

TRISEM / TRICOMBI

194/R-294/R-294/R ESP - BASIC

STARTING MANUAL

MAINTENANCE

DOSAGE

SPARE PARTS

Please read and follow this operating manual before putting the machine into operation.



SOLÀ seed drills and fertilizer spreaders are manufactured in a highly specialized environment and our factory has a vast network of satisfied customers.

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

This manual will help you use your SOLÀ product with the maximum 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.

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1. INTRODUCTION

Before any use of the machine it is very important to read the instructions and suggestions in this booklet, in order to reduce the danger of accidents and to prevent damages to the seed drill due to incorrect use or defective maintenance. You will increase its performance and useful life.

This booklet must be read by any operator of the machine, during its operation, repairs, maintenance and transport. It is an integrating part of the product, and must be kept in a safe place for consultation during the whole life span of the machine.

SOLÀ will not assume any responsibility for damages or breakdowns caused by non-observance of the instructions given in this booklet.

In the first chapters you will find the Technical Data and Safety Instructions, also some Essential Sowing Concepts. In the Rules of Use and Maintenance chapters are the basic knowledges for using the machine. The booklet is completed with a seed dosage table and Spare parts list.



SOLÀ RESERVES THE RIGHT TO MODIFY DRAWINGS AND TECHNICAL DATA GIVEN IN THIS MANUAL IF THIS CAN HELP TO IMPROVE THE SEED-DRILL QUALITY.

You will find, in this operating manual, three types of safety and danger symbol:



TO FACILITATE OPERATION WITH THE SEED DRILL.



TO AVOID DAMAGES ON THE MACHINE OR IN THE OPTIONAL EQUIPMENTS.



THIS SYMBOL WARNS OF THE RISK OF INJURY.

2. TECHNICAL SPECIFICATIONS

2.1 TRISEM-194/R · TRISEM-294/R

TYPE ARMS	ARMS DISTANCE	WORK WIDTH	TOTAL WIDTH	HOPPER CAPACITY		WEIGHT (KG)	WHEELS
				LITRES	KGR		
250/19	13 cm	2,50 m	2,68 m	540	390	680	6.00-16
300/22	13,5 cm	3,00 m	3,17 m	665	480	760	6.00-16
350/25	14 cm	3,50 m	3,80 m	790	570	830	10.80-12
400/28	14 cm	4,00 m	4,29 m	920	660	910	10.80-12

2.2 TRICOMBI-194/R · TRICOMBI-294/R

TYPE ARMS	ARMS DISTANCE	WORK WIDTH	TOTAL WIDTH	HOPPER CAPACITY LITRES		HOPPER CAPACITY KGR.		WEIGHT (KG)	WHEELS
				WHEAT	FERTIL	WHEAT	FERTIL		
250/19	13 cm	2,50 m	2,68 m	270	270	195	320	750	6.00-16
300/22	13,5 cm	3,00 m	3,17 m	335	335	245	400	840	6.00-16
350/25	14 cm	3,50 m	3,80 m	400	400	295	480	910	10.80-12
400/28	14 cm	4,00 m	4,29 m	460	460	345	560	990	10.80-12

2.3 TRISEM-194/R-GC · TRISEM-294/R-GC

TYPE ARMS	ARMS DISTANCE	WORK WIDTH	TOTAL WIDTH	HOPPER CAPACITY		WEIGHT (KG)	WHEELS
				LITRES	KGR		
300/22	13,5 cm	3,00 m	3,17 m	826	625	931	10.80-12
350/25	14 cm	3,50 m	3,80 m	1027	740	1060	10.80-12
400/28	14 cm	4,00 m	4,29 m	1188	860	1155	10.80-12

2.4 TRICOMBI-194/R-GC · TRICOMBI-294/R-GC

TYPE ARMS	ARMS DISTANCE	WORK WIDTH	TOTAL WIDTH	HOPPER CAPACITY LITRES		HOPPER CAPACITY KGR.		WEIGHT (KG)	WHEELS
				WHEAT	FERTIL	WHEAT	FERTIL		
300/22	13,5 cm	3,00 m	3,17 m	424	442	306	530	985	10.80-12
350/25	14 cm	3,50 m	3,80 m	503	524	363	630	1100	10.80-12
400/28	14 cm	4,00 m	4,29 m	582	606	420	725	1195	10.80-12

2.5 TRISEM-294/R-ESP

TYPE ARMS	ARMS DISTANCE	WORK WIDTH	TOTAL WIDTH	HOPPER CAPACITY		WEIGHT (KG)	WHEELS
				LITRES	KGR		
250/16	15,5 cm	2,50 m	2,68 m	540	390	680	6.00-16
300/19	16 cm	3,00 m	3,17 m	665	480	760	6.00-16
350/22	16 cm	3,50 m	3,80 m	790	570	830	6.00-16
400/25	16 cm	4,00 m	4,29 m	920	660	910	6.00-16

2.6 TRICOMBI-294/R-ESP

TYPE ARMS	ARMS DISTANCE	WORK WIDTH	TOTAL WIDTH	HOPPER CAPACITY LITRES		HOPPER CAPACITY KGR.		WEIGHT (KG)	WHEELS
				WHEAT	FERTIL	WHEAT	FERTIL		
250/19	15,5 cm	2,50 m	2,68 m	270	270	195	320	750	6.00-16
300/22	16 cm	3,00 m	3,17 m	335	335	245	400	840	6.00-16
350/25	16 cm	3,50 m	3,80 m	400	400	295	480	910	6.00-16
400/28	16 cm	4,00 m	4,29 m	460	460	345	560	990	6.00-16

2.7 STANDARD EQUIPMENT

- Seed variator
- Fertilizer variator (combined version)
- Seed dispenser roller (normal and small seed)
- «spring» sowing arms (194/R) three rows
- «ransome» sowing arms (294/R and 294/R-ESP) three rows
- Right coulters
- Sowing depth adjustment device
- Fast coupling
- Selecting sieve for fertilizer. Combined version
- Grain level
- Indicator for machine leveling
- Plate, weighing machine and grain counter (excepting types ESP)
- Hopper apron (excepting types ESP)
- Wheel scrapers (excepting types ESP)
- Set of lights (excepting types ESP)

2.8 OPTIONAL EQUIPMENT

- Double tube for combined machines
- Harrow with: flexible tines, step, types EPI-6 and EPI-7 (4 m)
- Harrow with flexible tines type ESP (only types ESP)
- «Ransome» wheel breakers
- «Spring» wheel breakers
- Hectare counter
- Disc markers
- Variator control
- Cultivator
- Central leveler
- Automatic coupling

3. SAFETY INSTRUCTIONS

3.1 SAFETY SIGNS

On the machine you will find the following symbols:



PLEASE, READ THE SAFETY INSTRUCTIONS CONTAINED IN THIS OPERATION MANUAL WITH CARE AND ALSO OBSERVE ALL WARNING SIGNS



STAY AWAY OF THE TRACTORBACK PART DURING THE COUPLING OPERATION, DURING THE MANOEUVRING.

DANGER OF SERIOUS LESIONS



STOP THE TRACTOR ENGINE AND AVOID ITS START DURING THE MAINTENANCE OR REPAIRING WORKS IN THE SEED DRILL. CONSULT OPERATING MANUAL.



DO NOT PLACE UNDER THE SOWING EQUIPMENT OR UNDER SWINGING AREAS.

DANGER OF SERIOUS LESIONS.



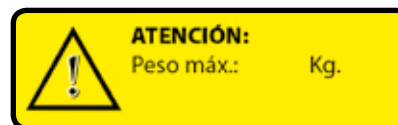
DO NOT RIDE ON THE SEED DRILL STAIRS WHEN THE MACHINE IS WORKING.



CLOSE THE HOPPER COVER WITH CARE. DO NOT PLACE THE HAND INTO THE HOPPER TO AVOID LESIONS.



SUPERVISE HYDRAULIC PIPES. CONSULT OPERATING MANUAL FOR SERVICE PROCEDURES. DANGER OF SERIOUS LESIONS.



ATENCIÓN:

Peso máx.:

Kg.

RESPECT THE MAXIMUM WEIGHT.



DO NOT PLACE UNDER THE TRACK MARKERS.

DANGER OF SERIOUS LESIONS.



HANDLING POINT FOR LIFTING.



DO NOT PLACE THE HAND INTO THE HOPPER WHILE THE AGITATOR SHAFT IS TURNING.

DANGER OF LESIONS.

TECHNICAL SPECIFICATIONS

3.2 USE

- Seed drills TRI-194/R y TRI-294/R have been manufactured for the agricultural works, specially for cereals sowing and the other grain sowing.
- SOLÀ can not be held liable for any consequential damage resulting from incorrect use, metering or distribution.
- All relevant accident prevention, as well as other generally acknowledged safety and road traffic regulations, must be observed.
- All the machine modifications realised by the user, automatically exempt
- SOLÀ from its/his liability in respect on ensuing damages.



DO NOT PLACE STRANGE ELEMENTS INTO THE HOPPER.



BEFORE WORKING ON HYDRAULIC SYSTEM, LEAVES THE MACHINES ON THE FLOOR, ELIMINATE CIRCUIT PRESSURE AND STOP THE ENGINE.



THE HYDRAULIC SYSTEM GENERATES EXTREMELY HIGH PRESSURE. ALL PIPING, HOSES AND CONNECTIONS MUST THEREFORE BE CHECKED REGULARLY FOR LEAKAGE AND VISIBLE EXTERNAL DAMAGE. USEFUL LIFE FOR THESE ELEMENTS IS NOT MORE THAN SIX YEARS. YOU MUST CHANGE THEM AFTER THIS TIME.

3.3 SAFETY ARRANGEMENTS



BEFORE TO START THE MACHINE IT IS VERY IMPORTANT TO READ THE OPERATION SAFETY AND ROAD SAFETY.



ROAD TRAFFIC REGULATIONS AND SIGNS MUST BE OBSERVED.



IT IS STRICTLY FORBIDDEN TO RIDE ON THE MACHINE DURING WORKING AND TRANSPORT.



BEFORE STARTING, FAMILIARIZE WITH ALL ACTIVATION ELEMENTS, AS WELL AS WITH GENERAL OPERATION.



PAY SPECIAL ATTENTION DURING COUPLING AND UNCOUPLING OPERATION.



DURING THE SEED DOSAGE TEST, PAY ATTENTION TO DANGEROUS POINTS, SPECIALLY THE AGITATOR TEETH INSIDE THE HOPPER AND THE WHEEL SCRAPERS.



THE FAST-COUPLING CLAMPS MUST BE UNBLOCKED DURING NORMAL OPERATION. THEY MUST BE BLOCKED ONLY FOR UNCOUPLING.



NEVER LEAVE THE DRIVER SEAT DURING MACHINE OPERATION.



WHEN THE SEED DRILL IS RAISED, THE TRACTOR FRONT AXLE DISCHARGES. VERIFY THAT THE CHARGE IS ENOUGH TO AVOID LODGING DANGER. IN THIS SITUATION, VERIFY DIRECTION AND BRAKING CAPACITY.



DURING THE TRANSPORT WITH THE SEED DRILL RAISED, BLOCK THE DESCENT CONTROL. BEFORE DESCENDING OF THE TRACTOR, PLACE THE MACHINE ON THE GROUND AND REMOVE STARTING KEYS.



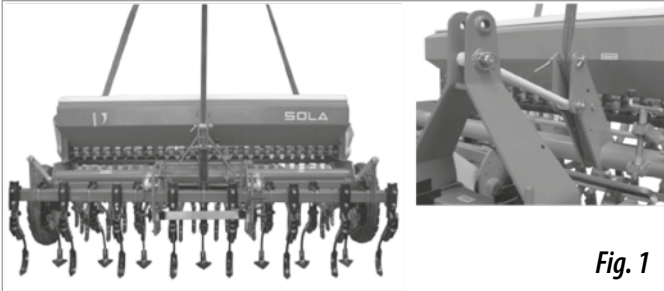
BE EXTREMELY CAREFUL WHEN WORKING WITH THE MACHINE IN RAISED POSITION. USE SUPPORT ELEMENTS TO AVOID A POSSIBLE DESCENT OF THE MACHINE.

3.4 LOADING AND UNLOADING

It is necessary to load and to unload the truck, if it is possible, with a bridge crane. The drawings 1 and 2 show the towrope position for the operation and the fastening points: coupling and harrow-scraper support.

Pay attention with the operations. They must be done by responsible and experienced people.

To avoid serious damage, do not stay under the machine during the operation.



4. SOWING ESSENTIAL CONCEPTS

4.1 SOIL



TO HAVE THE BETTER QUALITY OF SOWING, IT IS VERY IMPORTANT THE SOIL CONDITION. OVER BIG PATCH OR VARIABLE FURROW IT IS NOT POSSIBLE TO DO A GOOD WORK. ALTHOUGH SOLÀ MACHINES ARE ABLE TO TAKE HARD EFFORTS IN EXTREME CONDITIONS, SOWING WILL HAVE NOT GOOD QUALITY IF THE SOWING LAND HAS NOT GOOD CONDITIONS.

4.2 SEED



IT IS VERY IMPORTANT USE QUALITY AND CLEAN SEED. WHEN SOWING BARLEY, USE TRIMMED ONE.

4.3 DEPTH

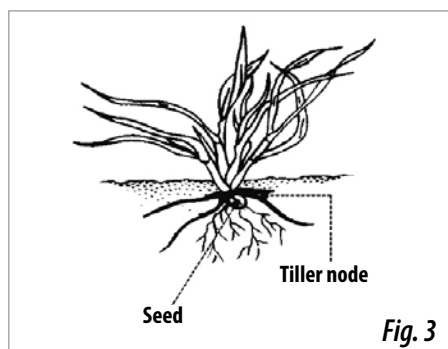


THE SUGGESTED SOWING DEPTH IS FROM THREE TO FIVE CENTIMETRES. TO DEEPEN MORE IS AN ERROR, AS THE RIZOME COULD NOT GET THE SURFACE, RESULTING IN THE PLANT'S DEATH. IT DOES NOT MATTER IF SOME GRAINS ARE VISIBLE: THE SPRING HARROW WILL COVER THEM.

Sowing depth has influence in the birth and vigour of the plant and consequently in its resistance to both frost and drought. The sprouting node will be always between 1 or 2 cm under the surface, independently of the sowing depth.

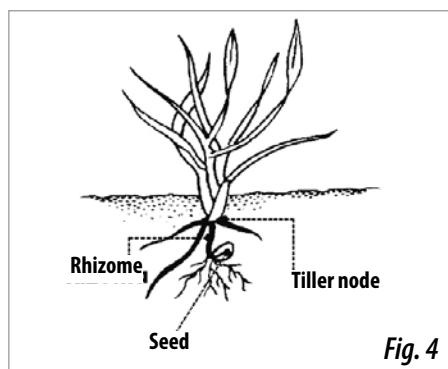
Deeper sowing does not mean deeper roots. Only a few roots arise from the bottom of the seed. The main root mass is born from the sprouting node, just under the ground level.

SOWING ESSENTIAL CONCEPTS



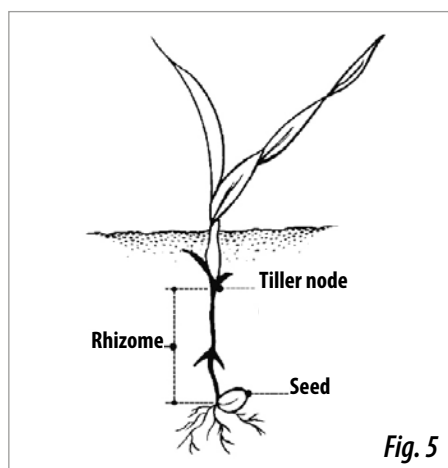
Sowing depth 2 to 4 cm

- Thick stem, short rhizome, good freezing endurance
- Multiple sprouting, 3 to 6 shoots and a lot of blades (6 to 10)
- Big tuft of roots, 5 cm wide and 10 to 12 cm deep
- With less grains per square meter, we obtain more ears



Sowing depth 5 to 6 cm

- Thin stem, rhizome exposed to freezing
- Delayed and poor sprouting, one shoot (sometimes none) not many blades, 3 or 4
- Medium tuft of roots, 3 cm wide and 5 cm deep
- We need more grains per square meter to obtain the same quantity of ears as in the first case



Sowing depth 8 to 10 cm

- Very thin stem. No sprouting and a single blade
- The grain reserves become depleted by forming a large rhizome that can be easily cut off by ice
- Poor tuft of roots, just 1 cm wide and 3 cm deep.
- We need twice the grains per square meter to obtain the same quantity of ears as in the first case

ADVERTENCIA



IN VERY COLD AREAS, SUCCESSIVE FROSTS MAY CAUSE SOIL SURFACE FLUFFING UP, INVOLVING THE RISK OF RELEASING THE INCIPIENT PLANT ROOTS AND CAUSING ITS DEATH.

TO AVOID THIS DANGER, IT IS RECOMMENDABLE TO DEEPEN MORE THE SEED OR TO PASS A ROLLER IN ORDER TO COMPACT THE LAND AFTER SOWING.



IN ALL SOLÁ MACHINES, THE SEED DISTRIBUTOR SPEED VARIATOR IS ACTIVATE BY THE RIGHT WHEEL. BENDS MUST BE DONE COUNTERCLOCKWISE, AS TURNING AROUND THE DRIVE WHEEL WILL CAUSE A LOWER DISTRIBUTION OF SEED.



ONCE THE MACHINE IS WORKING, SEED WILL NOT BE DELIVERED IN THE FIRST GROOVE METER. ON THE CONTRARY, WHEN THE MACHINE STOPS, THE REMAINING GRAIN INSIDE THE PIPES WILL SLIDE DOWN AND PILE UP.



WORK ALWAYS AT A REGULAR SPEED. HARD BRAKES AND SUDDEN ACCELERATIONS RESULT IN IRREGULAR SEED DISTRIBUTION.

4.4 SEED DOSE ADJUSTMENT

With current use of high quality certificated seed, it is not enough to set the weight that has to be distributed by the seed drill, since the success of the harvest depends on the number of plants that reach complete ripeness.

Each plant requires its living space from which feeds on. In this way, as poor could be an high plant density as a low. To decide the adequate dose, we must know the number of plants per square meter we are going to sow.

Orientatively, the plant number recommended for wheat and barley in dry land is as follows:

AUTUMN:	Early sowing 200 plants per m ²
	Late sowing 265 plants per m ²
SPRING:	Early sowing 310 plants per m ²
	Late sowing 445 plants per m ²

Notice that, in spring, sprouting is always lower and, consequently, more seed is needed to obtain the same results that in autumn.



MAQUINARIA AGRÍCOLA SOLÀ, S.L., THINKS THAT IS RECOMMENDABLE TO SEED ADVICE ABOUT RECOMMENDED DOSIFICATION IN SOME TECHNICAL SOWING CENTER.



THE SEED DOSE MUST BE ADJUSTED TO EACH SOIL DEPENDING ON ITS TEXTURE, FERTILIZATION LEVEL, DAMPNES AN SOWING TIME, GRAIN QUALITY, GERMINATIVE VALUE, ETC.

Moreover, it must be took into account that the maximum germinative value is variable and depends on a lot of factors. Experimentally, it can be established between 70% and 80%, that is equivalent to multiply by 1,43 and 1,25 respectively the number of grains needed.

Find as follows a method to determine the kgs per hectare to sow starting from plants per square meter we want obtain.

1) Introduce «grain counter» in the seed bag. Then, verify that in each hole we have only one seed (100 grains in total). Repeat the operation 10 times (you will obtain 1000 grains). If the machine is type TRI-294/R-ESP , the operation will be manual.

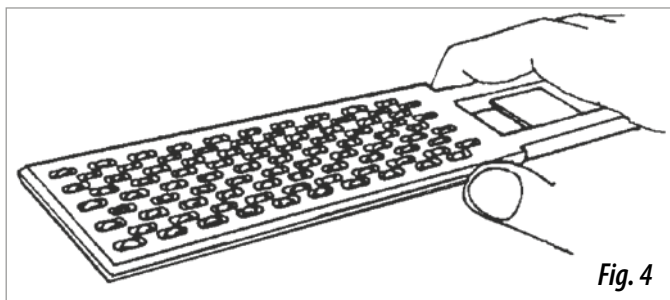


Fig. 4

2) To weight the 1000 grains in the precision weighing machine. The weight will be the OPERATIVE WEIGHT.

3) When we know the grains per square meter to sow, the kgs per hectare to adjust in the dosage control are:

$$\text{KILOS PER HECTARE} = \frac{\text{(grains per m}^2 \times \text{OPERATIVE WEIGHT)}}{100}$$

5. STARTING OPERATION

5.1 COUPLING

The machines are equipped with a quick coupling device to the tractor hydraulic lifter. The pulling bar allows the machine adjustment to terrain unevenness. For uncoupling, with the machine lifted, open bot blocks (1, fig. 5), and fix (2, fig. 5) from lever (3, fig. 5) to axle of Ø16 mm (4, fig. 5).

When the tractor arms are too short, it is necessary to place the AUTOMATIC COUPLING, that place on the same time the three points of the elevator and hold up 12 cm the machine from the tractor.

All the machines are fitted with a support for transport securement. Do not forget to dismantle this support before working.

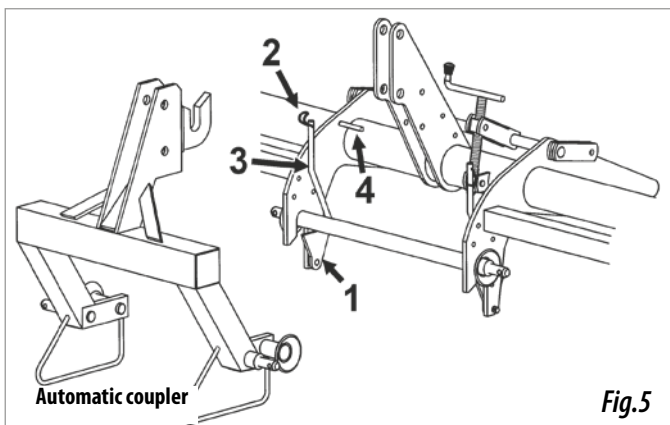


Fig.5



VERIFY THAT NOBODY IS BETWEEN THE SEED DRILL AND THE TRACTOR DURING COUPLING OPERATIONS.

5.2 DISPENSER MECHANISM

Solà dispenser roller can be adjusted with two working positions:

- Narrow cog with small teeth for small seed (fig. 6).
- Wide cog with large alternated teeth for normal and big seed (figs. 7 and 8).

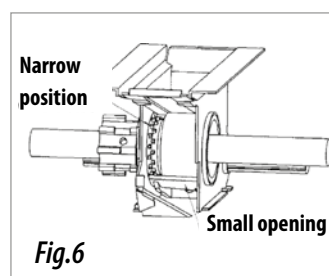


Fig.6

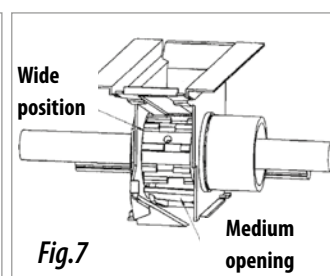


Fig.7

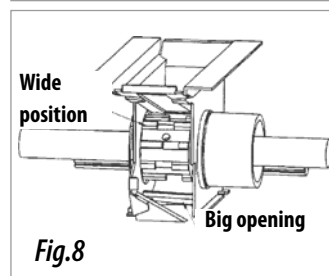


Fig.8

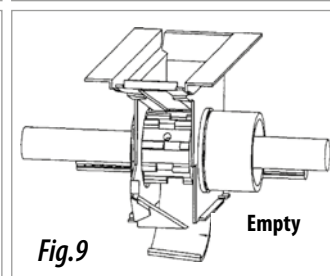


Fig.9

The seed mobile bottom has two objectives:

- To adjust the lower seed dispenser opening according to the grain size (figs. 6, 7 and 8).
- Open the distributor system to empty the hopper (fig. 9).



WHEN SHIFTING THE SEED DISPENSER ROLLER BETWEEN NARROW AND WIDE POSITIONS, MAKE SURE THE ROLLER IS EMPTY.

Once the seed dispenser roller position (wide or narrow) is decided and the mobile bottom adjusted, the seed flow depends only on the rollers turning speed.

The seed speed variator accomplishes this mission, by allowing to deliver from 0 to 600 kg/ha, with rigorous precision.

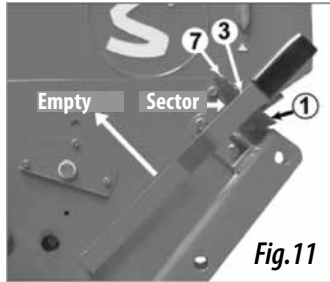
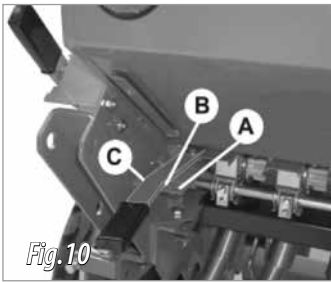
STARTING OPERATION

5.3 SEED DOSAGE

Verify that the seed dispenser trapdoors are opened and allow the seed flow. **Before filling the hopper, attach the agitator to the seed speed variator axle.** Make sure that there are no strange bodies in the hopper.

Place the position lever of the dispensers:

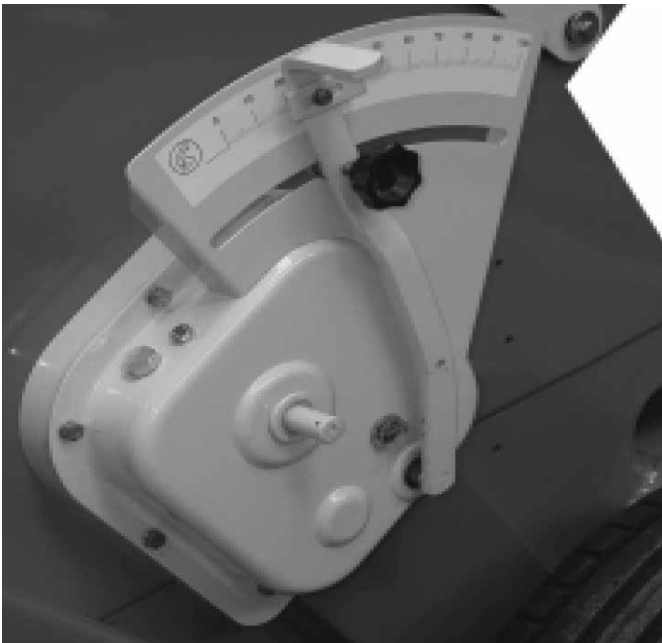
- A. RIGHT, WIDE COG FOR WHEAT, BARLEY, ETC. (FIG. 10)
- B. CENTRE, MEDIUM COG FOR SUNFLOWER, PEAS, ETC. (FIG. 10)
- C. LEFT, NARROW COG FOR LUCERNE, RAPE, ETC. (FIG. 10)



Place the mobile bottom lever (on the left side of the hopper) on the sector of 7 positions:

- N° 1, FOR SMALL SEED (FIG. 11)
- N° 3, FOR WHEAT AND BARLEY (FIG. 11)
- N° 5, FOR BIG SEED

To empty the hopper, place the plate under dispensers and take the lever to the front further on number 7. (fig. 11)

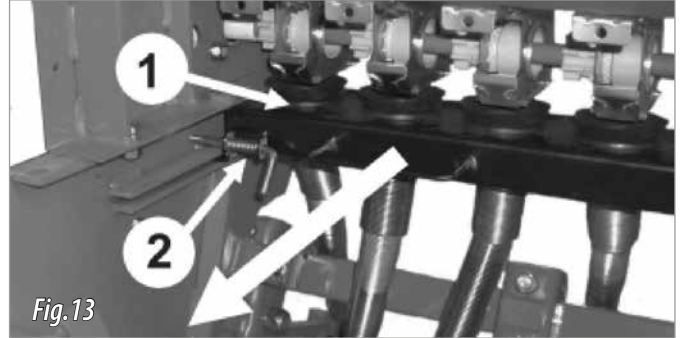


Finally, select the seed speed variator, place the lever on the sector from 0 to 100 and fix again on the number selected (fig.12). See the tables (pgs. 38-41).

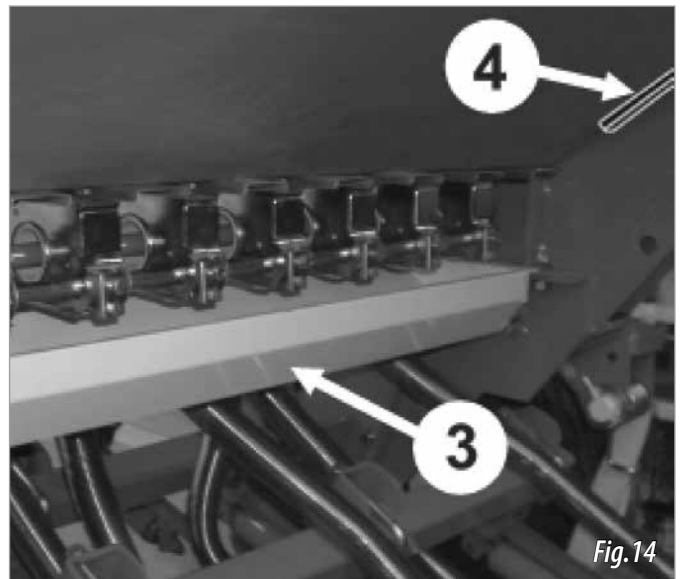
5.4 SEED CONTROL

Once the dispensers position is correct, the mobile bottom opening and the variator lever, it is very important and necessary to test the seed dose.

FIRST: slide the distribution bar (1, fig. 13) along its rails by releasing the clamps (2, fig. 13) just in the correct position in order to place the plate.



SECOND: slide the plate (3, fig. 14) from the transport position (4, fig. 14) under the dispensers. Machine TRI-294/R-ESP does not fitted with the plate. In this case you must use a plastic film under the dispensers to collect the seed.



THIRD: place the shaft lever (1, fig. 15) in its place (2, fig. 15) on the right wheel and give some clockwise turns to the driving wheels, until some seed is delivered. Collect up the seed and return it to the hopper. The machine is ready for the real test. If your machine is TRI-294/R-ESP type, you will have to turn manually.

TYPE	WHEELS 6.00-16	WHEELS 10.80-12
250	44 turns	46 turns
300	36,5 turns	38 turns
350	31,5 turns	33 turns
400	27,5 turns	29 turns

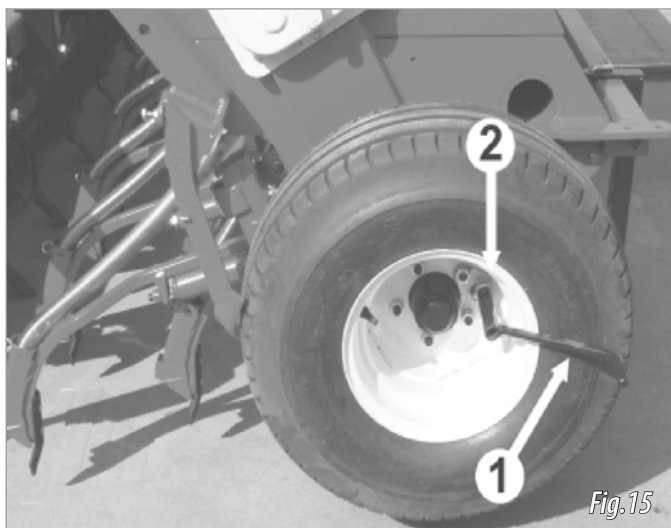


Fig. 15

Give the turns indicated in the table above, approximately on turn per second. The number of turns may vary depending on the soil conditions, the wheel manufacturer or the tyre pressure. It is very important to do a land test as you have in the 5.5 part of this booklet.

After, collect and weight up the delivered seed in the plate or in the plastic film. Multiplying the result by 40 we obtain the kgs per hectare that the machine will distribute.

To realise these operations, it is very important that the machine is coupled to the tractor and slightly lifted (the wheels must turn freely), and it is also recommended to fill only half-hopper in order to make possible the wheel turning.

If the seed has an excess of preservation powder it may result in a flow decrease. So, it is recommendable to do a second dose test after having sow three or four hoppers.



BE CAREFUL WITH THE WHEEL.
YOU COULD DAMAGE WITH THE WHEEL SCRAPER.

5.5 LAND TEST

If it seems that there are significant differences between the dose test and the actual dispensed dose, due to an irregular or soft terrain, a field test can be performed.

First, with a measuring tape, signpost the test distance in meters in the plot of land that is to be sown.

MACHINE TYPE	DISTANCE (M)
250	100,0
300	83,3
350	71,4
400	62,5

Second, with the seed drill in working position, cover that distance. Count the wheel turns needed to complete the path. Put a mark on the tyre to make this easier.

With these operations we will obtain the turns number for the seed test. If we do the test with this turn number, we are going to obtain the kgs per hectare delivered by the seed drill.

5.6 COMBINED DISTRIBUTION

Combined dispensers are one part by stainless steel and another part in Delrin.

Seed distribution roller is the same than the seed drill dispenser (see 5.2) and the fertilizer dispenser has constant step, fitted on hexagonal axle, to make easy to dismantle, without tools.

The fertilizer mobile bottom its a detachable stainless steel cover, this allows fertilizer roller cleaning (fig. 16).

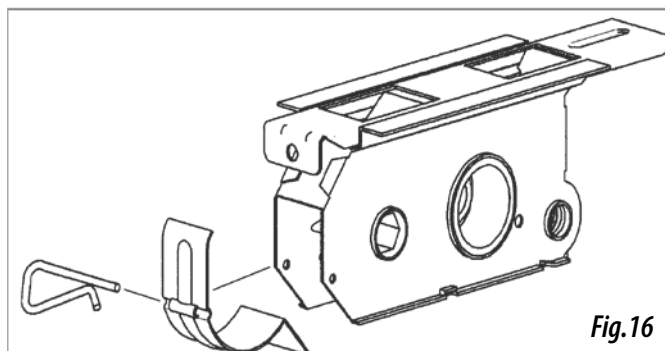


Fig. 16

5.7 COMBINED HOPPERS

Combined hopper has two compartments: back compartment for seed (1, fig. 17) and the front compartment for fertilizer (2, fig. 17). The fertilizer compartment has a mesh cover (3, fig. 17) in order to avoid strange bodies, like stones, damaging the dosage mechanism.

Each compartment is fitted with its own flow control device.

The fertilizer compartment has a folding device (4, fig. 17) to avoid the fertilizer overflowing between the hopper and the cover. This folding device is not fitted with the machine TRI-294/R-ESP.

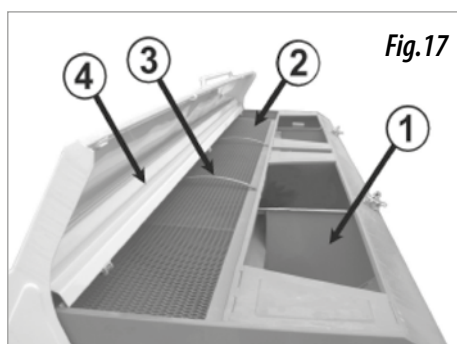


Fig. 17

STARTING OPERATION

5.8 COMBINED DOSAGE

On the combined machines, dosage and seed control is the same to the seed drills.

The fertilizer dosage has to be done by means of the fertilizer variator placed on the left side of the machine (fig. 18), positioning the lever on the graded scale from 0 to 50 and fixing it on the number selected in the dosage tables (page 42).

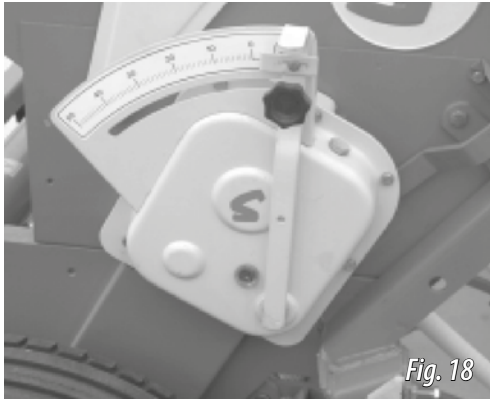


Fig. 18

These tables are for guidance only. The fertilizer density can vary depending on manufacture process. So, we recommend to carry out a fertilizer dose test likewise that of the seed:

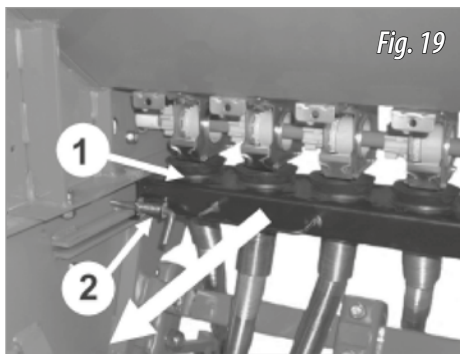


Fig. 19

FIRST: slide the distribution bar (1, fig. 19) along its rails releasing the clamps (2, fig. 19), in the working position in order to place the plate.

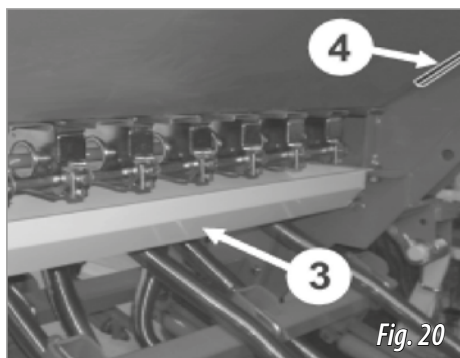


Fig. 20

SECOND: slide the plate (3, fig. 20) from the transport position (4, fig. 20) and place it under the dispensers. Machine TRI-294/R-ESP does not fitted with the plate. In this case, use a plastic film to collect the seed.

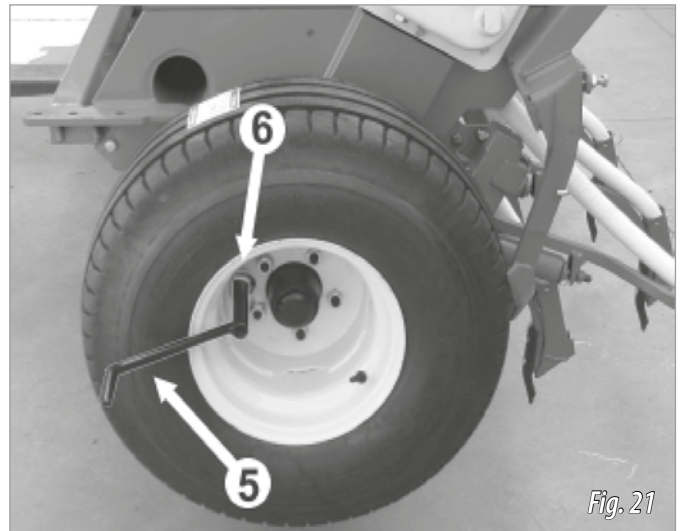


Fig. 21

THIRD: place the lever (5, fig. 21) in its place (6, fig. 21) on the left wheels and five some clockwise turns to the driving wheel, until some seed is delivered. The machine TRI-294/R-ESP does not fitted with the lever, you will have to turn manually. Collect up the fertilizer and return it to the hopper and and give the turns as follows:

TYPE	WHEELS 6.00-16	WHEELS 10.80-12
250	44 turns	45 turns
300	36,5 turns	37,5 turns
350	31,5 turns	33 turns
400	27,5 turns	29 turns

The fertilizer collected, multiplied by 40, are the fertilizer kgs per hectare that the machine will distribute with the lever in the sector choosed. It is very important to do a precision test with the fertilizer, to verify the fiability level of the table. (pag. 42).



BEWARE OF GETTING INJURIES FROM THE SCRAPER WHEN TURNING THE WHEEL.



OPTIONALLY, COMBINED MACHINES CAN BE DELIVERED WITH ONE OR TWO SEED AND FERTILIZER TUBES.

IN THE DOUBLE TUBE OPTION AND WITH WET WEATHER, IT IS VERY IMPORTANT TO CLEAN DE FERTILIZER COMPARTMENT OF THE NOZZLE, IN ORDER TO AVOID THE BLOCKAGE DANGER.

IT IS IMPORTANT TO CLEAN WITH PLENTY OF WATER NOZZLES, PIPES AND COULTERS FOR PREVENTING RUST.

5.9 ARMS ADJUSTMENT

5.9.1 TRI 294/R - HEIGHT AND DEPTH

We can adjust each arm, working(A, fig. 22) on two bolts. On wet and soft lands, the mark of the tractor wheel waits on the soil. It is very important adjust with more pressure in the coulters that coincide with the wheels and to elevate the coulters of the centre.

With track breakers arms is not necessary to adjust it.

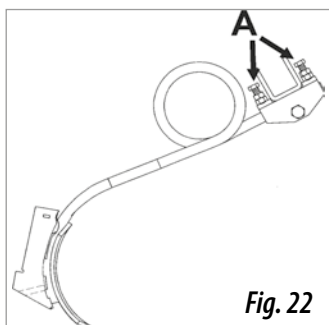


Fig. 22

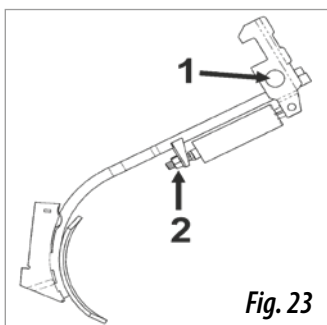


Fig. 23

5.9.2 TRI 194/R - CONSTANT ADJUSTMENT

To adjust the arm fixing to the support by a special bolt SOLÀ (1, fig. 23) fitted with autoblocking bolt.

Working on this bolt we can control the lateral position. The arms will be always in good position. pre perfectamente ajustados. Para To adjust the coulter pressure, we must work on the coulter strut (2, fig. 23).

5.10 LEVELING AND DEPTH CONTROL

We can adjust the arms depth by a central bolt (1, fig. 24). Before, we inform you about the way to adjust the arms.

The machine has to work with the hopper in a flat position. The oscillating arrow has to coincide with the mark (2, fig. 24). We can adjust the position with the tractor hydraulic elevator.



Fig. 24

5.11 WHEEL SCRAPERS

We can adjust the scrapers by a bolt placed in the superior part of the arm (does not fitted in type ESP).

Some times, when the machine is lifted to the tractor, the wheels are turning because of its fitting with bearings, and the seed goes on falling.

To avoid this, we can adjust the scraper bolt in such a way that touch lightly the wheel. This small brake is enough to avoid the wheels turning.

BLOCKING: in wet and clayey land it can be interesting to block the scrapers, blocking the spring joint.

We can place a bolt in the borer coincidence of the scrapers and its support.

6. OPTIONAL EQUIPMENT

6.1 TRACK ERASERS

Track erasers are the best and effective option to erase the tractor tracks. We can adjust the four arms in height and length depending of vehicle width.

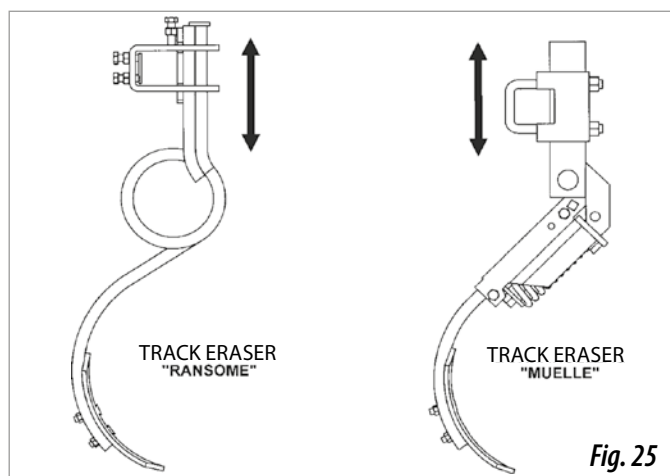


Fig. 25

6.2 LEVELER

The leveler adjusts the land roughness.

The regularity in the land makes easy the seed deposition to the correct depth. With two springs (A, fig. 26) we can adjust the pressure.

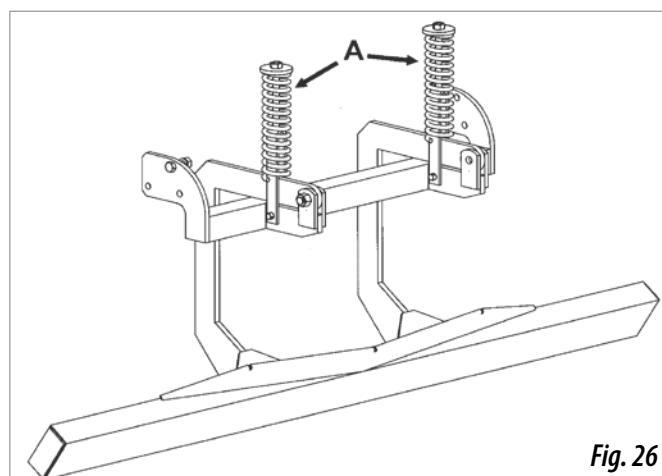


Fig. 26

OPTIONAL EQUIPMENT

**6.3 HARROW WITH FLEXIBLE TINES.
TYPE EPI-6 AND EPI-7**

The seed drill TRI is supplied with a parallelogramic spring harrow. The springs are double-toothed(3, fig.27) in order to cover the furrow with the taken out soil.

Adjusting the upper bolts of both arms, the working pressure is (1, fig. 27) increased or decreased. Adjusting the lower bolts (2, fig.27), modifies working depth.

The parallelogramic articulation achieves an excellent adaptation of the double-toothed springs to the terrain unevenness, vertically and horizontally.

Always you must order original SOLA tines, they have had a strict quality control.

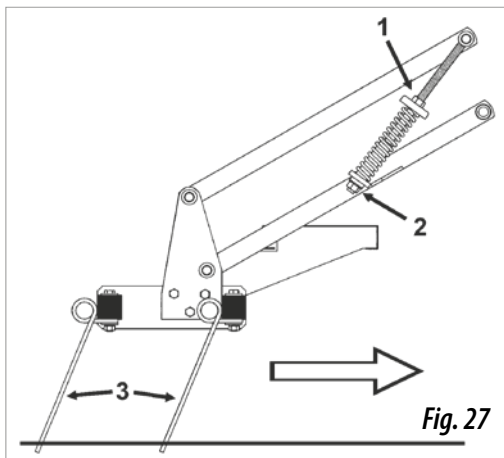


Fig. 27



IT IS FORBIDDEN TO RIDE ON THE HARROW WHEN THE MACHINE IS WORKING.

6.4 SPRING HARROW. «E» TYPE

The seed drill TRI-294/R-ESP can be delivered with flexible tines harrow. Double tines springs (3, fig. 28) help to cover the furrow with the taken out soil.

Adjusting the upper bolts of the arms, the working pressure is (1, fig. 28) increased or decreased. Adjusting the lower bolts (2, fig. 28), we can modify the working depth.

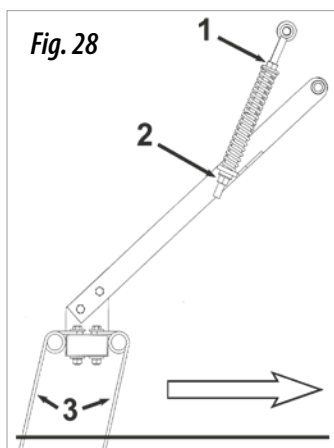


Fig. 28



IT IS FORBIDDEN TO RIDE ON THE HARROW WHILE SOWING.

6.5 DISC MARKERS

6.5.1 HYDRAULIC DISC MARKERS

Place the markers by three bolts on the platen placed in the machine lateral.

The working cylinder must be connect to a double effect device in order to control the arms position. When one arm is in vertical position, the other is in working position.

The cylinders have a throttle inside in order to slow down the track markers lift.

Verify, before to working, that the track marker goes fine.

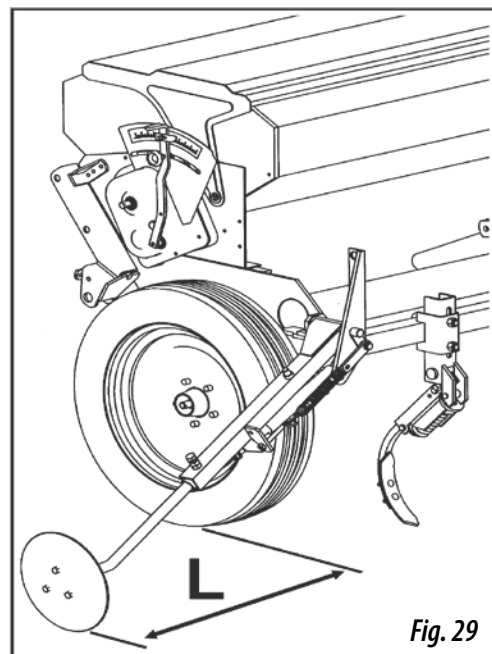


Fig. 29

Track markers arms are extensible in order to adjust them and the disc can be adjusted in order to obtain the correct position.

For the hydraulic action, we can obtain a supplementary springs in order to adjust the disc pressure on the land.

To calculate the distance between the disc and the wheel exterior part (L, fig. 29) we can apply the following formula:

$$L = \text{seed drill working width} - \frac{\text{front line tractor width} + \text{machine total width}}{2}$$



PRESSURE OIL CAN BE PENETRATE IN THE SKIN. DANGER OF SERIOUS DAMAGES. KEEP THE TUBES, PIPES, IN GOOD CONDITIONS.



NEVER PLACE IN THE FOLDING RACE OF THE MARKERS.

To circulate with the machine by the road, it is very important circulate with the markers in vertical position, fixed with the clamp to avoid their descent during the transport (fig. 30).

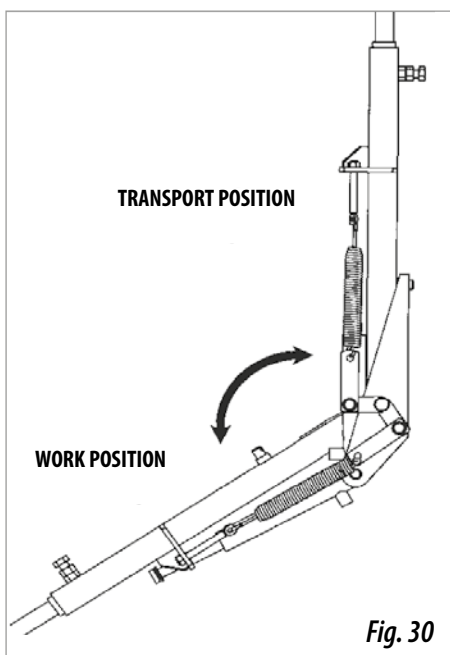


Fig. 30



PAY ATTENTION WITH HYDRAULIC TUBES.



IT IS NOT CONVENIENT TO EXCEED WITH THE SPRING PRESSURE AND VERIFY THE DISC POSITION TO AVOID DAMAGES.

6.5.2 MECHANICAL DISC MARKERS

Mechanical disk markers are assembled on both sides of the machine. Its operation is by cables (A and B, fig. 31), by a central control (C, fig. 31), fitted to the machine tripod. (D, fig. 31).

Track markers activation is alternative changing the position of the control lever (C, fig. 31).

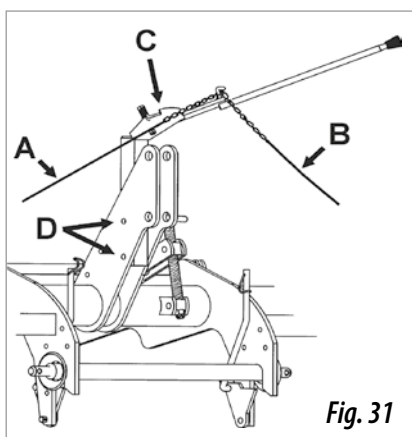


Fig. 31

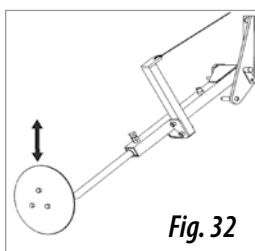


Fig. 32

6.6 HECTARE COUNTER

The hectare counter is placed on the right side of the machine under the seed speed variator. It must be fitted in the (A, fig. 33) shaft that juts out the seed speed variator and screwed in the M-8 thread hole.

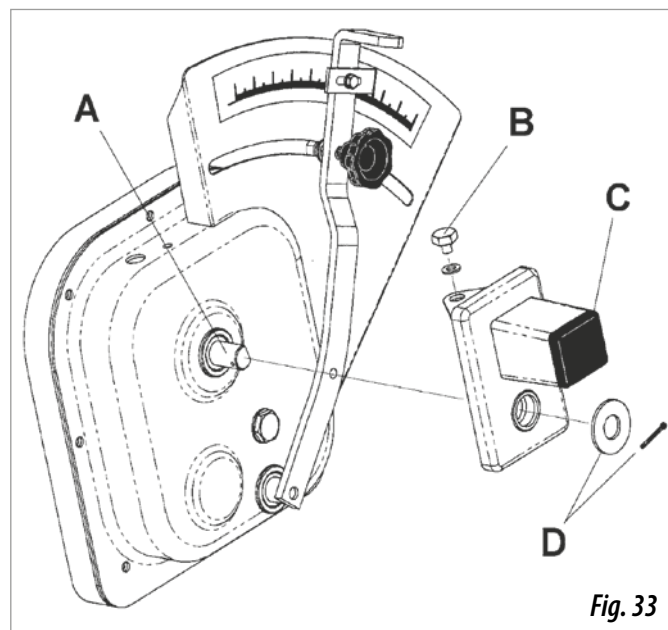


Fig. 33

A special non-trapping screw (B, fig. 33) is supplied together with the hectare counter.

Removing the black lid (C, fig. 33) from the transparent box, the initializing command will be accessible.

Finally, fit a washer and its pin at the end of the variator shaft (D, fig. 33). Make sure that the pin doesn't brush against the hectare counter box.

Hectare counter «SOLÀ 90» has direct scanning (in both hectare and square meters). Transmission gears are specific for each machine, as follows:

MACHINE	MOTOR PINION	DRIVED PINION
250	Z-28	Z-65
300	Z-32	Z-61
350	Z-34	Z-59
400	Z-37	Z-56



IF THE HECTARE COUNTER IS NOT SUPPLIED WITH THE MACHINE IT IS VERY IMPORTANT TO VERIFY IF THE GEARS ARE CORRECT.

6.7 CULTIVATOR

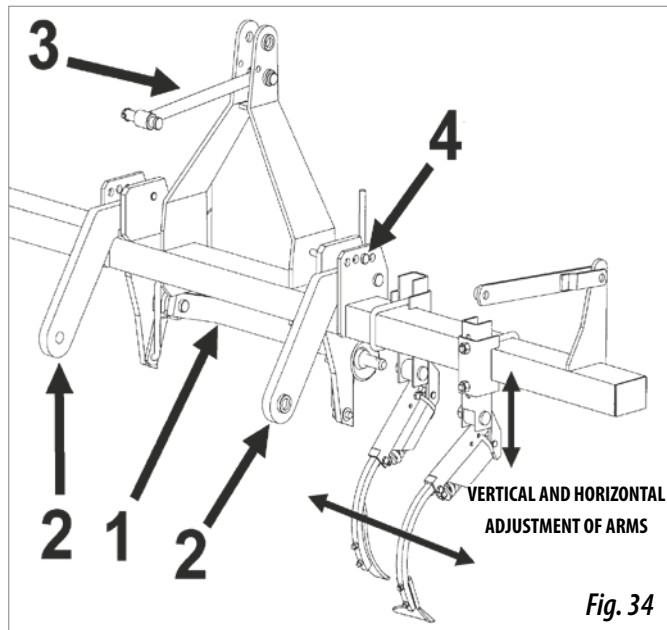
The cultivator is an optional equipment for the soil preparation before sowing. It is fitted between the tractor and the seed drill. The joint with the first is an coupling bar (1, fig. 34) and with the second by two coping arms (2, fig. 34) and a strut (3, fig 34) that links the two coping points of the tripods of the machine and the cultivator.

MAINTENANCE

The cultivator working must be superficial, excepting for the arms placed on track marks that must be adjusted to erase the track markers. Each arm can be adjusted in horizontal and vertical way.

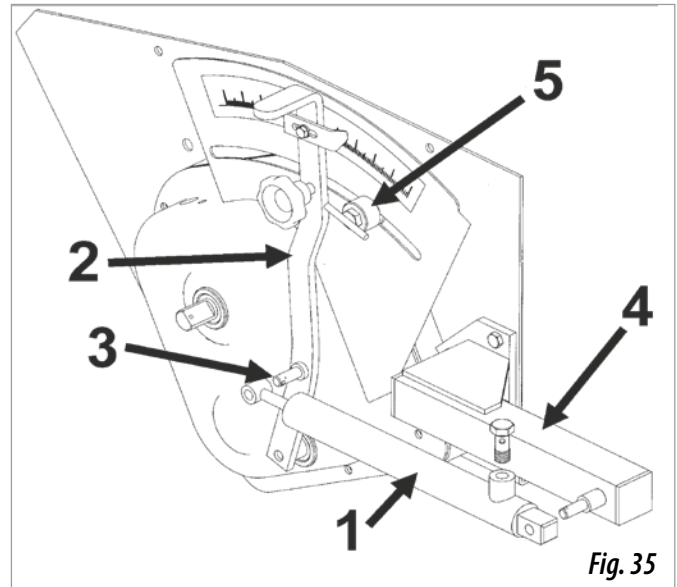
The cultivator can be adjusted for four different working depth, limiting the coupling arms with a bolt (4, fig. 34).

The cultivator has a lateral movement and the height is independent on the seed drill. It is possible to elevate it while the seed drill rests on the soil.



(circuit with pressure) and «sowing» (circuit without pressure). This one is the seed or fertilizer dose that we have selected placing a stop (5, fig.35) in the scale.

The cylinder (1, fig. 35) is fitted in the variator lever (2, fig. 35) by a bolt (3, fig. 35) and in the side of the machine with a support (4, fig. 35). The cylinder goes with a small belt to connect to a tractor pressure exit of 1/2".



6.8 VARIATOR HYDRAULIC CONTROL

Both variators can be fitted with hydraulic controls for the distance work.

The control is fitted with a simple effect hydraulic cylinder with return spring, that works the variator lever on the positions «closed»



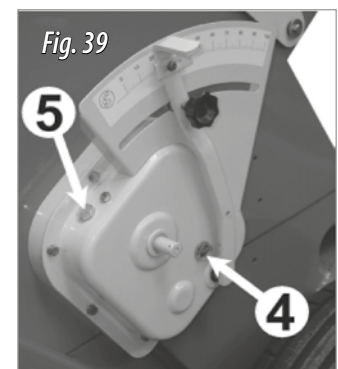
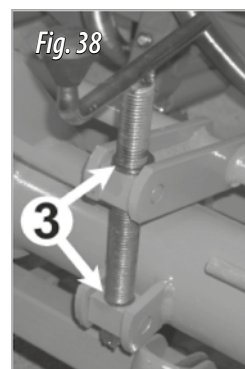
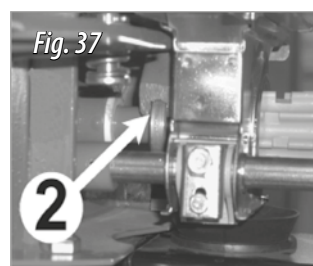
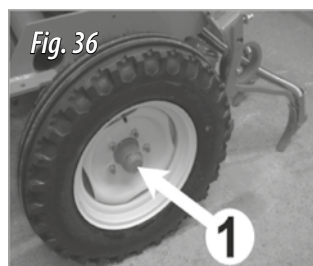
PRESSURE OIL CAN PENETRATE IN THE SKIN AND TO CAUSE DANGEROUS DAMAGES. PAY ATTENTION WITH TUBES AND PIPES.

7. MAINTENANCE

7.1 GREASING

Grease regularly the following parts: Wheel axles, removing the pressure tap. Calcic dense grease (1, fig 36).

Wide-narrow switching roller. Calcic dense grease. (2, fig. 37)



Arms pressure central spindle. Calcic dense grease (3, fig. 38).

Verify variator oil level through the spyhole (4, fig. 39) and if necessary remove the plug and refill with SAE 30 oil (5, fig. 39)



DO NOT GREASE THE DISPENSERS.

7.2 TYRE PRESSURE

The following data is corresponding with the full-load pressure prescribed by the tyre manufacturer.

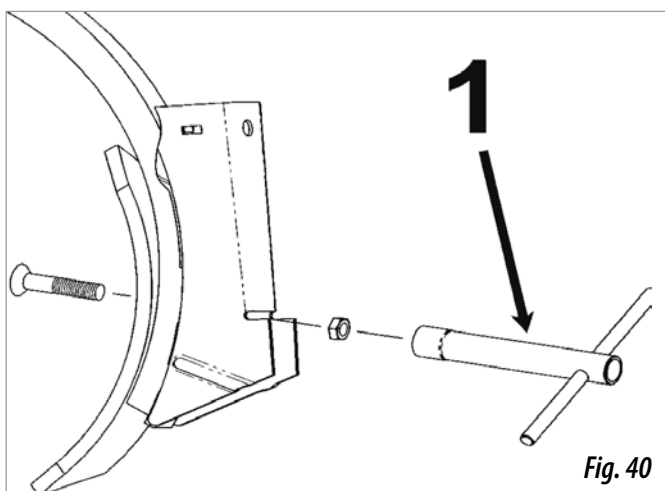
Tyre 6.00 -16 --- 3,75 kg/cm²
 Tyre 10.80 -12 --- 3,75 kg/cm²

Generally, in poor prepared soils, we recommend to reduce a bit the pressure in order to overcome the terrain irregularities and achieve more sowing regularity.

7.3 NUTS AND BOLTS

After some working hours, all bolts must be inspected and tightened if necessary, specially those tying the coulter.

For these bolts, a special tube key (1, fig. 40), is supplied with the machine.



7.4 ANTIOXIDE CONTROL (COMBINED MACHINE)

Once the sowing season is finished, antioxidant maintenance must be carried out as follows:

- a) Dismantle the pipes, the nozzles and dispenser stainless-steel covers. Clean them thoroughly.
- b) Wash with water jet the whole machine, specially inside the hopper and the dispensers (with the covers removed). Turn the left wheel so that the fertilizer rollers 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.

7.5 PROBLEMS SOLUTION

Sometimes and working with the machine, you can have some problems. Find as follows the problems more usual problems.

Problems with distribution system:

- Verify there are not strange elements into the distributors.
- Verify the distributors exit trap-doors. Trap-doors must be totally open.
- Verify the trap-doors are in the correct position.
- Verify the distribution rollers. They can be damaged.
- Avoid to work in very closed circles: it could produce a bad seed distribution.

The dose is not correct (it is inferior).

- Please, follow the booklet instructions to adjust the dose.
- Pay attention with the pressure wheels, wheel sliding on the land, etc.
- If the driving wheel do not touch the soil, verify the tractor hydraulic arms are well adjusted.
- Verify the connection fastener between the variator and the distributor axle.
- Wheel scrapers can brake the drive wheel.
- Verify the transmission device: bushing tooth, chain and variator pinion.
- After doing all the checking and the problem exists, please ask your SOLÀ dealer. Do not try to repair the variator.

8. DOSAGE TABLES



THE QUANTITIES YOU HAVE FOUND IN THE TABLES ARE FOR GUIDANCE ONLY. THE FLOW CAN VARY DUE TO PRESERVATION POWDER, SEED SIZE, DENSITY AND HUMIDITY.



TO DO A PRECISION SOWING, PLEASE FOLLOW THE PROCESS DESCRIBED IN SECTIONS 5.4 AND 5.5 YOU CAN FOUND IN THIS MANUAL.



AS A GENERAL RULE, SMALL GRAIN NEEDS LESS OPENING THAN THE BIG, ROUND GRAIN NEEDS LESS OPENING THAN LENGTH AND LIGHT GRAIN NEEDS MORE OPENING THAN THE HEAVY.

8.1 SEED DOSAGE TABLE (KG/HA)

TRI-194/R Y TRI-294/R WHEELS 6.00-16

Adjust lever	WHEAT		BARLEY		TRITICALE		PEANS		BEANS		RAPE		SAINFOIN		VESCE		RAY-GRAS		LUCERNE		SPINACH	
	12	13,5	12	13,5	12	13,5	24	27	12	13,5	24	27	12	13,5	12	13,5	12	13,5	12	13,5	12	13,5
Arms dist. (cm)																						
14																						
16																						
18																						
20	89	78	69	61	67	59	46	40	136	120	7.0	6.2	40	35	128	113						
22	100	88	77	68	74	65	51	45	152	134	8.5	7.5	44	39	148	130						
24	111	98	85	75	82	72	55	48	168	148	9.7	8.5	49	43	163	143						
26	120	106	95	84	89	78	61	54	192	169	10.7	9.4	55	48	178	157						
28	132	116	103	91	98	86	67	59	210	185	12.4	10.9	61	54	201	177						
30	140	123	113	99	106	93	74	65	228	201	14.1	12.4	68	60	222	195						
32	147	138	120	106	116	102	77	68	248	218	15.3	13.5	7	68	233	205						
34	158	143	130	115	127	112	82	72	265	233	16.8	14.8	84	74	257	226						
36	168	148	140	123	139	122	88	77	288	253	18.8	16.5	94	83								
38	177	156	148	130	148	130	92	81			20.5	18.0	98	86								
40	188	165	157	138	157	138	97	85			22.6	19.9	105	92								
45	210	185	177	156	173	152	101	89			24.7	21.7	117	103								
50	232	204	195	172	189	166	110	97			27.7	24.4										
55	255	225	224	197	208	183	115	101														
60	277	244	235	207	226	199	124	109														
65	300	264	255	224	244	215	152	134														
70	324	285	273	240	263	231	165	145														
75	347	305	293	258	281	247	176	155														
80	370	326	310	273	299	263																
85	390	343	330	290	316	278																
90	411	362	347	305	335	295																
95	433	381	366	322	353	311																
100	457	402	384	338	373	328																
dispenser position	wide		wide		wide		wide		wide		narrow		wide		wide		narrow		narrow		narrow	
Mobile bottom lever position	3		3		3		4		5		1		2		3		1		1		1	
1000 grains operative weight	40 g		46 g		30 g		293 g		530 g		--		19 g		44 g		--		--		12 g	

8.2 SEED DOSAGE TABLE (KG/HA)

TRI-194/R Y TRI-294/R WHEELS 10.80-12

Adjust lever	WHEAT		BARLEY		TRITICALE		PEANS		BEANS		RAPE		SAINFOIN		VESCE		RAY-GRAS		LUCERNE		SPINACH	
	12	13,5	12	13,5	12	13,5	24	27	12	13,5	24	27	12	13,5	12	13,5	12	13,5	12	13,5	12	13,5
Arms dist. (cm)																						
14																						
16																						
18																						
20	90	79	70	62	68	60	46	41	139	122	7.2	6.3	40	36	131	115			23.1	20.3	10.6	9.4
22	102	89	79	69	75	66	52	46	155	136	8.7	7.6	45	40	150	132			26.5	23.3	12.7	11.2
24	113	100	87	76	83	73	55	49	171	150	9.8	8.6	50	44	165	145			28.5	25.1	14.2	12.5
26	122	108	97	85	90	79	62	55	195	172	10.9	9.6	55	49	181	160	10.3	9.0	31.2	27.4	15.9	14.0
28	134	118	105	92	99	87	68	60	214	188	12.6	11.1	62	55	204	180	11.4	10.1	35.5	31.2	17.7	15.6
30	142	125	114	101	107	95	75	66	232	204	14.3	12.6	69	61	225	198	12.7	11.2	38.1	33.5	19.4	17.1
32	150	132	122	108	118	104	79	69	252	222	15.6	13.7	79	69	237	208	14.2	12.5	41.6	36.6	21.3	18.7
34	161	141	132	116	129	114	83	73	269	237	17.1	15.0	86	75	261	230	15.4	13.5	45.0	39.6	22.9	20.1
36	171	150	142	125	141	124	89	78	292	257	19.1	16.8	96	84			16.9	14.8	48.5	42.7	24.3	21.3
38	180	159	150	132	150	132	94	82			20.8	18.3	99	87			18.2	16.1	53.1	46.8	26.6	23.4
40	191	168	159	140	159	140	98	86			23.0	20.2	106	94			19.2	16.9	60.1	52.9	31.2	27.4
45	214	188	180	159	176	154	103	91			25.1	22.1	119	105			20.4	18.0	64.7	56.9	35.3	31.1
50	236	207	199	175	192	169	112	99			28.2	24.8					22.2	19.5	72.8	64.0	39.3	34.6
55	259	228	228	200	211	186	117	103									24.3	21.3	76.2	67.1	47.4	41.7
60	282	248	239	210	230	202	126	111									27.3	24.0	82.0	72.2		
65	305	268	259	228	248	219	155	136									32.3	28.5				
70	329	290	277	244	267	235	168	147									36.7	32.3				
75	352	310	298	262	285	251	179	158									46.2	40.7				
80	377	331	315	277	304	267																
85	396	349	335	295	321	283																
90	418	368	352	310	341	300																
95	440	387	372	327	359	316																
100	464	409	390	344	379	333																
dispenser position	wide	wide	wide	wide	wide	wide	wide	wide	wide	wide	narrow	narrow	wide	wide	wide	wide	narrow	narrow	narrow	narrow	narrow	narrow
Mobile bottom lever position	3	3	3	3	3	3	4	4	5	5	1	1	2	2	3	3	1	1	1	1	1	1
1000 grains operative weight	40 g	46 g	46 g	46 g	30 g	30 g	293 g	293 g	530 g	530 g	--	--	19 g	19 g	44 g	44 g	--	--	--	--	--	12 g

8.3 SEED DOSAGE TABLE (KG/HA)

TRI-294/R-ESP WHEELS 6.00-16

	WHEAT	BARLEY	TRITICALE	PEANS	BEANS	RAPE	VESCEE	RAY-GRAS	LUCERNE	SPINACH
Adjust lever	16 cm	16 cm	16 cm	32 cm	16 cm	32 cm	16 cm	16 cm	16 cm	16 cm
Arms dist. (cm)										
14					61,3	3,2	57,9		10,4	4,5
16					73,4	4,3	70,0		12,6	5,4
18					87,2	4,8	84,6		15,3	6,7
20	67,4	52,7	51,0	36,4	103,6	5,6	97,6		17,3	7,9
22	76,0	58,7	56,1	40,9	115,7	6,8	112,3		19,8	9,5
24	84,6	64,8	62,2	43,6	127,8	7,7	123,5		21,3	10,6
26	91,5	72,5	67,4	49,1	146,0	8,5	135,6	7,7	23,3	11,9
28	100,2	78,6	74,3	53,6	159,8	9,9	152,9	8,6	26,5	13,2
30	106,2	85,5	80,3	59,1	173,6	11,3	168,4	9,5	28,5	14,5
32	119,2	91,5	88,1	61,8	188,3	12,3	177,0	10,6	31,1	15,9
34	120,0	98,5	96,7	65,5	201,2	13,5	195,2	11,5	33,7	17,1
36	127,8	106,2	105,4	70,0	218,5	15,0		12,6	36,3	18,1
38	134,7	112,3	112,3	73,6		16,4		13,7	39,7	19,9
40	142,5	119,2	119,2	77,3		18,1		14,3	44,9	23,3
45	159,8	134,7	131,3	80,9		19,7		15,3	48,4	26,4
50	176,2	148,5	143,3	88,2		22,2		16,6	54,4	29,4
55	193,5	170,1	158,0	91,8				18,1	57,0	35,4
60	210,7	178,8	171,9	99,1				20,4	61,3	
65	228,0	193,5	185,7	121,8				24,2		
70	246,1	207,3	199,5	131,8				27,5		
75	263,4	222,8	213,3	140,9				34,6		
80	281,5	235,8	227,1							
85	296,2	250,5	240,1							
90	312,6	263,4	254,8							
95	329,0	278,1	268,6							
100	347,2	291,9	283,3							
dispenser position	wide	wide	wide	wide	wide	narrow	wide	wide	wide	narrow
Mobile bottom lever position	3	3	3	4	5	1	3	1	1	1
1000 grains operative weight	40 g	46 g	30 g	293 g	530 g	--	44 g	--	--	12 g

8.3 DOSAGE TABLE. FERTILIZER

FERTILIZER DOSAGE (KG/HA)

sector N°	TRI-194/R-294/R WHEELS 6.00-16		TRI-194/R-294/R WHEELS 10.80-12		294/R-ESP
	13,50 cm	12 cm	13,50 cm	12 cm	16 cm
0	0	0	0	0	0
2	31	35	32	36	27
5	80	91	82	93	69
7	120	136	123	140	104
10	172	195	177	201	149
12	222	252	228	259	192
15	275	313	283	322	238
17	329	374	338	384	284
20	386	439	397	451	333
22	439	499	451	513	379
25	498	566	512	582	430
27	551	626	566	643	476
30	614	698	631	717	530
32	658	748	676	768	568
35	721	819	741	842	623
37	763	867	784	891	659
40	825	938	848	964	713
42	858	975	882	1002	741
45	918	1043	943	1072	793
47	947	1076	973	1106	714
50	987	1122	1014	1152	852

The combined machine only admits granulated fertilizers.



WE SUGGEST TO USE HIGH CONCENTRATION MIXTURE FERTILIZER. OTHERWISE, THE FERTILIZER HOPPER CAPACITY WOULD NOT BE SYNCHRONIZED WITH THAT OF THE SEED HOPPER.

9. SPARE PARTS

9.1 INTRODUCTION

The RIGHT, LEFT, FRONT and BACK denominations are referring to the machine working direction (fig. 41).

In the drawings, mirror parts are not repeated. Read the code in the codelist.

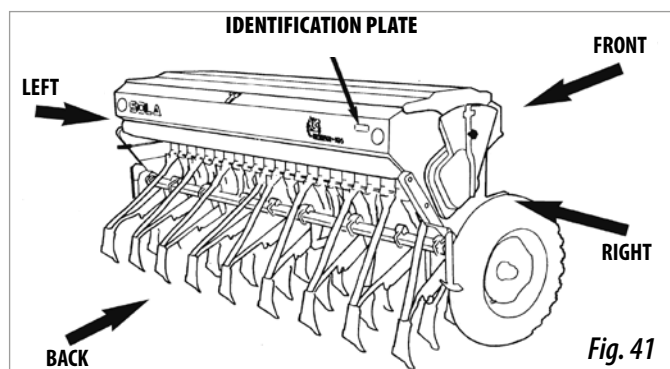
Do not forget to indicate the serial number and machine type in your spare parts order. Both informations are in the IDENTIFICATION PLATE.



DO NOT FORGET THAT YOU COULD TAKE INJURIES WITH SHARP EDGES WHILE REPLACING COMPONENTS OR ASSEMBLING OPTIONAL EQUIPMENT.

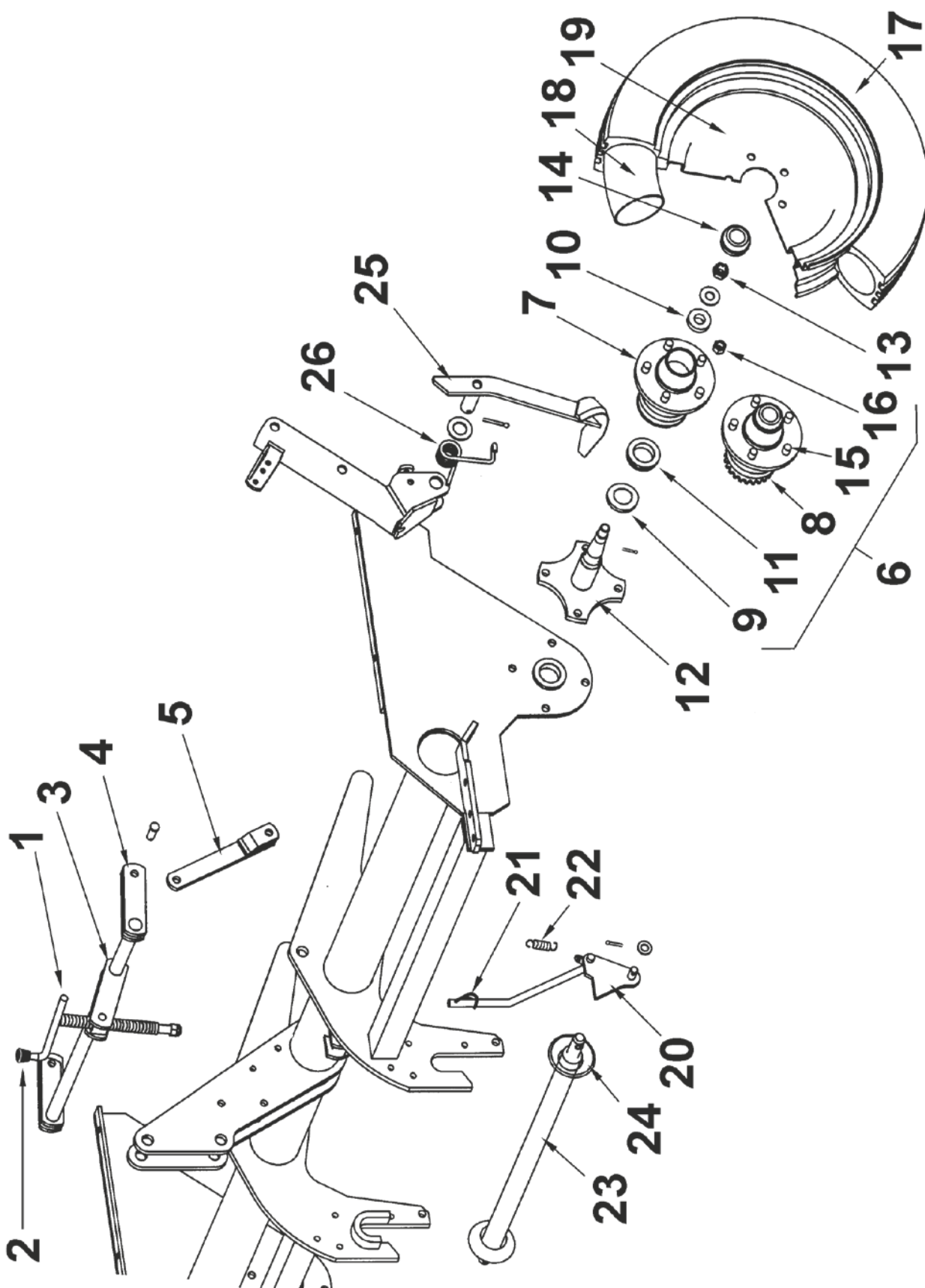


AVOID TO WORK UNDER THE MACHINE. IF YOU MUST DO IT, PLEASE SECURE IT.



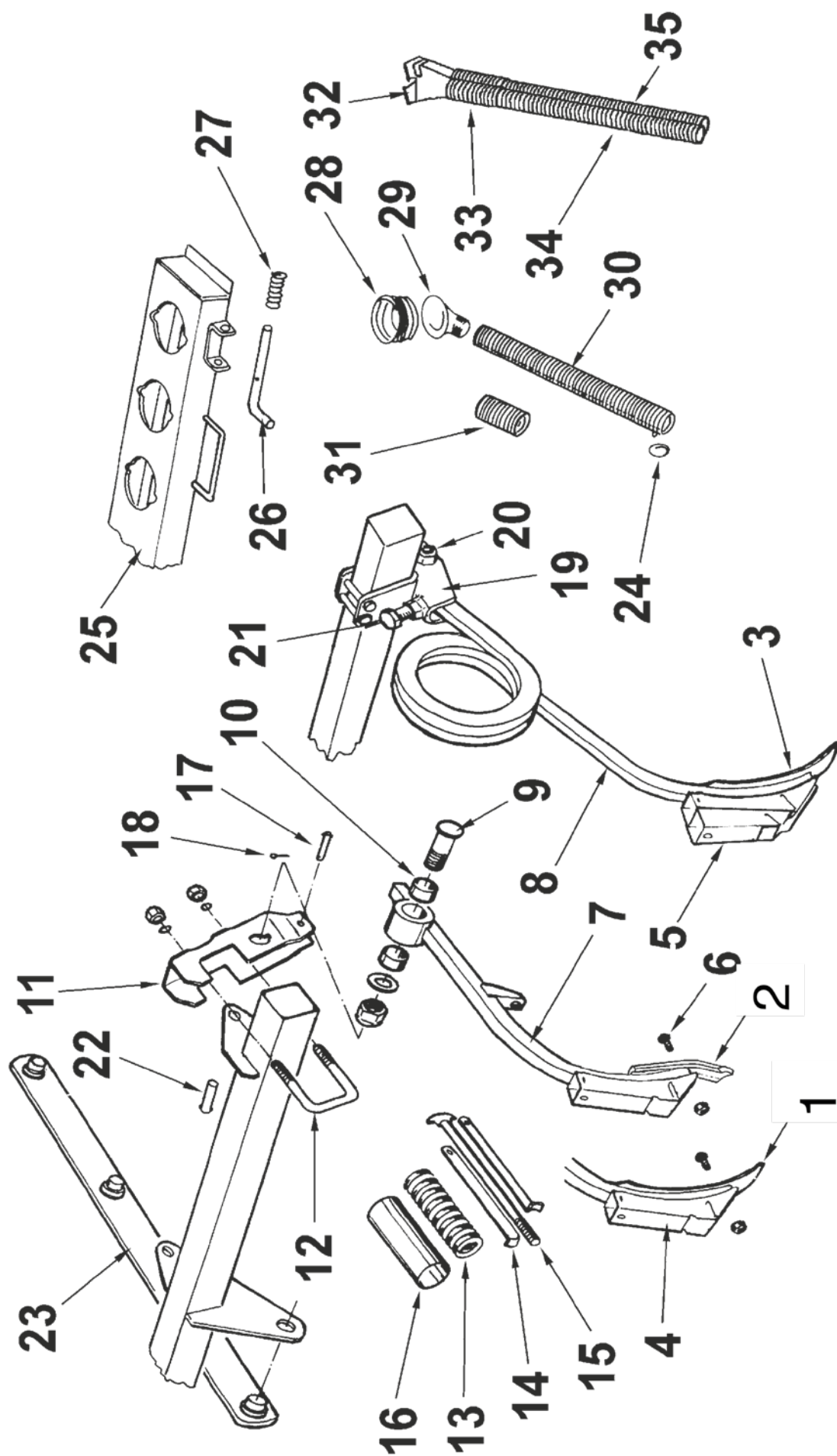
9.2 CHASSIS

Nº	CODE
1	PS-0104
2	PL-010200
3	PS-2607
4	EE-040305
5	PS-2606
6	MO-040112
6	MO-040111
6	RE-040300
6	MO-040110
6	MO-040105
6	RE-040301
7	ME-040211
7	ME-040212
8	ME-040209
8	ME-040210
9	FE-601009
9	FE-601001
10	FE-600021
10	FE-600020
10	FE-600007
11	FE-600023
11	FE-600022
11	FE-600006
12	PS-2668
12	PS-2669
12	PS-2670
13	935 20/150
13	935 27/150
14	EE-040231
14	EE-040234
15	FE-614000
16	917 16/150
17	PL-040300
17	PL-040301
18	PL-040302
18	PL-040303
19	CO-040303
19	CO-040302
20	PS-2602/D
20	PS-2602/I
21	ML-010100
22	ML-010101
23	PS-0108
23	PS-010102
24	EE-010226
25	PS-2604/D
25	PS-2604/I
25	PS-2605/D
25	PS-2605/I
26	ML-010300/D
26	ML-010300/I



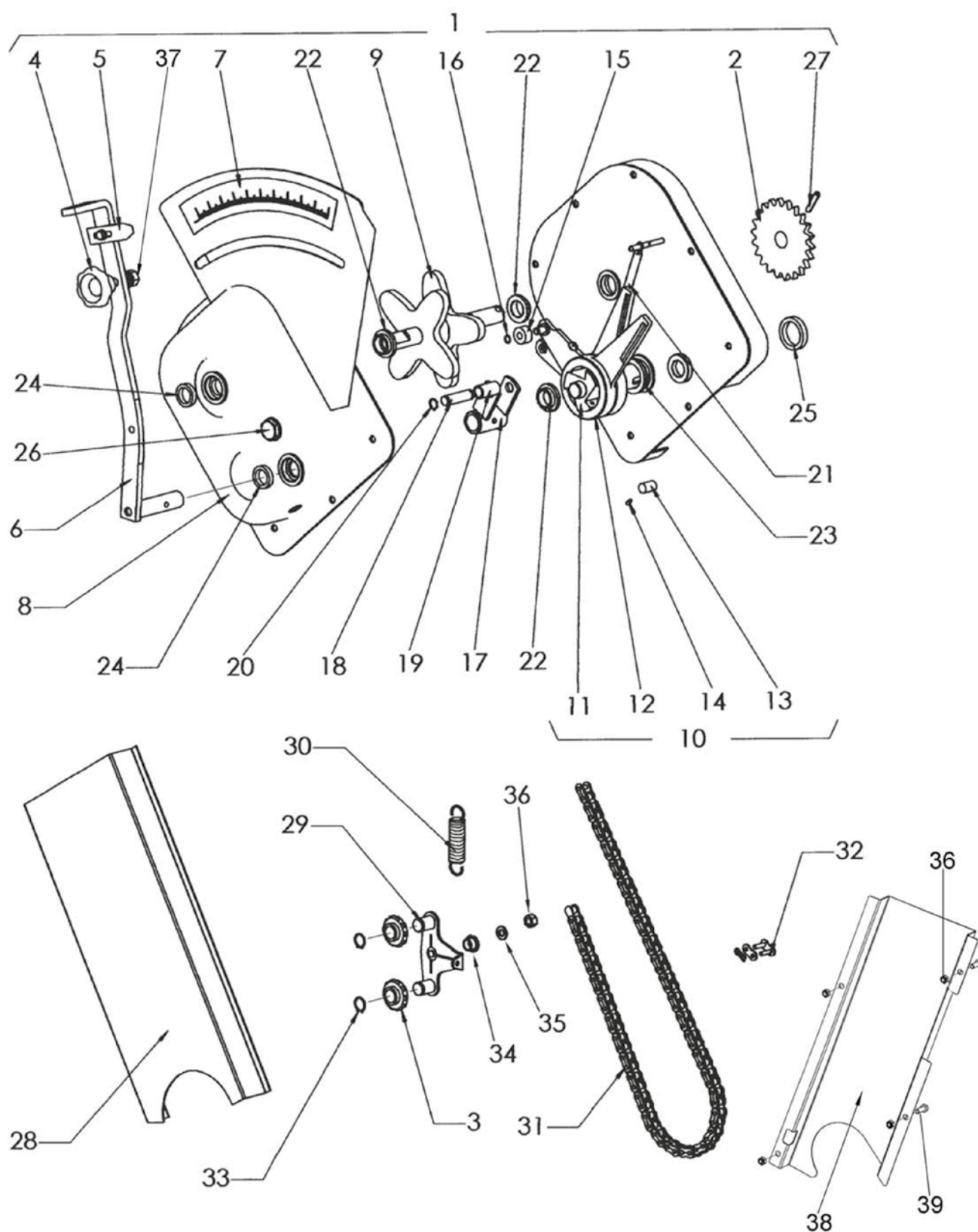
9.3 COULTER WORKING TRAIN

Nº	REFERENCE
1	FO-050300
2	FO-050301
3	FO-060300
4	MB-233
5	MB-164
6	608/934 9X40
7	PS-2611
7	PS-2611/D
7	PS-2611/I
8	PS-2612/D
8	PS-2612/I
8	PS-2662/D
8	PS-2662/I
9	RE-050300
10	PL-050302
11	CO-050302
12	EE-050314
13	ML-050300
14	EE-050301
15	FO-050303
16	EE-050310
17	BU-050302
18	94 3,5X20 BI
19	MS-60
20	933 16X45 8.8 B
21	933 12X50 8.8 B
22	BU-050303
23	PS-2614
24	ML-050103
25	PS-1505/6/7/8
26	BU-050300
27	ML-050202
28	PL-050300
29	PL-050301
30	ML-050302
30	ML-050306
30	ML-050303
30	ML-050304
30	ML-050319
30	ML-050305
31	VA-1604
31	VA-1606
32	EE-050313
32	MB-114
33	VA-1613
34	ML-050313
34	ML-050110
34	ML-050323
35	ML-050311
35	ML-050107
35	ML-050324



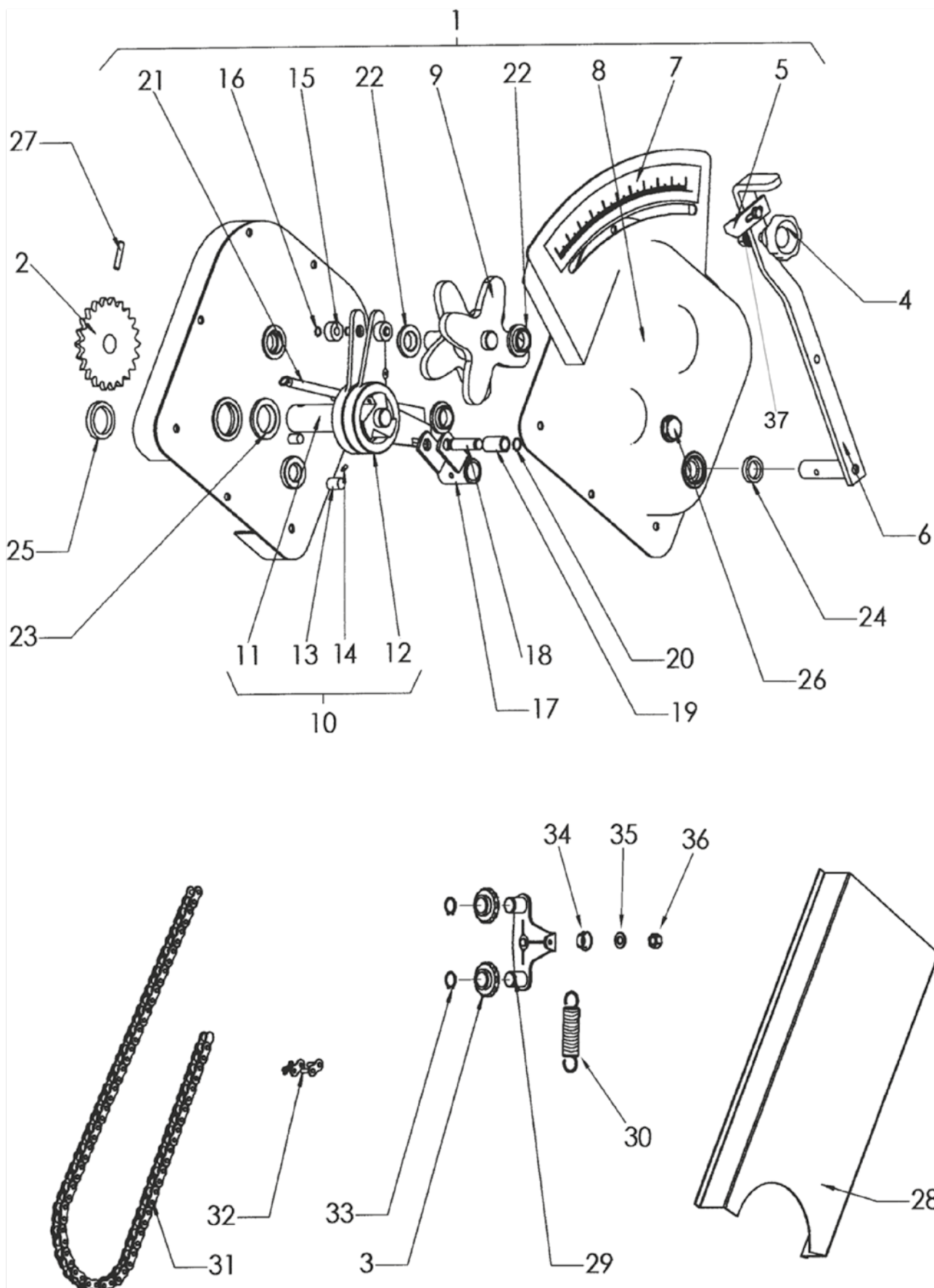
9.4 SEED VARIATOR

Nº	REFERENCE
1	MO-0601
2	ME-040100
3	PL-040100
4	MV-09
5	PX-040204
6	PS-0610
7	AD-040200
8	PS-0618
9	TA-0618
10	MO-0605
11	RE-040201
12	ME-040226/D
12	ME-040226/I
13	RODILLO 12X18
14	RE-040202
15	PL-040200
16	471 8
17	PS-0611
18	BU-040200
19	PL-040206
20	471 12
21	ML-040101
22	PL-040207
23	PL-040208
24	FE-601004
25	FE-601005
26	HI-707005
27	1481 6X40 BI
28	PS-2641
29	CO-040300
30	ML-010101
31	FE-605008
32	FE-605025
33	471 16
34	FE-600008
35	125 8 BI
36	985 8
37	985 10 I
38	PX-042116
39	933 8x25 8.8 B



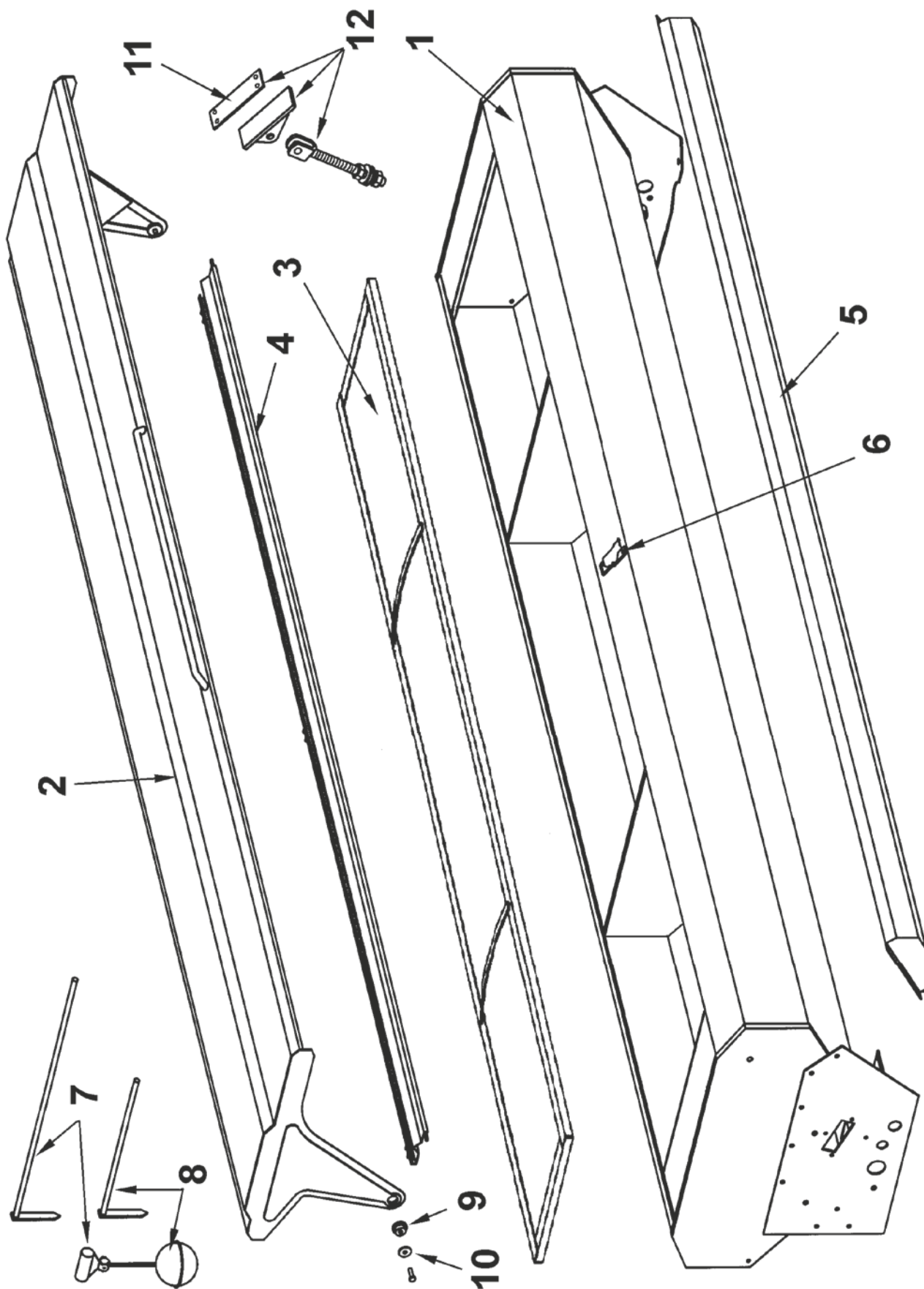
9.5 FERTILIZER VARIATOR

Nº	REFERENCE
1	MO-0602
2	ME-040101
3	PL-040100
4	MV-09
5	PX-040204
6	PS-0619
7	AD-040201
8	PS-0627
9	RE-040200
10	MO-0606
11	RE-040203
12	ME-040232/D
12	ME-040232/I
13	RODILLO 12X18
14	RE-040202
15	PL-040200
16	471 8
17	PS-0620
18	BU-040200
19	PL-040206
20	471 12
21	ML-040101
22	PL-040207
23	PL-040208
24	FE-601004
25	FE-601005
26	HI-707005
27	1481 6X30 BI
28	PS-2642
29	CO-040300
30	ML-010101
31	FE-605009
32	FE-605025
33	471 16
34	FE-600008
35	125 8 BI
36	985 8
37	985 10 I



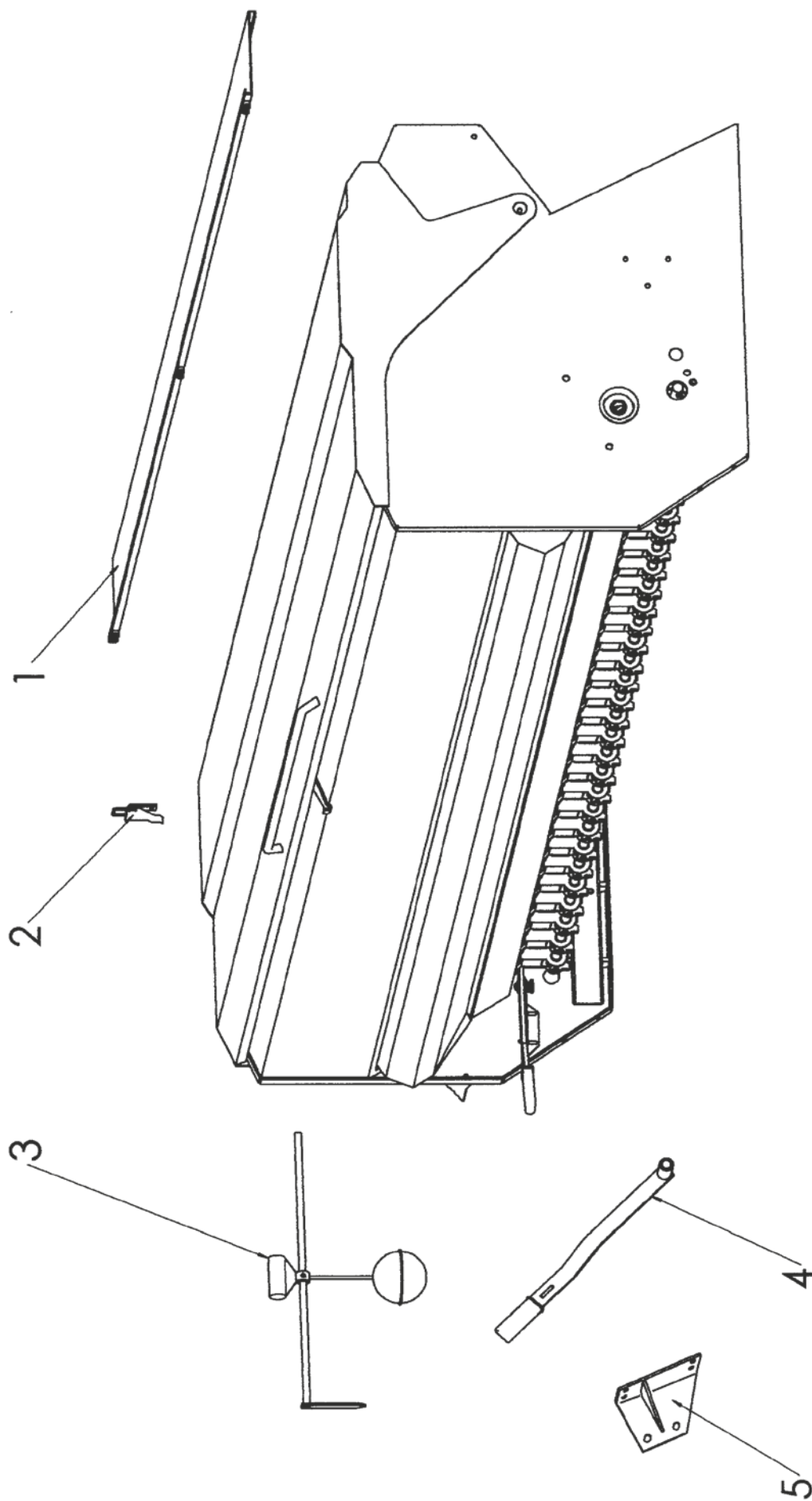
9.6 SEED/FERTILIZER HOPPER

Nº	REFERENCE
1	PS-0404
1	PS-0405
1	PS-0406
1	PS-0407
1	PS-0501
1	PS-0502
1	PS-0503
1	PS-0511
1	PS-2671
1	PS-2672
1	PS-2648
1	PS-2673
1	PS-2674
1	PS-2675
1	PS-2652
1	PS-2676
2	PS-1301
2	PS-1302
2	PS-1303
2	PS-1304
3	PS-1401
3	PS-1402
3	PS-1403
3	PS-1404
4	PS-1309
4	PS-1310
4	PS-1311
4	PS-1312
4	PS-1305
4	PS-1306
4	PS-1307
4	PS-1308
5	MB-60
5	MB-61
5	MB-62
5	MB-63
6	MO-1638
7	RE-020200
8	RE-020202
9	BU-020700
10	EE-030200
11	PL-020201
12	RE-020201



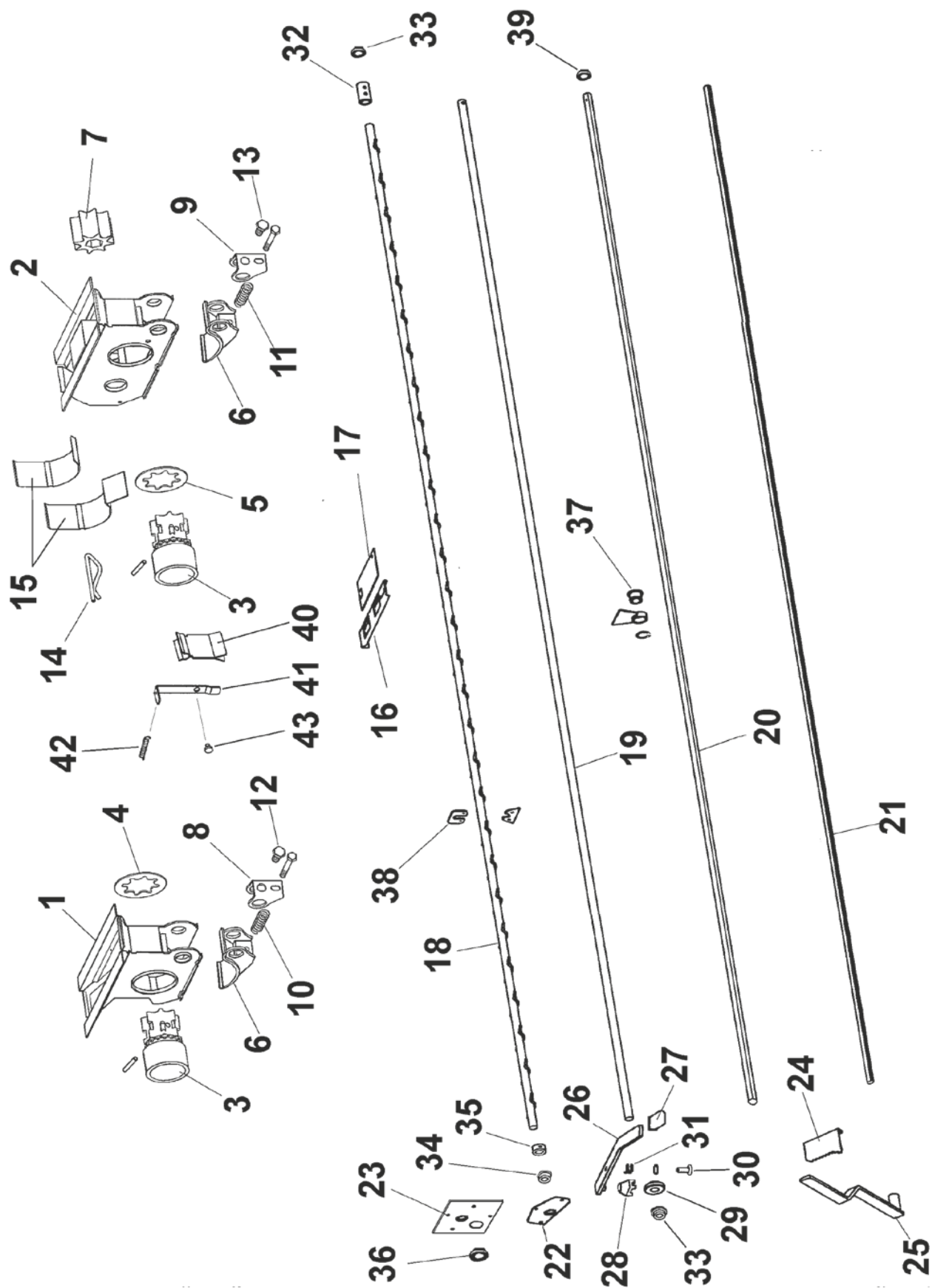
9.7 SEED/FERTILIZER GC HOPPER

N°	REFERENCE
1	PS-030808
1	PS-030809
1	PS-030810
2	MO-1638
3	RE-021000
4	PS-020912
5	PS-021000/D
5	PS-021000/I



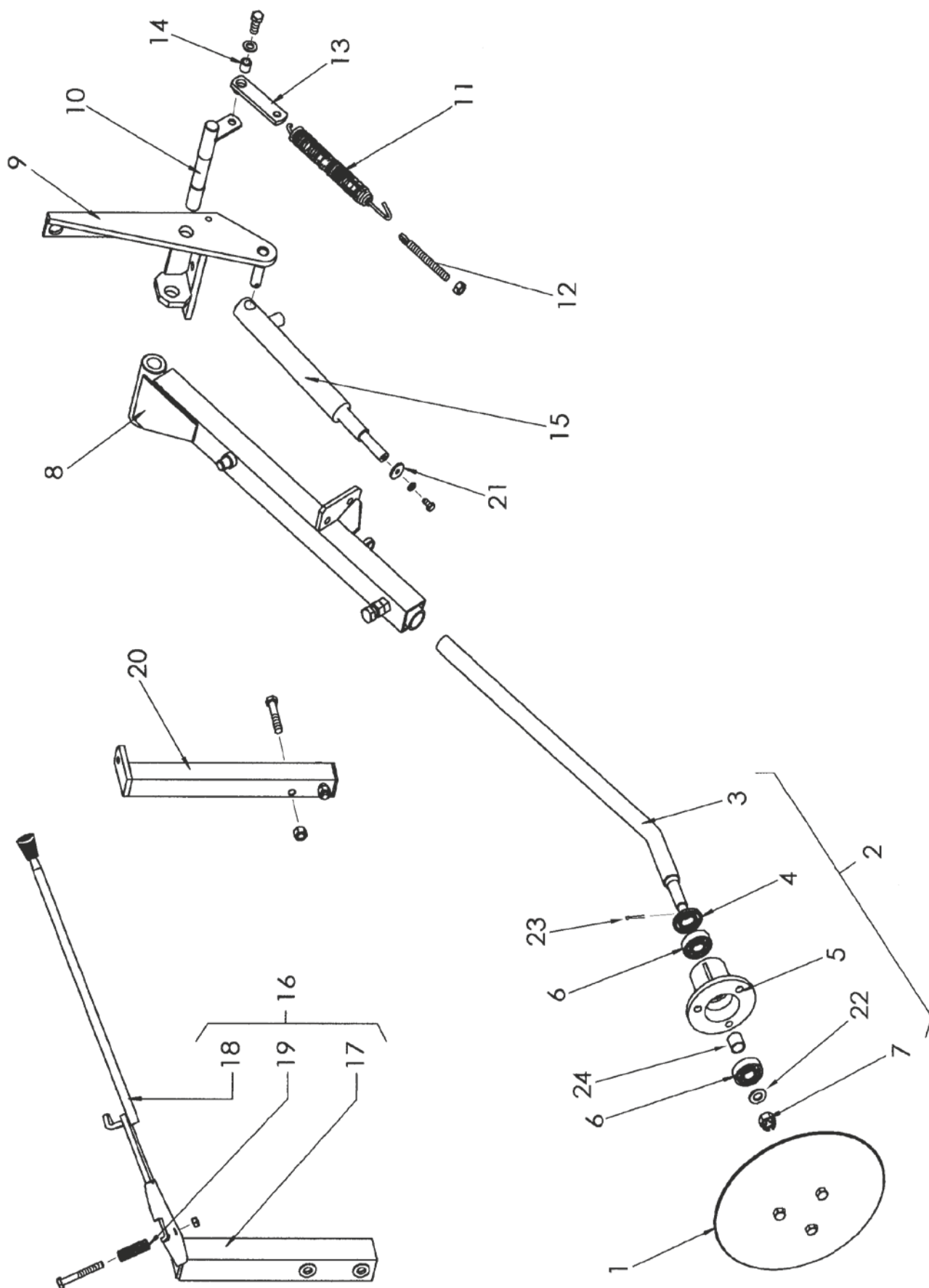
9.8 SEED / FERTILIZER HOPPER

Nº	REFERENCE
1	MD-11
2	MD-12
3	PL-040201
4	EE-040200
5	EE-040202
6	PL-040205
7	PL-040202
8	EE-040232
9	EE-040205
10	ML-020200
11	ML-020201
12	933 8X20B PUNTA
13	933 8x20I PUNTA
14	ML-040203
15	EE-040227
15	EE-040226
16	EE-040228
16	EE-040229
17	EE-040230
18	PS-0416/17/18
19	TA-0403/04/05/06
20	TA-0506/07/08/12
21	PM-0402/12/13/14
22	EE-020215
23	PX-020218
24	EE-040219
25	PS-0410
26	PS-0408
27	PL-040203
28	ME-040223
29	ME-040214
30	BU-040208
31	ML-020202
32	ME-040227
33	PL-020204
34	PL-020205
35	ME-020202
36	PL-040208
37	PL-020203
38	EE-040215
39	PL-020206
40	EE-040303
41	EE-050201
42	ML-020100
43	EE-040100



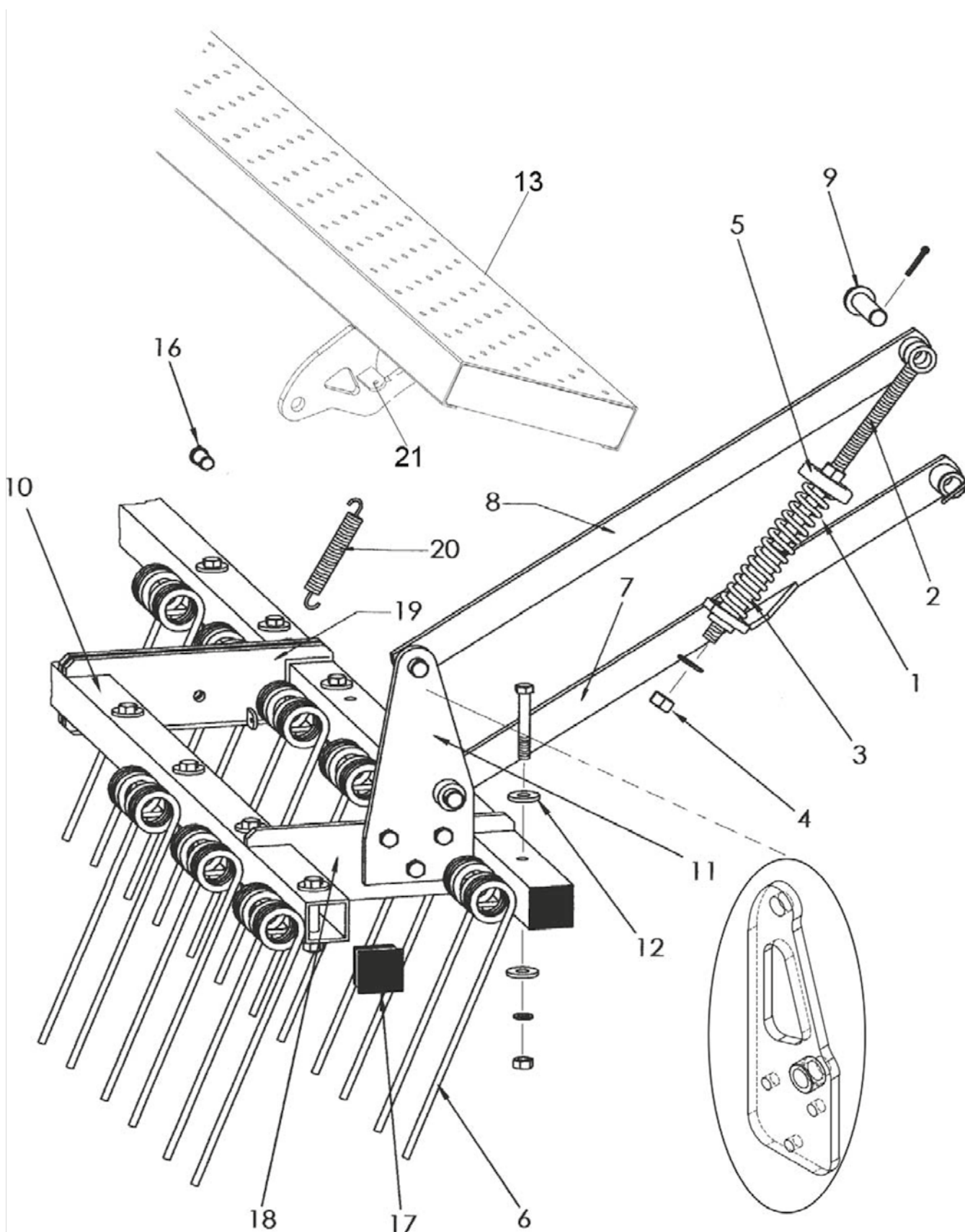
9.9 DISC MARKERS

Nº	REFERENCE
1	EE-100217
2	RE-100300
3	PR-100201
4	FE-601000
5	ME-100214
6	FE-600005
7	935 16 BI
8	PS-101394/D
8	PS-1815/D
8	PS-101394/I
8	PS-1815/I
9	PS-101303/D
9	PS-101303/I
10	PS-101304
11	ML-050201
12	EE-100219
13	PS-100204
14	ME-100200
15	CO-100200
16	MO-100305
17	PS-100301
18	PS-1810
19	ML-100700
20	PS-1812/D
20	PS-1812/I
21	EE-030200
22	125 16 BI
23	94 3,5X28 BI
24	CT-100800



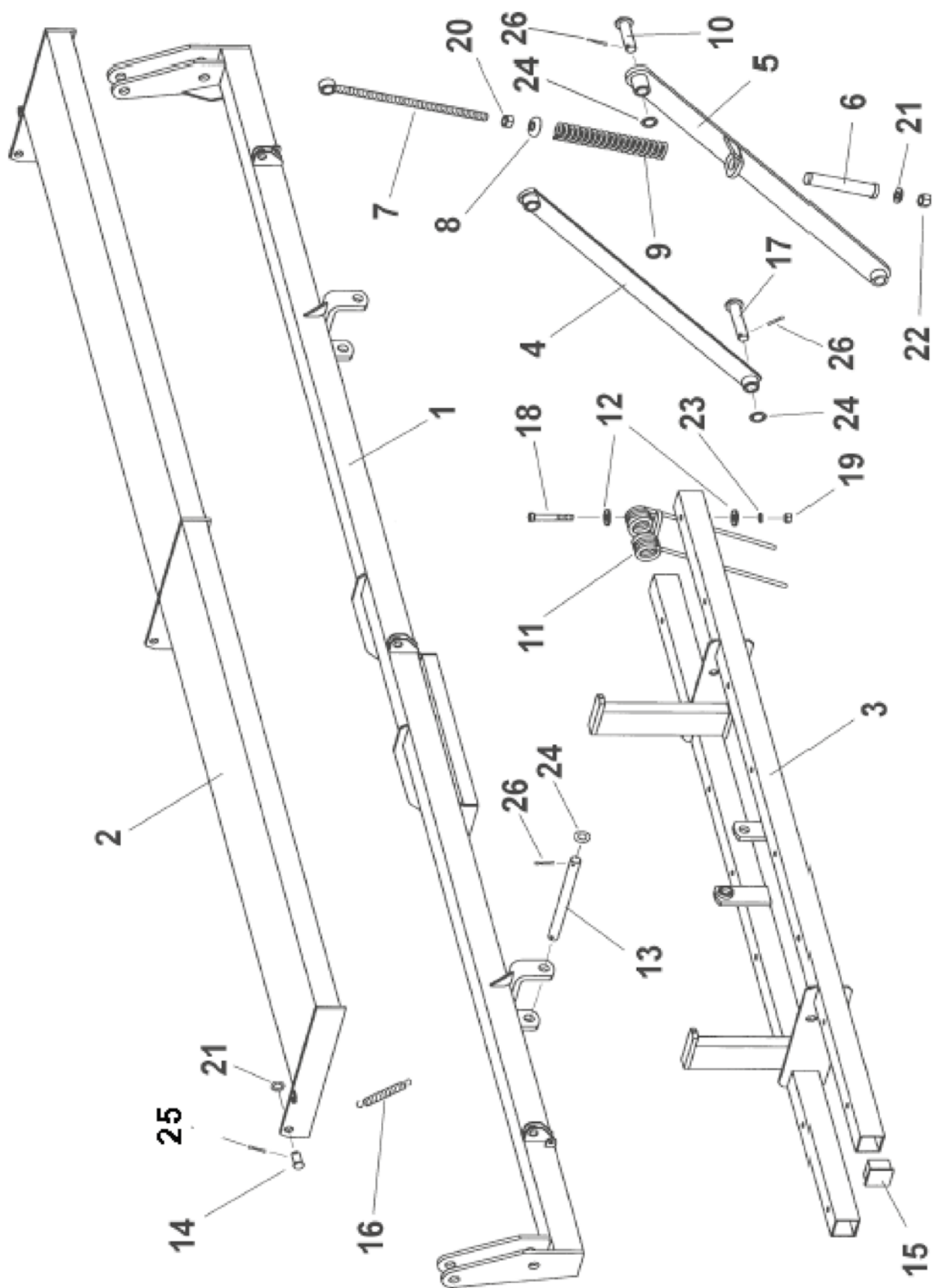
9.10 HARROW WITH FLEXIBLE TINES EPI-6

N°	REFERENCE
1	ML-080104
2	PS-1710
3	PS-1735
4	985 16
5	EE-080306
6	ML-080103
7	PS-1742/D
7	PS-1742/I
8	PS-1709
9	BU-080202
10	PS-1736/37/38
11	PS-081318/D-I
11	PS-082109/D-I
12	9021 12 BI
13	PS-082105
	PS-082106
	PS-082107
	PS-082108
16	BU-080206
17	CN-817001
18	PX-080207
19	PX-080201
20	ML-080101
21	EE-080206



9.11 ARTICULATED HARROW 4 METRES EPI-7

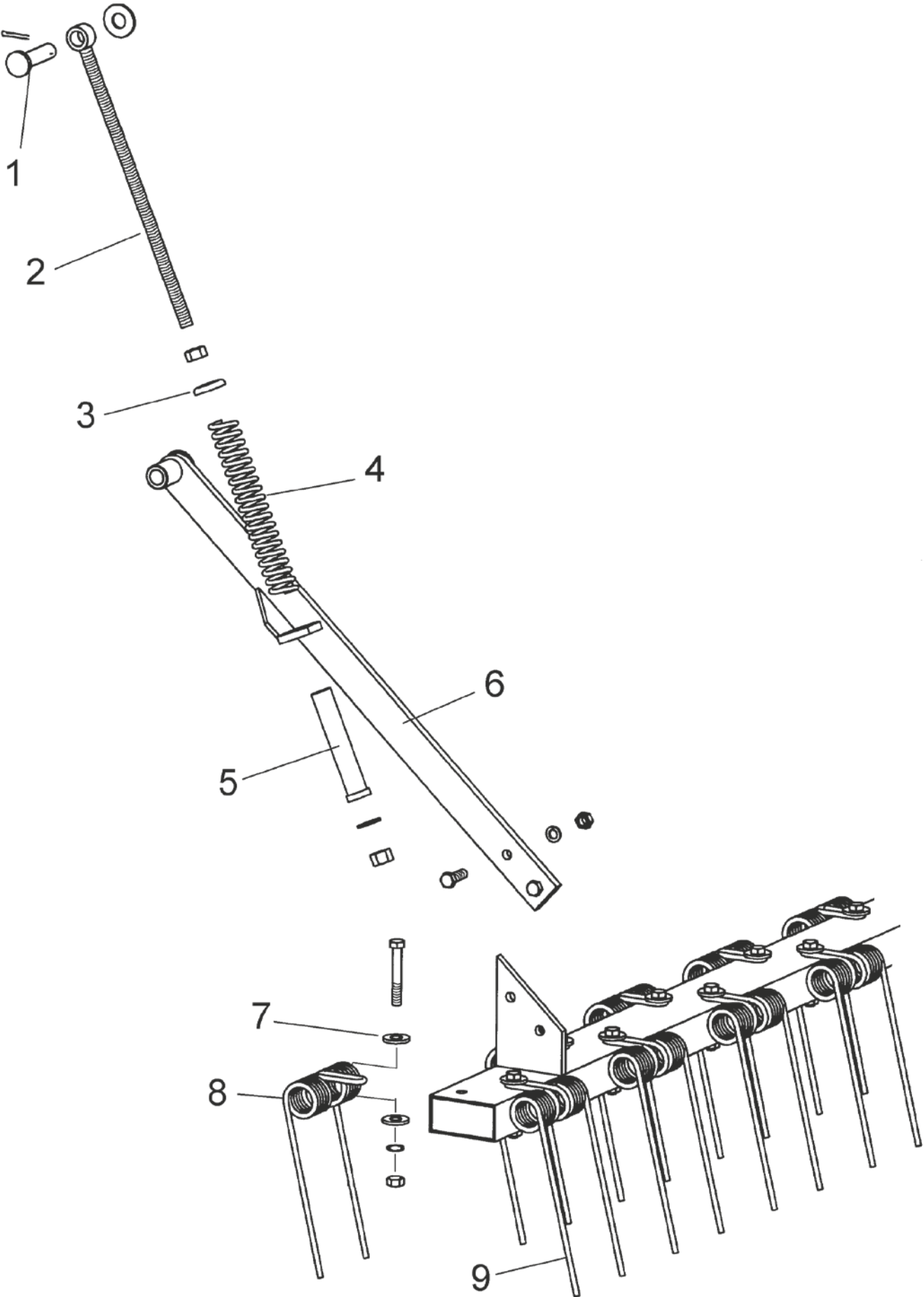
Nº	REFERENCE
1	PS-080311
2	PS-080312
3	PS-080310
4	PS-080307
5	PS-080308/D
5	PS-080308/I
6	PS-1735
7	PS-080306
8	EE-080306
9	ML-080104
10	BU-080202
11	ML-080103
12	9021 12 BI
13	BU-080302
14	BU-080206
15	CN-817001
16	ML-080101
17	BU-080205
18	931 12X80 8.8B
19	934 12 BI
20	934 16 BI
21	125 16 BI
22	985 16
23	7980 12 BI
24	125 20 BI
25	94 5X25 BI
26	94 5X32 BI



SPARE PARTS

9.12 OW TYPE «E»

N°	REFERENCE
1	BU-080202
2	PS-1710
3	EE-080306
4	ML-080104
5	PS-1735
6	PS-2610/D
6	PS-2610/I
7	9021 12 BI
8	ML-080000
9	ML-080001

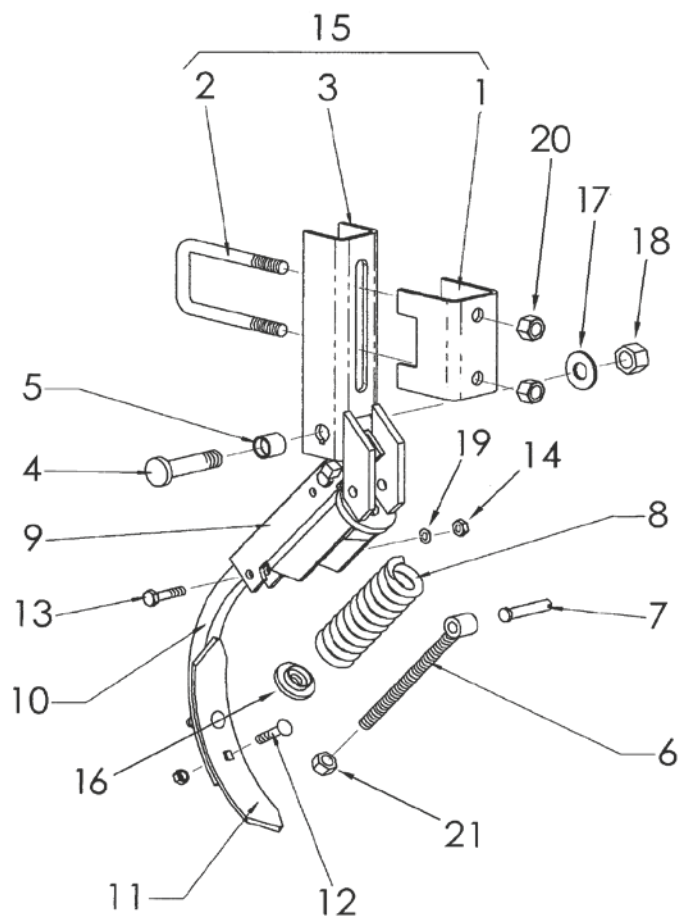
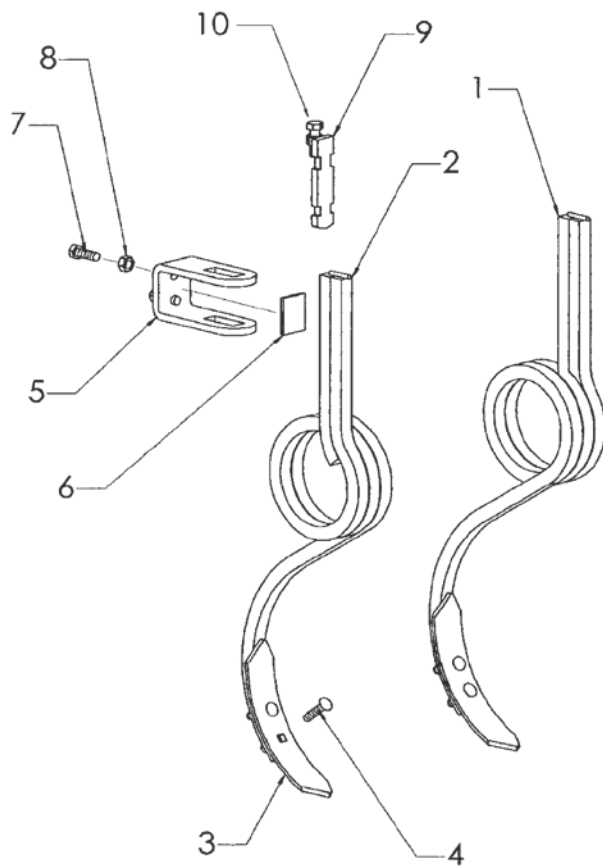


9.13 WHEEL BREAKERS «RANSOME»

Nº	REFERENCE
1	PS-1105/D
2	PS-1105/I
3	FO-060300
4	608/934 9X40
5	EE-060307
6	PX-060200
7	933 12X35 8.8 B
8	934 12 BI
9	CO-060200
10	933 12X40 8.8 B

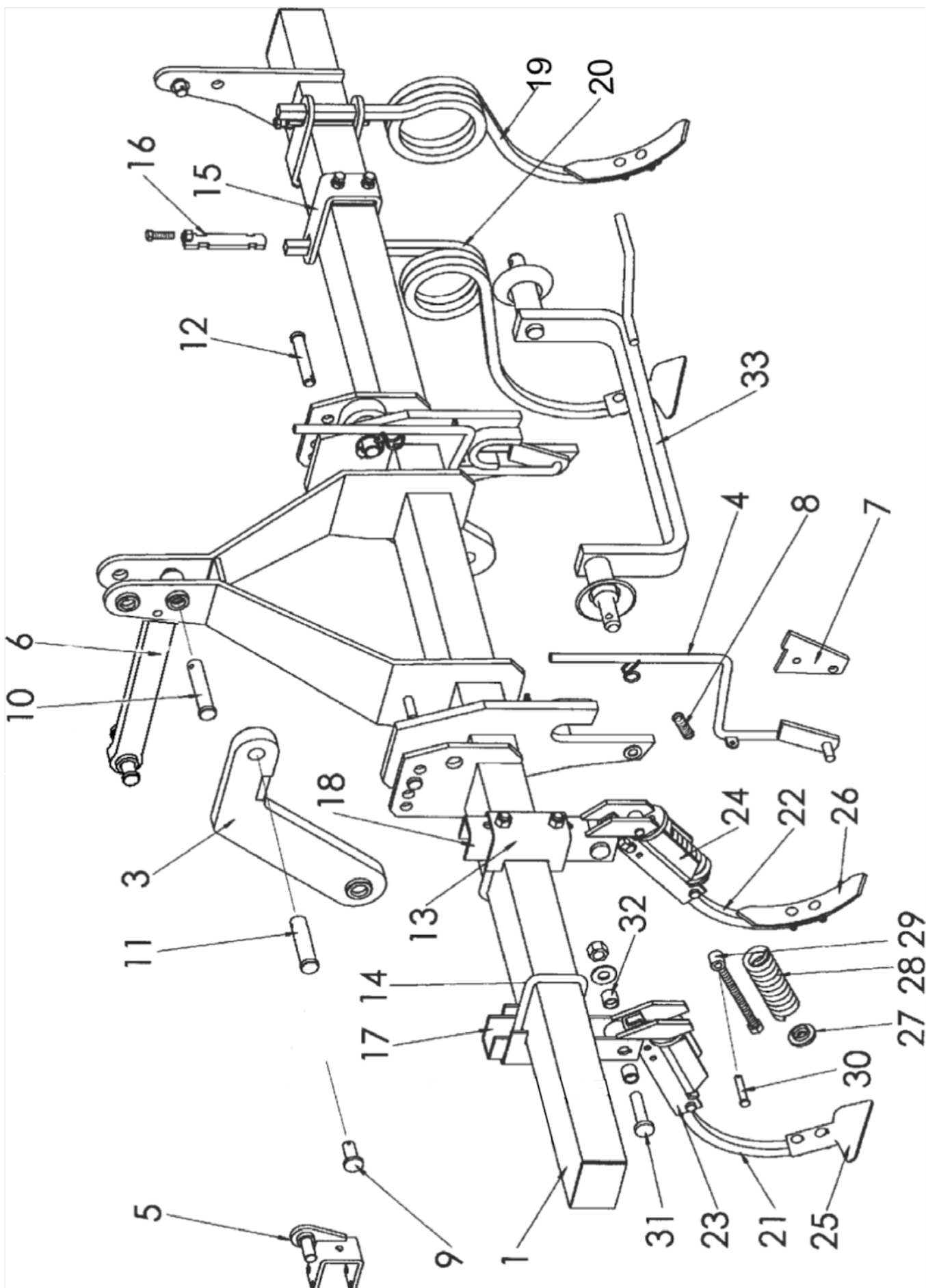
9.14 WHEEL BREAKERS «SPRING»

Nº	REFERENCE
1	PX-060201
2	EE-060228
3	PS-1113
4	PS-052801
5	PL-050302
6	FO-060202
7	BU-060300
8	ML-060300
9	PS-1120
10	FO-060302
11	FO-060300
12	608/934 9X40
13	931 10X45 8.8 B
14	934 10
15	MO-0719
16	PS-1115
17	125 20 BI
18	985 20/150
19	127 10
20	985 16
21	980 14 BI



9.15 CULTIVATOR

N°	REFERENCE
1	PS-0705/6/7/8
3	PS-0702/D
3	PS-0702/I
4	TA-060201/D
4	TA-060201/I
6	PS-060205
7	TA-0721
8	ML-010101
10	BU-060203
11	BU-060202
12	BU-060201
13	PX-060202
14	EE-060230
15	EE-060227
16	CO-060201
17	PS-1117
18	PS-1113
19	VA-060200/D
19	VA-060200/I
20	VA-060201/D
20	VA-060201/I
21	FO-060303
22	FO-060302
23	PS-1121
24	PS-1120
25	FO-060301
26	FO-060300
27	PS-1115
28	ML-060300
29	FO-060202
30	BU-060300
31	PS-052801
32	PL-050302
33	PS-0109



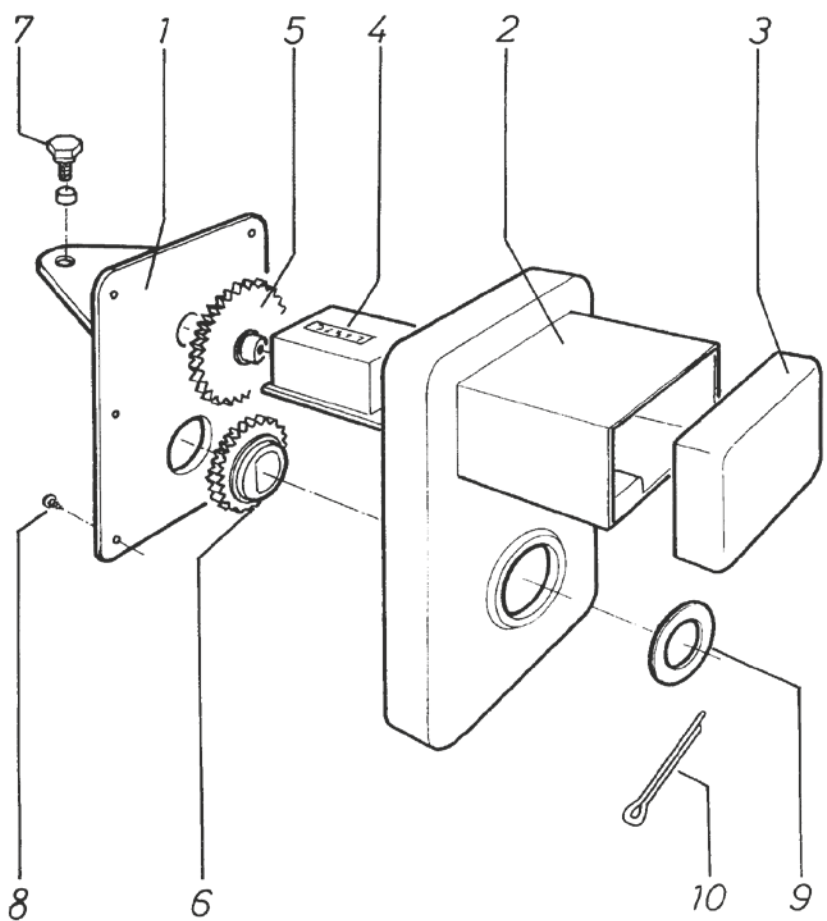
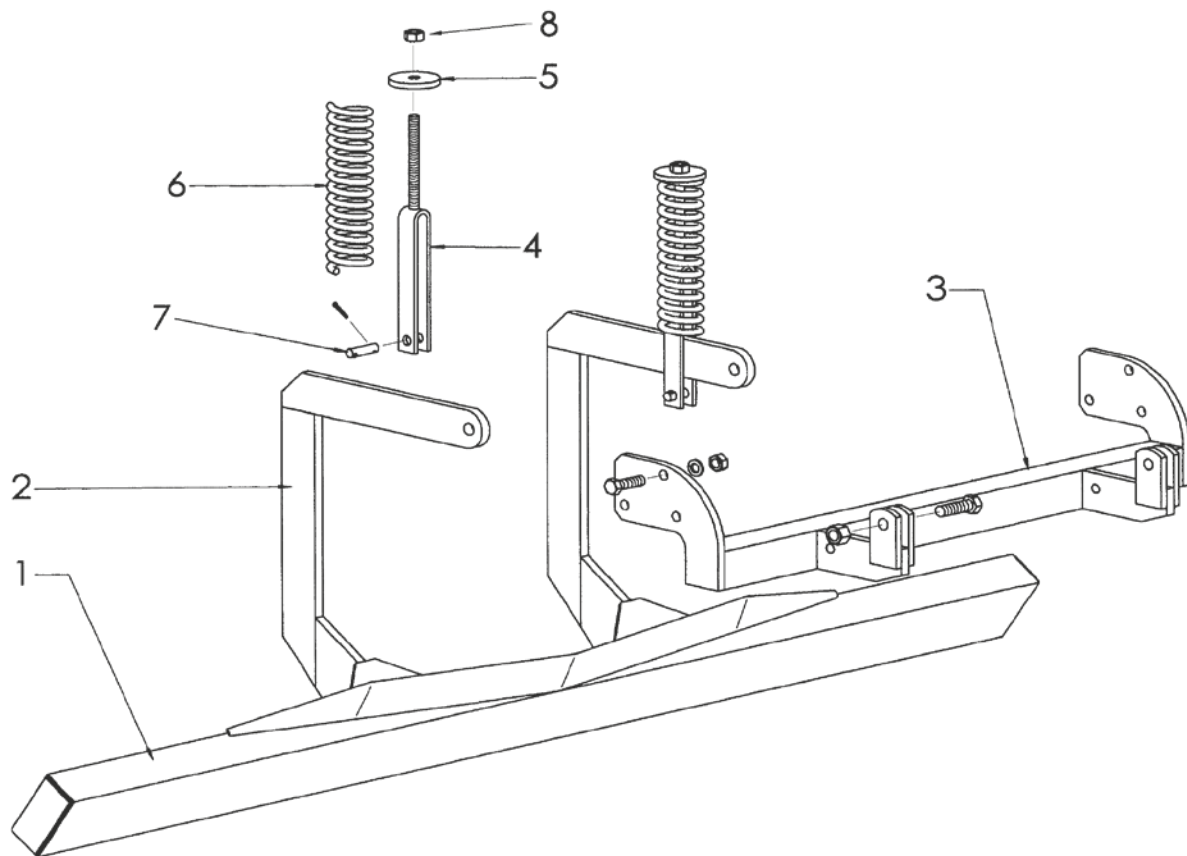
SPARE PARTS

9.16 LEVELER

Nº	REFERENCE
1	PS-2624/L
1	PS-2624/C
2	PS-2623
3	PS-2665/L
3	PS-2665/C
4	MB-13
5	EE-060303
6	ML-080100
7	BU-080702
8	934 12/150 BI

9.17 HECTARE COUNTER

Nº	REFERENCE
1	PL-100200
2	TA-100102
3	PL-100201
4	MV-100200
5	PL-100300
5	PL-100301
5	PL-100101
5	PL-100303
6	PL-100304
6	PL-100305
6	PL-100105
6	PL-100307
7	ME-100211
8	7971 7X3/8 BI
9	125 20 BI
10	94 3,5X28 BI

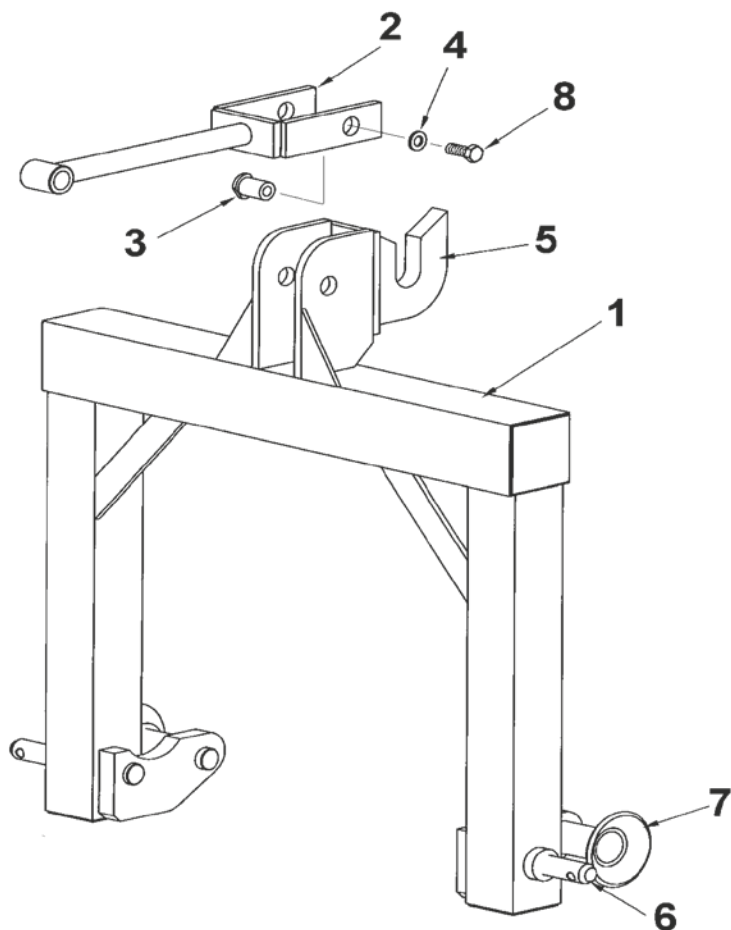
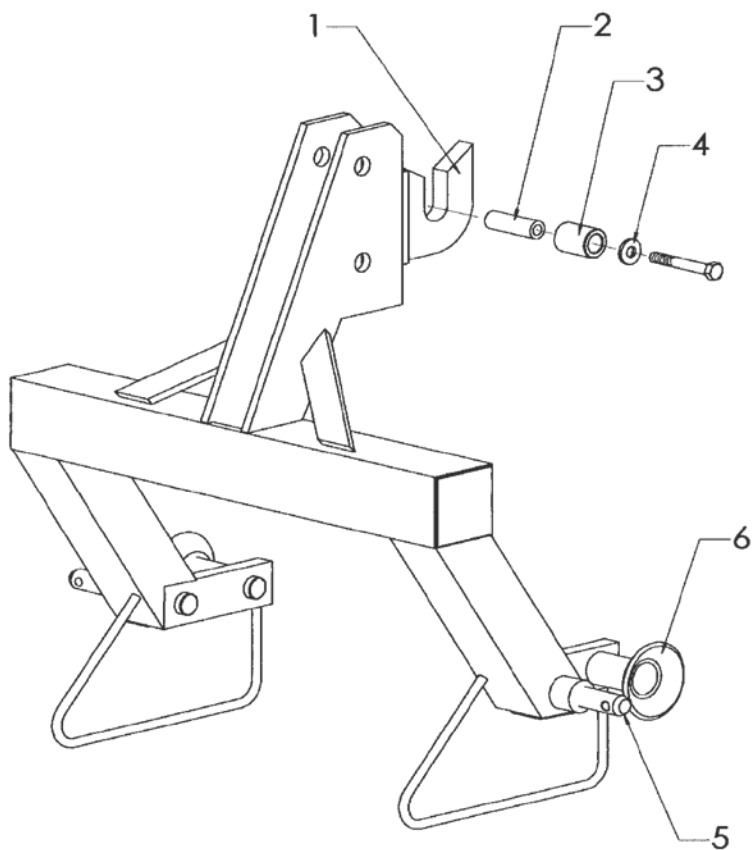


9.18 AUTOMATIC COUPLING

Nº	REFERENCE
1	OX-100203
2	ME-100206
2	ME-100207
3	ME-060207
4	ME-080202
5	BU-010100
6	EE-010226

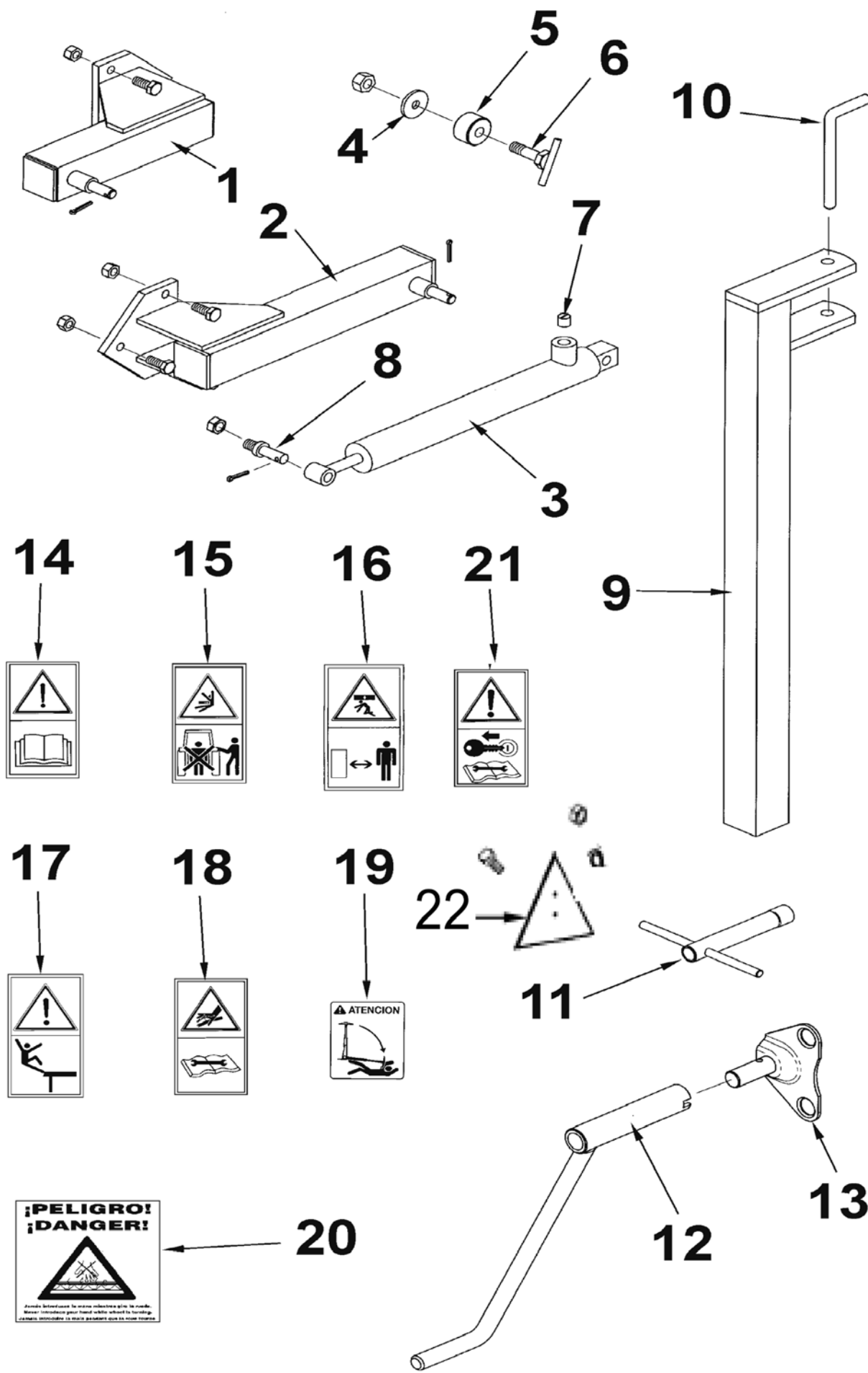
9.19 AUTOMATIC COUPLING. FLOATING CULTIVATOR

Nº	REFERENCE
1	PS-100202
2	PS-100201
3	ME-060209
4	ME-080202
5	OX-100203
6	BU-010100
7	EE-010226
8	933 14X14 8.8B



9.20 FINISHINGS

Nº	REFERENCE
1	PS-0609
2	PS-0608
3	CO-100201
4	EE-030202
5	ME-100202
6	PS-0607
7	ME-100210
8	BU-100204
9	PS-2631
9	PS-1601
10	BU-070100
11	ML-12
12	CO-070300
13	MO-1637
14	AD-070206
15	AD-070214
16	AD-070207
17	AD-070215
18	AD-070222
19	AD-100200
20	AD-030200
21	AD-070227
22	CN-818019



2. TECHNICAL CHARACTERISTICS

MODEL - TYPE OF MACHINE/N° ARMS	SEPARATION ARMS (CM)	WORKING WIDTH (M)	TOTAL WIDTH (M)	HOPPER CAPACITY (LITRES)		WEIGHT (KG)	TYRES
				SEED	FERTILISER		
BASIC 294 SEM - 300/19	15.8	3.00	3.17	665	-	-	6.00-16 6PR
BASIC 294 COMBI - 300/19	15.8	3.00	3.17	335	335	-	6.00-16 6PR
BASIC COMBI - 300/19-2	15.8	3.00	3.17	335	335	-	6.00-16 6PR

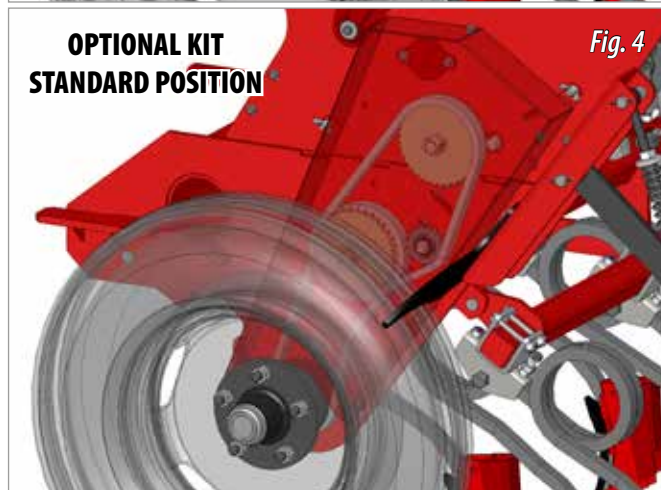
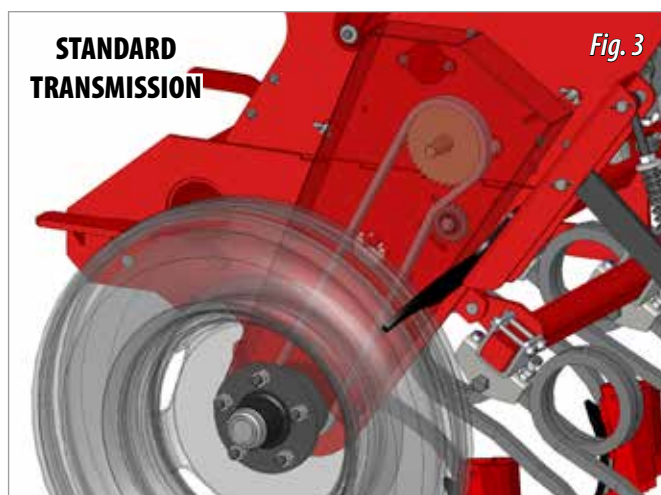
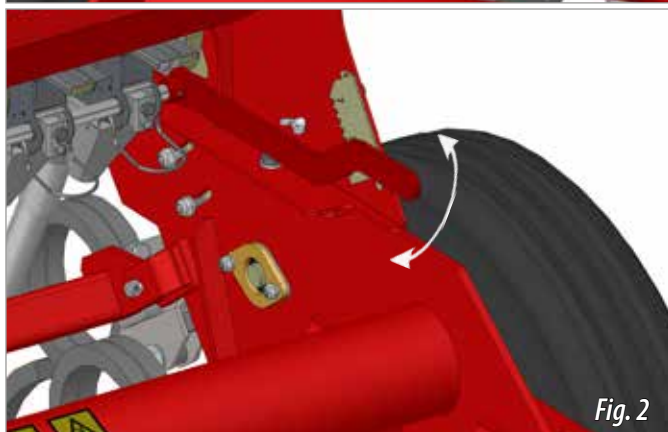
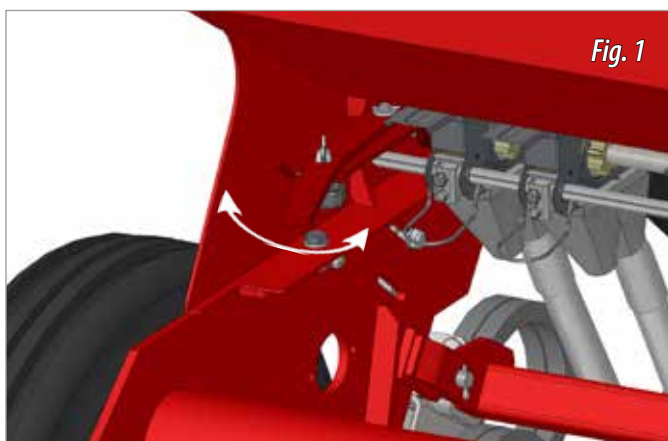
5. STARTING UP

5.3.1 SEED DISPENSING (BASIC MODELS)

Check that the dispensers are open and the valves do not block the passage of the seed. If the machine has an agitator shaft, connect the agitator bushing to the variable speed drive shaft before filling the hopper, first checking that there are no foreign objects inside.

Use the two front levers to alter the dose:

- Dispenser position lever (Fig. 1);
- Moving floor lever (left of the hopper, Fig. 2).



To empty the hopper of seed, put a canvas in place and then shift the moving floor lever to the full, taking it beyond n° 7. (Fig. 2).

Figure 3 shows the transmission for the machine's standard version. The specially-designed optional kit must be installed for low seed doses or small seeds. This kit allows two transmission assemblies: normal seed equivalent to the standard version (Fig. 4), and small seed (Fig. 5).

5.4.1 INITIAL SEED DOSE CONTROL (BASIC MODELS)

Preliminary control of seed dose is vital once the openings for the dispensers and the moving floor have been located. This is done as follows:

- 1- With the machine attached to the tractor, lift it and place a canvas under the arms.
- 2- Turn the wheel anti-clockwise several times until seed begins to fall (dispenser preload).
- 3- Collect and return the seeds to the hopper, then re-position the canvas.
- 4- Begin the calibration test by turning the left wheel according to the following table:



TURNING SHOULD REGULAR, APPROXIMATELY ONE TURN PER SECOND. THE NUMBER OF TURNS IS APPROXIMATE AND MAY VARY IN ACCORDANCE WITH THE LAND, TYRE MANUFACTURER OR WHEEL PRESSURE; CARRYING OUT A FIELD TEST SUCH AS THE ONE DESCRIBED IN THE "FIELD TEST" SECTION OF THIS MANUAL IS THEREFORE RECOMMENDED.

TYPE OF MACHINE	TYRES 6.00-16
300	36.5 turns

- 5- Accurately weigh the harvested seed.

- 6- **MULTIPLY** the result of the weighing **by 40**, obtaining the kilograms per hectare that the machine will dispense with the selected opening.



FOR SMALL SEEDS, PLACE THE MOVING FLOOR LEVER IN POSITION N°1 AND ADJUST THE DOSE USING THE DISPENSER POSITION LEVER (FIG. 6).



FOR WHEAT AND BARLEY SEEDS, PLACE THE MOVING FLOOR LEVER IN POSITION N°3 AND ADJUST THE DOSE USING THE DISPENSER POSITION LEVER (FIG. 6).



FOR VERY LARGE SEEDS, PLACE THE MOVING FLOOR LEVER IN POSITION N°5 AND ADJUST THE DOSE USING THE DISPENSER POSITION LEVER (FIG. 6).

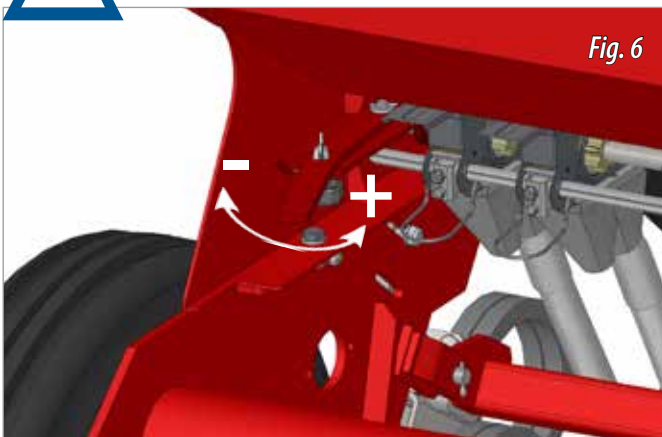


Fig. 6



IMPORTANT: REGULARLY CLEAN THE NOZZLES. IN ANY CASE IT IS ADVISABLE TO REGULARLY CLEAN THE CIRCUIT FORMED BY NOZZLES, HOSES AND BOOTS.

5.8.1 FERTILISER DISPENSING (BASIC MODELS)

Dosing and seed control in combined machines is exactly the same as in BASIC seeders.

Fertiliser is dispensed using the rear lever to the left of the machine (Fig. 7).

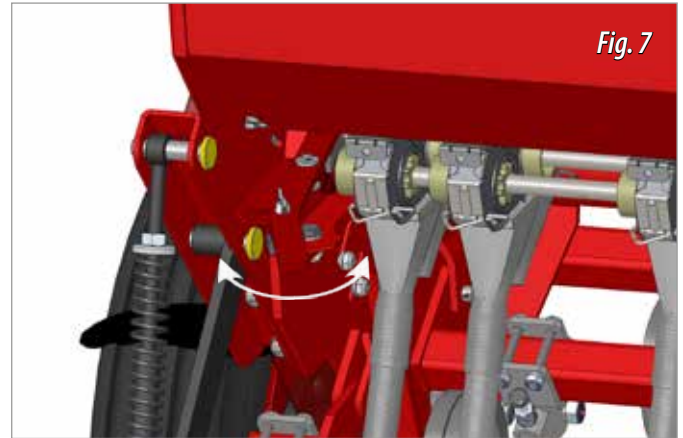


Fig. 7

Preliminary control of fertiliser dose is vital once the openings for the dispensers have been located.

This is done as follows:

- 1- With the machine attached to the tractor, lift it and place a canvas under the arms.
- 2- Turn the wheel clockwise several times until fertiliser begins to fall (dispenser preload).
- 3- Collect and return the fertiliser to the hopper, then re-position the canvas.
- 4- Begin the calibration test by turning the right wheel according to the following table:



TURNING SHOULD REGULAR, APPROXIMATELY ONE TURN PER SECOND. THE NUMBER OF TURNS IS APPROXIMATE AND MAY VARY IN ACCORDANCE WITH THE LAND, TYRE MANUFACTURER OR WHEEL PRESSURE; CARRYING OUT A FIELD TEST SUCH AS THE ONE DESCRIBED IN THE "FIELD TEST" SECTION OF THIS MANUAL IS THEREFORE RECOMMENDED.

TYPE OF MACHINE	TYRES 6.00-16
300	36.5 turns

- 5- Accurately weigh the harvested seed.

- 6- **MULTIPLY** the result of the weighing **by 40**, obtaining the kilograms per hectare that the machine will dispense with the selected opening.



IMPORTANT: REGULARLY CLEAN THE NOZZLES. IN ANY CASE IT IS ADVISABLE TO REGULARLY CLEAN THE CIRCUIT FORMED BY NOZZLES, HOSES AND BOOTS.

NOTES

DATE	NOTES

DATE	NOTES

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