

SA *Speed Box*

Series 3000 / 4000 / 5000



Instruction Manual



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PRESENTATION

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



INDEX

01.Safety rules	7
02.Components.....	12
03.Technical specifications.....	13
04.Assembly	14
<i>Coupling head</i>	<i>14</i>
<i>Assembling the compaction wheel.....</i>	<i>15</i>
<i>Assembling the rods (optional).....</i>	<i>15</i>
<i>Assemblage of the fine seed box - optional</i>	<i>16</i>
<i>Assembling the kit for side transport (optional)</i>	<i>17</i>
<i>Tractor coupling.....</i>	<i>18</i>
<i>Transporting the seed drill</i>	<i>18</i>
05.Adjustments and operations	19
<i>Spacing between lines</i>	<i>19</i>
<i>Position of the lines on the chassis.....</i>	<i>19</i>
<i>New spacing.....</i>	<i>20</i>
06.Seed adjustment	21
<i>Gauge adjustment</i>	<i>21</i>
<i>Seed amount table.....</i>	<i>21</i>
<i>Seed distribution table</i>	<i>22</i>
<i>Adjustment of fine seed box (optional).....</i>	<i>23</i>
<i>Fertilizer distribution system</i>	<i>24</i>
07.Adjustments for distribution of fertilizer	25
<i>Speed box.....</i>	<i>25</i>
<i>Changing side gears.....</i>	<i>25</i>
<i>Fertilizer distribution table – sa speed box</i>	<i>26</i>
<i>Fertilizer distribution table – sa speed box</i>	<i>27</i>
<i>Practical test for measuring the amount</i>	<i>28</i>
<i>Of seed and fertilizer to be distributed</i>	<i>28</i>
08.Practical calculation for seed and fertilizer distribution.....	28
<i>Dual or single command</i>	<i>29</i>
<i>Depth adjustment.....</i>	<i>29</i>
<i>Individual working depth adjustment</i>	<i>29</i>
<i>Pressure regulation in rods (optional).....</i>	<i>30</i>
<i>Limiters.....</i>	<i>30</i>
<i>Adjusting the compacting wheels.....</i>	<i>30</i>

09.Operations	31
10.Maintenance.....	31
Tire pressure	31
Lubrication	31
Table of grease and equivalents.....	32
Lubricate at every 10 hours of work.....	32
Lubricate at every 30 hours of work.....	33
Lubricate at every 60 hours of work.....	33
Lubricate at every 30 hours of work.....	33
11.Operational maintenance.....	34
12.Cleaning.....	35
Fertilizer system	35
Seed system.....	35
13.Mixing set for seed with or without hectare meter.....	36
14.Hectare meter	37
Location and assembly	37
Calculating the planted area	37
15.Identificação	38

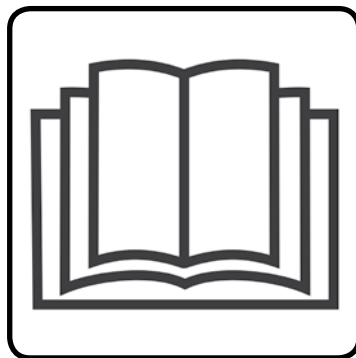
01. SAFETY RULES



THIS SYMBOL INDICATES IMPORTANT SAFETY WARNING. WHENEVER YOU FIND IT IN THIS HANDBOOK, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE AWARE AS FOR THE POSSIBILITY OF PERSONAL INJURY.

ATTENTION

- *Read the instruction manual carefully, so you can learn the recommended safety practices.*



ATTENTION

- *Do not operate the tractor if the front is light. With a tendency to rise, add weights on the front of the tractor or front wheels.*



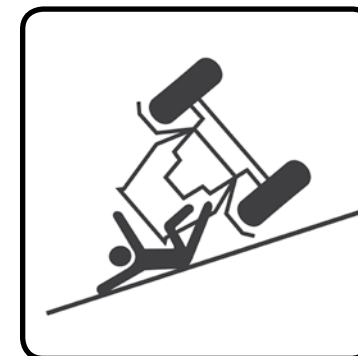
ATTENTION

- *Only begin operating the tractor when are properly accommodated and with the seat belt fastened.*



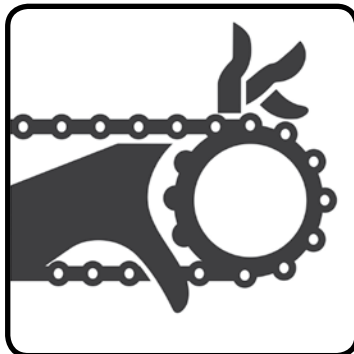
ATTENTION

- *There are risks of serious injury by tumbling when working on slopes.*
- *Do not use excessive speed.*

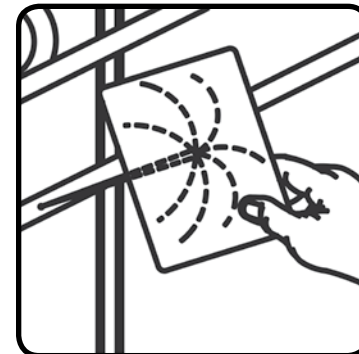


! ATTENTION

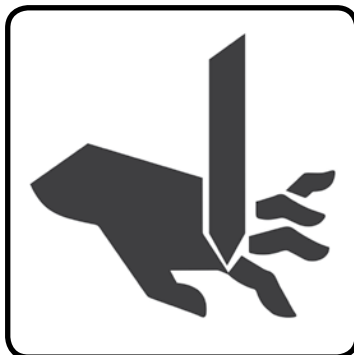
- *Do not operate the seed drill if the transmission hoods are not properly fixed.*
- *Only remove the hoods to make the replacement of gears, put them back immediately.*
- *When doing any work in the machine transmission, turn the ratchets off.*
- *Do not make adjustments with the machine in motion.*

**! ATTENTION**

- *When looking for a possible leak in the hoses, use a piece of cardboard or wood, never use your hands.*
- *Avoid the incision of fluid in the skin.*

**! ATTENTION**

- *Keep yourself away from the active elements of the machine (discs), they are sharp and can cause accidents.*
- *When carrying any service on discs, use safety gloves on hands.*

**! ATTENTION**

- *Before performing any maintenance on your equipment, make sure it is turned off. Avoid getting hit.*



ATTENTION

- *The hydraulic fluid is under pressure and can cause serious injuries in case of leaks. Periodically check the conservation condition of the hoses. If there is evidence of leaks, replace them immediately.*
- *Before connecting or disconnecting hydraulic hoses, relieve the pressure of the system, triggering the command with the tractor off.*



ATTENTION

- *Avoid accidents caused by intermittent action of rows mark*
- *Make sure if has anybody closer to the row mark.*



ATTENTION

- *When operating the seed drill, do not allow the permanence of people on the machine.*
- *Do not stay on the platforms with the machine in motion.*



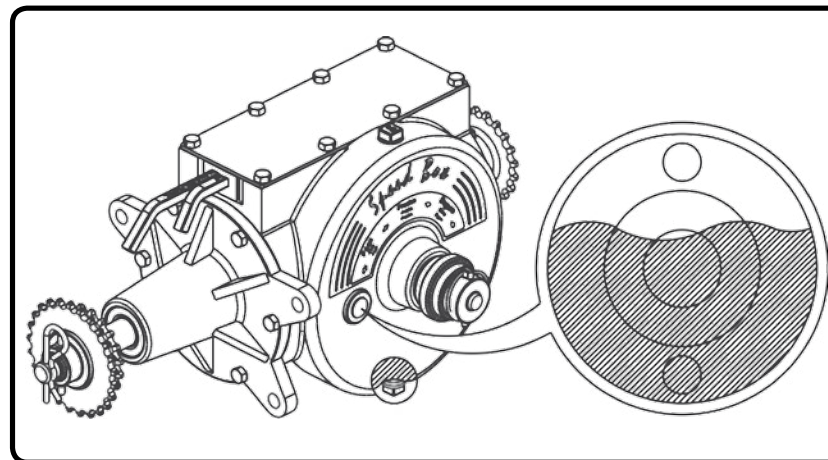
ATTENTION

- *Whenever the seed machine is being operated, watch out for surrounding people.*
- *Never stay over a platform with the machine in movement.*



! ATTENTION

- *Check the oil level daily.*
- *Replace the oil in the gearbox (Speed Box) after the first 30 hours of work, then every 1500 hours, always using ISO VG 150 mineral oil at 40°C (amount of oil used 1.8 liters).*
- *Use only factory original fuse, because only this one has controlled hardness.*



ALCOHOL OR DRUGS CAN GENERATE SOME LOSS OF REFLEXES AND CHANGE THE OPERATOR'S PHYSICAL CONDITIONS. SO, NEVER OPERATE THIS EQUIPMENT UNDER USE OF THESE SUBSTANCES.



THE MISMANAGEMENT OF THIS EQUIPMENT CAN RESULT IN SERIOUS OR FATAL ACCIDENTS. BEFORE PLACING THE EQUIPMENT IN OPERATION, CAREFULLY READ THE INSTRUCTIONS IN THIS HANDBOOK. MAKE SURE THAT THE PERSON RESPONSIBLE FOR THE OPERATION IS INSTRUCTED ON THE PROPER AND SAFE HANDLING, IF HE HAS READ AND UNDERSTOOD THE HANDBOOK OF THIS PRODUCT.

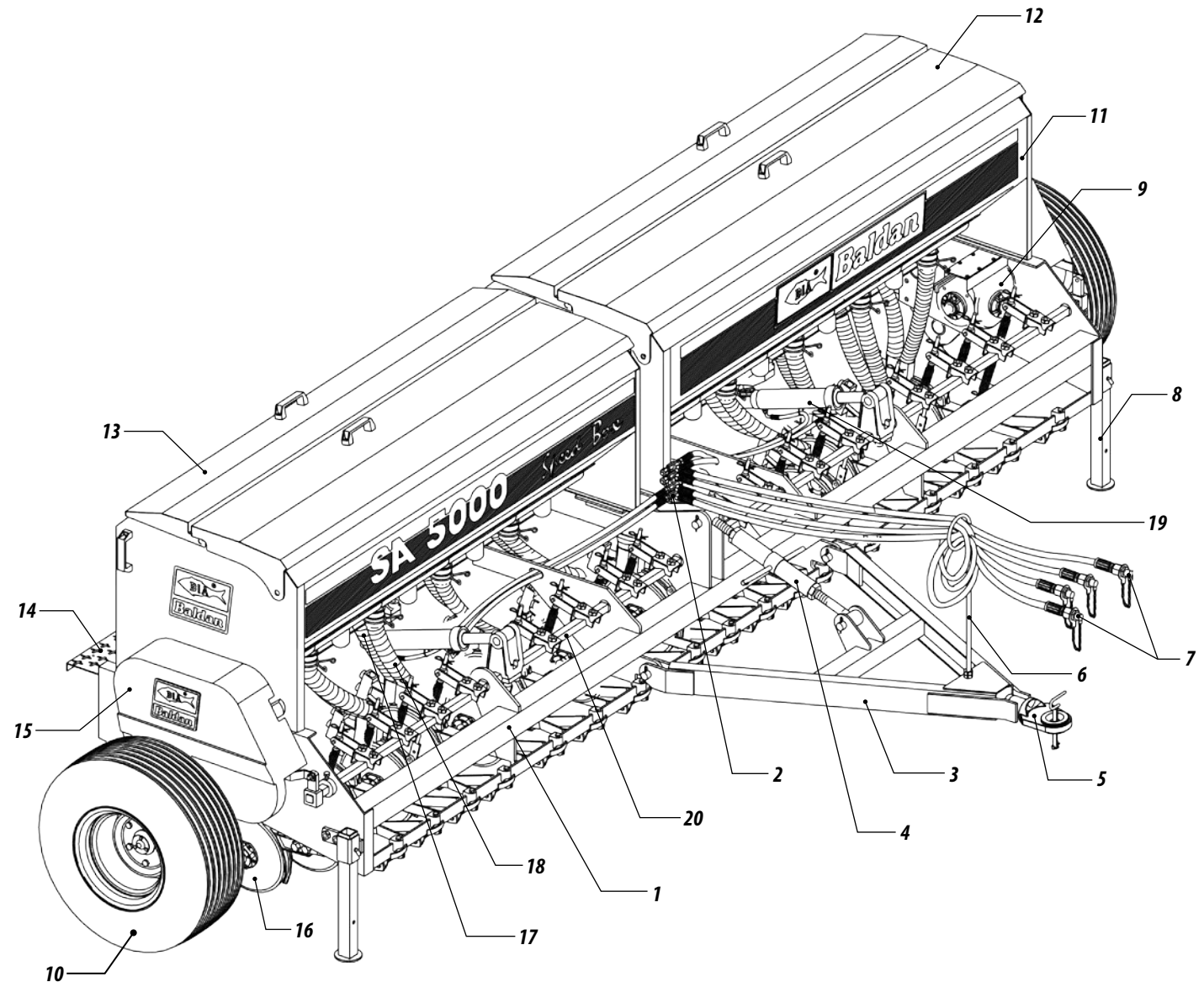
- 01- ⚠ When operating the equipment, do not allow people to stay very close or on it.**
- 02- ⚠ In making any assembling and disassembling service in the discs, always use safety gloves.**
- 03- ⚠ Before connecting or disconnecting hydraulic hoses, relieve the system pressure by moving the command with the tractor off.**
- 04- ⚠ Periodically check the conservation status of the hoses. If there is evidence of leaks, immediately replace them because the oil works under high pressure and can cause serious injury.**
- 05- ⚠ Do not wear loose clothing as they can become entangled in moving parts.**
- 06- ⚠ When turning the tractor engine on, be properly seated on the operator's seat and aware of the correct and safe management of both tractor and implement. Always put the selector lever in neutral, turn off the power take-off command and place the hydraulic commands in the neutral position.**
- 07- ⚠ Do not run the engine in indoor environments without adequate ventilation, as the exhaust fumes are harmful to health.**
- 08- ⚠ When maneuvering the tractor to the implement hitch, make sure that there is plenty of room and that there is nobody very close, always do the maneuvers in low gear and be prepared to brake in emergency situations.**
- 09- ⚠ Do not make adjustments with the implement in operation.**
- 10- ⚠ When working on slopes, proceed with caution when trying to maintain the necessary stability. In case of early imbalance, reduce the acceleration, turn the tractor wheels to the side of the terrain slope.**
- 11- ⚠ Always drive the tractor at speeds compatible with safety, especially when working on uneven ground or slopes, always keep the tractor engaged.**
- 12- ⚠ When driving the tractor on roads, keep the brake pedals connected and use of safety signs.**
- 13- ⚠ Do not operate the tractor if its front is light. If there is a tendency to rise, add weights on the front or front wheels.**
- 14- ⚠ Leaving the tractor, put the selector lever in neutral and pull the parking brake.**

SA - SEED DRILL SPEED BOX - 3000 / 4000 / 5000

Figure 1

02. COMPONENTS

- 01 - Chassis
- 02 - Flow dividing valve
- 03 - Coupling header
- 04 - Header regulator
- 05 - Coupling shackle
- 06 - Hose support bracket
- 07 - Hydraulic hoses
- 08 - Support bracket
- 09 - Speed Box
- 10 - Complete wheel
- 11 - Fertilizer and Seed Tank
- 12 - Fertilizer Tank cover
- 13 - Seed Tank cover
- 14 - Platform
- 15 - Protective cover of the transmission wheel
- 16 - Double disc
- 17 - Hose conductive seed
- 18 - Conductive hose fertilizer
- 19 - Piston for driving the lines
- 20 - Fixing line shaft



03. TECHNICAL SPECIFICATIONS

Model	Nr of rows	Useful width (mm)	Working width (mm)	Total width (mm)	Working depth (mm)	Capacity of tanks (Lt)			Approximate weight (Kg)	Approx tractor power (HP)
						Fertilizer	Seed	Small seed		
SA / SAP 3000	16	2250	2720	4210	20 - 50	620	580	100	1570	70 - 80
SA / SAP 4000	20	3230	3400	4890	20 - 50	710	660	124	1670	85 - 95
SA / SAP 5000	24	3910	4080	5570	20 - 50	810	740	140	2000	90 - 100

Table 1

- Minimum spacing between lines 170 mm
- Doble disc diameter 13"
- Total height 1520 mm
- Total length 3120 mm
- Fertilizer application range 13 - 1484 kg/ha

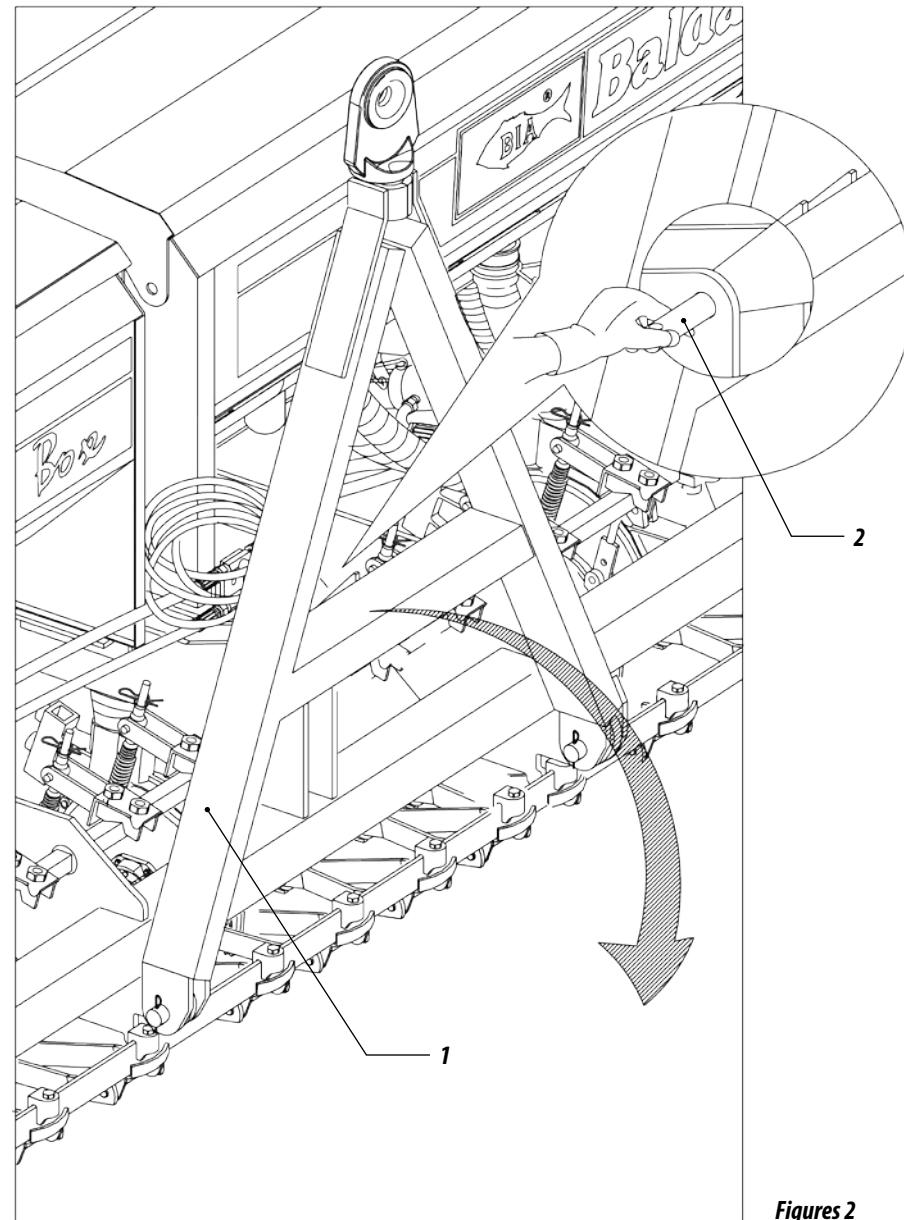
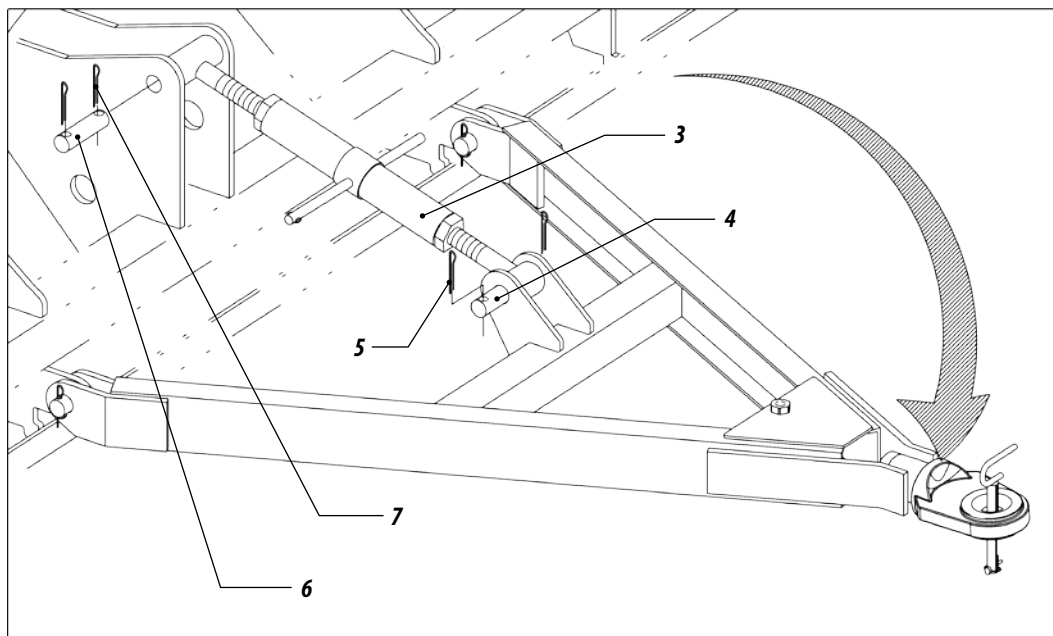
The BALDAN reserves the right to change specifications of this product without notice.
The technical specifications are approximate and reported in normal working conditions.

04.ASSEMBLY

- 01 - The seed drills are factory semi-assembled, and only a few components must be assembled according to directions below:

COUPLING HEAD

- 02 - Place the head (1) in the working position by removing the lock and pin (2) that were placed for transportation.
- 03 - Then insert the regulator (3) in the header fixing it with a pin (4), lock (5), in support of the chassis with the pin (6) and lock (7).



Figures 2

ASSEMBLING THE COMPACTION WHEEL

- 04** - Insert the wheel support (1) in the row (2) fixing with screws (3), lock nuts (4) and lock pin (5).

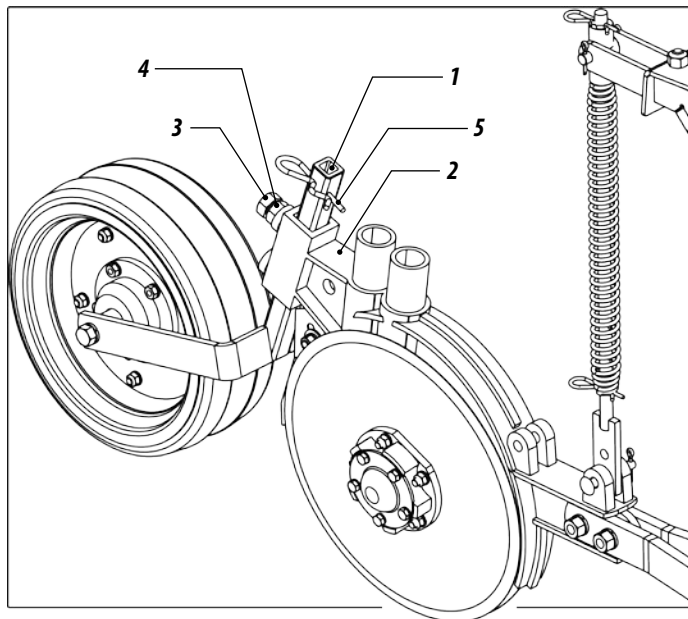
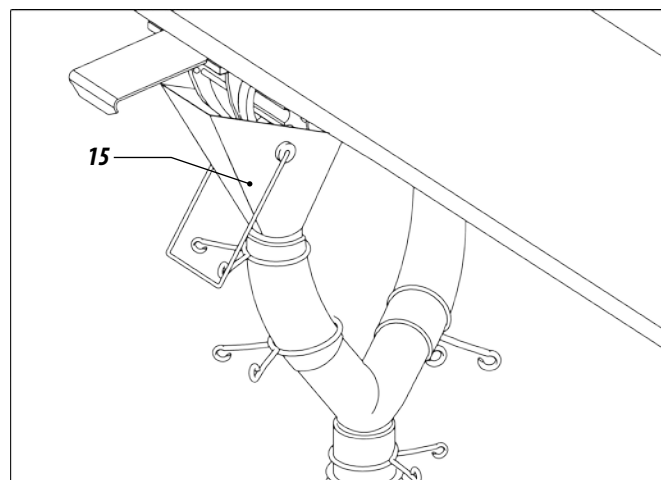
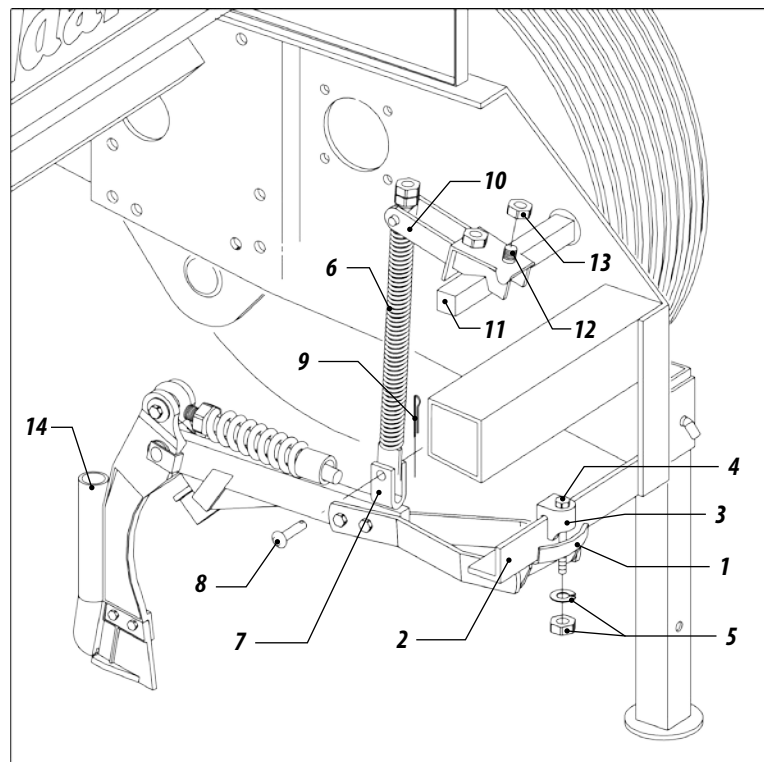


Figure 3

ASSEMBLING THE RODS (OPTIONAL)

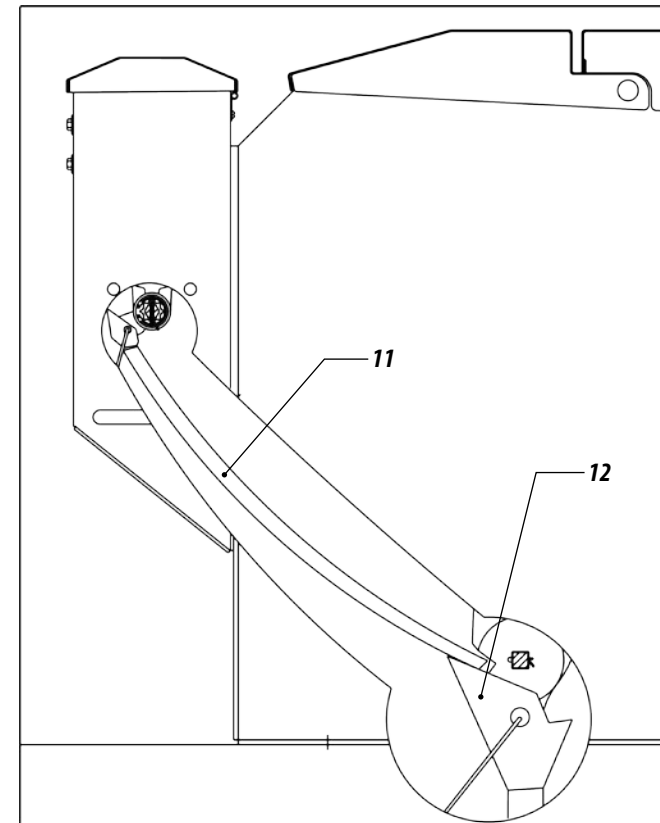
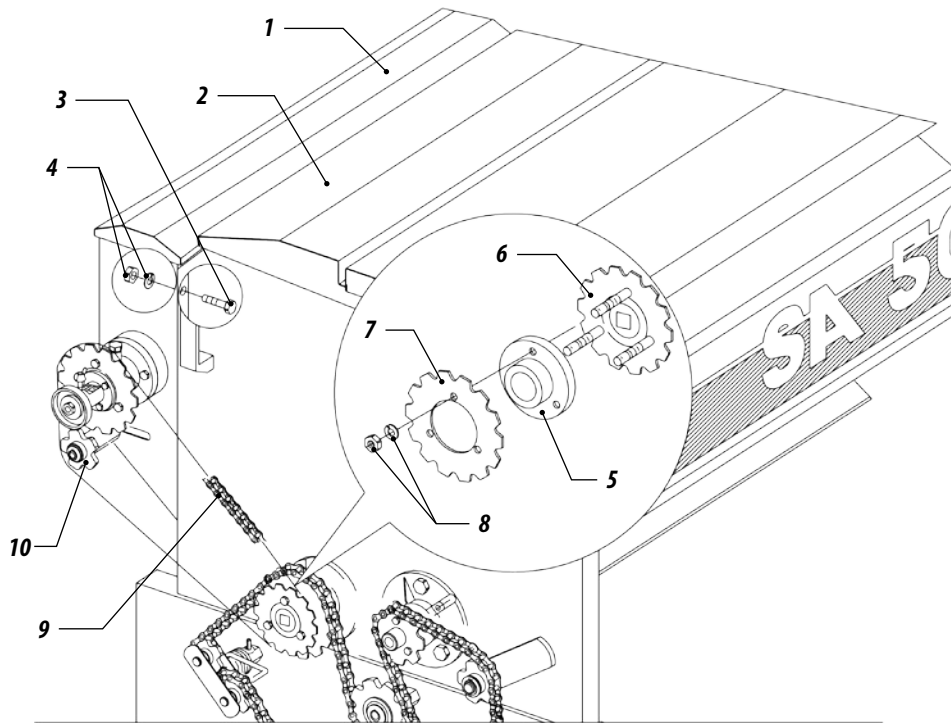
- 05** - To mount the rod, attach the hitch of the row (1) on the chassis cross-pieces (2), then place the latch (3), with fixing screw (4), washer and nut (5).
- 06** - Introduce the spring rod (6) in the line (7), locking it with pin (8) and cotter pin (9).
- 07** - Put the rod support (10) on the square shaft (11) on the same line alignment, fix it with clamp (12) and nut (13).
- 08** - Insert the hose in the spout (14) and connect it between the fertilizer tank output and the seed output (15).



Figures 4

ASSEMBLAGE OF THE FINE SEED BOX - OPTIONAL

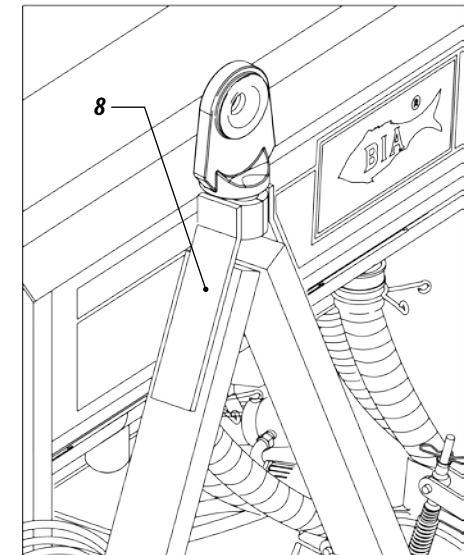
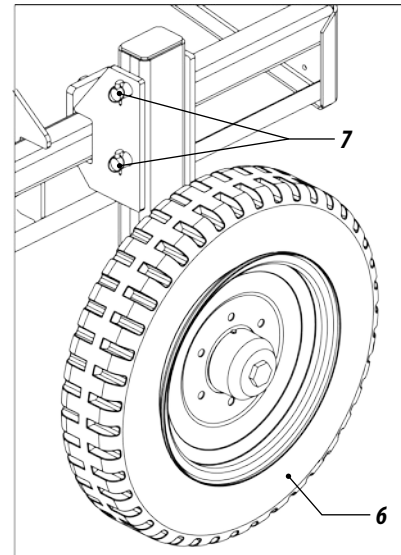
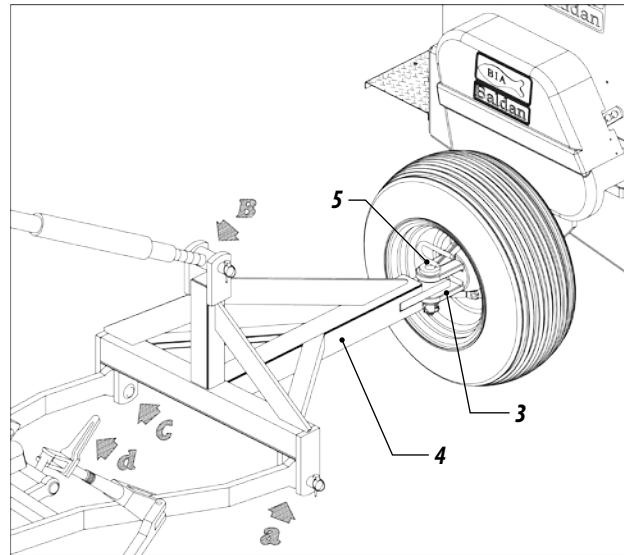
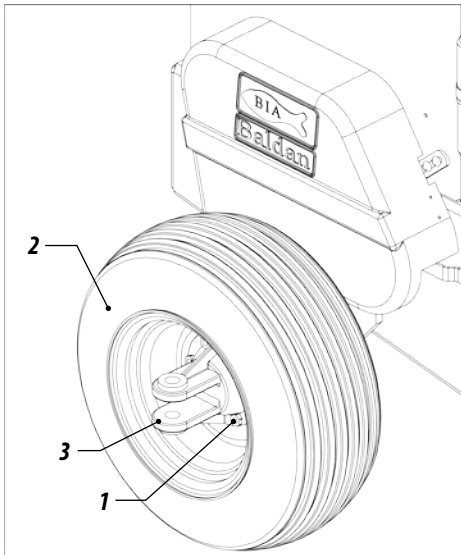
- 09** - Attach the fine seed tank (1) on the back of the tank (2) with the screws (3) washers and nuts (4).
- 10** - Insert the separator (5) in the seed gear hub (6) and gear (7) fixing it with the screw (8), washers and nuts (9).
- 11** - Set the chain (10) between the gears of the fine seed box and the seed shaft, tighten the chain through the tensioner (11).
- 12** - Pass the hose (12) inside the cup (13).

*Figures 5***⚠ ATTENTION**

By finishing the assembly, make an overhaul on the seed drill; make sure there are no objects (nuts, bolts or other) inside the tanks. Tighten all screws and nuts, check all pins, cotter pins and locks, check all hoses.

ASSEMBLING THE KIT FOR SIDE TRANSPORT (OPTIONAL)

- 13 - Remove the nuts (1) from the wheel (2), place the coupling flange (3) and replace the nuts (1) retightening them.
- 14 - Put the coupling header for side transport (4) in the flange (3) using the pin (5).
- 15 - Engage the lower arm of the tractor in the support pin "A" of the header.
- 16 - Engage the 3rd point of the tractor in support "B" of the header.
- 17 - Finally, with the help of a height adjustment lever "D", hitch the right lower arm of the tractor to pin "C" of the header.
- 18 - Lift the seed drill in the tractor's hydraulic and fix the tires (6) using the pins (7).
- 19 - After having attached the tires, lift the working header (8), locking it with the pin (9) for the side transport of the machine.



Figures 6

ATTENTION

Do not carry a loaded seeder, it may damage the equipment, we recommend only supply it in the workplace. If the machine is to remain in the field for any reason, we recommend cover it with waterproof tarp to prevent moisture.

TRACTOR COUPLING

- 20 - Align the seed drill header in relation to the tractor hitch through the regulator (1).
- 21 - Couple the seed drill to the tractor through the hitch pin and lock (2).
- 22 -  To engage the seed drill, find a safe and easily accessible place, always use low gear with low throttle.
- 23 - Connect the hoses (3) to the quick hitch on the tractor.
- 24 -  Before connecting or disconnecting the hydraulic hoses, turn off the engine and relieve the hydraulic system pressure by fully turning the command levers. Make sure that, by relieving the system pressure, no one is near the area where the machine is moving.

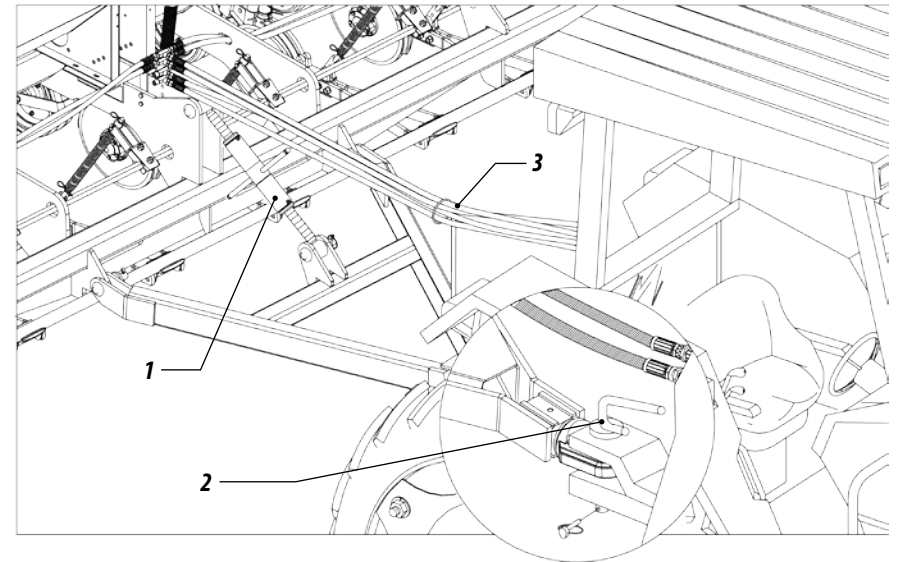


Figure 7

TRANSPORTING THE SEED DRILL

- 25 - Fully retract the support bracket as shown in detail (1).
- 26 - Lift the lines by fully activating the hydraulic piston, place the shipping lock (2) on the rod of the pistons and lock with pin and lock (3).

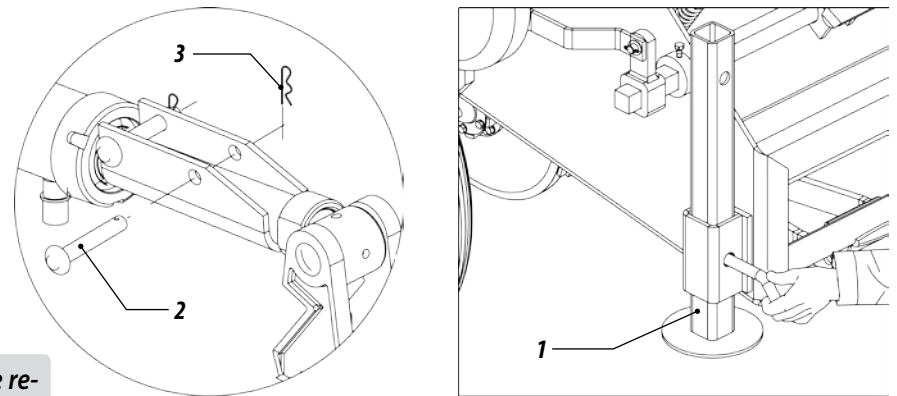
 IMPORTANT

Do not carry the seed drill without the latches on the rods of the central pistons.

- 27 - Make sure the seed drill is leveled in relation to the tractor, if otherwise; level the machine through the header regulator.

 ATTENTION

Do not carry the seed drill if it is loaded, as it may damage the equipment; we recommend loading it only in the workplace. If the machine is to remain in the field for any reason, we recommend covering it with tarpaulin to prevent moisture.



Figures 8

05. ADJUSTMENTS AND OPERATIONS

SPACING BETWEEN LINES

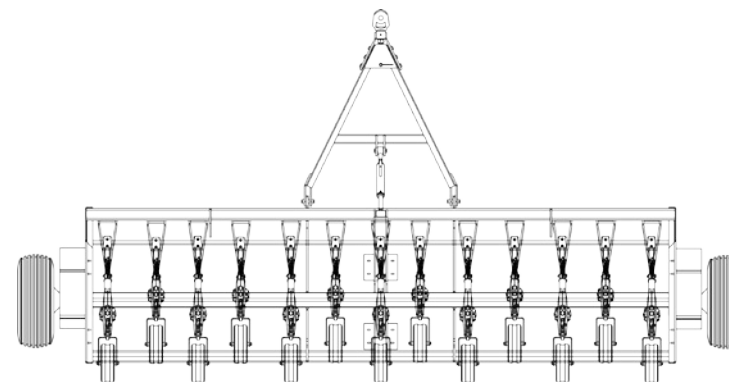
- 01 - The seed drills are supplied with 170 mm spacing between lines for sowing rice, wheat, oat, and others. However, new spacing can be obtained depending on the desired culture.

Table 2

Model	Nr of Rows	Maximum spacing (mm)	Working width (mm)
SA / SAP 3000	4	850	3400
	5	637	3185
	8	364	2912
	9	318	2862
	12	230	2760
	16	170	2720
SA / SAP 4000	5	807	4350
	7	538	3766
	10	358	3580
	14	248	3472
	17	215	3655
	20	170	3400
SA / SAP 5000	6	782	4692
	7	651	4557
	9	488	4392
	12	355	4260
	13	425	5525
	15	279	4185
	17	244	4148
	24	170	4080

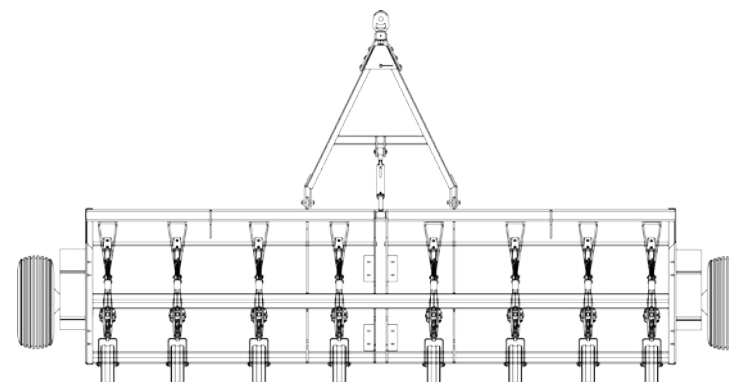
POSITION OF THE LINES ON THE CHASSIS

- 02 - Determine the number of lines to be assembled in the seed drill.
 03 - For odd number of lines, fix a line at the center of the chassis, heading for the others, according to the desired spacing.



Figures 9

- 04 - For even number of lines, mark the center of the chassis, divide the spacing and mark half spacing to the left and half to the right, then fix there the first two lines, heading to the others, according to the desired spacing.



Figures 9

! ATTENTION

For larger spacing (soy and others) if possible use only larger lines.

NEW SPACING

- 05** - Lower the support brackets (1), making sure that the seed drill is properly supported.
- 06** - Remove the nuts (2) and clamps (3), the fertilizer (4) and seed hoses (5).
- 07** - Loosen the nut (6) remove the screw (7), lock (8) and full line (9).
- 08** - Then, reposition the lines to the new spacing, retighten the nut (6).

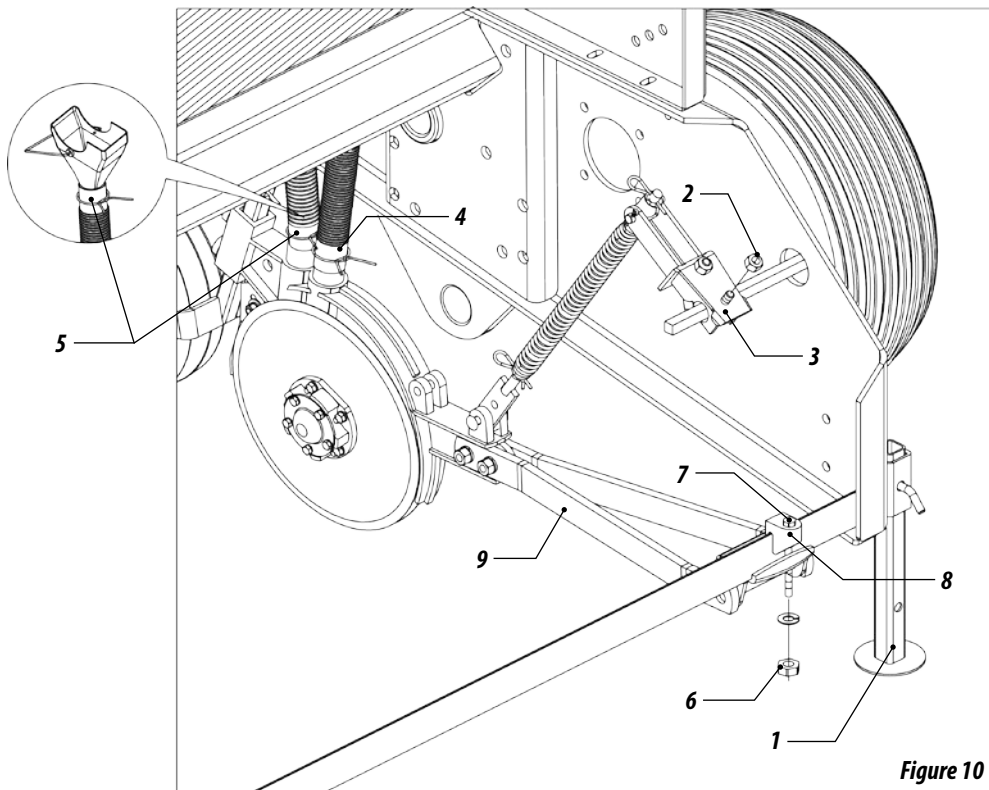


Figure 10

- 09** - Close the fertilizer inputs inside the tank by placing the lid (10) on lines that will not be used.

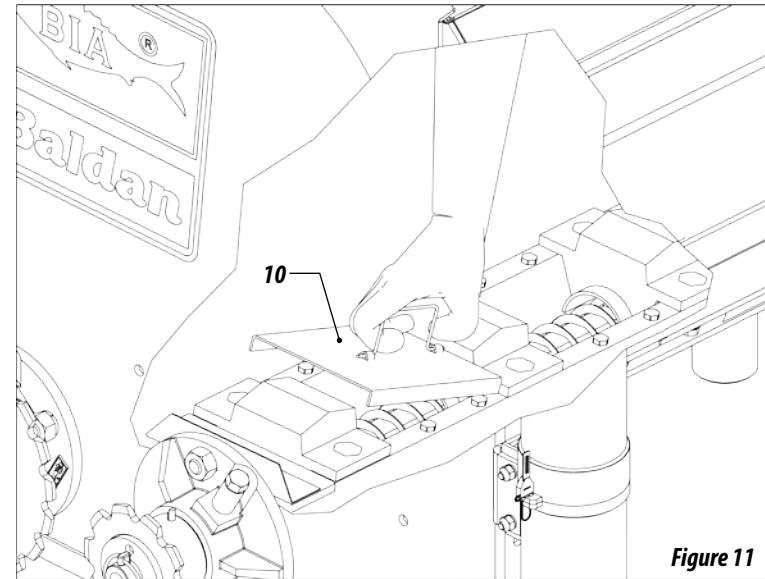


Figure 11

- 10-6** - Close the seed outputs, with the lid (11), moving it to fully closing the seed distribution box (12).

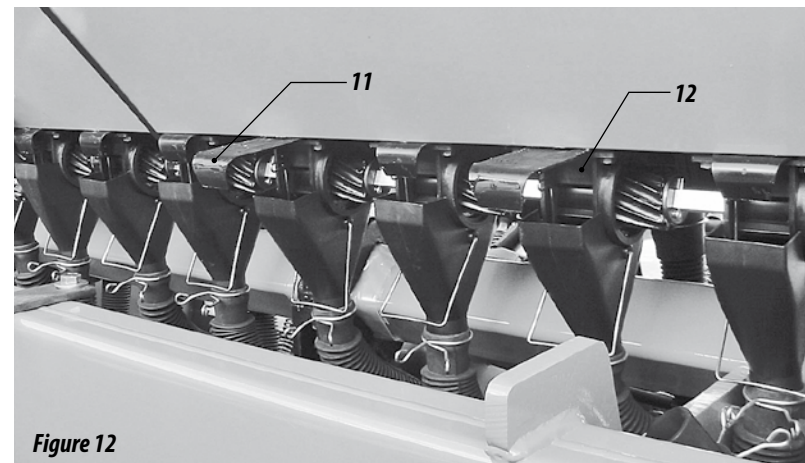


Figure 12

06. SEED ADJUSTMENT

GAUGE ADJUSTMENT

- 01 - Set the gauge of the seed distribution box for each seed type so that it does not crush seeds or cause irregular seeding.
- 02 - The amount of seed is adjusted through the lever (2) of FIGURE 13.

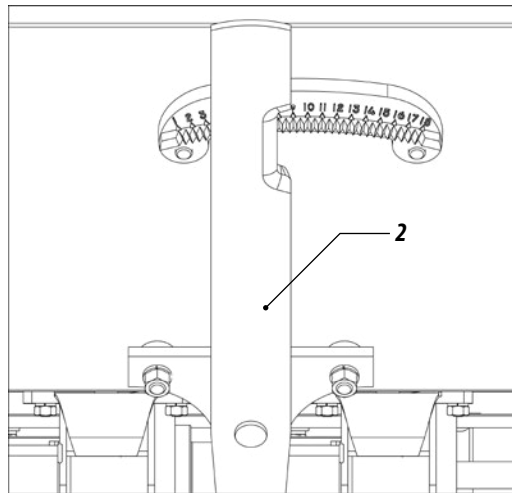


Figure 13

- Configure the type of seed, through holes, as described below:

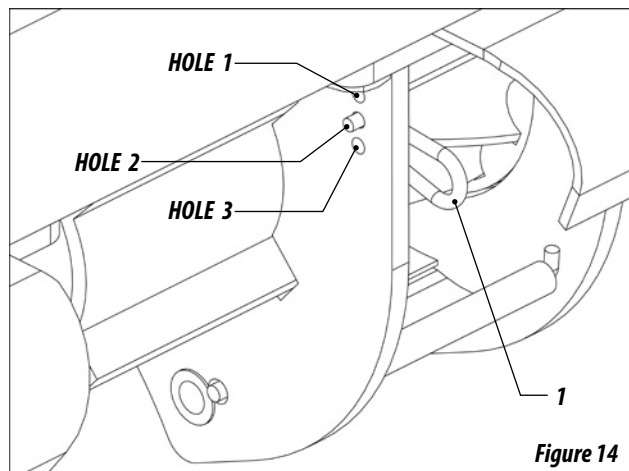


Figure 14

HOLE 1

- Insert the gauge pin (1) in hole 1 of the seed distributor to sow wheat, sorghum, barley, oat, rye and the like.

HOLE 2

- Insert the gauge pin (1) in hole 2 of the seed distributor to sow cotton with no linter, sorghum, soybeans, oat and the like.

HOLE 3

- Insert the gauge pin (1) in hole 3 of the seed distributor to sow rice, oat, pea, and the like.

SEED AMOUNT TABLE

Culture	No. of seeds per linear meter	Grams of seeds per linear meter	Amount of seeds per hectare (Kg)	Spacing (mm)
Upland rice	40 - 60	1,5 - 2,0	25 - 35	500 - 600
Irrigated rice	60	2,0	30 - 80	300 - 400
Soybean	25 - 40	-	60	600
Wheat	45 - 60	-	100 - 120	150 - 200
Barley	-	2,0	100 - 140	150 - 200
Rye	-	1,5	80	150 - 200
Oats	-	1,2 - 1,6	60 - 80	200
Sunflower	3 - 5	-	5 - 6	700 - 1000
Sorghum	25	-	10 - 15	700
Lupine	8	-	-	600

Table 3

SEED DISTRIBUTION TABLE

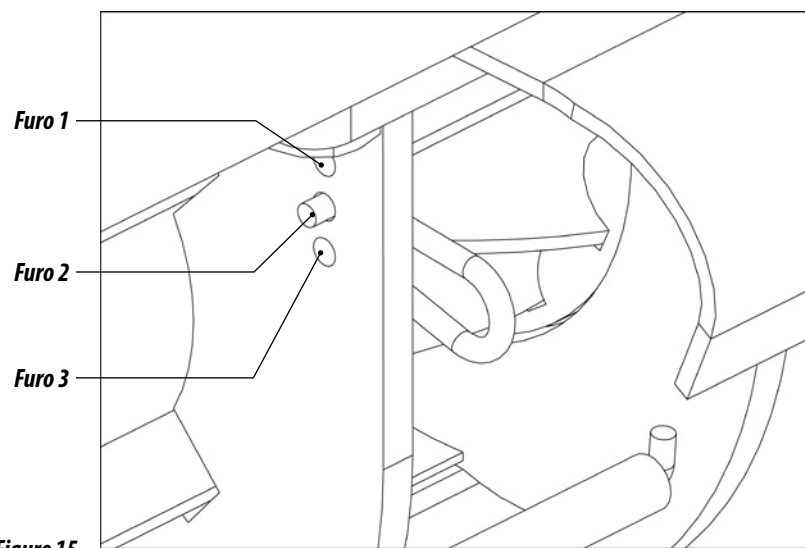


Figure 15

Table 4

Seed Distribution in Grams / 100 meters																		
Scale Number of Figure 18																		
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Soybeans: Average size 280 seeds per 50 grams																		
Hole	1	-	-	51	119	170	238	289	357	425	510	578	680	748	816	901	986	1054
	2	-	-	68	136	221	289	357	442	510	595	697	799	884	986	1071	1173	1258
	3	-	-	85	170	225	340	425	510	595	697	816	918	1020	1139	1231	1343	1462
Rice: Average size 1590 seeds per 50 grams																		
Hole	1	-	27	51	77	102	128	154	179	205	241	278	314	351	378	424	460	497
	2	-	30	62	92	123	153	184	215	246	286	326	366	406	446	485	525	565
	3	-	33	67	100	134	168	210	235	270	315	361	407	453	499	545	591	637
Wheat: Average Size 1020 seeds per 50 grams																		
Hole	1	-	48	97	145	193	242	290	339	387	446	505	563	622	680	740	815	856
	2	-	55	110	166	221	276	332	387	442	517	591	666	740	815	890	964	1039
	3	10	72	145	218	290	363	463	509	581	647	713	779	844	910	976	1045	1173

- To obtain the results of Table 4, proceed as follows:

03 - Know the amount of seed per hectare and multiplying it by the spacing and dividing by 100 linear meters.

04 - Example: 200 kg of rice seed per hectare with a spacing of 170 mm at a distance of 100 linear meters.

- Formula:

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

Where

Q = Amount of seed (kg)

E = Spacing between lines (mm)

D = 100 linear meters (m)

$$\frac{200 \times 170}{100} = 340 \text{ grams}$$

05 - The seed adjustment lever (1) must be set on number 8 of the scale and in hole 1 in the seed gauge. (Figure 16).

06 - Check how to perform the practical test for seed and fertilizer on page 28.

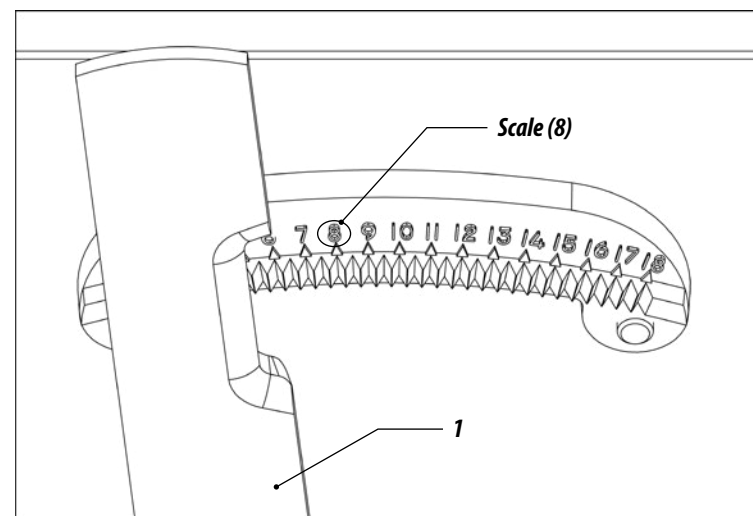


Figure 16

ADJUSTMENT OF FINE SEED BOX (OPTIONAL)

07 - To regulate the distribution of the fine seed box, proceed as follows:

08 - See the distribution table below and check the amount desired by hectare.

Fine Seed Distribution [kg / ha] with spacing of 170 mm

		Number of Scale							
Type of Culture		0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
GRASSES	"Colonião"	-	2,0	3,5	5,0	7,0	9,0	10,0	11,0
	Brachiaria	-	5,0	7,0	10,0	14,0	17,0	20,0	22,0
	Brachiaria brizantha	-	3,0	5,0	7,0	10,0	14,0	17,0	20,0
	Millet	3,0	8,0	14,0	20,0	26,0	32,0	40,0	48,0
LEGUME	Perennial Soybeans	3,5	10,0	17,0	24,0	32,0	41,0	50,0	59,0
	Alfalfa	4,0	12,0	20,0	29,0	38,0	47,0	56,0	65,0
	Gherkins	4,5	13,0	21,0	30,0	40,0	50,0	60,0	70,0
	Clover	3,8	12,0	19,0	26,0	34,0	43,0	52,0	61,0
	Grasses / Legumes	3,6	11,0	18,0	25,0	33,0	42,0	51,0	60,0

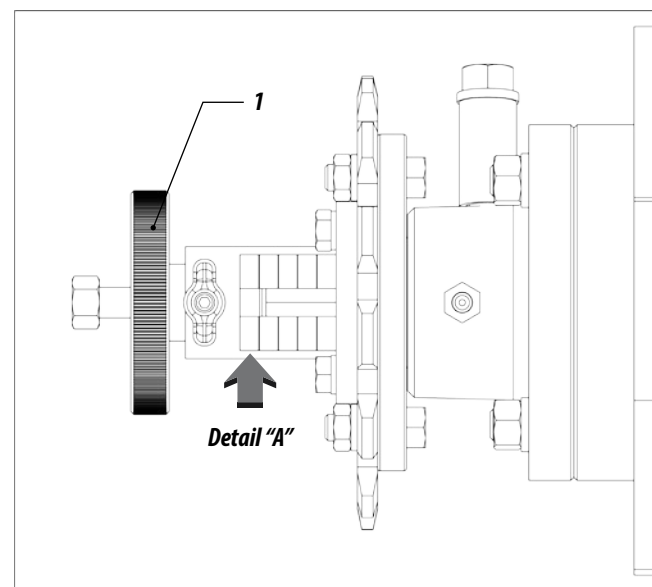
Table 5

• **EXAMPLE:** To distribute 10 kg/ha of "colonião" seed with spacing of 170 mm, turn the steering wheel (1) until the controller reaches the number 3.5 on the scale.

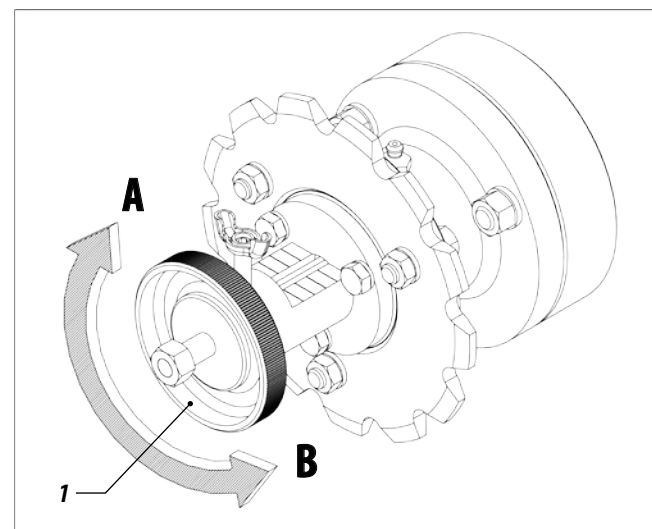
- Turning the steering wheel to "A", the scale closes
- Turning the steering wheel to "B", the scale opens

! ATTENTION

Table of fine seed distribution per hectare for spacing of 170 mm.



Figures 17

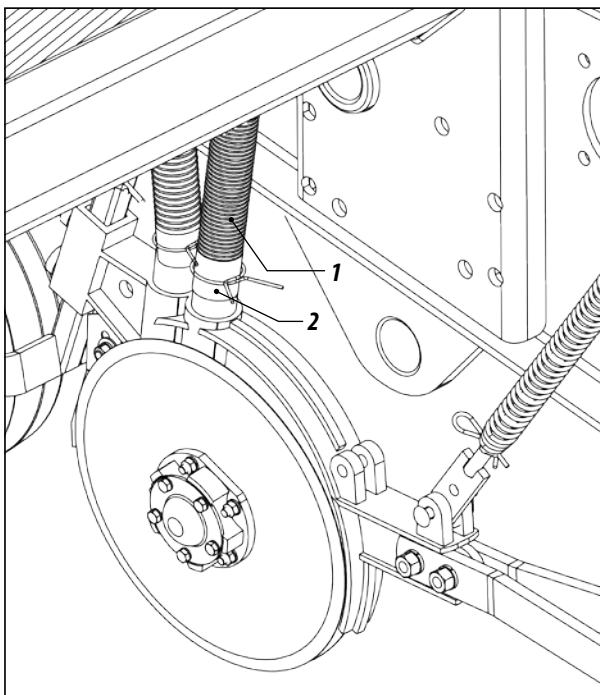


FERTILIZER DISTRIBUTION SYSTEM

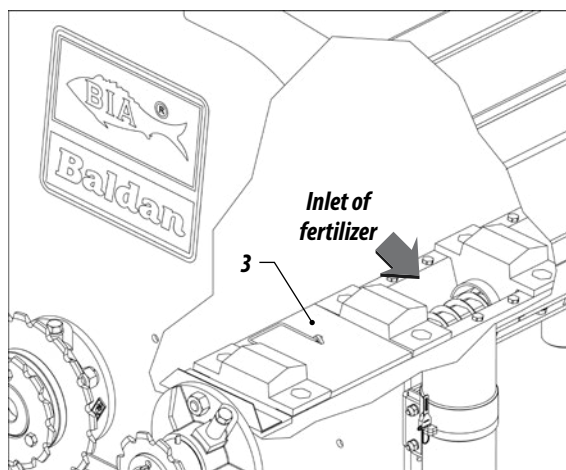
- The floating spiral-type fertilizer distribution system consists of a spindle disposed at the bottom of the fertilizer tank, which when beginning to rotate, the fertilizer involves the shaft, being transported to the outputs, eliminating the use of intermediate bearings.

- 09 - To determine the number of rows and desired spacing, connect the hoses (1) in the fertilizer spout, linking the hoses that are closer to the lines, preventing them from getting bent or folded.

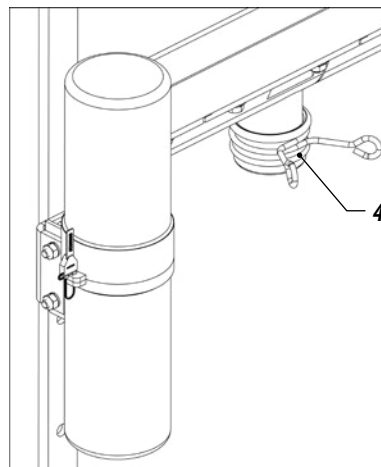
Figure 18



- 10 - The outputs will not be used, shall be closed with caps (2) inside the tank and the cap (3) the external outputs, this will prevent fine particles of fertilizer fall on the seeder.



Figures 19



- 11 - The dosing system of fertilizer type spiral floating has several safety outputs, which upon entering the fertilizer metering and any output is clogged, it will start to leak the safety outputs. If this happens, do the injector cleaning up the spout located on the double disc, because the blockage can occur for roots, pieces of plastic and other objects.

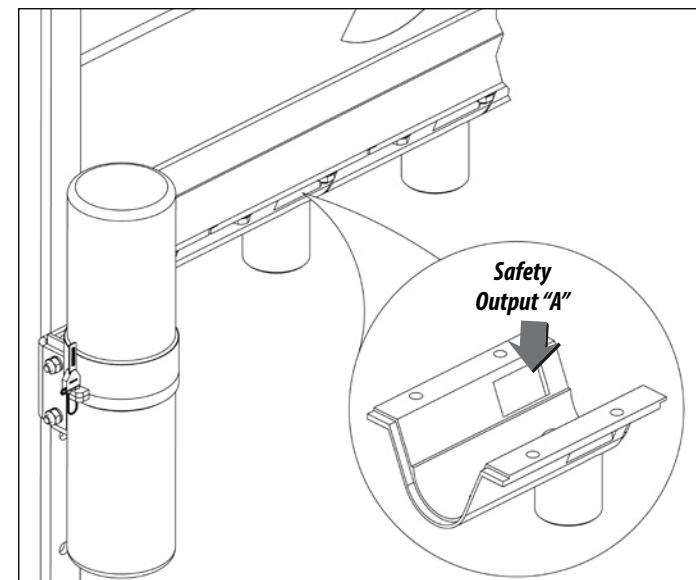


Figure 20

⚠ ATTENTION

Periodically removes the caps (4) and proceed periodically cleaning the outputs thereof. When the fertilizer contain impurities or is wet, do cleaning more often.

07. ADJUSTMENTS FOR DISTRIBUTION OF FERTILIZER

SPEED BOX

- 01 - Seed drills are equipped with the Speed box Gear Box system, which drives the distribution system with simple settings, ensuring fast gear exchange.
- 02 - For fertilizer adjusting, select the desired amount in the tables and check on the column of the same COMBINATION the corresponding number of the levers (1). Example: Combination A 6 in position of detail A of Figure 21 indicates that the lever with letters must be in position "A" and the lever with numbers should be set to "6".

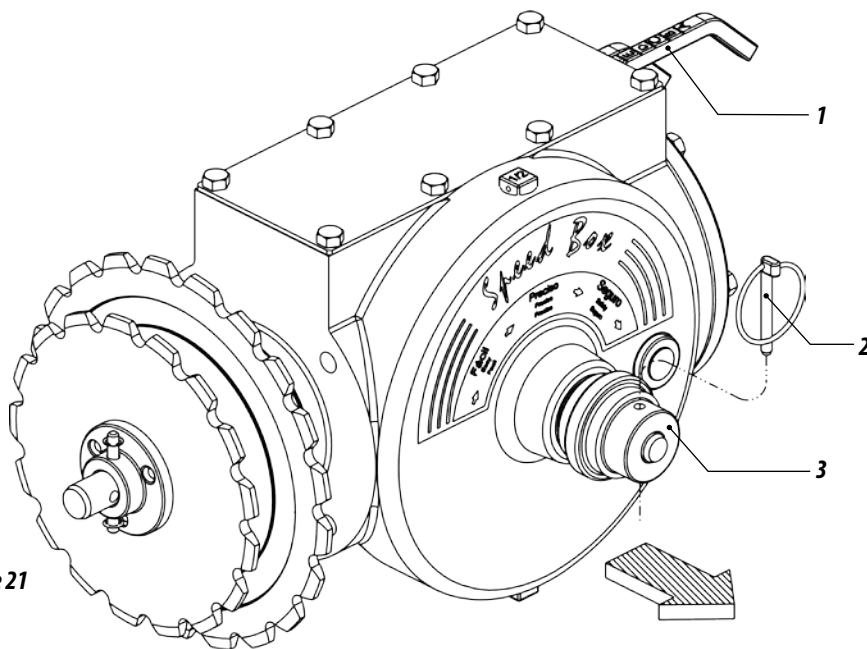


Figure 21

- 03 - To move the levers (1), remove the latch (2), pull the handle (3), and then adjust the levers (1). When finishing the combination, return the handle (3) and replace the lock (2).

CHANGING SIDE GEARS

- 04 - Check the exchange of side gears of the Speed Box "A" and fertilizer tank "B".
- 05 - To change gears, remove the protection, loosen the tensioner screws (1), remove the latch (2) from gear and proceed to exchange it.
- 06 - Replace the locks (2), tighten the chain through the tensioner (1) and replace the protection.

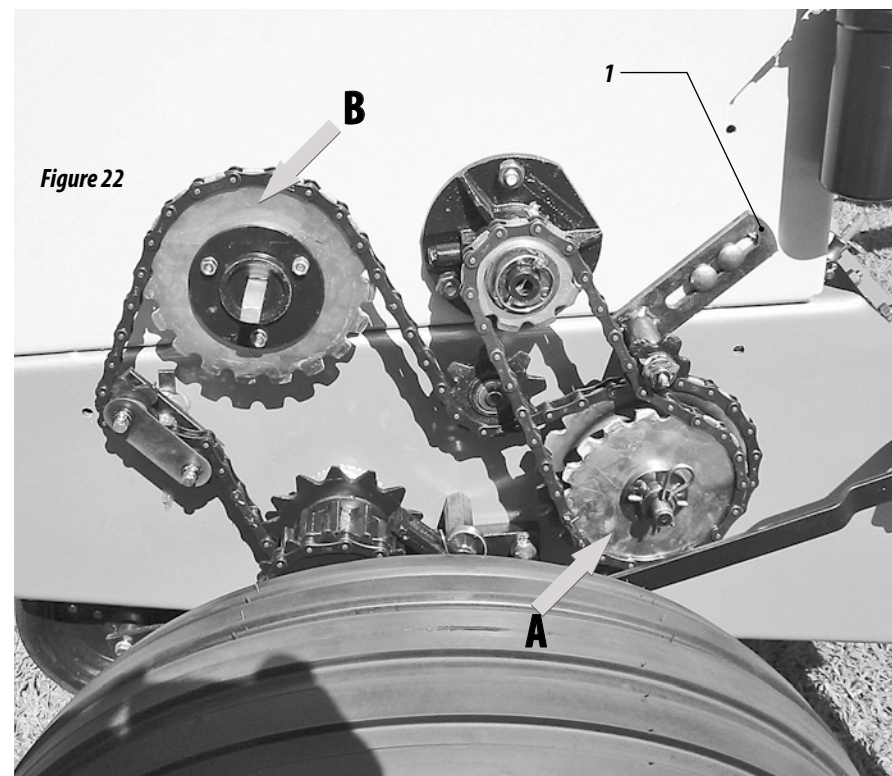


Figure 22

⚠ ATTENTION

Do not operate the seed drill if transmission protections are not properly fixed.

FERTILIZER DISTRIBUTION TABLE – SA SPEED BOX

Table 6

Table para distribuição de adubo por hectare - Semeadora SA Speed Box

Table para distribuição de adubo por hectare - Semeadora SA Speed Box																		
Output gear of the ratchet shaft					17								Speed box input gear					9
Combination	Spacing between lines (mm)																	
	170	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
A - 6	293,33	199,46	166,22	142,47	124,67	110,81	99,73	90,67	83,11	76,72	71,24	66,49	62,33	58,67	55,41	52,49	49,87	47,49
B - 6	330,00	224,40	187,00	160,28	140,25	124,67	112,20	102,00	93,50	86,31	80,14	74,80	70,12	66,00	62,33	59,05	56,10	53,43
C - 6	377,14	256,45	213,71	183,18	160,28	142,47	128,23	116,57	106,86	98,64	91,59	85,48	80,14	75,43	71,24	67,49	64,11	61,06
A - 5	366,66	249,33	207,78	178,09	155,83	138,52	124,67	113,33	103,89	95,90	89,05	83,11	77,92	73,33	69,26	65,61	62,33	59,36
D - 6	439,99	299,20	249,33	213,71	187,00	166,22	149,60	136,00	124,67	115,08	106,86	99,73	93,50	88,00	83,11	78,74	74,80	71,24
B - 5	412,50	280,50	233,75	200,35	175,31	155,83	140,25	127,50	116,87	107,88	100,18	93,50	87,66	82,50	77,92	73,81	70,12	66,78
A - 4	439,99	299,20	249,33	213,71	187,00	166,22	149,60	136,00	124,67	115,08	106,86	99,73	93,50	88,00	83,11	78,74	74,80	71,24
C - 5	471,42	320,57	267,14	228,98	200,35	178,09	160,28	145,71	133,57	123,30	114,49	106,86	100,18	94,28	89,05	84,63	80,14	76,33
E - 6	527,99	359,04	299,20	256,45	224,40	199,46	179,52	163,20	149,60	138,09	128,23	119,68	112,20	105,60	99,73	94,48	89,76	85,48
B - 4	494,99	336,60	280,50	240,43	210,37	187,00	168,30	153,00	140,25	129,46	120,21	112,20	105,19	99,00	93,50	88,58	84,15	80,14
A - 3	513,33	349,06	290,89	249,33	218,16	193,92	174,53	158,66	145,44	134,25	124,67	116,35	109,08	102,67	96,96	91,86	87,27	83,11
D - 5	549,99	374,00	311,66	267,14	233,75	207,78	187,00	170,00	155,83	143,84	133,57	124,67	116,87	110,00	103,89	98,42	93,50	89,05
C - 4	565,71	384,68	320,57	274,77	240,43	213,71	192,34	174,86	160,28	147,95	137,39	128,23	120,21	113,14	106,86	101,23	96,17	91,59
B - 3	577,49	392,70	327,25	280,50	245,43	218,16	196,35	178,50	163,62	151,04	140,25	130,90	122,72	115,50	109,08	103,34	98,17	93,50
A - 2	586,66	398,93	332,44	284,95	249,33	221,63	199,46	181,33	166,22	153,43	142,47	132,98	124,67	117,33	110,81	104,98	99,73	94,98
A - 1	659,99	448,79	374,00	320,57	280,50	249,33	224,40	204,00	187,00	172,61	160,28	149,60	140,25	132,00	124,67	118,10	112,20	106,86
B - 1	742,49	504,89	420,75	360,64	315,56	280,50	252,45	229,50	210,37	194,19	180,32	168,30	157,78	148,50	140,25	132,87	126,22	120,21
C - 2	754,28	512,91	427,42	366,36	320,57	284,95	256,45	233,14	213,71	197,27	183,18	170,97	160,28	150,86	142,47	134,98	128,23	122,12
D - 3	769,99	523,59	436,33	374,00	327,25	290,89	261,80	238,00	218,16	201,38	187,00	174,53	163,62	154,00	145,44	137,79	130,90	124,67
E - 4	791,99	538,55	448,79	384,68	336,60	299,20	269,28	244,80	224,40	207,14	192,34	179,52	168,30	158,40	149,60	141,72	134,64	128,23
C - 1	848,56	577,02	480,85	412,16	360,64	320,57	288,51	262,28	240,43	221,93	206,08	192,34	180,32	169,71	160,28	151,85	144,26	137,39
D - 2	879,99	598,39	498,66	427,42	374,00	332,44	299,20	272,00	249,33	230,15	213,71	199,46	187,00	176,00	166,22	157,47	149,60	142,47
F - 5	824,99	560,99	467,49	400,71	350,62	311,66	280,50	255,00	233,75	215,77	200,35	187,00	175,31	165,00	155,83	147,63	140,25	133,57
E - 3	923,99	628,31	523,59	448,79	392,70	349,06	314,16	285,60	261,80	241,66	224,40	209,44	196,35	184,80	174,53	165,35	157,08	149,60
D - 1	989,99	673,19	560,99	480,85	420,75	374,00	336,60	306,00	280,50	258,92	240,43	224,40	210,37	198,00	187,00	177,16	168,30	160,28
E - 2	1055,99	718,07	598,39	512,91	448,79	398,93	359,04	326,40	299,20	276,18	256,45	239,36	224,40	211,20	199,46	188,97	179,52	170,97
F - 4	989,99	673,19	560,99	480,85	420,75	374,00	336,60	306,00	280,50	258,92	240,43	224,40	210,37	198,00	187,00	177,16	168,30	160,28
E - 1	1187,99	807,83	673,19	577,02	504,89	448,79	403,92	367,20	336,60	310,70	288,51	269,28	252,45	237,60	224,40	212,59	201,69	192,34
F - 3	1154,99	785,39	654,49	560,99	490,87	436,33	392,70	357,00	327,25	302,07	280,50	261,80	245,43	231,00	218,16	206,68	196,35	187,00
F - 2	1319,98	897,59	747,99	641,14	560,99	498,66	448,79	408,00	374,00	345,23	320,57	299,20	280,50	264,00	249,33	236,21	224,40	213,71
F - 1	1484,98	1009,79	841,49	721,28	631,12	560,99	504,89	458,99	420,75	388,38	360,64	336,60	315,56	297,00	280,50	265,73	252,45	240,43

FERTILIZER DISTRIBUTION TABLE – SA SPEED BOX

Table 7

Table para distribuição de adubo por hectare - Semeadora SA Speed Box

Table para distribuição de adubo por hectare - Semeadora SA Speed Box																		
Output gear of the ratchet shaft					9							Speed box input gear						17
Combination	Spacing between lines (mm)																	
	170	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
A - 6	82,21	55,91	46,59	39,93	34,94	31,06	27,95	25,41	23,29	21,50	19,97	18,64	17,47	16,44	15,53	14,71	13,98	13,31
B - 6	92,49	62,89	52,41	44,92	39,31	34,94	31,45	28,59	26,21	24,19	22,46	20,96	19,65	18,50	17,47	16,55	15,72	14,97
C - 6	105,70	71,88	59,90	51,34	44,92	39,93	35,94	32,67	29,95	27,65	25,67	23,96	22,46	21,14	19,97	18,92	17,97	17,11
A - 5	102,77	69,88	58,23	49,92	43,68	38,82	34,94	31,76	29,12	26,88	24,96	23,29	21,84	20,55	19,41	18,39	17,47	16,64
D - 6	123,32	83,86	69,88	59,90	52,41	46,59	41,93	38,12	34,94	32,25	29,95	27,95	26,21	24,66	23,29	22,07	20,96	19,97
B - 5	115,61	78,62	65,51	56,15	49,14	43,68	39,31	35,73	32,76	30,24	28,08	26,21	24,57	23,12	21,84	20,69	19,65	18,72
A - 4	123,32	83,86	69,88	59,90	52,41	46,59	41,93	38,12	34,94	32,25	29,95	27,95	26,21	24,66	23,29	22,07	20,96	19,97
C - 5	132,13	89,85	74,87	64,18	56,15	49,92	44,92	40,84	37,44	34,56	32,09	29,95	28,08	26,43	24,96	23,64	22,46	21,39
E - 6	147,98	100,63	83,86	71,88	62,89	55,91	50,31	45,74	41,93	38,70	35,94	33,54	31,45	29,60	27,95	26,48	25,16	23,96
B - 4	138,74	94,34	78,62	67,39	58,96	52,41	47,17	42,88	39,31	36,28	33,69	31,45	29,48	27,75	26,21	24,83	23,59	22,46
A - 3	143,87	97,83	81,53	69,88	61,15	54,35	48,92	44,47	40,76	37,63	34,94	32,61	30,57	28,77	27,18	25,75	24,46	23,29
D - 5	154,15	104,82	87,35	74,87	65,51	58,23	52,41	47,65	43,68	40,32	37,44	34,94	32,76	30,83	29,12	27,58	26,21	24,96
C - 4	158,55	107,82	89,85	77,01	67,39	59,90	53,91	49,01	44,92	41,47	38,51	35,94	33,69	31,71	29,95	28,37	26,95	25,67
B - 3	161,86	110,06	91,72	78,62	68,79	61,15	55,03	50,03	45,86	42,33	39,31	36,69	34,39	32,37	30,57	28,96	27,52	26,21
A - 2	164,43	111,81	93,18	79,86	69,88	62,12	55,91	50,82	46,59	43,00	39,93	37,27	34,94	32,89	31,06	29,42	27,95	26,62
A - 1	184,98	125,79	104,82	89,85	78,62	69,88	62,89	57,18	52,41	48,38	44,92	41,93	39,31	37,00	34,94	33,10	31,45	29,95
B - 1	208,10	141,51	117,93	101,08	88,44	78,62	70,76	64,32	58,96	54,43	50,54	47,17	44,22	41,62	39,31	37,24	35,38	33,69
C - 2	211,41	143,76	119,80	102,68	89,85	79,86	71,88	65,34	59,90	55,29	51,34	47,92	44,92	42,28	39,93	37,83	35,94	34,23
D - 3	215,81	146,75	122,29	104,82	91,72	81,53	73,38	66,71	61,15	56,44	52,41	48,92	45,86	43,16	40,76	38,62	36,69	34,94
E - 4	221,98	150,94	125,79	107,82	94,34	83,86	75,47	68,61	62,89	58,06	53,91	50,31	47,17	44,40	41,93	39,72	37,74	35,94
C - 1	237,83	161,73	134,77	115,52	101,08	89,85	80,86	73,51	67,39	62,20	57,76	53,91	50,54	47,57	44,92	42,56	40,43	38,51
D - 2	246,64	167,72	139,76	119,80	104,82	93,18	83,86	76,23	69,88	64,51	59,90	55,91	52,41	49,33	46,59	44,14	41,93	39,93
F - 5	231,23	157,23	131,03	112,31	98,27	87,35	78,62	71,47	65,51	60,47	56,15	52,41	49,14	46,25	43,68	41,38	39,31	37,44
E - 3	258,97	176,10	146,75	125,79	110,06	97,83	88,05	80,05	73,38	67,73	62,89	58,70	55,03	51,79	48,92	46,34	44,03	41,93
D - 1	277,47	188,68	157,23	134,77	117,93	104,82	94,34	85,76	78,62	72,57	67,39	62,89	58,96	55,49	52,41	49,65	47,17	44,92
E - 2	295,97	201,26	167,72	143,76	125,79	111,81	100,63	91,48	83,86	77,41	71,88	67,09	62,89	59,19	55,91	52,96	50,31	47,92
F - 4	277,47	188,68	157,23	134,77	117,93	104,82	94,34	85,76	78,62	72,57	67,39	62,89	58,96	55,49	52,41	49,65	47,17	44,92
E - 1	332,97	226,42	188,68	161,73	141,51	125,79	113,21	102,92	94,34	87,08	80,86	75,47	70,76	66,59	62,89	59,58	56,60	53,91
F - 3	323,72	220,13	183,44	157,23	137,58	122,29	110,06	100,06	91,72	84,66	78,62	73,38	68,79	64,74	61,15	57,93	55,03	52,41
F - 2	369,96	251,57	209,64	179,70	157,23	139,76	125,79	114,35	104,82	96,76	89,85	83,86	78,96	73,99	69,88	66,20	62,89	59,90
F - 1	416,21	283,02	235,85	202,16	176,89	157,23	141,51	128,65	117,93	108,85	101,08	94,34	88,44	83,24	78,62	74,48	70,76	67,39

08. PRACTICAL CALCULATION FOR SEED AND FERTILIZER DISTRIBUTION

01 - Determine the spacing between lines and the amount of fertilizer to be distributed by bushel or hectare.

02 - Example: Seed drill with spacing of 170 mm, to distribute 500 kg of fertilizer per hectare, use the formula below:

• **Fórmula:**

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

• **Fórmula data:**

- E = Spacing between lines (mm)
- Q = Amount of fertilizer to be distributed
- A = Area to be fertilized (m²)
- D = Distance of 50 meters (test)
- X = Grams of fertilizer in 50 meters

• **Solve:**

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

- X = 8,50 x 50 = 425 grams
- X = 425 grams in 50 meters per line

PRACTICAL TEST FOR MEASURING THE AMOUNT OF SEED AND FERTILIZER TO BE DISTRIBUTED

01 - For higher accuracy of seed and fertilizer distribution, do the test to find the amount to be distributed on the planting site because there is a different condition for each field.

02 - Check and keep the tire calibration with 52 lb / in² for each.

03 - Check the distance for the test in the table, we chose 50 linear meters.

04 - Fill the seed drill deposits at least halfway. Run a few meters outside the test area for the seeds and fertilizer to fill the feeders.

05 - Seal the seed spout outlets and place containers for collection in the fertilizer outputs. Move the tractor in the testing area, always at the same speed that will be used in planting.

06 - After running the delimited space (fertilizer table) in the column (grams per line in 50 meters), remove the sealing of the seed spout and collect them for counting and weighing of the fertilizer collected. If it is necessary, increase or decrease the amount of fertilizer and seed

ATTENTION

The manufacturer recommends that you take a practice test for seed and fertilizer, running 50 meters, and then compare the results with the value in the 2nd row of the Tables on pages 33 and 34. For seed to compare the results with the table on pages 28 and 29.

DUAL OR SINGLE COMMAND

- 03 - The planters come standard with dual control, which allows operation with only half the lines of the machine for trimmings. If the tractor has a single command, the seeder can be transformed into a simple command as follows:
- 04 - Remove the hoses (1) from the upper divider nipples (2), and remove the plugs (3) from the lower nipples and transfer them to the upper nipples where the hoses were removed, then make the connection of hoses (1) in the dividing lower nipples (2) according to detail of Figure.
- 05 - After this change of system, the two hoses of the remote control (4) have no action and can be removed, leaving only two units in use.

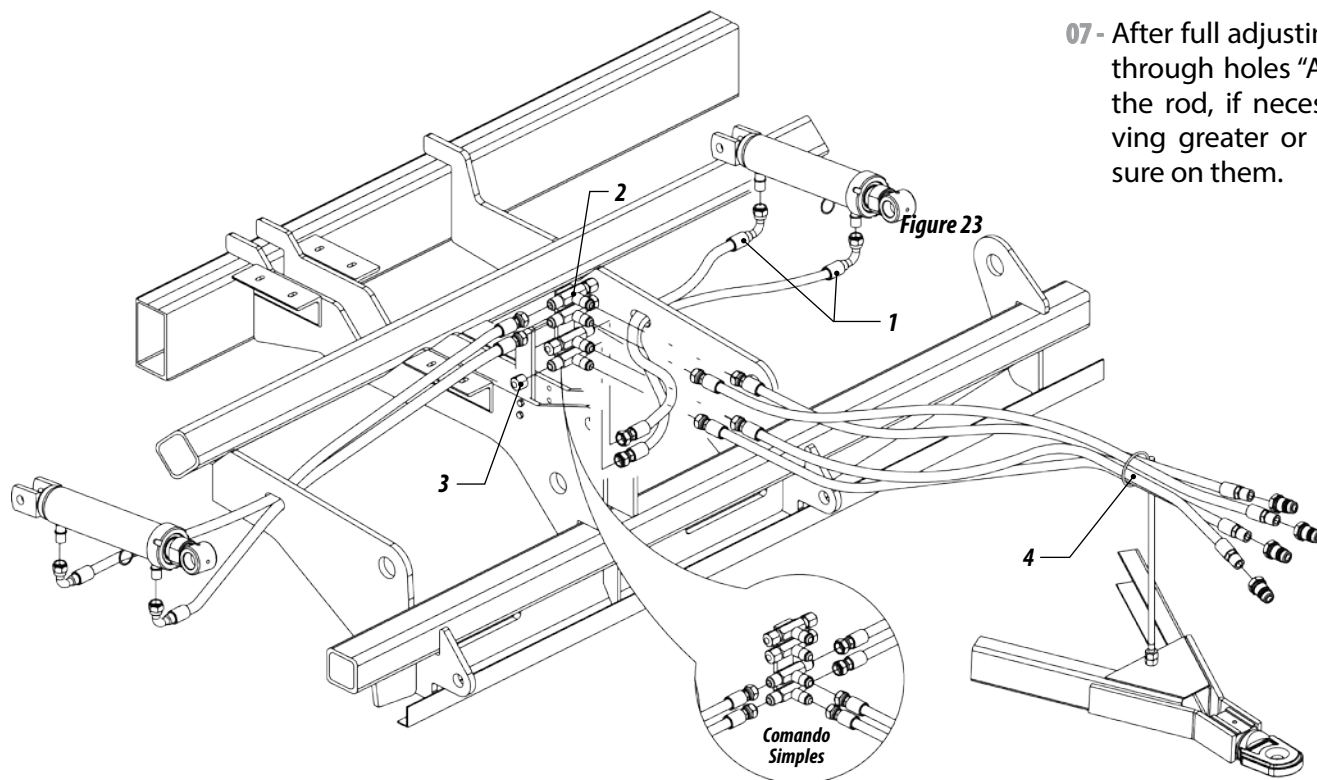


Figure 23

DEPTH ADJUSTMENT

- 06 - The depth adjustment of all lines is done through the pistons, which act on the line lifting shaft.

⚠ ATTENTION

Excessive pressure on the springs causes the machine to lift due to the reaction to penetration.

INDIVIDUAL WORKING DEPTH ADJUSTMENT

- 07 - After full adjusting of lines, you can make the individual adjustment of lines through holes "A" and "B" of the rod, if necessary (1) giving greater or lesser pressure on them.

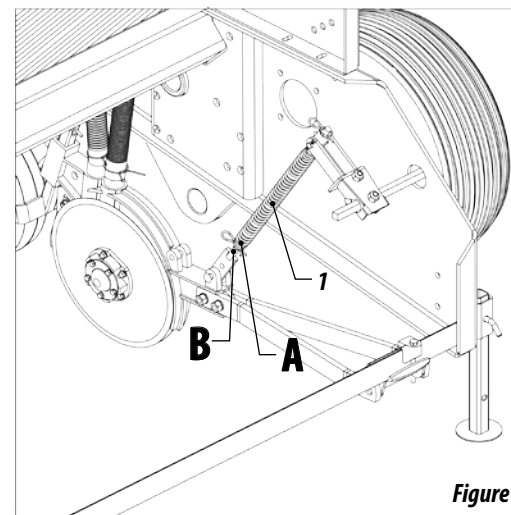


Figure 24

⚠ ATTENTION

When planting on lands with variations in humidity, soil or others, check repeatedly the working depth of each line.

PRESSURE REGULATION IN RODS (OPTIONAL)

- 08 - For greater pressure on the rod (1), tighten the nut (2), so that it becomes more rigid.
- 09 - For greater pressure in the full line (3) adjust through the rod (4) and lock (5).

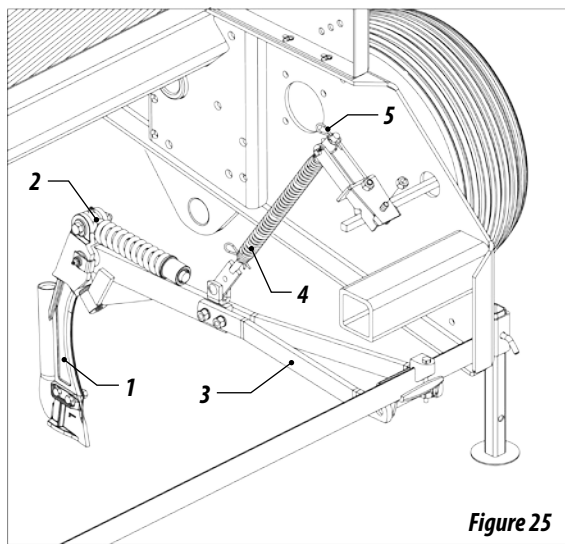


Figure 25

⚠ ATTENTION

The pressure must be equal for all lines.

LIMITERS

- 10 - Limiters are used to limit the range of the piston rod, making the lines to maintain the working depth. For sandy soils, place the limiting ring (1) on the piston rod (2).
- 11 - Place the limiting rings (1) on both sides of the machine; this prevents damage to the shaft.

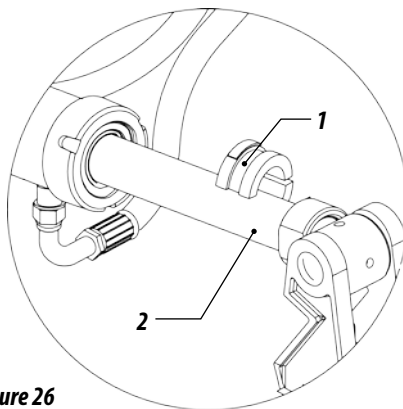


Figure 26

ADJUSTING THE COMPACTING WHEELS

- 12 - The compacting wheel has the purpose of pressing the furrow, making the soil to be immediately placed on the seed, avoiding much compression, facilitating plant germination.
- 13 - To adjust the wheel (1), loosen the lock nut and screw (2), move the wheel to the desired position, then tighten the lock nut and screw (2).

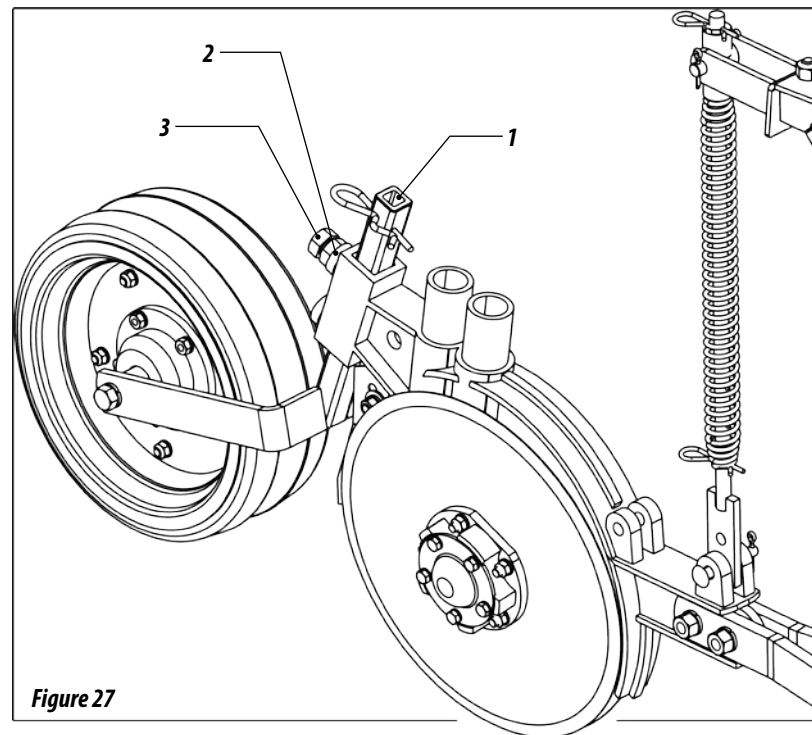


Figure 27

⚠ ATTENTION

Make the same adjustment to all compacting wheels, considering the type of soil, the seed and planting depth, not to affect the free emergence of plants.

09. OPERATIONS

- 01- After the first day of work with the seed drill, retighten all screws and nuts. Check the conditions of pins, cotter and locks.
- 02- Keep the tires with the same pressure (52 lbs / in2) to prevent wear and maintain uniformity of planting.
- 03- Observe the lubrication intervals.
- 04- When filling the tanks, check for objects inside them such as nuts, screws, etc. Always use seeds and fertilizer free of impurities.
- 05- Always observe the correct functioning of seed and fertilizer distribution mechanisms and also the settings established at the beginning of operation.
- 06- Keep the seed drill always leveled; the tractor drawbar must remain fixed and the working speed should remain constant.
- 07- Always check the seed and fertilizer depth, as well as the pressure of compaction wheel.
- 08- Observe the position of the fertilizer in relation to the seed in the soil.

10. MAINTENANCE

TIRE PRESSURE

- 01 - Tires should always be properly calibrated to avoid premature wear due to excess or lack of pressure and ensuring accuracy in the distribution.

- 02 - The calibration of the seeder tires must be 52 lb/in2. Do not calibrate above the recommended pressure.

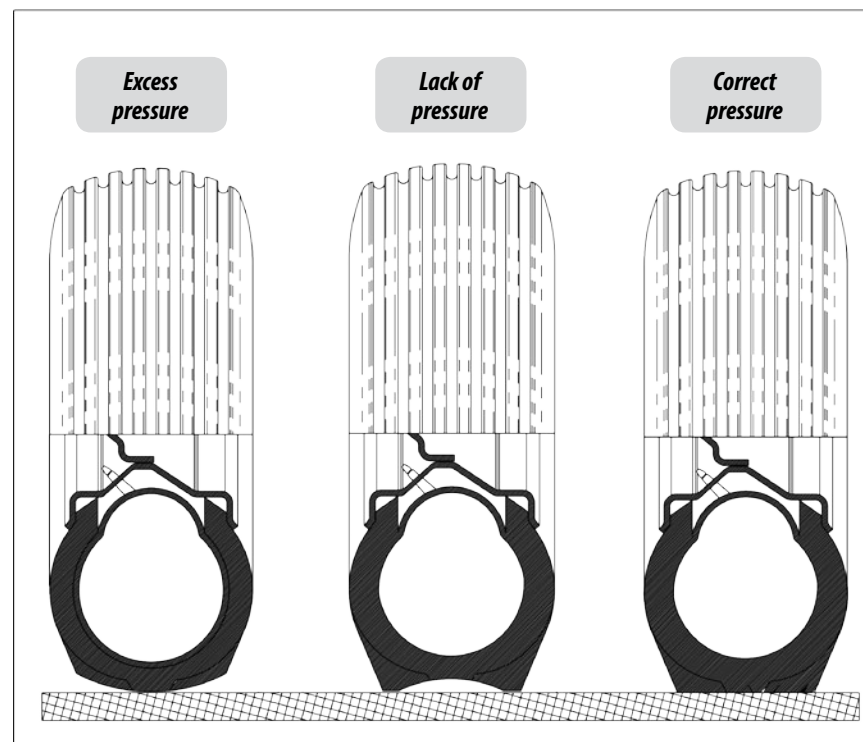


Figure 28

LUBRICATION

- 03 - Lubrication is essential for good performance and durability of the seeder moving parts, helping to reduce maintenance costs.
- 04 - Before starting operation, lubricate all grease fittings carefully always observing lubrication intervals in the following pages. Make sure the lubricant is of good quality; avoid using products contaminated by water, dirt and other agents.

TABLE OF GREASE AND EQUIVALENTS

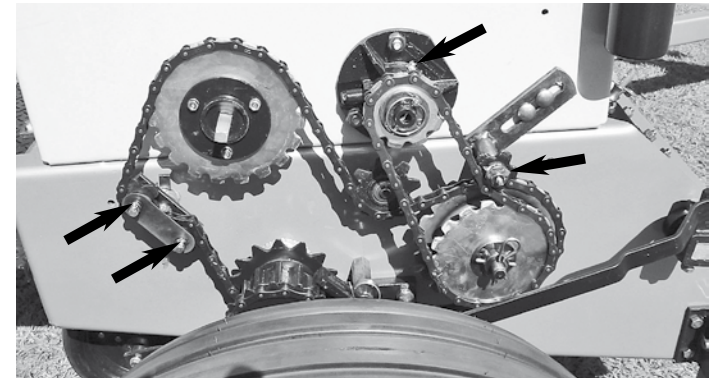
MANUFACTURER	TYPE OF RECOMMENDED GREASE
Petrobrás	Lubrax GMA 2
Atlantic	Litholine MP 2
Ipiranga	Super Graxa Ipiranga Ipírange Super Graxa 2 Ipiflex 2
Castrol	LM 2
Mobil	Mobilgrease MP 77
Texaco	Marfak 2 Agrotex 2
Shell	Retinax A Alvania EP 2
Esso	Multipurpose grease H
Bardahl	Maxlub APG 2 EP

Table 8

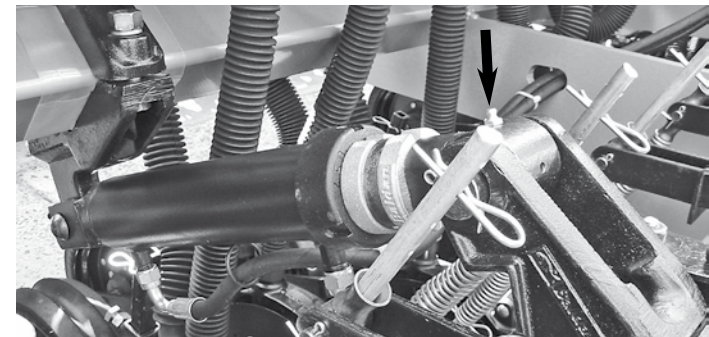
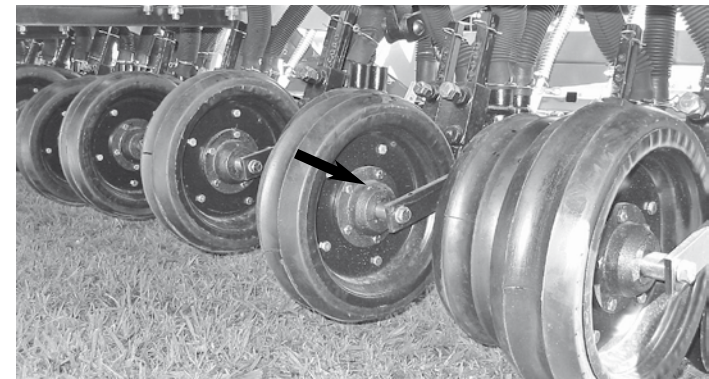
 IMPORTANT

* If there are other lubricants and / or equivalent greases not listed in this table, refer to the manufacturer's technical handbook.

LUBRICATE AT EVERY 10 HOURS OF WORK



Figures 29



LUBRICATE AT EVERY 30 HOURS OF WORK



Figure 30

LUBRICATE AT EVERY 60 HOURS OF WORK

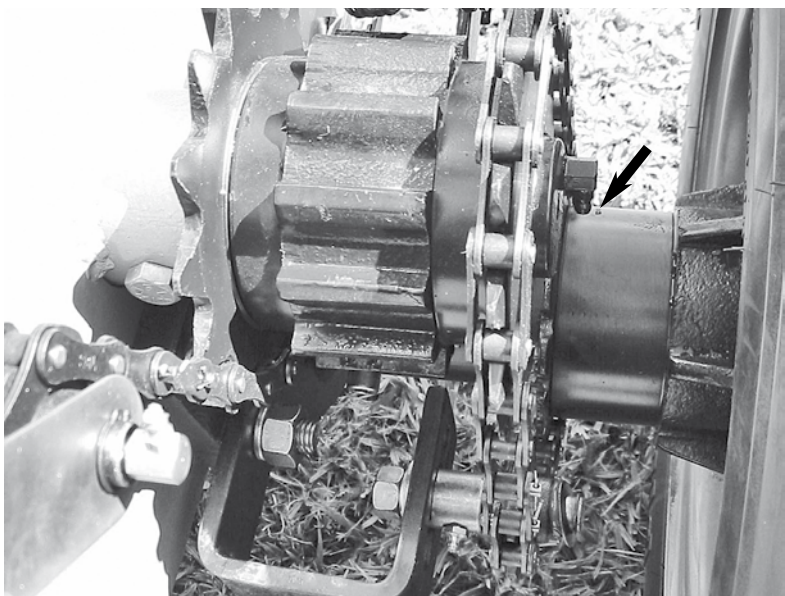


Figure 31

LUBRICATE AT EVERY 30 HOURS OF WORK

- 01 - Perform the oil exchange of the Speed Box (1) after the first 30 hours, then at every 1500 hours.
- 02 - The tank capacity is 1.8 liters. It is recommended to use of ISO VG 150 mineral oil at 40°C.
- 03 - To make the oil depletion, remove the plug (2) located at the bottom of the gearbox.
- 04 - For the oil replacement, remove the vent (3), replace the plug (2) place the oil and check through the viewfinder (4) if the desired level is reached.
- 05 - Check the oil level daily through the viewfinder (4).

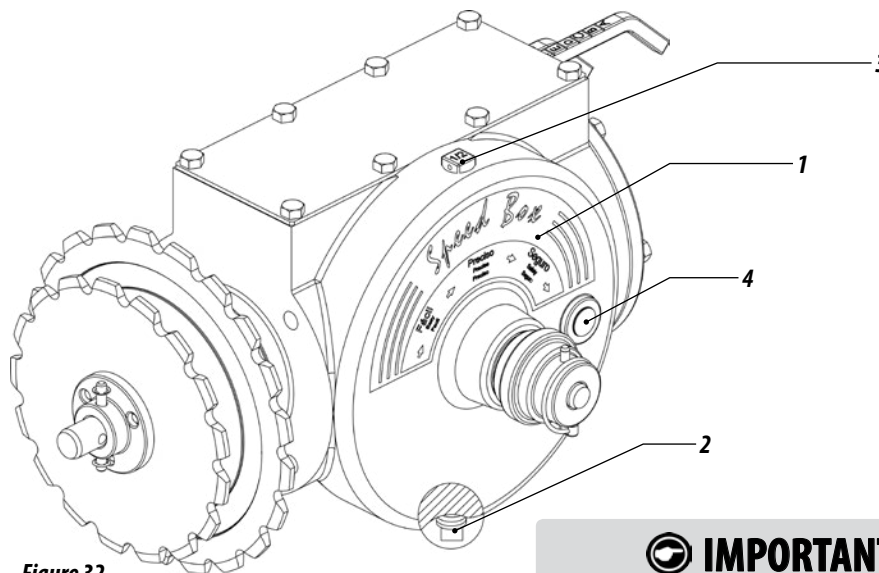


Figure 32

IMPORTANT

Only use oil recommended by the manufacturer.

IMPORTANT

When replacing the oil, observe the initial positions of the vent and depletion plugs, so that they can be reassembled correctly.
Make sure it is well sealed and that there are no leaks.

11. OPERATIONAL MAINTENANCE

Table 9

PROBLEMS	PROBABLE CAUSES	SOLUTIONS
During planting, fertilizer leaks through the safety outputs.	Hoses are clogged or there are pieces of plastic in the spiral hoses that conduct the fertilizer.	Unclog the hoses or remove the upper channel that gives access to coil, rotate the shaft to the opposite side until the foreign body is removed.
Hub shaft of the fertilizer tank does not turn.	Spiral blocked with wet fertilizer or excess fertilizer in closed line.	Unclog the coils, check if there is loose gutter and if the fertilizer is coming in through their sides.
Unable to make the coupling of quick couplers of hoses on the tractor.	The hoses were disengaged with pressure or it is bearing the weight of the seeder in the hydraulic system.	Drain hoses or place the seeder on the support feet and finally release the pressure.
A planting line shows depth different from the other.	Different settings of pressure on the depth limiting wheels or in the line springs.	Set all the depth wheels and the pressure of the springs evenly.
The groove is opening too much during planting.	Soil that sticks to the discs or excessive working speed.	Decrease the work speed.
Pistons stop operating, raise the seeder and do not go down or vice versa.	Different quick coupler, ball-type male and needle-type female or vice - versa.	Replace the quick coupling, placing both of the same type.
Strange noise when operating or riding with the seeder loaded.	Loose wheels or hub with clearance.	Retighten the nuts of the wheel. Adjust the bearings of the wheel hub.
The seeder leaves the planting line, sometimes on one side, sometimes on the other.	Tractor drawbar loose.	Use the pin that came with the seeder. Attach the tractor drawbar in the center hole.
The wheel ratchet disengages or does not engage completely.	The spring loses action by accumulation of grease or dust.	Disassemble the ratchet and wash the springs with diesel oil and grease them with a little grease, as specified in the chapter lubrication of the handbook.
Soil too compressed and increases the pressure of the discs and they do not operate in the desired depth.	Lacks ballast in the seed drill.	Place the weights, add water in the tires and lock the joint system of the wheels.
Discs touch the ground during transportation.	Bushing of rod or spring looses or disc set in the upper holes.	Fix the bushing of the spring rod and place the disc support in the lower holes, so that they become higher.

12. CLEANING

FERTILIZER SYSTEM

- After planting, do not let fertilizer in tanks, do their cleaning as follows:
 - 01** - Remove the transmission protective cover (1), loosen nuts and washers (2) from the hub (3), only from the outside of the seed drill, pull the hub with the full shaft (3), rotating it for easy removal. Check the PVC channels (4) that are arranged in the bottom of the tank, if they present wear, replace them.
 - 02** - Make the cleaning in the tanks and also on the shafts and then wash them with running water. Reassemble the shafts observing the correct assemblage of the channel set, since the fertilizer outlet holes of both the channel and the spout must match as in detail of the Figure.

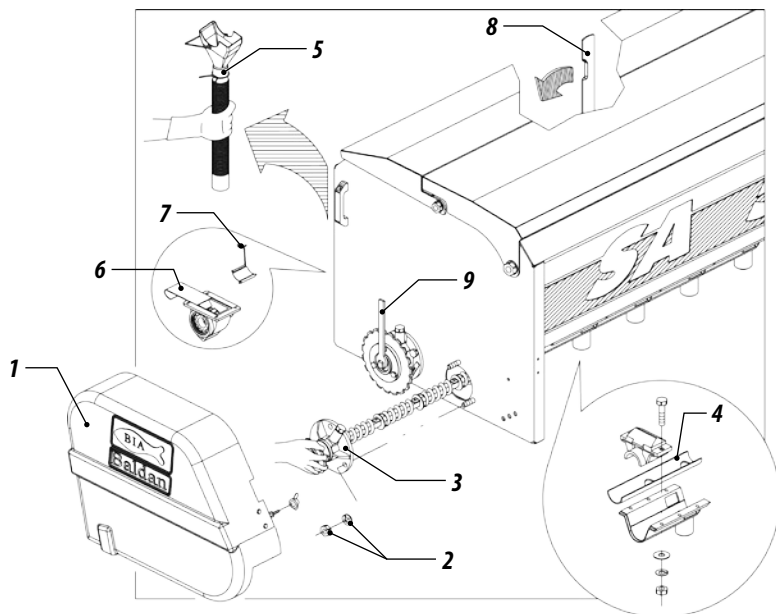


Figure 33

! ATTENTION

When assembling the shaft, it must turn freely, even with a full tank.

SEED SYSTEM

- At the end of each work day, we recommend removing all the seeds from the distribution box and clean it. To clean the seed tank, proceed as follows:

- 01** - Remove the seed spouts (5);
- 02** - Fully open the cover (6) of the seed distribution box;
- 03** - Unlock the lever of the regulator (7) leaving them loose;
- 04** - Open wide the steering wheel (8) of the seed tank until the rotor output is fully open;
- 05** - Turn the seed shaft (9) with a wrench to drop all seeds;
- 06** - Do the cleaning of the seed tank;

! ATTENTION

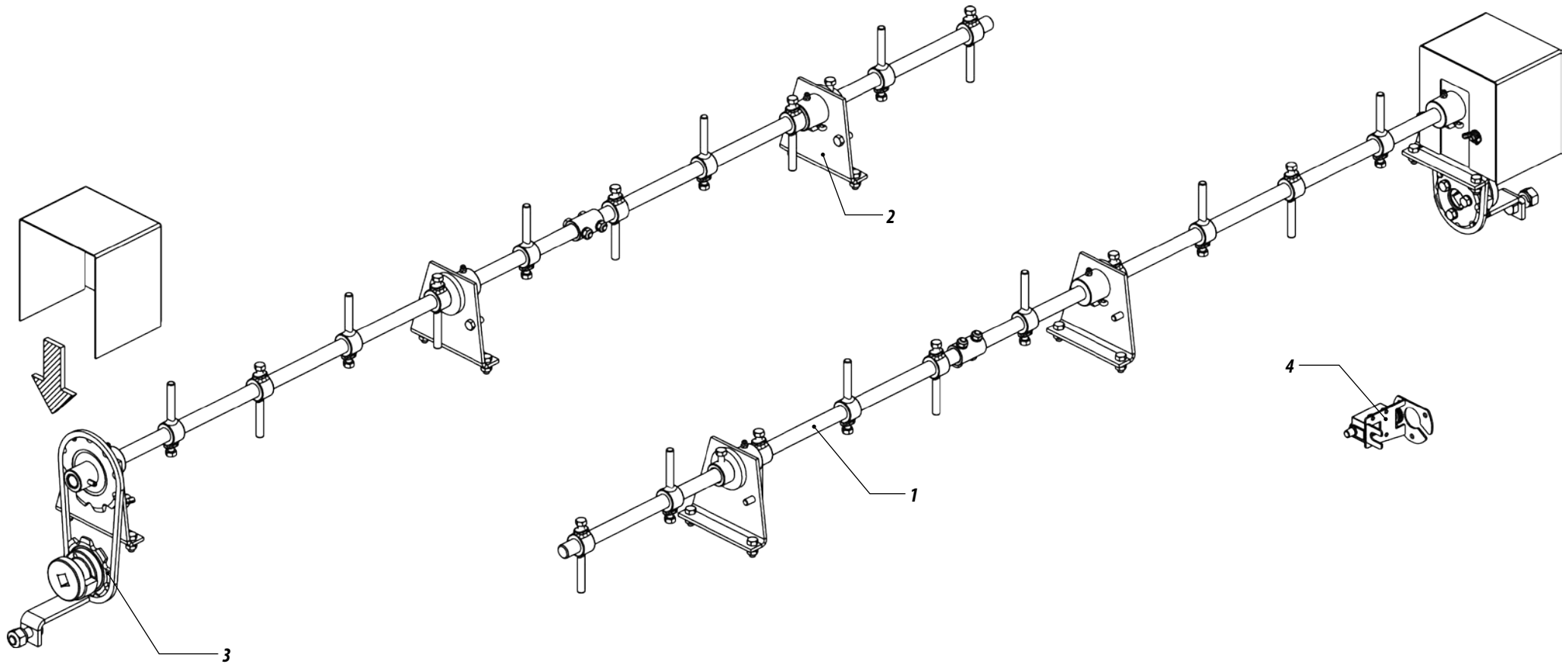
If the machine is stored, also remove the hoses that conduct fertilizer and seeds, wash them with mild soap and water and replace them.

13. MIXING SET FOR SEED WITH OR WITHOUT HECTARE METER

• Mixing set comprises:

- 01 - Full mixing shaft (1);
- 02 - Full mixing shaft support (2);
- 03 - Full transmission system (3);
- 04 - Hectare meter (4).

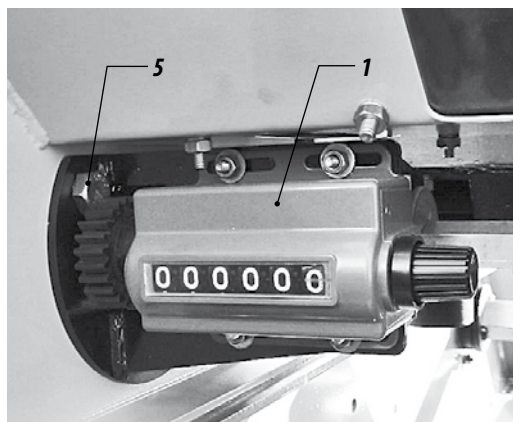
Figure 34



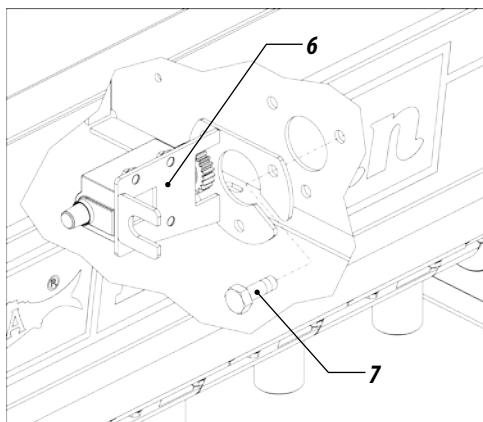
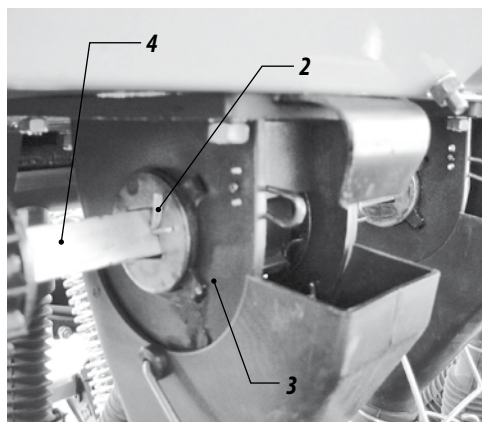
14. HECTARE METER

LOCATION AND ASSEMBLY

- The hectare meter (1) is assembled beneath the seed tank on the right side of the SA as follows:
- 01** - Remove all cotter pins (2) that fix the seed rotors (3), then move the square shaft (4). Remove the lower screw from the hub (5) and fix the bracket (6) of the hectare meter (1) with the screw (7).



Figures 35



CALCULATING THE PLANTED AREA

- 02** - To know how many hectares were planted proceed as follows:
- 03** - Do the reading in the hectare meter at the end of the planting.
- 04** - Check which is the planting width (multiplying the number of lines by the spacing between them).
- 05** - Then, use the formula below followed by an example.
- EX:** The hectare meter is scoring 10.200 and planting width is 4.08 meters, knowing that the conversion factor is 3.240 meters, determine:

• FORMULA:

$$A = \frac{L \times FC \times E}{H}$$

$$A = \frac{10.200 \times 3.240 \times 4.08}{10.000}$$

$$A = 13.48 \text{ Ha}$$

• FORMULA DATA:

- A = Planted area
- E = Planting width (e.g. 4.08 m); this measure corresponds to SA with 24 lines with spacing between lines of 170 mm
- FC = Conversion factor (3,240)
- L = Hectare meter reading (ex. 10.200)
- H = Hectare (Ha 10.000)

NOTE

When you start planting, reset the hectare meter.

15. IDENTIFICAÇÃO

- To view the parts catalog or request technical assistance from Baldan, always indicate the model (1), serial number (2) and date of manufacture (3), which are on the identification label of your equipment.

ALWAYS REQUIRE BALDAN ORIGINAL PARTS



MARKETING

EDITION OF INSTRUCTION MANUALS AND PART CATALOGS

Code: 60550102644

Revision: 01

CPT:SA08017



! ATTENTION

The drawings in this instruction manual are of illustrative purposes only.

 **CONTACT**

In case of doubt do not operate the equipment, please contact our after-sales service.

Telephone: 08000-152577

e-mail: posvenda@baldan.com.br

PRODUCT IDENTIFICATION

- Make the identification of the data below to always have correct information about the life time of your equipment.

Owner's name: _____

Dealer: _____

Farm: _____

City: _____ State: _____

Model: _____ **Warranty:** _____

Inovice number:

Date of purchase: ____/____/____ **Serial number:** _____

NOTES:

[illegible]



BALDAN IMPLEMENTOS AGRÍCOLAS S/A.

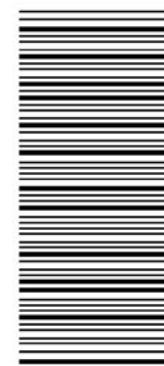
Av. Baldan, 1500 | Nova Matão | CEP: 15993-000 | Matão-SP | Brasil

Phone: (0**16) 3221-6500 | Fax: (0**16) 3382-6500

Home Page: www.baldan.com.br | e-mail: sac@baldan.com.br

Export: Phone: 55 16 3221-6500 | Fax: 55 16 3382-4212 | 3382-2480

e-mail: export@baldan.com.br



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