seed drill

SD-1203

MANUAL FOR COMMISSIONING

MAINTENANCE

DOSAGE

SPARE PARTS.

Read the instructions carefully before using the machine

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10th Edition - March - 2017

SOLÁ seed drillers and fertilisers are manufactured at a factory exclusively specialised in this line and endorsed by the experience of many thousands of users.

They are machines equipped with sophisticated technology, designed to have a long service life, free from faults, in the most varied conditions and with simple and effective devices to carry out excellent work with minimal maintenance.

With the information on all its possibilities and configurations we want to help you achieve what you expect of our machine.

Certified quality system

1.INTRODUCTION

Before starting up the seed drill, it is essential to read the instructions and recommendations in this manual. This will ensure a reduction in the danger of accidents, prevent damage to the seed drill due to misuse and increase its performance and service life.

All persons who carry out operations (including preparation, repairing faults in the field and general care for the machine), maintenance (inspection and technical assistance) and transport must read the manual.

For your own safety and that of the machine, the technical instructions on safety must be respected at all times. SOLÁ shall not be held responsible for any damage or faults resulting from any breaches of the instructions provided herein.

The first chapters cover the Technical Specifications and Safety Instructions, as well as key sowing concepts. A basic understanding of the key knowledge required to operate the machine is provided in the Commissioning and Maintenance sections. The end of the manual features a Dosage Table for various types of seeds and fertiliser and a List of Spare Parts. *INTRODUCTION-4-* SOLÁ reserves the right to modify the illustrations, technical data and weights specified in this manual if it deems that such modifications contribute to improving the quality of the seed drills.

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2. TECHNICAL SPECIFICATIONS SD-1203

2.1 TECHNICAL SPECIFICATIONS

TYPE AND No. OF DISCS	SEPARATION BETWEEN DISCS (cm)	WORKING WIDTH (m)	HOPPER CAPACITY (litres)	WEIGHT (kg)
250/13	18	2.35	850	2400
300/17	18	3	1040	2600
350/19	18	3.5	1230	2900
400/21	18	3.8	1430	3200

TYPE AND No. OF DISCS	SEPARATION BETWEEN DISCS (cm)	WORKING WIDTH (m)	HOPPER CAPACITY (litres) SEED FERTILISER	WEIGHT (kg)
250/13	18	2.35	400 450	2470
300/17	18	3	500 540	2675
350/19	18	3.5	590 640	2980
400/21	18	3.8	680 750	3285

2.2 STANDARD EQUIPMENT

- Furrow-opening disc coulter
- Independent rubber depth control wheels
- Seed boots and cast furrow closing wheel
- High-capacity hopper
- Unobstructed harrow with hydraulic fold-up W-tines
- Speed variator
- Tray, scales, crank and grain counter
- Light equipment
- Loading platform with an access ladder

2.3 OPTIONAL EQUIPMENT

- Hectare counter
- Hydraulic track markers without monitor
- Track marker with electrical clutch and monitor

3. TECHNICAL SAFETY INSTRUCTIONS

3.1 SAFETY SYMBOLS

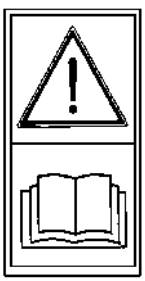
This manual contains three types of safety and hazard symbols:

To facilitate the work of the seed drill.

To prevent damage to the seed drill or optional equipment.

The prevent harm to persons.

Additionally, the following warning signs are found on the machine:



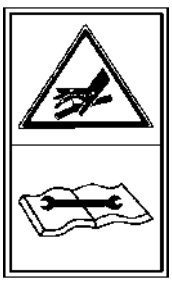
Carefully read and follow the instructions for use and safety precautions.

Keep away from the rear of the tractor when coupling the seed drill.
Danger of serious injury.

Coupling point for raising the machine

Crushing hazard when working underneath the machine. Secure it to prevent it from collapsing.
Danger of serious injury.

Do not climb the ladder while the machine is running.
Danger of injury.



Keep the hydraulic hoses in good working condition.
Danger of serious injury.

Before performing maintenance or repairs on the machine, stop the tractor engine and take the key out of the ignition.

Do not place your hand in the hopper while the wheel is turning.
Danger of injury.

3.2 USE ACCORDING TO THE DESIGN

- The seed drill **SD-1203** has been manufactured to be applied normally in farming work, especially for sowing cereals and other grain seeds.

- If damage is caused as a result of using the machine for other applications, the manufacturer shall not be held responsible.

- All the legal provisions regarding the safety of machines, traffic, and hygiene and safety at work must be fulfilled.

- Any changes made by the user render the possibility of the manufacturer's guarantee void in the case of damage caused.

3.3 GENERAL SAFETY PROVISIONS

- Verify the safety of the machine in terms of the work and as regards traffic each time before starting up the machine.

- Follow road signs and traffic instructions when using public roadways.

- It is strictly prohibited to ride on the machine when it is working or being transported.

- Before starting up the machine, make sure you are acquainted with the operating elements and the way in which it operates.

- Pay particular attention when coupling and uncoupling the machine to and from the tractor.

- The power take-off transmission must be protected and in good working condition. Prevent the protector tube from turning by holding it using the chain in place for this purpose. The clutch side will be mounted on the seed drill.

- Only fit the power take-off transmission when the engine is switched off.

- Make sure that nobody is in the danger area of the machine before connecting the power take-off.

- Never leave the driver's seat while the machine is running.

- Do not place foreign elements in the hopper.

- Remove pressure from the circuit and stop the engine before working on the hydraulics.

- Under normal conditions, the tubes and hoses of the hydraulic circuits are subject to natural ageing. The service life of these components must not exceed six years. Check their condition on a regular basis and replace them after the aforementioned time.

- The front axle of the tractor discharges when raising the seed drill. Make sure it has sufficient counterweight to prevent a tipping hazard. Verify the steering and braking capacity in this situation.

- During transport with the seed drill raised, block the lowering switch. Before climbing down from the tractor, lower the machine to the ground and take the key out of the ignition.

- When performing maintenance with the machine raised, always use sufficient support elements to prevent the machine from falling.

- It is dangerous to approach the transmission wheel.

3.4 LOADING AND UNLOADING

Load and unload the machine with the tow bar and the drag train removed. Use a bridge crane and tow ropes that are suitable for the weight of the machine. The tow ropes must be fastened to the chassis of the machine to ensure that it remains level when suspended.

Due to the inherent danger in these operations, the personnel carrying them out must be responsible and duly qualified. Clear the surroundings of the machine when it is suspended, in order to minimise the risks of collapse.

Optionally, a forklift truck can also be used. Make sure that it has sufficient power for the weight of the machine and clear the surroundings during the loading and unloading tasks.

4. KEY SOWING CONCEPTS

4.1 EARTH

The better the condition, the higher the sowing quality. It is not possible to carry out good work on large clods of earth or highly uneven furrows. Although SOLÁ machines can resist strong forces in adverse circumstances, good quality sowing is not possible if the seedbed does not meet the stipulated conditions.

4.2 SEED

It is essential to use accomplished quality seeds and, in the case of barley, those that are well de-burred.

4.3 DEPTH

Between three to five centimetres is recommended. Excessive depth is a very costly error, since the rhizome cannot reach the surface and the plant dies. It does not matter if some seeds are visible: the harrow tines will cover them up.

The sowing depth influences the tillering, the plant vigour and its resistance to ice and drought: the sprouting node always remains between 1 and 2 cm under the surface, whatever the depth at which the seed is planted.

Sowing deeper seeds does not result in deeper roots. Only a few roots spring from the bottom of the seed. The primary root mass shoots from the sprouting node almost at the soil level.

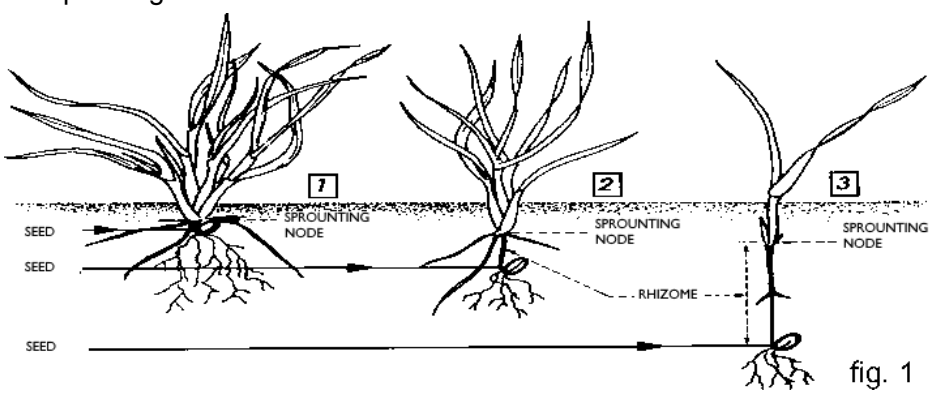


fig. 1

1	2	3
Normal depth sowing: fron 2 to 4 cm	**Medium depth sowing: between 5 and 6 cm**	**Very deep sowing: from 8 to 10 cm**
Thick stem, short rhizome, good resistance to ice.	Thin stem, rhizome exposed to ice.	Very thin stem. Zero tillering and one single leaf.
Multiple tillering: from 3 to 6 daughter tillers; and many leaves: between 6 and 10.	Late, poor quality tillering: 1 or no daughter tillers; and few leaves: round 3 or 4.	The grain reserves run out in a long rhizome that can be easily cut by ice.
Large tuft of roots: from 5 cm in width and 10-12 cm deep.	Regular tuft of roots: from 3 cm in width and 5 cm deep.	Poor tuft of roots: from 1 cm in width and 3 cm deep.
More ears are obtained with fewer grains per square metre.	More grain is required per square metre to obtain the same amount of ears as in case 1.	Double the amount of grain is required per square metre to obtain the same amount of ears as in case 1.

* In very cold areas successive frosts can cause bulking in the top layer of soil, with the danger of the emergence of burgeoning roots of the plant, resulting in its death. In these cases, it is advisable to plant at a greater depth or, where possible, use the roller to press the ground and better shelter the seed.

In the 1203-SD the transmission wheel that actuates the speed variator that distributes the gain is located on the right of the machine. Therefore, sharp turns, if required, must be made to the left, since turning on the drive wheel itself causes less seed to be distributed.

When starting up the machine, for one metre, there are no seeds in the furrow. In turn, when stopping the machine, the grain that is descending through the tubes will drain, piling up. Take this into account for good spreading

Always work at a consistent speed. Sharp accelerations and sudden braking can cause uneven distribution of the seed.

4.4 CHEMICAL TREATMENTS

Direct sowing involves the implicit concept of non-tillage, in which the prior treatment of all kinds of weeds is fundamental. Thus, it is fully advisable to seek thorough advice from specialists in chemical treatments on the product, frequency and intensity of the most suitable treatment to carry out quality sowing, guaranteeing – where possible – acceptable yield.

It is not uncommon, on some occasions, for the non-tillage technique to be unsatisfactory, explicitly due to incorrectly applying herbicides.

4.5 BASIC RULES FOR GOOD WORK

1. Keep the machine level to ensure an equal depth of the two rows. It is harder to close the furrow in wet or clay soil than in dry or sandy soil, thus, it is advisable to work at a shallow depth.

2. Due to the special formation of its tines, the W-shaped harrow does not drag residue or straw and it collaborates in covering the seeds in a better way. For crops planted at highly shallow depths, as is the case with oilseed rape or lucerne, the effectiveness in which it is covered is fundamental.

3. Light pressure applied to the springs of the sowing arms will improve the adaptation to uneven ground, where sowing is possible.

4. The discs penetrate the ground better at slow speeds. Furthermore, the seed is distributed unevenly with sharp accelerations and sudden braking. The penetration of the discs is not improved at excessive speeds, and pressure is further increased on the arms; otherwise, the pneumatic wheels can slide.

5. Do not delay changing worn boots or discs. This would entail false economy and would be a detriment to work.

5. COMMISSIONING

5.1 ASSEMBLY AND COUPLING

In order to assemble the drag train, firstly, the central supports must be fitted (A, Fig. 2) to the chassis, making sure not to tighten the bolts; secondly, the rear train must be fitted (B, Fig. 2) and, lastly, the tow bar (C, Fig. 2), using a dead-blow hammer. Once this is complete, all the bolts can be tightened.

The seed drill is coupled to the tractor using the tow bar. The hoses that actuate the cylinders of the drag train and of the harrow support must be connected to the tractor's double-acting outlets. Before starting work, it is necessary to verify that the cylinders are in good working order.

To carry out the work, the two rear wheels must be raised, so that the machine fully rests on the furrow-opening disc coulters, adjusting the height of the tractor's hydraulic lift until the seed drill is fully horizontal. In turns within the same working plot, it is possible to simply raise the two rear wheels.

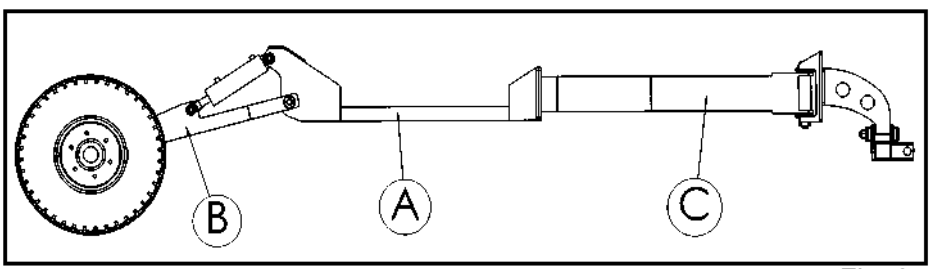


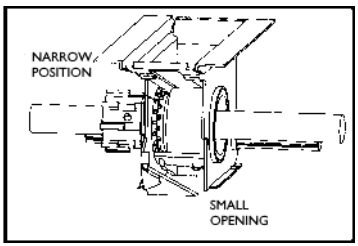
Fig. 2

5.2 DOSING MECHANISM

Sola's dosing mechanism can be set to two constant positions:

- Narrow position with small teeth for small seeds (Fig. 3).
- Wide position, with large alternated housings for regular and large seeds (Fig. 4 and 5).

Fig. 3



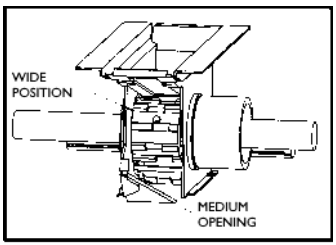
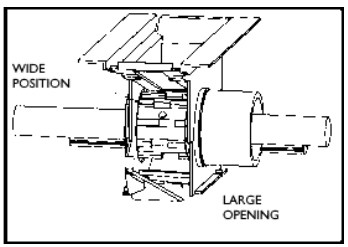


Fig. 4

Fig. 5



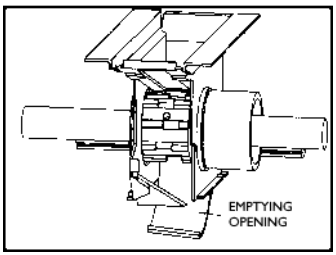


Fig. 6

There are two purposes to the base flap:

- Adjust the opening of the lower shut-off gate of the dispenser to adapt it to the seed size (Fig. 3, 4 and 5).
- Empty the seeds in the hopper onto the tray, fully opening the shut-off gates (Fig. 6).

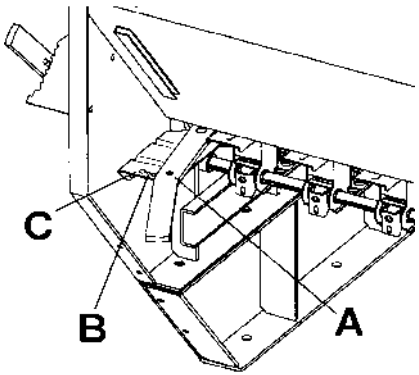
To easily switch the roller from the WIDE to the NARROW position, the dosing mechanism must be free of seeds, otherwise the grains would prevent the roller from sliding.

Once the position of the dosing mechanism is decided (narrow or wide) and the opening of the base flap is set (according to grain size), the flow of the seeds to be distributed is determined according to the speed at which the dosing rollers turn.

The speed variator determines this speed, and enables from 0 to 600 kg/ha of seed to be sown with exacting precision.

5.3 CONTROLLING THE DOSAGE

Check that the dosing shut-off gates are open, therefore, enabling the seeds to flow. After checking that there are no foreign objects inside the hopper, connect the agitator shaft to the bushing of the variator.



Set the dosing mechanism position lever into place:

A. right, wide position for wheat, barley, etc.
B. centre, medium position for sunflowers, peas, etc.
C. left, narrow position for lucerne, oilseed rape, etc.

Fig. 7

Place the base flap lever (to the left of the hopper) on the 7-position sector:

No. 1, for small seeds
No. 3, for wheat and barley
No. 7, for very large seeds

To empty the hopper, place the tray below the dosing wheel and shift the lever fully forward, beyond no. 7.

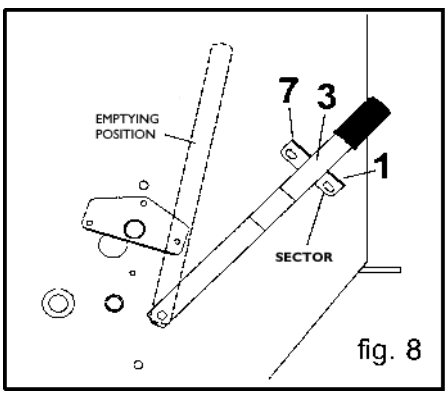


fig. 8

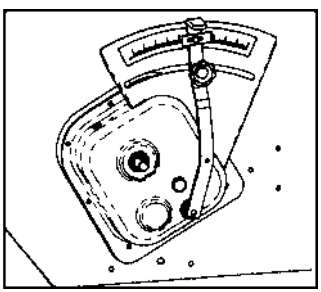


fig. 9

Release the knob of the variator, move the lever on the graduated sector from 0 to 100 and, once again, check the number that was previously selected, using the table on pg. 33 as a guide.

5.4 SEED PRIOR CHECK

Once the dosing wheel positions, and the positions of the base flap and the variator lever are set, a seed dosage test must be carried out.

FIRST: slide the nozzle-holder bar forward, releasing the latches that hold it in its working position, until it reaches the position in which to place the tray (Fig.) 10).

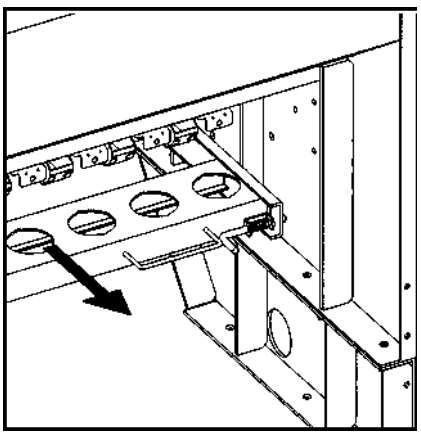


Fig. 10

SECOND: remove the tray from its transport base (A, Fig. 11) and slide it horizontally under the dispensers (B, Fig. 11).

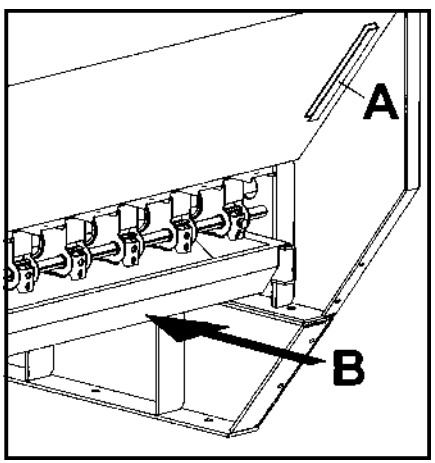


Fig. 11

THIRD:
-Remove the pins from the connection sleeve of the hexagonal bar of the transmission and slide it towards the centre of the machine. (Fig. 12 and 13).
-Disengage the assembly, fixing the sleeve in this position (Fig 14)
-Place the crank inside the variator and turn it several times (Fig. 15) until the seeds start to fall into the tray.

Fig 12

Fig 13

Fig 14

Fig 15

Return these seeds to the hopper, return the tray to its position under the dispensers and start to turn the crank in a clockwise direction.

Machine type	turns
250/13 (235)	55.5
300/17	43.5
350/19	37.3
400/21 (380)	34.3

The crank must be turned at a high frequency: approximately one turn per second. If it is turned too fast, the kilograms per hectare would be distorted.

Finally, remove the tray and accurately weigh the collected seeds. This weight, multiplied by 40, is the kilograms per hectare that the machine will dispense with the previously selected opening.
In order to comfortably carry out these operations, it is advisable for the machine to be coupled to the tractor, in a partially raised position.
If excess treatment powder is observed on the seeds the flow may be reduced. Therefore, it is advisable to perform a second check after having distributed three hoppers.

5.5 TESTING THE DOSAGE

If differences emerge between the test and the real dose distributed by the machine, e.g. due to highly uneven or very soft ground, and experimental test may be carried out.

Firstly, mark the distance in metres – indicated in the following table – on the ground of the field using a tape measure:

Machine type	metres covered
250/13 (235)	106.4
300/17	83.3
350/19	71.4
400/21 (380)	65.8

Subsequently, drive the marked distance with the seed drill in the working position. Count the turns of the wheel over the distance covered, using a mark previously made on the transmission wheel.

Thus, you will obtain the true number of turns to make in the seed dosage test. If you perform the test with this number of turns, you will obtain the real kilos per hectare distributed by the machine.

5.6 SEED DOSAGE SETTING

In modern times, with the use of high-quality certified seeds, it is not enough to set the weight in kilograms to be dispensed by the machine, since the end result of the harvest will depend on the number of plants that fully ripen.

Each plant requires a certain ground space from which it obtains nutrients. Thus, an excessive density of plants can be as detrimental as a low density. To decide the amount of kilos of seed to sow, it is essential to know the number of plants per square metre to be planted.

As a guide, the number of plants recommended for wheat and barley, in un-irrigated 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

Take note that there is less tillering in spring, so the amount of seed to sow must be higher.

MAQUINARIA AGRÍCOLA SOLÁ, S.L. deems highly recommendable for the farmer gaining advice from specialists in the matter, such as Agricultural Extension, cereal farming technical institutes, etc.

The seed doses must be adjusted to each land according to its texture, fertilising level, rainfall level and sowing season, grain quality, germinating and tillering capacity, etc.

Furthermore, it is essential to take into account that the germination capacity of the seed is variable and depends on many factors. From experiments carried out, it stands between 70% and 80% which, in practice, equates to multiplying the number of grain to sow by 1.43 and

A practical method is shown below for determining the kilos per hectare of seed to be sown based on the desired number of plants per square metre.

1) Insert the “grain counter” into the seeds. When taking it out, run your hand across the top so that only one grain remains in each cavity (100 grains in total). Repeat the process 10 times (you will obtain 1000 grains).

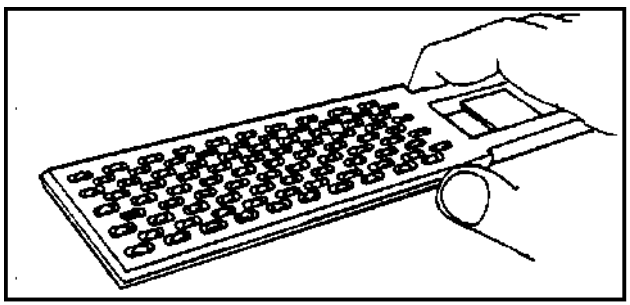


Fig. 13

2) Weigh the 1000 grains on the precision scales. We will call the weight in grams obtained the OPERATIVE WEIGHT of the seeds.

3) Once you know the grains per square metre that you will sow, the kilos per hectare that must be set on the dosage control are:

kilos per hectare = (grains per m^2 x OPERATIVE WEIGHT) / 100

5.7 COMBINED DISTRIBUTION

Combined dosing wheels are double-body units, with a stainless steel casing and mobile parts made from Delrin.

The seed distribution roller is a “one-two” type and the fertiliser roller is the constant-flow-type fitted on a hexagonal axle, to allow it to be removed without using tools.

The fertiliser base flap is comprised of a cover, also made of stainless steel, that can be removed using a clip to make cleaning it easier.

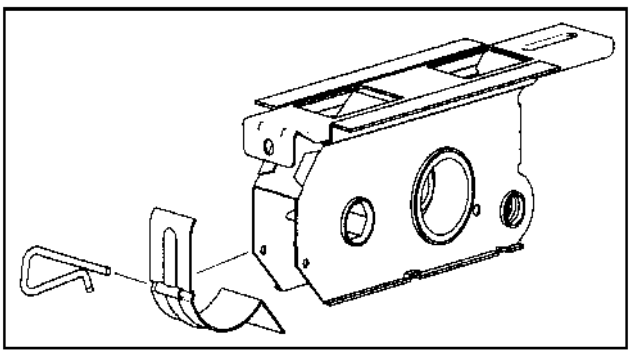


Fig. 14

5.8 COMBINED DOUBLE HOPPERS

The combined hopper is divided into two compartments: the rear for seeds and the front for fertiliser. Furthermore, this features a perforated sheet to sieve the stones and clods of earth that would otherwise damage the dosing mechanism

Each compartment has separate controls to regulate the seed and fertiliser dose.

The fertiliser compartment has a supplementary fold-down sheet to prevent overflowing between the hopper and the cover when refilling.

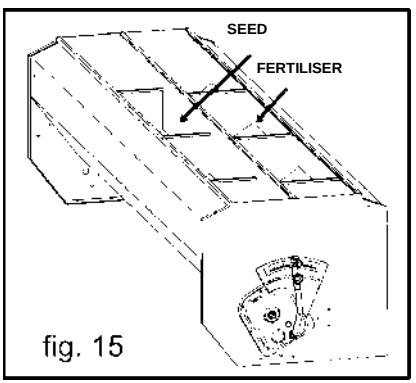


fig. 15

5.9 COMBINED DOSAGE

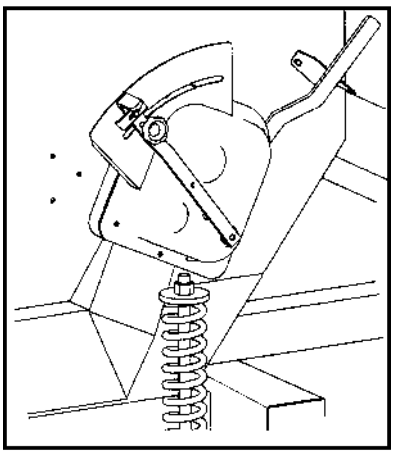


fig. 16

In the combined machine the seed dosage and control is exactly the same as in the seed drill.

The fertiliser dosage is carried out with the variator placed to the left of the machine, setting the lever to the number previously selected in the table.

This table is provided as a guide, since the density of fertiliser can vary greatly depending on the products of each manufacturer.

Thus, it is advisable to perform an accuracy test with the fertiliser in question, to check the reliability of the table.

The number of turns of the wheel is the same as with the seed variator:

The weight of the fertiliser collected multiplied by 40 is the kilograms per hectare that the machine will dispense with the previously selected opening.

5.10 SOWING EQUIPMENT

It is formed by a cast alloy boot that pours the seeds into a furrow opened by the disc coulter, at the depth controlled using a depth control wheel. The furrow is closed using a press wheel with adjustable pressure.

The boot's height can be adjusted and it can be easily replaced, using a simple bolt. Its rear position and its angle of penetration facilitate placing the seed at the base of the furrow opened by the disc coulter.

Each disc has a compression spring, the pressure of which has been correctly calibrated in the factory. As a result of its cutting edge and teeth, the disc can operate successfully even if stover is present in the field. The 4°-incline angle with respect to the driving direction enables a furrow to be opened with the necessary width to house the seed.

The depth control wheel is independent for each sowing device and can be set to five different depths. Furthermore, it leaves the stover on the ground at the time of cutting, preventing it from entering the furrow and damaging the seed root.

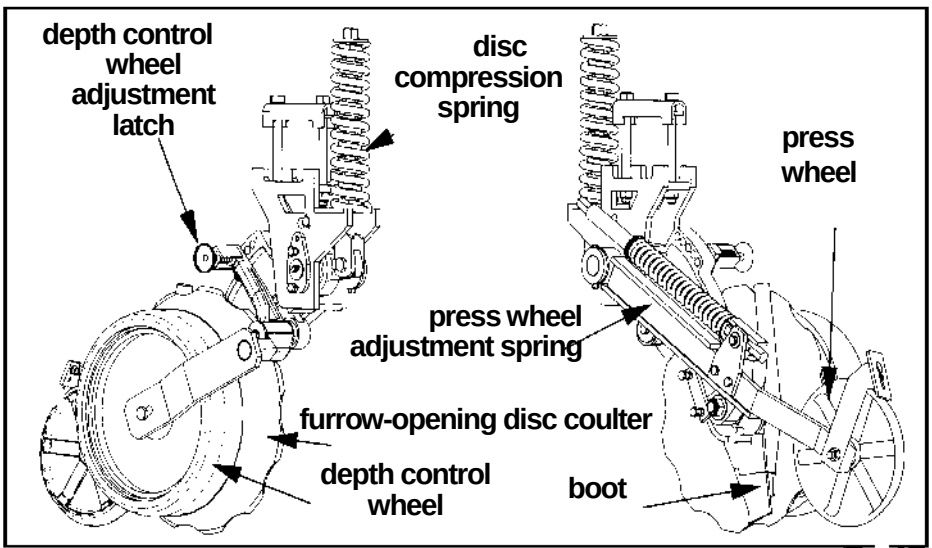


Fig. 17

Follow the steps below to replace the blade:

a) Remove the blade + blade-holder assembly (A, Fig. 18) of the sowing equipment arm.

b) remove the blade (B, Fig. 18) from the blade-holder

c) repeat the process in the reverse order using an original SOLÁ replacement blade.

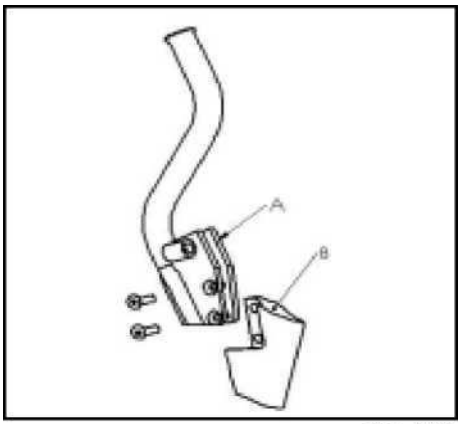


fig. 18

5.11 ADJUSTING THE SOWING DEPTH

The sowing depth is adjusted by placing the arm latch of the depth control wheel at one of the five pre-set positions (Fig. 19).

For the chosen sowing depth, it is essential to make sure that there is sufficient pressure on the disc to allow it to penetrate the ground and enable the depth control wheel to make contact with the ground.

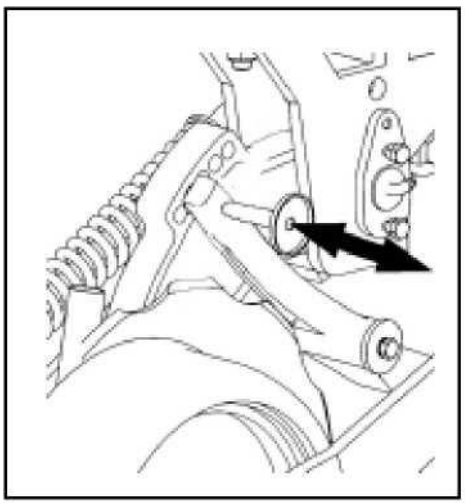
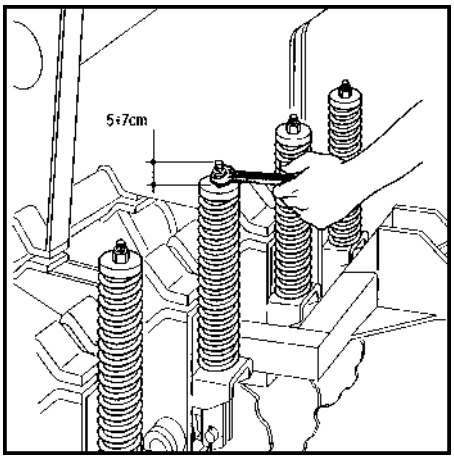


fig. 19

The pressure of the discs on the ground can be minimally adjusted by turning, for each sowing component, the fastening nut that adjusts the tension of the compression spring. Monitor the chassis to ensure that it is not lifted due to excessive pressure.

5.12 ADJUSTING THE COMPRESSION SPRINGS

Each adjustment must be carried out on the ground and with the machine empty. The compression springs are correctly calibrated in the factory. Consequently, in normal working conditions their setting should not be adjusted. It is only necessary to ballast the machine and adjust the spring setting in a few exceptional cases when the required depth cannot be reached.



In this case the following conditions must be met:

a) Ensure that the machine always works with the chassis in the horizontal position; the machine's load can only be distributed in an equal manner on the two rows of sowing elements in this position. If the machine is suspended, check the length of the arm of the third point and change it if necessary.

b) With the machine empty and in the working position (i.e. with the discs buried in the ground as if it were sowing), the threaded end of the compression spring tensioning device of each sowing group must protrude beyond the spring by between 5 and 7 cm in the event that the chassis is ballasted.

5.13 BALLASTING THE CHASSIS

On very hard ground when the depth springs are highly compacted, the joint force exerted by the springs may lift the chassis, taking the arms to the end of their travel limit. In this situation the machine cannot “copy” the terrain's unevenness. Therefore, there are two options:

a) Reducing the pressure of the springs;
b) Ballasting the chassis by inserting 1 or 2 pieces of square iron bar into the transverse tubes.

5.14 ADJUSTING THE PRESS WHEEL

The purpose of the press wheel, which uses the pressure applied using a special spring, is to close the furrow in which the seed has been planted. The action of the wheel may vary depending on various factors, which mainly include:

- Type of land (light or compact, humid or dry).
- Quantity and variety of stover present in the field.
- Driving speed.

Therefore, the pressure must be carefully set. It is possible to modify the operation of the press wheel:

a) Adjusting the tension of the spring (Fig. 21)
b) Adjusting the distance between the wheel and the sowed furrow.

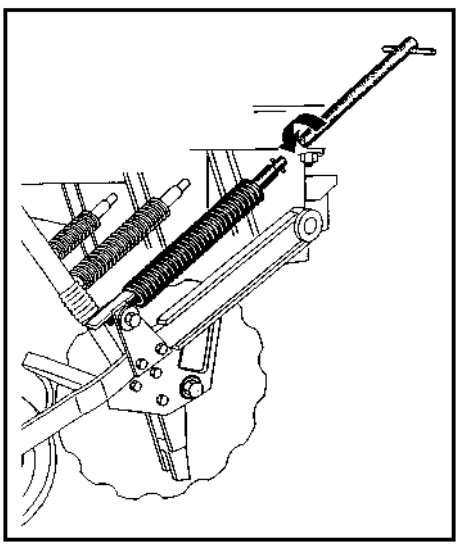


Fig. 21

6. ACCESSORIES

6.1 HARROW WITH FLEXIBLE TINES

The seed drill 1203-SD is equipped with an unobstructed harrow with W-shaped tines (3, Fig. 22) that make it easier to cover the furrow with the ploughed soil.

The working pressure can be increased or decreased by adjusting the upper nuts of the two arm springs (1, Fig. 22). The depth can be modified by adjusting the lower nuts (2, Fig.22).

The joint in the parallelogram enables the harrow's flexible tines to excellently adapt to the unevenness of the ground, both vertically and horizontally.

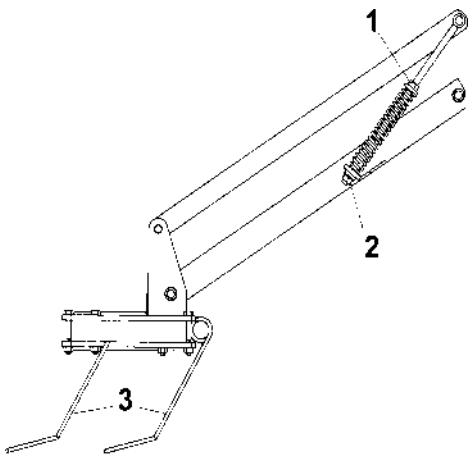


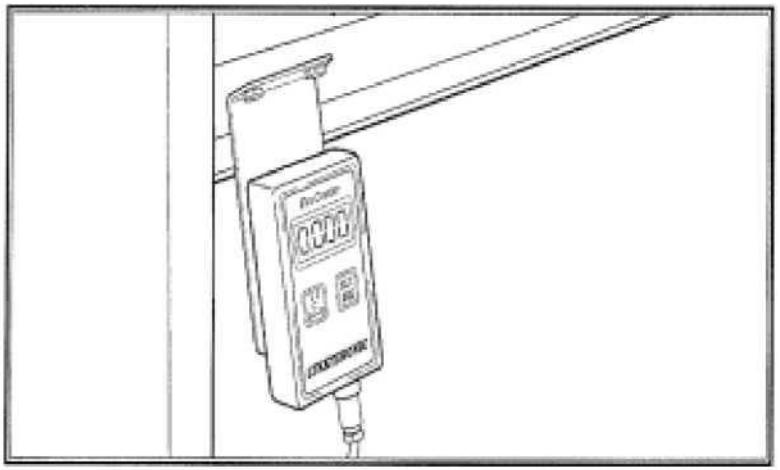
fig. 22

The full harrow assembly is equipped with a hydraulic folding system for transporting the machine, which operates independently of the system that switches the work/transport position of the drag train.

It is prohibited to climb the ladder of the harrow while the machine is running.

6.2 HECTARE COUNTER

Optional electronic hectare counter for seed drills and combined machines

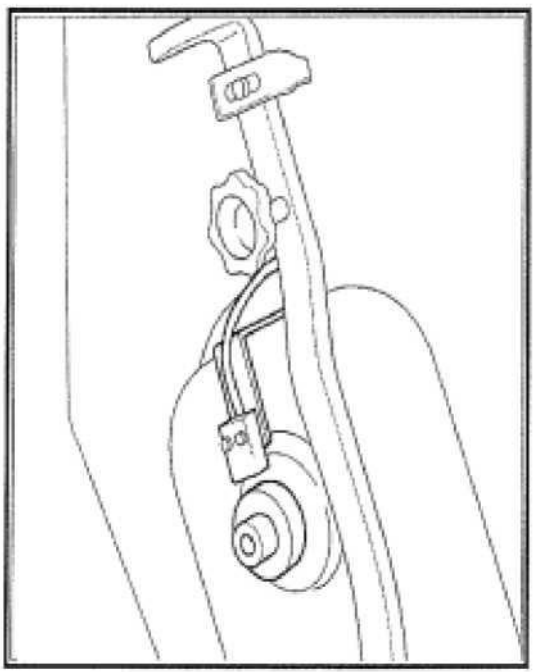


The hectare counter works with 1.5 V batteries.

It can be fitted to the hopper or it can be carried in the tractor's cabin.

It can count a partial and/or total surface area.

Please see the specific manual that comes with each unit to understand how it operates.



6.3 TRACK MARKERS

The seed drill 1203-SD can be equipped with track markers. The equipment is mounted on the rear of the hopper and works by simultaneously closing the shut-off gates of four of the dispensers, by way of two hydraulic cylinders. The latter are selected according to the width of the frontal tread of the tractor.

The closure cadence is determined according to the working width defined by the rear treatment (fertilising, irrigation, etc.). For example, if you sow using a machine with a 4-metre working width and fertilise with a fertilising width of 24 metres, the dispensers must be closed in the 1st, 7th, and 13th length etc. (every 6 lengths).

6.4 VARIATOR HYDRAULIC CONTROL

Both variators can be operated remotely if a hydraulic actuating cylinder for the variator adjustment lever is fitted to the side of the machine.

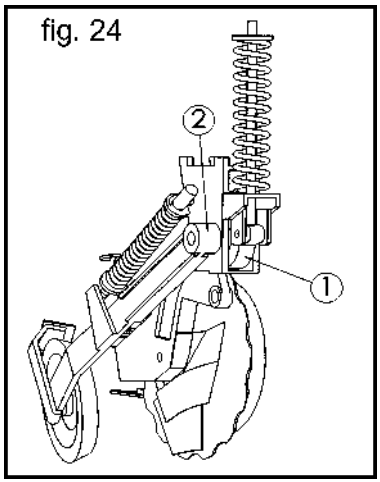
The dosage opening is pre-set using a limit that is mounted on the adjuster to limit the travel of the adjustment lever. When the oil valve is opened, the hydraulic cylinder pushes the lever to the limit and the dispensers distribute the seed (and fertiliser in the case of a combined machine). When the oil valve is closed, the hydraulic cylinder returns to its idle position by way of an internal return spring and the dispensers stop distributing seed.

7. MAINTENANCE

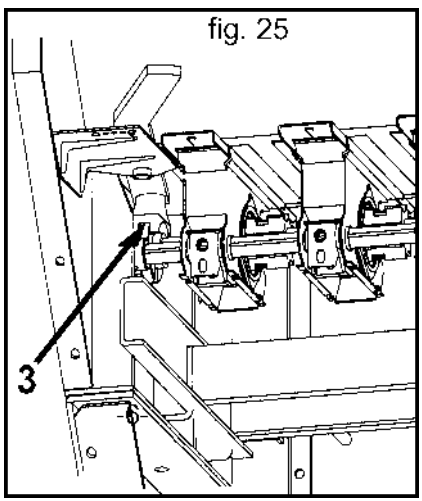
7.1 LUBRICATION

The following points must be lubricated on a regular basis:

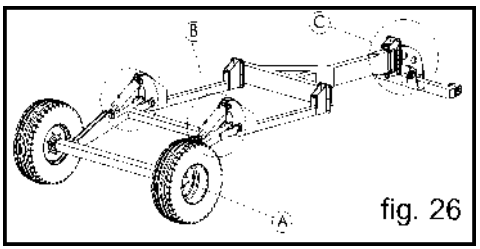
Arm joints of furrow-opening disc coulter and press wheel (1-2, Fig 24)



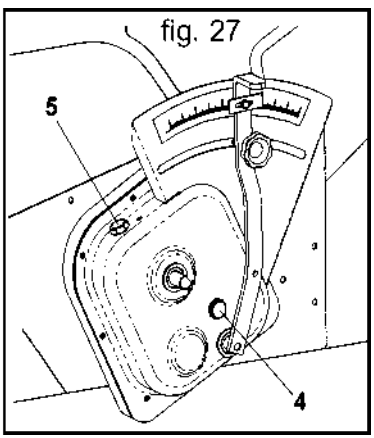
Narrow-wide positioning control knob (3, Fig. 25)



The wheel hubs (A) and the joints of the tow bar and the drag train (B-C) (Fig. 26)



Check the variator oil level using the inspection hole (4, Fig. 27) and, if necessary, remove the cap and top up with oil (5, Fig. 27)



Do not lubricate the dosing wheels

7.2 TYRE PRESSURE

The pressures stated are those provided by the manufacturer, with the machine fully loaded.

Cover 12.5 - 80 -15.3 --- 3.75 kg/cm^2

In general and on poorly prepared ground, we recommend slightly reducing the pressure to absorb the unevenness of the ground and to achieve greater sowing consistency.

7.3 NUTS AND BOLTS

After several hours of work, all the bolts must be checked and tightened.

7.4 ANTI-RUST CHECK (COMBINED MACHINE)

Once the season is over, a check of the entire machine must be carried out. To do so, we recommend:

a) Removing the flexible tubes, nozzles and covers of the dispensers and cleaning them thoroughly.

b) Cleaning the entire machine with water, especially the inside of the hopper and the double dispensers which are perfectly accessible with their covers removed. Moving the wheel so the grooved rollers turn and the water is dispersed into the grooves.

c) Painting over areas that show signs or rust, particularly the platework.

d) Checking the general lubrication.

8. DOSAGE TABLES

The quantities stated in the table must be deemed guiding estimates, since the expected flow can vary due to the presence of disinfectant powder, the variety or size of the seeds, the density, humidity, etc.

For accurate sowing, follow the dosage procedure described in section 4.5 herein.

As a general rule, small grains require a smaller outlet than large grains; round grains require a smaller outlet than elongated grains and light grains require a larger outlet than heavy grains.

8.1 SEED DOSAGE TABLE

Seed dosage (kg/ha)

	WHEAT	BARLEY	OILSEED RAPE	LUCERNE
Dosing wheels position Sector no.	WIDE	WIDE	NARROW	NARROW
10			1.2	5.7
20	56	49	3.7	12
30	86	76	5.9	17
40	114	102	8	23
45	128	115	9.2	26
50	144	130	10.4	29
55	156	141	11	33
60	169	154	12	36
65	183	167	14	40
70	197	180	15	43
75	210	193		47
80	226	206		
85	237	218		
90	249	230		
95	258	235		
100	271	245		
Separation between arms	18 cm	18 cm	36 cm	18 cm
Base flap lever at no.	2 3	2 3	1	1
Operational weight of 1000 grains	40 g	46 g		

8.2 FERTILISER DOSAGE TABLE

Fertiliser dosage (kg/ha)

Sector no.	Fertiliser
5	32
10	66
15	104
20	145
25	183
30	229
35	270
40	308
45	345
50	372

Separation between arms: 18 cm
The combined machine only supports granulated fertilisers

It is advisable to use high-concentrate mixtures, otherwise the capacity of the fertiliser hopper would not be synchronised with the seed hopper capacity.

9. REPLACEMENT PARTS

The denominations RIGHT, LEFT, FRONT and REAR refer to the driving direction of the machines, as indicated in the illustration.

In the illustrations the parts on the opposite sides are not repeated. The part list shows the reference numbers that identify them.

In the description of the HOPPERS the standard parts for the seed drill and combined machine are referenced in the seed drill's part list.

When ordering spare parts, please state the machine name and type that is displayed on the IDENTIFICATION PLATE of the hopper.

Remember that you are at risk of injury from sharp edges when replacing the seed drill equipment

As a general rule, avoid working underneath the machine when it is suspended from the tractor. If it is required, adequately secure it to prevent it from collapsing due to tractor pressure loss.

9.1 CHASSIS

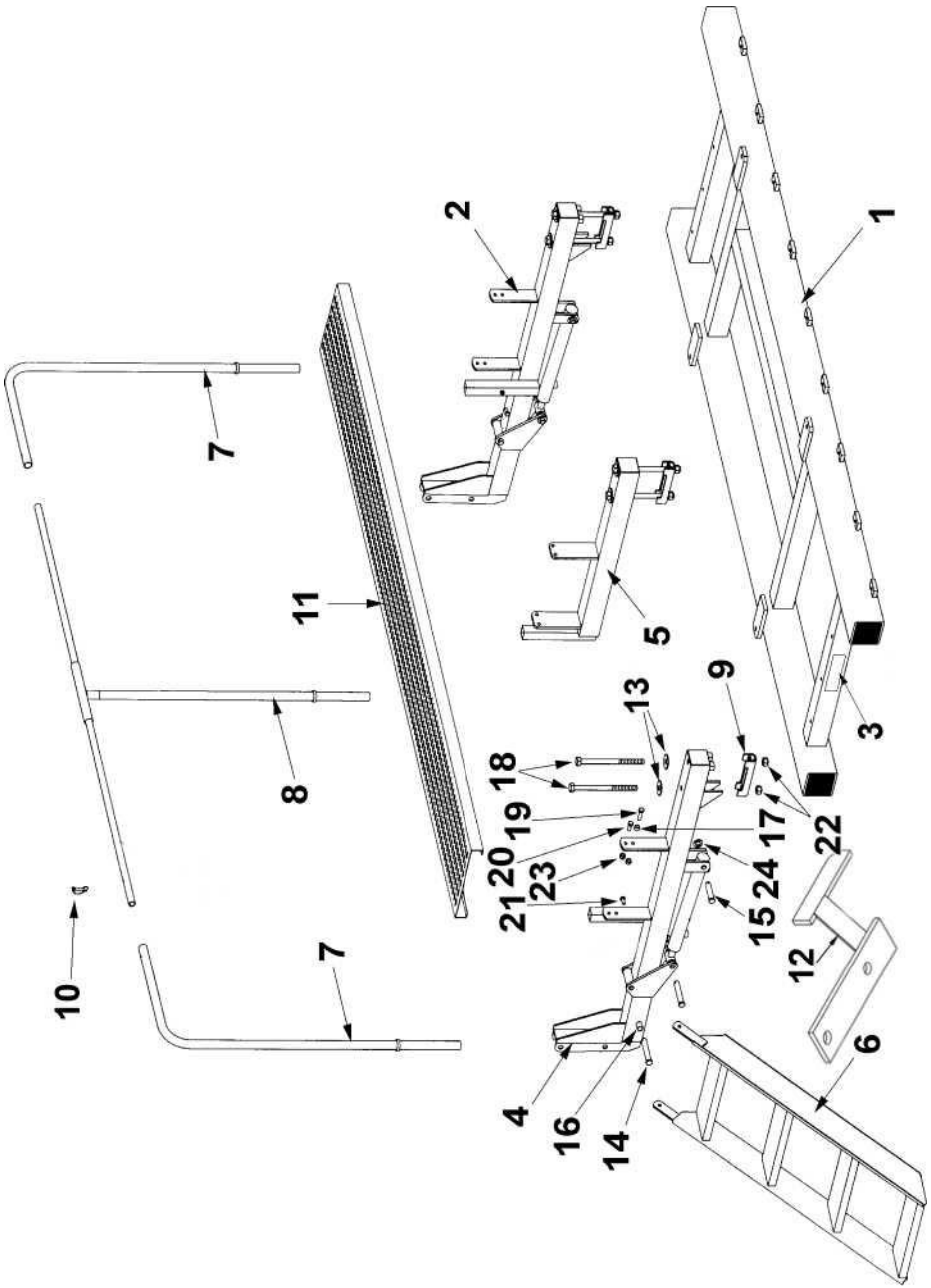


Figure	Code	Name
1	PS-010613	MACHINE CHASSIS 250
1	PS-010614	MACHINE CHASSIS 300
1	PS-010615	MACHINE CHASSIS 350
1	PS-010616	MACHINE CHASSIS 400
2	PS-010618/I	FRONT LEFT HARROW SUPPORT
	PS-010618/D	FRONT RIGHT HARROW SUPPORT
	PS-010628/D	FR. RGH. SUSPENDED HARROW SUPPORT
	PS-010628/I	FR. LFT. SUSPENDED HARROW SUPPORT
	PS-010620/D	FR. RGH. SUSPENDED HARROW SUPPORT SD-1203
	PS-010620/I	FR. LFT. SUSPENDED HARROW SUPPORT SD-1203
3	CN-818020	AMBER RECTANGULAR CAT. REFLECTOR 62X45
4	PS-070605	HARROW REAR SUPPORT
5	PS-010619	PLATFORM CENTRAL SUPPORT
	PS-010621	STEP CENTRAL SUPPORT SD-1203
6	PS-070604	LADDER
7	PS-070606	HANDRAIL RIGHT SIDE TUBE
8	PS-070607	HANDRAIL SUPPORT CENTRAL TUBE
9	PS-050617	ARM SUPPORT 120 FLANGE
10	FE-610010	BICHROMATED Ø8X40 SHAFT CENTRE PIN
11	MP-909000	“STEPBLOC” PLATFORM 3000X360X50
12	PS-010605	NOZZLE-HOLDER BAR CENTRAL SUPPORT
13	9021 18 BI	BICHROMATED FLAT WASHER DIN 9021 M-18
14	BU-070600	BICHROMATED BOLT Ø20X115
15	BU-070601	BICHROMATED BOLT Ø20X88
16	FE-600065	FRICTION BUSHING Ø20XØ23X25
17	ME-070600	LADDER JOINT SEPARATOR
18	931 18X260 8.8 B	BICHROMATED BOLT DIN 931 M-18X260 8.8
19	933 12X45 8.8 B	BICHROMATED BOLT DIN 933 M-12X45 8.8
20	933 12X30 8.8 B	BICHROMATED BOLT DIN 933 M-12X30 8.8
21	933 10X25 8.8 B	BICHROMATED BOLT DIN 933 M-10X25 8.8
22	985 18	SELF-LOCKING NUT DIN 985 M-18
23	985 12	SELF-LOCKING NUT DIN 985 M-12
24	125 20 BI	BICHROMATED FLAT WASHER DIN 125 M-20

9.2 SUSPENDED MACHINE TRIPOD AND COUPLING KIT

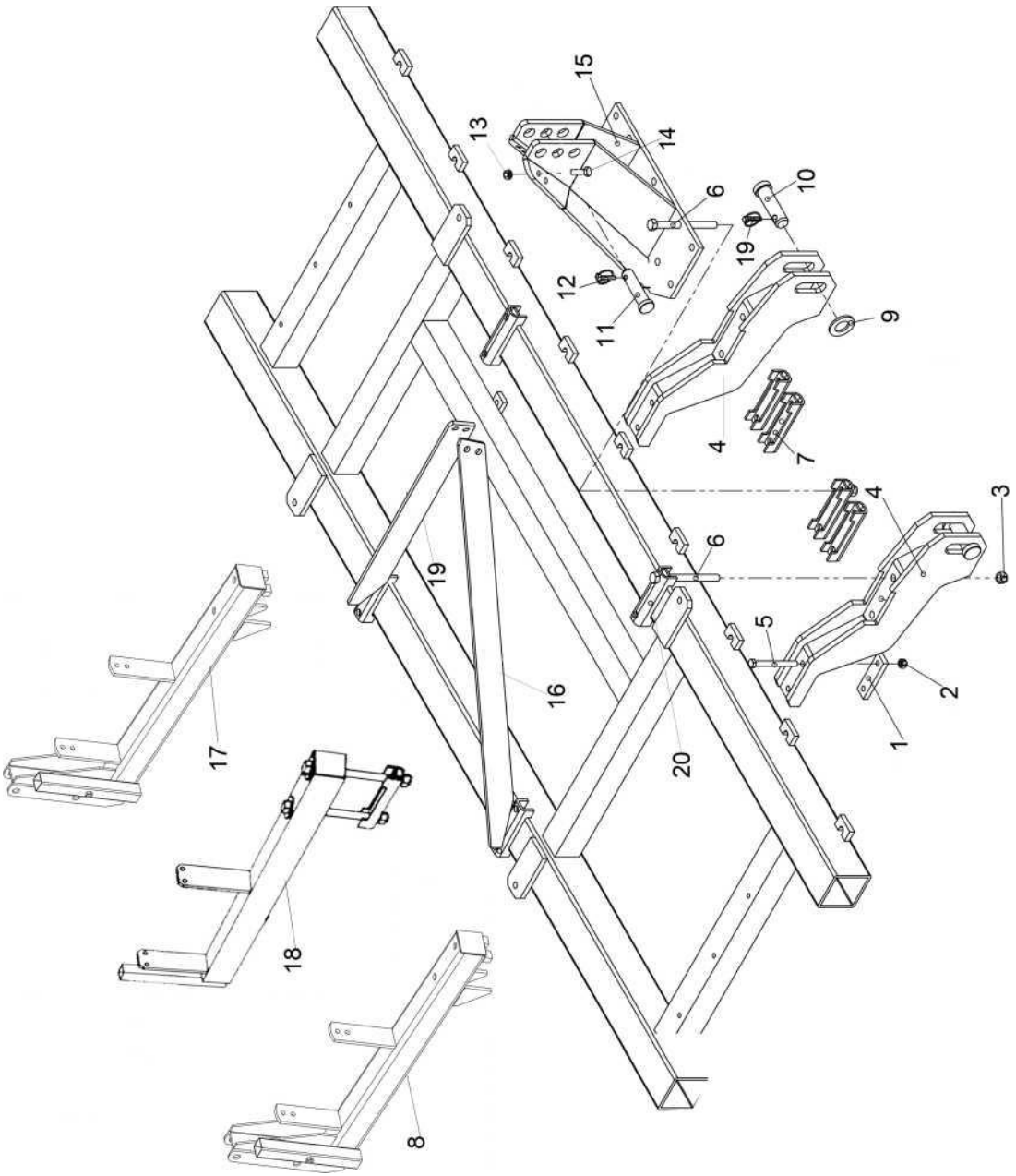


Figure	Code	Name
1	B10-36	DRAG TRAIN SUPPORT MOUNT FLANGE 497/597
2	98514 I	NUT DIN 985 M14 STAINL. ST.
3	985 18	NUT DIN 985 M18
4	PS-010622	SUSPENDED MACHINE COUPLING SD-597
5	931 14X140 8.8 B	BICHROMATED BOLT DIN 931 M 14X140 8.8
6	931 18X200 8.8B	BICHROMATED BOLT DIN 931 M-18X200 8.8
	931 18X180 8.8 B	BICHROMATED BOLT DIN 931 M 18X180 8.8
7	EE-050611	120 DIRECT FLANGE REINFORCEMENT 597-SD
8	PS-010628/D	FR. RGH. SUSPENDED HARROW SUPPORT SD-1203
9	125 39 BI	FLAT WASHER Ø 39
10	BU-010602	SUSPENDED MACHINE COUPLING BOLT SD-597
11	BU-010601	SUSPENDED MACHINE TRIPOD BOLT SD-597
12	FE-610008	RING PIN 11 MM.
13	985 14 I	NUT DIN 985 M14 STAINL. ST.
14	933 14X45 8.8 B	BOLT DIN 933 M14X45 8.8 BI
15	PS-010623	SUSPENDED TRIPOD SD-597
16	PS-010607/D	LEFT TRIPOD BRACE 300 DIRECT 597 SD SUSPENDED
17	PS-010628/I	FR. LFT. SUSPENDED HARROW SUPPORT SD-1203
18	PS-010619	STEP CENTRAL SUPPORT SD-1203
	PS-010621	STEP CENTRAL SUPPORT SD-1203 FOR MEADOW S.
19	PS-010607/I	LEFT TRIPOD BRACE 300 DIRECT 597 SD SUSPENDED
20	PS-050617	DIRECT ARM SUPPORT 120 FLANGE SD-1303

9.3 SOWING DISC COULTER

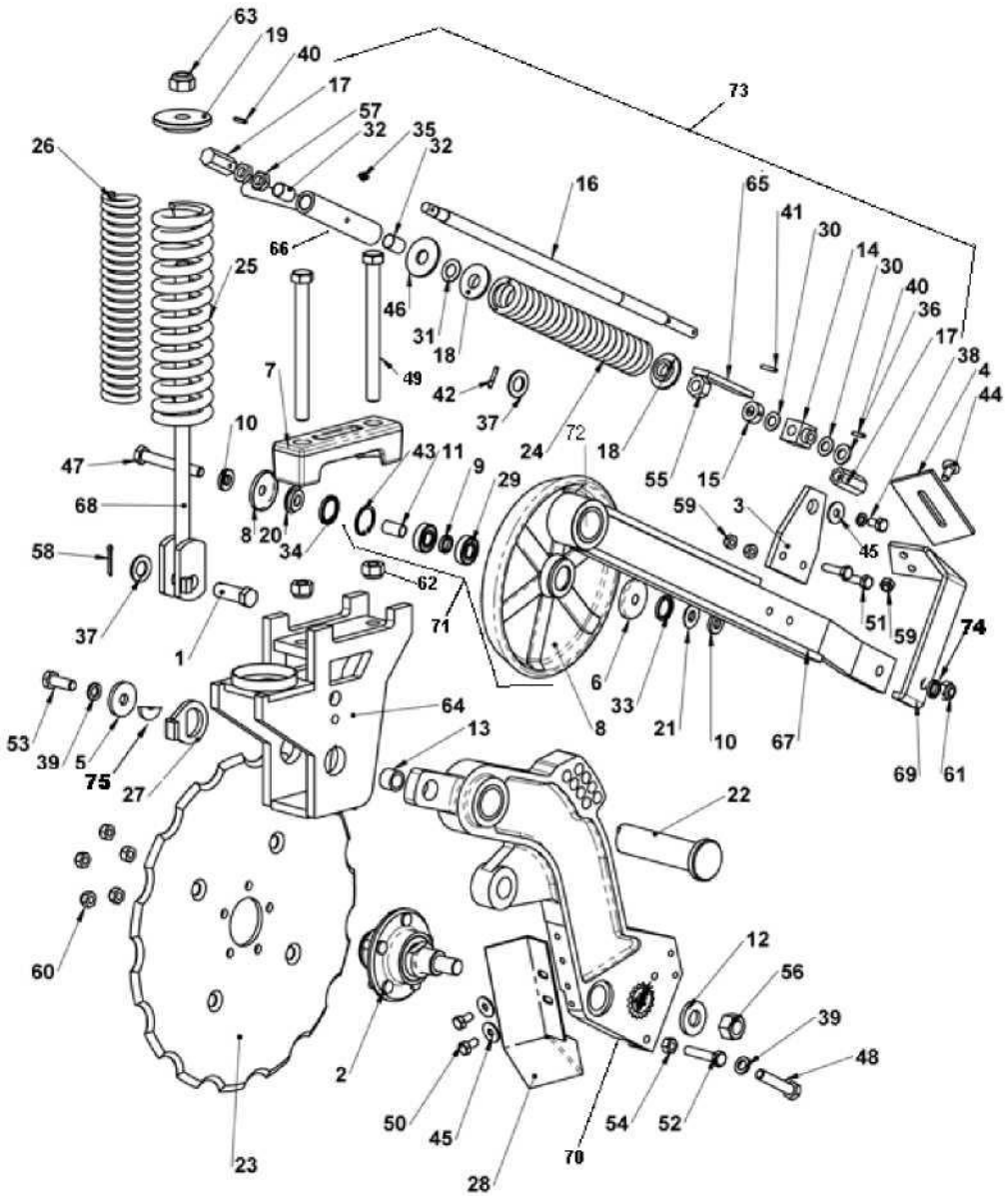


Figure	Code	Name
1	BU-050602	ARM SPRING TENSIOING DEVICE BOLT
2	CO-051800	DISC HALF SHAFT SD
3	EE-050613	SPRING ROTATING SUPPORT LUG
4	EE-050614	PRESS WHEEL SCRAPER
5	EE-060300	SPRING LIMIT WASHER
6	EE-100604	PRESS WHEEL CLOSING WASHER
7	FU-050608	TUBE CLAMP 120
8	ME-050603	MACHINED SD PRESS WHEEL
9	ME-050605	WHEEL BEARING SEPARATOR
10	ME-050606	WHEEL WASHER SEPARATOR
11	ME-050608	PRESS WHEEL BUSHING
12	ME-050617	WASHER Ø48X22X6
13	ME-050619	ARM SPRING TENSIOING DEVICE RING
14	ME-050620	PRESS WHEEL SPRING ROTATING
15	ME-050621	WHEEL SPRING TENSIONING DEVICE LIMIT RING
16	ME-050622	PRESS WHEEL TENSIONING DEVICE
17	ME-050624	HEXAGONAL WHEEL SPRING TENSIONIG
18	ME-050629	SPRING UPPER WASHER
19	ME-050631	ARM SPRING WASHER
20	ME-050642	SEALING RING SUPPORT
21	ME-050643	SEALING RING FASTENER
22	ME-050645	DISC-HOLDER ARM ANTI-TURN BOLT
23	ME-051800	TOOTHED DISC 7 MM DRIVE 102
24	ML-050602	PRESS WHEEL SPRING
25	ML-050606	ARM EXTERIOR SPRING
26	ML-050608	SOWING ARM INTERIOR SPRING
27	PX-050612	ANTI-TURN BOLT LOCK
28	PX-051801/D-I	LFT./RGH. DISC FRONT SCRAPER
29	FE-600036	BEARING 6203 2RS
30	FE-600043	ANTI-FRICTION WASHER Ø14
31	FE-600044	ANTI-FRICTION WASHER Ø18
32	FE-600049	FRICTION BUSHING
33	FE-601032	SINGLE LIP SEAL Ø25X35X4 TTO
34	FE-601033	SINGLE LIP SEAL Ø30X40X4 TTO
35	FE-603001	STRAIGHT LUBRICATOR M-6
36	125 14 BI	WASHER DIN 125 M14 BI
37	125 20 BI	WASHER DIN 125 M20 BI
38	12710 BI	GROWER WASHER DIN 127 10 BI
39	12714 BI	GROWER WASHER DIN 127 14 BI
40	1481 5X22 BI	ELASTIC PIN DIN 1481 Ø5x22 BI

9.3 SOWING DISC COULTER

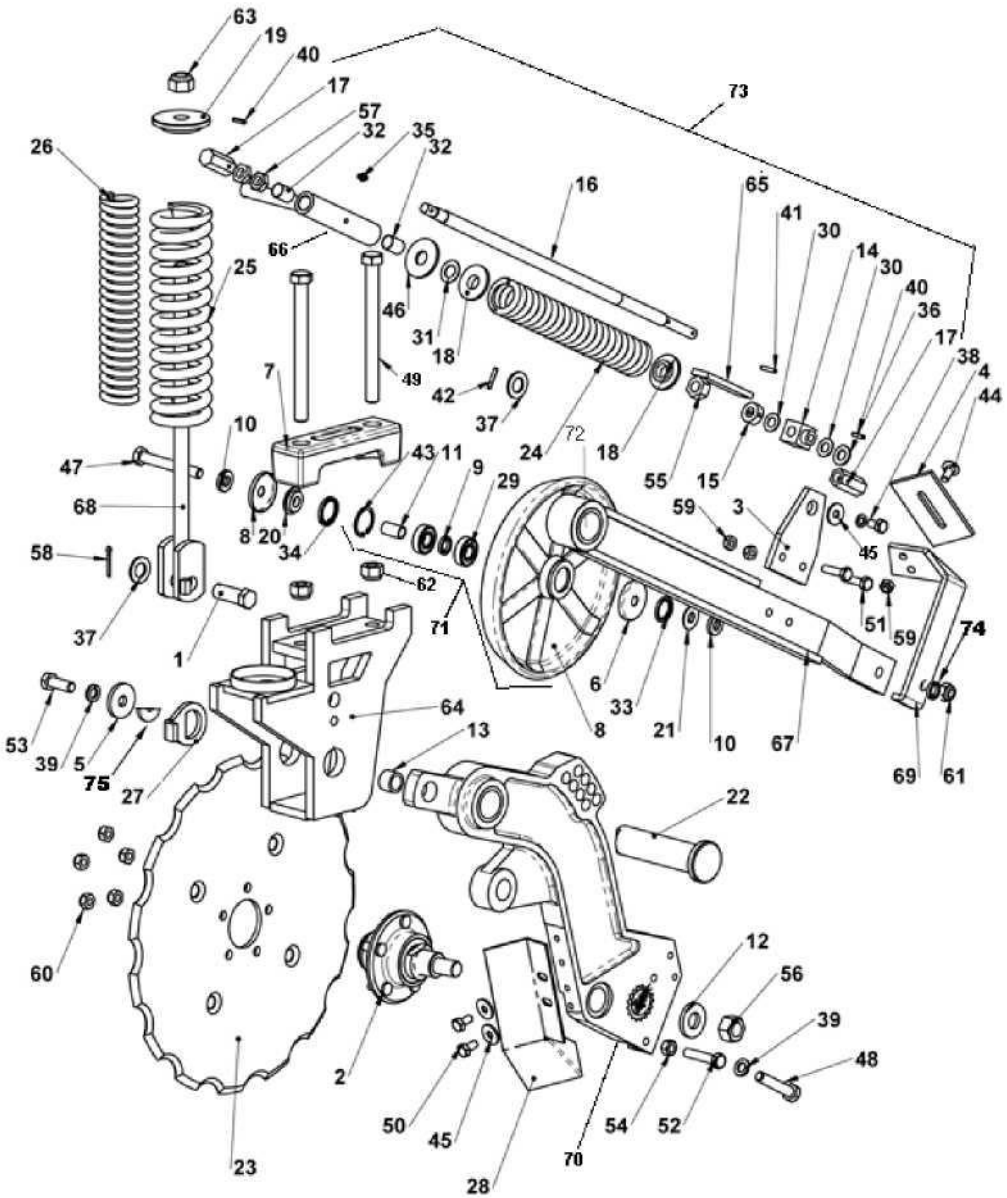


Figure	Code	Name
41	1481 5X28 BI	ELASTIC PIN DIN 1481 Ø5x28 BI
42	1481 5X30 BI	ELASTIC PIN DIN 1481 Ø5x30 BI
43	472 40	SAEGER RING DIN 472 Ø40
44	603 10X25 BI	BOLT DIN 603 M10x25 BI
45	9021 10 BI	FLAT WASHER DIN 9021 M10 BI
46	9021 18 BI	FLAT WASHER DIN 9021 M18 BI
47	931 14X100 8.8B	BOLT DIN 931 M14x100 8.8 BI
48	931 14X70 8.8B	BOLT DIN 931 M14x70 8.8 BI
49	931 18X200 10B	BOLT DIN 931 M18x200 10.9 BI
50	933 10X20 8.8 B	BOLT DIN 933 M10x20 8.8 BI
51	933 10X40 8.8 B	BOLT DIN 933 M10x40 8.8 BI
52	933 12X658.8B	BOLT DIN 933 M12x658.8 BI
53	933 14X40 8.8B	BOLT DIN 933 M14x40 8.8 BI
54	934 12	NUT DIN 934 M12
55	934 18	NUT DIN 934 M18
56	934 22-150 BI	NUT DIN 934 M22/150 BI
57	936 16 BI	NUT DIN 936 M16 BI
58	94 5X32 BI	COTTER PIN DIN 94 5X32 BI
59	985 10	NUT DIN 985 M10
60	985 12	NUT DIN 985 M12
61	985 14	NUT DIN 985 M14
62	985 18	NUT DIN 985 M18
63	985 20	NUT DIN 985 M20
64	PS-050603	ARM SUPPORT
65	PS-050606	SPRING PRESSURE ADJUSTER
66	PS-050608	PRESS WHEEL SPRING GUIDE
67	PR-050603-D-I	LEFT/RIGHT PRESS WHEEL ARM
68	PS-050604	ARM SPRING TENSIOING DEVICE
69	PS-050609-D-I	LEFT/RGH. WHEEL SCRAPER SUPPORT
70	PR-051802-D-I	R/L SOWING ARM W/ BUSHINGS
71	MO-100500	PRESS WHEEL
72	PL-051801	PRESS WHEEL ARM JOINT BUSHING
73	MO-050604	PRESS WHEEL TENSION SPRING SD-1203
74	FE-614050	NORD LOCK FLAT WASHER Ø14 DELTA PROTEKT
75	PX-050613/14	THICK FLAT WASHER 1/1,5 CENTRAL BOLT

9.4 RUBBER WHEEL SOWING ARM

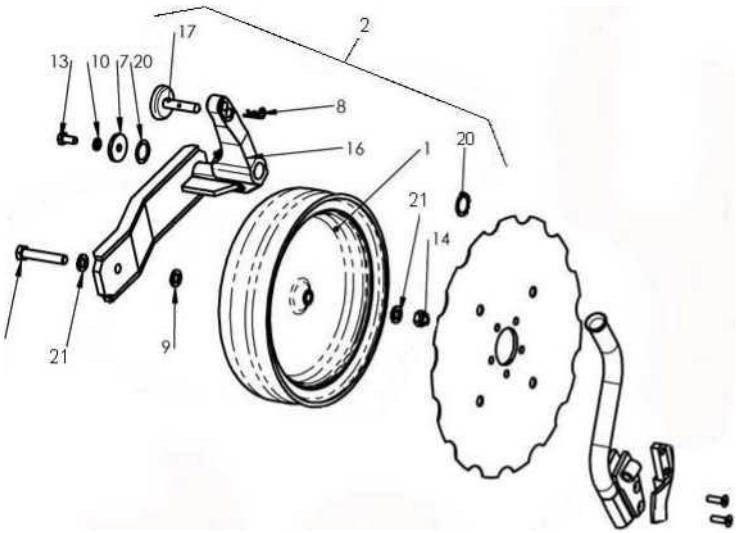


Figure	Code	Name
1	CO-050605	FLEX. RUBBER WHEEL 400X115 SD-1203
2	MO-050608/I	LEFT DEPTH CONTROL WHEEL W/O FLANGE
	MO-050608/D	RGH. DEPTH CONTROL WHEEL W/O FLANGE
7	ME-050641	DEPTH CONTROL FASTENING REINF. WASH.
8	FE-610002	R 3 PIN
9	125 16 BI	WASHER DIN 125 M16 BI
10	127 12 BI	GROWER WASHER DIN 127 12 BI
12	931 16X90 8.8B	BOLT DIN 931 M16x90 8.8 BI
13	933 12X25 8.8B	BOLT DIN 933 M 12X25 8.8 BI
14	985 16	NUT DIN 985 M16
16	ME-050635/D	RIGHT WHEEL-HOLDER ARM W/O FLANGE
	ME-050635/I	LEFT WHEEL-HOLDER ARM W/O FLANGE
17	PS-050620	WHEEL POSITIONER SHORT BOLT
20	988 30x42x0.5	SAEGER ADJUSTMENT WASHER
21	FE-614049	NORD LOCK FLAT WASHER Ø16 DELTA PROTEKT

9.5 IRON WHEEL SOWING ARM

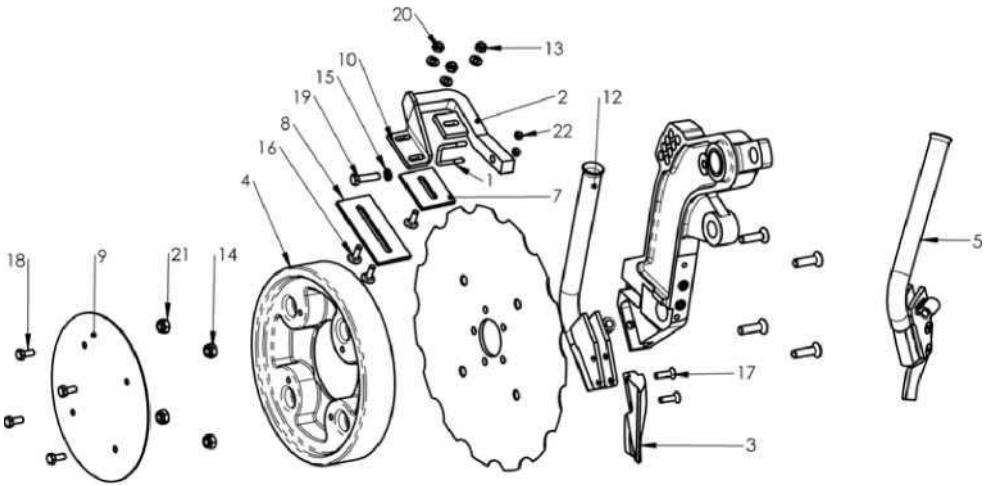


Figure	Code	Name
1	EE-051801	SCRAPER FLANGE DIAM 8
2	PS-050631/D	RGH. SCRAPER SUPPORT
2	[3]S-050631/I	LEFT SCRAPER SUPPORT
3	FU-050600/D	RIGHT DISC DIRECT BOOT
3	FU-050600/I	REAR LEFT DISC DIRECT BOOT
4	ME-050637	DEPTH CONTROL NARROW RING
5	MO-051800	FRONT ARM BOOT SD-1203
	MO-051801	REAR ARM BOOT SD-1203
	MO-051804	L. REAR ARM BOOT SD-1203
	MO-052202	REAR ARM BOOT SD-1605
6	PX-050606	DISC SCRAPER SUPPORT
7	PX-050607	DISC SCRAPER
8	PX-050608	NARROW RING SCRAPER
9	PX-050609	NARROW RING COVER
10	PX-050611/D	RGH. DISC SCRAPER SUPPORT PLATE
10	PX-050611/I	LFT. DISC SCRAPER SUPPORT PLATE
12	PS-051801	L. REAR BOOT TUBE
	PS-051805	FRONT BOOT TUBE
	PS-051806	R. REAR BOOT TUBE
	PS-052201	REAR BOOT TUBE SD-1605
13	125 10 BI	WASHER DIN 125 M10 BI
14	125 14 BI	WASHER DIN 125 M14 BI
15	127 12 BI	GROWER WASHER DIN 127 12 BI
16	603 10X30 BI	BOLT DIN 603 M10x30 BI
17	7991 10X35 BI	BOLT DIN 7991 M10x35 BI
18	933 10X25 8.8 B	BOLT DIN 933 M10x25 8.8 BI
19	933 12X45 8.8B	BOLT DIN 933 M12x45 8.8 BI
20	985 10	NUT DIN 985 M10
21	984 14	NUT DIN 985 M 14
22	985 8	NUT DIN 985 M 8

9.6 SEED DRILL HOPPER

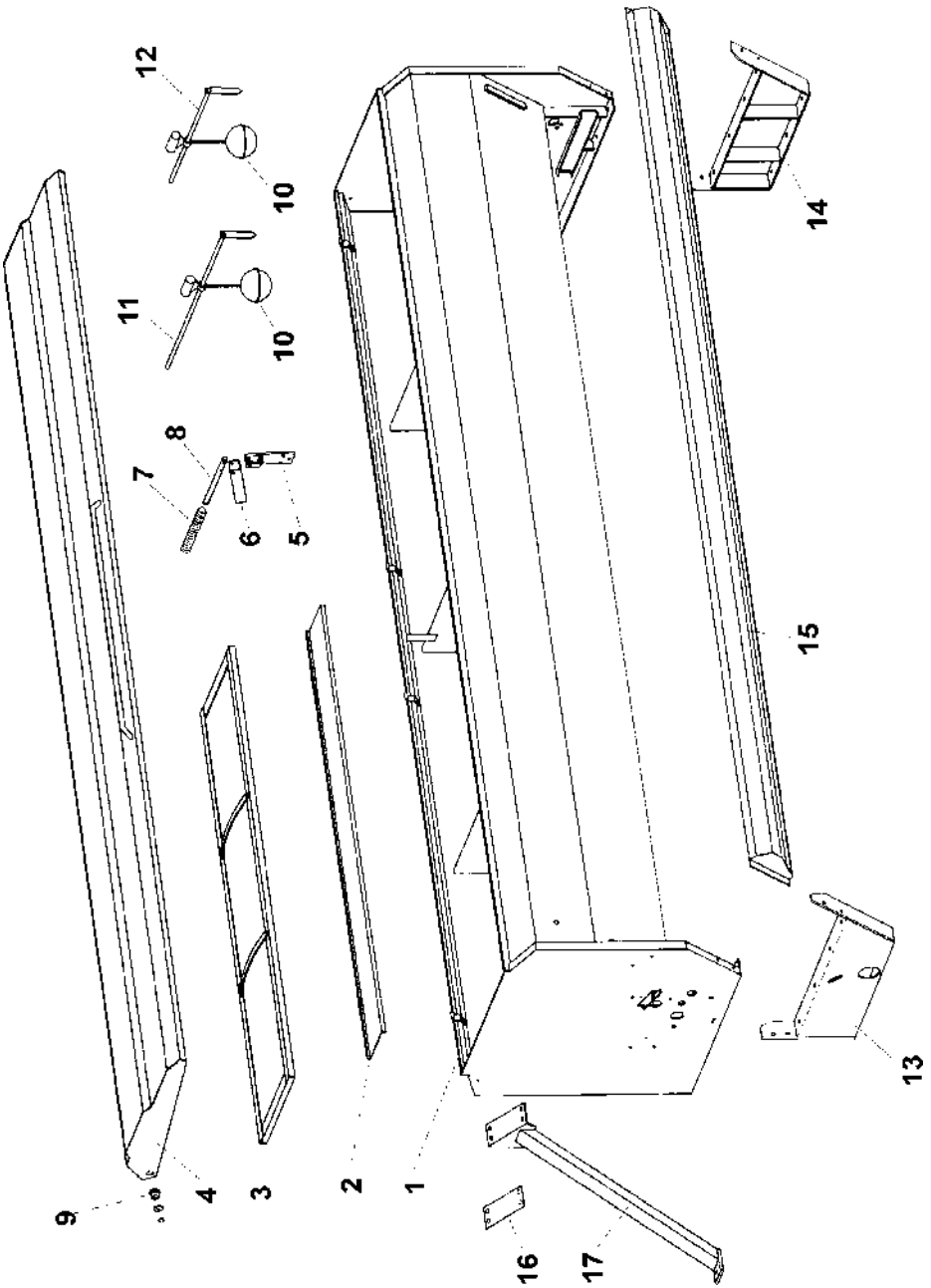


Figure	Code	Name
1	PS-020502	SEED DRILL HOPPER SD 300
1	PS-020503	SEED DRILL HOPPER SD 350
1	PS-020504	SEED DRILL HOPPER SD 400
1	PS-020505	COMBINED HOPPER SD 250
1	PS-020506	COMBINED HOPPER SD 300
1	PS-020507	COMBINED HOPPER SD 350
1	PS-020508	COMBINED HOPPER SD 400
2	PS-030505	HOPPER COVER SHIELD SD 250
2	PS-030506	HOPPER COVER SHIELD SD 300
2	PS-030507	HOPPER COVER SHIELD SD 350
2	PS-030508	HOPPER COVER SHIELD SD 400
3	PS-030509	SIEVE SD 250
3	PS-030510	SIEVE SD 300
3	PS-030511	SIEVE SD 350
3	PS-030512	SIEVE SD 400
4	PS-030501	HOPPER COVER SD 250
4	PS-030502	HOPPER COVER SD 300
4	PS-030503	HOPPER COVER SD 350
4	PS-030504	HOPPER COVER SD 400
5	PS-030514	HOPPER COVER SPRING JOINT SD
6	TA-030501	HOPPER COVER “U” LOCK SD
7	ML-030500	HOPPER COVER SPRING SD
8	BU-030500	HOPPER COVER SPRING BOLT SD
9	BU-020700	HOPPER COVER LIMIT GUIDE BOLT
10	PS-020516	HOPPER BUOY SD
11	TA-0510	SEED DRILL BUOY SHAFT
12	CT-020900	COMBINED BUOY SHAFT
13	PS-020612	LEFT HOPPER SIDE BASE 597
14	PS-020611	RIGHT HOPPER SIDE BASE 597
15	MB-60	EMPTYING TRAY 250
15	MB-61	EMPTYING TRAY 300
15	MB-62	EMPTYING TRAY 350
15	MB-63	EMPTYING TRAY 400
16	PL-020201	HOPPER-TRIPOD JOINT RUBBER PLATE
17	PS-020607/D	RIGHT HOPPER SUPPORT BRACKET 250
17	PS-020607/I	LEFT HOPPER SUPPORT BRACKET 250
17	PS-020608/D	RIGHT HOPPER SUPPORT BRACKET 300
17	PS-020608/I	LEFT HOPPER SUPPORT BRACKET 300
17	PS-020609/D	RIGHT HOPPER SUPPORT BRACKET 350
17	PS-020609/I	LEFT HOPPER SUPPORT BRACKET 350
17	PS-020610/D	RIGHT HOPPER SUPPORT BRACKET 400
17	PS-020610/I	LEFT HOPPER SUPPORT BRACKET 400

9.7 COMBINED DISTRIBUTION

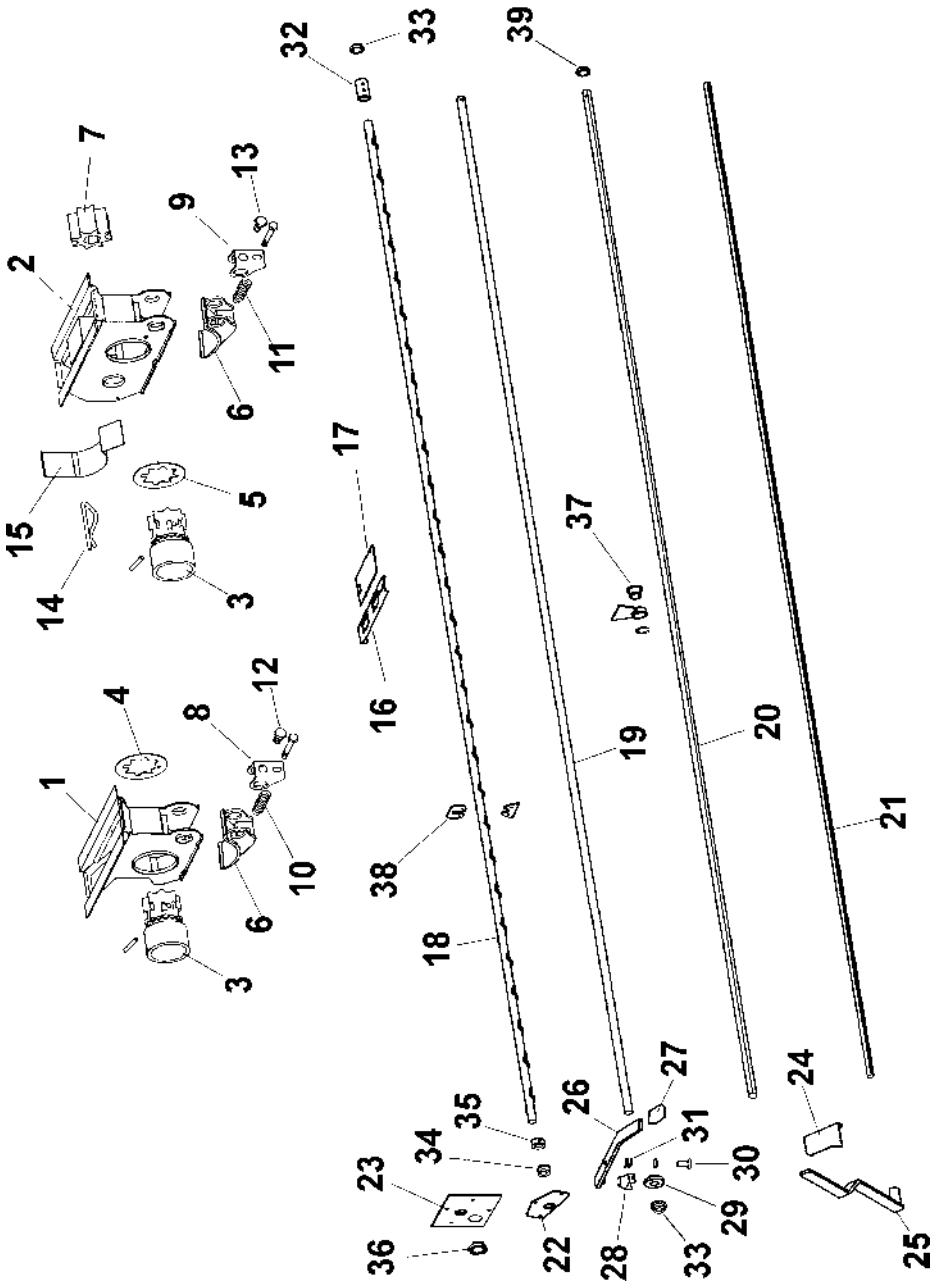


Figure	Code	Name
1	MD-11	SEED DRILL DISPENSER
2	MD-12	STAINL. ST. COMBINED DISPENSER
3	PL-040201	SEED DISPENSER ROLLER
4	EE-040200	SPLINED WASHER
5	EE-040202	STAINL. ST. SPLINED WASHER
6	PL-040205	BASE FLAP COVER
7	PL-040202	FERTILISER DISPENSER ROLLER
8	EE-040232	BASE FLAP COVER SUPPORT FLANGE BI
9	EE-040235	PAINTED BASE FLAP COVER SUPPORT FLANGE
10	ML-020200	BICHROMATED BASE FLAP COVER SPRING
11	ML-020201	STAINL. ST. BASE FLAP COVER SPRING
12	933 8X20B PUNTA	BI-TIP BOLT 933 M-8X20
13	933 8x20I PUNTA	STAINL. ST. TIP BOLT DIN 933 M-8X20
14	ML-040203	STAINL. ST. FERTILISER COVER “R” CLIP
15	EE-040227	LONG FERTILISER BASE COVER
16	EE-040228	BICHROMATED SLIDING COVER
16	EE-04022	STAINL. ST. SLIDING COVER
17	EE-040230	DISPENSER REPLACEMENT COVER
18	PS-0416/17/18/19	AGITATOR SHAFT 250/300/350/400
19	TA-0403/04/05/06	DISPENSER SHAFT 250/300/350/400
20	TA-0506/07/08/12	FERTILISER DISPENSER SHAFT 250/300/350/400
21	PM-0402/12/13/14	BASE FLAP SHAFT 250/300/350/400
22	EE-020215	AGITATOR SUPPORT COVER
23	PX-020218	COMBI HOPPER AGITATOR HUB COVER
24	EE-040219	BASE FLAP LEVER ADJUSTER
25	PS-0410	BASE FLAP LEVER
26	PS-020525	DISPENSER LEVER SD
27	PL-040203	PVC HANDLE FOR PLATE 30X8
28	ME-040223	CONTROL KNOB
29	ME-040214	MACHINED DRAG CONTROL KNOB Ø20
30	BU-040208	DISTRIBUTION LEVER JOINT BOLT
31	ML-020202	ADJUSTMENT LEVER SPRING
32	ME-040227	AGITATOR ROD JOINT TUBE
33	PL-020204	BUSHING Ø20.2XØ25X10
34	PL-020205	NOTCHED BUSHING Ø20.2XØ25X10
35	ME-020202	AGITATOR BUSHING RETAINING RING
36	PL-040208	BUSHING Ø30XØ35X10
37	PL-020203	FERTILISER SHAFT HUB BUSHING
38	EE-040215	AGITATOR ROD MOORING BRIDGE
39....	PL-020206	BUSHING Ø 18X25X10

9.8 SEED VARIATOR

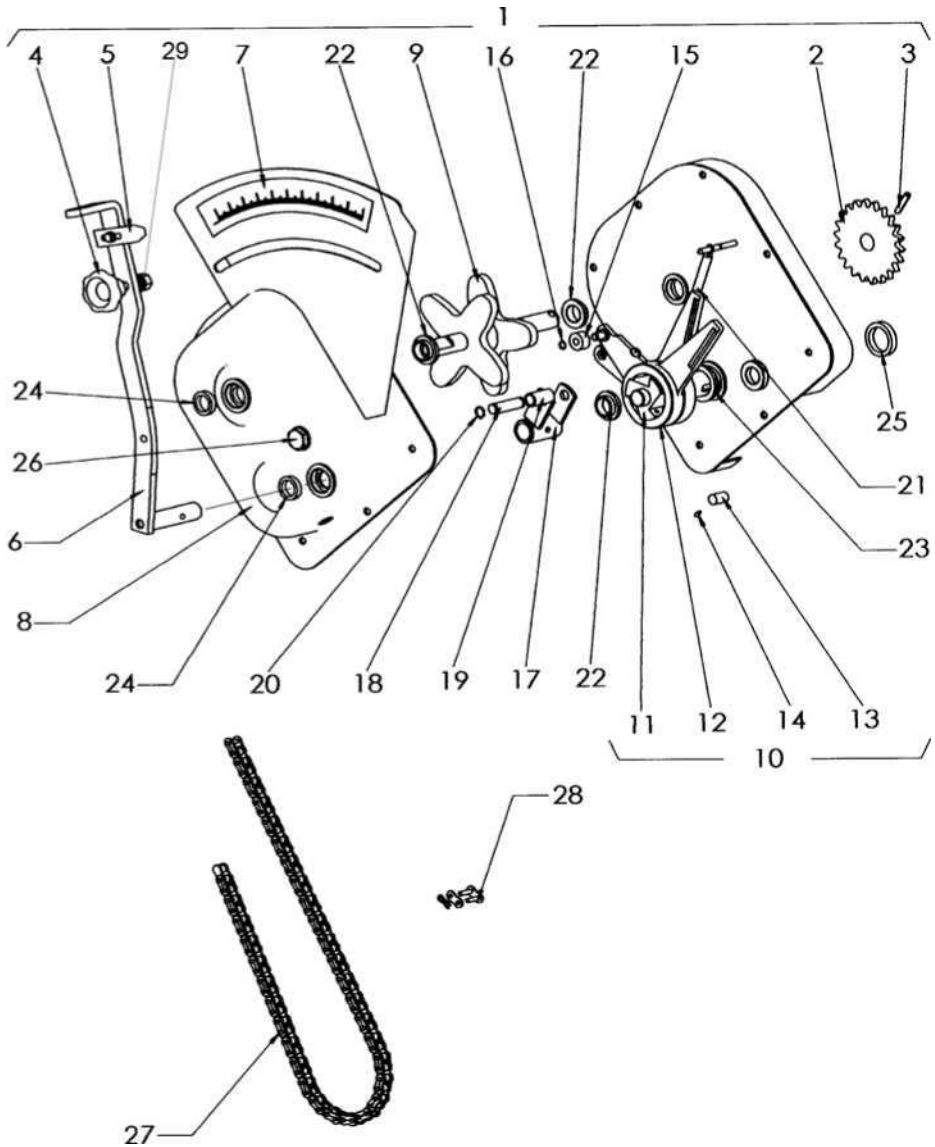


Figure	Code	Name
1	MO-040600	FULL SEED VARIATOR
2	ME-040402	17Z PINION FOR 1/2” CHAIN
3	1481 6X40 BI	BICHROMATED ELASTIC PIN Ø6X40
4	MV-09	FLYWHEEL WITH M-10 BOLT (LEFT THREAD)
5	PX-040204	VARIATOR LEVER INDEX
6	PS-0610	SEED VARIATOR ADJUSTMENT LEVER
7	AD-040200	SEED VARIATOR ADJUSTER STICKER
8	PS-0618	SEED VARIATOR BOX COVER WITH ADJUSTER
9	TA-0618	SEED VARIATOR OFF-CENTRE STAR
10	MO-0605	SEED FREE TURN SHAFT ASSEMBLY
11	RE-040201	LOOSE SEED VARIATOR TRANSMISSION SHAFT
12	ME-040226/D	RIGHT LONG DRAG CAM
12	ME-040226/I	LEFT LONG DRAG CAM
13	RODILLO 12X18	ROLLER Ø12X18
14	RE-040202	ROLLER POSITIONER TIP WITH SPRING
15	PL-040200	CAM RING
16	471 8	“SAEGER” RING DIN 471 Ø8
17	PS-0611	SEED VARIATOR CAM LIMIT FORK
18	BU-040200	CAM LIMIT BOLT
19	PL-040206	CAM LIMIT BUSHING
20	471 12	“SAEGER” RING DIN 471 Ø12
21	ML-040101	CAM RETURN SPRING
22	PL-040207	BUSHING Ø20XØ25X10
23	PL-040208	BUSHING Ø30XØ35X10
24	FE-601004	DOUBLE-LIP SEAL Ø20XØ28X6
25	FE-601005	DOUBLE-LIP SEAL Ø30XØ40X7
26	HI-707005	MIRILLA OIL LEVEL INSPECTION HOLE 1/2’’ GAS
27	FE-605064	1/2’’ CHAIN ISO 08B-1 L=1219 95P+1E OPEN
28	FE-605025	COUPLING FOR 1/2” CHAIN
29	985 10 IZQ	NUT DIN 985 M-10 (LEFT THREAD)

9.9 FERTILISER VARIATOR

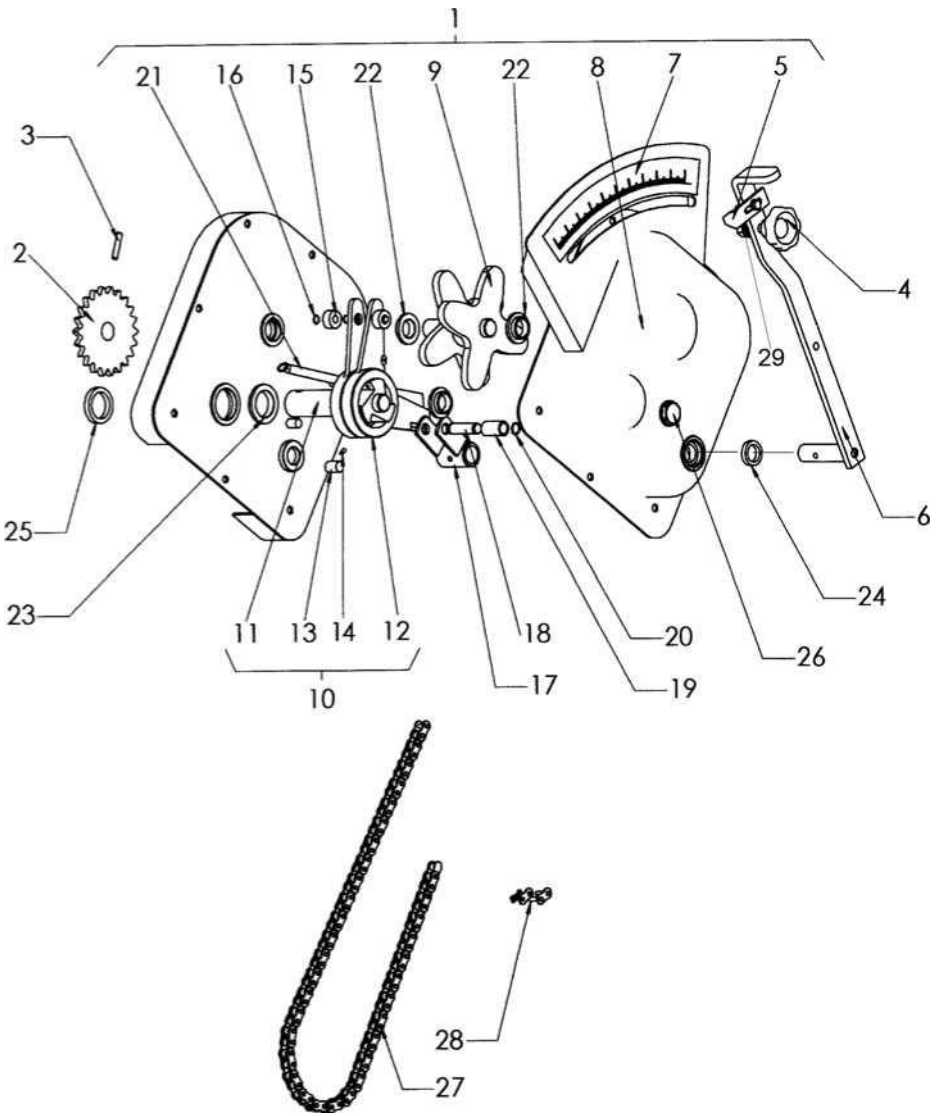


Figure	Code	Name
1	MO-040610	FULL FERTILISER VARIATOR
2	ME-040404	18Z 1/2'' PINION FERTILISER VARIATOR
3	1481 6X28 BI	ELASTIC PIN DIN 1481 Ø6X28 BI
4	MV-09	FLYWHEEL WITH M-10 BOLT (LEFT THREAD)
5	PX-040204	VARIATOR LEVER INDEX
6	PS-0619	FERTILISER VARIATOR ADJUSTMENT LEVER
7	AD-040201	FERTILISER VARIATOR ADJUSTER STICKER
8	PS-0627	FERTILISER VARIATOR BOX COVER WITH ADJUSTER
9	RE-040200	INJEC. FERTILISER VARIATOR OFF-CENTRE STAR
10	MO-0606	FERTILISER FREE TURN SHAFT ASSEMBLY
11	RE-040203	LOOSE FERTILISER VARIATOR TRANSMISSION SHAFT
12	ME-040232/D	RIGHT SHORT DRAG CAM
12	ME-040232/I	LEFT SHORT DRAG CAM
13	RODILLO 12X18	ROLLER Ø12X18
14	RE-040202	ROLLER POSITIONER TIP WITH SPRING
15	PL-040200	CAM RING
16	471 8	"SAEGER" RING DIN 471 Ø8
17	PS-0620	FERTILISER VARIATOR CAM LIMIT FORK
18	BU-040200	CAM LIMIT BOLT
19	PL-040206	CAM LIMIT BUSHING
20	471 12	"SAEGER" RING DIN 471 Ø12
21	ML-040101	CAM RETURN SPRING
22	PL-040207	BUSHING Ø20XØ25X10
23	PL-040208	BUSHING Ø30XØ35X10
24	FE-601004	DOUBLE-LIP SEAL Ø20XØ28X6
25	FE-601005	DOUBLE-LIP SEAL Ø30XØ40X7
26	HI-707005	MIRILLA OIL LEVEL INSPECTION HOLE 1/2'' GAS
27	FE-605043	1/2'' CHAIN ISO 08B-1 L=1143 89P+1E OPEN
28	FE-605025	COUPLING FOR 1/2" CHAIN
29	985 10 I	NUT DIN 985 M10 LEFT

9.10 TRANSMISSION

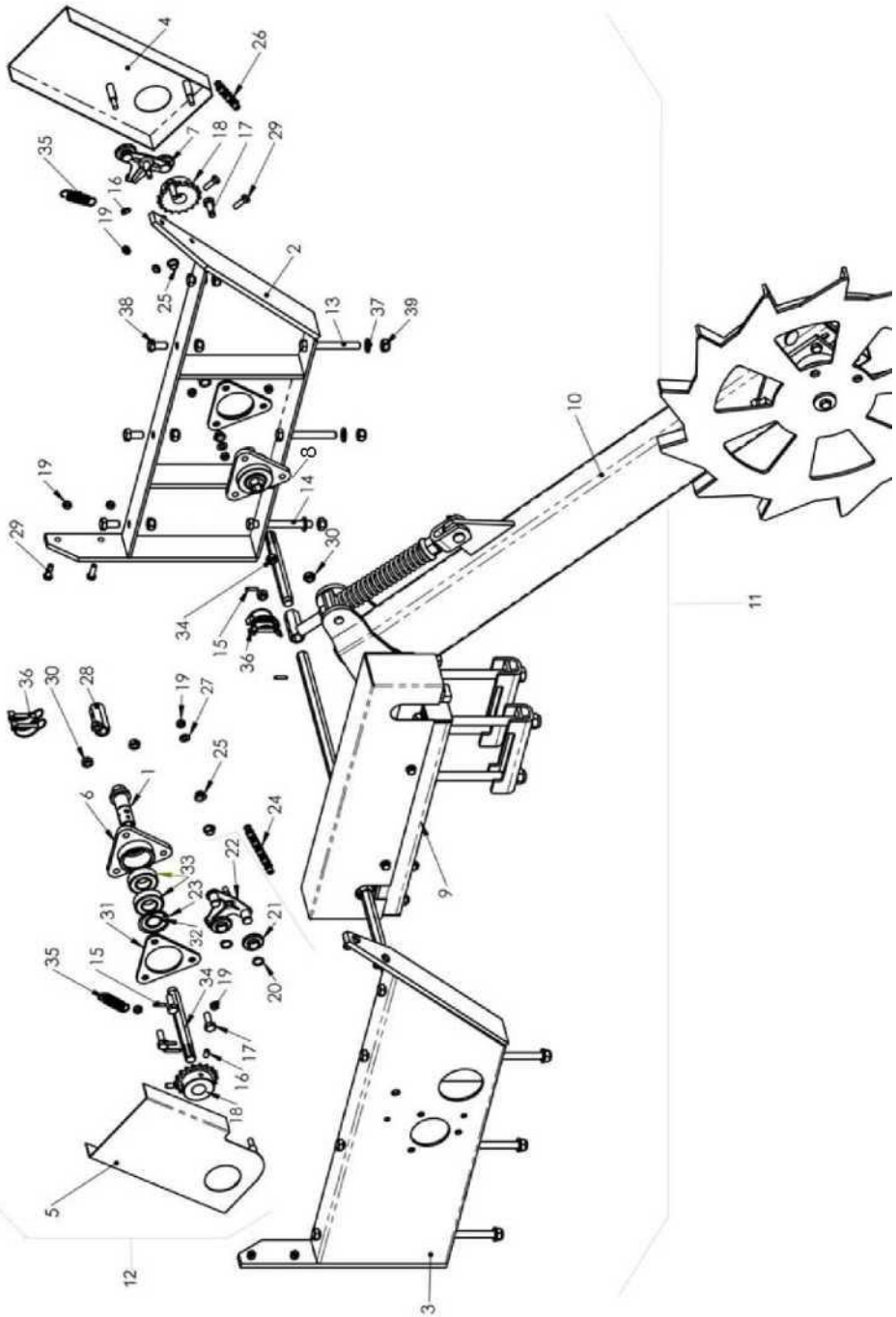


Figure	Code	Name
1	ME-040633	HEXAGONAL PINION BEARING BUSHING
2	PS-020611	HOPPER RIGHT SIDE BASE SD-1203
3	PS-020612	HOPPER LEFT SIDE BASE
4	PS-040623	SEED CHASSIS CHAIN-GUARD
5	PS-040624	FERTILISER CHASSIS CHAIN-GUARD
6	PS-042006	CHASSIS BEARING SUPPORT
7	MO-040113	CHAIN TENSIONIG DEVICE
8	MO-040614	CHASSIS BEARING-HOLDER
9	MO-040615	INTERMEDIATE TRANSMISSION
10	MO-040616	TRANSMISSION ARM
11	MO-040619	TRANSMISSION SD-1203
12	MO-040620	TRANSMISSION SD-1203 / COMBI
13	931 12X100 8.8B	BOLT DIN 931 M12x100 8.8 BI
14	931 12X110 8.8B	BOLT DIN 931 M12x110 8.8 BI
15	1481 5X22 BI	ELASTIC PIN DIN 1481 Ø5x22 BI
16	914 8X16 BI	ALLEN STUD DIN 914 M8x16 BI
17	933 10X30 8.8 B	BOLT DIN 933 M10x30 8.8 BI
18	ME-042011	RECEPTOR Z18 PINION
19	985 8	NUT DIN 985 M8
20	471 16	SAEGER RING DIN 471 Ø16
21	PL-040100	TENSIONING DEVICE PINION FOR 1/2” CHAIN
22	CO-040300	CHAIN TENSIONIG DEVICE
23	472 52	SAEGER RING DIN 472 Ø52
24	FE-605043	1/2’’ CHAIN ISO 08B-1L=1143 89P+1E OPEN
25	FE-600008	BUSH. FRICTION 12X14X9 W/ FLANGE
26	FE-605064	1/2’’ CHAIN ISO 081-1 L=1219 95P+1E OPEN
27	125 8 BI	WASHER DIN 125 M8 BI
28	ME-042031	TRANSMISSION SHAFT BUSHING
29	933 8X25 8.8B	BOLT DIN 933 M8x25 8.8 BI
30	985 10	NUT DIN 985 M10
31	PX-040622	BEARING SUPPORT SPACER
32	471 25	SAEGER RING DIN 471 Ø25
33	FE-600060	BEARING 6205 2RS
34	ME-050626	CHASSIS BEARING-HOLDER SHAFT
35	ML-010101	GUITAR SPRING
36	FE-610013	Ø6X40 SHAFT CENTRE PIN
37	125 12 BI	WASHER DIN 125 M12 BI
38	933 12X25 8.8B	BOLT DIN 933 M12x25 8.8 BI
39	985 12	NUT DIN 985 M12

9.11 TRANSMISSION ARM

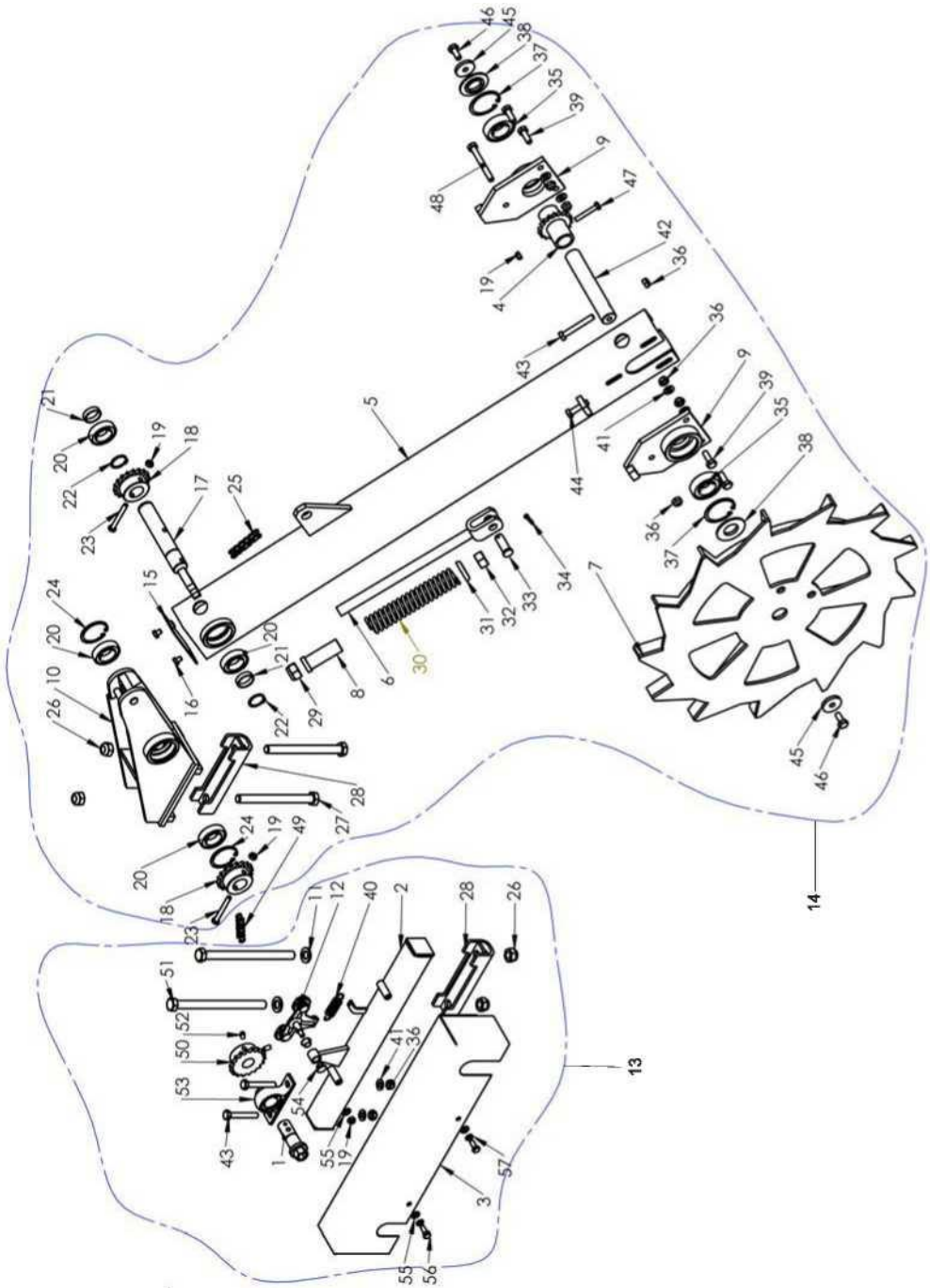


Figure	Code	Name
1	ME-040633	HEXAGONAL PINION BEARING BUSHING
2	PS-040620	INTERMEDIATE TRANSMISSION SUPPORT BAR
3	PS-040621	INT. TRANSM. CHAIN PROTECTION
4	PS-040605	18Z DRIVE PINION WITH TUBE
5	PS-040608/D-I	D/I TRANS WHEEL LONG ARM SD COMBI
6	TA-040622	LONG TRANS. WHEEL TENSIONING DEVICE SD-1203
7	PS-040613/D-I	COMBI FERTILISER LFT./RGH. TRANSMISSION WHEEL
8	PS-040614	REAR WHEEL TENS. GUIDE LIMIT TUBE
9	PS-040617	TRANSMISSION WHEEL SUPPORT
10	PS-040622	TRANSM. ARM SUPPORT HEAD
11	125 16 BI	WASHER DIN 125 M16 BI
11	PS-050617	DIRECT ARM SUPPORT 120 FLANGE SD-1203
12	MO-040113	CHAIN TENSIONIG DEVICE
13	MO-040615	INTERMEDIATE TRANSMISSION
14	MO-040616	TRANSMISSION ARM
15	T07-136	TRANSMISSION ARM UPPER COVER
16	933 8X10 8.8 B	BOLT DIN 933 M8x10 8.8 BI
17	ME-040626	TRANSMISSION ARM UPPER SHAFT
18	ME-040627	INTERMEDIATE TRANSM. PINION Z18
19	985 8	NUT DIN 985 M8
20	FE-600016	BEARING 6006 2RS
21	ME-040631	TRANSMISSION BEARING SPACER
22	471 30	SAEGER RING DIN 471 Ø30
23	931 8X65 8.8 B	BOLT DIN 931 M8x65 8.8 BI
24	472 55	SAEGER RING DIN 472 Ø55
25	ME-040632	PINION-BEARING BUSHING
25	FE-605015	LONG TRANSM. ARM 1/2'' CHAIN L=2210 "
26	ME-040634	INT. CHAIN-GUARD FASTENER
26	985 16	NUT DIN 985 M16
27	931 16X180 8.8B	BOLT DIN 931 M16x180 8.8 BI
28	EE-050610	DIRECT ARM SUPPORT 120 FLANGE 597-SD
29	985 20	NUT DIN 985 M20
30	ML-080104	HARROW ARM SPRING
31	EE-080306	SPRING COVER Ø40x20.5
32	934 20 BI	NUT DIN 934 M20 BI
33	B03-176	SHORT BOLT 20X48 S.D.
34	94 5X25 BI	COTTER PIN DIN 94 5X25 BI
35	FE-600014	BEARING 6206 2RS

9.12 TRANSMISSION ARM

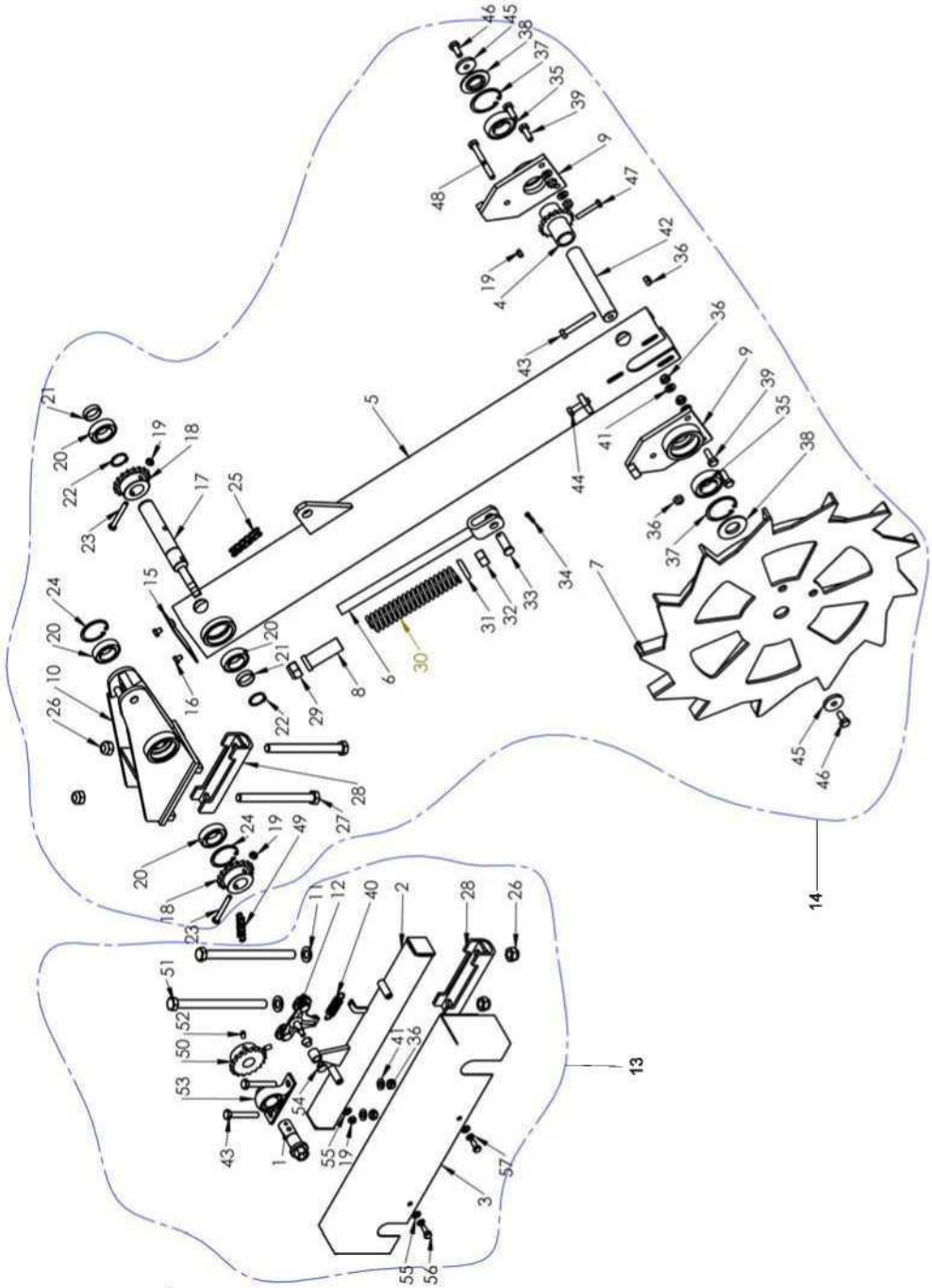


Figure	Code	Name
36	985 10	NUT DIN 985 M10
37	472 62	SAEGER RING DIN 472 Ø62
38	ME-040622	BEARING PROTECTION WASHER
39	933 10X30 8.8 B	BOLT DIN 933 M10x30 8.8 BI
40	ML-010101	GUITAR SPRING
41	125 10 BI	WASHER DIN 125 M10 BI
42	ME-040623	TRANSMISSION WHEEL AXLE
43	931 10X70 8.8B	BOLT DIN 931 M10x70 8.8 BI
44	933 10X40 8.8 B	BOLT DIN 933 M10x40 8.8 BI
45	A02-68	WHEEL AXLE WASHER
46	933 10X25 8.8 B	BOLT DIN 933 M10x25 8.8 BI
47	931 8X50 8.8B	BOLT DIN 931 M8x50 8.8 BI
48	931 10X90 8.8B	BOLT DIN 931 M10x90 8.8 BI
49	FE-605061	1/2'' CHAIN ISO 081-1 L=1181 93P+1E OPEN
50	ME-042011	RECEPTOR Z18 PINION
51	931 16X220 8.8B	BOLT DIN 931 M16x220 8.8 BI
52	914 8X16 BI	ALLEN STUD DIN 914 M8x16 BI
53	FE-600012	BEARING SUPPORT ASSY
54	FE-600008	BUSH. FRICTION 12X14X9 W/ FLANGE
55	125 8 BI	WASHER DIN 125 M8 BI
56	933 8X20 8.8 B	BOLT DIN 933 M8x20 8.8 BI
57	127 8 BI	GROWER WASHER DIN 127 8 BI

9.13 HARROW

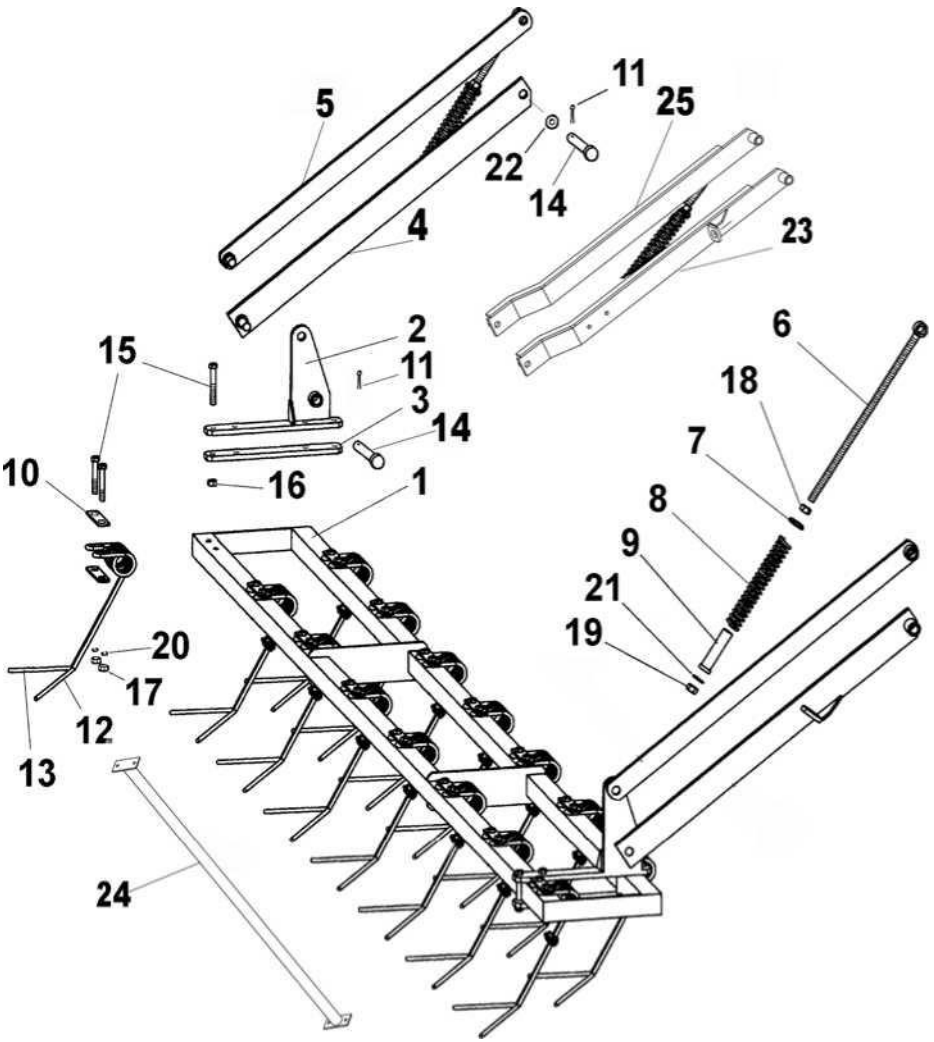


Figure	Code	Name
1	PS-080501	HARROW BARS SD 250
1	PS-080502	HARROW BARS SD 300
1	PS-080503	HARROW BARS SD 350
1	PS-080504	HARROW BARS SD 400
2	PS-081802	HARROW LOWER SUPPORT
3	EE-081800	HARROW FLANGE SD
4	PS-081800/D	HARROW DRIVE ARM SD- RIGHT
4	PS-081800/I	HARROW DRIVE ARM SD- LEFT
5	PS-081801	HARROW TENSIONIG DEVICE ARM
6	PS-2244	HARROW SPRING TENSIOING DEVICE
7	EE-080306	HARROW SPRING COVER
8	ML-080104	HARROW ARM SPRING Ø40X20.5
9	PS-1735	SPRING INTERIOR TUBE
10	EE-080400	TINE SUPPORT PLATE
11	94 5X32 BI	BICHROMATED COTTER PIN DIN 94 05X32
12	ML-080400/D	RIGHT SD HARROW TINE
13	ML-080400/I	LEFT SD HARROW TINE
14	BU-080202	ENGRAVED BOLT Ø20
15	931 12X90 8.8B	BICHROMATED BOLT DIN 931 M-12X90 8.8
16	985 12	BICHROMATED NUT DIN 985 M-12
17	934 12	NUT DIN 934 M-12
18	934 16 BI	BICHROMATED NUT DIN 934 M-16
19	985 16	BICHROMATED NUT DIN 985 M-16
20	7980 12 BI	BICHROMATED GROWER WASHER DIN 7980 M-12
21	125 16 BI	BICHROMATED FLAT WASHER DIN 125 016
22	125 20 BI	BICHROMATED FLAT WASHER DIN 125 020
23	PS-081804/D	RIGHT CURVED HARROW DRIVE ARM SD-1203
23	PS-081804/I	LEFT CURVED HARROW DRIVE ARM SD-1203
24	PS-081805	HARROW REINFORCEMENT TUBE 250 SD-1203-250
24	PS-081806	HARROW REINFORCEMENT TUBE 300 SD-1203-300
24	PS-081807	HARROW REINFORCEMENT TUBE 350 SD-1203-350
24	PS-081808	HARROW REINFORCEMENT TUBE 400 SD-1203-400
25	PS-081803	CURVED TENSIONING DEVICE ARM SD-1203

9.14 DRAG TRAIN

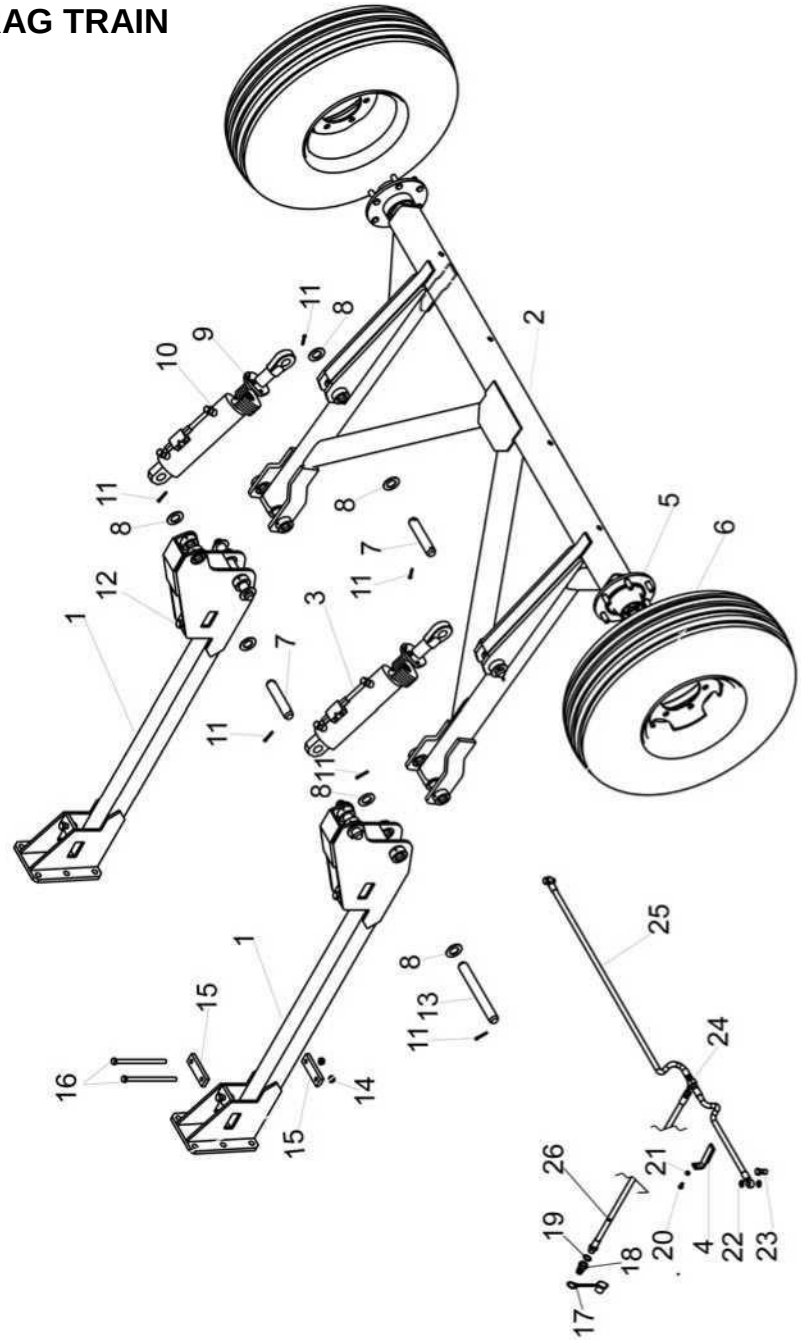


Figure	Code	Name
1	PS-090605	DRAG SUPPORT SD-1203
2	PS-090612	WIDE REAR TRAIN 2100
3	MO-090601	REAR TRAIN CYLINDER
4	PS-080602	HOSE FASTENER 3/8
5	CO-090601	60 JIMMY HALF SHAFT AND 55 SLEEVE
6	CO-045200	WHEEL ASSY 12.5/80-15 14PR *161
7	B03-264	CYLINDER SUPPORT BOLT
8	125 35 BI	WASHER 125 Ø35BI
9	931 12X90 8.8 B	BOLT DIN 931 M12X90 8.8 BI
10	985 12	NUT DIN 985 M12
11	94 6x45 BI	BICHROMATED COTTER PIN DIN 94 M 6X45
12	933 18x55 8.8 B	BOLT DIN 933 M 18X55 8.8 BI
13	B03-265	REAR TRAIN MOORING BOLT
14	985 14	NUT DIN 985 M14
15	B10-36	DRAG TRAIN SUPPORT MOUINT FLANGE
16	931 14X230 8.8 E	BOLT DIN 931 M14X230 8.8 BI
17	HI-707001	PROTECTOR FOR 1/2” FEMALE QUICK HYDR. COUPLING
18	HI-701000	ISO A CETOP MALE QUICK COUPLING 1/2”
19	HI-705002	METALBUNA (BONDED SEAL) WASHER 1/2"
20	933 8x15 8.8 B	BOLT DIN 933 M 8X15 8.8 BI
21	985 8	NUT DIN 985 M8
22	HI-705003	METALBUNA (BONDED SEAL) WASHER 3/8"
23	HI-702001	3/8” SINGLE BOLT
24	HI-703006	T CONNECTOR M3/8"-M3/8" M3/8"
25	HI-700010	R2AT TUBE 3/8" L=0.95M E 3/8"-TL 3/8"
26	HI-700009	R2AT TUBE 3/8" L=5.3M M 1/2"-TL 3/8”

9.15 TOW BAR

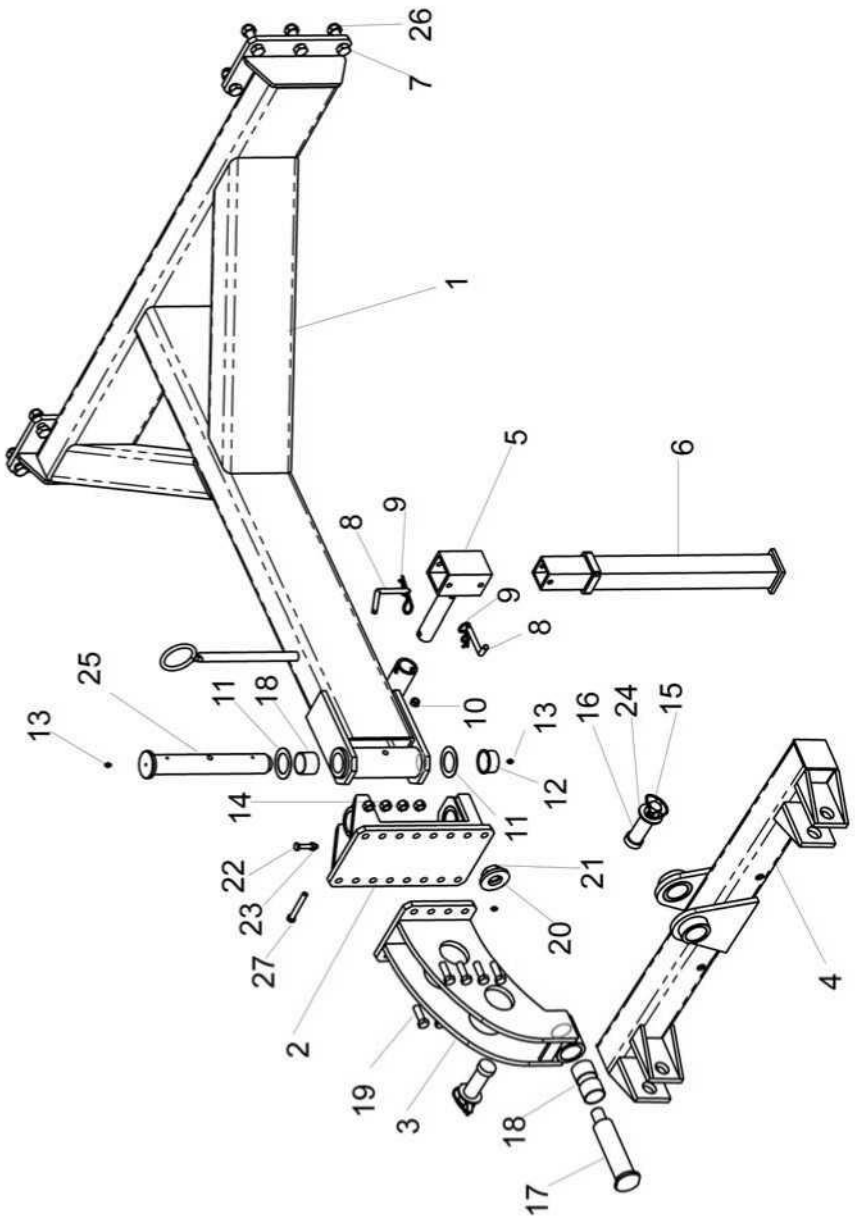

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Figure	Code	Name
1	PS-090606	TOW BAR SD
2	PS-090607	COUP. BAR VERT. JOINT
3	PS-090608	COUP. BAR HORIZONTAL JT.
4	PS-090609	ARTICULATED COUPLING BAR
5	PS-090610	Articulated foot-holder
6	PS-090611	REST FOOT
7	933 20x60 8.8B	BOLT DIN 933 M 20X60 8.8 BI
8	BU-090600	FOOT FASTENING BOLT
9	FE-610004	R 5 PIN
10	985 12	NUT DIN 985 M12
11	FE-600080	TFW FRICTION WASHER 52/1
12	FE-600079	FRICTION BUSHING 50X55/65 BIMET
13	FE-603001	STRAIGHT LUBRICATOR M-6
14	985 16	NUT DIN 985 M 16
15	FE-610011	16 RING PIN
16	B03-268	COUPLING BOLT C-III
17	B03-267	HORIZONTAL JOINT BOLT
18	FE-600081	FRICTION BUSHING 50X55X40 BIMET
19	933 16x50 8.8 B	BOLT DIN 933 M 16X50 8.8 BI
20	A02-86	WASHER RED.76XRE.36X10
21	985 30	NUT DIN 985 M 30
22	931 10x55 8.8 B	BOLT DIN 931 M10X55 8.8 BI
23	985 10	NUT DIN 985 M10
24	125 35 BI	WASHER 125 Ø35BI
25	BU-090604	VERTICAL JOINT BOLT
26	985 20	NUT DIN 985 M 20
27	931 12X90 8.8 B	BOLT DIN 931 M12X90 8.8 BI

9.16 SERVICE BRAKE

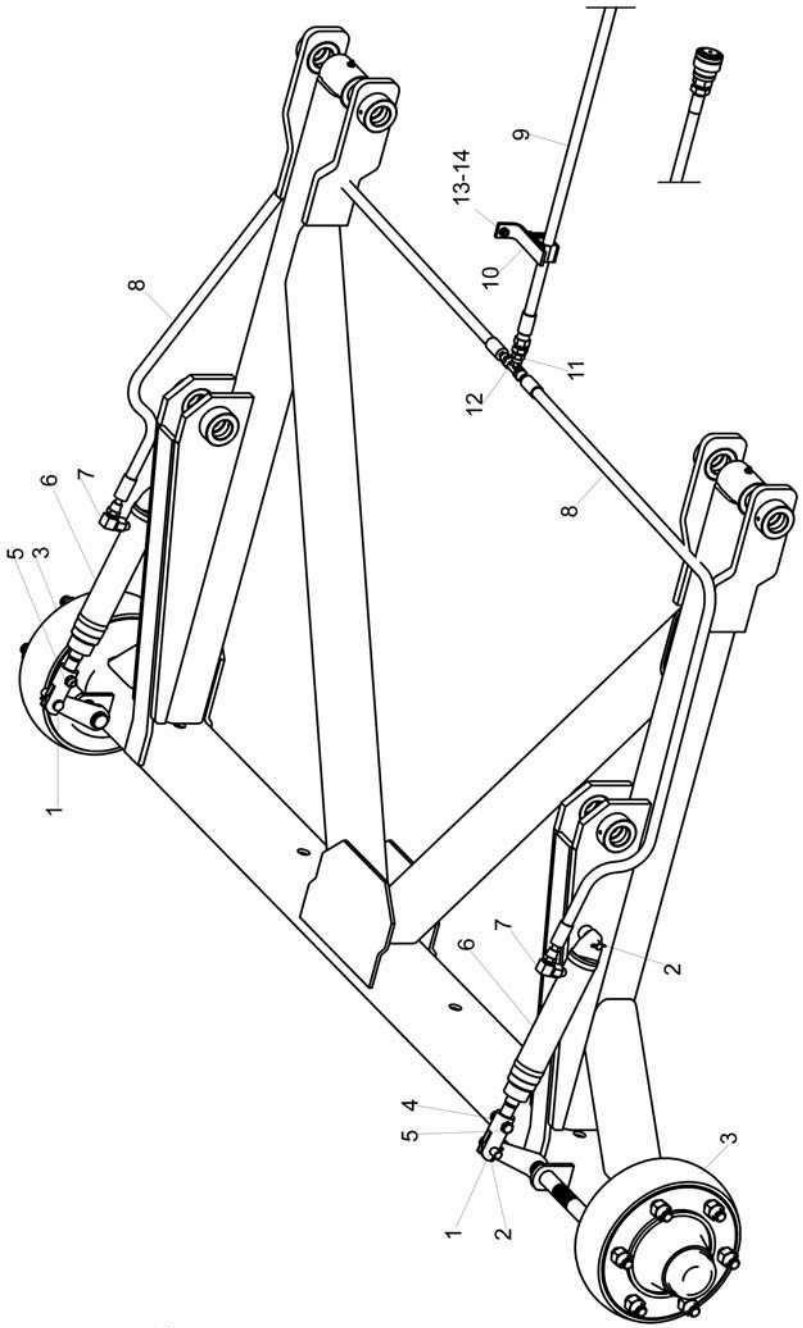

Figure	Code	Name
1	BU-101800	BOLT 14X42
2	94 3,5X20 BI	COTTER PIN DIN 94 3.5X20 BI
3	CO-090604	HALF SHAFT WITH BRAKE 6/415 - STEERING
4	931 10X45 8.8B	BOLT DIN 931 M10x45 8.8 BI
5	985 10	NUT DIN 985 M10
6	CO-045101	HYDRAULIC CONTROL H.S. CYLINDER
7	HI-704003	SQUARE ELBOW JOINT CONNECTOR M1/4-TL1/4
8	HI-700066	R2AT TUBE 1/4 L=1.5M TL 1/4"-TL 1/4"
9	HI-700009	R2AT TUBE 3/8" L=5.3M M 1/2"-TL 3/8”
10	PS-080603	HOSE FASTENER 1/4
11	HI-704029	MF3/8"-MF1/4” JOINT CONNECTOR
12	HI-703010	T CONNECTOR MF1/4”-MF1/4” HG 1/4” CENTRAL
13	985 8	NUT DIN 985 M8
14	933 8X16 8.8B	BOLT DIN 933 M8x16 8.8 BI
15	HI-701006	FEMALE BRAKE VALVE 1/2"

9.17 SPREADING

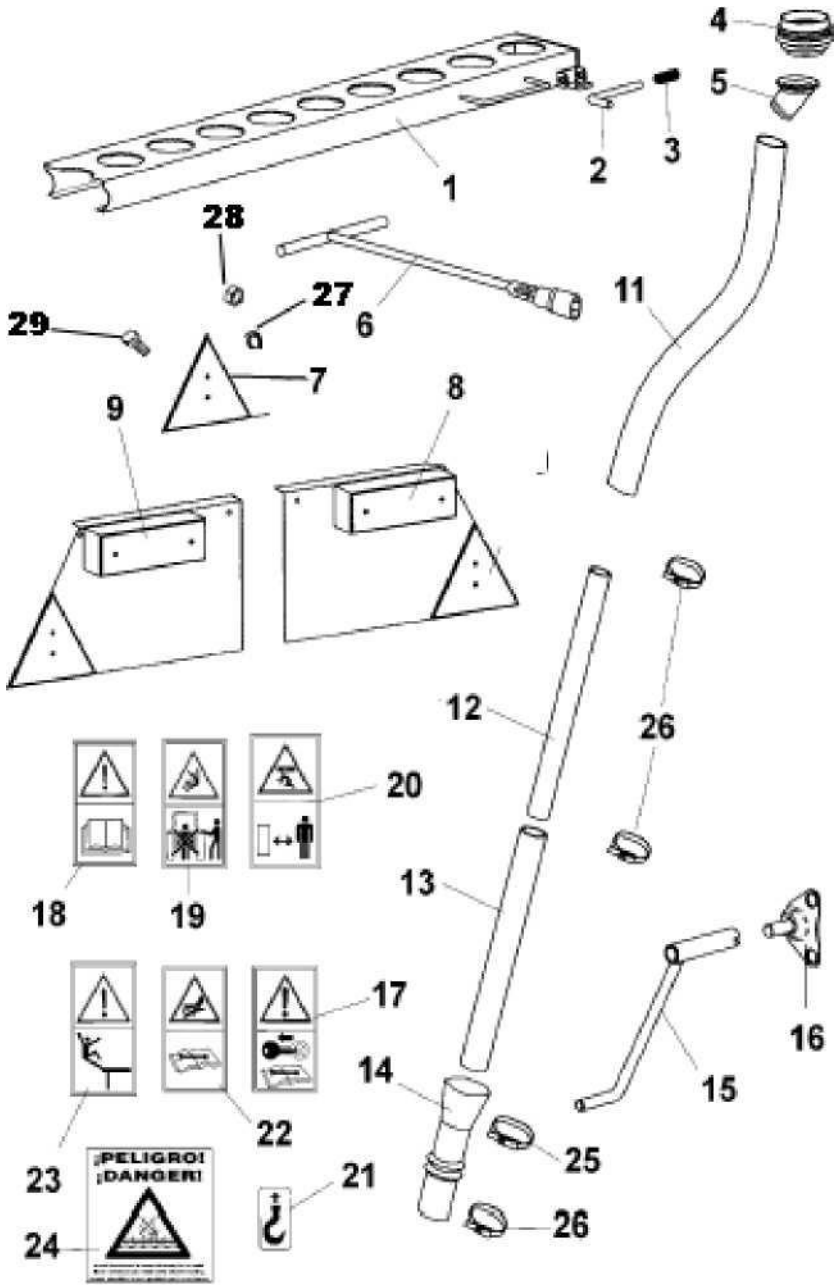

Figure	Code	Name
1	PS-050404	NOZZLE-HOLDER BAR SD 250
1	PS-050405	NOZZLE-HOLDER BAR SD 300
1	PS-050406	NOZZLE-HOLDER BAR SD 350
1	PS-050407	NOZZLE-HOLDER BAR SD 400
2	BU-050300	NOZZLE-HOLDER BAR LATCH BOLT
3	ML-050202	NOZZLE-HOLDER BAR LATCH SPRING
4	PL-050300	NOZZLE BELLOWS
5	PL-050301	THREADED NOZZLE
6	PS-070600	PRESS WHEEL TENSIONING DEVICE LEVER
7	CN-818019	TRIANGULAR RED CATADIOPTRIC REFLECTOR
8	CN-818014/D	RIGHT RECTANGULAR REAR PILOT LIGHT
9	CN-818014/I	LEFT RECTANGULAR REAR PILOT LIGHT
11	VA-070621	SEED DROP TUBE L=350 SD-1203
11	VA-070622	SEED DROP TUBE L=300 SD-1203
11	VA-070623	SEED DROP TUBE L=380 SD-1203
11	VA-070620	SEED DROP TUBE Ø38 L=240
12	PL-052008	INTERIOR TELESCOPIC TUBE Ø 40X250
13	PL-052007	EXTERIOR TELESCOPIC TUBE Ø 50X230
13	PL-052006	EXTERIOR TELESCOPIC TUBE Ø 50X280
14	PL-052003	TUBE LOWER BELLOWS SD-1303
15	CO-070300	SPINDLE CRANK
16	MO-1637	WHEEL CRANK HOUSING
17	AD-070227	“STOP MOTOR” STICKER
18	AD-070206	“READ INSTRUCTION MANUAL” STICKER
19	AD-070214	“COUPLING MANOEUVRE HAZARD” STICKER
20	AD-070207	“CRUSHING HAZARD” STICKER
21	AD-075104	“COUPLING POINT” STICKER
22	AD-070222	“HYDRAULIC HAZARD” STICKER
23	AD-070215	“FALLING HAZARD” STICKER
24	AD-030200	“AGITATOR HAZARD” STICKER
25	FE-606003	CLAMP Ø40-60/9 W1
26	FE-606001	MIKALOR FLANGE Ø32/50
27	127 5 BI	WASHER DIN 127 M5 BI
28	934 5 BI	NUT DIN 934 M5 BI
29	7985 5X15 BI	BICHROMATED BOLT DIN 7985 M 5X15

9.18 VARIATOR HYDRAULIC CONTROL

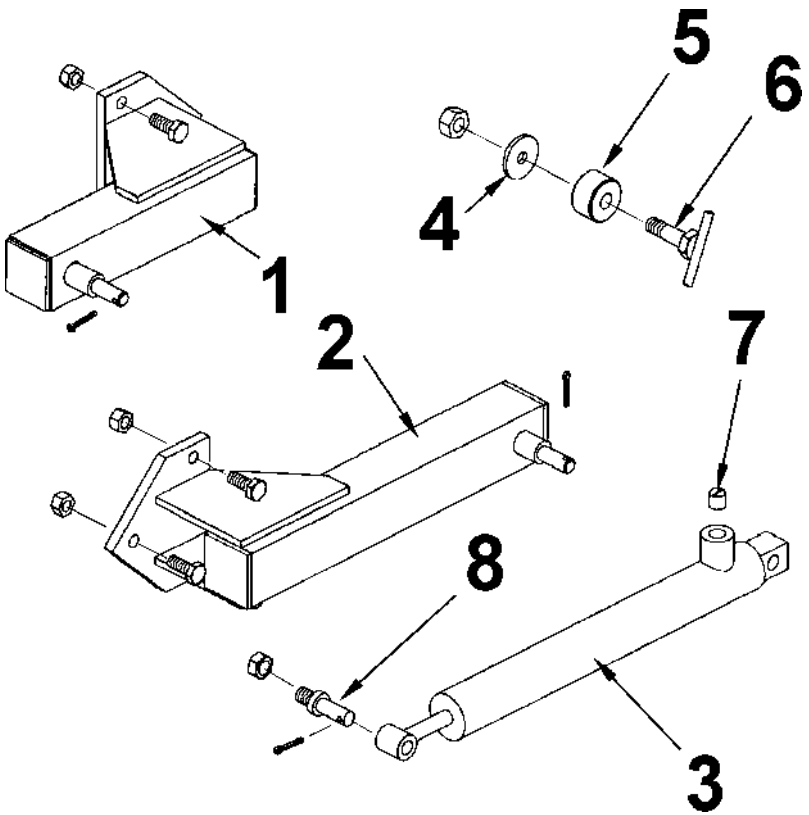

Figure	Code	Name
1	PS-0609	FERTILISER VARIATOR HYDRAULIC CONTROL SUPPORT
2	PS-0608	SEED VARIATOR HYDRAULIC CONTROL SUPPORT
3	CO-100201	VARIATOR CLUTCH CYLINDER
4	EE-030202	BICHROMATED WASHER Ø30XØ10.5X3
5	ME-100202	VARIATOR CYLINDER LIMIT RING
6	PS-0607	VARIATOR CYLINDER LIMIT BOLT
7	ME-100210	CYLINDER CHOKE
8	BU-1 00204	VARIATOR CYLINDER THREADED BOLT

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