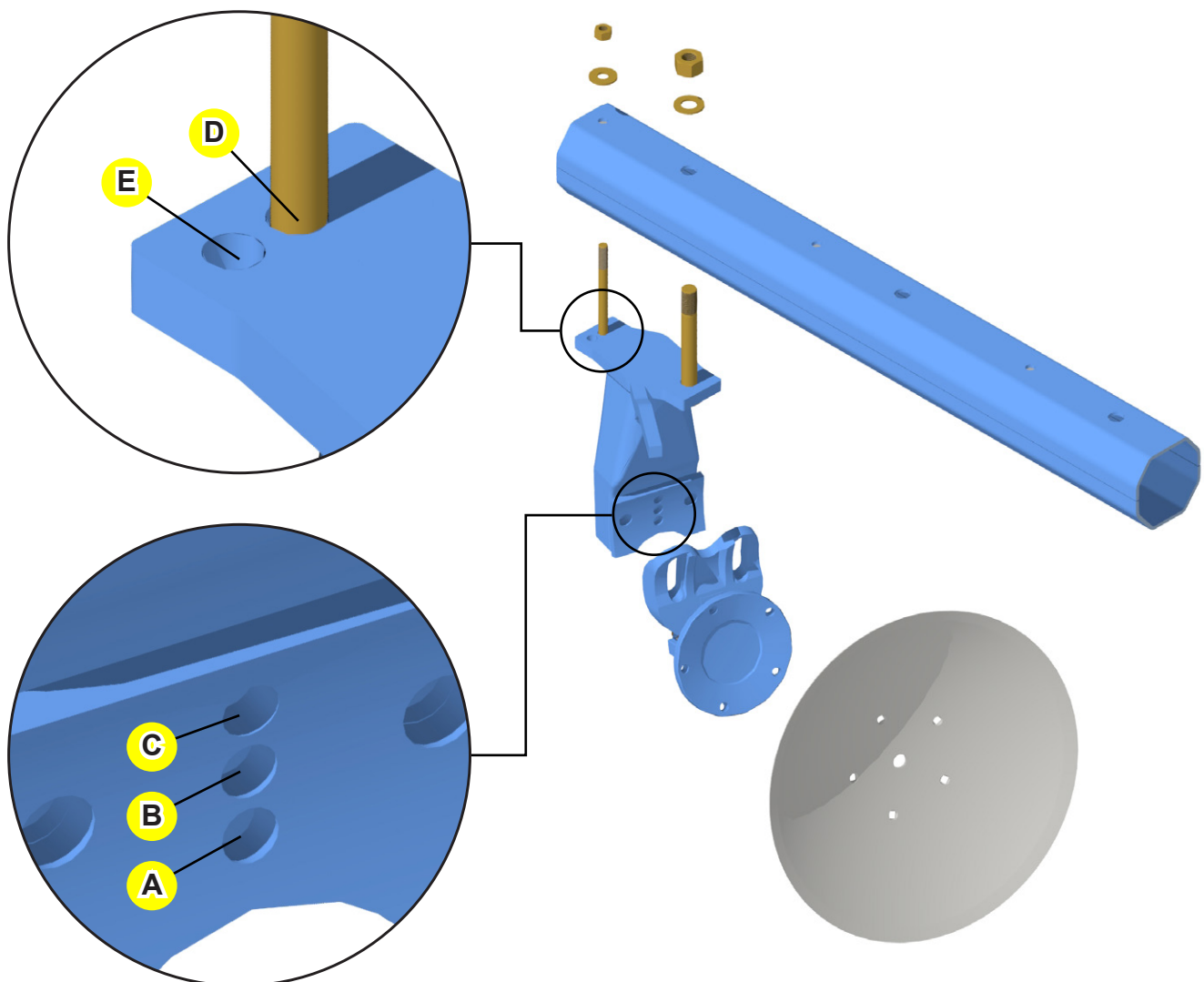
The vertical angle adjustment is obtained through the three holes on the hub of the disc, being:

- A** - Lower hole, the disc blades inclinate more so they can be used for easy-to-penetrate soils.
- B** - Intermediate hole for soils in normal conditions.
- C** - Upper hole for soils that are hard to penetrate. The disc blades work less inclined.

HORIZONTAL:

Adjusted by (D) and (E) holes found on the carriers and they actuate over the rotation or speed of the disc blades, being:

- D** - Normal disc blades speed.
- E** - Greater speed, better for terrains with bulky vegetation, i.e.: corn stalk, wheat, rice and others.

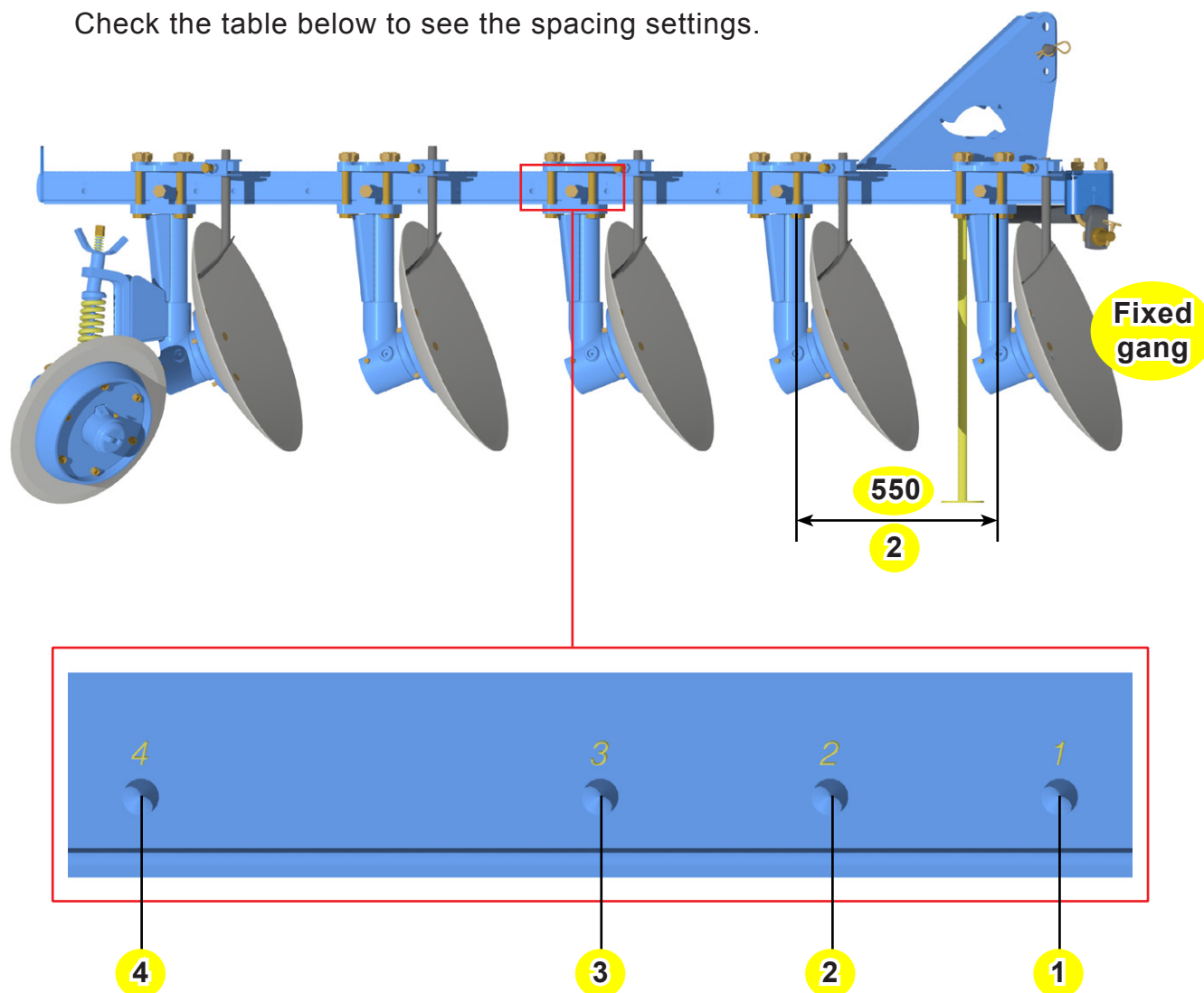


Adjustments and operations

Spacing between disc blades - AFL

The spacing between disc blades adjustment follows a sequence of numbers which comes engraved on the frame.

Check the table below to see the spacing settings.



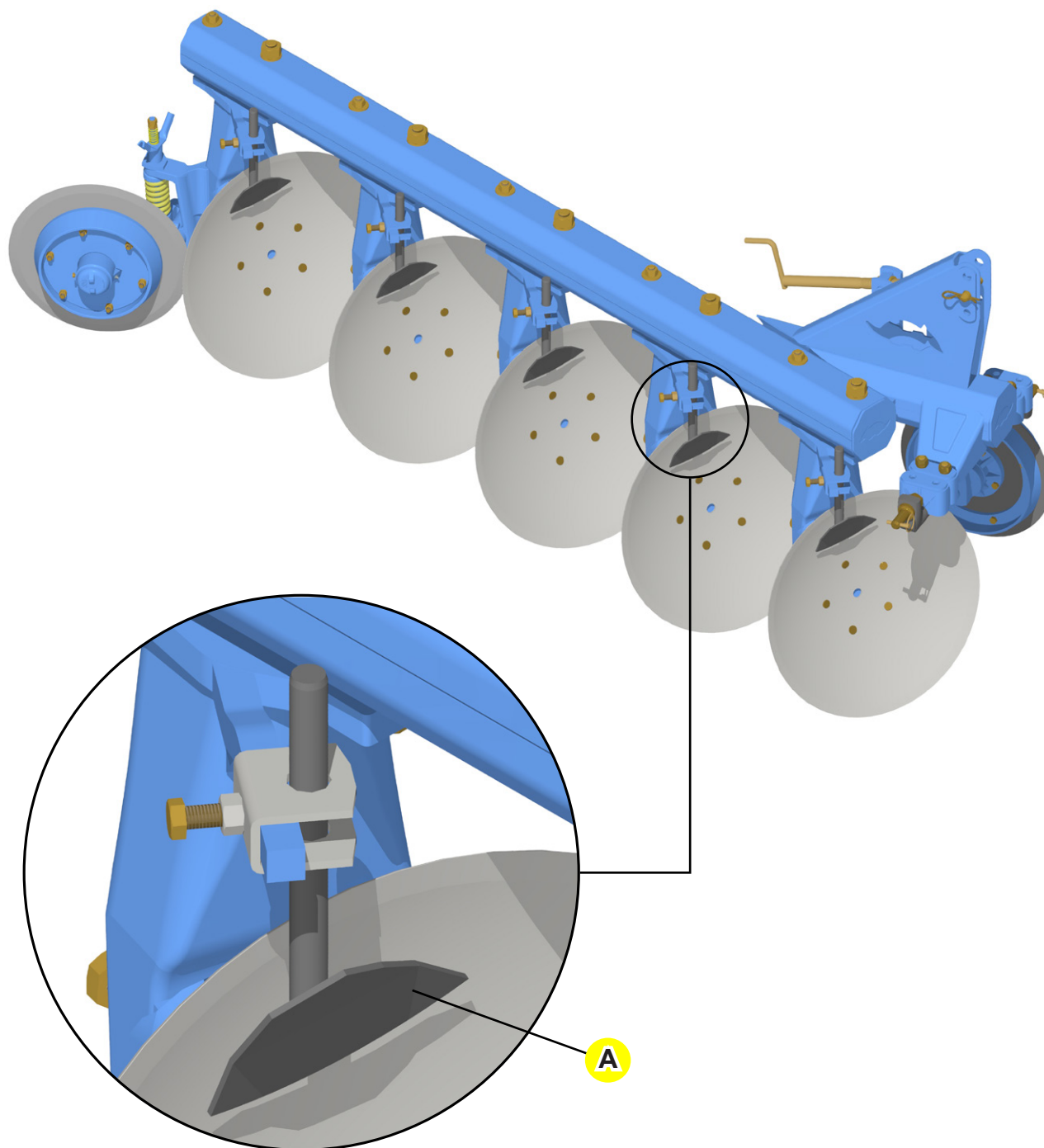
Number of disc blades	Hole position	Spacing
03 04 05	1	500
	2	550
	3	600
	4	700

Adjustments and operations

Scrapers adjustment

The scrapers (A) clean up the disc blades and are used to aid on the inversion of the windrow properly.

All the scrapers must be positioned on the same height, being a little over the center of the disc blades and keeping a distance going from 5 to 10 millimeters from them.



Adjustments and operations

Plow operations

A good yield and service quality relies not only on the adjustments, but also on the correct operation of the tractor and plow.

As the tractor handling, the operator must have a complete knowledge of the commands and resources that can be used.

The factors that cause more impact on the job are:

- Plow leveling.
- Gear used, which is related to the working speed.
- Plowing depth.
- Tractor position related to the previous furrow.

The plow leveling, on its width and length, must be adjusted when the tractor right wheels start to get inside the furrow left by the previous pass.

For the proper leveling adjustments, use the leveling crank and the hydraulic upper arm, leaving the frame and handle axle parallel to the soil.

The tractor gear will be determined according to the soil conditions and plow adjustments; always save some power when driving the tractor, so it will not overload if an unpredictable effort occurs.

Since the speed and gear are related to one another, we considered 5 - 7 km/h as an ideal speed for the plowing job. However, the windrows movement must be watched, as they change according to the tractor speed and soil type, and they may be thrown far away or fall before they totally invert.

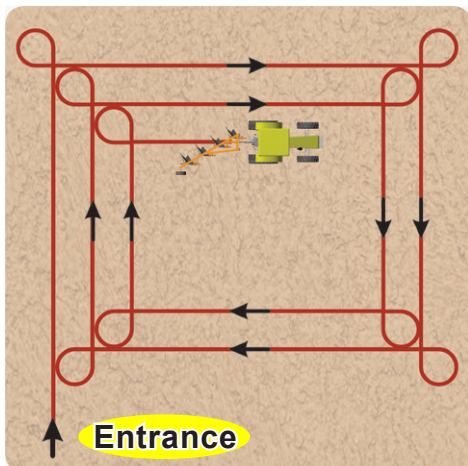
The plowing depth is normally controlled by the tractor third-point hydraulic system, but it can change according to the different adjustments of the plow and soil type. The correct handling of the hydraulic system must be observed on the tractor's manual, which have an specific chapter for this subject.

Regarding the tractor positioning, the right front wheel of the tractor must be on the center of the furrow left by the previous pass, and the tractor wheel must not touch the furrow border and must not get very close to the plowed earth. This variation changes the cutting width of the first disc blade, therefore it should be well observed.

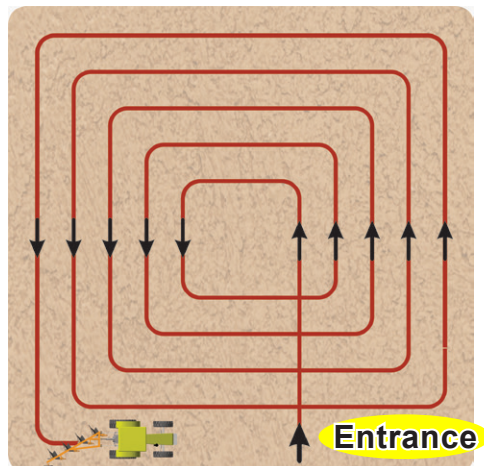
Adjustments and operations

Ways of plowing

Regardless of the format of the terrain, the plowing job can be basically done in two ways: from outside to inside or from inside to outside.



**Harrowing in squares
from outside to inside**



**Harrowing in squares
from inside to outside**

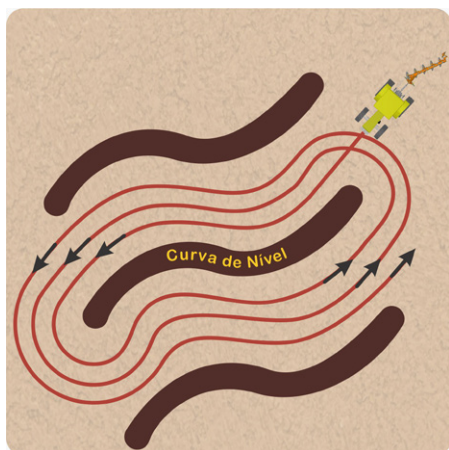
On the left case, it is necessary to create a small furrow on the end of the plowing, which needs to be finished off by the plow itself, and leveled after using a tandem or disk harrow.

On the right case, it is necessary to create a ridge on the center of the terrain, which also needs to be leveled using a disk harrow.

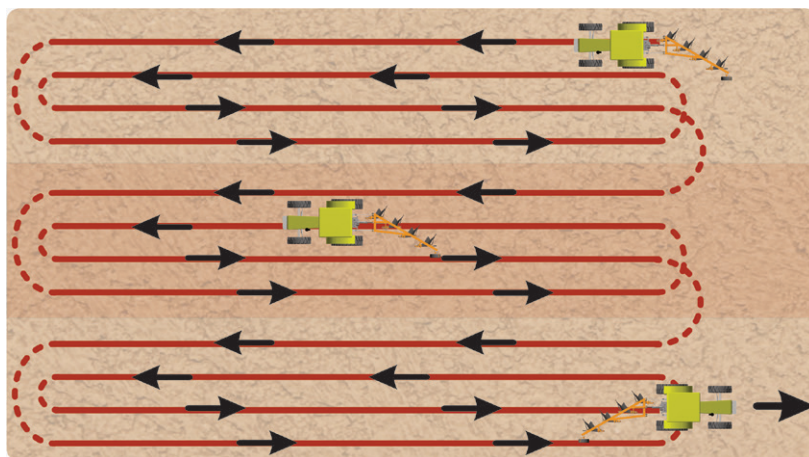
IMPORTANT Alternate the way to work the soil in every plowing, i.e.: if plowing from outside to inside, plow from inside to outside on the next time and so on, in order to avoid irregularities on the surface.

When working on uneven fields, do the plowing job following the contour lines and throw the earth upwards.

The terrain can be divided on bands, so the plowing would be done on one band at a time, as shown on the next page.



Plowing on contour lines



Plowing on bands

Adjustments and operations

Troubleshooting guide

Problem	Possible cause	Solution
Plow is having difficulties to penetrate.	Handle axle position.	Place the handle axle on position I to decrease the cutting width.
	Spring pressure.	Decrease the pressure on the guide wheel spring.
	Disc blades position.	Incline the disc blades a little.
	Hole on the plow post.	Use the upper hole on the plow post and on the tractor for the third-point hitch.
	Very high speed.	Reduce the speed, which will also facilitates the disc blades penetration.
Tendency to leave the furrow.	Guide wheel angle.	Adjust the guide wheel angle related to the handle axle or close to it, to get a better traction.
	Spring pressure.	Increase the pressure on the guide wheel spring.
	First disc blade penetrating more than the others.	Give more length to the third point arm.
	Decentralized plow.	Check if the plow is centralized with the tractor.
Earth windrow is getting throwed far away.	Very high speed.	Reduce the tractor speed.
Vegetation bushing.	Horizontal angle.	Horizontal angle must be set to position 2.
	Scrapers.	Adjust the scrapers so they get higher, or remove them if convenient.
First blade cuts less than the others. (Tractor steering wheel pulls to the left).	Check the tractor gauges.	Adjust the tractor gauges to their recommended measures.
	Front wheel far from the furrow.	Position the front wheel to be near the furrow border, but without touching it.
	Unleveled plow.	Level the plow.
First blade cuts more than the others. (Tractor steering wheel pulls to the right).	Check the tractor gauges.	Adjust the tractor gauges to their recommended measures.
	Front wheel near from the furrow.	Position the front wheel farther from the furrow border.
	Guide wheel angle.	Adjust the guide wheel angle.

Adjustments and operations

Operations - Important points

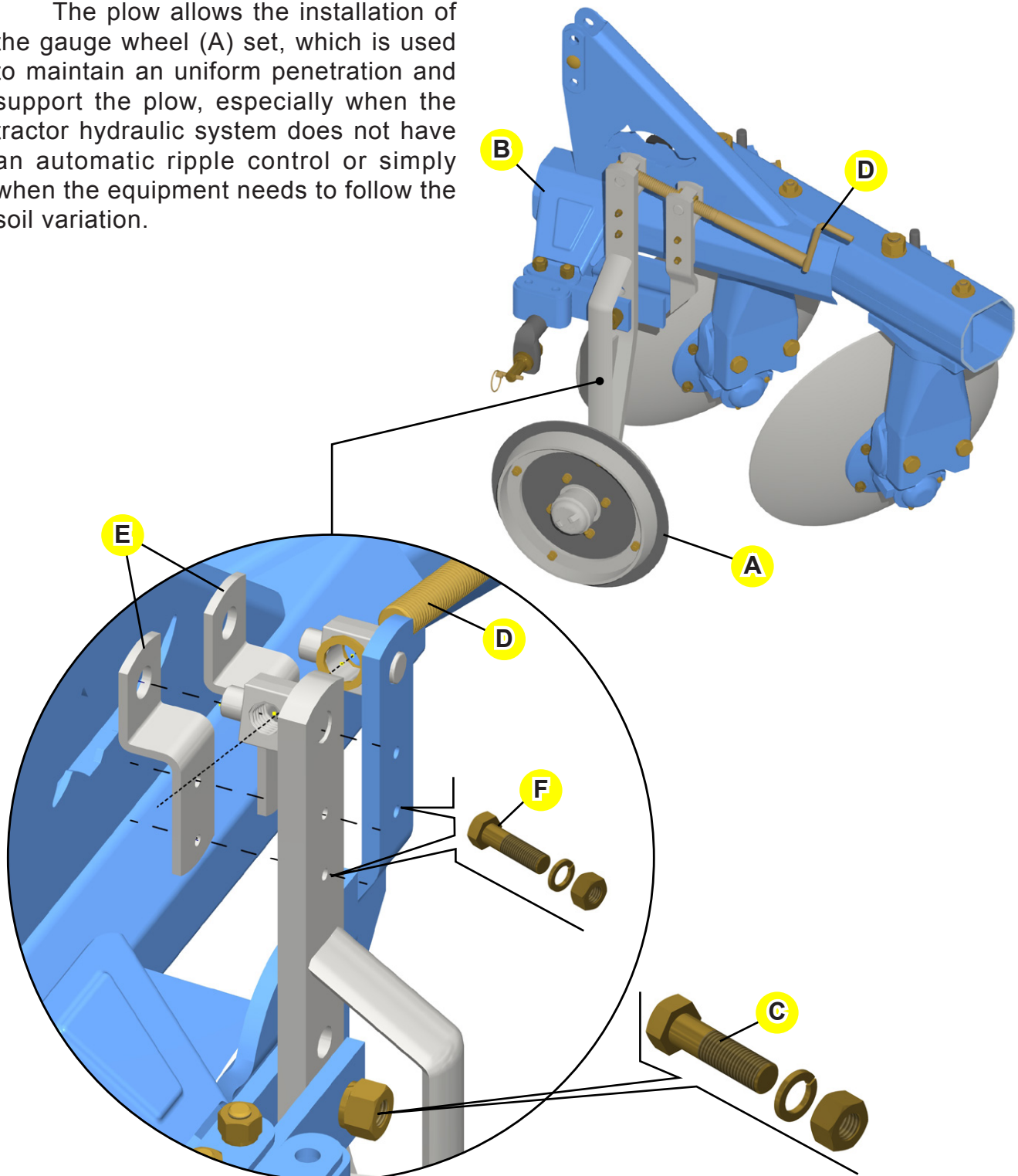


- Retighten nuts and bolts after the first day of operation, as well as check the conditions of all pins and cotter pins. Then, retighten every 24 hours of service.
- Special attention must be given to the disc gangs, retightening daily on the first week of use. Then, retighten periodically.
- Carefully observe the lubrication intervals.
- Choose a gear that allows the tractor to maintain certain power reserve, ensuring against unpredictable efforts.
- The speed is relative to the tractor gear and can only be determined by local conditions. We adopted an average 5 - 7 km/h, which is not advisable to overcome to maintain service efficiency and prevent possible damages to the equipment.
- Only people who own a complete knowledge of the tractor and equipment must operate them.
- For hitching the equipment, perform the maneuvers in slow gear and on a wide area, also being ready to brake when necessary.
- Remove pieces of wood or any object that may attach in the moldboard.
- Only pull the equipment using a tractor with enough engine power.
- During working or transportation, do not allow passengers on the tractor or plow.
- Keep the lower arms of the tractor hydraulic lift adjusted.
- Keep the equipment centralized with the tractor and on the same level of the soil surface.
- Activate the hydraulic cylinder gradually to lift the equipment before maneuvering.
- To carry out any verification on the equipment, lower it to the ground level and shut down the tractor engine.
- Whenever you unhitch the equipment, either in the field or shed, do it on a flat and firm surface and use parking jacks.
- Always make carefully and controlled operations.
- The position and ripple hydraulic levers have fundamental functions, which may vary when the equipment is not equipped with gauge wheel (optional part) and according to the soil type.
- Regarding the correct positioning of the tractor, just drive the tractor being the right rear wheel close to the edge of the furrow that was left on the previous pass. The variation of this working position changes the cutting width of the first moldboard, thus it should be well observed.
- Carry out the plowing job by following the contour lines, always throwing the earth upwards.
- Keep a constant speed during the whole operation.
- Do not maneuver to the right during the plowing job (being the discs on the soil), as the angle that would be formed by the disc gangs start to transmit a great effort to the equipment, thus overloading the traction components.
- As previously mentioned the AF/AFL plows have several settings, but only the local conditions can determine their best adjustment.

Optional

Gauge wheel - assembly

The plow allows the installation of the gauge wheel (A) set, which is used to maintain an uniform penetration and support the plow, especially when the tractor hydraulic system does not have an automatic ripple control or simply when the equipment needs to follow the soil variation.



Fasten the gauge wheel (A) to the frame (B) using a bolt (C), spring washer and nut.

Fasten the handle with thread (D) to the upper hole of the guide wheel arm on the frame.

Fasten the gauge wheel supports (E) to the wheel arm and to the frame using bolts (F), spring washers and nuts.

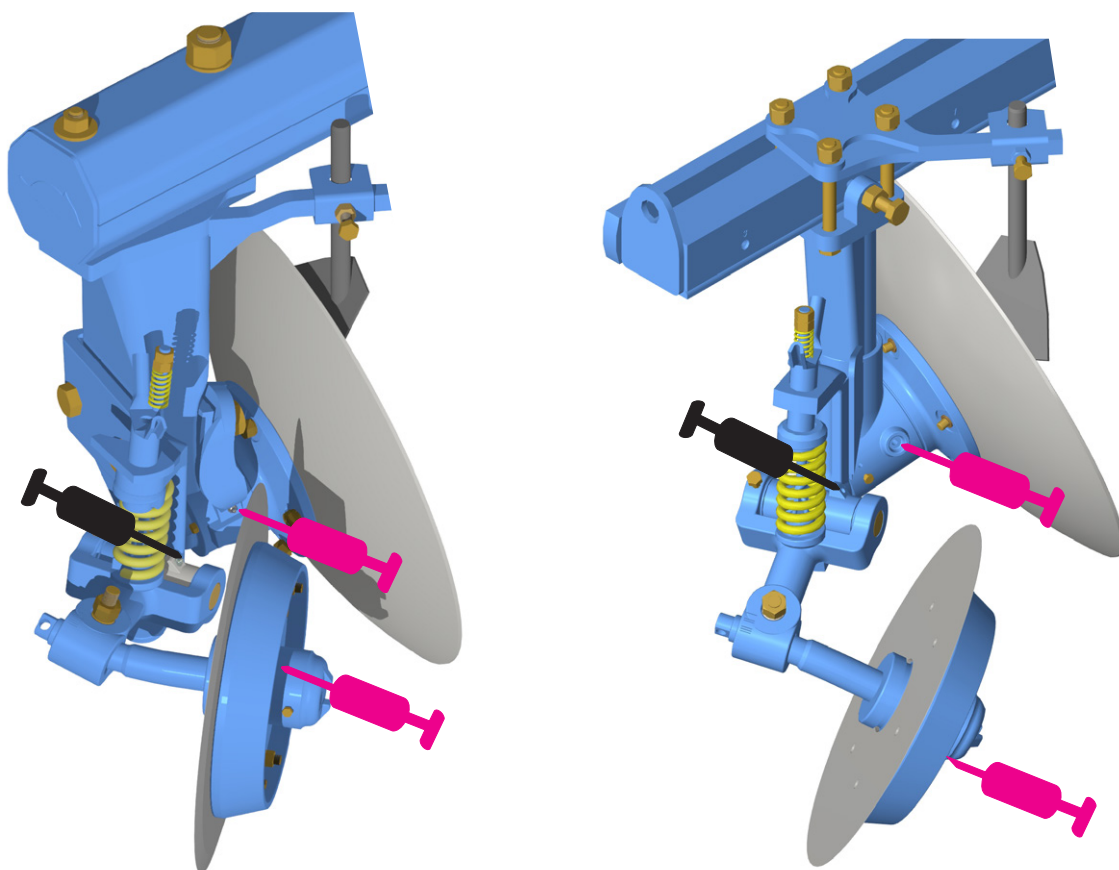
Maintenance

Lubrication

The simplest way to increase the lifetime of your plow and avoid any interruption during the job is to carry out a proper lubrication, as described below.

- Make sure to use a good quality lubricant regarding its efficiency and purity, avoiding the use of products contaminated by water, earth, etc.
- Remove the remainder old grease around the articulations.
- Clean the grease fitting with a cloth before inserting the lubricant and replace those ones which are defective.
- Insert a sufficient amount of fresh grease.
- Use medium consistency grease.

Lubrication points



Lubricate every 10 working hours.



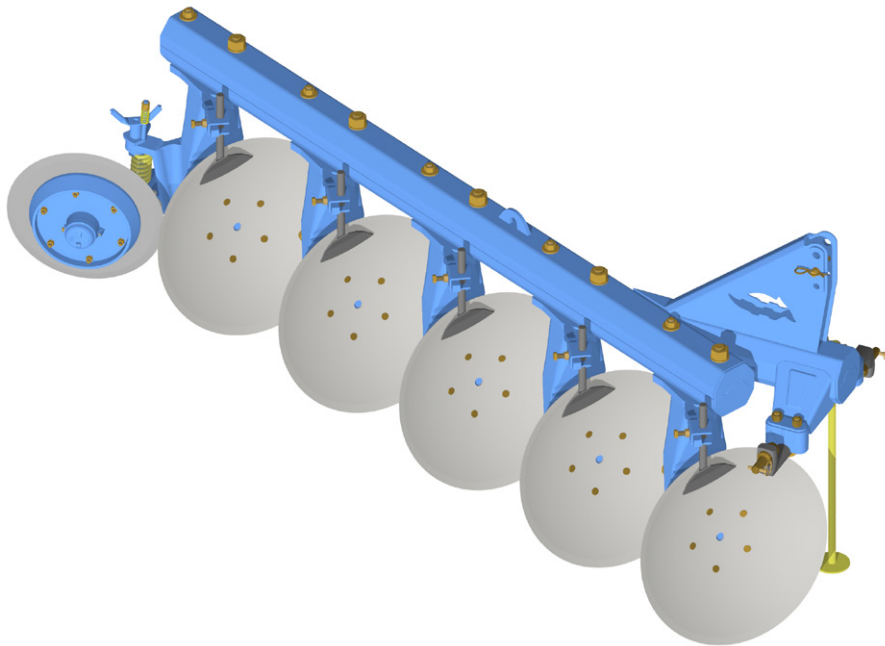
Lubricate every 50 working hours.

IMPORTANT Use TATU original parts only.

Maintenance

Plow maintenance

- Shut down the tractor engine, apply the brakes and use chocks on the tires. Immobilize the equipment before carrying out any maintenance operation.
- During offseason wash the plow, repair any damaged paintwork, protect the disc blades with oil, lubricate all grease fittings and store the plow in a covered and dry place, avoiding the direct contact of the disc blades with the soil.
- The disc blades must be replaced as soon as excessive wear is noticed.
- After some hours of operation, the bolts on the plow must be checked to see if they are properly tightened. To assure a great performance and avoid wear and rupture, these bolts must be tightened every so often.
- Check wear occurrence on all moving parts. Replace any part, if necessary.
- Replace the missing or damaged safety decals. Marchesan supplies these decals, upon request and indication of their respective serial numbers. The operator must know the need and importance to keep the decals in the proper place and in good conditions. The operator also have to know the need to follow the instructions, as the lack of safety may increase the risk of accidents.



NOTE/ Use TATU original parts only.

Important data

Calculation of hourly income

To calculate the hourly income, use the following calculation:

$$R = \frac{L \times V \times E}{X} \quad \text{where:}$$

R = Hourly income;

L = Plow working width (meters);

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

E = Efficiency: 0.90;

X = Hectare value = 10,000 m².

Example with AF (5 disc blades):

R = ?

L = 1.55 m

V = 6,000 m/h

E = 0.90

X = 10,000 m²

$$R = \frac{1.55 \times 6,000 \times 0.90}{10,000}$$

R = 0.84 hectares per hour.

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

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

Important data

Average income table

Model	Number of disc blades	Cutting width (m)	Hourly income	Daily income (09 hours)
			Hectare	Hectare
AF	02	0.65	0.35	3.16
	03	0.92	0.50	4.47
	04	1.23	0.66	5.98
	05	1.55	0.84	7.53

Model	Number of disc blades	Cutting width (m)	Hourly income	Daily income (09 hours)
			Hectare	Hectare
AFL	03	0.95	0.51	4.62
	04	1.10	0.59	5.35
	05	1.40	0.76	6.80

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

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

Example: An area of 30 hectares to be worked with a plow that has 5 disc blades (Hourly income = 0.84 hectares).

$$\text{So: } \frac{30}{0.84} = 35.71$$

Approximately will be spent 36 (Thirty-six) hours to work in an area of 30 hectares.

Important data

Torque table

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

TORQUE VALUES CHART						
Bolt Diameter	Grade 2		Grade 5		Grade 8	
	Coarse	Fine	Coarse	Fine	Coarse	Fine
1/4"	50 In. Lbs.	56 In. Lbs.	76 In. Lbs.	87 In. Lbs.	9 Ft. Lbs.	10 Ft. Lbs.
5/16"	8 Ft. Lbs.	9 Ft. Lbs.	13 Ft. Lbs.	14 Ft. Lbs.	18 Ft. Lbs.	20 Ft. Lbs.
3/8"	15 Ft. Lbs.	17 Ft. Lbs.	23 Ft. Lbs.	26 Ft. Lbs.	33 Ft. Lbs.	37 Ft. Lbs.
7/16"	25 Ft. Lbs.	27 Ft. Lbs.	37 Ft. Lbs.	41 Ft. Lbs.	52 Ft. Lbs.	58 Ft. Lbs.
1/2"	35 Ft. Lbs.	40 Ft. Lbs.	57 Ft. Lbs.	64 Ft. Lbs.	80 Ft. Lbs.	90 Ft. Lbs.
9/16"	50 Ft. Lbs.	60 Ft. Lbs.	80 Ft. Lbs.	90 Ft. Lbs.	115 Ft. Lbs.	130 Ft. Lbs.
5/8"	70 Ft. Lbs.	80 Ft. Lbs.	110 Ft. Lbs.	125 Ft. Lbs.	160 Ft. Lbs.	180 Ft. Lbs.
3/4"	130 Ft. Lbs.	145 Ft. Lbs.	200 Ft. Lbs.	220 Ft. Lbs.	280 Ft. Lbs.	315 Ft. Lbs.
7/8"	125 Ft. Lbs.	140 Ft. Lbs.	320 Ft. Lbs.	350 Ft. Lbs.	450 Ft. Lbs.	500 Ft. Lbs.
1"	190 Ft. Lbs.	205 Ft. Lbs.	480 Ft. Lbs.	530 Ft. Lbs.	675 Ft. Lbs.	750 Ft. Lbs.
1.1/8"	265 Ft. Lbs.	300 Ft. Lbs.	600 Ft. Lbs.	670 Ft. Lbs.	960 Ft. Lbs.	1075 Ft. Lbs.
1.1/4"	375 Ft. Lbs.	415 Ft. Lbs.	840 Ft. Lbs.	930 Ft. Lbs.	1360 Ft. Lbs.	1500 Ft. Lbs.
1.3/8"	490 Ft. Lbs.	560 Ft. Lbs.	1100 Ft. Lbs.	1250 Ft. Lbs.	1780 Ft. Lbs.	2030 Ft. Lbs.
1.1/2"	650 Ft. Lbs.	730 Ft. Lbs.	1450 Ft. Lbs.	1650 Ft. Lbs.	2307 Ft. Lbs.	2670 Ft. Lbs.
 GRADE 2 No Marks.  GRADE 3 3 Marks.  GRADE 8 6 Marks.						

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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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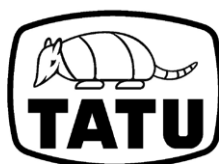
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Notes

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