FERTILIZER SPREADER

SINGLE DISC (350 – 380 – 500 – 600 – 800 Lt)

USER GUIDE

ALPLER

ATTENTION

DO NOT

OPERATE THE MACHINES

BEFORE READING THIS MANUEL!

INDEX

WARNING SIGNS & MEANINGS

WARNING

This sign warms that the operations described could cause serious lesions 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.

WARNING!

Do not enter between the tractor and machine

ATTENTION

Watch out the shaft
Tail axle revolution count 540r/min

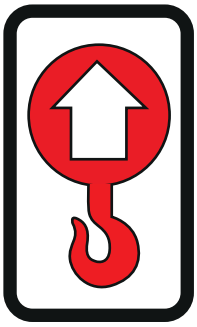
REVOLVING DEVICE

Watch out rotary parts

KEEP CHILDREN AWAY

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

Lubricate all greasers for every 12-hours operations



Conduct loading from here

1. INTRODUCTION

Dear Farmer,

Firstly, we congratulate you for your correct preference on the way to efficiency by selecting the brand “ALPLER”. As your agricultural partner, we offer you our product in which we combined high quality, low operational cost and effective after-sale service concept.

All of “ALPLER” products are designed for the most efficient and the safest use and tested accordingly in cooperation with the relevant university departments, agricultural establishments and farmers. We request you to read the user manual before the first operation in order to use our product in a more effective manner as well as for product and your own safety. The failures that may result from using the product beyond the instructions for use specified in this manual are not covered by “ALPLER” warranty.

“ALPLER” products are manufactured for agricultural utilisation purposes only, and our company does not assume any liability against the conditions arising from misuse. Maintenance, repair and operation of our products must be carried out by those who were informed on the relevant and possible dangers.

Enjoy your new product and we wish you productive and fruitful years.

We hope to serve you for a long time...

CAUTION

If the product owner changes in the future, please submit this manual to the new owner of the product and inform on safety measures.

1. INTRODUCTION

1.1 INTRODUCTION OF THE SINGLE DISC FERTILIZER SPREADER MACHINE

The single disc, bottom flow, hydraulically controlled, 500-lt mineral fertilizer spreader machine manufactured by ALPLER AGRICULTURAL MACHINERY was produced in a state to be attachable to 1st and 2nd category tractors by means of a three-point linkage mechanism.

The fertilizer spreader machine spreads the mineral fertilizer over the field surface or on plants in a regular manner by the centrifugal force that is originated by a single disc. The tractor receives its movement from the tractor tail axle with the help of an articulated shaft as 540r/min. The motion received by the gearbox is conducted to the output shaft through changing direction by 90° by conical gears. The distribution disc is rotated by means of the output shaft and the fertilizer that is poured from the plates that open with the help of the fertilizer norm layout setting is launched from the wings located on the distribution discs.

The mixer and feeder provides the continuous and regular flow of the fertilizer in the storage onto the disc.

The use, adjustment and maintenance of the machine are easy and simple. Filling of the fertilizer into the storage tank can be executed by two people in a very comfortable manner.

1.2 TECHNICAL FEATURES

TECHNICAL FEATURES	
Width (mm)	1405
Height (mm)	1230
Length (mm)	1190
Height of the disc from ground (mm)	700
Dead weight (kg)	146
Required power (HP)	50-55
Tractor power take-off	540
Fertilizer bucket volume (Lt)	457

1.3 USE

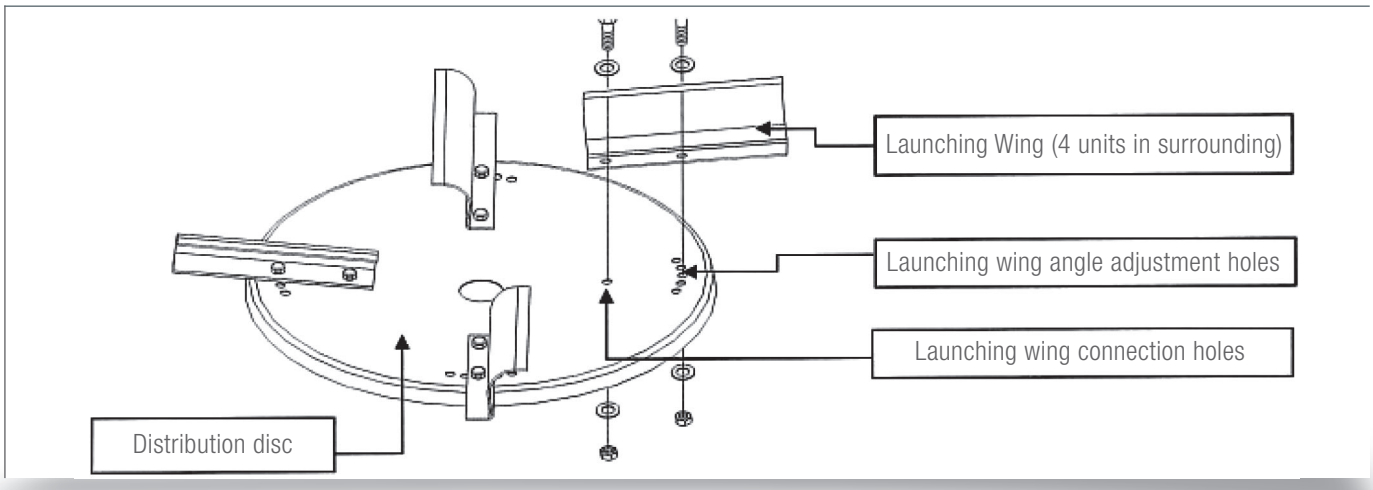
- Read all instructions carefully if you are to use the machine for the first time.
- During handling of the machine, pay attention to hoist the machine from the lifting points specified on the machine.
- Do not load more than the loading capacity.
- Execute the storage material filling on the field.
- Definitely approach the machine to the tractor in order to execute the Machine-Tractor connection
- Regularly control protective gates and parts against wear and break.
- Only connect to specified type of tractors in accordance with instructions.
- Safety labels are available on the machine; make sure that these are complied.
- Contact the manufacturer company for replacement of unreadable and worn-out labels.
- Keep this manual for future use when necessary
- Use definitely original spare parts for your life and property safety
- Certainly use appropriate work suits. Do not use fluctuating clothing. These might be caught by rotary and moving machine parts.

1.4 MACHINE GROUPS

- Main Chassis
- Three-point linkage mechanism
- Movement transmission system
- Articulated shaft
- Gearbox
- Distribution disc and wings
- Fertilizer storage tank
- Mixer and feeder
- Hitting plate (Deflector) and disc housing
- Screen
- Adjustment scale

1.4.1 DISTRIBUTION DISC AND LAUNCHING WINGS

The distribution disc distributes the fertilizer around, which flows over the storage with the help of distribution wings that are rotated by the motion from the tractor tail axle, with the effect of the centrifugal force. Wings are placed symmetrically in order to obtain a symmetric distribution.



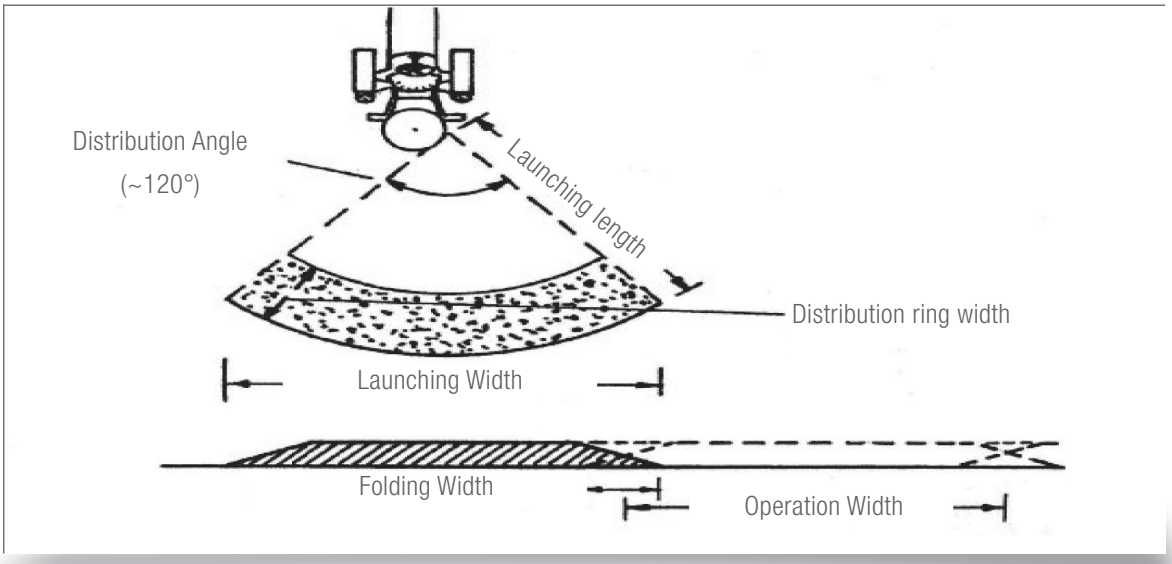
1. INTRODUCTION

In order to be able to obtain the values indicated in the fertilizer delivery table, the wing angle needs to be -12 degree. This value is obtained by mounting the wings on the 3rd hole among the sequenced 5 holes on the disc.

Certainly replace distribution discs and launching wings which of the profile is distorted and worn.

Maximum launching distance of fertilizer depends on the following;

- Environmental speed of discs
- Height of discs from ground
- Position of discs from ground
- Position of distribution wings
- Type and structure of the fertilizer
- Wind condition

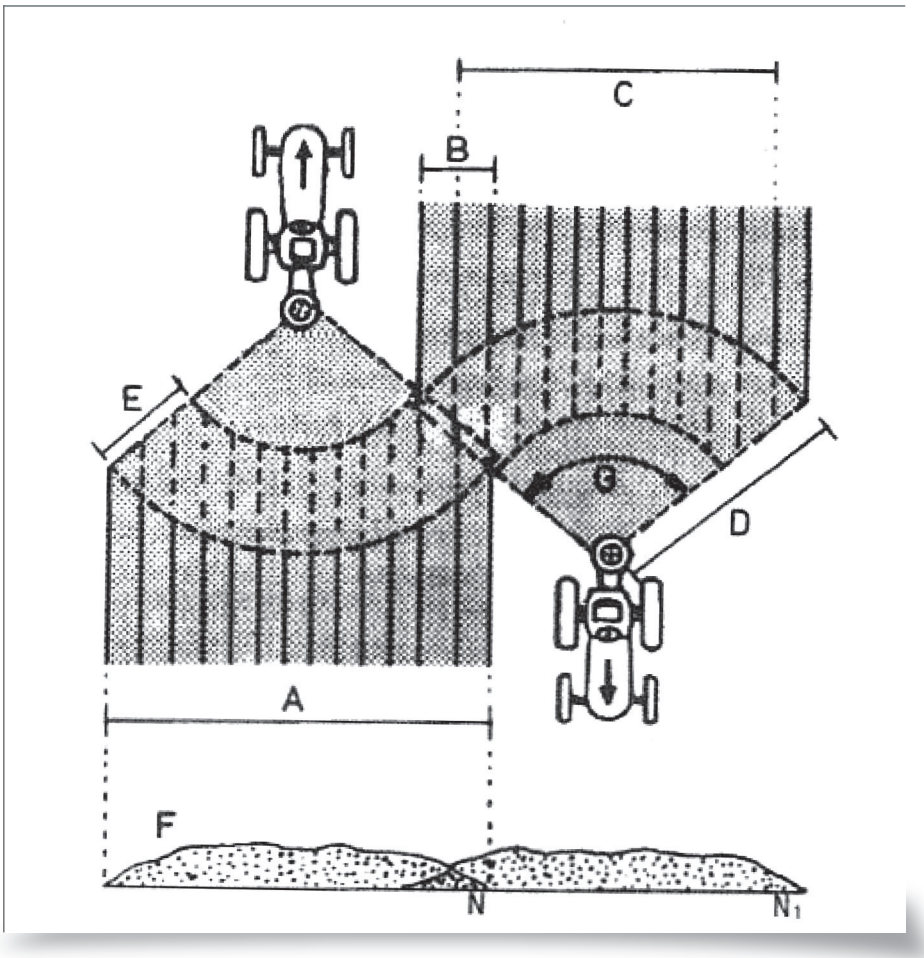


1.4.2 NECESSITY OF FOLDING

Given in the following Figure as,
- Tossing distance (D)
- Distribution angle (G= 120 – 180)
- Tossing width (A)
- Operation width (C)
- Folding width (B)
- Distribution profile (F)
- Width of distribution ring (E)

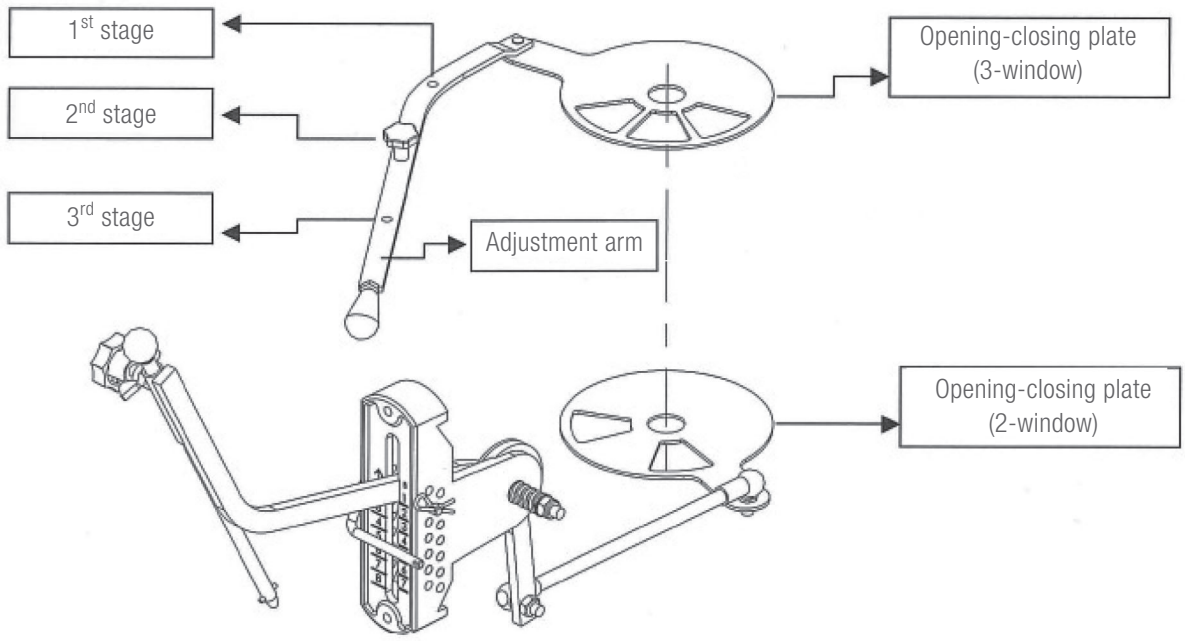
We can derive these results by looking at the Figure.

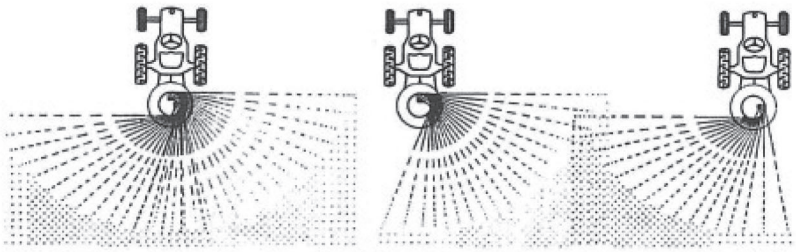
- Tossing width (A) is not the real operation width.
- Distribution is not uniform in the complete distribution width.
- When looked at the distribution profile (F), it is observed that fertilizing is less at the end sections.
- For this reason, conducting folding (B) is compulsory
- The difference of the folding from the tossing width gives the real operation width (C), which varies between 4-12 m.
- Due to the different characteristics of fertilizer, the width of the distribution ring (E) is different.
- This determines the width of the folding (B)



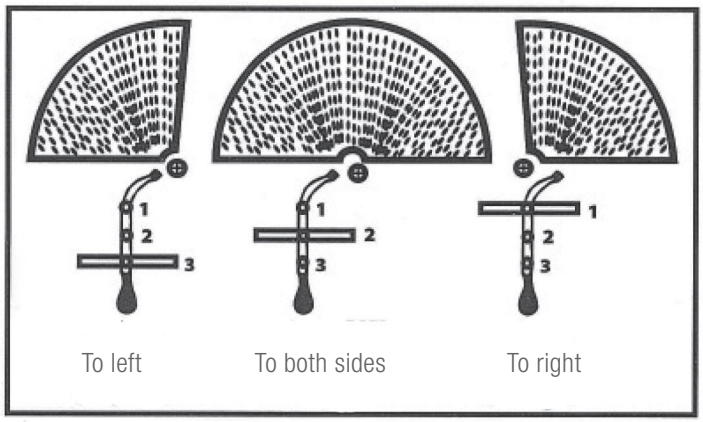
1.4.3 OPENING-CLOSING PLATES

2 opening-closing plates are mounted on the distribution disc.
The opening-closing plate thereof being of 3 windows enables the one sided (to the right or left) limitation or two-sided distribution of the fertilizer by virtue of the 3-stages located on the adjustment arm.



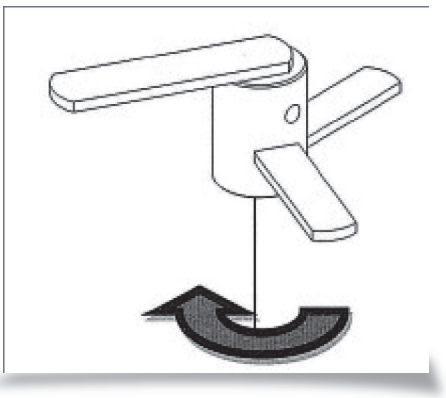


Fertilization of fields and channel edges



1.4.4 MIXER AND FEEDER

The mixer and feeder are designed in a manner by regulating the flow of the fertilizer inside the storage over the disc and feeding the tossing wings. Motion is retrieved from the output shaft.

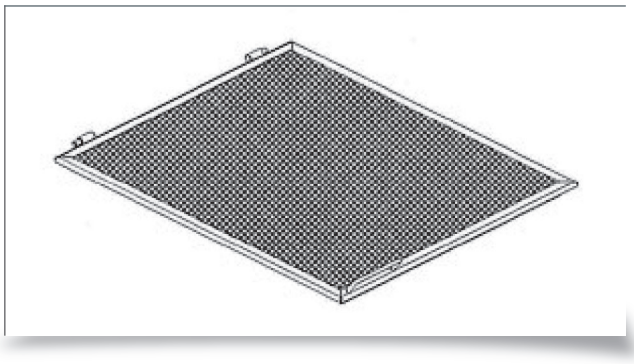


1.4.5 HITTING PLATE (DEFLECTOR) AND DISC HOUSING

The hitting plate having a special form, prevents the fertilizer launched by the distribution system to fall to the front part and to the tractor driver.

1.4.6 SCREEN

If the fertilizer loaded into the machine is clotted, the screen prevents the entrance of clots into the machine as well as it prevents the clotted fertilizer to obstacle the opening-closing plates. In addition, by virtue of the screen being designed in a hinged form, convenience is ensured during the bucket cleaning process.

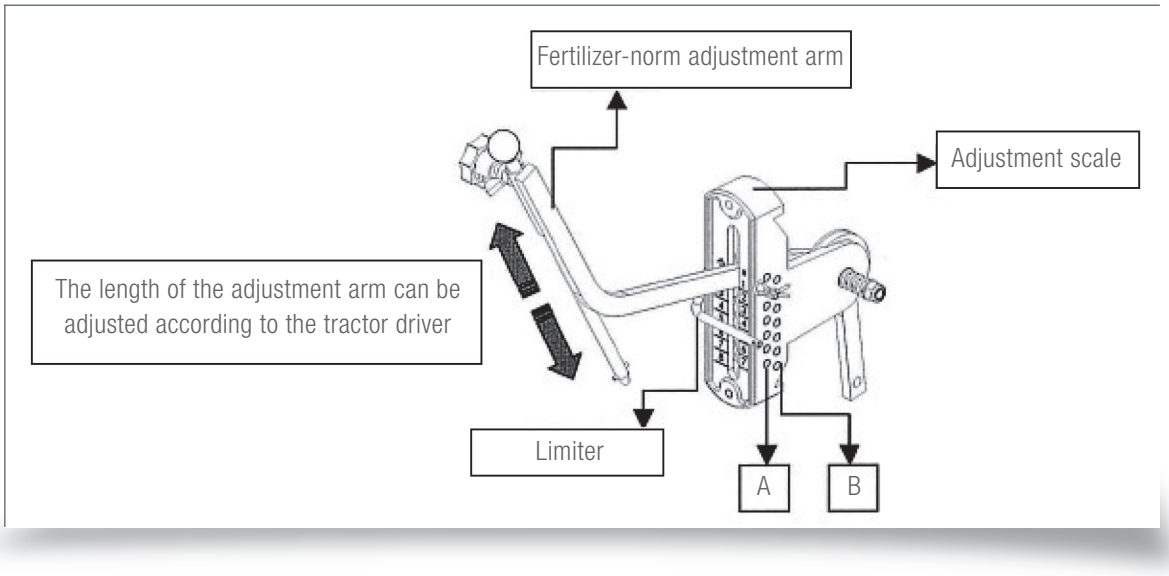


1.4.7 ADJUSTMENT SCALE

If A-B holes on the side are in front, the adjustment scale consists of the corresponding figures. A-B holes are totally 14 and are aligned in two sequences downwards.

In order to keep the pre-adjusted scale during field operations, a limiter designed in “U” form, which symmetrically corresponds to two holes on the adjustment scale is mounted.

Information about the adjustment scale is provided on following pages in the fertilizer-norm adjustment table.



1.5 DANGER AND WARNING LABELS

If A-B holes on the side are in front, the adjustment scale consists of the corresponding figures. A-B holes are totally 14 and are aligned in two sequences downwards.

In order to keep the pre-adjusted scale during field operations, a limiter designed in “U” form, which symmetrically corresponds to two holes on the adjustment scale is mounted.

Information about the adjustment scale is provided on following pages in the fertilizer-norm adjustment table.

2. SAFETY INSTRUCTION AND PROTECTION FROM ACCIDENTS

2.1 DURING MOVEMENT AND RETURN FROM THE FIELD...

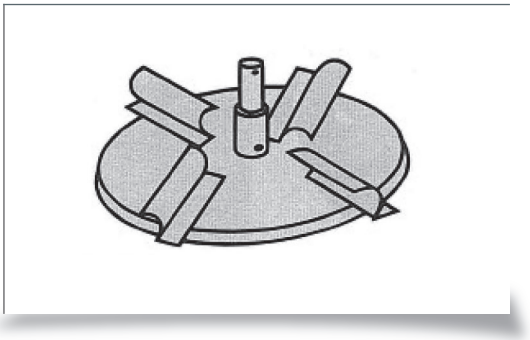
• Comply with national traffic rules, particularly with lighting and necessary protection systems when in traffic with your machine attached to the tractor and take necessary safety measures. Comply strictly with instructions related to safe use and protection from accidents.
• Both during movement and return from the field and during operation on the field, other people shall not be seated on the machine.
• String the side chains of tractor hydraulic arms firmly during movement and return from the field. Safety pins of the three-point linkage must be attached. Hydraulic must be locked. Connection shaft must be removed. Do not forget that the machine attached to the tractor will change some of the functions of the tractor (brake distance, steer ability, center of gravity, etc).
• Enter curves and culverts slowly especially with suspended machines.
• The tractor front- selection arm must be in “position control”.
• Check wheel pressure before moving.

2.2 BEFORE STARTING TO USE

• Attach your machine to a tractor category having an appropriate tractive force and hydraulic lifting mechanism
• Regarding suspended type machines, the control mechanism must be in “0” position before connection and removal
• The category of your machine and tractor three-point system must be the same
• Pull the handbrake of your tractor and shift the gear to idle before attaching your machine to the tractor.
• Pay utmost care whilst connecting and removing the machine from the tractor
• Ensure that there is nobody between the machine and tractor during attaching the machine to the tractor
• Start operation after having taken all safety measures on the machine and tractor
• Pay attention to the area where hydraulic lifting arms are operating. These areas are dangerous areas.
• Whilst attaching and/or removing the moving-head shaft to the machine and tractor, shut down the engine of your tractor.
• Pay attention that the moveable-head shaft is connected properly
• Attach the locking chain in order to prevent the rotation of the moveable-head shaft.
• The angle of the moving-head shaft that is connected between the tractor tail ale and your machine must never exceed 10 degrees.
• Pay attention that the shaft is lubricated on a timely manner
• Pay attention to the cover share of the shaft. Cover share is 15-25 cm up to 1 meter. If the cover share is short, arms may separate from each other and the shaft might be cracked.
• When the tail axle has stopped and engine is shut down, clean and lubricate the moving-head shaft.
• When you have removed the moving-head shaft from the machine and from the tractor, place the tail axle protective cover.

2. SAFETY INSTRUCTION AND PROTECTION FROM ACCIDENTS

- Shafts that conduct movement shall definitely not be used as a step
- Do not pass from one side to the other over the shaft even if covered.
- Before starting the machine and the tractor, ensure that there are no people, especially children and pets around the machine. Take necessary measures to have a convenient vision of the surrounding.
- Land obstacles shall be disposed by paying attention to waste material such as tree roots, tatter, nylon, etc,
- Operation shall not be conducted on excessive stony fields
- In order to have a convenient vision of rock, channels, etc that could not be removed, make those visible by using flags, etc especially during harvesting.
- Filling of the storage tank shall be conducted only while the engine is shut down and whilst the switch key is removed.
- Replace broken, missing or bent parts before use
- There should be no foreign material inside the storage such as wrench set, etc
- The height of distribution discs from ground should be 70 cm.



ATTENTION

The disc must be height of 70 cm as from ground

2.3 DURING OPERATION...

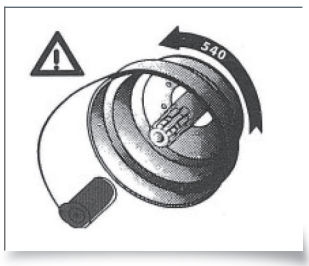
- If an abnormal sound is heard during the operating of the machine stop immediately and cut off the tail axle movement.
- The tail axle linkage shall be cut off for performing works such as cleaning, setting, etc.
- Even if the shaft connection is cut off, do not touch rotary parts until having completed full cycle. Consider that these parts may rotate due to concussions.
- Do not touch moving and rotating parts.
- Your machine has been manufactured for maximum 540 r/min tail axle. Pay attention for this. Do not operate at higher revolutions.
- Do not open or remove safety protectors whilst the engine is running.
- Wait until machine parts have completely stopped before touching them.

2. SAFETY INSTRUCTION AND PROTECTION FROM ACCIDENTS

• The load capacity, operating revolution, etc of the machine shall not be exceeded.
• Whilst the tractor is running, moving-head shaft is rotating, do not enter between the tractor and machine without pulling the handbrake and placing the chocks.
• Do not place a weight, have people on the machine whilst running, and do not insert your hands.
• Whilst your tractor is running, do never leave the driver's cab.
• Pay attention against turnover while working on slope areas.
• Take preventive measures against dangers that may arise due to alteration of the gravity center during loading and unloading.
• Do not run backwards during operation.
• Especially during returning from the field, pay attention to scattering during the alteration in the gravity center.
• Pay attention to the rotation of the movable-head shaft.
• Continuously control the movable-head shaft and its protector.
• Keep away from the articulation area while the engine is running.
• The movement of the shaft shall be interrupted at sharp turnings.
• Do certainly not approach and have nobody approach the machine during operation.
• Wear protective mask during agricultural and fertilizer operations and pay attention to the wind direction.
• Do not eat or drink anything during the work.
• During the fertilization of field edges, take necessary measures against spaces that may exposed to harm, particularly water resources.

2.4 AFTER THE WORK

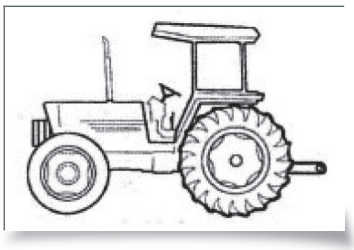
• Before leaving the tractor, lower the machine connected to the hydraulic. Pull the handbrake after having stopped the engine. Take the switch key.
• Conduct the adjustments and repairs on your machine only when the tractor engine is shut down and wheel are chocked.
• Before starting adjustments, maintenance or repairs, take the switch key of the tractor with you.
• Before leaving the equipment attached to the tractor after work, ensure that is completely lowered to ground.
• If possible, the tractor shall be parked on a plain ground and shifted to any gear in this case and the handbrake shall be pulled. If to be parked on a slope area, shift to gear 1 when upwards and to reverse gear when downwards. The handbrake shall be pulled in both conditions. If a trailer is attached to the tractor, place chocks to wheels to ensure higher safety.
• Remove the shaft connection. Grease the shaft axle and close its cover.

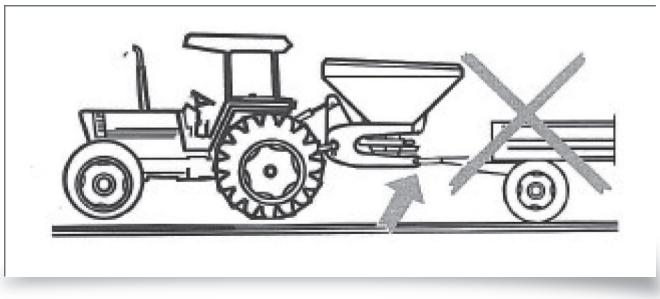


3. PREPARATION FOR OPERATING STATUS

3.1 TRACTOR SETTING BEFORE THE MACHINE IS ATTACHED

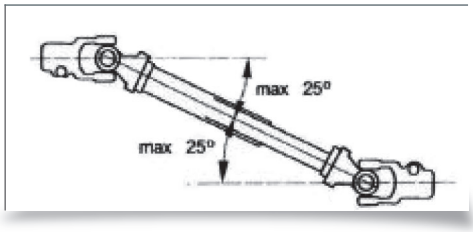
The tractor must comply with the loaded weight of the machine. Tractor wheel pressure must be adequate. Balance weights should be placed regularly in front of the tractor to enable traction and braking capacity. Certainly use original shaft.

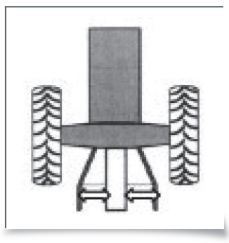




During use, tractor-trailer traction shall be removed or pulled to left or right. Otherwise, it might cause damage

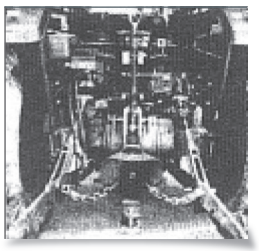
During use, the shaft housing shall be fixed with the chain and ensured not to rotate. Otherwise, it might cause accidents. The shaft shall never used without housing. The operating angle of the shaft shall not exceed 25 degrees. Lubricated the inner and outer parts of the shaft tube with grease.





Left and right hydraulic arms must be equally spaced.

In order to prevent oscillation during transportation and discharge, take the space of the tension chains of the left and right hydraulic arms of the tractor



Connect the hydraulic hoses. Hoses and connection points must be clean. Cover the end of the hose with a plastic tap after use. Move the hydraulic control arm forwards-backwards for a few times in order to reduce the oil pressure at the hydraulic line (applicable for hydraulically controlled models).

3. PREPARATION FOR OPERATING STATUS

3.2 WORKS REQUIRED TO BE CONDUCTED BEFORE THE FERTILIZATION PROCESS

- Make appropriate settings before starting the operation for fuel saving,
- Control the air of the wheels after having lifted the machine with the hydraulic arms of the tractor. If necessary, set their air pressure.
- Avoid instant torque at first movement during starting the work
- In the event that the fertilized area is not straight (slope area), it should be taken into account that delivery of fertilizer may not be homogenous.

3.3 DETACHMENT OF MACHINE FROM THE TRACTOR

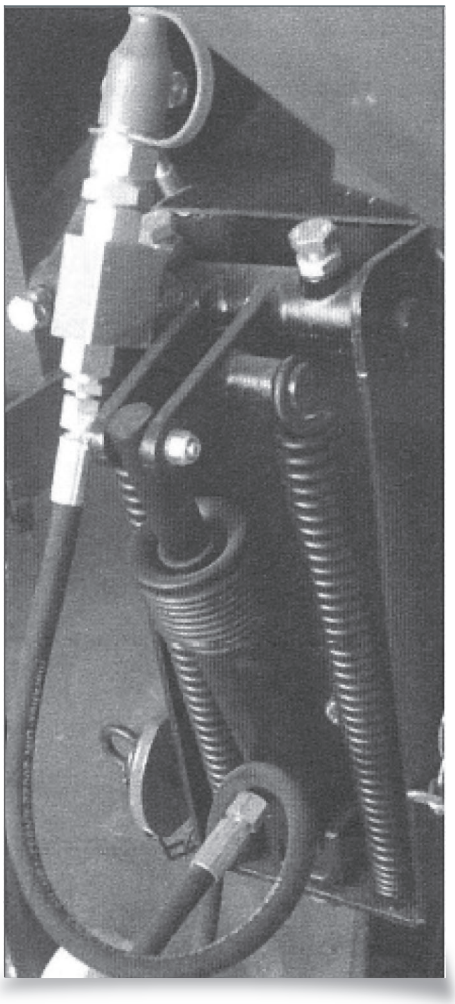
• Stop the tractor by lowering the machine to a straight and firm ground. Pull the handbrake. Activate the wheel brakes of the machine.
• Remove the shaft certainly after work completion. Clean and lubricate the splined gearbox.
• Do not leave fertilizer inside the machine.

4. MAINTENANCE

• Before each operation, check particularly the bolts of the fertilizer tossing wings and squeeze if necessary.
• Fertilizer is an aggressive material. It will wear the metal parts of the fertilizer spreader machine and will cause corrosion. Therefore, it will shorten the use life of the machine and distort the distribution sensivity (fertilizer norm – transversal distribution). For this reason, the machine should be cleaned with clean water upon every work completion and bright parts should be protected with effective material.
• After the first operation of 8-hours, control all bolts of the machine and squeeze those that are loose. Repeat this process subsequently in intervals of 50 hours.
• After each operation of 12-hours, lubricate the greasers.
• Keep your machine in a covered area.

5. OPTIONAL PARTS

• If requested, a protection canvas is covered over the storage to protect the fertilizer against effects such as wind and rain.
• A hydraulic controlling mechanism is attached in order to enable closing/opening from inside the cabin



6. FERTILIZER NORM

Fertilizer norm (kg/min) that is calculated in various adjustment grades and proceeding speeds during operating with single-disc fertilizer spreader machines is as following.

Tractor tail-axle revolution..... 540r/min
Height of disc from ground..... 70 cm
Wing angle..... in case of being -12 degree
Operating width (Triple super phosphate fertilizer)..... 15,75 m
Operating width (urea)..... 12,25 m

6. FERTILIZER NORM

6.1 FERTILIZER NORM ADJUSTMENT TABLE

- Make appropriate settings before starting the operation for fuel saving,
- Control the air of the wheels after having lifted the machine with the hydraulic arms of the tractor. If necessary, set their air pressure.
- Avoid instant torque at first movement during starting the work
- In the event that the fertilized area is not straight (slope area), it should be taken into account that delivery of fertilizer may not be homogenous.

	UREA								TRIPLE SUPER PHOSPHATE							
Speed (Km/h)	4		6		8		10		4		6		8		10	
Notch Level	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
2	9,2	12,3	6,1	8,2	4,6	6,1	3,7	4,9	6,7	7,6	4,4	5,1	3,3	3,8	2,7	3,0
3	20,8	30,5	13,9	20,3	10,4	15,2	8,3	12,2	15,3	23,0	10,2	15,3	7,6	11,5	6,1	9,2
4	44,1	56,4	29,4	37,6	22,0	28,2	17,6	22,5	32,4	43,9	21,6	29,2	16,2	21,9	13,0	17,5
5	63,7	80,2	42,5	53,4	31,8	40,1	25,5	32,0	50,3	64,8	33,6	43,2	25,1	32,4	20,1	25,9
6	84,3	100,5	56,2	67,0	42,1	50,2	33,7	40,2	56,7	82,3	44,5	54,8	33,3	41,1	26,7	32,9
7	99,5	105,4	66,4	70,3	49,7	52,7	39,8	42,1	83,9	84,4	55,9	56,2	41,9	42,2	33,5	33,7

6.2 READING AND IMPLEMENTING THE FERTILIZER NORM TABLE

In the diagram, values in two different groups are provided for Urea and Triple Super Phosphate Fertilizers. Adjustment is performed by using the holes on the aluminum scale that are calibrated on the machine. There are three sequences of hole-columns, which are named as A and on the scale.

Among these columns, the one close to the user is A and the one that is distanced to the user is B

Example 1: When assumed that 25 kg of triple super phosphate will be delivered,

- Look at the table of triple super phosphate fertilizer
- Selected the closest value to 25 kg; the closest values to 25 kg is seen to be **25,1 kg** in the table.
- When looked upwards from this value, it is seen that the value found is under column **A** within the movement speed of the tractor of **8 km/h**.
- When looked to the left, it is seen to be in hole no. 5.
- In this case, when we attach to the 5th hole on the aluminum scale our machine will deliver approximately 25 kg.

Example 2: Again for triple super phosphate, when a speed of **10 km/h** in setting **A5** is selected, it is seen that the amount of fertilizer per decares is determined as **20,1 kg**.

7. PROBLEMS AND REMEDIES

PROBLEMS	REASONS	REMEDIES
- Adjusted and requested amount of fertilizer cannot be delivered	- The tractor proceeding-speed might be different from what is selected - The hydraulic arms of the tractor to which the machine is attached might not be in equal height	- If less fertilizer is delivered slowing down and speeding up is needed when excessively delivered, - Adjust
- Fertilizer is not delivered equally to both sides	- The fertilizer flow windows of the machine might not open equally - The machine might not operate in parallel with the tractor - Tossing wings might not be attached symmetrically	- In this case, control flaps in fully opened and fully closed position and it can be set by changing the length of the shaft connected to rod heads. - Pay attention that the midsuspension arm is not too long or short. - Attach symmetrically
- Hydraulic opening/closing system does not command	- Tractor oil pressure might be low - Tractor oil level might be low - Hydraulic valve might be closed	- Adjust pressure - Add oil - Open the valve
- Hydraulic opening/closing system opens after a while although being closed	- Tractor hydraulic pressure might be low - Springs might overcome hydraulic force	- Tractor hydraulic pressure could be operated at higher revolution - Springs could be replaced
- Fertilizer is scattered in the form of dust	- Tail axle is higher than 540 r/min; for example; it might operate at 1000 r/min - Might be due to the feature of the delivered fertilizer - Might be not granule adequately	- Operate at 540 r/min - Do not deliver fertilizer in the form of dust - Do not use
- The fertilizer does not reach desired operating width	- Tail axle is higher than 540 r/min; for example; it might operate at 1000 r/min or it might operate at a lower revolution - The height of the distribution disc might not be at requested measure - Wing angle might not be adjusted	- Operate at 540 r/min - The height of the distribution disc must be 70 cm from ground - Adjust

8. WARRANTY

WARRANTY CERTIFICATE

Warranted by ALPLER for a period of two years

BRAND: ALPLER
PRODUCT TYPE:
MODEL:
SERIAL NUMBER:
DATE OF PRODUCTION:

Seller's

Title:.....
Address:.....
Phone:.....
Fax:.....
Invoice Date:.....

Signature & Seal

ALPLER

ALPLER AGRICULTURAL MACHINERY
Umurlu Organize Sanayi Bölgesi Umurlu-AYDIN / TÜRKİYE
Tel: +90 (256) 259 1055 **Fax:** +90 (256) 259 1066
Web: www.alpler.com.tr **E-mail:** alpler@alpler.com.tr