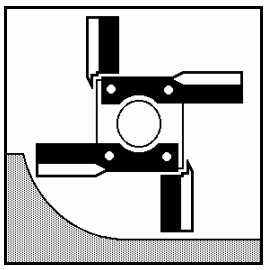
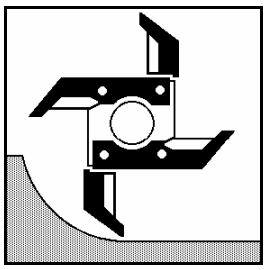
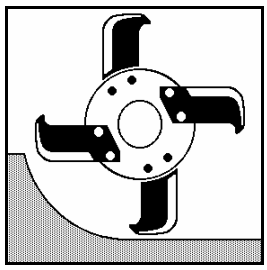
ALPEGO
TECNOLOGIE IN CAMPO



ROTOLAMA **LH2**

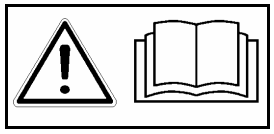


ROTOPIK **KH2**



ROTOZAPPA **FH2**

USER AND MAINTENANCE MANUAL



ALPEGO ref. FH2 D04063 06/2004

Consult this manual carefully before using the machine. Knowing the machine in detail is essential for safe usage. This manual should be kept for the whole working life of the machine.

Thank you for choosing Alpego, you have purchased a top quality product that is guaranteed by a decade of experience.
Before leaving the factory, each machine is carefully inspected to guarantee that it is in perfect condition.
Should you however, find any faults in the product, kindly contact your retailer immediately.
Please do not hesitate to contact us should you need further information or assistance, our aim is to constantly improve the product, keeping it at top level.

LOOK OUT FOR THE TRIANGLE. IT INDICATES DANGER

THE TERM ***MACHINE*** REPLACES THE COMMERCIAL DESCRIPTION OF THE ITEM DESCRIBED IN THIS MANUAL.

ALL DATA AND DESCRIPTIONS REPORTED IN THIS MANUAL ARE TO BE CONSIDERED INFORMATIVE. THE PRODUCER IS NOT BOUND TO MAINTAIN THESE CHARACTERISTICS WHICH COULD BE VARIED WITHOUT PRIOR WARNING

ALPEGO ®
TECNOLOGIE IN CAMPO

INDEX

1 - GENERAL INFORMATION

1.1 PURPOSE OF THE MANUAL

This manual has been prepared by the machine manufacturer and it is an integral part of the documentation that comes with the machine.

In this manual you can find detailed and precise explanations regarding the correct use of the machine and it also establishes correct machine application and its limits.

To guarantee the safety of persons using the machine; working economy and longer durability, you must follow the instructions given in this manual at all times.

The manual has been divided into various sections. Consulting the index makes searching for specific topics easier.

The illustrations in this manual are indicative. Even if you notice a difference with the machine you possess, safety and information are still fully guaranteed.

1.2 DOCUMENTS THAT COME WITH THE MACHINE

The following documents must be supplied with the machine:
- User and maintenance manual
- EC declaration of conformity
- User and maintenance manual of the cardan joint

1.3 GUARANTEE

When delivered, make sure that the machine and its accessories have not been damaged during transportation, and that all the accessories which are included, are in perfect condition and complete.
Any complaints should be made to the retailer in writing, within 6 days from delivery date.

GUARANTEE FORFEITURE

The guarantee is immediately rendered null and void:
- if there is a manoeuvring error
- if the power limit established by the manufacturer is exceeded (see chart 2.3)
- if the instructions described in this manual are not followed
- if non-original spare parts are used
- if any modification is made to the machine without prior authorisation by the manufacturer

1.4 MACHINE IDENTIFICATION

The machine identification plate, with the following information, is positioned near the 3 linkage points:

1-Machine model

2-Serial number

3-Maximum weight of the machine with roller

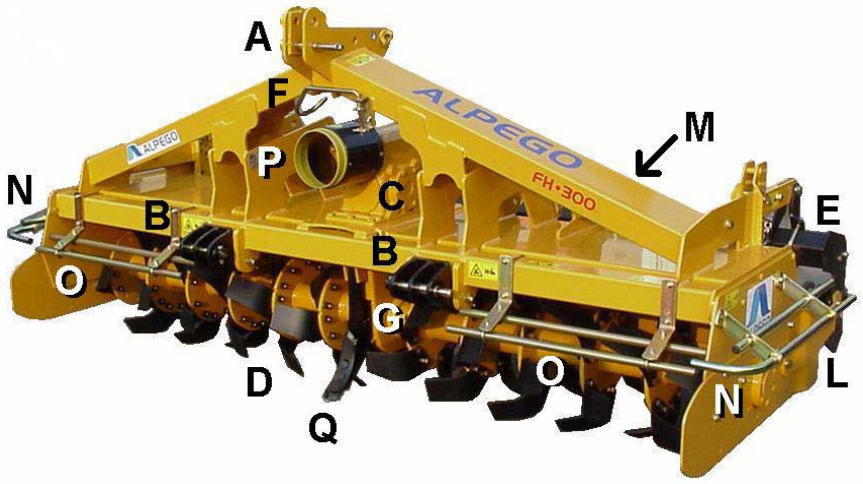
4-Manufacturing year

The weight indicated on the plate corresponds to the machine complete with the heaviest roller, with no accessories.

- TECHNICAL SPECIFICATIONS

2.1 MACHINE DESCRIPTION

The machine should be used to work agricultural ground. It is equipped with a bladed rotor for models LH2 and KH2, and a tine roller for the FH2 model. Both rotor types are moved by central geared transmission and a cardan joint. The machine should be connected to tractors that have a three point linkage that has the characteristics given in chart 2.2 in the technical data section.



The main organs are:

A) Third point linkage
B) Pins for connection to tractor
C) Speed change
D) Rotor with blades or tines
E) Rear levelling roller
F) Cardan support joint
G) Central transmission
L) Rear clod smasher (only for LH2 and KH2)
M) Rear bonnet
N) Side safety guards
O) Front protection devices
P) Power Takeoff guards
Q) Central ploughshare

2.2 TECHNICAL DATA CHART

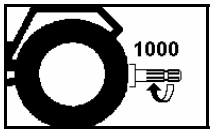
Model	Kw min- max	mm.	mm.	mm.	n°	n°	n°	Kg
FH2-250	95-162	2980	3000	250	44+44	-	28+28	1150
LH2 300					-	44+44	-	1330
KH2 300					-	-	34+34	1330
FH2 300								1300
LH2 400	110-162	4000	4050	250	64+64	-	-	1670
KH2 400					-	64+64	-	1670
FH2 400					-	-	48+48	1620

2.3 NOISE LEVEL

If the tractor is equipped with a soundproof cabin, the sound level depends on the kind of insulation level of the cabin. If the tractor does not have a cabin, or if you are working with open windows, then it is recommended to use ear protectors. Check the current safety laws of your country. (The noise level emitted by the machine while it is at work, and when measured at a distance of 200 mm. from the rear window, exceeds 85 dBa).

2.4 TRACTOR POWER TAKEOFF

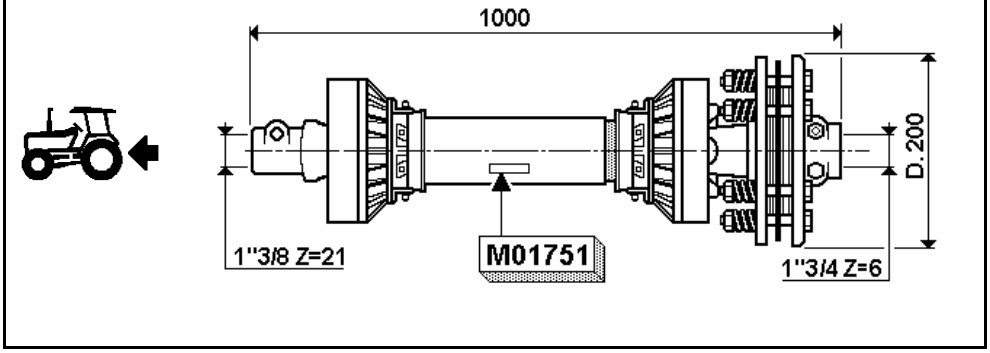
The tractor Power Takeoff should rotate at a regime of 1000 revs./min.



2.5 IDENTIFYING THE CARDAN JOINT

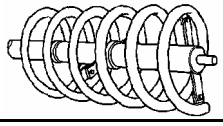
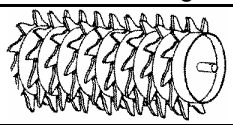
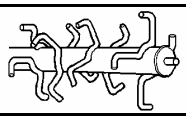
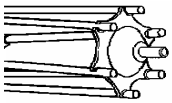
The machine comes with a cardan joint that has a safety device against overloads as shown in the figure. It is not possible to replace it with others that are different from the original.

Make sure you read carefully the instructions in the booklet supplied with the cardan joint.



2.6 IDENTIFYING THE ROLLER

Each machine must have a rear levelling roller that levels and supports the machine. It is also an important safety device because it blocks rear contact with the rotor.
The machine must NOT be used without its roller.

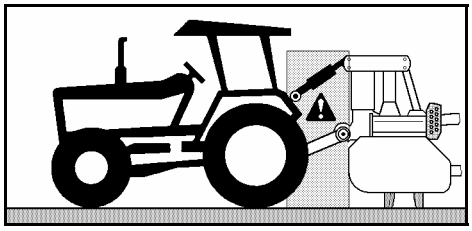
Description and diagram	Code	symbol	D mm.	L mm.	kg.	To be mounted on:
SPIRAL 	S02032 S02033 S02034	SP4-250 SP4-300 SP4-400	520	2500 3000 4000	220 265 355	**FH2-250** **LH2/KH2/FH2-300** **LH2/KH2/FH2-400**
SPIRAL ROLLER: The spiral roller is excellent for preparation of the bed. It tamps the ground correctly and leaves the soil with diagonal lines. This makes sowing easier, improves seed covering, and guarantees consistence of the seeding depth. Can work also on damp ground.						
PACKER 	S03022S S03023S S03024S	PK4-250 PK4-300 PK4-400	520	2500 3000 4000	405 475 595	**FH2-250** **LH2/KH2/FH2-300** **LH2/KH2/FH2-400**
PACKER ROLLER: Compacts the surface of the soil. Can also work on damp ground that is not particularly sticky.						
SPIKES 	S14052 S14053 S14054	P5-250 P5-300 P5-400	560	2500 3000 4000	210 250 330	**FH2-250** **LH2/KH2/FH2-300** **LH2/KH2/FH2-400**
SPIKED ROLLER: Use this roller to work very wet clay ground that is very sticky and that cannot be crushed on the surface.						
CAGE 	S10010 S10011 S10012	G5-250 G5-300 G5-400	400	2500 3000 4000	215 250 345	**FH2-250** **LH2/KH2/FH2-300** **LH2/KH2/FH2-400**
CAGED ROLLER: Contrarily to the packer roller, the caged roller leaves the soil soft. It works perfectly on dry, non-sticky ground.						

3.1 USING THE MACHINE SAFELY

Read the user and maintenance manual carefully before starting-up, before using the machine and before carrying out maintenance on the equipment.
The manufacturer cannot be held responsible for injuries caused to people and animals, or damage caused because the safety regulations have not been observed by the user.
The machine cannot be used for different purposes other than those expressly indicated in this manual.
Do NOT touch any of the moving parts of the machine.
When circulating on public roads the machine and its accessories must have suitable safety signals and protections.
It is forbidden for people to drive the tractor if they do not have a suitable driving licence, if they do not have the necessary experience, or if they are not in good health.
Carefully examine the adhesive labels on the machine and make sure you follow their indications.
Safety stickers should always be legible. They should be kept clean and they must be replaced when they cannot be read properly (if required, replacements can be requested from your dealer).

Do not allow people or animals to approach the working range of the machine while it is moving.

You must always remain seated in the tractor driving seat. You can only leave your driving seat when the tractor power takeoff has been disengaged and the handbrake pulled up.
During working stops switch off the motor, place the machine on the ground, disengage the tractor power takeoff and pull the tractor handbrake up.



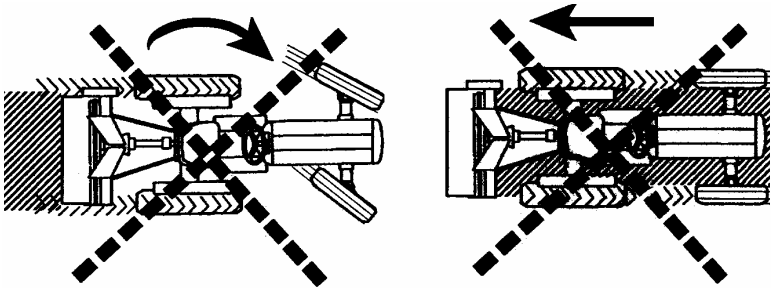
While working do not allow people, animals and/or things to approach the working range of the sods and stones that are being thrown out by the machine.

It is absolutely forbidden to enter the area between the tractor and the machine to reach the external commands of the hydraulic lifter.

You must Never work if the protections have been removed.
Do not use the machine to transport people, animals and/or things.

Do not work on soil or in places that could compromise machine stability.
You must become familiar with the ground in a new area before working in it. Do not work in areas that could have obstacles such as stones, sticks or roots since these could ruin machine integrity.
You must Always use the rotating flashing light when circulating on public roads

When circulating on the road, it is necessary to follow the Highway Code of the country where the machine is being used. Always remember that roadholding, braking and changing direction could be influenced by the weight of the machine applied to the tractor lifter. When making turns, take into consideration the action of the centrifugal force that moves the machine barycentre.

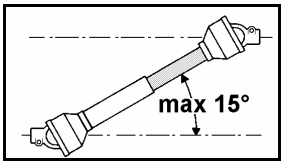


Do not use the machine when it is raised (out of the ground). While you are working, do not take turns while the machine is resting on the ground. Never work in reverse. Always lift the machine when changing direction and reversing.

During transportation, or whenever you need to lift the machine, the tractor lifting group should be regulated in such a manner as to keep the machine at a maximum distance of approx. **35 cm** from the ground.

Do not circulate on roads if the machine is dirty with soil, grass or other things that could dirty the road and block normal traffic.
Do not drop the machine heavily onto the ground, but lower it slowly for a gradual positioning of the blades into the soil. If you fail to do this, all the machine components would be heavily stressed, and this could compromise their integrity.
When circulating on roads with the machine raised, put the command lever of the tractor hydraulic lifter in the "locked" position.
The machine can only be used inside closed structures only if there is a suitable ventilation system.
Use only the cardan joint indicated by the manufacturer. This joint is equipped with safety features against overloads.
Before activating the power takeoff, check the pre-set number of revolutions. Do not exchange the speed of 540 revs./min. with that of 1000 t/min.
The cardan joint should only be installed and removed when the motor is switched off.

The cardan joint protection should always be in perfect condition, it should be checked on a regular basis and it must be fixed with the chains to stop it from rotating.



Disengage the Power Takeoff whenever the cardan joint angle is greater than 15° (see figure).

Before activating the power takeoff, make sure that there are no people and/or animals in the working range of the machine. Select the speed suggested by the manufacturer and DO NOT EXCEED the maximum speed.
Do not touch the vehicle speed change or over-gear, or any parts of the hydraulic system after using the machine for long hours. These parts could be very hot and you could get burnt.
Before changing the gears of the speed change, disengage the power takeoff, pull the handbrake up and remove the ignition key. Reposition the gear cover before starting the machine again.

3.2 SAFE MAINTENANCE

DO NOT allow unauthorised people to carry out maintenance operations or to tamper with the machine in any way.
Maintenance and repairs should be carried out in a suitable and well equipped workshop.
When carrying out maintenance operations on the machine, disconnect the hydraulic hoses from the tractor intakes.
ALWAYS use original accessories as instructed by the manufacturer. If you fail to do this, the guarantee will be rendered null and void, and you could risk operational irregularities that could prejudice the safety of the machine.
Only use oil with the characteristics recommended by the manufacturer.
When carrying out any kind of operation on the machine, disengage the tractor power takeoff, pull the handbrake up, remove the ignition key and make sure that nobody gets onto the tractor.

Before cleaning and greasing the cardan joint, disengage the Power Takeoff, switch off the motor, pull the handbrake up and remove the ignition key.

3.3 CLOTHING

You should always put on clothes protecting the body – make sure there are no hanging parts that could get stuck into moving components. Remove watches, rings, necklaces, etc. that could cause injury in dangerous situations. Pull up long hair into a ponytail.

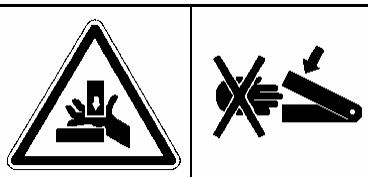
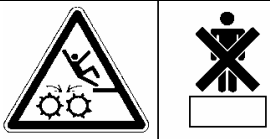
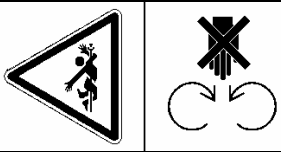
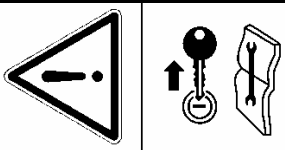
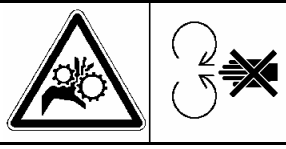
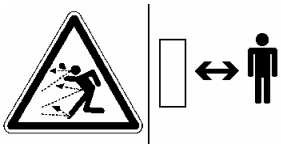
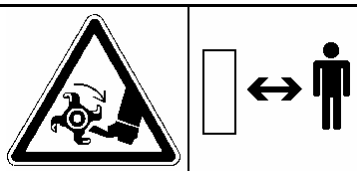
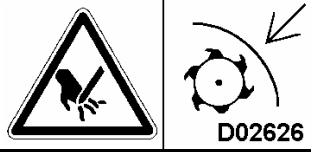
The machine driver may have to wear suitable safety equipment (glasses, gloves, mask, helmet, shoes, etc.). Check and follow safety rules in your country

3.4 ECOLOGY

Regulations in your country regarding the use and disposal of lubricating products; maintenance operations and cleaning of machine must be respected. Observe carefully the indications given on the packaging of the products used.Respect current standards when scrapping the machine.

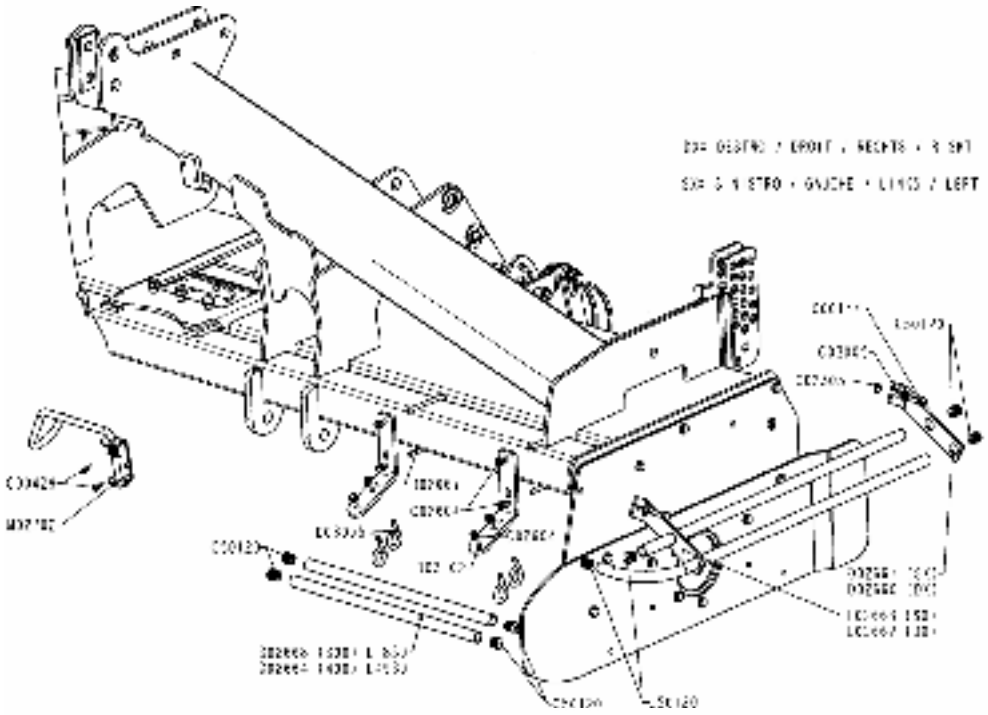
3.5 SAFETY SIGNS

A good number of labels on the machine point out the sources of danger. Observe them carefully and follow the indications for a safe use of the machine. These stickers should be kept clean and legible; if damaged they should be replaced.

LABEL	code	MEANING
	**D02612**	It is a MUST to read the user and maintenance manual and safety instructions before using the equipment. These must be followed during use.
	**D02627**	Indicates the hooking point for machine transportation.
	**D02613**	Indicates the danger of shearing while the machine is working.
	**D02609**	Indicates that it is forbidden to climb on top of the machine while it is working.
	**D02608**	Indicates the danger of entanglement while working on the cardan joint. Do not approach the joint while it is rotating.
	**D02615**	Indicates the need to switch off the tractor and remove the ignition key during maintenance operations.
	**D02614**	Indicates the danger of crushing by rotating belts and pulleys. Disengage the power takeoff while replacing the gears.
	**D02618**	Indicates the danger of stones being ejected while working. Keep the recommended safety distance.
	**D02619**	Indicates the danger of rotor rotation while working. Keep the recommended safety distance.
	**D02626**	Indicates that is it forbidden to open the bonnets while the rotor is moving because the rotor is positioned under them.

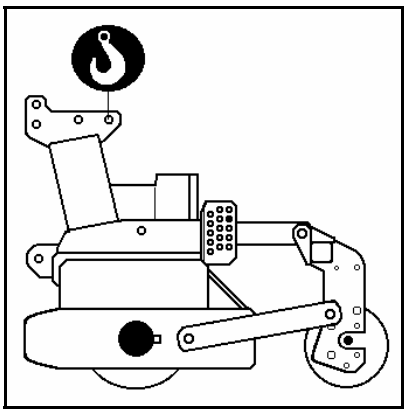
3.6 ACCIDENT-PREVENTION DEVICES

Before starting up the machine re-install the accident-prevention devices (if they have been removed during transportation).



ROTOZAPPA FH2 – LH2

4 - INSTALLATION

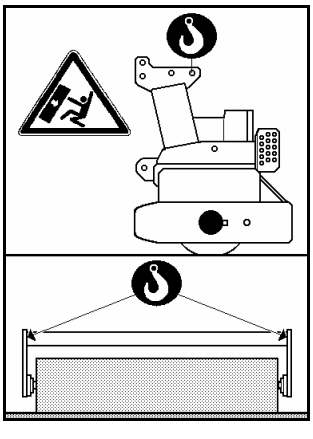


4.1 LIFTING THE MACHINE

The machine should be lifted and transported with the right equipment, suitable for its weight, see section 2: TECHNICAL SPECIFICATIONS, and by personnel trained in this kind of work.

Hook the machine in the two points indicated in the figure below and go ahead. The machine should not be raised by more than 200 mm from the ground while carrying out these operations.

If the roller is delivered separately, it must be assembled to the machine. Be very careful when assembling it because the machine is not stable without its roller.



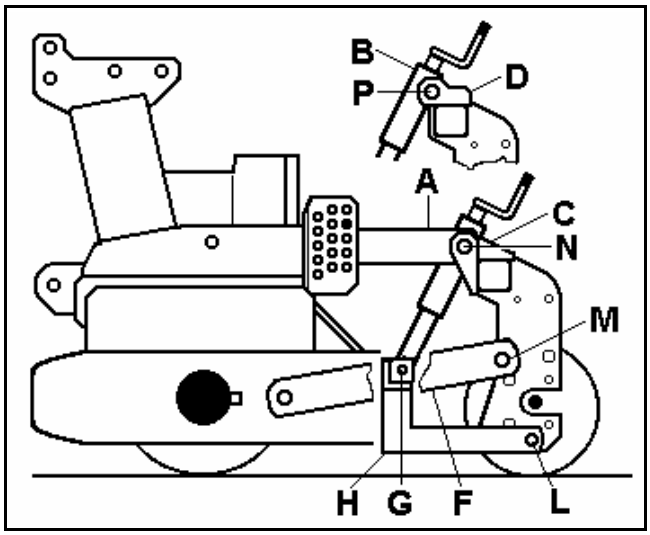
Use suitable means to keep the machine hanging. While it is hanging, apply it to the three tractor points, lock the pins of the connections with the correct bolts.

Make sure that everything is connected perfectly, then place the machine carefully onto the ground.

Hook the roller as shown in the figure using suitable lifting means.

Keep the machine steady and without lifting it from the ground, proceed as indicated in point 4.2.

4.2 ASSEMBLING THE ROLLER



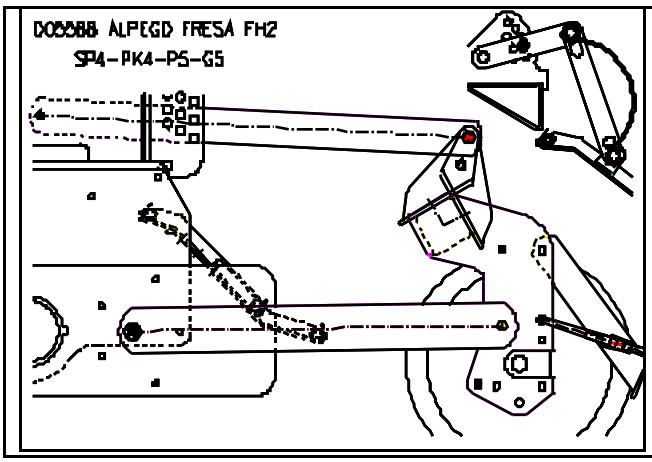
When you have finished the operations indicated in point 4.1, do as follows :

For **ROTOLAMA LH2** and **KH2:** assemble the rear clod smasher **H** by fixing it with the bolts and distancer **L.** After this, position shaft **D** and then handle **B** on the square pipe of the roller frame. Fix the bottom to hole **G**, and the top to hole **P**.

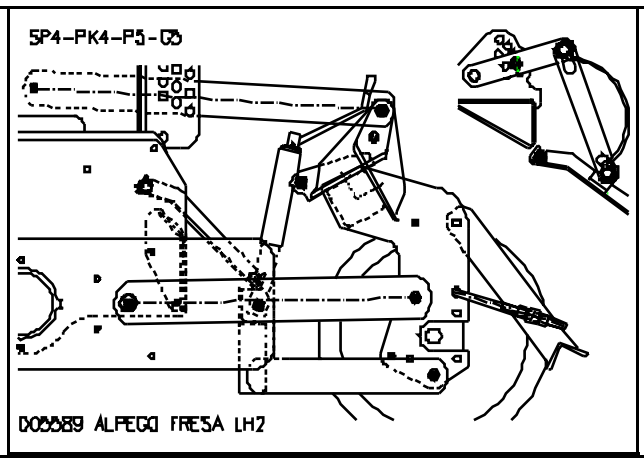
For **ROTOLAMA LH2** and **KH2** and **ROTOZAPPA FH2**: position shafts **C** on the square pipe of the roller frame. At this point the roller can be connected to the machine. Lift it and place it behind the machine that was previously connected to the tractor.
Fix the two upper blades **A** with bolts **N** and the two lower blades **F** with the bolts plus distancer **M**.

The diagrams on the following page show the labels on the roller blades **F** of the machine. Use the diagrams to help you make sure that everything has been assembled correctly.

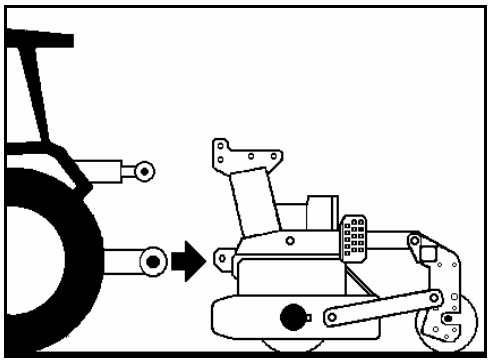
Assembly drawing: rotozappa FH2



Assembly drawing: rotolama LH2-KH2

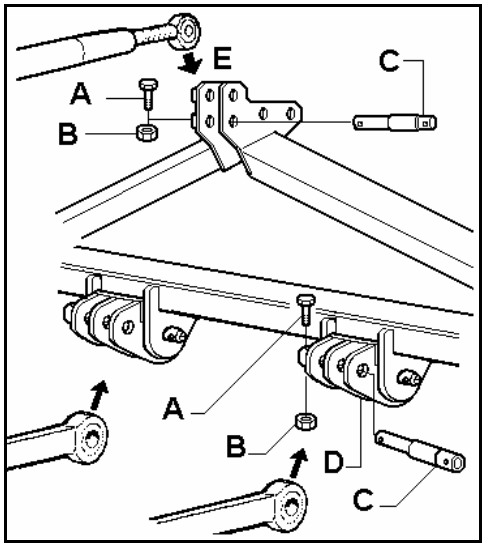


4.3 CONNECTING TO THE TRACTOR



The machine is pre-set for 2nd and 3rd category links. Primarily check the weight on the axes and, if necessary, ballast the front of the tractor (check the weight of the machine in the chart given in point 2.2, technical specifications).
Before connecting or removing the machine from the three point linkage, put the lifting control lever in "Locked" position.
Check that the tractor is ready to be connected, make sure that the machine is on a flat surface, then move the tractor closer to a distance of at least one metre.
Switch off the motor, pull the handbrake up, get off the tractor and get ready to connect the three points.

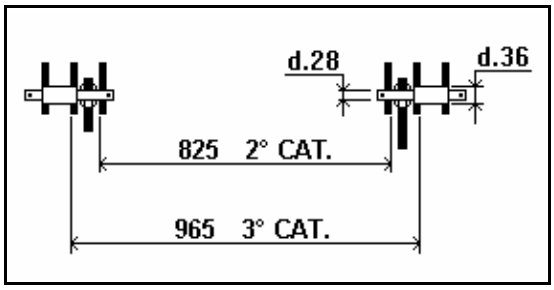
4.4 CONNECTING THE 3 POINT LINKAGE



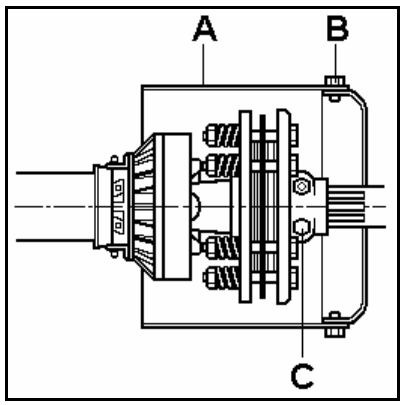
At this point connect the lower arms, as shown in the diagram:
a) Remove screws **A** and nuts **B**
b) Remove pins **C**
c) Insert detents into holes **D**
d) Reposition pins **C**, screws **A** and nuts **B**
e) follow the same procedure to connect the third point tension rod to hole **E**. Choose the most suitable hole according to the lifting capacity of the tractor.

4.5 POSITIONING 2ND OR 3RD CATEGORY LINKS

The connecting pins should be assembled as shown in the figure, and according to the category of the tractor links.



4.6 CONNECTING THE CARDAN JOINT



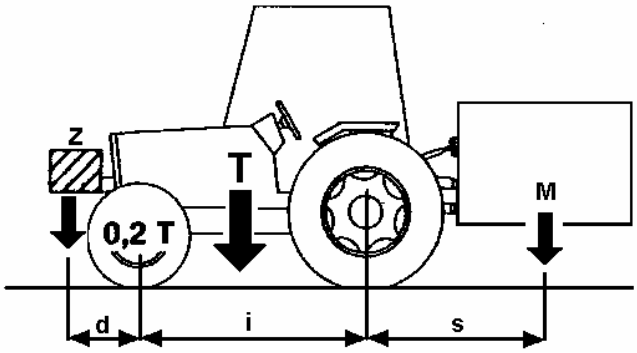
Remove the power takeoff guard **A** of the machine by loosening screws **B**.
Connect the cardan joint on the gear side and lock the two bolts **C** in their slots.
Reposition the power takeoff guard **A** and fix it with screws **B**.

The guard is an important safety device and the machine must NEVER be used without it.
Make sure that the maximum and minimum lengths of the joint are compatible with the required working lengths. Connect the opposite end of the cardan joint to the tractor, and make sure that the pushbutton is in its slot.

Read and follow the regulations in the cardan joint instruction manual.

4.7 TRACTOR STABILITY AND LIFTING CAPACITY CHECK

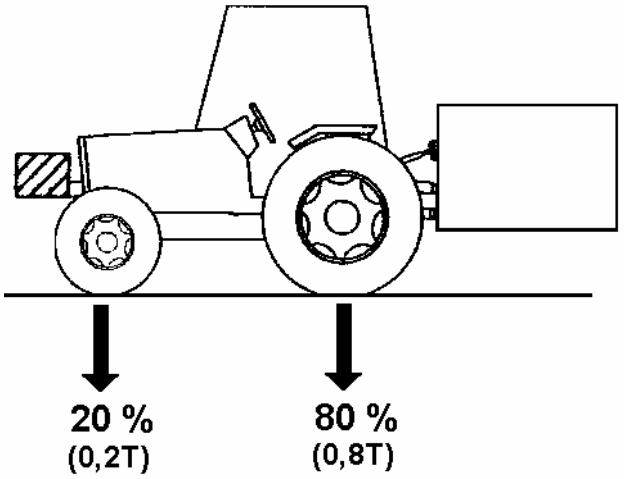
As far as road circulation is concerned, when coupling equipment onto the tractor to form a single unit, you can alter stability and make it difficult to drive and work.



When you add other machines to the tractor, you will change weight distribution over the axes. It is therefore recommended to add suitable ballasts to the front of the tractor in order to have a good weight over the axes. Calculate ballasts to be used, with the following formula:

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

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



where:
i = tractor wheel interaxis (m)
d = distance between the front axis and the front ballasts (m)
s = projection of machine from rear axis (m)
T = tractor mass (kg)
Z = ballast mass (Kg)
M = equipment mass (Kg)

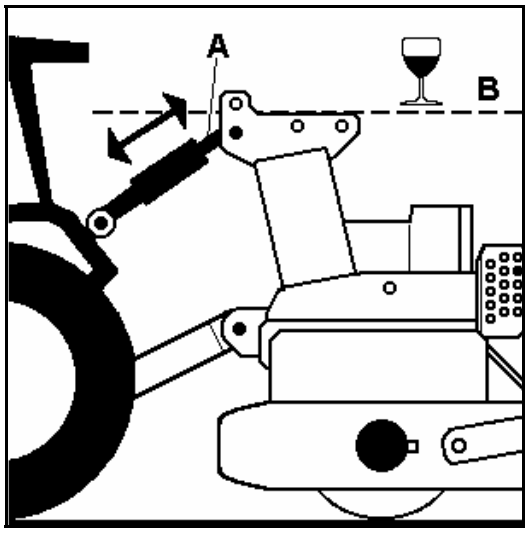
At least **20%** of the total tractor-equipment mass should lie on the front bridge of the tractor.
It must be noted, however, that stability can be improved with the right choice of tractor-equipment coupling and with the application of ballasts at the front, in the limits and methods indicated by the tractor manufacturer.

Moreover, when the tractor halts, the machine should be lowered onto the ground. This also improves stability.

Tractor wheel interaxis	**i =..... m**
Distance between the front axis and the front ballasts	**d =.....m**
Projection of machine from rear axis	**s =..... ....m**
Tractor mass	**T =.....Kg**
Ballast mass	**Z =.....Kg**
Equipment mass	**M =.....Kg**

5 - INSTRUCTIONS FOR USE

Follow all the safety rules mentioned in section 3 of this manual, and read carefully the documentation about the correct use of the tractor. Make sure the machine is in perfect order, and that the oil is at the correct level (see section 6.6). Also make sure that all parts that wear and deteriorate easily (cardan, blades, etc.) are in perfect working order.



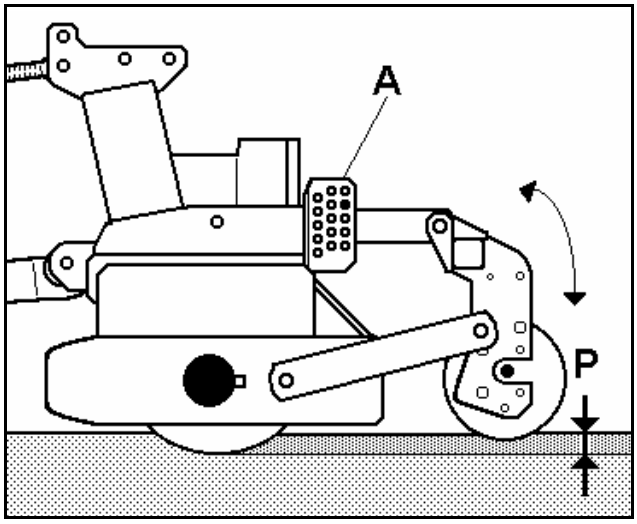
As the machine must work horizontally, adjust the third arm point **A** so that the line **B** is parallel to the ground. Limit side oscillations by regulating the stabilisers of the tractor lifter.

Be careful when using the machine for the first time.
You must always activate and disengage the power takeoff when the rotor is a few centimetres above the ground.

Use the tractor lifting controls so that the equipment comes into gradual contact with the ground.
While the machine is working, the hydraulic lifter of the tractor should be loose, so that most of the machine weight is supported by the rear roller. The rear roller functions also as a leveller.

Keep the machine raised from the ground EVERYTIME you reverse and/or change direction.

5.1 REGULATING THE WORKING DEPTH



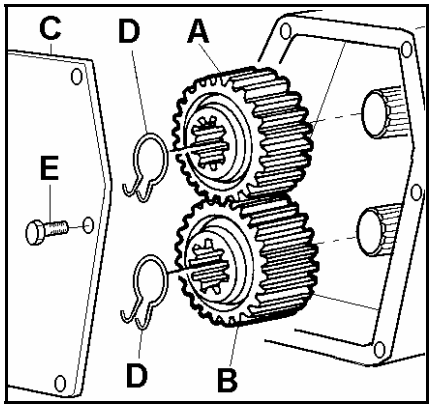
The working depth **P** of the machine is determined by the position of the levelling roller to the lower part of the blades.
The greater the difference in height **P** between the blade ends and the lower part of the levelling roller, the deeper the working depth must be.
The working depth can be increased by moving pins A to the next (higher) hole.
To reduce the depth, move the pins into a lower hole.
You should always start working with a minimum working depth, which you can increase progressively until you reach the perfect depth. CAUTION : all pins must be positioned at the same level.
We recommend a working depth between 80 to 150 mm.

5.2 REGULATING THE ROTOR SPEED

Breaking of soil depends mainly on two factors:

- **speed of tractor**;
- **rotational speed of rotor with blades or tines**

You can break the soil better if the tractor speed is slow, and we suggest a speed limit under 8 Km/h.
The greater the number of rotor turns, the greater the level of soil breakage. Keep in mind that, the more power the tractor absorbs, the more blades and tines wear.
The chart is an example of the speed change sticker of the machine. The gear couples shown in the chart are those mounted originally - others are available on request.

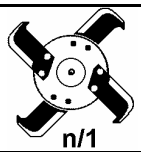


5.2 REGULATING THE ROTOR SPEED

The speed change makes the machine work the soil at different rotor speeds. If you invert the position of the standard gears, or if you use other gears, that are available upon request, you can reach the speeds indicated in the chart above.

To invert or replace the speed change gear couples: firstly remove cover **C** (be careful not to break gasket), then remove springs **D**, remove gears **A** and **B,** and finally invert their position or fit a new pair. Re-assemble springs **D** and close cover **C**. Tighten the M10 screws **E** - not more than 4 kgm.

5.2.1 CHART : THE NUMBER OF POSSIBLE TURNS FOR **FH2 – LH2 – KH2**

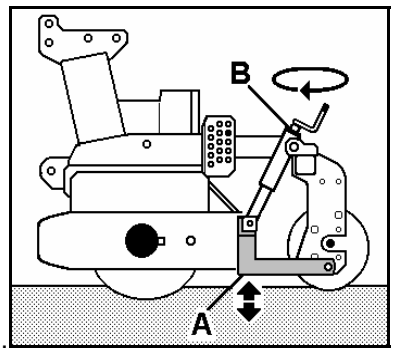
Code	**S08019**	**S08016**	**S08017 Assembled standard on FH2**	**S08018** Assembled standard on **LH2/KH2**	**S08015**	**S08015**	**S08018**	**S08017**	**S08016**	
	19 35	21 33	24 30	25 29	26 28	28 26	29 25	30 24	33 21	**ALPEGO T+C / 190**
1000	**146**	**172**	**216**	**232**	**250**	**290**	**313**	**337**	**424**	

5.3 USING THE REAR BAR FOR ROTOLAMA **LH2** AND ROTOPIK **KH2**

The rear bar can only be assembled on ROTOLAMA **LH** and ROTOPIK **KH**.

- It **refines** the soil under the same regime as the rotor rotation and the speed forward;

- it **levels** the soil horizontally.



You can refine the soil more by lowering the bar, and you can refine the soil less by raising it. The two side regulators **B** support only bar **A**, therefore they must be moved both if you want to lower the bar. To raise the bar, use only one regulator: the other one can be positioned later on.

Regulating bar A

You must always start working with the bar fully raised, then regulate the machine to adjust the working depth you need.

Lower the bar slowly using the two regulators **B** until you see the soil levelling in front of the roller. Normally, this is the ideal working position even if the soil is full of grass or residues. You can lower the bar further on ploughed or clean ground to accentuate refining. If the machine is still not refining the soil enough, you should either increase the number of rotor turns or drive the tractor with a lower speed. The bar should not be lowered beyond a certain limit. If you do this, you will make the machine absorb more energy without improving your work. From the driver's seat, watch carefully the quantity of soil that the rotor moves to the front of the machine. If the worked ground is not levelled properly, it means that you have to place the bar in a higher position.

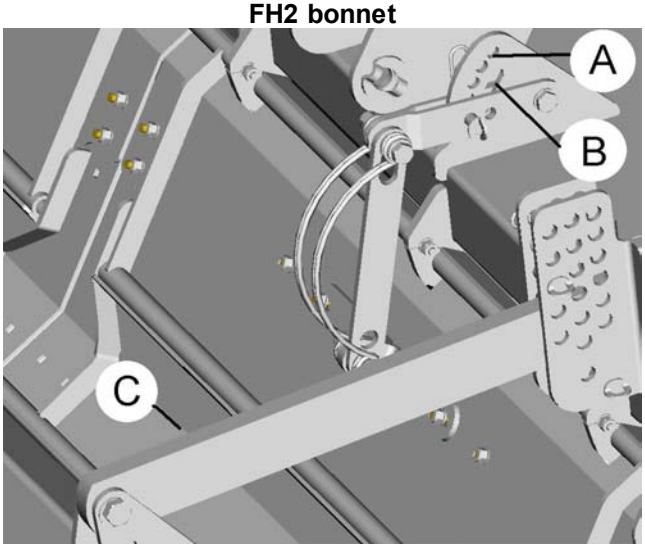
5 - INSTRUCTIONS FOR USE

IMPORTANT : the ALPEGO levelling bar is self-adjusting.
If you vary the working depth of the machine, a parallelogram keeps the bar in the right position.

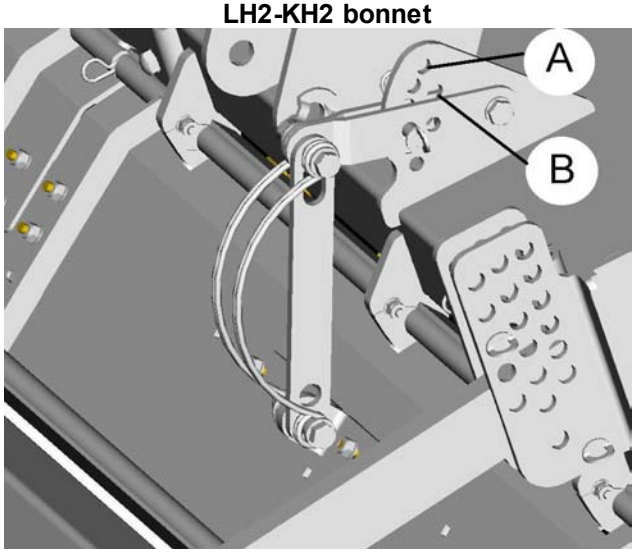
WORKING on DAMP SOIL: in this condition the soil does not normally need watering, therefore it might be useful to reduce the rotation regime of the rotor and to keep the bar raised. This will surely save tractor power.
WORKING on STONY SOIL: when working on stony soil it is better to lift the bar to maximum height, and to move forward with moderation.

5.4 REAR BONNET

FH2 bonnet



LH2-KH2 bonnet



The rear bonnet holds and breaks the worked soil. The **FH2** tiller has two parts, and you can regulate the length of extension **C**; the height can be regulated with a holed plate, while carriage springs control elasticity. In the **LH2** and Rotopik **KH2** models, there is no extension **C** in the bonnet, but it is supported by the rear clod smasher. You should regulate its height to avoid excessive crushes by springs. If you work on very wet soil, keep the bonnet in a high position; adjust the set of holes **A** in a way to have an easier material discharge. If you are working on stony ground, you should position the regulating pin in the lower hole **B**, to free the bonnet.

5.5 UNCOUPLING

To uncouple the machine from the tractor:
- disengage tractor power takeoff;
- lower the equipment onto the ground, switch off the motor and pull the handbrake up.
- Uncouple the cardan joint from the tractor power takeoff and place it in the support joint.
- Uncouple the connections, following the operations given in section 4.3 **but the other way round**.

5.6 END OF SEASON OPERATIONS

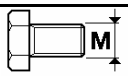
If you do not use the machine for long periods, follow the next steps in order to maintain its integrity:
a) Wash the machine carefully, mostly remove any manure or chemical products etc, then dry it.
b) Make sure that the machine is in perfect condition.
c) Protect all unpainted metal parts with lubricant, then cover the machine or move it into a dry area.

Keeping the machine in this condition will be an advantage – it will be ready for use the next time you need it.

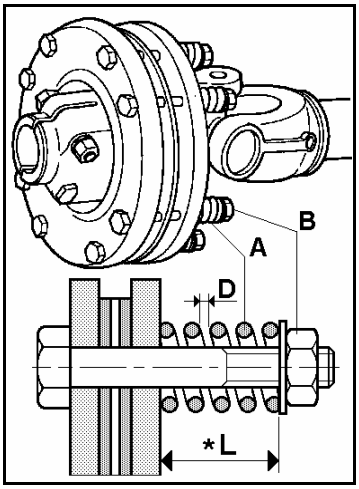
6 - MAINTENANCE

6.1 CHECKS AND CONTROLS

During the first 8 working hours it is important to check that all bolts are perfectly tight, because the power generated while machine is at work moves the structure. If necessary tighten bolts as indicated in the chart. Repeat this check every 50 working hours. Check the blades, the tines and the tightness of their bolts on a daily basis.

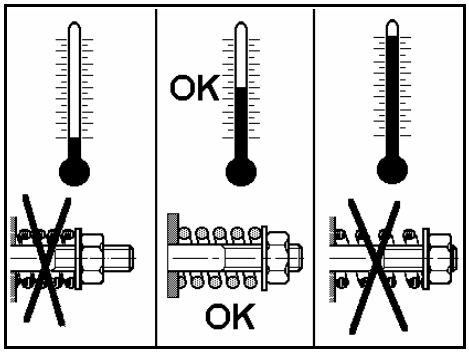
	M 8	M 10	M 12	M 14	M16	M20	M 22	M 24
	13	17	19	22	24	30	32	36
tightening torque **Kgm**	3	6	10	14	21	40	54	70
tightening torque **Nm**	30	59	98	137	205	390	530	685

6.2 REGULATING THE CARDAN SHAFT



The cardan joint of the machine has a friction clutch with discs for safety against overloads. The springs **A**, that are charged by screws **B** keep the pressure on the friction discs constant. By tightening the screws you increase the pressure on the friction discs, which intervene only with higher loads.
The springs are set directly in the factory at ***L=28.5** mm.
For a correct performance of the clutch, the force given out by the springs must not exceed certain values, otherwise everything will be blocked and safety devices could be neutralised.
When you use the clutch you may have to tighten the bolts uniformly, because if the brake lining wears, the pressure will be reduced.
WARNING : DO NOT tighten the screws as far as eliminating distance **D** - if you do this, you will block the clutch.
ALPEGO cannot be held responsible for any damage if the given indications have not been followed. If you fail to follow these indications, the guarantee will become immediately null and void.

6.3 CHECKING THE CLUTCH

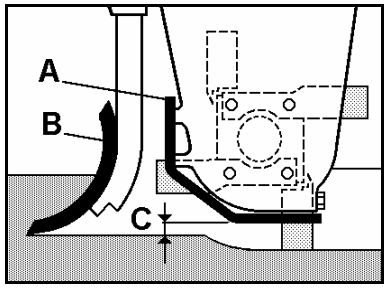


To make sure that the clutch safety device is working correctly you should check the **temperature** from time to time. Under heavy working conditions, it should be **warm to the touch**.

If the clutch is cold, it is blocked, so you should **loosen uniformly** all the screws that tighten the springs by : one half turn.

If it is too hot the springs are too free, so you should **tighten uniformly** all the screws that tighten the springs by : one half turn.

6.4 CENTRAL PLOUGHSHARE

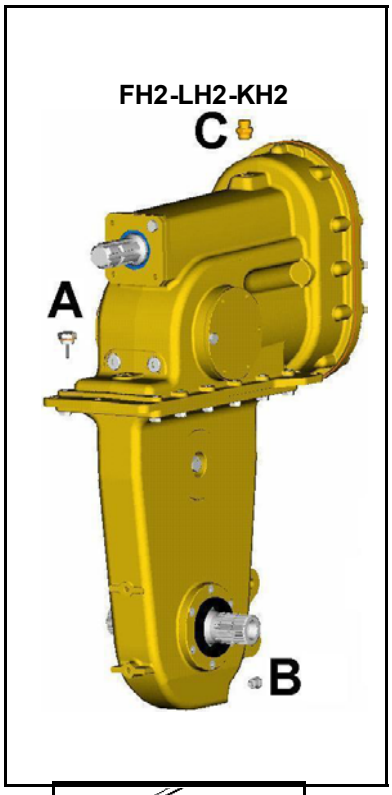


Make periodical checks to see wornness of the central ploughshare **B**, and rotate or replace it if it is worn (code **D04736** for **FH2 - D01598** for **LH2-KH2**).

The ploughshare point **B** should always be lower than the transmission guard **A**, in order to guarantee space (distance) at point **C**.

6.5 LUBRICATION

Read the warnings written on the containers carefully. ALWAYS keep oils and greases out of the reach of children. Avoid contact with the skin. After using the product, wash hands well.
Follow the current anti-pollution laws when handling used oil.



Before you start working, check lubricant level.

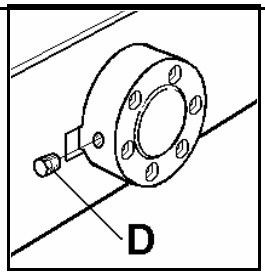
Before checking, topping up or replacing lubricants, clean the parts carefully.

Before you start working, check the speed change oil level
(use a gauge or dip stick **A**).

If necessary put more oil through plughole **C**.

Oil should be changed after 30 working hours, and after that, every 400 hours, or at least once a year. This should be done in an equipped workshop with lifting systems suitable for the machine, and stabilised with suitable supports.

To drain oil, unscrew drainage plug **B.**

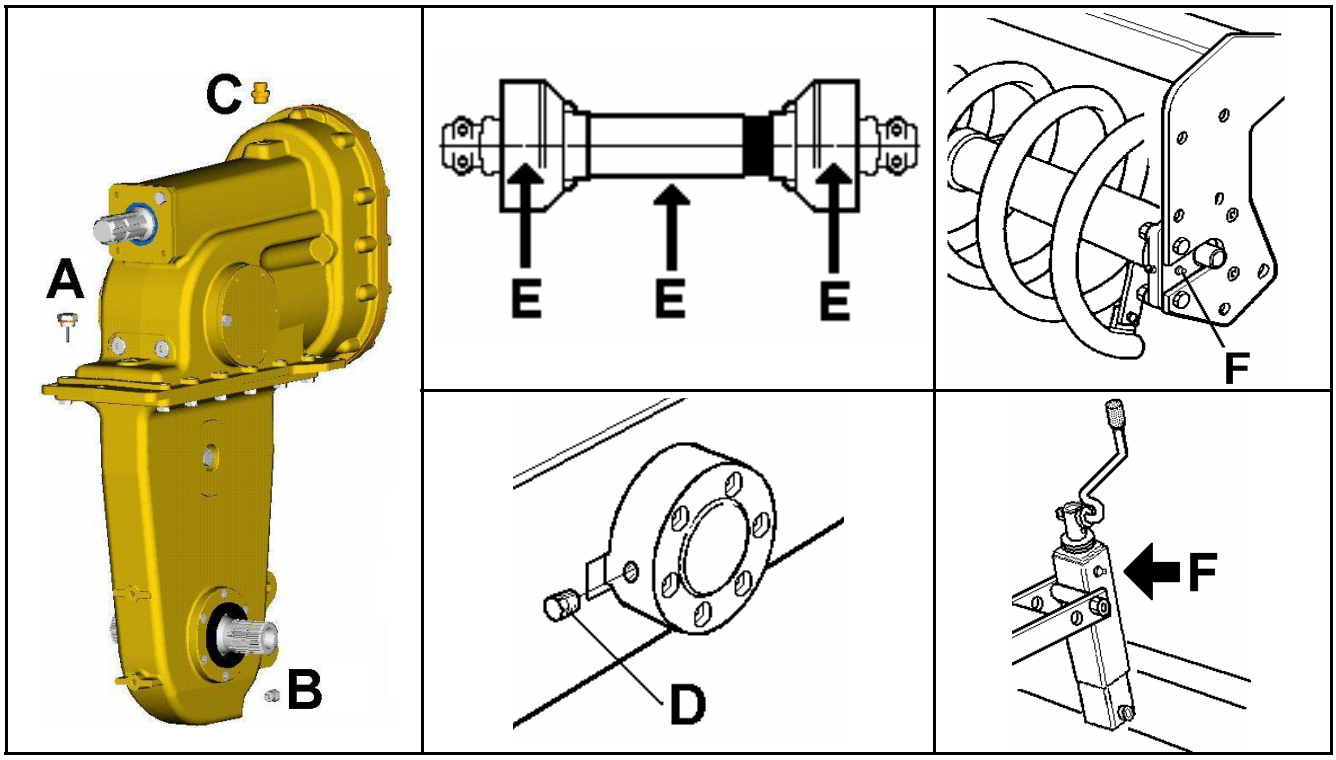


Check the oil level of the two external supports after the first 30 working hours, and then every 100 working hours. The oil level should reach supply plug **D**.

When the machine is under heavy working conditions, these kind of interventions should logically increase.

6.6 LUBRICATION PLAN

PERIOD	OPERATION	LUBRICATING POINTS
every **8** working hours	- GREASE PIPES AND CARDAN SPIDER - CHECK OIL LEVEL. IF LOW, ADD MORE OIL	E A C
every **20** working hours	- LUBRICATE THE GREASING POINTS	E
After the first **30** working hours	- **REPLACE** THE SPEED GEAR OIL	A B C
every **40/50** working hours	- LUBRICATE THE GREASING POINTS	F
every **100** working hours	- CHECK OIL LEVEL. IF LOW, ADD MORE OIL	D
every **400/450** working hours	- REPLACE COMPLETELY THE OIL OF THE SPEED GEAR SIDE SUPPORT. CLEAN DRAINAGE PLUGS IF MAGNETIC	A B C D

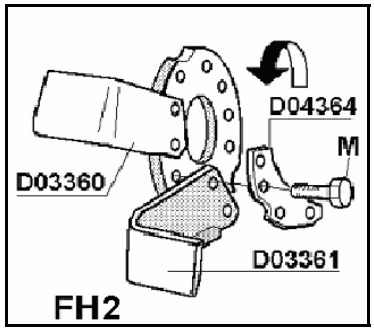


6.7 APPROVED LUBRICANTS

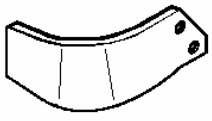
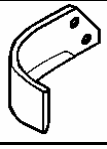
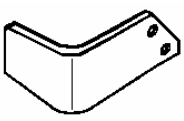
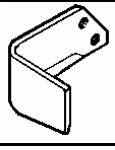
point to lubricate	tiller model (quantity)	lubricant ISO symbol	alternative lubricants VANGUARD	SHELL	AGIP	ESSO	PAKELO
C	12 L	synthetic based oil	AKRO SINT 75W/90	------	BLASIA 220S	------	GLOBAL MULTIG.CB S
D	0,15 L	CKC 320 oil	GEARING EP 320	OMALA 320	BLASIA 320	SPARTAN EP 320	EROLUBE EP C 320
E F	0.01 kg PER GREASER	XBCEA 2 grease	LIKO 2	ALVANIA R 2	GR MU EP 2	BEACON 2	EP GREASE NLGI 2

(L.= litres)

6.8 REPLACING THE TINES FOR MODEL **FH2**

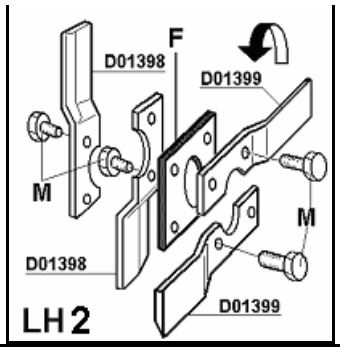


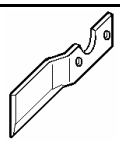
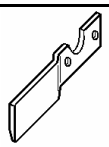
Every ROTOZAPPA **FH2** flange has 6 helicoidal tines (3 right, 3 left) and a counterflange code D04364. The helicoidal tines are supplied as standard parts, but a square version is available on request. Use original ALPEGO blades ONLY. **Please follow the original assembly layout. Replace one tine at a time, and replace the old one with the new one.**
The tines of the following flange should always be mounted in the same direction as the previous flange, and following the helicoidal direction of the same flanges.
WARNING : make sure that screw **M** is always positioned as indicated in the drawing. Spare bolts (M16x1.5x50) complete with nuts are available - order code **CF1060**

 Helicoidal right Code n. D03360	 Helicoidal left Code n. D03361	 Squared right Code n. D02370	 Squared left Code n. D02371
STANDARD ON MACHINE		ON REQUEST	

6.9 REPLACING THE BLADES OF ROTOLAMA **LH2**

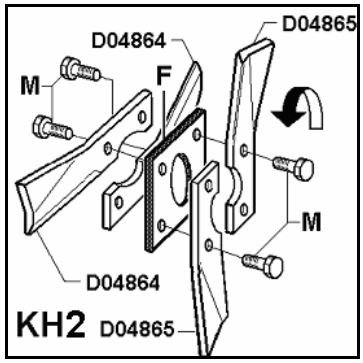
Every ROTOLAMA **LH2** flange has 4 blades (2 right and 2 left). Use original ALPEGO blades ONLY.
Please follow the original assembly layout. Replace one blade at a time and replace the old blade with the new one.
WARNING : make sure that screw **M** is always positioned as indicated in the drawing. Spare bolts (M16x1.5x57) complete with nuts are available - order code **CF1070.**

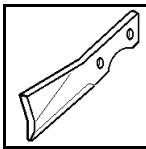


 **Right blade Code n. D01398**	 **Left blade Code n. D01399**

6.10 REPLACING THE HAMMERS OF ROTOPIK **KH2**

Every ROTOPIK **KH2** flange has 4 blades (2 right and 2 left). Use original ALPEGO blades ONLY.
Please follow the original assembly layout. Replace one blade at a time and replace the old blade with the new one.
WARNING : make sure that screw **M** is always positioned as indicated in the drawing. Spare bolts (M16x1.5x57) complete with nuts are available - order code **CF1070**



 **Right blade Code n. D04864**	 **Left blade Code n. D04865**

The machine can have different accessories.
The weight of the machine varies whenever a new accessory is added - make sure that tractor stability is not jeopardised.

ACCESSORIES FOR **FH2- LH2– KH2**

Code	description	Use	weight Kg.
S08015 **S08016** **S08017** **S08018** **S08019**	gear couple **26-28** gear couple **21-33** gear couple **24-30** gear couple **25-29** gear couple **19-35**	Various gear couples for the **FH2-LH2-KH2** tillers can be used to vary the number of rotor turns in order to reach the necessary refining level (see chart, section 5.2)	**7** **7** **6.5** **6.5** **6.5**
S09003	rear power takeoff 1”3/8 z=6	Transmits the power takeoff movement backwards to ROTOLAMA or ROTOZAPPA	**3.5**
S05012	Hydraulic couplings for seeder	They are used to connect a seeder to the rear of ROTOLAMA or ROTOZAPPA. Reduces lifter load during transportation	**170**
+ **S05039**	Hydraulic coupling adaptation kit A2 FP-FH		
S04003	Subsoiler couple	Eliminates tracks left by tractor wheels	**45**
S15015	Hydraulic depth corrector	This is used to regulate the working depth *hydraulically* directly from tractor.	**50**

USATE SEMPRE RICAMBI ORIGINALI

EMPLOYEZ TOUJOURS LES PIECES DE RECHANGE ORIGINALES
IMMER DIE ORIGINAL-ERSATZTEILE VERWENDEN
ALWAYS USE ORIGINAL SPARE PARTS

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