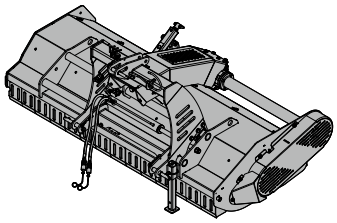
FLAIL MOWER MODELS:

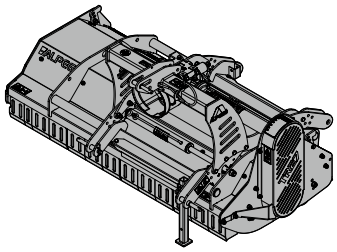
TB2
TR27 **TR27F**
TR36 **TR36F**
TR56 **TR56F**

ALPEGO
Your Partner In The Field

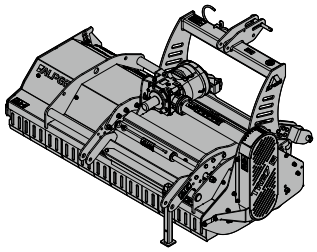
TB2



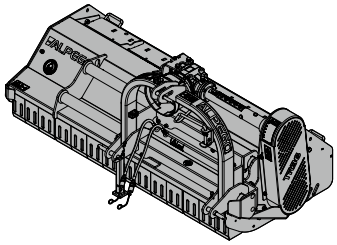
TR27



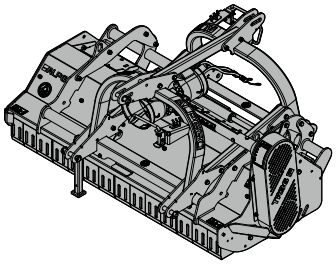
TR27 F



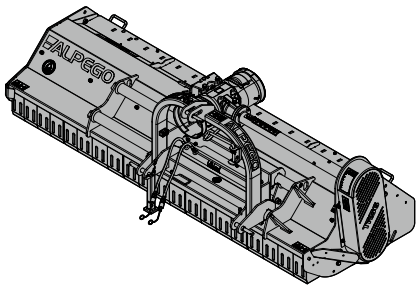
TR36



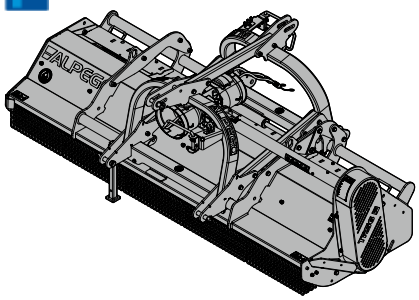
TR36 F



TR56



TR56 F



Code : Q00A00042/15

Use and maintenance manual

Translation of original instructions

Read these instructions carefully before first use.

Summary

List of figures

The images in this manual are for illustrative purposes only and may not always accurately represent the appearance of the product or its application.

List of tables

1 GENERAL INFORMATION

Thank you for choosing Alpego, you have purchased a top quality product that is guaranteed by a decade of experience.

Before leaving the factory, each machine is accurately inspected to guarantee that it is in perfect condition.

Should you however, find any faults in the material, kindly contact your retailer immediately.

Please do not hesitate to contact us should you need further information or assistance, our aim is to constantly improve the product, keeping it at top level.

1.1 Guide to consultation

All the safety regulations indicated are important and as such must be strictly observed.

- The unauthorised tampering/replacement of one or more parts of the machine, the use of accessories, tools and consumables other than those recommended by the manufacturer may represent a risk of injury and release the manufacturer from civil and criminal liability.
- Any arbitrary change made to the machine, failure to comply with scheduled maintenance and any other misuse, relieve the manufacturer from all civil and criminal liability for any resulting damage.
- Any changes must be requested directly from ALPEGO, specifying all machine data and the reasons; in case of approval, the changes must only be carried out by personnel authorised by ALPEGO and consistent with its specific instructions.
- For each operation to be performed on the machine, please refer to the qualification levels described in the manual to identify the personnel qualified to carry it out.
- The warranty only covers design, assembly and painting defects and exclusively in the case of use of the product in accordance with the instructions provided in this instruction manual;
- The Seller is not liable for components supplied by third parties and installed on its machines.
- For what is not expressly foreseen therein, please refer to the general sales conditions.

ALPEGO usually considers the machine seen from behind with respect to the running direction; this is in order to identify the details and the correct assembly positions that must be respected for the pieces with the indication “right or left” in the description. (E.g.: right or left cardan, right or left blade, etc.).

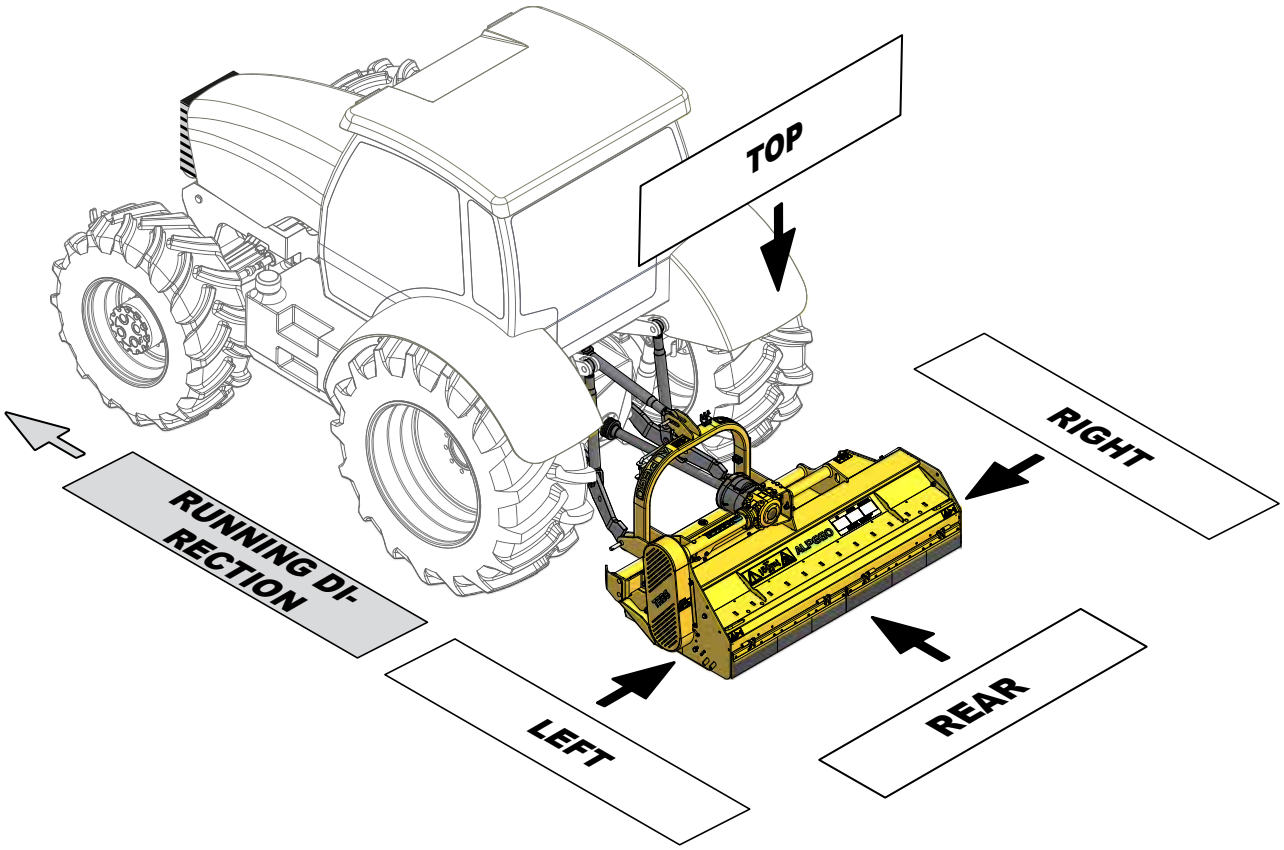


Fig. 1 Reference axes

1.2 Testing

Given that:

- The machine was built under the close surveillance of qualified personnel; tried and tested with the aim of eliminating any possible “negligence” during construction.
- Testing was carried out by simulating normal operating cycles and situations of the machine.
- The machine was designed and created taking into account the safety regulations in force.

DURING TESTING NOTHING WAS FOUND TO BE DEFECTIVE.

1.3 General

The manufacturer of the machine is ALPEGO S.p.a., who has assessed the risks relating to the machine and carried out the CE marking and drafted the user manual for the machine.

These operating instructions contain information on safety, installation, operation, maintenance and troubleshooting so that the machine can be used as intended by the manufacturer.

The instructions are an essential safety requirement and as such are an integral part of the machine and must accompany it throughout its life cycle; it is therefore essential to keep them and make them available to all persons concerned.

In this document the term "manufacturer" clearly refers to the company ALPEGO S.p.a.

ALPEGO S.p.a., reserves the right, at any time, to make any modification to the machine in order to improve it.

The intended use and configuration of the machine are the only ones permitted by the manufacturer. Do not attempt to use the machine contrary to the instructions given. The instructions in this manual do not replace but summarise the obligations to comply with current legislation on safety and accident prevention.

Some of the accessories described in the manual may not be present on your machine, depending on the equipment chosen and the market for which the machine is intended.

- **Copyrights**

The copyright for this operating and maintenance manual remains with ALPEGO S.p.A. These instructions are intended for installation, operating and monitoring personnel. They contain technical standards and drawings, which may not be reproduced in whole or in part, disseminated or used without permission for competitive purposes or communicated to third parties.

- **Use and storage of the manual**

This manual is an integral part of the machine and provides the personnel in charge of operation and maintenance with information for the correct use of the machine. It must accompany the machine until its complete demolition.

- Before carrying out any work on the packaging and the machine, and before putting it into operation, operators and qualified technicians must carefully read the instructions contained in this manual and in the annexes and carefully follow the instructions.
- In the event of any doubts as to the correct interpretation of the information given in the documentation, please contact ALPEGO S.p.a. for the necessary clarification.
- The manual is divided into chapters, paragraphs and subparagraphs, so the table of contents page provides an easy way to find any aspect of interest. The material in this document is provided for information purposes only and is subject to change without notice.
- Keep this manual and all accompanying documentation in good condition, legible and complete in all their parts; **it is forbidden to remove, rewrite or otherwise modify the pages of the manual and their contents**. Keep the documentation in the vicinity of the machine, in a place accessible and known to all operators.

Read this manual carefully before operating the machine. Failure to do so may result in failure to recognise dangerous situations that could cause serious injury to yourself and others.

- ALPEGO S.p.a. declines all responsibility for any damage to persons, animals or things caused by the non-observance of the warnings and operating procedures described in this manual.
- This manual should be kept for future reference.
- It must be placed near the machine, available for consultation by users.
- Users must be able to find and consult it quickly at any time.
- By users we mean operators and maintenance personnel.
- Make sure that all users have fully understood the operating rules and the meaning of any symbols on the machine.
- The purpose of the manual is to provide the user and maintenance engineer with all the information necessary to install, use and maintain the machine in order to ensure its best possible operation over time.

It is forbidden to carry out operations for which the methods have not been understood.

- This manual must be handed over with the machine if it is transferred to another user.
- The manual must be consulted with care. Do not remove pages, replace or delete information or modify its content.
- Possible accidents can be avoided by following the technical instructions indicated in the manual. In any case, always comply with national safety regulations.
- In case of loss or deterioration of the manual, request a copy from ALPEGO S.p.a. specifying the identification data of the document.
- We also recommend contacting the Manufacturer for any information, spare parts or accessories.

- **Symbols used in this manual**

Below are the various symbols used in the manual to highlight particularly important information:

WARNING - To indicate special information.

CAUTION DANGER - To indicate actions which, if not carried out correctly, may cause general accidents or may generate malfunctions or material damage to the machine; they therefore require particular attention and suitable preparation.

IT IS FORBIDDEN - To indicate actions that MUST NOT be performed.

To indicate the status of the machine.

To indicate the personnel authorised to carry out a specific operation.

To indicate the personal protective equipment that personnel must wear to carry out a specific operation.

To indicate the equipment needed to perform a specific operation.

- **Terminology and definitions**

To make it easier to understand some of the topics covered in this manual, some of the terminology used is given below:

- **PPE**: personal protective equipment.
- **Machine**: FLAIL MOWERS model TB2 - TR27 - TR27F - TR36 - TR36F - TR56 - TR56F.
- **Manufacturer**: ALPEGO S.p.A.

- **Numbering of figures and tables**

Figure numbering consists of the abbreviation of the term 'figure' followed by a progressive number (e.g. Fig. 1). As regards the numbering of the tables, it is composed of the abbreviation of the term "table" followed by a progressive number (e.g. Tab. 1). In both cases, the numbering is accompanied by an explanatory caption.

1.4 Personnel qualifications and tasks

This manual is intended for both the operator (USER) and the technicians responsible for installing and maintaining the machine (MECHANICAL REPAIRERS).

It is FORBIDDEN for USERS to perform operations reserved for MECHANICAL REPAIRERS. ALPEGO S.p.a. is not liable for damage resulting from the non-observance of this prohibition.

The machine is intended for professional use, therefore, it must be entrusted to qualified USERS and MECHANICAL REPAIRERS who meet the following requirements:

- Be of legal age.
- Be physically and mentally fit to perform work of a particular technical difficulty.
- Be adequately trained in relation to the use and maintenance of the machine.
- Be able to understand and interpret the Instruction Manual and safety requirements.
- Know the emergency procedures and their implementation.
- Have understood the operating procedures defined by the machine Manufacturer

- **DANGER ZONE**

Any zone within and/or around machinery in which a person is subject to a risk to his health or safety.

- **EXPOSED PERSON**

Any person wholly or partially in a danger zone.

- **USER**

An operator who carries out the duties of ordinary operations required for machine operation: operating the controls, supervision of the operative cycle, cleaning of surfaces and intervention in case of malfunction. In normal production, the USER must operate with all the guards enabled.

The USER must be fully familiar with all the command and control devices on the machine and must be able to carry out the following operations:

- Connection / disconnection to the tractor.
- Cleaning.
- Check the general integrity of the machine.
- Check that the machine settings are within the optimum parameters for the intended use.
- Check that the machine's productivity is in accordance with the expectations provided with the test.

- **MANUFACTURER TECHNICIAN**

The Manufacturer’s personnel or other personnel authorised by the same to perform complex activities of installation, preparation, repair and, on request, training of machine operating personnel.

- **MECHANICAL REPAIRER**

Person directly employed by the user or the manufacturer, and is in any case adequately trained to

perform routine and extraordinary maintenance on the system, and reports the results in special registers.

The MECHANICAL REPAIRER must know how to carry out all the operations of adjustment and replacement of the machine's mechanical/hydraulic parts and devices, which are part of the routine and extraordinary maintenance operations.

The MECHANICAL REPAIRER must be authorised by ALPEGO S.p.a.

- **ELECTRICAL REPAIRER**

Specialised technical personnel able to operate the machine under normal conditions, intervene on the electrical parts to carry out all the necessary adjustments, maintenance and repairs.

The MECHANICAL REPAIRER must know how to carry out all the operations of adjustment and replacement of the machine's electrical parts and devices, which are part of the routine and extraordinary maintenance operations.

The ELECTRICAL REPAIRER must be authorised by ALPEGO S.p.a.

- **HANDLING AND TRANSPORT PERSONNEL**

Personnel who have received adequate instruction on the use of lifting and handling equipment.

- **PERSONNEL IN CHARGE OF DISPOSAL**

Skilled person able to correctly carry out their specific tasks and who are adequately trained by the Employer on health and safety matters.

1.5 Warranty conditions

1. The ALPEGO S.p.a. agricultural machines are covered by warranty for twelve months starting from the day of delivery to the end customer: the date indicated on the transport document activates the warranty period.
2. The warranty covers any material or construction defect and is exclusively for the intended use of the supply product. It is, therefore, up to the buyer to request and clarify whether the supplied product meets the purposes that the sale must satisfy. If the inconvenience, subject of the complaint, does not compromise the behaviour, function or safety of the machinery, ALPEGO S.p.a. reserves the right to identify the most suitable solution, without, in any case, being obliged to completely replace the machinery or parts thereof. The warranty exclusively ensures the replacement and relative repositioning (i.e. assembly) of the material/component deemed nonconforming and does not include the acknowledgement of any further connected burden (which, however, the behaviour of the good family man must foresee and avoid, in the sense in which this term is defined by the Italian legislative system).

THE WARRANTY IS VOID:

- Insufficient, inadequate, lack of maintenance or methods of storage or protection.
- On items of normal direct consumption or periodic spare parts.
- In the event of a manoeuvring error.
- If it is impossible to identify the serial number.

- Should the permitted power limit be exceeded.
- If the instructions described in this manual are not followed.
- If original spare parts are not used.
- If any changes are made without the manufacturer's permission.

THE FOLLOWING ARE EXCLUDED FROM THE WARRANTY:

- All lubricants and grease.
- All wear components and in contact with the ground.
- Accidental breakage during transport.
- Defects due to incorrect installation.
- Routine or extraordinary maintenance costs.

3. The material deemed to be nonconforming must be contested, using the intended procedures, upon discovery of the non-compliance. It is necessary, under penalty of forfeiture of the warranty, to agree in writing (an e-mail or fax to ALPEGO S.p.a. with acknowledgement of receipt is sufficient) the possible use of the goods or the continuation of the work or type of intervention to be carried out in force and if the found non-conformity persists.
4. Different warranty conditions are not permitted, except those exclusively and explicitly accepted by the ALPEGO S.p.a. SALES MANAGEMENT.
5. Any modification to the supply not explicitly authorised by the ALPEGO S.p.a. SALES MANAGEMENT in writing, will make the warranty void and null.
6. The product, deemed nonconforming or defective, must be made available at the headquarters of ALPEGO S.p.a. or to its authorised representative.
7. The formality of the complaint procedure involves (as per the instructions on the form itself):

- The completion of the NON-CONFORMITY COMPLAINT FORM (the form contains a guide for its completion, if necessary, contact the ALPEGO S.p.a. sales service).
- The sending of this form (via mail, Registered letter or fax, provided that the latter is acknowledged by the ALPEGO S.p.a. Sales Service) to ALPEGO S.p.a.
- The sending of any additional elements to clarify or document the reasons of the complaint (photos, videos, analysis, objective findings, sketches, etc.).
- Make the contested material available to ALPEGO S.p.a., only if explicitly requested by the same, in compliance with the provisions of point 6).

8. To provide immediate assistance and for management and fiscal reasons, all replacement materials will be charged and invoiced to the customer upon shipment; any acknowledgement of the warranty coverage, upon receipt of the materials and/or analysis of the causes of the alleged defect or non-conformity, will entitle to credit of the price of the product and its possible repositioning.

CHECKS TO BE CARRIED OUT UPON RECEIPT OF THE GOODS

9. Complaints relating to the quantity or condition of the received goods (packaging and/or evident and significant discrepancies) must be contested, with notes on the delivery document, directly to the carrier at the time the goods are unloaded at the buyer’s premises. Notification at the time of delivery, gives access to any insurance, if present, entered into by the carrier and/or the buyer.

The company ALPEGO S.p.a., to guarantee the correct loading upon departure, keeps photographic evidence.

10. Any complaints on the quality of the goods supplied must be submitted using the specific complaint form, sent by registered letter or fax (provided that the latter is acknowledged for receipt by the ALPEGO S.p.a. Sales Service) within 8 days of receipt of the goods and do not exempt the buyer from making the agreed payment and respecting the deadlines.

1.6 Updating the manual

The information, descriptions and illustrations contained in this manual reflect the state of the art at the time the machine was placed on the market. The Manufacturer reserves the right to make any changes to the machines at any time for technical or commercial reasons.
These changes do not oblige the Manufacturer to intervene on the machines marketed up until that moment or to consider this publication inadequate. Any integrations that the Manufacturer deems appropriate to provide in the future must be kept together with the manual and considered an integral part thereof.

1.7 Cooperation with the user

The manufacturer is available to provide further information and to consider proposals for improvement in order to make this manual more responsive to the needs for which it was prepared. If the machine is transferred, the primary user is invited to inform the manufacturer of the address of the new user so that he can be contacted with any communications and/or updates deemed essential.

1.8 Documents that come with the machine

All references or indications in this manual relating to:

- CE Marking;
- EC Declaration of conformity;
- Directives and regulations issued by the European Parliament and the Council and related transposition Laws in Italy;
- Harmonised standards whose references have been published in the Official Journal of the European Union; refer exclusively to machines intended for the European community market. For all machines not intended for the European community, these references and indications have no meaning and value.

The machine comes complete with:

- Machine instruction manual.
- EC Declaration of conformity;
- Spare parts catalogue.

2 MANUFACTURER AND MACHINE DATA

2.1 Manufacturer and machine identification data

- **Manufacturer's name and address**

The manufacturer's identification data are given below:

ALPEGO S.p.A.

Administrative headquarters: Via Torri di Confine, 6 36053 GAMBELLARA (VICENZA) - ITALY
Registered office: Via Giovanni e Giuseppe Cenzato, 9 36045 LONIGO (VICENZA) - ITALY

Tel: +39 0444/646100
Fax: +39 0444/646199

E-mail: info@alpego.com
Website: www.alpego.com

- **Instructions for requesting interventions**

For servicing, the user must contact the dealer from whom he purchased the machine.

- **EC Declaration of Conformity**

ALPEGO
Your Partner In The Field

MEMBER

ALPEGO S.p.a. con Socio Unico
Società soggetta a direzione e coordinamento di Torrico S.r.l.
Via Giovanni e Giuseppe Cenzato, 9
36045 Lonigo (VI) – Italy

Tel +39 0444 64.61.00
e-mail: info@alpego.com
website: www.alpego.com

Capitale Sociale € 2.000.000 i.v.
Cod. Fisc. / Part. IVA EORI IT02009840246
REX ITREXIT02009840246
R.E.A. 199795/VI/1996
Reg. Imp. VI N° 22374/VI/1996
N. Mecc. VI 011754

ITALIANO

Dichiarazione di conformità' CE
Trinciatrice

Ai sensi della Direttiva Europea **2006/42 CE** la ditta dichiara sotto la propria responsabilità che la macchina agricola sotto indicata è conforme ai requisiti essenziali di sicurezza e di tutela della salute previsti dalla Direttiva Europea. Per l'adeguamento della macchina sono state adottate le norme: **EN ISO 4254-1:2015 -EN ISO 4254-12:2012 - EN ISO 4254-12:2012/A1:2017 EN 15811:2014**
La persona autorizzata a costituire il fascicolo tecnico è il Direttore Tecnico di Alpego presso la sede aziendale.

FRANCAIS

Déclaration de conformité CE
Broyeurs

conforme à la Directive Européenne de la **2006/42CE** Nous déclarons sous notre seule responsabilite' que le machine agricole faisant l'objet de la déclaration est conforme aux prescriptions fondamentales en matière de sècurité et de santè stipulées dans la Directive Européenne. Pour l'adaptation d'elle en éponge ont été adoptés les normes : **EN ISO 4254-1:2015 - EN ISO 4254-12:2012 EN ISO 4254-12:2012/A1:2017 EN 15811:2014**
La personne autorisée à constituer le dossier technique est le Directeur Technique d'Alpego au siège de la société

ENGLISH

EC Certificate of conformity
Flailmowers

conforming to European Directive **2006/42 EC** We declare in sole esponsability,that the agricultural machine to which this applies, conforms to the basic safety and health requirements of European Directive. For the adaptation of it blots some have been adopted the norms: **EN ISO 4254-1:2015 EN ISO 4254-12:2012 - EN ISO 4254-12:2012/A1:2017 EN 15811:2014**
The person authorized to drawn up the technical dossier is the Technical Director of Alpego at the company headquarters.

DEUTSCH

EG Konformitatserklarung
Mulchgerate

entsprechend der Europäische Richtlinie **2006/42 EG** Wir erklaren in alleineger Verantwortung, da das landmaschine auf das sich diese Erklarung bezeith, den einschlagigen grundlegenden Sicherheits und Gesundheitsan-forderungen der Europäische Richtlinie. Für die Anpassung von ihr befleckt einiges sind angenommen worden den Normen: **EN ISO 4254-1:2015 - EN ISO 4254-12:2012 EN ISO 4254-12:2012/A1:2017 EN 15811:2014**
Die zur Erstellung der Technischen Dokumentation befugte person ist der technische Direktor von Alpego am Firmensitz.

ESPANOL

Declaración de conformidad CE
Trituradoras

Conforme a la Directiva Europea **2006/42 CE** la empresa declara bajo su propia responsabilidad que la maquinaria agrícola modelo: está conforme a los requisitos esenciales de seguridad y de defensa de la Directiva Europea. Para la equiparación de las máquinas han sido adoptadas las normas : **EN ISO 4254-1:2015 - EN ISO 4254-12:2012 - EN ISO 4254-12:2012/A1:2017 EN 15811:2014**
La persona autorizada para preparar el expediente técnico es el DirectorTécnico de Alpego en la sede de la empresa.

Ελληνικά

Δήλωση συμμόρφωσης ΕΚ
Μηχανή κοπής

Σύμφωνα με την Ευρωπαϊκή Οδηγία **2006/42 ΕΚ**, η εταιρεία δηλώνει υπεύθυνα ότι το γεωργικό μηχάνημα που αναφέρεται παρακάτω συμμορφώνεται με τις βασικές απαιτήσεις υγείας και ασφάλειας της Ευρωπαϊκής Οδηγίας. Για την προσαρμογή του μηχανήματος έχουν υιοθετηθεί τα εξής πρότυπα: **EN ISO 4254-1:2015 EN ISO 4254-12:2012 - EN ISO 4254-12:2012/A1:2017 EN 15811:2014**
Το πρόσωπο που έχει εξουσιοδοτηθεί για την κατάρτιση του τεχνικού φακέλου είναι ο Τεχνικός Διευθυντής της Alpego, στην έδρα της εταιρείας.

PORTUGUES

Declaração de conformidade CE
Trituradores

Nos termos da Diretiva Europeia **2006/42 CE**, a empresa declara sob a própria responsabilidade que a máquina agrícola indicada abaixo está em conformidade com os requisitos essenciais de segurança e de tutela da saúde previstos pela Diretiva Europeia. Para a adequação da máquina, foram adotadas as seguintes normas: **EN ISO 4254-1:2015 - EN ISO 4254-12:2012 EN ISO 4254-12:2012/A1:2017 EN 15811:2014**
A pessoa autorizada para a realização do arquivo técnico é o Diretor Técnico d e Alpego junto à sede da empresa.

NEDERLANDS

EG-Conformiteitsverklaring
Hakselaars

In de zin van Europese Richtlijn **2006/42 EG** verklaart het bedrijf op eigen verantwoording dat de hieronder vermelde landbouwmachine in overeenstemming is met de essentiële veiligheids- en gezondheidseisen die door de Europese Richtlijn beoogd worden. Voor de aanpassing van de machine zijn de volgende normen gebruikt: **EN ISO 4254-1:2015 - EN ISO 4254-12:2012 EN ISO 4254-12:2012/A1:2017 EN 15811:2014**
De persoon die bevoegd is om het technisch dossier samen te stellen is de Technisch Directeur van Alpego bij de vestiging van de onderneming.

MAGYAR

EK megfelelőségi nyilatkozat
Aprítógépek

Az Európai Unió **2006/42/EK** irányelve értelmében a vállalat saját felelőssége alatt kijelenti, hogy az alábbi mezőgazdasági gép megfelel az Európai Irányelv által előírt lényeges biztonsági és egészségvédelmi követelményeknek. A gép megfeleltetéséhez az alábbi szabványok kerültek alkalmazásra: **EN ISO 4254-1:2015 - EN ISO 4254-12:2012 - EN ISO 4254-12:2012/A1:2017 EN 15811:2014**
A műszaki dokumentáció összeállítására jogosult személy a vállalati székhelyen az Alpego Műszaki Igazgatója.

ROMÂNĂ

Declarație de conformitate CE
Tocătoare

În conformitate cu Directiva Europeană **2006/42 CE** societatea declară pe proprie răspundere că mașina agricolă indicată mai jos este conformă cerințelor esențiale în materie de siguranță și de protejare a sănătății prevăzute de Directiva Europeană. Pentru adaptarea mașinii au fost adoptate următoarele standarde: **EN ISO 4254-1:2015 - EN ISO 4254-12:2012 - EN ISO 4254-12:2012/A1:2017 EN 15811:2014**
Persoana autorizată să întocmească documentația tehnică este Directorul Tehnic al Alpego de la sediul societății.

POLSKI

Deklaracja zgodności WE
Sieczkarek

Zgodnie z treścią dyrektywy Unii Europejskiej **2006/42 WE**, firma oświadcza na własną odpowiedzialność, że wymieniona poniżej maszyna rolnicza jest zgodna z podstawowymi wymaganiami dotyczącymi bezpieczeństwa i ochrony zdrowia określonymi w Dyrektywie Europejskiej. W celu dostosowania maszyny zastosowano następujące normy: **EN ISO 4254-1:2015 - EN ISO 4254-12:2012 EN ISO 4254-12:2012/A1:2017 EN 15811:2014**
Osobą upoważnioną do opracowania dokumentacji technicznej jest Dyrektor Techniczny Alpego w siedzibie firmy.

SUOMI

EU-vaatimustenmukaisuusvakuutus
Silppurit

EU-direktiivin **2006/42 EY** mukaisesti yritys vakuuttaa omalla vastuullaan, että alla mainittu maatalouskone täyttää EU-direktiivin mukaiset olennaiset turvallisuus- ja terveysvaatimukset. Koneen mukauttamista varten on otettu käyttöön seuraavat standardit: **EN ISO 4254-1:2015 EN ISO 4254-12:2012 EN ISO 4254-12:2012/A1:2017 EN 15811:2014**
Teknisen tiedotteen kokoamiseen valtuutettu henkilö on Alpegon tekninen johtaja yrityksen pääkonttorissa.

Codice / Code : ArticoloHY

Serial:Matricola

Lonigo: gg/mm/aa

ALPEGO S.p.a. con Socio Unico
PEGORARO LUCA
Chief Technology Officer

ALPEGO S.p.a. con Socio Unico
Società soggetta a direzione e coordinamento di Tornico S.r.l.
Via Giovanni e Giuseppe Cenzato, 9
36045 Lonigo (VI) – Italy

Tel +39 0444 64.61.00
e-mail: info@alpego.com
website: www.alpego.com

Capitale Sociale € 2.000.000 i.v.
Cod. Fisc. / Part. IVA EORI IT02009840246
REX ITREXIT02009840246
R.E.A. 199795/VI/1996
Reg. Imp. VI N° 22374/VI/1996
N. Mecc. VI 011754

UK Declaration of Conformity

We as the manufacturers:

ALPEGO S.p.a con Socio Unico
VIA Giovanni e Giuseppe Cenzato, 9
36045 Lonigo (VI) ITALIA

conforming to:
The Supply of Machinery (Safety) Regulations 2008 - S.I. 2008/1597

declare under our sole responsability, that the agricultural machine (Flailmowers):

Codice / Code : ArticoloHY	Serial:Matricola

fulfils all the relevant provisions of **The Supply of Machinery (Safety) Regulations 2008**, and also fulfils all the relevant provisions of the following UK Regulations:

- Electomagnetic Compatibility Regulations 2016.

The machine referenced above is manufactured in accordance with the following designated standards:

EN ISO 4254-1:2015
EN ISO 4254-12:2012
EN ISO 4254-12:2012/A1:2017
EN 15811:2014

The person authorized to draw up the technical file is the Technical Director of Alpego at the company headquarters

Lonigo: gg/mm/aaaa

ALPEGO S.p.a. con Socio Unico
PEGORARO LUCA
Chief Technology Officer

- **Machine identification**

The machine covered by this manual is identified by the serial number label with its technical characteristics, located at the point indicated at .
The label must NEVER BE REMOVED until the machine is decommissioned, at which time it is removed from the liner and destroyed.
The serial number uniquely identifies the machine, makes it possible to trace its specific characteristics and identify the components installed in it. Without this number it is not possible to identify product-specific spare parts with certainty.
Always provide the type of machine and the serial number, or at least the serial number, in the event of a call-out. The registration plate is characterised by the following entries:

1. Machine model.
2. Machine serial number.
3. Maximum weight of the machine with accessories.
4. Year of manufacture.

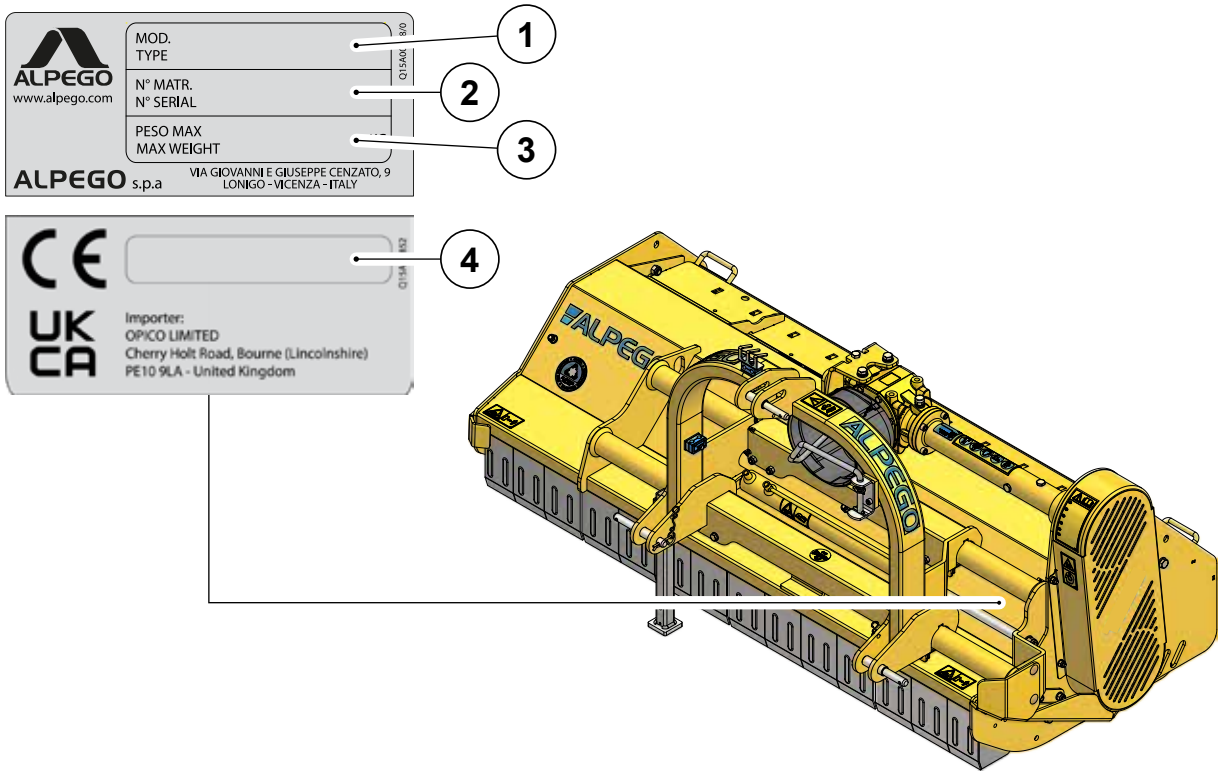


Fig. 2 Marking data

IT IS FORBIDDEN to remove, cover, move or damage the machine's identification plate.

In case the nameplate should deteriorate or become generally not visible or missing, it is mandatory to replace it by requesting it directly from ALPEGO S.p.a.

2.2 Machine description

Flail mowers are machines with a rotor driven by the tractor's PTO via a cardan joint and through the overdrive and side belt drive.
The Flail mower is available in 7 main models and can be equipped with various accessories.

- **Intended use**

The "FLAIL MOWER" machine is designed for the maintenance of green areas or direct shredding on the ground by shredding organic crop residues (both herbaceous and woody), by trained personnel, exclusively for the following operations:

- Shredding of organic crop residues (both herbaceous and woody).

The quality of the shredding depends on the high rotation speed of the rotor, which is contrary to the direction of travel of the tractor. Applies to agricultural tractors equipped with a three-point linkage compatible with the characteristics listed under “Technical characteristics of the machine” on page 22.
If the machine is used for purposes other than those indicated in this paragraph, all liability for any damage caused to property or persons is declined and any warranty on the machine is considered void.

- **Reasonably foreseeable misuse**

ALPEGO S.p.a. declines any responsibility and the guarantee will be void in case of negligence when using the machine or if the operator does not respect the instructions for use.
Any use other than that specified in this manual is considered incorrect.
During operation of the machine, no other work or activities are permitted which are considered to be incorrect and which in general can lead to risks to the safety of users and damage to the machine.

Foreseeable misuse is considered:

- Incorrect use of the machine, particularly by personnel who have not been properly trained.
- Failure to follow the correct working procedures.
- Lack of maintenance and periodic checks.
- Maintenance of the machine by unqualified and untrained personnel.
- Unauthorised structural or operational changes.
- Non-use of PPE by maintenance workers.
- Use of non-original spare parts not specific to the machine.
- Working on soils with a prevalence of stones, as contact between stones and tools causes a dangerous variation in the adherence and stability of the tractor with the ground. In addition, immediate mechanical failure of the tools could occur with serious consequences.
- Failure to use the prescribed PPE.

Any use not covered in this manual is prohibited. Contact the manufacturer if you have any doubts about the use of the machine. Failure to comply with the rules set out in this manual and any modification to the machine parts not previously authorised will immediately invalidate the warranty.

2.3 Sound level

If the tractor is equipped with a cab, the sound level will depend on the cab's insulation level.

If the tractor is not equipped with a cab or operates with the windows open, the noise level emitted by the machine at work measured at a distance of 20 cm from the rear window is higher than 85 dBa, so the use of protective ear muffs is recommended as required by the standards of various countries.

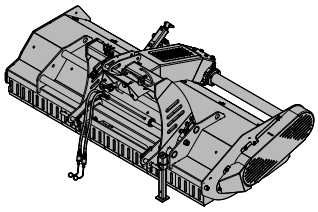
2.4 Technical characteristics of the machine

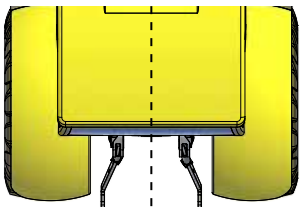
- **TB2 technical specifications**

The technical data and models indicated are not binding. We reserve the right to change them without prior notice.

Model		TB2-140	TB2-160	TB2-180	TB2-200
Working width	(cm)	140	160	180	200
Power requirement	(hp)	40/80	45/80	55/80	55/80
Blades	(no.)	24	28	32	32
Flails	(no.)	12	14	16	16
Transmission belts	(no.)	3	3	3	3
Weight	(Kg)	510	540	580	630
Three-point hitch	(Cat.)	I - II N			
PTO Profile		1”3/8 Z=6			
PTO Speed	(rpm)	540			
Rotor peripheral speed	(m/s)	45.5			
Rotor speed	(rpm)	2290			
Transport position		Brought to the lift transversely			
Primary transmission		Cardan shaft			
Secondary transmission		Belts			
Cutting height adjustment		Mechanical -manual: roller			
Lat. movement adjust.		hydraulic			
Overdrive ratio		1/3	1/3	1/3	1/3
Upper pulley diameter	(mm)	212	212	212	212
Lower pulley diameter	(mm)	150	150	150	150
Rotor diameter	(mm)	380	380	380	380
Pipe diameter	(mm)	140	140	140	140

Tab. 1 TB2 technical specifications





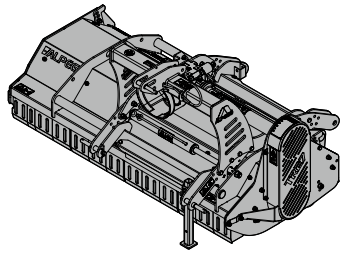
TB2-140	827	573
	447	953
TB2-160	827	773
	447	1153
TB2-180	927	873
	547	1253
TB2-200	1140	860
	760	1240

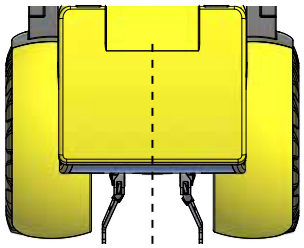
Tab. 2 TB2 Lateral movement diagram

- **TR27 technical specifications**

Model		TR27-140	TR27-160	TR27-180	TR27-200
Working width	(cm)	140	160	180	200
Power requirement	(hp)	40/80	45/80	50/80	55/80
Blades	(no.)	24	28	32	32
Flails	(no.)	12	14	16	16
Transmission belts	(no.)	3	3	3	3
Weight	(Kg)	517	550	599	633
Three-point hitch	(Cat.)	I - II N			
PTO Profile		1"3/8 Z=6			
PTO Speed	(rpm)	540			
Rotor peripheral speed	(m/s)	45.5			
Rotor speed	(rpm)	2290			
Transport position		Brought to the lift transversely			
Primary transmission		Cardan shaft			
Secondary transmission		Belts			
Cutting height adjustment		Mechanical -manual: roller			
Lat. movement adjust.		Mechanical/hydraulic			
Overdrive ratio		1/3	1/3	1/3	1/3
Upper pulley diameter	(mm)	212	212	212	212
Lower pulley diameter	(mm)	150	150	150	150
Rotor diameter	(mm)	380	380	380	380
Pipe diameter	(mm)	140	140	140	140

Tab. 3 TR27 technical specifications





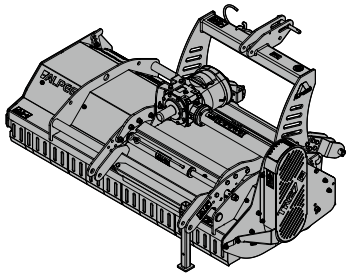
TR27-140	827	573
	447	953
TR27-160	827	773
	447	1153
TR27-180	927	873
	547	1253
TR27-200	1140	860
	760	1240

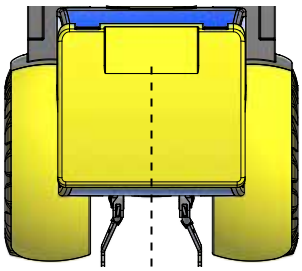
Tab. 4 TR27 Lateral movement diagram

- **TR27F technical specifications**

Model		TR27F-140	TR27F-160	TR27F-180	TR27F-200
Working width	(cm)	140	160	180	200
Power requirement	(hp)	40/80	45/80	50/80	55/80
Blades	(no.)	24	28	32	32
Flails	(no.)	12	14	16	16
Transmission belts	(no.)	3	3	3	3
Weight	(Kg)	522	554	603	637
Three-point hitch	(Cat.)	I - II			
PTO Profile		1”3/8 Z=6			
PTO Speed	(rpm)	1000			
Rotor peripheral speed	(m/s)	42,3			
Rotor speed	(rpm)	2123			
Transport position		Brought to the lift transversely			
Primary transmission		Cardan shaft			
Secondary transmission		Belts			
Cutting height adjustment		Mechanical -manual: roller			
Lat. movement adjust.		Mechanical/hydraulic			
Overdrive ratio		1/3	1/3	1/3	1/3
Upper pulley diameter	(mm)	150	150	150	150
Lower pulley diameter	(mm)	212	212	212	212
Rotor diameter	(mm)	380	380	380	380
Pipe diameter	(mm)	140	140	140	140

Tab. 5 TR27F technical specifications





TR27F-140	827 573 447 953
TR27F-160	827 773 447 1153
TR27F-180	927 873 547 1253
TR27F-200	1140 860 760 1240

Tab. 6 TR27F Lateral movement diagram

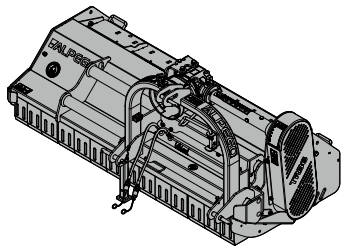
- **TR36 technical specifications**

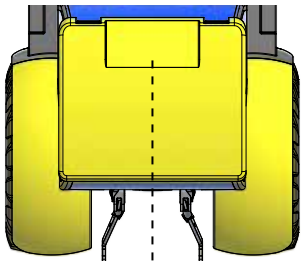
Model		TR36-160	TR36-180	TR36-200	TR36-220	TR36-240
Working width	(cm)	160	180	200	220	240
Power requirement	(hp)	45/100	50/100	55/100	60/100	65/100
Blades	(no.)	28	32	32	40	40
Flails	(no.)	14	16	16	20	20
Transmission belts	(no.)	4	4	4	4	4
Weight	(Kg)	694	738	774	824	864
Three-point hitch	(Cat.)	II				
PTO Profile		1"3/8 Z=6				
PTO Speed	(rpm)	540 / 1000* Optional (*)				
Rotor peripheral speed	(m/s)	46.1 / 49.3				
Rotor speed	(rpm)	2132 / 2280*				
Transport position		Brought to the lift transversely				
Primary transmission		Cardan shaft				
Secondary transmission		Belts				
Cutting height adjustment		Mechanical - manual: skids/wheels/rollers				
Lat. movement adjust.		Hydraulic				
Overdrive ratio		1/3	1/3	1/3	1/3	1/3
Upper pulley diameter	(mm)	250	250	250	250	250
Lower pulley diameter	(mm)	190	190	190	190	190
Rotor diameter	(mm)	413	413	413	413	413
Pipe diameter	(mm)	159	159	159	159	159

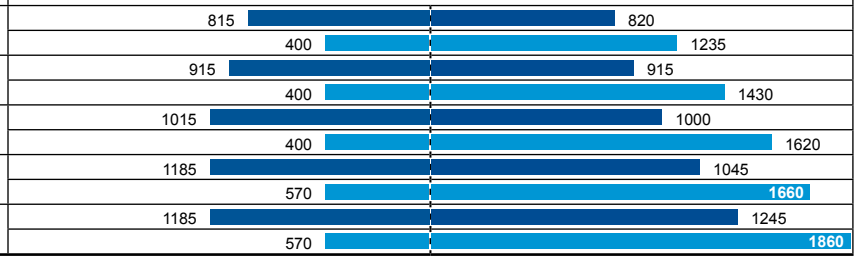
Tab. 7 TR36 technical specifications

(*) For use on a 1000 RPM PTO, the drive pulleys must be reversed:

- Driving pulley Ø190 (UPPER);
- Rotor pulley Ø250 (LOWER).







Tab. 8 TR36 Lateral movement diagram

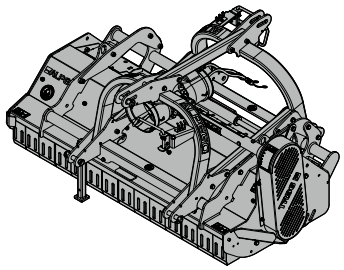
- **TR36F technical specifications**

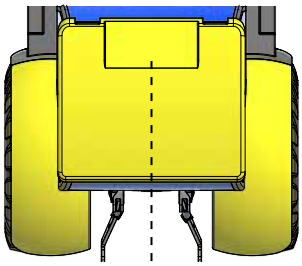
Model		TR36F-180	TR36F-200	TR36F-220	TR36F-240
Working width	(cm)	180	200	220	240
Power requirement	(hp)	50/100	55/100	60/100	65/100
Blades	(no.)	32	32	40	40
Flails	(no.)	16	16	20	20
Transmission belts	(no.)	4	4	4	4
Weight	(Kg)	…	890	980	1020
Three-point hitch	(Cat.)	II			
PTO Profile		1”3/8 Z=6			
PTO Speed	(rpm)	1000 / 540* Optional (*)			
Rotor peripheral speed	(m/s)	49.3 / 46.1			
Rotor speed	(rpm)	2280 / 2132*			
Transport position		Brought to the lift transversely			
Primary transmission		Cardan shaft			
Secondary transmission		Belts			
Cutting height adjustment		Mechanical - manual: skids/wheels/rollers			
Lat. movement adjust.		Hydraulic			
Overdrive ratio		1/3	1/3	1/3	1/3
Upper pulley diameter	(mm)	190	190	190	190
Lower pulley diameter	(mm)	250	250	250	250
Rotor diameter	(mm)	413	413	413	413
Pipe diameter	(mm)	159	159	159	159

Tab. 9 TR36F technical specifications

(*) For use on a 540 RPM PTO, the drive pulleys must be reversed:

- Driving pulley Ø250 (UPPER);
- Rotor pulley Ø190 (LOWER).





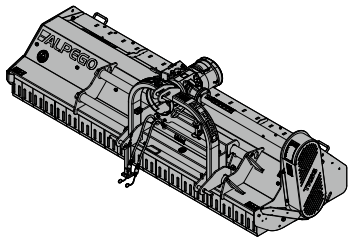
TR36F-180	1115	700
	735	1080
TR36F-200	1115	885
	735	1265
TR36F-220	1115	1100
	735	1480
TR36F-240	1115	1300
	735	1680

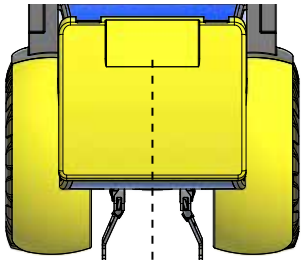
Tab. 10 TR36F Lateral movement diagram

- **TR56 technical specifications**

Model		TR56-280	TR56-310
Working width	(cm)	280	310
Power requirement	(hp)	70/100	70/100
Blades	(no.)	48	56
Flails	(no.)	24	28
Transmission belts	(no.)	5	5
Weight	(Kg)	983	1053
Three-point hitch	(Cat.)	II	II
PTO Profile		1”3/8 Z=6	1”3/8 Z=6
PTO Speed	(rpm)	1000	1000
Rotor peripheral speed	(m/s)	44.5	44.5
Rotor speed	(rpm)	1934	1934
Transport position		Brought to the lift transversely	Brought to the lift transversely
Primary transmission		Cardan shaft	Cardan shaft
Secondary transmission		Belts	Belts
Cutting height adjustment		Mechanical - manual: skids/wheels/rollers	Mechanical - manual: skids/wheels/rollers
Lat. movement adjust.		Hydraulic	Hydraulic
Overdrive ratio		1/1.47	1/1.47
Upper pulley diameter	(mm)	250	250
Lower pulley diameter	(mm)	190	190
Rotor diameter	(mm)	439	439
Pipe diameter	(mm)	159	159

Tab. 11 TR56 technical specifications





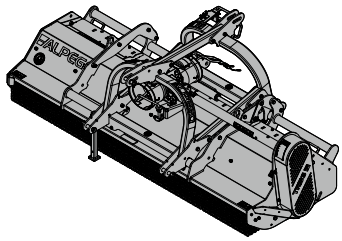
TR56-280	1485	1320
	870	1935
TR56-310	1645	1460
	1030	

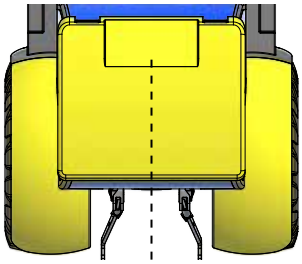
Tab. 12 TR56 Lateral movement diagram

- **TR56F technical specifications**

Model		TR56F-280	TR56F-310
Working width	(cm)	280	310
Power requirement	(hp)	70/100	70/100
Blades	(no.)	48	56
Flails	(no.)	24	28
Transmission belts	(no.)	5	5
Weight	(Kg)	1140	1210
Three-point hitch	(Cat.)	II	
PTO Profile		1”3/8 Z=6	
PTO Speed	(rpm)	1000	
Rotor peripheral speed	(m/s)	44.5	
Rotor speed	(rpm)	1934	
Transport position		Brought to the lift transversely	
Primary transmission		Cardan shaft	
Secondary transmission		Belts	
Cutting height adjustment		Mechanical - manual: skids/wheels/rollers	
Lat. movement adjust.		Hydraulic	
Overdrive ratio		1/1.47	1/1.47
Upper pulley diameter	(mm)	250	250
Lower pulley diameter	(mm)	190	190
Rotor diameter	(mm)	439	439
Pipe diameter	(mm)	159	159

Tab. 13 TR56F technical specifications





TR56F-280	1585	1205
	1205	1585
TR56F-310	1585	1505
	1205	1885

Tab. 14 TR56F Lateral movement diagram

2.5 Machine parts

- **Overview of machine parts**

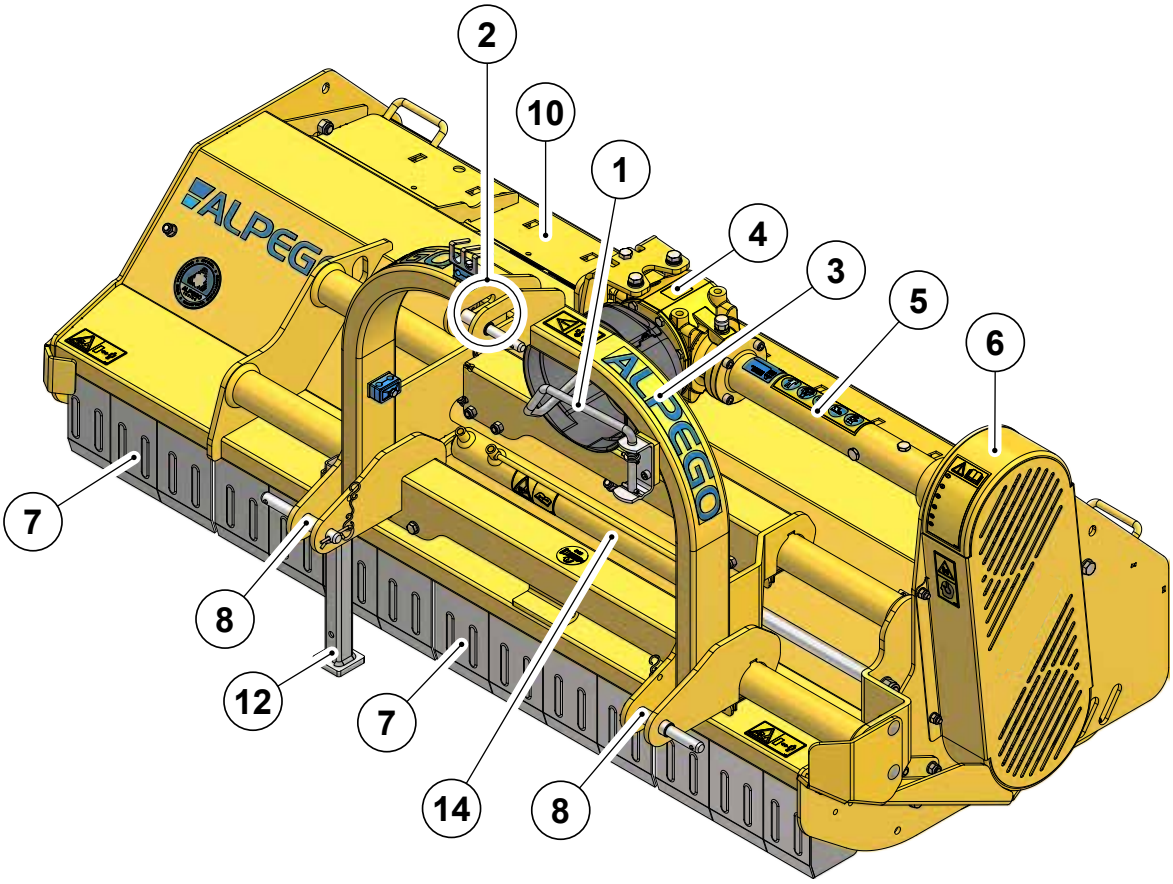


Fig. 3 Overview of machine parts

Ref.	Description	Ref.	Description
1	Cardan shaft support hook	7	Protective straps or chains
2	Upper 3rd point connection	8	Tractor lower connections
3	Three-point hitch support	9	Cardan shaft connection with protection
4	Overdrive unit	10	Bonnet
5	Transmission overdrive	11	Levelling roller
6	Side transmission guard	12	Support foot
13	Shredding roller	14	Hydraulic displacement cylinder

Tab. 15 Description of machine parts

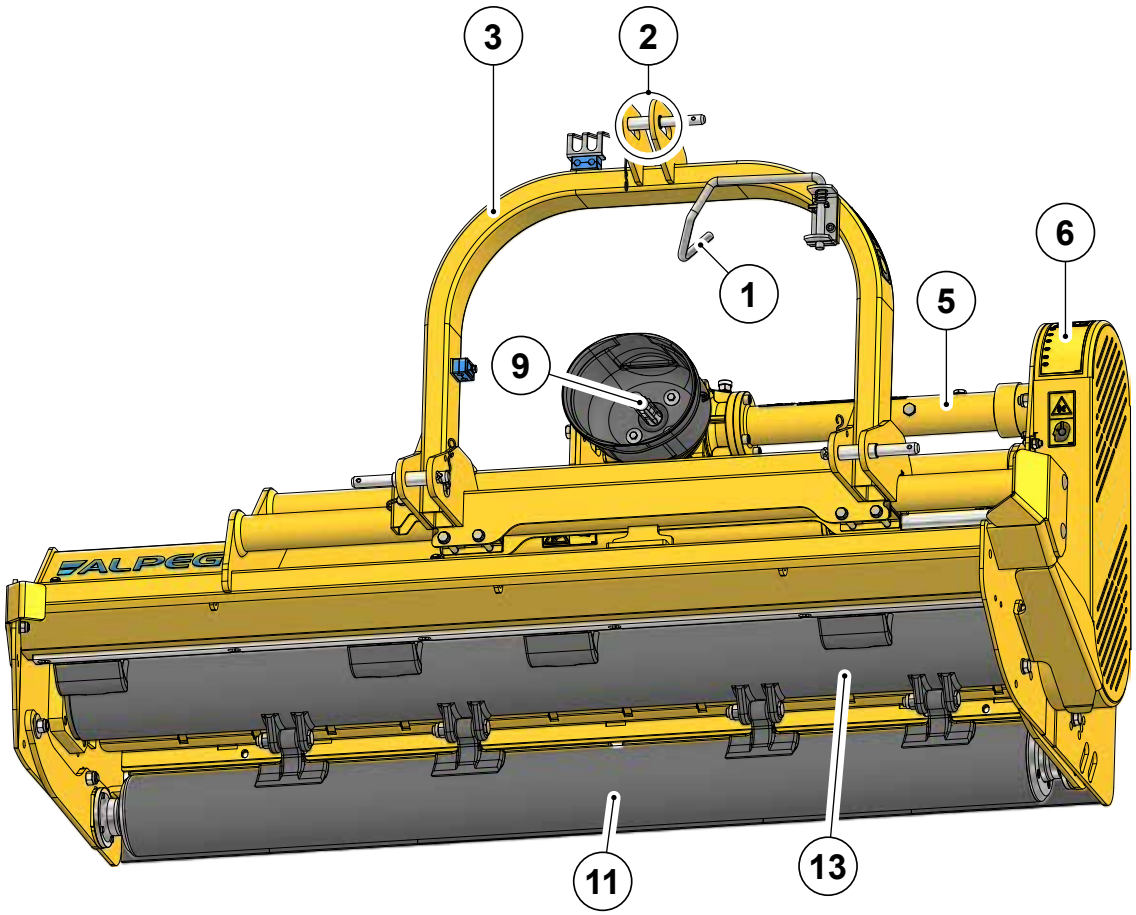


Fig. 4 Overview of machine parts

Ref.	Description	Ref.	Description
1	Cardan shaft support hook	7	Protective straps or chains
2	Upper 3rd point connection	8	Tractor lower connections
3	Three-point hitch support	9	Cardan shaft connection with protection
4	Overdrive unit	10	Bonnet
5	Transmission overdrive	11	Levelling roller
6	Side transmission guard	12	Support foot
13	Shredding roller	14	Hydraulic displacement cylinder

Tab. 16 Description of machine parts

2.6 Machine dimensions

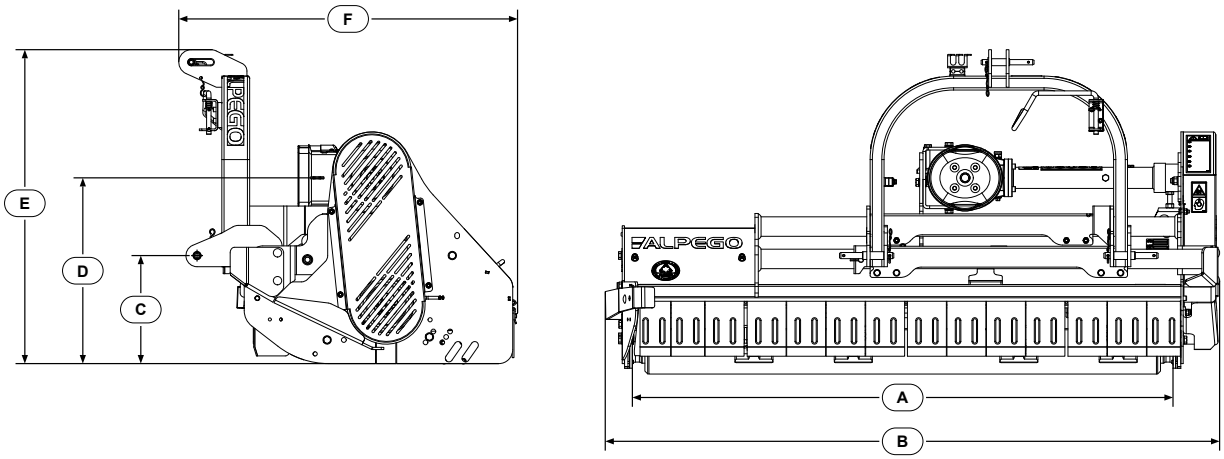


Fig. 5 Machine dimensions

Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
TB2-140	1400	1550	330	560	1010	1250
TB2-160	1600	1750	330	560	1010	1250
TB2-180	1800	1950	330	560	1010	1250
TB2-200	2000	2150	330	560	1010	1250
TR27-140	1400	1550	330	590	1040	1227
TR27-160	1600	1750	330	590	1040	1227
TR27-180	1800	1950	330	590	1040	1227
TR27-200	2000	2150	330	590	1040	1227
TR27F-140	1400	1550	330	590	1040	1227
TR27F-160	1600	1750	330	590	1040	1227
TR27F-180	1800	1950	330	590	1040	1227
TR27F-200	2000	2150	330	590	1040	1227
TR36-160	1600	1810	390	670	1130	1220
TR36-180	1800	2010	390	670	1130	1220
TR36-200	2000	2200	390	670	1130	1220
TR36-220	2200	2410	390	670	1130	1220
TR36-240	2400	2610	390	670	1130	1220

Tab. 17 Machine dimensions

Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
TR36F-180	1800	2010	390	670	1130	1450
TR36F-200	2000	2200	390	670	1130	1450
TR36F-220	2200	2410	390	670	1130	1450
TR36F-240	2400	2610	390	670	1130	1450
TR56-280	2800	3010	410	680	1150	1270
TR56-310	3100	3310	410	680	1150	1270
TR56F-280	2800	3010	410	680	1150	1450
TR56F-310	3100	3310	410	680	1150	1450

Tab. 18 Machine dimensions

2.7 Cardan joint identification

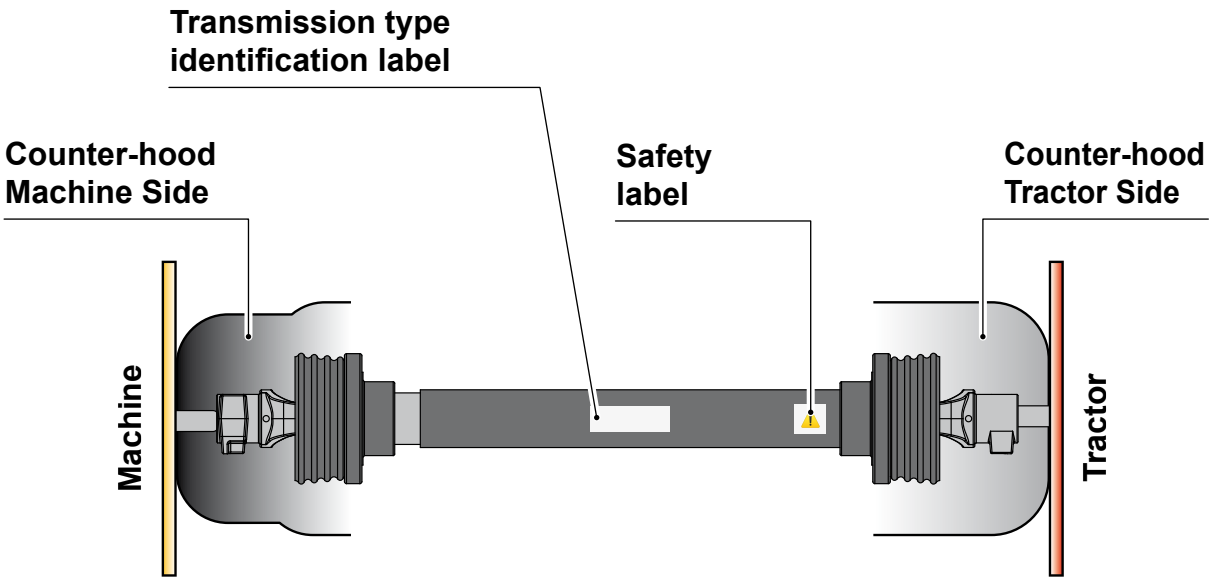


Fig. 6 Cardan joint

Please note that according to EN 12965:2003, the attachment system of the tractor-side fork to the tractor's PTO must not have any pins that could be a cause of entanglement, and that torque limiting devices and freewheels may only be mounted on the operating machine side.

The cardan shaft must work at the smallest possible angle (not to exceed 10-15 degrees) to promote the durability of both the shaft and the machine. In case of replacement, replace the worn or broken cardan shaft with another one marked “CE”.

Disconnect the PTO whenever the cardan shaft angle is greater than 15°, see Fig.7.

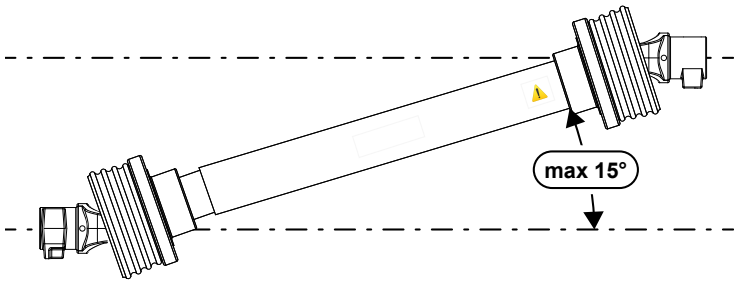


Fig. 7 Cardan shaft working angle

The machine is supplied complete with cardan joint.
Please read the instructions in the enclosed cardan joint booklet carefully.

Use only the cardan shaft indicated by the manufacturer. This shaft is equipped with safety devices against overloads.

Pay close attention to the protection of the cardan shaft, both in transport and working position.

The protection of the cardan shaft must always be effective, should be checked periodically, and secured with chains to prevent rotation.

Do not make any modifications or adjustments to the cardan shaft so as not to offset the balance carried out during testing.

It is forbidden to replace the cardan joint supplied by ALPEGO S.p.A. with other cardan joints than the original.

Pay close attention to the correct assembly and safety of the cardan shaft, (and both the machine's PTO and the tractor's PTO).

Before activating the power takeoff, check the pre-set speed. Do not exchange the speed of 540 rpm for 1000 rpm. Never exceed the maximum speed.

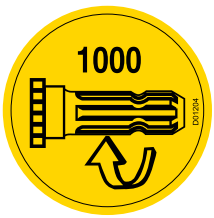
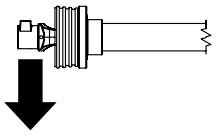
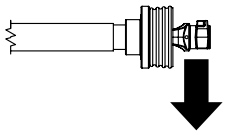
	
540 rpm.	**1000 rpm.**

Fig. 8 Working speed rpm

			
Model	**Operating machine connection**	**Tractor connection**	**Code**
TB2-140	1”3/8 z = 6	1”3/8 z = 6	M70A00065
TB2-160	1”3/8 z = 6	1”3/8 z = 6	M70A00065
TB2-180	1”3/8 z = 6	1”3/8 z = 6	M70A00065
TB2-200	1”3/8 z = 6	1”3/8 z = 6	M70A00065
TR27-140	1”3/8 z = 6	1”3/8 z = 6	M70A00065
TR27-160	1”3/8 z = 6	1”3/8 z = 6	M70A00065
TR27-180	1”3/8 z = 6	1”3/8 z = 6	M70A00065
TR27-200	1”3/8 z = 6	1”3/8 z = 6	M70A00065
TR27F-140	1”3/8 z = 6	1”3/8 z = 6	M70A00065
TR27F-160	1”3/8 z = 6	1”3/8 z = 6	M70A00065
TR27F-180	1”3/8 z = 6	1”3/8 z = 6	M70A00065
TR27F-200	1”3/8 z = 6	1”3/8 z = 6	M70A00065
TR36-160	1”3/8 z = 6	1”3/8 z = 6	M70A00066
TR36-180	1”3/8 z = 6	1”3/8 z = 6	M70A00066
TR36-200	1”3/8 z = 6	1”3/8 z = 6	M70A00066
TR36-220	1”3/8 z = 6	1”3/8 z = 6	M70A00066
TR36-240	1”3/8 z = 6	1”3/8 z = 6	M70A00066
TR36F-180	1”3/8 z = 6	1”3/8 z = 6	M70A00066
TR36F-200	1”3/8 z = 6	1”3/8 z = 6	M70A00066
TR36F-220	1”3/8 z = 6	1”3/8 z = 6	M70A00066
TR36F-240	1”3/8 z = 6	1”3/8 z = 6	M70A00066
TR56-280	1”3/8 z = 6	1”3/8 z = 6	M70A00066
TR56F-280	1”3/8 z = 6	1”3/8 z = 6	M70A00066
TR56F-310	1”3/8 z = 6	1”3/8 z = 6	M70A00066

Tab. 19 Cardan joint identification according to machine model

3 LEGAL REFERENCES AND RESPONSIBILITIES

3.1 Applied directives and EC technical reference standards

The machine has been manufactured in accordance with the following European Directives and Technical Standards:

- **Machinery Directive 2006/42/EC** on the approximation of the laws of the Member States relating to machinery.

The following European directives and harmonised standards have been complied with for the verification of Conformity according to the above mentioned Directive:

- **UNI EN ISO 4254-1** - Agricultural machinery - Safety - Part 1: General requirements.
- **UNI EN ISO 4254-12** - Agricultural machinery - Safety - Part 12: Rotary disc and drum mowers and flail mowers.
- **UNI EN ISO 4413** - Hydraulics - General rules and safety requirements for systems and their components.
- **UNI EN ISO 13857** - Safety of machinery - Safety distances to prevent danger zones being reached by the upper and lower limbs.
- **ISO 11684** - Tractors, agricultural machinery - Safety signs and hazard pictograms - General principles.
- **ISO 17101-1-2** - Agricultural machines - Thrown-object test and acceptance criteria.
- **ISO 17103** - Agricultural Machinery - Rotary disc mowers, rotary drum mowers and flail mowers - test methods and acceptance criteria for protective skirts.

3.2 Applied directives and UKCA technical reference standards

- **Supply of Machinery (Safety) Regulations 2008 - S. I. 2008/1597**;
- **Electomagnetic Compatibility Regulations 2016**;
- **EN ISO 4254-1:2015**;
- **EN ISO 4254-12:2012**;
- **EN ISO 4254-12:2012/A 1 :2017**;
- **EN 15811:2014**;

3.3 Risk analysis

The risk analysis carried out and the solutions implemented by the manufacturer make it possible to eliminate most of the residual risks.

The instructions in this manual, which contains the technical information required for correct installation, commissioning, operation and maintenance, must be strictly adhered to.

3.4 Manufacturer's liability

For any repairs or overhauls involving operations of a certain complexity, it is necessary to contact the Authorised Service Centres with specialised personnel or directly the Manufacturer.

The manufacturer accepts no liability whatsoever for damage to persons or property caused by negligence or failure to observe the instructions in this manual.

ALPEGO S.p.a. holds itself harmless from any liability deriving from:

- Manoeuvring errors.
- Total or partial non-compliance with the instructions in this manual.
- Improperly performed repairs (the use of non-original spare parts and accessories may adversely affect the operation of the machine).
- Damage caused by arbitrary modifications by the user or unauthorised interventions.
- Lack of maintenance.
- Tractor hydraulic/mechanical power supply defects.
- Improper use of the machine.
- Unforeseeable exceptional events.
- Use of the machine by untrained personnel.
- Non-application of the provisions on safety, hygiene and health at work.

ALPEGO S.p.a. does not assume any responsibility for damage caused to things, persons or animals due to inappropriate use of this documentation or of the machine.

3.5 Charges borne by the customer

The following shall be borne by the customer, unless otherwise stipulated in the contract:

- Provision of an adequate hydraulic supply.
- Tractor with adequate power according to the machine model purchased (see section “2.4 Technical characteristics of the machine” on page 22).
- The employer must instruct the personnel on the risks of accidents, on the devices provided for the operator's safety and on the general accident prevention rules laid down by international directives and by the legislation of the country of destination of the machine. The behaviour of the operating, maintenance, cleaning, control personnel etc. must in any case scrupulously comply with the accident prevention regulations of the country of destination of the machine.

4 GENERAL SAFETY INFORMATION

Whenever the machine is also intended to be used by people who do not understand any of the languages in this manual, the importer or employer (or the machine user) will be responsible for having the instructions for use translated into a language that the users understand.

The operator is required to perform only the operations described in this manual. If additional operations or interventions to those described below are necessary, please contact the Manufacturer who will provide the information it deems most appropriate depending on the circumstances. The Company is relieved of any liability for damage to property or harm to people.

Any changes must be requested directly from the Manufacturer, specifying all characteristic machine data and the reasons; if approved, the changes must only be carried out by personnel authorised by the Manufacturer and consistent with its specific instructions. The Manufacturer is exempt from any liability for any damage to persons or property caused by negligence in reading and putting into practice the procedures and/or instructions contained in the manual.

4.1 Residual risks and personal protective equipment

The machine shows risks that have not been completely eliminated by design or by the installation of suitable guards. In any case, the customer has been informed of these risks by means of this manual, carefully indicating which PPE should be used by users and what precautions should be taken to minimise the risk.

Personal Protective Equipment (PPE) means any device intended to be worn and held by the worker for the purpose of protecting him against one or more risks likely to threaten safety or health at work, as well as any complement or accessory intended for that purpose.

Please note that careful and correct behaviour by operators reduces the risk of accidents in the workplace.

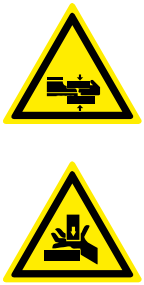
Sufficient space is provided during the machine installation phases to limit these risks. To maintain these conditions, the areas around the machine and access to the working position must always be maintained:

- Be kept free of obstacles (such as ladders, tools, containers, boxes).
- Be well lit.

For the customer's complete information, the residual risks remaining on the machine are listed below. The PPE listed in the table below refers to the specific residual risk (where present).

Danger	Symbol	Operation	Precautions	PPE to be used
Noise hazard. The danger exists if you work with the windows open, or with a non-soundproof cab.		Use.	Use approved protective ear muffs.	

Tab. 20 Personal protective equipment

Danger	Symbol	Operation	Precautions	PPE to be used
Crushing hazard. Contact with moving parts, during operation or maintenance or accessory installation.		Use. Maintenance. Installation of accessories.	Do not under any circumstances touch moving parts throughout the machine (only carry out neces-sary checks or maintenance).	
Stumbling hazard During operation, maintenance or installation of accessories, there is a risk of tripping over various parts of the machine.		Use. Maintenance. Installation of accessories.	Avoid passing close to protruding elements inside and outside the machine.	
Danger of impacts to the head or body parts! During maintenance or accessory installation work, there is a risk of shocks to the head or parts of the body due to the composition of the machine.		Maintenance. Installation of accessories.	Pay attention while carrying out the necessary operations to all machine components and their overall dimensions.	
Danger of moving parts!		Use. Maintenance. Installation of accessories. Hydraulic test.	Do not touch moving parts.	
Attention rotating rollers! Drawing-in hazard. The danger exists on the rotating rollers of the accessories.		Use. Maintenance. Installation of accessories. Hydraulic test.	Avoid contact with the rollers of the machine during use, maintenance and accessory installation. Fluttering clothes are prohibited.	 
Crushing hazard. The danger exists in the rear area, when lowering the operating machine for work.		Use. Maintenance. Hydraulic test.	Keep at least 10 metres away from the operating machine.	

Tab. 21 Personal protective equipment

Danger	Symbol	Operation	Precautions	PPE to be used
Danger of burns.		Use. Maintenance.	Do not touch the gearbox or overdrive and any parts of the hydraulic system after prolonged use of the machine.	
Danger of pressurised fluids. The danger exists on hydraulic pipes.		Use. Maintenance. Hydraulic test.	Avoid contact with hydraulic hoses. Wear protective gloves.	
Danger of cutting foot. The danger exists on the rear and side area of the operating machine during operation.		Use. Maintenance. Hydraulic test.	Keep at least 50 metres from the rear and side area of the operating machine.	
Danger of full-body entanglement. The danger exists on the tractor's cardan shaft.		Use. Maintenance.	Do not put your hands near the transmission shaft.	
Danger of throwing stones, earth and brushwood. The danger exists on the rear and side area of the operating machine during operation.		Use.	Keep at least 50 metres from the rear and side area of the operating machine.	
Due to the type of product being processed, very dusty soil or the use of an open machine, there is a danger that a considerable amount of dust will be raised.		Use.	Use a dust mask.	

Tab. 22 Personal protective equipment

Personnel working on the machine must wear the personal protective equipment (PPE) required to protect them, in accordance with the accident prevention regulations in force in the country where the machine is installed.

Any PPE used must be CE marked or approved by the standards in force in the country of use.

IT IS FORBIDDEN to wear clothing and accessories that could get caught in the machine: loose clothes, ties, belts, necklaces, bracelets, watches, earrings, rings, etc. Tie up long hair.

Please note that the non-use of personal protective equipment by operators, specialised technicians or in any case those working on the machine may lead to exposure to risk and possible damage to health.

ALPEGO S.p.a. declines all responsibility for any damage to persons caused by the non-use of PPE.

4.2 Ecology and pollution

Regulations in your country regarding the use and disposal of products used for lubricating, maintenance and cleaning operations on machine must be respected. Carefully observe the indications given on the packaging of the products used. Follow current rules also for the scrapping of the machine.

4.3 Safety and accident prevention rules

For the correct and safe use of this machine, it is very important that the instructions, procedures and indications contained in this manual, as well as the safety regulations in force, are carefully followed. Personnel responsible for the installation, use, maintenance and demolition of the machine must always take into account the warnings and prohibitions in the following paragraphs.

- **Basic warnings**

Instructions or warnings are not intended to replace accident prevention regulations, but to supplement them and encourage compliance.

Warnings alone do not eliminate the danger!

Failure to observe the safety recommendations and improper use of the machine may result in the risk of injury to you and other persons!

The installation of the Flail mower on the tractor results in a different distribution of the weights on the tractor axles. The front of the tractor must be ballasted in order to rebalance the tractor and distribute the weight adequately over the axles (see section “Correct weight distribution” on page 55).

Carefully examine the adhesive labels on the machine and follow the instructions thereon. Safety signs must always be legible and clearly visible. Keep them clean and replace them if necessary in case of poor legibility (they can be requested from the dealer or directly from the manufacturer).

The category of the machine's hitch pins must correspond to that of the hitch in the tractor.
Also check that the maximum permissible loads for the three-point hitch are observed (see section “Correct weight distribution” on page 55).
Before coupling and uncoupling the machine to the three-point hitch, lock the controls of the tractor's hydraulic lift so that the lift is not activated and can move the machine.

Use particular caution when coupling and uncoupling the machine from the tractor.

Disconnect the cardan shaft from the tractor before loading the machine.

Hitching and unhitching the machine must take place in a level area, free of obstacles or differences in height that could cause the operator to stumble or fall.

Ensure, before transferring on transport vehicles, that the machine and its components are properly anchored and that their dimensions do not exceed the maximum permitted dimensions. If necessary, arrange for appropriate signalling.

Do not drop the machine abruptly to the ground, but lower it slowly to allow the ploughshares to gradually engage the soil. If lowered violently, all machine components would become heavily stressed, and this could compromise their integrity.
When used on dry or dusty ground, the machine may give rise to dust emissions.

When using a protective mask with interchangeable filters, check the condition of the filters periodically and replace them if necessary. When working, the operator must have sufficient visibility of the areas deemed to be hazardous, so protective glasses should be kept clean at all times.

Before starting any work, focus all your attention on what you are going to do. It is necessary to be extremely attentive and to maintain alertness and reflexes at all times: these are fundamental conditions for the operator.

If the person is subject to any illness or adverse physical condition, even if slight, that may reduce the degree of alertness, he must avoid operating the machine or acting on the associated or ancillary equipment.

The operating company must take care that the machine is not used by unauthorised persons.
The machine may only be operated by trained and instructed personnel:

- Be at least 18 years old.
- Has the necessary technical knowledge.
- Be in possession of the appropriate driving licence.
- He gives reason to believe that he can perform the task reliably.

Before you start working with the machine, you need to be familiar with the area you are working in.

During use, do not allow people or animals to approach within the machine's operating range.

The machine should only be used with perfect visibility.
The machine cannot be used (at night) or in conditions of insufficient visibility.

Avoid operating the machine near people or animals parked or in transit within its range.

Do not use the machine inside enclosed facilities unless there is adequate ventilation

Always remain seated in the driving seat of the tractor and only get out when the tractor's parking brake is applied.

During breaks in work, switch off the PTO, switch off the engine, place the machine on the ground and apply the tractor parking brake. Do not work with guards removed.

For road use, comply with the regulations in force in the country of use.
The machine and its road transport accessories (if any) must be fitted with appropriate signs and guards.

It is very important to remember that road holding, braking capacity and direction are influenced by the weight of the machine applied to the tractor lift; in curves also consider the action of the centrifugal force which shifts the centre of gravity of the machine.

During transport, or whenever it is necessary to lift the machine, the lifting unit of the tractor should be adjusted in such a way that the machine is not lifted by more than about 30 cm from the ground, see on page <?>.

When transporting on the road, with the machine raised, put the control lever of the hydraulic lift of the tractor in the locked position.

When finished, lower the support leg and then set the flail mower on the ground. Switch off the tractor and remove the ignition key.

Before carrying out any work that could constitute a dangerous situation, ensure that a person capable of providing first aid is present in the vicinity of the machine. Make sure that the machine is completely stopped before placing your hands in the work area.

Keep the maintenance and storage area of the machine tidy and clean. Disorder in the workplace is dangerous. The floor must be dry and free of oil, grease or water stains.

Any maintenance operation, whether routine or unscheduled, must be carried out with the machine stopped and only when all energy sources are switched off. Before proceeding, switch off the tractor and relieve the pressure in the cylinders (machines with hydraulic accessories).

Any maintenance work on the hydraulic system must only be carried out when the system is relieved of pressure.

When you suspect that the machine or part of it is no longer safe, you should switch it off and ensure that it is not used inadvertently. Entrust the inspection and/or any repairs to specialised personnel trained in the use of the machine or, if necessary, contact the manufacturer.

Ensure the adequacy of the state of preservation and maintenance of the machine and its main components.

The use of accessories, tools and consumables other than the originals or not recommended by the manufacturer may pose a risk of injury and release the manufacturer from civil and criminal liability.

- **Prohibitions**

The safety instructions in this chapter are to be considered "general". More specific indications in some of the chapters or paragraphs of this manual are to be considered an integral part of this chapter.

IT IS FORBIDDEN TO:

- Use the machine as a means of transporting people, animals or goods.
- Work on terrain or in locations that may affect the stability of the machine.
- Operate in an area where there are obstacles such as stones, sticks or roots as these will damage the integrity of the machine.
- During work, it is forbidden to make bends with the machine buried in the ground. Always lift it for direction changes and reversals.
- It is absolutely PROHIBITED to drive the tractor or have it driven by personnel who do not have the appropriate driving licence, who are inexperienced and who are not in good health.
- It is absolutely forbidden to intrude into the area between the tractor and the machine to operate the external controls of the hydraulic lift.
- Leave tools or keys on or near the machine. After any maintenance work, check carefully that all tools, equipment and materials foreign to the machine have been removed before using it.
- Place hands, foreign bodies or other objects on moving parts of the machine.
- Climb over or onto the machine.
- Climb or lean on the cardan to climb over it.
- For the operator or specialised personnel in charge to alter the technical or physical characteristics of the machine or use it for purposes other than those intended and documented.
- Entering public roads with your machine dirty with dirt, grass or anything else that produces dirt and obstructs road traffic.
- Use the machine indoors unless there is adequate ventilation.
- Leave the machine unattended with the tractor running.

IT IS FORBIDDEN to remove, modify, circumvent protective means and devices fitted to the machine and tractor.

It is prohibited to climb onto the:

- Flail Mower Structure.
- Cardan.

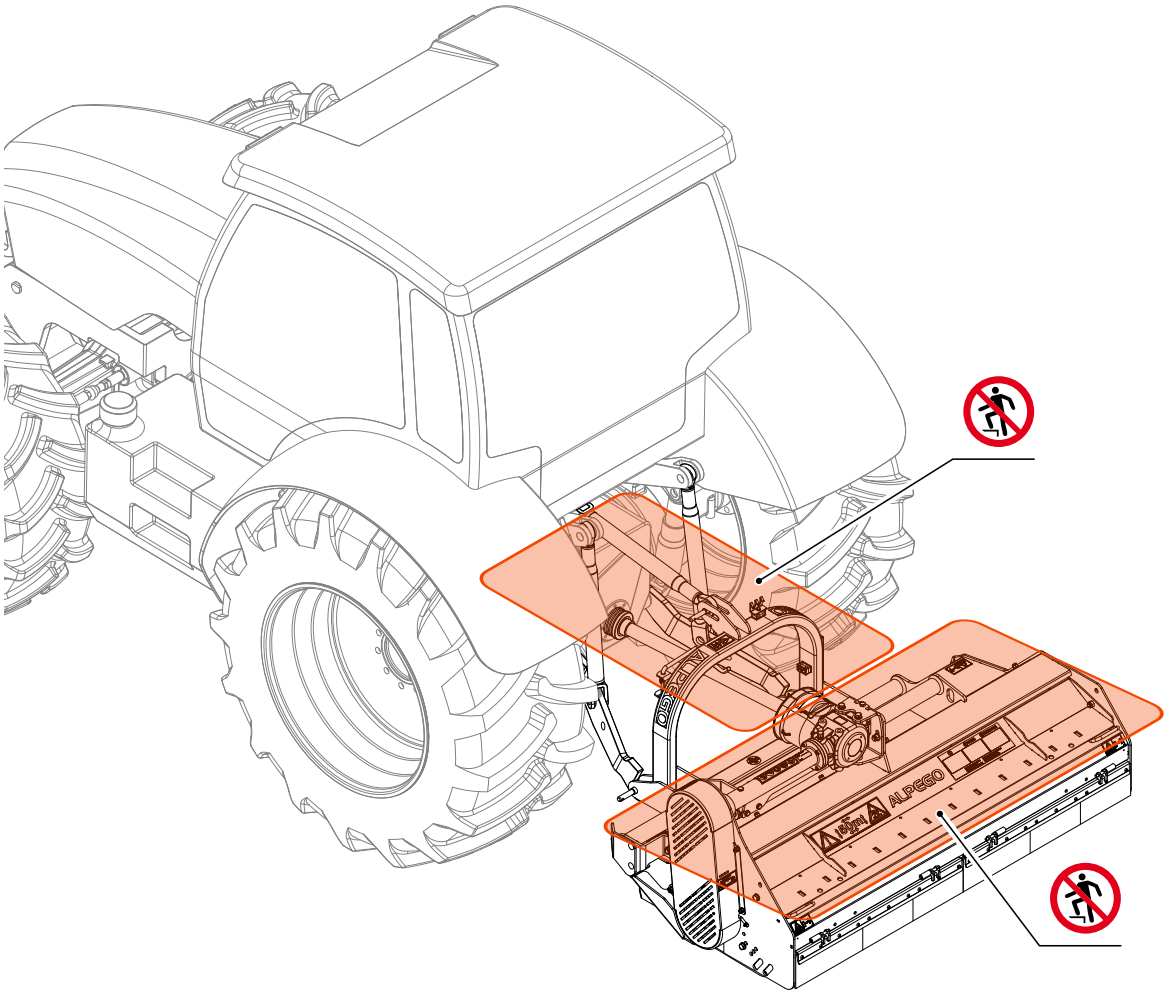


Fig. 9 Prohibited stepping points

The safety distance from the machine at work or otherwise with the rotor rotating is 50 m.

It is forbidden to pass through and stop during use and during lifting and lowering at:

- Tractor and flail mower connection.
- Near the cardan and next to the flail mower.

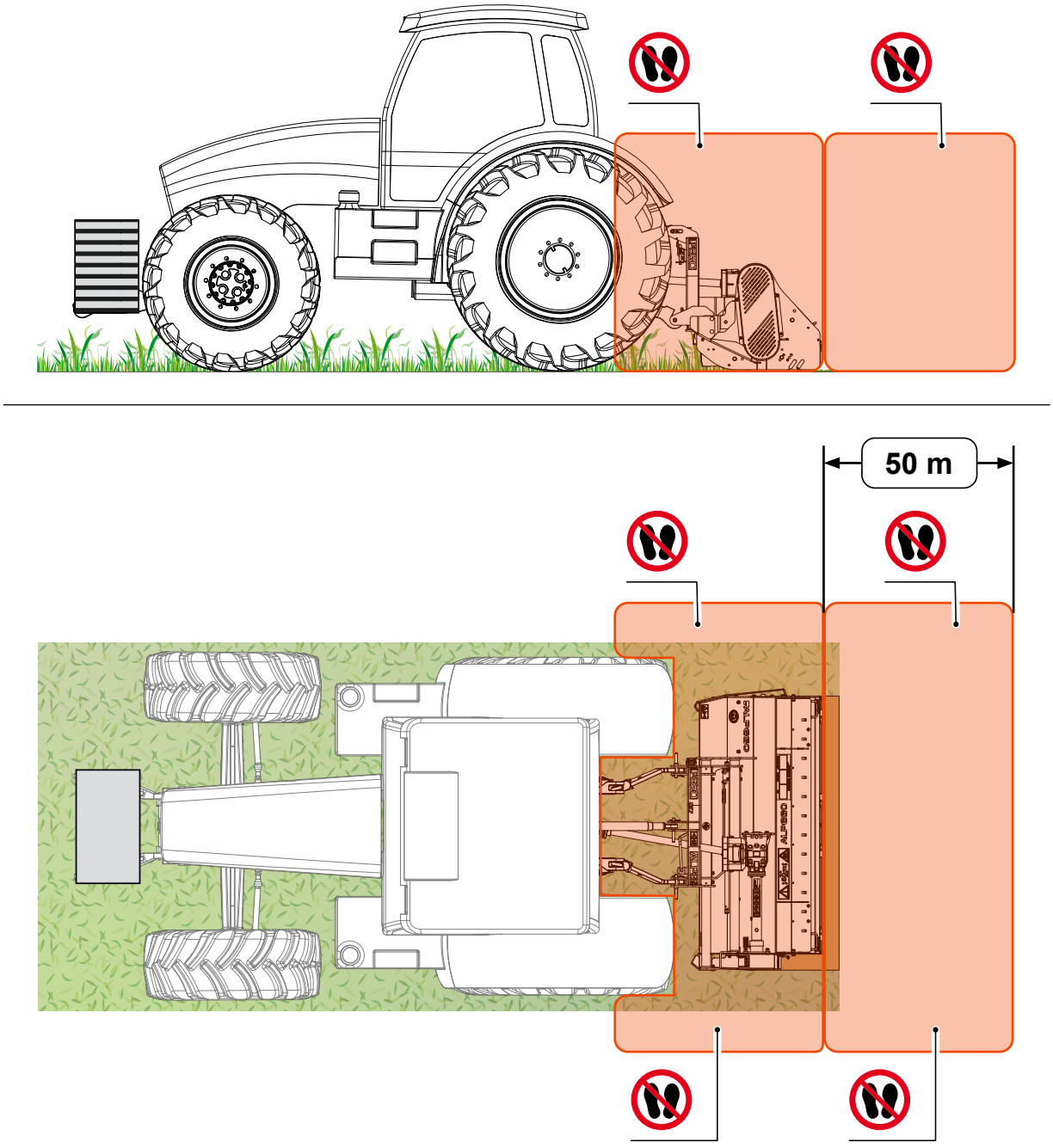
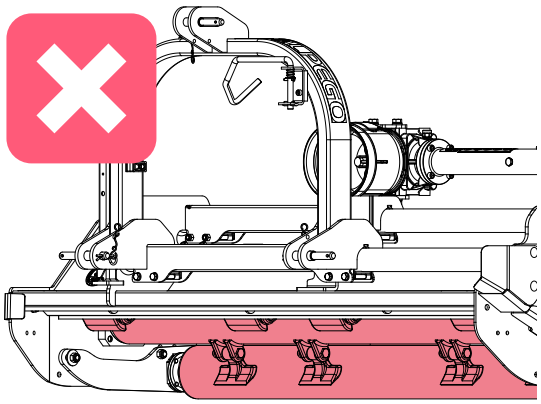
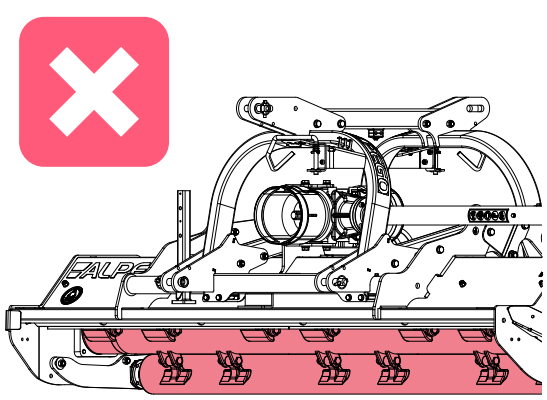


Fig. 10 Prohibited passing or parking points

It is forbidden to use the machine without protective straps or chains.

STRAPS	CHAINS
	
USE NOT PERMITTED	

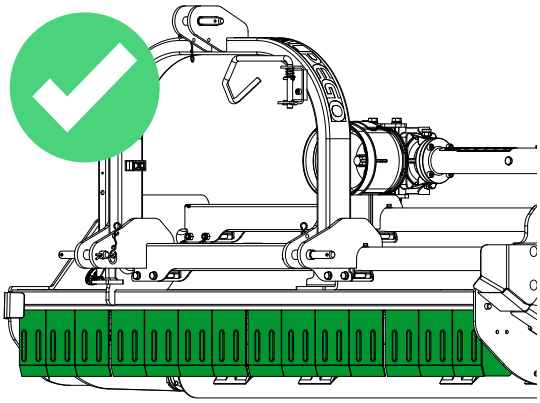
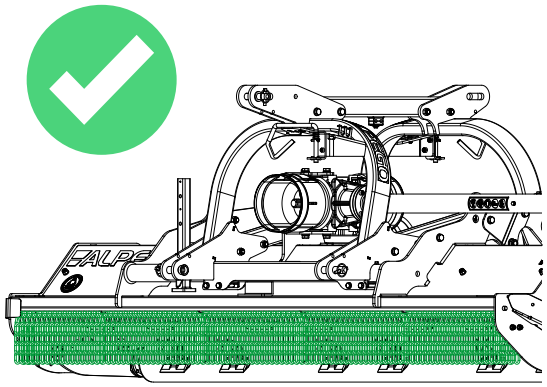
STRAPS	CHAINS
	
PERMITTED USE	

Fig. 11 Permitted use with straps or chains

4.4 Safety devices

Machine safety devices are defined as all the technical means put in place to enable the machine to be used with the maximum safety, known at the time of its construction, in conjunction with its technical characteristics.

In order to guarantee the health and safety of exposed persons, the machine is equipped with the following safety devices:

- Mechanical safety devices.

IT IS FORBIDDEN to remove or modify, even partially, the safety devices installed on the machine. The removal of safety systems is intentional and therefore they must be restored to their original position and condition after any maintenance work is completed.

The use of the machine with damaged or removed safety devices relieves ALPEGO S.p.a. from any civil and criminal liability.

- **Mechanical safety devices**

- **Fixed guards**

The machine is equipped with fixed guards, which protect the user from moving parts.

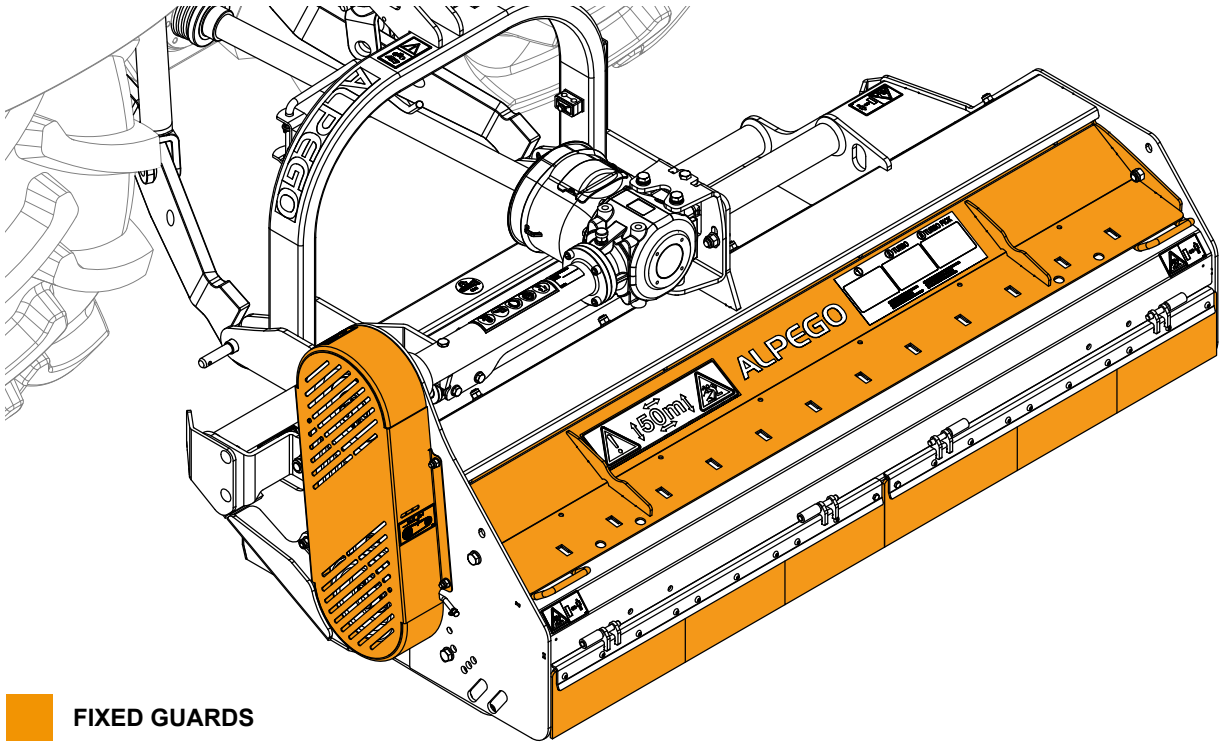


Fig. 12 Mechanical safety devices

4.5 Safety signage

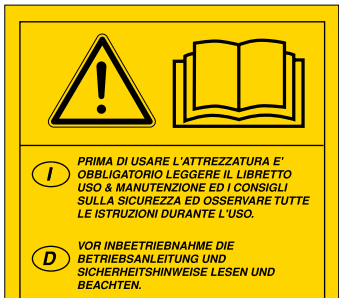
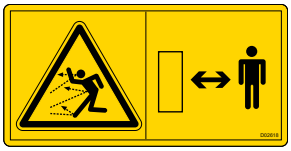
The colours of warning signs are defined by the international standard ISO 3864.
Their placement on site should meet the requirements of good visibility and proximity to the source of danger.

There are safety labels on the machine, which must be strictly observed by any person operating the machine.

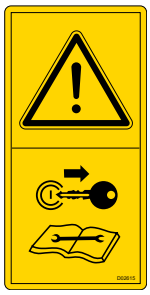
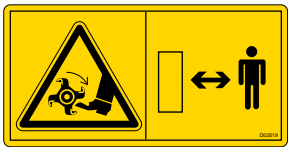
It is forbidden to remove or make illegible the safety, danger and warning signs on the machine.

The total or partial non-observance of the safety signs releases ALPEGO S.p.a. from any liability for damage to persons, property or animals.

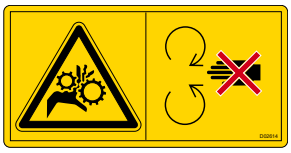
Safety signs in the workplace are a measure that further improves operators' safety conditions by providing correct information on needs and situations requiring caution and certain behaviours. The safety messages to be conveyed to operators by means of appropriate signs must comply with the provisions of the directive in force. By way of example, the most commonly used signs are shown below.

ADHESIVE LABEL	CODE	MEANING
	**D02612**	Before using the machine, it is compulsory to read the operation and maintenance manual and the safety advice and to observe its contents during use.
	**D02627**	Indicates the attachment point for transporting and storing the machine.
	**D02613**	Indicates the danger of shearing during machine movements.
	**D02618**	Indicates the danger of throwing stones while working, advises to stay at a safe distance.

Tab. 23 Safety signs applied to the machine

ADHESIVE LABEL	CODE	MEANING
	**D02617**	Indicates the position in which the support leg should be placed when the machine is not in use to ensure stable conditions.
	**D02615**	Indicates the need to switch off the tractor and remove the ignition key during maintenance operations.
	**D02624**	Indicates the danger caused by pressurised oil in the event of hydraulic hose ruptures, consult the instruction manual before carrying out repairs on hydraulic systems.
	**Q15A00531**	Indicates the PPE (personal protective equipment) provided: overalls, mask, ear muffs, shoes and gloves.
	**D15389**	Indicates the danger of throwing stones while working, advises to stay at a safe distance.
	**D02619**	Indicates the danger of rotor rotation during work, advises to always stay at a safe distance.
	**D02608**	Indicates the danger of twisting while working on the cardan shaft, advises against approaching the rotating shaft.

Tab. 24 Safety signs applied to the machine

ADHESIVE LABEL	CODE	MEANING
	**D08155**	Indicates the danger caused by excessive noise during the work phase.
	**D02609**	It indicates that it is absolutely forbidden to climb on top of the machine while working.
	**D02614**	Indicates the danger of crushing on rotating belts and pulleys.
	**D13569**	Indicates the positions the **TR36** bonnet deflector can take. **Position 1** = Deflector raised. **Position 2 turbo** = Deflector lowered. **Position 3 turbo pick** = Deflector lowered, rakes flush with the ground and roller set back.

Tab. 25 Safety signs applied to the machine

In the event that the plates should deteriorate or become generally not visible or missing, it is mandatory to replace them by requesting them directly from ALPEGO S.p.a.

ALPEGO S.p.A. declines all responsibility for any accidents or damage to persons, things or animals caused by the absence of safety labels on the machine.

- **Safety warnings displayed on the machine**

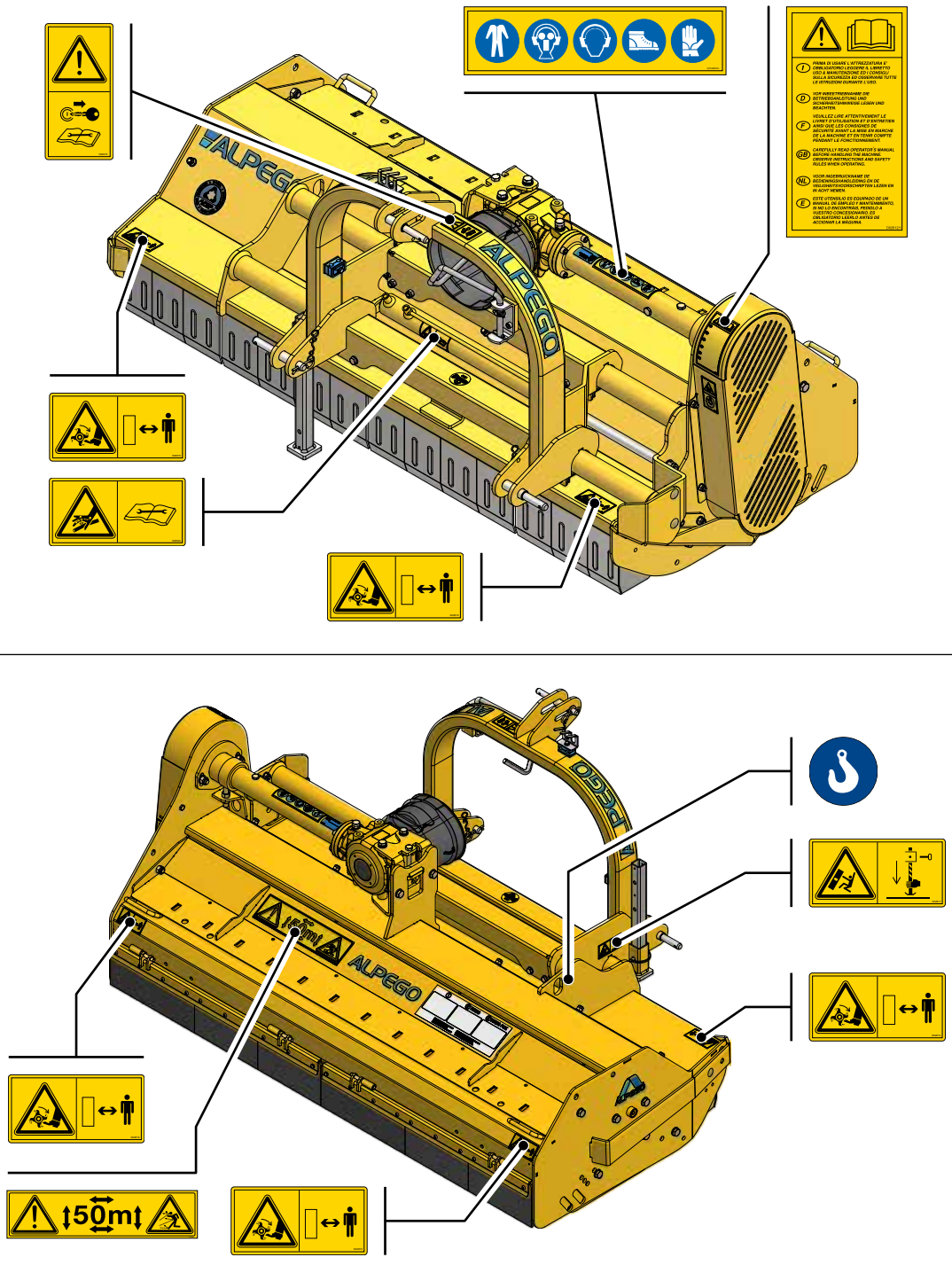


Fig. 13 Safety warnings applied to the machine

5 TRANSPORT AND HANDLING

Machine status: Packed on the transport vehicle.

Authorised personnel: MECHANICAL REPAIRER, USER.

Personal protective equipment: Hard hat, protective gloves, safety shoes, protective overalls (see section “Residual risks and personal protective equipment” on page 37).

ALPEGO S.p.a. does not assume any liability for damage resulting from transport and handling organised and carried out without taking into account what is described in this paragraph.

5.1 General warnings

During all lifting and handling operations of the machine and any accessories, the following warnings must be strictly observed.

IT IS FORBIDDEN to climb, stand and/or pass under the machine and any accessories when handling and/or lifting any individual component.

The use of suitable equipment with a load capacity appropriate to the mass to be lifted and in compliance with the laws and standards in force is mandatory. It is the customer's responsibility to provide equipment suitable for handling and assembling the machine and any accessories.

The use of unsuitable lifting equipment may result in accidents to personnel involved in the operation and/or damage to machine components.

ALPEGO S.p.a. does not assume any responsibility for the improper and non-compliant use of lifting equipment and for the non-compliance with the instructions given for the handling of the machine components.

5.2 Machine reception

On receipt of the machine, check that it has not been damaged during transport, that the packaging has not been tampered with, that it is complete in its parts as ordered and that there are no missing accessories essential for installation (bolts, parts for the hydraulic system, etc.).

If the machine cannot be assembled immediately, once the packaging has been unloaded, it must be stored (pending subsequent installation) in a place protected from the weather.

In the event of visible damage or shortages, note the damage immediately on the transport document with the indication: SUBJECT TO COLLECTION FOR OBVIOUS SHORTAGES / TRANSPORT DAMAGE. Report them by fax to both the supplier and the carrier within 3 days of receipt at the latest.

Please contact ALPEGO S.p.a. immediately in case of any problems.

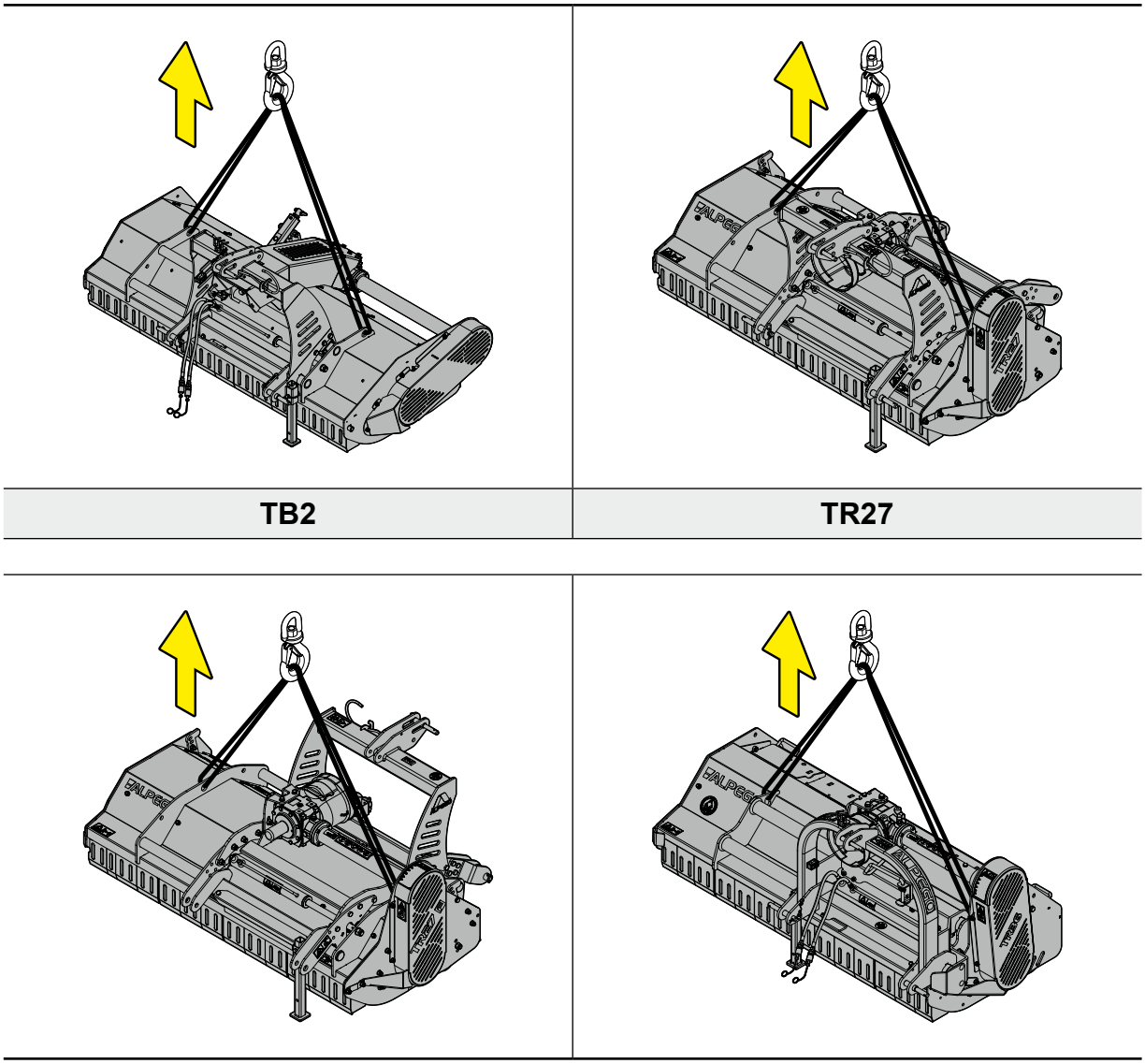
- **Machines supplied partially assembled**

For space-saving reasons, machines can be supplied with loose or detached units (in any case contained in the same packaging). Take care of the assembly of these parts, also referring to the tables in the spare parts catalogue. In particular, observe the tightening torques of the accompanying screws.

5.3 Machine lifting

shows machine lifting.

DANGER! LOAD SUSPENDED!
ATTENTION!! Attach the ropes correctly to the machine to be lifted.
ATTENTION!! Never pass under suspended loads for any reason.
Keep the load raised off the ground to a maximum height of 20 cm from the lowest point.



TB2	TR27

Fig. 14 Machine lifting

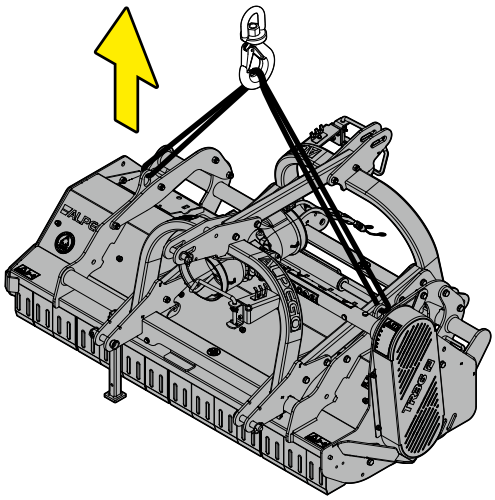
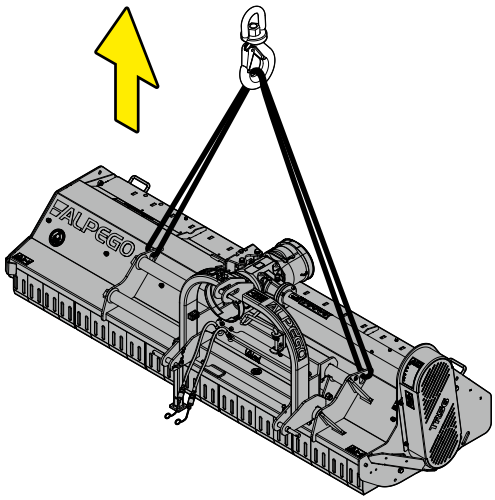
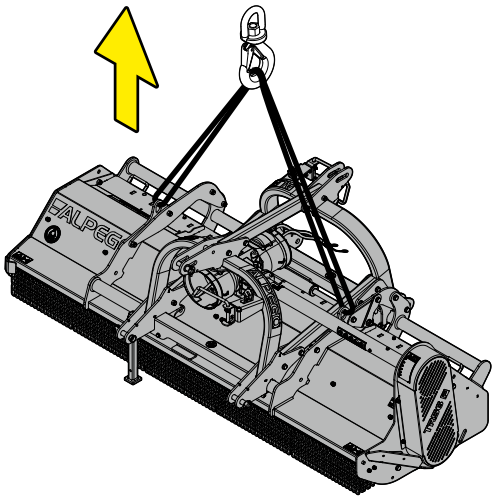
TR27F	TR36
	
TR36F	**TR56**
	
TR56F	

Fig. 14 Machine lifting

6 INSTALLATION

6.1 Correct weight distribution

The weight of the machine changes the stability of the tractor/Flail mower assembly by varying the acceleration, deceleration and steering capability.

Before connecting to the tractor, the user must weight the front part of the tractor as described.

It is compulsory to place a counterweight of at least 20% of the weight of the tractor/flail mower assembly on the front axle in order to balance the weights on the axles. For ballast calculation see the following paragraphs.

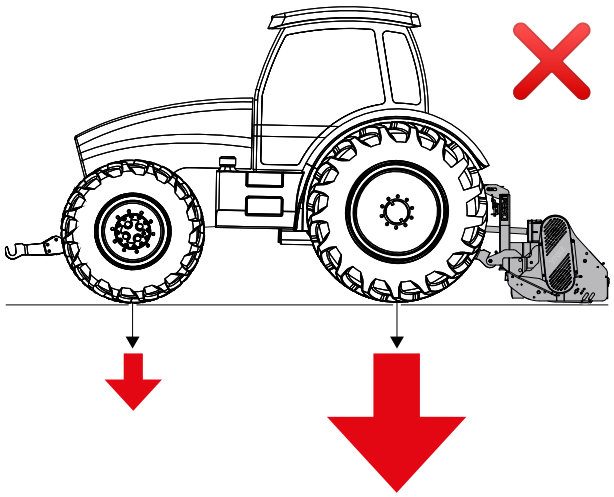


Fig. 15 Incorrect weight distribution

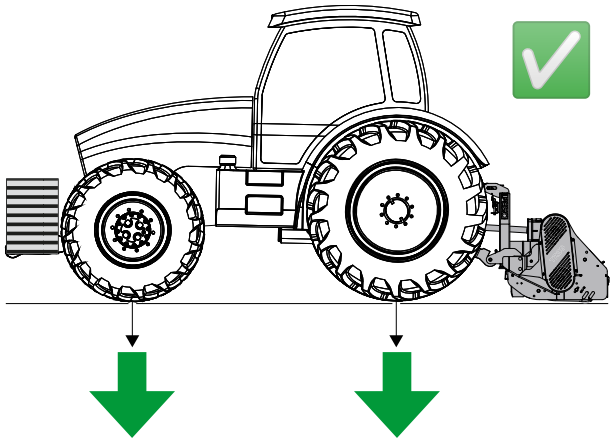


Fig. 16 Correct weight distribution

- **Counterweight legend**

As far as road circulation is concerned, hitching a machine to the tractor to have a single unit, can alter stability and make it difficult to drive and work.

When you add a machine to the tractor, you will change the weight distribution over the axles.
It is therefore recommended to add suitable ballasts to the front of the tractor in order to properly distribute the weight over the axles. The ballast to be applied is calculated as indicated in the following paragraphs.

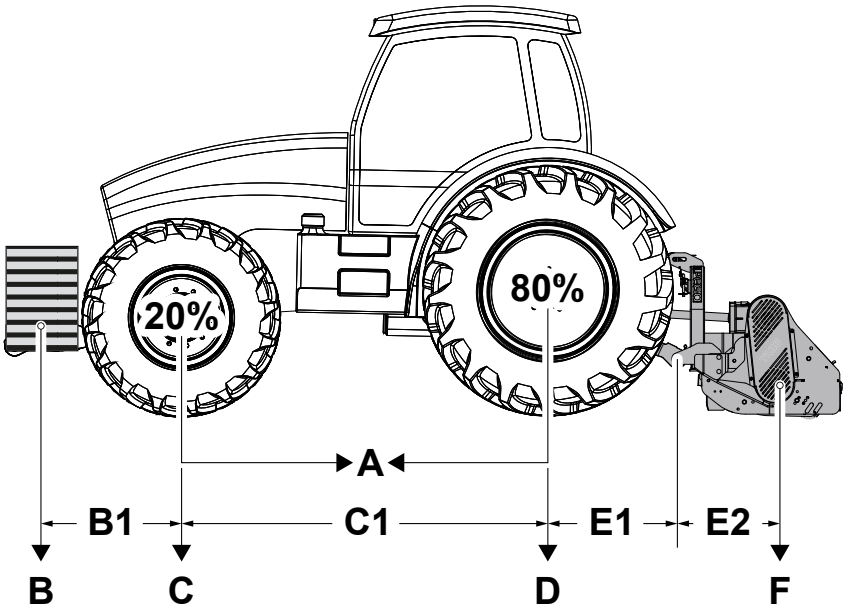


Fig. 17 Counterweight calculation

A	**Weight of the tractor without machine (E).**
B	**Ballast weight.**
B1	**Distance between the front axle of the tractor and the centre of gravity of the ballast.**
C	**Front axle load.**
C1	**Tractor wheelbase.**
D	**Rear axle load.**
E	**Distance between the rear axle of the tractor and the centre of gravity of the machine.**
E1	**Distance from the centre of the rear axle to the centre of the lower coupling balls.**
E2	**Distance from the centre of the lower coupling balls to the centre of gravity of the machine (rear mounting).**
F	**Machine weight.**

Tab. 26 Counterweight legend

- **Front ballast calculation**

Calculation of front ballast with rear-mounted implements.
Front ballast (kg) =

$$\frac{F \times (E1 + E2) - (C \times C1) + (0,2 \times A \times C1)}{B1 + C1}$$

- **Rear ballast calculation**

Calculation of rear ballast with front-mounted implements.
Rear ballast (kg) =

$$\frac{(B \times B1) - (D \times C1) + (0,45 \times A \times C1)}{C1 + E1 + E2}$$

- **Front axle weight calculation**

Calculation of the effective front axle load.
Front axle load (kg) =

$$\frac{B \times (B1 + C1) + (C \times C1) - F \times (E1 + E2)}{C1}$$

In any case, at least 20% of the total tractor-machine mass in running order should rest on the front bridge of the tractor. It should be remembered, however, that stability can be improved with the right choice of tractor-machine coupling and with the application of ballasts at the front, in the limits and methods indicated by the tractor manufacturer.
Moreover, when the tractor is stopped, the machine should be lowered to the ground, thus avoiding possible involuntary reductions, improving, at the same time, the stability.

- **Total weight calculation**

Calculation of the actual total weight.
Total weight (kg) =

$$B + A + F$$

- **Rear axle weight calculation**

Calculation of the effective rear axle load.
Rear axle load (kg) =

$$B + A + F - \frac{B \times (B1 + C1) + (C \times C1) - F \times (E1 + E2)}{C1}$$

Total weight - Front axle load

- **Tyre capacity**

Load capacity data for front and rear tyres can be found in the tyre manufacturer's documentation.

- If there are two wheels, the load capacity of the front tyres is that which results from multiplying the permissible load capacity for one front tyre by two.
- If there are two wheels, the load capacity of the rear tyres is that which results from multiplying the permissible load capacity for one rear tyre by two.

- **Checks for consent to use the machine with tractor in use**

Check whether the following conditions are met before connecting the machine to the tractor:

- The actual rear axle load values must be lower than the permitted values specified in the tractor's instruction manual.
- The load capacity of the tyres must exceed the rear axle load values specified in the instruction manual.
- The actual total weight must be less than the permitted total weight specified in the tractor's instruction manual.

If these conditions are not met, the machine must not be attached to the tractor.

If a sufficiently large scale is available, the total weight and rear axle load can be determined by weighing.

If the machine is mounted on an agricultural tractor that was type-approved and registered before 6 May 1997, compliance with the following relation must also be checked:

$$F < 0.3 \times A$$

If this condition is not met, the machine must not be attached to the tractor.

6.2 Connecting the tractor to the three-point hitch

Machine status: Correctly assembled and tested. Disconnected from the tractor and hydraulic connection, on a stable level and balanced with support leg engaged and locked in position.

Authorised personnel: USER.

Personal protective equipment: Hard hat, protective gloves, safety shoes, protective overalls (see section “Residual risks and personal protective equipment” on page 37).

Check the compatibility of the performance according to the tractor with the weight that the machine and any accessories transfer to the hitches. In case of doubt consult the tractor manufacturer.

DANGER! Do not attach the machine and any accessories to a tractor with insufficient power and capacity for safe operation.

Approach the machine so that the three points can be connected.

Switch off the engine, apply the parking brake, then get off the tractor and prepare for the three-point linkage.

Application to the tractor is a very dangerous phase. Take great care to carry out the entire operation according to the instructions. Alpego S.p.a. accepts no liability for breakages or damage to property and persons caused by failure to follow the given instructions.

The correct tractor/machine position is determined by placing the tractor at such a distance from the machine that the cardan joint remains extended 5-10 cm from the maximum closed position.

The lifting links of the tractor must be adjusted so that the machine is parallel to the ground.

- **Connection procedure**

Proceed as follows:

1. Pull the lift bars together by placing them inside the plates (and det. A-B), insert the pin into the prepared hole and secure with the snap-on pins.
2. Lock the lift bars with the appropriate chains and turnbuckles parallel on the tractor. This must be done in order to avoid any movement, in a transverse direction, of the machine.
3. Connect the upper third point (and det. C) and make a correct adjustment with the tie rod, making sure that the upper plane of the machine is parallel to the ground plane.

The upper connections of the implement are equipped with a slot that allows the absorption of any unevenness in the ground while maintaining proper roller support.

For road access, adjust the third-point tie rod as shown in or (depending on model).

This is very important in order to achieve parallelism between the PTO shaft of the machine and the PTO shaft of the tractor. Operating under these conditions means limiting stress on the PTO itself and extending the life of the cardan shaft and the machine itself.

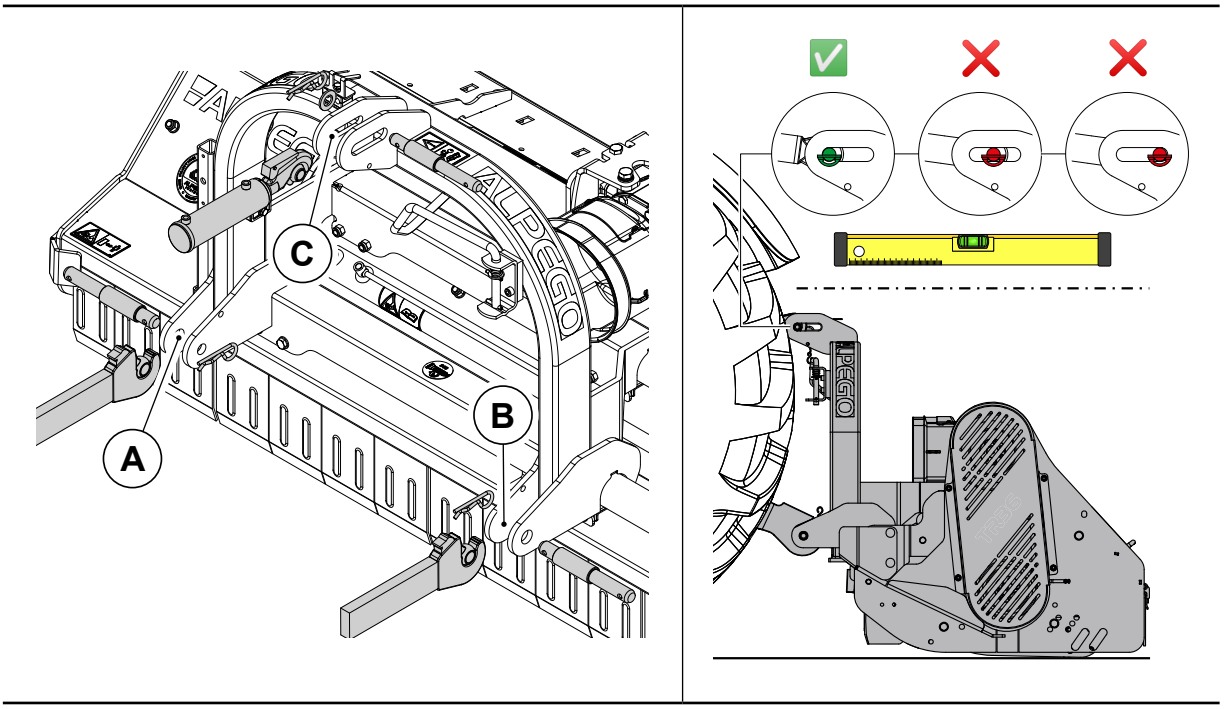


Fig. 18 Rear tractor connection procedure

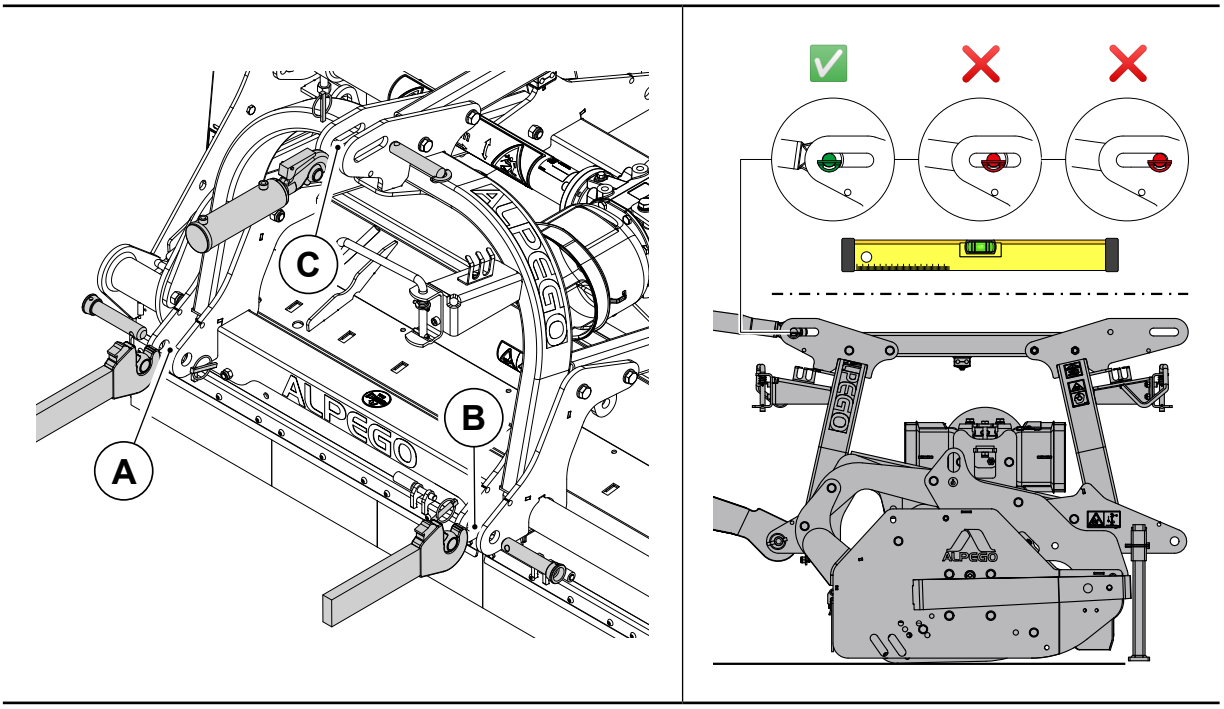


Fig. 19 Front tractor connection procedure

4. Engage the cardan shaft and ensure that it is fully locked onto the PTO. Check that the guard rotates freely and secure it with the chain provided. Remove the support from the cardan shaft.
5. Move the support foot from the rest position to the working position.

- **Cardan shaft connection**

There is a high risk of injury when connecting the machine to the tractor.

Make the connection on level, horizontal and non-collapsing ground.

Lock the tractor so that it cannot start moving (handbrake engaged, wheels locked).

The angle at which the cardan shaft works must be as small as possible, (not exceeding 10-15 degrees), which promotes the durability of both the shaft and the machine (Fig.20).

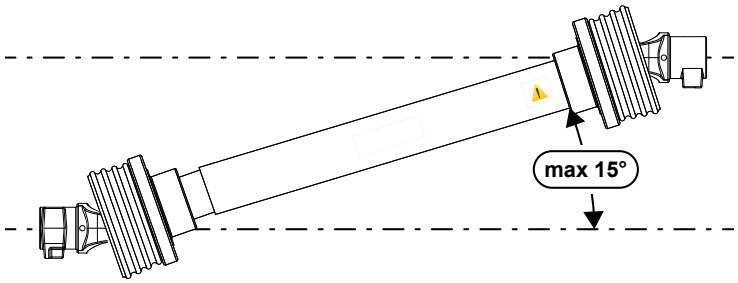


Fig. 20 Cardan shaft working angle

CONNECT THE CARDAN SHAFT TO A PTO WITH A SPEED EQUIVALENT TO THOSE INDICATED BY THE STICKERS ON THE MACHINE OR AS PER THE VALUES TABULATED IN PARAGRAPH "Technical characteristics of the machine" on page 22.

Since the cardan shaft is a device that rotates at high speed, it is subjected to balancing during testing, and any modifications could cause imbalances that would affect the functionality of the machine itself as well as the integrity of the cardan shaft.

When the cardan shaft is fully extended, under all working conditions, the telescopic tubes must overlap by at least 1/3 of their length.

Before starting work, check that the guards are fitted with safety chains to prevent the guards from rotating against the cardan shaft and that they are in good condition.

Carefully read the instruction manual provided by the cardan Manufacturer.

If worn or broken, replace it with a cardan marked CE - UKCA (if UK).

The cardan shaft manufacturer recommends that the cardan shaft should not be modified.

It is therefore forbidden to make various modifications and adjustments to the cardan shaft.

Carefully clean and lubricate the cardan shaft coupling (A) and the PTO shaft (B).

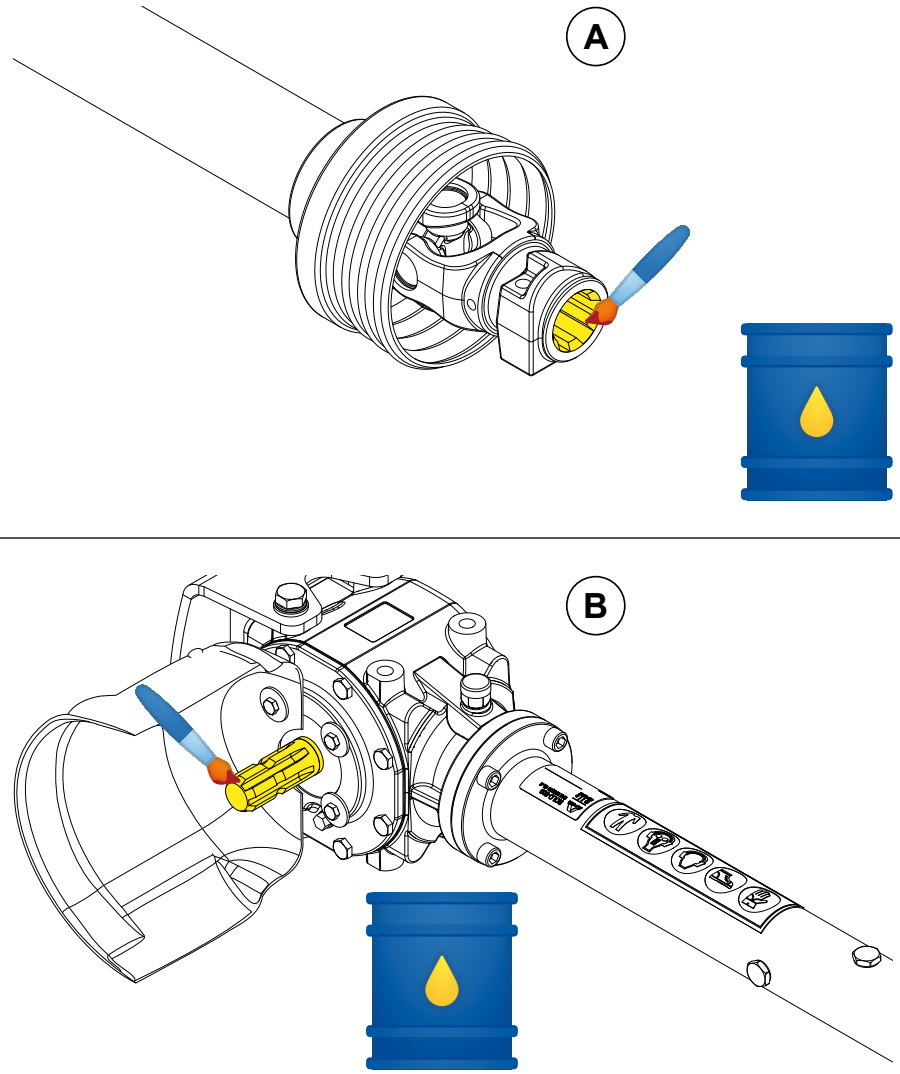


Fig. 21 Carefully clean and lubricate the cardan shaft coupling and the PTO shaft

The cardan shaft is adapted to the tractor by the dealer.

The cardan shaft must first be connected to the implement's PTO and then to the tractor's PTO. This avoids a fatal “whiplash” in the event of an unexpected start-up of the tractor's PTO.

The cardan shaft supplied with the machine may be of standard length.
It may therefore be necessary to adapt the cardan shaft.

In this case, before working on the cardan shaft, it is advisable to contact the Manufacturer of the cardan shaft for any adaptation.

- Disconnect the tractor's PTO and switch off the engine.
- Couple the cardan transmission shaft to the tractor PTO.
- The attachment is correct when the machine is horizontal in the working position.

To do this, increase or decrease the length of the upper connection bar (Fig.22 det. B) so that the axle (Fig.22 det. X) of the grooved ring of the box is parallel to the ground.

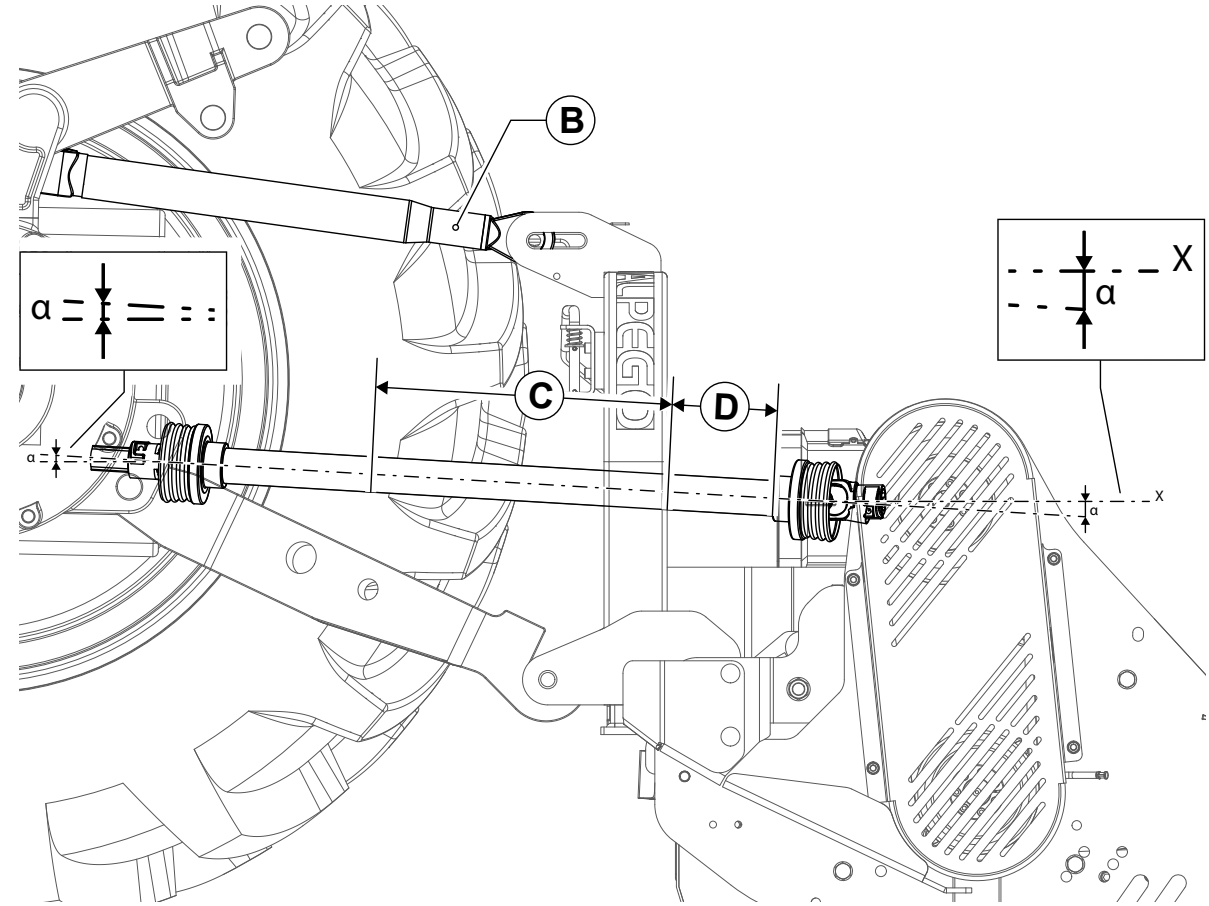


Fig. 22 Cardan shaft fitted

- **Check of cardan shaft at work**
- The two angles (Fig.22 det. α) formed by the axles of the forks and the axle of the sliding tubes will be equal and must not exceed 10°.
- The cover (Fig.22 det. C) of the sliding tubes must overlap by at least 1/2 of their length under normal working conditions and must overlap by at least 1/3 of their length under all working conditions. When fully engaged, the minimum clearance must be 4 cm (Fig.23).

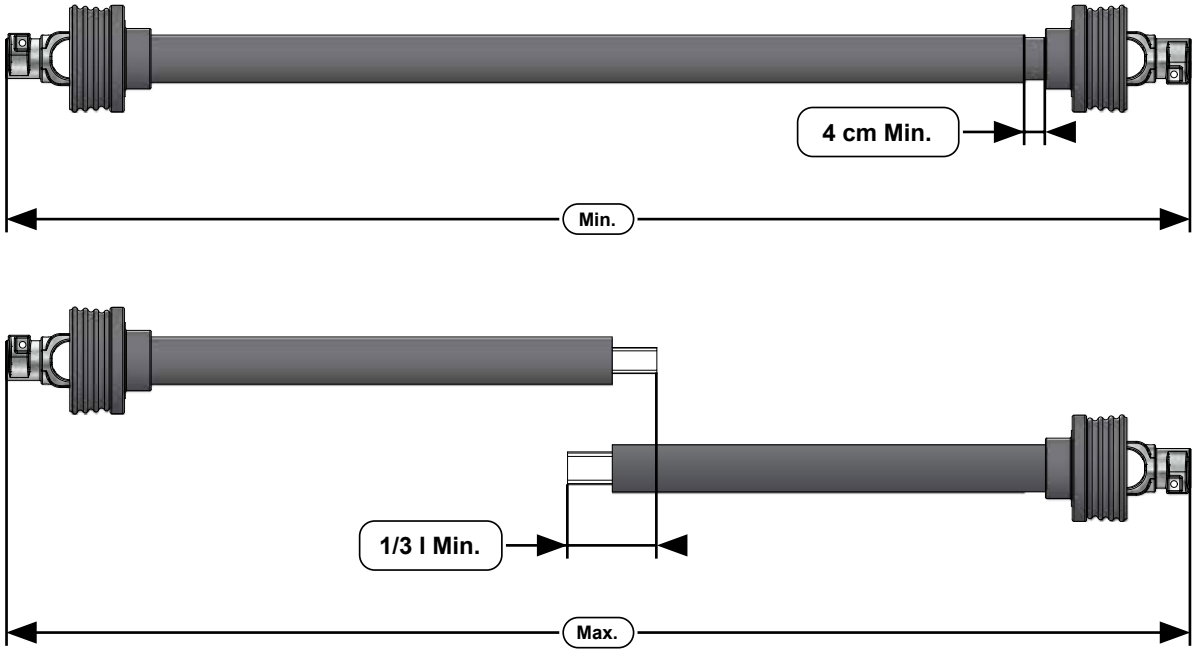


Fig. 23 Cardan shaft - sliding tube cover

- **Cardan shaft in raised position**
- Operate the lift (tractor PTO always disengaged).
- The two cardan transmission shaft tubes must not be completely covered, a safety clearance (Fig.22 det. D) of at least 4 cm must exist.
- The angles (Fig.22 det. α) of the cardan shafts shall not exceed 40° (Fig.22).

- **Cardan shaft reduction**

If during the checks in paragraphs “Check of cardan shaft at work” and “Cardan shaft in raised position” you are not within the specified parameters, follow the reduction sequence:

- Shorten the sliding tubes to the required length (Fig.24 det. A and B).
- Clean metal irregularities due to cutting (Fig.24 det. C).
- Finally, lubricate the inside of the outer tube (Fig.24 det. D).

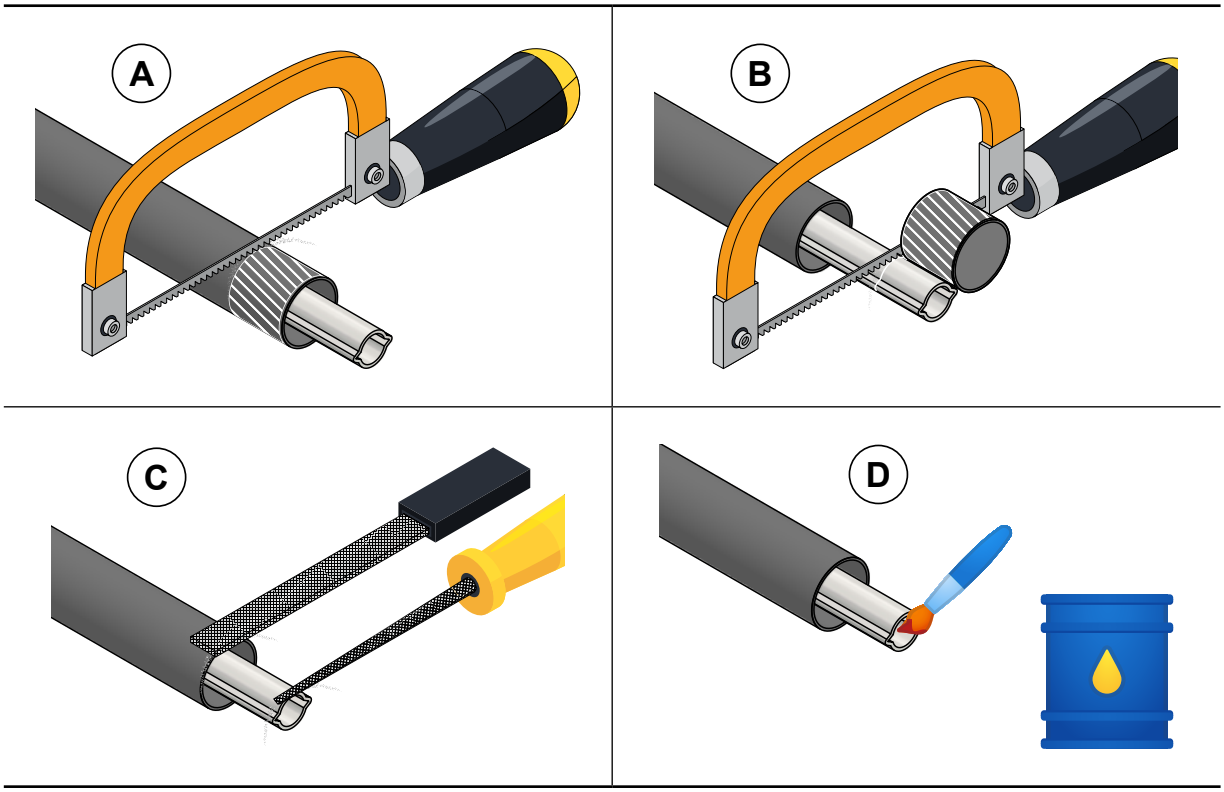


Fig. 24 Cardan shaft - Cardan shaft reduction

- **Hydraulic connection**

Once the machine is attached to the tractor's three-point hitch, it is necessary to make the hydraulic connection of the hoses on the machine.

Before starting any work on the hydraulic system, stop the tractor engine and depressurise the system. Hydraulic oil is harmful, avoid any contact.

High-pressure oil easily penetrates the skin and clothing, causing serious injuries.

Check the condition of the hydraulic hose lines before each connection to the tractor. They should be replaced as soon as they show signs of wear or small cracks.

Check, by means of the hydraulic diagram, which hose to connect for the movement of the accessory.

After checking the position of the hoses on the pressure distributor, connect them.

This image is valid for all models.

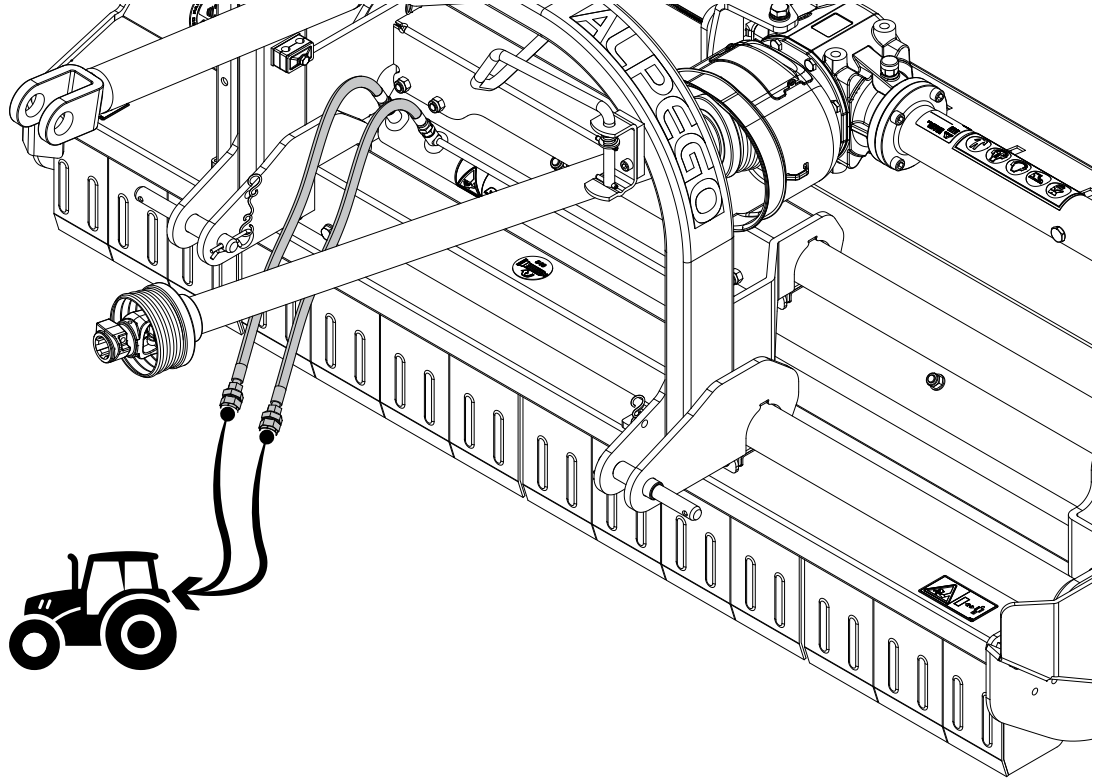


Fig. 25 Hydraulic connection

7 TRANSIT ON PUBLIC ROADS

If it is necessary to travel on a public road with the tractor, the machine and any accessories installed, the user is reminded that he must comply with the highway code in force in the country of use, paying particular attention to the speed of movement.

Warnings before driving on a public road:

- After working in an unpaved or clean area, it is mandatory to clean the tyres, tractor and machine from any grass, branches, soil or mud residue.
- The machine and any accessories installed must remain in the transport position and the tractor's PTO must be switched off.
- It is compulsory that the machine and any accessories installed, when in the transport position, maintain a distance of approximately 30 cm from the ground, see Fig.28 on page 70.
- DO NOT drive the tractor in a "reckless" manner.
- DO NOT use the machine as a means of transporting goods or persons.
- Before moving the tractor, check the area around the machine. Check that there are no people within range (they could get caught up in the machine and seriously injure themselves or lose their lives).
- If hydraulic hoses or hydraulic cylinders are fitted with a valve, they must be closed while driving on the road, in order to prevent unintentional activation of the tractor's distributors, which could cause the machine to move. The consequences can be damage to the machine or accidents.
- Protections for protruding and out-of-gauge elements must be provided.
- Beacons (Fig.26 det. 2) must be installed on the tractor and the machine in accordance with the highway code of the country of use.
- The support leg must be brought to a high position (Fig.26 det. 1).

ATTENTION!! The indicators must be located at the rear of the operating machine in a position that is clearly visible to all vehicles approaching from behind. If the overall dimensions of the machine and its accessories partially or totally reduce the visibility of the tractor's signalling and lighting devices, the latter must be re-installed in a suitable position on the machine or in the accessories.

Braking capacity and direction are affected by the weight of the machine applied to the tractor's lift, which implies a variation in braking times (to be anticipated depending on the weight of the machine).

Pay attention to the action of the centrifugal force, which shifts the machine's centre of gravity when cornering.

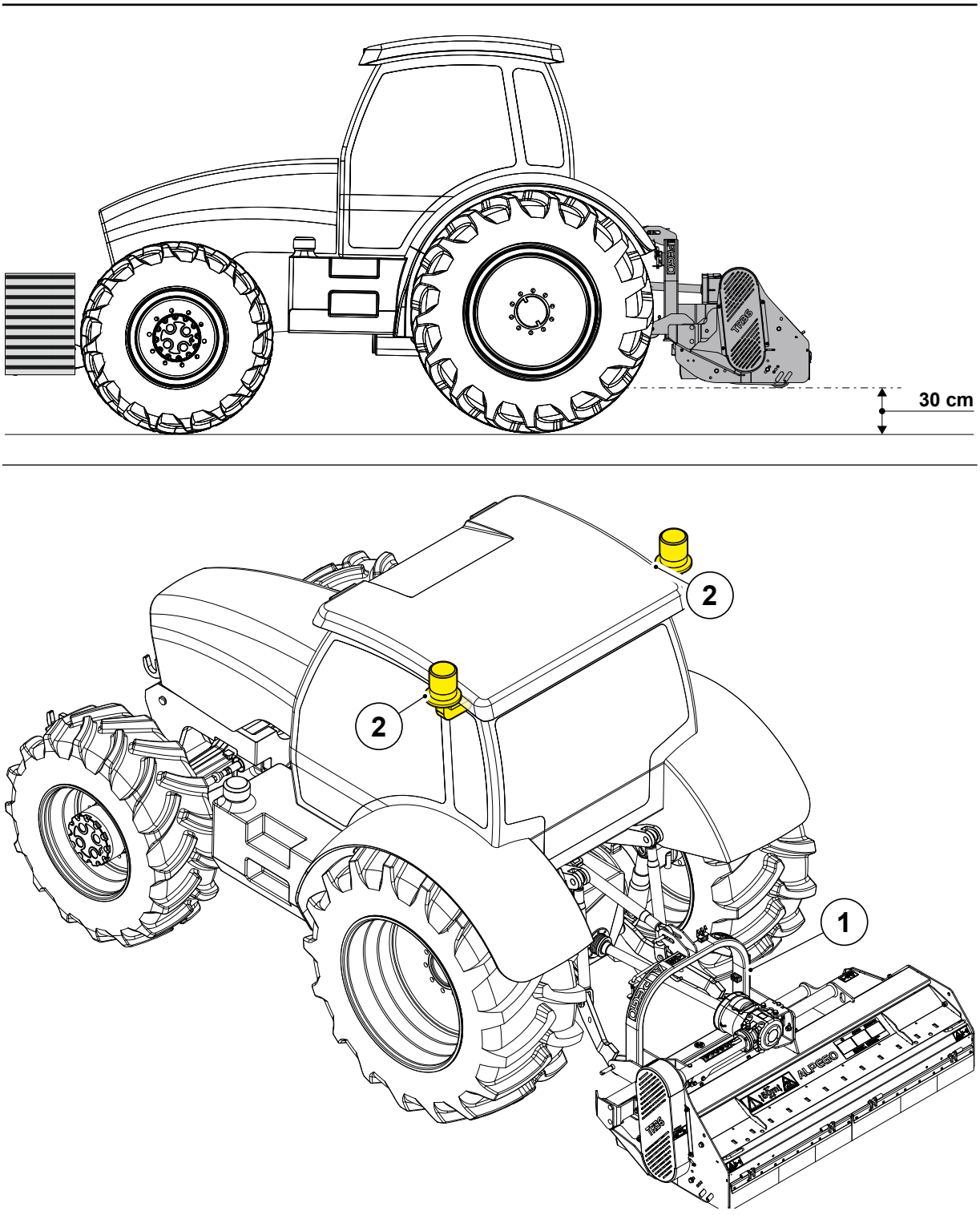


Fig. 26 Transit on public roads

7.1 Machine in road transport position

The machine is moved by operating the tractor's hydraulic distributor.

It is FORBIDDEN to operate the machine's hydraulic positioning cylinder during transport.

During road transport, the hydraulic connections between tractor and operating machine must be disconnected and secured in the appropriate holder.

It is MANDATORY to reposition the machine within the tractor gauge before entering the road.

Centre the implement in relation to the shredder box in such a way as to reduce space requirements during transport, in addition the lighting equipment of the tractor and that of the plate, must be clearly visible. If it is not possible to see them clearly, it is necessary to attach the lighting and plate to the implement.

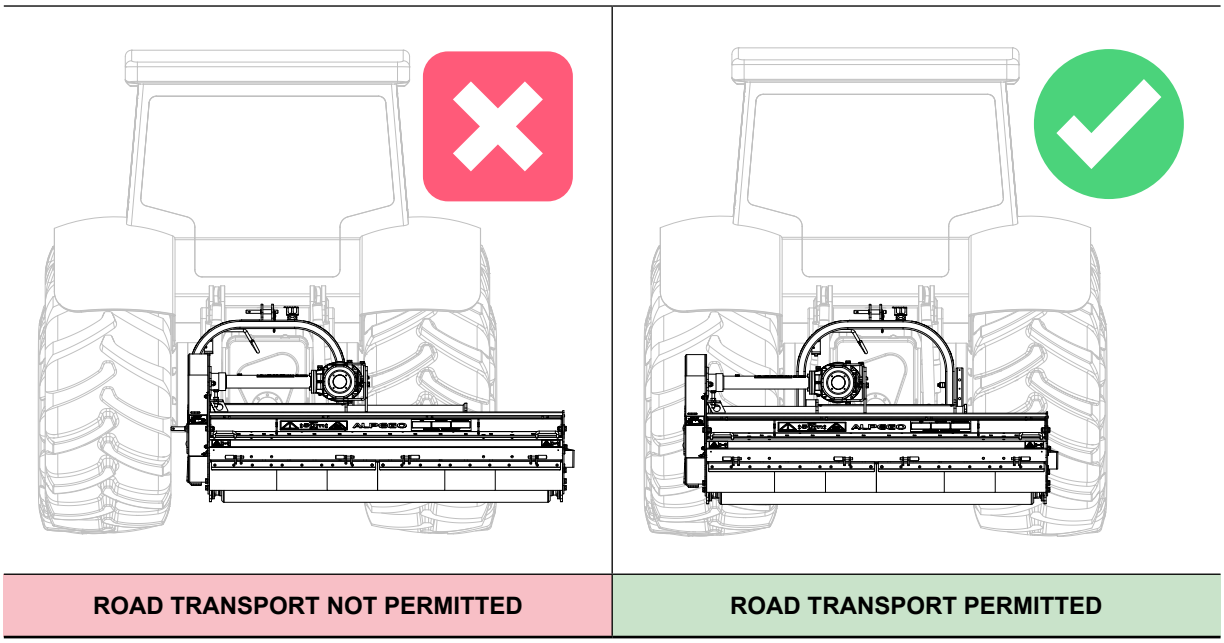


Fig. 27 Machine in road transport position

8 OPERATING ZONES

8.1 Working area

During the operation of the machine, the USER must remain seated in the driving seat of the tractor (Fig. 28). Only from such a position is it possible to operate correctly.

Any other hazardous working position is prohibited.

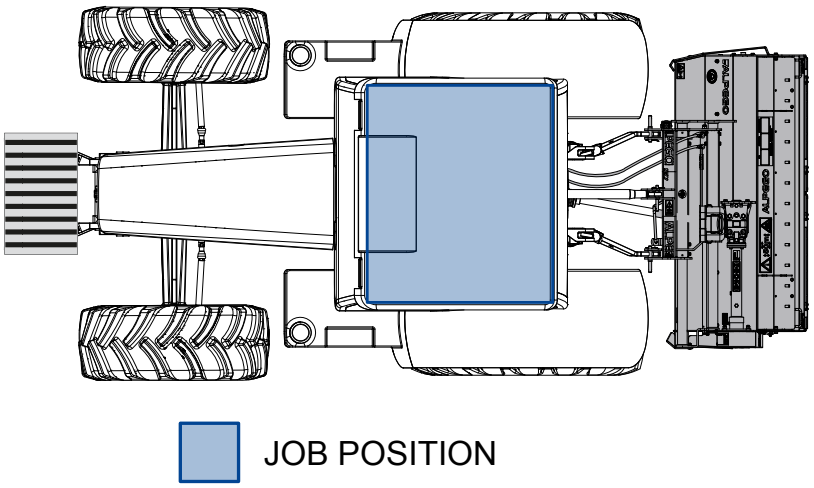


Fig. 28 Working area

9 USE

Before starting work, lift the machine and position the support legs as shown at (do not perform any movements with the support legs in the rest position).

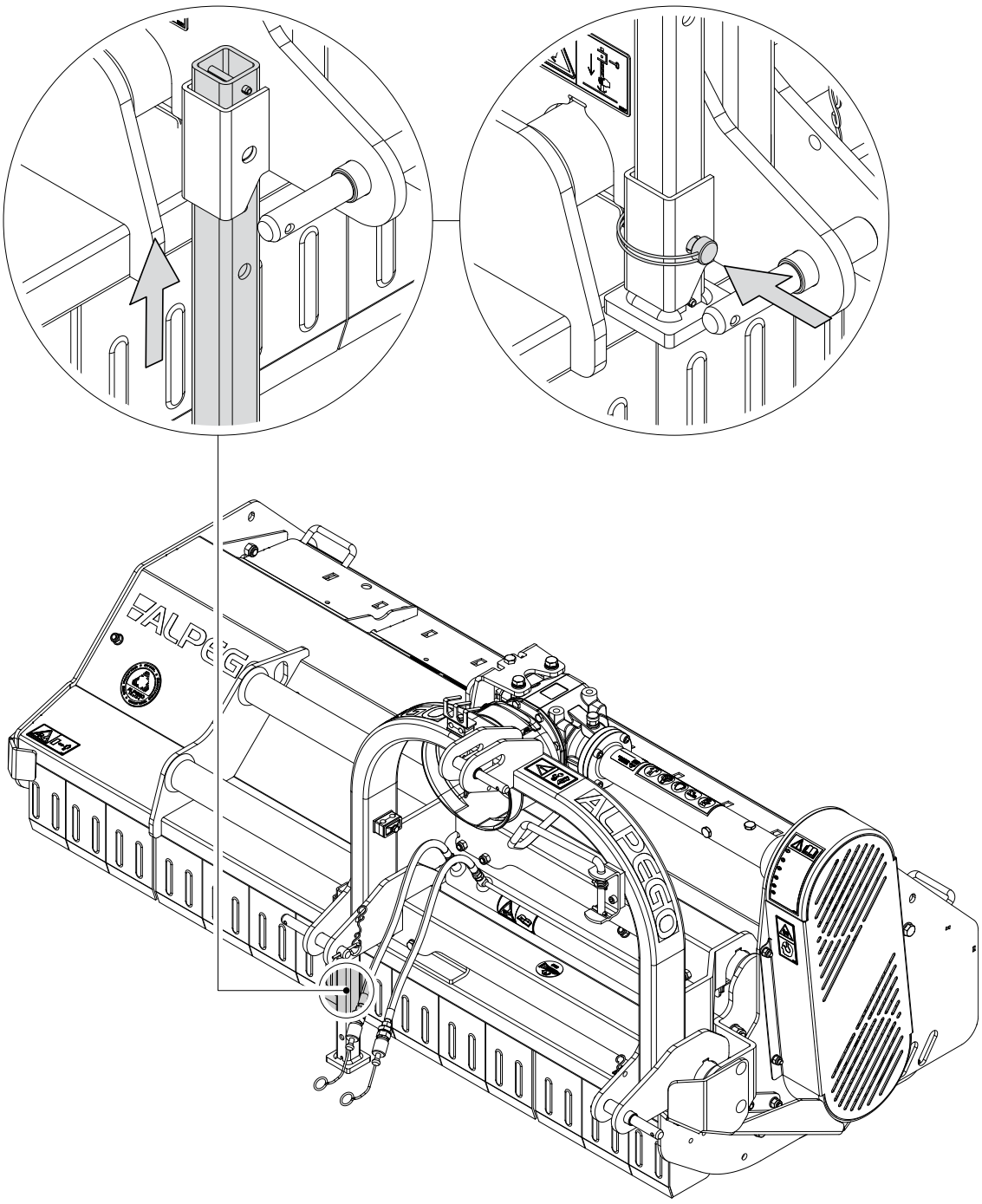


Fig. 29 Positioning support legs by working mode

9.1 General

The machine covered by this manual has been designed and dimensioned to withstand the expected loads under foreseeable operating conditions. “Foreseeable" means normal use and all uses that can reasonably be expected (ordinary operation, maintenance, etc.).
Use of the machine on material with different characteristics to those foreseen may lead to jamming of the machine, breakage of components, and ejection of material or splinters.
The following factors must be taken into account when choosing the optimal tillage:

- Type of land.
- Working depth.
- Tractor forward speed.

The forward speed of the tractor is crucial for optimal tillage; **too high a speed** damages the transmission components, wearing them out prematurely. This will result in a poorly shredded product with possible ejection of coarse material that may exceed the safety limits due to increased inertia. As you move forward with the tractor, gradually lower the machine to ground level and bring the engine up to speed. If necessary, use the lift to adjust the working height so that the cutting components do not come into contact with the ground.

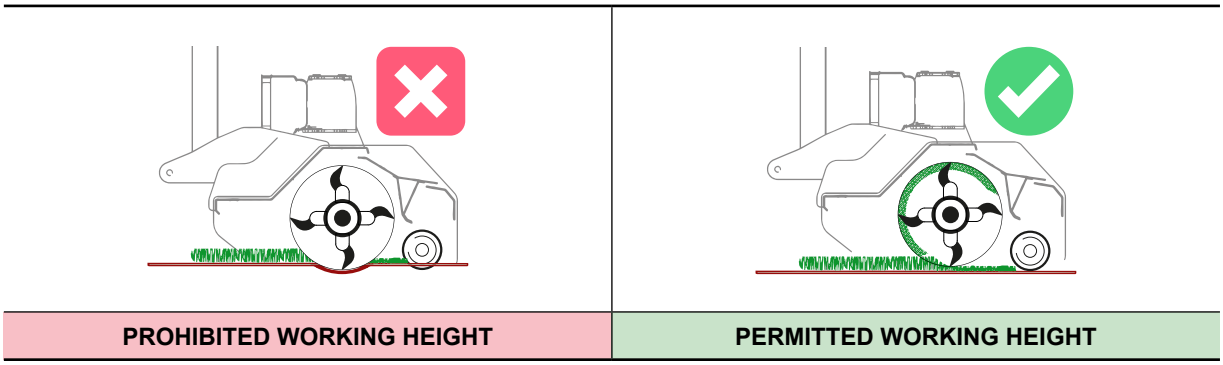


Fig. 30 Correct working height

Till a short stretch of land and check whether the working depth and tillage are as desired.

The maximum working speed MUST NEVER EXCEED 10 km/h!

The machine cannot be used in conditions of insufficient visibility.

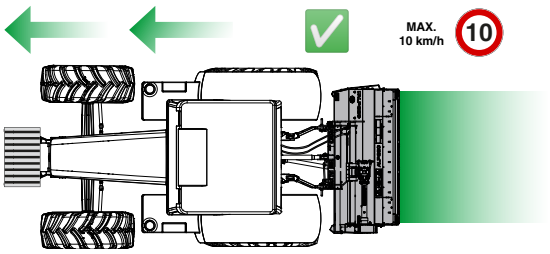


Fig. 31 Correct use

It is FORBIDDEN to work in reverse.
IT IS FORBIDDEN to make sharp bends with the machine at work.

Always lift the machine before making a change of direction. Once the necessary work on the ground has been completed, clean the machine of any dirt accumulated during the work and only then take to the road.

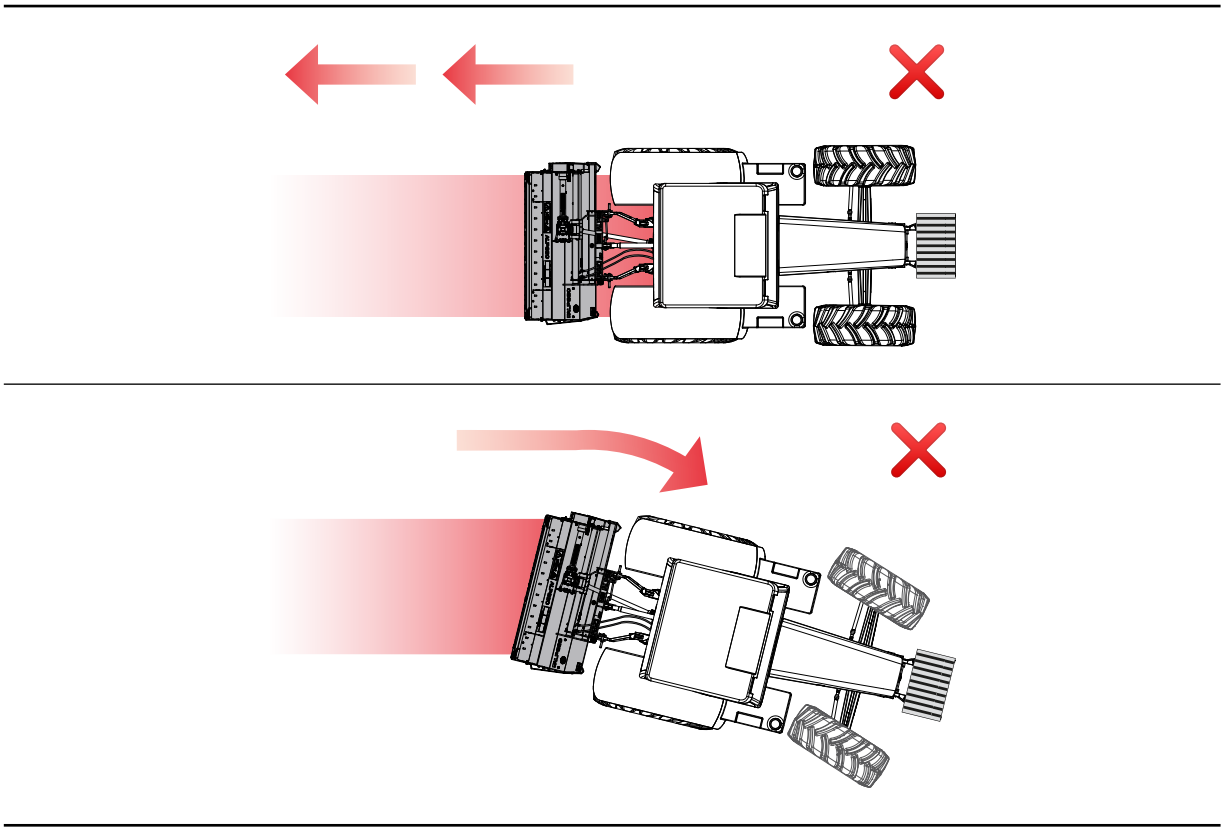


Fig. 32 Prohibited use

- **Useful tips**

Stones or other blunt objects may be lifted from the rotating blades during work.

- Therefore, constantly check that there are no persons, children or pets within range of the machine. The operator must also pay attention to the above;
- Do not allow the machine to work no-load (off the ground);
- Always lift the machine when making direction changes and reversals;
- During transport, and whenever it is necessary to lift the machine, the lifting unit of the tractor should be adjusted in such a way that the machine is not lifted by more than about 30-35 cm from the ground;
- Do not circulate on public roads if the machine is dirty with soil, grass or anything else that could dirty the road and/or block normal traffic;
- Do not let the machine drop abruptly to the ground but let it go down slowly. If lowered violently, all

machine components would become heavily stressed, and this could compromise their integrity.

- **Tractor speed**

The speed of the tractor during use must be adjusted according to certain criteria:

- The type and condition of the material to be processed;
- The fineness of the material worked.

The higher the speed of the tractor, the lower the quality of the shredded product.
Working with excessive tractor speed could damage the machine.

- **In the event of a blockage**

In the event of a blockage, there is a lowering of the tractor's engine speed and a poor shredding result; this happens when the machine works in the presence of vegetation that is too dense, too wet or with excessive forward speed.

At the first signs of clogging:

- Reduce the forward speed of the tractor;
- Raise the machine slightly.

- **Abnormal noise and excessive vibration**

If abnormal noises or excessive vibrations occur during normal use at moderate speed, stop the machine immediately in compliance with the safety conditions, remove the cause or contact ALPEGO S.p.A. if necessary.

Periodically check that safety guards are present and correctly fitted on the machine. Check their condition periodically and replace them immediately if they are damaged. In particular:

- PTO guard;
- The cardan shaft guards;
- The front and side guards.

9.2 User operations

During normal operation of the machine, the user must only carry out the following operations in the manner specified:

- Prepare the machine for work;
- Check the machine while it is working; the user MUST be in a safe position;
- Prepare the machine for road transport;
- Clean the machine;
- Performing routine maintenance.

9.3 Preliminary checks

Before starting to use the machine, it is necessary to check that:

- The tractor is of a type suitable for driving the machine, with a three-point hitch.
- The machine is within the weight, size and power limits given in the tractor's operating manual.
- Check and grease the cardan shaft (see section “Cardan shaft connection” on page 61).
- On the front (steered) axle of the tractor there is a residual weight of not less than 20% of the total mass (see section “Correct weight distribution” on page 55).

- **Blades and flails**

The machine's blades are suitable for working on normal terrain.

Check daily for wear or integrity. In the event of breakage or deformation during work, the blades must be replaced immediately, taking care to reassemble the new blades in the identical position.

It is convenient to always carry out disassembly and assembly operations with one blade at a time to avoid positional errors.

Normal wear and tear (particularly rapid in sandy soils, or when working with the machine too low) and impacts against obstacles can cause cracks or distortions in the blades or flails:

- Increased vibration with mechanical damage to the machine;
- Deterioration in the quality of work;
- Total or partial breakage of the blades resulting in the projection of fragments at high speed.

9.4 End of work

After use, to stop the machine, lower the engine speed of the tractor and switch off the PTO.

After switching off the PTO, the machine's rotor continues to rotate for a few moments due to inertia.

Wait until all parts have come to a complete stop!

10 ADJUSTMENT

Machine status: Adjustment operations must be carried out with the tractor switched off and the key disengaged.

Authorised personnel: USER.

Personal protective equipment: Personal protective equipment (PPE) must be used during some phases (see section “Residual risks and personal protective equipment” on page 37).

Before carrying out any adjustment operations, check that there are no moving parts within the working area.

It is forbidden to adjust moving parts.

Before carrying out any adjustment operation, it is mandatory to take all useful measures to avoid accidental starting of the tractor.

If you have any doubts about the work you are going to do or if it fails, contact the manufacturer.

10.1 Working depth adjustment

Lift the machine off the ground and adjust the cutting height.
Adjust the trim of the machine with the lift, so that the machine is horizontal, or slightly higher at the front, to facilitate material entry.

For proper use of the machine, the blades must work at a minimum height of 2.5 cm from the ground. The height of the cut can be adjusted by acting on the skids, the rear roller or the tractor's third point tie rod. The higher the machine is off the ground, the less wear on the blades and power absorption.

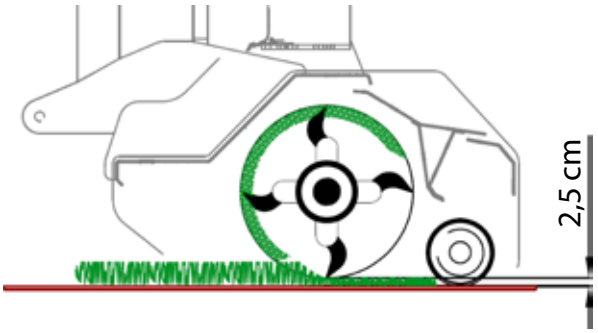


Fig. 33 Accessory roller working angle adjustment

1. Roller adjustment

- Unscrew the roller fixing bolts;
- Position the roller at the desired height;
- Re-tighten the bolts.

10.2 “SSA” deflector adjustment

Necessary equipment: 24 mm spanners.

The flail mowers mod. **TR36 - TR36F** and TR56 **- TR56F** are equipped at the rear with a deflector bonnet that assumes positions that allow specific processing depending on the product to be shredded. The position of the bonnet is determined by the movement of the screw (Det. 1) in one of the holes in the side panels.

- Loosen and remove the fixing screws and nuts (Det. 1).
- Move the bonnet to the desired position.
- Insert and refasten the fixing screws and nuts (Det. 1).

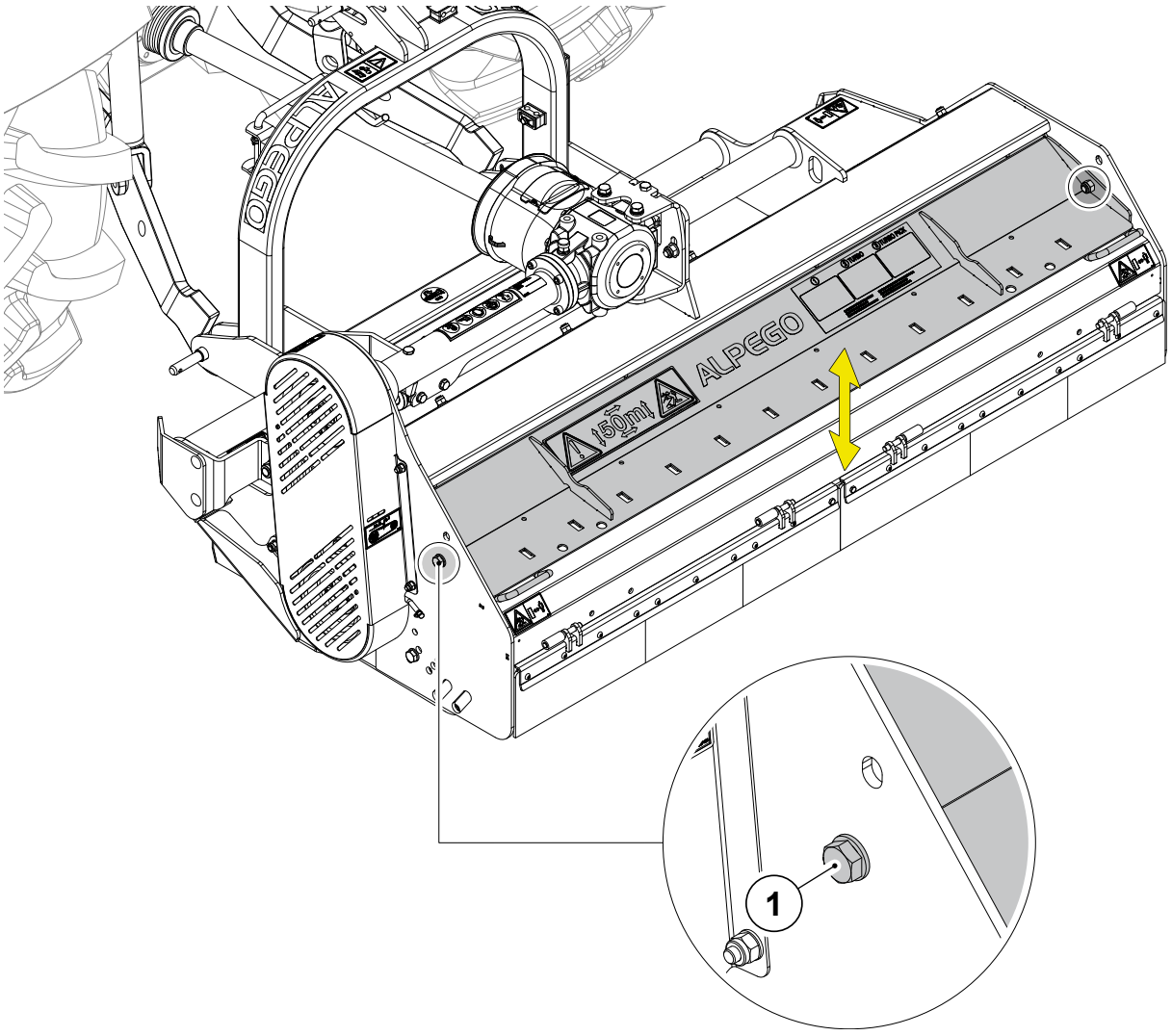
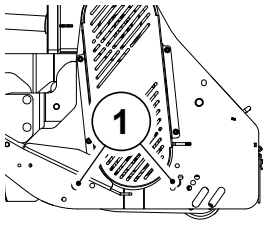


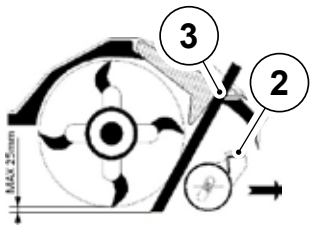
Fig. 35 “SSA” deflector adjustment

<table>
<tr><th>“POS 1”</th><th>BONNET RAISED</th></tr>
<tr><td>  </td><td>In this position, the shredded product is conveyed past the depth roller.

This position is recommended for grass and the like, even damp.</td></tr>
<tr><th>“POS 2 TURBO”</th><th>BONNET DOWN</th></tr>
<tr><td>  </td><td>In this position, the shredded product is conveyed to the rotor for further shredding.

This position is recommended for pruning shoots or hard but dry products.</td></tr>
<tr><th>“POS 3 TURBO - PICK</th><th>BONNET DOWN + RAKES</th></tr>
<tr><td>  </td><td>In this position, the shredded product is conveyed to the rotor for further shredding. The rear rake (supplied as an accessory kit) allows the woody material to be lifted from the ground, facilitating shredding.

Listed below are the operations to be performed in order to use the machine in this way:</td></tr>
<tr><th colspan="2">FOR TR36 ONLY</th></tr>
<tr><td colspan="2"> 


</td><td>• Loosen screws 1 and pull the roller away from the rotor;
• Mount roller cleaner 2 (supplied in the accessory kit);
• Close the bonnet and insert rakes 3 (supplied in the accessory kit) into the appropriate slots on the bonnet.</td></tr>
</table>

Tab. 27 Position 1 - 2 - 3 “SSA” deflector

It is strictly forbidden to carry out any kind of work with a damaged or removed bonnet. The Manufacturer accepts no liability for damage to property or persons caused by failure to follow the instructions given.

10.3 “TR27” deflector adjustment

Necessary equipment: 19 and 36 mm spanners.

The flail mowers mod. **TR27 - TR27F** are equipped at the rear with a deflector bonnet that assumes positions that allow specific processing depending on the product to be shredded. The position of the bonnet is determined by the movement of the screw (Det. 1) in one of the holes in the bonnet's perforated flanges.

- Loosen and remove the fixing screws and nuts (Det. 1).
- Move the bonnet to the desired position using a 36 mm spanner.
- Insert and refasten the fixing screws and nuts (Det. 1).

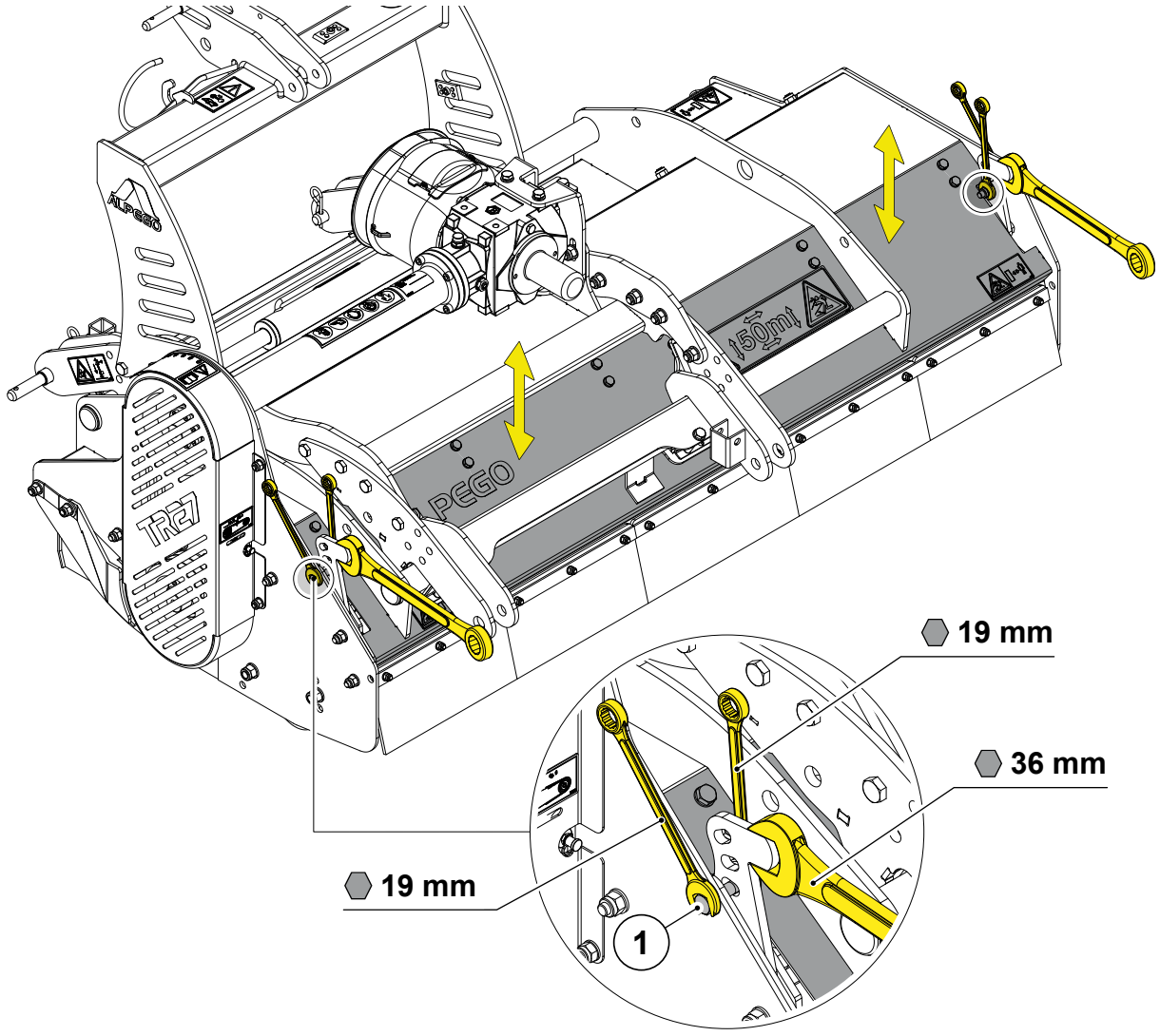
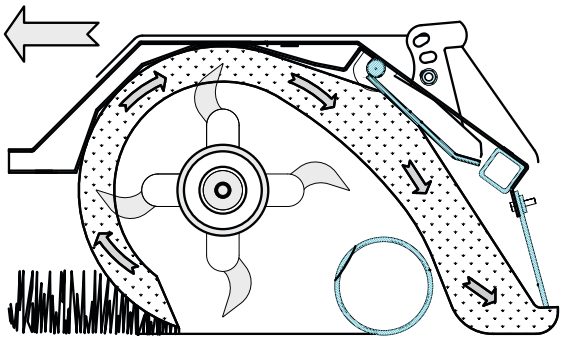
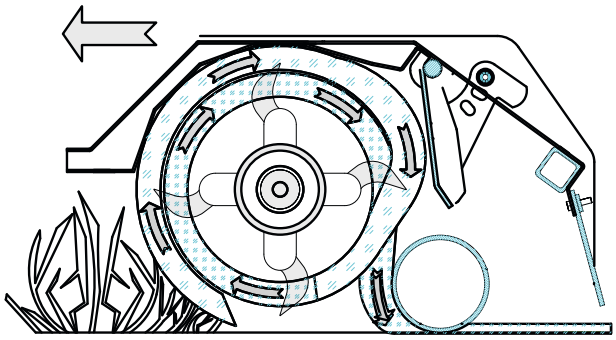


Fig. 36 “TR27” deflector adjustment

“POS 1”	BONNET RAISED
	In this position, the shredded product is conveyed past the depth roller. This position is recommended for grass and the like, even damp.
“POS 2 TURBO”	**BONNET DOWN**
	In this position, the shredded product is conveyed to the rotor for further shredding. This position is recommended for pruning shoots or hard but dry products.

Tab. 28 Position 1 - 2 - 3 “TR27” deflector

It is strictly forbidden to carry out any kind of work with a damaged or removed bonnet. The Manufacturer accepts no liability for damage to property or persons caused by failure to follow the instructions given.

10.4 “TB2” deflector adjustment

Necessary equipment: 24 mm spanners.

The flail mowers mod. **TB2** are equipped at the rear with a deflector bonnet inside the cutting box that assumes positions that allow specific processing depending on the product to be shredded.

- The position of the bonnet is determined by turning the crank (Fig.37 Det. 1) to one of the positions on the crank indicator (Fig.37 Det. 2 - 3).

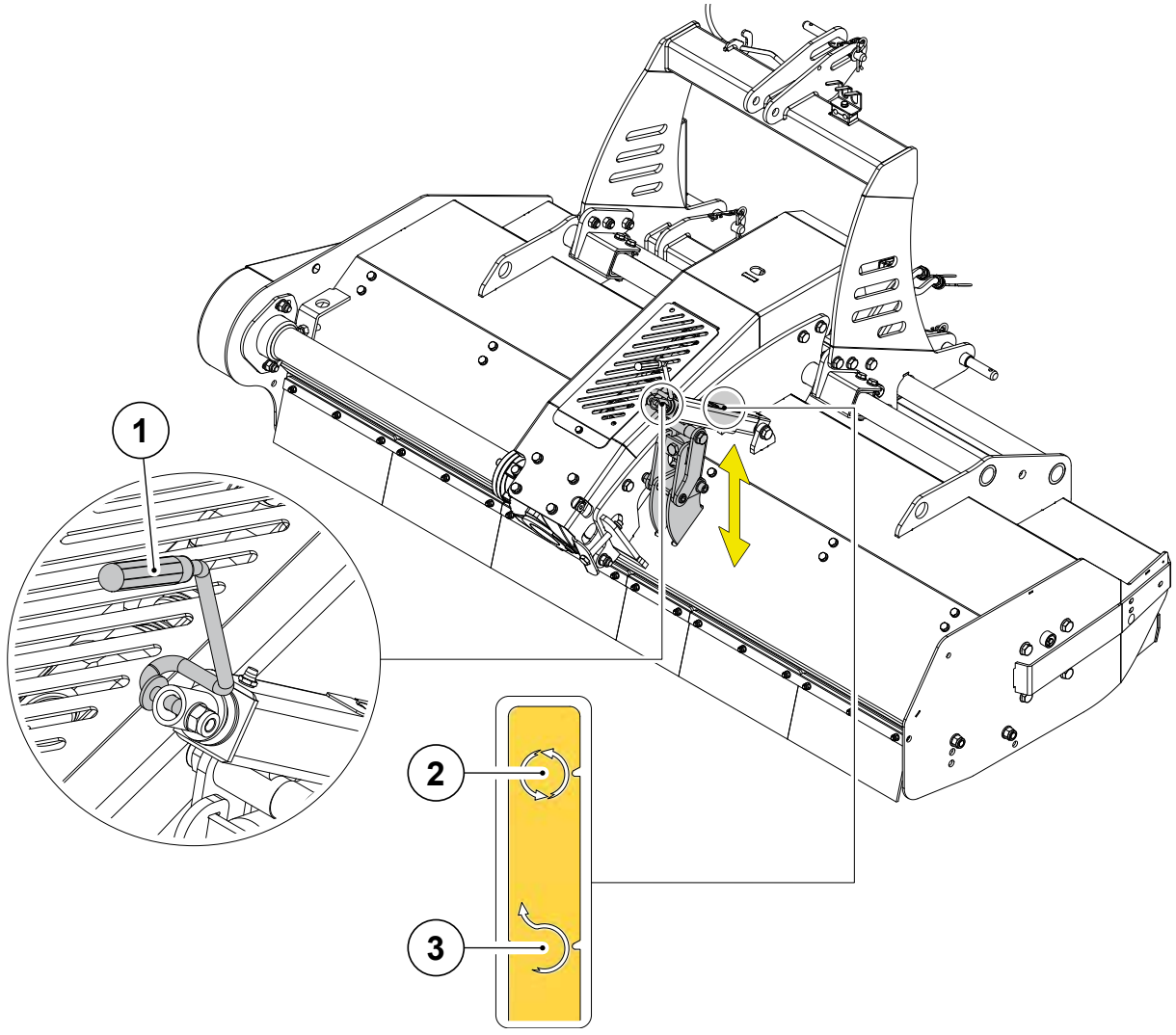
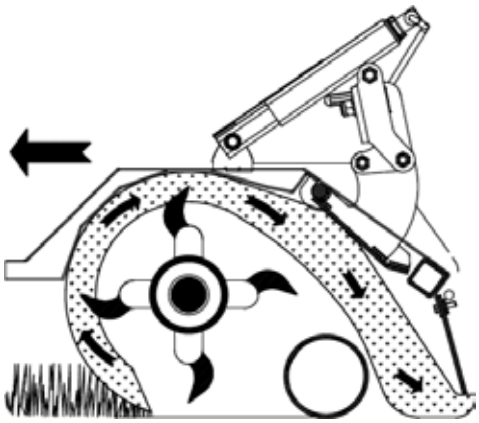
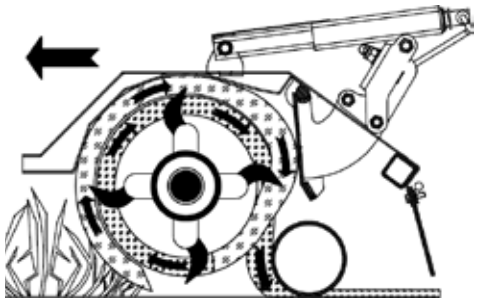
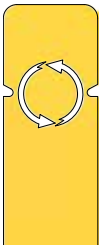


Fig. 37 “TB2” deflector adjustment

“POS 1”		BONNET RAISED
		In this position, the shredded product is conveyed past the depth roller. This position is recommended for grass and the like, even damp.
“POS 2 TURBO”		**BONNET DOWN**
		In this position, the shredded product is conveyed to the rotor for further shredding. This position is recommended for pruning shoots or hard but dry products.

Tab. 29 “TB2” deflector positions

It is strictly forbidden to carry out any kind of work with a damaged or removed bonnet. The Manufacturer accepts no liability for damage to property or persons caused by failure to follow the instructions given.

10.5 Rear wheel adjustment

The machine can be supplied or retrofitted with a pair of rear wheels, which are used to adjust the working height.

If these are installed, the rear roller must be removed, as if this were present, the wheels could not perform their task.

For their adjustment, it is necessary to:

- Gradually lower the machine, using the lift, to the desired height;
- Adjust the working height by operating the wheel support link, moving the pins into the holes provided (Fig.38 Det. 1).

For correct adjustment, the blades must be about 3 cm from the ground surface.

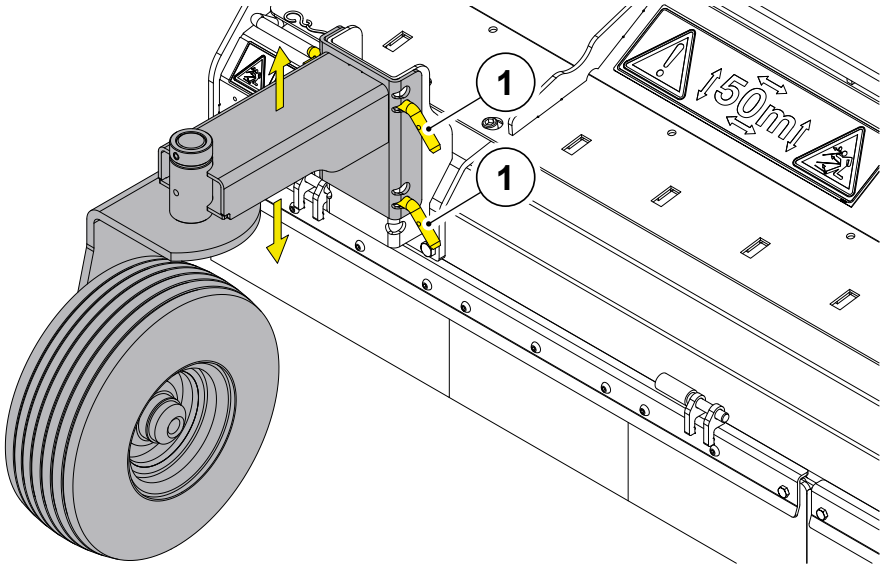


Fig. 38 Rear wheel adjustment

10.6 Rake kit adjustment

The rakes are used to collect pruning residues or anything else that has not been shredded by the machine as it passes through, so by holding them under the bonnet, they are crushed again.
Adjust the collecting tines by raising or lowering them; the rakes must never touch the ground, so their adjustment works according to the soil to be worked.

Example:

- There are large pieces of vine shoots on the ground, the rakes must be held higher;
- There are small pieces of vine shoots on the ground, the rakes should be kept lower so that these are retained if they are not shredded.

For their adjustment, it is necessary to:

- Remove the retaining pin (Fig.39 Det. 1) from the rake (Fig.39 Det. 2);
- Select the height by pulling up or pushing down on the collection rakes (Fig.39 Det. 2);
- Reinsert the pin (Fig.39 Det. 1) in the hole of the rake rod closest to the bonnet.

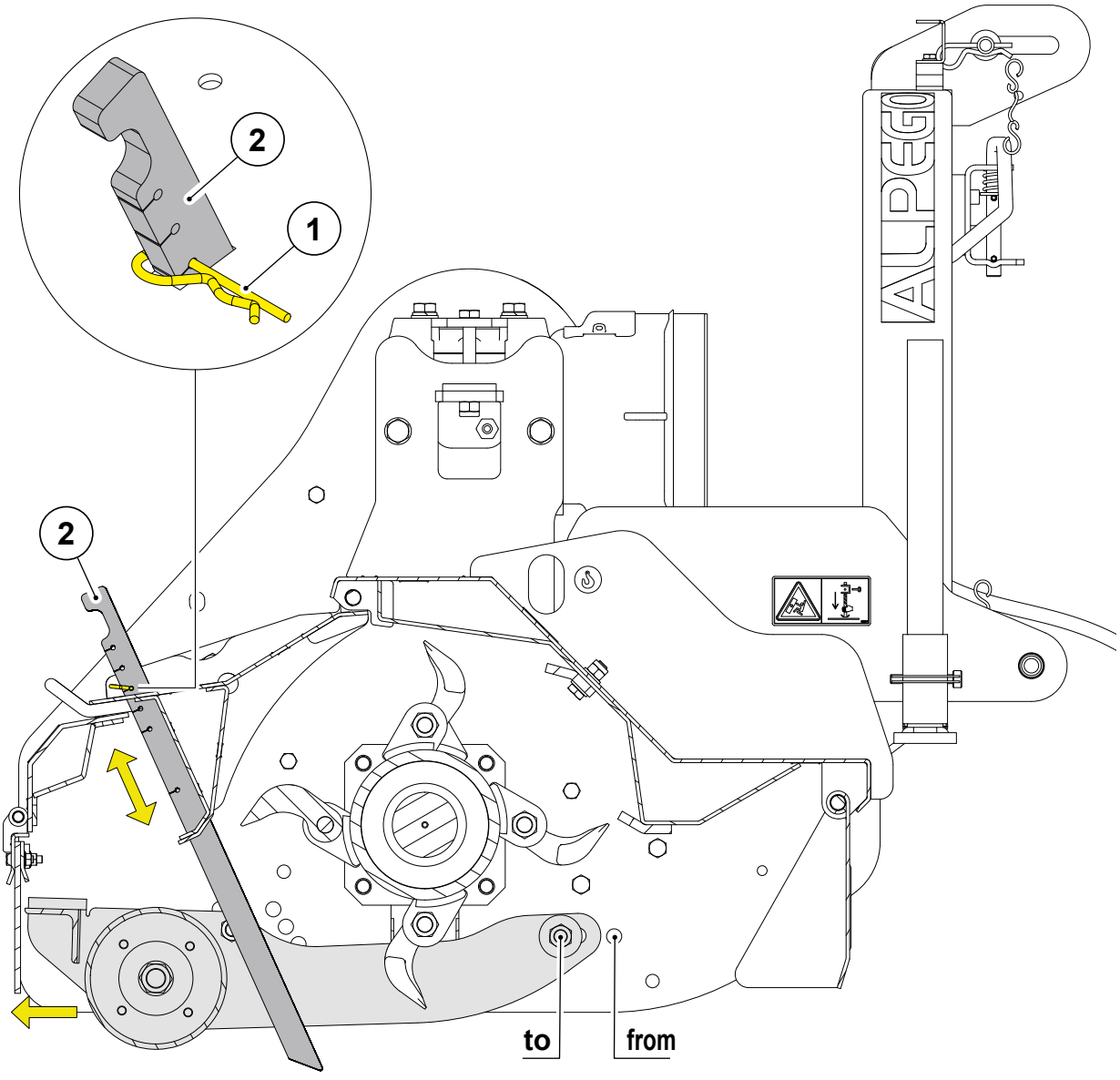


Fig. 39 Rake kit adjustment

11 MAINTENANCE

11.1 General

The machine will only work properly if maintenance is carried out regularly.

Scrupulous and periodic maintenance of the machine is strongly recommended, as it keeps it efficient.

Please read this section carefully before carrying out any maintenance work on the machine; this will ensure greater safety conditions for the personnel in charge and greater reliability of the work carried out.

Neglect of maintenance can be a source of danger to people and property.

Before carrying out any operations with the machine see section “Residual risks and personal protective equipment” on page 37.

Failure to comply with the indications given in this paragraph will release the manufacturer from all liability and will exclude any form of guarantee outlined.

11.2 General information on safety and specific risks

Personal protective equipment: During maintenance, personal protective equipment (PPE) such as protective gloves, safety shoes, standardised overalls and safety glasses must be used.

Please read the following safety notes carefully before working on the machine.
The manufacturer cannot be held responsible for any accidents to property or persons resulting from non-compliance.

Lubricating or adjusting moving parts is prohibited!

Maintenance and repairs must be carried out in appropriately equipped workshops.
When carrying out maintenance operations on the machine, disconnect the hydraulic hoses from the tractor intakes.

IT IS FORBIDDEN to perform any operation under the machine.
If necessary, contact the manufacturer.

Before carrying out any maintenance operation, it is mandatory to take all necessary measures to avoid accidental starting of the tractor.

If you have any doubts about the work you are going to do or if it fails, contact the manufacturer.

The manufacturer shall mark any residual risks on the machine with appropriate labels as indicated in the paragraph “Safety warnings displayed on the machine” on page 51.

Since not all hazardous situations can be foreseen, the safety instructions in the manual alone should not be considered exhaustive.

11.3 Routine maintenance

Routine maintenance is the set of operations carried out to maintain and check the conditions of use and good functioning of the machine.

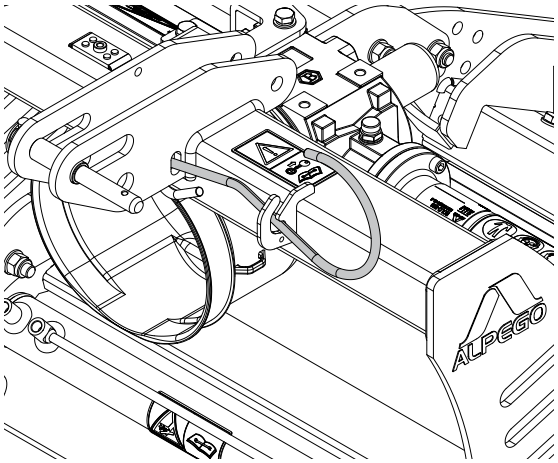
Residues from maintenance (end-of-life components etc.) are pollutants!
It will be up to the employer to assess the risks and dangers and to inform operators of the rules of conduct to be followed when handling such materials. The employer shall impose personal protective equipment and organisational and procedural measures for the disposal of processing residues.

Observe the conformity of the recommended oils.

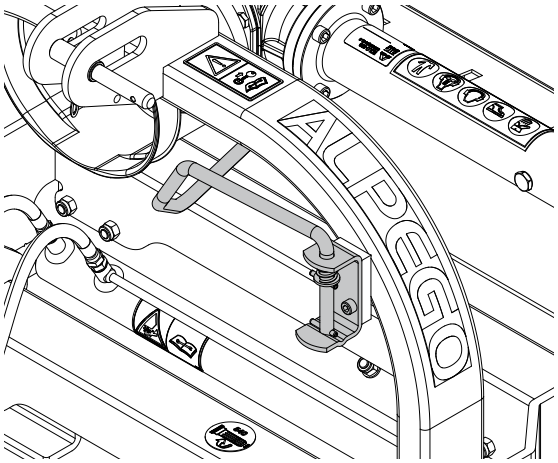
When carrying out any work on the machine, switch off the tractor's PTO, engage the parking brake, remove the ignition key and take care that other people do not get on the tractor.

When carrying out maintenance and blade replacement work with the machine raised, place suitable supports under the equipment as a precaution.

When necessary, place the cardan shaft on the support provided (type A and B see).



CARDAN SUPPORT A



CARDAN SUPPORT B

Fig. 40 Cardan support type

Routine and extraordinary maintenance operations have been listed in this manual, taking into account normal machine use. If the use of the machine is different, the frequency of operations and checks must be adjusted according to the actual conditions of use.

PERIOD	INTERVENTION
Each shift	Machine cleaning and residue removal.
During the first 8 hours and every 50 hours thereafter	Checking and tightening, if necessary, the bolts of the entire machine.
8 hours	Machine control.
After the first 2 hours of work and every 8 hours thereafter	Side transmission.
As indicated	Lubrication.
1000 hours	Checking the readability of pictograms.
Whenever necessary	Replacing blades or flails.

Tab. 30 Routine maintenance schedule

- **Checking and tightening, if necessary, the bolts of the entire machine**

Authorised personnel: USER.

Necessary equipment: Torque wrench and hexagon sockets (see).

During the first 8 hours of work it is a good idea to check the tightness of all bolts, as the stress generated during work creates a settling of the structure, if necessary tighten as per the table.

Then repeat this operation periodically every 50 working hours.

 Nominal diameter	M8	M10	M12	M14	M16	M18	M20	M22	M24
 Hexagonal spanner mm	13	17	19	22	24	27	30	32	36
Tightening torque Kgm	**3**	**6**	**10**	**14**	**21**	**24**	**40**	**54**	**70**
Tightening torque Nm	**30**	**59**	**98**	**137**	**205**	**250**	**390**	**350**	**685**

Tab. 31 Table of recommended tightening torques for hardware

- **Machine cleaning and residue removal**

Machine status: Disconnected from the tractor, in a flat position with the support legs inserted in a low position.

Authorised personnel: USER .

It is advisable to clean the machine after each work shift. Use neutral biodegradable detergents.
Comply with the current anti-pollution regulations regarding waste water.

Please note that dust and dirt impair the function of all sliding parts.
Clean the machine by removing accumulated dirt (earth, grass, dust, fertilisers, etc.).
Dry the machine after cleaning it.

Use non-flammable detergents to clean the machine.
Avoid using hydrocarbons.

If petrol or diesel fuel is used to clean the machine, seals, plastic components and hydraulic lines may be damaged. Waste materials resulting from cleaning and maintenance must be disposed of in accordance with environmental protection regulations.

- **Machine control**

Authorised personnel: USER.

Check tools for wear and integrity.

Check the tractor connection pins and cotter pins for wear. Use only original pins when replacing. Check the condition of the welds. If cracks are noticed during the inspection, do not use the machine and contact the manufacturer as soon as possible.

Check the external condition of the bearings and seals. Damage, windings (metal filaments, plastic filaments, residues from branches or leaves etc.) must be removed immediately.

Check the condition of the hydraulic cylinder and rod and clean it if necessary.
Check that there are no small oil leaks.

Check the condition of the hydraulic hose lines. Check that there is no oil leakage from hydraulic lines or fittings. ALWAYS replace hydraulic hoses in case of:

- External damage (deformations, cuts, tears, melting on hot parts, wear due to friction, etc.).
- Deformations that do not conform to the original shape of the pipes (bubble formation, crushing, etc.)
- Leaks near the quick-release couplings.
- Corrosion near the quick-release couplings.
- 5 years of use from the date of manufacture.

In the event of oil leaks, position the support leg, lower the machine, release the hydraulic pressure, remove the machine from the tractor and contact the manufacturer.

- **Side transmission**

Authorised personnel: USER.

The drive force is transmitted to the rotor via belts with adjustable pulley.
The belts must be checked regularly: after the first 2 hours of work and every 8 hours thereafter. The check must also be carried out if excessive skidding is noticed, as evidenced by smoke escaping from the protective bonnet.

Transmission belt tension check:

- Remove the nuts securing the protective guard, open the guard by pulling it outwards;
- To check the tension, press on the belt, in the central area between the two pulleys, with a force of 6 kg to cause a deformation on the single belt of 10 mm;

It is advisable to have a metal ruler of suitable length that, when placed on the edges of the two pulleys, touches all four edges.

When tensioning the belts, pay close attention to the flatness of the pulleys.

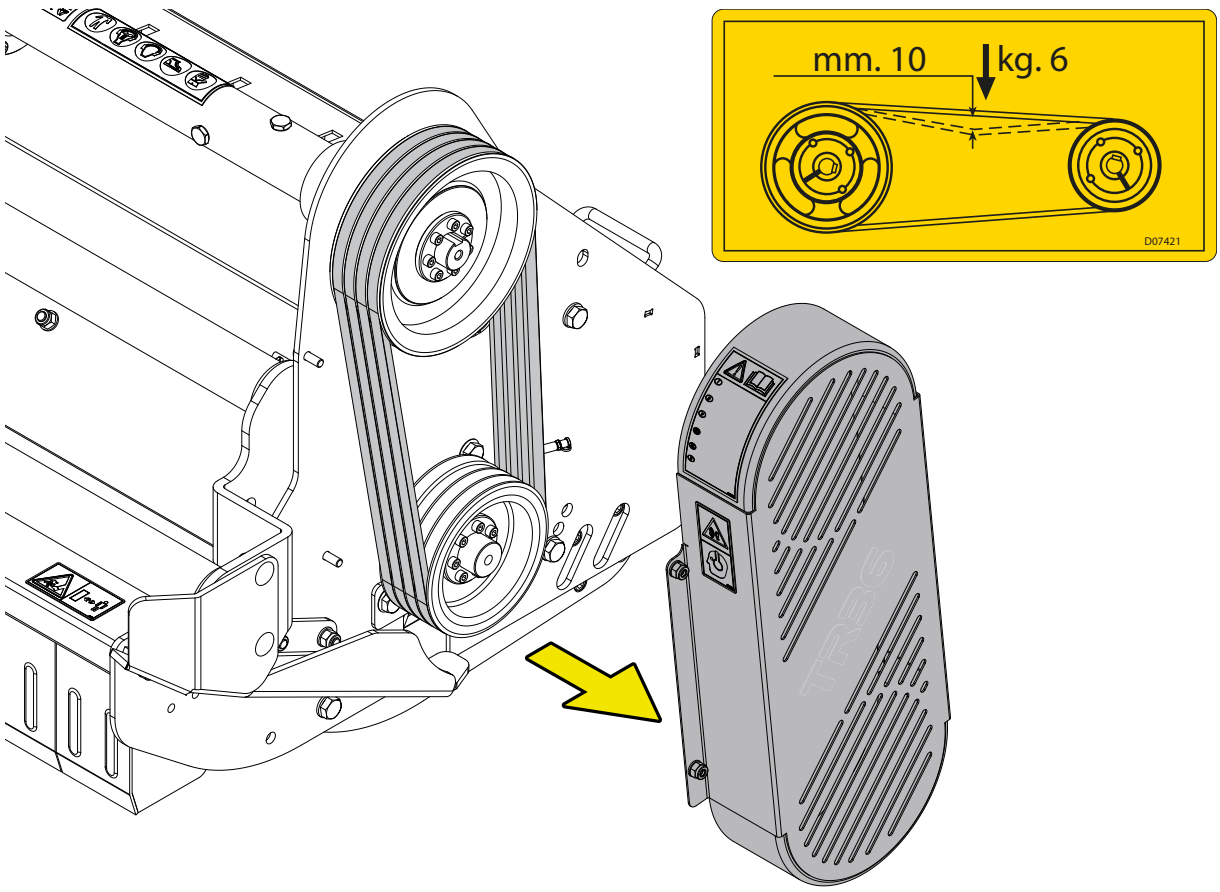
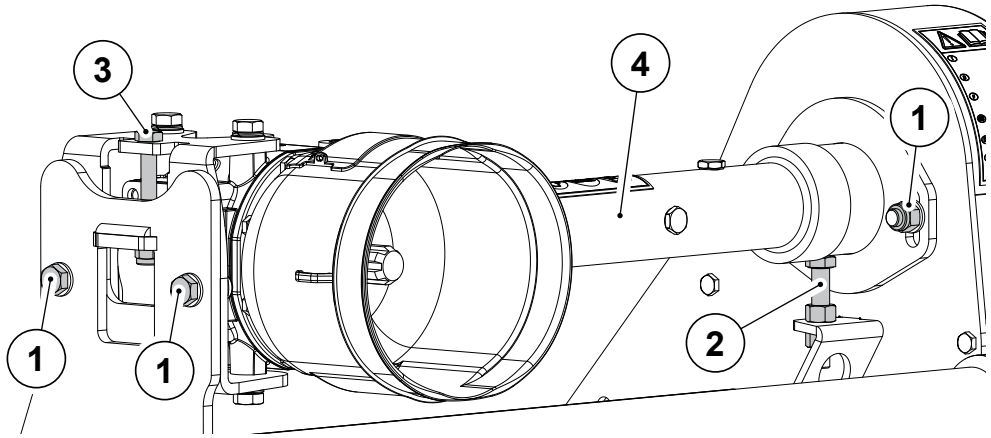


Fig. 41 Belt tension check

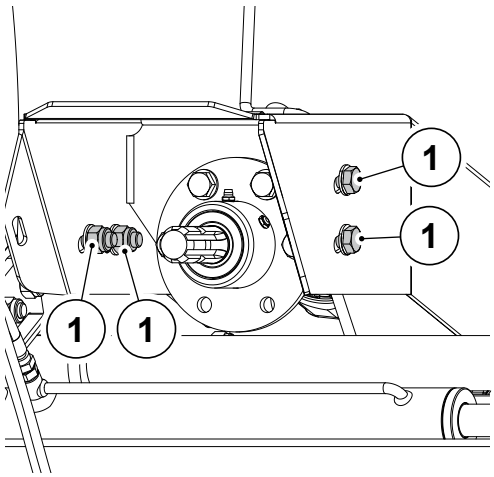
Transmission belts tensioning:

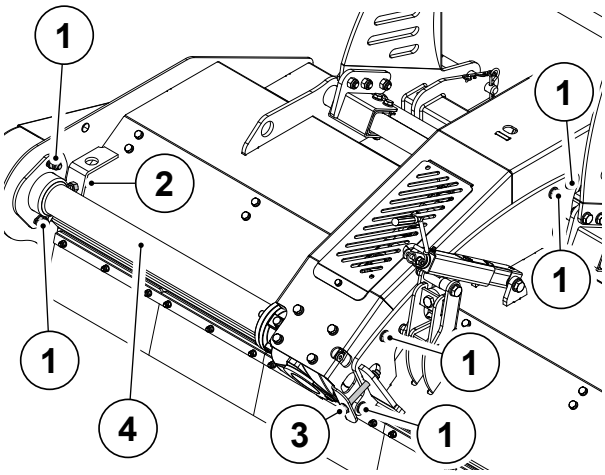
- Loosen the screws (Fig.42 det. 1);
- Increase or decrease the belt tension by adjusting the screw (Fig.42 det. 2). Try to maintain the shaft (det. 4) always in a horizontal position.
- Act on the screw Fig.42 det. 3 (only for TR36 - TB2) to facilitate horizontal shaft adjustment (Fig.42 det. 4);
- With the belts tensioned, check the alignment of the pulleys, tighten all loose screws, refit the guard.

In order to ensure uniform tension and correct force distribution, all belts must be replaced, even if only one is damaged.



TR27 - TR27F - TR36 - TR36F - TR56 - TR56F





TB2

Fig. 42 Transmission belts tensioning

- **Lubrication**

Authorised personnel: USER, MECHANICAL REPAIRER.

Necessary equipment: Oil funnel, Manual greasing pump.

Read the warnings written on the containers carefully. Always keep oils and greases out of the reach of children. Avoid contact with skin, after use wash well and thoroughly. You have to follow the current anti-pollution laws when handling spent oil.

The service times listed in this manual are for information only and relate to normal conditions of use; they may therefore vary depending on the type of service, more or less dusty environment, seasonal factors, etc. In the case of more severe service conditions, maintenance work should logically be increased.

Before injecting lubricant into the grease nipples, clean the grease nipples themselves carefully to prevent mud, dust or strange objects from mixing with the grease, which would decrease or even eliminate the lubricating effect.

When resetting or changing oil, use the same type of oil used previously. Do not mix oils of different types!

Check lubricant level when starting the machine for the first time.

Clean these parts or areas well before checking, before adding and before replacing lubricants.

Before you start working, check the oil level in the gearbox (use gauge, or level dipstick). If necessary put more oil through the filler cap

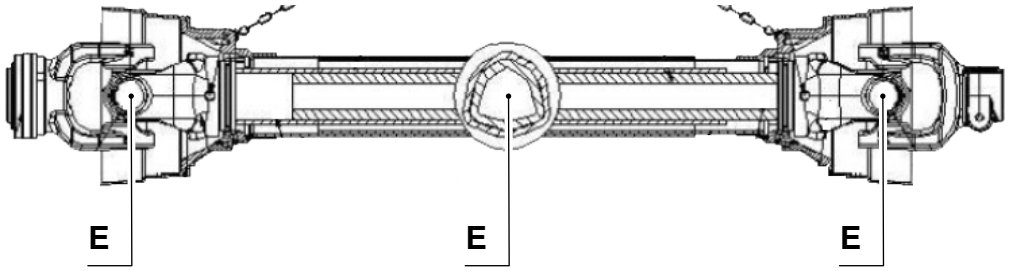
Oil should be changed after the first 30 working hours, and after that, every 400 hours, or at least once a year.

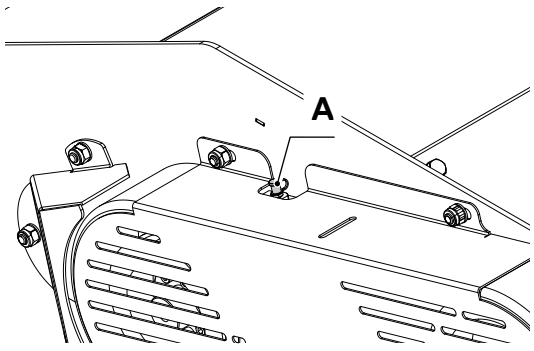
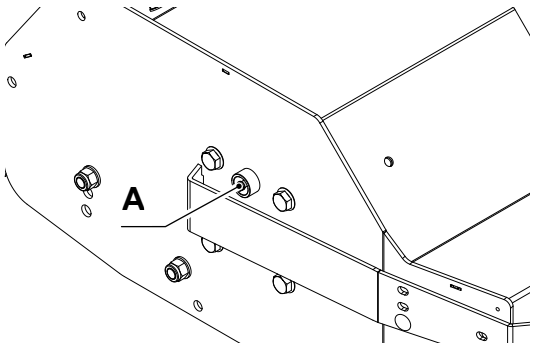
This operation must be carried out in a workshop equipped with lifting equipment suitable for the weight of the machine, making it stable with appropriate supports. Drain the oil by unscrewing the drain plug.

- **Lubrication diagram**

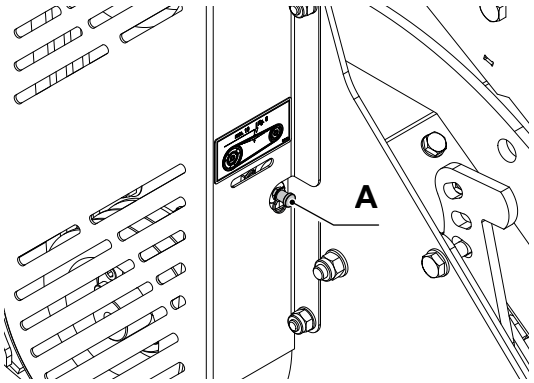
OPERATION	Every 8/10 hours of work	After the first 30 hours of work	Every 50 hours of work	Every 400/450 hours of work
Grease the cardan shaft crosses (E).	✓			
Grease the rotor bearings (A).	✓			
Change the oil from the over-drives (B - G).		✓		
Check the oil level in the over-drive box (L).			✓	
Carry out a complete over-drive oil change, draining the oil completely from the drain plug located under the over-drive box (B - G).				✓

Tab. 32 Routine maintenance time table

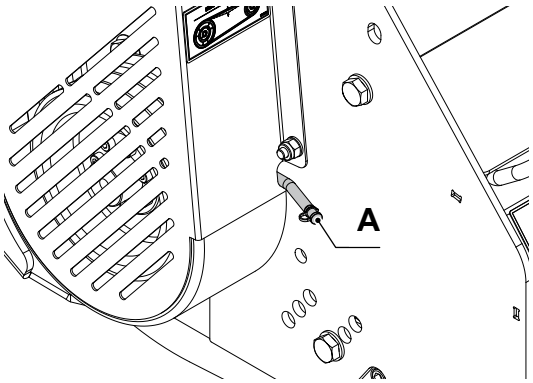


CARDAN SHAFT	
	
TB2	**TB2 - TR27 - TR27F - TR36 - TR36F - TR56 - TR56F**

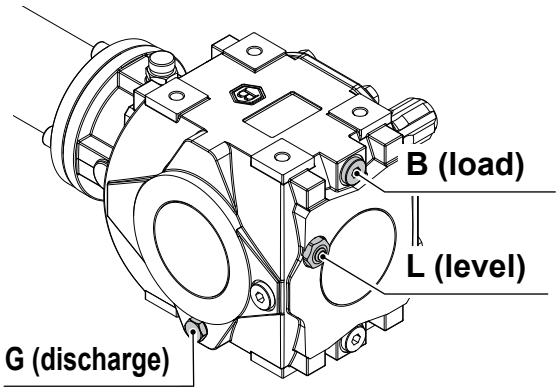
Tab. 33 Routine maintenance execution table



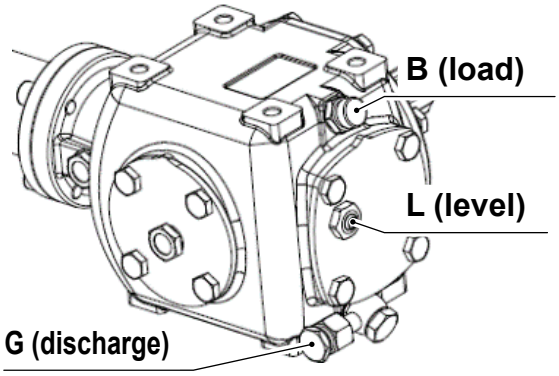
TR27 - TR27F



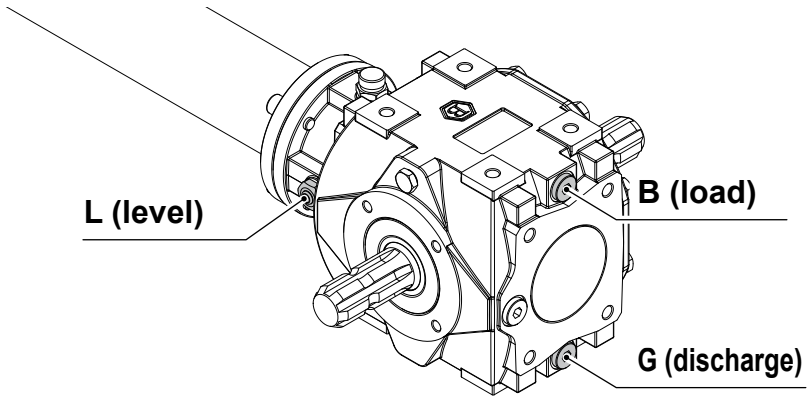
TR36 - TR36F - TR56 - TR56F



TB2-180/200

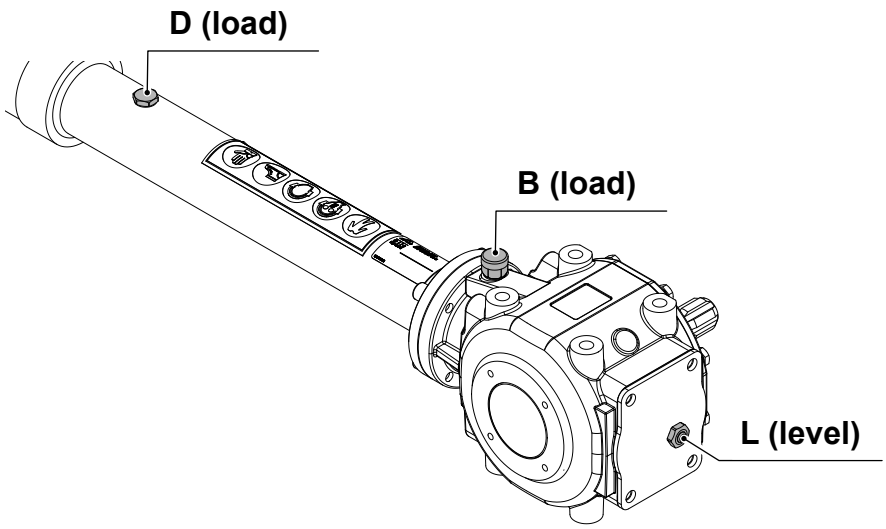


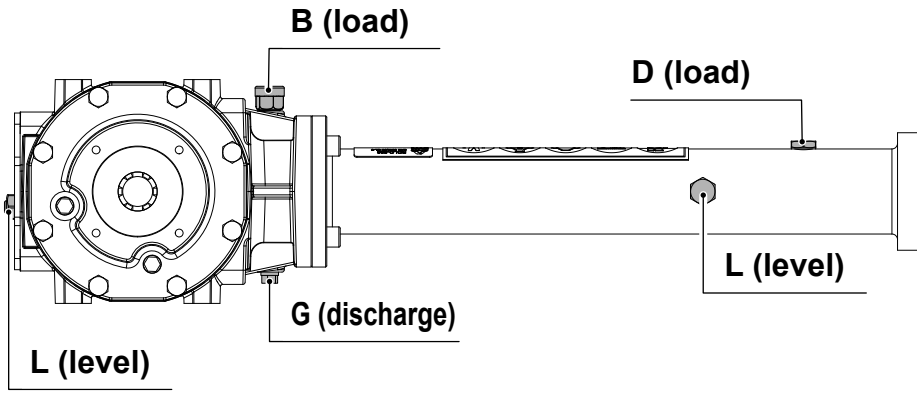
TB2-140/160



TR27

Tab. 34 Routine maintenance execution table





TR36-56

Tab. 35 Routine maintenance execution table

Lubrication point	Model (quantity)	Reference product (first Alpego filling)	Oil viscosity index of alternative product	International specifications of alternative product
B	**TR27 / TR27F -140/160** (L1.5) **TR27 / TR27F -180** (L1.8) **TR27 / TR27F - 200** (L.2) **TB2-140/160** (L1.5) **TB2-180** (L1.8) **TB2-200** (L.2) **TR36 160-180** (L.1.5) **TR36 200-220-240** (L.2.3) **TR36F 180-240** (L.2.3) **TR56 / TR56F 280** (L.2.3)	Pakelo GEAR OIL EP/E GL-5 SAE 85W/90	SAE 85W/90 (according to SAE J306)	API GL-5 MIL-L-2105D
D	**TR36 / TR36F 160-240** (L.0.7) **TR56 / TR56F 280** (L.1.2)			

Tab. 36 Table of OIL to be used (L.=litres)

Ambient temperature	Operating temperature	Viscosity	International specifications	Reference product
-25 / +45°C	**> 110 °C**	SAE 80W/140 (according to SAE J306) synthetic bases Group III /IV	API GL-5 API MT-1 SAE J2360	Pakelo Global Tranmission TS SAE 80W/140
-35 / +45°C		SAE 75W/140 (according to SAE J306) synthetic bases Group III /IV	API GL-5 API MT-1 SAE J2360	Pakelo Global Tranmission TS SAE 75W/140

Tab. 37 Table of OIL for use in special conditions

Lubrication point	Model (quantity)	Reference product (first Alpego filling)	Product consistency alternative
A - E	Kg.0.01 per grease nipple	Pakelo EP GREASE NLGI 2	NLGI 2

Tab. 38 Table of GREASE to be used

- **Checking the readability of pictograms**

Authorised personnel: USER.

The pictograms on the machine must be perfectly legible, so keep them clean and ask for them to be replaced if they are not legible.

Check and, if necessary, clean them every 1000 hours.

- **Replacing blades or flails**

The rotor must always run balanced.

Authorised personnel: MECHANICAL REPAIRER.

To replace the blades:

- Position the machine with the tractor on level ground;
- Use the tractor lift to raise the machine as high as possible;
- Place suitable support stands on both sides under the machine;
- Stop the tractor and apply the parking brake;
- Replace the blades with others of the same type, tightening the screws with nuts that secure them;
- Always replace tools in diametrically opposite positions at the same time;

Pins can be secured with cotter pins or nuts, depending on the machine model.
Should it become necessary to replace all tools (e.g. in case of wear and tear), please contact an authorised dealer. In fact, the rotor must be rebalanced after tool replacement.

11.4 Storage

The anti-corrosive surface treatments carried out on the machine's materials do not protect it from exposure to electrolytic environments (soil, sea water, fresh water, chemicals, etc.).
It is the responsibility of the purchaser to provide adequate packaging to preserve the machine at the end of the season, or in the event of a long period of inactivity.

In case of long machine downtime it is necessary to:

- Disengage the tractor PTO;
- Insert the support leg and lower the machine by placing it on the ground, switch off the engine and apply the parking brake.

The machine must be unhitched in a flat storage area capable of bearing its weight.

- Uncouple the cardan shaft from the tractor PTO and place it in its supporting hook.
- Disconnect it from the hydraulic connection, drain the system completely and fit plugs.
- Thoroughly clean the machine from fertiliser or chemicals and dry it.
- Carry out a thorough check for damaged or worn parts.
- Tighten screws and bolts, particularly those securing tools.
- Grease all machine parts (bearings, cylinder rod).
- Grease any unpainted machined surfaces.
- Protect the machine from dust or any external agent with nylon sheeting or similar, taking care to ensure adequate ventilation.
- The machine must remain in a storage environment with a suitable temperature and humidity level.

ATTENTION!!! Changes in temperature and humidity can damage the machine and its components. The manufacturer is not liable for any damage caused by improper packaging, storage or warehousing of the machine.

11.5 Reset for restart after storage

Check for re-commissioning:

- That all covers have been removed (tarpaulins, nylon, etc.).
- The state of preservation of the machine and its equipment and specifically carry out the checks indicated under the heading “Machine control” on page 89.
- The correct restoration of the hydraulic connection.

12 TROUBLESHOOTING

If abnormal noises from the machine are noticed during work, stop and ensure that the correct working conditions have been restored.

Working with an incorrectly functioning machine causes dangerous situations for the user.

Working on hills:

- If possible, proceed “uphill” in the direction of the slope.
- If it is not possible to avoid working along the sides of the hill, make the passes from top to bottom to reduce the terrace effect.

Practical observations:

- The tilled soil should always be to the right of the driver. The best system is to work in alternating stripes.

PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
Excessive vibration.	Broken or excessively worn blades or flails.	Replace worn or cracked parts.
	Locking of blades or flails on the pin.	Clean and grease the pins.
	Inadequate rotor balancing.	Check the weight of the blade blocks.
	Rotor bearing wear.	Dismantle and replace bearings and seals.
Non-optimal cutting, due to a drop in rotor speed.	Insufficient belt tension.	Adjust the tension.
	Excessive belt wear.	Replace the belts.
Overheating of belts.	Incorrect belt tension.	Check the tension.
	Working height too low.	Check alignment.
	Misalignment between axle, gear and rotor axis.	
Bevel gear assembly overheating.	Lack of oil.	Restore the level.
	Waste oil.	Replace.
Rapid wear of blades or flails.	Working height too low.	Adjust the height of the rotor above the ground.
Oil leaks from the transmission on the belt side.	Wear and tear of the oil seal.	Replace the oil seal.
Deformation of roller supports or wheels.	The roller or wheel supports were laterally stressed.	Raise the machine off the ground when reversing.

Tab. 39 Troubleshooting

PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
Deformation of the protective fins.	The machine was lowered over the material to be chopped from a raised position (transport).	The machine must assume the working position before encountering the material to be chopped.
Excessive belt wear.	Incorrect belt tension.	Adjust the tension.
	Transmission pulley misalignment.	Check the tension.
Transmission element breakage.	The machine was operated or blocked abruptly.	Replace affected parts.

Tab. 40 Troubleshooting

12.1 Tips for the tractor driver

PROBLEM	POSSIBLE REMEDY
Excessive shredding of the product to be shredded.	Lift the machine slightly off the ground by adjusting the height with the wheels (the flail mower must not touch the ground with the blades).
	Increase the forward speed.
Poor shredding of the product to be shredded.	Lower the machine slightly onto the ground.
	Reduce the forward speed.
	Do not work on soils that are too wet.
Rotor clogged	Soil too wet to till.
	Lift the machine off the ground.
	Reduce the forward speed.
	Avoid working with very tall grass.
	If necessary, clean the sides of the rotor well to avoid excessive overheating.
The machine jolts over the ground or vibrates	Foreign bodies wedged between the blades.
	Incorrectly mounted blades without the helical arrangement or with the edge penetrating the ground.
	Replace worn or broken blades.
	Rotor deformation caused by hits from foreign objects in the central part while working.
The machine does not work in the same way over the entire width.	If, for example, it shreds too much on the right side, shorten the right link.

Tab. 41 Tips for the tractor driver

13 DISPOSAL

Correct dismantling of the machine at the end of its life cycle reduces the risks to the operator carrying out this task and to other people who may come into contact with the machine or parts of it when it is out of service.

Proper disposal of the machine's components at the end of its lifecycle facilitates collection, disposal and recycling centres and minimises the environmental impact of such an operation.

13.1 Professional profile of the operator

Dismantling of the machine must be carried out by authorised and trained personnel. These operations must be carried out by maintenance personnel or operators with the relevant technical knowledge.
They must also have the knowledge to avoid the dangers of working with hydraulic power.

The operator must be in possession of all the equipment and personal protective equipment, and suitable instrumentation necessary to work on the machine or parts of it in accordance with local and international regulations.

He must also have read this user and maintenance manual and assimilated its contents. Incorrect manoeuvres can result in serious personal injury as well as damage to the environment.

13.2 General information on safety and specific risks

During all stages of dismantling the machine, protective gloves must be used to prevent damage due to contact with machine parts.

Wear safety shoes to avoid crushing the lower limbs.

Always wear appropriate work clothes: properly fitted coat or protective suit.

Before dismantling the machine, mark out the area of operation. No unauthorised personnel may enter the demarcated area. These precautions may only be removed once the operation has been completed.

Take care to ensure that there is no interference between the operations carried out and the persons, machines or equipment present in the areas surrounding the operations. If you have any doubts about the work you are going to do or if it fails, contact the manufacturer.

13.3 Materials

The materials that make up the components of the machine are listed below in order to make the user aware of the differentiation of materials when disposing of and scrapping the machine at the end of its life cycle.

Component	MATERIALS			
	Steel Painted steel	Stainless steel	Rubber	PVC or derivatives
Framework of the machine and guards	✓			
Kinematics and mechanical components	✓		✓	
Various accessories and installed components		✓		✓

Tab. 42 Machine materials

13.4 Sequence of operations to dismantle the machine and dispose of the materials it contains

At the end of the machine's technical life, it must be put out of service and scrapped by separating the individual parts and/or materials in accordance with current environmental protection laws and regulations.
In order to ensure that the dismantling and disposal of the machine, or parts of it, is carried out correctly, it is advisable to contact specialised and officially authorised companies.

It is compulsory that all operators involved in demolition and disposal use the personal protective equipment (PPE) foreseen according to the risks related to the type of use and in compliance with the laws and standards in force. They must only perform any kind of operation on the basis of their specific professional competence and with the consent of the company safety officer.

ALPEGO S.p.a. does not assume any liability for damage to persons or things resulting from the re-use of individual parts of the machine which have been put out of service for installation situations other than the original ones. At the time of dismantling, plastic and metal parts must be separated and sent for separate collection in accordance with the regulations in force in the country where the machine is installed.

ATTENTION!!! The person in charge of dismantling the machine must be aware of the relevant laws or regulations of the country in which the machine is installed.

It is important to carry out all these operations in the same sequence as listed below.

- **Disconnecting the hydraulic supply**

Drain the oil from the system and disconnect the hoses from the distributor and user cylinders.

- **Disposal of the structure**

The structure and the various components, if unusable, should be scrapped and sorted according to their type. Disassemble in the reverse sequence to that indicated in the assembly instructions.

14 RECOMMENDED SPARE PARTS

14.1 How to order recommended spare parts

We remind you of the importance of using Alpego original spare parts and lubricants to ensure top quality.

The use of Alpego spare parts and lubricants is mandatory to benefit from the warranty during the established period.

The use of non-original spare parts, and the faulty, incorrect assembly exonerate the manufacturer from all liability.

To avoid misunderstandings it is necessary to indicate for each order:

- The model of the machine.
- The serial number of the machine.
- The part number.
- Description.
- Quantity.

ATTENTION!!! Component replacement operations must be carried out, if possible, with the machine disconnected from the tractor and the hydraulic connection, lifted with suitable lifting systems, on a stable surface and balanced with support leg inserted and locked in position.

To order any component, please refer to the dedicated online spare parts catalogue.

15 ACCESSORIES

ALPEGO S.p.a. produces different accessories according to the machine models.

15.1 Machine accessories

The machine can be equipped with the “Rear wheels” accessory.

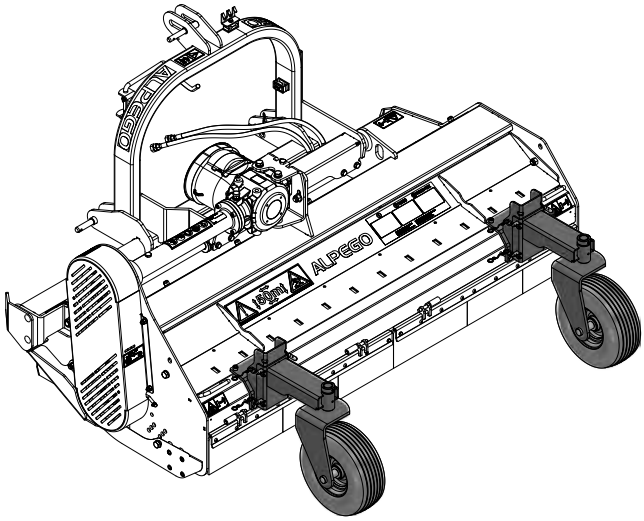


Fig. 43 “Rear wheels” Accessory on TR36

The machine can be equipped with the “Chain kit” accessory.

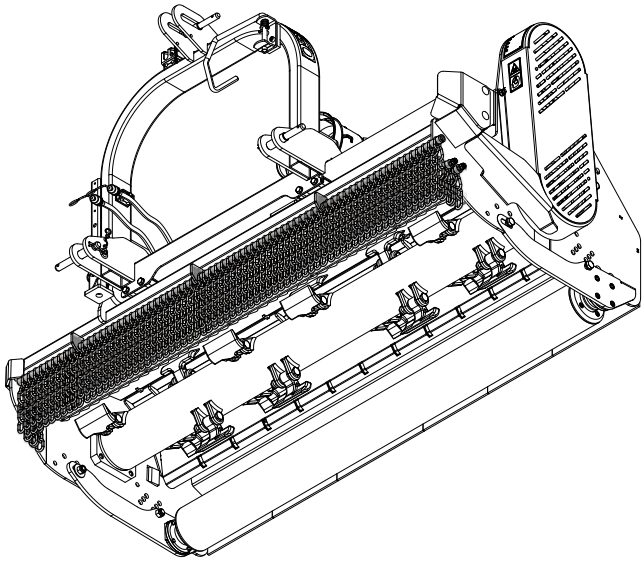


Fig. 44 "Chain kit" Accessory on TR36

The machine can be equipped with the “Rake kit” accessory.

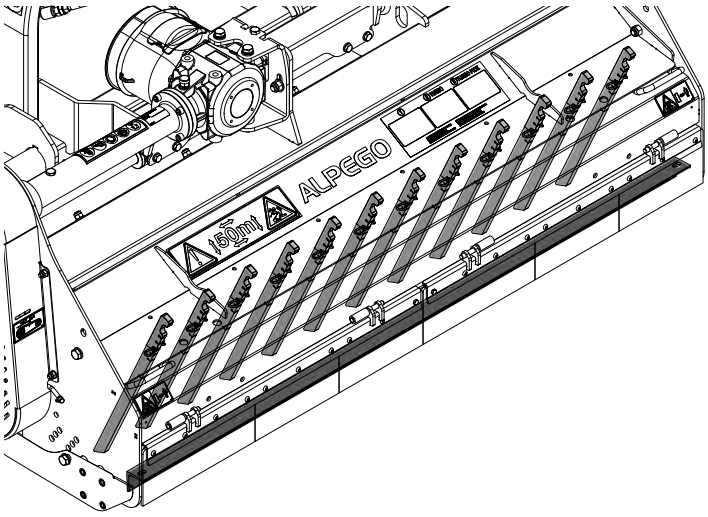


Fig. 45 “Rake kit” Accessory on TR36

ALPEGO
Your Partner In The Field

Alpego S.p.a. con Socio Unico
Via Giovanni e Giuseppe Cenzato, 9
36045 - Lonigo (VI) Italy
Tel: 0444 646100
Mail: info@alpego.com
www.alpego.com

Choose only ALPEGO original SPARE PARTS