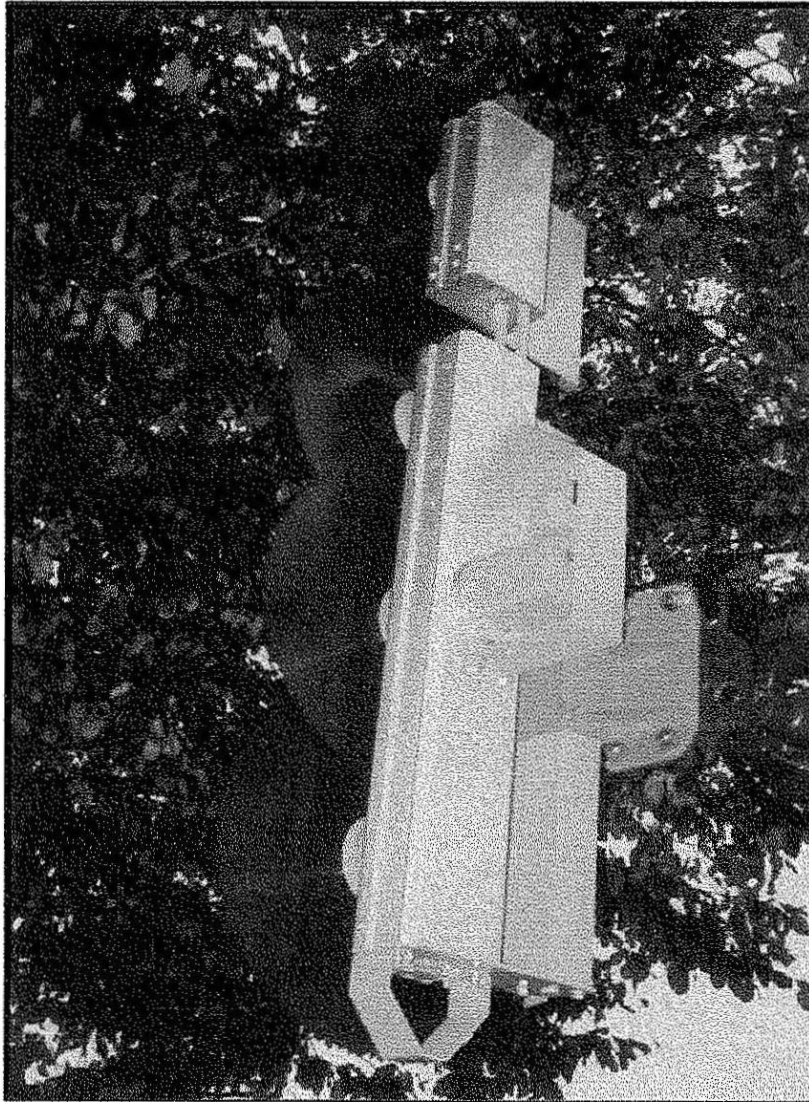


KIROGN

OPERATORS MANUAL

SPARE PARTS

L.E.M. CUTTER



**KIROGN ORIGINAL
EQUIPMENT
ENSURES;**

Security for the operator

Robust components

Quality service

Good value

**ORIGINAL KIROGN ATTACHMENTS
& CERTIFICATES**

SAFETY BULLETIN

SAW HEADS

MACHINES AFFECTED: ALL MULTI BLADE SAW HEADS

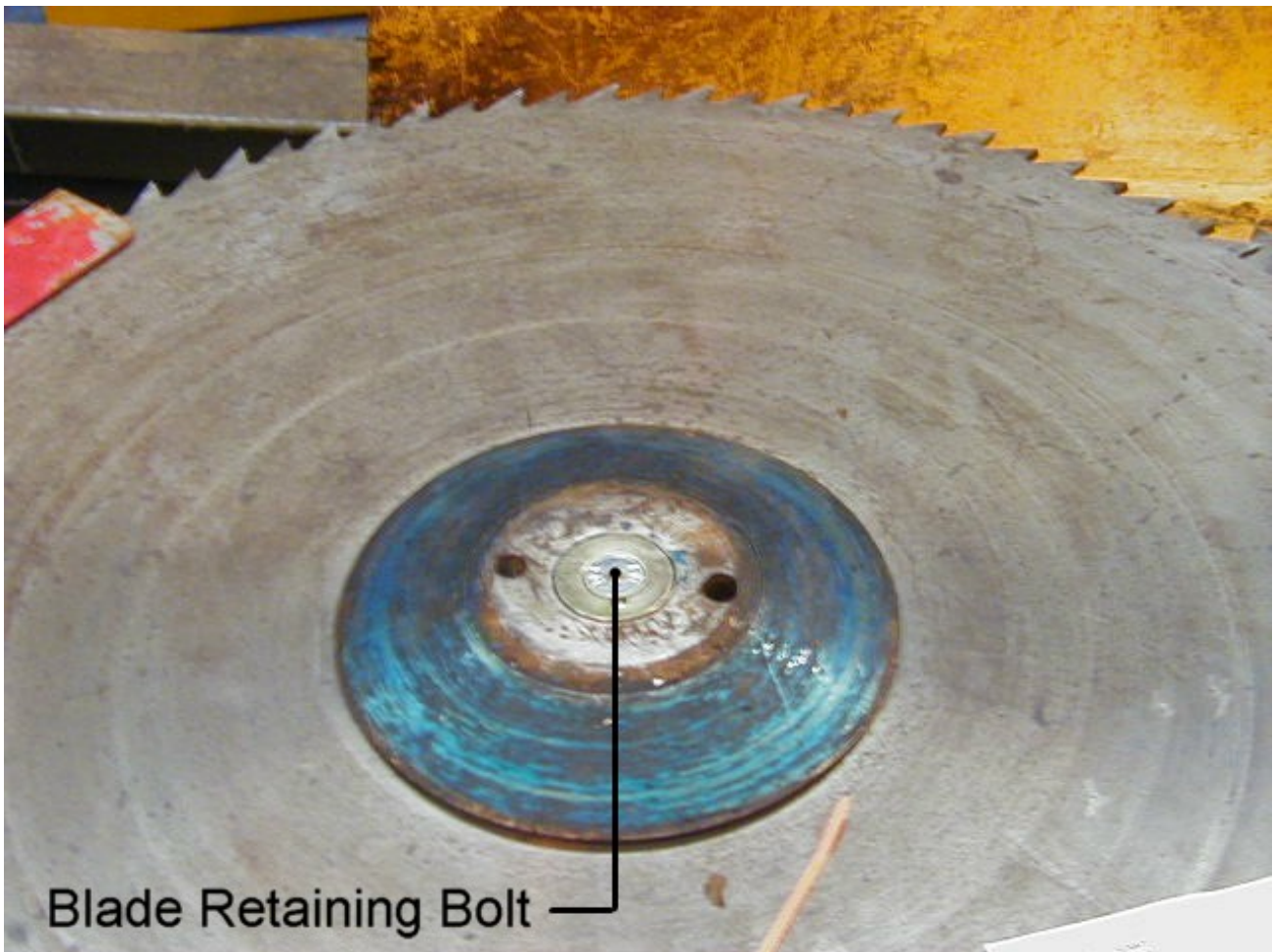
It has been brought to our attention that under some operating conditions the blade retaining bolt can work loose. This in turn can allow the other blade retaining components to become loose resulting, in extreme cases, in the eventual loss of the blade.

Action required immediately

Remove the blade retaining bolt, clean the threads, apply Loctite 243 or Ritelok TL41 and tighten to 81.4 Nm.

Action required during use

Check blade retaining bolt tightness every 2 hours of operation.

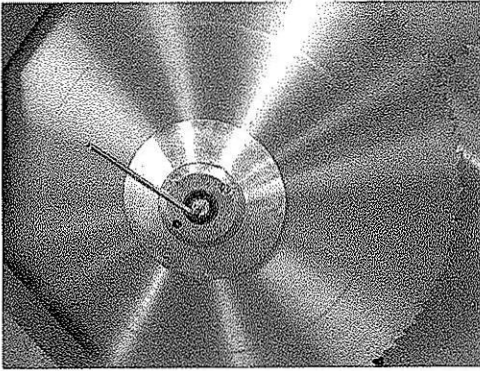


27 January 2006

Advice for the replacement of the locking nut

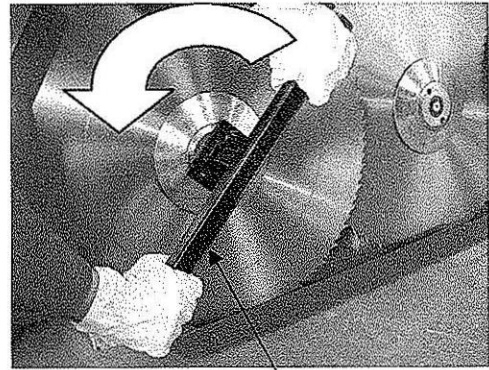
1

Step 1



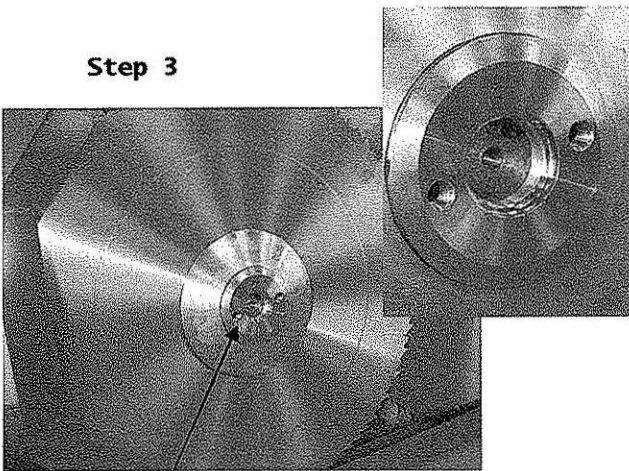
Take off the round plate & countersunk screw with a hexagon key.

Step 2



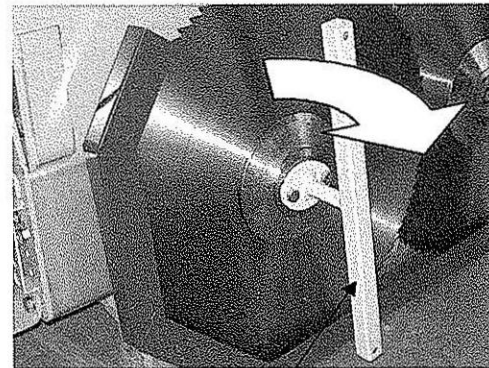
Unscrew the locking nut using the old locking key.

Step 3



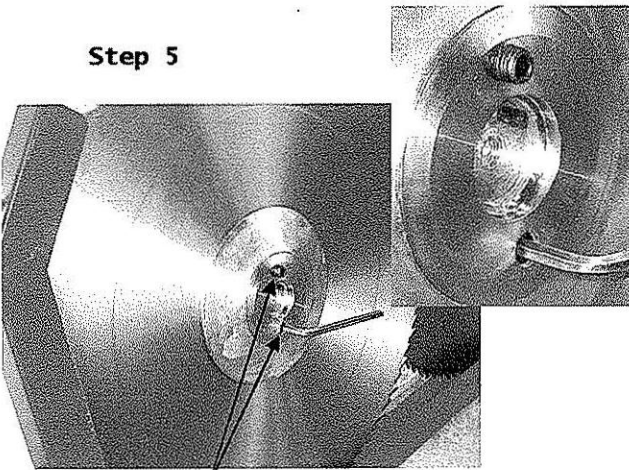
Replace the old locking nut with the new one which has the 2 small threaded holes.

Step 4



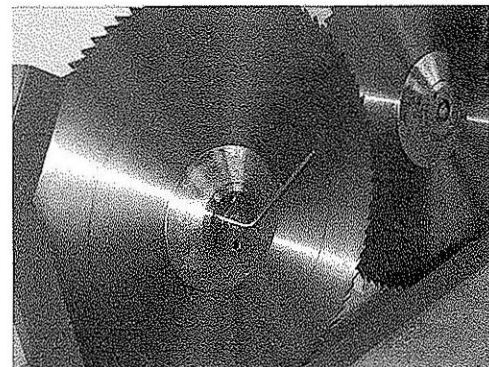
Tighten down the locking nut with the new key using the 2 H.M12 x 20 screws.

Step 5



Tighten down the 2 hexagon headed screw plugs with the hexagon key.

Step 6



Re-fit the central disc & countersunk screw with the hexagon key.

FITTING THE REVERSIBLE BLADES

IMPORTANT :

- . All the blades must be mounted so that they turn in the same direction but they can turn either clockwise or anti-clockwise depending on the mounting chosen.
- . In order to permit the vegetation to fall on one side or the other you can mount the blades accordingly :

Ejection to the side of the tractor



Ejection to the other side

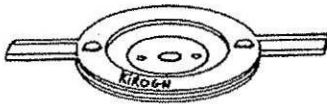


Cutting blades :

DOUBLE DISH WITH MOBILE KNIVES :

EFFICIENCY :

Adapts in place of the saw blades, the double dish with mobile knives prunes annual growth. (green or dry wood).



SAFETY :

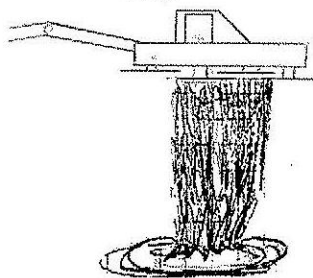
The dish is clamped, the knife can turn 360° on it's axle without hitting the central drum. The system allows the blades to retract in case of obstacles.

SPEED AND QUALITY OF CUT :

With these dishes, your cutter will absorb an exceptional volume of vegetation while maintaining a fine quality of cut.

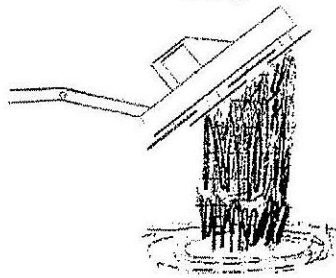
ADDITIONAL ADVICE

NO



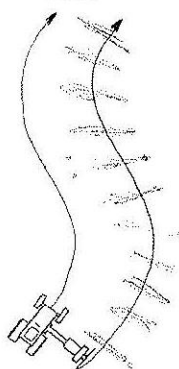
- The weight of cut branches exerts excessive pressure on the blades.
- Risk of projection towards the tractor.

YES



- The ejection of cut branches is easier.
- Reduction of projections toward the tractor.

NO



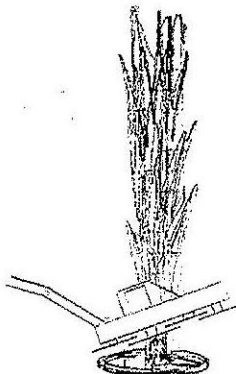
- Risk of blade deformation.

YES



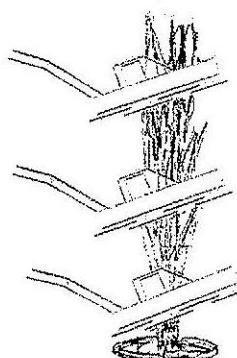
- The forward progression of the blades must mark out a straight line, not a succession of curves.

NO



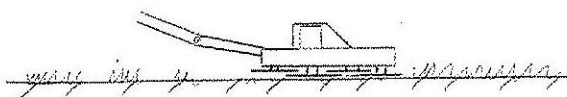
- Never cut a hedge or branch at its base.

YES



- If the hedge is more than 2 metres high lop it off in stages.

NO

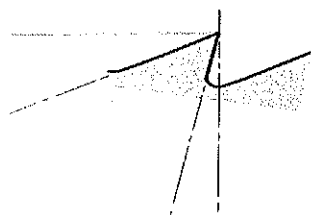


The cutter is not designed to work at soil level.

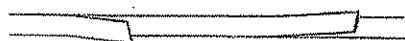
e) ADVICE FOR MAINTAINING SAW BLADES :

D) Sharpening :

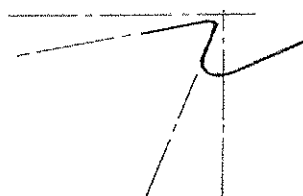
YES



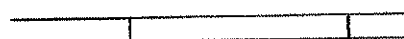
YES



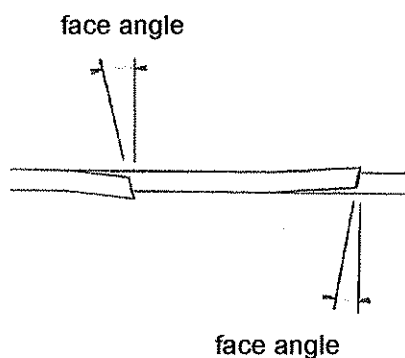
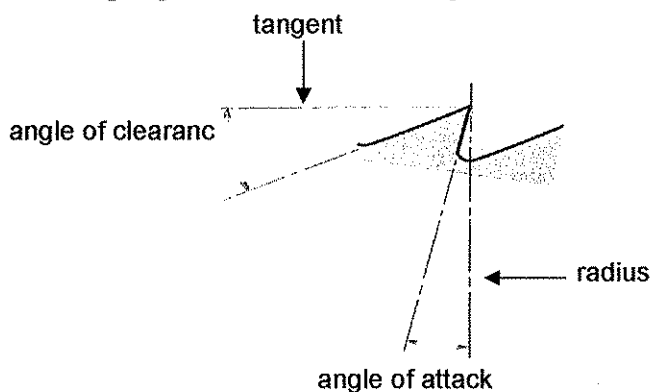
NO



NO



The saw teeth are sharpened very precisely to a shape that is in proportion to the angle of attack & the angle of clearance.



The recommended angle of attack must be set between 5° for cutting hard wood and 10° for cutting green wood.

The recommended angle of clearance must be set between 14° for cutting hard wood and 18° for cutting green wood.

The recommended face angle with alternating chamfers must be set between 5° for cutting hard wood and 15° for cutting green wood.

The quality of the cut and in the same manner the length of life of the blade depends to a great extent on respecting these values.

II) The set :

YES

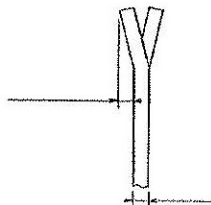


NO



This feature permit's the blade to clear a passage wider than the body of the saw. The alternating cutting faces also eject the saw dust away from the machine and enhance the work rate.

To obtain a clean cut and also to lessen the possibility of friction and vibration between the blade and the wood the set is indispensable.



The blades diam. 600, 650 and 700 having a body width of 4mm must have a set of between 0.8 and 1mm to each side.

III) Structural strength and stability :

The two service operations of sharpening and setting will help to keep the blades in good condition. Vibration, bending and stretching can be avoided.

Servicing can be carried out by a specialist saw sharpening workshop.

As a first 'in the field' check, lay a straight edge against the blade and look for contortions.

Secondly tap the blade with a hammer and listen to the ring note and lenght. It should ring like a bell, if not, further inspection is required.

YES



NO



Dear client

You have just taken delivery of

KIROGN L.E.M. cutting equipment

We thank you for having chosen our equipment and advise you to read this manual before using your machine.

This manual will give you a better understanding of your KIROGN cutting equipment and the best possible service for many years.

You will find in this manual instructions for the operation, maintenance and servicing of this tool.

We would particularly bring to your attention, advice concerning safety.

GENERAL GUARANTEE CONDITIONS

I) DURATION:

- The purchaser of new equipment benefits from a year's guarantee against defects in construction or material, as from the delivery date.
- The date of delivery is the date of invoice showing the date of delivery to the user.
- KIROGN must be advised of this date by the return of the guarantee card within eight days.

II) IMPLEMENTATION:

- KIROGN provides a guarantee after the return of a completed guarantee card.
- A claim must be made within a maximum period of 30 days from the date of incident.
- The guarantee is expressly limited to replacement or return of parts recognised as defective by our examiner. The user can never claim compensation for losses due to reason of machine immobilisation, accidents to personnel or those things which may arise as a result of defect or fault in construction of the equipment sold. The carriage costs incurred by the exchange of parts is payable by the client.
- The exchange or discount document for spare parts does not extend the original guarantee period. Our guarantee is limited to parts made by ourselves. Those parts bought in from other manufacturers are guaranteed according to their manufacturers guarantee.

III) NON IMPLEMENTATION:

- KIROGN's guarantee does not apply to pieces which from their conception may be used on other types of machinery and by other manufacturers (e.g. PTO shafts, tyres etc)
- KIROGN's guarantee does not apply to pieces where normal wear and tear are expected (e.g. knives, sawblades, belts etc...) nor to attachments which are mounted onto parts which no longer benefit from guarantee.
- All guarantees are void in the case of default in payment of the equipment, or the parts concerned.
- Also, the guarantee is withdrawn and the constructor is absolved from all responsibility;
 - a) When the equipment has been modified.
 - b) When it has been repaired by those other than the constructor or his agents.
 - c) When the original parts have been replaced by imitations.
 - d) When damage is due to negligence (e.g. introduction of impurities into the hydraulic circuit), bad use, excessive loading however brief, or the inexperience of the operator.
- We reserve the right to make improvements to our range judged to be beneficial without being obliged to make the same modifications to those already delivered.

JURISDICTION

In case of dispute the sole and exclusive judgement is to be made by the Commercial Tribunal of Jonzac in the last resort, who rule on the conditions of sale and mode of payment.

Our payments or settlement of bills are made neither by substitution or can be overridden from this exclusive clause of competence.

TITLE

By conventional agreement, we reserve title to the merchandise up to the last day prior to payment in full, conforming to the terms of French law No 80.335 of 12 May 1980.

WARNING - ATTENTION

IMPORTANT:

Sir,

Due to our introduction of interchangeable equipment called "adaptable" to the KIROGN cutting systems, we wish to share with you the following information.

This particular activity may have nothing to do with the KIROGN company. For obvious reasons of SECURITY we bring to your attention the risks which such "adaptations" can bring: our company has no certificates of conformity for non KIROGN manufactured parts. Should non-original equipment be used, our responsibility as manufacturer, and our guarantee will be totally void.

For your satisfaction, only KIROGN and its agents are duly empowered to suggest equipment and "adaptations". These must be certified and of original KIROGN manufacture, conforming to the regulations to which our equipment is subject.

For your own safety and that of your employees, and in order to avoid all possible risks when using this "adaptation", we strongly impress on your supplier the need to print on delivery and invoice dockets:

"ORIGINAL KIROGN PARTS"

KIROGN invented the cutting equipment with care and a continuing concern to offer equipment which gives high performance, economy and security. This work continues for your benefit.

We are available to comment and give advise on this matter and will reply to your requests with the best price and service conditions and with respect to normal practices.

Yours sincerely

Mr COLLARD Michel
Manager

CERTIFICATE OF CONFORMITY

The manufacturer undersigned:

KIROGN
BP127 – VILLEXAVIER
17504 JONZAC CEDEX
FRANCE

Hereby declares that:

MAKE: KIROGN

TYPE: L.E.M. cutting equipment

Serial number:

conforms with the provisions of the "Machines" Directive (Directive 89/392/CEE), (modified to meet national requirements.)

otherwise, the standards of the European norm EN706 serve as a foundation to put this machine into conformity.

Made in Villexavier

The Manager
M. COLLARD Michel

PROJEKT: ANALIZA IZVEDBE IZKAZOV

1.1.1. Opis projekta
1.1.2. Cilji projekta
1.1.3. Organizacija projekta

1.1.4. Opis projekta

1.1.5. Opis projekta

1.1.6. Opis projekta

1.1.7. Opis projekta

1.1.8. Opis projekta

1.1.9. Opis projekta

1.1.10. Opis projekta

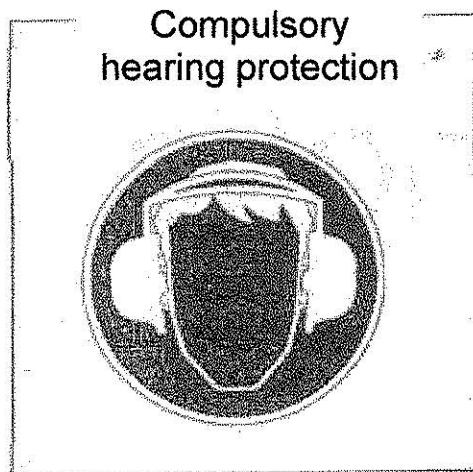
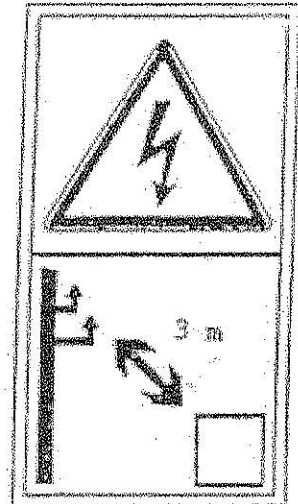
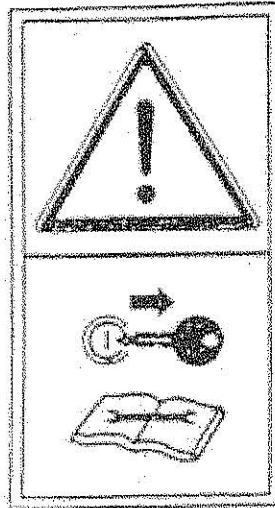
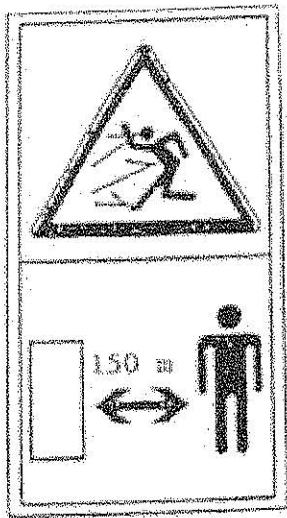
1.1.11. Opis projekta

1.1.12. Opis projekta

1

SPECIFICATIONS

I) REMINDER OF THE ADVICE SIGNS :



ROTATION SPEED OF THE
BLADES OR DISHES

MAX : 2600rpm
RECOMMENDED : 2200rpm

II) INSTRUCTIONS CONCERNING THE AERIAL NOISE :

The sound level of the KIROGN cutter equipped with circular saw blades is in the region of 95 db at 2200rpm.
(when the machine is not cutting vegetation)

This sound level makes necessary the wearing of ear defenders, or the tractor must be equipped with a sound proofed cab (or other means of protection).

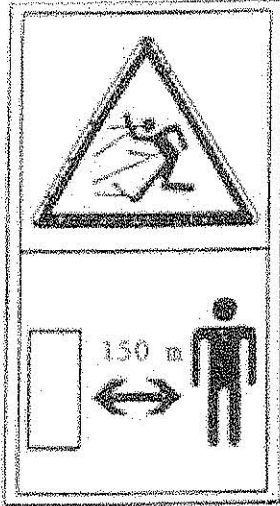
2

SECURITY

I) SAFETY CHECKS :

1) Reminder of signs and guides :

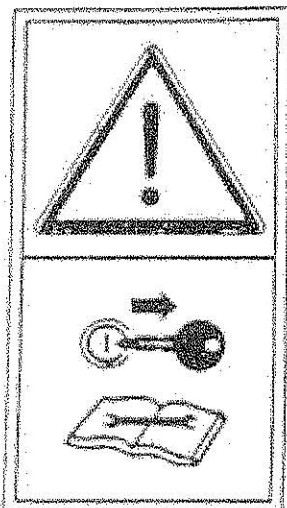
a) Caution – risk of projectiles : Maintain a security zone of 150m in relation to the machine.



- You must ensure that during work no persons are within a 150m radius of the cutting blades.
- You must remove all people from the machine work area during operation.

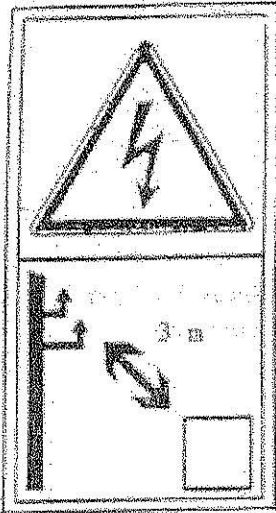
SECURITY

b) Beware danger : Stop the motor and therefore the blades before proceeding with any maintenance or repairs.



- Never go near the machine whilst it is working

c) Beware risk of electrocution : Keep a sufficient distance from power lines :



- The cutting blades can work at the height of the electric power lines; you must keep a minimum distance of 3 metres away in order to avoid electrocution.

d) Obligatory hearing protection :



If the tractor does not have a sound proofed cab, you must use ear defenders or another means to protect your hearing.

e) Maximum rotational speed of the cutting tools :

**SPEED OF ROTATION OF
BLADES OR DISHES
MAX : 2600rpm
RECOMMENDED : 2200rpm**

In all cases the speed of blade rotation should not exceed 2600rpm.

NEVER GO BEYOND THIS SPEED

2) Protection against the risks associated with moving parts of the transmission :

This protection is assured by the presence of removable guards. A tool (key no 17) aids removal allowing access to the transmission.

3) Protection against accidental contact with the cutting head :

The cutting heads are provided with rigid deflectors which must always be kept in place during operation. Great care must be taken during operation and storage.

4) Protection against vegetative projectiles and falling objects :

a) Protection in the work zone.

The risk of projectiles and foreign objects is always there during cutting.

* In order to plan against these risks, place signs on the road far enough away that a projectile or falling object cannot reach a person who may be found close to the cutting work.

b) Operator protection.

When the cutter is equipped with saw blades, the cut branches can be of a very large diameter and found at a height of 10 metres. If the tractor is in the zone of the falling branches, the operator is therefore subject to risks of falling wood and by penetration of falling objects into the cab.

* In this case it is necessary to use a cab equipped with a protective structure, (against falling objects) which must satisfy FOPS regulations, according to the ISO 8083 standard. It must also be protected, (on the cab side or where a risk exists against the penetration of objects into the cab), which must satisfy the OPS regulations according to the NF ISO 8084 standards.

5) Protection against the risk of contacting the cutting components

* During work the cutting blades are not protected at the front or the sides, it is therefore necessary to put signs on the highway to warn all people when the work is in progress.

6) Protection against damage to the blades and their balance

The rotating blades were designed and constructed to ensure good cutting, by the effect of centrifugal force, when used correctly, they do not stress, break or come apart.

The cutters work by impact (flail knives) and are balanced before delivery. The operator must be careful to and ensure that they remain balanced. To do this, frequent checks of the blade condition must be made, and change them immediately (by diagonally opposing pairs) where they show signs of distortion, wear, or are chipped.

a) The maximum speed of the blades is set by design

- The hydraulic motor is equipped with a pressure limiter. The pressure is relieved at 95bar at 90L/min flow.
- The capacity of the hydraulic motor is determined by the hydraulic output minimum and maximum of your hedgecutter.
- As a consequence the choice of motor as well as the pressure limiter allows us to determine a maximum rotation of 2600 rpm at the cutting blades (saws or knives).

b) Confirmation of safety

Kirogn blades have been checked by severe impact tests, carried out according to the EN706 standard 1996, ensuring optimum security for the operator when used according to the operating conditions laid out by KIROGN.

II) SAFETY INSTRUCTIONS WHEN USING THE MACHINE :

YOU MUST

1) General advice

When working in a public or dangerous area do not forget to put up signs warning of moving machinery at work, which conform to regulations.

- The operator must provide an audible warning before going out onto a road.
- Make sure that no one is near the machine before starting off.
- Before working make sure that the blade's guard has been removed.
- The cutting blades must be stopped when leaving the site.
- Before moving off on the road you must retract the head so as to cause the minimum obstruction and fit the blade guard with the help of gloves.
- Before any inspection stop the tractor engine.
- For all inspections on the machine particularly the blades you must wear gloves.
- In order to guarantee good functioning and safety, only replacement parts from KIROGN are recommended. If non-original parts are fitted KIROGN takes no responsibility. Any guarantee will be void.

2) Advice concerning the cutting blades

- Before starting work each day check the tightness of the components (hydraulic connectors and hoses, disc nut, knife bolts.....), the condition of the dishes and the saw blades: any bent parts must be replaced.

Any part of the system which has been subject to impact, deformation or wear must be replaced.

- Maintenance of the blades must be done according to our advice on page 32 of this book.
- Use appropriate gloves when handling the cutting blades.
- The blades must be in perfect condition and checked in detail in order to limit vibrations resulting from unbalanced rotational forces.
- All chipped or scored blades must be changed.

VERY IMPORTANT

- **Never grind the knives (this causes dynamic imbalance).**

The blades and bolts must be changed in pairs on the same dish to give maximum safety and thereby not create the above phenomenon.

NEVER

- Use spare parts not made by KIROGN.
- Remove the certification plate which states the machine no. and type.
- Make adjustments or repairs to the blades, drive line or tractor while in motion.
- Overrule the manufacturers instructions.
- Get out of the tractor when the blades are turning.
- Leave an untrained person, unsupervised with the machine.
- Never abruptly stop the oil flow to the hydraulic motor. It is better to progressively slow down the speed of the cutting elements to its slowest setting. Then turn off the tractor engine, turn the oil flow to the shut off position, in order that an amount of oil is left in the hydraulic circuit and pipes, which avoids any oxidation during non-active periods.
- Modify the structure or system designed by the manufacturer.

3

STARTING YOUR MACHINE

I) HYDRAULIC CONNECTIONS :

The cubic capacity of the hydraulic motor mounted on the cutter is a function of the hydraulic supply from your hedgecutter. The balance between the supply from your hedgecutter and the cubic capacity of the motor allows us to limit the rotational running speed of the cutting components.

In every case the rotational speed of the cutting components must be less than 2600rpm. We recommend a working speed of 2200rpm.

Supply fro your hedgecutter	Motor capacity	Maximum speed ROTATION OF CUT
• from 40 to 45 l/m • from 45 to 70 l/m	19cc 19cc + SUPPLY REGULATOR	} 2600 rpm
• from 70 to 80 l/m	31.5cc	
• > 80 to 120 l/m	43.9cc	
• > 120 to 140 l/m	57.9cc	
• > 140 to 180 l/m	68.7cc	

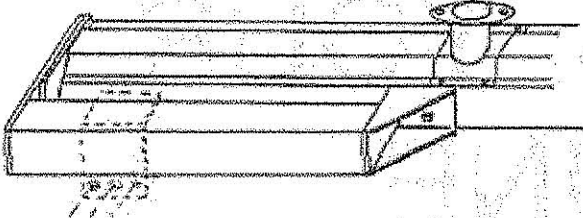
II) SETTING UP : INSTALLATION :

Setting up procedure :

1) Fix the adapting bracket on to the arm :

Ensure the bracket complies with the make and type of hedgecutter. This piece supports the cutting tool and must therefore be checked by the user.

2) Fix the cutting head on to the bracket :



The cutting head is held by the mounting bracket, this piece can be adjusted along the square of the cutting head to obtain a satisfactory offset.

3) Connect the flexible hoses :

Ensure the flexible hose kit complies with the make and type of hedgecutter. The kit assures the feed between the cutter and the hedgecutter.

4) Check the running of the tools :

- Check by stages the security of the pivot clamps and the cutting components, the nuts and bolts of the cutting head.
- Before going out to work with the tractor, the user must make sure that there is no one near the machine.

5) Starting the blades :

Take off the blade protection guard then slowly turn the motor accelerating progressively.

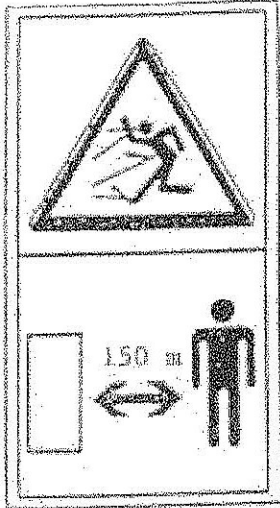
6) Stopping the blades :

Do not cut the flow to the hydraulic motor at full power, better to slow down the motor progressively which will allow a reduction in the phenomenon of inertia.

III) DISTANCE AND SAFETY INFORMATION :

1) Safety distance :

Beware – risk of projectiles : Maintain a distance of 150m around the machine :



When in use you must ensure that no one is within a 150m radius of the cutting equipment.

2) Operator protection :

- The operator must be seated in the tractor before starting up the hedgecutter and therefore the cutting equipment. The operator must be aware of the operational and safety procedures of the tractor (or carrier) as well as those of the hedgecutter and blade.
- The operator must have a closed cabin, or wear eye protectors which have side protection or a mask to EN 165, this type which complies with the basic regulations and relative specifications for the protection against fast moving objects, low energy category (conforms to 7.1 and 7.22.2 of the EN 166: 1994)
- Where a tractor is furnished with a cabin equipped with a protective structure against falling objects, which must satisfy the tests of FOPS according to the regulations of the ISO 8083 standard, and a protection, (on the sides or where a risk exists) against penetration of objects into the cabin which must satisfy the tests OPS according to the NF ISO 8084 standards.

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2

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ՀԱՅԱՍՏԱՆԻ ՀԱՆՐԱՊԵՏՈՒԹՅԱՆ ԿՐԹԱԿԱՆՈՒԹՅԱՆ ԿԵՆՏՐՈՆ

4

USE

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1) FUNCTION OF THE WORKING PARTS :

a) Configuration :

The blades are constructed principally to be fitted to the arms of hedgecutters. The hedgecutter arm must correspond to the requirements of the KIROGN technique.

- Ability to support the weight of the cutter,
- Hydraulic supply according to the cutter.

The carrier will principally be a tractor having a slow forward speed transmission capable of a working speed from 300 to 600 m/h.

b) The principal parts of the machine :

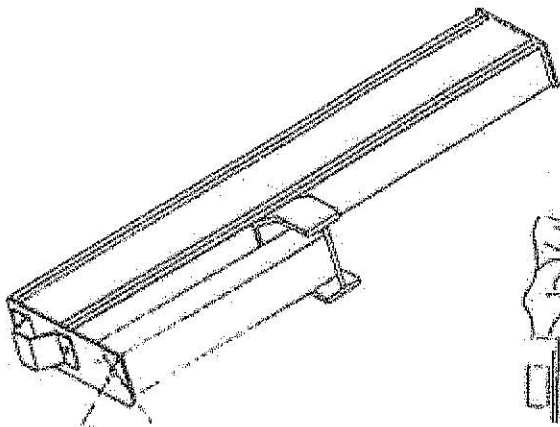
Fittings :

The cutter is fixed onto the arm by a bracket (optional), which itself is fixed onto a square bar. The length of the square bar allows modification of the cutter position along the bar (greater or lesser reach).

YOU CAN ADJUST THE ANGLE OF THE BLADES :

BLADE OR KNIFE POSITION?

- Your cutter is held on a square bar having 4 holes at the ends. By using the 4 holes you can choose between two positions : The, regular position for saw blades, or angled for the knife blades.



POSITION SAW BLADES

You must work within the axis of the cut and maintain the blades in line.

POSITION KNIVES

To improve the quality of cut you must angle the knives.

- The body of the cutter :

The L.E.M. is made of a profiled, anodised, inoxidizable LIGHT alloy body whose strength structure is higher than steel, giving to the mechanical structure a rigidity without comparison. This profile can receive additional cutting modules, always retaining a firm structure and faultless finish.

The L.E.M. body protects the transmission and keeps the rigidity of the cutter.

II) METHODS OF USE : INFORMATION :

- This machine is designed for pruning hedges and trees. The equipment has been especially designed for the removal of excess vegetation. This operation is effective on old growth or on annual growth (cutting dry or green wood) The machine is designed to accept circular saw blades or dishes with mobile knives, and these pieces must be the original KIROGN parts.
- Do not use the cutters at soil level. The blades are only designed for pruning aerial vegetation (hedges, trees, woodland boundaries ...).

ADAPT THE CUTTING TOOL ACCORDING TO THE WORK SITE

We advise you to use the dishes with mobile knives for :

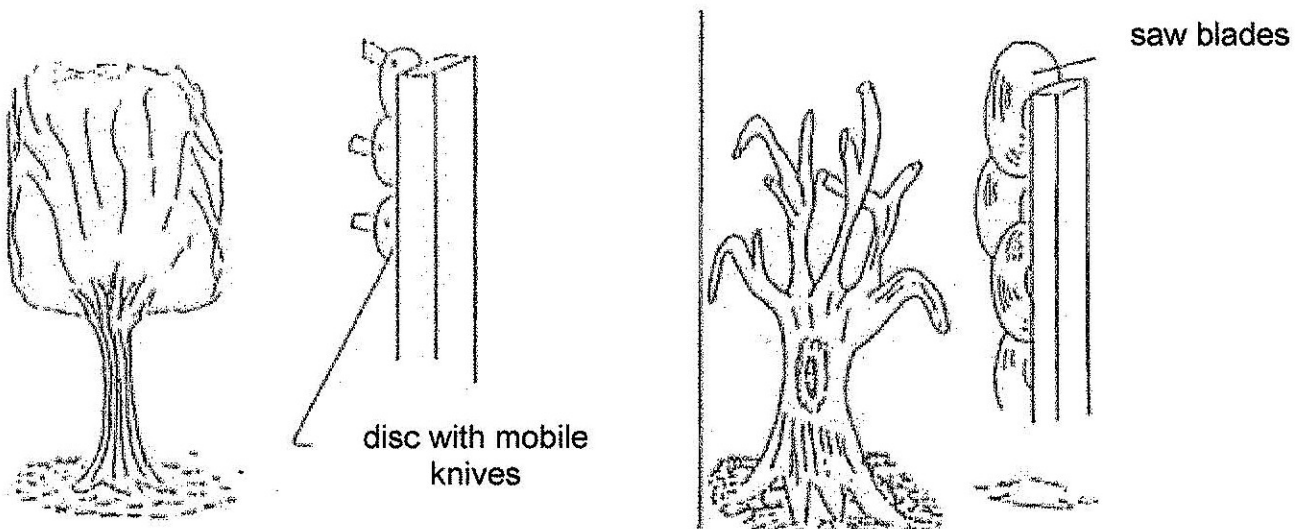
- Cutting green wood : maximum 20mm
- Cutting dry wood : maximum 15mm

When cutting more than 20mm green or 15mm dry wood use the circular saw blades.

IMPORTANT

We advise our clients to match the cutting tool to the size of branches to be cut.

Good maintenance of the cutting tools is essential to achieve good work.



Use the dishes with mobile knives for cutting green wood of less than 20mm and 15mm for dry wood.

Use the saw blades to cut green wood over 20mm and dry wood over 15mm.

- **Cutting blades :**

DOUBLE DISH WITH MOBILE KNIVES :

- **EFFICIENCY :**

Fits in place of the saw blades, the double dish with mobile knives prunes annual growth. (green or dry wood)

- **SAFETY :**

The dish is clamped, the knife can turn 360° on it's axel without hitting the central drum. The system allows the blades to retract in case of obstacles.

- **SPEED AND QUALITY OF CUT :**

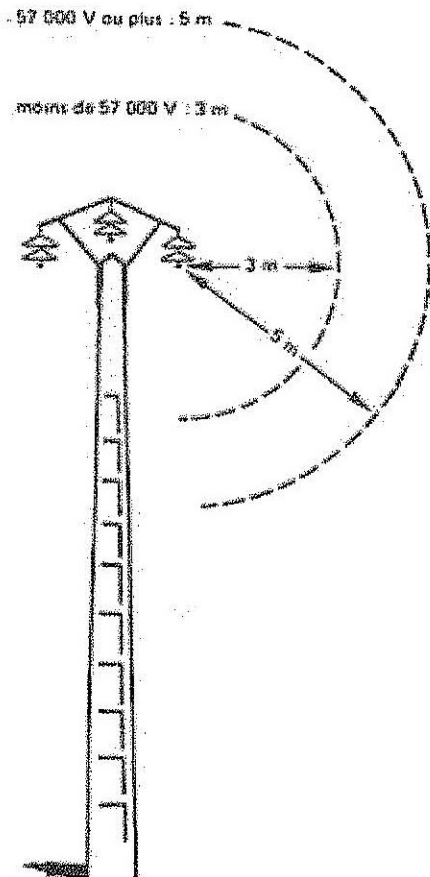
With these dishes, your cutter will absorb an exceptional volume of vegetation while maintaining a fine quality of cut.

III) PREPARATIONS BEFORE STARTING WORK :

- You must ensure before commencing work and using the blades that there is no-one within a radius of 150m of the cutting equipment.
- In the same way you must set out warning signs on the road and obtain the necessary authorisation from the local highways authority in order to close off traffic around the work site (pedestrians and vehicles).
- Use warning signs which conform to legislation.
- In all cases you must adhere to the regulations of the local authority.

- **Article : 172**

- Every business manager planning work beside electric lines or installations must inform the power supply company, who will instruct their local representative from the energy distributor, or the line owner or public or private installation owner to ascertain the power level in the lines or installations, in order to provide assurance that when carrying out work, personnel will not be at risk with tools, machinery, engines which they use, or any part of their material. Keep away from harmful conducting parts normally under tension, and particularly when working within :



a) three metres for lines or installations with high tension (value efficient for alternating current) existing in a normal regime between any two conductors less than 57,000V;

b) five metres for lines or installations of high tension (value efficient for alternating currents) for any charge equal or larger than 57,000V.

Make an allowance for any power conductor which may move into the path of the cutter due to such things as falling branches, the effect of high wind speed.

IV) RISKS OUTSIDE THE CONTROL OF THE DESIGNER :

- Inadequate speed selection with regard to the size of material to be cut;
- Dangerous positioning or inappropriate use of blades;
- Failure of energy supply in the circuit;
- Failure or malfunction in the hedgecutter control system;
- Overturning and unforeseen destruction due to instability of the complete assembly;
- Inadequate lighting in the work area;
- Risks due to dangerous environment;
- Inadequate vision from the drivers seat;
- Inexperienced operator;

This list is not exhaustive, nevertheless the aim is to bring to your attention the importance of safety and security during the use of this tool.

5

THE MODULAR CONCEPT

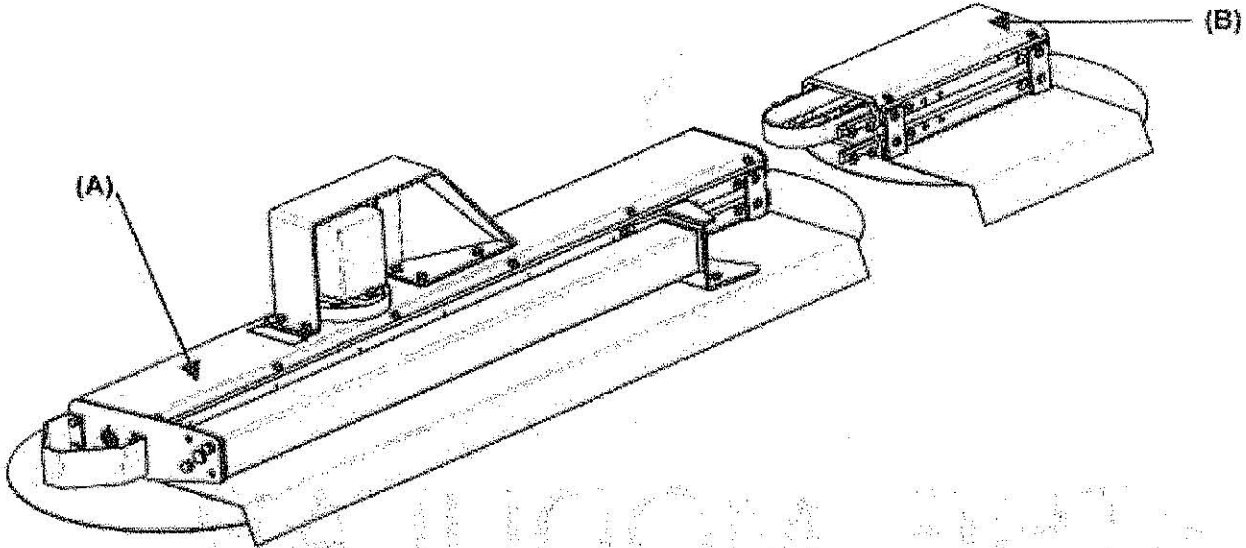
EXCLUSIVE TO KIROGN

I) WHAT IS THE KIROGN MODULAR CONCEPT ?

It's to enable a rapid adaptation of the length of the cutting head to the requirements of the operator, to add 1,2 or 3 blades (or more).

Thanks to the simple mounting concept, you can rapidly add or remove a cutting module. Thus you can transform a 4 blade to 5 blades or 4 blades into 6 blades etc..

Your cutting head is made of a base unit equipped with a hydraulic motor (A), onto which you can fit an additional module (B).



II) HOW TO CHOOSE SUPPLEMENTARY MODULES ?

1) Consult your dealer : he can give you details of the alternative possibilities for mounting additional modules.

Attention : the addition of a supplementary module gives rise to an increase in weight of your L.E.M. cutting head, therefore you must verify that the arm of your hedgecutter (or its carrier) can support the weight without causing a loss of reliability or stability to the entire outfit.

Only the supplier of the hedgecutter (or the carrier) is able to give you this information at your request, the KIROGN company will give you the weight of the modules.

2) Defining your choice :

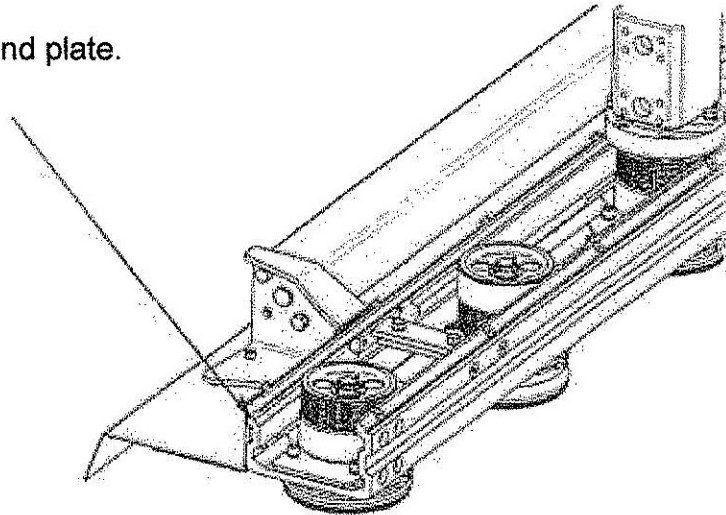
- The choice of a supplementary module must be a function of the work which you wish to do with the cutting head.
- A cutting head well suited to its work must be easy to control. You must determine its performance and utilisation.
- **DIAMETER OF THE SAW BLADES** : it is preferable to add a module which has the same blades as on the base unit.

III) HOW TO MOUNT ADDITIONAL MODULES :

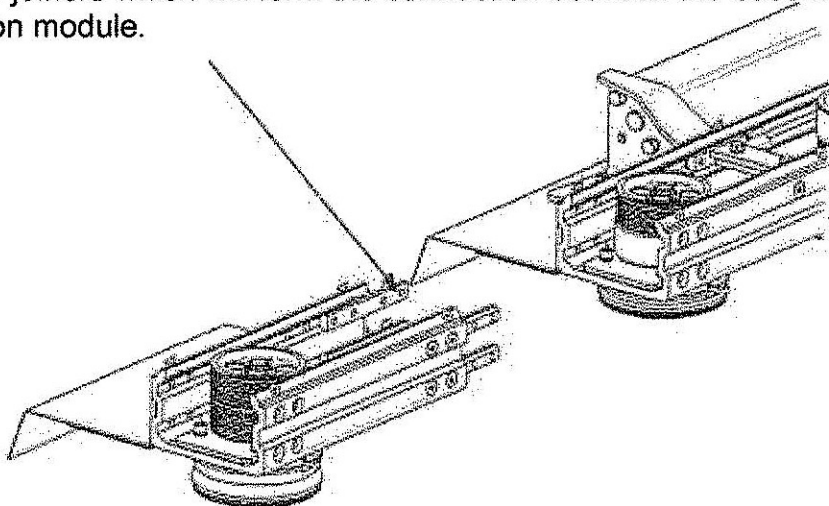
Process :

No1 : Unscrew the 8 screws in order to remove the end plate situated at the end of the cutting head.

No2 : Completely remove the end plate.

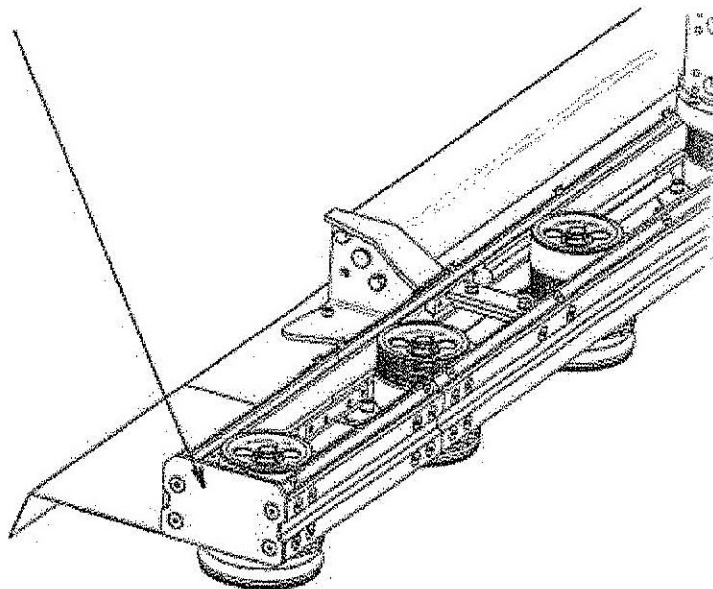


No3 : Fit the 4 joiners which will form the connection between the base module and the extension module.



No4 : After having fixed the extension module, fit the end plate.

No5 : Fit the belt and tension it according to the instructions on page 33.



No6 : Refit the cover of the L.E.M.

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MAINTENANCE

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l) MAINTENANCE :

NEVER SERVICE A MACHINE WHEN IT IS RUNNING

MAINTENANCE AND SERVICE INTERVALS	FREQUENCY OF SERVICE	MAINTENANCE	
		BY USER	BY SPECIALIST
a) Check hoses, nuts and bolts	Every 8 hrs	X	
b) Clean interior and exterior completely	Every 8 hrs	X	
c) Grease the pulleys	Every 10 hrs	X	
d) Check belt tension	Every 8 hrs	X	
e) Check the movement of the dishes and swinging blades	Every 2 hrs	X	
f) Check the cutting blades	Every 1 hr	X	
g) Sharpen the saw blades	Every 8 hrs		X
h) Align the saw blades	Each sharpening		X
i) Check general blade condition	Every 10 sharpenings		X

this list is neither exhaustive nor contractual, its only aim is to help service your equipment, in any case do not hesitate to contact our service department.

a) LUBRICATIONS :

Lubrication conditions

The cutter is lubricated for its first operation.

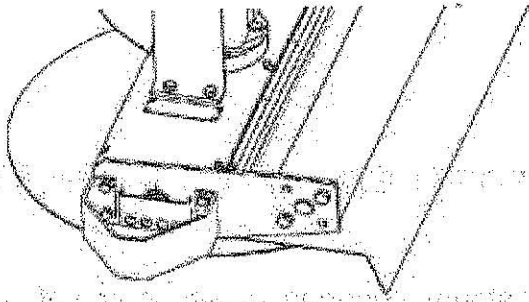
Lubrication intervals

Every 10 hours of use.

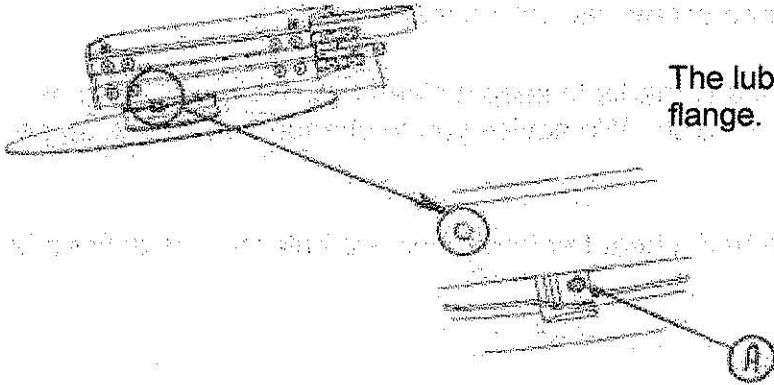
Type of lubricating product

We advise you to use : type EP2 ISO : LXBCF B2

Centralised lubrication :



The L.E.M. cutter is equipped with a centralised lubrication system for the basic module. If your L.E.M. cutter is equipped with a basic module on which an additional module is fitted the bearing block(s) of the additional module are not equipped with this system, lubricate as shown below.



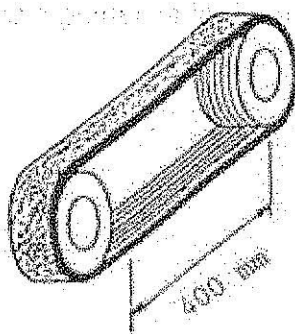
The lubrication system is placed inside the flange.

b) BELT TENSION :

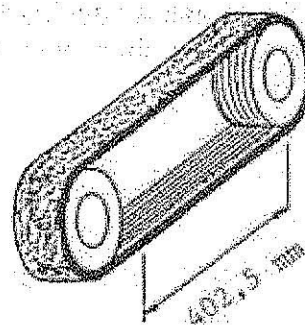
Compulsory : Tension the belts after the first 8 hours of use.

- 1) Loosen the 4 bolts of the bearing block but not the one on the hydraulic motor.
- 2) To tension, begin from the motor bearing block moving towards both ends.
- 3) Tensioning is done using the tensioning screws placed inside each bearing block.
- 4) Fit the belt rigid but not under tension.
Make 2 marks on the belt, measure the distance between those 2 marks = 400mm.
Tension progressively up to 402.5mm.

Do not forget to move the belt around the pulley while tensioning.



before tension



after tension

c) DISH MAINTENANCE :

To optimise your return on the investment in a KIROGN L.E.M. cutter you must take care.

- All maintenance works are done, with cutter stopped, thermal power source off and PTO stopped.
- Before each use check all bolts and screws as well as their condition.
- Knives on dishes must be without any marks to keep a clean cut. If it is not the case immediately change them both on a dish. We advise you to change bolts at the same time as knives.
- Never sharpen knives, they have had a heat treatment and are balanced as defined by KIROGN.

d) SAW BLADE MAINTENANCE :

To optimise your return on the investment in a KIROGN L.E.M. cutter, regular sharpening is necessary as is aligning.

On average, depending on the various cutting differences that you can meet, cutting diameter, wood type, cutting period etc..., recommended sharpening every 8 working hours and an alignment of saw blades.

The saw blade can become deformed which will reduce cutting performance. The saw blade can vibrate on wood.

To avoid these problems ask a saw blade specialist to check it at each sharpening and to maintain the blade every ten sharpenings.

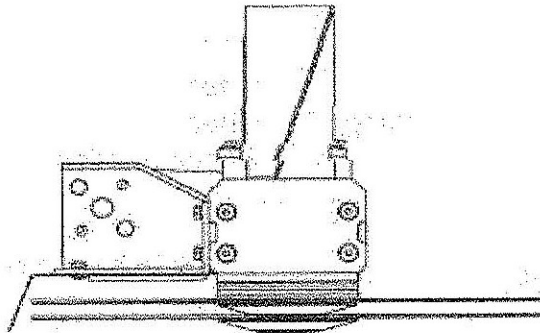
II) EMERGENCY REPAIRS :

NEVER WORK ON THE L.E.M. CUTTER WHILE THE MOTOR IS RUNNING

a) PUT THE L.E.M. CUTTER ON THE FLOOR :

All maintenance to be done with the L.E.M. cutter on a wooden pallet on a flat floor.

Use the correct tools and wear gloves to protect your hands.



Place the saw blades gently onto the pallet. Never apply undue force to the blades or they will bend and become useless.

b) TROUBLESHOOTING :

POSSIBLE FAILURES	CAUSES & REMEDY
Hydraulic motor joint leaking	Change the joint after checking the drainage circuit (max. pressure 0.7K in continuous flow)
Blades stop turning	Tension belts as shown in manual
Regular purr	Check lubricating Change bearings
Irregular noise as "Tac-Tac" with speed variation depending on rotation speed	Check bearing and pulley condition
Numerous stops of the cutter while working	Check sharpening Check pressure on limiter "150 bar" Check rotation speed 2200 RPM
Heating up of the bearing blocks	Check if there are no foreign bodies in bearing blocks
Noisy hydraulic motor when starting or stopping the cutter bar	Start up and slow down motor with care. Do not engage or disengage oil drive abruptly.
White smoke from the cutter body	Tension belts

This list is not exhaustive, nevertheless the aim is to assist with technical problems. Do not hesitate to consult our technical department.

7

TECHNICAL INFORMATION

SAYELL EQUIPMENT

Tel: 01732 865302

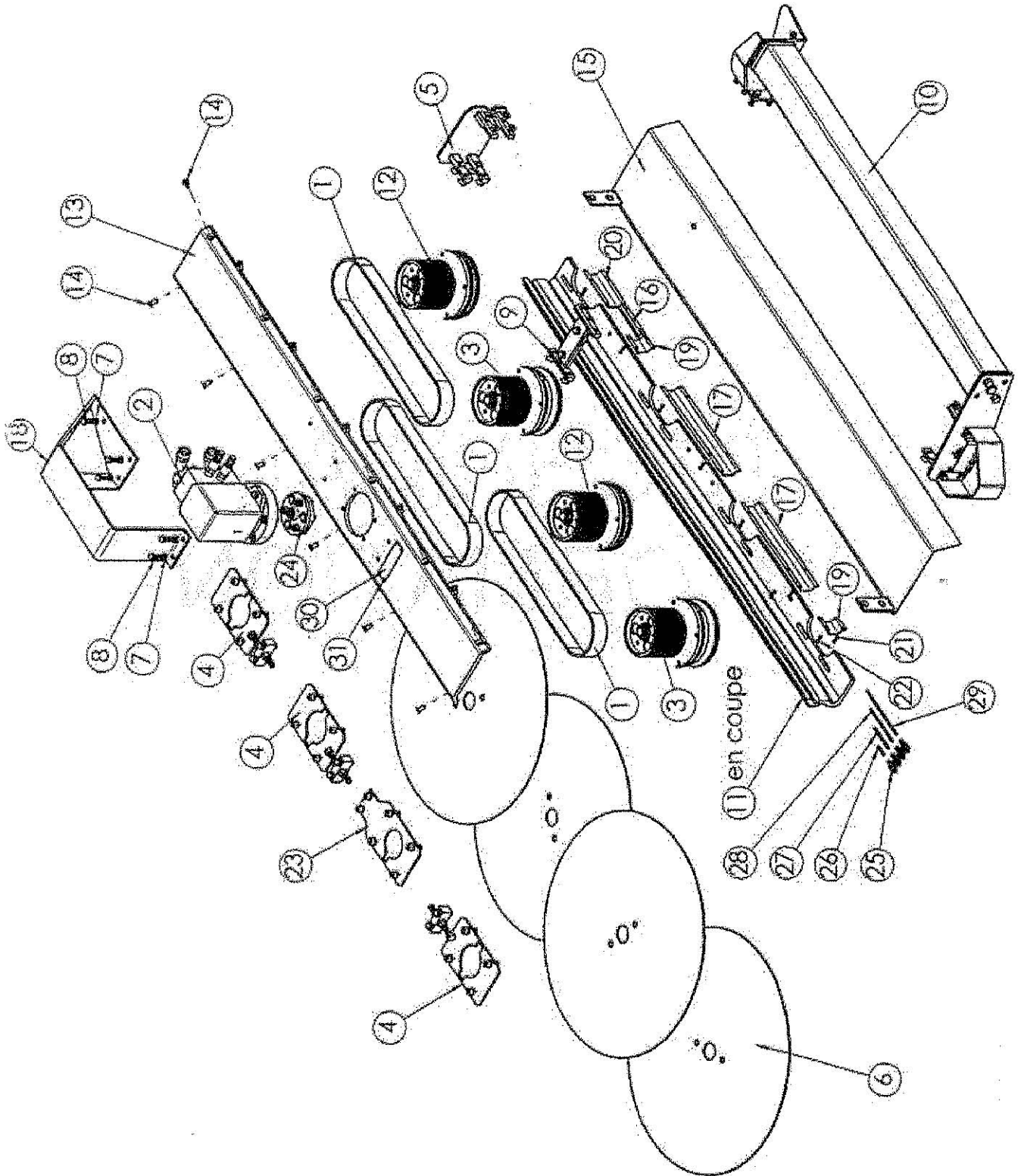
Fax: 01732 864464

4 Blade Head

Ø 600 -> Ref. : 5812.9007

Ø 650 -> Ref. : 5812.9008

Ø 700 -> Ref. : 5812.9009



4 Blade Head

SAYELL EQUIPMENT

Tel: 01732 865302

Fax: 01732 864464

REP.	REF.	QTY.	DESCRIPTION
1	6531.0107	3	Poly Vee belt 1397/55.0 L 10
2	Page 56	1	Motor assembly
3	Page 52	2	Poly Vee - long shaft assembly
4	Page 49	3	Belt adjustment assembly
5	Page 48	1	End plate assembly
6	7120.0214	4	Blade Ø 600
	7120.0215		Blade Ø 650
	7120.0212		Blade Ø 700
7	6507.5104	5	Washer W 12
8	6502.3507	5	Screw H 12 x 25 ZN
9	Page 48	1	Connection assembly
10	Page 46	1	Attachment assembly
11	5812.6401	1	Frame
12	Page 50	2	Poly Vee - short shaft assembly
13	5812.5401	1	Cover
14	6504.0404	12	Screw FZ M 10 x 25
15	5812.2641	1	Sheet metal deflector. 4 blades
16	5812.0704	1	Interior slice
17	5812.1603	2	Cover for long grease tube
18	5812.1501	1	Cover. Motor protector
19	5812.1602	2	Cover for short grease tube
20	5812.1601	1	Cover for grease tube
21	6507.5111	14	Washer W 5 ZN
22	6503.1110	14	Screw CHC M5 x 12
23	Page 49	1	Motor plate assembly
24	Page 55	1	Coupling assembly
25	Page 54	4	Grease pipe through bulkhead
26	5812.1803	1	Tube 3/6 L = 340
27	5812.1804	1	Tube 3/6 L = 820
28	5812.1805	1	Tube 3/6 L = 1320
29	5812.1806	1	Tube 3/6/L = 1830
30	6991.0003	1	Registration plate
31	6514.0102	4	Rivet POP Ø 4 x 12

SAYELL EQUIPMENT

Tel: 01732 865302

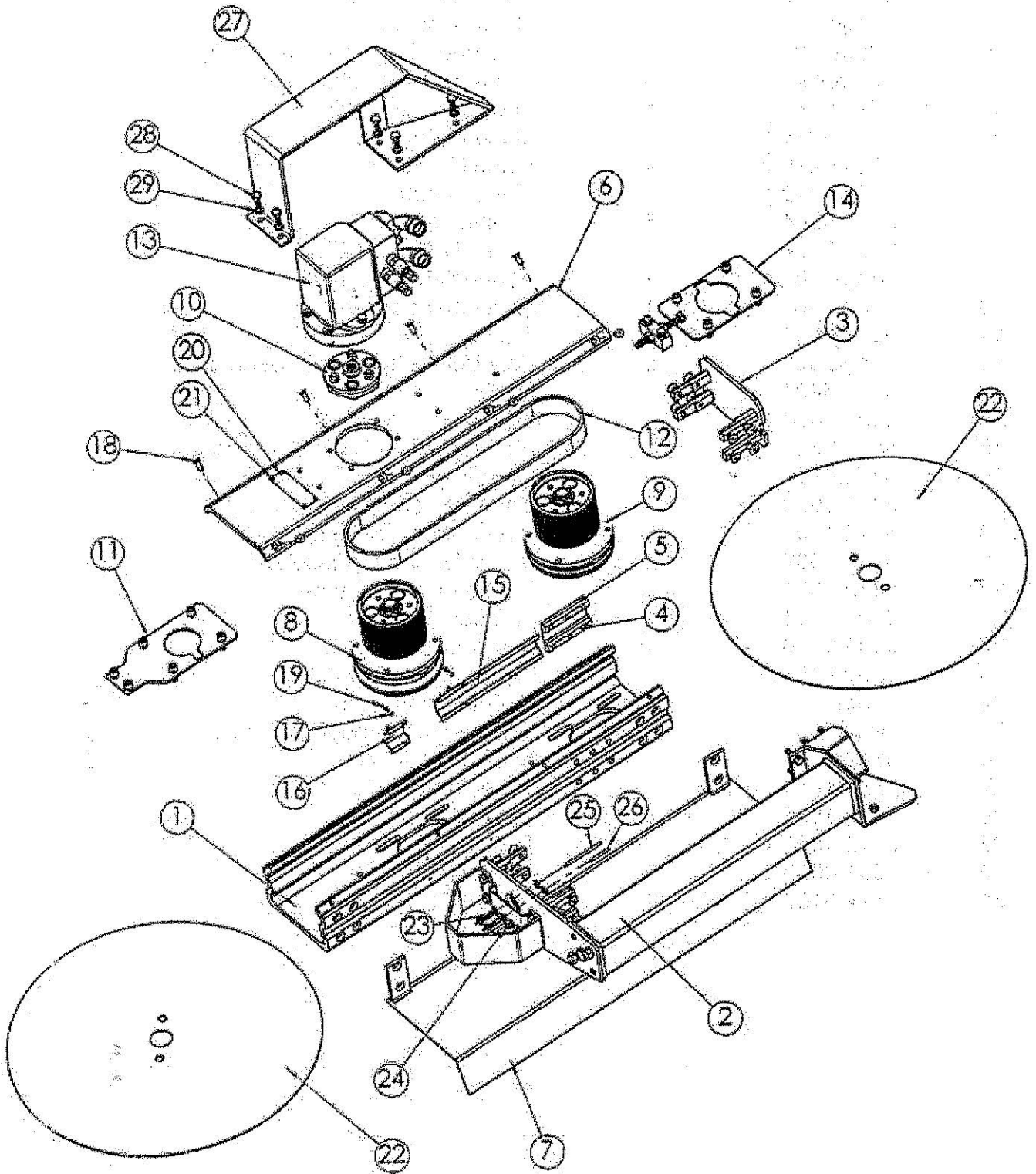
Fax: 01732 864464

2 Blade Head

Ø 600 -> Ref. : 5812.9001

Ø 650 -> Ref. : 5812.9002

Ø 700 -> Ref. : 5812.9003



REP.	REF.	QTY.	DESCRIPTION
1	5812.6201	1	Frame
2	Page 46	1	Holding assembly 2 blades
3	Page 48	1	End plate
4	5812.0704	1	Interior slice
5	5812.0705	1	Plated slice
6	5812.5201	1	Cover
7	5812.2621	1	2 blade cover
8	Page 52	1	Assembly Poly Vee long
9	Page 50	1	Assembly Poly Vee short
10	Page 55	1	Coupling assembly
11	Page 49	1	Motor plate
12	6531.0107	1	Poly Vee 1397/55.0 L 10
13	Page 56	1	Motor
14	Page 49	1	Tensioner
15	5812.1601	1	Cover for long grease tube
16	5812.1602	1	Cover for short grease tube
17	6507.5111	4	Washer W 5 ZN
18	6504.0404	8	Screw FZ M 10 x 25
19	6503.1110	4	Screw CHC M 5 x 12
20	6991.0003	1	Registration plate
21	6514.0102	4	Rivet POP Ø 4 x 12
22	7120.0214	2	Blade Ø 600
	7120.0215		Blade Ø 650
	7120.0212		Blade Ø 700
23	Page 54	2	Bulkhead connecting piece grease
24	6543.2004	2	Stopper
25	5812.1801	1	Tube 3/6 L = 990
26	5812.1802	1	Tube 3/6 L = 510
27	5812.1501	1	Cover. Motor protector
28	6502.3507	5	Screw H 12 x 25 ZN
29	6507.5104	5	Washer W 12

SAYELL EQUIPMENT

Tel: 01732 865302

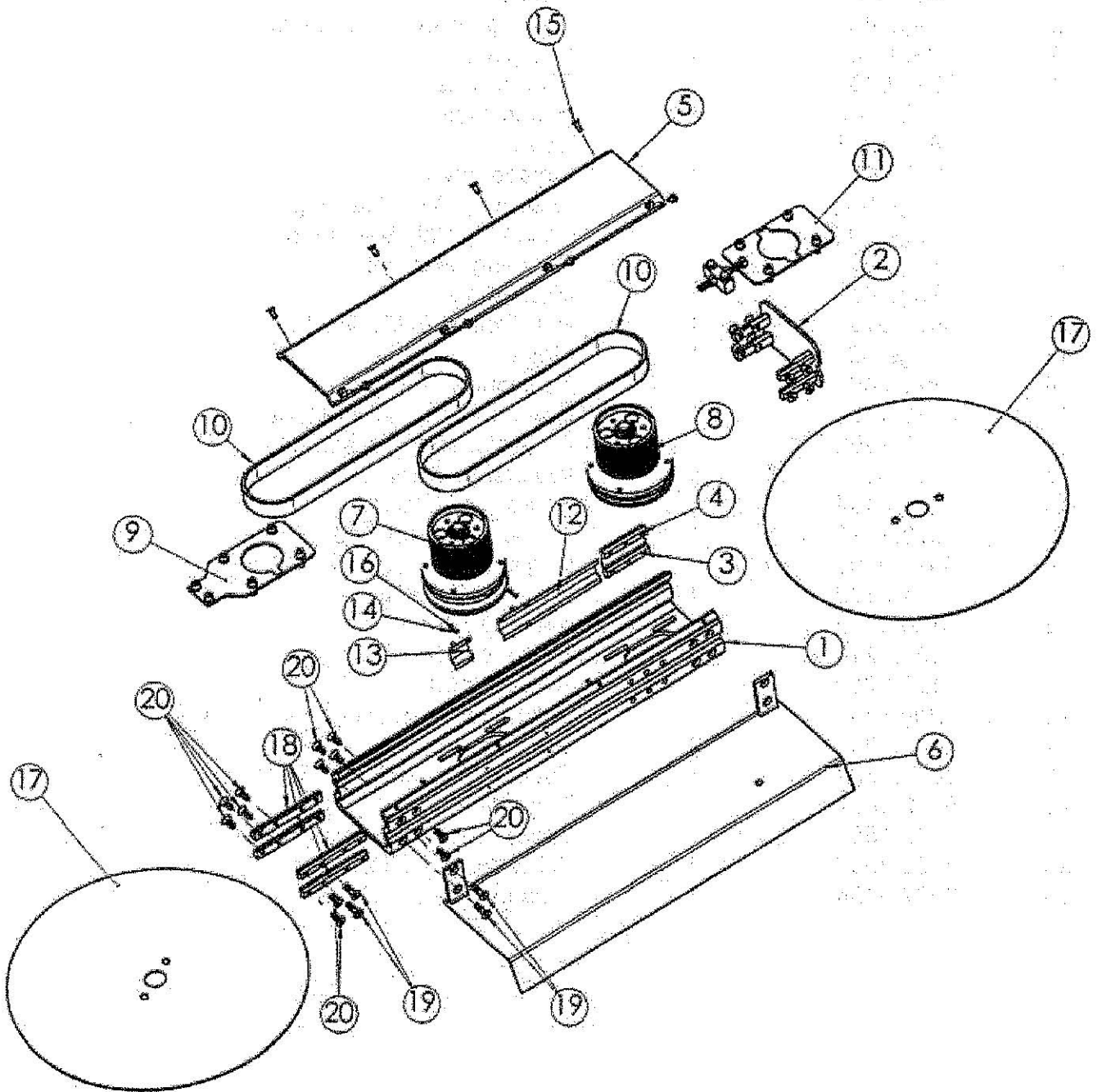
Fax: 01732 864464

Extension piece 2 blades

Ø 600 -> Ref. : 5812.9016

Ø 650 -> Ref. : 5812.9017

Ø 700 -> Ref. : 5812.9018



REP.	REF.	QTY.	DESCRIPTION
1	5812.6201	1	Frame
2	Page 48	1	End plate
3	5812.0704	1	Interior slice
4	5812.0705	1	Plated slice
5	5812.5201	1	Cover
6	5812.2621	1	2 blade guard
7	Page 52	1	Assembly Poly Vee long
8	Page 50	1	Assembly Poly Vee short
9	Page 49	1	Motor plate assembly
10	6531.0107	2	Poly Vee 1397/55.0 L 10
11	Page 49	1	Tensioning assembly
12	5812.1601	1	Cover for grease tube
13	5812.1602	1	Cover for grease tube short
14	6507.5111	4	Washer W 5 ZN
15	6504.0404	8	Screw FZ M 10 x 25
16	6503.1110	4	Screw CHC M5 x 12
17	7120.0214	2	Blade Ø 600
	7120.0215		Blade Ø 650
	7120.0212		Blade Ø 700
18	5812.0401	4	Slice modular element
19	6504.0503	4	Screw FZ M 12 x 40
20	6504.0504	12	Screw FZ M 12 x 30

SAYELL EQUIPMENT

Tel: 01732 865302

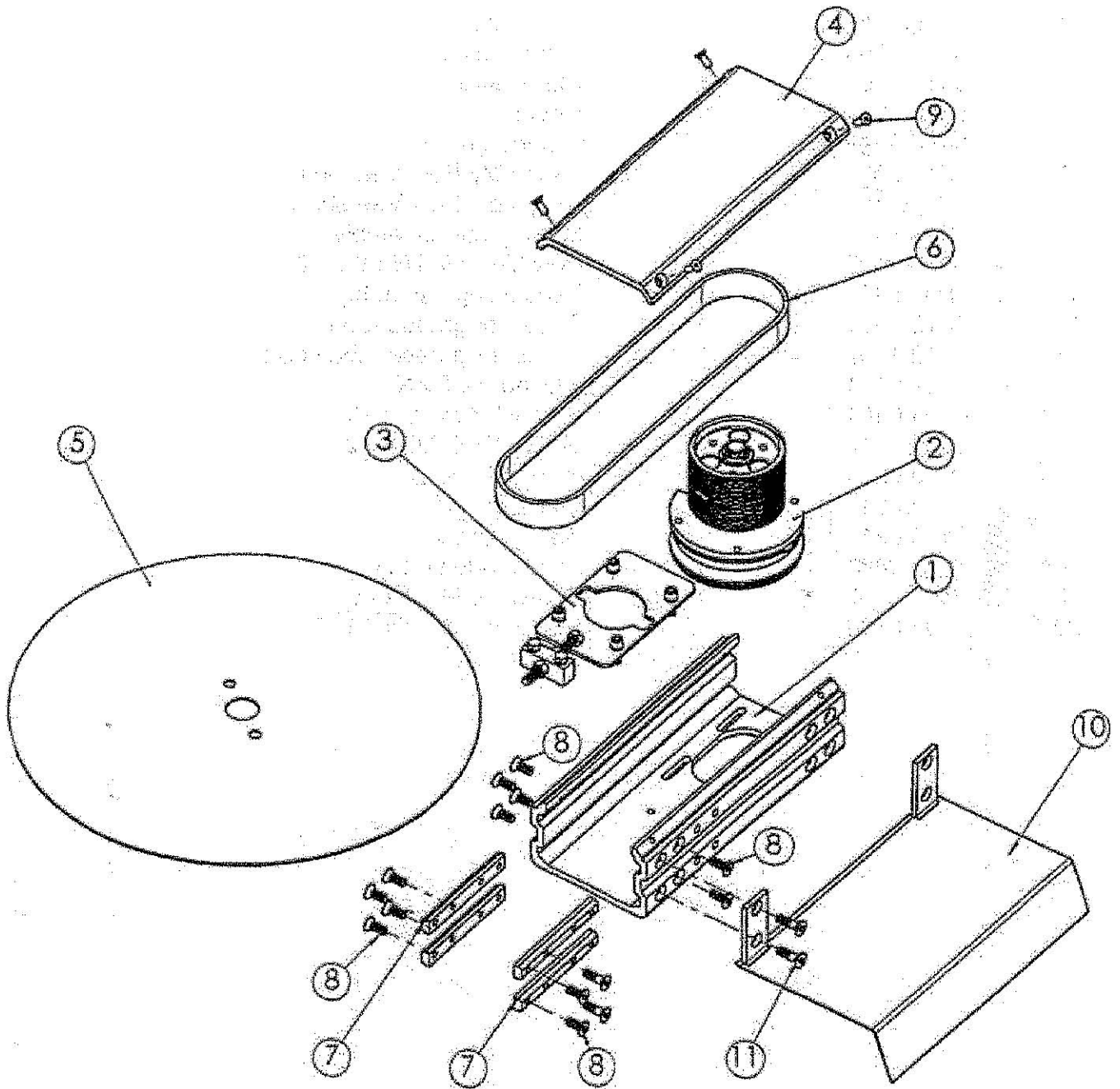
Fax: 01732 864464

Extension piece 1 blade

Ø 600 -> Ref. : 5812.9007

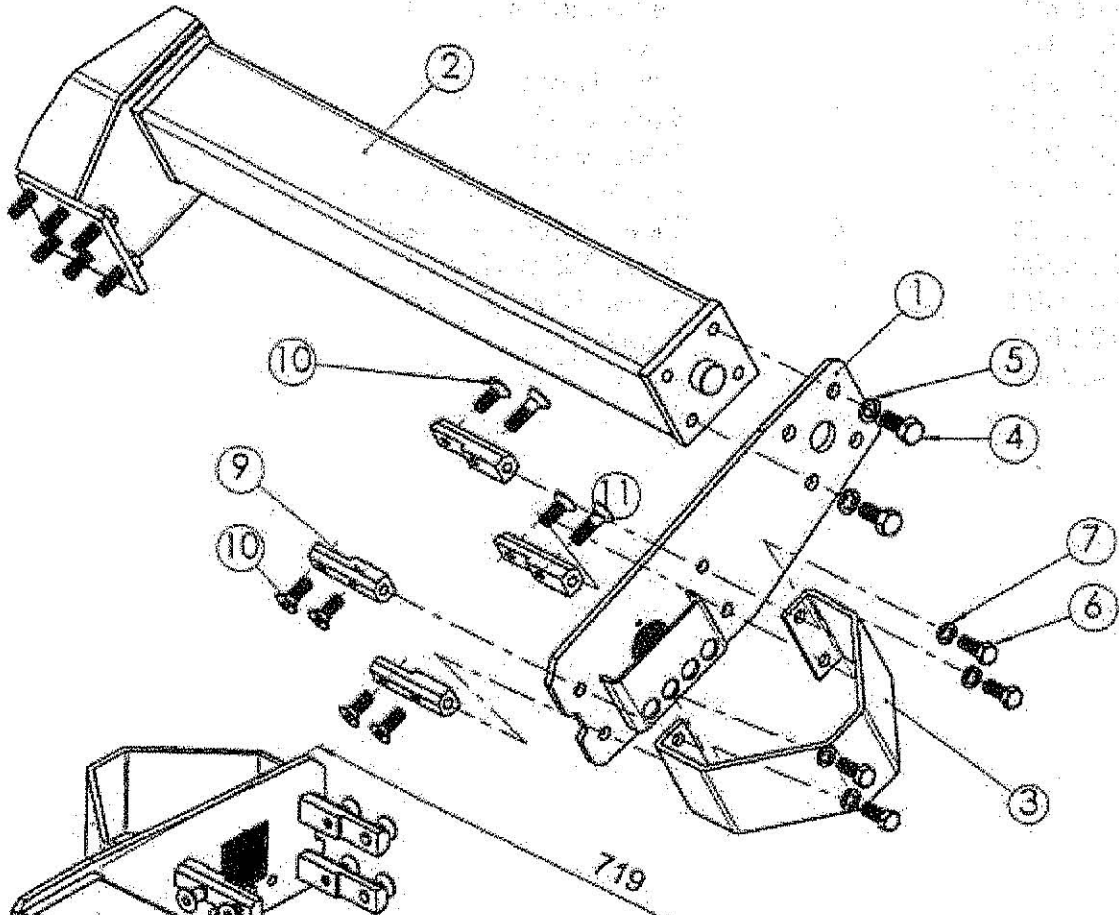
Ø 650 -> Ref. : 5812.9008

Ø 700 -> Ref. : 5812.9009

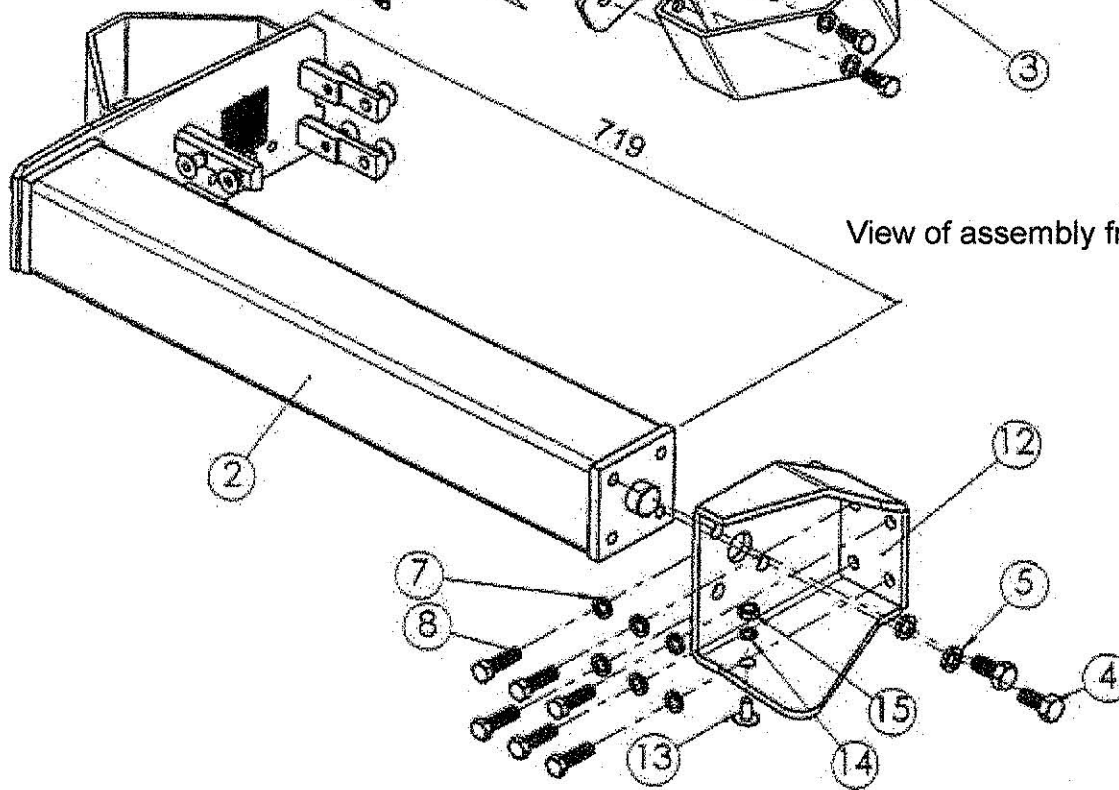


REP.	REF.	QTY.	DESCRIPTION
1	5812.6101	1	Frame 1 blade
2	Page 52	1	Assembly Poly Vee long
3	Page 49	1	Tensioning assembly
4	5812.5101	1	Cover
5	7120.0214	1	Blade Ø 600
	7120.0215		Blade Ø 650
	7120.0212		Blade Ø 700
6	6531.0107	1	Poly Vee 1397/55.0 L 10
7	5812.0401	4	Slice modular element
8	6504.0504	12	Screw FZ M 12 x 30
9	6504.0404	4	Screw FZ M 10 x 25
10	5812.2611	1	1 blade guard
11	6504.0503	4	Screw FZ M 12 x 40

View of assembly from foot

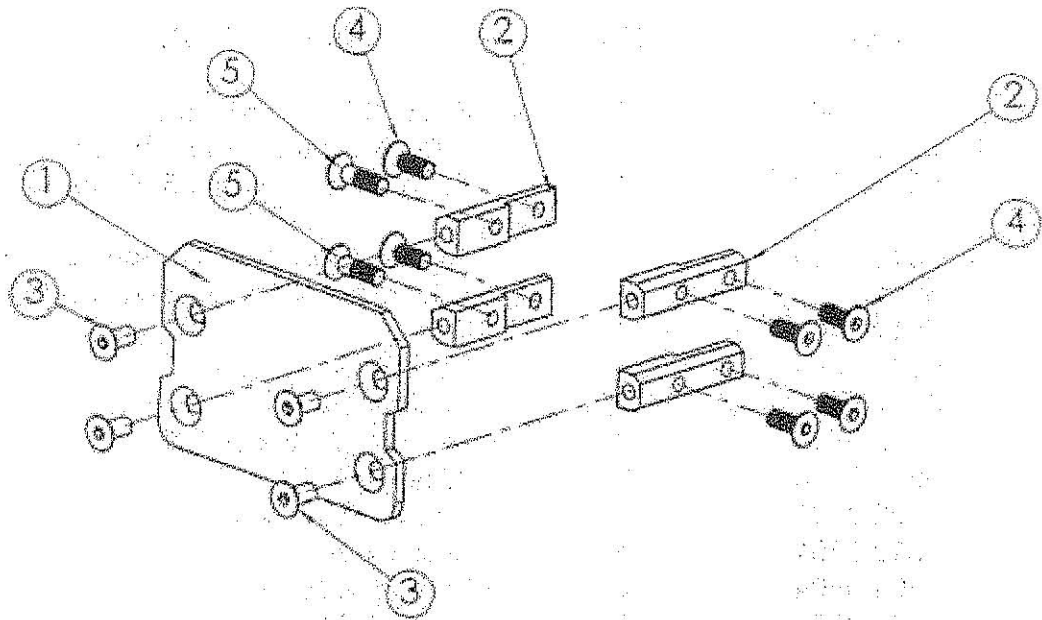


View of assembly from support



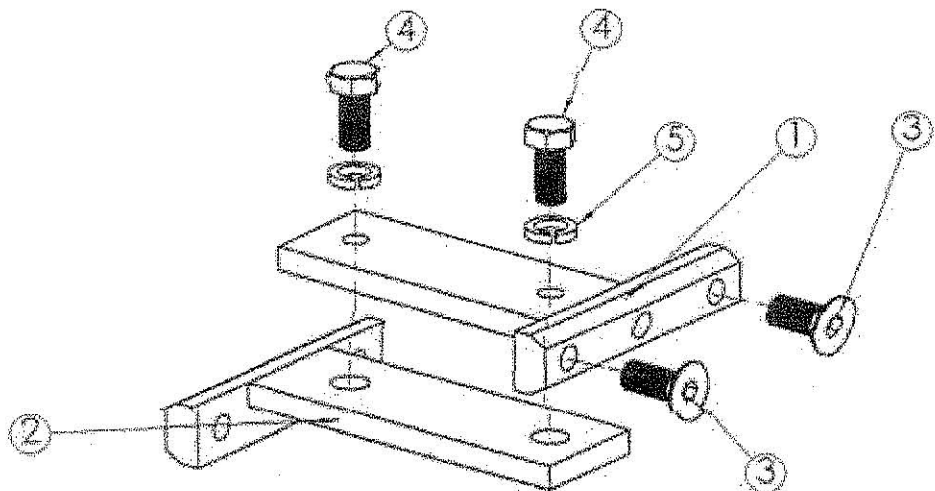
REP.	REF.	QTY.	DESCRIPTION
1	5812.1001	1	Support tube end plate
2	5812.1201	1	Tube to adapt 2 and 3 blades Lg 719 <input checked="" type="checkbox"/> 100
	5812.1203		
	5812.1214	1	Tube to adapt 2 and 3 blades Lg 719 <input checked="" type="checkbox"/> with support
	5812.1216		
3	5812.1401	1	Foot
4	6502.3601	4	Screw HM 14 x 30
5	6507.5105	4	Washer W 14
6	6502.3501	4	Screw HM 12 x 30 ZN
7	6507.5104	10	Washer W 12
8	6502.3503	6	Screw HM 12 x 40
9	5812.0301	4	Slice exterior
10	6504.0504	6	Screw FZ M 12 x 30
11	6504.0503	2	Screw FZ M 12 x 40
12	5812.1101	1	Square support tube
13	6505.0501	1	Screw roundhead M 10 x 20
14	6507.5103	1	Washer W 10 ZN
15	6506.0104	1	Nut HM 10 ZN

End Plate



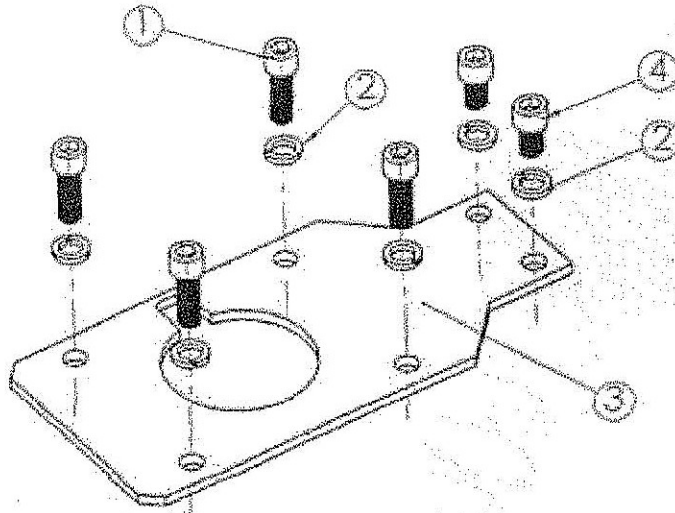
REP.	REF.	QTY.	DESCRIPTION
1	5812.1301	1	Plate cp 8
2	5812.0301	4	Exterior slice
3	6504.0501	4	Screw FZ M 12 x 25
4	6504.0504	6	Screw FZ M 12 x 30
5	6504.0503	2	Screw FZ M 12 x 40

Connector Assembly



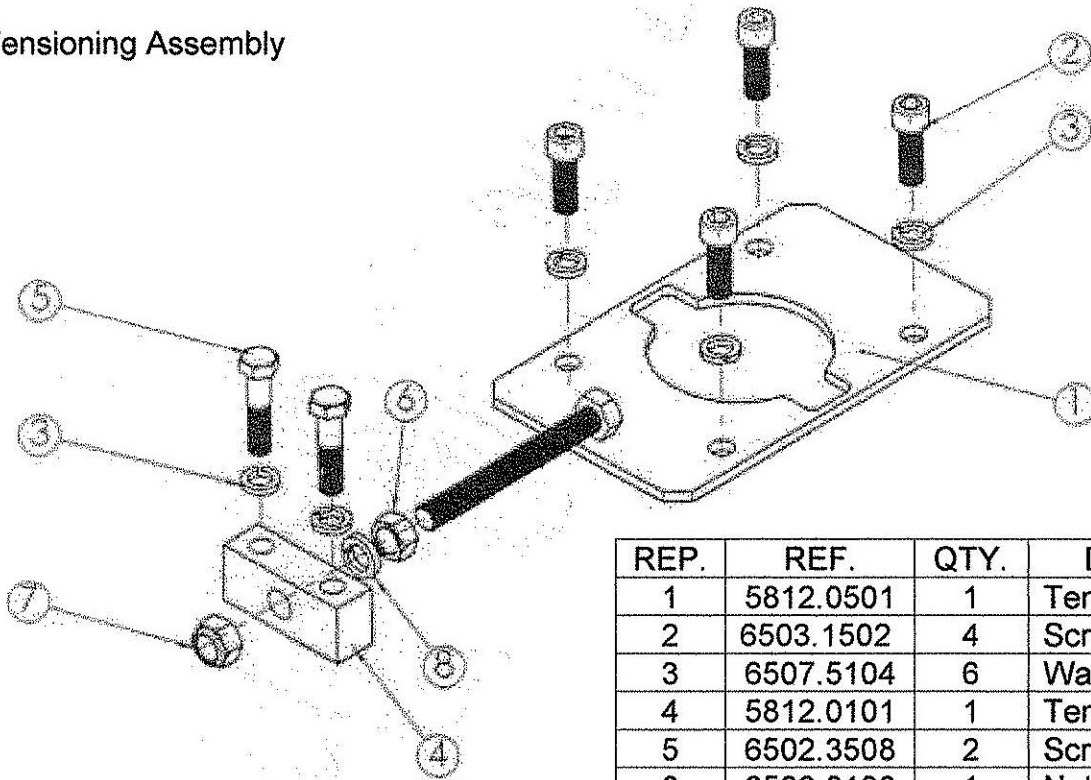
REP.	REF.	QTY.	DESCRIPTION
1	5812.0702	1	Bottom connector
2	5812.0703	1	Top connector
3	6504.0504	2	Screw FZ M 12 x 30
4	6502.3507	2	Screw H 12 x 25 ZN
5	6507.5104	2	Washer W 12

Motor Plate

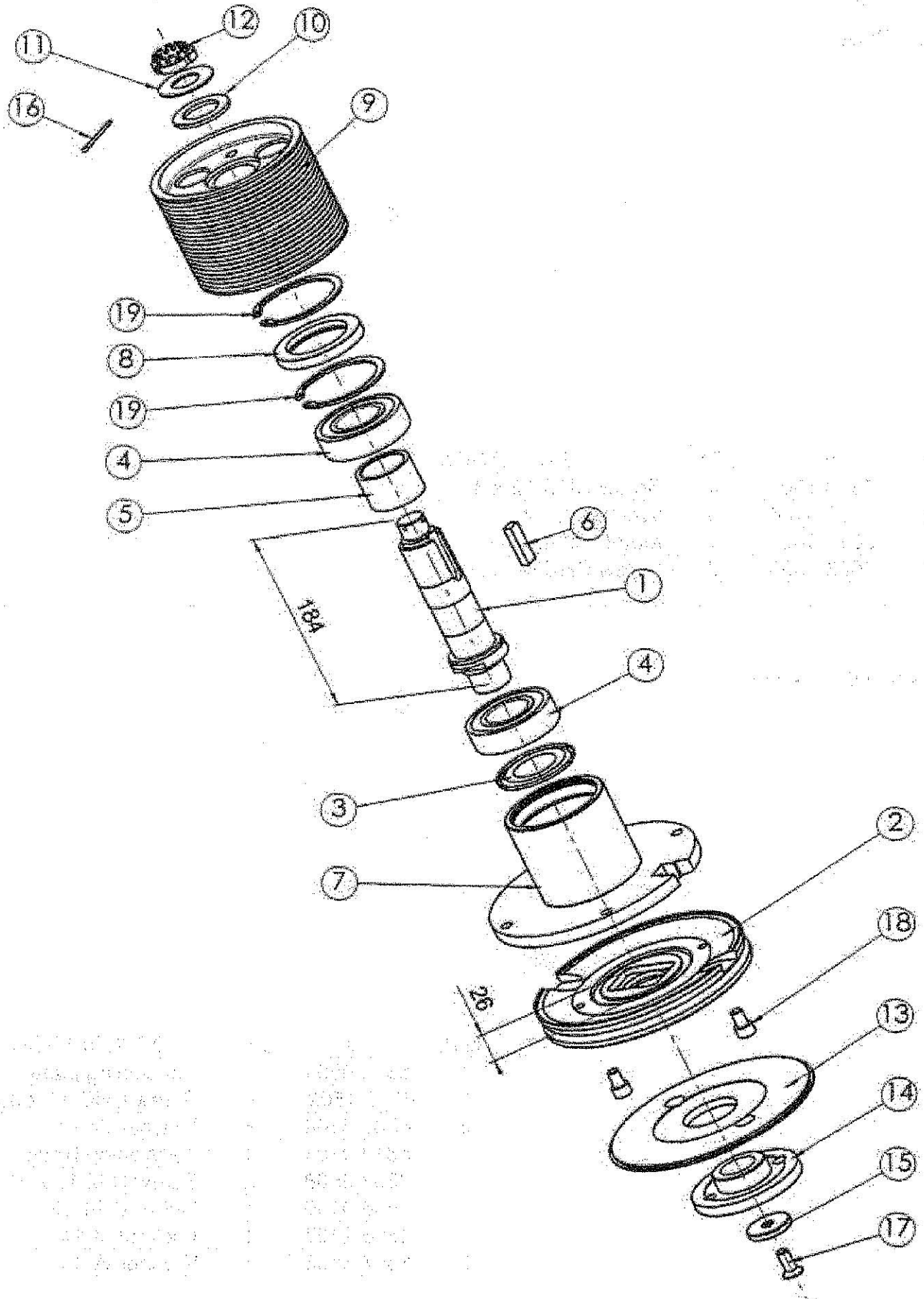


REP.	REF.	QTY.	DESCRIPTION
1	6503.1502	4	Screw CHC 12 x 35
2	6507.5104	6	Washer W 12
3	5812.0601	1	Motor joining plate
4	6503.1508	2	Screw CHC 12 x 20

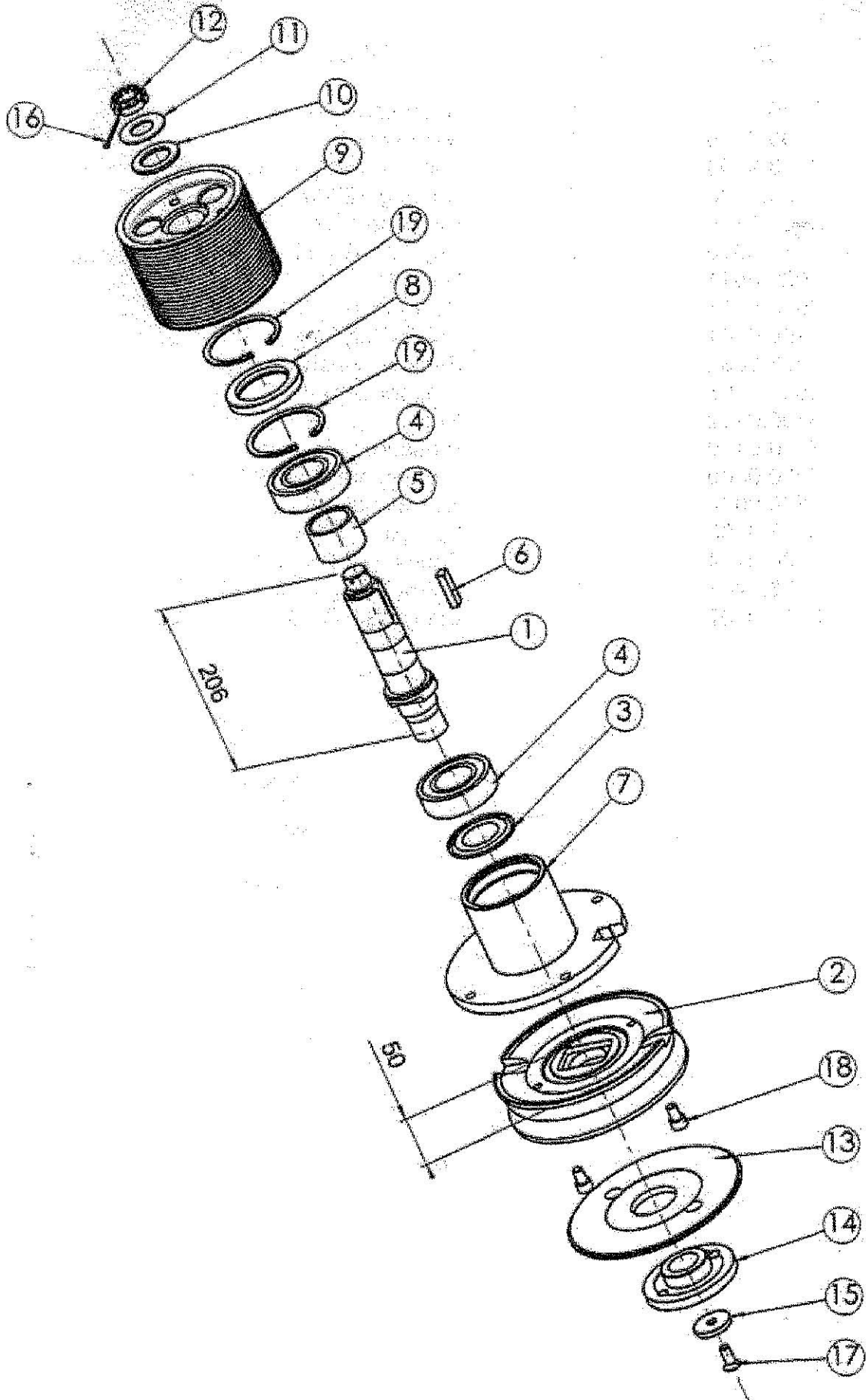
Tensioning Assembly



REP.	REF.	QTY.	DESCRIPTION
1	5812.0501	1	Tensioning plate
2	6503.1502	4	Screw CHC 12 x 35
3	6507.5104	6	Washer W 12
4	5812.0101	1	Tensioning block
5	6502.3508	2	Screw H M 12 x 50
6	6506.0106	1	Nut H M 14 ZN
7	6506.2107	1	Locknut M 14
8	6507.5105	1	Washer W 14



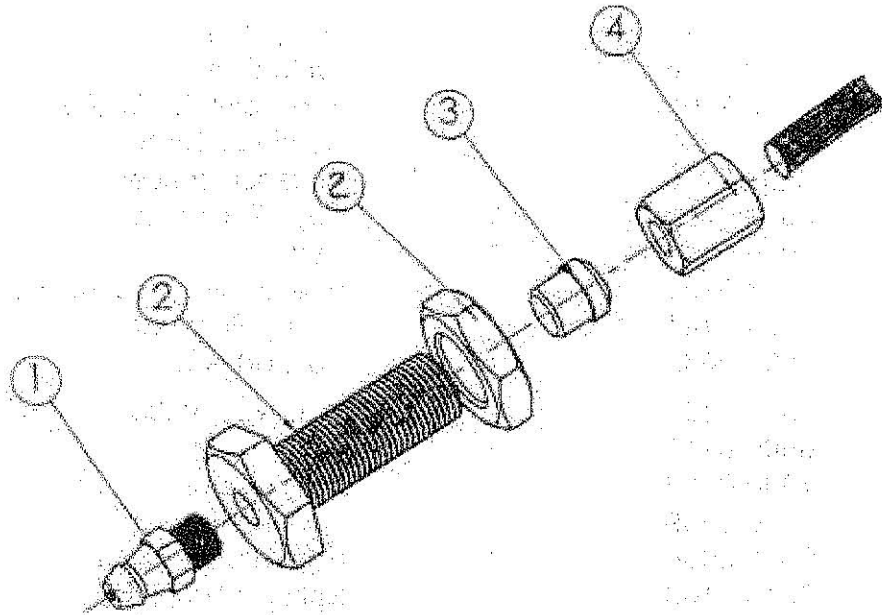
REP.	REF.	QTY.	DESCRIPTION
1	7010.0322	1	Short shaft
2	7030.0715	1	Narrow dish
3	6523.9006	1	Nilos joint 22208 AV
4	6523.1203	2	Bearing 22208
5	7050.0119	1	Distance spacer
6	6512.0305	1	Key 12 x 8 x 40
7	7020.0511	1	Hub
8	6523.9101	1	Seal turning 55 x 80 x 10
9	7160.0141	1	Pulley Poly Vee
10	6508.0032	1	Support washer
11	6507.3103	1	Washer 25/50/2
12	6506.0112	1	Nut
13	7060.0110	1	Pressure disc
14	7050.0309	1	Locking nut
15	6508.0034	1	Round plate Ø 10
16	6513.3103	1	Split pin V 3 x 40
17	6504.0404	1	Screw FZ M 10 x 25
18	6503.1401	2	Screw CHC M 10 x 16
19	6511.0107	2	Circlip INT Ø 80



REP.	REF.	QTY.	DESCRIPTION
1	7010.0323	1	Long shaft
2	7030.0716	1	Wide dish
3	6523.9006	1	Nilos joint 22208 AV
4	6523.1203	2	Bearing 22208
5	7050.0119	1	Distance spacer
6	6512.0305	1	Key 12 x 8 x 40
7	7020.0511	1	Hub
8	6523.9101	1	Seal turning 55 x 80 x 10
9	7160.0141	1	Pulley Poly Vee
10	6508.0032	1	Support washer
11	6507.3103	1	Washer 25/50/2
12	6506.0112	1	Nut
13	7060.0110	1	Pressure disc
14	7050.0309	1	Locking nut
15	6508.0034	1	Round plate Ø 10
16	6513.3103	1	Split pin V 3 x 40
17	6504.0404	1	Screw FZ M 10 x 25
18	6503.1401	2	Screw CHC M 10 x 16
19	6511.0107	2	Circlip INT Ø 80

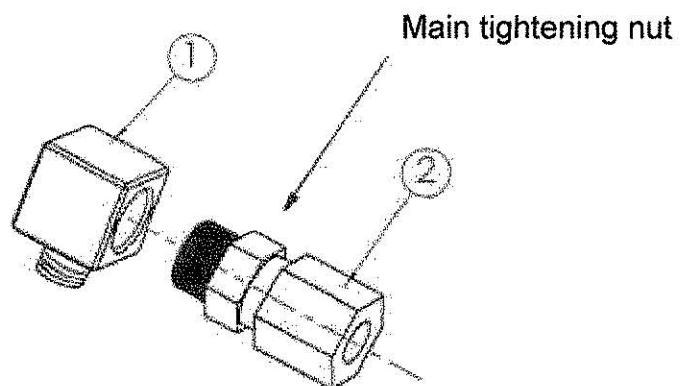
- Bulkhead crossing
- Connecting assembly

Bulkhead Crossing Piece, Grease

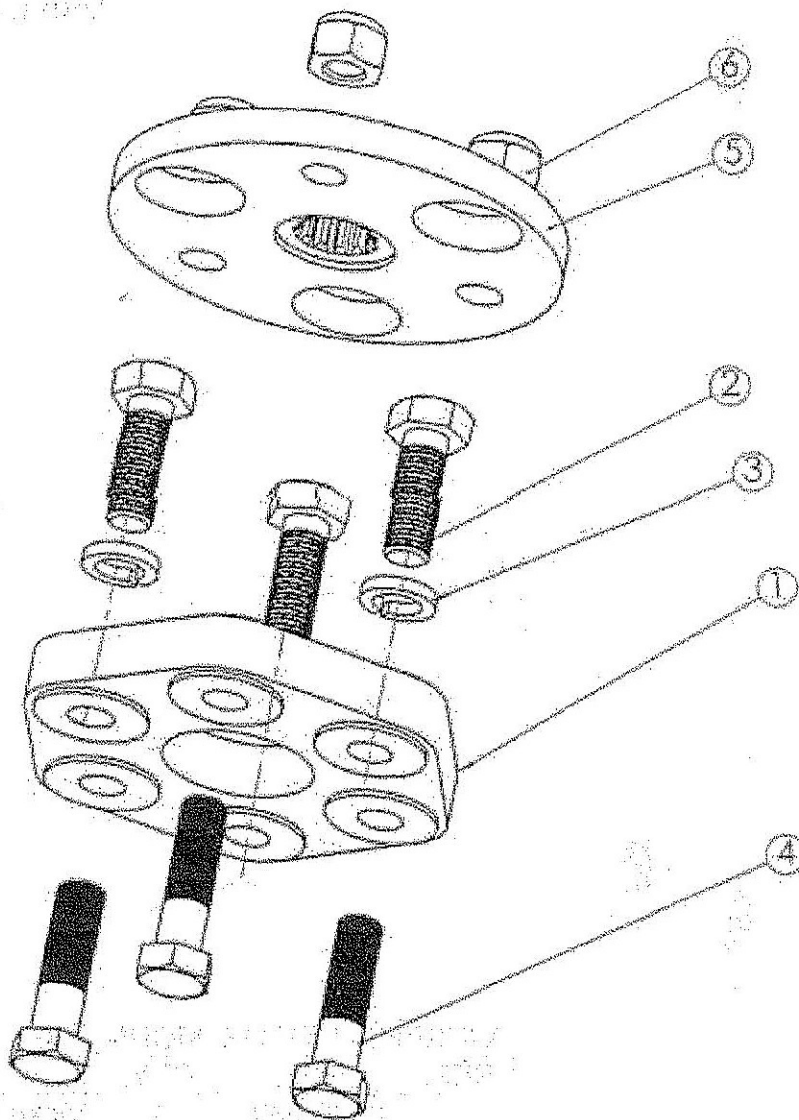


REP.	REF.	QTY.	DESCRIPTION
1	6544.2006	1	Straight grease nipple M6
2	6544.2005	1	Hollow connector Ø 6
3	6544.2007	1	Olive
4	6544.2009	/M	Tube rilsan 3/6 (greasing)

Connecting Assembly

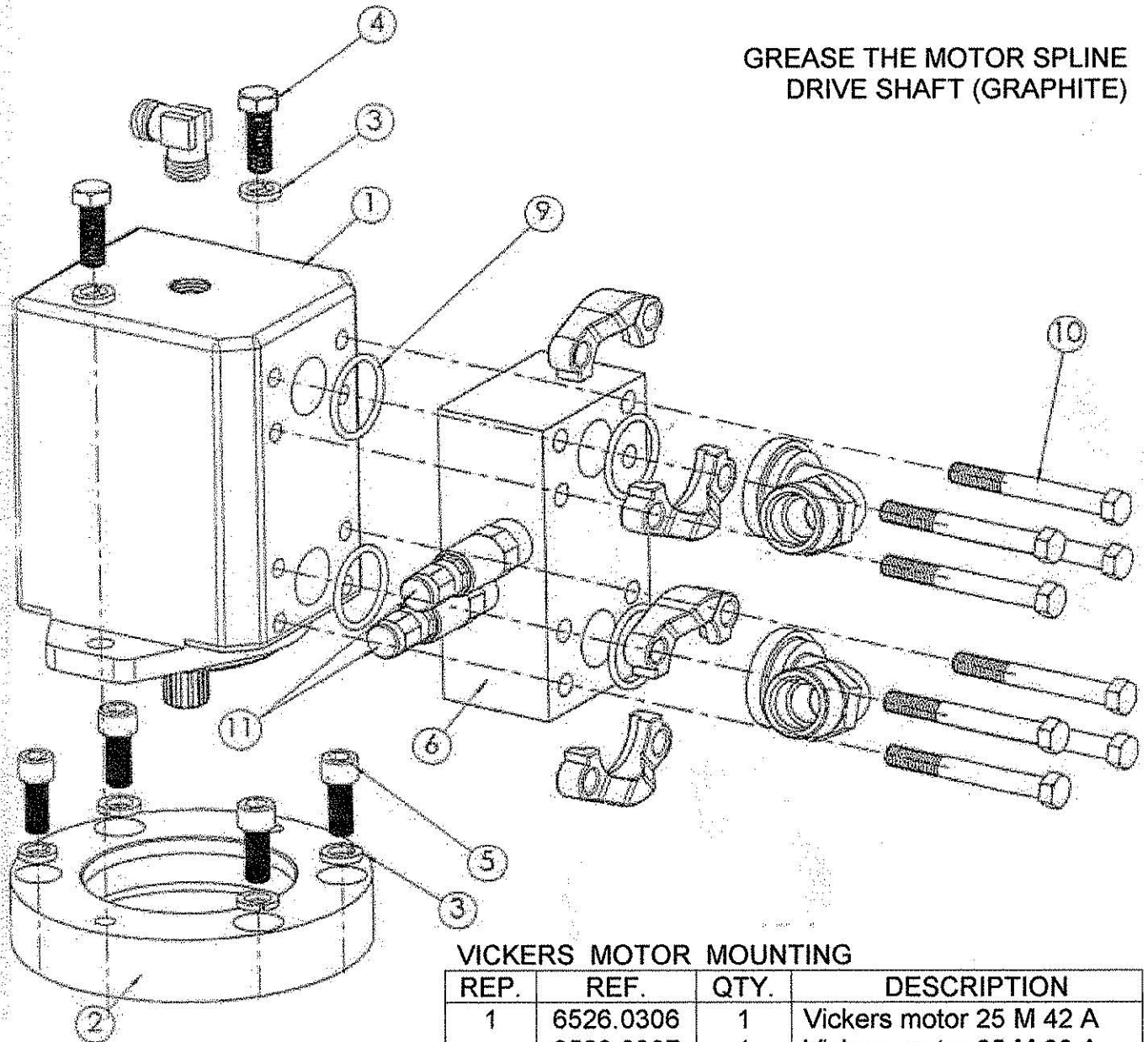


REP.	REF.	QTY.	DESCRIPTION
1	6544.2003	1	Connector M6 x 100
2		1	End of flexible pipe piece



REP.	REF.	QTY.	DESCRIPTION
1	6522.3103	1	Straflex coupling
2	6502.3502	3	Screw H M 12 x 35
3	6507.5104	3	Washer W 12
4	6502.1410	3	Screw H M 12 x 45
5	7010.0129	1	1/2 coupling grooved
6	6506.2106	3	Nut M 12 Nylock

**GREASE THE MOTOR SPLINE
DRIVE SHAFT (GRAPHITE)**



VICKERS MOTOR MOUNTING

REP.	REF.	QTY.	DESCRIPTION
1	6526.0306	1	Vickers motor 25 M 42 A
	6526.0307	1	Vickers motor 25 M 30 A
2	7050.0121	1	Motor spacer
3	6507.5104	6	Washer W 12
4	6502.3502	2	Screw H M 12 x 35
5	6503.1501	4	Screw CHC 12 x 30
6	6017.0109	1	Pressure limiter block
9	6014.5203	4	Ring joint 1"1/4
10	6502.6404	8	Screw H UNC 7/16 lg 3"1/2
11	6017.0111	2	Cartridge limiter RV 5

DENISSON MOTOR MOUNTING

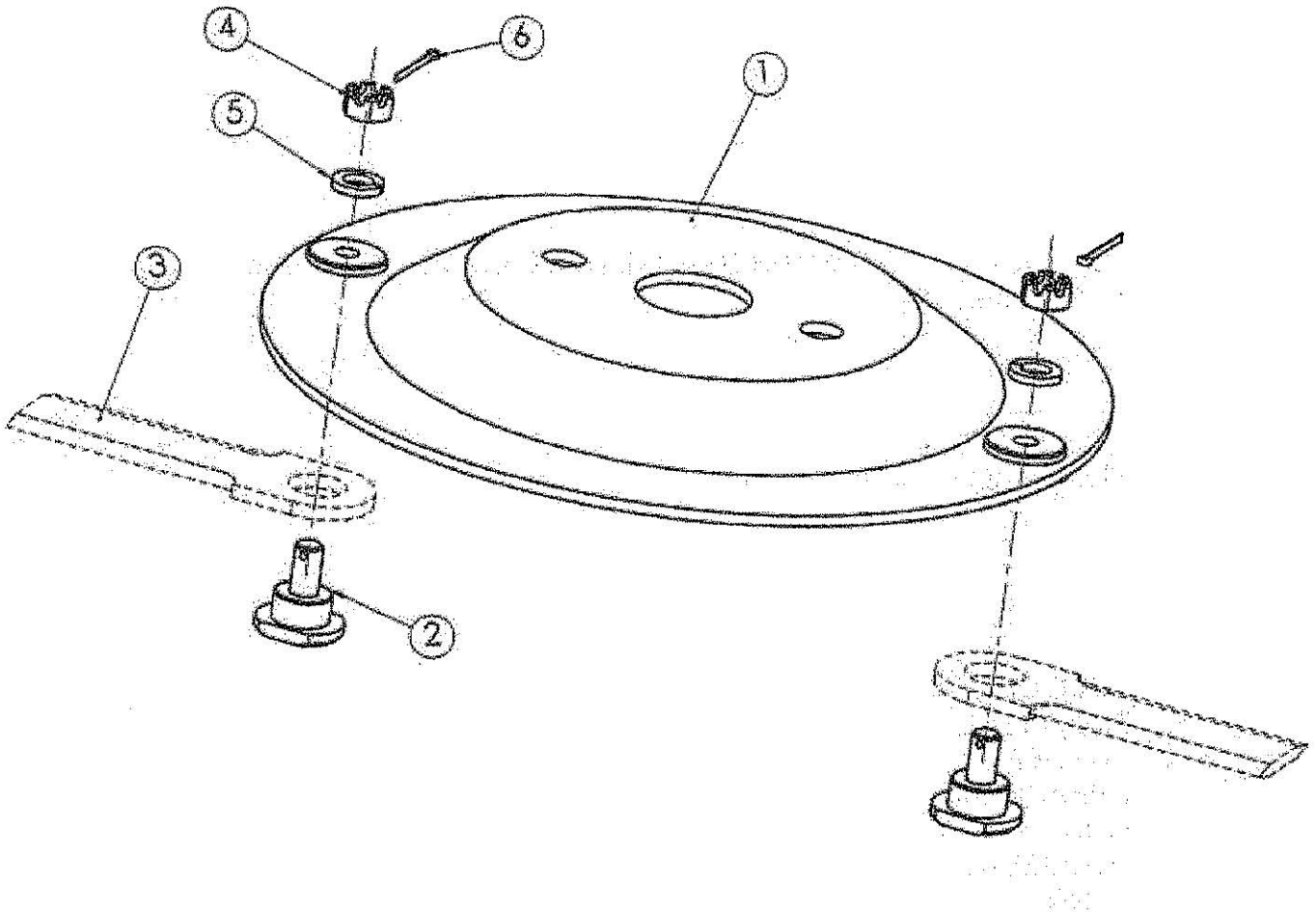
REP.	REF.	QTY.	DESCRIPTION
1	6526.0502	1	Denisson motor M5BS045
	6526.0503	1	Denisson motor M5BS035
6	6017.0116	1	Pressure limiter block

Before service to motor pistons, call us.

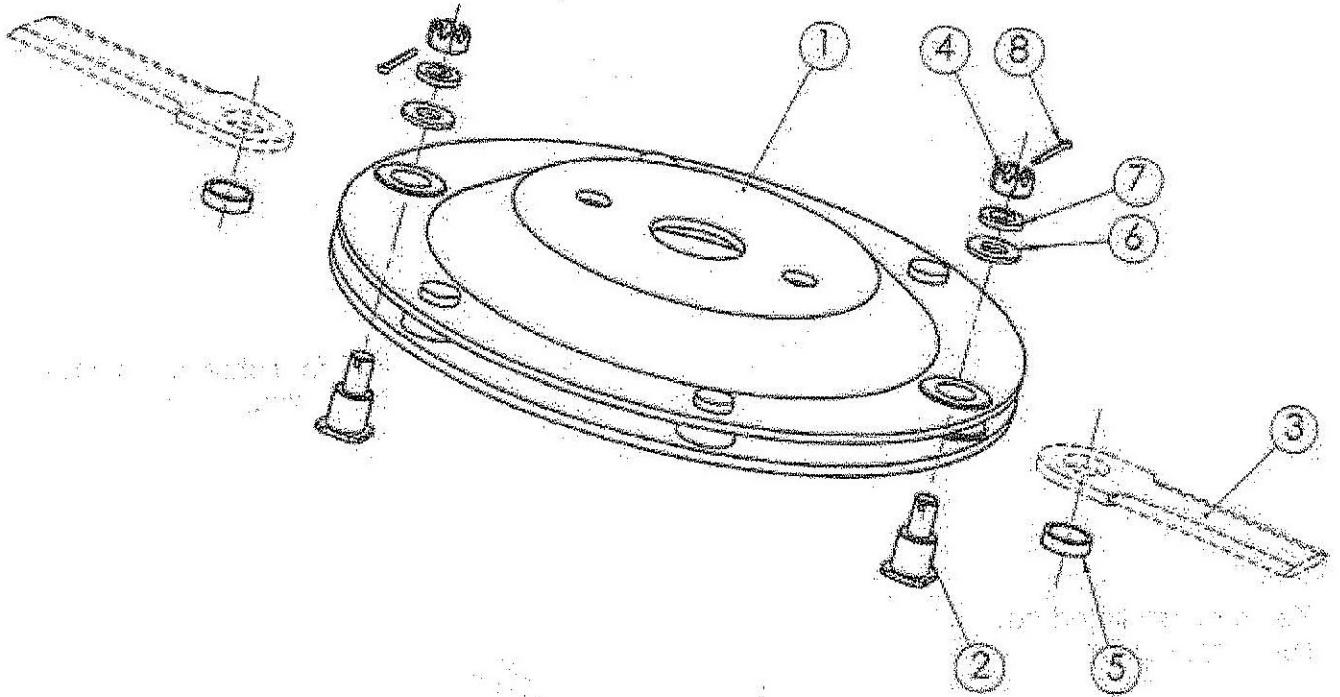
HOSE KITS and ADAPTER BRACKETS are available for most makes of hedgecutters.

Please contact us for details.

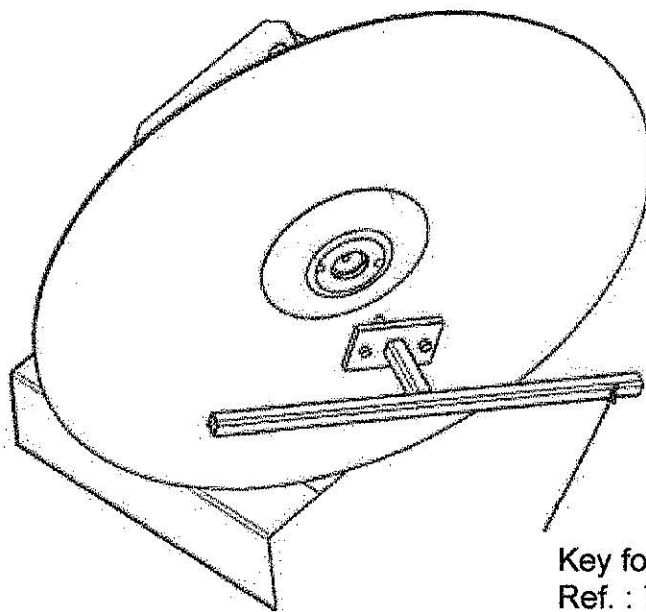
BOMFORD
McCONNEL
TURNER
SPEARHEAD
ORSI
ROUSSEAU
FERRI



REP.	REF.	QTY.	DESCRIPTION
1	7160.0729	1	Single pressed dish
2	7020.0612	2	Blade carrier pin
3	7030.0810	2	Knife 1 side double chamfer
	7030.0816	2	Knife 2 sides double chamfer
4	6506.1103	2	Castellated nut
5	6507.5202	2	Washer W 1/2
6	6513.3103	2	Split pin V 3 x 40

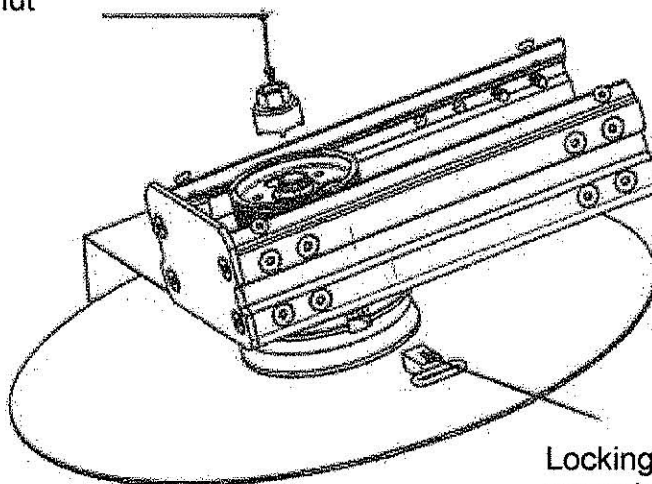


REP.	REF.	QTY.	DESCRIPTION
1	7160.0727	1	Double dish
2	7020.0611	2	Blade carrier pin
3	7030.0816	2	Blade 2 sides double chamfer
4	6506.1103	2	Castellated nut
5	7050.0123	2	Spacer
6	6507.1102	2	Washer Ø 12 ZN
7	6507.5202	2	Washer W 1/2
8	6513.3103	2	Split pin V 3 x 40



Key for tightening blades
Ref. : 7030.0316



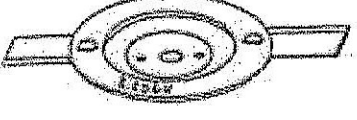
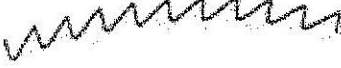
Key for castellated nut
Ref. : 7030.0317



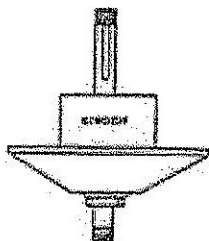
Locking key for use when
removing blade
Ref. : 7030.0318

KIROGN BLADE TYPES

REF. : CUTTING WITH L.E.M.

		REFERENCE
	<p>* COMPLETE PRESSED DOUBLE DISH with knives double chamfer double sided, composed of :</p> <p>1 pressed double dish (without blades) 1 assembly 2 knives double chamfer double sided and 2 bolt assemblies</p>	<p>5812.9504</p> <p>7160.0727 5890.0316</p>
	<p>Sub assemblies :</p> <p>1 knife double chamfer double sided 1 bolt assembly complete with washer for 1 knife</p>	<p>7030.0816 7020.0614</p>
	<p>* COMPLETE PRESSED SINGLE DISH with knives double chamfer double sided, composed of :</p> <p>1 pressed single dish (without knives) 1 assembly 2 knives double chamfer double sided and 2 bolt assemblies</p>	<p>5812.9505</p> <p>7160.0729 5890.0314</p>
	<p>Sub assemblies :</p> <p>1 knife double chamfer double sided 1 bolt assembly complete with washer for 1 knife</p>	<p>7030.0816 7020.0613</p>
	<p>* COMPLETE PRESSED SINGLE DISH with knives double chamfer single sided, composed of :</p> <p>1 single pressed dish (without knives) 1 assembly 2 knives double chamfer single sided and 2 bolt assemblies</p>	<p>5812.9506</p> <p>7160.0729 5890.0315</p>
	<p>Sub assemblies :</p> <p>1 knife double chamfer single sided 1 bolt assembly complete with washer for 1 knife</p>	<p>7030.0810 7020.0613</p>
	<p>1 saw blade Ø 600 (96 teeth)</p>	<p>7120.0214</p>
	<p>1 saw blade Ø 650 (96 teeth)</p>	<p>7120/0215</p>
	<p>1 saw blade Ø 700 (96 teeth)</p>	<p>7120.0212</p>

REFERENCE L.E.M. TRANSMISSION



1 BEARING MOUNTING COMPLETE : SHORT SHAFT

7020.0513

1 BEARING MOUNTING COMPLETE : LONG SHAFT

7020.0514

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