



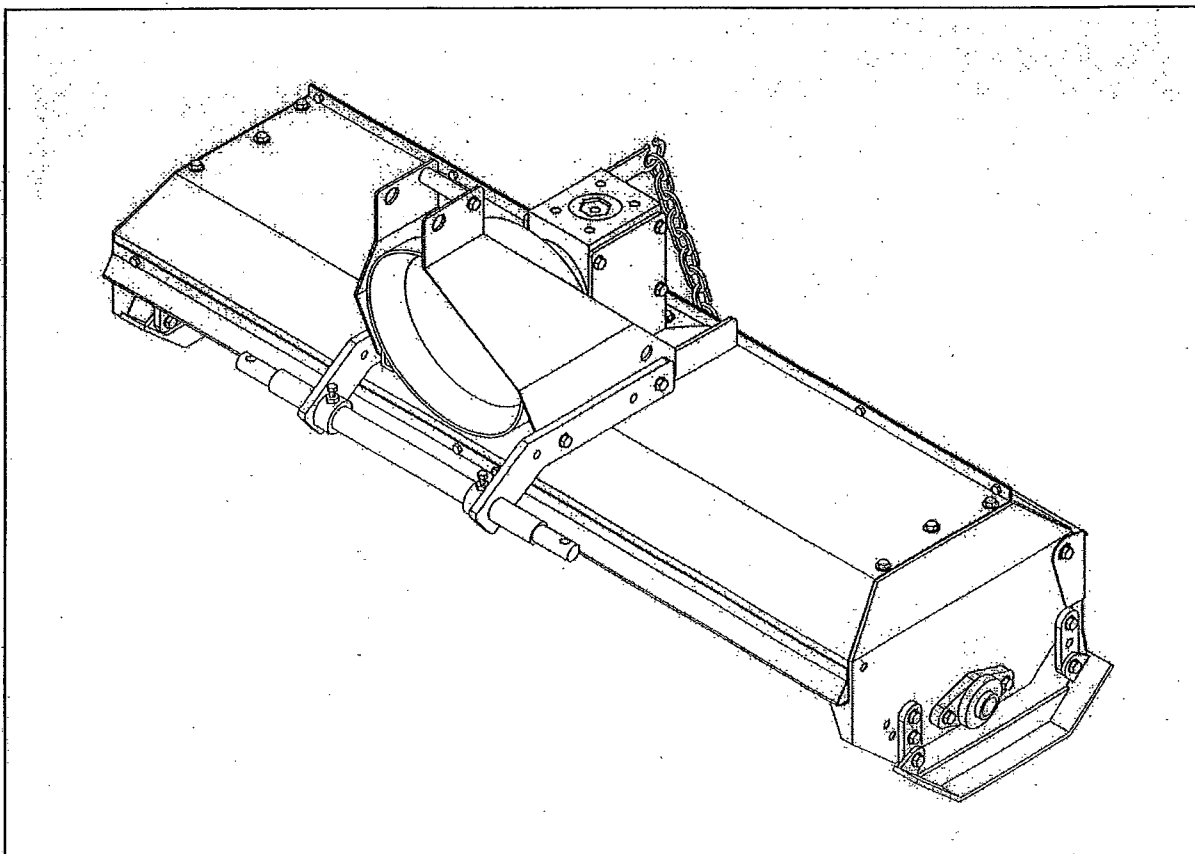
Farm & Garden Equipment

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## USE AND MAINTENANCE MANUAL

# ROTARY TILLER & STONE BURIERS FLASH



**This manual is an integral part of the machine.**

It must always accompany the machine and be kept within reach of the operator.  
The enclosures mentioned are an integral part of this manual.

**The purpose of this manual.**

This manual gives information for the correct and safe use of the machine.  
The owner must read this manual carefully before work with the machine.

**Responsibility of the owner**

The owner is responsible for accidents or damages caused to people or things due to negligence in following the instructions in this manual.

**Assistance in using this manual**

Explanations: contact the dealer.

Request for additional copies of the manual: in case of loss or wear and tear, or in case one wants the manual in a different language, the customer should ask the dealer or manufacturer.

**Pay attention to the warning signals**



**<Danger>**: indicates a situation that is potentially dangerous which, if not avoided, will cause death or serious damage.



**<Warning>**: indicates a situation that is potentially dangerous which, if not avoided, will cause death or serious damage.



**<Caution>**: indicates a situation that is potentially dangerous which, if not avoided, can cause minor to moderate damage, or it indicates to be careful about an unsafe procedure.

**<Important>**: indicates instructions that must be followed precisely in order to avoid damage to the product, process or environment.

**<Note>**: indicates supplementary information.

## DESCRIPTION

### FUNCTION OF USE

The machine, thanks to the new central transmission that allow a easy reverse of rotor turning direction, to the strength combined with lightness and resilience of the deck and to the shear bolt protection inside the transmission shaft, can be used as rotary tiller or stone buriers in all type of ground whatever its composition (sandy soil, medium mixture, clay) and consistency (crumbly, hard, semi-plastic) at different depth.

The use of a technical constructive concept trended to the search of high performances, reduction of troubles and durability, improves the power/consumption ratio of the tractor thanks to the elasticity of the machine frame, to the tools shape and to many original technical solutions.

### PERFORMANCES

The machine is connected to the tractor with a three points hitch that gives the motion of translation and with a PTO shaft connected with the tractor PTO that gives the motion of rotation to the hoes shaft.

The working width is fix and it's determined from the choice of the machine type.

The working depth is adjustable .

The working zone is fixed.

The tail board besides prevents a dangerous hurling of stones and other foreign bodies, makes a clod mincing function the more emphasized the more the baffle is closed.

### PERFORMANCES LIMITS

- Maximum forwarding speed : 1,2 m.p.h.
- Speeds greater than the maximum can compromise the condition of the machine, the quality of the work and the safety of the operator.
- Maximum power applicable to the gear box: from 9 to 16 Kw  $\pm$  5% with 540 RPM according to the type.
- Superior power to which is indicated can damage irreparably the transmission gear box; especially during heavy works.
- Max working depth : 5,5 inches.

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### STANDARD EQUIPMENT

- Standard PTO shaft.
- Shear bolt inside transmission.

### VARIANTS & OPTIONS

- Kit stone buriers.

**TECHNICAL SPECIFICATIONS**

**CHARACTERISTICS PER MODEL**

Model	Type	Power		Working width		Weight		Working depth		Overall width		N° of blades	
		HP	KW	cm.	inch	Kg.	lbs.	cm.	inch	cm.	inch	n° flange	n° of blades
<b>FLASH</b>	85	12-25	9-16	82	32	100	221	14	5,5	98	38,5	4	16
	105	12-25	9-16	102	40	110	243	14	5,5	118,5	46	6	20
	125	12-25	9-16	122	48	120	265	14	5,5	139	55	6	24

## SAFETY INFORMATIONS

### GENERAL REGULATIONS

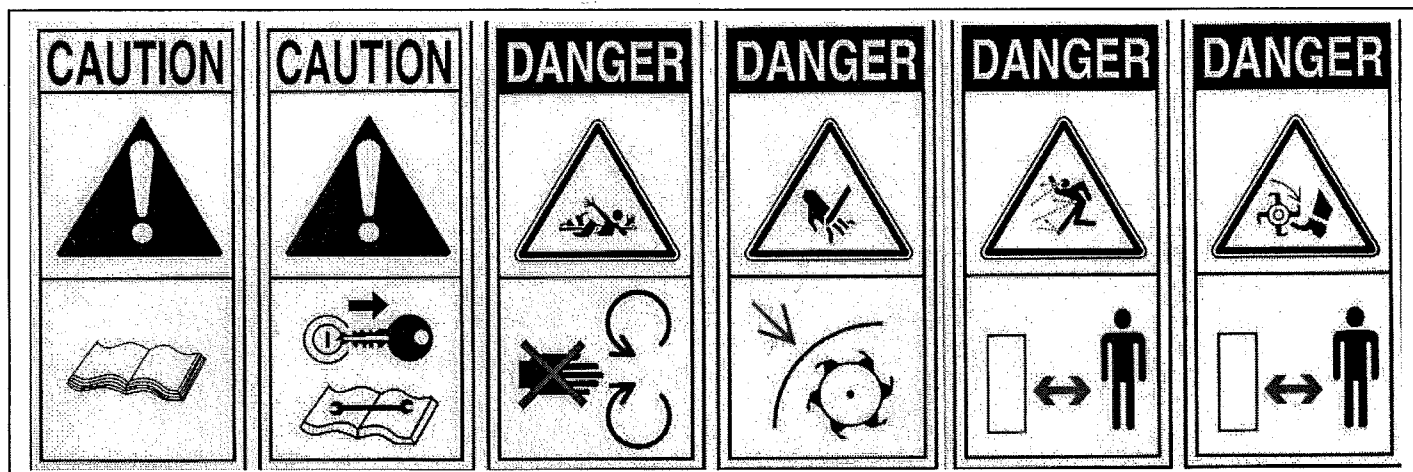
- Only work in daylight.
- The machine must not be used near people, especially children or animals.
- Wear long pants and heavy shoes.
- The protections are integral part of the machine: always work with the protections.
- Pay attention using the machine on slopes: proceed to the maximum slope and never work in slanting direction.
- Before leaving the driver's seat, turn off the engine and disengage the transmission engine-shaft.
- Check immediately the machine if it touches foreign objects.
- Check immediately the machine if there are unusual strong vibrations.
- Change quickly defective parts.

### SAFETY RESTRICTIONS

Children and people who are not familiar with these instructions must not be permitted to use the machine. Local regulations can restrict the use of the machine in accordance to the age.

## SAFETY SIGNS ON THE MACHINES

In this section the safety signs on the machine are reproduced and explained.



1

2

3

4

5

6

1. Read the operator manual.
2. Disconnect the tractor key before maintenance and repair operations.
3. Don't remove safety protection.
4. Stay at safety distance from cardan shaft.
5. Danger of flying objects. Stay at safety distance.
6. Stay at safety distance from the blades.

**The safety signs on the machine must always be legible.**

In case of damage, the labels of the signs must be substituted.

In the case of the substitution of machine parts that have safety signs, the signs must be replaced.

**Supplying of new safety labels and the application procedure**

Contact your dealer to receive new safety labels with instructions for application.

## INSTRUCTION FOR USE

### BEFORE BEGINNING WORK

a) Adjust working depth as follows :

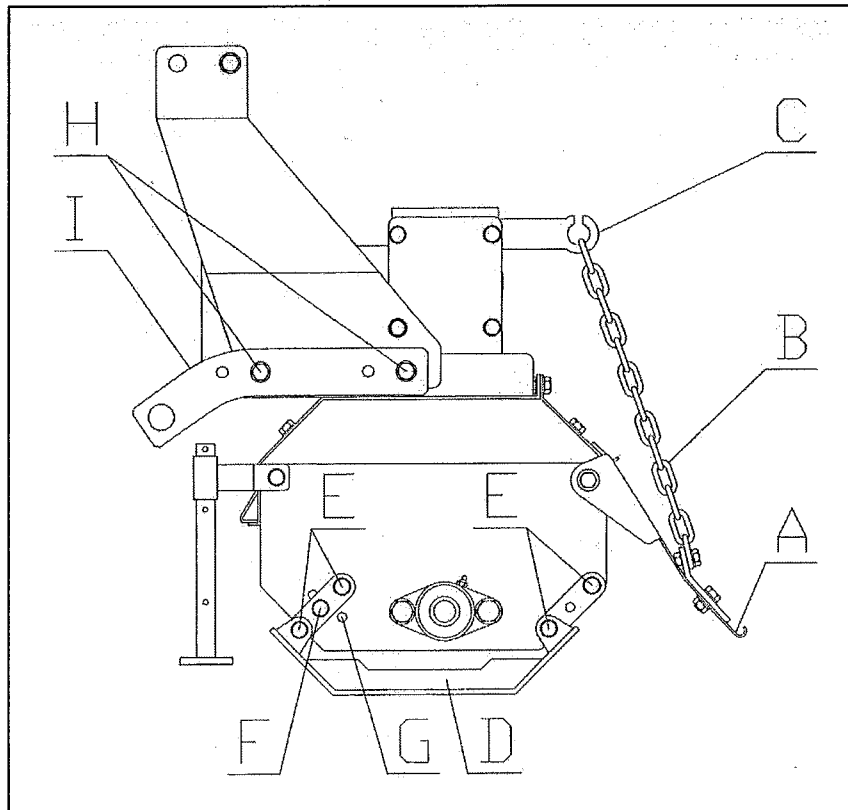
1. Unlock the four screws "E", unscrew and take out the screw "F".
2. Adjust working depth moving slide "D" towards up to increase and towards down to decrease.
3. Plug in and lock the screw "F" in one of the three holes "G" then lock the screws "E".
4. Repeat the same operations on the other machine side, make sure to set up the same working depth on the two slides.

b) Adjust the tail board position operating as follows:

1. Take out the free side of the chain "B" from the housing slot "C".
2. Adjust the position of the tail board "A" then put again the said of the chain in the housing slot.

c) Hook the machine to the tractor operating as follows :

1. If necessary adjust the distance between the machine and the tractor moving the two arms "I" unlocking the four screws "H". After the adjusting lock again the screws "H".
2. Plug in the raising tractor beams into the lower pins of the machine then lock with the safety pins.
3. Connect through tie-rod the third hitch point of the tractor with the third point of the machine (the connection triangle vertex), insert the pin and lock with safety pin.



- d) With the machine raised, go to work area.
- e) Connect the tractor PTO with machine PTO.
- f) Check that PTO chain is locked to prevent the protection sheat of PTO rotating.

#### **TO BEGINNING WORK**

- a) Keep people and animals at least 65 feet radius all around the machine.
- b) Pull down the machine until the hoes touch the ground.
- c) Connect PTO power and gradually bring it to 540 r.p.m..
- d) Pull down completely the machine and start to work.

#### **AT THE END OF WORK**

- a) Stop the tractor.
- b) Raise the machine until the hoes goes out from ground.
- c) Disconnect PTO power.
- d) Disconnect tractor PTO from machine PTO.
- e) Raise completely the machine.



<b>MAINTENANCE INSTRUCTIONS</b>
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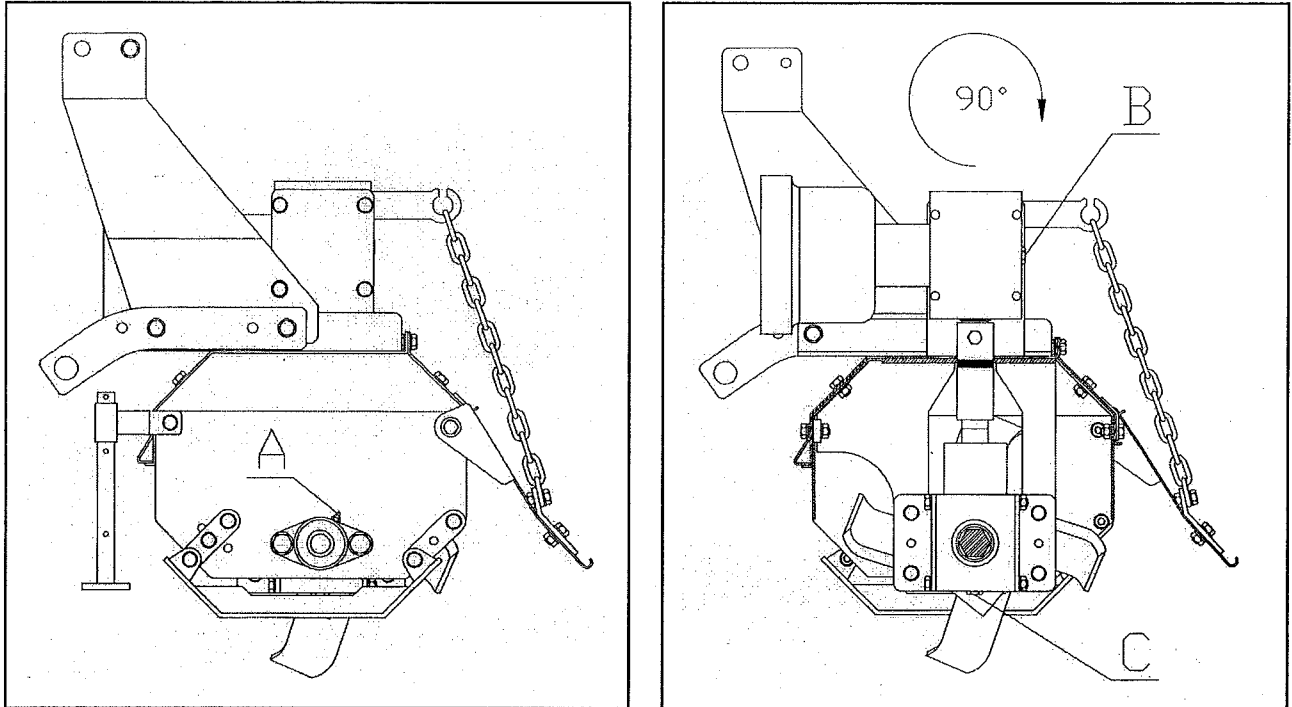
On diagram "A" the maintenances are indicated with their terms to effect on the machine.  
 Not follow the scheduled terms can compromise the functionality of the machine and in this case the warranty is not applicable.

**DIAGRAM "A" SCHEDULED MAINTENANCE**

	<b>FIRST START</b>	<b>AFTER 10 HOURS</b>	<b>EACH 30 HOURS</b>	<b>EACH 500 HOURS</b>	<b>END SEASON</b>	<b>BEGIN. WORK</b>	<b>END WORK</b>
<b>MACHINE</b>	Greasing		Greasing		Cleaning Greasing		Cleaning
<b>UPPER GEAR BOX</b>	Oil level	Oil level	Oil level	Change oil			
<b>LOWER GEAR BOX</b>	Oil level	Oil level	Oil level	Change oil			
<b>SCREWS</b>		Locking	Locking				
<b>HOES</b>			Check		Check	Check	Check

## 1. GREASING

At the scheduled time on diagram "A", grease point "A" on both sides of the machine.  
Greasing point is equipped with greaser HYDRAULIC TYPE MODEL "A" UNI 7663.  
To greasing use only MULTIFUNCTIONAL GREASE LITHIUM BASED Type NLGI 2.



## 2. OIL CHECK - OIL REPLACEMENT IN GEAR BOXES

At the scheduled time on diagram "A", check or replace oil in gear boxes.  
To fill oil use only OIL SAE 140 EP.  
Gear box capacity : 0,5 L

a) To check the oil level in upper gear box, operate as follows :

1. With the machine on level unscrew the plug "B" and check that oil touches lower hole rim.
2. If the level it's ok screw and lock plug "B".
3. If the level it's low fill oil.
4. When the level it's ok screw and lock plug "B".

b) To check the oil level in lower gear box, operate as follows :

1. Rotate the machine 90° in arrow direction, unscrew the plug "C" and check that oil touches lower hole rim.
2. If the level it's ok screw and lock plug "C".
3. If the level it's low fill oil.
4. When the level it's ok screw and lock plug "C".
5. Turn the machine on level.

c) To replace oil in upper gear box, operate as follows :

1. Rotate the machine 90° in arrow direction, unscrew the plug "B" and drain oil through the hole.
2. Turn the machine on level.
3. Fill new oil .
4. When the level it's ok screw and lock plug "A" and "B".

d) To replace oil in lower gear box, operate as follows :

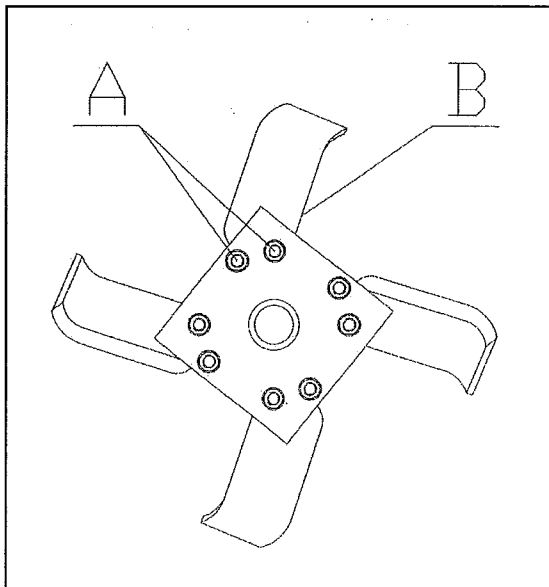
1. Unscrew plugs "A" and "B" .
2. Turn the machine of 90° in the direction of the arrow and drain the oil in a suitable tank.
3. Turn the machine on level.
4. Plug in the new oil from plug "A" .
5. When level it's ok screw and lock plug "A" and "B".

### 3. HOES SUBSTITUTION

a) To change the hoes, operate as follows :

1. Unscrew the two nuts "A" that locks the screw of the hoes to change.
2. Take out the two screws from the holes and take out the hoe "B".
3. Put the new hoe using the new screws enclosed.
4. Lock with the nuts "A".
5. Repeat these operations for all the hoes to change.

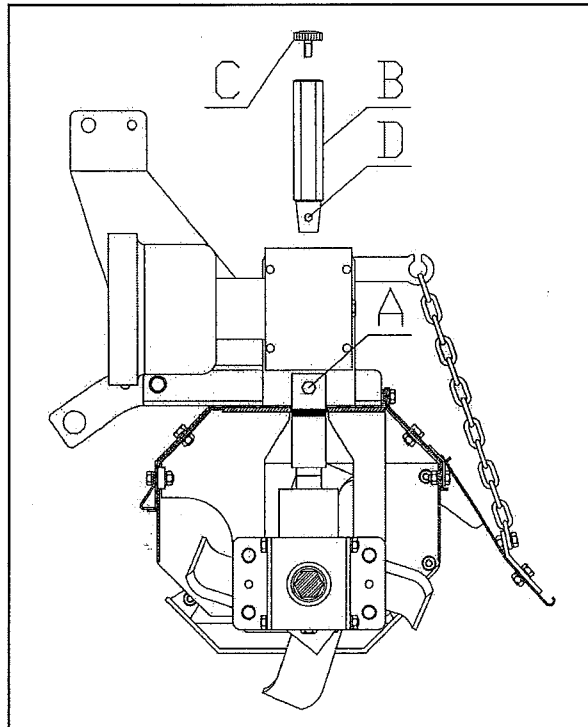
**ATTENTION : on each flange are assembled 2 right hoes and 2 left hoes.**



#### 4. SHEAR BOLT REPLACEMENT

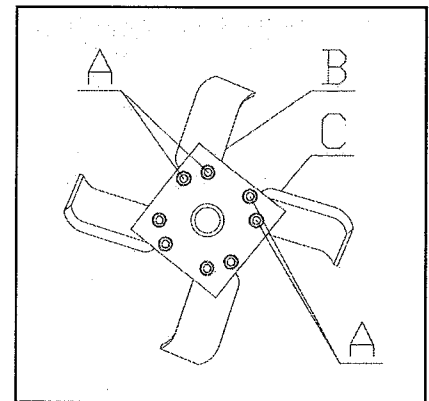
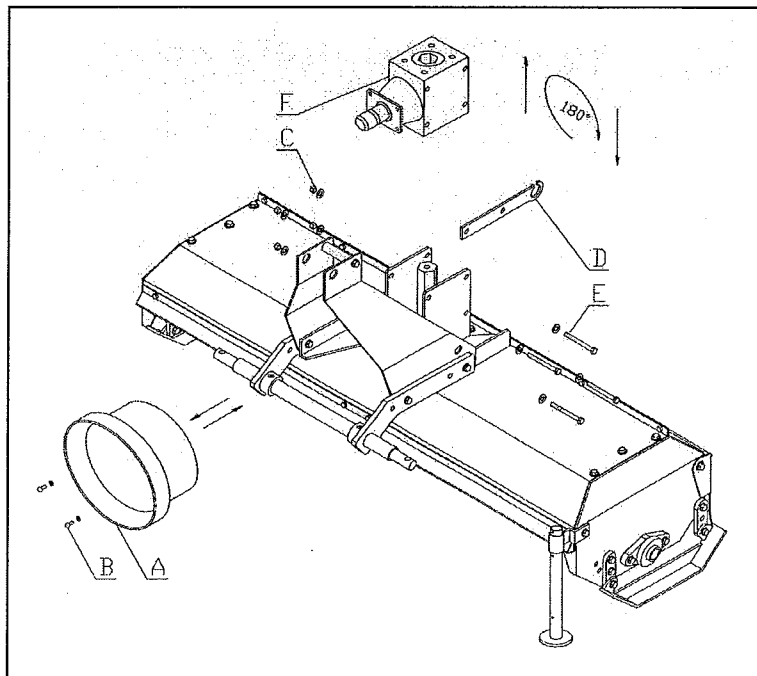
a) To replace the shear bolt, operate as follow :

1. Screw the handle "C" on the top of the transmission shaft "B".
2. Using the handle "C" take out the shaft "B" from the gear box.
3. Take out from hole "D" the bolt broken.
4. Grase the conical side of the shaft "B", .
5. Insert the shaft inside the gear box and in the conical seat of the bush placed on lower gear box.
6. Place on the same axle the holes on shaft and bush.
7. Insert inside the hole the new shear bolt "A" (M10x75 uni 5737 8.8) and lock well the nut.



## 5. SET UP TILLER OR STONE BURIERS

- a) To transform the machine from tiller to stone buriers and vice versa is necessary to reverse the turn direction of the rotor. To make the Set Up operate as follow :
1. Take out the protection "A" after unscrewing the two screws "B".
  2. Remove the four screws "E" and the chain holder "D" after unscrewing the nuts "C".
  3. Take out gear box "F" from the support, turn it 180° then insert it again inside support.
  4. Insert the screws "E", the chain holder "D" then lock the nuts "C".
  5. Place the protection "A" using the screws "B".
- b) After rotor turn direction reversing, is also necessary reverse the position of right blades with left blades. To make this operation operate as follow :
1. Unscrew the screws "A" of two blades "B" and "C" placed on the same flange.
  2. Reverse the position of the blade "B" with the position of blade "C".
  3. Screw the screws "A".
  4. Make the same operation on all blades of each flange, on all flanges.



**PROBLEMS SOLVING**

<b>TROUBLES</b>	<b>GROUNDS AND SOLUTIONS</b>
<p align="center"><b>Not enough depth of work</b></p>	<ul style="list-style-type: none"> <li align="center">-Decrease the forward speed</li> <li align="center">-Increase the working depth (slides)</li> <li align="center">-Broken hoes - Replace</li> <li align="center">-Not balanced hoes - Balance</li> </ul>
<p align="center"><b>Hoes don't penetrate</b> <b>Tiller bounces on the ground and vibrates</b></p>	<ul style="list-style-type: none"> <li align="center">-Broken or damaged hoes - Replace</li> <li align="center">-Check the hoes assembling</li> <li align="center">-Foreign objects between hoes - Clean</li> <li align="center">-Soil too dry and hard - Decrease the forward speed</li> </ul>
<p align="center"><b>Rotor compactness, obstruction</b></p>	<ul style="list-style-type: none"> <li align="center">-Soil too wet - Reduce depth of work</li> <li align="center">-Increase number of revolutions of rotor</li> </ul>
<p align="center"><b>Excessive tilling of the soil</b></p>	<ul style="list-style-type: none"> <li align="center">-Increase forward speed</li> <li align="center">-Raise the rear baffle</li> <li align="center">-Reduce number of revolutions of rotor</li> </ul>
<p align="center"><b>Poor tilling of the soil</b></p>	<ul style="list-style-type: none"> <li align="center">-Decrease forward speed</li> <li align="center">-Lower the rear baffle</li> <li align="center">-Increase number of revolution of rotor</li> </ul>

## TRANSPORT

Except when working, moving the machine takes place when the machine is standing still and the transmission is disconnected.

<Important>: keep speed low avoiding holes and ground roughness.

<Important>: Before begin the movements always make sure that the safety hooks be in position.

<Note when on the road, obey existing traffic laws. Exhibit the signal signs on the rear ends. Respect any local laws there may be.

## STORAGE

Store the machine in a dry place that isn't dusty.

## INFORMATION ON DEMOLITION



At the end of its working life, the machine must be sent to be demolished and that can only be done by an authorized authority, in accordance with the national laws in force for the environment. Therefore it is necessary to get information from the qualified local authorities on the procedure to follow. The machine is mainly composed of : iron materials and paints.

## WARRANTY

The machine is covered by the manufacturer warranty for a period of 24 months.

The warranty is not applicable when :

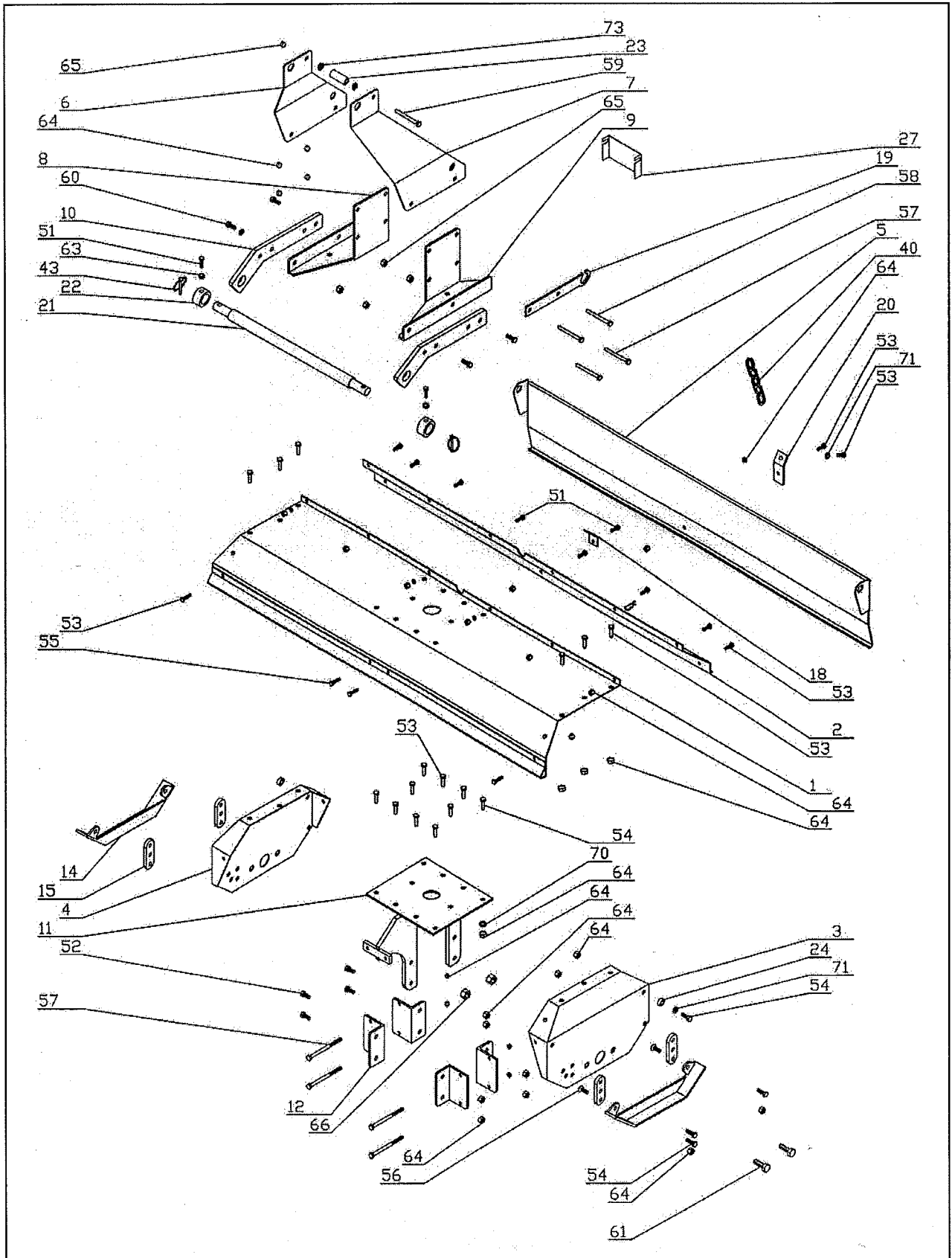
- a) The maintenance work has not been done correctly.
- b) The machine has been used out of its own service.
- c) The machine has been transformed or modified without the manufacturer's written authorization.



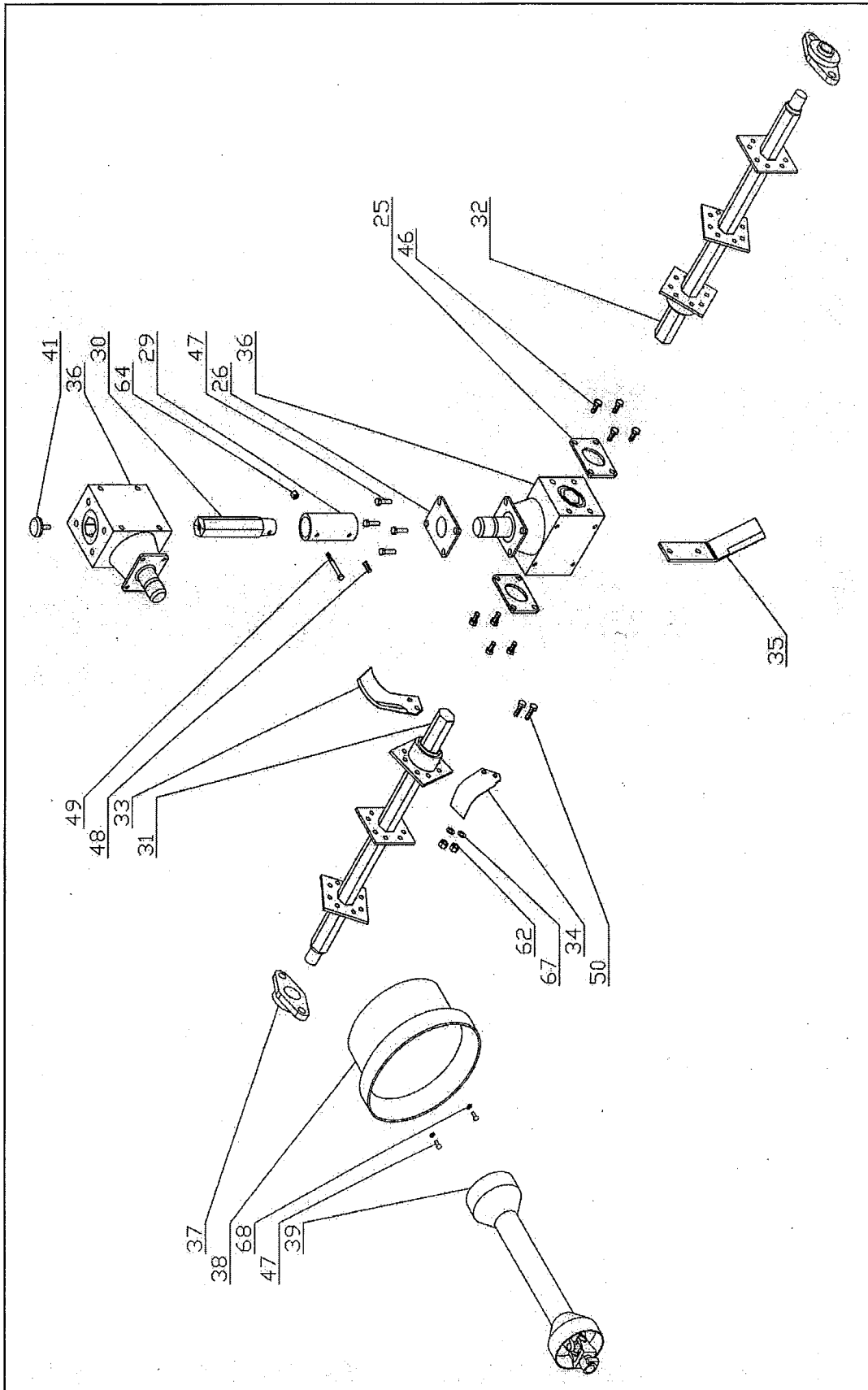


# SPARE PARTS AND OPTIONS

SHEETS



MECHANISMS



**SPARE PARTS LIST**

Position	Code	Description	Quantity		
			85	105	125
1	SOL051AVD	Front deck 85	1		
1	SOL051BVD	Front deck 105		1	
1	SOL051CVD	Front deck 125			1
2	SOL158AVD	Rear deck 85	1		
2	SOL158BVD	Rear deck 105		1	
2	SOL158CVD	Rear deck 125			1
3	SOL052VD	Left side	1	1	1
4	SOL053VD	Right side	1	1	1
5	SOL161AVD	Tail board 85	1		
5	SOL161BVD	Tail board 105		1	
5	SOL161CVD	Tail board 125			1
6	SOL152VD	III° point right side	1	1	1
7	SOL151VD	III° point left side	1	1	1
8	SOL157VD	Right gear box holder	1	1	1
9	SOL156VD	Left gear box holder	1	1	1
10	SOL181VD	Bracket	2	2	2
11	SOL054VD	Lower gear box holder	1	1	1
12	SOL159VD	Lower gear box bracket	4	4	4
13					
14	SOL055VD	Slide	2	2	2
15	SOL056VD	Slide adjuster	4	4	4
16					
17					
18	SOL184VD	Tail boar protection	1	1	1
19	SOL183VD	Chain holder	1	1	1
20	HOL203VD	Chain holder – tail board	1	1	1
21	SOL175D	Shaft	1	1	1
22	SOL059VD	Shaft locker	2	2	2
23	SOL154VD	III° point bush	1	1	1
24	SOL169VD	Tail board bush	2	2	2
25	SOL060VD	Lower gear box side flange	2	2	2
26	SOL167VD	Lower gear box upper flange	1	1	1
27	SOL189VD	Cover	1	1	1
28					
29	SOL062VD	Transmission bush	1	1	1
30	SOL165D	Transmission shaft	1	1	1
31	SOL063AVD	Right rotor 85	1		
31	SOL063BVD	Right rotor 105		1	
31	SOL063CVD	Right rotor 125			1
32	SOL064AVD	Left rotor 85	1		
32	SOL064BVD	Left rotor 105		1	
32	SOL064CVD	Left rotor 125			1
33	HOL154D	Right blade	8	10	12
34	HOL215D	Left blade	8	10	12
35	SOL200D	Middle blade	1	1	1
36	42000003	Gear box	2	2	2
37	42400006	Pillow block UCFL 205	2	2	2
38	41900008	Plastic protection	1	1	1
39	42600009	PTO shaft II° L=700	1	1	1
40	40900001	Chain	1	1	1
41	42200005	Handle M10x15	1	1	1
42					
43	41300001	Safety pin Ø10	2	2	2
44					

Position	Code	Description	Quantity		
			85	105	125
45					
46	40100139	Screw M8x25 UNI 5933	8	8	8
47	40100077	Screw M8x20 UNI 5739	6	6	6
48	43200002	Set screw M10x15 UNI 5927	1	1	1
49	40100198	Screw M10x75 UNI 5737	1	1	1
50	40100010	Screw M12x35 UNI 5738	32	40	48
51	40100030	Screw M10x20 UNI 5739	9	9	9
52	40100197	Screw M10x45 UNI 5739	4	4	4
53	40100043	Screw M10x25 UNI 5739	21	21	21
54	40100012	Screw M10x30 UNI 5739	14	14	14
55	40100054	Screw M10x35 UNI 5739	2	2	2
56	40100149	Screw M10x30 UNI 5933	4	4	4
57	40100024	Screw M10x130 UNI 5737	6	6	6
58	40100108	Screw M10x140 UNI 5737	2	2	2
59	40100022	Screw M12x90 UNI 5737	1	1	1
60	40100023	Screw M12x40 UNI 5739	4	4	4
61	40100034	Screw M16x40 UNI 5739	4	4	4
62	40200007	Nut MB12x1,25 UNI 5587	32	40	48
63	40200005	Nut M10 UNI 5588	2	2	2
64	40200003	Nut M10 DIN 980	61	61	61
65	40200006	Nut M12 DIN 980	5	5	5
66	40200008	Nut M16 DIN 980	4	4	4
67	40300005	Washer Ø12 UNI 9195 – DIN 127B	32	40	48
68	40300031	Washer Ø8x24	2	2	2
69					
70					
71	40300013	Washer Ø10x30	3	3	3
72					
73	40300045	Washer Ø12x36	2	2	2

## GENERAL INDEX

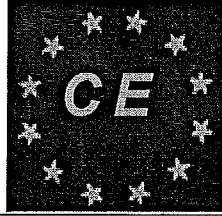
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Farm & Garden Equipment

**DEL MORINO** SRL

**CE DECLARATION OF CONFORMITY**



**CEE DIRECTIVE 89/392  
AND SUCCESSIVE MODIFICATIONS**

*The undersigned firm*

**"DEL MORINO S.R.L."**

**- Via Caroni di Sotto n. 19 -**

**- 52033 CAPRESE MICHELANGELO (AREZZO) ITALIA -**

*under its own responsibility* **DECLARES that the machine**

**ROTARY TILLER & STONE BURIERS" FLASH "**

**SERIE :**

**FLASH 85 - 105 - 125**

*is conformed to the safety and health protection requisites of the  
CEE 89/392 and its successive modifications.*

*In verifying that the machine conforms to the above-mentioned  
directives, the following have been consulted:*

**STANDARDIZED REGULATIONS FOR THE EUROPEAN COMMUNITY**

**EN 292-1 292-2 294**

*Caprese Michelangelo 01.01.2007*

**DANIELE DEL MORINO  
PRESIDENT**

