



**HOFFMANN**

**OPERATING MANUAL**  
**for**  
**MORSO manual notching machine**  
**Model NFL**

**Hoffmann Machine Company, Inc.**

1386 Drexel Road      Valdese, NC 28690 USA  
Phone: (828) 430 - 4510      Fax: (828) 430 - 4620  
e-mail: [info@Hoffmann-USA.com](mailto:info@Hoffmann-USA.com)

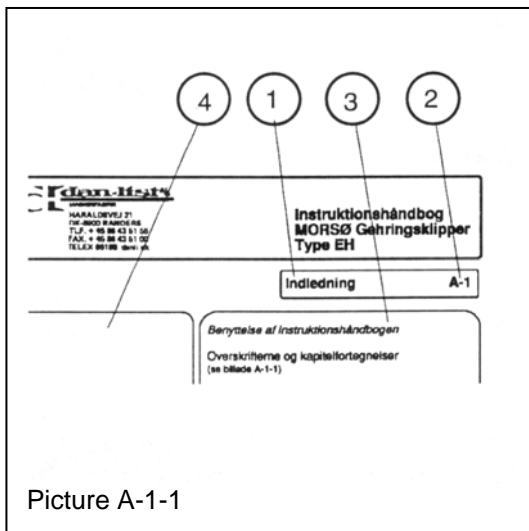
[www.Hoffmann-USA.com](http://www.Hoffmann-USA.com)

**Toll-free Technical Support: (866) 248 - 0100**

**CONTENTS**

**0-1**

<b>Introduction</b>	page A-1
<b>Work Piece</b>	
Shortening of the work piece on a circular saw before cutting	page B-1
<b>Functional Description</b>	
general description	page C-1
machine description	page C-2
description of the lever system	page C-3
<b>Technical Data</b>	page D-1
<b>Mounting Instructions</b>	
general	page E-1
mounting of table extensions and fences	page E-1
<b>Operating Instructions</b>	
before starting	page F-1
adjustment of cock-bead stops	page F-2
adjustment of centre stop	page F-3
adjustment of flip stops	page F-4
adjustment of height stop	page F-5
<b>Cutting of bars with rebate</b>	
Description	page G-1
<b>Service References</b>	
lubrication instructions	page H-1
cleaning	page H-1
changing of knives and chip breakers - adjustment	page H-2
grinding of knives	page H-3
regulation of draw bar	page H-4
adjustment of springs	page H-5
changing of spare parts	page H-6
<b>Locating Faults / Methods for Repair</b>	page I-1
<b>Safety</b>	
safety devices	page J-1
regulations	page J-1
<b>Index of Spare parts</b>	
survey	page K-1
machine	page K-2
knife block unit	page K-3
drive mechanism	page K-4



We recommend to read this instruction manual carefully before the first starting of the machine.

Defects on the machine provably arisen due to mistakes in operation will not be covered by the warranty.

### ***Use of the Instruction Manual:***

In this instruction manual all information needed for using all possibilities of the MORSØ notch cutting machine is found.

(see picture A-1-1)

#### **(1) Head Lines**

Refers to the head line of the chapter.

#### **(2) Index of pages**

The letter is the description of the chapter.  
The figure is the consecutive page number in the chapter.

#### **(3) Text**

The texts belonging to the chapter in which you will find all information and explanations necessary.

#### **(4) Illustration**

Drawing to the text in (3).

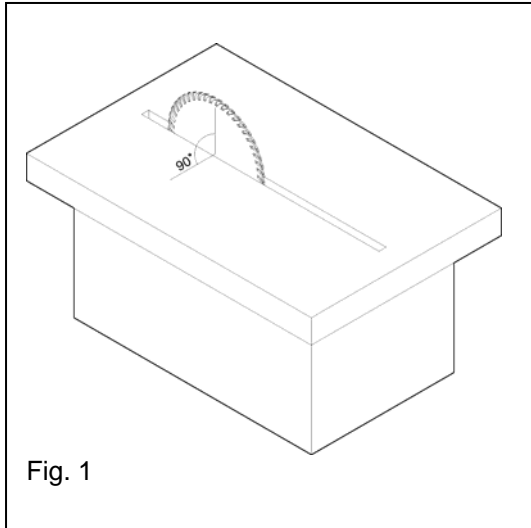


Fig. 1

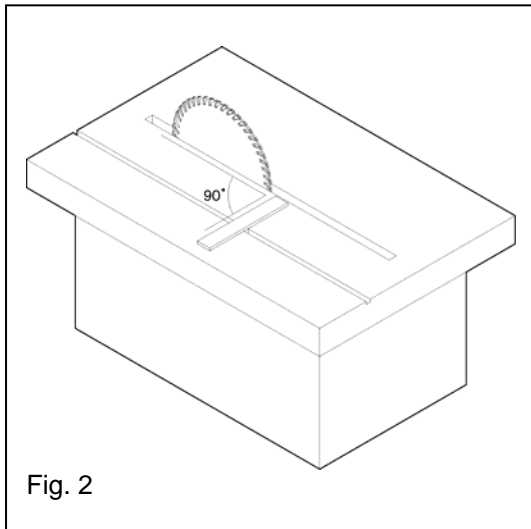


Fig. 2

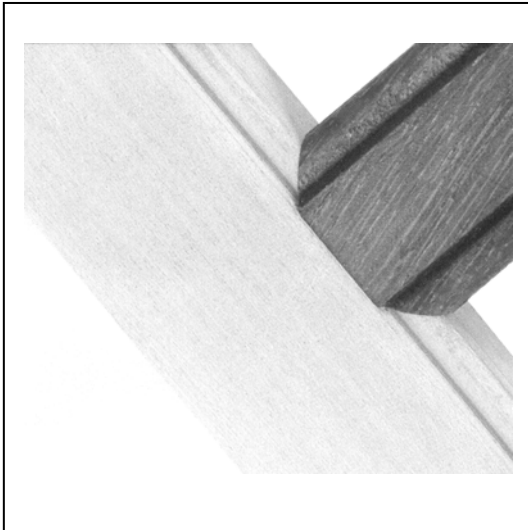
***Shortening of work piece on a circular saw before cutting***

Before the cutting of the work piece it must be shortened in the correct length on a circular saw.

It is very important that the saw blade is exactly adjusted in 90° proportional to the machine table (see fig. 1). The blade must also be exactly adjusted in 90° proportional to the fence (see fig. 2).

If this adjustment is not correct on there will be a gap in the finished joints.

**FUNCTIONAL DESCRIPTION C-1**



**General Description**

**MORSØ-NF** notch cutting machine is an important help to cut window bars, mullions, and cabinet front frames requiring haunch joints.

**MORSØ-NF** is a manual foot-operated machine. The operation is easy.

**MORSØ-NF** notch cutting machine is provided with 6 sliding longitudinal stops, fences (1500 mm) on both the right and left side of the machine, nose knives, side knives, chip-breaker, cock-bead stops, centre stop, safety guard, and waste chute.

With the **MORSØ-NF** you achieve a quite smooth, clean, and exact cut by cutting the work piece in two cuts.

This is done manually on the **MORSØ-NF**.

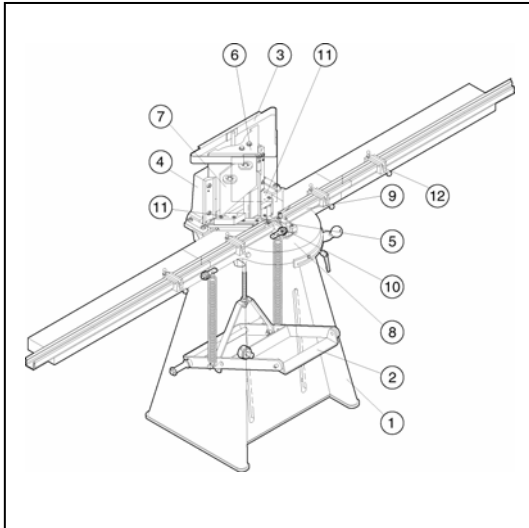
The conveying (forward movement) of the knife block is continuously adjustable.

A special lever system makes the operation of the machine very easy. Twin return springs bring the knife block back to starting position.

The height movement of the knife block (length of stroke) is continuously adjustable.

The work pieces can be joined without any finishing.

**FUNCTIONAL DESCRIPTION C-2**



***Machine Description***

The **MORSØ-NF** is constructed as a compact machine with a solid dimensioned frame (1), with built in lever system (2).

The cutting function (3) is placed on top of the machine.

In the slide frame (4) fitted at the cross (5) the knife block (6) is moved up and down. The cross (5) runs in the guidings of the table.

The knives (7) fitted on the knife block cut the mullion.

The conveying (forward movement) of the knife block takes place manually.

The mullion is placed on the table (8) against the fences (9).

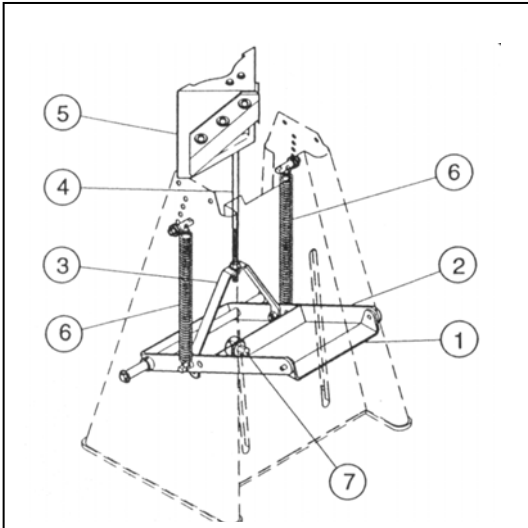
The cock-bead stops (11) are adjusted to the required cutting depth.

The adjustment of the sliding longitudinal stops (12) is done by means of a template of the mullion.

MORSØ-NLF can be fitted with nose knives from 12 to 26 mm.

MORSØ-NSF can be fitted with nose knives from 6 to 20 mm.

**FUNCTIONAL DESCRIPTION C-3**



***Description of the Lever System***

The cutting movement is carried out manually.

The length of stroke of the knives is adjusted to max. 165 mm.

The cutting takes place by means of a foot operated lever system.

The pedal (1) is pressed down.

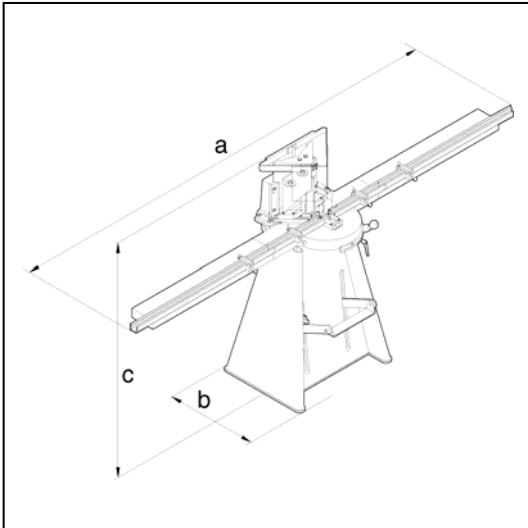
The foot pedal tipper (2) pulls the draw bow (3), draw bar (4), and the knife block (5) down.

By relieving the foot pressure from the foot pedal the knife block returns to top position by means of the two springs (6).

The height stop (7) is slidable.

**TECHNICAL DATA**

**D-1**



**Machine Dimensions (max.):**

Length (a)	:	3700 mm
Width (b)	:	510 mm
Height (c)	:	1150 mm
Weight	:	96 kg

**Placing Measures:**

Spaciousness to Wall min.	:	1000 mm
---------------------------	---	---------

**Noise/Pollution:**

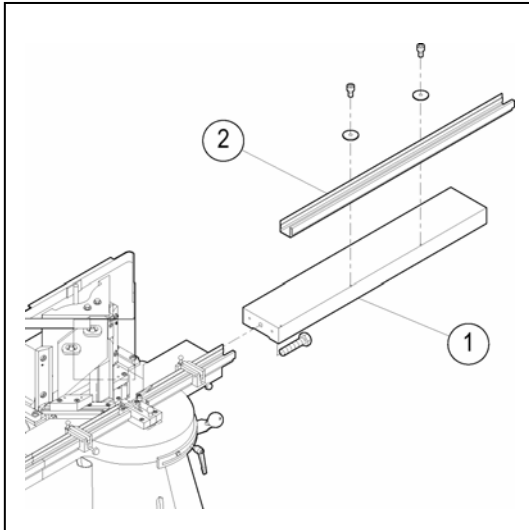
Noise Level	:	noiseless
Pollution	:	none/no dust

**Working Capacity:**

Nose widths (NSF)	:	6 - 20 mm
Nose widths (NLF)	:	12 - 26 mm
Working Width (max.)	:	70 mm
Working Height (max.)	:	160 mm
Extension tables (left and right)	:	1000 mm
Fences (right and left)	:	1500 mm



**MOUNTING INSTRUCTIONS E-1**



***In General***

The machine is delivered ready for start and complete with standard equipment. Only the table extensions (1) and fences (2) are dismantled during transport.

**NOTE before starting up first time:**

1. The handle on the tooth arc is loosened (it functions as the rear stop when moving the knife block backwards).
2. The knife block is moved halfway backwards, and the waste chute is fitted.

Placing according to the spaciousness to wall stated in D-1. The machine can be fastened to the floor with screws in the two holes in the bottom of the machine frame.

**Check before each start that all protection devices are fitted correctly.**

**Fitting of the Table Extension and fences**

*(on the drawing the right side is shown, the same procedure on the left side).*

Before fitting the table extension (1) the ends of the table extension and the table must be cleaned very thoroughly. Special attention must be paid to the pin and screw holes, as the smallest amount of dirt will prevent the correct alignment.

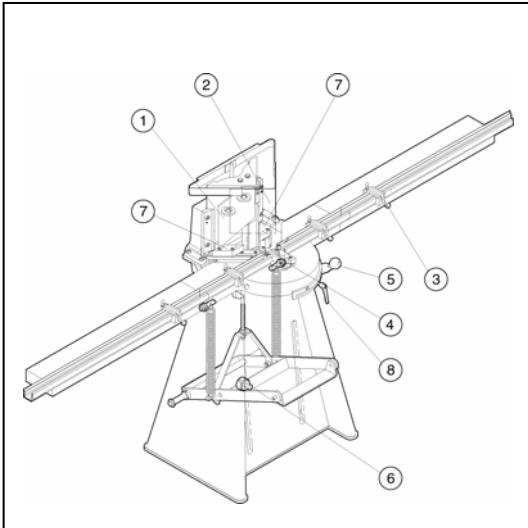
After the cleaning, the table extension is pressed against the table so that the pins placed in the table extension are inserted in the pin holes in the table. The included screw is now inserted in the screw hole and fastened with a standard screw driver.

The fence (2) is fitted on the table extension (pins are fitted in the table extension). It is fastened with cylinder screw.

(Extra extension table and supporting leg can be delivered as accessories).



**OPERATING INSTRUCTIONS F-1**



**Before Starting**

Before starting the machine the following must be checked and adjusted:

**1. Check**

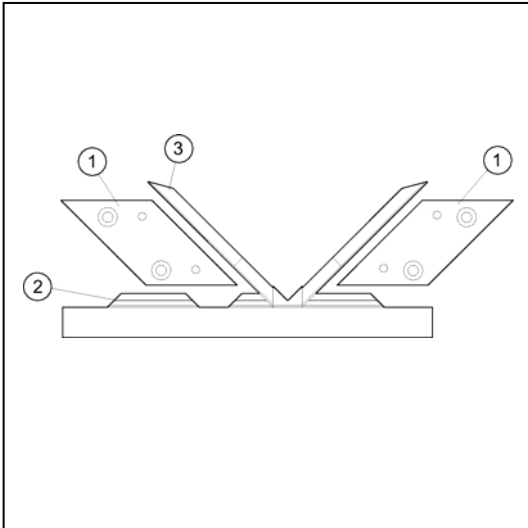
- a) knives (1)  
general condition  
sharpness
- b) waste  
room for waste
- c) safety devices  
fitting of all safety devices:  
safety guard for knives (2)
- d) table and table extension  
cleanness and undamaged surface

**2. Adjustments**

- a) Cock-bead stops (7)  
(adjustment instructions page F-2)
- b) centre stop (4)  
(adjustment instructions page F-3)
- c) sliding longitudinal stops (3)  
(adjustment instructions page F-4)
- d) height stop (6)  
(adjustment instructions page F-5)
- f) Rear Stop (8)



**OPERATING INSTRUCTIONS F-2**



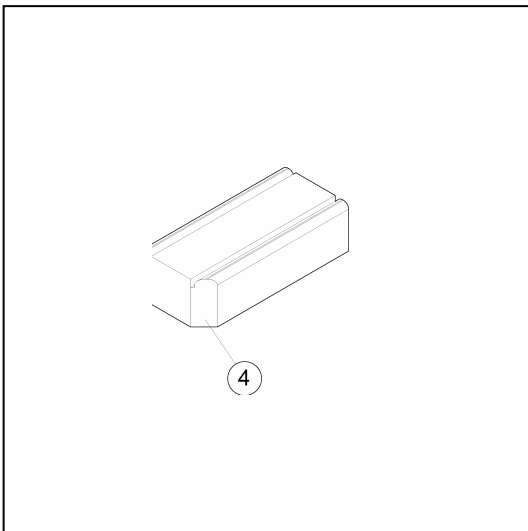
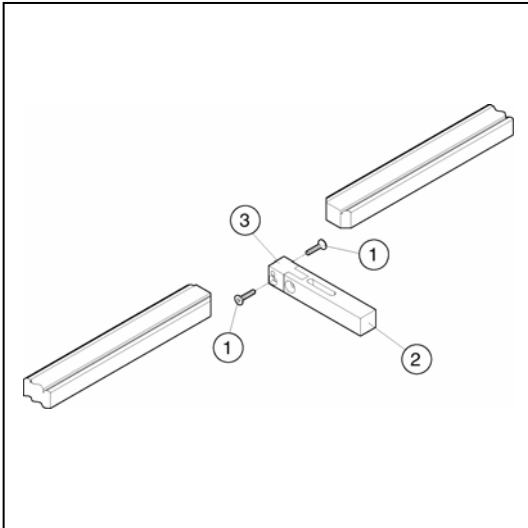
**Adjustment of the cock-bead stops**

The cock-bead stops (1) are adjusted as follows:

1. Loosen the Allen screws on the cock-bead stops (1) and move these to rear of the sliding guide.
2. Using a test piece (2) make a notch cut into the cock-bead. This cut must be the same depth as the cock-bead. The overall width must be equal to the width of the centre cross-rail. When you are satisfied the two sizes are equal, we can now position the cock-bead stops (1).
3. Press the foot-pedal down and hold it in this position. By operating the hand lever, bring the knife block (3) forward into the previously cut notch. Position the cock-bead stops (1) against the cock-bead and lock them in place using the Allen screws. When these stops are fixed in position the knife block (3) can only cut into the cock-bead as far as this setting. The notch cut depth is then referenced from the face of the cock-bead. The width of stile can vary without changing this setting.
4. Check the alignment of the two cock-bead stops (1) using a straight edge. By bringing the knife block (3) forward, check that they are level and true with the fence.
5. Lock the second Allen screws on the cock-bead stops (1).
6. This setting will allow you to make regularly accurate notch cuts in the stiles. These stops will need no further adjustment unless the size of the cock-bead changes.



**OPERATING INSTRUCTIONS F-3**



**Adjustment of the centre stop**

The centre stop regulates the amount of material cut from the corners of the cross-rails.

The centre stop is adjusted as follows:

1. The adjustment screws (1) are located in each side of the Teflon head (3) on the centre stop (2). They can be turned in or out, to allow more or less material to be cut from the corner of the cross-rail.

The adjustment screws (1) are adjusted exactly equal on both sides so that the distance from the screw head to the centre of the Teflon piece (3) is equal

Example:

Nose width 12 mm:

The width of the Teflon piece (3) is measured. The screws (1) are adjusted exactly equal on both sides, so that the distance from the screw head to the centre of the Teflon piece (3) is 6 mm.

2. You can make minor adjustments if the width of the cross rail should vary (e.g. 11.9 or 12.2 mm instead of 12 mm). Make a 45° cut in a test piece on the cross-rail and offer it up to the notch cut already made in the test stile (see page F-2). If there is a gap in either of the two corners, adjustments can be made on the screws until an exact and tight joint is achieved.

3. To achieve this balance, take a test piece of centre-rail and cut one corner (4). Turn the centre-rail to the opposite side of the knife block up-side-down so that you cut in the same corner. Place it against the centre stop and bring the cutting block partially through. If this causes a fine cut or the knives do not touch the centre-rail, the two screws are not balanced with each other. The adjustment screws are balanced until the cut is correct.

It is particularly important to get this balance, when frames are made with single cock-beads on top and bottom rails. If the two corners are not taken off exactly equal, there will be a gap on one corner and an over-tight joint on the other. This will also produce frames that are not square.



**OPERATING INSTRUCTIONS F-4**

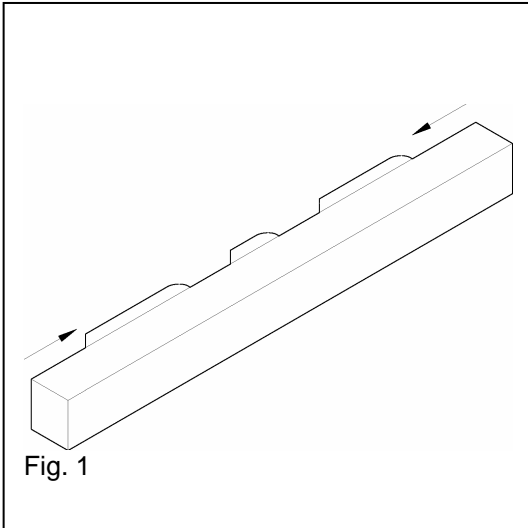


Fig. 1

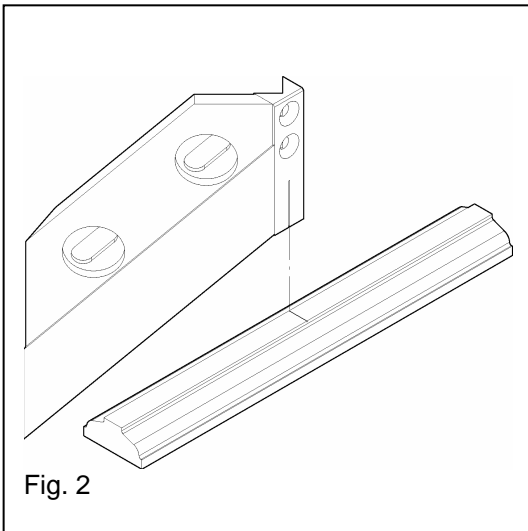


Fig. 2

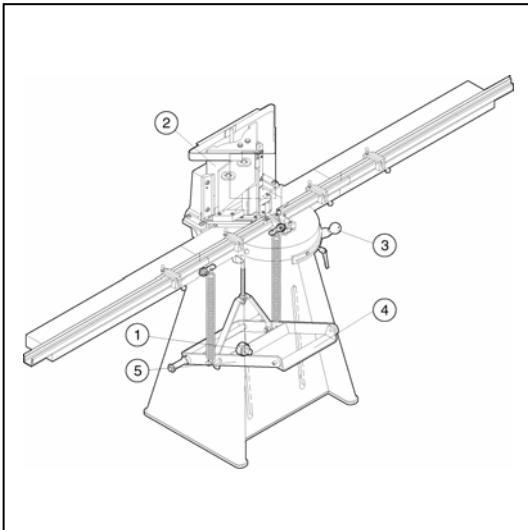
**Adjustment of the flip-stops**  
**Making a Template**

For setting the flip stop positions a template of the stile (upright section) is made. Mark the centre of the positions on the cross-rails, incl. the top and bottom rails (see fig. 2) on the stile.

1. To make the template, put the stile in the machine. For the top and bottom rails always start cutting from the end of the stile. Feed the section in by 5 mm at each cut (to prevent break out along the end grain). See fig. 1
2. When a few cuts have been made, align the rail with the set mark and the centre line on the nose knife (see fig. 2). Make a proper cut in the position.
3. Bring the first stop forward against the end of the template and lock it.
4. Flip this stop over and go to the next position marked on the rail. Make the second cut and bring the second stop to the same end of the rail. Lock the stop in position. Continue the procedure until all stops have been positioned and set.
5. When setting the last stop, make a few 5 mm cuts from the end and in (see fig. 1) (to prevent break out) before setting the stop and locking it.
6. The same template is used to position the stops on the other side. Place the template on the other side of the knife block up-side-down when setting the stops. Bring the cutting point into the existing notch cut outs and position each stop in turn – as described above.



**OPERATING INSTRUCTIONS F-5**



***Adjustment of Height Stop***

The height stop (1) is used for adjustment of the knife block (2) to a suitable height compared to the moulding to be cut.

In this way you avoid unnecessary high foot movements.

The moulding is placed on the table (the knife block must be in the rear position, as shown on the picture). The knife block (2) is moved forward to the front position by means of handle (3).

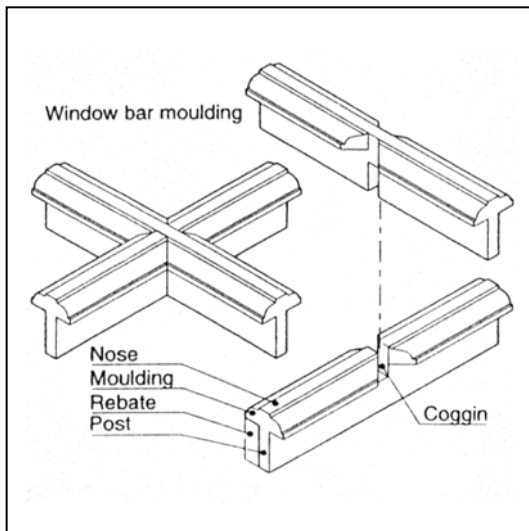
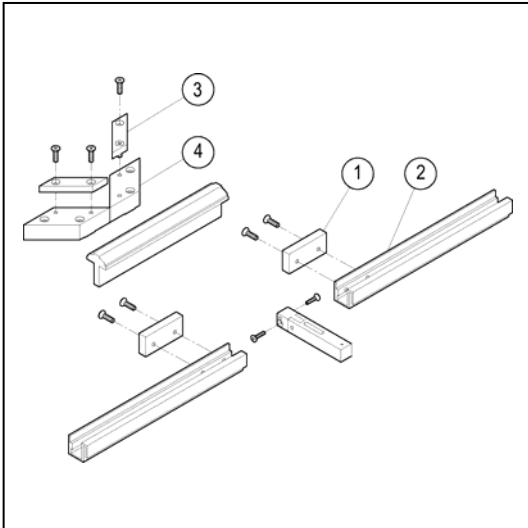
With the foot pedal (4) the knife block (2) is moved down to the height required, yet min. 20 mm above the moulding.

The height stop (1) is loosened the spanner. Fasten the height stop against the foot pedal tipper (5).

The height stop is also used for locking the knife block in the bottom position when the machine is not used.



**CUTTING OF BARS G-1**



**Cutting of bars with rebate**

With the MORSØ-NF machine it is also possible to cut bars with rebate.

You must make support mouldings (1) and support blocks (3) for the rebate in the bar. If these devices are not used the rebate will splinter during cutting. The support mouldings and support blocks can be made out of hard wood or nylon.

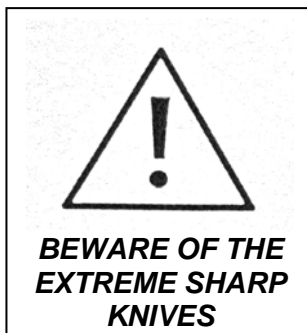
**IMPORTANT:** The height of the support blocks (3) must be approximately 1/10 mm lower than the height of the rebate.

Use the following procedure:

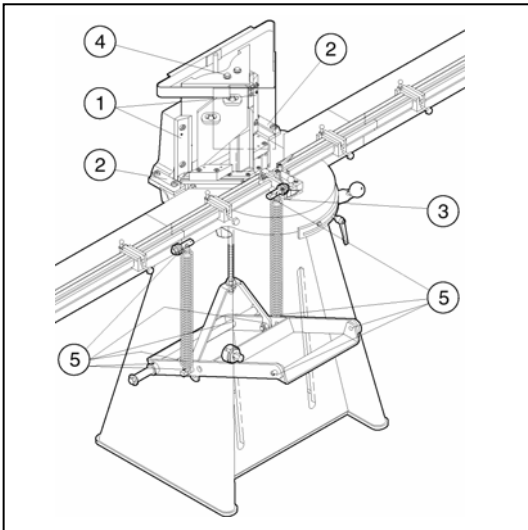
1. The support mouldings (1) for the bar rebate is fastened onto the fences (2) with screws.
2. The support blocks (3) are fastened on the cock-bead stops (4) with screws.

All adjustments before cutting are the same as described on pages F-1 to F-5.

The carving of the coggin takes place manually on a circular saw or a spindle moulder.







### ***Lubrication Instructions***

Approx. every two weeks lubricate:

The guidings for

1. Knife block (1)
2. Slide Frame (2)
3. Cross (3) (lubricates simultaneously the forward movement of the knife block).
4. Links for the draw bar (4) of the knife block.
5. All links in the lever system (5), incl. spring suspension.

**Lubricant:** Any acid-free oil.

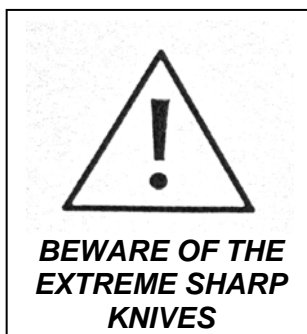
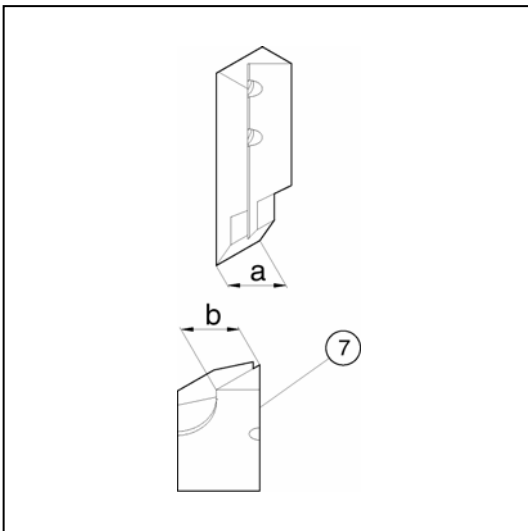
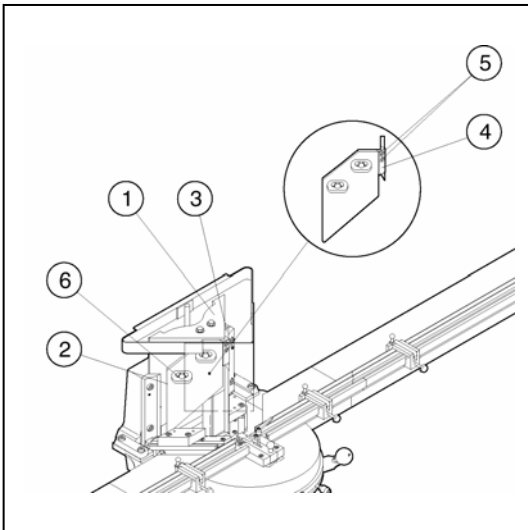
### ***Cleaning***

**MORSØ-NF** must be cleaned thoroughly after use.

Remove any waste wood from all the guidings.

Remove the waste wood from behind the machine.



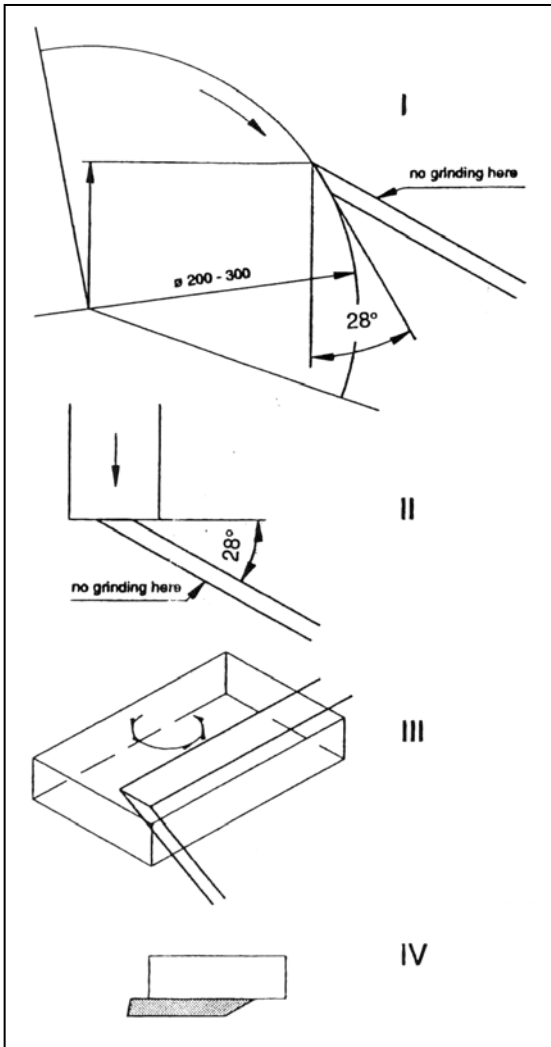


**Changing of Knives and Chip Breaker – Adjustment**

1. Knife Block (1) is placed in top position
2. The side knives (2) + (3) are dismantled by loosening screws (6). The nose knife (4) is dismantled by loosening screws (5).

**TAKE CARE OF YOUR FINGERS.**

3. Clean the surfaces of the knife block and the new side knives (2) + (3) very carefully as even the smallest impurity between side knife and knife block can cause an incorrect cut.
4. The nose knife (4) that fits the width of the cock-bead of the rail is fitted by means of the screws (5) on the front of the knife block.
5. The chip-breaker (7) is placed in the angle where the bottom knives meet. The width of the chip-breaker **must** be the same as the width of the nose knife ( $a = b$ ).  
**OBS:** When changing the chip-breaker (7) the knives must be dismantled.
6. Both side knives (2) + (3) are fitted with the screws (6) on the knife block (1). The screws must not be fastened.
7. The side knives (2) + (3) must meet precisely with the nose knife and neither front edge must be further ahead (they must balance with the corners of the nose knife).
8. The screws (6) are fastened.
9. Check the length of travel on the knife block (1), when operating the foot pedal. The nose knife (4) must cut through the chip-breaker (7) by only 1-2 mm. Adjust as necessary using the height stop.



### **Grinding of Knives**

When grinding the knives you must **only** grind on the reverse of the cutting edge. You must under **no circumstances** grind on the front or ends of the knives, because the knives will then be destroyed. The angle of the cutting edge compared to the front of the knife must be 28°.

**Hollow grinding** (recommended), figure I.

Using a grinding wheel the diameter must be between 200 - 300 mm. Using a cup wheel the diameter must be 150 mm.

**Surface grinding** figure II

**Honing** figure III

By setting the cutting edge you shall use a soft fine-grained silicon carbide hand flat stone that must be kept in oil or kerosene.

By setting the cutting edge you must under **no circumstances** sharpen lengthwise of the cutting edge, always crosswise.

First sharpen on the reverse side of the knife. The flat stone is to be kept in an angle of 29° compared to the front of the knife.

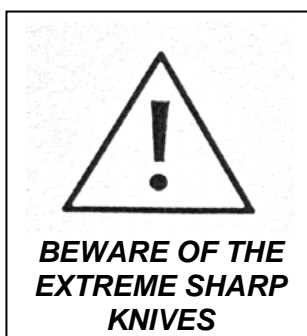
**Take off burrs**, figure IV

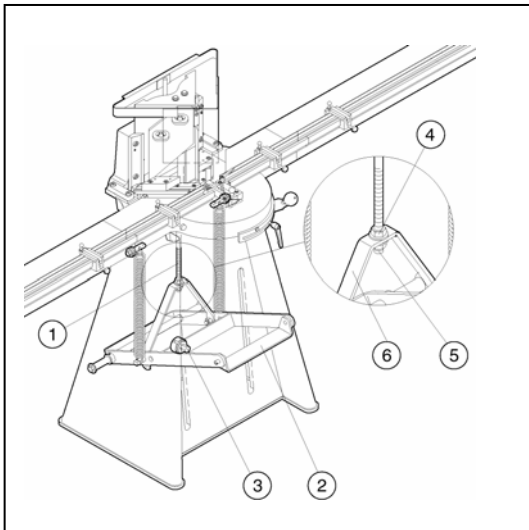
After the honing the burrs on the front of the knife are taken off with a slate flat stone that must be quite straight.

The flat stone must here be completely in line with the knife, because otherwise the outer cutting edge will get an incorrect angle.

Even the slightest error here will cause that the knife presses too hard against the wood during the cutting.

Please also see page H-4: Regulation of Draw Bar





### ***Regulation of Draw Bar***

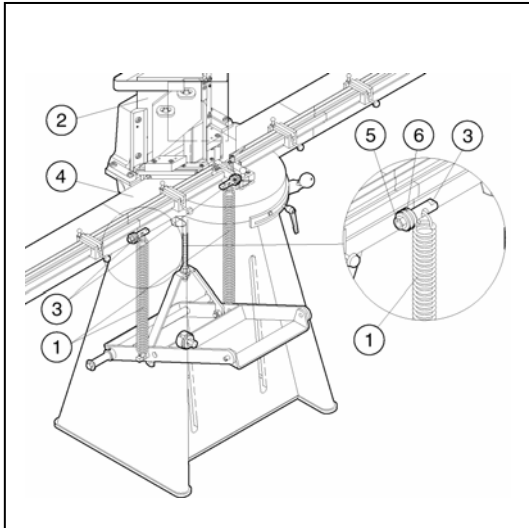
As the knives are worn it will be necessary to adjust the draw bar (1).

The following procedure is used:

1. The foot pedal (2) is pressed home and locked by means of the height stop (3).
2. Loosen nut (4).
3. The nut (5) is screwed so much upwards that the edges of the knives go about 4 - 6 mm under the upper side of the bottom knives.
4. Fasten nut (4) against the draw bow (6).
5. When fitting factory new nose knives the draw bar must be adjusted back to original position.



**BEWARE OF THE  
EXTREME SHARP  
KNIVES**

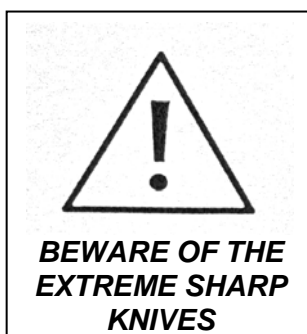


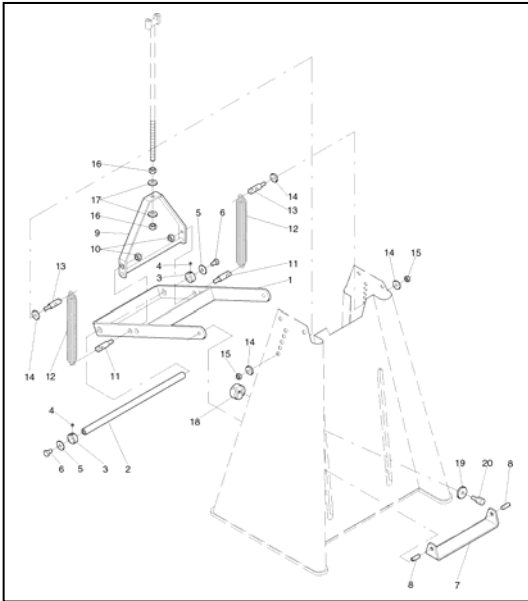
### **Adjustment of Springs**

The springs (1) that move the knife block (2) to the top position are by means of the spring holders (3) fastened in the bottom holes in the sides of the frame.

If the up and down movement is not quick enough or if the springs loose some of their tension after a while the spring holders (3) can be moved up to the next hole in the frame.

1. A piece of wood is placed under the knives on the table (4) in order to keep the knife block (2) up.
2. Loosen nut (5)  
**Only on the side you are adjusting.**
3. Pull off the outer washer (6).
4. By means of a suitable tool the spring (1) is lifted so much upwards that the spring holder (3) can be moved to the next hole.
5. Put back washer (6) and nut (5) and fasten.
6. The same procedure on the other side.





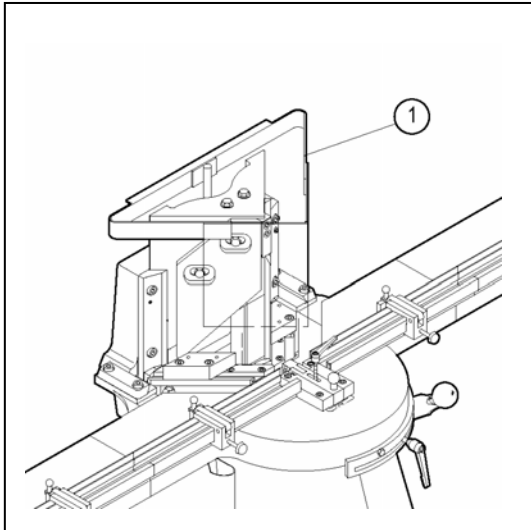
### ***Changing of Spare Parts***

If it is necessary to change worn out or destroyed parts we recommend that you proceed in the following way:

1. In the index of the spare parts list (see page K-1) it is shown in which specified list the spare part can be found.
2. The specified list in question is used when changing spare parts, as there are order number, dismounting and mounting succession of the spare part.
3. Example:  
Parts in the drive equipment must be changed:  
Figure K-1 shows that the parts are stated in figure K-4. Under Pos. 12,13, and 14, the parts necessary for the repair, the dismounting and mounting succession are shown.  
In the text part of the illustration the order number and spare part designation are stated.

**LOCATING FAULTS I-1**

<b><i>Faults</i></b>	<b><i>Cause</i></b>	<b><i>Repair</i></b>
Incorrect cuttings	Dull knives	Replace knives See page H-2
	Knives incorrectly installed	Check the installation See page H-2
Incorrect measures	The flip stops incorrectly adjusted	Correct the adjustment See page F-4
	Wrong dimension of end piece fitted on centre stop	
	Stop loose	Fasten stop
	Wrong chip breaker	
The basic position of the knife block is changed	The height stop is displaced	Correct the adjustment see page F-5
The moulding is not cut correctly	The cock-bead stops is not correct adjusted	Correct the adjustment see page F-2



### **Safety Devices**

According to current safety regulations **MORSØ-NF** must not be used without the following safety devices:

2. Safety Guard (1) for knife block

### **Safety Regulations**

On delivery of the machine to the consumer



guarantees that the **MORSØ-NF** notch cutting machine is constructed and fitted according the CEN/TC 142 (Safety Regulations for wood working machinery).

At start and use of the notch cutting machine **MORSØ-NF** the operator must pay attention to current national and international safety regulations.

If the operator does not observe the above mentioned regulations the factory does not guarantee for damages to the machine or the operator.

The **MORSØ** Notch Cutting Machines (NF and NEH) are designed and built as volume production machines. When used for prolonged periods, e.g. full production, the electro-hydraulic (NEH) is recommended. The manual machine (NF) can be considered for volume productions, bearing in mind the limitations of the operator. It is not recommended for one operator to constantly use the NF machine for long periods.

