



ABONADORA DE UN DISCO
ONE DISC SPREADER

ROXY



MANUAL DE INSTRUCCIONES
INSTRUCTIONS MANUAL

www.bmc-agricola.es



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1. DANGERSIGNS IDENTIFICATION

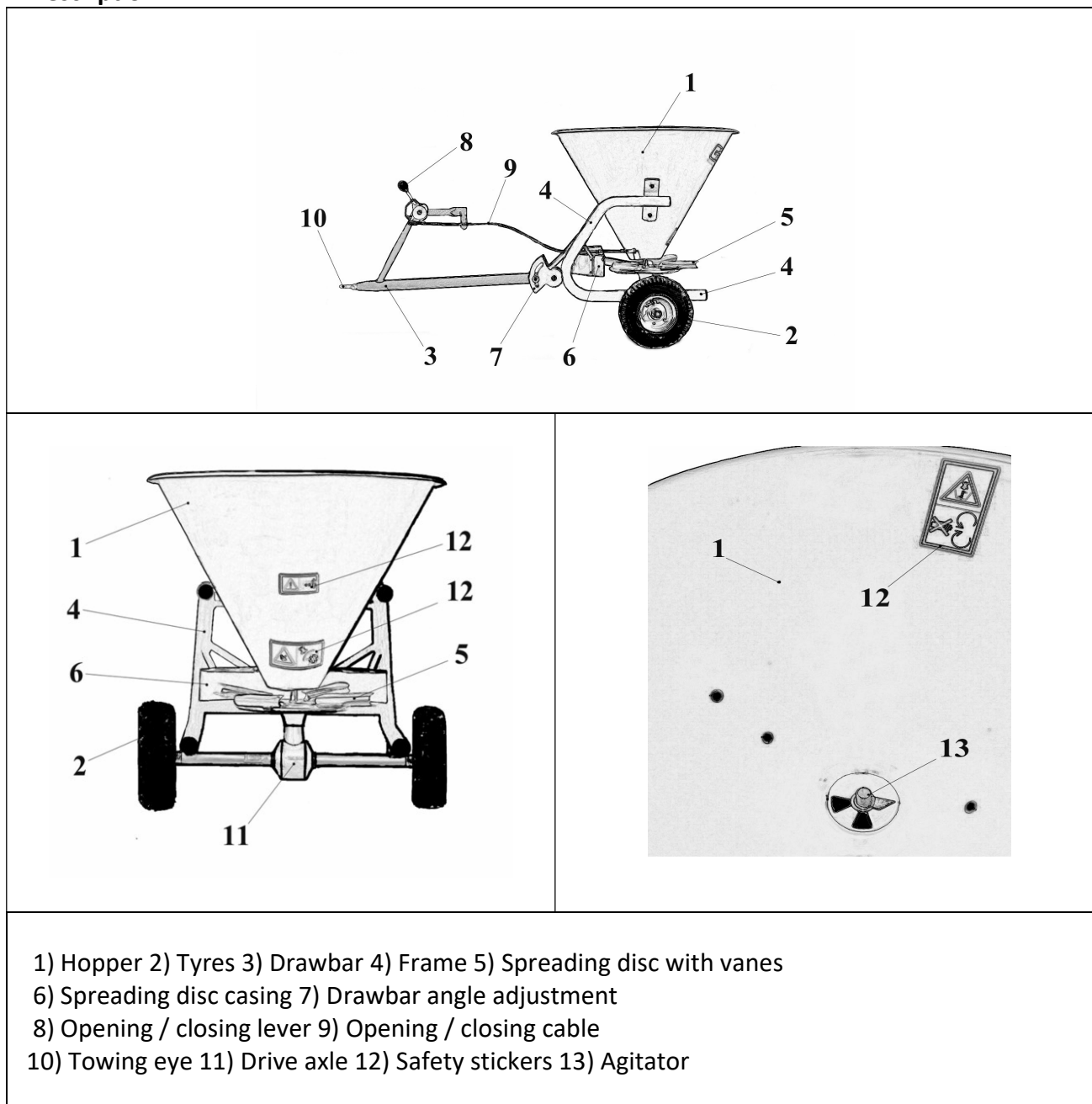


- Read instructions before start up
- Don't insert hand in areas with moving objects
- Don't get on the hopper
- Keep safe distance

2. USE OF ROXY FERTILIZER SPREADER

The ROXY-150 fertilizer spreaders have been designed and constructed for the purpose of spreading chemical fertilizer in granular, powder or organic pellet form and for sowing seeds in small fields, sports fields, gardens and greenhouses. To be used it must be trailed by a mini tractor, a lawn mower or an adequately-powered ATV (see Chapter 4 on Technical Features)

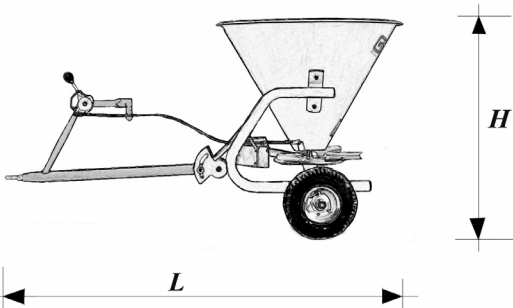
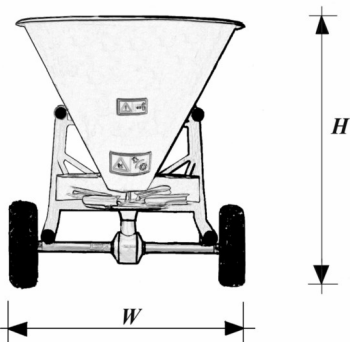
- Description



The durability of ROXY-150 fertilizer spreaders is an estimated maximum of 800 hours' use, while the service life is approximately 10 years. To maintain safety standards the Manufacturer recommends a general overhaul of the fertilizer spreader after 800 hours or 10 years' use, with particular focus on the structural load-bearing and drive elements.

3. TECHNICAL FEATURES

TECHNICAL CHARACTERISTICS							
MODEL	Capacity (l)	High (cm)	Wide (cm)	Work-width (m)	Work-width (m)	Tyres	Tyre Pressure
ROXY-150	60	155	87	3 - 8	40	13 x 5.00-6	1,8

Overall dimensions	
	

FERTILIZER AND SEED DISTRIBUTION TABLE				
PRODUCT				
GRANULAR FERTILIZERS				
POWDER FERTILIZERS	SPREADING	OPENING POSITION	SPEED 2 km / h	SPEED 4 km / h
LAWN SEED	8 m	1/3 2/3 3/3	1050 kg / ha 2090 4100	520 kg / ha 1050 2100
SALT FOR ICY ROADS	6 m	1/3 2/3 3/3	510 kg / ha 1015 2050	270 kg / ha 500 1020
SALT FOR ICY ROADS	7 m	1/3 2/3 3/3	1190 kg / ha 2410 4800	605 kg / ha 1200 2390
SALT FOR ICY ROADS	5 m	1/3 2/3 3/3	980 kg / ha 1900 3750	480 kg / ha 980 1890

The product quantities shown in Table 1 may vary according to such factors as humidity, the type of fertilizer or product used, weather conditions and the condition of the soil. Before commencing fertilizing operations in an agricultural field the Manufacturer recommends a trial spreading run to check that the quantity of fertilizer distributed corresponds to the amount required by the user. For even fertilizer distribution the spreading disc should remain in a horizontal position and not at an angle. Therefore, with the spreader hitched and the hopper empty, the operator should adjust

the drawbar attachment on the fertilizer spreader in relation to the hitching point of the drawbar to the trailer vehicle, as illustrated in Chapter 17.

! This operation must be performed with the fertilizer spreader hitched to the trailer vehicle and the hopper empty. Risk of hopper overturning.

! The nuts (32) should never be removed from their respective bolts (34), just loosened sufficiently so as to be able to place the spreading disc (3) in a horizontal position.

Risk of hopper overturning.

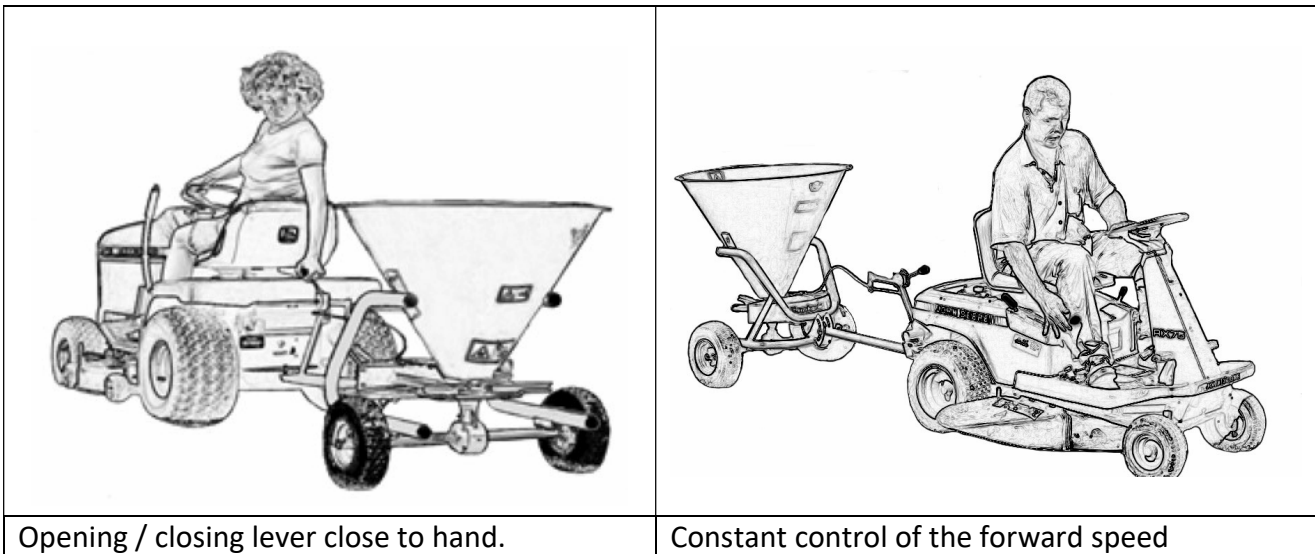
! Do not use ROXY-150 spreaders on terrain with a gradient over 5%

4. OPERATOR WORK POSITION

The ROXY fertilizer spreaders are designed to be used by a single operator whose work position is the driver's seat of the trailer vehicle, which may be a mini tractor, a lawnmower or an ATV. Given the very low working speed the driver can control both the trailer vehicle and the fertilizer spreader at the same time.

From his work position the operator must have:

- The opening / closing lever close to hand
- Good visibility of the work area
- Constant control of the forward speed



! For safety reasons no persons or animals must be within a 10 meters radius of the fertilizer spreader during spreading operations.

5. NOISE LEVELS

The air noise produced by ROXY fertilizer spreaders during spreading operations is less than 60 db (A) as measured from the driver's position. The noise level depends on the engine of the trailer vehicle.

The fertilizer spreader only produces noise during spreading operations.

6. VIBRATIONS

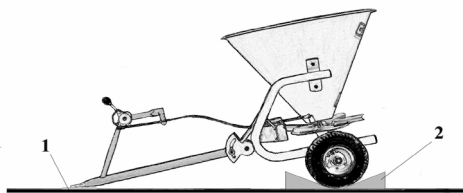
The vibrations produced by ROXY fertilizer spreaders during spreading operations from the driver's seat are negligible. Resulting vibrations depend on the engine of the trailer vehicle.

The fertilizer spreader only produces vibrations during spreading operations.

7. HANDLING / PARKING

ROXY-150 fertilizer spreaders should only be handled using mechanical equipment fitted with a braking system. Manual handling is prohibited.

When the spreader is not hitched to a tractor or another type of trailer vehicle equipped with a braking system it should be parked under cover on firm ground and with the hopper empty; the drawbar attachment should be rested on top of a wood panel. See illustration:



- 1) Wood panel on ground on top of which the drawbar should be laid.

8. HITCHING THE FERTILIZER SPREADER

The spreaders in the ROXY-150 series need to be hitched behind a mini tractor, ATV or lawnmower equipped with a tow hook.

! Before using the fertilizer spreader the operator should always check the state of wear of the nuts, bolts and screws and make sure that they are all securely tightened.

To hitch the fertilizer spreader to the trailer vehicle the operator should carry out the following procedures:

- Make sure that the trailer vehicle is capable of trailing the fertilizer spreader at load by consulting the trailer vehicle. Check that at least 30% of the overall weight of the trailer vehicle is on the front wheels when the fertilizer spreader hitched.
- make sure that the tow hook is suitable for the towing eye on the fertilizer spreader drawbar;
- with the fertilizer spreader parked on firm, level ground, reverse the trailer vehicle slowly towards the spreader until the tow hook is level with the drawbar tow eye of the spreader;
- Switch off the engine of the trailer vehicle, engage a low gear and put on the handbrake.
- Manually hitch the drawbar tow eye and insert the safety pins.
- Adjust the angle of the drawbar attachment so that the fertilizer spreading disc works parallel to the ground and not at an angle.

! To perform this operation the operator must wear safety work boots, work overalls and gloves.

9. LOADING THE HOPPER

The fertilizer spreader can be loaded only after it has been hitched to the trailer vehicle.

During this phase the operator must switch off the engine, apply the handbrake and engage a low gear; the four hopper exit slots should also be closed.

The hopper loading area is at the rear of the fertilizer spreader.

Loading may be performed manually since the height of the edge of the hopper is between 57 and 70 cm from the ground, depending on the spreader model.

During loading operations the operator should wear:

- Work overalls and gloves
- Safety work boots
- Goggles
- Respiratory protective mask.

While loading the hopper the operator must take care that no foreign objects, such as pieces of wood, stones, or plastic sheets, enter, since these may cause damage or malfunction.

It is advisable not to fill the hopper to its upper edge to prevent unnecessary loss of the product during transportation. Conversely, it is advisable to carry out loading operations near the field to be fertilized to prevent compaction of the fertilizer during transportation.

The operator should take care not to overfill the spreader by transporting full sacks of fertilizer or other products which may damage the structure of the fertilizer spreader or broadcasting components.

10. SPREADING

Preliminary operations :

During this operation the operator should wear:

- A work overall and gloves
- Safety work boots

The operator must make sure that visibility from the driver's position on the trailer vehicle is always good and that the trailed fertilizer spreader is totally safe for both himself and other persons.

From his work position the operator must make sure that all the controls are within reach and easy to operate, especially:

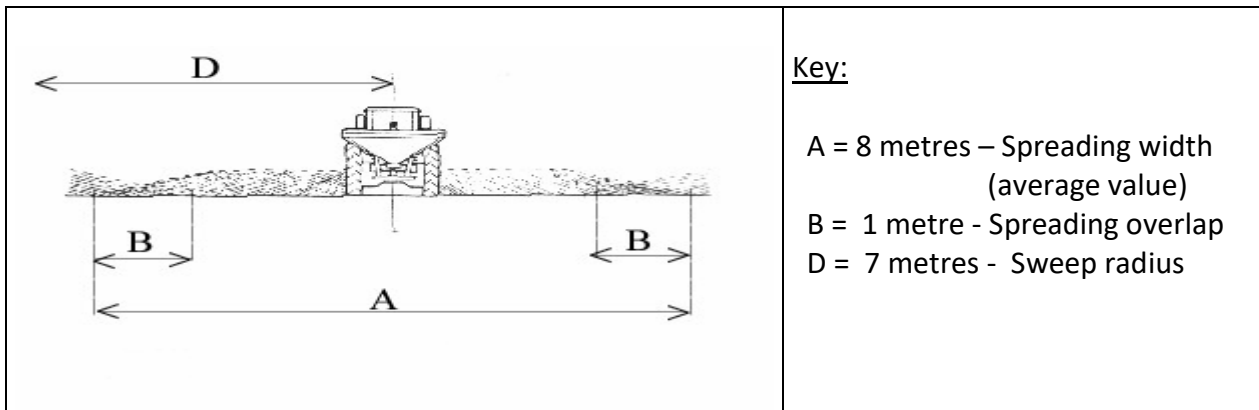
- The exit slot opening / closing lever
- The trailer vehicle engine switch-off key
- The steady forward speed control.

During transfer from loading area to the field to be fertilized the operator should keep the hopper exit slots closed.

The operator should consult Table 1 to find out how much the hopper exit slot should be opened and the forward speed to be maintained during spreading to distribute the envisaged quantity of fertilizer. Before treating the field with fertilizer the Manufacturer recommends that the operator carry out a trial spreading run to make sure that the quantity of fertilizer spread corresponds to the amount required.

Spreading:

For even distribution of the fertilizer in an open field the operator should perform the following overlapping sweeps as illustrated below:



The operator must close the hopper exit slots during transfers, along field edges and each time he completes a sweep.

For even distribution of the fertilizer the spreading disc should remain in a horizontal position and not at an angle.

The operator must check continually that no people or animals are within a 30m-radius of the spreader during spreading operations. If anyone is within this radius the operator should suspend spreading operations and only resume work once they have left the danger zone.

If during spreading an accidentally loaded solid foreign object (stone, wood ...) should block any of the moving parts, e.g. the spreading disc, as soon as the operator becomes aware he should stop the trailer vehicle to prevent further damage to the fertilizer spreader. Then he should discover the cause and, if necessary, empty the hopper. Only after having discovered the cause and repaired the damage may spreading be resumed.

If, for any reason, the operator has to get down from the tractor, and thus vacate the driver's seat, he must first perform the following before doing so:

- Close the hopper exit slots using the relative lever;
- Engage a low gear, apply the handbrake and switch off the engine of the trailer vehicle;
- Remove the start-key from the control panel.

Upon completion of spreading:

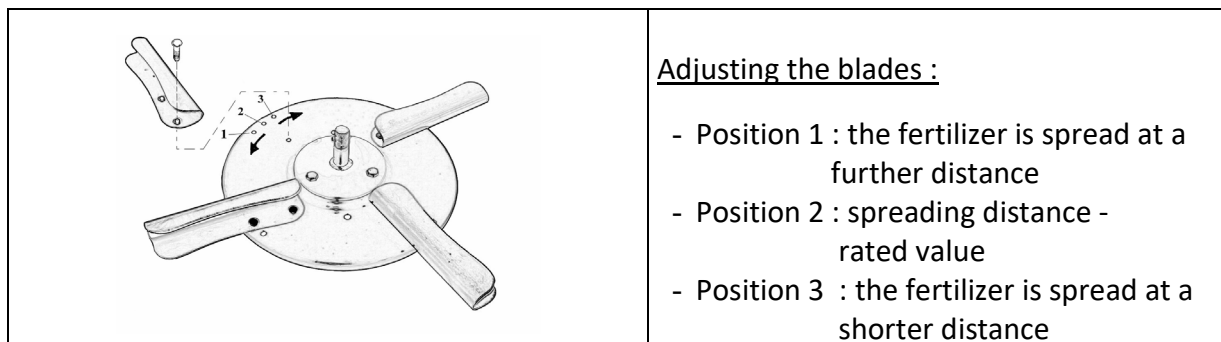
! The operator should first unhitch the fertilizer spreader from the trailer vehicle and make sure that the hopper is completely empty. If it is not, he should empty it of its contents.

Risk of fertilizer spreader overturning.

11. ADJUSTMENT OF THE VANES

The operator can adjust the throw distance of the fertilizer by changing the angle of the four vanes (5) on the spreading disc (3) by moving the fixing screw as illustrated in the figure below; afterwards the operator must tighten all the nuts (37) and bolts (36) securely.

Adjustments must be made with the fertilizer spreader hitched to the trailer vehicle, whose engine must be switched off, the ignition key removed, a low gear engaged and the handbrake on. Each time before using the fertilizer spreader the operator should check state of wear of the blades and that all parts are securely tightened.



12. GREASING THE GEARBOX

There are two points for greasing the gears inside the gearbox.

The Manufacturer recommends SHELL Super grease EP 2 or a similar product with the following physical-chemical characteristics:

Oil base type	Mineral
Kinematic viscosity	110 cSt at 40° C
Pour point	185°C
Colour	Hazelnut

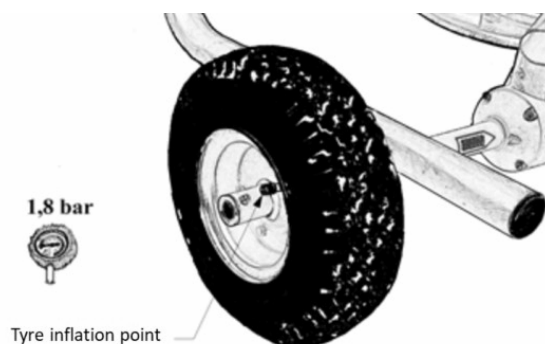
Using the relative greaser, the operator should grease the gearbox at least every 6 months, or even less in the instance of frequent use.

The total quantity of grease to be injected is approximately 50 grams.

13. INFLATING THE TYRES

The fertilizer spreaders in the FC 150, FC 200 series are equipped with 2 tyres.

The rated working pressure is 1.8 bar and it should be checked each month.



14. ADJUSTING THE DRAWBAR HITCH ATTACHMENT

The operator must manoeuvre the trailer vehicle close to the drawbar hitch point (**28**) so as to have a position of reference and to know how much to angle it, so that the spreading disc can work in a horizontal position.

To adjust the drawbar angle the operator should:

- make sure that the ground is firm and level;
- make sure that the hopper is empty;
- make sure that the trailer vehicle engine is switched off and in gear with the handbrake on;
- Place 1 piece of wood identified as A of 20cm in height, with a large resting base to keep the spreading disc in a horizontal position and to prevent the hopper from overturning.
- using 2 no. 17 keys, loosen the 2 bolts (**34**) and 2 nuts (**32**) securing the drawbar hitch attachment (**20**) to the chassis (**2**). See Fig. 1;
- Bring the drawbar hitch attachment (**20**) up to the same height as the tow hook.
- Using 2 no. 17 keys, tighten the 2 bolts (**34**) and 2 nuts (**32**) loosened 2 beforehand;

At this point the fertilizer spreader is ready for hitching. This check must be performed by the operator each time before loading the hopper.

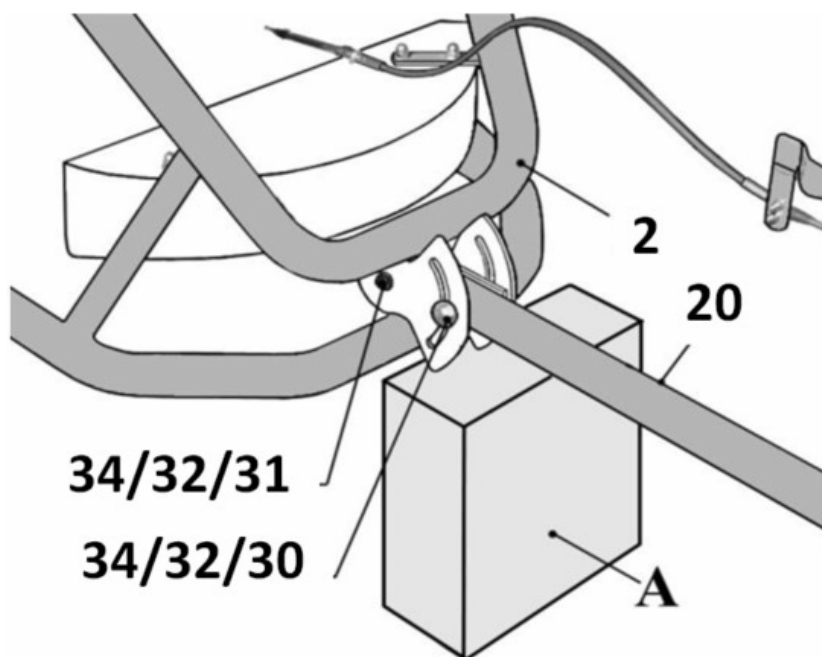


Fig. 1

15. MAINTENANCE

The following maintenance is envisaged:

- routine
- scheduled
- seasonal periods of non-use

All maintenance operations are the responsibility of the operator, who may assign the task to others.

All maintenance operations should be carried out with the spreader unhitched from the trailer vehicle.

The operator or those who are to carry out the maintenance operations should wear the following:

- work overalls and gloves
- safety work boots

15.1) ROUTINE MAINTENANCE:

Each time before using the fertilizer spreader the operator should:

- 1) Make sure that the parts are secure, that all the nuts and bolts are securely tightened and also check the state of wear of the blades. (See Chap. 14)
- 2) check the state of wear of the tyres and their pressure (see Chap. 16)

At the end of each working day with the fertilizer spreader the operator should:

- 1) hose down the spreader to remove any remaining fertilizer deposits, particularly:
 - the lower part of the hopper
 - the spreading disc with the blades
 - the fertilizer slot holes
 - the spreading disc casing;
- 2) check the function of the various members (drive, adjustment, distribution) and, if necessary, apply a fine layer of oil to the metering device;
- 3) Check for any leakage from the gearbox.

15.2) SCHEDULED MAINTENANCE:

The operator should perform the following at the intervals below:

- 1) Every 6 months:
 - grease the gears inside the gearbox (see Chap. 15);
 - check the state of wear and pressure of the tyres (see Chap. 16);
- 2) Every year:
 - check the state of the painted and galvanized parts and touch up any rusty areas;
 - check for the correct tightness of all the nuts and bolts, particularly of those on the drawbar hitch attachment (see Chap. 17) and the attachment of the blades to the spreading disc (see Chap. 14);
 - Check the state of wear and the pressure of the tyres (see Chap. 16).

15.3) SEASONAL PERIODS OF NON-USE

When the fertilizer spreader is not to be used for a few months (seasonal periods of non-use) the operator, after having carried out routine and scheduled maintenance operations, should:

- 1) Store the spreader with the hopper empty and covered with a cloth in a clean, dry ambient on solid, level ground with two wedges inserted under the wheels and with the drawbar attachment resting on a wood table.

16. ASSEMBLY

1. Join chassis (2) and distribution group (1).

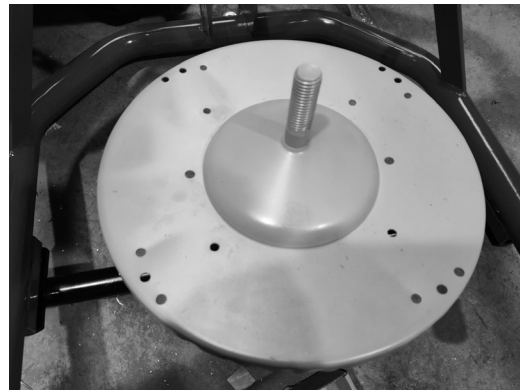
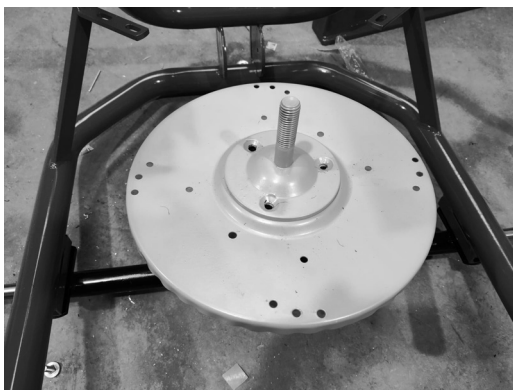
- Use 4 M8 x20 Hexagonal head screw (26) and 4 washer 8 (27).

Caution! – Put the grease fitting in the position of the picture below.

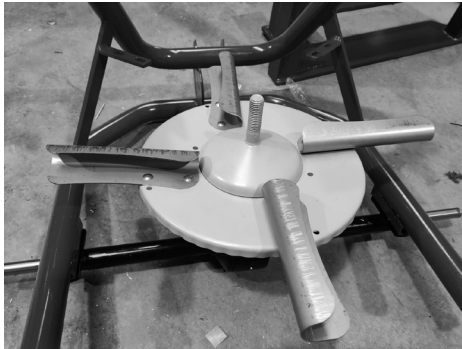
Don't tighten the screws



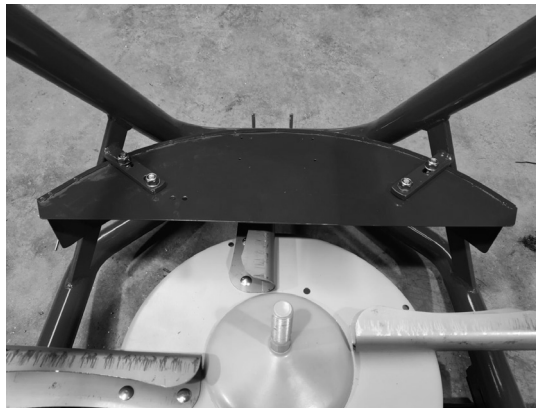
2. Put the 4 Caps Ø40 (38) on the chassis.
3. Join to the group the distribution disc (3) and the agitator support (4).
 - Use 3 Countersunk head screw M8x30 (36) and 3 self-locking nut M8 (28)
 - Then put the trim cap (39).



4. Join the vanes on the disc.
 - Use 8 Roundhead screw M6x10 (36) and self-locking nut M6 (37)



5. Join the Casing (6) to the chassis.
 - Use 4 Hexagonal head screw M8x20 (26), 8 Washer Ø8 (27) and 4 Self-locking nut M8 (28).



6. Assembly the Slot metering disc (8) with the Hopper (7)
 - Use the hopper cap (9), washer hopper cap (10) and retaining ring 30 (11)



7. Assembly the hopper and chassis

- Use 4 Roundhead screw 8x20 (33), 4 washer $\varnothing 12$ (29), 4 Washer $\varnothing 8$ (27) and 4 Self-locking nut M8 (28).



8. Centre the group with the hopper and tighten the group screws.

9. Put the agitator washer $\varnothing 20$ (12) and the agitator (13).

10. Assembly the wheels:

- First put the shaft bushing for wheels (14)
- Put the left wheel (15) with the shaft locking pin (16)
- Put the right wheel (17), insert the washer wheel $\varnothing 20$ (18) and the put the retaining ring (19)



11. Assembly the drawbar (20)

- Insert the cap (38) in the drawbar.
- Use 2 Hexagonal head screw M10x90 (34), 2 Wide washer $\varnothing 10$ (30), 2 Washer $\varnothing 10$ (31) and 2 Self-locking nut M10 (32)



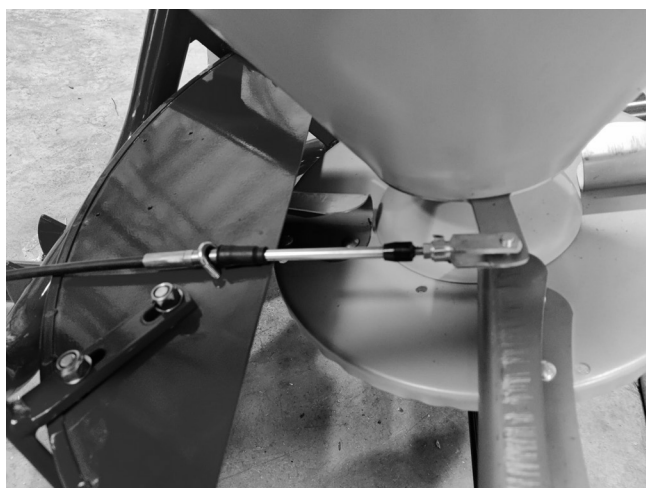
12. Assembly the Opening set (21)

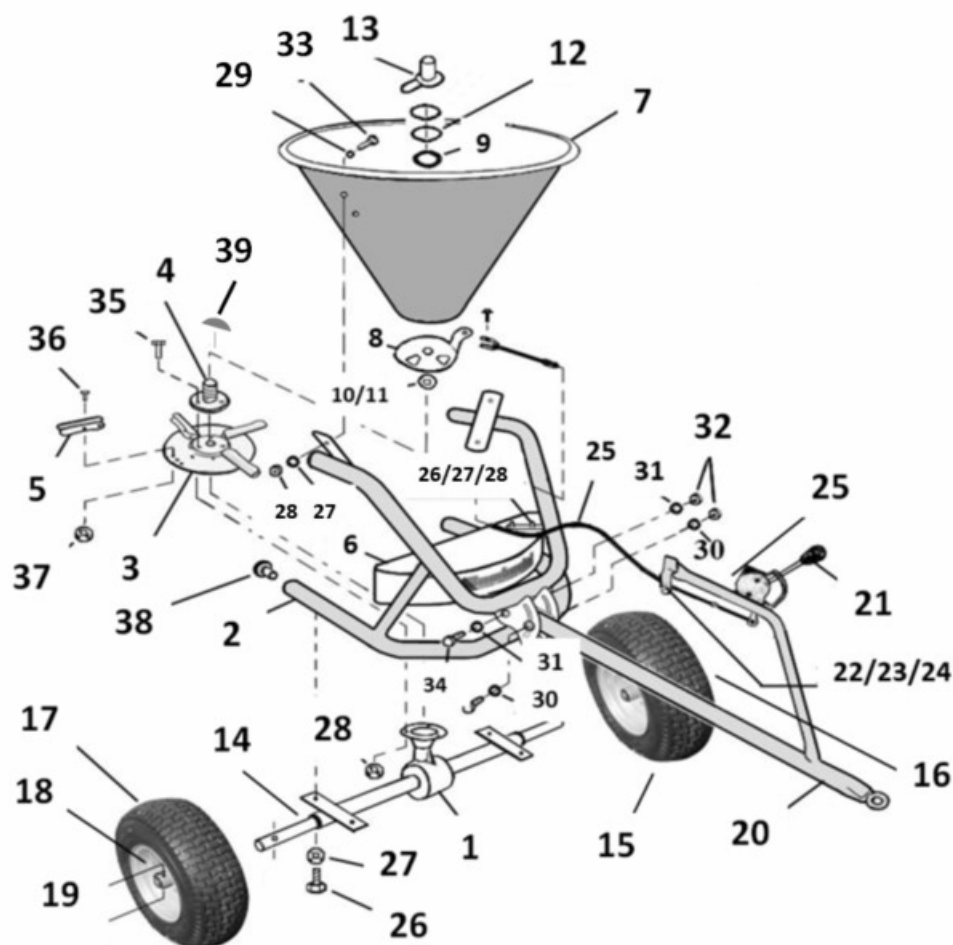
- Use 2 Hexagonal head screw M8x20 (26), 4 Washer Ø8 (27) and 2 Self-locking nut M8 (28).



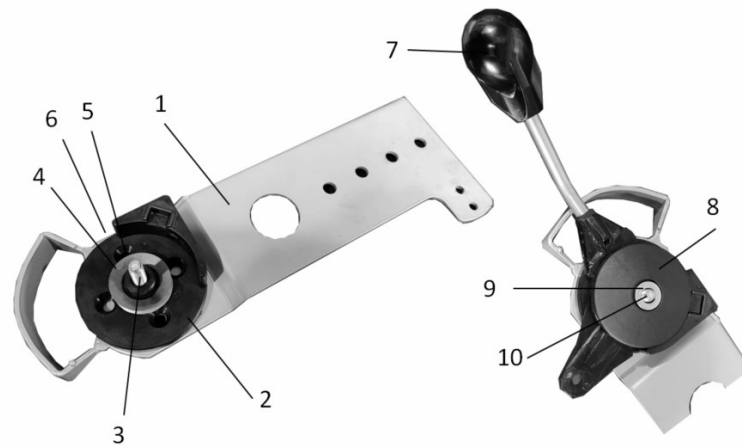
13. Connect the flex cable (25)

- Use 2 Easel M5 (22), 4 washer Ø5 (23) and 4 self-locking nut M5 (24).

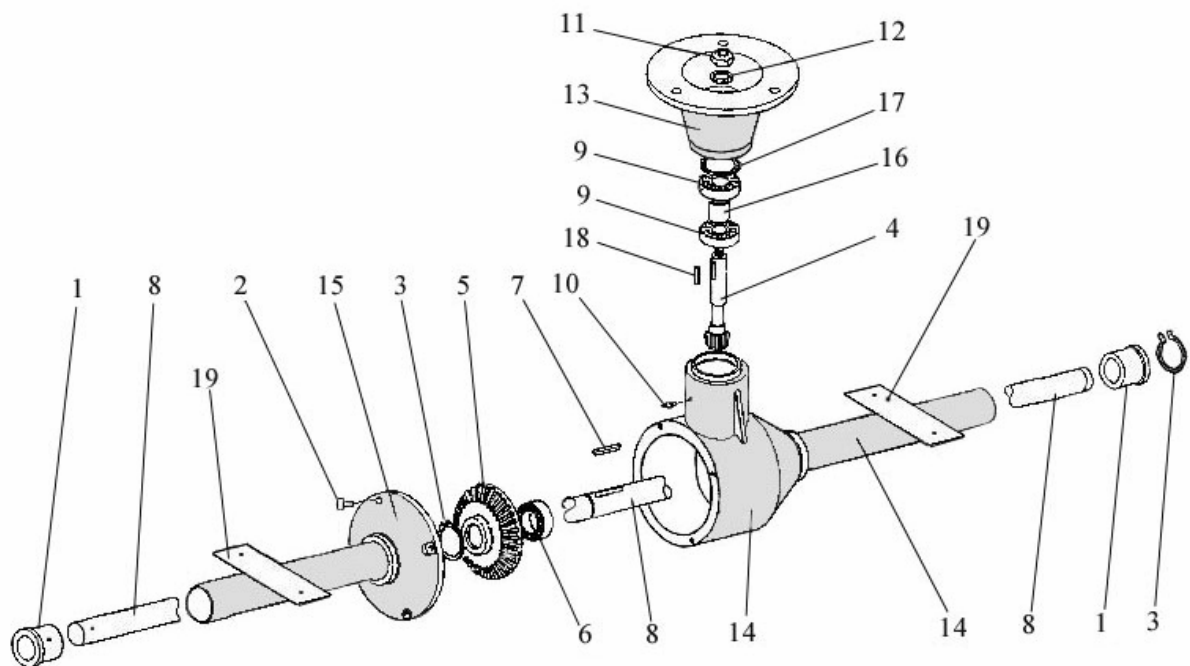


17. BREAK UP

PART N°	DESCRIPTION	QTY N°	PART N°	DESCRIPTION	QTY N°
01	Drive axle (See details page -)	1	21	Opening set (See details page -17)	1
02	Chassis	1	22	M5 Easel	2
03	Dist. Disc Ø outer = 300 mm	1	23	Washer Ø 5	4
04	Agitator support	1	24	Self-locking nut M5	4
05	Stainless steel vanes L=185 mm	4	25	Flex cable complete	1
06	Casing	1	26	Hexagonal head screw M8x20	10
07	Hopper 150L	1	27	Washer Ø8	20
08	Slot metering disc	1	28	Self-locking nut M8	9
09	Hopper cap	1	29	Washer Ø12	4
10	Washer hopper cap	1	30	Wide washer Ø10	4
11	Retaining ring 30	1	31	Washer Ø10	4
12	Washer agitator	1	32	Self-locking nut M10	4
13	Agitator	1	33	Roundhead screw M8x20	4
14	Shaft bushing	2	34	Hexagonal head screw M10x90	2
15	Left wheel	1	35	Countersunk screw M8x30	3
16	Right wheel Shaft locking pin	1	36	Roundhead screw M6x12	8
17	Right wheel	1	37	Self-locking nut M6	8
18	Washer wheel	2	38	Caps Ø40	5
19	Wheel retaining ring	1	39	Trim cap	1
20	Drawbar	1			



PART N°	DESCRIPTION	QTY N°	PART N°	DESCRIPTION	QTY N°
01	Opening base	1	06	Self-locking nut M6	2
02	Plastic base part	1	07	Opening piece	1
03	Hexagonal head screw M7	1	08	Plastic cap	1
04	Concave washer	2	09	Washer Ø 8	1
05	Countersunk screw M6x20	2	10	Self-locking nut M7	1



PART N°	DESCRIPTION	QTY N°	PART N°	DESCRIPTION	QTY N°
01	Bushing inner Ø 20.5_ outer Ø 33x5 mm	2	11	M12 self-locking nut	1
02	Allen screws, M6x16	4	12	Washer Ø 12	1
03	Seeger ring outer Ø 20	2	13	Disc support flange	1
04	Pinion Z13 outer Ø 15 mm	1	14	Gearbox body	1
05	Crown Z39 Ø 80 mm	1	15	Gearbox flange	1
06	Bearing 6004-2RS	2	16	Spacer outer Ø 21 , L = 20mm	1
07	Key 6x6x30 mm	1	17	Seeger ring inner Ø 35	1
08	Drive shaft outer Ø 20	1	18	Key 5x5x18 mm	1
09	Bearing 6202-2RS	2	19	Drive axle plates	2
10	Greaser, M6	2			

18. GUARANTEE

All the machines made by BMC are sold with the guarantee of a year from the date of delivery, according to the following clauses:

If in the period of a year some piece of the group is defective due to the material or to some problem of manufacture, BMC will be responsible of it repair or substitution in a freeway.

The client, at the time of delivery of the merchandise must control that this one has not been damaged during the transport, so that is according to the ordered one and with all the accessories anticipated in transaction contract. In opposite case, he must send a claim within the 8 following days to the delivery of the merchandise.

The guarantee will not be applied in the following cases:

A normal wearing away caused by the use

Breakage or wears away of the parts of the group due to negligence or an inadequate use of the same one

Modifications of the non-authorized group (of written form) by the manufacturing company or in case to have used spare parts or accessories non produced by the same one, BMC Agricola.S.L.

The defects due to the material or the manufacture will be examined by our Center of Technical Attendance. If the claim was clearly unjustified, all the cost of repair (transports, displacements, substitution of the damaged parts, etc.) will be client responsibility.

BMC Agricola S.L. will not be responsible of any damage caused by the transport.

19. MANUFACTURE CERTIFICATE

Manufacturer: **BMC Maquinaria Agrícola, S.L.**

Mark: **BMC**

Description: **One disc spreader**

Marta Bes Cañadas as manager of the Company BMC Agrícola S.L. guarantees that the data below belong to the referenced machine, which is manufactured by that Company.

 **AGRÍCOLA, S.L.**
P.I. Montecillo
50520 MAGALLÓN (Zaragoza)



Fdo. Marta Bes

DECLARATION OF CONFORMITY CE

Manufacturer: BMC Maquinaria Agrícola, S.L.	
Mark: BMC	Description: One disc spreader
<p><i>Marta Bes Cañadas as manager of the Company BMC Agrícola S.L. guarantees that the data of preamble are reliable and that the machine, has been manufactured by the Company according to the directive 2006/42-CE for agricultural machinery.</i></p> <div style="text-align: center;"> AGRÍCOLA, S.L. P.I. Montecillo 50520 MAGALLÓN (Zaragoza)</div> <div style="text-align: center;"> Fdo. Marta Bes</div>	





BMC

**CALIDAD Y
CONFIANZA**

ESPECIALISTAS EN EL ABONADO

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