

# ***GAL.CO S.r.l.***

## **COSTRUZIONI MACCHINE AGRICOLE**

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# **GALFRE**

## **USE AND MAINTENANCE MANUAL**



## **ROTARY TEDDERS**

### **GTS 280 – GTS 310 – GTS 420 – GTS 520**

Contains Declaration of Conformity (CE)

 Read carefully this manual before using the equipment 

*MUM\_GTS\_Eng*

***Traduzione dal manuale originale***  
***Translation from original manual***

**DICHIARAZIONE DI CONFORMITÀ CE****GALFRE**La Ditta **GAL.CO S.r.l.**Via Centallo, 136 - ROATA CHIUSANI - 12044 CENTALLO (CN) Italy  
Tel 0171.718005 Fax 0171.718004

dichiara sotto la propria responsabilità che la macchina:

**GIRELLO SPANDIVOLTAFIENO**

modello .....

matricola n. ....

anno .....

**È conforme ai requisiti essenziali di sicurezza e di tutela della salute di cui alla:****Direttiva CEE 89/392 e sue successive modificazioni nonché ai requisiti di cui alle seguenti Direttive CEE****Per la verifica della Conformità di cui alle Direttive sopra menzionate sono state consultate le seguenti norme armonizzate:****EN 292-1:1992** Sicurezza del macchinario. Concetti fondamentali, principi generali di progettazione. Terminologia, metodologia di base.**EN 292-2:1992** Sicurezza del macchinario. Concetti fondamentali, principi generali di progettazione. Specifiche e principi tecnici.Persona autorizzata a costituire il fascicolo tecnico:  
.....*Il legale rappresentante*

Centallo (CN), .....

## DECLARATION OF CONFORMITY CE

The Company **GAL.CO S.r.l.**

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The depositary of the Technical file

.....

Rd. ....

Town ..... State .....

Declares under its own responsibility that the machine:

### **ROTARY TEDDER**

**Model** .....

**Serial N°** .....

**Year** .....

**Complies with the following European Directive:**

**Directive 89/392/CEE** Machinery Directive

*For the adaptation of the machines, the following Harmonized Standards were consulted:*

**EN 292-1:1992** Safety of machinery - Basic concepts, general principles for design - Part 1:  
Basic terminology, methodology.

**EN 292-2:1992** Safety of machinery - Basic concepts, general principles for design - Part 2:  
Technical principles and specifications

*The Company Representative*

*Roata Chiusani,* \_\_\_\_\_



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## 1 INTRODUCTION

The manual and the attached declaration of conformity shall be considered part of the machine until its disposal and have to be passed on to new operators or owners.

If the manual is not supplied together with the machine or if it becomes lost it is recommended to order a copy from GAL.CO S.r.l..

**Thoroughly read the use and maintenance manual** and follow the instructions noted on it before using, checking and operating the machine.

If for any reason you do not understand any part of this manual, including tables or drawings, contact GAL.CO S.r.l. and request assistance from the service department.

GAL.CO S.r.l. is at full disposal of users, sales staff and any other person in order to improve understanding of the whole manual.

In conformity with existing law instructions on hazardous situations are indicated as described in chapter 3.

***This Manual is written in conformity with the rules current at the time of printing.***

***The Manual is part of the machine and has to be passed on to new operators or owners together with the Declaration of Conformity.***

## 2 GENERAL INFORMATION

### 2.1 INFORMATION ABOUT THE MANUAL

This operator's manual is designed to help familiarise the user with operation and maintenance of the machine. Performance and life of the machine depend upon proper maintenance and safe operating practices.

Some pictures may be different from your machine or show some components removed for purposes of clarity.

The manual and the items dealt with in it are in compliance with the "Directive 89/392/CE" and relevant technical rules.

The mower comes equipped with safety labels in place. In conformity with the existing Community law keep all safety labels legible and replace them if necessary.

**The manual is designed for authorised professional operators, who are appropriately trained and familiar with the tractor to which the mower is attached.**

Technical information contained in the manual is intellectual property of GAL.CO S.r.l. and shall be kept confidential.



The symbol on your left together with the signal words:

**DANGER!**  
**ATTENTION!**  
**WARNING!**

is used to call attention to safety precautions which should be followed by the operator. Follow the recommendations.

**It is recommended to use originally manufactured spare parts and accessories.**

**The guarantee shall not apply if originally manufactured spare parts are not used. The use of non genuine parts could affect life and performance of the machine.**

### **2.1.1 INFORMATION ABOUT THE MACHINE**

The materials used for building GAL.CO S.r.l. rotary tedders are chosen according to the tasks for which the machine is designed and built: any non-conforming use can cause damages to persons and property and affect the operation of the machine.

Proper use of the rotary tedder also specifically includes compliance with operating, repair and maintenance instructions contained in this manual.

GAL.CO S.r.l. is in no event liable for non-proper use of the machine.

GAL.CO S.r.l. is not liable for any damages and injuries, including severe injuries, to operator and other people or property resulting from any unauthorised changes or modifications to the machine.

Proper operation of the machine and compliance with the instructions contained in the manual and safety precautions will reduce the risk of accidents and injuries and ensure higher performance, while extending machine life and reducing the risk of troubles to the lowest level.

**GAL.CO S.r.l. shall in no event be liable for failure to comply with the safety instructions given in the manual.**

### 2.1.2 IDENTIFICATION OF THE MACHINE

The machine identification plate, located on the frame, bears the EC mark, the Manufacturer's data, the model, the serial number, the year of manufacturing and the mass of the machine.



#### Location of EC plate on the machine:



**When ordering spare parts always mention the equipment model, the chassis number and year of manufacturing.**

The CE mark and the Declaration of Conformity state that the machine is manufactured in conformity to the "directive machine".

### 2.1.3 PROPER USE

Rotary tedders are designed, built and protected for use in agriculture for spreading, fluffing, turning any kind of crops.

**The machine is designed for professional users and shall be operated exclusively by authorised trained staff holding driving licence.**

**The machine is not designed for operation in other fields than agriculture.**



#### **ATTENTION!**

**The machine is for use by one operator at a time. The use of the machine for a purpose for which it is not designed than the intended one is considered as non-proper use.**

GAL.CO S.r.l. is not liable if **safety labels** are missing, illegible or if they have been removed from their location (see par. 3.2 e 3.3).

If safety labels are damaged or missing, order new labels. Refer to the information contained on the machine identification plate.

This machine is designed for use during the day. At night or under conditions of reduced visibility use the machine light devices.

**GAL.CO S.r.l. is in no event liable for any damages and injuries, including severe injuries, to operator or other people and property resulting from any unauthorised changes and modifications to the machine.**



## 2.2 FEATURES OF THE MACHINE

### 2.2.1 IDENTIFICATION OF THE MODELS

GAL.CO S.r.l. rotary tedders are available in different models in order to meet customers' specific needs.

**Two rotor models:**

**GTS 280 - GTS 310**

**Four rotor models:**

**GTS 420 – GTS 520**

The name "GTS" indicates the type of the machine (Tubular frame rotary tedder), the number indicates the working width (in cm).



*Mod. GTS 520*



*Mod. GTS 280*

The four rotor models can be equipped with hydraulic operated opening/closing of the external rotors in alternative to the spring-operated version, while the two rotors models have fixed arms.



*Rotary tedder having rotors closed (raised)*



Rotary tedders can be equipped with a 3 points hitch or with a drawbar.



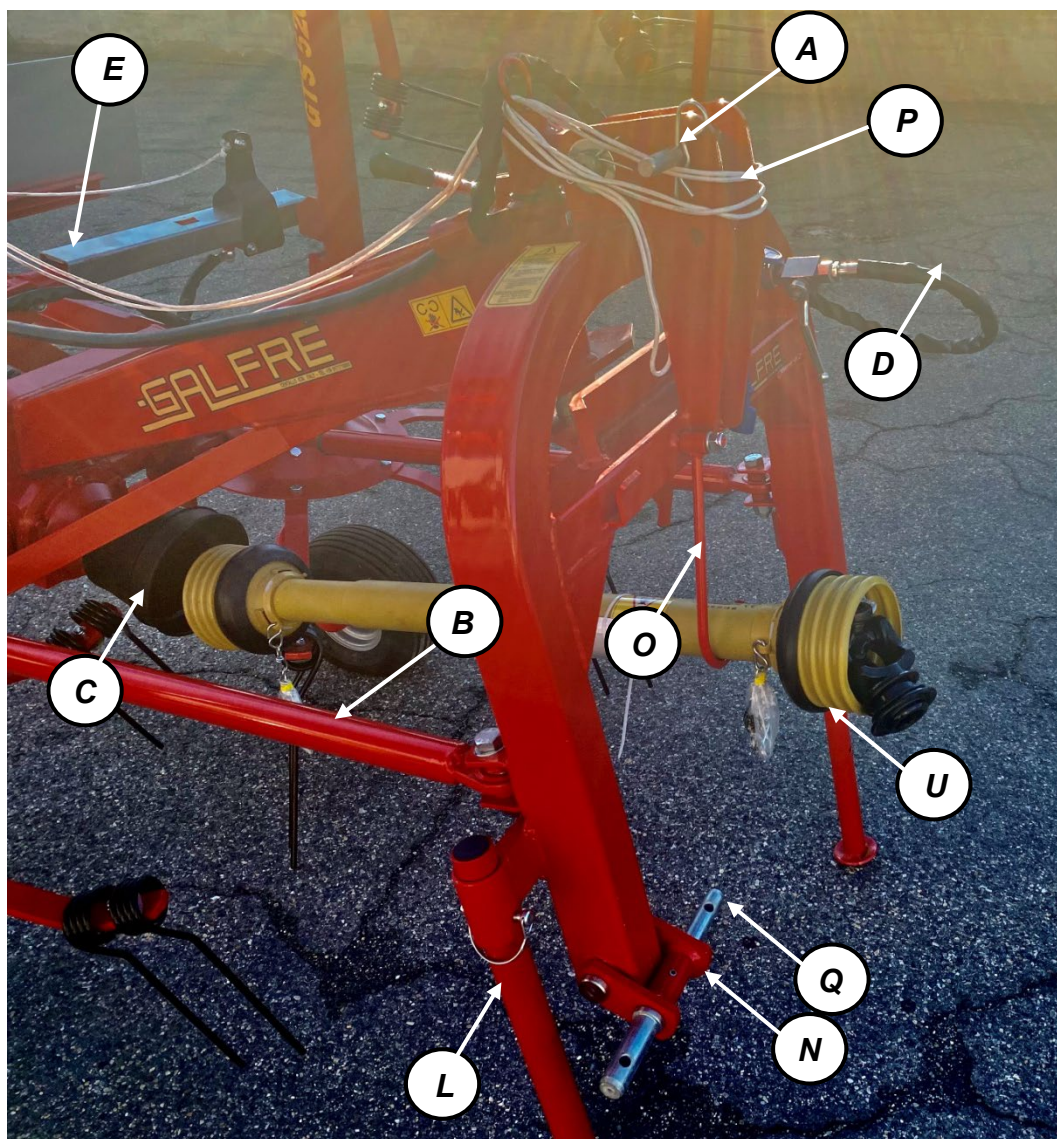
*Rotary tedder equipped with 3 point hitch*



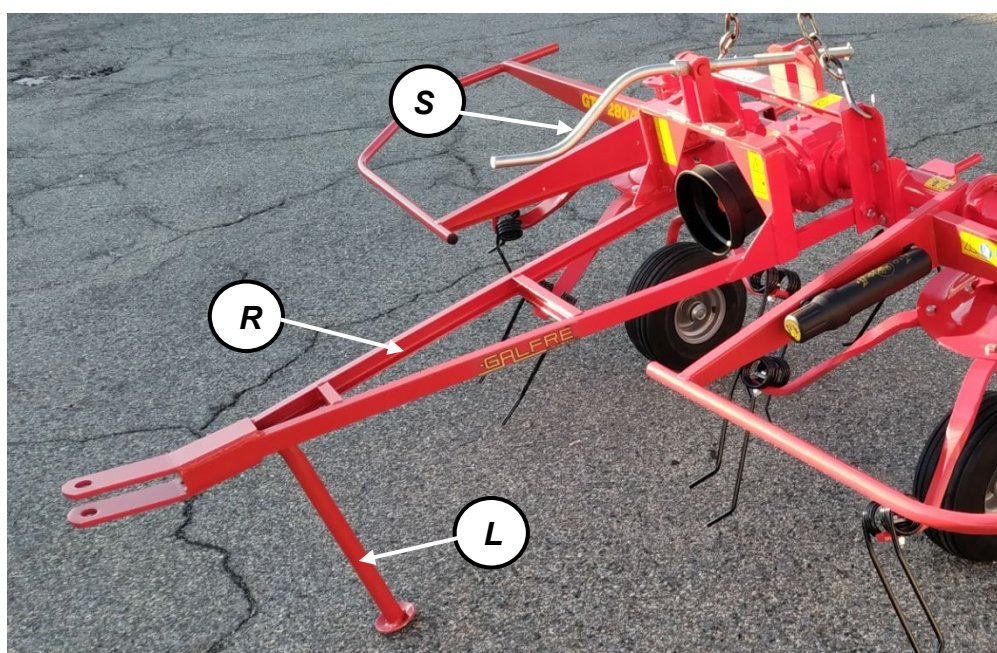
*Rotary tedder equipped with drawbar*

## 2.2.2 MAIN COMPONENTS IDENTIFICATION

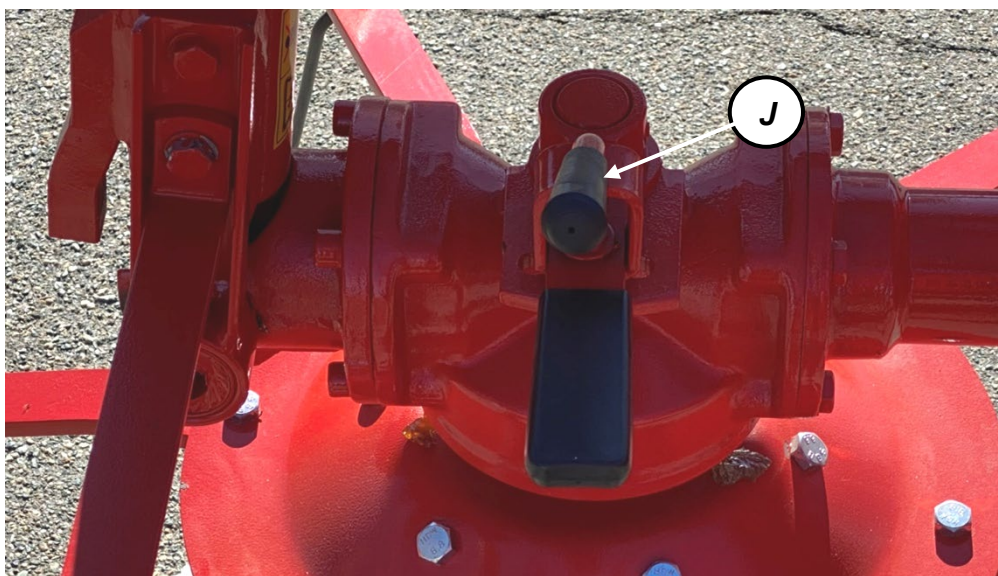
A. Linkage connection 3rd point	L. Stand
B. Stabilizer	M. Protection bar
C. PTO protection coif	N. Lift arms coupling
D. Hydraulic hoses	O. Universal joint support
E. Hydraulic ram with spring	P. Rotor unlock rope
F. Rotor	Q. Lift arms pivots
G. Light bar support	R. Drawbar
H. Spring tine	S. Inclination adjustment lever
I. Tine holder arm	T. Rotor lowering lock pivots
J. Wheel locking lever	U. Universal joint
K. Tyres	











## 2.3 TECHNICAL FEATURES

Rotary tedders GTS are available in four different versions, having two or four rotors.

<b>ROTARY TEDDERS</b>		<b>GTS 280</b>	<b>GTS 310</b>	<b>GTS 420</b>	<b>GTS 520</b>
Larghezza di trasporto	m	2,80	2,90	2,30	2,70
Transport width	ft	9	9	7	8
Larghezza di lavoro	m	2,80	2,90	4,20	5,20
Working width	ft	9	9.5	14	17
Altezza in posizione di trasporto	m	1,40	1,40	2,30	2,50
Height in transport position	ft	4.5	4.5	7.5	8
Peso	kg	185	200	420	500
Weight	lbs	408	440	926	1102
Numero giranti / Rotors	n	2	2	4	4
Bracci per giranti / Arms per rotor	n	6	6	5	6
Potenza min. richiesta dalla trattrice	HP	15/20	15/20	18/25	18/25
Power required					
Giri presa di forza / PTO speed	rpm	540	540	540	540
Pressione imp. idraulico / Hyd. circuit pressure	bar			225	225
Pneumatici / Tyres	n	2	2	4	4
Tipo pneumatici / Tyres type		3,50 X6	3,50 X6	15X6,00-6	15X6,00-6
Pressione pneumatici / Tyres pressure	bar	1,8	1,8	2	2
Dispositivo di spandimento laterale sinistro e destro Lateral spreading device				●	●
Tiro a traino / Draw bar		●	●	●	●
Chiusura idraulica / Hydraulic lifting (opzione/option)				●	●
Forma andana / Swather (opzione/option)		●	●		

## 2.4 OPERATION

Rotary tedders are connected to the tractor by means of a 3 point hitch (articulated for four rotor models), which allows lateral swing and the capability of working in the curves; this device allows a degree of turning without having to raise the tedder.

This model can also be equipped with two stabilizers whose function is to keep the tedder in the same line of the tractor when driving straight, without limitation of the swinging of the articulated hitch.



*Articulated hitch equipped with stabilizer*

Alternatively the tedders can be pulled by means of a drawbar that, being naturally articulated, allows the same working capability seen for the 3 point hitch.



*Drawbar*



The working elements are spring tines, connected to arms turning around a vertical pivot, making circular movement on the horizontal surface.

Rotors are counter-turning per pair.



*Rotary tedder having arms open*

Rotary tedders can be equipped with two different type of tine arms: straight arms and straight tines or twisted arms and hooked tines.

These last ones are more suited when fluffing dry grass.



*Straight arms with straight tines*



*Twisted arms with hooked tines*

Rotary tedders opening/closing system for changing configuration between transport mode to working mode, can be hydraulic operated (by means of a single acting ram) or manual (by spring operated tie-rods).

Manual operated rotors arms are equipped with a mechanical locking lever for securing the rotors when closed, so to allow safety transport condition.

Locking and unlocking of the rotors must be performed from ground, operating the locking lever and then lowering (or lifting) the arms.



*Manual locking device for arms lowering (lever)*

Rotary tedders equipped with hydraulic operated arms raising feature a locking device of the rotors in raised position so to allow safety transport condition.

To lock the arms in transport (vertical) position, pull on rope, and then raise arms up, releasing rope just before arms are fully raised (approx. 90°).

To Lower arms, pull the rope to release catch before lowering the hydraulics.

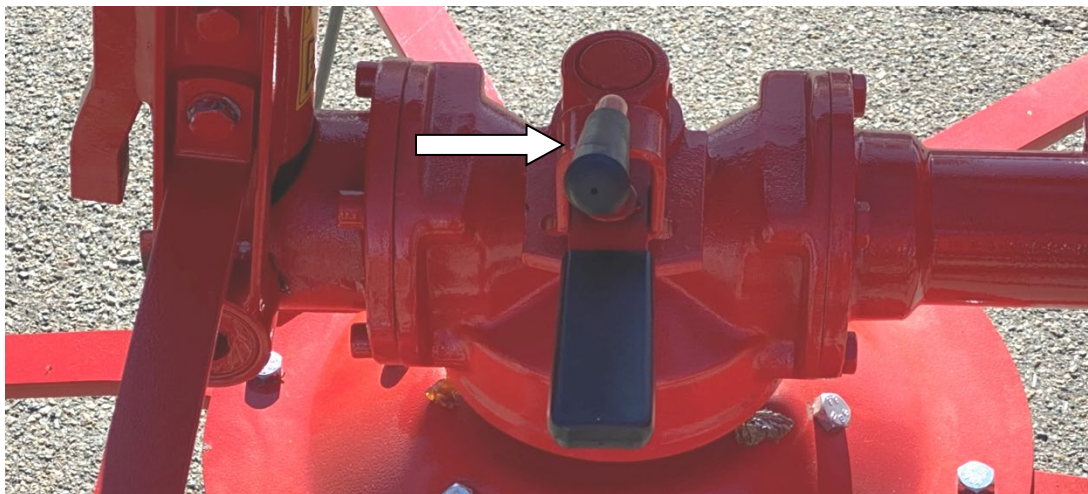
The rope must be securely and safely placed in Tractor Cab



*Rope operated locking device for arms lowering*



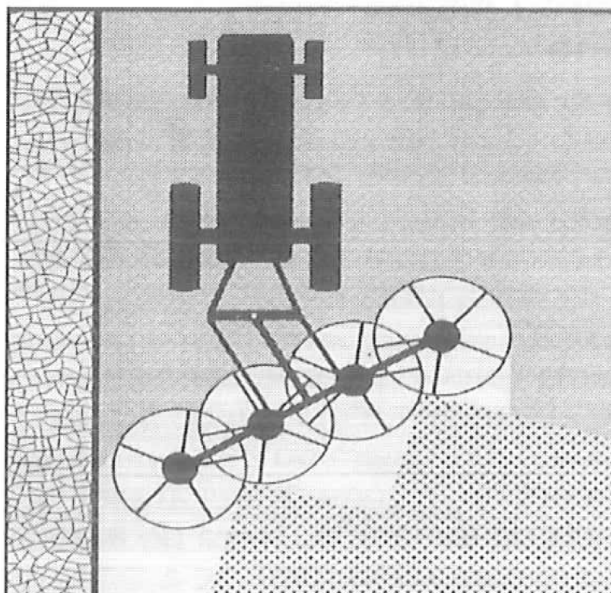
During working the wheels must be maintained locked, inserting the locking lever inside the hole (spring operated).



*Locked wheel*

**NOTE:** models with two rotors having 3 points hitch have free wheels (free to twist); if having drawbar, wheels are locked by an elastic pin.

For lateral spreading – left or right - (for 4 basket tedders only) wheels must be oriented left or right (with respect to the driving direction) by means of a specific lever on each rotor; levers must be locked in the selected position by means of the locking lever.



*Lateral spreading*

### 2.4.1 NOISE LEVEL

**Noise level tests** are carried out on all machines manufactured by GAL.CO S.r.l.

Depending on the position of the machine the noise level is lower than 80,0 dB(A).

On the basis of the noise level it is recommended to wear suitable hearing protection.



#### **WARNING!**

**Cleaning, regular maintenance of the machine and systematic lubrication help reducing the noise produced by the machine.**

Although there is a correlation between sound emission and exposure levels, this data cannot be used to determine if it is necessary to take precautions.

The resulting noise level depends not only on the noise caused by the machine but also on other factors such as the working area and exposition to loud noise.

Nevertheless the information on the noise caused by the machine will be useful to the employee or the user in terms of risk analysis.

## 2.5 TRANSPORT AND LIFTING

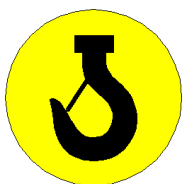
When the machine is not attached to the tractor, it can be raised by means of a crane or forklift, using the pull eye bolt or the structure itself as shown in the label attached to the machine.

The four rotors tedder must be lifted using a lifting belt that must be placed around the two outer rotors, as shown in the picture.

Lifting of the machine shall be performed by skilled staff.



*Lifting of 4 rotors tedder*

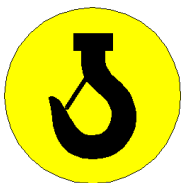
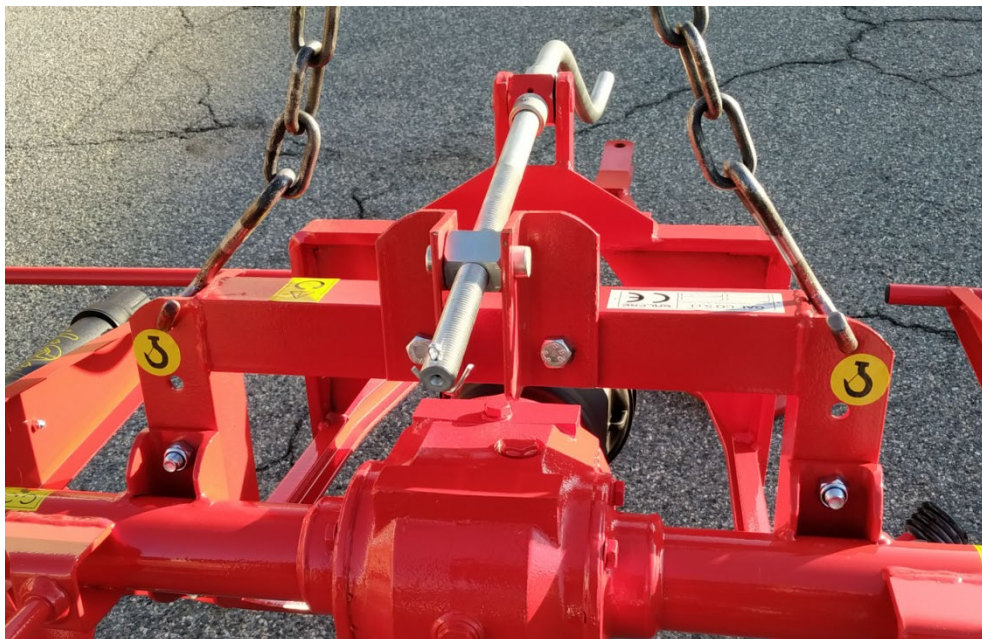


**For raising the machine use safety hooks and suitable cables to be mounted as indicated by labels.**





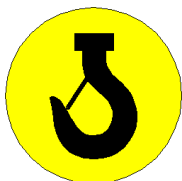
*Lifting of 2 rotors tedder fitted with drawbar*



**For raising the machine use safety hooks and suitable cables to be mounted as indicated by labels.**



*Lifting of 2 rotors tedder fitted with 3 point hitch*



**For raising the machine use safety hooks and suitable cables to be mounted as indicated by labels.**



**ATTENTION!**

**Before lifting the machine make sure that there are no people and/or animals in the working area of the machine .**

**ATTENTION! – DANGER!**

**During lifting of the machine standing or walking under the equipment lifted is forbidden.**

**Leaving the lifting vehicle (crane, forklift) with the equipment lifted is forbidden.**



## **2.6 STORAGE**

If the machine is not used for a long period it is necessary to store it inside to avoid exposure to weather and dust. Before operating it again, it is good practice to clean the machine and lubricate all mechanical components to prevent rust.

- Clean the machine thoroughly;
- Inspect the machine for damaged parts and scratched paint;
- Make sure that safety signs are legible and located properly on the machine. Replace damaged safety labels (see par. 3.2 and 3.3);
- Replace damaged or worn tines (see par. 6.3);
- Lubricate all mechanical components, locking pins, the coupling head to the universal joint (see par. 6.1);
- Replace oil in the gearbox and in the cutter bar following the instructions (see par. 6.2);
- If possible, store the machine in a covered area.

## **2.7 DISPOSAL AND SCRAPPING**

The machine shall be scrapped in suitable dumps in compliance with the existing law.

Collect used oil and dispose of it according state and local regulations.

Used oil is harmful according to the existing law, therefore it shall be properly collected. Contact the Oil Collection Centre. (In Italy - C.O.O.U. – Consorzio Obbligatorio Oli Usati (Free number 800 863 048).

Collect properly plastics, aluminium and steel components for them to be recycled.

**FOLLOWING SAFETY RULES ARE SERIOUS FOR YOUR SAFETY AND THE SAFETY OF OTHERS: READ THEM THOROUGHLY AND FOLLOW WITHOUT EXCEPTION.**

### **3 SAFETY RULES**

When operating, checking or doing maintenance, follow the existing safety rules.

Failure to follow basic safety rules can result in accident or injury during operation, maintenance and repairing of the machine.

GAL.CO S.r.l. rotary rakes are exclusively designed and built for agricultural use for spreading, fluffing and turning the grass; any use for another purpose than this shall be authorised in writing by the manufacturer.

**The Manufacturer is not liable for any changes and modification made to the machine without his prior approval (in writing).**



#### **ATTENTION!**

**GAL.CO S.r.l. is not liable for any damages resulting from misuse or use for a purpose for which the machine has not been designed.**

The machine shall be operated exclusively by authorised trained staff who are familiar with the operation of the machine and aware of the related hazards.

For further assistance contact the service department of the Company.

**Observe the following safety instructions carefully.**

### 3.1 SAFETY AND ACCIDENT PREVENTION RULES

*The safety rules described in the manual refer exclusively to the purpose for which the machine is designed and built. In addition to the recommendations contained in the manual hazard control and accident prevention depend upon the awareness, concern, prudence and proper training of personnel.*



#### **WARNING!**

**Before operating the machine, inspect carefully all parts.**

- In addition to the instructions described in the manual, follow all general safety and accident prevention rules. Before operating the machine or performing maintenance read and understand the instructions.
- The labels affixed to the machine call attention to safety precautions that shall be followed.
- Make sure that safety labels are legible. Clean and replace them if necessary.



#### **ATTENTION!**

**Before maintenance, adjustment or cleaning, lower the machine to the ground, turn off the engine of the tractor, disengage power takeoff, set hand brake and remove the ignition key.**

- Before leaving the tractor switch the engine off and apply parking brake.
- The tractor must not leave unguarded when engine is on.
- Before operating the machine make sure that all guards and safety devices are properly secured and in good conditions; replace damaged guards if this is the case.



**DANGER!**

**For your safety and the safety of others do not tamper with, damage or remove safety devices.**

**ATTENTION! - DANGER!**

**Before working make sure that no people or animals are in the machine working area. In case people approach immediately stop the engine of the tractor.**

**ATTENTION!**

**Anyone approaching to the tedder is in a dangerous area, therefore it becomes an "exposed person". The operator must stop anyone to enter in the dangerous area and operate with maximum attention.**

- Keep the manual handy to check operational running. If the manual becomes lost or damaged, order a copy from GAL.CO S.r.l.
- **The machine shall be operated exclusively by authorised trained staff.**
- **The machine is designed to be operated by one operator at a time.**
- Never operate the machine if you feel tired, if you are sick or if you have drunk alcohol or taken drugs or medicines.
- The operator shall wear clothing and equipment appropriate for the job to avoid entanglement with parts (no loose fitting clothing, belts, necklaces, bracelets, rings).



**During operation, maintenance, repairing, driving or storing of the machine, the operator shall wear safety shoes, safety gloves, and, if necessary, earplugs, dust mask and safety glasses.**

- There might be some dust production during operation. It is recommended to use tractors equipped with cabins with filters on the fan system or to use suitable devices such as masks in order to protect the breathing system.
- After transport perform an inspection. If the machine has been damaged contact GAL.CO S.r.l.
- Make sure that there are not any foreign bodies in the machine (debris, tools, etc.) which could affect operation or cause injuries to the operator.
- If using compressed air or water for cleaning, wear safety glasses and masks and keep others away.

**DANGER!**

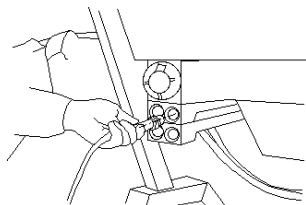
**Do not get on the machine or allows riders while the machine is in operation.**

- Before hitching the tedder to the tractor make sure that the tractor is in good working condition and that the brakes are perfectly working, especially if working in uneven fields.
- After hitching make sure that the drive shaft is installed properly.

**ATTENTION! DANGER!**

**Make sure that the drive shaft guards are in good condition.**

- Replace worn or damaged drive shaft guards.
- When the machine is not connected to the power takeoff, the hydraulic hoses and the drive shaft shall be properly secured to their support elements.



**Make sure that hydraulic hoses are properly installed.**

**Check hydraulic hoses for wear and replace them if necessary (anyway at least every 6 years).**

- Detach the machine uniquely on level ground and compact, with the aid of the stand. Make sure that the machine is stable.
- Before performing maintenance under raised parts of the machine secure them using suitable blocks.



**ATTENTION!**

**Never stand between the tractor and the mower when the engine is running and the power takeoff is engaged.**

- Don't operate the tedder if not seated in the tractor driving seat.



**WARNING!**

**The operator shall only perform maintenance as recommended in the manual.**

- Any changes and modifications to the machine could cause injury or accident for which the operator only shall be held liable.



**DANGER!**

**When operating the tedder from transport mode to working mode and vice versa, the machine is particularly dangerous concerning pinching or crushing hazard. Double the care when performing this operation and move away all person from this area.**

**Use exclusively original spare parts GAL.CO S.r.l.**

GAL.CO S.R.L. shall not be held liable under the following circumstances:

- If the tedder has been misused or operated by unauthorised or unskilled staff;
- Maintenance failure;
- Unauthorised changes or modifications to the machine;
- If not originally manufactured or not suitable spare parts have been used;
- Failure to follow, even partly, the instructions;
- Failure to comply with the general safety rules at work;
- Facts beyond its reasonable control.



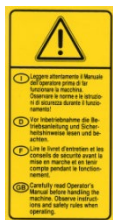
### 3.2 SAFETY SIGNS WITH WARNING SYMBOLS

Following symbols are intended to alert the operator to a potentially hazardous situation and call attention to safety precautions.

**Safety labels** affixed to the machine indicate the existence of hazard and safety precautions that shall be followed.

#### SYMBOL

#### DESCRIPTION



**1. ATTENTION !** Thoroughly read the operator's manual before operating the machine. Follow the instructions and the safety rules during operation.



**2. ATTENTION!** Before maintenance and adjustment, read the operator's and maintenance manual, stop engine and remove the ignition key.



**3. ATTENTION! –** High pressure fluid hazard. Refer to the manual before taking any action and seek medical assistance in the event of contact with dangerous fluids.



**4. ATTENTION!** Check the direction of rotation and the revolutions (540 r.p.m.) of the power takeoff of the tractor before assembling the drive shaft.



**5. ATTENTION! –** Entanglement hazard. Keep hands away from the running drive shaft.



**6. ATTENTION! –** Impact or crushing hazard, don't stand in dangerous area when operating the tedder from transport mode to working mode and vice versa.



**7. ATTENTION!** - Crushing hazard. Never stand between the tractor and the machine.



**8. ATTENTION!** Don't approach to the rotor during working. Keep away. In case anybody approach immediately stop the engine of the tractor.



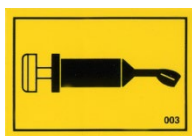
**9. DANGER** Crushing and shearing hazard. Keep hands away and stand clear. Keep a safe distance.



**10. ATTENTION!** – Crushing hazard. Stand clear when rotors are being lowered. Don't approach, keep away.



Wear proper protective equipment.



**11. Lubrication points** (see par. 6.1).



**12. Gear box oil** (see par. 6.2).



**13. 3 points hitch articulation lock lever** (see par. 4.3 e 5).



**14. Rotors lowering safety lock lever** (see par. 2.3).

### 3.3 LOCATION OF SAFETY LABELS ON THE MACHINE

This section illustrates the location of safety labels on the machine.





**ATTENTION!**

**Make sure that safety labels are legible. Clean them with soapy water and a cloth.**

**Replace damaged labels.**

## 4 INSTALLATION AND OPERATION

### 4.1 SAFETY RULES FOR ATTACHING TO THE TRACTOR

When on the road, the tractor's steering and braking capacity are influenced by the mounted implements.

Select a safe ground speed, in particular when travelling over rough or hilly terrain, in order to avoid possible imbalance.

The load on the front axle of the tractor depends upon the weight of the attached machine; the load on the front axle shall be at least 20 % of empty weight of the tractor.

Before attaching the machine to the three point linkage position the safety device of the tractor to avoid unintentional raising or lowering of the machine.

Before hitching check lifting and stable operation of the machine referring to the formula in paragraph 4.2.

The three point linkages of the tractor and of the machine shall correspond or be adjusted together.

Rear lifting arms could cause injury. Attach and detach the machine on level ground.

**Never use remote control to raise the machine.**

In the transport position secure lateral drift arms.

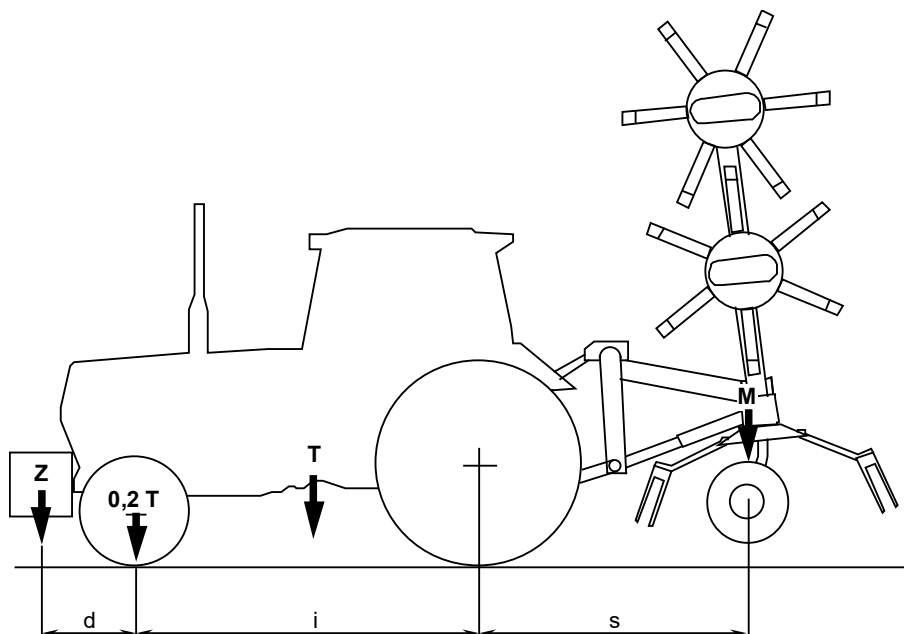


#### **ATTENTION!**

**Before leaving the cabin of the tractor turn off the engine, disengage power takeoff, apply hand brake and remove the ignition key.**

## 4.2 CHECK LIFTING AND STABLE OPERATION OF THE TRACTOR

For lifting and stable operation of the tractor refer to the following formula.  
Additional tractor front ballast may be needed.



$$M \times s \leq 0,2 T \times i + Z (d + i)$$

$$M \leq 0,3 T$$

<b>i</b> =	Wheelbase of tractor
<b>d</b> =	Distance between front axle and ballast
<b>s</b> =	Distance to the rear axle of the machine
<b>T</b> =	mass of the tractor + 75 kg (operator)
<b>Z</b> =	Mass of ballast
<b>M</b> =	Mass of the machine



### ATTENTION!

**Check lifting and stable operation of the tractor in order to avoid imbalance and/or loss of adherence to the road.**

**When the tedder is in transport position never engage power take off of the tractor.**



### 4.3 TRASPORT ON PUBLIC ROADS



#### **ATTENTION!**

#### **When driving on public roads**

**comply with the existing traffic regulations.**

**In case the equipment is covering tractor lights, use accessory lights and devices for adequate warning to other vehicles.**

When driving on public roads, in addition to traffic regulations, follow instructions noted on the tractor licence and select a safe speed especially when transporting drawn machines or when travelling over rough or hilly terrain.

Before travelling on public roads after operation, clean debris from tyres and from rotors.

All tedders are equipped with a rear reflector bar for installing possible tail light or light bar.



*Rear reflecting bar*

**During road transfer the tedder must be set in transport configuration, the arms fully raised and the stand locked lifted.**

Check that the mechanical locking device is working correctly and insert firmly the locking levers (see par. 2.3)

Concerning the rope operated lock device, the rope must be placed in the cabin of the tractor, so that it can't be operated unintentionally. As a further safety, close the hydraulic tap of the quick coupling to avoid possible accidental lowering.



*Tedder in transport position*



Ensure that the locking lever of the 3 points hitch articulation (see par. 2.2, rif. A) is properly inserted so to keep the tedder aligned during transport.



*Locking lever not inserted*



*Locking lever inserted*



Raise the stand/s and fix it/them using the safety pin. Stand must always remain with the machine.

NOTE: the 2 rotors model equipped with drawbar doesn't have the stand because the stability is granted by weight distribution.



**ATTENTION!**

**During transport with raised tedder make sure that the control lever is properly secured to avoid unintentional lowering of the machine.**



**ATTENTION!**

**During road circulation the tractor beacon must always be in function, even by daylight.**

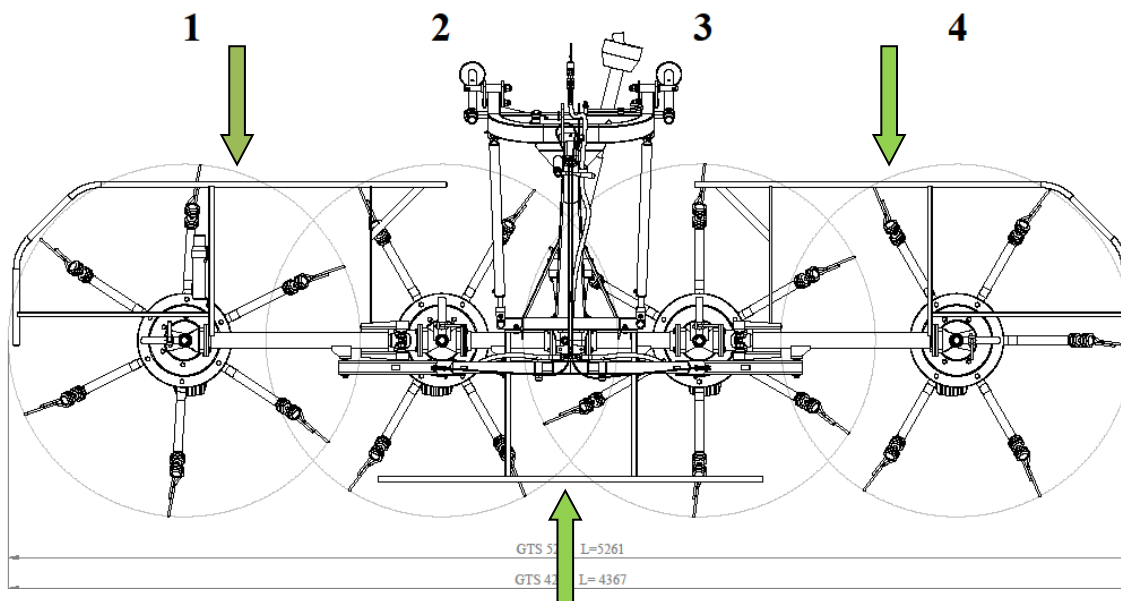
## 4.4 ATTACHING THE TEDDER TO THE TRACTOR



### ATTENTION!

Respect the following rules before put the tedder in operation.

- Check that all protection railings are installed.



- Check oil level in the gearbox (type EP420)
- Maximum speed of P.T.O. 540 r.p.m.

### 4.4.1 ATTACHING THE 3 POINTS HITCH TO THE TRACTOR

All GAL.CO S.r.l. rotary tedders can be attached to any kind of tractor equipped with universal three point linkage.

Always ensure that the lower connection arms of the tractor correspond to the category of the pivots of the 3 points hitch of the tedder (category I and II for 4 rotors version, uniquely category I for 2 rotors version).

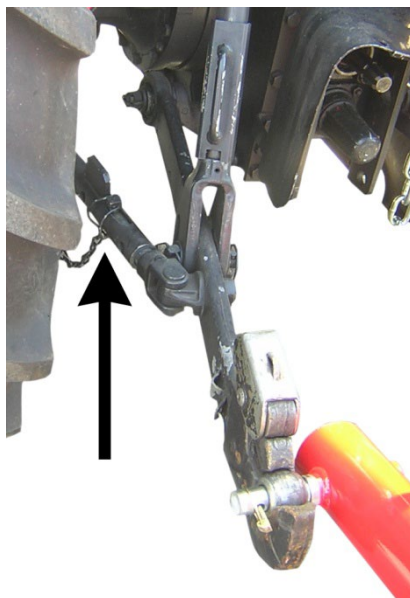
The area shall be properly lightened under conditions of reduced visibility. Nobody shall be within 5 metres of hitching point.





*Three points hitch*

Approach the tractor to the tedder until the lifting bars and the three point linkage of the machine are lined up and connect them with the safety pins. Adjust the lifting bars of the tractor at the same level so to limit lateral inclination.



*Lifting bars*



**ATTENTION!**

**Insert and secure shear pins. Make sure that shear pins are locked properly.**

Connect the third point bar of the tractor to the upper pivot of the hitch and adjust its length so to position the tedder in such a way that the front tines brush against the soil.

An accurate adjustment of the 3rd point allows the correct front tilting of the rotors so to allow the tines to brush against the soil during operation; this ensure a perfect spreading and maintaining all nutrient quality of the forage.

Before attaching or detaching the machine make sure that the control lever is properly positioned as to avoid unintentional raising or lowering of the tedder.

**ATTENTION!**

**Insert and secure shear pins. Lock the safety device to avoid loosening of the three point.**

Raise the stand and secure it using the appropriate pin.



*Stand*

**ATTENTION!**

**During operation, the control lever for 3 points lifting of the tractor must be set to floating position.**

#### **4.4.2 ATTACHING THE DRAWBAR TO THE TRACTOR**

All GAL.CO S.r.l. rotary tedders can be attached to any kind of tractor equipped with towing hitch.

The area shall be properly light under conditions of reduced visibility. Nobody shall be within 5 metres of hitching point.



*Drawbar hitch*

Approach the tractor to the tedder and align the towing hitch to the eye of the drawbar.

Insert the towing pin and fix it through the safety pin.

Once the tedder is properly attached, raise the stand (for 4 rotors version only, the 2 rotors version is not equipped with stand) and secure it using the safety pin.

#### 4.4.3 ASSEMBLY OF THE DRIVE SHAFT



##### **ATTENTION!**

**Operation to be carried out after lowering the machine to the ground, turn off the engine of the tractor, disengage power takeoff, set hand brake and remove the ignition key.**

After attaching the equipment to the tractor, connect the drive shaft to the power takeoff of the tractor (before performing this operation stop engine and remove the key).

**Before using the drive shaft read the use and maintenance manual of the drive shaft.**

**If you use a different drive shaft type than the one supplied with the machine, make sure that the covers of the machine and the tractors overlap by at least 50 mm in compliance with existing law).**

**It is important the clutch on shaft to face the tedder.**

- Clean and lubricate the power takeoff.
- Lubricate on a regular basis the drive shaft following the instructions given by the manufacturer of the drive shaft (see Use and Maintenance Manual of the drive shaft).
- Follow assembly instructions given by the manufacturer and direction indicated on the external side of the guard (drawing of the tractor on the external pipe of the shaft towards the power takeoff of the tractor).
- Hang chains to avoid rotation.
- Make sure that the safety locking device (pushbutton or ring-nut) is properly installed and secured.



##### **WARNING!**

**Check the direction of rotation and make sure that the power takeoff speed is 540 r.p.m., because the machine is designed for this speed.**



##### **ATTENTION!**

**Connect the drive shaft last to the power takeoff and detach it first after operation.**

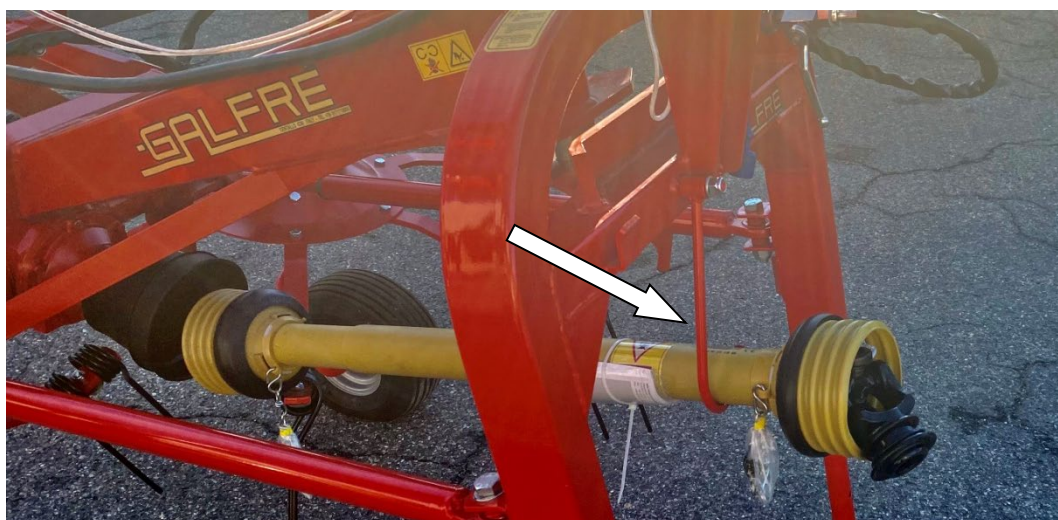


Use exclusively **drive shafts with EC mark** to ensure proper operation of the machine.

**Use only drive shafts with all safety guards in good conditions.**

The length of the drive shaft shall be adjusted to the tractor.

Whenever the drive shaft is disconnected from the power takeoff of the tractor place it on its support.



*Universal joint support*

**GAL.CO S.r.l. is not liable for any damages resulting from misuse and improper assembly of the drive shaf.**

#### 4.4.4 HYDRAULIC SYSTEM

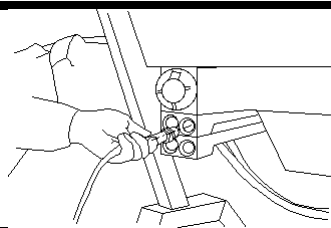
Before connecting the hydraulic couplings (quick couplings) to the distributor of the tractor stop engine and operate the distributor levers in both directions in order to ensure that the hydraulic circuits are not pressurised.

Check hydraulic hoses for wear and scratches after every operation and replace them with new ones provided by the Manufacturer if necessary.

In case of a leak stop the engine of the tractor, disengage power takeoff, relieve pressure in the hydraulic system, disconnect hydraulic hoses using safety gloves (make sure you have a bin to collect used oil ) and replace them with new ones supplied by the Manufacturer. Used oil is harmful according to the existing law, therefore it shall be collected properly.

Fluids under pressure such as oil in an hydraulic system can cause severe injury and infections. Seek medical assistance if necessary.

Make sure that all couplings are clean and in good conditions before connecting the quick hydraulic hoses to the tractor.



**Make sure that all hydraulic hoses are correctly installed.**

**Check wear on hydraulic hoses and replace them if necessary (anyway at least every 6 years).**

When the tedder is detached from the tractor, the hydraulic hose must be placed in its specific fitting.



## 5 OPERATING INSTRUCTIONS



### ATTENTION!

Before operation check the oil level in the gearbox and if necessary add some oil (for this operation follow instructions contained in par. 6.2).



### ATTENTION!

Wear suitable Protective Devices (safety shoes, safety gloves, ear plug, dust mask and safety glasses).



### ATTENTION! - DANGER!

During operation make sure that no people or animals are within the operating area.  
In case anybody approach to the operating area immediately stop the engine of the tractor.



### ATTENTION!

Before dismounting from the tractor to make any adjustment stop the engine of the tractor, disengage power takeoff, set hand brake and remove the ignition key.



### ATTENTION!

Never insert the P.T.O. until the external rotors are fully lowered and the guards are in their position.

When reaching the fields, the tedder must be set in working condition from transport condition.

#### 4 rotor tedders.

- Manual lifting of the arms: support the arms for easily unlock the lever then lowering the outer rotors.



- Hydraulic lifting of the arms: check that the tap on the hydraulic plug is open, then from the tractor distributor operate the closing (in order to easily unlock the mechanical lock through the release rope) and then release the control, so that the external rotors can lower.

Release the lock lever so to let the hitch articulated allowing the working when turning too; this way you don't need to raise the tedder when turning .



*Lock pivot not inserted (articulated hitch)*

During operation wheels must be fixed (not swinging): position the lever down.



*Wheel locked*



## 2 rotors tedders.

For this model of tedders the wheels are set in standard configuration from the factory:

- 3 points hitch: being not articulated, the wheels are free to swing.
- Drawbar hitch: being already articulated at the pivot eye, the wheels are locked.

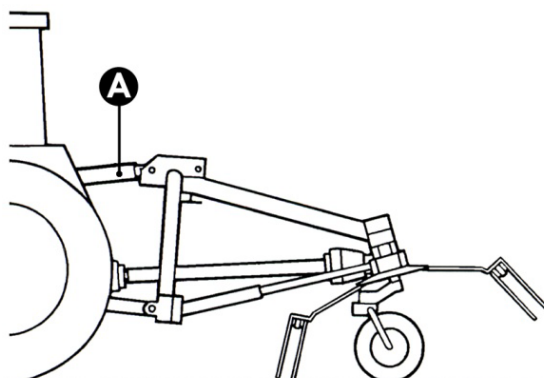
### ADJUSTMENT OF ROTORS INCLINATION



**Before dismounting from the tractor to make any adjustment stop the engine of the tractor, disengage power takeoff, set hand brake and remove the ignition key.**

For the adjustment of the rotors tilting, so to avoid the tines touching the ground during operations, it is necessary:

- 3 points hitch; fully lower the 3 points arms of the tractor, then adjust – by means of the third point arm – the tie rod so that the front tines are just lifted from ground.



- Drawbar hitch; turn the handle so that the front tines are just lifted from ground.



A correct angle allows the better spreading preserving the nutritional properties of the forage at the time.

NOTE: during operation, periodically check for correct rotors tilting.

Set a working speed adapted for the better spreading. In case of high density of the forage or spreading herbs just cut, we suggest to increase the revs of the tractor P.T.O. (max. 540 rpm).

In case the density of the forage is not high, or if working dry forage, we suggest to reduce the P.T.O. speed.

- Position the "power takeoff" lever of the tractor to 540 r.p.m.
- Increase engine speed to run the tractor at 1000 ÷ 1300 r.p.m. and reach 250 ÷ 300 r.p.m. power takeoff.
- Drive a short distance and check the working quality, review adjustments if necessary.

For best results we suggest to drive at a working speed between 6 to 8 km/h. In any case, the speed and the working must always be in consequence to the quantity of the product and to the type of the field.

The articulated hitch and the two stabilizers allow the tedder to follow any manoeuvre of the tractor maintaining a perfect adaptation in any type of field.

Never work reverse driving.

**It is not necessary to raise the tedder for direction change or turning.**

**Hard working conditions, for instance rough terrain, require a slower speed.**

## 6 MAINTENANCE

This section contains recommendations for regular maintenance of the machine, basing on company experience as well as suggestions by our customers.

These recommendations can be further integrated by contributions from our customers, for which we thank you very much in advance.

Careful and systematic servicing helps reduce maintenance costs and ensure efficient operation.



### ATTENTION!

**Before maintenance, adjustment and cleaning lower the machine to the ground, turn off the engine of the tractor, disengage power takeoff, set hand brake, remove the ignition key.**

**If there is any trouble the operator shall stop the machine, identify the trouble and make repairs if necessary.**

If you use compressed air or water for cleaning the machine, wear suitable safety glasses or masks and keep people and animals away. Do not use any flammable fluids.

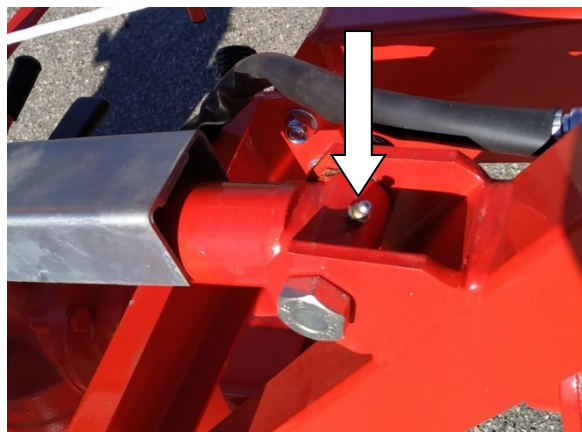
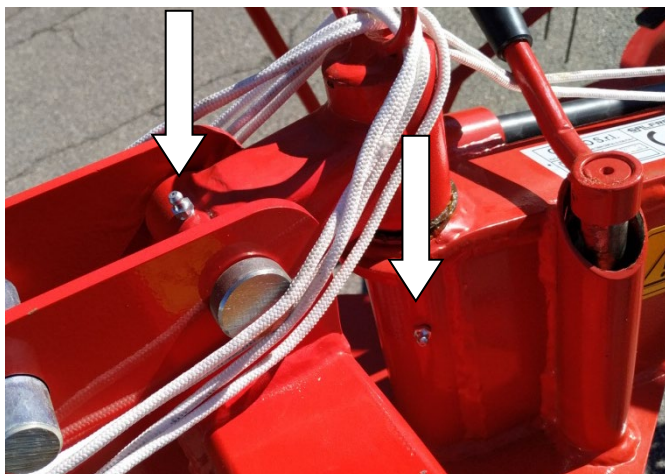
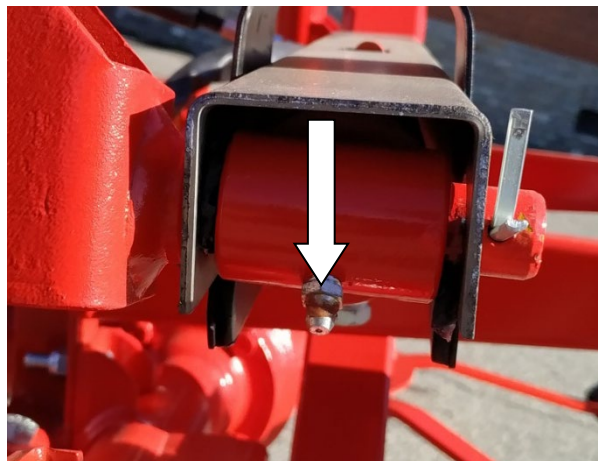
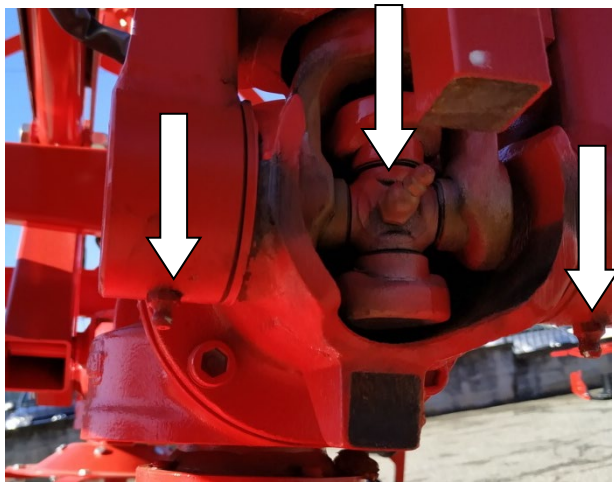
During maintenance wear the suitable Protective Devices (safety shoes and gloves) and follow all relevant safety precautions.

It is recommended to check tightness of all screws and bolts, including those of the tines, **every 8 hours of work.**

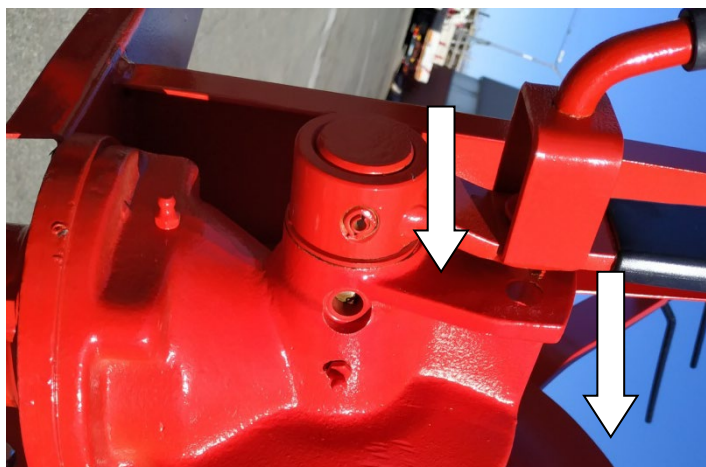
## 6.1 GREASING OF MECHANICAL COMPONENTS

**Before operation and every 8 hours of work,** lubricate all bearings, pins and the telescopic rod of the cardan joint using quality grease.

Apply grease to the points indicated below:



Apply grease type LITEX-EP/0 (lithium based) to the rotor housing.

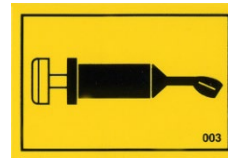




When the mower is not used for a longer period, clean and grease the drive shaft.

In winter and when temperature is very low grease pipes to protect plastics.

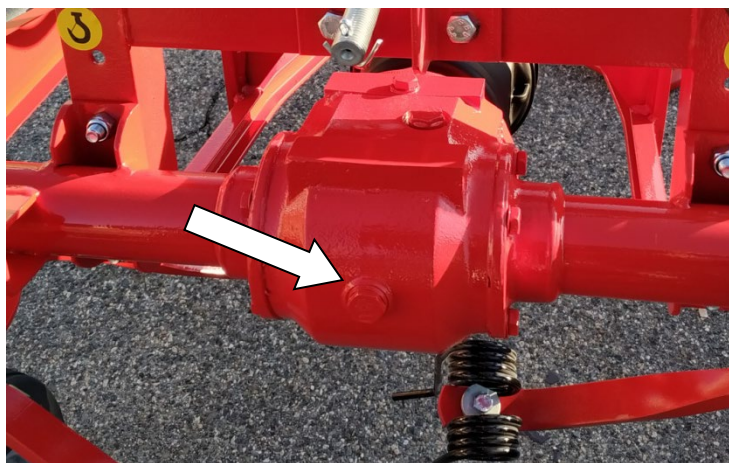
Clean debris from greasing nipple head before injecting lubricating grease.



## 6.2 LUBRICATION OF MAIN GEAR HOUSING

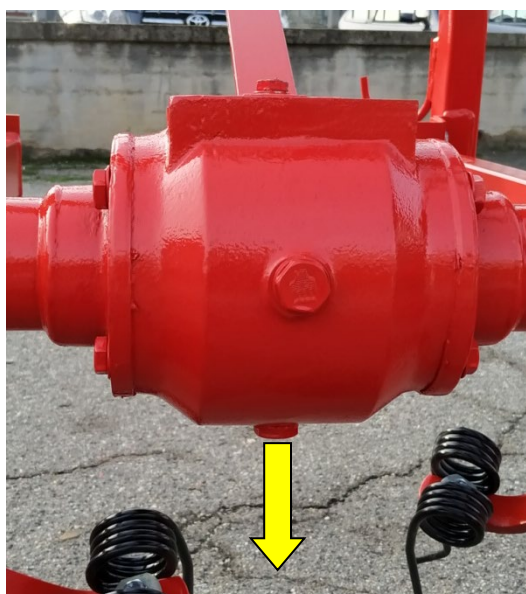
Check the oil level before starting the tedder for the first time. During the hay season check oil level each 8/10 working hours, removing the cap at the rear of the housing; if necessary top up. The level is correct when the oil reach the lower edge of the hole.

Type EP420 Quantity 0,9 lt



Replace oil every 500 working hours.

For this operation unscrew the lower cap ab drain the oil into a sump. Fill the housing from the cap at the rear as indicated above.



### 6.3 MOUNTING AND REPLACING TINES

GAL.CO S.r.l. rotary tedders, as already mentioned, can be fitted with different tine arms; straight arm for straight tine, and twisted arms for hooked tines, different for each rotor: left and right.

For disassembly and replacing the tines remove the fixing nut, extract the tine, replace it inserting in proper position. Place the bolt and secure by tightening the nut.



*Straight tine*

When operating with excessive rotors tilting, besides obtaining a poor quality forage, it can cause excessive wear of the tines.

Arm replacement is simple: release the two nuts, remove the arm and replace with a new one.



## 6.4 FURTHER TROUBLESHOOTING

In the event of excessive vibrations check wear of the universal joints, of the rotors gears, check tightness of all bolts and nuts, check lubrication of the gearbox.

Excessive vibration of the tedder, besides noise, it is dangerous and can affect performance, since mechanical parts are subject to more stress.

**In the event of prolonged vibration contact the service department of GAL.CO S.r.l. or its dealer.**



## 7 GUARANTEE

GAL.CO S.r.l. warrants that GAL.CO S.r.l. equipment are free from defects in material and workmanship for a period of **one year** beginning on the date of delivery to end user indicated in the **Delivery and Guarantee Certificate**.

The Delivery Certificate shall be sent by the dealer namely the buyer within 30 (thirty) days from delivery date, if not the guarantee will be void.

### GUARANTEE CONDITIONS

- 1) The guarantee is limited to the replacement or repair of any part recognised as being defective in material and workmanship by our technical service.
- 2) The components of the machine not manufactured by GAL.CO S.r.l. (es. curtain, knives, belts, drive shafts, hydraulic cylinders and spring tines) are not covered by GAL.CO S.r.l. guarantee, but by the guarantee of the respective manufacturers.
- 3) The guarantee does not apply to any part which has been altered or disassembled by unauthorised persons or which has been used for a purpose for which the product is not designed.
- 4) The guarantee does not apply to any part which has been misused or damaged by accident or negligence.
- 5) Labour cost and transport for repairing or replacing defective parts are not covered by the guarantee.
- 6) No guarantee other than the guarantee issued by the manufacturer will be valid;
- 7) The manufacturer reserves the right to make changes to the machines in production without notice and without incurring any obligation to apply these modifications to machines previously sold or on sale.
- 8) At delivery make sure that the machine has not been damaged during transport and that it is complete with all parts, further claims shall be submitted in writing within 8 days from delivery date of the machine.

**The guarantee shall not apply:**

- 1) If the defect is due to driving failure.
- 2) If the damaged part has been repaired by unauthorised persons or if not originally manufactures spare parts have been used.
- 3) The guarantee is strictly subject to compliance with the following rules both by the dealer and the user or buyer:
  - a) The guarantee document shall be returned within one month from the date of occurrence of the damage. Fill in the form on the document and make sure you provide following information:
    - 1) Name and address of the dealer and the buyer.
    - 2) Machine type and model.
    - 3) Serial number and year of manufacture.
    - 4) Date of delivery to the buyer.
    - 5) Date of damage occurrence.
    - 6) Number of hours or hectares of use of the machine.
    - 7) Power of the tractor used.
    - 8) Detailed description of the presumed cause for the damage.
    - 9) Quantity and description of defective parts (use reference numbers in the spare parts catalogue).

Defective parts shall be returned to GAL.CO S.r.l..

The related freight costs are at the charge of the sender.

The guarantee shall not be transferred to a person other than the final buyer without written agreement by GAL.CO S.r.l..

GAL.CO S.r.l. has the exclusive right to acknowledge a part under guarantee as being defective. The decision to either accept or reject the guarantee is binding and irrevocable and the buyer undertakes to accept it.

In the event that the guarantee claim is not accepted the dealer shall request the return of the damaged parts within fifteen days from the date of receipt of the confirming letter from GAL.CO S.r.l.. After this period defective parts will be destroyed.

GAL.CO S.r.l. dealers do not have under any circumstances the right to make any decisions in the name of GAL.CO S.r.l..

No other guarantee of any kind whatsoever and all liabilities, legal or conventional, expressed or implied, exceeding the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale.

GAL.CO S.r.l. liability shall not under any circumstance exceed those described in the above paragraphs.

## 8 SPARE PARTS

For replacing parts of the rotary tedder the customer shall use exclusively originally manufactured spare parts. Spare parts shall be ordered from GAL.CO S.r.l. or from its authorised dealer.

When ordering spare parts provide specifications indicated on the identification plate, in particular:

- Serial number
- model
- year of the production

GAL.CO S.r.l. guarantees spare parts for a period of minimum **5 years from the end of the production of a model.**