PNEUMATIC PLANTER

(2-3-4-5-6-8-10-12)

USER GUIDE

ALPLER

ATTENTION

DO NOT

OPERATE THE MACHINES

BEFORE READING THIS MANUEL!

INDEX

WARNING SIGNS & MEANINGS

CAUTION

This sign warms that the operations described could cause damage to machine, if they are not carried out correctly.

WARNING

This sign warms that the operations described could cause serious lesions or long term health risks, if they are not carried out correctly.

DANGER

This sign warms that the operations described could cause serious lesions, death or long term health risks, if they are not carried out correctly.

READ MANUAL FIRST

Read the “Operating and Maintenance Manual” carefully before first start and keep the manual nearest.

USE GLOVES

This symbol expresses the requirement of using gloves for the safety during the run-time.

REVOLVING DEVICE

This symbol expresses the risk of catching and gripping of revolving devices.

THE RISK OF FALLING DOWN

This symbol expresses the risk of falling down by loosing the balance or because of other causes.

KEEP CHILDREN AWAY

This symbol expresses to keep the children away against any risk.

DO NOT STAND NEAR THE MACHINE WHILE IT IS WORKING

This symbol expresses not to stand near the machine while it is working to avoid any injury.

1. INTRODUCTION

This manual contains pneumatic sowing machine maintenance information and the rules that need to be considered.
This manual is a part of machine and the same time you can consult to manual for using the machine safely and efficiently during the entire duration of use. Therefore it should be stored carefully in a safe place.
Users must read and apply the rules for safety and prevent from possible accidents. The machine must be used by compenent people who read the manual carefully. Using the machine with favorable conditions for safety of people and environment is the responsibility of user.

2. DESCRIPTION of THE MACHINE

Pneumatic Seed Drill, has 2, 4, 6, 8, 10 seed unit, sowing foot, disc coulter and disc. It is produced with fertilizer hopper, without fertilizer hopper and micro granular sprayer. Seed machine gets movement only from PTO shaft. Seed drill is operated with hydraulic lifting lever and universal three point linkage system. It is produced as optional trailed type for 8 and 10 unit machines. Machine easily can be transported to the field.

2.1. AREAS OF USAGE

Pneumatic Seed Drill can be used for fine seeding. With this machine different type of seeds like corn, sun flower, sugar beet, sobean, peanut, watermelon, melon, cucumber, tomato and onion can be sowed on every kind of cultivated soil.
The most important speciality of the seed drill is not only the simplicity of the design but also the facility of the usage.

ATTENTION

Do not fill the machine hoppers with seed and fertilizer before transporting of the machine to the field. Hoppers should be filled with seed and fertilizer on the field. Otherwise machine can be damaged during transportation.

WARNING

Pneumatic Planter should be used for the operations stated above. Other usages which are not stated on the manual not only can harm the machine but also give cause for serious damages for the user.

3. GUARANTEE

- On delivery, check that the equipment has not been damaged during transport and that the accessories are integral and complete.
- The purchaser will enforce his rights on the guarantee only when he has respected conditions corcerning the benet of guarantee.
- The guarantee is valid for one year, against all defects of material from the date of delivery of the equipment.
- The guarantee does not include working and shipping costs.
- Obviously, all damage to person to things are executed from guarantee.
- The guarantee is limited to the repair or replacement of the defective piece, according to the instructions of the Manufacturer.
- Dealers or users may not claim any indemnity from the Manufacturer for any damage they may suer (because of costs for labour, transport, defective workmanship, direct or inderct accidents, lost of earnings on the working positions, etc.)

3.1. EXPIRY OF GUARANTEE

Guarantee expires:

- If limits set out in technical daha table are overshot.
- If instructions set out in this manual have not been carefully followed.
- If the equipment is used badly, defective maintenance or other errors by client.
- If original spare parts are not used.

ATTENTION

* The custeomer sholud instruct personnel on accident risks, on the operator safety devices provided, on noise emission risks and on general accident prevention regulations provided for by the international directives and by the law in the country in which the machines are used.

* In any case, the machine should be used exclusively by skilled operators who will be held to follow scrupulously the technical and accident - prevention instructions in this manual.

* It is the user's responsibility to check whether the machine is operated only in optimum conditionsof safety for people, animals and property.

4. TECHNICAL SPECIFICATIONS

SHOE COULTER TYPE

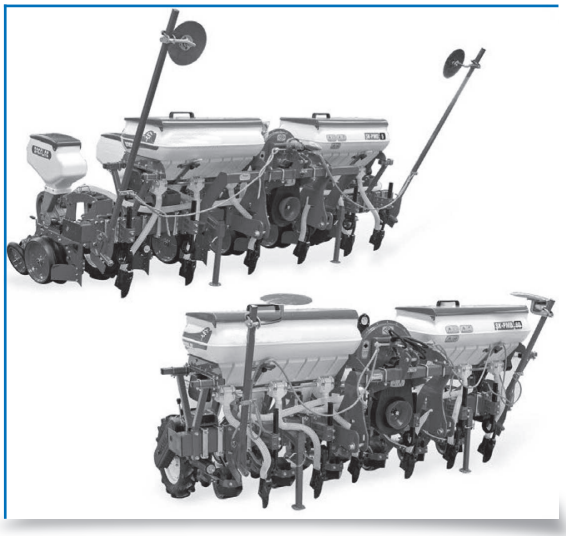
Specications	Unit	PLANTER A4	PLANTER A5	PLANTER A6	PLANTER A8
Number of rows	mm	4	5	6	8
Total width (W)	mm	3000	3200	4200	5500
Total length (L)	mm	2000	2000	2000	2000
Total height (H)	mm	1700	1700	1700	1700
Working depth	mm	0-100	0-100	0-100	0-100
Fertilizer hopper capacity	kg	160x2	160x2	200x2	380x2
Seed hooper wolume	dm^3	24,2x4	24,2x5	24,2x6	24,2x8
Space between rows	mm	28-80	28-80	28-80	28-80
Required tractor speed	km/h	4-8	4-8	4-8	4-8
PTO rotation	rpm	540	540	540	540
Tire size		500-15	500-15	6.5x80-15	6.5x80-15
Required power	hp	60-65	70-75	80-90	90-100
Weight without fertilizer hopper	kg	800	950	1100	1650
Weight with fertilizer hopper	kg	680	760	840	950

DISC TYPE

Specications	Unit	PLANTER D4	PLANTER D5	PLANTER D6	PLANTER D8
Number of rows	mm	4	5	5	8
Total width (W)	mm	3000	3200	4200	5500
Total length (L)	mm	2000	2000	2000	2000
Total height (H)	mm	1800	1800	1800	1800
Working depth	mm	0-100	0-100	0-100	0-100
Fertilizer hopper capacity	kg	160x2	160x2	200x2	380x2
Seed hooper wolume	dm^3	34.7	34.7	34.7	34.7
Space between rows	mm	28-80	28-80	28-80	28-80
Required tractor speed	km/h	4-8	4-8	4-8	4-8
PTO rotation	rpm	540	540	540	540
Tire size		500-15	500-15	6,5x80-15	6,5x80-15
Required power	hp	60-65	70-75	80-90	90-100
Weight without fertilizer hopper	kg	1050	1275	1500	1900
Weight with fertilizer hopper	kg	800	1010	1220	1550

* Manufacturer reserves rights to change them without notice.

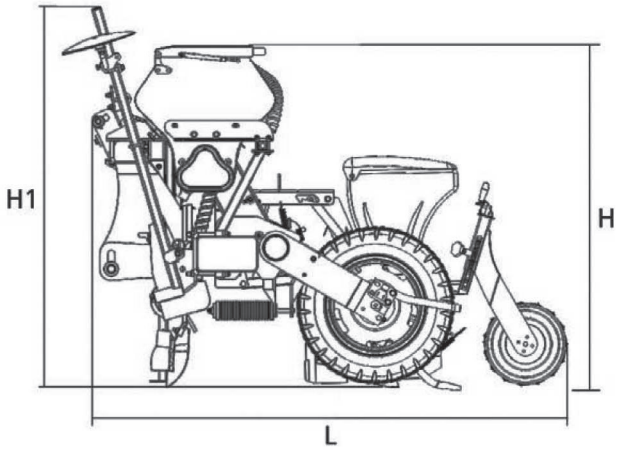
If the machine is handled by winch, it must be lifted hooking onto appropriate holes with suitable which or crane (Fig.1). Because of danger involved, this operation should be carried out by trained and responsible persons. The mass of machine is mentioned on the identication plate.

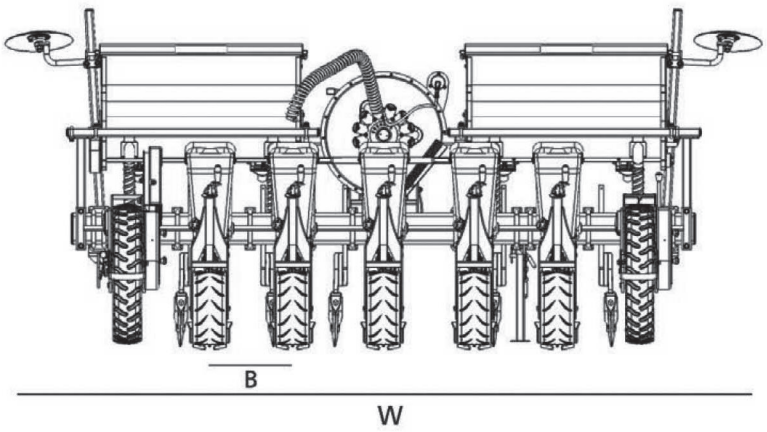


4. TECHNICAL SPECIFICATIONS

4.1 DIMENSIONS OF THE MACHINE

SHOE COULTER TYPE					
Specications	Unit	PLANTER A4	PLANTER A5	PLANTER A6	PLANTER A8
Total width (W)	mm	3000	3200	4200	5500
Total length (L)	mm	2000	2000	2000	2000
Total height (H)	mm	1700	1700	1700	1700





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Total width (W)	mm	3000	3200	4200	5500
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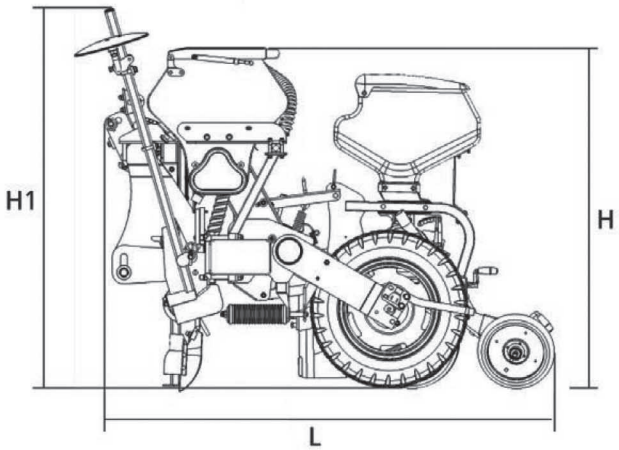
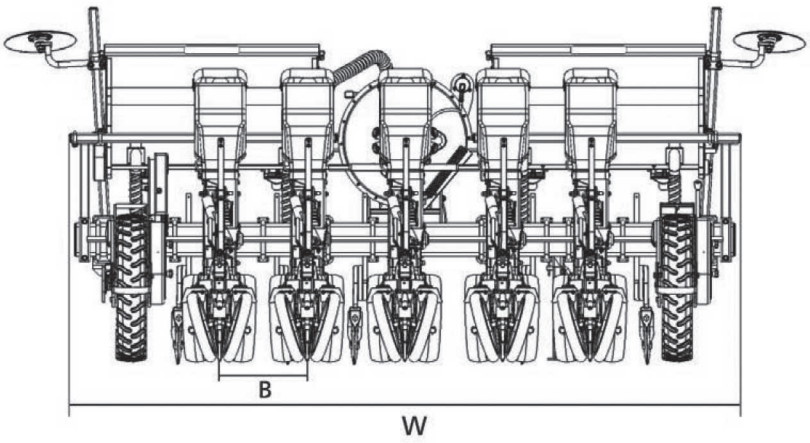
Total height (H)	mm	1800	1800	1800	1800



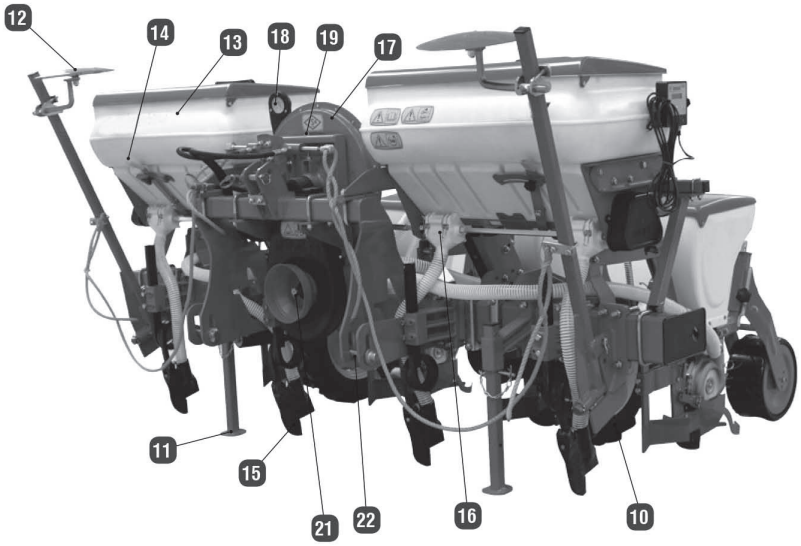


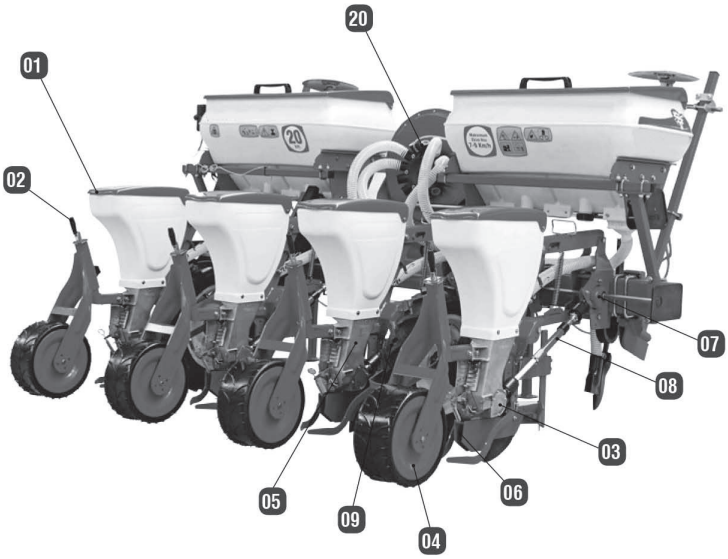
4.2. MAIN PARTS OF THE MACHINE

01-Seed Box
02-Pressure Wheel Adjustment Lever
03-Gear Box
04-Rear Covering Wheel
05-Planting Unit
06-Planting Axe
07-Unit Gearbox
08-Planting Unit Shaft
09-Planting Wheel
10-Fertilizer Wheel
11-Support Leg
12-Marker Disc
13-Fertilizer Box
14-Fertilizer Throw adjustment indicator lever
15-Fertilizer Axe
16-Fertilizer Distributor
17-İmpeller Group
18-Vacuum Meter
19-Hydraulic Marker
20-Distributor
21-Pto Shaft
22-Three Point Linkage Frame

Corn And Sunflower Planting Unit

Sugar Beat Planting Unit





Disc Type Planting Unit

5. SAFETY MEASURES

5.1. SAFETY NOTICES

Carefully read all the instructions before using machine; in doubt contact technicians of Manufacturer's dealers. Manufacturer declines all responsibility for non-observance of the safety and accident prevention regulations described below.

- Read the operation and maintenance manual carefully before rst start up and keep this manual easy reachable place.
- Obey all rules, work site and local regulations which aect you and your machine.
- You can be injured if you don't wear the proper clothing. Loose clothing can get caught in the equipment. Wear protective clothing to suit the job. Examples of protective clothing are: a hard hat, safety shoes, safety glasses, a well fitting overall, ear-protectors and industrial gloves. Keep cus fastened. Don't wear a necktie or scarf. Keep long hair restrained.
- Before start up the machine, control the all connection points, bolts and nuts. If necessary tighten them. If there is any worn part replace to new one.
- Make sure that, equipment attached and adjusted completely.
- Don't transport people or animals on the equipment.
- Always use original parts
- Don't stand on the operation area of machine while it is working.
- If your machine driven by shaft:

a) Change the shaft plastic protector if it is worn
b) Grease the shaft after working
c) Don't go over the limit tractor PTO rotation which is mentioned in this manual.
d) Detach the shaft while transporting of machine

- Only start working with equipment if all protective devices are in perfect positions, installed and in safe position.
- Before working, make sure that, there is not any person or animal around.
- Don't leave from the driver's seat while tractor is working.

5.2. SAFETY STICKERS ON THE MACHINE

The signs described are reproduced on the machine (Fig. 4). Keep them clean and replace them if they should come o or become illegible. Carefully read each description and learn their meanings by heart.

1. Before operating, carefully read instruction manual.
2. Before carrying out maintenance, stop machine and consult instruction manual.
3. Danger getting squashed during opening. Keep at a safe distance from machine.
4. Danger getting trapped. Keep away from moving parts.
5. Do not operate without lubrication.
6. Identication plate.

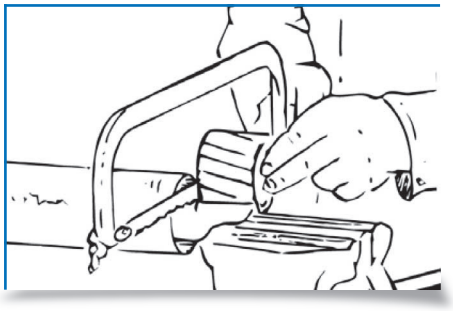
a- Model,
b- Serial no,
c- Weight,
d- Production year

6. ATTACH OF MACHINE TO THE TRACTOR

1 . The power of tractor should be convenient to machine which mentioned in technical specication (pto rotation 540 rpm).
2. Air pressure in the tractor's tires must be sucient.
3. It is inconvenience within motion area of lifting levers.
4. It is absolutely forbidden to stand between tractor and equipment while adjusting middle lever.
5. It is absolutely forbidden in space between tractor and equipment with engine running and without hand brake pulled.
6. If your machine has hydraulic system the both side of system should be under pressure while connecting the hydraulic hoses of machine to tractor's hydraulic system.
7. If your machine has electric system, electric and sensor connections should be connected safely.

6.1. ADJUSTING AND ATTACHING OF THE CARDAN SHAFT

The cardan shaft that is given together with machine is standard size. If cardan shaft is longer, you can cut it to shorten as shown in figure 5 and figure 6.



As shown in figure 5, minimum 15 cm part of cardan shaft must be overlapped when shaft is pulled away.

As shown in figure 6, minimum 4 cm spaces must be kept when shaft is engaged to the end.

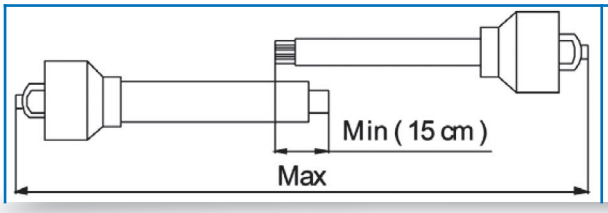


Figure 5

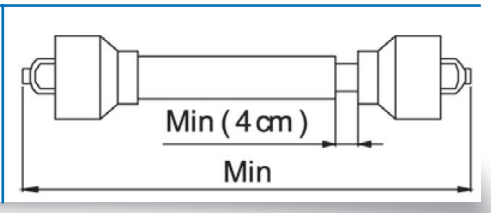


Figure 6

6.2. TRANSPORTING OF MACHINE AND STABILITY OF TRACTOR AND MACHINE DURING TRANSPORT

1. Comply with transport regulations and highway limits.
2. When driving on public roads, pay attention trac lights and indicators.
3. Any transport accessories must be provided with suitable signs and guards.
4. It is very important to remember that road holding capacity as well as direction and braking capacity can be inuenced, sometimes considerably by equipment being either carried or towed.
5. When taking bend, calculate centrifugal force and centre of gravity will shift depending on whether equipment is being carried or not.
6. For transport adiust and fasten side lever chain. Lock hydraulic lifting control lever.
7. For displacements beyond working area, equipment must be placed in transportation position.
8. When dimensions of carried or partially carried equipment conceal tractor's signaling and lighting devices, these must also be installed on equipment itself, in conformity with regulations of highway of country involved. When in operation make sure that lighting system is in perfect working order. It is also important to remember that correct signaling sequence of headlights includes.

6. ATTACH OF MACHINE TO THE TRACTOR

When machine is jointed to tractor, it becomes an integral part of it. Attached equipment's weight is closely related with road position and stability of tractor. In normal conditions, it is assumed that % 20 of tractor weight is carried by front axle. In this case, attached equipment's weight should not be greater than 0/030 of tractor weight. This factor can be summarized in following formulas:

$$M \times s \leq 0{,}2 \times T \times i + Z \times (d + i)$$

$$Z \geq \frac{(M \times s) - (0{,}2 \times T \times i)}{(d + i)}$$

$$M \leq 0{,}3 \times T$$

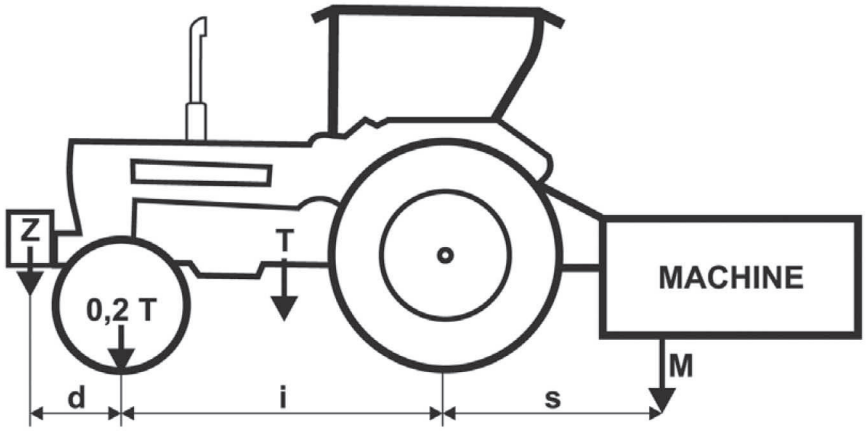


Figure 7

Symbol	Unit	Description
M	kg	Mass weighing on arms of hoist with full load
T	kg	Mass of tractor
Z	kg	Total mass of ballast
i	m	Tractor wheelbase that is horizontal distance between axles of tractor
d	m	Horizontal distance between centre of gravity of ballast and front axle of tractor
S	m	Horizontal distance between centre gravity of operating machine and rear axle of tractor

Table 3

When machine is attached to tractor, front weights should put through above mentioned formula. These weights should be calculated according to capacity of tractor's lifting weight and packing.

7. USAGE OF THE MACHINE

7.1. SEED DISTRIBUTOR UNIT

One piece of perforated placard (Fig. 9) is placed in each sowing units (Fig. 8) according to type of the seed. Seed is held to the holes on the placard (seed shouldn't enter into the hole) by means of the vacuum that created by impeller. Seeds that adsorbed to holes go down to bottom of sowing unit by turning discs and they fall into soil by cutting o air suction. One piece of sowing placard is engaged on each unit of machine during delivery. Producer can supply the seed discs that specied on Table 4 according to the customer's demand.

Figure 8

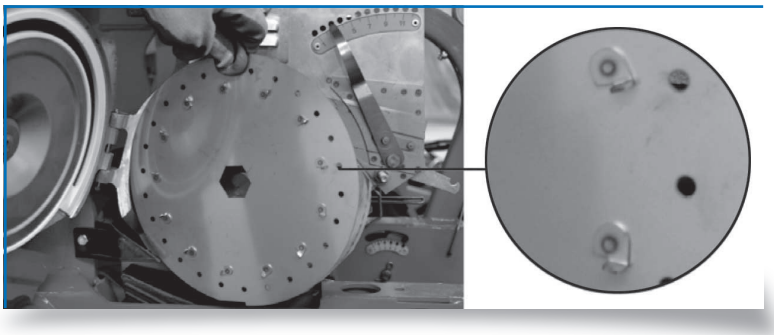


Figure 9

7.2. CHANGING THE PERFORATED SEED PLACARD AND THE ADJUSTMENTS

WARNING

Following proces should be conducted by experienced and competent personnel. Personnel should use protective gloves and should work in clear area.

The machine should be cleaned and dried. Also it should be detached from tractor and should be stable.

- Only clean and good condition placards and parts should be used.
- Nails that are directed inside the unit should be on the perforated placard (Fig. 8).
- If the nails are bent or broken there may be foreign materials in sowing unit. In this case, the perforated placard should be replaced. If there are circular scratches on the disc, the thickness of the scratches should not be more than 1/3 disc thickness.
- Tighten the wing nut that is xed the side lid of sowing unit by hand. Do not use absolutely pliers, etc. (Fig. 10).

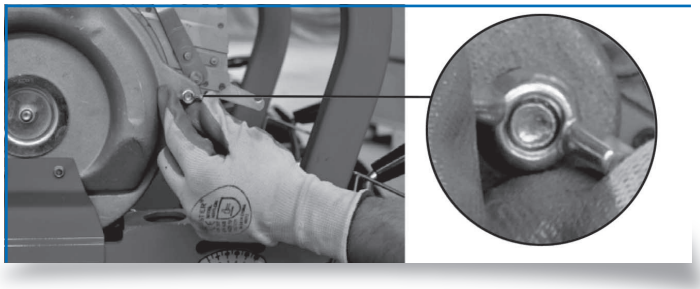


Figure 10

7. USAGE OF THE MACHINE

Make the following operations:
1) Lift the sowing unit from the land as described below.
- Disengage the spring (Fig. 11} and get it to the number 1 position.
- Lift the sowing unit of machine and provide engaging the hook.
- Get the spring to its old position (number 2) again (Fig. 11).
2) Detach the bolt (1, Fig.12).
3) Down to below by compressing to the sowing foot , Fig. 13) after detaching the spring (2, Fig. -13).
4) Detach the wing nut by loosening (Fig. 10).
5) Open the lid of sowing units. 6) Detach the old seed disc and attach the new seed disc.
7) Adjust the seed ow cover as explained in section 7.6 if necessary.
8) Close the lid, engage the spring, tighten the wing nut, engage the sowing foot to its place and engage the lock nut if there is one.
9) Adjust the selector (seed scraper adjustment lever) as described in Fig. 14.
10) Down the sowing unit to land by applying the opposite process of article 1.

Figure 11

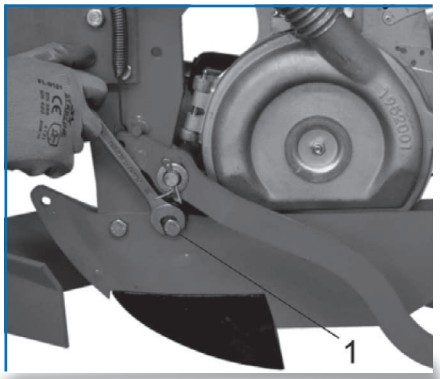


Figure 12

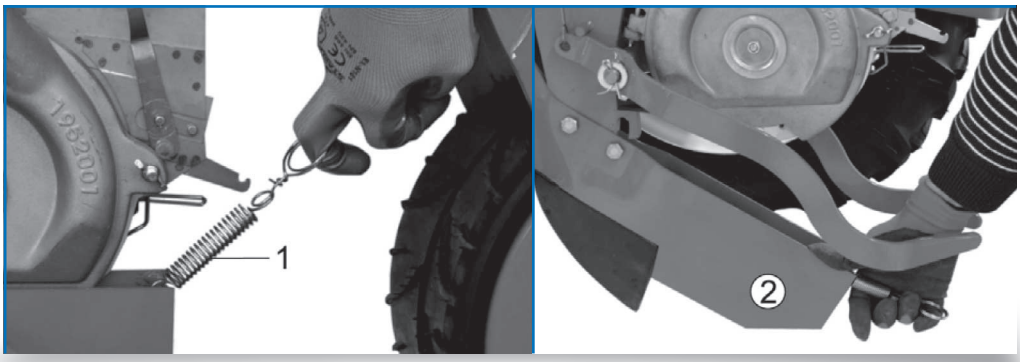


Figure 13

7.3. ADJUSTMENT OF SELECTOR (SCRAPER)

You can adjust the scraper position (2, Fig. 14-15) by changing the position of the adjustment lever (1, Fig. 16-18). By this way excess seed is scraped and one piece of seed hold on to one hole. Position of the scraper should be adjusted according to any changes on discs or seed types. Small numbers are for small seed and large numbers are for large seed (2, Fig.14-18) on the scraper scale.

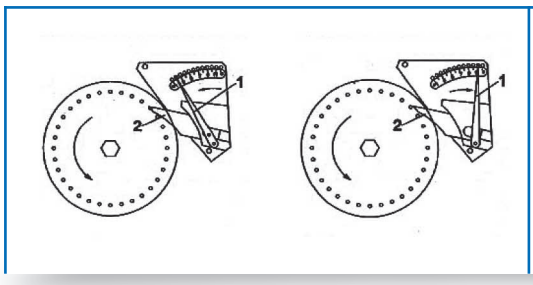


Figure 14

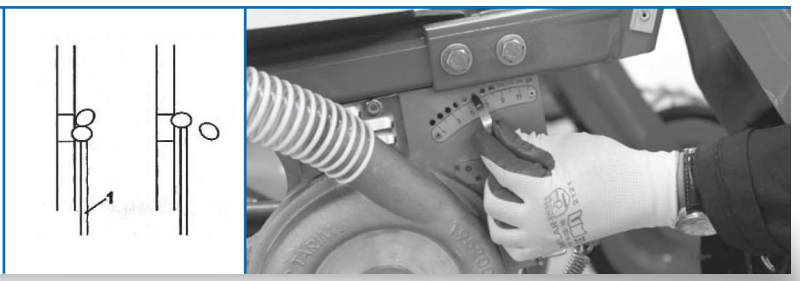


Figure 15

ATTENTION

Scraper does not adjust the amount of air suction.

7.4. SCRAPER OF SUGAR BEET SEED

Use the scraper (2, Fig. 16) only for sugar beet seeds.
Disengage the scraper part by loosening the screw (1, Fig. 16) for large seeds like sunower, corn, soy bean and peanut.

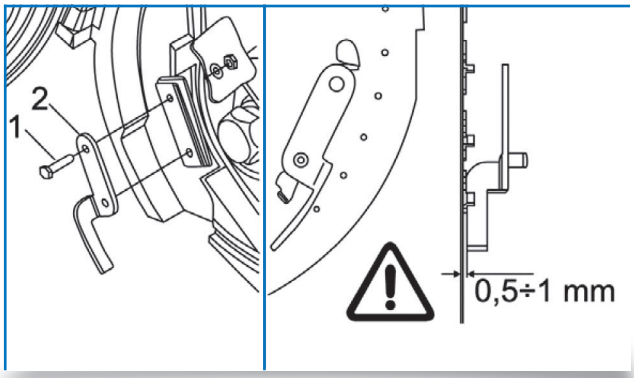


Figure 16

ASSEMBLY (Assembling of sugar beet seed scraper)
Place the scraper like in Fig. 16 and tighten the screw (1). Be sure that disc and scraper are not telescoped. Replace the scraper in case of damage and deform.

7.5. SOIL SCRAPER ADJUSTMENT

The scraper scrapes and cleans the clods and soil in front of the sowing coulter. By this way the scraper prepares the convenient soil condition for sowing operation.
The height of the scraper could be changed according to demand.

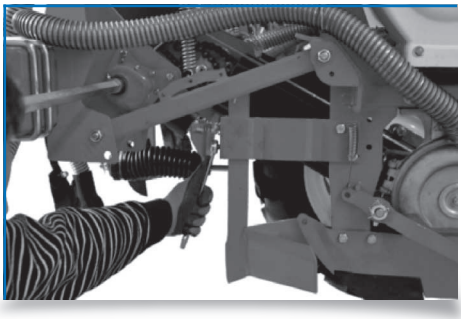


Figure 17

7.6. SEED FLOW CONTROL LID

Seed ow placard (1, Fig. 18) can be adjusted in three dierent positions. Width of seed entry hole (2, Fig. 18) is adjusted by this placard so excess seed is prevented to overow. The placard may need to be adjusted due to slope land and small-sized seeds. In this case it is needed to replace the placard with another placard that suitable for small-sized seeds.

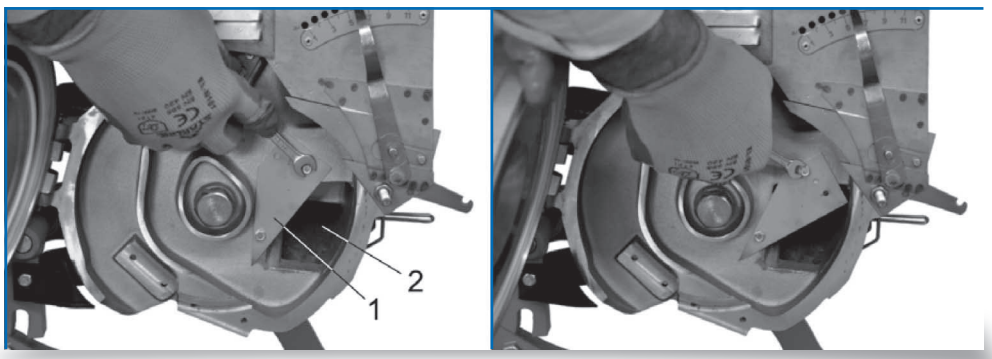
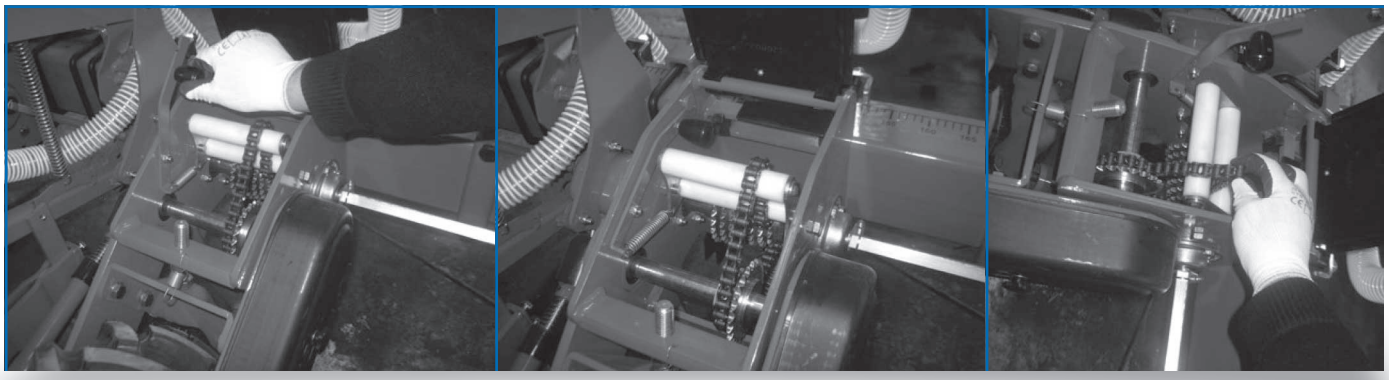


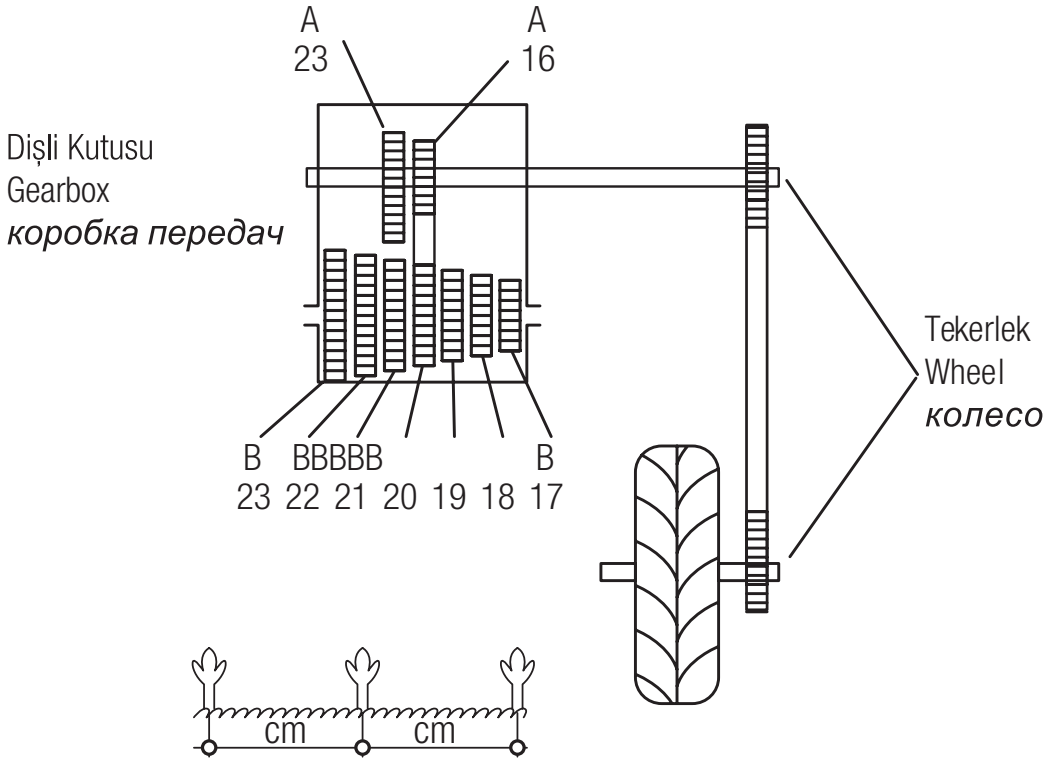
Figure 18

7.7. ADJUSTMENT OF PLANT ROW SPACE

Seed row space is determined by number of holes on seed disc, number of gear, position of gears on the wheel and gear group in the gear box. There is a table on the gear box which shows the movement transmission components and also it is used for adjustment of seed row space.



7.8. PLANT ROW SPACE TABLE

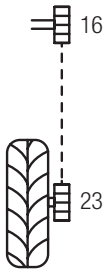


7. USAGE OF THE MACHINE

Lastik / Tire / **шина**
6,5/80 - 15

Tekerlek / Wheel / *колесо*

Şanzıman Gearbox *коробка передач*		10	20	26	36	52	70	104
A	B	cm	cm	cm	cm	cm	cm	cm
23	17	31,2	15,6	12,0	8,7	6,0	4,3	3,0
23	18	33,2	16,6	12,7	9,2	6,3	4,6	3,2
23	19	35,0	17,5	13,5	9,7	6,7	4,8	3,4
23	20	36,8	18,4	14,1	10,2	7,0	5,1	3,5
23	21	38,6	19,3	14,8	10,7	7,4	5,3	3,7
23	22	40,6	20,3	15,6	11,2	7,8	5,6	3,9
23	23	42,4	21,2	16,3	11,7	8,1	5,8	4,1
16	17	45,0	22,5	17,3	12,5	8,6	6,2	4,3
16	18	47,6	23,8	18,3	13,2	9,1	6,6	4,6
16	19	50,2	25,1	19,3	14,0	9,6	7,0	4,8
16	20	53,0	26,5	20,4	14,7	10,2	7,3	5,1
16	21	55,6	27,8	21,4	15,4	10,7	7,7	5,4
16	22	58,2	29,1	22,4	16,2	11,2	8,1	5,6
16	23	60,8	30,4	23,4	16,9	11,7	8,4	5,9



23	17	21,8	10,9	8,4	6,0	4,2	3,0	2,1
23	18	23,0	11,5	8,9	6,4	4,4	3,2	2,2
23	19	24,4	12,2	9,4	6,8	4,7	3,4	2,4
23	20	25,6	12,8	9,9	7,1	4,9	3,5	2,5
23	21	27,0	13,5	10,4	7,4	5,2	3,7	2,6
23	22	28,2	14,1	10,8	7,8	5,4	3,9	2,7
23	23	29,4	14,7	11,3	8,2	5,6	4,1	2,8
16	17	31,2	15,6	12,0	8,7	6,0	4,3	3,0
16	18	33,2	16,6	12,8	9,2	6,4	4,6	3,2
16	19	35,0	17,5	13,5	9,7	6,7	4,8	3,4
16	20	36,8	18,4	14,2	10,2	7,1	5,1	3,6
16	21	38,6	19,3	15,0	10,7	7,5	5,3	3,8
16	22	40,4	20,2	15,6	11,3	7,8	5,6	3,9
16	23	42,4	21,2	16,3	11,8	8,1	5,9	4,1

23	17	45,0	22,5	17,3	12,5	8,6	6,2	4,3
23	18	47,6	23,8	18,3	13,2	9,1	6,6	4,6
23	19	50,4	25,2	19,4	14,0	9,7	7,0	4,9
23	20	53,0	26,5	20,4	14,7	10,2	7,3	5,1
23	21	55,6	27,8	21,4	15,4	10,7	7,7	5,4
23	22	58,2	29,1	22,4	16,2	11,2	8,1	5,6
23	23	60,8	30,4	23,4	17,0	11,7	8,5	5,9
16	17	64,8	32,4	24,9	18,0	12,4	9,0	6,2
16	18	68,6	34,3	26,4	19,0	13,2	9,5	6,6
16	19	72,4	36,2	27,8	20,1	13,4	10,0	6,7
16	20	76,0	38,0	29,3	21,2	14,6	10,6	7,3
16	21	80,0	40,0	30,8	22,2	15,4	11,1	7,7
16	22	83,8	41,9	32,2	23,4	16,1	11,7	8,1
16	23	87,6	43,8	33,7	24,3	16,8	12,2	8,4

Lastik / Tire / **шина**
5,00 - 15

Tekerlek / Wheel / *колесо*

Şanzıman Gearbox *коробка передач*		10	20	26	36	52	72	104
A	B	cm	cm	cm	cm	cm	cm	cm
23	17	29,8	14,9	11,5	8,3	5,7	4,2	2,8
23	18	31,6	15,8	12,2	8,8	6,1	4,4	3,0
23	19	33,4	16,7	12,8	9,3	6,4	4,7	3,2
23	20	35,2	17,6	13,5	9,8	6,7	4,9	3,3
23	21	36,8	18,4	14,2	10,2	7,1	5,1	3,5
23	22	38,6	19,3	14,9	10,7	7,4	5,4	3,7
23	23	40,4	20,2	15,5	11,2	7,7	5,6	3,8
16	17	42,8	21,4	16,5	11,9	8,2	6,0	4,0
16	18	45,4	22,7	17,5	12,6	8,7	6,3	4,3
16	19	48,0	24,0	18,5	13,3	9,2	6,7	4,6
16	20	50,4	25,2	19,4	14,0	9,7	7,0	4,8
16	21	53,0	26,5	20,4	14,7	10,2	7,4	5,1
16	22	55,6	27,8	21,4	15,4	10,7	7,7	5,3
16	23	58,2	29,1	22,4	16,1	11,2	8,1	5,6

23	17	20,8	10,4	8,0	5,8	4,0	2,9	2,0
23	18	22,0	11,0	8,5	6,1	4,2	3,0	2,1
23	19	23,4	11,7	9,0	6,5	4,5	3,2	2,2
23	20	24,4	12,2	9,4	6,8	4,7	3,4	2,3
23	21	25,8	12,9	9,9	7,1	4,9	3,5	2,4
23	22	27,0	13,5	10,3	7,5	5,1	3,7	2,5
23	23	28,0	14,0	10,8	7,8	5,4	3,9	2,7
16	17	30,0	15,0	11,5	8,3	5,7	4,1	2,8
16	18	31,6	15,8	12,2	8,8	6,1	4,4	3,0
16	19	33,4	16,7	12,9	9,3	6,4	4,6	3,2
16	20	35,2	17,6	13,5	9,8	6,7	4,9	3,3
16	21	37,0	18,5	14,2	10,3	7,1	5,1	3,5
16	22	38,8	19,4	14,9	10,8	7,4	5,4	3,7
16	23	40,4	20,2	15,5	11,3	7,7	5,6	3,8

23	17	42,8	21,4	16,5	11,9	8,2	5,9	4,1
23	18	45,4	22,7	17,5	12,6	8,7	6,3	4,3
23	19	48,0	24,0	18,4	13,3	9,2	6,6	4,6
23	20	50,4	25,2	19,4	14,0	9,7	7,0	4,8
23	21	53,0	26,5	20,4	14,7	10,2	7,3	5,1
23	22	55,6	27,8	21,3	15,4	10,6	7,7	5,0
23	23	58,0	29,0	22,3	16,1	11,1	8,0	5,5
16	17	61,6	30,8	23,7	17,1	11,8	8,5	5,9
16	18	65,4	32,7	25,1	18,1	12,5	9,0	6,2
16	19	69,0	34,5	26,5	19,1	13,2	9,5	6,6
16	20	72,4	36,2	27,9	20,1	13,9	10,0	6,9
16	21	76,2	38,1	29,3	21,1	14,6	10,6	7,3
16	22	79,8	39,9	30,7	22,1	15,3	11,0	7,6
16	23	83,4	41,7	32,1	23,2	16,1	11,6	8,0

7. USAGE OF THE MACHINE

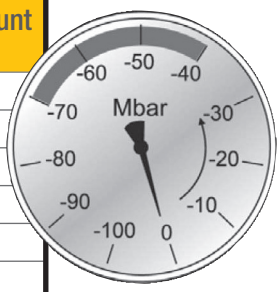
Make these processes by referencing the below actions and the table (Table 5) for determining the seed row space:

1- Attach the available seed disc to the machine according to type of the seed.
2- Determine the number of gears and corresponding gears on the wheel from the Table 5 and check it on the machine.
3- Find the table that is shown gear couple on the machine.
4- Find the requested seed space from the column on the selected disc.
5- Determine which gear couple engaged to gear chain (A-B) by moving to the left.
6- Open the lid of gearbox for changing the place of chain and loosen the chain by getting the lever to free position (1, Fig. 19).
7-Engage the chain to determined gear cogwheel and bring them on the line (Fig. 20).
8-Tension the chain and close the lid with the lever (2, Fig. 19).

If the pinion gears that mounted to machine do not give the desired seed space, look at the table whether the gears/place of gears change or not.

7.9. SEED DISCS

Disc Hole Number	Disc Hole Diameter	Seed Type	Advised Seed Amount
10	4,5	Pumpkin	25-30
20	3	Sunower	30-40
20	2,5	Melon, Watermelon	30-35
26	4,5	Com, Bean	40-50, 50-60
36	1,5	Okra, Cucumber	30-35
36	2	Beet	25-30
52	3,5	Soybean	35-45
72	1,5-1	Tomato, Spinach	25-30
72	3,5	Cotton	40-50
104	1,2	Onion	25-30



ATTENTION

The values given in the table are approximate values. The final decision belongs to the user about the selection of seed discs. Complaints about using unavailable discs to seed are not accepted.

7.10. SOWING UNITS DEPTH ADJUSTMENT

Seeds should be sown in the exact depth to soil bed for growing and appearing on the soil surface at the same time. The lever (1, Fig. 21) changes the height of coulter. By this way you can adjust the depth of furrow which made by coulter so you can also adjust depth of the seed to be thrown. Echeloned scale is used for adjusting all sowing units' feet on equal depth.

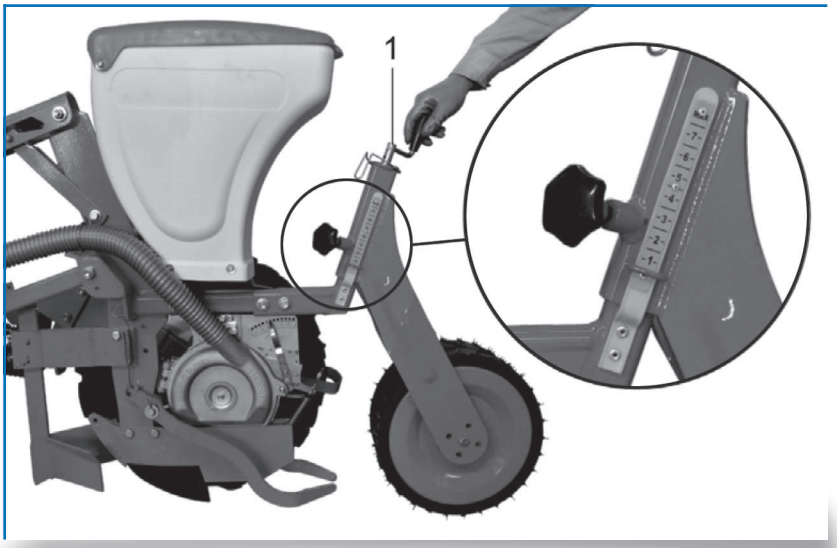


Figure 21

ATTENTION

You can determine the sowing depth with echeloned scale. Scale does not indicate the change of depth term of cm.

7.11. PRESSURE VALUE OF SOWING UNITS ADJUSTMENT

Soil plowing process with coulter is related with the force which is applied by spring. Pressure that applied to soil can be changed due to different working conditions. You can adjust the amount of pressure that applied to the soil by changing position of spring to forward or backward (1, Fig. 23).

Figure 23

7.12. DISABLING OF ANY SOWING UNIT

Stop the tractor and remove the ignition key. Lift the sowing unit from land that you want to cancel by following below processes.
- Disengage the spring (Fig.13).
- Lift the sowing unit until engaging to the hook.
- Engage the spring (2, Fig. 13).

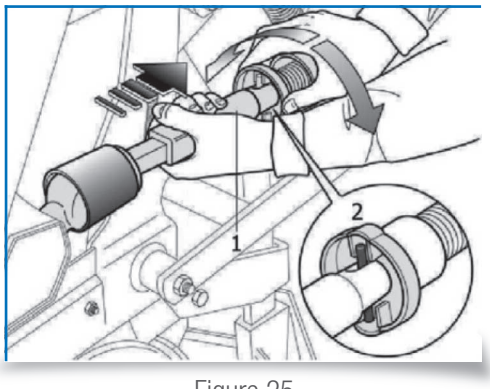


Figure 25

You can cancel the connection of the unit with axle by following below processes (Fig. 25):
Push the sleeve (1 , Fig. 25) by pressing in the direction of arrow, at the same time turn the ring (2, Fig. 25) until leaving from the pin.
- Pull up the sleeve , Fig. 25) backwards to the end.
- Push the sleeve forward to reinstate the connection.

Lock the ring with pin.

7.13. CONNECTION AXLE OF SOWING MACHINE

Each axle has a protective pin (3, Fig. 26). If seed discs rotated hardly or stopped because of foreign materials, empty the seeds from hopper, check and clean the distributor, check the disc nails and replace the safety pin.

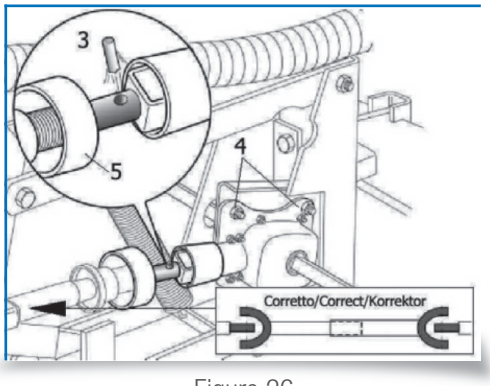


Figure 26

ATTENTION

Do not tighten the link bolts too much for providing the requested oscillation, leave them loosen (4, Fig. 26). Gear boxes and the other mechanical parts can be damaged because of tightening of bolts, and sowing is damaged.

7.14. MARKER

Marker system guides the driver for not to leave free space on eld and not to sow again the area that has been sowed. Marker opens furrow to surface of land with rotating disc. Tractor follows this furrow with one of the front wheel after returning at the end of the parcel road (Fig. 27). Sowing machine furrows a new path on every transition which is opposite of previous transition path. Rotating of marker arms is provided with tractor hydraulic mechanism. Up and down movement of hydraulic arms is activated the marker as mechanical. It is possible to convert the marker to hydraulic system with controller.

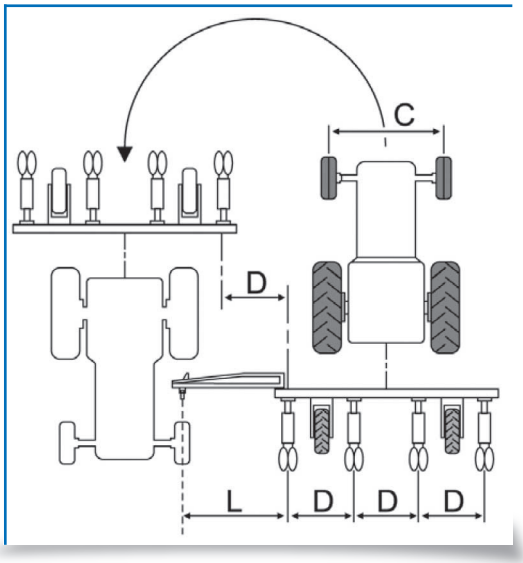


Figure 27

$$L = \frac{Dx(\text{Number of units}+1) - C}{2}$$

7.15. HYDRAULIC MARKER

Sowing machine has a hydraulic device that can control hydraulic marker. Hydraulic pistons should be engaged to tractor hydraulic power output by means of hydraulic pipes. Dirt and solid materials can cause blockage of bolt team on top of the hydraulic cylinder. If breakdown occurs, remove the nipple, clean the calibrated bolt holes and engage everything again. Be careful about the replacement while engaging the parts again. A valve that activates the arms by turn can be added on hydraulic marker mechanism as optional. In this case only one hydraulic distributor of tractor is adequate. Close the hydraulic power output lid if the system is not used.

Safety measures about hydraulic system

Be careful about the machine hydraulic systems and tractor are not under pressure when hydraulic tubes connected to tractor hydraulic system. Hydraulic inputs and outputs should be marked for hydraulic connection system between tractor and machine. If there is a disorder occurs accidentally, dangerous accidents can be happened. Hydraulic system is under high pressure. Additional equipments and protections should be used while researching possible leak points.

Regulation of the system:

Hydraulic system which has one way ow regulator adjusts the amount of oil at the time of opening and closing (Fig. 29).
Free ow from A to B, Flow from B to A as adjusted. Loosen the locking bolt (1, Fig. 29) and turn the knob (2, Fig. 29). Tighten the locking bolt again after making adjustment.

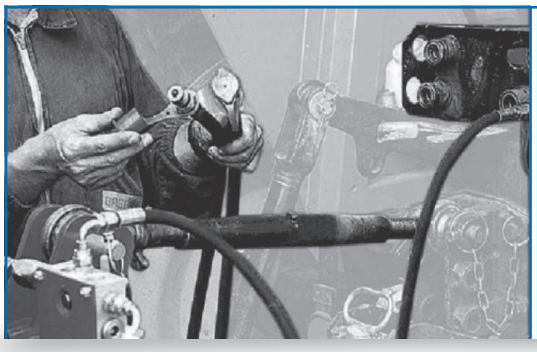


Figure 28

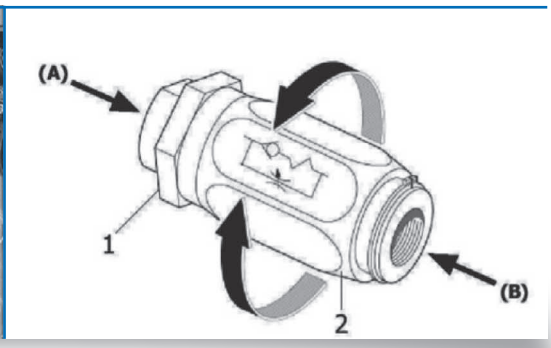


Figure 29

ATTENTION

Be sure that the speed of lowering and lifting not to damage the machine. Do not exceed the maximum pressure which is available for hydraulic system.

7.16. MECHANICAL AUTOMATIC MARKER

If there is a demand, manufacturer can supply a set that provides the changeover from mechanical system to hydraulic system. Machine type and model should be specied correctly for demanding. All marker parts on the machine are used again during the conversion, the position of marker on the main chassis is not changed. Marker performs the marking by moving to right and left according to the hydraulic lowering and lifting movement. Only one lowering or lifting is enough for activating this system.

Installation:

If the pin (1, Fig. 30) can not enter to slot (2, Fig. 30) on the plate or can not exit from the slot adjust the height of arms (3, Fig. 30). Ropes should be tensioned while working.

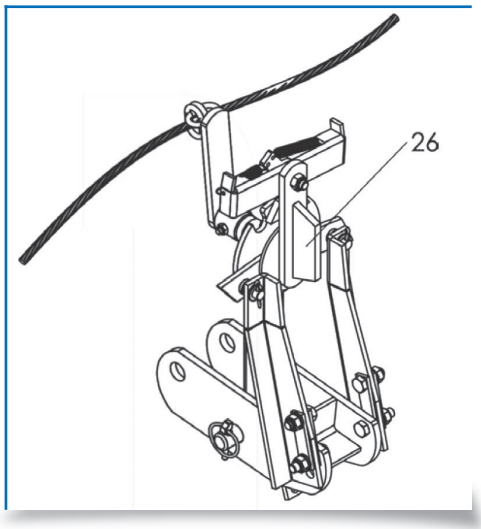


Figure 30

7. USAGE OF THE MACHINE

MARKER ADJUSTMENT TABLE

A	B	NUMBER OF UNITS					A	B	NUMBER OF UNITS				
		2	3	4	5	6			2	3	4	5	6
140	45		20	42	65	87	**170**	45		5	27	50	72
140	50		30	55	80	105	**170**	50		15	40	65	90
140	60	20	50	80	110	140	**170**	60	5	35	65	95	125
140	65	27	60	92	125	157	**170**	65	12	45	77	110	142
140	70	37	70	105	140	175	**170**	70	20	55	90	125	160
140	75	42	80	117	155	192	**170**	75	27	65	102	140	177
140	80	50	90	130	170	210	**170**	80	35	75	115	155	195
140	85	57	100	142	185	227	**170**	85	42	85	127	170	212
145	45		17	40	62	85	**175**	45		2	25	47	70
145	50		27	52	77	102	**175**	50		12	37	62	87
145	60	17	47	77	107	137	**175**	60	2	32	62	92	122
145	65	5	57	90	122	155	**175**	65	10	42	75	107	140
145	70	33	67	102	137	172	**175**	70	18	52	87	122	157
145	75	40	77	115	152	190	**175**	75	25	62	100	137	175
145	80	48	87	127	167	207	**175**	80	33	72	112	152	192
145	85	55	97	140	182	225	**175**	85	40	82	125	167	210
150	45		15	37	60	82	**180**	45			22	45	67
150	50		25	50	75	100	**180**	50		10	35	60	85
150	60	15	45	75	105	135	**180**	60		30	60	90	120
150	65	22	55	87	120	152	**180**	65	7	40	72	105	137
150	70	30	65	100	135	170	**180**	70	15	50	85	120	155
150	75	32	75	112	150	187	**180**	75	17	60	97	135	172
150	80	45	85	125	165	205	**180**	80	30	70	110	150	190
150	85	52	95	137	180	222	**180**	85	37	80	122	165	207
155	45		12	35	57	80	**185**	45			20	42	65
155	50		22	47	72	97	**185**	50		7	32	57	85
155	60	12	42	72	102	132	**185**	60		27	57	87	117
155	65	20	52	85	117	150	**185**	65	5	37	70	102	135
155	70	28	62	97	132	167	**185**	70	13	47	82	117	152
155	75	35	72	110	147	185	**185**	75	20	57	95	132	170
155	80	43	82	122	162	202	**185**	80	28	67	107	147	187
155	85	50	92	135	177	220	**185**	85	35	77	120	162	205
160	45		10	32	55	77	**190**	45			17	40	62
160	50		20	45	70	95	**190**	50		5	30	55	80
160	60	10	40	70	100	130	**190**	60		25	55	85	115
160	65	17	50	80	115	147	**190**	65	2	35	67	100	132
160	70	25	60	95	130	165	**190**	70	10	45	80	115	150
160	75	32	70	107	145	182	**190**	75	17	55	92	130	167
160	80	40	80	120	160	200	**190**	80	25	65	105	145	185
160	85	47	90	132	175	217	**190**	85	32	75	117	160	202
165	45		7	30	52	75	**195**	45			15	37	60
165	50		17	42	67	92	**195**	50		2	27	52	77
165	60	7	37	67	97	127	**195**	60		22	52	82	112
165	65	15	47	80	112	145	**195**	65		32	55	97	130
165	70	236	57	92	127	162	**195**	70	8	42	77	112	147
165	75	30	67	105	142	180	**195**	75	15	52	90	127	165
165	80	38	77	117	157	197	**195**	80	23	62	102	142	182
165	85	45	87	130	172	215	**195**	85	30	72	115	157	200

Table 6

7.17. ADJUSTMENT OF MARKER DISC

Place the sleeve which carries the disc on to two arms of the marker. Place the disc and x with safety pin without too much tightening of bolts (Fig. 31). Find the space (L, Fig. 27) to which reference furrow should be plowed with disc by using Table 6. Put the disc in right space, move it to down gently and tighten the bolts rmly (Fig. 32). The best working position of discs for normal soil is shown with picture A in Fig. 33. Bring the disc to position that shown with picture B in Fig. 33. for hard soils.

Apply the following rules forte spaces that not found on the table:
L: (D x (N+1)- C : 2
D: Row space distance
N: Row numbers
C: Tractor track width
L: The space between marker and outermost sowing unit

Example:
D= 75 cm
N= 8 units
C= 190 cm
L= 75X(8 +1)-190:2=242, 5cm

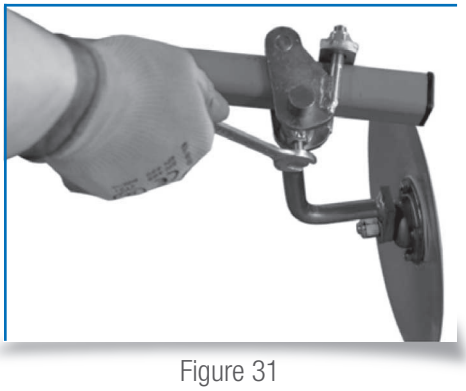


Figure 31

ATTENTION

Lift the markers and x them with safety pins before taking the road. Also the marker discs should be turned to inner side of machine (Fig. 32). By this way the maximum allowable width of machine is not been exceed on road conditions.

Figure 32

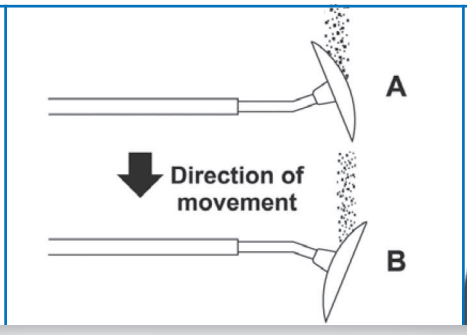


Figure 33

Figure 34

7.18. ADJUSTMENT OF FERTILIZER FOOT

Coulter runs with standard space and parallel to seed row. Be careful about the distance to be appropriate to fertilizer type and diameter of the eld for not to damage the crop. Otherwise, change the distance. You can adjust the depth of fertilizer foot by changing the height of spring that indicated in Fig 3T After completing this process we recommend you to cut the rest of pipe for preventing fertilizer jam because of the bend of pipe.

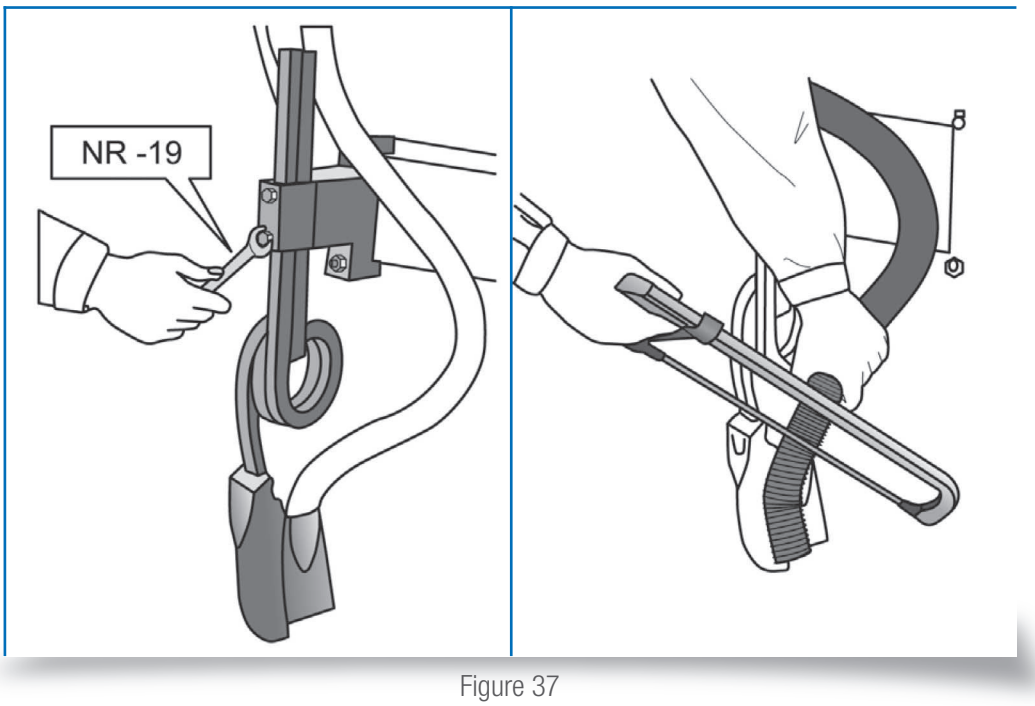


Figure 37

WARNING

Be careful about the fertilizer coulter and sowing coulter are not in the same line. Falling of seed and fertilizer into the same bed can damage the seed.

FERTILIZER NORMS				
	Gear Type Wheel 16 Fertilizer 23		Gear Type Wheel 23 Fertilizer 16	
	Degree	Decare - Kg	Degree	Decare - Kg
Space between raws 30 cm	5	37,8	5	
	8	54,6	8	107,5
	11	68,4	11	140,7
	14	83,1	14	170,5
	16	92,4	16	192,3
	18	103,7	18	214,2
	21	118,4	21	248,2
	23	128,5	23	267,1

FERTILIZER NORMS				
	Gear Type Wheel 16 Fertilizer 23		Gear Type Wheel 23 Fertilizer 16	
	Degree	Decare - Kg	Degree	Decare - Kg
Space between raws 35 cm	5	32,4	5	
	8	46,8	8	92,1
	11	58,7	11	120,6
	14	71,3	14	146,1
	16	79,2	16	164,8
	18	88,9	18	183,6
	21	101,5	21	212,7
	23	110,1	23	228,9

FERTILIZER NORMS				
	Gear Type Wheel 16 Fertilizer 23		Gear Type Wheel 23 Fertilizer 16	
	Degree	Decare - Kg	Degree	Decare - Kg
Space between raws 40 cm	5	28,3	5	
	8	40,9	8	80,6
	11	51,3	11	105,5
	14	62,4	14	127,9
	16	69,3	16	144,2
	18	77,8	18	160,6
	21	88,8	21	186,1
	23	96,4	23	200,3

FERTILIZER NORMS				
	Gear Type Wheel 16 Fertilizer 23		Gear Type Wheel 23 Fertilizer 16	
	Degree	Decare - Kg	Degree	Decare - Kg
Space between raws 45 cm	5	25,2	5	
	8	36,4	8	71,7
	11	45,6	11	93,8
	14	55,4	14	113,7
	16	61,6	16	128,2
	18	69,1	18	142,8
	21	78,9	21	165,4
	23	85,7	23	178

Table 6

TABLE IS PREPARED ACCORDING TO 1 DECARE (1000 m²) TESTS WERE DONE WITH MIXED FERTILIZER INCLUDING 20x20x0 TRACE ELEMENT

FERTILIZER NORMS				
	Gear Type Wheel 16 Fertilizer 23		Gear Type Wheel 23 Fertilizer 16	
	Degree	Decare - Kg	Degree	Decare - Kg
Space between raws 50 cm	5	22,7	5	
	8	32,8	8	64,5
	11	41,1	11	84,4
	14	49,9	14	102,3
	16	55,4	16	115,4
	18	62,2	18	128,5
	21	71,1	21	148,9
	23	77,1	23	160,2

FERTILIZER NORMS				
	Gear Type Wheel 16 Fertilizer 23		Gear Type Wheel 23 Fertilizer 16	
	Degree	Decare - Kg	Degree	Decare - Kg
Space between raws 55 cm	5	20,6	5	
	8	29,8	8	58,6
	11	37,3	11	76,7
	14	45,4	14	93
	16	50,4	16	104,9
	18	56,6	18	116,8
	21	64,6	21	135,4
	23	70,1	23	145,7

FERTILIZER NORMS				
	Gear Type Wheel 16 Fertilizer 23		Gear Type Wheel 23 Fertilizer 16	
	Degree	Decare - Kg	Degree	Decare - Kg
Space between raws 60 cm	5	18,9	5	
	8	27,3	8	53,7
	11	34,2	11	70,3
	14	41,6	14	85,2
	16	46,2	16	96,2
	18	51,9	18	107,1
	21	59,2	21	124,1
	23	64,2	23	133,5

FERTILIZER NORMS				
	Gear Type Wheel 16 Fertilizer 23		Gear Type Wheel 23 Fertilizer 16	
	Degree	Decare - Kg	Degree	Decare - Kg
Space between raws 70 cm	5	16,2	5	
	8	23,4	8	46,1
	11	29,3	11	60,3
	14	35,6	14	73,1
	16	39,6	16	82,4
	18	44,5	18	91,8
	21	50,8	21	106,4
	23	55,1	23	114,5

Table 6

TABLE IS PREPARED ACCORDING TO 1 DECARE (1000 m²) TESTS WERE DONE WITH MIXED FERTILIZER INCLUDING 20x20x0 TRACE ELEMENT

7.19. IMPELLER

The impeller (Fig 38) creates a vacuum inside the distributors, so that the seeds are aspirated onto the holes in the plate. The tensioning and the good condition of the belt (4, Fig 38) have a vital importance for the operation of the impeller and the sucess of the sowing. The belt is correctly tensioned whem it does not yield under the pressure of a hand.

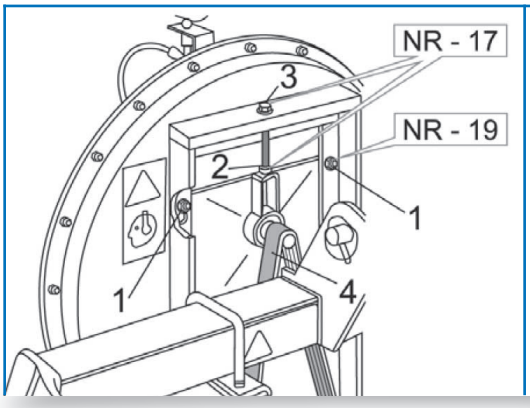


Figure 38

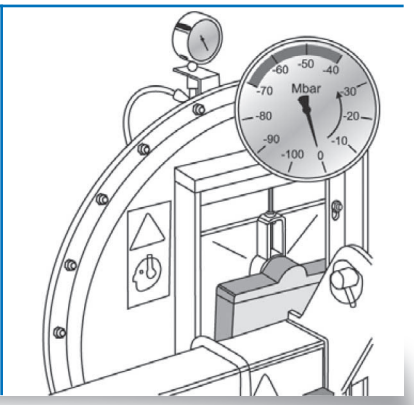


Figure 39

Belt control:

- Remove the protective cover
- Loosen the screws (Fig.38 no:1)
- Loosen the nut (Fig.38 no:2)
- Change the belt if it is worn
- Tension the belt by tightening the screws (Fig.38 no:3)
- Tighten the bolts loosend before and close the protective cover.

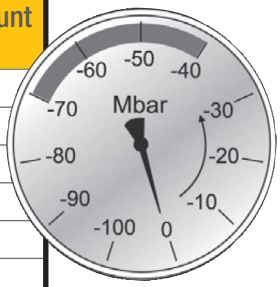
Vacuum meter:

The vacuum meter (Fig.39) is a device which enables to control the pressure. By means of this vacuum meter the aspiration measures ranging from 0 to 100 mbar can be measured.The average aspiration values for the large seeds are: 60-70 mbar and for small seeds: 40-50 mbar.

Comply with the number of rpm which is recommended.

VACUUM TABLE

Disc Hole Number	Disc Hole Diameter	Seed Type	Advised Seed Amount
10	4,5	Pumpkin	25-30
20	3	Sunower	30-40
20	2,5	Melon, Watermelon	30-35
26	4,5	Com, Bean	40-50, 50-60
36	1,5	Okra, Cucumber	30-35
36	2	Beet	25-30
52	3,5	Soybean	35-45
72	1,5-1	Tomato, Spinach	25-30
72	3,5	Cotton	40-50
104	1,2	Onion	25-30



7.20. PREPARATION OF THE MACHINE FOR SOWING PROCESS

WARNING

- All operations should be done by competent people. Protective gloves, boot and appropriate clothes must be worn.
- Be sure that there are no foreign materials as paper, rope, etc. in the seed and fertilizer hopper.
- Turn the drive wheels by hand in the movement direction of sowing machine.
- Regulate the selector by checking the seed whether one seed fall into each hole of disc or not from observation holes (Fig. 40).
- You can determine the amount of seed that you required from seed amount table (Table 4).

Figure 40

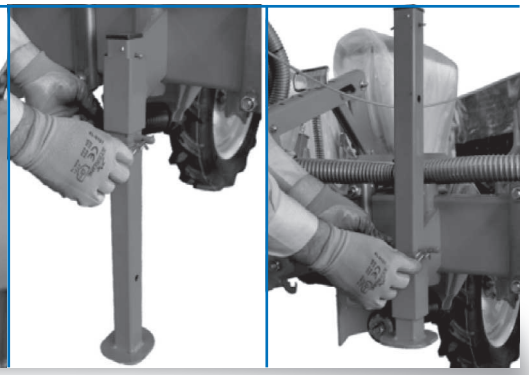


Figure 41

WARNING

- For without fertilizer hopper machines, lift the abutments (Fig.41) and for the with fertilizer hopper machines lift the abutments and fix them by turning reverse before starting to operation.
- Tighten the bolts (1, Fig. 12) to prevent bounce of furrow opener foot before working on stony soil.
- Check the distributor whether it drops a seed or not in several meters every time during the sowing.
- After sowing, discharge the rest of the seed from distributor lid that indicated with Fig. 42.
- Before going a distant place except for sowing unload the seed depots and perforated plates of the sowing units for preventing blockage due to the stuck of the seeds.

7.21. OTHER RULES FOR SOWING

Figure 42

- There is an acoustic signal (bell) on hinge axle that transmits the movement to each sowing unit (5, Fig. 26). The signal rings when the pin (3, Fig. 26) is broken down. The pin is broken down due to compaction that is happened in distributor, shaft begins to run idle for not to damage the other important mechanical device and the sound of bell alerts the driver. In such a case stop the tractor and repair the breakdown. Breakdown is occurred due to broken down of the pin. Disengage the broken pin and replace it. (Use the device that given with the machine forthis operation)
- When you arrive at the turning points in the end of the parcel, keep the speed of PTO shaft for enabling the hold of the seeds to the perforated plate.
- Check the seed distributor frequently during the sowing. Adjust the selector if there is any irregularity.
- If you see a fall in the amount of suction during sowing, check the hoses whether there is a hole or it is jammed. Clean the hose or replace it if there is a hole on the hose or it is jammed. Also check the tension of impeller belt.

WARNING

- Shape, dimensions and materials of exible pins are designed specically for your machine. Using more durable pins (high durable for breakage) or not using original pins can damage your machine.
- Give the movement to PTO shaft slowly and gradually. Giving the movement sharply is dangerous for impeller belt.
- Do not make maneuver and do not go back while furrow opener foot and coulter foot are under the soil. Lift the machine from three point linkage system on turns and while going back.
- Do not use certainly synchronized PTO shaft for running your machine.
- Do not exceed 540 rpm of PTO.
- Never operate the PTO on maximum rotation when the machine attached the tractor.
- Forward speed of the machine should be appropriate to type of soil for preventing damages and breakdowns.
- Do not land your machine when it is mounted to the tractor. Otherwise you can cause the furrow opener foot to jammed and damage. Do not make manouevre with the landed seed drill for the same reason, at the turning points.
- Be careful about not to enter foreign materials as paper, rope, etc. to hoppers while lling seed and fertilizer.

DANGER!

- Clear the children and animals from the area for preventing them from chemical materials.

7. USAGE OF THE MACHINE

WARNING

- Do not put heavy materials into the fertilizer hopper. You can damage the fertilizer distributor system. Be careful about lling the fertilizer from outside of the machine.
- Do not disengage the sieve from the hopper. Using without sieve is dangerous for fertilizer distributor gear team.
- Do not open the seed and fertilizer hoppers lid while the machine is running. Do not forget that there are chemicals in hoppers.

7.22. PREPARATION FOR SOWING

Sowing units are connected parallel with mechanical component to the same frame on sowing machines. Adjustments should be appropriate for seed and soil type.

7.22.1. COMPONENTS OF SOWING INTO DEEP

There are two types of sowing components for average depth degree according to hardness of seed bed.

- Pressure wheels and furrow opener foot that indicated with Fig. 43 are recommended to use for cultivated soil.
- Furrow opener foot with double disc is more appropriate for stony and hard soil.

There are three dierent types of pressure wheel for dierent types of soil:

1) Farmex Wheel: It is recommended for moisture and sand soil.
2) V Type Rubber Wheel: It is appropriate for moisture and hardness soil.
3) V Type Iron Wheel: It is appropriate for dry and average hardness soil.

Figure 43

Figure 44

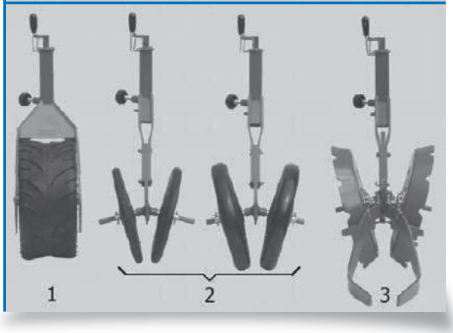


Figure 45

7.22.2. COMPONENTS OF SOWING TO SURFACE

Sowing machine has a standard balance system with plastic additional wheel (Ø=280mm) for sowing to surface. There are also three dierent types of pressure wheel for dierent demands (Fig. 47).

1) Concave Rubber Wheel (Ø=290mm): It is appropriate especially for sowing sugar beet.
2) V Type Rubber Wheel: It is appropriate especially for moisture and hardness soil.

Figure 46

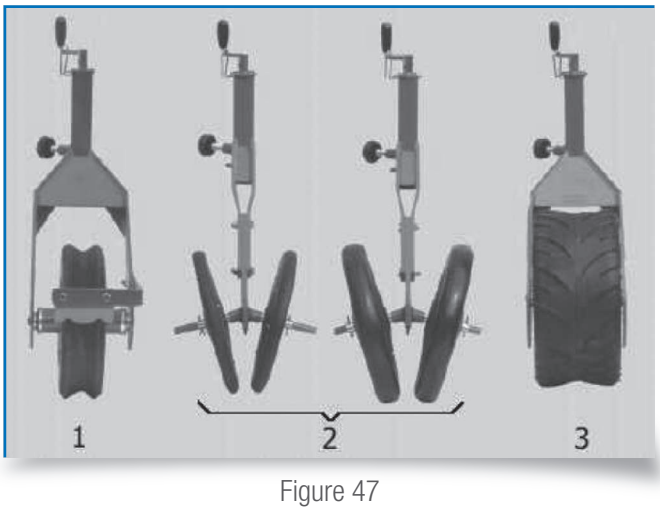


Figure 47

7.22.3. ADJUSTMENT OF REAR PRESSURE WHEEL

Rear system of sowing unit is important for sowing high quality seed. These components are used for adjusting depth of seed. They are also used for covering the seed after throwing away seed. They should be adjusted properly according to soil and seed type. You can change the position of rear wheel by using support components as shown in Fig. 48.

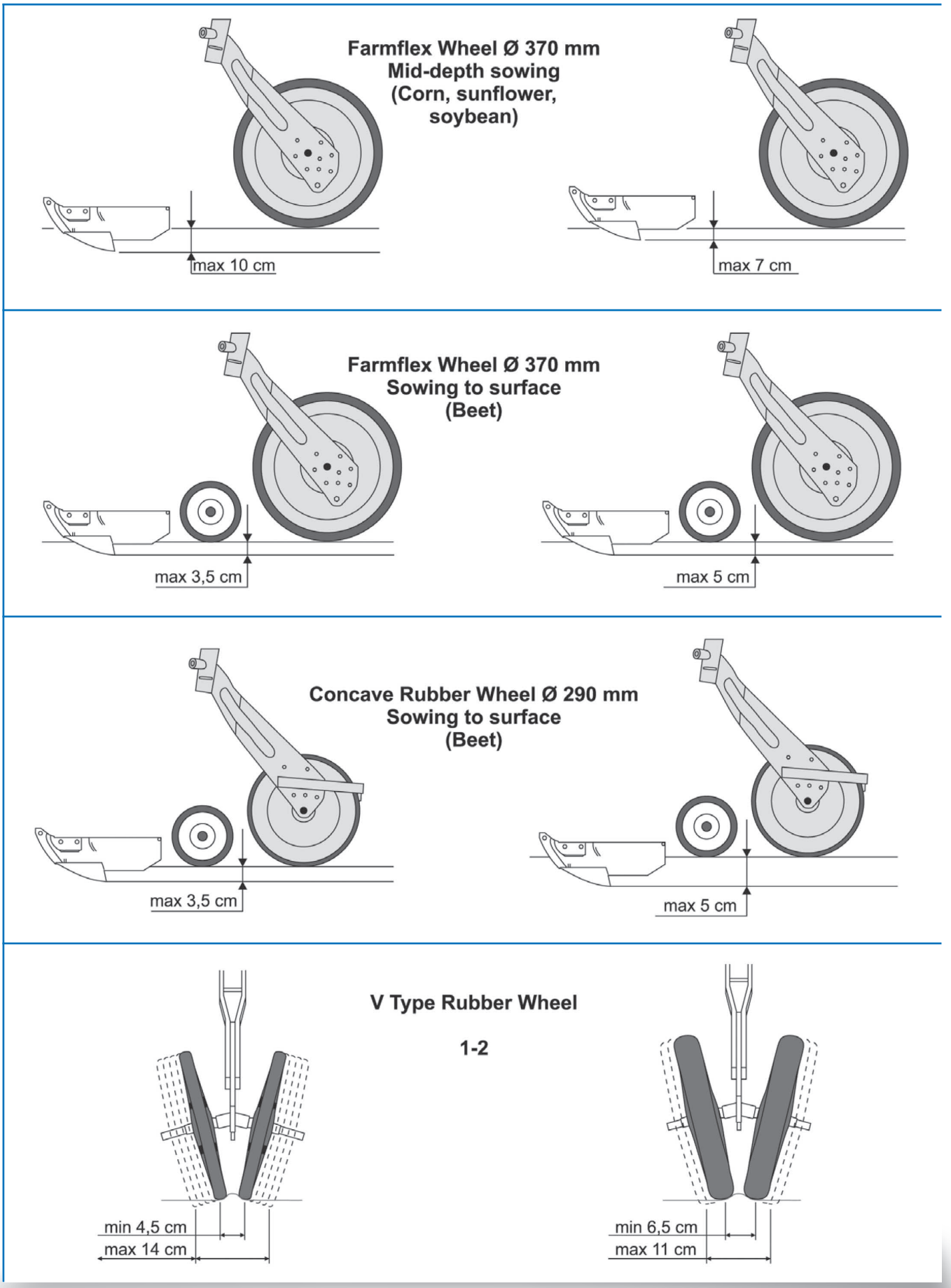

Farmflex Wheel Ø 370 mm
Mid-depth sowing
(Corn, sunflower,
soybean)
max 10 cm
max 7 cm
Farmflex Wheel Ø 370 mm
Sowing to surface
(Beet)
max 3,5 cm
max 5 cm
Concave Rubber Wheel Ø 290 mm
Sowing to surface
(Beet)
max 3,5 cm
max 5 cm
V Type Rubber Wheel
1-2
min 4,5 cm
max 14 cm
min 6,5 cm
max 11 cm

Figure 48

8. DEPOSITION OF THE SEED FOR DISC MODEL PLANTERS

8.1. PLANTING UNIT

In order to ensure that the seeds are all planted at a uniform depth, a few simple adjustments should be made to the plant-ing unit. Adjust the seeding depth by changing the height of the side wheels A numbered scale.

8.2. REAR COVERING WHEELS

The rear set-up of the seeding elements is of considerable importance in quality sowing.
These elements are crucial to the covering of the seeds after they have been sown. They should therefore be suitably adjusted according to the type of seed and type of ground:
- Change the position of the rear wheels on their support as shown in the diagram in Figure 27;
- Sing the handle (4, Fig. 26), adjust the pressure of the rear inclined wheels for closing and packing the seed furrow.

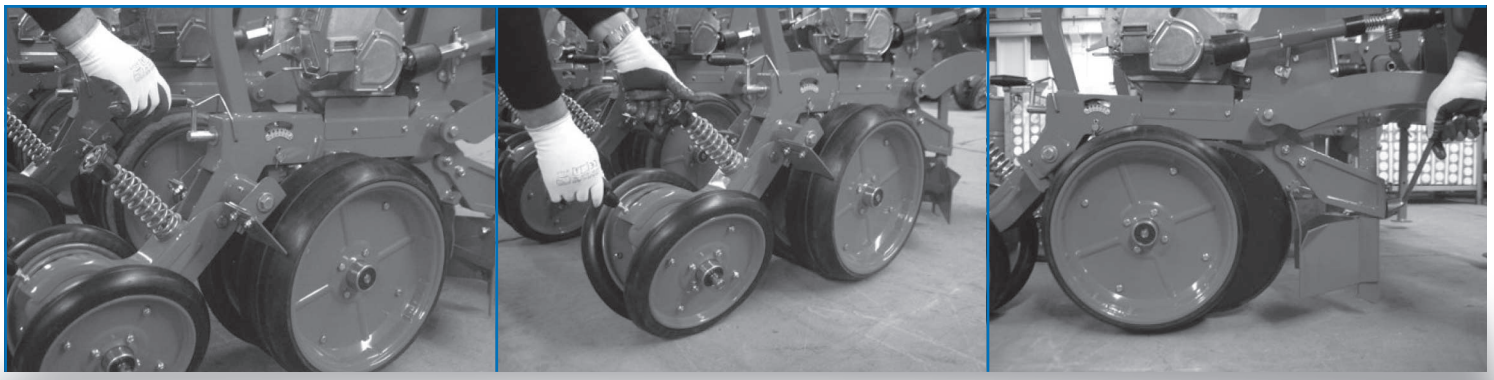
8.3 FRONT CLOD CLEARER

The action of the front clod clearer is crucial to correct and homogeneous sowing; it allows the track of the element's depth wheels (1, Fig. 26) to be cleared of the largest clods (TIP 50) that could cause irregular planting depth.

IMPORTANT!

- Use the front clod clearer only where there are large clods.
- The use of the clod clearer must not create dips in the seedbed.
- Not suitable for sowing on stony ground.

Changing from one type of ground to another entails adjustment of the clod clearer's position.



9. MAINTENANCE

The following is a list of various maintenance operations to be carried out periodically. Reduced operating costs and a longer lasting seeding machine depend, among other things, on the methodical and constant observation of these rules.

The maintenance periods listed in this manual are only intended as a general indication and apply to normal operating conditions. They may, therefore, vary depending on service conditions, dust factors, seasonal factors, etc. For heavier conditions of service, maintenance will, of course, have to be carried out more frequently.
Before injecting grease, the nipples must be cleaned to prevent mud, dust and foreign bodies from mixing with the grease which would reduce or totally annul the effect of the lubrication.

ATTENZIONE

Always keep oils and grease out of the reach of children. Always read the warnings and precautions on the containers carefully.
Avoid skin contact After use wash thoroughly.
Dispose of the used oils and polluting liquids in conformity with the laws in force.

0.1 WHEN THE MACHINE IS NEW

After the first eight hours of operation, check that all the bolts still tight.

10.2 AT THE BEGINNING OF THE SFFDINIG SEASON

- Check the pressure of the tyres
- Check the tensioning and the state of wear of the drive chains. Check the fixing and the state of wear of all the suction tubes and the delivery tubes for fertilizer and other chemical products.
- Run the seeding machine loadless, the airflow clears the pipes of condensation and removes any impurities.

0.3 EVERY EIGHT HOURS OF OPERATION

- Grease the universal joint spiders.
- Grease the pin of the seeding depth control wheels (i, Fin. 50).
- Check the tensioning of the aspirator belt.

10.5 AT THE END SEASON

At the end of the season, or if a long period of rest is foreseen it is advisable to:
- Wash the equipment thoroughly with water, especially the chemical subustance hoppers, then dry them.
- Carefully check for worn or damaged parts and repiace then where required.
- Adjust the belt of the diffusion air pump and replace it if necessay
- Firmiy tighten all screws and bolts.
- Oil all the drive chains and apply lubricant to all unpainted parts.
- Protect the equipment with a (nylon) cover.
- Then position it stably in a dry place out of the reach of unauthorized people.

9. MAINTENANCE

8.4 THE END OF OPERATION

- Disconnect the power take-off.
- Lock the row marker arms and the toolbar in position with the safety bolts.
- At the end of seeding, discharge the remaining seeds through the distributor door.
- Carry out road transfers with the hoppers empty. Unscrew the discharge pipe caps remove any residual product.
- During road transport, observe the Highway code in force in your contry.

8.5 DAILY REST PERIOD

-Put the support legs in the parking position
-Disconnect the cardan shaft.
- Unhook the equipment from the tractor.
-Wash the equipment with abundant water, giving special attention to the hoppers that contained chemical substances, and then dry it.
- On completion of the work, the hopper should be carefully cleaged.This particularly applies to the fertilizer hoppers. Unscrew the discharge pipe caps remove any residual product (1, Fig. 51), take off the cleaning door (2, Fig. 51) and wash thoroughly with water. Adhere to the ecological standards applicable-far the disposal “Of polluting liquids”.
- Put it in a place where it will be out of the reach of unauthorized persons.

8.3 PLANTING UNIT EXCLUSION

Switch off the tractor and remove the ignition key. Raise the single seeder from the ground as follows;
- Turn the winged nut of the hooking lever anticlockwise.
- Lift the planting unit using the lever.

8.1 PLANTING UNIT

In order to ensure that the seeds are all planted at a uniform depth, a few simple adjustments should be made to the planting unit. Adjust the seeding depth by changing the height of the side wheels using the crank A bumbered scale enables all of the parts to be adjusted to the same degree.

8.2 REAR COVERING WHEELS

The rear set-up of the seeding elements is of considerable importance in quality sowing.
These elements are crucial to the covering of the seeds after they have been sown.They should therefore be suitably adjusted according to the type of seed and typr of ground:
- Change the position of the rear wheels on their support as shown in the diagram in Figure
- Using the handle adjust the pressure of the rear incliened wheels for closing and packing the seed furrow.

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9. MAINTENANCE

Here follows a list of various maintenance operations to be carrying out periodically. Lowered operating costs and a longer lasting machine depend, among others, on the methodical constant observation of these rules.
The maintenance periods listed in this manual are only indicative and are for on normal conditions on use therefore be varied depending the kind of service, the more or less dusty surroundings, seasonal factors, etc. For more serious conditions of service, maintenance will logically be done more often.
Before injecting grease, the nipples must be cleaned to avoid mud, dust and foreign bodies from mixing with the grease; otherwise they will reduce or even annul the eect of the lubrication.
- After use wash the equipment thoroughly
- After the every eight hours of work check that all the bolts are still tight.
- For all greasing points use the suggested grease and if your machine has gearbox, use the gearbox oil. After 400 working hours replace the gearbox oil new one completely (2L).

At the end of the season or if a long period of rest is for seen it is advisable:
- Carefully check worn or damaged parts and replace if necessary.
- Tighten all screws and bolts.
- Grease the all unpainted parts. Protect the equipment with a cover (such as nylon and etc.).
- Keep your machine in a dry place. Don't move it and keep away from unauthorized people.
- If these operations are done carefully, it will be total advantage for you because next season your machine will be perfectly ready to work.
- Finally, we remind you that the manufacturer is always available for any and all necessary assistance and spares.

10. DETACH OF THE MACHINE FROM THE TRACTOR

1. Park the tractor on a at surface, pull the handbrake and put the wheel chock to tires.
2. Hydraulic arms of tractor should be alignment.
3. Lower the machine by means of the tractor hydraulic arms.
4. Wind up the machine support leg and insert the safety pin
5. If your machine has shaft dismount the shaft from tractor.
6. If your machine has hydraulic hoses depressurize the pressure through tractor's hydraulic valve and disconnect the hydraulic hoses from the tractor.
7. If your machine has electric system disconnect the electric connections from the tractor when tractor is in stop position.
8. Pull out the connection pins.

11. TROUBLESHOOTING

No	Problem	Possible Cause	Suggestion
1	There is no seed on sowing discs.	There is no shaft-tractor connection or air impeller belt is disengaged.	Attach the shaft to the tractor. Change he air impeller belt.
2	There is no seed on one of the sowing discs.	Air suction hose has worn out.	Change the air suction hose.
3	There is seed on the sowing disc but sowing operation is not performed.	Sowing unit movement transmisson chain is ruptured or sowing coulter is clogged with soil.	Engage the chain. Clean the sowing coulter.
4	Seeds fall down to the row irregularly.	Machine is not attached to the tractor by three point linkage system as parallel to the land.	Make the parralelism adjustment from the top link of the tractor.
5	Seed falls down to the rows as deciently.	Air impeller vacuum is inadequate.	Increase the vacuum.
6	Spaces are narrow or wide in turnings.	Marker adjustment is not suitable.	Make the marker adjusment again.
7	There is more than one seed at the same point on the row.	Selector adjustment is not suitable.	Make the selector adjusment again.
8	Planter do not pour down fertilizer.	Fertilizer wheel movement transmission chain is loosen or ruptured. Hoses or pulleys are clogged.	Tight or change the chain. Clean hoses and pulleys.
9	There is no seed in some holes on sowing discs.	Sowing disc is sloped or disc gaskets are worn out	Change sowing discs and disc gaskets

WARNING

- The maintenances that explained in this manual are valid for normal terms of use. So they can be changed according to working and weather conditions.
- Clean the grease nipple before lubricating to prevent decreasing the oil quality according to mixing of dust and foreign materials with oil. This cleanness is increased the eciency of lubricating.

NOTES

ALPLER

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