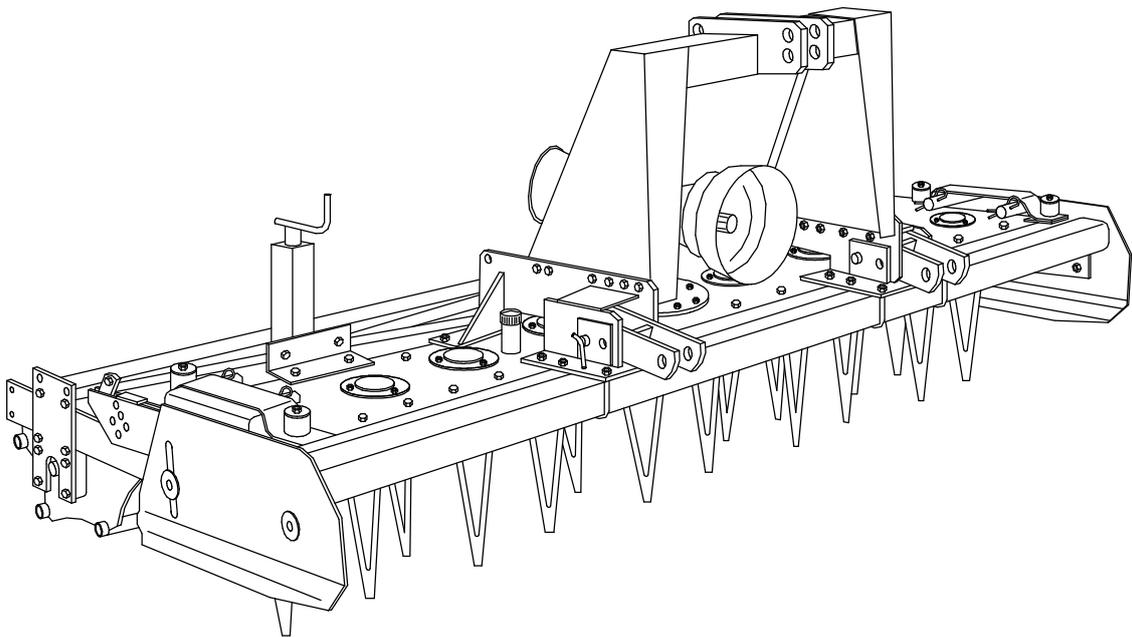


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USO E MANUTENZIONE
USE AND MAINTENANCE
EMPLOI ET ENTRETIEN
GEBRAUCH UND WARTUNG
MANUAL PARA USO Y MANTENIMIENTO



F 81

FORIGO

roteritalia

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TECHNICAL DATA



Mod.	cm.	HP	kW	cm.	n°	Kg.	Kg.
F 81 - 100	100	40	30	27	8	380	---
F 81 - 125	125	45	33	27	10	410	---
F 81 - 150	150	50	37	27	12	440	550
F 81 - 180	180	50	37	27	14	470	590
F 81 - 200	200	60	45	27	16	500	630
F 81 - 230	230	70	52	27	18	540	690
F 81 - 250	250	80	60	27	20	590	740



TEST PARAMETER	CONDITIONS	VALUE	REJECT
Noise according to ISO 1680/2	Tractor driver cabin ,closed cabin disconnected harrow	82,5 dB(A)	± 0,5 dB(A)
Noise according to ISO 1680/2	Tractor driver cabin,closed cabin connected harrow	85,2 dB(A)	± 0,5 dB(A)
Noise according to ISO 1680/2	Tractor driver cabin,open cabin disconnected harrow	85,0 dB(A)	± 0,5 dB(A)
Noise according to ISO 1680/2	Tractor driver cabin,open cabin connected harrow	87,0 dB(A)	± 0,5 dB(A)
Noise according to ISO 1680/2	Tractor external part disconnected harrow	85,0 dB(A)	± 0,5 dB(A)
Noise according to ISO 1680/2	Tractor external part connected harrow	90,0 dB(A)	± 0,5 dB(A)

IDENTIFICATION OF THE MACHINE

Every machine produced by CO. FORIGO - ROTERITALIA has an identification plate Fig. 1, having the main data. The plate is positioned on the supporting structure of the three-points-coupling.

roteritalia

Via A. Brennero Nord 9 Z.I. 46035 Ostiglia (MN) ITALY
Tel: 0386 - 32691 Fax: 0386 - 31250

Tipo / Type

Modello / Model

Serie / Number

Massa / Weight

Anno / Year

FIG. 1

GUARANTEE

The equipment manufactured by us are covered by a guarantee due to production and/or assembling defects, having a validity of six months from the date of their delivery to the user.

It only consists of the replacement of the components, which have been recognized as faulty and so it does not foresee the reimbursement concerning utilized labour and freight.

The guarantee right has to be considered lost:

- In the event the purchaser makes arbitrary modifications to the original structure of the delivered equipment.
- In the event the allowed loading limits reported in the technical data table are exceeded.
- In the event no original spare parts are utilized.
- In the event there is an improper use of our equipment, i. e. not according to the instructions contained in our handbooks.
- In the event the operator utilizes the equipment in an improper use.

DESCRIPTION Fig. 2

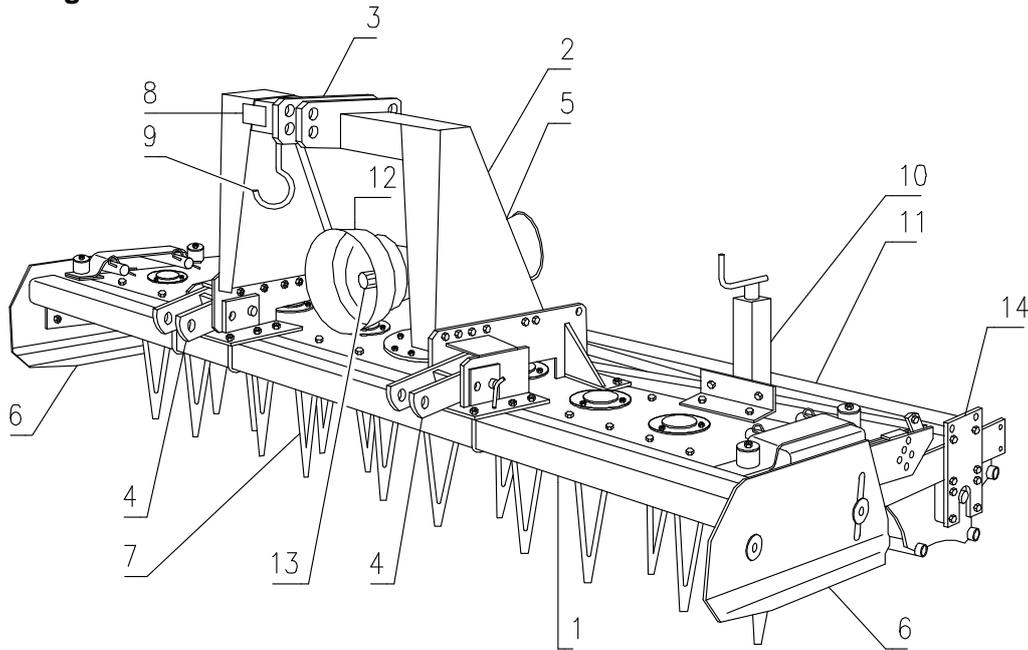


FIG. 2

- | | | | |
|----|--------------------------------------|----|-------------------------|
| 1 | Frame | 2 | Supporting structure |
| 3 | Upper third point linkage | 4 | Lower couplings arms |
| 5 | One or two speeds reduction gear box | 6 | Movable sides |
| 7 | Zeus tine | 8 | Identification plate |
| 9 | Cardan shaft support | 10 | PARABLOC rear blade |
| 11 | Levelling roller | 12 | Input shaft guard |
| 13 | Front input shaft | 14 | Depth adjustment system |

INTRODUCTION

This handbook reports the rules regarding use and maintenance necessary for a good knowledge of the rotary harrow .

A normal functioning, a long life and low working costs of the machine depend upon the meeting of the description in this handbook.

The non-compliance with the descriptions of this handbook, the negligence, a wrong and improper use of the machine, can cause a cancellation by the Manufacturer of the guarantee given by him to the machine, and moreover there is the possibility not to obtain the advantages the equipment has been produced for.

Co. **FORIGO - ROTERITALIA** is anyway at your disposal for assuring a prompt and careful technical service and everything being useful for a better functioning and for obtaining the maximum machine efficiency, as well.

The Manufacturer reserves the right to modify, at his discretion, this issue and its data, if he thinks it is necessary for a technical or commercial improvement of the product.



This symbol is utilized in different parts of this handbook, whenever your safety or the safety of other people is under risk conditions, or whenever the functioning of your machine can be jeopardized.

So, take a special care to the paragraphs containing this symbol.

This handbook is an integral part of the machine, therefore it has always to be supplied with, in case of premises move and of sale to third parties, as well.

In case of dispute regarding the handbook contents, Italian text shall be considered as the valid one.

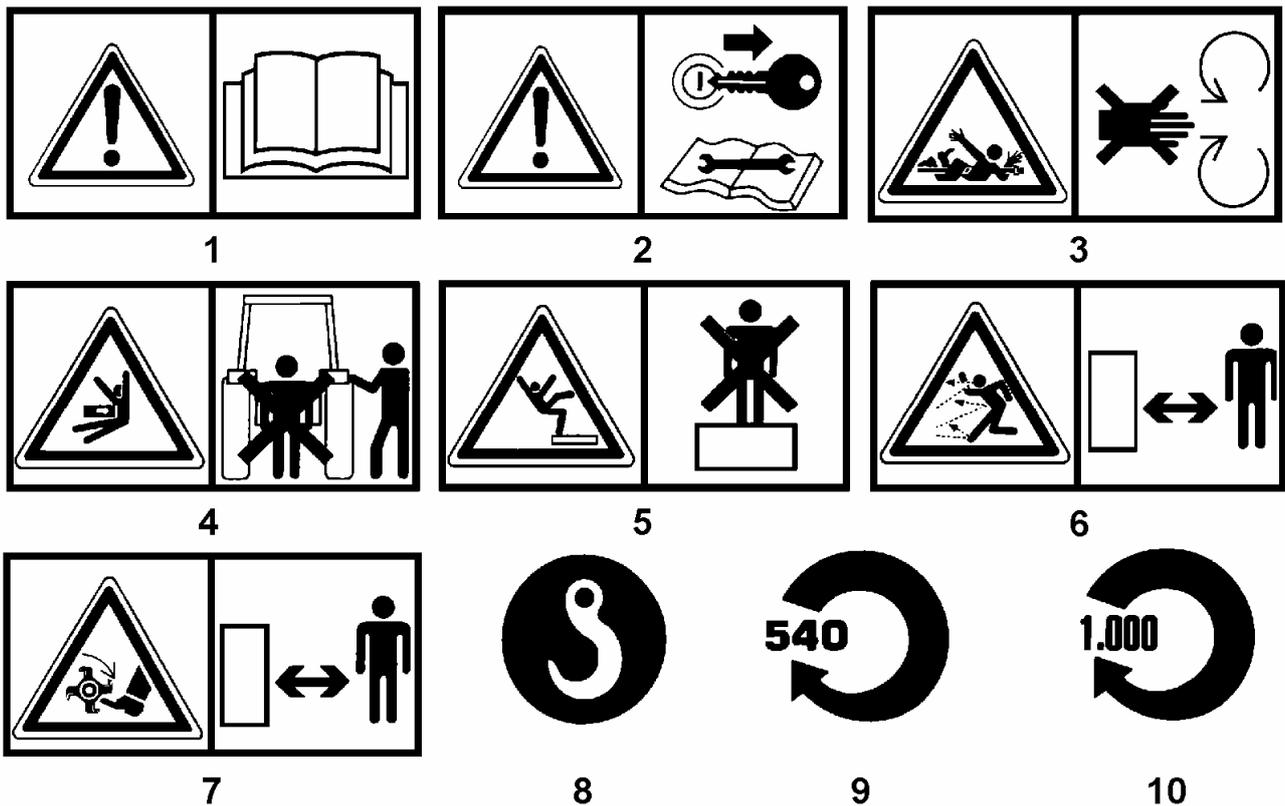


FIG. 3

ADHESIVE LABELS Fig.3

WARNING SIGNALS

1. Before operating, carefully read the handbook for use and maintenance.
2. Before any maintenance, disconnect the tractor, remove the key from the dashboard, lean the machine on the ground and consult the handbook for use and maintenance.

SIGNALS OF DANGER

3. There is the risk to be coupled up by the cardan shaft. Do not near to moving elements.
4. There is the risk to be knocked by the tractor. Do not remain in the tractor back area.
5. Danger of fall. Do not sit down and do not go on the agricultural machine, neither when it is standing, nor when it is moving..
6. Danger of a possible throw of blunt objects; remain at a safety range.
7. Danger of cutting for the lower limbs. Remain at a safety range.

INDICATION SIGNALS

8. Coupling point for lifting.
9. Indication, rotary power takeoff P.T.O. at 540 rpm.
10. Indication, rotary power takeoff P.T.O. at 1000 rpm.

ALLOWED USE

This agricultural machine, called rotary harrow F100 series, manufactured by Co. ROTERITALIA, shall exclusively be coupled to a tractor (having suitable power), equipped with power P.T.O. and hydraulic hoister having an universal 3 points coupling.

The rotary harrow shall exclusively be utilized for preparing a land, which has previously been tilled with grubber or plough, for reducing the dimension of the clods.

Any other utilization has to be considered as an improper and dangerous use.



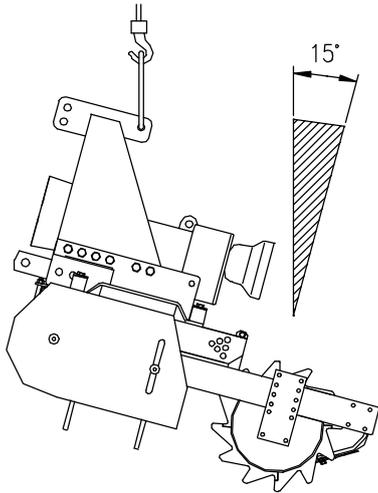
SAFETY AND ACCIDENT PREVENTION STANDARDS

Carefully read all the instructions before utilizing the machine, in case of doubts, do not hesitate to contact the Manufacturer.

Co. **FORIGO - ROTERITALIA** disclaims all responsibility in case of non-compliance with the below mentioned safety and accident prevention rules.

1. Pay attention to the symbols of danger reported in this booklet and on the machine.
2. Absolutely avoid to touch or to near to movable elements.
3. It is absolutely forbidden to transport people, things or animals on the machine.
4. Carefully meet all the accident prevention rules suggested in this handbook.
5. Labels reporting instructions, placed on the machine, give suggestions in a substantial way, in order to avoid accidents.
6. Follow the maximum weight foreseen on the tractor, the total weight the machine can bear, the rules regarding the transport and the traffic regulation being in force in the Country.
7. Before starting the work, gain a good knowledge with control devices and/or their functions.
8. Do not make a sharp turn and do not go into reverse when the machine is in lowered position, working in the ground.
9. Use suitable clothes. Absolutely avoid to use fluttering clothes or clothes having parts, which could get entangled in movable elements .
10. Pay attention during machine coupling.
11. During connection of cardan shaft, carefully follow Manufacturer's rules and the descriptions of following chapters.
12. The machine shall be equipped with signals and protections for the transport on the road, following the Country rules.
13. When tractor is moving, never leave driver cabin and never permit people or animals approaching.
14. It's very important to consider that the road holding as well as the capability of tractor direction and braking, can be influenced by the presence of an agricultural equipment with its accessories.
15. When there are bends in the road, pay attention to the centrifugal force resulting from the position of the equipment on the tractor.
16. It's absolutely forbidden to remain in working machine and its accessories area.
17. The machine coupling pins diameter shall be equal to the diameter of tractor coupling balls.
18. Pay attention during the work in hoisting arms area; this area is very dangerous.
19. Periodically check locking and tightness of screws and nuts, eventually tighten them again.
20. Follow the quality of suggested lubricants.
21. Spare parts shall be in compliance with the needs defined by the Manufacturer. Utilize original spare parts, only.
22. Adhesives relating to the safety shall always be well-emphasized, they shall always be clean and have to be replaced when they are not clearly readable (they can eventually be requested to the dealers).
23. The instructions for use shall be kept for all the machine life.

MACHINE LIFTING



In case of a machine lifting through a crane or hoist, first stable assure that the lifting means is suitable for the weight to be lifted (check on Technical Data table) and in good conditions, the same for hoisting ropes. The machine has then to be coupled in the 3 points upper coupling pin, as indicated in the figure 4.



During the lifting stage, due to barycentre position, the machine tends to have a skidding of approximately 15°, as indicated in the figure, so pay attention and check that people or animals are not near to it, because we can have a danger of lower limbs crushing.

FIG. 4

BEFORE USING

Important: In case of the delivery to a new user, it's important to check the machine according to following list .

1. Check the locking of all nuts and bolts.
2. Check the oil level in the Gear-box and the gease level into the gear tank
3. Grease all the machine points
4. Check that the power takeoff of the tractor runs at the speed indicated on the machine (540-1000 rounds).
5. Check the length of the cardan shaft.
6. Check harrow working height shall be adjusted, so that the front tines are 2/4 cm higher than the back ones, as per figure 6. This adjustment shall mainly be made with the tractor third point B or adjusting the rear roller D.

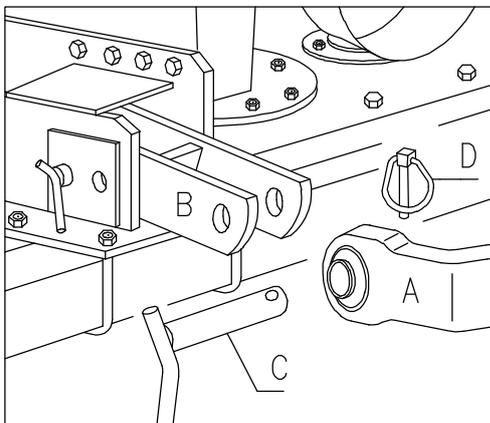


FIG. 5

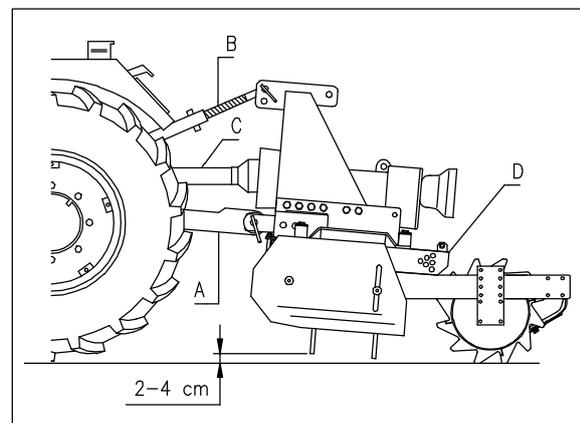


FIG. 6

COUPLING WITH THE TRACTOR Fig.5

1. Rotary harrow has to be positioned aligned with the ground;
2. Insert both tractor parallel arms A in the small oscillating arms B and insert the pins C, locking them then with the relevant release split pins;
3. Connect the third point of the tractor with the 3 points coupling upper pin, adjusting it in order to maintain the harrow in the position described in the figure 6;
4. Connection of hydraulic hoses (for machines equipped with optional hydraulic rear linkage): assure that the kind of quick coupling mounted on the harrow are of the same type of the tractor, always maintaining them clean.

tractor to the 3 points coupling upper pin, adjusting it in order to maintain the harrow in the position described in figure 6.

CARDAN SHAFT

As soon as the coupling of rotary harrow to the tractor has been made, check the exact cardan shaft length. In case the length should result to be inadequate, exclusively turn to the reseller or to after-sales service, who provide replacing it through one having the right length, always having CE mark.

Working angulation of cardan shaft shall be as small as possible and possibly, it shall not exceed 10 - 15 degrees as per figure 9; this is advantageous for the shaft life and for machine life, too.

Always use the original cardan shaft, complete with the relevant safety parts and protections.



VERY IMPORTANT: During the different working positions, cardan shaft transmission pipes shall go, one into the other one, with a depth of at least 200 mm (fig.8).

- Repeat this checking when the rotary harrow is coupled to a different tractor.

WARNING: Cardan shaft protections should always be in good conditions and motionless during cardan shaft rotation, always utilizing the special chains. For your safety, cardan shaft protections shall always immediately be replaced.

Safety chains should not be utilized for bearing the cardan shaft, when machine is not running.

WARNING: At the moment of the cardan shaft coupling (insertion), assure that there is a correct locking of the special push-button on both sides.

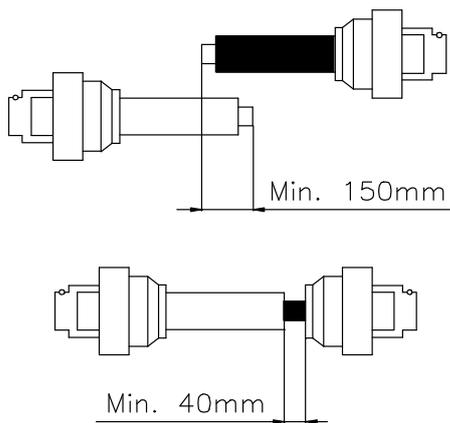


FIG. 8

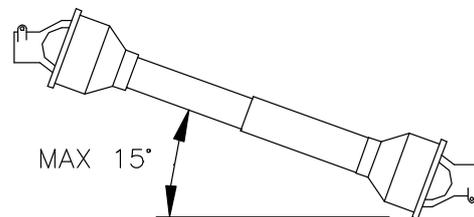


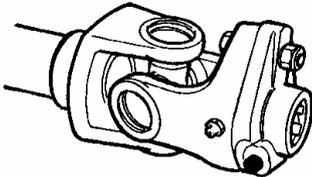
FIG. 9

TORQUE LIMITER DEVICES

Every machine is supplied with the cardan shaft, which is equipped with torque limiting device, for avoiding an overload of equipment or tractor mechanics.

Safety element exclusion, replacement or tampering automatically exclude the guarantee right

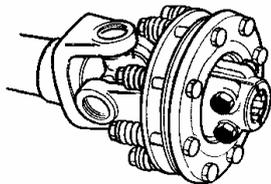
SHEAR BOLT TORQUE LIMITER DEVICE



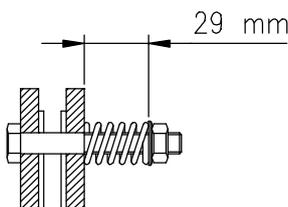
In case of a bolt breakage, replace it with a similar one, (8.8 class) according to the reported table:

Model F81	SB 6	Bolt M10 UNI 5737
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FF CLUTCH LIMITER DEVICE



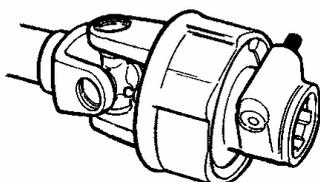
Clutch torque limiter device is supplied already calibrated by the Manufacturer; in case the clutch slides, it's necessary to reset the original adjustment, positioning the bolts as per the picture on side.



If you screw again half turn and nevertheless the clutch still slides, you shall replace friction disks, contacting the nearest Service Centre.

A6 FF4

SC AUTOMATIC TORQUE LIMITER DEVICE



It avoids to exceed the prefixed torque value. When we achieve this value, it breaks power transmission. It's automatic, as it reports the prefixed calibration value for a simple tractor power takeoff rounds number reduction, resetting the motion transmission.

Suggested in case of stony or particularly hard ground.

Calibration of the SC automatic torque:

Modell F81	Tipo SC 6	a 540 giri/min.	2100 Nm
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NOTE:

In case the Manufacture (ROTERTALIA) doesn't deliver the cardan shaft, you should apply one shaft having a suitable dimension (see power table) equipped with CE mark.

For the eventual maintenance, strictly follow the handbook delivered together with the same cardan shaft. **Co. ROTERTALIA disclaims all responsibility in case of utilization of cardan shafts not supplied by them.**

MOVABLES SIDES Fig. 11

Movables sides the rotary harrows F81 series produced by Co. ROTERITALIA are equipped with, allow more width during the transport on the road and an optimization of the ground containing function.

For moving, it's necessary to remove both elastic split pins pos. 1, then draw the body side towards the direction indicated by the arrow, until you get a movable side locking.

Then position the split pins in the second holes set.

For coming back to the original position, do the same operation backwards, paying attention and uniformly push from both movable sides.

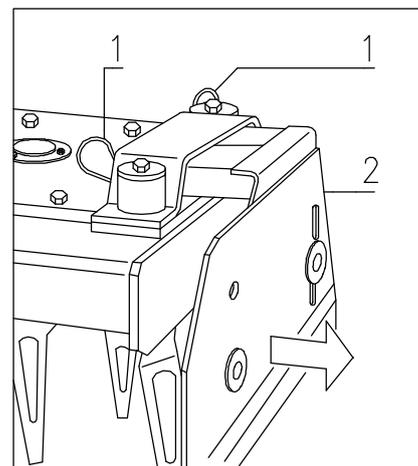


FIG. 11

MOBILE SIDE BOARDS - drawing 11

The mobile side boards supplied on the rotary harrows, series F81 produced by company ROTERITALIA, optimize the soil control function during the work stage.

Side boards can vertically be adjusted according to the work depth, acting on the bolts (position 3).

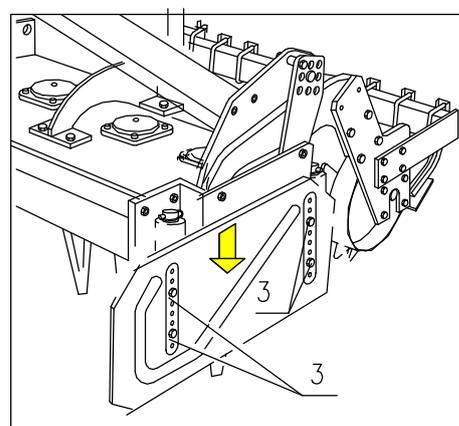
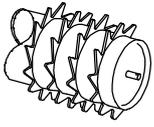


FIG. 11

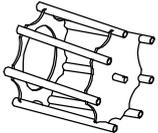
REAR ROLLERS

Rotary harrows produced by ROTERITALIA can be equipped with rear levelling rollers; their choice depends upon the kind of ground to be processed: here below you can find the different surveys



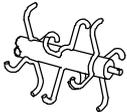
Packer roller

Suggested in case you need a compact and regular seeding bed. And suggested in case a fixed sowing machine is coupled on the harrow. Packer roller is equipped with roller cleaning scrapers in case of wet and sticky ground; scrapers are mounted on a bar and it is possible easily to adjust their distance from the roller, for granting their cleaning function.



Cage roller

Suitable for smooth grounds, which are more sensitive to a superficial crust forming and in case you wish a soft seeding bed.



Spikes roller

Suitable for very moist and cleavy

Spiral roller

Roller flight maintains the same features of the crate roller, even if it can work in heavy and wet ground. Flight roller is equipped with cleaning scrapers; scrapers are mounted on a rod and it's possible easily to adjust their distance from the roller, for assuring their cleaning function



WORKING DEPTH ADJUSTMENT Fig. 12

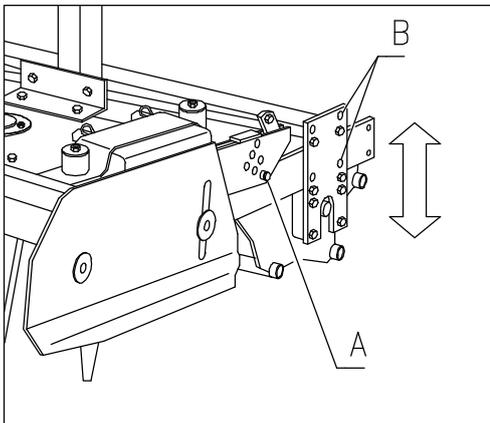


FIG. 12

Working depth is adjusted inserting the pins pos. A in one of the special holes.

After repositioning the pin, insert again the elastic split pin which locks it.

When you change the roller type, it's also possible to modify the position of the same with respect to the machine, utilizing additional holes pos. B.

LUBRICATION

- After the first 50 working hours, you should replace the gear-box gear oil, discharging it from the special cover -S- reported in figure 13..

Provide the washing inside the reduction gear with kerosene or gas oil.

Fill with the prescribed oil type through the filling plug hole -C- reported in figure 13 and check that the oil reaches the level from the relevant level hole -L--.

Then repeat the operation every 300 working hours.

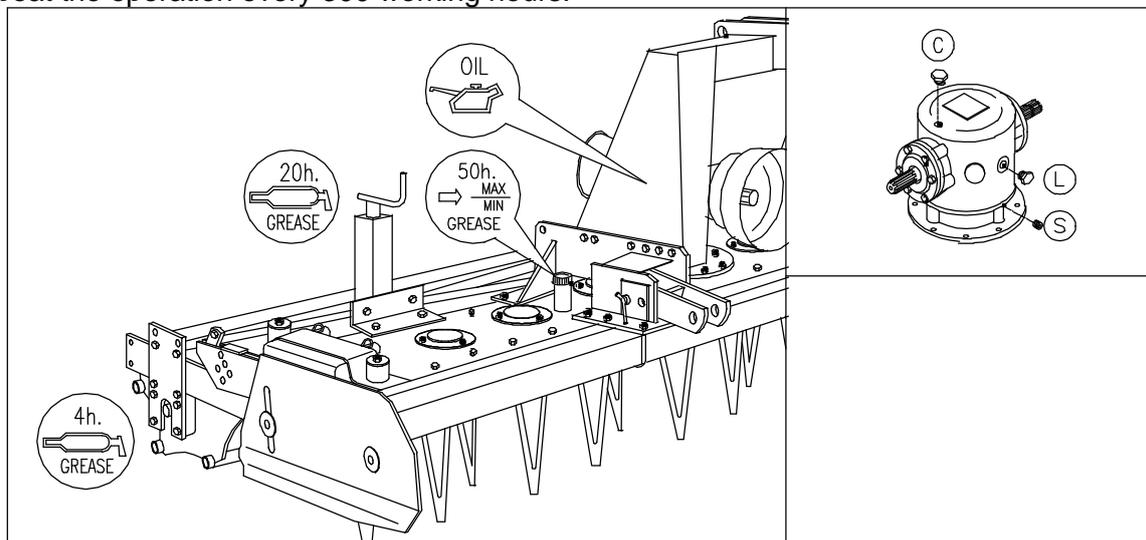


FIG. 13

- Grease contained in the gears tank shall constantly be checked, until its level is over the internal gear. This checking has to be carried out from charging cover.
- Lubricate the roller supports every 4 hours.
- Lubricate the parabolic rear blade adjustment handle every 20 hours .
- Lubricate the Cardan joint cross pumping twice, checking the sliding.

SUGGESTED LUBRICANTS

	LUBRICANTS	GREASE
AGIP	Blasia 150	Gr Mu EP 0
BP	Energol GR-XP 150	Grease LTX 0
CASTROL	Alpha SP 150	Spheerol EPL 0
ELF	Reductelf 150	Rolexa 0
ESSO	Spartan EP 150	Beacon 0
MOBIL	Mobilgear 630	Mobilplex 0
SHELL	Omala oil 150	Alvania grase R 0

MAINTENANCE

Operations to be made daily, in order always to maintain the machine efficiency:

- Check the tractor parallels, so that they do not develop transversal oscillations.
- Check the locking of all the bolts, particularly the one regarding the central tines holder locking.
- Check the tines bolts locking, verifying their integrity; in case during the work they would break due to incidental causes, we suggest immediately to replace them, see chapter TINES REPLACEMENT

TINES REPLACEMENT

A particular research has been dedicated to the structure of this important element, for permitting a perfect processing of the ground as well as an easy replacement in case of wear in the same time . In fact, you can see how the fixing screws are easily to be found and that the tines, due to their possibility to rotate clockwise and counter-clockwise, don't show the assembling inconveniences, usually verified in similar machines.

The replacement of the tines shall be made, leaning the harrow on two strong lateral supports, for avoiding sudden equipment lowerings, for removing the tines unscrew the screw pos. B as well as the nut pos. A fig. 15

It is better to carry out the fixing of the tines with a pneumatic screwer.

For reaching the locking torque, utilize a fixed wrench for 22-hexagon with a lever of approximately one meter, see figure 14.

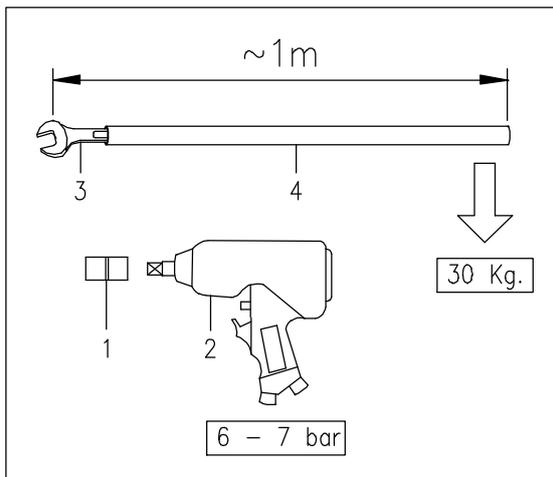


FIG. 14

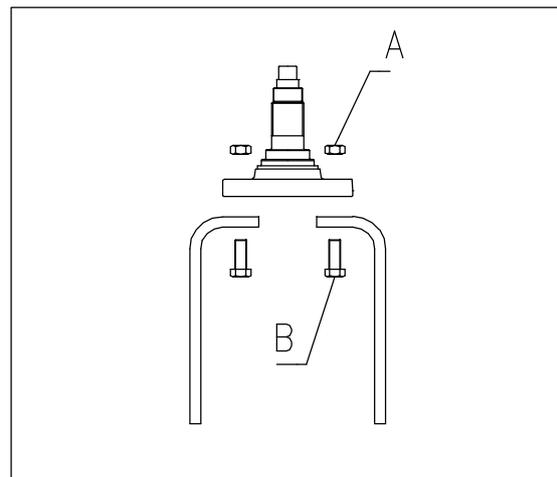


FIG. 15

END OF WORK

If the harrow has to remain at a standstill for a long period, it's necessary to operate as follows :

- A. Carefully wash the harrow.
- B. Carefully check the functionality of all moving parts, particularly the safety protections, replacing the damaged or worn ones.
- C. Check the locking of all bolts.
- D. Check the lubricants level.
- E. All non-painted metal parts have to be protected and lubricated, then cover the equipment and put it in a dry place, so it will be ready to be used at the moment of a new utilization.

PARABLOC LEVELLING REAR BLADE

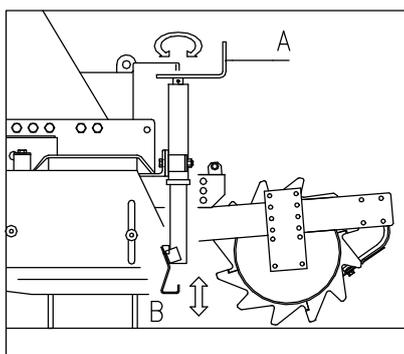


FIG. 16

Our rotary harrows can be equipped with a rear bar, which is mounted between the tines holder rotors and the rear roller, in order to level and to have an additional possibility to make the ground finer.

For adjusting the **parabloc** bar, you should operate the handle pos. A fig. 16 placed on its sides.

At the beginning of the work, we suggest to keep the bar lifted up from the ground and then to lower it until grazing the ground.



Parabloc rear bar shall not absolutely be used in stony grounds. Parabloc rear blade shall only graze the ground; in this way the drawing effort is reduced and a damaging is avoided.



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