

DM 7 - 8

Disc Mower



TRANSLATION
OF THE ORIGINAL
INSTRUCTIONS

USE and MAINTENANCE MANUAL

Issue 5 – 8/2020



EC DECLARATION OF CONFORMITY

(Annex IIA Machinery Directives 2006/42/EC)

The Manufacturer **ENOAGRICOLA ROSSI s.r.l.**
with head office in via Cortonese, 36 - 06019
Calzolaro di Umbertide (PG) - Italy

declares under its own responsibility that the machine

DISC MOWER

.....
Generic denomination and commercial name

DM

20..

.....
Series/Model

.....
Serial number

.....
Construction year

whose functions are described in this manual

is conform to the Essential Requirements of Safety and
Health Protection, as per Machinery Directive **2006/42/EC**

To check the conformity of the Directives mentioned up here,
the following EN Harmonized Norms have been consulted:

EN 13854:2020 - EN 4413:2012

EN ISO 4254-1:2015 - EN ISO 4254-13:2012 - ISO 11684 (1995)

EN 12100:2010 - EN ISO 12965:2020 - EN ISO 13857:2020 - ISO 3600:2015

and he authorizes Enorossi
via Cortonese, 36 - 06019 Calzolaro di Umbertide (PG) - Italy

to compile the relevant technical documentation

Calzolaro di Umbertide,

GIOVANNINI ADELMO

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Machinery Directive and Harmonized norms:

The DM disc mowers have been designed in accordance with the norms described in the Machinery Directive **2006/42/EC** and particularly it satisfies the following Harmonized norms:

EN 13854:2020 Safety of machinery. Minimum gaps to avoid crushing of parts of the human body

EN ISO 4254-1:2015 Agricultural machinery - Safety - Part 1: General requirements

EN ISO 4254-13:2012 Agricultural machinery - Safety - Part 13: Large rotary mowers

ISO 11684: Tractors, machinery for agriculture and forestry, powered lawn and garden equipment - Safety signs and hazard pictorials - General principles (1995)

EN 12100:2010 Safety of Machinery - General principles of design - Risk assessment and risk reduction

EN 12965:2020 Tractors and machinery for agriculture and forestry. Power take-off (PTO) drive shafts and their guards - Safety

EN 13857:2020 Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs

EN ISO 4413:2012 Hydraulic fluid power -- General rules and safety requirements for systems and their components

ISO 3600:2015: Tractors, machinery for agriculture and forestry, powered lawn and garden equipment - Operator's manuals -- Content and presentation

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INTRODUCTION

A1 Information about the disc mower

The disc mower is an agricultural equipment used to cut any type of forage with stalk. Such moving is obtained by apposite blades, installed on discs, which rotating to high speed. The number of discs, installed on the mower models of our production, can vary from 7 to 8 units.

This equipment (carried type) can operate only if it installed on an agricultural tractor equipped with universal three-point hitch and hydraulic lift.

The disc mower operation is obtained both by traction, through the tractor on which the machine is installed, and by the rotation of the cutting blades. Such rotation (maintained in sync by a transmission gears) is supplied by a belt system, in its turn supplied by the tractor power take off, through a cardan shaft. An appropriate jack, supplied by the auxiliary hydraulic circuit of the tractor and controlled from the cabin by a specific lever, provide to put the equipment in the work or transport configuration.

However, more detailed information about the equipment operation and use is provided later in the relevant section of this manual.

A2 Information about the manual

The ENOROSI company (hereafter called Manufacturer) has designed and built the disc mower in obedience to appropriate safety regulations in order to protect both the operators which work with the equipment and its operating system.

Each disc mower is provided with a copy of this manual, which should be read carefully before using the equipment. The manual contains the necessary information about the transport, use and maintenance of the equipment, as well as relevant safety rules.

Lack of knowledge about its operating system may cause accidents with damage to the operator and to the equipment itself. Therefore, even if the Manufacturer, after the machine delivery, provides all the information concerning the disc mower (operation, use and maintenance) the Customer has to read all manuals and to observe the contained instructions.

The manual furnishes the basic indications to obtain the best work and safety conditions but the experience and the good sense of the operator remain the most important factor for the disc mower operation.

The manual is updated to the characteristics of the disc mower and does not relate to earlier models. Nevertheless the Manufacturer reserves the right to modify the manual if new regulations were issued (Machine Directive) in the subject of technical content or only to improve comprehension without obligation to update the machines and preceding manuals.

This manual is integral part of the equipment and consequently it must be carefully preserved, undamaged in all parts of it and kept in an one folder (placed on the equipment chassis), ready for consultation.

In case the disc mower was sold or transferred to other user, it is important to ensure that the manual is in its folder. In case this has gone missing, it will be necessary to ask the Manufacturer for a duplicate.

If during the reading of the manual some instructions result incomprehensible, it is advisable to contact the Manufacturer (whose telephone numbers and fax are printed on the cover) who will provide the relative explanation. If the manual has been translated into another language and part of its contents gives rise to controversy, the valid text of reference remains the one written in language Italian.

Indications contained in the manual:

IMPORTANT - indicates that the information must absolutely be known by the operator;



HAZARD

indicates an actual situation of danger for the operator and for others (serious accidents including risk of death) or concerning the reliability of the machine;

- The writing **NOTE** indicates that the treated matter can make it easier for the operator to carry out the job;
- The indications **right/left** identify any component of the disc mower as seen from behind the tractor with the machine installed.

A3 Identification plate and CE mark

On every disc mower an **identification plate** is applied, well in sight, on which punched other than the Manufacturer data, also:

- model (and/or version) ;
- serial number;

- minimum power of the tractor (hp);
- total weight (kg);
- manufacturing year.

Such data is necessary for technical assistance and for spares.

IMPORTANT

It is absolutely forbidden to alter and/or erase the data written on the identification plate of the machine. The operator is required to verify frequently the legibility of the data and, when this in doubt, to communicate with the Manufacturer. The data will be transferred to a new plate to replace the old one.

enorossi AGRICULTURAL MACHINERY
 Type: XXXXXXXX Model
 Serial N. XXXXXXXX-XX
 MFG: 2015 DEL: 2015
 Enoagricola Rossi S.R.L.
 Calzolaro di Umbertide - Perugia
 Made in Italy

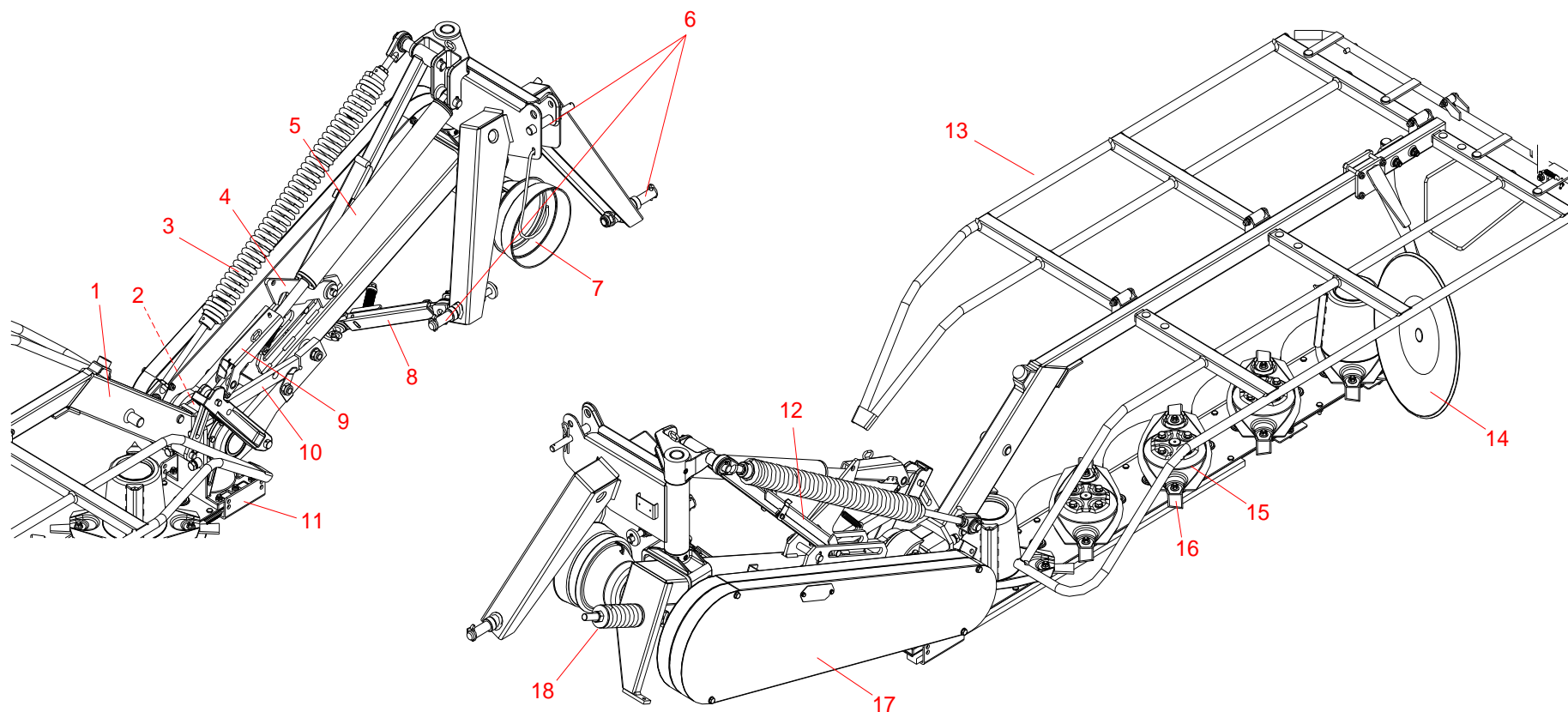
The CE mark certifies that the Manufacturer has complied with regulations in force governing machinery and covering health and safety matters as specified for all EU Member states (Machinery Directive). In practical terms, the CE mark guarantees that the Manufacturer has designed and constructed the machine in such a way as to avoid and minimize risk and danger, in anticipation of the function and the conditions under which the equipment will be used. The equipment may be used in Europe only if it is equipped with the identification plate and provided with the declaration of conformity.

A4 Technical data and main components

TECHNICAL DATA	MODEL				
				DM 7	DM 8
WORKING WIDTH (cm)				280	320
ROTATING DISCS (nr.)				7	8
TRACTOR POWER (hp)				75 ÷ 80	85 ÷ 90
P.T.O (rpm)				540	540
BLADES FOR DISC (nr.)				2	2/3
WEIGHT (kg)				640	690

1. Mobile chassis
2. Multiplier (or transmission gear)
3. Spring
4. Safety hook
5. Jack (for lifting and lowering bar)
6. Three-point hitch
7. Cardan shaft attachment
8. Release device
9. Stop lever of the jack

10. Lifting lever
11. Slide
12. Stop lever
13. Protection frame
14. Side rake disc
15. Rotating disc
16. Cutting blades
17. Belt carter
18. Adjusting spring of belt tension



A5 Warranty

The **Enorossi** company guarantees that the disc mower is exempt from defects in any kind since it has been submitted to testing before its delivery to the Customer. **The warranty has a one-year validity starting from the indicated date on the fiscal document of delivery.** In any case, when the Customer receives the machine, he must check its condition and completeness in all parts. Eventual complaints should be notified to the Manufacturer in written form within 8 (eight) days of reception of the machine.

Within the warranty period the Manufacturer undertakes to replace, without charge and at its factory, any parts damaged in manufacture or through defective material. Should it not be possible to replace the parts in its factory, the Manufacturer will send the required parts to the Customer. Regarding to these replacements, the Enorossi company will not extend the warranty to cover the period during which the machine remains out of service neither will he consider any compensation or indemnity to the Customer for costs or damages (directly or indirectly). If the assistance of a member of our staff is required all his expenses will be paid by the Customer. The investigation of defects can only be carried out by the Manufacturer or by authorised technical personnel.

However it is necessary to remember that:

- defective parts will remain property of the Manufacturer;
- in the case that replacement is carried out on the Customer's premises, the defective parts must be sent back to the Manufacturer, intact, without breakage and **without any transport charge to the Manufacturer;**
- in the case that the defective parts are not returned to the Manufacturer within 30 (thirty) days (from the date of receipt of the new ones and in accordance with the terms described above), the Enorossi company reserves the right to invoice the new parts sent.

The warranty is not recognized:

- during transport, as the disc mower travels under the responsibility of the Customer;
- if the failures are caused by an improper or incorrect use of the disc mower, by the carelessness or lack of experience of the operator;
- if the failures are caused by normal wear and tear even if the disc mower is out of service;
- in case of a delay in notifying a defective part due to manufacture;
- in the case of accident or act of God.

The warranty does not apply if:

- the machine is used by personnel inadequately trained;
- the instructions and rules contained in this manual are not followed;
- the prescribed maintenance tasks are not performed;
- the Customer modifies the equipment without the written authorisation of the Manufacturer or when the Customer effects tampers with components;
- spare parts other than those supplied or recommended by the Manufacturer are used.

The normal warranty period for the disc mower is not valid for all components not made by the Manufacturer which are covered by the policy mentioned in the appropriate manual.

IMPORTANT

The Manufacturer does not guarantee the conformity of the machines to regulations in force in the countries outside the European Union, in particular to those related to the prevention of accidents and to pollution. Adjustment of the machine to comply with these regulations will be entirely expense and responsibility of the Customer. The Manufacturer is absolved from all responsibility if non-observance of the regulations creates legal problems or gives rise to any damage whatsoever.

SAFETY

B1 General rules

In this manual are described those necessary for the use of the disc mower. Most accidents at work occur because the most elementary safety rules are not observed. Therefore, before using the machine it **is mandatory** to know everything contained in this manual.

Use of the disc mower must be entrusted to adult, qualified and trained personnel. **The Manufacturer is not responsible for accidents caused by carelessness, improper or incorrect use or to non-observance of the safety rules. Furthermore the warranty of the machine would immediately be void.**

B2 Safety about the transport, the installation and the movements

- **Transport** (delivery): the equipment is delivered disassembled inside a apposite wooden case. Instructions more detailed, contained in this manual, permit to the Customer to assembly the disc mower with simplicity and quickly. If the equipment was sold or transferred to other user, to perform the disassembly following the instructions in backward.
- **Installation:** the equipment must be installed only on agricultural tractors equipped with universal three-point hitch, rear auxiliary hydraulic plugs and with hydraulic lift.

IMPORTANT

Tractors must obligatory be provided with a protective Roll-bar or cabs furnished with ROPS or FOPS type approval as indicated by the rules in force. **It's absolutely forbidden to install the disc mower on tractors without cabs.**

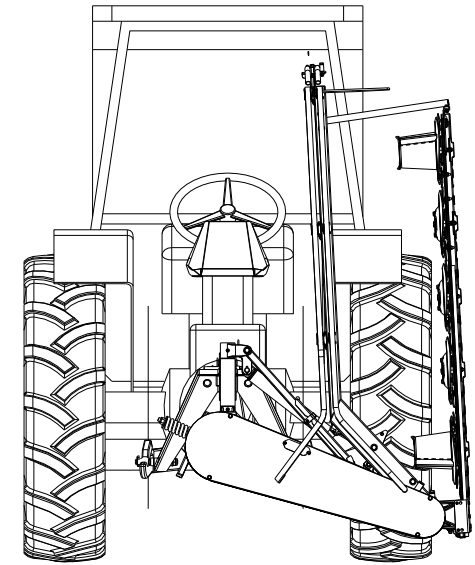
Before of the installation, the Customer must consult the relative use and maintenance manual and verify that the tractor has the technical requirements (power and hydraulic lift) need for the employment and operation of the disc mower and/or the necessity to install appropriate ballasts to avoid unbalancing could cause its overturning.

For the instructions relevant to installation of the disc mower to the tractor, to those relevant to the installation and the adjustment of the cardan shaft and to hydraulic connections please to consult the respective paragraphs described afterwards. However, the equipment complete installation reaches the maximum caution and so the instruction described in this manual must be meticulously performed.

- **Movements:** before moving it is necessary to verify that all safety and locking devices are present and integral. If one was missing or not integral, it is forbidden both the transport and the use of the equipment. For every movement the disc mower must be always disposed in the **TRANSPORT CONFIGURATION**, shown in figure, that is with the equipment lifted of about 30 ÷ 40 cm from the ground, the mobile chassis with the cutting units rotated of about 90° and the safety hook engaged. Such configuration is necessary to permit to the equipment to be contained within the side projection limits, regarding to the longitudinal axle of symmetry of the tractor, allowed from Highway Code.

Before moving the mower into transport position, send away all persons who may be in the manoeuvring area. To position for road transport or for moving from one field to another, carry out the following operations:

1. If the intervention is performed after the disc mower installation then it is necessary start the tractor and pass to point two. If it is performed to the end of the work then it is necessary to verify that the discs are stopped and, leaving the tractor engine on, disengage the power take off



TRANSPORT CONFIGURATION

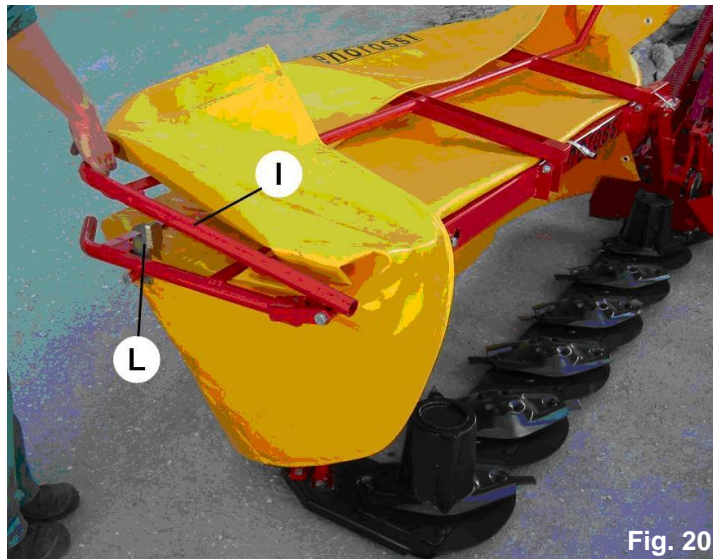


Fig. 20

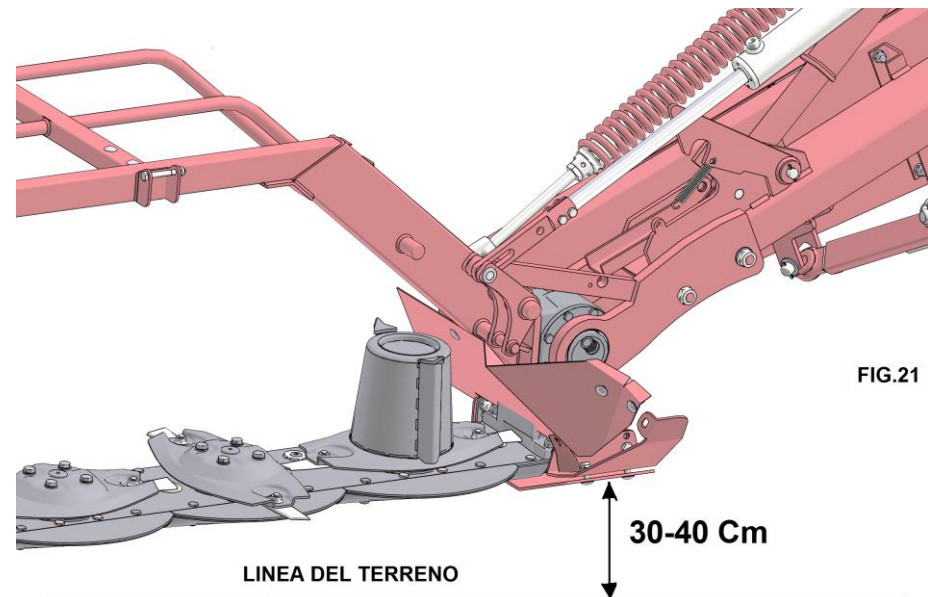


FIG.21

2. turn front guard **I** (**fig. 20**) backward until the fastening point with hook **L**;
3. lift the bar using the tractor's hydraulic lift, positioning lower slide **M** (**fig. 21**) at about 30-40 cm from the ground;
4. bracket **E** must be turned upwards (**fig. 22A**);
5. pull rope **O** (**fig. 22B**) to free lifting lever **P** (**Fig.22B**);
6. Slowly lift the mower to a vertical position, using the hydraulic hitch. Release the traction of cord **O** (**fig. 23**) while raising the bar vertically; it will automatically hook up, for transport, with safety hook **P1**.

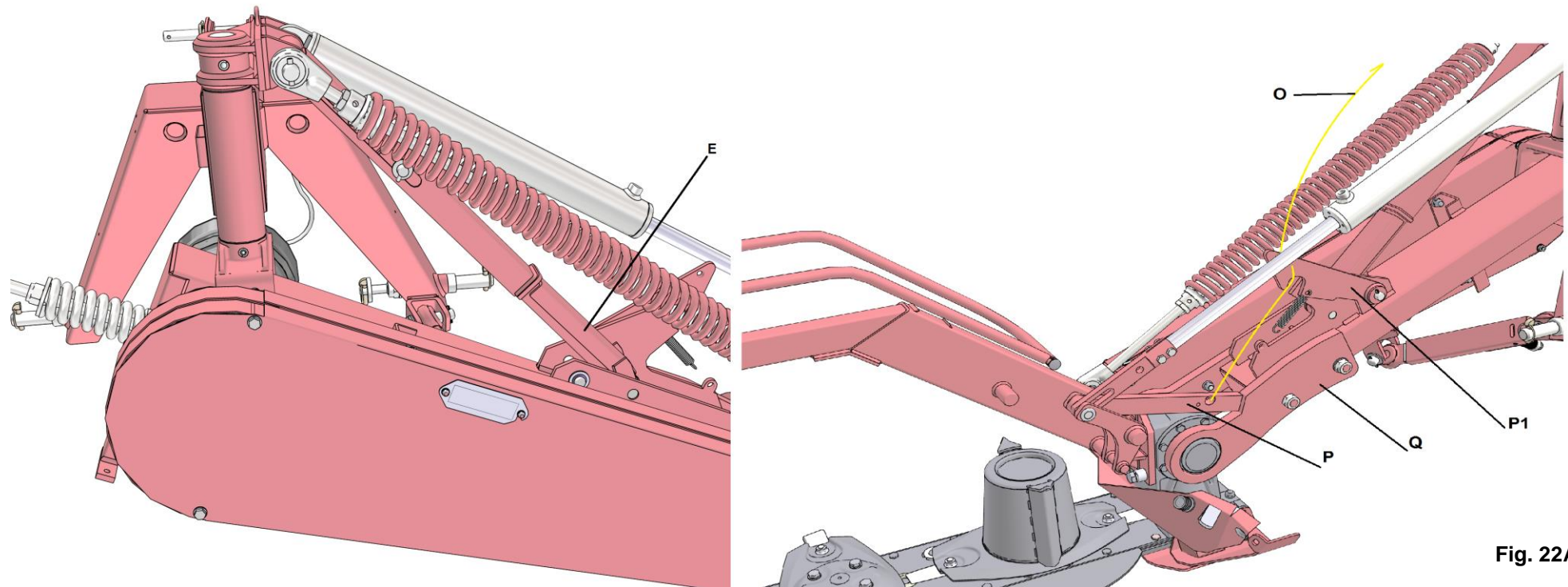
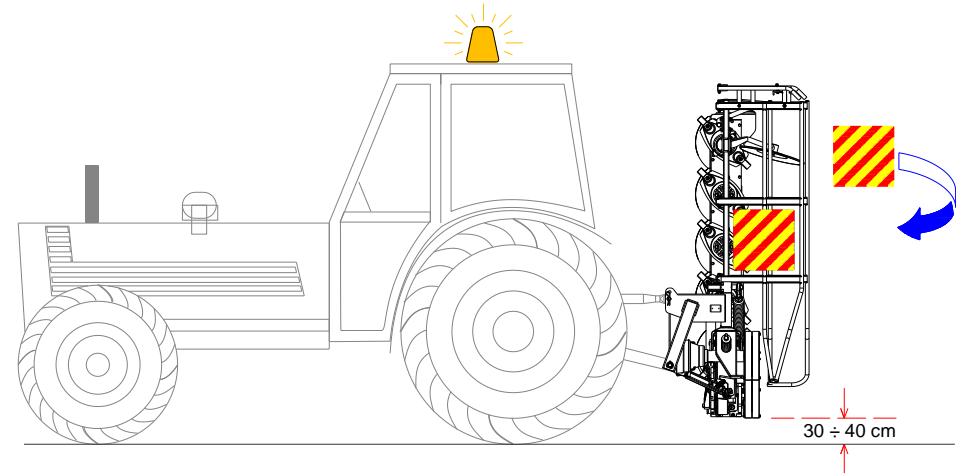


Fig. 22A

For movements within fields, the machinery (tractor and disc mower) does not act any light or sound signals, or any signs to be displayed. Instead, if the movements are effected on public roads, it is important that the following obligations are observed:

- **rear dimensions:** the operator should apply the relevant signs on the disc mower to indicate the rear dimensions of the tractor. It should be noted that the signs must be applied on the three visible sides. The signs should be of an approved type, reflective and fluorescent, with red and yellow stripes. The equipment must result in transport configuration, as in figure.
- **signal dimensions:** the tractor should always have its flashing light device on and proceed at a moderate speed, especially on uneven roads, as the rear weight may make driving difficult;
- **weight:** the total weight of the machinery (tractor and disc mower) must not be greater than 30% of the tractor normal one which is indicated in its log book. In addition, it weigh on the tractor stability. If this should result precarious although the equipment is in transport configuration, it is opportune to consult the use and maintenance manual of the tractor about the necessity to install appropriate ballasts;
- **regulations:** you should be familiar with and observe the road traffic regulations that are currently in force in your Country.



When driving (on the road or in field) and operating the machinery (tractor and disc mower), the operator in the tractor cabin should observe the following precautions:

- **the tractor power takeoff (PTO) must be disengaged;**
- no passengers should be carried on the tractor;
- no persons or animals should be carried on the equipment ;

- before **reversing** with the tractor, he should check that the disc mower is not in the working configuration. If it was, the equipment must be momentarily disposed in the **end field configuration**, that is similar to the transport one described in the chapter "Use and Operation". The equipment may be severely damaged if this configuration was not disposed.

B3 Intended use and warning of employ

The disc mower is an agricultural equipment used to cut any type of forage with stalk. Such moving is obtained by apposite blades, installed on discs, which rotating to high speed. The discs number can vary from 7 to 8 units.

The disc mower operation is obtained both by traction, through the tractor on which the machine is installed, and by the rotation of the cutting blades. Such rotation (maintained in sync by a transmission gears) is supplied by a belt system, in its turn supplied by the tractor power take off, through a cardan shaft. An appropriate jack, supplied by the auxiliary hydraulic circuit of the tractor and controlled from the cabin by a specific lever, provide to put the equipment in the work or transport configuration.

The disc mower must be entrusted only to adult, qualified and trained personnel. Further it must know all instructions contained in this manual. Since these instructions cannot envisage all possible work situations, the personnel must use caution, exercise and respect all safety rules valid.

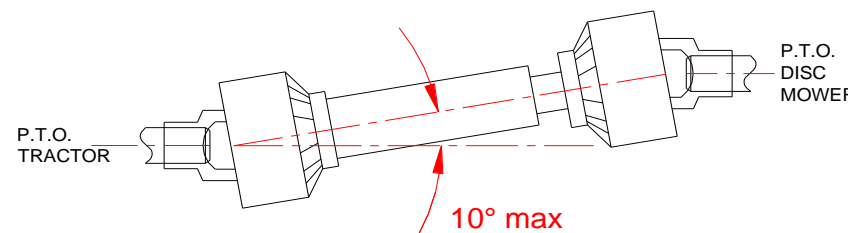
Warnings before using:

- verify the correct installation of the disc mower on the tractor and that all safety and locking devices are present and integral;
- on the tractor P.T.O., verify that the number of revolutions is **540** and with clockwise rotation;
- perform the daily maintenance tasks (described in the relevant paragraph). In this regard it is well to remember that any type of intervention (check, adjustment, maintenance or other) **should always be performed with the equipment stopped, the P.T.O. disengaged and the tractor engine off.**

IMPORTANT

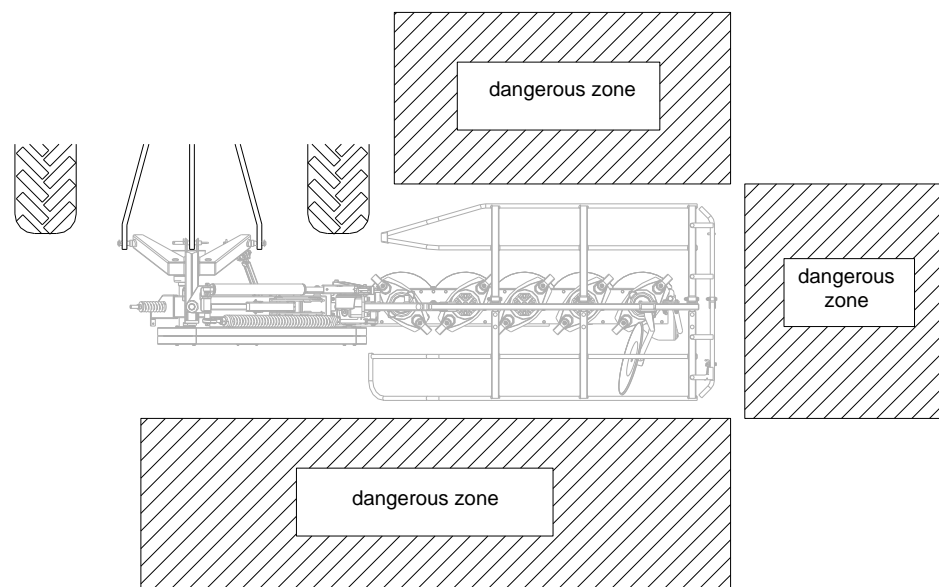
The power takeoff must never not be engaged with the engine off and if between the joints of two connection points (tractor/disc mower) results an angle greater than 10°;

- verify the correct installation of the disc mower on the tractor and that



all safety and locking devices are present and integral. **Is one of these was or a device not approved was installed, the Manufacturer distrusts the Customer to use such shaft because forbidden;**

- do **not** use the equipment if on it are present breakings or damages;
- the lifting of the equipment to ground by the tractor hydraulic lift must be gently performed. A violent impact could damage components and/or structural parts of the equipment;
- verify that people or animals are not present in the dangerous zones of the equipment (shown in figure) because they are exposed to possible hazards;
- the use of the disc mower is allowed only in **good conditions of the lightness and visibility**. If one of these conditions would comes to lack, then it is advisable to stop the machine and to wait until that fog, dust, rain or other goes away.



Warning during the working phase:

- the tractor must always keep a speed not over to 3 km/h;
- also for working breaks, the operator **must not leave the tractor in motion or unattended**. He must always disengage the power take off, engage the parking brake, switch off the tractor engine and remove the keys from the dashboard;
- during the working breaks, the operator must not allow unauthorized and/or unqualified persons to substitute him;
- before **reversing** with the tractor, the operator should check that the disc mower is not in the working configuration and, in addition, it must be lifted about 30 cm from ground. Otherwise, the equipment could be seriously damaged;
- the disc mower operation does not produce a noisiness to require the use the individual acoustic protection (as earplugs, earphones, etc.). Instead, for that one produced from the tractor, consult its use and maintenance manual.

The working process must be stopped immediately if:

- the equipment is near to resistant objects as manholes, guard-rails, railway tracks etc. The impact could cause the blade breaking and its splinters will be thrown over the place at high speed;
- wires, chains or anything else are twisted round the one or more disc rotors. To avoid the cause of damages or dangerous situations, it's mandatory to stop the rotor rotation, disengage the power take off, switch off the tractor engine, insert the parking brake, remove the starting keys from the dash board and proceed, observing the required safety rules, to remove the foreign matter from the rotor;



it's absolutely forbidden to clear out the rotor while the tractor engine is on;

- vibrations of the cutting bar are noticed. Stop the rotor rotation to avoid causing breaks or serious damages and remove the problem observing the required safety rules;
- oil leakage occurs. Do never seek the leak with bare hands, but use a rag and protective gloves. The oil under pressure could penetrate in the skin and cause serious infections.

Vibrations: those produced by equipment are of low intensity and have a frequency level inferior to the one that the human body supports. **However, it is important to keep the transmission devices and the gears always lubricated. Furthermore, it is opportune to verify often that the bolts are tightened so as to avoid vibrations.**

B4 Reasonably foreseeable misuse and limit of employ

A use of the disc mower different from that one described in the previously paragraph is considered improper and therefore **forbidden**. In addition, the technical characteristics of the equipment must not be modified in any way to alter its performance. **Otherwise, both the equipment warranty and the Manufacturer's liability would immediately become void.**

Visibility: if conditions of insufficient **visibility** (fog, dust, smoke or other) are present: it is advisable to stop the tractor and to wait until that fog, dust or other goes away. Operate at the same way in case of **rain**.

Dangerous zone: if, during the working process, a people or an animal go in one of the **dangerous zone** (shown in previously paragraph) the operator must immediately to stop the rotor rotation, disengage the power take off, switch off the tractor engine, insert the parking brake, remove the starting keys from the dashboard and provide to eject the intruder. At the same way during the adjusting and/or maintenance tasks, the people must not stay or move in the proximity of the equipment.

Do not use the disc mower if:

- the forage to mow results damp. In these conditions it, getting sticky, accumulates itself on the blades of the equipment limiting the functions and increasing them wear. **If this happens, both the machine warranty and the Manufacturer's responsibility will be immediately void;**

 **HAZARD**

- **it must operate near roads or building. In these cases, in addition to damage the blades and the rotating discs, a consequent and dangerous other materials or stone throwing could occur;**
- it must operate on ground **much stony** and in particular way if the stones have considerable dimensions with diameter over than 10 cm. **Otherwise, the operator must imperatively use the safety helmet;**
- it must operate on ground with **many shrubs**.

For every doubts about the use of the equipment call the Manufacturer.

B5 Operator's responsibility and safety

The operator is directly responsible of the injury caused to himself, to other people, to animals or to thinks if he operates to a improper use of the machine or not corresponding to the instructions described in this manual. In these cases and for those ones described in the following precautions, the Manufacturer's responsibility is void.

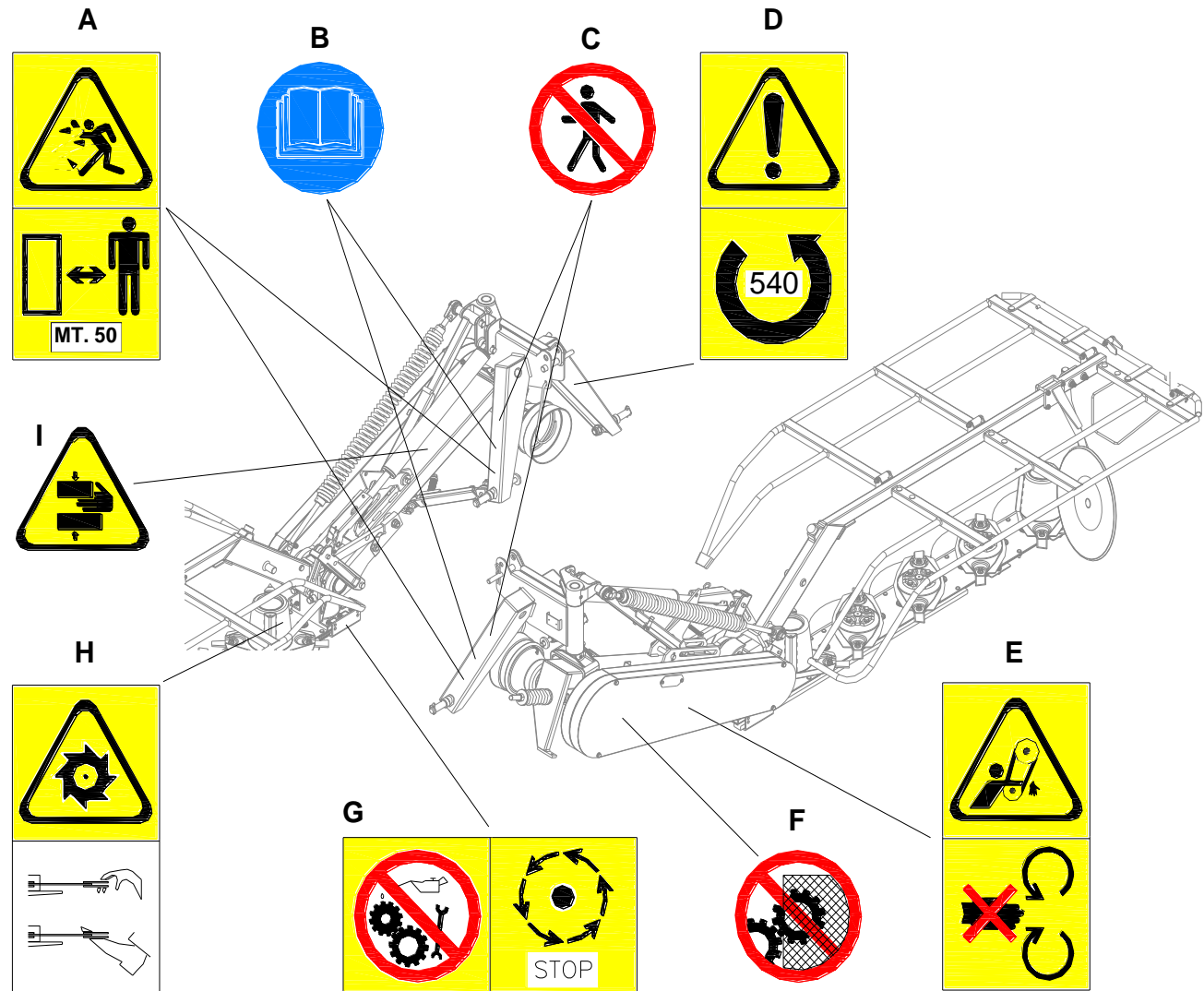
Precautions that the operator must to observe before and during using the disc mower:

- **must NOT** use the equipment if he does not know its operation. Before using the disc mower, he must be acquaint yourself with all control levers, placed on the tractor, and to learn the corresponding functions and to know the operating sequences of these ones. Therefore, before to begin the work, he must always verify the functionality of all control levers and them correct performance;
- **must NOT** wear clothes could hitch on the rotating elements;
- **must NOT** never use the equipment when he is under the effect of the alcohol, medicine or drugs.

Further to the instruction in this manual, there are adhesive labels on different parts of the equipment to make the job easier for the operators and that. These labels represent the safety rules to observe. They have the purpose to draw attention and to inform the personnel about them dangerous grade.

They vary in shape and colour, depending on the rules they are related to. The operator needs to know that circular labels stand for **obligation** (blue and white) or **prohibition** (red, white and black). The triangular labels stand for **danger** (yellow and black). Other rectangular labels emphasise warning of danger and supply more information about the safety rules need to be observed. The rules illustrated by the labels placed on the disc mower are:

- A. danger of other materials or stone throwing.** It is absolutely forbidden for people to be in the working area (see dangerous zones – paragraph B3) while the equipment is operating because a objects throwing (stones or other materials) could occurs. Get people to take a safety distance of at least 50 m;
- B. obligation to read the use and maintenance manual.** The reading should take place before any use of the disc mower;
- C. prohibition to enter and/or move in the working area:** it is absolutely forbidden to enter and/or move in the working area of the equipment when it is operating (see dangerous zones – paragraph B3). The operator must immediately to stop the rotor rotation, disengage the power take off, switch off the tractor engine, insert the parking



brake, remove the starting keys from the dashboard and provide to eject the intruder;

- D. danger of gear breaking.** Verify on the tractor power take off that the number of revolutions is **540** and with clockwise rotation;
- E. danger of upper limb serious lesions.** It is absolutely forbidden to adjust or replace the belts when the equipment is operating. The intervention must be performed with the P.T.O. disengaged, the tractor engine off and the keys removed from the dashboard;
- F. prohibition to remove carters.** It is absolutely forbidden to remove the belt carter. Its removal must occur to adjust or replace the belts alone. It is advisable to remember that these interventions must be performed with the P.T.O. disengaged, the tractor engine off and the keys removed from the dashboard;
- G. prohibition to perform repairs or maintenance with parts in motion.** It is absolutely forbidden to adjust, lubricate, repair or replace parts in motion. In addition, it is essential to wait that the rotating discs are stopped to work on them. These interventions must be performed with the P.T.O. disengaged, the tractor engine off and the keys removed from the dashboard;
- H. danger of upper or lower limb amputations.** It is absolutely forbidden to approach hands or feet to rotating discs when these are operating. The interventions to discs must be performed with the P.T.O. disengaged, the tractor engine off and the keys removed from the dashboard;
- I. danger of crushing and/or severance upper limbs:** if it is necessary to work with the tractor engine on, pay particular attention and act with great caution. Use protective gloves.

IMPORTANT

The pictograms and instruction labels must necessarily be replaced before they become illegible. If this happens, the operator cannot use the equipment until a new label is applied. Similarly it is utterly forbidden to remove the pictograms or instruction labels placed on the disc mover. In any circumstances in which this occurs the Manufacturer disclaims all responsibility because the equipment would not meet the safety standards with which it was designed and built.

B6 Noisiness

The noise produced from the equipment is due to mechanical movements of its rotating discs. Therefore, it results of low intensity respect to ones produced from the tractor on which it is installed. Consequently, it is not mandatory the use of the individual acoustic protections as earplug, earphones or other. Instead about the noise produced from the tractor engine, it is opportune to consult the relative use and maintenance manual.

INSTALLATION

C1 Assembly of disc mower

To facilitate shipments of the machines, several parts have been disassembled to reduce the shipping dimensions. To reassemble, proceed as follows:

- open the case and lay the mower disc bar flat, as indicated in **fig.C1**;
- turn the frame and the 3rd point using a lifting device (hoist, lift truck, etc.) and position the mower disc bar as in **fig.C2**.

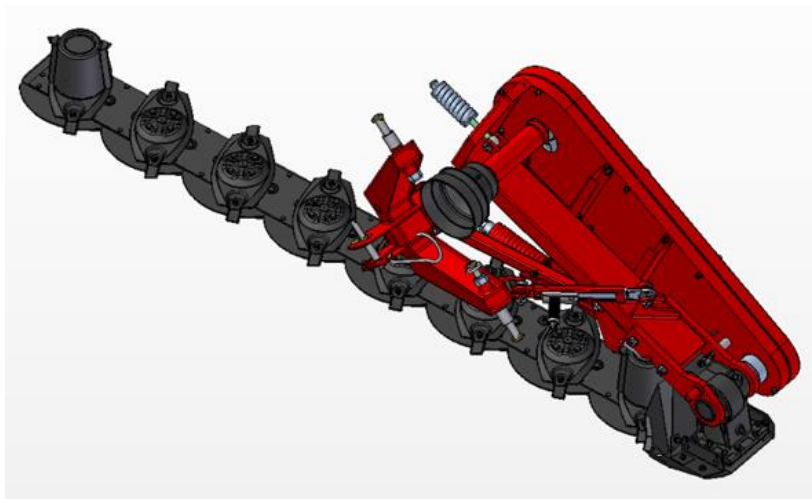


fig.C1

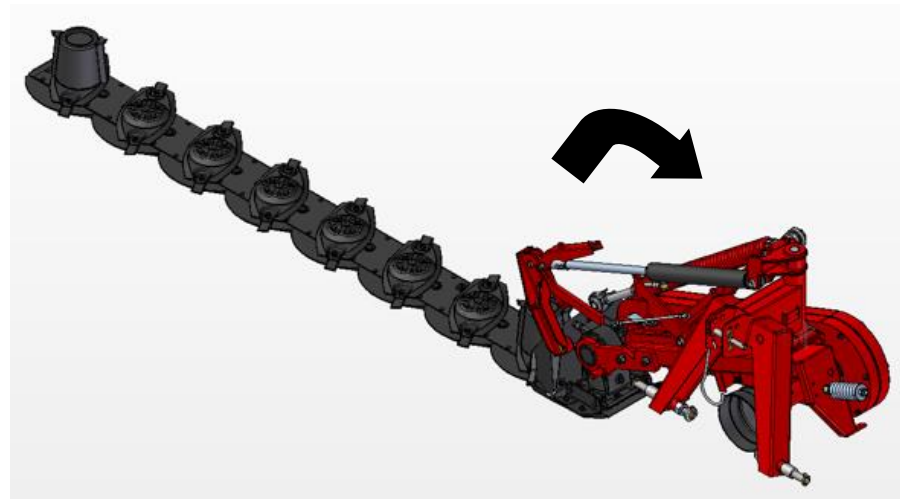


fig.C2

1. Assembly of the protection support :

Mount protection support **A** in gear case **B** . First of all, connect the lifting rod hole to support **D** (fig.C4a) . Fasten the support with screws **C** (screw T.E. M12x50 and washer M12 **Y** and spacer **J**).

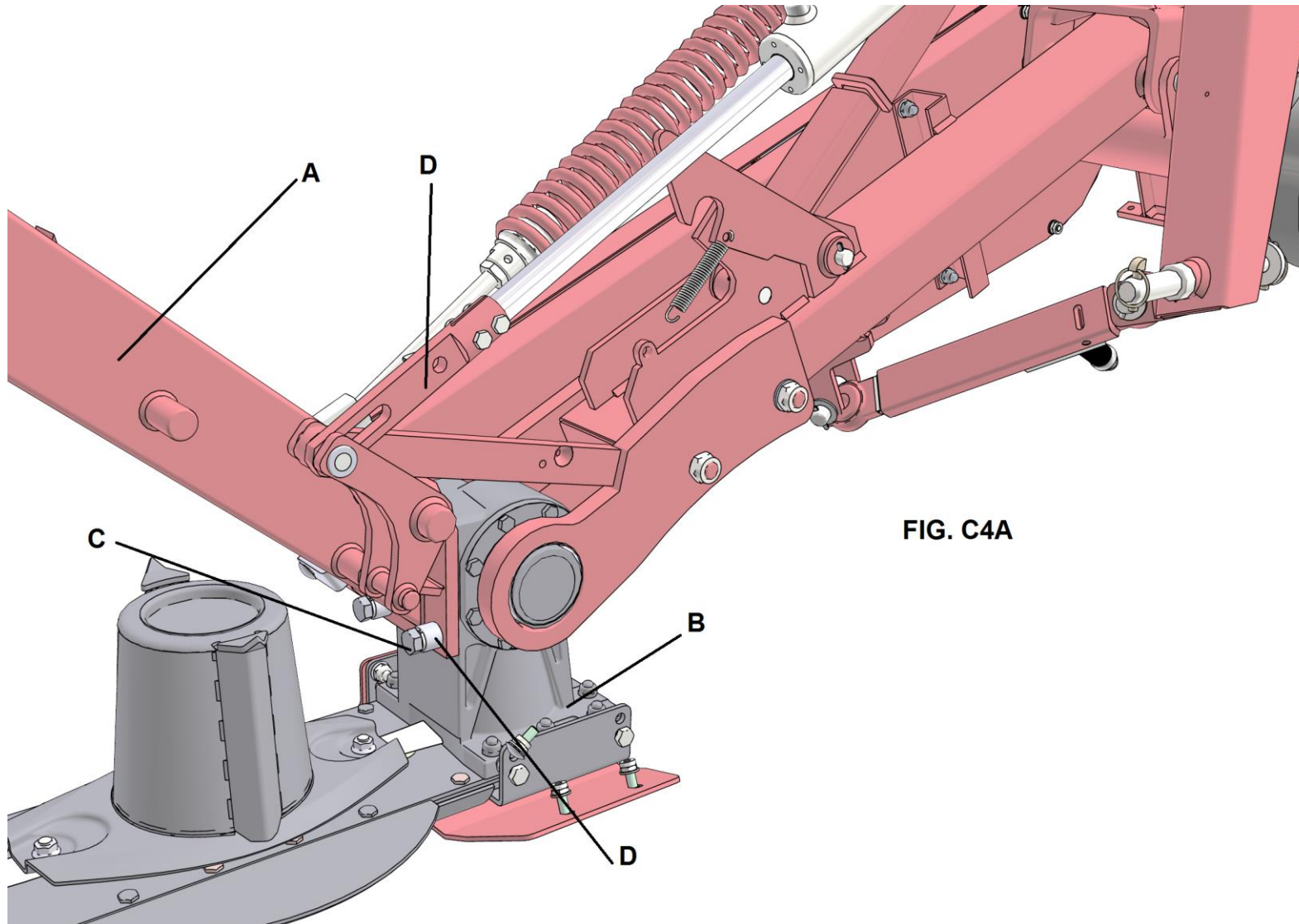
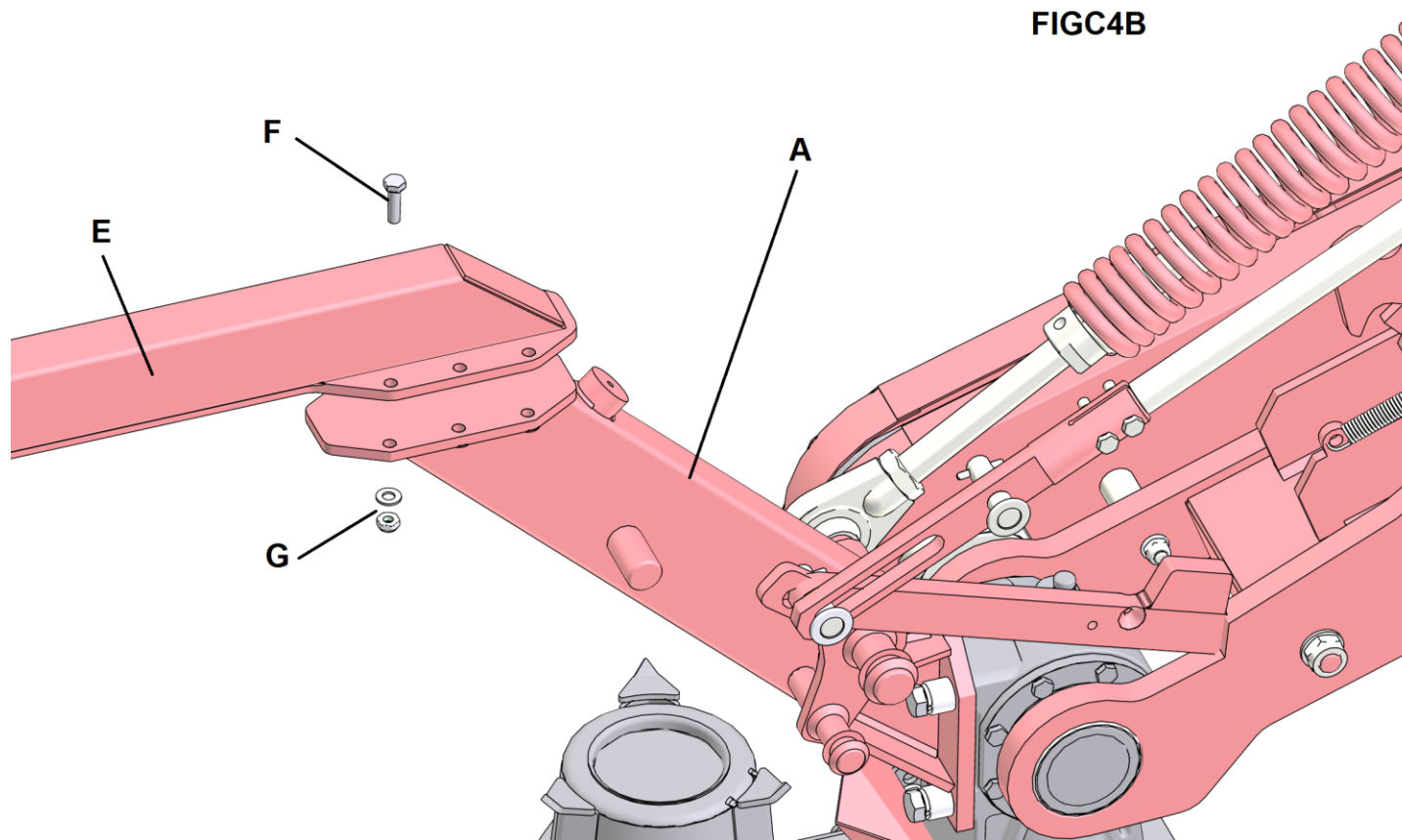


FIG. C4A

2. Assembly of the protection bar :

Position the protection bar **E** in support **A** (fig.C4b) and fasten it with six screws **F** (screw T.E. M10x35), six washers, and six self-locking nuts **G** M10 (only on DM-P series).



3. Assembly of the support rod and support for high grass:

Mount support rod **H** and support for high grass **W** (**fig.C5**), and fasten respectively by screws **Y** (T.E. M10x70 + 2 self-locking nut M10 and washers), and screws **V** (T.E. M12x90 + 2 self-locking nut M12 and washers) and screw **N** (T.E. M12x40 + 4 self-locking nut M12 and washers).

4. Assembly of the side rake disc:

Fasten rake disc unit **I** on the central bar **M** (**fig.C5**). Fasten it by using screws **P** (T.E. M10x70 + 2 self-locking nut M10 and washers) and plate **Z** (115x95x10) (**fig. C5**)).

Make sure the rake disc does not touch the cone cover and blades (**fig.C6a**). Observe the safety distance $X =$ from 15 to 25 mm. (**fig.C6b**).

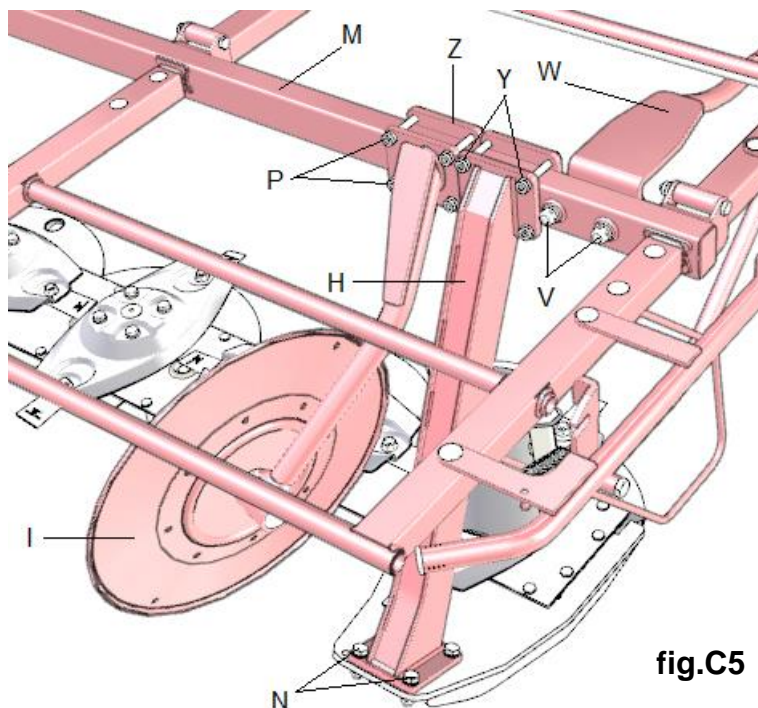


fig.C5

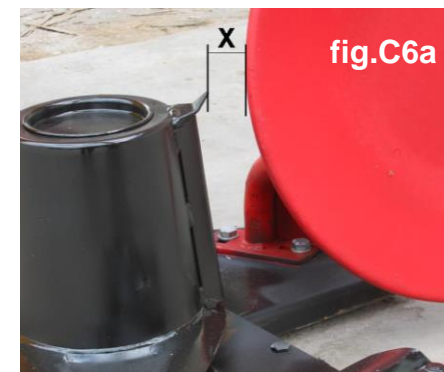


fig.C6a



fig.C6b

5. Assembly of the internal cone disc:

Mount internal cone disc **M** (**fig. C7**) so that the largest dimension is oriented perpendicular to that of the nearby disc, as shown in figure.

6. Assembly of the lower slide and protection plate:

Lift the mower and mount the lower slide **N** and slide tip **O** (**fig.C8a**). Fasten them with four screws **P** (T.E. 12x30 + self-locking nuts + washer $\varnothing 12$) and two screws **Q** (TTQS M10x25 + washer M10+ self locking nut M10).

7. Assembly of internal protective flap:

Mount flap **R** protecting the gear case (**fig.C9**) and fasten it with connecting bracket **S** and three screws **T** (TTQS M10x25 + washer M10 + washer + self locking nut M10). To facilitate assembly of flap **R**, it is advisable to insert all screws before starting to tighten them. Attach sheet A1 A3 screw (M12x30) washer and A2 (M12) to the frame and strap R.

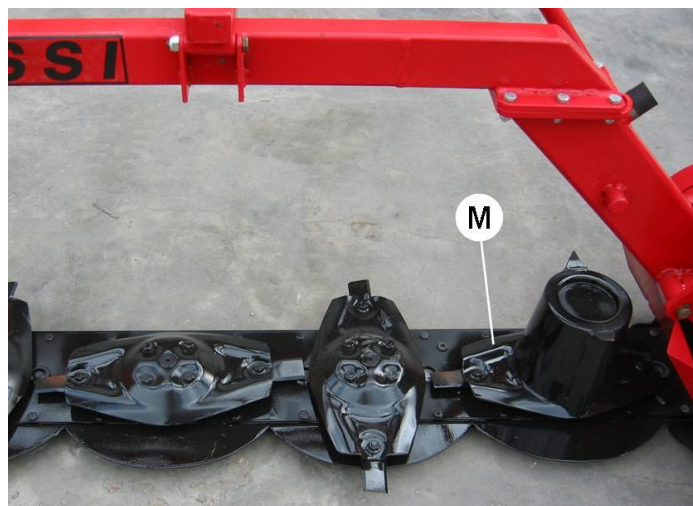


fig.C7

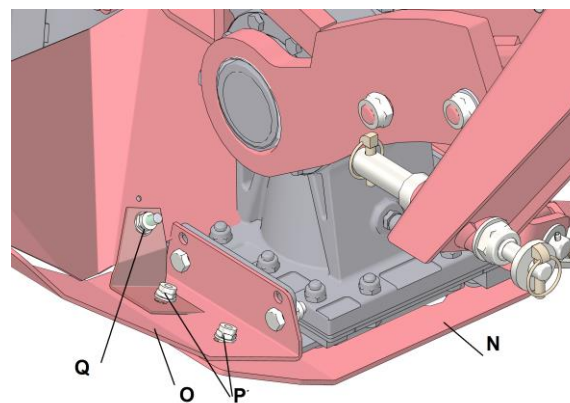


fig.C8a



fig.C8b

8. Assembly of the belt protection case:

Mount case **U** (fig.C10), fasten with screws **V** (T.E. M10x120), washers and self-blocking nuts (M10).

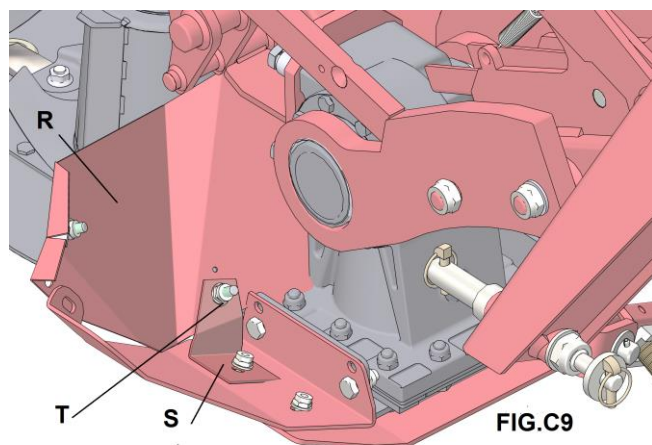


FIG.C9

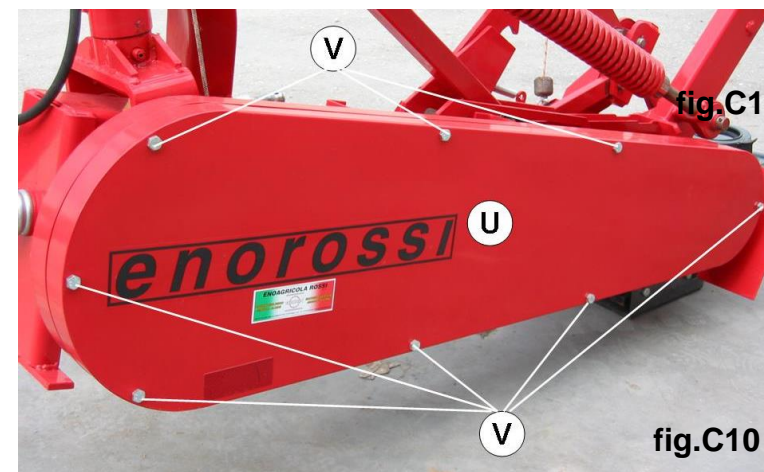
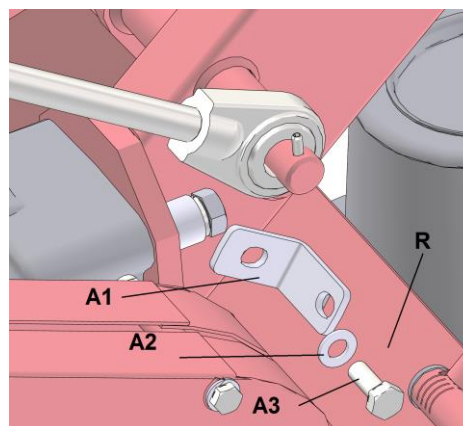
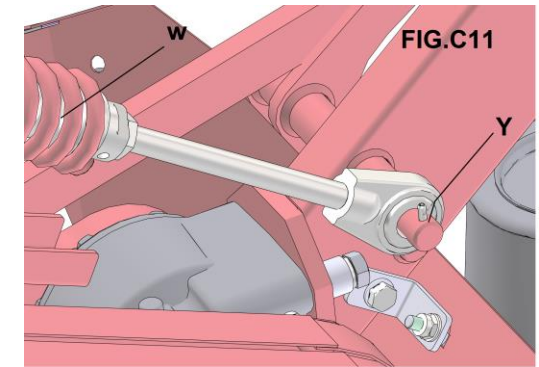


fig.C10

fig.C10

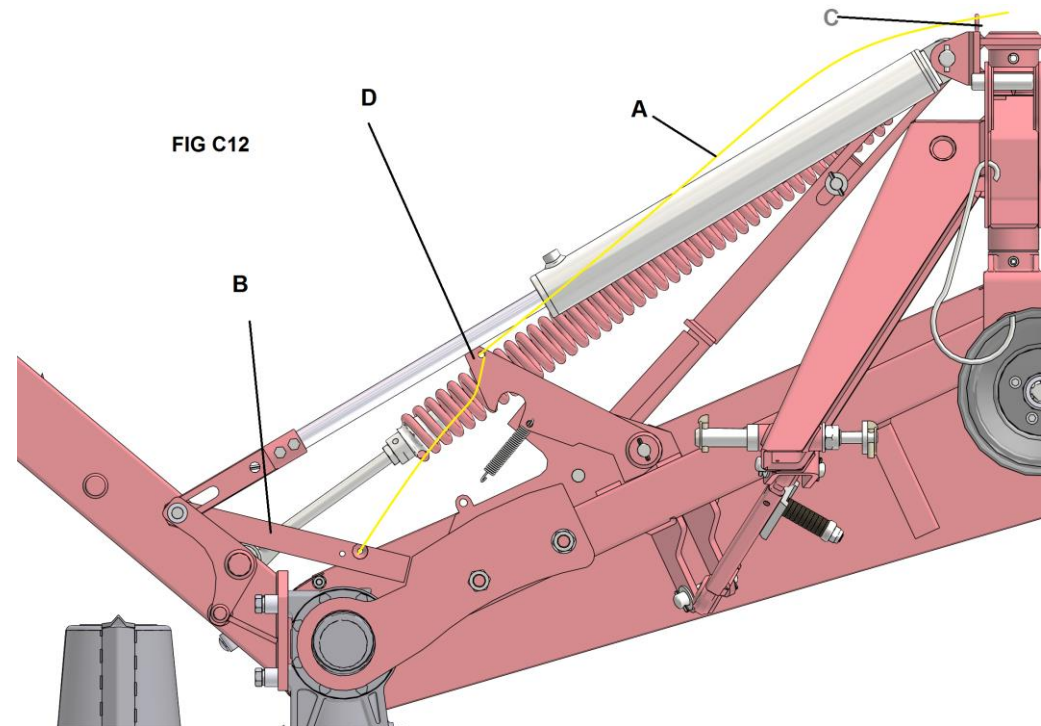
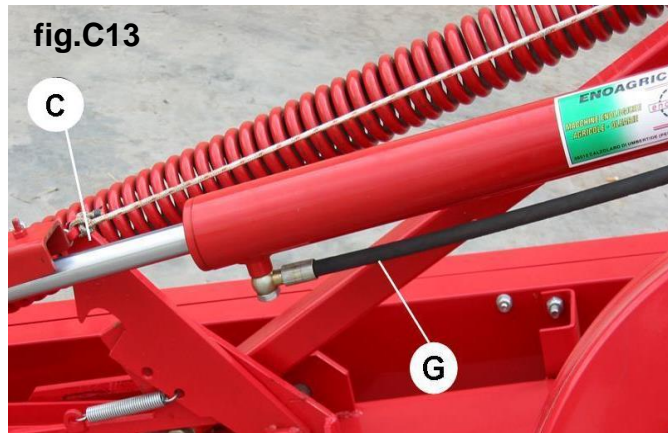
9. Assembly of the compensating spring:

Hook spring **W** (fig.C11) on pin **Y** of the protection support and fasten it with an elastic pin \varnothing 6x40. To facilitate this operation, attach the machine to the tractor. By using the hydraulic lift of the tractor, lift the bar until the support hole is aligned with pin **Y** (fig.C11).



10. Assembly of the release cord:

- Insert rope **A** (fig.C12) through ring **B** and make a knot;
- Insert rope **A** to ring **D** (fig.C12) and make a knot in order to keep length of rope between **B** and **D** stable;
- connect hydraulic pipe **G** on the hydraulic piston, with the perforated screw, positioning the copper washers (fig.C13).



11. Assembly of protection guards:

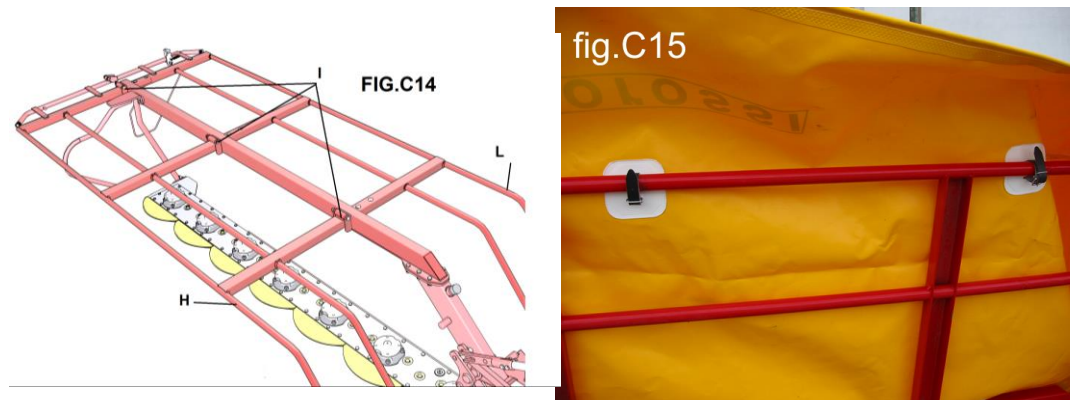
Mount front guard **H** (fig.C14) on the three hinges and fasten with screws **I** (T.E. M12x100) and self-locking nuts M12 + washer.

Mount rear guard **L** (fig.C14) with six screws **M** (TTQS M10x25) and self-locking nuts M10.

Assemble the protection guard frame and fasten it to the supporting structure using the ties found under the tarpaulin (fig.C15).

Assemble the protection rod for tarpaulin **N** (fig. C16) and at the same time assemble (Fig. 16) front handle **O** and rear handle **P**, as in fig.C16..

Fasten handles (rear **P** and front **O** - see fig.C17) **P** with screws **Q** (TTQS M10x35), washers, and self-locking nuts M10.



12. Assembly of the blade:

Check the rotation direction of the discs. Each blade has an arrow indicating the rotation direction. After tightening the screw and nut, make sure the blade can rotate freely from the oval disc (fig.C18).

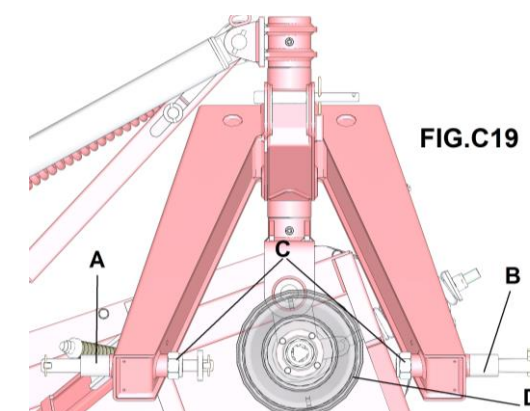


13. Assembly of the protective guard:

Insert the guard **D** into the power takeoff tube and fasten with the band screw T.E. M8x16 and washer M8x24 (fig.C19).

14. Assembly of the attachment pins:

Insert pin **A** Ø40x274 on left side; insert pin **B** Ø40x219 on right side. Fasten the pins using nuts **C** M24 + washers Ø24.



15. Assembly of bearing foot (fig.20):

- Place the support of bearing foot (49) on the equipment chassis, as shown in figure, and fix by using the relevant screws (48) and nuts (46);
- Remove the split pin (50) and the safety pin (51) from the bearing foot. – Insert the bearing foot (52) in its support (49). – insert the split pin in the higher hole of the bearing foot and lock the same foot, in the suitable position, by inserting the safety pin in the corresponding hole;

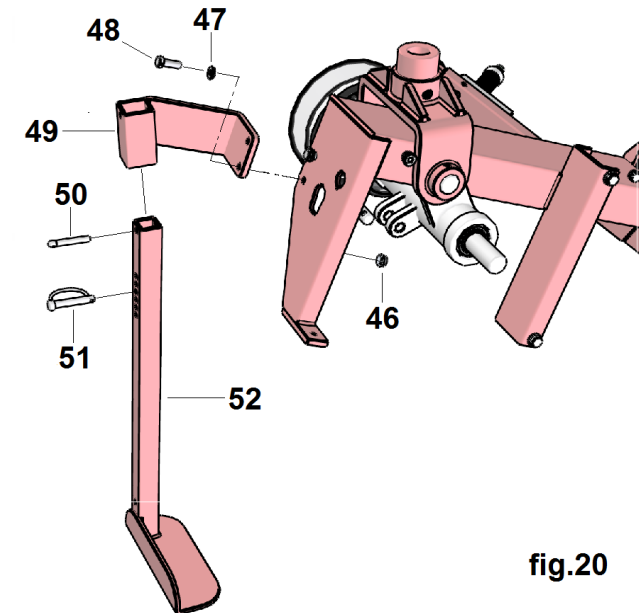


fig.20

C2 Installation of the disc mower to the tractor and working configuration

Disc mower of our production can be installed on all the tractors equipped with a universal three-point hitch, with a hydraulic lift and of the technical requirements (power, P.T.O., rpm, etc.) that each disc mower model requires (see table page 7).

In order to perform the installation, it is necessary to put the machine within an area of even surface prepared for the operation. The operators who perform the job must be acquainted with the safety rules relative to the installation and must work with the greatest attention and caution.

The operator must completely lower the tractor hydraulic lift and then approach the disc mower slowly to perform the alignment procedure.

IMPORTANT

the alignment of the holes of the tractor attachments with those coupling on the disc mower chassis (operation called centering), must be always performed with extreme caution .

At the end of the manoeuvre, stop the tractor, leave the lift in the low position, insert the parking brake, disengage the traction control system and remove the keys from the dashboard.

After that, the operator provide to:

1. Insert the arms of the tractor hydraulic lift **A** (fig.C21A) into lower attachment pins **B** and fasten them with split pins;

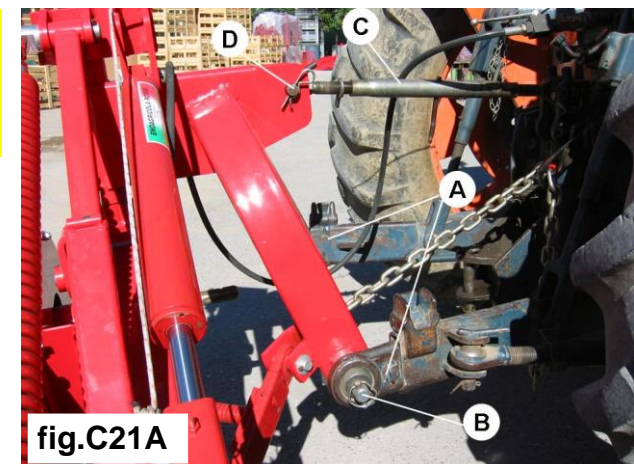
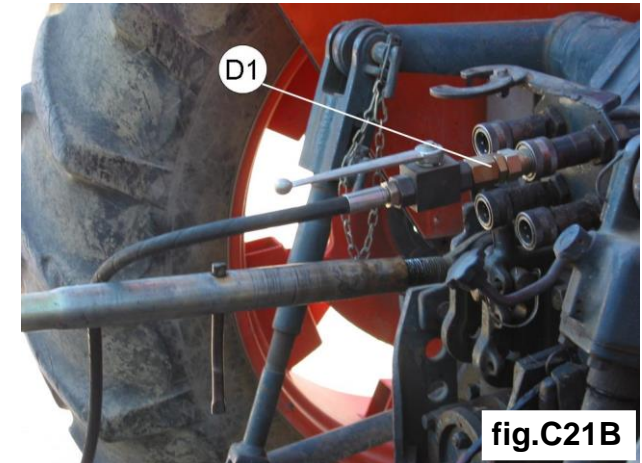
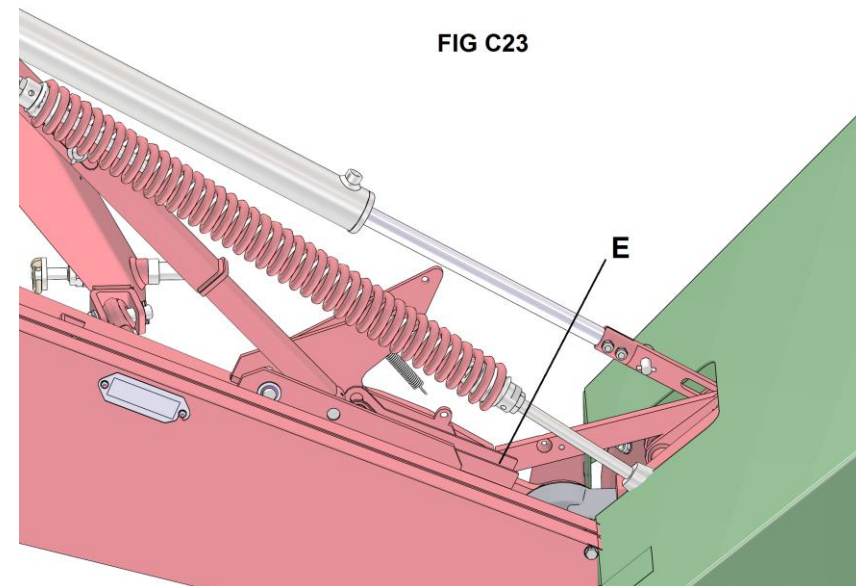
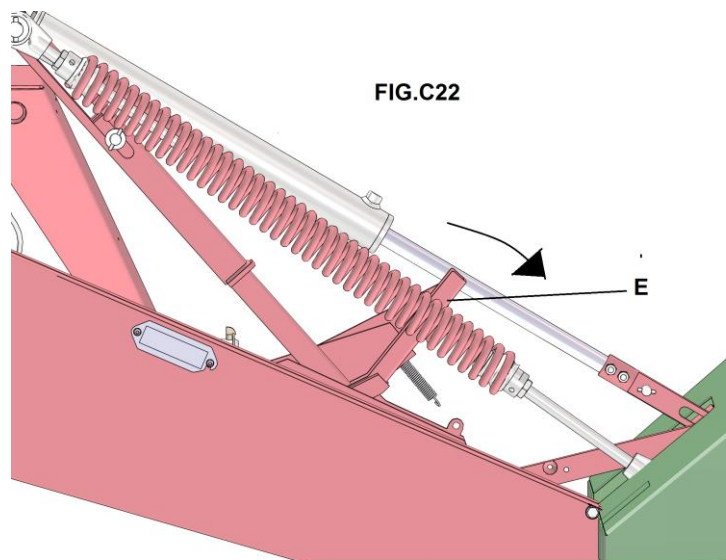


fig.C21A

2. Insert the adjustable tie rod of tractor **C** in the seat of the three point of the disc mower. Insert the locking pin (**D - fig. C21A**) and lock it with the relative safety-pin;
3. Verify that the equipment chassis is **perfectly vertical**, otherwise to provide to adjust it by unscrewing or screwing the body of the tie rod. After that tighten the lock nut. lock the arms of the hydraulic lift with the tie rods or the chains, with which they are equipped.
4. Connect the hydraulic pipe of the bar jack **D1**, equipped with quick coupling, to the rear distributor of the tractor (**fig.C21B**);
5. Install the cardan shaft to the tractor P.T.O. and to disc mower one. The instructions relevant to the adjustment and installation of the cardan shaft are described in the proper use and maintenance manual. - Before installing it is advisable verify that the tractor P.T.O. is setting to 540 rpm and with clockwise rotation;
6. lift the machine by using the hydraulic lift and turn edge **E (fig.C22)** downwards.

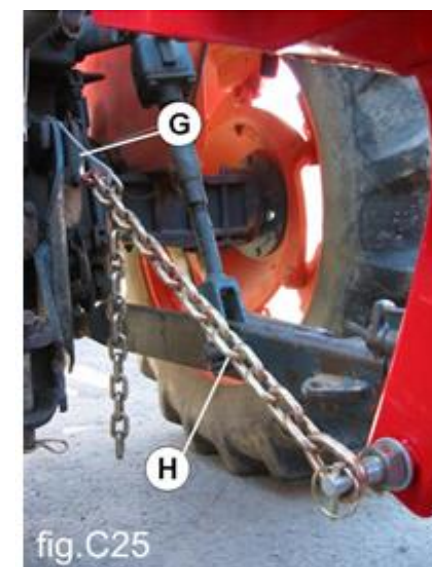
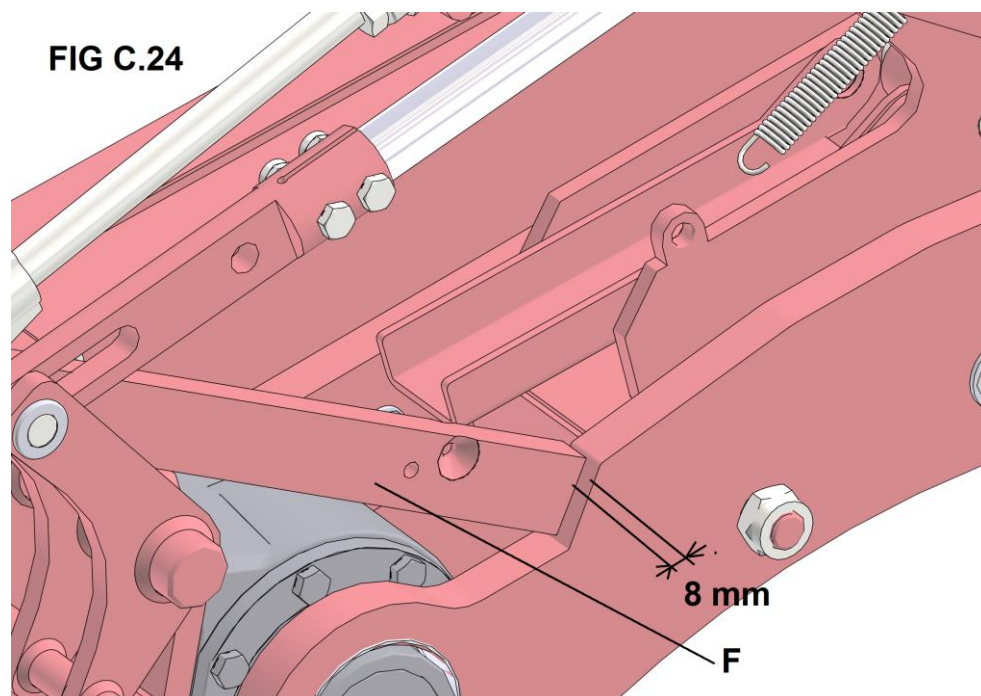


IMPORTANT: During work bracket **E** must **always** be turned downwards as shown in **fig.C23**.



7. Adjustment of frame height from the ground:

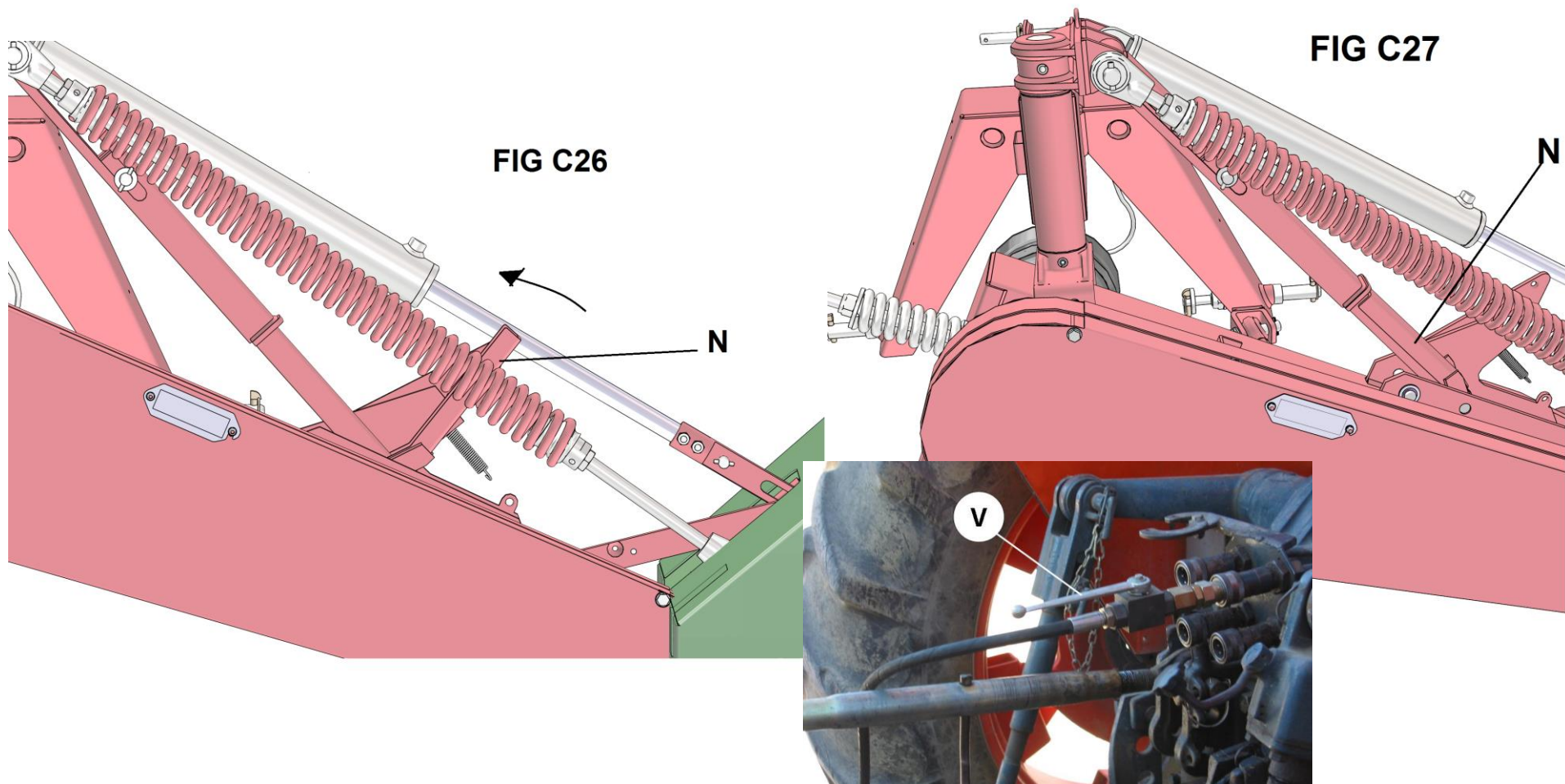
- a. **for tractors equipped with hydraulic lift position control:** Position the tractor on level ground and lower the hydraulic lift until the lifting lever **F** (fig.C24) is positioned at a distance of 8/10 mm from the edge, as shown in (fig.C24). After that, set the lift control from the tractor driver seat. In this case it is not necessary to use the limiting chain supplied with the machine
- b. **for tractors not equipped with hydraulic lift position control:** the chain **H** (fig.C25) supplied with the machine must be used. Fasten bracket **G** (fig.C25) and the limiting chain **H** supplied, to one of the free holes of the tractor's third point (fig.C25). Lower the machine to work position, until lifting lever **F** (fig.C24) is positioned at a distance of 8/10 mm from the edge, as shown in fig.C24. Limiting chain **H** must be taut, as shown in fig.C25. Mark the link hooked to the clamp **G** (fig.C25).



NOW, THE DISC MOWER IS IN WORKING CONFIGURATION.

C3 Removal of the mower from the tractor

1. Using the hydraulic hitch, lower the disc mower to a horizontal position.
2. Lift 3 point hitch to disengage the chain;
3. Unlock bracket **N** (fig.C26) and turn it upwards (fig.C27);
4. Lower the tractor's hydraulic lift, to lower the machine to the ground ;
5. Disconnect the third point and remove the hydraulic tube, closing the tap **V** (fig.C28);
6. Disconnect the towing bars and cardan shaft.



C4 Storage of the disc mower

- Park the equipment in a safe and covered site and that it be a solid and flat surface.

Nota: *avoid to park the equipment in sites not covered because the humidity, also if it does not effect its operation, allows in way more evident the rusty formation on the parts. Such formation will be possible also after an equipment washing.*

- Make certain that people or animals do not entry in the parking area;
- In the parking area: put the disc mower in transport configuration and lower both the bearing foot and the folding bearing foot. – After that, low the disc mower to ground by tractor hydraulic lift;
- On tractor: switch off the engine and insert the parking brake;
- Remove the equipment from tractor following the instruction described in the paragraph C4;
- Start again the tractor engine, remove the parking brake and move away the tractor from the disc mower;
- Protect the equipment with a tarpaulin.

OPERATING and USE

D1 Preliminary checks

A appropriate and optimum use of the disc mower, other than to prevent the accidents, is the one way to obtain a high productivity so to individuate its true potentiality and performances.

The equipment, as already said, must be entrusted only to an adult, qualified and trained operator. Consequently, he must perfectly know all instructions contained in this manual and those illustrated by the labels. Since these instructions cannot envisage all possible work situations, the personnel must use caution, exercise and respect all safety rules valid.

In the field, before working it is necessary to perform the following preliminary checks:

- verify that all disc mower parts are in them correct positions and securely fastened;
- verify that the equipment is correctly installed on the tractor ;
- verify the efficiency of the guards and that the transmission is not blocked or hindered by cleaning and removing any unwanted particles ;
- perform the daily maintenance checks described in the relative paragraph .
Note: *if the equipment has been out of use or in storage for an extended period of time, make certain that it has undergone normal maintenance procedures and that conditions in storage or climate have not damaged;*
- start the tractor engine and put the disc mower in working configuration observing scrupulously the following instructions:
 - before moving the mower into the work position, send away all persons who may be in the manoeuvring area;
 - to switch the bar from transport position to work position, carry out the following operations (see fig.C21 – pag.26);
 - a. give pressure to the hydraulic hitch to lighten the weight on safety hook **P1 (fig. C30)**;

- b. pull cord **O** (fig.C30) to free the bar from safety hook **P1**;
 - c. lower the mower using the hydraulic cylinder until it reaches the work position;
 - d. turn the front tarpaulin carrier over forward (fig.C31);
- Check the height of the chassis from the ground. Lifting lever **F** (see fig. 24, page 20) must be positioned at a distance of 8/10 mm from the edge



fig.C30



fig.C31

D2 Operation

The working process, that is the forage mowing, is performed by blades of the rotating discs. These ones receive a uniform and continuously apposite gears (installed in series) connected to a transmission box. Such box is connected to the equipment power take off through transmission belts. A cardan shaft provide to transfer the rotating motion from the tractor power take off to the disc mower one. **Therefore, the disc mower can operate only if the tractor engine is on and the P.T.O. is engaged.**

IMPORTANT: NO NEVER INSERT the power take off with the tractor engine off.

D3 Use

The rotating discs begin to rotate by engaging the tractor power take off. It is advisable to do idle all disc mower components for some minutes so that to verify suspect vibrations or noises.

Observe always the following precautions and those ones described in the paragraphs B3 and B4:

- the advancement speed must be appropriate for the working conditions. Before changing of direction reduce the speed;

- **IMPORTANT** : do not mow in extremely stony or rocky areas ;
- **at end field:** it will not be necessary to put the disc mower in transport configuration, but it will be enough to lift the bar with the discs, as shown **fig.C32**. Raise the mowing bar using the hydraulic cylinder until the cylinder edge **R** reaches its limit (**fig.C33**).



fig.C32

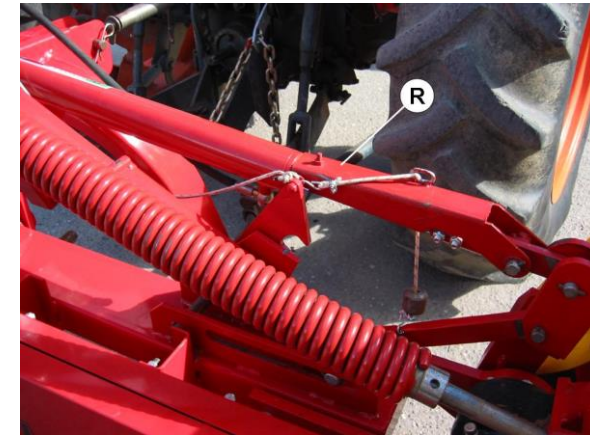


fig.C33

After a few meters, check the working process and if it is necessary to perform the opportune adjustments. The instructions related to these adjustments are described below.

D3.1 Adjustment of cutting height

The maximum and minimum cutting heights are obtained by changing the tilt of the mowing bar, by varying the length of the third point **C** (**fig.C34**), until the desired cutting height is obtained. The minimum height must be no less than 30 mm.



fig.C34

D3.2 Adjustment of the side rake disc

Position the rake disc in order to have the greatest distance between the uncut forage and the windrow. To set the disc in the correct position loosen the 4 screws pos. A (fig.C35) and move to right or left the disc support see fig.34. Once you reach the right position fasten the 4 screws pos. A

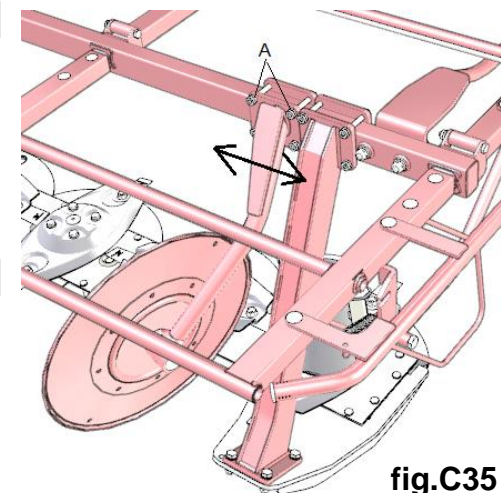


fig.C35

D3.3 Adjustment of the safety hook

If the mowing bar hits an obstacle during work, the safety hook **W** (fig.C36) opens and allows the mowing bar to shift backward. In this case, immediately stop the tractor and disconnect the power takeoff. The safety hook is again hooked by backing up.

Note: Check that all moving parts are well greased. If an obstacle is struck, check to make sure the mowing bar has not been damaged.

The distance **T** (fig.C37) of the washers to spring **A** must be 95 mm.

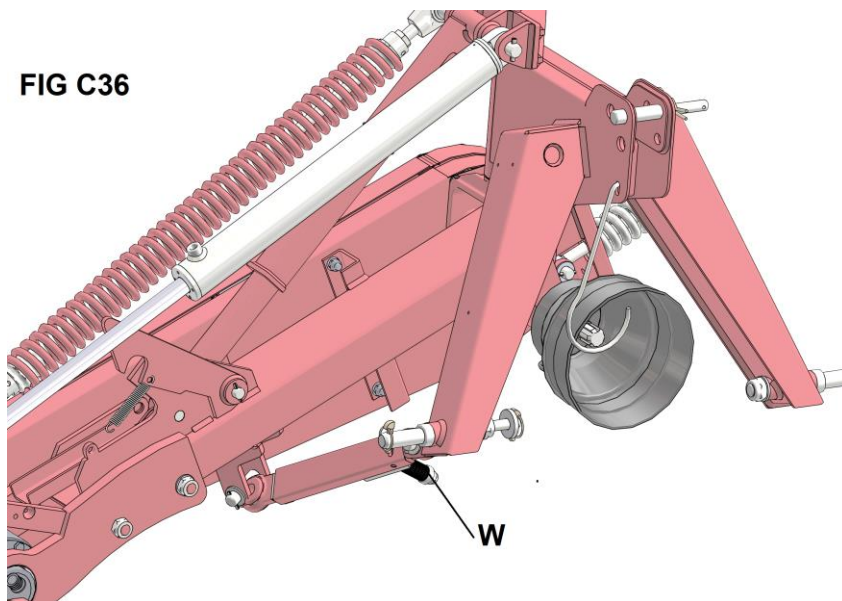


FIG C36

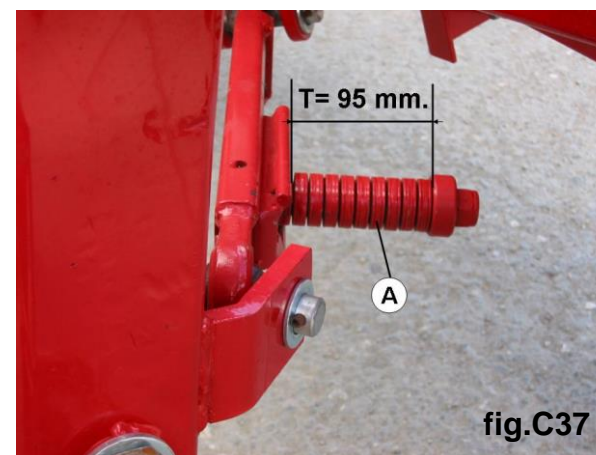


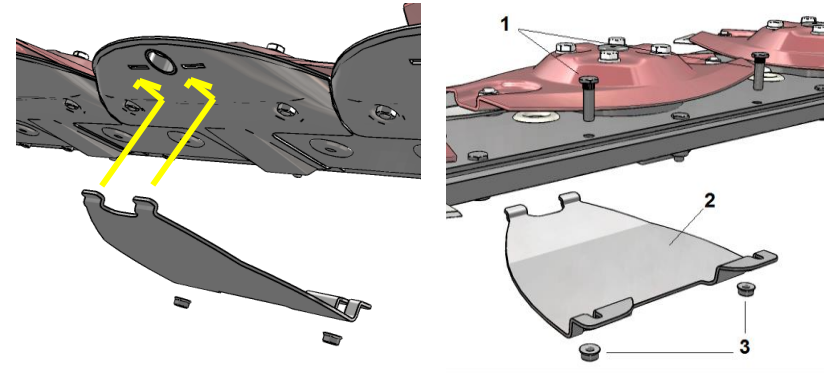
fig.C37

D3.4 Wear proof skids kit

The cutter bar has been designed to assembled wear proof skids. They are offered as an option.

The kit includes:

- Longer screws (1) and nut (3);
- Skids (2).




MAINTENANCE

E.1 Maintenance instructions

The Manufacturer, following to operational tests, has foreseen some maintenance programmes which permit, if respected and performed with care by the Customer, to maintain unchanged the machine efficiency and capacity preserving the disc mower from every operating damages.

The operator has to be an adult, qualified and trained for to perform such tasks and observe as follows:

- **IMPORTANT:** he must not rely on his memory, but he must always read the instructions of this manual and perform them in an accurate way and respecting the safety rules;
 - before any kind of task though, the operator has to apply a folder on the access door of the driving cab with the written “**machine in reparation**” to avoid that someone not knowing about the task, starts the tractor and engage the power take off;
 - the tasks must be performed on an even surface and with the disc mower steadily placed on ground in vertical position. **In addition, with the power takeoff disengaged, the tractor engine off, the parking brake engaged and the keys remover from the dashboard;**
-  **HAZARD**
- **it is absolutely forbidden perform tasks with the tractor engine on and with the disc mower operating;**
 - the use of tools to perform the maintenance tasks is subordinated to the related safety rules. At the same time it's indispensable to use authorized products and not to use them in an improper way, as for example using gasoline for cleaning or using pliers instead of the monkey wrench;
 - once the maintenance tasks begin, they must be completed and never postponed. In the same way, the operator must go on carrying out repairs;
 - at the end of the maintenance or reparation tasks, clean the area from water, oil, grease, rags, equipments or other material;

E.2 Checks, adjustments and replacements

- **Checking of discs and blades**

The discs, blades, and fastening screws are made of a special high-quality steel and heat-treated to increase their durability and resistance to wear. Worn or damaged parts must be immediately replaced with ENOROSI original parts, otherwise it will not be possible to make any warranty claims or requests.

- **Checking of blade-carrying pins**

Make regular checks of the condition of the blade pins every 50 work hours, and check them more often if work is done on rocky terrain or in difficult conditions. Check them immediately in the case of violent blows (stones, pieces of wood, etc...).

- Replace the blade pin if it is deformed or deteriorated.
- Replace the blade pin if the screw head is worn or deteriorated.
- Replace the blade pin if the screw head measures less than 13-15 mm (D) (fig.E1).

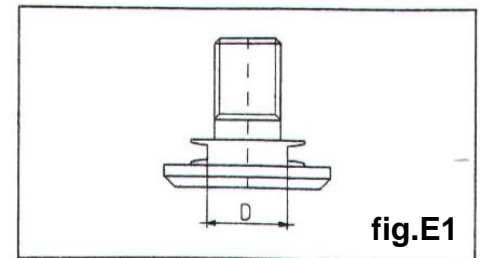
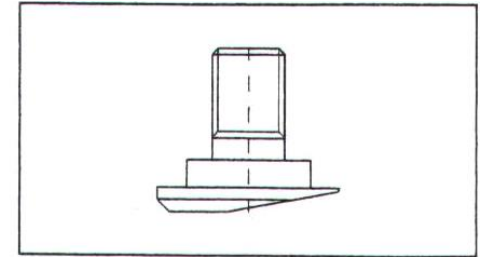


fig.E1

- **Checking of fastening screws**

Replace the nut when the locking washer has lost its elasticity. Replace the nut if it shows evident consumption (fig.E2).

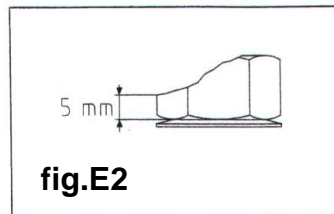


fig.E2

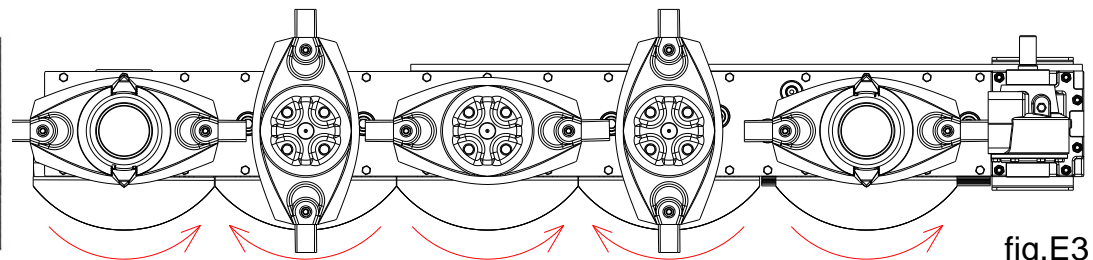
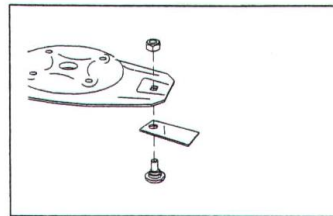
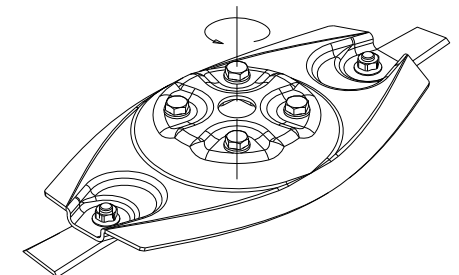


fig.E3

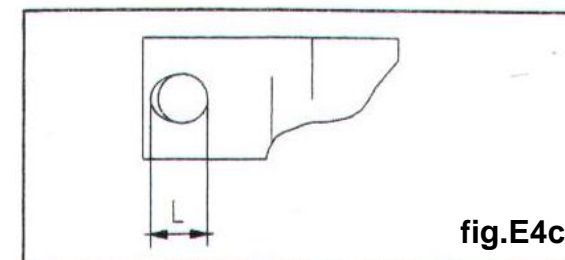
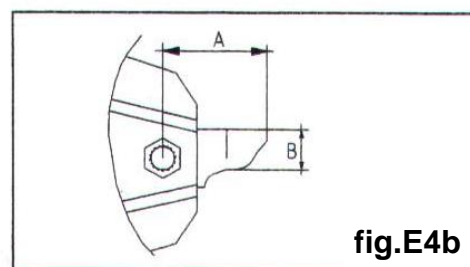
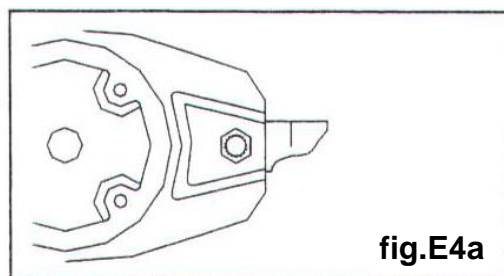
- **Blade replacement**

Rotate the disc perpendicularly (fig.E3) to the mowing bar and unscrew the nut projecting above the disc using a 19 wrench. Pull out the blade holder from underneath the disc and remove the blade.

Pay attention to the rotation direction of the disc (fig.E3) and assemble the blade according to the same rotation direction (as indicated by the arrow printed on the blade). All blades on the each disc are the same.



Use ENOROSI original spare parts. For your safety, and for a better cutting quality, make systematic checks of the wear condition of the blades before every use of the mower. Change blades immediately if they are damaged, because if work is done occasionally in difficult conditions, the risk of accidents increases, the cutting quality decreases, and vibrations may also damage the disc support. Replace blades immediately when they are worn down. Blades should be at least 90 mm long (A) and 30 mm wide (B) (fig.E4b). Replace the blade if the hole has become ovalized to more than 4 mm (L) (fig. E4c).



IMPORTANT: Make regular checks of the tightness of all fastening screws and nuts, in particular those that hold blades and discs;

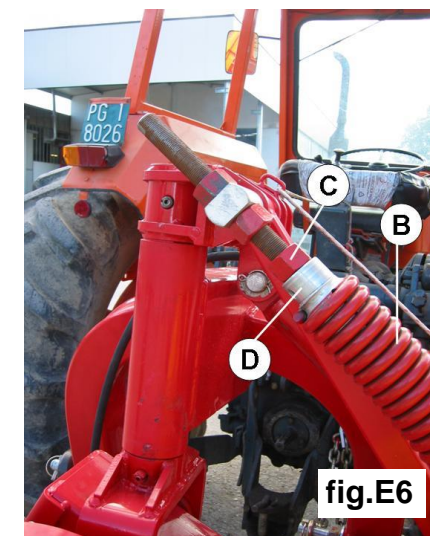
- **Checking of belts (tension adjustment)**

To prevent belt slippage, it is necessary to periodically check the belt tension. To increase tension, tighten nut **A** on the threaded bar (fig. E5). It is very important for the belt tension to be checked after the first hours of work, and later with weekly checks.

- **Adjustment of the compensating spring**

The spring tension is regulated in the factory; the tension may be changed as follows:

- Lift the mower until spring **B** (fig.E6) is taut;
- Loosen lock nut **C** and turn **D** to reduce or increase tension. After regulating, lock with locknut **C**.



E.3 Lubrification

- **Lubrication of the mowing bar (contains oil)**

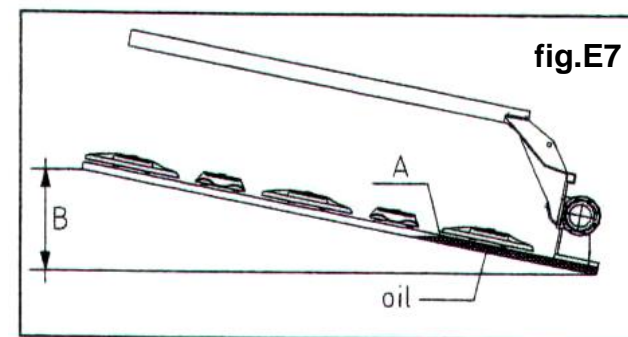
Oil level check: check the oil level before starting to mow for the first time, and in normal conditions (no oil leaks) every year. Lift the bar using the hydraulic hitch as indicated in **fig. E7**.

- Mod. D7: B= cm. 35
- Mod. D8: B= cm. 50.

Leave the machine still in this position for 15 minutes, to allow the oil to return into the lower part of the mowing bar.

Remove the filling cap and check if the oil reaches the hole (see **fig.E8**).

The oil level is correct when the oil reaches the hole of the filling cap.



Position of the filling cap:

Mod. D7: between the first and second disc (**fig.E8**).

Mod. D8: between the second and third disc.

Oil replacement:

The oil must be replaced completely after the first 50 hours of work, or at least after 100 hectares mowed. Lift the mowing bar to a vertical position (**fig.E9**). Remove the drainage cap situated at the bottom of the mowing bar and let the oil flow out, taking care to collect and dispose of it in accordance with the waste disposal laws and provisions in force.

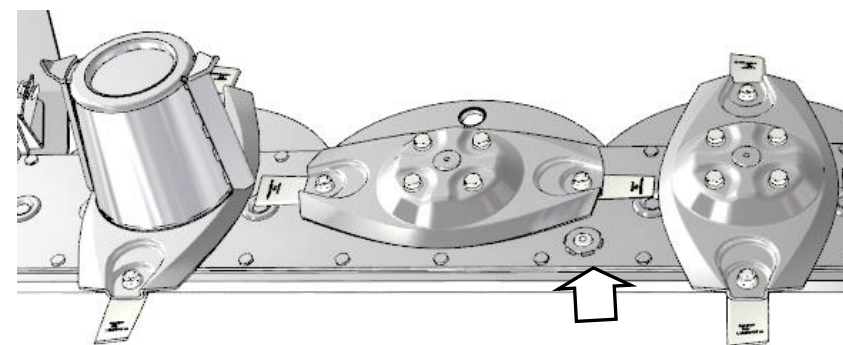


Fig.E8

Oil replacement must be carried out using hot oil (check that it is not too hot, in order to prevent burns), since in this case the oil is more fluid and flows out more rapidly, preventing the old, much denser oil remaining inside the bar.

Fill through the filling cap situated on the upper part of the mowing bar. **Use SAE 80W90 type oil.**

Oil quantity:

DM7: 3.5 liters
DM8: 4 liters.

NOTE: during work, it is normal for the oil in the tank and the gear case to heat up; there are no problems if the discs turn freely when turned by hand.

- **Gear box (contains oil)**

Check: put the cutter bar on ground in horizontal position. Remove the cap with the rod from the upper part of the box (**A - fig.E10/11**) and check the level of the SAE80W90 type oil.

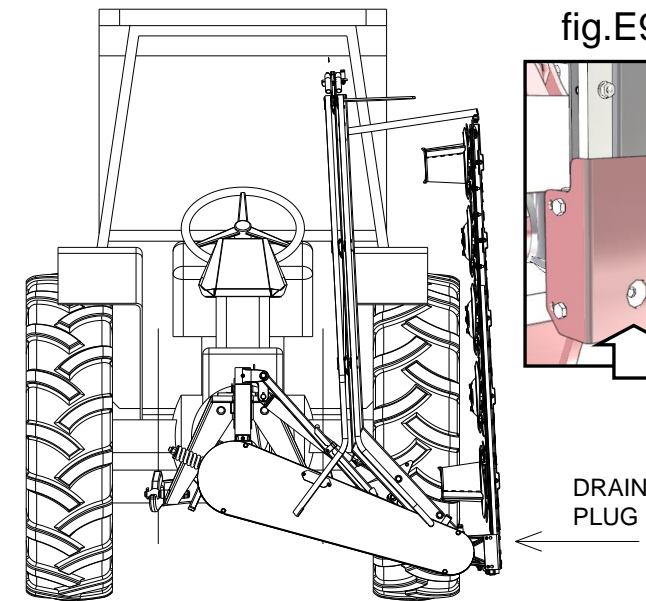


fig.E9

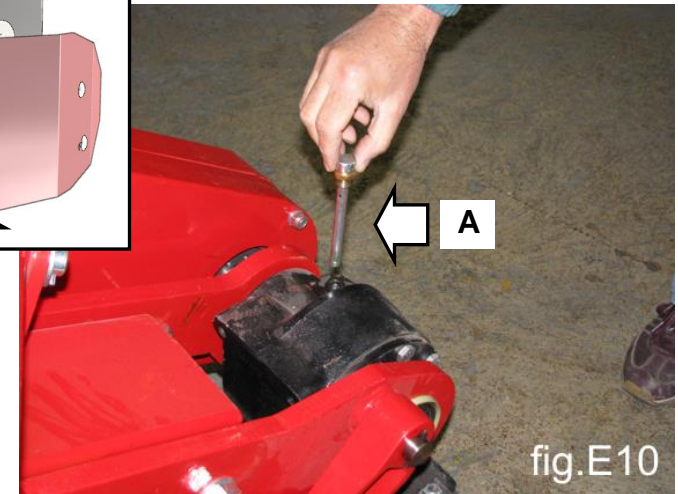
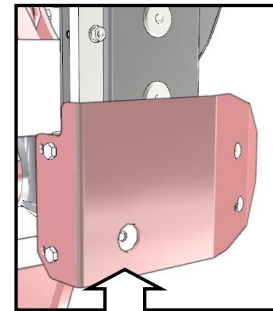


fig.E10

Oil replacement: lift the cutter bar in vertical position (**fig.E9**). Remove the cap with the rod (**A - fig.E11**) and let the oil flow out, taking care to collect and dispose of it in accordance with the waste disposal laws and provisions in force.

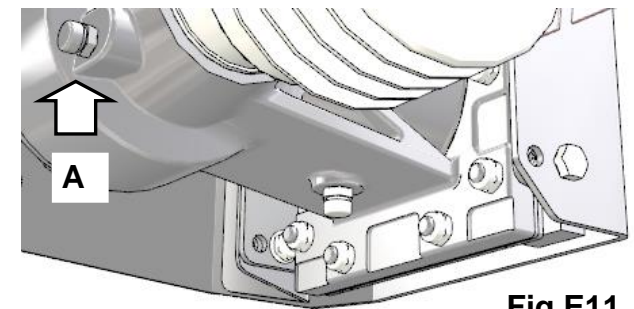


Fig.E11

- **Cardan shaft**

Grease the cardan shaft and follow the safety instructions described in the proper manual furnished as enclosed to this one.

IMPORTANT: The operator must maintain the protection in conditions of maximum efficiency. Do not approach the cardan shaft while it is moving.



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