EUROPA-2110 STARTING MANUAL



MAINTENANCE DOSAGE SPARE PARTS



LAMUSA seed drills and fertilizer spreaders are manufactured in a highly specialized environment and our factory has a vast customer-endorsed experience.

LAMUSA machines use highly advanced technology and are guaranteed to work without malfunctions in a great variety of conditions. They are provided with easy-to-use and efficient devices. LAMUSA machines perform excellently with only minimum operator maintenance.

This manual will help you use your **LAMUSA** product with the upmost efficiency.



Certified quality system

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It is forbidden to copy any part of this manual. Specifications are subject to change or modification without notice. The pictures included do not necessary show the standard version.

INDEX

1- INTRODUCTION	4
2- SAFETY INTRUCTIONS	4
2.1- SAFETY SYMBOLS	4
2.2- USE ACCORDING TO DESIGN	6
2.3- GENERAL SAFETY INSTRUCTIONS	6
2.4- LOADING AND UNLOADING INSTRUCTIONS	7
3- ESSENTIAL SOWING CONCEPTS	8
3.1- TERRAIN	8
3.2- THE SEED	8
3.3- SEED PLANTING DEPTH	8
3.4- SEED DOSING ADJUSTMENTS	9
4-STARTING	11
4.1- COUPLING	11
4.2- DOSING SYSTEM	12
4.3- SEED DOSING	13
4.4- CALIBRATION TEST	14
4.5- FIELD TEST	17
4.6- COULTERS DEPTH AND PRESSURE ADJUSTMENT	17
4.7- TINE COULTERS ADJUSTMENT	18
5- OPTIONAL EQUIPMENT	18
5.1- TRACK ERASERS	18
5.2- PARALLELOGRAMIC-SHAPED HARROW WITH FLEXIBLE TINES.	19
5.3- TRACK MARKERS	20
Hydraulic track markers	20
5.4- HECTARE COUNTER	22
5.5- FLOATING CULTIVATOR	23
5.6- GEARBOX'S HYDRAULIC CONTROL	24
6-MAINTENANCE	25
6.1- LUBRICATION	25
6.2- TYRES PRESSURE	27
6.3- SCREWS	27
6.4- ANTIOXIDE CONTROL	27
6.5- PROBLEM-SOLVING	28
7- SPARE PARTS	30
7.1- INTRODUCTION 7.2- CHASSIS	30
7.2- CHASSIS 7.3- HOPPER	31 32
7.3- HOPPER 7.4- COVER AND SELECTOR SIEVE	33
7.4- COVER AND SELECTOR SIEVE	34
7.5- ARMS BARS 7.6- TRACK ERASERS "SPRING"	35
7.0- TRACK ERASERS SPRING 7.7- FLOATING CULTIVATOR	36
7.8- HARROW WITH FLEXIBLE TINES EPI-6	30
7.0- MARKERS	38
7.9- MARKERS 7.10- GEARBOX	39
7.10- GEARDOX 7.11- FINISHES	40
	40

3

1-INTRODUCTION

It is essential to read and follow the instructions and recommendations in this manual before operating the machine. Careful reading enables maximum operator efficiency, prevents accidents and damage, and increases the seed drill's capacity and life expectancy.

Please ensure that this manual has been read by any person involved in performing operational tasks, (including preparation, dealing with mechanical problems and supervising the machine), maintenance (inspection and technical assistance) and transport.

For your safety, please follow these technical safety instructions as LAMUSA will not be responsible for damages caused by not observing the information provided.

In the first chapters you will find the Technical Characteristics and Safety Instructions, as well as some essential sowing concepts. Basic concepts that are required to operate the machine are explained in the Starting and Maintenance sections. The last part of this manual consists of Dosage Tables, detailed by seed type.



LAMUSA retains the right to modify illustrations, technical data and weights indicated in this operating manual, if these changes help to improve the quality of the seed drills.

2- SAFETY INTRUCTIONS

2.1- SAFETY SYMBOLS

In this operating manual you will find three different symbols relating to safety:



TO WORK MORE EASILY WITH THE SEED DRILL.



TO PREVENT DAMAGE TO THE SEED DRILL AND OPTIONAL EQUIPMENT



TO PREVENT PHYSICAL INJURY

On the machine you will find the following warning pictograms:



Read the instructions carefully and observe the safety advice given in the operating manual.



During the coupling manoeuvre, stay away from the rear part of the tractor. Risk of serious physical injury.



While maintaining or repairing the seed drill, stop the tractor's engine and prevent it from starting. The ignition key must be removed.



Risk of being crushed when working under the machine, please secure the machine to prevent this risk.



It is forbidden to ride on the machine during operation. Risk of serious physical injuries.





Never stand under the sowing equipment, or swivel area of the machine's extension tine coulters.

Be careful when closing the hopper's lid. Keep your hands away from hopper's edge to prevent



Do not exceed maximum load.

Loading and unloading coupling point.

them being caught.





Do not insert your hand into the hopper while the drive wheel is turning. Risk of serious physical injury

Danger of infection from escaping hydraulic fluid at high presure! This can inflict serious injuries with potentially fatal consequences if it passes through the skin and into the body. Keep the hose lines in good condition. Risk of serious physical injuries.

Risk of serious physical injury.

2.2- USE ACCORDING TO DESIGN

-The Seed Drill EUROPA-2110 has been designed for normal use in agricultural work, especially cereal and other kind of grain seeds.

-If the machine is used in circumstances other than the above, the manufacturer will not be held responsible for any damage caused.

-The user must observe all regulations concerning safety, traffic and hygiene.

-If the machine is modified by the user, the manufacturer's warranty is cancelled. SOLÁ will not be held responsible for any damage caused.

2.3- GENERAL SAFETY INSTRUCTIONS

- Before starting the machine, please check the machine is in good condition for work and is safe for road use. Check that visibility is clear around the machine and there is no person in the working area.

-In thoroughfare, please observe traffic signs and regulations.

-It is forbidden to ride on the machine or climb into the machine when it is running.

-Before using the machine, the user must be familiar with all operating elements.

- Please be extremely careful when coupling and uncoupling the machine to the tractor.

- While performing dosing tests, be careful with possible dangers caused by turning pieces. Pay special attention to the agitator's tines from inside the hopper, as well as the wheel drive's scraper.

- Fast-locking hooks must stay unlocked. They should always remain closed and should only be opened when the machine is on the ground to be uncoupled.

- Never leave the tractor's driver's seat while the machine is in operation.

-Do not deposit external elements inside the hopper.

-Before any work in the hydraulic system of the seed drill, lower the machine and make sure that the system is depressurised and the tractor's engine is off.

-Please regularly check the condition of the tubes and hosepipes in the hydraulic system. These parts age naturally and their life should not surpass six years. Please replace when necessary.

-When raising the seed drill, the front axle is unloaded. Ensure that the machine has enough load to prevent it overturning. At this time you must ensure that the condition of both the steering and the brakes is optimal.

- During transit with the raised seed drill, block the lowering switch. Before leaving the tractor, lower the seed drill onto the ground and remove the tractor's starting key.

- Always use enough supporting elements when maintaining the machine in a raised position to prevent the machine from lowering or falling.

2.4- LOADING AND UNLOADING INSTRUCTIONS

Figures 1 and 2 show how and where to place the tow ropes to perform this operation: in the machine's three-point linkage as well as in the fasten points situated in the harrow's support.

These are dangerous tasks. They should only be performed by qualified and experienced personnel.



3- ESSENTIAL SOWING CONCEPTS

3.1-TERRAIN

The better the soil condition, the better the sowing quality. Work is more difficult on big clods or uneven furrows. Although LAMUSA machines resist harsh conditions, if the seedbed does not satisfy appropriate conditions then the sowing quality will suffer.

3.2- THE SEED

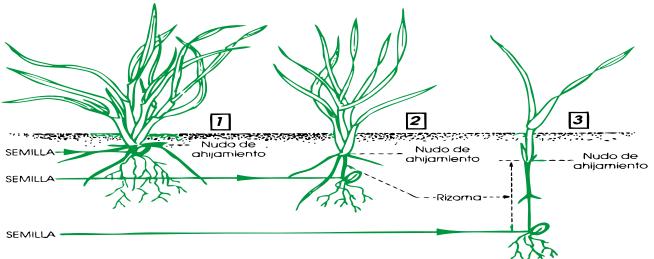
It is essential that seeds are well maintained and clean. Barley seeds should be trimmed.

3.3- SEED PLANTING DEPTH

The recommended seed planting depths are from three to five centimetres. Planting too deep causes problems as rhizome cannot reach the surface and the plant will die. It does not matter that some grains are visible because the harrow's tines will cover them eventually.

The seed planting depth has consequences for tillering, as well as for the plant's strength and its ability to resist frostbite or drought. The parent shoot grows from 1 to 2 cm under the ground, whatever the depth of the seed.

Planting deeper does not necessarily mean getting deeper roots. Only a few roots grow from the lower part of the seed. Most of them grow from a parent shoot close to ground level.



Normal Planting Depth: from 2 to 4 cm

Thick stem, short rhizome, resistant to frostbite

Multiple tillering providing from 3 to 6 shoots and a lot of blades, from 6 to 10.

Deep and thick roots, approximately 5 cm in width and 10-12 cm in depth.

With less grains per sowing square metre, more ears are obtained.

Deeper Planting: from 5 to 6 cm

Fine stem, rhizome exposed to frostbite.

Late and weak tillering, 1 or zero shoots and only a few blades, 3-4 aprox.

Medium quality roots of approximately 3 cm in width and 5 cm in depth

More grains per sowing square metre are required to obtain the same number of ears as in the previous case. *Very deep planting: from 8 to 10 cm Very fine stem. No tillering and only one blade.*

Seed runs out of supplies by growing a long rhizome which frostbite can easily cut.

The plant takes weak roots, approximately 1 cm in width and 3 cm in depth.

Twice the number of grains per sowing metre are required to obtain the same number of ears as in the first case.



In very cold places, repeated frostbite can have a honeycomb effect on the ground's most superficial layer. In this case the plant's very first roots can loosen and the plant will die. Slightly deeper planting is recommended and if possible, the use of rollers to compact the earth to better protect the seeds.

In all LAMUSA machines, the right side wheel activates the seed distributor's mechanical transmission. Consequently, sharp curves should be performed towards the left side, since using the ground wheel drive would cause a lesser seed distribution.

When starting the machine, furrows will not contain any seeds for a metre. When stopping the machine, seeds which were previously inside the seed hoses, slide from the machine and end up piled on the ground. Take this into account when stopping and starting the machine in order to achieve more accuracy.

Always work at a uniform speed as sudden accelerating and slowing down will cause an irregular seed distribution.

3.4- SEED DOSING ADJUSTMENTS

When using high quality certified seeds it is not enough to know the weight in kilograms distributed by the machine, as the final result of the harvest will depend on the number of plants which eventually ripen.

Every plant requires a certain amount of land from which nutrients will be absorbed. Therefore, both a low or an excessive plant density can be detrimental. To determine how many kilograms per hectare are to be sown, you should know the number of plants per square metre that are going to be planted.

As a guidance, the recommended number of plants per square metre when sowing wheat or barley in un-irrigated land can be found in following table:

AUTUM:	Premature sowing, 200 plants per m2 Late sowing: 265 plants per m2
SPRING:	Premature sowing, 310 plants per m2 Late sowing: 445 plants per m2

Please note that in spring there is less tillering so more seeds should be sown



MAQUINARIA AGRÍCOLA SOLÁ, S.L. RECOMMENDS THAT THE FARMER SEEKS PROFESSIONAL ADVICE ABOUT THIS SUBJECT FROM A TECHNICAL SOWING CENTRE.



SEED DOSING SHOULD BE ADJUSTED TO EACH TERRAIN, DEPENDING ON THE: TEXTURE, FERTILIZING LEVEL, PLUVIOMETER RESULTS AND SOWING SEASON, GRAIN QUALITY, GERMINATING AND TILLERING POWER, ETC

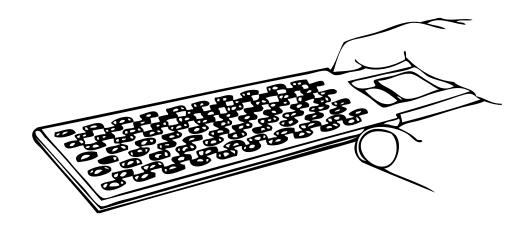
3- ESSENTIAL SOWING CONCEPTS

It should be taken into account that a seed's germinating power is variable and dependant on multiple factors. It can be experimentally calculated to be between 70% and 80%, which is practically equivalent to multiplying the number of grains to be sown by 1,43 or 1,25 respectively.

Next, we describe a practical method to determine the number of kilos per hectare to be distributed once we know how many plants per square metre we want to obtain.

1) Place seeds on the "seed counter"

Wipe seed counter with your hand to make sure that there is only one grain per slot (100 grains in total). Do the same 10 more times to obtain 1000 grains



2) Weigh 1000 grains with the precision scales. We call the result the OPERATIVE WEIGHT.

3) Once we know how many seeds per square metre we are going to sow, we should adjust the following kilograms per hectare in the dosing control:

kilograms per hectare = (grains per m2 x OPERATIVE WEIGHT) / 100

4-STARTING 4.1- COUPLING

Seed drill EUROPA2110 is fitted for fast coupling to the hydraulic lift. The oscillating coupling bar adapts to ground's irregularities. In order to switch it off, place the machine in a raised position and unlock the two locking hooks (1, fig 5) to secure the hooked clip (2, fig 5) of the lever's (3, fig 5) to the axis (4, fig 5).

All machines are supplied with a supporting base to secure the machine during transportation and prevent accidents. It must be removed before working with the machine.



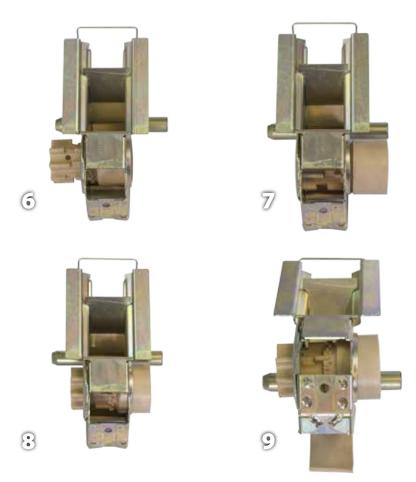


Make sure that nobody is ever between the seed drill and the tractor when coupling both machines.

4.2- DOSING SYSTEM

Dosing system can be adjusted to the following working positions:

- Narrow position with small housings, used for small seeds (fig. 6).
- Wide position with large alternated housings, used for regular or big seeds (figs. 7 and 8).



Base flap performs two roles:

- It adjusts its opening to adapt to seed's size. (figs. 6,7 and 8).
- It empties the hopper into the calibration cup (fig. 9).

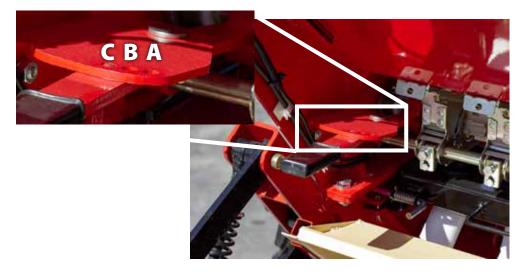


To easily switch from WIDE to NARROW position, seed wheels dosing must be without seeds, otherwise the seeds will difficult seed wheel's turning.

Once the position is choosen (narrow or wide) and the base flap is adjusted (depending on the seed's size), seed flow to be dosed will depend on seed wheel's speed. The gearbox allows to adjust the seed wheel's speed to sow from 0 to 600 kg/ha in a very precise way.

4.3- SEED DOSING

Check that the shutoff gates are open and allow the seed flow. Before filling the hopper, check that there are no external elements inside the hopper and next connect the agitator's shaft to the gearbox's axle.



Move the lever to switch between narrow and wide position in the seed wheel

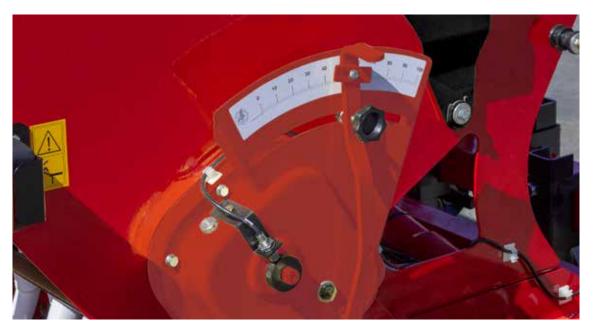
- A. To the right to set wide position for wheat, barley, etc.
- B. To the centre to set medium position for sunflowers, peas, etc.
- C. To left, to set narrow position for lucerne, rape, etc.



The base flap lever (placed on the left side of the hopper) has 7 positions

No 1, for small seeds. No 3, for wheat and barley. No 5, for big seeds.

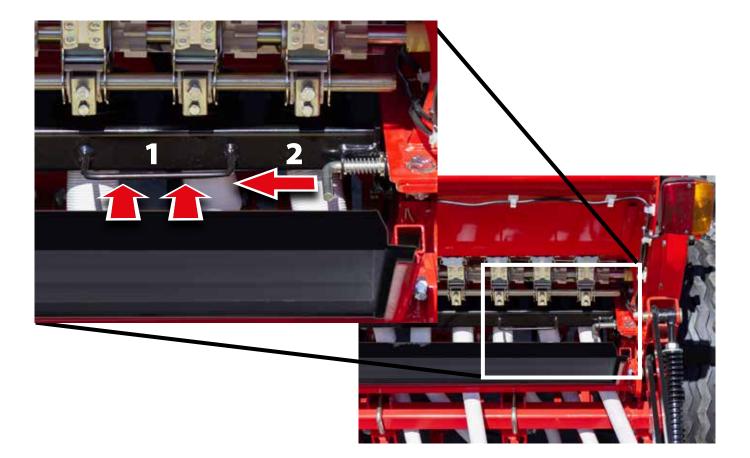
To empty the hopper, place the calibration cup under the seed wheels and move the lever beyond position n° 7 (emptying position). Finally loosen gearbox's knob, move the gear lever on the sector graduated from 0 to 100 and tight the knob in the number position selected previously, as indicated in the dosing tables.

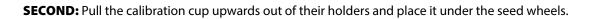


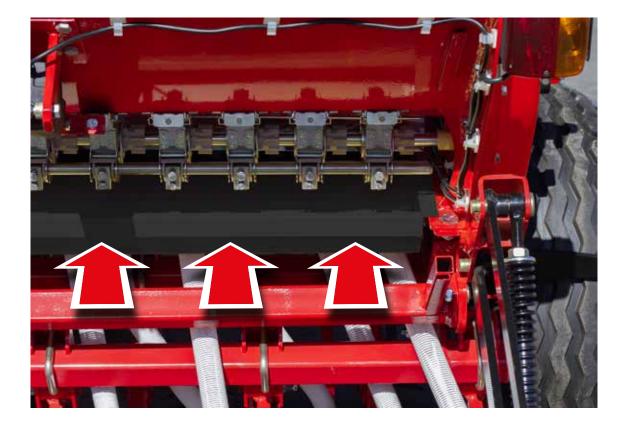
4.4- CALIBRATION TEST

Once the narrow or wide position is selected, and both the base flap and the gear lever are in correct position, it is essential to perform a calibration test.

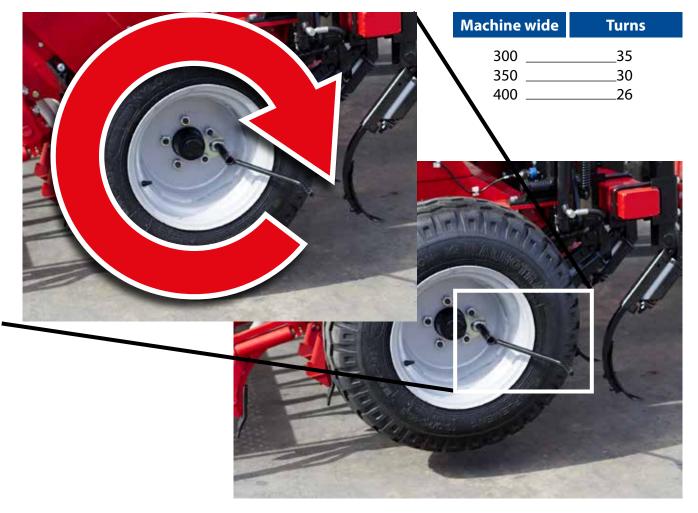
FIRST: withdraw the spring-loaded lever (2,) that keep the hopper bar in working position and push the bar (1) forward until the end. This will allow to place the calibration cup under seed wheels.







THIRD: Raise the seed drill using the tractor until the wheels can turn freel. Place the calibration crank in the bolt on right wheel and turn it clockwise until seeds start to fall onto the calibration cup. At this moment, stop turning, put these seeds back inside the hopper and start turning the crank again to perform the real turns of the test.



You must turn the wheel uniformly using the crank at approximately one revolution per second, depending on the land's characteristics, tyre's manufacturer or tyre pressure. For this reason it is highly recommended to perform a field test as described in this manual (4.5).

At the end, accurately weigh the collected seeds that are in the calibration cup. At a selected opening, you can obtain the kilograms per hectare distributed by the machine, by multiplying the weight by 40.

For ease of performing these operations the machine should be coupled to the tractor in a slightly elevated position (wheels should not be in contact with the ground). It is also necessary that the hopper is only half-filled with seeds to alleviate difficulty in turning the wheel with the crank.

If seeds show excess treatment powder, flow can be reduced, consequently a second control is recommended after sowing approximately three hoppers.



It is dangerous to turn the wheel with your hands as the mud scraper can cause injuries.

4.5- FIELD TEST

If differences exist between the test and the actual dose distribution (due to a very uneven or light soil, low pressurised tyres, etc.), an experimental test can be performed.

First of all, the distance (in metres) as shown in the table below should be marked on the field's ground using a tape measure.

Machine wide	Displacement (m)
300	83,3
350	71,4
400	62,5

Next, the seed drill in working position should cover that distance.

By means of a mark made previously on the tyre, count the number of turns performed in the covered distance. A good place whereby which to count could be the wheel's mud scraper.

By following these steps we can obtain the actual number of turns performed in the seed dosing test. By performing the test, we will know the actual kilograms per hectare distributed by the machine.

4.6- COULTERS DEPTH AND PRESSURE ADJUSTMENT

The coulters depth is set with an central adjuster spindle).

Previously we have explained how to adjust the pressure for each coulter individually



4.7- TINE COULTERS ADJUSTMENT

Fixed tine coulters:

These tine coulters have a non-adjustable depth, but their pressure can be adjusted by using a nut placed in the lower part of the spring (1). Sowing depth will be determined by the adjustable central ratchets.



5- OPTIONAL EQUIPMENT

5.1- TRACK ERASERS

Track erasers are very efective devices to erase tractor's tracks. The four coulter's height and lenght can be adjusted depending on the vehicle's tread.



5.2- PARALLELOGRAMIC-SHAPED HARROW WITH FLEXIBLE TINES.

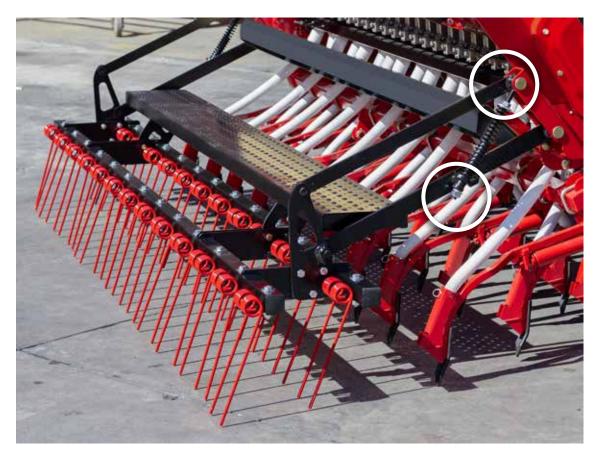
Harrow with double-tine springs which contribute to cover back the furrows produced by the sowing tine coulters.

By using the upper nut, the harrow's working pressure can be adjusted.

To adjust working depth, use the lower nut.

Parallelogramic-shaped joint allows the flexible tines to adapt vertical and horizontally to terrain irregularities in an excellent way.

Use always original double-tine springs LAMUSA, since they have been rigourously tested to achieve the highest quality.





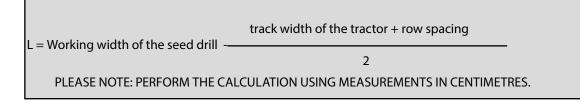
Never step up the harrow when the machine is running.

5.3- TRACK MARKERS *Hydraulic track markers*

Track markers should be assembled using the supplied screws in the supports placed in both sides of the machine. They are hydraulic and should be connected to a double-acting connection so that one arm is in vertical position and the other one is in working position. Cylinders contain a throttle to slow down and smooth the track marker's lift. Before starting work, check that they are in working order.

Track discs can be orientated to achieve the correct penetration angle and their supporters are extensible in order to be correctly adjusted. Track markers also have an extra spring which allows to adjust the pressure that track discs perform on the ground.

To calculate the horizontal spacing between track discs and the last lateral tine coulter, use following formula:







HIGH PRESSURE OIL MAY ESCAPE, PASS THROUGH THE SKIN AND INGRESS INTO THE BODY, CAUSING SERIOUS INJURIES. KEEP HYDRAULIC HOSE LINES IN GOOD CONDITION.



NEVER STAND UNDER THE TRACK DISCS OR WITHIN THEIR OPERATIONAL AREA



In order to transport the machine, it is essential to fold the track markers so they stay in a vertical position and pin them to the transport bracket using a lynch pin. This will prevent them from lowering during transit.



WHEN PULLING THE HYDRAULIC PIPES, BE SURE THAT THEY CAN NOT BE DAMAGED WHEN RAISING OR LOWERING THE SEED DRILL. CHECK ALSO THAT THEY ARE NOT EXPOSED TO ANY FRICTION.



DO NOT ADJUST SPRINGS AT HIGH PRESSURE NOR ORIENTATE TRACK DISCS VERY OBLIQUELY TO PRE-VENT SERIOUS DAMAGES TO THEM.

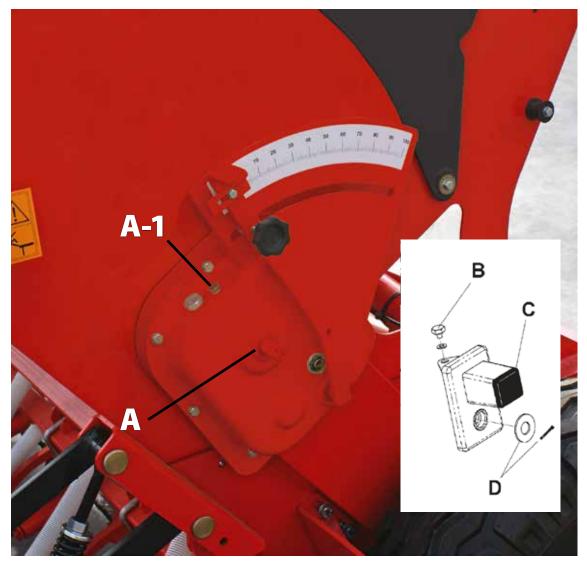
5.4- HECTARE COUNTER

The screw placed in gearbox's upper part must be removed (B1). Next, the hectare counter must be assembled over the gearbox's axle (A) and the special screw (B) supplied with the hectare counter must be screwed down in place A-1.

To access to the hectare counter's reset control, remove the black lid (C, fig. 33).

Finally, a washer and a pin should be placed at the end of the gearbox's axle (D, fig. 33). It is important to check that the pin is not in contact with the hectare counter's box when turning.

Hectare counter "90" is a direct reading type (hectares and squared metres) and both pinion gears are specific for each machine type, as indicated in the following table:





If the hectare counter are supplied separately from the machine, it is advisable to check that pinion type is correct.

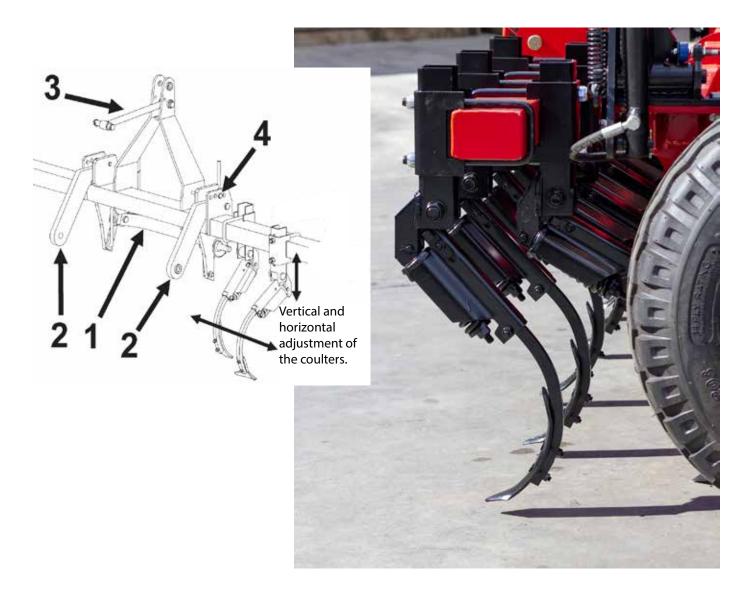
5.5- FLOATING CULTIVATOR

Floating cultivator is part of the optional equipment to prepare the soil before sowing. It is assembled between the tractor and the seed drill.

Couple it to the tractor using an oscillant coupling bar (1). To couple it to the seed drill, use the two coupling arms (2) and a coupling piece (3) which joins both the machine's and the cultivator's three-point linkages.

The cultivator must perform the superficial ground work but the coulters placed on the tractor's tracks must work deeper: they must be adjusted to erase these tracks. Each coulter can be adjusted independently both vertically and horizontally.

The cultivator can be adjusted at four different working depths by switching the bolt's position (4). Being a floating cultivator allows its lateral and vertical movement to be independent from the seed drill. Thanks to this feature, the cultivator can be raised using the tractor's lift keeping at the same time the seed drill on the ground.

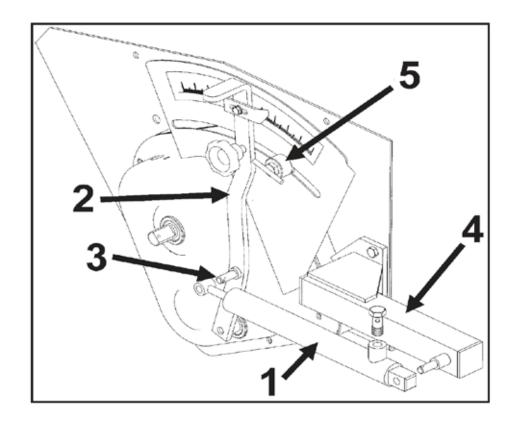


5.6- GEARBOX'S HYDRAULIC CONTROL

EGearbox can be equipped optionally with a hydraulic control to be used remotely.

The cylinder (1) must be assembled to gearbox's lever (2) using a bolt (3). It must be also assembled to the side of the machine using a screwed down support (4). The cylinder is supplied with a hydraulic hose line which must be plugged to a 1/2" tractor control unit.

The gearbox's hydraulic control consists of an single acting hydraulic cylinder with internal return spring, which sets the gearbox lever to "closed" (pressurised circuit) or "sowing" (unpressurised circuit).





HIGH PRESSURE OIL MAY ESCAPE, PASS THROUGH THE SKIN AND INGRESS INTO THE BODY, CAUSING SERIOUS INJURIES. KEEP HYDRAULIC HOSE LINES IN GOOD CONDITION.

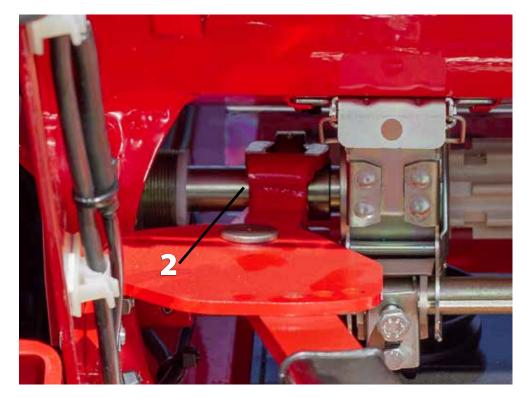
6- MAINTENANCE 6.1- LUBRICATION

The following parts should be lubricated periodically:

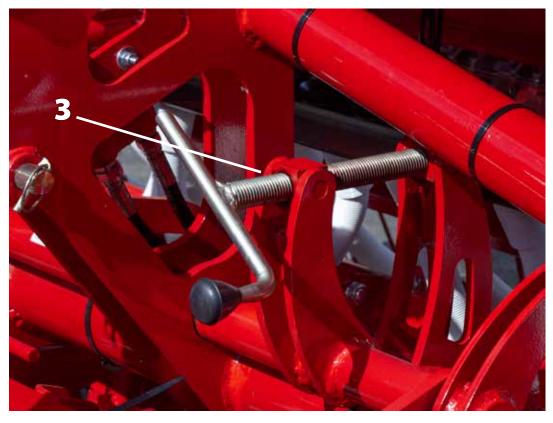
Wheels's bushings, releasing the push-in cap. Use solid calcium grease (1)



The central adjuster spindle. Use solid calcium grease (2)

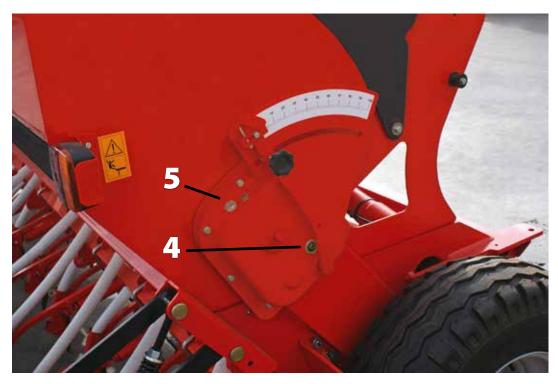






The seed dosing lever's roller guide. Use solid calcium grease. (3)

Check the gearbox's oil level by using the peephole (MIRILLA?? LITTLE WINDOW?) (4). If necessary, remove the cap (5) and refill it with oil type SAE 30.)





NEVER LUBRICATE THE SEED WHEELS.

6.2- TYRES PRESSURE

Indicated pressures are provided by the manufacturer, at maximum load.

Tyres	Pressure
10/75-15,3	6 kg/cm ²

In general use and especially when working on irregularly tilled terrains, it is recommended to use a slightly lower pressure to absorb the ground's irregularities and get a higher regularity in sowing.

6.3- SCREWS

After working for some hours, all screws should be checked and tightened. Put special attention to the ones which fix the tines to the coulter. For these ones, a special socket wrench is supplied which it is placed inside the hopper.



6.4- ANTIOXIDE CONTROL

Once the sowing season is finished, antioxide maintenance must be carried out as follows.

a) Dismantle the pipes, nozzles and shutoff gates. Clean them thoroughly.

b) Wash with water jet the whole machine, specially inside the hopper and the dispensers (with the covers removed). Turn the right wheel so that the seed wheels can be completely washed.

c) Give a coat of paint to those parts with oxidation signs, specially those made of metal sheet.

d) Verify the general greasing.

6.5- PROBLEM-SOLVING

In this chapter, user will find a guide to solve the most frequent problems that arise from a regular use of the machine.

Dosing system do not dose evenly.

- Check there is no external elements inside the seed wheel's box.
- Check that all shutoff gates are completely open.
- Check that all base flaps are correctly aligned.
- Check if the seed wheel show any worn out or damaged part.
- Do not work in very narrow circles: this carries an uneven seed dosing

Dose dispensed is lesser than expected or zero.

- Follow steps as described in this manual to adjust the correct dose, paying special attention to tyre's pressure, turning of the wheel on the ground, etc.
- Check that the tractor's hydraulic arms are completely lowered so that the drive wheel makes contact with the ground.
- Check the pin which connects the gearbox and seed wheel's axle.
- Check that scrapers are not slowing the drive wheel down.
- Check that the drive system is in good condition: bushing's teeth, chain and gearbox's pinion must them all not be worn out or show any damage.
- If none of the previous solutions turn out to be useful, contact your closest dealer LAMUSA with the gearbox. Do not try yourself to repair this part.

					SEED DC	SEED DOSING TABLE							
Gearbox value	Wheat	Barley	Triticale	Peas	Beans	Rape	Sainfoin	Vesce	Ray-gras	Lucerne	Spinach	Flax	0ats
Position	Wide	Wide	Wide	Wide	Wide	Narrow	Wide	Wide	Narrow	Narrow	Narrow	Wide	Wide
14				ſ	67,5	3,3	20,4	63,7		11.7	4,9	32,3	19,8
16					81,4	4	25,0	77,6		14,2	5,9	38,9	23,5
18					98,0	5,1	28,7	93,3		17,1	7,5	45,3	26,8
20	75,8	59,1	56,4	37,9	116,4	6,1	33,3	109,1		19,1	6'8	51,8	30,5
22	84,1	67,5	62,9	43,5	129,4	7,4	37,0	124,7		22,1	10,4	58,3	34,2
24	92,4	73,9	69'3	46,2	143,2	8,1	42,5	137,8		24,0	11,9	64,7	37,9
26	100,8		74,9	51,8	161,7	9,1	46,2	151,6	8,7	26,6	13,1	71,2	41,6
28	109,1		82,2	56,4	183,0	9,3	51,8	171,0	9'6	29,6	14.7	77,6	45,3
30	118,3	6'86	89,7	62,0	194,1	11,9	57,3	188,6	10,6	32,1	16,2	84,1	48,6
32	127,6	106,3	6'86	64,7	209,8	12,9	64,7	197,8	11,8	34,9	17,5	9'06	52,1
34	135,9	113,7	107,2	69,3	225,5	14,3	70,2	218,1	12,8	37,9	19,0	97,0	55,4
36	145,1	122,0	117,4	73,9	241,3	15,8	79,5		13,9	40,6	20,4	103,5	59,1
38	152,5		124,7	77,6		17,3	85,1		15,2	44,4	21,2	116,4	62,9
40	159,9	134,9	132,2	81,4		19,1	88,7		15,8	49,0	25,8	133,1	66,6
45	177,5	149.7	146,1	86,8		20,9	98,9		17,1	54,5	28,7	148,8	75,8
50	196,9		159,9	92,4		23,5			18,5		33,3	165,5	84,5
55	215,4	183.0	174.7	98.0					20.4		38,9	181.1	93,3
60	234,8		191,3	105,4					22,2	67,5			102,6
65	255,2	215,4	207.1	129,4					26.8				111.4
70	274.5	232,1	221,9	139,5					30.5				120,6
75	293,9		237.5						38.9				129.4
80	313,3		253,3										138,3
85	336,4	280,0	269,0										147.5
06	361,4		283.7										156,2
95	373,4		299,5										158.7
100	388,2	325,4	316.2										160,9
Row spacing	13,5	13,5	13,5	13,5	13,5	13.5	13,5	13,5	13,5	13,5	13,5	13,5	13,5
Base flaps's lever set in n°	3	3	3	5	4	1	3	2	1	1	1	1	3
1000 grains operative weight	40	46	30	239	530		19	44			12	5,6	24
	MACHINE WIDTH	10/75-15.3 RUEDAS (X)	UEDAS (X)										
-													

6- MAINTENANCE

--- (Kg/Ha)

.

KG (after X turns) x 40

TURNS TURNS TURNS

35 30 26

TYPE 350

TYPE 300

DOSING

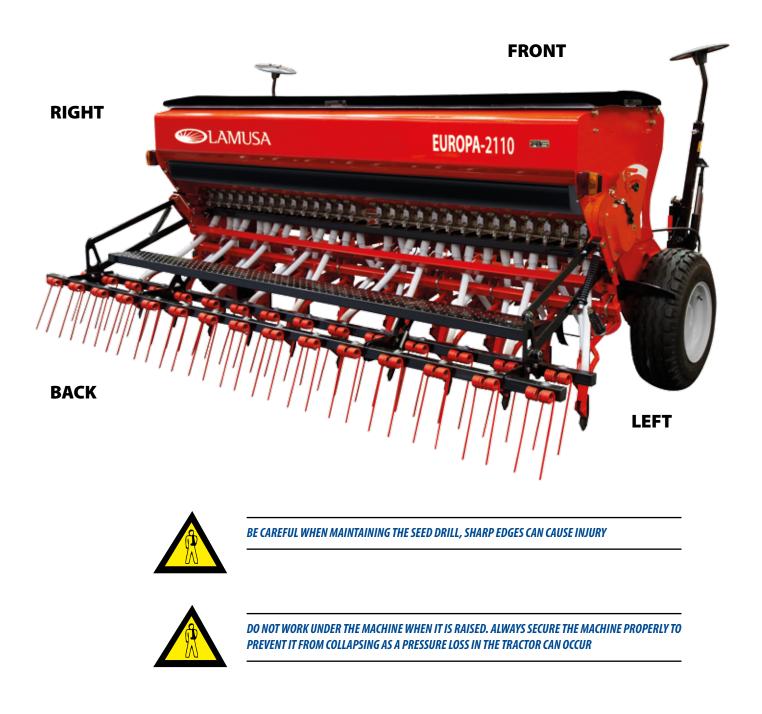
7- SPARE PARTS

7.1- INTRODUCTION

The terms RIGHT, LEFT, FRONT and REAR refer to the machine in its starting direction.

When guidance describes parts that have a matching pair (symetrical handles, wheels etc) only one will be demonstrated in the drawings shown. Please search for the distinguishing reference in the spare parts list.

When asking for spare parts, please provide the number and type of the machine that can be found on the machine's IDENTIFICATION PLATE.



7.2- CHASSIS

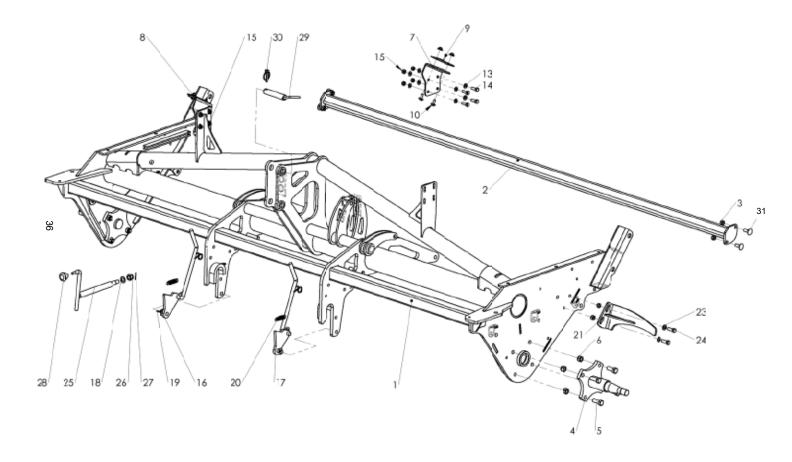


Figura	Código	Denominación
1	PS-012111	CHASIS TRI-2110 300 ACABADO
2	PS-012115	REFUERZO TRASERO CHASIS 300
3	985 12	TUERCA DIN 985 M12
4	PS-012110	MANGUETA TRI-2110 F-127
5	933 16X45 8.8B	TORNILLO DIN 933 M16x45 8,8 BI
6	985 16	TUERCA DIN 985 M16
7	PX-012134-D	CHAPA UNION TOLVA DER.
8	PX-012134-I	CHAPA UNION TOLVA IZQ.
9	PL-022100	GOMA UNION TOLVA TRIPODE
10	9021 8 BI	ARANDELA PLANA DIN 9021 M8 BI
13	125 10 BI	ARANDELA DIN 125 M10 BI
14	933 10X30 8.8 B	TORNILLO DIN 933 M10x30 8,8 BI
15	965 10	TUERCA DIN 985 M10
16	PS-012124-D	GATILLO TRI-2110 DERECHA
17	PS-012124-I	GATILLO TRI-2110 IZQUIERDA
18	125 16 BI	ARANDELA DIN 125 M16 BI
19	94 5X25 BI	PASADOR DE ALETAS DIN 94 5X25 BI
20	ML-010101	MUELLE GUITARRA
21	PS-012123-D	RASCADOR RUEDA DERECHA TRI-2110
21	PS-012123-I	RASCADOR RUEDA IZQUIERDA TRI-2110
23	125 12 BI	ARANDELA DIN 125 M12 BI
24	933 12X35 8.8B	TORNILLO DIN 933 M12x35 8,8 BI
25	PS-0104	HUSILLO CONTROL PROFUNDIDAD
26	935 16 BI	TUERCA DIN 935 M16 BI
27	94 3,5X28 BI	PASADOR DE ALETAS DIN 94 3,5X28 BI
28	PL-010200	EMPUÑADURA "PERA"40
29	PS-010101	BULON DEL TRIPODE
30	FE-610008	PASADOR ANILLA DE 12
31	603 12X35 BI	TORNILLO DIN 603 M12x35 BI

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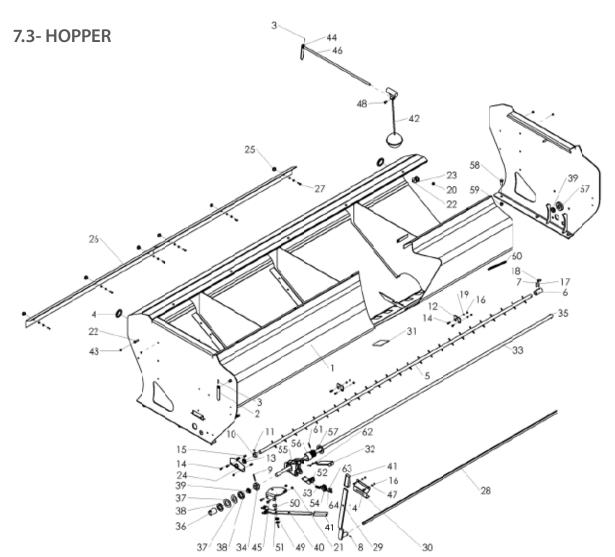


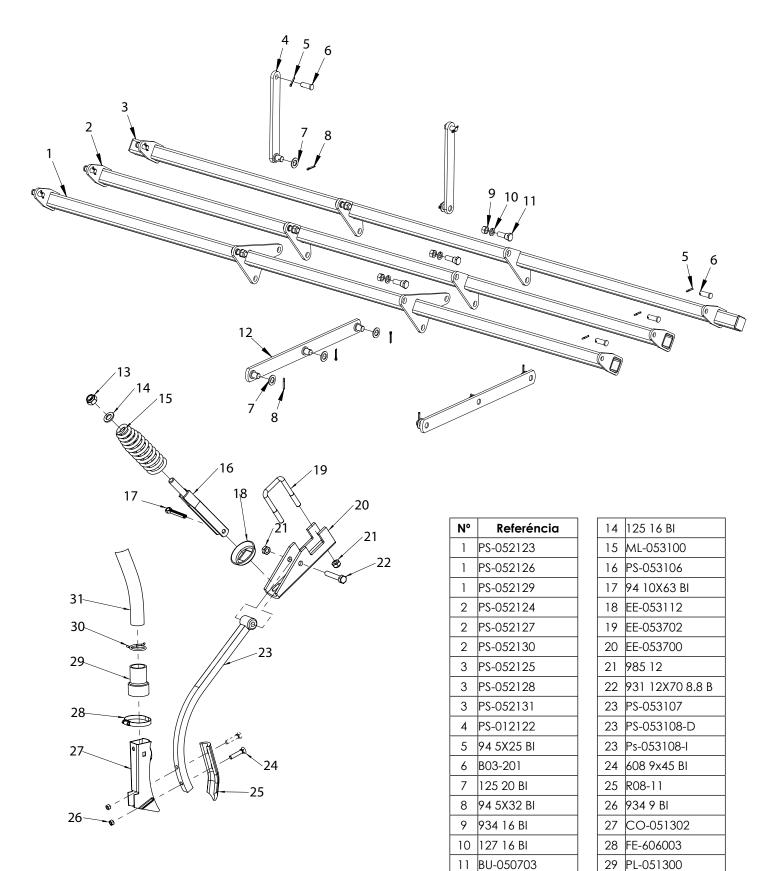
Figura	Código	Denominación	1		
1	PS-022108	TOLVA SEMBRADORA TRI-2110 300	29	PS-043135	PALANCA FONDO MOVIL
	PS-022109	TOLVA SEMBRADORA TRI-2010 350	30	PX-043106	CHAPA POS.PALANCA F.MOVIL EUROPA 2000 N/XS
	PS-022110	TOLVA SEMBRADORA TRI-2110 400	31	PX-022156	TAPA DISTRIBUIDOR LIBRE
2	101-01	INDICADOR VERTICAL	32	PX-042103	TAPETA CORREDERA DISTRIBUIDOR
3	94 3.5X20 BI	PASADOR DE ALETAS DIN 94 3.5X20 BI	33	TA-042103	EJE DE SIEMBRA 300/25
4	PL-021300	TAPON AGUJERO PASAMANGUERAS NEUMASEM		TA-042104	EJE DE SIEMBRA 350/29 TRI-2110
5	PS-042104	EJE AGITADOR 300 TRI-2110		TA-042105	EJE DE SIEMBRA 400/33 TRI-2110
	PS-042105	EJE AGITADOR 350 TRI-2110	34	ME-042107	RULINA ARRASTRE D-20
	PS-042106	EJE AGITADOR 400 TRI-2110	35	6325 7X30	PASADOR DIN 6325 Ø7x30
6	T01-111	TUBO UNION VARILLA AGITADOR	36	ME-032101	SOPORTE TOLVA REGULABLE EJE DISTR
7	1481 7X30 BI	PASADOR ELASTICO DIN 1481 /07x30 BI	37	PX-022157	ARANDELA EJE DISTRIBUIDOR
8	1481 5X25 BI	PASADOR ELASTICO DIN 1481 Ø5x25 BI	38	981 35-150	TUERCA KM-7 M-35x1,5
9	1481 5X50 BI	PASADOR ELASTICO DIN 1481 Ø5x50 BI	39	PL-020204	CASQUILLO 20.2x25x10
10	A01-86	ANILLO RETENCION CASQUILLO AGITADOR	40	PS-042103	PALANCA EIX DISTRIBUIDOR TRI-2110
11	914 8X10 BI	ESPARRAGO HEX/INT DIN914 M8x10	41	E06-23	MANOPLA PVC PARA PASAMANO 30X8
12	P04-03	PUENTE AMARRE VARILLA AGITADOR	42	PS-022115	BOYA TOLVA TRI-2110
13	C09-73	CASQUILLO 20,2X25X10	43	FE-611017	TAPONES PROT. PARALELOS D8.5MM
14	933 6X16 8.8B	TORNILLO DIN 933 M6x16 8.8 BI	44	125 12 BI	ARANDELA DIN 125 M12 BI
15	125 6 BI	ARANDELA DIN 125 Ø6 BI	45	933 8X20 8.8B	TORNILLO DIN 933 M8x20 8,8 BI
16	934 G BI	TUERCA DIN 934 M6 DI	46	TA-022101	EJE INDICADOR NIVEL BOYA 2110
17	B03-95	BULON DEL AGITADOR	47	127 6 BI	ARANDELA GROWER DIN 127 6 BI
18	L02-01	LLAVERO CERRADO	48	933 8X15 8.8B	TORNILLO DIN 933 M8x15 8,8 BI
19	7980 6 BI	ARANDELA GROWER DIN 7980 M6 BI	24	EE-020215	TAPA SOPORTE EJE AGITADOR, SEM.
20	125 8 BI	ARANDELA DIN 125 M8 BI	49	M01-61 B03-194	MUELLE PALANCA REGULACION
21	985 8	TUERCA DIN 985 MB	50	PX-042113	BULON ARTIC PALANCA DISTR CHAPA POSICIONAMIENTO EJE DISTR
22	933 8X45 8.8B	TORNILLO DIN 933 M8x45 8,8 BI	52	PL-040205	TAPETA FONDO MOVIL
23	BU-020700	BULON GUIA-TOPE TAPA TOLVA	53	M01-60	MUELLE TAPETA FONDO MOVIL SEMBRADORA
25	PL-073100	VOLANTE CON TUERCA M6	54	B10-11	BRIDA SOPORTE TAPETA FONDO MOVIL
26	PL-042104	PROTECTOR DISTRIB 300 DER	55	CO-042101	DISTRIBUIDOR CHAPA TRI-2110
	PL-042107	PROTECTOR DISTRIB 350 DER TRI-2110	56	PL-040201	RODILLO SIMIENTE
	PL-042109	PROTECTOR DISTRIB 400 DER TRI-2110	57	A02-20	ARANDELA ESTRIADA CHAPA
	PL-042103	PROTECCION DISTR IZQ 300 TRI-2110	58	933 12X30 8.8 B	TORNILLO DIN 933 M12X30 8.8 BI
	PL-042106	PROTECTOR DISTRIB 350 IZQ TRI-2110	59	985 12	TUERCA DIN 985 M12
	PL-042108	PROTECTOR DISTRIB 400 IZQ TRI-2110	60	CT-0420	GUIA DESCANSO BANDEJA TOLVA SEMBRADORA
27	933 6X20 8.8B	TORNILLO DIN 933 M6x20 8,8 BI	61	1481 5X30 BI	PASADOR ELASTICO DIN 1481 M 5X30 BI
28	PM-0412	EJE FONDO MOVIL -300	62	ML-042101	MUELLE POSICIONADOR TAPETA TRI-2110
	PM-0413	EJE FONDO MOVIL -350	63	933 8X20B PUNTA	TORNILLO DIN 933 8X20 BI CON PUNTA
	PM-0414	EJE FONDO MOVIL -400	64	931 6X45 8.8 B	TORNILLO DIN 931 M6X45 8.8 BICROMATADO
-		•			

7.4-	- COVER A	ND SELECTOR SIEVE	2
		25 24	
Fig.			
1	FE-611023	REMACHE Ø6,5 DE CIERRE A PRESION	
2	MV-032101	LONA TOLVA TRI 2110/300	
3	985 6	TUERCA DIN 985 M6	
4	125 6 BI	ARANDELA DIN 125 M6 BI	
5	912 6X30 BI	TORNILLO ALLEN DIN 912 M6x30 BI	
6	FE-614044	MANILLA MFE/117 Ø6.5 (GAMM)	
7	PS-032110	ESTRUCTURA TAPA TOLVA 300	
	PS-032109	ESTRUCTURA TAPA TOLVA 350	
	PS-032111	ESTRUCTURA TAPA TOLVA 400	
8	PX-032145	CHAPA COLLADO TOLDO 300	
9	985 8	TUERCA DIN 985 M8	You I
10	125 8 BI	ARANDELA DIN 125 M8 BI	\mathcal{V}
11	PS-032112	TOPE TAPA LONA A ALZA TOLVA	28
12	933 8X30 8.8B	TORNILLO DIN 933 M8x30 8,8 BI	
13	ME-045301	ANILLO SEPARADOR GUIA TRAMPILLA	
14	ME-032105	CASQUILLO SEPARADOR TAPA TOLVA	
15	985 10	TUERCA DIN 985 M10	
16	125 10 BI	ARANDELA DIN 125 M10 BI	
17	FE-660028	RESORTE A GAS 340/215 400N	
18	ME-032104	CASQUILLO COLLADO TAPA TOLVA	
19	912 10X50 8,8 B	TORNILLO ALLEN DIN 912 M10x50 8,8 B	
20	912 8X35 8,8 B	TORNILLO ALLEN DIN 912 M8x35 8,8 B	
21	ME-032106	TOPE BAJADA TAPA TOLVA TRI 2110	
22	PS-032103	BANDEJA DE VACIADO TRI-2110 300	
	PS-032104	BANDEJA DE VACIADO TRI-2110 350	
	PS-032105	BANDEJA DE VACIADO TRI-2110 400	
23	985 5	TUERCA DIN 985 M5	
24	125 5 BI	ARANDELA DIN 125 M5 BI	
25	933 5X16 8.8B	TORNILLO DIN 933 M5x16 8,8 BI	
26	PS-022111	ALZA SEMBRADORA TRI-2110 300	
	PS-022112	ALZA SEMBRADORA TRI-2110 350	
1	PS-022113	ALZA SEMBRADORA TRI-2110 400	

PS-022113

ALZA SEMBRADORA TRI-2110 400

7.5- ARMS BARS



12 PS-2614

13 985 16

30 ML-051301

31 MP-907018

7.6- TRACK ERASERS "SPRING"

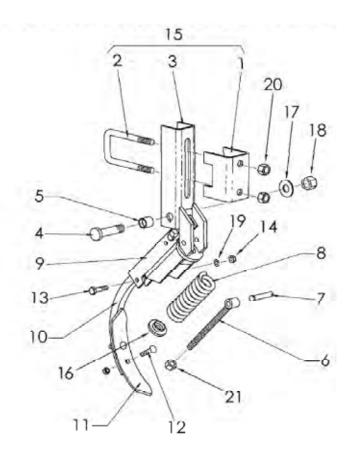
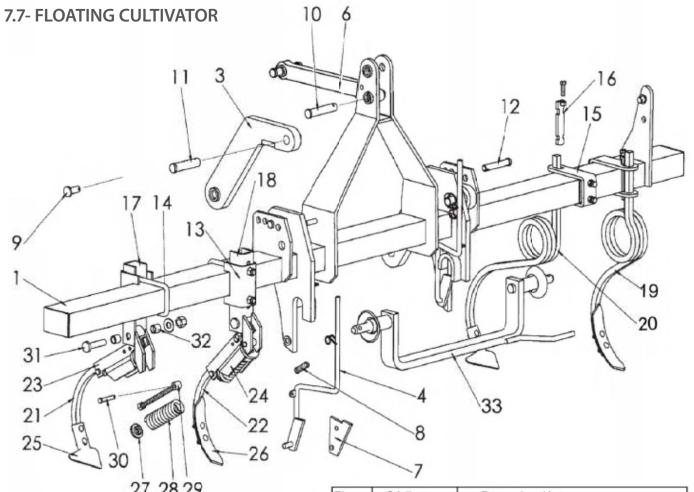


Figura	Código	Denominación
1	PX-060201	Refuerzo corto soporte brazo borrahuellas BM
2	EE-060228	Brida brazo borrahuellas BM
3	PS-1113	Soporte brazo borrahuellas BM
4	EE-050312	Tornillo del soporte M-20/150x85
5	PL-050302	Casquillo articulación brazo
6	FO-060202	Tensor muelle brazo borrahuellas y cultivador
7	BU-060300	Bulón Ø12x69
8	ML-060300	Muelle del brazo borrahuellas y cultivador
9	PS-1120	Bastidor brazo borrahuellas BM con taco
10	FO-060302	Brazo corto para borrahuellas BM
11	FO-060300	Rejita de 57x7
12	608/934 9X40	Tornillo de arado DIN 608 M-9x40 con tuerca
13	931 10X45 8.8 B	Tornillo DIN 931 M-10x45 8.8 bicromatado
14	934 10	Tuerca DIN 934 M-10
15	MO-0719	Brazo borrahuellas BM completo
16	ME-052812	CASQUILLO TOPE MUELLE ML-052802
17	125 20 BI	Arandela plana DIN 125 Ø20 bicromatada
18	985 20/150	Tuerca DIN 985 M-20/150
19	127 10	Arandela grower DIN 127 Ø10
20	985 16	Tuerca DIN 985 M-16
21	980 14 BI	Tuerca DIN 980 M-14 bicromatada



27 28 29

igura	Código	Denominación
1	PS-0705/6/7/8	Chasis cultivador flotante 250/300/350/400
3	PS-0702/D	Biela enganche CF TRI derecha
3	PS-0702/I	Biela enganche CF TRI izquierda
4	TA-060201/D	Gatillo enganche CF con clip, derecha
4	TA-060201/I	Gatillo enganche CF con clip. izquierda
6	PS-060205	Tirante trercer punto C.F. TRI
7	TA-0721	Pletina sustitución gatillo
8	ML-010101	Muelle gatillo enganche
10	BU-060203	Bulón Ø25x125
11	BU-060202	Bulón Ø28x115
12	BU-060201	Bulón Ø20x115
13	PX-060202	Refuerzo mediano soporte brazo BM para CF
14	EE-060230	Brida brazo cultivador flotante M
15	EE-060227	Brida brazo cultivador flotante R
16	CO-060201	Tensor de apriete mediano
17	PS-1117	Soporte brazo cultivador CM
18	PS-1113	Soporte brazo borrahuellas BM
19	VA-060200/D	Brazo borrahuellas R sin taco derecha
19	VA-060200/I	Brazo borrahuellas R sin taco izquierda
20	VA-060201/D	Brazo cultivador R sin taco derecha
20	VA-060201/I	Brazo cultivador R sin taco izquierda
21	FO-060303	Brazo largo para cultivador CM
22	FO-060302	Brazo corto para borrahucilas BM
23	PS-1121	Bastidor brazo cultivador CM con taco
24	PS-1120	Bastidor brazo borrahuellas BM con taco
25	FO-060301	Rejita golondrina 135 mm
26	FO-060300	Rejita 57x7
27	ME-052812	CASQUILLO TOPE MUELLE ML-052802
28	ML-060300	Muelle brazo borrahuellas y cultivador
29	FO-060202	Tensor muelle brazo borrahuellas y cultivador
30	BU-060300	Bulón Ø12x69
31	EE-050312	Tornillo del soporte M-20/150
32	PL-050302	Casquillo articulación brazo
33	PS-0109	Barra enganche EURO categoría II

7.8- HARROW WITH FLEXIBLE TINES EPI-6

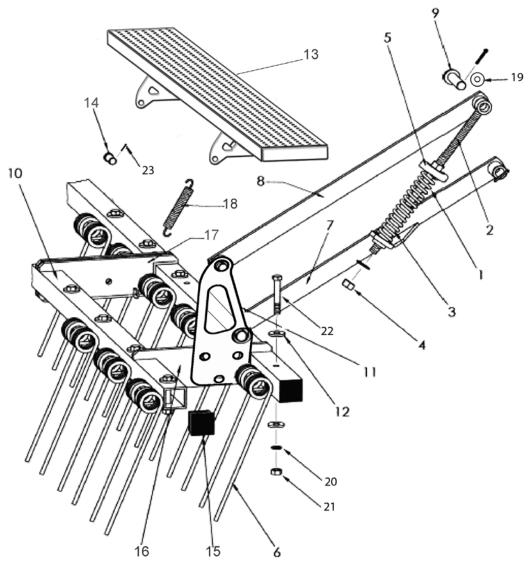
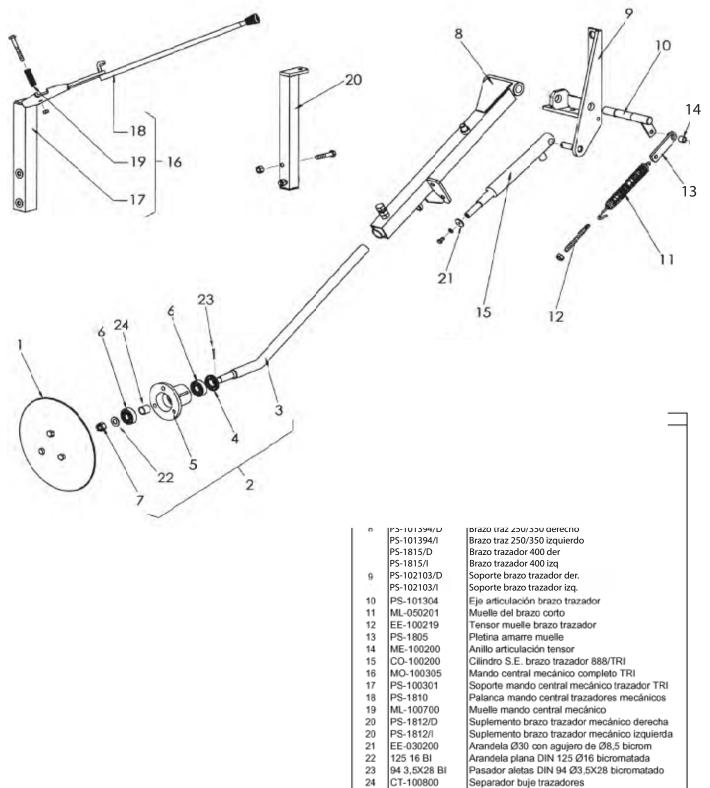


Figura	Código	Denominación
1	ML-080104	Muelle brazo rastra epi-6
	PS-1710	Tensor muelle rastra epi
-	PS-1735	Tubo interior muelle rast epi 6
	985 16	Tuerca din 985 m16
-	EE-080306	Tapeta muelle ø40x20,5
-	ML-080103	Muelle doble púa ø 8 mm. Trasero (m01-83)
	PS-1741/D	Brazo motriz/d rastra epi 6 para tri y super
7	PS-1741/I	Brazo motriz/i rast epi 6 para tri y super
8	PS-1734	Brazo tensor rastra epi-5 para tri
9	BU-080202	Bulón largo ø20x78 estampado (b03-177)
10	PS-1736/37/38	Barras rastra 250/300/350 epi 6
11	PS-082109/D7I	Pletina art. Brazo rastra der-izq. Tri-2110
12	ME-080202	Arandela ø14x4 bicromatada s-848 (a02-25)
13	PS-082105/06/07/08	Peldaño 250/300/350/400 rastra epi6
14	BU-080206	Bulon 16x37
15	CN-817001	Contera de plastico para tubo 50x50x3
16	PX-080207	Pletina union tubos, sold.rastra epi-6 (p03-235)
17	PX-080201	Pletina artic.peldaño, sold.rastra epi-6 (p03-236)
	ML-080101	Muelle del peldaño rastra
	125 20 BI	Arandela DIN125 20 bicromatada
	127 12 BI	Arandela DIN127 12 bicromatada
21	934 12 Bl	Tuerca DIN934 12 bicromatada
22	931 12x80 8.8 B	Tornillo DIN931 12X80 8.8 bicromatado
23	94 5X25 BI	Pasador DIN94 5X25 bicromatado

7.9- MARKERS



7.10- GEARBOX

Figura

MO-0601

MV-09

PS-0610

PS-0618

TA-0618

MO-0605

471 8

PS-0611

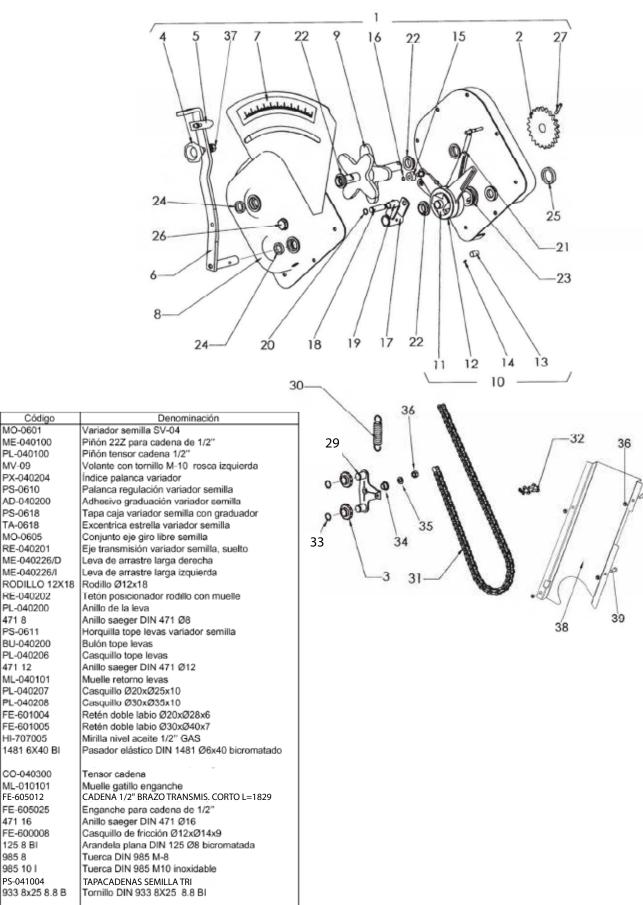
471 12

471 16

125 8 BI

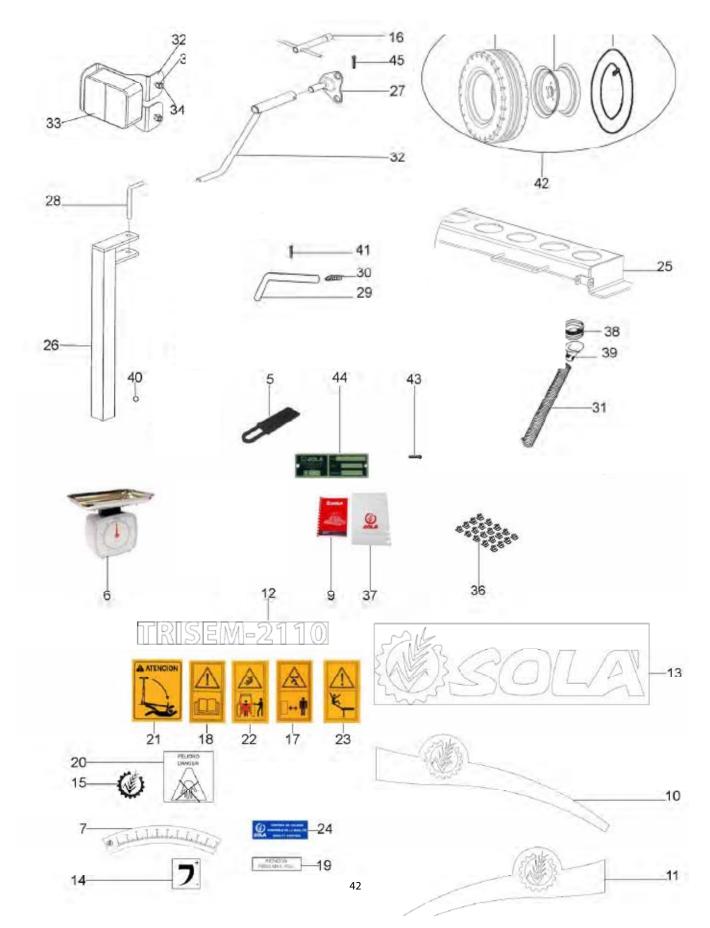
985 10 L

985 8



Camusa

7.11- FINISHES



N°	REF.	DENOMINACION
1	PL-042105	NEUMATICO 10.75-15,3 12PR S/CAMARA
2	CO-042105	LLANTA 9x15.3" DESPL50 mm
3	PL-042110	CAMARA PARA RUEDA 10.75-15,3
5	C11-41	CUENTA SEMILLAS
6	CN-808004	BALANZA MOD. 606 10KG./CAP.50GR./GRAD.
7	AD-040200	ADHESIVO GRADUACION VARIADOR SEMILLA
9	CN-811057	MANUAL INSTRUCCIONES SOLA TRISEM-2110
10	AD-072103	ADHESIVO LATERAL DERECHO TRI
11	AD-072102	ADHESIVO LATERAL IZQUIERDO TRI
12	AD-072100	ADHESIVO "TRISEM-2110"
13	AD-070228	ADHESIVO "SOLÅ" GRANDE
14	A10-24	ADHESIVO NIVEL BOYA
15	CN-815023	ADHESIVO ANAGRAMA ESPIGA BLANCA
16	ML-12	LLAVE BOCA HEXAGONAL
17	A10-32	ADHESIVO "PELIGRO ACERCAMIENTO"
18	A10-31	ADHESIVO "LEER LIBRO INSTRUCCIONES"
19	A10-36	ADHESIVO "PESO MAXIMO 1260 Kg"
	A10-37	ADHESIVO "PESO MAXIMO 1390 Kg"
	A10-39	ADHESIVO "PESO MAXIMO 1570 Kg"
20	A10-42	ADHESIVO "PELIGRO AGITADOR"
21	A10-53	ADHESIVO "ATENCION TRAZADORES"
22	A10-82	ADHESIVO PELIGRO MANIOBRA ENGANCHE
23	A10-83	ADHESIVO "PELIGRO CAIDA"
24	AD-070211	ADHESIVO CONTROL DE CALIDAD
25	PS-052121	BARRA PORTABOQUILLAS 300 TRI-2110
	PS-052122	BARRA PORTABOQUILLAS 350 TRI-2110
	PS-052132	BARRA PORTABOQUILLAS 400 TRI-2110
26	PS-2631	PIE DESCANSO MAQUINA TRI
	PS-1601	PIE DESCANSO MAQUINA TRI (RUEDA 10.80-12)
27	MO-1637	ALOJAMIENTO MANIVELA RUEDA CON PASADOR
28	B03-41	BULON DEL PIE DESCANSO
29	B03-184	BULON GATILLO BARRA PORTABOQUILLAS
30	M01-63	MUELLE GATILLO BARRA PORTABOQUILLAS
31	ML-060302	TUBO PLASTIFICADO CONICO 1 OREJA 450
	ML-050306	TUBO PLASTIFICADO CONICO 1 OREJA 480
	ML-050303	TUBO PLASTIFICADO CONICO 1 OREJA 600
32	CO-070300	MANIVELA HUSILLOS
33	CN-818007	KIT LUCES 250/300 XS LAMU
34	933 6x16 BI	TORNILLO DIN 933 M6x16 8.8 BI
35	985 6	TUERCA DIN 985 M6
36	FE-606007	ABRAZADERA AUTOADHESIVA Ø7.9-10.3
37	CN-813002	BOLSA "MINIGRIP" 180x250 CON ANAGR. "SOLÅ"
38	PL-050300	FUELLE BOQUILLA
39	PL-050301	BOQUILLA ROSCADA
40	ML-050103	LLAVERO ABIERTO
41	94 3,5X28 BI	PASADOR ALETAS DIN 94 BICROMATADO
42	CO-042104	RUEDA 10.75-15,3 12PR LLANTA CREMA COMPLETA
43	FE-602001	REMACHE ALUMINIO
44	AD-070217	PLACA PATENTE
45	1481 6X30 BI	PASADOR ELASTICO DIN 1481 CINCADO



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