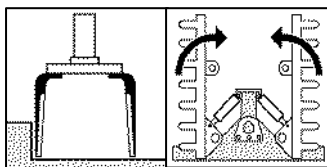


FOLDABLE POWER HARROWS



DJ



DP



DK



DX



DMAX

Codice	D03214/17	  		USE AND MAINTENANCE MANUAL
Da matr:	32931			
A matr:				

INSTRUCTIONS TRANSLATED FROM THE ORIGINAL

ALPEGO S.p.a.
Sede Amministrativa: Via torri di Confine, 6
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- MACCHINE PER LA LAVORAZIONE DEL TERRENO
- ERPICI ROTANTI FISSI E PIEGHEVOLI
- COLTIVATORI A DENTI ED A DISCHI
- SEMINATRICI MECCANICHE, PNEUMATICHE E COMBinate
- DISSODATORI E RIPUNTATORI
- FRESATRICI E ZAPPATRICI
- TRINCIASARMENTI
- TRINCIASTOCCHI

I	GB	D	F	E
Dichiarazione CE di conformità' ai sensi della direttiva CE 2006/42 La ditta sottoscritta	EC Certificate of conformity conforming to EEC Directions 2006/42 We	EG Konformitätserklärung entsprechend der EG-Richtlinie 2006/42 EWG Wir	Déclaration de conformité pour la CE conforme à la directive de la 2006/42 CE Nous	Declaración CE de conformidad. Conforme a la directiva CE 2006/42 la empresa / el productor

ALPEGO s.r.l.

VIA TORRI DI CONFINE N°6
36053 GAMBELLARA -(VI)-ITALIA

dichiara sotto la propria responsabilità' che la macchina modello :	declare in sole responsibility, that the product model :	erklären in alleiniger Verantwortung, da das Produkt Typ :	déclarons sous notre seule responsabilité' que le produit modèle :	declara bajo su propia responsabilidad que la màquina modelo:
--	---	---	---	--

Codice / Code:	MODELLO MACCHINA ERPICI FRESE«SEMIN_AS3_40032_IDRO_PLUS»	N° matricola / serial n°:
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È' Conforme ai requisiti Essenziali di Sicurezza e di Tutela della Salute di cui alla Direttiva CE 2006/42 Per l'adeguamento delle macchine sono state adottate le norme:	to which this applies, conforms to the basic safety and health requirements of EC Directions 2006/42 For the adaptation of it blots some have been adopted the norms:	auf das sich diese Erklärung bezieht, den einschlagigen grundlegenden Sicherheits und Gesundheitsanforderungen der EG-Richtlinie 2006/42 EWG Für die Anpassung von ihr befreit einiges sind angenommen worden den Normen:	faisant l'objet de la déclaration est conforme aux prescriptions fondamentales en matière de sécurité et de santé stipulées dans la Directive de la CE 2006/42 Pour l'adaptation d'elle en éponge ont été adoptés les normes :	està conforme a los requisitos esenciales de seguridad y de defeusa de la salud de la directiva CE 2006/42 Para la equparación de las màquinas nan sido adoptado las normas
UNI EN 708 UNI EN ISO 4254-1 UNI EN 982 ISO 3757-2 ISO 11684	UNI EN 708 UNI EN ISO 4254-1 UNI EN 982 ISO 3757-2 ISO 11684	UNI EN 708 UNI EN ISO 4254-1 UNI EN 982 ISO 3757-2 ISO 11684	UNI EN 708 UNI EN ISO 4254-1 UNI EN 982 ISO 3757-2 ISO 11684	UNI EN 708 UNI EN ISO 4254-1 UNI EN 982 ISO 3757-2 ISO 11684

Gambellara: _____

La ditta _____

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.



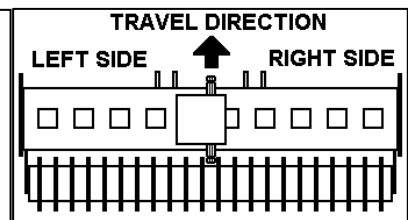
PAY ATTENTION TO THE TRIANGLE, IT MEANS DANGER

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 notice

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.)



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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.

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:

 www.alpego.com  ALPEGO s.p.a VIA GIOVANNI E GIUSEPPE CENZATO, 9 LONIGO - VICENZA - ITALY Tel. +39 0444646100 Fax. +39 0444646199 e-mail: info@alpego.com	MOD. TYPE
	N° MATR. N° SERIAL
	PESO KG WEIGHT
	ANNO YEAR

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.

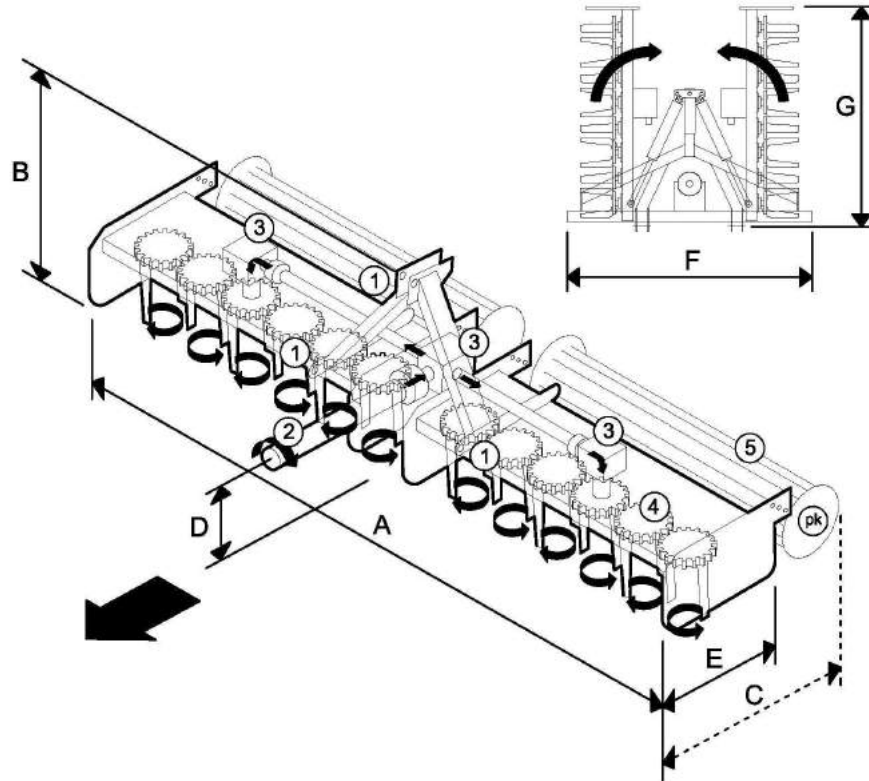
2. TECHNICAL FEATURES

2.1. DESCRIPTION OF THE MACHINE

RODODENT FOLDING rotary harrows must be used to treat only agricultural lands, in particular to prepare the seed-beds, any other usage is forbidden.

RODODENT FOLDING rotary harrows are machines design to limit the overall transport dimension to only 250 cm. and to adapt at conformation of the soil.

RODODENT 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
DK-400	4140	1882	1700	925	1000	2420	2120
DK-450	4600		1700	925	1000	2420	2355
DK-500	5080		1700	925	1000	2420	2590
DK-600	6020		1700	925	1000	2420	3060
DK-700	6960		1700	925	1000	2420	3530
DX-450	4620	1970	1773	880	1154	2448	2335
DX-500	5090		1773	880	1154	2448	2574
DX-600	6030		1773	880	1154	2448	3044
DmaX-700	6970	1970	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.

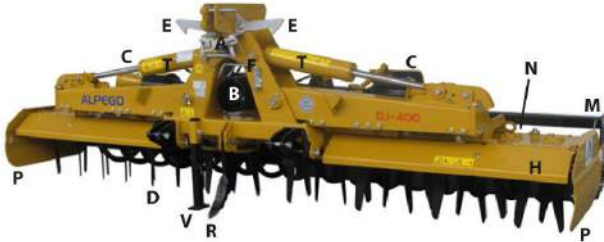
ROTODENT FOLDING rotary harrows, provided with rear clod bar allow the best crumbling and refining of the ground. The required power depends on the width of the work, on the type of the soil and on the working depth; to combine correctly the tractor with ROTODENT FOLDING rotary harrows refer to the technical 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 | F) Universal joint support | P) Mobile body sides |
| B) Central speed reduction or change gear | G) Side universal joint | R) Central track eradicators |
| C) Side speed reduction or change gear | H) Front guards | T) Folding cylinders |
| D) Teeth and teeth-holder | M) Rear levelling roller | V) Support leg |
| E) Hooks for rotodent closing | N) Rear clod bar adjusting crank | |

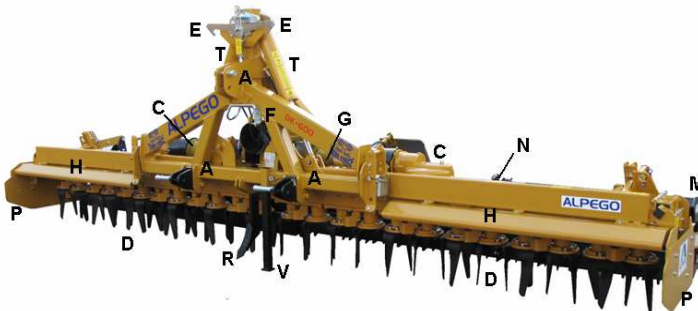
RODODENT DJ / DJ SUPER



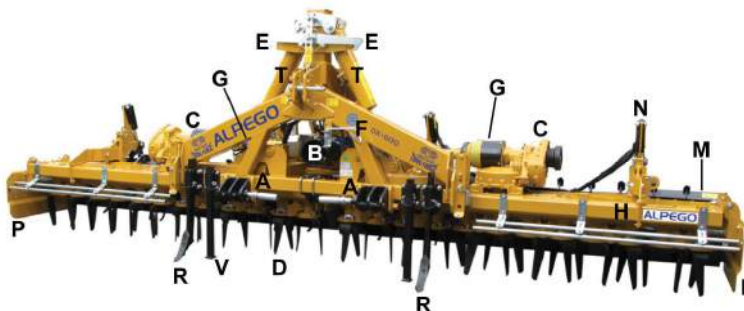
RODODENT DP



RODODENT DK



RODODENT DX / 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
DK 400 DK 450 DK 500 DK 600 DK 700	4000 4500 5000 6000 7000	88/220 95/220 103/220 115/220 140/220	3°	1"3/8 Z=21	1000	359	250	16+16 18+18 20+20 24+24 28+28	2740 2885 3100 3410 -
DX 450 DX 500 DX 600	4500 5000 6000	132/235 142/235 157/235	3° e 4°	1"3/4 Z=20	1000	396	280	18+18 20+20 24+24	3040 3460 3790
DmaX 700 DmaX 800	7000 8000	168/235 180/235						28+28 32+32	4450 5040

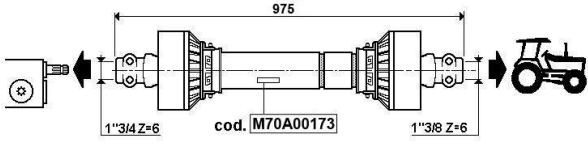
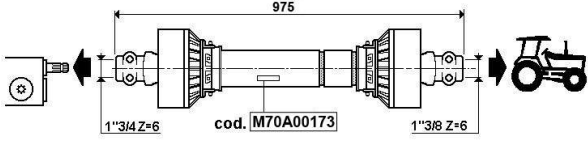
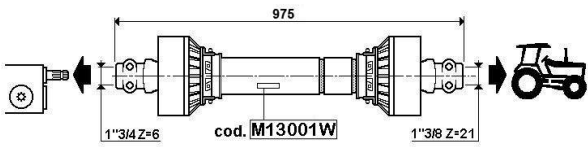
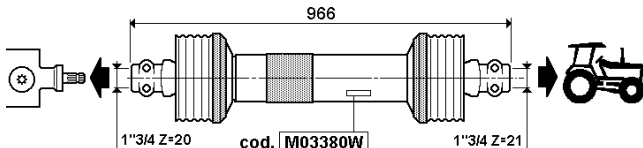
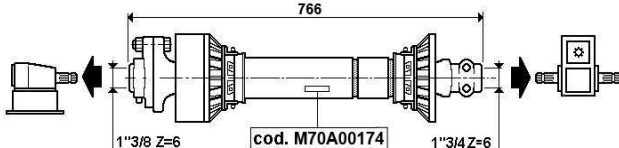
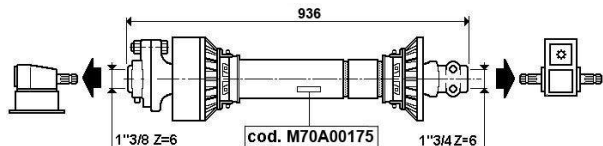
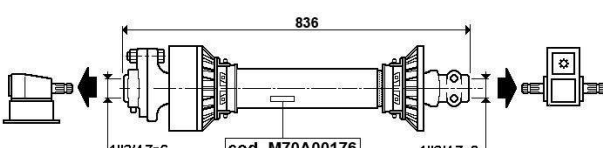


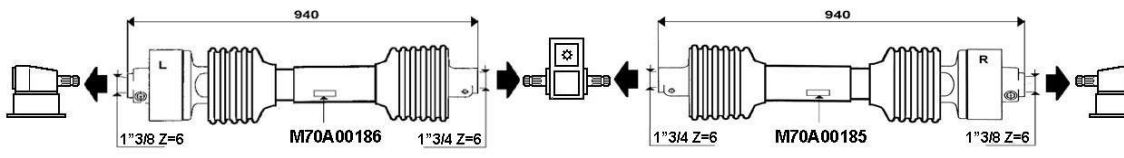
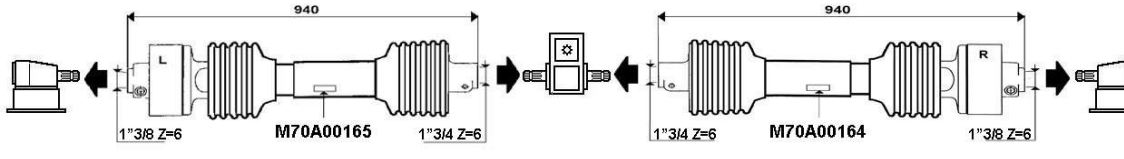
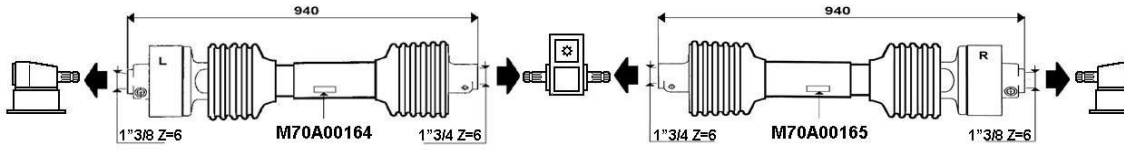
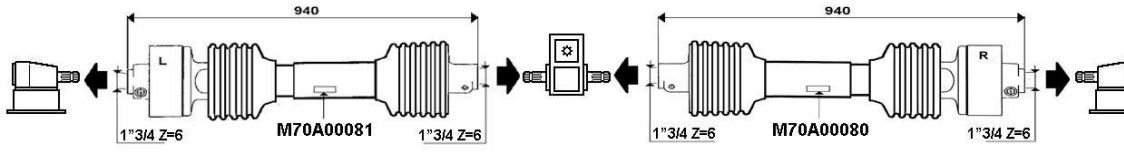
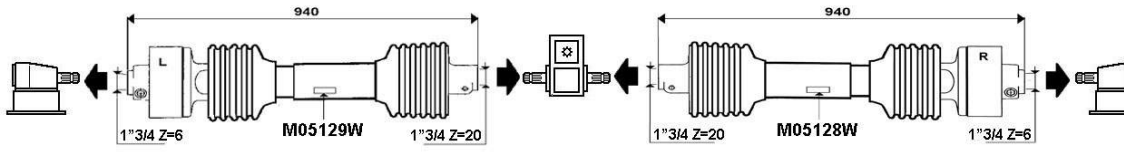
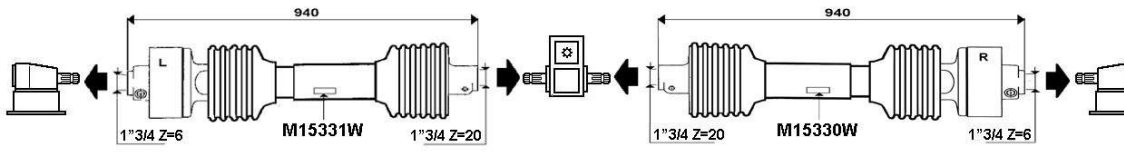
The application of a ROTODENT folding rotary harrow involves a different weight distribution on the tractor axles; to assure the necessary safety you should check the applied weights and, if it is required, you should add the provided ballasts so as to balance the weights on the tractor's axles.

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	
DK	
DX / DmaX	
LATERAL UNIVERSAL JOINT WITH SHEAR BOLT SAFETY SYSTEM	
DJ DJ-SUPER	
DP	
DK	

LATERAL UNIVERSAL JOINT WITH AUTOMATIC CAM CLUTCH SAFETY SYSTEM	
DJ DJ-SUPER	 <p>Technical drawing showing the roller assembly for DJ-DJ-SUPER. The total length is 940. The left side (L) has a 1"3/8 Z=6 thread and part number M70A00186. The right side (R) has a 1"3/4 Z=6 thread and part number M70A00185.</p>
DP-450	 <p>Technical drawing showing the roller assembly for DP-450. The total length is 940. The left side (L) has a 1"3/8 Z=6 thread and part number M70A00165. The right side (R) has a 1"3/8 Z=6 thread and part number M70A00164.</p>
DP (400 – 500 – 600)	 <p>Technical drawing showing the roller assembly for DP (400-500-600). The total length is 940. The left side (L) has a 1"3/8 Z=6 thread and part number M70A00164. The right side (R) has a 1"3/8 Z=6 thread and part number M70A00165.</p>
DK	 <p>Technical drawing showing the roller assembly for DK. The total length is 940. The left side (L) has a 1"3/4 Z=6 thread and part number M70A00081. The right side (R) has a 1"3/4 Z=6 thread and part number M70A00080.</p>
DX	 <p>Technical drawing showing the roller assembly for DX. The total length is 940. The left side (L) has a 1"3/4 Z=6 thread and part number M05129W. The right side (R) has a 1"3/4 Z=6 thread and part number M05128W.</p>
DmaX	 <p>Technical drawing showing the roller assembly for DmaX. The total length is 940. The left side (L) has a 1"3/4 Z=6 thread and part number M15331W. The right side (R) has a 1"3/4 Z=6 thread and part number M15330W.</p>

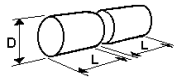
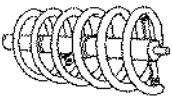

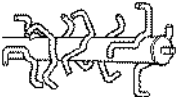


2.5. ROLLER IDENTIFICATION



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			Weight kg.	coupling on:
		D mm.	L mm.		
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 / DK-400
	SP5N-205 + SP5N-250		2000+2500	415	DP / DK / DX-450
	SP5N-250		2500+2500	450	DP / DK / DX-500
	SP5N-300		3000+3000	530	DP / DK / DX-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 / DK-400
	PK5N-205 + PK5N-250		2000+2500	635	DP / DK / DX-450
	PK5N-250		2500+2500	690	DP / DK / DX-500
	PK5N-300		3000+3000	780	DP / DK / DX-600
	PK6N-205	570	2000+2000	700	DK-400
	PK6N-205 + PK6N250		2000+2500	770	DK / DX-450
	PK6N-250		2500+2500	840	DK / DX-500
	PK6N-300		3000+3000	980	DK / DX-600
PK6N-350	3500+3500		1100	DMAX-700	
PK6N-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 / DK-400
	P5N-205 + P5N-250		2000+2500	440	DP / DK / DX-450
	P5N-250		2500+2500	480	DP / DK / DX-500
	P5N-300		3000+3000	560	DP / DK / DX-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 / DK-400
	G5N-205 + G5N-250		2000+2500	380	DP / DK / DX-450
	G5N-250		2500+2500	400	DP / DK / DX-500
	G5N-300		3000+3000	470	DP / DK / DX-600
RUBBER COATED ROLLER 	OT5N-205	500	2000+2000	670	DK-400
	OT5N-205 + OT5N-250		2000+2500	735	DK / DX-450
	OT5N-250		2500+2500	800	DK / DX-500
	OT5-300		3000+3000	940	DK / DX-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



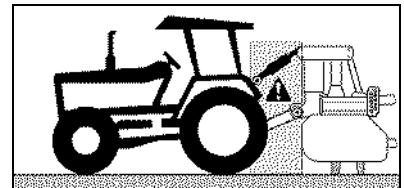
If the tractor has the cab, the sound level depends on the type of insulation of the cab.

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

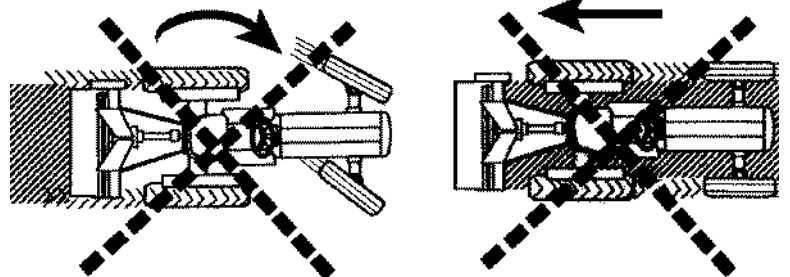
3.1. TO USE IN SAFETY

- 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.



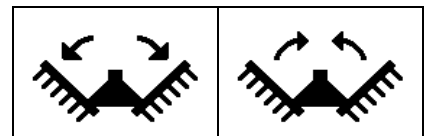
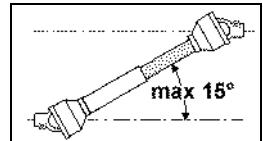
- During the work do not allow the approaching of any person or animal within the range of the sods and the stones projected by the machine.
- It is absolutely forbidden to enter the area between the tractor and the machine in order to operate the external controls of the hydraulic lifting device.

- 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 supplied 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 carried 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.)




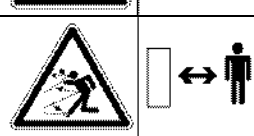






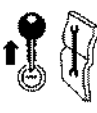























3.5. ECOLOGY

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 scrapped.

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 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

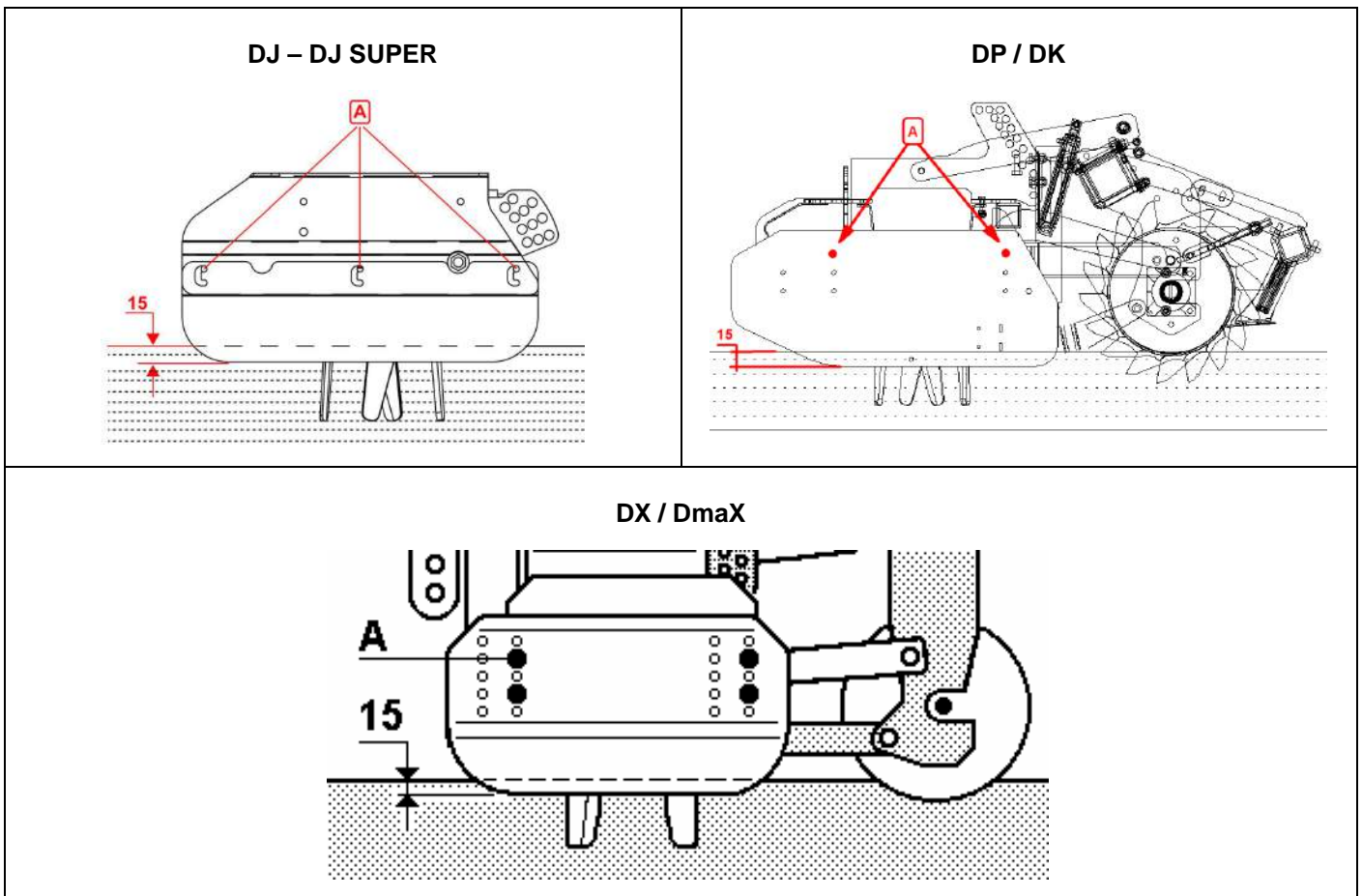
3.7. ACCIDENT-PREVENTION PROTECTIONS



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.



4. INSTALLATION

4.1. LIFTING OF THE MACHINE

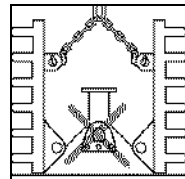


The lifting and transport operations have to be carried on with means suitable for the weight of the machine and by personnel trained for this kind of maneuver.

4.2. LIFTING OF THE ROTODENT



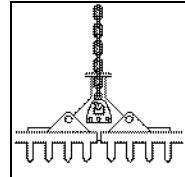
If the machine is supplied closed, connect it only as indicated in the figure to the two suitable side hooks, during this operation the machine shall not be lifted for more than 200 mm from the ground.



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

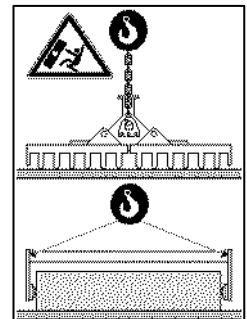


If the machine is supplied with the roller disassembled, it is necessary to perform the assembling of the same. Pay attention to the instability of the machine without the roller.

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



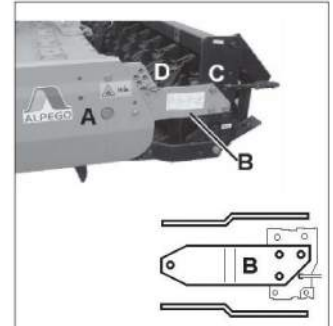
4.4. ASSEMBLY OF THE ROLLER

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

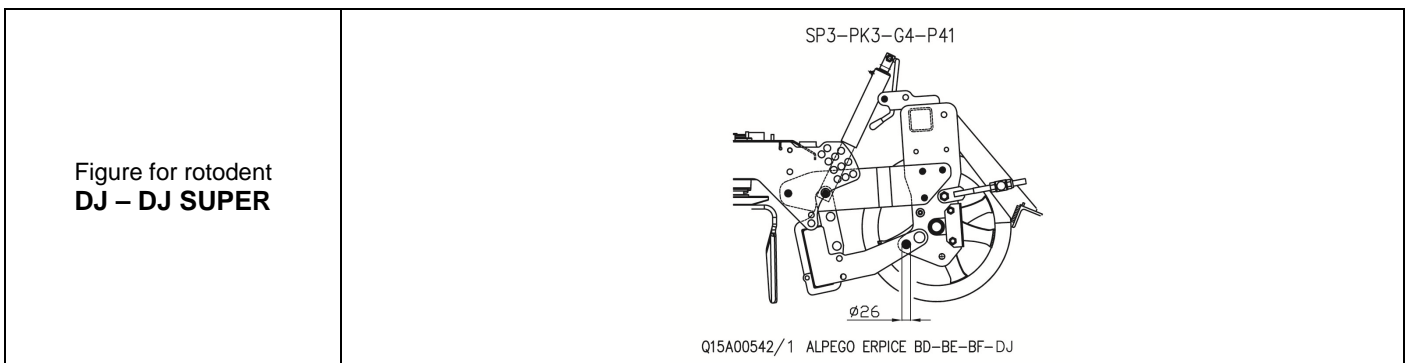
4.4.1. ASSEMBLY OF THE “DJ – DJ SUPER” ROLLER

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.

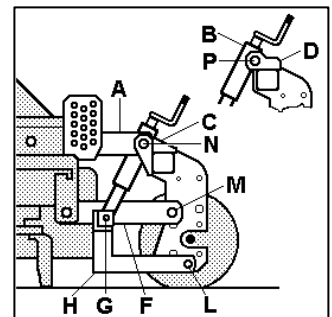


Verify the correct assembly with the next figures that are applied at the blades **B** of the rollers.

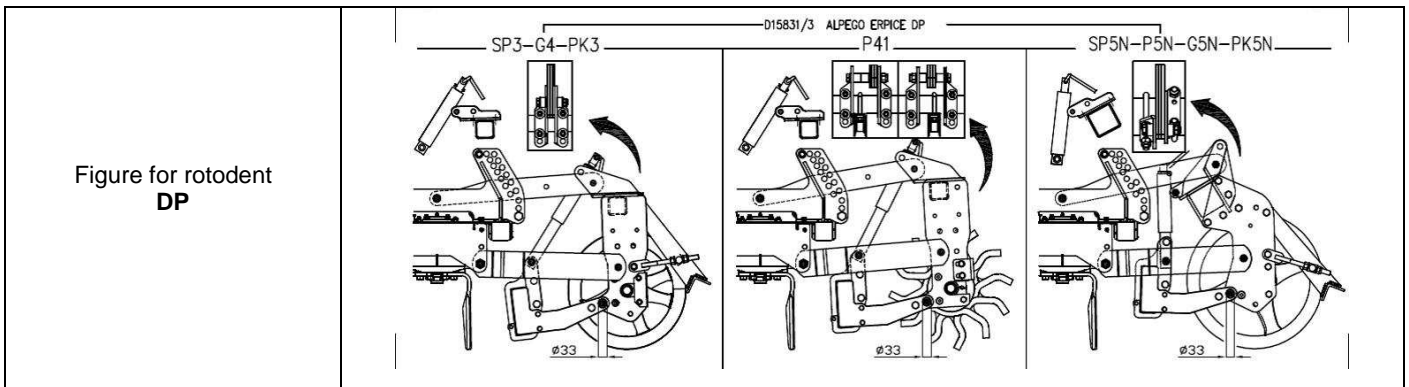


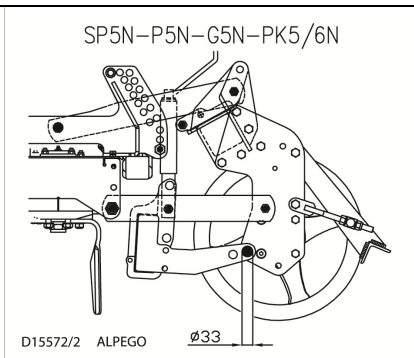
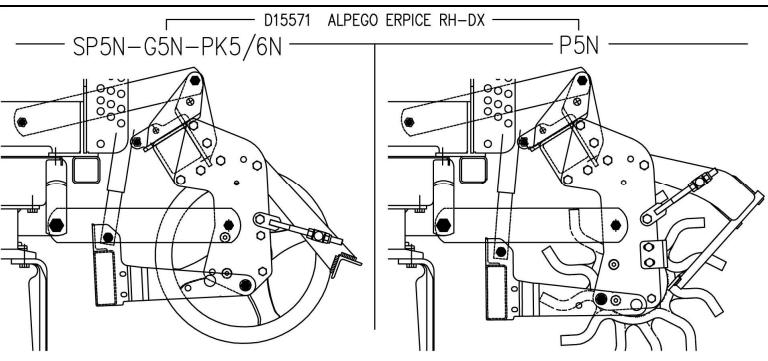
4.4.2. ASSEMBLY OF THE “DP – DK – DX - DMAX” ROLLER

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.



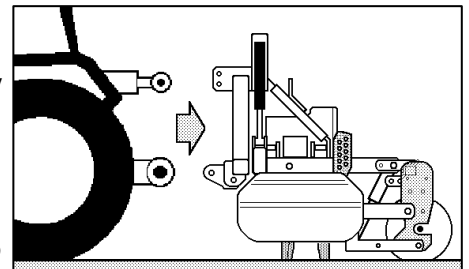
<p>Figure for rotodent DK</p>	
<p>Figure for rotodent DX - Dmax</p>	

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.

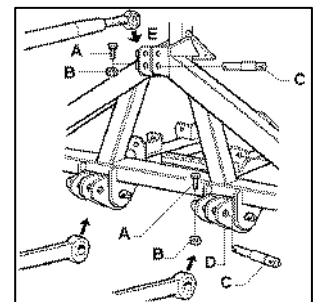


4.6. CONNECTION AT THREE POINT HITCH



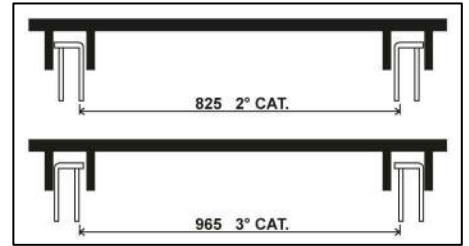
Connect the lower arms as follows (see figure):

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

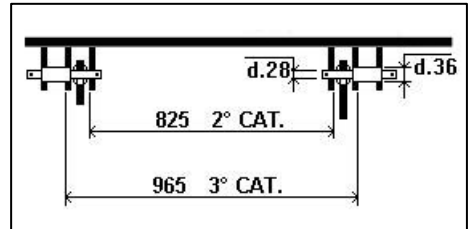


4.7. POSITIONNAMENT OF 2° OR 3° CATEGORY LOWER HITCH “DJ – DP”

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



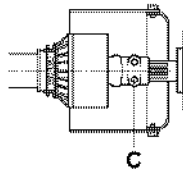
DP Power Harrow, according to the tractor connections class, the coupling pins shall be assembled as shown in the side picture.



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.

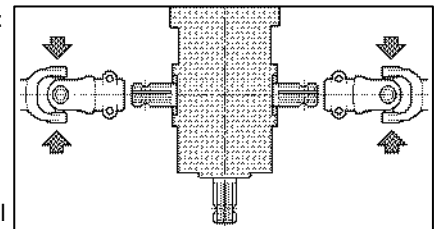
Connect to the tractor the opposite end of the universal joint by verifying that the button was inserted into the suitable slot

4.9. UNIVERSAL SIDE JOINT CONNECTION FOR ROTODENT DP/ DK

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.



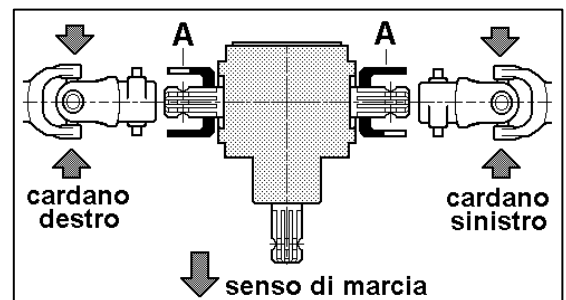
4.10. UNIVERSAL SIDE JOINT CONNECTION FOR ROTODENT DJ / DX / DMAX

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 / DK / DX / 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.

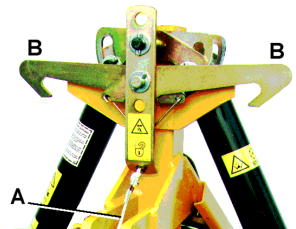
4.11.1. BLOCKING SYSTEM WITH CABLE

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

- Act on the hydraulic distributor lever which closes the equipment, until the end stroke is reached.
- Stretch the string **A** which lifts the two safety hooks **B**.
- 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

- 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 are both coupled with the two top safety hooks **B**.
- Loosen the hold on the strings.
- 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).

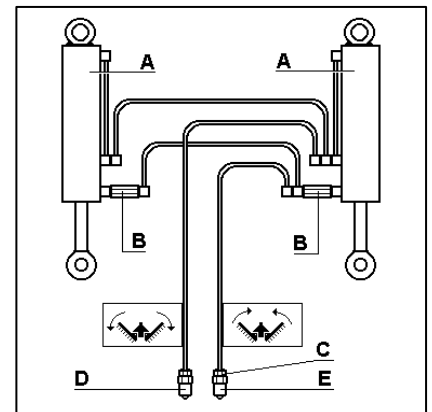


The hydraulic pipes must be kept far from any moving component. Every time you use the machine, check the pipes and the fixing devices of the pipe fittings for their conditions. The repairs must be carried on only by qualified personnel using only ALPEGO original spare parts.

COMPONENTS

ref. Description

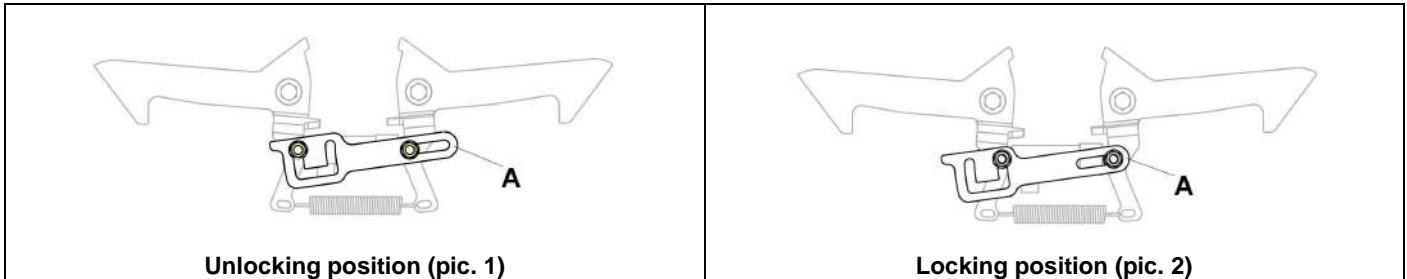
- A** Hydraulic cylinders
- B** Safety valves
- C** Flow reducing device
- D** Harrow opening 1/2" quick-joint coupling
- E** Harrow closing 1/2" quick-joint coupling



HYDRAULIC DIAGRAM

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)



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".



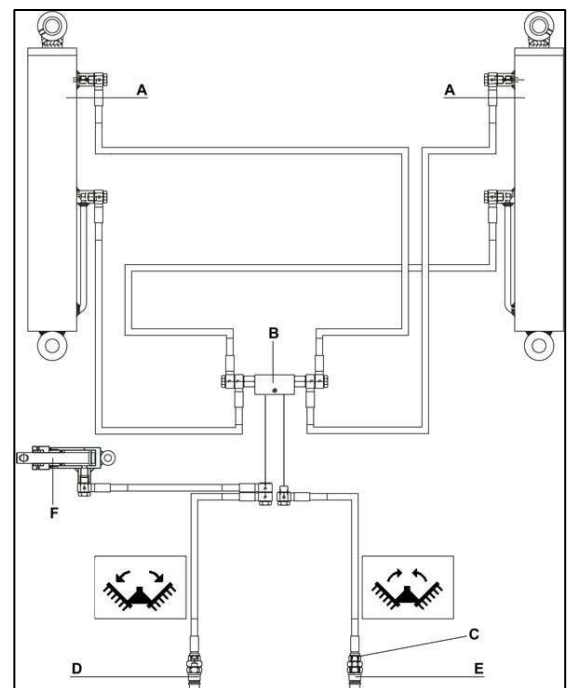
Once folded, put brackets "A" in locking position (pic. 2)

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

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.

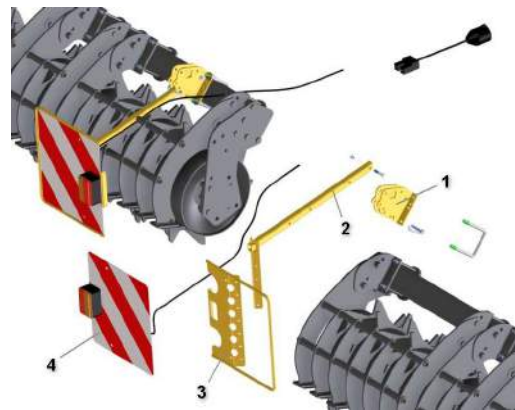
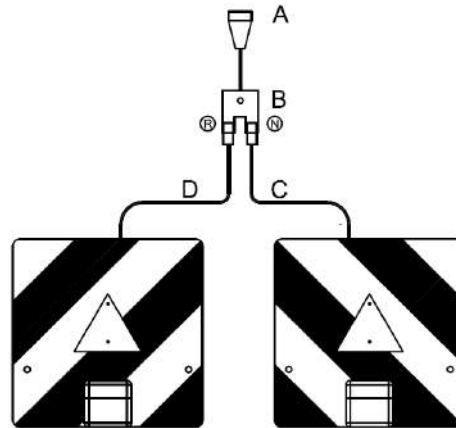
Secure the brackets 1 on the implement by means of u-shaped clamps, then secure the arms 2 with a screw and a pin.

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:

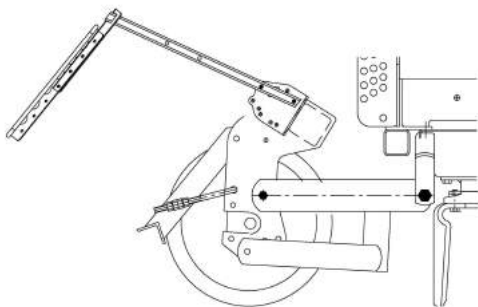
Working position

Transport position

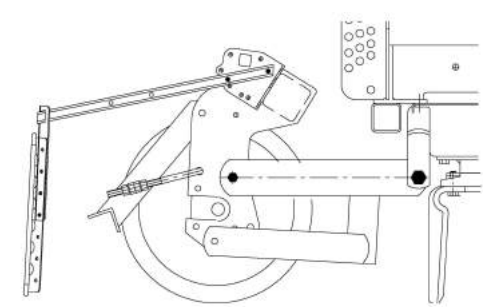
When the ROTODENT is open and working THE ARMS OF THE LIGHT-SUPPORTING BOARDS MUST BE LIFTED UP (see picture below)

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



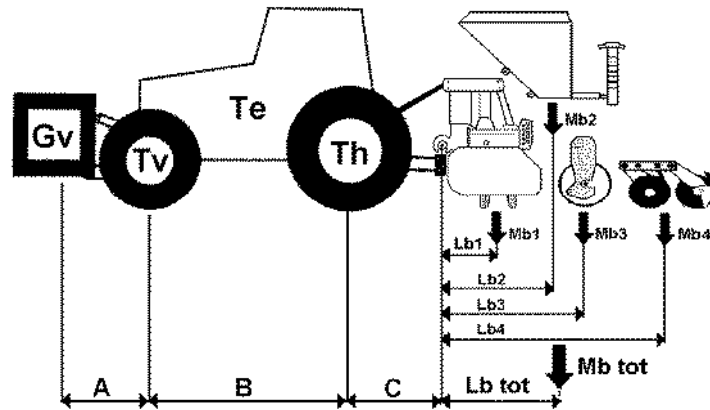
TRANSPORT

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 axes. 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 axes
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

- 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:

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

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

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

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

$$\text{Mb tot} = \text{Mb1+Mb2+Mb3+Mb4+Mb.....}$$

<p>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.</p>	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	

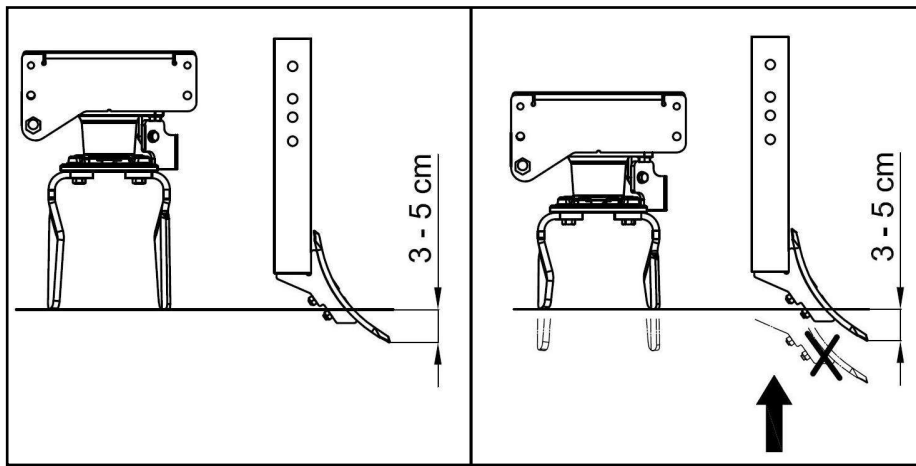
5. USE



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.



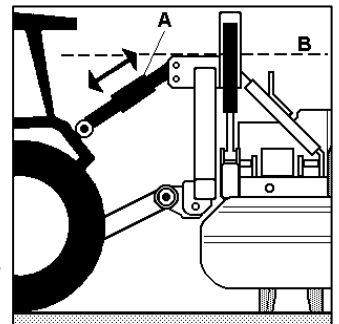
To cling together all safety rules of paragraph 3 and to examine the manual of use of the tractor.

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



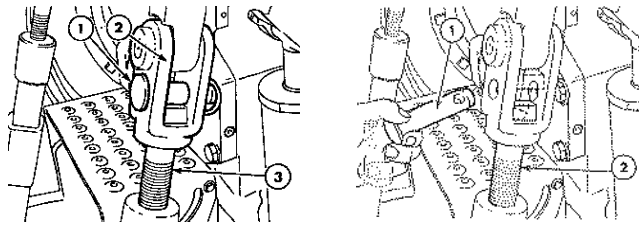
ONLY FOR DmaX-800

While the implement is working, the hydraulic lifting mechanism of the tractor must always be in its floating position (see sticker at the side).

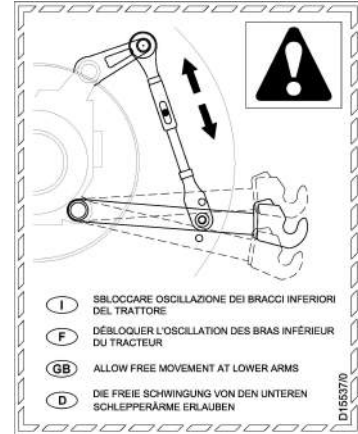
Thus a vertical motion of the machine independently from the tractor is possible.



During transport always engage the blocking system 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

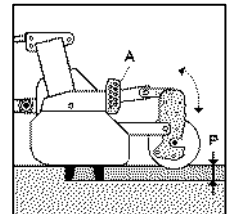
The depth working adjustment **P** of the machine is determined by the position of the levelling roller in relation to the lower edge of the blades.

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

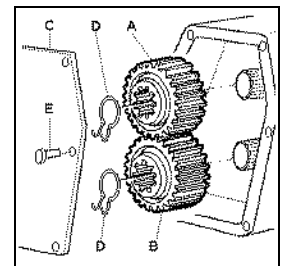
In order to obtain the best possible crumbling of the soil, the following two factors must be taken into consideration:

- 1) The speed of the tractor
- 2) 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.


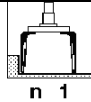
Therefore, it is advisable to use the lowest possible speeds but which can give as a result a good working of the soil.

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 tightening the M10 screw **E** at not more than 4 Gm.


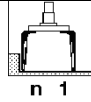


The tables show the labels on the change of gear of the machine, the standard gear pair is that shown in the table, the others are available upon request.



5.3. TABLE SPEED FOR ROTODENT DP

Code	S08030	S08030	S08033	S08032 Mounted standard	S08035	S08031	
	26 28	28 26	29 25	30 24	31 23	33 21	ALPEGO
1000	244	283	305	328	354	413	 n 1

5.4. TABLE SPEED FOR ROTODENT DK

Code	S08033	S08030	S08030	S08033	S08032 Mounted standard	S08031	
	25 29	26 28	28 26	29 25	30 24	33 21	ALPEGO T - 191
1000	247	266	309	333	359	457	 n 1

5.5. CHART OF ROTOR SPEED RIGHT-LEFT DX / DMAX

Code	S08019	S08016	S08017	S08018	S08015	S08015	S08018 Mounted standard	S08017 Supplied standard	S08016	
	19 35	21 33	24 30	25 29	26 28	28 26	29 25	30 24	33 21	ALPEGO CS 188
1000	-	222	254	273	294	341	368	396	498	 n/1

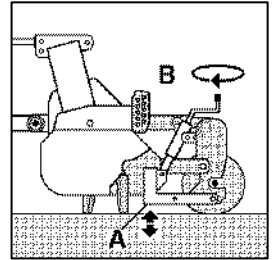
5.6. USE OF THE REAR BAR

The rear bar have the double function of:

- a) regulating the crumbling degree of the soil, the number of revolutions of the rotor and the driving speed remaining constant;
- b) 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 cluttered 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 an even finer degree of crumbling. Should this not be enough yet, 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 loosening 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 - DJ SUPER	FIXED POSITION			
	FLOATING POSITION "UP"			
DP / DK / DX / 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.
- Thoroughly 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

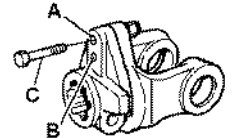
6.1. INSPECTIONS AND CHECK-UPS

During the first 8 hours of work it is advisable to check that all 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 admissible load is exceeded. The size and the material of this screw must strictly correspond to the datas given in the table:

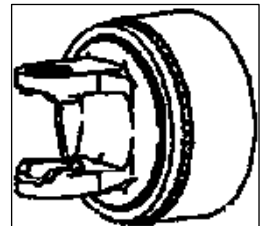


rotary harrow model :	Position	C-safety screw dimension	material
RODENT DJ SIDE	A	M10x60	8.8
RODENT DP SIDE		M10x60	10.9
RODENT DK SIDE		M10x60	8.8

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

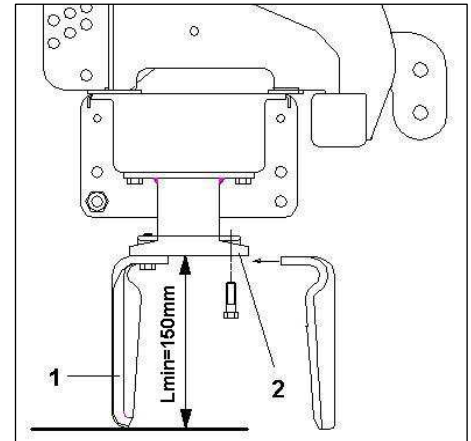
This devices serves in order to protect the excessive organs of transmission of the machine from efforts and overloads. In fact in overload case the power transmission comes interrupted. The graft happens slowly in way automatic to stop the power take off force and the to start slowly.



**The limiter comes supplied already settled from the constructor.
In case of problems in the operation don't modify anything.
If necessary call the Manufacturing 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 $L_{min.} = 150$ 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. REPLACEMENT THE TINES

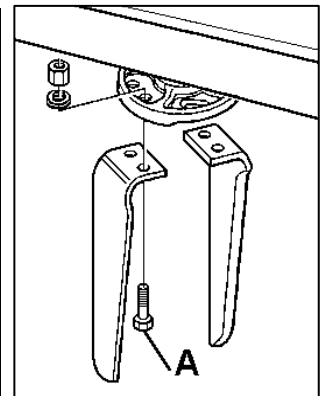
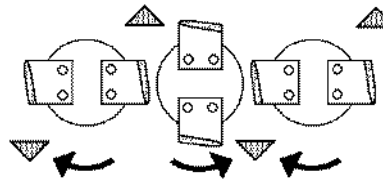


Lift up the rotary harrow and support it by some stands to avoid sudden sinkings of the machine.

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.



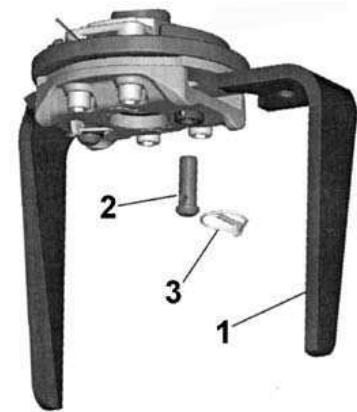
ALWAYS USE ORIGINAL SPARE PARTS ALPEGO.

Verify (40 or 50h) the thickness of the semiprotectors of the rotores (cod. E01962); if too much usurate proceed immediatly to their substitution.

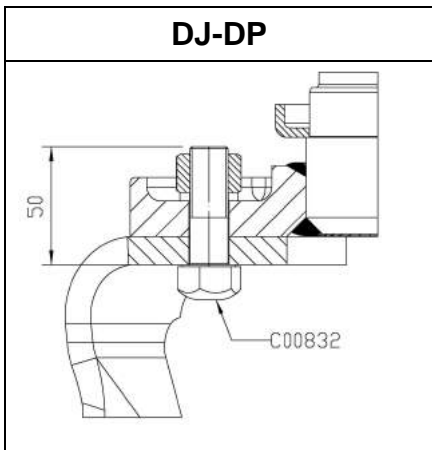
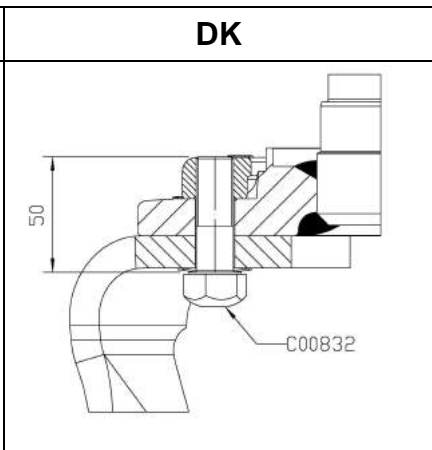
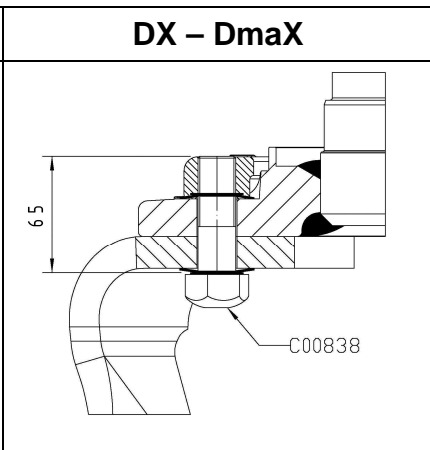
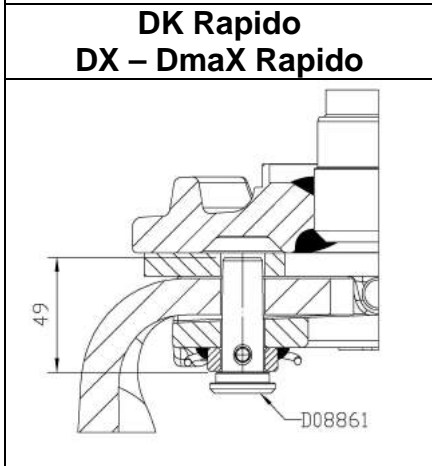
6.5.1. REPLACEMENT OF THE QUICK-RELEASE TINES

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	DK	DX – DmaX
		
<p>DK Rapido DX – DmaX Rapido</p> 		

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 proceeding 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.

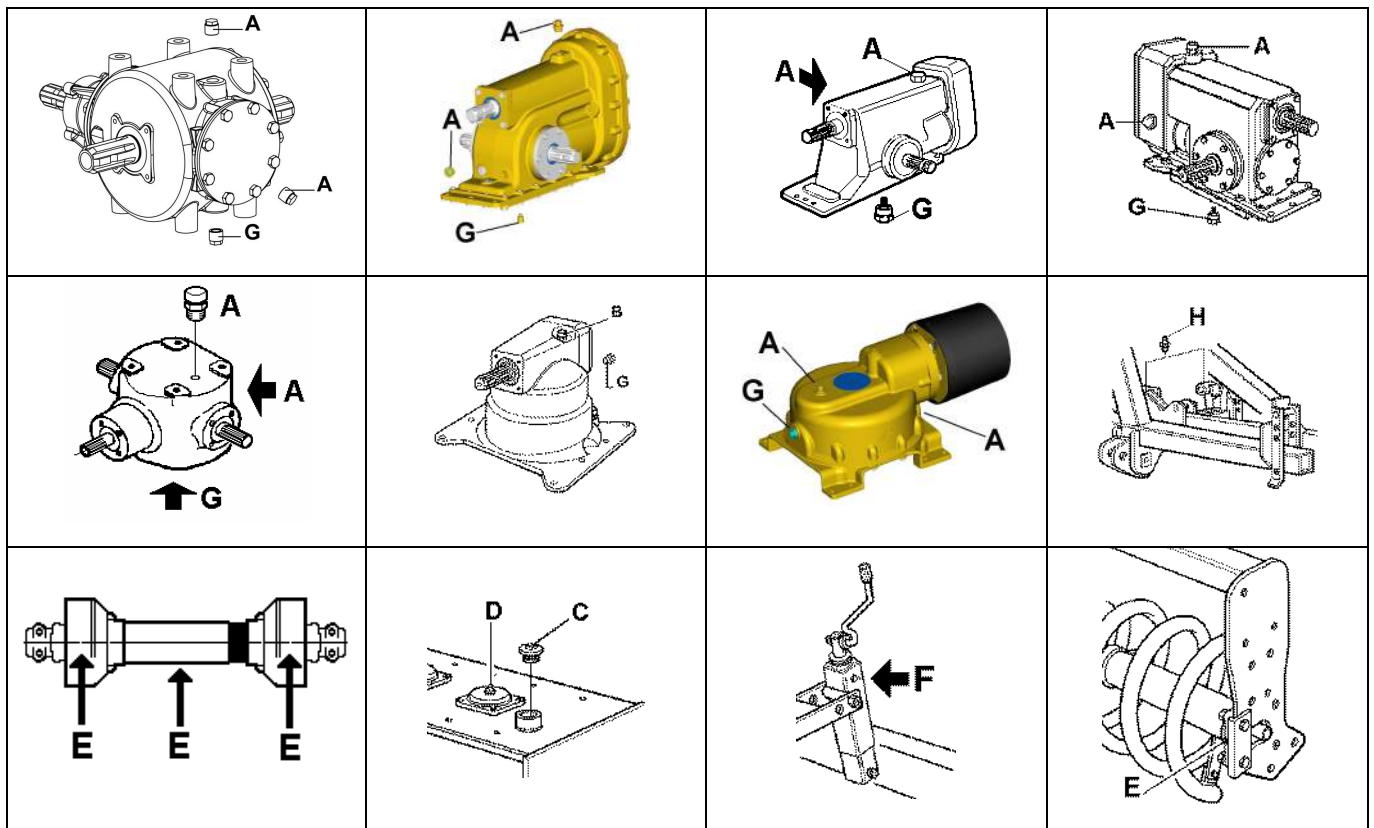
Every 40/50 hours of operation the regulator of the rear bar , the articulated joints and cylinders of the closing system, and every point which have a grease nipples.

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	- CHECK THE OIL LEVEL, IF IT INSUFFICIENT, FILL IT	A B G
every 20 h of operation	- GREASE THROUGH THE SPECIAL GREASE NIPPLE	E
after the first 30 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 200 h of operation	- GREASE THROUGH THE SPECIAL GREASE NIPPLE	D
every 200 h of operation	- GREASE THE UNIVERSAL JOINT	E
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) DK (L. 6) DX/DMAX (L. 7.3)	Pakelo Global Multigear CBS A	SAE 75W/90 (as per SAE J306) synthetic bases Group III /IV	API GL-5 API MT-1 SAE J2360
	B		DJ (L. 1.8+1.8) DP (L. 1.8+1.8) DK (L. 4+4) DX/DMAX (L. 4.7+4.7)	

OIL: (under special conditions)

Outside Temperature	Operating temperature	Viscosity	Internazionali 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 Transmission 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 Transmission TS SAE 75W/140

GREASE:

Spot to be lubricated	Model (Quantity)	Reference Product (first filling by Alpego)	Thickness 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) DK 400 (Kg. 30) DK 450 (Kg. 33.5) DK 500 (Kg. 37) DK 600 (Kg. 45) DK 700 (Kg. 53) DX 450 (Kg.23+18.5) DX 500 (Kg.23+23) DX 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.

USATE SEMPRE RICAMBI ORIGINALI
EMPLOYEZ TOUJOURS LES PIECES DE RECHANGE ORIGINALES
IMMER DIE ORIGINAL-ERSATZTEILE VERWENDEN
ALWAYS USE ORIGINAL SPARE PARTS
USAR SIEMPRE REPUESTOS ORIGINALES



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