seed drill

TRISEM 294/R ESP
TRICOMBI 294/R ESP

STARTING
MAINTENANCE
DOSAGE
SPARE PARTS

read carefully this booklet before operating the machine

Ref.: CN-811021
5st edition - 01-2010

SOLÀ seed drills and fertilizer spreaders are manufactured in a factory specialized in this area. They are guaranteed by thousands of users esperience.

They are high technology machines, planned for a long service, without breakdowns, in very different conditions and with a simple and efficient mechanism designed to do an excellent work with minimun maintenance.

With this information about characteristics, possibilities and adjustments, we wish to help you to obtain all that you expect from our machine.

ISO 9001
BUREAU VERITAS
Certification

Certified Quality System

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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. Doing so, 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 asume any responsability 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, Optional Equipments and Maintenance chapters are the basic knowledges for using the machine. The booklet is completed with the Seed and Fertilizer dosage tables.

SOLÀ reserves the right to modify drawings and technical data given in this manual if this can help to improve the seed-drill quality.

2. TECHNICAL DATA

2.1 TRISEM-294-ESP

TYPE & ARMS	ARMS SEPARATION	WORKING WIDTH	TOTAL WIDTH	HOPPER CAPACITY l	HOPPER CAPACITY kg	WEIGHT (kg)	TYRE
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

2.2 TRICOMBI-294-ESP

TIPE & ARMS	ARMS SEPARATION	WORKING WIDTH	TOTAL WIDTH	HOPPER CAPACITY (l) .SEED	HOPPER CAPACITY (l) FERTILIZER	HOPPER CAPACITY (kg) SEED	HOPPER CAPACITY (kg) FERTILIZER	WEIGHT (kg)	TYRE
250/16	15,5 cm	2,50 m	2,68 m	270	270	195	320	750	6.00-16
300/19	16 cm	3,00 m	3,17 m	335	335	245	400	840	6.00-16
350/22	16 cm	3,50 m	3,80 m	400	400	295	480	910	6.00-16
400/25	16 cm	4,00 m	4,29 m	460	460	345	560	990	6.00-16

2.3 STANDARD EQUIPMENT

- Speed variator
- 6.00-16 wheels
- Three bar mounted arms

2.4 OPTIONAL EQUIPMENT

- Spring harrow, type «E»
- Spring harrow, types EPI-6 & EPI-7
- Tractor tyre track breakers, «Ransome» type
- Hectare counter
- Land cultivator-conditioner, «Ransome» type arm
- Hydraulic speed variator command

3.SAFETY INSTRUCTIONS

3.1 DANGER SIGNS

In this booklet you will find three kind of safety and danger signs:

To make easier the machine operation.

To avoid damages to the machine or it s optional equipment.

To avoid personal injuries.

However, the following warnings are reproduced on the machine. Keep them clean and replace them if they should come off or become ilegible. Carefully read each description and learn their meanings by heart.

Before operating, carefully read the instruction booklet.

Before carrying out maintenance, stop the machine and consult the instruction booklet.

Danger of getting squashed during closure. Keep at a safe distance from the machine.

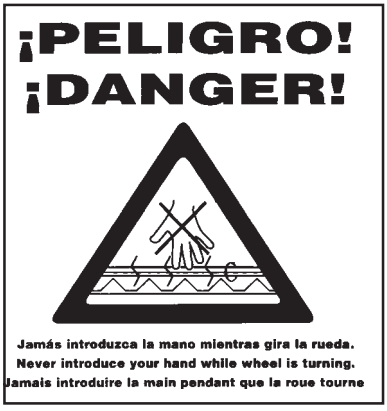
Danger of crushing when working under the machine. Secure it to avoid accidental falling.

Danger of falling. Don't ride on the machine or its optional equipment.

Don't stay under the folding disk tracers.

Respect the maximum load

Handling point for lifting



Don't introduce the hand in the hopper while the agitator shaft is connected and turning.

3.2 ADEQUATE USE

- The **TRI-294-ESP** seeder has been manufacturated for agriculture works, specially for cereal and other grain sowing.

- If as a consequence of misuse or bad maintenance the machine suffers damages, the manufacturer will decline any responsability.

- Respect always legal dispositions on machine-security , traffic, health and work-safety.

- Modifications having been carried without written authorization of the manufacturer will result in guarantee-nulity.

3.3 SAFETY REGULATIONS AND ACCIDENT PREVENTION

- Before starting any use of the machine, check safety conditions concerning both work and traffic. Check also visibility around the machine: the working zone must be cleared.

- Respect traffic signs when in public thoroughfare.

- 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 to coupling and uncoupling operations.

- Never leave the driver seat during machine operation.

- Do not place strange elements into the hopper.

- When the seed-drill is lifted, the front axle of the tractor discharges. Make sure that the tractor has enough counterwheigt to avoid overturn danger. Check in such situation steering and braking capabilities.

- During transport operations, with the seed-drill lifted, block the lowering control. Before getting out the tractor, leave the machine on the floor and take out the starting key.

- During maintenance works, with the seed-drill lifted, always use enough support elements in order to avoid its accidental descent.

- Before working in the hydraulic installation eliminate the circuit pressure and stop the tractor engine.

- The tubes and hosepipes of the hydraulic circuit s suffer, in normal conditions, a natural ageing. The useful life of these elements must not exceed six years. Observe, periodically, if they are in good conditions and replace them at the end of its useful life.

4. SOWING ESSENTIAL CONCEPTS

4.1 SOIL

The better the soil coindition is, the best quality of sowing. Over big patch or variable furrows it is not possible to do a good work. Althoug SOLÀ machines are able to take hard efforts in extreme conditions, sowing won't be of good quality if the sown land hasn't adequate conditions.

4.2 SEED

Always use quality and clean seed. When sowing barley , use trimmed one.

4.3 DEPTH

The suggested sowing depth is from 3 to 5 cm. To deepen more is an error, as the rizome could not get the surface, resulting in the plant' s death. It doesn't 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 doesn't mean deeper roots. Only a few roots arise from the bottom of de seed. The main root mass is born from the sprouting node, just under the ground level.

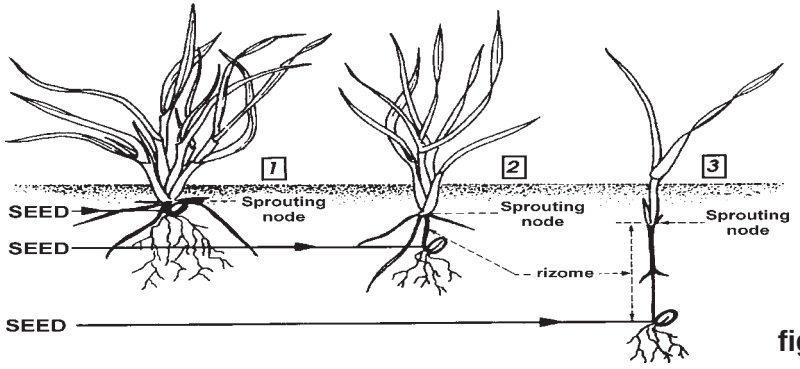


fig. 1

1

Depth sow: 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.

2

Depth sow: 5 to 6 cm

Thin stem, rizhome exposed to freezing.

Delayed and poor sprouting, one shoot (sometimes none), not many blades (3 to 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.

3

Depth sow: 8 to 10 cm

Very thin stem. No sprouting and a single blade.

The grain reserves become depleted by forming a large rizhome that can be easily cutted 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.

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 SOLÀ machines the seed distributor speed variator is activated by the right wheel. Bends must be done counterclockwise, as turning around the drive (right) wheel will cause a lower distribution of seed.

Once the machine is working, seed won't 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. Don't forget this if a good sow finish is wanted.

Work always at a regular speed. Hard brakes and sudden accelerations result in irregular seed distribution.

5. RULES OF USE

5.1 COUPLING TO THE TRACTOR

The TRI-294-ESP machines are equiped with a quick coupling device to the tractor hydraulic lifter. The pulling bar allows the machine adjustement to terrain unevenness. For uncoupling, with the machine lifted, open both blocks (1, fig. 2) and fix them by means of the lever (3, fig. 2) fasteners (2, fig. 2). to the Ø16 mm pin (4, fig.2).

All the machines are equiped with a support for transport securement. Don't forget to dismantle this support before working.

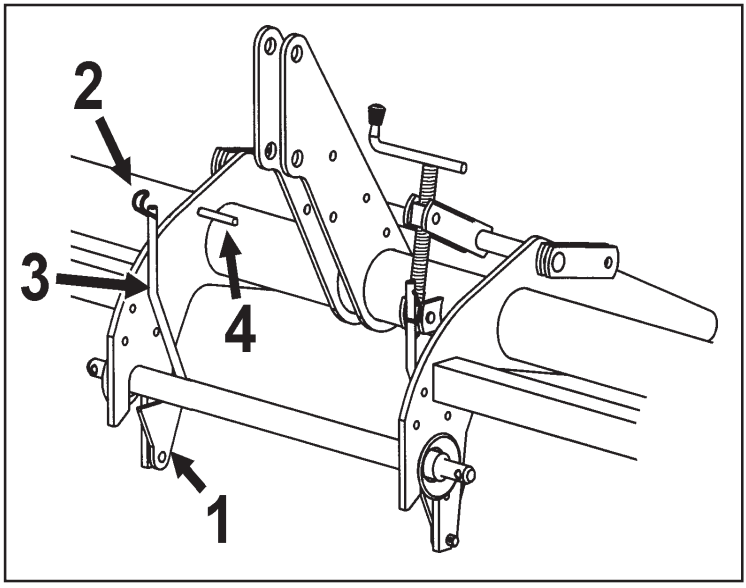


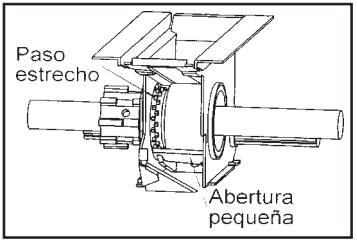
fig. 2

Verify that nobody is between the seed-drill and the tractor during coupling operations.

5.2 SEED DISPENSER MECHANISM

The seed dispenser roller has two working positions: a narrow cog with small teeth for little seed (fig. 3) and a wide cog with large alternated teeth for normal and big seed (figs. 4 and 5)

fig. 3



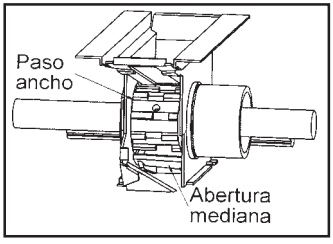
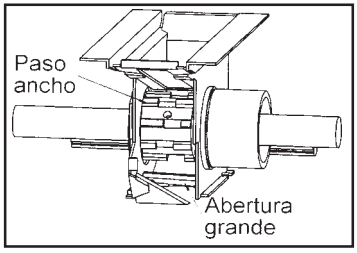


fig. 4

fig. 5



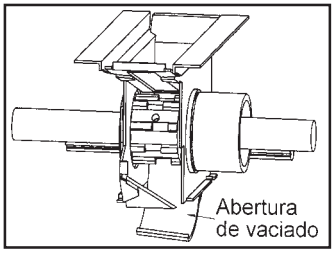


fig. 6

The seed mobile bottom has two objectives: to regulate the lower seed dispenser opening (figs. 3, 4 and 5) according to the grain size (lever positions 1 to 7) and to allow full emptying of the hopper (fig. 6).

When shifting the seed dispenser roller between «narrow» and «wide» positions, make sure the roller to be seed 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 0 to 600 kg/ha (seed) with rigorous precisition.

5.3 SEED DOSAGE

Verify that the seed dipensers 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

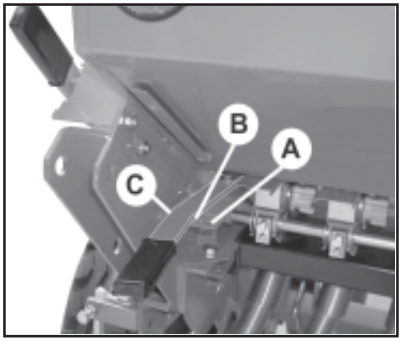


fig. 7

Place the dispensers position lever:

A. right, wide cog for wheat, barley, etc.
B. centre, medium cog for sunflower, peas, etc.
C. left, narrow cog for lucerne, rape, etc.

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

Nº 1, for little seed.
Nº 3, for wheat and barley.
Nº 7, for big seed.

To empty the hopper, take the lever to the front further on number 7.

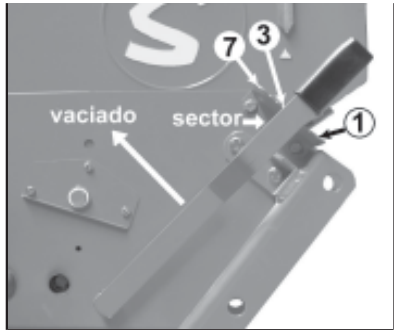
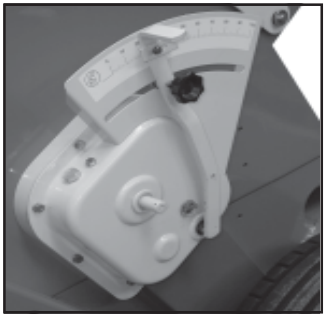


fig. 8



Finally, select the seed speed variator lever position according to the table in pages 30-31.

fig. 9

5.4 SEED CONTROL

Once the dispensers position lever, the mobile bottom lever and the seed speed variator lever are placed, it is necessary to test its goodness. The test will consist in simulating a 250 m^2 sowing.

FIRST: slide the distribution bar (1, fig. 10) along its rails by releasing the clamps (2, fig. 10) and pulling forwards.

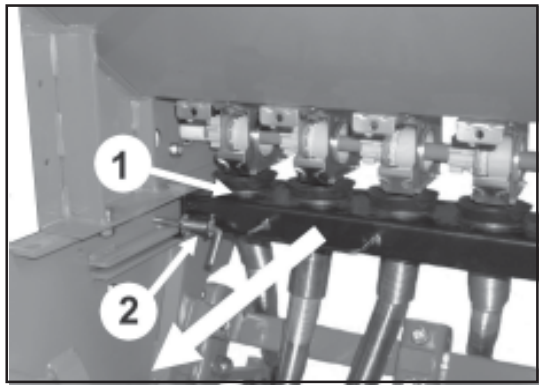


fig. 10

SECOND: spread a plastic film under the dispensers in order to collect the seed delivered during the test.

THIRD: Give some clockwise turns to the driving wheel, until some seed is delivered. Collect up this seed and return it to the hopper. The machine is ready for the test.

type	6.00-16 tyre
250	44 turns
300	36,5 turns
350	31,5 turns
400	27,5 turns

Give the turns indicated in the table above, aproximately 1 per second, to the wheel. This number of turns may vary depending on the soil conditions, the wheel manufacturer or the tyre pressure. To finish, collect and weight up the delivered seed. Multiplying the result by 40 we obtain the dose (in kg/ha) the machine will distribute.

Beware of getting injuries from the scraper when turning the wheel.

This operations are to be made with the machine coupled to the tractor and slightly lifted, just to allow wheels turn freely It is also recommended to fill only half-hopper in order to make possible the wheel manual turning.

If 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 sowed three or four full seed hoppers.

In combined seeders, the seed control must be done before filling the fertilizer hopper in order to avoid the mixing of fertilizer and seed in the dispensers.

5.5 FIELD SEED TEST

If it seems that there are significant diferences between the dose test and the actual dispensed dose -due to, by sample, an irregular or soft terrain- a field test can be performed to determine the real number of wheel turns for the dose test.

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

Machine type	distance (m)
250/14	100,0
300/17	83,3
350/19	71,4
400/22	62,5

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

As a result of carrying out the dose test with this number of turns, we obtain the exact dose delivered by the seed-drill.

5.6 SEED DOSE REGULATION

With current use of high quality certificated seed, it's 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.

NARDI SpA thinks that is recommendable to seek advice about recommended dosification in some technical sowing center.

The seed dose must be adjusted to each soil depending on its texture, fertilization level, dampness and sowing time, grain quality, germinative value, etcetera.

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's equivalent to multiply by 1,43 and 1,25 respectively the number of grains needed.

5.7 ARMS ADJUSTEMENT

Tightening the bolts (A, fig. 1 1) penetration depth of each arm can be adjusted individually. If the the tractor tyre track becomes deep due to soft soil, it is convenient to increase the track-coincident coulters penetration while reducing that of the middle ones. If wheel track breakers are fitted, this adjustment is not necessary.

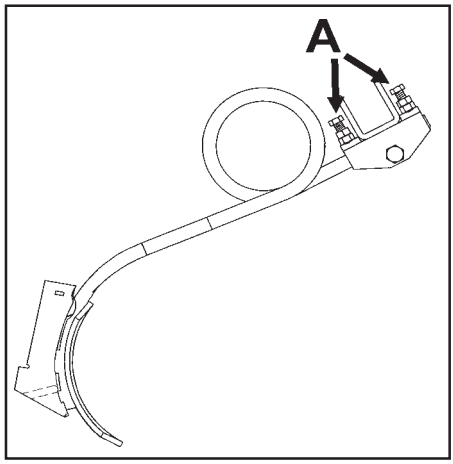


fig. 11

5.8 FERTILIZER DISPENSER MECHANISM

SOLÀ combined dispensers are double-bodied, with stainless-steel housing and DELRIN mobile parts.

The seed dispenser roller has two working positions as seen in section 5.2 in this booklet. The fertilizer dispenser roller has constant step. Assembled on an hexagonal shaft, it can be easily removed without tools.

The fertilizer mobile bottom its a detachable stainless-steel cover (fig.12). This allows fertilizer roller cleaning.

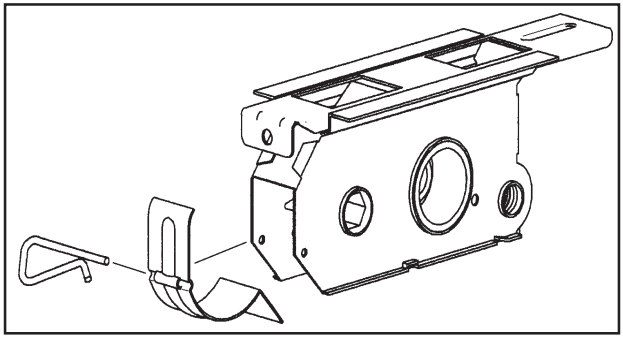


fig. 12

5.9 DOUBLE SEED/FERTILIZER HOPPER

The hopper has two compartments: the back compartment (1, fig. 13) for seed and the front comp artment (2, fig. 13) for fertilizer . The fertilizer compartment has a mesh cover (3, fig. 13) in order to avoid strange bodies, like stones, damaging the dosage mechanism.

Each compartment is equiped with its own flow control device.

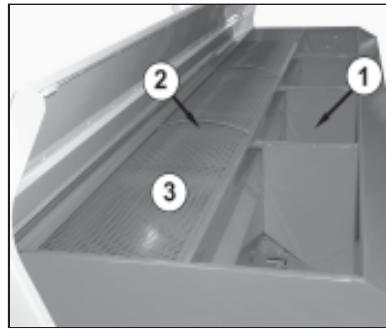


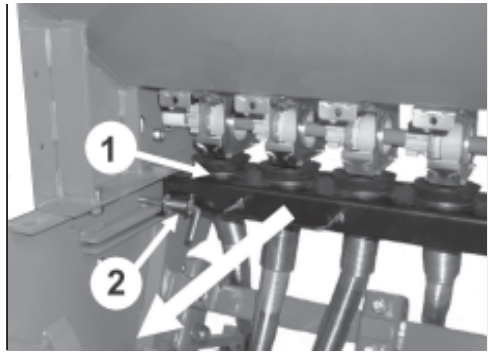
fig. 13

5.10 FERTILIZER DOSAGE AND CONTROL

The fertilizer dosage has to be done by means of the fertilizer speed variator, placed on the left side of the machine. Select the choosen dose (see table in page 32) by positioning the lever on the graded scale. The table in page 32 is for guidance only, because the fertilizer density can vary depending on the manufacture process. So, we recomend to carry out a fertilizer dose test likewise that of the seed.

fig. 14

fig. 13



FIRST: slide the distribution bar (1, fig. 13) along its rails by releasing the clamps (2, fig. 13) and pulling forwards.

THIRD: Give some clockwise turns to the left wheel, until some fertilizer is delivered. Collect up this fertilizer and return it to the hopper. The machine is ready for the test.

SECOND: spread a plastic film under the dispensers in order to collect the fertilizer delivered during the test.

type	pneus 6.00-16
250	44 tours
300	36,5 tours
350	31,5 tours
400	27,5 tours

Give the turns indicated in the table above, aproximately 1 per second, to the left wheel. This number of turns may vary depending on the soil conditions, the wheel manufacturer or the tyre pressure. To finish, collect and weight up the delivered fertilizer. Multiplying the result by 40 we obtain the dose (in kg/ha) the machine will distribute.

This operations are to be made with the machine coupled to the tractor and slightly lifted, just to allow wheels turn freely. It is also recommended to fill only half-hopper in order to make possible the wheel manual turning.

Beware of getting injuries from the scraper when turning the wheel.

It is recommendable to frequently clean with plenty of water nozzles, pipes and coulters for preventing rust due to fertilizer action.

Optionally, combined machines can be delivered with one or two seed and fertilizer tubes.

In the double tube option, with wet weather , it is VER Y IMPORTANT to clean the fertilizer comp artment of the nozzle, because of the blockage danger.

5.11 SOWING DEPTH CONTROL AND LEVELING

General depth of all arms is adjusted by a central spindle (1, fig. 16). In section 5.7 of this booklet we can see how to adjust each arm individually

The machine must work in horizontal position. The arrow must be aligned with the notch in the left side of the hopper (2, fig. 16) by shortening or lengthening the third point of the tractor hydraulic elevator

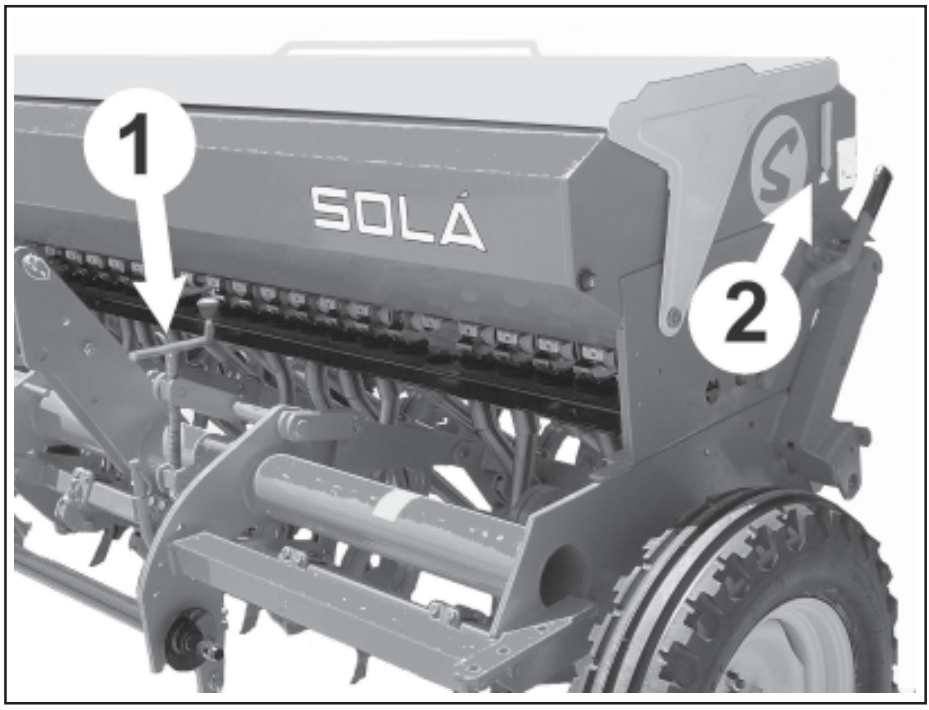


fig. 16

6. OPTIONAL EQUIPMENT

6.1 MECHANICAL DISC TRACERS

The mechanical disc tracers are assembled on both sides of the machine. Its operation is by cables (A & B, fig. 17), tied up to a central manual control (C, fig. 17), fitted with two bolts to the machine mast (D, fig. 17). The tracers act by activating the lever to the left and right side alternatively (C, fig. 17).

When circulationg with the machine, the disc tracers must be shifted to vertical position. The disc tracers a secured in this position by means of a pin fastener. Before sowing, remove the fasteners and t ake de disc tracers on the ground. It is very important to limit the working depth of the disc tracers bith de chains. Too deep grooves may cause damages to the disc tracers.

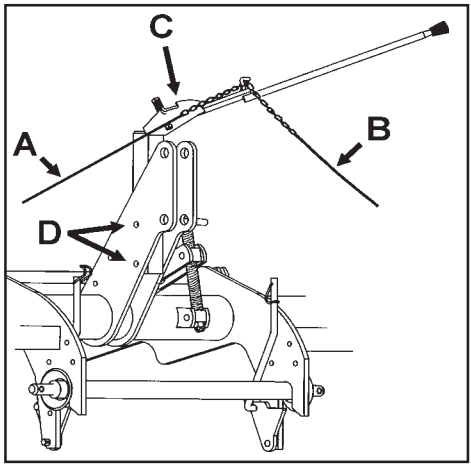


fig. 17

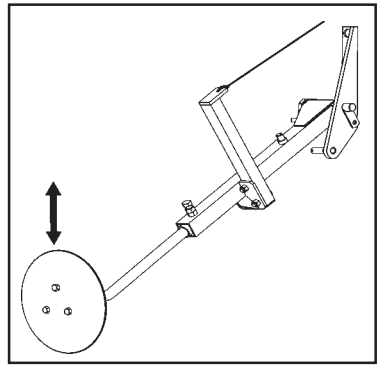


fig. 18

Never place in the folding range of the tracers.

6.2 TYPE «E» SPRING HARROW

The «TRI-294-ESP» seed-drill can be supplied with a spring harrow.The springs (3, fig. 19) are double-toothed in order to cover the furrow with the taken out soil.

Adjusting the upper bolts (1, fig. 19) of both arms, the working pressure is increased or decreased. Adjusting the lower bolts (2, fig. 19) modifies working depth.

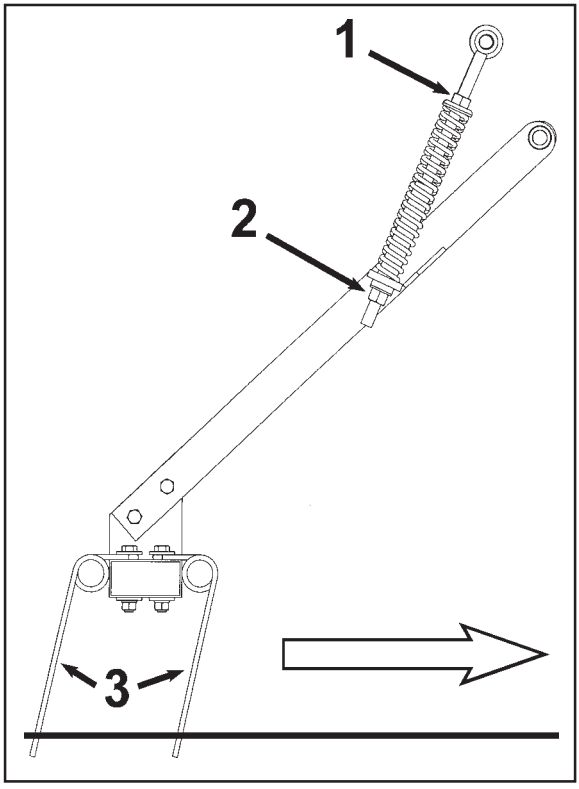


fig. 19

It is forbidden to ride on the harrow while sowing.

6.3 TYPE «EPI-6» AND «EPI-7» SPRING HARROW

The «TRI-294-ESP» seed-drill can be also supplied with a parallelogramic spring harrow. The springs (3, fig. 20) are double-toothed in order to cover the furrow with the taken out soil.

Adjusting the upper bolts (1, fig. 20) of both arms, the working pressure is increased or decreased. Adjusting the lower bolts (2, fig. 20) modifies working depth.

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

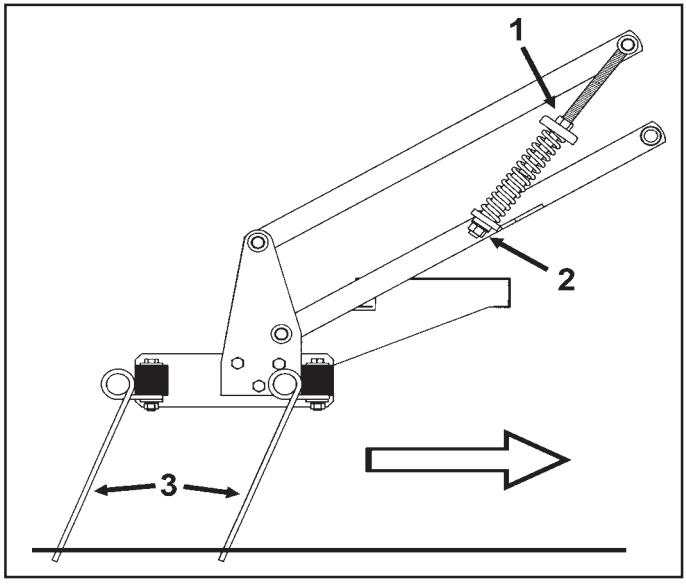


fig. 20

The «EPI-6» version is supplied with 250, 300 and 350 machines, whereas the «EPI-7» version is a articulated double-bodied version for 400 machines (see page 52 for more details).

It is forbidden to ride on the harrow while sowing.

6.4 ARTICULATED LAND CULTIVATOR

The land cultivator conditioner is an optional equipment for preparing the soil just before sowing. Its work must be superficial, except for the cultivation tines situated over the tractor wheel tracks. This tines must be regulated in order to erase the traces.

Four different work profundities can be achieved by means of the coupling arms. It is also possible to lift the cultivator independently of the seed-drill.

The cultivator is placed in the front part of the machine and it is adjustable in depth, independently of the seed-drill.

6.5 TYRE TRACK BREAKERS

The most convenient for removing tyre tracks are the tractor tyre track breakers. The four arms are adjustable in height and width to allow adapting to any tractor gauge.

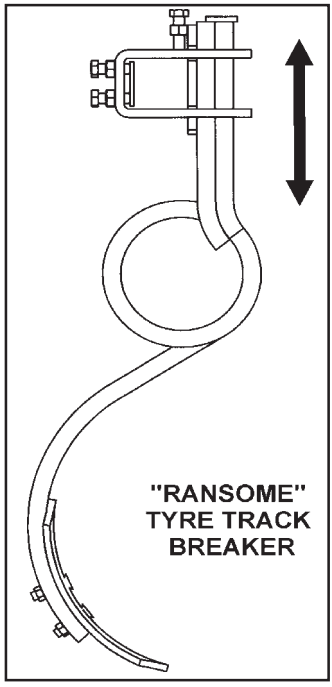


fig. 21

6.6 HECTARE COUNTER

The hectare counter is to be placed on the right side of the machine. It must be fitted in the shaft (A, fig. 22) that juts out the seed speed variator and screwed in the M-8 thread hole.

A special non-trapping screw (B, fig. 22) is supplied together with the hectare counter.

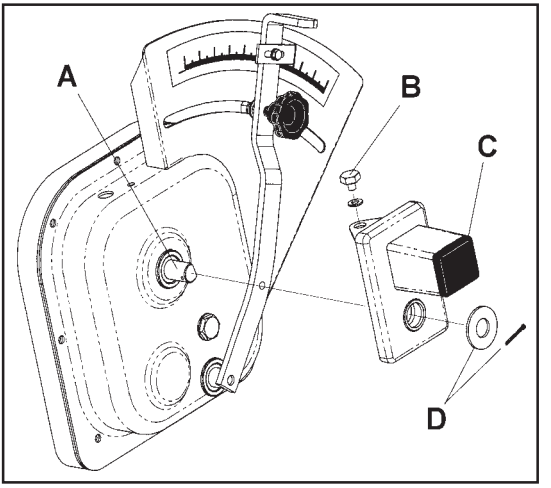


fig. 22

Removing the black lid (C, fig. 22) from the transparent box, the initializing command will be accessible.

Finally, fit a washer and its pin at the end of the variator shaf (D, fig. 22). Make sure that the pin doesn't brush against the hectare-counter box.

The «SOLA-90» hectare counter has direct scanning (in both hectare and square meters). 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 supplied with the machine it is recommendable to verify the gears before operating.

7. MAINTENANCE

7.1 GREASING & LUBRIFICATION

Grease regularly the following parts:

Wheel axles (remove pressure cap) (calcic dense grease) (1, fig 23)

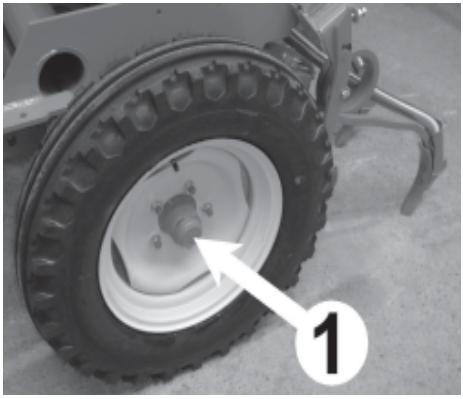


fig. 23

Arms pressure central spindle (calcic dense grease) (3, fig. 25)

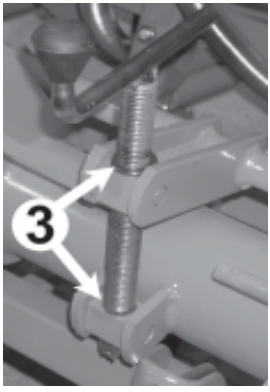


fig. 25

Wide-narrow switching roller (calcic dense grease) (2, fig. 24)

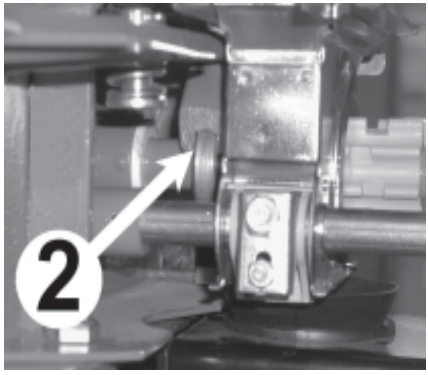


fig. 24

Verify both variators oil level through the spyhole (4, fig. 26). If necessary, remove the plug (5, fig. 21) and refill with SAE 30 oil

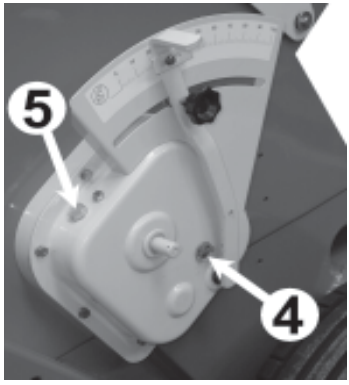


fig. 26

Don't 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/cm^2

Generally, in poor prep ared 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 coulters. For these bolts, a special tube key (1, fig. 27) is supplied with the machine.

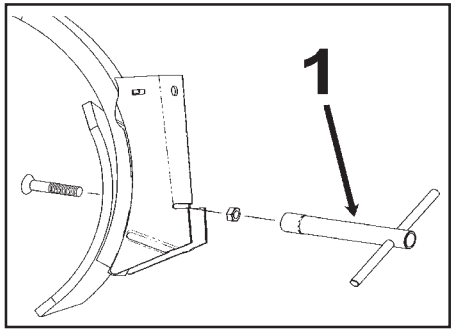


fig. 27

7.4 ANTIOXIDE CONTROL

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

a) Dismantle the pipes, the nozzles and dispenser stainless-stell 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 completly washed.

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

d) Verify the general greasing.

8. DOSAGE TABLES

The quantities seen in the tables are for guidance only. The flow can vary due to preservation powders, seed size, density and humidity, etc.

For a precision sowing, follow the process described in sections 5.5 to 5.6 of this booklet.

As a general rule, little grain needs less opening than big, round grain needs less opening than length and light grain needs more opening than heavy.

8.1 SEED TABLE (kg/ha)

sector nº	WHEAT	BARLEY	TRITICALE	PEAS	BEANS
dispenser roller position	WIDE	WIDE	WIDE	WIDE	WIDE
14					61,3
16					73,4
18					87,2
20	67,4	52,7	51,0	36,4	103,6
22	76,0	58,7	56,1	40,9	115,7
24	84,6	64,8	62,2	43,6	127,8
26	91,5	72,5	67,4	49,1	146,0
28	100,2	78,6	74,3	53,6	159,8
30	106,2	85,5	80,3	59,1	173,6
32	119,2	91,5	88,1	61,8	188,3
34	120,0	98,5	96,7	65,5	201,2
36	127,8	106,2	105,4	70,0	218,5
38	134,7	112,3	112,3	73,6	
40	142,5	119,2	119,2	77,3	
45	159,8	134,7	131,3	80,9	
50	176,2	148,5	143,3	88,2	
55	193,5	170,1	158,0	91,8	
60	210,7	178,8	171,9	99,1	
65	228,0	193,5	185,7	121,8	
70	246,1	207,3	199,5	131,8	
75	263,4	222,8	213,3	140,9	
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		
separation between arms	16 cm	16 cm	16 cm	32 cm	16 cm
mobile bottom lever position	3	3	3	5	4
1000 grains operative weight	40 g	46 g	30 g	293 g	530 g

Values calculated for 6.00-16 tyres

sector nº	RAPE	VESCE	RAY-GRAS	LUCERNE	SPINACH
dispenser roller position	NARROW	WIDE	WIDE	WIDE	NARROW
14	3,2	57,9		10,4	4,5
16	4,3	70,0		12,6	5,4
18	4,8	84,6		15,3	6,7
20	5,6	97,6		17,3	7,9
22	6,8	112,3		19,8	9,5
24	7,7	123,5		21,3	10,6
26	8,5	135,6	8,9	23,3	11,9
28	9,9	152,9	9,9	26,5	13,2
30	11,3	168,4	11,0	28,5	14,5
32	12,3	177,0	12,3	31,1	15,9
34	13,5	195,2	14,6	33,7	17,1
36	15,0		15,8	36,3	18,1
38	16,4		16,6	39,7	19,9
40	18,1		17,7	44,9	23,3
45	19,7		19,2	48,4	26,4
50	22,2		21,0	54,4	29,4
55			23,6	57,0	35,4
60			28,0	61,3	
65			31,8		
70			40,0		
75					
80					
85					
90					
95					
100					
separation between arms	32 cm	16 cm	16 cm	16 cm	16 cm
mobile bottom lever position	1	3	2	1	1
1000 grains operative weight		44 g			12 g

8.2 FERTILIZER TABLE

Fertilizer dosage (kg/ha)

sector nº	Fertilizer
0	0
2	26,8
5	69,1
7	103,6
10	148,5
12	191,7
15	237,5
17	284,1
20	333,4
22	379,1
25	430,1
27	475,9
30	530,3
32	568,3
35	622,7
37	659,0
40	712,5
42	741,0
45	792,8
47	714,2
50	852,4

Separation between arms: 16 cm
Values calculated whit 6.00-16 tyres
Use only granulated fertilizers.

We suggest to use high concentration mixture fertilizer . Otherwise, the fertilizer hopper capacity wouldn't 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. 28).

In the drawings, mirror parts are not repeated. Read the code in the code-list (-/D means «right hand» and -/I «left hand»)

Don’t forget to indicate the serial number and machine type in your spare parts orders. Both informations are on the IDENTIFICA TION PLATE in the right back part of the hopper.

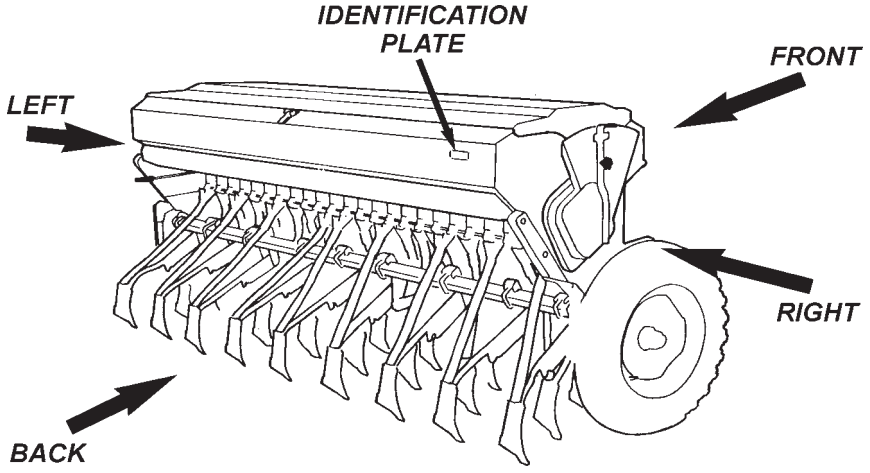


fig. 28

Don’t forget that you could take injuries with sharp edges while replacing components or assembling optional equipment.

Avoid working under the machine while it is lifted by the tractor.

9.2 CHASSIS

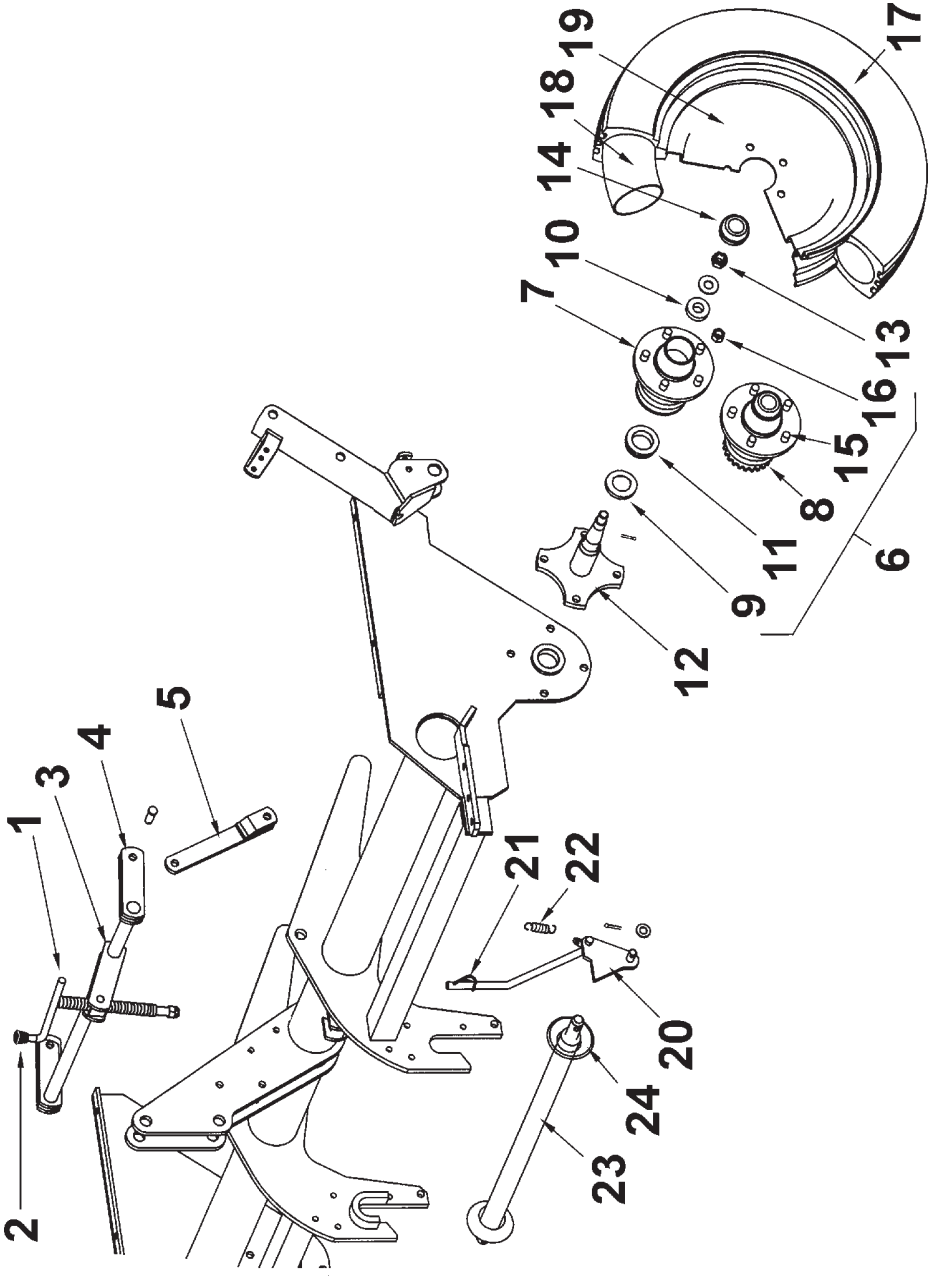


Figure	Code
1	RE-0104
2	PL-010200
3	PS-2607
4	EE-040305
5	PS-2606
6	MO-040112 (250, 300)
6	MO-040111 (350)
6	RE-040300 (400)
6	MO-040110 (29Z - 250, 300)
6	MO-040105 (29Z, 350)
6	RE-040301 (29Z, 400)
7	ME-040211 (250, 300, 350)
7	ME-040212 (400)
8	ME-040209 (29Z - 250, 300, 350)
8	ME-040210 (29Z - 400)
9	FE-601009
9	FE-601001 (400)
10	FE-600021 (250, 300)
10	FE-600020 (350)
10	FE-600007 (400)
11	FE-600023 (250, 300)
11	FE-600022 (350)
11	FE-600006 (400)
12	PS-2668 (250, 300)
12	PS-2669 (350)
12	PS-2670 (400)
13	935 20/150
13	935 27/150 (400)
14	EE-040231
14	EE-040234 (400)
15	PERNO 16/150
16	TUER CON 16/150
17	PL-040300
18	PL-040302
19	CO-040303
20	PS-2602/D
20	PS-2602/I
21	ML-010100
22	ML-010101
23	PS-0108 (C-II)
23	PS-010102 (C-III)
24	EE-010226

9.3 SOWING TRAIN

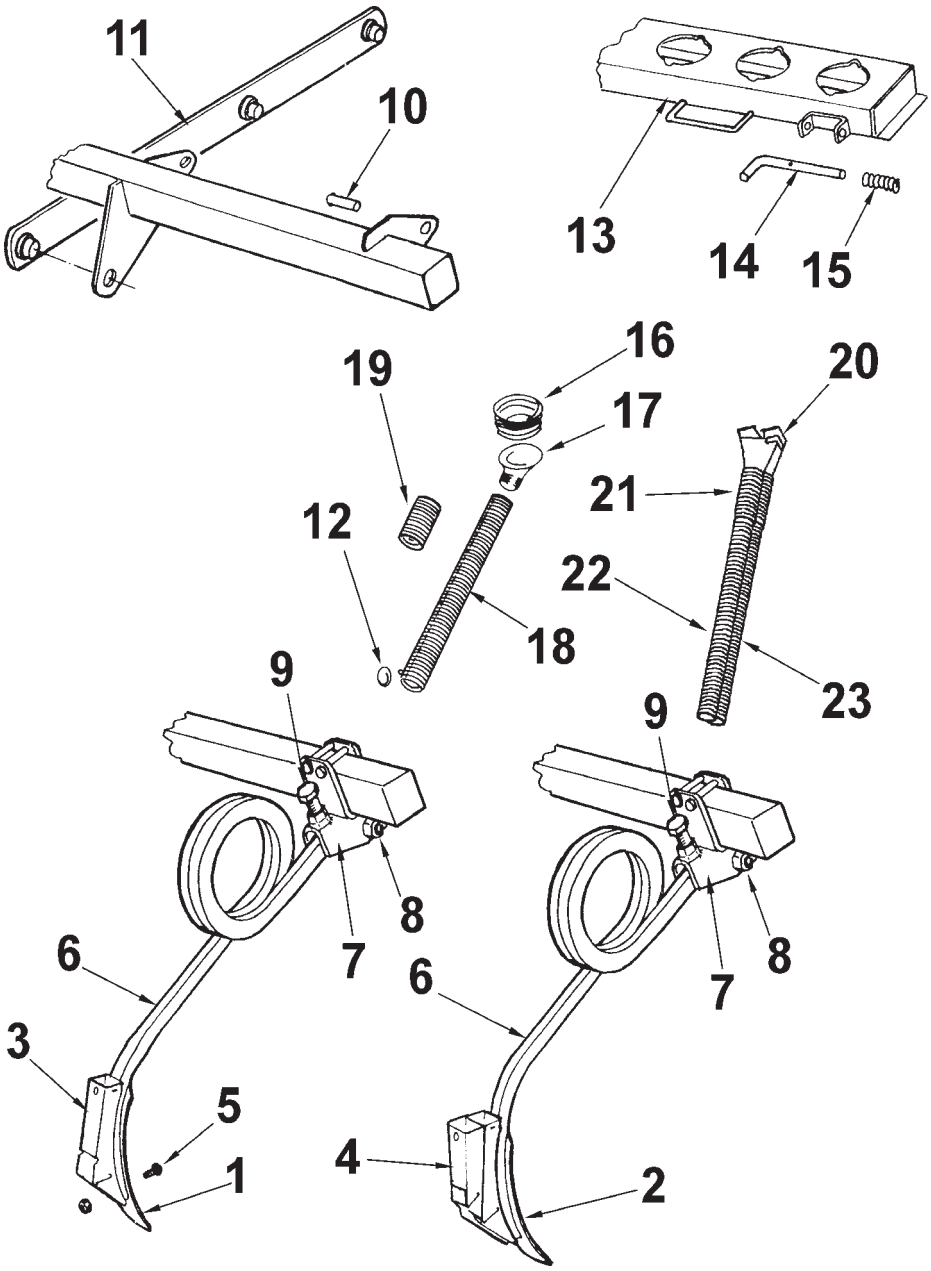


Figure	Code
1	FO-050301
2	FO-060300
3	MB-233
4	MB-164
5	608/934 9X40
6	PS-2612/D
6	PS-2612/I
6	PS-2662/D (right breaked)
6	PS-2662/I (left breaked)
7	MS-60
8	933 16X45 8.8 B
9	933 12X50 8.8 B
10	BU-050303
11	PS-2614
12	ML-050103
13	PS-1505 (250)
13	PS-1506 (300)
13	PS-1507 (350)
13	PS-1508 (400)
14	BU-050300
15	ML-050202
16	PL-050300
17	PL-050301
18	ML-050302 (plasticized 450)
18	ML-050306 (plasticized 480)
18	ML-050303 (plasticized 600)
18	ML-050304 (bichromed 450)
18	ML-050319 (bichromed 480)
18	ML-050305 (bichromed 600)
19	VA-1604 (bichromed)
19	VA-1606 (plasticized)
20	EE-050313 (central and back)
20	MB-114 (frontal)
21	VA-1613
22	ML-050313 (1 coupling, 400)
22	ML-050110 (1 coupling, 500)
22	ML-050323 (1 coupling, 680)
23	ML-050311 (2 couplings, 400)
23	ML-050107 (2 couplings, 500)
23	ML-050324 (2 couplings, 680)

9.4 SEED SPEED VARIATOR

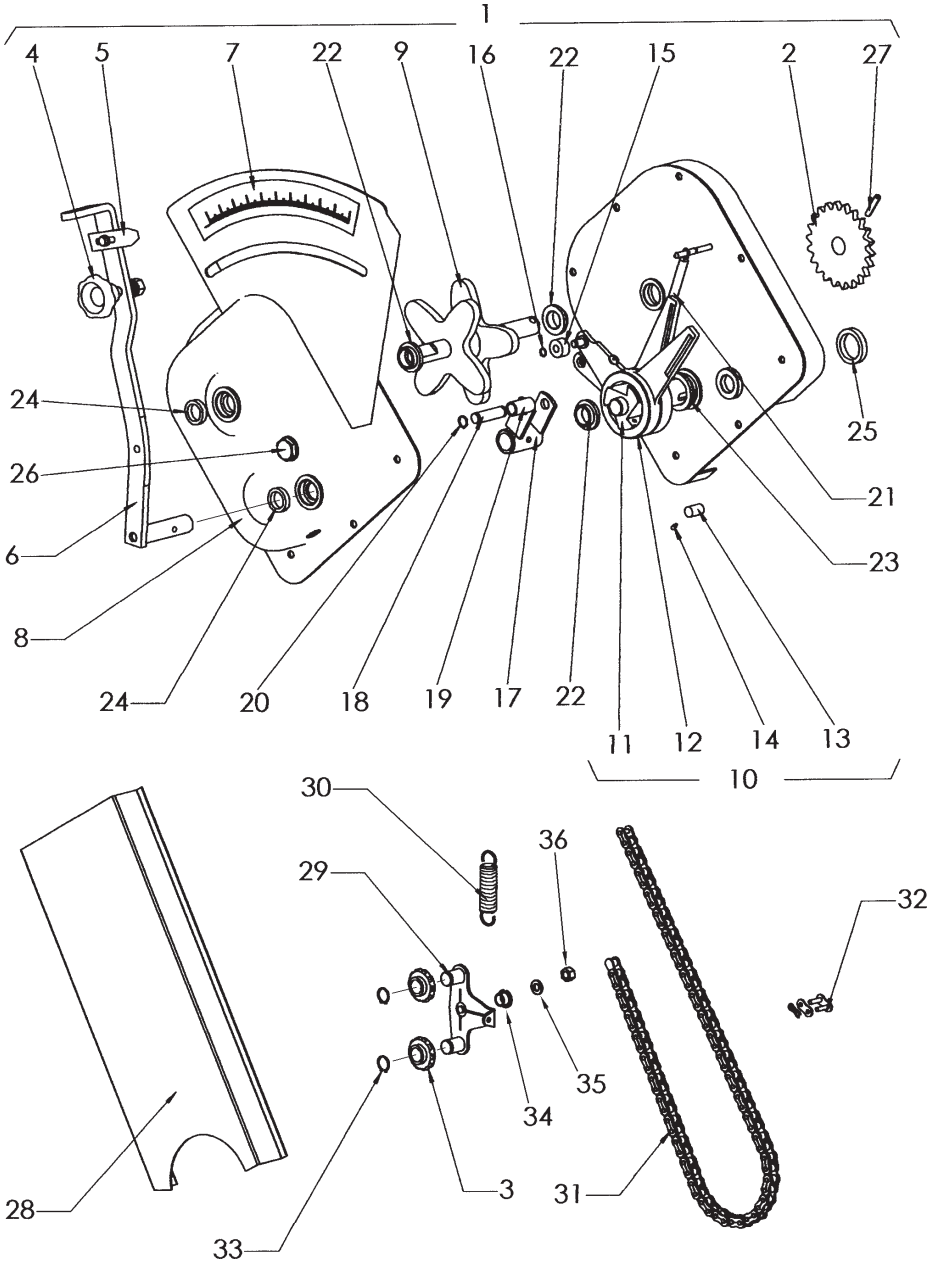
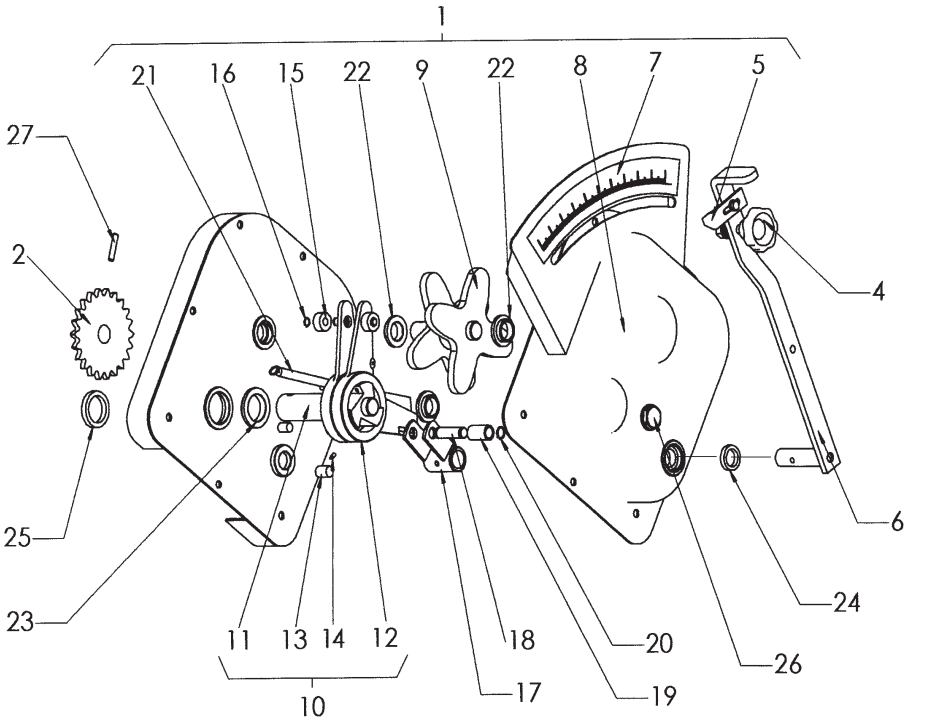


Figure	Code
1	MO-0601
2	ME-040100
3	PL-040100
4	MV-09
5	PX-040204
6	PS-0610
7	AD-040200
8	PS-0618
9	TA-0618
10	MO-0605
11	RE-040201
12	ME-040226/D
12	ME-040226/I
13	RODILLO 12X18
14	RE-040202
15	PL-040200
16	471 8
17	PS-0611
18	BU-040200
19	PL-040206
20	471 12
21	ML-040101
22	PL-040207
23	PL-040208
24	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

9.5 FERTILIZER SPEED VARIATOR



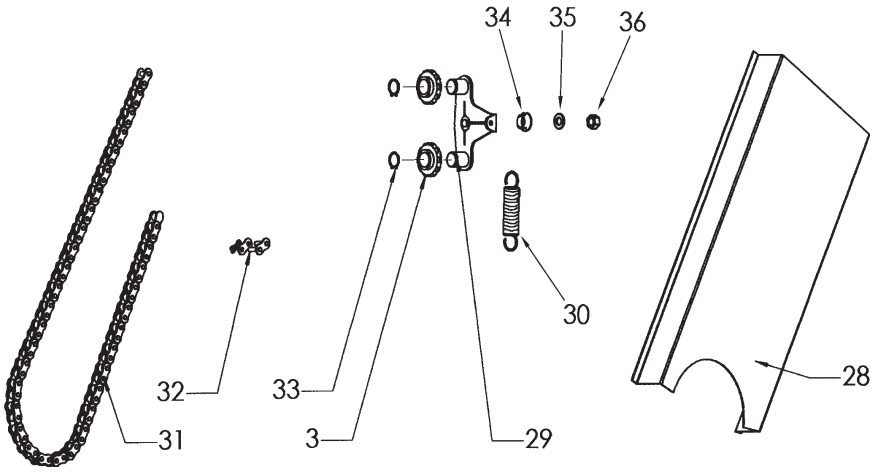


Figure	Code
1	MO-0602
2	ME-040101
3	PL-040100
4	MV-09
5	PX-040204
6	PS-0619
7	AD-040201
8	PS-0627
9	RE-040200
10	MO-0606
11	RE-040203
12	ME-040232/D
12	ME-040232/I
13	RODILLO 12X18
14	RE-040202
15	PL-040200
16	471 8
17	PS-0620
18	BU-040200
19	PL-040206
20	471 12
21	ML-040101
22	PL-040207
23	PL-040208
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
35	125 8 BI
36	985 8

9.6 SEED/FERTILIZER HOPPER

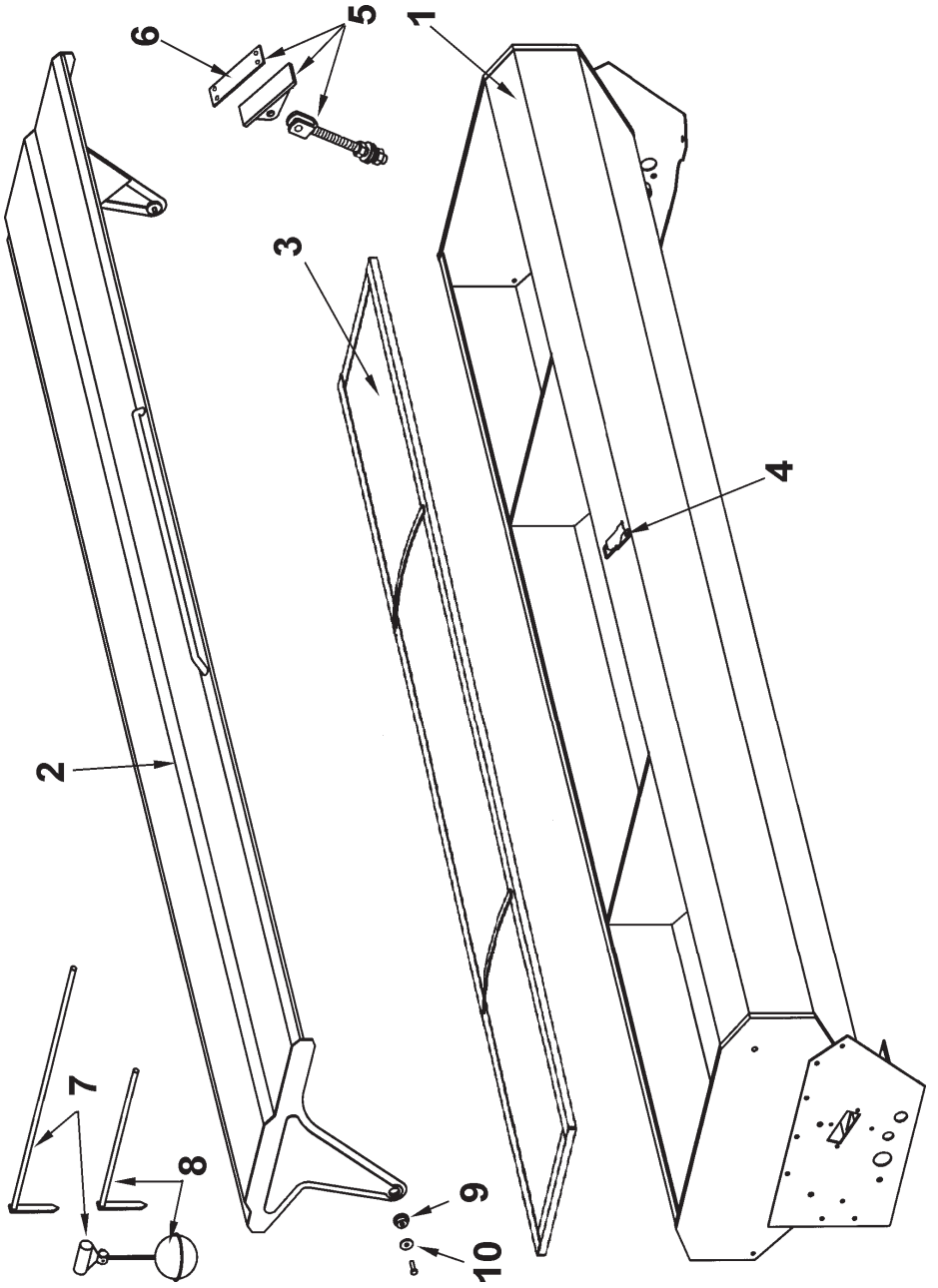


Figure	Code
1	PS-2671 (seeder 250)
1	PS-2672 (seeder 300)
1	PS-2648 (seeder 350)
1	PS-2673 (seeder 400)
1	PS-2674 (combined 250)
1	PS-2675 (combined 300)
1	PS-2652 (combined 350)
1	PS-2676 (combined 400)
2	PS-1301 (250)
2	PS-1302 (300)
2	PS-1303 (350)
2	PS-1304 (400)
3	PS-1401 (250)
3	PS-1402 (300)
3	PS-1403 (350)
3	PS-1404 (400)
4	MB-60
5	RE-020201
6	PL-020201
7	RE-020200
8	RE-020202
9	BU-020700
10	EE-030200

9.7 SEED/FERTILIZER DISTRIBUTION

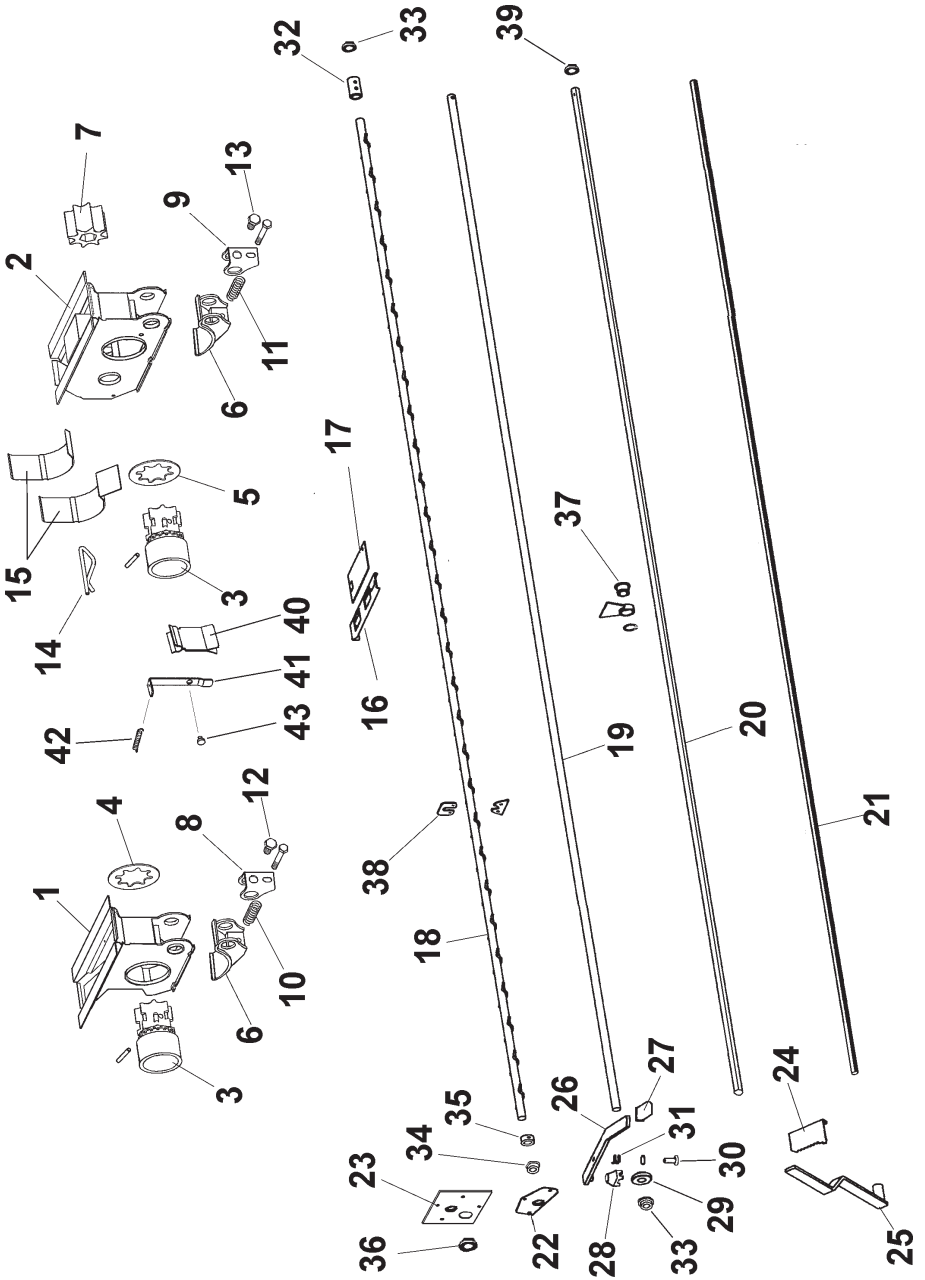


Figure	Code
1	MD-11
2	MD-12
3	PL-040201
4	EE-040201
5	EE-040202
6	PL-040205
7	PL-040202
8	EE-040232
9	EE-040232/P
10	ML-020200
11	ML-020201
12	933 8X20B PUNTA
13	933 8x20I PUNTA
14	ML-040203
15	EE-040227
15	EE-040226
16	EE-040228
16	EE-040229
17	EE-040230
18	PS-0416/17/18
19	TA-0403/04/05/06
21	PM-0402/12/13/14
22	EE-020215
23	TA-0509
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	FE-600009
37	PL-020203
38	EE-040215
39	PL-020206
40	EE-040303
41	EE-050201
42	ML-020100
43	EE-040100

9.8 DISC TRACERS

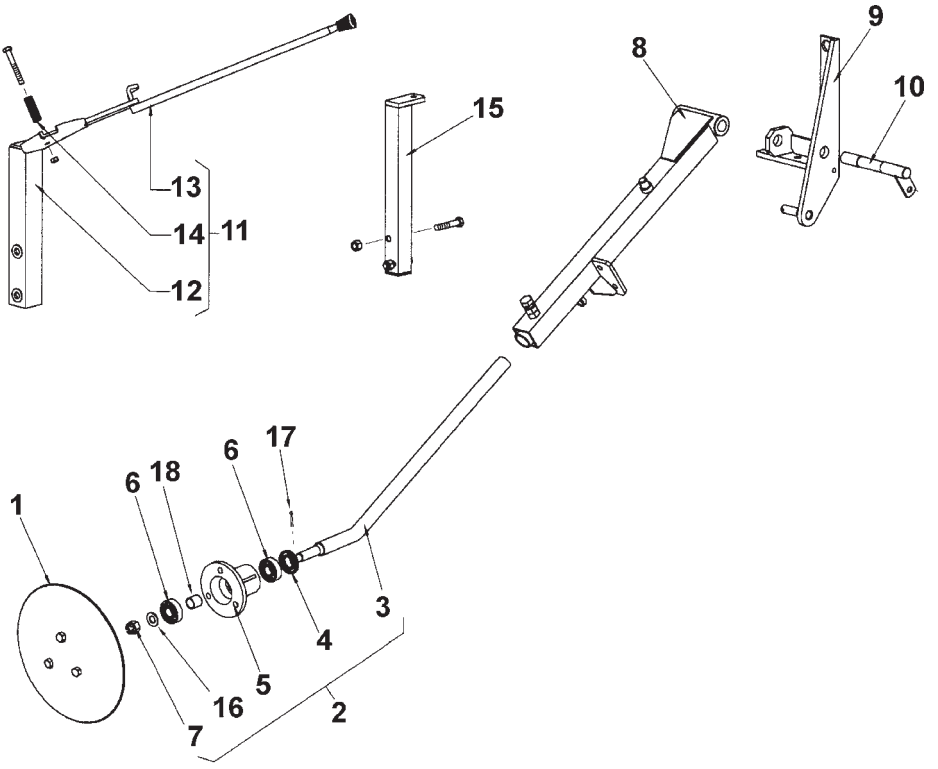


Figure	Code
1	EE-100217
2	RE-100200
3	PR-100201
4	FE-601000
5	ME-100214
6	FE-600005
7	935 16 BI
8	PS-1803/D (250, 300, 350)
8	PS-1815/D (400)
8	PS-1803/I (250, 300, 350)
8	PS-1815/I (400)
9	PS-101303/D
9	PS-101303/I
10	PS-101304
11	MO-100305
12	PS-100301
13	PS-1810
14	ML-100700
15	PS-1812/D
15	PS-1812/I
16	125 16 BI
17	94 3,5X28 BI
18	CT-100800

9.9 TYPE «E» SPRING HARROW

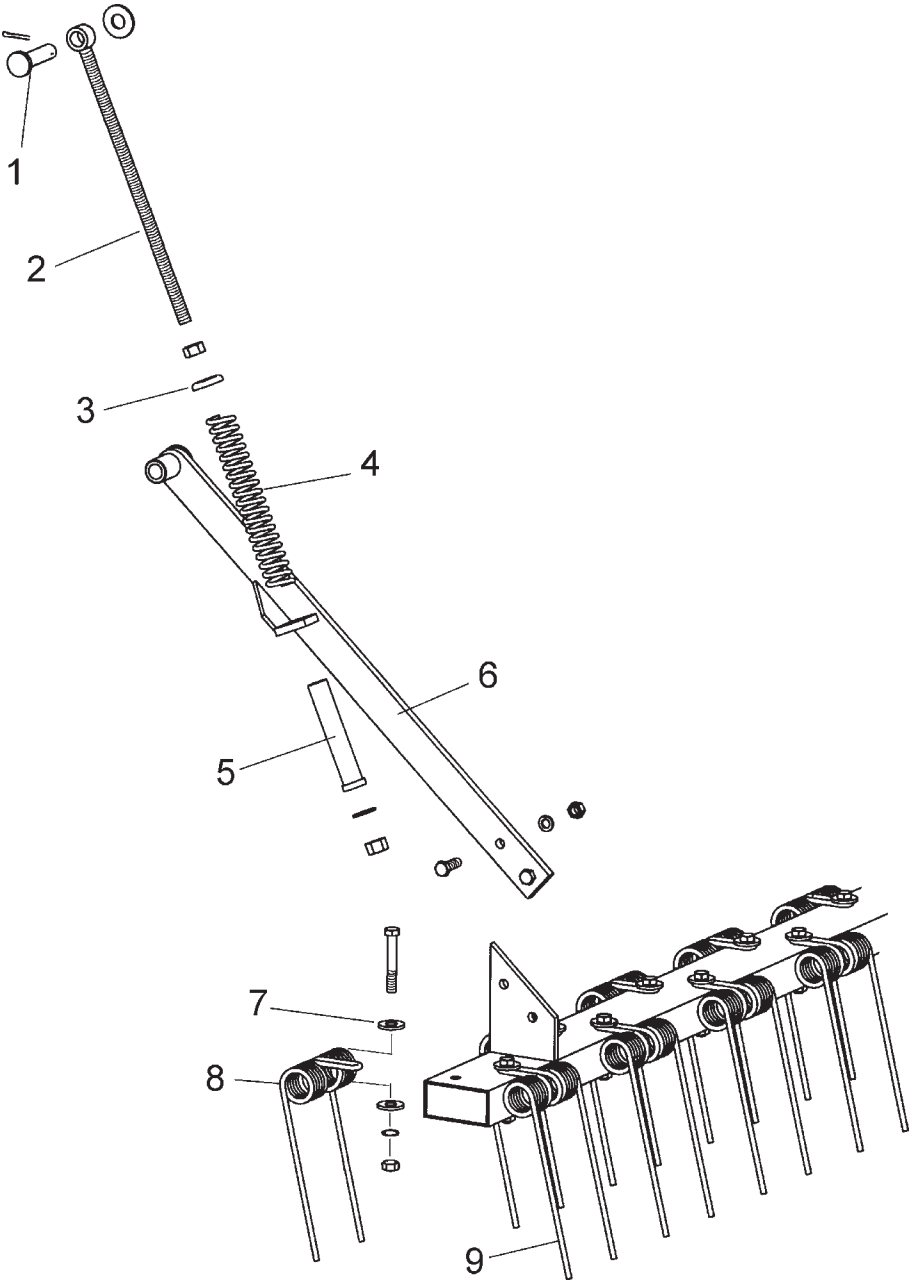


Figure	Code
1	BU-080202
2	PS-1710
3	EE-080306
4	ML-080104
5	PS-1735
6	PS-2610/D
6	PS-2610/I
7	ME-080202
8	ML-080000
9	ML-080001

9.10 TYPE «EPI-6» SPRING HARROW

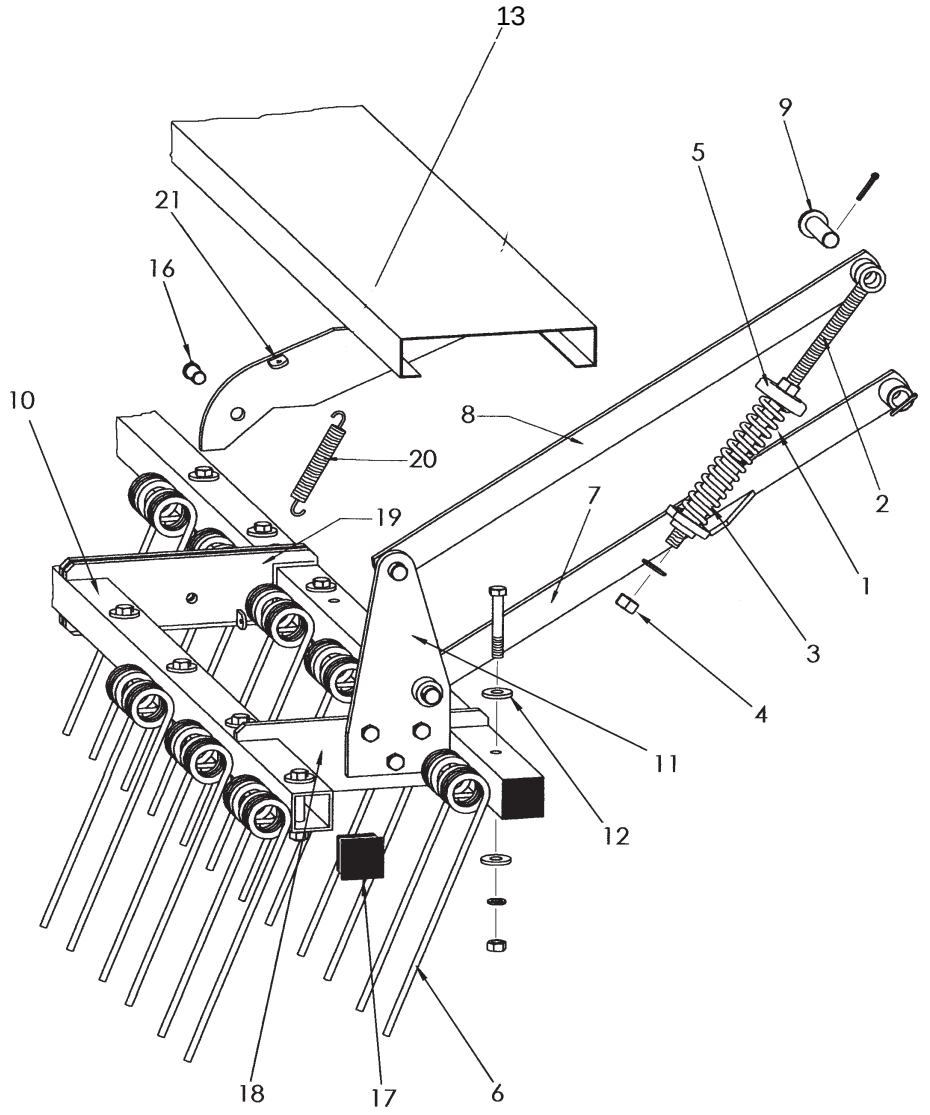


Figure	Code
1	ML-080104
2	PS-1710
3	PS-1735
4	985 16
5	EE-080306
6	ML-080103
7	PS-1741/D
7	PS-1741/I
9	BU-080202
10	PS-1736 (250)
10	PS-1737 (300)
10	ps-1738 (350)
11	PS-1736/D
11	PS-1736/I
12	ME-080202
13	PS-1740
16	BU-080206
17	CN-817001
18	PX-080207
19	PX-080201
20	ML-080101
21	EE-080206

9.11 TYPE «EPI-7» SPRING HARROW

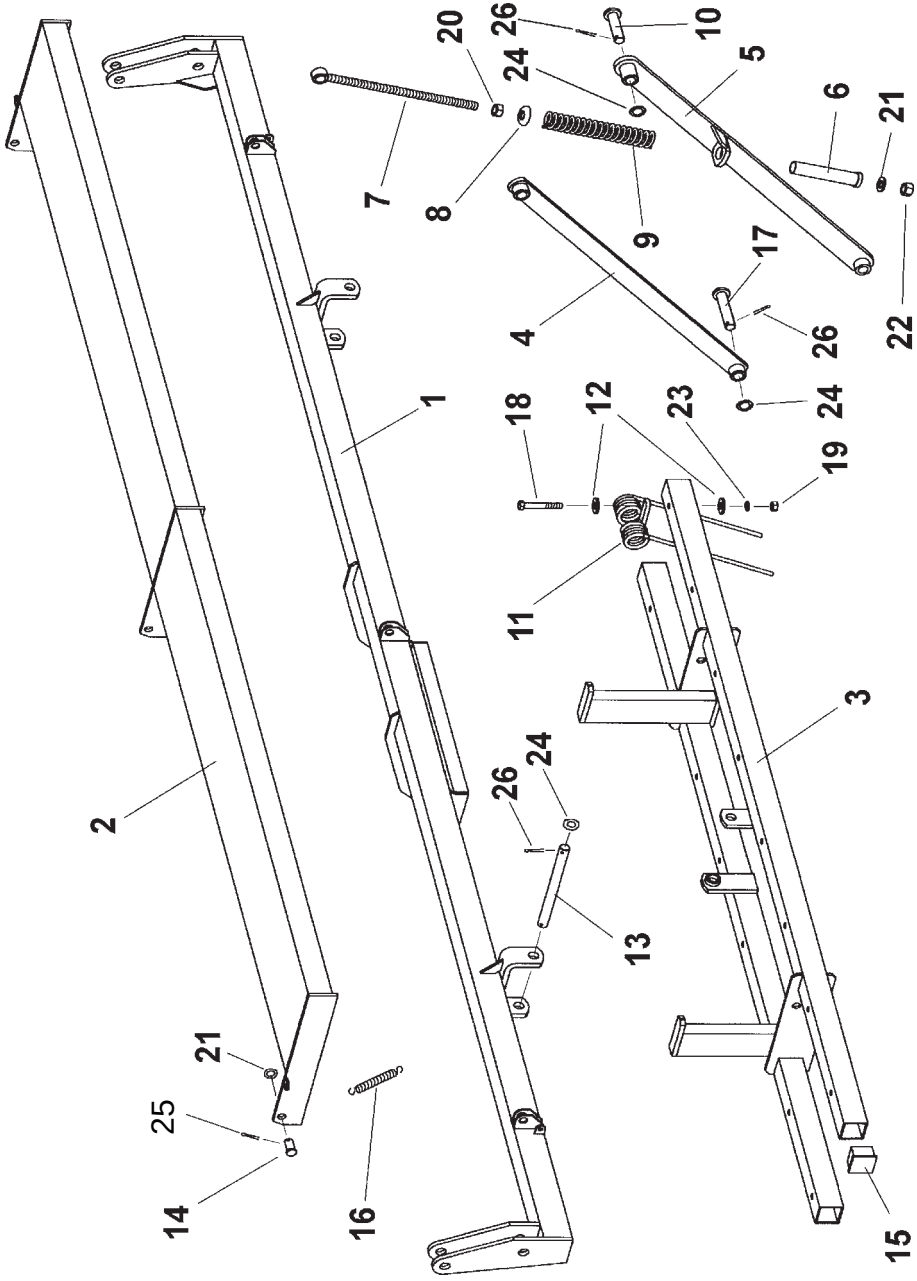


Figure	Code
1	PS-080311
2	PS-080312
3	PS-080310
4	PS-080307
5	PS-080308/D
5	PS-080308/I
6	PS-1735
7	PS-080306
8	EE-080306
9	ML-080103
10	BU-080202
11	ML-080104
12	ME-080202
13	BU-080302
14	BU-080206
15	CN-817001
16	ML-080101
17	BU-080205
18	931 12X80 8.8 B
19	934 12 BI
20	934 16 BI
21	125 16 BI
22	985 16
23	7980 12 BI
24	125 20 BI
25	94 5X25 BI
26	94 5X32 BI

9.12 LAND CULTIVATOR («RANSOME» TYPE ARM)

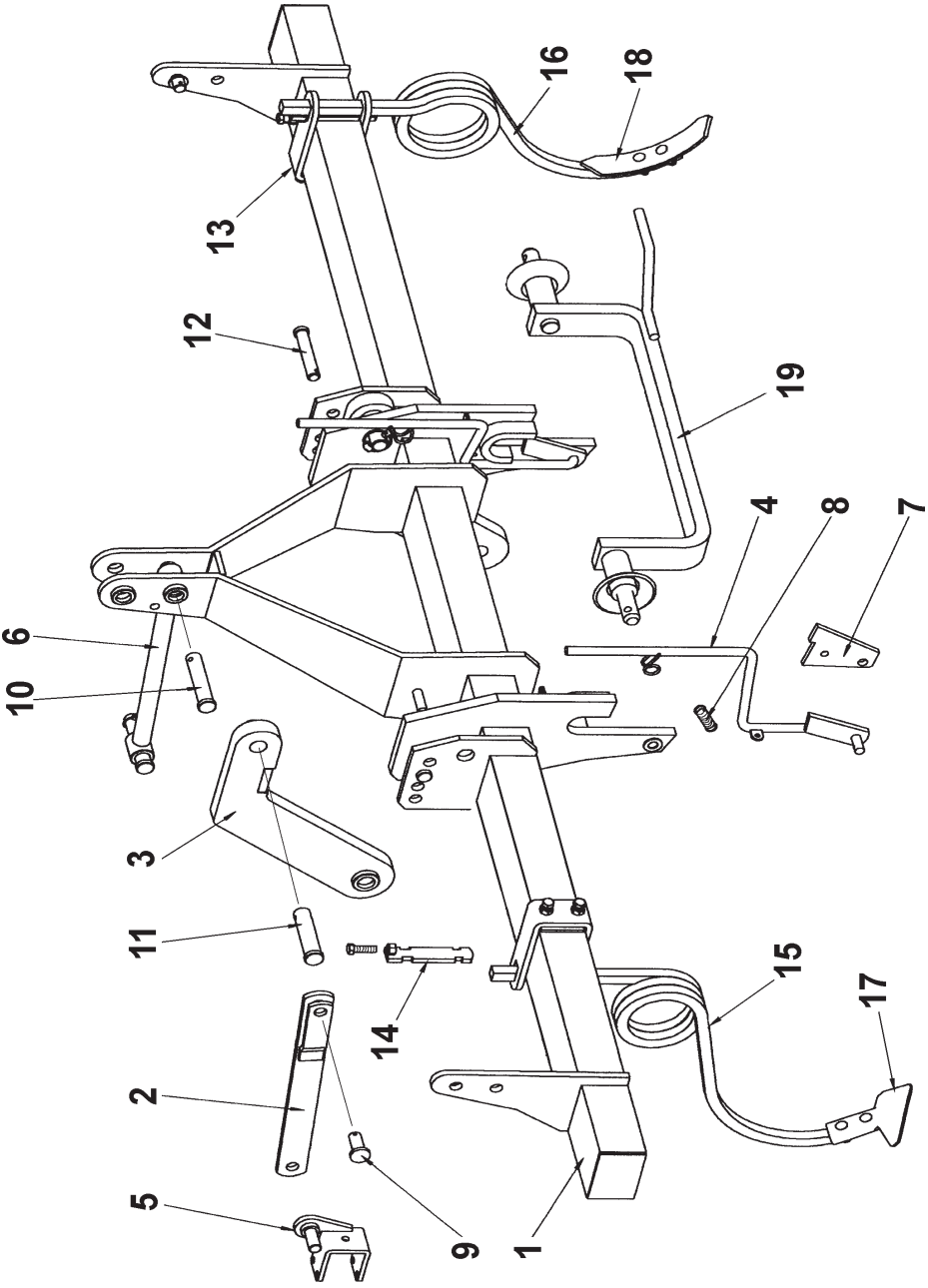
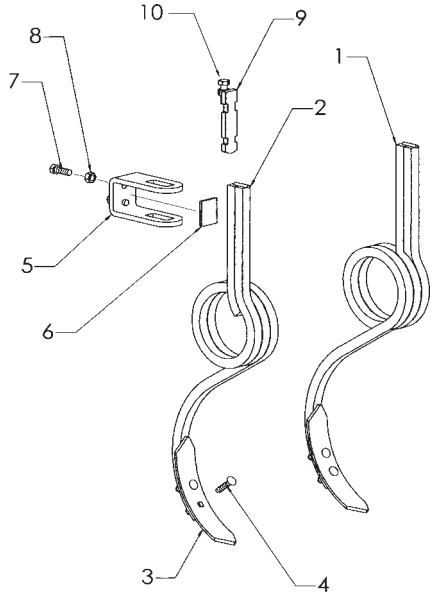


Figure	Code
1	PS-0705 (250)
1	PS-0706 (300)
1	PS-0707 (350)
1	PS-0708 (400)
2	PS-0703
3	PS-0702/D
3	PS-0702/I
4	PS-0712/D
4	PS-0712/I
5	PS-0718/D
5	PS-0718/I
6	PS-060205
7	TA-0721
8	ML-010101
9	BU-050404
10	BU-060203
11	BU-060202
12	BU-060201
13	EE-060227
14	CO-060201
15	VA-060200/D
15	VA-060200/I
16	VA-060201/D
16	VA-060201/I
17	FO-060301
18	FO-060300
19	PS-0109

9.13 «RANSOME» TYRE TRACK BREAKERS



9.14 HECTARE COUNTER

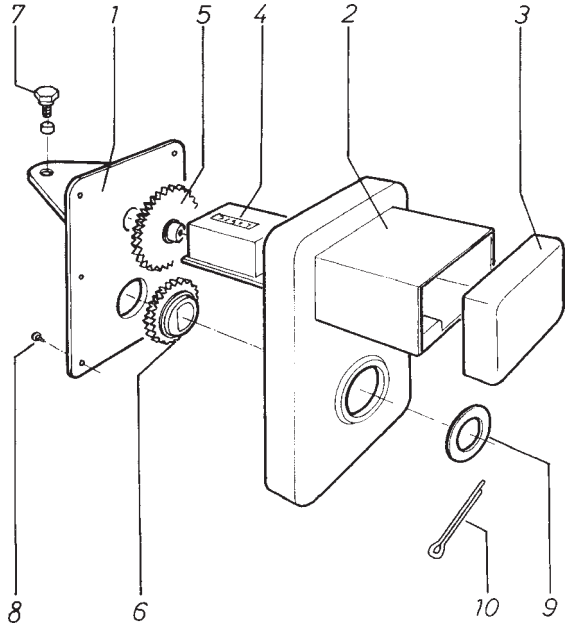


Figure	Code
1	PS-1105/D
2	PS-1105/I
3	FO-060300
4	608/934 9X40
5	EE-060307
6	PX-060200
7	933 12X35 8 BI
8	934 12 BI
9	CO-060200
10	933 12X40 8 BI

Figure	Code
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

9.15 FINISHINGS

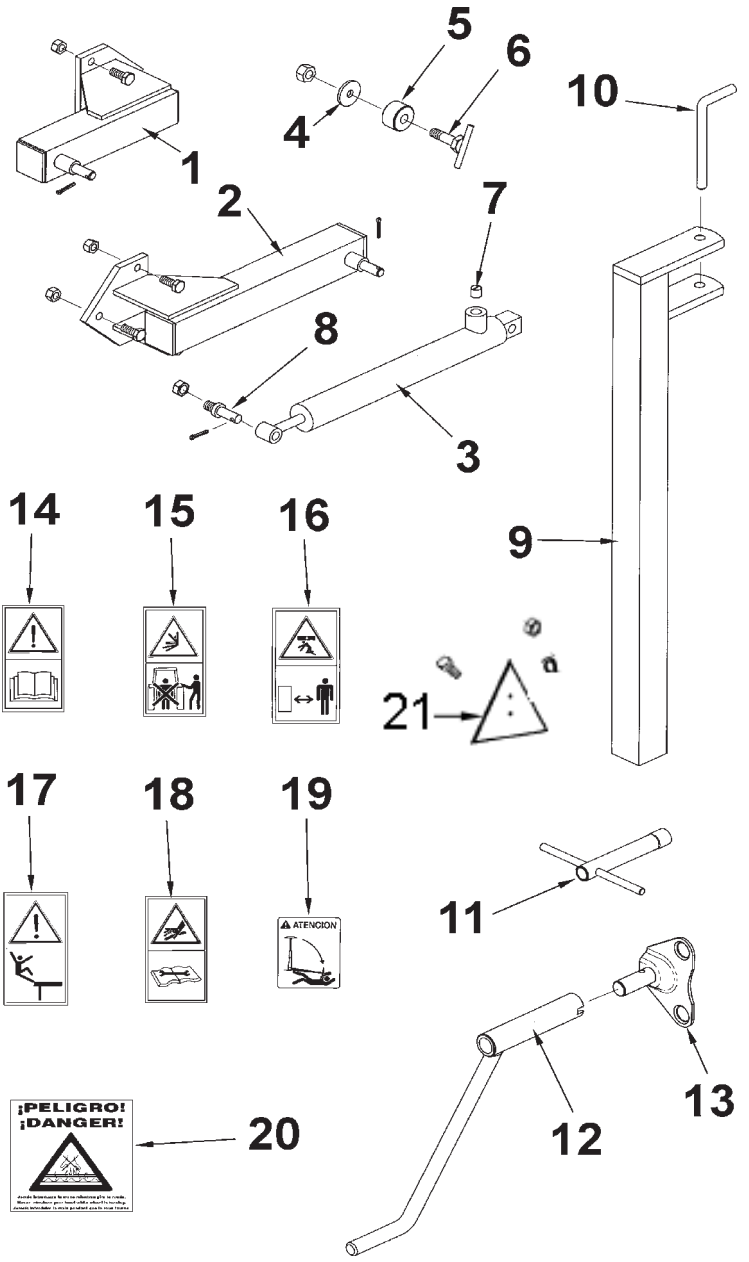


Figure	Code
1	PS-0609
2	PS-0608
3	CO-100201
4	EE-030202
5	ME-100202
6	PS-0607
7	ME-100210
8	BU-100204
9	PS-2631
9	PS-1601
10	BU-070100
11	ML-12
12	CO-070300
13	MO-1637
14	AD-070206
15	AD-070214
16	AD-070207
17	AD-070215
18	AD-070222
19	AD-100200
20	AD-030200
21	CN-818019

MAQUINARIA AGRICOLA SOLA,S.L.
Ctra. de Igualada s/n. Apdo.Correos,11
08280 CALAF (Barcelona) ESPAÑA
Tel. 34 93 868 00 60*
Fax. 34 93 868 00 55
www.solagrupo.com
e-mail:sola@solagrupo.com