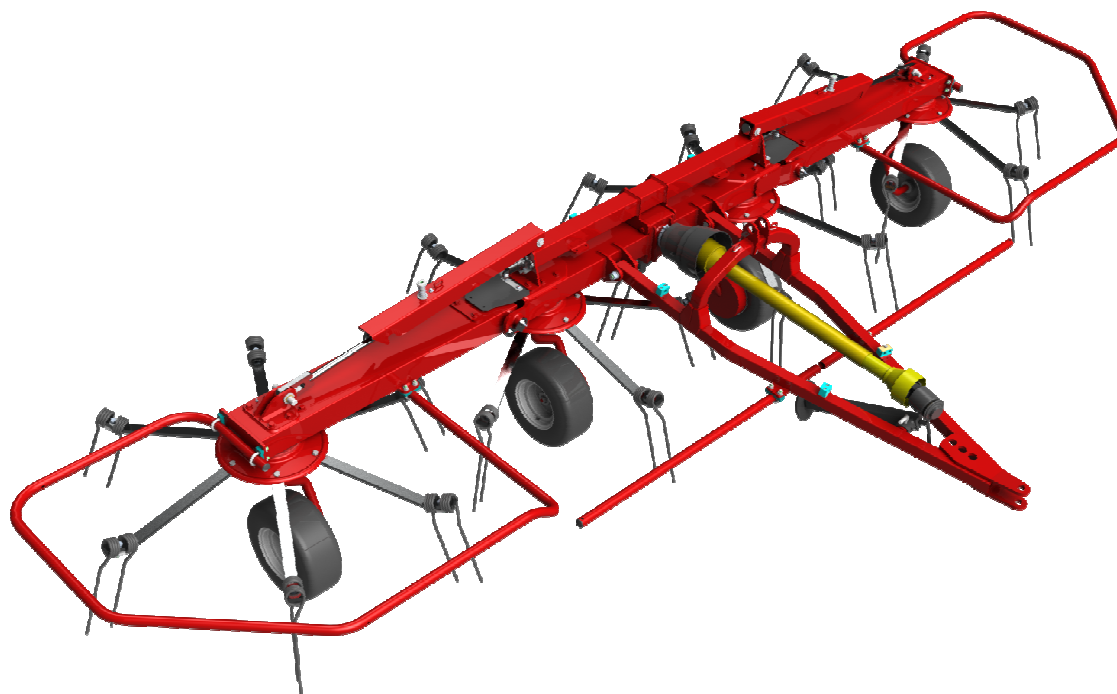




Important: read carefully the use and maintenance instructions in this manual before you attempt any type of operation on the machine (Machine Directive 2006/42/EC).



HAY TEDDER

G4V-G4VL-G4VEL 3P-PT

USE AND MAINTENANCE MANUAL

rev. 0 – 08/14





EC CONFORMITY DECLARATION

(All.IIA Machinery Directive 2006/42/EC)
The Manufacturer **ENOAGRICOLA ROSSI s.r.l.**
located in via Cortonese s.n. - 06018

Calzolaro di Umbertide (PG) - Italia
declares under sole responsibility that the machine

HAY TEDDER

.....
Denomination (generic and commercial)

G..

.....
Series/Modell

.....
Serial number

.....
Construc. year

The functions of which are described in this manual
complies with the essential requirements of Health Protection and
Safety in Machinery Directive **2006/42/EC**, and (for the drawn type) to
Directive **94/20/EC** concerning the mechanical coupling devices of motor
vehicles and their trailers and their attachment to those vehicles.

For the compliance verification of the directives set out above, the following
EN Harmonized Standards were consulted:

EN 349 (1993) + **A1** (2008) - **EN 982** (1997) + **A1** (2008)
EN ISO 4254-1 (2008) - **EN ISO 4254-10** (2010) - **EN 11684** (1995)
EN 12100-1 (2003) + **A1** (2009) - **EN 12100-2** (2003) + **A1** (2009)
EN ISO 12965 (2003) + **A1** (2004) + **A2** (2009)
EN ISO 13857 (2008) - **EN 14121-1** (2007)

And authorizes Mr. Giovannini Massimo
Via Cortonese s.n. - 06018 Calzolaro di Umbertide (PG) - Italia
to compile the technical file on its behalf

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Machine Directive and Harmonized standards

The hay tedder was designed according to the Machinery Directive 2006/42CE rules and meets the following harmonized standards:

EN 349: Machinery safety – Minimum distances to avoid damage to body parts (1993) + **A1** (2008)

EN 982: Machinery safety – Systems and components safety requirements for hydraulic and pneumatic transmissions - Hydraulics (1997) + **A1** (2008)

EN ISO 4254-1: Agricultural machines - self-propelled, mounted, semi-mounted and pulled type agricultural machines - Common safety requirements (2008)

EN ISO 4254-10: Agricultural machines - self-propelled, mounted, semi-mounted and pulled type agricultural machines - Safety - Part 10: Hay rake and Hay tedder (2010)

EN ISO 11684: Tractors, forestry and agricultural machinery, gardening motor machines - Safety graphic symbols and hazards indication pictograms - General Principles (1995)

EN 12100-1: Machinery safety – Basic concepts, general design principles - Part 1: terminology, basic methodology (2003) + **A1** (2009)

EN 12100-2: Machinery safety – Basic concepts, general design principles - Part 2: Technical principles and specifications (2003) + **A1** (2009)

EN 12965: Tractors and agricultural machinery and forestry. Power Take Off (PTO) shafts and guards. Safety (2003) + **A1** (2004) + **A1** (2009)

EN 13857: Machinery safety - Safety distances to keep dangerous areas out of reach (2008)

EN 14121-1: Machinery safety – Risk assessment principles (2007)

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INTRODUCTION

A1 Equipment details

The hay tedder is an agricultural equipment used to spread, aerate and turn over any type of previously cut forage, so as to allow an early and uniform drying of the product which ensures a high-quality forage. The models we produce, series G4 and G6 (mounted and pulled types), are suitable for any type of land, sloped or highly uneven. The mounted type operates only if installed on a tractor equipped with a three-point universal hitch with hydraulic lifter, while the pulled one operates only if connected the tractor's towing hook. Both models operate in result to the tractor drag effect that pulls them and to the rotation effect of the working units, provided by a cardan shaft applied to the tractor's PTO.

A2 Manual details

ENOROSI (hereinafter named "Manufacturer") has designed and built the equipment in compliance with the safety regulations and with the precise intent of protecting both the personnel at work and the entire operating system.

Each hay tedder is equipped with a copy of this manual, which should be read carefully before using the machine. The manual contains the necessary information for the equipment transport, use and maintenance and the corresponding safety regulations.

The lack of knowledge of its operating system could cause accidents that may cause damage to the equipment. Therefore, even if at the moment of delivery, the Manufacturer gives to the Client all the information concerning the hay tedder (operation, use and maintenance), he must, however, read this manual and follow the instructions contained therein.

The manual gives the basic guidelines for the best working conditions and safety, but the operator's experience and common sense remains the most important factor for the equipment operation.

This manual was created according to existing hay tedder models specifications and design and does not take into account the similar models previously produced. However, the Manufacturer reserves the right to make changes to the models in production, in order to improve the product or where new regulations were enacted (Machinery Directive), without the obligation to update the previously built models.

This manual is part of the hay tedder and, therefore, should be kept, clean and intact in all its parts and stored in a special container, placed on the machinery frame or inside the tractor's cabin, ready for any consultation.

In the case of sale of the hay tedder, it is important to check that the manual is present. If the manual is missing, a duplicate must be requested to the Manufacturer.

If while reading the manual the instructions are incomprehensible, you should contact the Manufacturer, which will provide the necessary clarifications. If the manual is translated into another language, and part of its contents lead to disputes, the valid reference texts remains the one written in Italian.



Warnings in this manual:

IMPORTANT

To indicate that the information must be absolutely known by the operator;

DANGER

To indicate a possible hazardous situation which concerns the operator and others' safety (minor accidents or injuries), or concerns the hay tedder efficiency;

Note: indicates that the topic can facilitate the operator's work.

A3 Identification and EC certifications

Each machinery has a clearly visible identification plate applied on the frame where the following data are marked:

- the hay tedder model (and/or version);
- hay tedder;
- serial number;
- minimum tractor power required (kw);
- total weight (kg);
- year of construction.

These data are to be cited for every need of assistance and spare parts.

IMPORTANT

It is absolutely forbidden to alter and/or delete the data on the identification plate. The operator is required to verify the readability of data, and when this results precarious, to notify it to the Manufacturer who will replace the plate with a new, copying all the data on it.

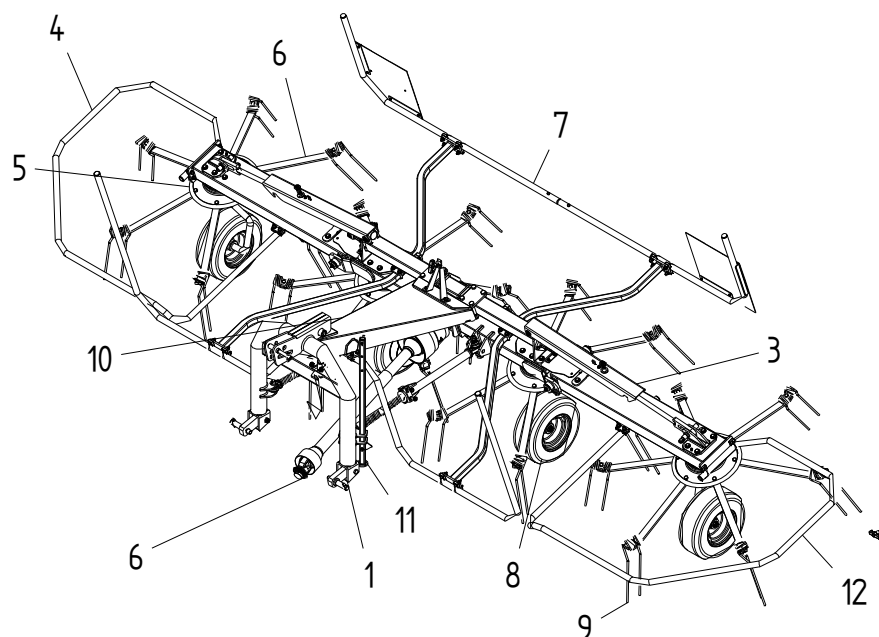
ENOAGRICOLA ROSSI s.r.l. CALZOLARO DI UMBERTIDE - PERUGIA - ITALIA Tel. +39 075.9302222 - Fax +39 075.9302328		
SPANDIVOLTAFIENO		
	ANNO <input type="text"/> Kg <input type="text"/>	 MADE IN ITALY
MODELLO G..	MATRICOLA <input type="text"/>	Kw <input type="text"/>

The CE mark indicates that the Manufacturer has complied with the States Member of the European Community provisions, adopted on safety and health requirements and known as "Machinery Directive". This means that the Manufacturer has designed and built the machinery in full compliance with all the requirements and in order to avoid all possible risks and dangers. Therefore, the hay tedder can circulate freely within European territory only if equipped with this brand and with its compliance declaration.

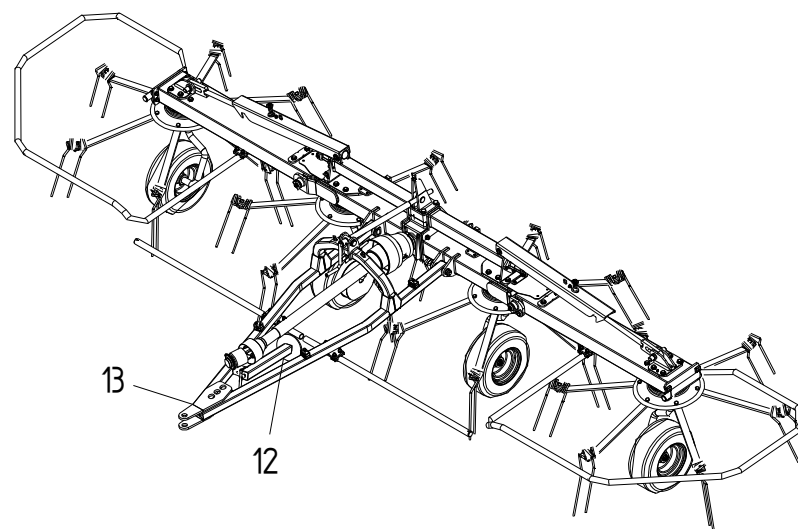
A4 Main components and technical data

1. Three-point universal hitch
2. Cardanic shaft coupling
3. Transport mechanical unit
4. Protective lateral screens
5. Rotary unit
6. Tine arms
7. Rear Screen protection
8. Jockey wheels
9. Teeth
10. Frame
11. Support leg (mounted)
12. Support leg (pulled)
13. Tow hitch

Technical specifications		G4V-3P	G4V-PT	G4VL-PT	G4VL-3P	G4VEL-PT	G4VEL-3P
Working width	m.	4,70	4,70	5,20	5,20	5,70	5,70
Transport width	m.	2,50	2,50	2,90	2,90		
Tine arms	nr.	24	24	24	24	24	24
Teeth / Total	nr.	24	24	24	24	24	24
PTO speed	rpm	540	540	540	540	540	540
tractor power	hp	20/30	20/30	20/30	20/30	20/30	30/40
Tractor forward Working speed	km/h						
Cardan shaft with torque limiter	Nm	90	90	90	90	120	120
Tires mounted on trolley - Ballon 18" - 8,50"x 8"	nr.	4	4	4	4	4	4
Machinery weight	kg	610	500				



MOUNTED TYPE



SEMI-MOUNTED



A5 Warranty

Enorossi (referred as Manufacturer) warrants that the hay tedder is free from defects in each component, as it undergoes testing before it is delivered to the Client. **The 1 year warranty is valid from the delivery date indicated in the receipt, unless different agreements signed with the Client.**

However, the Client, upon receiving the hay tedder, must make sure it is intact and complete in all its parts. Any complaints must be received by the Manufacturer, in writing, within 8 days from the machinery delivery.

Within the warranty period Enorossi will replace, free of charge and at its headquarters, all the components that due to defects in workmanship or materials, give rise to incorrect operation. In the impossibility of replacement at its headquarters, the Manufacturer agrees to send to the Client headquarters the defective parts. On these replacements, Enorossi does not extend the warranty period for the time during which the hay tedder remains stationary, nor recognizes any compensation or indemnity to the Client for any direct or indirect expenses or damages. If a technician intervention is required, the cost of labor, travel and subsistence will be paid by the Client. The verification of the defect can only be made by the Manufacturer or by technical personnel hired from the Manufacturer.

However it is important to note that:

the defective parts remain property of the Manufacturer;

- if the replacement took place at the Client premises, the defective parts must be returned to the manufacturer, to be subjected to technical examination, intact, without tampering and **carriage paid**;
- in the event that the defective parts were not returned to the Manufacturer within 30 days from the date of delivery of the new ones and in the manner described in the previous paragraph, the Manufacturer reserves the right to send invoice for the new parts sent.

The warranty is not valid:

- during transport as the hay tedder travels under the Client responsibility;
- when damages are caused by improper use of the hay tedder or by the operator's negligence;
- when damages are caused by normal wear even if the hay tedder is not operating;
- in case of late reporting of construction defects;
- in case of accidents or incidental cases of force majeure.

The warranty is void if:

- the hay tedder is used by not adequately trained personnel;
- the instructions and/or the regulations described in this manual were not followed or respected;
- the expected maintenance was not carried out;



- Client modifying the hay tedder or tampering with the components without the Manufacturer written permission;
- usage of non-original spare parts or parts not in accordance with those recommended by the Manufacturer.

However, the warranty period recognized for the hay tedder is not valid for all the components not manufactured by the Manufacturer and for which remains valid what written in the respective purchase notes.

IMPORTANT

The manufacturer does not guarantee the hay tedder compliance with the applicable laws, in particular those relating to accidents prevention and pollution, of non-EU countries. The adjustment of the hay tedder to these regulations will be entirely under the Client responsibility. The manufacturer is not liable for any kind of controversial or damage that could arise from the not compliance to those rules.

SAFETY

B1 General rules

This manual describes the safety standards to be observed when operating the hay tedder. Since most accidents occur because basic safety norms are not respected, **is mandatory** before activating any function, to read this manual and carefully follow the instructions contained therein.

The use of the machinery must be entrusted to staff of age, qualified and trained for deployment. **The Manufacturer, therefore, is not liable for accidents caused by the operator's negligence and/or the noncompliance with safety regulations. Moreover in these cases, both the manufacturer's responsibility and the hay tedder warranty will be instantly nullified.**

B2 Safety during transport, installation and movements

Transport (delivery): such operation is done using a suitable vehicle according to the machinery weight and dimensions. Loading and unloading operations can be done either with a lifting equipment or with ramps attached to the vehicle:

- In the first case, the equipment used must have suitable characteristics and slings to support the hay tedder, which total weight is indicated on the identification plate. Trained personnel will perform the operations, holding the machinery on the points marked on the frame and provided for that purpose. - **Note:** in order to preserve the frame integrity we recommend holding the hay tedder with approved straps instead of chains. However, on the points where it should be held an adhesive label was applied, containing a hook (as shown in the figure), to highlight the use.
- In the second case, using a forklift or a tractor, the machinery is pushed, in reverse, on the vehicle platform.



In both cases, the machinery, that anyhow must be in transport configuration (described below), once placed on the truck, will be anchored to its structure and equipped with all the safety gear needed for transport.



DANGER

Loading and unloading operations always represent situations of danger, is therefore necessary that the workers, always act with caution.

In any case the following **precautions** should always be observed:

- operations should always take place on level ground and at a safe distance from the edge of embankments or ditches;
- make sure that ramps are sufficiently robust to withstand the hay tedder, that they are firmly anchored to the vehicle frame, parallel to each other and perpendicular to the side of the vehicle;
- verify that the ramps are clean without any trace of oil, grease or ice;
- on the ramps, during the hay tedder ascent or descent operations, direction must never be changed. In case of need, correct the trajectory, bring back the machinery and operate the correction.

For long distances travels the machinery is dismantled and lies within a wooden casing. Detailed instructions allow the Client, upon receiving the parts, to assemble the hay tedder with ease and speed. So if the machinery is to be sold or transferred to another user, for disassemble operations just follow the instructions in reverse order.

- **Installation:** the **pulled** hay tedder can be installed on any tractor equipped with a tow hitch and rear auxiliary hydraulic functions while the **mounted** type needs a tractor equipped with a three-point universal hitch and rear hydraulic lifter.

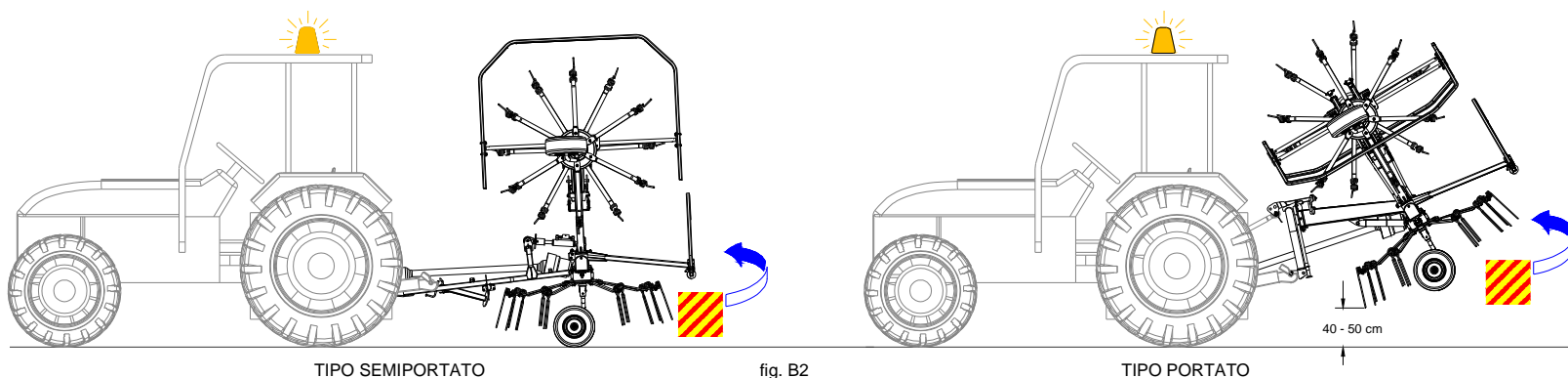
IMPORTANT

Tractors must be equipped with protective roll bar or ROPS or FOPS homologated cabins, as indicated by the regulations in force. **It 'absolutely prohibited to install the machinery on tractors that do not have such protections.**

However before installation, the Client must ensure, by consultation the related use and maintenance manual, that the tractor has the necessary requirements to use and operate the hay tedder and/or needs ballast to eliminate any imbalance that may end up with it overturning.

For the hay tedder installing instructions and any hydraulic and electrical connections refer to the relative sections described below.
For the cardan shaft instructions, refer to the ones attached to the part.

- **Travelling on road:** the **pulled** hay tedder can travel on road only if attached by the tow hitch to a tractor while the **mounted** one needs to be lifted, with an hydraulic lifter, until the lowest point is at least 40 to 50 cm from the ground. For both types the following obligations are to be observed:
 - **rear bulk:** the operator must apply to the hay tedder (**both the pulled and the mounted one**) the specific panels (on the back and eventually on the side) as required by the Highway Code to highlight the machinery dimensions. On this topic is worth remembering that the panels must be reflective and fluorescent with yellow and red stripes and must be law compliant. In addition, to limit the overall width of the machinery during road travels, this must always be in **transport configuration** (with the outer sections or side shields raised), as shown in the figure.





- **warning light:** the tractor must obligatory have the beacon warning light (yellow or orange) always activated. In addition, if the hay tedder bulk hides the visual signalling and lighting devices on the tractor, they must be duplicated, applying a special bar at the back of the machinery;
- **weight:** the total weight of the operating machine (tractor with hay tedder) must not exceed 30% of the tractor's weight on its own as reported on the registration certificate. The tractor must always circulate at moderate speed, especially on rough roads, as the rear weight could cause difficulties in driving;
- **regulations:** it is however necessary to know and follow the rules for on-road circulation in force in each country.

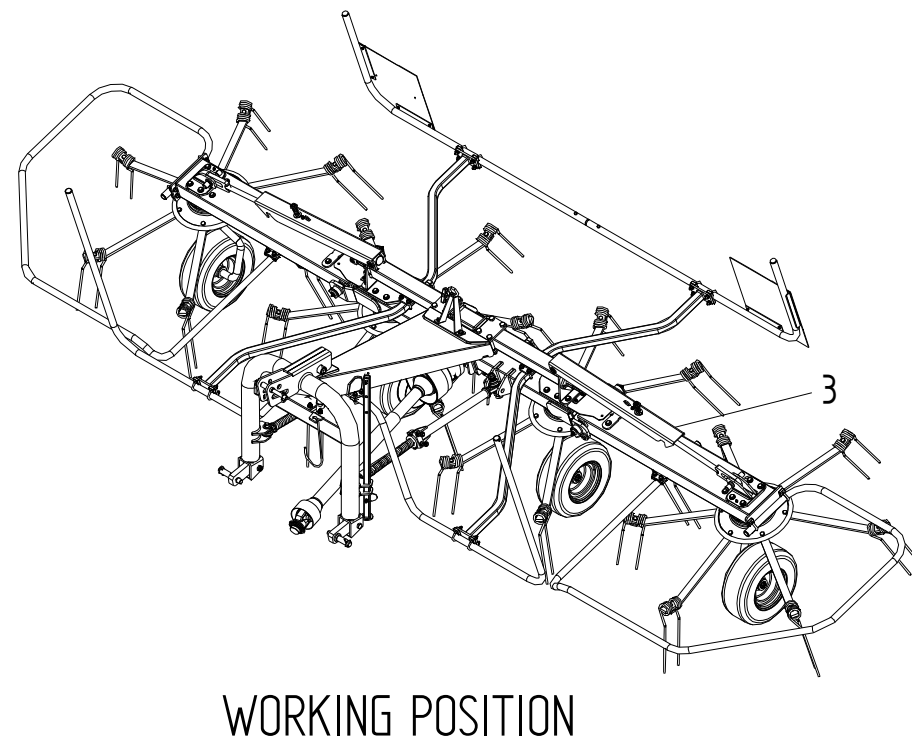
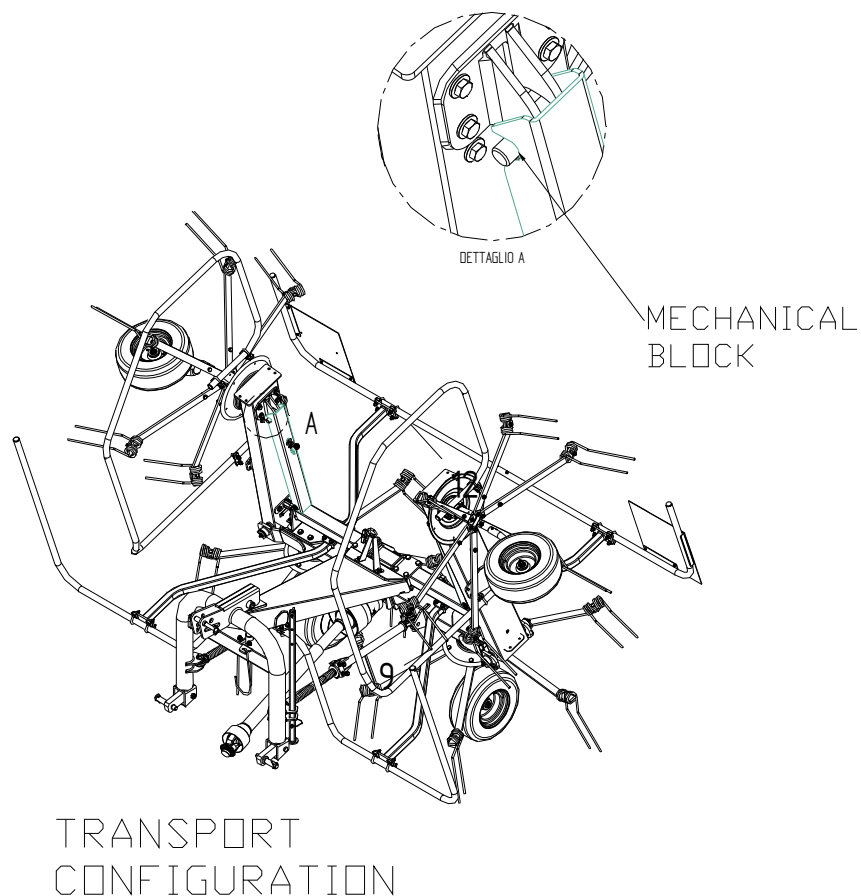
When circulating on road with the operating machine (tractor with hay tedder), the operator in the cabin must always observe the following precautions:

- do not carry passenger on the tractor;
- do not carry on the machinery people, animals or things;
- PTO must always be disabled.

On field circulation: when on fields with the operating machine (tractor with hay tedder) there is no need to turn on any lights or sound or to display any type of panel. Place the hay tedder in working configuration just before operating.

Hay tedder in **working configuration:**

- **models G4** (both mounted and pulled):
 - a) pulling the corresponding string in the cabin in order to unlock the lateral arms of the machine from the mechanical blocking device. This way, they will go down and the machine will automatically assume the working configuration. This operation is to be done on a mostly flat surface.
 - b) for its use and regulations, please read the next paragraph.



B3 Intended use and handling precautions

The hay tedder is an agricultural equipment used to spread, aerate and turn over any type of previously cut forage, so as to allow an early and uniform drying of the product which ensures a high-quality forage. Once completely desiccated, it is collected with a baler.

The hay tedder can be of two types: mounted or pulled. The **mounted** type operates only if installed on a tractor equipped with a three-point universal hitch with hydraulic lifter, while the pulled one operates only if connected the tractor's towing hook. Both models operate in result to the tractor drag effect that pulls them and to the rotation effect of the working units, provided by a cardan shaft applied to the tractor's PTO.

The rotating working groups, which may vary depending on the model from 4 to 6 units, consist all of six arms on which working tools or teeth are mounted. The groups rotate, one in opposition to the other, with a pronounced tilt toward the front ($7 \div 10^\circ$), so that the product is collected from the teeth and thrown up in the back spreading on the land.

On G4 and G6 models both the external sections handling (with the machinery in transport or working configuration) and the teeth adaptation to the ground (more or less tilt toward the front of rotors), are performed using hydraulic rams. These rams are powered by the tractor's auxiliary hydraulics circuit, through pipes with quick couplings, and therefore controlled by a corresponding lever in cabin.

The hay tedder has to be operated only by staff of age, qualified, trained and familiar with the instructions in this manual. Safety is of primary importance for the personnel working around the machinery or making repairs or maintenance. Since the instructions cannot cover all possible working situations and dangers, the operator must always use caution and common sense.

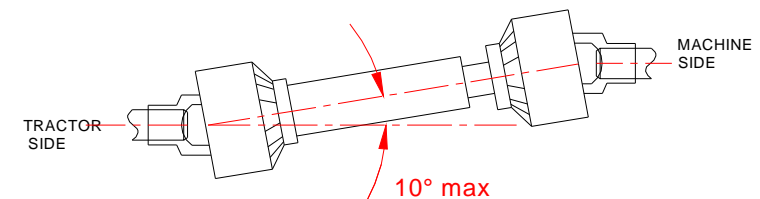
Precautions before handling:

- verify the hay tedder correct installation on the tractor and that all blocking and safety devices are present and intact;
- verify that the tractor's PTO number of revolutions per minute is **540** and that the sense of rotation is clockwise. Also, make sure that it is disengaged and with its lever blocked;

IMPORTANT

The power takeoff should never be activated when the engine is OFF and if between the two connections joints (tractor / hay tedder) there is more than 10° inclination;

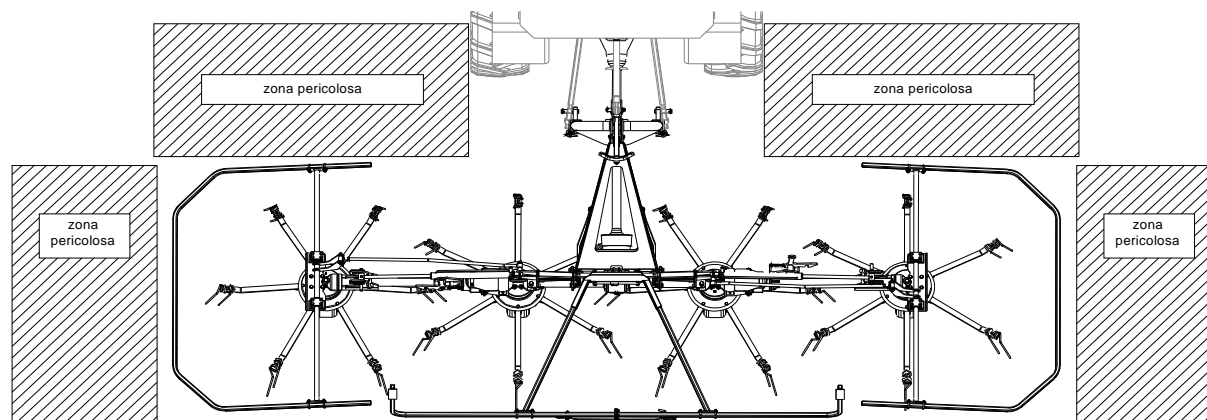
- verify that the cardan shaft is properly installed and that all blocking and safety devices are present and intact. **If one of these was not intact or a not approved device was installed, the Manufacturer cautions the client in not using that shaft since it is prohibited;**
- do not use the machine if there are broken or damaged parts, especially of protective ones;
- **only for mounted type** - the lowering of the machinery to the ground, with the tractor hydraulic lifter, must be gentle. Avoid violent impacts that could result in damaging the machinery frame and components;
- do the daily maintenance (as described in the relative paragraph). Concerning this, remember that any type of intervention (control, adjustment, maintenance or other) **should always be performed with the equipment not in motion, the PTO disengaged and the tractor engine off;**
- check the teeth inclination in respect to the ground. If any adjustment is required, refer to the specific sections described below;



- verify that there are no people or animals near any of the machinery **dangerous areas** (shown in the figure), as they may not be aware of possible dangers;
- machinery operations are allowed in good visibility conditions. In the event that these conditions were absent, even partially, operations should be interrupted since even the normal safety conditions are absent. The operations can be resumed only if good visibility conditions are restored.

Precautions when handling:

- during operations, always maintain the tractor speed within 3 km/h;
- even for short stops, the **operator should never leave the tractor in motion and unattended**. Before leaving the tractor he must always disengage the PTO, pull the parking brake, stop the tractor engine and remove the key from the ignition;
- during work breaks, the operator must not allow unauthorized and/or unqualified personnel to replace him;
- before reversing with the tractor or for direction changes at the end of the field, the operator must necessarily place the **G6** model (both mounted and pulled) in **transport configuration**, as described in the previous paragraph, and lift from ground the central rotary groups teeth, acting on the hydraulic lifter for **pulled** models, or extending the ram for the **mounted** type operating on the corresponding lever in the cabin.
- the hay tedder operations does not produce a noise level that allows the use of hearing protection (plugs, headphones, etc..), however the tractor could produce it. For this regard, consult the tractor's use and maintenance manual;
- the vibrations that the machinery may produce and transmit to the operator are of low intensity and the frequency is below human tolerability levels. **However, it is good to always keep the transmission and the gears well lubricated.**



Immediately interrupt work operations if:

- you are in proximity of resistant objects, such as manholes, wells, trees, etc. since contact could break the teeth, and projected the pieces all around at high speed;
- you hear audible vibrations coming from the machinery. To avoid possible damages, you should stop the tractor, disengaged the PTO, stop the engine and if possible, identify and remedy the situation, always in respect with safety regulations.

B4 Reasonably foreseeable misuses and use limitations

Using the hay tedder in a different way from what described in the previous paragraph is to be considered improper and therefore **prohibited**. In addition, its technical characteristics should never in any way, be altered to change its performance. **If this happens, both the warranty and the Manufacturer's responsibility on the machinery would immediately be cancelled.**

Visibility: in conditions of poor visibility (fog, dust, smoke or other): it is recommended to stop the working operations and wait until the fog, dust, smoke or other subsides. Behave similarly in the case of wind and/or rain.

Dangerous areas: if, during the working operations, a person or an animal enters a danger zones (see previous paragraph), the operator must immediately disengaged the PTO, stop the tractor and remove the intruder. The areas remain at risk and therefore dangerous even during maintenance and/or adjustment operations, therefore, non-authorized people should not stand or move around or in the vicinity of the machinery.

Do not use the machinery if:

- The cut product is wet or damp. Under these conditions, it becomes sticky and easily accumulates on teeth, limiting its operational function;



DANGER

- **no operations should take place in masonry proximity. In these cases apart from the possibility of damaging the teeth there could also be a dangerous projection of relative residues**

For any doubt on the use of the hay tedder and not included in this manual please contact the Manufacturer.

B5 Operator's liability

Safety is of primary importance for the personnel working around the machinery and for this reason each operator in charge, who must be qualified, trained and of age, is directly responsible for the operational control of the hay tedder, for maintenance, repairs and/or spare parts replacement. This means that each operator cannot delegate someone else, which has not its own requirements, to replace him in his duties. Since the instructions in this manual cannot cover all the possible situations of danger, each operator must always use caution and common sense. Everyone, therefore, becomes liable for damages caused to others, to himself, to animals or things if:

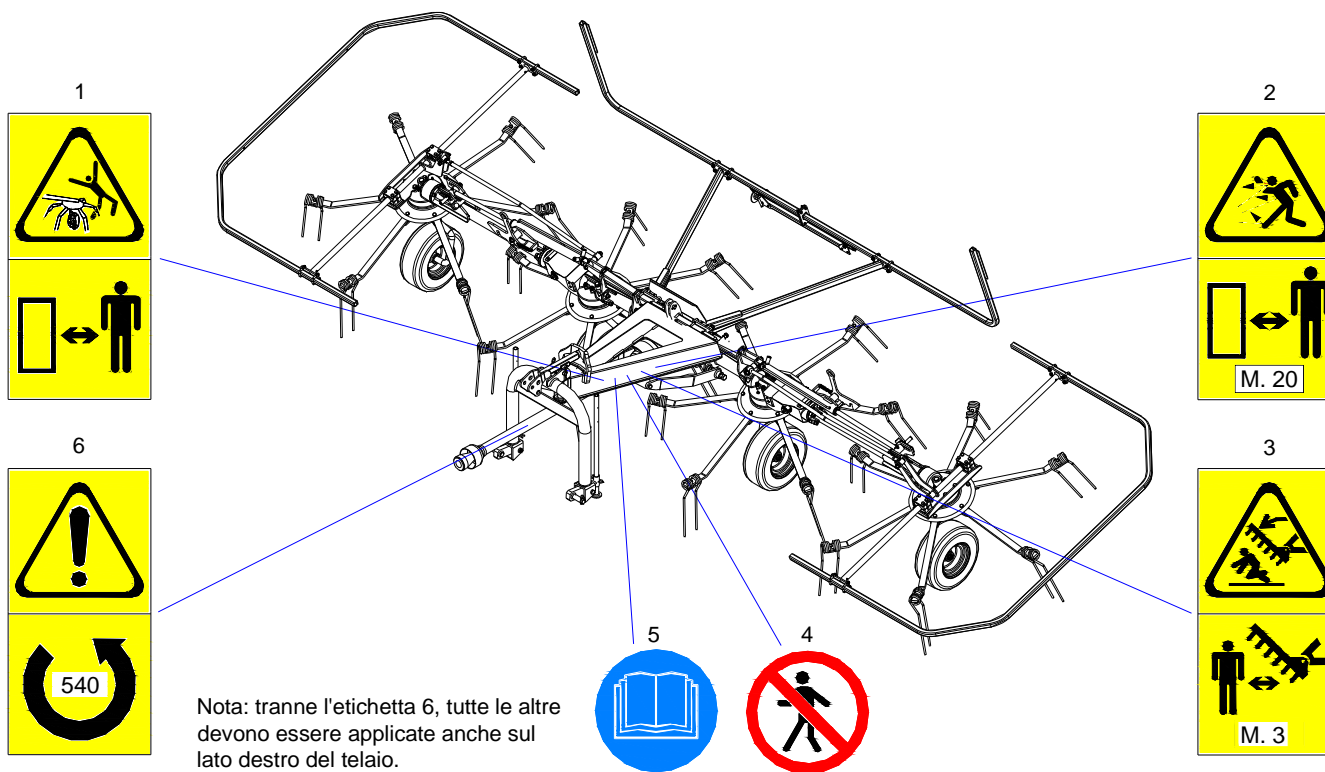
- the machinery is used incorrectly or in improper ways;
- the machinery is used while under the influence of alcohol, drugs, or in a state of tiredness or sickness;
- clothing that can be caught in moving or rotating parts is worn;
- appears to not be aware of the instructions in the manual;
- does not comply with road rules and safety regulations currently in force;
- not having previously verified the requirements, the coupling to the tractor is not suitable (power or characteristics differ from those listed in the technical data table);
- did not carry out the necessary maintenance operations, which although simple, if not carried out properly can result in equipment damage and pose a safety hazard to people exposed;
- has modified to machinery or has run unauthorized interventions on it;

- has used non-original or non-specific spare parts for the hay tedder.

B6 Pictograms

In addition to the indications contained in this manual, adhesive labels or pictograms that illustrate the safety regulations to be respected are applied in various parts of the machinery to help operators. The labels, according to the regulation, vary in shape and colour. Therefore, those who work should know that the circular signals indicate an **obligation** (light blue and white) or a **ban** (red, white and black), while the triangular shape indicates a **hazard** (yellow and black). Other rectangular labels, apart from containing the danger or prohibition signals, provide additional information on safety standards to be met. The rules set out by the labels, placed on hay tedder are:

1. **hooking or entanglement risk.** With the arms rotation, the teeth may hang clothes or other objects worn by staff;
2. **flying objects danger.** With the arms rotation the teeth could pick up and throw objects from the working site. Minimum safety distance m.20;
3. **bodily injuries danger.** Although the lowering of the external sections is slow it is better to not stay in the machinery proximity. Minimum safety distance m.3;
4. **No stopping or transit.** It is prohibited to others than authorized personnel to stop or transit in the hay tedder proximity, when it is running. Remain at a safe distance (m. 20). When the machinery is in transport configuration, pay close attention to the teeth. Being tall and bulging they could become a danger to anyone transiting in the machinery proximity;
5. **obligation** of reading the use and maintenance manual;
6. verify that the number of revolutions at the tractor's PTO exit is of 540 r/min. and that the rotation is clockwise.





IMPORTANT

Pictograms and warning labels must be replaced before they become unreadable. In this event, the operator cannot use the hay tedder until a new label is applied. In the same way it is absolutely forbidden to remove pictograms or labels from the machinery. In the event that this occurs, the Manufacturer is not liable for what this may cause, since the hay tedder would no longer have the safety requirements with which it was designed and built.

B7 Noise level

The noise generated by the machinery, not having its own engine, is only due the mechanical movements of its organs and so is negligible compared to that of a tractor that drags it. So the operator is in no need to use hearing protection (plugs, headphones, etc.). As for the noise generated by the tractor, instead, you should consult its use and maintenance manual.

INSTALLATION

C1 Getting started

The **pulled** hay tedder can be installed on any tractor equipped with a long hitch and rear auxiliary hydraulic valves, while the **mounted** type can be installed on any tractor equipped with a rear universal three-point hydraulic hitch. For the installation arrange a specific area with a flat surface. The operator who performs the installation must be aware of safety standards relating to the operation and must operate with the utmost care and caution.

C2 Installation to tractor

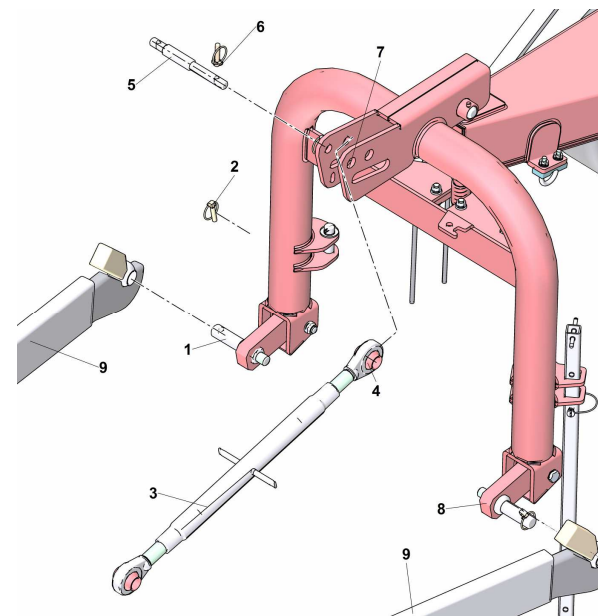
- **Mounted type:** the machinery is installed on the universal three-point hitch equipped on the tractor's hydraulic lifter. The operator, must approach the hay tedder slowly, placing the tractor so that it will be easy to perform the centring.

IMPORTANT

The alignment between the tractor's connection holes the hay tedder holes (called **centring operation**) must be executed with the utmost care and caution.

Once the operation is over, the operator stops the tractor and leaves the lifter in low position, blocking its lever, pulls the parking brake, eventually disables the draft control, removes the keys from the ignition, gets off the tractor and operates as follows (**fig. C1**):

- inserts the lifter arms (9) in their respective seats (lower pins 1 and 8) on the hay tedder frame (6) blocking them, one at a time, with their safety pins (2);
- (if not on the tractor) inserts the adjustable tie rod (3) in the tractor's 3rd point seat ("heavy weights" hole) and secures it with the pin supplied with the tractor;
- screws or unscrews the hay tedder's tie rod body, leaving the nut free (4), until it coincides with its seat on the machinery's frame (7);
- ensures the tie rod with the bolt (5), then blocks it with the safety pin (6)
- after this he gets back on the tractor, starts the engine and, acting on the hydraulic lifter lever and with the help of another operator on the ground, lifts the machinery until its PTO is almost on the same level to the tractor one. Then again, he stops the tractor and stops the hydraulic lifter lever and adjusts the tie rod (acting on the body), until the hay tedder frame is perfectly vertical, tightening finally the blocking nut;
- Lastly, blocks the hydraulic lifter arms with the tie rods or the chains, depending on which are provided. Once the centering phase is concluded, the same operator will lift the support feet (12s and 12d - fig.C2) in a more suitable and safe position for both the transport and the following working phase. For each feet lifting, the operator removes the corresponding R pin (11) and slides the feet along it seat (10). When the foot



lower hole coincides with the one on the machinery frame the operator will fasten the foot reinserting the corresponding R pin.

Cardanic shaft: for installation and adaptation instructions, please refer to what described in its use and maintenance manual.

- **Pulled type:** the machinery can be installed on any type of tractor, hooking it to the corresponding tow hitch. The operator, must approach the hay slowly Tedder, Placing the tractor I know That it will be easy to perform the centring (1).

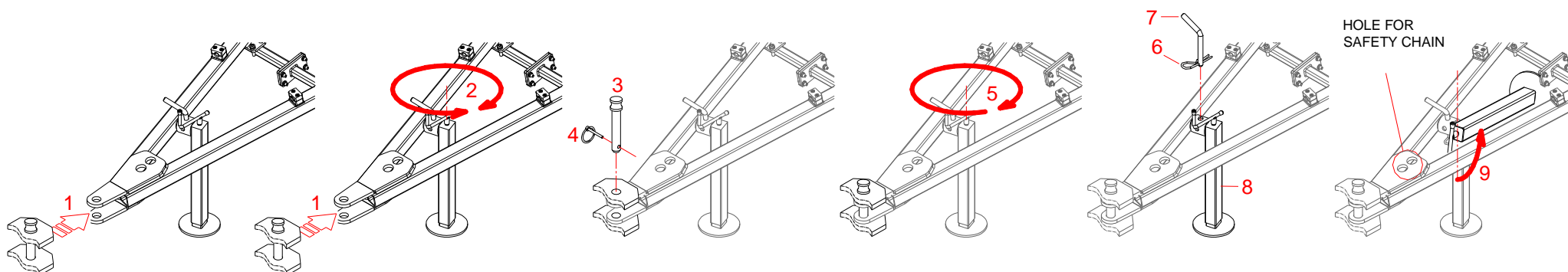
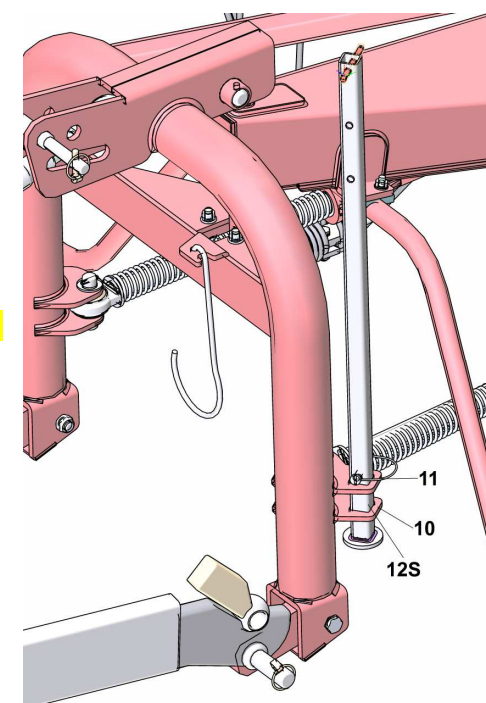
IMPORTANT

The alignment between the tractor's connection holes the hay tedder holes (called **centring operation**) must be executed with the utmost care and caution.

When the tractor is near the hay tedder connection point, an operator, acting on the support foot crank (2), raises or lowers the hay tedder connection point in order to make it horizontally coincide with the tractor. After the connection, the operator inserts the locking pin (3) in the connection point corresponding holes, as shown in the figure, and then secures it with the respective pin or safety pin (4).

Operating the centring, the same operator raises the support foot from the ground as much as needed, always acting on its crank (5), completing connection to the tractor operation. Then he rotates the support leg (8) placing it in a more suitable and safe position for the transport and the working phase. For this rotation, the operator removes the R pin (6) to release the lever bolt (7) and then extracts it from the support foot holes. Rotates the foot of 90° as shown in figure (9) and secures it re-inserting the lever bolt and its corresponding R pin.

Near the connection point, there is a hole where to place the security chain that must be also secured to the tractor. The application of this chain, is not mandatory in EU countries, but it is in many others, like the United States.



C3 Cardan shaft adaptation and installation

- **Installation:** follow thoroughly the installation instructions reported on its own use and maintenance manual.

IMPORTANT

Before installing the cardanic shaft make sure that it suits the requirements concerning the type and the power to be transmitted depending on the tractor's PTO speed. If necessary also check the tractor's user manual.

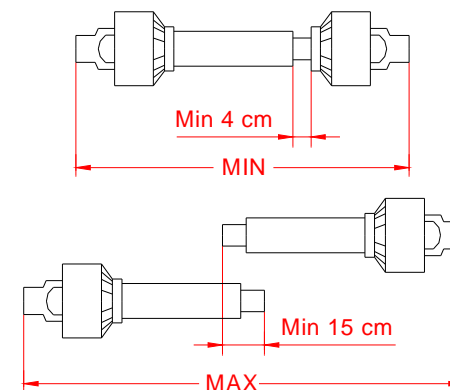
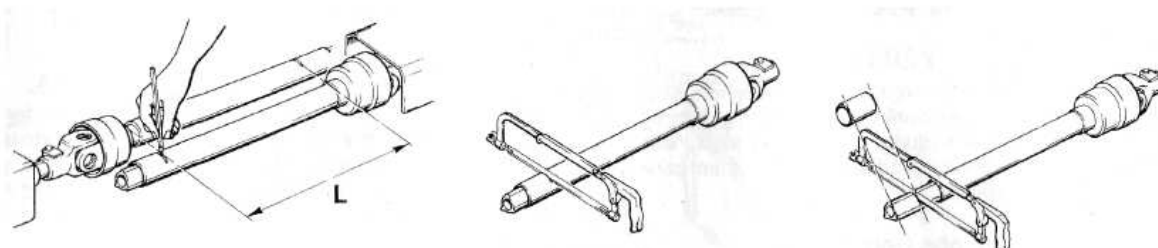
When not utilized, i.e. when not attached to the tractor's PTO but only to the hay tedder, place the shaft on the support provided for this purpose on the **mounted type** or on the towing hook bar on the **pulled type**.

- **Adaptation:** the cardanic shaft (either supplied with the machinery or sold separately as an accessory) is standard length. It is therefore necessary to adapt it according to the tractor on which the hay tedder will be installed. For this operation, proceed as follows:
 - remove the cardanic shaft protections;
 - slip the two halves that make up the shaft and attach one half to the hay tedder's PTO, triggering the safety spring pin, and the other half to the tractor's PTO, also triggering the safety spring pin;
 - place the two halves one next to the other and find the minimum flowing length (L). If the shaft is too long, first cut in equal measures the two external plastic protection tubes and then the internal metal ones. File the cut parts and lubricate the internal parts.

IMPORTANT

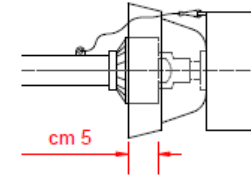
When the cardanic shaft is pulled out to the maximum, the two tubes must overlap by at least 15 cm. When it is inserted at the maximum, the minimum backlash allowed must be 4 cm.

- remove the two halves of the cardanic shaft from their sockets (on the tractor and on the hay tedder) and reconstruct the shaft, putting one half in the other completely;
- match again each end of the cardanic shaft to the respective PTO triggering their safety spring pins;
- block the protection tubes with the special chains, respectively, on the hay tedder and on the tractor in order to prevent them from rotating. The overlap between headset and cardanic shaft must not be less than 5 cm;



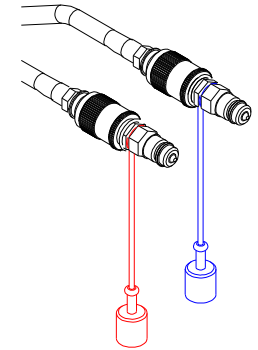
At this point, without activating the tractor's PTO, the machinery can be transported to the place of use.

Note: if the machinery is used with a different tractor, the cardanic shaft may need a readjustment. Proceed with the instructions described in this paragraph.



C4 Hydraulic and electrical connections

- **hydraulic connections:** the lowering and lifting of the outer sections with the respective working rotary groups and the teeth inclination adjustment (only on pulled types) are maneuvered by specific hydraulic rams. These are powered by the tractor's auxiliary circuit and thus controlled by the respective levers in the cabin. Therefore, you cannot perform these functions until the rams pipes are connected (with quick couplings, as shown in the figure) to the corresponding connectors of the tractor's auxiliary circuit.
- **electrical connections (instructions eventually valid only for G6 model):** as mentioned previously, if the hay tedder bulk hides the visual signalling and lighting devices on the tractor, they must be duplicated, applying a special bar at the back of the machinery. This bar will be electrically powered by the tractor's auxiliary circuit. Therefore, it is not possible to activate these devices if the hay tedder's plug is not inserted in the tractor's auxiliary circuit.



C5 Removal

For the hay tedder removal from the tractor follow the instructions contained in the previous paragraph, in reverse order.

C6 Immagazzinamento dello spandivoltafieno

The Client must provide, within his company, the machinery storage area, making sure it has a wide and easy access. For the hay tedder storing, the following interventions are needed:

- if not already done, place the hay tedder into transport configuration;
- park the machinery in a safe and secluded area, on a flat and solid surface;
- **mounted type:** with the tractor hydraulic lifter rest the machinery on the ground;
- if not already done, place the support foot (or feet) for the parking phase;
- remove the tractor from the hay tedder;
- protect the equipment with a cloth.

USE AND OPERATION

D1 Getting started

An appropriate and optimal use of the hay tedder serves not only to prevent damage and/or injury, but is the only way to get the same high performance and to discover its true potential and performance.

Before each start-up of the tractor, it is important to scrupulously follow the precautions described in paragraphs B3, B4 and B5. Remember that the hay tedder is to be used by a qualified operator, of age and trained for its use and operations. Consequently, he must know perfectly the instructions in this manual, all those reported on the adhesive labels and all the safety regulations for his and others' safety and to safeguard the machinery..

D2 Use and operations

D2.1 Working configurations

The hay tedder will be driven to the workplace according to the regulations described in paragraph B2, and once there and before using the machinery, the operator must perform the following actions:

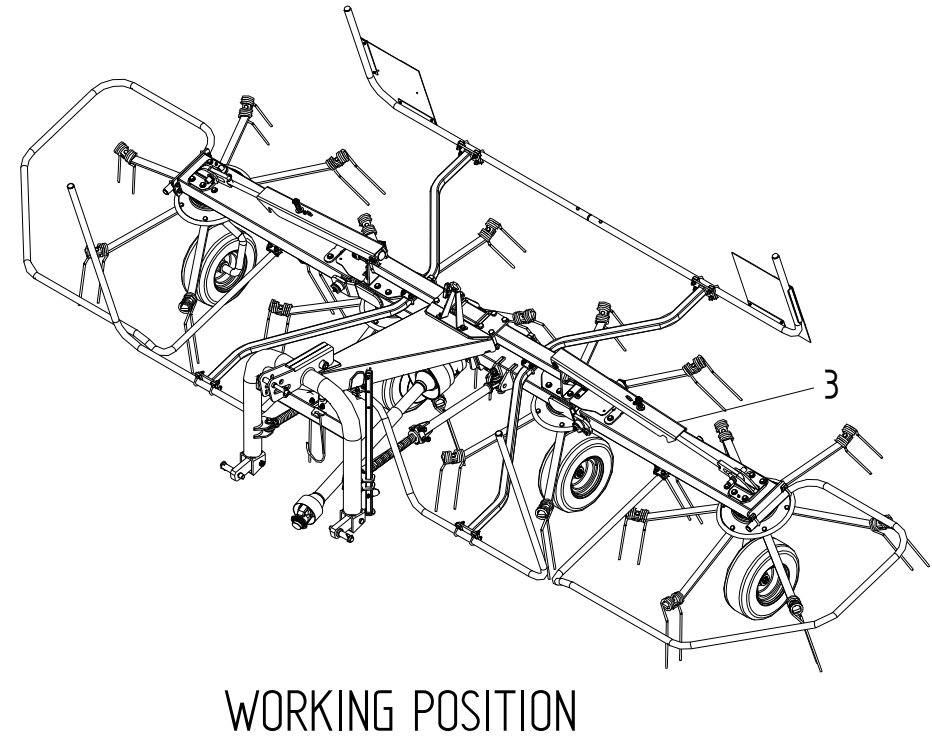
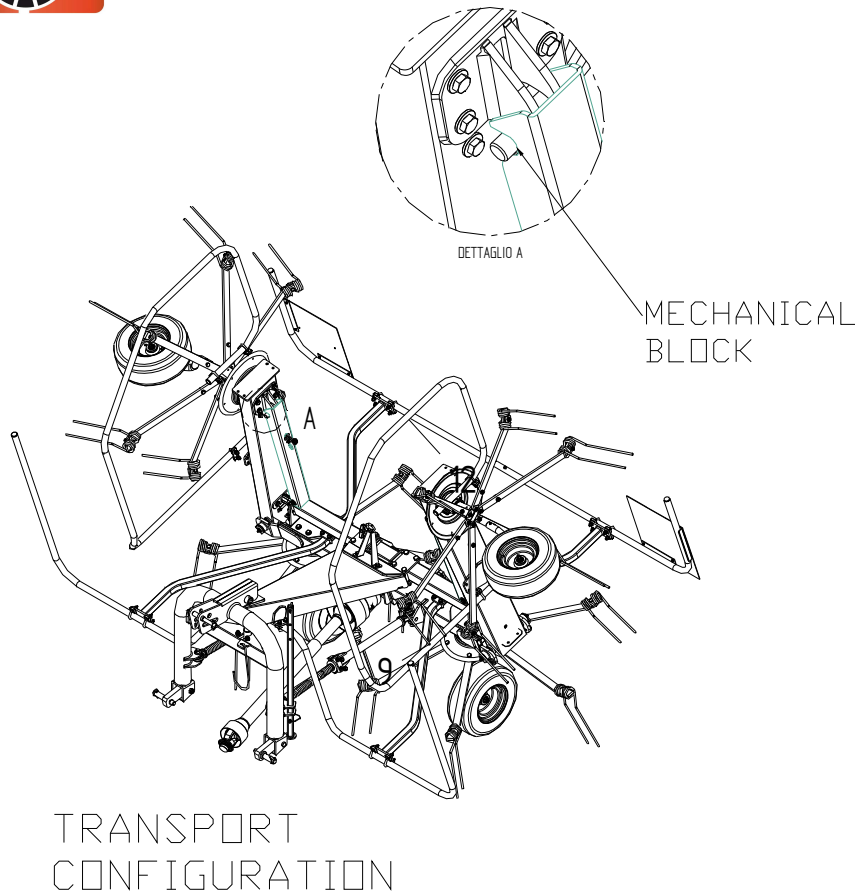
- make sure that the tractor's PTO is switched off;

IMPORTANT

La The PTO should never be activated while the engine is off;

Hay tedder in **working configuration**:

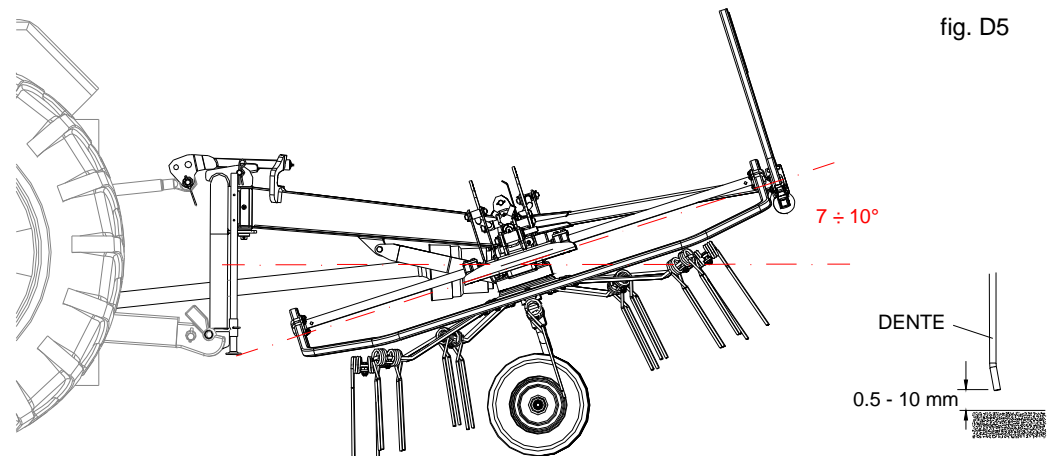
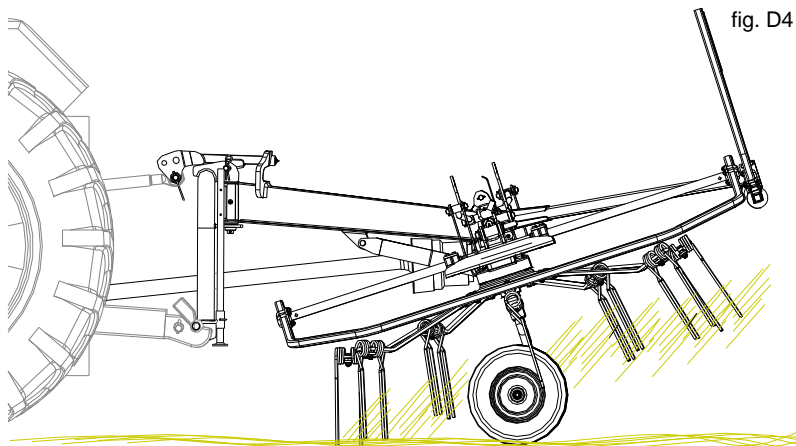
- **G4 model** (both mounted and pulled) :
 - a) from the cabin, manually and simultaneously pull the two strings to unlock the two rams from their mechanical blocking devices;
 - b) once they are unlocked from the mechanical blocking device, pulling the strings in the cabin, the lateral frames will automatically go down because the machine is equipped with an independent overrun system. This operation is to be done on a flat surface.



- c) **for the G4 mounted type:** lower the hydraulic lifter until the groups front teeth skim the soil. For any adjustments refer to section **D2.3**;
- d) **for G4 pulled types** verify the groups inclination in respect to the ground and, previously, the teeth positioning. For any adjustments refer to section **D2.3**;
- make sure the support foot (or feet) is in a safe position. It should already be in this position since such operation completes the hay tedder installation to the tractor. If not, follow the instructions given in paragraph C2 "Installation to tractor".
- make sure there are no people or animals in one of the machinery dangerous areas (or range), if not provide to send them away;
- get back on the tractor, start the engine and release the parking brake and operating on the corresponding lever, insert the PTO.

D2.2 Working process

With the tractor proceeding and the working rotary group's rotation and therefore of the teeth, the hay aeration process begins. The teeth skim and scrapes the surface and collects the cut crop pushing it the rear in order to spread it evenly (**Fig. D4**). For best results rotary groups must operate at an angle to the ground, which can vary from 7 to 10°, as shown in **Fig. D5**.

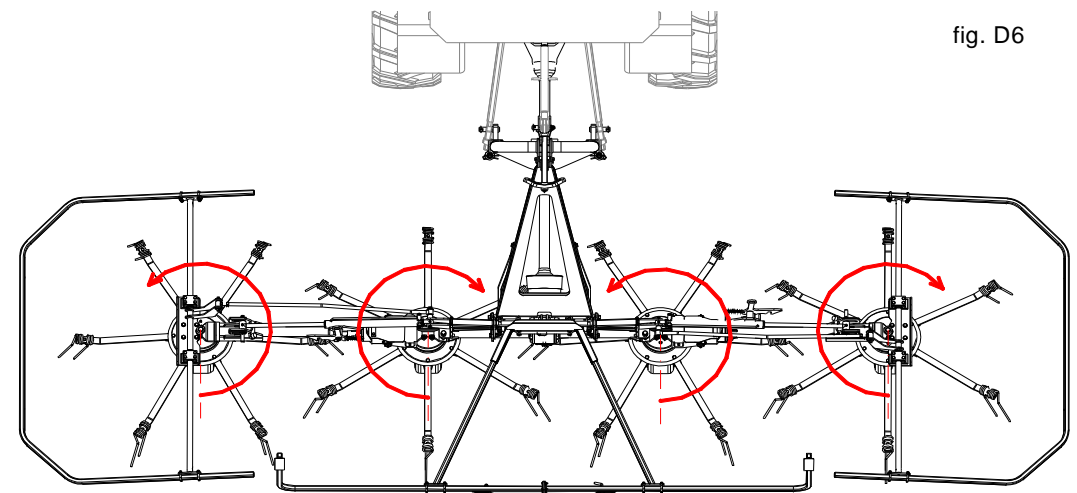


Note: the reference rotation of the rotary groups is determined by the central ones that rotate respectively clockwise the left group and counter clockwise the right group (Figure D6).

Operate for a few meters and then check the result of the process. If the operator deems appropriate to increase or decrease the angle of the rotary groups to the ground so as to improve the work process, follow the relative instructions in the next paragraph.

IMPORTANT

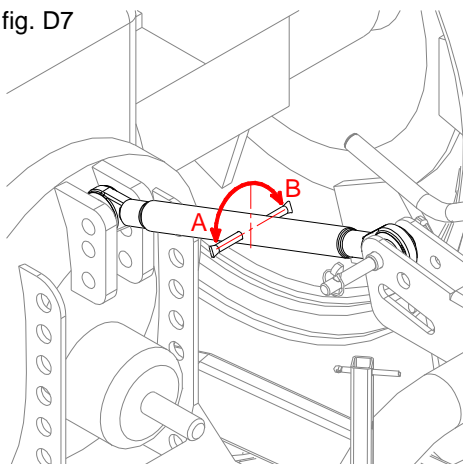
Except for cases where otherwise specified, all adjustments must be made with the tractor engine off, the PTO disengaged, the parking brake pulled and the keys removed from the ignition.



D2.3 Rotating groups tilt adjustment

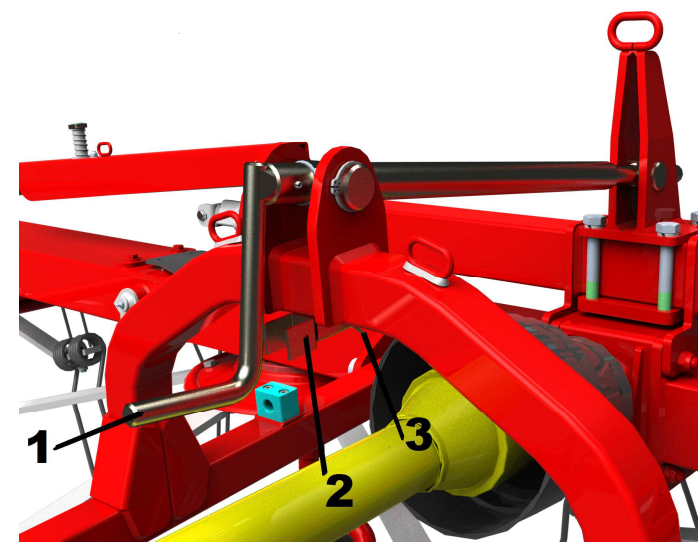
- **Mounted type (G4):** to modify the rotary groups inclination in respect to the ground operate fig. D7 on the tie rod placed between the tractor and the hay tedder third point (Fig. D7) screwing or unscrewing the body with the lever, as shown in Figure. Turning the lever counter clockwise (direction A) the rod extends, pushing the machinery frame downwards and reducing the inclination. Turning the lever clockwise (direction B) the rod reduces its length and therefore pulls the hay tedder frame upwards increasing the inclination.

fig. D7



ram length and also the rotary groups inclination. The ram movements are obtained operating the corresponding lever into the tractor's cabin.

- **Pulled type (G4 and G6):** to modify the rotary groups inclination in respect to the ground operate on the adjustable device placed on the specific ram and shown in fig. D9 for the G4 model and in fig. D10 for G6 model. Once the inclination has been adjusted the device will maintain the rotary groups inclination unchanged since it will act as the limit of the ram full retraction. The adjustment is operated on the rear side of the machinery screwing or unscrewing the adjustable device. So rotating the device counter clockwise it will move away from its final point reducing the ram length and therefore also the rotary groups inclination in respect to the ground. Rotating the device clockwise it will move towards its final point increasing the



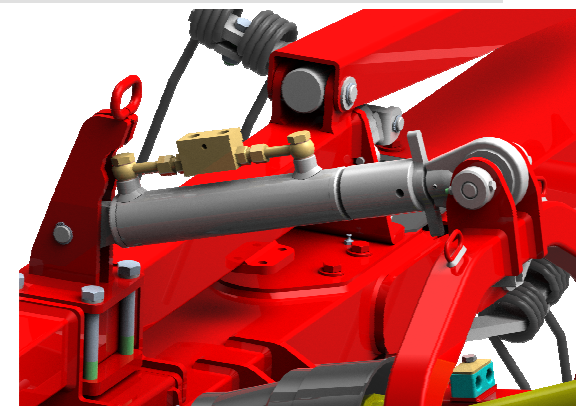
D2.4 Change of direction or reverse

At the end of the field when the tractor with the hay tedder must reverse the direction of movement or in the case it has to go for a short distance in reverse, is essential that the teeth are raised off the ground and when needed the machinery has to convert into the transport configuration.

For the teeth lifting:

- **Mounted type (G4):** the whole machinery must be lifted, with the tractor's hydraulic lifter, until the teeth are at about 30 cm from the ground;
- **Pulled type (G4 MECANICAL):** you will need to act on the crank until the teeth will be spaced about 30 cm from the floor;
- **Pulled type (G4H):** extend the according ram operating on the corresponding lever in the tractor cabin.

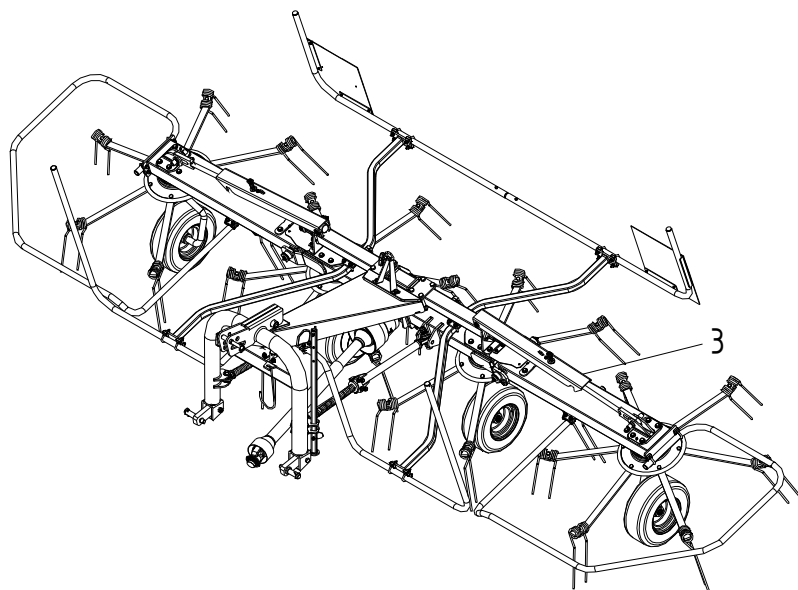
Fig.D9



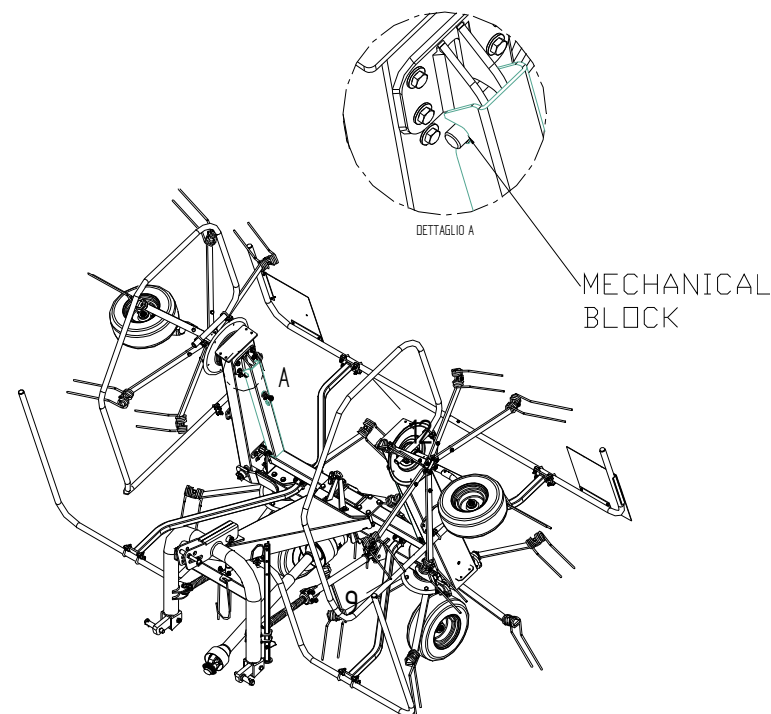
To make the machinery assume the transport configuration see the following chapter.

D2.5 Transport configuration

- **G4 (both mounted and pulled) - fig.D13:**
 - acting on the corresponding lever in the cabin, give completely retract the two rams and raise the two external sections until the two mechanical locking devices (one for each side) attach to their corresponding stops placed on them;



WORKING POSITION



TRANSPORT
CONFIGURATION

- **For the mounted type:** operating on the tractor's hydraulic lifter raise the machinery until the teeth are about 30 cm from the ground..



D2.6 End of work

At the end of work, if a tractor has to go back in its usual parking place, make the hay tedder assume the transport configuration before moving.

Therefore:

- switch off the PTO;
- stop the tractor engine;
- pull the parking brake;
- place the gear lever in neutral position or "neuter";
- remove the key from the ignition;

For machinery storing follow the instructions described in paragraph C6.

MAINTENANCE

E1 Precautions during maintenance

The hay tedder is agricultural equipment that does not require special maintenance, nor relative programs. However, there is a regular intervention, described below, which, if done with care by the Client, will keep unchanged the efficiency and the working capacity of the machinery avoiding any operating damage.

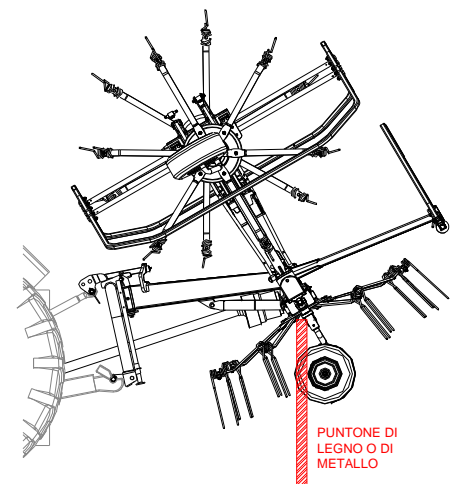
The operator, which must be of age, qualified and trained to perform such interventions must necessarily observe what follows:

:



DANGER

- any type of intervention has to be performed on a flat surface, sufficiently lit and clear of people, animals or things that might hinder the manoeuvre. The machinery must be placed firmly on the ground, the tractor blocked, the parking brake pulled, the engine turned off and the keys removed from the ignition. Should it be necessary to lift the hay tedder, it is appropriate to secure it by placing beneath pieces of wood or metal, as shown in figure;
- before operating, for his safety and to prevent damage to the hay tedder, he must apply, well in view on the tractor dashboard, the warning sign "Machine under Maintenance";
- both maintenance and repair operations, once started, must always be finished and never postponed;
- he must rely on his memory, but always read the instructions in this manual and execute them accurately;
- the use of equipment to perform maintenance work is subjected to the accident prevention regulations. However, do not use equipment improperly, for example, do not use gasoline to clean or a plier instead of a wrench;



At the end of maintenance or repair operations, remove from the area any water, oil, grease oily rags, tools or other material that may be present.

E2 Maintenance operations

The intervention times are for information only and refer to normal conditions of use. Therefore, they are subject to changes in relation to the kind of service, the environment in which the work is done (more or less dusty) seasonal factors etc. The more the machinery conditions are burdensome, the more the interventions must be increased.

The maintenance interventions to be carried out every week or after 40 hours of operation are:

- refuelling of grease using the specific pump, in all the greasers present on the machinery and identifiable through the adhesive labels like the one shown on the side and stuck in their proximity;
- check the fastening of nuts and screws that secure the various parts of the machinery;
- check for the presence of the various safety pins and cotter R pins that lock the various parts of the machinery;



GREASER



POINTS TO LUBRICATED

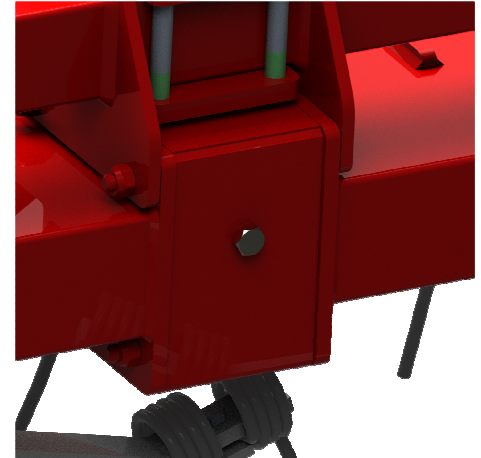
- verify that the structural integrity of all the machinery parts especially those more subject to wear such as wheels tires;
- **for pulled types:** check all of the hydraulic system components for air or fluid leaks;
- check the integrity of the rotary groups and also check that the transmission transfer case does not present any oil leakage.

Note: all types of hay tedders have a grease lubricated transmission transfer case which means that all internal components can only operate if they are immersed in the lubricant. Consequently, if they are not grease lubricated they are subject to a rapid wear out and therefore to seizure. Therefore, if the operator observes any loss or leakages from the box, it is essential to check the grease level inside. To check simply unscrew the cap level on the side of the head as shown in the figure. Periodically check the grease level inside the case, in order to refilling it using a pum. For filling the case use only grease type ISO L-X-BCHB 2.

IMPORTANT

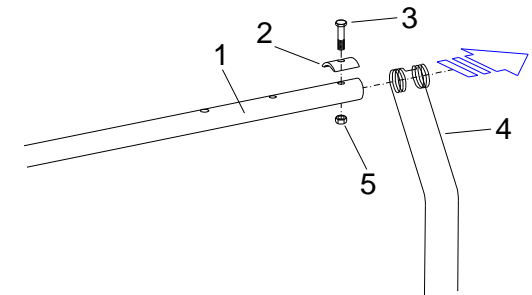
To avoid pollution, it is absolutely forbidden to dispose of oils, lubricants, filter cartridges or other harmful materials into the environment. Strictly follow the regulations in force for the disposal of liquid and solid substances.

- for the cardan shaft interventions, read its use and maintenance manual.



E3 Teeth replacement

If teeth replacement were necessary (worn or broken), you must completely unscrew the locking nut (5), extract from its seat the fastening screw (3) with its teeth-stop plate (2) and then pull the pair of teeth (4) from the machinery's arm (1). Insert a new pair and proceed in reverse order the phases described for the removal.





E4 Troubleshooting

DAMAGES or FAILURES	CAUSES	SOLUTIONS
For pulled types – Rams move jerkily Air in hydraulic circuit Run the hay tedder vacuum for	several minutes to bleed the air	remaining the hydraulic circuit

DAMAGES or FAILURES	CAUSES	SOLUTIONS
		Also check the oil level in the tractor's hydraulic tank
For pulled types – A ram moves without being activated by its control	Ram seals worn out	Also check the oil level in the tractor's hydraulic tank
	Teeth too high from ground level	Replace the seals
Partial or insufficient forage recollection	The teeth are continuously in contact with the ground	

E5 Material disposal in case of demolition

When the hay tedder is placed out of service, we need to make harmless the parts that could become dangerous for people, animals and the environment, if dispersed. The materials of the machinery, which are subjected to a separate subdivision are:

- iron
- lubricating oil
- rubber

Disposal of these materials must be done according to the regulations of applicable law, in force in each country.





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