SINGLE DISC ROW UNIT SYSTEM WITH PARALLELOGRAM

B) Row unit. "Single disk system"

Opener disk: (Picture 2) It is composed by 17.3/4" single disk unit and hoe, which enables ground and residue cutting to prepare the furrow for seed/fertilizer reception.
The disk is mounted on forged steel hubs with double adjustable conical bearings and sealed with grease seals
(Picture 3)
The exclusively designed hoe has been provided with a spring system, allowing a permanent contact with the disks and avoiding residue income to the disks
(Picture 4).
Seeding depth control is carried out by a gauge wheel surrounded by a rubber band (semi-pneumatic), 3.3/4" x 15" featuring a rim with metal cleaner edge, the system can be manually adjusted (Picture 5).

Figura / Picture 3

Figura / Picture 2

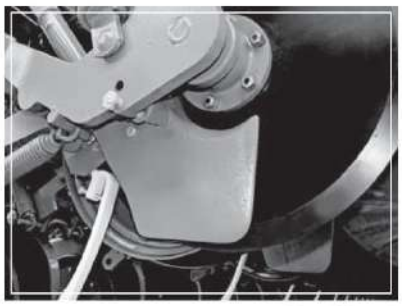
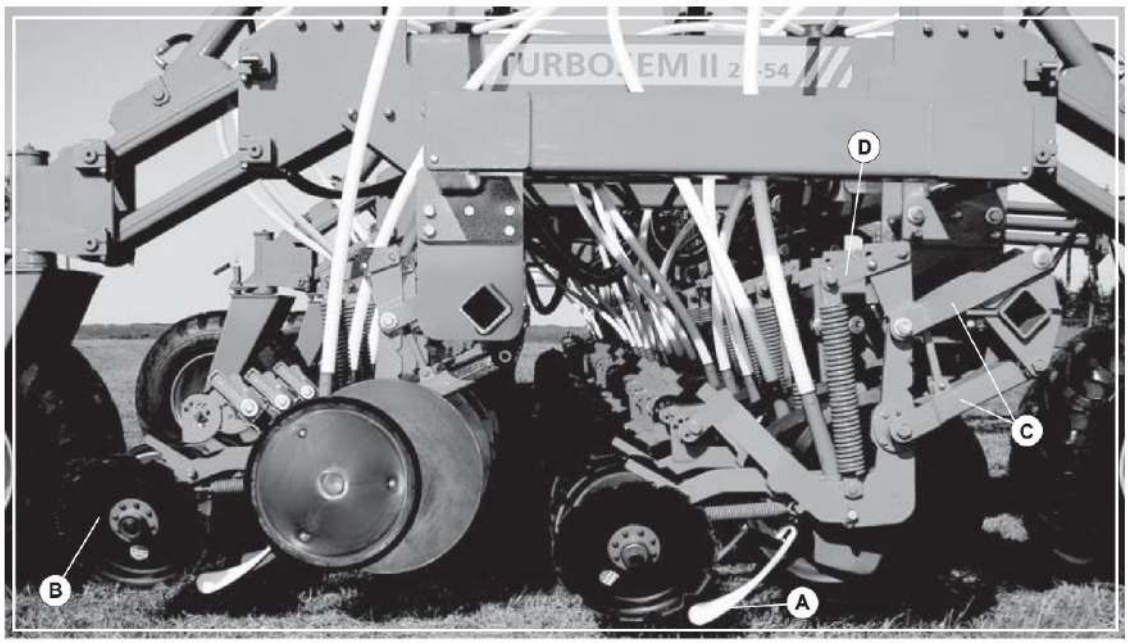


Figura / Picture 4

Figura / Picture 5



The seed firmer is made of synthetic flexible material: acetal resin with polyurethane. It ensures seed-ground contact and contributes to seeding uniformity (Picture 6-A).

A set of closing notched wheels are in charge of furrow closing. This task is carried out by means of a down-pressure spring, adjustable angle of attack and forged steel hubs with double adjustable conical bearings. One of them can be removed if it is required by work field conditions (Picture 6-B).

The opener disk is mounted onto the frame by means of parallelogram system which allows ground contour following while maintaining seeding row always perpendicular to the ground. In this way, the hoe always works with the same angle of attack, not varying seed/fertilizer drop position (Picture 6-C).

Down-force load is transferred by a tension spring and can be set in one-out-of three different load positions, adjusted by a hydraulic tensioner provided within the seeder tools

F) Row unit adjustment

1) Down-force load is transferred to seeding row by a tension spring. It has three positions:
   Upper position: maximum downforce
   Middle position: medium down-force

Lower position: minimum down-force (Picture 10).
When using traditional tillage, remove pin (Picture 11-A) to free spring from down-force (Picture 8-B).
A hydraulic tensioner provided within the seeder tools, should be used to carry out the task (Picture 12).

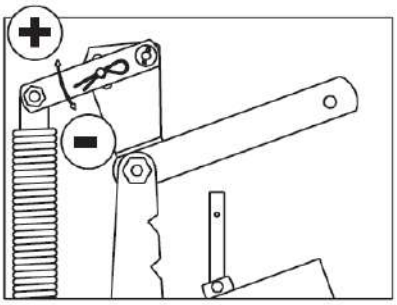


Figura / Picture 10

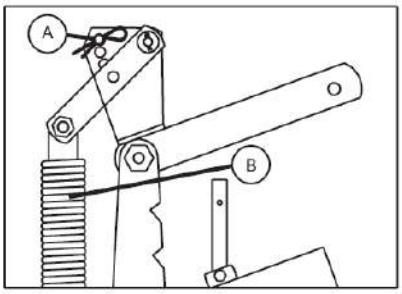


Figura / Picture 11

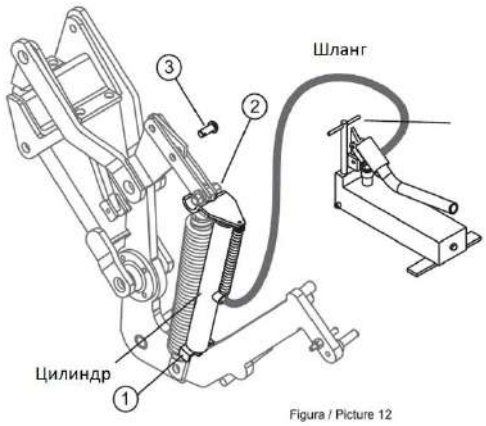


Figura / Picture 12

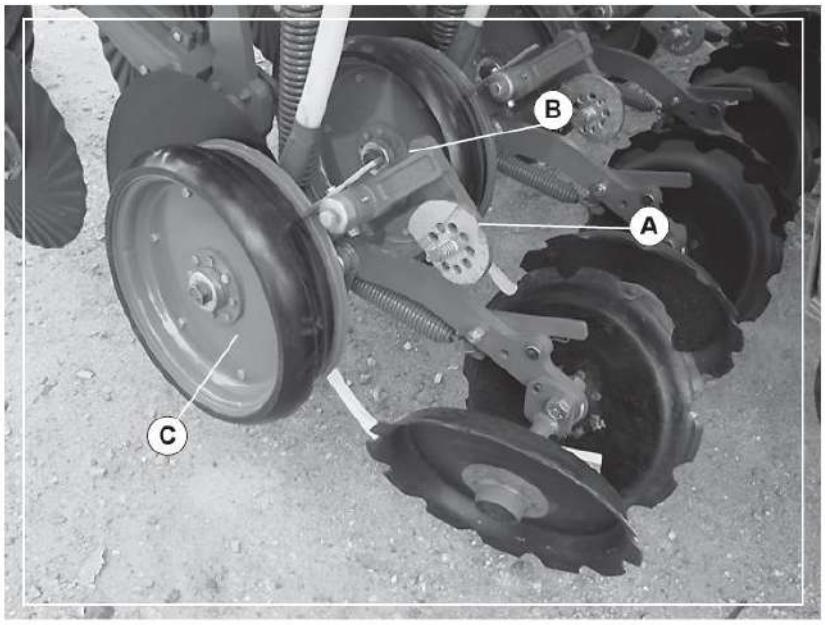


Figura / Picture 13

2)Seeding depth is limited by a gauge wheel wich has an 8-position manually operated eccentric adjustment (Picture 13-A) which operates as stop-end to the arm (Picture 13-B) of the gauge wheel (Picture 13-C).
The gauge wheels arms should be in contact with the eccentric adjustment, if this does not occur, down-force load should be increased on the spring.

3) Closing wheels adjustment: Closing wheels are adjusted by means of a 3-position tension adjustment (Picture 14-A), used to apply heavier or lighter down-force, as required by ground field. A handle allows the adjustment movement, thus enabling a change in the position of the slotted pin (Picture 14-B) used to lock and modify spring down-pressure.
It also counts on a 2- position angle of attack adjustment (Picture 15-A)

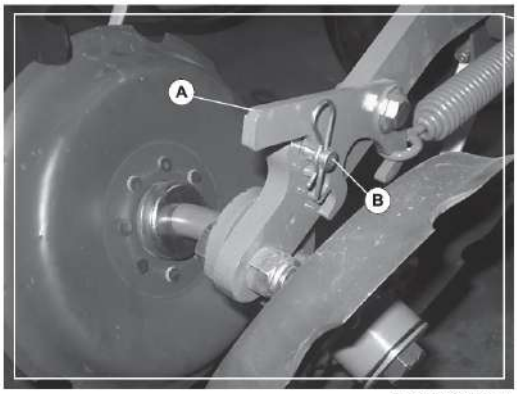


Figura / Picture 14

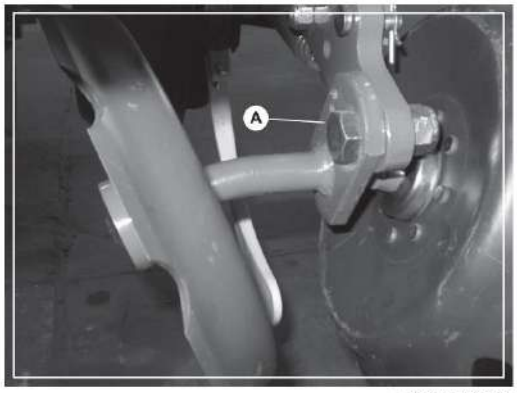


Figura / Picture 15

G) Row lifting and locking parts

The row unit structure has two locking levels and a lock placed on the lower parallelogram (Picture 16-A)

The upper level enables a higher clearance, in case there is a need of moving the implement

The lower level locks the seeding row. Proceed as follows:

- Remove pin from spring to free from down-pressure load (Picture 16-D).
- Lift the row and position at lower level (Picture 16-C).

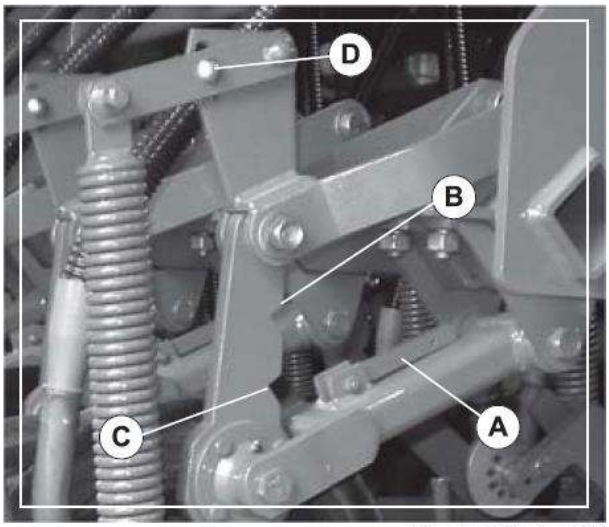


Figura / Picture 16

Checking opener disks

Openers should be inspected frequently for wear or damage. The hoe on each opener counts on an extra register slot (Picture 17.A) which allows it to be raised. Thus, when opener is worn out, closeness between opener blade and hoe is possible. Gauge wheel may also be adjusted higher than its arm by removing central bolt and placing (or positioning) it in the upper slot (or hole) of the arm (Picture18-A). This setting adjustment makes the machine keep on achieving proper residue cutting (seed placement) with no clogging.

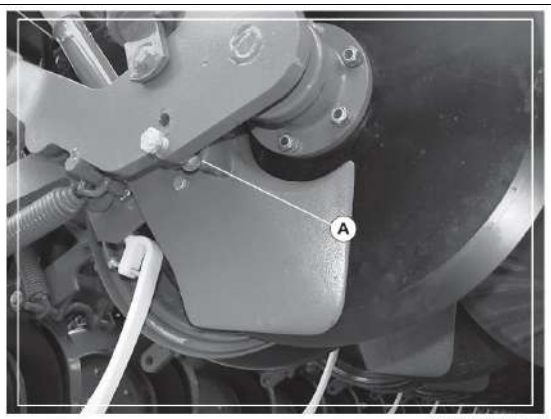


Figura / Picture 17

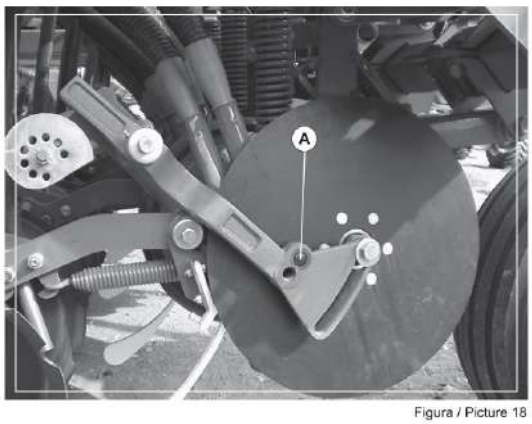


Figura / Picture 18

3) Adjusting opener hub bearings.

After removing the wheel follow these steps:

- Loosen nut and remove bolt from gauge wheel arm (Picture 19-A) (Picture 19-6)
- Remove wheel arm (Picture 19-C)
- Remove nut from opener shaft end, remove conical ball bearings (Picture 20-C) and washer spacer (Picture 20-B). Then proceed to remove all shim washers necessary.
- Install previously removed parts again. Have nut tightened torque-to-turn and check that opener disk rotates freely.
- If needed, grease all fittings.
- Install gauge wheel again.
-

4) *Adjusting gauge wheel hub bearings*

- *Remove central bolt and cover.*
- *Remove bearings and washers till the set rotates freely.*
- *Tighten central bolt correctly.*

5) *Adjusting closing wheel bearings.*

Non-detachable wheel

- *Remove ring and cover from hub.*
- *Remove central bolt, bearings and washers till the set rotates freely.*
- *Reset cover, safety ring. Clean and seal with texturing water paint.*

Detachable wheel

- *Remove central bolt and cover.*
- *Remove bearings and washers till the set rotates freely.*
- *Tighten central bolt correctly.*

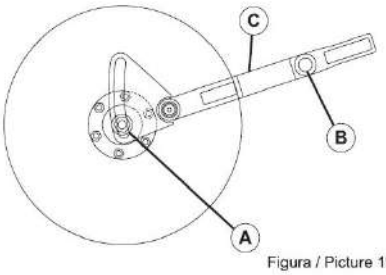


Figura / Picture 19

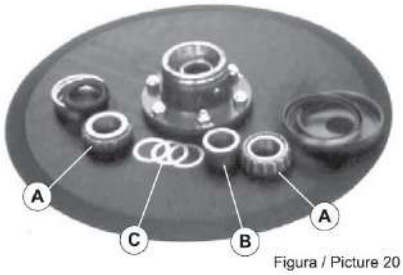


Figura / Picture 20

WARNING

To unscrew disk shaft lock-nut when looking at opener disks from behind the machine, the nuts on the right side have a right-hand threading and those on the left have a left-hand threading.

WARNING

In gauge wheels and closing wheels hubs when you do this adjustment, the hub central bolt on the right side is right –hand threading and the one on the left side is left-hand threading (looking at the machine from behind).

6) Replacing opener disks

Diameter of a new opener disk is 17.3/4" (45.08 cm). Replace disk if its diameter is less than specification -15.5" (39.4 cm) i.e. 5.6 cm disk wear

Follow these steps to replace:

- *Remove wheel and its arm (Picture 19).*
- *Remove the 6 bolts anchoring hub to disk.*
- *Replace the disk and re-assemble the unit.*

7) Shoe adjustment

Hoe must be in permanent contact with the opener disk. There are 2 possible adjustments:

A) Supplement washers between hub cover and shaft: hoe seat angle relative to disk can vary according to how washers are placed or removed (Picture 21-A).

B) Pressure adjustment

- *Loosen the nut (Picture 21-B)*

Tighten the adjusting bolt (Picture 21-C) if hoe to disk pressure is needed (Picture 21-D) (Picture 21-E)

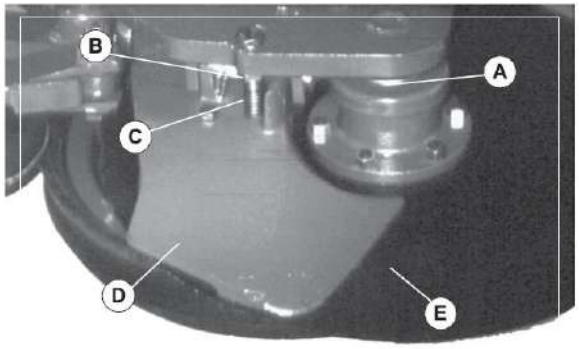


Figura / Picture 21

9) Adjusting lower parallelogram

If there are loose parts in the lower parallelogram, perform the following procedure:

- *Remove the conical nut (Picture 22-A).*
- *Remove the lower anchoring in it (Picture 22-8).*
- *Remove protection cap (Picture 23-A).*
- *Remove cone (Picture 23-B).*
- *Remove attaching washers as necessary (Picture 23-C).*

Assemble parts and check that they are tightened to the torques but do not exceed tightening.

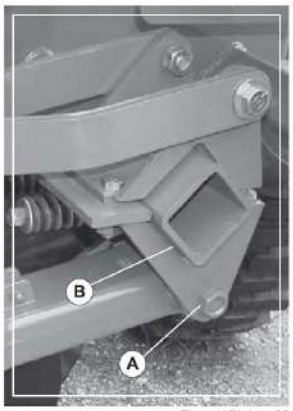


Figura / Picture 22

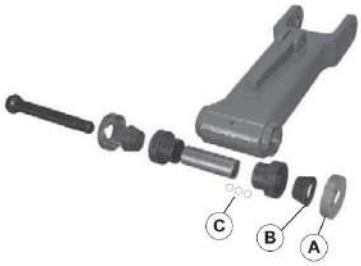


Figura / Picture 23

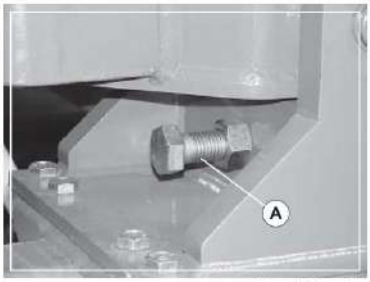


Figura / Picture 24

PUNTOS DE LUBRICACIÓN

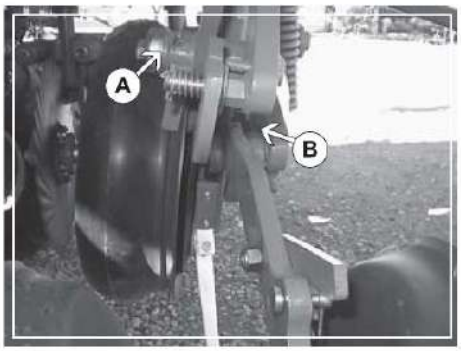


Figura / Picture 30

A- Lubricar cada 25 horas
B- Lubricar cada 35 horas

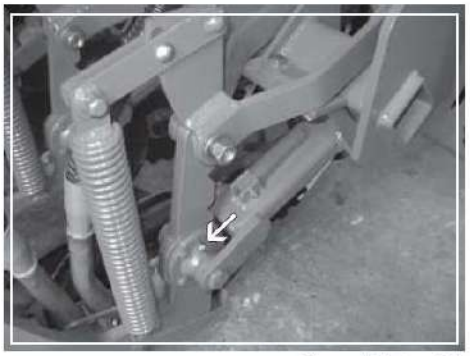


Figura / Picture 34

A- Lubricar cada 50 horas