

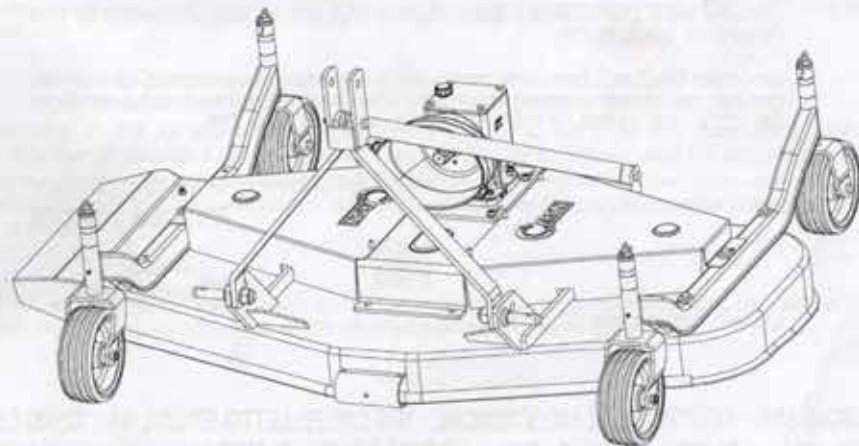


**USER AND MAINTENANCE MANUAL MOWERS**



**ENGLISH**

**Code MUM-TCF-EN-US\_Rev-00 Date: 22-11-2007**





According to Directive 2006/42/CE as further modified

We  
**CARONI S.P.A.**,  
Via Castelletto Stura 46  
I - 12100 CUNEO - ITALY,

Declare under our own responsibility that the following models of our rotary mowers:

**REAR LAWN MOWERS**  
TC480/TC590/TC710/TC910

**FRONT LAWN MOWERS**  
F12/F15/F18/F24

comply with the relevant basic safety and health requirements of the Directive 2006/42/CE.

In order to check the conformity with the above mentioned directives, the following harmonized standards have been taken into consideration:  
EN 1553 - EN 12100 / 1 - EN 12100 / 2 - EN 294 - EN 836.

The President and Managing director  
**ANDREA CARONI**

Cuneo, November 22, 2006

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## FOREWORD

First of all CARONI SPA wishes to thank you for purchasing our quality machines. Aiming at obtaining the longest possible efficiency of the machines you have purchased, we kindly invite you to read and thoroughly understand the instructions for use and maintenance in this manual. A careful compliance with these instructions permits to prevent troubles and accidents or injuries caused by carelessness or lack of compliance with the safety standards and in that case our company shall not be held liable.

This manual complies with the requirements of the machine directive 98/37/EC. The manual is integral with the machine and shall therefore accompany the machine should it be sold to a new user.



The presence of this symbol of danger in the manual points out important instructions concerning safety. It is first of all meant for the operator. The operator shall comply with the compliance with the warning contained in the message by himself but also by other people exposed to the machine risks. Lack of compliance with the instructions can cause damage to people which could sometimes even be cause of death.



This "instruction" symbol in the manual points out important instructions concerning the correct startup, operation and in general conditions which could jeopardize the life of the product.



The instructions contained in this manual should be read carefully before carrying out any operation with and on the machine, in order to work in safety and preserving its correct operation.

Apart from the main technical and safety features of the machines, the manufacturer reserves the right of carrying out modifications to the machine at any time for reasons of ongoing technical and technological evolution without having to be fined for that.

Furthermore we stress the fact that the only expected use of this machine is the one described in the manual. Any other application is forbidden.

## 2 Marking and identification

### 2.1 Marking

Each machine bears the EC identification label (for its position see fig.10), which contains not only the EC mark but also the following data:

- A - Name of the manufacturer
- B - Model
- C - Serial number
- D - Year of manufacture
- E - EC mark of conformity
- F - Mass in kg



### 2.2 Warning pictograms

The following warning pictograms can be found on the machine (see fig.10)

- 1 **Identification signal** indicates the machine data
- 2 **Indication signal** indicates the direction of rotation of the machine
- 3 **Warning signal** indicates it is necessary to fill the reduction unit with oil when the piece of equipment is used for the first time.
- 4 **General danger:** before any intervention, read the manual carefully.
- 5 **Warning signal** indicates the number of revolutions of the power takeoff
- 6 **Limb shearing danger** do not insert your limbs within any moving parts
- 7 **Object projection danger:** keep at a safety distance at work.
- 8 **General danger:** do not remove guards when parts are in motion.
- 9 **General danger:** do not climb on machine when parts are in motion.

### 2.3 Aerial noise and technical data of the test

Type of machine	TC480 – F12	TC590 – F15	TC710 – F18	TC910 – F24
PTO RPM	540	540	540	540
Engine/motor RPM	2000	2000	2000	2000
Tractor power supply	Diesel oil	Diesel oil	Diesel oil	Diesel oil
Tractor KW	37	37	37	37
Lpa (dBA)	88	88	88	87
Lwa (dBA)	105	105	105	104

Acoustic power has been measured according to pos. D4 and D5 of EN standard 1553

Acoustic pressure has been determined analytically by means of acoustic power at a distance defined by pos. D.2.2.4 a) of EN standard 1553

### 2.4 Third point hitch categories

#### CATEGORY 0:THIRD POINT HITCH

REAR MOWERS..... TC480  
FRONT MOWERS..... F12

#### CATEGORY 1:THIRD POINT HITCH

REAR MOWERS..... TC590 / TC710 / TC910  
FRONT MOWERS.....F15 / F18 / F24



3

### Conditions and limits of use



The destination of use of the machine is mowing grass through a series of mechanical parts (blades) rotating on a vertical axis perpendicular to the ground.

The machine is designed to be connected exclusively with the three-point hitch of a tractor and driven by the PTO mounted on the tractor.

Choose the tractor based on the power, loads, and overhang given in the table by using the data declared by the tractor manufacturer.

Any use apart from the specified one shall be considered improper, very dangerous and therefore prohibited. In particular we wish to highlight the fact that it is forbidden to use the machine to carry people, animals or loads.

For all the operations of use, adjustment and maintenance a single operator will be enough.

The presence of other people during the operations for linking the piece of equipment to the tractor is allowed only when the PTO is detached, the tractor motor is off and the brake is pulled. In fact in such a situation do not displace the tractor but the mower, by using a suitable piece of equipment.

Should it be impossible to find the data useful to choose the right tractor, the user shall make sure or have someone check that suitable safety margins are applied at work, the max. load limit on the axles



is not exceeded and the braking ability is still adequate.

Type of machine	F12	F15	F18	F24	TC480	TC590	TC710	TC910
Mass (Kg)	169	201	255	292	166	183	226	300
Pos. of the barycenter in working conditions (mm) "X"	450	500	560	600	450	450	550	640
Pos. of the overhang in working conditions (mm) "Y"	1030	1100	1225	1100	1060	1140	1250	1340
Pos. of the barycenter in transfer conditions (mm) "X1"	400	450	510	540	400	400	500	580
Pos. of the overhang in transfer conditions (mm) "Y1"	930	990	1100	990	950	1020	1120	1200



#### 4 USE IN SAFETY CONDITIONS



Most accidents that take place at work, maintenance operations and machine displacement are due to lack of compliance with the most elementary norms of accident prevention. Therefore it is essential for those who are authorized to use the machines to read and thoroughly follow both the instructions below and the stickers applied to the machine.

1. Read this manual carefully before carrying out any operations for use, adjustment and maintenance.
2. Always stop the tractor engine, wait until all moving parts have stopped and detach the PTO shaft, before carrying out any operations for adjustment, maintenance or cleaning. Always rest the machine on the ground or on strong stands. Never lay down under the machine without these stands or without checking the stability of the machine.

3. Before use always make sure screws and nuts are tight, especially on blades or hoes.
4. Always work with guards mounted, both on machine and on PTO shaft. Should the guards be damaged they should be replaced at once.
5. Keep anyone and all animals away before starting your machine. The dangerous area extends 15 meters around the machine.
6. Be particularly careful when working along roads or paths because of the possible projection of stones. Never exceed the prescribed slopes when using your tractor and always avoid particularly steep working areas.
7. Operate with suitable lighting only
8. A tractor with a cabin to protect the operator should be preferred.
9. Do not let the machine run unattended.
10. During checks and repairs make sure no one can start the machine accidentally.
11. Wear tight clothes without any loose parts which could be caught in moving parts or in the machine rotating parts. Wear accident prevention shoes, and wear gloves if you have to handle blades or parts with sharp edges. In case of extended use and on a tractor with no cabin use suitable sound deadening devices (ear plugs or head sets)
12. Do not carry people or property on the machine or tractor at work or during a road transfer.
13. The PTO shaft guards shall always be in good operating conditions at work and fixed with the safety chains preventing them from turning. Should the guards be damaged or worn, replace them immediately with other original guards.
14. For circulating on public roads, the operator shall make sure his/her machine complies with the current highway code and shall personally comply with the current standards in force in their country scrupulously.
15. For your safety and that of any third parties and not to make the guarantee null and void, use original spare parts only. Use the required personal protection means at all times.
16. Mind the dangers any rotating tools may cause.
17. Always use the machine on grassy ground. Stop the transmission to stop the blades while crossing areas without grass and/or during transportation.
18. CARONI SPA shall not be liable for lack of compliance with these standards.



#### 5 - STARTUP



Carry out all the operations for startup when the tractor engine is stopped, the PTO shaft is disconnected and all the transmission parts to the tools are stopped.

Before starting working fill the gearbox with oil HD 80 W 90 (see paragraph 7.1). When closing the cap do not tighten it too tight in order to prevent the gasket deformation which could generate oil leaks.

Check the direction of rotation and the rpm of the tractor and of the machine PTO, which shall necessarily be the same as the ones signaled on the machine next to the PTO with two yellow stickers.



DANGER! it is forbidden to use the machine at a speed either than the one specified in the label.



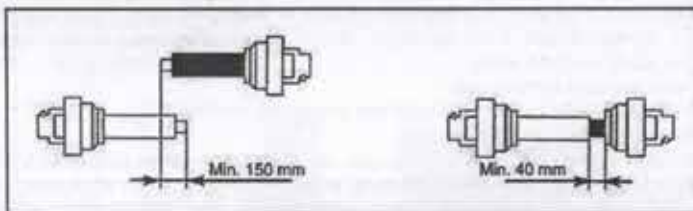
Use only CE marked PTO shaft with guards.

Once the machine has been hitched to the tractor, check the exact length of the PTO shaft.



**i** In the various working positions, the PTO shaft transmission hoses shall telescopically insert of at least 150 mm as shown in the figure below.

**!** Repeat the check when the tool is hitched to a different tractor.  
Any modifications to the PTO shaft are strictly prohibited. It is strictly prohibited to cut the PTO shaft in order to adapt its length.



**!** The PTO shaft guards shall be still and in good conditions while the PTO shaft rotates. Therefore only the pre-established chains shall be used. For your safety, when the PTO shaft guards are worn, they shall promptly be replaced. When the machine is not in service, to prevent the PTO shaft from resting on the ground, use the extra chain supplied in our kit rather than the two small rotation-proofing chains supplied with the PTO shaft. Never leave the PTO shaft on the ground. When the PTO shaft is being clutched in, make sure it is correctly locked in position.

**5.1 Case contents**  
See picture nr. 1

Check the integrity of the package and the contents of the case. To check the components please refer to the following table.

CODICE	TC	TC - RD F - RD	F	TC910 F24
1	1	—	1	—
2	1	1	1	1
3	2	2	2	2
4	2	2	2	2
5	2	2	2	2
6	—	2	2	—
7	1	1	1	1
8	1	1	1	—
9	1	1	1	1
10	2	2	2	—
11	—	—	—	2
12	—	1	—	1

**5.2 Wheel support assembling**  
See picture nr. 2

Place wheel supports "1" on body and tighten the 4 screws "2" by inserting washers "3" and washers "4". Do not mount the (2) central screws "2".

**5.3 Belts and gearbox assembling operations**  
See picture nr. 3-4

- A. Place belts "9" on pulleys. For type TC910-F24 see Fig. 4.
- B. Place gearbox "10" as shown in Fig. 3 and tighten the 4 screws "11" by inserting the 4 washers "12".
- C. Loosen screw "13" almost entirely or completely as well as nuts "14" in order to make it easy to insert belts "9" into the pulley slits.

**5.4 PROTECTION GUARD ASSEMBLING**  
See picture nr. 6

- A. Place guards "15" and tighten the 6 nuts "16" and washers "17". Tighten the central screw "2" with washers "3" and "4" of the wheel support of par. WHEEL SUPPORT ASSEMBLING
- B. Position deflector "18" and tighten the 3 screws "19" 3 washers "17" and 3 nuts "16".
- C. For models discharging on the rear (RD) mount deflector "26" (see square).
- D. Place plastic guard "23" by interposing the galvanized disk "24" and tighten the 2 screws "19" and 2 grower washers "25".

**5.5 Third point hitch connection**  
See picture nr. 7

- A. Position tie-rods "26" and uprights "27" with U-bolt "28" checking the position of bushes "29" (see square).
- B. Tighten screw "30" with nut "31".
- C. Tighten connecting bolts "32" with washers "33" and nuts "34".
- D. Tighten screws "35" with nut "36".

**5.6 Third point hitch connection for F models**  
See picture nr. 8

- A. Position the connecting supports "37", tighten nuts "38" with washers "39" to U-bolt "40".
- B. The distance between supports shall be approx. 700 mm.

**6 - ADJUSTMENTS**

Carry out all the operations for startup when the tractor engine is stopped, the PTO shaft is disconnected and all the transmission parts to the tools are stopped.


Adjust the cutting height at will by modifying the position of the wheel support bushes. For this operation please see table below and Fig. 2.

5	18 mm
6	25 mm
7	37 mm
8	44 mm


For adjustment the transmission belt stretch act on screw "13" and lock it with the 5 nuts "14" by remembering the belts shall flex about 10 mm as shown in Fig. 5

**7 - MAINTENANCE**


- !** Carry out all the operations for startup when the tractor engine is stopped, the PTO shaft is disconnected and all the transmission parts to the tools are stopped.
- i** Once your work is over, wash the underframe thoroughly in order to keep the machine perfectly effective.

 Use only original lines, in order to guarantee your safety and that of any third parties (also for guarantee purposes).

### 7.1 Oil quantity and greasing



 Before starting to work fill the gearbox with oil HD80W90. After the first 40 hours' work, change the gearbox oil by draining the oil off the drain plug. Fill with oil of the prescribed type through the topping up cap and check the quantity of oil filled in on the level rod. See table below. Dispose of the exhaust oil according to the current regulations. Do not abandon them in the environment.

TIPO	Q.TÀ LITRI
SCATOLA INGRANAGGI TC-F 	0,5

 Grease the shaft supports of the knife every 10 to 12 hours' work. Use grease EP2.

### 7.2. Blade replacement


See picture nr. 9


-  A. Check the efficiency of the blades daily and replace the blades promptly should they be damaged or chipped. Apart from your safety this will also improve cutting results.
-  B. To replace the blades proceed as follows:
1. LAY THE MOWER ON STURDY SUPPORTS
  2. Loosen nut 41 with a 27 wrench, by holding the shaft with a 30 wrench.
  3. Take the blade out of the shaft and replace it by centering the hole of the blade on the shaft.
  4. Tighten nut "41", by inserting washer "42". The torque shall be at least 5 Kg./fm.

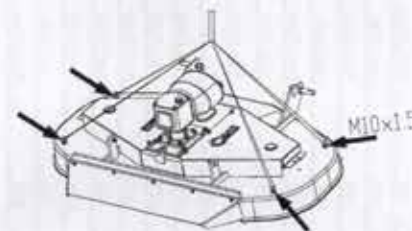
## 8 – TRANSPORT AND STORAGE

Transport can be carried out with different means also in view of the destination site.

To make transportation easier, shipment can be carried out after disassembling a few parts, duly protected and packed. While unpacking, check the integrity and correct quantity of the components. The packaging material shall be disposed of in compliance with the current laws.

 The personnel loading, unloading and handling the machine shall have abilities and experience acquired and acknowledged in this specific field.

 For a correct handling of the machine in order to remove its packaging we recommend you use 4 screws M10x1.5 as shown in the picture below by using eyebolts and belts as prescribed by the current standards concerning load handling.



During the period when the machine is not in use, carry out the cleaning and maintenance operations specified in chapter 7 of the manual and store the machine in a dry and sheltered place.

To transport the machine on public roads follow the highway code in force in your country.

ONLY IF YOU USE ORIGINAL SPARES,

**CARONI S.p.A.**

WILL ACKNOWLEDGE YOUR RIGHT TO GUARANTEE AND YOU WILL BE ABLE  
TO OBTAIN THE BEST PERFORMANCE AND THE LONGEST LIFE OF THE  
MACHINE.



**CARATTERISTICHE TECNICHE E MODELLI DISPONIBILI**  
**TECHNICAL FEATURES AND AVAILABLE MODELS**

CODICE MACCHINA MACHINE CODE	LARGHEZZA DI TAGLIO CUTTING WIDTH mm ( Incht. )	ALTEZZA DI TAGLIO CUTTING HEIGHT mm ( Incht. )	N° DI COLTELLI NR. OF BLADES	POTENZA TRATTORE TRACTOR POWER HP	N° GIRI PRESA FORZA PTO SPEED RPM	N° GIRI COLTELLI BLADE SPEED RPM	ATTACCO 3° PUNTO HITCH (3rd POINT) CAT	PESO WEIGHT kg ( lbs )	TIPO DI SCARICO GRASS OUTLET
<b>Tosaerba Frontali / Front Mowers</b>									
F120540LD	1200 ( 48" )	25 + 100 ( 1" + 4" )	3	12 + 20	540	3250	0	169	Lat./Side
F120540RD	1200 ( 48" )	25 + 100 ( 1" + 4" )	3	12 + 20	540	3250	0	169	Post./Rear
F121000LD	1200 ( 48" )	25 + 100 ( 1" + 4" )	3	12 + 20	540	3250	0	166	Lat./Side
F121000RD	1200 ( 48" )	25 + 100 ( 1" + 4" )	3	12 + 20	1000	3250	0	168	Post./Rear
F122000LD	1200 ( 48" )	25 + 100 ( 1" + 4" )	3	12 + 20	2000	3250	0	168	Lat./Side
F122000RD	1200 ( 48" )	25 + 100 ( 1" + 4" )	3	12 + 20	2000	3250	0	192	Post./Rear
F150540LD	1500 ( 59" )	25 + 100 ( 1" + 4" )	3	15 + 30	540	2630	1	201	Lat./Side
F150540RD	1500 ( 59" )	25 + 100 ( 1" + 4" )	3	15 + 30	540	2630	1	192	Post./Rear
F151000LD	1500 ( 59" )	25 + 100 ( 1" + 4" )	3	15 + 30	1000	2630	1	201	Lat./Side
F151000RD	1500 ( 59" )	25 + 100 ( 1" + 4" )	3	15 + 30	1000	2630	1	193	Post./Rear
F152000LD	1500 ( 59" )	25 + 100 ( 1" + 4" )	3	15 + 30	2000	2630	1	201	Lat./Side
F152000RD	1500 ( 59" )	25 + 100 ( 1" + 4" )	3	15 + 30	2000	2630	1	240	Post./Rear
F180540LD	1800 ( 71" )	25 + 100 ( 1" + 4" )	3	20 + 40	540	2230	1	255	Lat./Side
F180540RD	1800 ( 71" )	25 + 100 ( 1" + 4" )	3	20 + 40	540	2230	1	240	Post./Rear
F181000LD	1800 ( 71" )	25 + 100 ( 1" + 4" )	3	20 + 40	1000	2230	1	240	Lat./Side
F181000RD	1800 ( 71" )	25 + 100 ( 1" + 4" )	3	20 + 40	1000	2230	1	255	Post./Rear
F182000LD	1800 ( 71" )	25 + 100 ( 1" + 4" )	3	20 + 40	2000	2230	1	240	Lat./Side
F182000RD	1800 ( 71" )	25 + 100 ( 1" + 4" )	3	20 + 40	2000	2230	1	255	Post./Rear
F240540RD	2350 ( 93" )	25 + 100 ( 1" + 4" )	5	30 + 60	540	2630	1	292	Post./Rear
F241000RD	2350 ( 93" )	25 + 100 ( 1" + 4" )	5	30 + 60	1000	2630	1	292	Post./Rear
F242000RD	2350 ( 93" )	25 + 100 ( 1" + 4" )	5	30 + 60	2000	2640	1	292	Post./Rear
<b>Tosaerba Posteriori / Rear Mowers</b>									
TC460NSLD	1200 ( 48" )	25 + 100 ( 1" + 4" )	3	12 + 20	540	3250	0	166	Lat./Side
TC460NSRD	1200 ( 48" )	25 + 100 ( 1" + 4" )	3	12 + 20	540	3250	0	166	Post./Rear
TC590NSLD	1500 ( 59" )	25 + 100 ( 1" + 4" )	3	15 + 30	540	2630	1	183	Lat./Side
TC590NSRD	1500 ( 59" )	25 + 100 ( 1" + 4" )	3	15 + 30	540	2630	1	183	Post./Rear
TC710NSLD	1800 ( 71" )	25 + 100 ( 1" + 4" )	3	20 + 40	540	2230	1	226	Lat./Side
TC710NSRD	1800 ( 71" )	25 + 100 ( 1" + 4" )	3	20 + 40	540	2230	1	226	Post./Rear
TC910NSRD	2350 ( 93" )	25 + 100 ( 1" + 4" )	5	45 + 60	540	2630	1	300	Post./Rear

Fig. n°1

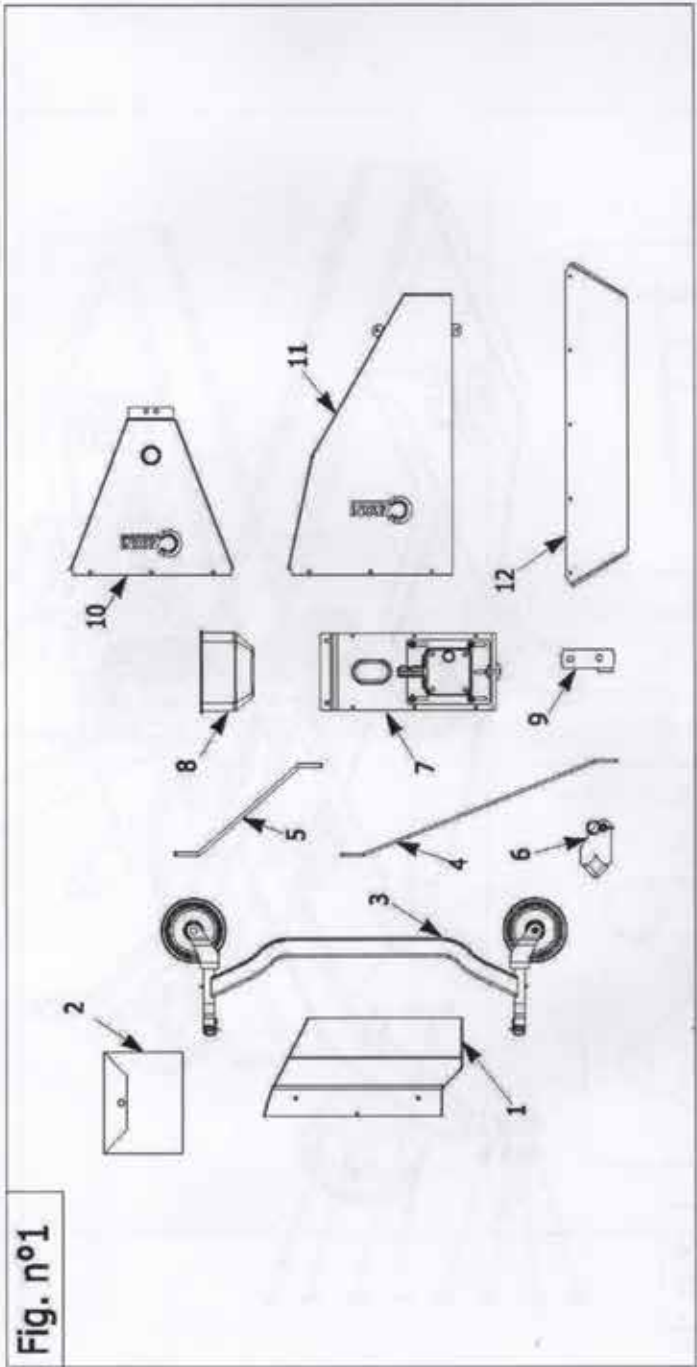


Fig. n°2

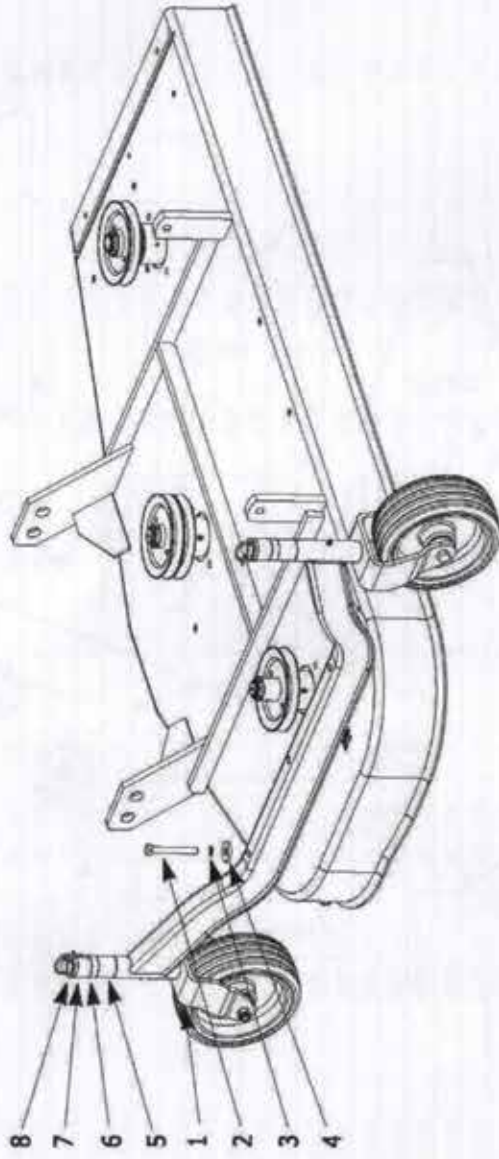


Fig. n°3

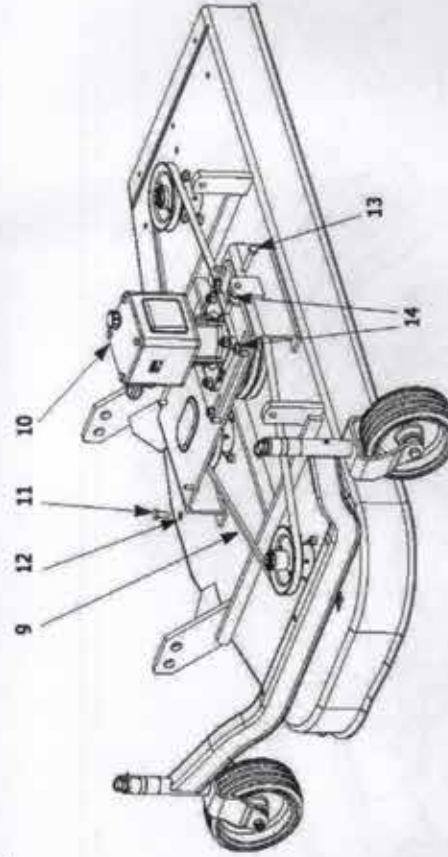


Fig. n°4

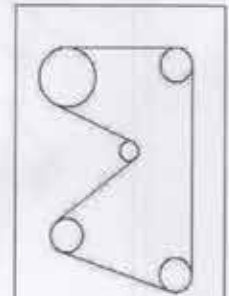


Fig. n°5

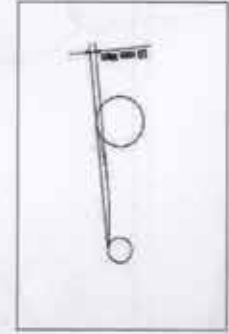




Fig. n°6

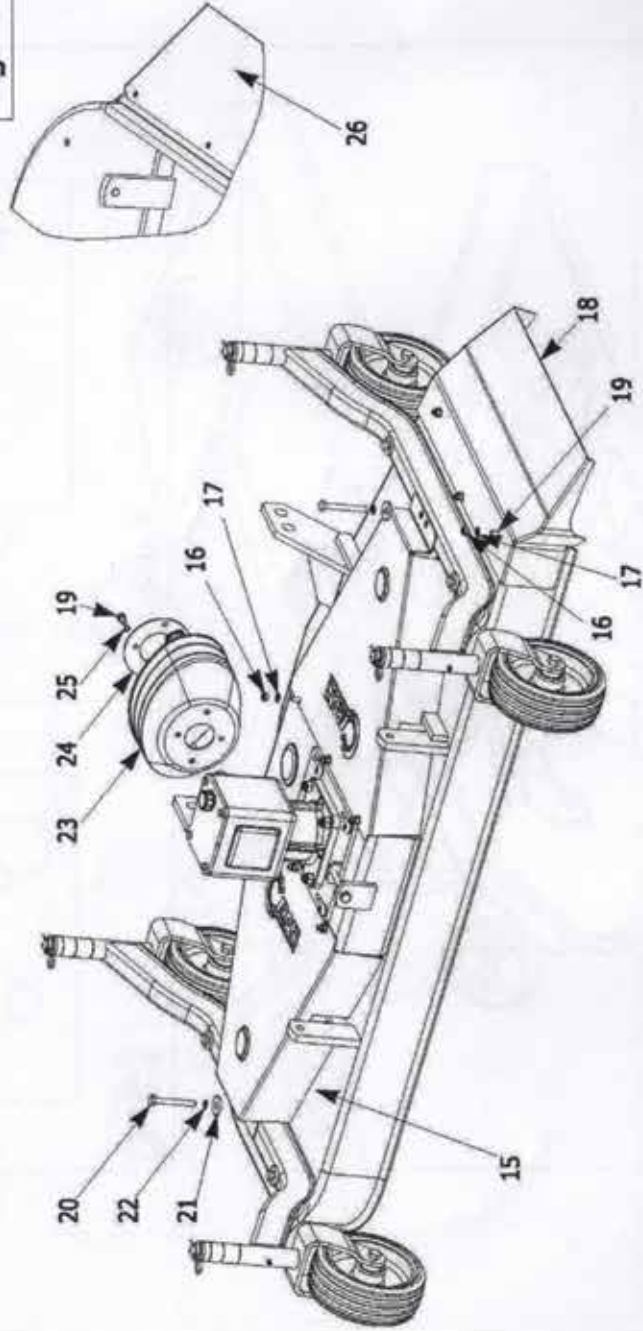


Fig. n°7

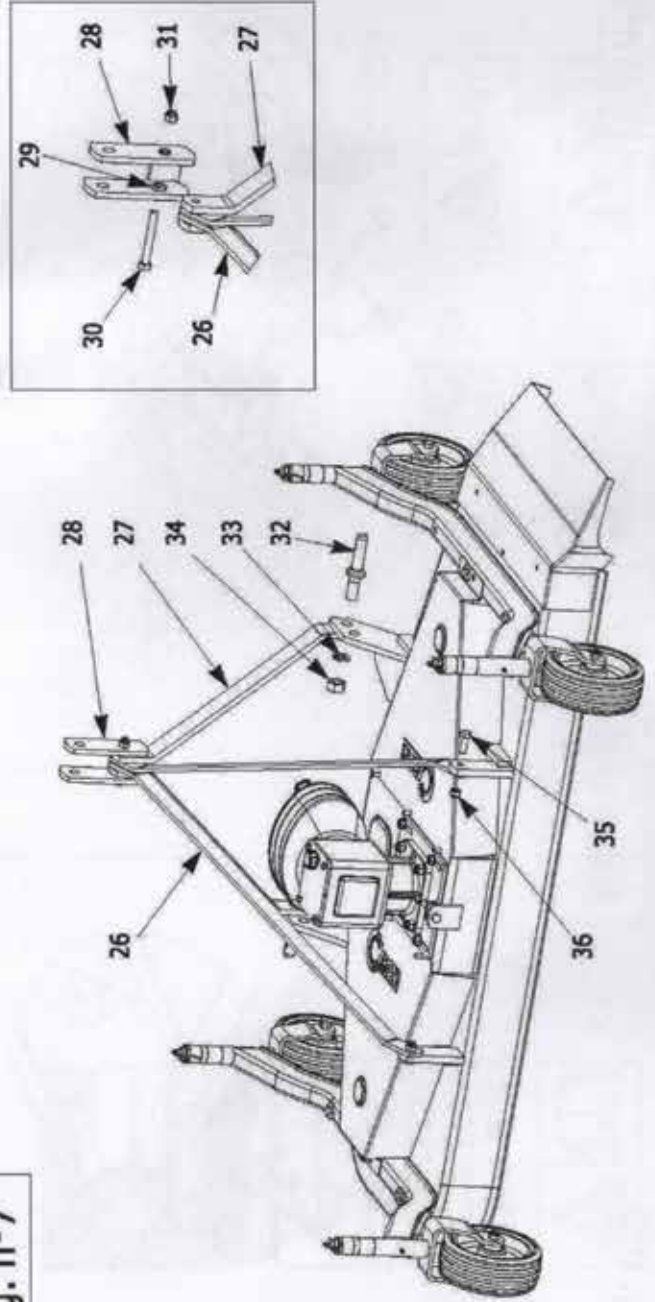


Fig. n°8

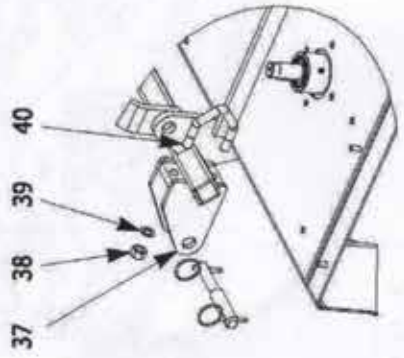


Fig. n°9

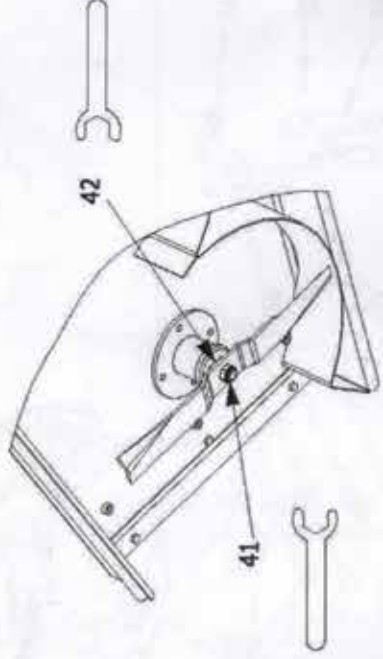
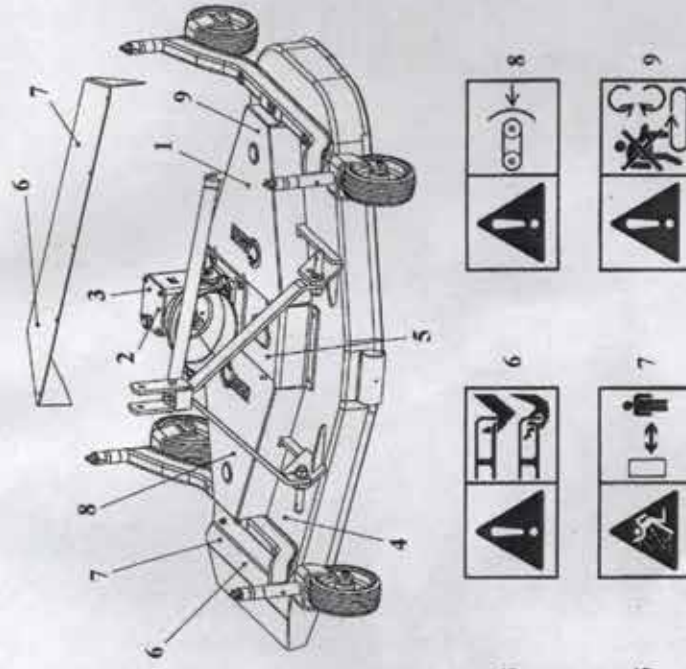


Fig. n°10







**Tecnologia robusta**  
*Taglio delicato*



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