Instruction Manual

SPDE

No Till Seed Drill Special

BALDAN

PRESENTACIÓN

We appreciate your purchase and congratulate you for the excellent choice you just made because you have purchased a product manufactured with technology from **BALDAN IMPLEMENTOS AGRÍCOLAS S/A.**

This instruction manual will guide you through the procedures that are necessary since its acquisition up to the operating procedures of use, security and maintenance.

BALDAN ensures that has delivered this farming implement to the dealer in perfect conditions.

The dealer is responsible for the custody and maintenance of this farming implement and also for the assemblage, retightening, lubrication and overhaul.

In the technical delivery, the dealer must advise the user on its maintenance, security, its obligations under any technical assistance, the strict observance of the guarantee and reading of the instruction manual.

Any request for technical assistance under warranty should be made to the dealer where it was purchased.

We reiterate the need for careful reading of the Warranty Certificate and observance of all items in this instruction manual, as doing so, the useful life of your farming implement will increase.

Instruction
Manual

SPDE

No Till Seed Drill Special

BALDAN IMPLEMENTOS AGRÍCOLAS S/A.
CNPJ: 52.311.347/0009-06
Insc. Est.: 441.016.953.110

Scan the QR Code on the identification plate of your device and access this Instruction Manual online.

BALDAN

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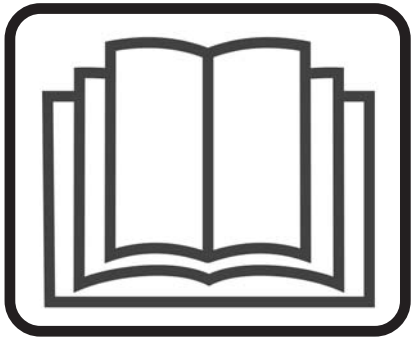
THE SAFETY ALERT SYMBOL WARN OF A SERIOUS PROBLEM WITH THE ENGINE, WHEN YOU SEE THIS SYMBOL, BE ALERT TO THE POSSIBILITY OF SERIOUS OR FATAL INJURY. FOLLOW THE INSTRUCTIONS IN THE SAFETY MESSAGE.

WARNING

- Read the operator manual to understand the recommended operating safety practices. Explain the practices to those operators who cannot read then for thenselves.

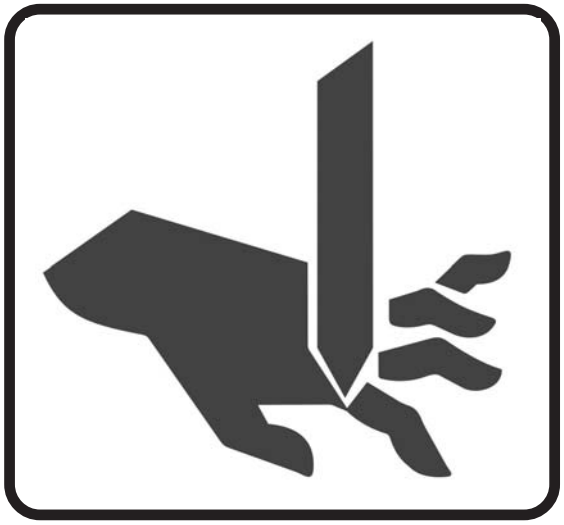


DANGER

- Only start tractor engine while sitting in operator's seat with seat belt fastened.

CAUTION

- Keep away from the disc blades of the machine, they are sharp and may cause accidents.
- Always use gloves in order to carry out any service



DANGER

· Ensure weight is even by distributed to avoid overturning.

DANGER

· in order to avoid a possible rollover or overturn injury risk to engine operators.
· Do not use excessive ground speed during the operation.

DRUGS AND ALCOHOL WILL AFFECT AN OPERATOR'S ALERTNESS AND COORDINATION. DO NOT OPERATE ANY ENGINE WHILE UNDER THE INFLUENCE OF EITHER.

DANGER

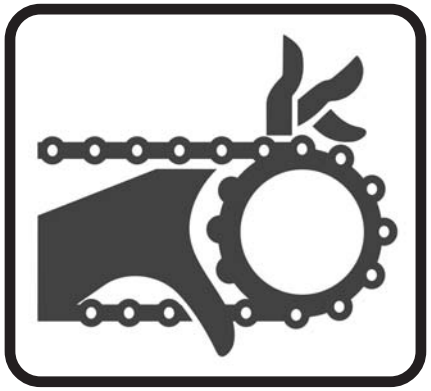
· Use the row marker carefully to avoid serious injuries or death.
· Keep the other people away when the row markers are running.

DANGER

- Before any servicing be sure that you follow the recommended shutdown procedure.

DANGER

- Do not make any adjustment when the machine is moving.
- Before any servicing disengage the ratchet.



DANGER

- Never satnd on the machine while the engine is running.
- Ḍo not allow anyone on the engine or tractor.

DANGER

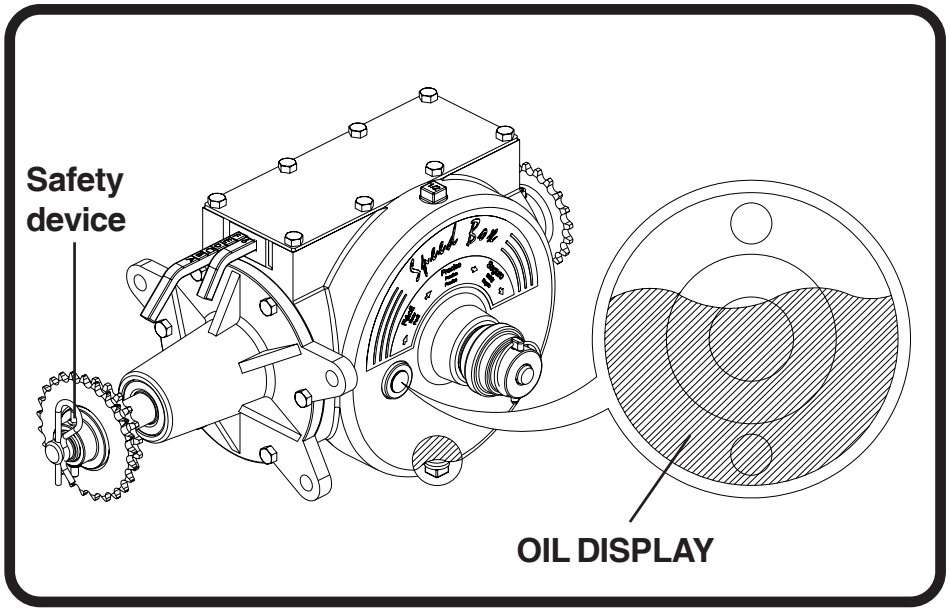
- Do not allow anyone ride on the tractor when the engine is running.

DANGER

- The hydraulic oil works at high pressure, andd may be harmful when in contact with the skin. Check regulary the hoses conditions. If there is any leakage, change them. To check any leakage use a card orr wood , never use your hands without protective gloves.
- Before coupling or uncoupling hydraulic hoses turn the tractor off relieve the pressure in the system using the tractor hydraulic joystick.

ATTENTION

- Check the oil level display every day.
- Change the oil of the gear box (Speed Box) after first 30 worked hours and then every 1500 worked hours always using mineral oil ISO VG 150 at 40°C (quantity of oil used 1,8 liters).
- Use only original safety device, which has the correct hardness.



WARNING:

The incorrect handling of this equipment can result in serious or fatal accidents. Before using the implement, read carefully the instructions in this manual. Be sure that the person responsible for the operation is instructed about the correct handling and safety and has read and understood the instruction manual concerning this machine.

1 - When operating the implement do not allow people to stand close or on the implement.

2 - During assembly or disassembly of the discs section use protective gloves.

3 - Do not use baggy clothes because they can get caught on the implement.

4 - When you start the tractor engine, sit on the operator seat and be aware of the correct and safe handling of both tractor and implement. Always place the gearshift cranck at the neutral position, turn off the gear of the power command and place the hydraulic commands at the neutral position.

5 - Do not turn on the tractor in a closed place without appropriate ventilation because the gas is bad harmful to you.

6 - While maneuvering the tractor to clamp the implement be sure that there is enough space and nobody is too close, always maneuver always in slow gear and be ready to brake in case of emergency.

7 - Do not carry out adjustments with the implement working.

8 - When working over hilly areas try to keep the necessary stability. In case of instability reduce the acceleration, turn the wheels to the inclined side of the land and never lift the implement.

9 - Always use the tractor always at safe speeds, especially when working in irregular or inclined lands, away keep the tractor in gear .

10 - When using the tractor on a road, keep the brake pedal connected.

11 - Do not work with the front tractor light. If there is a tendecy to lift up add more weight in the front of the tractor at the front wheels.

12 - When leaving the tractor, place the gearshift at the neutral position and apply the park brake.

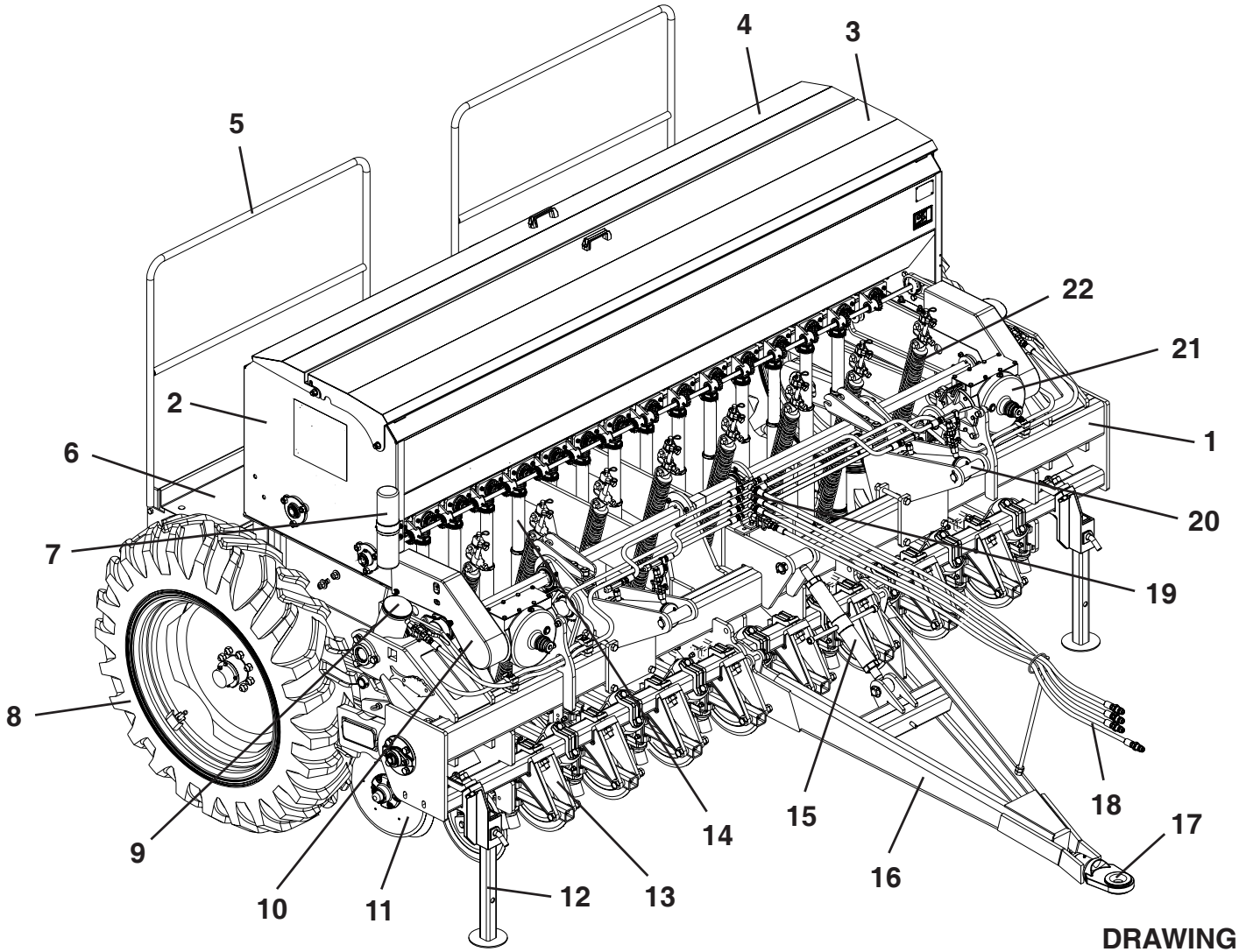
13 - Drugs and alcohol will affect an operator's alertness and coordination. Do not operate any engine underthe influence of either.

14 - Read the operator manual to understand the recommended operating safety practices. Explain the practices to those user or operators who cannot read then for thenselfes.

SPDE - NO TILL SEED DRILL SPECIAL

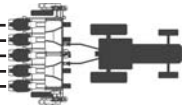
02 COMPONENTS

01 - Frame
02 - Seed and fertilizer hopper
03 - Fertilizer hopper lid
04 - Seed hopper lid
05 - Hand rail
06 - Catwalk
07 - Manual and catalogue compartment
08 - Ground wheel
09 - Ground wheel Hydraulic cylinder
10 - Protection cover
11 - Double disc for fertilizer and seed
12 - Stand
13 - Row unit
14 - Seed tube
15 - Drawbar adjuster
16 - Drawbar
17 - Tongue
18 - Hydraulic hoses
19 - Hydraulic hoses connectors
20 - Row unit Hydraulic cylinder
21 - Gear Box "Speed Box"
22 - Spring axle



DRAWING 01

03 TECHNICAL FEATURES



Model SPDe Speed Box	Row Nº	Useful width [mm]	Working width [mm]	Total length [mm]	Hopper capacities :			Weight [Kg]	Tractor required [Hp]	Row Spacing [mm]	Number of Ground Wheel	Number of extra-weight	Production by day [Ha / Dia]
					Fertilizer [Lt]	Seed [Lt]	Pastures seed [Lt]						
3000	16	2550	2720	3592	641	64	469	3401	75 a 95	170	2	16	18
4000	20	3230	3400	4272	764	72	558	3812	95 a 110	170	2	20	23
5000	24	3910	4080	4952	914	88	670	4223	115 a 130	170	2	24	28

TABLE 01

- *Minimum spacing between the rows units ..... 170 mm*
- *Working depth ..... 0 a 120 mm*
- *Double disc diameter ..... 15”*
- *Total height ..... 1850 mm*
- *Total length ..... 3600 mm*

** To calculate the production rate you should keep the working speed at 8 km/h with 10working hours per day.*

Baldan reserves to the right to improve and/or modify the technical features of this product without prior notice, the drawing in of this brochure are merely for illustration, in some pictures there aren't the protection devices to provide a better view, the content of this brochure was based on normal working conditions.

04 ASSEMBLY

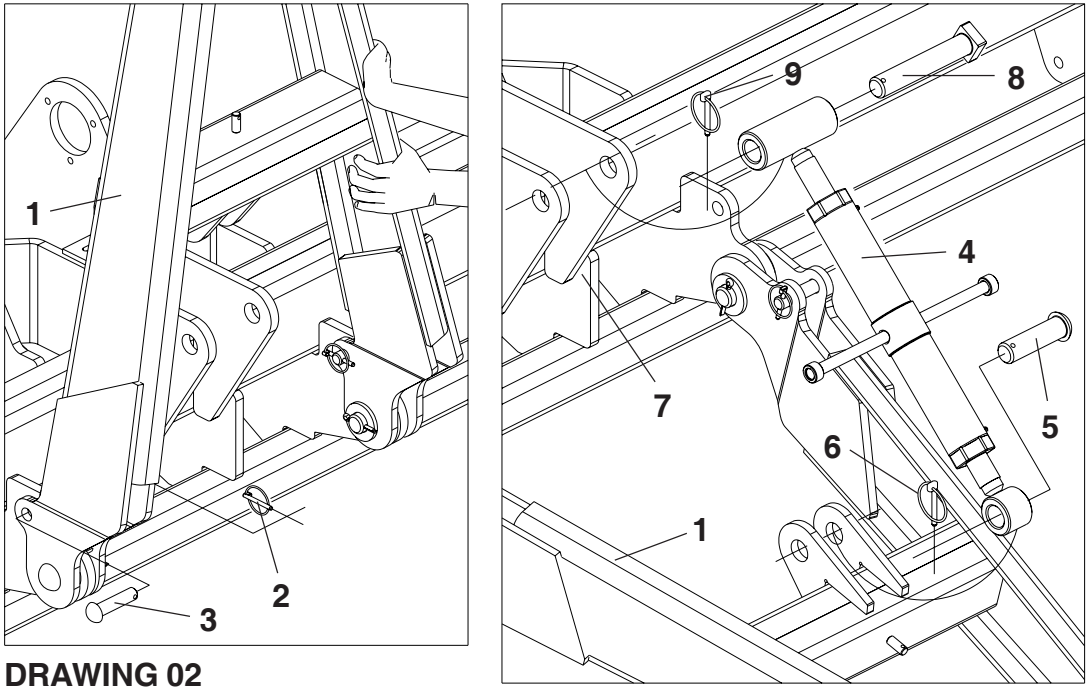
-For easy transportation the seed drill leaves the factory partly assembled, with some parts detached follow the instructions to assemble all parts correctely :

DRAWBAR ASSEMBLY (DRAWING 02) SPDe 3000 / 4000 / 5000

- To assemble the drawbar on the models SPDe 3000 / 4000 / 5000 follow the instruction bellow:

1 - Set the drawbar (#1) to the work position and remove the lynch pin (#2) and the lock pin (#3).

2 - Insert the drawbar-adjusting device (#4) locking it with the pin (#5) and lock (#6), then couple on the drawbar support (#7) using the pin (#8) and lock (#9).



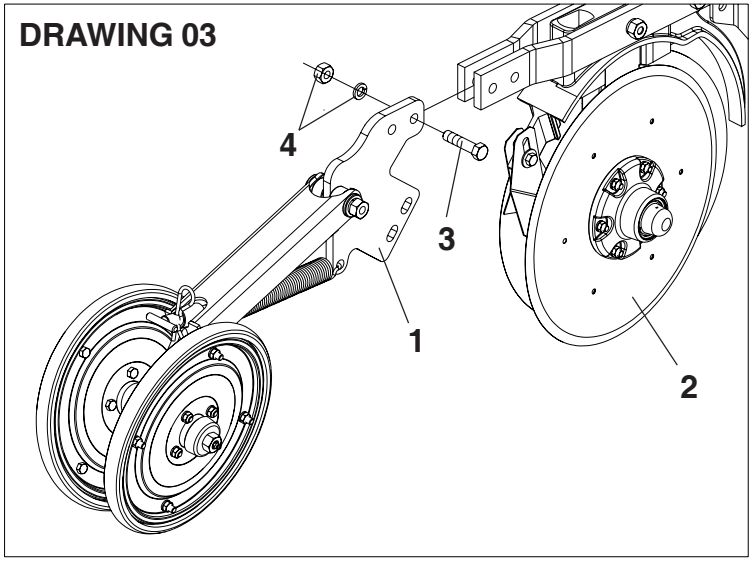
DRAWING 02

ASSEMBLY OF "V" SHAPED COMPRESSION WHEEL (DRAWING 03) SPDe 3000 / 4000 / 5000

- To assemble the “V” shaped wheel follow the instruction below :

1 -Couple the "V" shaped wheel support on the row (#2), using the bolts (#3), the washers and nuts (#4).

DRAWING 03



ATTENTION

Do this for all row units.

CAUTION

Before starting the engine, ensure that all components (bolts, nuts, hoses) are in correct position and tighten, make surenot parts fall into the hopper and transmission system as this could cause serious damage

PASTURE SEED HOPPER ASSEMBLY OPTIONAL ITEM
(DRAWING 04) - SPDE 3000 / 4000 / 5000

- To assemble the pasture seed hopper follow the instruction below

1 - Insert the hopper (#1) on the rear wall of the main hopper (#2) and attach with the bolts (#3) washers and nuts (#4).

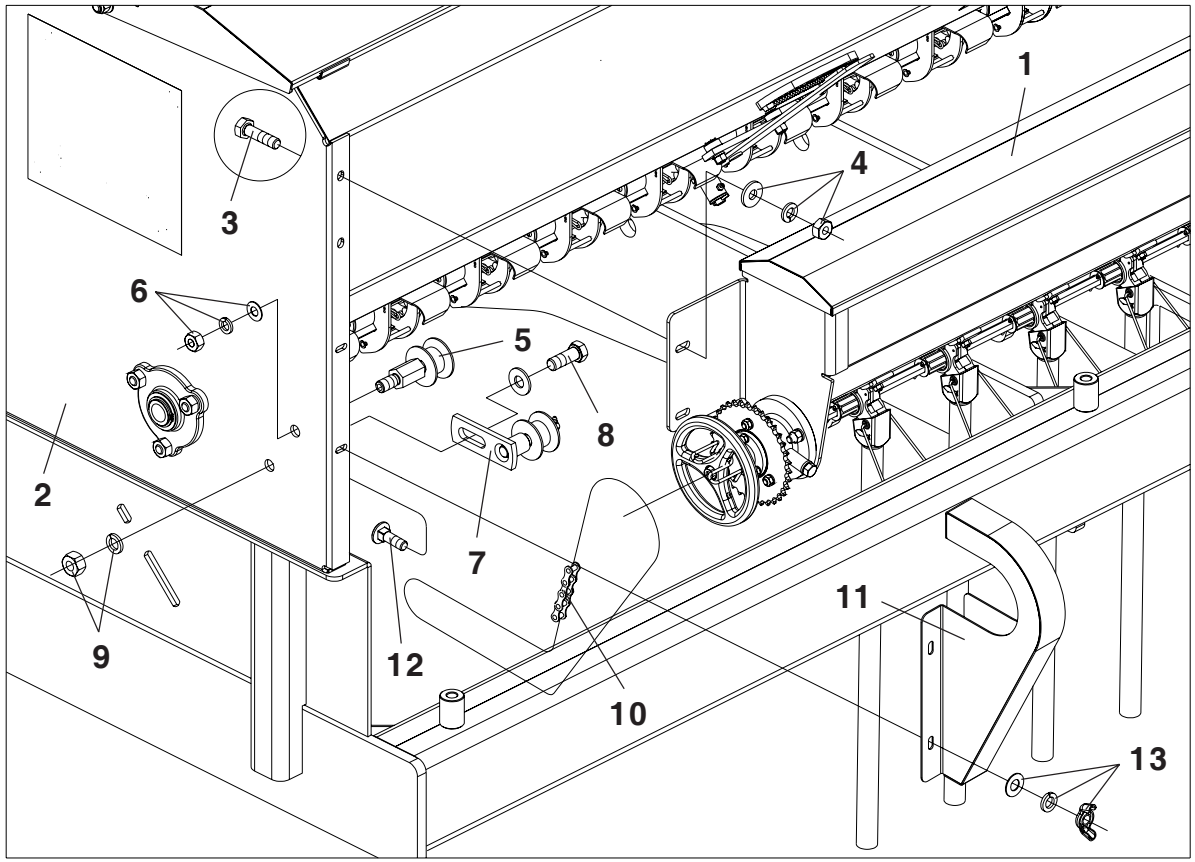
2 - Mount the idler (#5) on the hopper (#2), insert the idler arm (#7), lock it with the bolt (#8) the washers and nuts (#9).

3- Mesh the chain (#10) in the sprocket located in both hoppers and set the tension using the idle (#11).

4- Then insert the safety covers (#11) on the hopper (#2), using the washers (#12) and wing nuts (#13).

5 - Insert the seed hose (#14) into the fluted feeder roller base (#15).

DRAWING 04



ATTENTION

Before starting the engine, ensure that all components (bolts, nuts, hoses) are in correct position and tighten, make surenot parts fall into the hopper and transmission system as this could cause serious damage.

ASSEMBLY OF THE FRONT ROW MARKS - OPTIONAL ITEM (DRAWING 05) - SPDe 3000 / 4000 / 5000

- To assemble the pasture seed hopper follow the instruction below:

1 - Install the base (#1) on the frame (#2) with the bolt (#3) using the washers and nuts (4).

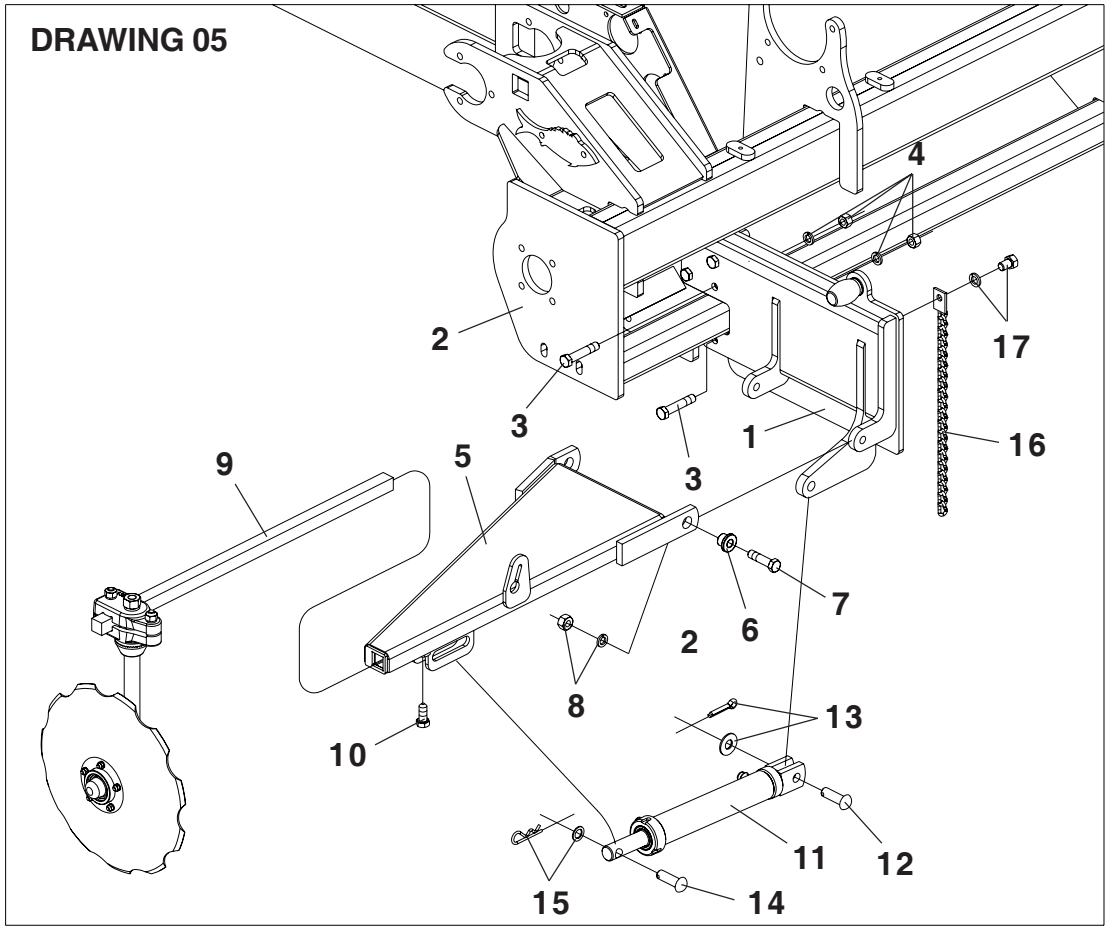
2 - Insert the arm (#5) in the base (#1), using the bushing (#6), the bolt (#7) washers and nuts (#8).

3 - Insert the extension tube (#9) on the arm (#5), lock it with the bolt (#10).

4 - Install the hydraulic cylinder (11) on the arm (#5) locking with the pin (#12), washer and split pin (#13), put the clevis (#14) of hydraulic cylinder on the hole located in the arm, using the washer and lock (#15).

5 - Then install the chain (#16) using the washer and bolt (#17).

DRAWING 05



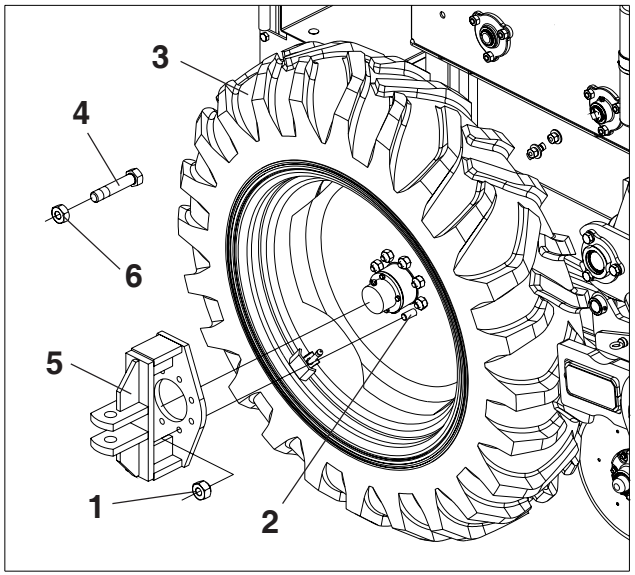
ATTENTION

When you finish the procedure on the right row marker, repeat this procedure on the left .

ASSEMBLY OF LATERAL TRANSPORT - OPTIONAL ITEM
(DRAWING 06) - SPDe 3000 / 4000 / 5000

- To assemble the lateral transport follow this insttrucctions :

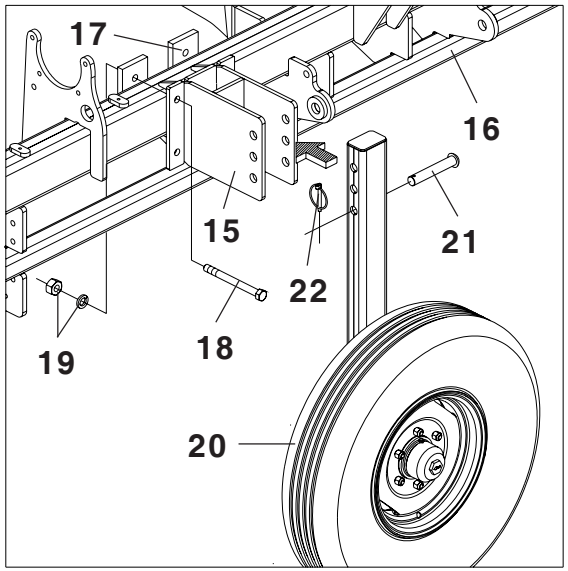
1 - Remove the nuts (#1) replace the standard bolts (#2) from the wheel for the bolt (#4) detached on the packet, install the lateral hitch (#5), reinstall the nuts (#1), tighten, then install the extra nuts (#6) from the packet.



6 - Install the transport device (#15), on the frame (#16), using the joint element (#17), bolts (#18) washer and nuts (#19). Then mount the arm with tyre (#20) using the pin (#21) and lock (#22).

ATTENTION

To raise or lower the lateral transport system (#20) use the Hydraulic control on the tractor.

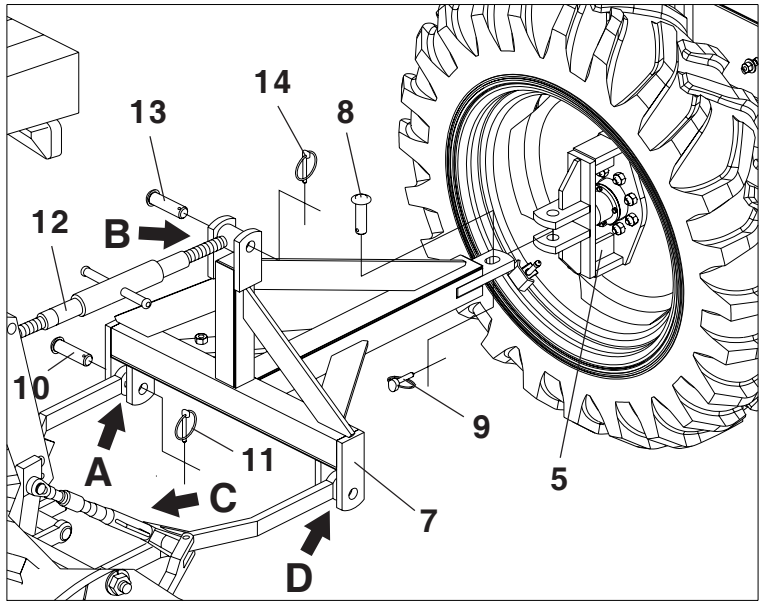


2 - Couple the lateral drawbar (#7) on the lateral hitch (#5), using the pin (#8) and lock (#9).

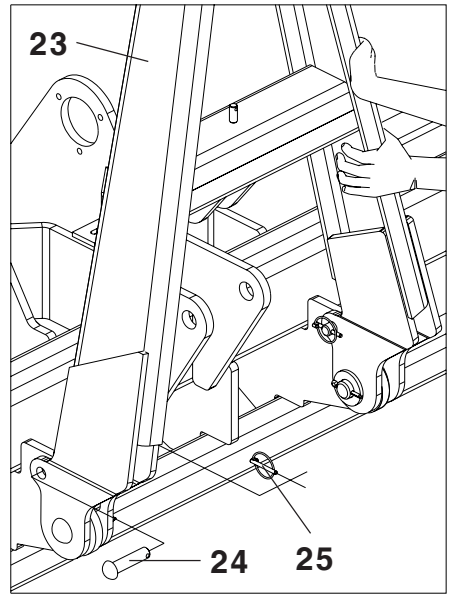
3 - couple the lower arm on the hole **"A"** using the pin (#10) and lock (#11).

4 - Attach the 3-point center arm (#12), on the hole **"B"** using the pin (13) an lock (14).

5 - Then with the adjusting lever **"C"**, attach the lower arm on the hole **"D"**.



7 - When you have finished attaching of the tyres, raise the drawbar (23), locking with the pin (24), and lock (25), to transport the engine.



DRAWING 06

05 HITCH PROCEDURE

Before attaching the planter on the tractor check if the tractor ready to use, following the instructions bellow:
1 - Inspect if the tractor has the correct extra-weight this procedure will provide more stability and more tractor-to-soil contact.

-To hitch the planter on the tractor follow the instructions bellow:

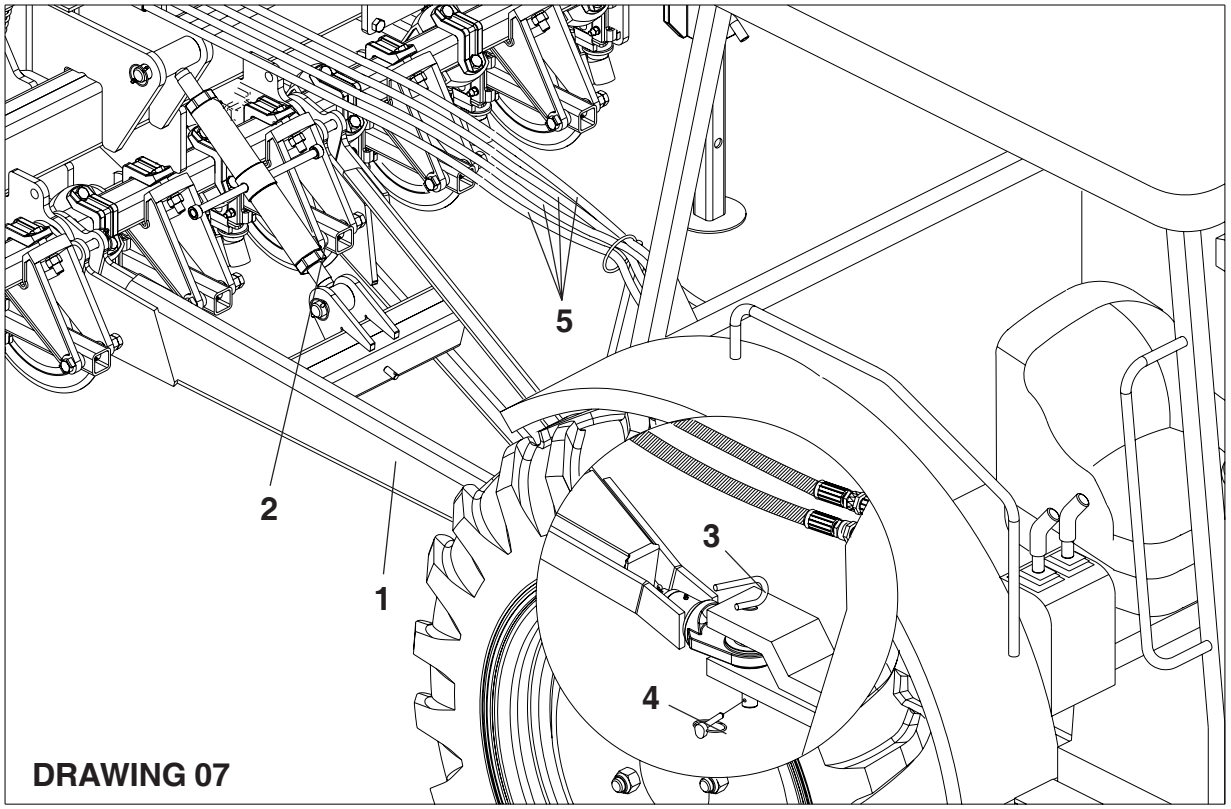
2 - Align the planter drawbar (#1) with the tractor, using the adjuster device (#2), then slowly back the tractor up to engine,
3 - Couple the tractor on the planter using the pin (#3), and lock (#4).
4 - Connect the hose on the tractor quick couple (#5).

CAUTION

Hitch the unit in a safe place during daylight or with good artificial light at a slow speed.

DANGER

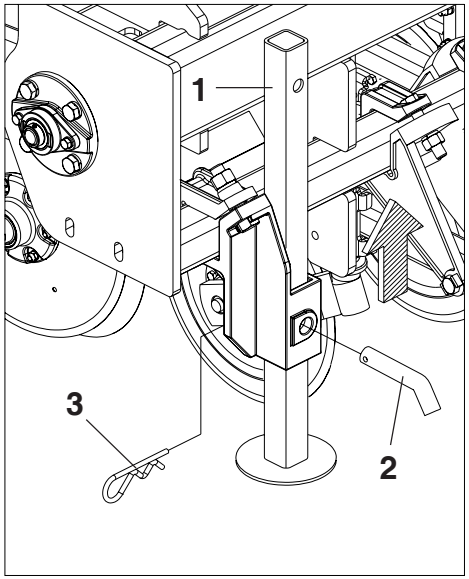
Before coupling or uncoupling the hydraulic hoses release the hydraulic system pressure using the tractor controls. Keep bystanders away during this procedure. The hydraulic system can contain hazardous material which can cause serious injury or death to you or others. Wear protective clothing, eyewear, and gloves.



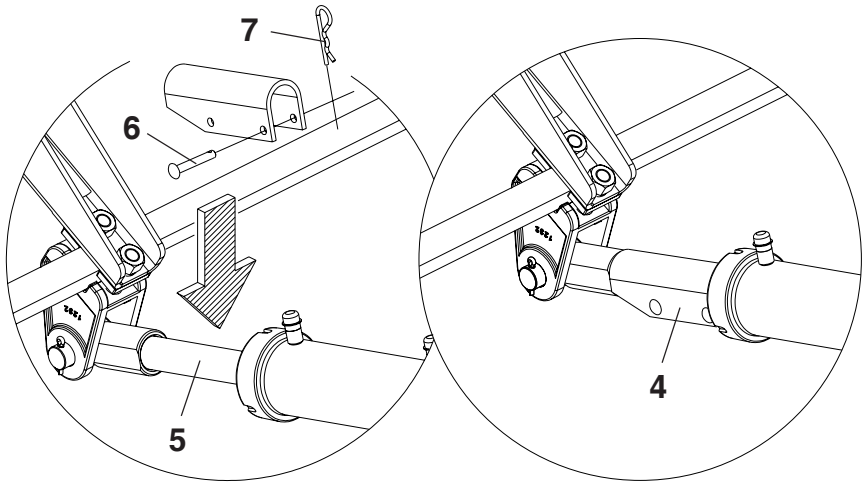
DRAWING 07

SEED DRILL TRANSPORT (DRAWING 08)
SPDe 3000 / 4000 / 5000

- Before transporting the seed drill follow this instruction below:
1- Raise the stand (#1) and lock with the pin (#2) and hair pin (#3).



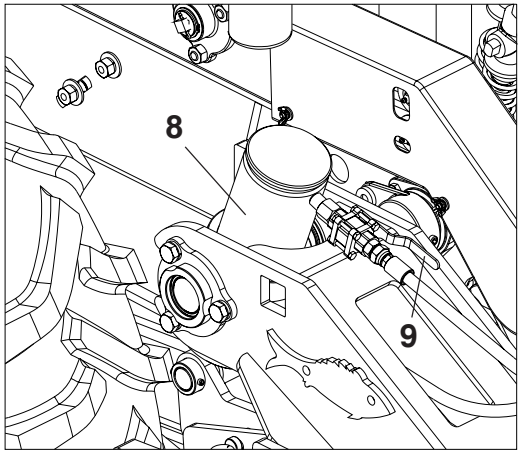
Fully raise the rows using the hydraulic cylinder, insert the lock (#4), on the rod of central hydraulic cylinders (#5), locking with the pin (#6) and hair pin (#7).



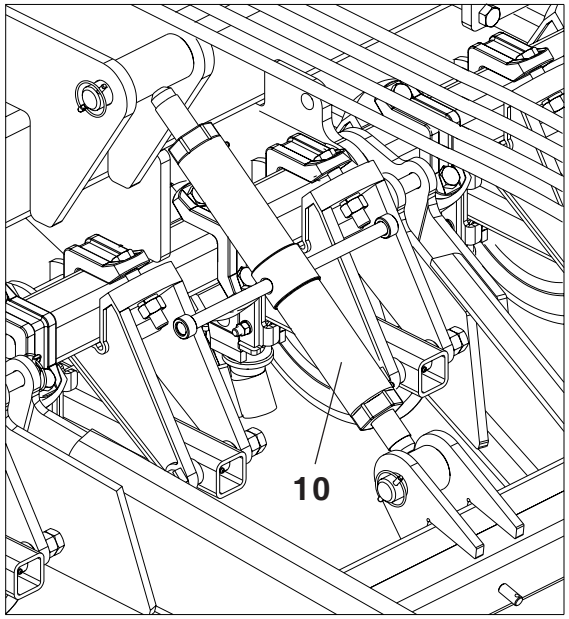
DANGER

Do not transport the seed drill without the lock in the central hydraulic cylinder.

3 - Fully raise the ground wheel hydraulic cylinder (#8), close the shut off valve (#9), then release the pressure.



4 - Before transporting the seed drill inspect if it is aligned with soil, to align use the adjuster device (#10) on the drawbar.

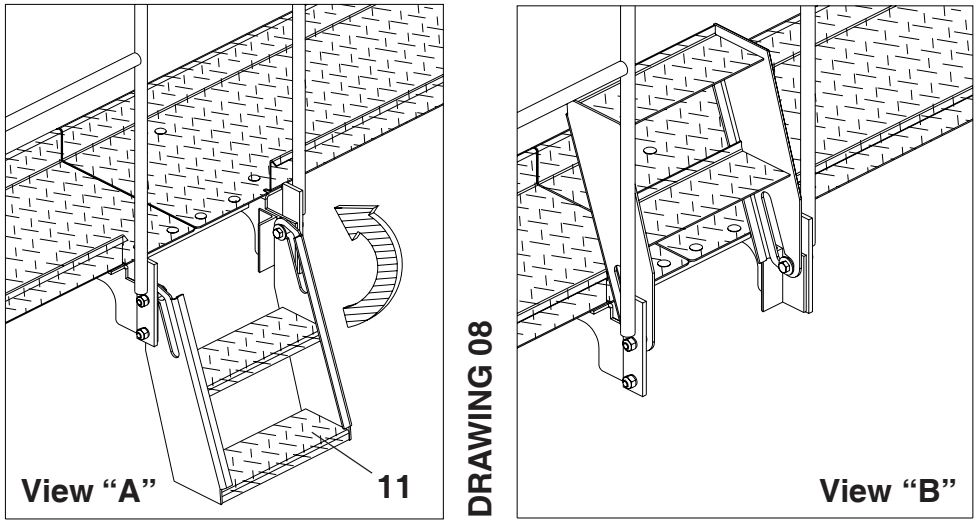


DRAWING 08

ATTENTION

Do not transport the seed drill when full as this can result in serious damage to the machine, when the machine stay in the field use a protective cover.

5 - Turn the steps (#11), locking in this position to avoid touching the soil during transport as illustrated in **view "A" and "B"** bellow**.**



DRAWING 08

CAUTION

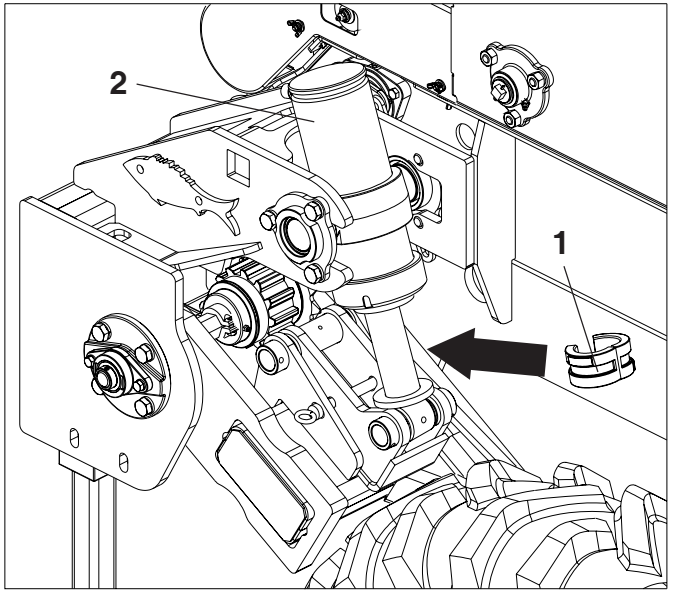
Before transporting the seed drill read the information on page 37.

06 OPERATION

WORKING OPERATIONS (DRAWING 09)
SPDe 3000 / 4000 / 5000

- Before the using follow this instructions:

1- Install the limiter (#1) on the ground wheel hydraulic cylinder (#2), to avoid excessive down pressure on the rows.



ATTENTION

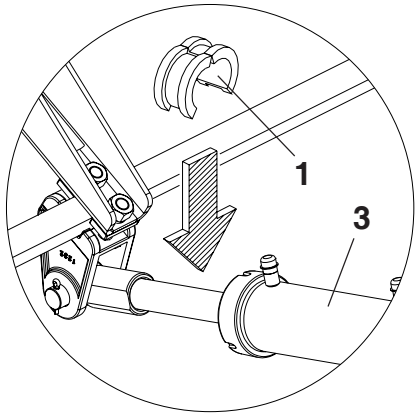
- Before the using follow the procedures on page 38 about ground wheel oscillation.

ATTENTION

If necessary use the limiter (#1) on the row hydraulic cylinder (#3) to set the depth.

ATTENTION

You can set the down force on the spring when the terrain requires.

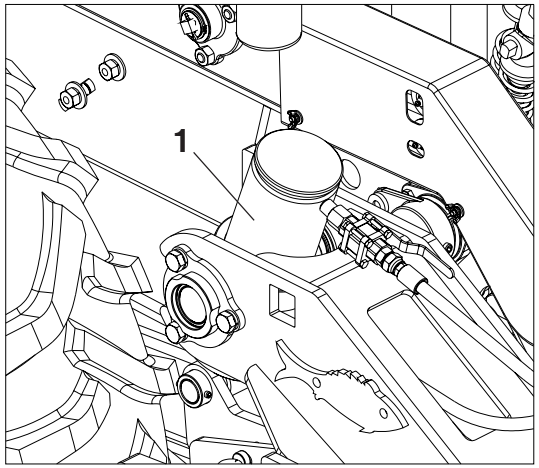


DRAWING 09

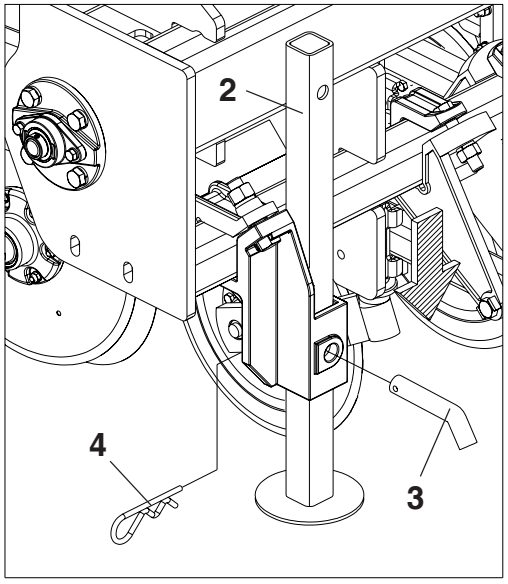
NEW ROW SPACING (DRAWING 10)
SPDe 3000 / 4000 / 5000

-To change the row spacing you may need to remove some rows, to make this adjustment follow the instruction below:

1 - Raise the machine using the hydraulic control on the tractor to start the Hydraulic cylinder (#1).

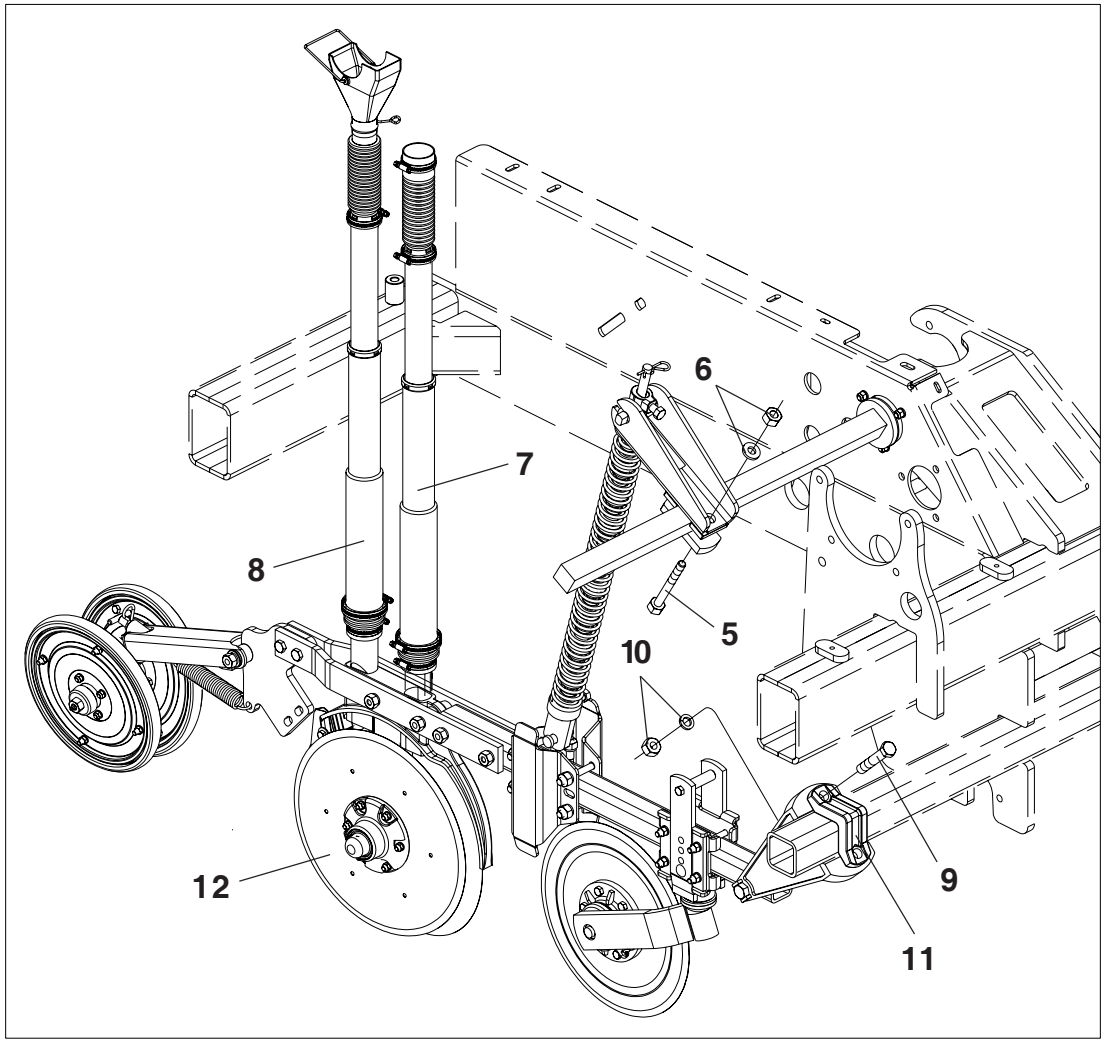


2 -Lower the stands (#2), locking with the pin (#3) and hair pin (#4).



DRAWING 10

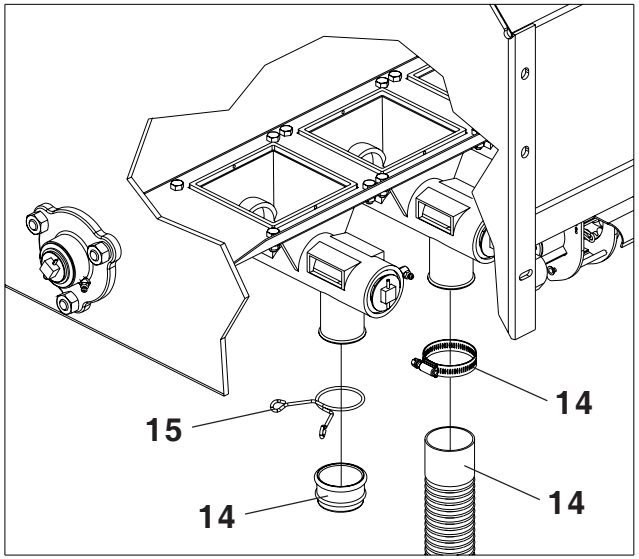
3 - Remove the bolts (#5) washers and nuts (#6) from the spring support, the fertilizer (#7) and seed hose (#8), loosen the bolts (#9), washer and nuts (#10), remove the brackets (#11), pull out the row unit (#12).



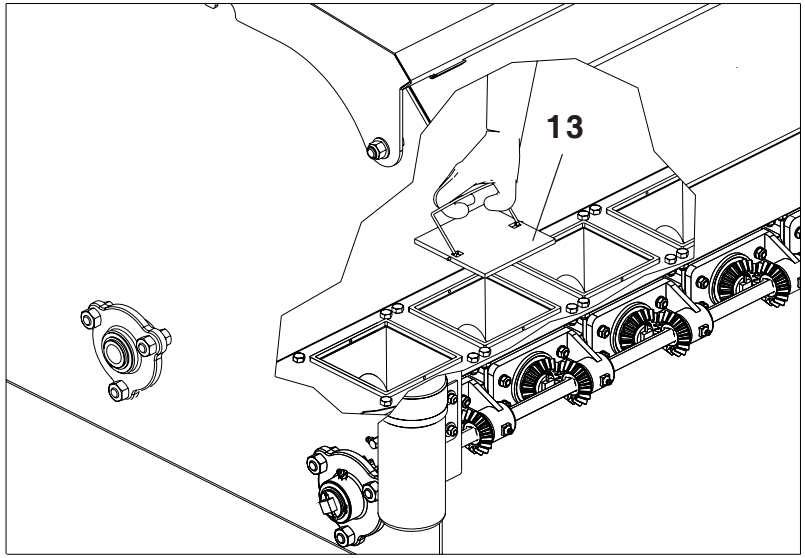
CAUTION

Before changing the row spacing, be sure the seed drill is in safe position.

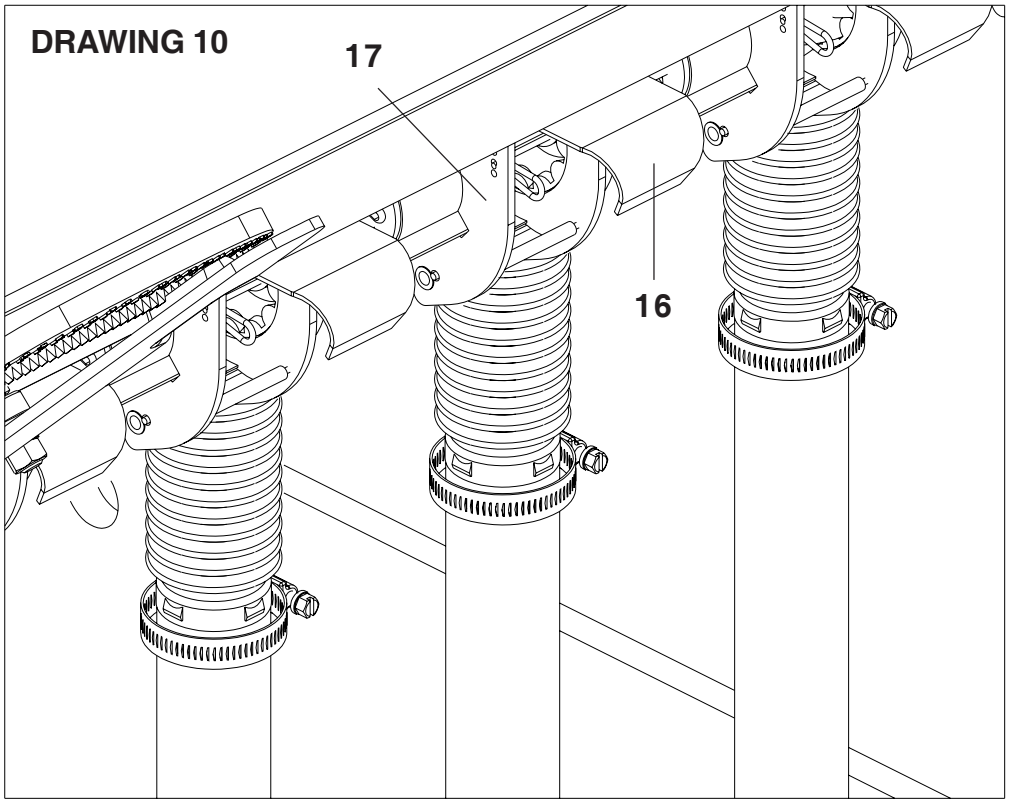
4 - Close the fertilizers outlet from the row removed, using the lid (#14) and lock with the clamps (#15).



5 - Close the fertilizer inlet in hopper from the removed rows with the lid (#13).



6 - Then close the seed inlet moving the lid (#16), until is completely closed the seed compartment on the hopper (#17).



ATTENTION ***Do this procedure for all row that will not be used.***

ROW SPACING - SPDe 3000 / 4000 / 5000

- When you purchase one seed dill it is configured in 170mm of row spacing, this configuration is for planting rice, wheat, oat, for other configuration you can set a new row spacing.

ROW SPACING LIMIT TABLE - SPDe 3000 / 4000 / 5000

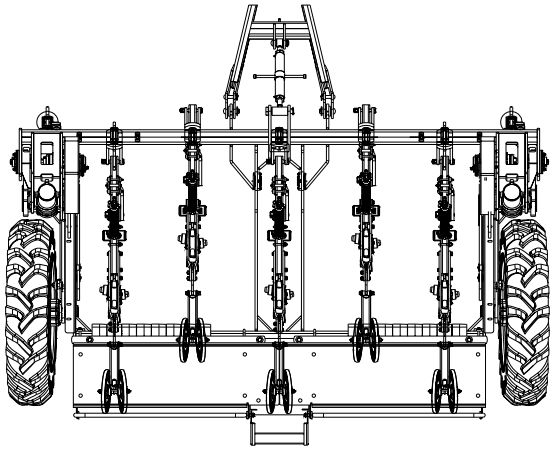
SPDe MODEL	WORKING WIDTH (MM)	ROW NUMBER	ROW SPACING LIMIT (MM)
3000	2910	3	1455
		4	970
		5	727
		8	415
		9	363
		12	264
		16	170
4000	3590	4	1196
		5	897
		7	598
		10	398
		14	276
		17	224
		20	170
5000	4270	4	1423
		5	1067
		6	854
		7	712
		9	534
		12	388
		13	356
		15	305
		17	267
		24	170

TABLE 02

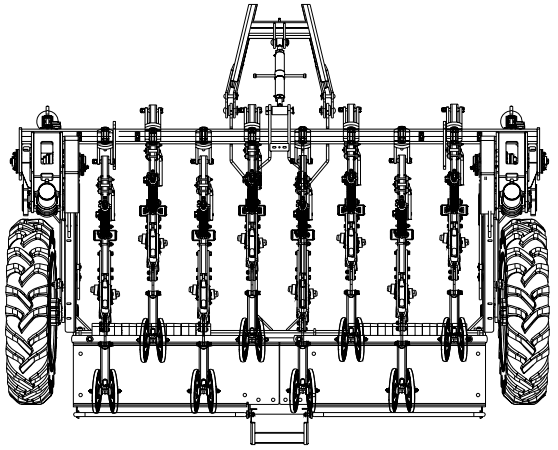
ROW POSITION ON FRAME (DRAWING 11) SPDe 3000 / 4000 / 5000

- Choose the row number that will be used

1 - When planting using an odd-rowed seed drill, attach the row on the center of the frame, then install other rows with the desired spacing.



2 - To change the spacing on an even-rowed planter set half-spacing from the center of frame then install the rows in both sides of machine in offset position.



DRAWING 11

ATTENTION

When you plant crop that require large row spacing use only parallel rows.

ROW MARKER CONFIGURATION (DRAWING 12)
SPDe 3000 / 4000 / 5000

1 - The correct configuration of the row marker is very import to ensure accurate planting, and correct sapacing through on the field .

2 - To configure the width you need to know the row spacing, the row number and the front tractor gauge.

3 - Use the model below to configure it.

MODEL: We will be planting with 16 rows units, row spacing of 0,17m and tractor front gauge of 1,43m:

Equation: $D = \frac{E \times (N+1) - B}{2}$

Model: $D = \frac{0{,}17 \times 17 - 1{,}43}{2}$

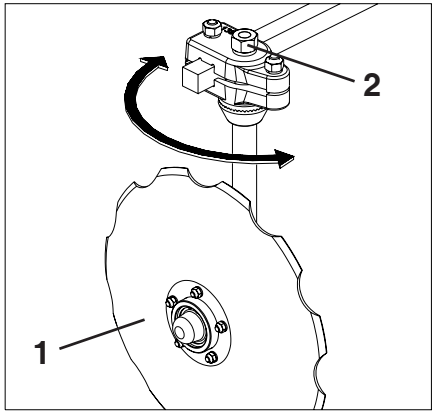
D = 0,73 metros

Information:
E = Row spacing
N = Row number
B = Front tractor gauge
D = Row marker width

4 - In this model configure the row marker with 0,73m from the center of first row unit.

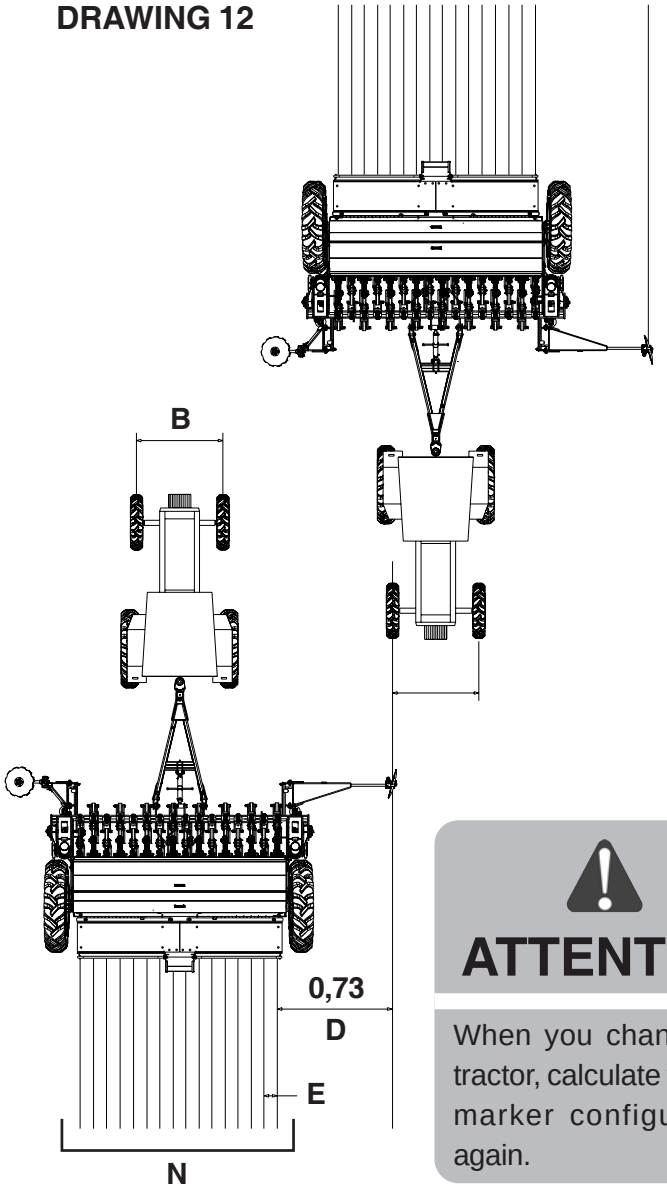
CONFIGURATION OF ROW MARKER DISC (DRAWING 13)
SPDe 3000 / 4000 / 5000

1 - The row marker blade (#1), has angular configuration, to set this configuration loosen the nut (#2), turn the disc in desired position and re-tighten the bolt.



DRAWING 13

DRAWING 12

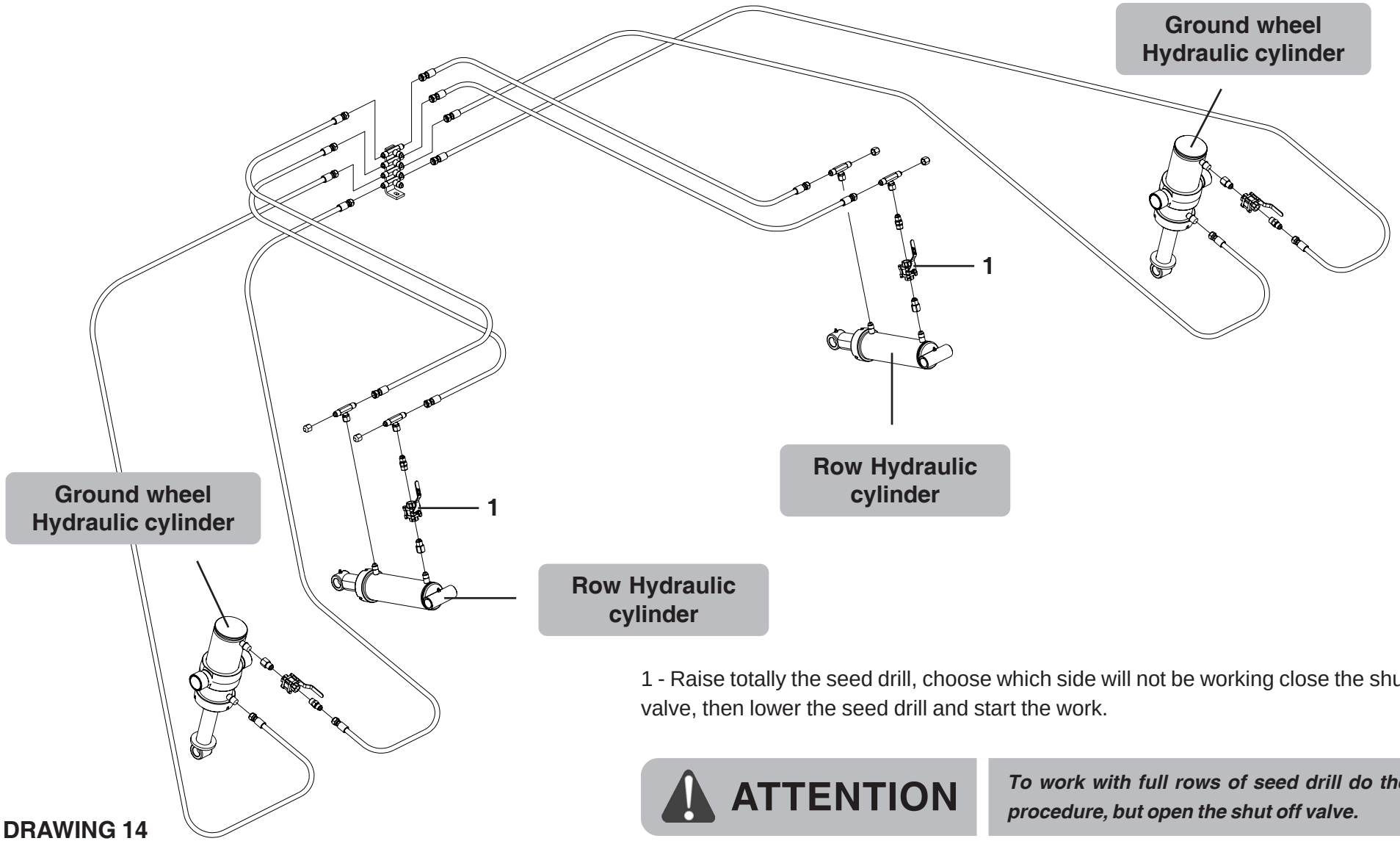


ATTENTION

When you change the tractor, calculate the row marker configuration again.

FINISHER SYSTEM (DRAWING 14)
SPDe 3000 / 4000 / 5000

- The seed drill is equipped with the finisher system, so you can use half the machine, to configure it follow the instruction below:



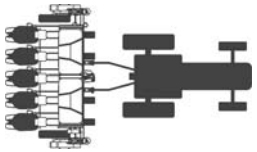
DRAWING 14

1 - Raise totally the seed drill, choose which side will not be working close the shut off (#1) valve, then lower the seed drill and start the work.

ATTENTION

To work with full rows of seed drill do the same procedure, but open the shut off valve.

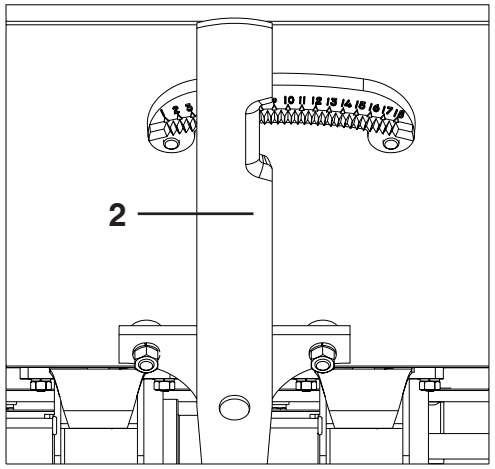
07 SEED RATE CONFIGURATIONS



SEED RATE CONFIGURATION (DRAWING 15)

1 - You must configure the seed rate device for each seed; this procedure will provide regular sowing and no friction between the seed.

2 -The seed rate is set by the lever (#2).

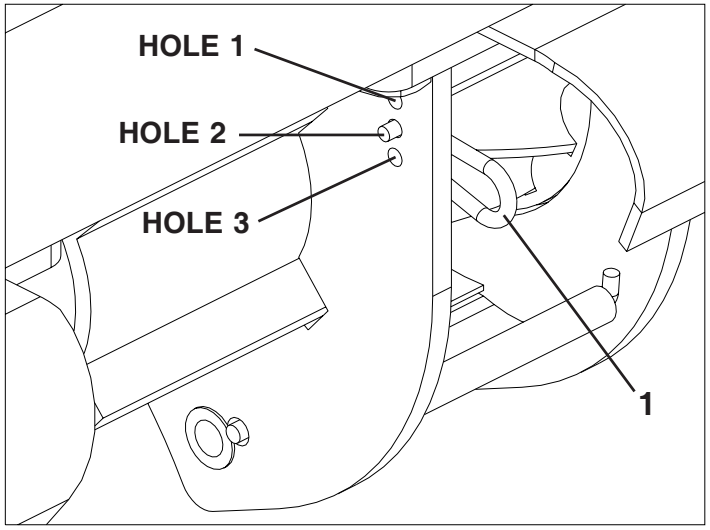


RATE SEED TABLE (TABLE 03)

CROP	NR OF SEEDS PER LINEAR METER	GRAMS OF SEEDS PER LINEAR METER	QUANTITY OF SEEDS PER HECTARE (KG)	ROW SPACING (MM)
Dryland rice	40 - 60	1,5 - 2,0	25 - 35	500 - 600
Paddy Rice	60	2,0	30 - 80	300 - 400
Soybean	25 - 40	-	60	310 - 600
Wheat	45 - 60	-	100 - 120	170 - 200
Barley	-	2,0	100 - 140	170 - 200
Rye	-	1,5	80	170 - 200
Oats	-	1,2 - 1,6	60 - 80	170 - 200
Sunflowers	3 - 5	-	5 - 6	600 - 1000
Sorghum	25	-	10 - 15	450 - 700
Lupini Beans	8	-	-	500 - 600

TABLE 03

3 - Configure the seed type using the holes as describe bellow:



HOLE 1
Insert the pin (#1) in the hole (#1) for planting: **wheat, sorghum, barley, oats and similar.**

HOLE 2
Insert the pin (#1) in the hole (#2) for planting: **sorghum, soybean, oats and similar.**

HOLE 3
Insert the pin (#1) in the hole (#3) for planting: **Rice, oats peas and similar.**

DRAWING 15

SEED METERING TABLE (TABLE 04)

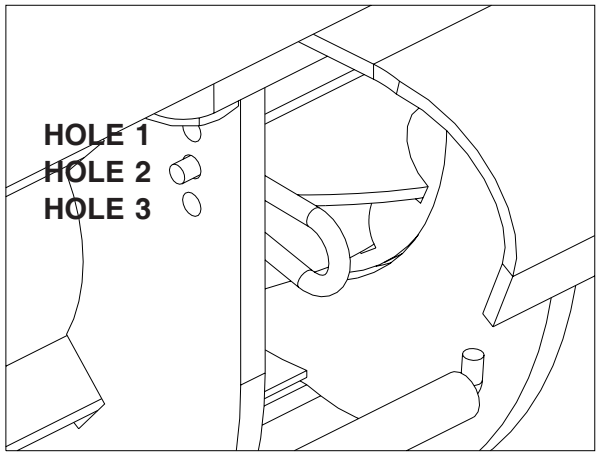


TABLE 04

		Seed distribution in grams / 100 meters																	
		Number of the Scale of Figure 18																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		Soybean: Regular size 280 seeds for every 50 grams																	
HOLE	1	-	-	51	119	170	238	289	357	425	510	578	680	748	816	901	986	1054	1139
	2	-	-	68	136	221	289	357	442	510	595	697	799	884	986	1071	1173	1258	1360
	3	-	-	85	170	255	340	425	510	595	697	816	918	1020	1139	1231	1343	1462	1564
		Rice: Regular size 1590 seeds for every 50 grams																	
HOLE	1	-	27	51	77	102	128	154	179	205	241	278	314	351	387	424	460	497	534
	2	-	30	62	92	123	153	184	215	246	286	326	366	406	446	485	525	565	605
	3	-	33	67	100	134	168	210	235	270	315	361	407	453	499	545	591	637	683
		Wheat: Regular size **1020** seeds for every **50 grams**																	
HOLE	1	-	48	97	145	193	242	**290**	339	387	446	505	563	622	680	569	797	856	915
	2	-	55	110	166	221	276	332	387	442	517	691	666	740	815	890	964	1039	1113
	3	10	72	145	218	290	363	436	509	581	647	713	779	844	910	976	1045	1107	1173

In order to obtain the result of table 04 use the process below

1 - Take the quantity of seed to be distributed per hectare multiply, by the row spacing and divide by 100 linear meters.

Model: using 175 kg of wheat per hectare with the regular size of 1020 seeds per hectare for every 50 grams, the rows spacing is 170mm a distance of 100 linear meters.

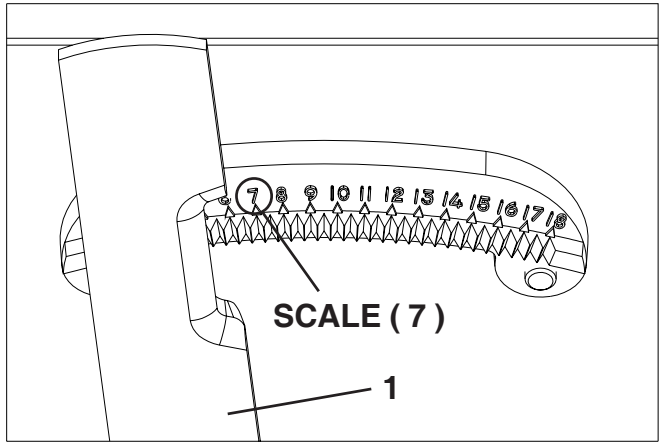
Consider:

Q = Quantity of seed (kg)
E = Rows Spacing (mm)
D = 100 linear meters (mm)

Equation: $\frac{Q \times E}{D}$

$$\frac{175 \times 170}{100} = 297{,}5 \text{ grams}$$

2 - In this case the lever (1) must move to the position 7 insert the pin on the hole 3. **(DRAWING 15).**



DRAWING 15

ATTENTION

For more detail read pages 31/32 where fertilizer calibration procedure is described.

Configuration of fine seed hopper - OPTIONAL (DRAWING 16)

- To configure the fine seed rate follow the instruction below:

1 - Check on the table below the amount of seed per hectare.

TABLE 05

Fine Seeds distribution [kg/ha] with 170 mm inter-row spacing

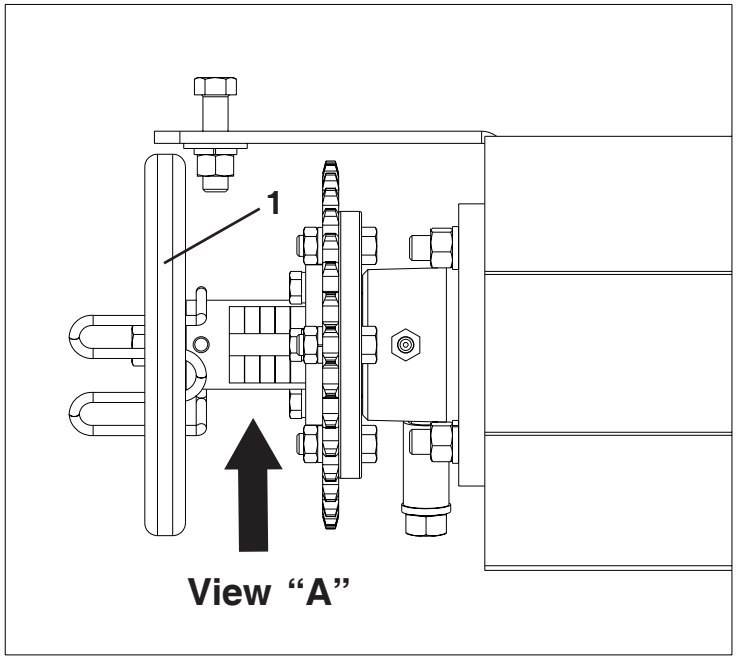
		Scale Number							
	Type of Crop	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
GRASSES	In Brasil: Colinião = *Panicum maximum Jacq vr. Colonião*	-	2,0	3,5	5,0	9,0	10,0	10,0	11,0
	In Brasil: Brachiaria Comum = *Brachiaria decumbens*	-	5,0	7,0	10,0	17,0	20,0	20,0	22,0
	In Brasil: Brachiaria Brizantha = *Brachiaria brizantha*	-	3,0	5,0	7,0	14,0	17,0	17,0	20,0
	In Brasil: Painço = *Selaria itálica*	3,0	8,0	14,0	20,0	32,0	40,0	40,0	48,0
LEGUMINOSAS	In Brasil: Soja Perene = *Neomotonia wightii*	3,5	10,0	17,0	24,0	32,0	41,0	50,0	59,0
	In Brasil: Alfafa = Medicago sativa	4,0	12,0	20,0	29,0	38,0	47,0	56,0	65,0
	In Brasil: Cornichão = Lotus Corniculatus	4,5	13,0	21,0	30,0	40,0	50,0	60,0	70,0
	In Brasil: Desmodium = *Desmodium ovalifolium*	3,8	12,0	19,0	26,0	34,0	43,0	52,0	61,0
	In Brasil: Trebol = Trifolium repens	3,6	11,0	18,0	25,0	33,0	42,0	51,0	60,0

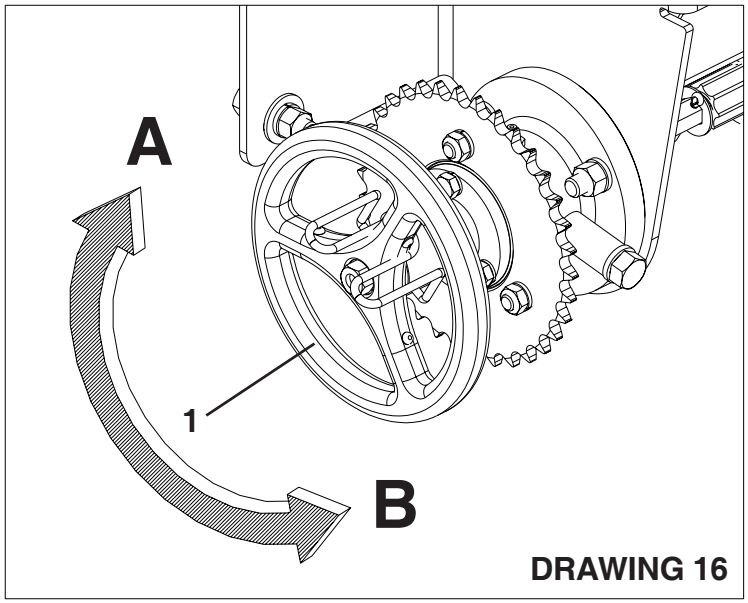
Model: To distribute 10kg/ha of colonial guinne grass with a spacing of 170mm turn the Knobs (1) until 3,5 on the scale. As described on the view "A". (DRAWING 16).

- Turn the Knobs to **"A"** close the scale.
- Turn the Knobs to **"B"** close the scale.

ATTENTION

The table of fine seed metering by hectare was developed for row spacing of 170 mm.



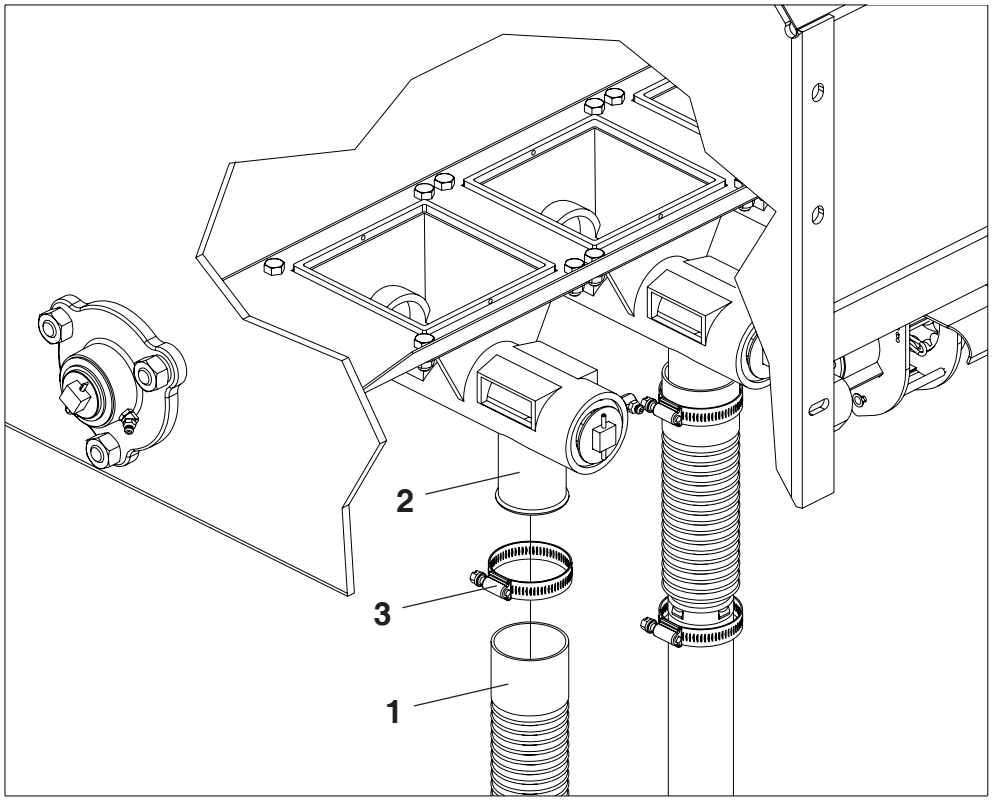


DRAWING 16

08 FERTILIZER METERING SYSTEM

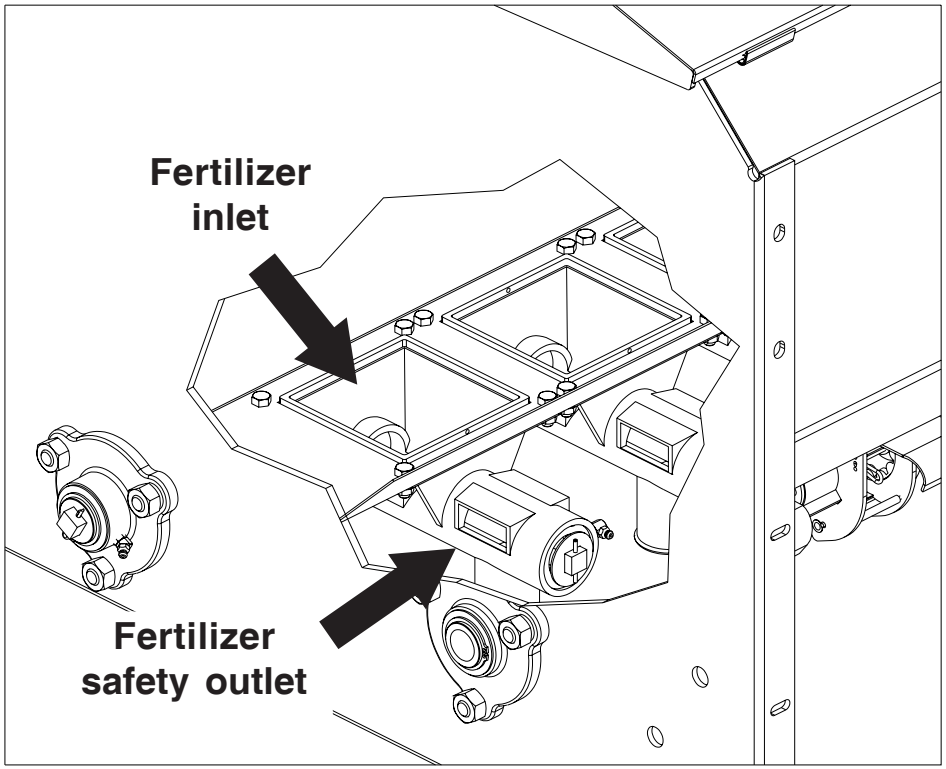
INDEPENDENT SYSTEM (DRAWING 17)
SPDe 3000 / 4000 / 5000

-To deliver the fertilizer to the soil, Couple the fertilizer tube (#1), on the fertilizer metering outlet (#2), avoid the fertilizer tube fold, then lock with the clamp (#3).



The independent fertilizer system has safety outlet to avoid damaging it.

When it is clogged, the fertilizer will dumping by this outlets, to solve this problem, check the fertilizer system this maybe has debris or roots in the fertilizer tube.



DRAWING 17

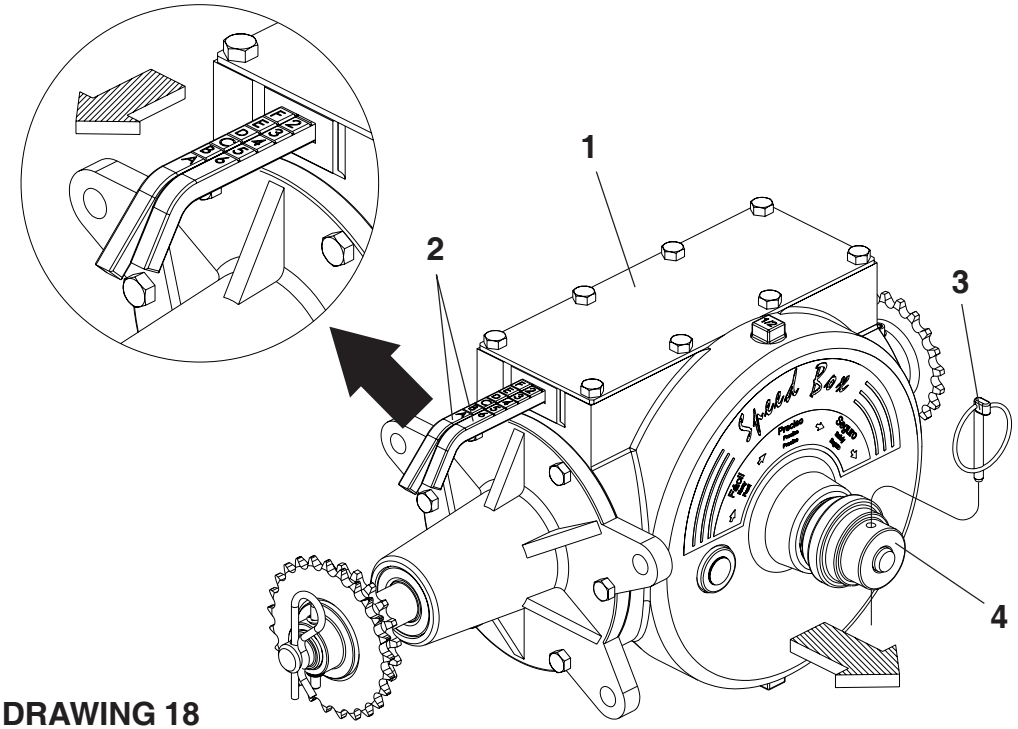
ATTENTION

Under certain humidity or moisture conditions, material may tend to cake. When this happens, thoroughly clean fertilizer metering at end of each days use.

GEAR BOX "SPEED BOX" (DRAWING 18)
SPDe 3000 / 4000 / 5000

- The seed drills are equipped with a gear Box **(Speed Box)** (#1), that controls the distribution system, this device was developed to provide a easy way to change the rates, to configure the rate follow this instruction.

1- select the amount that will be distributed on the table, and check the position for the levers (#2). Model: The configuration F2 describe the letter lever which must be configured on "F" and the numerical lever on the position 2 as illustrated on the drawing bellow.



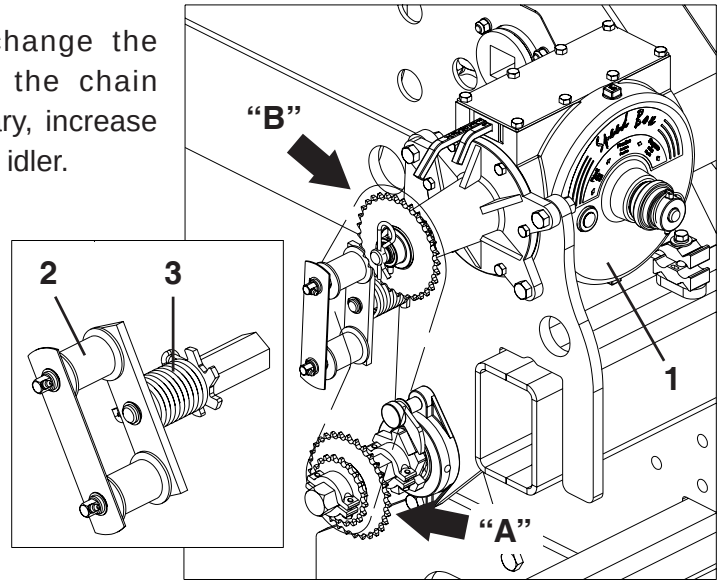
DRAWING 18

2 - To change the configuration, remove the lynch pin (#3) pull the handle (#4), then configure the device on the position from the table, to finish the procedure push the handle and re-install the lynch pin (#3).

FERTILIZER METERING CONFIGURATION (DRAWING 19)
SPDe 3000 / 4000 / 5000

1 - The adjustment of fertilizer distribution is done by the gear box **Speed Box** (#1) to get more adjustments invert the chain on the sprockets **A** and **B**.

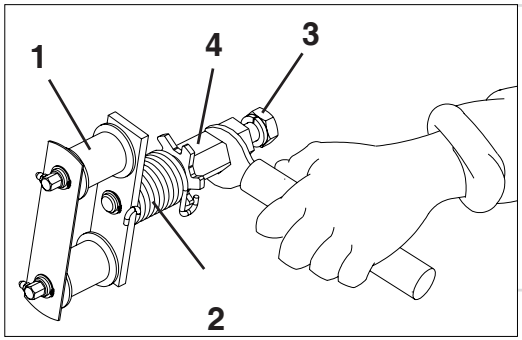
2 - When you change the sprockets check the chain tension, if necessary, increase the pressure on the idler.



DRAWING 19

THE CHAIN IDLER (DRAWING 20)
SPDe 3000 / 4000 / 5000

- The chain idler (#1) was developed with a spring (#2) to provide more flexibility, when you need to increase the idle tension loosen the internal nut (#3) turn the shaft (#4) and retighten the nut (#3)



DRAWING 20

FERTILIZER METERING TABLE (TABLE 06) - THIS CONFIGURATIONS IS BASED ON THE FLOATING AUGER PITCH 1”

Table for fertilizer spreading by hectare - Seed Drill SPDe Speed Box

External sprocket from ratchet 20 **Speed Box sprocket** 31

Configuration	Grams 50 mts lineares	Row spacing													
		170	250	300	350	400	450	500	550	600	650	700	750	800	850
F - 1	85	100	68	57	48	42	38	34	31	28	26	24	23	21	20
F - 2	95	112	76	64	55	48	42	38	35	32	29	27	25	24	22
E - 1	106	125	85	71	61	53	47	42	39	35	33	30	28	27	25
F - 3	109	128	87	73	62	55	48	44	40	36	34	31	29	27	26
E - 2	119	140	95	80	68	60	53	48	43	40	37	34	32	30	28
D - 1	127	150	102	85	73	64	57	51	46	42	39	36	34	32	30
F - 4	127	150	102	85	73	64	57	51	46	42	39	36	34	32	30
E - 3	136	160	109	91	78	68	61	55	50	45	42	39	36	34	32
D - 2	143	168	115	95	82	72	64	57	52	48	44	41	38	36	34
C - 1	148	175	119	99	85	74	66	59	54	49	46	42	40	37	35
F - 5	153	180	122	102	87	76	68	61	56	51	47	44	41	38	36
E - 4	159	187	127	106	91	80	71	64	58	53	49	45	42	40	37
D - 3	164	192	131	109	93	82	73	65	59	55	50	47	44	41	38
C - 2	167	196	134	111	95	83	74	67	61	56	51	48	45	42	39
B - 1	170	200	136	113	97	85	75	68	62	57	52	48	45	42	40
A - 1	191	225	153	127	109	95	85	76	69	64	59	55	51	48	45
A - 2	215	253	172	143	123	107	95	86	78	72	66	61	57	54	51
B - 3	218	257	174	145	125	109	97	87	79	73	67	62	58	55	51
C - 4	223	262	178	148	127	111	99	89	81	74	69	64	59	56	52
D - 5	229	269	183	153	131	115	102	92	83	76	70	65	61	57	54
E - 6	239	281	191	159	136	119	106	95	87	80	73	68	64	60	56
A - 3	245	289	196	164	140	123	109	98	89	82	76	70	65	61	58
B - 4	254	299	204	170	145	127	113	102	93	85	78	73	68	64	60
C - 5	267	314	214	178	153	134	119	107	97	89	82	76	71	67	63
D - 6	286	337	229	191	164	143	127	115	104	95	88	82	76	72	67
A - 4	286	337	229	191	164	143	127	115	104	95	88	82	76	72	67
B - 5	305	359	244	204	174	153	136	122	111	102	94	87	81	76	72
C - 6	334	393	267	223	191	167	148	134	121	111	103	95	89	83	79
A - 5	344	404	275	229	196	172	153	137	125	115	106	98	92	86	81
B - 6	382	449	305	254	218	191	170	153	139	127	117	109	102	95	90
A - 6	429	505	344	286	245	215	191	172	156	143	132	123	115	107	101

ATTENTION: There are other models of floating auger available to increase use auger pitch 2" to decrease use auger pitch 3/4" and 5/8".

FERTILIZER METERING TABLE (TABLE 06) - THIS CONFIGURATIONS IS BASED ON THE FLOATING AUGER PITCH 1”

Table for fertilizer spreading by hectare - Seed drill SPDe Speed Box

External sprocket from ratchet: 31 — **Speed Box sprocket: 20**

Configuration	Gramas 50 mts lineares	Row spacing													
		170	250	300	350	400	450	500	550	600	650	700	750	800	850
F - 1	204	240	163	136	116	102	91	82	74	68	63	58	54	51	48
F - 2	229	270	183	153	131	115	102	92	83	76	71	66	61	57	54
E - 1	255	300	204	170	146	127	113	102	93	85	78	73	68	64	60
F - 3	262	308	210	175	150	131	116	105	95	87	81	75	70	66	62
E - 2	287	337	229	191	164	143	127	115	104	96	88	82	76	72	67
D - 1	306	360	245	204	175	153	136	122	111	102	94	87	82	76	72
F - 4	306	360	245	204	175	153	136	122	111	102	94	87	82	76	72
E - 3	328	385	262	218	187	164	146	131	119	109	101	94	87	82	77
D - 2	344	405	275	229	197	172	153	138	125	115	106	98	92	86	81
C - 1	357	420	285	238	204	178	159	143	130	119	110	102	95	89	84
F - 5	367	432	293	245	210	183	163	147	133	122	113	105	98	92	86
E - 4	382	450	306	255	218	191	170	153	139	127	118	109	102	96	90
D - 3	393	462	314	262	225	197	175	157	143	131	121	112	105	98	92
C - 2	401	472	321	267	229	201	178	160	146	134	123	115	107	100	94
B - 1	408	480	326	272	233	204	181	163	148	136	125	116	109	102	96
A - 1	459	539	367	306	262	229	204	183	167	153	141	131	122	115	108
A - 2	516	607	413	344	295	258	229	206	188	172	159	147	138	129	121
B - 3	524	617	419	349	299	262	233	210	191	175	161	150	140	131	123
C - 4	535	629	428	357	306	267	238	214	195	178	165	153	143	134	126
D - 5	550	647	440	367	314	275	245	220	200	183	169	157	147	138	129
E - 6	573	674	459	382	328	287	255	229	208	191	176	164	153	143	135
A - 3	590	694	472	393	337	295	262	236	214	197	181	168	157	147	139
B - 4	611	719	489	408	349	306	272	245	222	204	188	175	163	153	144
C - 5	642	755	514	428	367	321	285	257	233	214	198	183	171	160	151
D - 6	688	809	550	459	393	344	306	275	250	229	212	197	183	172	162
A - 4	688	809	550	459	393	344	306	275	250	229	212	197	183	172	162
B - 5	734	863	587	489	419	367	326	293	267	245	226	210	196	183	173
C - 6	802	944	642	535	459	401	357	321	292	267	247	229	214	201	189
A - 5	825	971	660	550	472	413	367	330	300	275	254	236	220	206	194
B - 6	917	1079	734	611	524	459	408	367	333	306	282	262	245	229	216
A - 6	1032	1214	825	688	590	516	459	413	375	344	317	295	275	258	243

ATTENTION: There are other models of floating auger available to increase use auger pitch 2" to decrease use auger pitch 3/4" and 5/8".

CHOICE OF FLOATING AUGER - TABLE 20 / 31				
MODELS:				
Auger	**Spacing**	**Cofiguration**	**Rate**	**Kg by Ha**
Pitch 2”	170mm	F-1	-	160
Pitch 1”	170mm	F-1	- 60 %	100
Pitch 3/4”	170mm	F-1	- 60 %	40
Pitch 5/8”	170mm	F-1	- 60 %	16

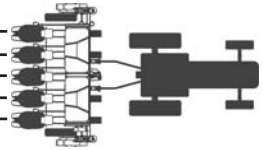
This table was developed for different models of auger, and based on the regular weight of the fertilizer 1200 grams per liter.

CHOICE OF FLOATING AUGER - TABLE 31 / 20				
MODELS:				
Auger	**Spacing**	**Cofiguration**	**Rate**	**Kg by Ha**
Passo 2”	170mm	F-1	-	384
Passo 1”	170mm	F-1	- 60 %	204
Passo 3/4”	170mm	F-1	- 60 %	81,6
Passo 5/8”	170mm	F-1	- 60 %	32,64

This table was developed for different models of auger, and based on the regular weight of the fertilizer 1200 grams per liter.

TABLES 06

09 PRACTICAL CALCULATION FOR FERTILIZER DISTRIBUTION



1 - Determine the inter-row spacing and the amount of fertilizer to distribute per acquire or hectare.

MODEL: Seed drill with 170mm inter-row spacing to distribute 500 kg of fertilizer per Ha, use the formula below:

Equation: $$X = \frac{E \times Q}{A} \times D$$

Formula datas:
E = Inter-row spacing (mm)
Q = Fertilizer quatity to be distributed
A = Area to be fertilized (m²)
D = 50 meters (test)
X = Grams of fertilizer in 50 meters

Model:

$$X = \frac{170 \times 500}{10.000} \times 50$$

X = 8,50 x 50 = 425 grams

X= 425 grams in 50 meters per row unit

PRACTICAL TEST IN ORDER TO CHECK OUT THE QUANTITY OF FERTILIZER TO BE DISTRIBUTED
SPDe 3000 / 4000 / 5000

1 - In order to get better accuracy of fertilizer distribution, carry out a practical test of the quantity to be distributed in the field, because for each type of land there is a different condition.

2 - Verify and maintain the correct inflation of tyres of the seed drill with 18 lb / pol^2 with 3/4 of water and 22 lb / pol^2 without water

3 - Mark the distance to carry out the test according to the table, 50 linear meters.

4 - Fill up the seed drill hopper to at least half point. Run for 10 meters out of the testing area in order to get the fertilizer in the metering.

5 - Insert a plastic bag at the fertilizer ouutlets, closing the seed outlet. Run the tractor along the marked area always using the same speed (working speed) 8 up to 10 Km/h

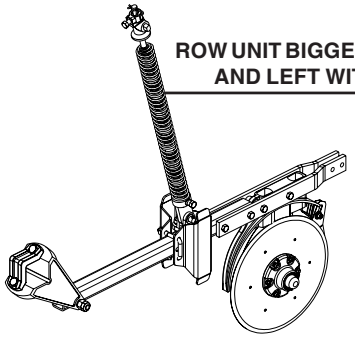
6 - When you finish the test trail, inspect the fertilizer sample. If you need to increase or decrease the amount checking the table.

7 - Do the same procedure as a #6 for calibrating the seed metering.

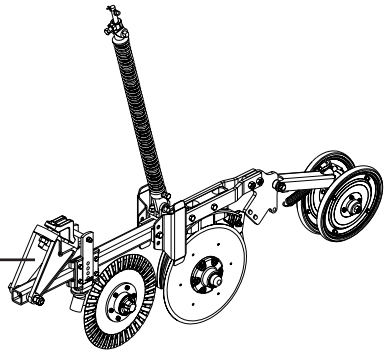
ROW UNIT AVAILABLE AS OPTIONAL ITEMS (DRAWING 21)

The row unit was developed whether working parallel or not, you can mount it with the optional items below:

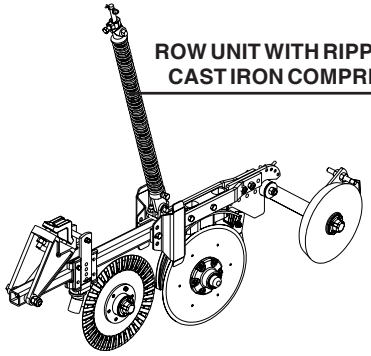
ROW UNIT BIGGER OR SMALLER RIGHT AND LEFT WITH BAR VAILABLE



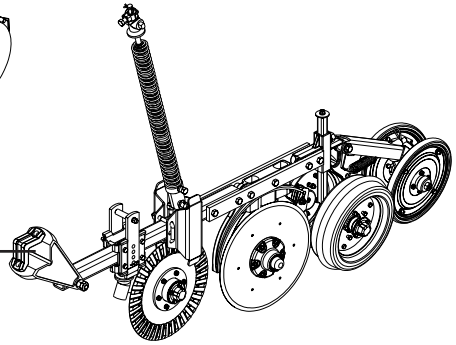
ROW UNIT WITH RIPPLED BLADE AND "V" SHAPED WHEEL



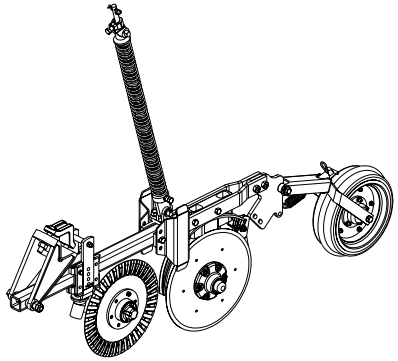
ROW UNIT WITH RIPPLED BLADE AND CAST IRON COMPRESSION WHEEL



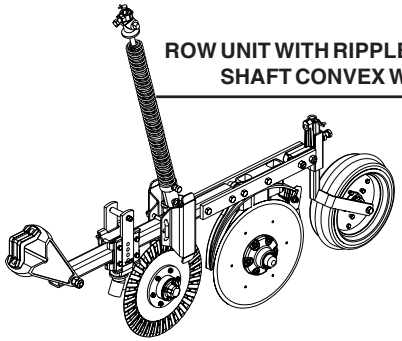
ROW UNIT WITH RIPPLED BLADE AND THREE WHEELS



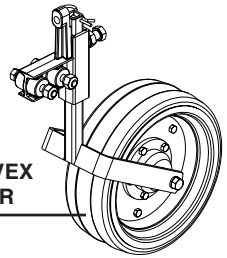
ROW UNIT WITH RIPPLED BLADE AND SMOOTH OR CONVEX COMPRESSION WHEEL



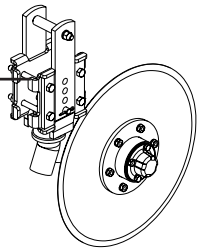
ROW UNIT WITH RIPPLED BLADE ECCENTRICALLY SHAFT CONVEX WHEEL AND ADJUSTER



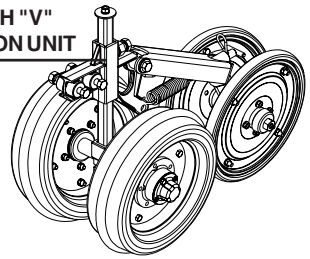
SMOOTH, CONCAVE AND CONVEX GAUGE WHEEL AND ADJUSTER



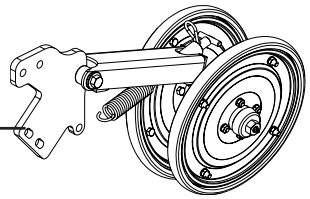
SMOOTH COULTER BLADE UNIT



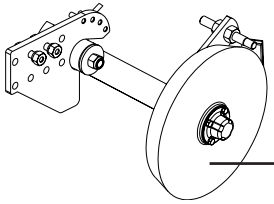
GAUGE WHEEL WITH "V" SHAPED COMPRESSION UNIT



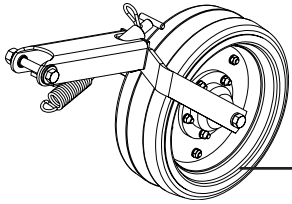
"V" SHAPED WHEEL UNIT



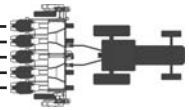
CAST IRON COMPRESSION WHEEL UNIT



COMPRESSION WHEEL UNIT FOR SMOOTH, CONCAVE AND CONVEX TYRE

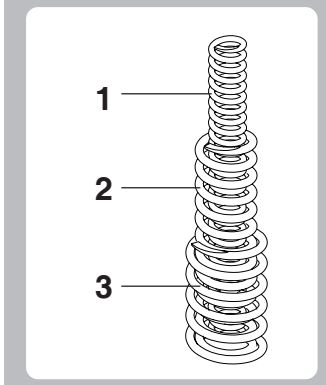
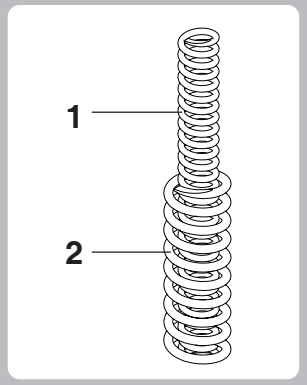
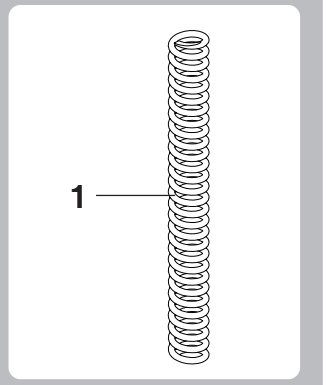


11 DEPTH CONTROL



ADJUSTMENT OF SPRING DOWN FORCE (DRAWING 22)
SPDe 3000 / 4000 / 5000

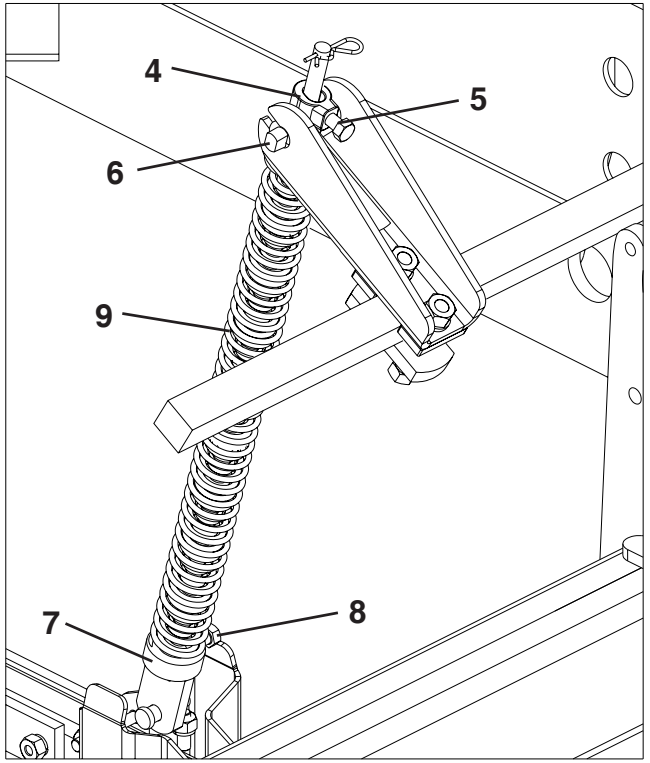
1- The seed drill depth adjustments are done by the hydraulic cylinder limiter and spring.
2- The down force on the spring is configured in accordance with the soil condition and sowing (no-till and conventional till), you can adjust in several configurations as described on the instructions below:

Three springs	*Double spring*	*Single spring*
		
Inner spring (#1), intermediate spring (#2) external spring (#3) for no-till in soil hard disruption	*Inner spring (#1), intermediate spring (#2) for no-till in soil with middle disruption*	*Inner spring (#1), for no-till in soil with easy disruption*

ATTENTION

Too much downforce can lift the seed drill

3 - Loosen the bushing (#4) by the bolt (#5), install it on the axle to provide a free down movement for the row. Install the bushing 5cm upper of the axle.
4 - loosen the bushing (#7) by the bolt (#8), install it upper in order to increase the downforce on the spring (#9), for better row unit penetration.



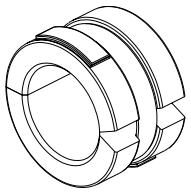
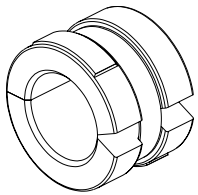
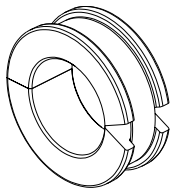
DRAWING 22

ATTENTION

If the seed drill is subjected to two or more soil conditions during the planting, in order to avoid problems, inspect the dowforce for each soil condition

ROD GUIDE (DRAWING 23)
SPDe 3000 / 4000 / 5000

1 - The rod guide are used for control comes out movement in hydraulic cylinder, in order to press the blade support providing ideal downforce on the springs. The rod guide are available in this configurations:

02 rod guide ø 51 x 49,5mm	*02 rod guide ø 42 x 49,5mm*	*02 rod guide ø 42 x 25mm*
		
code 53480500128	*code 53480500098*	*Code 53480500063*

DRAWING 23

ATTENTION

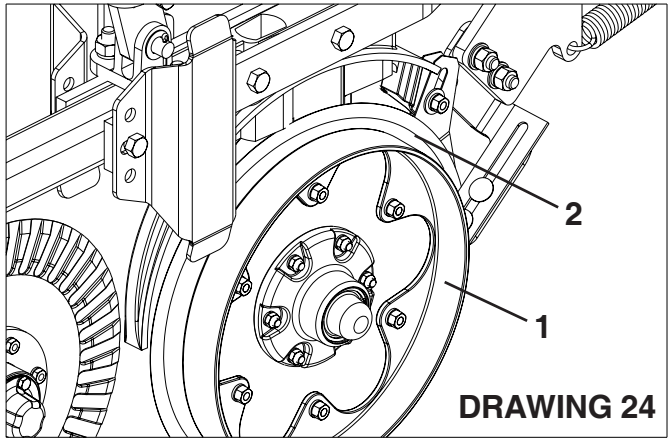
You can set the rod guide in these configurations: 25, 50 e 75 mm on the come out movement of rod

CAUTION

To avoid damage on the frame bolt on the rod guide in the both side of the seed drill

DEPTH CONTROL RIM (DRAWING 24)
SPDe 3000 / 4000 / 5000

1 - The depth control rim (#1) is mounted on the double disc (#2) in order to adjust the seed and fertilizer depth.



DRAWING 24

ATTENTION

The depth control rim is available in three models:
Rim 20mm
Rim 40mm
Rim 55mm

ADJUSTMENT OF "V" SHAPED COMPRESSION UNIT
(DRAWING 25)

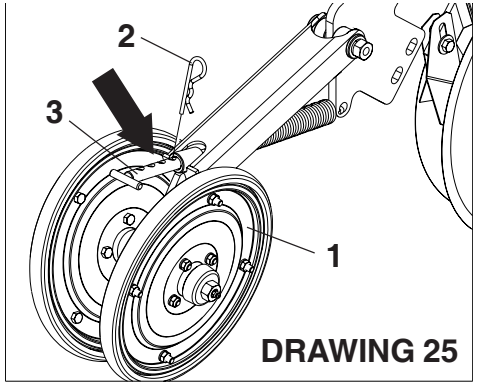
1 - The V-shaped compression wheel (#1) was designed to close the furrow by the side, inserting the soil over the seed after the delivery. This procedure avoid the high compression of soil and provide good development of the plant. To adjust the V-shaped compression wheel follow the instructions below:

- **INCREASE DOWNFORCE:** remove the hair pin (#2) pull in the lever (#3) and lock again.

- **DECREASE THE DOWNFORCE:** remove the hair pin (#2) push the lever (#3) and lock again.

ATTENTION

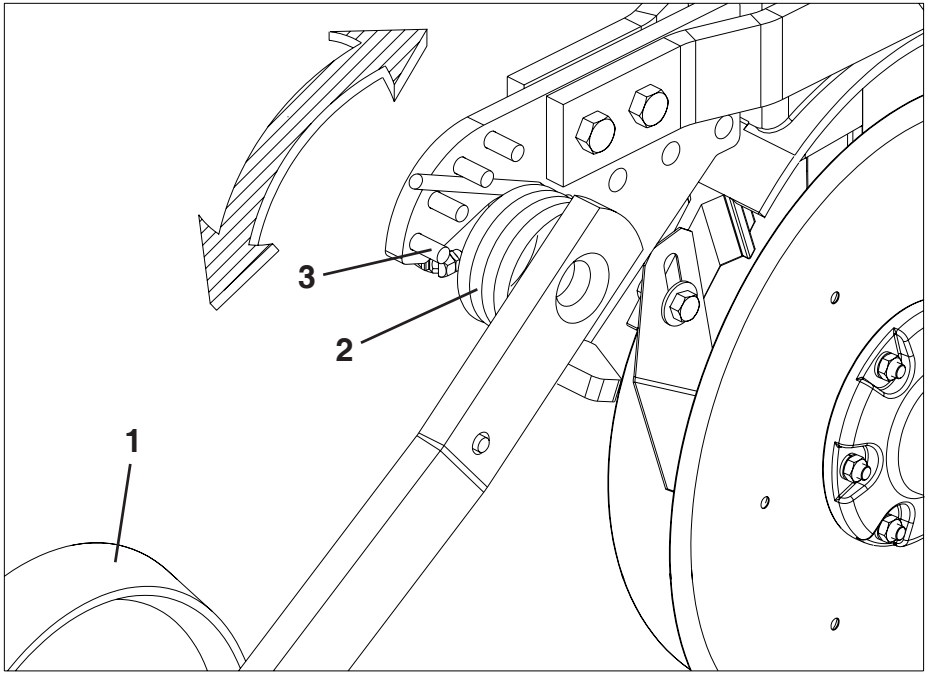
Make the same adjustment for all row unit, considering the soil condition in order to regular germination of the plants.



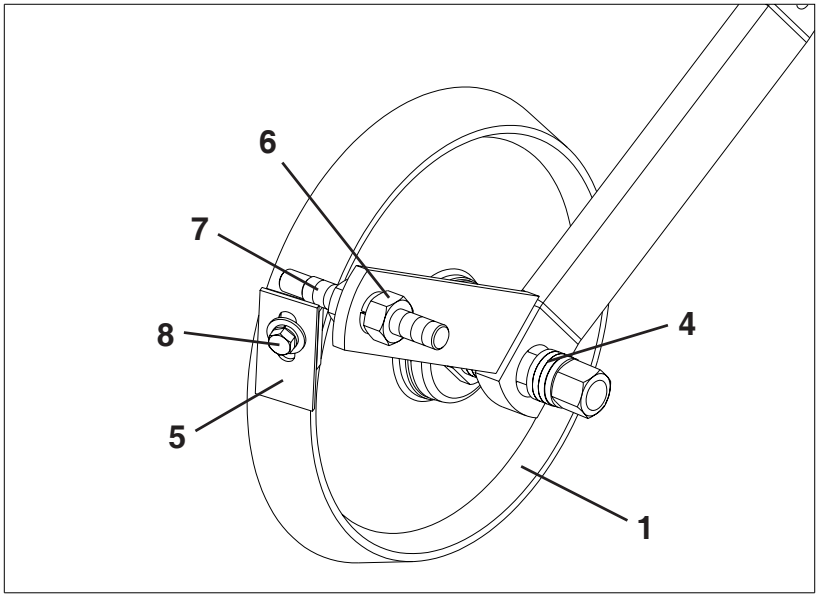
DRAWING 25

CAST IRON WHEEL ADJUSMENT (OPTIONAL ITEM) (DRAWING 26) SPDe 3000 / 4000 / 5000

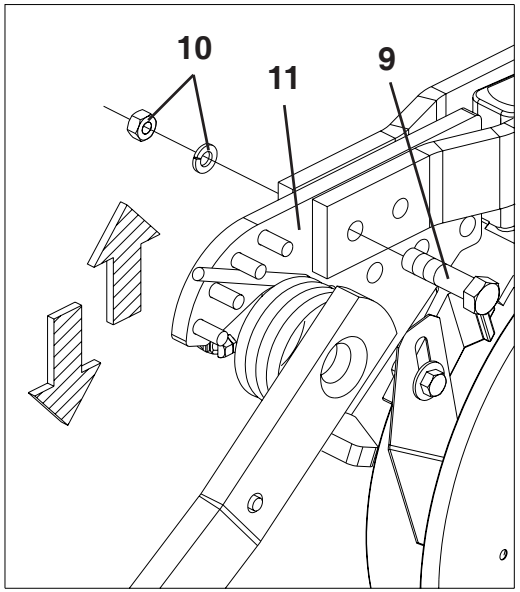
1 - The cast iron compression wheel was designed to close the furrow, inserting the soil over the seed after the delivery. This procedure avoid the high compression of soil and provide good development of the plant.
To adjust the cast iron compression wheel (#2) loosen the spring (#2), changing the spring to the next or previous support (#3) in accordance with the soil conditions required.



3 - To move the cast iron wheel (#1) on the horizontal position, change the position of the washer (#4) until get the desired position.
4- to adjustment of the cleaner (#5) on the horizontal position, loosen the nut (#6) moving the bolt (#7) until the cleaner touch the rim surface (#1).
5- To adjust the cleaner (#5) on the vertical position, loosen the bolt (8) moving until the desired position.



6 - To adjust the cast iron wheel height, loosen the bolt (#9), washer and nuts (#10), setting the wheel support (#11) on the desired height then tighten again.



DRAWING 26

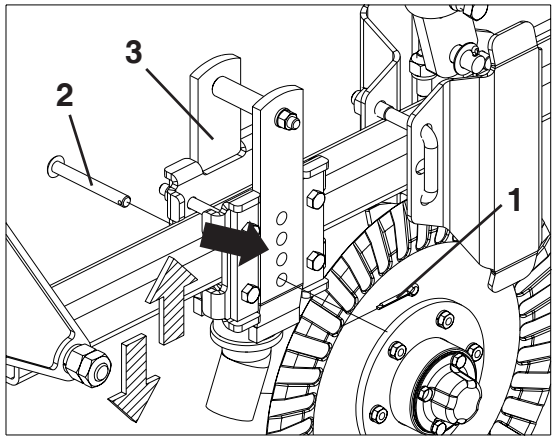
ATTENTION

Make the same adjustment for all row unit, considering the soil condition in order to regular germination of the plants

ADJUSTMENT OF COULTER BLADE RIPPLED OR SMOOTH (DRAWING 27) SPDe 3000 / 4000 / 5000

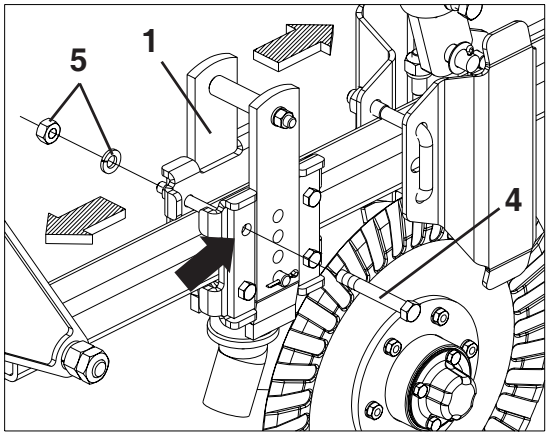
To adjust the depth of rippled coulter blade (#1) follow this instruction:

1 -Remove the lock (#1), the pin (#2), adjust the height of the support (#3) and attach the support again.



- To move the coulter blade in horizontal position follow this instruction:

2 - Loosen the bolt (#4), washer and nuts (#5), move the disc until the desired position then attach again.



DRAWING 27

ATTENTION

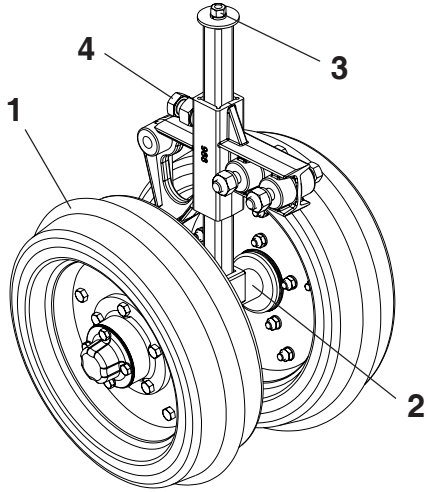
Make the same adjustment for all coulter blade,

ADJUSTMENT OF ANGLED GAUGE WHEELS (DRAWING 28)

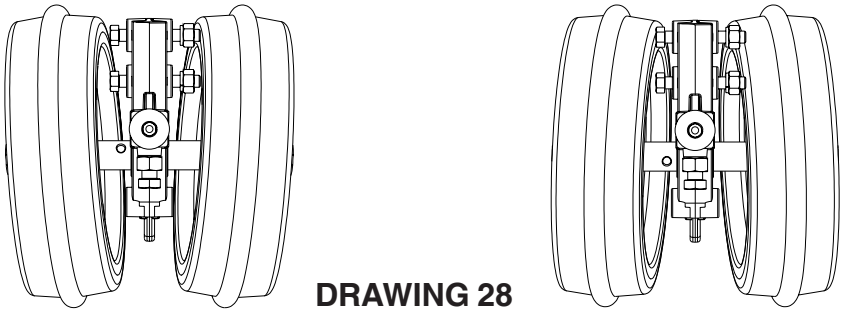
- Angled gauge wheels (#1) behind seed opener close the seed trench created by openers. The gauge wheels firm soil on each side of seed, directly over seed. Adjustable angle permits proper closing of seed trench.

1 - The gauge wheels (#1) are journaled in an axle designed for depth control. To change angle, remove nut (#3) turning the axle (#2) until get the desired angle.

2 -The depth adjustment is done by each wheel (#1) (smooth or convex), using the bolt (#4).



POSITION OF GAUGE WHEEL ANGLE



DRAWING 28

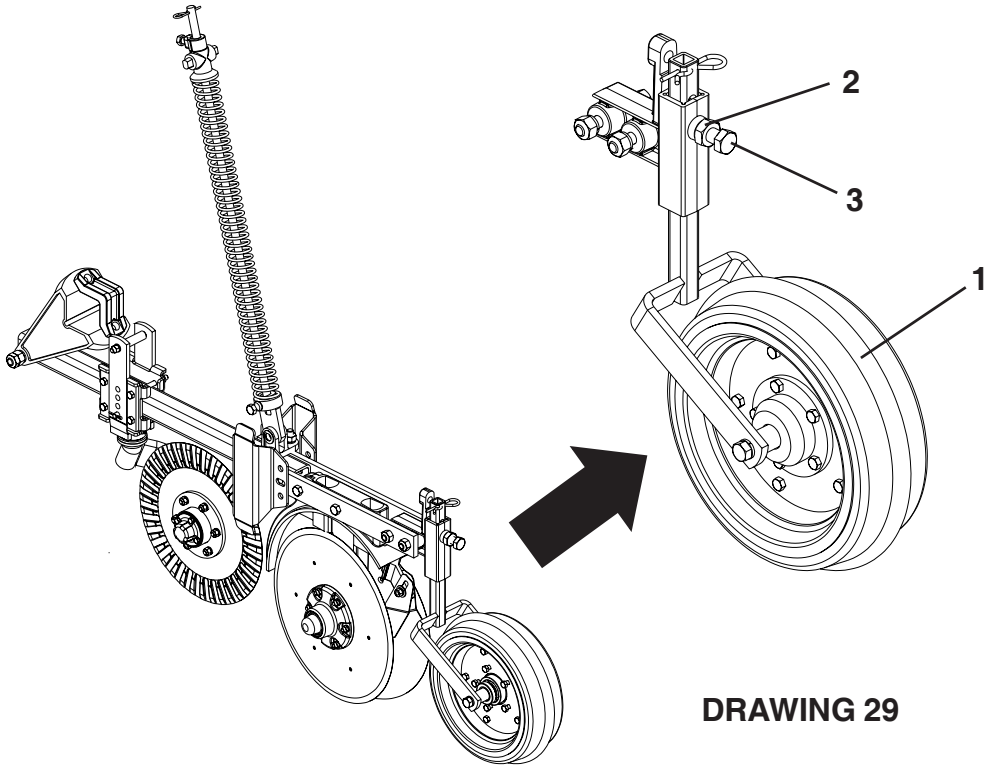
POSITION OF GAUGE WHEEL ANGLE TOTALLY CLOSED (LESS SOIL OVER THE SEED)

POSITION OF GAUGE WHEEL ANGLE TOTALLY OPENED (MORE SOIL OVER THE SEED)

ADJUSTMENT OF COMPRESSION WHEEL OPTIONAL ITEM (DRAWING 29) SPDe 3000 / 4000 / 5000

- The compression wheel was designed to close the furrow, inserting the soil over the seed after the delivery. This procedure avoid the high compression of soil and provide good development of the plant.

1 - To adjust the wheel (#1) loosen the middleman nut (#2), bolt (#3), move the wheel to desired position, then re-tighten the bolt and middleman nut



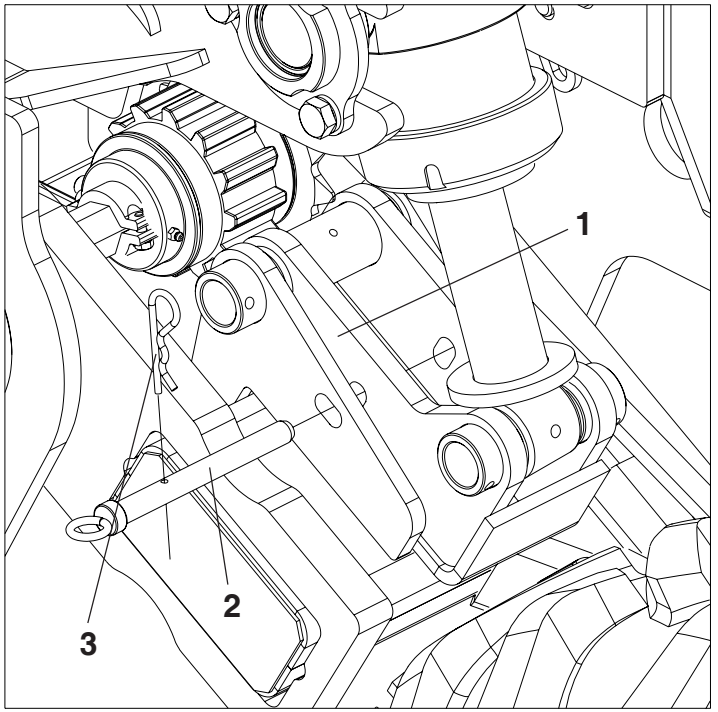
DRAWING 29

ATTENTION *Make the same adjustment for all coulter blade.*

ARTICULATIONS GROUND WHEEL SYSTEM (DRAWING 30) SPDe 3000 / 4000 / 5000

- The articulation ground wheel system (#1), removes the downforce from the spring on the soil, in order to get a better tyre-to-soil contact even in uneven soils, providing a accurate fertilizer and seed distribution.

1- to use this configuration, remove the pin (#2), and lock (#3) in the both sides of the seed drill

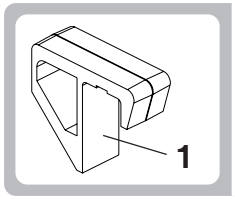


DRAWING 30

CAUTION *To transport the seed drill insert the pin (#2) and lock (#3).*
To work with the seed drill remove the pin (#2) and lock (#3).

EXTRA-WEIGHT (DRAWING 31) SPDe 3000 / 4000 / 5000

- The extra-weight (#1) are installed on the rear frame (#2) of seed drill. It provide a better soil disruption when you install a extra-weight, the seed drill gain 15,5kg on the weight. You can install or remove it easily following the instructions below:



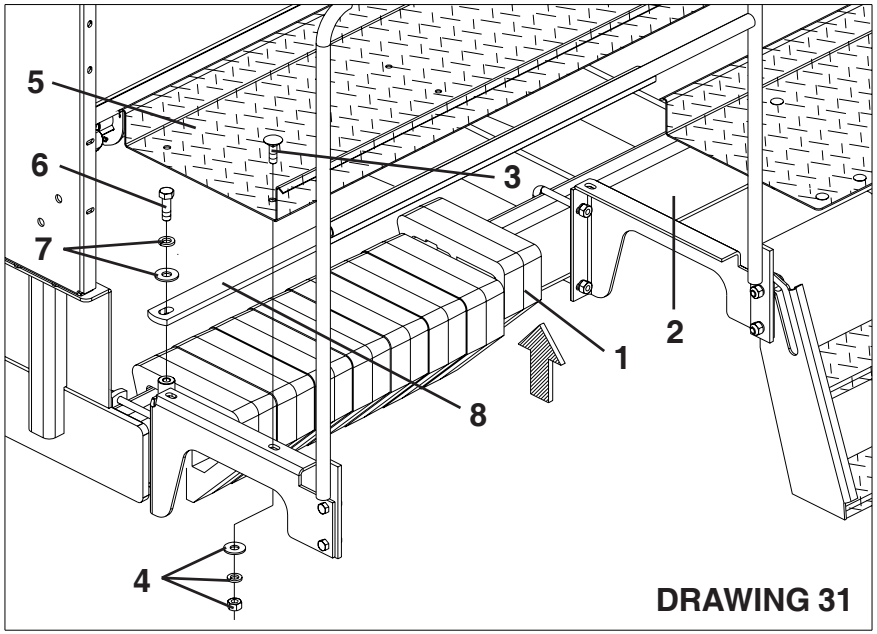
Model	Nº of extra-weight	Total (Kg)
SPDe 3000	16	248
SPDe 4000	20	310
SPDe 5000	24	372

TABLE 07

You can install or remove it easily following the instructions below:

- 1- loosen the bolt (#3), washer and nut (4), remove the catwalk sheet metal (#5), remove the bolt (#6), washers nuts (#7) and the sheet (#8).

2- Install one extra-weight in each side and other on the center, repeat this procedure until get the amount desired, and then mount the catwalk again.



DRAWING 31

12 OPERATIONS

1 - After the first working day retighten all nuts and bolts. Check the conditions of the lucks and pin.

2 - Keep the tyres inflation in 18lb/ pol2 and 3/4 of water to avoid damages and irregular planting.

3 - Check the lubrication schedule.

4 - When fill the hopper verify if there are no objects inside such as nuts, bolts, etc. Always use seed and fertilizer without impurity.

5 - Always observe the action of seed and fertilizer distributor system and also the calibration carried out at the beginning of work.

6 - Keep the seed drill leveled, the tractor traction drawbar must be kept fixed and the working speed must be constant.

7 - Verify often seed depth, fertilizer depth and down force for press wheels.

8 - Check the fertilizer-to-seed and soil position.

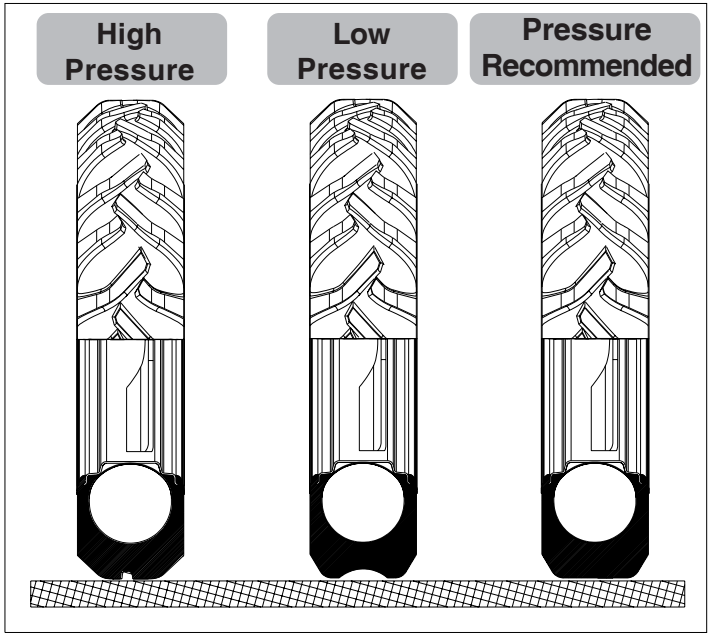
9 - Set the marker disc to the dimension of your crop.

13 MAINTENANCE

PROCEDURES TO INFLATING THE TYRES (DRAWING 32)
SPDe 3000 / 4000 / 5000

1 - Inspect daily the inflation pressures to avoid damages by high or low pressure. Do not operate with low pressure, cuts, bubbles, damaged rims or missing lug, bolts and nuts.

2 - The manufacturer recommends the inflation of 18 lb/pol² with ¾ of water or 22 without water. Do not inflate above the recommended pressure.



DRAWING 32

LUBRICATION
SPDe 3000 / 4000 / 5000

3 - The correct lubrication is very important for providing a high durability and a good working of the rotating parts of the engine that result in years of trouble-years of trouble-free from the seed drill free from the seed drill.

4 - The correct lubrication is very important for providing a high durability and a good working of the rotating parts of the engine that result in years of trouble-years of trouble-free from the seed drill free from the seed drill.

TABLE OF GREASE AND SIMILAR (TABLE 08)

COMPANY	RECOMMENDED GREASE BRAND
PETROBRÁS	LUBRAX GMA 2
ATLANTIC	LITHOLINE MP 2
IPIRANGA	SUPER GRAXA IPIRANGA
	IPÍRANGA SUPER GRAXA 2
	IPIFLEX 2
CASTROL	LM 2
MOBIL	MOBILGREASE MP 77
TEXACO	MARFAK 2
	AGROTEX 2
SHELL	RETINAX A
	ALVANIA EP 2
ESSO	MULTIPURPOSE GREASE H
	LITHOLINE MP 2
BARDAHL	MAXLUB APG 2 EP

TABLE 08

ATTENTION

Existing lubricate or grease of other brands consult their technical publication.

TABLE OF OIL AND SIMILAR (TABLE 09)

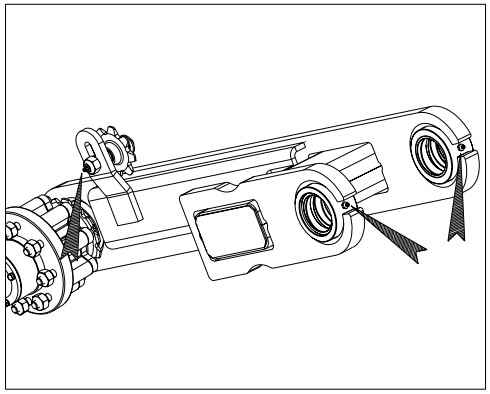
COMPANY	RECOMMENDED GREASE BRAND
ATLANTIC	PENNAT EP 150
ESSO	SPARTAN EP 150
IPIRANGA	IPIRANGA SP 150
PETROBRÁS	INDL. EGF 150 PS
SHELL	OMALA 150
TEXACO	MEROPA 150

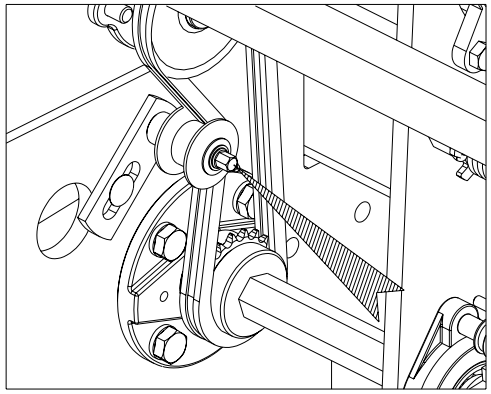
TABLE 09

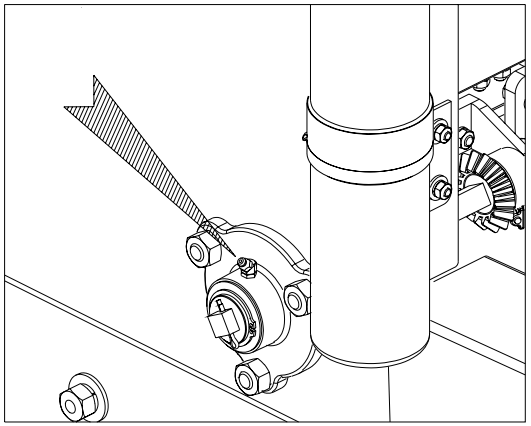
ATTENTION

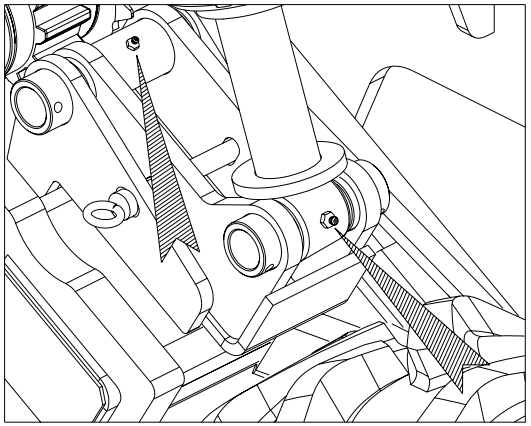
Existing lubricate or oil of other brands consult their technical publication.

LUBRICATION-EVERY 10 WORKING HOURS (DRAWING 33)
SPDe 3000 / 4000 / 5000

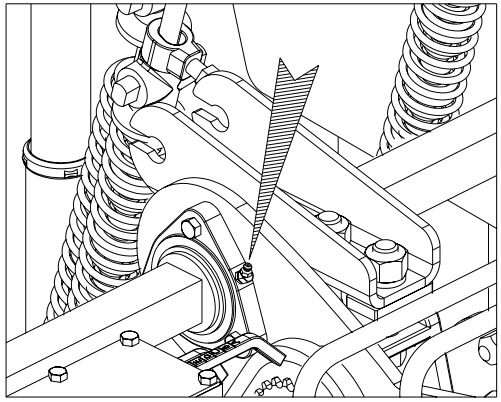


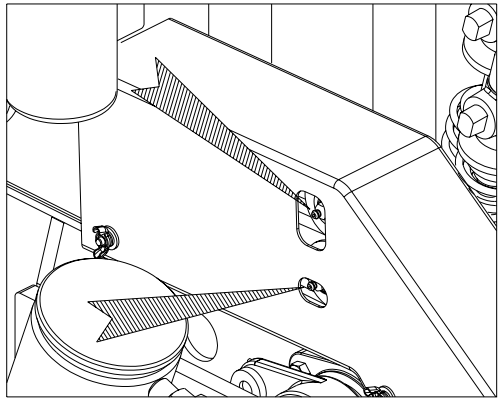


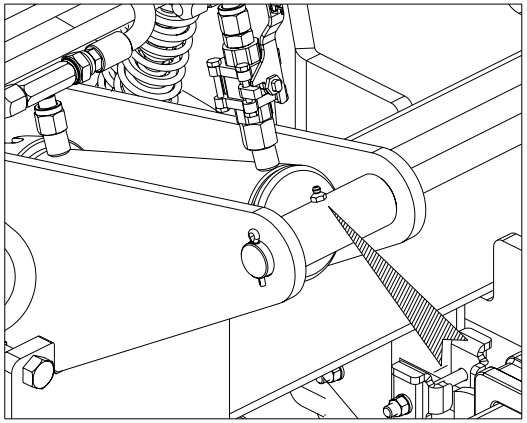


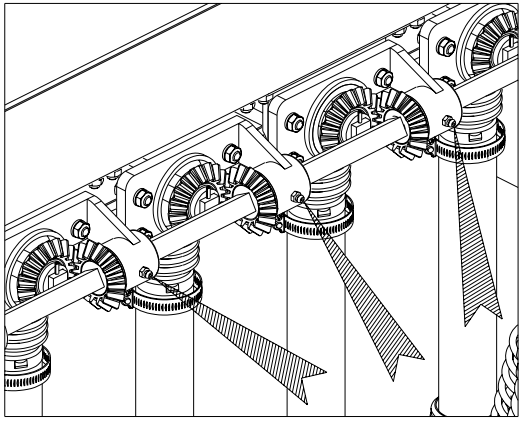


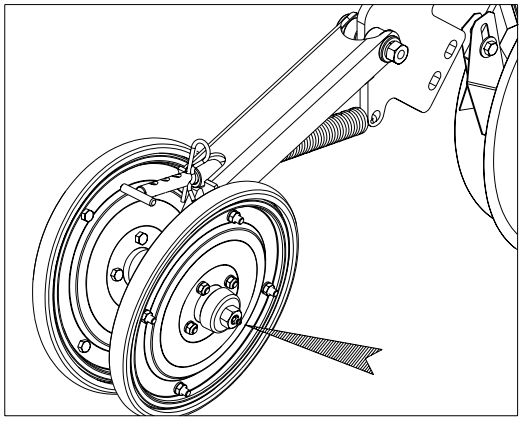
DRAWING 33



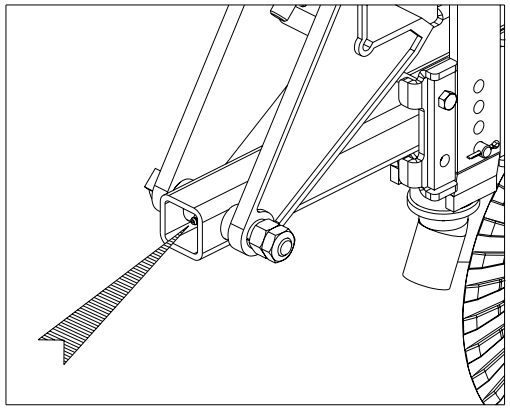






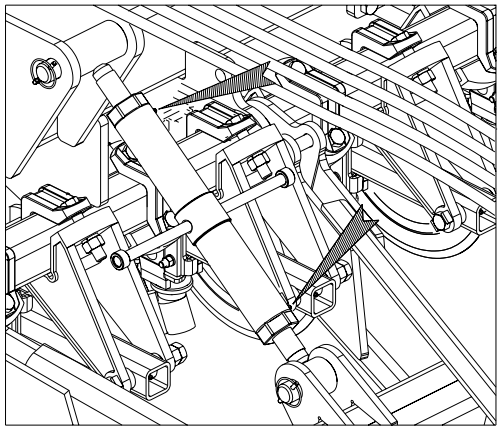


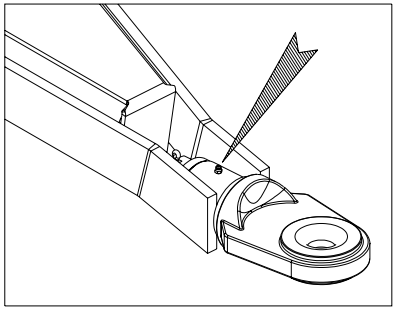
DRAWING 33



DRAWING 33

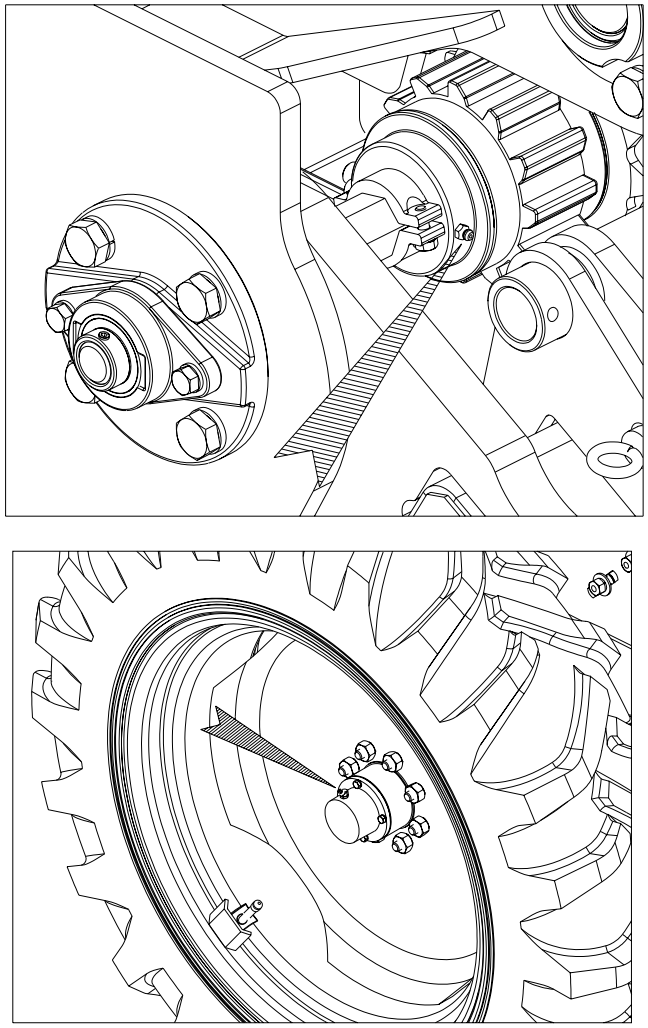
LUBRICATION-EVERY 30 WORKING HOURS (DRAWING 34)
SPDe 3000 / 4000 / 5000





DRAWING 34

LUBRICATION-EVERY 30 WORKING HOURS (DRAWING 35)
SPDe 3000 / 4000 / 5000



DRAWING 35

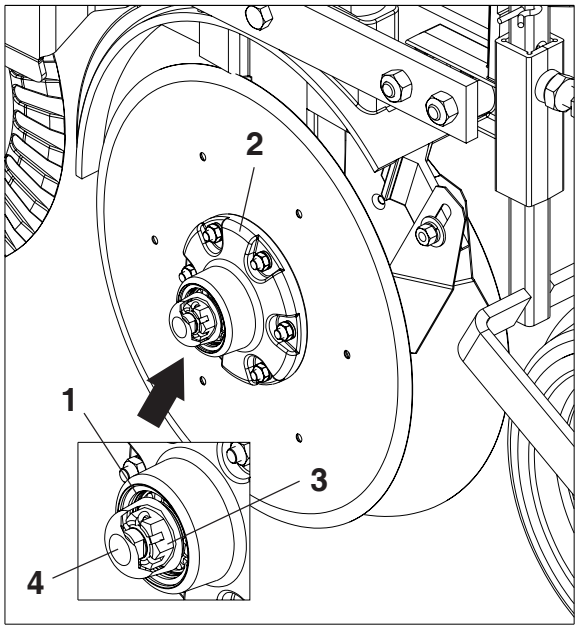
ATTENTION

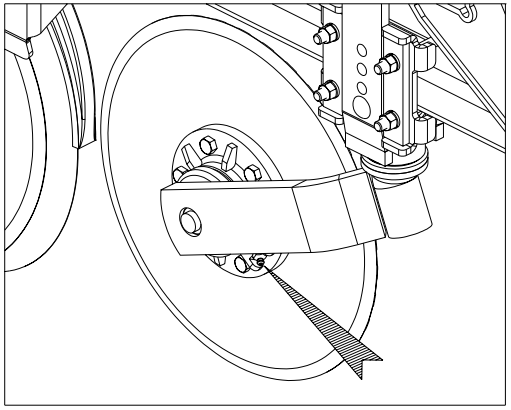
Do not put excessive grease on the ratchet lubricate with grease at interval of 60 working hours.

LUBRICATION-EVERY 200 WORKING HOURS (DRAWING 36)
SPDe 3000 / 4000 / 5000

- Lubricate periodically the double disc housing and the gauge wheels more specifically at every 200 working hours. Repeat this procedure when you finish the season following the instructions below:

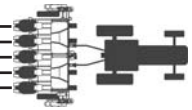
1 - Remove the ring (#1) from the housing (#2), inspect the bearing adjusting by the castle nut (#3), insert grease on the dust cap (#4) install the it again on the housing with the ring (#1).





DRAWING 36

14 OPERATIONAL MAINTENACE



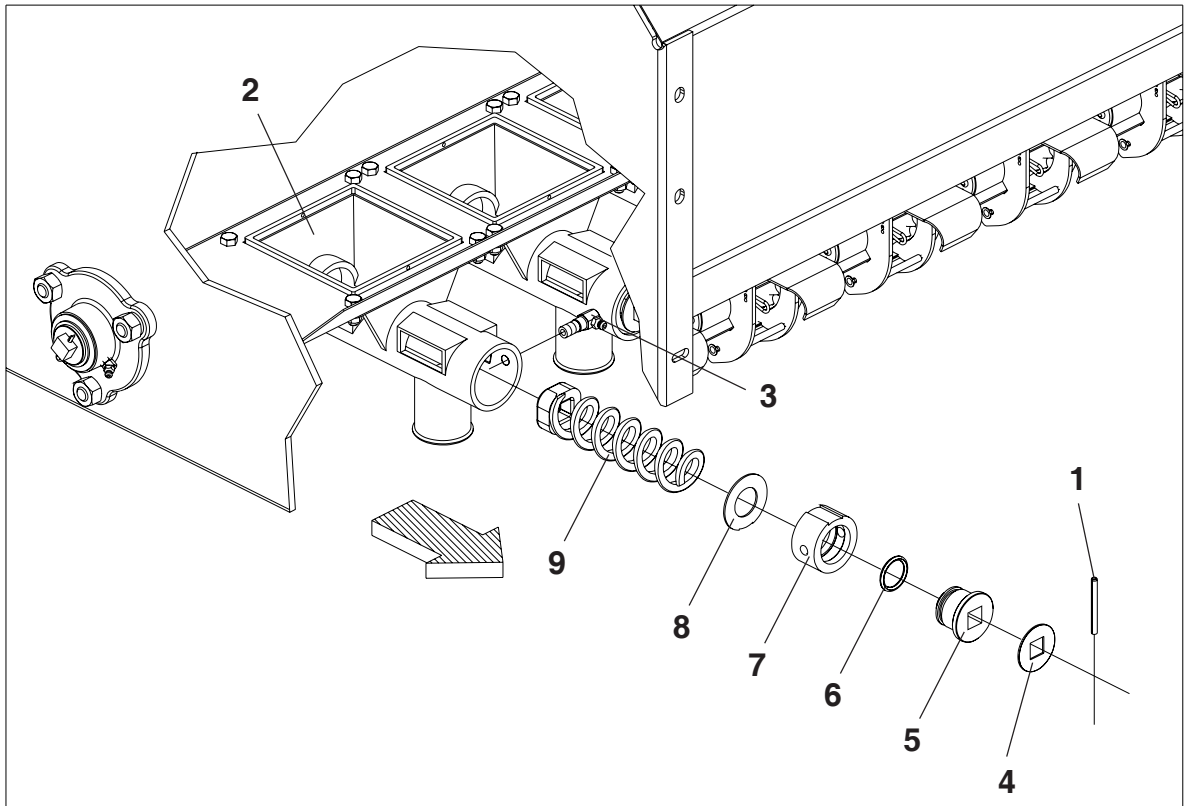
PROBLEM	CAUSE	SOLUTION
During the use the fertilizer is leaking from the safety outlet.	Foreign material or obstruction on the auger.	Clean the fertilizer tube, remove the lid to access the auger turning the shaft until the foreign body is ejected.
The fertilizer device shaft has stopped.	The auger is blocked by wet or execess fertilizer.	Inspect and clean the auger and the chute position. as roscas condutoras de adubo.
I can not couple the hydraulic hoses on the tractor.	The hoses was uncoupled with pressure on the system or the hydraulic system is supporting the weight of the engine.	Drain the hoses or install the mechanical stands on the machine then to relieve the pressure
There are varieties of depth on the rows.	It is a result of different pressure rates on the spring or the wheels.	Adjust the wheels and set the same pressure rate on the springs.
The furrow is very large during the use	The are much soil on the disc or excessive ground speed	Reduce the ground speed
Hydraulic cylinder has been stopping when raising or lowering procedure.	It has been coupled correcty	Replace the quick couple with a Quick Couple Compatible
There is a noise when the engine running filled.	There are loose bolts or bearings on the housing from the wheels.	Tighten the bolts and inspect the wheel bearings.
The planter does not work on the narrow settings.	The planter is improperly installed on the tractor.	Use the pin that you received with your planter to the correctly attach.
The ratchet not coupling or uncoupling correctly	There are problem on the spring or dust in the system	Unmount the ratchet clear the spring with diesel and lubricate with litlle grease.
On the hard ground the blades Do not work at the desired depth.	Not enough weight	Insert the ballast, water in the tyres and lock the oscilation system from the wheel
The rippled blades touch the soil during transport	The bushing from the three spring are loosen or the blade are installed on the high hole	Install the Bushing on the axle and install the blade on the low hole soil does not touch the soil

TABLE 10

FERTILIZER METERING (DRAWING 37)
SPDe 3000 / 4000 / 5000

- After the planting clean the hopper .Do not leave fertilizer on the hopper ,follow the procedure below:
- Remove the pin (#1) on the rear part of fertilizer metering (#2), loosen the bolt (#3), remove the washer (#4) bushing (#5), ring (#6), bushing (#7) washer (#8) then pull out the auger (#9), as illustrated on the **DRAWING 37**.

After cleaning mount the system again checking the correct position for fertilizer system.



DRAWING 37

DANGER

Do not insert fingers or foreign object into the fertilizer metering, it may result serious injuries.

ATTENTION

Damage to the paint may occur if you use chemical products to wash the machine.

ATTENTION

- Fill the hoppers only in planting field.
- Avoid any foreign object on the hoppers.
- Check the fertilizer and seed rates daily.

GENERAL CLEAN
SPDe 3000 / 4000 / 5000

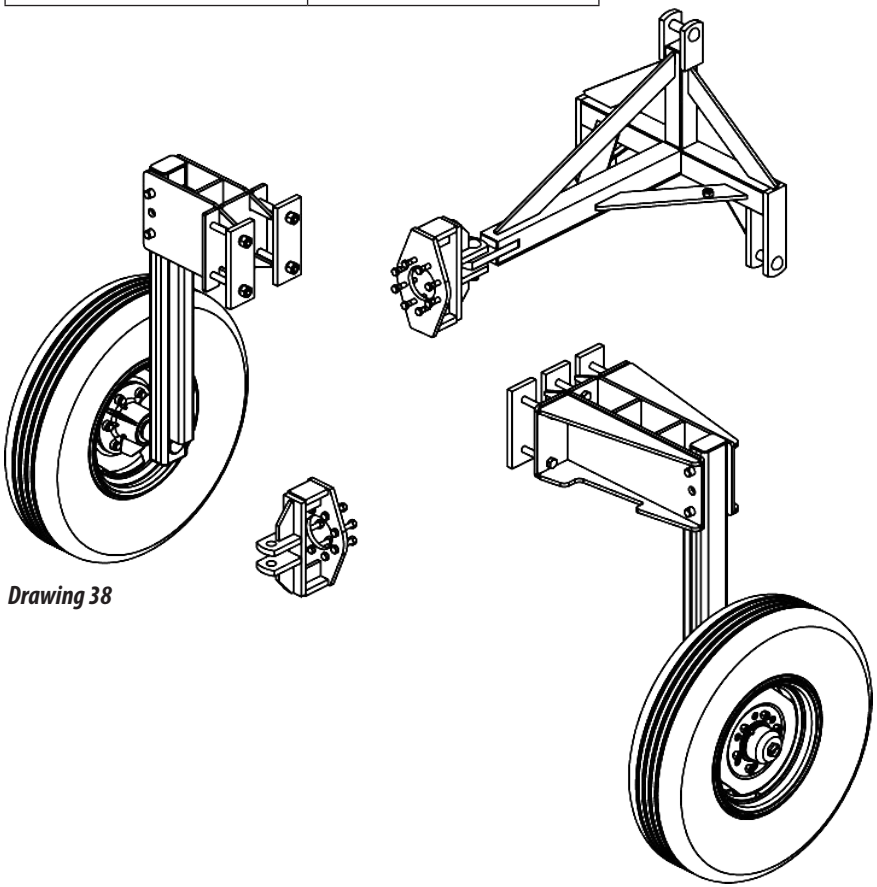
1 - When storing the seed drill, carry out general cleaning and wash it. checking if thhe paint is wearing if so, paint the machine. Use protector oil and lubricate the seed drill completely.
2 - Remove transmission chains and keep them in oil until next season.
3 - Lubricate the machine completely. check all fast moving parts, if they are wearing or loosening adjust or replace that part leaving the machine ready for next season.
- USE ONLY BALDAN ORIGINAL PARTS.
4 - After all maintenance cares, store the seed drill in a place covered and dry, correctly supported. Do not let the blades toouch the soil.
5 - We recommended washing the machine at the beginning of next season

16 OPTIONAL

The **SPDE** seeder has options that can be purchased according to the need of work. Inside the options available are:

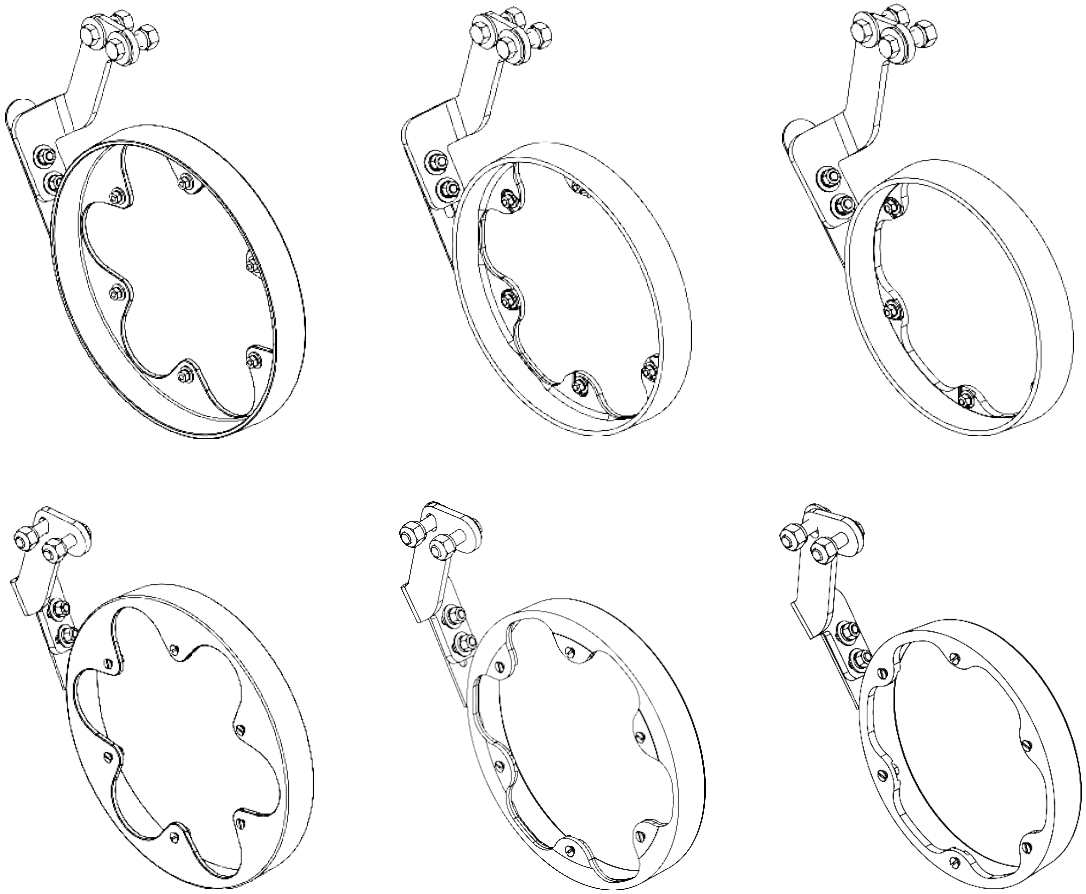
MECHANICAL SIDE TRANSPORT KIT (DRAWING 38)

Model	Code
SPDE CXP 3000 / 4000 / 5000	50921337547



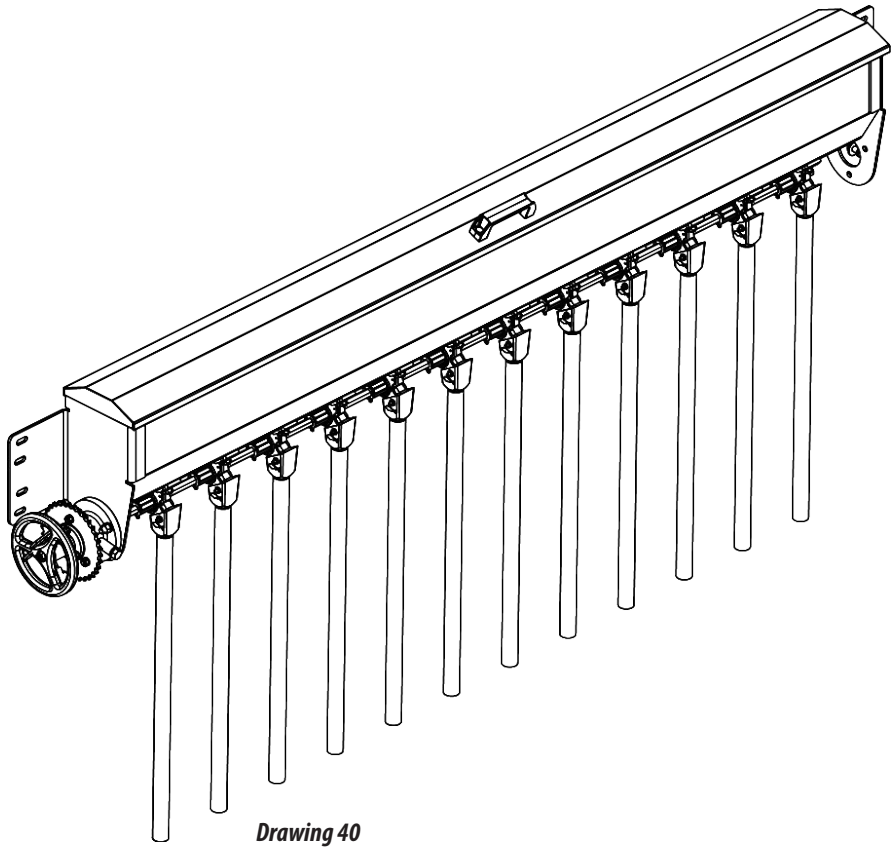
Drawing 38

LIMITING BORDER WITH CLEANER (DRAWINGS 39)



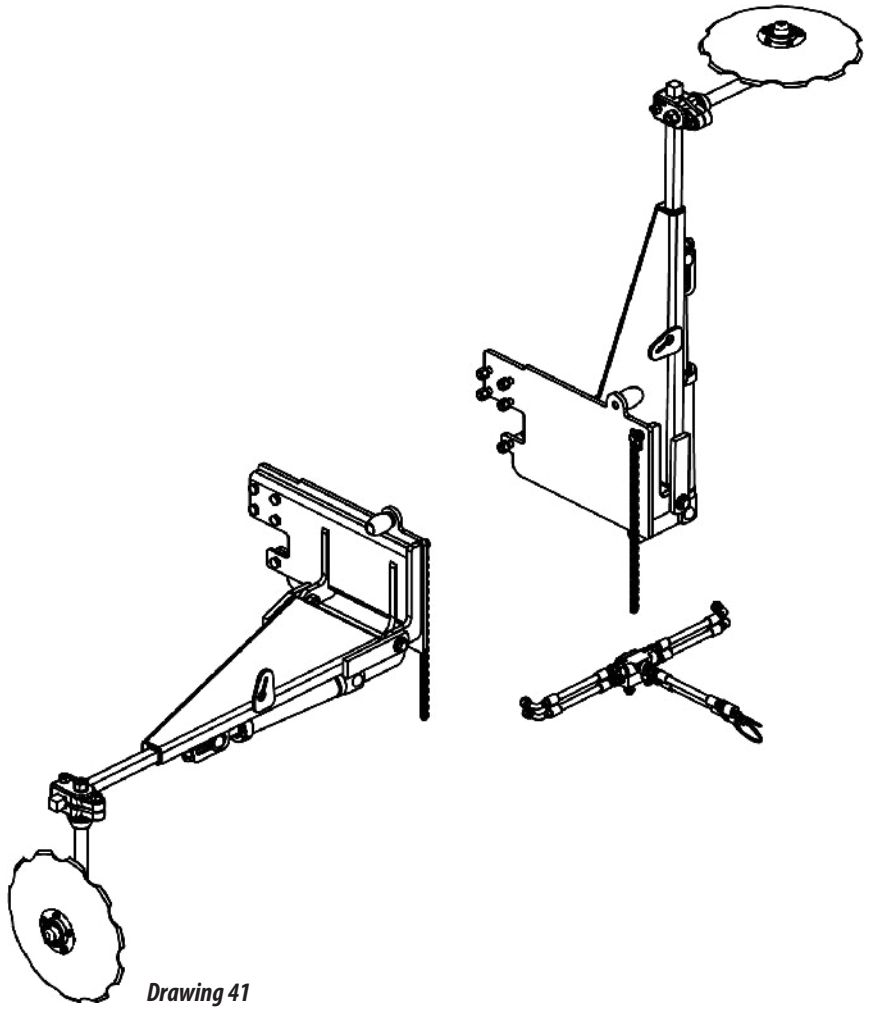
Drawings 39

FINE SEEDS CPL BOX (DRAWING 40)



Drawing 40

LINE MARKER SYSTEM W/ STEERING CPL (DRAWING 41)



Drawing 41

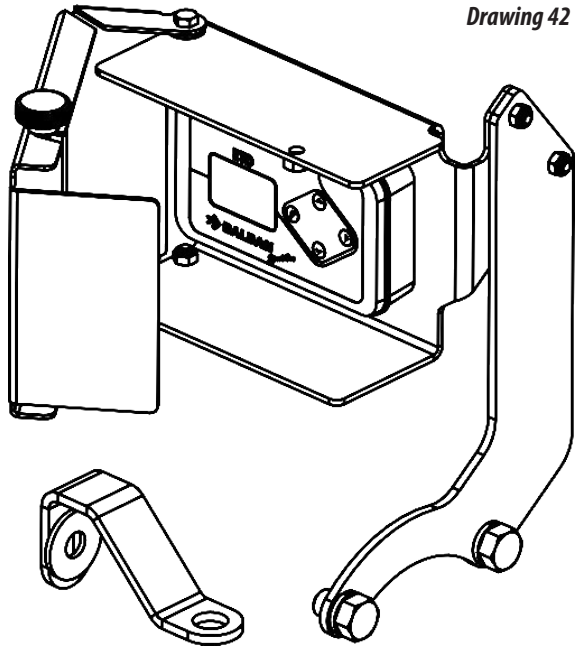
16 OPTIONAL

The **SPDE** seeder has options that can be purchased according to the need of work. Inside the options available are:

ETD SYSTEM (ELECTRONIC DOSING TABLE) (DRAWING 42)

SPDE can be purchased optionally with the **ETD** (Electronic Dosing Table) system. **ETD** is an electronic device that can be connected to planters, seeders and fertilizers to assist the operator in setting the best gear ratio so that the correct dosage of seeds and fertilizers occurs, according to the needs of each area / plot, based on the adjustments previously done in the field and calibrations before planting. It allows to perform other additional functions such as the registration of planted hectares, hours actually worked and planting speeds above specified, and this important information is recorded and shown on the **ETD** electronic device display.

Drawing 42



ETD (ELECTRONIC DOSING TABLE)

ATENTION | ***To use the ETD (Electronic Dosing Table), refer to the instruction manual on the following pages.***

ETD OPERATION MANUAL (ELECTRONIC DOSING TABLE) - OPTIONAL

• Presentation

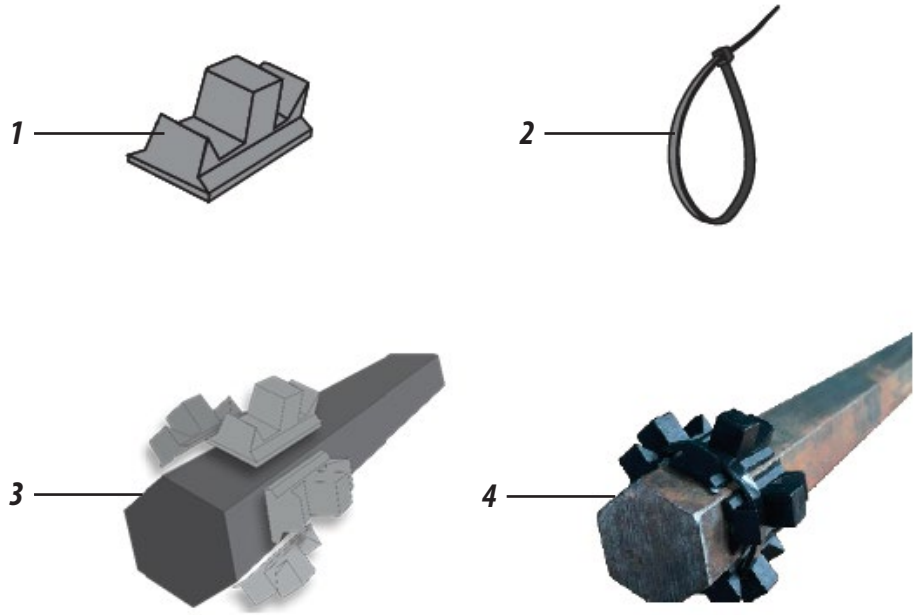
ETD is an electronic device that can be connected to planters, seeders and fertilizers to assist the operator in setting the best gear ratio so that the correct dosage of seeds and fertilizers occurs, according to the needs of each area / plot, based on the adjustments previously done in the field and calibrations before planting. It allows to perform other additional functions such as the registration of planted hectares, hours actually worked and planting speeds above specified, and this important information is recorded and shown on the **ETD** electronic device display.

17 ETD MANUAL

ETD OPERATION MANUAL (ELECTRONIC DOSING TABLE) - OPTIONAL

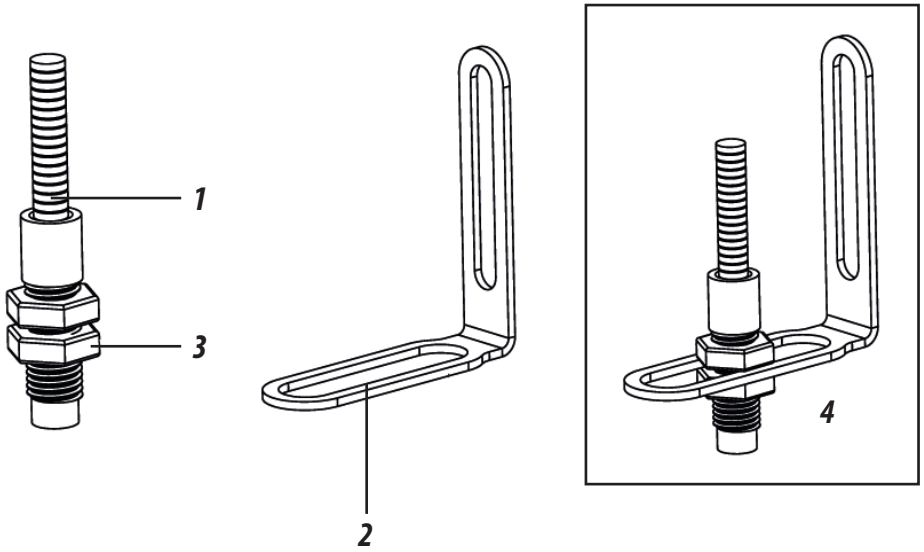
• Mounting the magnets on the main axis

The magnets (1) must be installed on the planter's primary axis, after the shutdown ratchet, as this will not count hours and hectares when the machine is in transport. A magnet must be installed on each face of the shaft (3), securing them with two nylon clamps (4) so that they are properly fixed and positioned (4).



• Mounting the speed sensor

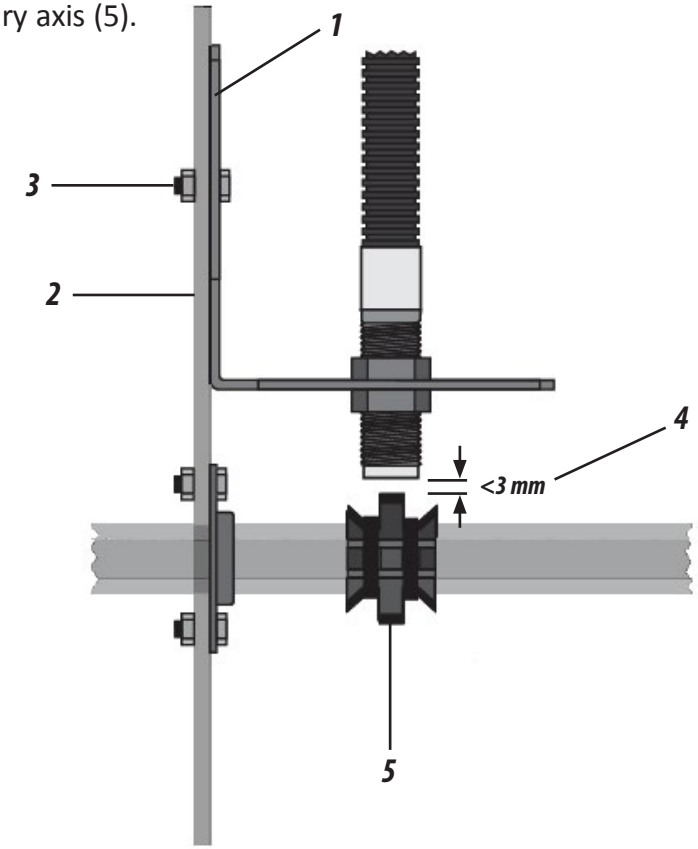
Mount the sensor (1) on the support (2) fixing by the nuts (3) according to the image (4).



ETD OPERATION MANUAL (ELECTRONIC DOSING TABLE) - OPTIONAL

• Speed sensor installation

Attach the sensor support (1) to the machine chassis (2) using the M8x30 screw (3) making sure that the distance between the sensor and the magnets is less than 3 mm (4). It is extremely important to align the speed sensor and the magnets on the primary axis (5).



• Identification

A - Display
B - Function key
C - Decrease item
D - Enter
E - Increase item

The ETD has four keys
Function key F **The Function key F is used to change between the four main functions of the ETD, which are:** **F1: Seed rate** **F2: Fertilizer rate** **F3: Hour meter** **F4: Hectometer** **Within the menus, the Function F key assumes the "back" function, which facilitates navigation.**

Keys
The ▼ and ▲ keys are used to increase or decrease numeric items in the interface. The icon with arrows above and below the interface indicates the item to be controlled by the keys. 025 **Keys ▶** **The key ▶ is used as a "enter" function. This key allows you to enter the options that are shown in the lower right corner of the interface.**

ETD OPERATION MANUAL (ELECTRONIC DOSING TABLE) - OPTIONAL

• Settings menu

The settings menu (1) can be accessed through the Function key F, when pressed for more than 2 seconds.

The settings menu has 7 items. The keys ▲▼ (2) are used to navigate between menu items.

The Selec. key ▶ (3) is used to select the highlighted item. Just click on the "F" key (4) to exit the settings menu.

To select the start of the calibration click 'Yes' ▶ (1).

• Sensor calibration

When starting the sensor calibration (2), the machine must be moved for exactly 100 meters (3) and stopped.

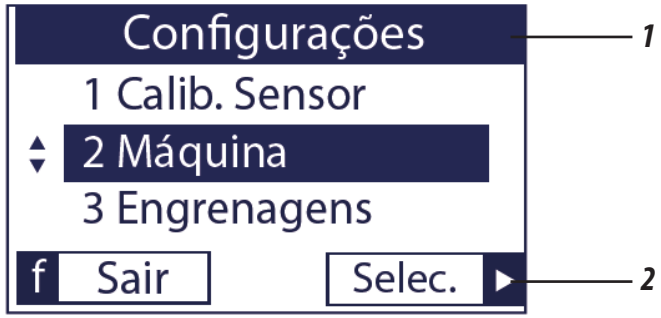
The number of pulses (4) counted by the sensor is shown on the screen. To complete the calibration, the operator must press the ▶ (5) "Ready" key.

The calibration of the sensor is important for the ETD to determine the number of hectares worked, the working speed of the machine and also the distance covered in the fertilizer calibration.

If, during displacement, the number of pulses corresponding to the end of the 100m is not displayed, the displacement of the sensor or magnets may have occurred, making it impossible to read the pulses during the displacement. In this case, it is necessary to adjust these components according to the assembly diagram, item 4 "INSTALLING THE SPEED SENSOR", previous page.

ETD OPERATION MANUAL (ELECTRONIC DOSING TABLE) - OPTIONAL

• Machine



In the machine configuration (1), click on 'Select' ▶ (2) to inform the number of lines using the buttons ▲▼ (3).

Number of lines, range of values: 01 ~ 80.

After selecting the number of lines contained in the machine, press the 'Prox' key ▶ (4) to select the line spacing using the buttons ▲▼ (5).

• Sensor calibration

When clicking "Save" ▶(6), the system saves the settings and displays the followings message.

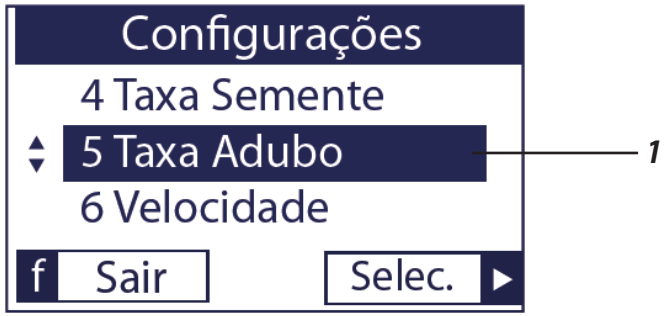
This information is very important for the presentation of the worked hectares and also for the calibration of fertilizer rates.

ETD OPERATION MANUAL (ELECTRONIC DOSING TABLE) - OPTIONAL

• Seed rate

The Seed Rate function (4) is not used in fine grain seeders.

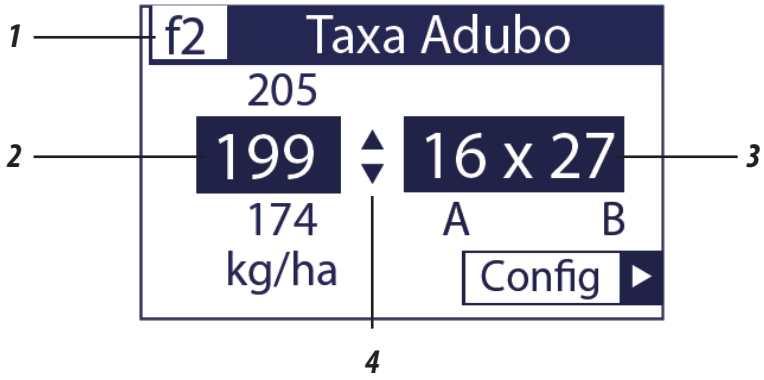
• Fertilizer rate - Part I

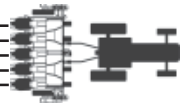


Screen F2 (1) indicates the fertilizer rate (2) in kg per hectare obtained with a specific gear ratio. Fertilizer rates are calculated according to the fertilizer calibration, the gear configuration (3) and the spacing between lines. The keys

▼ and ▲ (4) allow the user to navigate between the rate options in Kg / ha.

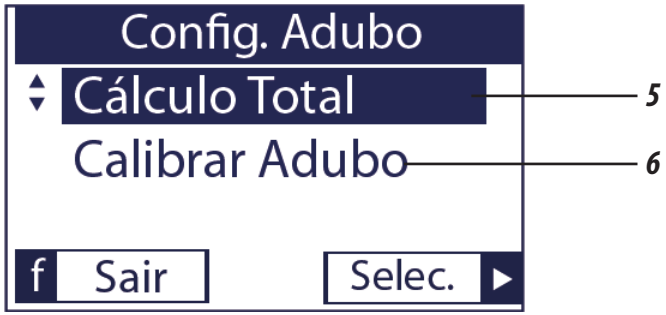
Fertilizer rate: ETD





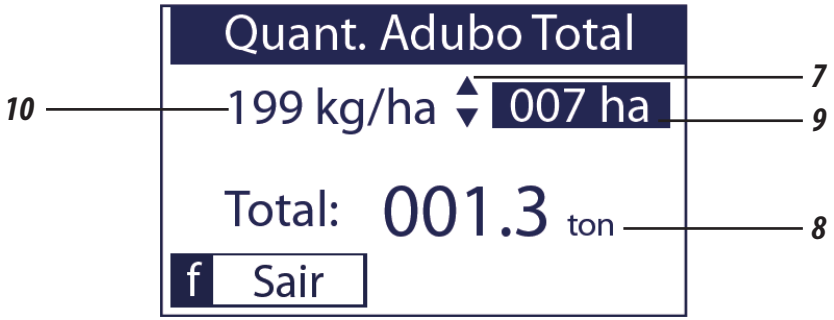
• Fertilizer rate - Part II

The fertilizer rate menu has two items: Total Calculation (5) and Calibrate Fertilizer (6).



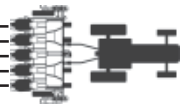
• Total calculation

In total calculation (5), the user can calculate the amount of total fertilizer in tons (8) required for planting a certain area, in hectares. The last fertilizer rate selected on the F2 function screen (9), selected using the key ▲▼ (10) is used as a reference for the calculation.



• Calibrate fertilizer - Part I

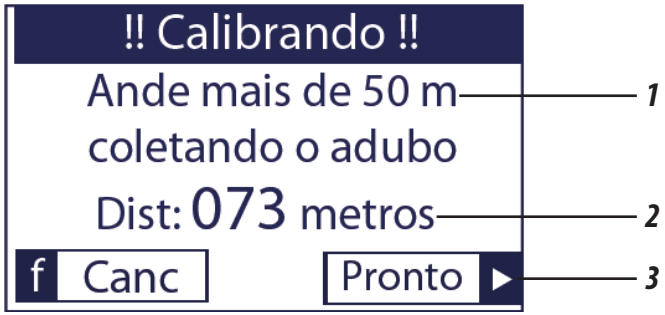
The fertilizer calibration (11) has 3 steps. First, you must inform the gear ratio (12) used on the machine at the time of calibration. EXAMPLE: In the SPEED BOX, configure the option Mot 6 and Mov F, then enter the same configuration in the ETD; then walk 50 m collecting at least 3 fertilizer outlets, make the average and enter the value in the electronic table).



ETD OPERATION MANUAL (ELECTRONIC DOSING TABLE) - OPTIONAL

• Calibrate fertilizer - Part II

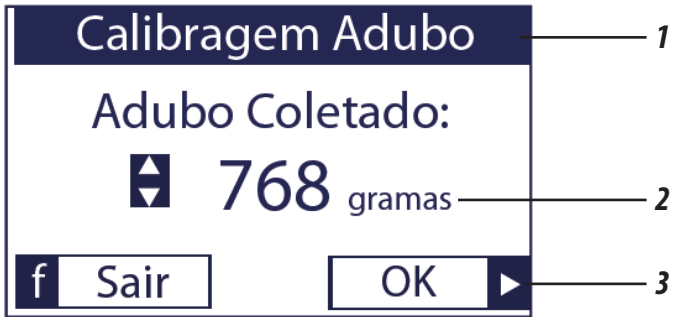
On the next screen, the operator must walk with the machine collecting the fertilizer over a distance greater than 50 meters (1). It is important that the sensor is already calibrated so that the distance covered is measured correctly. The distance traveled is displayed instantly (2).



After covering the required distance, click on Ready (3).

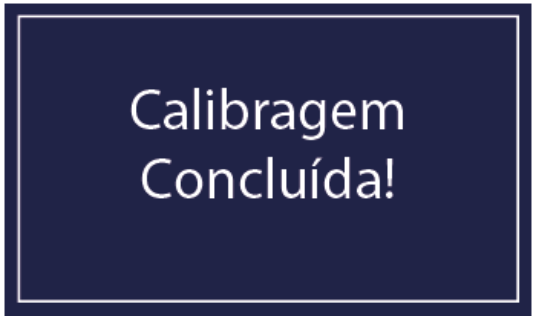
NOTE: The minimum distance to be covered is 50 meters, if this distance insufficient, the screen for entering the weight of the collection will not be enabled and the following warning will be displayed:

On the next screen (1), the total weight of the collected fertilizer (2) in a row or the average of the collection, always in grams, is reported.



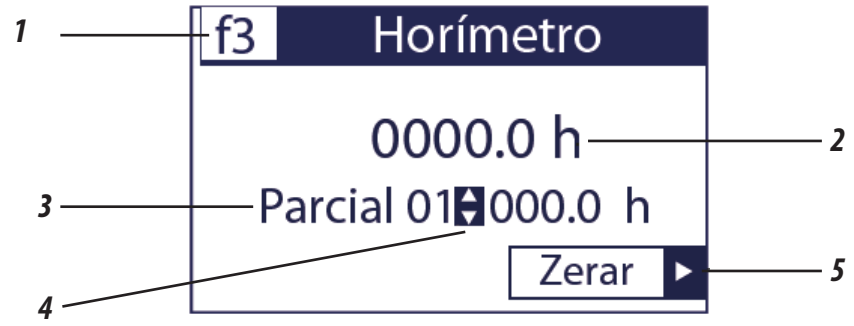
Adubo coletado, faixa de valores: 10 ~ 9000 gramas.

Clicking 'OK' (3) the 'calibration complete' message is displayed.



ETD OPERATION MANUAL (ELECTRONIC DOSING TABLE) - OPTIONAL

• F3 Hour meter

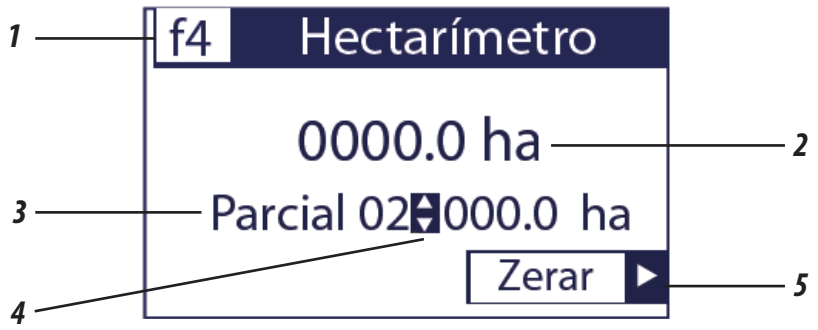


The F3 screen (1) indicates the total number of hours (2) of work with the ETD in three partials (3), which can be related to the keys ▲ ▼ (4).

To reset a certain partial, the Reset key (5) must be held down for more than 2 seconds.

The hours counted refer only to the time that the machine was in effective work, that is, with the ratchet on. Thus, hours of handling the ETD or traveling with the machine in the transport position will not be counted.

• F4 Hectometer



Screen F4 (1) indicates the total number of hectares worked (2) with the ETD, also in 3 partial ones (3), which can be selected using the keys ▲ ▼ (4).

ETD OPERATION MANUAL (ELECTRONIC DOSING TABLE) - OPTIONAL

• Settings menu

The settings menu (1) can be accessed through the Function key F, when pressed for more than 2 seconds.

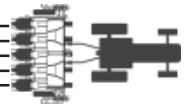
The settings menu has 7 items. The keys ▲▼ (2) are used to navigate between menu items.

The Selec. key ▶ (3) is used to select the highlighted item. Just click on the “F” key (4) to exit the settings menu.

To select the start of the calibration click ‘Yes’ ▶ (1).

• Sensor calibration- Part I

When starting the sensor calibration (2), the machine must be moved for exactly 100 meters (3) and stopped.



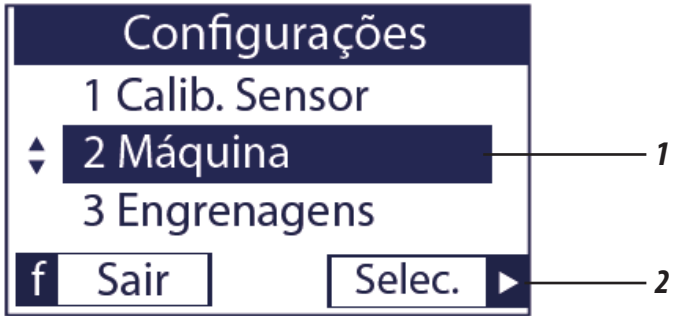
• Sensor calibration - Part II

The number of pulses (4) counted by the sensor is shown on the screen. To complete the calibration, the operator must press the ▶ (5) "Ready" key.

The calibration of the sensor is important for the ETD to determine the number of hectares worked, the working speed of the machine and also the distance covered in the fertilizer calibration.

If, during displacement, the number of pulses corresponding to the end of the 100m is not displayed, the displacement of the sensor or magnets may have occurred, making it impossible to read the pulses during the displacement. In this case, it is necessary to carry out the adjustment of these components according to the assembly diagram, item 4 “INSTALLING THE SPEED SENSOR”, page 85.

• Machine - Part I



In the machine configuration (1), click on ‘Select’ ▶ for inform the number of lines using the buttons ▲▼ (3).

Number of lines, range of values: 01 ~ 80.

After selecting the number of lines contained in the machine, press the ‘Prox’ key ▶ (4) to select the line spacing using the buttons ▲▼ (5).

ETD OPERATION MANUAL (ELECTRONIC DOSING TABLE) - OPTIONAL

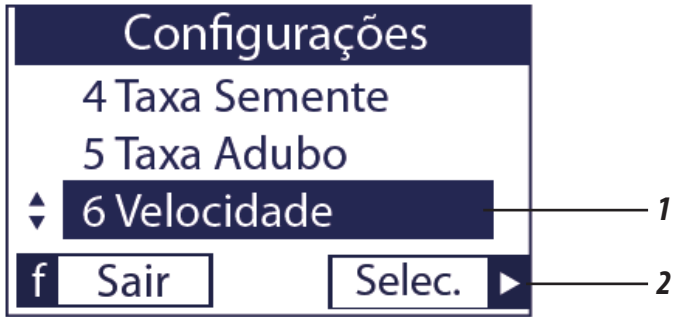
• Machine - Part II

Spacing, range of values: 01 ~ 99 cm.

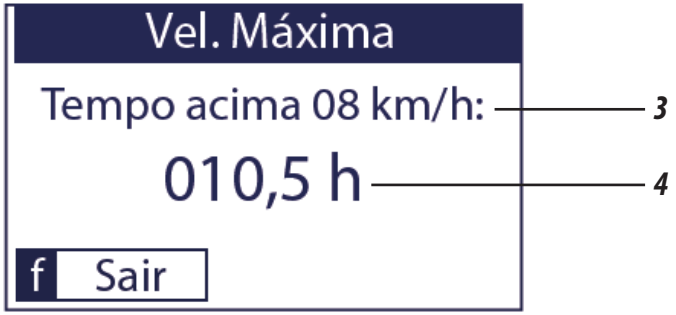
By clicking “Save” ▶ (6) the system saves the settings and displays the following message.

This information is very important for the presentation of the worked hectares and also for the calibration of fertilizer rates.

• Time above maximum speed



Clicking on ‘Select.’ ▶ (2) in the ‘Speed’ setting (1) will show how many hours (4) the machine has been working above the limit speed (3).



16 IDENTIFICATION

PRODUCT IDENTIFICATION (DRAWING 38)
SPDe 3000 / 4000 / 5000

1 - When refering to parts catalogues or requesting technical support from Baldan, always indicate model (#1), serial number (#2), manufac- ture date (#3) located on the identification tag (4).

- **ALWAYS ORIGINAL PARTS REQUIRED BALDAN.**

Fill in the details below so that you always have correct informations about your equipment.

Owner: _____

Dealer: _____

Farm: _____

City: _____ Province: _____

Warranty Certificate Nr _____

Model: _____

Serial Number: _____

Purchase date:: _____/_____/_____ Invoice Nr _____

ATTENTION

The drawings herein are merely illustrative. To allow a better view and detailed instruction, the safety devices in some drawings of this manual were removed (covers, protections, etc.). Never operate SPDE without these devices.

PUBLICATIONS

Code: 60550104485
CPT: SPDE11618

CONTACT

In case of doubt do not operate the equipment, please contact our after-sales service.
Phone: 0800.152577
E-mail: posvenda@baldan.com.br

Notes:

WARRANTY CERTIFICATE

BALDAN IMPLEMENTOS AGRÍCOLAS S/A, guarantees normal operation of the implement to the reseller for a period of 6 (six) months counted from the delivery date on the reseller's bill of sale to the first final consumer.

During this period **BALDAN** is committed to repair any defects in materials and/or manufacturing at its own responsibility, as labor, shipping, and other expenses are the responsibility of the reseller.

During the warranty period, the request and replacement of any defective parts will be done at the regional reseller, and thereafter ship the defective part to **BALDAN** for analysis.

When it is not possible to perform such procedure and the capacity for resolving the problem Is exhausted by the reseller, the same shall request support from the **BALDAN** Technical Support Service, by filling out the specific form distributed to resellers.

After analysis of the replaced items by the **BALDAN** Technical Support Services is concluded and the replacement is not covered by the warranty, then it will be the responsibility of the reseller to pay all the related costs for the replacement; as well as expenses on materials, travel, including lodging and meals, accessories, lubricates used, and other expenses originating from the Technical Support Service call, thereby the **BALDAN** company is authorized to charge for the respective bill to the reseller's name.

Any repair done on the product within the validity date of the warranty period, will only be authorized by **BALDAN** by previous presentation of the quotation describing the parts and labor charges that will be performed.

It is excluded from this agreement, whenever the product undergoes official repairs or modifications from service centers that do not belong to the **BALDAN** reseller network, as well as the installation of aftermarket parts or components in the user's product.

This warranty will be nullified if the defect or damage is the result from improper usage that is noncompliant to the instructions or inexperience of the operator.

It is agreed to that this present warranty does not cover tires, polyethylene storage compartments, drive shafts, hydraulic components, etc. as the warranty coverage is from their own manufacturers.

Manufacturing or material defects, as stated in the purpose of this warranty agreement, does not constitute, under any hypothesis, a reason for purchase and sale contract termination, or the payment of indemnities of any nature.

BALDAN reserves the right to change and or perfect the technical characteristics of its products, and without any obligation to proceed in previously manufactured products.

INSPECTION AND DELIVERY CERTIFICATE

- **SERVICE BEFORE DELIVERY:** This implement was carefully prepared by the sales organization; all it parts were inspected according to the instructions from the manufacturer.
- **DELIVERY SERVICE:** The user was informed as to the terms of the applicable warranty and instructed on its usage and maintenance procedures.
- I hereby confirm I have been informed on the terms of the applicable warranty and instructed on its usage and maintenance procedures of the implement.

Implement: _____

Serial Number: _____

Data: _____ *Invoice:* _____

Reseller: _____ *City:* _____

State: _____ *Postal Code:* _____

Owner: _____ *Phone:* _____

Address: _____ *Number:* _____

City: _____ *State:* _____

E-mail: _____

Sales Date: _____

Signature / Reseller Stamp _____

1ª - Owner

INSPECTION AND DELIVERY CERTIFICATE

- **SERVICE BEFORE DELIVERY:** This implement was carefully prepared by the sales organization; all it parts were inspected according to the instructions from the manufacturer.
- **DELIVERY SERVICE:** The user was informed as to the terms of the applicable warranty and instructed on its usage and maintenance procedures.
- I hereby confirm I have been informed on the terms of the applicable warranty and instructed on its usage and maintenance procedures of the implement.

Implement: _____

Serial Number: _____

Data: _____ *Invoice:* _____

Reseller: _____ *City:* _____

State: _____ *Postal Code:* _____

Owner: _____ *Phone:* _____

Address: _____ *Number:* _____

City: _____ *State:* _____

E-mail: _____

Sales Date: _____

Signature / Reseller Stamp _____

2ª - Reseller

INSPECTION AND DELIVERY CERTIFICATE

- **SERVICE BEFORE DELIVERY:** This implement was carefully prepared by the sales organization; all it parts were inspected according to the instructions from the manufacturer.
- **DELIVERY SERVICE:** The user was informed as to the terms of the applicable warranty and instructed on its usage and maintenance procedures.
- I hereby confirm I have been informed on the terms of the applicable warranty and instructed on its usage and maintenance procedures of the implement.

Implement: _____

Serial Number: _____

Data: _____ *Invoice:* _____

Reseller: _____ *City:* _____

State: _____ *Postal Code:* _____

Owner: _____ *Phone:* _____

Address: _____ *Number:* _____

City: _____ *State:* _____

E-mail: _____

Sales Date: _____

Signature / Reseller Stamp _____

3ª - Manufacturer *Please send a filled out copy in a maximum period of 15 days to BALDAN.*

BALDAN

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15.993-900
Matão/SP - Brasil
sac@baldan.com.br
export@baldan.com.br

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