

Thank you for purchasing an **ESM Quality Product**

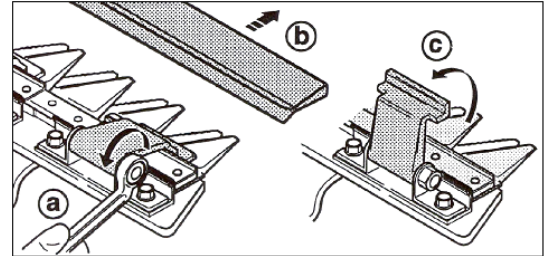
This user manual and our safety instructions must be read, understood and always be available for reference to all other users. Should this cutting unit be assembled with other components to create a machine, as specified by the Machinery Directive 2006/42/EC, both the information in this manual and the safety instructions must be integrated into operating instructions of the completed machinery!

ASSEMBLY: REMOVAL AND INSTALLATION OF THE KNIVES

Wear protective gloves!!

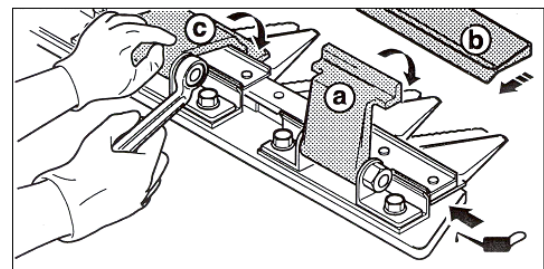
Removal:

1. Loosen the clamp bolt (a) of the knife holder.
2. Remove knife protection strip, if fitted
3. Open up the knife holder (c)
4. Remove the knife



Installation:

1. Lubricate the guides and slide faces (with bio-degradable oil, e.g. edible oil)
2. Insert the knife
3. Close the knife holder (a)
4. Adjust knife guides (a) as described in; Maintenance: **Inspection, Adjustment and Cleaning**
5. Attach knife protection strip (b)



Attention! After the adjustment the knife must move freely back and forth in the guides-

ASSEMBLY: CUTTERBAR TO DRIVE/MACHINE

The assembly of the cutterbar is only permitted at points agreed between ESM and the respective device manufacturer. Should the installation respectively the drive deviate, then the manufacturer of the completed machinery is responsible for the assembly and operational safety as well as for the provision of comprehensive assembly instructions in his operating manual!

Side-/Central drive:

Assembly of the Cutterbar is described briefly in the following. The assembly instructions for the respective cutter drive specify the detailed procedure:

1. Attachment of the knife head (if not already factory-assembled).
2. Attachment of the cutterbar to the cutter drive using the screws provided (it must be ensured that the connecting bolt encroaches into the knife head).
3. When possible, manually check the function of the implement without a mechanical drive at first and if required, assemble the safety equipment and knife protection strip

INTENDED USE:

This equipment may only be used for standard agricultural, forestry and municipal mowing, as well as for extensive landscape cutting operations. In special cases (refer to the specific operating instructions) operation of the equipment is also allowed when it is in a vertical position. Any use other than the intended is not permitted and the manufacturer accepts no liability for any damages which may thereby be incurred.

The Intended use also includes the adherence to all safety, assembly, disassembly, commissioning, operation and servicing specifications of the manufacturer and the distributors.

For your own safety, never operate the cutterbar;

- at a rotational speed higher than 1100 rpm (on a short stroked cutterbar (~ 55 mm))
- at a rotational speed higher than 850 rpm (on a long stroked cutterbar (~ 85 mm))

ATTENTION!

Due to its functional design, all potential risks cannot be eliminated. The attached document "General Safety Instructions" makes reference to these residual risks, for the avoidance of which the operator bears the full responsibility!

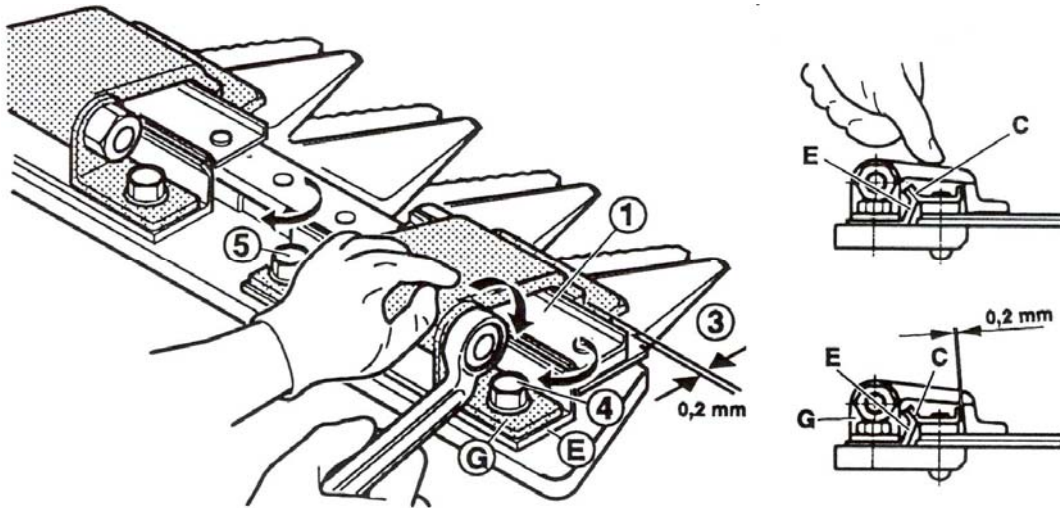
MAINTENANCE: INSPECTION, ADJUSTMENT AND CLEANING

Operational breakdowns caused by inadequate or improper maintenance may lead to high repair costs and long downtimes of the cutterbar. Regular inspections and maintenance to assure operational reliability is therefore essential!!

- Only sharp, well adjusted and ground knives work trouble free
- The mowing knives must always be straight, bent knife sections and knife backs must be straightened
- If there is heavy wear-off or damage to the knife, we recommend replacing the knife
- Damaged, loose or worn out knife sections need to be replaced
- Knife sections must lie on top of one another without any free-play between them. Should this not be the case, the knife guides must be readjusted or need to be replaced due to heavy wear down.

Knife guide:

When free-play between the guide plates (C) and the knife holders has reached 1.5 mm or a new knife has been fitted and every time after the fasteners have been loosened, a basic readjustment is required.



Important for the readjustment of the knife guides is to first correctly adjust a single guide and then work on the following ones. After the adjustment of each individual guide the knife must move freely. Adjustments are carried out as follows:

1. Loosen the clamp bolt (1) of the knife holder.
2. Unscrew the mounting screws (5) and (4)
3. Remove and clean the knife holder with angles (G) as well as friction plates (E) then re-assemble it.
4. Slightly tighten the mounting screws (5, 4) and then the clamp screws (1) with thumb and forefinger.
5. Set a protrusion of 2 mm between the movable and the stationary knife and secure it with 2 clamps or vice grips.

Attention: It is important to ensure that "knife protrusion" is equal over the whole length of the cutterbar -

6. Bring the friction plates (E) in contact with the guide plates (C).
7. Move the angle (G) and the knife holder until a free-play between the guide plate (C) and the knife holder of 0.2 mm (post card thickness) remains.
8. Tighten the mounting screws (4), (5), repeat this procedure for the remaining guides in the same sequence.
9. Press down on the knife holder and, at the same time, tighten the clamp bolt (1) (Md = 50 Nm).

Attention! After the adjustment the knife must move freely back and forth in the guides-

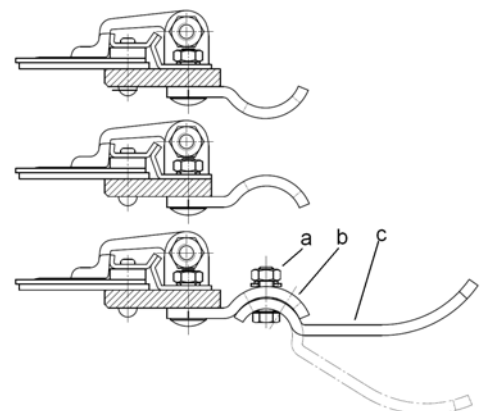
Adjusting the cutting height

The cutting height of the cutterbar is set through the skid mount (b) and the gliding skids (c) attached to the cutterbar. An adjustment to the cutting height is carried out as follows:

Skid mount (b) attached as skid. The cutterbar cuts close to the ground.

Skid mount (b) attached for mounting of gliding skid(c). The cutterbar cuts close to the ground.

Gliding skid(c) attached. For adjustment, loosen the clamp bolt (a) and turn the gliding skid (c) into the desired cutting height position.



Cutterbar:

After every cutting operation, the top knife has to be removed to assure proper cleaning of the cutterbar and all the relevant guiding and friction surfaces. Before the reassembly of the knife, check and repair damaged parts, straighten bent knife sections, sharpen blunt sections and apply lubrication to all relevant guide and frictions surfaces. If no cutting work is to be done for an extended period, remove knife and make sure to store it safely in a dry location.

Knife Head:

Please ensure that there is no excessive free-play between the knife head and the drive element, as too much free-play may cause the knife back to break.

In case of adjustable knife heads, the free-play should be readjusted, after every knife change, to approx. 0.1- 0.2 mm. For non-adjustable knife heads, the appropriate parts have to be replaced if the free-play is greater than 1 mm.

Lubrication should be done with compression-proof grease only! Damaged parts are to be exchanged immediately!

Sharpening of Knives:

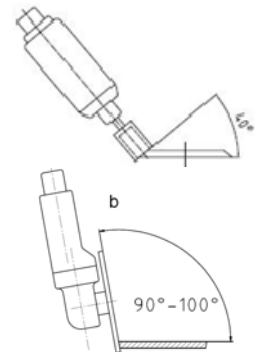
The proper sharpening of the knives is of great importance for clean and trouble-free mowing. The proper sharpening procedure for the knives is described in detail in our guideline: **Professional Sharpening of Knives.**

Driven top knife (a):

Subject to the operating conditions, sharpen the cutting edges at an angle of 40 degrees after every 5-20 operating hours.

Stationary bottom knife (b):

The bottom knife sections of Hobby, Z, Universal and Municipal Cutterbars have a special serration at the cutting edge, through which they gain a very long service life and in fact, in many cases regrinding can be avoided completely. Should regrinding nonetheless be required, we recommend an angle grinder fitted with a standard grinding disc. Regrinding is to be done with the side surfaces of the grinding disc at an angle of 90-100°.



Attention: Do not let the cutting edges overheat, or they will loose their temper and therefore blunt much quicker -

Replacing Single Knife Sections:

Heavily worn or damaged knife sections can be replaced individually. The replacement of individual sections should be carried out by a specialist and/or according to our instructions; **Proper Replacement of Individual Knife Sections.**

Maintenance and Lubrication Instructions:

Lubrication should be done with compression-proof grease only: If the implement is being used for cutting eatables, all lubricated parts coming in contact with the material to be cut, must be lubricated with food grade lubricants only!

Maintenance instructions	Operating hours / Periods		
	Every 4 h	Every 8 h	Every 5-25 h
Checking of the knife guide		X	
Checking of the knives and the knife head		X	
Check the entire cutterbar for loose and damaged parts, especially components relevant to safety.		X	
Grease knife head bearing	X		
Sharpen the knives		X	
Cleaning of the Cutterbar			daily

Trouble-shooting and Remedy:

For quick and easy problem identification, the following table provides a list of the most common problems, its related cause and the remedy needed.

Problem	Cause	Remedy
Cut material becomes stuck between the top and bottom knife	Knives are blunt Knives are not straight Knife Sections are not aligned	Replace or sharpen knives Remove and straighten knives Straighten knife sections
Section tips of the bottom knife work themselves into the sections of the top knife.	Top knife protrudes too far over the bottom knife	Readjust the knife guides
Knife sections are not lying flat on top of each other	Knife sections or knife buckled, Knife back distorted Knife guides incorrectly adjusted	Check the straightness of the knives, if necessary, straighten until the knife sections are all aligned Readjust the knife guides
Knife backs break	Excessive rotational speed Excessive play in the knife head Improperly attached knife head Improper adjustment of the knife guides	Reduce rotational speed Check free-play in all relevant parts and eliminate if necessary Readjust the knife guides

Spare Parts:

We would like to bring to your attention that only ESM original spare parts and accessories should be used, as only these have been tested and approved by us. The fitting and/or use of other products may compromise the function and the safety of the machine. We accept no warranty and liability for damages resulting from the use of other than original spare parts and accessories.

Additional Technical Information

Further technical information, such as spare parts lists and user manuals are to be found on our Website: www.esm-ept.de. For specific questions please make contact directly with your dealer or the manufacturer.