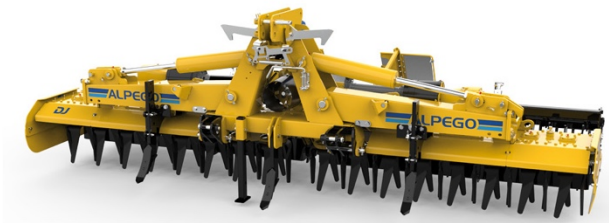
FOLDABLE
POWER HARROWS

ALPEGO
Your Partner In The Field



DJ

DP

DTEK

DMAX

Code : Q00A00017/24

Use and maintenance manual

Translation of original instructions

Read these instructions carefully before first use.

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
Erpice Rotante

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 4254-5:2018 – EN15811:2014
La persona autorizzata a costituire il fascicolo tecnico è il Direttore Tecnico di Alpego presso la sede aziendale.

FRANCAIS

Déclaration de conformité CE
Herse Rotative

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 stipulèes dans la Directive Européenne. Pour l'adaptation d'elle en éponge ont été adoptés les normes :
EN ISO 4254-1:2015 - EN ISO 4254-5:2018 – EN15811:2014
La personne autorisée à constituer le dossier technique est le Directeur Technique d'Alpego au siège de la société

ENGLISH

EC Certificate of conformity
Power Harrow

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 4254-5:2018 – EN15811:2014
The person authorized to drawn up the technical dossier is the Technical Director of Alpego at the company headquarters.

DEUTSCH

EG Konformitatserklarung
Kreiseleggen

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 4254-5:2018 – EN15811:2014
Die zur Erstellung der Technischen Dokumentation befugte person ist der technische Direktor von Alpego am Firmensitz.

ESPANOL

Declaraciòn de conformidad CE
Grada Rotativa

Conforme a la Directiva Europea 2006/42 CE la empresa declara bajo su propia responsabilidad que la maquinaria agrícola modelo: està conforme a los requisitos esenciales de seguridad y de defensa de la Directiva Europea. Para la equiparaciòn de las màquinas han sido adoptadas las normas
EN ISO 4254-1:2015 - EN ISO 4254-5:2018 – EN15811:2014
La persona autorizada para preparar el expediente técnico es el DirectorTécnico de Alpego en la sede de la empresa.

Ελληνικά

Δήλωση συμμόρφωσης ΕΚ
Περιστροφικές σβάρνες

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 4254-5:2018 – EN15811:2014
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
Grades Rotativas

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 4254-5:2018 – EN15811:2014
A pessoa autorizada para a realização do arquivo técnico é o Diretor Técnico d e Alpego junto à sede da empresa.

NEDERLANDS

EG-Conformiteitsverklaring
Roterende Eggen

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 4254-5:2018 – EN15811:2014
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
Boronák

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 4254-5:2018 – EN15811:2014
A műszaki dokumentáció összeállítására jogosult személy a vállalati székhelyen az Alpego Műszaki Igazgatója.

ROMÂNĂ

Declarație de conformitate CE
Grape Rotative

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 4254-5:2018 – EN15811:2014
Persoana autorizată să întocmească documentația tehnică este Directorul Tehnic al Alpego de la sediul societății.

POLSKI

Deklaracja zgodności WE
Bron Obrotowych

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 4254-5:2018 – EN15811:2014
Osobą upoważnioną do opracowania dokumentacji technicznej jest Dyrektor Techniczny Alpego w siedzibie firmy.

SUOMI

EU-vaatimustenmukaisuusvakuutus
Äkeet

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 4254-5:2018 – EN15811:2014
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
Your Partner In The Field
MEMBER
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Società soggetta a direzione e coordinamento di Torrico S.r.l.
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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 (Power Harrow):

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 4254-5:2018
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

SUMMARY

SUMMARY

Carefully read this manual, before using the machine; the knowledge of its contents is essential for the safe use of the implement and it must be kept throughout the lifespan of the machine.

We thank you for purchasing our machine, you have chosen a high-quality product, guaranteed by our experience of dozens of years.

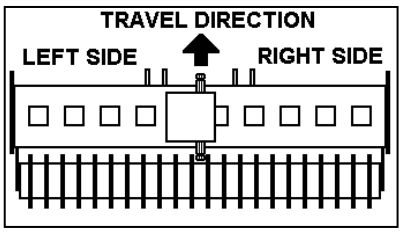
Before leaving the factory, each implement is accurately checked to guarantee it is free of any defect.
If, in spite of this, any problem due to defective materials should arise, please contact immediately your local dealer.
With the purpose of constantly improving the product and of maintaining it at the highest quality level we remain at your complete disposal to give you any information or explanation.

PAY ATTENTION TO THE TRIANGLE, IT MEANS DANGER

THE TERM MACHINE, REPLACES THE TRADE NAME REFERRED TO IN THIS MANUAL

All the data contained in the present manual are supplied by way of information only and are not binding for the manufacturer who can change them without previous n

N.B.: Machine view **ALPEGO** normally considers **the machine seen from behind in relation to the forward driving direction.**
This in order to correctly identify the details and the assembly positions, which must be carefully observed with pieces that have **“left” or “right”** in their description (e.g.: left or right universal joint, left or right tine, etc.)



1. GENERAL INFORMATION

1.1. Object of the manual

- This manual has been drawn up by the manufacturer of the machine and it is an integral part of the documentation accompanying the machine.
- The manual defines the purposes to which the machine has been produced specifying its correct usage and the limits of the same.
- The constant application of the data contained in the present manual guarantees the safety of the persons using the machine, economy of operation and a longer duration of the machine.
- The present manual has been divided into different paragraphs in order to facilitate the search of the various items and the consultation of the initial index.
- The figures included in this manual are supplied for information even if they may greatly differ from your machine, the safety and the information, anyhow, are always guaranteed.

1.2. Documentation accompanying the machine

The machine must be accompanied by the following documentation:

- Use and maintenance manual
- CE compliance certificate
- Cardan shaft user and maintenance manual
- Spare Parts List

1.3. Warranty

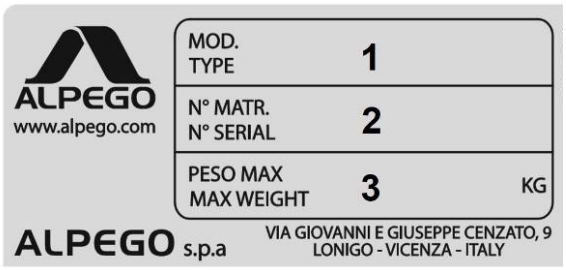
At the time of delivery, check whether the machine has been damaged in transit and if all the accessories are present.
Possible claims must be made in writing within 6 days.
WARRANTY CONDITIONS
The warranty shall not apply:

- if damage is caused by incorrect use
- if the cardan shaft has not been sufficiently maintained (see maintenance manual of cardan shaft)
- if the maximum power limit allowed is exceeded (see technical data on the table 2.3)
- in case the instruction given in this manual have not been strictly followed
- in case which used non-original spare parts
- in case which the machine has carried out alteration without the consent of the Manufacturer.

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

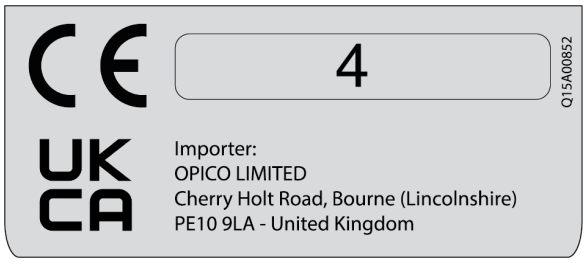
1.4. Identification of the machine

At the 3 points of connection to the tractor is placed the identification plate of the machine bearing the following data:



1. Model of the machine
2. Serial number
3. Maximum weight of the machine
4. Costruction year [es: 1305 = 13 (2013) + 05 (may)]

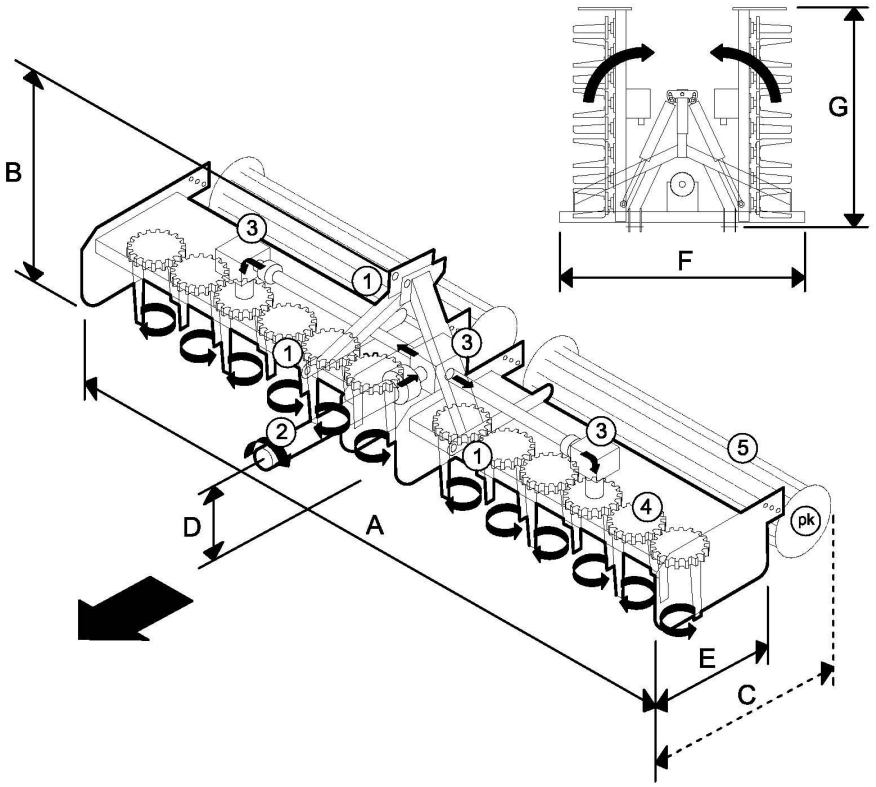
The specified weight refers to the machine provided with the accessories.



2. TECHNICAL FEATURES

2.1. Description of the machine

ROTODENT FOLDING rotary harrows must be used to treat only agricultural lands, in particular to prepare the seed-beds, any other usage is forbidden.
ROTODENT FOLDING rotary harrows are machines design to limit the overall transport dimension to only
250 cm. and to adapt at conformation of the soil.
ROTODENT FOLDING rotary harrows are machines driven by the tractor power plug and by a full-geared driving mechanism transmitting the motion to a series of in-line blades-holders, each provided with two blades.



MODEL	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
DJ-360	3686	1300	1560	740	990	2081	1860
DJ-400	4150		1560	740	990	2081	2087
DJ-460 S	4625		1560	755	990	2081	2335
DJ-500 S	5094		1560	755	990	2081	2560
DP-400	4140	1810	1620	925	1000	2420	2120
DP-450	4600		1620	925	1000	2420	2355
DP-500	5080		1620	925	1000	2420	2590
DP-600	6020		1620	925	1000	2420	3060
DTEK-400	4140	1882	1700	925	1000	2435	2120
DTEK -450	4600		1700	925	1000	2435	2355
DTEK -500	5080		1700	925	1000	2435	2590
DTEK -600	6020		1700	925	1000	2435	3060
DTEK -700	6960		1700	925	1000	2435	3530
DmaX -450	4620	1970	1773	880	1154	2448	2335
DmaX -500	5090		1773	880	1154	2448	2574
DmaX -600	6030		1773	880	1154	2448	3044
DmaX-700	6970		1773	880	1154	2448	3514
DmaX-800	7910		1773	880	1154	2448	3984

The motions of the blades-holders are opposed each other thus obtaining an optimal crumbling of the soil without mixing the different layers so that the surface layer is not mixed with the lower ones, often less good, assuring the best seed-bed.
The soil crumbling degree depends on the rotation speed of the blades-holder and on the advancement speed.

ROTODENT FOLDING rotary harrows, provided with change gear allow to obtain the desired crumbling degree independently of the tractor advancement speed.
The rear roller determines the working depth levelling the ground.

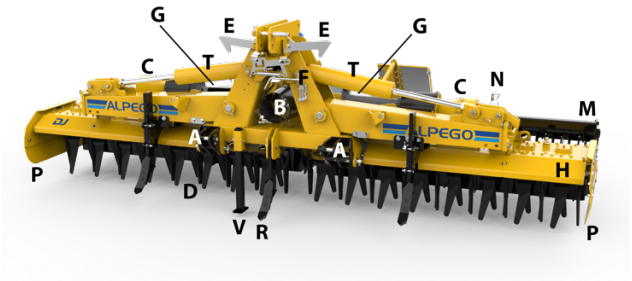
ROTODENT FOLDING rotary harrows, provided with rear clod bar allow the best crumbling and refining of the ground. The required power depends on the width of the work, on the type of the soil and on the working depth; to combine correctly the tractor with ROTODENT FOLDING rotary harrows refer to the technical data table 2.3.

ROTODENT FOLDING rotary harrows applies to agricultural tractors provided with 3-point connection and hydraulic lifter complying with the features specified in the technical data table 2.3

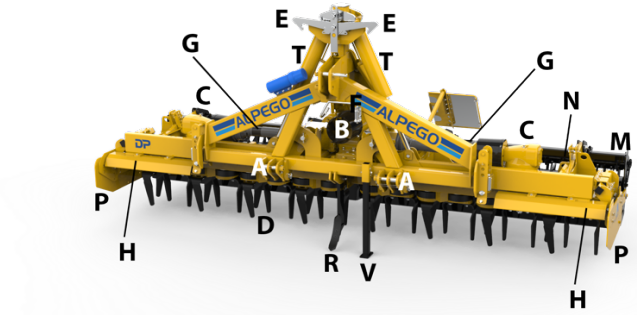
2.2. Key elements of rotodent

A) 3-point connection
B) Central speed reduction or change gear
C) Side speed reduction or change gear
D) Teeth and teeth-holder
E) Hooks for rotodent closing
F) Universal joint support
G) Side universal joint
H) Front guards
M) Rear levelling roller
N) Rear clod bar adjusting crank
P) Mobile body sides
R) Central track eradicators
T) Folding cylinders
V) Support leg

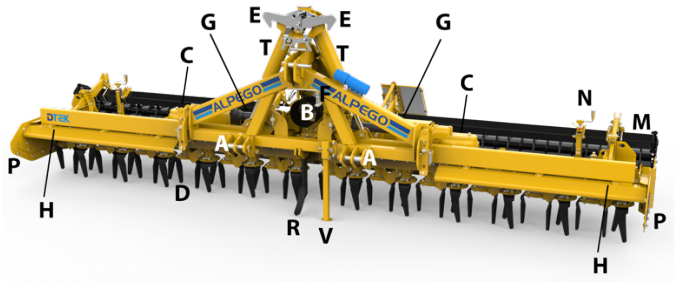
ROTODENT DJ / DJ SUPER



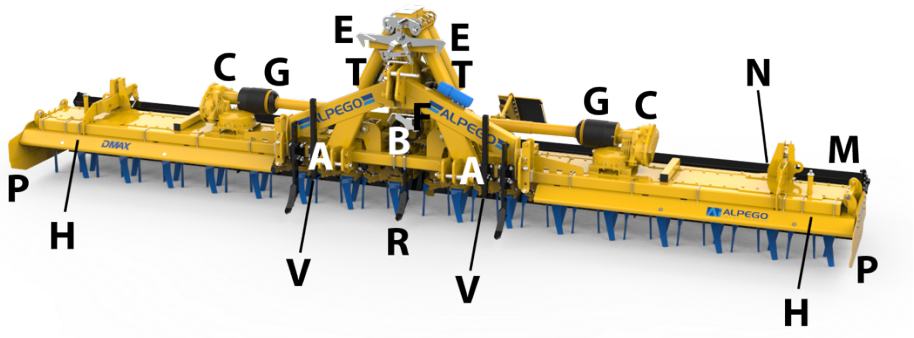
ROTODENT DP



ROTODENT DTEK



ROTODENT DMAX



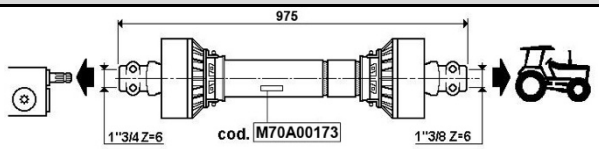
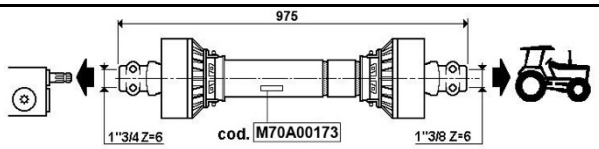
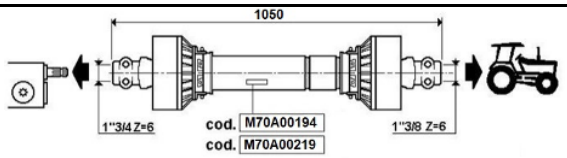
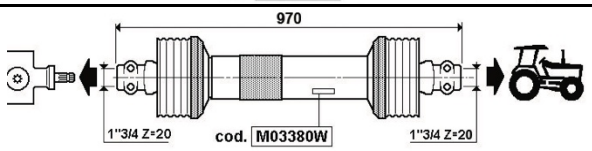
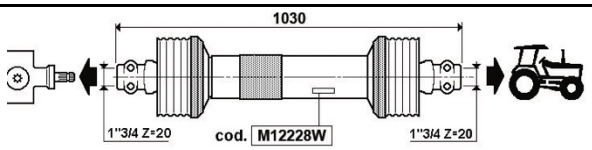
2.3. Technical data table

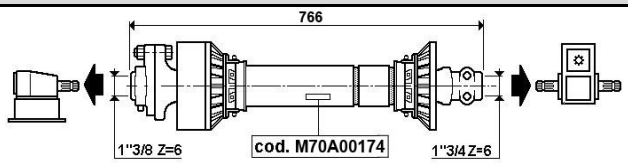
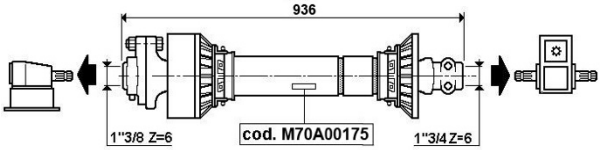
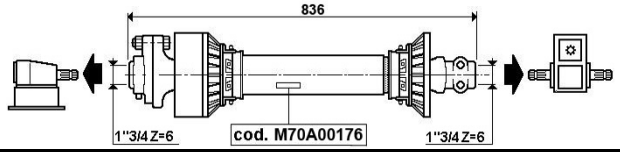
Model	Working width Mm.	Min/max Power Kw.	Linkage Category	Tractor Pto Profile	Tractor Pto R.p.m	Rotors From/to R.p.m	Max. Depth Mm.	Tines N°	Weight With Packer Roller kg
DJ 360 **DJ 400**	3600 4000	**66/133** **74/133**	2° e 3°	1”3/8 Z=6	1000	350	250	14+14 16+16	**1760** **1946**
DJ 460 S **DJ 500 S**	4600 5000	**82/162** **89/162**	2° e 3°	1”3/8 Z=6	1000	350	250	18+18 20+20	**2130** **2270**
DP 400 **DP 450** **DP 500** **DP 600**	4000 4500 5000 6000	**89/200** **95/200** **110/200** **125/200**	2° e 3°	1”3/8 Z=21	1000	328	250	16+16 18+18 20+20 24+24	**2340** **2500** **2640** **2930**
DTEK 400 **DTEK 450** **DTEK 500** **DTEK 600** **DTEK 700**	4000 4500 5000 6000 7000	**110/260** **115/260** **120/260** **130/260** **140/260**	3° e 4°	1”3/4 Z=6	1000	359	250	16+16 18+18 20+20 24+24 28+28	**2925** **3210** **3380** **3760** **4170**
DmaX 450 **DmaX 500** **DmaX 600** **DmaX 700** **DmaX 800**	4500 5000 6000 7000 8000	**132/235** **142/235** **157/235** **185/370** **185/370**	3° e 4°	1”3/4 Z=20	1000	396	300	18+18 20+20 24+24 28+28 32+32	**3040** **3460** **3790** **4450** **5040**

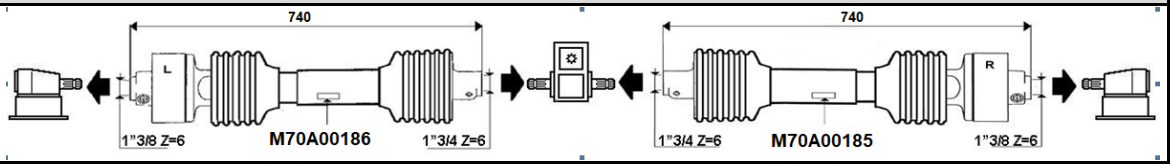
The application of a ROTODENT folding rotary harrow involves a different weight distribution on the tractor axles; to assure the necessary safety you should check the applied weights and, if it is required, you should add the provided ballasts so as to balance the weights on the tractor’s axles.

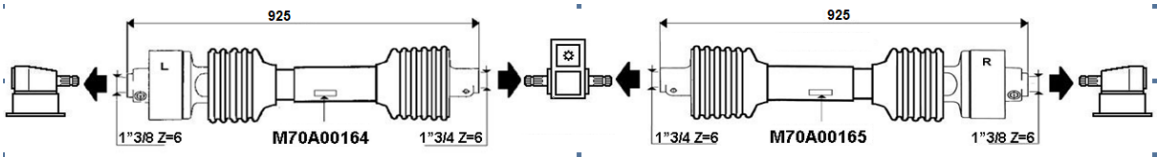
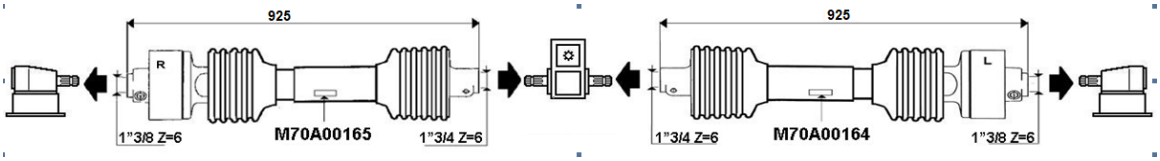
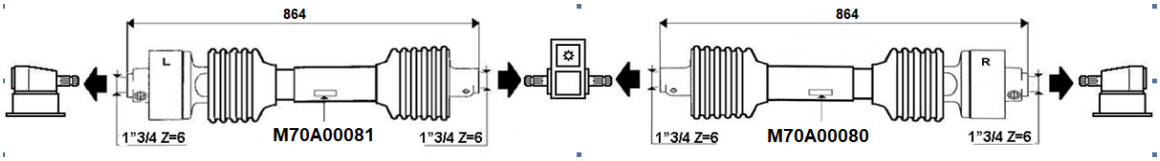
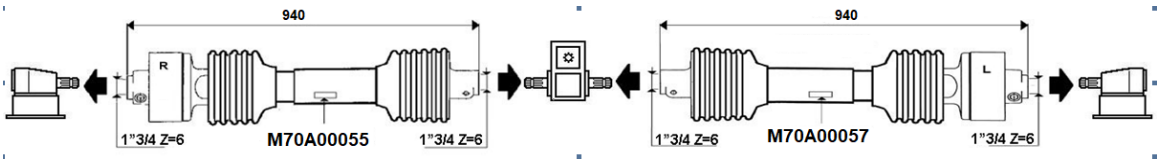
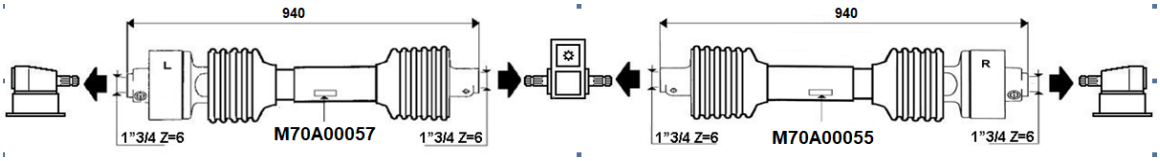
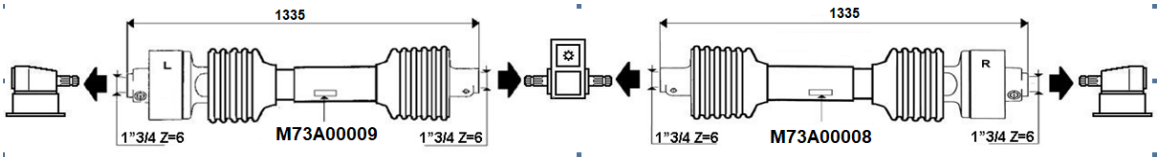
2.4. Universal joint identification

The machine is supplied provided with universal joint with safety device against the overloads as shown in the figure; it is forbidden to replace this joint with any other type of universal joints differing from the original one. Read carefully the instructions contained in the booklet accompanying the universal joint. Pay attention: don't exchange the side universal joint with the central one

CENTRAL UNIVERSAL JOINT	
DJ DJ-SUPER	
DP	
DTEK	
DmaX 450-500-600	
DmaX 700-800	

LATERAL UNIVERSAL JOINT WITH SHEAR BOLT SAFETY SYSTEM	
DJ DJ-SUPER	
DP	
DTEK	

LATERAL UNIVERSAL JOINT WITH AUTOMATIC CAM CLUTCH SAFETY SYSTEM	
DJ - DJ SUPER	

DP (450)	
DP (400 / 500 / 600)	
DTEK	
DmaX (450)	
DmaX (500-600)	
DmaX 700-800	

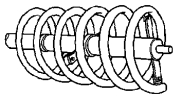
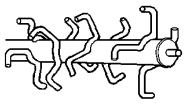
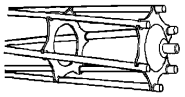
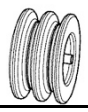
2.5. Roller identification

Each machine shall be provided with the rear levelling roller which, besides being a levelling and supporting element, is also an important safety element preventing the rear contacts with the rollers.

IT IS STRICTLY FORBIDDEN TO WORK WITHOUT THE ROLLER.

2.6. Table of the rollers

Description and figure	Model	D mm.	L mm.	Weight kg.	Coupling on:
SPIRAL ROLLER	SP3-180	400	1800+1800	280	DJ-360
	SP3-205		2000+2000	290	DJ / DP-400
	SP3-205 + SP3-250		2000+2500	320	DP-450
	SP3-230		2300+2300	-	DJ-460

	**SP3-250**		2500+2500	**350**	**DJ / DP-500**
	SP3-300		3000+3000	**400**	**DP-600**
	SP5N-205	520	2000+2000	**380**	**DP / DTEK-400**
	SP5N-205 + SP5N-250		2000+2500	**415**	**DP / DTEK / DMAX-450**
	SP5N-250		2500+2500	**450**	**DP / DTEK / DMAX -500**
	SP5N-300		3000+3000	**530**	**DP / DTEK / DMAX -600**
PACKER ROLLER 	**PK3-180**	480	1800+1800	**400**	**DJ-360**
	PK3-205		2000+2000	**460**	**DJ / DP-400**
	PK3-205 + PK3-250		2000+2500	**490**	**DP-450**
	PK3-230		2300+2300	**520**	**DJ-460**
	PK3-250		2500+2500	**560**	**DJ / DP-500**
	PK3-300		3000+3000	**660**	**DP-600**
	PK5N-205	520	2000+2000	**580**	**DP / DTEK-400**
	PK5N-205 + PK5N-250		2000+2500	**635**	**DP / DTEK / DMAX -450**
	PK5N-250		2500+2500	**690**	**DP / DTEK / DMAX -500**
	PK5N-300		3000+3000	**780**	**DP / DTEK / DMAX -600**
	PK6R-205	570	2000+2000	**700**	**DTEK-400**
	PK6R-205 + PK6R-250		2000+2500	**770**	**DTEK / DMAX -450**
	PK6R-250		2500+2500	**840**	**DTEK / DMAX -500**
	PK6R-300		3000+3000	**980**	**DTEK / DMAX -600**
	PK6R-350		3500+3500	**1100**	**DMAX -700**
	PK6R-390		3900+3900	**1280**	**DMAX -800**
SPIKE ROLLER 	**P41-180**	480	1800+1800	**220**	**DJ-360**
	P41-205		2000+2000	**250**	**DJ / DP-400**
	P41-205 + P41-250		2000+2500	**280**	**DP-450**
	P41-230		2300+2300	**300**	**DJ-460**
	P41-250		2500+2500	**310**	**DJ / DP-500**
	P41-300		3000+3000	**360**	**DP-600**
	P5N-205	560	2000+2000	**400**	**DP / DTEK-400**
	P5N-205 + P5N-250		2000+2500	**440**	**DP / DTEK / DMAX -450**
	P5N-250		2500+2500	**480**	**DP / DTEK / DMAX -500**
	P5N-300		3000+3000	**560**	**DP / DTEK / DMAX -600**
CAGE ROLLER 	**G4-180**	420	1800+1800	**220**	**DJ-360**
	G4-205		2000+2000	**250**	**DJ / DP-400**
	G4-205 + G4-250		2000+2500	**270**	**DP-450**
	G4-230		2300+2300	**270**	**DJ-460**
	G4-250		2500+2500	**290**	**DJ / DP-500**
	G4-300		3000+3000	**330**	**DP-600**
	G5N-205	500	2000+2000	**360**	**DP / DTEK-400**
	G5N-205 + G5N-250		2000+2500	**380**	**DP / DTEK / DMAX -450**
	G5N-250		2500+2500	**400**	**DP / DTEK / DMAX -500**
	G5N-300		3000+3000	**470**	**DP / DTEK / DMAX -600**
RUBBER COATED ROLLER 	**OT5N-205**	500	2000+2000	**670**	**DK-400**
	OT5N-205 + OT5N-250		2000+2500	**735**	**DTEK / DMAX -450**
	OT5N-250		2500+2500	**800**	**DTEK / DMAX -500**
	OT5-300		3000+3000	**940**	**DTEK / DMAX -600**

MAIN CHARACTERISTIC OF ALPEGO ROLLER:

SPIRAL ROLLER (SP2- SP3-SP5N)
The spiral roller is excellent in the preparation of the seed-bed, makes the soil rightly compact and leaves on the surface a transversally striped soil. This fact makes the seeding easier and the covering of the seeds in particular, ensuring the constant depth of the sowing machine.

PACKER ROLLER (PK2 – PK3-PK5N)
The packer roller has the function of compacting the soil.

SPIKE ROLLER (P41-P5N) The spike roller is used in case of working on very wet and clayey soils which cannot bear any minimum superficial squashing .
CAGE ROLLER (G4-G5N) The cage roller , contary to the packer roller, leaves a soft soil.
RUBBER COATED ROLLER (OT5N) This is used with a seed drill so as to compact the soil in strips on which the seed will be successively deposited. It operates without slipping on loose soils and is ideal for soft and sandy soils.

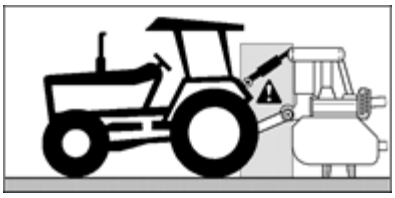
2.7. Sound level

If the tractor has the cab, the sound level depends on the type of insulation of the cab. If the tractor has no cab or if the windows are open, the sound level of the machine when this is working, at a of 200 mm. from the rear window exceeds 85 dBa, therefore we suggest to use soundproofing headphones as prescribed by the laws of several Countries.

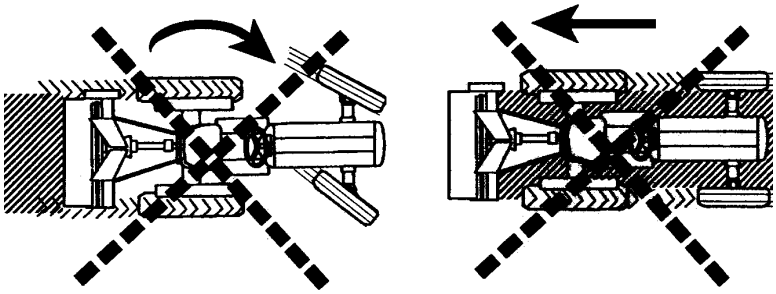
3. SAFETY RULES

3.1. To use in safety

- Before the start-up, use and maintenance operation of the equipment, read carefully the use and maintenance manuals.
- The manufacturer disclaims all responsibility for damages to persons, animals or things due to the non-observance of the safety rules.
- It is absolutely forbidden to use the machine for purposes different from the ones expressly indicated in this booklet.
- It is absolutely forbidden to drive or to let that the tractor is driven by persons without the proper driving license, having no experience and not in a good state of health.
- Avoid absolutely to touch in whichever way the parts in motion.
- The machine and its eventual accessories for the transport on road must be complete with the necessary signs and adequate protections.
- Check carefully the adhesive labels on the machine and respect their indications.
- The relative decalcomanias of emergency must be in evidence: they must be always cleaned and replaced if they become unreadable (eventually can be demanded to the concessionaire).
- During the manouvres do not allow the approaching of any person or animal within the operation range of the machine.
- During the work do not allow the approaching of any person or animal within the range of the sods and the stones projected by the machine.
- It is absolutely forbidden to enter the area between the tractor and the machine in order to operate the external controls of the hydraulic lifting device.

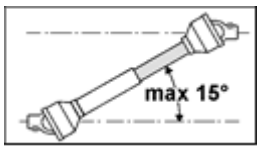


- Sit always on the driver's seat and get off the tractor only after the power take off has been disconnected and the parking brake has been activated.
- Know the area in which it is being worked.
- Never operate in an area in which there are obstacles like stones sticks or roots they would ruin integrity of the machine.
- For the transport on road to always use the danger blinking.
- During the working pauses, disconnect the power take off, switch off the engine, lay the machine on the ground and activate the tractor parking brake.
- Do not work without guards.
- Do not use the machine as a transportation mean for persons, animals or things.
- Do not work onto grounds or places which may compromise the stability of the machine.
- With respect to the on-road circulation, observe the regulations in force in each country.
- It is very important to remember that roadability, braking capacity and direction are influenced by the weight of the machine applied to the lifting device of the tractor; moreover, in bends consider the effect of the centrifugal force that move the machine center of gravity.

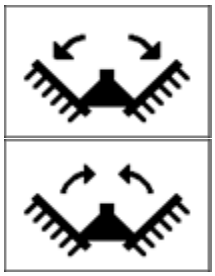


- Avoid to turn empty (outside of the land) with the machine. During the job avoid to carry out curves with the buried machine, much less to work when you go behind.
- Lift always for the changes of direction and the reversals of march.

- During the transport, or every time the raising of the machine becomes necessary, is opportune that the lifter of the tractors comes regulated so that the same machine is not raised from earth in order more than **35 cm** approximately.
- Avoid to go on public roads with the dirty machine of earth, grass or other that produce soil and prevent to the street traffic. Not decrease with violence the machine on the land but to make it slowly in order to concur graduates them insertion of the blades in the land.
- In contrary case the components of the same machine would provoke strong sollicitations on all who could compromise of their integrity.
- In phase of transport on road, with the raised machine, to put in position dl block the command lever d of the hydraulic lifter of the tractor.
- Before inserting the power take off, assess of the number of turns defined.
- Do not exchange the regimen of 540 turns/min with 1000 turns/min.
- The installation and the taking apart of the cardan shaft always must be made with turned off motor.
- Use only the universal joint suppplied by the manufacturer and provided with the overload safety devices.
- The protection device of the cardan shaft must be always efficient and has to be checked at regular intervals and fixed by means of chains in order to avoid shiftings.
- Always disconnect the power takeoff when the cardan shaft forms an angle exceeding 15°, see figure.



- Before inserting the power take off make sure that there are not persons or animals in the action zone and that the chosen regimen corresponds to that one concurred. Never exceed the previewed.
- In order to avoid burnings do not touch the speed gear after a protracted use of the machine.
- Before change speed gearbox, disengage the power takeoff, switch off the tractor engine, activate the tractor parking brake and lock the rear cover of gearbox.Not use the machine inside of structures sluices than there is not one adapted ventilation.
- While the machine is opened and closed, make sure there are no persons, animal or things within the operation range of the machine



3.2. Maintenance in safety

- Do not allow unauthorized persons to perform maintenance operations or any other kind of intervention on the machine.
- Maintenance and repairing operations must be carrie on in workshop fit for those purposes.
- Always use original accessories and spare parts in order to comply with the requirements of the manufacturer, otherwise, any guarantee may be declined and some malfunctionings may arise impairing the safety of the machine.
- In case of maintenance of the machine disconnect hydraulic the tube from plug of the tractor
- Respect the conformity of oils advises to you.
- In performing any operation on the machine, disconnect the power takeoff of the tractor, activate the parking brake, remove the start-up key and do not allow any person to get onto the tractor.
- Before cleaning or greasing the cardan shaft disconnect the power takeoff, switch off the engine, activate the parking brake and remove the start-up key.

3.3. Transport on public roads

If necessary, the machine can be transported on the roads while hitched to the tractor. The operator must check, compare and adapt the implement so that it fully complies with the Highway Code in force in the country of use.

Bear in mind the following recommendations:

- Comply with the instructions in this manual when you hitch the machine to the tractor;
- The machine must remain blocked and raised from the ground during transport.
- You must take all possible precautions and comply with the pertinent laws in order to safeguard yourselves
- and others.
- Projecting parts and those beyond the width of the tractor must be fitted with the relative protections.
- The entire implement must be equipped with its own lighting system complete with flashing lights and indicators.
- Warning boards to indicate the projecting parts of the implement must be affixed where necessary.
- The braking distance and steering capacity of the tractor are influenced by the weight of the machine hitched to its power lift.
- When driving round bends, take great care and allow for the action of the centrifugal force that shifts the machine's center of gravity.
- Comply with the load limits on the axles.
- Bear in mind the limits imposed by the overhang and projection from the sides of the tractor.

3.4. Clothes

Always wear safety gear and clothes. Make sure no dangling parts are present as they may get caught in moving parts.
For the same reasons please always remove watches, rings, necklaces, wristbands etc. Long hair may be a danger as well, please keep them tied.

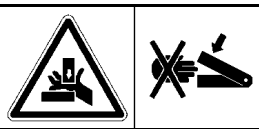
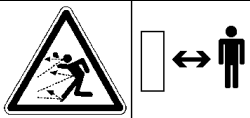
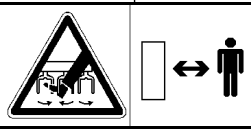
If it is Always wear safety gear as required by your local authorities (safety shoes, gloves, earplugs, masks, etc.)

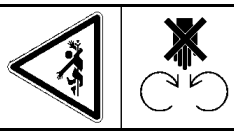
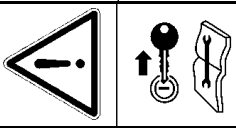
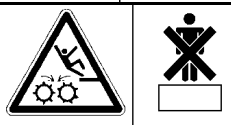
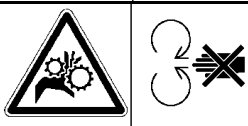
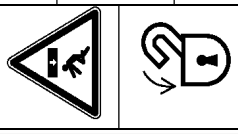
3.5. Ecology

Comply with the regulations of your own country concerning the use and the disposal of the products which are used for lubricating, maintaining and cleaning the machine ; strictly comply with the instructions listed in the packages of the products.
Comply with the laws in force also in case the machine is scraped.

3.6. Safety labels

The various adhesive labels on the machine serve to signal the presence of a danger, observe them carefully and follow the indications for the safe use of the machine; they must be kept clean and readable and, if damaged, they have to be replaced.

FIGURE	CODE	INDICATIONS
	**D02612**	Before using the equipment it is compulsory to read the user and maintenance booklet and the suggestions about safety as well as to observe all the instructions during the use.
	**D02627**	It Indicates the connection point for the transportation and the sheltering of the machine.
	**D02613**	It Indicates the shearing period during the working movements of the machine
	**D02618**	It Indicates the danger to project stones during the working operations and suggests to stay at a proper distance from the machine.
	**D02620**	It indicates the danger of the teeth rotation during the working operation and suggests to stay at a proper distance from the machine.

	**D02608**	It indicates the danger of kinks on the cardan shaft during the working operations and suggests not to approach the shaft while rotating.
	**D02615**	It indicates the need to switch off the tractor and to remove the start-up key during the maintenance operations.
	**D02609**	It indicates the absolute prohibition to get on the machine during the working operations.
	**D02614**	It indicates the danger of grinding on all the rotating gears.
	**D02616**	It indicates the position of a supporting leg which must always be locked while they are not used, in order to maintain the stability conditions of the machine..
	**D02621**	In the closing operations of the folding harrows it indicates the dangerous moving bodies and prohibits to stand within the range of operation of the machine.
	**D02622**	In the closing operation of the folding harrows, it indicates the danger of staying within the range of the machine, and it absolutely forbids to stay near the machine
	**D02624**	It indicates the danger represented by the the presence of pressurized oil in the case of a failure of the hydraulic tubes, refer to the instruction manual before carrying on any repairing operation of the hydraulic plant
	**D02625**	Before carrying on the opening and closing operations on the folding harrows, it indicates the obligation to stop the rotation of the power takeoff of the tractor.
	**D02628**	This label is rolled up onto the pipe that, once it has been pressurized, closes the folding harrow.
	**D02629**	This label is rolled up onto the tube that, once it has been pressurized, opens the folding harrow.
	**D02630**	Wherever it is applied, it indicates that a certain element has a locking function for the stability of the machine, always checking the correct operation when utilised.
	**Q15A00531**	The sticker depicts the compulsory PPE (Personal Protective Equipment): coverall, mask, earplugs, safety shoes, gloves

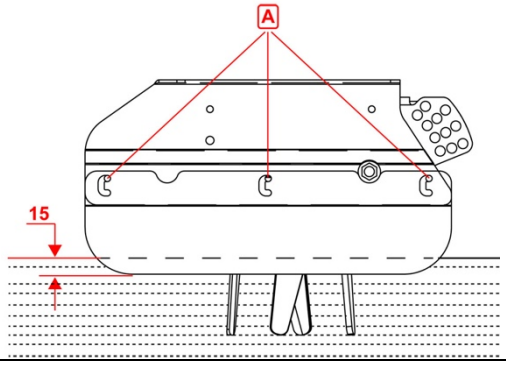
3.7. Accident-prevention protections

Install, before the putting in function of the machine, the accident-prevention protections supplied taken apart for reasons transport

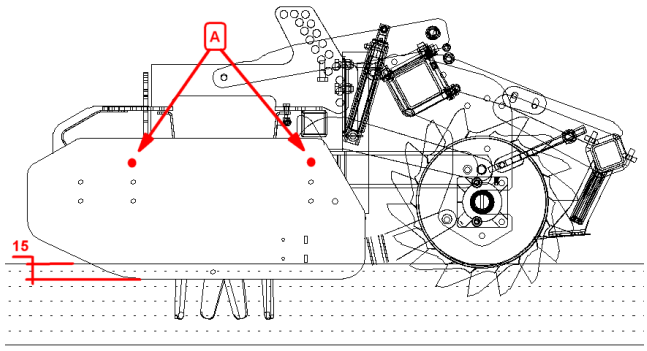
3.8. Mobile body side for rotodent

The mobile body sides are safety elements and, during the operation, they must penetrate the ground for at least 15 mm.
If worn out, they must be replaced.

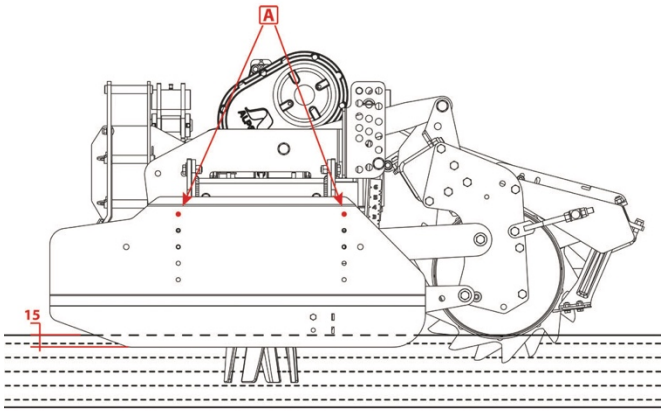
DJ – DJ SUPER



DP / DTEK



DmaX



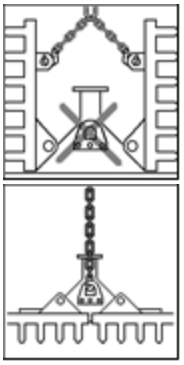
4. INSTALLATION

4.1. Lifting of the machine

The lifting and transport operations have to be carried on with means suitable for the weight of the machine and by personnel trained for this kind of maneuver.

4.2. Lifting of the rotodent

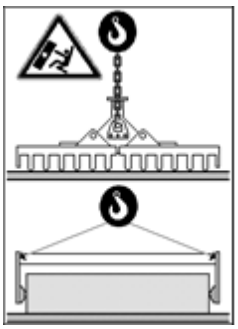
If the machine is supplied closed, connect it only as indicated in the figure to the two suitable side hooks, during this operation the machine shall not be lifted for more than 200 mm from the ground.



Do not connect the machine to the central hook if it is closed. This may cause the overturning of the machine itself in that its barycentre is placed above the connection point.
If the machine is supplied open, connect it to the central hook, as indicated in the figure, and perform the transportation, during this operation the machine shall not be lifted for more than 200 mm from the ground.

4.3. Machine with disassembled roller

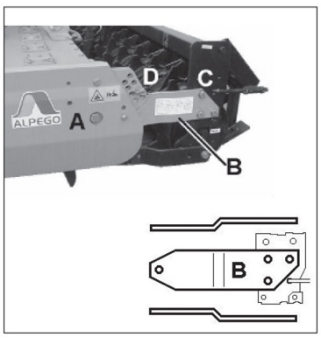
If the machine is supplied with the roller disassembled, it is necessary to perform the assembling of the same. Pay attention to the instability of the machine without the roller.
Keeping the machine lifted with proper means apply it to the three points of the tractor locking the piston pins by means of the suitable bolts.
Verify that everything is perfectly connected and place the machine onto the ground, carefully.
Connect the roller as indicated in the figure by means of a proper lifting mean and by keeping it stable without lifting it from the floor, proceeds as indicated in paragraph 4.4



4.4. Assembly of the roller

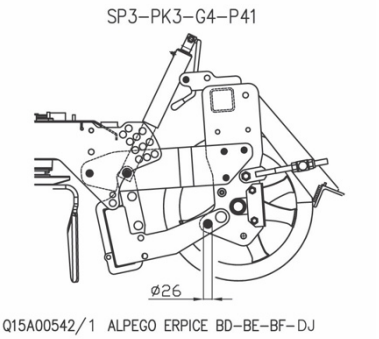
After having performed the operations indicated in paragraph 4.3 proceed as follows:

4.4.1. Assembly of the “dj – dj super” roller

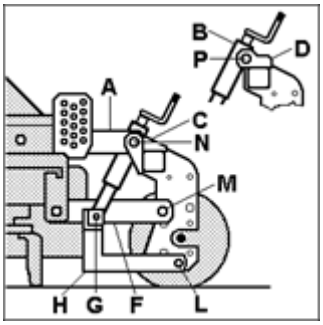


After having terminated the operations indicated in the previous sections, proceed as described below:
- assemble the two arms **B** by fixing it with the bolts in the hole **A** and in the three holes **C** on the roller;
- control the position of work with the two pins **D** on the request hole.

Verify the correct assembly with the next figures that are applied at the blades **B** of the rollers.

Figure for rotodent **DJ – DJ SUPER**	

4.4.2. Assembly of the “DP – DTEK – DMAX” roller



Assemble the refining rod **H** by fixing it with the bolts and spacers **L**, then assemble the bracket **D** on the square tube of the roller frame, then the crank **B** by fixing it onto the lower hole **G** and onto the upper hole **P**. Assemble the brackets **C** on the square tube of the roller frame, and at this point the roller is ready to be assembled on the machine, lift it and place it at the rear of the machine already assembled on the tractor. Fix the two upper blades **A** by means of the bolts **N** and the two bottom blades **F** with the bolts and the spacer **M**. Repeat the same operation for the other roller.

Verify the correct assembly with the next figures that are applied at the blades **F** of the rollers.

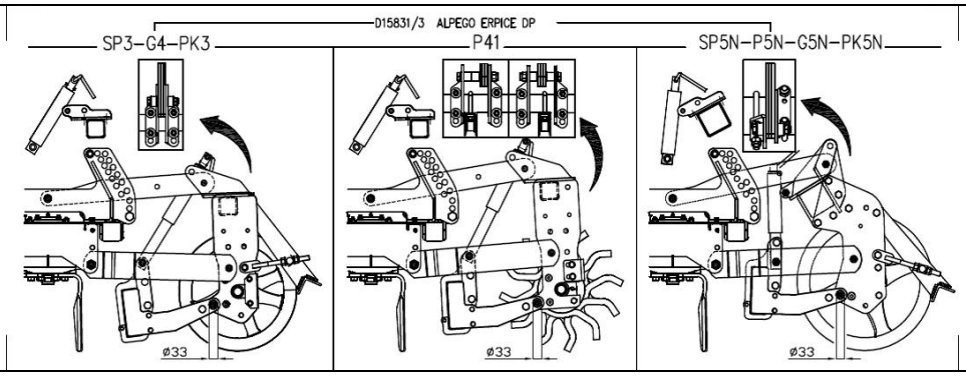
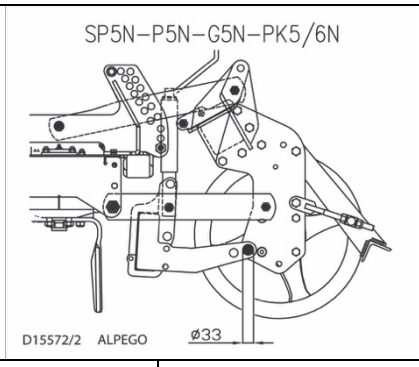
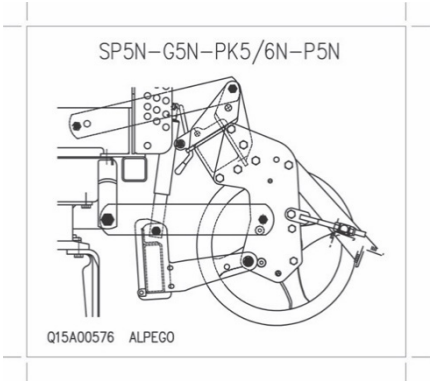
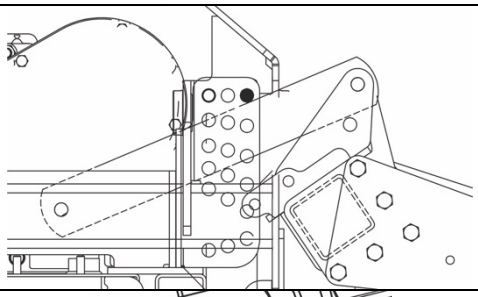
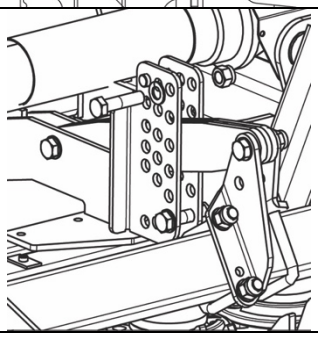
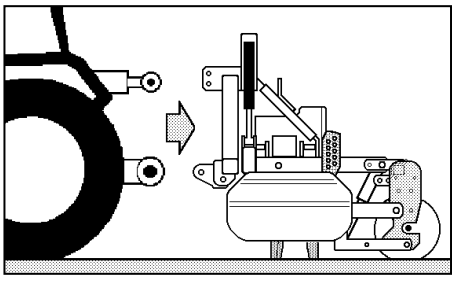
Figure for rotodent **DP**	

Figure for rotodent **DTEK**		
Figure for rotodent **DmaX**		 

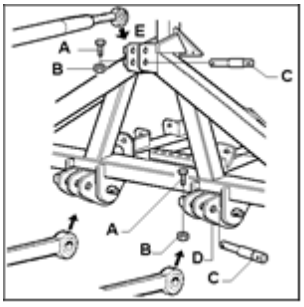
4.5. Connection with the tractor



Test especially the distribution weight on anterior axle of tractor (see technical data on the table 2.3); therefore, it may become necessary to restore the balance with the addition of suitable ballasts on the axle which has become lighter. Before coupling or uncoupling the machine from attack three point hitch, put in block position the lever of lifter

Place the machine on level ground and reverse with the tractor at a minimum distance of 1m. from the machine. Switch off the engine , activate the parking brake, therefore to descend from the tractor and to link the lower connections and the 3-point linkage.

4.6. Connection at three point hitch

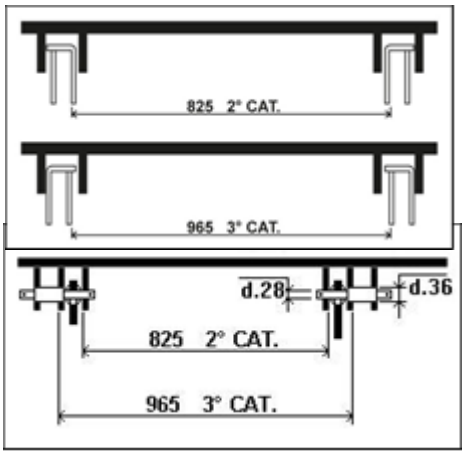


Connect the lower arms as follows (see figure):

- **a.** Remove the screw **A** and the nuts **B**
- **b.** Remove the pins **C**
- **c.** Insert the tractor connections in the outlets **D**
- **d.** Insert the pin **C**, the screw **A** and the nuts **B,** after choosing the most suitable hole according to the tractor lifting capacity

4.7. Positionnament of 2° or 3° category lower hitch “DJ – DP”

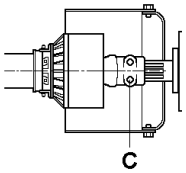
DJ Power Harrow linking points must be covered as shown in the picture according to the tractor three point hitch class.



DP Power Harrow, according to the tractor connections class, the coupling pins shall be assembled as shown in the side picture.

4.8. Universal central joint connection

the protection is a safety element, never utilize the machine without this component



Connect the central universal joint to the power takeoff of the machine by inserting the two buttons **C** into the suitable slots. Check that the min. and max. length of the joint were compatible with the required working lengths.

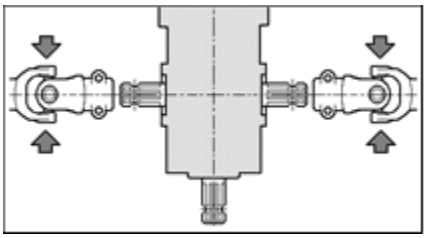
Connect to the tractor the opposite end of the universal joint by verifying that the button was inserted into the suitable slot

4.9. Universal side joint connection for rotodent *DP/ DTEK*

The side universal joints shall be placed into the suitable slots so that the spiders at both the sides of the change gear were always in phase with one another, as indicated in the figure.

VERY IMPORTANT: when installing the automatic drive shafts make sure to position them correctly (right hand one to the right and left hand one to the left)

Read and follow the indications contained in the instruction manual relating to the universal
joint.

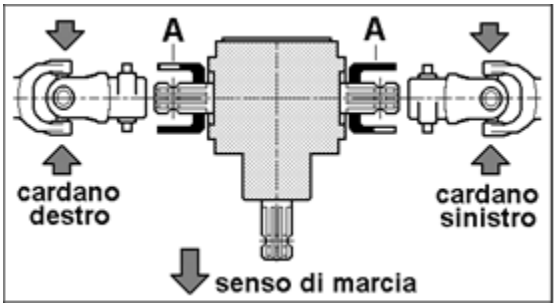


4.10. Universal side joint connection for rotodent DJ / DMAX

The lateral universal joints will be positioned into the corresponding slots so that the yokes at both sides of the gear box are always aligned with one another, as shown in the picture.
The two templates “A” won’t allow for a wrong positioning.

VERY IMPORTANT: when installing the automatic drive shafts make sure to position them correctly (right hand one to the right and left hand one to the left)

Read and follow the directions contained in the owner’s manual of the universal joint.



GEAR BOX SEEN FROM THE TOP

4.11. Hyrdaulik connection for rotodent

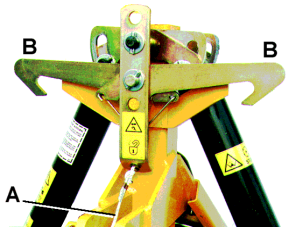
The folding ROTODENT **DJ / DP / DTEK / DMAX** is a machine with double effect hydraulic installation to limit the overall transport dimension.
Make sure that the pin link, the eventual quick couplings of the tractor as well as the safety brakes are in good working order and in their proper seats.
Now connect the two quick couplings of the hydraulic circuit to two clamps of the tractor(it is necessary a pressure of 160÷190 bar). Follow the direct lines from the cylinders to the tractor.
At this point the implement is still laying on the ground, connected to the tractor, with the 3-point linkages and the hydraulic connections coupled, **Make sure that no other person is close to the implement;** from the tractor it is possible to act on the lifting device and lift the equipment for ~50 cm. from the ground.

4.11.1. Blocking system with cable

Make sure that the string **A** of the safety device reach directly your driver's seat and that they can be controlled without any difficulty. Now we are ready for the opening and closing operation.

OPENING

a) Act on the hydraulic distributor lever which closes the equipment, until the end stroke is reached.
b) Stretch the string **A** which lifts the two safety hooks **B.**
c) In order to open the equipment act slowly on the hydraulic distributor lever, proceed without any jolts until both the two halves of the harrow are in horizontal position.



CLOSING

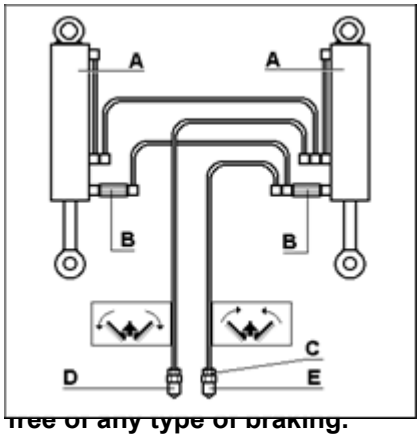
a) Check if the harrow is in the position "FIXED or FLOATING DOWN", in this case you must take away the two pins **A** and replace in hole **B** or **C** (see paragraph 5.7)
At this point act on the hydraulik distributor lever which closes the equipment and proceed to the complete closing manoeuvring until the two moving parts ofo the harrow are both coupled with the two top safety hooks **B.**
b) Loosen the hold on the strings.
c) Act on the hydraulic distributor lever which opens the equipment until the two top safety hooks **B** will move. In this position, a further non-coordinate operation of the distributor lever not produce any particular movements.

Perform some steps to open and close the equipment, always very slowly and always making sure that no other person is close to your operating area, ensuring that the hydraulic system is completely full.(~ 4 litres).

The hydraulic pipes must be kept far from any moving component. Every time you use the machine, check the pipes and the fixing devices of the pipe fittings for their conditions. The repairs must be carried on only by qualified personnel using only ALPEGO original spare parts.

COMPONENTS
ref. **Description**
A Hydraulic cylinders
B Safety valves
C Flow reducing device
D Harrow opening 1/2" quick-joint coupling
E Harrow closing 1/2" quick-joint coupling

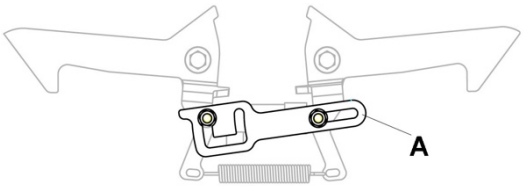
HYDRAULIC DIAGRAM



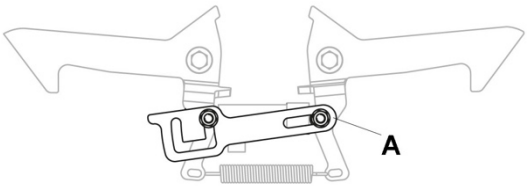
During the closing phase, make sure that the power take-off (PTO) is free of any type of braking.

4.11.2. Hydraulic locking safety system

Safety bracket “A” prevents any unwanted unlocking. Bracket “A” must be in “unlocking position” (see picture 1) before starting Unfolding/Folding)



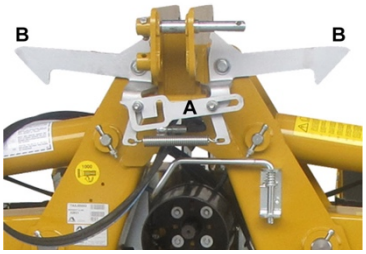
Unlocking position (pic. 1)



Locking position (pic. 2)

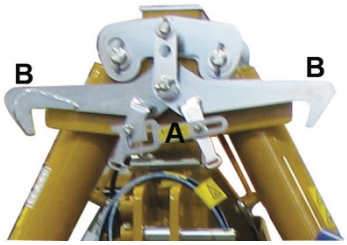
OPENING

a) In order to open the equipment act slowly on the hydraulic distributor lever, hooks “**B**” will lift automatically, proceed without any jolts until both the two halves of the harrow are in horizontal position.



CLOSING

a) Check if the harrow is in the position “FIXED or FLOATING DOWN”, in this case you must take away the two pins **A** and replace in hole **B** or **C** (see paragraph 5.7)
At this point act on the hydraulic distributor lever which closes the equipment and proceed to the complete closing manoeuvring until the two moving parts of the harrow get to a stop in vertical position. Release the lever of the hydraulic distributor to lower the safety hook “**B**”.

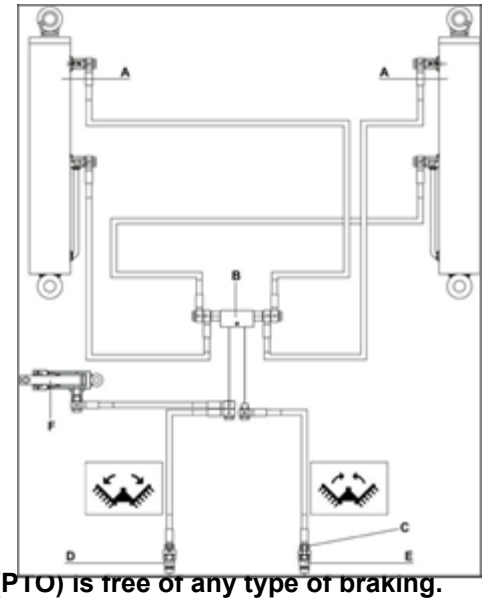


Once folded, put brackets “A” in locking position (pic. 2)

The hydraulic pipes must be kept far from any moving component. Every time you use the machine, check the pipes and the fixing devices of the pipe fittings for their conditions. The repairs must be carried on only by qualified personnel using only ALPEGO original spare parts.

COMPONENTS

ref. **Description**
A Hydraulic cylinders
B Safety valves
C Flow reducing device
D Quick-coupling for opening half the machine
E Quick-coupling for folding half the machine
F Ram for opening hooks

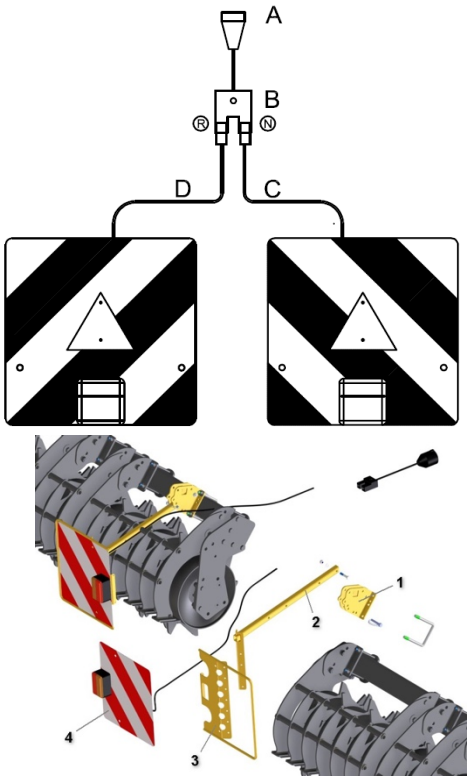


HYDRAULIC DIAGRAM

During the closing phase, make sure that the power take-off (PTO) is free of any type of braking.

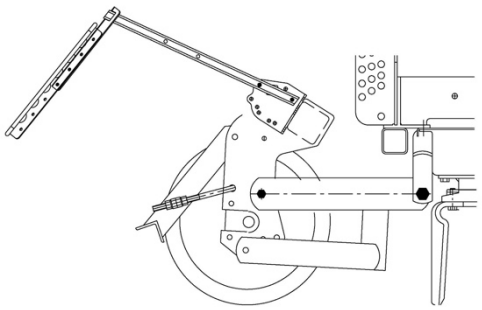
4.12. Electric connection

Connect the 7-pole plug (A) of the light-supporting boards with the tractor
Connect the cables of the **C** and **D** boards with the **B** device; be careful to match the correct colour of the connector **C** and **D**: if the colour is black it must be connected with the letter **N** which is present in the **B** device**,** if the colour is red it must be connected with the letter **R** of the **B** device .
By using the controls in the tractor (direction blinkers) check which board must be mounted on the right side of the implement and which one on the left side.
Secure the brackets **1** on the implement by means of u-shaped clamps, then secure the arms **2** with a screw and a pin.
Attach the elements **3** to the arms **2.**
Mount the light-supporting boards **4** on the supports **3,** and insert the plug into the electric system of the tractor. Check which one must be mounted on the right side and which one on the left side.
Once you are sure of the correct position, secure the boards **4** on the elements **3**.
For the left-side of the implement mount the board and its support mirroring the position described above

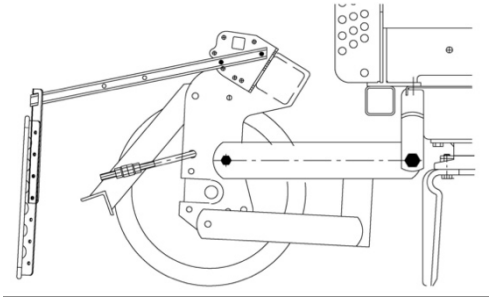


The light-supporting boards have 2 specific positions:
Working position
Trasport position
When the ROTODENT is open and working THE ARMS OF THE LIGHT-SUPPORTING BOARDS MUST BE LIFTED UP (see picture below)
When you want to **FOLD** the rotodent to store or to **transport it,** it is necessary to **LOWER THE BOARDS** (see picture below)

POSITION OF THE LIGHT-SUPPORTING BEAM



WORK



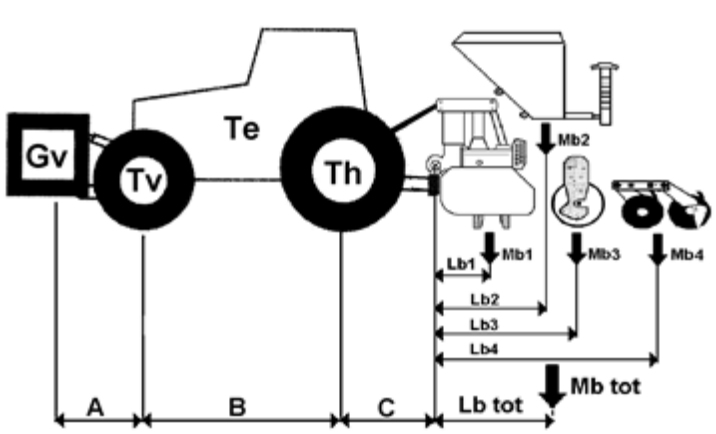
TRANSPORT

4.13. Verification of raising ability and stability of the tractor with rotary harrow

When a machine comes coupled to the tractor, becoming to the ends of the street circulation integrating part of the same one, can alter of the stability and cause difficulty in the guide and the job.

The application of a machine to the tractor, involves one various distribution of the weights on the aces.
Depending on the composition of the machine, it is therefore advisable to add ballast to the front part of the tractor so as to adequately distribute the weight on the axles

Refer to the following list:



A = Distance of the front axle from the front ballast (m)	**1**
B = Tractor wheelbase (m)	**2**
C = Distance of the rear axle from the implement's lower hitch (m)	**2**
Gv = Ballast weight (kg)	**3**
Te = Empty weight of the tractor	**2**
Tv = Load on the tractor's front axle when empty	**2**
Th = Load on the tractor's rear axle when empty	**2**
Lb tot = Distance from the lower hitch to the center of gravity of the complete implement combination (m)	**3**
Lb1 = Distance from the lower hitch to the center of gravity of the first combi machine (m)	**1**
Lb2 = Distance from the lower hitch to the center of gravity of the second combi machine (m)	**1**
Lb3 = Distance from the lower hitch to the center of gravity of the third combi machine (m)	**1**
Lb4 = Distance from the lower hitch to the center of gravity of the fourth combi machine (m)	**1**
Mb1 = Overall weight of the first implement (kg)	**4**
Mb2 = Overall weight of the second implement (kg)	**4**
Mb3 = Overall weight of the third implement (kg)	**4**
Mb4 = Overall weight of the fourth implement (kg)	**4**
Mb tot = Overall weight of the complete implement combination (kg)	**3**

Where:

1) Must be measured.
2) Consult the tractor's operation and maintenance manual.
3) Must be calculated.
4) Consult the operation and maintenance manual of the required implement.

The ballast to add is calculated with the formula:

$$\text{Gv min.} = \frac{(\text{Mb tot} \times (C + \text{Lb tot})) - (\text{Tv} \times B) + (0{,}2 \times \text{Te} \times B)}{A+B}$$

- The distance from the center of gravity of the combi machine to the lower hitch of the tractor is calculated with the formula:

$$\text{Lb tot} = \frac{(\text{Lb1} \times \text{Mb1}) + (\text{Lb2} \times \text{Mb2}) + (\text{Lb3} \times \text{Mb3}) + (\text{Lb4} \times \text{Mb4}) + (\text{Lb}\ldots.\times \text{Mb}\ldots.)}{\text{Mb1+Mb2+Mb3+Mb4+Mb}\ldots.}$$

- The overall weight of the entire combi machine is calculated with the formula:

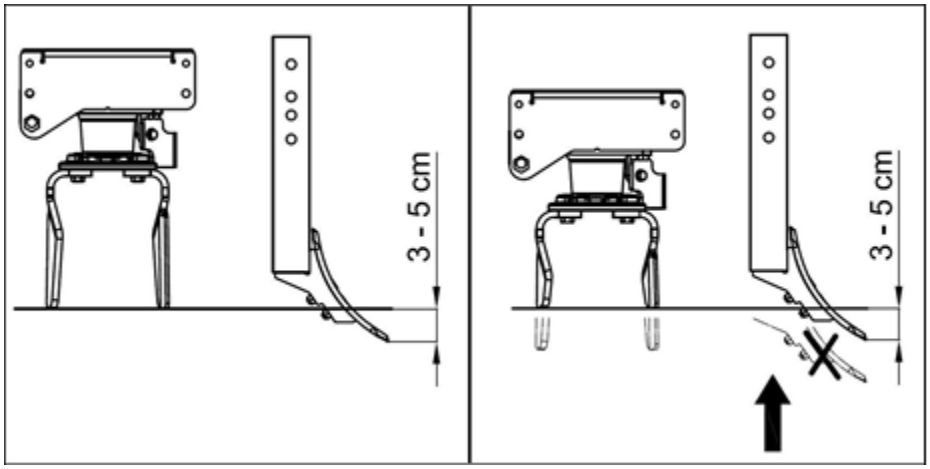
Mb tot = Mb1+Mb2+Mb3+Mb4+Mb…..

On the front bridge of the tractor it must, in any case, burden at least **20**% of the total mass tractor-tool in march order. It is however to hold present that, beyond to the appropriated one chosen the connection tractor-tool, the application of ballasts in front position, the limits and with the modalities indicated from the constructor of the tractor, can improve of the stability. Moreover, with firm tractor it must be made to come down to earth the tool avoiding therefore possible involuntary reductions, improving at the same time, the stability.	**Tractor wheelbase**	**B =…… m**
	Distance of the front axle from the front ballast:	**A =…… m**
	Tractor weight	**Te =……Kg**
	Ballast weight:	**Gv =……Kg**
	Load on the tractor's axle when empty:	**Tv =…….. Kg**
	Implement weight:	**Mb tot =…….. Kg**
	Tot center of gravity length:	**Lb tot =……m**

5. USE

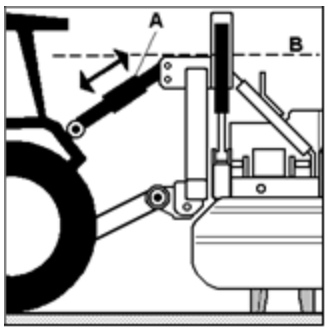
The Power Harrow have maximum depth work till cm. 25, but for correct working and especially in the presence of stone soil, we suggest to used the machine with maximum depth work 10-13 cm. and also to increase the rpm of the gear box.

For correct use of the subsoiler we suggest a depth work till cm.3-5 compared on the base's blades (see the drawing in attached). If the blades are too weared it is necessary to lift the subsoiler compared on the base's blades to keep the 3-5 cm of depth work. For the stone soil we suggest the subsoiler with non stop system.



To cling together all safety rules of paragraph 3 and to examine the manual of use of the tractor.
Check to see if the machine is in good working order, that the level of the lubricants is correct (see paragraph 6.8), that all machine parts (universal joint, blades or hoes, etc.) which are liable to wear and tear all in full working order.

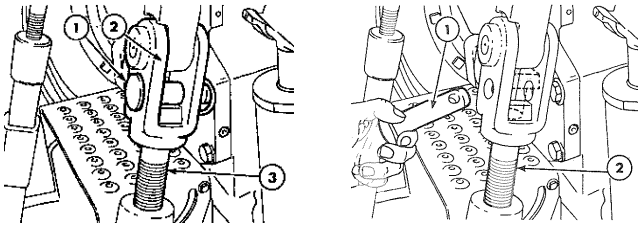
The power harrow must work slightly slanted backwards. For this purpose adjust the upper link **A** of its 3-point hitch, so that the line **B** is slightly tilted backwards. While the implement is working, reduce to a minimum the lateral swaying motions by adjusting the stabilizers of the lifting mechanism of the tractor . Proceed very carefully the first time you use the implement.
Always connect and disconnect the PTO with the tines out of the soil and a few centimetres off the ground.
Operate the controls of the lifting mechanism of the tractor so that the contact of the implement with the ground occurs gradually. While the implement is working, the hydraulic lifting mechanism of the tractor must always be in its floating position.
The rear roller of the power harrow and the lower links of its 3-point hitch, which are also built so as to allow a certain flexibility, so that the machine adjusts to the shape of the ground, guarantee a constant working depth and good levelling of the soil. When changing directions or driving in reverse gear always keep the implement off the ground



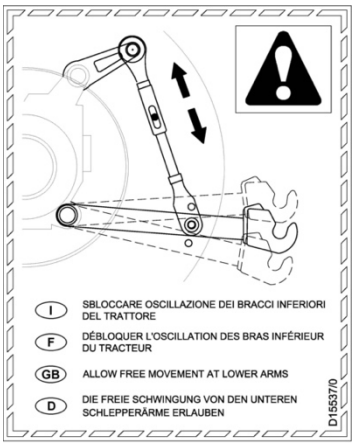
ONLY FOR DmaX-800

While the implement is working, the hydraulic lifting mechanism of the tractor must always be in its floating position (see sticker at the side).
Thus a vertical motion of the machine independently from the tractor is possible.

During transport always engage the blocking sytem of the lifting device



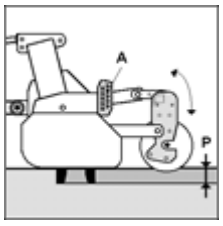
Example of disengagement from the tractor (New Holland)



The real roller of the power harrow and the lower links of its 3-point hitch, which are also built so as to allow a certain flexibility, so that the machine adjusts to the shape of the ground, guarantee a constant working depth and good levelling of the soil. When changing directions or driving in reverse gear always keep the implement off the ground.

5.1. Working depth adjustment

The depth working adjustment **P** of the machine is determinate by the position of the levelling roller in relation to the lower edge of the blades.
The greater the difference **P** between the blades and the lower part of the levelling roller, the greater the working depth.
Practically, the increase of the working depth is obtained by shifting the proper pins **A** to a higher hole.
In order to reduce the depth, shift the pins **A** toward the bottom.
We suggest to starting always with one minimum working depth and then to increase it progressively until the required working depth is reached.



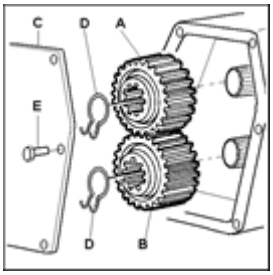
Make sure that all the pins **A** are in the same position during the work. It is advisable a working depth of 80÷150 mm.

5.2. Rotors speed variation

In order to obtain the best possible crumbling of the soil, the following two factors must be taken into consideration:

- **The speed pf the tractor**
- **The rotation speed of blade-holder rotor**

The gear box allows the machine to work the soil with different rotor speeds, by using different gear couples available on request and interchangeable with those supplied standard. (see table 5.3 and 5.4)
The greater the number of the rotor revolutions, the greater the crumbling degree of the soil but also higher is the power absorbed by the tractor and the wear of the blades.
Therefore, it is advisable to use the lowest possible speeds but which can give as a result a good working of the soil.
In order to invert or substitute the gear couple of the gear box, remove the lid **C** (making sure not to break the gasket), remove the springs **D** and the gears **A** and **B** and invert their position or replace them with new ones; then replace the springs **D** and the lid **C** by lightening the M10 screw **E** at not no more than 4 Kgm.



The tables show the labels on the change of gear of the machine, the standard gear pair is that shown in the table, the others are available upon request.

5.3. Table speed for rotodent DP

	28 26	29 25	30 24	31 23	33 21	35 19	ALPEGO
1000	283	305	328*	354	413	484	

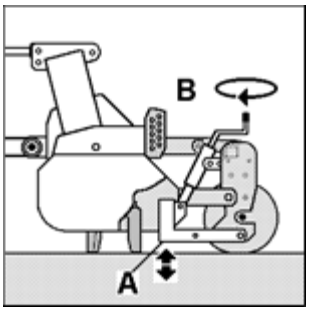
5.4. Table speed for rotodent DTEK

	26 28	28 26	29 25	30 24	31 23	33 21	ALPEGO T - 191
1000	266	309	333	359*	387	451	

5.5. Chart of rotor speed right-left DMAX

	26 28	28 26	29 25	30 24	33 21	33 21	ALPEGO CS 188
1000	294	341	368*	396**	427	498	

5.6. Use of the rear bar



The rear bar have the double function of:

- **regulating** the crumbling degree of the soil, the number of revolutions of the rotor and the driving speed remaining constant;
- horizontally **levelling** the soil.

A greater refining is achievable lowering the bar; a lesser one instead, lifting it; the regulation has to be made through the regulator
Being ROTODENT provided with two rollers and consequently with two refining bars, regulate the equipment so that the two bars could work at the same depth.

Adjustment of the bar A
Always begin working with the bar **A** completely lifted, position the machine, so as to reach the desired working depth. Gradually lower the bar **A** using the regulators **B** until the soil before the roller becomes flattened. This is normally the ideal working position, even in soil clattered with grass or residual substances. If the soil is ploughed or free of residues, the bar can be lowered by a few strokes, in order to obtain aqn even finer degree of crumbling. Shoulds this not be enoughyet, it will be necessary either to increase the number of revolutions of the rotor or to decrease the driving speed of tractor.
There is a limit beyond which the bar cannot be lowered, otherwise there will be a higher absorption of power, without an improvement in the work performance. This will be noticed even from the driver's seat by observing the large quantity of soil being pushed forward by the rotor. Besides, the worked soil will not be well levelled. You will have to lift the bar according to.

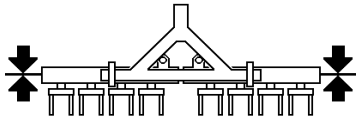
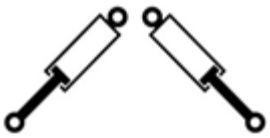
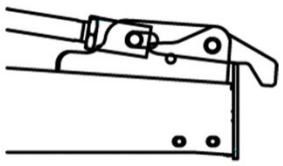
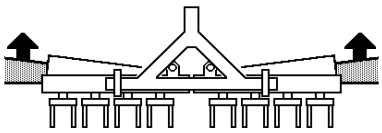
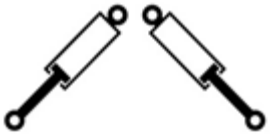
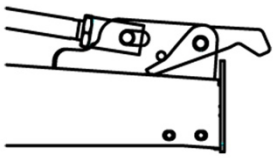
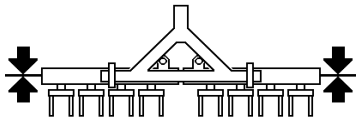
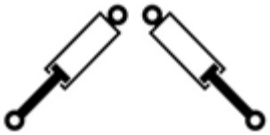
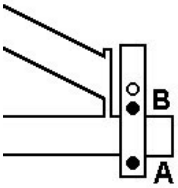
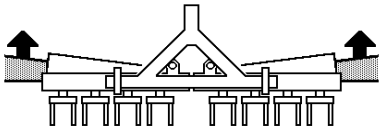
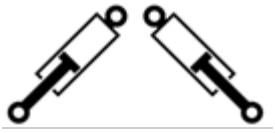
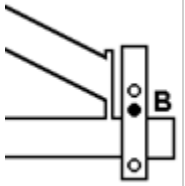
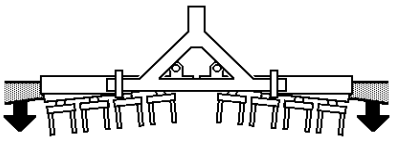
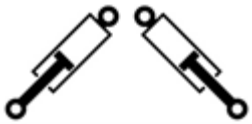
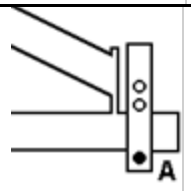
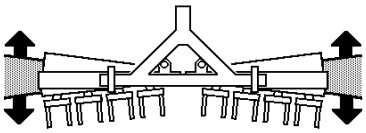
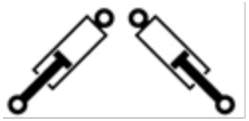
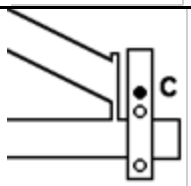
IMPORTANT: The **ALPEGO** levelling bar is automatically self-adjusting. If the working depth of the equipment is changed, a parallelogram will keep the bar itself in the correct position.

WORKING IN WET SOILS: under these conditions no fine crumbling of the soil is usually required. Therefore, it might be useful to work with the bar lifted and so also to reduce the number of revolutions of the rotors. This will certainly save the tractor energy.

WORKING IN ROCKY SOILS: We suggest that, when working in this type of soils, the bar should be lifted or, even better, removed it altogether by loosing the two lateral bolts and the cranks.

5.7. “floating” position

The FOLDING ROTODENT harrows are equipped with a “FLOATING” device allowing to use the machine on any type of soil (plain or hill) offering the same results. Thanks to this device, moreover, it is possible to reduce the power absorbed by the machine.

DJ – DJSUPER	**FIXED** POSITION 		
	FLOATING POSITION **“UP”** 		
DP / DTEK / DMAX	** **FIXED** POSITION 		
	FLOATING POSITION **“UP”** 		
	** FLOATING POSITION **“DOWN”** 		
	INTEGRAL FLOATING 		

** In the position “FLOATING DOWN” before to close the ROTODENT for the transport on the road, you must take away the pins from the position **A** and to introduce in the hole **B** or **C**

5.8. Uncoupling

To disconnect the machine from the tractor, proceed as follows:

- Disconnect the PTO of the tractor;
- lower the two supporting legs
- Lower the machine to the ground, switch off the engine and activate the parking brake.
- Disconnect the two quick couplings of the hydraulic circuit.
- Disconnect the universal joint from the tractor PTO and to lean on support.
- Disconnect the links by following in reverse order the operations described in the paragraph 4

5.9. Storage

It is advisable if the machine to remain inactive for a long period time:

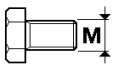
- Wash the implement , particularly removing any fertilizer and chemical products.
- Carefully check what the machine is in perfect condition.
- Throughly lubricate the implement and lastly protect it ; store in a dry place.

It will be of your interest to find it ready for use when you need it again.

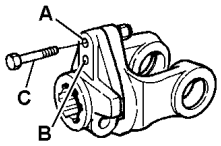
6. MAINTENANCE

6.1. Inspections and check-ups

During the first 8 hours of work it is advisable to check that al the bolts are still tight; tighten them if necessary according to the table.
To repeat this check-up every 50 hours of works. Every day to check-up the tines and their bolts.

	M 8	M 10	M 12	M 14	M16	M20	M22	M24
	13	17	19	22	24	30	32	36
torque Kgm	3	6	10	14	21	40	54	70
torque Nm	30	59	98	137	205	390	530	685

6.2. Shear bolt on cardan shaft

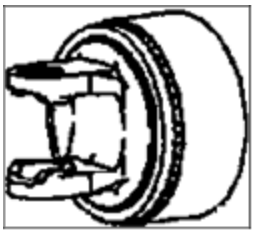


Each cardan shaft is equipped with a safety device against overloads; the device consists of a screw.
The safety screw should break each time the maximum limit for the admissable load is exceeded.
The size and the material of this screw must strictly correspond to the datas given in the table:

ROTARY HARROW MODEL :	POSITION	C-SAFETY SCREW DIMENSION	MATERIAL
ROTODENT **DJ** SIDE	**A**	**M10x60**	**8.8**
ROTODENT **DP** SIDE		**M10x60**	**10.9**
ROTODENT **DTEK** SIDE		**M10x60**	**8.8**

The non-observance of the characteristics of the safety screw as well as the incorrect position of the screw on limiting device, may be causes serious damages to the transmission of the whole machine and entail the invalidation of the warranty of the machine.

6.3. Power take off with limiter of cam brace

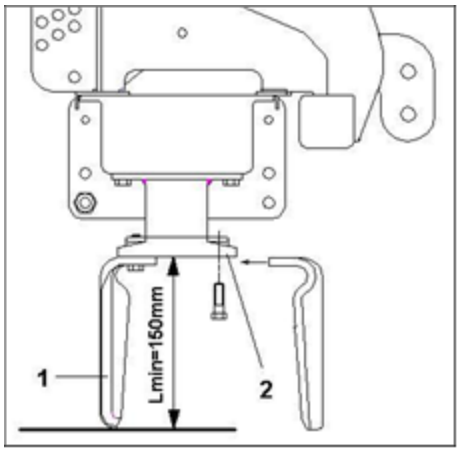


This devices serves in order to protect the excessive organs of transmission of the machine from efforts and overloads. In fact in overload case the power transmission comes interrupted. The graft happens slowly in way automatic to stop the power take off force and the to start slowly.

The limiter comes supplied already settled from the constructor.
In case of problems in the operation don't modify anything.
If necessary call the Manifacturing Company or a specialistic center.

6.4. Soil tillage tines

The tines (1) of the soil tillage implement are made of hardened, high-strength steel. The tines are subject to wear and must be replaced no later than when they have reached a length of Lmin.= 150 mm. For great working depths, the tines must be replaced earlier in order to avoid damage and wear to the tool carriers (2).



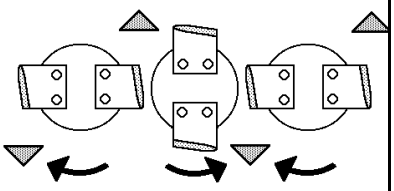
If the tines fall below the minimum length of 150 mm, claims due to rock damage shall not be accepted.

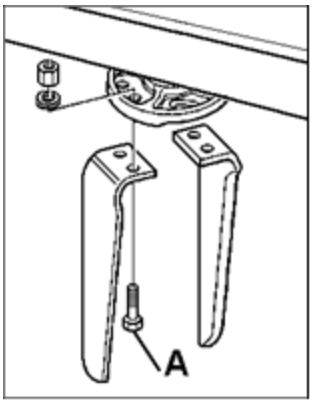
6.5. Remplacement the tines

Lift up the rotary harrow and support it by some stands to avoid sudden sinkings of the machine.

The blades with which it comes equipped the machine are adapted for workings on lands of normal conformation. Everyday control their usury and integrity. In case during the job they had for accidental causes folded (or to be broken off) is necessary to replace them immediately, assemble the new blade in the identical position of that old blade.

Unscrew the fixage bolts **A** and remove the wear and tear blades
WARNING: as you fix the new blades, put the cutting side according to the direction of rotation of the rotor, as showed in the picture. Head of the screw **A** must rest on the blade.
Once made the assemblage of every fixing bolt, tighten them by a driving torque 33 Kgm.



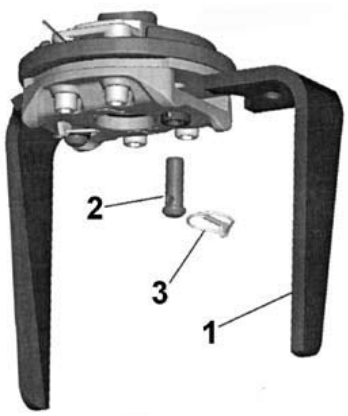


ALWAYS USE ORIGINAL SPARE PARTS ALPEGO.
Verify (40 or 50h) the thickness of the semiprotections of the rotores (cod. E01962); if too much usurate proceed immediatly to their substitution.

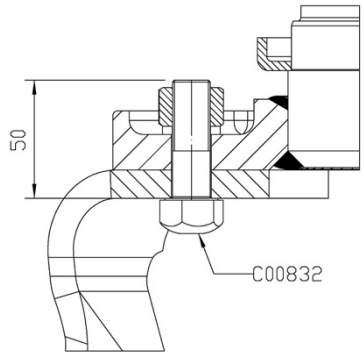
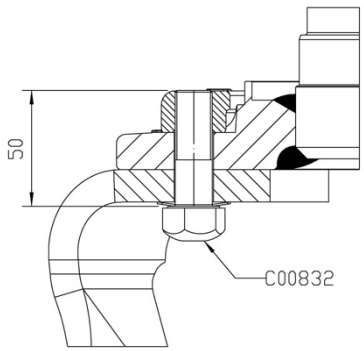
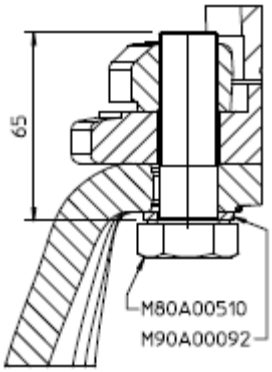
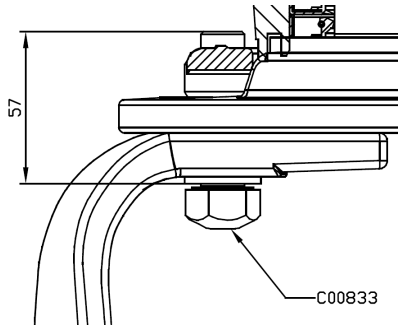
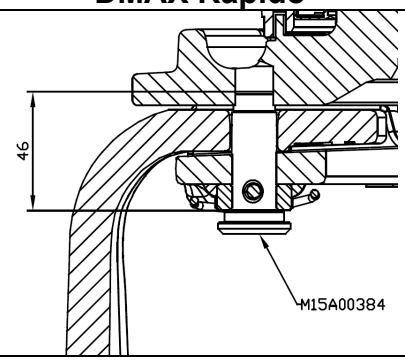
6.5.1. Replacement of the quick-release tines

In the machines which are equipped with quick-release tines, take the following steps:

- Insert tine (Ref. 1)
- Insert the pin (Ref. 2)
- Block the whole with the spring pin (Ref. 3)



Correct assembly of the tines:

DJ-DP	DTEK “BASE”	DMAX
		
DTEK “PLUS”	**DTEK Rapido DMAX Rapido**	
		

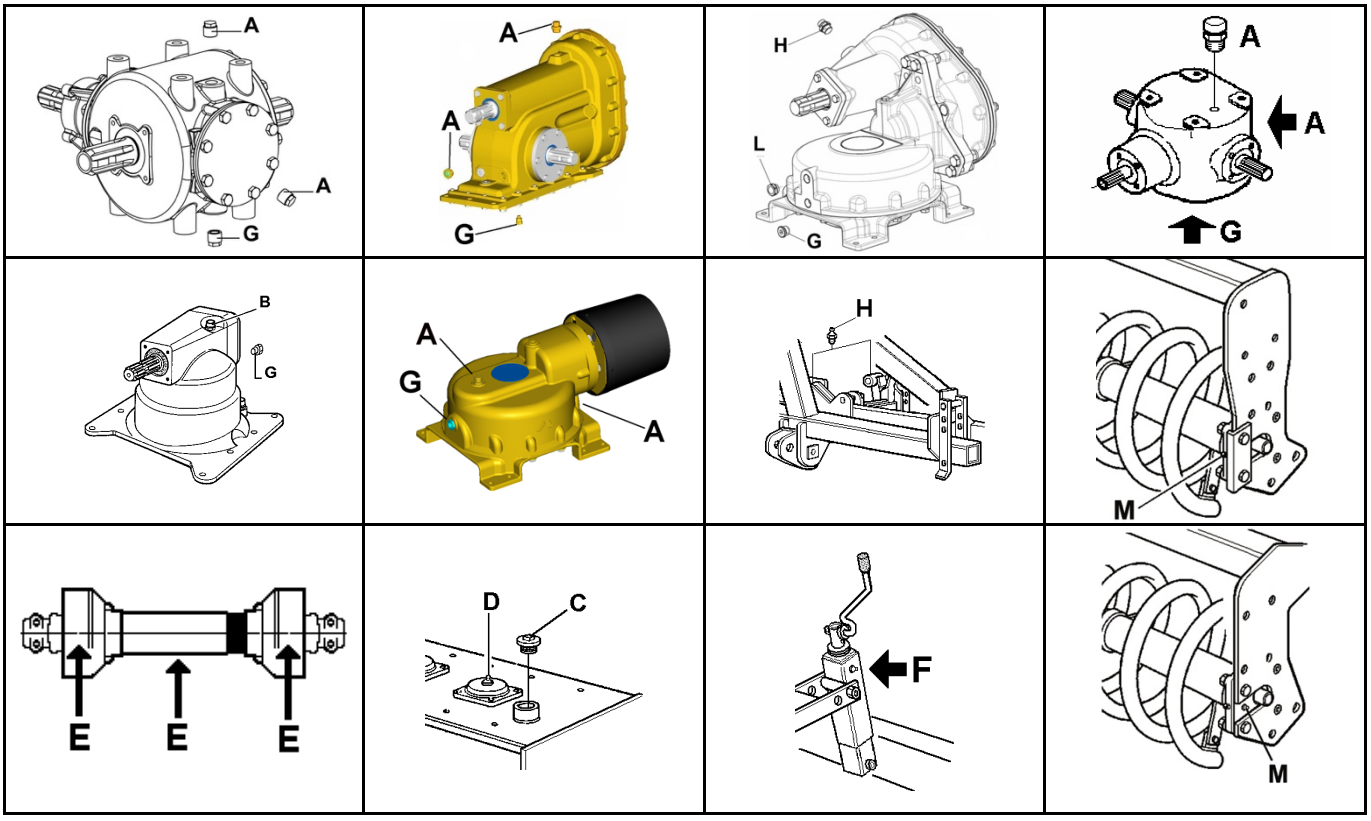
6.6. Lubrication

Always thoroughly read the warnings and precautions indicated on the containers. Always keep oils and greases well away from children's reach. Avoid contact with the skin, always thoroughly and fully wash after use. The utilized oils should be treated in compliance with the current antipollution laws.

When starting the machine for the first time, check the level of the lubricants. Before proceding to the operations of checking, filling or changing the lubricants, carefully clean all the parts involved.
Every day before starting the work check by visual level indicator that the lubricants are at correct level in gearbox ; possibly to filling the level from the filling-plug. Perform the first oil changer after 30 hours of operation; following upon after 400 hours or at least once a year. Drain the oil by removing the drain-plug. This operations must be carry on in workshop with means suitable for the weight of the machine and with support to prevent the overturning of the machine.
Check from the proper filler the amount of grease of the gear box. Once every two years it can be topped up, in the amount of 0.5 Kg. for liner meter, with the same type of oil in use for the transmission gear box.
Every 8/10 hours of operation grease the universal joint (yokes, tubes and safety guard).
Every 20 hours of operation grease the support of levelling roller; the eventually hydraulic lifting device for the sowing machine and every point which have a grease nipples.
Every 40/50 hours of operation the regulator of the rear bar , the articulated joints and cylinders of the closing system, and every point which have a grease nipples.
Every 100/120 hours of operation the top support of gear box
If the working conditions are particularly heavy, increase the maintenance operations

6.7. Lubrication chart

INTERVAL h=hour	OPERATION	POSITION
every **8/10 h** of operation	- GREASE PIPES AND CARDAN SPIDER - CHECK THE OIL LEVEL, IF IT INSUFFICIENT, FILL IT	**A B G E**
every **20 h** of operation	- GREASE THROUGH THE SPECIAL GREASE NIPPLE	**M**
after the first **50 h** of operation	- **CHANGE** OIL FROM GEARBOX	**A B G**
every **40/50 h** of operation	- CHECK THE LUBRICANT LEVEL IN OF OPERATIONS SUMP; THE LUBRICANT SHOULD COVER THE BOTTOM OF 2 cm. - GREASE THROUGH THE SPECIAL GREASE NIPPLE	**C F H**
every 12**0 h** of operation	- GREASE THROUGH THE SPECIAL GREASE NIPPLE	**D**
every **400/450 h** of operation	- **REPLACE** COMPLETELY THE OIL FROM GEARBOX AND CLEAN THE DRAIN PLUG IF THEY ARE MAGNETIC	**A B G**



6.8. Lubricant to be used

OIL:

Spot to be lubricated	Model (Quantity)	Reference Product (first filling by Alpego)	Viscosity of alternative product	International specs of alternative product
A	**DJ-360/400** (L. 3) **DJ-460/500** (L. 4.2) **DP** (L. 6) **DTEK** (L. 6)	Pakelo Global Multigear CBS A	SAE 75W/90 (as per SAE J306) synthetic bases Group III /IV SAE 75W/110 (as per SAE J306) synthetic bases Group III /IV SAE 80W/110 (as per SAE J306) synthetic bases Group III /IV	API GL-5 API MT-1 SAE J2360
B	**DJ** (L. 1.6+1.6) **DP** (L. 1.8+1.8) **DTEK** (L. 4+4)			

OIL for DMAX:

Spot to be lubricated	Model (Quantity)	Reference Product (first filling by Alpego)	Viscosity of alternative product	International specs of alternative product
A	**DmaX** (L. 7.3)	Pakelo Global Tranmission TS SAE 80W/140	SAE 80W/140 (as per SAE J306) synthetic bases Group III /IV	API GL-5 API MT-1 SAE J2360
B	**DmaX** (L. 4.7+4.7)			

OIL: (under special conditions)

Outside Temperature	Operating temperature	Viscosity	Internazional Specs.	Reference Product
-25 / +45°C	> 110 °C	SAE 80W/140 (as per 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 (as per SAE J306) synthetic bases Group III /IV	API GL-5 API MT-1 SAE J2360	Pakelo Global Tranmission TS SAE 75W/140

GREASE:

Spot to be lubricated	Model (Quantity)	Reference Product (first filling by Alpego)	Thckness of alternative product	Note
C	**DJ** 360 (Kg.20) **DJ/DP** 400 (Kg.22) **DJ** 460 (Kg.27) **DJ** 500 (Kg.28) **DP** 450 (Kg. 25) **DP** 500 (Kg. 28) **DP** 600 (Kg. 34) **DTEK** 400 (Kg. 30) **DTEK** 450 (Kg. 33.5) **DTEK** 500 (Kg. 37) **DTEK** 600 (Kg. 45) **DTEK** 700 (Kg. 53) **DmaX** 450 (Kg.23+18.5) **DmaX** 500 (Kg.23+23) **DmaX** 600 (Kg.28+28) **DmaX** 700 (Kg.33+33) **DmaX** 800 (Kg.38.5+38.5)	Pakelo BEARING EP GREAS A NLGI 000	NLGI 000	With lithium soaps
D E F H	Kg. 0.01 FOR PER GREASE NIPPLEE	Pakelo EP GREASE NLGI 2	NLGI 2	

7. Option equipment

The machine can be equipped with different options; whenever something is added to the machine, its weight changes, therefore always make sure that the stability of the tractor has not been compromised.

NOTE:

ALPEGO
Your Partner In The Field

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